

Proceedings of the 10th International DOCOMOMO Conference

The Challenge of Change

Dealing with the Legacy of the Modern Movement

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The Challenge of Change

Dealing with the Legacy of the Modern Movement

edited by:

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Modern Architecture is Durable: Using Change to Preserve

The legacy of the architecture of the Modern Movement left by twentieth-century architects offers historians and designers a platform of confrontation rich with contradictions. It is not necessary to dwell on the concept of 'monument,' which is directly associated with that of heritage, to come to this conclusion. Only a few decades after Riegl, although the statute of modern monument has become a focal point in the process of acknowledging the values of the architecture of modernity, the battle is not yet won. In other words, it is significant that the form of resistance adopted by the confrontation of the longevity of the Modern architectural thinking, borne out of its history, has first generated icons, and consequently frozen their mythical aura, transforming them into untouchable works of art.

There is no doubt that in this globalized society of the third millennium it will seem a bit awkward to talk about the actuality of this legacy, and even more problematic to think about preserving those architectural creations by respecting the designers' intentions and the physical characteristics of the buildings. We are facing a cultural revolution generated by the "paradox of the Modern Movement," which has opened the door to this much debated topic, both on theoretical and practical grounds, surrounding the principal issues of the conservation and restoration, refurbishment and transformation of architecture of the Modern Movement.

One should recall that the main objective of the majority of the designers of the Modern Movement was to build projects that were rational, functional, innovative and rich, with strong political and cultural identities—futuristic in all senses, and at all costs, and bathing in an optimistic faith in progress. Accordingly, the challenge their conservation generates is the confrontation between their status as heritage (as goods to pass on to future generations) in a society which has modified its own scale of values (for example, that of the post-colonial condition), and as a physical, economic and functional context of rapid transformation. To conserve means we should acknowledge those structural changes, rather than attempting to keep all Modern heritage in its original state.

Thus, our objective should be to create a grid of criteria taking into account all the significant characteristics of the architecture (e.g., respecting the character of the designer, his language, his relationship to time, materials, and the commitment to the collective memory), while remaining compatible with the conservation or restoration project. The challenge in this is to envision changes without betraying the legacy and spirit of the architecture of the twentieth century. It is clear that a thorough reflection on this complex process must bring together the architect and the restorer, as well as integrate the historic value of the building using both the material and historical elements.



In an essay on demolition, Francoise Choay demonstrated that the *raison d'être* of architecture lies in the practice of rehabilitation. Modern architects may not have thought about the demolition of their own urban landscape when they imagined a better society, but nevertheless, they were the first to confront the dilemma between continuity and change. It is clear that we have reached a certain level of consensus regarding preservation practices, which is most true in the field of antique architecture. Nevertheless, the number of Modern buildings that need to be preserved is even more important—and, in addition to the iconic and outstanding works, one must not forget the importance of the conserving those “imperfect fragments.”

Maristella Casciato
Chair DOCOMOMO International

Introduction

The legacy of the Modern Movement has gained legendary status, largely as a result of the increased recognition and appreciation of its masterworks visionary architectural concepts. Against the realities of everyday life, however, it has been difficult to maintain the architectural creations of the Modern Movement in such a way that they still reflect the original intentions of their designers. Knowing that many Modern architects sought new heights of functionality and changeability, the challenge for today is how to deal with their heritage in relation to its continuously changing context, including physical, economic and functional changes, as well as socio-cultural, political and scientific ones. Conservation in general – and the conservation of Modern architecture in particular – has assumed new challenges. Rather than attempting to return a Modern building to its presumed original state, our challenge is to revalue the essence of the manifold manifestations of Modern architecture and redefine its meanings in a rapidly changing world of digital revolution, worldwide mobility and environmental awareness.

The bi-annual, Tenth International DOCOMOMO Conference aims to provide its multidisciplinary participants from around the world with a variety of platforms for the exchange of ideas and experience. A large, international group of architects, historians, scholars, preservationists and other parties involved in the processes of preserving, renovating and transforming Modern buildings has been invited to investigate the paradox of the Modern monument, and to reflect on the manifold dilemmas of change and continuity.

The general theme of the Conference, 'The Challenge of Change', is elaborated through five sub-themes, around which are organised the presentations and discussions of the conference. The sub-theme *Change and continuity* addresses the tensions between change and continuity from a historical-theoretical perspective. *Restructuring cities and landscapes* focuses on the larger scale of city and landscape, while *Shifts in programme and flexibility* draws attention to the scale of the building or building complex, and questions limits of re-use and flexibility. The fourth sub-theme deals with education, and the fifth, *Progress, technology and sustainability*, considers specific issues of techniques and materials.

The three-day conference consists of a wide programme of lectures, debates, exhibitions, excursions and public evening lectures. An international call for papers, case studies and issues, issued in 2007, provided more than 400 entries, from which our Scientific Committee selected 55 speakers and 40 poster presenters from more than 25 countries. They will be presented and debated in about 20 various, thematic sessions. The Conference Proceedings, hold all 55 papers of the speakers and the 40 short papers of the poster presenters. They are the outcome of hard work by the authors, the session chairs and text editors. Students and teachers have also taken a special role in the Conference, through an international student workshop. In this, a large group of students from around the world has developed specific analyses and multidisciplinary design solutions for the Coolsingel area in the city centre of Rotterdam, which was re-built in the post-WWII era and is now in need for a new vision with regard to its debated monumental status.

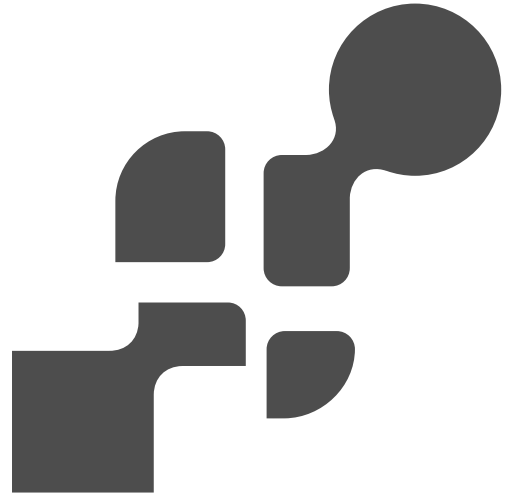


This Tenth International DOCOMOMO Conference marks the 20th anniversary of DOCOMOMO, and provides an excellent opportunity to evaluate the organisation's past and to set new goals for its future. For DOCOMOMO Netherlands, this year has been a particularly turbulent one. The fire that consumed the Faculty of Architecture building by Van den Broek & Bakema destroyed not only an important example of our Modern heritage, but also destroyed our office and complete archives. 2008 – and the years to come – are a *Challenge of Change* for our organization in many ways.

We are proud to present the Conference Proceedings for the first time at the conference itself. Reflections on specific debates and issues, on the keynote lectures and on the student workshop will be published in the DOCOMOMO Journal of September 2009.

With our best wishes for a challenging and productive conference,

Organising Committee 10th International DOCOMOMO Conference



Change and Continuity

Issues of Temporality

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

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Issues of Temporality - Paradoxes and Challenges of Modern Heritage

INTRODUCTION TO THE SESSION

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In conservation of modern heritage buildings, *temporality* appears related with the terms paradox, contradiction and even *aporia*. It may appear paradoxical to transfer the “modern” category to “antique” treatment: fixing the objective features of the components of modern heritage in its origin, converting the ephemeral into permanent; or considering the memory of modern architecture into a definite future based on progress.

Philosophically defined as the *quality of the state of being temporal* and opposite to eternity, its theoretical connotations echo with the concepts of authenticity and durability and its practical implications resonate in the object itself as heritage and in the quality of the interventions made upon them.

Authenticity has been the most constant criteria for the theory of restoration since its first beginnings. Matter and meaning contained in the object in its original state, are taken to restore back its soul, but also to give a genuine quality to the intervention and to legitimate conservation.

The Pavillion, being a paradigm of modern architecture, represents in its ephemeral condition, its experimentality and its challenge to durability; while also mirroring the possibilities for today's interventions on modern heritage.

Ordinary modern architecture projects are subject to constant intervention, only monuments seem to lie beyond time. Such as Brandi proposes that the process of creation of artwork ends in its recognition as such, the recognition of modern architecture pieces as heritage would close its possibilities of intervention. Works which have suffered alterations (by the same architect or not), incorporating new options, not even considered for the original, proposes one of the most interesting challenges.

Continuity lies in the consideration that modern architecture is already established in the expanded field of cultural heritage.

The challenges proposed by the issues of temporality lie at the core of the practice of conservation and the project of architecture, while being related to new demands for use, they are both cultural and practical.

Therefore, the cultural shift lies in considering the experience that all architecture entails as singular phenomena, that the processes of conservation, restoration and intervention not only attend formal, objectual content, but also fidelity to the original experience. The most practical changes lie in a permanently structured care and in the development of critical instruments able to emphasize the most definite aspects of the vital experience of the people within the building.

Being and Becoming of Modern Heritage

THE CHALLENGE OF PLANNED CONSERVATION

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Preserving Modern Heritage means dealing with buildings and built environments that are fragile. This characteristic which is well known to any scholar of MH preservation and at the core of DOCOMOMO's studies, has been often summarized as the so-called "modern monument paradox"¹.

On the one hand the problem seems to be the paradox of holding back the modernistic ideas of flexibility, functionality and transitoriness, on the other hand the main dilemma is about how to preserve a structure made of experimental details, new materials, short life-expectancy solutions². These paradoxes have been really challenging for conventional restoration practices and theories, because they have been stretched to their limits and even beyond. So far that the XX Century's buildings seem to be so different from other kinds of historic building that they need a different approach and "Modern Heritage Restoration" has been set as a quite distinct discipline, based on its own conservation practices.

A practical problems approach has often been singled out – wrongly in my opinion- as DOCOMOMO's main task. DOCOMOMO's history, instead, shows that the modern heritage conservation issues are much more complex and never reducible to simple problems of technique. In the same way as Modernism is not reducible to MoMo western masterpieces, so preservation issues have to be considered together with changing political, social and economic contexts, and far too often modern architecture and art are treated with a low level of awareness.

Indeed, "how" restoring rather than "why" restoring is still the more frequent question in this realm, often forgetting that there are no technical operations independent of aims³.

There is no doubt that a large part of the modernist architecture belongs to the domain of history, sometimes even before it has been listed by law. But the question still remains for any understanding of why a modern building is part of our Cultural Heritage.

The sense of belonging of an object to Cultural Heritage requires a (conscious) act of acknowledgment : that the object participates in the construction of our memory/history and therefore is part of our current identity. This acknowledgment implies that we accept a contemporary recognition that give to the object a new present⁴. From single buildings to landscape, passing through neighbourhoods and cities, these intangible cultural aspects of a material heritage take on specific symbolic values that contribute to collective memory⁵. It is the essence of the monument as memory: *mementum*, from its Latin root, or *Denkmal*, as sign (*mal*) of thinking (*denk*) in the German word. This value transcends any original intention⁶. Paraphrasing Cesare Brandi, our present acknowledgment is the methodological moment of a *historical object's* recognition.

Therefore it does not make sense for us to speculate if conservation contradicts original purposes. Within the contemporary meaning of a cultural object the conservation of a supposed original transitoriness is not a real issue, exactly as is an unintentional monumentality. On the other hand

the characteristics of memory/document, usually identified as integrity and authenticity⁷, often contradict each other within the relationship between image and substance and may induce functional friction because of the close relationship between form and function. Such frictions sometimes are a mere consequence of our contemporary difficulty and distrust to accept even a short distance between present requirements and the buildings performance. A heritage unrecognized and still "too new"—i.e. with a prevailing use value—cannot compensate for limited performance in a fulfilling historic presence.

Indeed (except for some architects, historians and docomomians) there persists a different mindset for approaching modern buildings as opposed to pre-modern ones. "This ties in with the question of a different conservation ethic, where it is suggested that the value, or 'significance' of Modern architecture may not reside so much in its materiality as in its intellectual achievement, and that it is 'essence' rather than 'substance' which should underpin any consideration of its future at time of change"⁸. The simple sum of elements replaces the complexity and the relationships among the materialized values. The reproduction of an "original" appearance is the logical consequence of such a separation of attributes; its task is preserving the historical memory removed⁹ from elsewhere.

"Nothing exists anymore but everything is like before, more true than natural, disengaged of every fragilities and imperfections that time put in stone and plaster. Just as having at the Louvre only copies to allow tourists a more easily identification of the authors"¹⁰. But despite all the available documentation the value of this searching must face up to the impossible definition of lost originals, because the reproduction is never a static imitation, (or)? even just in our memory¹¹.

Moving from these remarks we may approach a more complex reading of the material conservation issue, where the fragility of new experimental materials and pioneering techniques involves unforeseen theoretical problems.

The experimental nature of modern fabrics is most of the times the reason for a short durability, even shorter than expected by the designer himself. Even common and well-known modern materials, such as concrete, glass and steel present problems. Sometimes due to the high level of experimentation of innovative technological details, some other times due to a lack of knowledge of materials' behaviour and capacity for decay. Still after the WW II the reinforced concrete technology was vulnerable: the role of reinforcement cover thickness or water-cement ratio for the concrete structures durability was little understood.

Of course there is a doubtful value in a like-for-like repair of details that were technically flawed from their origin, and the answer might be to document and then correct the "mistake". The correction, in turn, highlights that any intervention to the fabric implies a decision between alterations to the original design or meticulous fake reproductions, that lead to the detriment the real original in favour of its pure image.

But when the decay arises as a consequence of many years of carelessness the mistake is not within the materials: it is just the result of unintentional consequence of a run-to-failure maintenance strategy that requires replacements and, also if someone considers the technical reproduction as a character of Modernism, a loss of details and historical evidence. Only preserving the original materials and through them the authenticity, the aura, is it possible to preserve the chance of their historical testimony¹². Even if our aim is preserving the intangible heritage of a symbolic value. The consequence of the division between the concept and the object (the idea of "work of art") just as materialization of a pure artistic value is forgetting that any documentary evidence retains the chance of different interpretations and keeps open the possibilities of deeper levels of analysis.

The lack of care and maintenance are bound to affect the image of the fabric. The issue of aging is crucial in modern society and therefore in our relationships with MH¹³. It is well-known that "Modern architecture generally needs to look new in order to look good"¹⁴. The newness value

seems to embody the significance of Modernism and anyone can appreciate the integrity and purity of the new, where “no education is needed to appreciate its smooth surfaces”¹⁵.

Moving from the viewpoint of tangible consistency of MH, to the impossible preservation of “Modern Monuments” without constant care/maintenance casts a new light on conventional conservation process. A shift from the aim of cure to the strategy of care is the challenge of Planned Conservation. A challenge that is actually cultural rather than technological.

The idea of Conservation based on maintenance performed on a permanent basis has been highlighted by the Charter of Venice since 1964. The early ideas of Preventive Conservation in the late 70’s were focused on the idea of controlling, and if possible avoiding, alterations to a state of equilibrium. It was still a defensive strategy, where the restoration’s main task was to carry out actions aimed to stop, or better to limit and slow the decay processes¹⁶.

Even in those years –as Stefano Della Torre noticed, “when it was fashionable to talk about ‘open work’, the approach to artefacts was nevertheless based on the idea that they were the perfect output of another moment”¹⁷.

But ‘rust never sleeps’ and the equilibrium is not normal: “Modern buildings are never simply discovered intact and authentic like Tutankhamen’s tomb; they have long since become something else”¹⁸.

The contemporary concept of Conservation –as Integrated Conservation and Planned Conservation¹⁹, embraces the notions of compatibility and sustainability, dynamic identities and co-evolution between building and users’ needs.

The substitution of the equilibrium metaphors with new metaphors, based on the idea of becoming, allows for a completely different definition of Conservation that –as Amedeo Bellini wrote- it is based on continuous change as condition of our existence. “To conserve, therefore, can mean only the research of a regulation of transformation which, in the consciousness of the uniqueness of every evidence and of the multiplicity of its documental meanings, will make maximum the permanency, will add its own sign, will give new interpretations without destruction”²⁰.

The roots of this shift, from metaphors of equilibrium -lead to thinking about the limits of development- to metaphors of co-evolution -lead to thinking about the development of limits-, these can be found in physics as well as in epistemology²¹. As an evident fact the epistemological context influenced also the CH realms, and terms like “diversity” and “dynamic identity” start to be common in UNESCO conventions and international charters, like Nara 1994, San Antonio 1996, Burra 1999.

Within this framework there are no contradictions between conservation practice as transformation management and the legacy of Modernity. For instance co-evolution and dynamic identity perfectly fit the modernistic ideas of functionality and flexibility. Also the sustainability gets more precise boundaries. At the building scale we should wonder if make sense worrying about environmental impact of MH, considering its small numbers compared with the entire building stock. But has it to be the building that is sustainable or its conservation process? If sustainability is minimizing the use of new resources and leaving for future generations the same possibilities to experience the legacy of modernity, then it is almost the same as the durability resulting from increases in maintenance²².

The Planned Conservation ask to review the role of the conservation project and its methods: from restoration as a single extraordinary event, that can take the building to a fixed state of perfection –the icon²³-, to conservation as continuous attention, as a process, as a set of activities directed to preserve the original fabric and to manage transformations²⁴.

Of course “we can all agree that regular maintenance is the optimum strategy for conservation of BCH, causing the least possible damage to its cultural significance”²⁵, but on the one hand the

maintenance is not heroic, it is quite invisible, it is a long-term investment and its funding is difficult, on the other hand we cannot trust anymore in maintenance as a frequent repetition of works that leave the building unchanged: too many creations of the Modern were left to decay or were destroyed as a result of a misguided maintenance.

The inspection and monitoring strategy feasibility has been testing in few European experiences, where the *Vlaanderen* and *Nederland Monumentenwacht* are the most successful. But large scale applications are still problematic. Italian and European research projects, like *SPRECOMAH*²⁶ network, confronting the different existing approaches, highlight the importance of reviewing the conservation process and involving local communities. The effectiveness of Planned Conservation strategy can be assured only by a coherent, coordinated and planned research activity²⁷. The quality of prevention, maintenance and restoration interventions –if and when needed– is the management of knowledge coming from trans-disciplinary and systemic studies on the building. Only from knowledge comes care. And indeed the effectiveness belongs also to the sphere of acknowledgment. The participatory mechanisms of stakeholders and citizens in the care is underlying, with respect both to the intangible cultural values and to the technical and socio-economic conditions of conserving activities. As Wessel De Jonge wrote: “the continued life of both the icon and the ordinary, as elements in an economically driven world, depends upon the shared recognition of their cultural and social value, as well as upon their continuing economic viability”²⁸.

NOTES

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Notes on the Unfinished Modern Monument: Clorindo Testa's Civic Center in Santa Rosa, La Pampa

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THE MODERN ENSEMBLE

Situated in the middle of Argentinian pampas, 600 kilometers to the south of Buenos Aires, Santa Rosa's Civic Center has been less discussed as an academic subject than any other contemporary great works by Testa such as the London Bank (1959) and the National Library (1962), even in South American architectural context.¹ However, as a Modern statement on architectural and urban scale whose development comprises discrete stages in time,² it seems an interesting case to review under the theme of Modern monument and temporality. Moreover, it is still an open subject for assessment.

The first studies made by Testa for La Pampa date from 1955, at the end of the Peronist period, when he participated in the former design competition for the new Civic Center. The unstable political circumstances delayed the contest, which was not resumed until 1956. Testa won the first prize and set a team with Boris Dabinovic, Augusto Gaido and Francisco Rossi. The Government House, the Bus Station and the covered central space were built between 1958 and 1963, closing the first and most relevant stage in the configuration of the complex area (Fig. 1).

Corbusian themes, especially those recently explored in Chandigarh's Capitol, played an important role in Testa's plan. There is a remarkable relationship between Secretariat and La Pampa's Government House. But these are also contrasting situations in scale and purpose. Le Corbusier should have refound in modern terms an ancient but very present culture, in an almost untouched territory. Testa's task was to give a civic core to an existing city, no matter how young it was compared to European or Asian ones, and how lost it could seem in the middle of the endless pampa. The proposed site was an expropriated land of nine hectares outside the urban center, a four blocks long rectangular area crossed by the roadway to Buenos Aires, which had to be realigned to make available space for the Civic Center. His comments on the site described it as a soft hill surrounded by an horizontal environment, where almost all the urban development extended to north and west directions, while to south and east prevailed the pampean landscape.³ Testa's approach incorporated that sense of the site as a frontier space between the open field and a city of which the most outstanding feature was the ubiquitous presence of the homogeneous square-lined grid of its urban plan.

Testa's Modern design, even though favoring a relaxed treatment of the open areas, is not a casual one. It relies on the insertion of discrete objects within the open space, that does not define a closed system of spaces but clearly structures the civic center designated area. Although not primarily concerned with contextual design sensibilities, in the sense that traditional distinctions between front and back are not conserved, it is related to site specific conditions. The pivotal piece is the 180 meters long building of the Government House (Fig. 2), designed as an autonomous slab set back from street alignments but geometrically coordinated with the square-lined grid of Santa Rosa's plan. It is constructed in exposed reinforced concrete, structured over four lines of

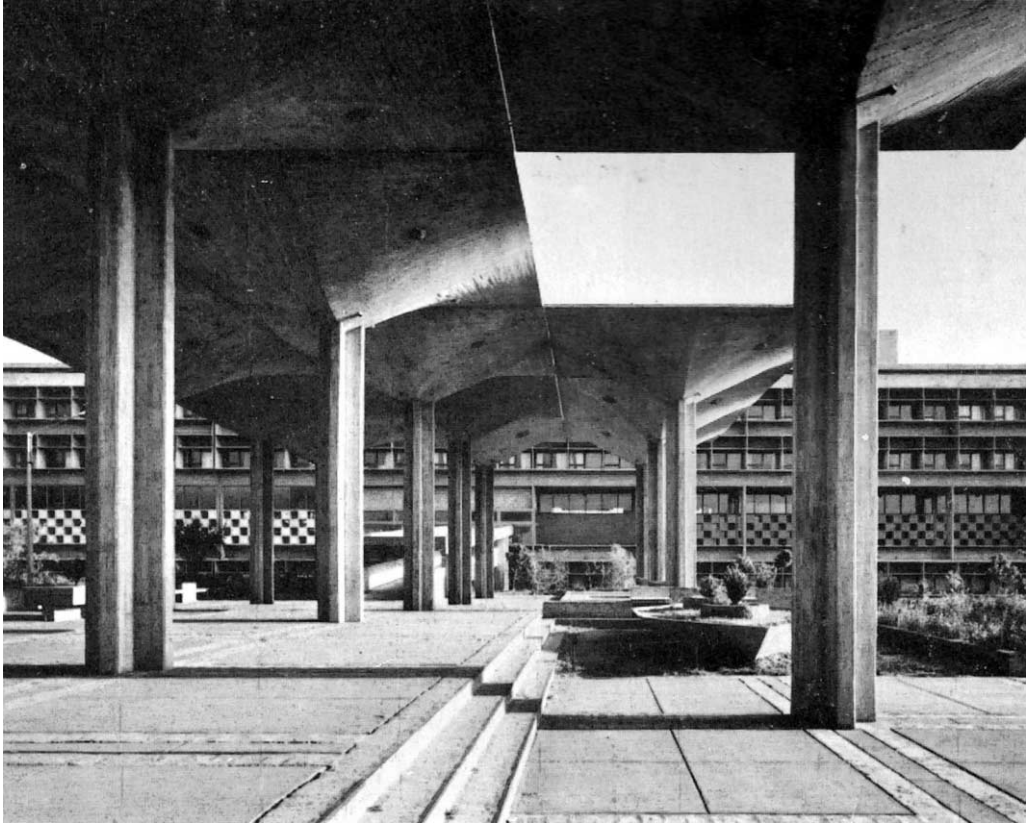


Figure 1. Covered Square and Government House, 1956-1963.

Source: Bayón & Gasparini, 1977, *Panorámica de la Arquitectura Latino-Americana*, Paris, Unesco, 19.

pillars standing along the longitudinal dimension of the slab, the exterior ones being coincident with façade's surface. Partly inlaid against the sloping site, this is not a pilotis-raised slab. Pedestrian movement is not encouraged at the ground level, but directed to the elevated main floor by means of two access ramps. There, the massive presence of the building is relieved by a more permeable configuration, that interlocks a continuous peripheral gallery with the public space outside, drawing enclosed rooms back to the structure central strip. The large façade's theme is developed as a concrete grid generating a thick, carved surface, whose rich texture is used as a device to control light but also to express programmatic or spatial specific situations, like the visual expansion of the access floor, the ceremonial governor's rooms or double-height spaces.

This large urban object which faces the axis of San Martín Avenue, the city's main street, therefore is virtually prolonged into the Civic Center area. But what is placed at the culmination of that urban axis is not a building, but a void: the half-covered civic square, which is somehow anticipated by the curved and perforated wall named "gate of the sun", as in the ancient pre-Columbian cultures. The concrete covering of paraboloid shells, at the center of the whole site, asserts the presence of a public precinct, without rigidly defining it as a circumscribed area. Those Candela like concrete umbrellas,⁴ standing over cross-shaped concrete pillars, are a tentative limit between the Civic Center's complementary sides: one artificial, constructed and paved, including parking areas and buildings, and the other one natural, preserving the land's green cover, where only the Government House scarcely penetrates. The slab and the central covering, at right angles, settle a corner that both organizes public space and provides a proper conclusion for San Martín



Figure 2. Government House, 1956-1963.

Source: Bayón & Gasparini, 1977, *Panorámica de la Arquitectura Latino-Americana*, París, Unesco, 18.

Avenue. The third piece to close that scheme is the Bus Station (Fig. 3), disposed along the north face of the site, parallel to the Government House slab. Today enlarged, it was originally a permeable structure, with six boarding spaces and a variety of service areas placed under an unitary concrete covering obtained by the same structural system used at the square.

About ten years later, Testa conceived another building for the Civic Center. Despite replacing the Government House's mono block solution in favor of a more articulated and dynamic volumetric distribution, the Legislature Building makes use of the same architectural repertoire and structural devices, such as the rough-concrete grid. Placed closely to the covered square, the new building restructured Civic Center's north face, but the east side of the area, almost half of the whole site, remained almost untouched, except for the inclusion of another institutional building not designed by Testa.



Figure 3. Bus Station, 1956-1963.

Source: Bayón & Gasparini, 1977, *Panorámica de la Arquitectura Latino-Americana*, París, Unesco, 19.

LA PAMPA INTERROTA

At that point, La Pampa could exemplify one of the Modern answers to the issues of monumentality raised by Giedion and others at the forties,⁵ like former Latin American major achievements as the Ministry of Education and Health in Rio de Janeiro, or the University Cities of Mexico and Caracas. Instead of the "historicist pseudo monumental" schemes that Giedion deployed, it was in fact Modern and monumental. Maybe "naked and rough, but true", as Giedion would say about the big factories and market halls he considered the real monuments of nineteenth century. Current programmes, as the Bus Station, were not concealed, and other current Modern typologies, like the linear block, were used to shelter special and representative ones, as in the Government House. The Modern urban statement implied conversation with existing situation, but not submission to it.

It could be a happy end, but La Pampa's story doesn't actually end here. By 1980 a second competition was launched for the inclusion of a Cultural Center and a Courthouse in the site, besides the enlargement of both Government House and Bus Station. Testa's proposal was selected in first place, but never executed (Fig. 4). The central feature of that scheme, the Cultural Center, opposes to the sober unity of the Government House with a fragmentary design based on an intricate sequence of volumes placed over a diagonal axis growing from the southeast angle of the site. The pedestrian movement is emphasized, and materialized by continuous galleries that connect the new buildings to the existing ones. Those structures delimitate the otherwise open public spaces, redefining them as regular voids. Such strategies of a "city of collision", perhaps learned from Colin Rowe's *collage* city idea, reflected the general interest of the 1980s in urban fabric, such as Nollí's Roma and hybrid solutions.

La Pampa's Civic Center was never really completed as an urban space, since the occupation of the east side still remains an open design question. Instead of that huge intervention foreseen in the beginning of the eighties, adding 20.000 square meters, in 2006 Testa finally inserted a small new building in the site. The little library for the Legislature, designed with Miguel García, although so cleverly fitted in at that building's domain, shows a contrasting appearance respecting to the existing ones, in spite of the same author. But updated or enlarged, the existing build-

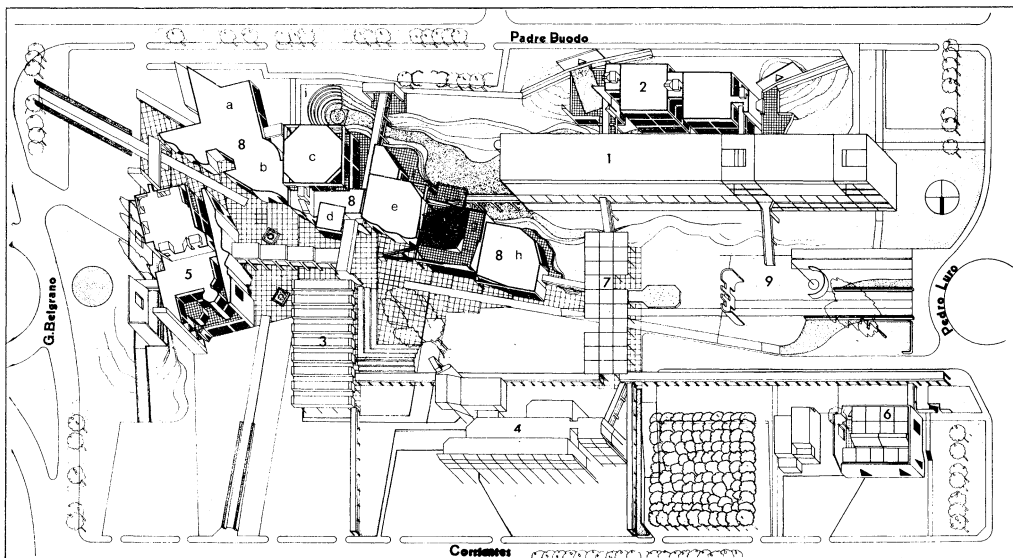


Figure 4. Civic Center, Competition Entry, 1980.
Source: Testa, C. 1983, *Summa* 183/184, 26.

ings are in full use. In some way, it is still a work in progress, and due to its unfinished condition, it can be suggested that La Pampa's case has been, historically, an opportunity to prove the many possibilities of change and continuity, as a living piece of the never completed Modern project installed in the far south.

THE UNFINISHED CONDITION

Authors like Vidler and Purini have already stressed the uncompleted condition inherent to the modern industrial city, unable to be experienced as unity, and even the very Modern city idea as an unfinished task, which could never be realized unless through a number of separated fragments related to a historical and heroic but also deferred project.⁶ There is something disturbing about that La Pampa *interrota* of the eighties. Apparently, it means a retreat from the Modern Movement, maybe as injurious as that Reyner Banham once blamed the Italian Neoliberty for in 1959.⁷ Considering Modern architecture in the narrowest sense, the one identified with urban design strategies and architectural repertory originated in the Modern avantgarde of the beginning of the century, Testa gave up building such a Modern city in La Pampa in the 1980s.

It also exposes the risky nature of the work in progress, since things will not necessarily change for better. Testa's first design was a better design, not just because it was Modern and universal. It was less scenographic and more effective in structuring a huge and loosely defined area with a restricted number of constructed elements. Although not primarily compromised by contextualist discourses or regional sensibilities, it was perfectly fitted in place, and materialized through proper technology. It proved resilient in time.

Nevertheless, Testa's attitude to the past before 1980 was analogous to the one he professed in the fifties, accepting its own temporality: in spite of its forms, it echoed futurist refrain "each generation one house", as any active design attitude in which the past does not prevail over the present.

Conceptually, the unfinished condition of the Modern monument sets an aporia, as a logical impasse, or an inevitable contradiction that inhabits that narrative form. The acceptance of temporality supposes a dynamic sense of time that refuses the monument the basic status of permanence, of something that shall stand against entropy, as Choay so beautifully pointed out.⁸ Within the Modern Movement, the forties debate in search of a new monumentality invoked that time dimension, even though at that moment it was surpassed by other issues. The contribution by Gropius clearly mentioned the old monument as the symbol for a static conception of the world then "overruled by a new one of relativity through changing energies", and he believed that the equivalent for past monumental expression was then being developed by "a new pattern characterized by flexibility for continuous growth and change", not as the "frozen music of static symbols", but as a quality of the physical environment "in process of continuous transformation."⁹

Acknowledging that the unfinished condition as somehow constitutive to Modern tradition may provide a key to rework the paradoxes of the Modern monument. It holds a critical view over the primarily conservative conception of the historical monument, as formulated in Venice Charter, and requires a more active, architectonic grip of the theme.¹⁰ La Pampa's case strongly suggests that such an aporia, which can not be solved at the discursive level, shall be recovered at design level. Whatever could stand between total oblivion and the open air museum, can not be found at the Charter's normative view, but must be investigated as a manifold architectural problem.

NOTES

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Historic Present: the Modern Movement in Situation

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The framework of temporality proposed to our panel presents a challenge that is both conceptual and empirical. At the center of this challenge lies the fundamental distinction between the Modern Movement and the works it created. A movement is ephemeral. Its effects, however, resonate for a longer time. Less concerned with the present and the past, the movement aspired to the future, an idealized state of becoming. Ultimately, the whole environment would be modernized. The future would achieve its teleological, final goal.

We know this is not how the story ends. Instead, modernism yielded to the present, an everlasting present that idealizes the past and fears the future. The currency of the movement expired, while its material testimonies persist in a different symbolic economy. In other words, modern buildings and sites are still present among us, but the historic situation in which they were conceived is not. The challenge of change is a symptom of our present time. Self-confidence and determination have moved from the horizon of the future to the horizon of the past. This sentiment suggests we have died as subscribers to modernism. Paradoxically, we are still alive.

This situation parallels the notion of “historic present” suggested by architect Lina Bo Bardi. She used it to describe her works of conservation and, more broadly, the meaning of architecture in time. She contested the idea of progress and the historic categorization of architecture. Older buildings were still present buildings. She was idealistic, but never utopian. Her viewpoint provides good examples of how critical thinking can meet meaningful design work in face of heritage conservation. It also helps us explore the debate about how the contemporary conception of time relates to our assessment of heritage.

Bo Bardi suggested one of the main problems of the West lies in its definition of linear time.¹ Architecture, to her, did not define time, it existed in it. She believed the meaning of architecture could not be solely defined by its material and visual qualities; it was deeply related to the social processes that made it possible. In the end of her life, she stated it didn’t matter whether architecture was modern or not. What truly mattered was that architecture should be useful to its inhabitants.

This is a sign of critical depth but also a sign of her experience in time. Her upbringing in Rome in the 1920s and 1930s exposed her to Mussolini’s renovation projects, a strong historical and conservationist education and the emergence of the rationalist architectural debate. Her career in Milan during World War II, exposed her to the role tradition played in the modernization of Italian architecture and design. At the outset of the European Reconstruction, she moved to Brazil to encounter modernism in full steam, at least in the south of the country. She traveled beyond those boundaries, finding a lively but fragile popular, everyday culture at odds with modernization. She insisted this genuine, spontaneous reality should be the main reference to Brazilian architecture. She was not interested in aesthetics or in nationalism. She knew too well where those ideas had ended up in Italy. She was interested in the here and now.



Figure 1. Added staircase to the historic União Estate at the Museum of Popular Art, designed by Lina Bo Bardi in Salvador, BA, Brazil in 1963.
Photo: author, 2004.



Figure 2. Theater foyer and exposed concrete volumes for backstage support inside the historic steel-drum factory at SESC Pompéia Cultural and Leisure Center designed by Lina Bo Bardi's team in São Paulo, SP, Brazil between 1977 and 1982.
Photo: author, 2006.

Even though Bo Bardi used the term “historic present” after the 1980s, its meaning was already present in the works she developed in the early 1960s. This was a period of national modernization, which is best known for the construction of the new capital, Brasília. She was, however, involved in a different project. She joined an avant-garde group in Salvador, former colonial capital of the northeastern state of Bahia. She saw modernization as a process of cultural socialization. Bo Bardi created the Museum of Popular Art, a center for study and production of what she considered to be authentic Brazilian design. She believed the documentation of the know-how of popular artifacts was the stepping stone for developing an industrial production suited to Brazilian resources and realities.

She chose to work within a colonial building on the bay of Salvador. Not only did her ideas about design cause conflict among modernist architects, but her approach to the historic building generated resistance from the local experts in preservation. She suggested the estate could only be partly restored because there was not enough supporting documentation for some parts and she refused to reconstruct the demolished parts where insufficient information existed. She won the battle, maintaining significant elements of the building, eliminating recent additions, and adding new features to accommodate new uses and meanings.

The exhibition hall was completed in 1963, just before the Brazilian military coup interrupted her activities in the city. It was also one year before the writing of the Venice Charter, whose preservation principles were in tune with her ideas. The museum maintained the overall external appearance of the ensemble and introduced a few elements that updated the architecture and emphasised its urban presence, including the creation of a plaza for popular events and an internal staircase detailed according to the construction of ox carts.

For over a decade, Bo Bardi did not produce much work, disappointed with the country's political situation and also the direction taken by international architectural debates. She didn't return to conservation until 1977, when she started to design a large adaptive reuse project for an early 20-century factory in São Paulo. Her previous experiences in Salvador enabled her to secure the SESC project. She maintained the Hennebique structure and masonry enclosure of the factory as testimonies of the city's industrialization. She removed secondary elements and added new ones in order to accommodate the programme and encourage the existing informal occupation of the building.

Not only was this project innovative regarding conservation, it was also a cornerstone of architecture resisting postmodernist historicism in Brazil. It consolidated many of Bo Bardi's ideas about architecture that matured over twenty years. She especially believed that more than preserve physical and visual aspects of buildings, architecture should promote existing social and environmental conditions.

After the conclusion of SESC cultural and leisure center in 1986 and until she passed away in 1992, Bo Bardi had the opportunity to work in several other conservation projects. They included the reuse of modern and colonial buildings. In all these cases, the notion of "historic present" established the horizon of her decisions for juxtaposing different frameworks of temporality and their material, cultural and social manifestations.

Our visual presentation continues with other examples of her work nurtured by that notion of "historic present." They offer the counterpoint for introducing theoretical considerations about the contemporary definition of time, its relation to the diffusion of heritage and to the phenomenon of conservation. Her approach overlaps with the critique of modern temporality, which implies the co-presence of different dimensions of time.

One of the important contributions of contemporary philosophy regards the reevaluation of progressive notions of time and history that grounded modern reason and, in particular the hopes of the Modern Movement. This analysis broke away from the belief that humanity advances according to an abstract, homogeneous definition of time and toward a purposeful goal.

For example, Benjamin's "here-and-now" [Jetztzeit] opposes the positivistic definition of time in his revision of history.² To Gadamer, the dimensions of time don't have intrinsic qualities. Their meaning is attributed through lived experience.³ Heidegger presents temporality [Zeitlichkeit]⁴ as a fundamental dimension of being in the world instead of a sequence of events. Our existence comprises simultaneously what we are, our past and our possibilities of becoming. Merleau-Ponty contested that temporality is not serial and consequential, but open to possibilities and permeated by experience. He defined it as a "field of presence" with past and future as its horizons.⁵

Other theorists have expanded these philosophical definitions toward cultural phenomena. For example, historian François Hartog developed the term mode of historicity [régime d'historicité]⁶ to demonstrate the change in our relationship with time in the last three decades. According to him, the postwar crisis did not exhaust modern temporality. Reconstruction and Cold War modernization embraced progress once again, significantly unfolding the Modern Movement outside of Western Europe. As modernization moved its promise toward a larger territory, the future gradually occupied less space in comparison to the present. The defeat of progress only became clearer in the 1980s with the fall of the Berlin Wall.

It is no coincidence that the persistence of the present has had an important role in the development of the market economy, new technologies and the consumer society. As the horizon of the future yields to the present, our experience of reality – events, artifacts and even people – becomes obsolete. Simultaneously, contemporary Western culture becomes more and more concerned with memory and heritage. This preoccupation grew to include the natural environment, challenging even further our ability to believe modernization has any redeeming effect. Given this context, it is no surprise globalization produced sustainability as its compensatory counterpart.



Figure 3. Exhibition hall with reflecting pool inside the historic steel-drum factory at SESC Pompéia Cultural and Leisure Center designed by Lina Bo Bardi's team in São Paulo, SP, Brazil between 1977 and 1982.
Photo by the author, 2006.



Figure 4. Housing and Coaty Restaurant on Misericórdia Hill, one of the projects designed by Lina Bo Bardi's team for the recovery of the historic center of Salvador, BA, Brazil in 1989.
Photo by the author, 2004.

The future no longer holds a promise; it holds a threat. The dilemma of conservation is the flipside of a process of modernization that lost its temporal compass. We live in the present, protecting our past in order to preserve the possibility of a future. Heritage presents itself as an invitation to a collective evaluation of our own time. It is both a symptom of and a witness to perpetual present. As Hartog suggests, "since the past no longer carries a direct lesson to the present, the question becomes to transform it, or at least part of it, into a relevant past."⁷

This approach brings us back to our challenge: while most modernist sites may be stable enough to endure physically, our experience of them changes and their historic meaning becomes more precarious. Not only was modernism conceived within the horizon of progressive temporality, it also needed to deny the past in order to constitute an ideal future. This conception has lost its currency in the contemporary world. Moreover, it is at odds with the one attributed to architecture today.

The Modern Movement did not aspire to age, only to mature. Its historic role to "glorify the dynamic spirit of the Machine Age,"⁸ as the DCOMOMO mission statement suggests, was to overcome time with the leverage of a revolutionary aesthetics. However, one aspect was forgotten in this process. While the movement established itself as a transformative agent of time, it excluded the possibility of being dialectically transformed by it. As soon as the future became the present, it also made the past present, contradicting its idealized, original purpose.

This is not a new perception. We know, as the generations who critically followed the movement did, that it had its limitations. As modern buildings kept their promise, they became historically obsolete in a teleological sense. Part of the challenge we face is that modernism aspired to create monuments but not memory. It ultimately aspired to exist in space but outside of time. The monuments of the future contradictorily have become heritage. Their future is here. They have become documents in another temporality. But can they survive new experiences and new meanings?

Official documents regarding the rules of conservation have also changed. The 1931 Athens Charter established only “ancient monuments”⁹ and their surroundings as heritage sites. One could not dream of building a new society and preserving old buildings at the same time. The 1965 Venice Charter revised that modernist document, establishing that the concept of historic monument did not apply “only to great works of art but also to more modest works of the past which have acquired cultural significance with the passing of time.”¹⁰ This definition restrained the action of urban renewal of historic cities, by preserving the ensemble of façades and triggering the process of urban museumification, which gradually spread from Europe to the rest of the world.

More recently, DOCOMOMO produced the 1990 Eindhoven Statement, which contributed to launch the 2001 joint Programme on Modern Heritage with UNESCO and ICOMOS. Their mission is to “oppose destruction and disfigurement of significant [modernist] works” and “bring the [historic] significance of the Modern Movement to the attention of the public.”¹¹ This document carries the sign of its time. It proposes a proactive approach to the preservation of material heritage also it seems to suggest a reactive assessment of the immaterial legacy of the movement itself. We no longer hold the values and self-confidence the movement embraced to propel the present toward the future. Can we oversee and control any activity that might affect the material past, especially a specific, modern past? Or are we left with the consolation of façades?

Perhaps we should pay more attention to the generation of designers who literally inherited the movement and its discontents. They were caught between two modes of temporality, that of the teleological past and that of the perpetual present. They were unable to completely do away with that immediate legacy and no longer believed in the promise of progress. Their work might shed light into the values we have inherited for the conservation of buildings and sites, particularly the ones they and their predecessors have designed. An endeavor of this type is intellectually and empirically risky. We are inevitably immersed in the experience and feelings of our own time. Our dominant horizon is the present.

Lina Bo Bardi was part of that intermediary generation. Despite enormous disappointment, her choice was to resist the formalist and nostalgic temptation that came with waning promises of progress and social emancipation. Even though her works of conservation have a rather strong physical and visual presence, they went beyond the consolation of the façades. She preserved the material testimonies that once embodied ideas about the future, attributing new uses and frameworks of perception that encouraged social response.

Her last works summarize her effort to counter the avalanche of cultural consumption of our own time. She embraced their process of transformation and becoming, resisting if not altering the domain of our perpetual present. She insisted history should transform monuments of time into documents. And as such, they should remain open to new interpretations.

NOTES

- 1 Marcelo Ferraz (org.), Lina Bo Bardi, S. Paulo: ILBPMB, 1994, p.134.
- 2 Walter Benjamin, ‘Theses on the Philosophy of History’, in Neil Levi, Michael Rothberg (ed.), *The Holocaust : theoretical readings*. New Brunswick: Rutgers UPress, 2003.
- 3 Hans-Georg Gadamer. *História e Historicidade*. Lisboa: Gradiva, 1988.
- 4 Martin Heidegger, *Being and Time*. Albany: SUNY Press, 1996.
- 5 Maurice Merleau-Ponty, *A fenomenologia da percepção*. S. Paulo: Martins Fontes, 1992.
- 6 François Hartog, “Tempo e patrimônio”, *Belo Horizonte: Varia História*, jul/dez.2006, vol.22, n.35, pp.261-273.
- 7 Idem.
- 8 www.archi.fr/DOCOMOMO/eindhoven_statement.htm

- 9 www.icomos.org/athens_charter.html
- 10 www.international.icomos.org/charters/venice_e.htm
- 11 www.archi.fr/DOCOMOMO/eindhoven_statement.htm

Architecture and Temporality in Conservation Theory: The Modern Movement and the Restoration Attitude in Cesare Brandi

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[...] although recognition [of the work of art] must occur in time and time again in the individual consciousness, the very moment it does occur, it also belongs to universal consciousness.¹

BRANDI'S AESTHETICS

Brandi's 'Theory of Restoration' considers two instances: the aesthetic and the historical. For aesthetic reasons Modern Architecture from his viewpoint did not qualify as art to be restored and included in the historically significant city. If Brandi's postulates were right; how could society deal with this heritage?

The emphasis on the visual is constant in Brandi's aesthetics. According to Brandi, architecture does not have an object as painting does; favouring a need is its condition to be art, since it gives cognitive substance to the image.² Rationalist architecture was limited to look for the functional solution having the form as a result.³ The element that connects the functional schema and the conformation of architecture is what Brandi called 'ornato,' meaning the transit from the scheme to the form, overcoming the simple tectonic with figurativeness: art as such. This marks a significant difference in Modern Architecture, since its attitude was to address needs and these would have suggested the best form.⁴

In 'Eliante o della architettura,' Brandi described a rejection to the figurative tradition that pushed Functionalism to become theory and praxis at the same time.⁵ On the other hand his opposition against Organic Architecture was for the putting in evidence the issue of conformation of architecture and not architecture itself.⁶ The issue of the insertion of new Modern Architecture in the old city was considered problematic by him not because of the difference in styles or materials but in the dissimilar spatiality proposed. For him, a modern building "demands the void around itself."⁷ Thus he defined the insertion of modern buildings in the old city as absurd since that means "to produce architectural cancer."⁸ The problem was for him the inclusion done with the intention to be artistic within old contexts, intending to continue the work of art.⁹

RESTORATION AS TEMPORAL ATTITUDE

Brandi's theory is proposed not simply as a way to conserve architecture, but as a peculiar way of identifying it as art.¹⁰ His concept links two times: the act of formulation of the work of art by the author; and the moment of recognition of such a work by a different consciousness.¹¹ "[...]

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although recognition must occur in time, and time again in the individual consciousness, the very moment it does occur, it also belongs to universal consciousness.¹² This can be interpreted as evidence of social, historical and mnemonic values. For Brandi the process of creation of a work of art was closed with its recognition as such.¹³ However, could it be proposed that restoration has to finish an incomplete work? Moreover in architecture, when considered as a process, sometimes creation last long periods or in truth it never ends.

When Brandi discussed the problem of the oneness of the work of art he deduced that: "[...] a work of art [...] will continue to exist as a potential whole in each of its fragments."¹⁴ Brandi conceived the work of art as a historic monument independent from its aesthetic values. The issue of memory in historical form was considered by Brandi only after aesthetics. The eventual conflict between historic and aesthetic instances has to be resolved by reconciliation.

For Brandi "[t]he interval between when the work was created and the historical present [...] is composed of the many historical 'presents' that have become past."¹⁵ Historicity in Brandi is related to the distance that separates the receptor from the creator of the work of art. He made clear the moments of the work of art to be inserted into historical time, namely creation, historical interval and recognition.¹⁶ The historical case only takes precedence when the work of art has lost any possibility to be recognised.

It is surprising though, that – discussing about modern buildings replacing another in a monumental context – he appealed to reasons alien to his theory. He said "[I]f the building is felt to qualify as architecture (that is, as art), given the contrasting spatial qualities that personify modern architecture, the insertion of 'truly' modern architecture in an ancient context is unacceptable."¹⁷ With this statement, he seems to condemn the historical city to remain unchanged. Brandi established that monuments – if they are architecture and consequently works of art – have to receive the same application of restoration principles. Nevertheless, the values to be found in architecture can be other than the aesthetic ones. He generically found them in the historical instance of restoration.

Brandi found some specific considerations to restore monuments as works of art in relation with a place. A place gives spatial nature to the architectural work of art. The value attributed to such an environment is twofold: it can be attached to the work of architecture as such and it can be attributed additionally to the environment that contains it.¹⁸ Brandi suggested as necessary the "condition of inalienability" for a monument with an environment that has significantly changed and the possibility to replicate some elements that have been lost in the environment in order to regain a lost or compromised integrity.¹⁹

SOME MODERN PLACES TO EXIST

How Brandi conceived architecture as a work of art has been outlined. His concepts about art in general, and architecture in particular, were originated in a critical time, when the avant-gardes were transforming the concept of art. The Modern Movement was not an exception. Being a critic of art, he was more at home with the evolution of the visual arts: painting and sculpture. He denied that pure architectural form without ornament could have dignity as form.²⁰ Possibly, his historical distance was not enough for him to appreciate as valid Modern Architecture in its formal expression and signification.

For Brandi the work of art has a unique value; however, other values that architecture supports are less emphatically considered. Ingarden's theories prove to complete Brandi's ones in this juncture. For the former other concretisations – as mnemonic, historical and identity values – can occur supported by the same work of architecture.²¹ Consequently, as time passes, the historical, social and cultural conditions could have changed and therefore architecture's 'equation' has to be reformulated constantly to find the possible solution to the evolving system. These conditions

imposed in a first moment on architecture by society, are sought after in the form of values linked to collective memories. Ingarden considered the possibility of having triggered collective intentionalities, supported on architecture.²² The inclusion of these values do not devalue the work of art but do impose significant issues on its conservation.

Ingarden suggested a changing identity for the objects enduring in time, as architecture could be considered; thus, the consciousness about it can be diverse according to the attitude of the collectivity.²³ As might be deduced, the ambition of conservation to be truthful depends on the characteristics with which Modern Architecture is perceived in the consciousness. Considering entities formed as the result of the collection of other primordial ones is correlated to the analysis of social objects, taking architecture as monument vis-à-vis the notions of heritage and cultural identity.²⁴ The paradigmatic case of Modern Architecture arises with the taking into consideration of memory in architectural heritage; numerous buildings should be protected by society as support of collective values even if their aesthetic quality is disputed. There is hope in Ricoeur's words:

"Each new building is inscribed in urban space like a narrative within a setting of intertextuality. And narrativity impregnates the architectural act even more directly insofar as it is determined by a relationship to an established tradition wherein it takes the risk of alternating innovation and repetition. It is on the scale of urbanism that we best catch sight of the work of time in space. A city brings together in the same space different ages, offering our gaze a sedimented history of tastes and cultural forms. The city gives itself as both to be seen and to be read. In it, narrated time and inhabited space are more closely associated than they are in an isolated building."²⁵

For Brandi restorers are critics and not artists in the first instance; when extensions or additions are considered for existing buildings this can be problematic.²⁶ Many projects of the Modern Movement were originated as transformations of significant contexts. The historical city is to continue alive with the careful inclusion of works by new artists and architects. On the other hand, Modern Architecture has been criticised for its alienation of the human being, both the individual and in the collective. Though, the redevelopment of some modern contexts to enliven them has proved successful.

Brandi declared that time is a straight line and not a zigzag and stated that the consciousness of the present time is only possible by being aware of the past. According to his ideas Modern Architecture had precluded itself from the way of fusing the old with the new.²⁷ However one can argue if doing so would imply to renounce engagement with the present time, the particular culture, the nature and the social merging into places for humans to exist. The contemporary human being, it is true, sometimes does not find its place in the alienating context inherited from Modern Architecture; nevertheless the alternative cannot be the destruction of the support of significant values. The Modern Movement may have originated works of art or not, but it embodies and supports these special values for society whose conservation has to be considered. The improvement of Brandi's theory with Ingarden's concepts offers the opportunity to understand the modern architectural place with a more comprehensive view.

NOTES

- 1 Cesare Brandi et al., *Theory of Restoration*, 186 p. vols. (Roma: Istituto Centrale per il Restauro, 2005) p. 49.
- 2 Cesare Brandi, *Elicona. Iii-Iv. Arcadio O Della Scultura. Eliante O Dell'architettura* (Torino: Giulio Einaudi editore, 1956) pp. 119, 21-3.
- 3 Ibid. p. 191.
- 4 Cfr. Roman Ingarden, *Ontology of the Work of Art: The Musical Work, the Picture, the Architectural Work, the Film*, trans. Raymond Meyer and John T Goldthwait, vol. 12, *Series in Continental Thought* (Athens, Ohio: Ohio University Press, 1989) p. 291.
- 5 Brandi, *Elicona. Iii-Iv. Arcadio O Della Scultura. Eliante O Dell'architettura* p. 105.

- 6 Ibid. p. 115.
- 7 Ibid. pp. 248-51. Our translation
- 8 Ibid. p. 252. Our translation
- 9 *Enciclopedia Universale Dell'arte*, vol. XI (Venezia-Roma: 1963) p. 37.
- 10 Brandi et al., *Theory of Restoration* p. 48.
- 11 Cesare Brandi, *Il Restauro. Teoria E Pratica. 1939-1986*, Cordaro, Michele ed. (Roma: Editori Riuniti, 2005) p. 17.
- 12 Brandi et al., *Theory of Restoration* p. 49.
- 13 Brandi, *Il Restauro. Teoria E Pratica. 1939-1986* p. 11.
- 14 Brandi et al., *Theory of Restoration* p. 57.
- 15 Ibid. p. 49.
- 16 Ibid. pp. 63-4.
- 17 Ibid. p. 83. Emphasis in the original
- 18 Ibid. p. 95.
- 19 Ibid.
- 20 Brandi, *Elicona. Iii-iv. Arcadio O Della Scultura. Eliante O Dell'architettura* p. 191.
- 21 Ingarden, *Ontology of the Work of Art: The Musical Work, the Picture, the Architectural Work, the Film* p. 291.
- 22 Ibid. p. 291
- 23 Roman Ingarden, *Time and Modes of Being* (Springfield, Illinois: Thomas, 1964) p. 145.
- 24 Cfr. John R. Searle, *The Construction of Social Reality* (London: Allen Lane, 1995), Amie L. Thomasson, "Ingarden and the Ontology of Cultural Objects," in *Existence, Culture, and Persons: The Ontology of Roman Ingarden*, ed. Arkadius Chrudzimski (Frankfurt: Ontos, 2005).
- 25 Paul. Ricoeur, *Memory, History, Forgetting* (Chicago: University of Chicago Press, 2004). pp. 150-1
- 26 Paolo D'Angelo, *Cesare Brandi Critica D'arte E Filosofia*, 149 p. vols. (Macerata: Quodlibet, 2006) pp. 135-6. Our translation.
- 27 Brandi, *Elicona. Iii-iv. Arcadio O Della Scultura. Eliante O Dell'architettura*. p. 255

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Metsäpaviljonski, Form Follows Wood

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Nowadays, the emphasis in the design of exposition pavilions is mainly full of pseudo-technical or rhetorical ideas of progress. Nevertheless most of them do not communicate a vision. They show a lack of spatial qualities and continuity with the built environment. In general, there is no common conservation agenda to adapt or reuse exemplary Modern pavilions. Some emblematic cases are haunted icons, a consequence of undocumented, incorrect or simply fake reconstruction, whilst others are victims of neglect and degradation. Nevertheless, what can we rediscover by reviving or reconstructing Modern Movement Exposition pavilions? During the 1930s, pavilions were not only visionary and experimental manifestations of living systems but were also temporary and fast-built showrooms disseminating a cultural or ideological message.

By exploring the work of the Finnish architect Alvar Aalto, we find that all his Modern timber exposition pavilions have been rapidly dismantled. What kind of continuity can we generate by rebuilding Aaltian pavilions? How did his sense of primitiveness become a manifesto for the use of the rudimentary within Modern Movement Architecture? In order to respond to these queries, we must search for the idea of Aalto's space-frame as a '(...) *fantastic structure of free forms; a building with an inner façade*'. This pavilion-type becomes an organism of assemblage.

Metsäpaviljonski or the Forest Pavilion, built in Lapua in 1938, was characterised by a sense of impermanency of the framework, fleetingness of the event, and primitiveness in the use of wood. The first condition refers to durability of the structure, the second implies a transient condition of use, and the third contains the essential material. Despite it being an ignored masterpiece of Nordic ephemeral architecture, the design cleverly combined Modern and traditional ideas of fabrication. The spatial outcome was both tent and hut. It synthesized a morphological transformation, evolving from a geometric form into a fluctuating organism. The Forest Pavilion was an elementary space for display: a primitive frame wrapped by turbulent and fibrous textile patches.

Exposition Pavilions as structures are inherently transitory. This establishes a double dialogue: from nature to architecture and from architecture to nature. Thus the Forest Pavilion emerges as a playful manifesto of Primitiveness. Following a Semperian viewpoint, the Forest Pavilion re-bridges the ideas of Modernism rooted in vernacular living rather than avant-garde trends. It refers to the notion of the Finnish tent, *kota*, a temporary nomadic dwelling based on the logic of 'camouflage', where its skin constitutes the bark or shell.

In the Forest Pavilion form follows wood.

WOOD AS SYMPHONY OF LINES

"The first fundamental feature of Karelian architecture that meet the eye is its use of a single building material. Few comparable examples can be found in Europe. It is forest architecture pure and simple, with wood dominating almost one hundred percent both as a building material and jointing. From the roof with its strong log structure, to the moving parts of the building, we find timber, which is generally left naked, without the effect of immateriality given by colouring. Timber is mostly used as close to possible in its natural size, according to its own scale. A tumbledown Karelian village is externally somehow related to Greek ruins, where the unity of material is also a salient feature, though in them wood is replaced by marble all the way up to the entablature". Alvar Aalto, Karjalan Rakennustaide, Uusi Suomi, 1941¹.

If we analyse the initial sketches of the Finnish Pavilion at the Universal Exposition in Paris (1937), we can obtain a rectangular proto-form containing many weaving lines diagonally allocated. These were overlapped whirl-pooling figures: fluctuating surfaces wrapping the main exhibition hall. The application of woven lines confronting straight ones was part of the tectonics trail initiated with the ceiling in the Viipuri Library's lecture room (1931). In Metsäpaviljonski, these inner waving traces finally merge as released lines, which define its shape.

Anonymous and underestimated by the History of Modern Architecture, Metsäpaviljonski –a primitive and rural pavilion appears as a synthesis of the Aaltian thoughts on space and, at the same time, completes it's tectonic meaning by being rooted in the sense of "symphonic structure".

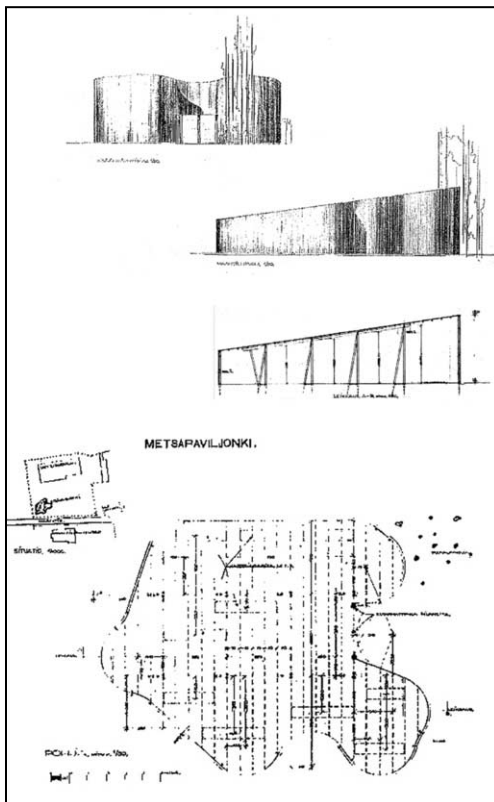


Figure 1. Original drawings of Lapua Pavilion.
Source: Alvar Aalto Archive (AAA).

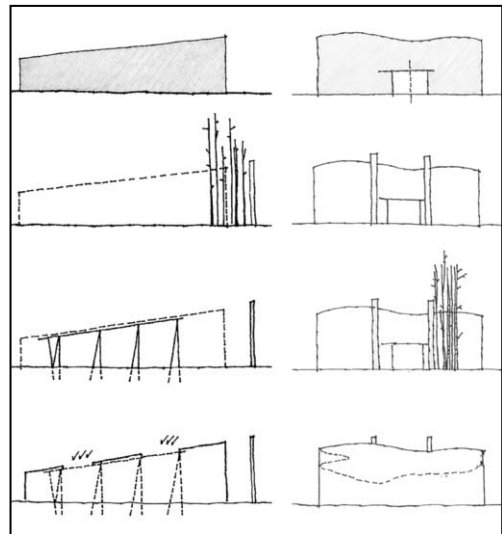


Figure 2. Study of frame and skin in Lapua Pavilion.
Source: Dr. Christian Suau.

This implies a reflection on matter and time. In terms of matter, the Aaltian space is metaphorically frozen music, where lines in motion make matter. These interweave with each other and thus generate a sequence of fluctuating tissues that emulate forest. In terms of time, the pavilion signifies an ephemeral space, an *instant-space*.

During the construction of the Finish Pavilion at the New York World Fair in 1939, Aalto affirmed, *"an exhibition is a momentary impression, a snapshot that can only succeed if it holds a profound and consistent analysis of Time and the Spirit"*². Both pavilion and the act of exhibiting recreate a cultural vision between built and natural environments. In this sense, wood emerges as an appropriate substance of temporality due to its lightness and textile condition.

About Aalto's architectural language of lines, Colin St. John Wilson affirms, *"this is reflected as fundamental characteristic of the 'structure' of his creative action. This can be understood by two forms of drawing, an ideogram of two lines based on a continuous line confronting an undulating one. However, these two forms can only be imagined lines of a electroencephalogram, an footprint of cerebral processes in the sense that appear to be always in the argument of the Aaltian building as a complementary between the rigorous analysis and the turbulent emergence of fantasy"*³.

The fascination of lines by Aalto is the understanding of movements and natural processes. For instance, the technological research on folding timber plies. In 1926, Aalto expressed that *"(wood) should be curved, also experienced, like an unpredictable line, which runs through unknown dimensions to the mathematicians and, which is the embodiment of everything that form a contrast in the Modern world between the mechanical Brutalism and beauty of life."*⁴. The lines evoke a topographic space of discontinuities. Nevertheless, how did the Aaltian space adapt to the surrounding? Central Finland is a discontinuous and fragmented geography. The Agricultural Fair of Lapua took place in June 1938. This event was a modest laboratory in which to test the primitive use of wood and its tectonics.

Metsäpaviljonski was an elementary space for exhibition. It displayed the products of local timber companies. Jarl Jaatinen, based on Aalto's guidelines, executed the design⁵.

THE TECTONICS OF THE TEXTILE

Only four original drawing sheets exist in the Alvar Aalto Foundation. They describe both spatial and technical aspects of Metsäpaviljonski. Two sheets refer to the general plan and location and elevations and the others contain the constructional sections of roof detail, skylight and wall. This rural pavilion was situated nearby a main road and erected within a woody lot of thin conifers.

The Lapua Pavilion evokes the same poetical sense of wood captured by the French poet Francis Ponge in his masterpiece entitled *"Notebooks of a Forest of Pine Trees"* (1940). The forest (read also Metsäpaviljonski) appears like a *"piece of nature"*; *"a relative haven"*; *"a place sanatorium; and (...) a hall of music"*. Ponge adds, *"Everything is perfectly set up, without excesses, to leave the man in solitude. That vegetation and animation are disclosed to the heights, nothing to distract the view. Everything is dormant, through the multiplication of similar columns"*⁶.

The Metsäpaviljonski main frame consisted of a repetitive system of tripod-columns of five inches in diameter. The structural grid consisted of three modular frameworks of 3.50 times 4.50 meters



Figure 3. Photography of Lapua Pavilion, 1937.
Source AAA.

each. In his book *the complete catalogue* (page 175 VIII.4.8) 1994 Goran Schildt erroneously indicates that its outer dimensions were 18 x 14.50 meters, with a variable roof height from 4.75 to 2.75 meters. It will be appropriate clarify in the original drawings their exact dimensions.

The Aaltian standardization is made by unity within variety of elements of assembly. It is non-linear geometry. Therefore, we obtain a combined system of concave and convex curvatures, without orthogonal corners. The analysis of the original drawings indicates new vestiges: the layout of this pavilion is defined by non-Cartesian geometry, a space defined by the logic of turbulences: a constellation of whirlpools.

In terms of skin, Aalto manufactures a sort of mirror-wallpaper, a facade that is mimetic with the exterior. The principal threshold consisted of two trunks. The visitor finds an opening that is driven by concave walls towards an access. Crossing this position, we find an enclosed space. It is fluctuating, rough and with distorted depths. The wall establishes the limits. The walls is defined by a modular panel system based on studs of 2 "x 4". The roof beams are logs (200 centimeters radius each). The outer cladding is made of overlapped vertical planks.

According to Göran Schildt, he argues this constructional detail was extracted from the undulating ceiling of the Viipuri Library's lecture room. This assertion is insufficient. By confronting composition, textures and geometries we find a sort of bewilderment. The ceiling of the lecture room is a homogeneous and smooth surface. It is a plane, which floats horizontally and follows the foliage of Tarkkeli Park. Nevertheless, the main space of Metsäpaviljonski intertwines curved planes of diverse heights. The surfaces are heterogeneous and rough. The planes roll and wrap vertically the whole shape. Therefore, they are the result of endogenous and exogenous twirling, where the roof is a perforated and tilted plane. It defines a celestial refuge. Its undulating limit constitutes the effect of an alchemical process of transformation of matter, from light to wood. What is the Forest pavilion? Is it the attempt to re-merge the missing part of the Viipuri library? Certainly Aalto applies the same principles of reflectivity of sound in acoustics to natural light.

FOREST FRAME OF METSÄPAVILJONSKI

In order to understand the main structural criterion of Metsäpaviljonski it is necessary to study the cross section. The main structural frame is a timber chassis or core, which consists of eight triple-columns within a grid. The columns are anchored on the ground. Over the core hangs a sloping roof, supported by timber beams every 700 mm. The wall surrounds the exhibit space. The roof frame subtly rests on it. Each modular panel has 600 mm of width. The roof is a suspended plane; it levitates and shades the main space. The skylights perform like musical figures on a pentagram. Every opening transforms the natural light into a symphonic canopy. Apparently the system of external siding is the result of overlapped planks that resemble a variant of similar sheathing systems used in the Finnish Pavilion in Paris and to the upper floor studio wall of the Villa Mairea. It creates the sensation of a dense forest. Inwards we appreciate the same sensation.

The natural light does not enter through the eleven skylights of 2500 x 500 mm, (wrongly counted by G. Schildt), but light-catchers with variable lengths. Aalto will implement a similar lighting system at the Finnish Pavilion in New York (1939). In summertime, the roof is the only contact with the sun. As in the Viipuri Library's skylights, light is smoothly channelled through the openings. Light begins to draw woven surfaces beneath the roof. The sun does not represent a cosmic force but a calorific one. The sun is tactile warmth.

In terms of landscape integration is essential to compare Metsäpaviljonski and *L'Annunziata* by Fra Angelico. The boundaries of domestic and rural worlds are treated in a non-hierarchical way. It is a picturesque scene where the green field and the temple are placed at the same level. This generic background contains a winter scene. The building implies sanctuary surrounded by a Natural territory.

FORM FOLLOWS MATTER

In Metsäpaviljonski, the symphony of free forms is poetically built by turbulences of light and sound. The textile surface, initially single and internal, became a textile shape, an amorphous body. The tectonic meaning is characterized by the following factors: non-uniform composition; fluctuating plan (variable layout); and wood both as textile skin and tectonics frame.

Aalto stated his desire to synthesize dialectic terms: vernacular versus Modern; natural versus artificial; or intuitive versus rational. He always repeats and changes the scales of geometrical patterns. For instance, if we observe the preliminary plan of the Finnish Pavilion in Paris, the initial

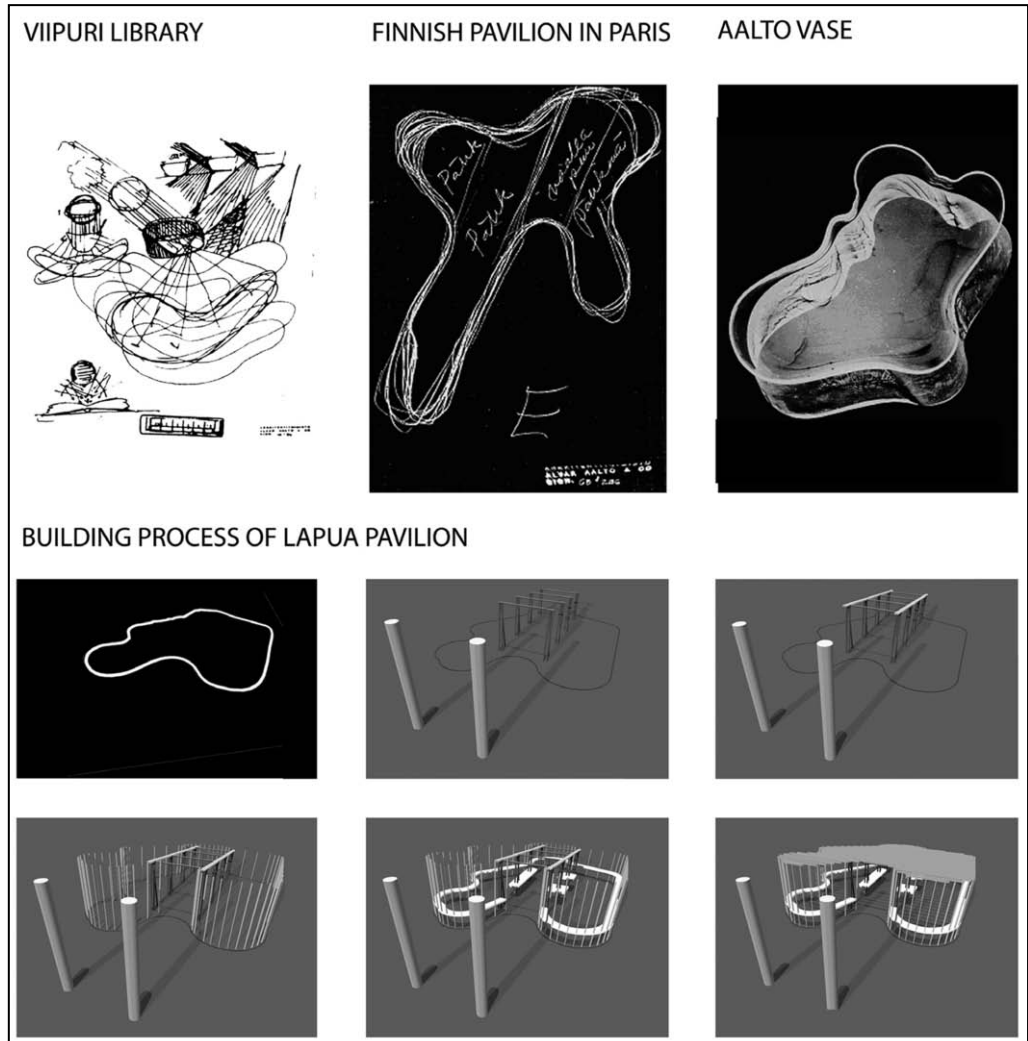


Figure 4. Above: Comparative illustrations of the sketch of Viipuri Library and the lighting system (AAA); preliminary sketch of timber handle at the Finnish Pavilion in Paris, 1937 (AAA); Detail of vase designed by Aino & Alvar Aalto for Savoy restaurant in 1937 (AAA). Below: Building process of Metsäpaviljonski. Source: Dr. Christian Suur.

form followed the logic of a liquid shape. The inside appears as a sort of inhabited formation articulating abstract topographies. In the Lapua Pavilion, the light lines have shaped the inner space liquid with an edge built by concave and convex folds.

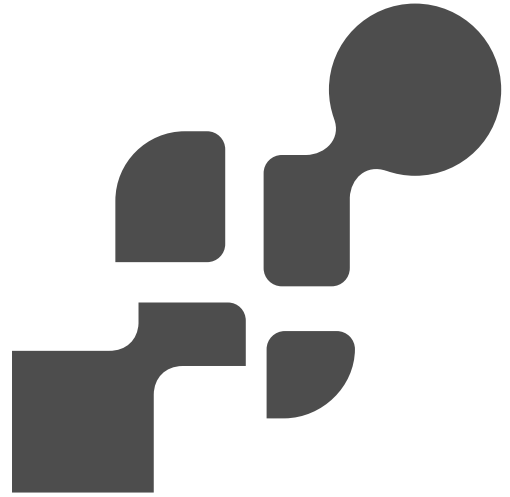
FINALE

How should we reinterpret the Aaltian tectonic trail? In the essay called *"The Trout and the Stream"* (1947), Alvar Aalto reflects on restless organisms led by turbulences. A similar approach can be found in the water flow studies of Leonardo da Vinci. Aalto always traces a spatial layout of spa within spa within spa; a process of fractal bifurcations where larger vortexes split into smaller. This "Aaltian organic whole" is essentially a space in motion: a model of vortexes within vortexes ad-infinitum. Its turbulent lines enter into fractional spaces that remain trapped between planes and solids. Is this order of turbulences a new spatial continuity? This order consists of continuous lines that chaotically define a liquefied vacuum. The space should be represented like liquid in motion between two cylinders. The external cylinder remains stationary while the internal rotates. The movements generate a flow in which the different parts of the liquid are relocated through rotations. In these bifurcations appear inner fluids that vary at different frequencies. In order to increase their rotation, the regular movement disintegrates in random fluctuations. These alterations occur due to all the components of the movement being interconnected.

The Metsäpaviljonski is a thermal home. *"(It) is constructed as a hangar, a warehouse, or a shed (hall). Senile masts touched on verdant conical tress... Infinite columns argue the absence of roof"*. The Forest Pavilion is an assembled organism. Its standardized parts and materials have the qualities that enable the largest possible number of combinations. The Aaltian pavilion uses both biological and topological analogies that define the architectural nature as a set of cellular processes leading to a textile outcome.

NOTES

- 1 Schildt, G., 1997, Alvar Aalto in His Own Words, Otava Publishing Co., Helsinki, 117-118. The original text titles Uusi Suomi (The Karelian Architecture), written by Aalto, A. (November 2, 1941), Alvar Aalto Archives, nr. 4127.
- 2 Smeds, F., 1993, Architecture and Images in the Finland Pavilions, Tampere-Paino Oy, Tampere, 54.
- 3 Colin St. J., 1992, Alvar Aalto and the State of Modernism, Architectural Reflexions: Studies in the Philosophy and Practice of Architecture, Butterworth Architecture, London, 91.
- 4 Text extracted from an unpublished manuscript by Alvar Aalto. See book The Decisive Years by Göran Schildt, p 12.
- 5 See Alvar Aalto Archives (AAA). DY p 280; figure 312.
- 6 Ponge, F., 1976, Cuadernos del Bosque de Pinos, Tusquet ediciones, Barcelona, 27 and 98. Ponge insisted in using a dictionary during his regular walks in the forest. He poetically referred to two notions: hangar or enclosed storage and forest as forbidden land.
- 7 Ibid, 99



Change and Continuity

Buildings and Ideologies

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability



Buildings and Ideologies

INTRODUCTION TO THE SESSION

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The intimate relations between ideology and Modern architecture have given rise to devastating criticisms of the practice of Modern architecture and the claims of its propagators. While Manfredo Tafuri's *Progetto e Utopia* was probably the most fundamentalist example of the criticism produced in the 1970s, Colin Rowe's *Collage City* (together with Fred Koetter) was surely the most effective.

Although at the time this criticism seemed final, the problematic intertwining of ideology and architectural practice has not gone away. Indeed, as post-war production, mostly of Modernist character, is increasingly considered for either renovation or preservation, issues of ideology re-surface. Ideological issues are resurrected the moment that contemporary projects are evaluated by heritage institutions and local councils; judgement is once again brought to bear on those ideas and intentions that guided the original designers, commissioners and others involved. The Palast der Republik in Berlin, and the Robin Hood Gardens estate in London, are two recent cases that were subject to fierce debate on these issues.

Of course, the ideological questions posed today are very different to those asked in the 1970s. Two key differences are evident. Firstly, we now recognize that Modern architecture was realized under very different regimes and conditions, sometimes not quite as progressive as propagated, indeed at times outright repressive. Secondly, we also acknowledge that the Modern Movement itself was not a homogeneous phenomenon – Modern architects pursued different agendas, and developed different approaches and solutions.

The questions addressed in this session have a broad scope, yet all relate to the development of a 'progressive practice', that is, the search for an architecture and conservation practice whose purpose is to improve the lives of people. The session presents cases from Cuba, Poland, France, the United Kingdom and Spain for discussion. National contexts and regional traditions are investigated in relation to international trends; specific local practices are highlighted, as are biographical trajectories. The various presentations range from emphasizing the inherent relation between ideology and the programme of the tradition of Modern architecture, to the proposition of a purely technical domain beyond ideological considerations.

Ultimately, the one unresolved issue central to the tradition of Modern architecture is the one of universality. Within the various practices of renovation and preservation we see a focus on local specificities and the proposition of the idea of process as the guiding principle for the design decisions at stake. Both ideas – progressive practice and project-based specificity – will be put to the test in this session on buildings and ideology.



The Evolution of Intervention Criteria in Modern Movement Restoration: Essential Problems and Circumstantial Problems

GATCPAC'S CONSERVATION PROJECTS AS A CASE STUDY

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GATCPAC heritage is usually considered in relation to its historical context of the Second Republic and the Spanish Civil War (1936-39). We propose to also review the reconstruction and preservation of the group's work in light of the international revaluation of Modern Movement projects.

THE REPRESSION OF THE GATCPAC ARCHITECTS AND ARCHITECTURE

The Group of Catalan Architects and Technicians for the Progress of Contemporary Architecture, which was headed by Sert and Torres Clavé, broke up towards the end of the Civil War. Some members died on the battlefield and some were forced into exile, whereas others joined the 'Nationalists' side. During the Franco dictatorship, repression fell not only on these militant architects, who were expelled from the Architectural Association and had their professional licences revoked, but also on their works and projects, especially those which most directly represented the political platform of the Second Republic. One example is the *Casa Bloc* complex, a worker's housing prototype; another is the *Dispensari Central Antituberculòs* of Barcelona, a clinic which served as a model of the democratization of health care; and a third is the *Pavilion of the Republic*, a political and cultural manifesto.

The *Casa Bloc* had been conceived as a social housing prototype based on the 'minimum dwelling' concept, and it was located in the then highly-politicized working-class neighbourhood of Sant Andreu. At the end of the Civil War, the complex was seized by the new regime, leaving it in a state of deterioration due to alterations and lack of maintenance. The southern block was converted into a Residence for War Widows and Orphans. The vertical circulation tower, which connected that block to the adjacent block, was sealed off from the rest of the complex. The elevators in the remaining towers were disassembled and transferred to other buildings under construction at the time. The common areas on the ground floor were compartmentalized and privatized. A Police Unit occupied a large part of the south patio for stables and other purposes, sealing it off from the street. The ground floors in the north side blocks were converted into a school, occupying and sealing off most of the north patio. The construction between 1940 and 1945 of a sixth block to house police officers' families completed the take-over of the complex.

The Central Anti-Tuberculosis *Dispensari* of Barcelona was intended to address the unsanitary conditions found in the Raval neighbourhood, which at the time was the most degraded in the city and the most densely populated in Europe. The building also represented beliefs regarding hygiene that were held by the Group, which resulted in a proposal to improve the sanitary conditions of the urban fabric. However, at the end of the war, the neighbourhood continued to deteriorate and the building itself suffered from continual modifications and a lack of maintenance for more than fifty years.



Figure 1. *Casa Bloc (1934-38), Barcelona. Sert, Torres Clavé and Subirana. In the 1930's.*
Arxiu Mas.

In February 1937, with the Civil War raging but with hopes of suppressing General Franco's military insurrection still alive, the government of the Republic decided to participate in the Paris World Fair. A pavilion, whose main objective was to exhibit the values and aspirations of the Second Republic, was erected to showcase a country in full process of modernization and innovation, despite the difficulties imposed by the circumstances of war. This was fully expressed in the contrast between the austerity of the materials used for its construction, such as the *Uralita* fibroce-ment panels and the quality and abundance of the artwork exhibited inside. Once the event had finished, the building was demolished and forgotten while the artworks it housed were dispersed, due to the war. Pablo Picasso's 'Guernica' would not return to Spain until 1981.

THE VINDICATION OF THE GATCPAC AS AN ACT OF RESISTANCE AGAINST THE FRANCO REGIME

A little less than twenty years after the end of the Spanish Civil War, Joan Prats arranged a meeting with a group of young architects and students to view the documents and material which he himself had rescued from the GATCPAC premises after Franco's troops entered Barcelona. This event, among others, could be considered a first step towards vindicating a type of architecture strongly dedicated to the social and political principles of the Second Republic. Such interest grew in the sixties, with the first classification of material from the archive, and the publication of several articles about this issue, especially those regarding Sert, who had become an international figure.

1971 marked the high point of this period of vindication with the staging of the first exhibition on GATCPAC at the headquarters of the Architectural Association of Catalonia and the Balearic Islands in Barcelona, even though it was 'camouflaged' behind *Uralita* panels. The documents were placed in the Association's historical archives and issues 90 and 94 of the architectural journal *Cuadernos de Arquitectura*, which were published in 1972 and 1973 respectively, were devoted to the first historical research concerning this subject.

GATCPAC'S VINDICATION THROUGH RECONSTRUCTION AND PRESERVATION OF ITS WORK UPON REINSTATEMENT OF THE GENERALITAT

The Generalitat of Catalonia – an autonomous government body dissolved in 1939 upon Franco's victory – was restored in 1977 within the framework of the democratic transition. This new context was especially favourable towards furthering the initial vindications of the 1960's and 1970's, the first positive steps taken towards recovering the constructed masterpieces.

A series of interventions illustrate the period covering the early 1980's through to the late 1990's. In 1982, work began on recovering the structure and on the reconstruction of the *Dispensari* roof. In 1986 a pilot project was begun in one of the blocks of the *Casa Bloc*, coinciding with the reconstruction period of the Barcelona Pavilion by Mies van der Rohe (1981-1986). This was followed by the reconstruction, in Barcelona, of the *Pavilion of the Republic* in 1992, taking advantage of the city's staging of the Olympic Games, and a thorough intervention in the *Dispensari*. Then, in the late 1990's, work began on the second intervention phase in the *Casa Bloc*.

This period coincided with a growing number of intervention projects to recover and conserve Modern architecture in various other countries. Specific problems common to the restoration of this type of architecture started to become evident during this period. So, despite having overcome the problems related to the political and social value of the GATCPAC work, such intervention projects have to be understood within a context in which the discipline specific to Modern Movement architectural restoration was just beginning to be developed. This is why it is currently relevant to analyze the intervention criteria applied, and to distinguish between essential problems – those that are intrinsic to the conception and materialization of these works – and *circumstantial problems* – those that are characteristic of a historically and politically determined conjuncture, in order to understand the consequences they have on long-term preservation.



Figure 2. Casa Bloc with the sixth block added.
Arxiu Històric de la Diputació de Barcelona.



Figure 3. Dispensari Central Antituberculos (1933-37), Barcelona. Sert, Torres Clavé and Subirana. In the 1940's.
Arxiu Mas.

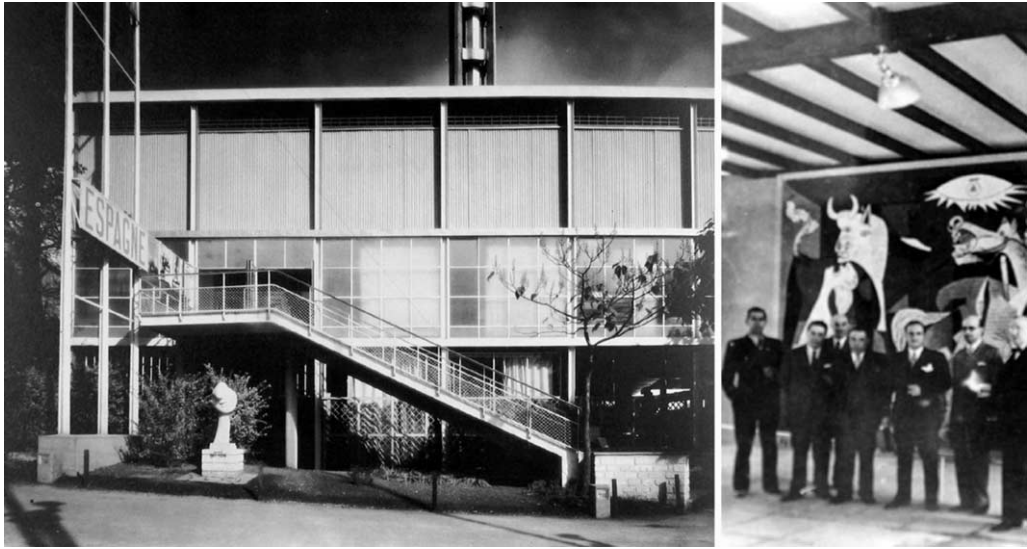


Figure 4. *Pavilion of the Republic (1934-37). Paris World Fair, 1937. Sert and Lacasa.*
Kollar/Centro de Arte Reina Sofía.

INTERVENTIONS CARRIED OUT ON GATCPAC PROJECTS AS A REFLECTION OF THE ESSENTIAL PROBLEMS AND CIRCUMSTANTIAL PROBLEMS OF RESTORING THE MODERN MOVEMENT

The intervention projects carried out in the *Casa Bloc* largely consisted of pragmatic repair work, the main objective being the preservation of its original social composition and function. In the complex's common areas, it was decided to reverse the imposed modifications, although a part of the South Patio remains privatized for the exclusive use of the former Residence for War Widows and Orphans. Despite the fact that during the first phase of the refurbishment the demolition of the sixth block was taken into consideration, it remained standing until July, 2008, when demolition work was begun. In the apartments themselves it was decided to consolidate the changes they had undergone over time. The 'minimum dwelling' standard set in the 1930's, was no longer considered applicable to the standards of comfort in the 1980's and 1990's, so the enclosing of the apartment terraces, which all the residents had taken upon themselves to do over a number of years, was not reversed. Nevertheless, all of this entailed alterations to both the morphology and the original materiality of the complex.

The works carried out in the *Dispensari* also involved a high degree of reconstruction, including the rooftops, part of the structure, part of the South facade and the plasterwork. Furthermore, original materials representing a health hazard, such as the fibrocement panels, had to be replaced. With regard to the conservation of the original relationship between form and function, the conversion of the *Dispensari Antituberculòs* into a Primary Care Centre did not result in significant spatial or volumetric alterations in adapting it to the new programme – with one important exception: it proved to be impossible to maintain the original function of the roof-terrace, which had been used for heliotherapy treatment and was a space central to the concept of the building. It became a service area.

As for the *Pavilion of the Republic*, the initial objective for its reconstruction was to remain as faithful as possible to the original design, not only by reconstructing the building exactly as the original, but also by returning the art works that were once part of its cultural content and

propaganda. However, the complexity of the equipment required by a contemporary exhibition hall was not compatible with the characteristics of the original building. As it was a new building, functional changes were imposed and new building codes were applied which gave rise to considerable formal, constructive and spatial modifications, such as the addition of an originally nonexistent basement (approximately 300 m²) to house the offices of the company sponsoring the new project. This modification to the original morphology was justified by the fact that the new location had a pronounced slope, unlike the original plot. In spite of the modifications in the execution of the details and the application of contemporary standards, the reconstructed Pavilion has had to undergo various repairs in little more than 15 years.

Upon analyzing these early cases of intervention, it can be seen that the fundamental principles of preservation – minimum intervention, maximum retention of original fabric, conserving as found, reversibility of new interventions, or ruling out of any reconstruction work – were all radically questioned. In fact, many of the points, which the Venice Charter determined as exceptions, were recurrent in these interventions. Furthermore, the profound difficulties in retaining the original materiality of these buildings helped to allow a certain amount of freedom in terms of the introduction of major alterations and the application of irreversible intervention methods, or the application of intervention methods without sufficient knowledge of their mid- or long-term performance. In some cases this resulted in the distortion of the material design of the original work.

This distortion was directly related to the main essential problems regarding the restoration of these works: the fragility of the original materiality – due to either the use of new materials without sufficient knowledge of their performance or durability, or the use of traditional materials in new ways or in a combination with new materials, to attain a new architectural expression –; the rapid development of new materials and also their rapid supersession; the life expectancy and rapid expiration of the buildings' functional programmes caused by the close relationship between form and function, and the projects' experimental condition.

However, the circumstantial problems posed specific difficulties for the success of these interventions. Problems related to the evolution of socio-cultural appreciation of the works include cultural and technological proximity, making it difficult to identify the works as being part of the architectural heritage; changes in building codes; changes in accepted standards of comfort; or changes in the buildings' surroundings. Problems related to developments in the specific discipline of Modern architectural restoration include lack of experience, lack of points of reference for restoration of Modern Movement works as well as lack of research into *Modern materials* and their long-term repair. Ultimately, the most serious problem was the lack of conceptual clarity between the practice of renovating a contemporary building and that of restoring a heritage building. Thus these interventions were characterized as having as their primary objective the recovery of the original artistic value along with functional and formal aspects, whilst the authenticity of the original materials was undervalued.

UNDERSTANDING CONSERVATION AS AN ONGOING PROCESS

Despite the aforementioned difficulties and dilemmas, in a relatively short period of time it has proven possible to restore or reproduce Modern materials; to find functions which are compatible with the original spatial concept of these buildings; to gain the appreciation of the non-professional public, and so on – all issues which at other times seemed unresolvable. Even though this evolution has taken place and there are a number of cases today where intervention work stands out for its quality and is considered exemplary, only 20 years have passed since the sea change in attitudes, represented among other things by the creation of DOCOMOMO. This is why we must be aware that in comparison to traditional restoration practice, the restoration of the Modern Movement is still in its early stage of development.

Faced with the present state of affairs, and if Modern restoration does in fact present inherent characteristics and specific problems, it is important to identify which of these are essential problems and which respond to circumstantial situations that have now begun to be resolved. It is therefore fundamental to understand conservation as an ongoing process, not as a complete action in and of itself, and take the experience acquired through restorations carried out on works from preceding periods as a conceptual reference. In this sense, it is necessary to prioritize the use of non-destructive, tried-and-tested and reversible methods of intervention as a way to the conservation of both the originality of the materials as well as the original architectural concept.

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Anatole Kopp (1915-1990): the Engaged Architect and the Concept of Modern Architecture

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ON ENGAGEMENT

The Petit Robert dictionary defines engagement as 'the act or attitude of an intellectual or artist who, aware of his condition as a member of society and of the world of his time, renounces his position as a mere spectator and puts his thinking or his art to the service of a cause'. While he was still a high school pupil, at a time when the ideological debate in France was polarized between right and left, Anatole Kopp became engaged with the French Communist Party (FCP). For the son of Russian Jewish immigrants who was raised between cultural boundaries that permeated and nourished each other (I preferred the idea of boundaries rather than mixed traditions within mixed cultural traditions that nourished each other), and who faced the chauvinistic and xenophobic France of his youth, the October Revolution signified a new universality, a society free of social as well as national differences, suggesting affinities between Jewish messianic aspiration and a social utopia interpreted as an ethical enterprise.

Kopp's engagement and awareness of his role as a militant and Modern architect is illustrated in the excerpt below, taken from the 1952 letter he sent to the French Architectural Board that had been refusing his membership since 1947 because of his militant activities. The passage indicates the emergence of an early idea of a modern monument:

'... As far as I am concerned, it is the social aspect of architecture that played a crucial role in the choice of studies I have made. I believe that the path leading to architecture through the Villejuif School, the proletarian towns in Vienna and the great Dam of Dniepr is just as worthy as the way through the Parthenon, the Farnese Palace or the Louvre Colunatta.

... it is widely known that we cannot transform society through architecture or urban planning. To believe in that would be confounding cause and effect...'

This study seeks to understand Kopp's historical work based on his career as an architect and his role as an engaged intellectual. It recognizes his personal struggle with one of the problematic aspects of the militant's engagement: (as there were others questions, and no only one dilemma....the dilemma facing an engaged militant:)the need to recognize the primacy of the revolutionary process and the hegemony of the political entity it personified, (I mean the Party he embraced,) namely the Communist Party, a primacy that proved increasingly unsustainable (insupportable to him, because I mean not only for him, but for hundreds members of the PCF) in the late 1950's.

THE BACKGROUND OF THE ENGAGED ARCHITECT

Anatole Kopp's early life was as colourful and dramatic as it was to be formative for his later life as an intellectual. He was born in Saint Petersburg in 1915, into an enlightened Jewish upper-middle-class family, which settled in Paris following the Bolshevik accession to power. He started school in Berlin, but went back to France to study at the traditional Lycée Buffon, and the Lycée Louis Le Grand. Faced with the violent demonstrations of the right and the attempted coup of 1934, Kopp, as well as other young students between 1933 and 1934, joined first the *Union fédérale des étudiants*, and later the French Communist Party in the aftermath of the victory of the *Front Populaire* (1936).

He started his architectural studies at the Paris *ESBA*, which he abandoned in 1935 in favour of the *École Spéciale d'Architecture* (ESA). In 1938, with a scholarship granted by MIT, he left for the USA. However, drafted by the French Army, he had to return to France before the end of his scholarship. A prisoner of war in 1940, Kopp was taken to Drancy, from where he fled across the demarcation line, arriving in America at the end of 1940. In the USA Kopp graduated in Architecture at MIT, worked as a trainee in American architectural firms, and in 1942 was hired as an instructor at Black Mountain College, interacting with a significant number of European refugee professors and students of a Modern background, among which was the couple Josef and Anni Albers, as well as Walter Gropius. In 1943, Kopp joined the army again, and on the 6th of June 1944 he disembarked in Normandy. He was seriously injured in a mission in 1944 and was sent back to America.

In January 1946 he returned to France, and worked for the firm of Paul Nelson, Roger Gilbert, Marcel Mercier and Charles Sebillote during the construction of the *Hôpital de Saint-Lô* (1946-1955), an experience he recognized as important in his education.

Against the backdrop of the post-war era, the 'imperative of choice' took Kopp back to political activism in 1947. However, the *Rapport Khrouchtchev*, the Soviet intervention in Hungary, as well as the FCP position towards the independence of Algeria during the 1950's were blows to engaged intellectuals such as Kopp who remained in the party, even if as 'oppositionists'. In addition to the struggle for independence in Algeria, the third world emerged as one of the new causes of engagement. To address theoretical issues of urban planning in the third world, Kopp and philosopher Henri Lefebvre created a forum in the magazine *Espaces et Sociétés* (1970), while his recognition of the idea of freedom as an absolute fact (is an expression different from "absolute necessity of freedom"), and the possibility of contributing as an architect (I prefer not to use the word desire, but accept another suggestion re "contributing " his desire to contribute as an architect) to the construction of socialism led to his long-term engagement in the cause of Algeria (1962-1981). It was in Algeria, facing the architecture and urban urgencies of the Third World and the clashes between a colonizer and a colonized architectural cultures that Kopp's concept of architecture heritage reemerged and matured confronting what he would call the myths of the 70's regarding the idea of preservation of traditional social structures through the maintenance of the old architecture and urban expressions.

ENGAGEMENT AND ARCHITECTURE

Anatole Kopp's professional work as an independent architect began in the late 1950's and, like that of other comrades in the FCP, it was solely geared towards the public sector, starting with communist municipalities in the outskirts of Paris and, from 1962, serving the independent government of Algeria. His first office was established with architect Pierre Chazanoff, with whom he worked until the late 1960's on low income Public Housing Projects in Sceaux, Saint Ouen – where they designed the *l'Île aux Vannes* (1969-1971) sports compound -, and in Nanterre – *Les Pâquerettes*, and *Les Champs aux Melles* compounds. The office also designed projects for the

Central Social Security Administration of France designing polyclinics and health facilities in the North of France and the Paris area.

With the support of the Ben Bella administration, the firm started working in Algeria right after the independence, developing a programme for the reintegration of the slums in Algiers and Oran, the construction of schools and the implementation of new urban centres in Grande Kabylie, adapting architecture and urban planning to the specific conditions of the region and its culture through the use of light prefabricated systems and the training of local workers. From the late 1960's until 1973, working with the *Bureau d'Etudes du Ministère du Plan Algérien*, and the ESA, the firm developed urban planning studies, and also techniques of prefabrication that would later be used in the implementation and renovation of social infrastructure and housing units in the cities of Batna, Setif and Oran (1974-1980).

Kopp started to work as a professor in 1970 at the ESA, of which he became the dean in 1973. In the same year he started teaching at the University of Paris VIII, where he became Professor Emeritus and member of the research Institute of Town Planning Department (1986).

IN SEARCH OF THE IDEA OF MODERN ARCHITECTURE

Between the first texts written by Kopp at the end of the 1940's, one in particular, published in the FCP's *Bulletin of the Association France – URSS*, in 1948, it confirms that Kopp's interest in the subject of Soviet architecture was far from academic, but part of the tension in his own engagement. In this text we can distinguish the architect searching for a reconciliation between his beliefs in 'modern architecture as the true extension of socialism' and the Party position regarding social realism in architecture, early identifying a thesis that would be developed within his oeuvre and eventually defined in his last book, as he would write:

'...in the years that followed the Revolution, Soviet architecture was dominated by what was called the modern style. The error ... was to consider the "modern" as a style, when in the spirit of its best practitioners, it was the translation of the building's interior functions...'

Early in the 1950's when the dogma of social realism began to be questioned inside the PCF, Kopp published his first article in *La Nouvelle Critique* (1953) trying to (I prefer the first version or – "introduce Modern architecture as an alternative to socialist architecture"). The rhetorical strategy followed two arguments. The first deepened the analysis of the reciprocal relation between content and form, identifying the complex character of architecture as caused by its being both infra-structure and super-structure at the same time. Therefore Kopp demonstrated that, unlike in literature or painting, form in architecture was insufficient to transmit an ideology, while content - the building programme determined (or "as a result") by the distribution of functions - and by ideology as a reflexion of the builders' (or their society) intentions – could immediately be perceived.. Consequently, Kopp stressed content as the most important factor, responsible for making architecture both 'the frame and the reflection of social life, or the image of society within which it is created'. The second argument asserted that if Modern forms veiled the content of capitalist buildings, the classic style was an expression of bourgeois decadence. Thus, before denouncing functionalist architecture as capitalist architecture for its forms, it would be more effective to attack the ideological underpinning – and at this point the engaged architect would defend political action as the only possible way. Still, for Kopp, Modern forms as resulted from the development of production forces, including new techniques and materials, were better suited to incorporate the new programmes and needs, being more appropriate to a kind of '*...architecture in the service of man ... a true functionalism founded on the satisfaction of needs of everyone...*'.

Throughout his life, Kopp's investigations into the content of architecture would remain a parameter in his architectural output and writing, in his thoughts on the Soviet avant-garde, as well as on

the postwar period in the USSR, and in his original (I mean he was one of first historian to wrote on the subject) analysis of the reconstruction years in France, demonstrating the parallels between political, economic and social developments and architecture. In his last book, he returned (or "resumed") to the concept of cause - content - (here better leave the original expression cause the play of words is important for the title of his last book was "when architecture was a cause and not a style") of Modern architecture between the two wars in the Weimar Republic's urban initiatives, the work of the Jewish immigrant architects in Israel, the New Deal's social programmes, and the propositions of Le Corbusier and Andre Lurçat, demonstrating the processes of transference of ideologies and forms between continents.

In 1966, after returning from a journey to Russia where he made contact with a group of architects and researchers whose approach and thematic were inspired by the architecture of the 1920's and 1930's, Kopp considered publishing a text on '*Des sources soviétiques de l'architecture contemporaine*'. The project was important, as he explained, because of the absence of books on the subject 'with the exception of the chapter in Bruno Zevi's book and Victorio de Feo's text'. In fact, Kopp's first two books *Ville et révolution* (1967) and *Changer la vie/Changer la ville* (1975), not only disclosed the period to the Western public (I return to the old expression because I would like to stress the idea that he brought to light the whole context of arts, architecture, urbanism, politics economy and ideology of the period and not only the architectural context) for the first time, but introduced a bibliography and original documentation that remain in use under new keys of analysis in the most recent research on the Russian avant-garde.

Ville et révolution can in particular be understood as a turning point in his personal and intellectual trajectory. In 1962, his lifelong friend Jean-Pierre Vernant published *Les origines de la pensée grecque*, with which the philosopher intended to invert the dogmatism inside the PCF by showing that without a free and open discussion there can be no one truth. One can distinguish (construct) a parallel between the vision of the present in the political perspective projected by Vernant on the Greeks, and the political perspective projected by Kopp on the Soviet architecture of the 1920's. Both being critical members of the PCF and signers of the same manifestoes in favour of Party democratization and the independence of Algeria, they made use of the same procedure.

Vernant formulated his criticism by pointing to the birth of Greek reason and the appearance of philosophy as the result of open debate in the public space of the city – the *agora*, which Vernant saw as antithetical both to religious thought (metaphorically understood as dogmatic and anti-marxist), and to the isolated space of a royal fortress (representing bureaucratic space). Kopp's criticism was framed in terms of an opposition between the Marxist's project for social transformation - including the Constructivist architects' promise to transform the 'way of life' (it is a particular expression) from the point of view of a socialist content – and the Soviet realism of the Stalin era. This particular procedure (?) reveals the continuity of the idea of 'content' in Kopp's thought and his search for a definition (?) of an '*architecture de gauche*', one '*that could transform the human environment according to the model of the society we put ourselves in a mission to achieve*'.

At this point, we might suggest that Kopp's Marxist conception understands the transformations of architectural heritage – the main topic of this conference – as the consequence of attending to new social urgencies. It is also in this sense that his search for an '*architecture de gauche*' finds parallels in the formulations of his colleague Françoise Choay concerning architectural heritage. Choay views architectural heritage as a mirror reflecting our alterities, whose most important contribution is the foundation (I would like to use the word foundation to pass the idea for supporting) of identities engaged (or committed?) in the destiny of man, in her or his vision of the world, and in the choice of society.

CONCLUSION

Kopp's last book (in fact it was a project for a book) on *The History of Socio-Political Ideas about Architecture in France Between the 1920s and 1970s* was not completed. But its subject indicates that an intellectual and professional line of thought was to have been brought to a conclusion, in line with his formation as a disciplined and diligent militant who planned the revolution – or his own oeuvre – knowing that it was part of a long and collective historical process.

Albert Camus suggested that the engagement of a writer rested on 'the double game of work and life', stressing that his production was in part authenticated through a complex and ambiguous interchange between the author and his work, a dynamic defined by Simone de Beauvoir as 'the total presence of the writer in his own writing'. Through Kopp's tense writing we can perceive his *weltanschauung* and the choices that guided his actions.

And maybe Anatole Kopp's trajectory actually represents the 'tragedy of engagement' as perceived by Malraux - that of the intellectual who attached himself to the Party, but remained irremediably separated from the proletariat. He will never be a militant amongst others because he remains the product of a cosmopolitan, individualistic and critical culture that prevents him from merging with the masses. Thus his engagement is traumatic, marked by contradictions beyond hope of reconciliation.

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The Cubanacán Art Schools Rehabilitated

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INTRODUCTION

The Cubanacan Art Schools are five architectural masterpieces of the revolutionary period in Cuba. The Cuban architect Ricardo Porro (b. 1925, Camagüey) together with his Italian colleagues Roberto Gottardi (b. 1927, Venice) and Vittorio Garatti (b. 1927, Milan) developed the projects in the singular landscape of the former Country Club of Havana's elite. It was Fidel Castro himself who had envisaged this landscape as the perfect site for the project, while enjoying rounds of golf there with Che Guevara. The unique qualities of the site and the artistic education programme demanded a unique vision, and no one seemed more appropriate for the commission than Ricardo Porro. The Cubanacan Art Schools were conceived and constructed between 1961 and 1965, after which they were partially abandoned because of criticism of the architects within the Ministry, and the great expense of the project, among other reasons.

Although the architects conceived their design as a dynamic and organic coalition between architecture and sculpture symbolizing the Cuban Revolution, some critics concluded that their creation was elitist and detached from national social reality. To try to understand this situation, this paper will discuss the circumstances preceding and surrounding the project, as well as the current rehabilitation of the Art Schools supported by the Cuban government.

A REVOLUTIONARY PROJECT FOR THE NEW CUBA

One of the architects' major aims in designing the Art Schools was to search for a new Cuban identity – 'Cubanidad' – based on the pre-revolutionary debate of the 1930s and 1940s. In those years Cuban artists explored the island's African heritage, Creole culture and tropical condition. An artist whose work grew out of this period was painter Wifredo Lam (1902–1982), who fused the experience of European modernism, especially surrealism, with that of his own cultural, African, identity. Porro, while in Paris for two years for his postgraduate studies, was greatly influenced by Lam and spent much time with the artist.

While still a student Porro had declared his allegiance to modernism radically by burning Vignola's books from the library, as well as to Cuban tradition as a source of inspiration for architecture. During the 1950s some Cuban architects had already explored regionalism and 'Cubanidad' in small experimental projects, mostly houses, as a distinctly creative, critical, and regional elaboration of the Modern Movement. In line with this trend, Porro published a thoughtful analysis entitled 'El sentido de la tradición' in 1957. In it he postulated that architecture has social significance, and – in the case of his own country – reflected Cuban traditions.

In 1958 Porro was forced into exile in Venezuela because of his identification with the revolutionary movement. While there he met two young Italian architects, Garatti and Gottardi, who

had been exposed to post-war anti-rationalist ideas in Italy. The three shared interests in history, politics, and the reformulation of contemporary architecture. In August 1960 Porro returned to liberated Cuba to help reconstruct the country. Gottardi and Garatti arrived in Cuba in December 1960, and Porro invited them to join him on the National Art Schools project.

The directors of the schools wished to accommodate the individual disciplines in separate buildings. Porro assumed general leadership and took responsibility for the design of Modern Dance and Plastic Arts, delegating Dramatic Arts to Gottardi and Music and Ballet to Garatti. Though they decided to work independently, they also agreed that the design of the schools would be governed by three guiding principles that would unify their work. First, the location of the schools was to respect and respond to the verdant landscape of the 66 hectares of the former Country Club. They decided to place the buildings on its periphery. The second principle concerned the use of materials. Due to the economic situation, the Ministry of Construction approved the architects' decision to substitute earthen materials for cement. So it was decided that brick and terracotta tiles should become the primary materials. Contingent on this decision was the third and most significant principle, formally and technologically: the Catalan vault would be the primary structural system.

In June of 1961, with ground not yet broken and designs still in development, Fidel Castro praised the National Art Schools as 'the most beautiful academy of arts in the whole world,' and lauded the architects as 'artists'. Soon, however, the project ran into trouble, eventually leading to the interruption of construction in 1965. Consequently the schools became a contradictory case of social expression of the arts in the ideological context of the Cuban Revolution. First, the budgets exceeded what was possible in our country, further constrained by the US embargo. Second there was opposition from within the ministry. Initial opposition was technical, however, not ideological. Most of the engineers in the Ministry of Construction distrusted the Catalan vault and were strongly opposed to its deployment. Critics faulted the Catalan vault and masonry construction as not being able to adapt to changing needs. The plastic forms emerging from the landscape in Cubanacán were a refutation of the rationalist principles upon which Modern architecture and the professional formation of those newly appointed bureaucrats rested. Another factor was that building construction in Cuba was becoming increasingly influenced by the adoption of Soviet models. Finally, Cuba's leading architectural historian, Roberto Segre, faulted the architects for not working together as a team and for their 'individualism' in seeking a unique solution for each school.

There were also several public attempts by relevant Cuban intellectuals to defend the architects. The most supportive and comprehensive defence was presented by Hugo Consuegra in an article well illustrated with photographs by Paolo Gasparini in the pages of the journal *Arquitectura Cuba* in 1965. However, aware that his future in Cuba would be problematic, Ricardo Porro departed for Paris in July 1966 to start a new life and a new career there.

CHANGING TIMES – FROM NEGLECT TO RECOGNITION

When construction of the schools was interrupted in 1965, continuity in the experiment undertaken by Porro and others in the 1960s was also broken, causing a rupture in the Cuban tradition of avant-garde architecture. This was probably the most damaging result of the conscious policy of neglect and silence about the project. Still, teaching continued in most of the usable spaces of the forgotten and neglected school buildings. From 1976 onward the Superior Institute of Art was created, cohabiting with the institutions of the National Art Schools; these included the National Schools of Dance and Music, and the Faculties of Plastics, Theatre, Music and Dance. During the last 40 years most of our more brilliant avant garde Cuban artists graduated here.

From the 1980s onward there were various attempts to save the schools, for example by Roberto Gottardi in 1986. He had remained in Cuba, and was asked by the Superior Institute of Art to



Figure 1. *Modern and Folkloric Dance School. Ricardo Porro. Rehabilitation, general view, 2007.*

submit a proposal for the completion of the School of Dramatic Arts and for the renovation of the other school buildings. However, the plans were shelved and never materialized. It wasn't until 1997 that there was any advance in the efforts to save the schools, when the site was declared a Protected Area by the Cuban National Commission of Monuments. In 1999 the World Monuments Fund included the schools in the list of the 100 world monuments in danger. The National Art Schools were internationally recognized as outstanding works of the Modern Movement, and were inventoried by DOCOMOMO Cuba.

THE REHABILITATION PROJECT – PRESENT AND FUTURE

In 1999 the Cuban leader eventually decided to rehabilitate and complete the schools in accordance with the original idea, as had been requested by Cuban artists and intellectuals for many years. This decision had a special significance in that the three authors were still alive and professionally active. To involve them in the project was a deserved recognition after all those years of neglect.

In his theories Viollet-le-Duc had defended the thesis that the restorer should put on the original architect-creator's skin, and to understand his spirit and to work within it in the case of reconstruction. In our case, exceptionally, the original authors faced their own work after 35 years, and led the restoration project.

In December 1999 Porro, Gottardi and Garatti came together again in Havana to meet the working group created by the Ministry of Culture, for the initial decisions and to organize the reconstruction work. For the rehabilitation plan the project team followed the original, harmonious conception of the schools as much as possible, while allowing for several interior changes necessary to meet functional requirements. A novel scientific method of investigation and analysis was deployed, integrally evaluating the architecture of each school building. Solutions were based on this method while defining the safest restoration procedures and using durable, constructive materials. The purpose of the present project is the rescue of, and the constructive and functional rehabilitation of the architectural complex and its environment, the completion of the unfinished schools according to the original conception of the three architects, and their integral functional upgrade.



Figure 2. Modern and Folkloric Dance School. Ricardo Porro. Rehabilitation, patio, 2006

The rehabilitation of recent structures is not very common, but in the case of the Cubanacán Art schools it was unavoidable: there were weeds, mildew, cracks, ruins of structures collapsed amid a wild jungle. Twenty six different types of constructive damage were identified. The very expressive resource that gave the schools their special identity – clay and the Catalan vault - turned out to be ‘cause and effect’. The degree of deterioration varied widely reflecting the diversity of design and quality in the handmade materials – clay tiling for floors and vaults, bare brick walls, carpentry of doors and windows.

The working group decided to begin renovation work with the two Ricardo Porro schools - the Faculty of Plastic Arts and the School of Modern and Folkloric Dance - since both were complete and functioning. A basic objective of the rehabilitation was to recover the spaces, to improve and heighten artistic teaching while not interrupting the educational process, which is unique of its kind in the country. To guarantee this, restoration work was co-ordinated with the educational officials.

These first two projects show the validity of a flexible approach to the restoration of recent patrimony. Modern architecture is able to assimilate the necessary functional adaptation, and new materials more resistant to weather and climate conditions can be incorporated, while preserving the architecture, its image and cultural value.

In general, the rescue of built patrimony requires sensitivity and creative maturity. Working with the original architects gave Cubanacán Art Schools project a special dimension. It is clear though that each intervention has to be considered independently, in correspondence with both the general concept and the analysis made. The application of new products and techniques of construction to clean up, rectify, protect and prevent decay, in accordance with the diagnosis, set the ba-



Figure 3. Plastic Arts School. Ricardo Porro. Rehabilitation, general view, 2007.

sis for proper maintenance to guarantee durability. Following the project team's working method; logical divergences between the conceptual plans and the realized renovation could be proposed and accepted. For instance, the architects considered it valid to recreate the original windows in aluminium while maintaining the design and colours, and to introduce a new up-to-date lighting system for the different educational spaces. To repair and replace original clay elements Porro approved the use of specialized restoration products by the Italian company MAPEI.



Figure 4. Plastic Arts School. Ricardo Porro. Rehabilitation, patio, 2007.

In the context of the economic and technological limitations of Cuban society, the current interventions are also a demonstration of valid approaches to architectural rescue. I would like to point out the following positive results:

- Recognition by government of the value of a work that symbolizes the creative dream as a social process, including sustained support by the state with the necessary funds
- Analysis by architects and professionals jointly with officials to decide on the scope and phasing of the works
- Recovery of bricklaying skills
- Developing the manufacture of construction materials, rescuing brick and other traditional materials, and incorporating new techniques for sustainable quality production
- Modernising and enlarging construction technology, to shorten build times without sacrificing the quality of finish
- Respect for the author's practice and authority, in a reciprocal exchange with other parties involved, which energizes good work.

The first phase of the rehabilitation plan of the Porro schools is to be concluded in December 2008. The second phase of reconstruction of the other three buildings is planned to be finished in 2012. Once again, we will have to design a step-by-step process to ensure that education will not be interrupted and that resources are used most efficiently and effectively.

CONCLUSION

Working on the restoration of the Cubanacán Art Schools goes beyond the merely technical, it is about cultural transcendence. As national patrimony the Art Schools represent a cultural and spiritual landmark created in a unique historical moment and context. The rehabilitation project re-affirmed the intentions of the original concept. As such it is a stimulus to pursue further the conservation of recent patrimony, abandoned because it is too little recognized and valued. As soon as the splendour of the original landmark is restored, it becomes a self-evident demonstration of how to proceed in future. In our case 'the clay proved it all': authentic Modern architecture does not have to depend on sophisticated materials.

It was Cuban art critic Rosario Novoa who said that 'we know the pattern of a society by the types of buildings it builds', and 'the way in which man manages space says much of the culture and of the moment that one is living in.'

This is how I also would like to view the Rehabilitation of the Cubanacán Art Schools.

The Rehabilitation plan of the Cubanacán Art Schools not only saves but ultimately also revitalizes the spaces of poetic and revolutionary modernity of the Superior Institute of Art. The rehabilitation promotes practical attitudes toward our architectural legacy, to conserve the mosaic of our cities, saving cultural treasure and preserving the creative and conscious stamp of our time as an authentic and valuable legacy for the future.

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Modern Movement Conservation as Progressive Practice

BYKER AND BRITISH WELFARE STATE HOUSING

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INTRODUCTION

In the UK statutory protection for significant examples of post-war (Modernist) public housing has prompted renewed concerns about the imposition of elite values on those who live in or are responsible for protected structures. Modernist urbanism, and particularly post-war Modernist architecture, has long been criticised for its elitist imposition of impractical and inhumane environments, with working class populations bearing the brunt of Modernist experimentation. Popular denigration of the Modernist project feeds into resistance to aspects of Modern Movement conservation amongst policy-makers and residents. Nevertheless, there is evidence that some of that resistance has reduced over the last decade or two as societal attitudes to post-war Modernism have begun to change, opening up scope for the re-assessment and revalorisation of post-war Modernist buildings. In the area of welfare state housing, there have certainly been opportunities to use conservation to reclaim a denigrated history of Modernist progressive practice, boost the morale of residents and rebrand problem estates¹.

Whilst this reassessment of Modernist heritage is to be welcomed, even amongst advocates of Modern Movement conservation there are concerns that the conservation agenda might itself be problematic. The central concerns relate to the danger that the conservation of post-war welfare state housing might be supporting a deprogramming of the social mission of welfare state housing, with the focus shifting to the conservation of objects separated from their original social function, and statutory protection leading to the selective privatisation and gentrification of what was previously social housing.

Our argument in this paper is that Modern Movement conservation needs to engage sensitively with questions of rights, values and the meaning of 'progressive practice'. Such an approach should be central to the goals of organisations like DOCOMOMO. As Bayley² points out, the challenge for conservation is 'to ensure that all residents benefit from any proposals for conservation'. Bayley further argues that conservation should only be recommended if: any design or other faults having been put right, the building will continue to be viable in the future, and residents support the proposals.

WELFARE STATE HOUSING AND PROGRESSIVE PRACTICE IN MODERN MOVEMENT CONSERVATION

One of the attractions of Modern Movement architecture is the broad commitment to what might be called progressive practice, and social equality was a key theme for those who continued to address the social agenda of Modernism³. In the UK, these principles were to find particular expression in the social housing programmes of the post-war welfare state, which gave architects



Figure 1. The southern “inside” of the Byker Wall from Raby Way.
Photograph: Rose Gilroy.

the opportunity to experiment widely with new approaches to housing. The perceived failure of aspects of this ‘architecture of social intent’⁴ in terms of social problems and material failures has led to criticism that for all its social commitment, Modernist architects and urban planners were guilty of unprogressive practice. The charges are various, but the central argument is that middle-class architects imposed untested solutions and a naïve middle class viewpoint on working class residents. Whilst some of those charges are certainly valid, the commitment of certain local authorities and architects to progressive ideals delivered housing of significantly better design and quality than was available elsewhere at the time. Moreover, as Gold⁵ also demonstrates, many of the failures of Modernist designs reflected the appropriation of aspects of the Modernist vocabulary by developers, local authorities and engineers seeking to fulfil national housebuilding targets. The subsequent performance of welfare state housing in the 1960s, 70s and 80s was to be further undermined by a lack of investment, the selling off of council housing, and the residualisation of Modernist housing estates within the social housing sector. In this context, it is important when talking about post-war ‘Modernist’ housing to: (1) distinguish between progressive practice and unprogressive practice in terms of the principles and processes of design for specific housing projects; and (2) to take a relational perspective that acknowledges the social and institutional context of architectural practice at the time.

Buoyed by changes in fashion and also by statutory protection, conservation can help bring resources and new management approaches to difficult areas. Conservation might also help to secure the economic and social sustainability of housing estates by encouraging the development of mixed communities, renewing local pride and re-imaging problem estates⁶. However it is at this point that a series of tensions may arise in terms of the goals of progressive practice: first,

there is a potential tension between the demands and values of conservation and the rights and demands of those who live in social housing. To what extent should conservation – determined by elite principles and based on architectural or historical significance – be allowed to dictate the social uses and functionality of buildings? This is especially the case where the cost of maintaining or refurbishing modernist structures is high. Second, how much weight should be given to current residents, and to what extent should their rights and demands at one moment in time be given precedence over the present and future benefits of conservation? It is in this context that we turn to the example of Byker.

BYKER AND THE CHALLENGE OF CHANGE

In 1968 Ralph Erskine was appointed architect and planner for Byker, a remarkable appointment by the Conservative controlled local authority. The bulldozers continued to move around the neighbourhood for a decade. Work started at the north on an area intended for an urban motorway between the major shopping street, Shields Road, and the site. Erskine created a perimeter block incorporating housing that would both act as a sound barrier and make a strong visual signal to all that behind the wall was a separate place – a village in the city – with few pedestrian and vehicular access points through. This is the 'Byker Wall'. Behind this was constructed a new street layout with south facing communal courtyards replacing the old grid iron pattern. The dwellings themselves were low rise of varied size to fit the needs of a whole community and characterised by light materials – timber cladding often brightly coloured and metal roofs; architecturally the style has been called 'romantic functionalism'⁷. The integration of landscaping into the estate was a key integral feature, including so called 'ruin bits'; architectural fragments from demolished



Figure 2. A typical courtyard space
Photograph: Rose Gilroy.



Figure 3. The northern outside edge of Bolam Coyne.
Photograph: Rose Gilroy.

buildings across the city. Cars were mostly kept at the periphery of the estate and a number of older buildings were retained, such as, churches and pubs. New social facilities introduced included a large number of 'hobby rooms' for clubs and individuals to use. Erskine's practice set up office in a former undertaker's premises in the heart of the area where their open door policy allowed a demystifying of the architectural process.⁸ However, it should not be thought that this was community architecture in the sense of residents having a strong role in design, with the design relating strongly to other work by Erskine⁹.

The rolling programme of clearance and rebuilding attempted to reduce the displacement of residents who would see their new homes being built, then move into them and see their old homes demolished. The city council as landlord also worked to make its practices fit with the needs of the Byker community – so dwellings were pre-allocated with a strong concern for facilitating the retention of neighbourly contacts. The success of this policy can be over emphasised; the redevelopment facilitated less than half of the old Byker residents to return. The Byker redevelopment ultimately comprised 2,010 dwellings and today houses around 9,500 residents.

The southern part of the Byker redevelopment suffered problems of vandalism from the early 1980s. Decline in this part of the estate reached a head with proposals to demolish a small but architecturally significant area called Bolam Coyne in the late 1990s. Such a drastic intervention immediately triggered controversy and in 2000, English Heritage recommended that the government list the entire Erskine development at grade II*¹⁰. The estate was finally listed in January 2007.

One of the authors, together with colleagues, undertook a number of interviews with residents, housing managers and heritage professionals, principally in the year before listing took place¹¹.

Whilst residents were happy to think of Byker as somewhere very different and to regard it as special, there was no great enthusiasm at the prospect of listing. Listing was often equated as an outside imposition which would frustrate the aspirations of residents and cause inertia and delay. This is hardly surprising; the listing debate was started by the proposal to demolish Bolam Coyne and many years later it still stands derelict and fenced off as a festering sore.

However, a more positive future for listing hinted at in some of the interviews was the potential for changing the nature of debate over the physical management of Byker. If listing can be combined with a better environment and better management practices it might just have some positive role in reinforcing a better image for Byker for residents and outsiders alike. The original success of Byker, what makes it special, was as much about the processes of engagement with the community as the architectural qualities of place.

At the time of writing the longer-term future of Byker, and the role of listing in this, is unclear. Substantial investment to improve housing, unrelated to the listing but modified by it, is taking place and the modest in-flow of artists and young professionals to previously unpopular flats in the Wall must be considered positive forces in securing the estate's long-term future. However, ultimately listing is a highly bureaucratic, top-down process and how it is conveyed will need very sensitive handling if it is to have local credibility. Unresolved issues such as Bolam Coyne are tremendously damaging in this regard. Conversely if the area, or parts of the area, becomes seen to be an attractive colonisation locale for an outside population, or this is seen as a management device for 'improving' the area and better looking after the heritage, this might equally be perceived as a threat. The conservation community in the UK has tended to be blind to the consequences of gentrification.

CONCLUSIONS

Our interest in this paper has focused on the difficult issues raised by the conservation of the remnants of welfare state housing. We would share the view that the conservation agenda is important in retaining a sense of the progressive history of modernist welfare state housing, especially at a time when the progressive ideal of access to quality public sector housing for all is still under threat in the UK. We would also see conservation as a negotiation between the rights of residents in the present and future, and the rights of present and future generations to engage with the social history and material culture of the post-war period. Judgements will necessarily be situated within the context of particular buildings. What we have demonstrated is that there are likely to be significant challenges in terms of making those situated judgements, especially as we would warn against the enticements of heritage-led gentrification of welfare state housing. As our example of Byker demonstrates, the outcome in specific places is likely to depend on a range of factors, including the commitment of the local authority; the history, challenges and opportunities of the particular project; the scope for change within the remit of conservation; the flexibility of heritage regulators; and the extent to which local residents can be engaged in conservation decisions. There are a number of examples from the UK that demonstrate that post-war Modernist conservation can be a force for progressive conservation, but such approaches are perhaps the exception rather than the rule. Byker demonstrates the importance of processes of progressive practice, but it remains to be seen what that might mean in terms of outcomes.

NOTES

- 1 Bayley, R., 2002, *Celebrating special buildings: The case for conserving post-war public housing*, Twentieth Century Society, London.
- 2 Ibid, p.40.
- 3 Gold, J. R., 200, *The Practice of Modernism: Modern Architects and Urban Transformation, 1954-1972*, Routledge, London.

- 4 O'Rourke, M., 2001, "The Lansbury Estate, Keeling House and Balfron Tower: conservation issues and the architecture of social intent" in S. Macdonald (ed) *Preserving Post-War Heritage: The Care and Conservation of Modern Architecture*, Donhead, Shaftesbury, 169-176.
- 5 Gold, *Practice of Modernism*.
- 6 Dean, J. and Hastings, A., 2000, "Challenging images: Housing estates, stigma and regeneration", The Policy Press, Bristol.
- 7 North East Civic Trust, 2003, *A Byker Future: The Conservation Plan for the Byker Redevelopment*, Newcastle upon Tyne, English Heritage & Newcastle City Council: Newcastle.
- 8 See Drage, M. (2008) 'Byker: Surprising the Colleagues for 35 Years, a Social History of Ralph Erskine's Arkitektkontor AB in Newcastle', *Twentieth Century Architecture: The Journal of the Twentieth Century Society*, 9, pp. 147-162. for a recent account of the construction of Byker from one of Erskine's architectural team.
- 9 Abrams, R., 2003, "Byker Revisited", *Built Environment*, 29, (2), 117-131.
- 10 'Listing' (i.e. listed building protection) is the main mechanism for protecting buildings of architectural or historic importance.
- 11 Pendlebury J, Townshend T & Gilroy R., 2009, "Social Housing as Heritage: The Case of Byker, Newcastle upon Tyne" in L. Gibson, L. & J. Pendlebury J. (eds) *Valuing Historic Environments*, Ashgate, Abingdon.

Rewriting the Past: The Demolition of Modern Buildings and Monuments in Post-Communist Poland

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*„Burząc pomniki, oszczędzajcie cokoły. Zawsze mogą się przydać.”
("When you destroy monuments, spare the pedestals.
One can always find a use for them.")*

Stanisław Jerzy Lec, a Polish poet.

Human beings undergo continuous changes. So does their environment, which becomes the immediate testimony to the turns in human perception of life and to the shifts in ideologies. The problem of permanence and change in architecture and in urbanism exposes the complexity of urban transformation processes, especially with regard to the contemporary city. Thus, throughout history, distinct temporalities co-exist, composed of the overlapping layers of remains from various periods, of moments of rupture and redefinition of paradigms. However, it seems to be a common process that the present is constructed while reducing or erasing what brings to mind or celebrates the immediately preceding period. The search for modernity and development plays a constant role in the redefinition of existing symbols, monuments and parts of cities in the contemporary urban context. It seems a worldwide phenomenon, yet our special interest lies with the case of post-communist Poland.

Therefore, this paper will analyse the current situation of the Monument of the Revolutionary Struggle, also known as the Monument of the Revolutionary Deed, in Rzeszów,¹ Poland, showing the dissonance at stake. On the one hand, it is a witness to communist years, reminding a large number of people about the period of suffering they wish to erase from their memory. On the other hand, it is a testimony to Polish history, part of the collective memory of the citizens of Rzeszów, and heritage for future generations - a link between past and future.

THE BIRTH OF THE MONUMENT

The Monument of Revolutionary Struggle was unveiled in Rzeszów on the 1 May, 1974, the day of May Day marches and rallies, an important event of compulsory attendance at the time. It occupies a central and representative space in the city, next to the Provincial Council (built in the socialist realist style), the Friars Minor convent, shopping centres and, until recently, to the Hotel Rzeszów.

When the idea of building the Monument was proposed, the group of visual artists and architects in Rzeszów held a competition, which was won by the sculptor Marian Konieczny,² the ex-vice-chancellor of the Academy of Fine Arts in Cracow and the author of many well-known statues.³ Work on the project started in 1967.⁴



Figure 1. A detailed map showing the monument's location.
Photograph: authors.

Despite the fact that it has been just a few years since the City Council decided to install the city emblem on the Monument, it now faces a critical moment - either of being considered part of Polish cultural heritage and being safeguarded, or of being abandoned to an unpromising fate.

As defended by Ashworth, heritage is a cultural construction conveying intangible meanings and is potentially dissonant to some extent, as it has to deal with different individual expectations, and public and private interests. Therefore, if heritage is a construction and a potent instrument of ideology, the significant questions are why it was created, and by whom.⁵ In the case of the Rzeszów's Monument, it is evident that political, economic and legitimating issues play a fundamental role in determining its future.

The conjectures about its origin are contradictory and ideologically constructed from the present to defend either its preservation or destruction.⁶ Wiktoria Helwin,⁷ for instance, maintains the idea that it was meant to be a symbol of the commemoration of 1000 years of the Polish nation, erected by a grass-roots impulse, and hence disconnected from the glorification of communism. It should represent the turbulent times of the region throughout last hundreds of years, including references to the regional leader of a guerrilla group of the National Military Organization, one of the Polish resistance movements in World War II, as well as to soldiers who defended Polish territory even after the war. She also states that the secretary of the Party became its patron merely because such events required the Party's consent. Although it was convenient to accept the name – *of the Revolutionary Struggle* – in order to see it built, it was possible to 'smuggle' in the idea of the Polish national millennium and preserve this particular significance until today.

Nevertheless, due to its name and the period it was built, many perceive the Monument as a product of the communist system, associated with the time of suffering, deprivation and repression, and therefore, as an unwanted object. Consequently, this assumed origin of the Monument is one of the arguments of those in favour of its destruction, who maintain that it represents a past whose memory should not be preserved, and that it is an anachronistic symbol of the city. Obviously, economic interests and political issues are also present in the debates on the future fate of the Monument, as well as the land use and the search for a new contemporary identity.

The Monument's fragility and the uncertainty of its future may be further evidenced by the widespread and ready demolition of buildings and monuments from the communist period taking place in Poland, the lack of a preservation policy, and the private ownership of the land on which the Monument is placed. It is remarkable how the political changes due to the transition to capitalism, which started in 1989 and which has been well consolidated by Polish entry into the European Union, among other things, resulted in a will to break with the recent past and to construct a new contemporary identity. The neglect of the preservation of Modern buildings and monuments from the communist period, and their destruction, are part of this ideological rupture and pursuit of a new identity and modernity.

THE MODERN MOVEMENT IN POLAND, THE MONUMENT AND THE HOTEL RZESZÓW

The Monument was simultaneously built with another Modern landmark of Rzeszów, the Hotel Rzeszów, designed by the Modern architect Tadeusz Łobos in 1966, just one year before the Monument. It opened to the public in 1972 and together with the Monument they formed a well-matched duo. In 2007 the Hotel was demolished and the coherence of the ensemble was destroyed with it. Currently, there is debate about the ownership of the land, between the city and ex-proprietors in relation to the planning of a large scale commercial complex.



Apart from its importance as a city hotel, the demolished Hotel Rzeszów and the Monument of the Revolutionary Struggle were the two most important landmarks of Rzeszów. They are also among the most significant examples of the adoption of Modern Movement ideas in the city after the decay of the socialist realism of the previous decade.

The debates on Modern architecture in Poland have their origin in the interwar period, when the avant-garde journal *Blok* was published, in 1924, and which included the works of artists and architects grouped around it, such as Henryk Berlewski, Henryk Stażewski and Szymon Syrkus. The spread of Modern art and architecture opposed the then current eclectic trends focused on research into the national character of Polish art and architecture after independence was regained in 1918.⁸ This was a period when the so-called national styles in architecture were much in the ascendant and aimed to play an active role in the construction of modern Poland, mixing a wide

Figure 2. The monument against a background of the Provincial Council building.
Photograph: authors.

range of eclectic references. The new trends of artistic and architectural thinking confronted these academic revivals and looked instead to the search for renewal by the international avant-garde, the German functionalists and Le Corbusier. It is worthwhile to stress the importance of the works of Syrkus, Lech Niemojewski, Barbara and Stanisław Brukalski and their participation in the first CIAM meetings. Their contact with the international Modern Movement exponents led to a fruitful exchange of ideas and strengthened local debate.

Curiously enough, according to Leśnikowski,⁹ the development of Modern Polish architecture was not affected by the reaction it faced in countries like Germany and the Soviet Union during the second half of the 1930s, as can be seen in several works from before World War II.

Architecture and town planning of the immediate post-war period had to deal with the devastation of the cities and the catastrophic economic situation of the country. Although reconstruction was the main task, new undertakings were started too, particularly during the first half of the 1950s. The recovery of neoclassical references proposed by socialist realism was realised in the design of several buildings in Poland, mainly public. The exploration of modern materials, techniques and forms – as proposed by the Modern Movement – was seen as a way of creating a new architecture both distant from the socialist realism return to the classicism and linked to the earlier functionalism of the 1920s. The works of Tadeusz Łobos, Oskar and Zofia Hansen,¹⁰ and Jerzy Sołtan, among others, are of fundamental importance for understanding the post-war Modern Polish architecture and its derivations.

The Hotel Rzeszów and the Monument thus responded to this new trend in the post-war period, in which late Modernist influence was being developed and socialist realism weakened. It is against this background that we have to understand the two projects. They represent the most significant examples of the search for Modernity in the fields of architecture and related arts in Rzeszów.

With regard to the Monument, it owes an important part of its striking visual impact to the com-



Figure 3. Winter view of the monument's surrounding out of the Provincial Council building.
Photograph: authors.

combination of a simple and impressive form with the force of raw concrete. Its base is composed of reinforced concrete stilts, which support 37 pairs of symmetrical segments, arranged in the shape of laurel leaves. It combines the exploration of form with well-thought-out design work and technical solutions, presenting *beton brut* as one of its most important features – which Le Corbusier had formerly explored in Ronchamp, La Tourette and Chandigarh and which was one of the main elements of British New Brutalism up to the 1970s. The abstract image of the two concrete, interconnected columns rises up as a unitary element in the urban landscape.

