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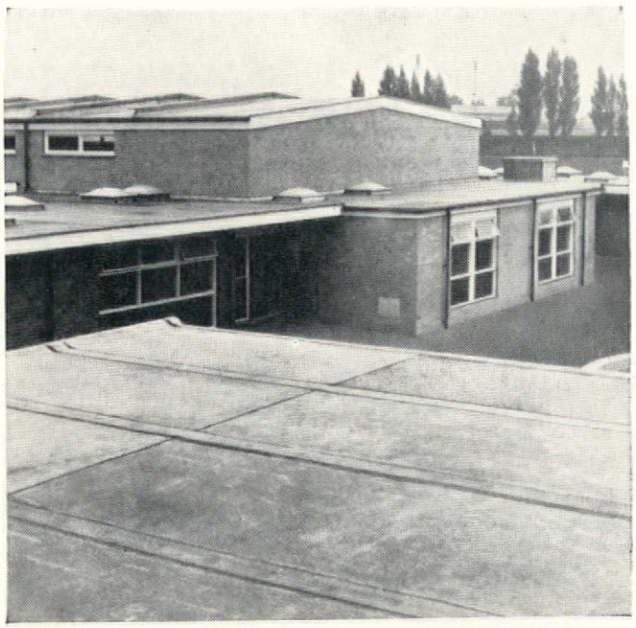

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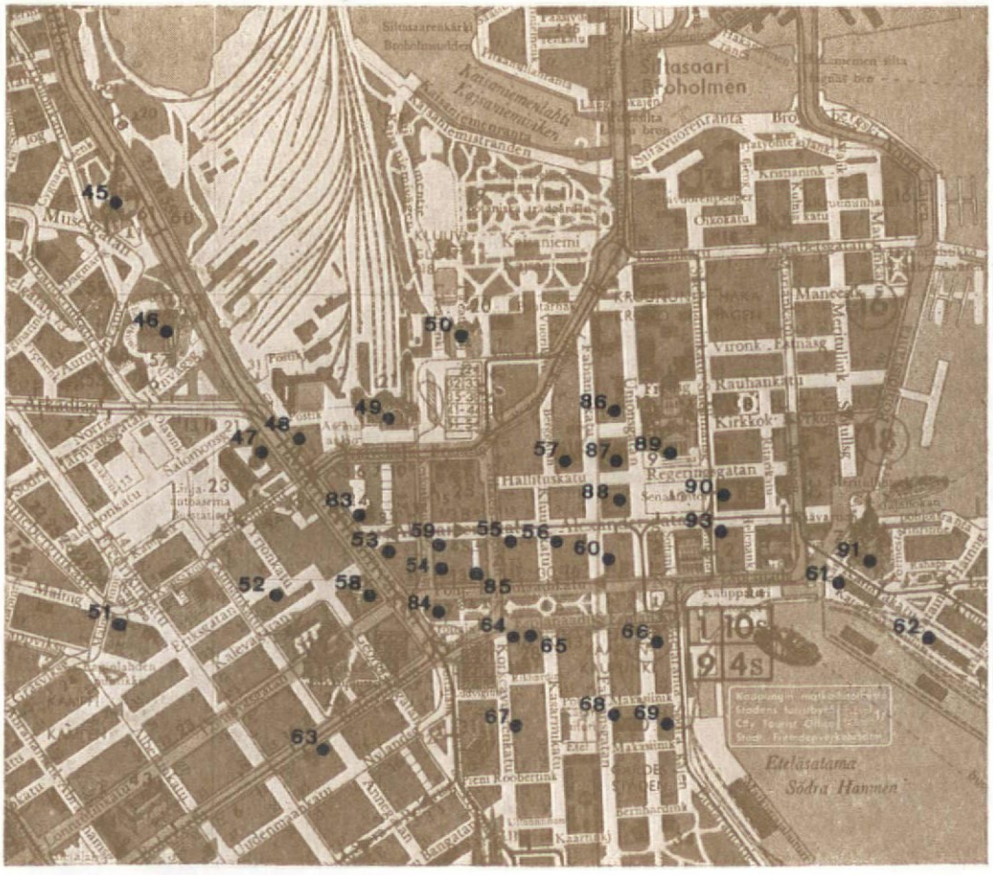


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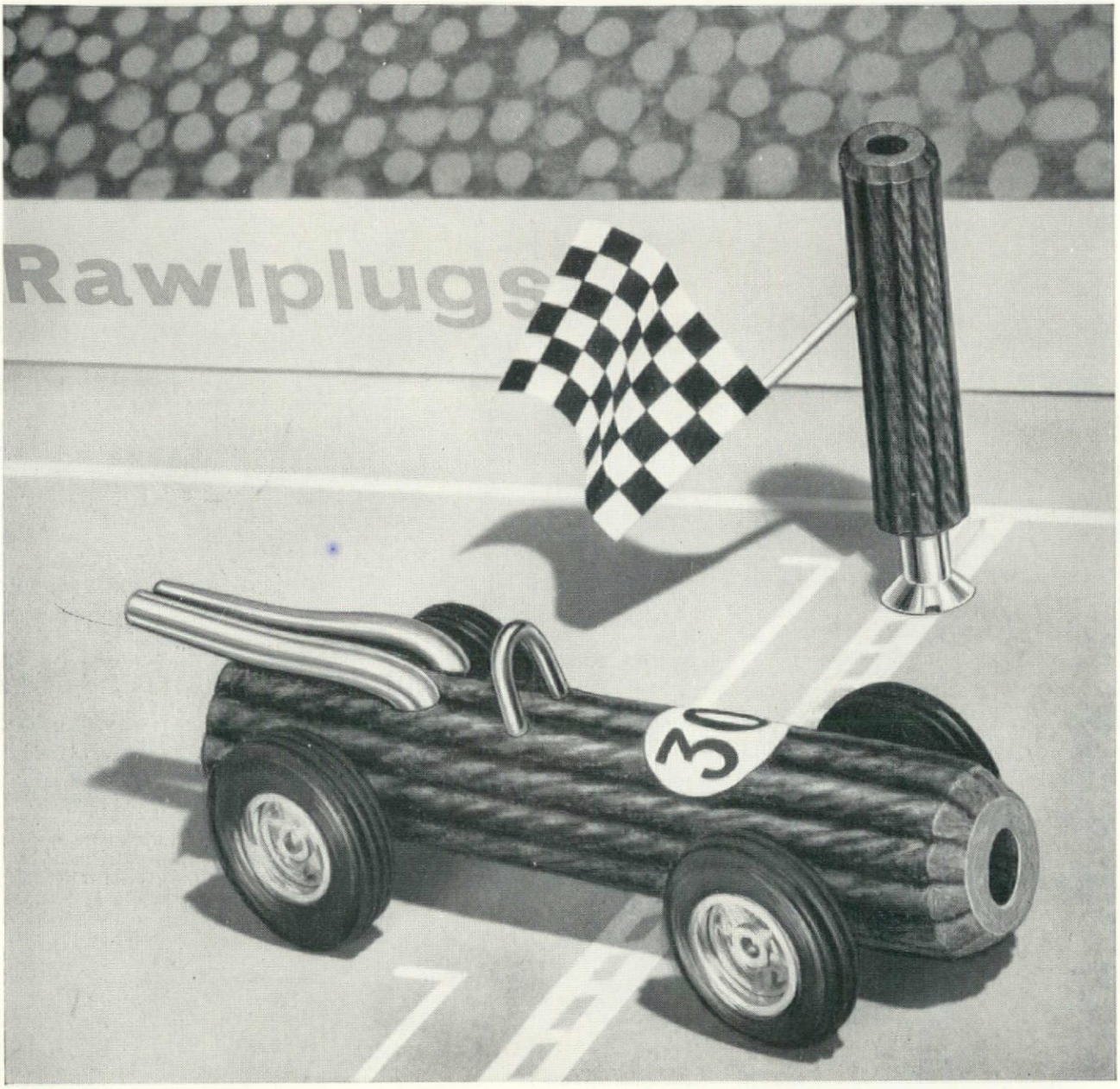

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Books

Tyneside classical: the Newcastle of Grainger, Dobson, and Clayton

Lyall Wilkes and Gordon Dodds. John Murray, 1964 30s.

The authors, one a judge and former MP for Newcastle and the other a Northumbrian local historian, set out to examine how the City of Newcastle was re-developed in the period 1820–50 to provide a commercial and civic centre unique amongst British provincial cities. Despite the enormous vigour of these cities benefiting from the new wealth of the Industrial Revolution. England is not rich in examples of nineteenth-century town planning.

Perhaps Newcastle is outstanding in this respect because she was one of the few cities to produce local talent in quantity and proportion to meet the peculiar problems of the Victorian developer. The unique triumvirate of Richard Grainger, (builder and developer), John Clayton, (both Town Clerk and Grainger's man of business), and John Dobson, (the gifted local architect who worked extensively in Newcastle and the surrounding country), carried through a programme of demolition, redevelopment and re-building which made Newcastle in Professor Pevsner's words, 'the best designed large city in England'.

This book analyses the relations of the three men very carefully, and presents a fascinating picture of an operation as complex in its manipulation of Town Council, landowners, financial backers and public opinion, and as brilliantly successful in its outcome, as Nash's creation of Regent Street. It is well illustrated and clearly presented so that even the reader unfamiliar with Newcastle can appreciate the significance of the various schemes. A better map is an unfortunate omission.

The book is particularly significant since the proposed Newcastle redevelopment threatens so much of the nineteenth-century layout. Newcastle's planning department have made out a case for re-development* but their scheme (page 371) seems unimaginative; they have a unique and important piece of town design which they are carving up and to which they appear to be applying the tenets of twentieth-century town planning in a doctrinaire way. For instance, no examination has apparently been made of the cost of rehabilitating Eldon Square, one of the central features of Grainger's design. Eldon Square has, shamefully, already been passed for demolition by the Minister of Housing on the assurance that other buildings will be preserved. It is to be hoped that this last undertaking will be honoured. At the moment the façades of most of Grainger's central streets and one of his two markets are to be retained, and his Leazes Terraces, designed by another Newcastle architect, Thomas Oliver, are to be preserved for use by the University.

Perhaps the most ironical comment on the whole Newcastle situation, and indeed on the apparent bankruptcy of English provincial cultural life at the moment, is that the highlight of the scheme which is to replace locally designed indigenous Eldon Square, is a hotel by a Dane, Arne Jacobsen.

Hermione Hobhouse

** City and County of Newcastle upon Tyne. Central area redevelopment, twelfth report, May 1966.*

Greenheart metropolis: planning the Western Netherlands

Gerald L. Burke, Macmillan, 50s.

The regional city

Derek Senior (ed), Longmans, 42s.

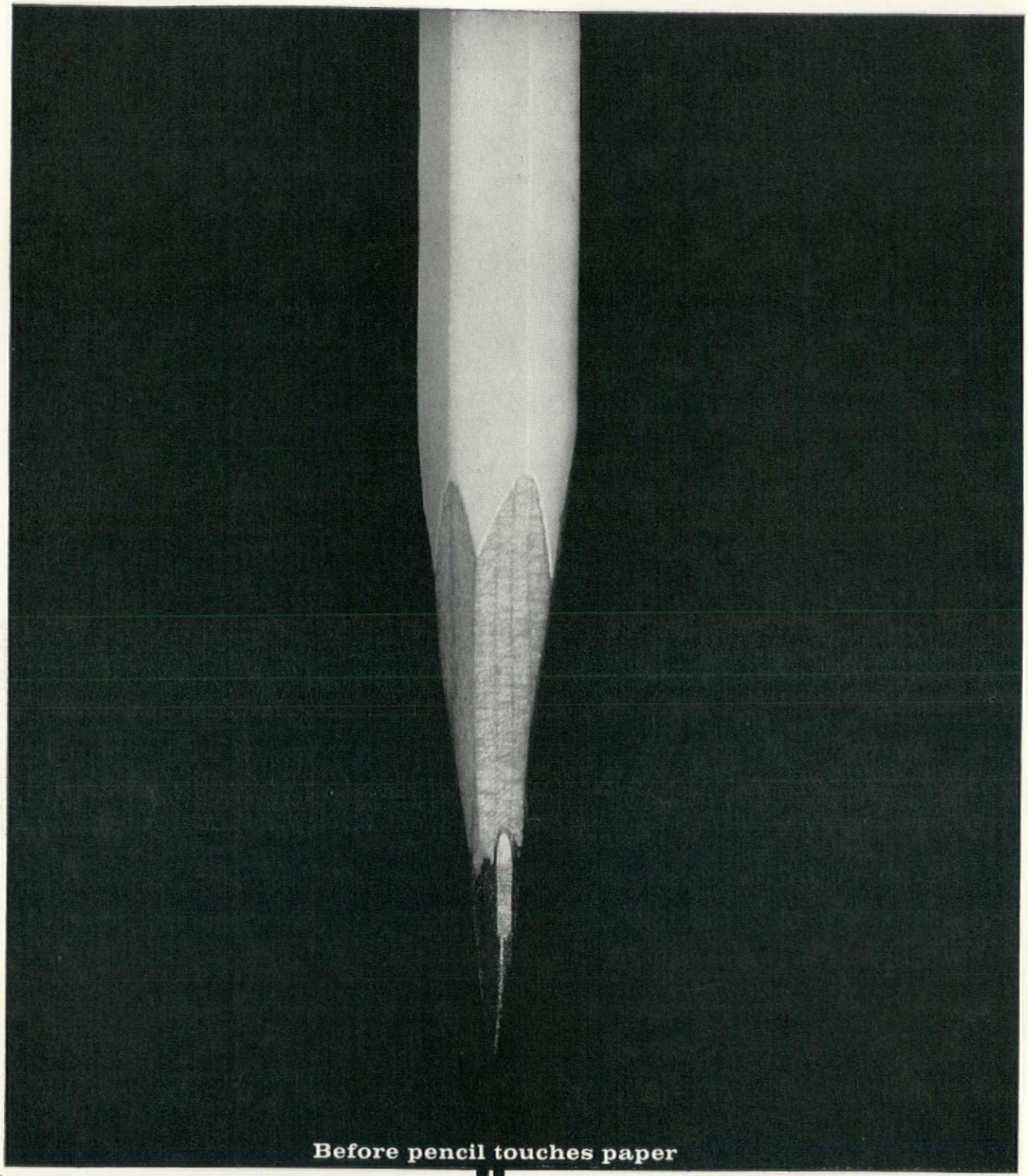
In Gerald Burke's recent book is reproduced that fascinating map prepared by the Dutch National Planning Bureau showing the Paris Region, the LCC with its ring of New Towns, and Randstad Holland, superimposed on one another. The Dutch Ring City has now become a clear planning concept, though its origins in a growth of towns around the natural edge of the central moorland of Holland was due entirely to geography. What is so fascinating is the sense that here London is turned inside out, with accessible coastlines and greenheart for recreation. It is concept of a carefully structured city region.

By contrast, *The Regional City*, edited by Derek Senior, who is also a main contributor, reflects the dreadfully unstructured character of the more normal form of city region, such as south-east England or the Megalopolis of the USA's eastern seaboard. *The Regional City* is a well-edited version of the Ditchley Foundation's 1964 Seminar on Metropolitan Planning, between US and UK 'planners', and is full of concise case studies, but is also a valuable primer in regional planning in that one can follow the arguments from structure, through strategy and machinery, to implementation, rather like Pilgrim in his journey, except that implementation certainly leaves one very far from a perfect solution. The introduction includes a statement by the convenors of the seminar that *The assumption . . . is that the urban region represents a new form of civilization, with its own distinctive possibilities and problems. . . . The main focus of the seminar will be on the comparison and evaluation of public policies and plans for deliberately shaping the structure and functioning of the urban region. . . .*

Unfortunately *design* aspects of the structure of a region are hardly mentioned so that Walter Bor's contribution on urban renewal, which deals with Liverpool, stands out like a gleam of hope, while the section of New Towns, which includes Reston as well as the British examples, gives no sense of the excitement that new city living should engender. Perhaps one asks too much from a group of people who, after all, were grappling mainly with policy problems, but possibly Senior touches the nub when he discourses of the structure of regional organization in the UK, and postulates that for *physical planning* purposes the present regions are really too large, and something much smaller and related to the city region is needed—which Walter Bor at Liverpool and Wilf Burns at Newcastle have been saying for some time.

It is on the detailed design aspects of the various parts of the Netherlands within and around Randstad Holland that Burke's book is most interesting. Unhappily good design cannot save a bad plan, and the expedient to develop a new city for 100,000 at Zoetermeer, *within* the greenheart shows what happens when burgomasters are more powerful than town planners. The design gives little indication of quality except for a traditional 'neighbourhood' pattern with good interstical landscapping, but it looks more humane than the dramatic Pampus Plan which Professor Bakema has been trying to get Amsterdam to accept.

One of the points that comes out clearly from Burke's well-illustrated descriptions is the dilemma between the 'planner' who is not the job architect, and the architect who is not responsible for the overall plan. In the Netherlands that misbegotten concept of the 'planners envelope', which landed the LCC with the Shell complex on the south bank, is very strong; the planners are usually architects, they do not necessarily design the buildings, but insist on making layout plans in two dimensions which show where almost everything has to go. As a result the schemes as built are usually dull and monotonous; no amount of daffodils or duckponds can help.



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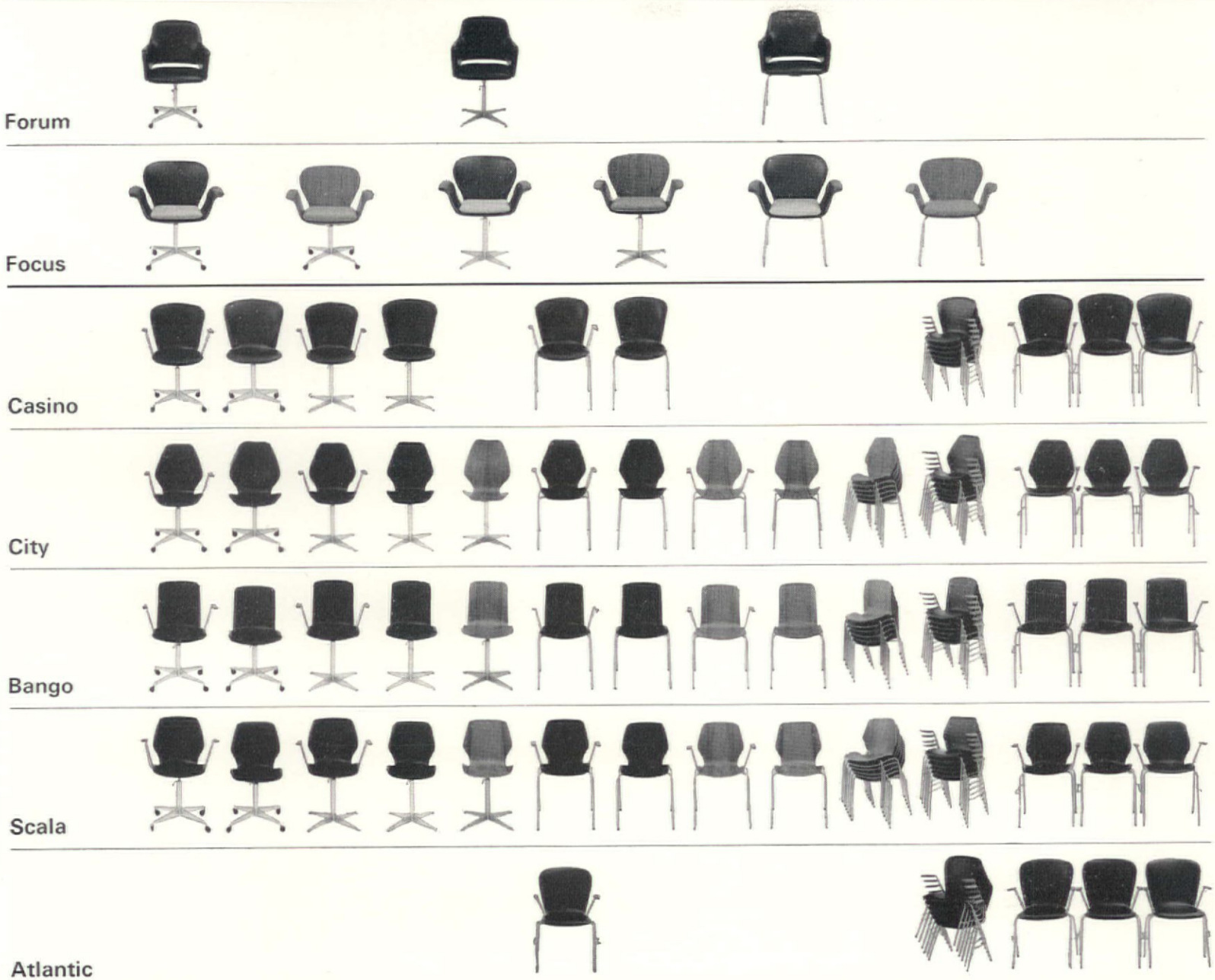

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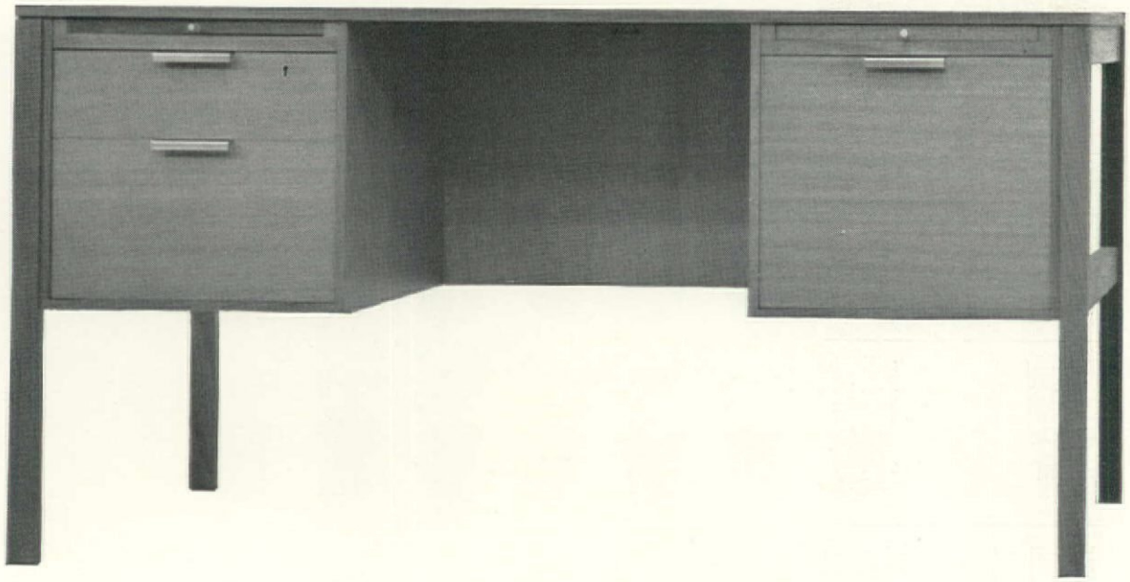

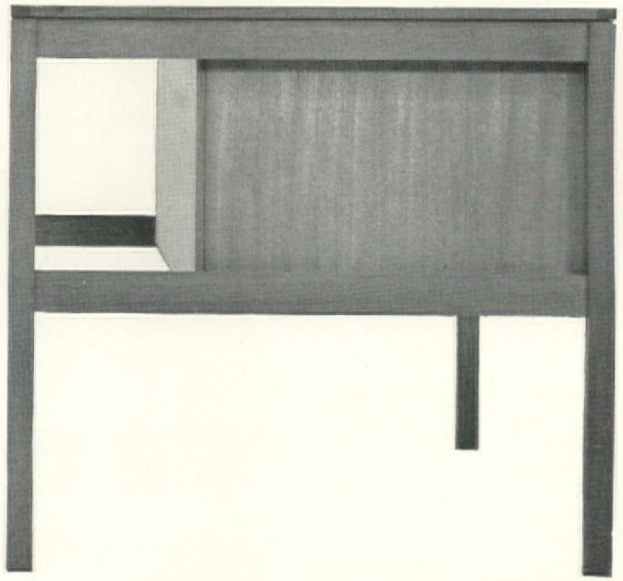

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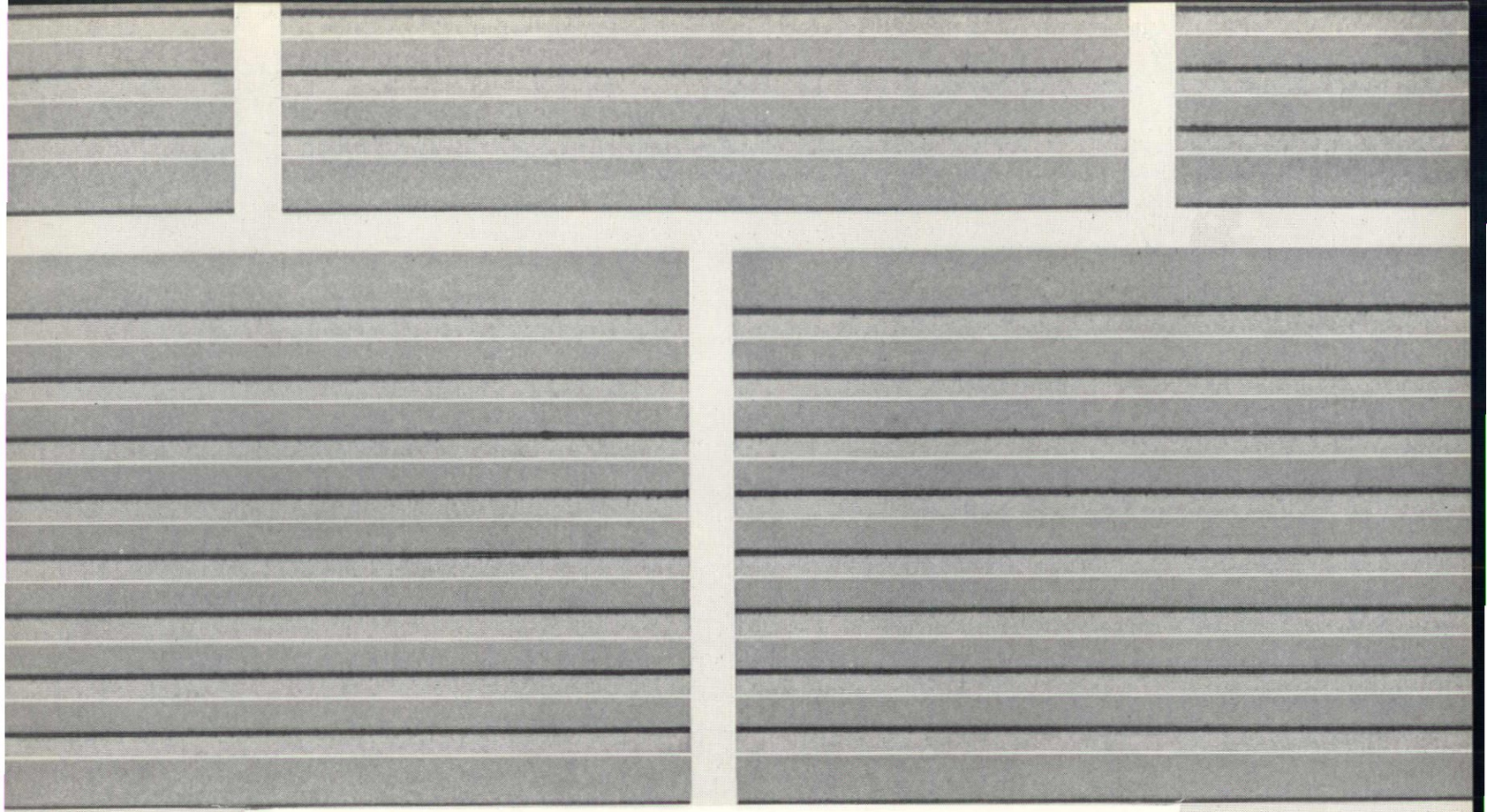

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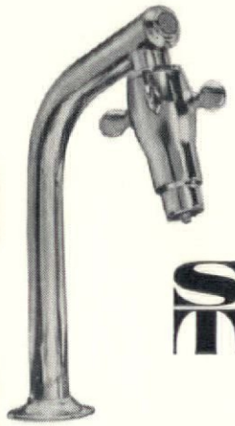

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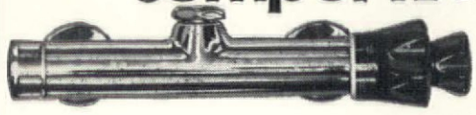

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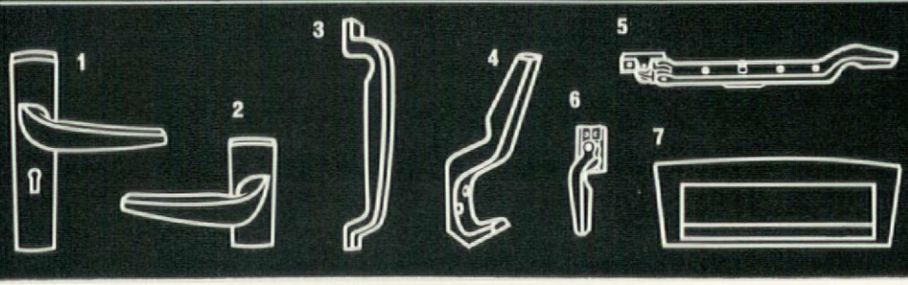

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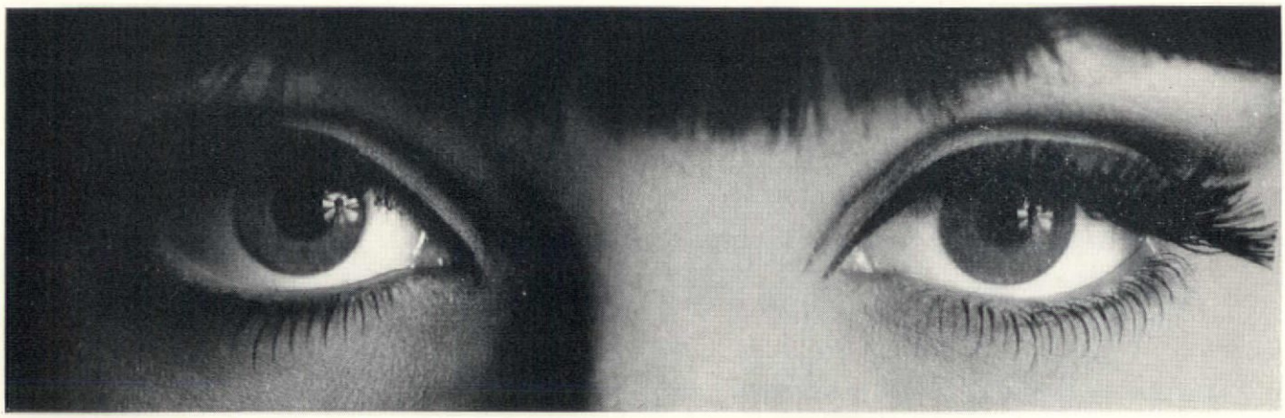

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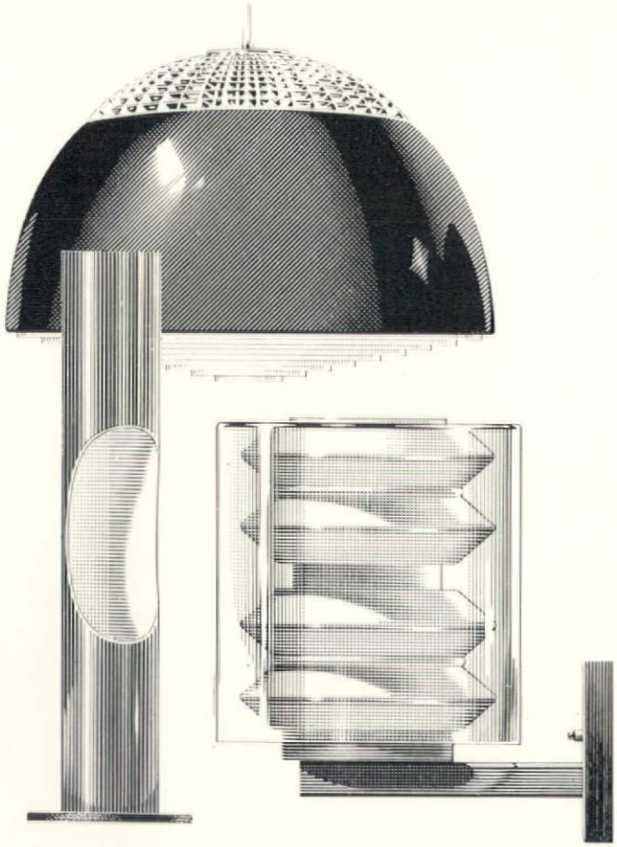

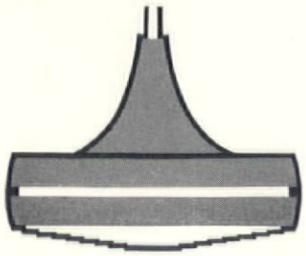

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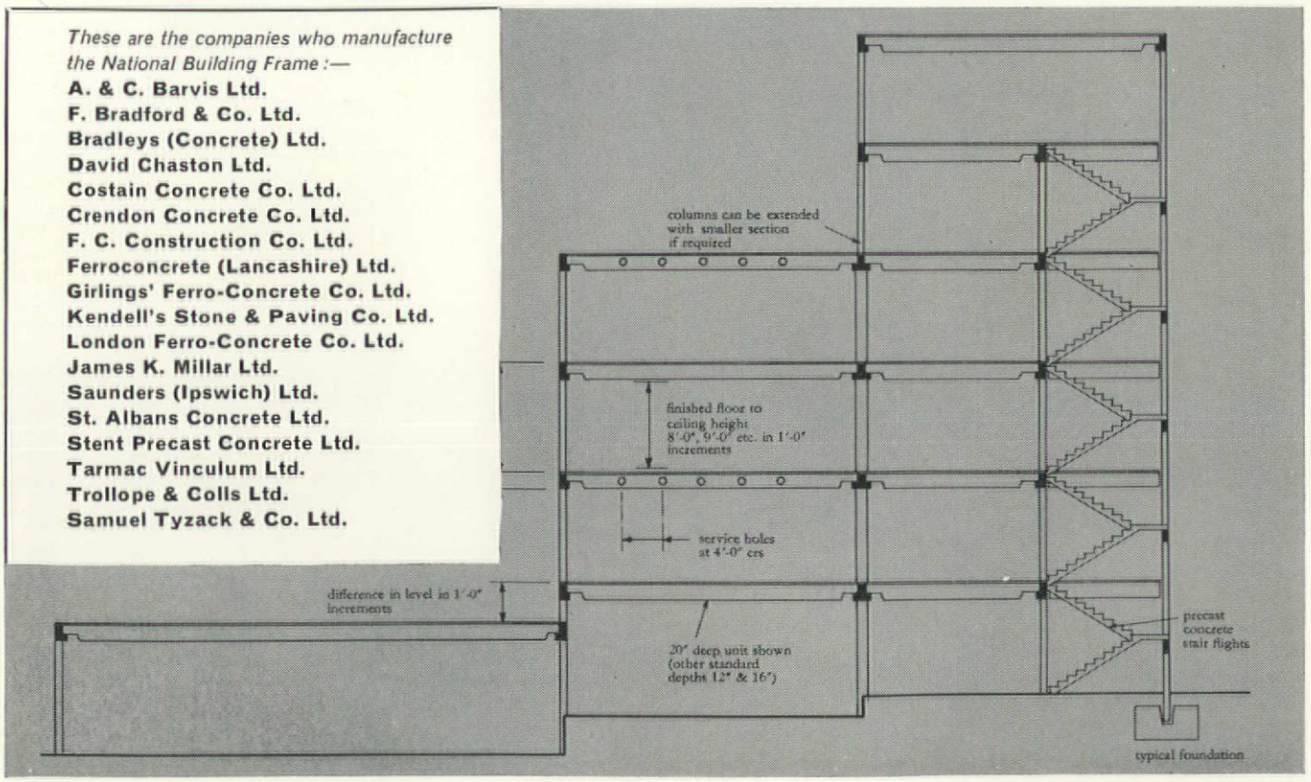


PATENT GLAZING IN MODERN ARCHITECTURE

SfB Ro

Patent glazing has had a very distinguished history. Its roots go right back to the splendid early Victorian greenhouses and in its heyday, a hundred years ago, this early mass-produced product was a contributory cause of some very astonishing buildings—not least the many big metropolitan railway stations, the Crystal Palace, and the Palm House at Kew.

When patent glazing began it was mainly a wooden bar with lead flanges to hold the glass. Today, the glazing bar is made of either steel or aluminium alloy. The steel bar is of three types: (a) enclosed in an extruded and jointless lead sheath sealed at both ends and with the glazing wings as part of the sheath; (b) a hot dipped galvanised bar fitted with a non-ferrous metal cap; and (c) a steel bar completely enclosed in an extruded jointless PVC sheath with sealed ends and fitted with plastic capping. Aluminium alloy bars have extruded lead wings inserted as part of the bar or aluminium wings or cappings. Glass thickness is normally ¼in and is usually Rough Cast or Wired although toughened, coloured and heat absorbing glass can also be used.

After years of comparative obscurity and utilitarian application, when it was mainly viewed as a satisfactory way of providing north light for factories and studios, the technique of patent glazing has lately re-emerged as a vital element in some of the best of modern British architecture.

Mentioned in this review are some recent projects where patent glazing has been used with the greatest *élan*. Far from it resulting in stereotyped, repetitive solutions, which is one of the dangers of a mass-produced product, this cheap, flexible, maintenance-free, standardised building system is capable of astonishing exploitation leading to exceptional results—as this review bears out.

Leicester University Engineering Laboratory (1)
architects: James Stirling and James Gowan

This building was finished in 1963. Its impact has been profound and its influence on current architecture, both here and abroad, is enormous. Its importance in the context of this review is that conventional patent glazing bars, of a type normally used in industrial buildings, were used to support the glass and cladding panels throughout the building. Speaking of it Stirling said: 'To construct the shape of the roof lights, and the complicated ceiling glazing, and the slope-sided glass walls in the tower that were fundamental to the design concept a glazing bar had to be found which could adapt to the complicated geometry and junctions which resulted. Without the flexibility inherent, but not normally exploited, in this aluminium bar, it would have been impossible to build this particular design. By using this material an architect is less inhibited in designing the outer building skin than when he uses any other form of curtain walling. He is therefore able to achieve a freer and more unique architectural solution. The University required this building to be of low cost and maintenance. This type of aluminium bar is one of the cheapest forms of metal glazing available and by placing the structural part of the bar inside, only the non-structural caps, which are exposed to weathering, will have to be replaced. This may be necessary after several years, however it will be a rapid operation and the overall cost considerably less than normal annual maintenance.' One of the side results of this use of cheap glazing materials was that the architects were able to use the money saved in their budget to specify more expensive materials elsewhere. The detail shows the cross section through the podium wall and roof of the lower workshop block. The cladding is a light-diffusing sandwich of two sheets of glass enclosing fibreglass mats.

Photo: James Stirling

Shipley Salt Grammar School, West Riding of Yorkshire (2)
architects: Chamberlin, Powell and Bon

This building was finished in 1965. All the classrooms have side-lighting on two sides in conventional windows and the first floor classrooms are also lit from above by ¼in Georgian Wired glass in normal patent glazing bars. Where the Thermalite block partitioning between the rooms meets the continuous overhead glazing (A in detail) the laylight frames and timber purlins butt against the glass with a sponge plastic strip seal (B). 32oz double sheets of glass (to reduce airborne noise) are set in wash leather and held by 1in by ¼in hardwood beads.

Photo: John Issac for Architects' Journal

Comprehensive School, Pimlico (3)
architects: Hubert Bennett, Architect to Greater London Council; Michael Powell, Education Architect, Inner London Education Authority

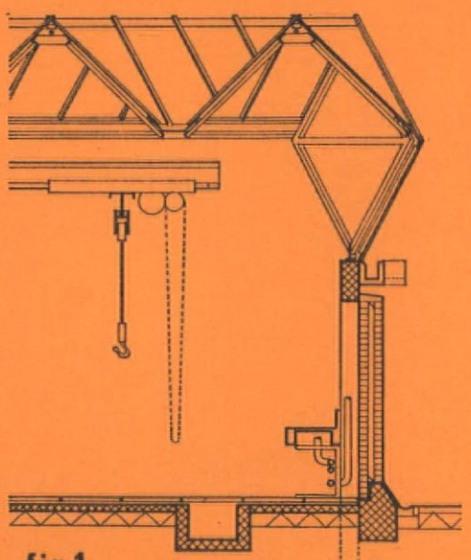


fig 1

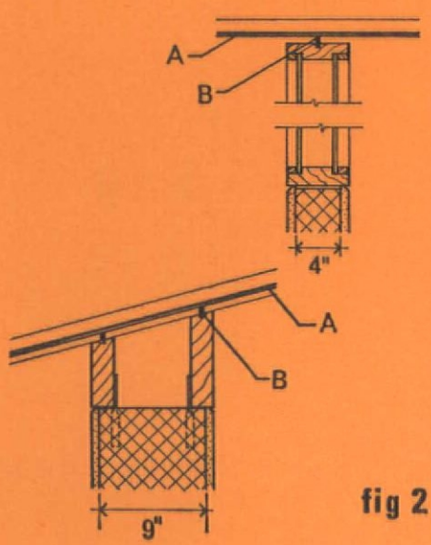
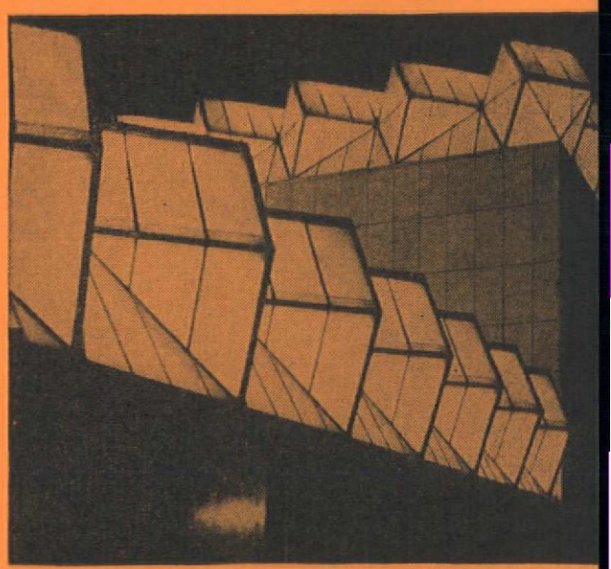
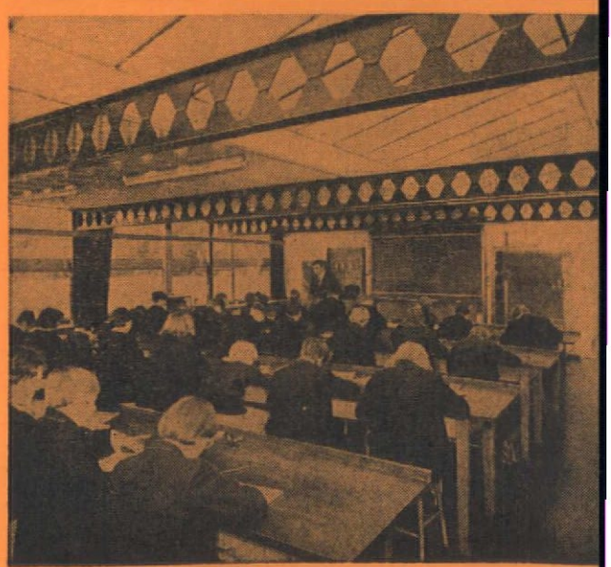


fig 2

Construction of this project will start in April next year. The entire school, whose layout must be near-unique even for London schools, will be double patent glazed (A) in a bold window design with a character not unlike that of an artist's studio. Here, to bring daylight right into the depths of the long narrow classrooms, the glazing becomes both the walls and the roof. Running





right down the spine of this 3-4 floor building will be a wide, lofty 'circulation street' overlooked by galleries leading to the rooms. This, too, will be lit via patent glazing. In the roof between the double sheets of glass a sheet of expanded polystyrene will be sandwiched to cut down glare and diffuse light. Blinds, which can be drawn across roof and walls, will exclude sunlight when necessary. The final form of the glazing which the architect says is fundamental to the whole design, is still being worked out so the actual detail is not shown here.

Swimming Baths, Walton-on-Thames, Surrey (4)

architects and engineers: Arup Associates

This indoor pool, with an exceptionally graceful structure, was finished in 1965. It provides public swimming facilities throughout the year and will be used for teaching children to swim during term time. The whole pool is covered by a glass envelope of ordinary patent glazing which is set vertically at the gable ends as huge transparent walls, and between the precast concrete 3-pin arches spanning 76 feet across the pool. Each trough section frame, which is 9ft 3in wide at the springing is supported on a column and counterbalanced by the overhanging tail forming the roof of the changing rooms along the long sides. The triangular shaped rooflights (A) set between each frame, have ¼in Wired Cast glass set in lead-sheathed steel patent glazing bars. The gable curtain walls have $\frac{3}{16}$in Sheet glass.

Photo: Colin Westwood

Hunterston Nuclear Power Station (5)

architects: Howard V. Lobb and Partners

Patent glazing has been extensively used (a total of 7½ acres of which a quarter is double, see detail) in this vast power station which was opened officially in September 1964. The site is very exposed, on a bluff by the sea, and is buffeted by Atlantic gales. Even so, conventional patent glazing has been used throughout. Although such glazing on so large a scale is fairly commonplace today, this example is one which comes closest, it might be said, to the design concept of a building as a free-standing glass weather-resisting envelope. The effect at night, particularly, when the structure is illuminated from within, is very dramatic.