Built on opposite sides of an intersection of important avenues, the Hotel and the Monument acted together as symbolic landmarks or, to use Kevin Lynch's terms, as elements of legibility in the mental image of the city held by its inhabitants. Giedion and Sert, in 'Nine Points on Monumentality' had formerly referred to the need to create monuments as 'human landmarks' which would 'outlive the period which generated them, and constitute a heritage for future generations,' in this way they would be 'the link between the past and the future.'

Preoccupation with the preservation of monuments as witnesses of the past developed after World War II, particularly through the Venice Charter of 1964, and the Convention Concerning Protection of the World Cultural and Natural Heritage organized by UNESCO in 1972. Nowadays, a large network of institutions concerned with heritage conservation and management is being consolidated and numerous small-scale and lesser known objects are being safeguarded, too. In this context, the case of the Monument of the Revolutionary Struggle should be carefully analysed in the light of trans-generation transfer, as an urban landmark, as well as an artistic object with its own intrinsic interest.

THE FUTURE OF THE MONUMENT

Unlike its surrounding square, the Monument is not listed, since in Poland an order of preservation is put on monuments and buildings separately from sites.¹¹ Nor is it planned to include it on a list of monuments, as affirmed by the Regional Service for Historic Monuments Preservation in Rzeszów. It could instead be preserved as Modern cultural patrimony, but no such motion has been put forward.

On the 11 July, 2006 the Order of Friars Minor recovered their previous possession of the land where the Monument stands. The Order now has the right to prepare its own project for redevelopment of the area which, according to the Service, has already been commissioned.

During our conversation with the Father of the Order last December, he could not state if the Monument was going to be safeguarded or demolished. It would depend on the strength of its structure as well as on the budget available.

Even though neither the public administration nor its present owners seem to have any intention of re-assessing the meaning and importance of the Monument, it should certainly be preserved from demolition. For some, it is one of the last exponents representing that period of Polish history in Rzeszów. It would be meaningful to preserve an object whose presence commemorates the aura of the recent past in today's city. It is important especially now, after demolition of its ever-present



Figure 4. Hotel Rzeszów.

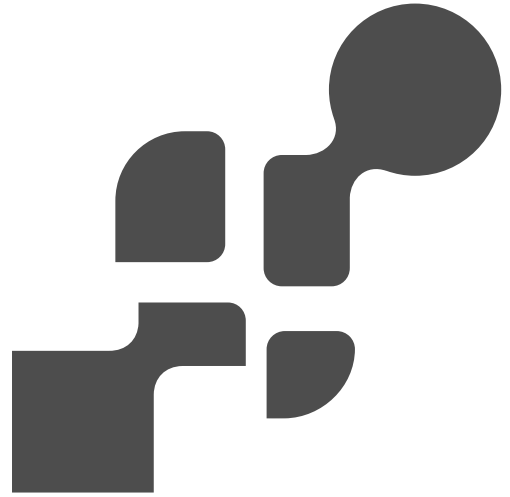
Photograph comes from a webpage of Rzeszów Technical University, <http://www.prz.edu.pl/pl/wzim/index.php?page=konferencje/ruch/miejsce>.

companion the Hotel, and in face of the possible construction of a complex of commercial and conference services in that area by a private developer. Furthermore, it is still part of the city's collective memory; it has grown on the citizens. Although, it does not have the same meaning for the younger generation as for the older ones, for many, including the young, it is a crucial symbol of the city.

The absence today of a strong interest and debate about the future of the Monument is an example of the duality and complexity that exist between building the future and the permanence of the past. To be protected from destruction, the Monument needs to be defended by the public. For that, it is important to improve the citizens' knowledge of it, to create a new identity, which could be done through exhibitions, publications and documentaries. It is fundamental that a preservation order be put in place as soon as possible, seeing it as either a symbol of 1000 years of Poland history or as communist heritage. It must be defended as a fundamental link between past, present and future, as an important landmark in the Rzeszów skyline and as an artistic object in itself. It is an object capable of assuming several meanings, of being polysemantic and open to several interpretations.

NOTES

- 1 Rzeszów is a city of 170,000 inhabitants. It is situated in south eastern Poland.
- 2 In 2000 he was awarded the Commander's Cross with the Star of the Order of Poland Reborn, one of the Poland's highest orders.
- 3 For example: "Nike", in Warsaw (1964); "Lenin", in Nowa Huta, Cracow (1973), now dismantled; "T. Kościuszko", in Philadelphia, USA (1979), and many others.
- 4 Due to the marshy land, it cost over 10 million złotych, which at the time might be the price of constructing a block of flats. <http://borowik.blox.pl/html/1310721,262146,21.html?297932>. Accessed on April 10, 2008. It is not clear how the funds to build it were raised. There are two contradictory explanations for it, one arguing that the donation of money was somehow obligatory by means of a tax of 1% on people's salaries, whereas the other maintains the donations were voluntary.
- 5 ASHWORTH, G. J. Heritage: definitions, delusions and dissonances. In: AMOEDA, R. et al (ed). *Heritage 2008 – World Heritage and Sustainable Development*. Barcelos: Green Lines Institute, p.3-9.
- 6 The understanding of history as a subjective appropriation of facts, an interpretative contemporary construction – as defended by authors such as Nietzsche, Foucault and Giedion – is here fully used as an instrument to create symbolic meaning and connotation.
- 7 http://www.echo.ereszow.pl/index.php?itemid=3&id=129&option=com_content&task=view. Accessed on April 10, 2008.
- 8 CZERNER, Olgierd. Competing ideas in Polish architecture. In: LESNIKOWSKI, Wojciech. (ed). *East European modernism*. London: Thames and Hudson, 1996, p.206.
- 9 Idem, p.216.
- 10 Oskar and Zofia Hansen redesigned several destroyed quarters during the 1950s and 1960s. Oskar Hansen developed by that time the concept of "Open Form" that they would apply in several other constructions.
- 11 See note no. 7.



Change and Continuity

Monuments and Icons

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability



Monuments and Icons

INTRODUCTION TO THE SESSION

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What should be the future of Modernist buildings when they no longer fulfill the functions for which they were constructed? Do we collude in hypocrisy when we grant Modernist buildings an iconic status that then persists independent of their original functions? Where should we place the priority when we preserve Modernist buildings: on the design principles that engendered particular physical configurations, or on the resulting configurations themselves?

This set of essays tackles these and similar questions about the Modernist Monument as icon. Roseau examines the future of Saarinen's TWA Terminal, a building that no longer fulfils the requirements of a contemporary airport, but which, Roseau argues, could be reanimated to stimulate the aerial imaginary that its forms and processes originally translated.

McVicar and Suau make a parallel argument for the future of the ruined Cardross Monastery, a building that, like the terminal, no longer fulfills its original purpose, and in fact did so only briefly, but which has achieved iconic status in Modernist histories. They ask whether the monastery can be retrieved from a static existence as icon and restored to participate in an unfolding history in which a dynamic hybridity reinstates meaning.

Yasuko Kamei grapples with a similar problem in her study of Gregory Ain's *Mar Vista* housing tract. The inhabitants of the tract are in the process of determining policies for its preservation. Should they place priority on preserving the forms so strongly associated with the project and so dramatically preserved over the decades, or is it Ain's design principles fostering flexibility that deserve preservation?

By contrast, Sven Sterken's case study concerns a building no longer in existence, a remembered icon: Corbusier and Xenakis' renowned Philips' Pavilion. Here the iconic status of the building forms the inescapable justification for its reconstruction; but the resulting design process then raises the question of what, in fact, constitutes the building itself. Is it its photogenic sculptural forms, its now obsolete structures, its intended aesthetic function as multimedia experiment *avant la lettre*?

We are warned by Miles Glendinning that granting iconic status to buildings of the Modern Movement carries with it a number of dangers, not least of which is a potential pandering to the current commodification of architecture that undermines the very principles that gave rise to these buildings in the first place.

These papers provide us with a cross-section of case studies and analysis that problematize the disparate ways that buildings exist in time. As soon as those buildings granted status as monuments of the Modern Movement are viewed reductively as architectural moves in a game of promoting a modernist perspective, we are warned, they may be lost to the imaginary of everyday life. There is a surprising consensus among these papers that acknowledges and privileges the dynamic nature of historical process and the flexibility of architectural principle over and above the passive voyeurism of iconicity.

The Trojan Horse: Contemporary 'Iconic' Architecture and the Falsification of Modernism

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'Restoration... means the most total destruction which a building can suffer: a destruction out of which no remnants can be gathered: a destruction accompanied with false description of the thing destroyed...'

So said John Ruskin in his celebrated mid-nineteenth century polemic against 'restoration' of medieval buildings, *The Seven Lamps of Architecture*. Then, the lament was that the contemporary world had dishonestly and covertly appropriated the heritage of the past for its own purposes – nationalism, tourism, religion or simply architectural 'historicism'. Subsequently, in his definitive paper of 1903 on the definition of monument values, the Viennese art historian Alois Riegl argued for the primacy of 'reception' over 'creation' – that it was not only legitimate but inevitable that each age would re-interpret the heritage in accordance with its own values. But the ethical argument against disguised appropriation as a 'falsification of history' remained popular into the twentieth century.

In the interwar years, Modernism boasted that it had decisively banished this supposedly unhealthy confusion through its love of the future and its sharp sense of the 'otherness' of the past – a situation welcomed in twentieth century conservation manifestoes such as the Venice Charter, with their demands for 'legibility' and separateness of restoration work. Over the past decade, however, the phenomenon of covert appropriation of heritage has re-emerged in a far more wide-ranging form – now especially targeting not musty old cathedrals but 'our' beloved MoMo for infiltration. A new, aggressively capitalist architecture, addicted, like the nineteenth century, to competitive individualism – but now in the form not of stately classical palaces but of Bilbao-style city-competition through attention-grabbing 'iconic' buildings – has seized on the MoMo's formal and spatial freedom as an ideal vehicle for branding and image-making, and has begun selectively appropriating 'our' MoMo's heritage, cherry-picking commodifiable elements and lionising elite signature architects, such as Aalto, Wright or Eero Saarinen, while further stigmatising the vast legacy of the 'real' MoMo's social collectivism, such as its often troubled grands ensembles of mass housing.¹

This appropriation of the past is far more insidious than nineteenth century architecture's 'revivals' of a distant past. For the new 'Iconic Modernists' audaciously trumpet themselves as a continuation of the futurist MoMo – even as they plunder and corrupt it into something as false and empty as their own digital world.

In my polemical paper, I argue that, for DOCOMOMO, this new conflation of 'modernisms' poses a number of special dangers. For example, it threatens to turn our traditional alliance of practising architects and historians into a divisive force. It potentially pits rival 'American capitalist' and 'European socialist' genealogies of Modernism against one another. And it risks, by association, a fresh wave of public alienation against 'our' Historic MoMo, when Iconic Pseudo-Modernism eventually, inevitably, falls from fashion. What should be the response of DOCOMO-

MO? On the whole, up to now, our response has been to ignore the problem, or even to bask in the reflected glory of Koolhaas, Gehry et al.

In the next few minutes, I want to briefly highlight this issue by focusing on a case study drawn from Scotland and discussed in another paper in this session: the case of the architectural practice, Gillespie, Kidd & Coia, a solid and well-regarded twentieth century Scottish modernist firm that has been retrospectively re-branded as an international signature design practice like the iconic figures of today.² The genealogy of GKC itself stretched back nearly a century, to the fertile eclecticism of late nineteenth century Glasgow, but during the 1920s-50s the practice became dominated by Jack Coia, a forceful Art Deco/classical architect with a gift for self promotion, who established strong patronage links with Scotland's Irish-Catholic ethno-religious minority, and ensured the firm a 40-year succession of commissions for Catholic churches and schools, culminating in the extension of a traditional seminary at Cardross, near Glasgow, in 1959-66: a modernist monument to the 16th-century principles of the Council of Trent!³ By that time, the design initiative in the firm had shifted to two younger architects, Andy McMillan and Isi Metzstein, who had shifted to a more up to date expressionistic Modernist style, but the firm's overall ethos stayed the same throughout the whole postwar period – building traditional stately monuments for a more or less traditional institution.

By then, though, there were the first harbingers in GKC's work of a shift towards something more like the image-driven architecture of today, especially in the firm's growing disregard for the Vitruvian principle of integration of aesthetics with sound construction and practical use: Cardross Seminary was abandoned only 14 years after its completion, and many of the churches experienced rampant problems of water penetration or structural degeneration. As long as the level-headed Jack Coia remained in the firm as senior partner, these difficulties were kept in check, but following his retirement in the 70s there was a rapid disintegration, culminating in the Robinson College debacle of 1974-80, where the firm proved unable to build their competition-winning design for a new Cambridge college and had to be helped out by YRM. Following the maxim that 'those who can't do, teach', the firm was then rapidly dissolved and converted into an academic dynasty nested within the Mackintosh School of Architecture in Glasgow.

From the early 90s, piggybacking on to the burgeoning cult of Mackintosh, GKC followers began an outpouring of publications and exhibitions aimed at repackaging the firm as international innovators, pioneers of 'a completely new approach to architecture', and actively downplaying Jack Coia and anyone else other than McMillan and Metzstein: the most 'iconic' picture of the celebrated duo at the drawing board is actually a doctored view of three architects, from which, Soviet-style, their colleague Bob Walkinshaw has simply 'disappeared'!⁴ Even the Cardross debacle was exploited as the fuel for a romantic argument of thwarted genius. Intact, the seminary extension had attracted little contemporary attention, and certainly none at an international level. As a romantic ruin, though, and with the 1990s demolition of the nineteenth century house that had dominated it, the truncated extension could be elevated into a stand-alone cult object. The link to contemporary iconic architecture and signature designers was cemented by McMillan, who developed a strong personal friendship with avant-garde Catalan designer Enric Miralles and, as a competition jury member, helped secure him the commission for the Scottish Parliament. Ironically, Miralles in turn subsequently acquired an aura of Mackintosh-like tragic lost genius through his untimely death in 1999, even as his parliament design ran into similar conflicts between image and practicality.

By 2000 or so, at any rate, the real GKC, rooted in the real Glasgow, had been successfully emptied out, and replaced by a faceless 'brand' made up of generalised images and hagiographical rhetoric that could apply to any signature architect anywhere. But, you might say, the element of active commercial commodification is small, by comparison with the marketing of present-day practising architects, or the monstrous commercial cult of 'Mockintosh' - so what's the problem for us – how does that affect our concerns within DOCOMOMO?

My response is that it affects us very much. First, present-day architectural cults like that of GKC do not simply leave us alone, but invade our space with an alien, Darwinian competition ethos, exaggeratedly trumpeting their own artistic, poetic genius to the point of historical distortion, at the same time as rubbishing most of the rest of the MoMo heritage. For example, a recent GKC exhibition catalogue, ignoring the almost complete lack of contemporary press coverage of the firm's work, boasts that contemporaries were left 'standing in awe' at their works, which 'reach out to us from a sea of post-war ordinariness', glowing 'in crafted qualitative relief against a whole field of quantitative drabness'. The very same people who target GKC's elite churches as icons equally encourage us to denigrate the collective social environments of city planning and housing that formed the real heart of postwar modernism. The editor of the journal *Prospect*, Scotland's only serious architectural magazine, has in recent years run two impassioned campaigns in parallel: one to 'save' and rebuild the ruins of Cardross, and the other to identify and pillory the 'worst town in Scotland' each year. Shockingly, the most frequent winner of this booby prize has been Cumbernauld New Town, Scotland's truly international set piece of 1960s avant-garde motor-age city planning, whose superficial decay is branded by *Prospect* as squalid and ripe for demolition, in contrast to the veneration commanded by the traditional, heroic ruin of Cardross. And if something like Cumbernauld, once itself an elite intellectual project famed across the world, could be targeted for this crass, mischievous denigration, what hope is there for our being able to achieve any understanding or engagement with the real everyday environments of Modernism, however successful their general public reception? – for example in a provincial Scottish city such as Aberdeen, which can boast of a thoroughly mainstream postwar mass housing programme, infused with a tremendous civic pride and consistency, and lovingly maintained ever since.

Now, of course, the opposition between elite and mundane buildings is as old as architecture itself: but prior to the twentieth century, it was fundamentally structured by the 'hierarchy of decorum': it was usually *humble* buildings that were badly built and fell down first! What we're dealing with now, I suggest, is a specific and intrinsic phenomenon of the Modern Movement, not just of recent years but with roots going back to the beginning of Modernism. It's a phenomenon bound up with the processes both of creation and reception of architecture. Processes of creation, in that modernism's original bid for freedom from the old stuffy order involved a much sharper contrast between individualistic self-promoting hero figures, like Wright or Aalto, and mass rational quantity provision, whereas the new modernism, even in areas like social housing, is far more about image and style – a kind of PoMo in MoMo dress. And processes of reception in the way that that individualism was initially held in check by its social and cultural context during the years of socialism in Europe (while integrating itself from the first with capitalism in North America). But now, it has burst far more triumphantly and aggressively out into the open under neo-capitalism, spreading from elite avant-garde creators to mass consumptionists everywhere, as every town tries to make itself a Bilbao or a Barcelona.

It's only understandable, isn't it, that this new Iconic Modernism will try to re-interpret and appropriate the 'old Modernism' in its own image? Understandable, maybe, but something, I'd say, that threatens our basic interests in DOCOMOMO, by potentially dividing us - architects vs. historians, Europeans vs. Americans, and so forth. This is a problem that has arisen from tensions and contradictions within the intrinsic essence of the Modern Movement, and so we in DOCOMOMO must make some effort to address it.

How, though, should we actually respond to the challenge? Are there specific changes in policy that we should make? Well, certainly our response must be a very careful and nuanced one - it's not a question of crudely asking people to stop researching or preserving elite set pieces of the Modern Movement, something people have been doing at least since Falling Water or the Villa Savoye, and are going to carry on doing. I would argue that our main task here – and it's especially a task for the historians - is one of establishing and maintaining 'the facts' (however defined) about the differences between old and new modernisms, between old set pieces and

new icons. Some of our activities – for example, the researches into mass housing under the aegis of the ISC Urbanism + Landscape – can directly help spread knowledge about modernisms stigmatised by today's icon-mongers. And hopefully, even our research into the work of individual 'heroic' designers can be conducted in a more modest language, setting them carefully into their proper social and political context (e.g., the Catholic patronage context of GKC's work in Glasgow) rather than disembedding them as timeless form-givers.

The history of the MoMo, and of post-eighteenth century architecture generally, tells us that there is one final consideration to bear in mind: the fact that in new architecture, as ever, a swing in fashion – in this case, against the showy excesses of 'iconic modernism' – must be anticipated sooner or later. On the one hand, this is a potential danger – we don't want to be nailing ourselves to the deck just as the ship begins to go down, and there's no reason whatsoever why our low-key heritage interests should become tarred with the brush of architectural polemic. But equally, it offers a reassurance to us, providing we can keep our nerve. The first years of DOCO-MOMO, with Post-Modernism as the ruling architectural movement, rather than today's neo-modernism, saw no disorientating conflicts of this sort. Arguably, all we have to do is sit tight and keep ourselves separate and secure until the next tide of architectural polemic swallows up all the Libeskind and Gehrys and Koolhaases and sends new architecture off in another direction – and then we'll be in the clear, with the public reputation of 'our' Modernism left intact, and maybe even enhanced!

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Transformations of a Suburban Estate Designed by Gregory Ain

PRESERVATION OF THE MAR VISTA TRACT AFTER 60 YEARS

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Figure 1. The Mar Vista Tract in 1948.

Courtesy of the Architecture & Design Collection, University Art Museum, University of California at Santa Barbara.

INTRODUCTION

The Mar Vista Tract is a subdivided housing development of single-family residences designed in 1948 by Gregory Ain in the suburbs of Los Angeles (Fig.1). Marketed toward returning soldiers under the name “Modernique”, the houses were intended to make innovative modern design available to the middle class after WWII.

Despite the dramatic increase in the size of US residences since 1948, the Tract has retained an appearance close to its original form. Only one out of the development’s 52 housing units has been completely reconstructed, and no extensions have been made to a second level on any of the units, evidence of its adaptability to society transformations. In 2003, the City of Los Angeles designated the Tract as a Historical Preservation Overlay Zone (HPOZ), or historic district, the first for an area built after WWII. This designation created the need for the Tract residents to develop a preservation plan for its maintenance and preservation.

The original intent of this study was to clarify the factors that enabled sixty years of maintenance and preservation of a suburban housing development, and to serve as a precedent for Japan,



Figure 2. The Mar Vista Tract in 2004.

where in comparison, housing has a short life span. Through our research, we discovered that the creation of a preservation plan had been stalled due to the differing perspectives of inhabitants towards the preservation of the Mar Vista Tract.

This report first reveals how the Mar Vista Tract was naturally maintained and preserved over the years without any guidelines, and proposes a style of preservation derived from the disparate opinions of the inhabitants.

DESCRIPTION OF THE MAR VISTA TRACT

The Mar Vista Tract is situated in Southwest Los Angeles, a twenty-minute drive from the popular sightseeing area Venice beach. Gregory Ain designed the site plan and unit plans in collaboration with Joseph Johnson and Alfred Day, with landscaping planned by Garret Eckbo. The houses were arranged along three parallel streets, each lined with a different variety of street tree. The area has subsequently developed into a residential townscape with rich greenery, as shown in Figure 2.

As an architect of the second generation of Modernists succeeding Rudolf M. Schindler and Richard Neutra, Gregory Ain was highly influenced by his immediate predecessors. In 1940, Ain received a Guggenheim Fellowship for research on low-cost housing in which he pursued ideas for innovative, cost-efficient design.¹ The Mar Vista Tract can be considered the culmination of his career.

Figure 3 shows Ain's prototypical floor plan for the Tract residences. The site area per unit is approximately 650m², with a floor area of 93m² (1050 square feet). Due to the ingenious use of movable partitions, this plan affords flexibility in the number of bedrooms, ranging from one to three, offering a total of four variations. At the same time, Ain's placement of the kitchen adjacent to the entrance positions the living room beside the rear garden, supporting what is referred to by the inhabitants as "inside-outside living", or in other words, the spatial extension of the interior to the exterior and vice versa. By incorporating the exterior as an extension of the living space, the limited interior space appears larger than its actual dimensions. Other distinctive features of the design are the employment of four-foot modules and flat roofs.²

To avoid the monotonous appearance characteristic of subdivided housing with identical plans, Ain provided a total of eight plan variations by reversing and rotating the prototype. In his site planning, he arranged the houses so as to initiate social interaction while ensuring a degree of privacy.

THE SURVEY

In order to assess changes already made to the houses and attitudes of residents toward future changes, we began collecting data in May 2004; and in August that same year, we conducted a survey in the form of questionnaires, site visits and interviews. In addition to standard questions on family demographics and the length of occupancy, the survey included query items regarding the HPOZ, the usage of movable partitions categorised as folding walls or sliding walls, and the history of alterations made to the units, such as extension and reconstruction work. Forty-five out of 52 units (including one long-vacant unit) were included in the survey.

The survey shows that the age and occupancy length of the Tract residents are varied and almost evenly distributed. The average family size is 2.04 members per household. The percentage of permanent residents among the inhabitants is high, with the average length of occupancy of 22.2 years, which is relatively long in comparison to the general US populace who relocate roughly every five years. While on one hand a low turnover may be advantageous toward reaching consensus for establishing a preservation plan, the diversity of the residents—and thus disparity in values and approaches—makes it difficult to find common ground concerning its preservation.

An unusually high number of the 73 inhabitants surveyed, 31 occupy professions related to art, design or entertainment. The most frequent reason cited for choosing to reside at the Mar Vista Tract (multiple answers permitted) was its design (29 inhabitants), followed by the attraction to the environment (18 inhabitants) and to the housing unit plans (17 inhabitants). Partly due to the nature of the Los Angeles locality, the residents for the most part have a keen interest in design and thus seem to share a good understanding of the Tract's architecture; however, for the same reason, they appear to be assertive in their aesthetic tastes.

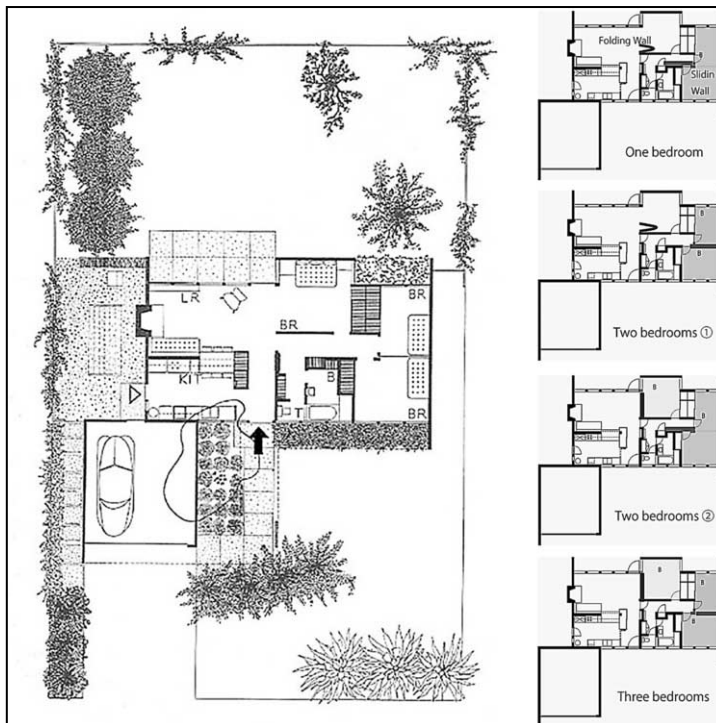


Figure 3. Standard Housing Plan.

Courtesy of the Architecture & Design Collection, University Art Museum, University of California at Santa Barbara.

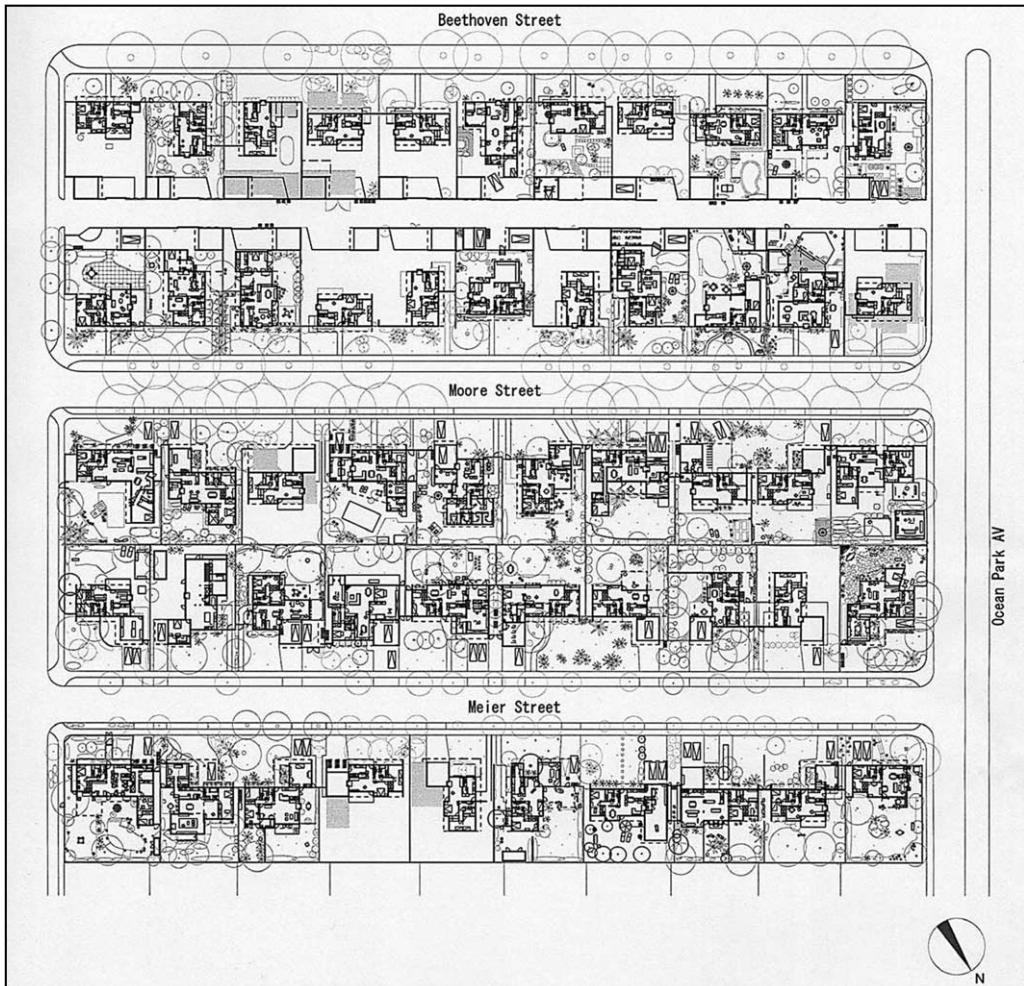


Figure 4. Site Plan in 2004 (Reflecting actual on-site measurements).

CHARACTERISTICS THAT FACILITATE PRESERVATION OF THE TRACT

Figure 4 shows actual measurements taken on site. It reflects the extensions and alterations that have been made to 35 out of the 41 units surveyed.³ Despite its history of extensions and alterations, the Mar Vista Tract has proven to be adaptable to the living requirements of its inhabitants and has retained its original exterior appearance. This can be attributed to three characteristics of Ain's design: spatial flexibility, the employment of a four-foot module, and the clear distinction between front and back.

In regard to spatial flexibility, the unit floor plans accommodate diverse lifestyles and family structures with four possible variations in room arrangement. The living room was expanded in 29 out of 41 units. This is relatively a small number owing to its ready integration to the master bedroom. In 31 out of the 41 units, the 33m² garage spaces serving as supplementary space have been altered. Since these alterations did not require large-scale construction work, the exterior appearance of the houses was not affected.

The four-foot module employed in the design, which enabled cost-reduction and efficient mass production and assembly during construction functions as a modular guideline for extensions. Its application helps preserve the Tract as it was designed and affords harmonic balance between the buildings and their surroundings. Extensions based on the four-foot module were made to 25 out of 40 units surveyed.

The clear front and back side distinction encouraged extensions to the rear where the living room—a space that typically calls for expansion work—is located, keeping the front largely intact. The kitchen/foyer area whose form is reflected on the exterior remains for the most part unaltered, maintaining the original appearance of the Mar Vista Tract. Among the 42 parcels surveyed, 33 have extensions to the rear, while only seven extend to the front.

DISPARATE OPINIONS OF OCCUPANTS REGARDING UNIT MODIFICATION, MAINTENANCE AND PRESERVATION

The Los Angeles city council requires the development of a preservation plan; however, in order for its implementation, the council must approve the plan created and proposed by the Tract residents. This requirement sensitises residents to the architectural and historic values of the area, raising awareness for its maintenance and preservation. Yet the diverse range of occupants produces differing opinions on what is important regarding preservation.⁴ The survey results reveal two positions toward preservation of the Mar Vista Tract: 1) to favor preservation of Ain's plan in the form it was originally conceived⁵, or 2) to favor change according to the concepts of flexibility inherent to Ain's original intent.

The former approach primarily reflects the views of long-time occupants of units equipped with the original folding walls and sliding walls⁶, who either live in units that are close to their original condition, or in those with readily reversible alterations. Typical alterations include modifications to the garage space for other purposes or extensions based on the four-foot module. There is one case where the occupants attempted to restore the unit to its original design after significant alterations had been made.

Some occupants are strongly opposed to staunch adherence to Ain's original plan, proclaiming that they are living in a house, not a museum. Ultimately, the defining characteristic of the Mar Vista Tract is its ability to adapt to changes throughout the course of time and to the demands of those who reside within. Accordingly, while focusing on the maintenance of the Tract's original elements might be an approach that would promote stronger sentimental attachment of occupants to their homes, as well as foster the attachment to the original design among long-term occupants, the adaptability as the inherent strength of the Mar Vista Tract would not be preserved if this were to be the sole purpose of its preservation.

The second position on preservation is held by younger inhabitants or those involved in the arts, who have made alterations by employing the four-foot module and/or the movable wall partitions—the key features of the Mar Vista Tract. They generally hold high standards toward their living environment as well as their own position concerning Ain's design concept. Typical alterations include unit expansion with the installation of sliding walls between the extension and the existing rooms, or the relocation of folding walls to accommodate living room extensions, creating a living environment that suits modern sensibilities.

Although an HPOZ committee⁷ discusses alteration plans with those who seek modifications on their homes, unit alterations are generally implemented according to the discretion of the inhabitants as long as those plans are in accordance with the preservation plan since the Mar Vista Tract is comprised of single-family residences. What is important, however, is to avoid blind acceptance of alterations that merely employ Ain's architectural vocabulary of the four-foot module and the use of folding and sliding walls.

CONCLUSION

The Mar Vista Tract is a work of Modern architecture built as subdivided middle-class housing during the economic boom after WWII when there was a great supply of mass housing. As such, it realised low-cost and simple construction while providing innovative design details, such as the use of flat roofs and openness that unifies the exterior and interior space.

As stated earlier, the occupants' opinions are divided into two groups: one aiming to preserve Ain's plan as it was originally conceived, and the other aiming to preserve Ain's design concepts. However, the crucial point in regard to the preservation of the Tract is whether the inherent characteristics of the Mar Vista Tract are properly understood. It is easy to interpret tangible elements or forms, such as the use of four-foot modules or folding/sliding walls as the objects for preservation. Yet the greatest attributes of the Mar Vista Tract do not lie in its form or building technique, but rather in its flexibility, tolerance, and adaptability to change; in other words, its ability to maintain the balance of transformation and preservation despite its being a collection of unit houses, retaining its original form while responding to the demands of its occupants.

Accordingly, the central theme of the preservation of the Mar Vista Tract should be to encourage a proper understanding of the system that enabled such delicate balance of transformation and preservation, transcending the conventional scope of preserving only physical attributes of the design, the movable partitions, and building techniques.

NOTES

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- 2 Other features include the use of a distinctive colour system to give rich variation to the appearance of an otherwise unadorned subdivided development and the planting of various fruit trees at each unit to facilitate interaction among the residents.
- 3 Because one on-site visit/interview out of the 42 households was not conducted at the inhabitant's home, but at the house across the street, actual measurements could not be taken and the condition of the sliding and folding walls could not be confirmed.
- 4 The residents have reached consensus only regarding the preservation of the exterior appearance from the street and disallowing second storey expansions.
- 5 Not all residents acknowledge the value of the Mar Vista Tract and some regard their unit simply as an ordinary built-for-sale house. Our categorisation places those residents who do not have a full appreciation of Ain's concepts in the first group.
- 6 Concerning the characteristic movable partitions, eleven out of 41 units kept the original folding walls, while 30 kept the sliding walls. All units with folding walls have also preserved the sliding walls.
- 7 The HPOZ board is comprised of five members including at least three residents and an architect. The function of the HPOZ Board in regard to the unit alteration is advisory, not regulatory.

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Neglectfulness in the Preservation and Continuity of Late-modern Architecture

THE CASE OF ST PETER'S SEMINARY BY GILLESPIE, KIDD AND COIA

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Manfredo Tafuri's critiques in the 1960's challenged perceptions of Modernism as fixed and absolutist. Advocating operative criticism¹ as a tool to differentiate myth from history, Tafuri proposed redefinitions which enabled hybridization and continuity. In today's culture of congestion², how may Tafuri's redefinitions offer insights into the fate of a Late Modernist ruin? (Fig 1)

Such questions are under scrutiny at Gillespie, Kidd & Coia's St Peter's Seminary at Cardross, Scotland. Emerging from a collision of visionary forces, shifting ideologies and unprecedented permissiveness, this building constitutes neither an archaeological ruin, nor is it yet an architectural icon. It is, however, attaining an increasingly mythical status. Seemingly uninhabitable, yet passionately defended; variously proposed as archaic ruin, preserved icon, or re-branded hybrid complex, architects, developers, owners, and preservationists engage in furious debates over what should 'appropriately' be preserved: frame, or function? Should this Modernist ruin be mythologised as an icon, or should the latent frame be consolidated to re-interpret its function and image? Tafuri's critiques of myth and history offer frameworks to explore such alternatives: this paper reviews the consequences of creating an architectural myth at Cardross.

The mythology of Cardross begins with its spectacularly short life as a seminary. Commissioned in 1953 during a post-war building boom, the seminary responded to optimistic projections of growth for Roman Catholic congregations in redeveloping city centres and New Towns. An expansive church building programme suggested the need for a facility to train 102 priests at St Peter's College in the grounds of Kilmahew House at Cardross, 33 kilometers from the center of Glasgow. To undertake this ambitious proposal, the Archdiocese continued a long-established relationship with Glasgow based architects Gillespie, Kidd and Coia, who had completed numerous acclaimed Modernist churches over the previous twenty years. Their experience, combined with a robust economy and the autonomy of the architect's role³ in mid 1950's Britain, encouraged – demanded – a visionary response from the lead designers, Isi Metzstein and Andy Macmillan⁴. Completed in 1966, Cardross was immediately and overwhelmingly declared an architectural success, winning a RIBA Bronze Regional Award in 1967. Functional success was less conclusive; the complex was never fully occupied, and, after only fourteen years operating as a seminary, was abandoned and de-consecrated.⁵ Since 1980, the Archdiocese has adopted a condition of laissez-faire, relinquishing the building as a heavily weather-damaged and vandalized ruin in an overgrown forest (Fig 2).

Two decades of continued dereliction have only intensified the allure. Active coalitions of architects and artists have vigorously lobbied for recognition of the project, achieving an 'A' category historical listing, inclusion in the *World Monument Fund's* 2007 review of endangered buildings, and top ranking in a 2008 *Prospect Magazine* list of the best 100 modern buildings in Scotland. A significant amount of literature has reviewed various alternatives for the fate of Cardross: acceptance as heroic ruin, reconstruction as iconic museum, reconfiguration as housing.⁶ The



Figure 1. Cardross Seminary: condition in 2007. Architects Gillespie, Kidd and Coia.
Photograph: authors.

Archdiocese proposed stripping the structure and selling portions of the site for a housing development; the Association for Cultural Advancement through Visual Art envisage redefining Cardross as a Scottish cultural arts powerhouse⁷; most recently, UK developers Urban Splash began feasibility studies for a housing redevelopment promising to preserve the 'bulk, density and presence'⁸ of the building.

Such alternatives parallel contemporary debates defining the 'appropriate' re-use of mono-functional Late Modernist buildings. Since the collapse of Modernism, flexibility and changeability have become keywords for an unpredictable and uncertain situation. Within today's *culture of congestion*, which encourages scenarios of overlapped and changing activities within a generic frame, the oppositional projections at Cardross align closely with Tafuri's definitions of myth and history, manifested as '*Total Theatre*'⁹ or '*absent minded usage*'.¹⁰ In lieu of defining the 'appropriate' re-use of Cardross, what can Tafuri's alternates instead offer to an understanding of the situation at Cardross?

History, in Tafuri's critique, can no longer offer solutions; its role is to offer new questions, to generate new meanings, and to threaten and contest the 'tranquilizing myths'¹¹ of the present. In *Theories and History of Architecture*, the critic is urged to 'give up simplifying history, and to accept its internal contradictions and its plurality'.¹² The debated fate of Cardross can be re-presented as two alternatives: simplification as mythological icon, or redefinition as a historically ambiguous hybrid.

The complexities of history and myth at Cardross can be better understood by reviewing two key forces which were instrumental in the extremities of architectural success and functional failure:

- The acceptance of 1950's Modernist redefinitions in the UK following the 9th CIAM Congress and the permissive declarations of Team X.
- The radical ideologies of the Liturgical Movement leading up to the Second Vatican Council, and their spatial impact on seminary training.

The collision of these forces placed Cardross as a simultaneously visionary yet archaic response: a collision which began with the formal acceptance of Late Modernism in 1950's Scotland.

Cardross was commissioned in 1953, three years before the 9th CIAM Congress which advocated historical engagement as a reaction against the unyielding ideologies of the 1928 La Sarraz declaration¹³. The completion of Le Corbusier's Ronchamp and La Tourette in the late 1950's embodied proposals to mediate tradition with Modernist ideologies; a stance which overruled previously anti-modernist reactions from Arts and Crafts and Beaux Arts proponents in Britain. The predominantly British Team X and their specific re-interpretations of Late Modernism fuelled what Reyner Banham referred to as 'an extraordinarily exciting time in the evolution of ideas in Britain.'¹⁴ Combined with a burgeoning economy and the promotion of the autonomous architect, the atmosphere offered an unprecedented permissiveness for young British architects. At Cardross, this translated into an uninhibited hybrid freely recalling components of La Tourette, Scottish baronial houses and mediaeval monasteries. Yet while Cardross responded architecturally to the leading edge of New Modernism, the functional brief was derived from a rapidly diminishing archaic Liturgy.

In 1962-65, while Cardross was in construction, the Second Vatican Council met, debated and published sixteen documents that radically and immediately altered the nature of the Liturgy. Formalizing the recommendations of the Liturgical Movement, these documents advocated a return to pre-mediaeval ideologies: specifically, a participatory Mass and increased engagement between priests and congregations. Both factors signalled radical revisions to church and seminary layouts: centralized forms replacing axial precedents, and urban engagement in lieu of monastic isolation.¹⁵ In 1953, the year Cardross was commissioned, these radical visions were not manifest in Scotland, and the brief remained faithful to the remnants of the Old Liturgical ideology; a mediaeval, monastic community, inward looking, isolated from the world in a forest site 33 kilometres from the city centre, housing priests in rigid, structurally-integrated isolated cells.



Figure 2. Cardross Seminary: condition in 2007. Architects Gillespie, Kidd and Coia.
Photograph: authors.

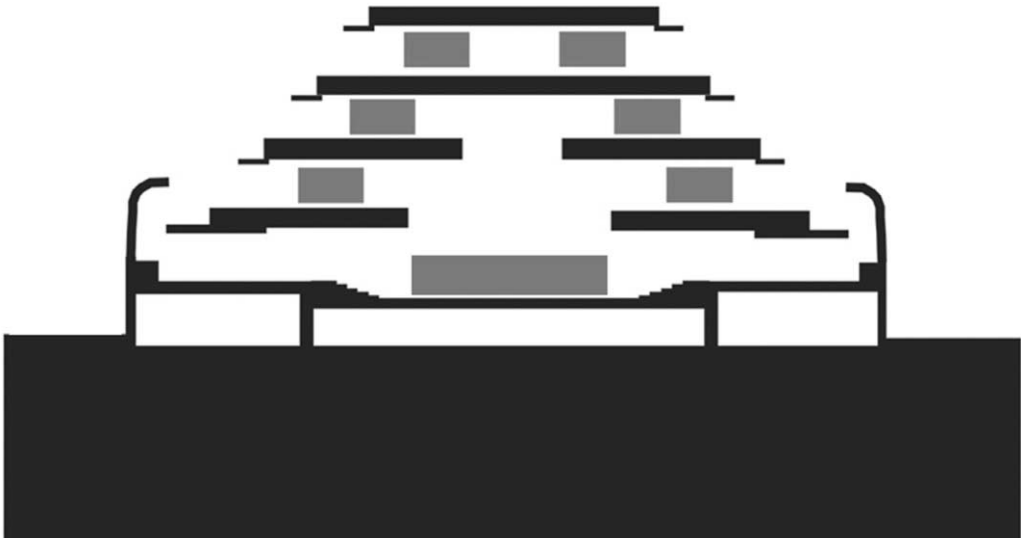


Figure 3. Cardross as 'Total Theatre': preservation as mythical yet uninhabitable art object.

Cardross stood at the brink of colliding ideologies as a hybrid spatial system, responding to the permissiveness of late Modernist principles and New Liturgical altar arrangements, but functionally attuned to the mono-functional and absolutist premises of early Modernism and the old Liturgy. Unable to respond to New Liturgical requirements of engagement, the seminary was functionally obsolete before construction was even complete.

Reasons for the continued dereliction are varied and ambiguous; the Archdiocese and potential developers struggle with economics, maintenance costs, the isolated site and the inflexibility of the structurally integrated cells. Yet it is precisely the isolated site, the ambitious scale and the uncompromising inflexibility on which the mythology of Cardross depends. In attempting to define Cardross as an architectural icon, one alternative for the building's fate promotes preservation of the inflexible frame, a redefinition of Cardross as Tafuri's 'Total Theatre'.

This first viewpoint argues that Cardross should be preserved either as it is now, an archaeological ruin fixed at a specific moment in time, or returned to its 'original' condition. This stance disregards functional failure, retaining uninhabitable space as a Museum which displays the myth of irreplaceable authenticity (Fig 3). The value of authenticity is reliant upon a narrow, specific cultural status which is functionally closed and available only to the 'expert' insider - the architect, artist, initiated observer: the operative organizers party to the knowledge and secrets of the myth. The declaration of 'masterpiece' is ultimately reliant on a refusal to engage in use. 'This is', states Tafuri, 'architecture that does not want to be consumed, that wants to prevent an absent-minded usage, and that, consequently, does not accept its disappearance as object; on the contrary, it means to reconstitute the 'aura' around itself.'¹⁶

Mythologizing is necessary to reconstitute the 'aura' of Cardross. A simplification of history is required to provide a coherent and convincing narrative which persuades like-minded supporters of the value of the project. Originality and authenticity are elevated and worshipped; functional and economic failures disregarded. Cardross preserved thus cannot be redefined for functional use; it remains preserved, pickled, as Tafuri's 'Total Theatre'; a stage set to celebrate the best of Scottish Modernism at a brief and unrepeatable moment in time.

The alternative stance defined by Tafuri is that of 'absent minded usage': architecture which accepts consumption and use by rejecting myth in favour of history. Accepting the complexities and

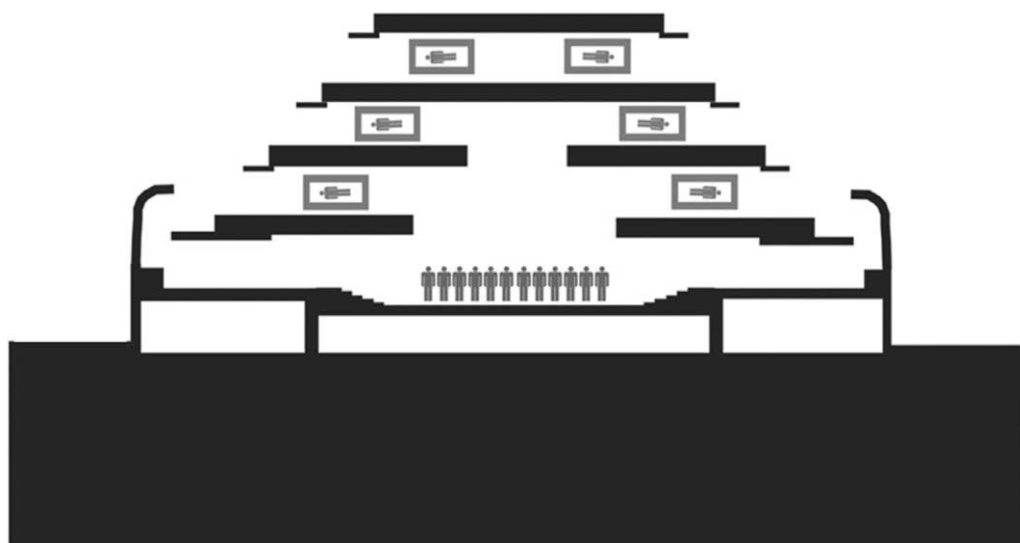


Figure 4. Cardross as 'absent minded usage': redefined as inhabitable hybrid complex.

ambiguities of history permits redefinition and 'free appropriation on the part of the public.'¹⁷ This alternative refutes the 'myth' of authenticity and iconicity; the project becomes 'typological' rather than 'theatrical', and the frame is redefined to function as a hotel, a spa, residences. (Fig 4).

This alternative consolidates the latent frame, revising structure, reconfiguring interior layouts, altering exterior appearance. Here, Tafuri observes, 'the objects must completely lose their symbolic charge in order to be perceived in their pure relational values.'¹⁸ The core question of the fate of Cardross is revisited; what is the value which will retain core Modernist values and permit continuity? 'What systems of value', Tafuri asks, 'are generally coherent and guarantee the possibility of adaptation and therefore of survival?'¹⁹

Two systems of values are on offer at Cardross. One system, favouring myth, promotes the value of authenticity to locate the frame as the functionally obsolete but irreplaceable art object as defined by the expert insider. Cardross is preserved as a museum, as Total Theatre. This fate depends upon the narrative of the created myth, on the economic and political strength of the community of expert insiders who organise the myth.

The alternative system, favouring history, defines the frame not as the fixed object but as the latent values of the Late Modernist project. Values of continuity and flexibility are promoted through adaptation to permit survival. Cardross is adapted as housing or a hotel, open to the 'everyday outsider' for 'absent minded usage'. This fate rests on the pragmatics and realities of economic forces; on the confluence of market needs, consumer desires, and programmatic flexibility. For Cardross to be resurrected functionally, it must first be freed from the 'weight of myth.'²⁰

'It is myth that takes the place of history.'²¹ With this declaration, Tafuri defined the task of the critic as that of revealing the 'ambiguities, values and mystification' of history in order to offer the architect 'conscious choice.'²²

Mythologizing Cardross preserves only a fixed frame which prevents functional use; it promotes the romance of the archaeological ruin and the simplified sanctity of the architectural icon. Yet Cardross is neither a romantic ruin nor yet an architectural icon. It was an opportunistic project borne out of risk-taking on the brink of changing Late Modernist values, shifting Liturgical ideologies, and the ambitious forecasting of economic and demographic growth: extraordinary forces

colliding to engender a permissive atmosphere of uninhibited and confident experimentation. Cardross presents the mythology of heroic late Modernist complexes that have succumbed because of their own spatial rigidity.

Core modernist values are, in Tafuri's critique, located in the act of framing; the frame organizes, but also facilitates changeability of uses. Operative criticism employed at Cardross offers the retention of Late Modernist values by refuting myth to accept the ambiguities of history. Thus framed, the potentials of hybridization may be closer to the Late Modernist values of Cardross than those offered by the myth-making of an icon.

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- 11 Ibid., 233.
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- 22 Ibid., 229.

The Obsolescence of the Monument, the Future of Airport Icons

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The chronic status of permanent change in airports described by Reyner Banham¹ is all the more exacerbated because these places are predisposed to technical advances as well as futuristic visions. Accordingly, whether they are emblematic of monuments to past ideals or utopias of the future, airport icons reframe the challenge of obsolescence in modern buildings.

Exploring this perspective, this paper will examine the specific case of the Trans World Airlines Terminal of the John F. Kennedy Airport in New York. Designed by Eero Saarinen, this building was inaugurated in 1962 as a part of a large complex, named *Terminal City*, whose concept was designed by Wallace Harrison for the Port Authority of New York. Twenty years after a fierce struggle with the City of New York, the authority completed an “extra-large” facility, having enlarged perspectives for the architectural community and opened a new Jet Age both glamorous and futuristic.

Closed in October 2001 following the bankruptcy of the company, the fate of the TWA Terminal then became a topic heavily hyped by the media. However, those polemics were not due solely to functional or technical issues of obsolescence. Indeed, other terminals from the 60s, like Washington-Dulles and Orly Sud in Paris, are still functioning and have been renovated with respect for their original architecture. Rather, the controversy about the TWA terminal has remained active because it crystallizes a major conflict about the representation of the future of airports. This is the specific point I want to explore in this paper. It will attempt to understand how an icon celebrated worldwide is today at the heart of a contested debate and how it might be possible to reinvest it with new meaning.

Like Orly Sud, which was inaugurated one year before, the TWA Terminal was remarkable for the way it manifested the transition of aviation from an embryonic transportation mode to a commercial one, albeit one still reserved for the elite and yet to be popularized for the masses. This profound evolution is particularly noticeable in the design of airport structures which generated different solutions around the world, particularly architectural. Orly Sud was a steel and glass megastructure, with implementation of new standardisation techniques. The building favoured a rational approach to air travel, one that Jacques Tati would enact in the first scene in his 1967 film *Playtime*. In New York, the TWA terminal was a large concrete structure without any interior barriers or partition walls, or any right angles. The terminal opened onto the spectacle of the tarmac horizon and balletic airplanes. With footbridges, balconies, luminous tunnels, and large picture windows, Saarinen invented a continuous and scenic route from the car to the plane, and offered new experiences of fluidity in space: “The challenge was [...] to design a building in which the architecture itself would express the excitement of travel. Thus, we wanted the architecture to reveal the terminal, not as a static enclosed place, but as a place of movement and transition.”² (Fig. 1)



Figure 1. Rendering for Trans World Flight Center, Idlewild (Now JFK) Airport, New York.
Courtesy Eero Saarinen Collection. Manuscripts and Archives, Yale University Library.

The striking nature of this building relies in its ability to represent a total architecture, where each part is organically the consequence of the next.³ The structure of the building is sculptural, one and indivisible, envelope, façade and floor all together. It demonstrates technological innovations like travellators, dynamic screenings or new optical illusions like oblong tunnels. The challenge was also to create for TWA a corporate building that would be distinctive and memorable given the fierce competition among air companies. Like his other commissions in the fields of automobile, television or computer manufacture, Saarinen sought “a style for a job” and considered his clients, whose influence on the mass culture would be determining, as co-designers.⁴

Architectural innovation and urban vision, which were largely present in the design of airports, had their roots in the remarkable collective enthusiasm which followed the birth of aviation. The first large air meetings which took place around 1908-1909 in Europe and the United States, publicized the invention through mass entertainment, gathering several hundred thousand people. The “spectacle of flight” then stimulated visions of the future city, where aerial vision assumed real agency as a clarifying image and a vector for the renewal of the city. This moment would inaugurate the development of an ongoing trans-national debate on “aerial cities” through a repeating process of re-conceptualization.

The building of airports is partly inspired from this imaginary. The main development of airports would accelerate after the war, with the growth of a huge aeronautic industry. This turning point catalysed a transfer from the imaginary of a city totally reformed by aerial mobility towards a specific structure, the airport, which would be an experimental place for new urban models. In this context, airports represent transitional structures between a reform imaginary and a realized alternative.⁵

Terminal City emerged in this context. In an increasingly suburban America, this concept was particularly successful. With its architectural “marvels of the world” and new technologies, *Terminal City* transported people into an experimental world. As a display of the future, the airport freely renewed attributes of urban design, testing new ideas for the future such as the leisure city, the megastructure, or the network integration.

In this environment, the TWA Terminal was not only a corporate flagship or an architectural experiment. The building also materialized the achievement of the narrative story of the aerial romance, from the air conquest to the display of an aero-city. This story continued as the airport itself became the frame for a public spectacle. Indeed, the majority of those visiting the airport were not passengers but rather a public invited to admire the special show of the airport in

movement. While Orly Sud became the fashionable place for shopping, getting to the cinema, or admiring planes from the large terraces, New York's *Terminal City* at the same moment became the hot spot for weekend outings. Skyrides, concerts and fanfares, glamorous events, all gradually created an imagery of airport spectacle. Cinema also migrated to these places; symbolic references introduced in films cultivated the buildings in the popular imagination.

If the public and popular press were largely enthusiastic about the airport, the architectural critics were less unanimous. Comparing the new airport to the eclecticism of an international fair, some observers criticized the chaos resulting from the broad architectural freedom of *Terminal City*. Saarinen's terminal was also targeted as some critics pointed out that the material translation of the concept of fluid and kinetic space was not convincing.⁶

Meanwhile, the airlines and the Port Authority were confronted with the rapid evolution of air transportation. With the arrival of the Jet Age, the congestion of aerial traffic and the introduction of new procedures, the perfect model of the future city gradually disintegrated. The petrol crisis as well as emergent terrorism aggravated the situation of air transport and diminished once more the "winged gospel"⁷. The airport's role as a suburban attraction rapidly came to an end.

However, during this period, the TWA Terminal enjoyed a worldwide reputation. Innovative airport architecture became symbolized by the iconic image of the building. Architectural photography, through the eye of Ezra Stoller, consecrated this emblematic object and the cinema regularly chose the terminal as a site for shooting. The metaphoric and literal image of the bird in flight characterized the dissemination of the TWA icon, although this image was not the original intention of the architect: "This was the last thing we ever thought about".⁸

Registered as a National Landmark in 1994, the building, however, underwent a number of reorganizations and suffered from erratic maintenance. In October 2001, a crisis began which is still ongoing. The Port Authority was pitted against several heritage preservation associations, among which figured the Municipal Art Society of New York and DOCOMOMO International.

Two perspectives summarize the lively controversy over the TWA terminal. On the one hand, the advent of the "Megaterminal" presumed the need for large renewal. Facing drastic changes in traffic and procedures, the Port Authority aimed to transform the whole airport. As for the TWA terminal, this argument translated into a project that called for cutting the structure from its satellites and reconvertng the central terminal to uses other than transport. In close vicinity to the Terminal, a large terminal would be realized, dedicated to a new company JetBlue. As Mark Blacklock summed up in a book about JFK, "A massive rebuilding programme [...] is designed to recapture the dream of a passenger-friendly airport. *Terminal City* is dead; long live the reborn JFK."⁹ On the other hand, the iconicity of the terminal required preservation of its architectural integrity and the memory of aerial romance, which the New York Times summed up perfectly: "No amount of nostalgia will bring back the days of dressing up for air travel and eating-in-flight meal with silverware. But travellers could still revel in Saarinen's soaring spaces."¹⁰

Nonetheless, these two images of the Terminal, criticized as obsolete or defended as a lost paradise, do not fully encompass the debate. Far from being a pure symbol, the icon could be considered as a condenser of meanings.¹¹ While creating a place where passengers were both spectators of the future and actors of their own travel, Saarinen experimented with new architectural issues, partly inspired from the imaginary of the aerial city: the quest for clarification and transparency, the alliance between global culture and specific place, the design for spatial fluidity.

Significant events have recently extended the TWA saga. In 2004, an exhibition called "Terminal 5," the new appellation since TWA's bankruptcy, was planned inside the building. Curated by Rachel Ward, this event intended to use the terminal both as an art site and art object. This exhibition, publicized in New York, was to add a new perspective to the debate on the future

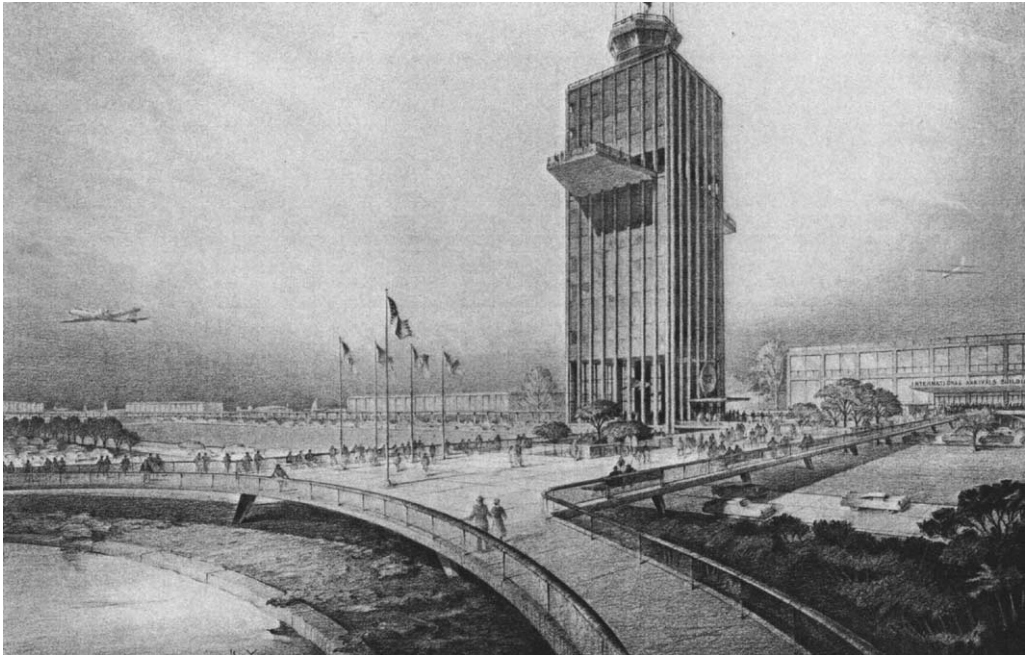


Figure 2. *Terminal City, Preliminary design for Idlewild Airport, New York, Port of New York Authority, Rendering by Hugh Ferriss, 1955.*
Courtesy Avery Architectural and the Fine Arts Library, Columbia University in the City of New York.

of the building.¹² Unfortunately, the day after the opening night, it was to last only one minute, as the Port Authority decided to close it down for safety reasons. Whatever the reasons for this interruption, this new critical episode again indicated the failure to activate new potentials for the Terminal.¹³ (Fig.2)

2004 was also the year in which it was decided to build the new Terminal 5. Today, a 600-foot long structure has arisen close to the Saarinen building. Two former satellite buildings have been destroyed, while no specific use has yet been defined for the central terminal. The orphan tunnels serve as the only material link between the old terminal and the new one. "It is the ultimate expression of JetBlue's connection to New York", says Andrea Spiegel, the airline's vice president, qualifying the TWA Terminal as a New York image.¹⁴ Above all, this literal splitting of the two structures underscores the failure of any ambitious regeneration of the Saarinen Terminal. Renowned designers David Rockwell and Jerry Mitchell, an architect and a Broadway choreographer, have been commissioned for the design of the interior spaces of the new Terminal 5. "Is it an airport? Is it a Broadway show? What is the difference?" says Jerry Mitchell. The two designers imagined the airport as a public theatre, where passengers would act like dancers in a ballet. Art exhibit and Broadway show: both uses theatrically renew the spectacular mediation which pervaded the aerial imaginary from the first air meetings to the week-end attractions of Orly terraces or *Terminal City* skyrides. Since this kind of space sensation was at the very heart of the original design for the TWA Terminal, it seems as if Saarinen's building is stimulating reflection of that earlier spectacular use. However, the inspiration is merely rhetorical since the place itself is still abandoned, without any planned use.¹⁵

While today we are often warned that the conventionality of airports contributes to the relative uniformity of our cities, the "TWA affair" demonstrates more complex and fertile perspectives. Here instead, the future of specific places, as monuments of global culture, is confronted. With its corporate identity, exacerbation of fluidity and speed, and display of the future, the airport, far



Figure 3. Rendering for new Terminal 5, 2005.
Courtesy Gensler Architects and Associates, JetBlue.



Figure 4. Terminal 5 exhibit, 2004.
Photo Dean Kaufman. Courtesy Dean Kaufman.

from being a non-place, could be a hyper-place, translating the paradoxical tensions between the physical environment and the acceleration of techniques, condensing hopes and deceptions for the city, compressing in one material place a sort of anterior future.

From this perspective, the imaginary represents a palimpsest of misrepresentations. A narrative architecture has emerged in the interstices between spectacle and action, between the monument to the past and the utopia of the future, between the reference and the projection. Reactivated, the immaterial foundations which built the TWA terminal and its consequent controversy might also be positively read as a fertile position for the renewal of heritage concepts.

NOTES

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Reconstructing the Philips Pavilion, Brussels 1958

ELEMENTS FOR A CRITICAL ASSESSMENT

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Architecture is often considered the most durable of the arts. However, many buildings are not made to last. Exhibition pavilions, for example, are short-lived by nature. Their promotional and ephemeral character allows for broader margins of experimentation than 'normal' buildings, often resulting in radical designs based on state of the art technique. As they die young, such temporary structures survive in the collective memory as a perfect and pure image without degradation, decay or defects. This image can become so obsessive that the need is felt to reconstruct such a pavilion physically and permanently, as if its mythological status needed to be verified in reality. This has been the case with Le Corbusier's *Esprit nouveau pavilion* (rebuilt in 1977), Mies' *Barcelona Pavilion* (rebuilt in 1986) and more recently with Van Eyck's *Sonsbeek Pavilion* (rebuilt in 2006). Fifty years after its demolition, the legendary Philips Pavilion, designed by Le Corbusier and Iannis Xenakis for the 1958 Brussels World Fair is about to join this list.

As the permanent reconstruction of a temporary exhibition pavilion challenges the boundaries of artistic and historical integrity, it calls for some serious consideration. For this reason, this paper briefly addresses two fundamental issues related to this reconstruction project, namely the relevance of this undertaking and the notion of authenticity. As will be argued, while the ideas for a creative artistic venue embodied in the Philips Pavilion may be relevant to contemporary artistic practice, its architectural ideas are not necessarily relevant to contemporary building practice.

Commissioned by the Dutch Philips Company, the Philips Pavilion housed the *Poème Electronique*, a multimedia collage about mankind and its ambivalent relationship with technology. During eight minutes, moving images, colour projections, abstract light events and pre-recorded sounds moved alongside the thin hyperbolic concrete walls of the pavilion. Although it was conceived as a temporary structure, towards the end of the fair, some timid attempts were undertaken to prolong the pavilion's lifespan. For example, Stanislas Jasinsky, president of the Belgian Society of Architects, proposed preserving the structure as an electronic research laboratory as had been suggested by Le Corbusier.¹ The project was quickly abandoned, however, as the pavilion could not be kept on its original site. In response, the Philips board vaguely proposed to transport it to Eindhoven as a company museum or an electronic music studio.² As this turned out to be extremely costly, the idea was not given any further thought. In fact, Philips had no intention whatsoever of keeping the pavilion. It was even offered to the Belgian lawyer Freddy Calliouw for free if he could manage to obtain permission to keep it on site.³

Despite its demolition in January 1959, the *Poème Electronique* has become a powerful symbol of the artistic, architectural and ideological tendencies of the post-war era, embodying the hopes and fears projected on science and technological progress. It marks the advent of a new type of exhibition pavilion, substituting the didactic display of goods with an immersive experience. Breaking away from the sterile paradigm of the International Style, it also forecasts the current fascination for computer generated fluid forms in architecture. It has also become a musical

landmark, for it brought music into tune with the most advanced achievements in art and science, proposing entirely new ways to relate space and sound. Finally, from the perspective of media arts, it is a pioneering example of how the experience of physical space can be manipulated through electronic media.

In order to assess its effect retrospectively, several attempts have been made to recreate the effect of the *Poème Electronique* over the last twenty years. The first such project was undertaken by Bart Lootsma in 1984. A more elaborate reconstruction, imitating the interior space of the original pavilion, was realized in Rome in 1999 by the architect Valerio Casali. In 2004, the Dutch composer Kees Tazelaar created a 32-channel reconstruction based on a digital remastering of the original audio tapes. In addition, researchers at the Institute of Electronic Music and Acoustics in Graz and the Virtual Reality and Multimedia Park in Turin have each created interactive and virtual simulations on the basis of software applications specially developed for this purpose. Finally, in 2006, the Alice Foundation from Eindhoven proposed a physical reconstruction of this total work of art as part of an innovative cluster dedicated to research and education in the field of image and sound on the former Philips site in Eindhoven.⁴ This rebuilding seems to be a logical 'last step' in the reconstruction of the *Poème Electronique*. However, as the acoustic, optical and spatial effects of this show can also be re-enacted by other means, we need to ask to what extent the Philips Pavilion possesses intrinsic architectural qualities that somehow justify its physical reconstruction.

In this context, it should be noted that in the mind of Le Corbusier, the Philips Pavilion was not so much a building as a 'bottle' providing a darkened and acoustically isolated interior space whose appearance depended entirely on the power-operated spectacle. While its curving interior planes disappeared beneath the projected colours and recognizable imagery, its exterior form condensed the symbolism necessary to carry the project. Conceived by Xenakis, the expressive mathematical paradigm of the pavilion's enclosure provided a strong image evoking mathematics as the fundamentals of scientific progress. Although its complex shape seemed to be rationally derived from a structural paradigm, in application it revealed its pure formalism. The fluid sequence of concavities and convexities was disturbed by elements for reinforcing such as the concrete ribs or the exposed metal trusses at some of the peaks, while unresolved details appeared where several intersecting planes met. Nevertheless, given that publicity for the fair was essentially pho-



Figure 1. The Philips Pavilion at the 1958 World Fair in Brussels. Philips Company Archives.

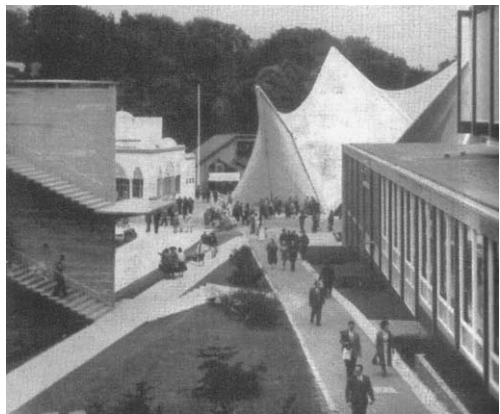


Figure 2. The Philips Pavilion seen from the lateral side of the Austrian Pavilion. L'Architettura, 1958.

tographic, the Philips Pavilion did well. Featured in dramatically composed images, it was widely published as one of the most striking buildings of the fair. [Fig. 1] Whereas most images focused on the rake lines and skewed entrance and exit portals, only very few pictures showed the building in its entirety, revealing the awkwardness of its forms. [Fig. 2] In this respect, the pavilion is a prime example of the 'mediation' of architectural history since its powerful presence as an image transcended its architectural shortcomings.

As the new Philips Pavilion is to become a permanent structure with a certain degree of flexibility in use so as to ensure its economic viability, building an exact replica is out of the question. The original design will need to be adapted to all sorts of regulations regarding safety, thermal insulation and comfort. This becomes immediately clear if we look at the five structural concepts put forward by the architects for reconstruction.⁵ [Fig. 3] The first model follows the original principle as its hyperbolic surfaces are composed of a great number of precast panels mounted between concrete ribs and tied together with prestressed wires on both sides. In a second model, both ribs and hyperbolic surfaces are cast on site in woodwork using self-compacting concrete. This is easier to realize than the first option and remains fairly close to the original. The same goes for

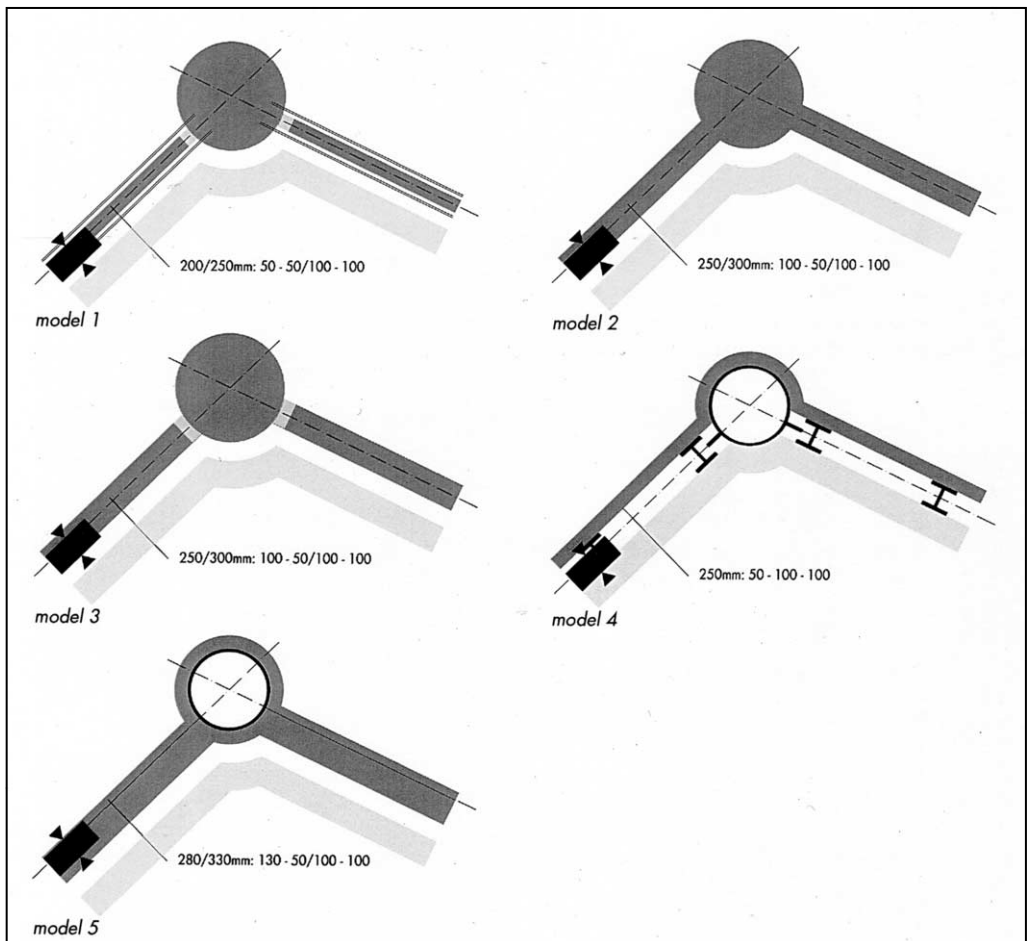


Figure 3. Different structural options developed by Wessel De Jonge Architecten and ABT Bouwtechniek (used with permission).

the third model, where all components are prefabricated. Quite surprisingly, this offers no real advantage in terms of cost and execution. A fourth option features a steel frame covered with metal sheet and clad with concrete. The last option is the most experimental one; developed by the Technical University of Eindhoven, it features 3 or 4 layers of shotcrete sprayed on a polymer skin.

Before evaluating these options, we want to put forward two considerations. First, reconstruction projects like this one put into question our almost religious belief that art is about unique and unrepeatable events. They only make sense if we agree, with Duchamp, that the sole tie between an object and its being seen as a work of art is the deliberate intention of whoever performs this act.⁶ This means that material authenticity does not necessarily constitute the sole criterion for evaluating a copy of a work of art. We therefore suggest taking as a point of departure the notion of 'conceptual integrity' – that is to say: the degree to which the artistic idea embodied by the original project is revived in the reconstructed art object. Second, it is important to bear in mind that the *Poème Electronique* was conceived as a total work of art. Consequently, its reconstruction is not only about rebuilding its enclosure but also involves re-establishing the corresponding experience. It would be pointless, however, to recreate the notoriously unreliable original audio and projection equipment for this purpose as the artistic idea can be realized much better with contemporary technology. In this way, rather than constituting an end in itself, the reconstruction of an art work gains its relevance as the testing ground for newly developed techniques.

Taking material authenticity and original aesthetic expression as primordial criteria, only Model 1 can be kept because in all the other options the exterior tension cables – fundamental in the pavilion's structural concept and visual appearance – lose their significance and become decorative. This material authenticity comes at a huge cost, however, as it is a very complicated way of executing what is essentially a simple idea, namely the use of structural hyperbolic-parabolic concrete shells (hypars). Moreover, it has no real archaeological or pedagogic interest as this cumbersome building technique has known no further application. In this context, it is important to know that initially the pavilion's enclosure was to be mounted as a flexible 'skin' in a supporting steel structure. However, as the fabrication of the steel members required more lead time than available and the ruberoid membrane provided insufficient acoustic insulation, the pavilion's concept evolved into a self-supporting concrete structure while its formal aspect remained the same. Time ran short, however, and the structural principle could only be tested fragmentarily. As doubts persisted with regards to the eccentricity of the reinforcing steel net – originally to be provided only on the interior side of the walls and hidden by a thick asbestos layer – the decision was made to mount the prestressing cables symmetrically on both sides of the hypars. The resulting steel net on the exterior side drastically altered the pavilion's aesthetic appearance as it accentuated its mathematical paradigm rather than its smooth, abstract form.

Taking this in account, our evaluation of the proposed structural solutions becomes quite different. If we agree that recreating the structural idea embodied by the pavilion with new techniques is also a form of authenticity – albeit conceptual rather than material – the question becomes no longer: can we rebuild it, but rather which pavilion do we want to build? In this view, the new building is not to be judged as a correct copy of the original pavilion but as a faithful (re) interpretation of the original project. Thus, models 2 and 3 become rational alternatives with respect to the pavilion's conceptual authenticity. However, bearing in mind Le Corbusier's initial idea of a flexible skin and a steel frame, we could also opt for model 4. Pushing the margin of interpretation even further, we could argue that Xenakis would probably have preferred the last, experimental option. Philosophizing about the Philips Pavilion as the prototype of a new 'volumetric' architectural paradigm, he wrote in 1958: "(...) le béton aura amorcé cette révolution. Il sera certainement et dans un proche avenir, remplacé par des matériaux légers, plus malléables, les composés chimiques, les matières plastiques (...)." ⁷ Twenty years after the Brussels World Fair, he illustrated this idea in his own Diatope, a transportable pavilion housing a light and sound show named *La Légende d'Eer*. With this lightweight tensile structure, Xenakis revisited Le Corbusier's

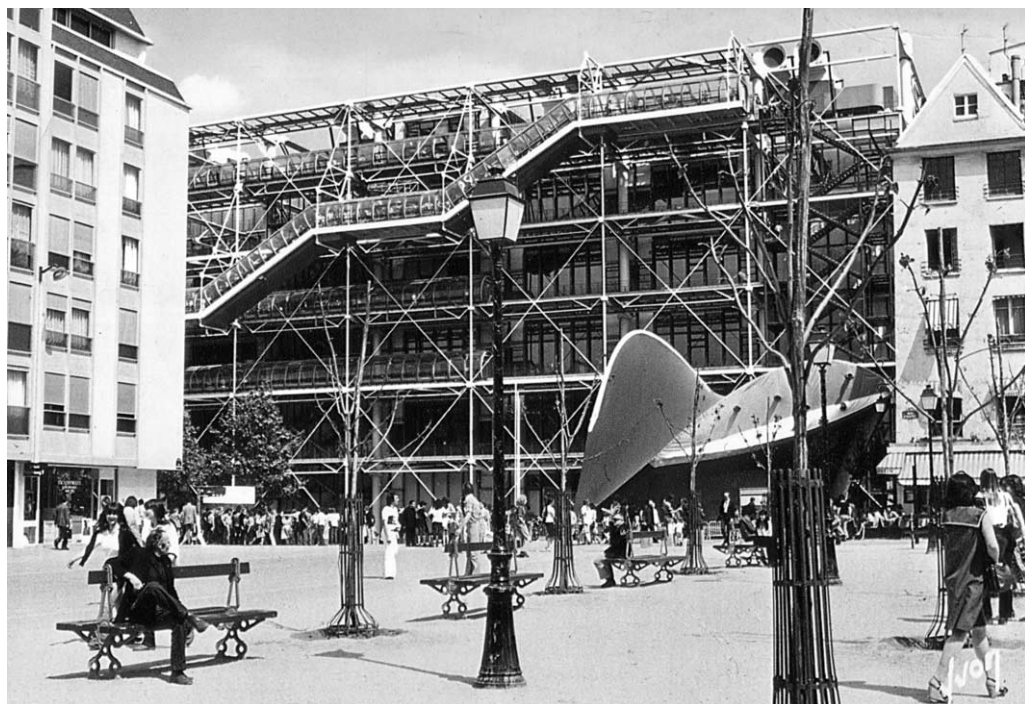


Figure 4. Iannis Xenakis' *Diatope* in front of the Centre Pompidou, 1978.
Contemporary postcard, private collection.

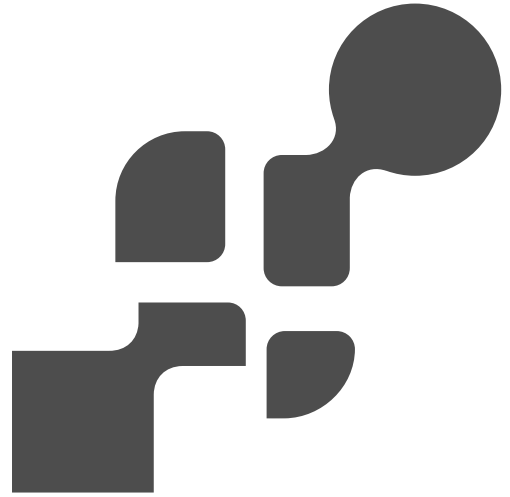
initial idea for the Philips Pavilion, while he carried further the corresponding idea of the total work of art in an abstract way by means of flashing lights, laser beams and computers. Doing so, he reinterpreted the *Poème Electronique* within the technological paradigm of the digital age. [Fig. 4]

CONCLUDING REMARKS

The fact of reconstructing a building that was meant to last only for a couple of months on a permanent basis is a typical demonstration of our modern taste for collecting and decontextualizing a work of art as an object of study. It is a thin line however between mere curiosity, scientific relevance, art historical interest and retrospective recuperation. The reconstruction of the Barcelona and Esprit Nouveau pavilions are instructive in this respect as both projects formed a strategic ingredient in the rehabilitation of the Modern Movement in the 1980s. Attention for the Philips Pavilion culminated in the late 1990s when the new media hype burst out and 'blobs' and 'folds' became all the rage in architecture. In this respect, the 'canonizing' of the *Poème Electronique* through its physical reconstruction can be seen as the result of a deliberately teleological reading of history, providing a legitimate argument for the current times. Judging from the large number of publications devoted to the *Poème Electronique*, we can infer that it is still very much 'alive' as a symbol of time-based art and avant-garde architecture. It is quite paradoxical that such a work of art still needs to be permanent and eternal. As the Spanish architectural historian Ignasi de Solà-Morales has observed, bringing back a powerful icon to the physical world is a 'traumatic operation' as it puts to the test the intensive energy that has emanated from it as an image in books and magazines. It is yet to be seen if an archeologically correct reconstruction of the Philips Pavilion will survive its own myth. Once its mystic aura has vanished, this visionary total work of art could as well become a projection surface for a nostalgic longing.

NOTES

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- 2 Internal memo dated November 1958, Philips Company Archives, Eindhoven.
- 3 Correspondence dated November 1958, Expo 58 Archives, Brussels.
- 4 The master plan is supervised by West 8 (Adriaan Geuze). See <http://www.strijp-s.nl/>
- 5 These options were developed by Wessel De Jonge Architecten and ABT Bouwtechniek and presented at the symposium Make it New: Le Poème Electronique in Eindhoven, 18 June 2006. The proceedings were published by the Alice Foundation in 2006 under the same title.
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- 7 Iannis Xenakis, "Genèse de l'architecture du pavillon", *Revue technique Philips*, special issue, 1958, 11.



Change and Continuity

Myth, Authenticity and Lived Practices

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

Myth, Authenticity and Lived Practices

INTRODUCTION TO THE SESSION

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Several years ago Beatriz Colomina evoked the idea that architecture is differentiated from mere building by its entanglement in discourse: architecture is that part of the built environment that is discussed in architectural periodicals and books, that is shown in architectural exhibitions, and that is under scrutiny in symposia and conferences organized by institutions devoted to architectural culture (such as Docomomo, for instance). Buildings that do not appear in these publications, exhibitions or conferences might still be valuable, but not as architecture: they might be economical assets, beloved homes or power-radiating institutions, but as long as nobody chooses to bring them up to the level of the architectural discourse, the architectural world will not really care about them.

This tautological truism – that ‘architecture’ is what architecturally-minded people like to talk about – is also applicable to monuments: monuments are those buildings that politicians have designated as such, usually on the advice of committees of experts who themselves often need long deliberations and sometimes heated debates before reaching their conclusions. Of course the world of experts – we, who are gathered here – provide a whole series of justifications to legitimise their designation of certain buildings as monuments. They list values such as authenticity, artistic merit, uniqueness, representative character, technological performance, innovative quality, and so on, as reasons to ‘upgrade’ the status of structures, from buildings to architecture, and then to monuments. Some buildings skip the second stage – they never were recognized as important architectural achievements, but became listed as monuments because of their longevity (‘the oldest house in the city’) or because of their impact on the collective memory (consider Auschwitz, for instance). For Docomomo monuments, however, it seems fair to state that their status has been typically enhanced in two stages, and that this double trajectory can be traced through publications and other sources.

That is what we are doing in this session. We will be unpacking the trajectories and discussions that led up to buildings being designated monuments. We will question the arguments used in these discussions, we will interrogate the ‘who and why’ issues (who takes up the defense of some buildings, why, which interests are at stake?), and in doing so we will reflect upon our own system of values. We will probe these questions via a series of case studies and theoretical reflections that I am sure will urge thorough and lively discussions.

Beyond Oscar Niemeyer: Authorities, Remodelings, Paradoxes and Peculiarities in the Preservation of Modern Buildings in Brazil*

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The greater the recognition of a Modern building, the wiser it is for the owner to entrust any remodelling to its author, especially when they are a famous, powerful and influential practitioner. It prevents the legal actions that might ensue if the original architect considered that the remodelling entailed distortions and mutilations harmful to his reputation. It might even ease approval by preservation agencies if the building were a designated landmark. There is no scarcity of Modern buildings whose historical and artistic value warrants preservation. As a matter of fact, many masterpieces of Modern Brazilian architecture were designated as landmarks right after completion, and several among them owe their preservation to that designation. When the building is a designated landmark, approval of any remodelling¹ is no longer a case of checking whether it complies with essentially quantitative norms, that competent preservation agencies have to ascertain its merits.

Irrespective of the nature of the approval process, two remodelling strategies can be envisaged regarding the relationship of the new intervention to the original.² One possibility is emphasizing change by a pronounced formal contrast. This makes it clear that the author meets his younger ego in a new stylistic phase, the corollary of higher life expectancy, postponement of professional retirement and overvaluation of originality in a culture that does not seem particularly interested in refinement within continuity. Different forms (heteromorphism) signal different phases (heterochrony) in the author's career. Another possibility is integrating change into a recreation of the building that dissimulates its past in different degrees.³ Isomorphism then dominates, veiling and confusing the heterochrony in the author's career, as if he had travelled back in time to successfully alter his future: an old paradox often explored by science-fiction.⁴ Indeed Modern artists are often reluctant to regard their works as finished and no longer in their full possession; metaphorically, it is as if they were trying to curtail the autonomy of grown up children, or literally, as if they were delaying delivery after selling them.

Two completed projects illustrate the first strategy. In Buenos Aires, Clorindo Testa inserted a ramp for handicapped people, in his current pared down modern style, to the sculptural Bank of London and South America that he designed decades earlier. In New Canaan, architect-owner Philip Johnson developed his residential compound around the idea of shifting stylistic phases in his career. The Argentinean architect inserts his intervention *within* the entrance; the American adds new buildings to an older core. The formal dissonances that ensue are counter the standpoint of the Classical doctrine that demands unity of form in the work of art, and therefore unity of action and time. Nevertheless, they do meet the expectations of some theoreticians of preservation. They follow the prescription of keeping meaningful alterations of the building throughout its history and clearly differentiating the new interventions that it might need.

* This text records discussions about change and continuity in Modern buildings as well as ethics, esthetics and statics in recent work by Niemeyer.

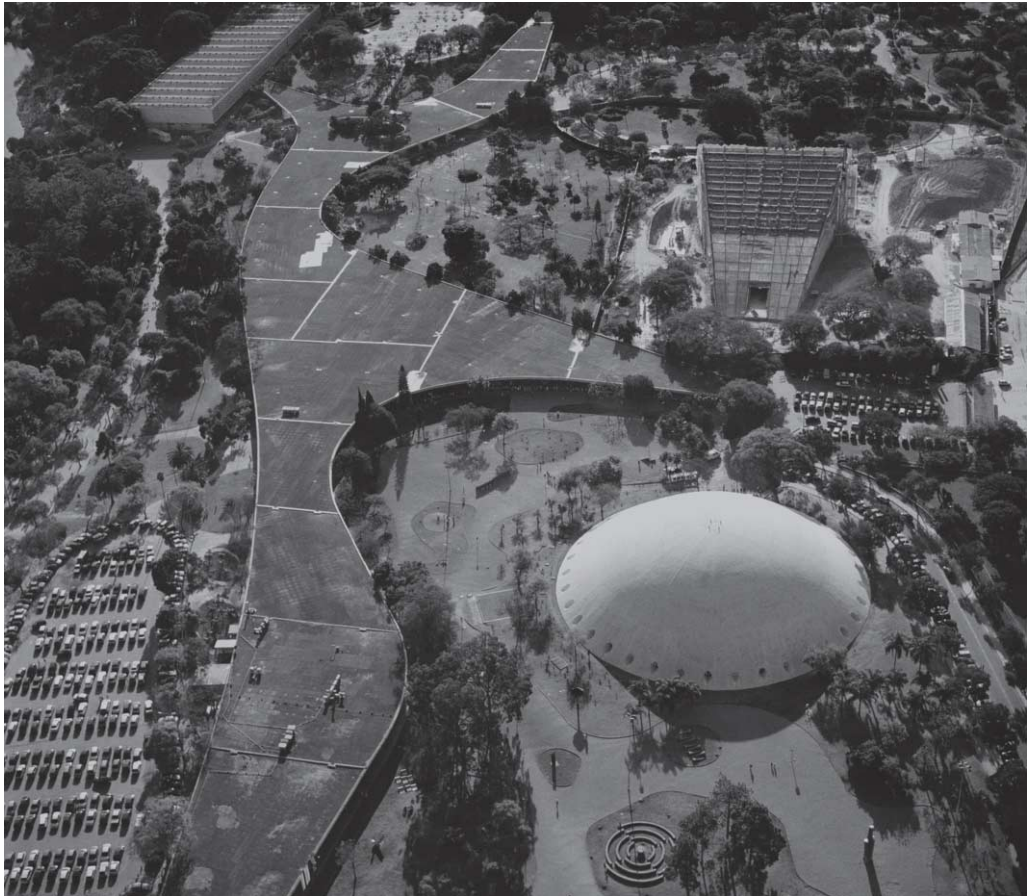


Figure 1. Aerial view of the main entrance area, with the Palace of Arts now Oca and the new Auditorium in construction
Photo: Nelson Kon.

Two examples illustrate the second strategy. When the opportunity arose to complete the Ibirapuera Park complex (São Paulo, Brazil, 1951-54), Niemeyer suggested a bigger auditorium on a slightly different location from the original design, another covered walkway connecting the auditorium to the arts exhibition pavilion now called Oca- and the demolition of part of the great marquee of the complex, to better integrate- in his opinion- the new building into the overall composition and to correct the geometry of its paved esplanade. When hired by the owner to remodel the Grand Hotel (Ouro Preto, Brazil, 1940-44), Niemeyer did not complain about the add-ons that mar his design. He simply proposed a new facade and built one module of the new bay as a test. In both cases, he did not care about the past. Programmatic change is a pretext to recreate form in an almost unitary way both in the design about to be completed and in design already built. The new interventions proposed are not completely unrecognizable as such, but it is not difficult to imagine situations where they would totally enclose the original design, confirming the trend implied by this type of strategy.

The first strategy may be called repair, the second one may be referred to as recreation. A third strategy is to minimize the evidence of renovation, coming closer to the restoration of the original design by its architect.⁵ An example is Alvaro Siza completing in 2006 the Bouça housing estate designed in the 1970s and keeping almost intact the original envelope. The unity of form is then maximised.

Testa's bank and the Johnson house were not designated buildings when remodelled. Neither of them had to pass the scrutiny of preservation agencies but, presumably, they would not have any trouble being approved- even though artistically Testa's intervention may be criticized as discordant, neither assimilated to the original work nor contrasted enough.⁶ Siza's housing did not pass through any special approval process involving preservation agencies, but rejection seems unlikely. In theory, neither repair nor restoration is a controversial procedure. Incidentally, the number and extension of archives of Modern architecture has been growing exponentially - true genetic banks, some hold designs done with such richness of detailing that they can support perfect restorations without any need for the architect's presence - the rebuilding of no longer extant buildings and the building of designs that were never built. All of these operations could be eventually justified given the premises, history and conditions of production of Modern architecture.⁷

The overwriting recreation that configures a temporal paradox is more difficult to absorb. In that sense it is necessary to distinguish the generic strategy from the examples used to illustrate it, specifically the Ouro Preto hotel and the Ibirapuera complex. The stronger objection that might apply to overwriting recreation is that it destroys and eventually falsifies the testimony of the past. But it can be sound from the programmatic point of view and/or more successful artistically, and it can perfectly be accompanied by explanations registered in the work itself that document the vicissitudes it suffered throughout time. It is not always a scandal. All things considered, there is not a single form of architectural preservation. The classical Japanese example being that of the temple of Ise which is destroyed and rebuilt every twenty years.

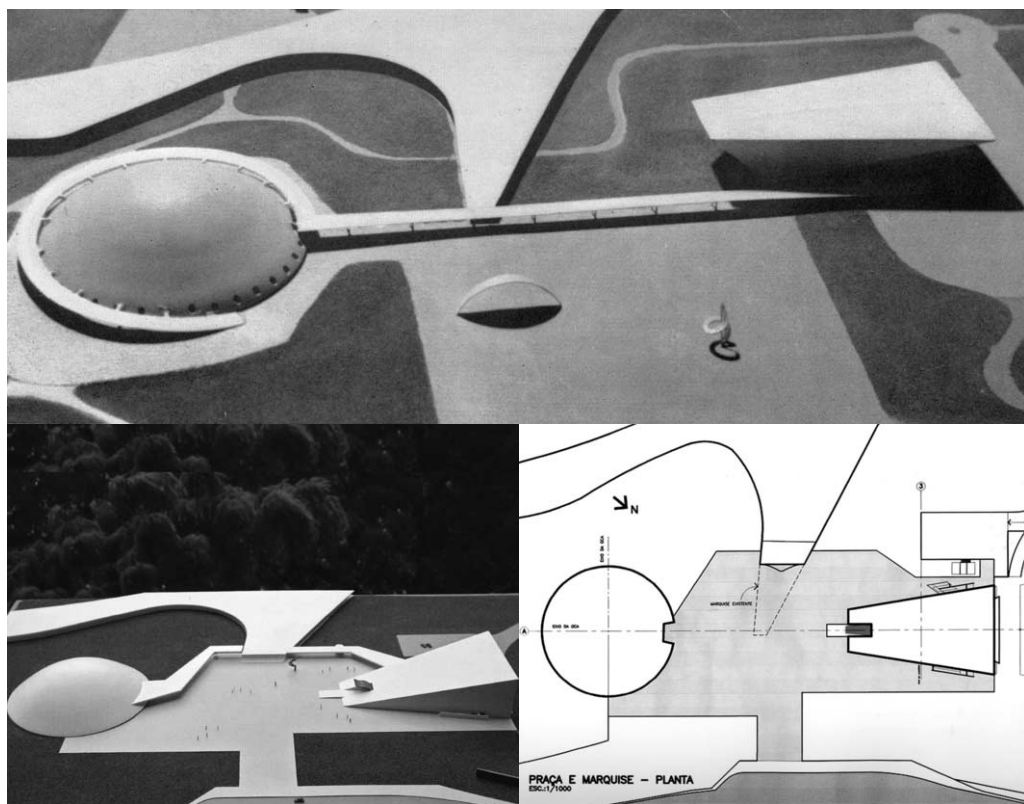


Figure 2. Clockwise, from top to bottom:

Original 1954 model from Stamo Papadaki "Oscar Niemeyer: work in progress" (NY: Reinhold, 1956), 2007 proposal plan and 2007 proposal model from Cecilia Scharlach "Oscar Niemeyer: a marquise e o projeto original do Parque Ibirapuera" (São Paulo: Imprensa Oficial do Estado de São Paulo, 2006).



Figure 3. Clockwise from upper left:
General view circa 1945, IPHAN archives
Present condition: street façade lower corner, general view, upper corner.
Marcos Almeida

Nevertheless, recommendation of the examples does not follow automatically from admitting the generic strategy in theory. Unlike Testa's bank, the Johnson house and Siza's housing estate, the Ibirapuera complex and the Ouro Preto hotel are designated buildings. The approval of Niemeyer's proposal in São Paulo was restricted to the built auditorium; intervention on the marquee and building of the esplanade are still being reviewed. The Ouro Preto proposal was deemed unacceptable. The attitude of the preservation agencies is not exactly the same in São Paulo and Ouro Preto. The preservation of the incomplete complex stems from historic rather than artistic reasons; it downplays stylistic unity. In the completed hotel, the preservation highlights artistic values that evidently do not exclude historical ones.

So far, the criteria and decisions of the preservation agencies prevail in the political confrontation with the architect/author, in spite of his celebrity, power and influence. The designated Modern building becomes part of the collective heritage of a community and the interests of this community must prevail in the moment of its defilement or destruction to those of its architect/author or owner. As such, it is not different from a designated building of whatever period. The author is no longer legally supreme and/or the only judge of the work's integrity. In São Paulo as in Ouro Preto, it is not necessarily required to invoke the need to protect the work from distortions and mutilations by its very author, nor claim that recreation is a sin. And since the auditorium does not follow the original design, completing the Ibirapuera according to this design is now out of question.

The crucial point is that there is something frivolous in Niemeyer's recreation of the Ibirapuera. Extensive demolition is morally repugnant in a place like Brazil, where public resources are scarce. It is not imposed; it is not even induced by programmatic change. The architect that studied a dozen alternatives for the auditorium can certainly study so many for the esplanade. On the other side, there is no programmatic change that justifies the recreation of the facade of the hotel in Ouro Preto. Which, to top it all, is artistically very inferior to the original (and brilliant) solution.⁸

The preservation agencies' triumph comes out as an impasse, as the compositional looseness of the Ibirapuera complex endures and the Grand Hotel remains defiled. It is an inconsequential triumph and therefore a futile one. It lacks the combination of critical assessment with design consultancy that was once a hallmark of the Brazilian Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN), when, for instance, dealing with the ruins of São Miguel das Missões and its museum (1937-41), or with the design of the Ouro Preto Grand Hotel itself: the capacity of reconciling historic and artistic values of different eras. Indeed, the appreciation of any remodelling of a designated building cannot proceed without discussing its programme and the alternatives for the architectural realisation for that programme. The path in Ouro Preto is simpler. Restoration according to the original design is the mandatory solution, removing the add-on roof over the balconies and covering them in an inconspicuous way, in temperate glass, for instance. But in São Paulo, linking the auditorium to the Oca dome by the proposed covered walkway does not seem a pressing demand. Reforming the now rudimentary esplanade does not seem an impossible challenge without demolition of part of the marquee. Everything would be much more sensible if the equation considered the obvious deficiencies of the Oca as an exhibition space, in addition to taking advantage of the opportunity for a remodelling that recovered the fundamental planar quality of the original slabs and the access through the beautiful intermediary colonnade.

In the end, the clash between Niemeyer and the preservation agencies has a didactic value. It states incisively a historic truth. All preservation of the built heritage has a design dimension. Modern heritage is no exception. And all heritage preservation design implies a remodelling,

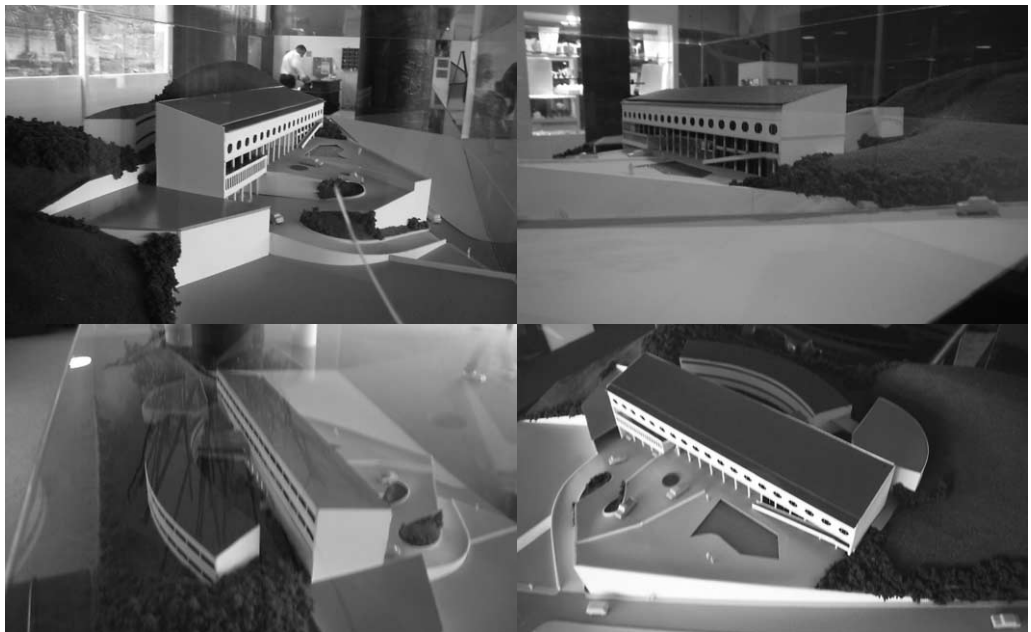


Figure 4. Clockwise from upper left: Proposal model: street façade lower corner, upper corner, back, aerial view.
Marcos Almeida

no matter how small the intervention. Not everything needs to be preserved or restored according to an original design, whether real or ideal, as theory and history of restoration shows since the 1850s.⁹ Preserving presupposes selection, value judgment, political negotiation and specific technical and theoretical knowledge. Obviously, one cannot do without establishing criteria with consistent grounds before deciding properly “case by case” or “type by type”; one cannot do without studying in detail the building and its history, technical and legal precedents. Those remain the mandatory steps of a methodical procedure that applies to any type of remodelling, including any type of remodelling of Modern buildings. As in any design problem, there is always more than one solution for the same problem, the redefinition of the problem redefines the solution, arbitrariness can be minimized and the reasonableness of decisions can be maximised with an explicit comparative analysis of alternatives.

NOTES

- 1 We call here remodeling any intervention that a building may undergo, including annexes, additions, alterations to comply with new building codes, etc.
- 2 The argument is limited to remodellings that affect external public appearance, but it could be extended to internal alterations.
- 3 For the idea of heteromorphism, literally constitution with parts of different forms, see Comas, 2006, “Rio São Paulo Bahia Minas”, in F. Moreira (ed), *Anais do I Seminário DOCOMOMO NO-NE*, UFPE, Recife and Comas, 2007, “Do Museu das Missões à Casa do Benim”, in C. E. Comas (ed), *Anais do VII Seminário DOCOMOMO Brasil*, PROPARG-UFGRS, Porto Alegre. Heterochrony is defined as evolutionary changes caused by variation in the relative time of appearance and rate of development of features.
- 4 Isaac Asimov is the author who explored the most the so-called temporal or ontological paradox.
- 5 Repair is a word that does not imply going back to a former condition as restoration does. Repair is remodeling circumscribed by existing form, while recreation is remodeling that is overwritten, in the informational sense of new data recorded in top of already stored data that is erased. The formal dissonances of repair appeal to a romantic sensibility that appreciates “a composition of fragmentary beauties welded together in the course of time”, as John Summerson puts it (see note 10 below), while the unity of form (and time) associated with strict stylistic restoration is very much Classical, and quite consistent with the correlation of style and “zeitgeist”. Recreation appears thus as dissimulated fragmentation or quasi-unification of form.
- 6 Modern buildings are not exempt from preservationist care even when they are not officially designated landmarks. Two cases come to mind. Charles Gwathmey’s design for the expansion of Frank Lloyd Wright’s Guggenheim Museum went ahead, but Michael Graves’ design for the expansion of Marcel Breuer’s Whitney Museum was shelved given the strong opposition of architects, artists and intellectuals.
- 7 According to Rodrigues dos Santos, 2005, “Conservação no DOCOMOMO?”, in J. Pessoa (ed), *Anais do V Seminário DOCOMOMO Brasil*. UFF, Niterói.
- 8 For a complete exposition of the Ouro Preto Hotel design process, see Comas, 2002, “O Passado Mora ao Lado: Lúcio Costa e o Projeto do Grand Hotel de Ouro Preto”, *Arqtexto* 6. On the Ibirapuera, see Carlos André Fraga, 2007, *Museus em Oscar Niemeyer*, PROPARG-UFGRS, Porto Alegre. See also Zein, 2007, *Três Momentos de Oscar Niemeyer em São Paulo*, MCB, São Paulo. About the Oca, see Comas, 2007, “Recuerdos de Ibirapuera”, *Arquine* 42. On the Ibirapuera marquee and auditorium, see: Rodrigues dos Santos, “Teatro do Parque Ibirapuera: em nome de quem?” in www.vitruvius.com.br/arquitextos/arq000/esp188.asp; Junqueira de Camargo, M., “Sobre o projeto de Oscar Niemeyer para o entorno do Teatro no Parque Ibirapuera”, in www.vitruvius.com.br/minhacidade/mc125/mc125.asp. All the auditorium proposals are registered in www.arcoweb.com.br/arquitetura/arquitetura634.asp and www.arcoweb.com.br/debate/debate84.asp by the editor Fernando Serapião. On Niemeyer’s last proposal, see Scharlach, C., 2006, *A marquise e o projeto original do parque Ibirapuera*. Imprensa Oficial, São Paulo.
- 9 It is worth examining the priorities for preservation proposed by John Summerson. “The Past in the Future”, in Summerson, J. 1963 (47), *Heavenly Mansions*, Norton, London.

Myth, History and Conservation in Tel Aviv

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In 2003 a district of Tel Aviv built in the 1930s, the so-called White City, was declared by UNESCO a World Heritage Site. Today Tel Aviv is known worldwide as a landmark of the Modern Movement, an early and singular example of an urban environment realized consistently in the Modernist idiom. UNESCO's declaration, however, was only a single, internationally celebrated, moment in a decades-long process, through which the city itself constructed, discovered and rediscovered its own architecture, and, more generally, its own self-image. Myth building - the creation of a self-told narrative that sums up a community's values and aspirations – may be said to have been taking place.

The construction of the 'myth' of Tel Aviv had, therefore, a history of its own, a history that unfolded alongside the history of the city itself. It began almost with the inception of the city, and has been elaborated by the modern Jewish community of Mandate Palestine (the Yishuv), and then in Israeli consciousness, and periodically, within international discourse. It went through various phases of admiration, neglect, renewed admiration and disapproving attacks, represented in text and images. As myths tend to project themselves back into the physical landscape, inspiring actual interventions including conservation work, their evolution merits a careful study.

We propose to examine here the history of only one of the myths of Tel Aviv, that of the White City. More general studies of the 'mythography' of Tel Aviv have already been attempted.¹

THE MODERNIST HERITAGE OF TEL AVIV

Modernism arrived early in Palestine: the first Modernist structure, the Rutenberg power station in Haifa, was designed by Erich Mendelsohn in 1923 and realized (to a modified design) in 1925. In 1928, a key representational building such as the Offices of the Jewish Agency in Jerusalem had already been designed in an abstract, Modern style. In 1933, Eugene Ratner, a leading architect, and head of the Faculty of Architecture at the Technion, could declare that "in Palestine most architects joined the Modernist school several years ago".²

In Tel Aviv, however, the impact of Modernism was not truly felt until the early 1930s, with the wave of immigration from Germany. Tel Aviv, established in 1909 as a Jewish suburb of Jaffa, was already a small but booming town. By then, it had a well thought-out town-planning scheme and a coherent if provincial architectural character. Soon after 1930, Modernism became the normative style for all architecture in Tel Aviv. Within a decade, as the town spread north, an extensive and homogenous Modernist environment emerged. Similar Modernist districts formed in the same period in the other two large cities of Mandate Palestine, Haifa and Jerusalem.

No less a part of the built heritage is the body of relevant visual and written material produced in the period: the architectural discourse preserved in the pages of local and foreign magazines,³ architectural photographs, propaganda posters, and depictions of Tel Aviv in art and literature.

In 1948, when the State of Israel was born, Modernist Tel Aviv was already history, an episode seen over a decade of World War and local conflict. Within the new state, the social, economic and political context of architectural production had changed, and it continued to evolve as decades passed. In the meanwhile, the old fabric of the city was beginning to age. Some landmarks of pre-1948 Tel Aviv were lost to the pressure of development, and new construction often failed to respond to the qualities of its old Modernist fabric.

CANONIZATION OF THE 'WHITE CITY'

The publications and art work produced in 1959 for the fiftieth anniversary of Tel Aviv are perhaps the first attempts to canonize its past, now within the newly founded Israeli state.⁴ The Modernist heritage of Tel Aviv, however, was not yet explicitly celebrated.

It seems that the first person to dramatize the historical uniqueness the Modernist architecture of Tel Aviv was the Israeli art & architectural historian, Michael Levin.⁵ The exhibition he curated in Tel Aviv Museum in 1984, on the occasion of the 75th anniversary of Tel Aviv, holds a constitutive status in the historiography of Israeli architecture. The title he invented for the exhibition, "A White City", has remained a standard epithet for the Modernist city.⁶ In the short text of the catalogue, Levin succinctly defined and described local Modernism as a phenomenon, and concluded with an attempt at signification. Under the heading "What is national in the International Style", he wrote: "Vision and enthusiasm characterized the Yishuv in its efforts to build an old-new country, and this expressed itself in architecture as well as in other fields. Daring coupled with modesty, freshness, energy and the crystallization of a new language – all these were qualities of the architecture of the new period." Paradoxically, perhaps, the International Style was presented now not merely as a great achievement of the Yishuv, but as its 'national' style.

With Levin's excellent outline, the academic study of the subject had begun. At the time, academic study of local architectural history was almost exclusively conducted by historical geographers, whose interests focused on the Ottoman period. The first architectural historian to concentrate specifically on local Modernism was Prof. Gilbert Herbert of the Technion.⁷ In his publications, beginning in the early 1980s, Herbert focused mainly on Haifa, but his observations are pertinent to the manifestation of local Modernism in general. His book on the complicated evolution of the planning of Haifa during the Mandate era, concluded with the emergence of a "Modernist Vernacular" in Hadar haCarmel, Haifa's own 'White City'.⁸ Herbert's account subtly sketched a Pevsnerian teleological narrative: the rise of local Modernism as a triumph of the Modern Movement. This, in turn, could also be read as proof of the boldness and progressiveness of the Zionist enterprise.

Erich Mendelsohn's Palestinian career (1923; 1934-41) was a theme that both Levin and Herbert emphasized, although ambivalently, as an outstanding episode. It was Herbert who pointed at Mendelsohn's design for Rutenberg's power station in Haifa, 1923, as the first Modernist project in Palestine. In 1986, a thorough monograph was dedicated to Mendelsohn's Palestinian oeuvre by Ita Heinze-Mühleib.⁹ A year afterwards, a century of Mendelsohn's birth, Heinze-Mühleib and Herbert prepared an exhibition that toured Israel and abroad.

At this point the narrative of Palestinian Modernism of the 1930s as a heroic chapter in the history of the Modern Movement – and in Israeli discourse, as a golden age in the pre-state history of Israel – was practically complete. Little scholarly research on local Modernism has been added since.¹⁰ The White City narrative was now ready to be assimilated and represented in academic writing,¹¹ popular surveys¹² and art.

The most important step toward the canonization of the Modernist heritage of Tel Aviv, however, came in 1994, when an international conference on the 'International Style' was held in Tel Aviv under the auspices of Tel Aviv Municipality and UNESCO.¹³ It was a well promoted event that aroused great public as well as scholarly interest. The leading figures behind the conference were Michael Levin (again) and Nitza Szmuk, the municipal conservation architect (in 1990-2003). Szmuk supervised the research necessary to obtain the UNESCO declaration a decade later. Szmuk's efforts also produced an exhibition and many publications.¹⁴

MYTH AND COUNTER-MYTH

As a white coating began to be applied to the eroded buildings of Tel Aviv, a critical process, questioning the meaning of the Modernist heritage and its preservation, began as well. Authors objected to a formalist treatment of the architectural phenomena that tended to ignore the political and ideological content that these carried. This signified a dramatic historiographical shift. The background was the growing and universal impact of critical theory and post-colonial writing. Homi Bhabha and Henri Lefebvre were (and still are) much cited authorities. The background also included political and social tension within Israeli society, a failed peace agreement and two bloody Intifadas. Zionist historiography underwent a serious revision at the hands of the so-called Israeli New Historians. The heroic narrative of the White City could not escape reconsideration.¹⁵

Thus, the political and ideological meaning of the White City narrative, and the conservation campaign itself, came under examination. Its underlying motivations were sought in Israeli politics on the municipal and national level. The "re-discovery" in the 1980s of the Modernist heritage, critics suggested, was threefold, it was related: to the effect the historic loss of the Labour Party in the 1977 elections; to municipal policies aimed at privileging corporate power; to Israeli attempts to promote the image of the country at a period when it was at a low.

Jewish-Arab relations became a yardstick for reassessing the meanings of local Modernism. The celebration of Modernism in the 1994 conference, critics continued, was related to the resentment against Palestinians engendered by the first Intifada. The preference of a sachlich, 'international style' reflected hostility to Arab Palestine in 1994, as it did after the 1929 'disturbances' (although, on the other hand, regionalistic architecture would signify a cunning appropriation of the Palestinian landscape).¹⁶ Mendelsohn's place in the pantheon of local Modernists was also questioned from this perspective. The State of Israel could not justly appropriate Mendelsohn, since he was critical of the idea of a Jewish state as much as he rejected sachlich architecture insensitive to locale.¹⁷

Finally, the post-1948 history of the Jewish-Arab conflict was brought into the appraisal of the White City, together with a recognition that its story cannot be told without that of Jaffa, its Palestinian counterpart. The argument that the prodigious growth of Tel Aviv came at the expense of Jaffa, was elaborated by a number of authors, notably Mark LeVine and Sharon Rotbard, both in books published 2005.¹⁸ The architecture of the White City itself was implicated in the destruction of Jaffa in the 1948 war. In a chapter entitled "Planning to Conquer", LeVine argues that "the modernist architecture and town planning discourses deployed by Tel Aviv leaders during the 1930s and the 1940s were instrumental to the city's expansion, and ultimately conquest and annexation, of Jaffa."¹⁹

Rotbard brings this kind of critique to the level of high art. Brilliantly written and aesthetically designed, his book, *White City, Black City*, is a discerning exploration of the poetics of injustice. It is, however, an extremely harsh judgment of the White City. With a title that alludes to Franz Fanon, he presents the *White* of the *White City* as the white of racism. In the text Rotbard wrings dry Levin's clever catch-phrase for all its possible negative connotations and embarrassing ironies. His text sets out to explore all that was victimized in the shadow of the White City, including not only Arab Jaffa, but also the underprivileged south Tel Aviv.

At this point a counter-myth of Tel Aviv's Modernism was ripe for assimilation, elaboration and representation. 'Conflicticising' or 'polarising' depictions of the Israeli environment has almost become a genre in its own right, used in journalistic reports as well as in art. Tel Aviv has received its share of this kind of portrayal.²⁰

CONCLUSION

Now that Tel Aviv is about to celebrate its hundredth anniversary, one is tempted to speculate how well its heritage could be preserved, as well as how its myths are going to evolve. Recent critical writing, with all its resentment, was, after all, yet another elaboration of the White City myth. Perhaps what Tel Aviv now needs is less myth, and more history. Solid, comprehensive architectural history is still lacking, and becomes ever more difficult to research as archival material is constantly being lost. Conservation of the fabric is pointless if all we know about its architectural value is tour-guide information.

NOTES

- 1 See Schlör, J., 1999, *Tel Aviv, from Dream to City*, Reaktion, London, (original German 1996); Azaryahu, M., 2006, *Tel Aviv, Mythography of a City*, Syracuse University Press; Mann, Barbara E., 2006, *A Place in History, Modernism, Tel Aviv, and the Creation of Jewish Urban Space*, Stanford University Press, California; Zakim, E. S., 2006, *To Build and Be Built*, University of Pennsylvania Press, Philadelphia, Chapter 5.
- 2 Ratner, 1933, "Architecture in Palestine", *Palestine and Middle East Economic Magazine* 7-8, 293-296.
- 3 E.g. *HaBinyan*, 1934-38, the magazine of 'The Circle', a leading group of Tel Aviv architects; Barkai, S. and Posener, J. (Sept. 1937), "Architecture au Palestine", *Architecture d'Aujourd'hui*.
- 4 Especially work by the artist Nahum Gutman. See Gutman Museum site www.gutmanmuseum.co.il.
- 5 Prof. Levin was Art Advisor to the Mayors of the Jerusalem 1978-85, and Tel Aviv 1987-95, and Chief Curator, and later Director, of the Tel Aviv Museum of Art 1986-90.
- 6 E.g. in Fischer, Y., 1984, *Tel Aviv: 75 Years of Art*, Massada, Ramat-Gan. On the genealogy of the term see Azariahu, *Tel Aviv*.
- 7 <http://architecture.technion.ac.il/faculty.php?pi=367>.
- 8 Or "Bauhaus Vernacular". Herbert G. and Sosnovsky, S., 1993, *Bauhaus on the Carmel and the Crossroads of Empire*, Yad Ben-Zvi, Jerusalem, chapter 6. See also Herbert, 1995, "Bauhaus Architecture in the Land of Israel: Is the Concept of a Modern, Architect-Designed Vernacular a Contradiction in Terms", *Architectura* 25 (2).
- 9 Heinze-Mühleib, I., 1986, *Erich Mendelsohn, Bauten und Projekte in Palästina (1934-1941)*, Scaneg, Munich.
- 10 Exceptions: Ingersoll, R., 1994, *Munio Gitai Weinraub: Bauhaus Architect in Eretz Israel*, Electa, Milan; Gockede, Regina, 2005, *Adolf Rading (1888-1957): Exodus des Neuen Bauens und Überschreitungen des Exils*, Gebr. Mann, Berlin.
- 11 Kopp, 1988, *Quand le Moderne n'était pas un style mais une cause*, Ecole Nationale Supérieure des Beaux Arts, Paris.
- 12 E.g. Kamp-Bandau, I. et al, 1993, *Tel Aviv, neues Bauen, 1930-1939*, Wasmuth, Tübingen; Weill-Rochant, Catherine, 2008, *L'Atlas de Tel Aviv 1908 - 2008*, CNRS, Paris.
- 13 On the conference see: Ingersoll, R., 1995, "Pilgrimage to the White City: International Style Conference at Tel Aviv", *Journal of Architectural Education*, 48 (4), 268-270.
- 14 E.g. Metzger-Szmuk, N., 2004, *Des maisons sur le sable: Tel Aviv, mouvement moderne et esprit Bauhaus*, Editions de l'Eclat, Paris.

- 15 Primarily: Monk, D. B. 1994, "Autonomy agreements: Zionism, Modernism and the Myth of a 'Bauhaus' Vernacular," *AA Files* 28, 94-98; Nitzan-Shifan, Alona, 1996, "Contested Zionism - Alternative Modernism: Erich Mendelsohn and the Tel Aviv Chug in Mandate Palestine", *Architectural History* 39, 147-180; idem, 2000, "Whitened Houses," *Theory & Criticism* 16, 227-232 [Hebrew]; Rotbard, Sh. 2005, *White City, Black City*, [Hebrew], Babel, Tel Aviv.
- 16 Nitzan-Shifan, 2004, "Seizing Locality in Jerusalem" in AlSayyad N. (ed), *The End of Tradition*, Routledge, London, 231- 255.
- 17 Rotbard, *White City*; Nitzan-Shifan, "Mendelsohn".
- 18 Rotbard, *White City*; LeVine, M., 2005, *Overthrowing Geography: Jaffa, Tel Aviv, and the Struggle for Palestine, 1880-1948*, University of California Press, Berkeley.
- 19 LeVine, *Overthrowing*, synopsis, 14.
- 20 See e.g. work by Ronen Eidelmann: <http://ronen.dvarim.com/2007/10/15/the-ghost-of-manshia-awakes>; or 'A Declaration' by Yael Bartana, <http://www.nrg.co.il/online/5/ART1/565/769.html>



Rietveld at Bergeijk

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In celebration of Gerrit Rietveld's 70th birthday in 1958, Forum magazine published an issue dedicated to him. Two pictures of the textile mill designed for De Ploeg in Bergeijk were published though the building was not yet complete.¹

The De Ploeg mill was in use until 'De Ploeg' closed its doors in 2007. In March 2008 the buildings and land were sold for 4,5 million Euros to a foundation whose objective is the building of public housing projects.

Two buildings in Bergeijk designed by Gerrit Rietveld are on the preliminary list of modern historical buildings for preservation: the De Ploeg textile mill, designed together with the architect G. Beltman and the Visser home, later expanded by Aldo van Eyck.² In the same town of Bergeijk there is another house by Rietveld, as well as a public clock. The selection of these two Rietveld buildings demands not only answers as to why we should preserve these buildings but also whether there should be a plan for their future use if they are to be preserved.

Piet Blijenburg, the director of De Ploeg, a trading company dealing in textile products, was Rietveld's client.³ Blijenburg became acquainted with the De Ploeg cooperative during his stay at a vegetarian health spa in Bergeijk. Blijenburg began work at De Ploeg in 1923 as a part-time sales representative.⁴ He was described then as a 'tall friendly smart man with a good sense of humour, a man of few words with idealism and belief in the cooperative'.⁵

In 1937 Blijenburg became the director of De Ploeg. Because there was a shortage of textiles during the Second World War Blijenburg changed the business' focus to industrial arts.⁶ Piet Blijenburg had a talent for organising, he had vision and ambition; a networker. As a member of the board he was involved with 'Goed Wonen' (Good Living), established in 1946 by retailers, manufacturers, designers and architects presenting a healthy modern lifestyle within the reach of everyone's budget.⁷

After the war Blijenburg reorganised the textile production and sales of upholstery, curtain and clothing fabrics. His growth estimates for De Ploeg were based on the yearly housing production and the large glass surfaces used in the post-war 'nieuwe bouwen' architecture. Afterwards he began to develop the industrial arts division known as 't Spectrum. He hired Martin Visser to be programme director and designer for the furniture division.

At that time Martin Visser was head buyer for furniture at the Bijenkorf Store in Amsterdam. His department also sold De Ploeg products. Blijenburg himself came to Bijenkorf a few times: '...He told me a lot of stories about Bergeijk. He was so enthusiastic that I said, "I'll come have a look some time... you wouldn't believe how amateur they are there." That's when I said, 'I can do this better'.⁸

* With support of the Atelier of the chief government architect/Ministry of Housing, Spatial Planning and the Environment



Figure 1. Interior House Visser, architect G. Rietveld, Forum 3 1956.
Photo Jan Versnel 1955.

Visser came to work at Bijenkorf by chance. After designing a set of furniture for a friend, he ordered a few extra sets to be made and tried afterwards to sell them. A.A.R. (Bram) Verhoog, a buyer for the Bijenkorf, bought everything and offered Visser a job.⁹ Visser was already an active art collector. While visiting the painter Otto van Rees in Utrecht for that reason, he met Gerrit Rietveld.¹⁰ It was a revelation for Visser, 'the aluminium folding chair was being made'. Also having an interest in architecture, Visser travelled with Bernard Bijvoet to Paris after the war.¹¹ It was his first acquaintance with the Maison de Verre, built by Pierre Chareau with Bijvoet, and with the work of Le Corbusier. At the same time, Martin Visser and his wife Mia got to know other collectors such as Wim Beeren and began to buy artworks from the Cobra-group, mostly from Constant.¹²

Visser introduced his acquaintances to his home furnishings department at the Bijenkorf. He organized an annual interior design exposition called OHOT; Our House Our Home. As Visser says, 'It was actually a continuation of what 'Goed Wonen' did: letting people know that things needed to change'.¹³ At the 2nd OHOT in 1949, Visser hung Cobra paintings above the furniture. For the 1952 show he invited Aldo van Eyck and Hein Stolle to participate; in 1954 Rietveld furnished a model home with an open kitchen with a brilliant colour scheme by Constant.¹⁴ These expositions got a lot of attention.¹⁵

In 1954 Visser left the Bijenkorf to work for De Ploeg in Bergeijk.¹⁶ There the Vissers bought a plot of land and asked Aldo van Eyck to design a house for them.¹⁷ Aldo refused the commission, but Rietveld accepted. Rietveld also designed furniture and lamps.¹⁸ The Vissers' complete collection of Cobra artworks, at this point about 100 pieces, were stored in a depot at the nearby Eindhoven Van Abbe Museum while they moved.

Visser enthusiastically began with his own design work and the organisation of the production of 't Spectrum. The designers with whom he had worked in Amsterdam, such as Hein Stolle, Constant and Gerrit Rietveld, were commissioned for the 't Spectrum Collection. Visser also became known for his own designs for 't Spectrum. In 1958 some of his pieces were part of an exhibition in the Amsterdam Municipal Museum. In these early years he had already designed and developed his bestsellers, still in production; the sofa-bed, the easy chair and the dining chair with their thin stainless steel frames.¹⁹ In an interview Visser explained; 'We worked with specialist suppliers,... we sometimes work with 4 or 5 different suppliers for one piece of furniture'. Visser had contact with, amongst others, Nebato a steel parts manufacturer in Bergeijk.²⁰

De Ploeg was divided over several locations in Bergeijk when Visser started work there. Blijenburg planned a growth in staff from 140 to 500 persons within the following 5 years. The original cooperative De Ploeg was wound up and De Ploeg and 't Spectrum became limited liability

companies. The SWB - Bergeijk Work Collective Foundation - became the executive director of those two companies. The SWB also had a social and cultural goal, financed by the received dividend.²¹ Expansion of the accommodation was necessary.

The municipality of Bergeijk sold De Ploeg a 23 ha plot of land on which to build a new factory and 30 homes.²² Rietveld, who was building the Visser home in Bergeijk and Gerrit Beltman, who was already in contact with De Ploeg, were commissioned to build the De Ploeg building.²³ The landscape architect Mien Ruys was involved in the planning from an early stage. Rietveld was also commissioned for the 30 family dwellings and for the houses of the De Ploeg directors Blijenburg and Van Daalen. In the end the Blijenburg House and the family dwellings were not realised.

Beltman was exceptionally experienced in the design of textile mills and factories.

Rietveld and Beltman used an industrial building system: 'Dijwidag' a roof design for factory buildings that optimized the amount of daylight. The construction drawing for the building permit showed four rows of north lights roofs measuring 144 m each and four exactly half that length. It could not have been simpler. The craftsmanship of the architects is visible on the façade. The rounded roof has been extended just outside the rafters, the fronts are placed at a slight angle.²⁴ The material surfaces on the rear elevation are the same concrete blocks as those used for Rietveld's 1955 Sonsbeek Exhibition Pavilion for Sculpture.

After completion of the building a new drawing was submitted to the local authority. This drawing showed the addition of the freestanding entrance canopy and a reception area and a large showroom with meeting rooms.²⁵ These changes give a clue to the philosophy of De Ploeg. Everyone is welcome and equal in this building under the same roof, whether a dyer, a weaver, a director, office personnel, a housewife on a daytrip or a participant in the social and cultural activities of De Ploeg.

In 1963 De Ploeg celebrated its 40th anniversary. In celebration De Ploeg presented the municipality of Bergeijk with two benches (destroyed), a bus shelter and a public clock designed by Gerrit Rietveld. In 1964 Rietveld died unexpectedly.²⁶ Piet Blijenburg had already officially retired as director of the company. Until his death in 1967 Blijenburg dedicated himself to the activities of the SWB, particularly for the 2-years series of weekend conferences. The showroom was used as the conference hall.²⁷ The 4th conference was in preparation when Piet Blijenburg died.



Figure 2. Entrance textile mill De Ploeg architects Rietveld and Beltman.
Photo Madeleine Steigenga 2007.

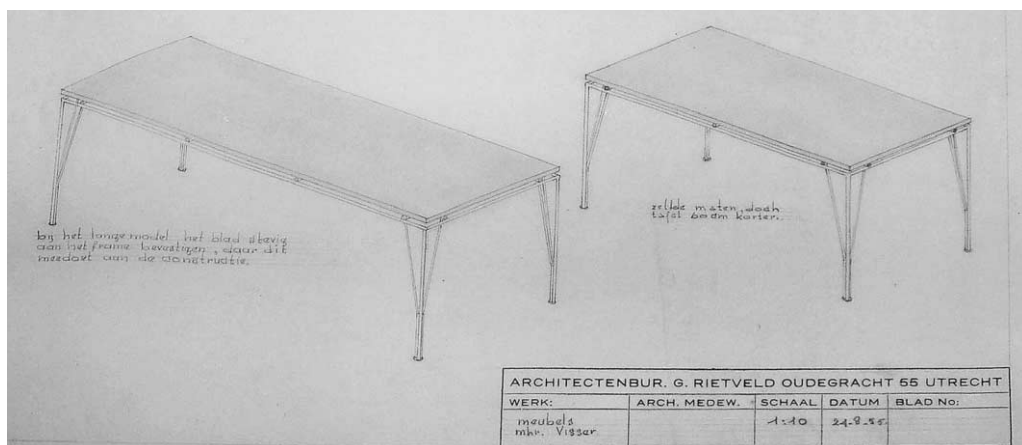


Figure 3. Table design for Mr. Visser, Gerrit Rietveld 1955.
Archive NAI RIET.

Professor H.J. van den Broek of Delft University took charge of the organisation.²⁸ The changes in content and tone of these conferences were described in the magazine 'Wonen', the successor of the magazine 'Goed Wonen'. The conferences went from a biannual conference which concluded with recommendations to the government to a congress infiltrated by student protest, where participation and a 'say' in decision making was demanded for residents, and where common ground and agreement seemed unattainable.²⁹

Martin and Mia Visser's collection of Cobra artworks remained in the depot. The reason for this according to Visser was, 'In the beginning this house by Rietveld was confusing to us. We didn't know how to make it a home... that poor shabby Cobra. They all painted with cheap paint on cheap linen. That's the feeling you get'.³⁰ Then Visser bought an artwork by Piero Manzoni. It turned out to be the beginning of their new collection. The Vissers retrieved a few of their Cobra paintings out of the Van Abbe depot and traded them with Manzoni's work.³¹ Their collection got a different direction and their contacts and acquaintances multiplied. Vissers' youngest brother Geertjan bought his first artwork, a Constant painting, from the collection of Martin and Mia and went on to build his own collection. Martin and Geertjan occasionally traded paintings and when necessary Geertjan financed Martin and Mia's purchases.

One of Martins brothers is the sculptor Carel Visser. The three Vissers were on the list of invitees for the BSK (Architecture study group) reunion in 1962. The theme of this weekend was 'autonomous architecture'.³² One of the students who organised this weekend, Jean Leering, became two years later the director of the Van Abbe Museum in Eindhoven. The names of the artists whose work make up the Visser collection are also to be found on the list of exhibitions which took place under the direction of Leering: Schoonhoven, Christo, Constant, Fontana, Beuys, Manzoni, Arman, Judd, Manders, Warhol, Panamarenko, Carel Visser and Nauman.³³

When the Vissers bought a work of Carl Andre's the place and the size were determined by Andre in their house. Nebato, one of the manufacturers who worked for 't Spectrum, was invited to produce this artwork. Later that year when Sol leWitt's work was also made by Nebato, Mia Visser was asked to introduce these two artists. Not only were works by Carl Andre and Sol leWitt being manufactured in Bergeijk but also those by Robert Morris, Bruce Nauman and Walter de Maria.

In an industrial park in Bergeijk the Vissers erected a Nisson hut where artists could work. Among others the Belgian Panamarenko, Sol leWitt and Daniel Buren worked during the day in the hangar and lived with the Vissers in their house.³⁴

In 1967 Aldo van Eyck accepted a commission from the Vissers and designed two extensions of the Rietveld House. The extrovert Rietveld House had now become introvert. The reversal of Rietveld's concept was reinforced when the view from the living room window in the Rietveld part of the house was blocked by a sculpture by Sol leWitt.

Little by little de Ploeg got into financial problems. The fabric division kept going until 2004. 't Spectrum was found to be unprofitable and was liquidated in 1974.³⁵

Martin Visser lost everything that he had built up as a furniture designer. The copyrights were part of the holdings of 't Spectrum. Around the same time Mia Visser became gravely ill and died in 1977. Wim Beeren was by this time director of Boymans van Beuningen Museum and an admirer of Visser's: '... his driving force being his curiosity and admiration for the creativity of top artists and architects.' Beeren invited Visser to become chief curator in his museum. Martin accepted: 'It was finished here.'³⁶

't Spectrum made a restart twice. The Visser furniture remained bestsellers in the collections. Visser also continued to design furniture. When Sol leWitt left aluminium tubes behind in the hangar Visser and his new partner Joke van der Heijden used them to make a table that became part of the 't Spectrum collection.³⁷ Together with Joke, fabric designer and lecturer at the Eindhoven Design Academy, Visser continued his quest for art. They are still exceptional patrons for new generations of artists and designers.

When the fabric division of the De Ploeg began to falter, the complete Visser collection of 600 artworks, including pieces belonging to Geertjan Visser, was transferred to the Kröller Müller Museum to become part of its prominent collection of modern art.

Social reality had caught up with the ideals. This had already happened during the series of conferences that were held in the showroom of Rietveld's and Beltman's De Ploeg. And the same happened with the legacy of De Ploeg. In April of 2008 at a fabric market on the Lange Voorhout in The Hague, De Ploeg was being sold at €5 per metre. The concept of name branding by De Ploeg had worked perfectly. The building however, once the heart of the company, of a philosophy, of the daytrips of thousands of housewives, now stands empty and silent waiting in an overgrown landscape strewn with rail-sleepers and the full grown trees which had been so carefully selected by the landscape architect Ruys.

What significance is left?

Piet Blijenburg, Gerrit Rietveld and the Visser family all played an important roll in the recent history of Bergeijk. A local history of idealism, art and design; according to the ideals of De Ploeg in service of the individual and for the common good. Buildings set here, the Nisson hut; atelier of famous artists and of design fabrics and furniture; what are we preserving? Is 'name branding' as with the fabrics not enough?

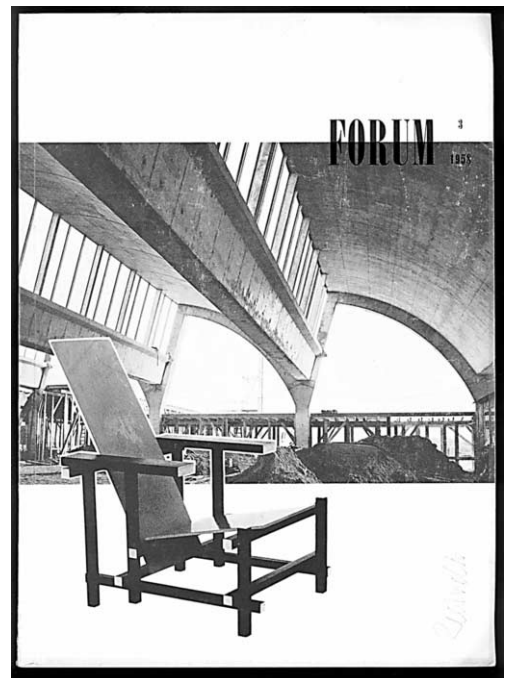


Figure 4. Cover Forum 3 1956.