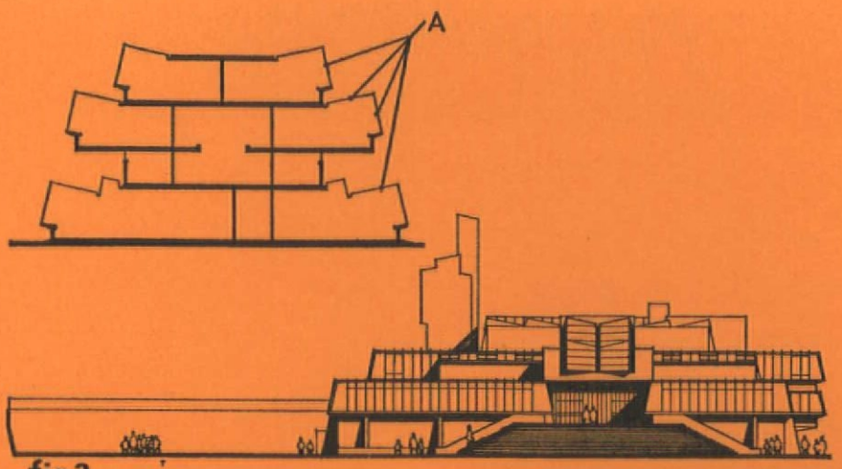
Photo: Bryan & Shear Ltd.

Glengall Grove Footbridge, Millwall Docks (6)

engineer: G. A. Wilson, Director of Engineering, Port of London Authority

This totally glazed footbridge which has just been finished at the Isle of Dogs spans a channel used by sea-going ships. One section, therefore, was designed to lift vertically to let them through. As can be imagined, this unusual structure raised some interesting design problems. All the materials used had to be capable of resisting stresses caused by live, dead and wind loads and the effect of hinging from the horizontal to the near vertical position. The side walls of the whole bridge, which has a total run of more than 2,000 feet (with 900 sheets of ¼in 'Armourcast' glass) is clad in aluminium patent glazing with the only departure from normal practice being the provision of special sponge seating (B in detail) and beading-in of the glass on the 104ft long lifting span. The height of the glazing is 7ft 5in. While this design may not have a direct bearing on architecture as such, it nevertheless could point the way to some very original ideas in future schemes where movable roofs, walls, etc. may be envisaged.

Photo: Sydney Newbery



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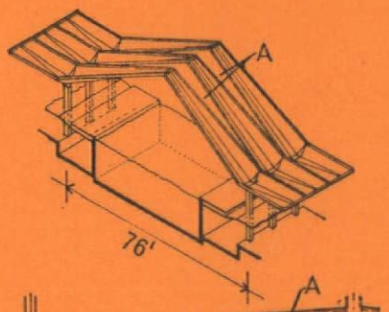


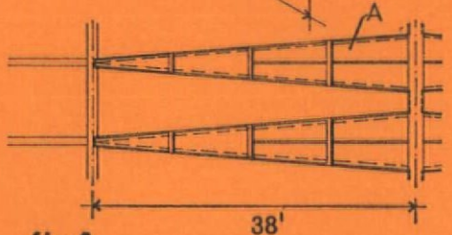


fig 4

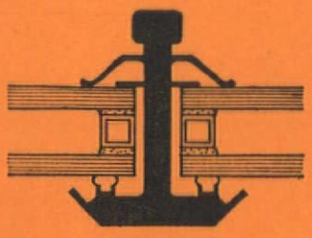


fig 5

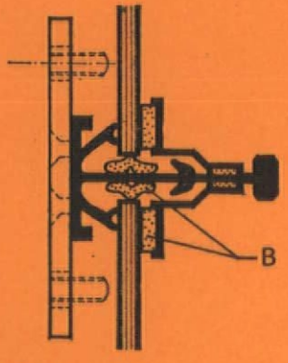
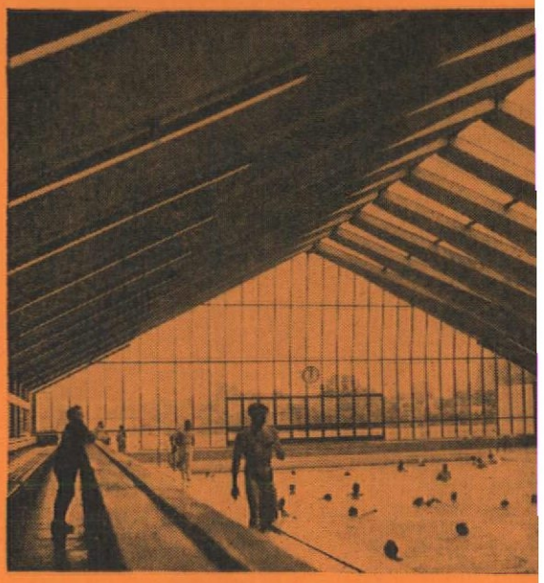
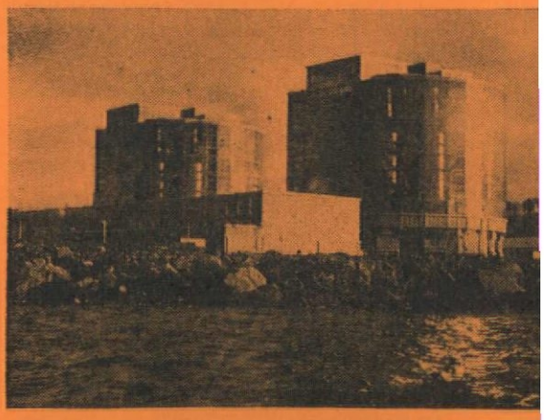
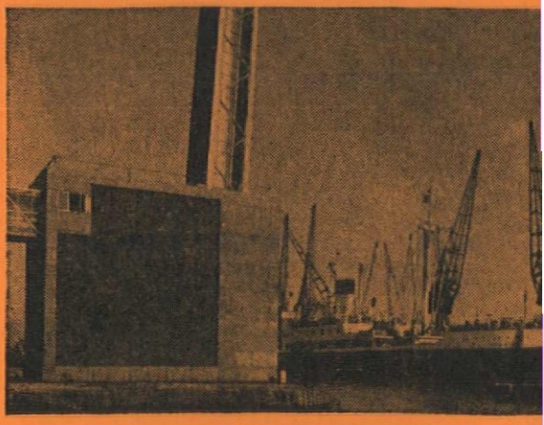


fig 6







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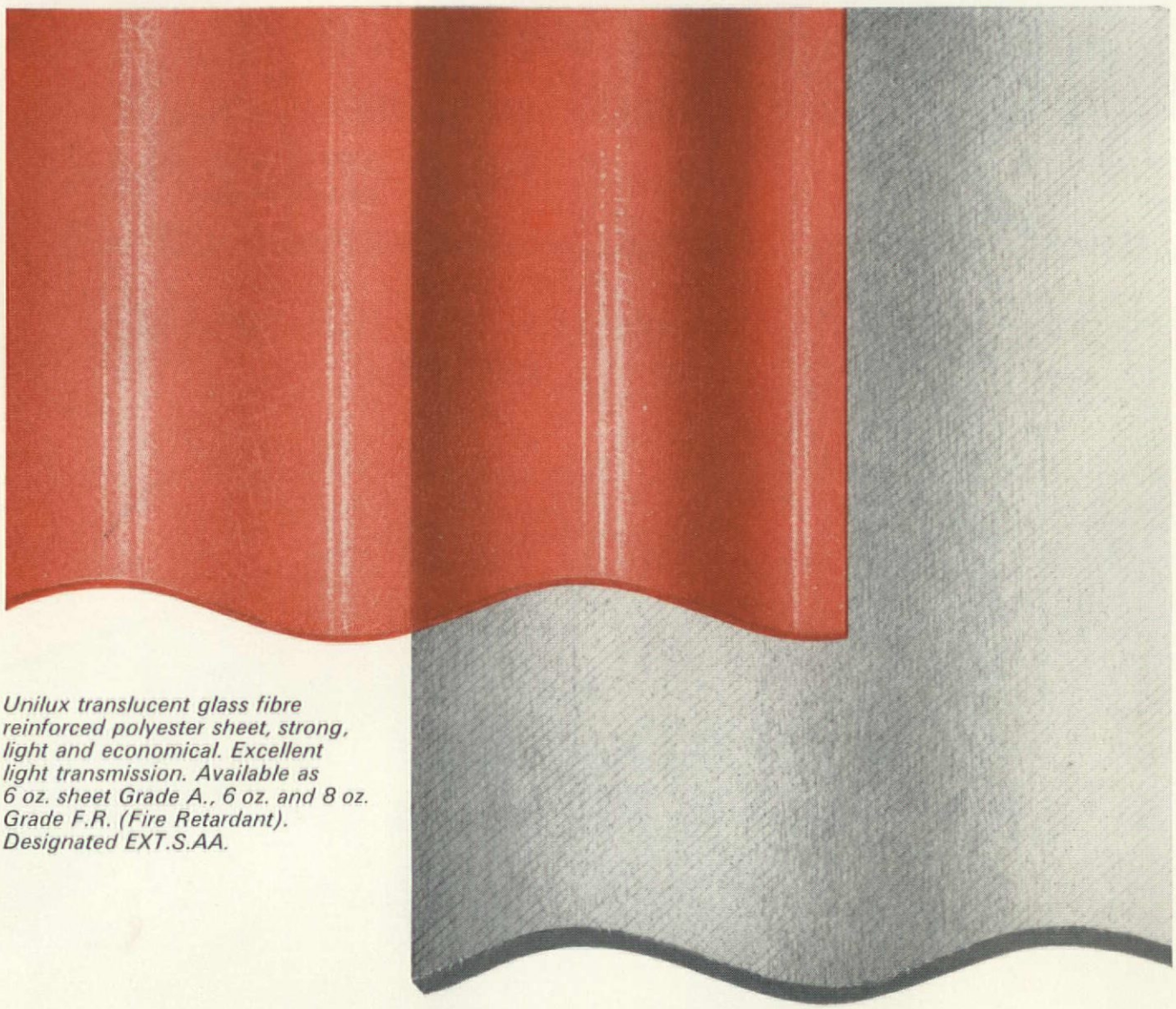

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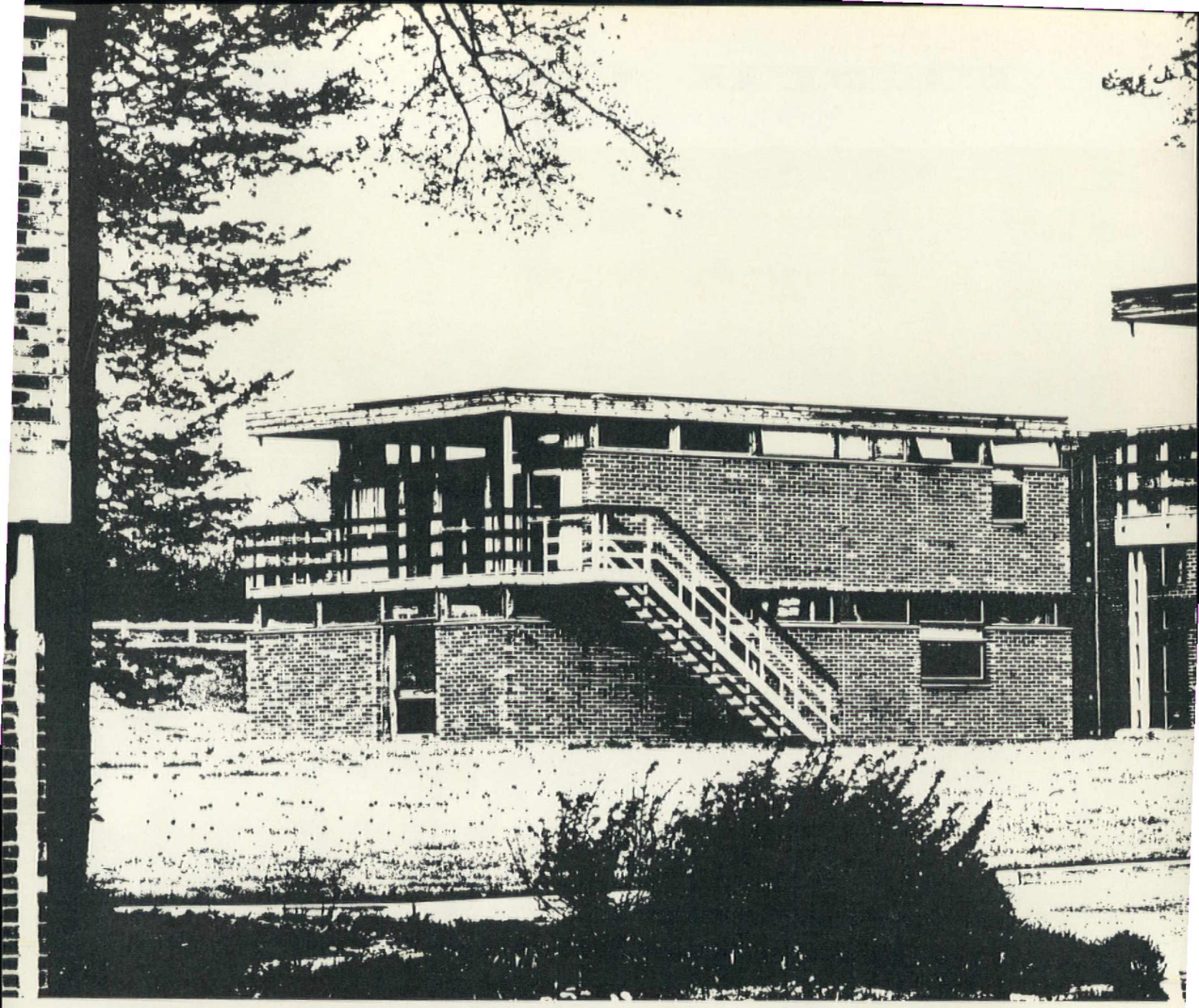

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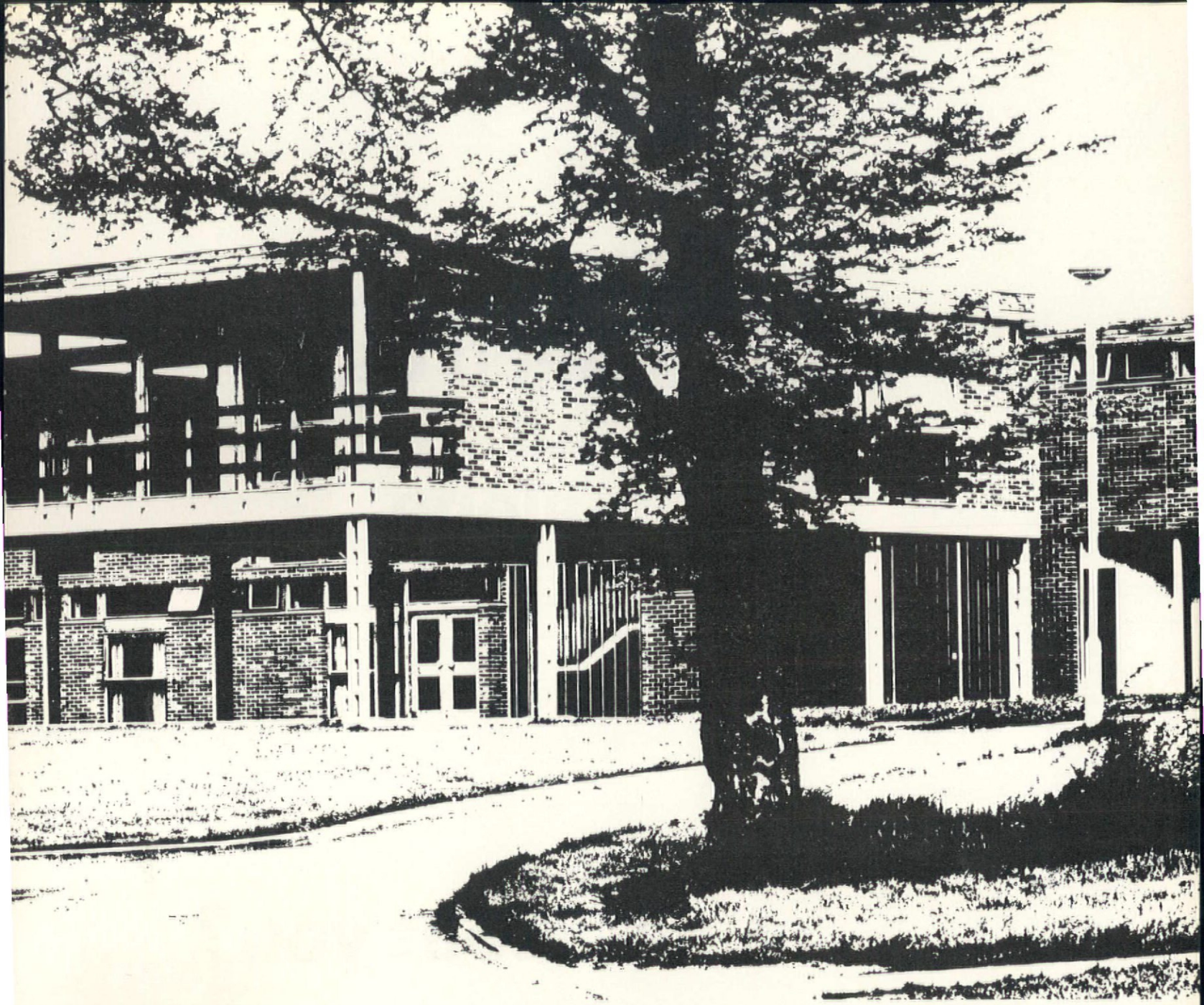

St. John's School, Tiffield, Northamptonshire | Architect: James A. Crabtree, FRIBA, AA. DIP. | Structural Engineers: Felix Samuely & Partners | Builder: Robert Marriott Ltd.

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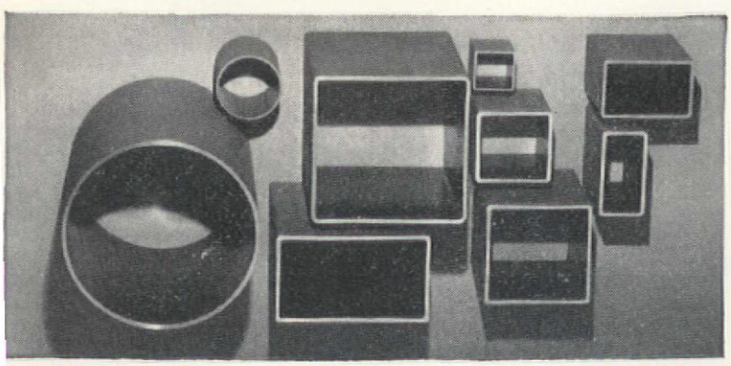

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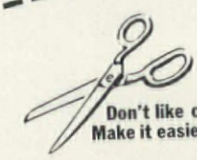

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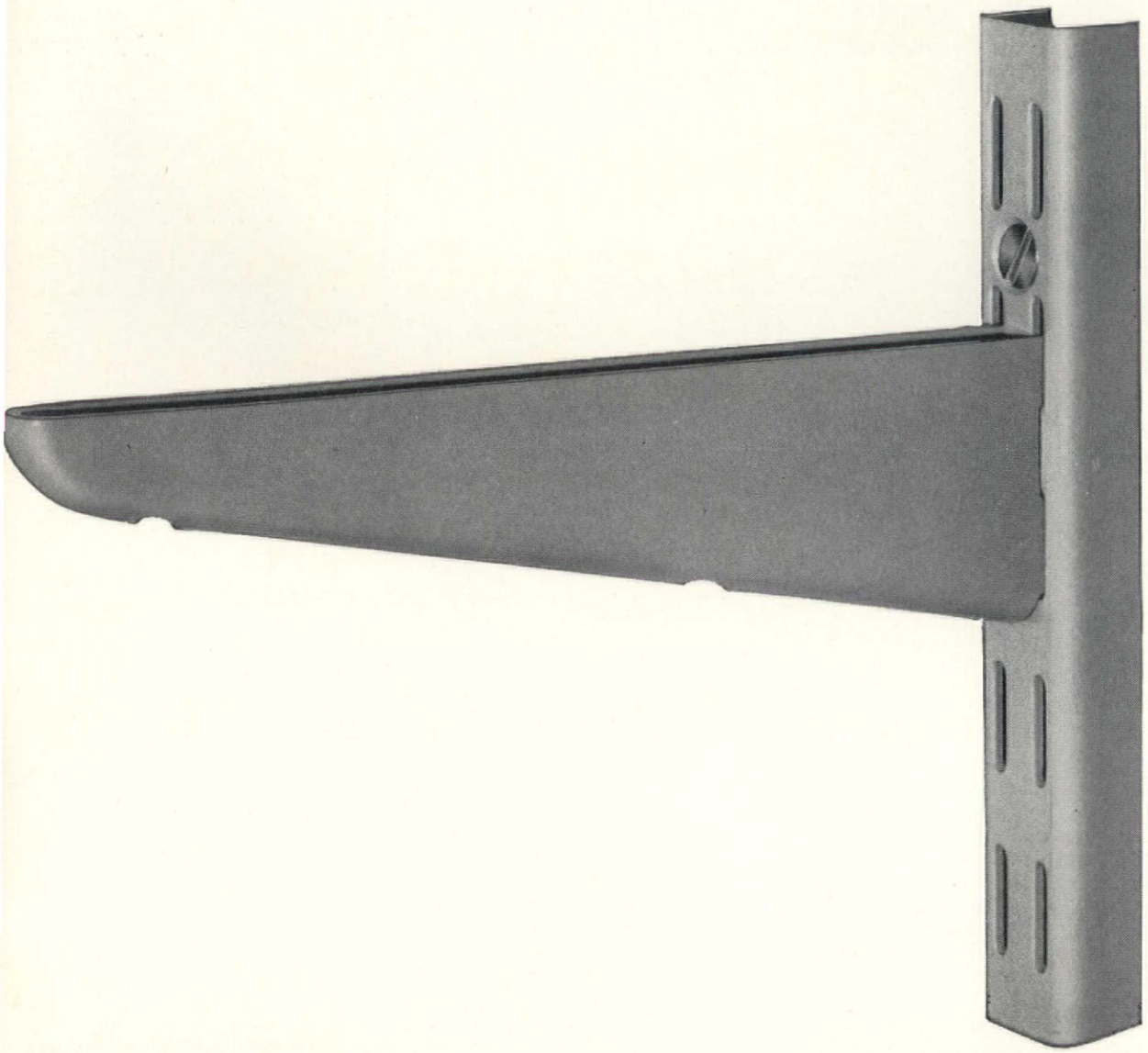

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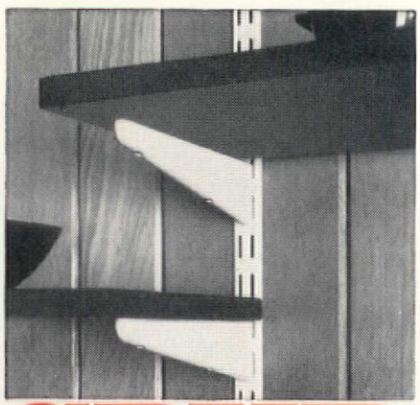

SPUR

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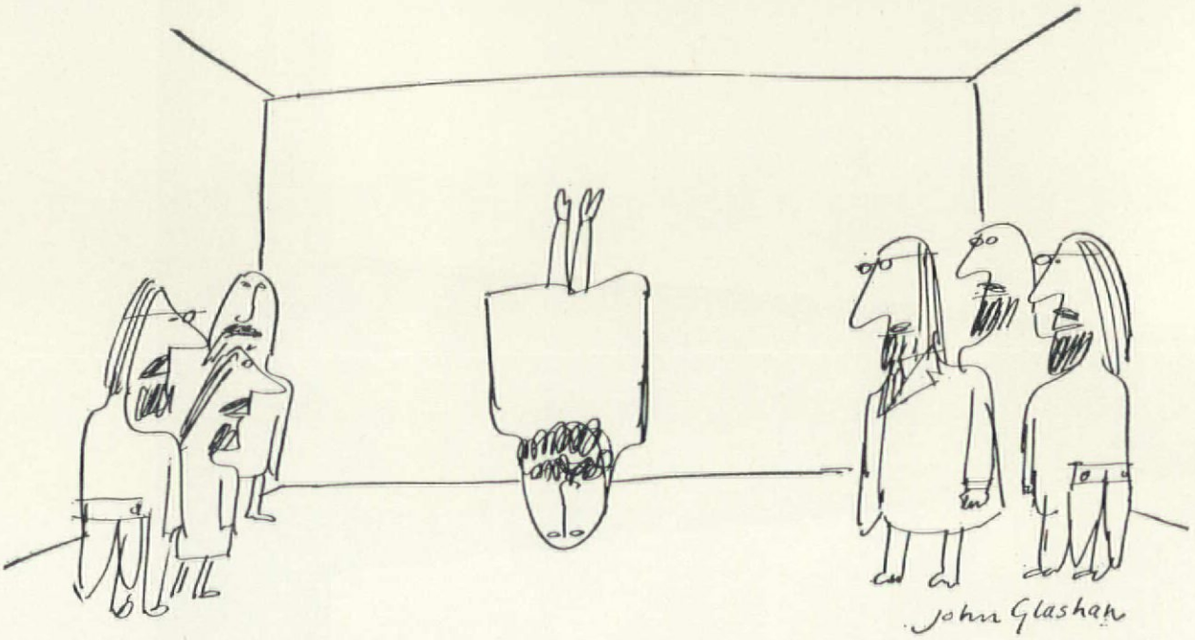

The HT Ceilings man. And he wasn't joking

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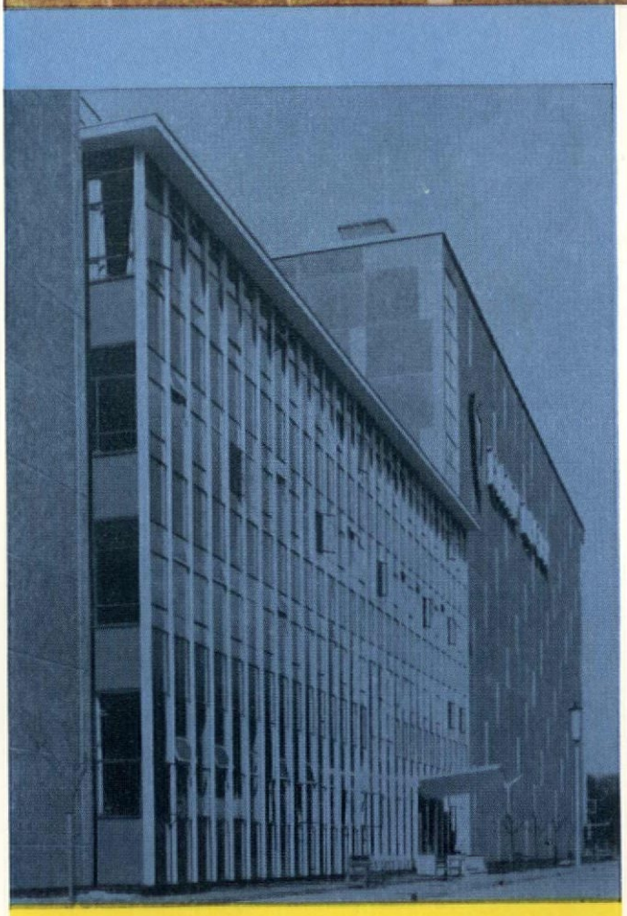

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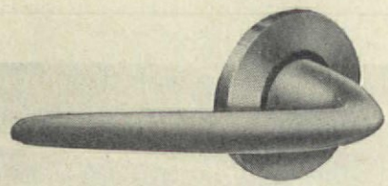
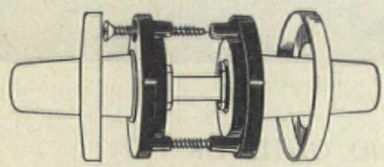
the set that everyone* designed

but only Marstons make





* The views of Architects, Builders, Householders, Carpenters and Door Manufacturers have all been studied, and their best requirements are incorporated in this new door furniture.

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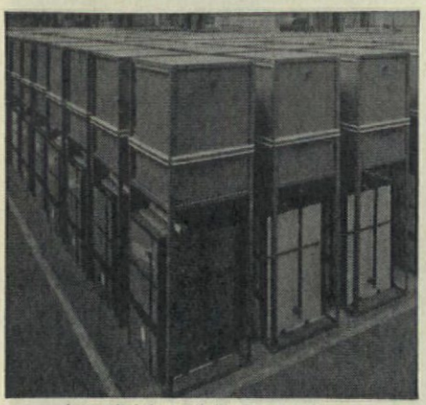

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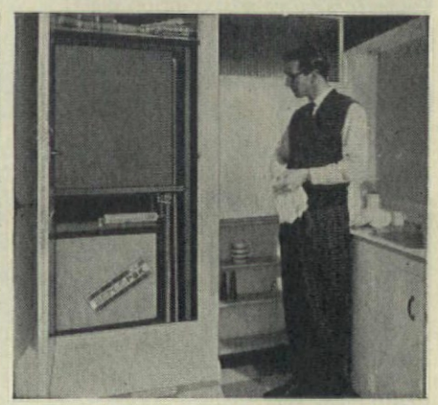

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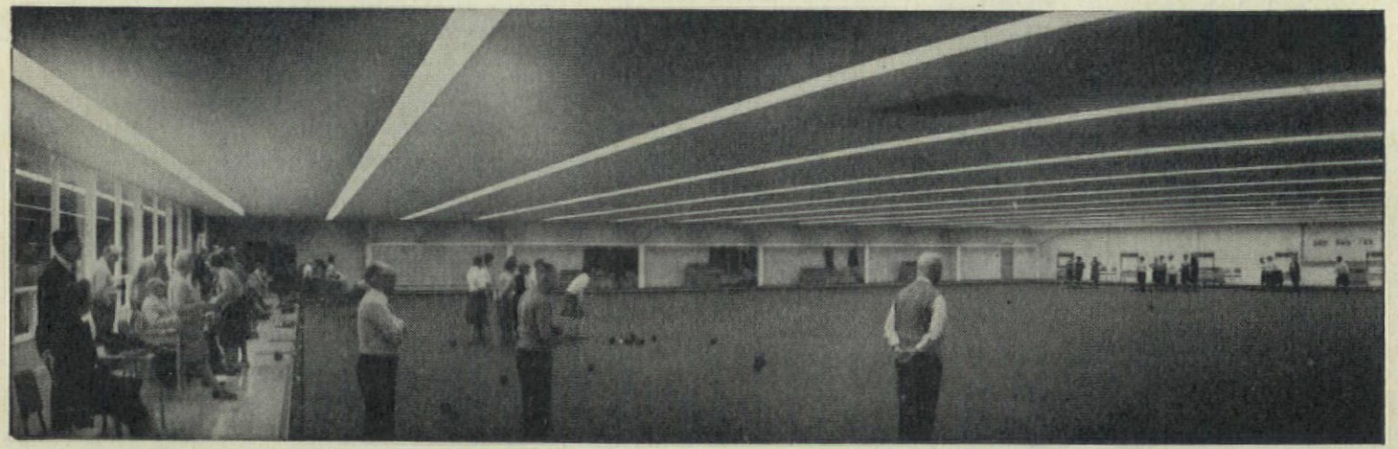

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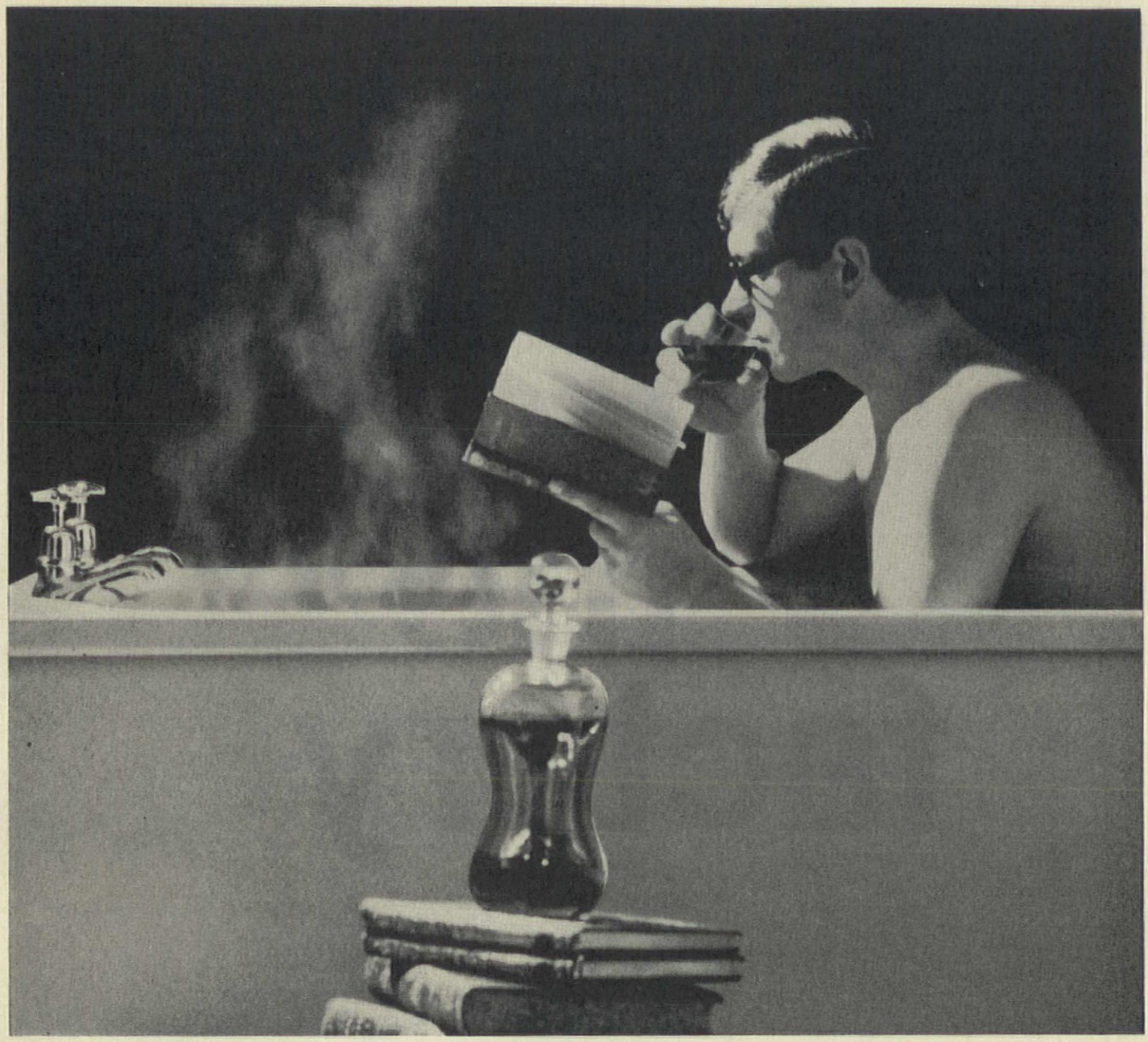

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Dublin*

Patrick Delaney

Dublin—that wily old city where nothing ever happens but there always seems to be something going on; which interleaves a bright-eyed cosmopolitan awareness with maddening fits of heedless introspection; a city where the jets fly in and out to Europe and America and yet in which playwright Denis Johnston, after a year and more of brilliant nightly coverage of the desert war on BBC, could be asked on his return by a casual acquaintance—'Oh, have you been away?'. How can you write about Dublin in a thousand words? (Or a hundred thousand?)

Joyce did it once, in *Ulysses*; and in many ways the changes in the ensuing fifty years are more superficial than fundamental, in building, if not socially. This capital city of a nation rapidly emerging from the doldrums between the first and second industrial revolutions displays all the familiar symptoms of an old town struggling with a massive expansion problem. The nation's population has remained surprisingly static in the last half-century: in that same period Dublin has more than trebled.

We have problems of decay, of renewal, of traffic congestion, of amenity and preservation. So has everyone; but it is significant that these are the four objectives which now *must* go into every Development Plan, including Dublin's, by the deadline of October 1967. This city was the only authority in the country ever to prepare a planning scheme under the former acts (and then only at the point of a High Court pistol), but that scheme was never confirmed by the Minister for Local Government. The plan made under the new (1963) legislation does not need such confirmation: it remains to be seen whether it can be produced on time. We must wait and see; meantime there is much frustration for want of a recognizably defined planning policy.

Similarly, on the waiting list is the traffic report prepared by a German consultant, aided by helpful asides from various UN visiting experts, which was submitted some time ago but is still being studied in the back rooms of City Hall; while the 'Lichfield Plan'—a sizable urban renewal project for an area of the central city just north of the River Liffey, prepared by Dr Nathaniel Lichfield of London—has also temporarily gone to earth after an initial blaze of publicity, much of it of the wrong sort.

The visitor returning after a decade or more will first be struck by two things—the major change in the downtown skyline, and the greatly increased amount of demolition, in the older quarters, of eighteenth- and early nineteenth-century buildings. The skyline is now dominated by three newcomers, Hawkins House by Sir Thomas Bennett with O'Connor and Aylward; O'Connell Bridge House by Professor Fitzgerald; and Liberty Hall Mark II from the office of one of our ablest structural engineers, Desmond Rea O'Kelly. None of these buildings is a giant by present-day international standards (Liberty Hall, the highest, falls three feet short of the two-hundred mark), but in the context of a public and official opinion which, only fifteen years ago, was alarmed by the thought of Michael Scott's bus-terminal exceeding *one* hundred feet, we seem to have come a long way. (For example, Dublin's first essay in tall residential blocks, Ardoyne House at Herbert Park designed by John L. Griffith, has just been completed **2**.)

The newcomers have startled officialdom in another way, however. Approved just before Dublin realized how hard she was going to be hit by car-parkinson's law, the facilities in at least two of these buildings is inadequate (one has none at all!) and all three have a very high plot ratio. As a result, the Corporation has now savagely cut back the ratio to 2·5 or less, and imposed one of the harshest parking standards in Europe, especially in the case of offices. As a result, recent developments have tended to be more modest in scale—a mixed blessing.

The tempo of demolition has undoubtedly quickened in the last three years. The reasons for this are complex, as usual—shortage of sites and high price of land are endemic; there is much genuine decay and obsolescence behind those kindly red-brown façades (sharply accelerated by the frightful weather of 1962–63) as well as some 'assisted' decay, with Rachman undertones; but undoubtedly a strong factor was the ministerial decision to allow, in the teeth of a Corporation refusal of permission, the demolition of the notorious seventeen Georgian houses at Fitzwilliam Street to make way for new headquarters for our mammoth nationalized Electricity Supply Board. Since then, anything goes (literally!).

What are the facts of demolition? How much could we or should we preserve? Discounting alike the Georgian Society's cry of 'keep the lot' and the chauvinist slogans about 'wiping out these relics of foreign occupation', there are still many streets and squares that can be saved. A recent survey by a private voluntary group suggests that, public buildings aside, there is now surprisingly little left (this *might* shock us into action before everything *is* wiped out). The main snag is that, for prestige location and other reasons, most of the buildings now falling to the hammer and the bulldozer are relatively sound, whilst in other quarters of the town, especially the south-west and north-east sectors, the rotten are left to rot still further.

Beyond the ring of canals and the shabby-genteel old suburbs, subtopia spreads out its featureless layer of lava to meet the sea and the green fields, and to lap the feet of the Dublin Mountains. The endless mindless 'development' goes on, Bourbon fashion, remembering nothing and forgetting nothing. Quality of actual building is tolerable, in the main; but individual house-designs still smack largely of the semi-d. of *entre deux guerres*, and layout and landscaping are unbelievably wanting in imagination, whilst Wireville proliferates overhead **4**.

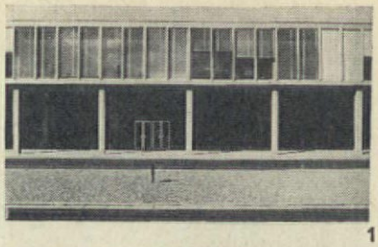
In a country with such strong religious traditions, one would expect to find a flourishing school of liturgical architecture. This, in the Dublin diocese at least, is not the case. Many new churches have indeed been built since the war, but the majority are no better than drearily-competent pastiche. A recent and most welcome sign of change, however, is the Catholic chapel **5** at Dublin Airport, designed by Andrew Devene, a former Lloyd-Wright pupil and a partner in the firm of Robinson, Keefe and Devene. Another genre in which good examples are scarce is that of swimming-pools, an exception being the Guinness' pool **6** designed by their own architect's staff.

Three notable buildings from the office of Michael Scott and Partners deserve special mention. First in point of time, the Radio-Television headquarters **1** at Donnybrook, which won for Scott and his partner Ronnie Tallon the RIAI triennial gold medal. More recently, the same team has designed an elegant and ingenious extensible factory development for Dunlaoire Industrial Estates Limited **5**; whilst the newly opened Abbey Theatre **7–9** has caused an international stir far beyond the worlds of architecture or theatre.

The professional temper here oscillates between savage frustration—fruit of intermittent labour troubles, chronic bottlenecks in certain materials and the heavy and insensitive hand of officialdom—and a wild feeling of being on the brink of really great things. At times we do indeed feel that nothing ever happens; yet the briefest glance around will convince native or visitor alike that in Dublin at present there is indeed a very great deal going on.

Photos: 2, Rex Roberts Studios; 6, A. Guinness & Co. Ltd.; 1, Irish Times; *3 & 5 Pieter Stroethoff; 7–9 John Donat*

*Next month the British Architects' conference will take place in Dublin.



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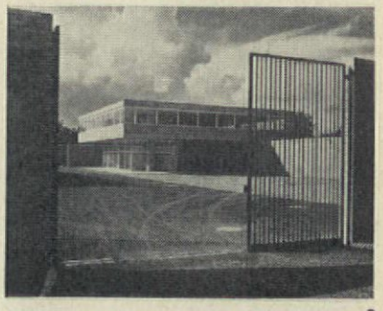

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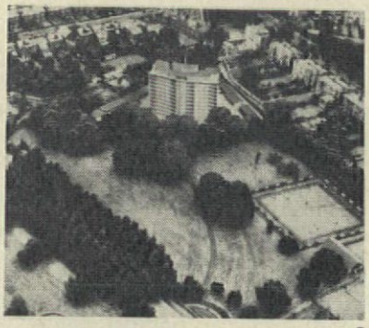

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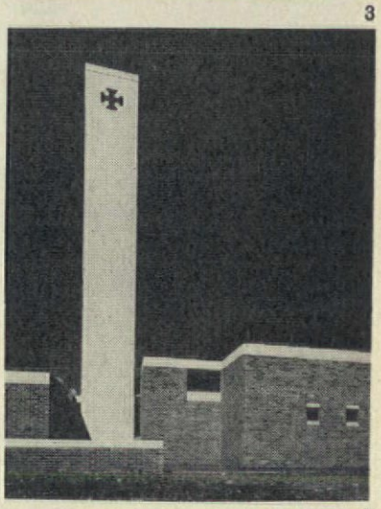

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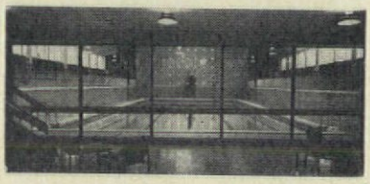

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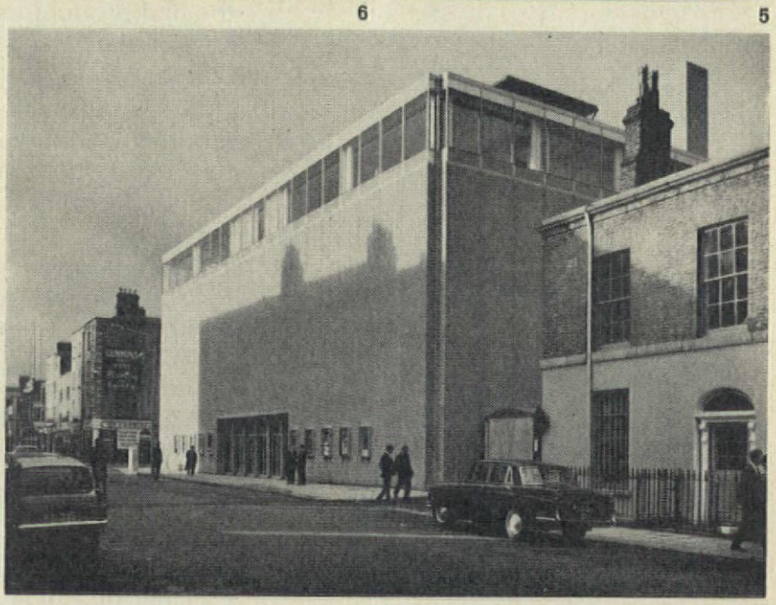

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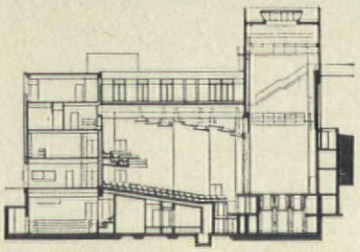
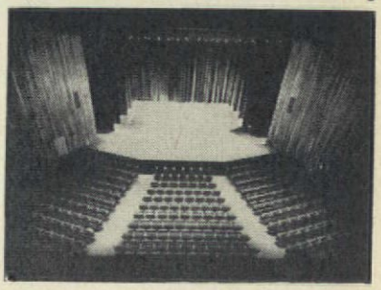




Foreword by the Minister of Housing and Local Government

The Rt. Hon. R. H. S. Crossman, OBE, MP

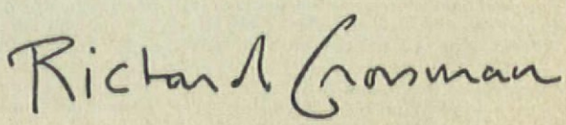
The housing target of half a million new homes a year by 1970, and the general adoption of the basic standards recommended by the Parker Morris Committee, will require a significant increase in productivity. This is being furthered by my Ministry in collaboration with the National Building Agency. We have established four-year rolling programmes; we are encouraging authorities to use a sensible degree of standardization and to make immediate use of the industry's already increased potential in both the fully industrialized and the rationalized traditional sectors.

At this time too, ways of living are changing and standards are rising at an increasing pace. Research is needed to raise efficiency and secure the best value for money and also to make the houses we build suitable for the people who live in them—now and in the future.