Photo's Municipal Museum Amsterdam (chair) Jan Versnel (De Ploeg).

Thanks to Prof. H. Heynen, drs H. Wolters, drs. Ing Dirk Baalman, Dr. Cees Somer, Jaap van Triest en ir. Niek van Vugt; translation Janel Trinchitella with Paul Willcox.

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Viva Stirling's Florey building

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In 1973, the Arts Council of England funded the making of a film directed by Ron Parks entitled *Jim Stirling's Architecture*.¹ Screened on the B.B.C., it surveys a selection of Stirling's then recent projects. Discussed and documented visually in it are three of his early English university buildings. They are the iconic Engineering building at the University of Leicester, 1959-63; the famous History Faculty building for the University of Cambridge, 1964-67; and the lesser-known Florey building for The Queen's College, Oxford, 1966-71. The three constitute the brash and bold early architectural period in which Stirling, initially with James Gowan, worked in a palette of glass and red brick/tile clad sculptural forms. After the Florey building, Stirling ceased to work in this mode. In this paper, I will show how the fresh approach of the three buildings was applauded by architectural critics such that all were initially heralded masterpieces. This will be contrasted with the manner in which the latter two buildings were received by their users and clients. Well-known complaints about the practical inadequacies of the History Faculty building will be reiterated. In addition, the previously unpublicised criticisms by the commissioning clients of the Florey building will be revealed. Today, the Engineering building and History Faculty building are Grade II* and Grade II listed respectively. English Heritage's Grade II* listed buildings are; 'particularly important buildings of more than special interest' and Grade II buildings are; 'of special interest, warranting every effort to preserve them'.² Although an application was made in 1999 to list the Florey building, it remains unlisted. The aim of this paper is to set out the historical background to the problem besetting the listing of the Florey building in which architectural connoisseurs and clients disagree on its heritage worth.

Mark Girouard notes in *Big Jim: the Life and Work of James Stirling* that after the Engineering building, architects and students became infatuated with Stirling and his revolutionary designs. Following Le Corbusier's death, Girouard claims they hailed Stirling 'a new god'.³ After 1963, there was a steady stream of flattering publicity in the popular architectural media. Fuelled by a fascination with the Engineering building influential critics could not say enough words in praise of Stirling's radical architecture. For instance in the essay 'Stirling "Dimostrazioni"' published in the October 1968 issue of *Architectural Design*, Alvin Boyarsky constructs a picture of the History Faculty building as exemplary of Stirling's demonstration against the dominant direction of modern British architecture advocated by Nikolaus Pevsner. Described in a heroic battle, Boyarsky presents Stirling as fighting 'by absolute and uncompromising moral views; a guerrilla like undermining of establishments and traditions'. He commends Stirling for his brave ambition in 'expressing the revolutionary intentions of a new generation in the medium of hard building'.⁴ Two months later, the History Faculty building is reviewed favourably by Reyner Banham in *The Architectural Review*. Banham focuses on the building's innovative technologies. He praises Stirling's glass and tile formula which results in a successfully varied work in the Engineering building 'style'.⁵ In the vein of *The Architecture of the Well-Tempered Environment* Banham argues the History Faculty



Figure 1. Stills of James Stirling and titles from *Jim Stirling's Architecture*, Directed by Ron Parks, 1973. Copyright holder is Arts Council England.



Figure 2. Stills showing u-shaped interior of the Florey building from *Jim Stirling's Architecture*, Directed by Ron Parks, 1973. Copyright holder is Arts Council England.

building's technologies facilitate a comfortable working environment.⁶ In the November 1972 issue of *Domus*, Joseph Rykwert focuses on the composition of Stirling's university architecture. Rykwert presents the argument that of the three, the Florey building is 'Stirling's most mannerist work'.⁷ Although the simplest, Rykwert applauds it as the most carefully composed. While these and other architectural connoisseurs wrote in praise of Stirling's mastery, some of the university clients wrote less favourable reviews.

Cambridge History don, Hugh Brogan wrote in complaint of the lived experience of the History Faculty building in the October 1968 issue of the *Cambridge Review*. Brogan compares the design of the History Faculty building to a prison with 'every feature of the design [...] subordinated to the concept of maximum security'.⁸ Having laid out practical problems, he lunges into an attack on 'the unspeakable Rayner [sic] Banham's frothings in *New Society* [...]'. In Brogan's opinion Banham fails 'to offer one point to support his contention that the History Building is a good one'. In January 1976, Gavin Stamp, who had recently finished reading History at Cambridge, writes a lengthier, more damning critique of the building's design from a user's perspective. Like Brogan, he responds to flattering writings of the History Faculty building by Banham, this time in *The Architecture Review*. Stamp questions whether Banham's 'enthusiasm would have lessened by the knowledge that within a year of occupying the building, the History Faculty Board seriously considered moving out of it again owing to the inconveniences encountered'.⁹ In the final paragraphs, Stamp refers to a visit by Parks' B.B.C. film crew who accompanied Stirling to film the building. Stamp explains; 'the film crew were disappointed in failing to elicit any favourable spontaneous reactions from students working in the Library [...who] far from being in natural sympathy with the [...] New Architecture, [...] saw the History Faculty as the perfect expression of a 'Big Brother' attitude by Authority'.¹⁰ Stamp laments the 'megalomaniac' designs of architects as 'a source of unhappiness'. Of another of Stirling's unhappy clients, Stamp refers to The Queen's College in Oxford who due to 'post-completion litigation' were at the time hush about their bad experience with Stirling as their architect. Unlike user critics of the History Faculty building, The Queen's College have never made public their criticisms of the Florey building. The only record of

their experience appears in an unpublished report titled *The Florey Building: A Narrative Account of the Project*.¹¹ Held in The College archive it is curiously written in 1981, ten years after the Florey building was completed, the year Stirling was awarded the prestigious Pritzker Architecture Prize.

The narrative account is written by Arthur A. Williams, Bursar at The Queen's College from 1958-1977 and member of the Building Committee who appointed Stirling in 1964. As client representative rather than user, as Brogan and Stamp were, Williams' record presents a thorough account of the procurement of the Florey building. Regardless of Girouard's claims that; 'he [Williams] and Jim never got on' because 'Williams had been against any new building at all' for financial reasons, the report objectively chronicles events until its conclusion.¹² Still Williams' building history of the Florey Building makes gloomy reading because it is the history of a project beset with problems.

After Stirling's appointment, the college changed the site from one on Iffley Road to one in St. Clements, idyllic because it overlooked the River Cherwell and leafy meadows. Difficulties arose from the purchase of the new site from the City's Planning Department who put pressure on a specified construction start date. This led the College not to undertake a competitive tendering process, negotiating instead a fixed sum contract with contractors W. H. Chivers & Sons. Then contractor and architect came into conflict because Stirling's office failed to provide detailed architectural drawings in advance of building work. This contributed to recurrent delays, sometimes stop-pages. Stirling's assistant and site architect for the project, Roy Cameron had limited experience. Interviewed in Parks' film seated in Stirling's office, a young fresh faced Cameron seen wearing a patterned cravat and cream shirt explains how he was brought in to convert Stirling's 'thumb nail sketches [...] drawn to about 16th scale' into a working building. His task was to resolve problems inherent in the initial design as well as on-site issues. Stirling's tiling specification for the Florey building, the same as had earlier been used for the Engineering building and History Faculty building, was found to be defective and changed twice mid-cladding. The building took three years and two months to complete, 17 months more than the original 21 month building period. The cost of the project escalated from Chives' tender price of £263,865 to the final construction cost of £355,299. Of the extra £91,434, the College had only approved £37,376 in variations. Due to Stirling's 'failure to reply to requests for written reports on the causes of increase of cost and to account for the numerous variations and additions which he was authorising, [...] Williams looked to rectify the financial losses. Through correspondence with the other two English university clients, Williams discovered both were dissatisfied with their architect's performance and had sought legal advice from Walters Vandercom & Hart. Williams explains the solicitors; 'had come to specialise in the grievances of various of Stirling's clients, and they were engaged to advice [sic] the College on its remedies'.¹³ Assessment by independent arbitrator, Leslie Alexander convinced The Queen's College to issue Stirling a writ which resulted in Stirling offering £25,000 in settlement.

Then Williams sets out issues of building performance in his conclusion, 'The Achievement'. Williams describes how the Florey building, due to the way it has been designed with large expanses of glazing, suffers from extremes of heat or cold, has glare and ventilation problems and is difficult to clean and maintain. There are issues with privacy, a consequence of the u-shaped plan with bedrooms facing one another. According to Geoffrey Tyack students 'are obliged to contemplate each other in their box-like split-level rooms like goldfish in a bowl'.¹⁴ Leaking and water penetration has caused ongoing problems with tiling of ground areas and façades. Like the students occupying the History Faculty building, residents of the Florey building requested they move out after having just moved in. They too were interviewed by Parks when making *Jim Stirling's Architecture*. Williams notes in his narrative report, that 'expressions of view by the College or by students were clearly unwelcome' and were not included in the film. Rather in the film Stirling sits near the River Cherwell's edge and shouts to some unknowing students punting by; 'Are you in



Figure 3. Stills of Roy Cameron in Stirling's office from *Jim Stirling's Architecture*, Directed by Ron Parks, 1973.
Copyright holder is Arts Council England.



Figure 4. Stills of James Stirling punching the air with joy from *Jim Stirling's Architecture*, Directed by Ron Parks, 1973.
Copyright holder is Arts Council England.

College here? Girls are you at St. Hilda's?' to which one girl replies to the latter question, 'Yes, I am'. Stirling asks 'What do you think of this new building?' She replies; 'I like it'. Stirling is then seen to punch the air with joy.

Twenty eight years after its completion, application was made to the Department of Culture, Media and Sport (DCMS) for the listing of the Florey building. Written on behalf of The Twentieth Century Society's Casework Committee, it requests the Florey building be listed 'at grade II*' level in recognition of its outstanding architectural quality and significance'. Its author argues; 'Although very controversial at the time of building, we believe that sufficient time has elapsed to assess Stirling's work of this period more objectively for the purposes of listing'.¹⁵ After their involvement in a difficult, prolonged construction process, litigation and thirty-seven year maintenance programme which has not yet obliterated 'teething troubles', The Queen's College remain unconvinced of the value of their Florey building. The College has made, and wish to continue making, significant alterations to their building. At present they are considering embarking on a substantial refurbishment/redesign of the building.

Regardless of the client's disdain, one should not lose sight of the qualities that make the Florey building a significant piece of symbolic architectural capital. It is a unique bold and uncompromising building which injected enthusiasm into modern British architecture in the late 1960s. Due to its importance to the profession, with no action being taken by the DCMS to act on the request to list the Florey building, some current members of The Twentieth Century – Thomas Muirhead (former employee and friend of Stirling) and Elain Harwood (Advisor to English Heritage who wrote in support of the 1999 application) – continue to campaign more than others for its protection. Trustee of The Twentieth Century Society and long time opponent of Stirling, Gavin Stamp is arguably less committed to securing the future life of the Florey building. Although The Queen's College Building Committee who appointed Stirling are no longer participatory in the development of the university buildings having retired or passed away, there remains a deep client resentment towards the Florey building. This conundrum of client versus a profession's opinion of important architectural heritage is compounded by the fact English Heritage's criteria for listing

buildings - architectural interest, historical interest, close historical association and group (of buildings) value – fails to include client/ user satisfaction. In much of my earlier writing I argue that a friendly client-architect relationship is a forgiving one in which extensions of time, cost over-runs, etc are excused on the basis of shared aspirations and gains. However, unfriendly client-architect relationships and architecture which fails the aspirations of clients result in unforgiving clients and user-critics that have no allegiance to the building or architect. One could only hope that every ambitious, brave building constructed was the consequence of a friendly procurement process but of course this is not always the case. When they are not, the preservation and listing of that building requires a more considered approach. While confident that Stirling's Florey building is a significant piece of symbolic architectural capital for architects, it is questionable if its failure to achieve such a status for its clients deems its future uncertain. Even though English Heritage presently fails to acknowledge the attitudes of clients and users of controversial modern architecture, their opinions inevitably impact on its preservation.

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Questioning Material/Conceptual Authenticity

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DOCOMOMO, unlike ICOMOS, has rarely taken a doctrinal stance. However it has twice issued action statements. The first occasion was in 1990 when it began making an inventory of Modern Movement architecture. The second was when it had to give an opinion on the World Heritage List, which led the International Specialist Committee on Registers to challenge the World Heritage Committee's criterion of material authenticity in favour of conceptual authenticity. I have always felt uncomfortable about this, given that the arguments supporting it are limited to a technical justification, citing the fragility and obsolescence of constructions. Therefore we are proposing looking at the validity of these two major and apparently competing principles – material and conceptual authenticity – in the light of pragmatic semiotics, which offer a “theory of the production and reproduction of signs and of their interpretation”, paying close attention to contexts, intentions and experience.

HERITAGE AS SEMIOSIS

Let us consider heritage less as a collection of buildings and more as a breeding ground for a semiotic construct or semiosis, a multi-dimensional phenomenon, a dynamic, open and contextual process skilfully described by the philosopher Charles Sanders Peirce. Peirce differentiates the sign by the nature and multiplicity of the relationships established between not two elements (Saussure's famous signifier/signified pair), but three: the sign itself (here, the buildings), the interpretation derived from it in an undefined way through interpretants (not to be confused with interpreters), and with reference – always incomplete – to the object that the sign represents. Peirce insists that the way a sign is interpreted depends on circumstances. It is not fully apprehended either superficially (as a signifier) or in depth (as a signified) – its object is elusive and can only be grasped through other signs: interpretants. The sign is always “read” partially and with partiality, given that we only retain certain aspects of it based on the context, our prior experience and the objective being pursued, such as the building's practical use or appreciation of it as a witness of the past.

Let us hypothesise that the building or ensemble identified as heritage is a more “authentic” sign in the Peircian sense because it is more developed. This comes from acknowledging the duality in architectural practice emerging in the 19th century and becoming institutionalised in the inter-war years with the establishment of separate professional organisations representing Modernist architects on the one hand and those involved in restoring historical monuments on the other. Considered from this perspective, heritage aims to compensate for the effects of the rule – the familiar experience-based convention strongly influencing interpretants of constructions – being broken by the more innovative historical avant-gardes, the early 20th century architects and artists who shook up symbols which, according to Peirce, are the only “authentic” signs. Studying the Maison du Peuple in Clichy which reinvented the public market and community hall, Bruno Reichlin has ana-

lysed functionalism in terms of breaking the “automatic” and conventional relationship between the sign and its use. The architects Beaudouin and Lods, with Prouvé’s collaboration, developed a new and open architectural sign, designing a building whose variable configuration allowed for different interpretations and uses, ignoring the risk of insignificance caused by breaking conventions linked to traditional building types, architectural figures forming the basis of shared culture.

Pragmatic semiotics leads us to think that in reaction to the Modernist revolution in architectural language, heritage contributes to maintaining a general meaning in societies that have changed dramatically through technological progress and individualism. Conservation concretises the need to ensure continuity by preserving existing signs, even when the buildings embodying them have become obsolete, outmoded and depreciated. Heritagisation is the enrichment of the object that the sign represents, motivated by a new viewpoint, another “foundation” in the case of buildings and complexes no longer of value, at least for the wider community: to a greater or lesser extent, they come to represent the past. Until the 1960s, this capacity was only recognised in constructions at least a hundred years old. Modern heritage, which emerged in the 1980s, presupposes that more recent realisations can also be subject to a similar shift in interpretation.

A semiotic perspective like this allows us to query authenticity again. In a building conservation project, can the idea or architectural concept at its origin be conserved? Does its old substance have to be preserved? In other words, to what extent can the building be modified without endangering its heritage value?

AUTHENTICITY RECONSIDERED

The first question is easier to answer than the second. The claim to a concept’s authenticity in a conservation project rests on a binary, univocal and stable conception of semiosis, with the sign giving direct access to the meaning. It denies the importance of interpretation, of reception. Semiosis is not only a “vague” process, but still an undefined one, as long as the custom or rule has not stopped its meaning from expanding. The sign always offers uncertain access to the object it represents, particularly when it has to be combined with the designer’s intentions, which in the case of high architecture materialise through a collective execution mediated by drawings and texts. It is not unusual for building work to differ from the original design, which in turn is not always clear if documents are missing.

Closely examining the arguments of professionals advocating conceptual authenticity, it is clear that the so-called preserved idea is less the concept existing at the start of the project, and more historiography’s interpretation of it. To justify the conservation of the Van Nelle factory, the architect Wessel de Jonge mentions the distinction between rationalism and functionalism introduced by Adolf Behne in 1926, without explicitly referring to Brinkman and Van der Vlugt’s intentions. Indeed in 1999, when site plans for its restoration were being put together, Behne had just been rediscovered following the publication in English of *Der Moderne Zweckbau*. In this restoration project, as in others, the idea we are trying to preserve is one we deduce from observing the building and studying documentation.

On the other hand, the question of material authenticity leads us to a closer examination of the relationship between the sign and its object, stopping at its indexical function. It encourages us to consider whether conserved buildings necessarily have to offer the possibility of a direct and causal link with the past, like smoke warning of the presence of fire, the weather vane signalling the direction of the wind, or relics, that first form of heritage, testifying to the passage of Christ on earth or the existence of saints. Does this connection have to saturate the relationship as recommended by advocates of integral preservation? John Ruskin, one of the strongest critics of restoration as Viollet-le-Duc defined it, tolerated no intervention on old buildings other than maintenance. William Morris preferred leaving them to “die” rather than adapting them to contemporary living. Their attachment to the patina – this special feature of aging – is understandable, like a rereading

of the sign motivated by the new and “sacred” point of view they have of old buildings, while for others it is a dirty mark, a defect.

Or can just fragments of the building-sign be preserved, as suggested by David Lowenthal? Camillo Boito, the first critical theorist of restoration, accepted the reconstruction of old ruins based on “absolutely certain data”. He advocated stabilising the structures and ornamental surfaces of medieval buildings using modern technology, provided no harm is done to their “picturesque” appearance. For Boito, therefore, the built sign can be modified; scattered elements can be put back together, but none removed, even if they were added, because the monument is primarily an historical document to be preserved with all possible interpretations retained. New elements can be added provided they are distinguishable from the old ones, so that contemporaries and future generations are not deceived about what parts are authentic. The historical monument must never be rebuilt. However this has become a common practice, with the reconstruction of modern exhibition pavilions for example. The doctrine tolerates such interventions provided they are based on “authentic documents”.

The case of the Barcelona pavilion – rebuilt in 1986 – is interesting in this respect, given the difficulties in documenting Mies van der Rohe’s building for the 1929 World Exhibition which was demolished shortly afterwards. The project’s archives are incomplete: specifications and designs relating to materials and their assembly are missing and not resolved entirely by photographs taken at the time. Modifications were also made to Mies’s design when it was built, for timescale and budget reasons. It is important to specify that the new building is not just built on the same plot as the 1929 pavilion, but also on its old foundations. Not only is the physical context of the building unchanged (or almost), but there is also an indexical link between the new and the old, similar to the one advocated by Gustavo Giovannoni, architect and promoter of urban heritage, for the conservation of old city centres: the “permanence of the plan”.

The indexical relationship to the past is there, even if it is limited to the footprint, while it is a uniquely iconic architectural creation seeking to maintain a link with the past. There are many examples of this kind of semiosis based on a resemblance with historic buildings, even in the architecture of the Modern Movement whose radical break with history was very limited at the time, for instance Mies’s Crown Hall on the IIT campus which is tinged with classicism, or the Errazuriz house (1931) of vernacular inspiration built in Chile to plans by Le Corbusier.

Thus the causal relationship between the sign and its object has to be saturated for some by the building’s ongoing and full presence; for others, it can be partial. How can the coexistence of such antagonistic conceptions of material authenticity in conservation theory and doctrine be explained? How can a more assured position towards this issue be established? Here again, pragmatic semiotics offers a way.

JUDGING AUTHENTICITY

Returning to our hypothesis that heritage is a more developed sign, the semiotic exploration of authenticity leads us to think that, unlike architecture, heritage maintains a relationship both of resembling and being related to its object – the past – but it has lost its general capacity to signify or, in the case of Modernist realisations, perhaps never had it. Think of all those Modern buildings which, once they have been abandoned by their owners, have never rediscovered their initial use because they were not widely appreciated, for example the Savoye villa in Poissy, the Sonneveld house in Rotterdam and the facilities on the L’Estérel estate in Québec. To establish an acceptable balance in the iconic and causal relationships between the sign and its object, we now have to investigate the process through which under-valued buildings assert themselves as general, indeed “universal”, signs or symbols by turning to the third and most dynamic element of semiosis – the interpretant – that is the signification a sign produces which varies depending on circumstances and the aspects of the sign that retain our attention.

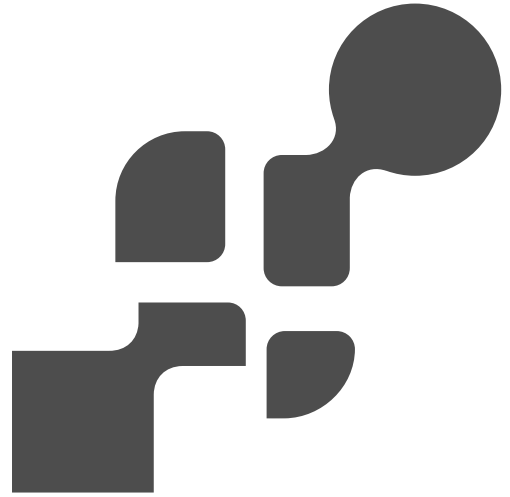
A three-way process is involved according to the link established, this time between the sign and its interpretant which is of the order either of the hypothesis, factual verification or statement of the rule. This triple relationship can be compared to the ways of thinking about the possible, the real and the law respectively, or to the three different, linked and inseparable approaches involved in heritagisation: first the approach taken by associations which claim the general value of heritage for constructions familiar to them; second, that of experts who may or may not substantiate the presumption advanced by the former based on established knowledge; and thirdly that of the State, which puts its case by delegating to organisations representing it in the field of conservation and even legislating by according heritage status.

Authenticity is not a particular quality of the monument – the continued existence of its material or its “prime” signification (the one invested in it by its creator) – but a judgment, a semiotic construct, inseparable from the context in which it is developed with the involvement of a variety of people, and from the aim(s) being pursued. Obviously, some situations will give rise to conflicts with divergent opinions and interests being expressed, but this cannot a priori be resolved. As Tiercelin said, “the central concept of Peircian semiotics (...) is that of the sign in action; it is less a general theory of representation than a theory of the production and reproduction of signs and of their interpretation”. Let us advance the idea that heritage as a sign in action has the function of recognising what is “authentic” in the Peircian sense, that is to say what is, or at least should be, intelligible, a quality conferred on some buildings resulting from a dynamic between identity, truth and authority. Semiosis is not fixed in time since it depends on the context which changes, albeit not every day: buildings identified as heritage can be subject to a new judgment of authenticity and included in a process involving new documentary sources, the revised judgments of experts, indeed the active participation of citizens, with the aim of reaching a (new) consensus.

We have documented elsewhere the dynamic of the heritage sign in action, focusing on problematic cases such as the successive restorations of the Savoye villa based on what we know about Le Corbusier and polychromy, without succeeding in overcoming its popular image as the “white villa”, which is at variance with the testimonies of critics who visited it in the 1930s, or again the demolition of Richard Neutra’s cyclorama announced by the authorities to the great despair of DOCOMOMO US. With Modern architecture, heritagisation is not so much a symbolic reconversion as a contribution towards establishing its authenticity in the Peircian sense, participating in the slow accession to the status of a sign of general importance: a symbol.

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Change and Continuity

Restructuring Cities and Landscape **Cities**

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

Cities

INTRODUCTION TO THE SESSION

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The concepts of the Modern Movement have had an indisputable impact on the image and structure of the cities we live in today. Unfortunately Modern buildings and ensembles, mostly situated around the edges of historic city centres, aren't always perceived as having a positive effect on the urban environment. On the contrary, over the past 20 years many examples of Modern contributions to cities have been demolished, or renovated without any consideration for the intrinsic historical and cultural values they embody. It appears to be widely acknowledged within society today that the (collectively oriented) ideals of the Modern Movement have been superseded and overtaken by the powers of the market economy and political populism. It seems to get harder and harder to find support for the conservation of architectural achievements that are based on these outmoded ideals.

The importance of evaluating the qualities of these Modern urban ensembles cannot be overstated. Once these unique qualities are established, the next step is to incorporate them into a well thought out strategy. To make these strategies successful they should be able to convince national and local authorities (as well as the public) of the potential to use existing Modern structures and buildings for contemporary living, working and leisure. Only when city councils, architects, researchers, heritage preservationists and urban planners work together to acknowledge these possibilities can we make a statement against strong market forces and populist mentalities.

In this session a few inspiring case studies will be discussed. They reveal the chances and opportunities to revitalise Modern architecture and urban plans, but also show us the struggles to get people to recognise the values of the often dilapidated buildings of the Modern Movement. Convincing the layman of these values is especially difficult when the ensemble "reflects the associated social and economic problems" of that place. This is the case in Naenae, New Zealand, where Ian Bowman proposes the local implementation of a proven economic and urban design model in an attempt to turn things around.

Robert Pfaffmann gives an elaborate insight into the cultural history of the Civic Arena in Pittsburgh, and although he understands the arguments to tear down the huge structure, this history gives him enough ammunition to plead for conservation and strategic reuse. Meanwhile Arjan Gooijer focuses on the reuse of Modern apartment buildings in the Netherlands, analysing which parameters have to be addressed for their successful and respectful renovation. The treatment of the common and public spaces plays a key role within these types of development.

Carmen Blasco Sánchez, and her co-authors, take a broad view of the contributions of the Modern Movement to town planning, exploring in particular *The Athens Charter* in search of theoretical guidelines. Jeremy Gould takes us back into practice, explaining the cultural and historical importance of the post-war city centre of Plymouth. It's not yet too late to keep and preserve some key elements of the original Abercrombie plan, but the mentality of the city council has to change soon. Otherwise another guiding example of Modern urban planning will be lost.



The Urban Validity of Modern Experiences

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Figure 1. Barbican and Golden Lane. Aerial view and composite analysis.
Source: own elaboration and aerial view from Microsoft Virtual Earth

If we define the present town planning problems and examine the prime objectives that could be used to overcome future challenges, we see that the standards laid down by Modern experiences still offer a positive final balance.

The three types of town planning actions that could be described as the most important in the Modern tradition are:

Firstly, *Urban Regeneration*, such as the typical urban rebuilding schemes carried out before and after the 2nd World War (e.g. Macía Plan in Barcelona, C. van Eesteren's Unter den Linden Project in Berlin, and the Golden Lane and Barbican in London), (Fig. 1). Today, we have inherited other alternatives, as the so-called "critical re-creation" defended by J. Paul Kleihues in the reconstruction of the centre of Berlin, which could be considered as "critical" as regards pulling down over-valued historical buildings, but "acritical" as regards the role played by the image of the new buildings – Krier's most historicist Post-Modernist architecture, the de-constructivist contributions of Daniel Libeskind or the technological displays of Richard Rogers. All of these transmit an ambivalent discourse difficult to describe as a whole and do not manage to maintain the coherence of the work carried out years before by the masters of Modernism. In view of the

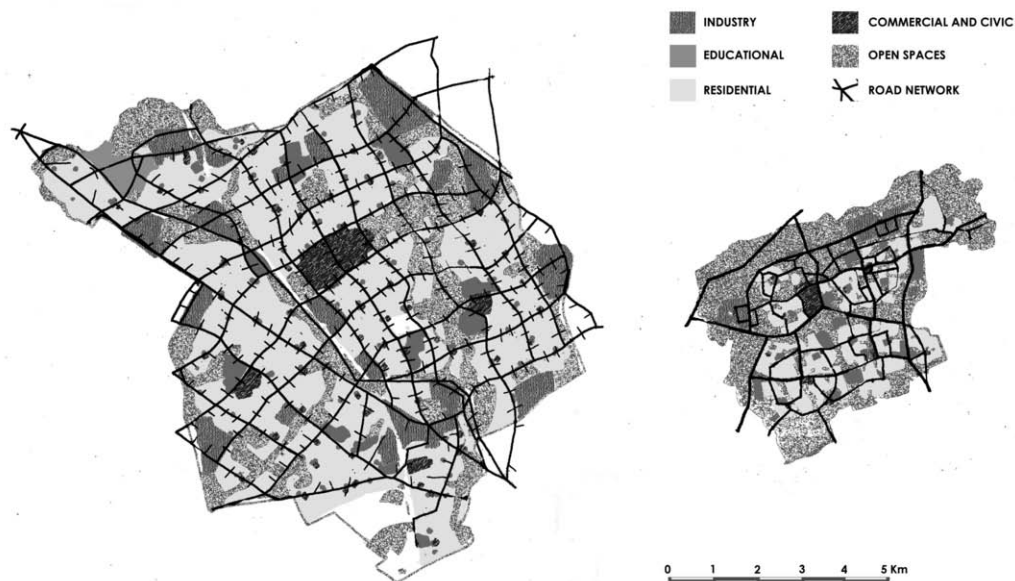


Figure 2. Milton Keynes and Harlow. Interpretative diagrams of urban structure.
Source: own elaboration.

lack of a clear approach, a general strategy is to design for greater density, a double-edged sword that turned out badly when misinterpreted Modernist tendencies were converted into high-rise blocks (today, La Valencia Litoral by Nouvel and the Diagonal de Barcelona are going in the same direction).

Secondly, we have the creation of Neighbourhood Units, *Siedlungen*, or in Spain, Polygons or *Residential Areas*, self-sufficient as regards primary services, situated on the outskirts of large cities (e.g. the Berlin and Frankfurt *siedlungen*, of which May emphasised their "Unitary definition and the relevance that this confers on the image of the city in which they are built"). In contrast with these Modern-day references, today in Spain we have many examples of the so-called Integrated Action Plans that prefer to reinterpret the town expansions of the nineties so as to make the most of the space available in the "well-meaning" compact city (San Chinarro in Madrid) or areas of re-invented low-density mass tourism in which sports facilities are the principal, and sometimes the only, complement to the homes themselves (e.g. the entire Spanish east coast).

Thirdly, we have the *New Towns*, such as Harlow, Milton Keynes (Fig. 2) and Thamesmead (Fig. 3) in the UK and the satellite towns of Tapiola and Sunila in Finland. At the present time, new towns are being considered in many of the more developed Asian, Middle Eastern and Latin American countries, where the existing conditions place no obstacles in the way of architectural fantasies (Puerto Escondido in Mexico). In Spain, all the new developments are huge randomly located housing estates around small country towns, such as Rivas-Vaciamadrid, or large tourist developments near traditional coastal resorts, (Torrevieja).

The debate today centres on the considerable problems associated with the progressive deregulation of the forms of urban growth: the concentrated population density permitted in big city centres, the irrelevant identity and the arbitrary relationships between the spaces and buildings that replace the originals, or the historicist re-interpretation of the distant past, e.g. the Castellana in Madrid, Potsdamer Platz and the Nikolaiviertel in Berlin, respectively. Or we can consider districts such as the highly spread out conurbations that occupy an infinite expanse of building land that includes in the same *modus operandi* villages and places that had previously had their



Figure 3. Thamesmead. Diagrams of land uses and composite analysis.
Source: own elaboration.

own individual characteristics (Ademuz in Valencia or the southern belt of Madrid). And finally, the great explosion of built-up territory, the so-called dispersed city, which colonises the greenfield with operations of different sizes with neither a functional structure nor a specific shape, but which mean that city and countryside have negative effects on each other (the Valencia coastline).

After this prologue in defence of Modern experiences in the light of the present worrying situation (Fig. 4), we will try to define the issues that can help us to go further into the contributions of the Modern city:

THE FORMS OF RELATIONSHIP WITH THE TERRITORY

In his first essay in "The Athens Charter"¹ ("TAC"), Jean Giraudoux says: "... Since every man possesses the Earth and every citizen his country, with the same rights as all other men and citizens, there are no human or national policies other than those which provide men with the means of exercising this equality .../... and to every child that is born, the same welcoming gift...". This declaration anticipated what many years later would become known as sustainable development and defended every man's basic permanent right to enjoy the environment.

The ideas that have arisen in the Modern era are simple:

The concept of the region and the regional plan, announced years before by the RPAA (Regional Planning Association of America), headed by Lewis Mumford "I understand the region to be the place where the city is built and not the territory around it" and included in the first article of the first part of "TAC": "The city plan is no more than one of the elements of the regional plan". This is an explicit evaluation of the territories, whether built-on or not, that focuses on their more stable characteristics from the point of view of the opportunities. When the building of the new towns of Stevenage and Harlow was decided the area's natural advantages were recognised, such as the importance of not spoiling a valley, of preserving the landscape in order to add to the value of the future city with something essential that would give quality of life and a sense of identity to its residents, including those outside the city limits.

	Relation to the region	Urban Structure	Composition units	Open and green spaces
URBAN REGENERATION	POTENTIAL OF THE SITE AND ITS LANDSCAPE	CITY ORGANIZATION AND PUBLIC INTEREST	UNIVERSAL LANGUAGE. GEOMETRICAL RELATIONSHIPS AND VOLUMES	GREEN CITY AS A SYNONYM OF MODERNITY OPPOSITE TO ONLY BUILDINGS IN HEIGHT
	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS
	Plan Macia. Barcelona	Unter den Linden. Berlin	Barbican & Golden Lane. London	Interbau. Berlin
	Sevilla Exhibition area	Valencia Litoral	Forum of cultures - Barcelona	End of the Castellana av.- Madrid
RESIDENTIAL AREAS	HARMONIZING TERRITORY AND URBANIZATION	ART OF ARRANGING BUILDINGS. GROUPS OF BUILDINGS TO EACH OTHER AND TO THE LANDSCAPE	THE CHORD OF AN UNITARY COMPOSITION AND THE IMAGE OF THE CITY	PREROGATIVES OF HOUSING, SEPARATION OF TRAFICS AND THE LANDSCAPE
	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS
	Thamesmead. London	Siemensstadt. Berlin	Lafayette Park. Detroit	Netherfield. Milton Keynes
	Sociopolis. Valencia	Ciudad Justicia residential area. Valencia	Landsberger Allee. Berlin	San Chinarro. Madrid
NEW SETTLEMENTS	REGIONAL PLAN. URBAN ENTITIES AND RESPECT FOR THE NATURE	REGULATION OF URBAN FUNCTIONS AND ITS RELATIONS	GEOMETRY AND NATURE OPPOSITE TO CLASSIC CANONS OR THE WAY BACK	BRING TOGETHER CITY AND NATURE ACCORDING TO A PROGRAMME
	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS	STRONG POINTS WEAK POINTS
	Harlow. UK	Milton Keynes. UK	Amsterdam West	Tapiola. Espoo. Finlandia
	Puerto escondido. Mexico	Eje Ademuz. Valencia	Middle Farm. Dorchester	Las Filipinas sur. Torre Vieja. Spain

Figure 4. Resume table that exemplifies the text.

Source: own elaboration, images extracted from basic bibliography, aerial views and public resources.

Another of the principles of "TAC" (Article 40) lays down: "Existing elements should be taken into consideration: woods, hills, sea, etc. .../... not only to preserve areas of natural beauty but also to remedy any possible damage they may have suffered. Finally, human activity should create places and landscapes following a definite plan". This is clearly a defence of the environment giving priority to its enjoyment by the population, and considers that any building plans should be in harmony with an area's natural characteristics. When Modern thinking proposes the vital necessities – sun, space and vegetation, CIAM IV – against the natural characteristics of areas not really suitable for building – badly oriented, prone to fog, contamination, floods, etcetera – it does so to recommend that towns should not be considered as something apart from Nature, but should be considered part of the landscape. Present-day problems are largely due to uncontrolled urban growth that does not take the natural environment into consideration or even shows its contempt for it by transforming its natural elements without thought for the consequences. When Le Corbusier, in "The Three Human Establishments"², declares: "Nature is inscribed in the contract. The

pact has been signed with Nature", he is approving the positive step forward in history. At the end of the eighties, Peter Hall acknowledged that "The new towns are good places to live in and especially to grow up in." Harlow³, an example of the mixture of natural and urban landscapes, with a high ratio of green zones to population density, is more likely to succeed in overcoming any future problems concerning quality of life.

Regulation of the forms of occupation: Article 35 of "TAC" states: "The laws concerning the land should be sufficiently diverse so as to be able to deal with the different necessities." It is reasonable to suppose that each urban project requires specific regulation of its basic issues, but it is also reasonable that this regulation be subject to middle and long term territorial directives. Using short term regulations –in Valencia plans are drawn up for 10-year periods– is to allow advantage to be taken of immediate plans, when fairly accurate predictions can be made for living conditions anywhere on Earth for today and tomorrow. Long term regulations –the city expansions of the nineties were planned for a period of 100 years and still retain their high quality– do not require much more than a continual revision of the foreseen order and the process itself as current knowledge changes. "TAC" recommended: "Forecasts for a certain period of time, for example, 50 years". Harlow (1947) achieved its initial forecast of a population of 80,000 fifty years later.

THE URBAN STRUCTURE

When Frederick Gibberd published, in 1947, "Harlow New Town"⁴, he supported "A method for the organisation of the town into different areas for work, living and entertainment, connected by a road network in which traffic could flow freely". He thus accepted the four key functions of Modern Town Planning – Article 77 of "TAC". The structure of the plan, in turn, is related to the definition of Civic Design (the art of ordering buildings and groups of buildings with respect to each other and with the landscape) and to the principal worry; the space between buildings. These were to be the keys of innovative and advanced urban planning defending a Civic Design that combined the advantages of the Modern city and Unwin's site planning.

Modernism is based on the *classification of uses* and on the possibility of covering the optimal prerogatives of the principal urban functions both separately and collectively. Many of today's problems are caused by individual misuse of functions or by the lack of certain functions, including abuse of the traffic function, by defect or excess in the residential function; it can also happen in the work and recreation areas, when they fail to satisfy the day-to-day needs of the stable population. It is therefore not a case of returning to the indiscriminate mixture of functions – the industrial city – or of continuing with the strict zoning of sectors, but rather of giving greater capacity to "ordering and classification" recommended by "TAC" – Article 78 – and promoting relations and compatibility between the greatest possible numbers of functions. In Harlow, we can find order and classification by use but also by hierarchy – centres and sub-centres of services and recreational zones of differing sizes with fair distribution and accessibility as the main criteria – but the compatibility of industry and housing is still not admitted, even though modern technology makes this possible in some cases. In the indiscriminate occupation of territory – the dispersed city – the first missing link is that of complex uses and the regulation of its specific weights and relationships. (e.g. "Eje de Ademuz" in Valencia).

The road network is fundamental in improving a city's spatial and functional structure. We can highlight three basic recommendations of the principles of the Modern city.

The first of these is the separation of traffic. Article 62 of "TAC" specifies: "The pedestrian should be able to choose routes different to those reserved for automobiles", as in the Radburn scheme for the new American RPAA towns, which experience has proved to be correct. Buchanan also used the concept of "environmental areas" to solve London's traffic problems in the sixties.

The second is their classification according to destination, ranging from the streets in residential areas to the main traffic arteries (Article 63 of "TAC"). This involves the classification of the road network which Le Corbusier systemised in 1958 at the request of UNESCO with the 7V rule - which he later applied to the Chandigarh Plan in 1950. The advantages of this system were again made clear when it was put into action in the Milton Keynes new town in the form of a similar network of 1 kilometre square; although without the complexity of the seven categories, it achieved to facilitate traffic fluidity while at the same time protecting the interior of each sector from fast, passing traffic.

The third consideration involves separating the different types of road traffic - light from heavy - and imposing speed limits on all types of vehicle in certain streets - 30 km/h streets. These two recommendations have recently been introduced in Spain, although not widely. Traffic control is a problem which even the specialists in the subject cannot solve adequately, and architects must not permit this problem to be viewed solely from the perspective of the vehicle and its total liberty of movement. When traffic affects our way of life, landscape and city, the parameters must be changed.

The final consideration *is the capacity of the urban structure to make comprehensible the partial and global constitution of the urban body as a whole*. A clear image of a city can never be obtained from a series of random events. The city is a spatial continuum with episodes and sequences that occur within a more or less coherent structure and which can therefore be perceived. When we compare the Unter den Linden of Van Eesteren (public project) with the Valencia Litoral of Nouvel (private project) we emphasise the relationship between the city and the project and between the elements of the project itself, whether they take away order and clarity from the city or contribute to its functioning. De-regulation has caused a crisis in these values, questioning their results because they put limits to private interests and the mechanisms of representation and the exercise of power. The problem continues and the solution could possibly be provided by applying another article - n° 74 - "First of all, it is necessary for authority to learn and then act".

THE COMPOSITIVE UNITS

One of the great achievements of Modernism, and possibly the most undervalued, is its way of creating cities from rules of composition superior to the classical rules. Le Corbusier defined it in "Precisiones"⁵ as:

COMPOSITION = Nature + Geometry

One formula that understands Nature in the widest sense, as something that enriches composition, states: "One of the most authentic achievements of contemporary architecture, to the delight of its residents, will be to plant trees in all city streets and roads." Here we must understand Geometry as "relationships!", which will help to create exemplary projects in many different ways, especially for those who live in the city, with the citizen as the interactive user, capable of understanding a universal language in line with his needs; this will help to solve inherited problems insofar as advances make this possible. From the Barbican, Thamesmead, Lafayette Park and Amsterdam West we can learn many lessons that will help us to produce better compositive units in the future.

NOTES

- 1 Le Corbusier, 1989, *Principios de Urbanismo. La Carta de Atenas*, Ariel, Barcelona
- 2 Le Corbusier, 1981, *Los tres establecimientos humanos*, Poseidon, Barcelona
- 3 Alonso, M.; Blasco, C.; Martínez, F.J., 2007, *Experiencias urbanísticas del proyecto moderno*, Universidad Politécnica de Valencia, Valencia
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Translating the New Old-World into the New New-World

REASSESSING ERNST PLISCHKE'S PLAN FOR NAENAE, LOWER HUTT, NEW ZEALAND

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INTRODUCTION

This paper presents a case study on the Lower Hutt suburban commercial centre of Naenae, the design for which was prepared by Ernst Plischke. The centre was completed in 1959, but with alterations by his superior, Government Architect, Gordon Wilson.

Today the suburb of Naenae houses a population who are some of the most deprived in the country and the centre reflects the associated social and economic problems. The local authority has proposed initiatives to improve the quality of the centre, but which have either been withdrawn or not completed. This paper suggests an economic and urban design model for adoption based on one which has assisted other similar areas and which would celebrate the Modern Movement design for Naenae.

THE HISTORICAL CONTEXT FOR NAENAE

Plischke emigrated from Austria to New Zealand in 1939 and initially worked in the newly created Department of Housing Construction designing multi-unit housing. In 1942 he was transferred to the office of the Assistant Director of Housing and Town Planning where Plischke became head of the community planning section.

His first project was to design Naenae, a new town within the municipality of Lower Hutt, a city 20 km to the north of the capital, Wellington. Between 1942 and 1943 he developed its plan based on the garden city concept, using the American model of Lake Forest.

To build the town, a large area of former farm-land was taken over by the Department of Housing Construction for state housing and commercial areas. 10,000 people were to be accommodated in 2,500 new houses. Playing fields, subsidiary shopping centres and a 'neighbourhood centre' containing shops, local and central government offices, bus and train services, and community amenities were also planned¹.

A 1945 newspaper article described in detail the features of Plischke's plan². Three pedestrian-only courts were proposed, two contiguous and one at right angles, mimicking St Mark's Square in Venice. One of the courtyards was to be a play area for children with surrounding shops with offices above. The largest square was to be grassed and centred around a sunken pool. Buildings surrounding this square were to house a hall, library, reading rooms, committee rooms, civic offices, government offices, post office, police, health and dental clinics, and banks. Either side of the centre were to be two 850 seat theatres. The buildings were generally to be two storied with cantilevered verandahs. A fire station was to be included within the group of buildings as were an hotel, gymnasium, and swimming pool. A pedestrian overbridge gave access to the



The above illustration gives a good idea of the compactness of Naenae's shopping centre. Note the verandas which afford shoppers protection from the weather. In the background is the surrounding structure of the magnificent Olympic Pool.

Figure 1. Naenae shopping centre 1956.
Evening Post, 1956.

centre from the railway station opposite the main entrance leading to one of four car parks, while a subway from the station lead to a bus depot. Other car parks were proposed outside the main courtyards.

Plischke went on to design other suburban centres in Lower Hutt and elsewhere in New Zealand before resigning in 1947 and beginning his private architectural practice. He returned to Austria in 1963.

Gordon Wilson changed Plischke's plan from a mix of irregular, mainly enclosed spaces into a plan of quadrants. The southern two quadrants of the site have continuous buildings around the perimeter with service parking in the centre, the north-eastern quadrant has continuous buildings around the perimeter with service parking in the centre, and the north-west quadrant is largely open. Hillary Court, the central mall, divides the north and south quadrants, replacing Plischke's two contiguous courts.

Opposite the entry to the mall are the swimming pool and community hall and on the south-east corner of the site is the hotel. Rather than car parking areas being defined by the projecting forms of the buildings, they surround the centre and comprise most of the north-east quadrant. No over-bridge to the railway station was constructed but the subway to it was. The bus stop still exists as in Plischke's plan and the clock tower of the post office is the central tower focus of the commercial zone. Planting proposed in Plischke's plan is now mature.

Plischke's overall plan for the residential, industrial and sub-commercial areas were implemented largely unchanged.

COUNCIL INITIATIVES

Today the 8,292³ population of Naenae is still largely state housing tenants, but, rather than the aspiring professional returned servicemen of the 1940s, tenants reflect an immigrant community with a low socio-economic status, and is an area with the highest levels of deprivation in the

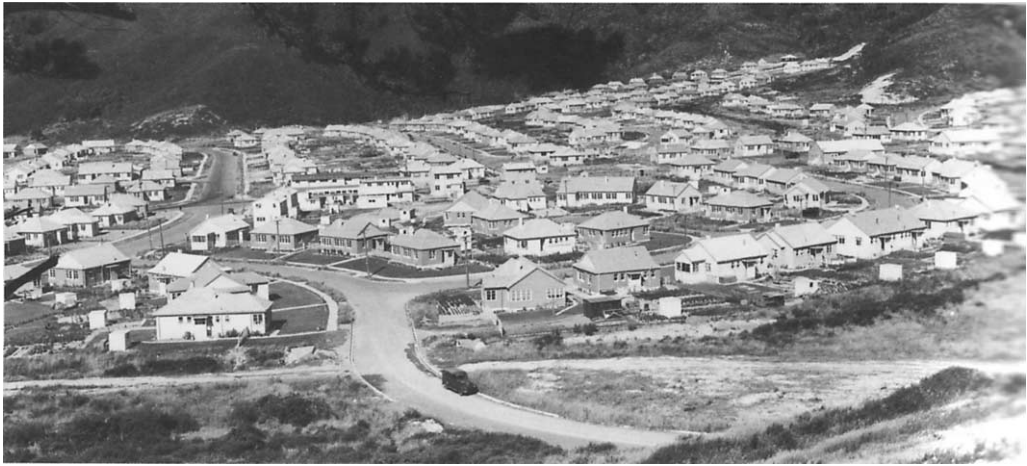


Figure 2. Naenae suburban housing 1945.

Alexander Turnbull Library, F-29952-1/2, in Schrader, Ben, *We Call it home A History of State Housing in New Zealand*, Reed, 2005, page 170

Deprivation Index of 2001⁴:

Problems in Naenae were discussed in 2005, when Hillary Court was the focus of Council concern. "High levels of vandalism and graffiti show an overall poor image and a perceived lack of ownership by the community. Many users, especially the elderly, often relate young people's activities in the centre with perceived safety issues."⁵

A liquor ban was immediately implemented and the wider issues were canvassed in The Naenae Community Development Plan. Under the Plan, upgrading of Hillary Court was seen as urgent and a suburban retail co-ordinator was employed for 20 hours a week. This funding for this position gradually decreases, finishing in 2008. Other issues discussed were the upgrading of the railway station, refurbishment of the Community Hall and consideration of a community house for youth. Apart from employment of the retail co-ordinator, no progress was made.

A further attempt to upgrade the centre was made in 2007⁶. The proposal included:

- invigorating the appearance of the Naenae centre
- improving the safety (perceived and actual) of the Naenae centre
- encouraging and developing youth participation, leadership and ownership by the community

The implementation of this project has now been delayed and is intended to be instigated in the 2008/2009 financial year.

In May, 2007, the Hutt City Council commissioned the author and an historian, Warwick Johnston, to review the heritage list for the District Plan. This involved defining historical themes, which were significant to the growth and development of the Hutt to establish those buildings with historical heritage values. Two established themes were state housing development and Modern Movement architecture. In this review, the commercial centre of Naenae including Hillary Court, the Community Hall and the Naenae Hotel were recommended for inclusion in the list as a heritage area and individual buildings were recommended for listing.

AN ALTERNATIVE STRATEGY

Some physical progress has been made by Council to regenerate the centre. Confirmed solutions are, to date, limited to painting murals on buildings and repaving Hillary Court. With the delay in

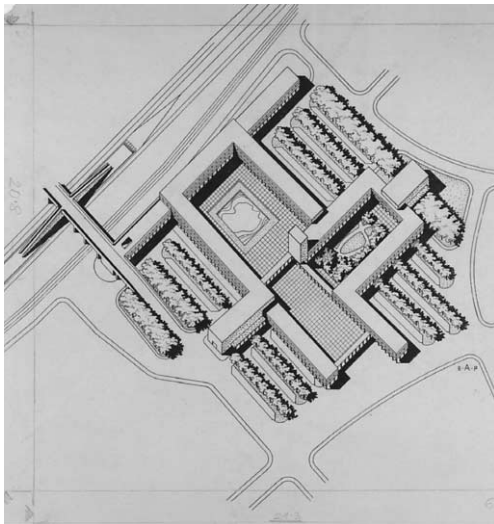


Figure 3. Axonometric of Plischke's plan for Naenae, civic centre.
In *Ernst Plischke Modern Architecture for the New World The Complete Works*,
Prestel Publishing New York, 2004, 152.

instigating a full upgrading proposal there is an opportunity this year and next with the appointment of an urban designer to the Council who has been given the responsibility for the project and who can argue from an urban design perspective the need for commitment and sufficient funds to undertake the work.

Key elements that need resolution are:

- insufficient encouragement and support for local businesses;
- insufficient visibility of Council concern and commitment;
- little social cohesion; and
- a lack of awareness of the heritage significance of the area;

A proposed solution is a Mainstreet programme, which has been successfully tried throughout New Zealand. One such, in nearby suburb of Petone, has been successfully running since 1990. Petone has similar levels of

deprivation to Naenae but the programme has seen shops fully tenanted, rising rents, region-wide popular specialist shops, built heritage protected and it is an area desired for building development.

The Mainstreet programme has four main objectives:

- business creation and development;
- increased employment and local business investment;
- an enhanced physical environment;
- conservation of built heritage.

There are five means of achieving these objectives. The first is ensuring consensus and co-operation between business people, users and authorities by electing a management committee. The committee appoints a co-ordinator who implements its decisions. The second aim of the programme is to enhance the image of the commercial centre through urban design so that new buildings are sensitive to the existing built form. A third aim is to promote and conserve the area's built heritage through conservation and ensuring new building design is sympathetic. Marketing and business promotion is a fourth key element of the programme and the fifth is strengthening and expanding the centre's existing economic base.

The following are proposed modifications to existing initiatives within the Mainstreet framework.

1 Programme management

Clearly, economic progress is crucial to the welfare of local businesses. Currently a part-time suburban retailer co-ordinator has been appointed and hours are to be gradually reduced. Retaining a full-time position will mean that the co-ordinator will have a thorough understanding of the issues each retailer is facing and should be able to offer potential solutions. A permanent position, as is common with a Mainstreet Programme, would reflect a consistent interest and commitment by the local authority and create a position which will develop extensive and detailed knowledge of the existing businesses, means of enhancing these existing businesses and finding possible new business opportunities.

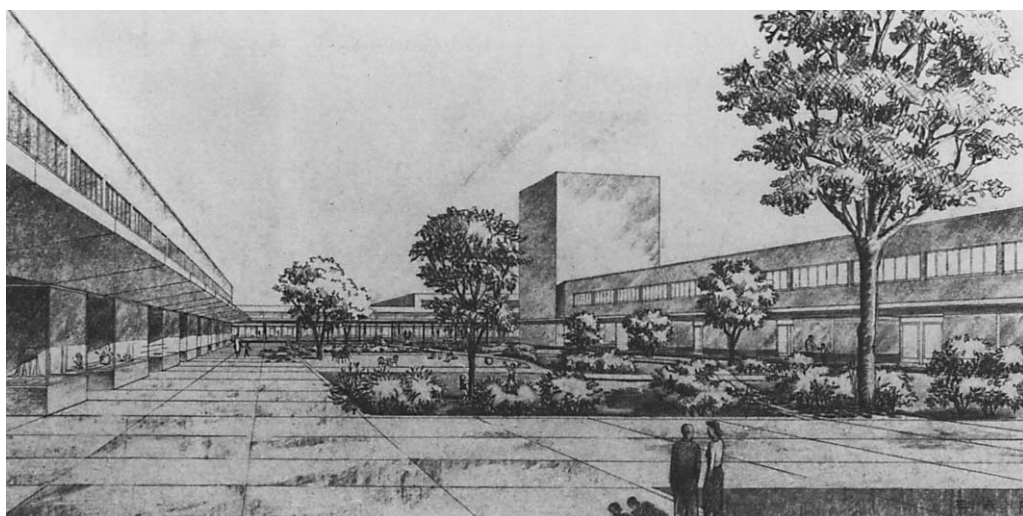


Figure 4. Plischke's perspective for the Naenae civic centre.
Evening Post April 21, 1945.

2 Co-ordinated purchase of key buildings

A number of councils throughout New Zealand have a strategy of purchasing at-risk heritage and key character-defining buildings, renovating them and selling them with covenants protecting important elevations, spaces and elements. Identification of these buildings should be a priority for the Programme, their gradual purchase, renovation and installation of tenants who would enhance the outcomes of the Programme. It may be necessary to subsidise rents for strategically important tenants. When economically viable, these buildings can be on-sold and others purchased using the funds.

The most important building in the centre, the location and form of which was designed by Plischke, is the post office. This building should be the first to be considered for purchase or, at least, a covenant applied so that it cannot be demolished or unsympathetically modified.

3 Heritage conservation

Following the listing of the centre and adjacent related buildings as built heritage, the buildings and area will be protected through the current planning mechanisms. Means of celebrating this nationally significant area can be developed along with interpretation of its history and importance.

4 Design

Along with the recognition of the heritage values of the area, design guidelines should be developed to ensure that the principle elements of the Modern Movement urban form and individual building design are maintained. Adaptation of existing significant buildings will be through planning controls, and if any new buildings are required use of design guidelines will control their height, form and external appearance.

A three storey building has been constructed which does not follow Modern Movement design and detracts from the level of authenticity and consistency of design of the centre. Guidelines would avoid such mistakes in the future.

A key element of Plischke's design for Naenae was a pedestrian overbridge from the railway station. The underpass was constructed, but this is seen as unsafe. Many residents use the railway and an overbridge would be a safer alternative to the underpass.

5 Local initiatives

Encouraging local residents to shop and recreate in Naenae would assist local businesses and promote a sense of community.

A former empty hall has been adapted as a boutique cinema in Petone, which has become a very popular facility. The cinema constructed for Naenae lies empty and encouraging a cinema franchise to Naenae would use the building while providing local entertainment. Craft and food markets are a traditional means of providing a means of selling low cost, good quality produce. A number of New Zealand local authorities rent car parking space at weekends for such markets. The modest rent allows small businesses to set up stalls for a small cost and their produce is generally cheaper or fresher than commercial retailers, encouraging local residents to buy from them. This is a means of establishing small businesses, which may be successful enough to move into permanent local premises.

Markets sell produce aimed at the needs of the local community, and these products usually reflect its identity. Meeting regularly at a market would make obvious and familiar to residents the uniqueness of the local community, possibly helping to generate more of a sense of cohesiveness within the population.

6 Sponsorship

There is a number of moderate to large industries in the Naenae area whose employees live in the suburb. It may be possible to encourage these firms to sponsor local events to further reinforce these firms as part of the local community while helping to regenerate it. The local authority may assist by offering to match sponsorship.

CONCLUSIONS

Naenae is not a thriving suburb, and has many problems associated with deprivation. The centre's urban design has been recognised as nationally significant through its association with Ernst Plischke and Gordon Wilson and is proposed for listing on the local authority heritage register. Independently, the local authority has attempted a number of initiatives to improve the physical and social fabric of the suburb, most of which have faltered.

It is proposed that a Mainstreet Programme be established to assist in the regeneration of the commercial centre, which may, at the same time, help the amelioration of social problems. Adaptation of the focus of the Programme to suit Naenae should include:

- appointing a full-time centre co-ordinator/manager;
- the local authority buying strategically important buildings, renovating them, possibly subsidising critical tenants and then on-selling, using the funds for more purchases;
- heritage values of the centre being recognised and protected;
- ensuring that the Modern Movement urban and individual building design principles and aesthetics are protected and new buildings designed sympathetically through design guidelines;
- encouraging initiatives such as a weekly market to reflect and celebrate the unique local identity; and
- encouraging local businesses to identify with their location and assist the regeneration of Naenae through sponsorship of activities.

NOTES

- 1 Schrader, Ben, *We call it home, a history of state housing in New Zealand*, Reed books, 2005, 170.
- 2 *The Evening Post* Saturday April 21, 1945
- 3 <http://www.huttcity.govt.nz/upload/7416/Info%20Pack%20-%20Appendix%204D%20-%20Naenae%20Community%20Profile.pdf>, Statistics New Zealand
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Transformation

AN ALTERNATIVE APPROACH RENEWING THE POSTWAR CITY

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Good, sustainable city-forms often are a result of strong ideas on public and private spaces. Take for example the Italian cities of the Renaissance, the Amsterdam canals of the Golden Age or the American cities of the 19th century (grids and parks). The same is the case for post-war districts in the Netherlands. The design of these districts is based on strong ideas about the meaning of the public realm. Although these modernist ideas were maybe too optimistic (about collectivism), and too static (about life-styles), the results were new, unique urban compositions. The specific qualities and aspects broadened the existing typology of city-layout in Europe and are still meaningful. Every era has made its own contributions to this repertoire. The qualities are recognized later on - and often too late.¹

These unique urban compositions are under threat due to a process of renewal. The image of the post-war modernist districts is a bad one: too much of the same small dwellings, all social housing; bad quality of public space; unclear boundaries between public and private; malfunctioning of common spaces; a functionalist, dull architecture. The modernist ideas on collectivism and life-styles don't fit our fragmented, globalized society.

To prevent further deterioration renewal is necessary. The question is how and, given the bad image the areas have, demolition seems to be the only right answer. This article describes an alternative strategy: *transformation*. It means renewal by (re)developing and adapting the existing structures. What topics do we face in this approach, and what abilities are required of the designers to make this renewal strategy a success? In the end *transformation* is referring to a way of renewal in which the public aspects are taken into account in a context dominated by market and privatized interests.

TRANSFORMATION: AN ALTERNATIVE STRATEGY

In her publication *De grote verbouwing (The Great Reconstruction)* J. Tellinga gave an overview of renewal projects in the Netherlands.² She showed that renewal often means demolition and replacement. Renewal projects focus on improving the market position of the area: new and more expensive dwelling types, new functions, new architecture in a new urban design. It shows a renewal practice that is dominated by the values of the market. Public aspects - quality of surroundings, situation of the inhabitants, the importance of affordable housing, re-use instead of demolition - are not really taken into account in the planning process. In this way, renewal means wiping out a complete historic layer, existing human urban patterns and social structures. It implies demolition of everything: quality and beauty together with problems and ugliness. Apart from that it is very resource intensive.

In city renewal, demolition is just one of numerous means. Tellinga's publication shows that the re-use of existing structures is often far more interesting and effective. Adapting existing structures

makes sure that the city can grow and develop in a more natural way, fitting in the new and renewing daily urban life and needs. The goal of this method of *transformation* is to rehabilitate these unique modernist districts; their urban layout, their architecture, their inhabitants. The post-war neighbourhoods do have enough qualities and chances as a resource for renewal. The key qualities are: a favourable position in the growing urban network; a spacious lay-out and mature greenery and modest, careful architecture.

But of course, such an alternative method adds something to the content of projects. It also requires specific skills, among others, of the designer.

TOPICS OF TRANSFORMATION

Looking for transformation by (re)designing existing structures, the following items are important.

Firstly, it must become clear whether the existing building's structure ("casco" in Dutch) can be re-used. Can the floor plan be reorganized? Can we put dwellings together? Is it possible to realize new, extra dwellings? Sometimes we encounter malfunctioning common areas around the block: dead facades on the ground floor (storage), badly-designed public space (parking, garbage collection), and bad connections to urban routes. Can this be changed by redefining public/common space around the block, or by using these elements for a different function?

Secondly, it is important to study the programmematic organization of the block. Can we combine different types of households in one block: large families, elderly people and small starting households? Can we organize the block in such a way that these groups don't interfere with one another (for example: entrances on the street for the large families, all elderly connected to an elevator, and all "starters" on porticos)? In this way the mass-housing-block is transformed into a collective and flexible building for living and working.

Thirdly, it is important to deal with the users and inhabitants. They are a necessary source of information on the history of a site. Sometimes they return to the project after renovation. The designer has to take them seriously, but also has to stay focused on the whole of the project; the goals of the renewal and the crucial problems. Often the common parts of the project are more important than the dwellings as such.

Last but not least, the transformed architecture must fit the goals of the renewal and fit into the surroundings in a logical way. As a result, a standard office-style is not possible. Every transformation project has its own architectural language.

PROJECTS

A selection of three projects shows the meaning and result of transformation:

Enschedelaan, The Hague South-West (Fig. 1). The former apartments (60 m²) have been transformed into larger apartments by making two new ones out of three existing dwellings horizontally, or by making one maisonette out of two vertically; an elevator has been added to improve accessibility for the elderly. The open space layout is redefined by private terraces and a common playground.

Florijn, Amsterdam South-East (Fig. 2). In order to preserve the existing good-quality apartments the image of the building has been improved and the connection between the building and environment has been ameliorated by new construction on the top of the building, by transforming the ground floor and first level into apartments with ateliers, by improving the entrances and by making a big gate. The surroundings of the block have been changed from green space into low-rise housing.³



Figure 1. Transformation Enschedelaan, The Hague S-W
Photo: J. Schrijver.



Figure 2. Transformation Florijn, Amsterdam S-E
Photo: J. Schrijver.



Figure 3. Transformation Complex 50, Amsterdam Osdorp
Photo: R.T. Chabot.

Complex 50, Amsterdam (Fig. 3). Apartment blocks are transformed into a extensively renovated building with a new big gate, with new access galleries instead of staircases around the gate (elderly), with maisonettes on the ground floor (big families) and new apartments on the roof ("starters"). The common space around the block is redefined.

THE NEW ROLE OF THE DESIGNER

Using existing structures in urban renewal asks specific qualities of the design process and the designer. The designer should be an engineer to know the technical possibilities of existing structures, a communicator to make use of information of tenants and inhabitants and a visionary to visualize the possible future. Together with this, the designer should be able to discuss the plans with different groups: housing association, inhabitants, city-government, etc. At least four skills can be mentioned:

1 *Design as search for qualities, problems and possibilities on different scales*

Research into the possibilities of existing structures: the dwellings the block and surroundings and the position of the neighbourhood in the city.

What kinds of dwelling types can be realized, and how difficult (or easy) is that? On what scale are the possibilities of transformation located? The research is looking for the possibilities, the extra value. What to change and what to embrace?

2 *A new way of analyzing the city*

There is no language to discuss the specific qualities of the post-war city. To prevent the demolition of inner cities, different ways of analyzing were developed during the 1980s. The drawings produced then showed the complexity and richness of the traditional city. Doing this, they offered a language to discuss the city's specific qualities.

Because of the completely different situation it is impossible to analyze the post-war city in the same way. Talking about streets and blocks is not fruitful. Visualizing the modernist city in terms of the traditional city, we only see floating housing blocks in indifferent surroundings. But the composition of the districts is about balance between open space and masses, between the public and private domains. Often there is a very subtle composition of dwelling types, types of public space, green-design and types of trees. We have to develop a method of analysis in which this richness is made public.

3 *Making plans open to discussion*

Apart from the technical building plans the designer should be able to make another type of plan: a vision which shows the possible future of a district. The quality and value of new dwellings or new district everyone can easily imagine: new is always better. But what will be the effect of transformation?

In drawing such a visionary plan, the designer is forced to deal with the whole complexity of city renewal. Everything comes together: the different scales, groups (owners, tenants, government) and interests. The plan, in this way, is also a vehicle for the process: people discuss not only the plan itself, but also their own interests, position, future. Different aspects and initiatives have their place.

For the client, this open plan process means complexity and taking a risk. City renewal is often focused on avoiding risks and reducing complexity. Difficult processes are cut into small pieces. The project boundaries are as narrow as possible. Due to that, there is no room for transformation, discussion or change.⁴

For the designer this open plan process means that it's sometimes necessary to make a fundamental change to the designs.

4 *Ability to speak different architectural languages*

Instead of using an "office style", the architect has to develop a modest architectural language. The architecture has to fit the goals of the projects and to fit into the surroundings. The green environment is as important as the architecture of the buildings. The newly-built (or

renovated complexes) should fit into the existing and new neighbourhoods. No contrasting or unique piece of architecture, but a careful architecture in which the 'rules' of the surrounding architecture are respected and renewed. In this way old, forbidden, dull architecture (ready to erase) is changed into an object that still reflects a certain - and in its way unique - period of our cities. Dealing with modernist areas in this 'un-modernist' way (at least, it is not looking for a completely new architecture, contrasting the existing city) is an important topic of discussion.

CONCLUSION

Transformation is an alternative approach to the renewal of the post-war city. The districts develop, adapt and change while existing qualities and values are preserved. It is possible to renew and reposition a district by transformation, without restructuring it completely.

Research, analysis and an open plan process is necessary to know where the key to transformation can be found, what aspects should be changed, what points are strong enough to maintain and what parts are important to embrace.

In this process, there is an important role for the architect; as visionary, researcher and engineer. The architect is able to show the strengths and possibilities of existing buildings and structures, to develop a language to discuss the future of the post-war city and to produce information to make the redevelopment of these districts suitable for public discussion, instead of a privatized housing market topic. In this way, the city physically and socially can develop, adapt, change, grow; in short, enrich instead of starting all over again after only 40 years.

NOTES

- 1 Meyer H. 2005, *De toekomst van de naoorlogse stad: stof voor een openbaar gesprek*. In: ZWEERINK K. (red.) 2005, *Van Pendrecht tot Ommoord. Geschiedenis en toekomst van de naoorloges wijken in Rotterdam*, Toth, Bussum, Holland.
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Plymouth: City of the Welfare State in the 21st Century

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Plymouth, the largest English south-coast city and a strategic naval base since the 17th century, was heavily bombed during the Second World War. In the following decade, Sir Patrick Abercrombie created the first and last great Beaux-Arts city plan in Britain. The destruction of most of the City centre and the subsequent clearing of ruins by the Royal Engineers gave Abercrombie a clean slate. *A Plan for Plymouth*, that was published in 1943 with the city engineer, James Paton Watson, was the most radical of his many proposals for British cities, which included London, Hull and Bath.

The city created by Abercrombie and Paton Watson represented, more than any other, the city of the Welfare State. It was optimistic, clean, fresh and regular and, above all, democratic. To a population tired by war, deprived of luxury and depressed by living amongst blitzed buildings, the visions were both real and irresistible. The *Plan* divided the suburbs into 'neighbourhood units', each with a centre containing schools, church, library, swimming bath, cinema, restaurant, laundry and community building. The city centre was divided into several precincts, each with its own function - shopping, civic centre, offices, theatres, recreation and culture - with the Barbican, the surviving Elizabethan town, labelled as 'historic Plymouth'. Almost all the old buildings and the original street patterns from the West Hoe to the railway station were swept away to be replaced by an ordered, symmetrical, rectilinear grid of wide new streets set about a north-south axis running from the war memorial on the Hoe to the railway station at North Road. Around the centre ran a dual-carriageway gyratory bypass with a series of traffic circles from which routes radiated to the suburbs. Its inspiration came from Washington, Canberra and New Delhi rather than from any British city, except that the grand axis was the same width as Parkway at Welwyn Garden City and the relationship of the main cross axis to the plan was very similar to the New Town of Georgian Edinburgh. Plymouth was Abercrombie's most visual plan. Because of the topographical difficulties of creating the great axis, he presented both planning and architectural solutions lavishly and seductively illustrated with perspective sketches by J.D.M. Harvey. Harvey's sources were the buildings of the 1930s and specifically Thomas Tait's 1938 Glasgow Exhibition. The new Plymouth was represented as a grand city en fête on the scale of Oxford Circus with fountains and gardens down the axis akin to Vaux-le-Vicomte.

DELIVERING THE VISION

While compromises were inevitable, the Abercrombie Plan more or less survived translation. The City engineer's office and its advisors, Abercrombie, William Crabtree and Thomas Tait, planned the layout and overall forms of the buildings in advance. Each plot was built separately by developers and their architects with the City retaining the land freehold. Each street elevation was composed *en masse* as a series of highly contrived symmetries and asymmetries with major to minor rhythms. Endless variations of these themes formed the basis of the architectural composi-



Figure 1. Abercrombie and Paton Watson:
New City Centre from *A Plan for Plymouth 1943*.

tion of the whole city centre. Especially important therefore were the corners, with balancing towers, splays or cantilevers, and the terminations of the axes of the streets. Plymouth was fortunate that it attracted some of the best architects of the day – Tait and Crabtree, Louis de Soissons and Frederick Etchells. Royal Gold Medallists whose work is represented in the city centre include Sir Giles Gilbert Scott, W. Curtis Green, J. Murray Easton and Sir Howard Robertson.

The architecture was a highly simplified version of late 1930s Modernism crossed with a sort of stripped Classicism. The proportions of façades were based distantly on Renaissance town houses with vestigial bases, middles (with graded window proportions) and plain cornices. The architecture was decorated, tending to refer back to the modernism of Art Deco. But it was an architecture produced by an older generation and was universally unpopular with architectural critics and the *Architectural Review* which was then promoting Gordon Cullen's *Townscape* as an alternative vision of city making. Consequentially the new Plymouth received almost no publicity or critical recognition.

The Great Square in the civic precinct south of Royal Parade was to be surrounded by the Civic Centre, the concert hall and the restored Guildhall. At the Guildhall, unfazed by the surviving Victorian Gothic, a new city architect, Hector Stirling, designed the greatest 1950s interior outside London. However, his proposed concert hall was replaced by the Crown Court and this and his Civic Centre were completed by the London architectural firm of Jellicoe, Ballantyne & Coleridge. Ballantyne's Civic Centre was Plymouth's only essay in podium and slab composition (based on SOM's Lever House). Here it was translated into precast concrete cladding with a 'V' roof

canopy, engineered by Ove Arup with a fine interior of glass by John Hutton and decoration by Hans Tisdall. Ballantyne and Jellicoe's Great Square retained the surviving trees and introduced planes of water, swirling paving and curved seats and flowerbeds, demonstrating how grand the public spaces of Armada Way could be in experienced hands.

Stirling's more liberal regime also produced the best separate buildings of the city centre. Local architects, Walls & Pearn, and their engineer, Albin Chronowicz, designed the new Pannier Market – a wonderful, cathedral-like concrete vaulted structure decorated by the sculptor, David Weeks. Around it Stirling created Frankfort Gate, the only genuinely mixed-use area in the city centre with housing, shopping, pubs and clubs which, however modest the architecture might have been, gave the area the bustle so obviously missing from the main shopping centre. Walls & Pearn also designed the Athenaeum facing Derry's Cross, a perfect little symmetrical façade intended to complete the axis from Raleigh Street. Leonard Allen's splendidly kitsch Drake Cinema and, eventually, Peter Moro's more serious Theatre Royal, completed the theatre precinct around the open space of Derry's Cross almost as illustrated by Harvey in the Plan.

THE COMPLETION OF THE PLAN – ALTERATION AND DECLINE

As the funding and enthusiasm for the new city paused in the mid 1950s, so the rigid control from the City waned and pressures from small shopkeepers and developers for smaller, cheaper premises increased. The completion of the northern part of the Plan at Cornwall Street and Mayflower Street was to a smaller scale, lower quality and in different and cheaper materials. Rental income to the City was assured and the detailed completion of the Plan was left to the short-term whims of developers and party politics. Plymouth became a dumping ground for poor versions of worn out and inappropriate ideas. The Drake Circus shopping centre of 1971 separated pedestrians from traffic on raised concrete decks and the shops looked *inwards* rather than to the streets.



Figure 2. Royal Parade, Plymouth built between 1949 and 1953.
Photo: author.



Figure 3. Geoffrey Jellicoe: *The Great Square* (1961) and Armada Way, Plymouth.
Photo: author.

Another version was tried at the Armada Centre at the top of Armada Way. Its façades were blank and its shops looked into a dimly lit, under-ventilated mall. Unsurprisingly, neither shopping centre was a commercial success. Part of the Armada Centre was a hotel and another was built at the Hoe end of Armada Way. Both were made of clumsy concrete panels. The latter crudely intruded on the vista of the Hoe and made an uneasy rival to the elegant profile of the Civic Centre. The parking problem was 'solved' by building multi-storey car parks, but issues of good design were abandoned and at night these structures became positively dangerous.

With the regularisation of car parking came the call for pedestrianisation of the city centre. From the 1970s, the original traffic pattern and kerbs were replaced by a plethora of different (cheap) landscape materials dotted with brick planting boxes, shrubs, seats, waste bins, signs, bollards and water features of every conceivable type. The layout was often curved in a misguided attempt to be informal and deliberately ignored the patterns, rhythms and materials of the original architecture. The new landscape was complicated, fussy and consistently suburban in concept and execution and blocked the Beaux-Arts vistas in Armada Way and the cross streets; it was also very expensive to maintain and virtually uncleanable.

In the public perception, the original architecture soon became out-of-fashion and was criticised for being dull and bland. The Portland stone was usually referred to as 'concrete' (the ultimate insult) and, as incremental changes occurred, the architecture was coarsened and tenants and the public valued it less. Almost all of the shop interiors were changed and changed again, the foyers of the banks were floored in and fine interiors disappeared forever. After 50 years, the thin, elegant metal windows began to fail and were replaced in coarse plastic to different patterns. Otherwise, architects sought to 'tart up' the original architecture in a misguided attempt to make it look fashionable. Planning permissions were given to move shops, important offices and cinemas out of the city centre into the suburbs. A few significant 1950s buildings, including the Drake Cinema and the Methodist Church, were demolished. There have been some major new build-

ings in the city centre but none has acknowledged its 1950s context and none has achieved any architectural quality. The new Drake Circus shopping centre replaced the 1970s version in 2006 but, like its predecessor, it still turns its back on the city. It fails to integrate with the Abercrombie plan, fails to connect northwards to the suburbs and the University and fails to add new uses to the original, unsuccessful mix. Its architecture is a cacophonous, eclectic muddle but, far worse, it is a closed mall that privatises once public space, the antithesis of Abercrombie's democratic city.

THE FUTURE OF THE PLAN

Despite the neglect and the uninformed decisions, the city centre of Plymouth has survived in a remarkably unaltered condition and in a form that Abercrombie and Paton Watson would still recognise. One major reason for this has been the lack of development investment, but now, in common with most British cities, development money is flowing. The city is a designated growth area and the city centre is regarded as a huge potential development site. The city still does not celebrate its remarkable collection of 1950s architecture nor its unique grid plan. There is no guide book to the city centre. The city remains best known for Sir Francis Drake and the Mayflower and its tourists are steered out of the centre to the 'historic' Barbican and Hoe. The city centre is not a designated Conservation Area and therefore no Conservation *Plan* is in place and only four of the 1950s buildings (the Guildhall, the Pannier Market, Barclay's Bank and the Civic Centre) are 'listed'. The listing of the Civic Centre in 2007 caused a national scandal and calls from the local newspaper, council leaders and Members of Parliament for its immediate demolition. The removal of the Civic Centre not only threatens a fine building but would also dilute the significance of the Great Square and the important notion of *civitas*, so fundamental to Abercrombie's ideas. The City still sees its freeholds as sources of short-term commercial income and conservation as a threat to land values.

The planners have presented a tentative new development framework, but potentially more important was the appointment of David Mackay of MBM Arquitectes of Barcelona to prepare a new city plan and re-think the relationships between transport, uses, spaces and architecture in the city. His report, *A Vision for Plymouth*, was presented in November 2003 and Mackay chaired the city's Design Panel until 2007, the first external advisor to the city since Abercrombie. His *Vision* recognised the importance of the Abercrombie *Plan* and demonstrated how it could be retained while still increasing the density of buildings, introducing a mixture of uses and making new connections beyond the centre to adjoining development areas.

Those aspects of the *Plan*, which contributed to the decline of the city centre, are now being reconsidered. The *Plan* effectively isolated the centre within the ring roads and attempts to unite it with the outer city, with underpasses and bridges, were dismal failures. Now there

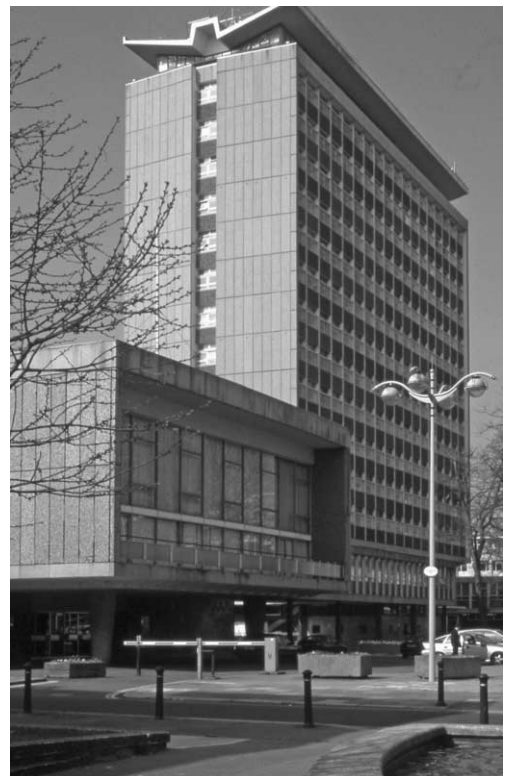


Figure 4. Jellicoe Ballantyne & Coleridge and H.J.W Stirling, City Architect: Civic Centre (1954-61).
Photo: author.

are proposals for street-level crossings and the first of these, the new paving where Armada Way and Royal Parade meet, continues Jellicoe's Great Square into the shopping area with confidence and at an appropriately grand scale. The doctrinaire adherence to single ideas such as 'pedestrianisation', 'zoning' or 'use classes' is neither necessary nor appropriate in a modern city. It is extraordinary that these theoretical ideas that have so much influence on a city's character have persisted for so long. At last, the city planners have acknowledged the problem and permissions have been given for flats and student housing which, at least, give the city centre some use after shopping hours. The *Plan* was designed for pedestrians, traffic and servicing and the Vision demonstrated that there was no reason why these should not be successfully reinstated. There is no doubt that new, denser developments should happen within the centre but, without a sustainable understanding of the original aspirations of the *Plan* being clearly stated, it is difficult to see how any of these could be successful or consistent. Currently, for example, there are three proposals for very tall buildings in positions not predicted by Mackay's Vision or by the city planners, but driven only by over-ambitious developers. Their effect could be disastrous. Much more appropriate and sustainable would be the medium-density blocks that Abercrombie's street widths demanded but never achieved.

Plymouth should understand that much of the *Plan* and its architecture are nationally important and exceptional and should learn to value what it has and develop from it, not fight against it. Plymouth should look to other European cities to understand what quality is achievable and have the confidence, as it did in the 1950s, to lead the planning and architecture process rather than merely to react to mediocrity. Abercrombie and Paton Watson gave Plymouth a unique form and the values that it demonstrates – of space, legibility, permeability, openness and democracy – are as relevant now as they were in the 1940s when the 'New Jerusalem' was conceived.

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The Pittsburgh Civic Arena: Memory and Renewal

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In the autumn of 1961, Jane Jacobs was completing her seminal book, *The Death and Life of Great American Cities*. In it she presciently comments on Pittsburgh's plan for a new civic centre imposed on its historic Hill District:

"Cultural or civic centers can probably in a few cases employ ground-replanning tactics to reweave them back into the city fabric. The most prominent cases are centres located on the edges of downtowns.... One side of Pittsburgh's new civic centre, at least, might be rewoven into the downtown, from which it is now buffered."

ORIGINS OF URBAN RENEWAL ON THE HILL

The history of urban renewal and modernist design trends of the mid-century in Pittsburgh is a story of success and failure. The City's post-war environmental reform movement is most often cited, but less known are the sometimes-innovative efforts to redesign large areas of the city according to modernist design principles. Pittsburgh's prominent modernist industrialists and patrons such as Edgar J. Kaufmann (Frank Lloyd Wright's Fallingwater) led groundbreaking collaborations between private and public institutions.

To understand the dynamics of Pittsburgh's Hill District one needs to understand its role and history. As America transformed itself from an agrarian to industrial culture, Pittsburgh's waterways and natural resources, such as coal, became critical to the nation's development. Once called "hell with the lid off," Pittsburgh's factories attracted many immigrants for the jobs created by industrialists such as Henry Clay Frick, Andrew Carnegie and H. J. Heinz. Those immigrants came to the Hill, adjacent to downtown and the factory-lined rivers. The range of ethnic groups that called the Hill home was diverse and included Jews, Italians, Syrians, Greeks, and Poles followed by migration of African Americans through the 1960s as desegregation laws were passed.

In 1943, a member of Pittsburgh's City Council, wrote: "Approximately 90 per cent of the buildings in the area are sub-standard and have long outlived their usefulness, and so there would be no social loss if they were all destroyed."

In 1947, Pittsburgh's government and business leadership convened as the Allegheny Conference on Community Development to address the aftermath of the steel industry's wartime expansion and the associated environmental degradation. Both civic and business leaders were convinced that cleaning the air was necessary to avoid a catastrophic loss of corporations such as United States Steel, Alcoa and PPG. They also turned their attention to clearing "slums" through a host of new planning powers. The concept of Urban Renewal (defined in the Housing Act of 1954) and the use of eminent domain powers were considered legal and social innovations in the context of



Figure 1. Aerial view of Civic Arena and Pittsburgh circa 1983.
Provided by the architect's successor firm Deeter Ritchey Sippel.

post-war America. Pittsburgh used these powers to engage urban renewal plans for over 40 per cent of its land area. Within a year, ninety-five acres (38.5 hectares) and 1300 structures were demolished, with over 1,500 families displaced—the majority of which were African American.

THE “CULTURAL ACROPOLIS”

The origin for what became known later as the Civic Arena, was promoted by famed department store magnate Edgar Kaufmann. Along with other cultural elites in Pittsburgh, Kaufmann was a strong patron of modern design and art. It was no surprise that they believed modernism held the promise of transforming Pittsburgh from a nineteenth century town to a city of the future, with new open space, light and air after a century of horrific pollution and substandard living conditions for workers. He promoted a larger vision for post war Pittsburgh using his department store windows. Kaufmann had by this time built two of America's most important modern houses, Wright's Falling-water and the Neutra-designed Kaufmann House in southern California.

As the location shifted, the project concept and programme evolved from a single use fabric-roofed amphitheatre for light opera to a multiuse structure for a range of entertainment, convention and sports events. Throughout the evolution of the design, Kaufmann promoted a movable roof that could be moved according to weather conditions. In a place so environmentally damaged as Pittsburgh, this was a particularly attractive promise that survived the transformation of the design. The idea of an outdoor amphitheatre was seen as a potent symbol of the region's ability to clean its air of smoke.

In its final location, the new arena was sold as a centrepiece in a larger plan for a cultural acropolis on the Hill overlooking the city. The vision for the master plan around the arena included an opera house and symphony hall along with structured parking terraced into the hillside. The Lower Hill vision also included new high-rise housing to replace the hundreds of units lost with the “slum” clearance process. New road layouts that erased the dense, traditional nineteenth century street grid pattern also served to segregate the remaining Hill neighbourhood from Downtown.

THE ARCHITECT: MITCHELL & RITCHEY

Kaufmann hired architects James Mitchell and Dahlen Ritchey to design the original fabric roofed concept and subsequent hard roofed version. James Mitchell spent World War II in the engineering corps working with dirigibles before going into professional practice, and it appears to have had great influence over his ideas for the project.

CIVIC ARENA DESIGN INNOVATION

Upon its completion on September 17, 1961, the Civic Arena was the longest span retractable roof dome in the world at 413 feet (126 metres) in diameter and 150 feet (46 metres) high. A cantilevered central box beam supports the roof. This tapered truss can be thought of as half of a cantilevered arch bridge—and was, in fact, constructed by the American Bridge Company very much like a bridge. The structural engineer was the famed bridge engineer Othmar Ammann of Ammann & Whitney.

The innovative roof consists of eight 300-ton (295-tonne) radial leaves, two of which are fixed below the cantilevered support. The end of the truss contains a hinged knuckle that allows each of the six moveable sections to rotate.

The dome’s leaves can be rotated into different configurations depending on events and weather conditions. The dome’s roof segments are transported by thirty electric rail-mounted motors on a canted concrete tension ring, a quarter of a mile (402 metres) in circumference. The dome can be opened in just three minutes.

BUDGET CUTS, SOCIAL UNREST AND DISINVESTMENT

Inspired by the space age and modern visions of city renewal and utilizing Pittsburgh’s technological prowess, the Civic Arena was constructed in the same time period as the Seattle Space Needle and the St. Louis Arch. During the mid sixties, cuts in federal funding for the development

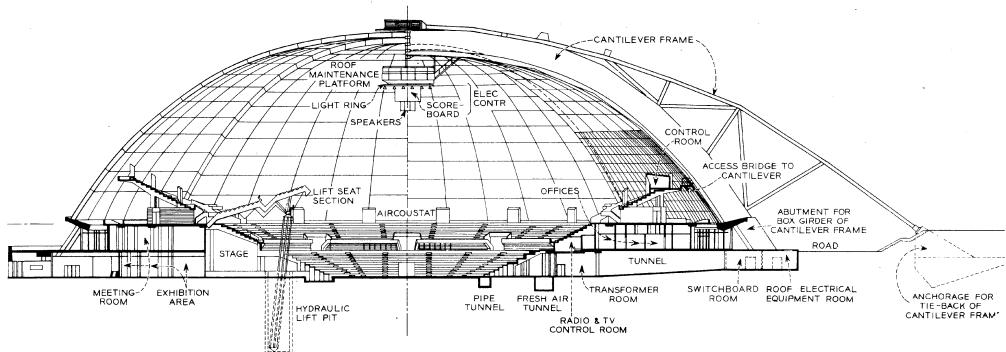


Figure 2. Section Drawing, Mitchell Ritchey Architects, 1961.
Provided by the architect’s successor firm Deeter Ritchey Sippel.



Figure 3. View of Arena Roof in open position, circa 1961.
Provided by the architect's successor firm Deeter Ritchey Sippel.

of replacement housing, combined with the riots of 1968, revealed long-standing social and racial tensions. The vision for a cultural acropolis was abandoned and eventually relocated to historic theatres downtown, out of fear that the remainder of the Hill was becoming a liability to further development. The Civic Light Opera, the original generator of the building, left in 1967 replaced by a hockey team, the Pittsburgh Penguins. None of the original vision for the cultural acropolis was completed, except for one IM Pei apartment block, which was too expensive for most dislocated residents.

"RENEWAL OF RENEWAL" IN THE 21ST CENTURY

Today, Pittsburgh is also challenged with the ongoing reconstruction of large areas of the urban fabric devastated by failed urban renewal and economic decline. To local officials, urban design consultants, and of course the prime tenant, the Pittsburgh Penguins, the demolition of one of the world's most innovative domes is a done deal. However, a small but passionate group of preservation advocates has not given up on the structure affectionately known as "the Igloo" by hockey fans.

The incredibly complex challenge lies in the fact that the Civic Arena is an unprecedented engineering accomplishment that is viewed by many as obsolete and also as an inflammatory symbol to many in the historic Hill District.

As negotiations for a new state-subsidized multipurpose arena were undertaken without public participation, noted planning firm, Urban Design Associates, promoted a plan for reconstruction of the lost urban street grid between the Hill and Downtown. As part of this plan, the Civic Arena is to be torn down in a "renewal of urban renewal." As many cities attempt to "undo" the damage of urban renewal, current new urbanist planning and design trends are promoted over past modernist schools, to the point the latter are considered unworthy of preservation or even reuse.

A CIVIC RENEWAL

The author has developed a conceptual proposal for reuse of the Civic Arena that has been published by the local press and presented to local officials. Founded on the ideas of urban transformation and urban morphology, it attempts to move the discussion towards reuse in the service of a larger new community-driven master plan for the Hill District. There are numerous models for this more challenging form of renewal. Italian planners and architects adapted pagan Roman structures with bloody pasts to new uses. The city of Lucca, a former Roman town, converted its violent coliseum into a striking oval town square surrounded by housing built into the old grandstands. Today, the German Reichstag is the new seat of the German parliament, whose genesis was based on the idea that new design within the old can renew historically “burdened” places.

The proposal for reuse is predicated on the identification of a consensus master plan and a viable economic proforma that can be sold to private development interests. The goals of the plan are as follows:

- 1 Develop an holistic, sustainable urban plan for the entire Hill District with both innovative new design and historic preservation.
- 2 Redevelop the Civic Arena as a creative community-based anchor or civic space. Uses could include a mix of recreational, hospitality, and intermediate-sized venues for performances similar to concert amphitheatres like the Hollywood Bowl or Millennium Park in Chicago. Potential uses include:
 - Local community and destination retail
 - Mixed-income housing
 - High-performance office infill around the Arena
 - A concealed parking deck set behind a mixed-use perimeter block
 - Low-rise, high-density housing types expanding nearby Crawford Square over underground concealed parking
 - Restoration of other historic structures such as the historic New Granada Theater and the Crawford Grill.
- 3 Public street and transport infrastructure:

Reconnect Wylie Avenue as a key pedestrian connection to Downtown—the new avenue would run through the proposed repurposed Arena space and connect to new internal uses such as a small hotel, restaurants and a community recreation facilities

Revitalize Fifth Avenue (a key urban connector between the universities and research centres) into a strong, pedestrian and transit-oriented urban district that features historic structures and high-quality modern infill construction emphasizing small businesses and relationships to the new economy and higher education.
- 4 Innovative sustainable urban design: Utilize district-wide sustainable infrastructure to:
 - Absorb storm water
 - Employ district-based ground source heating fields
 - Create new public open space
 - Inspire new development (park-front properties)
 - Expand sustainable criteria (LEED ND) to include social history and innovation.

SUCCESS THROUGH COMMUNITY PROCESS AND DESIGN INNOVATION

Over the course of the next year, arguments will likely focus on the assertion that keeping a repurposed Arena will prevent the reconnection of the original street grid between the neighbourhood and the central business district. Current planning projects in the US often are founded on devastating critiques of the failures of urban renewal-era design. In Pittsburgh, this is common and understandable when one observes the ripple effect of dislocation and social segregation created by these projects. Upon closer examination, major changes would have been needed to reasonably accommodate balanced transportation mixes as well as for larger building floor plates. The planning process in Pittsburgh is currently weak, fractured and subject to political deals that place low priority on innovative design and community involvement. This environment makes it difficult to focus public attention on planning and design, and in particular on the reuse of a modernist design that is a symbol of the failures of the redevelopment plan on which it was based. The advocates of reuse of the Arena have to otherwise persuade those who believe that social justice demands demolition.

"The presence of the Mellon [Civic] Arena is on the same par as having the Confederate Flag put in the middle of a community of African Americans, because it symbolizes destruction and hate, even though some saw value in it."

—State Representative Jake Wheatley

Many political leaders see the presence of the Arena as incompatible with new development and see a vacant site encumbered by such a large structure. Even with a shift towards support for a

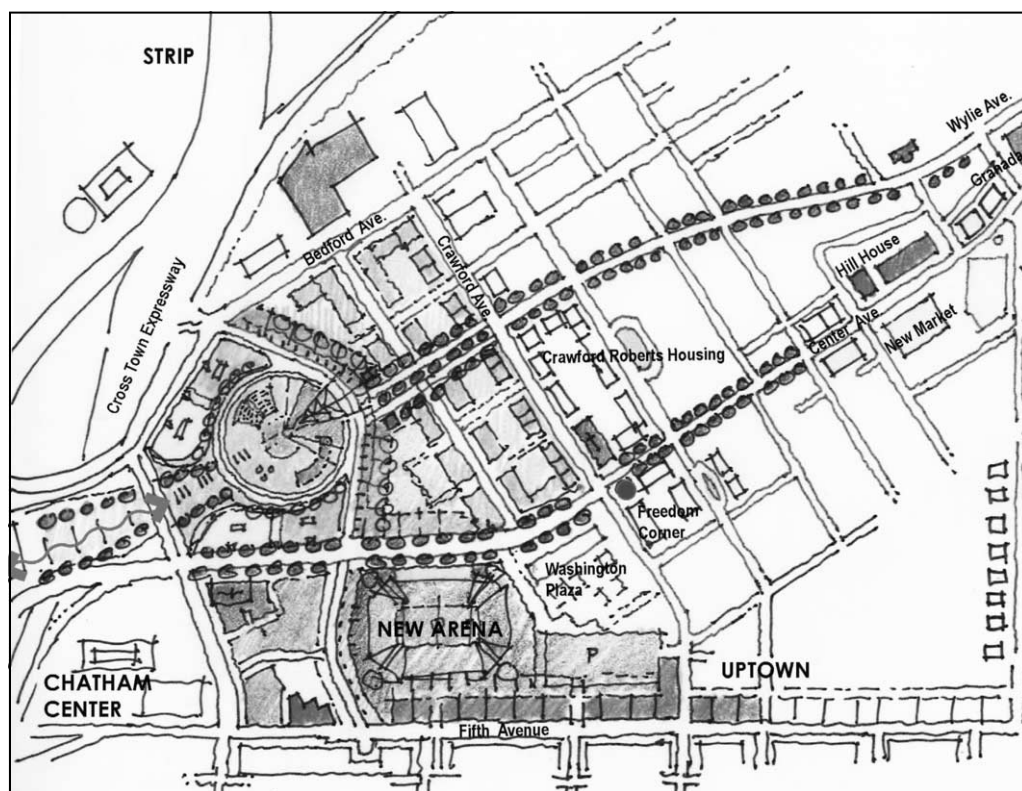


Figure 4. Proposed Reuse Plan Sketch.
Robert Pfaffmann, AIA, 2006.

reuse proposal, the economics of the land on which the Arena sits will be challenging in a region still beset by population loss and low economic growth rates. A viable plan for reuse of the Arena will require a financial plan as innovative as the reuse of the building itself.

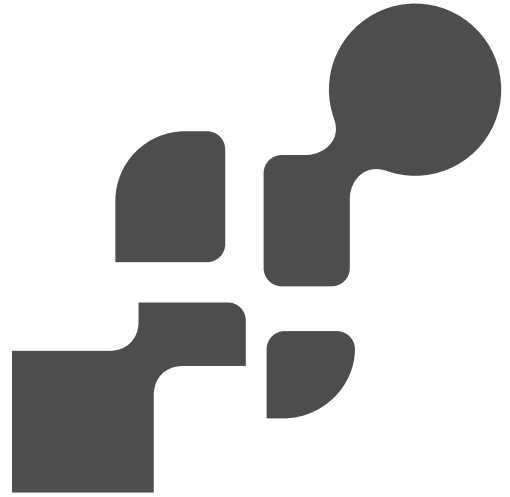
Because the Penguins, a private entity, own the development rights on the site around the existing Arena, the author proposes that the costs saved from demolition and major topographic changes for new streets could save more than fifteen million dollars. The availability of rehabilitation incentives could provide additional financial arguments for reuse.

Many civic design and planning advocates privately hope that there will be a comprehensive master plan for the Hill District that integrates a community supported reuse of the Civic Arena. The Civic Arena reuse question parallels similar debates around the world as some modern movement urban plans and architecture become eligible for heritage designations. The issues of community process, modern design, and new urbanism are all present in this landmark of design and engineering.

The ongoing debate embodies the complexities and contradictions of twenty-first century design and preservation on a scale not easily navigated in the context of the rich social history of the Hill District. One of its greatest residents, playwright August Wilson, may point the way: *"My plays insist that we should not forget or toss away our history."* While he was referring to his roots in the community and the culture he knew, his words challenge us to ask questions about the many histories and memories that exist—some good, some bad. The question for buildings like the Arena is, do we delete it from our memories or transform it?

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Change and Continuity

Restructuring Cities and Landscape
Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

The Landscape of Modernity

INTRODUCTION TO THE SESSION

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When thinking about landscapes, that which first springs to mind are the privileged aspects of nature and its contemplation. But this is a challenging question, as ‘landscape’, as it has been known to us for centuries, includes the presence of human development in its composition. This essential combination relates the idea of molding nature to provide private spaces for recreation and enjoyment, combined with a type of gardening that recuperates flora and/or enhances one’s relation to a site. In this way, the landscape of modernity has brought about amazing visions which have spread across the globe in the first half of the twentieth century.

Since the beginning of civilization, people have actively intervened in nature, leaving clear evidence of their activities, not only through the vast and standardized changes that agriculture engenders, but in the specific ways in which the natural environment is organized. This determination stands at the origin of gardens, from the mythical creation of Babylon, to the rational order of the Renaissance – as brought about by Le Nôtre’s designs at Versailles under Louis XIV –; to the metaphysic regulation of the open spaces in Japan; and indeed to the organization of land according to religious principles at Mayan sites and at the temples of Angkor.

It was the Modern Movement that introduced what is now known as landscape architecture, and which simultaneously developed it as a profession in itself. Some projects originated with an informal approach, such as the dazzling and paradigmatic examples of Roberto Burle Marx in Brazil; others were the result of a careful design by an architect to frame their buildings, as was the case of Frank Lloyd Wright and the organic tradition prolonged by Richard Neutra among others; and finally, the appealing proposals of Luis Barragán and Louis Kahn, which coincide in a surprising way at the Salk Institute of San Diego, California, open the way for many more innovations that still await recognition. Sometimes these creations present themselves as part of a larger ensemble, which we have come to describe as cultural landscapes.

This session is dedicated to explore this last aspect, and our principal focus concerns examples both in urban and rural contexts. We examine, by way of a number of case studies, the presence of ‘organized’ nature, and the session looks in particular to the challenging debates on the continuity of such fragile and ephemeral creations as the landscape. One study of the Swiss Alps presents a near national stance, while another showcases recent English proposals that belong to a lengthy gardening tradition. The session dialogue also looks to explore problems in conserving the environment of a devastated city, New Orleans, and of the ever fading urban landscape of Australian suburban communities. The session will close with a discussion of the complicated conditions of Chandigarh, a paradigmatic city that has fostered many diverging opinions.

Modern Urban Landscape to Sustainable Urban Landscape

A CHALLENGE FOR CHANDIGARH

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INTRODUCTION

Chandigarh is recognized as an international icon in the fields of modern architecture and urban planning. It acquires this historical distinctiveness by virtue of Le Corbusier's town planning scheme and Architecture as defined by Edward Relph in his book titled "The Modern Urban Landscape". The character defining element of Chandigarh's urban landscape is its open space structure and circulation system. Landscapes are made within a context of well tested ideas and beliefs about how the world works and how it might be improved. Modern urban landscapes sought to correct the profound imbalances generated by the transformations produced by the Industrial revolution. The context of these modern urban landscapes has changed. In contemporary circumstances it has to address issues of sustainability. This paper is an attempt to explore the role of the open space structure of Chandigarh in addressing this challenge of change.

CHANDIGARH, THE MODERN URBAN LANDSCAPE

Chandigarh is sited within three natural boundaries, the Shiwalik hills, and the two rivulets Patiala-Ki-Rao and Sukhna Choe. The Shiwalik hills in the northeast form the backdrop on the horizon. Thus the genius loci of Chandigarh are the vast tilting plain, the hills the backdrop and the open spaces of the floodplains as the edges.

The most significant feature of the urban landscape of Chandigarh is the grid; the interpenetrating grid of the circulation system and the open spaces. Chandigarh perhaps is amongst the few cities in India which has an identifiable landscape structure. An outcome of the CIAM, the separation of urban functions gave Chandigarh its unique position. It led to the generation of landscape types for each function. These are the road types, the seven V's - the circulation network, the neighbourhood unit- a sector, the linear open spaces - the leisure valley, the civic centre and the central business district - the hub, and the capitol complex.

The city extends between the two seasonal rivulets defining its natural boundaries on the north-western and south-eastern sides. The monumental "capitol complex" comprising of the Secretariat, High Court and the Assembly buildings crowns it towards the northeast. Two major axial roads cut through the city. One of them is "Jan Marg" (The People's Avenue); a stately avenue leading up to the capital complex. The axial road "Madhya Marg" (The Central Avenue) cuts through the site horizontally. At the crossing of the two axes lies the "Civic Center" housing the central business district and the local government. These two axes provided the framework on which the components of the city, namely the capitol complex, the civic centre, the neighbourhood, the seven V's, and the open spaces, were arranged.

CONCEPTS OF LANDSCAPE APPLIED TO CHANDIGARH

The grid

Le Corbusier's vision of landscape approached realization after the Second World War. The outline plan for Marseilles-south was a theoretical study showing green fingers of landscape stretching northwards from the sea through a gridiron of roads.

Following the experience of landscape at Marseilles, Le Corbusier was free to realize the landscape in his plan for Chandigarh. The plans show the similarity between Chandigarh and Marseilles in terms of the typical interpenetration of green landscape and gridiron pattern of roads. The central 'river' is a natural water-eroded valley known as the valley of leisure in Marseilles and Leisure valley in Chandigarh.

The interpenetration of green landscape and gridiron pattern of roads perhaps is an outcome necessitated by the segregation of vehicular circulation and pedestrian circulation. For vehicular circulation there were the engineered roads and greenways for the pedestrian circulation.

The open space

The concept of open space applied in Chandigarh is at two levels; the city surrounded by a green belt to contain its growth and the open space in the city. The green belt is a planning notion borrowed from the garden city movement and considered as a part of city and regional planning in 20th century Europe.

Although the ground in Chandigarh was not "liberated" by raising the buildings on pilotis, it was liberated by clear segregation of the urban functions, whereby an urban open space network was intentionally created, accommodating the ancillary functions and facilities of urban life, sporting, educational and recreational.

According to Bianca Maria Rinaldi in her article, "The Green City: Urban models for Twentieth-century Capitals", green features have been employed either to improve the spatial quality of neighbourhoods and specific areas or used as strategic elements in an attempt to evolve the identity of the modern city. Le Corbusier adopted the green features as strategic elements for his urban models. He visualized nature as a tool to "reshape the whole urban environment". He was convinced in the modern city, its different components would be brought together by the "diffused green net" and would play the role of "connective tissue". Sunlight, space and trees have been considered by Le Corbusier as the primary materials for an "urban creation".

THE CHALLENGE OF CHANGE

The city which was designed to house a population of 500,000 is now accommodating a population of 1,000,000 and growing. The increasing population along with the strategic regional location is exerting development pressures on the city, as a consequence of which the urban landscape is changing. The urban open space structure is under immense pressure because, as "open space", it is perceived as vacant land. The management and development of these open spaces focus on amenity value, ignoring their ecological potential. Similarly, the character of the pedestrian and vehicular circulation system of the seven V's is changing due to increasing vehicular traffic and subsequent road widening exercises, which have an adverse effect on the roadside plantation in addition to increasing the quantum of paved surfaces. The need, in the contemporary context, is for an urban open space system which fully recognizes the conservation principles; but at the same time it should maintain its unique characteristics which gives Chandigarh's urban landscape its historical distinction.

CHANDIGARH – A UTOPIAN SPIRIT

According to Dushko Bogunovich, in his paper “Eco-city Chandigarh”, Le Corbusier’s model of the city as a machine and his analogy with a human organism, may both be obsolete and crude but they are not totally misplaced. The theory of sustainable development suggests that cities should indeed be viewed as organisms with their metabolism integrated with the surrounding ecosystem.

Dushko Bogunovich views Chandigarh as a pilot project where such new ideas of urbanism could be demonstrated, as the city symbolizes the utopian spirit. Chandigarh also qualifies for this demonstration because, as an existing physical landscape with excellent infrastructure and an abundance of open space, offers a receptive base for retrofitting, redevelopment and further development.

URBAN OPEN SPACE AS A RECEPTIVE BASE

In the quest for sustainable urban environments, urban open space becomes the focus for theories like urban eco-cyborg, urban green infrastructure and landscape urbanism.

Urban eco-cyborgs

Le Corbusier’s famous metaphor that a house is a machine to live in was modified for urban complexities (such as in the case of Chandigarh) where he used the organic paradigm: The Capitol the head, the city centre the heart, the grid of the seven tier circulation the veins, and the open spaces as lungs. He combined deployment of the machine/organism paradigm on Chandigarh’s master plan to appear simplistic, but contemporary convergence of technology proves that perhaps he was correct.

Dushko Bogunovich states that the current theory in the domains of urban ecology and sustainable urban development recognizes the biological and ecological concepts like ecosystem and metabolism, with respect to urban planning and design. The prescription for achieving urban ecological sustainability is to tame the urban metabolism; the urban processes must be integrated with the natural processes.

Le Corbusier’s intuition, equating the city to a machine and to an organism was at a time when these were opposite to each other; now electronics has stepped in by bridging the gap between the two; this makes them capable of self regulation, and the design solutions are not only getting greener but also smarter.

Dushko Bogunovich deduces the house as “a machine for living” plugged into a piece of living land, and the city in a regional landscape vitally plugged into the regional ecosystem. This is his vision for the city beautiful “An urban eco-cyborg”.

Urban open space as green infrastructure

Green infrastructure as defined by Mark A. Benedict and Edward T. McMahon in their article, “Green Infrastructure: Smart Conservation for the 21st Century”, is an interconnected network of green space that conserves natural ecosystem values and functions, providing associated benefits to human populations. Green infrastructure supplies ecosystem services such as improved air quality, reduced air temperature, reduced stormwater runoff, and increased wildlife habitat. Also, it is the ecological framework needed for environmental, social and economic sustainability.

The name Green Infrastructure implies something we must have instead of green space that is something nice to have; it emphasizes the interconnection of natural systems, and demands responsible intervention.

The five principles of green infrastructure demand that it should be designed holistically, it should be laid out strategically, it should be planned and implemented publicly, it should be funded, and it should be grounded in the principles and practices of diverse professions.

The interpenetrating grid of the open spaces of Chandigarh and the circulation network (regarded as open space) can be considered as the Green Infrastructure, in the sense that it has been laid out holistically and strategically, all the planning, implementing agency and funding is done by the Chandigarh Government. What is required is a strategy with inputs from professional disciplines like landscape ecology, urban and regional planning, and landscape architecture.

Landscape urbanism - open space as sustainability superstructure or green metastructure

Ignacio Bunster-Ossa, in his article "Landscape Urbanism", places open space concerns at the core of planning and designing urban areas; a strategy that is quickly becoming important in the health and vitality of cities. The pursuit of sustainable urban environments forces a re-evaluation of the past practices. Green buildings do play an important role, but to this agenda an equal contribution can be made through the design of related open spaces, especially in denser urban situations where issues such as water quality, energy conservation, climate mitigation, pollution control, connectivity and social exchange become amplified.

He stresses that open spaces will always be required to satisfy people's outdoor gathering and recreational needs, while helping to impart a meaningful sense of place. But under a sustainable agenda, it must do so as a part of a system that integrates ecological infrastructure, building, landscape and social functions, engaging the full gamut of spatial typologies big and small, from gardens to rooftops, sidewalks, streets, parks and waterways. Owing to its overreaching utility, open space is gaining recognition as a sustainable superstructure that can enhance the economic and environmental viability of urban areas. The objective is to create a seamless green urban fabric: fusion rather than division is the order of the day. This landscape-based approach is acquiring its own identity, Landscape Urbanism.

This objective had been visualized by Le Corbusier as a "connective tissue", whose role was to bring together the different components of the modern city, which had been demonstrated in Chandigarh. Thus a parallel could be drawn between the "connective tissue" of Le Corbusier's modern city and the "connective tissue" of Ignacio Bunster-Ossa.

Urban open space in the 21st century- fuzzy, dynamic, loose fit landscapes

In the quest for urban open space in the twenty-first century Catherine Ward Thompson in her paper, "Urban open space in the 21st Century", explores the social and spatial implications of new lifestyles, values, attitudes to nature and sustainability, the models for the future city and the patterns of urban open space that might accommodate these. She concludes that new technology will be harnessed to satisfy old and unchanging needs, but also new patterns of open space networks are being conceptualized which reflect new scientific and cultural understandings.

What is required are precise plans to define artistic visions, function-specific space, and the neat, safe and decorative parks which offer equity of access for all. But these plans will be within the fuzzy framework of an open space network which is dynamic in aesthetic and ecological status, allowing for a larger mosaic, a patchwork of changing, loose-fit landscapes.

CONCLUSION

Le Corbusier's vision of the modern city has generated a modern urban landscape which has the potential to adapt to changes in time and concepts. As demonstrated by Chandigarh's modern urban landscape, it was able to fulfil the aspirations of the people in the twentieth century, and in the twenty-first century the modern urban landscape of Chandigarh can metamorphose to meet the challenge of sustainability.

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Landscapes of the Recent Past: Identifying Key Problems Regarding the Conservation of Designed Landscapes

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In recent years several books have been published on the subject of gardens and parks created after the Second World-War and their designers. While it appears that landscapes from the recent past are receiving more recognition, sites still make the headlines for being disfigured and demolished. To review the current situation in the United Kingdom, a summary of key initiatives and suggestions for action will be discussed below.

A GRADUAL CHANGE OF ATTITUDE TOWARDS HERITAGE OF THE RECENT PAST

In the 1980s in the United Kingdom it became clear that many fine post-war sites were under threat. Conservation organisations were starting to press for changes to allow post-war sites to be listed, arguing that history does not stop. In response English Heritage in 1987 began a thirty year rolling rule, instead of confining listing to 1940 already existed in Scotland.¹ The same rule was applied to the Register of Parks and Gardens of Historic Interest. Threatened buildings of outstanding quality and at least ten years old could now be listed under “exceptional circumstances”. In the United States a fifty-year rolling rule had already been used since 1979 for the National Register together with special guidelines for evaluating and nominating properties that achieved significance within the past fifty years.²

In 1985 ICOMOS organised its first seminar on twentieth century heritage³ and DOCOMOMO was founded in 1988. The Eindhoven Statement called for promotion, registers, identification, the development of techniques and methods, retaining archives and funding.⁴ The Council of Europe's first colloquy on the subject in 1989⁵ culminated in the Recommendation on the Protection of the Twentieth-Century Architectural Heritage in 1991.⁶ It also emphasised the need for training, education, and international cooperation. UNESCO acknowledged by 1994 the need for a more balanced and representative World Heritage List. ICOMOS, instructed by UNESCO, prepared General Recommendations on the Protection of Twentieth Century Heritage, with mention that established principles provide a basis for the conservation of recent heritage.⁷ ICOMOS and DOCOMOMO identified sites for inclusion on the UNESCO World Heritage List and by 2003 twelve Modern Heritage properties were included.

Changing attitudes encouraged English Heritage in the mid 1990s to organise an exhibition on ‘The Age of Optimism: Post-war Architecture in England 1945-70’,⁸ and to publish brochures on ‘Something Worth Keeping?’ and ‘Post War Architecture in England’.⁹ In the United States the first special themed journals¹⁰ and books on the recent past and construction materials were published¹¹. Two *Preserving the Recent Past* Conferences were organised in the US, in 1995¹² and 2000,¹³ and English Heritage held a ‘Modern Matters’¹⁴ and ‘Preserving post-war heritage’¹⁵ conference.



Figure 1. Sir Frederick Gibberd's Water Gardens in Harlow were dismantled and relocated as part of urban re-development, with de-listing by English Heritage as a consequence
Source: Jan Haenraets.

THE CONSERVATION OF RECENT LANDSCAPES STARTS TO RECEIVE ATTENTION

Landscapes only occasionally featured in the mentioned initiatives and the 1995 New York conference on 'Preserving Modern Landscape Architecture: Making post-war designs visible' was the first specific dedicated event on landscapes.¹⁶ Charles Birnbaum's suggestions for action echoed existing recommendations but he added the need for archives and consultation, in particular with original designers. He urged for national strategies, a special committee with historians and scholars, and better understanding of the wider subject.¹⁷ Richard Haag suggested techniques for pro-active action by landscape architects indicating that existing recommendations have limited suggestions for site specific and local action.¹⁸ DOCOMOMO's focus was primarily on buildings but in 1994 an International Specialist Committee on Gardens and Landscapes was founded, and later became a committee on urbanism and landscapes.¹⁹

In the United Kingdom landscape initiatives picked up slowly. A Masters dissertation by Fridy Duterloo, who became involved in English Heritage's post-war landscapes work, was completed in 1995 as a first sign of increasing interest.²⁰ The English Heritage Post-War Listing Steering Group for buildings suggested in 1997 that it would be available to work with the Gardens Register Team on designations of post-war gardens and landscapes, and the Steering Group liaised with the Twentieth Century Society and the Garden History Society towards the Twentieth Century gardens and landscapes conference in 1998.

CONSERVING RECENT LANDSCAPES GAINS A TEMPORARY MOMENTUM

The European Landscape Convention provided in 2000 a new stimulus to encourage countries to implement landscape measures. These were to be applicable to remarkable as well as ordinary everyday landscapes and also to those of the recent past.²¹ The 2001 ICOMOS Montreal Action Plan on Twentieth Century Heritage lobbied towards comprehending the full diversity of such heritage and its conservation.²² The Wave Hill Charter on the Preservation of Modern Landscape Architecture, signed at the second Preservation of Modern Landscape Architecture conference urged for the development of national guidance and ethics before it became too late, and seminal works destroyed without public discourse.²³ In the wake of these conferences the Cultural Landscape Foundation and the Recent Past Preservation Network were founded in the United States. The Cultural Landscape Foundation remains unique in its pro-active campaigning for recent past landscapes.

In the United Kingdom the proposed relocation of Gibberd's Water Gardens in Harlow New Town put the issue higher on English Heritage agendas by 2001. The Water Gardens were listed as Grade II* and seen as exceptional historic interest. Since 1997 English Heritage had opposed relocation.²⁴ The Twentieth Century Society, the Garden History Society, and Lady Gibberd raised concerns but Harlow Council granted Wilson Bowden Development Limited planning consent, with de-listing of the Water Gardens as a consequence. Many examples of disfigured sites can be found, the 'Landslides - Landscapes at Risk' web pages of the Cultural Landscape Foundation give plenty other cases.²⁵ The case of the Denver Skyline Park was presented in a paper at the 2004 DOCOMOMO conference in New York.²⁶ Destruction and disfigurement of sites can be categorised under four levels:

- Physical neglect and poor maintenance practice
- Impact of change and increasing intensity of use, misuse, and vandalism
- Inappropriate modifications
- Destruction and demolition

The case of the Water Gardens meant that the subject remained for some years on English Heritage agendas with a post-war war landscapes typology and some study themes being developed.²⁷ The Garden History Society launched an online collaborative research on post-war gardens,²⁸ and the DOCOMOMO Scottish National Group developed ideas for an Urban Register to explore new ways to document urban areas and landscaping components.²⁹ More publications on recent past landscapes were published, such as the monographs on eminent designers by the Landscape Design Trust. Most of these mainly highlighted iconic sites and their designers, rather than conservation issues.



Figure 2. *The Barbican in London by Chamberlin, Powell and Bon is one of the post World War II sites listed by English Heritage on the Register of Parks and Gardens of Special Historic Interest*
Source: Jan Haenraets.



Figure 3. *Parque do Flamengo in Rio de Janeiro with iconic landscape design by Roberto Burle Marx*
Source: Jan Haenraets.



Figure 4. *Renovation and adaptation of Richard Dattner's Adventure Playground in Central Park, New York went ahead after much debate, but also consultation with the designer*
Source: Jan Haenraets.

The feeling was that from 1992 to 2002 English Heritage made good progress towards the listing of buildings from the recent past. With the disbanding of the Post War Listing Steering Group in 2002, things again appeared to be going backwards, with the government not committing to the subject.³⁰ Interest in recent past landscapes and their conservation also appeared to have improved by 2001,³¹ but while conservation principles and recommendations for improving conservation practice existed the downgrading of many sites continued. Of the 1450 sites on English Heritage's Register of Parks and Gardens in 2003 there were still only fourteen 'post-war' sites on the Register, with Gibberd's Water Garden being de-listed.³² A general conclusion was that more progress was made towards the conservation of post war buildings and for landscapes there remained much work to do.

UNDERSTANDING CURRENT ISSUES

To gain more clarity about the present situation a survey was undertaken by the writer to gather views and opinions. People were contacted from on-site management of gardens and parks, staff and owners; the local community including friends groups and neighbours; students, academics, lecturers; and the wider public including visitors; conservation professionals; and architects and designers. 146 people were contacted and 102 completed a questionnaire or were interviewed. This survey amounted to a total of 807 individual concerns being raised. The case study sites used were the Gibberd Garden (Harlow), Little Sparta (Dunsyre), Dunbar's Close Garden (Edinburgh), Cumbernauld New Town, Bannockburn Battlefield Heritage Site (Stirling), Suntrap Garden (Edinburgh), Scottish Widows (Edinburgh), Falkland Palace Garden and Portrack Garden (Holywood, Dumfries). Designers that have been involved in some capacity at these sites include Dame Sylvia Crowe, Percy Cane, Sir Robert Matthew, Frederic Stevenson, Frank Clark, Bill Gillespie, Ian Hamilton Finlay, Charles Jencks, Maggie Keswick, Boyd Anderson and Sir Frederick Gibberd. From the analysis of responses several issues can be taken into account.

- a. *People's opinions and the lack of recognition remain an underlying threat to the recent past*
 - Many factors contribute to the lack of recognition.
 - From the survey it became clear that not everyone has an opinion, at times due to lack of interest or because people in general are unaware of such landscapes.
 - Many people find that there is good recent design. Traditional design styles are easier to appreciate than newer design trends.
 - Low opinions are often associated with the fact that sites are deemed too new to be historically significant.

- The association people make of recent design with poorly made second rate examples of urban landscaping contributed to low opinions, as did the association of landscapes with poor architecture of the period.
 - Private landscaping is perceived as better quality.
 - Bad press, ignorance about the landscaping industry, an atmosphere of criticism by association influence opinions and cause landscapes to take second place.
 - The way sites were developed, the inappropriate way of thinking by designers and professionals, and materials and styles used were noted as arguments for poor appreciation.
 - The lack of documented histories and understanding of the period continues to affect recognition.
 - Changing fashions influence opinions, and people's opinions evolve, but complacency and accepting some losses does not improve people's perceptions either.
- b. *Concerns about poor management and maintenance of sites*
- Management and maintenance standards at sites, such as the visible process of decline or prominent related social issues, all influence opinions.
 - Those involved voiced worries about the means to provide practical staffing levels and equipment for maintaining standards.
 - Proper qualifications and better understanding of sites in their historical context are wished for.
 - It is also recognised that those involved must as far as necessary undertake their responsibilities.
 - There is perceived lack of interest even from those responsible towards sites from this period.
- c. *The impact of social problems and vandalism*
- Respondents saw an important need for addressing social problems such as, vandalism and security issues. They saw this for the well being of the community and of the site. It was recognised that communities have an important role to play in this process.
- d. *Continuing challenges associated with materials and design*
- It was perceived that a use of poor materials, experimental approaches, a narrow range of plants, together with unrealistic and unpractical designs have caused practical challenges.
 - In addition, the designs do not always inspire support as people struggle to connect with them.
 - Unavailability of original designs and intent also complicate these concerns.
- e. *Concerns about education, enjoyment, interpretation, access*
- The importance of education and access is recognised. But opening hours, events to generate income, general wear and tear, access for dogs, groups and children, the impact of facilitating better access, health and safety regulations were viewed as conflicts.
 - Related to learning, staff mentioned concerns about long-term availability of vision and skills, and the continuity of maintenance.
- f. *Ongoing financial concerns*
- One of the major concerns is shortage of funding for equipment, material, plants, and staffing. On-site staff wishes for endowment funds and a change of attitude by funding bodies. The difficulty to tap into major public funding and commercialisation risks associated with exclusive private sector funding were raised, as was the apparent waste of funds and business-run misuse of budgets.

- g. *Shortcoming in planning and development processes*
 - The structure and selection of project teams, unrealistic timetables, poor understanding of the original concept, ignorance of teams, ad-hoc and piecemeal approaches, and poor planning methodologies were all mentioned as contributors to poor development of the parks and gardens.
 - Many find that design competitions are mostly inappropriate. Subtle approaches mostly receive no support, with non-sensitive big impact schemes being voted for.
 - Planning was at times branded as inconvenient while at other times a cause for inaction. The wider setting and holistic context of sites also needed to be taken more into account.
- h. *Involving and consulting the right people*
 - Planning processes still frequently fall short with regard to holistic interdisciplinary approaches and wider consultation.
 - Staff at sites wish for a greater involvement and note that the original designers are rarely consulted for ongoing planning.
- i. *Difficulties of marketing and damage through popularity*
 - Marketing people remarked that they struggle to promote sites from the recent past, while increasing popularity at certain sites was creating new problems in increased use.
- j. *Unsupportive legislation and politics*
 - The lack of proper supportive legal protection and legislation comes up frequently.
 - It was noted that listing is not always helpful and that politics surrounding sites cause conflicts.

CONCLUDING REMARKS AND RECOMMENDATION FOR FUTURE ACTION

Initiatives and lessons learned from the survey and revisiting past recommendations, result in thirteen main areas for action:

- 1 Survey, analysis and evaluation of sites
- 2 Legal protection and listing
- 3 Management and maintenance programmes of sites
- 4 Promotion, raising awareness and communication
- 5 Development of our understanding of used technologies and materials
- 6 Understanding the wider context of landscape architecture of the recent past
- 7 Use of established methods and principles
- 8 Cooperation and partnerships
- 9 Development of national strategies
- 10 Monitor and record keeping
- 11 Consultation and participation
- 12 Training and education
- 13 Funding

The following points must also be addressed:

- An international overarching charter on the conservation of designed landscapes of the recent past is still missing;
- Recommendations that are more site specific and of local relevance are needed;
- Suggestions for specific disciplinary groups to take recommendations forward are needed;

- Lessons and approaches can be learned from other disciplines, especially buildings conservation; and
- *Increased integration between processes is still needed.*

It can be concluded that progress has been made, but ongoing efforts are required with much work remaining to be done. Concerns raised and identified in the research can be developed into actions and recommendations under the above headings to prevent a downward spiral of this valuable heritage.

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Healthy Bodies, Healthy Minds: Everyday Modernism in Australian Suburban Communities

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Suburbanisation profoundly structured Australian cities and regional centres in the twentieth century. Yet the sprawling suburbs remain an under-studied and under-valued frontier. To date there have been broad-view studies of the planning of Australian cities, and detailed discussion on the individual modern house and garden, alongside post-WW II public housing as an agent of suburban renewal and development. However what has been little considered is the integral relationships of the public buildings and landscaped spaces that together have woven the suburban fabric outside of the home. This is a study of the 'middle-view' constituted by the myriad of unassuming public facilities and landscaped sites that serviced suburban areas, what role they played in fostering a sense of modern communal life there-in, and what future they may have.

THE MIDDLE LANDSCAPE

An avoidance of serious academic or architectural analysis of the ordinary suburban public environment may be symptomatic of previous dismissals of suburbia as a 'middle landscape', forever caught in-between the mythologized country or heroic city.¹ Since the mid-century, 'the suburbs' have been characterised by many as bankrupt of creative merit or stifling of cultural interest. For example, Australia's most renowned architectural critic Robin Boyd famously attacked under-designed, 'bald' suburbs in his biting critique *The Australian Ugliness* (1960). For Boyd, and others, the suburbs were ultimately symbolic of dissatisfaction with what was seen as a mundane feminized zone. Lewis Mumford critiqued American and English suburbs as adequate only as 'a nursery for bringing up children ... with little visible daily contact with the realities of the workaday world'. He saw the suburbs as at best a transitional stage, like childhood, and at worst a nightmare more detrimental than the megalopolis.²

Other historians have more positively explored the claim that Australia represents the 'first suburban nation'.³ Although recognising that the ideal garden city model came from English sources, and was taken up in America with equal zeal, Australia achieved its urbanisation consistently and steadily through sprawling suburban growth from the late-nineteenth century onwards. Due to the newness of Australia, growth represented a re-structuring not of existing urbanisation but of the hinterlands of agriculture and wilderness. Development was uniquely supported by strong centralised colonial governments, and some wealthy municipalities that resourced and coordinated transport and basic infrastructure provision such as schools. However state support often stopped short and it was typically left to the new communities themselves to provide other facilities for children and recreation, and to attempt to beautify the raw landscape of the subdivisions through the work of local progress societies, women, sport and church groups. Suburban growth accelerated apace in the mid-twentieth century, supported by favourable conditions of accessible land, good climate, available materials, generally high wages and aspiring migrants that brought a 'do-it-yourself' attitude to building.

This paper reflects upon an ongoing research programme that is creating a significant documentation of public, modern buildings and landscapes in these suburban contexts. Funded by a national grant, the project 'Healthy Bodies, Healthy Minds: Designing Everyday Modernism for Australian Communities, 1920-1970' is the result of collaboration between architecture, planning and social historians.⁴ One of our conceptual aims is to interrogate the nexus between direct strategies in fostering a healthy and educated citizenry, and modern planning and design initiatives. We are assembling a picture of this through an understanding of government policies alongside the discourse of the design professions through interviews and a survey of professional journals. The main focus of our research has been a thorough analysis of public buildings and places. Our groupings of place types reflect governmental priorities in the mid-twentieth century that targeted children, families and the elderly, and the community facilities that provided for these stages of life from birth to death. These include baby-health centres, kindergartens and parks; recreational grounds and buildings including swimming pools, sporting clubs; civic centres and libraries; and senior citizens and bowling clubs for the elderly.

These new amenities, although typically ad hoc and unassuming, were quietly instrumental in restructuring everyday community life and the development of a progressive sense of social connection and democracy. Their realisation reflects growing concern in the professions of architecture and planning, and Australian society generally, for grass-roots expression of rights and freedoms at the level of the individual citizen and the community. As Sarah Goldhagen and Rejean Legault reveal in terms of the American context, these concerns became manifest in the intertwined agendas of 'democratic freedom', and 'freedom to play, to express oneself in a non-goal directed manner.'⁵ In the middle landscape of mid-twentieth century Australia, a language of lean, functionalist and often unremarkable modernism was assumed as appropriate design to express these social ideals of community participation and accessible recreation.

INFRASTRUCTURE FOR BIRTH TO OLD AGE

Place types and suburbs have been documented in this project through the creation of an extensive database that currently contains around 3000 entries, and is searchable on type, date of construction, area (according to local government boundaries), and architect or design office (if known). Many of the sites have been visited to document current conditions and adaptive re-use, in addition to background material gleaned by archival and newspaper searches. As full national coverage of the whole of Australia is extremely difficult to achieve, particularly outside major cities, the online publication of the database is being used as a tool of community participation to seek further entries from localities and heritage bodies. What follows here is a very brief summary of some place groupings under investigation.

A Healthy Start: The fostering of healthy and educated children as future Australian citizens became of central concern in the early decades of the twentieth century. Through the growing forces of environmental determinism, reformers considered the making of healthy places, and gaining of practical know-how as critical to the 'proper' raising of families. These reforms translated into widespread government and community-led initiatives that were to shape, through regulation and design, the building of maternal / baby health centres and outdoor playgrounds and kindergartens in suburbs from the 1920s onwards. Many were constructed through state government architects offices via templates of standardised designs, while others were designed by notable modern architects as 'demonstration' kindergartens. Most were consciously modern, with concern for accommodation of pram access integrated into the street-settings and prominent lettering announcing their community function. However they were typically not purely institutional in language; often expressing hybrid design references to both the health institution and the house. Some appeared more like enclosed brick pavilions opening onto public parks. The provision of play areas grew dramatically in the mid-century, and was often co-located with baby health centres and kindergartens as an active strategy of

zoning family-centred places in local parks to encourage good physical and moral health for children.

Accessible Learning: Another place type being examined is the public, municipal library that developed in the suburban context in the 1950s and '60s. The building of accessible family libraries often became a catalyst for the development of new suburban civic precincts and parks. They were also often consciously inventive in design, through their materials, sculptural embellishment, or novel planning.

Recreation Spaces: Due to the fortunes of Australian space and climate, outdoor recreation was fairly universally accessible. However the provision of infrastructure lagged well behind good intentions expressed in the early decades of the twentieth century. In addressing this lack, government subsidies were bolstered by neighbourhood groups in the 1950s and '60s who raised funds in varied and creative ways to build sporting and leisure facilities such as pools, bowling and croquet clubs, sporting pavilions and ovals. Some were co-located with the new civic centres in planned communities, and some were inserted into existing fabric through the re-assigning of parklands and reclamation of empty sites for more formalised sporting use. The proliferation of places dedicated to specialised sports and leisure activities is testament to the consolidation of the rhythms of the working week in the mid-century, with the weekend now firmly entrenched as a time away from formal places of work and industry. The suburban middle landscape can therefore be characterised not just as a spatial formation, but also a temporal one. Sporting places typically composed a very ordinary backdrop to the suburban routine. But at times there were glimmers of highly expressive design innovations – whether realised through the modern idiom, new advances in materials and servicing, or in dynamic structural gymnastics. This was particularly the case with numerous modern Olympic pool buildings.

The other two general categories of place types being examined in this project are – new civic centres that overtook the role of the town hall in many local communities in the era of post-WWII reconstruction, and places associated with an ageing population, which were somewhat haphazard in their realisation and again often grouped with outdoor facilities like bowls and croquet. Associated with these sites, we are investigating how many otherwise utilitarian and functional places also become sites of official commemoration through the building of war memorials at civic precincts, parks and pools.



Figure 1. Dorrit Black, *The Lawn Mower* (1932).
Source: Miegunyah Press, Melbourne.



Figure 2. East Fremantle oval and bowls club.
Source: Author's photograph.

THE INTEGRATION OF BUILDINGS AND SUBURBAN PARKS

The project is not only categorising place types grouped around everyday life, but also how they were spatially integrated into suburban morphologies. The 'High Street' tended to be the ordering spine of older nineteenth century suburbs interconnected with transport networks, and often remained the location where newer public infrastructure was inserted. For example baby-health centres, kindergartens and libraries were often located next to town halls and churches on main streets. And there are many examples of landscape reserves at the nodal points of main streets being retrofitted with modern facilities.

While the street grid morphology predominated, suburban expansion fuelled by migration and industrial growth gave opportunities to attempt the planning of civic squares and clusters from scratch that could experiment with the integration of landscapes and buildings in new ways. Some more radical examples of modern civic planning ideals surfaced, although their actual realisation was often compromised. It was more common for former nineteenth century buildings to be restructured as 'civic centres', and bolstered by co-locating new amenities for child health and recreation. Other small clusters of facilities were often grouped in the reserves and parks of new public housing estates, as modelled on English post-WWII housing schemes.

Another common suburban configuration was the gradual loose arrangement of amenities around recreation parks and reserves. Some sporting fields and archery grounds had been included in urban parks since the mid-nineteenth century – if only as unstructured grassy fields. Although parks and reserves were typically gazetted from government land, it was the aspiring middle-class suburbanites that would be instrumental in their redevelopment of dedicated outdoor facilities through activism and private associations. These private aspirations were often translated into local and national government planning regulations by the mid-twentieth century. Planners came to presume the virtues of providing recreational facilities so that 'the town dweller of the future will be a contented citizen, more in harmony with his environment: healthy and fit, an asset of the utmost value in a well-ordered community.'⁶ This striving for well-ordered spaces had direct bearing on aspirations for a well-ordered social community, and was evidenced in the gradual regularisation of open, natural reserves and empty pockets into prescribed and specialised sites, furnished with

pavilions and club-houses dedicated for the orderly playing and spectating of sports. Indeed the ever-growing tracts of ordered sporting fields in many ways came to usurp previous environmental mythologies of the rugged unexplored wilderness, the farm, and the 'bush'. And this 'orderliness' in the landscape also became a target of satire – which was growingly evident in Australian writing, humour and art from the 1960s onwards – on the banality and monotony of 'compartmentalised' suburban life.⁷ It is also in the '60s that more 'natural' indigenous bush-planting schemes gained popularity and began to soften the open, abstracted spaces of the sports ground.

LEGACIES OF EVERYDAY SITES AND LANDSCAPES

Australia lives today with the spatial and built legacies of the previous century's ideas of community. These buildings and sites for recreation, health and learning continue to fundamentally shape everyday patterns and social interactions in neighbourhoods (despite continual efforts to re-inscribe new government structures on their delivery). Some of the sites investigated in our study are still in ongoing use, while many are in need of conservation or sensitive renovation, and others are being gentrified or demolished. The shifting status of public suburban amenities is in part due to the waning of formerly expansive visions for the provision of public space and its community ownership, and in part to the realities of rising land values and demands for new and denser housing and commercial developments, alongside radically different expectations of how public and private services should now be delivered in the middle suburban landscape. Many community places themselves are not valued or regarded with fondness, either because of their simple, lean modern style rendered both in built and landscaped form, or because of the socio-political 'statist' ideologies they are perceived to represent.

At present, there is limited representation of these place types on heritage registers. (From an initial survey there are less than 20-30 examples of listed sites of any of our categories around Australia.) Therefore, aside from the documentation activity associated with this research project, another aim is to provide some national framework for future and often contentious listing, conserving and re-use of the integral relation of buildings and landscaped spaces that compose the modern middle-view. In this work we are however fully cognisant of the very real dilemmas faced in terms of conservation. For example the material problems associated with modern architecture all apply. Also the challenges of maintaining open landscapes are particularly acute with the effects of a major drought in Australia, and longer-term expectations of climate change. Current debates about the un-sustainability of sprawling mid-century suburbs, appropriate densities, and in-fill design are all paramount in the face of depleting resources. Adaptive re-use also has to be mindful of dramatically changing social and political ideals about what is regarded as an appropriate 'civic contract' between citizens and governments and ensuing infrastructure management strate-

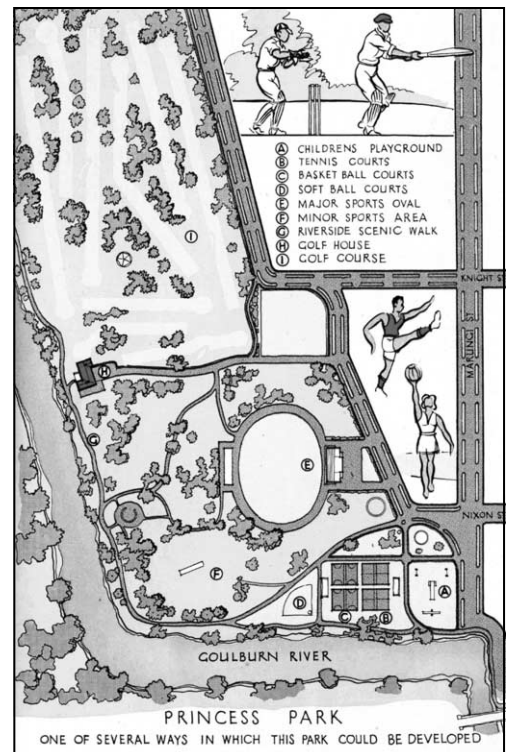


Figure 3. Shepparton Princes Park Plan, 1946.
Source: Shepparton Council

gies – which increasingly favours the private rather than public sector. These dilemmas are acutely apparent in the maintenance of outdoor pools and their landscaped environs, with many being closed in the last decade.

Despite this somewhat bleak outlook, many places maintain an ongoing role in the shaping of collective memories and routines. And perhaps it is fitting that these types of everyday sites remain in the background of everyday suburban life, and are not commemorated in any overt sense. This delicate fate of ordinary places has been examined by observers including J B Jackson and Deloras Hayden, and through theoretical debates on the 'everyday' emanating from Henri Lefebvre.⁸ We do conclude however that these mundane places are complicit in the larger project of building civic modernism in Australia, and are therefore important subjects of documentation. For as Lefebvre has suggested, the quotidian and the modern meet in public modern places; 'they mark and mask, legitimate and counterbalance each other'. Recognition of their interconnectedness is crucial in understanding how modernism played out in the sphere of suburbia, and how it profoundly affected the routines of family life. The historical analysis of the Australian situation accords with other revisions of the clichéd history of modern architecture as based solely on European canonical works, and dominated by masculine ideals of the heroic ego. Alternative readings and models for modern architecture were present from the outset of the twentieth-century through one strand of avant-gardism that was transgressive precisely because it was orientated towards the everyday, the domestic and the social; concerns that were previously seen to be marginal, private and feminine.⁹ By turning attention to the structuring of the middle suburban landscape that contained facilities like maternal health centres and playgrounds, the traditional roles of women and everyday lives were shifted more towards the centre of innovative planning and design concerns (in retrospect sometimes for better or for worse). Thus the ideologies and aesthetics of modernism were enacted, for many, around the spatial and temporal sphere of the local neighbourhood and the home, rather than in opposition to it.

NOTES

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- 6 Reidy, R., 2000, "Something for Everyone: How Recreation and Sport Bowled into the Australian Garden", in S. Whitehead, (ed), *Planting the Nation*, Australian Garden History Society, Melbourne, 74.
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Ecological Crisis and the Modernist Residential Landscape: Pontchartrain Park, New Orleans, Louisiana

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Pontchartrain Park, a postwar residential neighborhood in New Orleans, Louisiana, was the pre-eminent American community planned and designed for middle-class and professional African Americans. The neighborhood, with its extensive open spaces and recreational amenities, provides a compelling case for reconsidering the American Modernist residential landscape.

THE MODERNIST LANDSCAPE OF NEW ORLEANS

Although the eighteenth- and nineteenth-century urban and architectural fabric of New Orleans has been documented extensively, the city's transformation in the middle of the twentieth century remains largely unstudied. Mayor deLesseps S. Morrison (1946-1961), who served four terms in office as a progressive, reformist politician, made the modernization of New Orleans the focus of his mayoralty, and his efforts were substantial and wide-ranging. His administration invested in improved highway, rail, water and air transportation, linking the city more efficiently and prominently with national and international networks. In terms of architecture and landscape, Morrison's interventions transformed not only the central business district but also undeveloped parcels far from the centre. In downtown New Orleans, his new civic centre rose as a series of high-rise, steel-framed, glass-clad buildings set in open plazas; the ensemble conformed to European and American (for example, Mies in Chicago) Modernist prototypes. In the city's outlying eastern areas, Morrison sponsored the development of residential districts on low-lying, formerly swampy land that was historically prone to flooding but thought to be protected by the municipal pumping system. These residential districts provided both single-family homes to middle-class buyers and multi-family dwellings to families needing governmental assistance.¹ Morrison's radical restructuring of New Orleans—Louisiana's principal city—can be compared to Robert Moses' reformist-minded city building efforts in New York, in relation not only to ambition and scale, but also to unfortunate ecological outcomes.

Pontchartrain Park, located in a northeastern corner of Orleans Parish formed by Lake Pontchartrain and the Industrial Canal (the city and parish are coterminous), constitutes a unique and especially interesting example of the Morrison-era residential districts. Characterized by single-family houses on open lots, Pontchartrain Park is a powerful example of the American Modernist domestic landscape. The neighborhood's design embodied reformist, progressive agendas in three distinct ways. First, like all of the neighborhoods along the lake edge, it depended on the technological transformation of what had been a cypress swamp by mechanical pumping. The drainage of New Orleans's backswamps began in 1896 and was completed in the Pontchartrain Park area only in 1940s. Land in Pontchartrain Park lies mostly between five (1.52m) and seven (2.13m) feet below sea level, and soil there continues to subside significantly. In the wake of Hurricane Katrina (2005), the overtopping of the Industrial Canal (to the east) and levee breaks in



Figure 1. Pontchartrain Park, historically separated from whites-only Gentilly Woods by the Dwyer Canal.
Source: NASA/USGS aerial of New Orleans, August 31, 2005, modified by Jane Wolff

the London Avenue Canal (to the west) flooded Pontchartrain Park with from five (1.52m) to fifteen feet (4.57m) of water, which drained slowly over a period of weeks.²

Second, like the planners of many other post-war American residential districts, Pontchartrain Park's designers followed the model of single-family houses on large lots, generally 60 feet (18.29m) by 120 feet (36.58m). The city sponsored the signature subdivision design; the scheme offered curving streets with sidewalks, which were paved, curbed, and lighted, that wrapped around an interior 180-acre park, which included an eighteen-hole golf course, playgrounds, clubhouses, and ball fields. The builder, the W. H. Crawford Corporation of Baton Rouge, offered a range of 31 two- and three-bedroom predominantly "ranch type" house models for "sub-tropical

New Orleans," all constructed of pre-manufactured components erected on concrete slabs on grade and ranging in price from \$8,000 to \$16,000. Both the landscape scheme and the house designs emphasized residents' access to fresh air, exercise, good health, proper hygiene, and indoor-outdoor, "California-style" living.³

Third—and this makes Pontchartrain Park unique in the city and the nation—the neighborhood offered these amenities to African Americans in a segregated city. Marketed to New Orleans's emerging African-American middle-class and professional community, the development provided much higher quality housing and landscapes than that which was commonly available to blacks. Black homebuyers flocked to Pontchartrain Park, which opened with great fanfare for home sales in 1955, only months after the Supreme Court's *Brown v. the Board of Education* decision (May 1954), which eventually served as the legal platform for dismantling "separate but equal" public facilities in the Jim Crow South. Indeed, Pontchartrain Park, with its internal recreational facilities and 18-hole golf course, claimed pre-eminence in the United States as a planned community designed for African Americans. The neighborhood's extensive public facilities had tremendous symbolic importance: the municipal golf course was Mayor Morrison's response to the threats of blacks to bring suit against the city for refusing them access to the courses at Audubon and City parks, and it was designed by Joe Bartholomew, a black golf champion and building contractor who was prevented from playing on public courses designated for whites. During the ensuing years, Pontchartrain Park's residents brought it fame as a launching ground for prominent civic leaders, activists, politicians, and artists. Today, at just more than fifty years of age, Pontchartrain Park is eligible for listing on the National Register as a Historic District.



Figure 2. Pontchartrain Park's existence depended on the installation of substantial drainage infrastructure.
Source: New Orleans Public Library, <http://nutrias.org/photos/parkways/ppark/pp16.htm>



Figure 3. Potential residents tour model homes at Pontchartrain Park, summer 1955.
Source: Newspaper photograph, exact date of publication unknown, *Longue Vue House and Gardens Archives*.



Figure 4. Dwyer Canal, re-envisioned as a wetland garden that holds water and provides public space.
Source: *Jessie Calder, University of Virginia School of Architecture*

Most of all, what makes Pontchartrain Park an essay on the Modernist landscape is its powerful denial of historical conditions—geographic and social—in the name of progress. With respect to geography, this meant ignoring the site's swampy hydrology and low-lying terrain. Without the pumps and canals that drain the land and the levees that protect it from adjacent water bodies, the area would be largely uninhabitable. For the most part, this infrastructure was hidden from plain sight. It did take rhetorical expression, however, in the preexisting Dwyer Canal, which marked the neighborhood's southern boundary in terms of race and place, creating an access barrier to Gentilly Woods, the all-white suburb built as Pontchartrain Park's twin. The ground was subdivided as if it were anywhere and planted with lawn, which has low permeability; runoff from residential lots was sent straight into the city's stormwater system. Except for the boundary canal, no space was allocated to the collection or storage of water. Even the park, which is public property and makes up the neighborhood's lowest area, was not designed with any regard for water management. With respect to social history, denial meant embracing the image of white, middle-class America. Pontchartrain Park's design insists absolutely on mainstream, postwar suburban iconography, including status symbols such as the golf course, the lawn, and the "ranch-type" house. The Crawford Corporation's aggressively modern marketing methods included a promotional film, a showroom in the commercial district of the Central-City neighborhood, and a block of model homes open for view in the Pontchartrain Park. Pontchartrain Park makes no reference to historic Creole or New Orleans architecture or urbanism; it is an unequivocal rejection of what had been a landscape of oppression for the African-American community.

Pontchartrain Park's Modernist landscape contains an inherent paradox: denying the past allowed blacks to move forward socially, but it was also the cause of the devastation wrought by Katrina. The neighborhood offered African Americans enormous benefits. Home ownership rates were high compared to other African-American neighborhoods in the city, as were levels of educational achievement. Families stayed in the neighborhood for generations, and residents of all ages understood the landscape as the center of their community. The Modernist landscape of Pontchartrain Park was an important symbol, stage, and meeting ground for members of the community, but its infrastructure included the possibility of failure from the start. The risks posed by its fragile landscape have grown with regional problems of coastal land loss and global problems of climate change. The neighborhood's Modernist iconography led to a problematic psychology of place. Hiding the infrastructure made it possible to forget the fundamentally soggy characteristics of the ground. The community never developed a flood culture, and the explanation for today's crisis among neighborhood residents, like that offered by many New Orleanians, is that the Corps of Engineers failed in its responsibility to maintain levees that were, in fact, doomed from the beginning.

REHABILITATING THE MODERNIST LANDSCAPE

Pontchartrain Park's location on low ground presents real challenges for rebuilding, but many community members are determined to return to their homes. However, reclamation is impossible without change. The rehabilitation of Pontchartrain Park's Modernist landscape offers the possibility of a sustainable future. That landscape was central to all three of the agendas that shaped the neighborhood: its domestication meant the triumph of technology over what had been an uninhabitable wilderness; its open character offered light, fresh air, and the promise of good health to modern city dwellers; and its archetypal suburban amenities spelled out the prosperity and social arrival of a community that history had marginalized. Conceived and constructed for public amenity and civic beauty, the streets, gardens, and common spaces of Pontchartrain Park have, in many ways, made the neighborhood's identity. In the wake of Katrina, the landscape has an urgent new task: the places that the neighborhood has valued for their image must also act as infrastructure to slow and hold water. Pontchartrain Park suffered because its design ignored the paradoxical ecology of southern Louisiana, and addressing that dilemma is the only way to restore the neighborhoods to health. Their preservation as cultural landscapes demands their transformation with respect to natural systems.

A CASE STUDY FOR NEW ORLEANS AND BEYOND

Pontchartrain Park raises questions that face all of New Orleans and that apply to some degree to almost every city in the United States. How can the role of urban landscapes as cultivated places be expanded to make them productive places? How can their iconographic value be extended ecologically? How can landscape spaces, networks, and systems be reconceived and remade as infrastructure? How can landscape expression serve to educate and remind residents about the fundamental conditions of the places they inhabit? The neighborhood is an ideal case study for landscape urbanist practice in New Orleans and across the country; its dilemmas are extreme but by no means unique.

The biggest dilemmas facing New Orleans—levee failure, coastal land loss, and the future of the Mississippi River—demand government intervention across southern Louisiana, and, in the end, the future of Pontchartrain Park rests on the resolution of those questions. However, that does not diminish the urgent need for action at the scales of the neighborhood, the block, and the home garden. Pontchartrain Park has trouble with water even with the heavy rains that characterize New Orleans' climate. Beyond that, the neighborhood will never escape the risk of another *Katrina*. Redirecting, slowing, and holding water are tools for minimizing the nuisance of low-level flooding, and they can mitigate damage in a catastrophe. Hydrologically sound strategies for landscape rehabilitation may also become ways to argue for insurance and tax abatements. If, for instance, homeowners can demonstrate that their gardens take up enough water to prevent damage to their houses, they may qualify for lower-risk premiums than they would otherwise. If the neighborhood can prove that it is not contributing surface runoff to the city's stormwater system, why not request the reallocation of public funds toward other services? Reconsidering these neighborhood landscapes as infrastructure expands the range of their meaning: it gives them practical, ecological, economic, and political value.

Coming to terms with the ecological conditions of the reclaimed ground of the cypress swamp is essential to the future of Pontchartrain Park. This will mean making changes to the neighborhood's cultural landscapes, but those transformations can support and enrich the essential qualities of the place. Design in this historically significant neighborhood has a double mandate: to develop strategies for drainage, planting, and use that will improve the landscape's hydrological performance and to maintain its highly valued image of propriety, order, and respectability.

Pontchartrain Park's non-profit corporation, which was established to facilitate post-Katrina recovery, is working toward an integrated design for the rehabilitation of the neighborhood. As researchers and academics, we are assisting them, in concert with New Orleans' Longue Vue House and Gardens, the former home (and now National Historic Landmark) of philanthropists Edgar and Edith Stern, who incorporated Pontchartrain Park Homes, Inc., to finance the building and marketing of houses to Blacks in Pontchartrain Park. Reaching our shared goal of rehabilitating the neighborhood means answering technical, legal, and formal questions. Firm numbers will be calculated to determine how much water can be held by plants, cisterns, and green roofs. From there, the neighborhood's ability to manage storms of different severities can be calculated, and more definite models about the impact of landscape infrastructure on conventionally engineered systems will be prepared. New legal structures are needed to hold unoccupied land in trust. While some house lots will be developed through projects overseen by the New Orleans Recovery Authority (NORA), the entity responsible for developing properties sold to the state in the Road Home programme, still other properties, the future of which is in question, might conceivably be administered by a newly constituted community development corporation or other non-profit organization. Finding ways to permit the productive use of the ground without impeding the right of return is a critical step toward rehabilitation. It is also essential to establish a conservancy to administer Pontchartrain Park, since the city of New Orleans lacks the resources to bring the park back to a useful, healthy state.

We have been working to develop a series of design strategies that arise from a collaborative community process. Longue Vue has supported this work, which involves students from four universities and a cadre of nationally recognized landscape architects and urbanists.⁴ We caution that any design idea must be considered in relation to others proposed. That way, a phased agenda for rehabilitation can be productively and sustainably developed. Each strategy stands on its own, and it complements the others: any one of the ideas we are proposing could be implemented by itself or as part of a suite. The strategies are organized in four groups according to their scales: *Houses and Gardens*; *Community Networks*; *Pontchartrain Park*; and *All Around the Neighborhood*.

NOTES

- 1 Two public housing developments, Desire and Florida in New Orleans' eastern Ninth Ward, were built on Morrison's watch. They became notorious for their isolation, poverty, and crime. Their future in the wake of Katrina has been the subject of intense public debate.
- 2 See Campanella, R., 2006, *Geographies of New Orleans, Urban Fabrics Before the Storm*, University of Louisiana at Lafayette and 2002, *Time and Place in New Orleans*, Past Geographies in the Present Day, Pelican, Gretna, Louisiana. See also Colten, C. E., 2000, *Transforming New Orleans and its Environs*, University of Pittsburgh Press and 2005, *An Unnatural Metropolis, Wrestling New Orleans from Nature*, Louisiana State University Press, Baton Rouge.
- 3 Pontchartrain Park was developed in conjunction with a whites-only subdivision, Gentilly Woods, also constructed by Crawford Homes. Both neighborhoods were built in the service of Mayor Morrison's agenda for municipal social progress in the "separate but equal" era, and they offered identical lot sizes and housing models; see Crawford Homes Incorporated, "Gentilly Woods Planbook" (n.d., ca. 1951) in the Louisiana Division/ City Archives of the New Orleans Public Library. With "white flight" that accompanied mandatory school desegregation in New Orleans after 1960, the racial component of Gentilly Woods shifted to become predominantly African American, and the once separated neighborhoods forged a collective identity—Pontilly—in the 1980s, understanding the recreational spaces of Pontchartrain Park as shared amenities and establishing a unified Pontilly Neighborhood Association.
- 4 Participating universities include: Louisiana State University, Southern University Baton Rouge, Tulane University, and University of Virginia. Landscape architects and urbanists include: Julie Bargmann, Mia Lehrer, Elizabeth Meyer, William Moorish, and Elizabeth Mossop.

Mountains and Modernity

BERNESE MODERNIST BUILDINGS IN ITS ENVIRONMENT

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In the recent book, *Switzerland, a portrait of urban development*, architects of the ETH Studio Basel present Switzerland as an unsatisfying model of decentralised urbanism.¹ Their challenge of change suggests a new hierarchic segregation of Swiss regions: from metropolitan regions over urban networks and silent areas to derelict land in the central Alps. This hierarchic model, however, misconceives the decentralised structure of the country itself, and the balanced relation between urban and rural regions, tourist areas and natural resorts. Yet the most glaring oversight of the work is its ignorance of the evolution of modern Switzerland: since 1850, while constructing a romantic image as tourist resort and 'playground of the world', the country passed through a strong process of modernisation and nation building², firstly in terms of modern infrastructure and its buildings, and secondly, since the 1920s and 1930s, with the emergence of Modern architecture itself.

This paper addresses the issue of the Modern cultural landscape of Switzerland as an integrative model, and one which is still valid. It also examines the influence of Modern architecture in environments known for their strong historical or romantic connotations. On the one hand, Swiss Modern architecture of the 1920s and 1930s made visible the new lifestyle of the modern society, as it was claimed by Sigfried Giedion and others. On the other hand, Modernist buildings embodied a new relation between people, and introduced a notion of nature that became part of an active and healthy leisure culture to this day. This will be exemplified in the Bernese region that connects the Alpine Highland with the lake-district at the foot of the Jura Mountains.

The topic of Swiss landscape in its development since the age of Enlightenment passed through four determinative stages until 1939. This was a process of projecting normative images of a *typical* Swiss landscape, as well as a forced modernisation with modern infrastructure and its buildings, at least to open up the Alps as a tourist resort and to overcome the natural barrier with main North-South railway tracks. Not by chance the Swiss railway (SBB) has become the national metaphor³ connecting different areas, languages and cultural regions.

Since the 18th century the Alps, first represented in the paintings of Caspar Wolf, achieved the state of an "absolute landscape" where "delightful horror" and "terrible joy" were shifted step by step to the Romantic construction of an harmonic relationship between man and nature.⁴ This Romantic image of Switzerland in a third stage was confronted with an extremely rational approach combined with an unshakeable belief in technological progress. Under these premises a new wave of infrastructure projects between 1880 and 1914 posed a challenge to nature and represented its subjugation. One of these exposed projects was the Jungfrau Railway, founded by the entrepreneur Adolf Guyer Zeller in 1896 and opened first in 1912. Instead of the planned terminal station at the Jungfrau top at an altitude of 4,152 metres, the project had to stop at the Jungfraujoch (the "Top of Europe") at 3,454 metres. Nevertheless, from the very beginning the project represented both a unique tourist destination and a triumph of techniques in the glacier

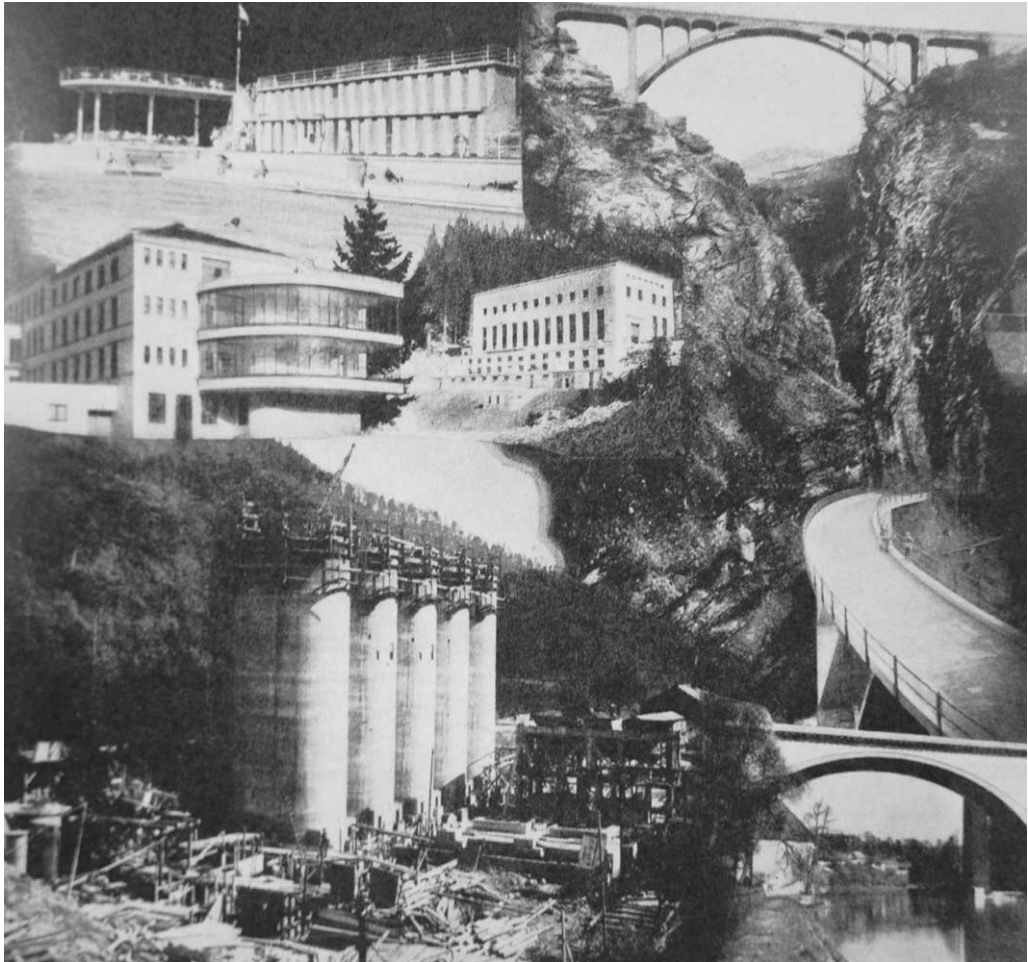


Figure 1. *New Building in Switzerland, Collage (showing sun bath Wengen, Salvisberg's Lory Hospital, the Grimsel power plant, and several bridges of Maillart)*
Moderne Architektur in der Schweiz, Zürich: Bentelli 1932.

region. Such enterprises were based on high-technology infrastructure but had no equivalence in architecture. After World War I the industrial/technical approach finally reached Alpine architecture. Ambitious environmental projects such as the Grimsel dam with related power plants, built between 1927 and 1932, not only reshaped the landscape of the Higher Aare Valley, but also tried to find a convincing harmony between technical structures and service buildings. But these buildings were not part of the architectural discourse. They served as monuments for structural engineering and as advertising for new building materials like reinforced concrete. Although the structure of the buildings was almost covered by stone-cut façades for “Heimatschutz” reasons, radical avant-gardists like the ABC-Group around Hans Schmidt and Mart Stam praised such buildings as an embodiment of the modern qualities of the machine age.⁵

A radically new and different approach to landscape was undertaken in the fourth stage, together with a radical modern architecture itself in the years after 1930. Besides new technical approaches, the issue of “the New” was central: a new man/woman, a new coenesthesia, a new life-style. Emphasized by Joseph Gantner and Sigfried Giedion⁶ two issues arose in the Swiss debate: sports as a new collective force, and freed habitation as an expression of the new life-style

being light, transparent, and flexible. Both were claimed as principles in the education for new functional style with environmental aspects (fig. 1).

In addition to villas, two major building-types were addressed, the Alpine hotel and swimming baths, both related in a specific way to the image of the Swiss Romantic landscape. Both building-types were not only indicators for a new approach of the Swiss urban society towards the rural regions, but at this point they definitely became part of the urban-culture itself, not only as a part of tourist resorts in the mountains, but an extension of the city into the land. This relationship was discussed widely by contemporary town planners and architects and brought up two models that are comparable to the Swiss situation around 1930, the Broadacre City of Frank Lloyd Wright (1932) and Marin Wagner's "Stadt-Land-Stadt" (1934).⁷

It is obvious that this debate was not only about architectural design but also gave rise to strong ideologies. The conservative Romantic image of the Swiss mountains and its defenders from the Swiss "Heimatschutz" stood up against modern rational architecture. But shortly before the outbreak of World War II, when Switzerland gained self-identity on the so-called "mental national defence" (*geistige Landesverteidigung*), the grand state exhibition in Zurich of 1939, the "Landi", reconciled not only modernists and conservatives, but presented modern architecture and techniques as the *raison d'être* for, and integral part of, Swiss society.⁸ This happened quite programmatically as a defence against totalitarian neighbours such as Nazi-Germany and Fascist Italy.

One of the first impressive buildings with an avant-garde character was the twin hotel building *Hotel Alpina* and *Hotel Edelweiss* (fig. 2) in Mürren in the Jungfrau region, built 1927/8 by Arnold Itten (1900-1953). "The sentiment of the grand-fathers, called Chatelet-Style, will be



Figure 2. Arnold Itten, *Hotel Alpina* and *Edelweiss*, Mürren, 1927-1928.
Walter Amstutz. *Neue Wege im Hotelbau. Hotel Alpina und Hotel Edelweiss*
von Arnold Itten (Schaubücher vol 6), Zurich: Orell Füssli 1929.



Figure 3. Beach bath, Biel, 1932, design.
Strandbad-Biel, Plage de Bienne, Biel: Genodruck, 1932.

replaced by a functional Heimat-Style. Until now gastronomy had no experience with practical architecture." Itten's hotel made a strong impression with its clear shaped wings, the long, light balconies and roof terraces, combined with a sober interior. Walter Amstutz's presentation of the building as a prototype for forthcoming hotel buildings praised the relation to the high Alpine landscape: "Between the Romantic environment and man-made structure prevails complete harmony."⁹ The impression of the building in this "sublime" environment should only emerge from the distribution of shapes and masses, combined with a convincing, harmonic disposition. Itten was one of the first, but not the only one. In the famous ski resort Davos (canton of Grisons), Rudolf Gaberel (1882-1963) designed two important sanatorium buildings between 1932 and 1934. These buildings were characterized as organic and even iconographic. Through their shape and distribution of masses they were compared with "a starting airplane".¹⁰

Around 1930 a new notion of mental and social health, combined with social welfare, became part of architectural design. What in the case of Itten was purchased by private clients was now connected with the trade unions or municipal welfare organisations. This was also the case in the nursery building by Otto R Salvisberg (1869-1940) and Otto Brechbühl, designed in 1929, and located in the surrounding park area of Berne. The sober elegant building with curved exposed corner balconies represents the social welfare conception of that period that is focused on the young, poor and disabled persons, who were not catered for in respect of social housing, a topic most popular in Germany and Austria during the 1920s.¹¹ Most typically, the solitary building is exposed in a park environment with an outlook to the Alps as a panorama, a distant mirror which emphasises the isolated character of such types of buildings.

A more open approach, socially and collectively based, was transformed in some of the most advance Swiss swimming baths built in the canton of Berne in the 1930s. Although almost unknown, even in the Swiss modernist research debate, but they also represent a substantial part of the modern building movement in Switzerland during the 1930s.

These baths can be considered under four categories: Firstly pioneer projects in modern building around 1930, such as the baths of Interlaken, and the multi-functional bath Ka-We-De in Berne; secondly, modern baths as part of an overall urban modernisation, such as the Biel-Niddau bath; thirdly, the bath as a programmatic expression of a new life-style and formation of a new collective, that was the case in the baths of Thune; and finally, the bath as a highly specialised building task with genuine design and engineering qualities, as it is the case in the oeuvre of Béda Hefti with his projects in the Highlands.¹² In all cases, reshaping the landscape was essential.

The Ka-We-De in Berne (1929-32 architects Rudolf von Sinner, Hans Beyerle) was a multi-functional modern project, serving as an ice-stadium in Winter and as a swimming bath with additional wave-pool in summer. Located at the edge of Berne, it represented a uncompromising modernity in a garden-city-like neighbourhood.¹³

The Interlaken beach bath by Urfer & Stähli, under assistance of Hefti, (1929/30) was not only one of the earliest modern baths of impressive dimensions, but also an independent statement of modern leisure- and sport-architecture. Some elements, like the segment shaped pavilion referred to Gunnar Asplund's Stockholm exhibition from 1930, others, like the double storey terrace building, is related to Martin Wagner's famous Strandbad Berlin-Wannsee (1928-31). But in total, the finely designed elements such as the pavilion, the clock-tower, and the terrace-building created a complex in practical harmony. That was also the case in the Biel-Niddau bath by the Bienne City-planer Otto Schaub (fig. 3). Here the project opened the modernization of Biel to the seafront of Lake Bienne.¹⁴ The two storey restaurant-building, with sun-decks, crowned by a short massive tower, shows clear reference to the intensively discussed Dutch health projects such as the Zonestraal sanatorium near Hilversum by Duiker.

The soberly designed Thun beach bath by Jacques Wipf and Schweizer (1932-33) emphasised the meaning of active leisure culture, which was representative of a new young society. Thune,



Figure 4. Beach bath, Thune, all-over view with the Jungfrau mountain massif.
H. Staub, Strandbad Thun, Thune: Buchdruck AG, 1933.

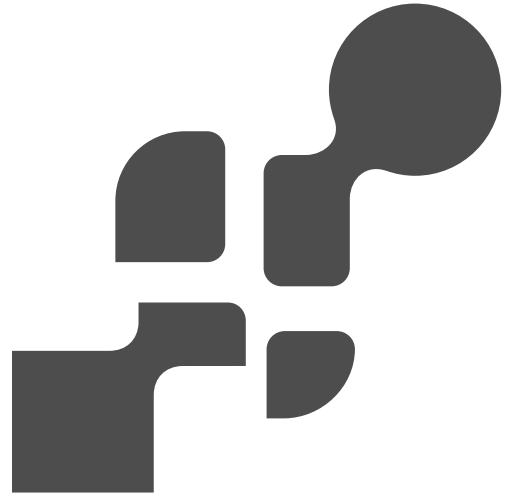
as a gate to the Oberland, offered an “unequalled location and the beauties of beach and high Mountains that allows the nature lover unforgettable impressions”¹⁵ (fig. 4).

With the projects of Adelboden and Wengen, located directly in the high-mountains, the soberly elegant design not only continued, but represented modern urban culture as a counter-point to, and in harmony with, the glacier region. Its architect and engineer was Béda Hefti (1897-1981) who became one of the bath construction specialists from the 1930s to the 1950s. Its geometrical shape and playfully colourful design, as a link to the 1950s like in the bath of Adelboden, stood in contrast to the sublime environment.¹⁶

The approach of a new building in this special Swiss environment, first of all questioned the Romantic self-image of the country. Flat roofs and soberly shaped cubes caused deep debates about traditional “Heimatstil” and radical Modernism. But the “Landi” in 1939 presented a new union of technique and nature; of modernism based on tradition. Facing political pressures by their totalitarian neighbours, Switzerland in 1939 formed a new harmonic self-image on modern roots and a democratic tradition, represented by modern architecture.¹⁷ This process prepared Switzerland for a modern leisure society driven by two apparently conflicting forces: that of ‘individual mass-tourism’ on the one hand, with all its comforts, and the image of an environment overlaid with romantic connotations on the other hand. This represents a challenge to modern Swiss society, and a process which continues to this day.

NOTES

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- 14 cf. Strandbad-Biel, Plage de Bienne, Biel: Genodruck, 1932.
- 15 Staub, H., *Strandbad Thun*, Thun: Buchdruck AG, 1933.
- 16 *Architekturlexikon der Schweiz*, ed. by Rucki, Isabell, Huber, Dorothee, Zurich: Birkhäuser 1998, p. 259, cf *Das Bad in Heiden/Appenzell*, GSK Kunstführer, Bern: GSK 2007.
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Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Meandering on Modern Ensembles

Education in Transformation

Technology, Progress and Sustainability

Meandering in Modern Ensembles

INTRODUCTION TO THE SESSION

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The second session of the sub-theme *Shifts in Programme and Flexibility* is dedicated to case-studies regarding ensembles at the scale of the city. The papers deal with a neighbourhood, a university campus, urban infrastructure and housing. Although the different approaches discussed are urban scale schemes, the key module at which to consider their transformation is the building, where one of the main issues of the whole conference emerges: "What are the limits of the strategies of flexibility as developed by the Modern Movement? And when transforming a Modern building, is it necessary, or desirable, to maintain those original strategies of flexibility?"

This session contains a peculiar collection of Modern architectural experiences, spanning from the thirties to the 1970s, in three continents – Africa, Europe, South America, and five countries – Brazil, Chile, Morocco, Portugal and the United Kingdom. They possess complex compound backgrounds, cultures, and in particular, different understandings of the meaning and aims of the Modern Movement. Whereas the United Kingdom's architecture could be considered part of a highborn modernity, those of the other countries presented are less well known in the international panorama. The case-studies include Modernist icons such as Oscar Niemeyer (b. 1907) and Denys Lasdun (1914-2001), as well as being set in distinctive contexts. These include the Welfare State in the UK, different dictatorships in Brazil and Portugal– both known as *Estado Novo*, and the transition from colonialism to independence in Morocco. These conditions create Modernist works with diverse ideological framing, in spite of apparently similar responses as architectural artefacts. For such different ideological narratives, Modern architecture is a spine that is simultaneously innovation, a search for identity, underground resistance, and reminiscence of an unwanted recent past - This is a kind of unconscious flexibility.

Authors were invited to look at their ensembles from their inception to the present. Brazil, Chile, Morocco and Portugal are now considered developing countries. Imagine their economic and social situation in the mid-20th century, and their architects adopting Modern principles within conservative settings. The public shock at Modern architecture was as pronounced in underdeveloped countries as it was in the developed world. Nowadays, debased Modern values have become embedded in people's lifestyles. New generations are appropriating this Modern heritage from a different point of view to their earlier creators and users. The reception of Modern architecture is changing more than half a century after its creation. The five authors offer us the opportunity for an information exchange of different ideas and experiences, reporting the successes and failures of the Modern Movement under the conference's banner 'Challenge of Change'.

The Curves of Time: Pampulha, 65 Years of Change

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The most famous slogan of modern architecture, *Form follows function* seems to be strongly challenged by the work of Oscar Niemeyer who celebrated his 100th birthday in 2007. According to Niemeyer, it was the “Pampulha Complex”, the first major project of his own, that offered him, in the early 1940s, the opportunity to “challenge the monotony of contemporary architecture, the wave of misinterpreted functionalism that hindered it, and the dogmas of form and function that had emerged, counteracting the plastic freedom that reinforced concrete introduced”.¹ In his memoirs, he confesses that in the Pampulha project he was attracted by the curve “the liberated, sensual curve suggested by the possibilities of new technology yet so often recalled in venerable old baroque churches”, protesting against “this monotonous and repetitive architecture, so easy to elaborate that in a short time it spread quickly from the United States to Japan.”²

In our view, the “Pampulha Complex”, now 65 years old, represents an interesting case study to the question of flexibility in modern architecture: how flexible are actually those buildings like Niemeyer’s that instead of deriving from function seem to emerge primarily from form, disregarding “the right angle and rationalist architecture designed with ruler and square to boldly enter the world of curves and straight lines offered by reinforced concrete”?

A SUBURBAN UTOPIA

Commissioned by another icon of modern Brazil, Juscelino Kubitschek, then mayor of Belo Horizonte and later the President that built Brasília, the ensemble was composed of a series of buildings that were developed in a new suburb to the north of the city, called Pampulha. The programme was ambitious but simple, including a casino (Cassino), a dance hall and restaurant (Casa do Baile), a yacht club (Iate Clube), a church (Igreja de São Francisco de Assis), and a 100-room hotel (never built), distributed around an artificial lake.

In his autobiography, Juscelino describes Belo Horizonte in 1940 as a “brand(?) new city”, and “therefore in need of so many things.” “It looked more like a garden”, he writes, “than an urban center.” When it was built in 1893, it followed the geometrical order “imposed by the grid developed by the Engineer Aarão Reis, head of the Building Commission.”³ That original conception however had been long surpassed by its rapid growth, and when Kubitschek becomes mayor, he finds the city “ill”: a “sick person in a flower bed”, a literary metaphor that betrays his professional background. He then undertakes a bold modernization plan that changes the urban image. One of the main components of his administrative action, together with the redevelopment of the city center, was to be the completion and the enlargement of the urban grid to the west, in the direction of the newly established industrial district, and to the north, giving access to that enterprise that would be syntheses of his conception of a modern city: Pampulha.

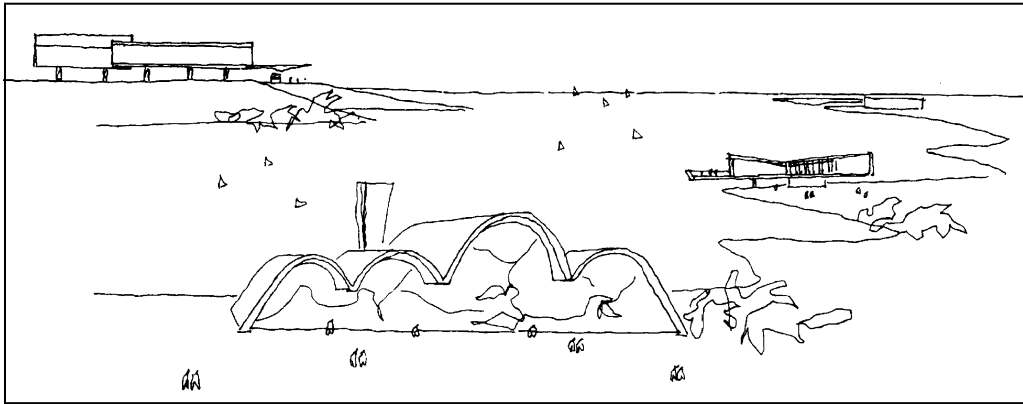


Figure 1. Pampulha Complex – drawing by Niemeyer
Source: Fundação Niemeyer.

As was common in many other Latin-American capitals at the time, Juscelino planned to develop an entertainment complex in this area, on the border of an artificial lake that had been established some years before; a kind of counter-image to the dense downtown with its new skyscrapers. When the French beaux-arts urban planner Alfred Agache visited Belo Horizonte in the early 1940s, he suggested that Juscelino implement a “satellite city” in Pampulha, a conception that would reinforce the importance of its remaining a predominantly rural area that would provide food to the city, and would, at the same time, would house the working classes as well.

Kubitschek however, had in mind another – more ambitious – project that would place Belo Horizonte in the foreground of the national scene: instead of a social project, he dreamed of an exclusive neighborhood around the artificial lake where luxurious homes would mingle with leisure facilities.⁴ Underwood comments: “Modernity at Pampulha was to consist of an artificial Utopia, a center of pleasure and diversion for the upper classes.”⁵ But leisure and free time were not the single interest of the mayor in this enterprise: as early as the 1940s, Juscelino would emphasize another vocation of the region, stressing the importance of tourism for the economy, “one of the most profitable industries that a city can possess, notwithstanding it has been affected by the World War.”⁶

Those intentions, however, were never embodied in an overall master plan for the region, which was eventually developed in a manner driven by market forces. From the very beginning the speculative perspective prevailed: privileged members of government, industry, and finance bought up cheap lots there, boosting real estate values and private development. But nonetheless, this development has not been enough to change the general tendency of that region – pointed out by Agache – to house the poor. Therefore the main idea – to create an exclusive neighborhood and an entertainment complex at Pampulha – fails, in the face of the actual urban dynamics. In these 65 years, societal changes have caused a strong transformation in the urban context of the Complex that remains today an island of prosperity among a few middle-class and hundreds of popular neighbourhoods.

On the other hand, the ensemble itself has suffered over the years from other unforeseeable problems including President Eurico Gaspar Dutra’s 1946 prohibition of gambling, the discovery of parasites in the lake, and the breaking of the dam and resulting fall in the water level in the 1950s. But the worst problem arose in the 1970’s, which was the pollution of the lake, originally planned to be the element that would articulate the Complex. Instead of supplying the capital with water, the reservoir became a huge sewage receptacle, inadequate for water sports or any other use. Some ambitious cleanup and rehabilitation projects have been announced from time to

time, but little had been implemented up until the 1990s, when a new project funded by World Bank funds, was initiated to clean up the lake in the coming years. Niemeyer's designs, therefore, in Underwood's words, "were betrayed by circumstances and remained isolated, pristine, and devoid of their intended functions".⁷

FROM CASINO TO MUSEUM, FROM DANCING HALL TO DESIGN CENTER

In Juscelino's description of the casino, one sees clearly the prominent role it was meant to take in the ensemble: "We wanted to prepare the casino for tourism. We aimed, above all, to provide Belo Horizonte with a work that would not only reflect its vertiginous progress but would be a mirror of its culture as well. For these reasons, we made all possible efforts to provide the Capital city with an original, attractive, and modern work of art (...)". Created to be an icon – *original, attractive and modern* – the casino should not have any trace of traditional architecture language: that's why the mayor vetoed the projects chosen by means of an architectural competition, and hired the young, then unknown architect, Oscar Niemeyer.

In one of his books on Niemeyer, Stamo Papadaki presents two diagrams that illustrate the relationships of the various functions of the casino – the magnificent lobby, the game room, the restaurant and theater, toilets and services, and the performers' dressing rooms – and how they are expressed spatially in the three distinct but interconnected volumes. When one analyzes these spatial relations, one notices, following Papadaki's remarks, that "in the absence of functional data, lacking any programmatic restraint and with a circulation flow, the pattern ... was left entirely to his imagination", Niemeyer ends up producing "a rather sober building with severe contours, in which the play of the inner and outer spaces, the floating ramps, the contrasts in room



Figure 2. Casino, later Museu de Arte da Pampulha (MAP)
Source: Laboratório de Foto-documentação Sylvio de Vasconcellos.



Figure 3. *Casa do Baile, later Architecture and Design Centre*
Source: Laboratório de Foto-documentação Sylvio de Vasconcellos.

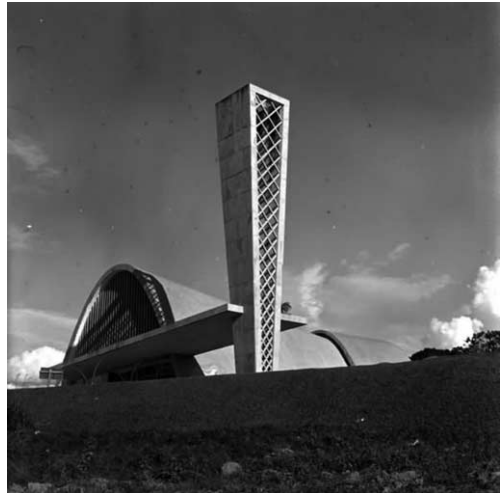


Figure 4. *Saint Francis Church*
Source: Laboratório de Foto-documentação Sylvio de Vasconcellos.

heights and the absence of continuous visual barriers are the only elements of this 'architecture of pleasure'.⁸ According to Papdaki, the acceptance of the non-functional as a legitimate architectural task, as happens in Pampulha, marks a "turning point in the modern architectural movement". Niemeyer himself, however, had a larger understanding of what constitutes functionality in a building like the casino: "when it functioned as a casino", he wrote, "it fulfilled its finalities, with its marbles, its steel columns, and the bourgeoisie, elegant, exhibiting itself through its ramps."⁹

The prohibition of gambling however made it obsolete and the municipal administration was faced with a difficult task: to find a new use to a building designed specifically to be a casino while providing at the same time, a symbol of the whole "Pampulha project". In this case, prior to the question of how to proceed to accommodate new programme, was the need to define a new use compatible with the iconic building. At first, the administration took a conservative approach, trying to retain the function of a dancing hall, but in the absence of its main attraction – gambling – it failed to attract enough public to keep it running. This first re-use was not problematic, as the various extant functions in the casino would be maintained, needing only small adaptations that would not disturb the architect's original conception.

However, in 1951, after a series of failures, the mayor Otacílio Negrão de Lima passed a law that enabled him to negotiate an agreement with the State government to transform the casino into a luxury hotel. That proposal found strong resistance from the public opinion as it would imply a radical transformation of the Casino, or even the possibility of having it become integrated with new buildings. Another attempt, more conservative in relation to its programme, was then undertaken: to change it into a restaurant and a night club, called "Boite Pampulha", that, in spite of its being run by a famous orchestra conductor, was also a fiasco. The same could be said of the establishment there in the 1950s of a "Pocket Theatre", a new theatre for performances that would rely for their effect on a small stage and intimate settings, which occupied the space destined to be the dancing hall.

Finally, in 1957, the building became the "Museum of Modern Art", nine years after receiving the "Exhibition of Traditional Art", organized by the National Heritage Agency (SPHAN) on the occasion of the Capital city's fiftieth anniversary. To be reconverted into a museum seemed an adequate solution to the legal obsolescence, and to house modern art also seemed natural to a building designed from the very beginning to be *original, attractive... and modern*. But, notwith-

standing, this recycling posed a series of problems to the museum administrations as how to deal with the glass walls, and the absence of any suitable space for a storage area for the collection. Moreover, the building did not seem to be appropriate to house the traditional functions associated with a museum – conserving, studying and presenting artworks. This difficulty however has been overcome in recent years, as contemporary art has changed the relationship of the work to the museum itself, and interventions and performances have become mainstream art. The museum is treated now as an artwork itself, and the performances and interventions relate to it, as a special modern icon.

A similar destiny was reserved for the dancing hall (Casa do Baile) that was planned to be a popular counterpart to the Casino. Inaugurated in 1943, it was acclaimed worldwide for its free use of concrete structure and its superb dialogue with the natural scenery.¹⁰ In this building straight lines are almost entirely absent and the curve prevails, “echoing the swaying movements of the samba that was to be danced there”, writes Underwood, “its form perfectly fits its function”. However, as the original implementation of the Pampulha Complex failed, the building remained long abandoned until it was restored in 1985, becoming an extension of the Museum of Modern Art. After a short period in which it functioned as a restaurant, it was restored again in 2002, this time under the supervision of Oscar Niemeyer himself, to become the municipal Center for Design and Architecture. It’s interesting to notice that its recycling into a restaurant – a function that in a certain way echoed the building’s original destination – met the opposition of certain circles, especially those related to preservation and Niemeyer himself, who strongly criticized the changes introduced by the restaurant’s owners.

FROM ENTERTAINMENT TO CULTURE: THE FUTURE OF A MODERN HERITAGE?

This last episode reveals the difficulties of adapting the buildings of the Complex, not for physical or programmatic reasons, but mainly because of the strong symbolic function they have been performing over the decades. From the very beginning, Niemeyer’s buildings have been seen as symbols of modernity, and valued or attacked as such. While the population identified the enterprise with a new Brazil that was being forged by Kubitschek’s modernization programme, conservative forces viewed it as unnecessary and provocative. This can be superbly illustrated by the polemic around the Saint Francis Church that, although considered by many critics the masterpiece of the Pampulha Complex, suffered the Catholic Church’s refusal to consecrate it for fifteen years. The reaction provoked by its unusual design and typology was violent, and one mayor even insisted on its demolition and replacement by a replica from the colonial town of Ouro Preto. In response to that, the Office of National Artistic Patrimony intervened and listed the Church as a “national monument”, so that, in 1947, only four years after its completion, the modern building achieved heritage status and became an object of contemplation. Today, after having been fully restored, it stands empty, void of its original benches, so that the public can enjoy its architecture, panels and paintings from all angles.

It is not difficult to see that although all these buildings have not suffered substantial physical changes over the years, their re-use has necessitated their conversion into cultural institutions; even a religious building like the Saint Francis Church had its primary use surpassed by its iconic force. It is as if the aura they have attained had displaced entertainment for the sake of culture, subverting their original destiny and making the Complex more elitist. But, in spite of all that, the fact is that the precinct is still a very popular destination to people all over the city, especially those from the poor neighbourhoods nearby, as is shown by recent research funded by the City Government, that also points out that most of the people identify Pampulha with its natural attributes; it is a place to relax and enjoy the beautiful scenery¹¹. As Lucio Costa remarked on the appropriation[word choice – reception is probably better than appropriation, but I’m not sure of your intent] of Brasilia, “people always know better”.

NOTES

- 1 Niemeyer, 2000, p. 62.
- 2 Niemeyer, 2000, p. 169-170.
- 3 Kubitscheck, 1975, p. 18-20.
- 4 Mello, 1980. "I disagreed with the famous urbanist. What I had in mind was to make use, in benefit of Belo Horizonte, of the beauty of that place with the artificial lake to be surrounded by luxurious residences, with entertainment facilities nearby." (Kubitschek, 1975, p. 34)
- 5 Underwood, 1994, p. 54.
- 6 Kubitscheck, 1947, p. 38.
- 7 Underwood, 1994, p. 69.
- 8 Papadaki, 1960, p. 61.
- 9 <http://www.niemeyer.org.br/Oscarniemeyer/arquitetura.htm>.
- 10 Underwood writes: "The attention to the natural landscape, the sensitive scale and proportion, and the unity and continuity provided by the circular plan of the dance hall, which takes up the curving theme of the canopy in its exterior, all contribute to this successful design." (Underwood, 1994, p. 61)
- 11 Penna, 2007.

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Moroccan Modernism Revamped

FLEXING BETWEEN INFRASTRUCTURAL OPPORTUNISM AND HERITAGE COMMODIFICATION

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Morocco possesses a rich and diverse modern architectural heritage that was produced during the French colonial area and the first two decades after independence in 1956 under the influence of Mourad Ben Mbarek, a young, French educated, Moroccan architect and a disciple of Le Corbusier. The backbone of this heritage that spans the eras of later colonialism and early independence comprises major public buildings such as train stations and airports, but also innovative domestic architecture that developed an avant-garde formal vocabulary. However, following a nationalist upsurge in the 1970s and the subsequent promotion of regionalist architecture, Moroccan modernism was abandoned, as it was perceived as reminiscent of both a repressive imperialist past and an enduring western dominion. While the modern buildings were left to deteriorate or to be destroyed, Morocco's population and urban centers doubled in size without the development of sufficient public infrastructure and programmes.

These shortages, combined with the emergence of preservation and awareness groups such as Docomomo Maroc and Casa Mémoire, the State's aggressive policy of privatization, and the inaction of governmental bodies, have led to the recent re-investment into modern buildings in order to answer the pressing needs of Moroccan cities. For this purpose, some interventions targeted modern buildings that offered significant infrastructural assets such as the airport at Tit Mellil (1949) or the Sidi Harazem Thermal Bath (1965), both designed by Jean-Francois Zevaco. These re-use projects of long neglected modern structures, were achieved while maintaining the original programme and architecture intact, yet introducing updated technical facilities. The second typology of current modern heritage re-use involves the re-programmemeing of iconic modernist villas into public institutions that often require conspicuous exposure. These grand mansions and their extensive gardens are converted by private entities and NGOs into art museums or galleries with affixed public gardens, like in the case of the Villa des Arts in Rabat, which was originally designed in 1929 and rehabilitated by Mustapha Alaoui in 2006.

Based on the analysis of two of those specific cases and their unpublished rehabilitation documentation, this paper seeks to study the relationship between the re-use of the highly specific programmes of the modernist heritage (infrastructure and private homes) and the needs of contemporary Moroccan cities. Most importantly, the paper will stress that in Moroccan Modernism the notion of flexibility, which was so central to the Modernist movement in the 1960s and 1970s in the West (ex. Le Corbusier's Venice Hospital)¹, was not embedded in an architectural discourse per se, but rather, came as a superimposed necessity which transcended programmatic specificity to allow for convertibility. As such, the paper will demonstrate that within a developing world context of stringent economic pressures and growing political disengagement from the urban public arena, the resilience of modern buildings allows them to become efficient means to palliate the scarcity of adequate public facilities and infrastructure.



Figure 1. Aerial view of the United Nations Plaza, Casablanca (2004)

Source: scan from Moroccan postcard. Photo: anonymous.

REACTIVATION OF MODERNIST PUBLIC INFRASTRUCTURE

The first type of transformation, or the upgrade and re-use of modern architectural heritage, is born out of the sheer necessity for public amenities, whose replacement or creation would involve very high costs, that neither the government nor the private sector could absorb. I will illustrate this new trend by a case study designed by the architect Jean Francois Zevaco: the United Nations pedestrian underpass and park.

United Nation plaza pedestrian underpass

With access banned for the past two decades due to its dilapidated state and its occupation by petty criminals, this underpass project was completed by Zevaco in 1974 to answer the congestion caused by cars in the bustling metropolis of Casablanca. Today, this condition has worsened, since Casablanca, the economic capital of Morocco, has experienced an unprecedented demographic boom in recent decades, reaching 4 million inhabitants in 2005 according to the official census (and 6 million unofficially). This renders Casablanca the 6th largest metropolis on the African conti-

nent. Its population and urban periphery proliferated without a parallel growth of public infrastructure, which remained minimal. Limited to few bus lines, the number of cars equated in 2005 to 37 % of all of Morocco's cars. Casablanca still uses the infrastructure of the master plan etched by Ecochard in 1946 whose estimated population projection was 1 million! Even the master plan proposed in 1986 to alleviate such infrastructural inefficiencies was only partly followed.² In 2005, the mayor of the city of Casablanca launched the *Plan de Déplacement Urbain* (PDU) which proposed a subway, a tramway, and a new upgrade of signalization and bus lines. While those projects are being further studied and launched, punctual actions have begun to decongest Casablanca in a palliative manner, while offering much needed green open spaces. In fact, in Casablanca, there is less than one square meter of green space per inhabitant, less than the ten square meters recommended by the World Health Association.³ The rehabilitation of the United Nation plaza underpass is one of these actions: it capitalizes with little financing on an abandoned pedestrian underpass, reactivating its original function, relieving traffic flow and creating public green space.

The United Nations Plaza is located at the strategic transition between the old medina and the *ville nouvelle*. It is one of the most heavily used intersections of the city by both cars and pedestrians. The point where three major roads intersect is regulated by 6 traffic lights and holds 9 lanes. To alleviate the traffic flow, Zevaco proposed an innovative solution in the form of a new typology: a hybrid underpass which leads pedestrians from one main road to the two others opposite, and swells to create a lowered public plaza with a park, a fountain, benches and public restrooms. In order to bring light to the dark underpass, Zevaco created a delicate metal lattice dome which sits on top of the intersection, infusing it with an iconic identity. A few years after its inception, national newspapers such as *Le Matin* started deploring the quick appropriation of the

park and fountain, which was drained, by locals who established an informal market, preventing pedestrians from using the underpass as a transportation route. This condition, compounded with recurrent insecurity and crime in the underpass, led to its closing in 1984, only 10 years after its creation. After that, it became a trash yard. Within the recent politics of Mayor Kabbaj, and his desire to resolve the endemic traffic problems in Casablanca, the underpass was reactivated and rehabilitated to its former function: to facilitate the flow of pedestrians and allow for restful green spaces. The commissioned architect for this project, Al Mountassir, respected Zevaco's design and material use of exposed concrete, white plastered surfaces, and blue local mosaics for the fountain, benches, and planters. In order to avoid the appropriation of the underpass and at the same time activate its dark, covered spaces, El Moutassir included stores along the covered portions of the underpass. The stores are embedded beyond Zevaco's retaining wall, and thus do not alter his design.

The flexibility of the project's re-use resides not only in the fact that its programmatic function tackles an endemic infrastructural problem, but also in that it allows both for a larger circulatory passage thanks to the fluidity of its open plan, and for programmatic additions that respond to current conditions. All those changes were accomplished without compromising the original design concept.

COMMODIFICATION OF THE MODERNIST HERITAGE

If Morocco's economic crisis has made the appropriation of abandoned or derelict modern buildings and the activation of their original programmes a sound endeavor for investors and the public sector, it is their iconic aspect which is sometimes the incentive for re-use. The iconic style sought after is curiously that of the colonial period, as Modernist buildings produced following independence are still viewed paradoxically as too western and foreign. Flexibility was not part of the initial architecture, as was true in the previous case study, but is rather superimposed onto the existing structures to fit new programmes.

I will use one case study to illustrate this example: the Villa Suissa, a villa for a rich Moroccan businessman built in 1949 by Jean-François Zevaco.



Figure 2. Day and night views of the United Nations Plaza, Casablanca (2007).
Photo: author.



Figure 3. Villa Suissa transformed into café Chez Paul (2007).
Photo: author.

Villa Suissa/Café Chez Paul

In 1947, the architect Zevaco produced a stunning villa on a corner lot in Casablanca's affluent Anfa district. Nicknamed Villa Butterfly (Villa Papillon) due to its cantilevered balcony and canopy, this three-bedroom house displays an interesting mix of Parisian bourgeois arrangement of domestic programmes and innovative formal vocabulary reminiscent of Brazilian lyric Modernism.

The plan of the house is somewhat rigid, since its functions are clearly delineated: all common spaces are placed on the first floor, private spaces on the second floor, and servant quarters in the basement. Surprisingly both this partitioning and the domestic nature of the house did not impede its transformation into a multipurpose public programme.

The architect Andy Martin transformed the house in 2004 into a gastronomic emporium, including a bakery, a pâtisserie, a tea lounge, a restaurant, a bar, an event space and an exhibition hall. The clear partitions of the initial villa facilitated the inclusion and juxtaposition of these eclectic programmes: the café is

on the first floor, services in the servant quarters and the extended basement and the restaurant on the second floor. Additional spaces were added to fit the remaining programmes: two 100 square meters wings were placed on either side of the main body of the house to accommodate the pâtisserie on one side and the cocktail bar on the other. The additions are built using slate walls reclaimed by the architect from demolished parts of the original villa, which was constructed from this material, which is native to the coast of Casablanca. The large garden of the house allowed also for a fluid integration of the new programme. The entire grounds were indeed re-landscaped while responding to the geometry of the house: all exterior seating, pergolas, and planting follow the radius of the villa's curved facade. The original circular shape of the pool is kept, yet it is transformed into a kiosk and below it, a multipurpose event space and exhibition hall are placed underground.

Several elements in this villa allowed for its commodification for leisure purposes. The location at a corner of two major arteries, which at the time was referred to as "fit for a gas station rather than a house,"⁴ coupled with an extroverted façade has permitted an easy switch from the realm of the private to that of the public. The care that Andy Martin took to respect the original vocabulary of the house, such as the use of monochromatic, neutral tones and the inclusion of original materials, has preserved the identity of the Villa Suissa. The numerous additions seem to highlight rather than impede the powerful iconography of the house.

Both the compartmentalization of the domestic programme and the large garden permitted the co-existence of multiple programmes, whose cultural components the city of Casablanca severely lacks. Most importantly, it should be noted that if the concept of flexibility was not Zevaco's main motivation⁵, it was inherent to both the programme organization and specific site of the villa.

What next?

While reviewing the Modernist discourse in Morocco, the concept of flexibility was not a major concern compared to the questions of place and local construction techniques vis a vis CIAM's universalizing principles. Yet, its essence is often retrieved in the plans of projects of the Modern movement, whose spatial fluidity allowed for a diversity of programmatic niches. Thus, we could speak more of a propensity for convertibility rather than intended flexibility. Within our two case studies of Modernism's changes for the Moroccan public realm, this resilience was essential, on one hand to facilitate the re-use of a Modernist infrastructural facility while responding to new demographic growth pressures, and second to concentrate a diversity of leisure programmes inside an icon of domestic architecture.

In the case of infrastructural projects, the main function was not changed, it was only adapted to new urban needs and scales. Thus, these projects' resilience needed to accommodate technological upgrades and traffic expansion. The fluidity of their open plan and their integration of public open spaces like in the case of the United Nation underpass allow projects that appear at first as fixed designs not intended for growth or change, to adapt to the city's new needs.

In the near future in Morocco, we could imagine that there will be more rehabilitation and re-use of Modernist infrastructures due to the large lot size and costs needed to develop new urban infrastructure. The main problematic raised by such practices, is one that the inherent flexibility of Modernist open plans cannot counter. In fact, as technological requirements and regulations are getting more and more drastic, larger interventions and additions are necessary, and those might irremediably disfigure the architecture and urban intention of such Modernist infrastructure.



Figure 4. Detail of canopy of Villa Suissa (2007).
Photo: author.

Another threat to the future of these buildings is related to their very identity: their sheer scale and exposure generate a tendency to “tame” them through a “vernacular varnish”, as is found in the case of the Sidi Harazem Thermal Baths, where the beautiful concrete surfaces of the complex were partly covered with traditional carved wood.

Regarding the commodification of iconic domestic architecture into public facilities dedicated to leisure, their propensity for resilience paradoxically emerges from their highly specific programme and its formal implication: the compartmentalization of space. Indeed, such segmentation on a tight footprint can easily be used to juxtapose a diversity of programmes in a limited surface area.

The economic success of such projects, like the Villa Zevaco or the two Villas des Arts in Rabat and Casablanca, both 1930s villas turned into museums by a private organization, has stirred the public attention towards the Modernist heritage. Also, their recognizable vocabulary, concentrated sites, and the smaller investments required, make them into more viable business models for investors or NGO's that seek to attract the public's eye in metropolises that are becoming ever more chaotic. However, the recent impulse of the Moroccan government to create museums in major cities might start to curb the impulse of the private sector to work in this field, and consequently to divert the trend to reuse Modernist villas to create cultural destinations. Finally, as competition for land becomes fierce in cities, the pressure to concentrate more and more public facilities in small villa lots might have the effect of compromising the original architecture.

If our case studies have demonstrated that Modernist heritage reuse and change in developing countries is an interesting solution to cities' infrastructural needs, it should be recognized that these phenomena are less motivated by preservation incentives than by sheer socio-economic necessity and political expediency. Challenging the western view on modern heritage preservation that is set in a prosperous, stable context, this perspective unveils not only the tenuous relationship between developing countries and the buildings from their colonial past but also reveals other forms of motivations behind the appropriation of the modern heritage. Thus, in the developing world ‘Change’ of the Modern heritage often become intrinsically tied to survival.

NOTES

- 1 For an analysis of Modernism's fascination with flexibility as well as the specific case of the Venice Hospital refer to: Sarkis, H, 2002, “The Paradoxical Promise of Flexibility,” in Sarkis, H & al., *CASE: Le Corbusier's Venice Hospital and the Mat Building revival*, 2002, Prestel and Harvard GSD, Munich and Cambridge MA. 80-89.
- 2 Larbaoui, L, 2006, “Casablanca: Quelle Mobilité Pour Quelle Ville”, *Monographie de l'habitat, Gouvernemnet du Maroc* 7. 28-31.
- 3 Mokhliss B., *Le Reporter*, 17.12.2007. <http://www.lereporter.ma>.
- 4 Ragon M. and Tastemain H., 1999, *Zevaco*, Le Cercle d'Art, Paris.
- 5 Zevaco's views on the Villa Suissa are derived from an analysis of his personal archive in both the FRAC in Orleans and the ENA in Rabat.

Conservation Development Strategy for the University of East Anglia

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THE BRITISH NEW UNIVERSITIES

The six New Universities founded around 1960 marked a high-point of Britain's post-World War II effort to create a comprehensive Welfare State. They were new institutions on greenfield sites, offering probably the most prestigious public sector architectural commissions of the post-war era.

Sir Denys Lasdun (1914-2001) was appointed in 1962 to design the masterplan and buildings for the University of East Anglia at Norwich – always called UEA. Lasdun had established a reputation with high-profile projects for public sector clients. He took a year to produce UEA's Draft 1 masterplan, and a further six months to produce Draft 2 in September 1963, after feedback from academics. Construction began the autumn of 1964 and the first buildings were occupied in 1966. Lasdun left the project in 1968 when the initial euphoria was replaced by funding cuts and architectural compromise.

Local practices completed some of Lasdun's buildings and added others in a cut-down version of his architectural language. About one-third of Lasdun's masterplan had been completed by 1972 when public funding and construction effectively stopped, leaving a forlorn group of buildings in the middle of a large site.

In this bleak period UEA was fortunate to receive a private donation for the remarkable Sainsbury Centre for the Visual Arts designed by Norman Foster's practice, completed in 1978.

UEA's fortunes revived in the 1980s and since then it has been more or less continuously adding to its building stock, in accordance with a much looser masterplan strategy. It is no longer possible to make firm, long-term plans: universities must respond to development opportunities as and when they arise. UEA is now a thriving and growing university, with 14,000 full- and part-time students compared to the 6,000 envisaged in Lasdun's masterplan.

Despite so much new development, the buildings of the 1960s and early '70s remain the dominant presence on the campus. Lasdun's work at UEA is generally regarded as the best of the six New Universities, and is arguably the most distinguished example of post-war Welfare State architecture in Britain.

The recent success of UEA has created both opportunities and threats for the conservation of the Lasdun buildings: they have a continuing economic use, but are under pressure to adapt to changing needs.

HERITAGE PROTECTION: 'LISTING'

In Britain, historic buildings are entered on a statutory list of Buildings of Special Architectural or Historic Interest, at Grade I, II* or II (over 90% are Grade II). The first post-WWII building was listed in 1987, but the principle of listing such recent buildings is still controversial. Current practice dictates that buildings cannot be listed until 30 years after completion, except in an emergency.

In late 2003, shortly after passing the 30 year milestone, the important Lasdun buildings at UEA were listed – the residential Ziggurats at Grade II*, and the Teaching Wall, Library and also the raised walkways at Grade II. This caused UEA great anxiety as the buildings were constantly being adapted for evolving educational needs: it was feared that the need to make numerous applications for Listed Building Consent might cause an administrative burden, delay projects, and risk disruption if applications were refused. To minimise the risk of conflict between listing and the need for change, UEA commissioned a Conservation Development Strategy (CDS) in early 2004, appointing Cambridge Architectural Research Ltd as consultants.

LISTING REFORM

At the request of English Heritage, the government agency responsible for historic buildings, landscape and archaeology, UEA's Conservation Development Strategy was used as a case study for a government review of the listing process, aiming to find simpler and more modern procedures.

Thus the CDS became a prototype Heritage Partnership Agreement (HPA), one of the new ideas in the English Heritage review. This was a new kind of statutory agreement between the owners or keepers of a listed building and the planning authorities, setting out principles and policies to regulate the management of the building so as to retain significance. An important feature of an



Figure 1. UEA: Ziggurats of residences by Denys Lasdun & Partners, 1965-67.
Photo: CAR.



Figure 2. UEA: Teaching Wall by Denys Lasdun & Partners, 1964-74.
Photo: CAR.

HPA would be the avoidance of Listed Building Consent applications for generic types of alteration described in an approved HPA. This approach would not be relevant for all listed buildings, but would be particularly useful for institutions such as UEA with modern listed buildings in continuing active use, where there is a need for frequent, small changes.

The CDS was based on earlier conservation plans produced by Cambridge Architectural Research Ltd, modified in consultation with English Heritage. Conservation plans have been used in the UK since the 1990s, on a voluntary rather than a statutory basis. Although the CDS does not yet have statutory authority, it was approved by the Planning Committee of Norwich City Council, the local planning authority, and is currently being used for conservation management at UEA.

The CDS was completed in 2006. The government's proposals for listing reform were published in 2007, and new legislation was introduced to Parliament in April 2008.



Figure 3. UEA: Library by Denys Lasdun & Partners, 1965-74.
Photo: CAR.

RELEVANCE OF CONSERVATION DEVELOPMENT STRATEGY

The Conservation Development Strategy has helped UEA respond to a number of challenges.

a. *Esteem*

The original UEA buildings were built on tight budgets using exposed concrete, and workmanship was not always of the highest standard. Lasdun claimed that concrete was particularly appropriate for the East Anglian site. He certainly aimed for powerful and eloquent architectural forms, not superficial attractiveness.

The cycle of fashion turned against modern, concrete architecture, and there is a widespread prejudice that the Lasdun buildings are ugly. This creates a problem when refurbishment is so expensive: in a public institution it is difficult to allocate substantial resources to refurbishment projects that do not have public support.

To reveal current perceptions, the University community was surveyed as part of the CDS research. It showed that UEA's newer buildings were more popular than the original buildings of the 1960s and '70s, but esteem for the earlier buildings was higher amongst younger people – an encouraging trend. It was generally agreed that the original buildings should be refurbished, not abandoned.

The survey showed a definite mismatch between the expert values used for listing and current public opinion – but not so severe as to prejudice investment in refurbishment. This finding helped support the case for refurbishment expenditure.

The CDS itself plays an educational role in explaining the reasons behind Lasdun's designs, and pointing out their architectural strengths.

b. *Original vision and landscape*

Like all the New Universities, UEA had a large site to ensure that there would be room for future expansion. Lasdun's masterplan envisaged a compact group of buildings bordered by an undulating line of about 40 residential 'ziggurats'. Only 10 ziggurats were built – too few to

convey the overall landscape vision. A landscape plan was developed alongside the campus masterplan, but, as with the buildings, progress ground to a halt and the consultants resigned in 1972. Since then there has been no site-scale landscape strategy.

With continuing expansion, UEA would now like to build in undeveloped areas that Lasdun's masterplan of the 1960s earmarked for expansion, but this is opposed by local people who have become used to the open space; and architectural conservationists are concerned about the potential impact on the Lasdun buildings.

By drawing attention to Lasdun's vision for the site, the CDS established a consensus that UEA should re-think a site-scale strategy for landscape and campus development. What form this will take remains to be seen, but it creates the opportunity for a new vision, perhaps fulfilling some of Lasdun's intentions.

c. *Refurbishment*

The striking Ziggurats of student accommodation are UEA's most significant architectural feature. The project architect was Ted Cullinan who later formed his own successful practice and was awarded the RIBA Gold Medal in 2008 (Lasdun received it in 1977). After 40 years of intensive use the Ziggurats were in need of thorough refurbishment to replace worn-out elements and comply with new regulations, and this process began while the CDS was in preparation. The architects for the refurbishment (RH Partnership) were briefed with a draft version of the CDS, and their feedback was incorporated in the final version.

The Ziggurats' exceptionally compact and ingenious layout could not be altered. The most unsatisfactory areas were the bathrooms and service facilities. It was agreed that the details of these internal areas were of low significance, and that they could be stripped out and refitted to meet the expectations of today's students (and their parents).

The study-bedrooms had original fitted furniture, very battered and unsuitable for computer-based study. It was agreed that the original fittings could be replaced, with the new fittings retaining the visual language of the originals and reverting to original colours.

There were no external changes. The original timber windows had already been replaced, and the CDS included a policy that the next replacement should revert to the original visual appearance. There was one important piece of unfinished business: the stepped terraces were designed for student access, but this had been banned for health and safety reasons. The CDS recommended research into an unobtrusive way of allowing safe access, but no practical and affordable solution has yet been found.

d. *Evolving needs*

Most of the original academic space was in a long multi-disciplinary Teaching Wall that was designed to be flexible – and has proved to be flexible. There are some new needs that it cannot accommodate, such as research laboratories, but because UEA is growing these can be located in new buildings. The CDS established guidance for on-going alterations in the Teaching Wall, highlighting original and significant features that should be retained. The CDS has formed the basis of a cooperative working relationship with the local planning authority, facilitating the process of evolutionary change in the Teaching Wall.

The main Library was envisaged as a square, freestanding building. Two phases were built in the 1960s and '70s, completing half the intended volume. When a further extension was added in 2003-05, it was not realistically possible to continue with the original precast concrete construction, and functional needs had changed in the IT era. The new extension conformed to the location and massing envisaged by Lasdun, but in a new interpretation of the architectural language.

A number of the smaller buildings designed while Lasdun was architect for UEA are of secondary architectural interest, although some occupy very significant sites on the campus. Unlike the Ziggurats, Teaching Wall and Library, they were not listed in 2003. The CDS proposed that they should be considered for replacement by higher quality buildings that would make better use of the sites. These were 'aspirational' policies and would be subject to full planning applications if taken forward.



Figure 4. UEA: Sainsbury Centre for the Visual Arts, by Foster & Partners, 1974-78.
Photo: CAR.

e. *Climate change and carbon reduction*

It is expected that all buildings will face increasing pressure to become more energy-efficient and reduce carbon emissions, due to public opinion, energy prices and legislation. Since the 1980s UEA has been a pioneer of low energy design in its new buildings, and the CDS included policies for improving the listed buildings' energy-efficiency and reducing emissions, where there are opportunities to do so without detracting from significance.

BENEFITS OF THE CONSERVATION DEVELOPMENT STRATEGY

UEA's Conservation Development Strategy is a successful example of a constructive and collaborative approach to the conservation of complex modern buildings, where the desire to retain architectural significance must be reconciled with the need to maintain effective economic use. If new legislation is enacted in the UK, as expected, UEA intends to transform the voluntary CDS into a statutory Heritage Partnership Agreement, to ensure that the University's plans for future refurbishment, development and expansion are formally recognised in the planning process.

Initial experience during the short period of use of the CDS has been extremely encouraging. Support from the local planning authority for current use of the CDS is voluntary, and the fact that the authority has chosen to use it demonstrates the worth of this approach to conservation. All parties benefit: UEA as the keeper of these important buildings, the local planning authority with its administrative responsibility for monitoring their proper care, and English Heritage which is assured that architectural significance is understood and respected.

On a project-by-project basis UEA maintains close contact with the local planning authority, regularly forwarding them a schedule of alterations and refurbishments to the listed buildings. The schedule is held in electronic form and is continually updated. It describes UEA's intentions at proposal stage; it contains photographs and drawings that record building works both before and

after they are carried out; it cross-references the works to the relevant sections of the CDS; and it records the consent process by which the works were permitted. Although the vast majority of the works to the listed buildings are covered by the principles and policies set out in the CDS, some are more radical and they require an application for Listed Building Consent and the involvement of English Heritage. In the two years since the CDS came into use, UEA has carried out in excess of 90 refurbishment projects to its listed buildings. Only a handful have required Listed Building Consent applications and input from English Heritage. This represents an enormous saving in resources, time and cost for all three stake holders – UEA, the local planning authority and English Heritage. It has allowed UEA to pursue its core businesses of teaching and research without disruption. Without the CDS, the need to submit 90 Listed Building Consent applications would have been a nightmare.

In the longer term, the regularly updated schedule of alterations creates a living record of UEA's on-going development – an invaluable archive when future generations take over responsibility for the conservation of UEA's architectural heritage.

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Modernist Housing for Contemporary Families

THE ARRIVAL OF THE ATHENS CHARTER IN LISBON

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MODERNIST HOUSING IN PORTUGAL: THE RISE OF A NEW PARADIGM

The Athens Charter is probably one of the most influential documents in the history of architecture and one of the best known ideological productions of the Modern Movement through its vanguard movement, the CIAM. The Athens Charter was translated into Portuguese in 1944¹ when Portugal was under the dictatorship of Estado Novo.

Some years later, in 1948, a group of Portuguese architects gathered for the first National Congress of Architecture, where some architects, mainly from the younger generation, presented theses defending Modernist principles as an ideological agenda to solve the national housing problem. In the final report it was stated that “both in buildings and in urban plans the Athens Charter principles should be followed”². These architects were reacting to the “stylistic impositions” of the dictatorship and, therefore, they had decided to adopt the principles of Modernism as a critical ideological weapon “enlightened by the stimulant references of ASCORAL and the Athens Charter”³.

This study brings together three pioneering urban and architectural applications of the principles of the Athens Charter to Lisbon’s housing, and presents three vignettes in the course of their life: how they were conceived, how users evaluated their evolution and what role they are performing or can perform in the contemporary city.

THE MODERN BREAKTHROUGH IN THE ARCHITECTURE OF EVERYDAY LIFE

In 1949, S. Formozinho Sanches and Ruy Athougua submitted a project for a housing estate to be built in the Alvalade district⁴. The architects decided to transform the closed blocks proposed in the original plan into isolated buildings based on the repetition of four-storey high modular units lifted off the ground by *pilotis* and organized according to the dwellings best solar orientation. Because of these characteristics, it became known as Bairro das Estacas⁵ (Fig. 1).

The buildings have regular one-storey high apartments on the first and second floors and *duplex* apartments on the third floor⁶. The layout of the apartment is defined by the structural grid. The organization of the sectors within the unit is rigidly determined by a central wall parallel to the façade (social spaces towards the west and private spaces towards the east), except in *duplex* units, where there is a single orientation for each dwelling. Circulation is organized around this central axis (merged with the living room in the *duplex* units).

Bairro das Estacas achieved both national and international recognition. In 1954, the project was awarded an honourable mention in the Bienal de S. Paulo by a jury composed of Alvar Aalto, Josep Lluís Sert and Ernesto Rogers among others, and also received Lisbon’s municipal architectural prize. Modernist principles were finally recognized as “premium” architecture for collective

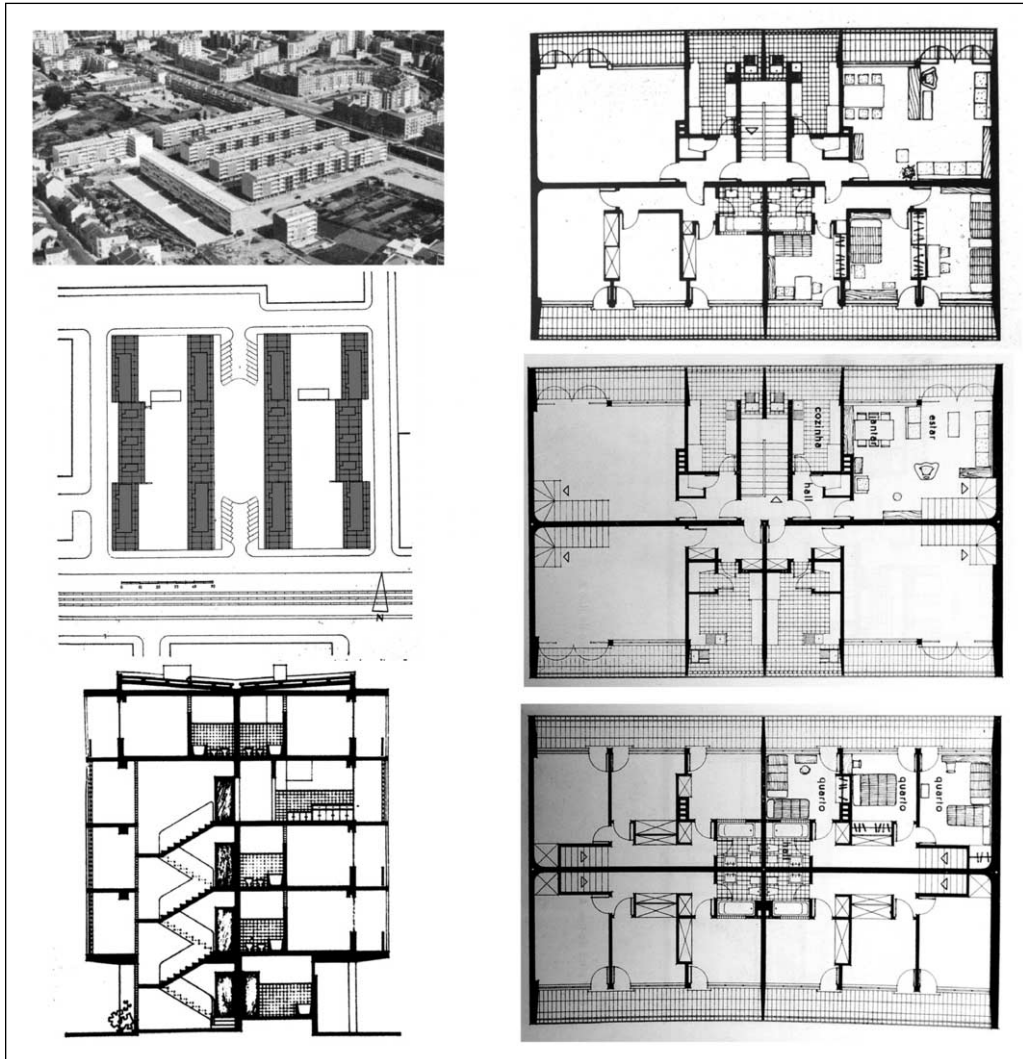


Figure 1. "Bairro das Estacas" housing estate (1949).
Source: 1954, *Arquitetura Portuguesa*, (7), adap.

housing, not only for bourgeois privileged customers of single family houses and specialised buildings.

However, Modernist principles were not exclusive to social housing such as Bairro das Estacas, but influenced middle and upper class housing as well. In 1954, Alberto Pessoa and two other architects, Hernâni Gandra and Abel Manta, began the project for a housing estate in recently opened Infante Santo Avenue (Fig.2). This project's site was inserted into a pre-existing urban fabric, and was characterized by a very expressive topography and irregular shape. These characteristics necessitated a hybrid urban solution, with some buildings structured according to the principles of the Athens Charter while others were designed in a traditional rue corridor organization. The five isolated buildings organized perpendicularly to Infante Santo Avenue present the most surprisingly solution. They are suspended over pilotis in a platform that resolves the topography problem, creating a continuous surface.

The housing unit was designed in a *duplex* organization. The areas and the layout of the apartments were designed for a middle class occupant. There are two independent circulation systems: one for the public and the other for service use. In the dwelling's interior, the *duplex* organization stresses the division between the public and service sectors of the housing unit (on the entrance floor and the private areas (on the upper floor).

Bairro das Estacas and Infante Santo estates were inserted into two different types of urban context. The first was built as a part of a new district and the latter was built within the existing traditional urban fabric. However, neither of these created an urban pattern. The first application in Lisbon of Modernist principles on an urban scale appeared from 1955 to 1958, when city of Lisbon developed a plan for a new 100 acre district, Olivais Norte, providing housing for 8.000 persons (Fig.3). Their architects⁷ presented a solution that was clearly influenced by the principles of the Athens Charter, organizing the volumes within an urban park where isolated buildings were disposed according the best solar orientation.

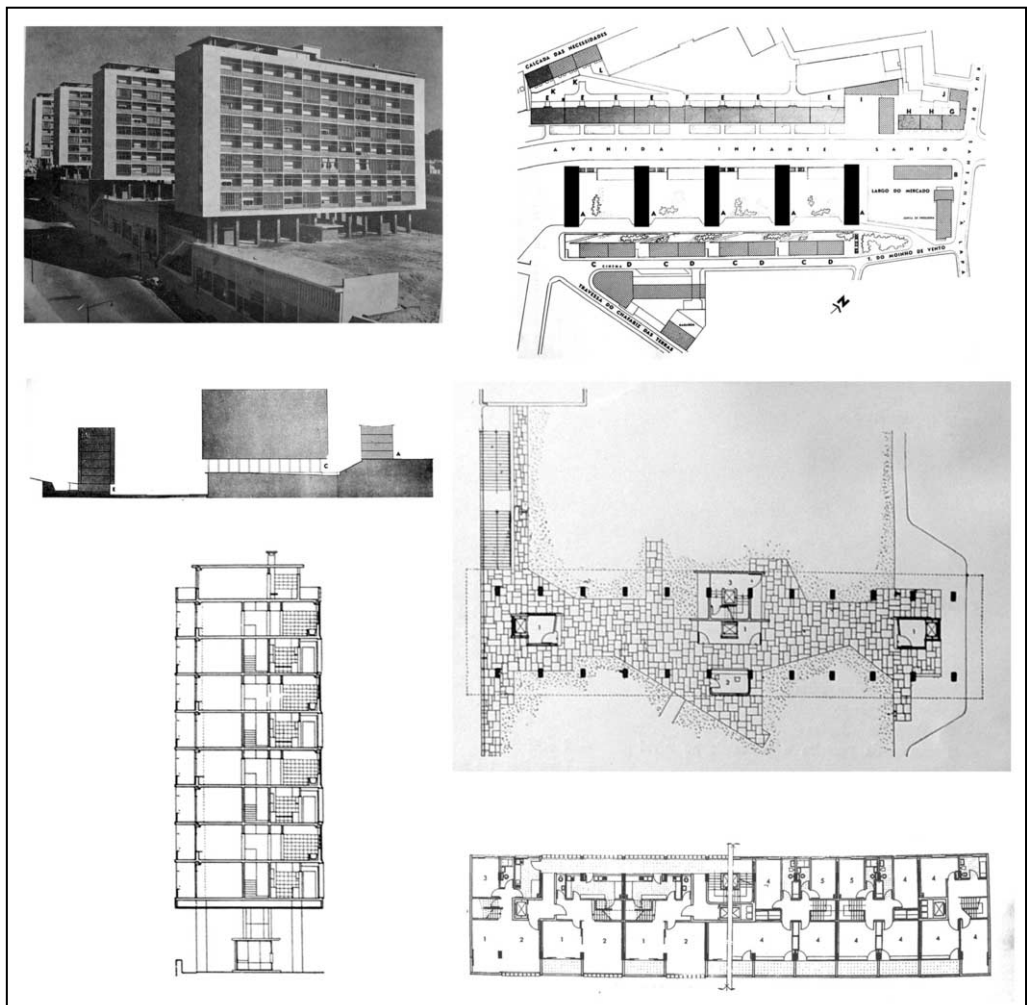


Figure 2. "Infante Santo" housing estate (1954).
Source: 1958, Binário, (2), adap.



Figure 3. "Olivais Norte" district (1955).
Source: 1964, *Arquitectura*, (81), adap.

The Olivais Norte plan was rapidly built (a rare case in Portuguese planning) which enabled a global coherence and continuity in the overall result. In Olivais Norte, the height and the category⁸ of the buildings increases from the perimeter of the district, which is occupied with single family houses (lower rent), to its centre, which was dominated by housing units designed as "Corbusian" blocks (higher rent)⁹. This clearly shows a radical change from the Estado Novo principles; at Olivais Norte the highest social rank was not represented by single family houses, but by Modernist high rise buildings.

LIVING IN MODERNIST HOUSING: THE EVALUATION OF THE USERS

The previous section presented the case studies' foundational moment and it was possible therein to identify differences between both the physical and social contexts between each housing estate or district. In these case studies, Modernist principles acted as an abstract layer from which there

emerged different housing solutions. The questions may now be asked: which yielded the best results, who lives there, what are the advantages of “living Modern”, and what are the problems?

According to a recent survey¹⁰ dwellings in Bairro das Estacas (BE) and Infante Santo (IS) are mainly occupied by two persons, the majority of whom have university education. The current households moved to the housing estate over different periods of time. While in BE the majority of the residents are recent arrivals, in IS half of the households have lived there for at least forty years. When asked to evaluate their building architectural characteristics, residents have given positive reactions to the number of floors, the number of rooms, the visual continuity between the building interior and exterior, privacy and natural lightening and ventilation. However, other characteristics have generated negative opinions. For example, residents are unsatisfied with the lack of security in the access to the building and with acoustic and thermal isolation. In regard to the size of the rooms, the survey offers different opinions. For example, the majority of the residents are satisfied with the size of the living room on both estates and with the size of the bedrooms in BE. However, the majority of the residents of IS consider the bedrooms small and in both estates they are unsatisfied with the size of the kitchen. Moreover, there have been varying evaluations of the general neighbourhood characteristics. In fact, residents have a positive opinion of the green area surrounding the buildings, but there is insufficient parking available for the residents. According to the referenced survey, changes made in the dwellings by the residents were non-structural (i.e. substitution of materials and appliances). However, many residents indicated an intention to combine some rooms such as the living room and the kitchen (BE), the living room and the bedroom (BE) or the living room and the service room (IS).

Bairro das Estacas and Infante Santo’s flat types present few variations, whereas in Olivais Norte (ON) district the idea of “housing mix” creates a large range of building models and housing cells. For this reason an evaluation of each one would not be adequate for this study’s purpose. Nevertheless, the importance of ON for this study is placed more in the whole district plan than in the individual buildings design.

In 1991, a local survey¹¹ compared three Lisbon districts planned in different historical periods¹² and ON district was the one where more residents found it impossible to make changes. Although this was the most recently occupied of the districts, ON was the one considered less flexible. Regarding the evaluation of the housing environment, residents have generally expressed satisfaction with the characteristics of their building’s surroundings such as parking, access, location and site services. However the residents evaluation of the characteristics of their building and flat are less positive. In fact, qualitative criteria such as size, layout and aesthetics are only moderately satisfactory.

These results show that, in the minds of the residents, the main advantages of Modernist housing seem to be in their relationship with the surrounding area. Despite some security problems, users are satisfied with the housing environment. However, in the housing cell some deficiencies are noted, especially problems with size and flexibility. Some decades after they were built, spaces such as bedrooms and kitchens seem to no longer satisfy current users. This means that in the current users’ opinion, Modernist design of domestic space has overlooked the spaces for privacy (bedroom) and for production (kitchen). In this instance, the public realm seems to have been privileged over the private realm.

CONTEMPORARY FAMILIES: A FUTURE FOR MODERNIST HOUSING

In Portugal there are few examples where Modernist principles were applied on an orthodox way. This phenomenon has created statements such as this: “I’m against the (poor) Athens Charter! The buildings are neither hanging in the air (...) nor provide any of the public amenities proposed by the Athens Charter”¹³. However, even without the full realization of Modernist principles, these heterodox approaches to housing design have created relationships between

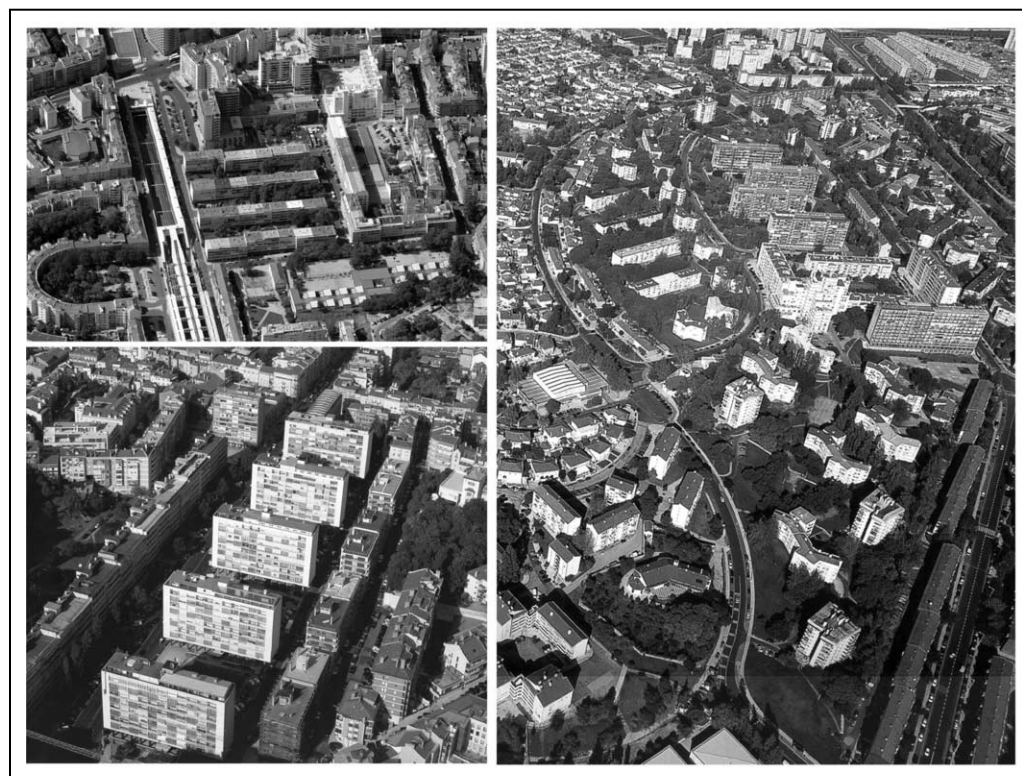


Figure 4. Case Studies' aerial views.
Source: 2006, Lisbon Urban Atlas and Microsoft Maps Live (BE).

the domestic space and the city, where public space is the central element (Fig.4). For example, in Olivais Norte (ON) public space occupies more than 75% of the surface area of the district¹⁴ while in the late 19th century planned district of Avenidas Novas (AN) and in the late 20th century housing estate Parque dos Príncipes (PP) this percentage is around 45%¹⁵. Moreover, the ratio between the total gross constructed area and the land surface area is very low in ON (0,6), while in AN and PP it is more than three times higher (2,12 and 1,78 respectively)¹⁶. In Bairro das Estacas and in Infante Santo this ratio is higher than in ON (1,26 and 1,72 respectively) however it is still lower than in AN and PP (even with the higher percentage of public space in the estate surface area).

Regarding the evolution of the population Statistics show that over the last 25 years, in the administrative area of the municipality of Lisbon, population has declined 40% from 817.627 in 1981 to 509.751 inhabitants in 2006, and that in the last four decades, the average number of persons per household has fell from 3,3 in 1960 to 2,4 in 2001¹⁷. Therefore, families are becoming smaller. In fact, in Lisbon, three in every five households have only one or two persons¹⁸.

These figures illustrate a phenomenon that is occurring in Portugal, whereby the traditional metropolitan centres are facing a dramatically decline in population. The suburbanization process, developed in the last three decades was supported by the spread of individual houses, gated communities and speculative housing estates; all of which run contrary to Athens Charter principles. This process was led both by the working class (searching for affordable houses) and by the bourgeoisie (searching for privacy and exclusiveness) and creates a heavy ecological footprint

caused, by many factors including the construction of a large amount of new infrastructure and making insufficient use of the existing infrastructure in the traditional centres. Therefore, it is possible to conclude that building new housing estates shouldn't be a priority to cities such as Lisbon. On the contrary the challenge to city's governance is to deal with its own built legacy, promoting policies for the improvement of public areas and qualified housing estates.

New families are emerging in contemporary cities: single parent families, couples without children or single residents. These new households have different priorities and concerns from those of traditional nuclear families. These new urbanites don't need as much private space and they enjoy public space. The evolution of the city towards the private realm in nineteenth century bourgeois society was challenged by Modernist principles; however, it is debatable that society was ready for this change. Nowadays, Modernist housing estates can offer a qualified possibility where domestic and public space can be combined. Where the original residents (nuclear families) found minimal areas these new inhabitants can find flexibility that can enable layouts adapted to their specific needs. Unlike traditional districts or suburban developments, it may be argued that in Modern housing estates or districts the limits between the private and public realm have blurred boundaries. Likewise, unlike nuclear families, new households don't live focused only within their housing unit; they seek interaction with the public. In contemporary cities such as Lisbon, living in modernist housing is no longer a stigma, it has become a privilege.

NOTES

- 1 1944, "Carta de Atenas", *Técnica* (147), 907-914. A new translation with the commentaries of the French CIAM group was published from 1948 to 1949 in the journal *Arquitectura*.
- 2 Sindicato Nacional dos Arquitectos, 1948, *1º Congresso Nacional de Arquitectura*, Lisboa, 290.
- 3 Bandeirinha, J.A., 1996, *Quinas Vivas*, FAUP Publicações, Porto, 127.
- 4 Alvalade district plan (1945-1947) is an eclectic assortment of urban models such as traditional city, garden city and Modernist city.
- 5 Literally, stake district.
- 6 The *duplex* solution was used because buildings with more than four floors (ground floor + 3) were obliged by law to have an elevator, which was not allowed for this type of housing estate.
- 7 Gabinete de Estudos de Urbanização – GEU (Urban development studies office) – Guimarães Lobato, Sommer Ribeiro and Pedro Falcão e Cunha.
- 8 There were four different housing categories, each one with different maximum rent limit.
- 9 Buildings were designed by several teams of architects which created different forms of organization such as tower buildings, large scale blocks with gallery distribution, *duplex* buildings with independent access or semi-detached houses.
- 10 Ramos, T. B., 2006, *Os espaços do habitar moderno: evolução e significados*, Fundação Calouste Gulbenkian, Lisboa, 249-257.
- 11 Callado, J. C., 1991, *Interactivity in housing design – an approach for a model*, Ph. D., University of Newcastle upon Tyne. Although more than one decade old, this survey remains as the main source for a user's evaluation of "Olivais Norte" characteristics.
- 12 "Avenidas Novas" (developed from 1889), "Alvalade" (developed from 1945) and "Olivais Norte" (developed from 1955).
- 13 Alexandre Alves Costa in Dias, Manuel G., 1999, *Ao volante pela cidade*, Relógio d'Água, Lisboa, 220.
- 14 62% in BE; 64,7% in IS.
- 15 Salgado, M. and Lourenço, N. (Coord.), 2006, *Lisbon Urban Atlas*, Argumentum, Lisbon.
- 16 Ibid.
- 17 Source: Statistics Portugal. Available in www.ine.pt
- 18 In 2001 61,6% of the households living in Lisbon were constituted by two or less persons. Source: Ibid.

Facing the Future: Five Residential Buildings in Santiago and the Challenge of Flexibility

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A zoning plan for a dwelling is a consequence of fundamental human functions. These functions are simple and few. So, why keep so many useless rooms, actually kept closed and locked?

Waldo Parraquez, 1932.¹

Change has been a permanent condition in Chilean economy and its political scene. Continuity has been rather elusive within a conservative society. This paradox is clearly represented in residential buildings in central Santiago where economic pragmatism, real-estate speculation, urban heritage and functionalist experiments have taken place throughout the 20th century. Modern high-rise apartments appeared first in the context of urban regulation plans, the availability of technical resources and economic growth. Working and middle classes arose in the 1930s, pushing governmental action and private speculation towards a wide variety of housing programmes in major cities.

In Santiago, architectural change took place in two different types of physical territories:

- The colonial grid, where speculative projects had to follow urban regulations and privately-owned land division, with little space left for extensive projects.
- Vacant areas surrounding the central historic city where larger, more substantial projects could be developed by governmental housing organizations.

Residential buildings in central Santiago are facing different challenges concerning their social and physical integrity. In the first place, changes in function –many are used as offices or small-scale warehouses– had deprived them of their original social role. In the second place, internal and external physical alterations are often exacerbated and made more difficult by original low-cost materials and non-flexible spaces. Their capacity to deal with cultural and economical change was not a major issue at the time they were conceived.

Experimental housing projects built by governmental organizations are nowadays confronted with different challenges. Economical growth and social change is related to urban migration and the discontinuity of social integration within the communities. In cases where there has not been a significant change in the buildings' original function, a change in the way the residential complexes relate to their urban context and public areas is closer to the ghettoization created by contemporary high-density speculative projects and land-use official policies.

In both cases, flexibility was not a primary issue. Physical stability in a country with rigid seismic requirements, like Chile, becomes a major challenge and Modern Movement-oriented architects had to deal with building codes that emphasized rigorous structural criteria. Flexibility became an increasingly important architectural theme in late-1950s residential building design, but it has never reached the radical degree of design approach practiced by many modern architects in



Figure 1. Santa Lucía building, Arteaga and Larraín, Architects.
Photo: Unknown. Source: Archivo Fotográfico Universidad de Chile, Santiago.



Figure 2. Plaza de Armas building, Duhart, Larraín Architects, with Larraín, Larraín and Sanfuentes.
Photo: Antonio Quintana. Source: Archivo Fotográfico Biblioteca Nacional, Santiago

industrialized/developed countries. In fact, flexibility remained primarily as it was conceived by avant-garde European architects of the 1920s, that is, making one or more rooms usable for different purposes, according to everyday life activities. Interior innovations introduced by pioneering architects, like sliding doors, hinged beds or moving storage furniture were little implemented in apartment buildings in Santiago. In addition, some concepts frequently related to flexibility, such as *standardization* by type found their way in mass-housing projects carried out from the late 1950s, with little attention to flexibility as a strategy aimed to improve quality of life and lifestyles evolution.

The latter has to do with technical and cultural limitations imposed on modern architecture in the Chilean context. In the first place, *standardization* could only be fully achieved in an industrialized context, where windows, doors, staircases, kitchen and bathroom fixtures, etc. could be manufactured and installed following strict quality standards. This was not the case in mid-20th century Chile. The optimization of flexibility, as a way to adapt a typified apartment to particular needs and social changes, was far from being considered as a key design problem. In the second place, cultural awareness against radical experimental proposals led to specialized rooms, with solid walls and fixed storage furniture units as room dividers (not to mention the presence of electrical and water lines embedded in walls and floors). Radical flexibility of the spaces, with the resultant greater freedom of functional organization, was out of question.

With this in mind, flexibility in modern apartment buildings in Santiago is highly dependent on their capacity to adapt to contemporary conditions despite the their relatively inflexible nature of the original designs. Where can flexibility be found in buildings of 1930-1965? Several speculative buildings and a public housing complex can be used as case-study examples:

- Santa Lucía apartments (1932-1936, Jorge Arteaga and Sergio Larraín, architects), where the topographic context is a major asset. Flexibility does not play a key role in the design.

- Plaza de Armas building (1952-1957, Duhart, Larraín G.M., Larraín, Larraín and Sanfuentes, architects), a multifunctional complex in need of flexible adaptation and technical upgrading.
- Parque Forestal (1957-1959, Emilio Duhart with Infante and Stevenson, architects), in which housing is still the main function.
- Remodelación República complex (1958-1966, Bruna, Calvo, Perelman and Sepúlveda, architects), a public housing experiment confronted with economical growth and the resultant desire for social mobility.

Despite their visible limitations, these examples offer different possibilities for a flexibly-oriented refurbishing of the interior spaces, where structural design still plays a key role.

WHAT WAS THEN

In the first place, as it has been previously discussed, structural criteria is a dominant aspect in the designer's approach. Eventually, some programme variations can be found in apparently similar "typical" plan layouts. These can be taken as experimentations in the standardization of type. In the first case, the Santa Lucía design aims at a scattered distribution of "wet" zones, in order to provide a rational distribution of plumbing and supply and waste shafts to be shared by small or mid-sized apartments and the pent-houses as well. Internal structural walls are rather few, if one bears in mind that the façades were used as structural elements contributing to the stability of the whole static building mass. The curve-shaped building is strongly determined by its orientation and the Santa Lucía hill in front of it. Window sizes and shapes clearly indicate the functions behind them, while a closer view of floor plans reveals a strong functional determination of spaces in large apartments with extensive social, service and circulation areas. In earlier stages of development, modern approaches to high-income housing projects more clearly emphasized the building's external appearance, rather than the layout of the internal spaces.

A different situation can be seen in the Plaza de Armas building. Here an isolated residential block emerges from a commercial platform, located in the north-eastern corner of the city's main urban plaza. By the time it was built (1952-1956), economic instability seriously compromised the ability of large-scale projects to be carried out by private entrepreneurs. This building was visibly affected by this situation: an additional smaller residential block was dropped, the roof terrace on the 3rd level was never used and, for what matters most here, fixtures, shading panels and finishings were down-graded to meet budget costs. The typical floor called for a dense programme: eighteen small apartments (two rooms and service areas), and three larger ones, placed in the north and south ends. Structural design calls for a central spine and dividing walls, and a concentration of service and plumbing shafts along the inner axis. The resulting external enclosure is a fully open façade, with sliding glass and sun-shade panels, a double skin providing sun light control and, at the same time, an extension of internal space towards the urban landscape. Once again, flexibility was challenged by structural design. The apartments were intended for young families or single residents who rented the dwellings for a relatively short term. It can be said that flexibility was transferred from being inherent within the architecture of the units themselves to the residents' capacity to move to different apartments from one building to another. Ironically, switching between buildings seemed to be an easier way to solve issues of family growth, or the evolving lifestyles and economic situation of the middle class.

The Parque Forestal is a step ahead of the preceding cases. Duhart's design calls for a two-block scheme, with two different apartment programmes and layouts, determined by the Forestal Park. In front of it, the northern wing's structural mass is concentrated around the elevator and building service shafts, along the bathroom and kitchen areas located on its southern side. Internally, there are very few structural walls. They act as property divisions (demising walls) between two apartments, or as boundaries between the public and private rooms of a single apartment. In fact, some floor distribution was changed during the final construction stages, when *horizontal*

property² was allowed. Some floors were sold to independent owners and thus, their original programme was visibly modified. By means of wide continuous glass panels, social and private rooms relate with the balcony (and the near and far context) in the same way. This can be regarded as an early example of a design with awareness of flexibility that could thus rapidly be adapted to changing conditions.

The Remodelación República complex emerged as an experimental project commissioned by the CORVI, a major housing agency funded by the Ministry of Public Works. The competition called for a rationally conceived structural design, permitting a wide variety of programme and unit distribution possibilities, with different apartment sizes and orientations. The resulting two-block 15-floor complex is an intricate three-dimensional puzzle that combines one and two-level units. The structural design manages to tie all the system together with a central spine, with structural walls separating the private and common circulation areas. Balconies and strip windows reveal the complexity and diversity of apartment types, which respond to and accommodate different family sizes.

It seems clear that flexibility in its most radical approach was not the most important aspect of these designs. Although some internal modifications could be introduced and variations in typical floor distribution layouts were clearly possible, flexibility is largely dependent on structural design and, in a more subtle way, on social evolution. As will be discussed, these two aspects play a central role in how the residential buildings can be adapted or updated.

WHAT IS NOW AND WHAT'S LEFT FOR THE FUTURE

There have in fact been some interventions made into almost every building described herein. Generally speaking, residential use is still primary; very few of them are used for other purposes, mainly offices or cheap hotel rooms, especially in smaller-sized apartments (which is the case of the Plaza de Armas building). Large apartments are likely to be divided where present in relatively dense projects (potentially in the case of the Santa Lucía and the Forestal buildings). Apartments in public housing projects like the República complex have been successfully adapted to particular needs, like “PC corners” and working spaces where younger family members have left their parents’ home. A closer view into each one of the five cases gives some hints on the potentialities they have to become flexible residential buildings.

The Santa Lucía apartments offer quite few possibilities. Recent refurbishing projects demonstrate the extent of some improvements in service areas, and the demolition of dividing non-structural walls to generate greater social and study spaces, in lieu of bedrooms. In addition, three-level pent-houses could be divided to make smaller apartment units.

The Plaza de Armas building’s design is confronted with a major challenge: structural walls strongly determine the division of the programme into small units, and the larger north/south end apartments are likely to evolve towards different kinds of residential uses: possibilities include a hotel, a student or low-budget hostel, etc. It can even be envisaged as a mixed-use building, combining offices and residential spaces in a vertically segregated scheme (following the actual overlay scheme of commercial, cultural and residential areas). Flexibility could be achieved via a more radical approach, but it strongly depends on the evolution of the urban context towards general improvements in its physical and social quality.

The Parque Forestal building is one of the most successful cases. A greater sense of freedom is provided by the glazed façade, the balconies and the structural design. Generous spaces and the concentration of service areas have permitted many different unit distribution schemes. This is true for the northern block of the building, but not for the southern one. The apartments of the southern block are smaller, they have no balconies, and the rooms overlook a narrow and noisy street.

Living conditions here are visibly different from the northern side. They reveal the asymmetrical quality given by the orientation and the urban context, and the possibilities offered through creating flexible standards.

Finally, the Remodelación República complex is confronted with different challenges. Being a state-owned property in its early years, in time, the original residents became the land-owners. As time passed, they were able to keep the complex in relatively good condition, and today they are campaigning to improve the number of owner-occupied units within the building (almost half of the unit owners have left their apartments and rented them). This will help achieve the key goal of increasing the land value of their apartments. As a unit owner (proprietor), one is able to introduce as many modifications as necessary to meet particular needs (changes in family sizes, implementation of working spaces, etc.) and the República layout offer many possibilities that the actual available apartments on the real-estate market for the middle-class does not.

Private and public housing programmes in Chile gave cities an urban appeal that remained almost unchanged for decades. In Santiago, modern ideas on housing like flexibility were adopted under particular urban and technical conditions such as the existing colonial block pat-

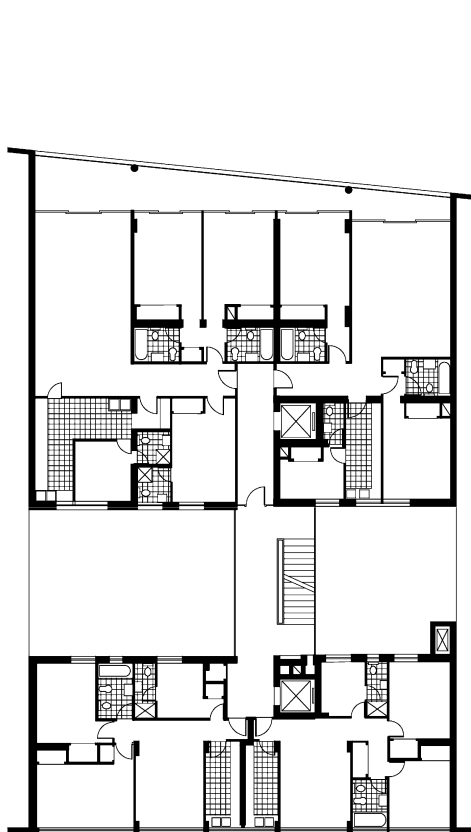


Figure 3. Forestal building, Typical floor plan.
Duhart, Infante and Stevenson, Architects.
Source: Taken from original project drawing.

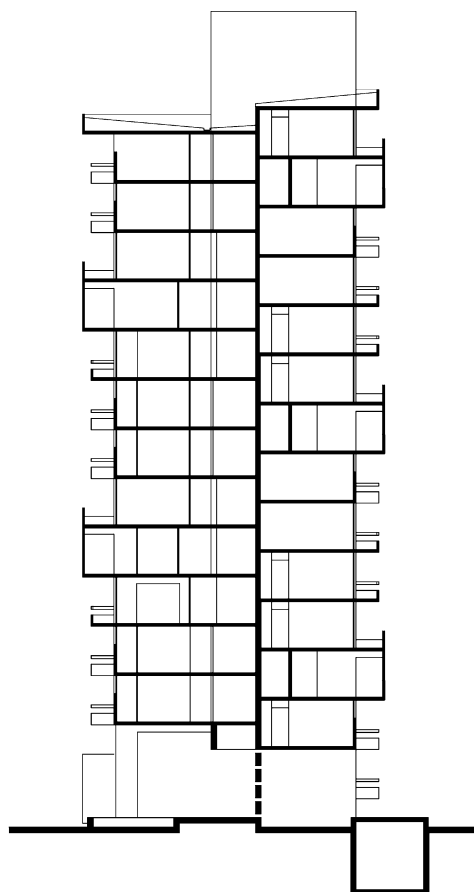


Figure 4. Remodelación República complex, section.
Bruna, Calvo, Perelman and Sepúlveda, Architects.
Source: Taken from original project drawing.

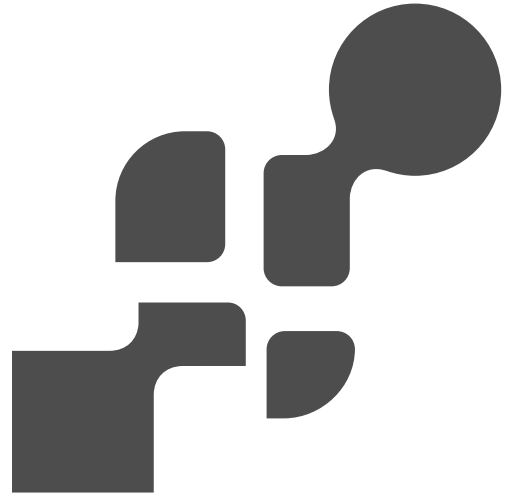
tern, geographical elements and social evolution. The latter is clearly the most challenging issue for the continued viability of modern buildings for residential use in central Santiago. The examples shown here give some hints on how different kinds of buildings can cope with forthcoming changes. Economical growth and cultural changes are visibly affecting the way residential spaces are used in Chile. The creation of standards that enable and encourage flexibility, as a design strategy to be implemented in cases like these, can positively help in their value and preservation.

NOTES

- 1 Parraguez, W. 1932. "Habitación", *ARQuitectura* N° 2, 29.
- 2 Horizontal property" in Chile addresses a subdivision of a building into different proprietors. Prior to such a rule, a building could not be divided and remained a single property (of an individual or a group of persons. Apartments could be rented but never sold.

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Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

F(r)ictions of Flexibility

Education in Transformation

Technology, Progress and Sustainability

F(r)ictions of Flexibility

INTRODUCTION TO THE SESSION

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'Flexibility' is a complicated concept in relation to Modernist architecture, especially in the case of the paradoxical practice of conservation. As Adrian Forty explains in the specific entry in his vocabulary on Modernist architecture (*Words and Buildings*, 2000, pp. 142-148), the term has different – even contradictory – notions in the postwar decades. Forty defines three strategies to introduce the concept of flexibility in architecture: by 'spatial redundancy' (particularly in pre-Modernist buildings), by 'technical means' (that is, by incorporating moveable elements), and as a political strategy (that is, by allowing multifunctionality).

In fact, the fiction of flexibility – which "allowed architects the illusion of projecting their control over the building into the future, beyond the period of their actual responsibility for it" (Forty, *Words and Buildings*, p. 143) – provides numerous difficulties when a building must be adapted to new needs, whether, aesthetic, technical, practical or economic – in short, its 'test of adaptation'. This term is used deliberately to establish an analogy with the 'test of authenticity' as stated in the *Operational Guidelines for the Implementation of the World Heritage Convention* and the general debate in conservation circles concerned with the continuing valorization and usage of inherited buildings.

One reason why the built heritage of the Modern Movement is proving so difficult to adapt to future demands, other than those foreseen by a structure's original designers, is the small margin that is able to be changed without disturbing essential original qualities, and yet without copying the old masters. Here is the essential challenge of change for a new generation of architects – to design intelligent interventions that fit with the 'historic modernist' appearance in a modest, preferably harmonious, manner. In recent years a new trend has brought many radical interventions to make old buildings 'reborn' by means of sharp contrasts – in forms, materials, colours or scale – in order to stress the 'newness value' but this type of 're-architecture' seems insufficient to be applied to Modernist works, simply because its language is too close to our time and too vulnerable for disfigurement.

Five papers from three different continents (Latin America, Europe and Africa) illustrate the difficulties of satisfying the 'test of adaptation'. In all cases a political strategy was responsible for recent changes, but at the same time, the difficulties of flexibility appeared when the implementation of new technical devices and a more intensive use of spaces was at stake. In four cases, the shifts of programme exceeded the capacity of the original structure, a problem that was exacerbated by the common bias of new designers towards prioritising new requirements above conserving original material and value. These examples concern the conversion of a railway station into local authorities headquarters in Chile; the transformation of a market hall into the headquarters of the European Central Bank in Germany; the re-use of a series of cultural community centres in France; and the incorporation of a church facility in a library in Ghana. In only one example, the conversion of a high-rise office block into apartments in the dense city centre of Sao Paulo (Brazil), could the new programme be realised within a sufficient margin of flexibility.

Conservation as Project

DEALING TODAY WITH LATIN AMERICAN MODERN HERITAGE – A REALISTIC APPROACH

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Dealing today with our recent architectural heritage requires us to take our eyes away from other urgent needs. In the economic context of Latin America, efforts for conservation are often viewed with suspicion by the authorities and the general public. This leads to an unequal position of modern architecture related to the rest of the built environment. If a modern building loses its use, it is often replaced instead of being restored and, hopefully, adapted to a new function. This paper aims to explore the ways in which conservation can develop between two extremes: either the “museification” of modern heritage or the constant updating of its artefacts, incorporating new uses and re-inserting them in the daily activities of their context. In fact, there are always compromises to be made between inherited forms and present needs. Conservation, then, becomes more a new architectural project directed to keep as much of the ‘spirit’ of the original design as possible rather than to keep – or even reconstruct – all the original substance and architectural details.

A typical example to debate the shifts in programme and the ‘test of flexibility’ of modern architecture is the conversion of the former Railway Station of Concepción (Chile) into the headquarters of the local government agencies.

GENERAL CONSIDERATIONS

The conservation of our most recent heritage has very special characteristics that distinguish it from other activities related to the protection of the built environment. With that in mind, it is necessary to define specific actions that would take into account the intrinsic differences between works that belong to a broader definition of heritage (appealing to a more contemplative or even emotive valorisation) and those that are still present in our every-day life, as expressions of our own time.

From the outset, the very idea of conservation has to promote itself more convincingly while facing the lack of a general understanding of cultural historical values or the lack of a propitious scholarly context. That is exactly the case of Modern Architecture, which has to fight against the prejudices created by the “modern paradox” and against the almost oxymoronic idea of a heritage from our own time.

The issue here is that our recent heritage is too tainted by our own realities and tastes; the ‘presentness’ of the modern buildings is seen as a bias and not as an opportunity.¹ Presentness, in this sense, can be associated with a certain lack of value or ‘aura’ due to the perception of these buildings as every-day objects. And just like air, every-day things become precious only when we don’t have them anymore.

The philosophical as well as practical problem is that before we have to deal with loss, which already implies a valorisation *per se*, we have to solve the question of how to treat these artefacts



Figure 1. The former railway station of Concepción (Chile) in the 1950s.
Photographer unknown. Source: Eliash and Moreno.

in the very context in which they were created, which can be closely identified with their present usage. In other words, as these buildings tend to serve the same function they were designed for, we need to focus our efforts in promoting its value not as related to the past, but to the present or, even, to its future roles.

So, what are the possibilities regarding our recent heritage? Should they be stripped of their actual utility in order to be converted into museum pieces - as we have seen with Le Corbusier's Villa Savoye or Mies van der Rohe's Tugendhat house - or should they be constantly updated, with the risk of losing their original nature and falling into that already-mentioned every-day disrespect?

This discussion is not new, as is the concern about our modern heritage not new. It is, though, rather recent as a public preoccupation, at least in Chile and the rest of Latin America.

Even if it is not possible, yet, to talk about a common and universally-agreed understanding of the value of the architectural heritage of the Modern Movement, the questions whether and how to preserve it appear more and more often in the media. Nowadays, a certain notoriety is given to buildings and landmarks that ten years ago would have been overlooked (just as they have been for the last 30 to 60 years).²

All this relatively recent interest from professionals and the general public needs to develop a new approach to conservation that would seek an intermediate way between the two extremes previously stated. That is, the promotion of conservation cannot seek the museification of its works, nor can it leave them to their own fate, without a proper consideration of its heritage value.

Experience tells us that as long as a building or an urban area is used and updated, it keeps its place as something valuable, even before we attach to it any heritage consideration. We know, too, that when a modern building loses its actual utility or becomes hopelessly obsolete, it meets more often the deprecatory adjective of *scrap* rather than the much more evocative one of *ruin*.

So, if we accept that both factors of use and up-to-dateness are relevant in our treatment of recent heritage, then a proper attitude towards its conservation should focus on adaptive re-use, together with a deep understanding of the qualities that call for a respectful intervention. It is only through this *projective* attitude that conservation can achieve a successful goal, by conserving not only the physical presence of buildings, but its continuing presence as functional nodes in today's context.

CONVERSION OF CONCEPCIÓN STATION

An interesting case to confront the issues of conservation and (in)acceptable changes is the conversion of the old railway station at the city of Concepción in southern Chile. The building was designed in 1941 by architect Luis Herreros, who worked at the architectural design office of the Ministry of Public Works, to replace the previous station that had collapsed during the earthquake that affected the whole region in 1939.³

According to the architectural guidelines stated by the ministry's office at the time, Herreros designed a concrete, earthquake-resistant building following a rational order. This consisted of a horizontal section of two levels containing the first and second class waiting rooms on the ground floor and offices on top.⁴ The station was situated as a focal point along the main street leading from the city's central square, which was emphasized by a red plastered clock tower in the centre of the composition, serving as a signal post in the distance. The building enjoyed a broad visibility thanks to a square onto which it fronted and was flanked by two lateral wings of covered walkways; a typical detail in the rainy climate of the city.

In recent years, the Chilean railway system had drastically reduced its services for financial reasons and few trains stopped in Concepción. The passenger service was moved to a lighter platform structure and the reduced operational scale made it unnecessary to keep the station for that purpose. This kind of obsolescence caused neglect and by 2002, the station was left in a semi-derelict state, but its basic qualities were good enough to let it be designated as the future seat of the regional government. Thus, in 2004 an architectural competition was organized to design the new complex, with one of its requirements being to include the station as the central element in the composition. Although the building was not listed, it was considered an important piece in the city, so the preservation of the station and its inclusion in the new complex was defined from the very beginning.



Figure 2. The re-used Concepción railway station among the new structures.
Photographer: Cristóbal Palma.



Figure 3. Interior view of the first-class hall of Concepción railway station.
Photographer: Cristóbal Palma.

The winning entry, by renowned architect Smiljan Radic, proposed a striking urban intervention, with new buildings to each side of the station, and a public square to its front, with a reflecting pool and an underground public auditorium.

If the quality of the new ensemble in its own rights is not in question, the impact of the intervention on the former station raises some interesting issues related to the idea of adaptive re-use, and the opportunity to address this one as a conservation case from a *projective* point of view. The main idea of treating heritage by a projective way means that the superimposition of different elements could add some interest to the building undergoing the intervention.

This projective view works, however, at different levels. In our specific case, the 60 year old building has particular urbanistic values as a 'citymark' as well as architectural, cultural and symbolic values as a railway station in a frontier city, representing industrial progress and reconstruction after a natural disaster. Also, the physical image of the severe and austere State is reflected in its marble pilasters, the chequerboard pattern on the floor and the superb mural painting over the high walls of the first-class hall, depicting the history of the city. All these issues could be addressed independently – and, indeed, the new appearance of the converted building seems to consider them each in its own value. However, if there is no consideration as to how they relate to each other, the risk is to lose the broad view, and the intervening efforts seem to end up destroying whatever unity they created in the first place.

This is exactly what happens with this building: there is no general perspective in terms of understanding how each of those levels mentioned above co-operate as a set to configure what the station was or what it meant to the city before its conversion. Each level, treated as a single and isolated element, is reduced to the same value as an applied material, and by treating their roles in the original building as single materials, they can be very well-executed – as, for instance, the

new window frames – but they fail to relate the new appearance to the ‘historic’ image of Hereros’s concept. In other words, an ensemble can have a heritage value as long as it keeps being recognizable as a coherent unity in form and lay-out. The risk of this kind of intervention is that the ensemble dissolves in each element.

Some of those elements are secured by external circumstances, like the urban setting, the location of the building as a focal point in the perspective and the strong expression of the vertical tower. The rest is weaker and depends strongly on being treated together as a set of parts. Required to fulfil a new function, the building was then *hypermodernized* at the material level, stripped of all its characteristic architectural details, and was left as a strange and sad hybrid of a Modern layout dressed in contemporary materials.

In the effort to get the station converted into its new use as local headquarters, the simplest conservation issues, that would have called for a more respectful treatment of the physical fabric of the building, were remarkably absent. This situation did not go unnoticed in the local community, and a rather small polemic developed during the unveiling of the projected intervention, related to the way the building was hidden behind its new makeup, as well as to a local reaction against the centralized decision-making that presented the whole intervention as a project planned, approved and executed in the capital. Even if this controversy was not completely focused on the architectural features of the project, it showed that no matter how well-designed it is, a successful conversion depends, in the end, on a broader understanding of the heritage values argued upon.



Figure 4. A modern layout dressed in new materials.
Photographer: Pablo Oliver.

Operating, then, in the thin middle space between demolishing a piece of architecture and disfiguring it to receive new functions, the approach to conservation should assume the logic that belongs to the projective exercise. If, by looking around and studying how it is that some buildings and neighbourhoods remain well conserved thanks to their active functionality, we understand that active use is one of the most powerful tools to preserve Modern architectural heritage, then *conservation as project* can be a better way to give heritage a real opportunity to be integrated in the dynamics of the present.

NOTES

- 1 Much legislation requires a minimum of 20 to 50 years for a building to become eligible for listing, which doesn't give much consideration to the intrinsic value of a particular work, leaving this first evaluation only to a matter of age.
- 2 The recent opening of the building in Santiago of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) (CEPAL using its Spanish acronym) during Chilean National Heritage Day showed that there is a dormant interest in Modern architecture, as 1,500 people attended the guided tours in the five hours it lasted. Other less well-known modern buildings that were opened received less attention, a fact that can help in focusing what makes a specific building more prone to be considered in heritage actions, not only for its intrinsic value, but on how it relates to the public perception as well.
- 3 The earthquake hit the southern regions of Chile on the evening of January 24th, 1939, with its epicenter near the city of Chillán. The death toll is estimated at around 30,000, in the cities of Chillán, Parral, Cauquenes and Concepción. The first of these cities had to be rebuilt in another location.
- 4 As quoted by Humberto Eliash and Manuel Moreno Guerrero in their book *Arquitectura y Modernidad en Chile, 1925-1965: Una realidad múltiple* (1989), these guidelines included the following paragraph: "the architectonic expression of the public works must reflect the image of the institutionality of the State: austere, conceptually transcendent, physically long-lasting and functional (as well as) respectful of the cultural traditions of our society and its landscape. It shouldn't fall for fashion, shallow decoration or audacious expressions that would put in danger its physical or conceptual clarity." (translated by the author).

Adaptive Rehabilitation of the Riachuelo Building in the Historical Centre of São Paulo

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As in many Latin American cities, the old city centre of São Paulo slowly decayed in the early post-war decades. Recently, a municipal programme has been implemented with the aim to re-occupy the historical city centre, as an experiment to promote rehabilitation. Several empty office blocks were acquired to be converted into social housing. For this purpose the municipality founded the *Cohab* company, which commissioned Paulo Bruna Architects to make the designs for the shifts of programme in the Riachuelo Building (1942-45 Lindenberg & Assumpção Civil Engineers) and change the offices into 120 apartments.

HISTORICAL CONTEXT

The old historical centre of São Paulo occupies roughly a triangular acropolis with steep slopes, which were necessary for the protection of its early inhabitants and of the Jesuit school built in 1554. For centuries it remained a very poor and provincial village.¹ From 1870 on, São Paulo started to grow very quickly due to the expansion of the coffee plantations, the construction of several railways and the sudden increase of European immigration. It became the “farmer’s capital” as Pierre Mombeig described the new habits, new needs and mentalities of these capitalist farmers which transformed the image of São Paulo between 1872 and 1918.² In 1900 the town had 240,000 inhabitants, in 1930 one million and by then it was already the largest industrial centre in Latin America. The flow of immigrants from all over the world was constant and by 1930 it represented 7.0% of the total population of Brazil.³ In 1954, the year of its fourth centenary, the city had three million and in 1960 3.7 million inhabitants.

In spite of all this growth the historical triangle remained the business centre and streets like XV de Novembro, Boa Vista or Líbero Badaró were crowded all day long. Two mayors, Fabio Prado (1934-38) and Francisco Prestes Maia (1938-45) started the large urban transformations which were necessary: in the old historical centre the Patriarca Square was opened in 1926 in front of the “Tea Viaduct” which spanned the Anhangabau valley and connected the historical centre with the new centre in the former land of the widow of the Baron of Itapetininga. Important new buildings were erected at both sides of this bridge: on the side of the old home of Count Prates, Francisco Matarazzo asked Marcello Piacentini to design the headquarters of his corporation in the early 1930s; on the other side, just in front of the Opera House, Francisco de Paula Ramos de Azevedo designed the new “Mappin Stores”, intended for upper class customers, in 1939. This year is quite remarkable because it shows very clearly that all the elegant shops and professional offices started to move from the old to the new centre across the Anhangabau valley. The Law Academy and all the Tribunals, however, remained in the historical centre and, as a consequence, most lawyers’ offices stayed as well, along with most bank headquarters, the Stock Exchange, insurance and brokers offices. In the ‘30s and ‘40s the latest office buildings were built on the fringes of the historical centre, in the difficult, few difficult sites that remained vacant.

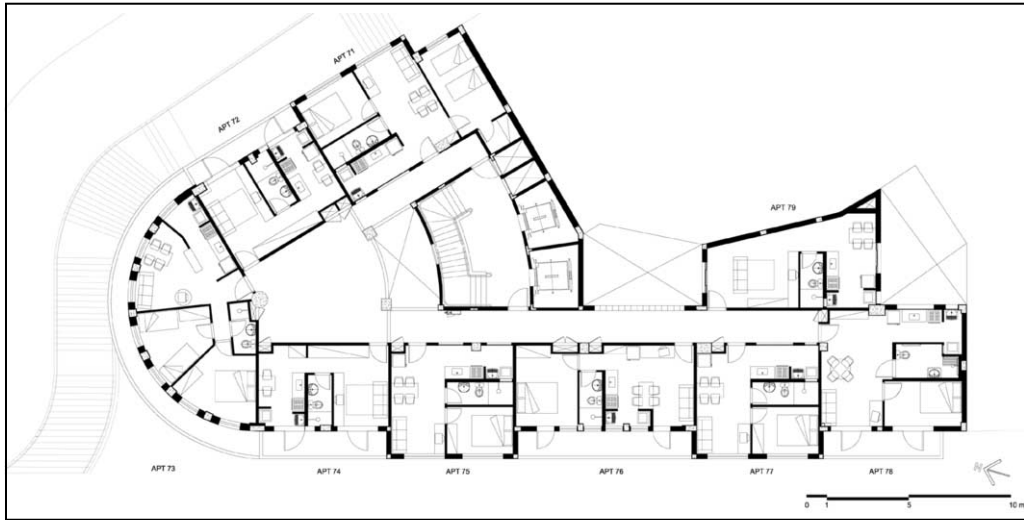


Figure 1. Plan of the 7th floor.

One of them was in the Riachuelo Street, a narrow alley at the back of the St Francis church and the Law Academy. The triangular site with steep slopes was fully occupied by the Riachuelo Building with 17 floors.

THE RIACHUELO BUILDING

The Riachuelo office block was built between 1942 and 1945 by Lindenberg & Assumpção Civil Engineers. The building had a typical but elegant façade of early modernist design, with long horizontal steel windows and, surprisingly for an office block, many balconies.

The floor plan is rather similar to a huge “A” with the rounded vertex opening to a splendid urban landscape, the valleys of the Itooró river (now 23 of May Avenue), Anhangabau and Bandeira Square beyond. Commercial blocks were designed at that time, usually, with offices of 45 to 50m² opening to a central corridor. Restrooms were placed at the end of these corridors. Between the two arms of the “A” there was a hall with three lifts, staircase and a ventilation shaft. The main entrance was at the level of the third floor from the Riachuelo Street.

During the 1940s, the Second World War caused a great scarcity of building materials, especially reinforcement bars which were still imported from the USA. For this reason the concrete structure was designed with a large number of columns in order to have small spans. These columns were placed inside the solid brick and mortar walls between offices.

The first owner was a private “Employees Association of Commerce in São Paulo”, from 1942 to 1978, which used the first floors for social and educational purposes. The double height “reception room” was quite impressive. The upper floors were sold. After 1978 the space of the Association was rented to an accounting school and when it closed the floors remained vacant. Slowly all floors became vacant and in the 1980s the building was empty and decaying. In 1994 an invasion of “street dwellers” occupied the building, together with an enormous amount of graffiti all over the walls. The families were expelled by the police which caused a riotous confrontation and considerable internal destruction. The worst one was the theft of the main storm pipes. Afterwards, when it rained the water flooded all floors and the lifts. The wooden floors were almost all destroyed as well as doors and glass windows.

Nevertheless, the building was structurally quite sound and the façade was listed as historical heritage by two different bodies: CONPRES (Conselho Municipal de Preservação do Patrimônio Histórico de São Paulo at the city level) and CONDEPHAAT (Conselho para a Defesa do Patrimônio Histórico, Artístico, Arqueológico e Turístico do Estado de São Paulo, at the State of São Paulo level). So, a shift of programme had to stimulate the rehabilitation of the Riachuelo building and this was prompted by a new political initiative.

RESPECTFUL REHABILITATION

Marta Suplicy, mayor of São Paulo (2000-2004) started an ambitious programme of urban reconstruction which aimed to re-occupy the historical city centre.⁴ She moved the Town Hall staff to the old Matarazzo Building as well as a large number of public departments and agencies. The next step was the acquisition of several empty office blocks to be converted into social housing and the acquisition of vacant lots of irregular shapes left over when subway lines 1 and 2 crossed the central area. The Municipal Housing Company – COHAB-SP – was in charge of this experimental programme, which had essentially three main objectives: to rehabilitate vacant office or hotel blocks in the historical centre, to build new housing whenever possible in the vacant lots of the central area and to sell or rent to low income families that worked in the historical centre starting with the municipal employees. The main purpose was to provide a living social diversity in the central historical district of the city.

Paulo Bruna Arquitetos Associados was hired by COHAB-SP to adapt the Riachuelo office block to a rental condominium of social housing. This new programme required careful interventions. The external surface was “massa raspada”, a finishing mortar made of portland cement, lime putty and marble sand in the proportions of 1:4:12. This finishing layer was applied over a surface of mortar with one part of portland cement to 10 parts of mortar made of lime and sand (1:4). The finishing colour was light, basically sand. It was fully scraped and reapplied in the same colour using industrialized mortar of the same quality and colour.

As for the interior, it was not easy to obtain approval for the intended changes since the large double height windows of the first and second floor “reception room” had to be split in two and for security reasons the access to the overhang on the second floor had to be cut off. Everything else would be kept as per the original.

Another difficulty was that it was impossible to find the original drawings or design calculations. Lindenberg & Assumpção had closed many years ago and the archives were lost. So, a detailed survey of the structure was carried out and two load bearing tests in different floors confirmed that the concrete structure was sound and in excellent condition. Small localized reinforcement was necessary on the top floor since new larger water tanks were placed in place of the old smaller ones.