Some of this research is done by public and private bodies, by universities, and by the building industry itself, and some within my Ministry. The particular function of the Research and Development Group is to bridge the gap between research and the housing programme by undertaking development work. This includes the design and construction of schemes in collaboration with local authorities. The Group includes sociologists to help in finding out what people want; and designs and the ways of building evolved are then based on these needs. When the schemes are complete and the tenants have been living in them for not less than a year, architects and sociologists visit them to find out what has succeeded and what has failed—in both design and construction. This work brings professionals and administrators in the Ministry into direct contact with the end product of our work—homes and the people who live in them—and the knowledge we gain can be passed on by direct contact and in published bulletins to form the starting point for other schemes.

During the last five years, the Group has developed two systems—5M, a non-proprietory lightweight timber and steel system suitable for a wide range of two- and three-storey housing; and, in collaboration with Laings, 12M, an equally flexible system of factory made concrete elements suitable for higher densities.

The rapid growth of industrialized building in recent years makes it unnecessary for the Ministry to develop any more complete systems. Instead we have in hand longer term research on standardized mass-produced components. Exploratory work is now seeking to establish a framework of dimensional coordination, as well as studying what components are necessary, what sizes they should be if they are to fit together, and what other requirements they have to meet, e.g. the amount of heat insulation and range of finishes and costs. For the designer, such components would cover the needs of different families and different sites, but variety for its own sake could be reduced. Manufacturers would have greater freedom to offer solutions based on their particular techniques, and the larger market and better continuity of demand would make more efficient production and building on the site possible. It is a long-term project well suited to the mixed team which has been built up in the Research and Development Group.



HOUSING
research + development

Research and Development Group/Ministry of Housing & Local Government

The Research and Development Group at the Ministry of Housing was set up in 1960, following the example of the Ministry of Education. The group's work springs from the administrative, social, economic and technical questions raised by government housing policy. The success of its work depends upon a partnership between different skills—administrators, sociologists, architects and quantity surveyors—within the Ministry, and upon collaboration with engineers, building firms, manufacturers and housing authorities at the 'coal-face'.

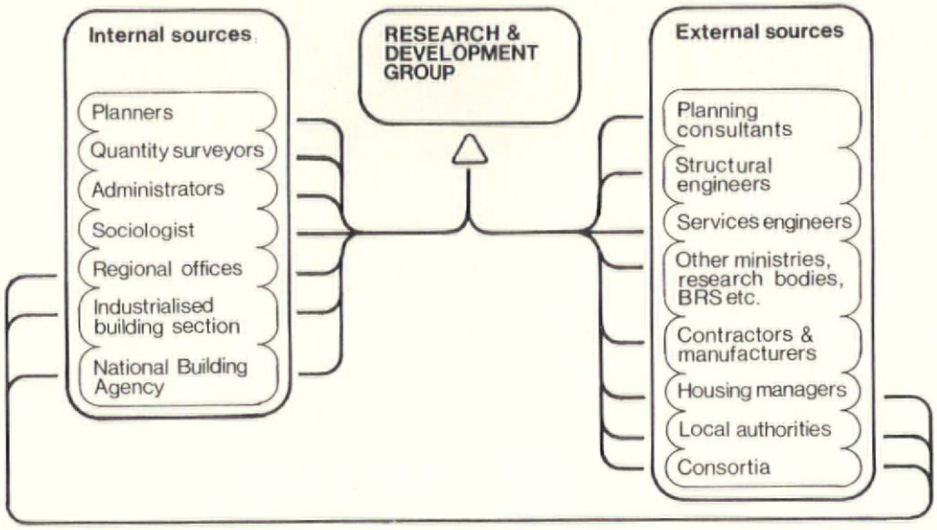
Because the work of the group lies half-way between production on the one hand and research on the other it has, first, more facilities for investigation and design than are normally available to local authorities and private architects and, secondly, the stimulus of carrying out building projects under exactly the same disciplines as the Ministry applies to local housing authorities.

The Ministry itself is not a housebuilding agency, so the group collaborates with local authorities in much the same way as a firm of private architects. Normal byelaw, town planning and Ministry approval procedures are followed, and projects are built for the same amount of money that the authority itself would have spent on the project. Part of the cost of the development group is recouped by charging the local authority the normal professional fees. The authority is the client—contributing to the investigation, and managing the project when it is complete.

Development projects are not intended to be models to be copied, but rather a contribution to the common pool of knowledge about housing. Their object is to develop and test new ideas under realistic conditions, and provide a point of fusion between different skills and a point for collaboration between central and local government. They aim to inform government housing policy, and help all concerned with housing to improve standards, increase productivity and obtain better value for money.

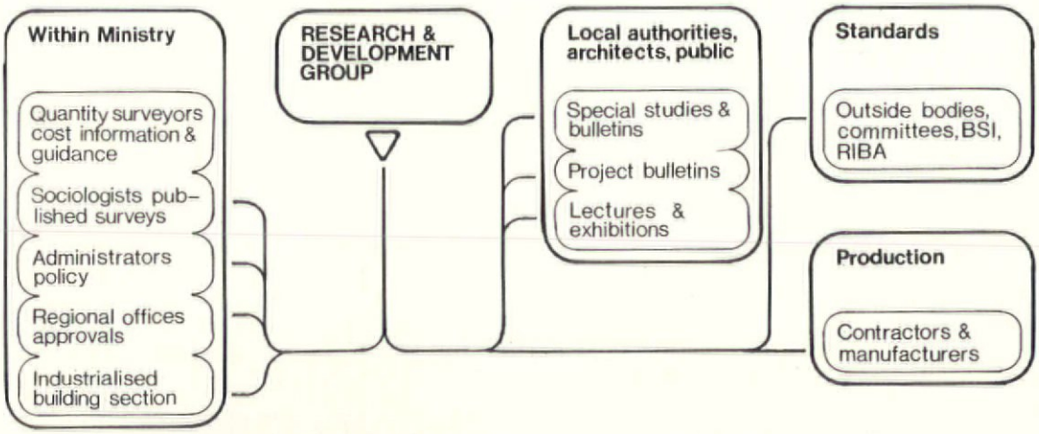
Social and technical objectives are explored in parallel—modifying each other as the work proceeds and producing solutions which are a balance between competing priorities.

Hypotheses are produced from social surveys and technical studies during the design stage of each project. All skills in the project team participate in the social surveys. The resulting brief is tested until a solution is reached—the product of the available skills and the limited time and cost targets. Building methods and procedures are studied during construction. And lastly the social and technical successes and failures are appraised after the project has been occupied for between one and two years. In this way, the cycle of investigation produces information at each stage for use in bulletins, conferences and exhibitions, and for use by the Ministry's architects, quantity surveyors and administrators in the regional offices. By visiting the projects, local authority architects, housing managers and council members can see for themselves how the ideas have worked out in practice.



Sources of information

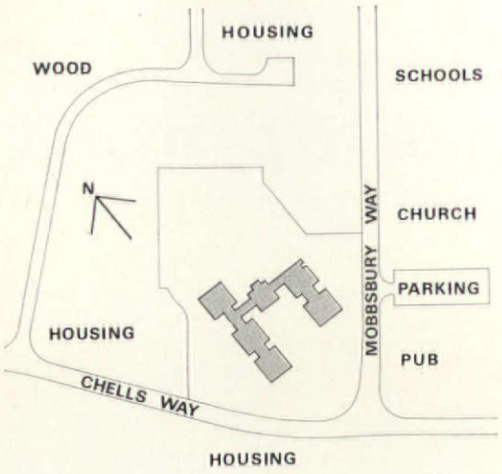
Dissemination of information



While the main stream of development group work is on projects, there are other equally important related activities with which the group is concerned. Bulletins have been produced on such varied aspects of housing as landscaping, services for flats, dimensions for components and space requirements in the home. The group is represented on many committees, such as British Standards Institution and interdepartmental working parties. Detailed development work has been carried out on components such as the wash-basin and the staircase. Members of the group teach and serve on juries at schools of architecture.

All these activities and the projects are interdependent. Only by working on projects can the group find out what information is required and in what form. Only by building projects can the group find out whether its ideas are physically and financially feasible and, only by appraising them can it be discovered whether the ideas work out in practice for both the tenants and for management.

Since the Research and Development Group's inception in 1960, experience from one project has been fed into, and developed further, in the next. User requirements studies and projects have now covered the needs of most types of household, and technical experience has been gained through the development of two systems, 5M and 12M. This systematic accumulation of knowledge over the whole range of housing problems is the most important characteristic of development work, but many gaps still remain to be filled before starting the cycle of work again. More knowledge is needed—particularly about housing layout, and the need for interchangeable components rather than closed systems of construction. Both are being investigated in the next project (at Oxford).



1

Stevenage
Flats for old people

For Stevenage Development Corporation
Former chief architect: L. G. Vincent

Because of the increasing percentage of elderly people in the population the group decided to investigate the needs of old people who wish to live independently, but who have difficulty in managing an ordinary house.

A flat site of 1·3 acres was chosen adjoining Chells neighbourhood centre; convenient for the shops, church and pubs; with buses to the town centre nearby and plenty of activity to watch.

Accommodation was needed for the elderly parents of new town families.

Flatlets were a relatively new building type and it was decided to develop the brief by making a survey of six local authority flatlets schemes. In addition, the group found a lack of anthropometric data about old people, and Dr D. F. Roberts was commissioned to make a pilot anthropometric study of a small sample of old people living in flatlet schemes.

The brief was established:

to provide each flatlet with its own cooking, washing and w.c. facilities

to provide shared bathrooms and a laundry with special equipment and aids for those old people who are not so active

to provide common rooms for reading, talking and for television with more casual sitting areas elsewhere

to provide accommodation for a resident warden connected to each flatlet by an emergency warning system

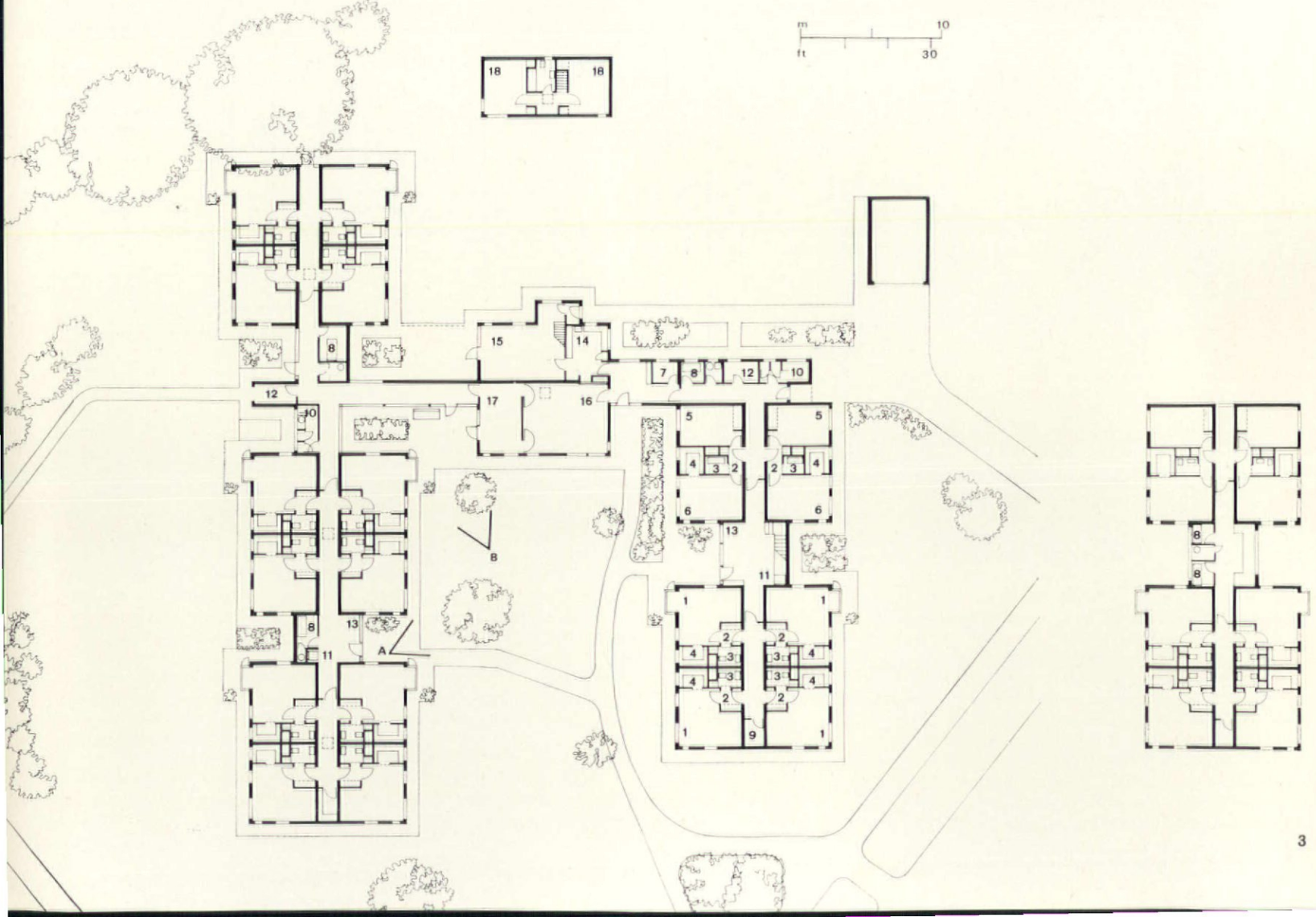
to design fittings, shelves, ironmongery, window controls, etc., to be easily and safely used by old people.

2

1
Site location plan
2
The building under construction. To the left steel stanchions on the site slab supporting the roof panels. To the right building paper lining and battening prepared for cladding tiles. In the distance infill timber sub-framing
3
Ground plan of Mobbsbury flats for old people with upper floors of warden's flat and one wing

1 bed-sitting room	10 utility room
2 lobby	11 shared refrigerator
3 w.c.	12 bin space
4 kitchen	13 sitting area
5 bedroom	14 warden's kitchen
6 living room	15 warden's living room
7 cloaks	16 common room
8 bathroom	17 quiet room
9 shower	18 warden's bedroom

4
View A from one of the corridor sitting spaces
5
View B into the sheltered sitting area
Photos: 2 Saga Services; 4 & 5 Sydney Newbery, 4 copyright *The Builder*



3

Cosmorama

The month in Britain

Michael Manser

Ove Arup, receiving the Royal Gold Medal at the RIBA, was described by Sir Robert Mathew as 'an anchor with a powerful pair of wings which could soar and pull the boat in many unexpected directions'.

Mr Moulton introduced a Mini Automatic version of his folding bike in Senior and Junior ergonomic sizes and the RIBA published the first of its new Architecture Awards.

Maxwell Fry became an Associate of the Royal Academy and Natash Kroll, a Royal Designer for Industry.

The business section of the *Sunday Times* published a chart showing that Britons in the metal working industries worked less hours than any of their European counterparts, and the National Economic Development Office held a press conference entitled, 'What the Little Neddies are Doing'.

In the revitalized *Times*, Jane Drew was interviewed to the tune of half a page, which was good for the image of the profession as long as her energy is not taken as typical; and in West Bromwich the prospective occupiers of a Council maisonette inspected the balcony *en famille* and together they fell balcony and all two storeys to the ground. Not so good for the image.

Professor Nervi accepted an invitation to join Powell & Moya in a new museum project for Oxford; Kensington and Chelsea remained without a borough architect; the PM's Lady wrote a poem for *Izvestia*, and a scheme was published for a 250,000-persons linear city to be based on Livingstone New Town.

A clean St Pauls was revealed when the new floodlights were switched on by the Lord Mayor and the Patriarch of Rumania; Osbert Lancaster opened an exhibition at the Design Centre showing how Milner Grey has set up a house image for brewers Watney Mann; Polyplan Ltd. announced a three-day course in September on plastics in building; two exhibitions of Finnish architecture and design were promised for London next February; an International Design Congress is to be opened by Sir Duncan Oppenheim at the Royal Garden Hotel on October 12th, and in Brighton in September there will be a Sussex/Normandy Trade Fair.

London's only Gropius building was not improved by the advent of a Playboy Club. Mr Horace of the GLC suggested that motorways should be 'boxed in'. Prince Philip said, 'Many subjects are of intense interest to some people and of no concern whatever to a large proportion of the population'. And Mr Sancturay of the Marriage Guidance Council said, of polyandry, 'We do not think it would work'.

The problems of violent wind eddies around the feet of tall buildings was highlighted by a Croydon decision to roof an affected shopping precinct; but hints of problems yet to come filtered in from New York where the fishy smell in UNO offices was attributed to East River eels being ingested into the air-conditioning water ducts

The Bank Rate jumped to 7 per cent which the gnomes said was not enough, and by coincidence Mr Sermon of W. J. Simms Sons & Cooke Ltd., said, 'The two most often used words this year in the building industry are Industrialization and Bankruptcy'.

Liverpool's Albert Dock

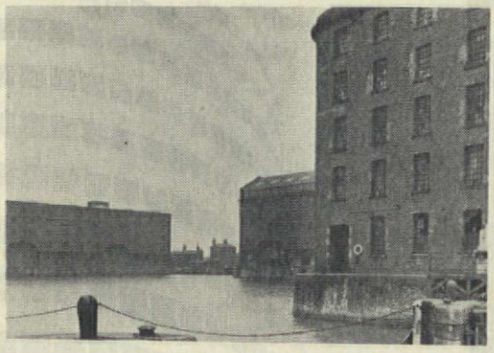
Dennis Sharp

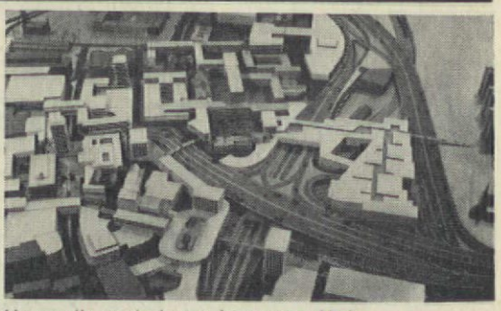
An independent report submitted by Bernard Thorpe and Partners on behalf of the Oldham Estate Company proposes a vast office development along Liverpool's waterfront, suggesting little of the character or three-dimensional form of the scheme. It has been approved in principle by the City's Development and Planning Committee.

The estimated cost of the scheme is £50 million; the total office space 10 million square feet with a provision for 50,000 workpeople. The developer would purchase the land and present the freehold to the City in 'return for a lease at a peppercorn rental'.

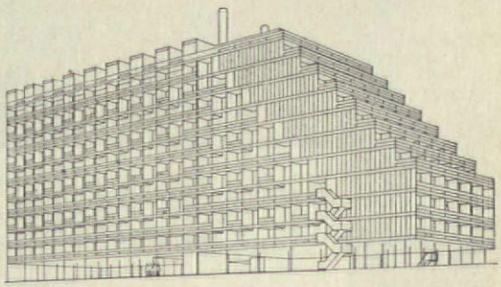
The scheme has brought with it a problem that could grow to national importance: whether or not to keep Jesse Hartley's Albert Dock warehouses. These buildings are probably the most sacrosanct of all the early 'functionalist' structures in the North West. Walter Bor, the City Planning Officer intends that they should remain (and perhaps adapted to some new use); most architects support him.

Assurance on this point is now required or the issue could blow itself up and become as big if not bigger than the Euston Arch.





Newcastle central area (see page *AD*5)



Wuppertal unité

Atelier 40 has designed a great carefully contrived and controlled *unité* for Wuppertal. Access corridors are at every second level, giving off to a wide variety of flat-types on one and two levels.

Bauen + Wohnen, June 1966

The September issue of *AD*
will be devoted to
the work of
Charles & Ray EAMES
with appreciations by
Michael Brawne, Geoffrey Holroyd,
Alison & Peter Smithson

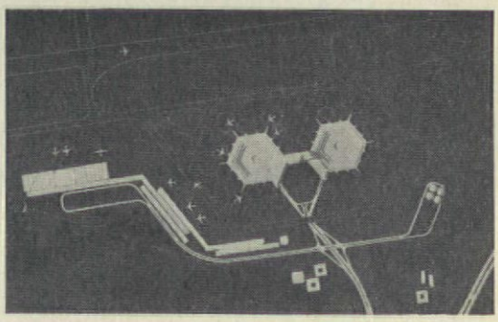
Le Corbusier prize

The Athens Centre of Ekistics has awarded their Le Corbusier prize for an original study on the subject of anonymous Greek architecture to the Belgian architect Etienne Dusart for his report and 400 evocative drawings (Skyros shown here), 'La Leçon des Iles'—the lesson of the islands. The three runners-up produced studies of the architecture of Lindos (Dianna Lee Smith, Peter Rich and Jack Morgan); the Ilissos 'slum' in Athens (James Maltby, Cecily Martin, D. Philippidis and Björn Röe); and planning of Mani villages (J. M. Wagstaff).

Berlin—Tegel airport competition

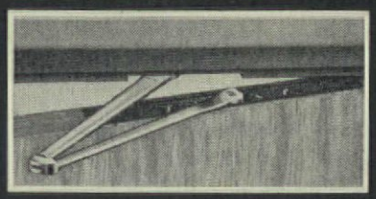
Winners of the first prize of 35,000 DM in the above competition were the Hamburg architects van Gerkan and Marg, with Apel and Beckert (Frankfurt) and Gebhard Mueller and E. Pfanzler (Stuttgart) sharing the second prize at 22,500 DM apiece.

In the winning design a central building with two hexagonal departure units are directly connected to the decentralized departure hall. Traffic connections with the existing local road system are free of intersections. There is adequate car parking space and short walking distances for motorists.



concealed within the rotunda

THE BRITON 500



The Rotunda building designed by James A. Roberts, A.R.I.B.A., is part of the City Centre of Birmingham redevelopment plan. As good design and appearance of fittings was a first consideration, the interior doors throughout the building were fitted with the Briton 500 concealed overhead door closer. The closer which measures only 13" long x 1⅜" wide x 2⅝" deep, is mortised within the thickness of the doors leaving only the slim arms showing (see small illustration). It is suitable for interior single action doors weighing up to 112 lbs. and is provided with a hold open device which may be brought into action if required. The Briton 500 which was supplied for the Rotunda by Parker Winder & Achurch & Co. Ltd., is one of a fine range of door closers and other Architectural fittings manufactured by:
WILLIAM NEWMAN & SONS LTD.,
Hospital Street, Birmingham.

NEWMANS

The Rotunda Building:
Developer: Property & General Investments Ltd.
Structural Engineers: Charles Weiss & Partners.
General Contractor: George Wimpey & Co. Ltd.

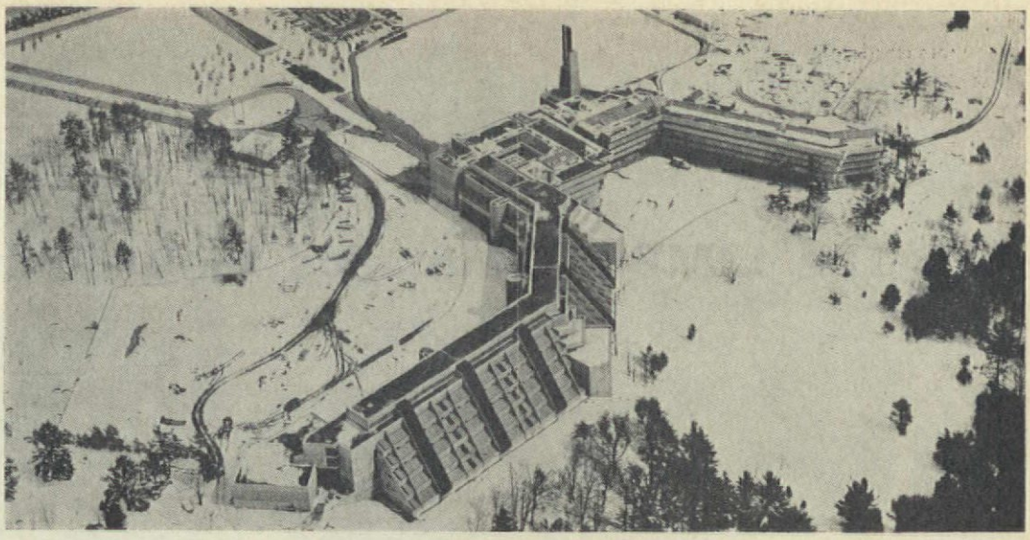
Scarborough college

Ken Frampton

John Andrews is a young Australian architect who has recently emerged into prominence in Canada. In the spring of this year the first stage of his Scarborough College building, designed in association with Page and Steele, was completed on a heavily wooded 'oasis' site some 20 miles out of Toronto.

At last one encounters an architect who has responded intelligently to the extreme climate of North America to produce a work that reflects directly the complex interaction of programme, structure, site and climate. He has fully exploited an undulating topography through the differentiated, if sometimes arbitrary, use of stepped sections and through the judicious location of large windowless volumes, so as to shield more desirable exposures from the onslaught of the north wind. The grouped lecture theatres of the humanities wing protect the adjacent stepped terraces of professorial offices facing south. The configuration follows the serpentine line of a flat ridge, all entrances being at this level.

The breakthrough at Scarborough lies not so much in its closed circuit television system as in its use of a continuous closed pedestrian mall to link the various components of the campus, as well as in its ingenious additive system of construction which permits continual growth. Its limitations as a solution may lie in



the apparent inflexibility of some of its working spaces, or possibly in the total commitment of its architect to formal organic approach. The brief itself may be questioned for its institutionalized acceptance of the two culture split, science to the north, humanities to the south, but the operational advantages are self-evident and the architect cannot be blamed He has introduced a large internal 'agora' or meeting place which at its main level unites the two cultures. One may—in accord with one's doctrinaire affiliations—regard this heavyweight concrete construction as retrogressive—but the homogeneity of its spatial organization should give pause for further thought. There is no doubt that it is the most authentic work of architecture to be put up in Canada since the great grain elevators.

Canadian architect, May 1966; *Architectural Forum*, May 1966

The art of living

To visit Le Corbusier's villa at Garches on a day when the cuckoo clock is being mounted on the stairs and the windows measured for chintz or to be offered the postcards (shown above) of the interiors of l'Unité d'habitation, at Marseilles, is to experience something odd and chilling but not altogether surprising. The *frisson* of the ordinary (in the worst possible sense of that word) in unexpected surroundings. The ordinary is something of which Ionesco has made art. But architects are habitually unprepared for it and when confronted with it are overwhelmed. Mies van der Rohe, of course, seeks to shield himself and his admirers from the confrontation by such devices as uniform curtain linings for his glass apartment houses; but Le Corbusier was always a man of greater humility when it came to the pattern of life and of living. He sought always to create an environment that would permit and induce a more expansive and vital way of living, he did not seek to impose restrictions. Perhaps, after all, he would not be disturbed by the transformations wrought by the worthy members of the French bourgeoisie.

l'Architecture d'Aujourd'hui, April–May 1966

Return to sanity at the TPI

The TPI have elected a Council eschewing polemic, and intent on unifying the profession. This year candidates for the first time were invited to give their views in an official election leaflet and in almost every case wrote of the need for a strong and united profession. Thus Arthur Ling—'*building on our agreements rather than emphasizing our differences*'.

A major difficulty may well be the militant education committee; so far from serving the needs of the profession it seems intent on maintaining a *status quo* among the established academics, and it will be interesting to see how the new Council handles the applications for recognition from such new courses as Ling's at Nottingham and Ginsburg's at the AA when these come up.

The AGM and election were dull affairs in themselves, and it must be noted that under 1500 of the total 3600 membership actually voted. This may indicate dissatisfaction with internal Institute affairs, such as a limitation on the Council of five associates, and almost no limit to the length of time a Council member may continue to serve if re-elected annually. Though Leslie Ginsburg was re-elected after being slung off last year, and is once again Honorary Editor, both he and Doubleday have served almost continuously for over ten years, surely not a healthy state of affairs. Another danger may be that those members who are also architects or surveyors may have decided not to bother with TPI affairs. This would be a great pity since the TPI is in a unique position to become the lively and responsible spokesman on *all* planning matters. The sooner the new Council seeks joint meetings with other professional bodies concerned with planning the better it will be for all concerned.

Kahn at MOMA

The long promised and long awaited retrospective exhibition of the work of Louis Kahn was staged last May at the Museum of Modern Art in New York—a superb showing of sketches and models, all dated, ranging from Philadelphia studies of the early 50s to the present (see next page). Unfortunately MOMA decided not to publish the usual lavish catalogue.

The large exhibition showed up rather clearly the arid aspects of Kahn's thought. The designs are remorselessly abstract and monumental. The human being, when indicated, is invariably dwarfed. In a single building this quality might not appear so disturbing, but to see it repeated in 120 different sketches and projects, is to see monumentality become obsessive and dull.

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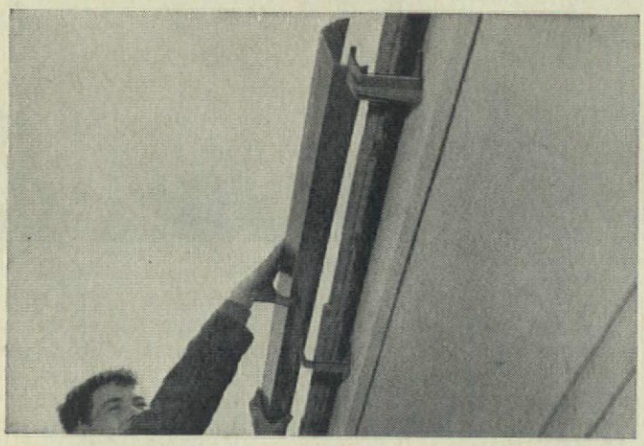
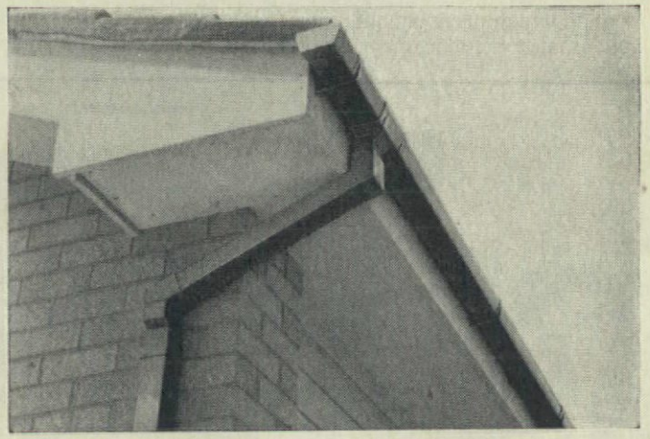
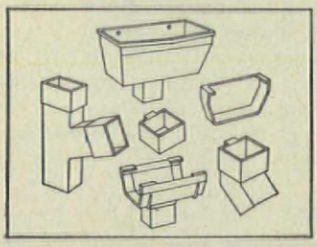
The LIMPET Line adds that touch of distinction

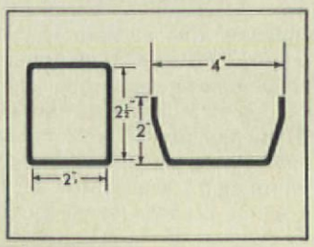






Limpet

PVC RAINWATER GOODS



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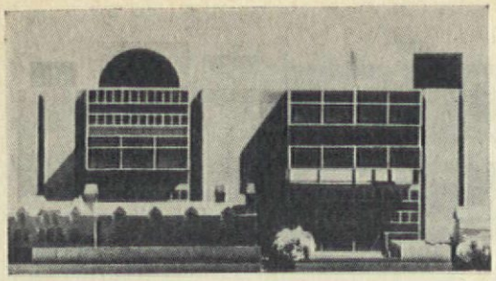

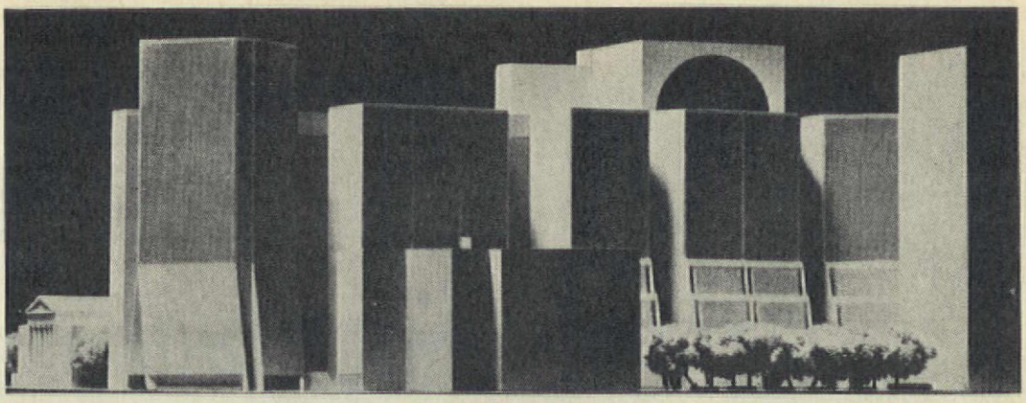

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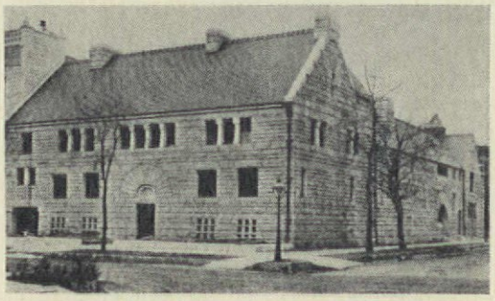
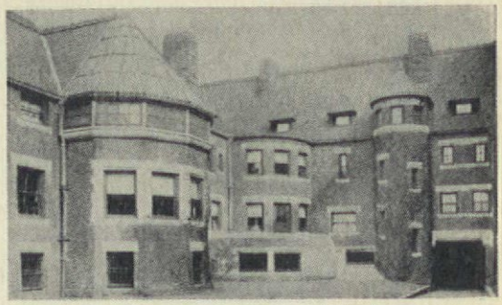
The Kahn design that is said to have stimulated the most interest at the MOMA exhibition in New York was that for the Philadelphia College of Art, sketched first in 1964. The array of glass and concrete teaching towers linked by a spine of offices and student areas will be built during the next ten years at an estimated cost of $15 million.

Architectural and Engineering News, May 1966; *Architectural Record*, May 1966; *Progressive Architecture*, May 1966; *Forum*, May 1966.

H. H. Richardson

H. H. Richardson's architecture was designed to a simple formula: break down the component parts so that each could be clearly expressed, but fuse them so that the whole would appear coherent, continuous and above all massive. The building had to have weight. The walls had to look thick. He achieved these aims despite free grouping and bold asymmetry by emphasizing one material at the expense of all others—great boulders of quarry-faced granite. But his formula, for all its simplicity has not been easy to interpret with success. His more sanguine contemporaries, having tried their hands at it, let it drop. He is the only great exponent of the method; and he has been respectfully admired by architects ever since. Even when history was anathema his Marshall Field Wholesale Store could be appreciated for its sheer grandeur. That building was scandalously demolished in 1930 to provide a car park, but his Pittsburgh Jail can still be admired, as can his library at North Easton (discussed with



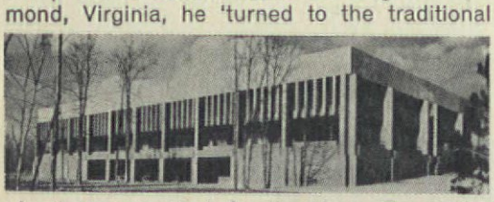


other of his buildings in that town in *Forum*, May 1966), and Chicago itself possesses a masterpiece of his late maturity—indeed his last work—the J. J. Glessner house (above) on the corner of 18th Street and South Prairie Avenue, which will, it is hoped, be preserved. The Chicago School of Architecture Foundation, formed expressly for the purpose, has offered $30,000 towards its purchase. Philip Johnson has most generously promised $10,000, as have architects Harry and Ben Weese. But, of course, more money is needed to buy the property, restore it and run it as an architectural centre, letting rooms to visiting architects and students and perhaps to photographic firms. This endeavour and initiative must in every way be supported, for the experience of Richardson's architecture is not readily to be come by. Even that expressive fragment of his at Bushey Heath —the doorway of Lululand—speaks of an architecture that is expansive, restful and controlled in a way that no other architecture of the last hundred years has been.

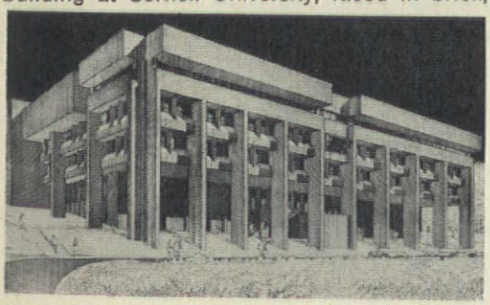
Progressive Architecture, June 1966

Franzen's forms

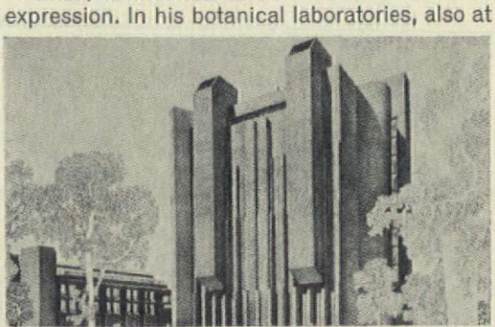
Ulrich Franzen, following the lead of Louis Kahn, is in search of appropriate form. For the Philip Morris administrative building in Richmond, Virginia, he 'turned to the traditional



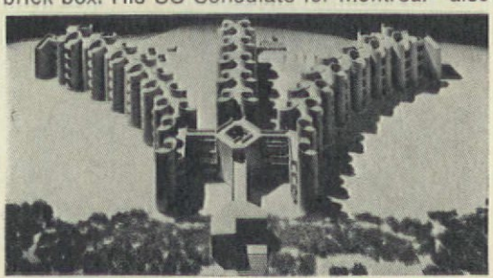
classical apparatus', for the Home Economics building at Cornell University, faced in brick,



he 'still follows the classical format of base, column and cornice, which is combined with the cantilever silhouette that only steel makes possible'. His adjoining Agronomy Building, also in brick, is inclined to be more Gothic in its expression. In his botanical laboratories, also at

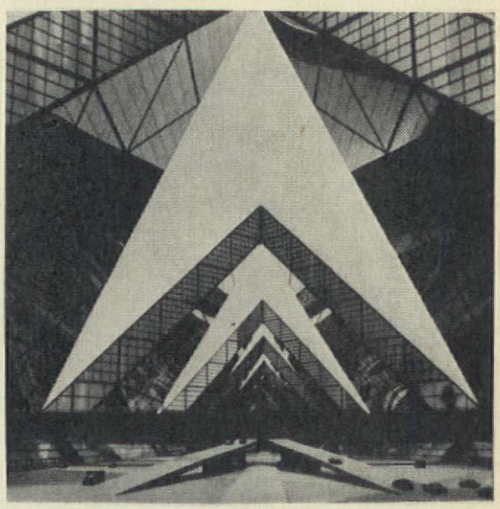


Cornell, he managed to find 'a definite shape for an indefinite building type'—a symmetrical brick box. His US Consulate for Montreal—also



a symmetrical brick box—is considered as a bridge. A pavilion becomes a castle in his hands and a motel has 'intimations of infinity'.

Architectural Record, April 1965, May 1966



Put this in your tank

Stanley Tigerman has designed an Instant City. He believes in rationalism. '. . . and so the return to the rational mainstream of Twentieth Century technology in combination with man's desire to mould space, finds its life blood in the very matrix that was originally implied by the three dimensional possibilities of the structural frame, not as an envelope, but as the meshing of interior and exterior space in the ordered context of structure.

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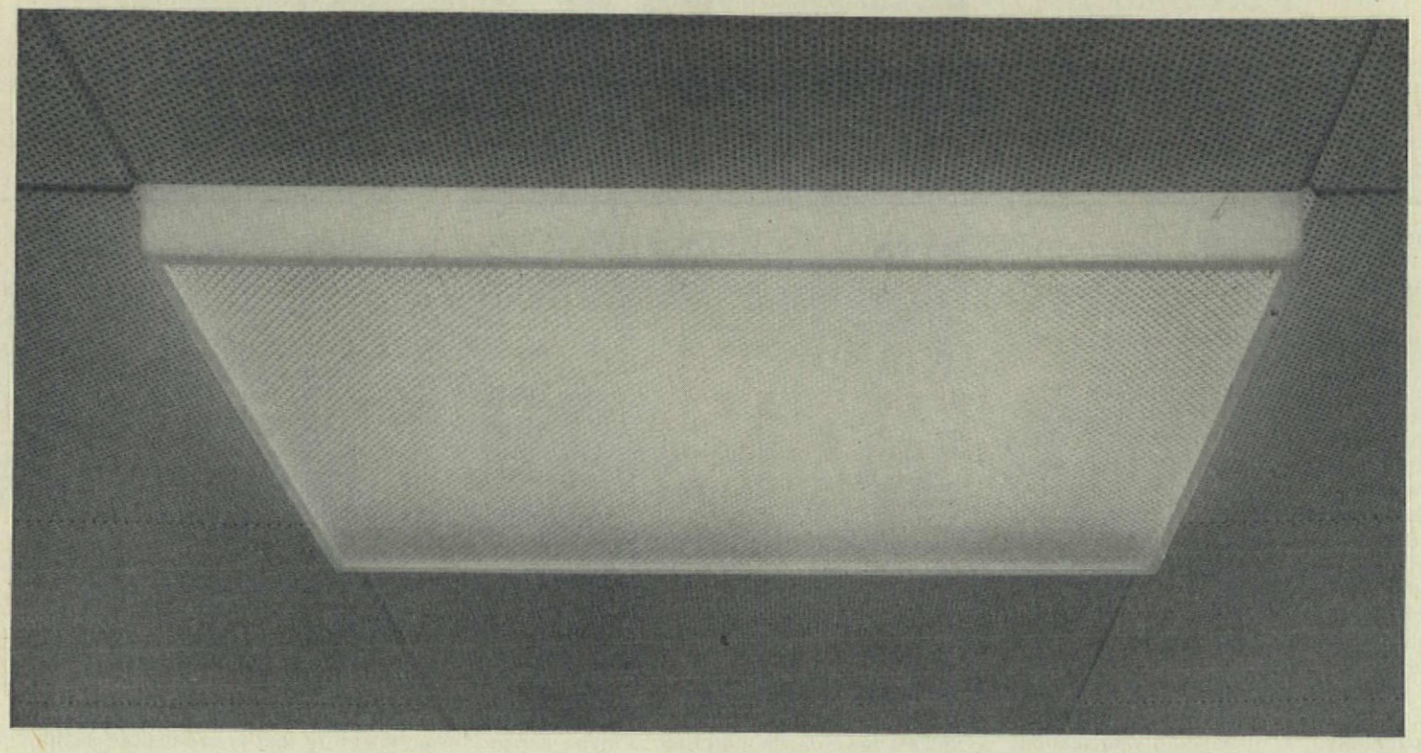

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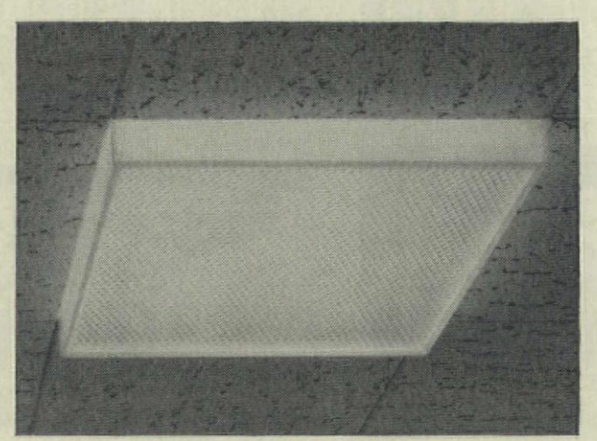

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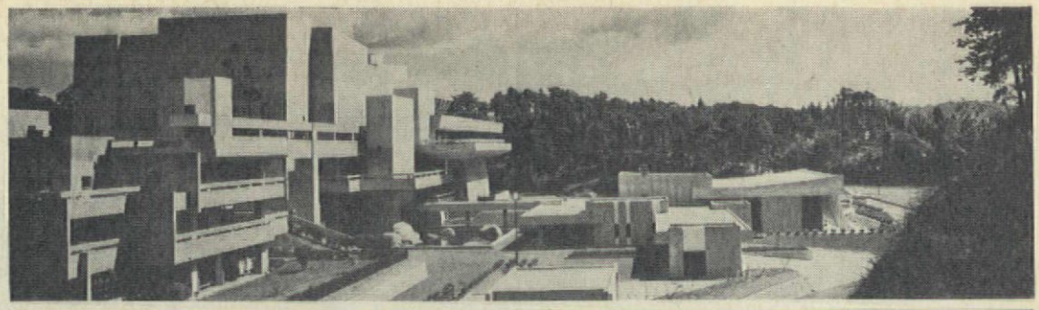
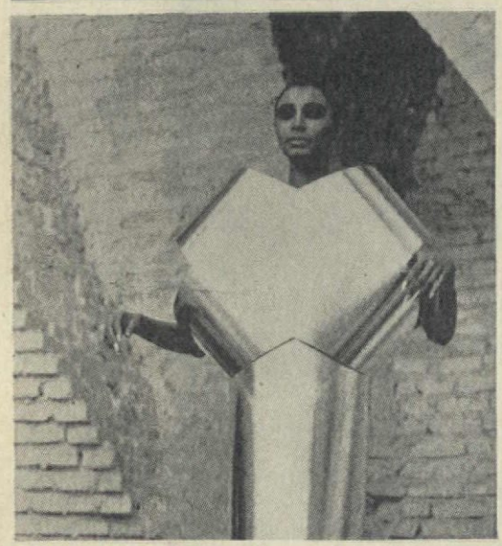
Art and architecture in Japan

Japan continues to proliferate complex concrete structures, all superbly built, that are seriously studied and regarded as solutions to such problems as those of conceptual form and the fourth dimension in architecture. The new headquarters of the Tensho Kotai Jingu Sect at Yabuse, Yamaguchi prefecture, by Sachio Otani and Taneo Oki is one of the biggest of such recent manifestations.

Japan Architect, March 1966

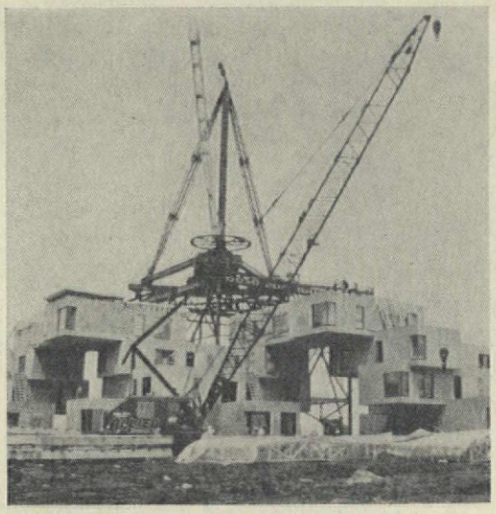




Qui êtes-vous Polly Magoo?

William Klein's fancy fashion film, replete with mannequin's in hieratic metal and plastic costumes (hints here of Oskar Schlemmer) was filmed recently in André Bloc's white brick garden folly (*AD*, August 1965, p. 369)—an odd combination of two brands of modern French Romanticism.

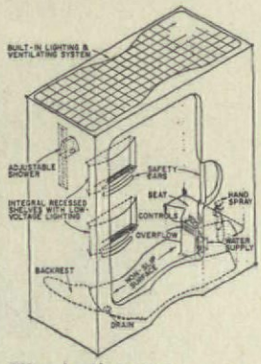
Aujourd'hui, May–June 1966

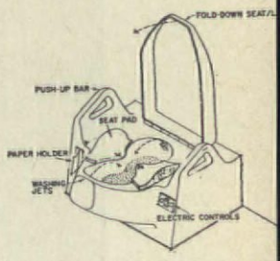


Habitat '67

The reduced version of Safdie, David, Barott and Boulva's Habitat for Montreal (*AD*, December, 1964) is now taking form; the concrete living units are being successfully hoisted into position—like building blocks—by the giant (and enormously expensive) crane constructed for the purpose.

Bauwelt 26, 1966





The bathroom

The idea of the bathroom as the communal focus of the house is one that appeals to Alexander Kira, of Cornell University, who has recently completed a six years study of the subject, but he opts rather for the bathroom as a last refuge of privacy. There, in a world of open planning and picture windows, one can be alone —and no one will ask any questions. So in his recommendations the individual units have become cells, for washing, relaxing or what-have-you. But the prime aim has been to make ablutions more efficient—'one can get a car washed automatically in five minutes, while it still takes us fifteen minutes to wash ourselves by hand'. The shower and bath cells are to be provided with a lot of extra sprays, shapes and safety bars. The w.c. seat is to be dropped to 9in from the floor, ergonomically shaped and likewise filled with sprays. The urinal after years of study of splash diagrams and trajectory charts is to become a cavern-shaped funnel; a night-light over. There is evident thoughtfulness and ingenuity in all this designing, but it still has the air of the styled-up job. There is nothing quite as satisfyingly revolutionary as Buckminster-Fuller's studies: no atomizer gun and no great concern for the saving of water.

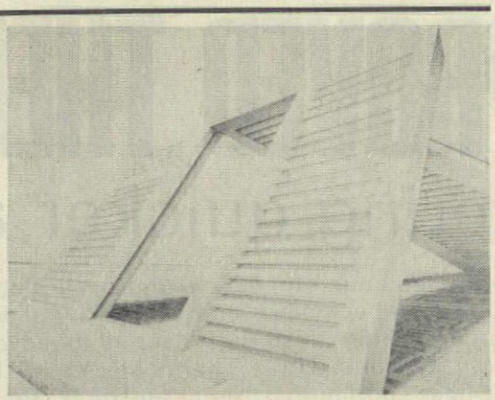
Copies of the report are available from the Center for Housing and Environmental Studies, Cornell University, Ithaca, NY, USA, price $7.

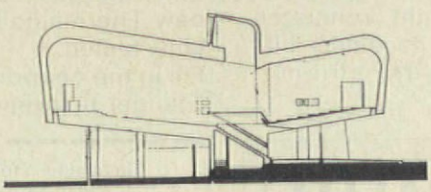
Progressive Architecture, June 1966; *Time*, *May* 20, 1966

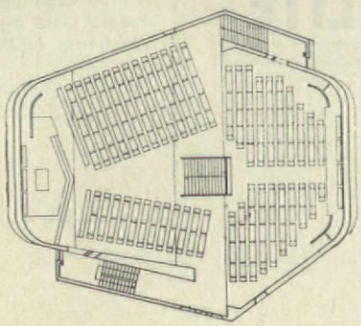
Architecture Principe

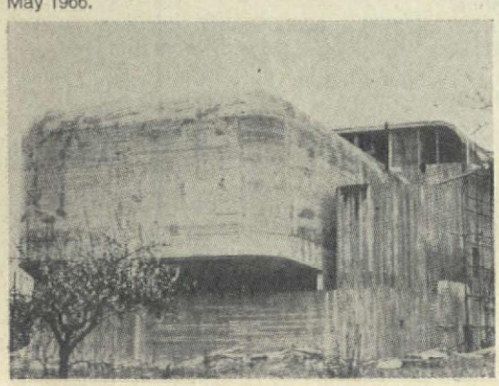
The uninspired bombast of the manifestos and projects published by the Groupe Architecture Principe (Claude Parent and Paul Virilio for architecture, Michael Carrade and Morice Lipsi for the plastic arts) might have led one to expect that their executed work would be equally megalomanic and monstrous. Instead, their parish centre of Sainte Bernadette at Nevers has a rather cosy late-Corbusian quality. Two shells of concrete are tucked into one another and lifted above the ground of a surrounding orchard. This preoccupation with what Parent and Virilio call the oblique position or function has resulted in nothing more alarming than a gently raking floor for the seating. Still, they lay great claims for this inclined plane, it is designed, they say, 'to give a new dynamic to religious life'.

Architecture Principe, 1 La fonction oblique, February 1966; *Architecture Principe*, 2 Le Troisième ordre urbain, March 1966; *Architecture Principe*, 3 Le Potentialisme, April 1966; *l'Architecture d'Aujourd'hui*, April–May 1966.



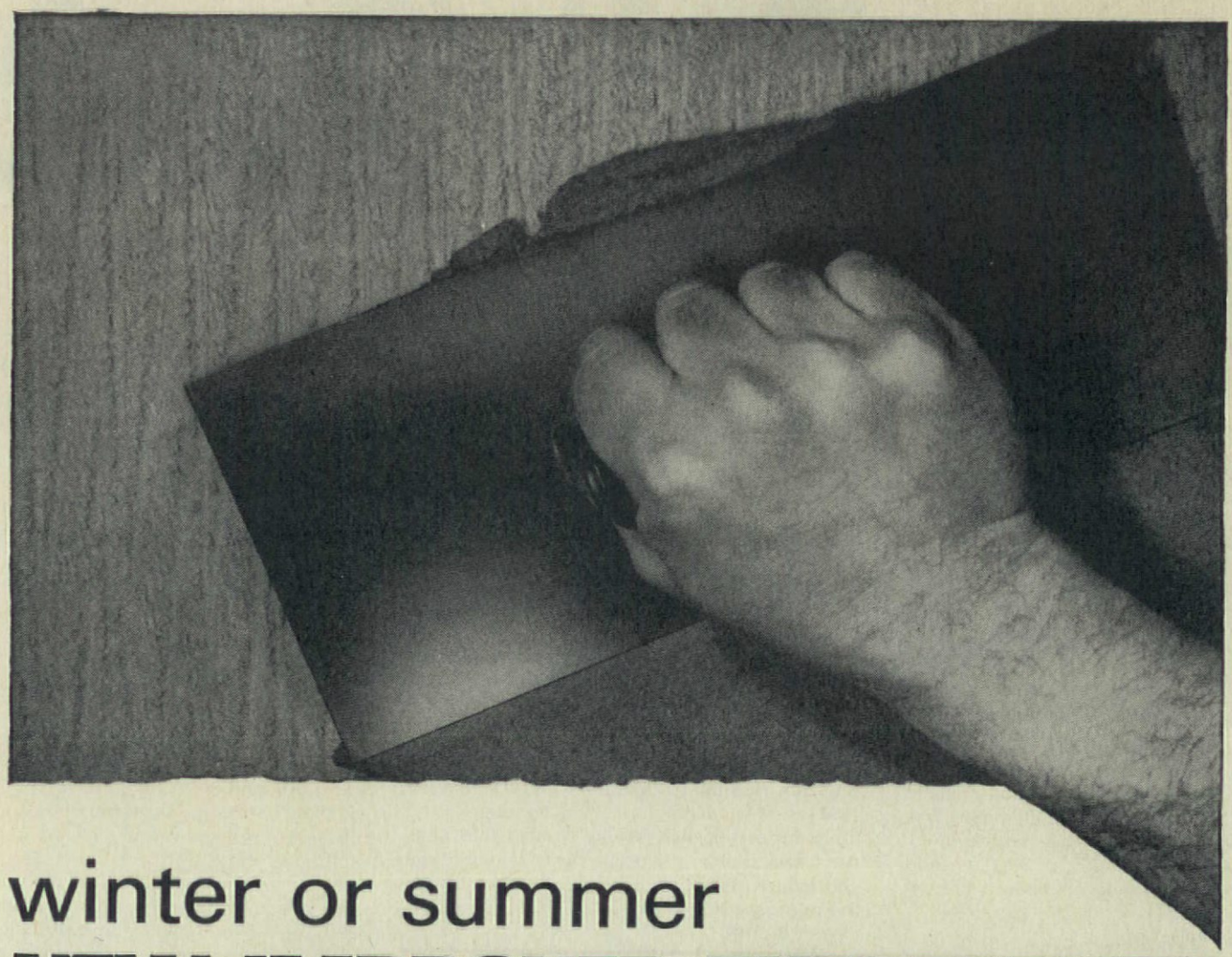






ICI plastics house

In building a demonstration 'Irish Home' in the Wicklow hills near Dublin, ICI (Ireland) Ltd. have used more than 100 ICI products, ranging from insulants through components in the plumbing, drainage, heating and electrical services to interior and exterior finishes. Included is the bottom half of the prefabricated Perspex bathroom (*AD*, April, 1966) which ICI say is still under development.



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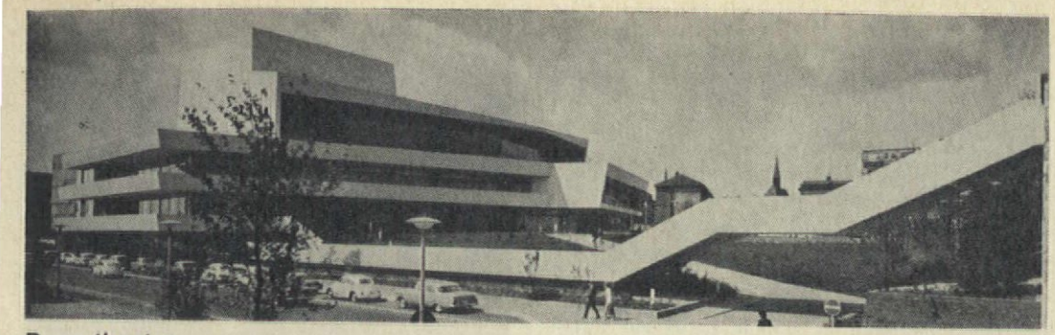
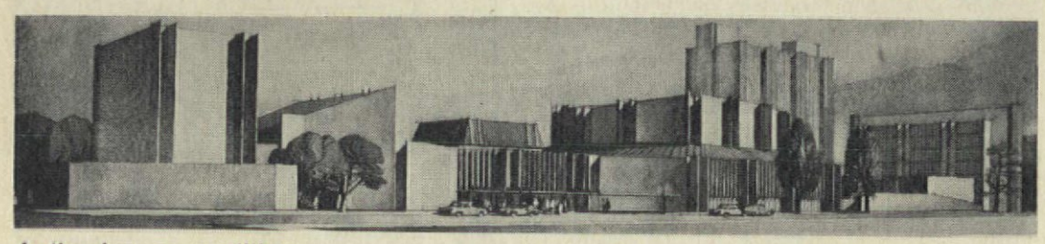


Bonn theatre

Bonn's municipal theatre, by Klaus Gessler and Wilfred Beck-Erlang is complete—asymmetrical, lavish and picturesque in the Scharoun manner.
Deutsche Bauzeitschrift, May 1966



Antipodean competition

Norman Shepherd

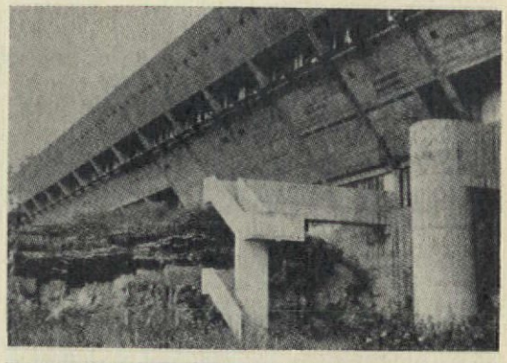
Warren and Mahoney (see page 406) collected two competition successes in June.

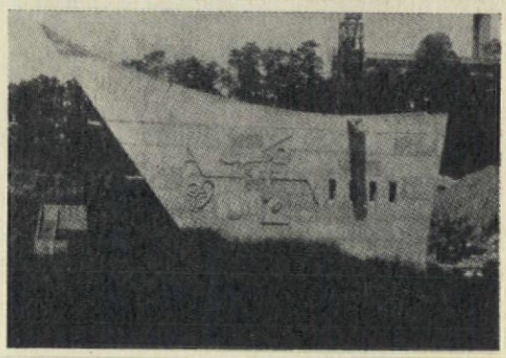
One award was for the Government offices of the Condominium of the New Hebrides. The other was the important civic complex for Christchurch, containing an all-purpose town hall seating 2250, a theatre/concert chamber for 800, a banqueting hall, restaurant and two meeting rooms.

The riverside site forms one side of a square ringed with mediocre and expendable buildings. This civic project could thus establish a precedent for an interesting urban precinct. The question as to whether the project will be of appropriate scale for such a space can only be answered after the completion of the whole. But it is to be hoped that essential traffic rerouting, the redevelopment of the other three sides and the replanning of the square itself will proceed not individually but as a thoroughly integrated inter-professional exercise.

Le Corbusier at Firminy

Le Corbusier's church at Firminy (*AD*, May 1966) is unlikely to be built. But his youth centre in that town is now complete and appears a far less readily explained piece of architectural formalism. Originally conceived for a steeply sloping site, it was built eventually on an open site, the raking rear wall supported not on the rock of the hillside but on raking cantilevered beams.
Progressive Architecture, December 1965





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Architects Design Group of Nottingham and London and Derek Walker of Leeds have combined their practices. The partners in the new firm, which will retain the name Architects Design Group, are John Attenborough, Robert Cullen, John Gelsthorpe, Gordon Graham, Bryn Jones, John Pike, Rex Savidge, and Derek Walker. The practice will operate from offices at 39 King Street, London WC2; Harby Lodge, Pelham Road, Nottingham; and St Wilfrid's Priory, Aberford, near Leeds.

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Magritte

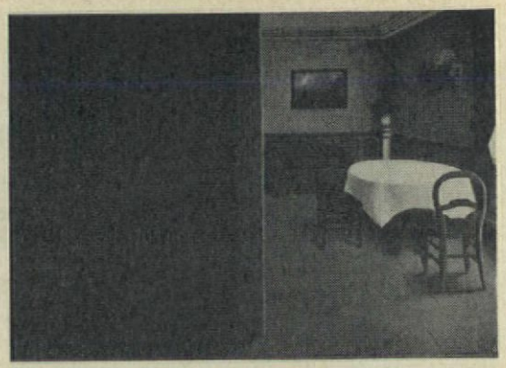
Jasia Reichardt

It may seem strange that an exhibition of 24 paintings of which at least half are of indifferent quality, could be an intensely absorbing experience. This was the case with the show of paintings by the Belgian surrealist, Magritte (Zwemmer Gallery), most of which were done when the artist was in his late twenties. At that time his output was extremely prolific and in view of the fact that each painting represents a specific idea, rather than a variation on a theme, his achievement was a very remarkable one.

The ideas which Magritte developed then, and since, deal with the ambiguity between illusion and reality. This ambiguity underlies the generalized sense of mystery and unease expressed through what appears to be the physical environment of provincial suburbia. The artist often concerns himself with objects and surroundings that are both familiar and commonplace, but these are depicted out of context or in such associations to each other which places them slightly out of key. Most of Magritte's paintings deal in an overt way with disorientation. This particular quality may seem less obvious in the seemingly straightforward and rather claustrophobic interior juxtaposed with a dark empty space which occupies half of the canvas, than in paintings in which rocks float above the horizon or the landscape seen through a window is a painted canvas on an easel. The strange interior 'La voix du silence' says more perhaps about Magritte's procedure in evoking mystery than some of the more obvious fantastic paintings. This picture is entirely realistic, there is no distortion or displacement of objects, no invented images or spatial incongruity. The loaded meaning of the painting rests almost entirely on the combination of the comfortless, if not bare, interior and the obsessive darkness beyond the wall of, presumably, another room.

Thirty-two years after Magritte painted this picture, the American painter, R. B. Kitaj, produced a painting which was also split vertically into two halves, called 'Certain forms of association neglected before'. Any comparison between the two works may seem farfetched—Kitaj's concern is the dichotomy of content, style, and processes of painting, and the relationship, or lack of it, between an abstract image and a narrative one. Magritte, however, is involved with juxtaposing a figurative sequence with a virtual void, which can either be understood as a continuation of the figurative sequence, or nothingness. What the two painters share in these particular works, is the realization of the power of disparity. Opposites are employed in both paintings as vehicles for conveying intensity. Despite the almost aggressive thematic contrast between them both have a strange contemplative quality rather than the atmosphere of violence one might expect.

Strange encounters, whether purely formal, or relating to subject matter, provide the raw material for these paintings. Magritte refers to them as 'visible poetry' or 'description in paint of the inspired thought'.



1
René Magritte, 'La voix du silence', oil on canvas, 21½in × 28¾in

2
R. B. Kitaj, 'Certain forms of association neglected before 1961', oil on canvas, 40in × 50in

En este número

Vivienda: investigación y desarrollo

* *The French translation is on the Readers' Service Card.*

Página 379

El Grupo de Investigación y Desarrollo del Ministerio de la Vivienda fué establecido en 1960, siguendo el ejemplo del Ministerio de Educación. La tarea del grupo nace de los problemas administrativos, sociales, económicos y técnicos presentados por la política habitacional gubernativa. El éxito de su trabajo depende de una colaboración entre las diferentes disciplinas—administradores, sociólogos, arquitectos, analistas de costos dentro del Ministerio, y de una colaboración con ingenieros, constructores, fabricantes y autoridades habitacionales en la obra misma.

Debido a que el trabajo del grupo yace a medio camino entre la producción por un lado y la investigación por el otro, tiene, primero, más facilidades para la investigación y el diseño que las que son normalmente posibles a las autoridades locales y a los arquitectos privados y, segundo, el estímulo de poder realizar proyectos de construcción bajo exactamente las mismas condiciones que el Ministerio aplica a las autoridades habitacionales locales.

El Ministerio mismo no es una organización constructora de viviendas, así es que el grupo colabora con las autoridades locales en una manera similar a como lo haría una firma privada de arquitectos.

Procedimientos normales son seguidos respecto a ordenanzas, urbanismo y aprobación ministerial, y los proyectos son construídos por la misma cantidad de dinero que las autoridades habrían gastado en un proyecto similar. Parte de los gastos del Grupo de Desarrollo es recuperado al cobrar a la autoridad local un honorario profesional usual. La autoridad es el cliente que contribuye a la investigación, y que administra el proyecto cuando este está terminado.

Los proyectos de desarrollo no se intentan como modelos para ser copiados, pero más bien como una contribución al fondo común de información respecto a la vivienda. Su objeto es desarrollar y probar nuevas ideas bajo condiciones reales, y proveer un punto de fusión entre los diferentes conocimientos y un punto de colaboración entre los gobiernos central y locales. Su propósito es determinar una política habitacional gubernatal, y ayudar, a todos los interesados en la vivienda a mejorar sus normas, a aumentar la productividad y a obtener un mejor retorno para las inversiones.

Objetivos sociales y técnicos son explorados paralelamente, modificándose mutuamente a medida de que el trabajo avanza, produciendo soluciones intermedias entre prioridades opuestas.

Se establecen hipótesis después de encuestas sociales y de estudios técnicos durante la etapa-diseño de cada proyecto. Representantes de todas las técnicas en el equipo a cargo del proyecto participan en las encuestas sociales. El memorial que resulta, es examinado hasta que la solución se encuentra, el producto de las técnicas disponibles, del tiempo limitado y costo permisible. Los métodos de construcción y procedimiento son estudiados durante la ejecución. Y finalmente, los éxitos y fracasos sociales y técnicos son analizados después de que el proyecto ha estado en uso por uno o dos años. De esta manera, el ciclo de investigación produce información en cada etapa, para ser usada en boletines, conferencias y exhibiciones, y para el uso de los arquitectos del Ministerio, analistas de costos y administradores en las oficinas regionales. Al visitar los proyectos, los arquitectos de las autoridades locales, administradores de conjuntos de viviendas y miembros del consejo, pueden ver, a través de ellos mismos, como las ideas han resultado en la práctica.

Aunque el trabajo principal del grupo de desarrollo está en los proyectos, hay otras actividades relacionadas igualmente importantes a cargo del grupo. Boletines han sido producidos sobre aspectos tan variados de la vivienda como paisajismo, servicio de los apartamentos, dimensiones para los elementos componentes y requisito de espacio en los hogares. El grupo está representado en varios comités, tales como la Institución Británica de Normas y grupos de trabajo coordinadores. Han sido realizados trabajos de desarrollo detallados con componentes, tales como los lavatorios y la escalera. Miembros del grupo enseñan y sirven en jurados en las Escuelas de Arquitectura.

Todas estas actividades y los proyectos son interdependientes. Solo trabajando en proyectos, puede el grupo encontrar que información es necesaria y en que forma. Solamente construyendo proyectos puede el grupo comprobar si sus ideas son factibles, física y financieramente y, solamente al examinarlos puede ser descubierto si las ideas funcionan en la práctica para ambos, los ocupantes y la administración.

Desde la formación de los Grupos de Investigación y Desarrollo en 1960, la experiencia de un proyecto ha sido transmitida y desarrollada aún más con el siguente. Los estudios de las necesidades de la mayoría de los tipos familiares, y la experiencia técnica ha sido ganada a traves del desarrollo de los sistemas, 5M y 12M. Esta acumulación sistemática de conocimientos sobre la totalidad de los problemas habitacionales, es la característica mas importante del trabajo de desarrollo, pero todavía quedan muchas brechas por ser llenadas antes de empezar un nuevo ciclo de trabajos.

Más conocimientos son necesarios, especialmente acerca de los trazados urbanos de vivienda y la necesidad de componentes intercambiables, que por sistemas completos de construcción. Ambos están siendo investigados en el próximo proyecto (en Oxford).

4

A need was seen to increase productivity for welfare buildings in general, and as a contribution to this need the group decided to use a light framed system of construction for the flatlets to see whether it could be built more quickly than by traditional methods and at no more cost. Because time was limited, it was decided to build on existing experience and take advantage of the existing programme and purchasing arrangements by adapting the 10M (3ft 4in) CLASP system of steel framing.

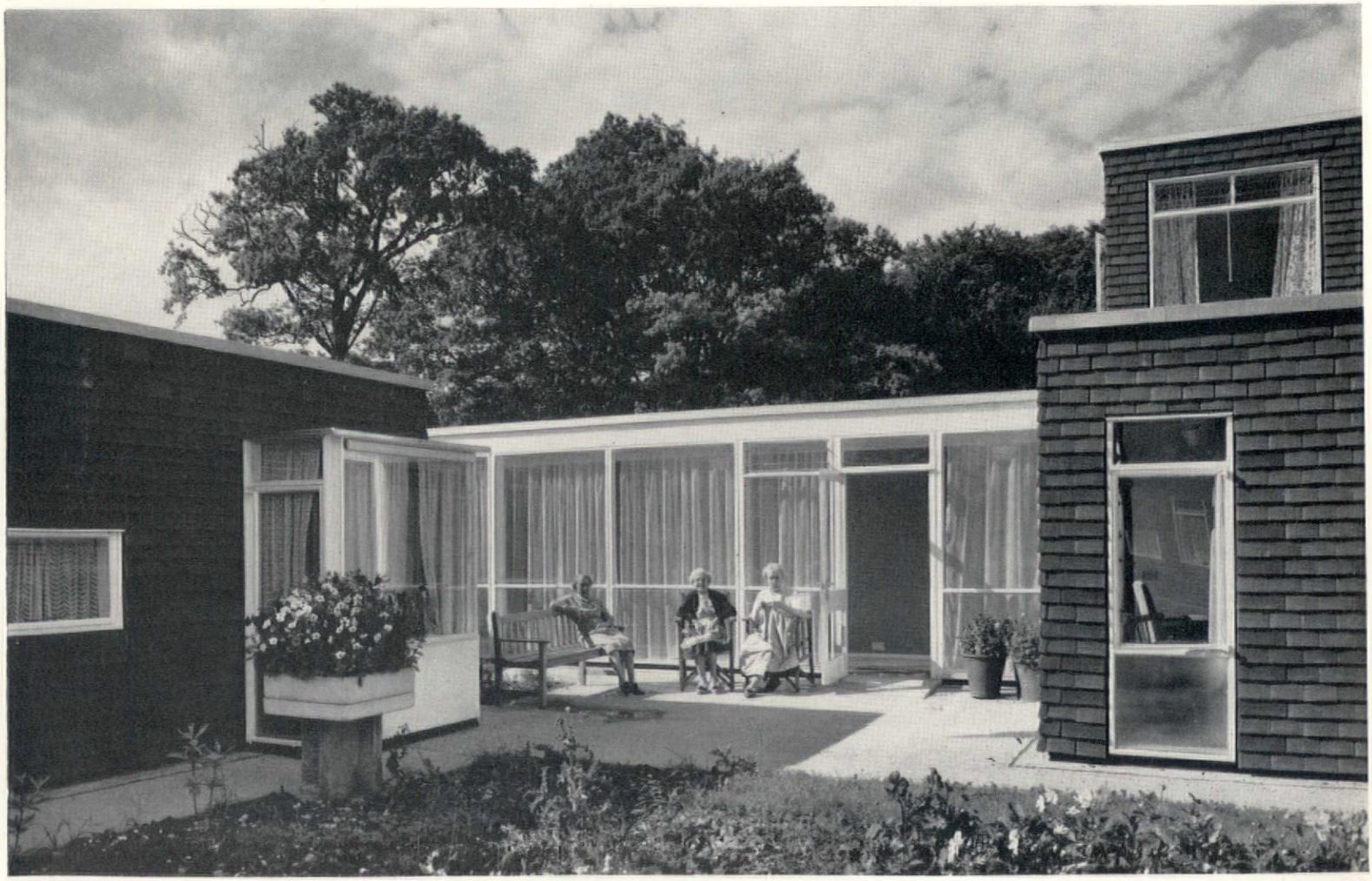
The maximum span which would be needed was fixed at about 17ft and this made it possible to reduce the structural depth of upper floors and roof and so make a saving in cost.

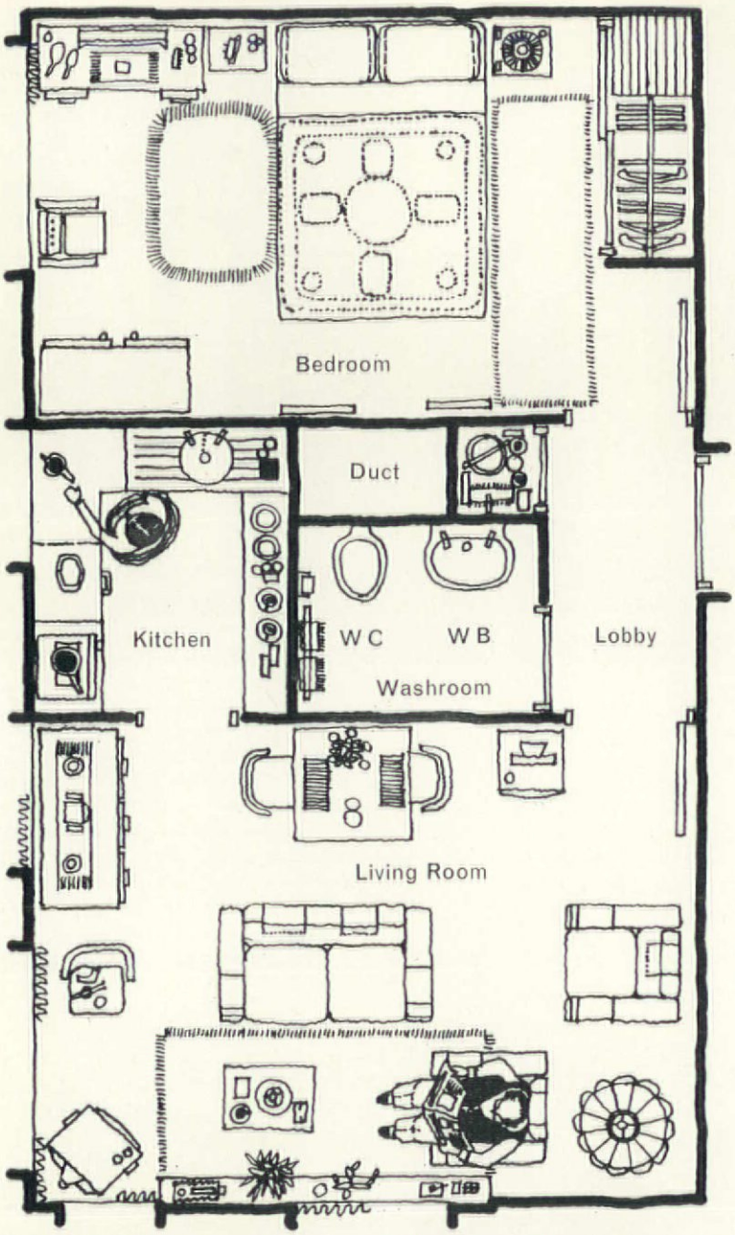
To suit the smaller spaces of the flatlets, while still keeping the system compatible with CLASP, the structural grid was halved to 5M (1ft 8in).

A party floor was developed with sand pugging and a finish of boarding on battens on quilt to give sound insulation of Grade II or better.

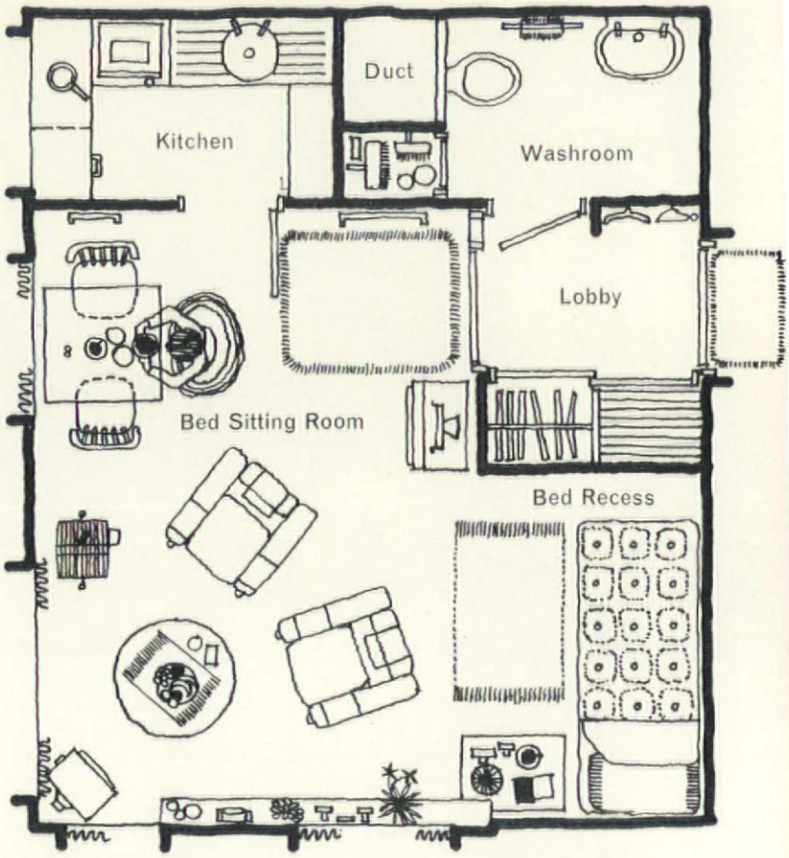
The party walls are of two skins of concrete block since there was no alternative which would give the performance required at a suitable cost. Work was therefore started by the group on alternative methods in dry construction and lighter in weight.

5





Plan of a one-bed, two-person flatlet showing the anticipated furniture layout, based on an inventory compiled from items seen most frequently in existing flatlets.



Plan of a bed-sitting room showing the anticipated furniture layout based on an inventory compiled from items seen most frequently in existing flatlets.

Appraisal

The Stevenage appraisal was carried out jointly by sociologists and architects. Information was gathered from interviews with the tenants, physical measurements of heating and lighting and observation of the use of the building. The project is only one solution to the problem of housing the elderly and the sample was small, but nevertheless a useful insight was gained into problems of general interest.

Tenants liked the flatlets because they were compact, convenient and easy to clean. The central heating with no grates to clean, was mentioned spontaneously by more than one; other comments concerned the nice people, the bay window, the sunny aspect, the ideal little kitchen, the quiet, the nice view, the well-designed stairs and the sitting places.

Typical comments

It's like living at the Savoy, nice and select, everyone is so nice! I'm lucky to get here.

Used to more space in Africa.

Washing machine:

Couldn't concentrate to use the machine—always done it at the sink.

Grouped bathrooms:

It's a funny idea old people walking all down there with towels over their arms.

Shower:

I didn't want to drown myself.

Under floor heating:

Thought my bed was on fire . . . had to go outside to cool off.

Group living:

Young and old don't mix.

You have things in common.

Old people talk of aches and pains. Young ones keep you young.

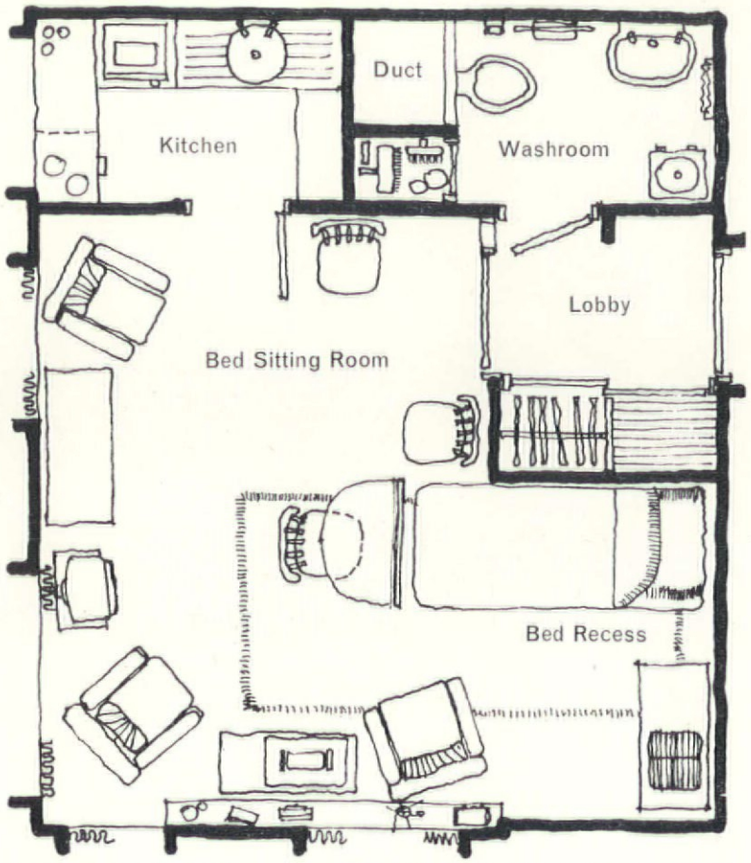
The two lowest drawers were blocked so as to avoid undesirable bending. They were however frequently opened up to provide sorely needed additional storage. Additional shelving and cupboards were added in many cases.

The low window, provided to give views from a sitting position, was often obscured and the light fitting above of little practical use.

Silly position for a window, can't see out when I am standing. When else could I use it.

Only one wall plane can take bulky pieces of furniture, such as sideboards, needed for general storage and sentimental associations.

Dining tables are usually placed in the middle of the room.



Plan of a typical bed-sitting room recorded during the appraisal survey, indicating some of the problems of anticipating furniture layout in relation to windows, electric sockets and the emergency bell cord.

Over 50 per cent of the beds were not in the anticipated position, which could not accommodate some of the bulky dressing tables seen. The emergency bell push and bracket light points were consequently of limited practical use.

Never had my bed near a window.
Doctors orders.
Away from the draughts.

Accommodation provided

20 bedsitting-room flatlets
BSR—166ft²
K—27ft²
B Recess—38ft²
W.C. and basin—10ft²

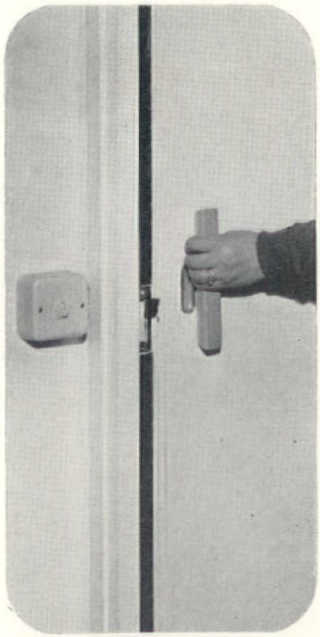
4 one-bedroom two-person flatlets
LR—151ft²
BR—127ft²
K—38ft²
W.C. and basin —10ft²

Programme

Investigation and design period:
February 1960–August 1961
Construction period: October 1961–June 1962.
Appraisal: December 1963–January 1964.

Publications

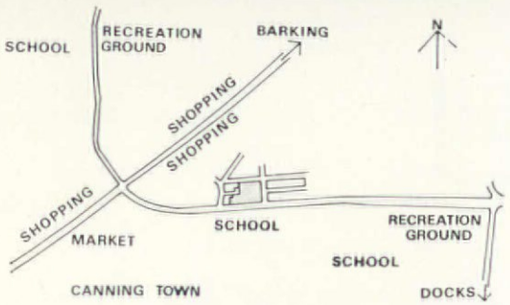
Design Bulletin 1. *Some Aspects of Designing for Old People*
Design Bulletin 2. *Grouped Flatlets for Old People.*
A project bulletin complete with the appraisal will be published shortly.



One aspect of the findings: recessed door fittings are difficult for arthritics to manage

Another aspect: furniture is rarely of the type envisaged

1



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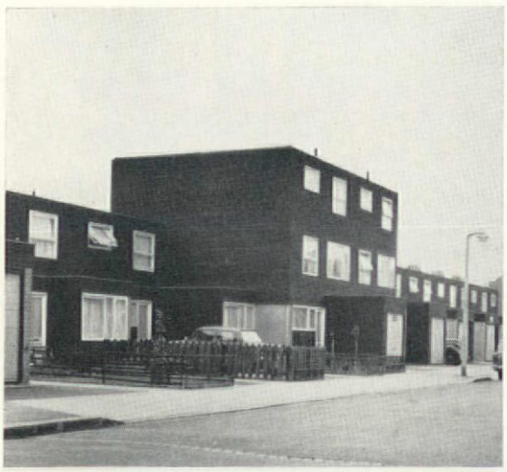

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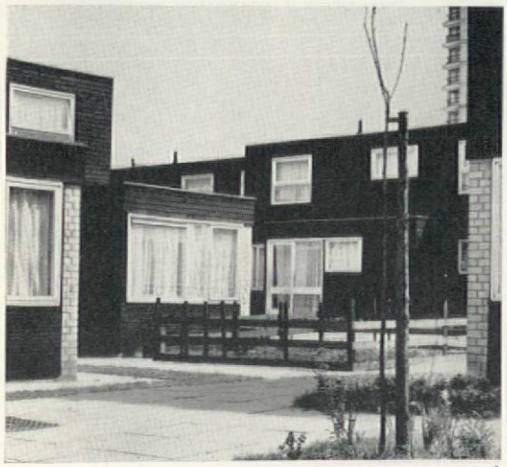


4

West Ham housing

For Borough of West Ham (now Newham)
Borough architect: T. E. North

The aim was to investigate recommendations in the Parker Morris Report *Homes for To-day and To-morrow*, by applying them to a local authority scheme of family houses. Within the dwellings to provide the higher standards of space, heating and flexibility and in the layout to combine adequate provision for cars with safe and suitable places for children to play.

The site of 2·5 acres at Ravenscroft Road, was occupied by temporary bungalows and surrounded by streets of substantial Victorian houses which are likely to remain for many years. A very busy, noisy and dirty arterial road forms the southern boundary.

There are corner shops and schools nearby, but the nearest public open space is a quarter of a mile away on the other side of an arterial road.

Accommodation was required at a density of approximately 80 persons per acre with a mixture of 30 per cent 4-person houses, 40 per cent 5-person and 30 per cent 6-person.

In order to develop the brief, a survey of a random sample of 39 families with young children in West Ham was carried out jointly by architects, sociologists and administrators.

Design studies to investigate the new freedom given by the Parker Morris Report were made at the same time.

The main points which emerged and which gave the team a clearer picture of the people they were designing for were

most of the men were locally employed manual workers

a large proportion worked in the docks

many of the wives had jobs

family incomes were relatively high

shift work, and therefore varied hours and mealtimes, was common

ownership of mechanical equipment was high

there was a need at some stage in the family cycle for a separate bedroom for each child

two living spaces would allow for a wider range of simultaneous activities by different members of the family

when the family decreases in size it would be useful if some of the sleeping area could be used to provide larger bedrooms and increase the living space

small private gardens opening onto a larger central children's playspace would be acceptable

parking space for each household with approximately 50 per cent garages would be needed.

It was decided not to incorporate any major structural innovation in this project. A combination of load-bearing brick with timber posts and beams was chosen to give the flexibility and the variation of first floor plan shape in relation to the ground floor which was required by the group's interpretation of the Parker Morris recommendations. A system of demountable partitions was developed to meet the need for flexibility in the house plans which were produced. Fan-assisted electric storage heaters were used and units were developed in collaboration with a manufacturer who was already working on the same idea.

Thirty-nine houses were grouped around a half-acre communal green. The open space is accessible from the private gardens and a wall was built alongside the arterial road making the space completely safe for children to play. Two basic house types were developed—the medium frontage Z-type for use with road access away from the arterial road and the wide frontage P-type for use with pedestrian access and having bedrooms facing away from the noise of the arterial road.

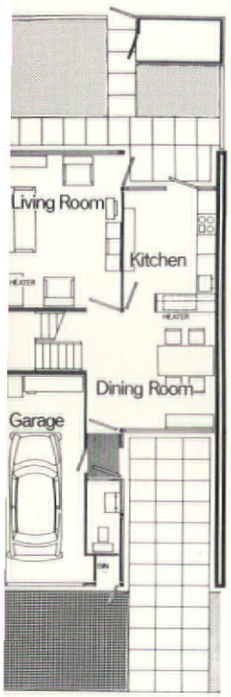
1
Overall view of West Ham development

2
Location plan

3
Street view

4
A pedestrian finger, giving access to houses backing onto the main road

5



4Z

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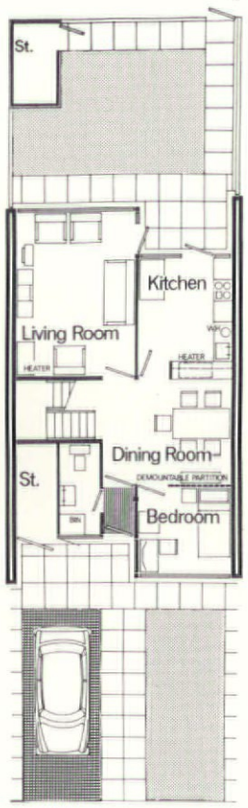
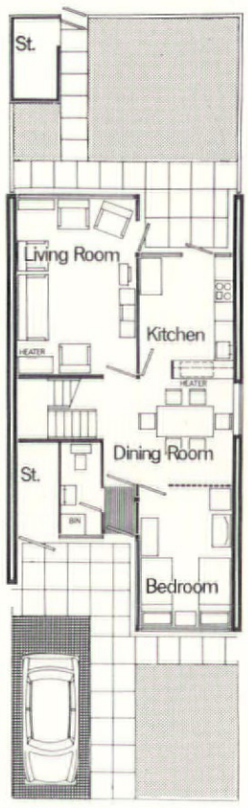


5Z

7



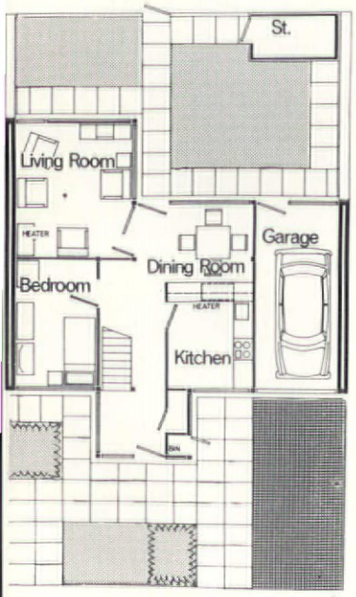
6Z

8

6Z3

4P

5P



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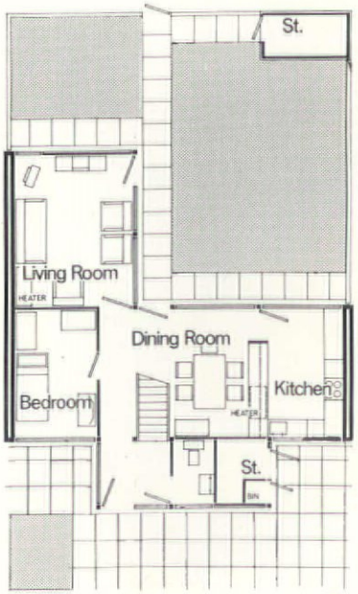

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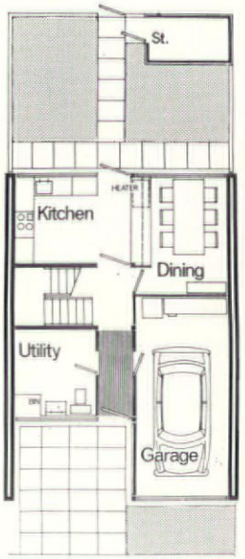


11

Accommodation

5
House type Z
4 persons
no. off 8
area 886ft² (2 floors)
Parker Morris area
800+50ft²

6
House type Z
5 persons
no. off 3
area 960ft² (2 floors)
Parker Morris area
910+50ft²

7
House type Z
6 persons
no. off 8
area 1010ft² (2 floors)
Parker Morris area
990+50ft²

8
Upper floor of Z type houses

9
House type P
4-person house
no. off 3
area 850ft² (2 floors)
Parker Morris area
800+50ft²

10
House type P
5-person house
no. off 13
area 917ft² (2 floors)
Parker Morris area
810+50ft²

11
House type Z
6 persons
no. off 4
area 1215ft² (3 floors)
Parker Morris area,
1,050+50ft²

Appraisal

The appraisal was carried out when the houses had been occupied for over a year. As at Stevenage it consisted of a sociologist's interview with the housewife and an architect's assessment of the structure and interior layout. In addition, a number of housewives kept diaries of their activities in the home, technical questions and records were verified by measurements of heating performance, sound insulation, and daylighting and time-lapse photography was used to obtain a clearer understanding of activity in the central open space.