The solid brick and mortar walls with columns were retained and each office was converted into a small apartment, some with two bedrooms. A typical floor has 8 or 9 apartments. There are 120 of them with areas between 27.40m² and 47.22m² of private space. The internal divisions were built with light masonry of aerated blocks in order to keep the load

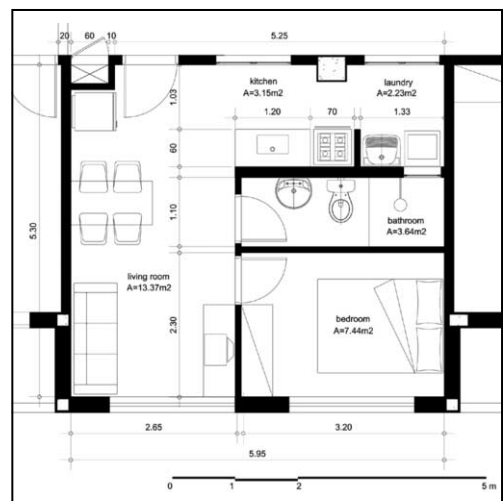


Figure 2. Example of an apartment.



Figure 3. Aerial view of the building, before the rehabilitation.
Photo: COHAB-SP.



Figure 4. West façade of the building, after the rehabilitation.
Photo: Sonia Gouveia.

under control. Each apartment has a small bathroom and a kitchen with small and standardized plumbing. Each kitchen has a separate space for home laundering with a washbasin and a small washing machine incorporated in all flats. All plumbing and electricity are new and almost all apartments have their own services shaft, accessible from the central corridor, in order to keep maintenance simple. The balconies were restored as well as the glazed external doors and steel sash windows. The building is under rehabilitation now and the first families will be moving in at the end of 2008. All in all, the rehabilitation took place for a very reasonable budget.

COMMENTS ON RESTRICTIONS AND FLEXIBILITY

A few comments may be added to sketch the difficulties of this particular rehabilitation plan and the political conditions in general.

The site was small with an area of only 516m². The built area is 7,870.54m² in total with a floor space ratio of 14.88:1. If demolished, the building could not be rebuilt within the same area. It might be one of the reasons why so many office blocks in the historical centre of São Paulo are empty. Today the permissible built-upon area is only 4 times the site area. The communal area is 2,741.22m². If equally divided by 120 flats, each one will have 22.84m² of communal space. There are no parking places provided.

The Programme "Morar no Centro" which means "to live in the centre" is rather more complex than mentioned before, because it covers a larger area than the historical triangular city centre.

The programme entails four main points of interest in this “expanded centre”:

- 1 “Flats for social rent”, with new and rehabilitated construction;
- 2 “Neighbourhood rehabilitation” (Perímetro de Reabilitação Integrada do Habitat) with the focus on social integration of low income communities living in the extended central area;
- 3 “Rehabilitation of existing buildings”, either offices (as the Riachuelo block) or empty hotels: Hotel São João – 35 flats; Hotel São Paulo – 152 flats. Six other office blocks were acquired at market cost such as Senador Feijó, Aurora, Prestes Maia, Asdrubal do Nascimento, Brigadeiro Tobias and Maria Paula. Almost finished are the rehabilitation of Hotel S. Paulo and Riachuelo;
- 4 Interventions in “slum buildings” with four projects in the central area.

These programmes were followed by two public competitions. Most proposals, however, were considered too expensive or inadequate but one direct intervention by COHAB-SP is now already finished: Parque do Gato, a new social estate in of 17.50 ha with 486 units. Another rehabilitation project, intended to upgrade the San Vito apartment building with 600 flats which currently have a bad reputation, could not be started due to legal reasons and new political changes.

Marta Suplicy was succeeded by José Serra (2004-2006) as the new mayor and he maintained only the few projects that were already finished or well-advanced. Political and administrative discontinuity is a constant plague for the city development of São Paulo. The rehabilitation of the old city centre needs a more solid long-term strategy; the projects realised thus far have proven that conservation and functional change can give this aim a new boost.

NOTES

- 1 Matos, Odilon Nogueira de, “São Paulo no século XIX”, cap.II, vol.2, p. 66;
- 2 Mombeig, Pierre, “Aspectos geográficos do crescimento de São Paulo”, in *Boletim Paulista de Geografia*, n° 16, março 1954, p. 72.
- 3 Hall, Michael, “Imigrantes na cidade de São Paulo” in *História da Cidade de São Paulo*, vol.3, p.121.
- 4 Prefeitura do Município de São Paulo, Secretaria da Habitação e Desenvolvimento Urbano. Caderno “Programma Morar no Centro”, SEHAB, 2004.

Large Scale Projects of the Modern Movement

CHANGING OR DEVELOPING ARCHITECTURAL GENIUS?

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WHOLESALE MARKET HALL IN FRANKFURT ON MAIN AND SHIFTS IN PROGRAMME

When the *Großmarkthalle* (Wholesale Market Hall) in Frankfurt on Main was inaugurated, in 1928, it was the largest Hall in Europe, full of transparency and introducing the representative power of the City by its grand scale and proportions. Located with its elongated front of pierced brick walls on the east bank of the river Main, it has dominated the riverside as a remarkable landmark from the start. In 2004, after being used intensively throughout the years, it lost its original function, due to the municipal decision to move the food market to the outskirts of the town. Actually, the Market Hall is waiting to be transformed into the new headquarters of the European Central Bank (ECB) and to become the central part of a gigantic ensemble to the design of the architects of Coop Himmelb(l)au, Vienna.

The current process of this major shift of programme reveals the frictions of the concept of 'flexibility' when the adaptation of a modernist monument to new functions is concerned and it gives reason to discuss the tensions between policy, economy, cultural and architectural values as well as architect's ethics.

The Frankfurt Wholesale Market Hall was designed by Martin Elsässer, Director of the City's Building Department and Chief Architect at the time. Built in 1926-1928, it was an essential part of the Masterplan for the urban development by Ernst May, Chief of the Town Planning Department and Dr. Ludwig Landmann, the mayor of Frankfurt in the years 1925-1930. Both were well known as engaged and most talented persons to enhance progress and innovation by *Das Neue Bauen* ('the New Building'). The plans and strategies for the city's development also included housing projects, schools, hospitals and administration buildings as a powerful demonstration of Modern Movement buildings, of new technologies and a new lifestyle.

The Wholesale Market ensemble was an ambitious industrial complex, in which the infrastructural services were integrated. The Hall was intended as the major regional 'foodstore' where tropical fruit, vegetables and other goods and foods arrived in huge quantities by train, ship or truck and were sold from dozens of stands which were spread in a flexible manner in the enormous undivided inner space. The functions (storage, selling, offices, services) and infrastructure were strictly organized by spatial differentiation. The main traffic was led underneath into the ground floor. Railway service was located at the south; cars and lorries were located at the north side of the hall, while ships would come and go on the river in front and unloaded by derricks on the quay.

Apart from the functionalistic approach, another very important aspect of the Hall's architecture is Martin Elsässer's use of the number three as an elementary design tool for the proportions and the details. By doing so he followed his interest and love of music, particularly his polyphone sensitivity based on the triad and tertian harmony.¹



Figure 1. Frankfurt's riverside and exterior Großmarkthalle.

Source: <http://en.wikipedia.org/wiki/Gro%C3%9Fmarkthalle>.

Measuring 220 m long and about 50 m wide, the huge inner space of 13,000 square meters was roofed by an impressive and sensationally thin monococque construction. This consisted of a series of 15 barrel vaults of reinforced concrete with shells of only 6 to 8 cm thick and glass blocks. These shells were constructed with the patented "System Zeiss-Dywidag". Its reinforced concrete skeleton, its membrane-like skin with large areas of glazing and the sophisticated proportions were extravagant and new. They provided full daylight and transparency to the Hall, that was architecturally accentuated by the horizontal frames and lines of the bright concrete alternating with the dark-red brickwork.

During the war, the Market Hall was heavily damaged in some parts. About 60% of the elegant offices in the West Tower were destroyed, and 35 % of the Hall. The very representative upper levels of the office and all the surfaces were lost forever, five of the western roof shells were damaged. By 1953, however, the Hall was repaired and partly reconstructed to continue its original function. In 1984 this typical structure of interwar industrial modernity was listed as a protected monument. But at the end of the 20th century, new developments in the distribution of food, infrastructure and urban growth pressured for a relocation of the wholesale function and so Elsässer's creation was threatened with obsolescence.

NEW ECB HEADQUARTERS – INTERNATIONAL DESIGN COMPETITION

A few years after the new Distribution Centre had been opened near the Highway in the North of Frankfurt, the municipality had offered the Wholesale Market ensemble to the European Central Bank to be used and developed into its headquarters. For this purpose, a great international design competition was announced by the ECB in November 2002 for European architects. The aim of the competition was to develop a programme for the accommodation of 2500 employees in the first stage, for 3500 people in the second stage, and to add a significant sign of architecture as a new city landmark. More than 300 applicants from 31 countries wanted to win with spectacular proposals, but, unfortunately, they hardly respected the outstanding architectural values of the Great Market Hall. At first, 80 participants were chosen and 71 presented their work. In August 2003 the jury selected twelve design projects to be developed further in a second phase. On the 13th of February, 2004 three prize winners were selected.

- 1 Coop Himmelb(l)au;
- 2 ASP Schweger + Associates;
- 3 54f Architects + Engineers

But they were requested to modify their design seriously.

In autumn 2004 the modified concept of Coop Himmelb(l)au was chosen and this is under development. The radical intervention, that foresees making a new wing as a connection between the former Market Hall and two new 'twin towers' at the river front evoked much civic protest. The architects intend to take away a part of the glazed facades, to cut the roof by inserting a new horizontal part, to destroy the existing authentic material and historical substance of the

original and post-war reconstruction. These interventions are all meant to give a visual sign for the entrance and to fill up the transparent undivided space of the hall with closed conference halls, while piling them up to the ceiling for the new needs. The effect will be that hardly any expression of the bright space will be rescued and that all former ambitions for public functions will be given up.

Most conspicuous, and also most contested, is the project to build a double tower more than 180 m high. In response to the jury's rigid treatment of the design brief and the exertion of power by the ECB as a prominent financial institution, the politicians of the green and black parties in Frankfurt took the building off the list of protected monuments on the 7th of November, 2006 to allow the demolition of the lesser side buildings (*Annexbauten*) to accommodate kitchen, administration and habitation facilities.

In their first design the architects of Coop Himmelb(l)au had proposed to remove the entire roof to give place for an immense horizontal building lying on the remaining parts of the Hall. As a left-over of this daring proposal they now intend to cut a part of the western roof and volume to create a new wing as a connection between the double towers. The towers are regarded as a city in itself and as a new symbol. This second design will destroy all the parts that had been hit by the 1944 bombardments and afterwards carefully repaired and restored in accordance with the original roof shell system.

The general public, though, was annoyed by such a violating treatment of and disrespect for these local and truly historical values of the former Wholesale Market Hall by the architects, the politicians, the owner and the department of monuments. Its protest began to rise up against the proposed modifications. Despite the new revisions the consequences for Elsässer's creation will still be disastrous while the architects did not change much of their intent. Besides, they will need special supporting construction to allow the insertion of the new volumes by a new kind of technology that was not yet in existence when the Hall was originally built.

The new building is scheduled to be finished in 2009, the site will cover about 643 hectares. During the design phase the authorities have allowed the owner to build the high-rise parts some levels higher to realize better proportions for the ensemble of the two towers. In the course of 2011 all parts of the ECB will be moved into the new headquarters.

RESULT

The shift of programme in the future use of the Wholesale Market Hall was accompanied by a sensational competition and strong ambitions of the new owner, which disregarded the outstanding values of the original architecture. The cultural power could not resist the economic and political power of the moment. The enormous volume of the ECB transformation project will change the land- and cityscape totally. Whereas the west harbour is already developed into a mix of new buildings for administration, habitation and services, the eastern harbour will undergo a gigantic change through this enormous project.



Figure 2. Interior GroBmarkthalle.
Photo: Alex Dill.



Figure 3. Artist impression proposed interventions Großmarkthalle.
Source: <http://www.coop-himmelblau.at/>.

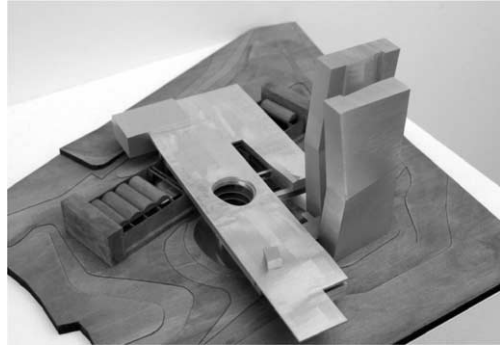


Figure 4. Scale model proposed interventions Großmarkthalle.
Source: <http://www.coop-himmelblau.at/>.

The design of the new ECB Headquarters in Frankfurt, whilst integrating the Wholesale Market Hall, is a unique challenge for architectural creativity and either the developed or the lost chances for progress in that field of our profession. The responsibility for the architectural genius, the value of the heritage and the innovation of the new additions provide a wide range of interesting issues for professional discussion and critical reflection.

Generally trusting the architects' professionalism and competence to serve the aesthetic challenges, we will finally see the reality of the result about 2011 when the new Headquarters will be inaugurated.

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Restoring the 20th Century

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The political, social and economic policies adopted in France at the beginning of the 5th Republic¹ led to the development of architectural forms that corresponded to specific new programmes. These “new growth programmes” reflected the values of a prosaic modernity that spread rapidly and resolutely nationwide. The research conducted by the architects, the typological, technical and spatial innovations, and the aesthetic contribution made by this period generally, remain poorly understood or undervalued.² The knowledge and appreciation of architecture from the second half of the 20th century is nonetheless central to current issues of conservation given the obsolescence, changes in use and renovation work that very quickly affected the buildings of this period.

One of the most ambiguous architectural programmes in France during this period of economic growth was that of the *Maisons de la culture* (cultural centres). Heirs to the post-war social programmes, the so-called *Palais du peuple* or *Palais du travail*, the cultural centre programme spearheaded a policy drawn up by the new Minister of Cultural Affairs, André Malraux, from 1959 onwards. When, on May 15, 1959, he announced that all French départements would be equipped with a Cultural Centre, he still had no really clear idea about how they might be used.³

The first two cultural centres consequently presented two conflicting architectural styles: the *Maison de la culture* in Bourges, inaugurated in October 1963, was situated in a former and monumental *Maison du peuple*,⁴ while the Museum-Maison de la culture in Le Havre,⁵ inaugurated in 1961, reflected the aims of flexibility and the innovative character of a programme still under development.

CENTRALISED POLICY AND CULTURAL DECENTRALISATION

The ambiguous nature of the cultural centre programme arose partly from this balancing act between monumental tradition and innovative flexibility, but was also linked to the tensions between the centralised political power and the mechanisms of cultural decentralisation. The aims of the cultural centre programme were, in effect, interwoven with those of the Minister,⁶ André Malraux, in other words, the determination to give every French child, in addition to the alphabet, access to the arts in general, including fine art, theatre, cinema and culture generally,⁷ but which also saw the *Maisons de la culture* as an instrument for resurrecting France’s cultural reach on the international stage. These aims were pursued in the frame of decentralised practices, based on local initiatives (the municipalities) that had a considerable impact on the creation, funding and running of these cultural democratisation tools. It should be noted that the length of time it took before the operation was finally completed goes some way to explaining the diverse forms the buildings took and also the evolutions in the *Maisons de la culture* programme. The first centre was inaugurated in Le Havre in 1961 and the last opened in Chambéry in 1987. The first centres were set up in

municipal theatres that were rebuilt from the ruins left by the war (Amiens, Caen), while others were linked to diverse facilities: i.e. radio broadcasting centre or leisure and sports centre. Still others increased or reduced the degree of polyvalence inherent in their programme.

THE PROGRAMME AND ITS USES

The 4th plan (1962-1965) aimed to build twenty cultural centres nationwide, but only six *Maisons de la culture* were operational by 1965. The 5th plan (1966-1970) set out to complete all twenty cultural centres by 1970, with the addition of eight new centres. By 1970, eight *Maisons de la culture* were operational and two were almost finished. Although the 6th plan included five new *Maisons de la culture*, by the mid-seventies the programme had lost its political importance. While the state envisaged cultural decentralisation as a way to share initiatives and costs with local authorities, the municipalities saw it as an opportunity to fund 50% of their communal facilities. Of the fourteen cultural centres completed by 1976, only eleven had retained their initial status. In disillusioned assessments of the situation, they were accused of being arenas for political agitation that had failed in their original vocation as centres designed for the general public. The state subsequently preferred to promote the Centres for Cultural Action (CAC), a more flexible, less complex and, above all, more cost-effective formula. However, before they became more or less obsolescent, the *Maisons de la culture* were initially affected by the instability of the programme and changes to French cultural policies.

The functional programme set out for the *Maisons de la culture* was often a list of complementary activities that architects were expected to piece together in a kind of one-stop shop: two auditoriums, (one large, 800 to 1200 seats and a smaller 250 to 400 seats), exhibition rooms, a library, a discotheque, a communal listening room, premises for clubs, etc.⁸ The innovative nature and complexity of the programme embraced the concepts of polyvalence, flexibility and unexpected uses. From 1959, André Malraux's team emphasized the radical upheaval that the *Maisons de la culture* programme implied for architectural traditions: the idea was that the facilities would provide for all kinds of cultural events, preclude all technical obstacles and constraints that the architecture might otherwise impose, and incorporate unpredictability of use and its subsequent architectural impact.⁹ At the beginning, the *Maisons de la culture* were notable for the wide variety of activities they incorporated. Used above all as theatres, they also played a major role in promoting the visual arts, music, literature and cinema, and even architecture itself. Gradually, the theatrical activities began to dominate and their polyvalence became less marked. Theatrical practices also underwent a major transformation during the period in question. In the sixties, experimental ideas were highly prevalent, and polyvalence, mobility and adaptability became instruments for a new kind of drama form. The gradual return to the more conventional practices of Italian theatre sounded the death knell for these experiments as well as for polyvalence.

THE HERITAGE LEFT BY THE MAISONS DE LA CULTURE

Several of the *Maisons de la culture* have become genuinely or symbolically obsolescent. Some were reconstructed several years ago (Amiens, Grenoble), and others more recently (Rennes), giving rise to key issues about the utilisation and sustainability of architecture built during the second half of the 20th century. A critical exploration of the fate of these buildings provides us with an opportunity to explore the relationship our contemporaries have with their recent architectural past.

NEGLECTED SPACES

The designer of the *Maison de la culture* in Reims (1964-1969), the architect Jean Le Couteur, highlighted the complexity of the problem he had to resolve: i.e. the number of techniques, the diverse functions, the interpenetration of the premises as well as their expected autonomy, and the association of different cultural activities within one architectural space¹⁰. All the components of the programme were grouped together around the entrance hall, which was designed as a meeting space: a large theatre, a cinema, an exhibition room, a library, a discotheque and a cafeteria (Fig. 1). This unusual spatial layout and the articulation of the programme's components around the hall make the *Maison de la culture de Reims* an exceptional building, which was recently awarded a "20th century heritage" label in recognition of its qualities. Once it lost its polyvalence to exclusively theatrical activities, the most emblematic element, in other words the hall, was stripped of its sense. Poor maintenance, incoherent renovation and a lot of minor repairs and changes led to a complete loss of purpose for the hall. The neglect in Reims is indicative of a typically French problem, namely poor upkeep, but is also the consequence of a lack of understanding about how closely these spaces are linked to their functional and symbolic programme.



Figure 1. *Maison de la culture* in Reims (1964-1969), the hall. Jean Le Couteur architect.
IFA Paris.

THE RENUNCIATION OF AESTHETICS

The *Maison de la culture* in Amiens was envisaged within the context of the reconstruction of municipal theatres destroyed by the bombs. Designed in 1961, it was officially inaugurated by André Malraux on 19 March, 1966.¹¹ As in Caen, Amiens' *Maison de la culture* was inspired by contemporary German designs and featured a rationalist appearance in keeping with the aesthetics of the city's reconstruction (Fig. 2). The programme's components were set within a square layout, emphasised by the four bays of the structure and the emergence of the stage. The design of the large auditorium offered a certain number of mobile features: i.e. the position of the audience could be changed in front of the stage areas and the seats were designed to rotate. In the eighties, the *Maison de la culture* in Amiens was altered several times and was then transformed in 1987. In 1990, a call for tender was launched for an extension design. At the end of 1993, a brand new *Maison de la culture* was opened to the public.¹² The excessive expansion of the usable area (from 7000 to 15000m²), the «blue scarf» which now encircles the building, and the somewhat indiscriminate intervention of a decorator responsible for the refurbishment of a cafeteria indicate that the work was not intended solely as a functional upgrade of the facilities. Since the mid eighties and the political changes in the municipality, the architectural project has been a focus for the elected policy-makers, and the reconstruction of the *Maison de la culture* in Amiens reflects the renunciation of aesthetics, with the renovation work conducted with absolutely no consideration for its heritage value.



Figure 2. *Maison de la culture in Amiens (1961-1965) Pierre Sonrel, Jean Duthilleul and Marcel Gogois architects, old postcard.*

We could add any number of French public buildings from the same period to these two examples. Two other cases of reconstruction that have generally been presented in a more positive light from a heritage perspective, however, nonetheless raise other questions.

FLEXIBILITY VERSUS APPEARANCE

The *Musée-Maison de la culture* in Le Havre, inaugurated in 1961, eloquently expresses the idea of flexibility, with a luminous environment, multiple configurations of the exhibition rooms, and space for hanging paintings in an environment dominated by transparency and mobility (Fig.3). The first observations made during the inauguration on June 24, 1961, highlighted its potential for renewal and the flexibility of the volumes and spaces that could be arranged as required.¹³ When the new cultural centre designed by Oscar Niemeyer was opened in Le Havre in 1982, the museum lost its *Maison de la culture* status and became a Fine Arts Museum, strictly devoted to keeping collections and displaying temporary exhibitions. In 1993, a bid to tender was launched with the aim of restoring it and bringing it into compliance with standards. The winning architects¹⁴ who were eager to transform the building «in line with its founding principles» emphasised the extent to which the bid programme encompassed an irrevocable destruction of the inner qualities of the building. While sophisticated technical and architectural solutions enabled the outer shell, the original design and the double height of the exhibition area to be preserved, all the original elements that gave the inner spaces their unique character were sacrificed entirely.

FORGOTTEN EXPERIMENTATION

At the time of its inauguration, the *Maison de la culture* in Grenoble (1965-1968, designed by André Wogenscky) was considered an exemplary cultural centre. All of the programme's components were present in their flexible or polyvalent formula. Grenoble certainly housed the most eloquent «modern cathedral,» which perfectly espoused André Malraux's expectations.¹⁵ André

Wogensky explained the reasons for its functional inadequacy in 1993. «When I started planning the *Maison de la culture*, we imagined a type of building designed to include a theatre, exhibition areas, a library, an art shop, a cafeteria, and so on. It was mainly the idea of André Malraux, Minister of Culture in the 1960s. He defended the idea that, during an interlude, the audience would be able to see an exhibition which they wouldn't otherwise have visited. Even if this implied using somewhat devious methods, it was all for the good of the country's cultural development. I shared this vision of the *Maison de la culture*. Today, this concept is frowned upon (...), illustrating the way ideas are constantly changing. I am the first to understand and agree that we have to alter the centre.»¹⁶ André Wogensky was asked to sit on the selection panel for the bid organised in 1997 to restore and extend the *Maison de la culture* in Grenoble. The winning project by Antoine Stinco left the outline of the original building intact and added a new structure on one side, with the old and the new buildings linked by two passageways. The resulting extension is slightly set back and its programme is devoted entirely to dance. There are also offices, a restaurant and a bar. The former *Maison de la culture* was entirely renovated and its outer shell restored. The final result was inaugurated in September 2004. The critics emphasised the quality of the work and the relative discretion of Antoine Stinco's project, but they also wondered what had remained of the «model cathedral»? Behind the apparent respect for the original shell, much has disappeared such as the mechanical devices designed specifically for Jacques Polieri's theatre and stage research¹⁷. (Fig.4) The round-shaped theatre, a symbol of the dream of mobility so dear to its era, has disappeared completely, and the renovation work was accepted without a murmur.

The fate of these cultural centres is indicative of the conditions of existence, obsolescence and architectural transformation of architecture from the second half of the twentieth century. The values represented by the *Maisons de la culture*, namely flexibility, functional mobility, spatial dynamism, programming adaptability and unpredictability are systematically called into question during the transformation process. Even when their heritage value is recognised by the administration, transformations have already erased their former architectural qualities and their idiosyncrasy. In Le Havre and Grenoble, after the restoration of the formal outer façade, the restored buildings offer the public a patrimonial simulacrum of what they once were, but they have nonetheless lost the substance of their programme.

As if to confirm the photogenic importance of these transformations, the *Maisons de la culture* in Grenoble and Rennes held spectacular light shows following their renovation. Glorifying the iconic dimension of the buildings in this way appears to prove that the reconstruction work was based on a flawed and ephemeral understanding of the architecture. They illustrate the consequences of misguided views regarding the real values, forms and practices of these new programmes from the latter half of the 20th century.



Figure 3. Musée-Maison de la culture in the Havre (1955-1960), old poscard showing the original exhibition spaces.

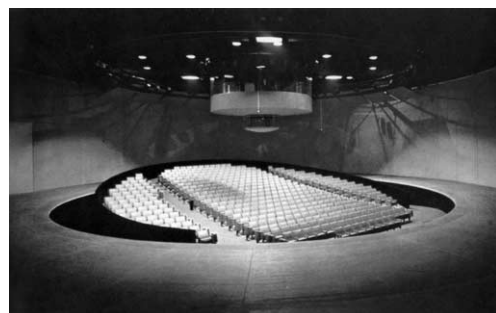


Figure 4. Musée-Maison de la culture in Grenoble (1965-1968), Jacques Polieri's round-shaped theatre. IFA Paris.

NOTES

- 1 from 5 October 1958
- 2 Cf. Klein R. & Monnier R. (dir.), 2002, *Les années ZUP, architectures de la croissance 1960-73*, Picard, Paris.
- 3 We mentioned the origins of the *Maisons de la culture* programme in "André Malraux, des maisons du peuple aux maisons de la culture", in *André Malraux et l'architecture*, 2008, History Committee for the Ministry of Culture, Le Moniteur, Paris.
- 4 Maison du peuple de Bourges (1934-1939): Marcel Pinon architect, *Maison de la culture* (1962-1967): renovation by Marcel Pinon, Jean Duthilleul & Pierre Sonrel architects.
- 5 Musée-Maison de la culture du Havre (1955-1960): Guy Lagneau, Michel Weil, Jean Dimitrijevic architects, Bernard Lafaille, René Sarger, Jean Prouvé, André Salomon engineers.
- 6 *To make the major works of humanity, and above all, of France, accessible to the largest number of French citizens possible, ensuring the largest audience for our cultural heritage and promoting the creation of works of art and of the mind*
- 7 André Malraux restated the objectives of the *Maisons de la culture* when speaking in front of the National Assembly on 27 October 1966, quoted in *L'expérience des Maisons de la Culture*, 1974, La documentation Française, Paris, pp. 6 and 36.
- 8 The programme is mentioned in *Programmes des maisons de la culture*, *L'Architecture d'Aujourd'hui*, n°112, February-March 1964, p. 27
- 9 Emile Biasini dans *Les Maisons de la culture en France*, *L'Architecture d'Aujourd'hui* n°129, cultural buildings, December 1966- January 1967, pp. 64-66
- 10 Jean Le Couteur, *La Maison de la Culture de Reims*, *Maison de la Culture* n°19, September-October 1969, p.4.
- 11 Maison de la culture d'Amiens (1961-1965) Pierre Sonrel, Jean Duthilleul and Marcel Gogois architects, Camille Demangeat stage designer.
- 12 Reconstruction (1990-1993). Gilles Duez, Roland Gaignard, Igor Hilbert architects, Kristian Gavoille, decorator.
- 13 *L'Architecture d'Aujourd'hui*, n°97, September 1961, p. 81
- 14 Emmanuelle Beaudouin, Sandra Barclay, Laurent Beaudouin and Jean-Pierre Crousse architects
- 15 Cf. André Malraux, inauguration speech for the *Maison de la culture* in Grenoble on 3 February 1968, quoted in *L'expérience des Maisons de la Culture*, La documentation Française 8 January 1974, appendix VIII a, p. 54
- 16 André Wogenscky, *Raisons profondes de la forme* (Paola Misimo – Nicoletto Trasi), Le Moniteur, Paris 2000, pp. 236-237
- 17 From the late fifties onwards, Jacques Polieri tried to reinterpret the ideas of the "total theatre" which developed from a combination of plastic arts and drama during the Universal Exhibition held in Montreal in 1967 (Structures-Spectacles), in Osaka in 1970 (Theater of Total Movement), or at the Olympic Games in Munich in 1972 (Video communication games for the "leisure street")

Bolgatanga Library: Adaptive Modernism in Ghana 40 Years on

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INTRODUCTION

At Ghana's independence from British rule in 1958, a rudimentary network of libraries had been established by the exiting colonial administration. Kwame Nkrumah, Ghana's first president, had hoped to advance a regional spread of libraries as sources of education and information across the country. He engaged the young African American architect Max Bond to design a small community focused library for the northern town of Bolgatanga. Built in the late 1960s it had been planned as a prototype but it remained unique due to the political events following its construction.¹

Bolgatanga library represents arguably Bond's most significant contribution to Ghana's modern architecture.² The design invites to a closer reading of the architect's cultural relationship and allegiances to Ghana and its post-independence development first before focusing on the later adaptations in use and architecture.

The library still exists and functions today. For a decade it has functioned also, possibly more significantly, as the venue for a local evangelical church which rents out the community room and the adjoining lobby area, for use on Sundays. The tacit arrangement between the church and the library suggests that the rental also involves the church being involved in helping with the maintenance and upkeep of the part of the premises it uses on a weekly basis.³

This paper seeks to understand what contextual and physical design features have ensured that Bolgatanga library has resisted major alterations or wholesale demolition. Just as importantly it investigates the relationship between its continued delivery of core library functions and local (religious) community functions. The fundamental flexibility of Bond's library design is also examined in relation to its contemporary functioning; as both library and spiritual venue. It concludes by considering what future Bolgatanga library might have in the context of a new media age, and the demands of other community-based organizations, whose diverse needs it may have to adapt to.

THE SOCIO-HISTORICAL CONTEXT TO BOLGATANGA LIBRARY

Ghana, formerly the British Gold Coast colony in West-Africa, attained its 'independence' in 1957 and became a Republic in 1958, the first Sub-Saharan country to be self-ruling. Internationally, then all eyes were directed to this new nation at the height of the initial post-war development trajectory of Britain's former colonial possessions. Kwame Nkrumah, its first president, was determined to prove that his republic could realise a development miracle with a Ghanaian version of socialism.⁴

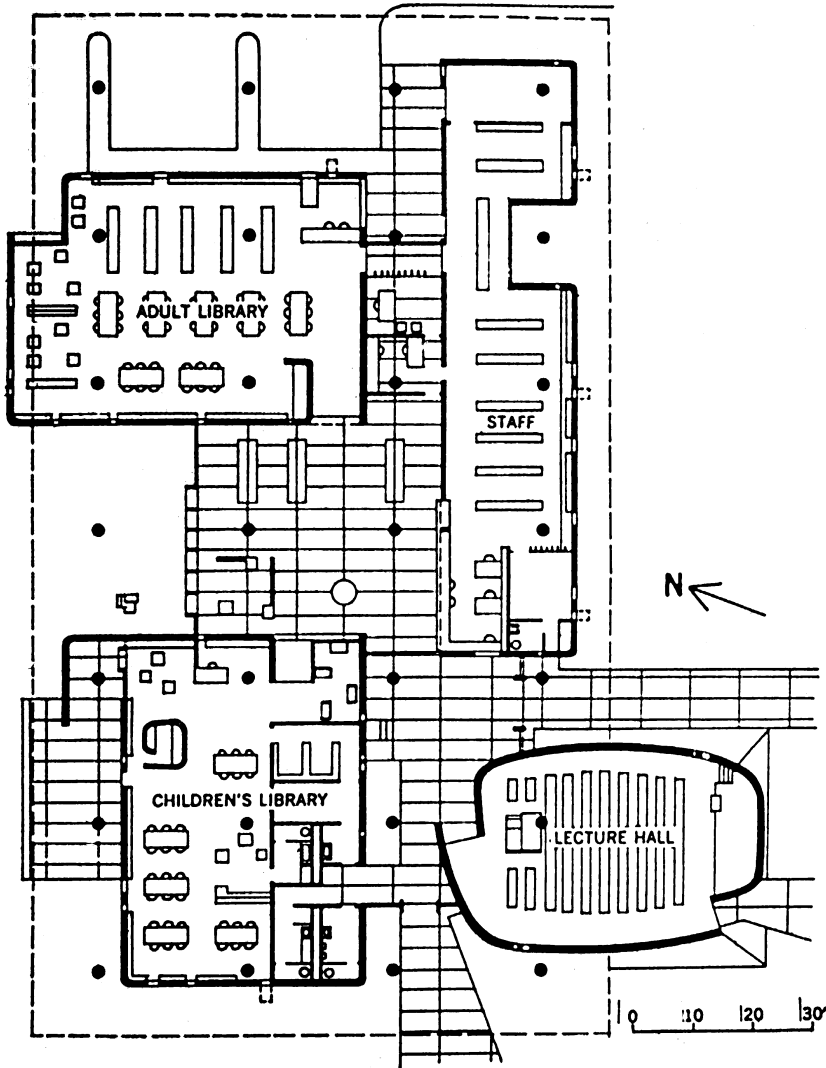


Figure 1. Bolgatanga Library Plan, Architect Max Bond.
Source: Courtesy Davis Brody Bond Archive 2008

At its independence the country had inherited the fruits of the first and second Schools programmes, which had been partly funded by the colonial office in the UK, and resulted in Fry and Drew's first major commission as young design architects for schools across Ghana and Togo.⁵ The colonial government had also established a library service similar to that in Nigeria.⁶

Nkrumah's government had education as a major focus for the Republic's development, the setting up of the University of Science and Technology in Kumasi and further expansion of the existing University of Ghana at Legon were a testimony to this aim. Also important was the espousing of industrialization and technology. Therefore, it was important that the country would have sufficiently trained manpower to draft and realise the ambitious industrial and construction

development plans. Like most African countries until self-rule, the Ghanaian construction and building industry had been almost entirely in the hands of expatriate firms, mainly, but not exclusively from the UK and, consequently, the technological knowledge as well. After a rough start with US advisers, the new Architecture school at Kumasi was developed with the help of the Architectural Association School of Tropical Architecture. Max Bond, as a practicing architect, joined the school from the start.

The Kumasi Architecture School dealt also with community research and rural development programmes. It would seem natural then that the Government would enlist its help in the development of an initiative such as the library building project. The larger projects were generally still handled, in the post-independence period, by large international companies, from more socialist leaning countries who were sympathetic to the Socialist agenda of Nkrumah's government.

The period would see the initiation of the Akosombo Dam, and the restructuring of the former agrarian production system into a centralized system of powerful marketing boards. The dam project was preceded by a survey done by Kumasi architecture graduate students on the conditions of villagers near the Dam site. The Cocoa marketing board however commissioned the British architects Fry and Drew to design their headquarters building in Accra.⁷

In 1966, however, Ghana was thrown into turmoil by its first military coup and the removal of Nkrumah and his government from power. As a consequence the library project was never expanded and the Bolgatanga library survives as a unique memory of this bygone era and its nation-wide educational ambitions.

THE ARCHITECT: MAX BOND

J. Max Bond Jr. (b. 1935), who came to work in Ghana at its independence, was from an academic background. His father had been involved in administering overseas education aid programmes for America and in running the University of Liberia; his mother was a graduate of North Western University.⁸ He studied architecture at Harvard and after graduation he spent time in Tunisia before working in the offices of Le Corbusier in France although never actually meeting him. This diversity of influences was present in his architecture before his move to Ghana with his family in his mid-20s in 1958.

His four-year stay was short but eventful. Bond was part of a small group of African-Americans in Ghana, committed to helping in the establishment of Africa's first fully independent state. They also were escaping the limited opportunities and incipient racism present in the Architectural profession in the USA in the 1950s. Bond had, despite his academic and practice credentials, found it hard to find a position in an Architectural firm in the USA despite his period as a Fulbright Scholar in Paris and practice experience gained in Le Corbusier's offices.⁹



Figure 2. Bolgatanga Library Approach.

On first approach the curved form of the community room is prominently in view, integrated with this form are the rectilinear main library area, the outdoor theatre area and the children's intermediate library areas. The floating or "umbrella" roof does enclose the disparate functional spaces and is ever present in the library encounter.

Photo: author, 2007



Figure 3. Bolgatanga Library Interior.
Photo: author, 2007

Ghana, from the late 1950s to the collapse of Nkrumah's government, had been a magnet for African American intelligentsia, with the Caribbean academic W.E.B. Du Bois' historic involvement in setting up a research base there, and cultural ambassadors such as Louis Armstrong visiting its shores seemingly making this link concrete. Ghana was seen as the land of future opportunities where colonialism had been beaten and Africans were starting to develop their own future economies. Indeed the Black-American radical Stokely Carmichael (Kwame Ture) was adviser to Nkrumah before eventually emigrating to Guinea.¹⁰

Employed by Ghana's national construction company, effectively the buildings wing of

Nkrumah's Socialist government, Bond called himself, ironically, "the Palace architect"¹¹ and was involved in all building works decreed by Nkrumah. He also taught and researched at the newly formed Architecture school in Kumasi and worked with the then AA-trained group who were running the institution during this period. He developed a studio of fieldwork-based design in collaboration with the architect Christian Polanyi and the then head J.P. Lutz Christians.¹²

For Bond, with one foot in academia and another in architectural design and construction, the Bolgatanga library must have been the ideal commission to demonstrate the architectural pedigree he had acquired from his different contexts.¹³ Besides, the development of the Tropical Architectural Research Institute, being pioneered by the Building Research Institutes and the AA Tropical School, influenced the library's design in its more Northern 'Arid' Climatic Zone.¹⁴

Interestingly, Bond consistently names the Bolgatanga library as his favourite building.¹⁵ In retrospect, his time in Ghana was a life changing experience. As the regime in Ghana changed after the military coup d'état, it was clear that the golden post-independence era and its aspirations was over. Bond returned to the USA, where he initially became involved in the Harlem regeneration project.¹⁶

His practice, Davis, Brody, Bond Architects, remains a major multicultural firm in East Coast USA, and still retains links with Africa, through the recruitment of interns from Ghana, Nigeria, and other parts of Africa including Mozambique and Zimbabwe.¹⁷

THE EVOLUTION OF THE LIBRARY

The Bolgatanga library could be described as an essay in form, performance and aesthetics. Max Bond described it in his Washington Post Interview, concisely as "four separate buildings under an "umbrella"-style roof, with ventilation occurring naturally through the open spaces between roof and walls".¹⁸

The unassuming low building is nowadays partially sheltered by the Nim tree vegetation in an outer suburb of Bolgatanga. Today it is painted green and white and though not derelict, could do with renovation and conservation efforts.

The influences of Le Corbusier's modernism are clearly reflected by the moulded form of the community area and the free flowing spaces in the library interior. The cast concrete form of the open air theatre space at the West and the shell roof explore effectively the qualities of modern 'new' materials in this location far away from the metropole. Similarly, the judicious use of perforations, mainly windows, and the breeze blocks providing shade have a direct effect on the overall form

of the building. In all, the sum of the parts seems greater than the whole as the full composition seems understated and low key from the exterior.

After forty years, the original design of the library still enables it to carry out its main function - the issuing and collecting of books from the regional schools and other colleges – with minor changes to adapt to some of today's technology requirements. Some of the furniture, lighting and signage survive in their original forms within the building.

The ancillary facilities which were designed to demonstrate the community focus of the library, however, seem to have changed or no longer function. The community meeting room, is now-days serving an evangelical church which is involved with its upkeep. The open air theatre/film space seems disused, although its sculpted form remains a prominent part of the building's composition. The building has thus at least a double if not triple identity in functional terms.

During office hours it functions as a library, on Sundays and holy days it is a Church, and possibly on most afternoons and evenings it lies closed as originally scheduled functions are not being carried out. The church function had been established for at least ten years according to the security guard on site, and could only be ascertained to be an informal arrangement between the church elders and the Library officials.¹⁹

On the author's visit to the library on a hot day in June 2007, the building was animated by the church members. They had just closed their morning service and were meeting outdoors, so that much of the surrounding area remained a quiet backdrop to the religious activities.

The interiors were cool and the reading areas of the classroom were well-lit so that there was no need of electric lighting. We could see no evidence of structural instability. The orientation and layout were thought out carefully and properly enough to ensure the best of shading and lighting to create environmental comfort to its users in the midst of the day.²⁰

The relatively low key nature of the Library and its clear and modest function have been central to the building's longevity and success in withstanding 'change'. Bolgatanga remains a small town in Northern Ghana and contextual change has been gradual at all levels. On visiting the library, much of the book stock was dated, and there was no visible public access to ICT facilities. This stasis has been inadvertently good for the library's survival and relative lack of architectural transformation.

Possibly the real answer to Bolgatanga's continued success is the community, specifically the religious community's willingness not only to use the building but also to contribute and work towards its upkeep. This brings us full circle to the original objective of the library project – to reach out to the local community it served. Today's "community" being served is the local evangelical church, whose members have inherited a purpose built community facility, easily transformed into a religious space. The church has however "cherry picked" this room and foyer for its use, ensuring its good upkeep. However mono-functional lending and reserve space has been left to the cash-strapped authorities to maintain. Thus there is now only limited community use and outreach of the entire building as the church has monopolized the main functional community outreach space for its exclusive use, albeit for a fee.



Figure 4. Bolgatanga Library Community Room – nowadays in use as an Evangelical Church.
Photo: author, 2007

THE FUTURE

Built in a time of hope and aspiration, the Bolgatanga library was a prototype building of its time. Forty years later the question is if the current relationship with the church will last long enough to ensure a supplementary funding stream for the maintenance of the entire building.

Simply observed the building's design and structure remain robust and able to endure further years of use. The socio-economic climate, and the introduction of modern ICT methods for communication is less 'know-able', and even less so its long term effect on existing buildings and their current programme design. It may be however that as the Bolgatanga library has survived the initial desktop computer communications phase, with the move to hand held and mobile ICT communications, space use is no longer at risk, as mobile telephony and laptops are much less space intensive.

Architecturally Max Bond's library design has responded to both its initial programme and also the architectural climate of the time. The clear design references to both modernist movement and tropes in volume and form, while the floating roof and incorporation of high thermal mass walls and intermediate spacing respond to the locally dry arid climate. It could be further interpreted as an architectural lesson in form and function for his architecture students at Kumasi.²¹

Its function as a public building and its symbolic exterior also could be read as a paen to the hopes and aspirations of the newly emerging African nation state. Designed by a young architect whose influences and beliefs were central to the project's objectives; the delivery of wider, democratic access to information, and also a signifier of change showing transition from the colonial to the aspirational era of self governance.

The 21st century poses different issues compared to the late 20th century, while most developing countries in Africa and elsewhere see their economies fail as a result of both local economic problems and the global downturn. By 2000 many of the least developed nations were scoring lower on socio-economic indicators than they had done in the 1960s when they had attained self-rule. The United Nations declaring the Millennium development goals campaign acknowledged the need to redress this situation.

The 21st century, despite being clearly more global and connected in media and communications, is different. The buildings and infrastructure that formed the backdrop to our 20th century existence, are expected to perform different functions; buildings are smarter and better interconnected, they also have environmental and social responsibilities which were possibly not as critically scrutinised as they are today, as disciplines as disparate as such as environmental psychology and environmental sustainability have highlighted.

Bolgatanga Library and its successors will need to be more community integrated and focused, which may mean engaging with new communities of interest and expanding existing group membership and usage. The building's function and programme are likely to undergo further forms of scrutiny as new media integrates more closely with information networks.

For the architecture of Bolgatanga library these issues are less immediate. The structure is being recommended for listing as being of significant architectural interest. Its current function and state of repair works reasonably well with the division between its formal use as a lending library and its religious uses at weekends. In the long run, however, it will be important to consider a better strategy to ensure the building's preservation without alienating the public. Its transformation into an open to the public reference library for architectural building records in Northern Ghana, might be a way forward. Its future, we hope, will remain in good hands.

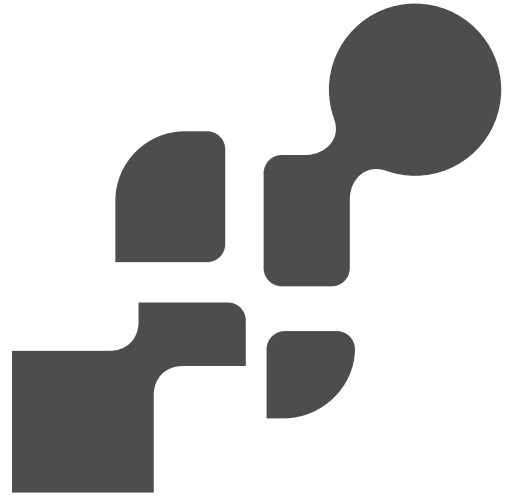
NOTES

- 1 See also Le Roux (2004). The library was officially opened by the Chairman of the Ghana Library board., Lawrence Oforu-Appiah in 1969.
- 2 Bond, M (1968) "A Library for Bolgatanga"
- 3 Communication with security guard at Bolgatanga Library, June 2007
- 4 For an overview of Ghana's early transition from colonial rule to independence see: Birmingham 1980
- 5 Uduku and Le Roux (2003) *AA in Africa exhibition*, Architectural Association London
- 6 Bond (1968)
- 7 *ibid*, also West Africa Builder and Architect (WABA) 1968
- 8 Obituary articles for each parent: *J Max Bond Snr, 89, An American who headed Liberian University* (New York Times, December 18th 1991, Eric Pace) "*Ruth Clement Bond, Quilter, 101 and Civic Leader is Dead*" (New York Times, November 13, 2005, Margalit Fox)
- 9 Washington Post, (2004) *Blueprint of a Life*, July 1st 2004
- 10 Toure (2005) *Ready for the Revolution*.
- 11 Washington Post, (2004)
- 12 West Africa Builder and Architect (WABA) vol 8 no. 2 1968
- 13 Washington Post, (2004)
- 14 For more on Tropical Architecture and Research see Uduku (2004) "*Modernist Architecture and the Tropical in West Africa*"
- 15 Washington Post 2004 op cit
- 16 Interview with Max Bond November 2004
- 17 Interview with Bond (2004) and Washington Post (2004)
- 18 Washington Post 2004
- 19 Communication with Security Guard, June 2007
- 20 This may well also have been influenced by Koenigsberger et al who were members of the AA tropical school and specialized in Environmental 'climatic' Design as had Fry and Drew, whose book, *Village Housing in the Tropics* (Fry +Drew:1947), described their experiences as architects in the Gold Coast in the mid 1940s – 50s.
- 21 Otto Koenigsberger, both headed the Tropical School at the Architecture Association in London, spent time in Ghana in the 1960s as a planning consultant, and worked on the textbook, *Manual of Tropical Architecture*, (Koenigsberger et al:1974), which has 'optimum' design guides for buildings in various tropical climates, - Bolgatanga would be considered a warm dry climate design type.

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Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

Education in Transformation

INTRODUCTION TO THE SESSION

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The rapid growth of cities around the world since the Industrial Revolution gave birth to social problems such as environmental degradation and housing shortages, which greatly affected the quality of urban life. Those who attributed these social problems to capitalism itself sought an alternative social system in the form of socialism, whereas others sought architectural and urban solutions within the capitalist system, and we have now inherited this legacy of the Modern Movement. However, social demands for Modern Architecture have changed, as cities in the twenty-first century are facing a different urban reality. In contrast to the current situation in Africa and Asia, where many cities have seen explosive growth of their populations, in the Western world cities experiencing constant growth are becoming rare; most have now ceased growth, or are in a state of decline, especially those that experienced excessive growth during the Industrial Revolution.

In a city that has ceased growing, the core issue is not the construction of new buildings but the efficient use of existing ones. It has become imperative that all buildings, not just those with historic values, continue to be used through conservation and renovation. However, architectural education continues to revolve around the demands of adolescent cities and their buildings. Now it's time for our education programme to deal with today's pressing problems: whether, or rather how, Modern Architecture, as a concrete reminder of a bygone era, can continue to function as a valid component of today's urban environment.

The historic significance of Modern architectural heritage, unlike that of earlier eras, is still under evaluation. The important thing here is that we are the protagonists of such evaluation - it is with our experience and sense of value that we preserve and re-use architectural heritage from the Modern era. But these heritage assets also act as bridges between generations, and in the end we are conserving them for the benefit of future generations.

Whereas Modern education of the early twentieth century was led by a limited number of pioneers who approached it as a project of enlightenment that addressed the requirements of a new era, the education programme of today must incorporate the active participation of the general public - the actual users and occupants of these heritage assets - and the support of public institutions. Consequently, such new programmes of education should be sought not only within schools but in the wider world as well. Some buildings and ensembles of the Modern Movement have already been saved; the icons amongst these have even become so precious that they are treated like pieces of art rather than as buildings in everyday use. However, the Modern Movement's crowning accomplishments should be valued in the same way as past eras have been, rather than as formal or aesthetic achievements. These Modern Movement accomplishments should be used in the present to give form to an improved way of life in cities, both before, and beyond their full growth. Architectural education directed towards the issues of growing cities is no longer valid.

The papers and poster presentations of the Education Session do not address all issues pertaining to Modern cities and architecture, but provide thorough analyses and solutions to diverse yet tangible problems that examples of Modern heritage now face. They will help to redefine our education programme to meet the new challenges and demands of today - for tomorrow.

Lessons on Architecture for the Future of the Past

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THE RESEARCH *BRAZILIAN HOUSES IN THE 20TH CENTURY*

In the first decades of the 20th century, several Brazilian intellectuals strove to build a modern nation based on understanding their own culture. If, on one hand, the notion of Modern was then problematic and characterized by antagonism, there seemed to be a consensus around the idea that it was necessary to understand indigenous cultural production so that it could be used to support proposals for an identity evaluation.

Surveys of colonial architectural patrimony in various Brazilian states and the creation, in 1933, of the Inspeção de Monumentos Nacionais – IPM (National Monuments Institute) followed by the creation of the Serviço do Patrimônio Histórico e Artístico Nacional – SPHAN (National Historic and Artistic Patrimony Service), in 1937, account for the first steps to acknowledge the importance of cultural assets for creating a nation. There was a consensus about the fundamental role of tasks such as patrimony investigation and study oriented to the development of a type of knowledge that would then support the definition of preservation and conservation criteria. But not only that, in the architecture field, to know historical ways of doing things comes to be accepted, not as supportive of eclectic or copying practices, but as a learning process necessary for the discipline's critical self-reflection.

Thus, the project *Brazilian Houses in the 20th Century* is part of an investigative tradition of documenting and analyzing much of our research and aims to contribute with historians and critics of Brazilian architecture, helping to investigate single family houses produced in the country in the 20th century by means of new collected data and their consequent detailed study.

As a starting point, we have selected to examine houses with a recognized historical architectonic value, or those that though unpublished, belonged to the group of published architects. We were lead to this decision because these Brazilian houses had become known and had acquired historical importance as representative of Brazilian architecture in a way of life, and determined culture. They have been references for other projects and of interest to many people. They are mentioned in numerous studies in architecture's history and have a special value for teaching the discipline.

However, despite the effort of historians and critics and the recent significant progress of research, there is a lot to document. The discipline still lacks accurate sources even for paradigmatic works of Brazilian architecture. In most cases, we cannot find all of the drawings and information so that projects can be examined or explained. Not to mention there are houses that have been demolished or radically modified, so there is often no memory of them.

Another reason for this first selection is that the research has an institutional objective of great relevance. The selection and documentation of Brazilian architecture and the production of scale models can contribute to the creation of the FAU-UFRJ Comparative Architecture Museum. We believe that the first works to be included should be those that have been recognized by specialized

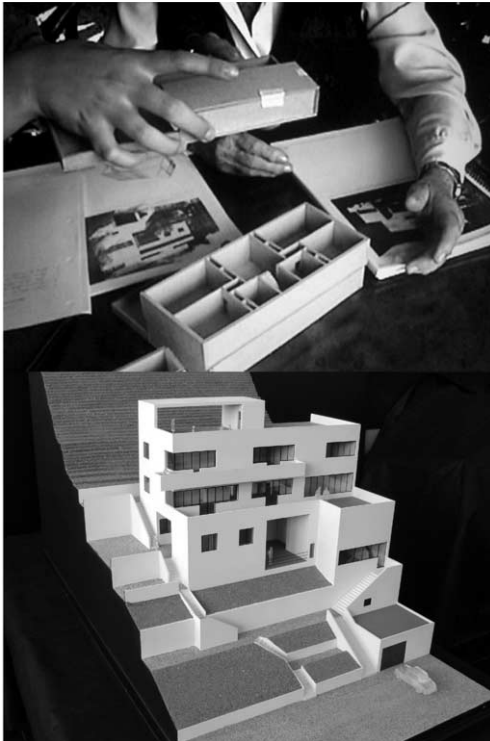


Figure 1. Nordschild House - Interview with Nordschild's daughter using first prototype and definitive model. Team: Kelin T. Cobayashi and Lilian Freitas Vieira. Photos: asset of Brazilian Houses in the 20th Century, FAU-UFRJ.



Figure 2. Casa das Canoas – Overlaying photographic and metric research. Team: Felipe Nalchadjian, Henrique S. Alves and Olivia Marra. Asset of Brazilian Houses in the 20th Century, FAU-UFRJ.

critics. Their historical and architectonic significance deserves detailed study, complete dossiers on their critical wealth and documentation, as well as public exhibition.

Our contribution to the history of notable houses of Brazilian architecture includes an in depth study of examples, through the investigation of documents, resources, iconography, photography, measurements, the elaboration of technical drawings in digital media, electronic and physical models, graphic and formal analysis, and audiovisual and database production. Based on consultation with the various agencies involved in the project, construction and use of buildings, we have examined the circumstances surrounding their conception and then cross reference the information in order to obtain a strict data foundation on which to base theory and critical developments in this research. As historians interested in the theme of single-family Brazilian house, designed by architects, our focus is to follow Francis Ponge's¹ recommendation and take the "party of the things", giving a voice to them.

Conclusive analyses have been built, not only with the support of the documentation and graphic analyses, but also with the investigation of houses as reconstructed in three-dimensional models. In these, projects are dealt with in two different approaches, one, their insertion in the environment (scale 1:750) and, two, their conformation and organization of spaces (scale 1:50).

We then established three investigation modules that are complementary: publications database; documents of architecture's Memory through reduced models, and audiovisual databases. In every one of them, FAU graduate students' participation is intensive through monitoring programmes, scientific initiation, and artistic and cultural initiation of UFRJ.

Publications Database is an extensive project of collecting, organizing, and indexing reports on Brazilian houses, as published in specialized magazines, as well as the body of theoretical and critical writings produced on Brazilian architecture in the 20th century. The objective is to build a database with information that helps to understand Brazilian ideas regarding architecture and, more specifically, regarding design, construction and evolution of the single-family house. This has been an effective instrument to orient the approach to our study and to select houses that could be included in our area. Within it, students selected for one of the above listed programmes have become junior researchers and have started a series of activities to collect, read, classify, and make insertions, under the supervision of the research coordinator. Therefore, advantages in terms of architectonic culture extension and referential inclusion are indisputable.

Audiovisual Database is responsible for treating, editing, and filing photos, audio and video recordings made during the various stages of research. This would include the recording of visits paid to the houses and of interviews made with architects and people connected to the residence's history.

Finally, the module *Documents on Architecture's Memory through Scale Models* serves to collect and document the selected examples and produce graphics and models for the FAU-UFRJ Comparative Architecture Museum.² Using as our starting point the bibliographic and iconographic material available on the selected works, our intention is to go in depth and complement it emphasizing field research and the experience of the building, seeking a greater intimacy with its spatial organization and carefully interrogating the project through a model. By means of direct experience and using primary sources we have tried to understand the essence and the specificity of this domestic architecture as it was originally conceived and to report historical transformations over time. It was this latter module that formed a interdisciplinary integration with graduates, extending the grasp of didactic advantages to a larger part of the student's work.

TEACHING, RESEARCH AND EXTENSION: THE EXPERIENCE OF AN INTEGRATED WORK

The pedagogic experience presented here is a result of uniting post-graduate to graduate teaching, integrating the project *Brazilian Houses in the 20th Century* and its module – *Documents on Architecture's Memory through Scale Models* – of FAU-UFRJ Architecture's Post-Graduate Programme to the discipline of Scale Models of the Analysis and Representation of Form Department of the college. Our intent is to make the exercise on scale models not only an occasion to learn new representation techniques but also a tool for analyzing and understanding the architectonic work. Parallel to that, an association between academic sectors would be an opportunity to produce some examples destined for the collection of the Comparative Architecture Museum. Thus the university project could join research, teaching, and outreach.

The research adopts a method that, though supported by various investigative procedures common to others, has a distinctive approach that is the inclusion of scale models as a tool for analysis and deduction of projects. This has not only made integration possible but has imprinted more depth to the curricular. It has served us as a reference the experience of *Taller de Estudios Del Espacio Moderno* led by Jaime Grinberg and his team in the College of Architecture, Design and Urbanism of the University of Buenos Aires (FADU). Grinberg notes, "great masters have become the object of reflection and understanding, by means of models in several scales,"³ which contributes to the comprehension of their work. We incorporated this successful didactic experience because it was valued as rigorous means for investigating a project and its' teaching.

From the point of view of research, the method is perfectly adequate to the proposed objectives, since information needed to construct models of the buildings, as they were originally conceived, demand the definition of structural, constructive, material aspects of a project that would hardly be considered by research based on two-dimensional analyses. The judicious interrogation of the finalized work – stimulated by the elaboration of the scale model – gives cause to new discoveries,

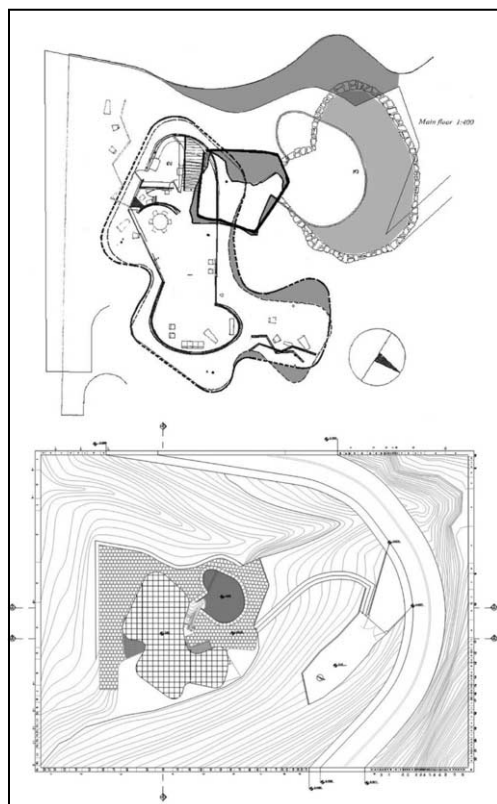


Figure 3. Comparative drawing between project published in magazines/books and project obtained from research. In blue line, the resulting project of the team's research. In the gray colored areas, the difference between the Niemeyer's original and our drawing. Beside it, the project of house situation produced by the research. Team: Felipe Naltchadjian, Henrique S. Alves and Olívia Marra. Asset of Brazilian Houses in the 20th Century, FAU-UFRJ.

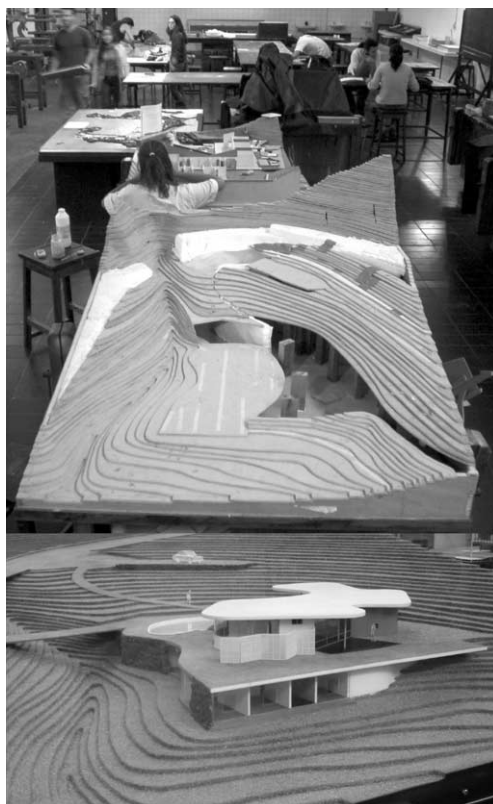


Figure 4. Model execution in the scale models laboratory in the scale 1/50 and definitive model. Team: Felipe Naltchadjian, Henrique S. Alves and Olívia Marra. Photos: asset of Brazilian Houses in the 20th Century, FAU-UFRJ.

which by their turn are able to help the progress of the theoretical field, specific to that example and general to the architectural discipline.

From the perspective of architecture, the student participation in tasks such as collecting data, elaborating graphics, the model, and its project, allows for students to gain a direct experience of the space built and its development. It makes them aware of the geographical, technical, economic, and cultural constraints, which the project is a part, it extends his referential field and it stimulates an integrated vision of the project process. Finally, it allows students to develop their ability to think, to interpret, and to analyze architectonic objects within the context in which they were produced, leading them to be more competent in professional life.

The two houses Nordschild House (G. Warchavchik, Rio de Janeiro, RJ, 1930-31) and Casa das Canoas, or Boat House (Oscar Niemeyer, Rio de Janeiro, RJ, 1952-54), illustrate part of the working process and its result. These are examples of different research processes used in two border situations. Nordschild House, which was demolished in 1954, and Casa das Canoas, which has been preserved. Both houses, despite their importance for Brazilian architecture history, did not have designs that corresponded to the reality of the house built and public records did not have information.

In the Nordschild House, some procedures were decisive for us to infer the residence's original project. The employment of geometric methods on photos of the period helped obtain measurements that we did not have and inferred the location of architectural elements and the specific location of the house on the site. We made a partial correction of technical designs that made it possible to have a first prototype model in the scale of 1/100, which was then submitted to the memory of its former residents. After each interview a similar prototype would incorporate modifications due to mistakes noted until it reached the configuration that informed new technical drawings and the definitive model.

Oscar Niemeyer's Casa das Canoas has had some small renovations over the years that have not modified its architecture but have incorporated – while changing cladding and colors – the subtractions or addition of architectonic elements, the architect's interests in the renovated domestic space, and the need for its maintenance. These modifications have never been documented and, according to the Oscar Niemeyer Foundation, the only the same drawings that we knew of this project were extensively published but it, remained unexplored.

Investigation was made based on detailed measurement and photographic research on site. Using Autocad for the transference and verification of measurements and then rendered 3D Studio it could be cross referenced to photographs. This allowed for high precision data, enough to elaborate the model of the development of walls and curved floors and the stone on the main façade. The topographic device Total Station made it possible to measure contour lines on the plot and the exact definition of the access ramp. The project ended up revealing a house with dimensions and outline different from those published.

After submitting the two projects– the one of the model's and the one of the architect's – to careful scrutiny, both ended up discovering the work in its reality and can be made public. Based on this guaranty, theoretical and critical works on the house and its architect can be developed on a more consistent base, with the support not of an imaginary work, but of something that is closer to the demands and contingencies of the projects, of the architects, and of its time.

CONCLUSION

As seen, the need to collect accurate information on the various aspects of the project ended up revealing inconsistencies and voids surrounding the history and the available documentation on these projects. Obviously, the absence of precise research and rigorous information on the project's process and the circumstances that led to it, undermine architecture's theoretical field, since it leads to conclusions based on fragile foundations. When students have the chance to check up on facts, they become proficient in education's practical and theoretical fields, from their own experience in the research environment. They understand that it is always necessary to investigate the project and to critically consider the available bibliography. And more because they build a model, they learn how the original was built because they penetrate historical moments, bibliographies, and biographies, they can situate the work and situate themselves in their own period of time, developing an educated judgment.

That's how it's been possible to make the students realize the meaning of Modern Movement through these educational projects. Those involved acknowledge the value and the interest in Modern patrimony through this method and demonstrate the formation of a more conscious professional, who is able to face the challenges presented by themes such as reuse and conservation of historic buildings. And likewise, while producing knowledge, the research method presented to graduate students gives them the opportunity to create an asset with the parts they have produced that will be useful to teaching the various disciplines that compose the course of architecture, extending the reach of the Modern message.

NOTES

- 1 Ponge, F., 1997, *Métodos, Imago*, Rio de Janeiro
- 2 Since activities have begun, in 2004, to this date, we've been able to complete scale models of eight houses: W.Nordschild (G. Warchavchik, Rio de Janeiro, RJ, 1930-31); Álvaro Vital Brasil (A.Vital Brasil, Rio de Janeiro, RJ, 1940); Carmen Portinho (Affonso Eduardo Reidy, Rio de Janeiro, RJ, 1950-52); Antônio Ceppas (Jorge Moreira, Rio de Janeiro, RJ, 1951-57); Lota Macedo Soares (Sergio Bernardes, Petrópolis, 1951-57); Canoas (Oscar Niemeyer, Rio de Janeiro, RJ, 1952-54); Adolpho Bloch (Francisco Bolonha, Teresópolis, RJ, 1956-66); Affonso Eduardo Reidy (A.E. Reidy, Itaipava, RJ, 1959); Saldanha-Werneck (Marcelo Roberto, Paquetá, RJ, 1959-62), and Robert Schuster (Severiano Mario Porto, Manaus, AM, 1977-81). Under development there are three other residences, also in the State of Rio de Janeiro: Barão de Saavedra (Lucio Costa, Correias, RJ, 1942). Right after these, we shall begin the Paulista series of houses: Houses 1 and 2 of Vilanova Artigas (Vilanova Artigas, São Paulo, SP, 1942 and 1949); Lina Bo and Pietro M. Bardi (Lina Bo, São Paulo, SP, 1951); Oscar Americano (Oswaldo Bratke, São Paulo, SP, 1953); Valeria Cirrel (Lina Bo, São Paulo, SP, 1958)
- 3 Grinberg, J. (org.), 2001. *Estudios del Espacio*. Buenos Aires : FADU-UBA

Preventative Conservation of Modern Architectural Heritage Study Programme

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INTRODUCTION: A DIAGNOSIS

During the first five decades of the twentieth century, the city of Caracas grew from sixty thousand to one million inhabitants and increased its city limits twenty fold. Its growth, a result of the oil boom in the first half of that century, was accompanied by large national urban plans and major private investments, converting the 1950s city into one of the most prosperous modern cities in Latin America.

The plans and projects developed both by private companies and public agencies, united the best Venezuelan architects and engineers along with international experts and advisers specializing in new experimental construction techniques. The existing urban structure, the successive governments' modernization plans, and the involvement of developers and builders, created a peculiar Modern profile, unlike other cities where Modern architecture appears as a rupture of the homogeneous historical context. In Caracas Modernity was built transversely, simultaneously as urban fabric and as urban landmarks and landscapes.

However, this spirit of modernization has remained a contradictory and challenging logic, with highs and lows that depended on the economic stability of the country. This, paradoxically, has made Caracas a city that is always under construction, where all traces of the past, whose time limit is imprecise, are underestimated by the promise of a better future. And this logic threatens our Modern buildings as well their fit with their surroundings.

The recent social and political changes that have taken place globally, in particular in Venezuela, have begun to generate an awareness about the value of our architectural heritage, including the recent past precisely because Caracas is essentially modern. But this recognition can not remain at a general level, because the architecture reflects not only the spirit of the times, but also the very special way it has integrated the outline of the Modern Movement into the city's cultural and geographical conditions.

It is possible to read typological trends, extensive use of certain materials, a particular way of resolving facades, the incorporation of industrial design and works of public art, and so on, that make up the architecture produced in the first half of twentieth century, but doing it with special highlights.

Moreover, the combination of Venezuelan architects trained in major European and American schools, the participation of technical experts in masonry, metal, pottery, blacksmithing, etc. who came to Venezuela through selective immigration programmes, and the demands of a very particular physical and cultural environment, generated a social network related to the construction of Modern buildings that are also in need of attention. During this period there was a mass of Modern buildings constructed which have not been updated to meet the current construction

standards. The formal values of the building construction of this period have been recognised by the specialized schools or colleges of architecture and design, but only a few actions have been made to preserve and validate our architecture in the Venezuelan society and internationally.

This oversight of renewing and preserving the usefulness of these buildings is due to several factors. One is the absence of specialized professionals who work on a large scale. Secondly, studies that have been done do not incorporate the specific technical knowledge of consultants who assisted in these modern building projects because of the disappearance of technical schools. Thirdly, there are few graduate study programmes dedicated to the preservation of our “building memory”, and these that are in Caracas are oriented towards the restoration of historical monuments, addressing heritage buildings as individual objects, usually old, empty, or with restricted use that have a very specific impact. Modern architectural preservation is complex because these buildings are usually still in use, made with experimental materials and building techniques, and are new typologies, losing their importance and social validation with their daily use.

Thus it is increasingly urgent to create new interdisciplinary education programmes that integrate the historical knowledge of a particular important period that is a fundamental part of our culture with the current scientific and technical knowledge of preservation of architectural heritage - understanding the value of a building as a living object that is inseparable from its inhabitants, surroundings and use.

PROPOSAL

Moving closer to a Modern architectural preservation objective, we have proposed an experimental study programme called the Diploma in Preventative Conservation of Modern Architectural Heritage directed by the Unit Integration Programme for the Conservation Sciences at IDEA, a scientific and technical foundation that is part of the Venezuelan educational system. The study programme will address the preservation of Modern architecture from a trans-disciplinary approach crossing the traditional boundaries of architecture, history, urbanism, preservation and restoration, industrial design, arts and crafts. Balancing theory and practice, it will integrate specific projects through an involvement of the neighbourhood inhabitants, alliances between local and national governments, and NGOs devoted to the preservation of this heritage, social organizations, and national and international academic institutions.

The aim is to prepare architects and engineers as project managers who will lead complex architectural conservation projects so that professionals from different fields, citizens and institutions can eventually secure the preservation of buildings or sites and their surroundings, assuring their conservation over time.

This ambitious programme will work at multiple levels with three scales of knowledge: technical architectural information; a specific understanding of preservation of Modern architecture; and the broader social, cultural and political factors of a particular context. In the end, each project leader should be capable of creating their own approach to the problem and proposal, manage a team of professionals they are working with, incorporate the community, and work with NGOs and the government on funding, promotion, completion, and protection of the preserved area.

It is also assumed that the students' projects developed during the programme will have an important impact in the vicinity of the sites chosen. For the course, we will not work on single buildings, but with pairs or trios, piazzas and some connecting buildings, as well as small blocks or parts of avenues.

Institutionally, we have made alliances with ICCROM, UNU-Biolac, the Ministry for Science and Technology of Venezuela, The Metropolitan Government of Caracas, the Fundación Conservación del Patrimonio Cultural, and a community organization of the *La Candelaria* area, one of the oldest and most at risk inner city neighborhoods because of its proximity to the city center.

APPROACH TO PRESERVATION OF MODERN ARCHITECTURE

First, we are choosing preventative conservation as opposed to the traditional view of restoration, understanding that this discipline works to maintain the significance of the original building and not just its appearance, through concrete actions that involve specialists, users, community, and institutions. The final goal is to elaborate guidelines for a conservation plan and regulations that could guarantee a sustained maintenance over time.

Secondly, we propose the evaluation of our Modern architectural heritage as a legacy that has its strengths as urban fabric, not just in terms of the scale of the building. Accordingly, this approach exceeds the traditional treatment of architectural heritage as singular monuments, and addresses a legacy that remains alive and continues to serve as a cultural value in use for its inhabitants and neighbors.

The third point addresses the need to adapt these Modern buildings to current code requirements of comfort, security, and their relationship with the environment to assure enhanced levels of quality of life and long-term usability.

The dynamics of Caracas' growth generated changes in densification and in the uses of some areas that then deteriorated from overuse followed by abandonment. This overuse resulted in the collapse of electricity services, the provisions for clean water, gas, telephone service, and garbage collection, as well as internal building services such as elevators and escalators. Also, many of the structural materials, finishes, and facilities used during the first half of the twentieth century were made of experimental materials, and these have expired or contain materials that are banned by new standards of environmental safety. In addition, contemporary codes for national and international security, disaster control, and integration of people with disabilities, were not part of the design criteria developed in the Modern Movement. Preventative conservation maintenance must address the relocation, removal, replacement or incorporation of elements or systems that contribute to the smooth functioning of a building and integration with the street and city, to ensure the comfort and the security of all citizens

ACADEMIC STRUCTURE

The programme is a graduate course designed for architects and engineers to learn essential tools and to coach, manage and participate in interdisciplinary projects of preventative architectural conservation to fully preserve the usefulness of our Modern architectural heritage. The curriculum is divided into two periods of four months each, during which participants receive theoretical and practical lessons and develop a project that integrates all the topics in order to finish with a presentation of a complete diagnosis and proposal thesis for one of the building areas studied in the programme. The course is interwoven with seven topics, structured by seminars, technical courses, and site visits that revolve around the study cases.

The seven topics are: Theories of modernity; Preventative conservation; Heritage and community; Architecture, art and design; Conservation sciences; Security and environmental sustainability; and Documentation and methodology.

CASE STUDY: CARACAS

Caracas is the subject of this study diploma because of its seemingly contradictory urban condition, its rush to embrace modernity and its questionable inattention to its beautiful natural surroundings and its historical neighborhoods. In this sense, the contents and structure of the proposed programme are of a general nature and point to the revision of the problems in the discussion on preventative conservation of Modern architectural heritage in general, while addressing its expression in Venezuela, and particularly in Caracas. Since this modernization during the first

half of the twentieth century, the other main cities of the country have embraced modernization as well. Participants of this interdisciplinary programme will be prepared to deal with any problem related to Modern architectural heritage conservation.

We have selected two particular areas of Caracas to start with as case studies for the Diploma. One is "La Candelaria" neighborhood, an approximately 15 block area, developed during 1930s and 1940s that has an important number of "international style" mixed-use buildings designed both by recognized and unknown architects or engineers. The other one is the "23 de Enero" housing development that spreads along two hundred and twenty hectares of land and was developed between 1954 and 1957. This urban complex is one of the most ambitious urban developments in Venezuela, led by Carlos Raul Villanueva and was a laboratory to explore the "minimum house" units as well as a spatial, technological and social experimentation.

In both cases there are present two additional conditions that make them valuable over other parts of the city. One is the presence of artworks integrated to the buildings as murals, floorings, facades or other architectural elements such as doors, ceilings or appliances. As the Modern Architecture was developed and adapted to our cultural values, the same thing happened to new art expressions, and there was an important flourishing of geometric abstraction and abstract expressionism that is found in these Modern buildings.

In the particular case of the "23 de Enero" housing development, all the facades and interior walls were designed as a polychrome art work by Mateo Manaure, one of the leading artists of the University City, also designed by Villanueva between 1944 and 1970 and now considered a UNESCO World Cultural Heritage site.

The other value found in these two areas is that the people are already organized and share a high level of commitment to their community and a profound identification with the history of their particular living area.

The people of "la Candelaria", for instance, managed to stop the deterioration of one of the most important piazzas of the area, which has a group of sculptures made by Francisco Narvaez, another important artist who worked intensively during the 30s and 40s, and whose work is also present at the University City. Even though there is much to value in these areas and other areas of the city in terms of the experimentation and development of forms of Modernity in art and architectural expressions, the dynamics of Caracas' growth has made them very vulnerable to ever growing deterioration or total destruction.

Hopefully, the network of professionals, organizations and institutions that we are building will engage all the important "players" in order to secure the preservation of these important sites of our identity, understanding them not as isolated or empty boxes, but instead as living organisms that need to be updated.

SUMMARY

The Diploma is a work-in-progress programme, a pilot programme, developed by IDEA and is an inter-institutional work with the *Fundación para la Cultural Urbana*, (civil) neighborhood associations of "La Candelaria" neighborhood and "23 de Enero" housing development, local government such as the Metropolitan Institute for the Preservation of the Cultural Heritage of the City of Caracas. The strategic alliances that we have fostered with international institutions such as Biotechnology for Latin-America-United Nations University and ICCROM will greatly enhance the scope of this programme. As with any new programme, it is open to changes or adjustments during its development, mainly because of its practical (hands-on) workstudy methodology.

How Should we Teach the Conservation of Modern and Contemporary Architecture?

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Interventions concerning existing buildings offer some of the major challenges we face today in developing our twenty-first century cities and improving environmental quality for those who use them. Design for conservation, which is a cultural discipline essentially concerned with design within existing fabric, greatly increases the scope of contemporary architectural design. Building among and within buildings is not a new practice, far from it. But the approach to it is driven by the theoretical and practical questions posed, at all levels, in relation to the architectural object; it flows from a close scrutiny of the material nature of the built fabric. In these respects it is wholly contemporary in attitude, and if we were to reflect on the specifics of conservation of Modern and contemporary building, the following three things come to mind:

- a project starts with an historical and critical inquiry into the building in question;
- it reverses the chronological process of genesis: new construction begins with programmatic goals and ends with a finished object, whereas in conservation we start from the existing object in order to arrive at a mode of existence that is in keeping with that object;
- It is based on a discipline of restraint and effacement where the designer, in his or her attitude to the work, performs like a doctor or lawyer, retreating from the limelight, shunning 'the Society of the Spectacle.'¹

CONSERVATION AND ITS RELATIONSHIP WITH THE MATERIAL HISTORY OF BUILT FABRIC

Design for conservation is a twofold process in which preserving the old and designing the new are inextricably linked. In the first instance it involves preservation of the material substance of the building as an original document; the materialisation of spatial, functional, symbolic, and all other values inherent in the building. We begin by knowing and analysing the site, and proceed diagnostically to look at what is missing and what has decayed. This is the very substratum of the project. The element of 'the new' is already present in the notion of preservation wherever there is an element of repair, and we overlay the old matter with the new so as to extend its useful life, its value as an economic resource, propose new functions, and adapt to standards and regulations. In this we blend scientific rigour and creative vision, focusing on the awareness of relations and interfaces that are produced, and their meaning, and thus giving equal weight to, for example, secondary glazing of a metal window unit as to functional extensions to the building as a whole;

Through a process of deconstruction and reconstruction we analyse the *materiality* of the object, identifying the materials, methods, and construction systems used. It is in this way, that we acquire knowledge, project-by-project, and it is this knowledge, which forms the material history of Modern and contemporary building.

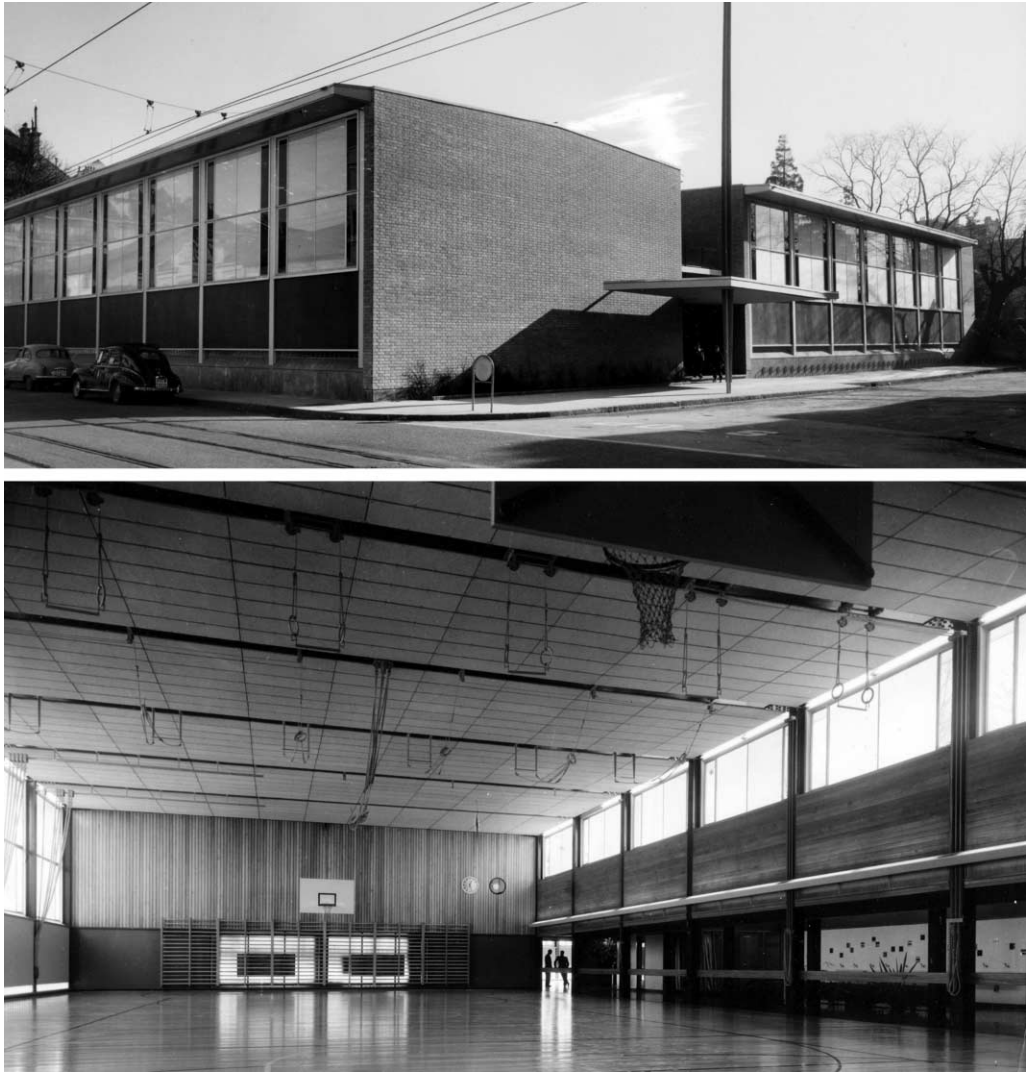


Figure 1. Presentation, student design studio. Photos, Gymnasium Halls, Rue du Stand, Geneva, 1951-1953.
Archives Waltenspühl, IAUG.

Strategic analysis, or the application of this knowledge to the acts of conservation where such acts are concerned with the life of the work from conception through to anamnesis, flows from the materiality of a building's construction. Materiality is a value outside the categories of art history and architectural theory. The idea of material authenticity is a key instrument in everyday conservation practice. In fact, given that buildings are economic resources, and only continued use guarantees continued life, the modification of complex but fragile constructions, together with their functional adaptation to new demands, is the distinctive feature of design within existing fabric.

In architecture, modification is under way from the moment the last plank of scaffolding has been removed, when weather and wear-and-tear begin to do their work. To the material remnants of the socio-cultural context of manufacture are added the marks of a timeworn existence. These too, become part of the object and we legitimately pose the question how to preserve them. It is senseless to deny the life of the work. Thus we must attempt to understand and identify those modifica-

tions we think are acceptable – or desirable – in terms of their preservation. Conservation is not about reactive or preservationist impulses. Rather it is a discipline that endows the designer with methodological tools that enable him to rethink his trade and the ways of practicing it.

THE TEACHING OF CONSERVATION

Conceptual processes involved in designing for new buildings are radically different from those of conservation. Nowadays more than half of the professional activity of an architecture office will involve design for existing structures. Often disregarded as uninteresting and run-of-the-mill, it is an activity that is all too rarely tackled with the scientific and cultural knowledge that it deserves. Furthermore, conservation is but rarely taught, if at all, in the various centres of architectural learning. In Switzerland, two institutions deal with the theory and practice of the discipline: the Accademia di Architettura di Mendrisio, and the Ecole Polytechnique de Lausanne.²

Yet conservation – by virtue of the specific nature of its approach to project design through analysis, research, understanding, deduction, inquiry, and because of the object of its concern, namely the building, a work that draws the designer deep into the immanence of architecture as a discipline – has wondrous potential for teaching, for plunging deep into the cultural context and stimulating a will to discover.

Firstly, conservation demands that, in order to produce knowledge about the object of our scrutiny, we must first know it ourselves. It summons us to *survey* the object. The general site survey, the spatial survey, the measured survey, a comfort audit, building usage evaluation, the survey of constructional features – these are physical undertakings that require long hours of contact with, and within, the building. Survey goes hand in hand with documentary research about the building, using records left by the architect-builder – programme outline, project sketches, application for consent to build, working drawings, photographic site records, etc., but equally using all available resources in town and provincial archives, or held by project partners such as engi-

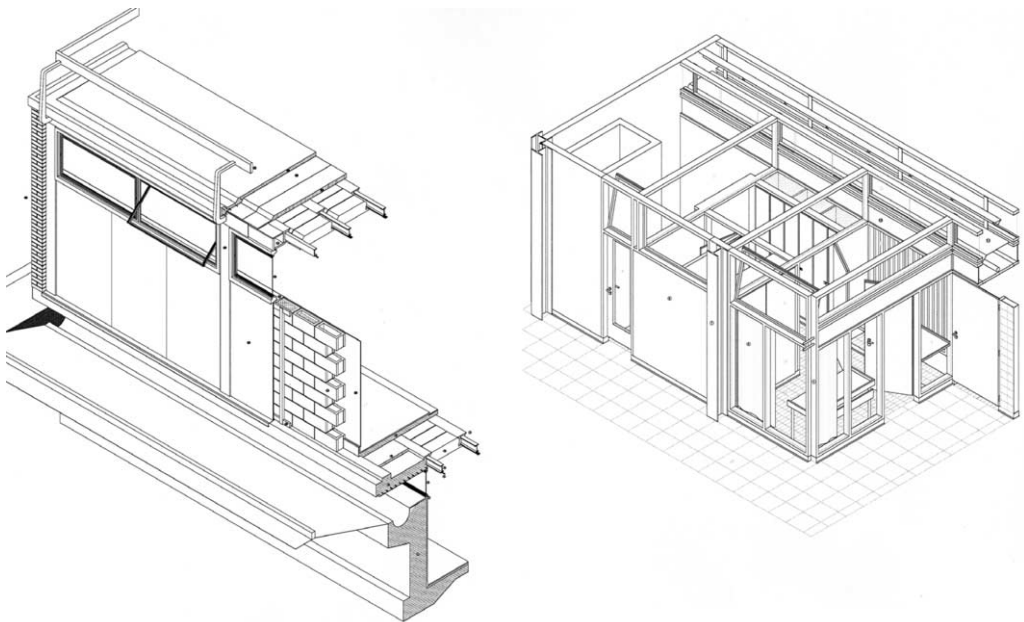


Figure 2. Presentation, student design studio. Axonometric drawings.
Chris Christen and Anina Inabit.

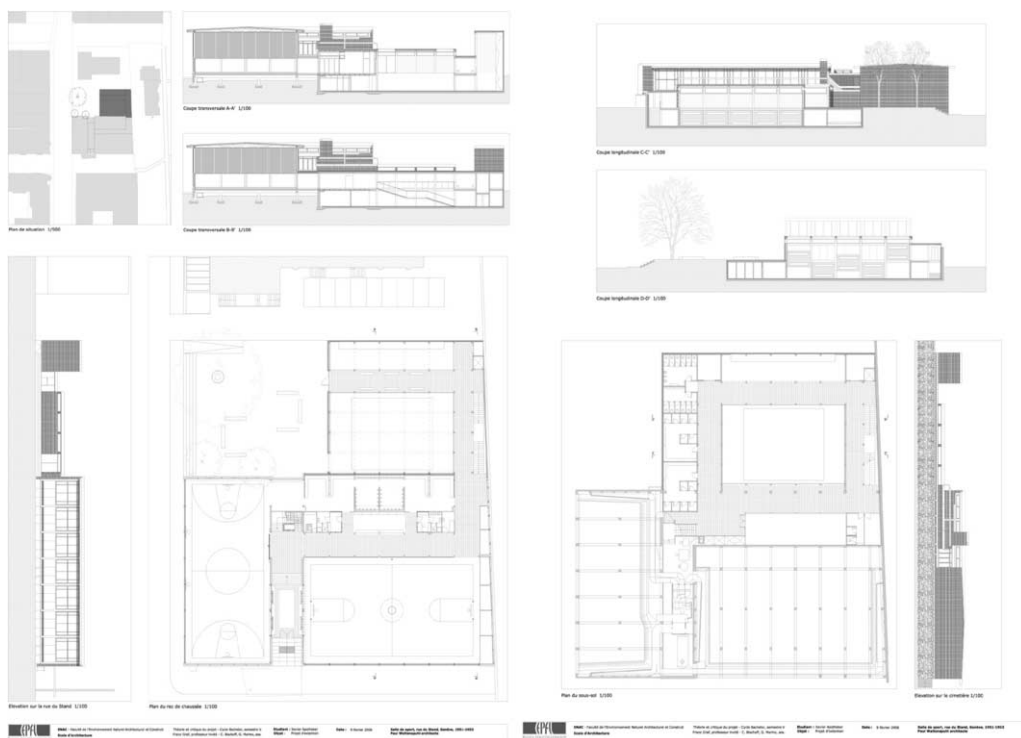


Figure 3. Presentation, student design studio. Extension scheme.
Xavier Apotheker.

neers and contractors. Period publications are scrutinised; the actors involved interrogated, and their precious testimonies recorded. Complicity and dialogue are established among succeeding generations of architects, plunging the younger ones into the traditions of modernity. Conservation summons us to documentary and historical inquiry, to consider the place occupied by the work in the output of its architect-builder, and beyond this, the position it occupies in relation to the architecture of a geographical area or historical period. The knowledge we accumulate from this we reformulate into axonometric drawings that show how an original construction feature was handled. Through these drawings we interrogate the different sub-systems of the construction: the frame, the envelope, the subdivisions and services (heating, ventilation, natural and artificial lighting). In the case of the Gymnasium Halls in the Rue du Stand,³ analysis revealed the perfect rigour of an assemblage of semi-industrial components, the elegant juxtaposition of a primary structure in steel and secondary infill comprising terracotta facing units and glass bricks, resolving into a play of opaque and transparent surfaces. Through analysis we comprehend the exact detail of a balustrade or a projecting roof, details that are lost in meaning unless one has a close-up view of the material nature of the architecture.

Conservation also brings forth the temporal question in architecture: usage, wear-and-tear, fatigue, obsolescence, but also patina because contemporary architecture is revelatory in the richness of its patina. Conservation demonstrates the irreversible nature of time, reveals the recent yet already unrecoverable history of construction, of materials, and of long-gone non-material factors such as building regulations and standards. A building exists only in the life it leads; we must record what is missing and what is decayed, see beyond the grime, vegetation and spray paint, imagine it bright and new, but also appreciate the marks of time.

At this juncture, conservation gives us the wherewithal to judge the work. Architectural potentials are redeemed directly from the very qualities elicited in historical and material analysis or from the building's state of repair. Conservation distinguishes the 'hard,' inviolable parts from the 'soft,' malleable parts, those that may support modification to a greater or lesser degree. It suggests what is possible in terms of scale, comfort, arrangement. In short, the project of conservation is already at work infecting, impregnating – and providing answers to the very questions we must know how to formulate.

Conservation calls for work that is intensely multidisciplinary, and if a project begins with history and survey it gains strength in its encounters with users, civil and services engineers, building physicists, materials chemists, et cetera. Conservation produces a cross-disciplinary body of knowledge, built up around, and in accordance with a precise project. From it we sense the competencies we must activate and, more especially, the questions we must pose.

Once a programme of preservation and repair of a building is under way the new design component is very often limited to upgrading of soft parts, altering usage by means of minor climatic adaptations that have no real, *substantial* impact on the building. This is most often the case when dealing with buildings of great historical value. It is worth mentioning that the *substance* of Modern and contemporary heritage, because it is fragile and complex, is often replaced, contravening the basic tenets of monuments preservation. What, meanwhile, do we say, as teachers of conservation, when discussing interventions where the building requires both transformation and substantial extension? How and to what extent can the existing building guide us in the design of the new addition?

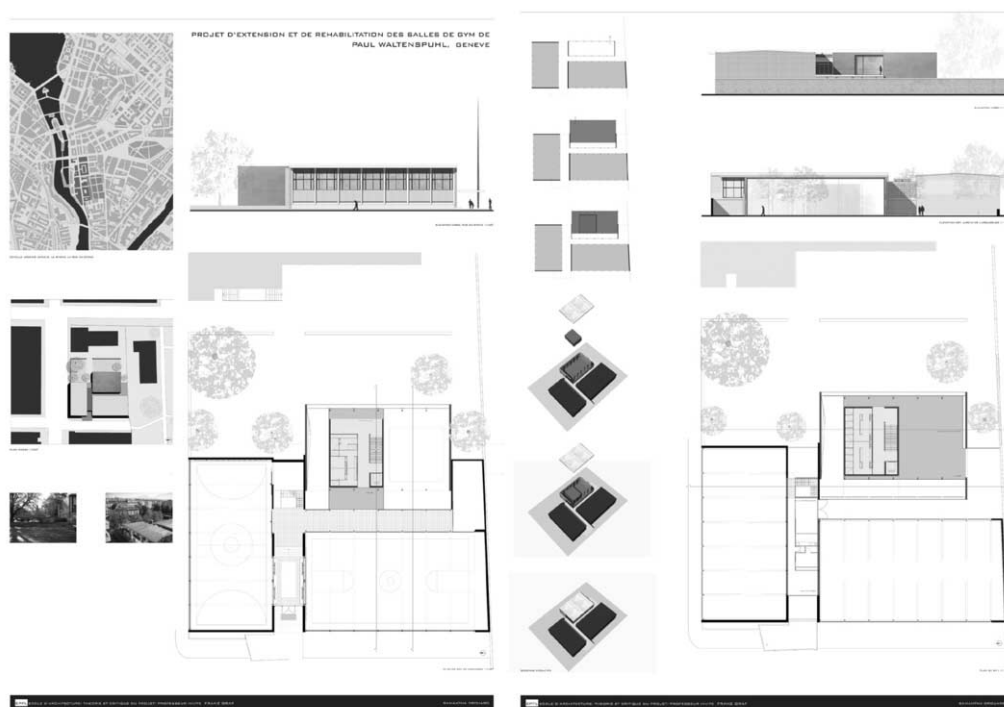


Figure 4. Presentation, student design studio. Extension scheme.
Samantha Drouard.

In proposals for the Rue du Stand Gymnasium Halls, the extension required was subject to a threefold constraint: size (its area being two-thirds the size of the existing halls); the functional and dimensional character of the features stipulated in the brief (climbing wall, dojo, etc); and the problems of linking new and old together, achievable only using a closed façade at the back facing onto the Arquebuse car park, the only available space.

The new extension must therefore develop out of the topological connection, but the options appeared limited. As we know, constraints can be useful aids in design, and a multitude of different standpoints were adopted, surprising in their richness and diversity. Faced with the difficulties of confrontation, some of the proposed schemes opt for separate volumes that maintain a distant relationship with existing buildings, greenery or neighbouring thoroughfares; in other words, cut off by formal gesticulations of an autistic and desperate kind. But the proposals as a whole jostle with what is there, choosing to join with it, to continue the existing construction in the logic of its distribution and composition, repeatedly piercing the rear face, even in unlikely places, but always by virtue of a critical command of the structure, by knowing it inside out. Additions, extensions, reproductions, and serial divisions are set out on judiciously chosen axes of symmetry, on extended arrangements, inter-penetrations, a whole panoply of design devices that derive or develop their logic from the extant fabric, from the most exigent notion of 'Weiterbauen'. And we have to admit there is no single 'way,' but multiple ways of handling it; a multitude of unique design positions one can adopt in accordance with a logic that, when push comes to shove, must prove its architectural pertinence. One proposal goes as far as to suggest, sacrilegiously, substitution of one part of the existing building – the splendid changing rooms – so as to concentrate the extension upon this part of the site. It is a dangerous gamble, but one that pays off: the benefits in terms of space and distribution inside and outside the building are deemed to be substantial.

Onto the issue of 'Weiterbauen,' in terms of function and arrangement, one overlays the questions of architectural form and language. There is no place here for pseudo inventions of a personal nature, for abstruse and hermetic gobbledegook. By knowing and appreciating the elegant profiles of the existing subject one sets up a fertile confrontation of new and old: conservation invites imitation, raises the question of the copy and the authenticity of the image, argues for contrast, inversion even, and judges the pertinence of the conclusion. Yet again, there is no right choice of form. The construction of the project dictates it, sets up intermediary pathways, and even hybrids that flow from coexisting modes. Beyond resolving constructional elements of the language, there is the work of analogy with light, with chromatic and tactile effects of materials, with dynamics and the speed of movement. Engaging thus with the extant work, some projects are able to release the full potential for subtle design.

Conservation ultimately, cruelly, requires us to practice construction details and define materiality. Issues one can always resolve on site in other projects become, in conservation, our points of departure, minutely pared back in the scrutiny of survey. And from the issue of confrontation emerges the thorny but liberating question of what to build, how, and with what material, underpinned by an affirmation of the logic of the design.

The Rue du Stand Gymnasium Halls are an architectural event, a built document with qualities – plastic, spatial and functional; of arrangement; of comfort – we are able to apprehend. The site provides us with knowledge of the production and history of architecture in Geneva during the 1950s. It is a fine building, more noble than spectacular, and the designs the building has inspired in the context of the ENAC workshop are a worthy pay back. Collectively, in their quality and diversity, they prove – if proof were needed – that the critical and analytical approach of conservation is closely bound up with the business architectural design.

Translated from the French by David Mason

NOTES

- 1 On the definition of "sauvegarde", see the following texts:
 "Pour une histoire matérielle du bâti moderne et contemporain";
 "Sauvegarde et pensée négative";
 "Quelle histoire pour la sauvegarde du patrimoine architectural moderne et contemporain"
Interventions by Franz Graf, Alberto Grimoldi and Bruno Reichlin at the conference "La sauvegarde du patrimoine bâti du XXe siècle. Nouveaux métiers, nouvelles formations", at the Institut d'architecture de l'université de Genève, September 2000.
One example of a conservation project carried out along these lines, is the Van Nelle factory (Van Nelle Monument in progress, Uitgeverij De Hef Publishers, Rotterdam, 2005)
- 2 Architects Martin Boesch and Bruno Reichlin are in charge of the Projet de Sauvegarde workshop at the AAM, and at the EPFL the Laboratoire TSAM deals with the discipline. The TSAM produces and develops understanding in the fields of techniques and conservation of Modern and contemporary architecture. This understanding is multidisciplinary and calls for a consideration of the historical as well as technical aspects of materials and their use, and economic and environmental data. It also involves exercising specific strategies (maintenance, preservation, restoration, rehabilitation, rebuilding and extension) within the concept of sauvegarde, combining theoretical knowledge and practical skills. The primary aim of the TSAM is to teach, study and develop the services linked to these skills.
- 3 The site this paper is chiefly concerned with is that of the Gymnasium Halls in the Rue du Stand, Geneva, 1951-53, by Paul Waltensphül.



Experiencing the Modern in Lisbon

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Unlike many other European cities, Lisbon escaped the bombing in World War II that was partially responsible for the extensive renovation of the urban fabric of a number of major cities. However, Lisbon does boast an important legacy of post-war Modern architecture, ranging from the everyday to the monumental. Most of this modernity is to be found in public buildings such as churches, museums, schools, housing estates, and large-scale urban complexes, which have become familiar landmarks in the urban landscape and are still part of the collective lives of city dwellers.

Although some of these buildings have been listed as historic resources, local authorities are still largely unaware of them and recognition of their importance is lacking both at home and abroad, even amongst students of architecture. One of the reasons for this may be due to the fact that these Modern works still bear the connotations of a recent past, which was considered to be out of step with history. As a consequence they have not been regarded as an urban heritage worthy of protection, which has left them more vulnerable to alterations carried out in response to the need for change around them, often leading, in the process, to a loss of coherence or the sense of their original form and meaning. Nevertheless, even when a complete break or change of convention has occurred, their iconographical impact is still evident today. Actually, these buildings boast unmistakable architectural qualities and possess a remarkable capacity to relate to the surrounding city and the changes it has undergone.

The importance of drawing has long been recognised as a way to enhance the perception of architecture through the more attentive and intensive perception of the built environment through what has been called “the clarity of the hand.” In 1966 Italian architect Vittorio Gregotti wrote, “The exercise of drawing, the use of the tool which serves to represent the object, is the only corporal relationship that the architect maintains with the physical dimension of the materials to which he has to give shape. It is his last manual skill and he should defend it obstinately.”¹

This is a deep-rooted tradition in Portuguese architectural education, as demonstrated by the practices introduced in the late 1950s by Frederico George² and later developed by Daciano da Costa,³ who, through the practice of architectural and urban analysis *in situ*, taught that familiarity with architecture is acquired by visiting and experiencing buildings, by reinforcing the sensory and tangible relationship with the built environment. Since then, as project tutors in the Faculty of Architecture of Lisbon’s Technical University, we have carried out several experiments that exploit drawing as the principal tool in facilitating visual perception by concentrating on the structural or additional meaningful features of what is observed, leading to an overall vision of the object perceived or experienced and a better understanding of diverse ways of living, seeing, and designing.

More recently, taking advantage of the extraordinary range of clues the Modern Movement offers, we have designed and launched a study programme in which our students visit and carefully

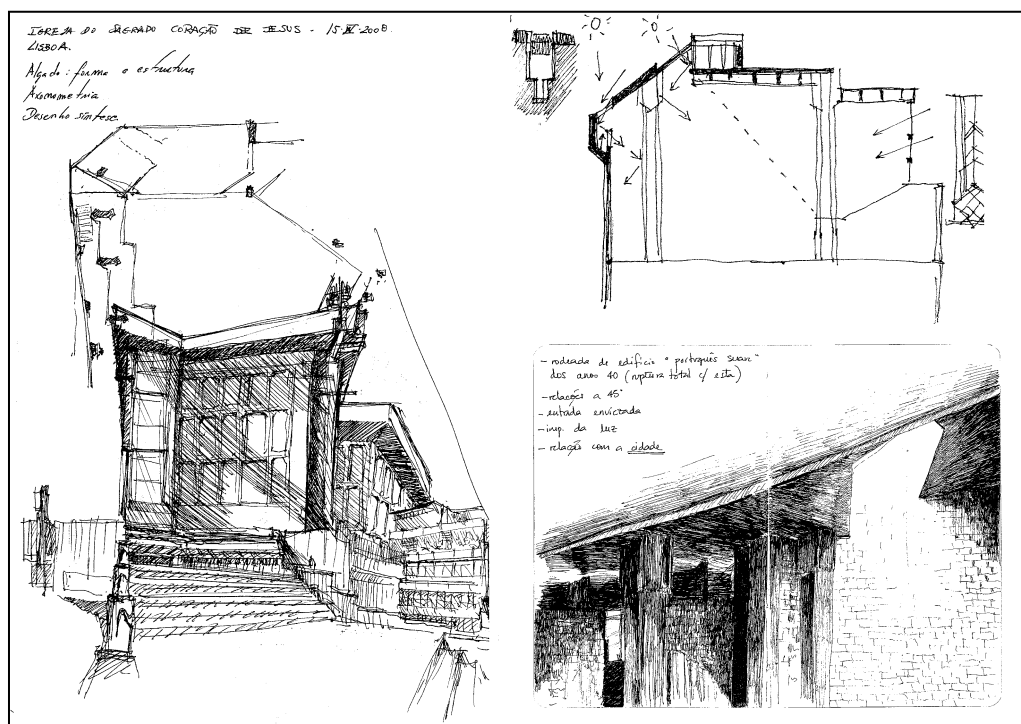


Figure 1. Igreja do Sagrado Coração de Jesus, student's sketches

observe Modern buildings in the city. We think that this is better performed as a group activity, not only to allow the sharing of experiences and memories but also to reinforce the notion of teamwork and promote a heritage based on common references.

"To know how to write one needs to know how to read"
Jorge Luis Borges

A proposal was made for an optional discipline that we called *arquitectura in situ*. It was to be a semester-long course with a total of 28 class hours, designed for fourth year students of architecture. Classes began with the viewing of the initial sequences of the film "Senso" (1954) by Luchino Visconti, starting with the revolt inside the La Fenice Opera Theatre and leading up to the nocturnal perambulations around Venice. Taking the film as the starting point, we exchanged ideas with the students about the relationships users establish with architectural and urban space; the usage and codification of space; the process of individual and social appropriation; the possibility of subverting pre-established rules; the way in which architecture and the city become stages for everyday life, platforms for action and interaction; how architecture enables and constrains such processes of appropriation; how it is possible to see beyond purely visual appeal (that which favours photogenic attraction and iconicity) to focus on spatial practices, and contexts.

This was the way we introduced the course, its objectives, its methodology and the fundamentals behind the theoretical and practical work the students would carry out.

We chose six buildings which had been designed by Portuguese architects in the third quarter of the twentieth century, clearly distinguishable from each other, not only by their design characteristics but also by the relationship they established with their urban surroundings and the way their

context had since been transformed. It was decided to restrict the choice to public buildings: two schools, a church, a hotel, and a cultural centre, which included a museum, a room for temporary exhibitions, a library, and auditoria.⁴

It was our aim to understand, through these buildings, how the respective architects responded towards a specific context, that of the design and building of their day. We wanted to assess how the decades which had since passed by had brought a wide variety of alterations (the urban surroundings, the demographic impact, the functional programme, the trends) and whether each building had survived unaltered or had been adapted, had provoked responses, had managed to withstand new pressures, or had accumulated weaknesses and surrendered to obsolescence.

The practical sessions, each of which was to be four hours long, were to consist of visits to a series of selected works, with almost the whole exercise occurring *in situ*. By exploiting on-the-spot sketches we intended to focus attention on the features which we considered to be relevant in a comprehensive exercise of this kind involving observation and spatial analysis; the decoding and interpretation of the architectural design, its history, its relationship with the surrounding city, territory and landscape, with construction, the functional programme, with its users and their values, needs and expectations. To summarise, we wanted the students not only to draw the visible architectural features but, above all, the underlying dimension.

An observation checklist was supplied as the basis for the exercise, upon which certain of the more significant architectural features of each work were to be registered; the layout, the relationship between formal definition and supporting structure; the relationship between the spatial structure and the functional programme; interior / exterior relationships, the perception of the

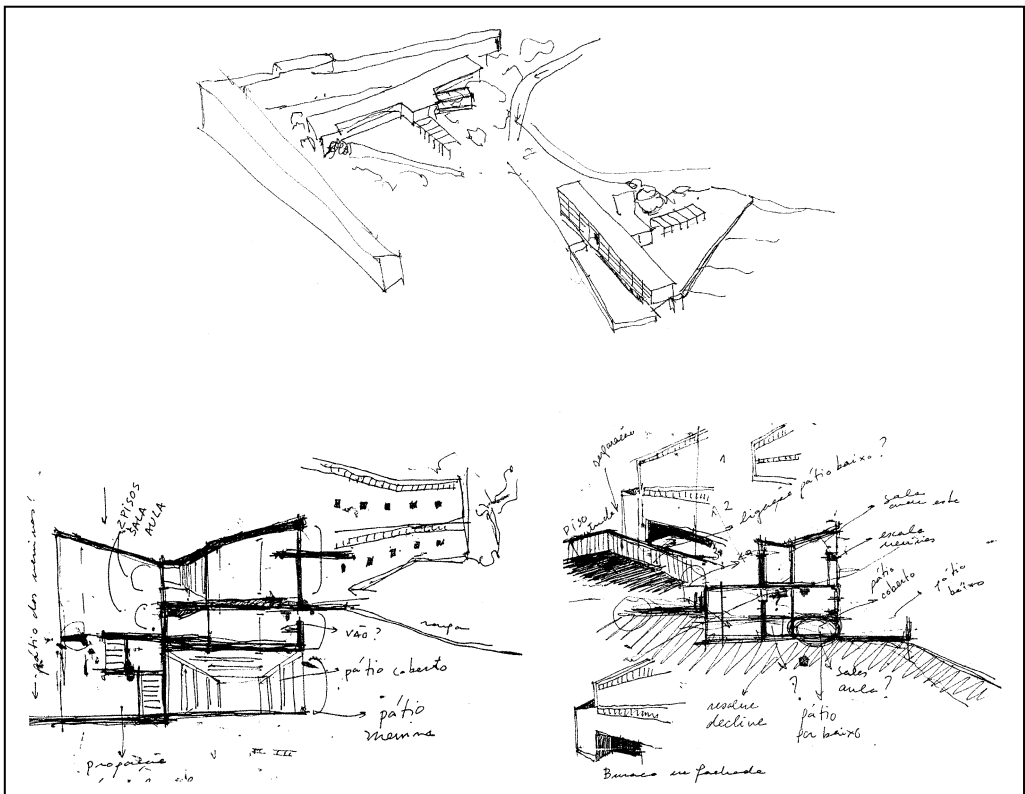


Figure 2. Escola do Vale Escuro, student's sketches

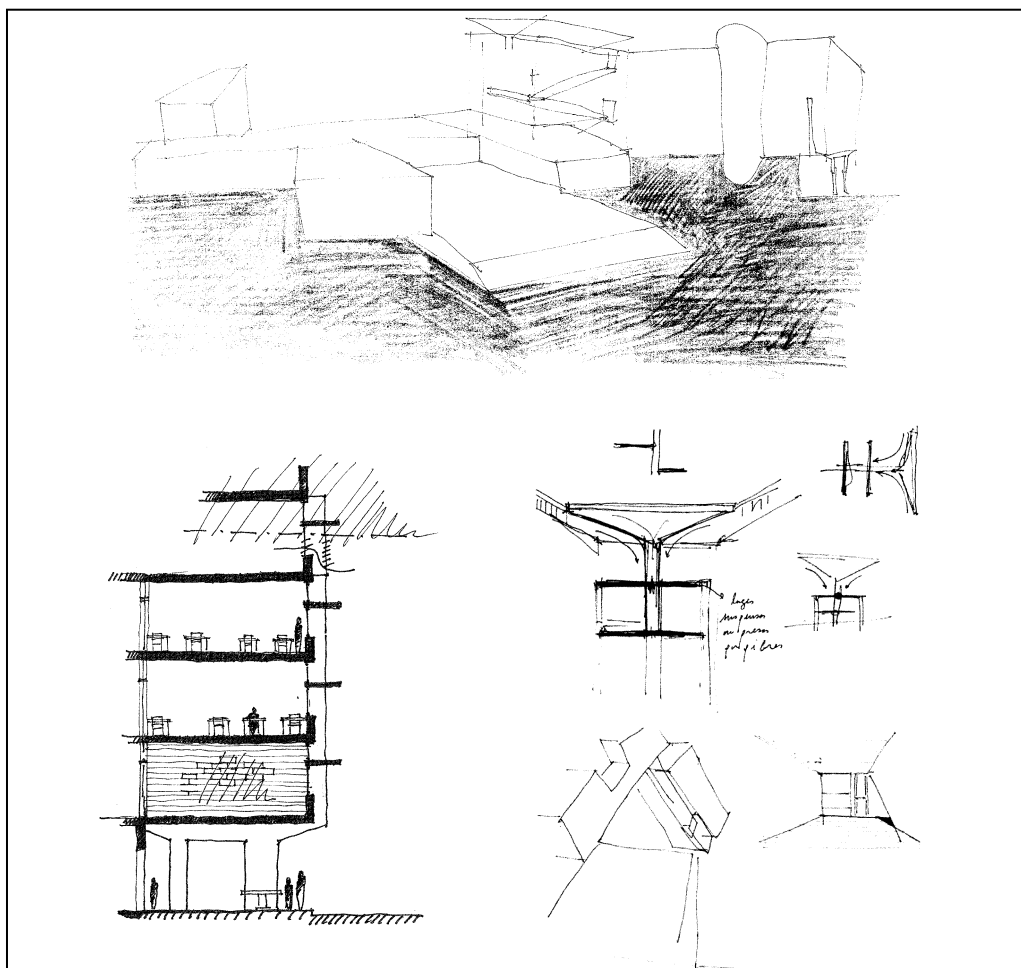


Figure 3. Liceu Padre António Vieira, student's sketches

spatial form in daylight and the articulation of artificial lighting; content and materials; the more significant details. We decided that each of these features should be registered using the most appropriate type of drawing — or rather ways of thinking and seeing: layout plans, sections and profiles, axonometric drawings, perspective sketches, chiaroscuro drawings, or diagrams.

The students were invited to turn their attention towards the objective, spatial, and existential character of architecture rather than to the immediacy of the image, while at the same time examining, in an attentive and critical way, architectural form and space, issues which are central to European Modernism. In this dichotomy between image and language, the tectonic and ontological values of architecture take on a pride of place, encouraging a practice of design in which form and space are foremost and cannot be fully translated by the architectural image.

Thus, drawing became a mediating instrument between the physical object, observable and present, and its apparently "forgotten" past, allowing the three moments in time — past, present and future, to be registered. Seen this way, drawing transforms a lethargic memory into an operational one. Drawing is no longer a tool, but a space-time vehicle in the understanding of the immutable and inherent values of architecture.

For example, taking as a point of departure the sense of interiority and centrality conveyed by a student's drawing of the Church of the Sagrado Coração de Jesus, we can establish a comparison with the Jerónimos Monastery in Lisbon, built during the sixteenth century. Or in the case of the Hotel Ritz, with its iconic presence overlooking Lisbon, rising above less well-defined and more anonymous surroundings, one can visualise the cubic geometry of the Convent of São Vicente de Fora on another of Lisbon's hills. Or, the headquarters of the Calouste Gulbenkian Foundation, where the students recognised the close relationship between the interiors of the auditoria and exhibition rooms, and the gardens. A similar presence and absence of a limit between the interior and the exterior is fundamental to the whole organisation and layout of the buildings and gardens of the Quinta da Bacalhoa, a sixteenth century productive country estate, with its manor house where adjoining gardens are succeeded by more spacious terraces for agriculture. At the Quinta da Bacalhoa, as at the Gulbenkian Foundation, a notion of design prevailed that favoured a relationship of spatial continuity between the interior and exterior. In each of these cases tectonic and ontological values can be identified which give rise to existential and contextual, or indeed cultural relationships.

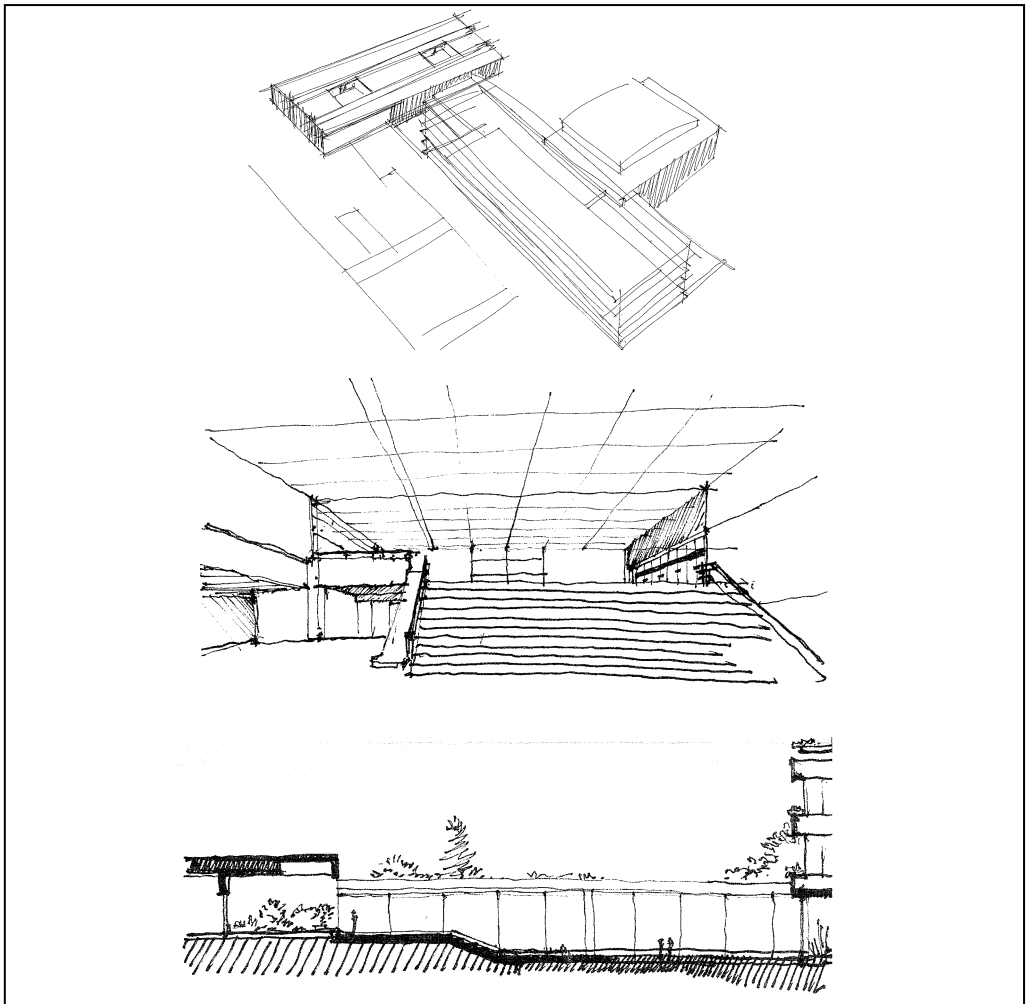


Figure 4. Fundação Calouste Gulbenkian, student's sketches

"Tradition is the transmission of fire, not the cult of ashes."
Gustav Mahler

The questions we raised in this course, focussing on the importance of transitional and bordering spaces, the relationships between interior and exterior, between the public and the private spheres, the domains of light, space and matter, reflect values central to architecture and therefore have remained absolutely contemporary at all times.

We have referred essentially to the inherent values of architecture which surpass it as a support for images. They are inherent because they are at the very heart of the process of fruition of a project, which is a fundamental way of recognising many of its qualities. Architecture *in situ* means, after all, architecture understood, questioned, thought through, drawn, and designed.

We believe that Architecture is far from being an amnesiac expression of form and substance in which, in a certain fashion and, in spite of everything, life would go on. Architecture, like all human endeavours has always depended, to a great extent, on the interpretation and adaptation of precedents, on the discovery of the past, at times following from it, at other times struggling against it, but never ignoring it. On the other hand, in the best examples, one can see the ability to recognise places as the result of interaction between people and the environment, accumulating memories that are meaningful. Notwithstanding the stigma of *tabula rasa*, we share the view that the architecture of the Modern Movement, in its multiple forms, often succeeded in reinventing itself and inventing the future, taking archetypes as its point of departure.

There is no desire on our part to reduce the scope of the architect's work to the exploitation of precedents, which would be a gross simplification of the intrinsic complexity of architecture, but one cannot ignore the fundamental role played in the process of architectural creation by precedents and analogies. Rather than more obvious formal analogies, we seek the understanding of abstraction in its essence and in the exploitation of history as a selective, transformational critical act, which provides the architect with the capacity to identify and recognise inherent properties and principles upon which it is possible to act in search of new possibilities.

This work on memory archetypes, undertaken in accordance with the logic of reactivation and re-legitimisation of their inherent qualities, provides an excellent basis for analysis and interpretation through *in situ* drawing and discussion of Modern works of architecture, leading to the development of a critical capacity which enables these works and, as a consequence, architecture in a wider sense, to be understood as a permanent process of continuity and change.

NOTES

- 1 Gregotti, V., 1966, *Il Territorio dell'Architettura*, Feltrinelli, Milan ; french version, 1982, *Le Territoire de l'Architecture*, L'Esquerre, Paris, 27.
- 2 George, F., 1964, *Considerações sobre o Ensino da Arquitectura*, Lisbon.
- 3 Spencer, J., 1994, "(Vi)ver pelo Desenho", in D. Costa, *Croquis de Viagem*, Horizonte, Lisbon, 18-21. Spencer, J., 2001, "Daciano da Costa e o Desenho de Estudo: o Acto do Projecto e o Ensino", in J. P. Martins, *Daciano da Costa Designer*, Fundação Calouste Gulbenkian, Lisbon, 21-29.
- 4 Hotel Ritz (1952-1959): architect Porfírio Pardal Monteiro, with Jorge Ferreira Chaves and Frederico Santana. Escola do Vale Escuro (1953-1956): architects Joaquim Bento de Almeida and Victor Palla. Escola Secundária de Padre António Vieira (1959): architect Ruy Jervis d'Athouguia. Edifício-sede e Museu da Fundação Calouste Gulbenkian (1959-1969): architects Pedro Cid, Ruy Jervis d'Athouguia and Alberto Pessoa. Igreja do Sagrado Coração de Jesus (1961-1970): architects Nuno Portas and Nuno Teotónio Pereira, with Vasco Lobo, Vítor Figueiredo, Pedro Vieira de Almeida, Luís Moreira, Luís Vassalo Rosa, Duarte Cabral de Mello, Miguel Aragão, Júlio Saint-Maurice and Miguel Chalbert.

Modern Education and the Education in Transformation of the Modern

THE EXPERIENCE OF THE MASTERS DEGREE IN “REHABILITATION OF THE BUILT ENVIRONMENT”

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Modern education, carried out at *Escola Superior de Belas Artes do Porto* (ESBAP) between 1940 and 1969, and the education in transformation, formalized in recent post-graduate courses like the “Masters Degree in Rehabilitation of the Built Environment” taught since 2005 at Coimbra University, allow the reflection about the pedagogical methodologies that arise in the architectural education of modern architecture transformation.

FROM BEAUX-ARTS SYSTEM TO MODERN EDUCATION: “TRAINING THE ARCHITECT”

The first generation of Modern architects graduated in an architectural education system referred to as the *École des Beaux Arts de Paris* and confirmed by the architectural education reform of 1931 in which the *concours d'émulation* were adopted, thus sustaining the “Development of this individual and creative activity.”¹ These architects began their teaching activity at ESBAP in 1940 with an invitation to Carlos Ramos (1897-1969) to teach architectural design.

Ramos, accustomed to travelling and a *connoisseur* of modern bibliography, implemented a set of initiatives that would lead him to become the Director of the ESBAP from 1952 to 1967. As a reflection of his reformist attitude, he translated into Portuguese, in 1940, the text “Training the Architect”² that Walter Gropius had published two years earlier when he became Chairman of the Department of Architecture of the Harvard Graduate School of Design.

Gropius’s programme at Harvard would become a new Modern paradigm, at a time when the Beaux-Arts system was being revaluated and when American architectural schools approached the university through a scientific and technological curriculum.³ “Training the Architect” complemented Bauhaus education and defined a new curriculum as follows: “

- 1 The architect has to be a coordinator;
- 2 In an age of specialization method is more important than information;
- 3 Three-dimension conception is the basic architectural discipline;
- 4 Knowledge will come to life only by individual experience;
- 5 In the first year basic design-and-shop practice combined should introduce to the students the elements of design – surface, volume, space and colour – and simultaneously the elements of construction and building;
- 6 In the second and third year, the design-and-construction studio, supplemented by field experience;
- 7 Construction should be taught as part and parcel of design;
- 8 The students should be trained to work in teams;

* This paper is related to the Ph.D investigation on “The architectural education in Portugal”, supported by a FCT Ph.D Scholarship.

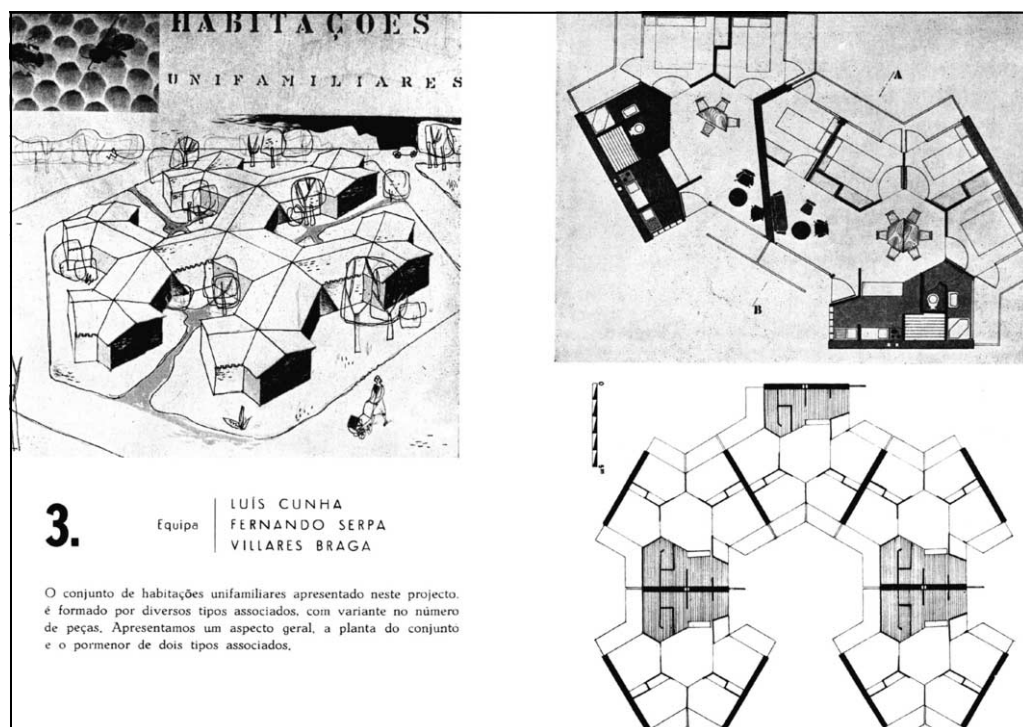


Figure 1. Teamwork "Minimum Individual houses", Competition in Architectural Composition, 1952-53.

Source: Cunha, L., Seara, F., Braga, V., 1955, "Habitações Unifamiliares", *A Arquitectura Portuguesa, Cerâmica e Edificação* (9), 29.

- 9 History studies should be started in the third year rather than in the first, to avoid intimidation and imitation;
- 10 Teachers should be appointed after sufficient practical experience;
- 11 Schools of architecture of small size are more efficient than large size (100 to 150);
- 12 The efficiency of teaching (...) depends on the number of student per teacher (12 to 16)."⁴

Carlos Ramos would integrate these twelve points in his activity as a professor of architectural design and as a Director of the Oporto School, which would frame a new kind of teaching. It was a slow process whose aim was to qualify the profession of the architect through a closer relationship with the current problems of society and to the scientific criteria imposed by the university.

1940s - Modern Methods for Beaux-Arts Curriculum

In the Beaux-Arts architecture curriculum, architectural design subjects promoted the training on composition and the development of a design method during the Special and Superior Course. It started in the second year with the subject buildings and monuments from antiquity and analytical elements studying palaces or churches. In the third year, the design of simple programmes was developed in a subject on small compositions so that, in the fourth year, with the subject composition was included more complex public buildings, such as museums. In the fifth and sixth year, already in the Superior Course, the teaching method followed the French tradition of the *concours d'émulation*, with design competitions in large-scale composition, sketching, construction, archaeology and city planning.

Carlos Ramos changed the architectural design programmes to relate them to problems in society, proposed by Oporto Town Hall or linked to his professional practice, like hospitals and schools. He also changed the competitions in construction to be integrated with those of large composition. Emphasizing theoretical education, there were two theoretical classes for each programme and sometimes, beyond the curriculum, a course on the theory of architecture. He gave some lectures on city planning, such as "The Town of the Future" supporting, in 1945, the beginning of the subjects urbanism and city planning. But it was at the drawing board that his project for students had more influence and using the rule "greater freedom, greater responsibility," he proposed in 1941, the abolition of timetables. It was within this spirit that his future assistants graduated, including Fernando Távora (1923-2005), to whom "Carlos Ramos loved opening ways, rather than indicating ways."⁵

1950s - Building a New School

In 1949, Ramos committed himself to the construction of new education reform, postponed to 1957, and then he assumed the direction of the Oporto School in 1952. Despite the legislative impasse, Ramos's management was framed by the spirit of the reform, in which the students of architecture should follow "the evolution of sciences and their applications, since they provide new possibilities of carrying out their works" or "of modernizing without losing their artistic character."⁶ In this perspective, he informally invited young architects already with professional experience to be his assistants, and assigned to each one subject of architectural design, asking not to use "too much pencil when correcting the students' works,"⁸ thus trying to motivate the pedagogical process of design. The design competitions promoted teamwork (fig. 1) and abandoned definitively classical culture conciliating Modern models with the experience from the "Inquiry to Popular Architecture in Portugal"⁸ (1955-1960) in which Távora and Lixa Filgueiras were involved.

As it was impossible to reform the curriculum, Ramos changed not only the teaching methods, but also the daily life of the school with initiatives that assure "any of our students, one day, telling us something new."⁹ Therefore, he started a Centre of Architectural and Urban Planning Studies,¹⁰ to organize lectures, courses, publications, inquiries, and an annual exhibition with students and professors' works from the architecture, painting, and sculpture courses.

Teamwork which "was born from a very peculiar climate of ESBAP life that is reflected in the expression of its activities"¹¹ went beyond the frontier of architectural design. Despite the pressure from the dictatorial regime, there was an environment of dialogue, which allowed the school to have a presence in the UIA and in the last CIAMs.

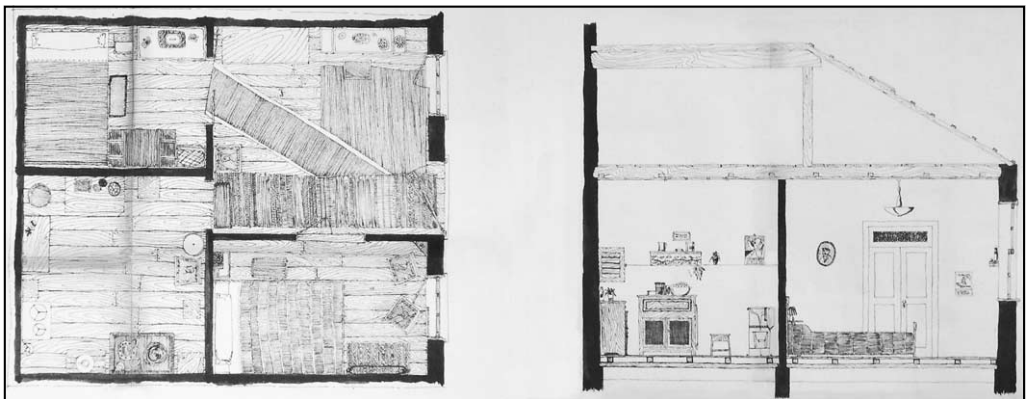


Figure 2. "Matasinhos Operation", Analytic Architecture II, Mário Trindade, 1962-63.
Source: Mário Trindade archive.

1960s - Modern Curriculum and Social Criticism

Formally framed by the reform of 1957, Carlos Ramos initial project was put into practice, now moderated by the critical participation of the students involved in academic protests and also by "the sense of innovation translated in calling new elements to the school staff."¹²

The education curriculum, divided in to three cycles during six years, was characterized "by the scientific studies which would allow students to adapt to the possibilities and necessities of Modern building."¹³ In both years of the first cycle, teaching was shared between the Sciences College — mathematics, descriptive geometry, or physics — and the ESBAF — analytic architecture, drawing, history of art, or sociology. Analytic taught by Octávio Lixa Filgueiras developed the observation of urban contexts through drawing, inquiries, and intervention programmes, called "Operations" (fig.2). This methodology of design — observation/analysis/synthesis — tried to increase the sociological and historic aspects of architecture.

During the three years of the second cycle, architectural composition became the central subject, supported by theory and history of architecture, which was taught by the same teacher, and by construction (materials, statics or topography). Architectural composition consolidated the design practice with themes that allowed a programmatic definition since they were close to the students, such as schools (fig.3). The theory and history of architecture became a time for research upon the updated bibliography¹⁴.

In the last year, third cycle, the subject on architecture composition approached urban problems through urbanism and economics and also artistic issues through aesthetics and combination of the three arts, a discipline of design with teams of students from the three courses. To graduate, students had to attend training and write a report, thus preparing a transition to the profession.

This structure consolidated a method of design, which allowed the articulation of subjects of architecture, construction, and city planning, but it failed to be interdisciplinary with the sciences. The "57 Reform" was known as "a sum of disciplines."

The importance given to the design in the structure of the curriculum was due to a large group of architect-teachers who enriched the professional activity and qualified their pedagogic education. Távora, for example, presented the "Vila da Feira Market Place" at the last CIAM 59, and travelled around the United States in 1960 to visit architecture schools and, two years later as a professor, defended the thesis "Of the Organization of Space."¹⁵

This group of teachers demanded a new reform, in the context of the academic crisis of 1969, proposing a new curriculum with just four subjects — drawing, urbanism, construction, theory, and also teamwork, both in the organization of pedagogic activities and in the democratic school management, shared by teachers and students. The school opened in 1970 with an experimental regime, which, in its varied versions, has been the basis of the current education system.

THE EDUCATION IN TRANSFORMATION: MODERN METHODS FOR MODERN BUILDINGS

The education in transformation of Modern buildings can be formulated through the legacy of Modern education. In the Oporto School, this legacy was made up, as we have seen, by the importance of teamwork and knowledge to the design methods.

Fernando Távora improved these ideas when he introduced "knowledge as a design method"¹⁶ integrating history and memory in the construction of the present. With this methodology he was also approaching the problem of the intervention in existing buildings. This tradition became the basis of the Oporto School reorientation after the 1969 crisis until its "emigration" to Coimbra in the end of the 1980s to build a new school of architecture.

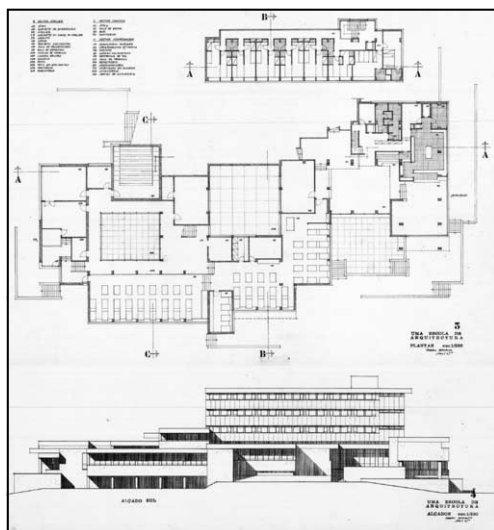


Figure 3. "School of Architecture", Architectural Composition III, Pedro Ramalho, 1964-65.
Source: Pedro Ramalho archive.