The private gardens varied in size from 248 to 520ft². Housewives who had the smaller-sized gardens commented on their inability to carry out many of the activities they would have liked to do in this space. Generally gardens of less than 300ft² were found to be inadequate for such activities as drying, washing, growing flowers, sitting out and for young children to play in.

The close relationship between the private gardens and the open space resulted in loss of privacy in the former. It had been decided to provide a 3ft high fence and leave any other privacy screening to the tenant. The untidiness of trellis work where this had been done points to a different approach on future projects.

The smallness of the open space and the lack of a larger open space nearby contributes to the intensive use of the area by children of all age groups on the site and by other children who are brought or who climb in over the wall.

Because the open space was safe for children to play in, it was also safe for dogs. Their presence played havoc with the landscaping and caused trouble for the parents of younger children. The play equipment provided was satisfactory for the age groups intended but has suffered from use by older age groups who lack local outlets for their energy. At the present time only about one-third of the larger trees and shrubs planted initially have survived, showing that more adequate protection is needed in the early years and that more money is needed for landscaping and maintaining areas which receive such intensive use.

Comments on the open space

It is nice if used for purpose intended—otherwise a waste. (4Z)

I like the common but it's not looked after very well. (6Z)

I like it: my boy likes to get out there and I know he can't get on the road. He likes the sandpit. (5P)

There should be a set of rules for using and a rota for cleaning.

Dogs should not be allowed on back. There should be someone to sweep it up now and again. Fence round lawn to keep it decent. (6Z3)

Should have caretaker, but rent would presumably go up again. Kids are destructive—benches moved, trees pulled out. (6Z3)

The swings should be in the middle . . . then everyone will have a fair share of noise. (5P)

Climbing frame badly positioned—too near main road and not visible from houses. (4P)

Birds mess up climbing frame. Sandpit is untidy. My daughter uses the swings. (5Z)

Density

80 bedspaces per acre.
16 houses to the acre.
Average household size: 5·0 bedspaces.

Programme

Contract period March 1963–February 1964.
Appraisal Winter to summer 1965.

Publications

Design Bulletin 6, *Space in the Home.*
A project bulletin complete with the appraisal will be published shortly.

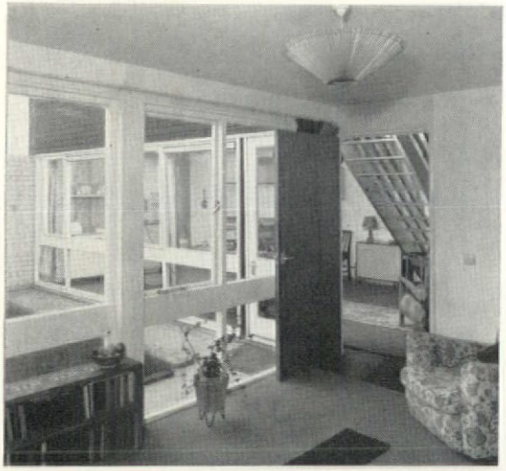
1
Two living spaces

2
Kitchen dining/living relationship

3
Supervision of private open space from kitchen

Photos: 1 & 3 Crown copyright (Min. of Defence)

1



2

3

Story of the open space

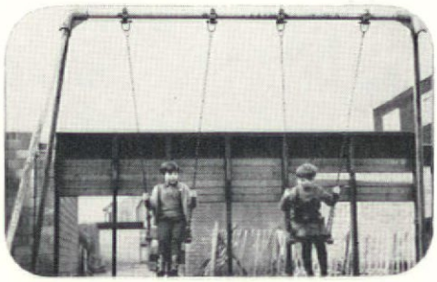
The site is bounded by a busy arterial road to the docks—a brick wall cuts the housing off from this . . .

houses surround the enclosed open space on the other three sides—play equipment spaced apart to encourage movement from place to place. A sand pit with a sliding lid . . .

Crown copyright

requiring supervised operation . . .

swings, with a wooden screen wall, which is now used for adventure play . . .



a climbing frame which is faring well but which provides a platform for throwing things at passing trucks. . .

there are paved areas provided for 'imagination' games . . .

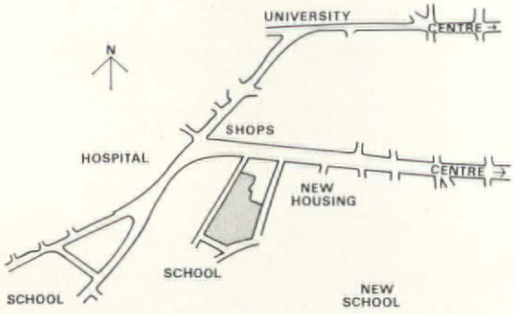
it was anticipated that football for the whole neighbourhood would take place in the park, but this is on the wrong side of the main road, and a quarter of a mile away . . .

protection was necessary for the landscaping . . .

trellises were necessary to protect the private gardens from balls and to give privacy . . .

control was introduced . . .

resulting in older children playing ball games in their traditional place

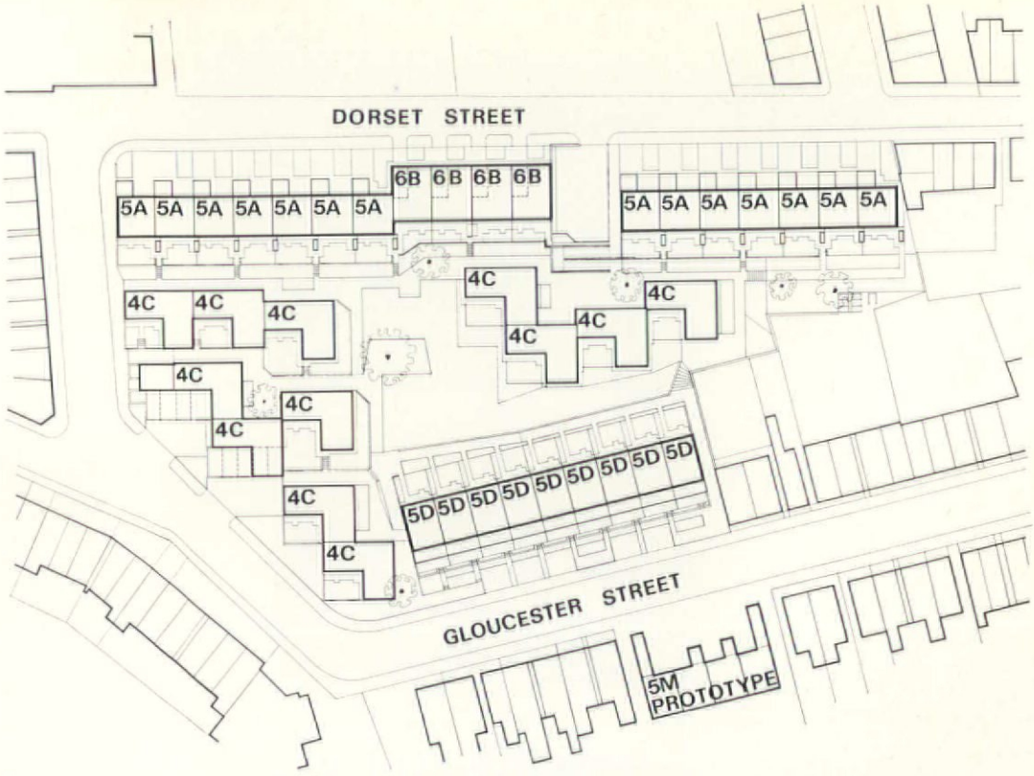


1

Sheffield housing

For Sheffield City Council

Former chief architect: J. L. Womersley



2

In this project the emphasis of development was on the technical side. It was decided to see whether the 5M CLASP system of construction used at Stevenage could be used for local authority housing with its lower cost levels. Development on the planning side aimed to continue work on the recommendations in the Parker Morris Report, using the information gained and the ideas developed during the West Ham project.

A small slum clearance site of 2·3 acres, half a mile from city centre and convenient for local shops, schools and public transport was allocated. Minor residential roads are on all sides, with Victorian housing which is due for redevelopment in the near future. The site is steeply sloping with fine views over the Don Valley to the hills beyond. There were several mature trees on the site which were good enough to retain.

Since the proposed tenants in Sheffield were different in a number of ways from those at West Ham, the group carried out a survey of families living in post-war housing in Sheffield. Many of the houses chosen had space and heating standards close to the minimum recommended in *Homes for Today and Tomorrow* and they contained unconventional design features, such as bedrooms downstairs.

The survey showed that design innovations would be welcomed readily by the tenants:

four-person houses were likely to be under-occupied and should have space standards closer to the Parker Morris minimum than the six-person houses which were likely to be over-occupied

two living-rooms would be required—one free from through circulation and one close to the kitchen and large enough for other activities as well as dining

the dining/day room in larger family houses would be used for meals for many hours during the day and should therefore be free from through circulation and not part of the entrance hall

▷390

3

4

Accommodation

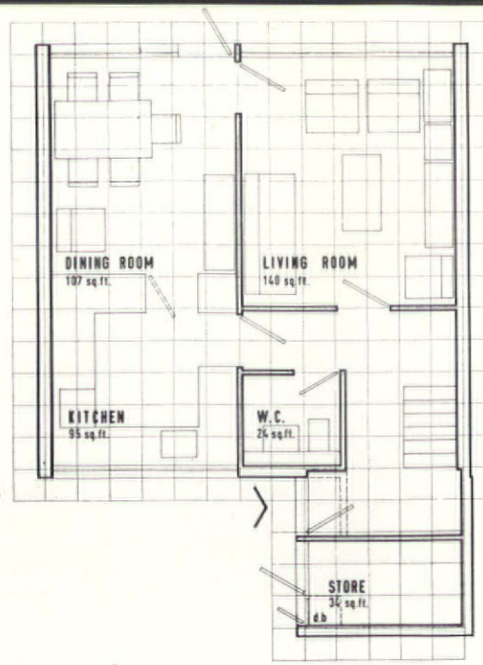
House type 5A
5 persons
no. off 14
area 910+50ft² store
Parker Morris area 910+50ft² store

House type 6B
6 persons
no. off 4
area 998+223ft² garage and store
Parker Morris area 990+50ft² store

House type 4C
4 persons
no. off 9
area 810+51ft² store
Parker Morris 800+50ft² store

House type 5D
5 persons
no. off 14
area 910+70ft² store
Parker Morris 910+50ft² store

1
Location plan
2
Site plan
3
View along the road at the top of the site
4
Central open space
5 & 6
Ground and first floor plans of house type 5A
7 & 8
Ground and first floor plan of house type 6B
9
Plan of house type 4C
10 & 11
Ground and first floor plan of house type 5D



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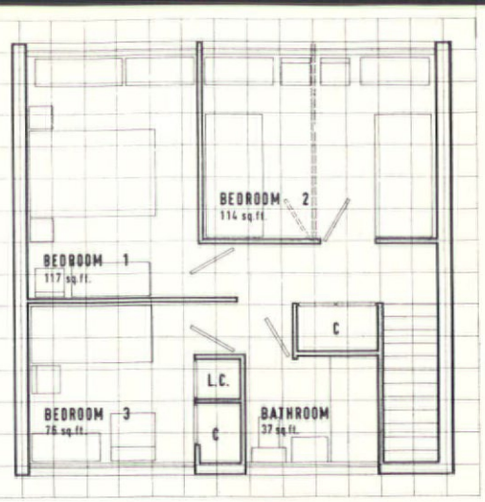

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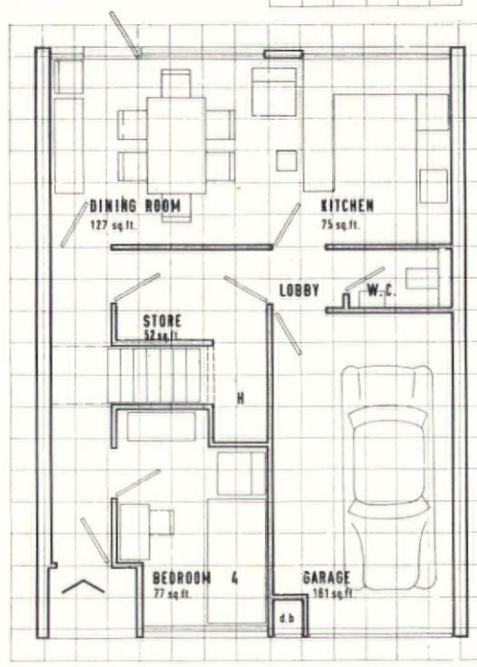

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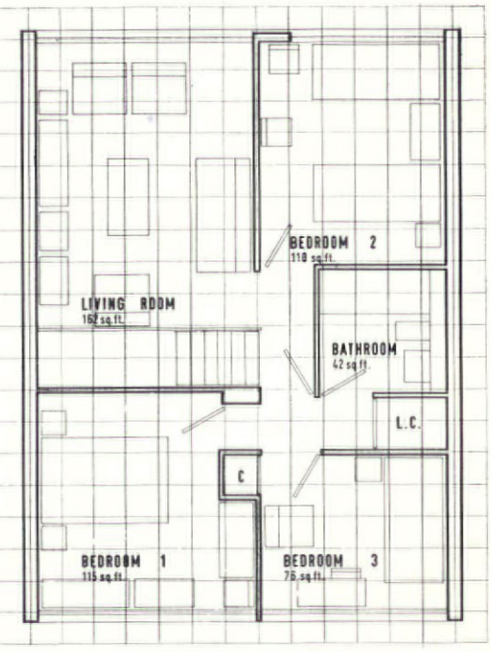

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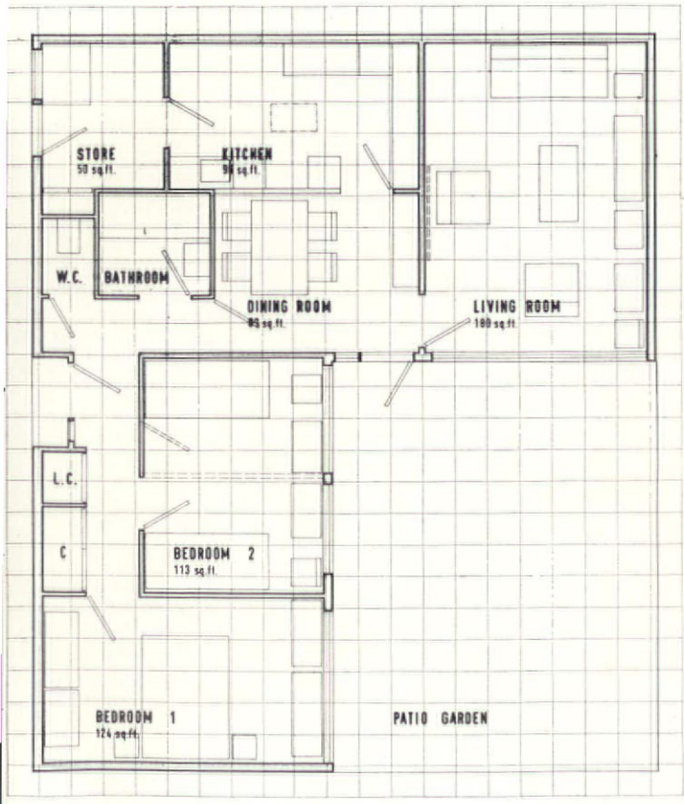

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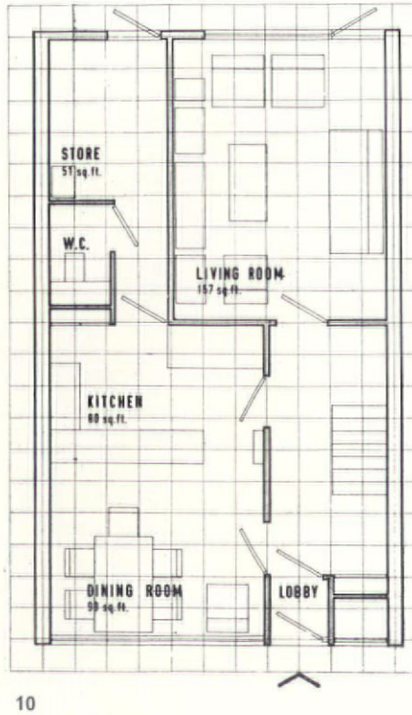

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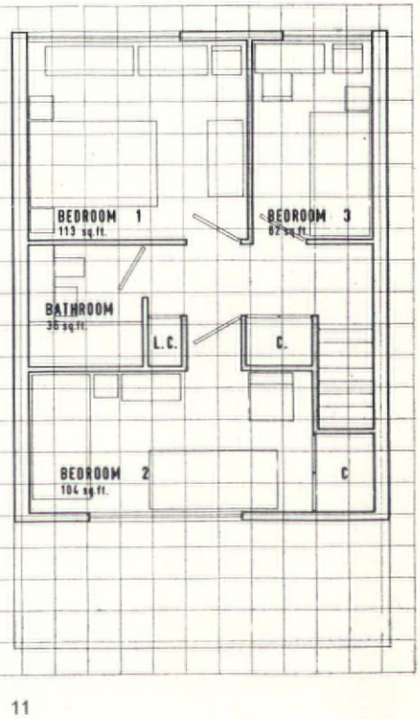

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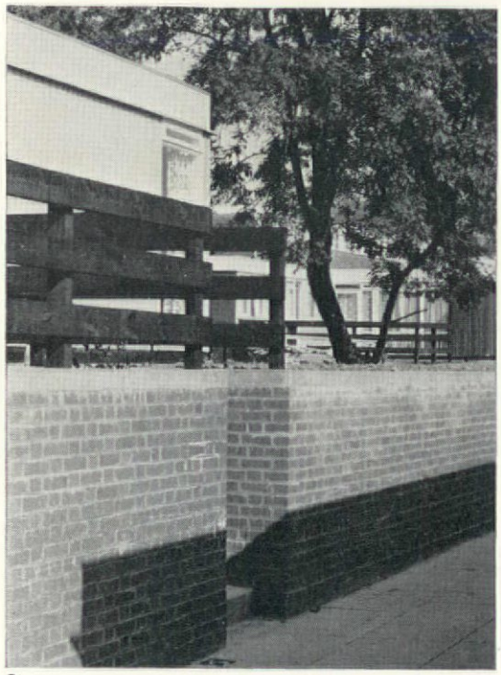
1



2

Programme

Contract period October 1963–October 1964.
Appraisal June 1966.

Density

80 persons per acre, 17 houses per acre.
Average family size 4·8 persons.

Publications

5M Design Guide.

5M Technical Handbook.

A project bulletin will be published shortly.
An appraisal bulletin will follow later.

3

◁388

an upstairs living room would be acceptable if it had a special feature such as extensive views and if the other living room were situated on the ground floor

a sub-divisible double bedroom would be required for all four-person houses and for most of the five-person

parking space would be needed for each household with 30 per cent grouped garages initially and additional parking for visitors

tenants would want private gardens, but the size they would like would vary considerably

gardens and living rooms should preferably be placed to receive afternoon sun

all gardens should have direct access to a safe central playspace as at West Ham.

In order to establish the feasibility from the cost point of view of using 5M CLASP for housing, the 5M CLASP components were applied to the West Ham scheme and costs prepared. From this it was clear that further development work would be required to reduce costs.

The system evolved became the 5M housing system and its general aims were to:

allow architects to produce a wide range of plans to meet varying user requirements and site conditions and be suitable for medium density layouts

reduce site work by increasing factory operations

be comparable in cost with traditional building on the basis of a minimum programme of 1000 houses per year

In addition to the simplification of the structure, development work was carried out in order to produce a lightweight, dry substitute for the brick party wall. Several alternatives were tested in a mock-up building and in the prototype houses before a solution using plaster board and a curtain of fibreglass was reached.

Thirty-nine houses were eventually built around a communal open space.

Two types of medium frontage houses, with both living rooms looking over the valley, were sited at the top of the slope and another narrow frontage type, with a living room on each side of the house, was developed for the different access, orientation and prospect conditions at the bottom.

Single-storey patio houses with pedestrian access only were developed for the S.E. corner to obtain the best orientation, direct access to the play areas and to avoid obscuring views from the houses higher up.

All the houses have a more economical plumbing layout and simpler superstructure shapes than those used at West Ham.

1
View into the site from the road at the bottom

2
Relationship of private gardens to pedestrian ways

3
The kitchen/dining room relationship in a fully furnished 6B house

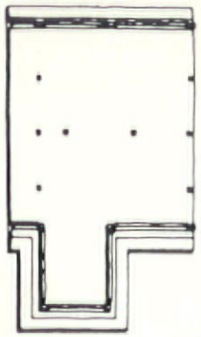
'B' PROGRAMME

5M programme

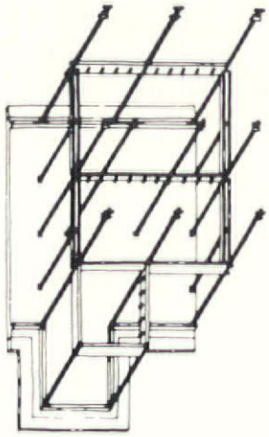
In order to further the Ministry's objective of increasing the use of industrialized techniques for housebuilding, and because it is an essential aspect of system development, the group continues to assist housing authorities using 5M.

Two handbooks have been produced—the first is a general introduction to the system for laymen and architects and gives the information necessary up to sketch plan stage, the second is a handbook which with the component drawings contains all the information necessary for architects and quantity surveyors who are actually using the system. Stick-on assembly details and standard schedules have also been produced for use with job and layout drawings to help speed the production of working drawings and contract documents.

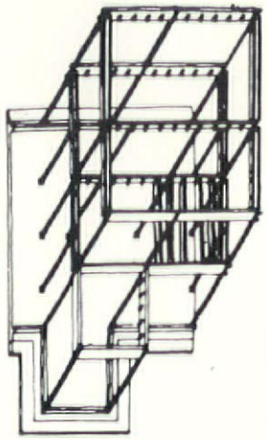
In addition to the feedback on site experience received from the Public Works Department at Sheffield, the Building Research Station have been making measurements on site of the actual man-hours expended.



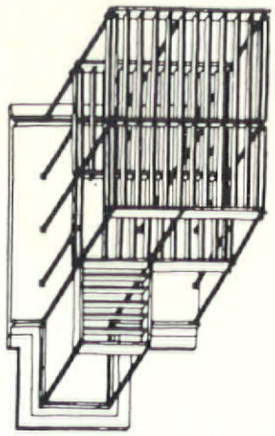
1 A lightly reinforced concrete slab is laid on hardcore over ground consolidated with a vibrating roller.



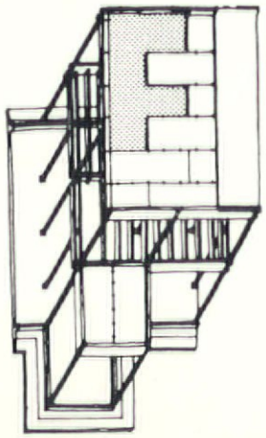
2 Steel stanchions are erected and are connected together by timber beams at first floor level.



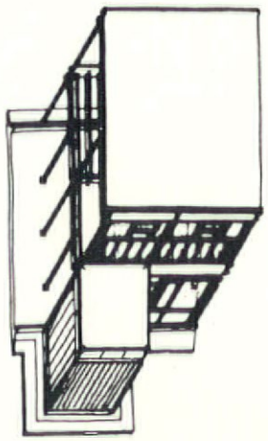
3 Using the first floor beams and some joists as a platform, the roof beams are connected to the stanchions.



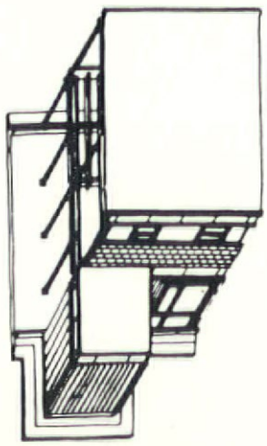
4 The remaining floor joist and roof joists are slotted onto the joist hangers on the beams.



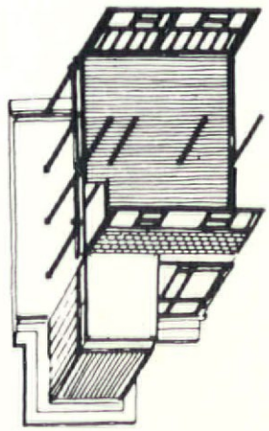
5 The roof is covered with an insulating quilt, plywood decking and asphalt with chippings.



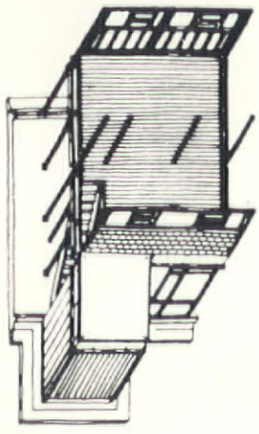
6 Timber cladding frames, boarded panels and windows are fixed between beams.



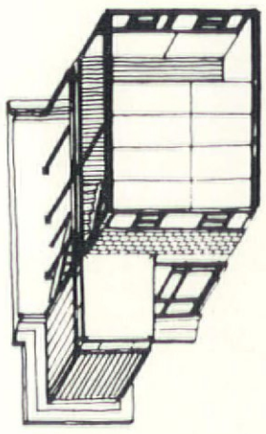
7 An insulating quilt, tiles and battens, concrete and asbestos claddings are fixed to the external wall frames.



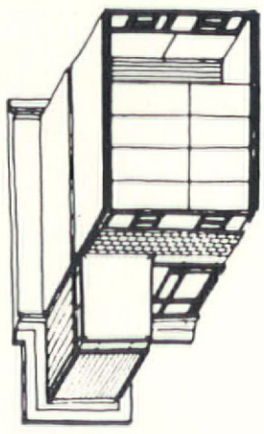
8 The first floor is boarded out.



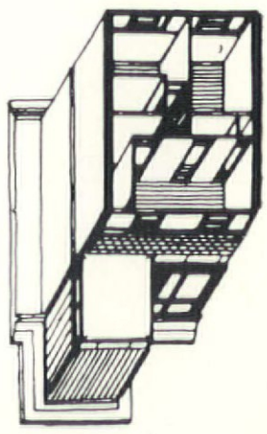
9 The staircase is fixed.



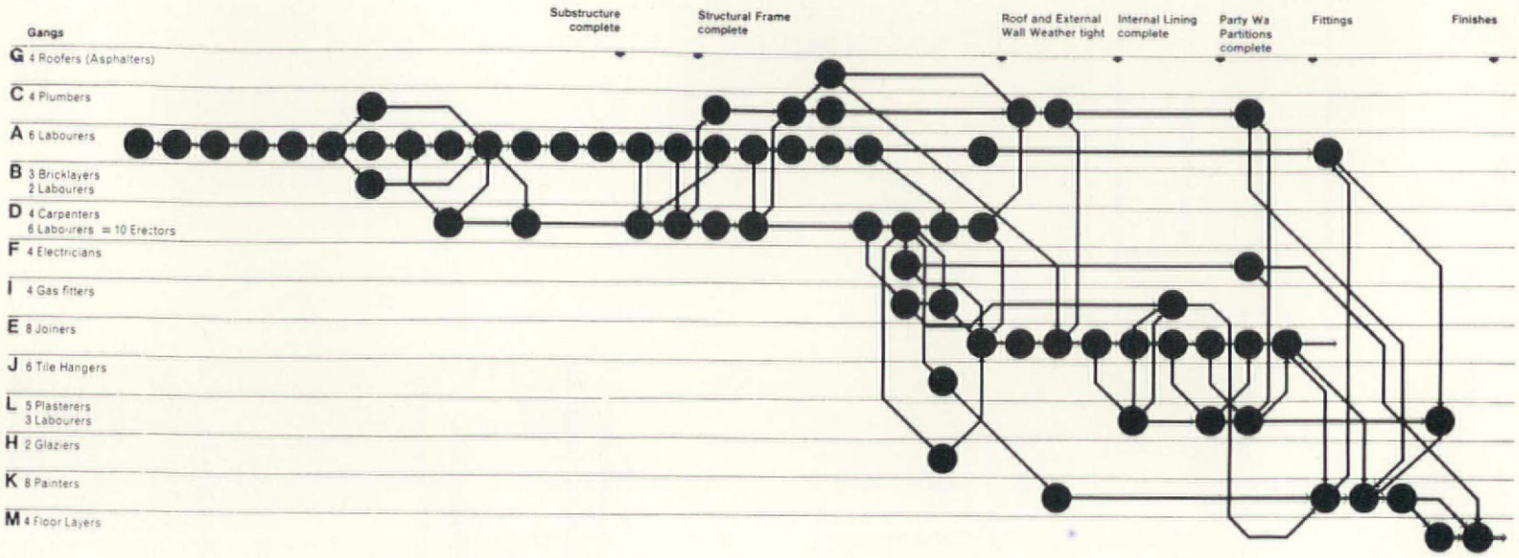
10 Ceilings and external walls are lined out with plasterboard.



11 The two leaves of the plasterboard party wall panels are fixed and a glass-fibre curtain hung in the cavity.



12 Stud partitions, with a plasterboard finish are fixed and internal doors and frames are placed in position.



1

Following the prototype and pilot schemes at Sheffield, 14 authorities have built or are proposing to build schemes, and over 20 house types have been developed. Those schemes already completed show a 10 per cent reduction in cost compared with traditional construction and a saving of 20–50 per cent of site man-hours.

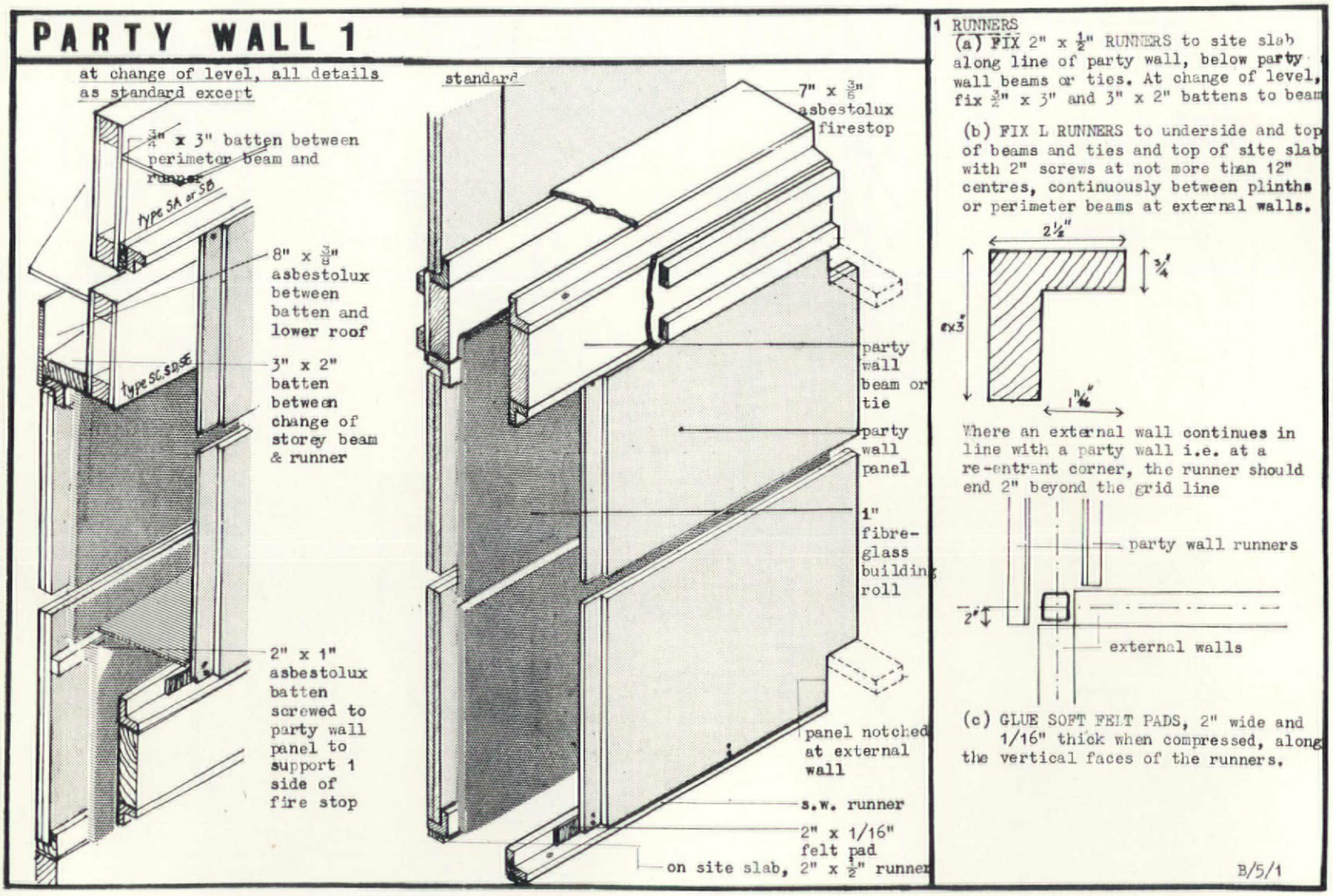
The first programme—the 'A' programme—consisted of 850 houses for the Yorkshire Development Group, the army at Catterick and two smaller schemes for York University and at Ashford in Kent.

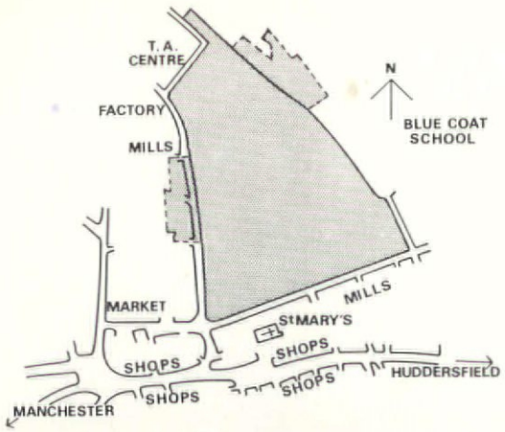
The 'B' programme incorporates detailed modifications; in particular the number of components in the external wall has been reduced and the details simplified, and nearly 3,000 houses are currently proposed during the next three years. Further minor modifications are being made now that the first contract in the 'B' programme at Southend is complete.

1
Operation network diagram showing the sequence of erection

2
Working drawing of party wall—a standard stick-on detail

2





Location plan

Oldham slum clearance

For the County Borough of Oldham

Chief architect: T. Cartlidge
with Max Lock & Partners

The site is 16·12 acres on Lord Street, near the middle of an area of 300 acres immediately north of the town centre, for which Max Lock & Partners were commissioned to make recommendations for comprehensive renewal. A survey of conditions showed the existing houses to be the worst in the area and the group's project is the beginning of rebuilding which will take 10 years. The site is in an exposed position with a ridge and slopes of up to 1 in 8.

A survey of the people living on the site was carried out. This provided information on the general desire to be rehoused in the same area, incomes, the marked preferences in families with children for a house rather than a flat, the family size and age distribution, particularly the number of old people living on their own and the higher percentage of small families than in typical post-war local authority estates.

A second series of surveys was made of post-war high-density estates in Liverpool, Leeds and London to investigate the particular problems, such as children's play, drying clothes and noise, of this kind of development.

This information was summarized in a chart showing the percentages of each family size to be accommodated, the size of dwelling proposed for each, its area to Parker Morris standards, and the group's interpretation of possible locations for each type.

The main points for the brief which emerged from the surveys and design studies were:

to house the same number of people who were on the site originally in the same proportions of household size, using 38 per cent one-bedroom, 25 per cent two-bedroom, 37 per cent three-or-more-bedroom dwellings

to build to the standards recommended in *Homes for Today and Tomorrow*

no more than half the old people's flats should be one flight of stairs away from a level access

all the largest dwellings should be on the ground as they are most likely to have children

to make adequate provision for safe play by children of all age groups

one- to three-car parking provision would be required initially, with an allowance for one to one and space for visitors in the future

a proportion of one- and two-person dwellings would be occupied by old people and would need an emergency bell system connected to warden's or caretaker's accommodation

provision for indoor clothes drying.

The 12M system was developed by the group in collaboration with Ove Arup & Partners and John Laing & Son Ltd., who will be contractors for the system until the erection and supply of components can be opened to competition.

The aim has been to produce a system to:

use factory-made precast concrete walls and floors to reduce site labour requirements and speed up construction time

be suitable for relatively small and sloping sites and therefore suitable for use with mobile, medium weight (2½ tons) cranes

use components which combine standardization with planning flexibility

be suitable for one- or two-storey houses as well as low rise flats up to five storeys

be able to provide for vertical access to dwellings a floor above deck level

include a reasonable range of external gables, infill cladding panels, internal partitions and floor finishes

have a high degree of accuracy on walls and floors, obviating plastering and screeds

have exposed walls and floors with a 'U' value of 0·2 or better, party floors to give grade 1 sound insulation and party walls to give better than grade 1 sound insulation

allow for alternative forms of heating

be no more expensive than alternative methods of construction

be to the dimensions and performance standards recommended in the *Design Bulletin* No. 8 'Dimensions and Components for Housing'.

The structure which resulted from this brief uses factory-made load-bearing unreinforced walls 7in thick, 8ft 4in high, minus floor thickness and jointing allowances, and lengths of 4ft or 8ft. Gable walls have a standard inner load-bearing leaf and may have factory or site applied insulation and finish.

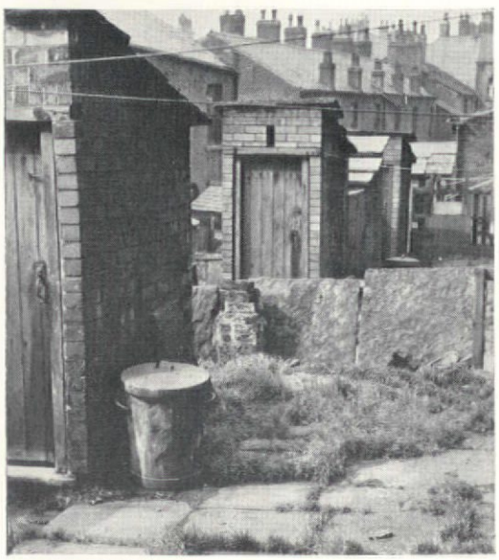
Reinforced floors are 7in thick, 4ft wide and lengths in multiples of 1ft from 6ft to 18ft. These are the standard components and additionally there are standard variants made in the standard mould, with inserts to form holes for ducts, etc.

Different methods of heating which were appropriate for a redevelopment project of this size were investigated. A coal-fired district heating system was finally adopted to meet all hot water and space heating requirements.

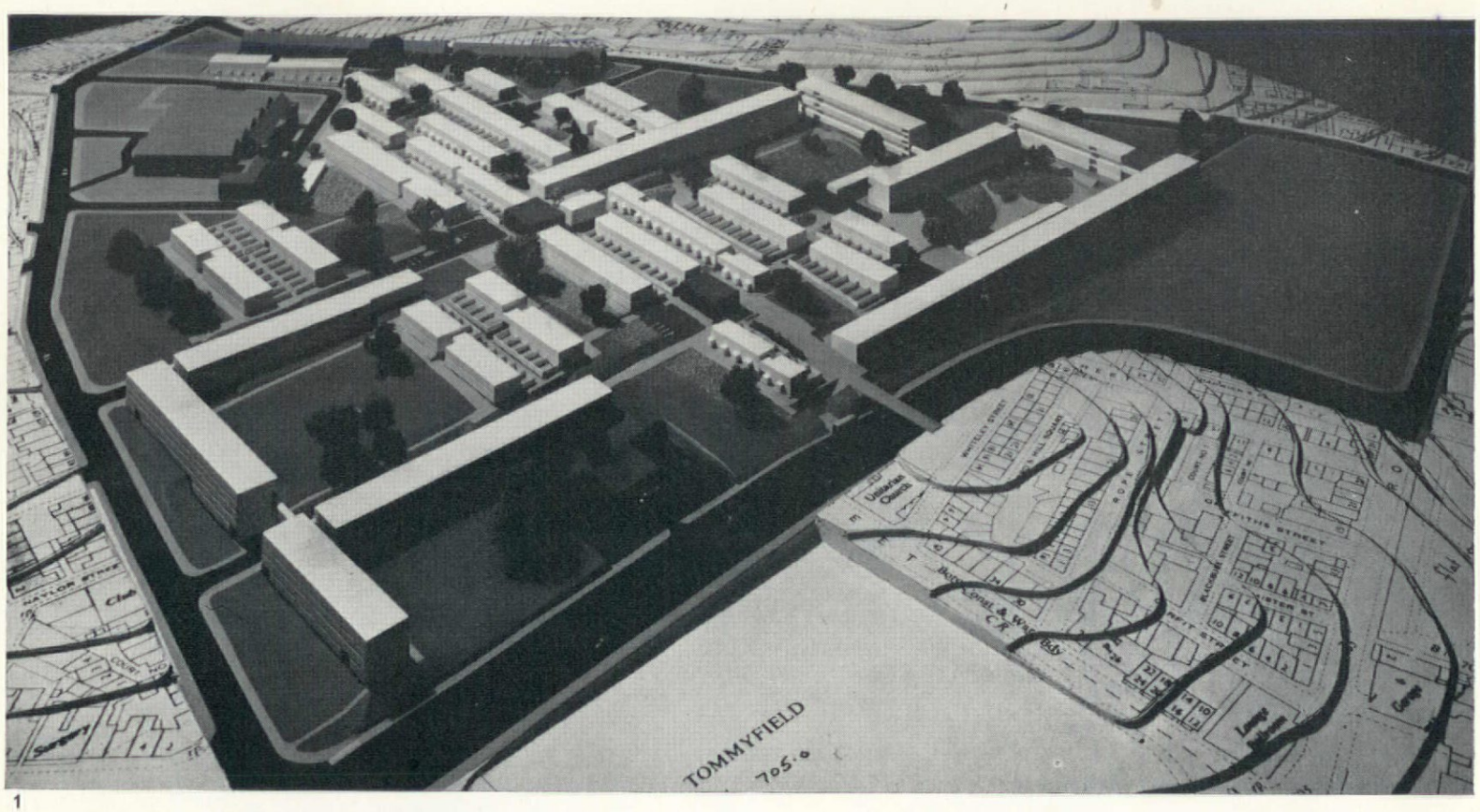
A prototype of four flats was erected to try out and, if necessary, modify the component parts of the system and their assembly. In addition, the prototype was used to show Oldham officers, and members of the public how it was proposed to redevelop the area as well as to show some of the possibilities of the 12M system to other authorities who might be interested in using it. 520 dwellings are being built; 35 per cent are in houses and the remainder are connected by covered decks at high level which connect with a central footpath system at ground level along the central ridge leading via local shops and pubs to the town centre.

A working party has been formed with architects and quantity surveyors from all the authorities using or planning to use the 12M system in addition to the development group, Ove Arup & Partners and John Laing & Son Ltd. This working party co-ordinates the way the system is used and the programmes and supplies. It also shares knowledge on alternative claddings, partitions, etc.

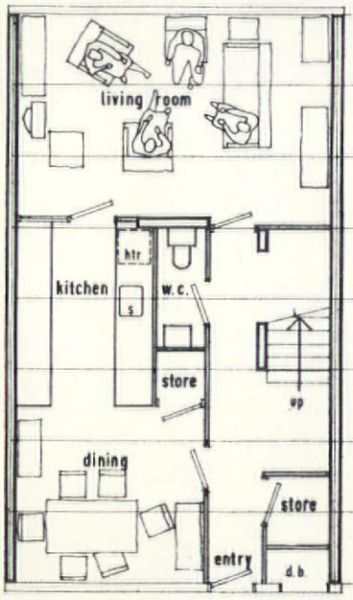
Backyards at Oldham



Housing at Oldham before redevelopment



1



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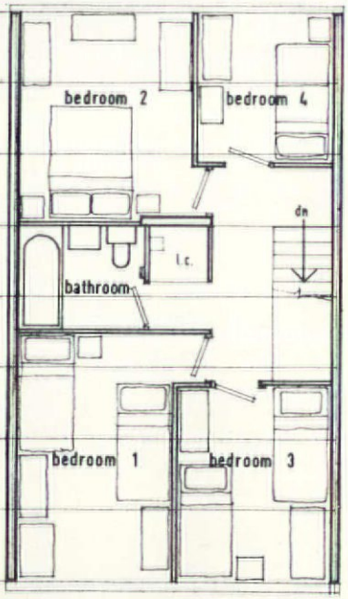

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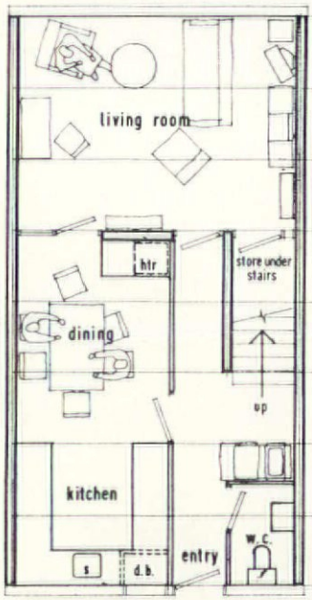

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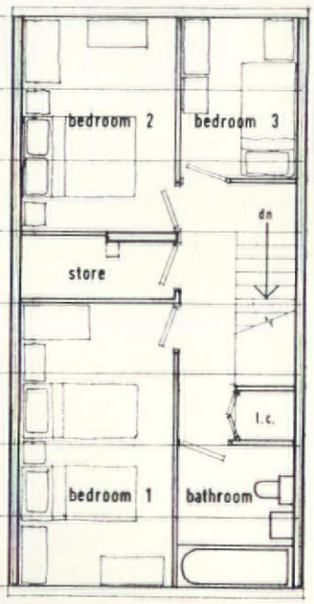

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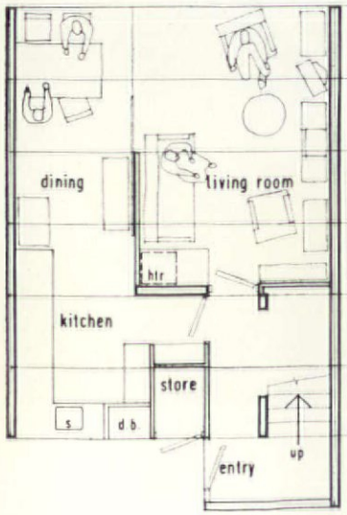
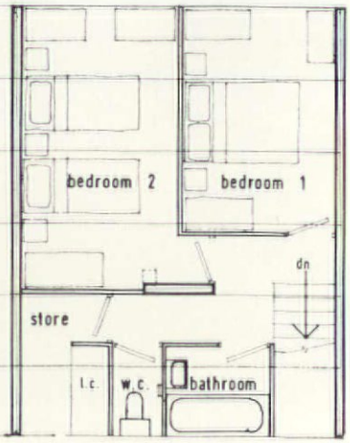
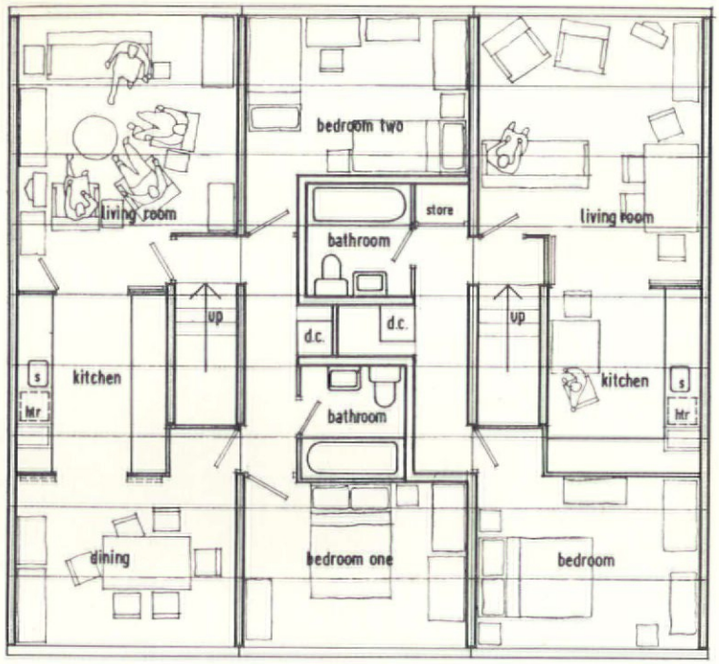




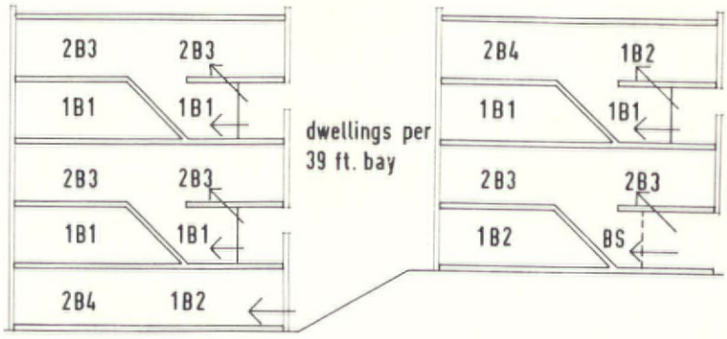
Accommodation

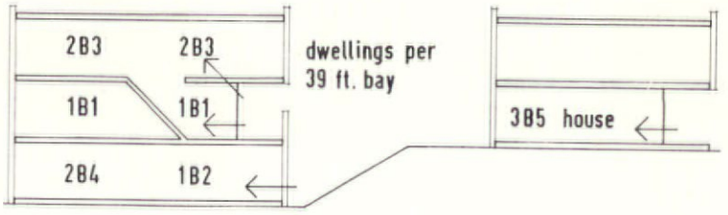
1
Model of Oldham redevelopment
2 & 3
Ground and first floor house plans
4 bedrooms, 7 persons
4 & 5
Ground and first floor house plans
2 bedrooms, 4 persons
6 & 7
Ground and first floor house plans
3 bedrooms, 5 persons
8
Flat plan: 3rd fl in 4-storey blocks
one 2 bdrm, 4-person flat, one 1 bdrm, 2 person flat
9
Flat plan: 2nd fl in 3-storey block
1st fl in 4-storey block
2nd and 4th fl in 5-storey block
10
Flat plan: gr fl in 4-storey block
one bedsitter, 1-person, one 1 bdrm, 2-person flat
11
Diagrammatic sections
12
Flat plan: on all deck levels
two 1 bdrm, 2-person flat
13
Flat plan: gr fl in 3- and 5-storey blocks
one 2 bdrm, 4-person flat
one 1 bedroom 2-persons flat

Variations on basic types are not illustrated
Total flats 338, houses 182
Photo: 1 John Laing & Sons Ltd.

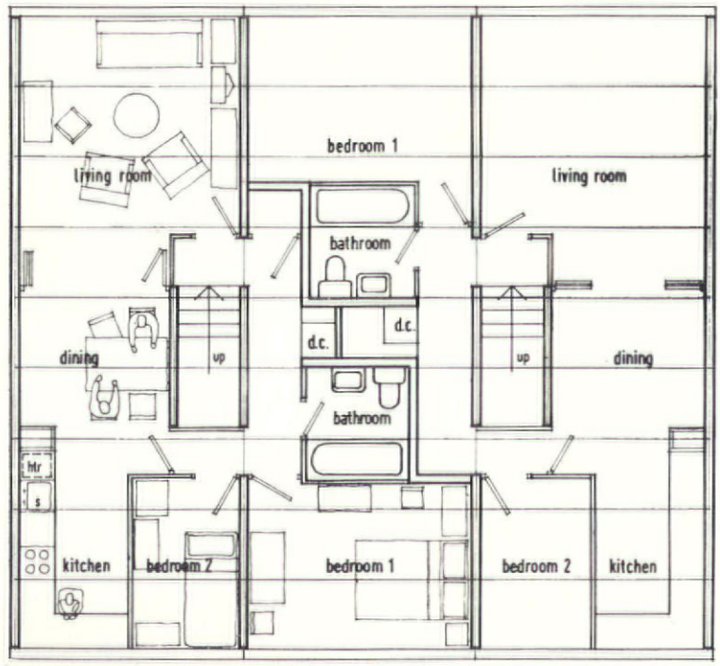

bedroom two
living room
store
living room
bathroom
up
d.c.
d.c.
up
kitchen
s
htr
kitchen
s
htr
bathroom
dining
bedroom one
bedroom

8

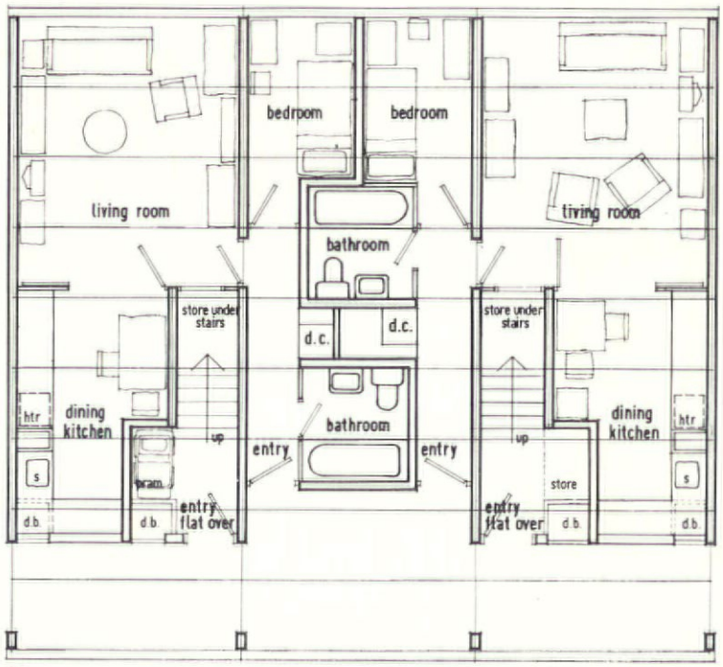

2B3
2B3
1B1
1B1
dwellings per
39 ft. bay
2B4
1B2
2B3
2B3
1B1
1B1
2B4
1B2
2B4
1B2
1B1
1B1
2B3
2B3
1B2
BS


2B3
2B3
1B1
1B1
dwellings per
39 ft. bay
2B4
1B2
3B5 house

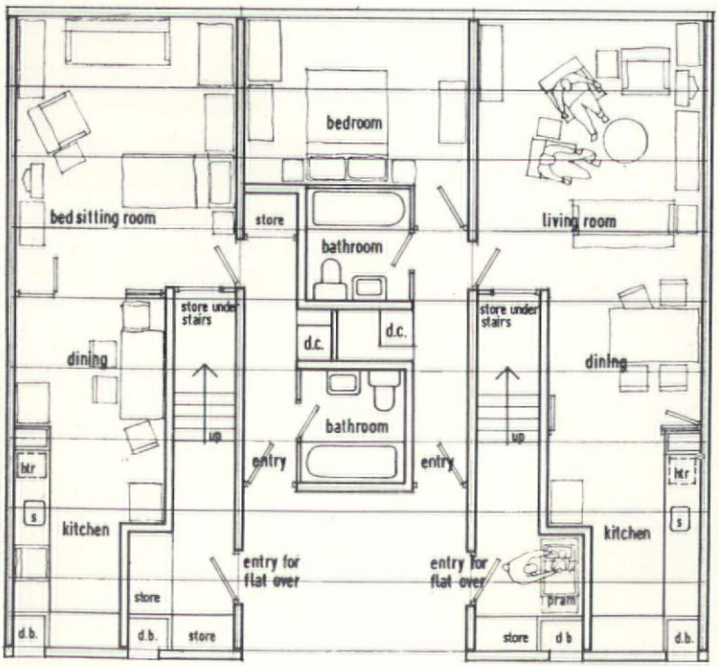
11


bedroom 1
living room
living room
bathroom
d.c.
d.c.
dining
up
up
dining
bathroom
htr
s
kitchen
bedroom 2
bedroom 1
bedroom 2
kitchen

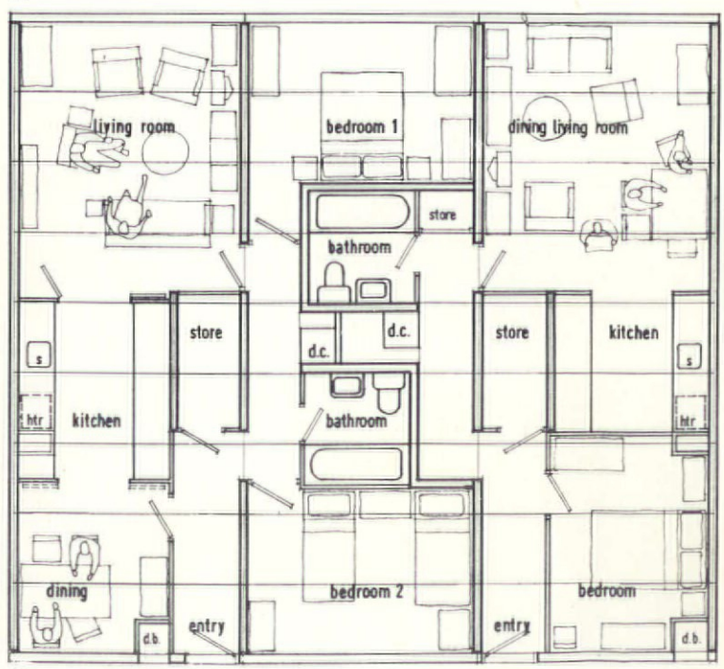
9


bedroom
bedroom
living room
living room
bathroom
store under
stairs
store under
stairs
d.c.
d.c.
htr
dining
kitchen
up
entry
bathroom
entry
up
dining
kitchen
htr
s
pram
entry
flat over
store
s
d.b.
d.b.
entry
flat over
d.b.
d.b.

12


bedroom
bed sitting room
store
living room
bathroom
store under
stairs
store under
stairs
dining
d.c.
d.c.
dining
up
bathroom
entry
entry
htr
s
kitchen
kitchen
entry for
flat over
entry for
flat over
store
pram
d.b.
d.b.
store
store
d b
d.b.

10


living room
bedroom 1
dining living room
store
bathroom
store
store
kitchen
d.c.
d.c.
s
htr
kitchen
bathroom
s
htr
dining
bedroom 2
bedroom
entry
entry
d.b.
d.b.

13

Demolition

In a redevelopment project of this size, smooth scheduling of all preliminary work is essential. If the compulsory puchasing procedure becomes protracted, demolition can be held up and the delaying effect will affect programming in the factory and thus cause considerable complication.

Cranage runs can have an influence on the siting of dwelling blocks. Distances between blocks sometimes need to be adjusted in order to allow crane passage during erection.

Economies can be achieved if block layouts take into account economic crane track distances and alignment. Ground loading capacity at times may even dictate layout or the choice of a system adopted for a project. Soft pockets may not be able to bear a crane, or a system employing a large jibbed crane may be able to oversail the soft spots.

Two directions for further research have already been highlighted in the Oldham project:

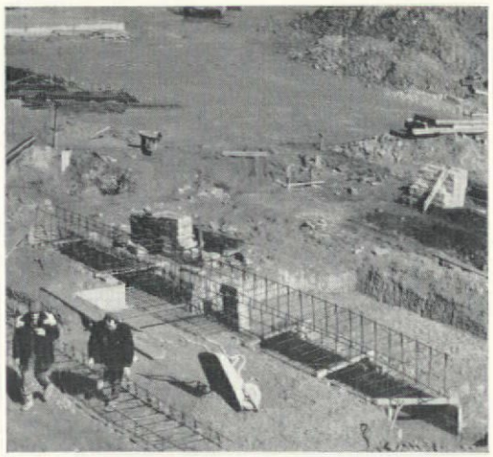
to rationalize fitting out and finishing of projects employing factory finished components

to rationalize the present methods of laying underground services and foundations.

1

2

3



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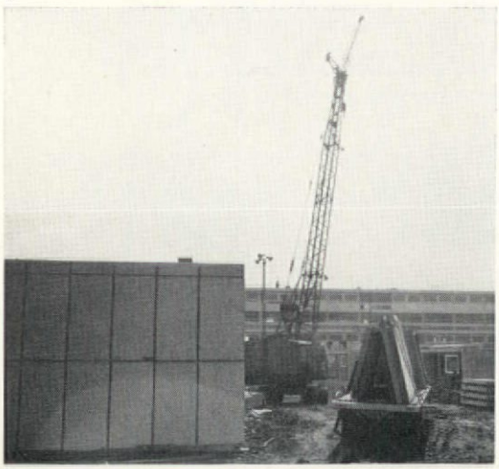

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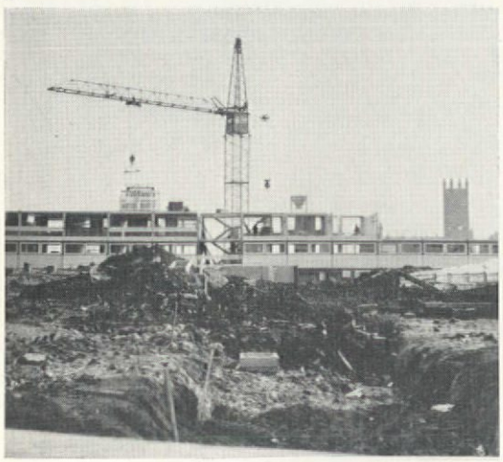

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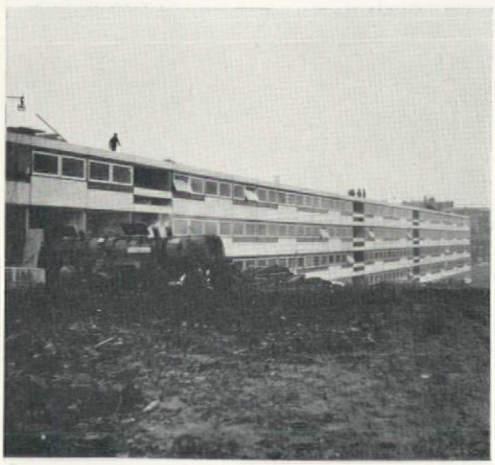


8

1
Plan of site indicating phasing of demolition: white, 1st stage; light tone, 2nd stage; medium tone, 3rd stage; dark tone, 4th stage

2
Demolition in full spate. One of the determined residents is still holding on

3
Once completely cleared, project roads are laid

4
All structural siteworks necessary

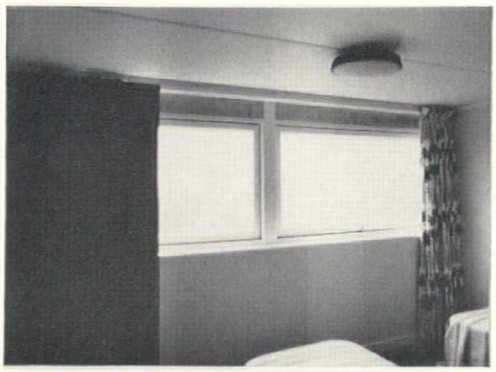
5
Articulated trailers arrive with structural and cladding units, and packages of partitioning and panels

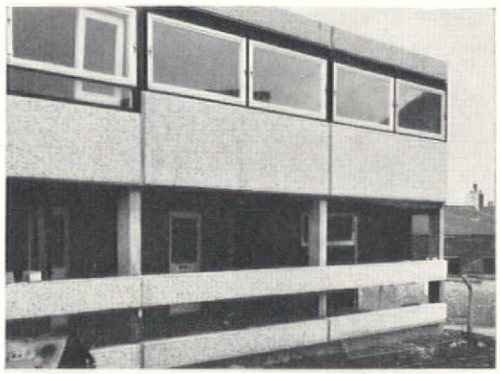
6
The units are hoisted direct into place

7
Industrialized building on a traditional site

8
Topping out, when the last crane load of roofing panels has been delivered, results in a completely covered shell in which fitting out can proceed

Photo: 6 John Laing and Son Ltd.





Appraisal

To test both the erection procedure and detailing and the reaction of future tenants to the Oldham housing a prototype was set up, three views of which are shown above. The Oldham Council obtained a much clearer idea of the proposals than they had from drawings alone.
During the period when the prototype was open recordings of prospective tenants' comments were taken, giving an indication as to which aspects should be reconsidered.
Ultimately, after close observation of the erection procedure and an appraisal of the completed block by the research groups sociologists and architects, over two hundred changes were made.

Density

110 persons per acre, 34·4 dwellings per acre.
Average dwelling size: 3·4 persons.

Programme

Construction period:
September 1965–December 1966.

Publications

Design Bulletin No 8 'Dimensions and Components for Housing' was produced during the design and investigation stage of the Oldham project.
Survey and project bulletins will be published shortly and the appraisal bulletin will be published when the survey has been made in spring 1968.

Comments from interviews

The kitchen is handy for the lounge and the dining-room. Good large windows, plenty of height. No corridors or wasted space. Very compact.
I lived here before (in St Mary's) *and I think it's a big improvement. Perhaps the old houses looked better from outside . . . but in time I suppose we'd get used to the appearance of these ones.*

It's very nice, and a big improvement, but I don't think it's homely.

There's a nice square well-balanced room, a nice well-balanced kitchenette—the heat can come through to both places, and it would be very easy to run. Every bit of space has been used, fruitful use.

It's very well planned—you haven't got to walk too far—which is the modern way of living.

I like it very much. I think they're very big and very roomy. That kitchen's smashin'!

They're very, very nice, indeed. A different thing to what I expected they would be.

Was there any idea to screen off the kitchen in any way.

The only thing wrong with it here is the outlook—the skyline isn't very smart.

I'm not flat-minded. I wasn't flat-minded until I saw this. But I like it just as it is.

I like the layout—there's plenty of fittings and you don't need a lot of furniture. The kitchen seems to be compact—but there again you have to live in a place to find the faults. . . .

It's all right . . . the sitting room . . . you see the trouble is you have your dining room, and then a sink unit and etc. no privacy, is there?

They look very nice. It's what they'll look like in 20 years time, that's the point, isn't it?

I like them. They're modern. I like the ventilation. They're not double-glazed windows though, are they? There is such a lot of glass I imagine you'll get a lot of condensation.

They said they were only for one person—but they're big enough for two.

When you come to think of it in Oldham . . . they haven't been brought up to live in flats or anythin' like that. They've always been in these terraced houses.

There's nothing wrong with the buildings, it's the way they've got the streets.

It's all right just now . . . (talking about the open plan of ground floor) *. . . but when you start to do anything, when you start to make dinner and you have everything out . . .* (meaning smell and the untidiness).

No, she's right now (i.e. woman who criticized open plan) *because when you get all the washing going on to the table and all the pots in sink, it won't look so nice, will it? You know, I mean company is sat there.*

Why is it that it's always men that have all these things in hand? (i.e. do all the layout, etc.). *They never hold a woman's point of view and yet it's the woman really that . . .*

It's all out of a book. It's all out of a book. They never have any practical know-how at all, they've never worked in the place.

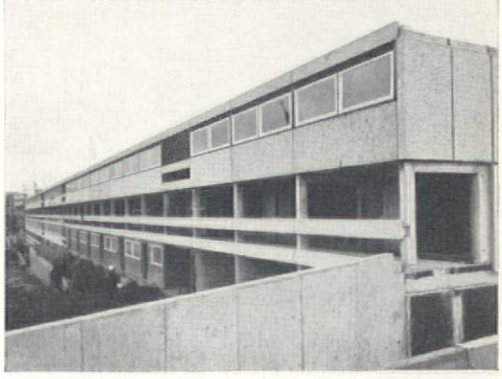
12M Jesperson

Aesthetic variations on the same structural theme

Aldershot North

Craigshill, Livingstone

Oldham



Leicester
Single persons' flats

For Leicester City Council

Chief Architect: Stephen George

The project was initiated because very little research work had been done either by the Ministry or local authorities on the housing of single people below the age of 60.

The terms of reference assumed increasing demand for single persons' accommodation due to such factors as young people leaving home earlier, more people working away from home, shortage of lodgings, shortage of student accommodation and above all higher standards of living leading to a demand for individual self-contained rather than shared hostel-type dwellings.

A wide review was undertaken of the various types of accommodation provided both here and in Sweden, and three social surveys were carried out to ascertain the need in the particular area chosen for the project.

The first two surveys, to find out who wanted accommodation, investigated the needs of single people by interviews with all people under 55 on the Leicester waiting list (208) and the distribution of a postal questionnaire by major local employers to their single employees (382).

The third survey was undertaken in six hostels to gain experience of user requirements from single people with first-hand experience of living in accommodation specifically designed for them (141).

The demand for privacy, independence—'a place of one's own'—indicated that individual self-contained accommodation was the main requirement. All those contacted were agreed on this, but apart from this common factor people tended to divide into two main groups by age. Younger people do not want permanent accommodation—they do not expect to remain single, they are likely to change their employment and their earning capacity and hence their standards of living are increasing. They need furnished accommodation because they cannot afford to buy furniture or do not want to have their freedom to move around restricted.

Older people, on the other hand, want permanent, unfurnished accommodation. Both groups wanted to cook for themselves, although a few men would have liked restaurant facilities. Both groups were unwilling to share either bathroom or kitchen, but generally the younger group was rather more willing to share.

In the light of research findings the following design decisions were made:

accommodation should be provided for a wide range of requirements, viz. both sexes, all age groups and various income levels

approximately one-half of the accommodation should be furnished

as the great majority of the people to be catered for would prefer to do their own cooking, individual cooking facilities should be provided. It would not be economically feasible to provide restaurant facilities for the few men who want them

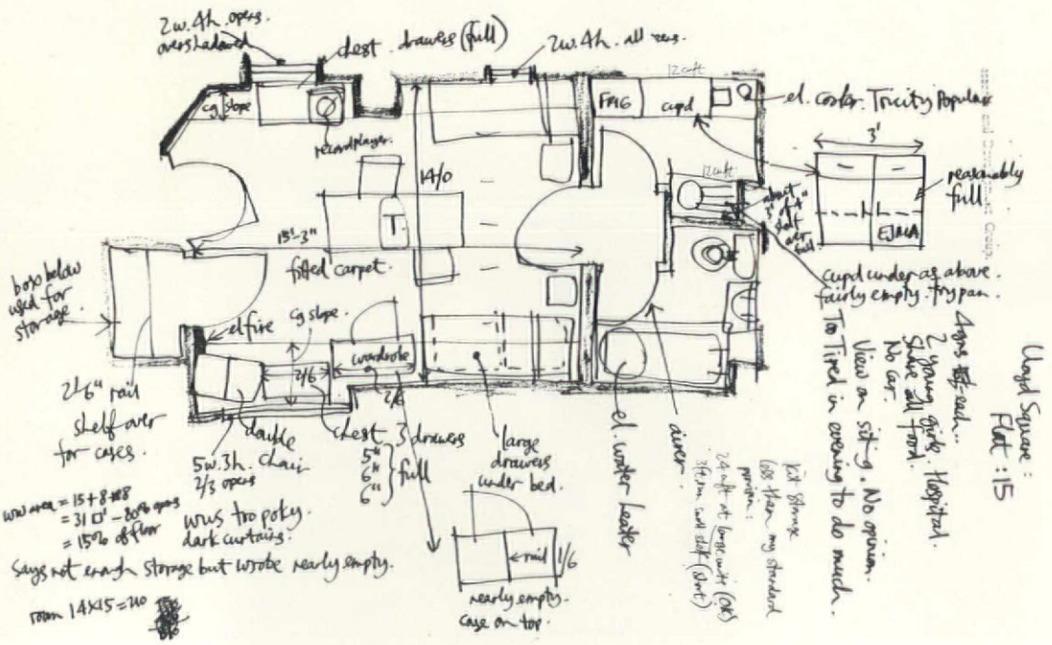
most accommodation should be self-contained, but some provision should also be made for sharing. This should be in the form of shared flats rather than a series of units with shared facilities 'along the corridor' in the traditional hostel style. Flats are as cheap to provide, simpler and cheaper to administer and are in accord with changing tastes and standards. A number of group flats should be provided furnished for younger people.

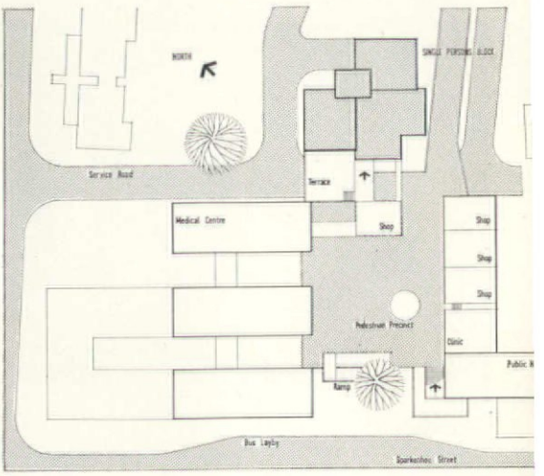
One of the advantages of providing for single people in one building complex is that it is possible to provide, communally, some of the things which single people, who are out at work, find difficult to organize for themselves or to afford without the resources which are acquired through a combined family income.

Our investigations have shown that facilities such as a shop and laundry are usually successful in encouraging social contact, much more so in many cases than are clubrooms and lounges.

Space was not of primary importance, particularly with the younger people. It emerged from research that the main demands were for self-contained accommodation with good kitchens, adequate storage, good services and a high standard of sound insulation.

1





2

Comments from interviews

The people on the workers survey saw their parents as restricting their independence.

I want to be independent and live my own life according to my requirements and to have some privacy. My complaint is that my parents look after me far too well.

It's not like having your own place.

Well, you feel you just can't do what you like.

Sometimes I have a feeling of living in a goldfish bowl.

There's nothing like your own home.

I live in fear of being turned out and having anywhere to go.

Someone on the premises.

It gives you a sense of security knowing there's someone to go to.

To keep the place going.

It's awful sitting here at times with no one to talk to.

You don't need to go out of your way to meet people—they're just there.

No matter what you're doing, there's always someone around.

Living with old people.

I am looking after old and dying people, I want younger company.

Loneliness

I get lonely when I think of my parents and all the past times.

I try hard to forget about it and find something to do.

I work like hell—it's the best cure for anything.

1
Typical survey sheet made by an architect

2
Block plan

3, 4 & 5
Tower block plans, deck level, typical floor and cluster floor

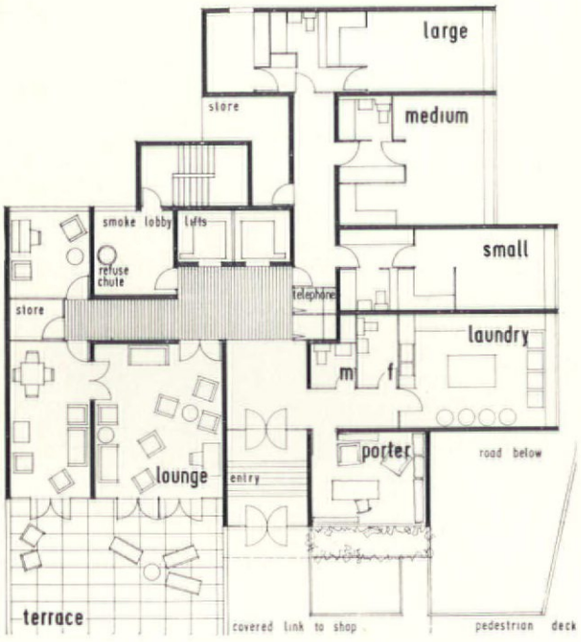
6
Small self-contained single flat plan, 260ft²
no. off 35 (all furnished)

7
Medium self-contained single flat plan, 300ft²
no off. 37 (23 unfurnished, 14 furnished)
For the younger group

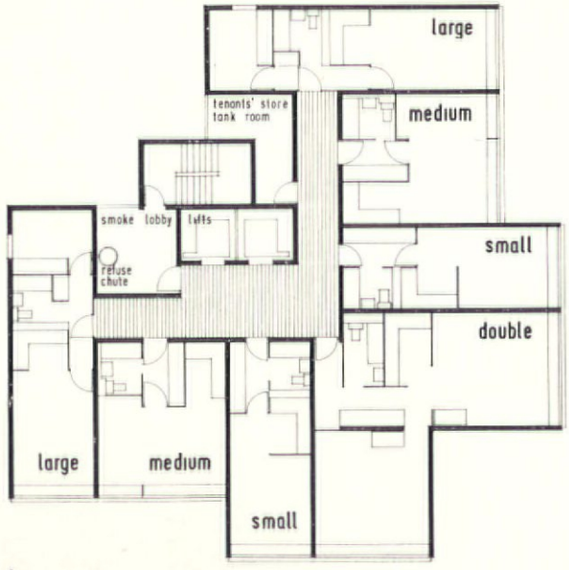
8
Large self-contained single flat plan, 350ft²
no. off 37 (all furnished)
For the older group

9
Double flat plans, for two people sharing a bathroom and kitchen, 510ft²
no. off 15 (8 unfurnished, 7 furnished)
For both old and young groups

Not shown is the plan of the cluster flat, 1600ft², no. off 4 (all furnished), comprising 4 bedsitting rooms, sharing dining, kitchen, living and bathrooms, and the caretaker's flat 800ft²
Total no. of dwellings 129, 155 residents.


large
store
medium
smoke lobby
lifts
refuse chute
small
telephone
store
laundry
m
f
porter
road below
lounge
entry
terrace
covered link to shop
pedestrian deck

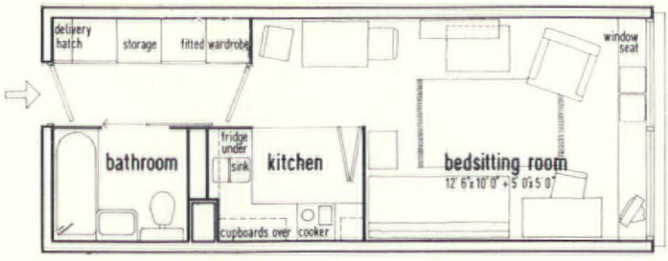
3


large
tenants' store
tank room
medium
smoke lobby
lifts
refuse chute
small
double
large
medium
small

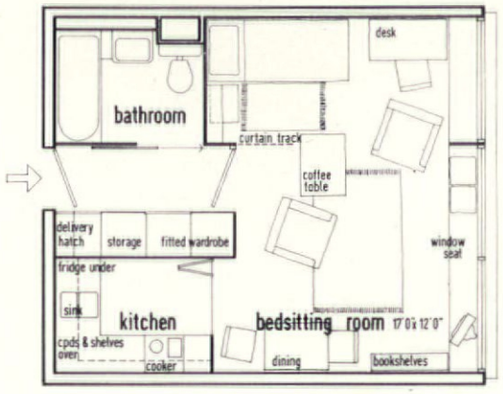
4


bedsitting room
bedsitting room
store
bedsitting room
bedsitting room
smoke lobby
lifts
refuse chute
kitchen
dining
sitting
double
large
medium
small

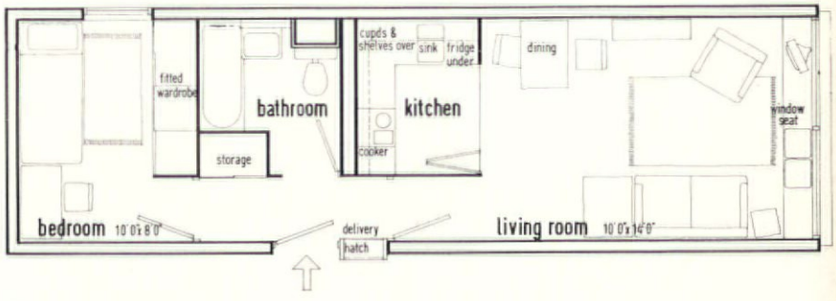
5


delivery hatch
storage
fitted wardrobe
window seat
bathroom
fridge under
sink
kitchen
bedsitting room
12'6"x10'0"+5'0"x5'0"
cupboards over
cooker

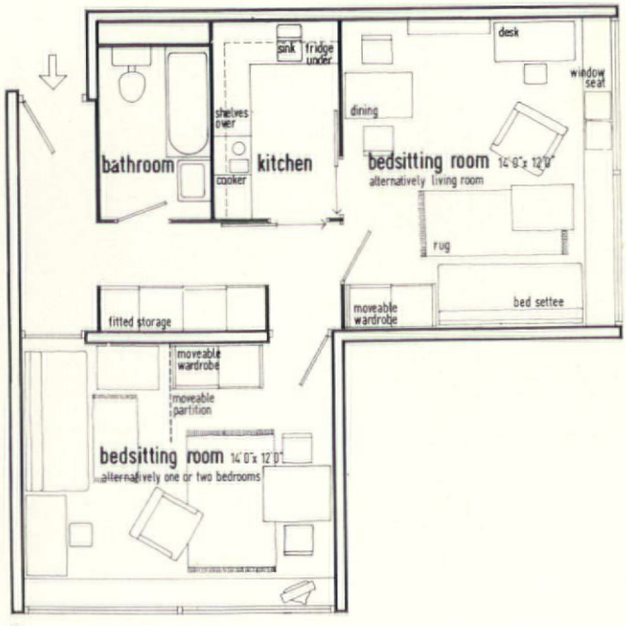
6


desk
bathroom
curtain track
coffee table
delivery hatch
storage
fitted wardrobe
window seat
fridge under
sink
kitchen
bedsitting room 17'0"x12'0"
cpds & shelves over
cooker
dining
bookshelves

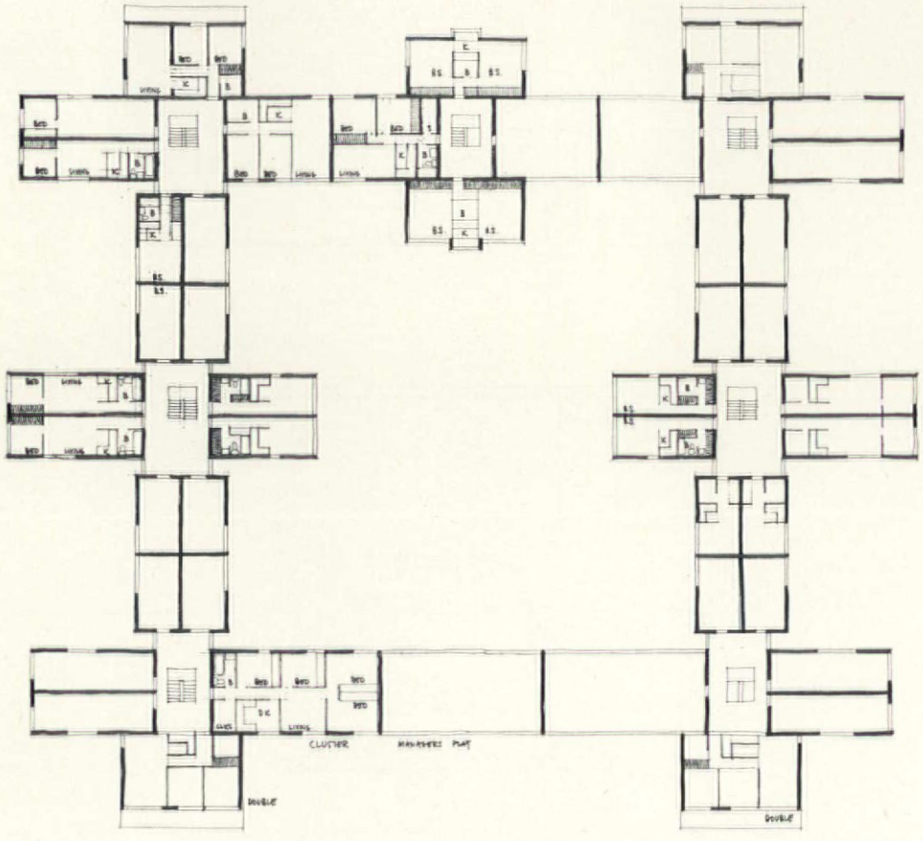
7


fitted wardrobe
bathroom
storage
cpds & shelves over
sink
fridge under
kitchen
cooker
dining
window seat
bedroom 10'0"x8'0"
delivery hatch
living room 10'0"x14'0"

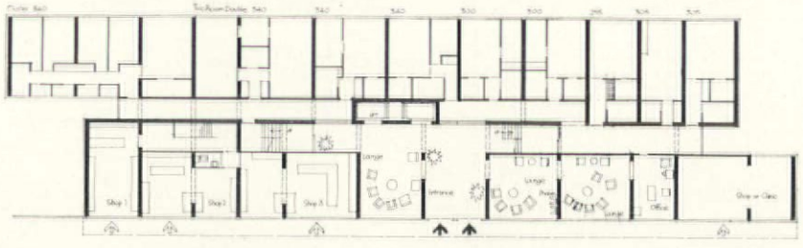
8


sink
fridge under
desk
window seat
shelves over
dining
bathroom
kitchen
cooker
bedsitting room 14'0"x 12'0"
alternatively living room
rug
bed settee
moveable wardrobe
fitted storage
moveable wardrobe
moveable partition
bedsitting room 14'0"x 12'0"
alternatively one or two bedrooms

9



1



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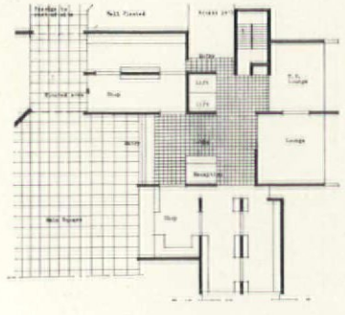
3



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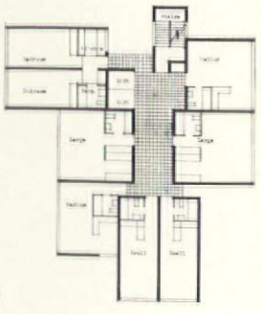


5

It is proposed that the furnished accommodation for the younger people will be let at cost rent, whereas the unfurnished accommodation will be let on normal housing provision, that is, pooled with the rent of the housing stock.

The important factors for location were:

The building should be located in conjunction with other housing accommodation, so that it shall not be regarded as an institution for a special class of person but as a unit of housing accommodation.

Isolation and loneliness are problems associated with single persons and location within a community is therefore important. Most of the single people interviewed wanted to be near the centre of the town rather than on the outskirts.

The requirements therefore are:

central location

the project should be capable of integration with other housing development

a site within easy reach of and related to other facilities, such as shops and entertainment.

The sub-centre of Leicester City Council's Highfields Redevelopment Scheme has been chosen for the project site as it satisfies these requirements.

The single persons' project is related to a local sub-centre. Various block forms were considered, including a three-storey walk-up scheme, a six-storey corridor access slab block and a tall point block. The point block seemed preferable from all points of view. In particular, it is logical to put small households in tall buildings and families near to the ground in high density housing areas, and better internal planning of the block is possible in relation to aspect, avoidance of overlooking, sound and use of lifts.

Construction: To commence Spring 1967.

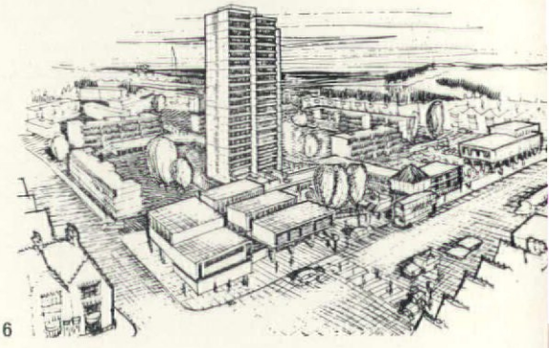
1–5
Plans of three early proposals for the Leicester development, made at a stage when the Development Group was investigating general design possibilities, before the site had been chosen and the subsidiary accommodation determined. When the site was selected the tall block was found to be the most appropriate and this was therefore chosen for development.

1
First floor plan of court-yard type block, the second floor plan is similar, except that single units are omitted

2 & 3
Communal deck level and first to sixth floor plans of slab type block

4 & 5
Communal and first to twentieth floor plans of V-type tower block

6
Sketch of the proposed development from the west



6

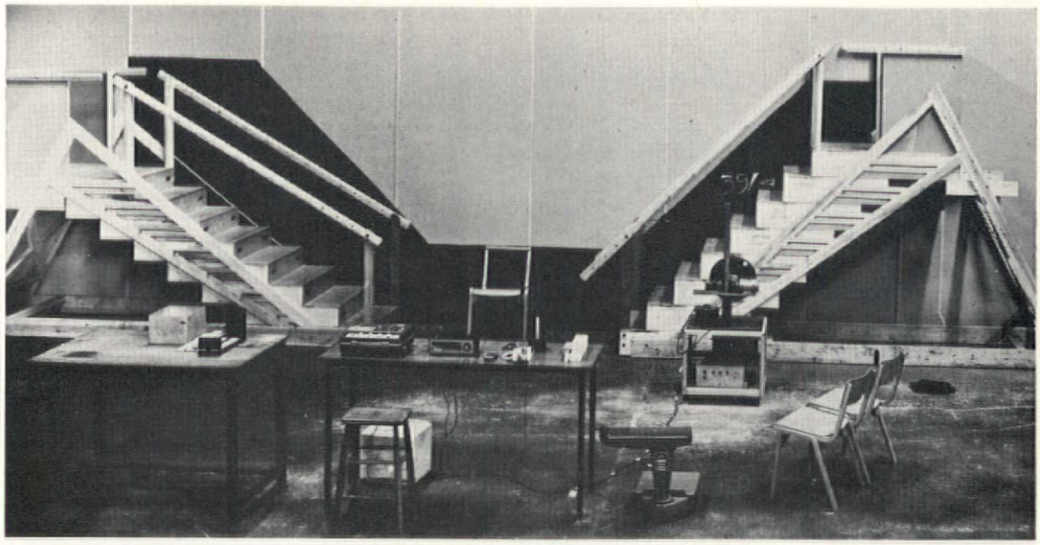
Stair design project

Little work has been done anywhere on this subject and certainly there was hardly any published material. We have only rule of thumb guides, 2 rise + going not less than *x* and not greater than *y* or rise and going ± 66in.

Loughborough College were asked: Is there any evidence that an easier rise and/or going makes a domestic staircase safer? If an improvement were to be made in standards would you prefer to see the minimum going increased or would you prefer to see the maximum rise reduced?

Equipment was designed and a series of tests were carried out. Approximately 50 old people were the subjects in testing 12 different combinations of 7in, 8in and 9in rise with 8½in, 9½in and 10½in and 11½in going.