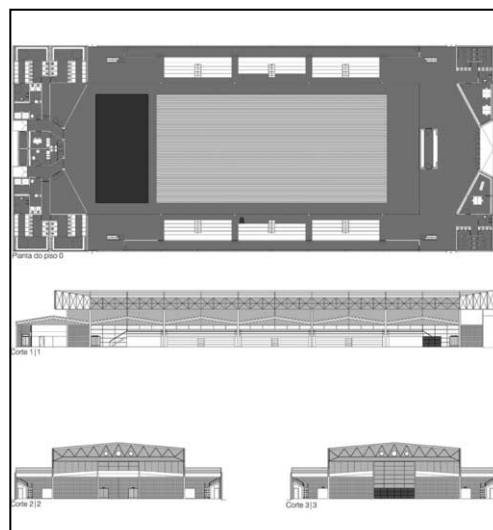


Figure 4. Teamwork "Pavilion I, Coimbra University Stadium", Architectural Rehabilitation Design, 2005-06.
Source: Carla Cardoso, Catarina Ferreira, Francisco Loureiro archive.

When, in 2005, a Master's degree focusing on the Rehabilitation of Built Environment was proposed in Coimbra by the Departments of Architecture and Civil Engineering, it was understood that it would be important, on the one hand, to consider the concept of heritage as built environment, assuring a methodological and non normative approach and, on the other hand, to explore the technological education and the spirit of cooperation between engineers and architects, as it happens professionally.

Therefore, a Master's with a practical character in which "Along with the traditional transmission of theoretical knowledge, case studies — proposed by several institutions and towns under protocols of collaboration with the university — will also be put forward, and about them students will have the opportunity to make basic designs."¹⁷ With this model, the university and the city come closer together.

Architectural rehabilitation design is the only compulsory subject of the Master's curriculum and it is taught by two architect-teachers and two engineer-teachers who guide multidisciplinary teams, also formed by architect and engineer students, on the development of "basic design intervention in the built environment."¹⁸

This way, it intended to develop a design methodology based on the coordination of different areas on the resolution of real situations, not to teach a set of rigid intervention rules. The aim of architectural design should concentrate knowledge obtained in the various optional subjects of architecture, history, engineering, or law on the architectural drawing board. Working on real cases obliges students to develop analytical studies, for example, the identification of pathologies in the construction system, enabling them to overcome the difficulties of applying theoretical knowledge.

The optional subjects allow students to define their own curriculum according to their targets, which are generally associated with their professional objectives. Therefore, they can also choose a curriculum more related to the problems of the transformation of the Modern, providing some disciplines of architectonic culture, like urban heritage: protection in transformation or critical intervention on built environment, in which "a group of case studies, on account of their meaning, may produce different kinds of design intervention in contexts of built environment."¹⁹ The

curriculum can be completed in general knowledge subjects, like rehabilitation law and policies, or the subjects that allow evaluations of building infrastructure, like the rehabilitation of concrete, and metal structures or strategies and techniques of inspection.

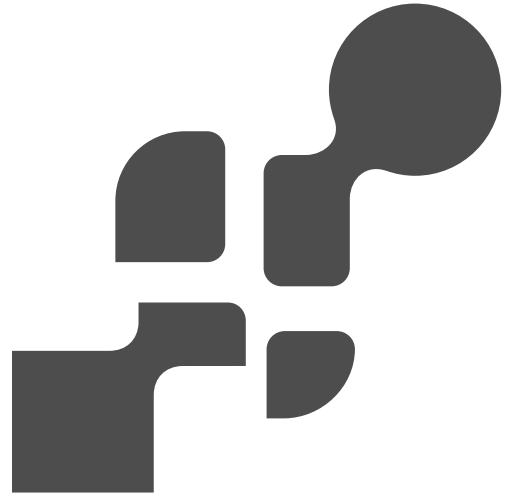
In the second and last year of the course, students have to write a thesis in order to deepen their knowledge about the transformation of buildings or urban spaces, through case studies in the Modern Movement, such as the current dissertation on the Coimbra Secondary School, a project of Carlos Ramos (1930-36).

As an example, in the subject architectural rehabilitation design, a project was developed focusing on the Pavilion I of Coimbra University Stadium (fig.4), designed by architects Alberto Pessoa and Abel Manta, in 1967. That project intended to consolidate the structure and the coatings and also to adjust the pavilion to today's requests for sport facilities. The architectural and engineering project frames the building in the stadium plan and in the context of Modern production, and while proposing a programme upgrade, it identifies and corrects the ways of building and organizes a financial viability plan. Thus, these projects have a transforming character rather than a conservative one that allows projects to overcome the constructive fragility and the programmatic misalignment of the Modern building.

To conclude this Master's degree is not understood as a specialization, but as the development of design methodologies that stimulate teamwork as a multidisciplinary basis for debate and collaboration between the several professionals that intervene on a space; these are pedagogic goals of Modernism itself.

NOTES

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Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability
Building Skins: Conservation and Adaptive Re-use

Building Skins: Conservation and Adaptive Re-use

INTRODUCTION TO THE SESSION

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Building physics, or *building science*, is increasingly recognised as essential to architectural conservation and to the proper stewardship of our built heritage. As yet, very little research has been performed on the historic development of knowledge of, and standards in, building physics. Proper knowledge of building physics may, however, appear to be the key to preservation and adaptive re-use as a field of research and practice with increasing economical, environmental and cultural relevance. Given the particular social and cultural meaning of the architectural heritage of the Modern Movement, and the minimalist character of many of these structures, this poses a range of challenges to the professions.

If we accept the principle that every building can be restored to its original state (either by conservation, reconstruction or any other way of preservation), including the related performance level, a relevant question is why such upgrading is necessary in the first place. The demand for upgrading mostly seems to result from changing requirements rather than a decline in the performance of the structures themselves. In terms of architectural conservation, it is important to realise that even when a building is in a good condition, or can be easily restored to that state, change is sometimes difficult to avoid.

The original design of Modern Movement buildings has often been compromised by principle changes to their climatization concept, for instance by replacing natural airflow features with air-conditioning systems. Such interventions have major effects on the energy consumption levels. In her paper, Nina Rappaport demonstrates that, against all presumptions, the 'greening' of Modern Movement buildings is a serious option as these buildings prove to be eminently suitable for state-of-the-art sustainable (re)use.

Tom Haartsen explains how the feet of a duck make us understand how to influence the performance requirements of building skins, explaining various principles and approaches to increase the performance level of building skins, either by upgrading the skin itself or by introducing secondary glazings.

However, in professional practice, it is essential to understand the design intentions of the original architect. On the basis of these insights, computer software may further the research of a building's potential in regards to energy efficient, ecological building technologies. Ulrike Passe gives an elaborate example of such research, analyzing airflow and temperature changes within Alvar Aalto's famous Viipuri library. Victor Kootin Sanwu tackles issues regarding the Great Hall of the University of Science and Technology in Ghana, an innovative building originally involving natural airflow features, that has since been modified without any respect to the original climatization concept.



By taking economical and practical principles as leading, a lack of respect for the original design approach can be devastating to the design principles that have been decisive to the architectural qualities of emblematic Modern Movement buildings, particularly when speaking about buildings featuring metal-and-glass curtain wall facades. Uta Pottgeisser's paper, comparing various state-of-the-art case studies in Germany and Brazil, demonstrates that, more and more, the original design approach is taken into account when renovations are at hand.

The analyses presented in this session provide us not only with recommendations for future restoration works in the short term, but also with knowledge and an understanding of the relationship between concept, form, materials, technology and sustainability over time, and the variety of design decisions that have produced some of these magnificent works. Understanding such historical references must guide us in the planning of future restoration works.

The Feet of the Duck or Dynamic Insulation

TACKLING SINGLE GLASS FACADES OF MODERN MOVEMENT BUILDINGS

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The adaptive re-use of Modern Movement buildings often requires the adaptation of the architectural features of their facade in order to comply with present functional requirements. For example their new uses as offices require energy conservation strategies and strict thermal comfort conditions that conflict with the large expanses of single glass that characterise many such buildings. Also moisture in the form of condensation at the facades, or icing in window rabbets, challenge the sustainable conservation of such facades. If, in cases of adaptive re-use, large single glazed facades have to be retained, these conflicts have to be solved in the design.

This paper presents different design approaches to cope with such functional shortcomings of large, single glazed facades, which have been implemented in various buildings. It deals not only with thermal comfort, moisture and energy conservation but also with noise abatement.

PRESENT FUNCTIONAL REQUIREMENTS

In case of adaptive re-use, the building mostly has to comply with present functional requirements: thermal comfort in winter and in summer a.o. by avoiding:

- radiant asymmetry,
- down-draught.
- noise abatement,
- moisture control, especially in case the new use requires humidification, and
- energy conservation.

In general large expanses of single glass do not comply with these functional requirements, nor with present energy performance standards.

HOW TO IMPROVE THERMAL COMFORT BEHIND LARGE SINGLE GLAZED FACADES?

In winter conditions large single glass facades cause down-draught and cold radiation. Therefore, workstations should preferably not be situated close to single glazed facades. To avoid such limitations in use, there are three main solutions to improve thermal comfort:

- 1 Replace the original facade by frames with thermal breaks and (low E) double glazing,
- 2 Install secondary glazing behind the original facade, either immediately behind or at some distance from the original glazing (double skin facade), or
- 3 Shield the workstation from the facade in another way.

Ad 1: The first solution can be used if the preservation of the original facade is not essential to the project. Therefore this solution will not be analysed in this paper; technical problems can mostly be solved.

Ad 2: Regarding the second solution, the first option, i.e. the introduction of a secondary glazing directly behind the original facade, has the following technical setbacks:

- cleaning between both facades is hardly possible, and
- operation of the windows (if to be retained), is hardly feasible.

These may be solved by the second option, i.e. a secondary glazing at some distance of the original facade. A main setback is that this option reduces the amount of rentable floor area.

Ad 3: In some cases, therefore, it makes sense to shield off individual workstations, e.g. by locally introducing thermal comfort screens. Let's have a look at this third principle solution first.

Thermal comfort screens

For the adaptive re-use project for the listed Oranje Nassau Building in Heerlen¹, a user was selected which involved only 25 workstations in a building of 3000 m² gross floor area. For this project, thermal comfort screens were locally applied, preventing cold draughts from the single glazing to reach the workstations, and protecting against cold radiation at the same time.

The building is provided with drop arm solar shading. In case of a semi overcast sky in summer diffuse heat radiation from the lower part of the sky still has a high intensity. The comfort screens protect as well against this heat radiation. The venetian blinds in the comfort screen are used for luminance control in order to reduce glare in display screens.



Figure 1. *Comfort screens in the first project for the Oranje Nassau Building in Heerlen, the Netherlands, 1995-97.*
Photo: Climatic Design Consult.

Such a solution makes sense when applied to facades without a significant noise load and in case of a limited number of workstations. For noise sensitive use, i.e. workstations at noise impacted facades, and in case a single glass facade has to be retained, a secondary facade is inevitable.

Double skin solution: a secondary facade

The Van Nelle Factory is a Modern Movement icon, originally designed by Brinkman & Van der Vlugt between 1925-31, of which the curtain walls had to be retained. The adaptive re-use project for the Van Nelle Design Factory² mainly concerned the accommodation of workstations. The architects therefore proposed a secondary facade a.o. because of the noise load. Beside the obvious advantages of a secondary facade for thermal comfort in winter, it offers possibilities to control thermal comfort in summer conditions as well.

The original architects' understanding of solar heat loads at the South West facade of the Van Nelle factories inspired the introduction of prototypical sunscreens: roller-blinds made of wooden slats, spray-painted in aluminium, and

fitted at the inside of the facade. These highly reflective sunscreens however could not prevent high solar loads due to the extensive glazed surfaces. South West being the predominant wind direction, opening the windows often even caused an increase of heat load in the factory due to convective heat flow from the sunscreens into the factory.

Therefore, in the adaptive re-use project for the Van Nelle Design Factory, the secondary facade at the South West side is provided with insulated double glazing and aluminium coloured venetian blinds in between the existent and the new facades. The double glazing of the secondary facade is especially important to control radiant temperatures in summer conditions. To drive off the heated air from the cavity in summer conditions, the existing vents are used.

For the automatic operation of the original vertical pivot windows, the existing operating rods for the higher windows have been extended downward and provided with a electrical motor. By connecting also the lower vents to this system, air circulation is invoked by thermal effects (chimney-effect).

REDUCTION OF HEAT LOSSES

With the public concern about global warming and reduction of CO₂-emissions in mind, the heating of single glazed buildings in winter can hardly be justified. In case of adaptive re-use of listed buildings, Climatic Design Consult advocates to rely on the analogies of heat loss reduction systems as found in the feet of a duck, and of dynamic insulation. Both analogies take the principle of reducing the inside temperature of poorly insulated constructions in winter as leading.

The feet of a duck

Julius Vincent explains heat recovery principles by analogy to the feet of a duck³. The core temperature of a duck is, like for human beings, about 37°C. The body is well insulated by feathers. A duck in ice-cold water would lose a lot of heat through its un-insulated feet. The upper part of its feet act as a heat recovery device. Warm blood from the core flows into the feet, warming up the cold blood returning from the toes. Therefore the average temperature of the toes is much lower than the core temperature and hence the heat loss into the cold water is much lower than expected considering the surface area of the webbed feet.

Especially this last phenomenon can be applied to poorly insulated historic buildings, like most Modern Movement buildings are, even more so if they feature large single glazed facades. The comfort screens in the first transformation project of the Oranje Nassau building present an application of this principle: in winter average radiant temperatures at the workstations are increased, allowing air temperatures influencing transmission heat losses to be reduced.

Dynamic insulation

Dynamic insulation can be created in buildings with walls consisting of a porous insulation material, like mineral wool. By creating a lowered pressure inside, the porous material admits outside air to migrate slowly to the interior. The outside air is heated up in the insulation and partly takes the heat, that is transmitted to the outside, back into the construction. Dynamic insulation is a special form of heat recovery as found in the feet of a duck.



*Figure 2. The feet of the duck offer an example for intelligent design.
Photo: Bureau voor Beeld.*

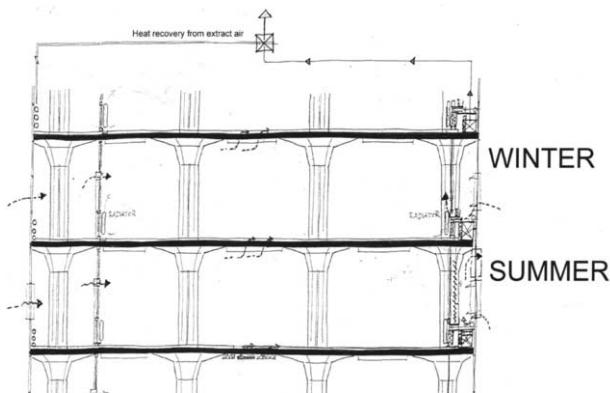


Figure 3. Adaptive re-use of the Van Nelle Design Factory; conditioning concept with double skin facades.
Diagram: Climatic Design Consult.

Dynamic insulation with porous insulation materials should just be considered as a thought experiment. In reality, small particles of mineral wool can be expected to become airborne, affecting the quality of the ventilation air, and pressure regimes due to wind can hardly be controlled. Still, a double facade with a cavity, through which outside air migrates towards the inside during winter, is a form of dynamic insulation as well: during operation of the ventilation, the temperature difference between the cavity and the outside is reduced by the entering outside air, resulting in smaller transmission heat loss. The heat loss through transmission from the heated zone to the cavity is partly regained by warming up the ventilation air that enters the heated zone via the cavity. In addition the cavity works as a greenhouse and thus contributes to more solar heat gains.

This principle is applied for winter conditions in the Van Nelle Design Factory as well: air to the cavity is supplied through leakages and via the existing operable windows. At the North East facade the space between the primary and secondary facades provides a circulation corridor giving access to the office rooms, in which users themselves can open windows. At the opposite facade ventilation air is allowed in during winter conditions only. Users have no access to the intermediate space, in order to avoid heat entering via the secondary facade in summer.

NOISE ABATEMENT

Outside noise load can not be controlled by a local comfort screen. In case an authentic single glazed facade has to be retained one of the following options has to be followed:

- avoid noise sensitive functions in rooms at the noise impacted facade.
This is done in the first adaptive re-use project of the Oranje Nassau building in Heerlen for the Governmental Agency for Geology¹ where stones were stored in spaces at the noise impacted facade;
- locate noise sensitive functions, like workstations, in smaller, insulated boxes, separated from the main space, so-called cubicles.
This, in fact, concerns a local solution that may work well for noise abatement, but only if the areas designated to noise-sensitive functions are relatively limited in size,
- consider the construction of a secondary facade.
This option can be successfully applied in case of noise impacted facades combined with large areas with noise sensitive functions, as has been the case for the second project of the Oranje Nassau building in Heerlen⁴ and for the Van Nelle Design Factory.

MOISTURE CONTROL

In temperate climates, in winter, condensation on single glazed steel frame facades often occurs. For the steel frames themselves, especially for operable windows, moisture attack challenges their endurance and sustainability.

Therefore in Modern Movement buildings with authentic single glazed, steel frame facades, high moisture loads on the facades, due to exfiltration of air, have to be prevented.

This can be achieved by forcing (dry) outside air to enter the facades by creating lowered pressure levels inside. At the Van Nelle Design Factory the office floors are provided with mechanical extraction in order to create such reduced pressure levels. A similar solution has been adopted for both subsequent transformation projects of the Oranje Nassau building.

Due to wind influence and depending on air tightness of the inner facade, infiltration can not always be guaranteed. But with sufficient air tightness of the inner facade during most of the time infiltration at the facades will occur, reducing the risks of moisture attack to the frames.

Uses that require relatively high humidity levels should actually never be accommodated in historic buildings. Adaptive re-use of buildings is subject however to numerous other considerations. This can lead to a new use of a listed building imposing high demands regarding humidity or moisture stability. This has been the case for the second adaptive re-use project for the Oranje Nassau building, when a central income tax centre had to be housed in the building. The paper handling machines called for stable humidity levels of 50 percent (± 5 percent). This requirement alone necessitated a secondary facade, in order to avoid far reaching adaptation of the authentic, single glazed facade. The secondary glazing was designed to be air tight, with a sealant filling the joints between all glass panels. Sufficiently lowered pressure in the conditioned interior zone prevents the migration of moisture towards the cavity.

CONCLUSION

This paper explains various design solutions to retain (large) single glazed facades while still respecting present functional and technical requirements. The definition of an optimal design solution for any specific building and any specific use will always depend on a number of boundary conditions and the valuation of various design options by the architect.

In terms of energy conservation, reduction of heat loss according to the principles of the feet of a duck and dynamic insulation offer smart design solutions for the retention of single glazed facades. These principles should therefore make part of the toolbox of any architect who operates in the field of adaptive re-use of historic buildings, as should be the basic knowledge of solutions for comfort control, noise abatement and moisture control.



*Figure 4. Second adaptive re-use project for the Oranje Nassau Building, involving secondary glazing, 1999-2000.
Photo: Norbert van Onna.*

NOTES

- 1 The Oranje Nassau Building in Heerlen, The Netherlands, designed by Dirk Roosenburg in 1932. First adaptive re-use project for the Governmental Agency for Geology, 1995-1997; client: Governmental building agency; architect transformation: Jo Coenen & Co, Maastricht; building services consultant: Deerns consulting engineers, Maastricht; building physics: Climatic Design Consult, Nijmegen/Amsterdam.
- 2 Van Nelle Factories, Rotterdam, designed between 1925-1931. Original architectes: Brinkman & Van der Vlugt. Transformation into the Van Nelle Design Factory, 1999-2004; client: CV Van Nelle Ontwerpfabriek/Maatschap Van Nelle Ontwerpfabriek; co-ordinating architect, masterplan and dispatch buildings: Wessel de Jonge architecten BNA, Rotterdam; factory buildings: Claessens Erdman architects & designers, Amsterdam; office building: Molenaar en Van Winden architects, Delft; landscaping: DS landschapsarchitecten, Amsterdam; colour analyses: Mariël Polman, Soest; structural engineer: Bartels consulting engineers Utrecht; building physics and conditioning concept: Climatic Design Consult, Nijmegen/Amsterdam. For additional information: Backer, A.M., D.L. Camp & M. Dicke (Eds.), *Van Nelle, Monument in Progress*. Rotterdam 2005.
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Comfort Conditions in Early Post-Colonial Architecture in Ghana

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INTRODUCTION

The University of Science and Technology was built in 1952-1961 in the early years Ghana's independence. The university's purpose was to serve as the centre of education for a new generation of technocrats that would assist in the development of the newly independent country. British colonial rule had lasted for more than 80 years; and many cultural practices of the colonial power had been incorporated into fabric of Ghana society. One of these was the colonial architectural heritage that had been developed over years of examining and understanding the climatic relationships of building in hot-humid climates. The experience the British acquired from Asian and East African countries turned out to be invaluable. This was particularly relevant in the development of the new architecture in many countries that obtained their independence "late" in the sequence of events.

The new architecture of Ghana attempted to provide an impressive statement of importance, self sustainability and self worth. It also aimed at portraying the new democracy and statehood of the country. The Great Hall, the main auditorium of the University, was in many respects the symbol of the aspirations of a newly independent and confident country.

The Great Hall is a building designed by the British architects Gerlach and Gilles Reyburn in an international style. The exterior of the building portrays a rough surface of exposed granite stone work of varying sizes with bold horizontal planes. It has been argued that British architects learned the rules of tropical design from their experiences in India and colonies in the Far East, and transferred these ideas to West Africa. Countries that obtained independence later in the century may have benefited from the cultural legacy of other countries. Interestingly, the architects incorporated into their architectural design the overall essence of tropical design. The difference being a passive method of cooling, this is critical in design for buildings in the hot-humid tropics. The design criteria that apply are; the correct orientation, longer axis in the east to west orientation, appropriate window area /floor area ratio, use of deep protection for the windows on the south side, and use of appropriate materials to give insulation from the changes in temperature. It is evident that the designers reacted sensitively to the climatic constraints placed on their design practice, and were aware of the hot-humid climatic conditions. Their response provided a building envelope constructed in reinforced concrete, with openings to the main auditorium. These large doors that may be opened to a height of 2.4m, allowing maximum air flow at the height of the seated audience. The building could therefore be passively cooled effectively when there is a large audience both at the lower and at a higher level.



Figure 1. The Foyer of the Great Hall.



Figure 2. The External Walkway of the Great Hall.

THE BUILDING DESIGN

The Great Hall is a complex building, and cannot be examined using traditional methods. The building essentially has three sections. A set of passively designed offices, the main auditorium, and an indoor-outdoor foyer space section. The offices are associated with these two sections in the eastern section and although they are passively ventilated, they are not orientated in the typical east-west direction. The planning of these offices is in the north-south orientation; however they are protected by an exterior wall which obscures these characteristics. The building therefore has to be modelled in basically three sections to obtain the appropriate results

The comfort conditions must therefore be examined in three sections. The foyer, conditions are identical to conditions outdoors.

Although the occupants are protected from the direct solar radiation and rain, in West Africa the rain sometimes falls “horizontally” because of the strength of the associated winds. It is possible to get wet while technically being inside the building (Fig. 1, 2). The foyer is an inside/outside space as described by authors (Danby, 1963). In developing the computer simulation this section is equivalent to creating a box with large openings on all its sides. This section therefore performs like a large shaded area. There are large air flows and the variations in daily temperature and humidity levels are equal to the outdoor daily temperature and humidities.

THE AUDITORIUM

The second section is the interior auditorium space with a capacity of 1250. The envelope of this section is constructed in reinforced concrete. Doors on the north and south elevations are protected by a cantilevered 1.2m overhang. There are a set of high windows above the cantilevered protection and above is an upper balcony. Above the balcony is a set of higher windows which if kept open would act to provide ventilation at the higher level.

THE OFFICE SECTION

The office section is illustrated in Figure 6. It consists of a number of open spaces, a conference room and a number of offices. Although, this section has a double wall section the offices are within an inner wall protected by the outer periphery wall. This makes simulation of the section different from the rest of the building.

THE DEVELOPMENT OF A COMPUTER MODEL

To develop a computer model the following functions must be performed. Site specific hourly data from a Weather Service Station including dry bulb temperature, relative humidity, and wind speed is required. This information was obtained from the Kumasi airport. Global solar radiation was obtained and used in the simulation (Erbs, et al, 1982). This data is used in creating a weather file that the simulation programme uses. Typically, the weather file created for the simulation is a Test Reference Year (TRY) weather file (DOE-2 User guide, 1980).

The calibration procedure is performed by developing a Department of Energy (DOE-2.1e) input file based on architectural plans, visits to the site and inspections of its use. As-built drawings of the building are used, calculation of the equipment use, and lighting levels and the site visits are essential to verify the light fixture counts and the equipment name plate. The site visits also may include photographs of the building's surroundings for purpose of establishing the level of shading of the building. The visits also assist in establishing the pattern of use of the building. The input file may be produced by any number of computerized ASCII text file editors; however the DOE-2 computer programme requires the use of standard set of DOE-2 reference manuals in order to observe the correct Building Description Language (BDL) syntax for the DOE-2 input format and the mandatory BDL requirements and prevent the tedious problem of correcting errors created in the programmes input file.

A major part of the site visit should include the collecting of energy data. An in depth knowledge and prior experience of the computer programme is essential to prevent the creation of commonly avoided mistakes of programming. These may include a detailed understanding of the HVAC systems, the building heat loss and gain and the method of inputting parameters that describe the building accurately (Haberl, et.al, 1995; Haberl et al., 1998). Associated with the DOE-2 programme is an architectural rendering programme that enables the viewing of building simulation input files called DrawBDL (Huang, 2000). This is used to verify the building envelope description used. The programme also includes views for three-dimensional perspective, a plan view, elevations and a wire frame view. The DrawBDL enables the checking of size and location of relevant aspects of the simulate building e.g. shading surfaces, orientation of the building. The checking of the input file for the simulation would be extremely difficult if the DrawBDL was not created.



Figure 3. The Interior of the Great Hall.

RESULTS

In the examination of the Great Hall, a number of interesting observations were made that showed that the building was no longer being used as had been originally designed. The most startling revelation was that the main auditorium was no longer being used in a passive cooling mode. A number of split system air conditioning units had been installed to maintain the "approved comfort conditions."

The authorities for the building had decided that air-conditioning was the most appropriate requirement for the building considering the regular use for major ceremonies and the "uncomfortable" conditions that were created when large audiences were using the space. It must be acknowledged that in any auditorium, with large audiences, approximately 450 Btu/hr/person is released from a sitting occupant into the space. If adequate measures are not made to remove this heat load the space will become uncomfortable. The traditional method of natural ventilation had been replaced. Secondly, the large doors which allowed ventilation of the interior when fully opened were locked shut when the building was in use hence preventing cooling by air flow. This evidently intended to keep the conditioned cool air produced at 55°F within the building. However the design of the doors had not been changed. U-values and the heat loss through these doors had not been changed. Evidently this had not been examined. The third aspect of the change of the design was that high widow in the auditorium had also been replaced by fixed single pane glazing, creating the potential for excessive heat gain. Ideally these windows should have been operable, allowing ventilation at the upper levels of the space.

The operation of the building created a higher energy intensity within the building which greatly differed from the intended design of the original and if examined on a life-cycle basis provides a relatively more expensive alternative to the university.

High level windows which act when open to allow air flow at higher levels, stirring and refreshing the upper layers of ventilation in the large building had been replaced by fixed panes of single pane glazing. There was therefore no upper level air flow. It was also found out that the main auditorium of the building was used less often and all less important meeting were relegated to the smaller meeting areas. Special permission from appropriate authorities was required for the use of the auditorium of the building. In fairness to the authorities and the staff of the building, the building had been well maintained and because of new requirements of use the energy use in the building was relatively low, primarily because of the low rate of use.

We must ask have the comfort requirements of Ghanaians changed over the last 50 years? The climate in the West Africa sub region has not changed significantly in terms of temperature so as to warrant the requirement in cooling research into climate change shows that in the last 100 years the temperatures in West Africa has changed by an average of 2-6 degrees Fahrenheit (Hulme, M. et al., 2000). Although, it has been recorded that the climate during the period has become drier. So what has been the cause for this? One answer has been the relative cost of providing cooler temperatures is now within the financial reach of many institutions in West Africa, so air-conditioning is considered less of a luxury and more of a natural requirement. West Africans can apparently no longer endure temperatures of 90°F and 85% relative humidity for long periods especially when they are sitting in one place for long periods. Studies in Thailand found that the populations would tolerate slightly higher temperatures (approximately 5°F than the mean temperature) if there was a relative regular breeze (Tantasavadi, C. et al., 2001).

Few scientific studies have been performed to verify the preference of West Africans for their daily temperature range. The quoted standard for human is between 68°F and 72°F, referred to as the comfort zone (ASHRAE, 2004). The temperatures in the main auditorium of the Great hall did rise above the zone even with a breeze. The temperature in the offices was also well within the comfort zone and did not require mechanical ventilation. The double wall construction and the openness of the design allowed for adequate ventilation and control of both temperature and humidity levels.

RESIDENTIAL BUILDINGS

Fig. 4 illustrates a residential building examined. The simulation of residential buildings is considerably easier. There are less complex zones, smaller areas, fewer complex building construction components and no heating, ventilation and air-conditioning (HVAC) systems. However on the university campus it was found that there had been relatively few changes to the original design intentions. In many instances the residences and the occupants did not use mechanical cooling systems and appeared to be very comfortable in their houses. It was also observed that the principles of correct orientation, correct size of window to

floor ratio had been applied to the residences. Here the architects had maintained their original conviction and adherence to the principles of climatic design. There was always a comfortable internal condition in the houses. It was evident there was a remarkably reduced heat stress on the residential building especially in the living areas where ventilation was a paramount concern in the designs. The simulation of residential building has been in recent years made easier by a number of more simple programmes (Pinckard et al, 2005).

The residential building's construction was in cement block construction. Floor slabs were reinforced concrete; window frames were manufactured in timber, with glass louvered openings. The windows were on the southern elevation and are recessed as illustrated and the upper floor balcony acted as a beneficial shading element in the design for the windows of occupied spaces. Ceiling heights were generally exceeded 9ft (2.80m) and in the bedrooms the window to area floor space was 1:1 ratio. The energy use of the residential building was relatively low with the primary energy use being the equipment load.



Figure 4. An Example of a Residential building.

CONCLUSIONS

The buildings on the University campus revealed aspects of design that unfortunately are being overlooked in many architectural designs in West Africa. Many of the older buildings considered the climatic design as a major factor in creating a comfortable condition for the occupants of the building. The resulting response was an efficient and comfortable design which did not burden institutions with high energy requirements. Unfortunately, many building in Ghana have not followed this direction and preferred to advocate the use of mechanical ventilation. It has become evident the society's requirement for relatively lower temperatures when large audiences are congregated has become essential. This has been attributed to the increase in prosperity.

The simulation has proved that concepts that were used in the older building are relevant and provide the comfort conditions for buildings and should be used continually in the design of new buildings.

The new century appears to provide Ghana with many energy challenges that will have to be reviewed circumspectly, if it is to meet the energy requirement for buildings and it appears that the need for passively designed building will provide the most appropriate design paradigm for architectural design.

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Simulation of Natural Ventilation Flows

POSSIBILITIES FOR THE RESTORATION OF THE VIIPURI LIBRARY VENTILATION SYSTEM

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INTRODUCTION

Free flow open spaces, characteristic to architectural icons of the Modern Movement, show spatial continuity in plan and section. Such spaces are connected by wall apertures, open passageways, stairways, split levels, interior windows, galleries or double height spaces, enabling interlocking connections and differentiation of enclosure. With the rising interest in sustainable, energy efficient and green design, an environmental re-examination of the free-flow open section becomes necessary, especially in regards to the restoration of historical buildings. Through this re-examination, our research project investigates the complex relationship between spatial composition, and thermal and climatic conditions using an approach that combines analytical drawings and computational fluid dynamics (CFD) simulations.

How exactly the shapes of these interlocking connections affect the flow of air in three dimensions is the premise for our broader research question. The physics describing these features have been known for centuries¹ and are broadly acknowledged in building science literature with two-dimensional arrows.² But as each space and site is different, prediction on the interrelationship of the components of airflow patterns, for example the Venturi-effect, buoyancy effects, stack effects and cross ventilation in relationship to thermal patterns are integrated only intuitively into most designs³, because so far it has been difficult to quantify them with commercial engineering tools, which typically calculate the building envelope. As green design strategies look closer at natural or hybrid ventilation as a means of saving energy and fossil fuel consumption, the evaluation of natural air movement becomes more relevant. In the US, where cooling demands are still mainly met with mechanical systems due to extreme climatic conditions, hybrid systems of mechanical and natural ventilation are currently being researched and evaluated by the American Society of

Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).⁴ The authors choose the Viipuri Municipal Library by Alvar Aalto as the case study presented here.

ALVAR AALTO'S VIIPURI LIBRARY: THE CULTURAL CONTEXT

The Municipal Library of Viipuri/Vyborg designed by Alvar Aalto (1927-1935) was one of the first buildings in the Modern Movement to incorporate free-flow open space in section to organize the migration of people and air-flow circulation throughout the large rooms. The design concept also shows a pronounced effort toward the integration of environmental controls for lighting, heating and ventilation.

To provide a brief history on the cultural context of the library, the old Finnish-Swedish town Viipuri in Carelia is now named Vyborg and became part of the Soviet Union at the end of World War II. Part of Vyborg's cityscape is still derelict.⁵ Also the exterior walls of the library are still scarred

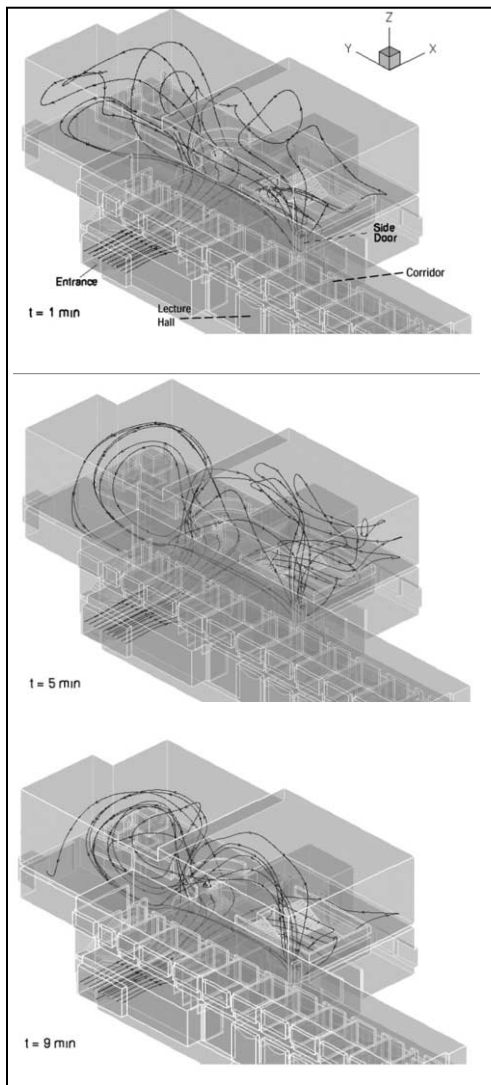


Figure 1. Passive cooling: streamlines to show air circulation relative to the entrance at different times.

P. Stookes, F. Battaglia and U. Passe, © 2008.

and the neighboring cathedral has disappeared. Now, Russian readers occupy the building as enthusiastically as Finnish readers did prior to the Russian-Finnish Winter War. While Aalto said the building had “lost its architecture”⁶ after the Second World War and while it has been written out of many architectural history books,⁷ it has served as a civic center for Vyborg ever since its first restoration by the architect A. M. Shver in the 1950s.⁸ Due to this unique and dramatic history between Finland and the Soviet Union, the building is currently the subject of a major restoration endeavor, which opens the potential for the application of new engineering design tools⁹.

TOWARDS THE FREE FLOW OPEN SECTION: VIIPURI’S SPATIAL SYSTEM AND CLIMATE ENVELOPE

The genealogy of the three design stages prior to the construction of the library clearly shows a shift of axis in section and plan with progressive interlocking of the volumes and development of the cavity envelope. A change of site for the construction of the library initiated by the client offered Aalto a possibility to investigate a 4th scheme, the version finally built. Within a rather simple boxlike exterior, the library developed into a complex split-level free flow open space in plan and section with three different circulation routes through the reading spaces, leading to an exquisite recessed reading area providing an ideal location for contemplation. The librarian stations are vertically connected by an internal circular staircase, enabling a fast direct circulation and visual connection to all the library spaces. This ‘cubistic shift’ provided spatial connections for view, air and for people at all levels in plan and section.

VIIPURI’S TWO SYSTEMS: MECHANICAL VENTILATION AND UNDER-CEILING RADIANT HEATING ¹⁰

The exterior double walls were designed to move the air and provide ventilation. The thick volumetric roof slabs with conical skylights were designed to direct the sunlight and enclose the heating pipes¹¹.

While Aalto’s first three design schemes shared a conventional exterior appearance of window

openings in the main building volume, the fourth scheme did not show any window in the main library volume. Traditionally, windows served both means: lighting and ventilation; by contrast, at the Viipuri Library, the windows as conical roof-lights move upwards into the horizontal roof to provide perfect daylight to the reader while the ventilation is provided by inward directed openings which circulate fresh air from a mechanical forced air system. This composition gave Aalto the freedom to elaborate his free-flow open section. The radiant heating system also introduced warmth from above, like from the sun in nature. Through this design, Aalto was able to introduce spatial (the roof) and mechanical means (the overhead heating and ventilation system) to create conditions for reading as close to nature as possible.¹²

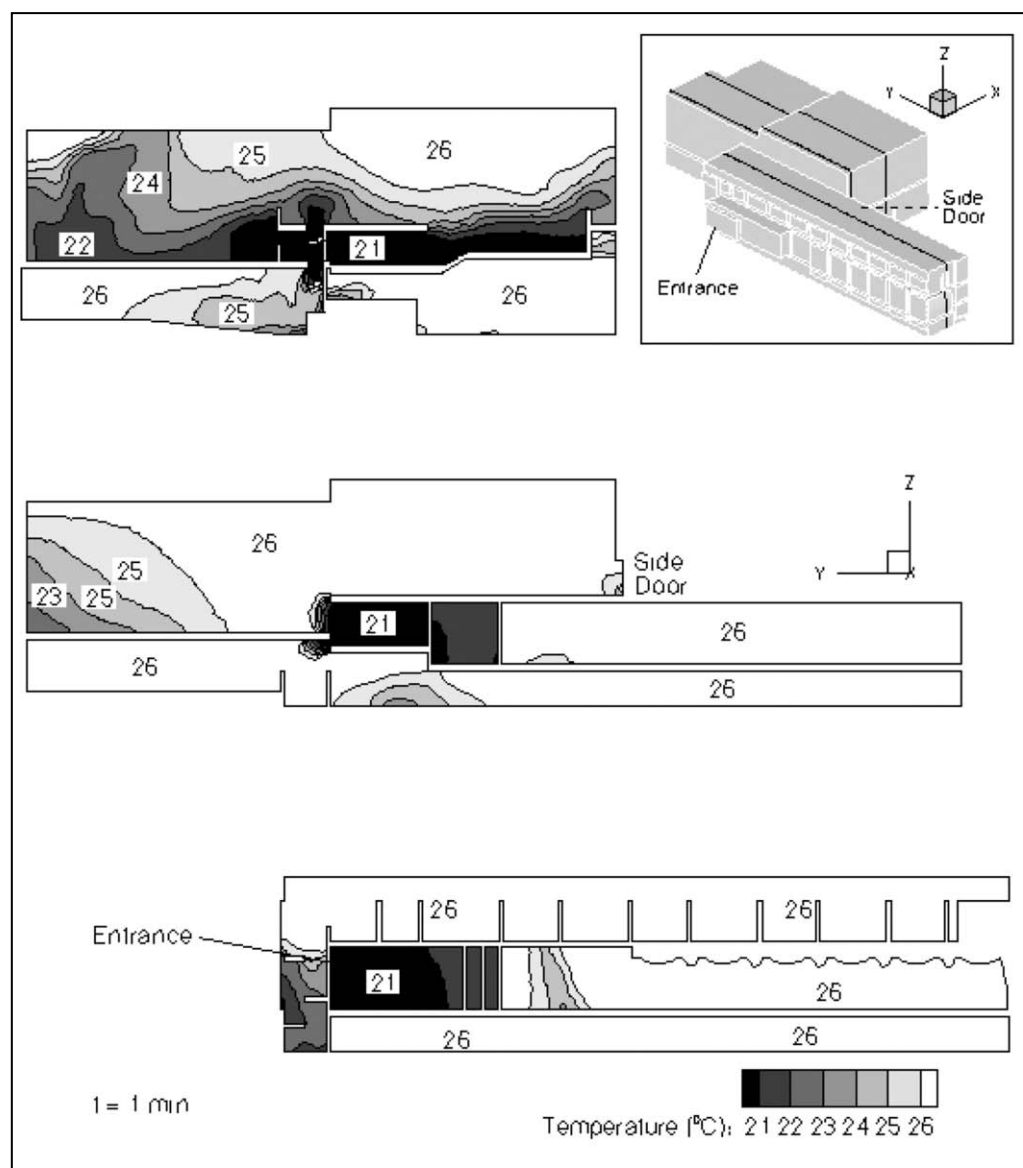


Figure 2. Passive cooling: temperature contours for 3 y-z planes to show temperature changes over time.
P. Stokas, F. Battaglia and U. Passe, © 2008.

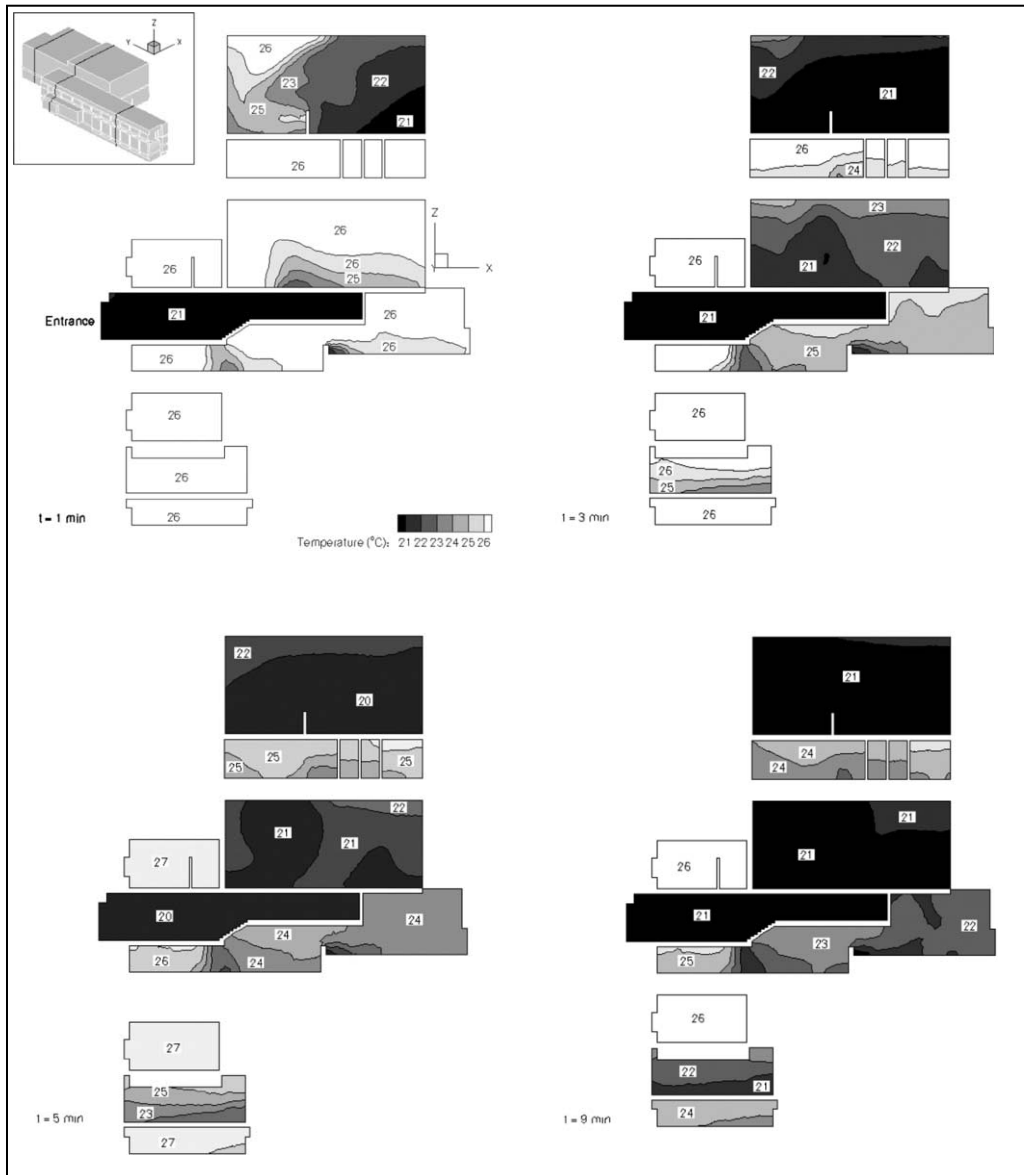


Figure 3. Passive cooling: temperature contours for 3 x-z planes to show temperature changes over time.
P. Strokes, F. Battaglia and U. Passe, © 2008.

Aalto aimed to create a well-tempered space where books were only exposed to indirect sunlight and people (with thermal comfort during all seasons and no glare, while still perfectly lit). Through the use of natural lighting, Aalto became more successful and was world famous for it. He somehow succeeded on the radiant thermal side, but failed on the ventilation. The mechanical ventilation systems did not function, because Aalto introduced warm air from above, which does not reach the reader. Thus, for decades the library has been ventilated by natural ventilation flows through the open reading space with its free flow section utilizing spatial composition, open doors and infiltration.

COMPUTATIONAL FLUID DYNAMICS WHOLE BUILDING SIMULATIONS

It is clear from on-site observations that the free flow open sections help to ventilate the main library spaces. Quantifying the cooling potential of the air flow could prove beneficial to the library restoration process. It is the spatial complexity of the interlocking spaces that need to be better understood in order to integrate any meaningful changes into the design of a new mechanical ventilation system. Thus three-dimensional CFD simulations of the whole building are an effective tool to help visualize and quantify the airflow.

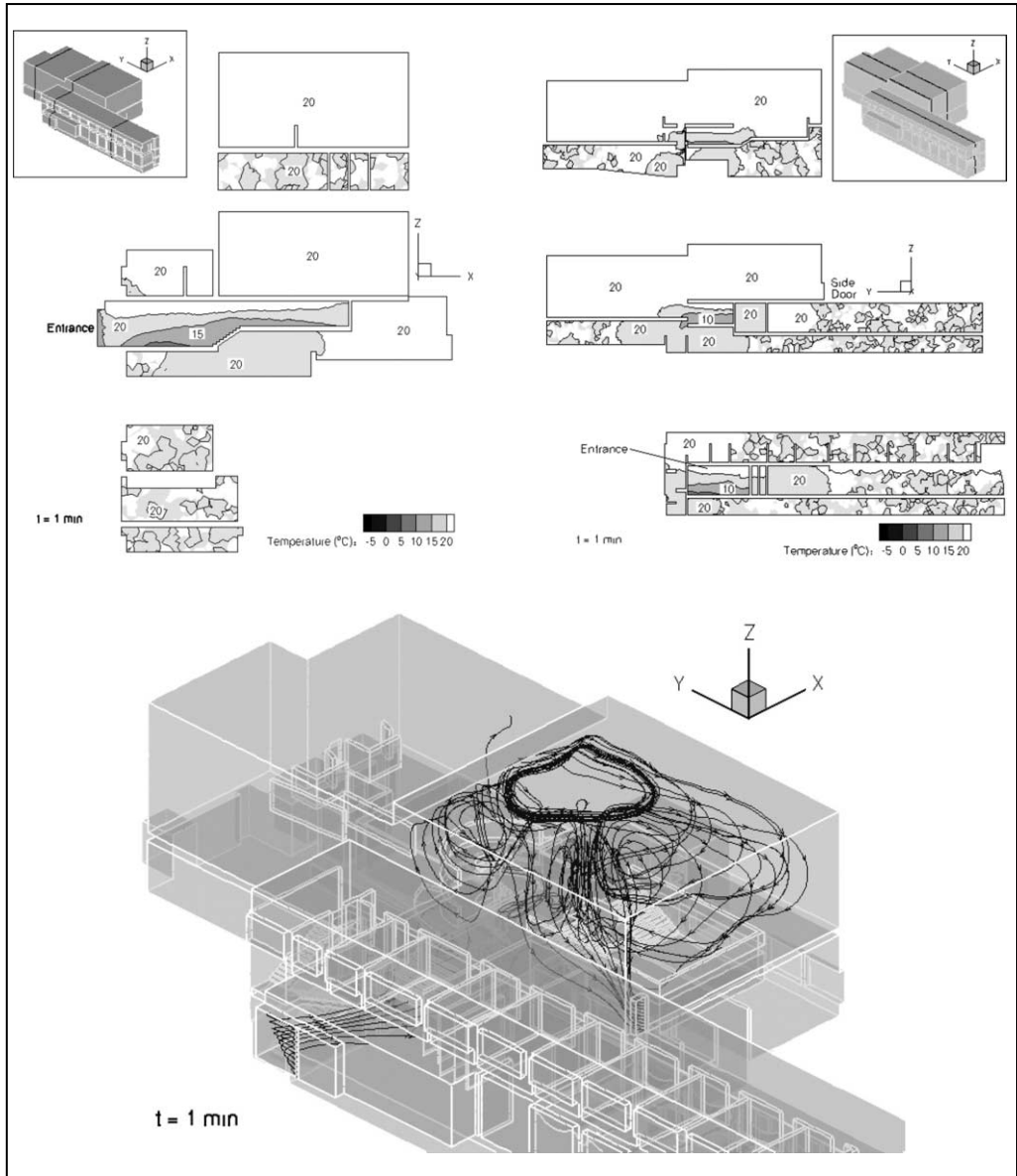


Figure 4. Heating case: temperature contours for various cross-sectional planes and streamlines after 1 min.
P. Stoaikes, F. Battaglia and U. Passe, © 2008.

Simulations of the whole building required a detailed model of the library interior that includes the relationship of the walls, rooms, openings and staircases. Digital drawings of the library were created from archival drawings. The CAD software 'Inventor' was used to produce the three-dimensional interior volumes to be incorporated in the CFD model.

The software FLUENT¹³ was selected as the computational framework to solve the fluid dynamics and thermal conditions for natural ventilation in the building. The software GAMBIT, which creates a grid of the building for FLUENT, was also compatible with the digital models created in Inventor. Thus we established a way to transfer an architectural design into a format that can be read by gridding software and used in a CFD platform. FLUENT has a broad range of mathematical models that are useful in simulating conditions such as wind through openings or modeling radiant heat from the hot water pipes in the ceiling. For this study, the relevant equations to describe natural ventilation included conservation of mass, momentum (fluid motion) and energy (temperature changes). The resulting simulation provides information for velocity, pressure and temperature variations with respect to time. Pressure differences are not significant; however, velocity and temperature fields are more strongly dependent on the boundary conditions, such as the wind speed and temperature entering the library. Furthermore, for a particular set of conditions, the velocity and temperature fields have larger variations within the building.

Simulations of the Viipuri Library were conducted to show how the spatial layout affected airflow for passive cooling and heating. For the case of passive cooling, it was assumed that the main entrance was open and that a breeze of 2.2 m/s at 20°C entered the building; the side door upstairs was opened to create a small pressure difference through the building to initiate air movement. The initial temperature of the building was set to 27°C to represent the effects of heat gain prior to the building being opened for business. For the heating case, a cold winter day was modeled with a wind of 4 m/s at -5°C, and one door of the main entrance and the side door were slightly ajar. The main library ceilings were modeled to represent radiant heating from the hot water pipes.

COMPUTATIONAL FLUID DYNAMICS RESULTS

Two conditions representing passive cooling and heating are presented for the Viipuri library. Simulations were run to demonstrate airflow and temperature changes for a time lapse of 10 minutes. It is worth noting that the CFD simulations were computationally intensive and limited the number of simulations that were performed. The computational model used a grid composed of approximately 750000 cells to represent the complex relationship of walls, rooms, and the staircases. Furthermore, because the simulation predicts airflow in time, a simulation to present 10 minutes takes approximately one week to run on a high performance computer.

The case for passive cooling provides great insight as to how the air flows relative to the free-flow open spaces. Figure 1 shows three-dimensional views of the library and presents a time sequence of 1, 5 and 9 minutes for the airflow using streamlines. The doors are labeled in the upper figure as a reference of the building layout, the white lines show the edges of all walls and the translucent view of the building helps to identify the location of the stairs and rooms. The streamlines have arrows to show the direction of the air movement, although the magnitude of the air velocity can not be ascertained from this representation. After careful examination of the data, the air velocity moves primarily in the main two large volumetric spaces at speeds from 0.5 to 1.0 m/s. To the right of the main entrance is a lecture hall on the same level and above is a long corridor divided into smaller rooms. The simulations indicate that the air flow is not very significant in the lecture hall and corridor, and the air velocity is approximately 0.02 m/s.

Figures 2 and 3 show sections within the library to demonstrate how the air temperature changes over time relative to the air movement. In both figures, a small insert in the upper left figures shows a three-dimensional view and thick black lines are used to identify the three planes that

are shown for each time frame. Each plane shows temperature contours so that it is possible to realize the air temperature at different locations within the main rooms. Clearly, after one minute the rooms are still very warm, near 26°C. However, after five minutes, the main two rooms have cooled to a more comfortable temperature of 21°C. These images also demonstrate that the air temperature decreases within the lecture hall to about 23°C, however, the process occurs mainly due to diffusion because the air does not flow significantly. As for the corridor and individual rooms located on the second level, the air temperature remains at 26°C. However, if windows are opened, certainly there will be more air movement and the air temperature would lower more readily.

Finally, as a comparison, the case for passive heating is presented in Figure 4. As would be expected, the regions closest to the doors are much cooler than the remainder of the library.

SUMMARY

The work described in this paper presents whole building simulations for an accurate model of the Viipuri library to demonstrate the feasibility of using CFD as a design and analysis tool. The preliminary results demonstrate that airflow and thermal effects can be predicted for any set of conditions, such as specifying which windows/doors are open, and the ambient conditions (wind, air temperature) exterior and interior to the building. Simulations of this kind can be very useful in helping architects determine how best to renovate/restore historical buildings so that the buildings function efficiently and so mechanical ventilation systems can be minimized in their use. Future work will focus on specific design criteria and environmental conditions.

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Modern Glass Walls on the Way to Sustainability

COMPARING EXAMPLES FROM GERMANY AND BRAZIL

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INTRODUCTION

Modern glass wall constructions of the early and mid 20th century have always been synonymous with innovative and sophisticated building concepts. Based on the first applications in Central Europe between 1910 and 1930, these construction principles have been used for commercial and office buildings in other continents. Modern glass wall constructions or building skins were often established as a building feature that reflected international stylistic standards, enhancing the prestige of builders and users – though often independent from or even in contradiction with climatic requirements and local conditions.

CASE STUDIES

Comparing select examples from Germany and Brazil, this paper assesses and describes the architectural character and value of these buildings and constructions, which represent different climatic and socio-cultural conditions and requirements. Their functions, construction, environmental qualities and architectural design are described and evaluated based on the original concepts and requirements. The focus is on multi-storey and high-rise buildings constructed during the 1950-60s which serve as commercial and office uses as follows:

- Haus Hardenberg by Paul Schwebes, Berlin, Germany, 1955-56
- Europa-Center by Egon Eiermann, Berlin, Germany, 1961
- Banco Mineiro da Produção by Oscar Niemeyer, Belo Horizonte, Brazil, 1953
- Conjunto JK by Oscar Niemeyer in Belo Horizonte, Brazil, 1950/1960

The examples Haus Hardenberg and Europa-Center have passed through certain periods of modification and renovation but have significantly maintained their original appearance. While the original facade construction of Haus Hardenberg has been modified somewhat, the single glass wall of Europa-Center has been replaced by a double facade system. The two buildings are evaluated in terms of the impact by their renovations, as representative of Modern Movement buildings, during the last half of the 20th century.

The exemplary and very different approaches of Haus Hardenberg and Europa-Center are also compared and described with regard to various planning and decision frameworks. For example, how can these approaches be adapted to other climatic and economic conditions, such as the former building of Banco Mineiro and Conjunto JK in Brazil, both of which are still waiting for specific concepts of preservation?



Figure 1. The original steel facade of Haus Hardenberg in Berlin from 1956 has been completely restored in 2004.
Photo: author.

HAUS HARDENBERG

The seven-storey-high building has been designed by Paul Schwebes in 1955-56. It is located at Ernst-Reuter-Platz, one of the main traffic hubs in Berlin. The building consists of two individual and independent commercial building volumes that are directly connected to appear as a single and closed perimeter block development. While a flagship store for a book retailer occupied a large part of the ground floor, the upper floors accommodated several textile companies, with tailor and sewing workshops and related show rooms. Based on a trapezoid ground plan, the building is affected by the dynamic curved edge and the enormous, thin and widely overlapping canopy. The front facade is horizontally structured by large ribbon windows.

The building is reminiscent of 1920s corporate architecture, and it is considered to be one of the most beautiful buildings of the 1950s in Germany.

The street facade is divided into three zones and displays a classic structure with a ground floor that is set-off and sheltered by an awning while the main floors and the stepped attic are set-off with a canopy. The five upper floors are characterised by the ribbon windows, which are only interrupted by the prominent concrete floor slabs. These are clad with white, non-transparent glass panes known as "Detopakglas", which is also used in black for the parapet panels. The ribbon windows are made up of storey-high window elements with large vision panels in the middle, and slender casements at each side-similar to the "Chicago Window".¹ The window units are framed with small vertical steel profiles and the casements consist of very thin steel frames, which are painted black on the exterior and white on the interior. The slender dimension of the profiles,

together with the selected materials, lends an elegant appearance to the building. The shop windows in the basement are made out of brass-coloured anodised aluminium frames.

The concrete skeleton construction consists of three rows of columns and ribbed floor slabs. The columns are set off the floor perimeter and leave space for the ribbon windows; at the back the concrete frame is filled in with plastered masonry, which forms a part of the external wall. The contrast between the transparent glass front and plastered back is very typical for Berlin office buildings of the 1950s.

The side entrances are characterised by spacious vestibules and staircases. Two enormous mushroom columns are bearing the upper floors and dominate the two-storey-high salesroom. The column heads pass into an organically rounded suspended ceiling with festoon lamps. Alongside the inner walls the room is furnished with an additional gallery that is suspended from the ceiling.

REVITALISATION OF HAUS HARDENBERG

The fundamental idea during the revitalisation campaign in 2004 was to maintain the integrity of the protected commercial building, particularly the elements that render the spirit of the architecture of the 1950s.

One focus was the restoration of the front façade, whose appearance is formative for the building and the townscape around Ernst-Reuter-Platz. The restoration was aiming to keep as much of the original framing and materials as possible, as well as paying close detail to the elaborate treatment of the historic structure. The profiles of the existing facades were cleaned, broken glass panes and sunscreens were replaced and window hardware and hinges were upgraded. The adaptation of the steel-framed window elements to today's requirements of thermal and noise protection is an example of substantial workmanship. An additional front lighting concept has been developed and added to support the properties of the building, incorporating the canopy and an advertising ribbon over the ground floor shop windows. Only the desolate condition of the staircase facades at the rear of the building required the installation of new aluminium glass facades with thermal breakers.

Inside, the typical design elements of 1950s architecture can be further experienced and at the side entrances the original materials and colours have been maintained. The building is still used for retail and offices purposes. The building services have been partly modernised to respond to comfort and security requirements. In addition to the existing heating system, the shops and offices are ventilated and air conditioned.

EUROPA-CENTER – OFFICE TOWER

The Europa-Center was designed by the architects Helmut Hentrich und Hubert Petschnigg in 1963-65 as an office and shop-in-shop-system according to American prototypes – dominated by the Office Tower. The building is located at Breitscheidplatz, between Kurfürstendamm und Budapester Straße, a street which was heavily destroyed during World War II. The area became known as the "New West" of Berlin and is dominated by the ruin of Kaiser-Wilhelm-Gedächtniskirche and the new Gedächtniskirche dating from 1960. Its architect Egon Eiermann acted as artistic adviser for the Europa-Center. Both buildings became emblems of West-Berlin in the 1960s.

The facades of the lower buildings and the Office Tower are displaying different types of glass walls with aluminium framework. The Office Tower is characterised by a curtain wall construction with a modular grid of 1,875 m and by large, non-operable vision panels and opaque breast wall fillings, which are alternating vertically between the projecting posts.



*Figure 2. The original curtain wall of Europa-Center in Berlin from 1965 has been replaced by a double facade in 2002.
Photo: author.*



*Figure 3. The Banco Mineiro in Belo Horizonte by Oscar Niemeyer from 1953 still has its original facade.
Photo: author.*

The concrete skeleton construction with two rows of columns has a grid of 8,00 m supporting flat concrete slabs that are covering a ground area of 47,30 x 17,30. The columns are set off the floor perimeter at about 1,00 m so that the curtain wall facade is enveloping the entire building volume as it is typical in International Style office buildings from the 1960s.

The interior is characterised by a very compact and centrally located supply-unit, which comprises two staircases that are nested into each other, as well as elevators, kitchenettes and restrooms. Two office units with artificially lit corridors project from the supply-unit at each side.

REVITALISATION OF EUROPA-CENTER

The revitalisation of the Office Tower into a modern office building took place in 2002. One of the focuses was the restoration of the curtain wall construction, whose appearance is formative for the townscape in the "New West". The other objective was to transform the interior into an efficient work space, in terms of comfort and equipment.

The original curtain wall construction was demolished and replaced by a double facade out of aluminium with box-type-windows. The preservation of the outer appearance with its slender vertical profiles, was considered and attained by designing an exterior, single glazed layer in front of an inner layer of insulating glazing that has thicker profiles. While the inner layer offers thermal protection, the outer layer protects against atmospheric conditions, such as the sun, wind and rain. The new facade obtains operable windows at the inner layer and slots at the outer layer, allowing the opportunity to have natural ventilation. Through these means, the rooms formerly used for the air-conditioning plants were now converted into office spaces.

This facilitates that different office layouts such as cell-, group-, combination-, or open-space-offices are available for use. All installations, such as heating and ventilation pipes, electricity and data

cables are installed in a circular media channel alongside the facade. This installation principle also allows for more transparent partition walls.

STRATEGIES OF FACADE REVITALISATION

The biggest weakness of 1950s glass wall constructions is the high proportion of the glass area that is in generally over 50 % of the overall height, so that high thermal loads are brought into the building. Typically, their hydro-thermal performance is restricted by an insufficient thermal insulation of the steel-framed windows, including leakage at profiles, rather than visible signs of damage due to corrosion of the window profiles or problems with the interface with other building elements. Steel profiles that are not separated work as thermal bridges, and most of them have significantly deteriorated and warped, allowing moisture infiltration. In combination with the typical slender floor structure of the 1950s buildings, the facades continue to allow good natural lighting and ventilation.

In Central Europe, two main strategies and technologies for the renovation of modern glass walls in protected buildings have been developed and realised. Both are aimed at preserving the original appearance, while offering different solutions with regard to their adaptability to the requirements of environmental comfort, thermal and noise protection and those of an appropriate working atmosphere. The strategies are as follows:

- Restoration of original steel or aluminium construction with careful modifications of single elements, such as exchange of the original glazing against improved, insulating ones; the application of additional glass layers in the form of composite windows or additional window layers; the refitting of sealing gaskets to the window frames. This first approach does not generally permit an efficient thermal protection, since frames and glazing often keep close to the original values and thermal loads. In this way, energy consumption is more difficult to reduce and air conditioning is often needed;
- Replacement of the original construction with a new facade system including insulation glazing, or the introduction of a double facade system with a single-glass layer on the outside and a secondary insulation glazing on the inside. Both solutions enable minimization of the energy consumption and optimisation of interior comfort through better ventilation as well as sun shading and heat protection.

IMPACTS ON THE RENOVATION OF BANCO MINEIRO AND CONJUNTO JK

To what extent can these experiences and methods be transferred and adopted to other climates and continents, such as Brazil, a region with many post-war modern buildings?

Similar to Central Europe, users all over the world increasingly call for durable and sustainable facade constructions which can provide increased thermal and noise protection. These constructions are seen as criteria for quality of life and technological progress and also as a climatic necessity. This requires upgrading of energetic parameters in connection with comfort requirements. Since Brazil has relatively few periods of low temperatures, overheating is a main cause of concern.



Figure 4. The Conjunto JK with Towers from 1950 and 1960 has been modernised in parts in 2006.
Photo: author.

Two examples from the period under discussion are the former Banco Mineiro dating from 1953, and the Conjunto JK with its two towers dating from 1950 and 1960. Both projects were designed by Oscar Niemeyer. Banco Mineiro is fully glazed between the concrete floor slabs while the steel framing is reminiscent of early industrial glazing, similar to those applied in early modern European buildings. The two towers of Conjunto JK have a curtain wall construction.

In the case of Banco Mineiro, it would be possible to add an additional facade layer in the interior and to enable a comfortable work atmosphere. The existing glass wall construction could be preserved while sun shading and natural ventilation could be optimised. At Conjunto JK, the steel façade elements show corrosion to such an extent that an integral replacement of the facade construction including frames, glass panels and sun shading systems will be required and has partly taken place.

CONCLUDING REMARKS

The presented approaches for the renovation of modern glass walls can be adopted to other climates and serve as a strategy for the discussed Brazilian examples. This will allow to reduce overheating, to increase thermal and noise protection and finally to save energy.

Until recently, and compared to the implementation of other relevant and specific planning requirements and regulations, the particularities of climatic conditions such as temperature profile, wind directions, sunshine duration or humidity have often been neglected. Good planning has to work with and not against the local climate. One must be able to “read” the specific macro- and micro-climate of a building, in order to define and to develop, in an early stage of the planning, suitable strategies for energy economy and a long-term use of protected buildings.

NOTES

- 1 The “Chicago window” is a three-part window consisting of a large fixed centre panel flanked by two smaller double-hung sash windows. It is combining the functions of light-gathering through the central fixed glass pane and natural ventilation through two surrounding panes that are operable.

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Sustainability, A Modern Movement

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Current issues in the preservation of innovative Modern architecture demonstrate that the ideals of sustainable systems integration have their cultural origins in early 20th century experiments, which can guide today's more elaborate "green" transformations. This concept engages the potential for Modern buildings to be sustainable—both in terms of their new uses and with regard to performative energy-efficient systems in a continued evolution of the Modernist aesthetic and philosophy. The projects discussed here demonstrate how issues around "greening" Modern architecture have synchronicity with the architect's original design intent, and can be achieved through a gradual, multi-staged project approach.

Modernists incorporated "back to nature," "Life Reform," and "light and air" philosophies in the late 19th and early 20th centuries while integrating untested technologies such as natural and artificial airflow systems, lighting fixtures, and shading devices, with structure and form. A focus on health and physical freedom was expressed in sunbathing, fitness, improvisational dance, and outdoor fresh-air retreats; these were in contrast to the Victorian era's claustrophobic clothing, dwellings, and thinking.¹ The "natural" lifestyles translated into the development of architectural elements distinguishing places of healing, like tuberculosis sanatoriums.² In addition, there emerged a general philosophy of modern life that transgressed late-19th century ideas and proposed new relationships between humans and their environment: the "Garden City" movement promoted outdoor living, for instance, while the "Hygienists" espoused clean building systems.³ Architects such as Le Corbusier often anthropomorphized architecture, regarding it as a holistic organism with internal systems, and compared the flow of the city to that of the body. Paul Scheerbart stressed the importance of glass as a building material that would "remove the sense of enclosure from the spaces in which we live."⁴ Other architects, such as Los Angeles-based Rudolph Schindler (working with Dr. Lovell) and Richard Neutra, focused on how design could free modern existence, bringing the outside in, and helping to improve the mind. Concepts of the natural world evolved into built objects.

DETAILS FOR SUSTAINABILITY

White walls, smooth surfaces, flat roofs, and crystalline windows—in contrast to the thick-walled, small-windowed buildings of the earlier century—defined the Modernist aesthetic. Balconies, terraces, verandas, flat roofs, sliding doors connecting inside and out—all were the means for transforming life. Although Frank Lloyd Wright and others had incorporated heating systems into house designs by 1906, it was not until the 1930s that building systems integration came into much sharper focus. A new emphasis on electrical lighting, plumbing, heating, and ventilation sought to foster environmental comfort and to regulate interior climate.⁵ Le Corbusier's ideas of *respiration exact*, *le mur neutralisant* (a double glazing with warm air), and *brise-soleil*, which to Banham was

"one of the few last structural innovations in the field of environmental management"⁶ that addressed the issues of solar heat gain. In the 1930s, Willis Carrier developed the air-conditioning systems that would hermetically seal buildings, contributing to a perceived sense of a potential for site-lessness in Modern architecture and the future insensitivity to local ecology. But in fact, much of Modern architecture responded to various climates and conditions, consider Wright's Johnson Wax building, Saarinen's fully integrated GM building, and Zanuso's Olivetti factory, which contribute to technological innovations and sustainable thinking today.

CORE AND SKIN

Among the most pressing issues facing preservationists of Modern buildings are how to preserve the thinly clad structures of custom-made mullions and taut glass skins—and bring them to new energy performance levels for lower carbon emissions and energy conservation. DOCOMOMO New York/Tri-State's 2003 survey of over 200 Modern buildings in midtown Manhattan brought to light the current practice of re-skinning, whereby the aesthetic of the transparent experiment is currently being effaced. During the past five years, many "vernacular" corporate buildings of the era have slipped under the radar of the preservation community and suffered substantial modifications. Market pressures persuade building owners to alter their exteriors to fit in with the flavor of the day; as a result, many older steel structures are clad in new glass suits. A building's skin is easy and quick to replace—like the Erector sets of our youth. In the 1980s, it was often the reverse: a building façade was saved and the interior destroyed, in "façadism." Today, we see *core-ism*, in which the façades are replaced, while the building's strong core is maintained, which also occurred in the 1950s recladding of 1930s apartment buildings on Park Avenue, in New York City.

INTELLIGENCE FOR GLASS

Glass—emblematic of Modernism's desire for literal and symbolic transparency—is often criticized for its low thermal resistance in winter and high solar gain in the summer. However, the heat-gain in winter and natural light bolsters a sense of well-being and saves energy, which now overrides these issues. Low-E coatings and mechanical shades or fritted glass provide additional shade. Solutions can be found in new projects, such as the operable shutters designed by Chuck Hoberman for Norman Foster's Aldar Central Market in Abu Dhabi and an office building in Tokyo. A non-invasive, interior system such as MechoShades can also provide temporary double skins that do not conceal the glass façade's aesthetic. High-performance mechanical systems that are locally controlled, and ecological furnishings with recycled materials can additionally contribute to historic building retrofits exceeding recommended green guidelines.



Figure 1. *Inland Steel*, Skidmore, Owings & Merrill, 1958.
Photograph: Ezra Stoller, copyright Esto.

In seeking ways to “green” experimental Modern architecture, architects and environmental consultants have recently focused on how to integrate these new intelligent building systems that are also aesthetically compatible with the original Modern design intent. Often approached through incremental phasing, new technologies have the potential to both fulfill Modernist aesthetics and philosophy and improve performance.⁷ In addition, when a building’s use is changed—from corporate to residential—its life can be sustained spatially through individual microclimate adjustments and adaptive systems.

PERFORMATIVE PROJECTS

Projects such as the Lever House in New York with its original spectrally selective tinted glass façade that was fully replaced in 2000, to the still secret current work on the high-profile United Nations, are demonstrating an aesthetic blending of performative systems. Other projects demonstrate this complexity as in SOM’s renovation of its 1958 Inland Steel building in Chicago, by Bruce Graham and Walter Netsch. The current project, managed by Nazila Duran, will emphasize the innovative original sustainable systems and improve upon the 19-storey landmark while maintaining its aesthetic integrity. Its original centralized heating and cooling system was of the highest standard at the time with a hanging ceiling grid system and heating in the floor. A separate, steel-plate-clad 25-storey service tower houses stairs, lifts, and supply shafts that direct the service lines and pipes into the ceiling girders of the main volume without interrupting open floors. The façade, composed of stainless steel frames filled with insulated glass and sheet steel plates, is emblematic of the company housed in the building. Frank Gehry encouraged Capital Properties to buy and renovate the building. SOM’s project includes an active climate wall, integral sun shading devices, a low-energy active chilled beam system, and a green roof. Fifty



Figure 2. A&A Building, renovation progress, 2008.
Photograph: Nina Rappaport.

percent of the glass façade has failed and one hundred glass panes were replaced over the years with non-matching glass. In evaluating new systems, the architects had a full-scale mock-up built of the eleventh floor corner, including the ceiling system, glazing, and interiors and found that their initial concept for a double wall, made a strange reflection on the outside. Instead they are now considering new double insulated glass panels. They will install interior blinds to be linked to an automated daylight and energy savings system, and the lighting. The mechanical system will be a beam-fed heating and cooling system with small diameter piping rather than the former forced air system, and will be digitally controlled for each building orientation. Even more minute controls will be inserted into desks, similar to those in an automobile dashboard, so that each employee can regulate air-flow on their own body.

ADJUSTABLE PROJECTS

The air-quality and local controls were also an issue in Paul Rudolph's A+A Building at Yale University, designed in 1962 in a hand-hammered concrete-block with 33 sectional levels and an asbestos ceiling removed in the 1980s, which has just reopened. The building's previous renovations, with window and systems replacement in the mid 1990s resulted in less-than-optimal air-conditioning systems which could not reduce the 102 degrees Fahrenheit summer temperature, which equals 38 Centigrade. With more fluid studio arrangements the building's use changed in a manner that made airflow and ventilation less controllable. Environmental designers Atelier Ten, working with Gwathmey Siegel Architects, developed an improved performance of the systems that will reduce carbon emissions. New heating, ventilation and air-conditioning (HVAC), storm water management, a green roof, and a basin at the ground level to address run-off storage have been inserted. But the design team compromised for interest of air quality control by not having operable windows, instead installing new thermal windows, of the largest panes of insulated glass made in the U.S. The adjacent History of Art Department building functions as the mechanical service core, without which there would not be the space to install the new engineering. Heating and cooling pipes were placed above the new integrated dropped ceiling, and numerous thermostat locations allow for local controls. During construction, 75 percent of the waste was recycled so that from the method of construction to the materials restoration and systems integration, the A&A Building is now sustained.

Also at Yale, Louis I. Kahn's 1953 Art Gallery was renovated in 2006 by Polshek Partnership, with façade consultant Gordon H. Smith. Like Mies Van der Rohe's IIT, described below, the technical integration was originally ambitious, but had failed over the years. Kahn described the tetrahedral ceiling embedded with air ducts and electrical wiring as a lung: "It breathes. Air is forced

in through these vent pipes and through the corrugations of the ceiling."⁸ The renovation has stabilized the temperature to 68 degrees Fahrenheit or 19 degrees Centigrade with 50 percent humidity. To control moisture and condensation at the windows Smith doubled up new perimeter heating pipes with air pumped from the new mechanical units. The original 1945 steel window frames by Pittsburgh Plate Glass was a prefabricated double-panel insulating glass, which failed almost immediately after construction, causing condensation. The renovation entailed the new insulated window units with thermally broken connections with low-E coating, with the double layer of glass held together by an interlayer lamination of



Figure 3. Yale Art Gallery, Louis I. Kahn, built 1954. Photographs of recent renovation
Photo: Elizabeth Felicella, (c) 2006 Yale University Art Gallery.

PVB (polyvinyl butyral foil). Individual interior shades further control the heat gain and a unified mechanical shade on two façades is lowered in the evening, acting as a thermal blanket. The combination of interior building systems, replacement, and a new window wall has further calibrated this modern system into the future.

EXISTING SYSTEMS

Crown Hall at IIT, designed by Mies in 1956, incorporated the environmental systems naturally. Mies sited the building in a grove of trees for shade, the air circulation incorporated louvered vents, and translucent windows with shades regulated direct sunlight. Two environmental consultants, Transsolar and Atelier Ten, were hired to improve the environmental conditions—especially to reduce the temperature, as students over the years have changed their use of the space and vastly increased power usage by working 24/7. The firms focused on what was already in place, tree replacements and additions, and enhancing an existing scheme of interior blinds by tilting them to reflect sunlight. They also reconfigured the ventilation panels to be operable at the perimeter below the windows and installed a new air circulation system.

Rather than add double-glazing, they removed the lower glass panels and installed lightly sand-blasted, tempered glass to reduce solar heat gain and improve thermal performance. To cool the space, they installed ceiling diffusers that operated just like the originals and added equipment to the roof for heat recovery. The existing heating system of pipe coils in the concrete floor slab had been designed to be controlled from one point and was often too hot. In the renovation, they in-

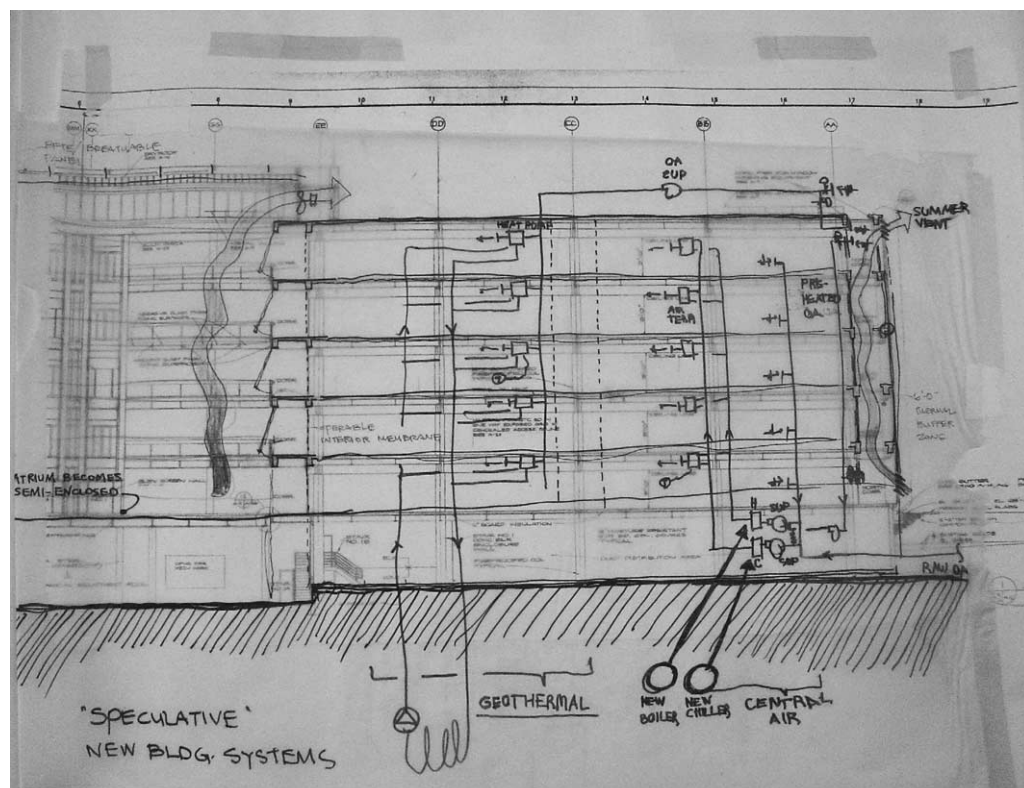


Figure 4. Bell Laboratory charrette sketches, Coalition to Save Bell Labs, Holmdel, New Jersey, April 2008.

cluded local controls and cooling pipes in the floor for chilled water, with radiant floor heating for winter. Other new insertions included lighting control sensors and roof insulation. The project, like the A&A building, was incremental, rather than wholesale rehabilitation. It was completed in co-ordinated sectors as both a preservation project and a performative experiment, which upgraded systems that for the time were indeed innovative but are inadequate for today.

ECO-RENOVATION

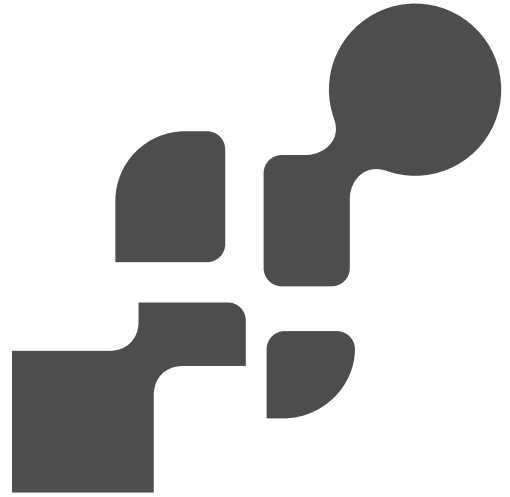
A more dramatic environmental insertion will occur in SOM's 1974 Cor-ten steel headquarters of Imperial Tobacco in Bristol, England with combined residential and live/work units by developers Urban Splash, with Acanthus, Ferguson and Mann architects. The programme change demanded that the building have more light and air, so they created a new interior atrium, balconies, and a new façade recessed from the exterior. Atelier Ten is proposing a passive system with double-glazed, low-E glass, and an operable ETFE (ethylene tetrafluorothylene) roof elevated above the former roof to shade the atrium space and provide air flow. Then, cool air is pulled across the lake below the building and enters into the atrium. Additional renewable energy sources will contribute to a new incorporation of the ecology of the site and result in less carbon emissions.

The ideas of sustainable Modernism were imbued in the imagination of participants in a spring design charrette sponsored by DOCOMOMO's New York/Tri-State chapter and New Jersey preservationists for Eero Saarinen's Bell Laboratory of 1962. The two-million-square-foot mirrored-glass office and laboratory space is vacant. Architects, preservationists, and environmental consultants agreed that the building was flexible and could be used by one owner or multiple tenants for education, healthcare, residential, commercial, or R&D. Teams devised concepts for an interior double-skin system, as well vertical cuts through the offices to increase light and air. Ideas developed to open the ends of the building for fresh air circulation in the atrium and to add photovoltaics or ETFE cushions to the roof. Different sectors could be heated or cooled, according to user requirements, and controlled individually from new multiple HVAC systems rather than one monster unit.

Modernism, which once was sustainable, offers opportunities for sustainable restoration with gradual alterations to increase performance. Rather than succumbing to the rhetoric that Modern Movement architecture is unsustainable, preservation projects can take up the challenge of sustainable use and systems with lower carbon emissions, while upholding Modernist principles; they also continue the building's life into a sustainable future. When a building is considered holistically, the solutions for its operational systems can include subtly calibrated, nearly invisible elements such as smart, nano-scaled climate control systems and materials. New sustainable elements can be integrated by respecting a building's form and structure and preserving its aesthetic integrity. Sustainability is a Modern Movement.

NOTES

- 1 Freedom was expressed in dance of Laban and places of alternative living such as Monte Verita, in Switzerland.
- 2 Not only did sanatoria influence open-air designs but so did philosophies about the environment in general.
- 3 For example Henri Sauvage in Paris.
- 4 Scheerbart, Paul, *Glasarchitektur*, Berlin, 1914
- 5 Banham, Reyner, *The Well-Tempered Environment*, University of Chicago Press, 1969, p. 154, 157.
- 6 Ibid, p. 158.
- 7 Discussion with Patrick Bellew, director of Atelier Ten with Nina Rappaport in May 2008.
- 8 *Yale Daily News*, November 6, 1953.



Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability
Materials - Conservation Strategies and Methodologies



Materials - Conservation strategies and methodologies

INTRODUCTION TO THE SESSION

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The conservation of modern materials has been a topic of a great discovery over the past two decades. As the field of conservation continues to engage a dialogue to reconcile challenges in favor of preserving modern and postwar buildings, it is important to examine an evolving practice utilized by our profession. Clearly, we must present current successes in our practice in the handling of what actually constitutes what is philosophically referred to as the 'essence' or materiality of a building. We increasingly find that while it is important to diagnose material deterioration and its repair, we must also keep in mind that a balance should be achieved between preserving the materiality of the building while striving to incorporate conservation methods which will retain material authenticity and sustain the building well into the future.

Included in this session are author contributions which present five essays which tackle the role of conservation in preserving modern and postwar heritage. Throughout these case studies, general approaches to the diagnosis and repair of modern building materials is presented. The authors — Hammer, Chou, Gayoso, Weiss et al., and Ascione — describe challenging approaches and conservation solutions from numerous parts of the world including Germany, Cuba, Italy, and the United States.

The authors establish not only the significant role that material conservation plays in preserving our recent heritage but, also examines the technologies used to construct these buildings are integral to the building itself and also worth preserving. As an introduction, author Hammer provides an overview of the philosophical underpinnings, offering a discussion on the materiality of the Villa Tugendhat. He offers a unique historical perspective and the current available research on the restoration of this world heritage site in Brno, Czech Republic. The second case study begins with a discussion on the *Dalle de verre* glass by author Chou. Here, the author translates the French meaning for a postwar building technology known as "slabs of glass" and discusses their fabrication in France and case study applications in the United States. Next, author Gayoso gives a technical overview of concrete repairs in Cuba over the last two decades against the background case study of the Havana Riviera Hotel which was constructed 50 years ago. Gayoso provides an analysis of techniques used to repair a variety of materials and finishes which constitute ornamental design of high rise structures in Havana. To complement this session, author Weiss et al., documents recent aspects of conservation at the Solomon R. Guggenheim Museum in New York City. With a particular emphasis on repair techniques for re-coating of the Museum's curved exterior walls, author Weiss provides a detailed account on technical research to restore the curved spray-applied concrete (gunite) walls of the landmark icon. The final essay of this session travels back across the Atlantic to Milan, Italy, where author Ascione discusses the legacy of Ponti's Pirelli Building including its recent curtain wall restoration to preserve the thermal glazing which was produced by St. Gobain in 1959. Ascione establishes how new aeronautical glass technology can be integrated into the original curtain wall technology retained as part of the restoration programme.

The Pirelli Skyscraper in Milan, Italy

MODERN AND CONTEMPORARY TECHNOLOGIES

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INTRODUCTION

"Questo edificio è nato giovane e non invecchierà mai, perché l'essenzialità è una virtù che non si può superare".

"This building was born young and will never grow old, because simplicity of essence is a virtue that cannot be beaten."

Gio Ponti

Gio Ponti said this about his best known work, the Pirelli skyscraper. "Essentiality", not minimalism, is the term he used to describe the qualities that would make this building endure over time. This obviously does not merely refer to the durability of materials, but also to the architecture as such, which is the means by which it preserves its very 'essence'.

An architectural project carries an '*élan*', which generates tangible structures by means of technology that shapes perishable materials. Maintaining architectural value certainly means preserving materials from decay, but it is above all about keeping alive the innate creativity of the project.

This was the great responsibility of the team that oversaw the recent restoration, and this is the challenge for professionals charged with maintaining the efficient use of the building in the future, while retaining its architectural quality.

Therefore, how do we preserve, the values of the original project while replacing obsolete technology with solutions that meet modern standards, in particular of energy efficiency? How far can this experimentation be carried out in buildings like the Pirelli skyscraper, whose critical success was based on its innovative technology at the time of its construction. These are some of the points on which this paper wishes to reflect.

The choice of this case-study is, in this sense, emblematic. Built between 1956 and 1961, on designs by Gio Ponti with engineering by Pier Luigi Nervi, the Pirelli skyscraper underwent a restoration in 2004 carried out by Corvino + Multari Associates and the Renato Sarno Group. The designers had to make modifications to optimize performance, seeking innovative technical solutions which would be respectful of the original design's aesthetic-architectural features.

In a philosophical sense, this restoration was aimed at remaining faithful to the original design, but it was not possible to simply restore the structure only for the purpose of preserving it. Rather, it was a more complex operation informed by the need to balance renovation and historic preservation. Decisions were guided by a philosophy of sustainable regeneration that responds to the current exigencies of the cultural and prescriptive context. This consisted of updating the original building, not only by renovation, but also through replacement of selected elements and materials which were obsolete.



Figure 1. The Pirelli skyscraper in the 1960's.
Archivio Regione Lombardia.

FEATURES OF THE ORIGINAL DESIGN: THE STRUCTURE AND THE CURTAIN WALL

The Pirelli skyscraper changed the Milan skyline and soon became the iconic symbol of Italy's economic and industrial expansion.

The 127-meter-high building is a reinforced concrete structure. Nervi designed an original solution with load-bearing walls narrowing upwards, adopting the same structural concept used in load-bearing masonry structures.¹ In the interior, structural elements are visible, and covered with a thick layer of plaster, that is bush-hammered (*"intonaco spuntato"*) a technique similar to that used for stone surface finishes.

The structural elements reach their expressive acme in the wide open space on the top floor, where the view flows freely in a continuous spatial unity. This dialogue between aesthetic aspects and the wish for technical experimentation embodies the uniqueness of the Pirelli skyscraper.

Architecturally speaking, the building shows the qualities of a design *'object'*, considering the attention given to the detailing of each single component. Ponti selected a range of materials that were quite innovative. The skyscraper's notable modern style had to project the image of the client as an up-to-date company. This was achieved by adopting industrial products provided directly by Pirelli. The company manufactured rubber products. These were extensively supplied to be incorporated in the new Milanese headquarters and even expressly produced. This is the case of the rubber flooring called *"giallo fantastico"*, whose color mixture was created by Ponti himself.

The originality of the design offered optimal use as an open-space office. The structure is composed of four reinforced-concrete pillars tapering upwards, connected by transverse trusses of variable thicknesses. The typical floor plan has an oval shape, divided into two halves by a corridor which widens at the center. The elevators and other service and equipment spaces are lateral to this central section. The interior spaces are organized in modules measuring 95 by 95 centimeters, which provide a minimal work unit that is separated by partitions. The same module is used in the design of the curtain wall, which is made of an aluminum frame with panels of transparent glass that vary vertically with composite ones. The widths of the panels, both glass and composite, alternate horizontally in size, 95 and 190 centimeters respectively. The larger glass ones can be opened.

Transparent surfaces were made of Saint Gobain double-glazed glass with a 6 mm external pane thickness, a 12 mm insulating gap and a 6 mm internal pane. The spandrel panels were made of several layers of various materials (from the exterior to the interior): a 6 mm monolithic glass, a 1 cm insulating air gap, an anodized aluminium sheet, a 4 cm insulating glass wool pane and an internal sheet of galvanized steel. Gaskets were made of Pirelli rubber.

The curtain wall is connected to the floor slabs with two joining elements: "Bauer irons", attached to the floor slabs that carry "Jolly" joints. The former are of steel and C-shaped; the latter adjustable "h"-shaped aluminum elements that fit onto a crossbar in the channel of the "Bauer irons". The mullions of the curtain wall are connected to the "Jolly" joints.

Giò Ponti designed the project details taking into account the principal requirements of modern industrial construction: reversability, precision, and simplicity of shape. This joint system has three fundamental characteristics:



Figure 2. The skyscraper facade damaged by the air crash, 2002 (Archivio Regione Lombardia), and after restoration, 2004. Archivio Corvino + Multari.



Figure 3. Curtain wall modules of the facade and elements of the anchoring system. "Bauer iron", "Jolly" joint, "Silent-Block".
Archivio Corvino + Multari.

- it can be adjusted to allow precise mounting;
- it absorbs oscillations, accommodating small structural movements;
- it reduces vibrations and structural noises, thanks to the "Silent-Block" rubber sheathing, made by Pirelli, on the "Bauer irons".

BACKGROUND TO THE RESTORATION

The Pirelli skyscraper, seat of the Lombardy regional government since 1980, was damaged in 2002 by a small plane which crashed into the building. Damage was assessed to evaluate how the building could be repaired and ultimately restored to its original appearance.

The reasons for adopting restoration criteria which were faithful to the original design were clearly expressed by the technical-scientific commission² and supported by the regional administration, which understood the architectural value of the building but also intended to respond to the urgent need both to preserve and update the building. It is worth noting that the building was not protected by the Italian law on architectural heritage conservation, but only by copyright law³. As such, there was no legal law binding that prevents specific repair work or a restoration programme that could have radically modified the original project.

THE RESTORATION: THE CURTAIN WALL – PERFORMANCE EVALUATION AND IMPLEMENTATION

The Pirelli building was completely restored by Corvino+Multari Associates and by the Renato Sarno Group⁴. During this phase the skyscraper retained all the technological features employed by Ponti. In order to preserve these characteristics of the building, the restoration was carried out differently for various parts of the construction. Concrete elements damaged by the air crash were reinforced.⁵ The identified missing tiles in mosaic surfaces were restored and cleaned. The original “*giallo fantastico*” rubber flooring could not be recovered and was replaced by a newly-manufactured duplicate.⁶

The restoration of the curtain wall proved to be more complex; as it also affected the upgrade of building and its energy efficiency. This is the primary focus of this paper.

For restoration professionals, the curtain wall was a very delicate element to repair and treat, as it no longer met current performance guidelines and characteristics. This problem could have been easily solved by replacing the whole curtain wall system with newer, more up-to-date technologies without modifying the original appearance of the façade, as was initially suggested by curtain wall experts⁷.

As a public agency, the regional government considered the difference in cost to carry out a restoration rather than replace the whole element, as compared to the thermal and acoustic efficiency that could be achieved with a newly ‘reconstructed’ façade.

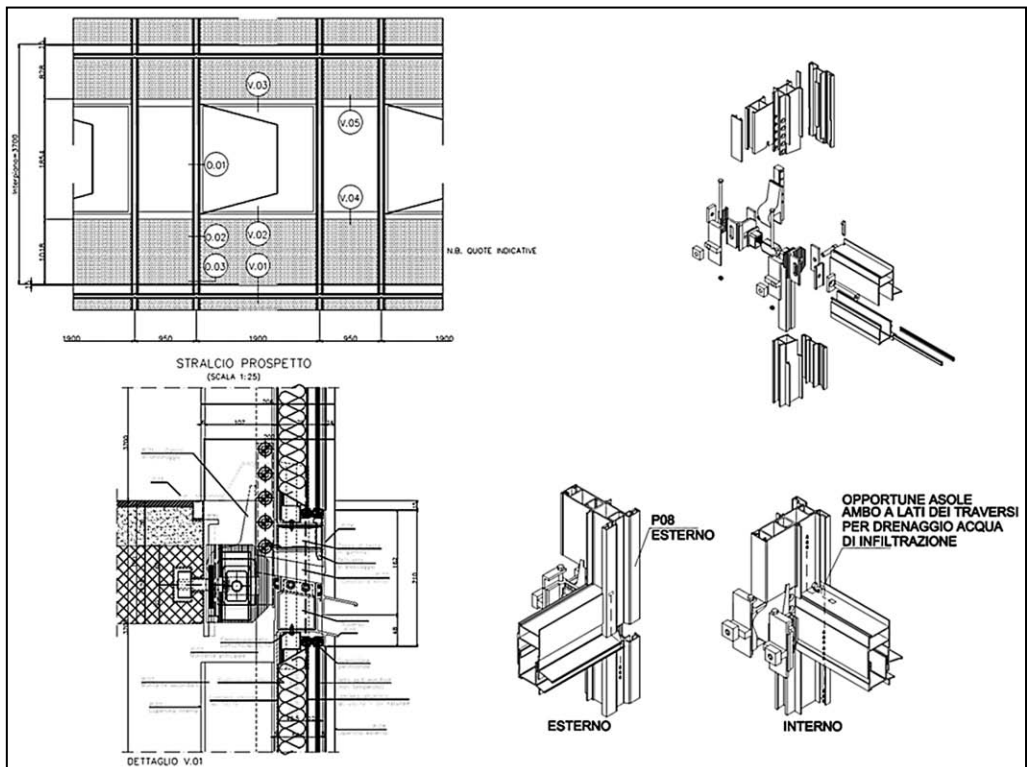


Figure 4. Curtain wall restoration. Design of the detail.
Archivio Corvino + Multari.

Preliminary studies brought the local government to accept the solution proposed by the design consultants, that is, the restoration of the existing curtain wall system, as originally designed by Giò Ponti, with partial and selective substitutions (i.e.: sealants, gaskets and glazing). The alternative would have been its total replacement with a more modern version, which would have preserved the appearance but erased the technological value of Ponti's original design.

Each component of the aluminium frame was restored after being dismantled and then remounted, applying the criteria of *anastilosi*⁸. During the restoration, the aluminum frames were treated in several steps: pickling, brushing, hand polishing and anodic baths. After each element had been treated, it was remounted with all the original joining accessories (screws and joints) and taken back to the Pirelli Building site in order to reassemble the whole curtain wall facade.

The original thermal glazing was produced by St. Gobain in 1959. Obviously these panels were not in compliance with the energy saving standards currently in effect and being enforced in the European Union (EU). Therefore, they were replaced with other products produced by the same manufacturer, reflecting current EU standards. For example, there are newly installed double-glazed panels measuring approximately 190 x 190 cm and 95 x 190 cm respectively. Each panel is made of two sheets of laminated glass with a low emission (E) layer, with Argon gas injected in the space between the glass layers, resulting in optimal insulation values⁹.

Samples of the window wall system and elements, aluminium mullions and frames, underwent testing for resistance to air and water as well as for wind load, as prescribed by UNI EN regulations¹⁰.

Apart from mechanical resistance tests, all the structural supports underwent stability and deformation tests, in all cases giving results compatible to their function. Three main aspects which were considered regarding the curtain-wall intervention and retrofit:

The original Pirelli rubber gaskets were replaced with new ones in silicone. It is well known that rubber tends to dry and crack at high temperatures, causing separations and tears in the rubber, while silicone dilates, providing more elasticity and enhanced performance over time.

For the installation of the curtain wall, an innovative pressure control system was used during assembly. This device, normally used in the aeronautical industry, measures applied pressure. This system ensures constant pressure along the entire perimeter of the panels, facilitating monitoring and maintenance of the façade.

Without alterations to the original designs details, new micro-solutions aimed at improving performance (i.e., small cavities for the outflow of rainwater and condensation, as a minimal modification of the original aluminum sections).

PROSPECTS FOR THE FUTURE : APPLYING INNOVATION TO PRESERVATION

The aim of this paper is to emphasize the continuity of the restoration project in relation to the experimental nature of the technical solutions in the original design. The study highlights the innovations introduced by Ponti and the building's inherent "flexibility" that has allowed and facilitated this subsequent intervention, such as the reversibility of the "Jolly" joint in the curtain wall facade system with a "stick-system" technique.

There is also the overall challenge to meet new and changing regulatory requirements the need to achieve higher energy efficiency in buildings, which is often quite difficult to balance with the criteria of a conservation or restoration programme. In conformity with the European Community Directive (2002/91/EC) on the energy performance of buildings, the current Italian law (D.Lgs n°311 dated 29/12/2006), prescribes that every building that undergoes "total or partial restructuring or extraordinary maintenance of the building facades" should be provided with energy certification.

Indeed, the effects of the 2006 law have a strong impact on the maintenance and restoration interventions of curtain wall systems originally designed using building technologies which are not compliant with current thermal transmittance limits¹¹.

In the case of the intervention on Pirelli skyscraper, due to its inadequate thermal performance, these regulations required the improvement of the energy efficiency of the facade because the building was not formally protected as a heritage monument. In the opposite case, it could have been exempted from this rule if this would have altered its historic or artistic value.

The Pirelli skyscraper is a remarkable case study. The restoration programme preserved the original design intent of the curtain system. This project is a clear demonstration that a building's morphological, aesthetic, and technological features can be retained with the highest architectural integrity, allowing preservation of an iconic architectural work for years to come.

NOTES

- 1 It should be noted that in Italy during the '50s, construction was still based on craftsmen techniques, such as concrete casting on-site. At the same time scientific research cast new light on reinforced and pre-stressed concrete. It is no accident that for this project Nervi was joined by Arturo Danusso, engineer and outstanding expert of Architectural Science. Cfr. Covini, P., 1996, *Grattacielo Pirelli*, La Nuova Italia Scientifica, Roma.
- 2 Commission members included experts and representatives of university, Ministry of Cultural Affairs, and the regional government of the Lombardy region. Specifically, its members were: G. Carbonara, M. A. Crippa, C. Di Francesco, A. De Maio, P. Petrarola.
- 3 Though fifty years had not yet passed since its construction, which is the minimum time lapse required for protection as a cultural monument, in 1995 on the request of Gio Ponti's family, the Ministry for Cultural Affairs submitted the building to copyright protection, under the law n°633/1941.
- 4 Corvino+Multari and the Renato Sarno Group had already won the regional bids respectively for the Auditorium restoration and for the 31st floor restoration.
- 5 Restoration of the building structure was completed by shoring up four floor-slabs under the 26th floor in order to re-establish normal floor levels. To make the floor slabs load-bearing again, post-tensioned cables were inserted under the intrados. The 27th floor slab, which did not present many cracks, was reinforced by adhering FRP tape to the intrados of the beams, without changing the volume of the structural elements of the floor.
With regards to the restoration of mosaic surfaces covering structural elements, mosaic tiles were cleaned and fixed to the load-bearing walls by injections of epoxy resins as consolidants, while missing mosaic tiles were restored with new ones matching the originals: a composition of a vitreous material and silicate crystals, 20 x 20 mm in size, sharp-edged, with a three-point diamond surface to reflect light.
- 6 Cfr. Crippa, M. A. (a cura di), 2007, *Il restauro del grattacielo Pirelli*, Skira, Milano
- 7 The reference is to UNCSAAL (National Union of Openings Manufacturers) delegates.
- 8 Anastilosi, from Greek '*anastélosis*', lifting, is a common practice in archaeology, where columns are frequently lifted back to their place. This technique consists in using the original pieces fallen to the ground to reconstruct an archaeological ruin. In this case the word means that the original damaged elements were reassembled exactly in their place after being taken down, catalogued and restored.
- 9 Insulating windowpane: 5-0, 38-5/15/4-0, 38-4 (55.1-15-44.1)
- 10 In Italy the laws regarding these aspects are: D.L. n°311 dated 29/12/2006 and D.L. n°192 dated 19/8/2005.

- 11 In this regard, it would be useful to compare the case study with other three remarkable cases, where the problem was faced with different approaches, stimulating new considerations: the restructuring project for Alitalia skyscraper in Rome, planned by Gino Valle, the maintenance intervention on the façade of ENI skyscraper in Rome and the restoration-updating of the gazed wall of Olivetti Plant in Ivrea, carried out by architect Giacomelli. These are three cases representative of different intervention typologies, with different problems to solve, which have in common the necessity to comply with new efficiency requirements.

"The interchangeable nature of the skin" i.e. modifying a modern project to realize a new and updated covering/housing. The quality of the contemporary project. (Alitalia skyscraper)

The use of original solutions: preservation of the image. Screening the original metal frame. The concept of 'Sustainable Compromise'. (The ENI skyscraper)

Retrofit with repair and replacement: double skin and double criterion. Restoring the *outside covering* and the replacement of the 'internal' wall. (Olivetti Ivrea)

Translation from the Italian by Alfredo S. Hamill

Dalle de Verre: Modern Stained Glass

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Dalle de verre (French for “slab of glass”) is a type of stained glass with thick, colored glass set in a concrete or epoxy matrix. Because the glass pieces are often chipped, or faceted, on the surface to enhance the color and light, the practice is also known as faceted glass. Instead of the ¼ inch thin glass sheets used in traditional lead-came stained glass, the glass or dalles are cast as slabs of about 1 inch thick and hammer-cut to size. Due to this thickness, the armature must be heavier and stronger. The result is bolder, larger in scale, often abstract works or geometric patterns where the thicker negative voids of the matrix is as integral to the artwork as the richer, jewel tones of the glass pieces.

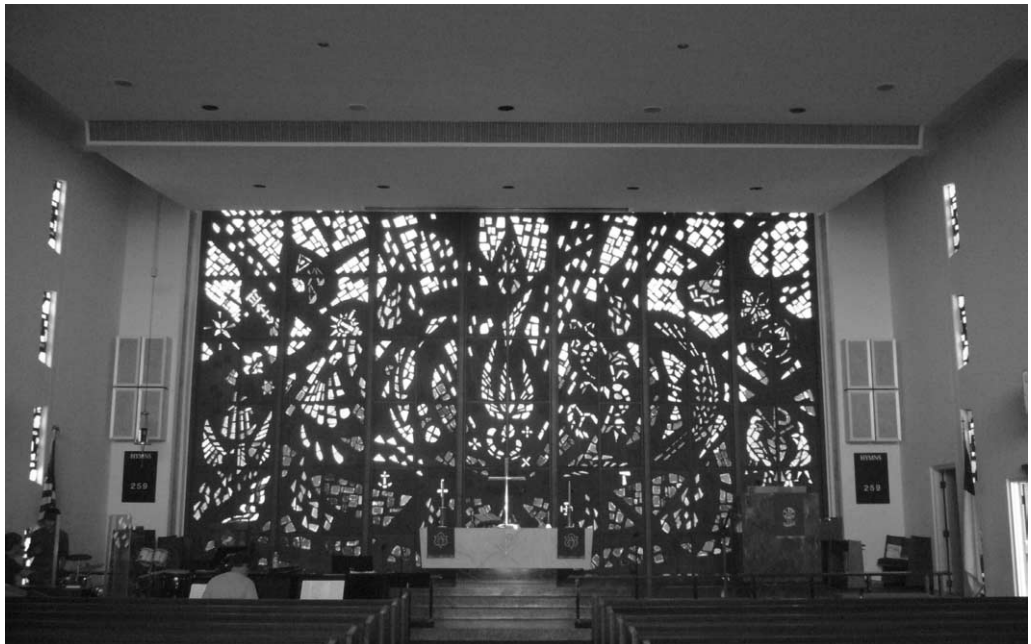


Figure 1. In this 1964 dalle de verre installation by Judson Studios at Westchester Lutheran Church in the postwar suburb of Westchester, California, symbolic images of the apostle's creed are formed by the light through the glass pieces or dalles and the dark negative of the epoxy armature.
Photo: F. Chou.



Figure 2. Faceting at the edges of the dalles can be seen in this detail of the Westchester Lutheran window.
Photo: F. Chou.

HISTORY

The use of thick glass in architecture dates to the medieval period. The Byzantine and other Near Eastern cultures employed it as window lights set in stonework grilles or embedded in stone, wood, or stucco. Such thick glass fell out of favor in Europe, replaced by thinner glass in lead comes that allowed for human figures and finer details, but experiments in decorative glass art in the 1920s and 1930s revived its use. This coincided with technical advances in reinforced concrete and its increasing application in a myriad of uses in the concurrent architectural experimentation of early modernism.

Frenchman Jean Gaudin is credited with developing *dalle de verre* from a mosaic glass technique by joining small, mostly square pieces of glass with reinforced concrete. The earliest known glass in concrete window by Gaudin was exhibited in Paris at the Salon des Artistes et Décorateurs in 1929. French glass artist Auguste Labouret furthered the evolution of *dalle de verre* in the 1930s by using larger, more irregular chunks of glass faceted on the face to create a richer play of light. The method was introduced to a wider audience when a panel of Labouret's work, *One of the Magi*, was shown at the Paris World's Fair in 1937 and the New York World's Fair in 1939. However, it was not until the mass reconstruction of Europe following World War II that *dalle de verre* became widely used. With a great demand for rebuilding but scarcity of metal and skilled artisans, a modern stained glass using readily available glass and concrete that required less time to create large installations was highly desirable. The robust design and departure from traditional glass art also matched well with the modernism vocabulary of the postwar years. One of the most impressive modern art works in glass is the *dalle de verre* panes designed by Cubist artist Fernand Léger at Sacré-Coeur d'Audincourt in France, built 1949–1951.

Dalle de verre was not common in the United States until the 1960s. An early and influential installation was Wallace Harrison's 1958 First Presbyterian Church in Stamford, Connecticut. Touring Europe after receiving the commission, Harrison was greatly influenced by the stained glass walls of Sainte Chapelle in Paris and Léger's *dalle de verre* installation at Audincourt. *Dalle de verre* became an integral part of the church's design, with Harrison himself designing the abstract work on the north and south walls symbolizing the crucifixion and resurrection.

The panes were fabricated in France by Gabriel Loire, who had worked with Léger at Audincourt and was one of the masters of *dalle de verre*. No American stained glass studio had the expertise to manufacture the thick dalle glass or the panes at the time, but many started to fabricate panes using European-produced glass with ready-mix concrete. Whether due to unfamiliarity with a new medium, poor fabrication, or incompatibility in certain climates, reports of cracked panels and water infiltration had started to haunt some faceted glass installations in both Europe and the United States in the late 1950s. The American studios, new to both slab glass and concrete, started to experiment in the early 1960s to address the assumed root of the failures: the difference in thermal expansion and contraction between the glass and the concrete. Attempted solutions included setting the dalles in a concrete-latex mixture, installing an intermediate layer of latex or sealant between the glass and the concrete, and placing an outer layer of epoxy over the concrete.

The most promising lead came in a formulation of newly available epoxy resin by Robert Benes specifically for *dalle de verre* that appeared to eliminate the cracking and thermal expansion problems. Promoted to American glass studios through hands-on demonstrations, epoxy's ease of use and significantly less weight quickly replaced concrete as the matrix of choice. Studios previously inexperienced in concrete *dalle de verre* could now fill the high demand for faceted glass windows as hundreds of modern religious and institutional structures were constructed in the suburban building boom of the 1960s. *Dalle de verre* reached the height of its popularity in the early 1970s but became unfashionable by the end of the decade. Today, some stained glass studios in the United States continue to manufacture faceted glass as demand warrants.

FABRICATION

To fabricate a pane, the design surrounded by a removable wood frame is placed on a table. The glass pieces are roughly hammer cut and shaped to size; selective faceting, where the glass is chipped on the front surface (the side that will be on the interior of the building) is done to enhance the play of light through the glass. Once properly placed, the matrix mixture is poured

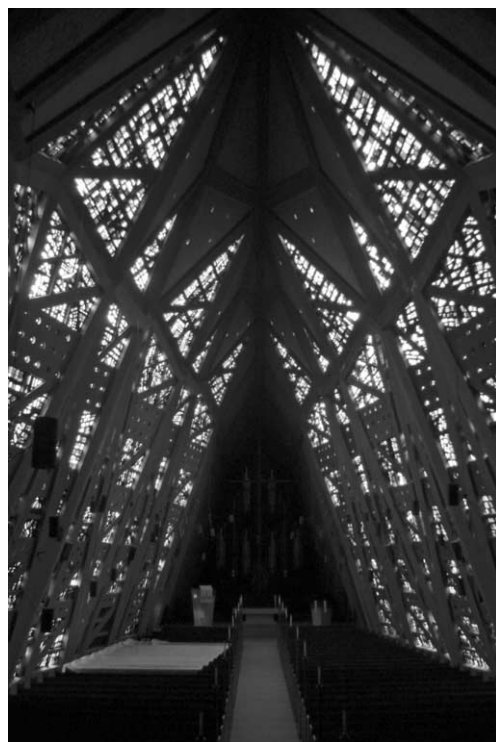


Figure 3. The remarkable walls of *dalle de verre* in Wallace Harrison's light-filled First Presbyterian Church in Stamford, Connecticut popularized faceted glass throughout the United States in the 1960s but its persistent leaking necessitated replacement of the concrete panes on the south (left) wall with identical epoxy-cast panes in the early 1990s.

Photo: F. Chou



Figure 4. Epoxy is being poured around the hammer-cut and faceted dalles and aggregate will be added on top as the finish surface; no other materials are involved in producing these panes.
Photo: F. Chou

around and flush to the glass. With concrete, wire mesh or metal bars are embedded for reinforcement; no internal reinforcement is required for epoxy. With epoxy, a top layer of aggregate is added to provide a finish surface. To augment the brilliance of the glass, a dark aggregate is used for the interior face and a light aggregate on the exterior. The lighter exterior surface also limits heat absorption and greater temperature fluctuations.

The matrix is allowed to set, at which point the wood frame is removed and the pane ready for installation. Compared to concrete, epoxy cures more quickly (hours versus days), weighs considerably less (requiring less sash support in installation and allowing panes to be stacked on top of each other), and needs no internal reinforcement. It is also believed to maintained good adhesion around the glass after curing and over daily and seasonal thermal cycling, two areas in which concerns were raised about concrete.

However, like concrete, the quality and durability of the final panes depends on the quality of the epoxy mix and accuracy in mixing and curing—in other words, much depends on the skill and experience of the fabricators. A double-cast system for epoxy where half the pane is cast first, partially cured and then turned over and the second half cast, has become the industry standard in the United States. This method is believed to prevent cracks and other failures from infiltrating the entire depth of the pane.

DETERIORATION

Some early *dalle de verre* set in concrete has not fared well over time under certain conditions but insufficient research has been conducted to determine the root causes. Water infiltration remains the most serious concern. Possible culprits range from poorly produced panes to the systemic interaction of the panes with the structure and may include incompatible coefficients of thermal expansion and contraction between glass and concrete that alternatively loosen or place too much stress on the glass and cracking it; failure of the caulking and seam between the panes and the sash or frames in which they are set; the inappropriate use of *dalle de verre* as roofing or facing skyward; overwhelming condensation due to the lack of insulation for the thin concrete panes; or any combination of these. Freeze/thaw cycles may exacerbate the underlying problem and hasten failures.

Although water infiltration issues were wide-spread enough to prompt American glass studios to embrace an alternative matrix, some concrete *dalle de verre* installations seem to escape such problems and are still in place. One theory may be location in climates with a great difference in temperature extremes over the course of a year and compounded by freeze/thaw and/or high humidity. In much of Western Europe, where *dalle de verre* in concrete was common in the 1950s, the difference between the average annual high and low temperatures is approximately 30 to 40 degree Fahrenheit (about 20 degree Celsius), much less than the 60 degree Fahrenheit or so (over 30 degree Celsius) in the northeast United States where much of the early imported *dalle de verre* was installed.

Similarly, faceted glass in concrete from the early 1960s remain in good condition today in northern and southern California, where the temperature extremes are less severe and where freezing is not a factor. This theory may be supported by Harrison's First Presbyterian Church in Connecticut where the south and east walls, with direct sun exposure and likely greater temperature extremes, had the most evidence of water infiltration and damage to the dalles. These panes were removed and replaced with epoxy panes in the same design in the early 1990s. The north wall, with no direct sun and protected by tree cover, also showed signs of water damage but the original concrete *dalle de verre* panes remain in place.

The well-produced, double-cast epoxy panes have generally held up well in the last 40 or so years. Improperly fabricated epoxy panes with too thin armature, inaccurate epoxy formula, or poorly crafted panes often failed within a matter of a few years, and likely have been replaced already. The long-term durability of epoxy is unknown. Also unknown is how failures will occur, whether in loss of elasticity, increasing brittleness, reduced structural strength or something else. Whereas the properties, best practices, and cycle of deterioration and repair of leaded stained glass is well known after centuries of experience, such body of knowledge for epoxy or *dalle de verre* does not yet exist.

CONSERVATION

Dalle de verre in concrete and epoxy can be patched in situ if the deterioration is minor, such as a loose or missing dalle. Epoxy or mortar can be injected to reset the glass but patching is temporary and requires regular maintenance. Other strategies developed for conservation of traditional stained glass can also be used, such as properly vented protective glazing over the installation to prevent water infiltration or protect from vandalism, but the visual intrusion of an added layer of glazing may be incompatible with the original design intent of the artwork or of the architecture. Instead, where the failure is endemic to the original panes or due to environmental conditions, the only long-term solution may be replacement with newly fabricate panes once the source of the failure is identified and corrected.

For epoxy panes, material authenticity is less of a concern since the replacement is in kind. It may also be possible to reuse the dalles in the new panes, though the epoxy, stronger than the glass, cannot be easily removed from the glass edge. Additional hammer cutting is required to remove traces of the epoxy, rendering the dalles smaller in size than the original and creating another quandary for authenticity and design intent. Nonetheless, recasting epoxy panes with new or reused glass is in line with accepted restoration practices of creating new panes with new lead comes for traditional stained glass every 70 to 100 years as the lead sags and loses structural strength.

For concrete panes, the options are trickier. American studios today only produce epoxy panes so replacing in kind requires imported panes; some European studios continue to manufacture *dalle de verre* in concrete. However, if the source of the failure is the incompatibility of concrete for the climate or for the building design detail, then replacement in epoxy may be the best solution unless further research and experimentation with concrete and various additives can resolve the underlying problem. European studios may not have encountered the climate conditions that resulted in failed concrete and thus do not have appropriate mixes and American studios lack the experience and expertise of working with concrete, as well as sufficient demand, to develop adequate solutions. Advances in concrete generated by the building industry and the preservation field could be adapted for *dalle de verre* conservation if an open dialogue and a willingness to collaborate is established between the stained glass field and concrete specialists.

Common practice in the United States has been to replace failed concrete panes with epoxy ones. This raises issues of original design and material authenticity. The aggregate top layer on epoxy panes does not match in color and texture with the usually smooth grey finish of the

original concrete panes and will alter the visual relationship of the panes with the rest of the structure. Whether this alteration is acceptable in order to retain the *dalle de verre* installation will be determined by the significance of the building and availability of resources to import in-kind replacements.

Finally, the long-term performance of epoxy is not known yet and over time alternative conservation options may be developed. As the significant mid-twentieth century structures with faceted glass installations begin to undergo preservation and rehabilitation, opportunities will arise to test better methodologies for conserving *dalle de verre* that respects both its original materials and the intent of its designers.

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Securing Ornamental Design in Modern Havana Heritage: Architectural High Rise Building

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INTRODUCTION

Progress has been made in the structural design and service life of building construction with the introduction of advanced technologies, new materials and the adoption of several factors of safety. Similar requirements have not yet applied to the design and practice of modern architectural heritage with respect to durability of ornamental finishing and the intervention for their restoration, particularly to buildings exposed to aggressive tropical marine environmental as found in our Island.

International awareness of the need to standardize the state of the art and prediction of service life in constructions is less than 30 years old. The first international conferences and workshops about durability of construction materials and component were held in 1978, 1981 and 1984. Nowadays scientific and technical research and development in construction technologies and materials provide knowledge that can be introduced in structural and architectural design in order to prevent premature deterioration to and, save non renewable resources and to keep the architectural creation intact and to preserve a national heritage.

More than half a century ago, several high rise buildings were built along Havana Littoral. In the ornamental design of their facades, cement Portland mortars, and glass ceramic tile veneers were used. Some of these veneers have shown poor performance partially due to a lack of foresight in their design, applications inappropriate for their location non suitable practice in their collocation and conservation practices that have varied over time. As a result, it was necessary to research and develop projects that allowed the analysis of causes and the introduction of new processes in order to help architects, engineers and designers that were repairing those finishes to evaluate their suitability and compare them with other solutions such as paints and coatings which need a greater frequency of maintenance cycles and result in an increased cost.

CASE STUDIES

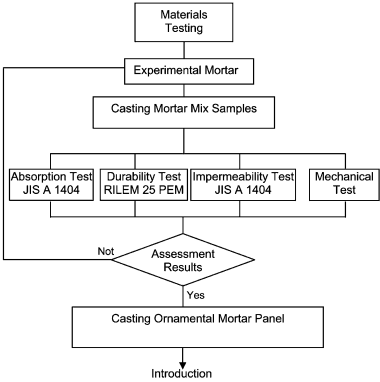
Havana Riviera Hotel is one of the most important buildings from the Modern Movement in Cuba. Built more than 50 years ago is a good example of the characteristics we want to show in this study regarding the performance of durability and conservation of high rise buildings. Its height and location, exposed it to the most aggressive marine environment at Havana littoral, and the variety of materials and finishes in the ornamental design, provided the possibility to use the building, as a base for experimentation and example of studies about prevention, durability and cost of service life in the modern heritage conservation. Fig. 1.

The selection of the following case involving the study of the behaviour of the ornamental finishing under aggressive tropical marine environment confirmed the validity and the feasibility of executing these objectives.



Figure 1. Degradation of Ornamental Mortar Panel and Glass Tile Veneers exposed to Tropical Marine Environment at Havana Riviera Hotel High Rise Building.

Methodologies Applied to Ornamental Mortar Durability Test Behaviour



Durability Test. Salt Cristalization Rilem 25 PEM. Method

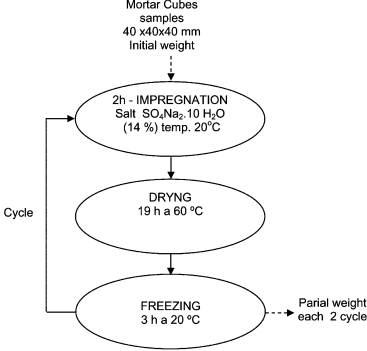


Figure 2. Methodology for the determination of ornamental mortar degradation.

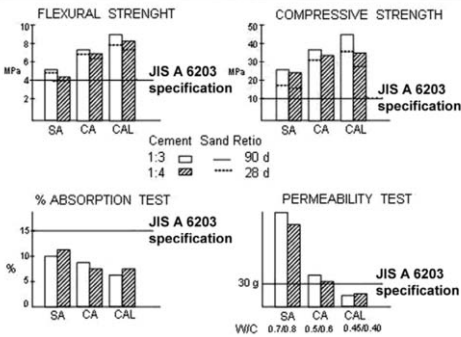


Figure 3. Left: Ornamental Mortar, Durability Test. RILEM 25 PEM. Samples and System. Right: Ornamental Mortar, Physical-Mechanical Test Results.

This paper shows the most relevant failures occurred in the surface finishes of modern high rise building, the most recent interventions and includes international recommendation that should be introduced to improve durability and service life keeping quality, safety and economy in their conservation.

ORNAMENTATION DESIGN USING PORTLAND CEMENT

The ornamental mortars panels 900 x 600 x 50 mm which cover de first level facade was moulded in two layers. The exposed outer layer with 15 mm thick was casting in bas-relief over 35 mm thick concrete base. The panels exposed to marine environment at the northwest facade shows variable grades of deterioration of the outlet mortar layer. Samples obtained of these mortar layers were analysed at the laboratory and were determined to have the following characteristics.

Table 1. Ornamental Mortar placed at Havana Riviera Hotel in 1947

Test	Unit	Properties
Density	g/cm ³	2.29
Absorption	%	18.6
Sand Maximum Size	mm	1.19
Mineral Composition	sample	CO ₃ Ca (limestone)
Salts Content	Cl ⁻ %	0.39

The methodology for determination of ornamental mortar degradation in combination with physic-mechanical test method as permeability, absorption, compressive and flexural strength of prismatic test specimens recommended by Japanese Industrial Standard –JIS, was used. Fig. 2 and 3.

EXPERIMENTAL MORTAR

In the mortars mix proportion test, identified as SA, the materials have similar characteristics to those in the sample obtained from the ornamental panel exposed to marine environment. In the experimental mortars mixes, with mineral and chemical admixtures, CA, and polymer modified mortars, CAL were added to reduce water/cement ratio, get better waterproofing and protection against salts penetration from the marine environment. The materials properties and mortars proportions used are shown in the following Tables.

Materials Properties

Table 2. White Portland cement Mineral Composition

Mineral Composition	%
C ₃ S	64.8
C ₂ S	15.8
C ₃ A	9.6
C ₄ AF	1.2

Table 3. White Portland cement Mechanical Properties

Days of aging	Flexural strength MPa	Compressive strength MPa
3	5.0	21.0
7	6.0	28.3
28	7.5	36.0

Table 4. Natural Zeolite (SZ) Admixtures. Physic- Chemical Properties

Properties	Unit	Content
Specific Gravity	g/cm ³	2.2
Unit Weight	kg/m ³	1100
Absorption	%	14
Chemical Activity	$\Sigma \text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$	79.3
Particles Finer < 44 μ	%	65

CHEMICAL AND POLYMERS ADMIXTURES

A high range water reducing super plasticizer chemical admixtures and polyester acrylic latex (PAE) were used in the experimental mix series identified CA and CAL.

Experimental Mortar Test

Table 5. Ornamental Mortar. Experimental Mix Proportions

Mix	C: S ratio	Cement g	Sand g	W/C+Z	Zeolite (SZ) g	Latex ml	Flow Table
SA	1:3	465	1395	0.7	–	–	–
	1:4	380	1520	0.8	–	–	–
CA	1;3	465	1606	0.5	30	–	100.
	1:4	380	1695	0.6	25	–	80
CAL	1;3	465	1420	0.4	30	38	100
	1:4	380	1630	0.5	25	30	80

DISCUSSION OF RESULTS

Salt diffusion processes (Cl^- and SO_4^{2-}) to crystallisation and tensional states originated by these phenomenon, must be considered among the most severe actions on materials and mortar coatings in building exposed to a marine tropical island weather as found in our country.¹

In this study conventional methods for physic-chemical and mechanical test employed for evaluating coating mortar less than 4 mm thick and accelerated test for durability recommended for

RILEM commission 25 PEM in which the mortar are exposed to salts penetration ($\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$) were used for simulate the natural process that coatings suffers in this marine climate. Fig.3.

The results obtained confirm that mortars with cement to sand ratios 1:3 and 1:4, which were usually used in ornamental coatings and stuccos don't meet the requirements and show severe destruction and disintegration when they are submitted to an accelerated weathering process. The results also confirm that using a mixture of micronized natural pozzolans with zeolite content, a superplasticizer, and (PAE) latex, in a polymer modified mortar mix provides the desired water-proofing standards and resistance against the actions of salt penetration and saturation without resulting in destruction. It's also shown that the method and specifications commonly accepted as standards, for compressive and flexural strength, do not provide and assurance for the durability of coating mortar, especially when exposed to aggressive tropical marine weather. Fig. 3.

CERAMIC VENEER ORNAMENTAL DESIGN

Veneer with ceramic tiles and other ceramic products with glassed or enamelled surface have demonstrated since ancient time, an extraordinary ability for survival avoidance of fungus spots caused by bio-deterioration pro-cesses, great stability of chromatic composition in architectural applications resulting in greatly reduced maintenance.

For modern heritage high rise building in tropical marine environments, we established the presence of ceramic veneers and identified when and where necessary suitable solutions for their restoration.

An example of these possibilities was the restoration of the "Amelia Peláez Mural" at Habana Libre Hotel in 1998. In this restoration was used a system composed of 970 concrete precast panels of 700 x 1000 x 50 mm. The panels were covered with the chromatic composition of the mural and anchored with bolts to the concrete entrance wall of the Hotel. Fig. 4.

The open joints allow the panels to move unobstructed and free of stresses by eliminating the stress created by thermal expansion and contraction. The need for a thermal expansion joint was not considered in the first mural construction in 1959 and caused the veneered surface of 690 m² to fail eventually leading to its total demolition at a considerable cost.

The necessity of eliminate stresses caused by thermal expansion and contraction in large veneered surfaces, must also be considered in Havana Riviera Hotel Dome. The Dome with its particular geometrical shape had been restored several times without achieving the expected success. Besides the bond failures



Figure 4. Mechanical Anchor System of Veneer panels applied during the restoration of "Amelia Peláez Mural". Habana Libre Hotel, 1998.

observed in Dome veneers, the simultaneous action of salts must be added because they penetrate through veneers causing severe corrosion of steel reinforcement in the concrete that holds the veneers.

A different performance of glazed tablets where thermal dilation doesn't represent remarkable influence can be observed in the Havana Riviera Hotel facades. The facade coatings of the 15 stories high building have kept their admirable behaviour during 50 years with a high degree of conservation in northwest and southwest facades. It is important to note that the 20 x 20 mm glazed tablets placed in those facade, show irregular surfaces in order to increase the mechanical bond with the setting mortar used

DISCUSSION OF RESULTS

Generally it is considered that ceramic or glassed tablets veneers in the architectural constructions of modern heritage exposed to Havana Littoral Environment require to achieve success in the conservation of restoration, the use of the Test System Methodologies that allows to determine the measures of thermal dilation tensions, the adequate space between joints and also to use test that guarantee previously the bond requirements of mortar or products for coating the veneers. That is why it is recommended in veneer restoration projects to apply methodologies with combined of tensor metrical analysis (strain gauge), to verify the bond strength (pull out test) and micro structural analysis with advanced method as SEM and DRX to study the probability of expansive reaction in the setting mortars employed in bond the veneers.

CONCLUSIONS

In the study and solution for restoration of the architectural modern heritage high rise building, it is generally recommended the introduction of Methodological Test Method System which allows previously evaluate suitability of design and materials that must be employed in conservation of architectural building and components.

In the accelerated durability test and drying cycles according to RILEM 25 PEM METHOD, the ornamental mortar series with or without mixture shows results which confirm the possibility of restoration and conservation by means of mortar mix proportions, 1:4 cement: sand ratio with natural pozzolans with zeolite contains, high range water reducers admixtures and poly acrylic latex (PAE), water/cement ratio not higher than 0.5, high performance compressive strength mortar not lower than 40 MPa, to fulfil the waterproofing requirement without destruction in salt impregnation and drying cycle.

It must be considered in the design of large surfaces and veneers restoration to aspects: the spaces between thermal dilation joint and the requirement of mortar bond strength (not less than 0.98 MPa).

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The Original Intention – Intention of the Original?

REMARKS ON THE IMPORTANCE OF MATERIALITY REGARDING THE PRESERVATION OF THE TUGENDHAT HOUSE AND OTHER BUILDINGS OF MODERNISM

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The author understands materiality as the manifestation of historic, artistic and other cultural attributes and designs of monuments in their material substances, their application techniques as well as their surfaces. The original idea or intention of an artist is not real without the material substrate which brings the artist's ideas and intentions to life and physical form.

"Ultimately, it is only the surface which is decisive for architecture. Human beings do not live in designed and constructed buildings, but rather in the atmosphere created by the architectural surface" (Theo van Doesburg, 1929).¹

Project designs in the field of restoration of Modern Movement buildings mostly aim to recover something that is called the "original intention" of the architectural design - the ideas of the architect - including the "original" appearance of the structure, its surface and its colour.²

But how do we know, what the original intention is and what the architecture originally looked like? What is the original appearance? What are possible criteria to define original appearance? Of what elements is the original building comprised of? And above all: what is the importance of the original material fabric for the aesthetical and functional intention of the architectural design?

This paper emphasizes the need to address the importance of the original fabric, its materiality, its colour and its surface and that they are an indispensable source for understanding the original intention.³ Even more so, the original should be understood as material substrate of the representation of the cultural, artistic and social intentions.

AUTONOMY OF ART AND MATERIAL

The conceptual statements of architects, as in art history generally, cannot be taken literally as the explanation of the meaning of the work of art; the statements can even be deceptive. The piece of art is much more than the conscious intention of the artist and the basic source of knowledge of original aesthetic intention is thus the monument itself, its fabric and the materiality of its surface. With the transformation of a building to a monument of cultural heritage, its fabric, its materiality and its appearance also become part of the authenticity that has to be protected. Even architecture - which in its artistic concept is intended to be a dematerialized structure - is based on material. In this context, the original appearance must be understood in a dialectic way as the aesthetic result of artistic and functional intentions: both the result of materials and techniques applied to the architectural surfaces. The materials and techniques themselves play their autonomous aesthetic role; their aesthetic appearance consists not only of the technology intentionally applied to architectural surfaces but also of the intrinsic, natural qualities of the materials and techniques. These intrinsic qualities have been described in 1929 by the Bauhaus Master Láslo Moholy Nagy with the terms "structure, texture, facture and agglomeration"⁴



Figure 1. Brno, Tugendhat House, 1928-30. Original rendering of the façade, detail. 2005.

The image of what is presumed to be the original appearance of historic architecture is modelled in the social discourse, by (art-) historians, by expositions, sometimes by the architects themselves.⁵ Black and white photographs may enforce a somewhat purist image of functionalist architecture, an image which is an abstraction of materials, colour and natural changes of the architectural surfaces.

The awareness of materials and the techniques applied, and their importance in the aesthetic concept of architecture of the Bauhaus pioneers is well known. Nevertheless, modern art historical discourse does not refer much - if at all - to materials and colours of architectural surfaces in their interpretation of historical architecture.⁶

The stereotype of the "white cubes" created in the landmark 1932 MOMA exhibition of Hitchcock and Johnson is somewhat devoid of the material reality. An example: the investigations of the facade of the Bauhaus Meisterhaus Muche-Schlemmer of 1925- executed by conservators-restorers in 2001/02- have proved that it was decorated with a very fine and varied polychrome paint.⁷ In the course of the previous renovation of the other Meisterhäuser of the Bauhaus in 1992 (Meisterhaus Feininger) and in 1997-2000 (Meisterhaus Klee/Kandinsky) much less emphasis was placed on the investigations of the architectural surfaces and their finishes. Finally these facades were renewed with a white lime paint, surely influenced by the stereotype of what Modern Movement architecture should look like. On the basis of our knowledge of the polychrome of the facade of the Meisterhaus Muche/Schlemmer today, we can only assume that the evidence of polychrome strata was lost with the renewal of the facades of Meisterhäuser Feininger and Klee/Kandinsky.⁸

THE TUGENDHAT HOUSE: MATERIALITY

Since 2003, the HAWK University of Applied Arts and Sciences in Hildesheim (together with other Universities such as University of Pardubice, Brno University of Technology and Vienna University of Applied Arts) has been investigating the Tugendhat House of Ludwig Mies van der Rohe which was built in 1928-30 and was listed by UNESCO as World Heritage in 2001.

Originally, the surface of the final rendering of the façade of the Tugendhat House was smoothed with a wooden board, which created a certain roughness caused by the grains of the sand of the mortar and was painted with a yellowish white coating containing lime and a fine yellowish sand. The result was a tone similar to the Travertine stone, of which the dado, sills and footsteps are made. (Fig. 1). Material and surface appearance owe much to the traditional local craft and manner in terms of how the façades were coated. For example, during the investigation of the pavilion of the Academy of Applied Arts of Pavel Janák dating from 1928 in the Trade Fair area of Brno (Fig. 2), we found the facade coated in much the same manner. The difference between the material and the finish of the final rendering of the façade of the Tugendhat House and the local craft tradition lies in the matching (*Anspielung*) of the colour of the facade paint to the subtle tone of the Travertine. This accentuates one of the most significant aesthetic features of the Tugendhat House by allowing a more pronounced presentation of 'natural' colours of materials.