The experiments reveal that it may well be desirable to increase rise dimensions to between 8in and 9in in order to permit, economically, going dimensions to be considerably increased over the current 8½in.



Technical components

As part of the Design Bulletin programme a series on service core requirements has been produced. Occasionally, as a result of the research work for these publications, or as an immediate requirement of a current project the need arises for a technical development exercise to be carried out. These have ranged from the production of a structural heart unit, through to the detail of a bath roll to an upstand.

The units developed are wherever possible incorporated in projects so that their performance may be assessed. Thus: the 'County' wash hand basin has been successfully used in the West Ham and Sheffield projects; the heart unit will shortly be appraised after a year in use at Sheffield; a specially designed bath upstand is being employed in the Oldham project, where again after a year's occupation a technical appraisal will be made.

'County' wash hand basin

At the time of the Stevenage Flatlets Project, officers of some of the local authorities were experiencing difficulty in obtaining an efficient wash hand basin. As part of the Stevenage technical development brief it was consequently decided to develop a unit for prototype use in the project and then in production for general housing.

Design development was carried out in collaboration with the Building Research Station and the London County Council. The selected manufacturer, Shanks & Co. Ltd, was guaranteed orders by the LCC in order to cover initial development costs.

The design characteristics of the basin were:

a slow rate of discharge into trap, achieved by flattening the base of the bowl

ability to fix to weak lightweight partitioning, achieved by the provision of a single peg leg support

a refined edge detail and consequently increased bowl volume within normally accepted dimensional disciplines

a dry soap recess achieved by careful consideration of the shape, slope and ribbing design of the recess.

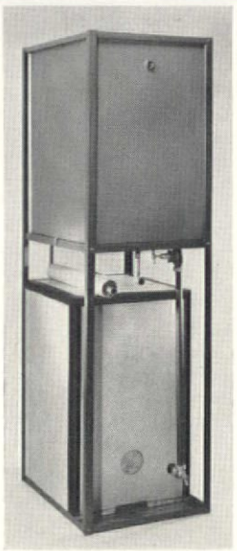
Domestic hot and cold water storage unit

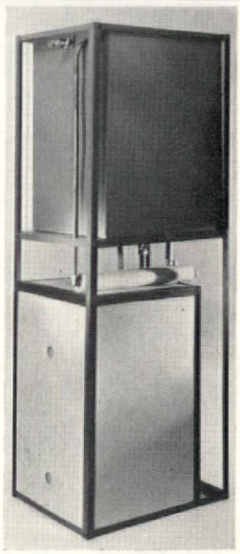
The unit Harcopak, made by Harcostar Ltd., has been designed primarily as an aid to the improvement of older houses. But it may also be used in new houses. The unit consists of a 50-gallon cold water storage unit and a 25-gallon hot water copper cylinder, with all the necessary connections, assembled into a mild steel angle frame. It weighs only 2cwt, and can be handled by two men. It is small enough to pass through doorways and up most flights of stairs. It may be used in either hard or soft-water areas.

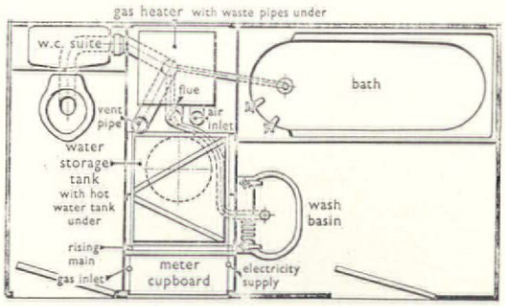
Any plumber can install the unit with the minimum of work. All that is required is to fix it in the desired position, and to connect the cold water supply to the unit, and the unit to the bath, washbasin, sink and w.c. flushing cistern.

The unit may be used with either a 3KW electric immersion heater, or a gas circulation heater, attached to, or remote from the unit. It may also be used where hot water is provided by an approved solid fuel appliance (back boiler). In this case the unit must be placed at first floor level.

The unit is cheap to produce. Including all pipework connections, insulation, and valves, but excluding heater, it sells for between £30 and £40.







The 'heart' unit

The 'Heart' is a factory-made unit by Taylor Woodrow (Building Exports) Ltd, containing the main engineering services and sanitary appliances for a house. It can be transported to the site complete, placed on the prepared base—in most cases the normal oversite slab—and connected to the main services. The rest of the house is then built around it. The 'Heart' cuts out much site labour and avoids the overlapping of trades that occurs in the building of the traditional bathroom.

'Hearts' have been designed for both one and two-storey houses. The single-storey version is a single box measuring 10ft 8in × 6ft on plan; the two-storey version comprises two boxes, one of which sits directly over the other, measuring 6ft × 8ft on plan. Most dwellings, whether built privately or for local authorities, are built as one or two-storey houses, and it is in this field particularly that industrialized methods can increase output. But this is not to suggest that the idea of the 'Heart' could not be applied to multi-storey flats or maisonettes.

Care has been taken to make the units as light as possible. None weighs more than 1½ tons.

A steel setting-out jig enables the specially designed levelling pads to be quickly and correctly positioned on the oversite slab, using the soil pipe connection as a reference point. The 'Heart' is then off-loaded from its transporter and lowered on to the levelling pads by a two-ton mobile crane.

Each unit comprises a light steel frame on which are mounted hardboard-faced, polystyrene-filled wall units. The finishes are designed to reduce maintenance—sprayed plastic wall finish, extruded PVC skirtings, and sheet vinyl floor covering.

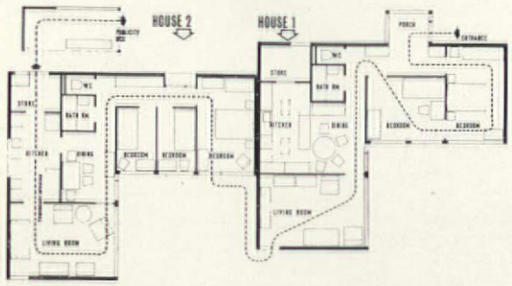
A cover, put on in the factory, protects the 'Heart' while the rest of the house is built. The single-storey 'heart' consists of a w.c. compartment and a bathroom compartment, containing a washbasin and a bath, separated by a service core. The core incorporates a coldwater storage tank, and hot water cylinder with immersion heater, blown warm air heater, linen cupboard, electric and gas meters, and the necessary pipe- and duct-work.

Service and waste connections for kitchen appliances are incorporated in the 'heart' unit. Sink units complete with cupboard, water and waste connections are factory assembled to suit the plan; special appliances can be included with these if required. In this way sink units can be rapidly connected to the 'heart' at a latter stage in the job thus minimizing the danger of damage to exposed fittings.

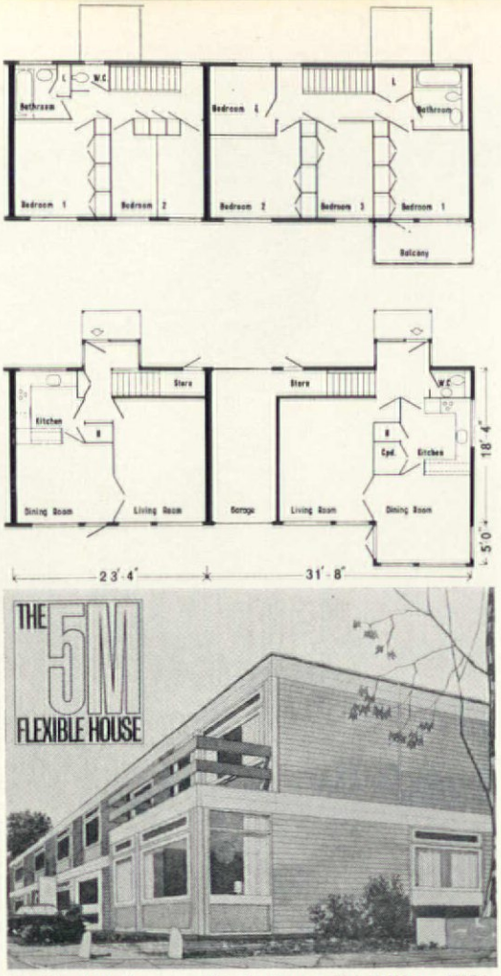
In the two-storey 'heart' the lower unit includes a w.c. and washbasin in one compartment, and, in the other, a kitchen sink with worktop and cupboard. The service core includes a hot water cylinder with immersion heater, a broom cupboard, and electric and gas meters. The upper unit incorporates a bath, a washbasin, and a w.c., a linen cupboard, and a cold water storage tank. Both units include the necessary pipe-and duct-work. The price of the single storey unit delivered to site is estimated to be £500 subject to the co-ordination of orders into a large programme.

Exhibitions

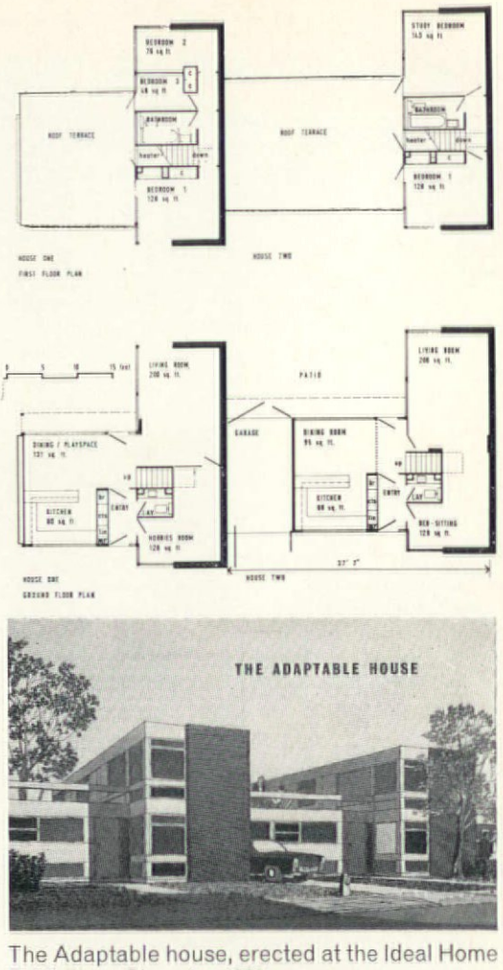
Exhibitions are important for the dissemination of information on the work and theory of the Development Group. It has exhibited regularly at the Ideal Home Exhibition and IBSAC, and at the RIBA and at architectural schools.



5M Patio House built by John Laing and Son Ltd. at the Ideal Home Exhibition, Olympia 1966. Brochure cover and plans.



5M Flexible house, Ideal Home Exhibition 1964. Brochure cover, first and ground floor plans.



The Adaptable house, erected at the Ideal Home Exhibition, Olympia, 1962. Brochure cover, first and ground floor plans.

The situation in housing has changed appreciably since the group was started in 1960—the programme is now much larger, standards have risen and there are new organizations working in the field both within and outside the Ministry, at national and local level. The position of the Research and Development group has, therefore, been reconsidered in relation to the total picture. The broad principals of its work will remain the same, namely to produce ideas and information useful to outside designers and authorities and to policy makers and administrators within the Ministry, and to derive these ideas primarily from looking at what already exists, identifying problems, producing hypothetical solutions, building and appraising. The way in which projects complement each other, so that experience and information are built up over a wide front, will continue. The next step is to consider the inter-relation of different sizes and types of family in one scheme, and the total value for money of different design solutions to one problem. This must lead to performance standards for the environment, to parallel those already established for the inside of the dwelling.

The step beyond this is to consider not just housing but its place in relationship to the other buildings, spaces and transport routes which form the community, and this will involve working with additional skills in a joint team.

The user—including the tenant, housing management and the community as a whole—needs solutions which are satisfactory not only in performance but in numbers and cost.

Requirements must be expressed in relation to the needs and the possibilities of production and assembly methods.

But the enormous recent development of industrialized building makes it unlikely that any more work will be done on complete new systems. Instead, technical development is being directed to interpreting the needs of the users to industry by defining the range of components needed to meet the bulk of the housing programme, laying down dimensional standards and details which will make it possible to fit these components together, and setting out the other requirements which they have to meet—in performance and cost. In this work, the regional offices provide a link with housing authorities and the National Building Agency provides a link with industry. The components then can be related to the requirements of the market and, here again, the Ministry can help through its regional offices and Consortia groupings in providing the initial orders which may be needed to establish a new product. The reduction in variety and, consequently, bigger and more assured runs for the components, are pre-requisites for lower costs, better quality and higher productivity.

Design Bulletins based on research work carried out to date

Design Bulletin No. 1
Some aspects of designing for old people.

Design Bulletin No. 2
Grouped flatlets for old people

Design Bulletin No. 3
Part 1. Sanitary plumbing.
Part 2. The selection and planning of passenger lifts.
Part 3. Mechanical ventilation of inner rooms.
Part 4. Aerial installations for sound and television reception.
Part 5. G.P.O. telephone installation.
Part 6. Cold water services.
Part 7. Lightning protection.

Design Bulletin No. 4
Swimming pools.

Design Bulletin No. 5
Landscaping for flats.

Design Bulletin No. 6
Space in the home.

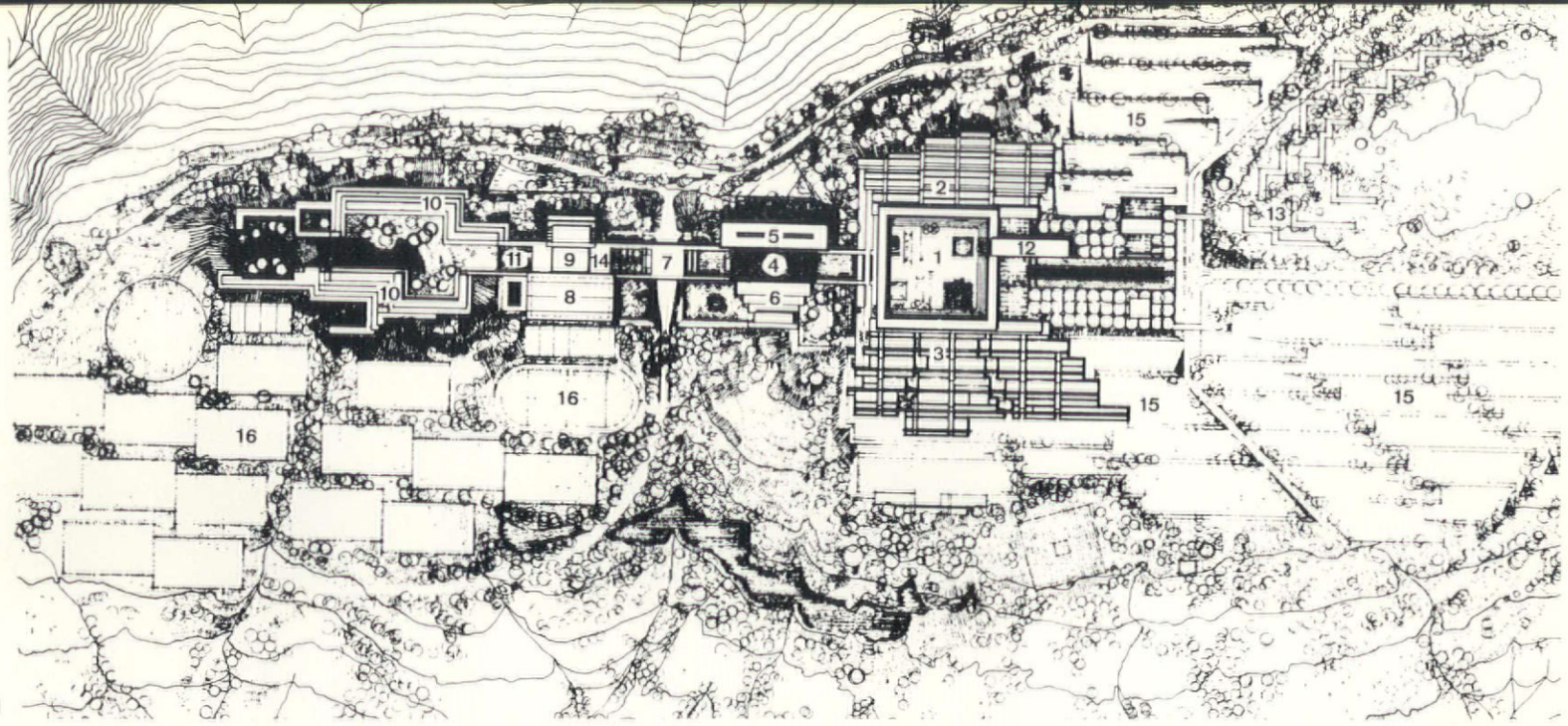
Design Bulletin No. 7
Housing cost yardstick.

Design Bulletin No. 8
Dimensions and components for housing.

Design Bulletin No. 9
Swimming bath costs.

Housebuilding in the USA

1



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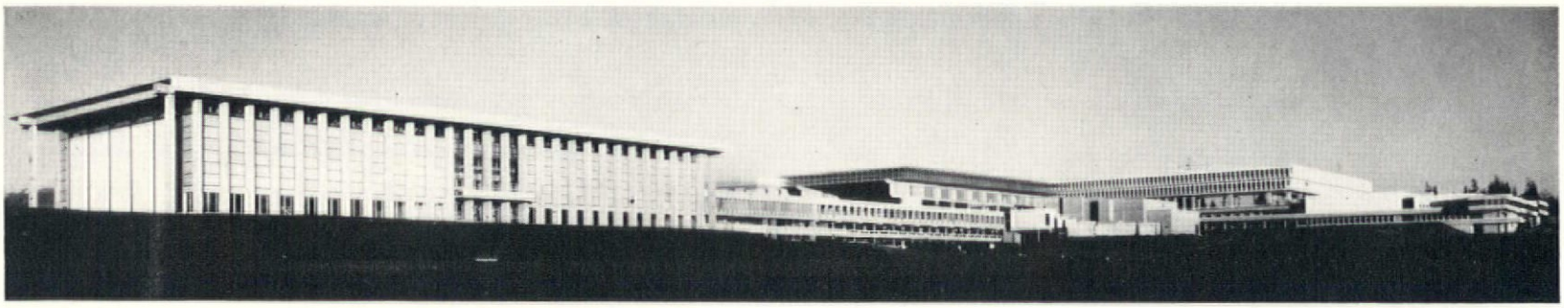
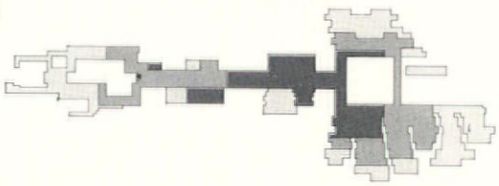


1
Site plan of proposed university

1 academic quadrangle	9 student centre
2 classrooms	10 residences
3 science complex	11 dining halls
4 mall	12 administration
5 library	13 faculty housing
6 theatre	14 coffee shop
7 transport centre	15 parking
8 gymnasium	16 sports and playing fields

2
General view from the north, the gymnasium on the left
3
Key plan of staging: dark, stage 1, 3000 students; medium, stage 2, 7000 students; light, stage 3, 15000 students
4
West face of library from the upper mall
5
Way up to the mall from the transportation centre
Photos: 2, 4 & 5 John Fulker

3



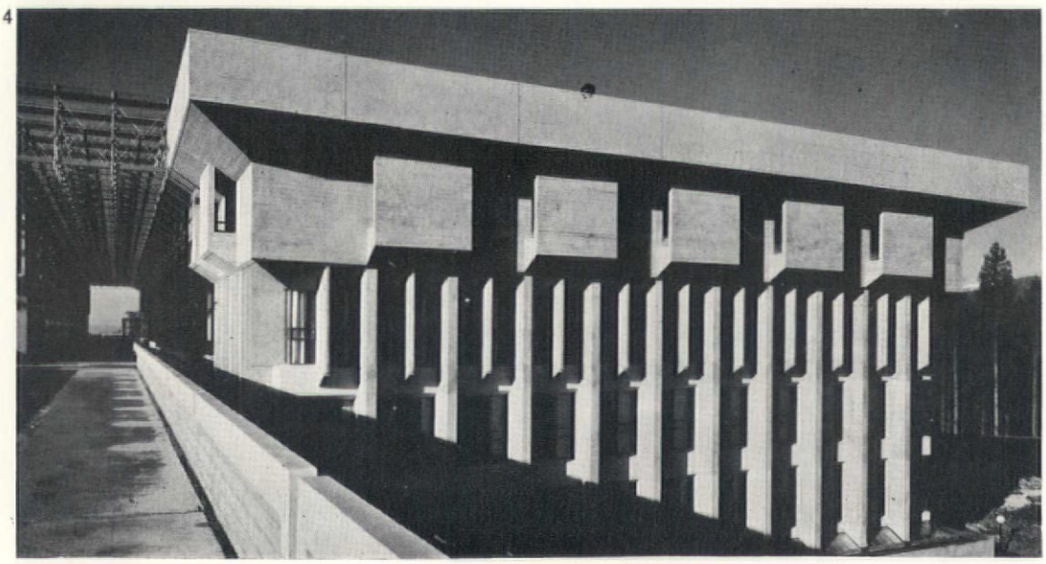
Simon Fraser University, nr Vancouver

Arthur Erickson and Geoffrey Massey

Individual buildings by Zoltan Kiss (Academic Quadrangle), Duncan McNab and Associates (Gymnasium and pool), Rhone and Iredale (Science Complex) and Robert Harrison (library)

The design for the Simon Fraser university won a competition, in November 1963.
The major academic attitude responsible for conditioning the design is the belief that a university must now encourage overlapping and merging of the traditional disciplines.
In addition, two important academic decisions were made. A system of teaching would be used which combined large lectures with small tutorial groups. Secondly it was agreed that initially the university would concentrate on relatively few subjects. There are three faculties—arts, science and education—with only four departments in science and eight in arts. Siting is based on planning everything as a series of terraces. Nearly everything is built horizontally, close to the contours, an appropriate and economical formal idea for the mountainous site. The single building complex is designed to offer not only protection from the weather but, far more important, the opportunity to create spaces which are as pertinent to the students' university experience as the

4



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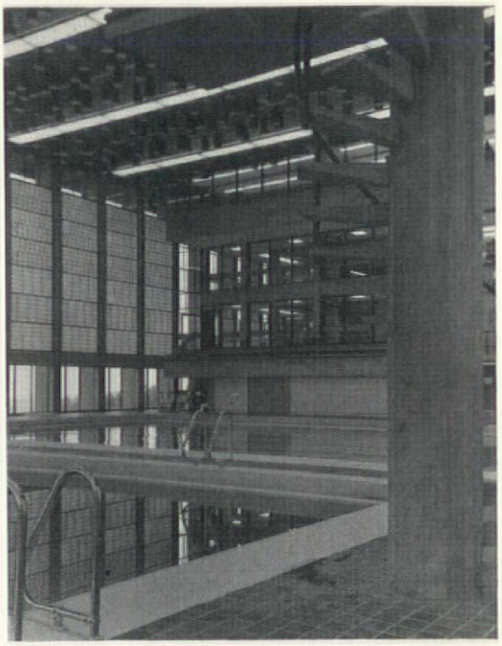
classrooms themselves. These spaces will bring the student and the faculty community together for the important exchange of ideas and experience that takes place other than in the classroom. The main covered mall is probably the most important, the most intensely developed and the most urban. In contradistinction is the other major space, the academic quadrangle. When it is landscaped, according to the architect's plans, it will become a hill garden. The master plan has been drawn almost as a diagram of the human path. This becomes immediately clear when one sets out from the vast transportation centre and has to move through the complex central structure to reach any part of the university.
Canadian Architect, February 1966.

1
Library stacks
2
Interior of the gymnasium; swimming and diving pools
3
An open terrace overlooking the academic quadrangle; the library and the space frame connecting it to the central mall in the distance
4
West end of the central mall, two pedestrian levels with double parking deck below. The corner of the library appears on the right, the small theatre in the background
5
Staircase from transportation centre to the mall
6
Aisle between the library and the central mall


1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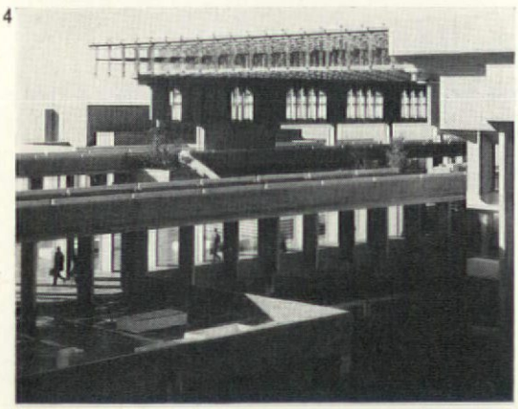

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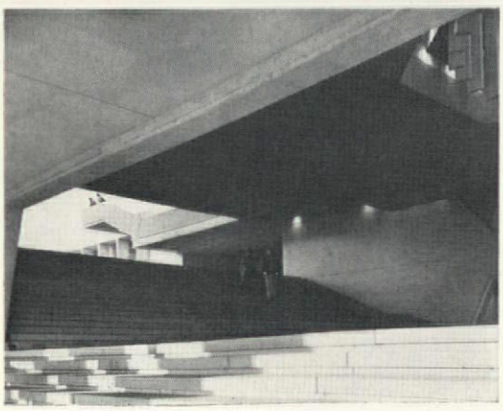

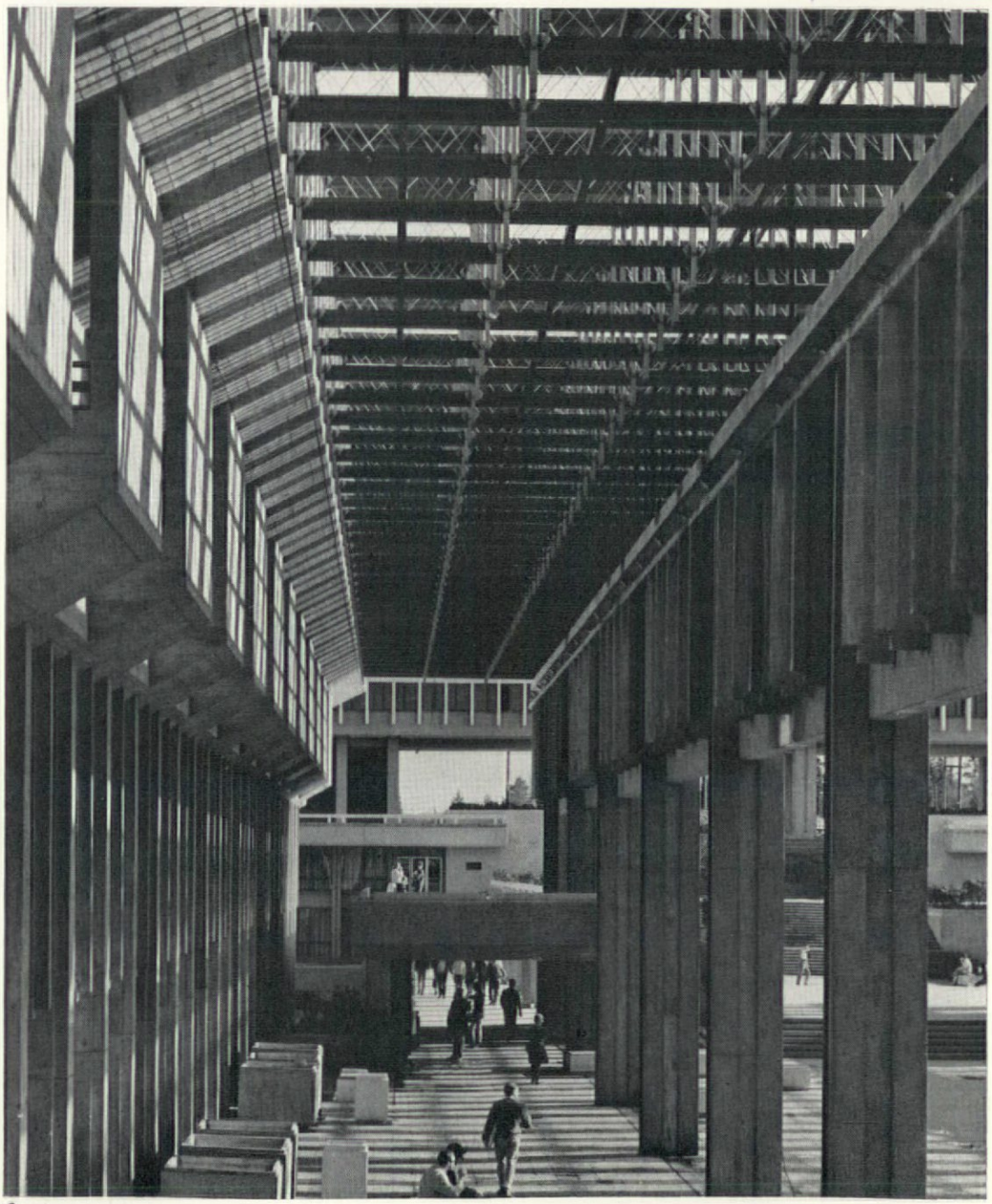
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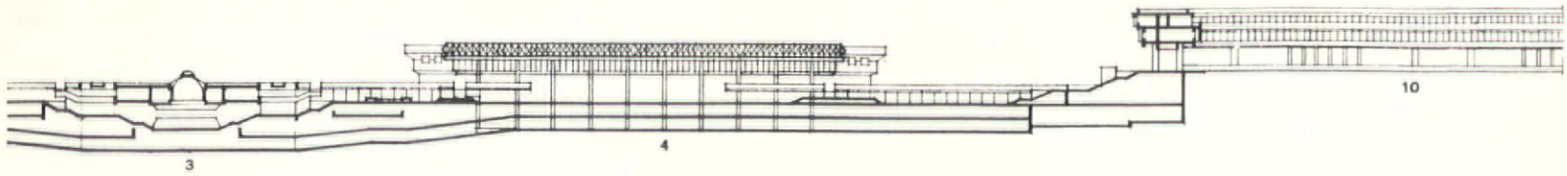


7

7
Section AA

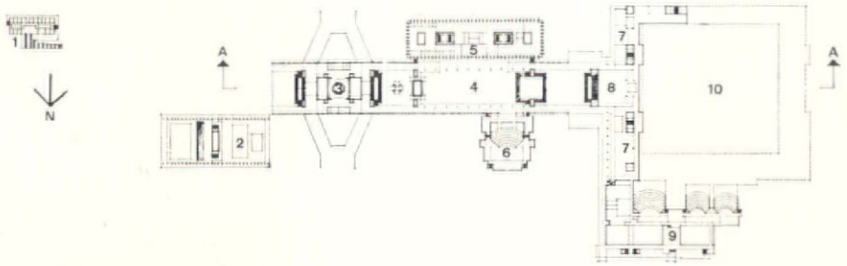
8
Plan at central mall level

9
Plan at student concourse level
1 student residence
2 gymnasium
3 transportation centre
4 central mall
5 library
6 theatre
7 sitting
8 cafeteria
9 science complex
10 academic quadrangle
11 student concourse

10
The main concourse. The 133 foot roof trusses, designed by Jeffrey Lindsay, have upper and lower chords of laminated pressure treated fir. Tie rods and fasteners are high tensile stainless steel. The trusses are pre-stressed by horizontal spreaders

Photos: Herbert L. McDonald

8



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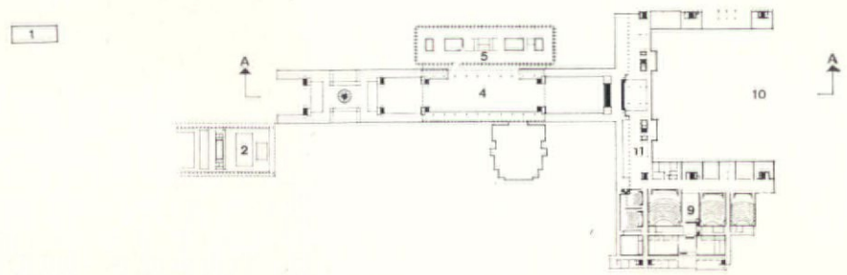

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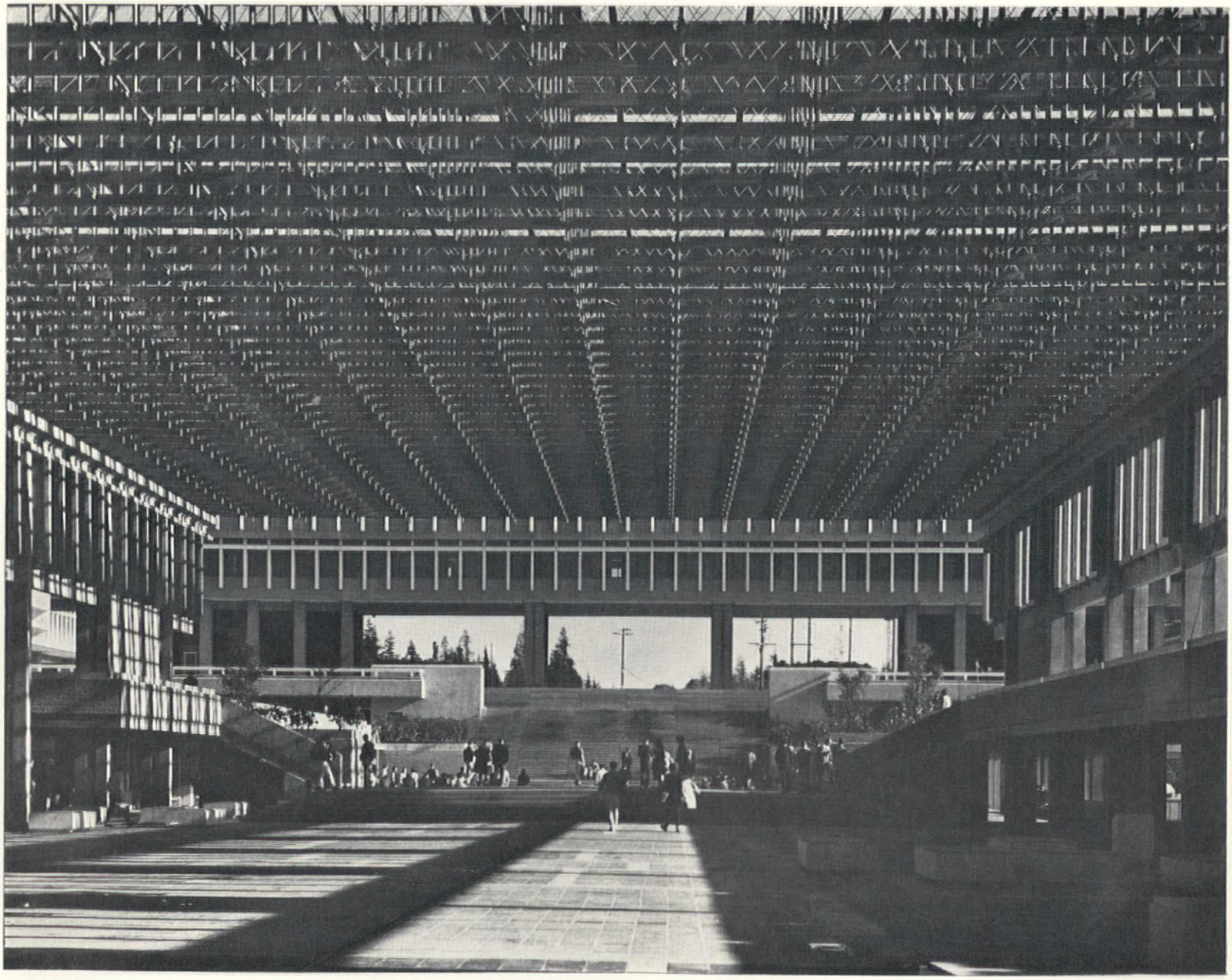


The work of Warren and Mahoney, New Zealand

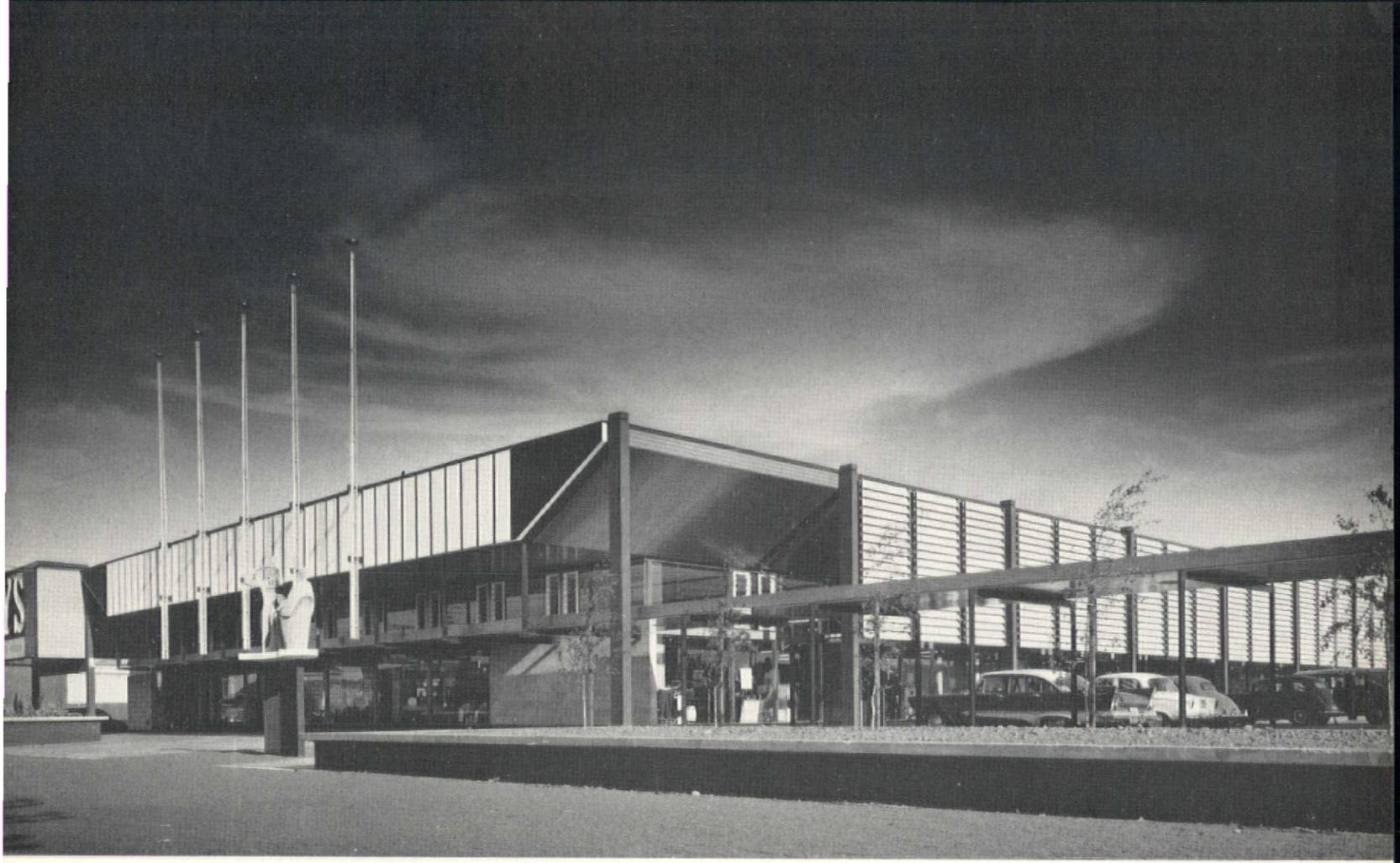
To anyone acquainted with Christchurch and its *most English outside England* reputation, it may be hard to credit that the course of its architectural traditions has taken a jump into the twentieth century in the past decade. This city, the most conservative in a fairly conservative country, has in its recent public and domestic building shown a direction which if pursued and developed should make it a concrete example of what current planning and design theories propound. There are many reasons for the change in demand from Neo-Gothic public edifices and newly commissioned Georgian housing: the competent group of architects who exercised their talents in these styles have now passed on leaving few trained heirs, while the skilled tradesmen required to execute this work in brick and stone have become increasingly difficult to find. Further, rigorous import controls have imposed a limitation on the range of materials available, and tight internal credit controls have caused clients to give up their expensive stylistic pretensions. As a consequence of these negative factors, economy of means has become a primary discipline for most architects' work. On the positive side, however, there has emerged a more receptive client, an interested product of the national higher education policy, who has probably become design conscious as a result of building his own house. He is further stimulated by the local press which now gives space freely to architectural and town planning topics. This vital atmosphere has acted as encouragement to a young generation of architects who find themselves able to design for present-day requirements in appropriate materials and techniques, with the confident knowledge of an intelligent reception.

The office of Warren and Mahoney has contributed considerably to this change in direction. In the eight years of its existence it has shown itself able to design various building types with flexibility and competence, a pre-requisite in a small country where numbers hardly warrant specialization. Their work shows an affinity with the early colonial building. It is consistently straightforward; plans are clear and direct, and due cognisance is taken of the extreme climatic dictates of sun and rain. The limited range of materials freely available—concrete block, timber, light steel framing, earthquake resistant reinforced concrete, sheet roofing—are employed with an understanding of their nature.

Cities need more than the good isolated examples shown here. It is to be hoped that the proposals being mooted for the redevelopment of Christchurch, employing higher densities, Buchanan environmental principles and a thoroughly integrated urban road scheme, will be carried out by architects capable also of working on the necessary urban scale. This requirement must be recognized if the desired environmental standards are to be achieved. The present nibbling away at small plot developments which result in a confusion of architectural themes must be countered through concerted cooperation between architects and planners. Happily it can be seen in the following examples that the city has good precedents from which to develop into a coherent entity.

Norman Sheppard

1



Hay's store, Christchurch, 1960

The requirements were for a self-contained department store and a supermarket which was to be fully serviced for on-the-premises storage, preparation and packaging of a complete range of foodstuffs. There was to be parking for customers' cars.

With the main entrances to the department store at the north and west, customers were to be led through as much of the shipping space as possible in their approach to the supermarket and the main offices and time-payment counters.

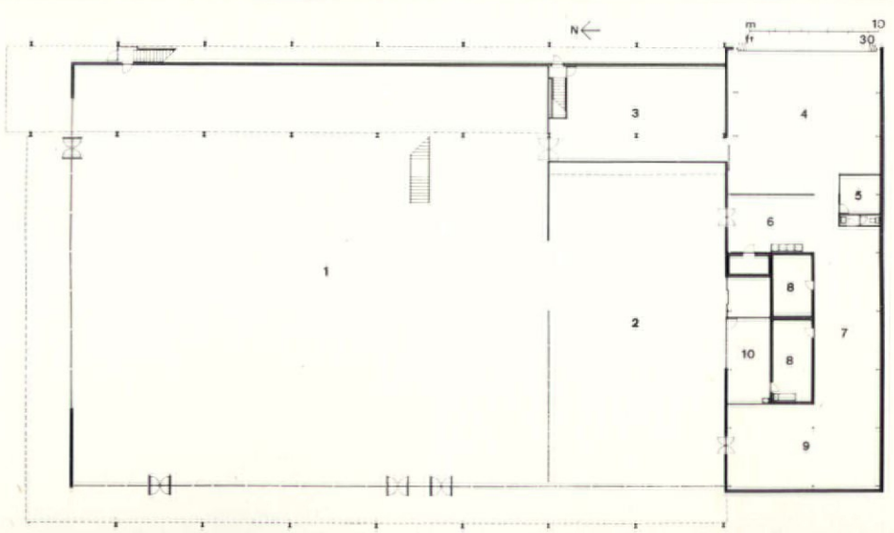
The only entrance to the supermarket is through the main store so that customers shopping for their everyday food are attracted to the goods in the main store.

The offices and staff and customer amenities are raised to a mezzanine floor level which looks out over the main shopping space.

The loading bay is planned to serve both the supermarket and department store storage and packing rooms.

The contract was let at the beginning of March 1960 and the building opened for business on 3rd November, 1960.