Another feature of the materiality and polychrome of the façade may be understood in a way similar to the final rendering of the façade: The exterior sides of the metals, e.g. the frames of the windows, were originally coated not only with a bluish grey oil based paint on top of several preparatory layers, but also with a clear varnish (possibly acetate of cellulose). This type of varnish



Figure 2. Brno, Trade Fair Area, Pavilion of the Prague Academy of Applied Arts, Pavel Janák 1928. Courtesy of NTM Praha.



Figure 3. Brno, Tugendhat House, Living room. Photograph: de Sandalo, arr. 1931.

application is unusual and is not necessary for protection, but has only an aesthetic intention. It gives the metal colour a greater saturation and in the same time somewhat suggests a metallic surface. Certainly, it is not unintentional that the tonal value of this paint is similar to the tone of the oxidized lead which is protecting the bases of the window frames.

In the interior of the Tugendhat House we can notice a similar use of materials and techniques in the aesthetics of the architectural space and its margins. Ludwig Mies van der Rohe used precious decorative materials like the onyx stone or the Makassar ebony and other exotic wood veneers with highly refined surfaces. The plastered walls and ceilings are also designed to an unusually high degree utilizing fine craftsmanship and precision, particularly in the main part of the interior of the house, which was reserved to the Tugendhat family and the nurse. The walls and ceilings were not painted but polished like a mat stucco lustro (Fig. 3).⁹ Again, like on the façade, the tone of the interior plaster was similar to the Travertine of which the flooring and the base of the interior walls consisted. Mies himself explained to his client Grete Tugendhat - as she reports in 1969 - "how important it was to use precious materials in, so to speak, plain and unadorned modern building, (which by comparison, had been neglected in works by Le Corbusier...)." ¹⁰

Regarding the intended appearance of all the original surfaces, we can assert the importance of the materials and their refined surfaces in the Tugendhat House. This ((the importance)) not only shows in the valuable materials and their highly refined, unadorned surfaces, but also in the modest materials of renderings and paints which were often neglected or attributed as mere craftwork. Mies van der Rohe does not use colour as decoration like the de Stijl Movement, Bruno Taut or Pavel Janák and others; instead, he places emphasis on the possible 'natural' colour of the materials and on the non - hierarchical, 'polyphone' concert of materials and surfaces.

THE CHALLENGE OF CHANGE

The original appearance is never transferred to our time without change, due to faults of the original technique, weathering, use, deliberate changes through renovation or incompatible repairs. These changes have to be evaluated and decisions have to be made, which of the changes represent a significant trace of history manifested in the structure and surface of the monument and its materiality and are therefore part of the 'original' appearance.

Currently, the historic fabric and its materiality are often neglected in the practice of preservation. The repairs and renovations of original surfaces are often implemented with materials and methods which are not compatible with the physical and aesthetical character of the original architectural surface. The original surfaces are often destroyed in the process of renovation (Fig. 4).

The material losses which have been discussed may not seem very important in understanding the overall concept of aesthetics in architecture; however, one may note that the canonical understanding of what is called the "original intention" today is not adequate enough to the materiality of the architectural surface. The analysis of the materiality of the architectural surface reveals aesthetic features which may have a decisive influence to the canonical comprehension of the aesthetic intention of the architecture and the perception of the aesthetics of surfaces.

It is a widely spread myth, common with architects in particular, that Modern Movement architecture generally imposes new technical problems and therefore should be treated with criteria different to the – so called – traditional way of preservation. As we have seen during the investigation of the Tugendhat House and other Modern Movement buildings, many of the building elements have been produced by craftsmen. The problem of preservation and repairs are mostly due to implementation of materials and techniques of repairs which are incompatible with the original compounds which are not necessarily due to a lack of craftsmen who are skilled in the traditional repair techniques.

To avoid further destruction of original surfaces through current renovation practices and to enforce the application of methods and techniques compatible with the historic materials and techniques, we need to develop a much stronger awareness of the importance of the materiality of surfaces and an interdisciplinary cooperation of architects, scientists, technicians, conservators/restorers and craftsmen. The interventions into the original surfaces of our architectural cultural heritage cannot be left to the intention of renewal, which is inherent to the work of craftsmen and their modern methods. In order to preserve the materiality of the cultural heritage the investigation of the architectural heritage and the conservation of its historical substance - professional domain of conservators/restorers - is needed. Often times the conservators/restorers have to develop methods of repair of surfaces compatible to the historic architecture and to supervise the craftsmen's work.



Figure 4. Brno, Tugendhat House, garden staircase, paint containing water impermeable resin (2003).

Currently, we may not understand all of the material qualities and their contextual meaning in the oeuvre of Ludwig Mies van der Rohe and the Modern Movement architecture. But if we respect and preserve the original surfaces, including techniques used and materials which they constitute, future generations have an opportunity to better understand what the Tugendhat House was intended to look like and maybe also to better understand what was the aesthetic intention of Ludwig Mies van der Rohe.

NOTES

- 1 Doesburg, T. van, 1929, „Farben im Raum“, *Die Form* Jg. 4, H. 2, 36: „Letzten Endes ist doch nur die Oberfläche für die Architektur entscheidend. Der Mensch lebt nicht in der Konstruktion, aber in der Atmosphäre, die durch die Oberfläche hervorgerufen wird“ (translation: I. H.)
- 2 See the typical statement of Reinink, W., 1995, „Altern und ewige Jugend - Restaurierung und Authentizität“, *Daidalos*, 56. Jg., 25; Reinink asks for “new criteria” and points out, that the general criteria of the World Heritage Programme (UNESCO), which emphasizes the authenticity of material, cannot directly applied to Modern Movement Architecture. The new hierarchy of criteria is as follows: 1. the authenticity of the concept. 2. the form; and only then 3. the authenticity of material (translation I.H.)“... neue Kriterien..., weil das allgemeine Kriterium des World Heritage Programme (UNESCO), das vor allem die Authentizität des Materials hervorhebt, für die Bauten der Moderne nicht ohne weiteres gelten kann. Die neue Hierarchie von Kriterien lautet wie folgt: 1. die Authentizität des Konzepts; 2. die Form; und dann erst 3. die Authentizität des Materials...“.
- 3 Danzl, T., 2001, „Farbe und Form. Die materialtechnische Grundlage der Architekturfärbigkeit an den Bauhausbauten in Dessau und ihre Folgen für die restauratorische Praxis“, *Denkmalpflege in Sachsen-Anhalt* 1/2, Verlag für Bauwesen, Berlin, 7-19.
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- 4 Moholy-Nagy, L., 1929, *von material zu architektur*, facsimile Florian Kupferberg Verlag Mainz 1968, 33.
- 5 Ludwig Mies van der Rohe neglected more than a dozen of his buildings of his Berlin time. It would be interesting to compare Mies van der Rohe's viewpoints regarding materiality before and after 1938. See
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- 6 Riley, T. and Bergdoll, B., 2001, *Mies in Berlin. Ludwig Mies van der Rohe. Die Berliner Jahre 1907-1938*, Prestel Verlag, München Berlin London New York, 8.
- 7 Gebessler, A. (ed.), 2003, „Gropius. Meisterhaus Mücke/Schlemmer. Die Geschichte einer Instandsetzung“, Ludwigsburg/Stuttgart/Zürich.
- 8 Hammer, I., 2005, „The white cubes haven't been white. Conservators of the HAWK University of Applied Sciences and Arts in Hildesheim are investigating the facades of the Tugendhat House in Brno“, *Biuletyn. Journal of Conservation-Restoration/Informacyjny Konserwatorów Dziel Sztuki*, 15, 1 (60), 32-35.
- 9 In 2004, I was told by Irene Kalkofen, who lived in London, that the Tugendhat family did not repaint the interior wall but rather cleaned them with the crumbs of half dry bread – historically a common technique of mechanical cleaning of surfaces of walls and gildings.
- 10 Tugendhat, G., 1969, „On the construction of the Tugendhat House“, in Hammer-Tugendhat, D. and Tegethoff, W. (eds.), *Ludwig Mies van der Rohe. The Tugendhat House*, Springer Verlag Wien-New-York 2000, 5; Hammer, I., 2000, „Surface is interface. History of and criteria for the preservation of the Tugendhat House“, *ibid.*, 119-141.

Concrete Repairs and Coatings for Frank Lloyd Wright's Solomon R. Guggenheim Museum

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INTRODUCTION

Frank Lloyd Wright's Solomon R. Guggenheim Museum in New York is an icon of modern architecture known for its large curvilinear walls. Those walls were originally constructed using spray-applied concrete, or gunite, against plywood formwork. Wright chose concrete as a building material because it would allow him to create the shapes he desired. The repair of this material and its coating were recently addressed in laboratory testing and *in situ* evaluation programmes¹. Compatibility, both mechanical and aesthetic, of the repair materials and historic fabric was the overriding objective in the research. This investigative programme is the first holistic approach to conserving the building since its construction.

Archival records indicate that Wright disliked the formwork marks that were apparent in the gunite surface as his vision was of smooth non-orthogonal walls.² The contractor responded by writing that the use of gunite and the building's design limited the ability to create perfect surfaces.³ An attempt was made after the plywood was removed to reduce the formwork marks by grinding the surface of the gunite, but complete removal was never achieved and 50 years later, under several layers of coatings, the marks are still apparent.

Today, despite the availability of materials and methods which are able to create the vision of Wright's original intent, the design team deemed the gunite formwork marks worth preserving and not concealing. Those marks are historic evidence of the techniques used and were to be replicated in the repairs. On the other hand, it was imperative to conceal other aspects of the repairs beneath the coatings.

These two criteria – preserving the as-built imperfections and concealing the repairs – posed a challenge to this conservation programme. This was the focus of an exhaustive field investigation of constructability and appearance.

COLOR INVESTIGATION

The building has a long history of coating failures. As of 2005, total dry film thickness, representing many applications, was approximately 2 mm. It was decided to remove all of this build-up to optimize future coating performance (see Figure 1). This permitted the design team to document conditions of the substrate, evaluate cause-and-effect relationships of the pathology, and determine conservation priorities. (Surface conditions were also surveyed by binoculars prior to coatings removal.) Because the historic coatings were being removed it was critical that samples taken from the building be examined in order to document the original color.

Coating samples were taken in the fall of 2005 from several locations on the building (both gunite and cast-in-place concrete) for a total of 110 specimens, one-third of which were mounted in

resin and polished. All specimens were viewed with a stereo-binocular reflected light microscope at approximately 30x magnification.

Typically, 10 layers were found, starting with a translucent blue primer followed by a thick buff (light brown) layer. Through archival records it is known that a product called Cocoon was used as the original finish. As seen in cross-section, the Cocoon had a typical dry film thickness between 0.4 mm and 0.5 mm, was glossy, changed color in the uppermost 0.02 mm to 0.05 mm due to exposure to ultraviolet light and had a layer of soiling on the once exposed surface.

The color stratigraphy, with few exceptions, also suggests that the original finish was re-coated with a darker tone matching the then-soiled appearance of the Cocoon. That darker layer is typically followed by three campaigns with colors that are closer to the original buff. Presumably these four layers were coated between the 1960's to late 1980's. During the construction of the 1992 addition by Gwathmey Siegel & Associates, the Frank Lloyd Wright building was again re-coated with an off-white primer followed by a light gray as the finish. Finally, the building was re-coated in 2004, in a similarly light, low-chroma color, the system consisting again of one primer and one top coat.

During implementation there was the opportunity to re-coat the museum the original color selected and approved by Frank Lloyd Wright in 1958. That option was not chosen by the museum.

SUBSTRATE CONDITIONS

The survey conducted by the design team noted primarily three conditions to be addressed: cracks, losses, and failed or inappropriate previous repairs. Core specimens, approximately 75 mm by 125 mm in size, were taken from the original unit. These were examined by petrography to determine approximate water-cement ratio, aggregate composition, carbonation depths, and paste-to-aggregate bond and ratio. Compressive strength and coefficient of thermal expansion were measured in order to provide compatibility parameters for the repair materials.

Crack monitoring was also conducted in several locations. The cracks could generally be categorized as those occurring over embedded steel tees or rebar and shrinkage cracks that occurred shortly after construction. These ranged from hairline to 6 mm in width. The non-shrinkage cracks are attributed to thermal expansion and contraction and to the unusual design and geometry of the walls.



Figure 1. The Solomon R. Guggenheim Museum during coating removal.
Photo: Amanda Thomas Trienens.



Figure 2. Sample preparation being conducted in the laboratory.
Photo: Amanda Thomas Trienens.

The primary structural elements of the rotunda (called the "Main Gallery" by Wright) are the web walls. These are massive vertical cast-in-place concrete ribs positioned in a circle every 30 degrees. They rise from the ground to the roof, angling inward to form the beams of a large skylight. They are connected to a spiraling cast-in-place concrete ramp on which the visitor walks.

Remarkably, most of the rotunda walls are only 125 mm in thickness yet embed vertical and horizontal steel reinforcement, 35 mm steel tees at every ten degrees, and two layers of galvanized steel mesh. Thus steel is no more than 38 mm from both the exterior and interior gunite surfaces. No expansion joints were constructed within the entire circumference (approximately 115 m) of the gunite exterior. The gunite walls are connected to cast-in-place lightweight aggregate concrete slabs which cantilever from the ramp.

The sixth floor varies significantly in its construction. Its exterior wall height is 4.8 m. This results in a parapet which rises above the flat roof from 0.3 m to 2.5 m in height, creating, at the north-east, a tall parapet without lateral support. Because of the height of the sixth floor, it was constructed with 50 mm steel tees, which required the horizontal rebar be discontinuous.

In 1998, the sixth floor gunite walls were "repaired" at the web wall locations and at some ten-degree steel tees. Joints, each 25 mm in width, were saw-cut at the tees (which also meant that the outer steel mesh was cut). They were filled with caulk and an acrylic topping, and painted; these products were from several different manufacturers. Some areas along these joints were also patched during this campaign. These interventions had all grossly failed within just a few years.

PRELIMINARY PRODUCT SELECTION

The intent of the repair solutions was to stay within one product manufacturer's system for compatibility of materials (crack fillers, patching compounds, and coatings). Working with a single manufacturer would also allow for better quality control once implementation commenced. Furthermore, this approach would provide the museum with a stronger warranty.

The crack fillers were chosen assuming that a certain amount of seasonal movement would continue in the gunite walls as measured during the monitoring programme. The criteria for the crack fillers were elongation capabilities consistent with crack width data, a good return of its shape (to avoid permanent deformation) and low shrinkage. Another consideration was suitability for a variety of crack sizes.

The criteria for patching were that the material have good adhesion to the gunite, be similar in compressive strength and coefficient of thermal expansion, have low shrinkage, and good freeze-thaw resistance. A slow setting patching compound was desirable, as some sculpting was necessary to recreate the formwork marks once the material was applied to the building.

The coating selection was based on evidence of a certain level of success in some aspects of the original Cocoon. It is believed that the Cocoon greatly contributed to the low depth of carbonation of the almost 50-year-old gunite walls due in part to its thickness (see results of petrographic analysis below). The Cocoon also exhibited excellent adhesion to the very smooth surfaces. Color stability, crack bridging capabilities, and adhesion to both the crack filler and patching compound were important considerations for the new coating.

It was also critical to test a compositional range of commercially available repair products. For the crack fillers, acrylic- and silicone-based and cementitious products were chosen. For the coating, an inorganic and several acrylic-based (including one silicone modified acrylic) materials were included. For patching all were polymer-modified cementitious compounds. In each category there was one product which included short fibers.

A number of manufacturers were invited to discuss their products in early 2006. Among the subjects discussed were building conditions, proposed performance criteria for repair products and a

description of the testing programme. Six manufacturers and their representatives were ultimately asked to recommend a single product in each of the three categories, to be evaluated through the testing programme. Participation was limited to companies producing all three of the required products (crack fillers, patching compounds, and coatings).

TEST PANEL PREPARATION

It was initially believed that the repair products should be tested with the original gunite. However, the tremendous number of test panels necessary for laboratory research precluded using the historic fabric. Instead, a material had to be developed that was identical to the original. To establish that replication formula, petrography, wet analysis, and reflected light microscopy were employed.

Petrographic analysis of six original gunite samples was conducted by a sub-consultant. According to their analysis, the gunite is generally of "high quality and low porosity."⁴ Depth of carbonation from the exterior side of the wall ranges between 1.8 mm to 3 mm. The paste was found to be a non-air-entrained ordinary portland cement with a "tight bond" to the aggregate. The water-cement ratio was roughly estimated to be 0.3 to 0.4 in all six cores.

Using both petrographic and gravimetric/granulometric analyses (done by the authors), numerous replication mixes were developed. After partial curing, these were viewed (in broken cross-section) under a stereo-binocular microscope in comparison to the original gunite for visual characterization of the relationship between paste and aggregate. The final formulation by weight was 1 part Type I portland cement and 1¾ part #181 Schofield sand passing through a 2.36 mm standard sieve screen, with a 0.385 water-cement ratio.

The size of the test panels was largely determined by the geometry of the accelerated weathering apparatus, allowing the maximum number of panels (48) to be tested at the same time. Molds for the test panels were made of plywood, 125 mm x 73 mm x 19 mm in size. Cracks were simulated with grooves that were created using strips, square in cross-section (0.8 mm, 1.6 mm, 3.2 mm, and 6.4 mm in size), and placed longitudinally. Other test panels required the creation of areas of "loss" to accommodate patching compounds. This was done by cutting off 25 mm from one end and coring a 25 mm diameter hole through the center of remaining panel. More than 100 panels were produced, each cured in a high relative humidity environment for 28 days.

Application of the products to the cured test panels generally followed manufacturer's recommendations (see Figure 2). (If modifications were made, product representatives were consulted first for their approval.) It was possible to note some difficulties during application, which were considered in the final assessment of the products. For example, shrinkage occurred in a few of both the crack fillers and patching compounds.

TESTING PROGRAMME

The testing programme was designed to be aggressive in an attempt to induce thermal- and moisture-related failure in a relatively short period of time. The test panels did not incorporate any reinforcing mesh or rebar and thus corrosion could not be simulated. The smooth surfaces of the panels' fabricated cracks (as described above) posed a challenging environment for the fillers in terms of adhesion. Most cracks in the building are were roughly textured and/or jagged and are expected to enable a better bond with the crack filler. There were two sequential rounds of QUV and freeze-thaw testing. The first included a crack filler and a coating from six companies. Three companies' products made it into the second round to be tested in conjunction with one of their patching compounds.

Accelerated Weathering by QUV-Spray

In the QUV-Spray⁵ accelerated weathering apparatus, test panels were exposed to conditions of ultraviolet (UV) light, condensation (and associated heat), and cool water spray (see Figure 3). Comparative evaluation of the nature and severity of failure patterns was done visually (including photographic recording) and with two tests that are discussed further below. The programme was designed to expose the test panels to as much thermal change (and shock) as the apparatus allowed:

- 3.55 hrs Condensation (deionized water) with 50°C associated heat
- 4.00 hrs Ultraviolet light with 60°C heat, at 0.77 irradiance level
- 0.05 hrs Water spray with deionized water (28°C in testing chamber at end of cycle)
- 4.00 hrs Ultraviolet light with 60°C heat, at 0.77 irradiance level

The programme for the first round of 48 panels ran for 1500 hours with observations made on each panel at the 500-hour, 1000-hour and 1500-hour mark. This same programme was used for the second round of nine panels.

Accelerated Weathering by Freeze-Thaw

The freeze-thaw test was a modification of Procedure B of ASTM C666, "Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing". The cycle for the freeze-thaw test was 16 hours thawing in 22°C water followed by 8 hours of freezing in -22°C air. Changes in test panel appearance, if any, were noted after each cycle and were photographed approximately every sixth cycle. The test was run for 30 cycles for both rounds (48 panels in the first and nine in the second).

Water Vapor Transmission Rate

Water vapor transmission rate (WVTR) testing was conducted on 18 coated original gunite samples and three controls consisting of uncoated original gunite. The WVTR testing method used in this study is a modification of the "water method" of ASTM E96, "Standard test Methods for Water Vapor Transmission of Materials", in which a specimen is sealed into the open mouth of a vial containing deionized water. This assembly is placed in a controlled environment chamber in



Figure 3. QUV-Spray weathering machine with mounted samples.
Photo: Amanda Thomas Trienens.



Figure 4. In situ mock up of repair materials being conducted.
Photo: Amanda Thomas Trienens, copyright: Solomon R. Guggenheim Museum.

which the temperature and relative humidity are maintained between 70°F and 90°F $\pm$ 1°F and 25% $\pm$ 2%, respectively. Water vapor transmitted through the specimen is determined by measurement of weight loss over successive 24-hour periods.

TESTING PROGRAMME FINDINGS

Accelerated Weathering by QUV-Spray

One manufacturer's products performed very poorly in the first round of the QUV test. This was a combination of a fibrous crack filler and an inorganic coating. The coating in the area over the filler split in every panel of this type that was tested. Two of the acrylic coatings exhibited blistering and others became pitted. Two product systems performed reasonably well. All three patching compounds performed well in the second round.

Accelerated Weathering by Freeze-Thaw

In this test, the fibrous crack filler leached from beneath its coating. Another manufacturer's coating exhibited extreme wrinkling in all panels subjected to freeze-thaw testing. Two of the product systems had mid-range performance with some blistering and swelling of the coating over their crack fillers. Another two performed well, showing no effect. All three patching compounds performed well in the second round.

Water Vapor Transmission Rate

All coatings exhibited some permeability in the water vapor transmission test. The least breathable coating had an approximate 60% decrease (0.79 g/m²/h) in permeability versus the most breathable having a 9% decrease (1.28 g/m²/h) from the uncoated original gunite. Lower permeability in this test would relate to less exposure of the gunite on the building to carbon dioxide and water vapor in the future.

The research programme also included testing to record changes in coating adhesion and color, pre- and post- accelerated weathering.

Adhesion Testing

The adhesion test was conducted according to Method A in ASTM D3359, "Standard Test Methods for Measuring Adhesion by Tape Test". This test was used to establish the adhesion of the coatings to the test panel substrate before and after the first round of QUV accelerated weathering, according to a standard visual grading system. Most coatings prior to any weathering performed well in adhesion (a grade of 5) with a slightly lower performance rating (of 4) for one product only. After QUV weathering, two products decreased in adhesion performance (from 5 to 4), but the remaining four products performed as well as the pre-weathering test panels.

Spectrophotometry

In order to provide an objective method of monitoring color change of the coatings as a result of laboratory weathering, a reflectance spectrophotometer⁶ was used to record the spectral components, expressed as the CIE L*a*b* color designation. The L* represents the luminance of a color on a scale from black to white. The a* value is the position on a scale between red and green, and the b* value the position between yellow and blue. All of the coatings changed in all spectral components to some degree after QUV weathering; however, only one product changed significantly (by lightening). This coating also decreased in tape adhesion, had mediocre performance in both accelerated weathering tests, and was evaluated in conjunction with a crack filler that was very difficult to apply.

IN SITU MOCK UPS OF REPAIR MATERIALS

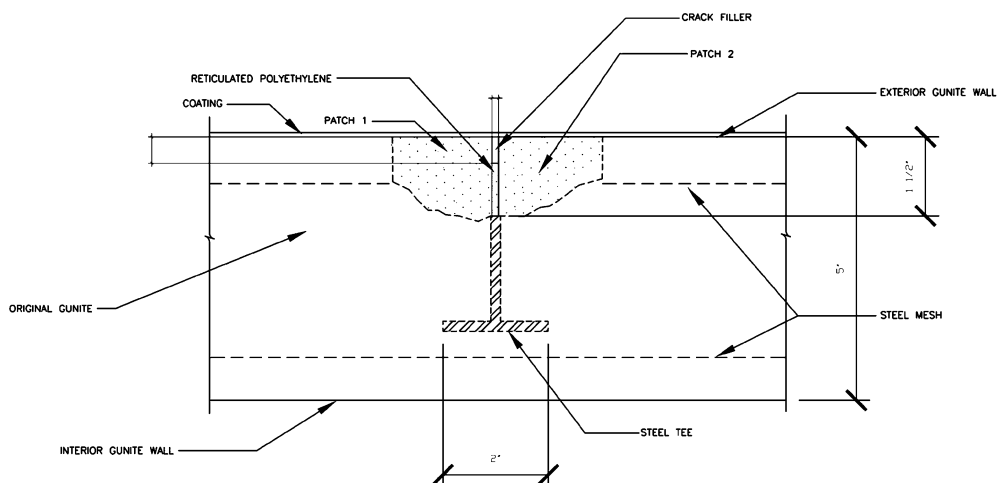
Laboratory testing, in conjunction with some observations concerning the difficulty of product application, resulted in the elimination of three product systems. *In situ* mock ups were designed and implemented to evaluate the constructability and performance of the other three repair systems on the building (see Figure 4). Selection of the mock-up locations ensured that the three systems were installed in similar conditions. As the 6th floor ramp of the rotunda exhibited the most severe conditions, it was chosen for two mock-ups for each repair system: at a web wall and a ten-degree steel tee. A third location incorporated hairline shrinkage cracks in gunite not on the rotunda.

The first set of mock ups eliminated one of the three repair systems that had done well in the laboratory. The manufacturer's crack filler was cementitious and apparently could not accommodate the building's movement. It cracked and separated from the gunite in the 6th floor mock ups in less than two months.

Two repair systems remained, which were comprised of acrylic crack fillers and coatings and polymer-modified patching compounds. They went through a second set of mock ups (at a 6th floor web wall and a ten-degree steel tee). A new design was developed for the web wall locations, which had to allow for greater movement than was initially supposed due to updated crack monitoring data. It also had to be visually unobtrusive and be feasible for large-scale implementation.

Prior to the second set of mock ups, the 1998 patching at the saw-cut joints was removed. A 3.2 mm-wide piece of steel was temporarily placed over the now exposed tee to create a separation within the repair. The patching was done on either side of the spacer. While green, the patches were carefully sculpted to replicate the formwork marks of the adjacent gunite. The spacer was then removed. Once the patch had cured, hand-held diamond grit cup grinders and sanding pads were used for areas that were determined by raking light to need additional shaping. Reticulated polyethylene strips were then inserted into the space to within 13 mm of the exterior surface and covered with a crack filler. The entire mock up area was coated (see diagram below).

PLAN OF 6TH FLOOR WEB WALL MOCK UP



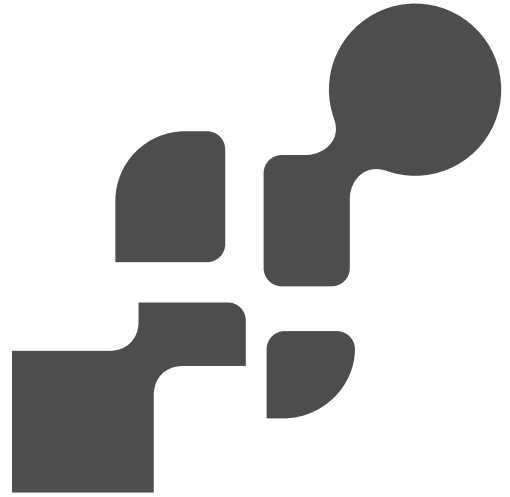
After the second set of mock ups, laboratory testing, and a nine-month review of the first set of mock ups, Mapei International's repair system was selected for full-scale implementation. Its patching compound exhibited the least shrinkage. Its crack filler and coating showed the greatest capacity to move without failure and these field observations were confirmed by measurements of elongation by an independent testing laboratory.

Almost at the completion of the design phase, even larger crack movements were discovered through the ongoing monitoring programme, necessitating the use of additional products. Mapei's technical staff provided existing test data on proposed materials and collaborated with the authors on supplemental laboratory testing and mock ups.

Implementation of the repairs (and application of the new coating) began in 2007. It is anticipated that this work, along with structural modifications and thermal/moisture upgrades, will be completed in the summer of 2008. At the time of writing of this paper, the interventions already undertaken have been done successfully—visually blending with (and protecting) Wright's original gunite while preserving the formwork marks that are an unusual characteristic of this iconic masterpiece.

NOTES

- 1 Research was undertaken by Integrated Conservation Resources, Inc. of New York, New York, starting in 2005.
- 2 Letter from Frank Lloyd Wright to George Cohen dated October 2, 1958.
- 3 Letter from George Cohen to Frank Lloyd Wright October 6, 1958; "These forms, like any other forms, must show form marks. That is the nature of concrete."
- 4 Report by CTL Group dated February 3, 2006.
- 5 QUV-Spray by Q-Lab Corporation
- 6 Gretag MacBeth Color Eye 580 Reflectance Spectrophotometer



Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

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Historical Research, Architectural Design and the Conservation of Modern Paulista School Buildings

THE CASE OF THE GYMNASIUM OF ITAHAÉM

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The collection of public school buildings produced by the Instituto de Previdência do Estado de São Paulo (IPESP) –with the participation of modern Paulista architects— is considered a significant chapter of Brazilian Modern architecture. In a pioneer experience held by the State government between 1959 and 1962, many of these architects, somehow imbued with “democratic” ideals spread after World War II, especially by American society as an example, would increasingly transfer the experience of Modern architecture they had developed throughout the years to public buildings, while others, such as the communists João Batista Vilanova Artigas and the young Paulo Mendes da Rocha, would employ this opportunity to carry out designs for greater social range programs to develop a specific kind of Brutalist architecture.

Artigas’ essay “Sobre Escolas” (“On Schools”, 1970) reflects on a series of later works, some of them very recent. In common, they share the fact that none of them cross the limits of Artigas’ architectural proposals, even when their collected documentation points to broader horizons (Ferreira, Mello, 2006)¹. The effects on the conservation of modern Paulista school architecture are evident: the only two examples produced by IPESP that have been worthy of special conservation projects were designed by this important architect.

Criticizing modern architecture in the early 1950s, and disapproving of socialist realism, Artigas sought an architecture to represent the Brazilian revolutionary project. The Gymnasium of Itanhaém (1959) summarizes the results of his research. In this building, a new school project, based on the integral formation of the child and the collective dimension of social existence and production of knowledge, is materialized through an innovative space. A single, wide-ribbed, reinforced concrete slab houses all activities performed in the school in a non-hierarchical way. The large voids at both ends of the building and along the covered recreation area emphasize the desired relationship with the city. Instead of removing any barriers that could stand before users, Artigas reflects on the existing limits, transforming them into privileged locations for interaction. The long reinforced concrete benches strategically located in all of Artigas’ schools are exemplary in this regard.

Soon after the inauguration of the building structural deformation occurred, resulting from the pressing down of one pillar, and defects in the impermeable layer of the roof damaged the ceiling. Its demolition radically changed the interior spaces.

Legal disputes that arose from these defects persisted until at least 1969. The building has been modified throughout the years: the canteen was closed and transformed into a kitchen; new, precarious classrooms were built in the recreation area; a room was built on the front façade in front of the artistic panel by Francisco Brennand; both front and rear façades, as well as the whole building and the garden, were completely enclosed.

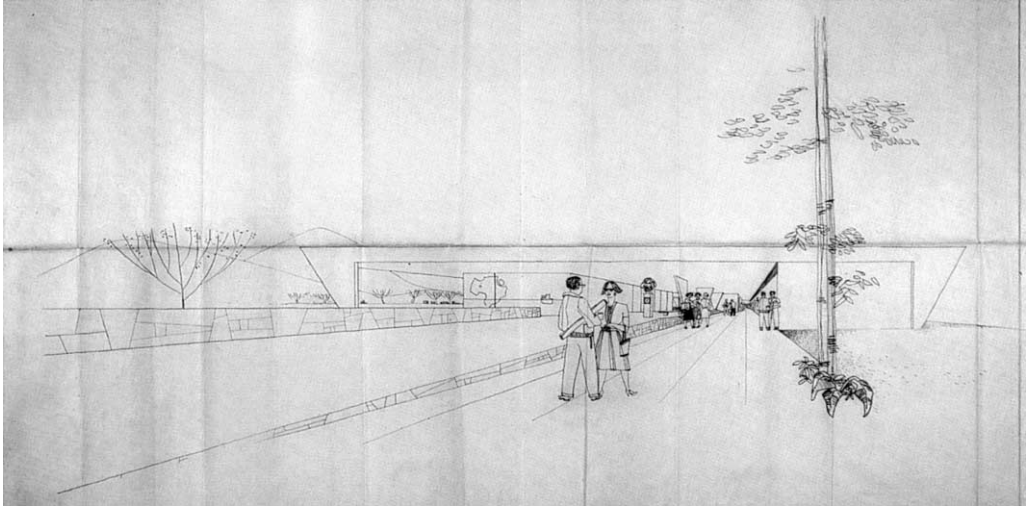


Figure 1. Perspective plate of Artigas' original design (1959).
Ferreira, Correa, Mello, 1998.

Inside the classrooms, in a recent intervention, the combination of wood frames supporting fixed glass panels and perforated brick walls allowing permanent ventilation was replaced with aluminum-structured window panes and concrete blocks –the last ones specified in the original designs. This intervention complied with Artigas' original design, adding moving parts that made it possible to control ventilation through the concrete blocks, however, it is unnecessary, since the glass panels are not fixed anymore. The metallic roofing now minimizes the usage of impermeable materials.

The contradictory relationship between change and continuity suggested by such technological options becomes dramatic in the interaction between indoor and outdoor spaces. Fences and gates of "Modern" design still enclose the building; again, new rooms occupy the recreation area, reducing it and eliminating its originally unrestricted connection with outdoor spaces².

With regard to "How to conserve?", Artigas' buildings, marked by concrete perspectives of transformations towards social justice and equality, impose complex challenges: how to establish relationships of continuity and/or change when the building doesn't aim to mediate adopted usages, but is considered an instrument to stimulate new kinds of social relationships that, in turn, don't happen? On one hand, would it be correct to "freeze" the building, to reproduce Artigas' revolutionary attitude fifty years later, in a moment when such perspectives of social change—i.e. socialist revolution—are totally anachronistic? Acting in this way, wouldn't one betray the architect's procedure, based in an objective reflection on his social reality? On the other hand, how to change the building? Since the originally designed space contained an intent of social transformation, would it be correct to adapt it to current usages or needs, to reproduce such social relationships?

Combining historical research, surveys on documentation and built heritage, analysis of original designs and recent interventions, this paper aims to briefly present the Gymnasium of Itanhaém as a privileged locus for the discussion of issues related to the conservation of Modern architecture, particularly those related to the challenge of change.

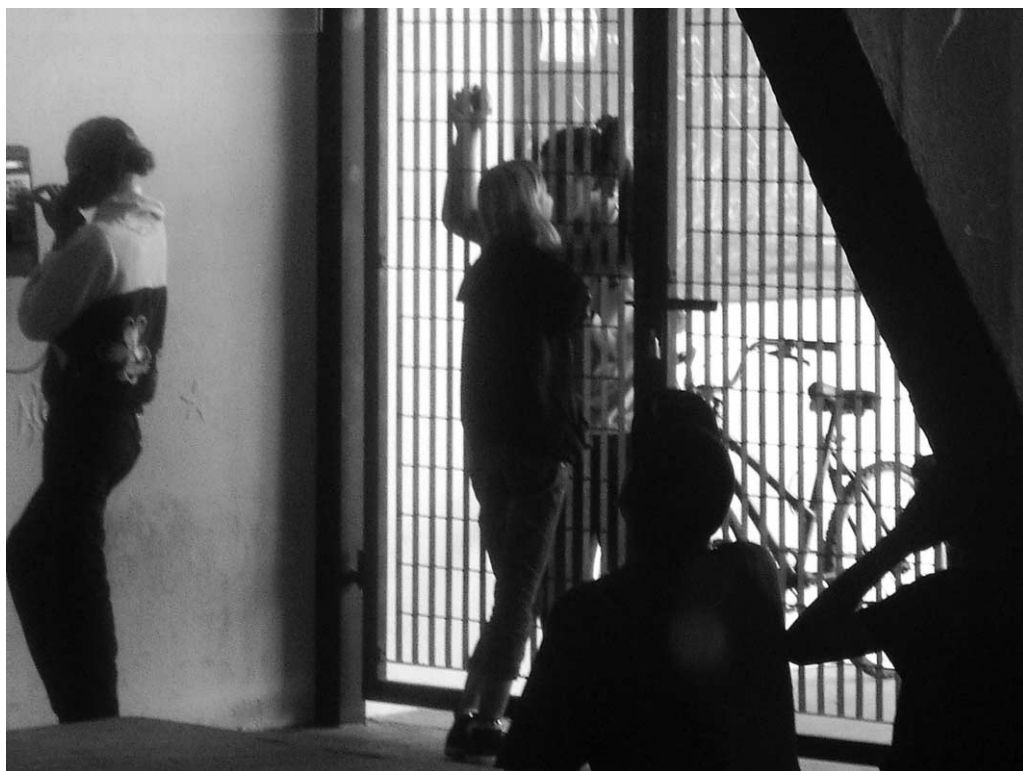


Figure 2. Fences in the front façade (2008).
Authors' archive.

NOTES

- 1 In reality, this historiographical debate is related to a broader one, concerning Modern Brazilian architecture.
- 2 Proposal –not built– by Alvaro Puntoni and Julio Artigas (1998) recovered the original spaces through the construction of a carefully designed annex.

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Preserving the Body in Greek Modern Architecture

THE SANATORIUM “SOTIRIA” IN ATHENS

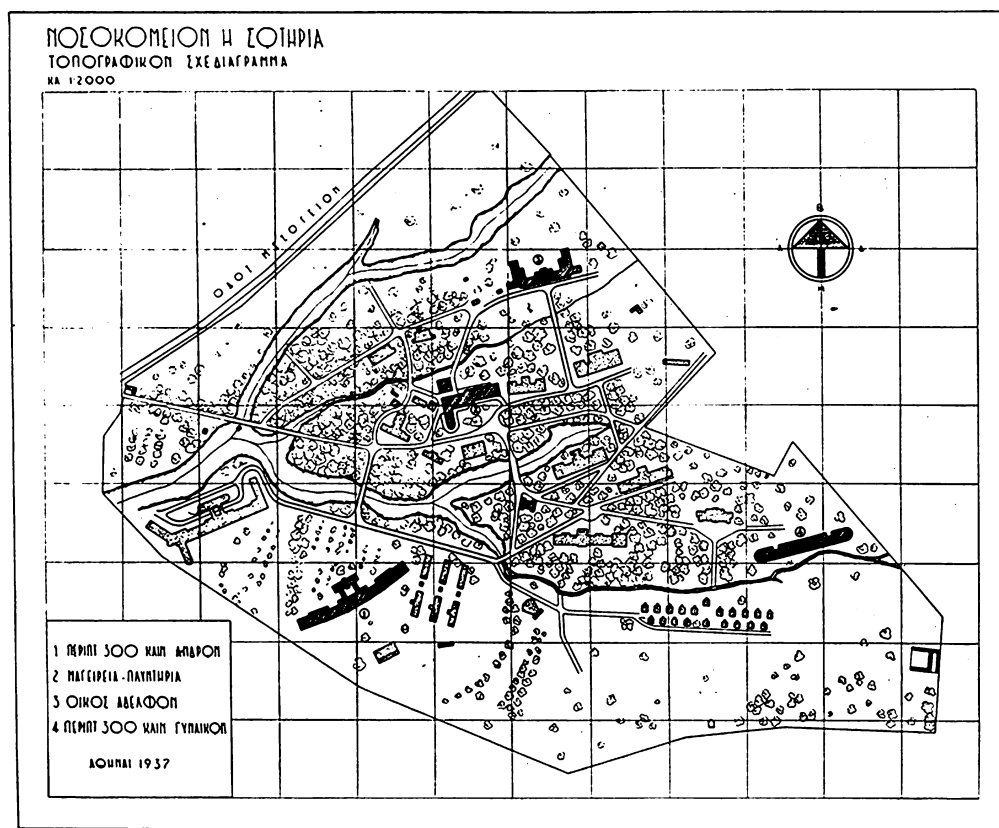
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The sanatorium “Sotiria” (meaning “salvation”) in Athens, Greece, was built within the framework of a wider vision of the Greek State for the modernization of the Greek Social Welfare, wishing to follow the European paradigms in order to create a new, modern “European” nation. Within a period of one hundred years, starting in 1905 as a singular building in the outskirts of Athens, “Sotiria” has been transformed into a large medical building compound integrated in the city’s web. In the course of its history, “Sotiria” has been constantly ephemeral—in built structure and internal functions.

The sanatorium has been in use for an extended period, and this allows [one] to document the architectural responses to the medical evolution in the treatment of consumption and, consequently, to a wider approach towards the body, as in the still-standing buildings it is possible to view the structural and functional development from an asylum for consumptives to a high-technology health machine, and lastly, to its depreciation as a sanatorium in 1961 and its conversion into a general hospital.

Based on a social agenda and on functionality at the level of spatial organization and form, and supported by the exploration and exploitation of new materials and technologies, Modern architecture was chosen in the interwar period to play an active role in the hygienic way of life as a kind of medical agent; built form and therapeutic mission were combined in the programming of the sanatorium. Particularly expanded in the decades of the 1930s-1950s, the compound of “Sotiria” still hosts different versions of Greek Modern architecture.

With the discovery of X-rays and the advent of bacteriology, the buildings served a double cause: to treat, and to classify and control the patients. Indeed, the building programme was based on the strictly structured division of the different methods of treatment during the day: aerotherapy, heliotherapy, overfeeding and rest; forming a well-organized system of allocation, categorization and function, and inserting the element of order and efficiency in all levels of bodily function. At the same time, “Sotiria” comprised a fully equipped, independently running and socially equally-represented community, that while it was to be understood as an “immune space” that allowed for the dissociation of the disease-producing and mentally straining surrounding of the spoiled city, it paradoxically hosted its most “contaminated” elements. In fact, the isolation of a large number of patients in the space of the sanatorium complex constituted a significant environment of study for the treatment of the disease with the application of new methods of treatment and the facilitation of statistics in the medical field of consumption.¹ This sanitary microcosm did not only respond to the existing needs of life, but contributed to revolution and change, playing an active role in the political history of mid-war Greece, and becoming the place of production of significant works of literature and poetry.



Σχέδιον αρχιτ. Ι. Ἀντωνιάδη

Figure 1. Topographical drawing of the 'Sotiria' sanatorium complex during the interwar period.

Source: Kitsikis, K.; Antoniadou, I., 1940, "The new buildings of 'Sotiria'", *Technika Chronika*, 1 March, vol. 17, 197, 179.

On the other hand, "Sotiria" is viewed as an architectural laboratory, constituting the place for an experiment aiming to create the optimum building in relation to health and hygiene. The hygiene promoted by the anti-tuberculosis campaign gained a critical role in the definition of Modern architecture on multiple levels: ideologically, in supporting the social engine; metaphorically, in the attempt for a brighter future utopia; literally, in approaching this utopia by designing spaces and equipment with emphasis on light, ventilation, cleanliness, and aesthetics with the absolute purity of material and construction that corresponds to the appearance and behaviour of the sanitized body and of the health environment that the treatment of tuberculosis instructed.² Indeed, the particularity of tuberculosis due to the length of the recovery, its "social" implications and the special characteristics of its treatment demanded solutions that constituted the intersection of public health politics and built environment politics. On the level of health, these solutions were transformed into a way of life, due to medicine's capacity to deploy particular structures of knowledge through various devices or techno-spatial apparatuses, and the capacity of a disease like tuberculosis to control and correct individual behaviour and social structure in order to reformulate ideals and behaviours.³

In this example, the Modern public building is viewed as the transitional space of development for theoretical and experimental social, political and architectural processes for the Greek society, possibly acting as a utopian prototype of society and as the basis for a policy of architectural



Figure 2. The 'kitchen and laundry' building serving the sanatorium complex, built in 1939.

Source: photographic archive of Manthos Metallinos, medical doctor and head director at 'Sotiria' during the interwar period.

design in Greece. The function of the institution can be divided into four periods that correspond to four milestones in its living course: 1905-1919; 1919-1936; 1936-1961; 1961-2008. During the two last ones, the earlier Modern buildings were evaluated, transformed and expanded with later Modern buildings, and both, the original buildings and the added ones, were subsequently preserved or renovated to host the recent functions and equipment. The site of the medical building compound was designed in such a way that it has constantly been accommodating further additions and alterations within the existing buildings to host the contemporary needs of the hospital. Nowadays, the fact that some of the most valuable samples of Greek Modern architecture on the grounds of 'Sotiria' are threatened by demolition implies a call for urgent solutions for consolidation or conservation. In retrospect, this comprises a re-evaluation of the principles of Modern architecture in the sector of health.

NOTES

- 1 Metallinos, M., 1940, "The periodical of the sanatorium 'Sotiria'", *Sotiria*, 1, (1-2), iv.
- 2 Christie, I., 2006, *Modernism: Designing a New World*, Victoria and Albert Museum, London.
- 3 Rose, N., 1994, "Medicine, history and the present" in Jones, C. and Porter, R. (eds), 1994, *Reassessing Foucault: Power, Medicine and the Body*, Routledge, New York.

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Change and Permanence in Greek Modernity

THE CASE OF TAKIS ZENETOS

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The work of Takis Zenetos, pioneer Greek architect (1926-1977), poses a dilemma characteristic of the current state of Modern architecture.

On the one hand, his exceptional designs attract the growing attention of architects in Greece and abroad.¹ Since many of his buildings have already been dramatically altered or destroyed, those that remain are considered as “monuments” of Modern architecture.

On the other hand, Zenetos’ own conception of architecture, based on the ideas of flexibility and change, was very much against such ossification, thus adopting the “anti-monumental” stance of the Futurists, typical of Modernist ideology.

The real life of his buildings is paradigmatic of this dilemma, reaching occasionally an impasse that cannot be resolved, or, if resolved, is done so in the crudest possible manner. His buildings have suffered badly over the years, almost in reverse proportion to their worth.²

Zenetos was always concerned about the problem of how to break the cube-box, in ways that are functional and not merely formalist. He believed that the satisfaction of functional needs may arise from elements of different functions, such as the scaffolding which may be even more beautiful than the building itself. Thus the façade, instead of being a two-dimensional flat surface, could become three-dimensional and variable.³

One of Zenetos’ most impressive buildings, for its daring conception that exemplifies this approach, still stands today, albeit almost deserted, opposite the National Park of Athens. The 1959 “Amalias” apartment block was, when built, the nearest possible equivalent of a “high-tech” De Stijl building, made entirely of glass panels, which are derelict today. “Amalias” was not so much a “building form”, but a “building system” for living, its façades addressed to protection from the sun.

Zenetos’ “Amalias” apartment block is a witness of his passionate attempt to break away from the box, a construction of superimposed panels seemingly extending beyond their limits, because of their transparency and layering. The “cube” is still there but as an underlying ordering grid of the interchangeable sliding panels, which continuously transformed the building’s façade, for shading purposes. Behind the panels, the balcony spaces are unified with the interior spaces into a continuous semi-open/semi-enclosed spatial amalgam of varying lighting qualities.

This was the most advanced, conceptually and technologically, apartment block of its time, but Zenetos’ preoccupation with transformable buildings can be dated even earlier, in his masterful “Fix” brewery plant of 1957: a building that exemplifies movement, like the trajectory of Syngrou Avenue, the beginning of which it marks. A maximally linear building, identified with this major axis connecting Athens to the sea, “Fix” is, in principle, a building infinitely extendable, but now has unfortunately been cut and frozen in time. What is of interest is that since its completion the



Figure 1. "Amalias" apartment block, Athens, 1959, Takis Zenetos architect.
Photo courtesy 'Architecture in Greece'.



Figure 2. "Fix" brewery plant, Athens, 1957-63, Takis Zenetos architect.
Photo taken in 1984, courtesy Elias Constantopoulos.

building has undergone major changes, on the one hand against the architect's own intention of changeability, but also in reverse ratio to its hailed status as a Modern "monument"!

The first change that betrays and contravenes its linearity is the severing of its upper end towards the city, in order to make space for the new subway entrance. This intervention has not taken into account the form and scale of the existing building, and has added a low incongruous structure (housing entrance booth, ticket counter and escalators to the new parking station) oblivious to its neighbour. As a result the linearity of the building has been cut literally short and its end remains as an "amputated" member facing the exit from the city of Athens.

Another major change currently underway, functional as well as exterior, is due to the transformation of the building into the first museum of contemporary art in Athens. The new facilities will develop around an indoor piazza with an entirely new façade on what used to be the back elevation of the brewery, while the two main elevations by Zenetos will be retained in their original form. This development, though it may seem like the "natural", expected one, should be examined in light of the original design, which anticipated future change.

The architect's stated aim was flexibility of the skin enclosure –ability to change the windows for any future use– be it commercial, cultural or office space. The wall surfaces that will be retained were conceived by Zenetos as changeable elevations that could adapt themselves and respond to such changes by allowing for varying alternative combinations of window openings. One can

imagine that Zenetos himself would have rejoiced at the prospect of such a wild change (from brewery to museum) and would have done his utmost to prove that the flexibility he had planned for in the event of change was indeed possible and applicable. However, as the act of the unnecessary “amputation” already raised an international furore among architects,⁴ any change of these elevations would have stirred passions to their zenith. Thus the architects (3SK) responsible for the new museum have decided to retain what has become one of the most recognizable images of post-war Greek architecture. They have proposed the conservation of these elevations, as a city landmark, and icons of a disappearing Athenian Modernism.

The question, however, that still lurks at large, is whether this is to be the fate of Modern architecture in our cities –either demolishing or retaining façades as empty shells to be filled with new uses. This dilemma appears in its most extreme form in this case, as Zenetos’ own intention for change is contrasted by the “patina” which buildings acquire over time, thus increasing their cultural worth and symbolic value. One can only suggest that more long-sighted approaches would probably have addressed the problem of responding to an “old” – “new” building more sensitively, rather than piecemeal, and might have avoided its “amputation” and turning into an “empty shell”. Still, it is often the case that the strategic choices which are made on these matters are mostly cost-benefit based and not always best informed as to the real merits of the built environment.

As these examples of Zenetos’ architecture demonstrate to us, Modern architecture currently lives in a state of tension, asking whether the DNA of change built into its body can survive its form or vice versa. It is certainly not a question for one architect, one critic or one historian to answer and to solve, but of societies themselves to decide what is of importance to them.

NOTES

- 1 Recent major Greek exhibitions abroad since 1999 (Frankfurt, Rotterdam, etc.) as well as publications (monograph by Kalafati, E. and Papalexopoulos, D., 2006, Takis Ch. Zenetos, *Digital Visions and Architecture*, Libro, Athens) show the renewed interest on this most avant-garde of Greek architects.
- 2 Already since the 1980s many of his buildings (and especially his houses) were undergoing severe changes due to either sheer neglect, or to changing needs of the owners. See Constantopoulos, E., 1986, “Four single family houses of Takis Zenetos: 25 (post) modern years”, *Synchrone Themata* 27 (April-June), 74-75.
- 3 Doumanis, O., 1978, Takis Ch. Zenetos 1926-1977, *Architecture in Greece Press*, Athens, 7.
- 4 The proposed demolition of the Fix brewery aroused great interest on the part of many prominent architects from abroad, such as A.G.Hempel, M.-R.Norri, K.Frampton, P.von Meiss, A.Sartoris, R.Abraham, A.Graafland, K.Park, M.Müller M.Speaks, K.Wilhem, B.Colomina, M.Wigley, G.Simeoforidis, J.de Haan, R.Koolhaas. S.Bakker, A.Vovk, M.Gausa, etc. See: “The international opinion regarding the Fix building”, in 1995, *Architects - Journal of the association of Greek Architects* 1 (Season A, March/April/May), 47-49.

Paradoxes in the Rebuilding of Casto Fernández-Shaw's Porto Pí Petroleum Station

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The Porto Pí Petroleum Station, designed by the peculiar vanguardist architect Casto Fernández-Shaw and constructed in Madrid within two months in 1927, is acknowledged as the first entirely Modernist building conceived in Spain. The architect himself—one of the most idiosyncratic and visionary inventors of the Spanish milieu—stated in the magazine *Arquitectura* (August, 1927) that his gasoline station “has no style at all; the silhouette has arisen from the elements integrating the construction”. But despite this kind of naive functionalism, the building did have a powerful stylistic image, with his conspicuous flying double-canopy and his astonishing and surrealistic maritime tower containing an elevated loudspeaker (a partially hidden brick booth with space for office and storage, almost imperceptible at first glance, was located in the rear). In fact, this celebrated machinistic composition has often since been referred to with contradictory terms like “futurist”, “rationalist”, “expressionist”, “constructivist” or “structuralist”.

In addition to the imagery of transportation (airplanes, ships and cars), the building had a strong and deliberate “reinforced concrete image”, and showed an unusual artistic commitment with the plain, auxiliary type of the gas station, making his slanting location between two ways and the gas pumps part of the general aesthetics.

The fiftieth birthday of the building was intended to be the moment for Fernández-Shaw's inclusion in a new architectural catalogue developed by the municipal authorities, but its scandalous, quick (and completely legal) demolition in March, 1977 surprised everybody. Journalists, artists, technicians and even Casto Fernández-Shaw demanded a faithful reconstruction; meanwhile, for years, the place was still occupied by the same gas pumps giving regular service without the architectonic background, offering one of the saddest images of the characteristic urban cannibalism of the so-called “desarrollismo” (“development policy”).

It took almost thirty years to get an arrangement with the owners of the plot and gas station, but Fernández-Shaw's original design was rebuilt in 1996. In return for this resurrection, the owners of the plot obtained the privilege to increase the height of a projected hotel beyond the legal zoning limits. The unexpected reconstruction of this architectural icon finally took place amongst the indifference of the people and intellectuals, in contrast to the situation and reactions in 1977. In fact, some criticism arose about the legitimacy and the loyalty of the old-new landmark, even when the current use of the building was exactly the [same as the] original one (yet a gasoline station in Madrid does not at all have the same meaning nowadays). On the other hand, the whole operation is in touch with the redefinition of the principles of “restauró” in Europe and with other important reconstructions as, in Spain itself, those of the Barcelona Pavilion of Mies van der Rohe and the Sert-Lacasa Republican Pavilion for the Paris exhibition of 1937, also rebuilt in Barcelona.

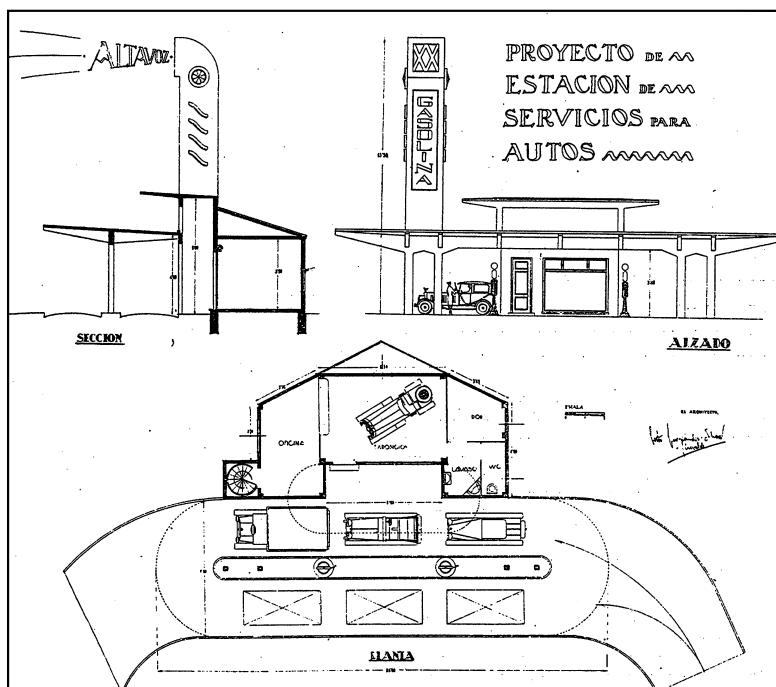


Figure 1. File 44-82-10 Bis in the Archivo de Villa in Madrid (original plan and elevations, measures, etc.).
Image taken from the article "Estación para el servicio de automóviles", in *Arquitectura*, nº 100, august, 1927.

All of the original features were faithfully reproduced with the help of a number of photographs and the original plans by Casto Fernández-Shaw, preserved in the Archivo de Villa de Madrid. The plans, as well as the precisions contained in the aforementioned 1927 article in *Arquitectura*, included the exact measurements and distances of all the component elements of the station. In addition, the historic article by Fernández-Shaw pointed out all the construction procedures and materials and explained their function.

Actually, in a way, some changes can be noted in the image of the reconstructed building. The current background, indeed, is discouraging: a massive, red brick postmodern hotel practically squashes the little, thin, white service station. The sense of the traffic is equally wrong: in 1927, the main access was by the boulevard (Alberto Aguilera) and you entered under the canopy after a beautiful glimpse of the flying structure, from which, in the rear, the lighthouse-like tower was hanging over the foreshortened perspective; today, you must enter from the left side, and you simply cannot perceive anything but the gas pumps and the car lane.

The nature of the original colour and texture is another topic of discussion between the architects that actually remember the former gas station. According to Fernández-Shaw's declaration, the concrete structure was totally naked, except for a last, finishing, "sprinkled" layer of cement and "marble sand". Whatever the real meaning of this indication, the reconstructed gas station is plainly painted in white. As it can be seen in the invaluable (and spontaneous) photographic report taken by architect Manuel García Tages during the sudden demolition work, the steel mesh in the concrete structure of the original gas station was especially dense and thin, and the final material texture seemed, in a way, "handmade". The almost imperceptible and maybe involuntary effect obtained because of the state of technology of the day cannot be completely recovered.



Figure 2. The reconstructed building in 2008.
Photo: David Rivera Gámez.

As in the original construction, the final iconographic image of the reconstructed building is leaning mostly in the few Art Déco details that can be recognized in some of the original photographs: the hanging blue sign of the company (Gesa), with its distinctive typography, the quadrangular and conic glass windows designed for the nautical apertures and the four “machinistic” (Cassandre-style) mouldings on each side of the tower (the original Porto Pí billboard was soon replaced by the more “industrial” and Modernist of Gesa’s).

Is the current gas station as authentic as the former? Or is it a mere interpretation using recent technology and materials? Casto Fernández-Shaw himself suggested the immediate reconstruction in 1977. If one believes in the authenticity of the forms and spaces of Modernism, and in their ability to transmit information and ideas, even if they are not supported by the original materials, one can certainly say that the 1996 Porto Pí Petroleum Station is evidence of an authentic and significant building of the (after Banham) “first machine age”.

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File 44-82-10 Bis in the Archivo de Villa in Madrid (original plan and elevations, measures, etc.).

A copy of the photographs taken by Manuel García Tages during the course of demolition has been provided by Óscar Acero, responsible for the “Protected Buildings” Area of Gerencia de Urbanismo de Madrid.

Chandigarh: Managing the Challenge of Change in an Icon of the Modern Movement

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Exemplifying the largest realisation of Le Corbusier's principles of Urbanism, Chandigarh's matrix comprises the generic neighbourhood unit –a sector 800 x 1200 m, the low-rise cubic forms set within an urban landscape embody the symbiotic relationship a city can dare to share with its hinterland. Appropriated on a tilting plain, nestled in a picturesque setting, irrigated by seasonal rivulets, Chandigarh symbolizes India's tryst with destiny, ushering in modernity, into a country colonised for over three hundred years. In the wake of partition, with Lahore ceded to Pakistan, Chandigarh, the new capital of Punjab, was a challenge to turn limitations to opportunity and become the cynosure of world view. Among its tall claims was a zeitgeist ideal— to fulfil a socialist agenda to provide the best of amenities for living to all classes of people, at a time when India's partition had rendered thousands homeless.

Embedded in its history, an icon of twentieth century architecture, Chandigarh must fulfil a twofold responsibility: a) moderate its growth, keeping in view its world heritage status and, b) the issues the living city must contend with to accommodate change in the larger framework of continuity of the architecture of the Modern Movement. Two aspects of the city need attention: a) the City Centre and, b) the lesser-known but equally vulnerable state-owned Government Housing Stock.

A) The City Centre, located at the cross-axis of two major avenues, is the business, cultural, civic, and entertainment hub of the city. A role model and pace setter for commercial enterprise in India, it is currently under intense pressure of urbanization, land speculation, increasing property value and new demands from the transforming society and new owners.¹ The City Centre evokes images of a social hub across a broad spectrum of the society, as it is a reflection of the "collective memories" of the citizens. Its cultural significance lies in representing a "modern" way of life, as seeing and being seen in Sector 17 was (and still is) a condition of being modern. Economic growth since India's independence has meant a corresponding change in lifestyle, whose consequences are perceived in social behaviour: a new wave of shopping culture, the latest urban pastime, a new paradigm of shoppertainment,² a desire to display affluence as a way of life, associating "modern" with Western ways (going to the theatre, followed by dining out).³

Management of change in Chandigarh's City Centre should include:

- The rational assessment of the cultural value of the heart of the city as a cultural resource within Modern Heritage;
- Identification of the forces of change involving economic and technological advancement and their physical impact on the urban form and character of the City Centre as a key public space, followed by a rationale for reconciliation between the economic value and heritage value of the City Centre and conservation of its "Spirit".



Figure 1. The Chandigarh Style being replaced by the individual aspirations of new building owners.

B) The second case study concerns the state owned Housing Stock that has fetched it the distinguished name "the Chandigarh Style".⁴ Characterized by low rise, cubist, brick volumes, plastered and painted surfaces, punctuated by brise soleil, it is an outcome of the city's shoe-string budget, composite climate, and adherence to indigenous technology, the mandate stipulated for city building. Taking cues from the government housing stock, private houses in the city also reflected the Modernist vocabulary which is currently under review, in view of the housing demands of a growing population, changing lifestyles and social pressures which further compound the problem of conserving the Chandigarh Style as a symbol of the Modern Movement in architecture in India. The debate also reviews these case studies for their "human condition".⁵

Rather than attempting to return Modern architecture to its presumed original state, the challenge is to reevaluate the essence of the manifold manifestations of Modern architecture and redefine its meanings through pragmatic evaluation and decision.



Figure 2. City Centre-The forerunner of commercial enterprise and the place to see and be seen.

NOTES

- 1 Current real estate surveys have shown an increase of over three hundred times in property prices of commercial establishments within the City Centre. In contrast to the few buyers during the early seventies, when the city centre was being constructed, there are far too few properties available for sale today. The situation is such that there is stiff competition amongst branded corporate chains to have an address in the city centre, which is the primary reason behind its skyrocketing land values as well as rentals.
- 2 Frazzoni, Caterina; The Shopping designer, Architecture, Space Time & People, Magazine of Council of Architecture, India, Vol.4. Issue 8, August 2004, New Delhi.
- 3 The increasing demand for renovations and conversions of cinemas into multiplexes, considering their widespread appeal to people, has set the tone for ushering the Postmodern style in to the realm of urban life. This would amount to the fast growth rate of vehicles, especially cars in the city centre, posing pressure on the existing parking space.

- 4 While the master plan of Chandigarh is credited to Le Corbusier, the housing stock as well as the health, public and educational buildings were painstakingly realised by the team of Pierre Jeanneret, E Maxwell Fry and Jane B. Drew. The trio lived in Chandigarh and supervised the construction of the buildings for over three years. Pierre Jeanneret continued to work as the Chief Architect of the Capital Project till 1965.
- 5 Advocated by Hannah Arendt (1958), the German-Jewish political theorist, wherein the public and private realm is so differentiated and the relationship between man and nature so production-driven, utilitarian, and lacking in hierarchical structure that the whole act of cultural content is amiss.

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A Roof over One's Head: Luxury for Everybody

VIENNA'S SOCIAL HOUSING PROJECT, 1923-2008

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In the 1920s, the social democratic City Council of Vienna embarked on a revolutionary housing project based on the political responsibility to provide the best possible housing conditions for Vienna's citizens. Vienna's first social housing programme of 1923 was destined to provide twenty-five thousand flats for one hundred thousand people within five years. Land acquisition and construction were financed out of the income from a newly created property tax. Rents were extremely cheap, about four percent of an average worker's wage at that time.

The 1920s council flat generally provided running water, electricity, a gas stove, a toilet, and a loggia or balcony. Green spaces were part of the concept, as well as common rooms, kindergartens, washhouses, libraries, shops, and medical studios within the blocks. Bathing facilities were generally located outside the individual apartment, a feature much criticized by international experts at the occasion of a housing congress held in Vienna in 1927, as was the relatively small scale of the flats, between 38 and 50 square meters.

The housing project has been carried on until nowadays, presently comprising some 220,000 city-owned flats, housing about one-third of Vienna's population.

Back in the 1920s, best standards meant the abovementioned features. But the concept of optimum standards is a dynamic force: In 1973, when Harry Glück's Wohnpark Alt Erlaa was planned, maximum standards even comprised rooftop pools for the tenants—luxury for everybody. But—paradoxically enough—it is this dynamic quality of the concept that is hazarding its own tradition: How do you adjust inter-war housing blocks with their 30-50 square meter flats without individual bathrooms to actual living standards without destroying the very core of their material existence?

An interesting example of a Viennese council block dating from 1924 is a building by Anton Brenner. It contained thirty-three family units of about 40 square meters each, complete with built-in furniture and kitchens. Brenner, an enthusiastic proponent of Taylorism who had studied with Josef Frank, Oskar Strnad and Peter Behrens, became a Bauhaus teacher in 1929 and participated in the construction of Vienna's Werkbund Siedlung. Brenner did not shrink away from his own challenging vision of social housing and moved with his family into his own housing block at Rauchfangkehrergasse 26 in Vienna. The location proved suitable for a family of five, and they moved in again after returning from emigration to Great Britain. Ms. Brenner, Anton's widow, moved out only in 1996, leaving behind the flat's original interior equipment in almost unaltered conditions. The block was declared a landmark, and flat 14 will be reopened as a museum.

The postwar "high end" of housing standards is marked by Harry Glück's Wohnpark Alt-Erlaa, built in 1973-1976. It is not, actually, a council block, but was constructed by a city-owned cooperative construction association. Anyway, it borrows essential elements from the tradition of council housing. Almost three thousand flats from 35 to 130 square meters, all of them with



Figure 1. Anton Brenner's own flat with built-in furniture, Vienna, 1923.
Photo: Inge Podbrecky.

terrace or balcony, 140,000 square meters of common green spaces, meeting rooms, and sports facilities such as tennis courts and swimming pools, still make Alt-Erlaa number one in tenants' satisfaction rankings in Vienna.

Two criteria may be considered essential to the developments that took place in the period between Brenner's and Glück's achievements:

One is the dynamic force brought about by changing social, cultural and economic factors that cause change and improvement, like the inclusion of bathrooms and the increase of average floor space in flats.

The other component is more static and permanent but still as important: green spaces and community facilities. As a matter of fact, Alt-Erlaa's success has very much to do with the surrounding green land, the sports and social areas and the terraced gardens that come with each flat. These components were introduced at a smaller scale by the 1920s council blocks that limited construction to one-third of the building lot, provided common spaces for sports, leisure and learning and kept traffic out of their large courtyards. In the language of Aldo Rossi, these features would constitute the primary elements of Vienna's council blocks. In identifying these elements, in strengthening their functionality and meaning as far as possible and in including them into most of the city's major housing project since the 1920s, Vienna has recognized the importance of permanency within change.

The city blocks, especially those from the inter-war period, are easily recognizable and create strong identities within the urban texture of Vienna; therefore, their preservation is an issue of high importance. 311 blocks out of 404 constructed between 1923 and 1938 were registered as listed monuments and were lived in permanently since their construction. Managing this heritage presents the following major problems:



Figure 2. Harry Glück, Wohnpark Alt-Erlaa, Vienna, 1973-78.
Photo: Inge Podbrecky.

Flat conversions mostly consist in the merging of two or more smaller flats and the installation of bathrooms, usually bringing about a partial reorganisation of inner spaces and, as a consequence, major changes to the original designs.

Windows and heat insulation are critical too. On their own, tenants had started to substitute the typical original sash windows with a variety of insulating windows. Designing a standardized double glass sash window that has become compulsory in renovations solved the problem.

Another problem was presented by the absence of elevators and the impossibility to build these into the staircases because of lack of space. Projects entrusted to planners sensible to matters of architectural history have provided quite satisfactory results.

Thermic insulation is not easily transferred to the inside of buildings because of the small size of rooms. Outside insulation, on the other hand, is a threat to the buildings' proportions and details.

Lesser changes, or no changes at all, were necessary with what I defined as permanent elements above. Many of the common inner spaces were converted into shops, but many others, such as kindergartens and libraries, still serve their original functions.

As a rule, green spaces were kept free from later construction, and many of the gardens still have their original structural elements. When restored and replanted, they provide traffic-free spaces within the direct reach of the tenants, a sumptuary and gladly accepted feature in today's densely packed urban environments, and a huge improvement for the entire neighbourhood.

Challenges and demands may change, but some features stay. Maybe the real challenge sometimes consists in taking the liberty not to change.

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Paradoxes and Contradictions in Conserving Modernisms from the 1960's

CASE STUDY: PIHLAJAMÄKI HOUSING AREA – PROTECTIVE PLAN, REGENERATION AND REPAIR GUIDELINES

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Modern architecture built in 1960-1970 is an essential part of Finnish architectural heritage. The Pihlajamäki area in Helsinki is the first industrially built 1960s neighbourhood that has been studied for conservation purposes and is now protected by the town plan. The protective plan, as well as repair and maintenance guidelines, was completed in 2007¹.

Pihlajamäki was built in 1962-1968. The initial town plan is well preserved in spite of later additions. The architectural design was made by architects Lauri Silvennoinen (SATO area), Esko Korhonen and Sulo Savolainen (Haka area). In its building time Pihlajamäki was a highly appreciated example of the town planning ideology of the 1960s. It was the only suburban area that was published by the Association of Finnish Architects². The characteristic SATO towers were photographed as if they were gigantic sculptures. In the Haka area colours were used to integrate the buildings in the surrounding rock and forest landscape.

The Pihlajamäki area pioneered in industrial building methods. The low and long SATO houses were the first residential blocks in Finland that were built using prefabricated, concrete wall elements. The plans were rational and the façades simple but well proportioned. The Haka area showed advanced dwelling plans and innovative building types such as the experimental terrace house. The re-evaluation of the area began in the 1990s, when Pihlajamäki was included in the Docomomo register. Pihlajamäki is also a municipal renovation project area. The valorisation of the area that preceded preservation was extensive and included, aside to standard building inventories, an analysis of 1960s landscape and green area planning documents³.

Today the concrete wall panels are deteriorating rapidly due to the experimental character of the building and the problematic nature of 1960s technology. Modern concrete standards were approved as late as in 1976. The repair needs of concrete panels are massive, not only in Pihlajamäki, but in other contemporary neighbourhoods as well. Also, there are green areas that are unfinished since the building period. The initial question was: what are the relevant methods to evaluate the heritage of this period? In the historical analysis Pihlajamäki was studied from different viewpoints⁴. The inventories are pioneering and show paradoxes and dilemmas that are typical for later layers of postwar heritage.

The project explores new approaches and solutions to the multifaceted problem of preserving modern architecture. In the Pihlajamäki case these issues are particularly highlighted. The conventional concepts and methods of urban preservation are not directly applicable. When the preservation of Pihlajamäki began, half of the concrete panel façades had already lost their cultural value as a result of standard long-term repairs. This was a paradoxical situation, because authenticity is normally considered as one of the key criteria for preservation. As a Docomomo area, it was necessary to discuss practical solutions against a more theoretical background. Historical evaluation of the building technology became an integral part of the conservation process.



Figure 1. The sculptural form of the 1960s town plan is now protected in its entirety.
Photo: O. Pietinen, Copyright holder: Museum of Finnish Architecture.

For the evaluation of technology all wall panel structures were analysed and their repair history documented. Paradoxically, in Pihlajamäki, restorative conservation of concrete panels emerged as a central goal, along with a more preservation-based conservation approach. In the repair guidelines restorative repairs and the replacement of technically-outlived concrete panels are presented together with repair measures aimed at preserving the original building materials and parts. The guidelines underline that the practical measures must be implemented on a case-by-case study even if the buildings were initially built using industrial building methods.

The repair methods for deteriorated concrete panels are primarily determined by the technical condition of the panels and their repair alternatives limited to covering or demolishing—neither of which is considered a traditional method of conservation. The management and repair guidelines⁵ that were developed also became very detailed, a paradox itself. The preservation measures in Pihlajamäki emphasise uniqueness and the creation of a strong local identity that is based on the 1960s neighbourhood “brand”. For concrete panel façades, such maintenance and repair techniques that preserve or restore the abstract character of 1960s architecture—not the authentic structure itself—are recommended.

The landscape is protected as an essential part of heritage. One centrally located 1960s park is renovated and partly restored. A path, with original 1960s photographs and text panels, explains the architecture of the area. The colour guidelines are based on the study of 1960s colour charts. In the Haka area colours can now be restored up to smallest details of apartment interiors. The sculptural form of the urban setting that is based on the initial town plan by architect Olli Kivinen (1959) is unique, and is preserved by the new protective plan. In addition to dwelling houses the old shopping centre and 1960s schools are preserved, as well.



Figure 2. SATO towers by architect L. Silvennoinen as iconic landmarks of the landscape.
Photo: O. Pietinen, Copyright holder: Museum of Finnish Architecture.

The protective town plan is not limited to preservation, but it contains urban regeneration as well. The twenty-four new family apartments in twelve atrium-type houses refer to 1960s advanced floor plans, but with contemporary form. In addition, the town plan contains a plan for the renewal of the shopping centre with new shops and thirty flats. In 2008, Pihlajamäki project was selected for presentation in the third Biennale by the Museum of Finnish Architecture: Finnish Architecture 0607 – 25 Designs. Furthermore, renovation and preservation of 1950-1970s neighbourhoods was defined as one of the major themes of the Biennale.

The preservation of Pihlajamäki is a pioneering example initiated to preserve the concrete suburban housing developments built in the 1960s. The protective measures emphasize uniqueness and the creation of a strong 1960s identity.

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Making a Home of Modernism

ARCHITECTURAL ALTERATIONS IN THE DESSAU-TÖRTEN SIEDLUNG, 1928-2007

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The occupant is not entirely wrong when he says, "But the architect exists to serve me: he builds so that I can live and dwell comfortably; I don't exist in order to stylishly inhabit his masterpieces."¹

Adolf Behne used these words in 1926 in defence of the legitimate needs of the individual user versus the architect's universal design aspirations. In the Dessau-Törten housing estate built by Walter Gropius in 1926-1928, this opposition involved more than just the avant-garde architectural aesthetic of the buildings. After all, due to its unsophisticated construction details, the *siedlung* of 314 standardized terraced houses, designed according to the methods of Taylorism, made it necessary on the part of their owners to adopt and adapt the architecture by making structural alterations. For Gropius, the project was his first opportunity since the Bauhaus was moved from Weimar to Dessau to execute a full-scale version of a concept for his *Hausbaufabrik*, or "home-building factory", developed in 1910.² For him, the conflict between custom-built and standardized type – between subjective needs and standardized products – was ultimately not a technological problem alone, but also an aesthetic challenge.

Gropius had already presented the basis for this strategy at the 1923 Weimar Bauhaus exhibition, with his project for "life-sized building blocks", and an essay titled "The Housing Industry", published in the third volume of the *Bauhausbücher*.³ This project involved a spatial concept that made no concessions to structure or materials. Throughout his life, Gropius held the notion of "uniformity in variety": rather than constructing entire houses, individual architectural elements should be manufactured industrially, so that they could be combined to make different building types. Gropius sought not only to accommodate the individual needs of the resident, but also counter the danger of uniformity and monotony. However, this sort of concept could not be realized in Dessau. Before 1926 Gropius possessed neither experience whatever in building large-scale housing projects, nor did he have any allies in the construction industry. Thus the construction of the Dessau-Törten *siedlung* was based on a fundamental contradiction. On the one hand, Gropius wanted to be able to finally build an "experimental construction site" where different kinds of structures and materials could be tested; he successfully solicited financial support for construction research from the German Reich's Society for Economic Construction and Housing Research. On the other hand, Gropius made clear that the goal of Dessau-Törten involved "keeping rents low by incorporating all methods of rationalization".⁴ Combining the two approaches turned out to be problematic, as achieving the most economical solutions requires utilizing experience already gained, while experimental construction projects require additional financing in order to gather precisely this sort of experience. The paradox becomes legible in the structure, materials and ultimately the aesthetic concept of the buildings. Instead of discrete architectural elements, complete houses were built, following the same building type. The bearing walls are relatively conventional, made of concrete blocks poured on site. The steel windows and entry doors of the carefully detailed *façades* may clearly articulate the industrial aesthetic, yet they were much more



Figure 1. Dessau-Törten siedlung, Kleinring 1-27, 2000 and 1928
A. Schwarting



Figure 2. Dessau-Törten siedlung, Kleinring 2000 and 1928.
top: Stiftung Bauhaus Dessau.
below: Bauhaus-Archiv Berlin.

expensive than their wooden counterparts.⁵ As a result, the exterior design is neither an expression of low-cost housing objectives, nor the result of a technical manufacturing process; rather, it is an aesthetic code for rationality and industrial precision.

How did the residents respond to this ambiguous architecture? Thirty-five years after project completion, Gropius concluded with resignation that modern architecture would have been accepted only "if it promised to cost less; the public never considered its aesthetic potential".⁶ In fact, to date, both the professional discourse regarding the siedlung and the pragmatic-minded alterations undertaken by residents has taken place largely without a thought to the special aesthetic character and quality of the architecture.⁷ At the same time, the alterations seem to gravitate somewhere between individual construction work and standardized planning. During the early years, the extremely simplified design prompted residents to carry out minor architectural renovations on their own, but after the Nazis seized power, Kurt Elster – an avowed opponent of the Bauhaus – was charged with the task of developing proposals for uniform renovations of the entire siedlung. In 1934, Elster planned to replace the wide steel-frame windows with small conventional wooden windows with lower sill heights, a measure that at once accommodated the taste of many residents and corresponded to the ideal of the *deutsches Siedlungshaus*. Further attempts at a homogenous concept were made during the reconstruction works in the wake of the WWII bombings that demolished twenty-five of the terraced houses. The job was assigned to Carl Fieger, who once worked with Gropius, but who, facing widespread shortages of building supplies, found himself forced to approve a good number of makeshift repairs.

Following the economic consolidation under the Soviet occupation and the subsequent GDR years, decades of renovation work by individual occupants ensued who, due to the general disregard for Bauhaus architecture, took no notice of the original design. Utility service installations were updated, rooms added, and garages were built in the back gardens. Although the site was listed as an urban design landmark in 1977, without detailed knowledge of the original condition of the buildings or binding design regulations, even the preservation department advising residents could not prevent it from appearing increasingly patchy. Not until after the demise of the GDR could this problem be addressed, with the creation in 1994 of the "Rules for Preservation and Configuration of the Bauhaus-Siedlung Dessau-Törten". However, the modernization phase since 1989 had already caused the removal of most of the original architectural features and materials. Furthermore, the newer by-laws yielded an uneasy compromise between the original design and the needs of inhabitants: among other things, the window openings specified by the new regulations did not match Gropius's original elevations.

The current architectural condition is the result of an eighty-year long transformation, a process that tried to convert the terraced houses to contemporary standards as they changed over time. Along the way, the project's occupants undid its uniformity, to a great extent employing standardized factory-made materials. Even if the siedlung has considerably distanced itself from the aesthetic unity Gropius sought, the way it looks now actually comes fairly close to his vision of a "life-sized building kit". Reconstructing the original design would only create architectural scenery to mask the alterations. An appropriate preservation strategy would, on the other hand, begin by protecting the existing original material effectively. In addition, it must respect the current state as a built document of the historic debate on Modern architecture. Ultimately, such a strategy must aim at sufficiently conveying the excellent design quality and historic significance of the original architecture, and set a renovation standard for occupants that meets accepted heritage practices.

NOTES

- 1 Behne, A., 1926, "Architekt und Mieter", *Sozialistische Monatshefte* 32 (63), 767–768.
- 2 For the history of building in the siedlung see Schwarting, A., 2001, "Die Siedlung Dessau-Törten. Bauhistorische Aspekte und Folgerungen für den Umgang mit einem Baudenkmal der klassischen Moderne", *architectura* 31, pp. 27-48, and id.: *Die Siedlung Dessau-Törten. Rationalität als ästhetisches Programm*, being printed (doctoral thesis, Dresden 2008).
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- 4 Gropius, W., 1930, *bauhausbauten dessau*, A. Langen-Verlag, Munich, p. 153.
- 5 Reichsforschungsgesellschaft für Wirtschaftlichkeit im Bau- und Wohnungswesen e. V. (Ed.), 1929, *Bericht über die Versuchssiedlung Dessau*, Sonderheft Nr. 7, Beuth-Verlag, Berlin, p. 53.
- 6 Gropius, W., 1964, "Tradition und Kontinuität in der Architektur". Speech held at the Boston Architectural Center in 1964, in Probst, H. and Schädlich, C., 1988, *Walter Gropius. Bd. 3: Ausgewählte Schriften*, Verlag für Bauwesen, Berlin (GDR), p. 203.
- 7 In greater detail: Schwarting, A., 2004, "Wohnen in einer Versuchssiedlung. Zur Problematik der baulichen Veränderungen in der Siedlung Dessau-Törten" in Droste, M. and Hoffmann, A. (Eds), *Wohnformen und Lebenswelten im interkulturellen Vergleich*, Lang, Frankfurt am Main, pp. 255-276.

Tropical Modernism: the Legacy of the Modern Movement in Sri Lanka, with Respect to Three Practitioners

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Englishman Andrew Boyd is credited with introducing Modern architecture to Sri Lanka (then known as Ceylon). He arrived in the country in 1930, to work on the Island's tea plantations. He left to pursue his studies in architecture and returned in 1937 as a qualified architect. Although his practice was cut short by the onset of World War II, within two years he was able to complete four houses, all in the central hill town of Kandy. Featuring white cubic forms, brise-soleil and flat roofs, the houses were uncompromisingly Modernist. Although Boyd's output was small, his impact was significant, and images of these houses were widely disseminated in the local press.¹ In his writings Boyd downplayed the links between his work and the Modern Movement, and instead claimed that the simple vernacular road-side houses of the rural areas were the source of his inspiration.²

Growing up in Kandy, Minette de Silva was undoubtedly aware of Boyd's work. Educated at the Architectural Association in London in the 1940s, she has the distinction of being the first female associate of the Royal Institute of British Architects. She returned home in 1949 having been schooled in the orthodoxy of the Modern Movement. In a polemical article on contemporary architecture she wrote for the Journal of the Ceylon Institute of Architects, she complained that "a veneer of modernism was acquired at second hand, ill-digested and bearing no relationship to Ceylon's traditions or to the region. No attempt was made to synthesize the modern and the traditional. It is essential for us to absorb what we absolutely need from the modern west, and to learn to keep the best of our own traditional forms".³ This appears to be an implicit criticism of the work of Andrew Boyd and the others that imitated him. De Silva immersed herself in learning about the indigenous arts and crafts of Sri Lanka. Her goal, she stated, was to find "a workable synthesis of traditional and modern architecture".⁴

A house that she designed in 1952 for the Pieris family in Colombo exemplifies these concerns and contradictions. She describes the house as being revolutionary for the time, "with its pilotis and free-flowing spaces".⁵ While the house features a concrete flat slab designed by Arup Associates, it pays homage to traditional Sri Lankan buildings in the shape of its roof and through the use of traditional elements such as lacquered wood balustrades. However the end result is an uneasy pastiche, a modern building with a veneer of traditional materials and finishes.

In 1958 a young Danish architect, Ulrik Plesner, arrived to work in De Silva's office. Educated at the Royal Danish Academy in the sensibilities of Scandinavian Modernism, Plesner was also keenly interested in craft traditions and vernacular architecture. He recalls that discovering the traditional buildings in and around Kandy, particularly the medieval Buddhist temples, was among the happiest moments of his life.⁶

In 1959 Plesner left De Silva's firm and joined forces with Geoffrey Bawa in Colombo. They worked closely together for eight years, after which Plesner left the island to work in London,



Figure 1. *Pieris House, Colombo, 1956 by Minette de Silva.*
Minette de Silva, 1998, The Life and Work of an Asian Woman Architect, Kandy, GEDSANDS, 188.

while Bawa continued on to become Sri Lanka's pre-eminent architect. One of the most remarkable buildings Plesner designed was the Estate Bungalow at Polontalawa, in the central region of the island. Largely designed while on-site, the house has virtually no walls and is sheltered by a great overhanging roof. The main structure spans between two large boulders existing on the land. Plesner proudly claimed, "the veranda was bigger than the house".⁷ This is an acknowledgement that his Modernist sensibilities were tempered by climatic concerns, and shows an appreciation of the elements of traditional buildings. From then on, Bawa and Plesner's work shows an emphasis on traditional roof forms as well as an acceptance of the decay and patina that are ever present in a tropical climate.⁸

Plesner followed the Estate Bungalow with a series of houses built in several Colombo neighbourhoods. Described by him as "roof houses", they featured deceptively simple exterior forms capped by dominant gable roofs which enclose a complicated sequence of interior spaces.⁹ Not only were these houses climatically appropriate, they were immensely suitable for the citizens of a rapidly modernizing country. They were widely copied and enormously influential. Plesner, through his deep appreciation of traditional Sri Lankan buildings, seems to have been able to achieve a synthesis between modernity and tradition that struck a chord with his clients.

In conclusion, it can be said that Boyd, de Silva and Plesner were the pioneers of Modernism in Sri Lanka. Boyd can be credited with introducing the Modern Movement to the island, while de Silva and Plesner can be credited for refining and adapting modernism to local conditions. Each was influenced by and built upon the achievements of his predecessor. All three attempted a synthesis between the progressive impulses of modernism and traditional building methods and

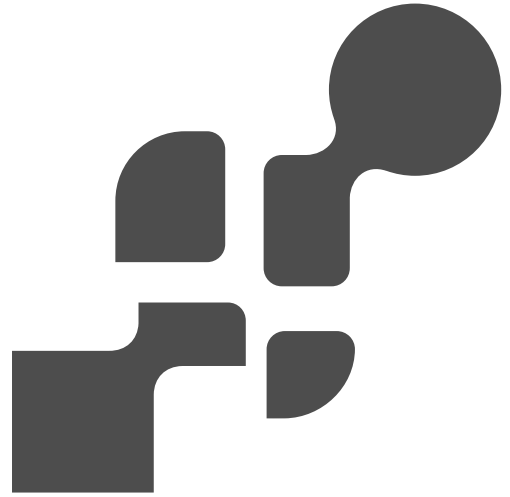


Figure 2. Estate Bungalow, Polantalawa, 1964 by Ulrik Plesner.
<http://archnet.org>.

forms, with varying degrees of success. In Boyd's case it seems to have been an ideal to which he paid lip service. For de Silva, although her intentions were worthy, the results are an uneasy amalgam between the two. It was Plesner who was able to achieve the desired synthesis. As a result, there is a vibrant debate that continues today over the role of tradition and modernity within Sri Lankan architecture.

NOTES

- 1 Andrew Boyd, 1939, "Houses by the Road", *Ceylon Observer Annual*.
- 2 Andrew Boyd, 1947, "A People's Tradition", *MARG*. 1 (2).
- 3 Minette de Silva, 1965-66, "Twenty-Five Years of Experiments in Modern Regional Architecture in Sri Lanka", *Journal of the Ceylon Institute of Architects*.
- 4 Minette de Silva, 1998, *The Life and Work of an Asian Woman Architect*, Kandy, GEDSANDS, 114.
- 5 *Ibid.*, 180.
- 6 Deepali Modi, 2008 "If there was Bawa, there was Plesner", *Sunday Times* (Sri Lanka), 17 February.
- 7 *Ibid.*
- 8 David Robson, 2002, *Geoffrey Bawa: The Complete Works*. London, Thames & Hudson, 52.
- 9 *Ibid.*, 55.



Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

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Inseparable links: Architecture, Nature, Landscape

THE TOURIST VILLAGE “LE ROCCE”, RESTORATION PLAN

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The tourist village “Le Rocce” (“The Rocks”), designed by Giuseppe Spatrisano in Mazzarò, Taormina, in 1954, was built in the aftermath of the war, a very delicate time for Sicily, packed with tension and strong expectations.

There were two types of reconstructions going on in Italy in those years: one type in the Centre and North of the country reconstructing what had been completely destroyed, and another one, in the South, which was the first real attempt to modernize and create services that had never existed before. At that moment, tourism represented one of the main tools to revive the economy and to start new and substantial transformations in the country.

Most of the work done by G. Spatrisano¹ pertains to this field. This architect from Palermo wanted these tourist types (hotels, tourist villages, rest stops, and beach resorts), recently born from the “economic miracle” to redefine and enhance the territory and landscape of the island. What all these works had in common was a great attention to context and use of local materials, along with a clever application of the principles of both organic and Scandinavian architecture. Therefore, these works possessed the right conditions to envisage an educative and correct renewal of the island.

With his project, Spatrisano was motivated by the intention of building something that went along with and made intelligible the laws of nature as well as the geography of the place, a small promontory close to Isola Bella; the language in which he chose to carry it out is that of spontaneous and Mediterranean architecture.

In doing so, Spatrisano drew not only from “his” Mediterranean: Sicilian, vernacular and rustic, which he had studied carefully and sketched while wandering through the streets of the Sicilian villages during his short study trips with his maestro Enrico Calandra², but also from that Mediterranean –younger and international– which was being enriched with new concepts of housing by masters like Gio Ponti, José Antonio Coderch and Josep Luís Sert. From the first type he learned how to control the form and the quality of the urban space; from the second, the notion of the house as a landscape device: the result of external forces springing from the form of the land, which twists, rotates and opens up according to the position of the sun and to the panoramas offered up by the landscape.

Spatrisano left unchanged Taormina’s topography and immortalised it through the design of the paths: a system of open spaces, tiny courtyards, rest areas, and viewing terraces, connecting the small houses (thirteen hotel rooms), scattered liberally along the promontory with the other social facilities (restaurant, reception hall, outdoor disco, laundry rooms, outdoor dining hall).

Spatrisano always paid attention to respecting height differences and to ensuring the survival of all natural components (plants, rocks, height differences); also, he included every pre-existing element to make this promenade function well: trees and agaves mark the entrance to the houses

and connect the paths; the houses climb in large steps along the terracing; the esplanades define the outline of the rest areas.

The path is not interrupted, does not end with the belvedere, but smoothly enters the houses, stopping at the windows and balconies. The link between the inside and the outside is continuous: spaces inside are distributed according to what happens outside.

A promenade works as a "building principle" and holds together the other complexes: that of the houses, of the constructions, of the roofing.

The different ways of organizing the houses determine both the views towards the sea, and the forms and qualities of the private and collective urban spaces (patios, underpasses, open spaces, courtyards). To build them, a simple general principle, which is used for all the houses, is applied: visible load-bearing limestone walls, on which a "plastic" block (plastered in white, including the girders of the concrete jack arches, the coverage, and the crownings) lies. Flat coverings alternate with sloping ones; the irregular edges of the crownings and terracotta parapets offer further visual perspectives to the observer; the coverings system is designed to be seen from above, as well: it functions as a fourth wall.

Today, the village has turned into an old abandoned earthly paradise; in 1971, a few months closure caused plundering and subsequent decline.

Nevertheless, the designer's intention to build a place that visually and emotionally connects the landscape and the observer is still intact and visible.

The aim of the project is restoration and reuse, considering as a priority the protection of the site, and the setting up and management of the different phases and procedures.

The main aim, which affected the phases of modelling and redesigning, was to investigate/reveal this "apparent spontaneity", that is, to highlight the importance of the planning of this landscape proposal by means of a thorough analysis of the boundaries between the natural and the artificial.

This project carries out "the safeguarding of the view", that is, it protects everything that makes the relationship between architecture, nature, and landscape work, and, at the same time, it proposes a contemporary re-interpretation through the introduction of new elevator facilities (sloping elevators), in addition to the existing ones, which will have to adapt to the present needs of tourists.

NOTES

- 1 G. Spatrisano (1899-1985). A teacher, historian, designer, and architect of the regime during the War, and an architect of the reconstruction in the aftermath of the War. He designed many INA-Casa districts, and tourist, health, and school complexes. Spatrisano's archive is kept at the Bank of Sicily Foundation in Palermo.
- 2 A pupil of Ernesto Basile, Enrico Calandra (1877-1946) was among the first four full professors of Architecture in Rome along with Foschini, Fasolo and Piacentini. In his activity as a scholar and university professor, he published only one book: Calandra, E., 1938, *Breve storia dell' Architettura in Sicilia*, Laterza, Bari.

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Re-creating Urban Form with Industry: Turkish Modernization and Kayseri Experience

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The Modernization of Turkey after 1923 was an identification process of the society that was particularly based on spatial reformations. This process was a political, social, cultural and spatial threshold for Anatolia and its inhabitants. It was aimed to renovate, by revolutions, whole lifestyles and stereotypes. There were three different spatial reflections on this manner: first, identifying homeland by sustaining territories of national state after the Turkish Independence War with its reasons and results; second, re-construction—in other words, urbanization—of the Anatolian cities; and third, reformations on the housing form, its usage and construction. Particularly, housing, with its forms and construction, was the main issue discussed in connection to change and identity. A “Modern” lifestyle was claimed by illustrations and articles on contemporary houses and their usage, with proposals to reform daily habits, like dressing or reading and writing attitudes.

The early years of the Turkish Republic was the time for an urban renovation practice, which was directed by Turkish Government. The most significant factor affecting the urban development of Turkey was industrialization in conjunction with the modernization concept of that period. Although in the beginning private enterprises were supported for establishing new factories in different centres of Anatolia, the Government decided to become the dominating force on the industrialization process after 1930, with the effects of world economic crisis. This state-based industrialization approach also affected the spatial and social order in some of the Anatolian cities, such as Kayseri, Malatya, Nazilli (Aydin), Eregli (Konya), Zonguldak and others. Turkish-State integrated its reforms on social life and spatial order with industrialization, and constructed industrial compounds which embodied residences, schools, markets, sports and cultural spaces. It could be said that the State affected the modernization process of these cities with their inhabitants. Social and spatial order were modified and re-identified by renovations on working standards and living attitudes in these industrial sites, founded under the ideology based on creating transformation and providing the development during the early years of the Republican Regime.

According to this approach, Kayseri was one of the significant cities of Turkey where this state-based industrialization process was first exercised. In 1926, Tayyare (Plane) Factory, the first establishment of the Turkish heavy industry, and in 1935, Sümerbank Textile Factory, the first state-based industrial organization, were founded in the city. Both of these factories were unique and “universal” examples of the “Modern” thought of the era. Since they had a different context, they were unfamiliar to regional culture. They illustrated the essence of Modern life, as an architectural symbol with their state-based ideology. These factories may be identified as a reformation of the architectural context of the city of Kayseri, with their new building typology. Their residences, especially, were the most effective elements for the re-constructing practice of the social and the urban order.

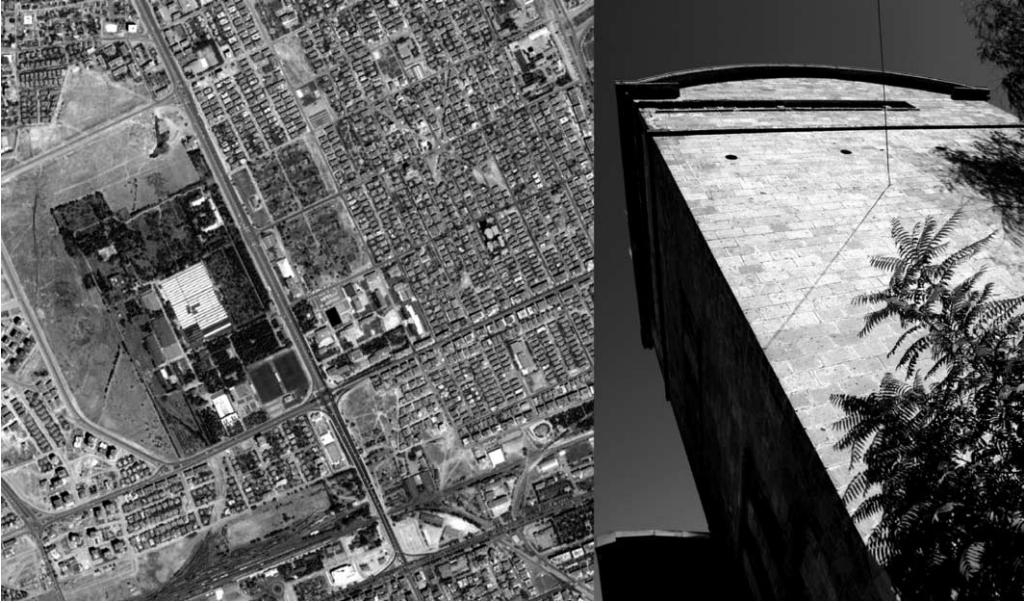


Figure 1. Sümerbank Kayseri Settlement; general view of the plant, residences and cooperative houses (at left), and the electricity turret of the plant.
Asiliskender, B., 2008, "Modernization and Housing: Spatial and Social Change in Kayseri by Industrial Enterprises of Turkish Republic", PhD Thesis, ITU, Istanbul.



Figure 2. Kayseri Tayyare (Plane) Factory and the cooperative houses behind it (at right), and interior view from one of the hangars of the plant.
Asiliskender, B., 2008, "Modernization and Housing: Spatial and Social Change in Kayseri by Industrial Enterprises of Turkish Republic", PhD Thesis, ITU, Istanbul.

Consequently, these two state-based industry sites introduced new approaches to housing and to daily life by including educational, sport and cultural facilities in Kayseri. The residences and the houses constructed by workers cooperatives led to a change in the urban identity, and motivated the urbanization of the city by the contrasts of the form and spatial order. Actually, it was extremely remarkable that an industrial complex and its residences recreated and defined its milieu. The Sümerbank establishment may be especially perceived as a home place for its labourers and their families, with its residences, social spaces and “cooperative settlements” behind it more than a working complex or an office building. The Sümerbank settlement also affected the social order. The residences and the social spaces such as schools, trade centres, cinemas or sport centres, transformed the attitudes of its inhabitants and also the people in the city, and upgraded their living rituals on the ideology of “Modern” thought. Besides its residences, beginning in 1950 until 1970, new residential areas, named as Yeni, Gazi Osman and İkiyüz Evler, were developed by labourer cooperatives of the factory, with simple and basic plan types, in the north of the city centre and east of the factory.

There was a similar effect of the Tayyare (Plane) Factory on its milieu. However, since it was a military factory, it was less effective than Sümerbank Settlement. The milieu of the factory was a secured area, and it was forbidden to build anything there before the last years of the 1950s; constructing a new building was also controlled by military forces. After the 1960s, the military force allowed the building of houses, and the Esenyurt settlement was developed on the south of the Kayseri city centre. There were some housing plan types designed, especially for the labourers of the factory. Esenyurt was constructed house by house, according to the workers—and the people—who were interested in getting a home. Therefore, it could be said that there was no typological housing policy, despite the systematic residential development behind Sümerbank Factory.

It could be said that all of these industry sites reconstructed the Kayseri city. Their residences led to a change in the urban identity and motivated the urbanization of the city by the contrasts of their form and spatial order. It could be easily stated that these three industrial sites affected the social and spatial order of the Kayseri city and reformed the urban form. This improvement could be evaluated as an urban and spatial renovation, which also affected daily life, habits and interactions.

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The Portales Neighbourhood Unit

CHANGE AND CONTINUITY OF A HOUSING PROJECT IN SANTIAGO DE CHILE

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The Portales Neighbourhood Unit is one of the most important and oft-debated housing projects in Santiago de Chile. Designed between 1955 and 1959 by the architectural firm Bresciani, Valdes, Castillo y Huidobro, active until 1970, it was built between that year and 1967 in a peripheral but strategic area of the capital, with particular attention to its natural and urban context.

The Unit was built on the fields of what is called the Quinta Normal de Agricultura, an experimental agricultural area also known for being one of the oldest parks in the city. The Portales Neighbourhood Unit occupies an area of 31 hectares within the park, and consists of 1,860 dwelling units for a total of eleven thousand people, distributed in more than 42 different unit types. This architectural project, designed at the same time and by the same architectural team as the State Technical University (also occupying areas formerly belonging to the Quinta Normal), gives shape to a very relevant and unique urban sector of Santiago. All these conditions make the Portales Neighbourhood Unit a meaningful case study at the architectural, urban and social levels.

One of its most significant architectural features is the system of elevated pathways that connect the different buildings over the roof of the ground-floor houses and constitutes a circulation level that gains elevation thanks to the natural slope of the site. This solution permitted [the buildings] to reach a height of seven stories in the lower section of the sloping terrain, when the regulations called for only four without the need to add elevators. The network of pathways, starting at the central part of the Unit and extending horizontally (thus gaining height) towards the West, became soon the main communication way of the residents, through which they were free to move without the need to step down into the open park. Many scholars have described these pathways as a true extension of the living space, since in certain parts it was allowed to place planters, gather to establish conversations with neighbours, or for the kids to play together. Since the 1990s the system has been extensively severed because of the extensions of the lower houses and the building of sloping roofs over the walking areas, and closing its extremes with fences controlled by only few residents.

Today, fifty years after the creation of the Unit, the underlying values and ideas that supported its construction, as well as the needs and lifestyles of the people who live in it, have changed dramatically. Its relationship with the park and the urban context has changed. The city has suffered an enormous expansion in the last thirty years and Portales is no longer peripheral, but occupies what has become a very central and strategic position within Santiago. These changes bring to light the relevance of this important example of Modern architecture and suggest the urgency to document, conserve or adapt the Neighbourhood Unit to its new challenges.



Figure 1. Exterior view of Block n° 1.

Photographer: René Combeau. Picture credits: Archivo de Originales SLGM. FADEU PUC.

These conservation efforts are not the only ones being fostered in the Quinta Normal area. The re-use of former industrial structures to host the Matucana 100 Cultural Centre, the building of the new Metropolitan Library, and the new wing of the Museum of Contemporary Arts, together with the traditional museums of the Quinta itself and the cultural and educational activities of the Technical University, have contributed to a sort of “cultural gentrification” of the neighbourhood.

These functional dynamics of urban change have not only modified the relationship between the Portales Unit and its neighbourhood but, by surrounding it with the already mentioned cultural facilities and by connecting it with new infrastructures that include two subway stations and a new urban highway, have raised its value thanks to its unbeatable location.

There are, however, some important questions to be analyzed and answered. What is the future of the Portales Neighbourhood within its present situation in Santiago? Is it possible to harmonize the recovery of the area’s heritage quality with the social changes and growth occurring in the capital today? How is it possible to reinvigorate the neighbourhood without negating its essence?

Many studies and investment initiatives have been proposed from private and public sectors, trying to restore its social fabric and its architectonic qualities. Recently, the Portales Neighbourhood Unit has been included in a government program called “Quiero mi barrio” (“I love my neighbourhood”) directed to manage investments and recovering initiatives in two hundred selected neighbourhoods throughout Chile. The aim of this initiative is to revitalize the Unit from an architectural, urban and social point of view, by adding strongly needed facilities like a supermarket and a kindergarten, and by introducing some improvements in the buildings and in the ground-floor park.

As well-intentioned as all this could be, an important factor to consider is that these actions should take into account the original ideas and solutions of the Unit, so they can help to preserve the intrinsic values of the project.



Figure 2. Fruit Trees in the public space's neighborhood.

Photographer: René Combeau. Picture credits: Archivo de Originales SLGM. FADEU PUC.

One option that would address both interests is to increase the density and complexity of the programme that is included in the Neighbourhood Unit, so a reactivation of the daily life could be achieved.

In any case, any intervention should deal with the present stigmatization problem that affects the Unit, broadly considered as a dangerous place in the area. This, together with a common critique towards the architectonic typology expressed in recent years, faces a paradoxical situation in relation to the positive opinions and deep pride of the residents in living there.

The intensity and complexity that all this reflects, expressed in a very rich global quality regarding history, architecture, localization, connectivity and greenery, is the true heritage value that is at stake in this project. All these aspects should be the ones to consider in any recovery or re-use strategy, aiming at keeping the Portales Neighbourhood Unit as the paradigmatic project that it has been in the metropolitan and international fields.

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Luigi Cosenza and the Unity of Architecture and City Planning in Modern Naples

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This contribution compares two different projects for the city of Naples post-World War II, which are particularly significant in the debate around the quality of Modern architecture with respect to the urban space characteristics formulated by the Modern Movement.

The two projects under investigation, both by architect Luigi Cosenza, are the "Reconstruction Plan for the Marittima Area" (1946) and the "Urban Project on Viale Augusto" (1955-1969), which includes a block of council houses and the building of the Faculty of Engineering. The former project originally expressed an idea of urban re-foundation based on rationalist principles, but was later subject to a number of variations that dramatically distorted its original premises. It was only in the realisation of the "Urban Project on Viale Augusto" that the principles stemmed from the "Reconstruction Plan for the Marittima Area" project were truly applied.

The "Reconstruction Plan for the Marittima Area" represents a good starting point for our consideration of the role of planning in regulating the architectural transformations of the urban front, and on the ways the evolution of the bordering harbour area, progressively opening up towards the inland part of the city, was affected by the plan itself. In fact, the truly innovative feature of this project lies in its elements of novelty, in redefining the relationship between the central historical part of the city and the sea by interposing the industrial landscape of the harbour in between the two.

Furthermore, with its wide curvilinear shape, the plan successfully addresses the overall landscape features. It also represents an advancement in the design aspects of typological research in the relation it establishes between the low-rise buildings, aimed at maintaining continuity with the street level, and the high-rise buildings, which are free and opened up into the space around. Finally, the uniformity of the articulated seafront is respectful of the lean dimensions of the historical part of the city.

In particular, the project for the building located in the vicinity of the historical Piazza Mercato, lends itself to several considerations on the chosen typology. This allows the basic layout of the plan to take shape based on the surrounding urban area, hence, leading to rich variations of the elements. Such features of the plan would have contributed, if applied, to the definition of criteria and design rules that would have limited the random development of the city and would have generated an urban model as a response to the needs posed by the postwar reconstruction.

The use of a low-rise three-storey quadrangular main body, featuring further adjacent units or towers either shifted or of varying heights according to the dimensions of the street, is a choice common to many Modern architects. This is a "given form" present in all of Cosenza's urban design projects. However, by means of all the different assembling options used, such "given form" becomes, in each of the projects, a "found form".



Figure 1. Luigi Cosenza, *Reconstruction Plan for the Marittima area*, 1946.

The plan of the ground floor of the building on Piazza Mercato, although delimited, is open and permeable. By being at the same time compact and transparent, it creates a relationship between the two historical squares and the new urban spaces below and in front of the building.

The two-storey platform serves as an element of mediation between the ground floor and the adjacent nine-storey building. This is shaped on the surrounding urban texture in several ways: through the use of protrusions in the corners, so that the low rise bodies define characteristics of permeability and accessibility that are different on the various sides; through the use of a different “rhythm” and composition in the central part which is perfectly aligned to the building above; through the use of two adjacent bodies with different height and length superimposed to the platform and linked to each other by means of a *brise-soleil* façade. This latter feature resolves the connection between the two buildings and reconfigures a continuous yet transparent façade that counterbalances the church on the opposite side.

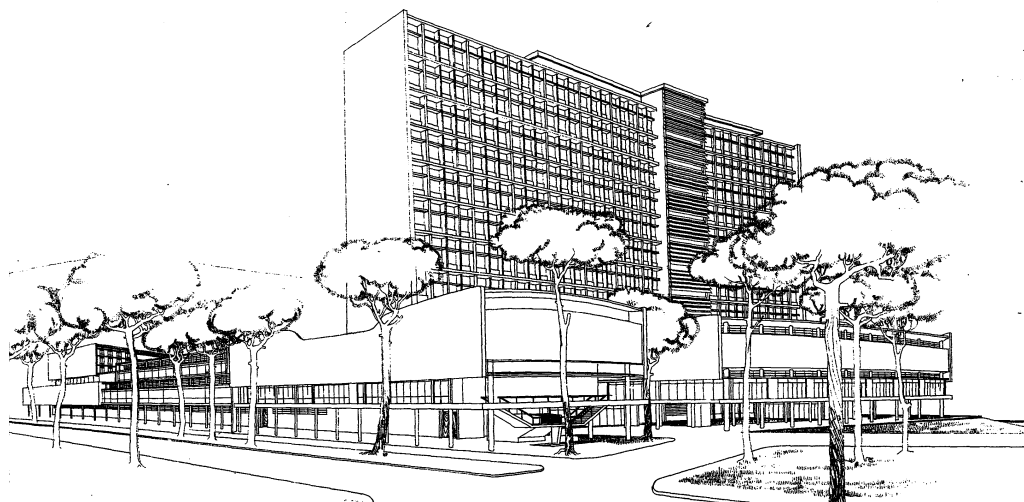


Figure 2. Luigi Cosenza, Urban Project on Viale Augusto, 1955-1969. Original perspective of the Faculty of Engineering.

With its individual volumes, each having a clearly recognisable functional role (connection to the ground, corner solution, mediation between bodies), the building responds to a Modern architectural stance. The same strategy is used by Cosenza in the urban composition of the large block of Viale Augusto, discussed below.

The second project, the “Urban Project on Viale Augusto”, applies to the scale of a block of houses the idea of a uniform and compact modern city capable of keeping together the various architectural elements each with its own function. The project, with its multifunctional yet unitary features of housings, open spaces and public spaces, represents an area of the city of particular interest when analysing the application of Modern architectural principles to urban design, and the outcome of such an exercise. With this project, Cosenza interprets the morphological structure as the point of contact of the research on architecture and the research on the city, reaching its design achievement through the expression of cultural, historical and spatial influences closely linked to the location. Three adjacent six-storey buildings are formally and functionally linked by means of a one-storey unit lifted by pilotis and parallel to the road, which acts as a connection between the buildings. This is an essential element of the project as it generates a series of spaces that mediate between the city and the building: an urban loggia on the ground floor and an urban terrace on the first level. The Viale Augusto project represents a further typological variation on the motives of the Via Marina project, a low-rise body with overlaid buildings. In this instance, the same scheme is enriched with a number of variations in the volumetric articulation of the University campus building, built at a later stage with continuity along the avenue. The protruding elements recede or align with the urban front, define spaces for mediation with the surroundings and represent an adaptation of the basic model to the local conditions.

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The Modern “D-list” vs. the Bottom Line

CONTEMPORARY URBAN REDEVELOPMENT, ECONOMIC INCENTIVE, AND THE FATE OF REGIONAL MODERNISM IN ATLANTA, GEORGIA

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Underlying any characterization of a national or regional architecture rests the mechanism of its associated economy. Following World War II in the United States, large and yet targeted government funding initiatives to support infrastructure, home ownership, education, and industry culminated to build and empower a growing middle class. The federal nature of these initiatives assured their widespread, albeit varied, application throughout the country, while their pervasiveness grew to influence all facets of the consumer economy. Today, the conservation of U.S. architecture and landscapes from this postwar era is similarly affected by national, if not global, economic conditions. However, the economic value of historic resources is rarely addressed in regulatory requirements for identification, or the motives for public-led advocacy. To strengthen the evaluation of resources possessing primarily regional significance, this poster suggests the consideration of both historic and contemporary economic contexts.

As has been well documented, the immediate postwar period in the United States was defined by unprecedented economic growth. Although it took ten years for the country to regain its pre-1929 gross domestic product (GDP), by the end of 1950 this value had tripled in size.¹ In the ten-year period from 1940-1950, housing starts increased annually and more than tripled between 1945 and 1946 as the end of the war was in sight.² In the same period, personal expenditures for consumption more than doubled, while domestic investment nearly quadrupled.³ These rates of growth have not been repeated in the U.S. to date.

The period is also defined by the emergence of new regional economic dynamics when “younger” states in the South and West grew at faster rates than established east-coast economies. For example prior to WWII, per capita income for California was approximately half of that for New York; by the early 1960s the western state had surpassed its east coast rival. Although less substantial, in the period from 1940-1960, per capita income in Georgia grew 500% versus 320% in New York.⁴ This poster illustrates case studies from the city of Atlanta, which in this period developed as the cosmopolitan centre for business, education, and transportation in the Southeast.

Within U.S. metropolitan areas such as Atlanta, protection of cultural resources is primarily controlled by local legislation. Although some protective designations and easements are determined by state and federal agencies, resources under this control account for a significantly small quantity of the total resources potentially eligible for listing in the National Register of Historic Places.⁵ In Atlanta, no resources constructed after 1937 have been designated as landmarks.

The value of conserving of Modern Movement sites and buildings possessing regional significance has been overshadowed by a larger pre-occupation with “masterworks” defined by pre-existing scholarship. Continuing this trend would suggest a “trickle-down” effect for “lesser” resource documentation and conservation; however the recent rapidity of the U.S. real-estate market and



Figure 1. Peachtree Hills Apartments, constructed in phases 1938-50, demolished 2006. Burge and Stevens, architects, Atlanta, Georgia. Image by author, inset 1943 photo from Georgia State University Archives.

the national resurgence in urban centres has not supported this evolution. In order to challenge these unique market factors, the advocacy of local constituents must at the onset promote alternatives to proposals for land and building redevelopment.

In 2001, Atlanta was rated the thirty-fifth largest city in the United States, but the eleventh largest metropolitan area with the eleventh highest growth rate.⁶ The current pattern of growth distribution evidences the city's aggressive 1952 annexation to stem its decreasing urban tax base. But despite this legislation and other earlier regional planning initiatives, Atlanta's growth from the post-WWII period until today has been primarily lead by the interests of private development.

The Atlanta metropolitan region represents the Modern distinction of the urban core from the inner and outer suburbs. As is typical, today's inner-ring suburbs are characterized by their postwar development, their dependence on aging infrastructure, and their need for reinvestment.⁷ Plans for "restorative" development, which typically involve wholesale demolition and site clearance, are often blindly praised as solutions to congestion, high taxes, crime, and the notorious "blight". However, the limited appreciation of the inner ring as merely parcels convenient to the urban core and ripe for densification ignores the opportunities to integrate their historic fabric into the larger metropolitan context.

In the United States economic system, the success of the historic preservation and conservation movement has relied on the continual exploration, demonstration, and activation of financial incentives. They have ranged from the explicit (legislated tax rebates) to the implicit (life-cycle analysis of historic materials). Today, the dominant paradigm of America's building practice is conservation- so much so that within the past decade the relationship of environmental respon-



Figure 2. 615 Peachtree Building (former First National Bank Building), constructed 1958, demolished 2006. Smith & Smith, architects, Atlanta, Georgia.
Image by author, inset 1960 photo from Georgia State University Archives.

sibility to fiscal incentive has established the terms of a conservation marketplace. The shift is represented by the popular embrace of the “triple bottom line”, as defined by energy expert John Elkington to include people, planet, and profitability. This new focus underlies the success of the Green building movement, which has led to the certification of over one thousand buildings by the U.S. Green Building Council, with thousands waiting in application.

Ironically, this movement has not been widely associated with the benefits of architectural conservation and rehabilitation. It has fostered a checklist approach to architecture, which in the words of architect Travis Price has resulted in a process “more engineering than architecture”, and diminishes the value of embodied material energy present in existing modern buildings relative to the operational efficiencies of new construction. This bias has favoured the behaviour of American architectural design as it relates to real estate development by private interests, which has historically measured value (and by extension financial risk) in the rational terms of cost per square foot. Ultimately, the increased importance of economic and environmental metrics to urban development suggests an amended method for the evaluation of Modern architectural resources. As so-called functional obsolescence continues to justify the widespread demolition of postwar resources, it is imperative that the traditional “art historical” criteria of significance be supplemented by a more scientific resource assessment including the impacts of embodied energy, reconstruction versus replacement cost estimating, and construction waste reduction.

NOTES

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- 3 U.S. Bureau of Economic Analysis, National Income and Product Accounts of the United States, 1929-97, vol. 1.
- 4 U.S. Bureau of Economic Analysis, Personal Income and Personal Income Per Capita by State: 1929 to 2001.
- 5 For eligibility criteria, see "Criteria for Evaluation," <http://www.nps.gov/nr/listing.htm>.
- 6 U.S. Census Bureau, Census 2000, Ranking Tables for Metropolitan Areas.
- 7 *Halfway to Everywhere: A Portrait of America's First-Tier Suburbs*, published by the Urban Land Institute (ULI) William H. Hudnut, III.

Modern Architecture goes on Holiday

THE LIDO DI MORTELLE IN SICILY, A SMALL "LINEAR CITY" BY THE SEA

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Sea resorts bring to the extreme the Modern architecture restoration themes, due to the difficulty of preserving buildings which were never meant to last, and are particularly exposed both to harsh climatic conditions and to changes in social habits.

Mortelle, a poorly known Sicilian example, lays next to the Messina Strait and Ganzirri salted lakes. Two beach resorts (Lido di Mortelle, 1955-57, Lido del Tirreno, 1955-58¹) give shape to a small linear city, making the transition between the hills and the sea, in a much-characterised landscape. The historical moment of their construction represents a relief that had been longed for, after the second reconstructive emergency in Messina in less than forty years: the first one as a result of the big earthquake in 1908, and the second one made necessary by the destruction caused by the Second World War bombings.

The dichotomy between everyday life and holidays, gradually involving growing masses of people, requires new types of buildings; nevertheless, just like in any city, repetitive parts, like changing rooms or bungalows, give structure to the urban fabric, and are interrupted by exceptional pieces, somehow the equivalent of monuments. The beach resort type brings together threads of the histories of different building types, from landscape architecture to sporting facilities, to hotel accommodations, and leisure architecture, summing up these contributions but adding a specific character. This added character is linked to childhood, to fun, and one could almost say that people undressing for beach life correspond to buildings "dressing up" for the same scenery. The symbolic and communicative role is played through the use of reinforced concrete plastic shapes, together with bright colours embodying the playful side of life. In Mortelle, two of the objects in particular stand out for scale and innovation: the so-called lobster, a covered entrance to the Lido di Mortelle, and the water tower at the Lido del Tirreno. The lobster participates in a global contemporary interest in thin shells and organic shapes, its floating vaults, suspended over "Y" shaped pillars, gradually diminish in scale and height, framing the sea horizon and guiding the people going from their everyday life into the parallel vacation world. Its superposed red conoid vaults are probably an echo of the contemporary project for the Sydney Opera House.² In the water tower two pyramidal solids intersect, producing a sculptural object, a vertical landmark standing out within the horizontal landscape.³

The original project for Mortelle involved the construction of another hotel, a camping site, a swimming and sports centre, and a broader project of similar resorts all over Sicilian coasts, to attract northern European tourists, mainly travelling by boat. These plans were never accomplished, leaving the two existing poles to play a rather isolated role.

Today, the partial decay of the Sicilian resort, emphatically described in the news from 1958 as having nothing less than the luxury of Miami Beach resorts, is due to the lack of services offered to the public and to the inadequacy of the tourist receptivity, as much as to the physical decay and change in social standards.

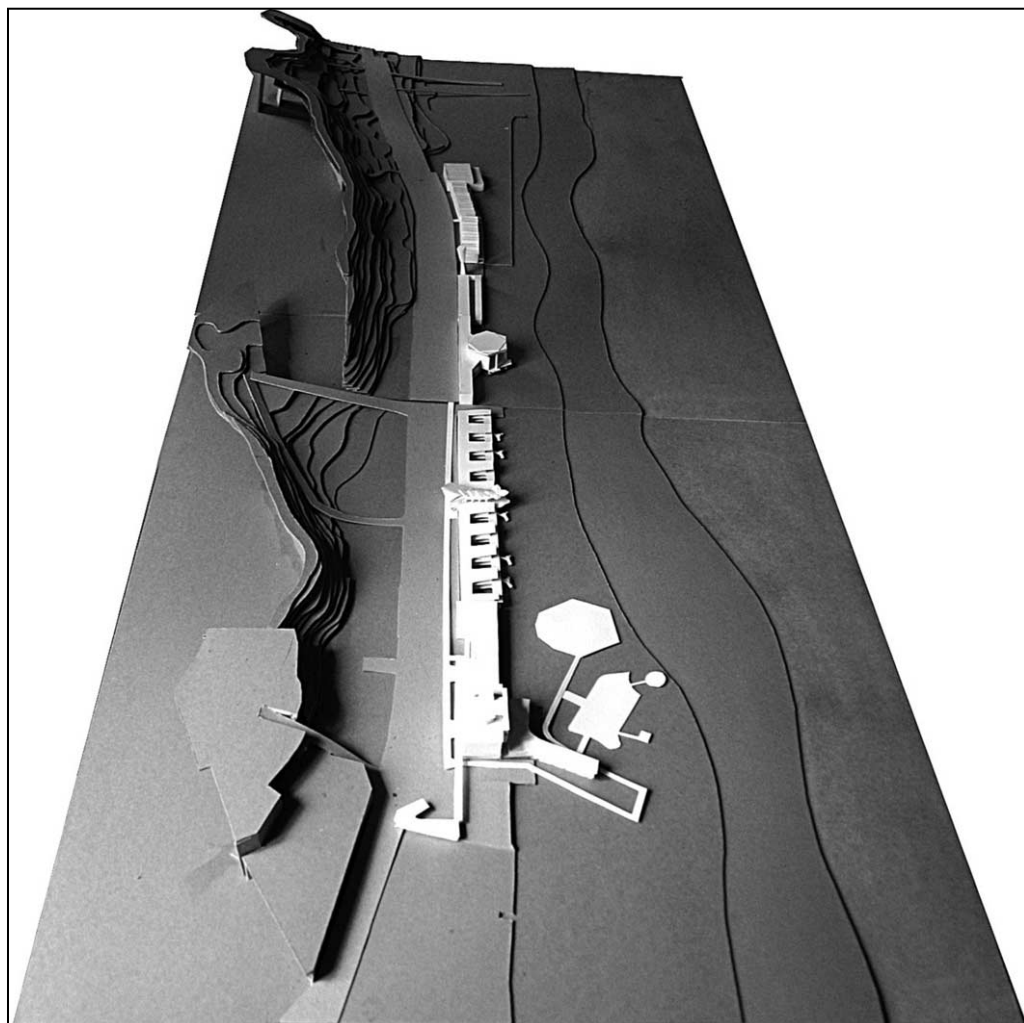


Figure 1. Beach resorts and landscape model, the "linear city".
Model and photo: Isabella Fera.

Paradoxically, the proposed preservation of the buildings for their historical and architectural significance is contradicted by a regional law demanding the indiscriminate demolition of permanent constructions built along Sicily's beaches.

The global restoration project is founded on the reinterpretation of the various buildings as a whole. The cross-section becomes the privileged connection between hill slope and seashore.

The road gains depth, providing new underground parking and creating a promenade, a central element for every seaside centre: the existing "Brazilian" paved stripe with its dichromatic wave-like pattern is prolonged to become part of the cycling and pedestrian path. Furthermore, not only is there a relationship established between the two sides of the road, but also an invisible thread is formed to link the buildings. The underground parking, lit by a linear skylight, is intended as an airy and open space, in visual and physical connection with the existing buildings. The different parts, recognized as self-sufficient buildings or objects, have different types of proposed interventions. Identifying the main values in each part, such as urban, strategic, structuring, architectural



Figure 2. Detail of the vaulted entrance to the resort, the lobster.
Photo: Isabella Fera

or plastic value, leads to interventions ranging from restoration and preservation for some of the "special" parts, to the re-use of the repetitive parts, such as the changing rooms, grouped both horizontally and vertically into mini-flats.

The restoration project chooses to re-contextualise the buildings in their temporal and physical environment. Mainly due to their geographical location they have been overlooked in architectural history. Therefore, the project aims to establish a role for this complex, stressing its qualities in constructing an artificial landscape, which brings man's scale into the territorial dimension. The interest of this study lies in the possible demonstration that this holiday architecture typology, so fragile and recent, and often regarded as secondary if compared to the "serious" building types, should be the object of research and preservation as a privileged field of experimentalism for Modern architecture.

NOTES

- 1 Filippo Rovigo, architect, and Napoleone Cutrufelli, engineer, are the authors of the two building complexes. Especially the first one (Filippo Rovigo), always in touch with national and international architectural trends, played a big role in the new urban asset of Messina in the 50's. The only published study about him, although limited, is N. Pino, F. De Pasquale, 1996, *Filippo Rovigo*, I Quaderni dell'ordine degli architetti di Messina n°3.
- 2 Utzon, J. 1965, "The Sydney Opera House", *Zodiac* 14, 36–93 "In fact one must have a fifth façade which is just as important as the others". When the entrance to the Lido was built, obviously on a completely different scale, Utzon was still looking for the final geometry for his vaults.
- 3 "They [the water towers] are fast becoming a world-wide gallery of gigantic abstract sculptures in the open air", P. R. B., 1962, "Water towers", *Architectural review*, July, 60-62.

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Modernist Social Housing in Colombia: an Endangered Species

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Both Modernism and social housing experienced their breakthrough in Colombia only in the 1940s. The figure of speech that in Colombia the nineteenth century went on until 1930, seems to be true considering architecture: some new proposals such as Neo-colonialism, Art Deco and Modernism began to appear only around that year. Modernism's influence was at first limited: although some of the masterpieces of Colombian Modernism were built in the 1930s and 1940s, this period is generally considered to be a transition phase¹. The vast new expansion neighbourhoods of the capital city, Bogotá, were above all eclectic. Social housing of this transition period was characterized by the use of brick and roof tiles.

The 1948 El Bogotazo riots marked a breaking point, a moment of change around the country, both in general terms and in architecture. It not only left downtown Bogotá devastated and with a need for new urban models, but also originated winds of change and progress that are comparable to those in Europe after World War II. The first generation of locally trained Colombian architects, which had been graduating since the early 1940s, had already embraced Modern architecture unconditionally during their years in university. Between 1945 and 1950, Modernism took the definitive and undisputed lead in Colombian architecture.

With the massive migration towards the cities that occurred in the 1950s and 1960s, the need for social housing increased dramatically, especially in Bogotá. Public and semi-public institutions such as Instituto de Crédito Territorial and Banco Central Hipotecario took up the challenge and realized the first large-scale social housing projects following Modernist schemes. Besides the CIAM documents, one of the main direct references hereby were the plans of Le Corbusier that had been made between 1947 and 1953 but were never carried out.

The immense housing production of the 1950s, 1960s and 1970s, regarded as the golden age of social housing in Colombia, is of a surprisingly high quality. Although the projects proved to be insufficient in quantity to cope with the extreme demographical growth and were unable to end illegal settlements, they provided decent housing for millions of Colombians². Several projects show excellent designs, such as the brick modernism and split levels of Los Alcázares (1949-1957), the curved concrete roofs of Quiroga (1951-1962), the inventive organization of the Calle 26 residences (1964) or the façade of the Colseguros residential units (1963-1967, Figure 1).

Being social housing projects, the apartments and single-family houses were to be occupied by lower and middle class people, many of who were immigrants from rural zones. Urban development in Bogotá, which until recently was a city without a strong identity because most of its inhabitants considered themselves "belonging to elsewhere", would be strongly influenced by their habits. The poorest people invaded pieces of land in the periphery of the capital and built their homes room by room, according to the financial circumstances. This system has been called "progressive development"³, since a home is not considered a product, but a process.



*Figure 1. Colseguros residential units, Bogotá. Photograph of 1967 by Paul Beer.
Source: Museo de Bogotá.*

This rural tradition also had strong repercussions on the single family homes so carefully designed by the Bogotá architects. Today, it is almost impossible to find a single perfectly conserved house, due to three widespread types of intervention by the owners. First, it is common that every possibility to extend a house is taken advantage of to create space for additional family members or for letting. The most frequent interventions are closure of balconies and porches, extra rooms on top of garages and roofs, additional storeys and covering of patios and front gardens. Second, safety issues have played an important role in the transformation of Modern architecture, as crime rates in Bogotá were extremely high, especially in the 1980s and 1990s. A result is that, almost without exception, ground and first floors have iron bars behind the windows. Owners of houses that have a garden or parking space in front typically place man-high fences around it, creating a safe place for the car, that later can be covered and possibly converted in an additional room. Third, mostly in the more important streets, ground floors and garages tend to be converted into commercial spaces: stores, workshops, offices, bars and restaurants. In Figure 2, two homes in the Los Alcázares neighbourhood show all three types of interventions: on the left an extra room and a basement were added, all windows are burglar-free and the use of every single space on street level has been modified.

High-rise architecture has been preserved much better. Of course, this is due mainly to the fact that it is almost impossible to add extensions to apartments. Another reason, however, is that most high-rise ensembles which were converted into gated communities have proven to be easier to preserve, as occupants pay an administration fee that usually includes maintenance of the exteriors.



Figure 2. Considerably transformed social housing in Los Alcázares, Bogotá. Photograph of 2008.

Heritage protection still is a harsh subject in Bogotá, especially when concerning modern architecture. Although some legislation does exist, there is almost no control, nor is it stimulated to invest in these buildings. In order to protect low-rise social housing projects and make future restorations possible, Bogotá will have to choose between a top-down model in which there would be strong control and sanctions for forbidden interventions, a common-property model where the houses would belong to an organization and would be occupied by tenants, or a bottom-up model that conserves social structures and encourages protection by means of subsidies and the appointment of a neighbourhood curator. The challenge is how to avoid irresponsible transformations and, above all, how to reduce the need for transformations.

NOTES

- 1 Arango, S., 1978, *Historia de la arquitectura en Colombia*, Universidad Nacional de Colombia, Bogotá, 12.
- 2 Saldarriaga Roa, A., 1995, *Medio siglo de vivienda social en Colombia 1939-1989*, INURBE, Bogotá, 161.
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The Modern Agriculture Village on the Hachirogata-polder in Japan

THE DESIGN PROCESS DURING THE ECONOMIC DEVELOPMENT PERIOD

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The aim of this paper is to discuss the creation process of the Modern agricultural village (1954-1976), which occurred during the economic development period in Japan. Agriculture is a critical subject around the world, and we try to focus on the challenges of the people who contributed to build this modern agriculture village on the Hachirogata-Polder. The project area is around 17,000 hectares. This is one of the biggest reclaiming projects in Japan.

After the Second World War, the food crisis and unemployment were serious social problems. The government made the 'one million farmer program' in 1947, which aimed to increase the population of farmers and expected more food production. Thus, reclaiming projects became more important. The Prime Minister Yoshida wished to restore friendly relations between the Netherlands and Japan. He then decided to request the Dutch government's support in reclaiming the land for agriculture. He intended to resolve the political subjects of unemployment and food production.

In order to learn from the Dutch experience of reclaiming the lands, the Japanese government invited Dr. Jansen, who was a Professor at TU-Delft, and was recommended by the Dutch government. He came to Japan in 1954 and conducted research on the reclaiming projects, and then Dr. Jansen submitted the report to the government. He wrote some remarks on reclaiming projects in Japan. He showed the potential of the Hachirogata project. The government and the Netherlands Engineering Consultants (NEDECO) made an agreement to work together on this project.

Dutch and Japanese professionals worked in both countries and they made the project report in 1957. In 1961, the government, basing their ideas on these reports, proposed the first general plan. Dr. Takayama and Dr. Ura were in charge of designing the village.

The first plan, proposed by the government, was similar to the traditional Dutch polder [model]. This plan intended to allow the maximum population of farmers. Subsequent plans made through 1962-1963 had the central village and the satellite villages integrated into the ring structure. This project is similar to the general plan of Noordoostpolder. The general plan was changed again in 1964. The new plan had the ladder type structure for the central village, but did not have the satellite villages. We see influences in the urban structure from the Tokyo Plan of 1961 (done by Tange). This plan was adopted for the current plan, which had been figured out from 1964 to 1971.

Behind this transformation of the plans, there was political instability regarding agriculture, rapid industrialization, urbanization and technological development. To follow these changes was challenging for the planners. Transformation of the general plans shows the changes of the society.

The government and local authority carried out this huge project. They intended to make the 'ideal agriculture village' in the country. The concept of 'large scale' was used for agricultural planning as well. To establish a modern community on the polder was to abolish the feudalism of common traditional villages. Women's human rights in a Democratic society were the most

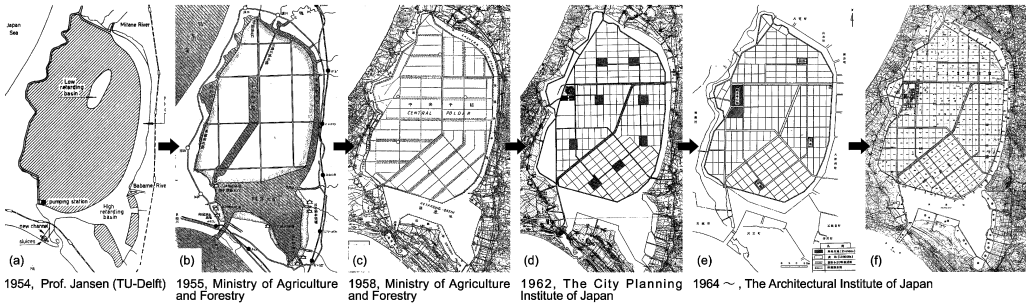


Figure 1. Transformation of the general plan for the polder: Many changes on the master plan were caused by rapid transformation of the Japanese society during the planning process. After 1958, Dr. Takayama had been working for making the plan of the modern village on the polder.

- a. Prof. Jansen (1954)
- b. 'Reclaiming Project of the Hachirogata Polder, Akita Prefecture (1956),
- c. 'General Plan of the Hachirogata Polder', Office for the Reclaiming Project at Hachirogata (1958)
- d. 'The Planning Report of the New Agriculture Village of Hachirogata Polder', The City Planning Institute of Japan (1963)
- e. 'Concise Information on the New Village at the Hachirogata Polder', The Development Committee of Ohgata-mura Village (1968)
- f. 'Drawing Collection of the Reclaiming Project at Hachirogata', The Reclaiming Agency for the Hachirogata Construction Project (1977)



Figure 2. The standard farmer's houses. The planning committee intended to make 'the ideal modern agricultural village' by making 'urbanized rural life style' of the farmers. After they started to live in these standard houses, they started to extend their interior spaces, because these houses were too small for them.

Source: Polder museum of Ogata-Mura

important political idea for making the village. 'Equality' was a fundamental concept in the decision-making process. To share agriculture machines within the farmer's group was a key idea to make the community planning. 'Equality' also meant the income equality, when compared to the general workers in the cities. In order to design the farmer's houses, the architect designed an apartment type of standard house, by referring to the social housing. The lifestyle was to be the same as the workers of the modern factory in the urbanized area. When the farmers bought their house they could chose a favourite layout from sixteen types, which were using the mass housing method. The first floor of these houses was not finished, because of flexibility for future use.

The farmers started to settle in this polder from 1966 to 1973. It was a very difficult issue for both the farmers and authorities to build up a good community. Rapid motorization had brought unexpected effects to community planning. The commercial zone and medical facilities did not work as the planners had estimated.

After 1970, since the government made the law to reduce the amount of rice production, the farmers had to convert their paddy fields into vegetable fields. Social differentiation appeared

via the extended buildings on the standardized houses. The farmers, who had settled in order to make the ideal rice-producing village, fought back against the government. The farmer's protests made intimate connections possible with the urban people. They started to sell their agricultural products to urban people directly. They also started to use less agricultural chemicals, responding to the demands of the consumers. As a result, this village found its own way to make an environmental agriculture village.

The farmers' life was influenced by the rapid transformation towards an industrial society. Through this project the engineers confronted many challenges, while the farmers were trying to achieve their goal to make an ideal Modern agricultural village. These challenges motivated the farmer to make an ideal village of ecological sustainability, which had not been intended by the government.

The international political condition promoted this project, while the government tried to make an ideal village through a scientific approach, but this Modern project shows us that the experiences of the farmers will be vital when meeting the future of food-supply in the world.

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Modern Housing in Brazil and the Conservation and Rehabilitation Questions

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The production of social housing in Brazil has been studied in several investigations about the formation of a housing police in our country since the 1980s. The principal goal of many researchers (Farah 1983; 1985, Azevedo & Andrade 1980, GAP 1985, Melo 1987, 1991, 1992) was discussing the implementation of the main Brazilian public housing agencies and quantifying their production. Another common theme in those studies is the limited expression of that production and its narrow influence in the formulation of the guidelines for the National Housing Bank (BNH), which was the organization that unified all housing state agencies in Brazil in 1964.¹

The direct public production and financing of housing in Brazil has been catalogued and classified today by the thematic research "Pioneers of Social Housing in Brazil (1930-1964)", coordinated by Professor PhD Nabil Bonduki. This research has been made through the analysis of the most important agencies involved in that process: the Social Security Institutions (IAP's),² Popular Housing Foundation (FCP) and Popular Housing Department of the Federal District (DHP).

The extension of the actuation of those institutions can be observed in the fact that only the IAP's and FCP had financed or built more than 170,000 dwellings, distributed in almost five hundred housing ensembles in the whole country. Moreover, nothing less than seventeen federal, municipal or state agencies had been created in that period to face the problem of housing.

As the bibliography and the documental research have suggested, in the period from 1936 to 1951 one can observe several experiments in that field; many different spatial arrangements and prefabrication attempts had been identified, as well as different architectonic references, like CIAM's proposition, Corbusian's schemes, city-garden ideas and American urban (Bonduki et al, 2003).

As it had been observed, it seems that each agency has selected and developed a role model to guide the building, such as the Industrial Workers' ensembles, which followed the German experiences line, and the FCP production, which selected the Brazilian traditional model for its houses (Bonduki et al, 2003). In several cases, one can observe different references in the same ensemble, as the emblematic case of the Vila Residencial Passo da Areia, in Porto Alegre, state of Rio Grande do Sul. This ensemble, with more than 2,500 housing units, mixed principles from city-garden, Modern Movement, traditional urbanism and regionalism, typical of the south region of Brazil.

The visits to the modern housing estates revealed the current deteriorated conditions of those sites and, mainly, the difficulties that recent residents face in structuring condominiums and maintaining common areas (housing in Brazil is usually for selling and not for renting). Two examples that are very recognized and have been the targets of some mobilization or study for the safeguarding of their original characteristics are Conjunto Residencial de Pedregulho (DHP), designed by Afonso Eduardo Reidy, and the Vila Residencial Passo da Areia (IAP), in Porto Alegre, state of Rio Grande do Sul, designed by Edmundo Gardolinsk and Marcos Krutter.



Figure 1. Vila IAPL. First plane: slab, point-access. Second plane: row houses.
FAYET, 1994.

The Vila Residencial Passo da Areia was the subject of a meticulous study involving urban and architectonic characteristics, as well as current needs and expectations of inhabitants, with the purpose of formulating the municipal guidelines for the preservation of the site.

The architecture office “Carlos Maximiliano Fayet Ltda.”, contracted by the municipal government, prepared research about the degrees of integrity and compromise of the original design through the following methodology: urban evaluation; survey of the typological alteration; recurrent alterations; urban paths evaluation; gardens and patios advances evaluation; adjacent buildings evaluation.

Through the establishment of this evaluation scale and several meetings with the community, specific directions were presented for architectonic and urban issues. The ensemble is composed of twenty-six different housing typologies, and each one of them received a plan for recovering the original main characteristic of the architectural block, and a plan for future interventions in each unit.

This initiative is not a reality yet because of the municipal bureaucracy and local, conflicting motivations. Since 1994, the municipal government has been divided about the preservation laws for a residential area because of the interests involved, especially connected to the property market.

The fact that these public housing productions are still not widely known and recognized as icons of Modern Architecture in Brazil is one of the factors that make making decisions on the preservation issues difficult. We hope forums like this one can reverse this scenery in our country while we still have some of the most important Modern Movement manifestations: the housing for the working class.

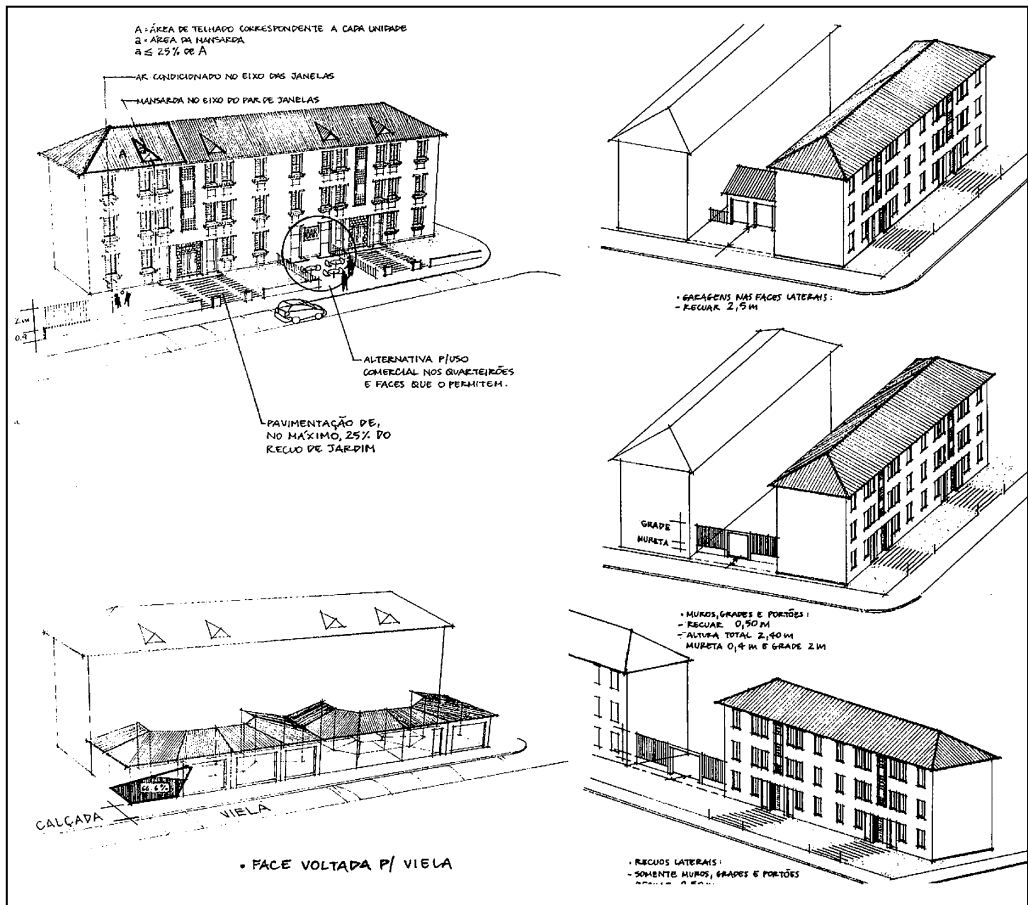


Figure 2. Studies for future modifications: private garages, driveway, fences and dormer window. FAYET, 1994.

NOTES

- 1 Brazilian housing production before 1930 was in charge of private promoters. The public intervention had been restricted to legislation and taxes aid for those who invested in housing building. Vargas' first government (1930-1945) established a corporative regime and a pattern of State-Society relationships whereby social interests were incorporated into a set of centrally controlled structures. Under his government, the housing question was recognized as a social matter and was introduced in the governmental schedule (MELO, 1987; p.59).
- 2 Those Institutes were divided in several workers categories, as IAPB (Social Security Institute for Bank Workers), IAPC (Social Security Institute for Commercial Workers), IAPI (Social Security Institute for Industrial Workers), among others.

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La Habana del Este: A View to the Future

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Since Colonial times, Havana developed towards the Western side of its bay. The Eastern side, which constitutes a very extensive piece of land graced with beautiful beaches and an incredible natural environment, waited a long time to be conquered. A geographical obstacle—the bay of Havana—did not permit the city's extension to the East because any effort to develop that area would have required a considerable investment.

It was in the mid-1950s when Fulgencio Batista's government organized a major real estate operation to win over the Eastern landscape. A few new towns, focused on private recreation for wealthy families, started to be built along the beaches but with minimal articulation amongst them or with the rest of the city.¹ Yet Batista's proposal also included a comprehensive master plan, with the contribution of important foreign architectural firms as American Skidmore, Owings and Merrill; Town Planning Associates²; and Italian Franco Albini, among others. In addition, Cuban firm Compañía de Fomento del Túnel de La Habana S.A., with the participation of Miguel Gastón, Civil Engineer, designed a monumental urban development for a city in the East for Havana's upper class. A new presidential palace, many services, a large residential complex and an international airport, along with gardens and beautifully designed open spaces, were included in the urbanization which was more than 10 km. long. The plan, which was inspired by the most modern of urban concepts, was spearheaded by the idea for a new wide highway –Vía Monumental.

The first step became a reality, when, in 1958, an ultra-Modern tunnel under the bay, designed and built by the French company Grand Travaux de Marseille, with the contribution of outstanding Cuban engineers and construction workers, was inaugurated. The tunnel was to provide fast communication between the Eastern and Western parts of Havana. But, in 1959, a big surprise abruptly broke the visionary project: the revolution of Fidel Castro came into power and the development of the East took a different turn.

Based on the former urbanization project, the first town built by the Revolution was launched in 1961 in the East of Havana: Ciudad Camilo Cienfuegos³. Its layout was similar to the one previously conceived by former firms, however, the new urbanization, intended to house Cuban workers instead of the rich, totally changed the original concept with respect to clients and real estate rules. Now the client would be the working class, with new opportunities, which included the state's assumption of dwelling costs.

Camilo Cienfuegos, declared as a Cuban National Monument in 1996⁴, is considered the best urbanization built by the Revolution. The area is home to two types of apartment buildings, eleven and four stories high, respectively, and boasts social and cultural services, as well. Gardens, playgrounds, sport fields and other public spaces were included to provide the best social and physical environment for users.

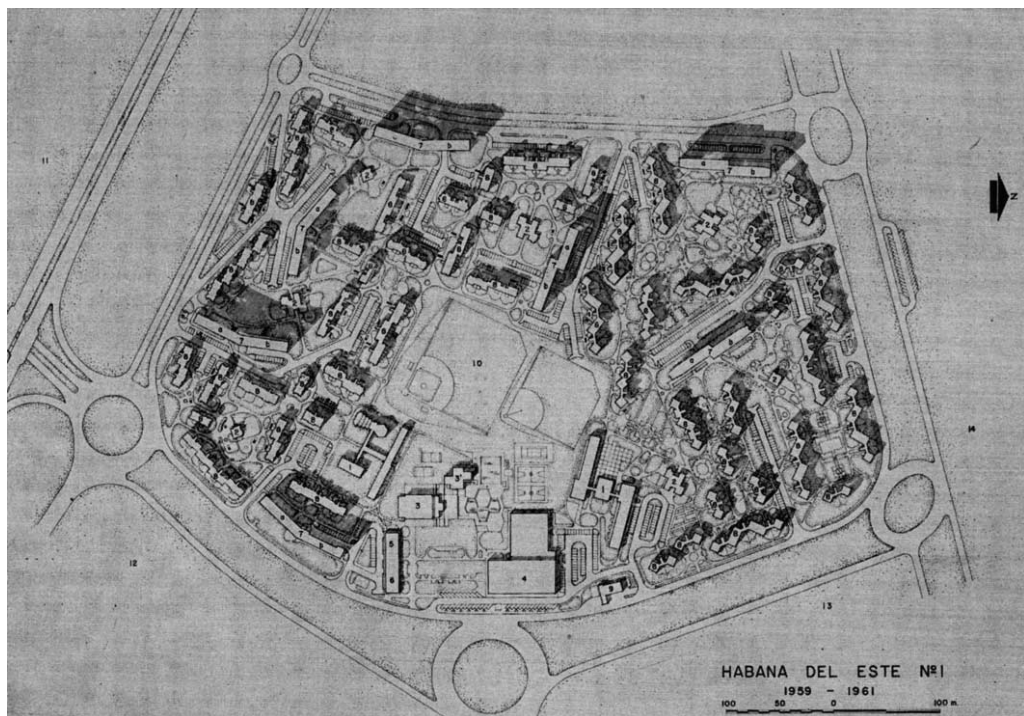


Figure 1. 1955. Skidmore, Owings & Merrill, Plano Regulador Habana del Este. Archivo Nacional de Cuba.



Figure 2. 1959-1961. Hugo D'Acosta, Mario González and others. Ciudad Camilo Cienfuegos, Habana del Este. Archivo Nacional de Cuba.

Afterwards, in 1961, the revolutionary government proposed a new district just next to Camilo Cienfuegos. The area was designed by two Cuban architects who had decided to stay in the country in spite of the major political, economic and social change⁵. This second unit, also based on the concepts of Modern urbanism, was to have a Revolutionary Square, some ministries and office buildings, and a huge housing compound. The project never became a reality.

From that time to the present, the lands of the East have been built with different and innovative projects through which the Revolution has tried to solve Havana's housing problem. Among others, Alamar and Villa Panamericana have been the most relevant urban investments in the territory.

Alamar is a huge housing project, which began in 1971 and is still under construction. More than 100,000 inhabitants live there in spite of inefficient urban management and a lack of social facilities and community open spaces. A lot of square blocks, with almost the same design, share the enviable natural context in front of the sea. Yet there is little care for maintaining public spaces, and residents have built a number of undesirable booths to supply the necessities that the urbanization never gave to them. Also built in an ad hoc fashion are garages and warehouses. As a result, the area has a slum-like feel in spite of its natural beauty.

Villa Panamericana, built in 1991 as part of the facilities designed for the Pan-American Sport Games held in Havana, proposed a more comprehensive urban design based on the traditional grid of Cuban neighbourhoods, and also provided public services on the ground floors of buildings that face a tree-covered pedestrian boulevard. Although representative of a better urban design, this area still remains disarticulated from the rest of the eastern territory.

Though the revolutionary program for the East has been a good proposal, at present, planners and historians feel that this wonderful land is not well-used. What once was a Futurist project is actually a dormitory city, characterized by monotony, wasted land, and a lack of services, public spaces and cultural activities. In recent years, some international workshops with both Cuban and foreign architecture students have tried to create affordable solutions for the entire zone. Nevertheless, no significant changes have occurred to date.

It is time to think about how to produce big changes in this privileged territory to the East of the capital city of Havana. Without doubt, the area has an enormous potential to be developed in a fine way, thanks to its natural landscape.

NOTES

- 1 Examples of those urbanizations were Celimar (1953), El Mégano (1953) and Santa María del Mar (1957).
- 2 With Paul Lester Wiener, José Luis Sert, Paul Schultz, and Seelye Stevenson, Value and Knecht, Consultant Engineers.
- 3 Designed by architects Hugo D'Acosta, Mario González and others.
- 4 Comisión Nacional de Monumentos: Resolución 134, 8 May 1996.
- 5 Fernando Salinas and Raúl González Romero, architects.

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Building Restoration in Bacu Abis

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The residential area of Carbonia and its satellite towns Bacu Abis and Cortoghiana are a remarkable example of a salient period of Italian architecture, namely that of New Towns, built as part of a political drive for national autonomy.

Given their historical significance, the Carbonia town council is addressing the issue of their preservation seriously, linking local plans with architectural research at the University of Cagliari Department of Architecture, under Professor Antonello Sanna. Thus, a restoration programme was set up for the town of Carbonia and its mining structures in 2001, aiming to value their industrial heritage.

It was the decline in mining that triggered the beginning of a constant process of change of the building construction methods. The familiar existence minimum of the houses had soon become too small, and no longer able to adapt to modern living needs. There was also a resistance to Fascist planning models, and, meanwhile, the Council Housing Association (IACP), which had owned houses and public spaces, began a slow but steady sale of public grounds and buildings for private ownership.

A most significant example of the local administration's strategy is the building restoration plan of Bacu Abis, which adapted the original built environment in response to modern living needs. The first phase involved the identification and classification of buildings in need of conservation, resulting in three categories: *bassa trasformabilità* (original construction suitable for total conservation), *media trasformabilità* (non-original construction but compatible) and *alta trasformabilità* (non-compatible).

The next stage involved guidelines for sustainable solutions that were culturally sensitive to some of the principles of conservation, such as honest restoration, which does not try to disguise new additions, leaving the modifications clearly distinguishable.

One of the most interesting aspects of the Bacu Abis plan was a change in boundary structures. In a case such as this, where the modern urban environment seems compromised by a dense variety of ad hoc structures, a redesign of boundaries is a good way to restore a uniform style. From an analysis of the few surviving historical photos and archive material, it was established that there was no original provision for fencing, and indeed the allotments, regarded as "war gardens", were not delimited. However, over time, boundaries had become inexorably integrated with a clutter of other buildings, such as garages and sheds. The planners recognized that it would have been impractical to attempt to return to the original open spaces, so there was a need for a new plan which incorporated heritage while [remaining] in tune with new cultural and practical values.



Figure 1. The bounds of the planning land.
Archivio Società Umanitaria Carbonia.



Figure 2. Houses aligned with the road.
Archivio Società Umanitaria Carbonia.

The redesign of new boundaries took inspiration from those seen in Carbonia and Arsia, its “twin” localized in Istria. In fact, the houses of Bacu Abis, as those of Arsia, were probably designed by Gustavo Pulitzer Finali, who respected original style through the use of modern materials. Guidelines required the integration of the new boundary with existing structures aligned with the road, with a common standard upper horizon line, the lower part of solid construction, and the upper part planned to contain greenery.

The garages and small open/closed blocks that had sprouted up against the boundaries presented one final problem. Given that these structures could not be relocated elsewhere, planners settled on a typical flat-roof profile, to distinguish them from the main buildings, which had sloping roofs.

The plan divided these additional structures into two groups: *duri* (“rigid”), legitimately built even though in conflict with the original design, and those *trattabili* (“malleable”), where a precarious cover such as an added and partially enclosed balcony [existed].

For the former group, mitigation was applied through the creation of simple volumes, while for the latter *trattabili*, the plan proposed removal or replacement with “light” designs in iron or wood and similar to those employed at Arsia.

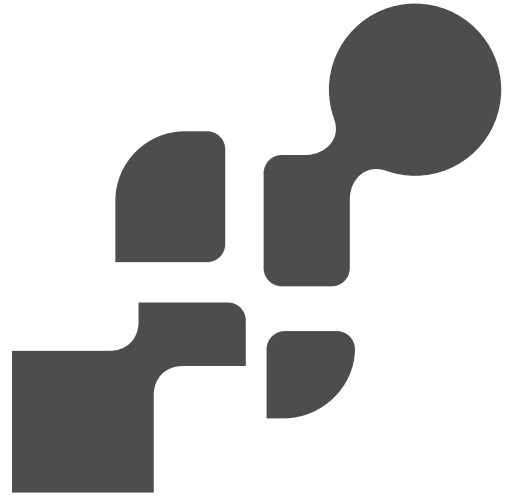
Guidelines were openly discussed on a case-by-case basis with the inhabitants, and the town council instigated a “laboratorio della qualità urbana”, a research body which facilitated an exchange of ideas with private initiatives. This brought about a strategy that was adapted to flexible restoration, able to take on problems related to coexistence between culture and modern living requirements in harmony with the existence minimum of the original urban landscape.

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Change and Continuity

Restructuring Cities and Landscape

Shifts in Programme and Flexibility

Education in Transformation

Technology, Progress and Sustainability

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From Glorious Past to Sustainable Future: Cincinnati Union Terminal

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The Cincinnati Union Terminal is arguably one of the most significant National Historic Landmarks in America today. A magnificent railroad station and an exquisite example of Art Deco architecture, it now houses the Cincinnati Museum Center. The Museum Center unites the Cincinnati Historical Society, the Cincinnati Children's Museum, the Museum of Natural History and Science and the Robert D. Lindner Family OMNIMAX Theatre under one roof.

The Terminal was designed by the noted New York firm of Fellheimer & Wagner – a national architectural practice with expertise in railroad facilities– in collaboration with Paul Phillipe Cret as design consultant. The project was an enormous undertaking by any standard. A series of viaducts and roadway improvements connected this “city within the city” to the urban structure of Cincinnati, making it an anchor of the West End area.

The building, completed in 1932, was one of the earliest forms of intermodal transportation hubs. It allowed for railroads, private automobiles, taxicabs, buses and the planned light-rail system to converge within the Terminal, in a masterful combination of traffic engineering, urban design, and architecture.

Viewed as the “Gateway to the West,” the Terminal, in its heyday, accommodated over ten thousand passengers daily. During World War II, thousands of soldiers, sailors, airmen, marines and officers of all branches of the military passed through the Terminal en route to the various theatres of operations or returning home.

The Terminal contained restaurants, shops, lounges, a beauty salon, a small theatre and a wide range of amenities, making the departure and arrival of passengers a pleasant and memorable experience.

After the War, the Terminal continued to be a central hub of transportation until the Interstate Highway System and the commercial airlines made the railroads a less desirable form of long-distance travel.

In the 1970s, it was clear that the railroads could no longer support the facility and alternate uses for the Terminal were explored. Various plans for the development of the site failed to solve the vacancy problem, creating a looming uncertainty as to the future of the landmark structure.

In 1975, the City of Cincinnati purchased the building for \$2 million and the fifteen-acre site for \$1 million, but not before all but one set of gates and most of the Concourse Promenade had been demolished. An attempt to convert the structure into a mall was ultimately unsuccessful, leaving the Terminal in desperate need of a saviour. Over the next ten years, the vision of E. Verner Johnson – noted museum architect and planner – led a successful campaign to convert the former terminal into a museum facility. In 1991, the Union Terminal reopened its doors as the Cincinnati Museum Center, saving the building and providing a new home to two of the City's existing museum institu-



Figure 1. Rotunda of the Cincinnati Union Terminal, 2006.

tions. In 1998, the Cinergy Children's Museum joined the Museum Center, further enhancing the resources of this family-oriented museum venue.

The 1990 conversion of the building into a museum facility was indeed an experiment. The converted facility contained nearly a half-million square feet of space, much of which was designed for railroad station functions (vehicle ramps, garages and baggage handling areas) and was never intended to be used as "finished" space, let alone for museum galleries.

Unfortunately, the renovation was critically under-funded in light of the building needs and the programmatic requirements of the new museum facility. As a result, a series of painful decisions had to be made, with significant needed components of the project being eliminated, simply because there were not enough funds to address the multitude of issues.



Figure 2. Front Façade of the Cincinnati Union Terminal, 2005.

Approximately fifteen years later, a new tax levy provided the opportunity for the Cincinnati Museum Center to re-examine the needs of the building, the site, and its mission as a major museum facility. It is in the context of this initiative that the Master Plan for the Cincinnati Museum Center Restoration and Renovation Project was prepared. The team of RMJM Hillier / Glaserworks was selected to prepare this plan and to assist the County and Museum in planning for the future of this extraordinary landmark.

The Master Plan was organized into three cycles of work. The first cycle was a discovery and fact-finding effort. Extensive historic research was undertaken to understand all stages in the evolution of the building and the site, starting with the original design and construction and continuing through to issues of deferred maintenance and long-term performance.

The second cycle was a thorough assessment of the facility by a diverse team of experts, ranging from preservation architects and conservators to specialists in virtually all areas of planning and design. This effort resulted in a comprehensive list of issues that should be addressed. Along a parallel track, a Space-Use Plan was prepared which identified the present and future programmatic needs of the Museum.

The third cycle was the preparation of restoration/renovation options, construction-cost estimates and implementation options. The Master Plan sets forth a framework that will enable both the County and the Museum to manage risk and make responsible decisions regarding capitol projects, cyclical-maintenance issues and operational challenges. By now this plan has been approved by the Museum Board and the first implementation project is currently under way. Executing the plan will help the Museum Center proceed logically with its programming agenda, considering the needs of today's museum while preserving this nationally significant historic resource.

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From Defence of the Image to Protection of Spaces

THE CASE STUDY OF POLITECNICO DI MILANO'S HERITAGE

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The increasingly higher complexity of social and productive activities set the Modern Movement to develop new architectural solutions and building types, like summer colonies, movie theatres, hotels and universities. Buildings born as an answer to a specific function become more inadequate when changes are needed, due to the close relationship between function and architecture.

The conservation aim cannot be reduced to the defence of an architectural image, reproducing or preserving the shell only, but has to involve perception of the usages and spaces. For this reason, it is necessary to look at the architecture closely in its material, into spaces and their relationships.

Compatibility between buildings and new needs must meet in order to achieve flexibility. Conservation should develop an in-depth knowledge of the existing building to overcome low levels of flexibility. This is made possible by knowing the real needs of users, which directly and indirectly enjoy these buildings. This requires an analysis, an interpretation and an adequate formalization of clear and unexpressed needs. Which are direct users' needs? Which are changes due to new users' needs on existing buildings? How do these needs meet with those of the entire community wishing to directly and indirectly use these buildings? Which kind of use is compatible for making a building come alive and at the same time preserving its richness?

The case study is the building "Trifoglio" — "clover" in English — built by Gio Ponti between 1959 and 1964 to deal with the increasing number of students. It represents a significant part of the Politecnico di Milano's heritage.

Over time, the building changed, according to changing needs. The ways with which the building was modified are evidence of the same building peculiarities: the reduced flexibility of the constructive structure does not permit twisting reorganisations in the functional arrangement. The ground floor, originally open, was closed to give a place to small rooms; iron frames were substituted by aluminium during maintenance intervention. The damaged condition of the façade is characterised by the detachment of the ceramic cladding, showing the framework: the structural solidity attends and causes skin fragility of the building. As usual, damage denotes the constructive techniques.

A maintenance intervention is currently being developed. This does not grow out of sharing and participation: the result is a scaffold that covers the building, giving an idea of a "present" that will be unwrapped at the end of the intervention.

Today's needs are determined by final users (students, professors and staff), who make the architecture obsolete in different aspects: the building must answer to usability conditions, comfort and safety. Meanwhile, the community asks for continued use of the building, as an important element in the architectural and social history of Milano. Buildings like "Trifoglio" should be used in order to make them live longer. The designer and the executive client, too, have to be able to evaluate building's residual performances in relationship to its compatibility use. It is also necessary



Figure 1. The "Trifoglio" building.
Photo: Chiara Livraghi.



Figure 2. The interior of a lecture room.
Photo: Chiara Livraghi.

to share intervention criteria with users; recognising the importance of experience in architecture knowledge determines the preservation need.

The technical–constructive, intrinsic aspects create spaces and usages, making them more or less flexible: "An architectural work is not experienced as a series of isolated retinal pictures, but in its fully integrated material, embodied and spiritual essence. It offers pleasurable shapes and surfaces moulded for the touch of the eye and other senses, but it also incorporates and integrates physical and mental structures, giving our existential experience a strengthened coherence and significance".¹ The frontal sight of the architectural drawing and of photographic image is missed inside the architecture's real experience: "The task of architecture, in general, is to reconstruct the experience of an undifferentiated interior world, in which we are not mere spectators, but to which we inseparably belong".²

It is not possible to limit the residual performances only to comfort, this meaning a reduction of the intervention to the substitution of frames or to the renovation of services. By doing this, all aspects concerning the use of the building are forgotten. If the building has to be used, it is necessary to find a balance between direct users' needs, asking for a change, and the community asking for preservation.

The knowledge of the building means being aware of restrictions to transformation, or, in other words, possibilities for conservation. These restrictions/possibilities concern values recognized in the existing building and are a consequence of the will to preserve buildings in their cultural, morphologic and constructive character, limiting material subtraction. Existing buildings contain restrictions and possibilities that should be listened to via a constructive relationship. This relationship translates itself into the intervention on existing buildings, as a consequence of buildings' openness to change.

"Trifoglio" in Milano also exists for its spatial relationships with surrounding buildings and areas. It is necessary to change minds from the single building and buildings sum idea to a heritage approach, and consequently recover relationships between Architecture Faculty and those who live inside, such as students and teachers. Buildings like "Trifoglio" are used everyday by teachers teaching Architecture History, Restoration. The intervention should be shared not only by architects, technicians and executive clients, but also by direct users. It must answer users' needs, which directly or indirectly enjoy the heritage. More attention should be paid to the programming phase, from sharing decisions to transformation, in order to make differences a point of departure for achieving common results. The programming phase should take up restrictions to transformation and it should translate them into potentialities for conservations.

NOTES

- 1 Pallasmaa, J., 2005, *The eyes of the skin*, Wiley-Academy, London, 12.
- 2 Pallasmaa, J., 2005, *The eyes of the skin*, Wiley-Academy, London, 24.

Bauhaus Buildings Dessau: From Experiment to World Heritage

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Cultural monuments of singular importance can take on a useful social function that exceeds their use. They can also have a cultural, aesthetic or historical function, for instance as urban development or historical landmarks.¹ With older monuments such as churches or castles, it is clear that the usage must consider their particular characteristics. Modern buildings, on the other hand, are associated with everyday perceptions to such an extent that their usage is expected to be fully attuned to present-day demands. Even such, a building's role as a museum and sightseeing object is problematic in terms of conservation and preservation, because it endangers the architecture, which stands for social, spatial, aesthetic and technical innovation in the early twentieth century.

With the inclusion of Modernist buildings on the list of World Cultural Heritage sites, and with the successful completion of renovation projects, their importance has steadily grown in the public consciousness. This also presents a challenge, as growing visitor numbers and the marketing strategies of tourism can lead to the overuse and damage of these cultural monuments. UNESCO's Lübeck Declaration of June 2007 emphasised "that tourism at World Heritage sites needs to be sustainable so as to ensure the long-term protection and avoid irreversible damage to the sites".²

Protection is particularly important for Modern buildings, because this architecture owes much of its effect to its transparency and fragility, its colour, surface structures and fine detail. The smallest of incursions may adversely affect these. Substitutes for the effects of wear and tear brought on by intensive use cannot always be found, because the often experimental materials used are no longer produced.

The Bauhaus building and the Masters' Houses in Dessau were built in 1926, as a school of design and as residential buildings, respectively. They were designed by the "bauatelier Gropius" and parts of the interiors were created in the Bauhaus workshops. In 1996, the Bauhaus building, along with the Masters' Houses in Dessau and with the former art school, the former school of applied arts and the "Haus am Horn" in Weimar were included on the UNESCO list of World Cultural Heritage sites.

The World Heritage sites of the Bauhaus Dessau, the Dessau-Wörlitz Garden Realm and the Luther Memorials in Wittenberg are hugely important for tourism in the cities and the region. The Bauhaus buildings are used intensively by several organisations and must therefore meet present-day requirements. The Bauhaus and the Masters' Houses are also used as museums and exhibition spaces. The roles of the buildings as visitor attractions for growing numbers of guests mean that the debate over their protection must be ensured.

In 1926, the Masters' House Ensemble comprised of one detached house for the director and three pairs of semi-detached houses, initially inhabited by the Bauhaus masters Moholy-Nagy and Feininger, Muche and Schlemmer, and Kandinsky and Klee. After the destruction of the Director's House and the Moholy-Nagy half of a Master's House in World War II, a small, traditional gable-



Figure 1. Bauhaus Building Dessau, View from Southwest, 2004.
Bauhaus Dessau Foundation.

roof house was built on the preserved foundations of the Director's House. The ensemble may therefore no longer be experienced in its entirety.

After work on the conservation and preservation of existing buildings was finished, a discussion started about the reconstruction of the Gropius House, the conservation of the status quo or "updating Modernism". Advocates for the conservation of the existing substance wish to preserve the authenticity of historical developments, and point out to the fact that a reconstruction can never replicate the materiality or aura of the original. Proponents of the reconstruction see the Masters' House Ensemble as a creative unit. They see the reconstruction of the Director's House as a repair, which is necessitated by aesthetic considerations and takes into account the future demands of tourism. The third alternative of "updating Modernism", proposed by the Bauhaus Dessau Foundation, explores the options of erecting a new building or utilising artistic interventions on the site of the former Director's House.

To this end, the city of Dessau-Roßlau advertised an international competition in December last year, to be held in two phases. The winning entry should "repair and upgrade the Masters' House Ensemble, part-destroyed by bombing in WWII, as a whole in structural terms and develop and improve its role as a museum and as a centre for research and tourism. The entries should (...), in particular, devise appropriate structural additions for the site of the missing Moholy-Nagy house and the upper floors of the former Director's House".³ The competition thus reflects the pressure, which the buildings are exposed to in the face of their improvement and development for tourism. There was no conclusive result to the competition, because the entries tendered generally lacked conviction. Two second prizes were awarded, which reflected the aspects of the conservation of the existing substance and "updating Modernism". Although there are no plans to develop these designs, they will form the basis for a conclusion, developed by the city of Dessau in collaboration with the two laureates. This conclusion will be put into practice until 2010.

Renovated with great care and attention to detail over recent years, the growing number of visitors to the Bauhaus buildings has brought with it new challenges, including, for example, the further development of the sanitary facilities and cloakrooms. It has also caused increasing damage to the surfaces of floors and walls, which must therefore be protected or, respectively, continuously repaired. To limit the loss of the original building substance through increasing wear and tear or

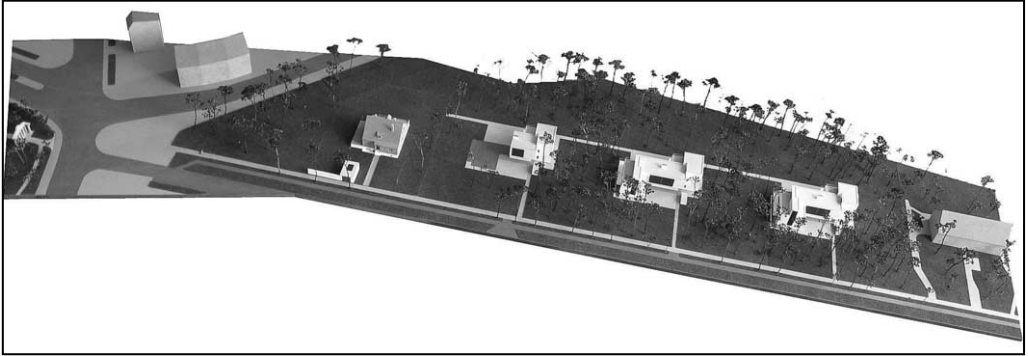


Figure 2. Masters Houses Dessau, model, 2004.
Bauhaus Dessau Foundation

though damage caused inadvertently, the original surfaces are uncovered only in exceptional cases, and usually conserved under a protective layer. This situation is problematic, particularly because there is no secure financial basis for the long-term, systematic maintenance of the building. The sensitive and much-used surfaces in the Bauhaus buildings especially require expert and continuous maintenance.

The public interest in the buildings is therefore a double-edged sword, because while the Bauhaus buildings are increasingly perceived as cultural monuments of World Heritage status, this brings additional burdens. The building's role as a shell for a particular use increasingly takes second place to the importance of the building as a site of public interest. The development and improvement of the building for tourism holds new challenges, for which new strategies must be devised. These apply to visitor management and the outsourcing of service functionalities, and to the systematic and continuous care and maintenance of the buildings, with due regard to their preservation and conservation.

NOTES

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Industrial and Flexible: The Legacy of the Modern Movement and the Strategies of Re-use in Italy

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This paper analyzes the concept of flexibility with regards to a specific kind of construction type: the modern factory.

However, an initial distinction needs to be made between adaptability and flexibility, often mistakenly used as synonyms. Adaptability allows adjustment through a change in state, with the acquisition of characteristics that were not originally present, whilst flexibility allows change through the extension or conversion of characteristics and formal and functional features that were present in the original building.

The meaning of the term “flexibility”, which comes from the Latin “flexibilitas”, is the capacity to adapt to changing needs, which, within the sphere of the built object, means the capacity to change in light of the user’s needs; the adjective “flexible” therefore describes “that which is easily adapted to differing situations within short response time”.

Central to this line of thinking is establishing an operational mode of analyzing the “flexibility potential” of an industrial building with respect to the parameter of time or, in other words, the possibility of changing physical characteristics and linguistic and syntax logistics in light of new needs within an imposed or defined response time.

The value and corroboration of this operational means of analysis is tested on two industrial complexes, the Fiat-Lingotto in Turin and the ex-Olivetti ICO Centrale in Ivrea, both considered emblematic of nineteenth century industrial architecture in Italy. They are also typical of innovative models of organized industrial planning of that time, built in line with the productive model and production lines. Today, in terms of recovery, they represent two different and important projects for re-use.

Flexibility is studied by looking at the flexibility of the original structures as well as the flexibility of re-use and three types of flexibility are defined: extrinsic flexibility, intrinsic flexibility and flexibility over time.

This refers to the relationships that can be established between the built object and its context, be it urban or not, and to how its very presence induces change and transformation during both construction and re-use.

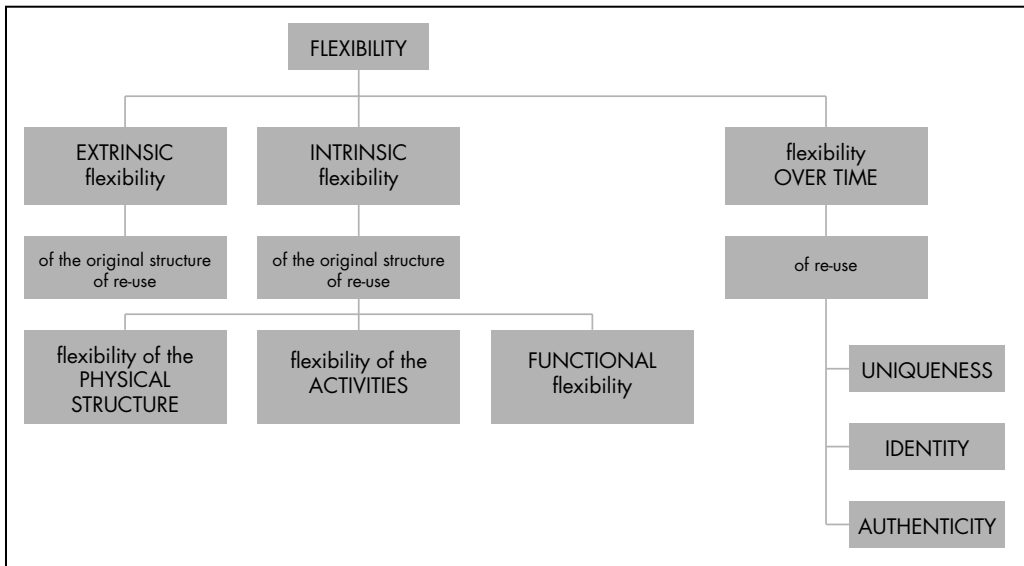


Figure 1. Flexibility classification scheme.

This refers to the built object's aptitude to undergo change, evaluating the transformation produced in the differing systems that define it and the reciprocal reactions that it induces with respect to the original project, as well as that for re-use. Intrinsic flexibility can be sub-divided into categories:

- Flexibility of the physical structure: This refers to the material and physical characteristics that allow a real change of space. The parameters that regulate the flexibility of the physical structure are: the geometrical and morphological components of the space; the articulation of the spaces in plan and elevation; the definition and position of external accesses; the nature and characteristics of the structure: continuous or pillars and beams.
- Flexibility of the activities: This concerns the structuring and classification of the activities that take place in the built spaces. The parameters that regulate the flexibility of activity are: the type of work (stocking, production, testing and monitoring), the class of activity (public and private), the type of activity (active with or without instrumental support, intellectual, etc.), its organization in terms of time, etc.
- Functional flexibility: This refers to the translation in spatial terms of the organization and structuring of the planned activities. The parameters that regulate the functional flexibility are: the subdivision of the space for production and successive phases culminating in the final product, the forms of internal viability; the relationships between the spatial scan and the distribution of influx and the ways in which variation in the latter alter the former; functions differentiated on the basis of the conformation and form of the environments; the division of space for stocking and activity; the entire network of relationships, the relationships between internal and external spaces integrated into the architectonic structure, the relationship between external access and entrances into the building, the relationship between exterior and interior permeability, etc.

This refers to the capacity of the built object to adapt its identity in relation to a variable content linked to innovation and development within production, as well as the process of re-use, whilst at the same time conserving its most characteristic elements or contrarily defining new senses.



Figure 2. Case studies.

Flexibility over time is therefore regulated by factors such as the uniqueness, authenticity and identity of the built object. These aspects constitute the built object's overall value and historical context making it unique, but a testimony to values that can be passed down and conserved for the future, ensuring and conserving recognizability over time.

Uniqueness—each factory is different

Authenticity—the value of modern factories must be rediscovered

Identity—this must not be lost over time

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The Music of Change

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Radiohuset (1934-1945) by Vilhelm Lauritzen is an icon of early Danish modernism. Designed as the headquarters of the Danish Radio, the building is a display of subtle, sensitive functionalism, where strict adherence to programme results in an unparalleled richness and variety of space. The history of the building is one of adaptation and change to the continuously shifting needs of Danish Radio. The building was listed in 1994. In 2000 Danish Radio decided to move out. At that point it was decided that the building would become the new home of the Royal Danish Academy of Music, posing new problems of how to adapt a listed architectural masterpiece to a new programme, in which acoustic considerations would be the key to reinterpreting the building.

Vilhelm Lauritzen Arkitekter, now fourth generation of architects since the foundation of the office in 1922, won the resulting architectural competition in 2006. Building work has now begun, and is scheduled for completion by August 2008. This paper presents the work of reinterpreting the building, working with it to make spaces for the creation of music.

The original plan was a result of a contextual and functional analysis, separating the programme of journalism and administration from the programme of music and sound production. Changing the building to suit the needs of the Academy of Music was interpreted as an introduction of the music programme into the office buildings. As so many issues of acoustics and adaptability were addressed in the original design, only little innovation was required.

Conceptually the building has been tweaked ever so slightly, in a way allowing us, as architects, to work on the building as musicians do, when interpreting the ideas and emotions of a composition of music. Certainly Radiohuset proves its elasticity and its ability to live and shift, - the very sustainability of its original design.

Clarifying the original ideas and concepts of the building was the key to its new identity. The spatial hierarchy of the building was analyzed, charting the functional, structural and technical principles governing its shape.

A block of studios is surrounded by a concert hall and office buildings, offering protection from the noise of a major street. At the top of the spatial hierarchy are the representative rooms, the concert hall, the council hall, the foyer, etc. The communication areas are next: stairways and corridors. At the bottom of the hierarchy are the offices and rooms of a technical nature. But behind the spatial hierarchy there is a functionally-based separation of rooms for sound production and music from other rooms, expressed in the division between the studio block and the office wings. The office wings are designed to be generic, using a sophisticated modular system to ensure flexibility and ease of adaptation. The studio block is specific, each studio designed for a certain type of sound or music production, exploring the effects of materials and geometry on the acous-



Figure 1. View from Rosenørns Alle 1945.
Vilhelm Lauritzen Architects.

tics of the spaces. The irregular shape of the studios derives from acoustics, as sound has to be broken up in order to achieve a pleasant, diffuse sound quality. The materials also determine the sound quality, as every material employed affects the way the rooms respond acoustically.

Instead of introducing new compositional elements to the building, the focus was shifted towards an effort to preserve the proportions and generous ceilings of the rooms and give existing elements new function and meaning, while retaining the formal language of the building. In many locations the original interiors of the building had been changed beyond recognition, if not physically removed. The transformation of the building gave possibility to reintroduce some of the spatiality and components of the building that had been sacrificed by earlier interventions.

The challenges of applying the program of DKDM throughout the building included fitting out a music library, an auditorium, rooms for ensemble and organ teaching, rehearsal rooms and space for the management. Funds were extremely limited and the building program and functional requirements had to be adjusted accordingly. However, it was possible to arrange the building programme in such a way that there was considerable accord between the requirements of DKDM as users and the conservation values. The interventions could be carried out with no changes to the buildings' structure and no changes to the façades, with a change in glass properties for sound isolation being the sole exception. The vast majority of requirements could be handled by changes to the interior walls, fixtures and technical subsystems.

The utility walls onto the corridors were upgraded not only to house new, soundproof ventilation ducts, but also to help to regulate the acoustics of the rooms themselves. Corrugation breaks the direction of the sound, so that after a few hundredths of a second we hear it pleasantly diffused,

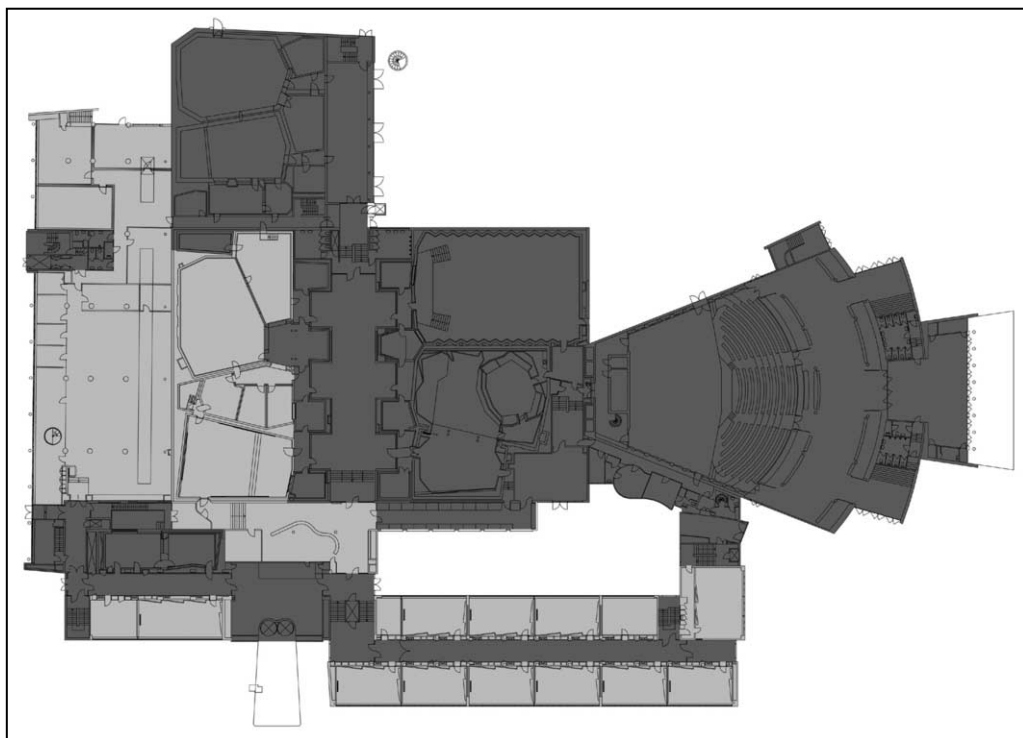


Figure 2. Interventions 2008.

Light grey: Reinterpretation of functional properties;

Dark grey: No modifications

Vilhelm Lauritzen Architects.

with no flutter echo. The wall panels can be opened to reveal fabric-covered sound absorbents, so that the reverberation time of the room can be regulated from short and analytical to longer, and more vivid. Similarly, cupboards with sloping fronts and a board concealing yet more sound absorption panels share responsibility for acoustic regulation. The floor is in beech parquet on soundproof joists, and the cupboard fronts are laminated with Oregon pine. New mahogany doors have been fitted but the original hinges and Greenland marble details have been retained.

An example of a space restored that was previously lost is Studio 5, which was once the first permanent television studio in Denmark. It had been demolished and turned into a storeroom; in the audience cloakroom partitions had been erected which destroyed the original room. DKDM wishes to install an auditorium there, which can also be used for music, and to turn the cloakroom into the pivotal point in everyday life at the academy.

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The Search for Habitat

GEORGES CANDILIS & SHADRACH WOODS IN CASABLANCA

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In his preface to Philippe Boudon's *Lived-in Architecture: Le Corbusier's Pessac Revisited*, Henri Lefebvre writes about the inhabitants of the Quartiers Modernes Frugès forty years after the buildings' construction: "Instead of installing themselves in their containers, instead of adapting to them and living in them 'passively', they decided that as much as possible they were going to live 'actively'. In doing so they showed what living in a house really is: an activity."¹ Pessac-Le Corbusier's laboratory for his experiments in polychromy, standardization and the architectural features that would become his "five points"—had become by 1968 almost unrecognizable due to alterations made by its inhabitants. Yet, as Boudon argues, the project was not a failure; these adaptations were positive, not negative. It is the alterations to a dwelling by its inhabitants that give life to the machine à habiter.

Twenty-five years after Pessac's completion, two of Le Corbusier's disciples, Georges Candilis and Shadrach Woods, drew upon their experience working on the Marseille Unité d'habitation to adapt Modernism to North Africa. In Casablanca, Candilis and Woods were fascinated by the creation of temporary dwellings and their organization into shantytowns, called bidonvilles because of the barrels from which they were constructed. Though the architects believed the inhabitants of the bidonvilles were capable of constructing shelter on their own, they believed in the necessity of the "habitat," which they defined as the "cell of a socially organized body."² The "habitat," according to Candilis and Woods, "insures to man the accomplishment of his spatial, physiological, spiritual and emotional needs and protects him from weather and atmospheric conditions," and also "integrates individual and family life into the manifestations of social and collective life."³ While the bidonvilles may have been organic developments capable of providing basic shelter, they were interpreted as only an intermediate space between the rural environment and the urban, an unstable mix of the traditional and the modern. The shantytowns fell short of a true "habitat." Candilis and Woods believed architects could spur the development of "habitat" and so set about producing an alternative to the bidonvilles.

Candilis thought multilevel collective housing would be suitable for the slum dwellers of Casablanca, and he backed up this assertion with the claim that most of the migrants came from a region of Morocco where communal living had been the norm. Michel Ecochard, head of the Casablanca Service de l'Urbanisme, was eager to push the limits of mass housing and invited Candilis and Woods to develop prototypes of mid-rise apartment blocks for the Moroccan population. Two structures by Candilis and Woods were built within the development of the Carrières Centrales, site of a notorious bidonville. The buildings became known as the Nid d'abeille (Beehive) and Sémiramis (a reference to the Hanging Gardens of Babylon). These buildings, containing one hundred dwellings and eight shops, were based upon studies of traditional Moroccan housing and the application of the principles of modernist architecture.



Figure 1. *Nid d'abeille and Sémiramis buildings, 1953.*
courtesy Drawings and Archives, Avery Architectural and Fine Arts Library, Columbia University.

The most visually engaging and structurally inventive of the two was the Nid d'abeille block, so called because the staggered, suspended terraces of its façade resembled a beehive. Each unit included one of these high-walled patios, which were dedicated to the cooking and sanitary functions of the dwelling, and two interior rooms. Occupying about one-third of the inhabitable space of each apartment, the patio functioned like a courtyard in a traditional Moroccan house. The walls ensured privacy, while the staggering from level to level maximized the flow of sunlight and air to each unit. Each unit was accessed from a semi-enclosed, single-loaded corridor on the rear of the building, providing a transitional space between the public street and the private dwelling. The architects provided niches for small-scale commerce to take place on the ground level of the building, incorporating some public communal space.

Designed to house four people, the extreme economy of the units in the Nid d'abeille was soon surpassed, and the building has now been altered considerably. As Ecohard predicted: "the superposed patios will certainly be utilized as habitable rooms."⁴ The voids between the patios have been filled in with concrete blocks, increasing the amount of interior space in each unit but also decreasing the natural airflow and available light. This alteration became necessary as the units began to house larger extended families and was only possible after the introduction of electricity into the units and the installation of mechanical ventilation and artificial lighting.

The Sémiramis block has also been heavily altered since its construction. This building functions with the use of "streets in the sky"; the corridors providing access to the individual units run along the façade and rear of the building. Their high walls gave the inhabitant moving between the individual dwelling and the exterior the sense of passing through a narrow street typical of Moroccan villages. The layout of the units in this building was similar to the Nid d'abeille, except the courtyards were even more shielded from view.



Figure 2. Nid d'abeille and Sémiramis buildings, October 2007.

Through ethnographic studies, Candilis and Woods reduced traditional Morocco to a set of minimum parameters and measurements. While these buildings addressed the essential needs of their inhabitants at the level of the individual units (understood in the terms of CIAM as adequate space and light), important aspects of the traditional community, such as collective worship, were neglected. This is made evident by the mosque now extending from the Nid d'abeille building.

Though heralded by Alison and Peter Smithson as a triumph of the progressive and universal agenda of Modern architecture, the Nid d'abeille and Sémiramis represent the limits of Modernism in their inability to accommodate fully the changing needs of their inhabitants.⁵ These buildings marked a crisis point in modern architecture, as universal functionalism gave way to culturally specific design based on anthropological enquiry. Though founded upon studies of traditional housing, these prototypes fell short of establishing a "Muslim habitat" for the Moroccan migrants. Candilis and Woods were unable to create a true "habitat" because their designs relied upon a specific and rigid definition of the "Muslim way of life" that excluded the possibility of change and resisted flexibility.

Today, in their heavily altered states, the Nid d'abeille and Sémiramis continue to shelter generations of Moroccans. As in Pessac, the project "could only be regarded as a failure if it had failed to satisfy the needs of the occupants. In point of fact, however, it not only allowed the occupants sufficient latitude to satisfy their needs, by doing so it also helped them to realize what those needs were."⁶ As a living community, the Nid d'abeille and Sémiramis permit each inhabitant to be her own architect and develop her own habitat following her own changing way of life.

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Santorio: The Case of the Sanatorium Programme in Italy

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At the end of the First World War, the Italian Government approved an ambitious programme for the construction of sanatoriums, aiming to eradicate pulmonary diseases.¹

The Italian Institute for Social Security (I.N.P.S., Istituto Nazionale di Previdenza Sociale) developed and managed construction of sanatoriums all around Italy; at the beginning of the Second World War, there were 49 of them, and at the end of the 1960s, even though by that time the programme had lost its original sanitary purpose, more than 60 had been built.²

The building activity carried out by the I.N.P.S. –that has not been very well studied yet– developed a lot, and in a couple of years a Technical Bureau was established; it consisted of a large group of engineers, architects and experts that prepared projects for modern sanatoriums, looking for an “ideal sanatorium design”.³ In a country as Italy, that has always had a particular relationship between progress and modern architecture, the Technical Bureau acquired interesting historical meanings. The planning of new nursing homes was based indeed on modern criteria: multi-level single block buildings, steel structures to open large windows, advanced mechanical systems, rational passageway facilities, functional systems for hospitalization, studying of climate for the best localization as well as aesthetical choices in accordance with the most advanced modernist architectural options.

The particular case of these sanatoriums shows a unique network, for Italy, of modern buildings, directly inspired by distinguished examples as Zonnestraal by Johannes Duiker, the Paimio Sanatorium by Alvar Aalto, or the Dispensario Antitubercolare by Ignazio Gardella, that considers the human level as a fundamental law, making these prototypes become a proof of the new architectural trends that Rationalism was elaborating.

These three sanatoriums are based on the idea of “human scale” as the basic law of the design: the dimension and the spaces of the structures are designed in accordance with the rules of the ergonomic science that aims at satisfying the human needs avoiding any limitation of people.

Man is the main subject and not the object or the visitors of this architectures and the interest of these architects seems not so addressed in architecture itself, but in life that includes and represents. And it is something very interesting in a historical period in which hospital structure is more and more considered just as a technique, that only engineers can apply.⁴

The story of these new type of building acquired particular features: it was first perceived as a necessary innovation, it was supported by highly defined functional rules and it exhausted within a very short period, if compared to what has happened to other sanitary buildings.

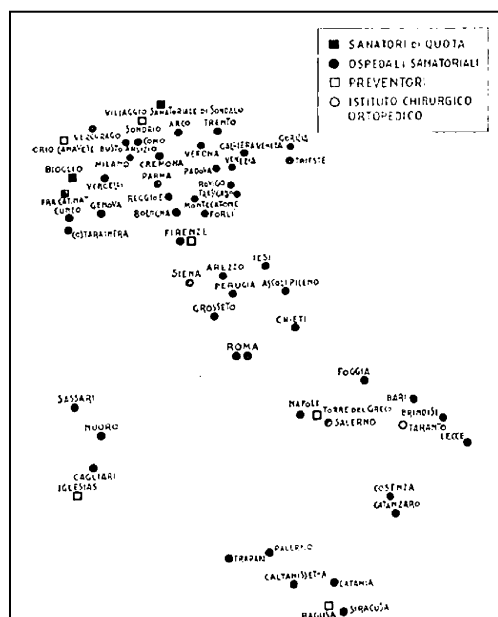


Figure 1. The map of the distribution of the sanatoriums in Italy according to the plan of INPS building construction. INPS Archive, *La lotta alla TBC*, 1958, p.39.



Figure 2. of the south façade of the sanatorium Santorio in Trieste at the end of construction in 1958. CMSA Photografic Archive, neg. n.R/312, 1958.

The case study of the sanatorium Santorio in Trieste represents one of the most interesting examples of this period: a building planned at the beginning of the Fifties in an area that had been highly involved and divided by the Second World War and represents one of the most advanced and innovative buildings planned by this Bureau.⁵

In 1945, after the end of the Second World War, the city of Trieste and its hinterland were split into "Zone A" ruled by the Allied Military Government, run by a Governor appointed by the Organization of the United Nations' Safety Council, and "Zone B" ruled by the Yugoslav Military Administration.

Besides lying in such a complex geo-political context in that particular historical moment, having its only sanatorium of Ancarano located in the Yugoslav zone, Trieste was also one of the Italian cities most struck by the tuberculosis plague, both from a social and a medical point of view.

On this basis, a debate arose in 1949 on the city and all the Triveneto area's need for a new sanitary structure.

The preliminary building works of the sanatorium begun by the end of 1951. The plan was worked out by a team of doctors and technicians who, on the ground of many analysis and studies developed all over Europe on medical structures, took many different locating hypothesis into consideration.

Although the building permits were opportunely granted by the Allied Military Government, the construction schedule was slackened due to the particular soil configuration which didn't fit the typical location plans used for the previous I.N.P.S. sanatoriums.⁶

Finally the executive board chose to move the building site to the very dell of the Tauri's railway viaduct and to develop the building structure in height, reproducing the model of one of Italy's most innovating sanatoriums: the heliotherapeutic ward of Sandalo Village. The works begun in 1952 after a building contractor from Milan won the national competition for the building contract. The single block skeleton in reinforced concrete was built on a construction site of 10 hectares.

The building's inner space is divided by tile partitions and glass or wood panels responding to the need for flexibility in case the division between male and female sectors should change.

The structure is composed of the main 9-storied body facing South and the secondary 5-storied body facing North, covering an area of 100 000 square meters.

Each room has 6 beds and a veranda for 'air cure' with electric roller shutters completely designed by the planners staff.⁷

The sanatorium structure appears very modern in its aesthetic layout, in its equipments, in the rationality of inner spaces developed in an efficient and rational system of passage ways reserved to in-patients, guests, visitors, suppliers, hospital staff, doctors and nuns. There are different passages to carry supplies, kitchen garbage, linen or mortuary services, corresponding to 18 different lifting-gears: 5 stretcher-lifts, 3 staff-lifts, 2 lifts connecting the kitchen with the warehouse, and 8 lifts for linen and supplies.

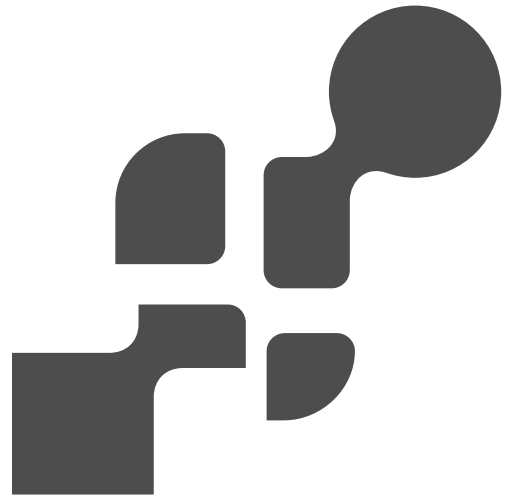
This structure was in operation until 2003 and from that time it has no longer been used; at the moment it's being restored as headquarter of a renowned International Research Centre, S.I.S.S.A. (International School for Advanced Studies).

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Change and Continuity

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't Hool Eindhoven: The Key to an Urban Entity is the Detail

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The urban estate 't Hool in Eindhoven, realised in 1971, can be seen as the highlight of urban developments by the architects Van den Broek and Bakema. The project was initiated by the first residents, engineers of Phillips Natlab. They realized that the quality of living is more than the individual house and is closely related to the total housing environment. They began with a project for a few houses and ended up as the housing corporation "Woon en Wijk" with a scheme of one thousand dwellings. They choose the architects Van den Broek and Bakema who had previous experience in their projects such as the housing competition Wulfen, a proposal for Noord-Kennemerland, and their realized works such as Kleine Driene in Hengelo and the split level apartments for the IBA 1957 in Hansa Viertel in Berlin. The design for 't Hool can be seen as the result of their previous research in housing typologies, resulting in fourteen interesting housing types. Among them: split level apartment with elevated street, back to back houses, terrace dwelling, bayonet split level dwelling, drive-in dwelling, courtyard dwelling and detached dwelling.

The estate, connected by its green zone and bordered by a high-rise wall on the North side, consists of clusters of different housing types, which together form one complete, strong entity of one thousand dwellings. Jan Stokla, project architect and urbanist from Van den Broek and Bakema, described the project as "living under, between and above the trees."¹

Architect and urbanist Jacob Bakema, member of Team 10, exceeded the functional urbanism in his theory 'Van Stool tot Stad,'² by designing sensitive transition zones from the city to the communal space of the estate to the private dwelling. The strength of the estate is its clear entity due to the careful composition and relationship of the dwellings.

At the moment, a new generation of residents is rapidly changing the urban quality. The aim for more comfort (modern kitchens and bathrooms), better physical building conditions and individuality instead of collectivity has resulted in a loss of unity in the total composition, where every dwelling is an essential link in the chain. The relationship between the small and large scale is disintegrating. Urban planners cannot get a grip on the situation due to the lack of a good analysis of the problems and quality of the total project. If there is no clear vision to act upon, the qualities of 't Hool will be gradually lost in a short time.

This is the starting point of research, which I lead and did with students from the University of Technology Eindhoven to regain the quality of the urban entity. Each student studied one of the fourteen housing types. The housing projects of Van den Broek and Bakema were studied to understand the significance of 't Hool, the 14 housing types were analysed according to categories of urbanism, architecture, construction, building physics and technology. From the analysis of these categories, problems were identified for each housing type such as contact noise, heat loss, condensation, cracks, living comfort, restriction in extension, lack of maintenance and dissonance. At the same time, the qualities of each scale level were investigated. The sensitive transition elements, which play an important role in Bakema's thoughts about public and private zones,

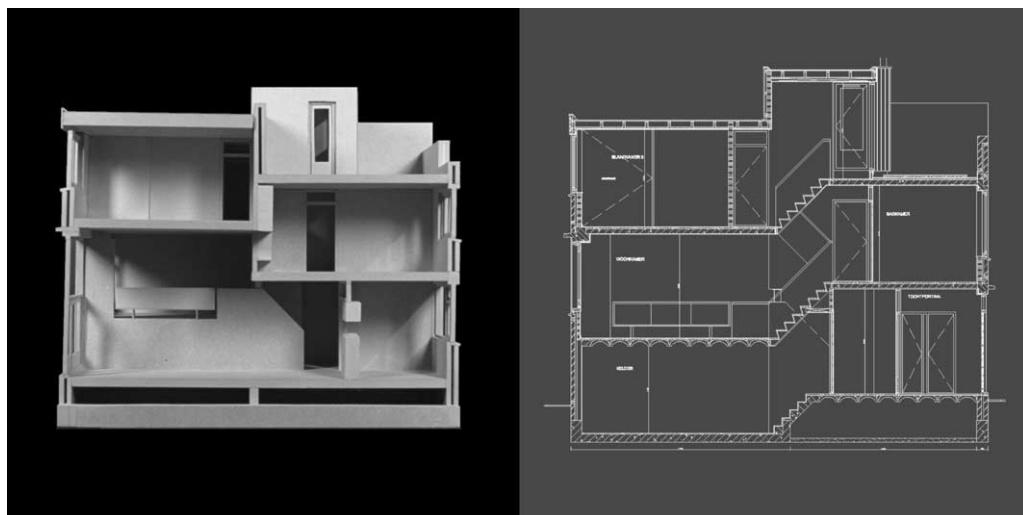


Figure 1. Type 6 wooden model scale 1:20 and Type 6 section.
Photo: Ben Elfrink.



Figure 2. Exposition: 't Hoo!, een kwestie van Detail.
University of Technology Eindhoven, Department of Architecture, Building and Planning.

were documented. These included concrete plateaus beside front doors, integrated letterboxes, external staircases, fencing, walls, carports, garden sheds and Bruynzeel cabinets.

A project initiator, Kees van Es, the project architect, Jan Stokla, and the technical draftsman, Gerard Lans, were all interviewed to gain more information about the project initiation, the urban ideas and the realization of the project.

The students made plans, sections and details in AutoCAD, as well as technical models of the dwelling types (scale 1:20), so that they could grasp the spatial and technical relationships.

The qualities and problems resulting from the analysis led to a standpoint on how to deal with the changes. Proposals were made for the different dwellings. Answers to the problems were given

by proposing solutions based on an understanding of the context for details with better building physics, better structural proposals, proposals for extensions and living comfort.

The conclusion is that the key of the urban entity is the detailing. There is increasing pressure on the urban entity due to current changing demands on building physics and technical aspects as well as luxury wishes and individualism. Carefully considered details have been proposed to conserve and sustain the entity. THE ENTITY IS IN THE DETAIL. The entity is now endangered.

Our research intends to help the residents of 't Hool to understand the qualities of their neighbourhood and to provide technical proposals to deal with problems in their dwellings that respect the original strengths of the entity. Therefore, each new resident has received a copy of our research³. The work done by the students has gained social significance for the neighbourhood.

The city council based its recent neighbourhood rules of the estate 't Hool on this study. A comparison can be made with the renovation of "het Witte Dorp" by Dudok in Eindhoven which faced the same problems of change. The residents initiated a renovation plan resulting in a well-detailed environment, now a municipal monument.

This research may help save further disintegration of 't Hool and conserve it for next generations by achieving a municipal monument status in the near future.

NOTES

- 1 Swagten, ir. John, interview with Jan Stokla
- 2 Bakema, Jacob, 1964, Zeist, *Van Stoeel tot Stad*
- 3 Swagten, ir. John, 't Hool, *een kwestie van Detail*

Education and Redesign: a Future for Modern Housing in Buenos Aires

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The complexity regarding the development of urban growth, the new social behaviours and the consequences on habitat transformation, and the technological advances are some of the present scenarios that both, individual and collective dwellings built in Buenos Aires since the beginning of the 1930s have to face. Many of these buildings are in danger as a consequence of the passage of time and the lack of maintenance, and, therefore, they are no longer used or require modifications in order to integrate them to [serve] contemporary needs.

The future of this legacy requires a commitment from all the participants involved in its conservation. It particularly demands, from the academic field, to complement the historical and appraisal approach with a design/project. It is important to make future professionals aware of the fact that these examples are a physical and economical resource, as well as grounds for opportunity to develop potential design, in a reciprocal action that deals with the legacy, dynamic provision for contemporary values, and the new consolidation of identities and essences.

Education is one of the main interests of the Argentine working group of Docomomo, along with research and professional practice. The present work was carried out with degree students from the Faculty of Architecture of the University of Buenos Aires. Two case studies of different scale and complexity were chosen: the Columba house by engineer Antonio U. Vilar¹ and the Insúa building, built by Gregorio Sánchez, Ernesto Lagos and Luis María de la Torre².

The house for D. Ramón Columba³ is a good example of the application of the new design concepts: a pure and cleared volume with a rational concrete structure and metal and glass façades. It is also functionally innovative by representing a new style of life where the traditional program of housing adds the working spaces. Vilar makes good use of the conditions of a sloping corner site by leaning the volume of the house along the largest side of the plot and placing public areas in the upper levels, thus achieving a suitable orientation and a better relation with outer spaces. In 1976 the house was transformed to host an architectural office. In order to adapt to the new use some changes were introduced, altering some concepts of the original project: the open galleries were closed and new partitions and air conditioning systems were included, which strongly modified the interior spaces.

The Insúa building⁴ demonstrates its author's production of the processes of combination and adaptation of the new international ideas to the cultural, social and economic local context. With an avant garde formal proposal, a white curved volume of opaque and transparent superposed horizontal lines and a free ground floor plan, the internal layout was preserving the blueprint of the academic architecture. Further modifications such as the incorporation of commercial equipment, the uncontrolled urban advertising and the new comfort requirements, were factors that produced a strong transformation in the building's appearance and so [of that] in similar other [buildings]. Those changes were carried out without an integral plan to regulate the design of the requested actions.



Figure 1. Columba house. Urban and expressive transformations. Antonio Vilar engineer.
Ref pic: *Casas y Jardines* 1944 (February issue). Current state: Carolina Quiroga 2007.



Figure 2. Insua building. Functional and expressive transformations. Sanchez, Lagos y de la Torre arch.
Ref pic: *Nuestra arquitectura* 1938 (April issue). Current state: Carolina Quiroga 2007.

Unlike in the case of a new building, in order to deal with the conservation of these buildings, it is necessary to have knowledge and clear aims regarding the quality of the intervention, a methodological approach to the project, and the skills to develop strategies that integrate history and theory as well as technical aspects, such as data, about project resources in the design process. The starting point of the intervention project consists in recognizing the design principles, methods and techniques of the Modern Movement, stating the original and contemporary values of the project, diagnosing and evaluating the modifications and experimenting with the technical and spatial abilities for future transformations.

Both cases allowed fruitful thinking and debate about possible attitudes, strategies and decisions with regard to their conservation and enhancement. From returning to the original situation, to—almost like in a laboratory experience—, exploring the spatial and technical capacities of the buildings with the adaptation to new architectural programs; and the multiple intermediate alternatives.

The two buildings also provided an opportunity to experiment with and evaluate design resources, such as:

- To improve the original housing units by functional and spatial adaptations and addition of new services and facilities.
- To explore the possibility of redesigning the terrace.
- To investigate the relation between the building and the city, through the possible interventions on the ground floor (Insúa building).

It is essential and relevant for the training of future architects to fully understand the value of the testimonies of the Modern Movement, as well as to dominate a theoretical and instrumental corpus, appropriate and precise, that will drive the decisions made in the project. It is also fundamental to understand the social and cultural effects involved in each one of the interventions, in order to recreate an efficient, reflexive, free and responsible practice, with a real ethical, social and human sense for society.

NOTES

- 1 Vilar's work lacks original expression but is the efficient result of a careful adaptation to present functional demands and architectural resources of the time. Vilar's buildings: the Holandés Unido Bank, the Nordiska building and the Automóvil Club Argentino headquarters.
- 2 The work of Sánchez, Lagos y de la Torre is well known by the versatility of their architectural production, where efficiency and quality were sometimes "dressed" by an eclectic architectural expression while others were rationally shown in a modern language. The Kavanagh building, the collective dwellings building on Av. Callao 1645 and the ateliers at 3 Sargentos street are but a few of their significant contributions to Buenos Aires built heritage.
- 3 Antonio U. Vilar, 1944, *Vivienda Moderna en Belgrano, Casas y Jardines*, (February issue), Buenos Aires.
- 4 Sánchez, Lagos y de la Torre, 1938, *Casa de Departamentos, Nuestra Arquitectura*, (April issue), Buenos Aires.



Student Project: Boshuisje “De Uil”

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A famous Dutch design of the Modern Movement is the former tuberculosis-sanatorium on the estate Zonnestraal in Hilversum (1928-1932), by architects J. Duiker and B. Bijvoet. Back then, the general thought on how to cure someone with tuberculosis was to expose him to a lot of light and fresh air. These ideas are recognizable in the architecture of Sanatorium Zonnestraal. It looks as if the buildings are made out of light and air due to the use of glass and a minimal concrete structure. On a much smaller scale, these ideas are implemented in some little wooden cabins, called “boshuisjes” in Dutch. These *boshuisjes* were part of the ensemble and were used for patients who made their last stop before returning to society. A well thought out design made it possible for the cabins to be built by the patients themselves in the workshop and then moved in prefabricated parts to the forest where light and air could heal the patient. The design of this simple object was very innovative and clever for the time. It fits very well into the quest of architect Duiker to industrialize the building site. Due to the prefabricated nature of the structure, even now, close to seventy years later, the wooden panels are still very easy to dismantle, to move and to reassemble. With just a few bolts and the help of gravity, the *boshuisje* is standing steady and can endure the elements of nature. The simplicity of the design would make the *boshuisje* suitable for reproduction even today.

At the end of 2005, eight third-year students of the faculty of architecture at TU Delft had the assignment to develop a restoration and re-use vision as part of a final bachelor project. One of the tasks was measuring and making technical drawings of a *boshuisje*. The students visited the site and wrote a vision of how to restore and re-use this Dutch heritage. They took the well-being of the little wooden object into their own hands, not only on a theoretical basis, but also by starting the realisation of the restoration. In the process, aspects like discovering the well thought out details and the fact that it consisted of only prefabricated elements, made them more and more enthusiastic to work on this project and spend all their spare time on the restoration.

The students started by attracting some professional advisors who could lead them through the project with their know-how. They asked Lucas van Zuijlen to be their tutor and consulted a colour expert, a carpenter and a painter, all specialists in the field of restoration. The carpenter, Piet van der Plas, was especially helpful and worked with the students for several days replacing and repairing the damaged wooden parts of the *boshuisje*. Seeing actual restoration work in practice was a big learning process for the architecture students. In exchange for their spare time, on 11 January 2007, the fully-restored *boshuisje* was given back to the owner Stichting Loosdrechtse Bos, and replaced on the Zonnestraal estate.

Realizing one restoration was great, but six more *boshuisjes* were waiting to be restored, as well. Together with the students, tutor Lucas continued taking care of them, and realized that some restoration schools could use the *boshuisje* as a teaching subject. The students went to these schools and lectured on the history and the restoration process to pass on their experience to the highly-



Figure 1. Boshuisje placed in row, just after World War II.
Photo: unknown, archive IISG, Amsterdam.



Figure 2. Three restored boshuisjes in row, November 2007.
Photo: W. Bulten, private archive, Delft.

motivated teenage pupils. The students remained active as advisors until the pupils realised their own restoration. In May 2008, three fully-restored *boshuisjes* are placed next to each other on the estate, and there are more to come. The function of the *boshuisjes* will again be as a sleeping place, but this time for tourists or people with interest in the architecture of Zonnestraal.

One initiative by students realised a chain of selfless acts in realizing the restoration of seven *boshuisjes* with a great architectural and social history, well fit within the history of the famous complex Zonnestraal.

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Design Advocacy Through Service-learning

SAVING RIVERVIEW HIGH SCHOOL, SARASOTA, FLORIDA

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Architectural conservation and design programs worldwide have embraced service-learning, a pedagogy that integrates academic study and community service. Service-learning has three broad objectives: enhance student understanding of course content; address a need within a community; and promote civic responsibility among participants.¹ Civic-engagement is a valuable model for developing service-learning projects that ask students to address the distinct challenges of conserving and adapting Modern Movement architecture. In addition to introducing students to the theoretical, technical, and other issues impacting the preservation of Modernist sites, service-learning projects promote design advocacy, raising awareness about the larger need to document and conserve modern heritage.

This paper examines civic-engagement and other teaching theories and how they informed the organization and outcomes of a service-learning project in which design students documented, analyzed, and developed an adaptive use plan for Riverview High School (1958) in Sarasota, Florida, United States, by architect Paul Rudolph.

Of the recognized philosophical approaches, civic-engagement is based on the belief that educational institutions are agents of social transformation and that service-learning is an opportunity to apply academic theory and research to help solve a specific community need. In the process, students are asked to address larger social, cultural, and other issues and are encouraged to become life-long advocates.²

The progressive ideals of American educational theorist John Dewey are often cited in providing a philosophical basis for service-learning. Dewey asserts that critical thinking and action by citizens is essential for identifying social problems and developing solutions.³ The appropriate pedagogy for teaching civic responsibility, according to Dewey, is experiential. He promotes placing students in real-life contexts that require them to respond to complex situations and use their knowledge and problem solving skills. A primary goal is to provide students with an experience that can be modified and applied to similar situations. Proponents of the Dewey-inspired "civic-engagement" model for service-learning assert that community service should be an integral part of curricula.⁴ However, exposing students to real-world situations requires a clear methodology and well-structured learning experience.

One approach for delivering service-learning is offered by David A. Kolb who contends that learning is made up of five basic activities: experience, observation, reflection, formation of concepts, and application in new contexts.⁵ Reflection is essential for what developmental psychologist William Perry terms accommodation—the conscious assimilation of new information into an individual's current thought process. Perry offers three stages of cognitive development in which an individual's thinking evolves from a right or wrong approach to understanding information (dualism) to an acceptance that knowledge is based upon context and personal experience



*Figure 1. Riverview High School: Glass Wall and Sunshades of Classroom Wing, Ezra Stoller
Photo: ESTO (1959).*

and values among other factors and is therefore relative (relativism). With the final stage, the cognitive processes formed by experience and application help shape an individual's identity (commitment).⁶ The theories of Dewey, Kolb, and Perry informed the development of the Riverview High School student project.

Riverview High School is one of fourteen schools designed and constructed as part of the innovative Sarasota Public School Program (1953-1967), which helped establish a new set of principles that would come to define the physical environment of post-World War II education in America. Riverview was designed by renowned architect Paul Rudolph who was a leader of the Sarasota School of Architecture — a regional design movement distinguished by the adaptation of Modernism to the sub-tropical climate and culture of southern Florida's west coast. Among its many attributes, works of the Sarasota School of Architecture successfully integrate passive-means of cooling and controlling and maximizing natural light to illuminate interiors.⁷

Abandoning the traditional two-story, double-loaded corridor building of the previous generation, Rudolph designed Riverview with: a flexible plan that was more conducive to then-current teaching methods; industrially fabricated materials and building components that kept costs low and the construction schedule short; and classrooms and other interior spaces whose natural light, colour, and scale were designed to promote learning.

In 2007, Riverview High School was slated for demolition and replacement by the Sarasota County School Board. The Save Riverview Committee of the Sarasota Architectural Foundation (SAF) partnered with the University of Florida to have students document the building and prepare schemes for rehabilitation and reuse. This effort was supported by the World Monuments Fund/Knoll Modernism at Risk program.



Figure 2. Riverview High School: Conversion of Classrooms to Apartments.
University of Florida Students (2007).

Among the project outcomes, the existing conditions documentation was used by SAF in the organization's international competition for adapting the school for a new use. This documentation will also be made part of a government archive that is accessible on-line. Presented at a public forum, the students' design solutions demonstrated how the school, composed of three main wings connected by covered breezeways, can be zoned to accommodate different uses.

The goal of exposing students to the issues of sustaining Modernist resources and promoting design advocacy were met. As described by one student during post-project interviews:

This project was unlike any other school project we had been assigned in that it allowed us to truly experience the building and understand the underlying Modernist principles that infuse it with meaning....Our conservation and adaptive use designs were enhanced by on-site analysis and interaction with the community and stakeholders. I have a greater appreciation for our Mid-Century Modernist sites and the need to preserve them.

Integrating service-learning projects into existing conservation and design curricula is critical to educating the next generation of advocates for preserving Modern Movement heritage.

NOTES

- 1 Ehrlich, T., 2000, *Civic Responsibility and Higher Education*. Westport, Connecticut: The American Council on Education and The Onyx Press. v-x.
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Reworking the Modern Movement

A EUROPEAN WORKSHOP ON THE MEAT MARKET OF COPENHAGEN

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A sliding change in circumstances can slowly change the conditions and turn rational architecture into cultural heritage. The abattoir and meat market of Copenhagen, a modern industrial area truly planned and conceived as a process and tool of production and economy, is becoming an architectural experience of veneration. When preconditions of the surroundings change the interdependency on the city; when infrastructure, means of production, and social situations change; and when time makes modern architecture romantic, is it possible to maintain content and program in sync with the physical appearance? And how should content and program be considered as integrated with the authenticity of the area?

The meat market was originally planned with utmost concern to meet state-of-the-art principles of hygiene, market and industry. Technical support such as cooling, ventilation and transportation was extremely well organised and maintained by municipality and state. Thus, the meat market has constantly been trimmed to mirror daily needs.

The location of the market was chosen deliberately for its link to the existing infrastructure. When it came to incoming transportation of cattle and livestock, and the supplying of raw material for the production, the main transport was the railroad. When it came to customers, the means of transport were individual cars and lorries.

The situation has gradually changed over time. First of all, the meat market transformed from production and market to mainly market, and incoming transport is no longer by railroad but with big lorries. This not only changes the precondition of transportation but it also changes demands related to hygiene and handling of food. Doors and porches have to be covered and incoming and outgoing loads have to take place within sealed systems. Since lorries are taller and bigger, the covered entrances have had to be remodelled.

When it comes to the social relationships to the meat market there are many different players to consider. The municipality is the owner, and responsible for planning, coordination and maintenance of the resources of the market. The different tenants, companies and producers are considered by the municipality, and all of these tenants have their special interests in the area. Authorities such as veterinarians and the national food control are to be considered, as well, when it comes to make the assessment of the area.

Changes could be technical, social and aesthetic. Terms of reference to consider for possible changes to the area, such as care, maintenance, transformation, and alternative projects are impossible to number; still, it is possible to perceive and experience the qualities and character of the architecture and to express consideration for continuity and change.

The meat market is in transition. What used to be a closed industrial area is gradually being transformed into a public space that brings creative use to the future of the meat market. It is obvious that qualities of the identity of the area are dependent on tangible as well as intangible



Figure 1. *Reworking the Modern Movement*, illustration from workshop by the group of: Marta Leszczynska, Carolina Petitjean, Urmas Oja, Cecilie Lund Simonsen, Ann Christiansen

values, and that the success of a transition from industrial production to public space is dependent on how the identity of the area is taken care of.

The workshop that took place in Copenhagen in the two first weeks of May 2007 asked the thirty-one participants from four European architecture schools in Copenhagen, Frankfurt, Tallinn and Nancy, to consider the question of environmental assessment, present state, maintenance and effects of change that a possible project would bring to the meat market.

The participants were asked to respond to several questions: What is the current status? How much of the original is still there, how much has been replaced (reversible/irreversible)? How much has been added? How do you judge the transformations that have taken place? Should reconstructions be made? Could new transformations be made? For what purpose is the building best fitted, original/new? What is the cultural value of the building? How is it integrated in the city?

The students were asked to identify different participants to meet and consider these questions. Thus, tenants of different professions—buyers, service suppliers, owners, municipal authorities, heritage authorities, architects of maintenance, designers concerned with the change of the meat market, etc., were taken into account. Finally, the participants were asked to suggest a program for the use of the building.

The workshop gave suggestions both for the specific building and the surrounding area, and how to fit it in with the overall plan for the meat market. Considerations for reuse related to the former/present use as meat market included restaurants and a school for future chefs. New uses, such as offices and studios, media labs, design schools, galleries, and cinema were also proposed. How can the area address itself to the surroundings? How can it keep a strong character, and still be open and inviting? How can it connect to the city and still be very dynamic? How can it connect to the flow of the city's infrastructure and other means of communication?

The result was six projects describing ideas for 2x3 areas. Some projects suggested structures that emphasised the character of the architecture. Thus, new constructions were added to express access to the area. Thorough documentation of existing characteristics, as well as new technical solutions to fit with the original strategy of technical adaptation were made. Plans for use of outdoor space were suggested, and additions to fit with the original structure of the market space were made.

Conservation authorities and representatives of the owner and the municipality took part in critiques and presentations. Given the short but intensive work period, the result proved to be advantageous for the learning situation as well as an inspiration for participants with interest in the real case.

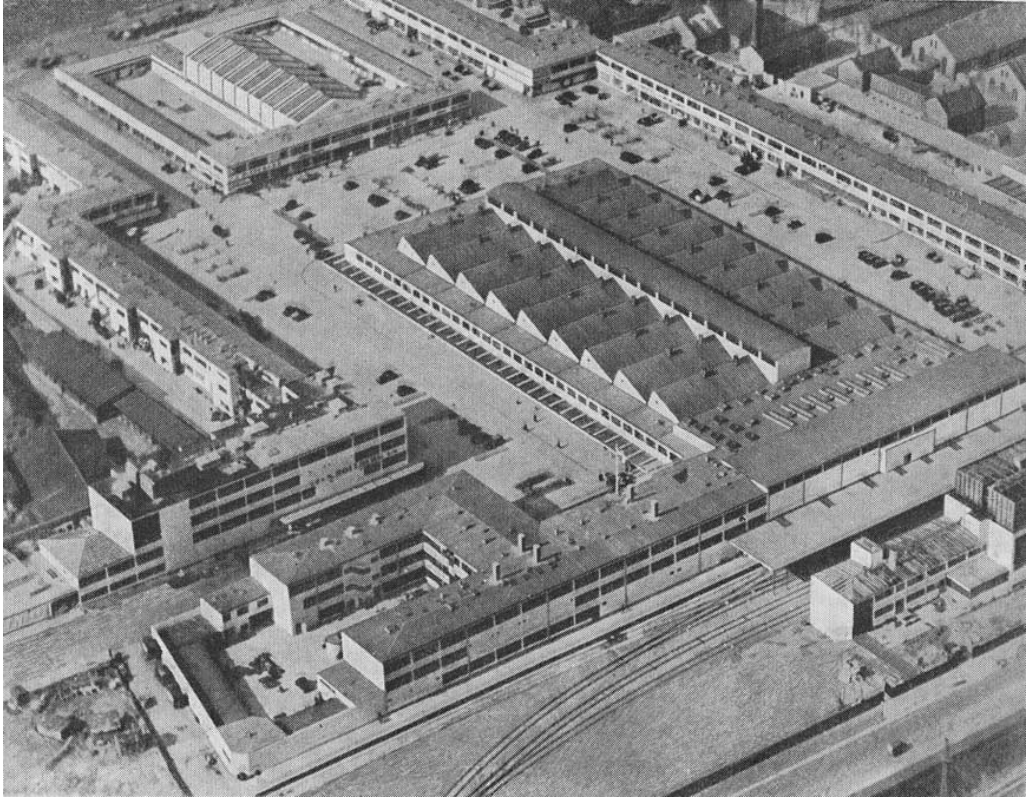


Figure 2. Air view of market from 1934. Source: arkitekten 1934

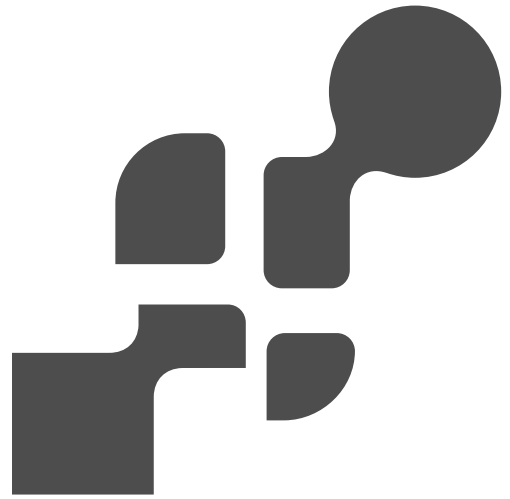
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Renovation Project of Industrial Heritage

CASE STUDY: KAYSERİ SÜMERBANK BEZ FABRİKASI

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Industrial heritage conservation has become very important and popular in recent years. But it is not an easy task. A lot of industrial compounds are facing the danger of demolition. These complexes should be preserved and inherited by the next generations. One of these complexes is Kayseri Sümerbank Bez Fabrikası.

The Turkish Government gave an important role to development and progress in the first years of the Republic, and made a number of investments following diverse policies. It was considered that economic independence, social development and modernization could be achieved by those investments. Industrialization was one of the major investments. It was aimed to make the economy independent.

The first and most important of the industrial investments was Sümerbank Bez Fabrikası, established by Sümerbank in Kayseri. It was not only for economic progress, but also for social development. It was designed in 1935 by Russian architects in a Modernist approach, and constructed in reinforced concrete, for the first time in Kayseri. The factory was not just a production place. It consisted of a lot of social and service buildings and areas. Buildings had different functions like manufacturing, power stations, warehouses, iron foundry, ball hall, theatre, clubhouse, nursery, infirmary, sports field and dwellings, located in the factory campus. Production began in 1935 and continued effectively through the 1960s. In the 1960s, the private sector reached equality with government investments, especially in weaving, and, therefore, the winding up of government establishments came to order, but was not applied. The private sector gained most parts of the market, and government investment did not work in the 1980s. Sümerbank was alienated to Sümerbank Prime Ministry Housing Development Administration, and changed into Sümerbank Holding Corporation in 1987, according to the decision of privatization on May 28th, 1986. Sümerbank's banking management was separated in 1993, and factories continued production as Sümer Holding Corporation. Some businesses of corporation were alienated to government establishments free of charge in time. Kayseri Sümerbank Bez Fabrikası was alienated free of charge to the Treasury on August 9, 1999 for allotment of the area to Erciyes University, according to the decision of Privatization Administration.

Today, the administrative and production buildings, storages, warehouse, electricity centre and ball hall are not in use; only the dwellings are being used as residences by university staff.

Technique parts of the factory were emptied when it was alienated to Erciyes University. Most of the technical gear of the factory was junked and sold; others were moved into storage to be exhibited later. During the emptying, a lot of walls collapsed and were not repaired. The university began a renewal without restoration project in the field in 2002, but quit because of a wrong application. Today, homeless and undomesticated dogs are living in the factory, and because of that, the site is not safe.



Figure 1. Administration staff, for the conservation of historical buildings and sites.

The factory and dwellings were officially registered by “Kayseri Koruma Kurulu Bölge Müdürlüğü” on December 12, 2003, for the conservation of the site. But in Turkish history, especially the twentieth century, buildings are not easily conserved. So factory buildings and fields are not being preserved. The complex is on a very large [section of] land in the city centre. The Municipality of Kayseri wants to demolish the buildings to erect high rises that require the cancellation of registry for preservation of the structures and the area of the complex. They are not aware of the factory’s values for the city and Turkey.

Kayseri, as a city of a longstanding history, shaped its future with Sümerbank Bez Fabrikası. Sümerbank is the basis of the city’s industry, as it is called an industry centre today. Sümerbank Bez Fabrikası was effective in the development of Kayseri and Turkey with its qualified workers, modernization approach and progress it brought to the city.

The main aim of this presentation is to determine how the values of Kayseri Sümerbank Bez Fabrikası penetrated the Turkish Republic and Kayseri’s social and economic development, to state decisions for the conservation of those values and to provide reintegration to the city. The factory has different values like architectural, technical, historical, economical, and political. These values determine the factory’s conservation cause and renovation principles. It is possible to revitalize and integrate the complex into the city. There is significant potential for young users around the complex as it is in the city centre. The structures used by Erciyes University should be preserved. Kayseri Sümerbank Bez Fabrikası must be conserved with its social and physical values. This conservation can be provided with new functions to avoid damaging its authenticity. But this function also provides integration of the factory to the Kayseri’s citizens, like in the past. The factory has very important information about technology, architecture, and working conditions history. It is a document that carries all the information on itself. So all this information must be explained by the new function. The university is an education centre and it is also a production centre. All these functions can be practiced in the field by the *teknopark* model. The university can



Figure 2. Teknopark, which is part of university, provides unification of public and university to produce project. University staff can work in this center. It is science center with exhibition and production units.

use the complex as a *teknopark*. In the field, education and production functions will be practiced together. Also, materials that were preserved in warehouses for the exhibition, can be exhibited in *teknopark*.

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The Change of Facing: Meanings and Implications

THE CASE OF THE FORMER DIRECTORIAL CENTRE OF THE NATIONAL TELEPHONE COMPANY IN TURIN

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As ancient buildings in the city have been the object of the so called “façadism”, Modern office buildings are also concerned by an opposite phenomena: the complete renewal of the original elevations and the replacement by new ones. An emblematic case study is the ex-Directorial Centre of the telephonic company Sip¹ (later Telecom) realised in Turin -the cradle of the telephone industry in Italy- in 1966 by Ottorino Aloisio. In October 2003, the building was sold by Telecom to the Province of Turin, which started the refurbishment to house its offices.

Aloisio (Udine, 1902 - Turin, 1986) belongs to the generation of architects who, since 1925, gave to Italian architecture a rhythm of development that in a few years allowed it to attain the same achievements as abroad. Aloisio’s architectural production was considered a bridge between tradition and Modernity. Unfortunately, as there are only few historical studies on his original work, it is still little known to scholars and to the public at large.² Nikolaus Pevsner said: “What interests me especially in the work of this architect [...] is that the sources of his buildings and designs are so widely scattered: Italian traditions, Fascist Classicism, Nervi concrete, Mendelsohn and Expressionism”.³

The ex-Sip office building,⁴ that consists of fifteen floors above ground and two underground for a total volume of 120,000 cubic metres,⁵ is a sort of “horizontal skyscraper” that meant to ideally balance the Rai-Television office skyscraper (1962-1968 by Aldo Morbelli and Domenico Morelli) situated opposite the Porta Susa train station. Both buildings are all that remains of a possible position for a managerial centre along the swathe marked by the railway lines that in 1962 were the subject of a national competition. First prize went to a group led by Ludovico Quaroni, who proposed a slab system of services and an acropolis of fourteen skyscrapers.

Since the end of the 1980s the work of laying the railway underground (that in 1995 would be included in the new “General Town Plan” of Turin) aimed at surface recovery of the railway bed to make a new road axis, from North to South, in the city. Nowadays, on the same site under construction by Renzo Piano, is the huge skyscraper for Intesa-San Paolo’s offices, one of the most important European banking groups. The choice of a tower typology, more than 180 metres high (14 metres higher than the building symbol of Turin: Mole Antonelliana, 1862-1889, by Alessandro Antonelli), and fifty thousand square meters (three thousand employers), is contested by the environmentalists and by some architects, professors and urban planners -among others Vittorio Gregotti, one of the fathers of the master plan- who wish to preserve the almost-intact nineteenth century skyline of the city and who are concerned with the eco-sustainability of the project, but who are not concerned about the renewal of Aloisio’s building situated immediately to the side, in the shadow of the tower.

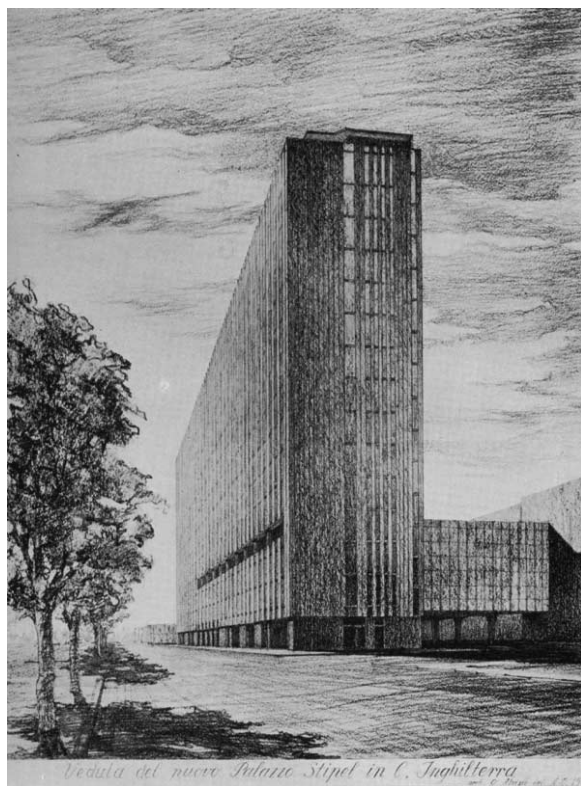


Figure 1. The design of the façade as it was realised.

Drawing by Ottorino Aloisio, 1966, published in: Pozzetto, M., 1977, *Vita e opere dell'architetto udinese Ottorino Aloisio*, Torino, 193.

The volume of the ex-Sip was treated by Aloisio in an abstract way to highlight its relationship with the territorial dimension: the horizontality of the urban landscape. Actually, the horizontal sign that crossed the façade, before the renewal, helped to exalt the “gestural” quality of the architecture. This was the heritage of a process of geometrical breaking up of the volume and its planes, due to the Rationalist experience of the architect who had attended the first Italian Exhibition on the Rational Architecture, Movimento Italiano Architettura Razionale (M.I.A.R., Rome, 1928).

For a year the architect had been studying the enamel of the klinker that covered the façade in order to approach the chromatic sensibility of a Song cup.⁶ The constructive element in klinker was designed to be repeated and thus to achieve an aesthetic texture; shape and colour were studied on the basis of their visibility from afar.

In the past the façade was altered, losing some of that clean compositional quality that linked this building to the best European experiences of those years. In fact, the tile cladding has been removed and replaced by plaster, and the concave elements in klinker - which so strongly characterised the façade - were lost. The renovation project headed by the Province of Turin has involved the complete redesigning of the elevations. Currently the building is completely covered by flat and uniform panels of Alucobond, a light composite material consisting of two aluminium cover sheets and a plastic core. The Province of Turin assured that the palace would become a model of environmental technology thanks to a coating with photovoltaic panels and illumination sensitive to external light for energy saving. But they did not perceive the building as a Modern heritage,



Figure 2. The design of façade after the renewal, April 2008.
Photo: Fabio Sarcone.

maybe because as a professional figure Aloisio remains among those not sufficiently understood or appreciated in the Italian cultural and artistic panorama.

Can this justify the ongoing interventions? When and how should façades be changed? Does the loss of the original facing materials and the availability of new and more technologically efficient ones allow a change of the entire exterior design?

NOTES

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- 4 The building has been conceived to house the Regional Directorate, the Directorate of the Exercise, the offices of the Central Administrative Directorate of the Zone Directorate.
- 5 The construction of the building was also an important contribution to employment with a presence in average of 150 workers a day for a total of about 130 thousand working days (1968, "La visita a Torino del Ministro Sen. Bo", *Selezionando* 5 (4), ILTE - Industria Libreria Tipografica Editrice, Torino, 2-4).
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The Need for a Shift in Attitude

FROM ISOLATED EVENT TO PROCESS-ORIENTED MAINTENANCE OF MULTI-APARTMENT BUILDINGS FROM THE LATE 1950S THROUGH 1970S IN GÖTEBORG

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In 1965 the Swedish Parliament decided to launch a huge housing scheme with the aim to construct one million apartments within a ten year period, the so called “one million-programme”. City governments and local public housing companies played a major role, a role which had developed since the beginning of the twentieth century. The rate of production was already high when the scheme was launched, hovering around 90,000 apartments per year, and the notion of a manifest political ambition prior to the parliamentary acknowledgement is biased.¹

“The one million-programme” was heavily criticised through-out the period and even stigmatised, primarily by news-media. Criticism presented in media nowadays is scarce, however characterised by gesture politics. Recent vital reports have brought forward a complex mix of architectural and technological qualities, and challenging problems in the Swedish residential built environments from this period.

The immense need of housing, requiring rational and Modern design and construction, implied that architects had to adapt to a relatively strict framework in terms of clear policy visions and economic requirements defined by the clients.² The aim was to combine rational production of apartments with Modern design and a high living standard, at an acceptable cost for tenants. Some architects accepted these conditions and were able to present interesting and innovative ideas. Others searched for a wider degree of artistic freedom and to escape from design as mere “production” of built fabric. The latter group found refuge in projects of, e.g., church-design.

This architectural development in Sweden, which is to a considerable degree influenced by the ideas of modernism and “functionalism”, has resulted in generic built environments on the one hand, and unique architectural works of art on the other hand.

The public real property corporation Förvaltnings AB Framtiden (Inc.) in Göteborg is owned by the City of Göteborg and administers approximately 70,000 apartments. The parts of the building stock constructed in the 1950s, 1960s and 1970s are of considerable proportions. Interventions made have been launched on a wide front in order to manage technical deficiencies in, e.g., prefabricated concrete façade elements, as well as issues of segregation and unemployment. Some of the most successful projects, also including innovative energy solutions, have been nationally and internationally awarded. Despite successful intervention regimes and “best examples” it is highly relevant to consider a needed shift in attitude to interventions in generic built environments, i.e. towards a preventive and process-oriented perspective on interventions.³

During spring 2008 the regional government decided to promote a heritage designation of a generic multi-apartment area in Göteborg. The local public housing company and the city government decided, however, not to support the proposition, adverting dramatic increase of costs for future interventions. The local renouncement resulted in a termination of the designation-process. This example shows that heritage policy and property management are not always necessarily



Figure 1. *Dr. Forselius backe*, by architect John Snis, Göteborg, 1959.
Copyright City of Göteborg.

compatible. This discrepancy, including the question if and how financial value of a property is influenced by designation, have been discussed by Gregory Ashworth.⁴ The argument that heritage designation is likely to contribute to raised market value of real property has been advocated by Randal Mason.⁵ An interesting model of how to balance economic, functional and historical values of built heritage, aiming to avoid conflicts between competing goals, has been presented by Anna Krus.⁶

Sustainable long-term improvement of building envelopes, in terms of energy efficiency and enhanced technical performance constitutes a vital challenge for the Framtiden-Group. If the result of an intervention is good, technically, visually, and with a sustainable environmental impact, the cost is normally considered worthwhile. Increasing the energy efficiency by, e.g., adding thermal insulation is often done in conjunction with façade maintenance or renovation. Hence, it is important to involve evaluation of the technical service life of building-components and building-materials.

It is vital to identify values connected to significant characteristics distinguishable in generic built environments. Architectural design and building technology expressed in house typologies,



Figure 2. Orthophotograph of South-west façade of Dr. Forselius backe.
Meiling and Rehders, 2007.

façade materials and colour schemes, are examples of relevant issues for analysis and interpretation. Changes, traces of previous interventions and indications of utilisation contribute to “the story” of the generic built environment. The nine-storey, multi-apartment building at Dr. Forselius backe in Göteborg is a representative example of a generic residential building from the period indicated (Figure 1).

As a response to the need for enhanced knowledge, within the Framtiden-Group, in terms of material and immaterial aspects of the building-stock, the authors have developed the MaP-model for documentation, air-pollution monitoring and condition assessment of façades. Photogrammetry is an appropriate means to record crucial damage-phenomena of façades, and it is a relevant method for recording vital characteristics of built environments, and, thus, contributing to any valorisation process (Figure 2). Such photo-records can easily be integrated into GIS-related image-textured virtual 3D models of buildings, thus serving as an important “information-viewer” for further analysis, interpretation and planning.

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Hotel Britannia: A Monument from the Reconstruction Period

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The hotel Britannia at the seaside promenade of the city of Flushing (Zeeland) was designed in 1954 by Joost Boks (1904-1986) to replace the in 1944 destroyed "belle époque" hotel. He is also known as the architect of the 'Bouwcentrum' at Rotterdam in 1948. This commission for the Centre of Research and Development of the 'postwar' rebuilding period was the reason why a group of European hotels granted him a journey to the USA in 1950. He studied the 'shake-hands' architecture, combining a concrete framework with conventional brick building techniques and integrating works of art.

At first Joost Boks applied this technique and design to the Delta Hotel at the city of Vlaardingen. Although different disciplines were involved, art and architecture were not integrated completely. This was achieved in his next hotel design for Britannia. The pavilion with large windows comprised a restaurant, several meeting rooms and a concert hall. All around the second floor a ceramic frieze of eighty-four meters long was running outside and partly also inside the building. The mosaics were designed by the artist Louis van Roode (1914-1964), depicting sea animals in relief, and are one of his best works. The terraces and entrance were embellished by a black limestone wall and a white rectangular decoration.



Figure 1. Aerial photograph of Britannia directly after the construction of the hotel tower in 1960. Municipal Archive of Flushing.

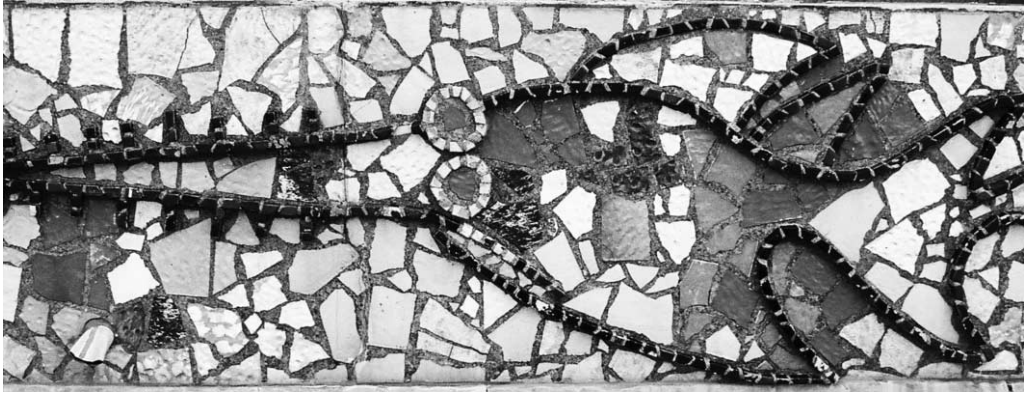


Figure 2. Detail of a mosaic on the front balcony showing a swordfish.
Photo: W. Heijbroek.

By the combined action of architect Boks, artist Van Roode and interior designer Wirtz, a unique total concept was realized. Five years later the hotel tower was built under the supervision of Bram Middelhoek, a partner of Boks. The hotel was effectively unified with the pavilion by continuation of the frieze. For a second time Van Roode designed a mosaic which fitted well to the original.

During the course of the time, parts of hotel Britannia were modified in a rather clumsy way. The ceramic frieze on the inside was demolished for the construction of a new floor in the restaurant; outside, the limestone wall was partly destroyed and the entrance moved. Nevertheless, sufficient elements remain, which justify conservation and restoration.

In 2004 a permit for demolition was granted by the city council of Flushing to a property development company, owner of the closed down hotel. However, the new building plans this company developed were too expensive, so no hotel company was interested. Two years later the private preservation society for cultural heritage 'Bond Heemschut' pleaded successfully for a temporary protection of the pavilion, in expectation of adding it to the list of national landmarks by the RACM. Heemschut developed a plan for restoration, which is considerably less expensive than demolition and constructing a new building. Support to preservation is given by nearly all Dutch institutions concerned with architecture, conservation and art. Until now the owner and the local authorities had refused any discussion on the proposals. This changed in March 2008 when the new mayor of Flushing was appointed. A serious attempt to evaluate the alternatives for conservation on their possible application within a new set up as apartment building will be made. This gives us hope that the unique seaside hotel Britannia will keep ruling the waves in the future.

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Building in Health: Vitaglass and Modern Bodies

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Vitaglass resulted from the 1920s collaboration of disparate bodies united in a singular utopian cause to manage the germicidal power of the sun with the material fabric of the building. Their goal of admitting sunlight's vital rays into the building in the hopes of creating a better, disease-free life resonated with wider cultural ambitions of the Modern era. But, the resultant impact on building technology has left a conundrum for the preservation of Modern architecture: what exactly ought we preserve: the image, the material, the performance, or the ideal?

Although it came slowly to England, by the 1930s, England was a centre of Modern architecture. The speed with which modernism moved in England was propelled by longstanding concerns with the health of the population. While concerns with health and urban pollution had a long history, and were central to nineteenth century reforms, they peaked in the interwar years. Although waning, tuberculosis accounted for as many as 128 deaths per one thousand in England and Wales in as late as 1901.¹ Rickets mysteriously debilitated children well into the interwar years. All told, some forty percent of Boer War conscripts were denied entry to the military due to ill health. Concerns for national health and productivity, and for child welfare were embodied in the inter-related popular movements, which emerged in the interwar years. The Eugenics Society, founded by Francis Galton in the late nineteenth century, advocated hereditary measures to improve the strength of the nation. The 1920s Health and Strength League, headed by the bodybuilder Eugen Sandow, sought to improve health through physical culture.² Following on the Romantic ideals of nature, on the one hand, and scientific studies on the medicinal value of sunlight and ventilation, on the other, the New Health Society,³ and its offshoot, the Men's Dress Reform Party,⁴ both founded in the 1920s by Dr. Alfred Jordan, and the Sunlight League,⁵ founded by Dr. Caleb Saleeby in 1924, each espoused open-air and sunlight as cures for an ailing nation.

Propelled by health concerns, and the modern ideal of the physically fit, muscularly-toned, active, and untanned healthy body, the large glass surface became a central characteristic of Modern architecture. This was facilitated by the 1920s revolution in glassmaking technology. Following the introduction of drawn cylinder sheet glass by the American John Lubbers,⁶ the Belgian Émile Fourcault and the American Irving Colburn separately developed techniques of drawing glass in a flat, infinitely-long ribbon.⁷ Although capital-intensive, these methods produced panes of increased size and optical clarity, while decreasing costs. Glass became increasingly widespread, both within and without the built environment, while windows became glazed walls. Changes in framing materials, from wood to steel, allowed for more slender frames and for a greater percentage of the window to be glass. Thus, by the early twentieth century, the technologies of glass were in flux. Meanwhile, the light-handling characteristics and chemistry of the material itself was becoming malleable. Prismatic glass affected the surface geometry of the glass sheet so as to draw natural light deeper into interior spaces,⁸ while glass chemistry itself was manipulated for particular spectral performance, such as resistance or permeability to various colours, x-rays,

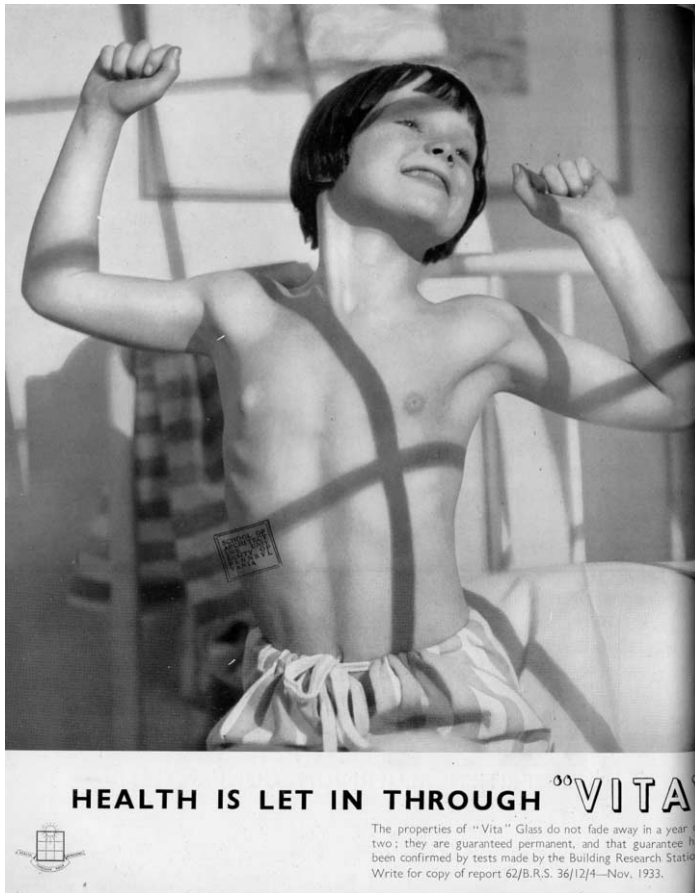


Figure 1. An advertisement for Pilkington "Vita" Glass by the "Vita" Glass Marketing Board. In *Architectural Review* (05.1934).

infrared, or ultraviolet light. By the interwar years, glass had diffused into a range of proprietary materials, each tuned to offer particular performance characteristics and light-handling effects. Glass was no longer glass.

In the disease-haunted twenties and thirties, the idea that something as basic as sunlight might hold the key to a disease-free future took hold in the collective imagination. When Neils Finsen discovered that transparent window glass was opaque to the germicidal ultraviolet spectrum of sunlight, a solution became desirable. In 1925, with the encouragement of Drs. Leonard Hill and Caleb Saleeby and the London Zoological Gardens, Francis Everard Lamplough developed a window glass, which was permeable to the germicidal portion of sunlight's ultraviolet spectrum. Lamplough licensed his technology to England's Chance Brothers and New York's Vitaglass Corporation. Chance Bros, anticipating a future in which "... the sunny windows of all rooms, offices and factories where people live and work will be fitted with glass which does not obstruct the most healthful rays of the sun," entered into a 1927 agreement with its rival, Pilkington Brothers, to manufacture Vitaglass in polished plate,⁹ and the two formed a dedicated propaganda agency, the "Vita" Glass Marketing Board.

Vitaglass's advanced chemistry resonated with a time that saw health as the technological problem of eradication of disease-causing microbes, and witnessed the birth of an array of health-related products, from vitamin pills to household cleaners. Through modern technology, Vitaglass

**DO YOU BLACK OUT HEALTH
FROM THE HOUSES YOU DESIGN?**

Ordinary window glass shuts out the ultra-violet health rays of daylight. "Vita" Glass admits them permanently



GLASS WINDOWS PERMANENTLY

"Vita" Glass is obtainable from local Glass Merchants, Plumbers, Glaziers and Builders. "Vita" is the registered trade mark of Pilkington Brothers, Limited, St. Helens, Lancs, whose Technical Department is available for consultation regarding properties and uses of glass.



Figure 2. An advertisement for Pilkington "Vita" Glass by the "Vita" Glass Marketing Board. In *Architectural Review* (05.1934).

offered what testimonials described as a more natural interior atmosphere, compatible with the realities of modern, urban life. The possibility of "health through your windows," captured the public imagination, gracing the pages of the popular press, and fiction literature. Despite this promise, however, Vitaglass never attained the envisioned sales. In the face of high costs, international competition, and the onset of the Depression, by the 1930s Vitaglass was a spectacular failure. Yet, Vitaglass was installed in many buildings in the UK and abroad, and its logic was made manifest not only in its materiality, but in emphases on solar orientation, a disposition to vitreous materials, and the emergence of particular room types, such as sleeping porches. Across England, a myriad of factories, hospitals, sanatoria, resorts, zoos, schools, offices, and houses all had Vitaglass installations. Abroad, no less than Richard Neutra's Demonstration Health House for Dr. Philip Lovell was fitted with ultraviolet-permeable glass.

The consideration of Vitaglass opens up a crucial consideration in the conservation of the glass buildings of the Modern Movement: exactly what of these buildings ought to be conserved? Vitaglass is no longer manufactured by Pilkington, and the Vitaglass Corporation and Chance Bros. are now both memories. Yet, ultraviolet transmitting glass remains in manufacture, most notably for use in photovoltaic arrays. In its particular relation between appearance, material, performance, and conviction, Vitaglass embodied a particular definition of health that no longer holds. Yet, it was truly utopian, envisioning a future of a built environment that would cure the body of its

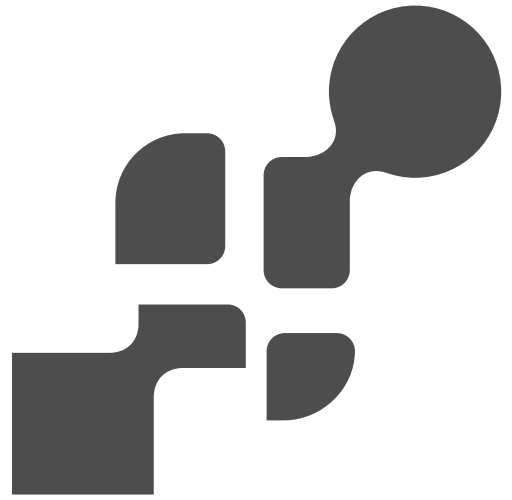
ills. Thus its material reality belongs to the conviction of a past future. Given that not all glass surfaces act in the same way (even though they may look similar), is it the Modern building's appearance that is to be preserved, or its original performance, or the utopian conviction of the building as a technological means to health taken by its designers and demonstrated by its own materiality? When the window that once brought us health now brings us ill, how do we proceed? Do we preserve the image of the body of the Modern building, or the spirit of the Modern body?

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Exhibition

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Transformations of Dutch Church Building after the Second World War*

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In the Netherlands the year 2008 has been designated the Year of Religious Heritage. In spite of all the celebrations and the impressive richness of the Dutch religious heritage the year is giving rise to some strong pessimistic feelings. There is a continuous process of secularization amongst the Dutch population; while ethnic and demographic changes also contribute to the decrease in the influence of Christian thought in society. As a social phenomenon this can be assessed in various ways, but for the built heritage it has really serious consequences. According a recent forecast, during the forthcoming ten years Dutch religious communities will sell nearly 1000 church buildings. The future of these buildings is very uncertain.

Directly after the Second World War the church and the Dutch state had very optimistic expectations for the future. Economic recovery of the country brought not only the baby boom, but also the construction boom of church buildings, many of which were erected in new expansion parts of the cities. Thus according the calculations of the Prof. Dr. G. van der Leeuw Foundation, in the first two post-war decades, 1564 churches and chapels were erected in The Netherlands¹. Today the National Service for Archaeology, Cultural Landscape and Built Heritage (RACM) includes 718 churches, 49 chapels, 42 monasteries, five abbeys, four church centres, three temporary churches and one beguine church in its inventory of the monuments of the post-war reconstruction in the Netherlands.

Post-war Dutch religious architecture inherited several crucial ideas from the inter-war period. In 1928-1929 J.J.P. Oud, with his Apostolic Church in Kiefhoek (Rotterdam), introduced a previously unseen abstraction into religious architecture. It is noticeable, that Oud designed the building as an additional element in the urban context of his housing and even had to look for a Christian denomination that would be interested in the location and in his design. This was a real step forward, as we realize when comparing it with the First Church of Christ Scientist of 1927, by the godfather of the Dutch Modern Movement, H.P. Berlage. During the inter-bellum the construction of the Reformed Churches also gave rise to another interesting development.

THE DENOMINATIONALISM (DE VERZUILING)

The compartmentalization in socio-political life according denominations, known as the *verzui-ling*, was a characteristic aspect of the postwar development of Dutch society. This sectarianism was influential in the choice of an architect, constructor and contractor for housing, shops, offices,

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Figure 1. G.H.M. Holt and K.P. Tholen. The St. Joseph Church in Bos en Lommer (Amsterdam), 1951-1953. A presentation drawing of the interior.
Source: NAI Rotterdam

and even stricter for church buildings. Directly after the war Roman Catholic Church construction was dominated by the 'Delft school'. The adherents to this school were grouped around its initiator and spiritual leader, a Catholic proselyte, Marinus Jan Granpré Molière (1883-1972). In 1924 Granpré Molière became a professor at the Technical High School in Delft.² With his traditionalist ideas of architecture he succeeded in dominating this school for several decades and passed important building assignments to his disciples.⁴ The adepts of this school usually took the early Christian basilica as an example and restricted themselves to the use of brick as a suitable building material for ecclesiastical structures. The influence of Granpré Molière on another group of Roman Catholic architects, known as the *Bossche School*, was largely confined to ideology. The *Bossche School* took its name from the town 's-Hertogenbosch (or Den Bosch), where from 1946 until 1973 a special course of Church architecture was taught. The doctrine of this school was based on the proportion system of the Plastic Number (*het Plastisch getal*) elaborated by a Benedictine monk Hans van der Laan (1904-1991).⁴ Dom Hans van der Laan applied his system to the building of the Saint-Benedict Abbey in Mamelis near Vaals. His building, with its simplicity, sober use of materials, and incredible penetration of light, is so elegant, that it could be considered one of the best masterpieces of Dutch twentieth century architecture. His later building practice was rather modest, but several talented architects (including his brother Nico van der Laan (1908-1986), Jan de Jong (1917-2001), Cees Pouderoyen (1912-1993) and others) who were influenced by his ideas made a considerable contribution to Roman Catholic architecture in the south of the Netherlands. Nowadays the heritage of the *Bossche School* is under great threat. Several important buildings have already been demolished. Because they were consecrated, the Roman Catholic Church sees the buildings as sacred objects and is not very flexible in accepting new functions for them. For this reason in the Diocese of 's-Hertogenbosch many buildings have already been demolished. In any analysis of Roman Catholic Church architecture that of the architect Alphons Boosten (1893-1951) occupies an exclusive position. Although he used traditional



Figure 2. K.L. Sijmons. *The Dutch Reformed Advent Church in Loosduinen (The Hague), 1953-1955.*

Source: Mourik, W.J.G. van., *Hervormde kerkbouw na 1945*, 's-Gravenhage: Boekencentrum, 1957, p. 116.

materials, he achieved exceptional expressiveness, which clearly distinguishes him from the other Roman Catholic architects of the south of the country.

In the early work of two Roman Catholic architects, G.H.M. Holt and F.P.J. Peutz, we observe a search for the modernization of Roman Catholic church building. Both architects worked on church design during the Second World War. In both cases the transformations of the designs are very interesting to follow. Both architects finally completed buildings, the images of which are dominated by the use of reinforced concrete. Peutz found an excuse for using this un-Catholic material for his St. Anna Church in Heerlen (1953) because he could reduce the building costs (concrete was the cheapest material for the proposed gigantic cupola) and construct a building on possibly unstable sites in this mining area. Peutz started his education as a civil engineer in Delft, which explains his why he chose to design a concrete dome. Gerard Hendrik Maria Holt (1904-1988) was in the difficult position of being both a Catholic architect and admirer of the Modern Movement. The transformation of his design of a church (originally named the church of St. Anthony of Padua, but finally dedicated to St. Joseph) in the new neighborhood of Bos en Lommer in Amsterdam (built together with K.P. Tholens) in 1951-1953 shows his struggle for modernity. For this Catholic enclave (old people's housing, general housing and a school) Holt first designed traditional looking brick buildings with some reinforced concrete elements. To change the minds of the Building Committee Holt organized an excursion to France. However, even the meeting with Auguste Perret and the visit to his Church of Notre Dame du Raincy (1921-1922) could not convince the Committee to use the new design proposed by Holt. They objected to a 'superfluous application of glass' (*"could have a bad stimulation effect on the youth of Amsterdam"* sic). Nevertheless Holt succeeded in building one of the most modern churches in the Netherlands. Now this building functions as a climbing hall. The attempts of Holt to develop a design for cheaper standardized church building should also be noted.

FOREIGN INFLUENCES

Although church architecture was a field of experimentation, very few epoch-making Dutch churches were built. Most Dutch architects were elaborating on the concepts of their foreign colleagues. During and directly after the Second World War Scandinavian influence was dominant in Dutch architecture. However it is difficult to overestimate the impact of the influence of the French architect-brothers Perret and the two Jeanneret cousins, one of whom worked under the name Le Corbusier. In particular the chapel of Notre Dame du Haut in Ronchamp, completed in 1954, and the Dominican priory Sainte Marie de La Tourette (1956-1960), both designed by the French-Swiss Le Corbusier had a big impact. There were several other influences deriving from Dutch traditional architecture and other European countries and also from as far afield as the USA. There were even more exotic influences from Japan (for example three Dutch Reformed Churches in Zeist (1959-1962), Rijswijk (1962) and Amsterdam (1962-1964) by M.F. Duintjer).

ARCHITECTS OF PROTESTANT CHURCHES

In The Hague in 1946 the architect Karel L. Sijmons (1908-1989) published a book *The Protestant Church building*. This book discusses both the restorations of the buildings and the search for new architecture for the Protestant Churches. It brought several commissions to the architectural firm of Sijmons. He, and later his ex-partner Piet Zanstra (1905-2003), built several architecturally important churches. In 1957 the exhibition 'ARK – ten years of church building' in the Stedelijk Museum of Amsterdam had already shown many of the achievements of Protestant architecture. Such architects as J.H. van den Broek and J.B. Bakema, J.B. Baron van Asbeck, M.F. Duintjer and B. van Kasteel designed several outstanding church buildings. The Resurrection church (known



Figure 3. G. Drexhage, *De Ontmoetingskerk* in The Hague (Loosduinen), 1969.

Source: Steensma, Regn., Swigchem, C.A. van. (Eds.), *Honderdvijftig jaar gereformeerde kerkbouw*, Kampen: J.H. Kok, 1986, p.97

as *De Kolenkit*, 1955-1956) of M.F. Duintjer has a long-axis oval plan and vertical louvred wall construction. This building is interesting not only because of its architectural expression (it became an icon image of the new neighbourhood), but also as an example of how a Protestant church became a public social centre. The building has an impressive number of different ancillary rooms for social services. J.B. Baron van Asbeck was also a very successful church architect. Van Asbeck experimented with new materials and structures. His Dutch Reformed Easter Church in Amstelveen (1963) is an example of his innovative approach. The building has a hyperbolic paraboloid timber roof on a square plan, and played an important urban role.

In the late 1960s Protestant architecture achieved a high level of abstraction with the building of *De Ontmoetingskerk* in The Hague (Loosduinen) by the architect G. Drexhage in 1969. With very simple means Drexhage created an extremely pure and impressive church interior: the alignment of the benches provides a response to horizontal louvres of the external walls.

The exhibition follows the stylistic transformation in the church building of different confessions. To place the Modern Movement in its context several examples of 'shake-hands' architecture and unusual cases have also been selected for the exhibition. In contrast to Belgium, in The Netherlands usually relatively big churches were built (mainly in the post-war expansion districts). Nevertheless one small Church building, the *Eglise Wallone* in s' -Hertogenbosch (1958) by the architect H. Krijtjizer, has been included in the exhibition.

A separate part of the exhibition shows the impact of the 'liturgical movement' on architecture. Another specific aspect is the application of the arts in the religious buildings.⁵ We could mark the general tendency towards the merging of the approaches of the Catholics and Protestants. While the Protestants became increasingly more generous in the application of the arts, Catholics became more selective in their choices.



Figure 4. Aldo van Eyck. *The Pastor of Ars Church* in The Hague, 1964-1969.
Shoto: Ivan Nevzgodin, July 2008

This analysis of the evolution of the post-war Dutch church architecture concludes with two Roman Catholic churches. One, the Pastor of Ars Church in The Hague, built by Aldo van Eyck in 1964-1969, the other - the Andrew Church /Chamber of Gabriel in Heerlen by Laurens Bisscheroux built in 1977. Both these extraordinary buildings are brilliant results of the highly individual anarchistic interpretation of a Church building.

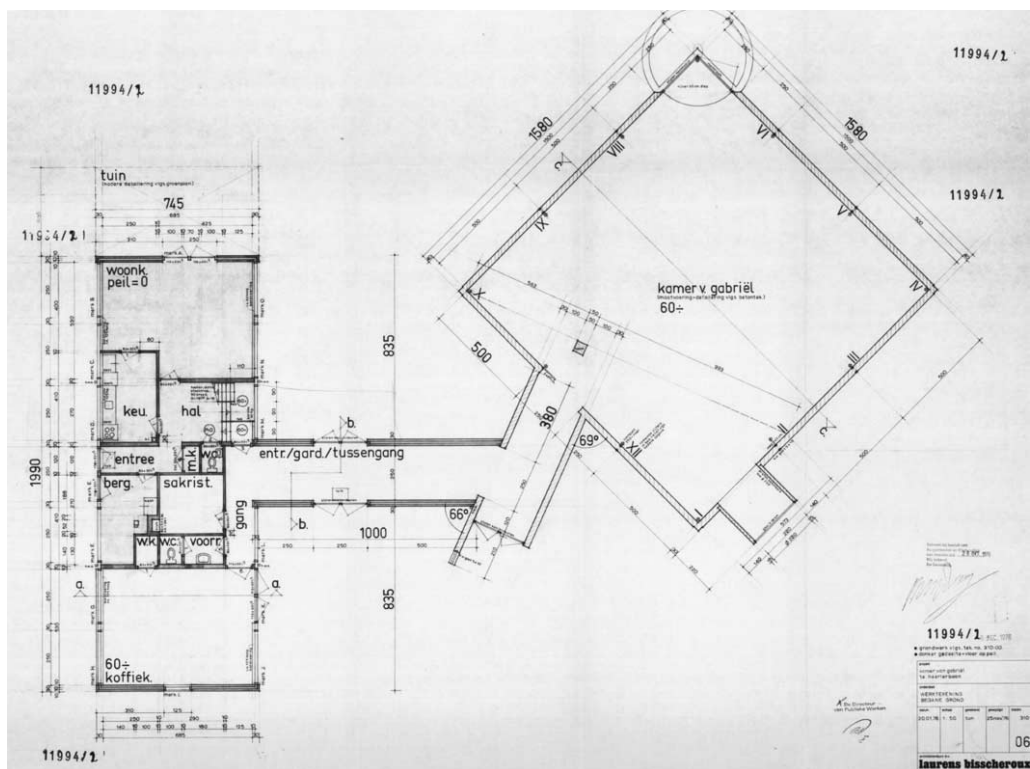


Figure 5. L. Bisscheroix. The Andrew Church /Chamber of Gabriel in Heerlen, 1977.

Source: Coumans, Willem K., Coenen, Jo., *Architect van het verlangen : Laurens Bisscheroix in zijn tijd*, Rotterdam: Uitgeverij 010, 2001, pp. 129, 132



Figure 6. J.H. van den Broek and J.B. Bakema. *The Dutch Reformed Resurrection Church in Schiedam, 1956-1957 converted to apartments by P.A. Peeters (Geluk/Treurniet Architecten) in 2003.*
 Photo: Ivan Nevzgodin, May 2008

THE CHALLENGE OF CHANGE

In 2004 the amalgamation of the three main protestant churches formed the Protestant Church in The Netherlands (PKN, *Protestantse Kerk in Nederland*). This favorable development in the history of Dutch Protestantism has negative consequences for the post-war church buildings. After the unification, congregations could keep only one, usually older, building for the services and had to sell the others. While Protestants are very flexible in the adaptation of their former churches to other functions, the Roman Catholic Church prefers to demolish a church building, rather than to re-use it for a function, which is not in accordance with Christian ideals.

As mentioned above, it was necessary to find a new use for 1000 buildings. To make a good choice further research is needed. I can suggest several possible criteria for this difficult selection of uses for valuable buildings: the position of the building in relation to the transformation of liturgical ideas and in church history in general; the architectural originality, the individuality of the building program and the ground plan solution; the urban location of the church building; the relation of the building to the applied arts: a church building as a complete work of art (*Gesamtkunstwerk*); and the place of the building in the oeuvre of the architect. It is also necessary to investigate the need for further elaboration of these criteria. The question of whether the Dutch state should pay twice for the religious buildings should also be answered. During the Reconstruction period the State subsidized the construction of churches. Why should the secular State now pay again to keep the monuments of disappearing religions?

Usually the religious buildings are over-dimensioned. In the past this extra space was sometimes even seen as an offering to God, but now this makes buildings more suitable for re-use. The most favorable solution is to adapt a church building to new demands, while still keeping its religious function. One of the best recent examples of such an approach is the Emmaus Church in The

Hague (originally St. Anthony and Louis Church by architects F.P.J. Peutz, W. Wouters, E. Laudy, 1958), which was refurbished in 2006 by Mari Baauw and René Oliver (Royal Haskoning). For four parishes (they were united in 1995), the architects created a flexible multi-functional complex with an inviting appearance. The successful conversion of a church building to apartments can be illustrated by the building of Dutch Reformed Resurrection Church in Schiedam. Famous Dutch Functionalists J.H. van den Broek and J.B. Bakema designed this building in 1956-1957. It was one of the first really modern church buildings in the country. In 2003 P.A. Peeters (GelukTreurniet Architecten) made a design for the re-use of this building, which in 2005 was awarded the Dutch National Renovation Prize.

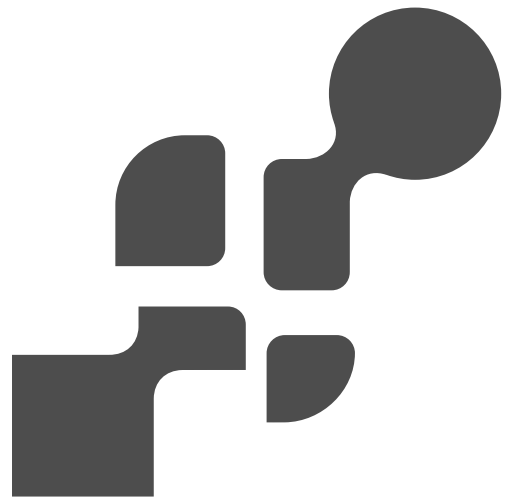
Maybe the most innovative recent example of re-use is the transformation of the Ludger Church in Lichtenvoorde. Architect Gerard Schouten (1924-2000) designed the church in 1966. It was not built exactly according his design. Thanks to the efforts of architect Hans van Beek of Atelier PRO to preserve this unique creation of Schouten, the space of within the former church building was transformed into a patio for new houses. Van Beek kept a 'footprint' of the church building. He virtually redeveloped the original idea of an open-air church, a place for meditation in the nature of Gerard Schouten. It is also a reinvention of the Dutch tradition of *het hofje* (the courtyard) - with a magnificent result.

NOTES

- 1 *Lijst van Nederlandse kerken 1945-1963*, Amsterdam: Van der Leeuw Stichting, 1963 and *Uit en in de steigers, - lijst van Nederlandse kerken 1960-1967*, In: *Mededelingen Professor Dr. G. van der Leeuwstichting*, *Uit en in de steigers, - Kerkbouw in Nederland 1960-1967*, aflevering 36, 1967, pp. 1791-1882.
- 2 Unfortunately as yet there is still no critical monograph on this influential Dutch architect. However the recently published dissertation of Marinke Steenhuis on the ex-private&public partner of Granpré Molière, the architect Pieter Verhagen (1882-1950) is a valuable contribution. Steenhuis, Marinke - *Stedenbouw in het landschap. Pieter Verhagen (1882-1950)*, Rotterdam: NAI Uitgevers, 2007.
- 3 Also worthy of mention is the work of Granpré Molière on Wieringermeer. It is possible that thanks to his efforts the state system of subsidies for church construction came into being. For the results of research into this see the forthcoming dissertation of Marisa J. Melchers of the Leiden University.
- 4 Van der Laan, H., *Le Nombre Plastique*, Brill: Leiden, 1960.
- 5 Drs. Marisa J. Melchers prepared these two parts of the exhibition.

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