2



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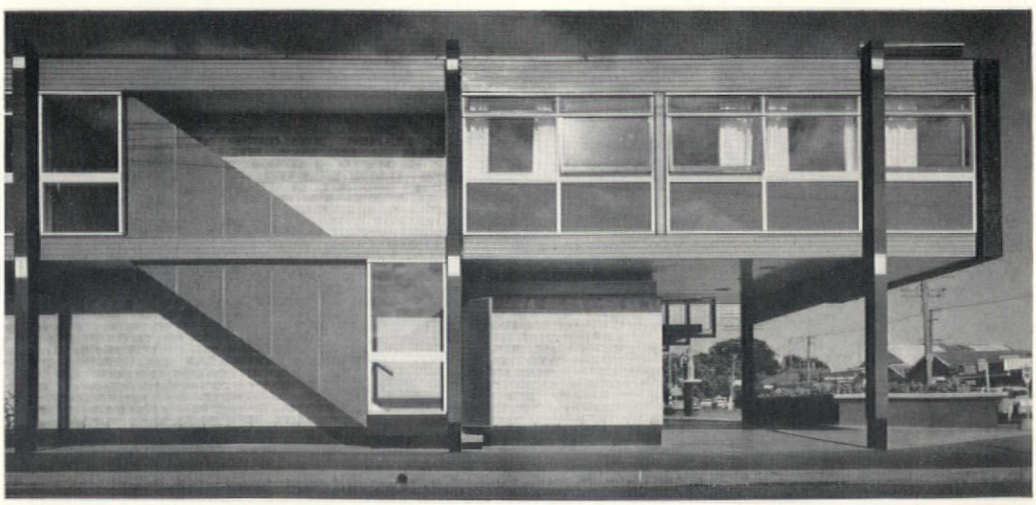


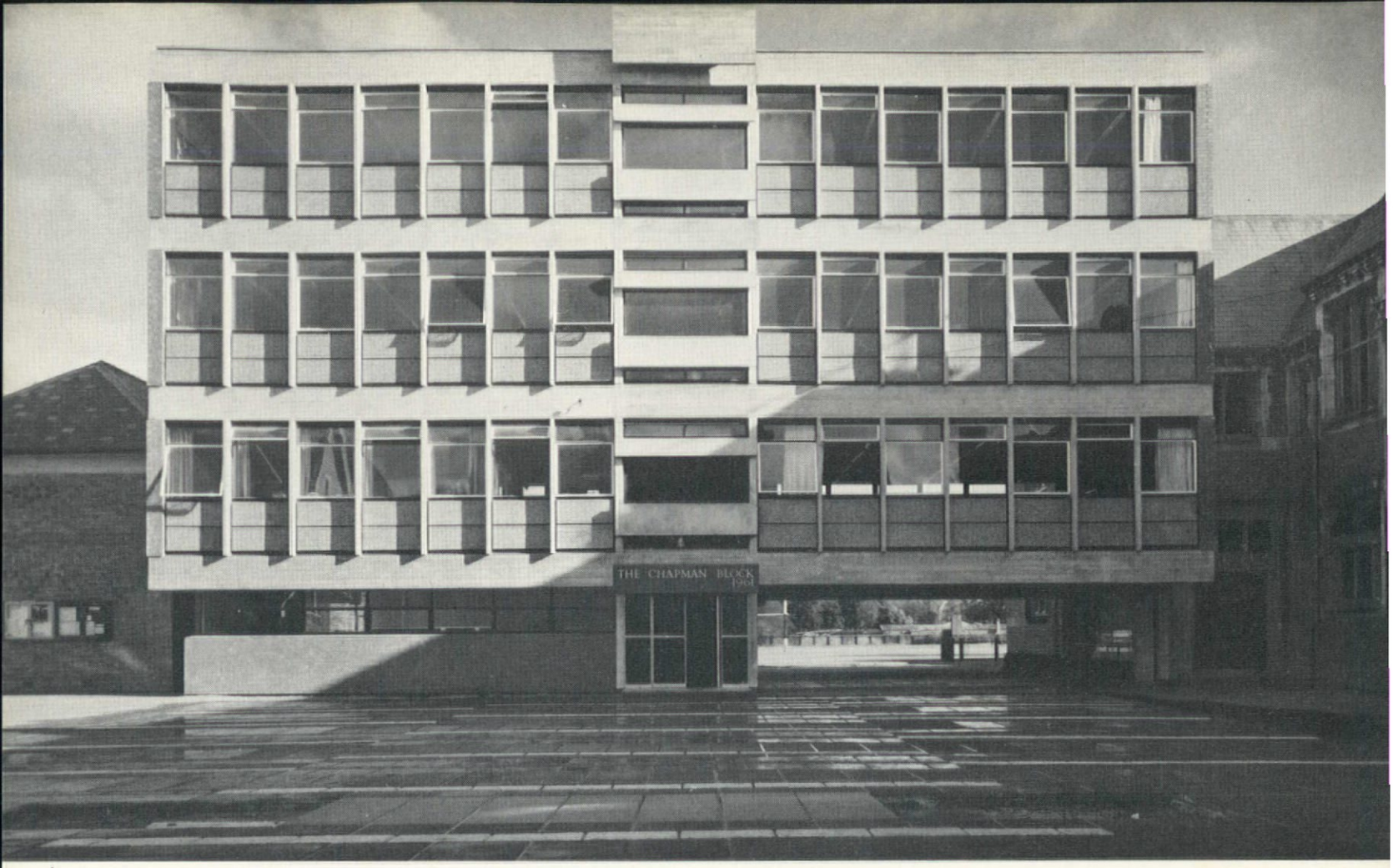
1
Hay's store; the west portico showing the precast structural columns and the screen of asbestos-cement louvres

2
Hay's store from the north-west

3
Ground floor plan
1 department store
2 supermarket
3 packing room
4 loading bay
5 checker's office
6 produce preparation
7 produce storage
8 cold stores
9 grocery storage
10 butchery

4
Hay's store, detail of the east elevation

Photos: Mannering and Donaldson



1

Science building, Christ's College, 1961

This new building for Christ's College provides laboratories, classrooms and facilities for masters' common room, work room and cloakroom.

Old wooden classrooms running from the back of Big School to the former Fives Courts created a narrow cold access to Upper, the principal playing field. These were demolished and an inner quadrangle formed. This small contained space, in contrast to the scale and broad sweep of the grassed main quadrangle, will be paved and planted with trees.

The new building is symmetrically organized about a central staircase and service area of preparation rooms and boiler room with the large open spaces of classrooms either side. Half the ground floor is open, providing the main access to Upper. The remainder has rooms for the Press Club, pottery and staff cloakroom.

West walls facing Upper and east walls overlooking the quadrangle are glazed. North and south walls apart from openings into the older laboratories are solid. These walls and those forming the central core make a logical structure of load-bearing walls with concrete beam and slab floors spanning between. This structural system is clearly expressed by using fairface concrete with a regular 4in board pattern for all beams both internally and externally.

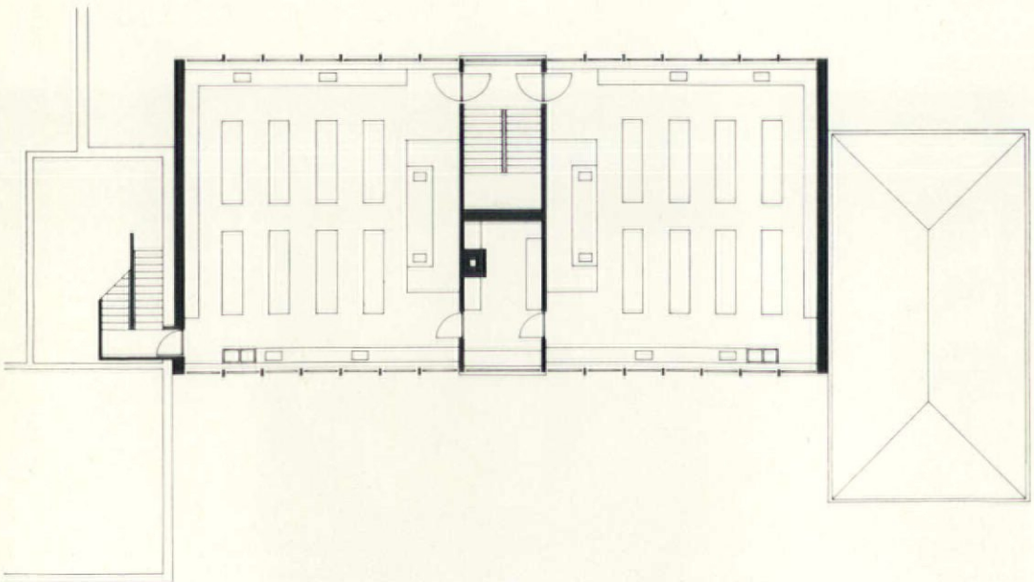
1
East elevation of the new science building, seen from the paved court. The precast panels and mullions are vigorously modelled to relate them to the hearty Gothic revival buildings overlooking the court

2
Typical floor plan with laboratories set on either side of the main stair

3
The main stair assembled with exposed precast units

Photos: Mannering and Donaldson

2



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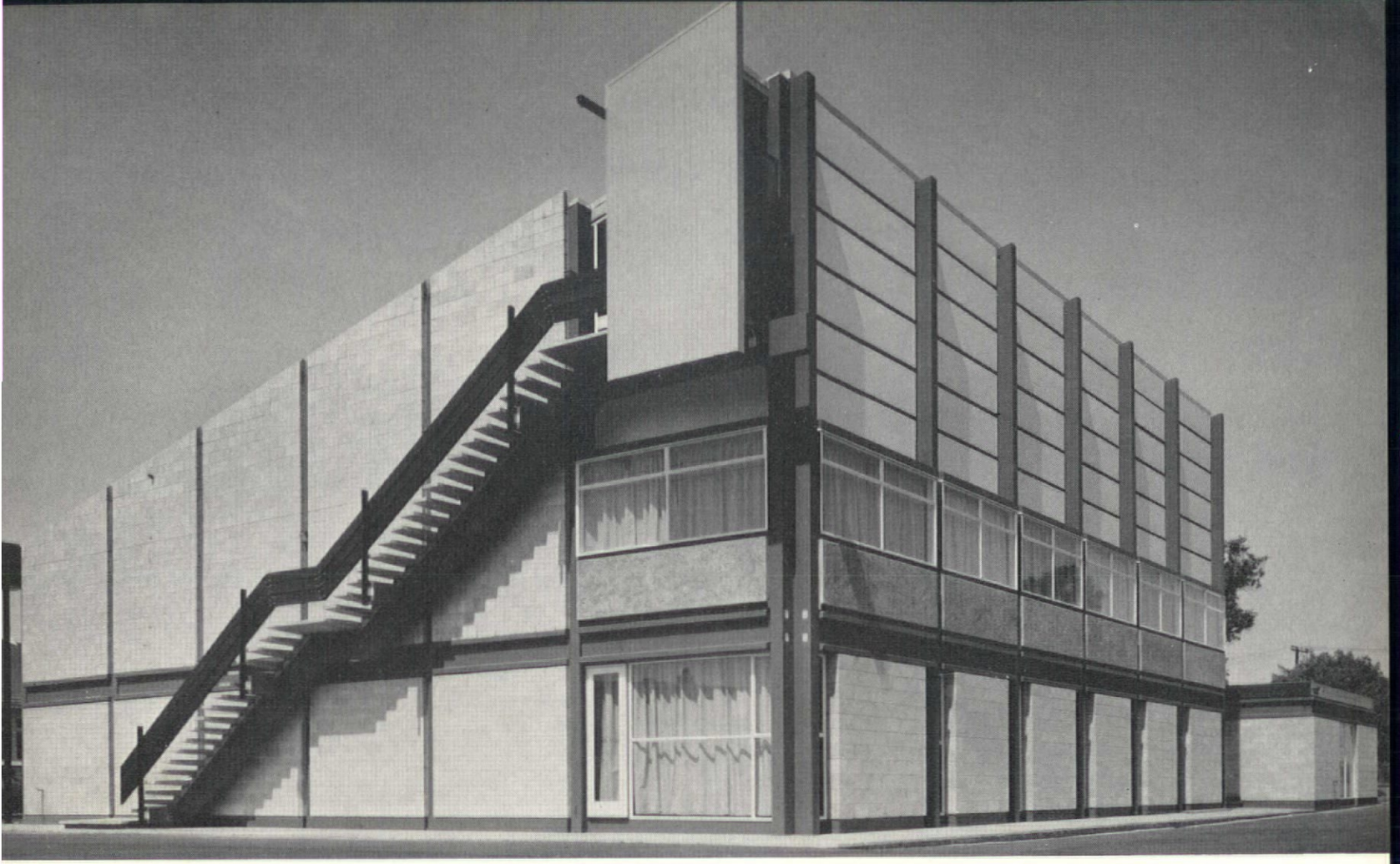


1

Wool Exchange, Christchurch, 1964

This building was designed for one specific function—the auctioning of wool. Sales take place on only 10 days a year, but the importance, value and peculiar requirements of wool sales justified the construction of the exchange. Between sales the building will be leased as a meeting room and conference centre, but these purposes are secondary.

The basis of the design is a square with the auctioneer in one corner facing a fan of curved tiered seating. Around the back of the buyers' benches on two sides of the square are grouped office space for buyers' clerks, a series of small offices on a mezzanine floor and above these a public gallery for the wool growers.

During a sale there is a constant flow of clerks from the offices on ground and mezzanine floors to the buyers' benches. A number of short staircases at intermediate levels give this access.

The public and growers are not permitted into the auction room during a sale. The only access to the public gallery is by two external staircases. There is a single-storeyed block to the west with a tea room, kitchen and brokers' room and a connecting link of entrance and lavatories.

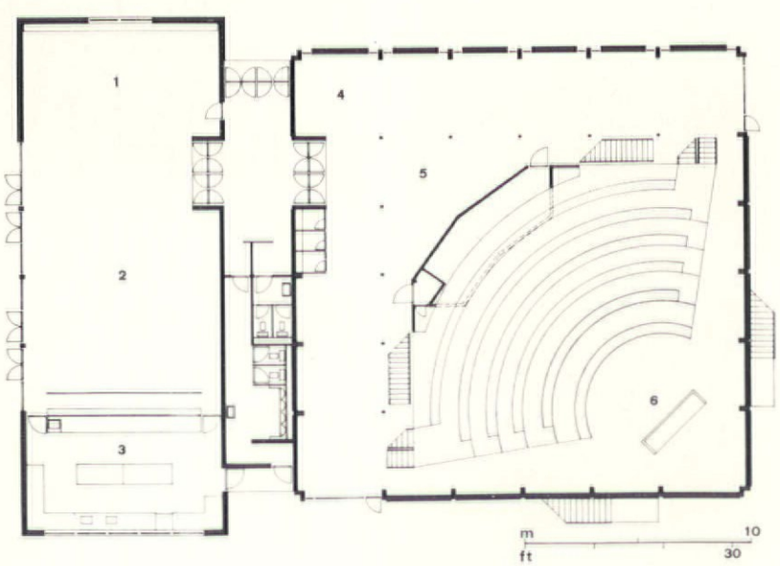
1
Wool exchange from the east, showing the exterior stair to the public gallery. The structural skeleton is entirely of precast concrete, which was erected first, then infilled with panels of concrete blocks

2
Ground floor plan
1 broker's room
2 tea room
3 kitchen
4 cable office
5 foyer
6 auction room

3
Auction room

Photos: Mannering and Donaldson

2



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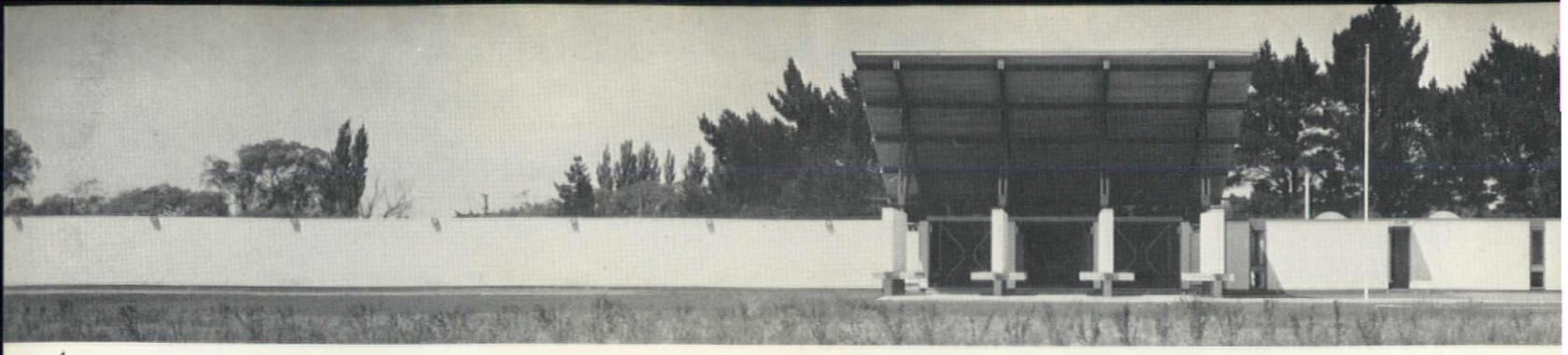
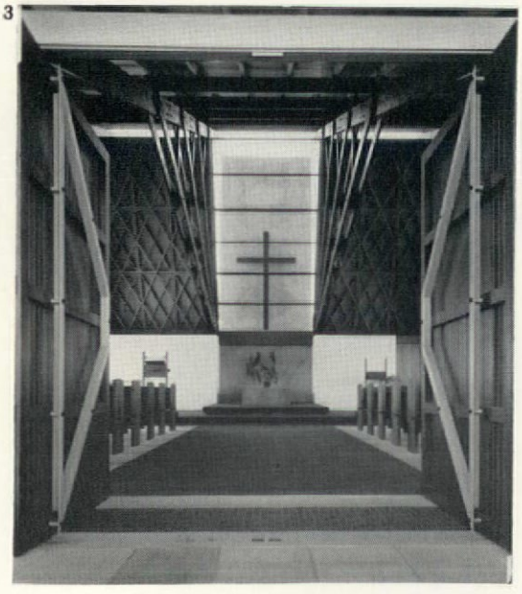


1

2

Christchurch memorial garden crematorium, 1964

The chapel floor has special precast concrete paving blocks as the finished surface to the entrances and each main seating area. The central aisle and the whole of the raised platform is carpeted in a deep green-bronze. Concrete block walls remain exposed and are pointed with ruled joints and painted white. All timber-framed partitions are lined with fibrous plaster and painted.



3

1
North elevation

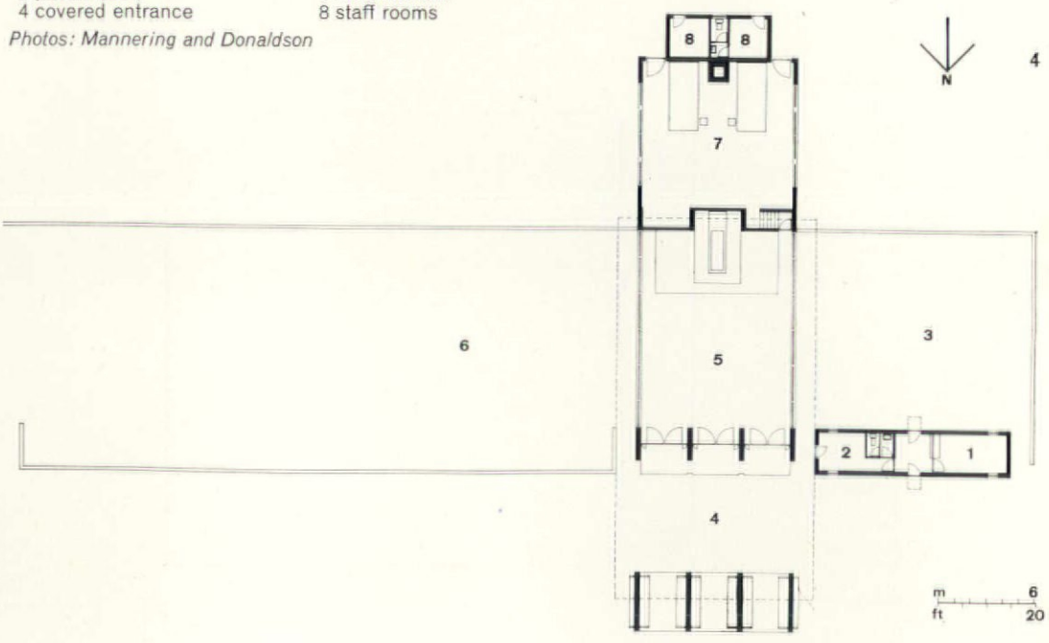
2
Grassed court looking towards the chapel

3
Interior of chapel through the main doors

4
Plan of crematorium

1 office	5 chapel
2 vestry	6 walled garden
3 paved court	7 crematorium
4 covered entrance	8 staff rooms

Photos: Mannering and Donaldson



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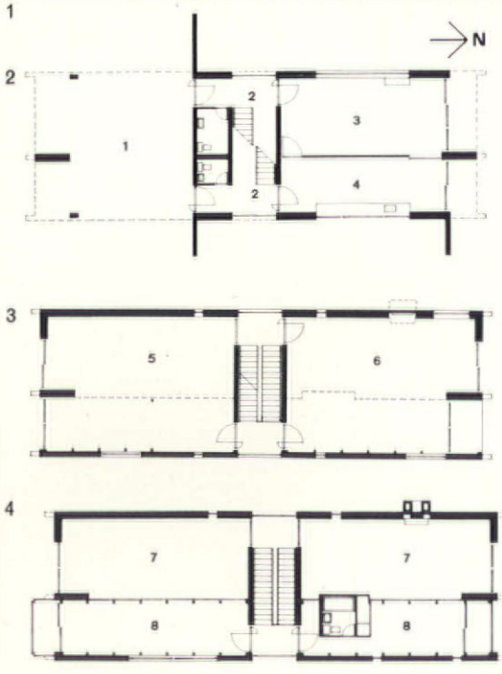

2

3

4

1
North elevation of house

2, 3 & 4
Ground, first and mezzanine plans

1 carport	5 studio
2 entrance	6 living room
3 dining	7 void
4 kitchen	8 bedroom

5
Living room, looking south *Photo: I F. M. McGregor*

Warren House, Christchurch, 1964

The purpose of the building was to provide a flat for the architect and a studio for the architect's partners and staff.

The ground and first floor and the roof over the double height spaces are reinforced concrete. Walls throughout are load-bearing reinforced concrete block of two-skin construction. These stiff wall panels are symmetrically arranged to resist earthquake forces. The mezzanine hung from the roof beams with Meranti posts and beams at 4ft 0in centres has a Rimu tongue and grooved floor. Window frames are timber recessed into the cavity of the block walls.

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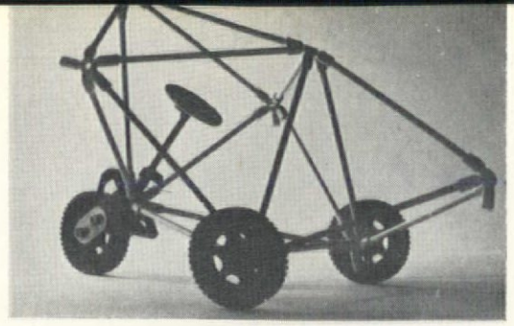

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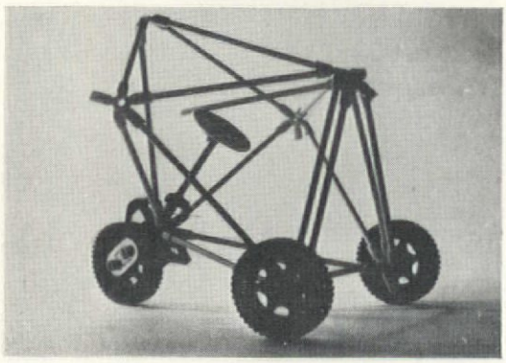

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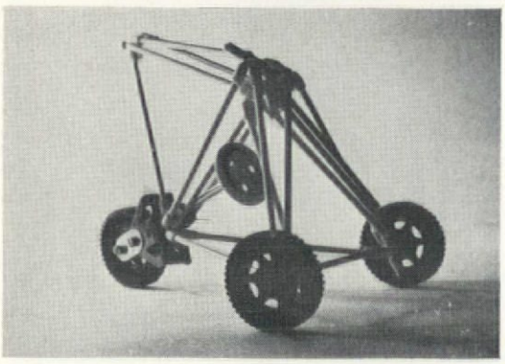

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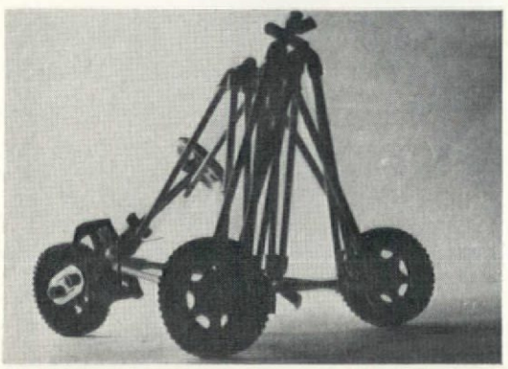

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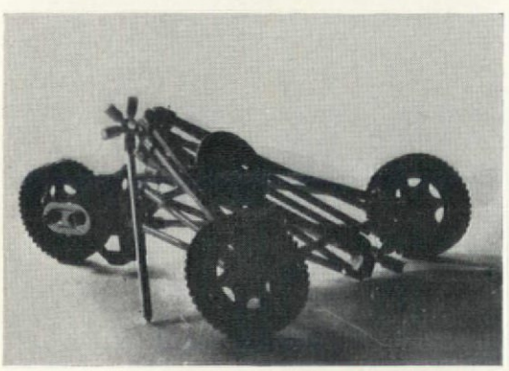

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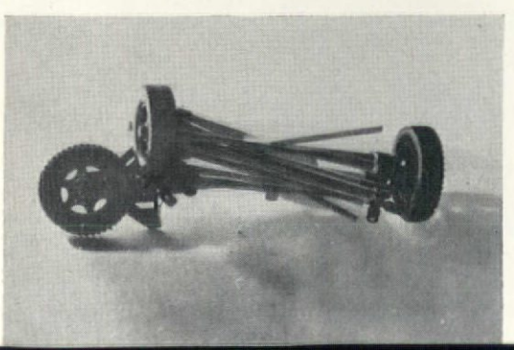

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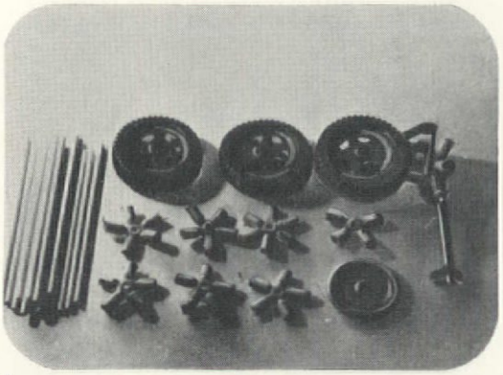

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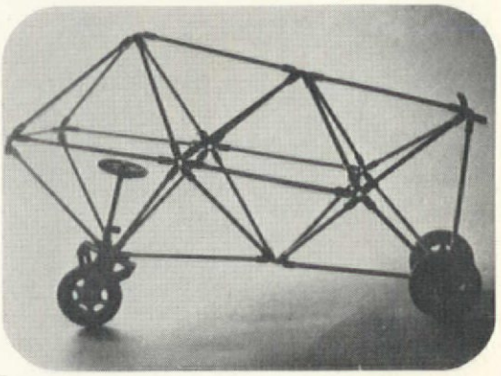


8

Deltomobiles into houses

D. G. Emmerich

Towns were once stages on roads. Travelling, one looked at the bridges and roads; stationary, one enjoyed architecture. So long as building was related to the pedestrian's scale, the general aim was towards fine roads and beautiful towns. But, in growing, towns gave rise to internal routes of communication—streets—and single specialists were unable to cope with the growing problem. Finally, with the advent of the car, the master designer of the town changed: the architect was replaced by the road engineer. Clearly, the traffic engineers' solution is to increase the roadway. Their habit of making a clean sweep of the countryside has turned into a clean sweep of the town. So, losing its density the town has increased in dimension, and thus in roadways . . . it has shrunk and spread at the same time. The town has stopped being a stage, it has become part of the highway.

Thus, in expanding, the town has negated itself and become nothing; precisely because travelling to work takes more energy than work itself, which becomes above all directed towards means of communication. This imbalance has emptied the countryside in favour of the ever-expanding city concentration which, the bigger it gets is less of a town.

All attempts at improving urban roadways are proved futile by statistics. Whatever one does, the moving car requires an area of at least $10m^2$, as against the proportional $100m^2$ of a block of flats built on 10 floors high. And the higher one goes, the more is this proportion aggravated. In addition, taking into account the space it occupies and our numbers, the time taken in driving and parking a car, its actual weight and its useful weight, the infrastructure required, consumption, pollution, noise, neurosis . . . there are a thousand reasons for returning to the architectural concept of a town, and ending our macadam civilization. The more so as it is easier to conjure away the car than a building.

Built on a chassis, body or fixed frame, the car—an object of cult in modern life—is traditional. Its weight, its size, its shape are derived from the coach and are not dictated by modern techniques. These, however, allow for a town vehicle that is not only healthy—silent, odourless, light—but is also of variable geometry.

The folding car is a possibility, for many kinetic systems are known: telescopic, hydraulic, pneumatic. . . . The solution offered here is based on geometric law: the body, convex, with equilateral-triangular faces—called regular deltahedrons—is quite rigid. By removing one strut, the configuration can be changed but only to a limited extent, for as soon as two opposed apices meet, the whole becomes rigid again, forming a smaller deltahedron. The operation can be repeated, continuing until the polyhedron disappears completely **1–6**.

The geometric stability of these constructions allows a great reduction in weight of the vehicle, which approximates to that of a cycle rather than the coach, making it possible to use electromotors or batteries, which, while having a greater energy output, give off neither noise nor fumes. The separate parts are bars of standard length and flexible joints. The covering and seats are stretched membranes of opaque or transparent sheets.

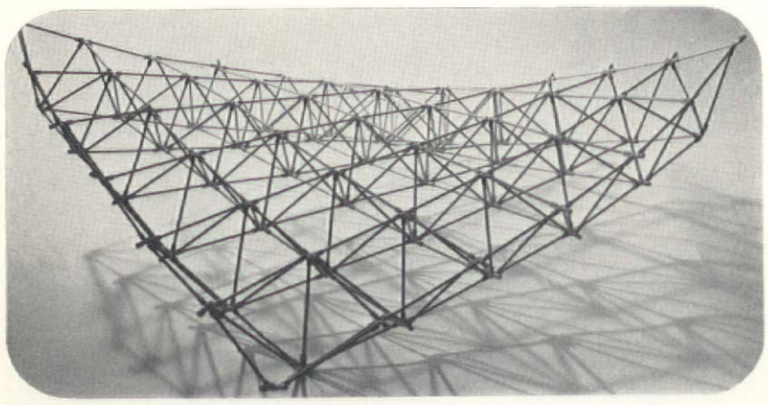
Since there are numerous deltahedrons, not only is the problem of the folding car solved, but everybody can construct their own, modify or enlarge it.

These parts can also be used for the bodies of marine or even aeronautic transports—circular, oval, oblong. . . . Even building frames can be made from them: capsules, space frames, domes. For instance, among the constructions illustrated here (subject to patent)—the parts of 47 deltomobiles each of 18 bars, can be combined to form an isotropic dome of 840 bars. One can imagine the effect of such convertability on two key industries, the conflict between the automobile and building industries could be replaced by a harmony of purpose.

Although the stock of cars is renewed every four years, the ravaging of towns, parks and trees, in the name of technical progress continues.

Techniques are only means, and they are being modified all the time, their aim being, if not an improvement of life, at least its preservation. The opposition of Technics to Nature is a popular myth, one of the twentieth century prejudices which need have no relation to truth, reason, or science in conditioning our lives; and in the face of stark reality, born of error, mistakenly believed in, the fetish of technology gives rise to serious and dangerous problems.

But nothing would be more serious than to accept the accomplished fact as fate, without making some attempt to improve the city—the swollen proportions and the feverishness of which betoken disease and not vitality—a place where healthy life is well nigh impossible. It is therefore a matter of urgency to do everything possible, beginning by reducing the highways and expanding architecture. On the reclaimed ground one could build anew fine roads and beautiful towns.



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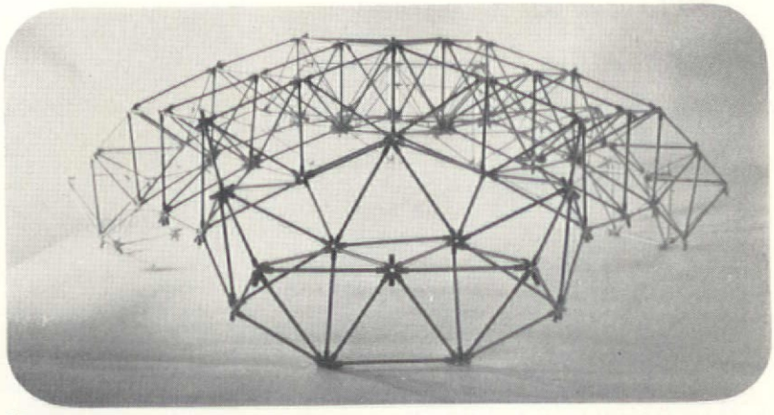


10

1–6
A deltomobile of 18 struts reduced in successive stages to a bundle of struts and wheels. But each configuration is stable

7
The components of a deltomobile

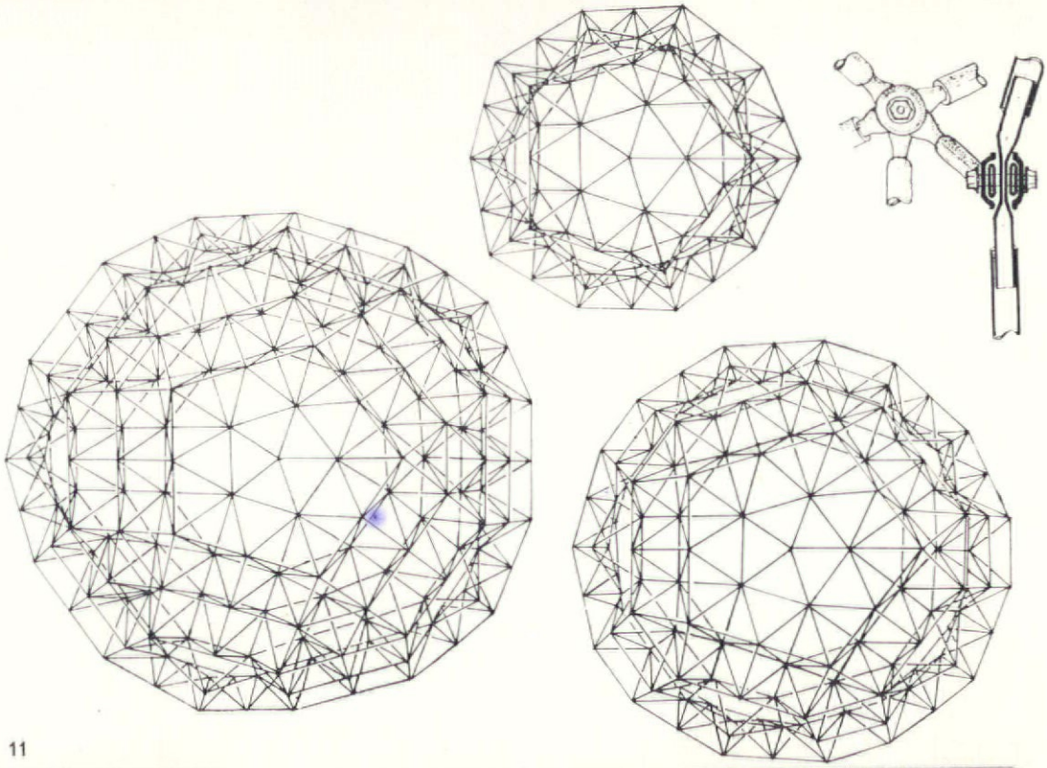
8
Framework of an extended deltomobile

9
Model of hyperbolic parabaloid structure; though curving in two directions it is made up of standard struts. The method of assembly allows great variation in the curves and points of support and not only is it suitable for structures themselves but can provide the scaffolding framework for large scale concrete structures, thus considerably reducing the cost

10
Model structure

11
Isotropic domes made of 420,840 and 1680 struts of standard length. The structures are made up of regular deltahedra arranged between two concentric polyhedral lattices. The joints (see detail) are articulated, but the geometrical stability is such that the structures are rigid at all stages of their assembly and require no subsidiary scaffolding. All faces are equilateral triangles or square

12 & 13
Models of structures made with the same strut and rubber jointing as the deltomobile



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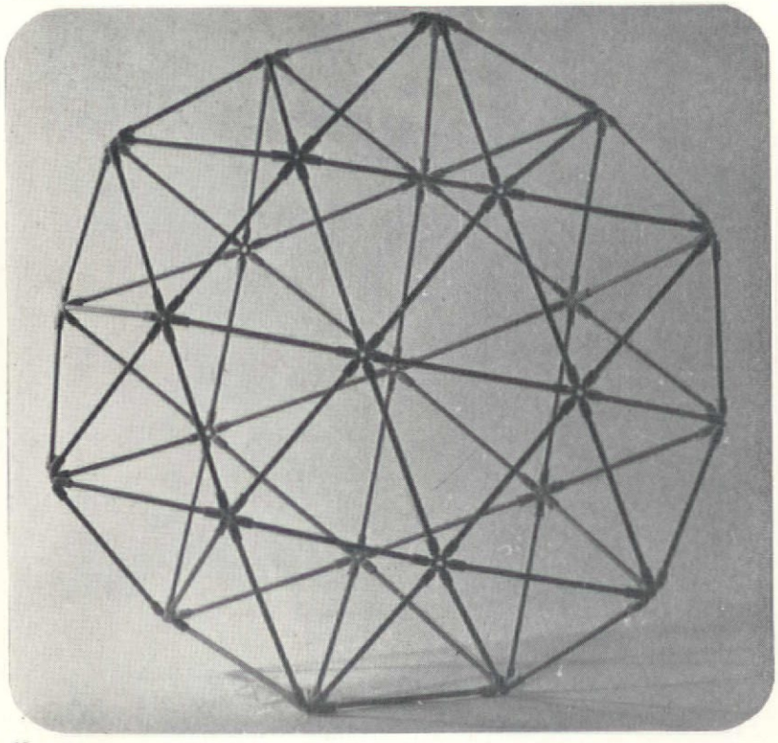

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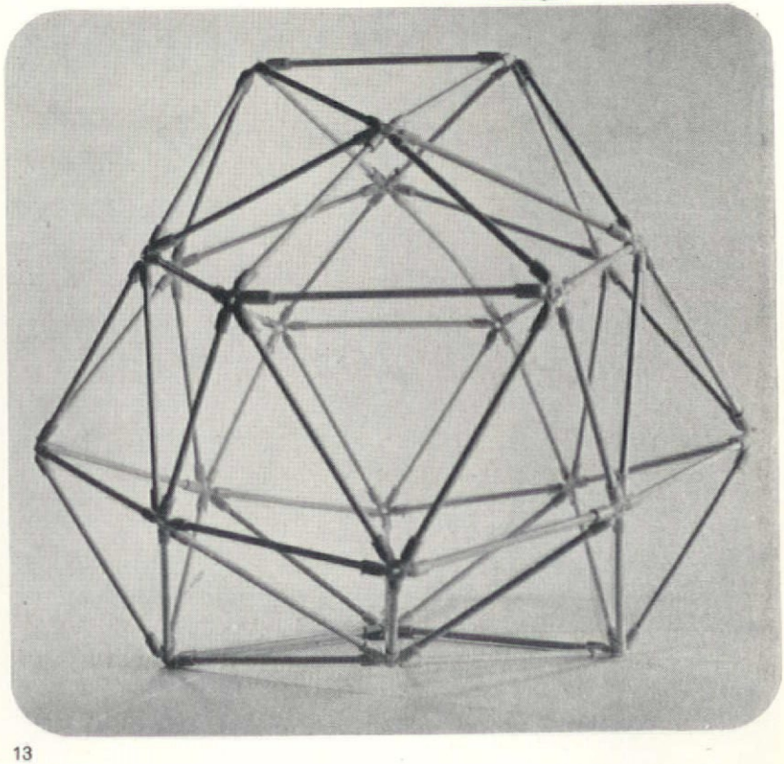

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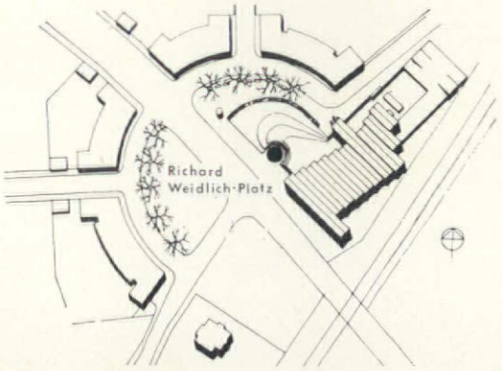


1

Community centre, Sindlingen

Günter Bock

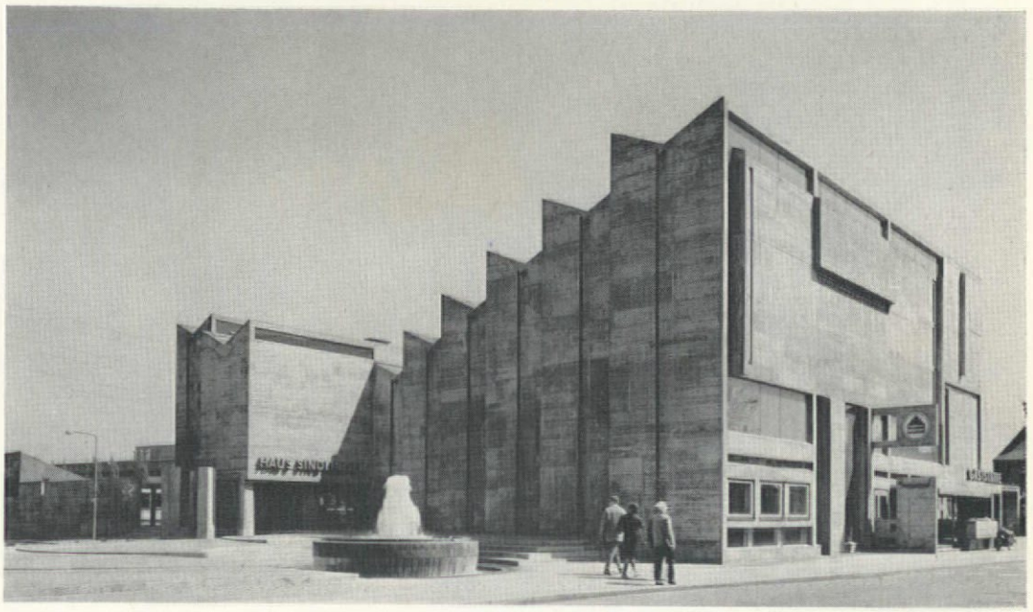
All photographs Jupp Falke

Sindlingen is a part of Frankfurt; it is uniformly residential and most of its inhabitants work in the nearby Farbwerke Hoechst. To invigorate and enliven the area the city authorities determined to build this new community centre.

The site is on a circus at the centre of a suburban layout dating from the twenties. Yet before the community centre was built there was no sense of focus to the layout.

The main entrance is marked by seven square concrete columns, designed by the sculptor Ernst Hermann, partly supporting a wing to the stage, partly free-standing.

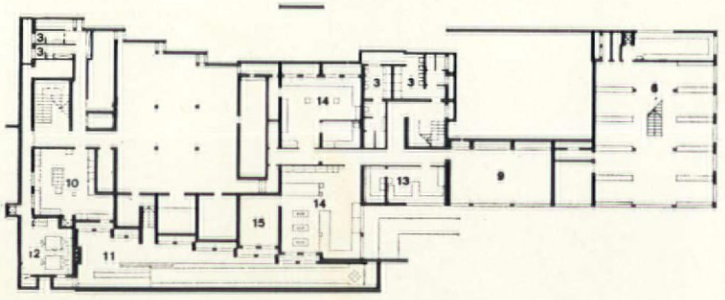
The building consists primarily of a hall for 550, which can be rearranged in many different ways. In addition there is a restaurant and bowling alley, club rooms and workshops for young people as well as a library and consulting service for mothers.



2

1
Site plan
2
View from the west, with the main entrance marked by sculptured columns
3
Basement plan
4
Ground floor plan
5
First floor plan
6
Second floor plan
7
Longitudinal section
8
North-west façade
9
North-west façade to the court

Key
1 club room
2 restaurant-bar
3 w.c.s
4 office
5 court
6 library
7 maternity clinic
8 orchestra pit
9 table tennis
10 kitchen
11 bowling alley
12 heating plant
13 darkroom
14 workshops
15 store
16 stage wardrobe
17 dressing rooms
18 stage
19 refreshments



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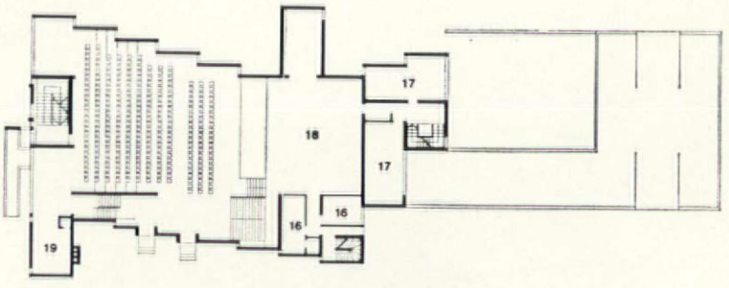

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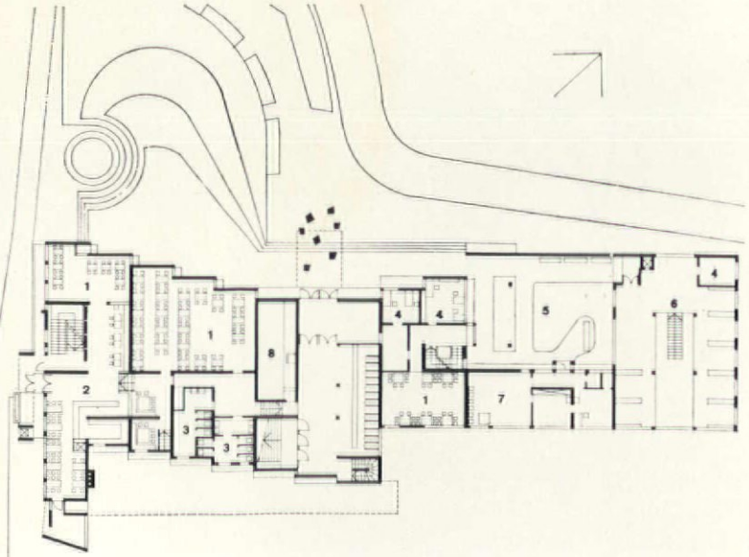

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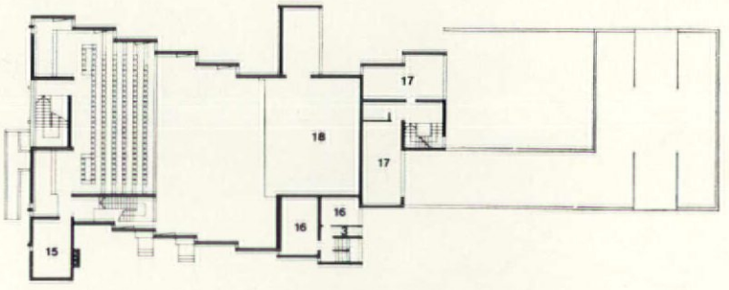

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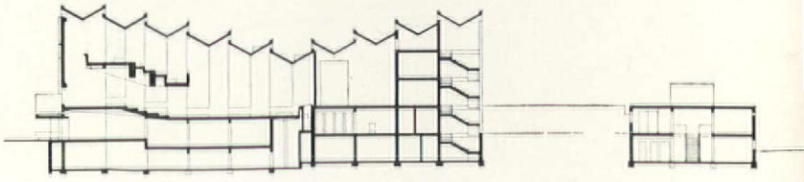

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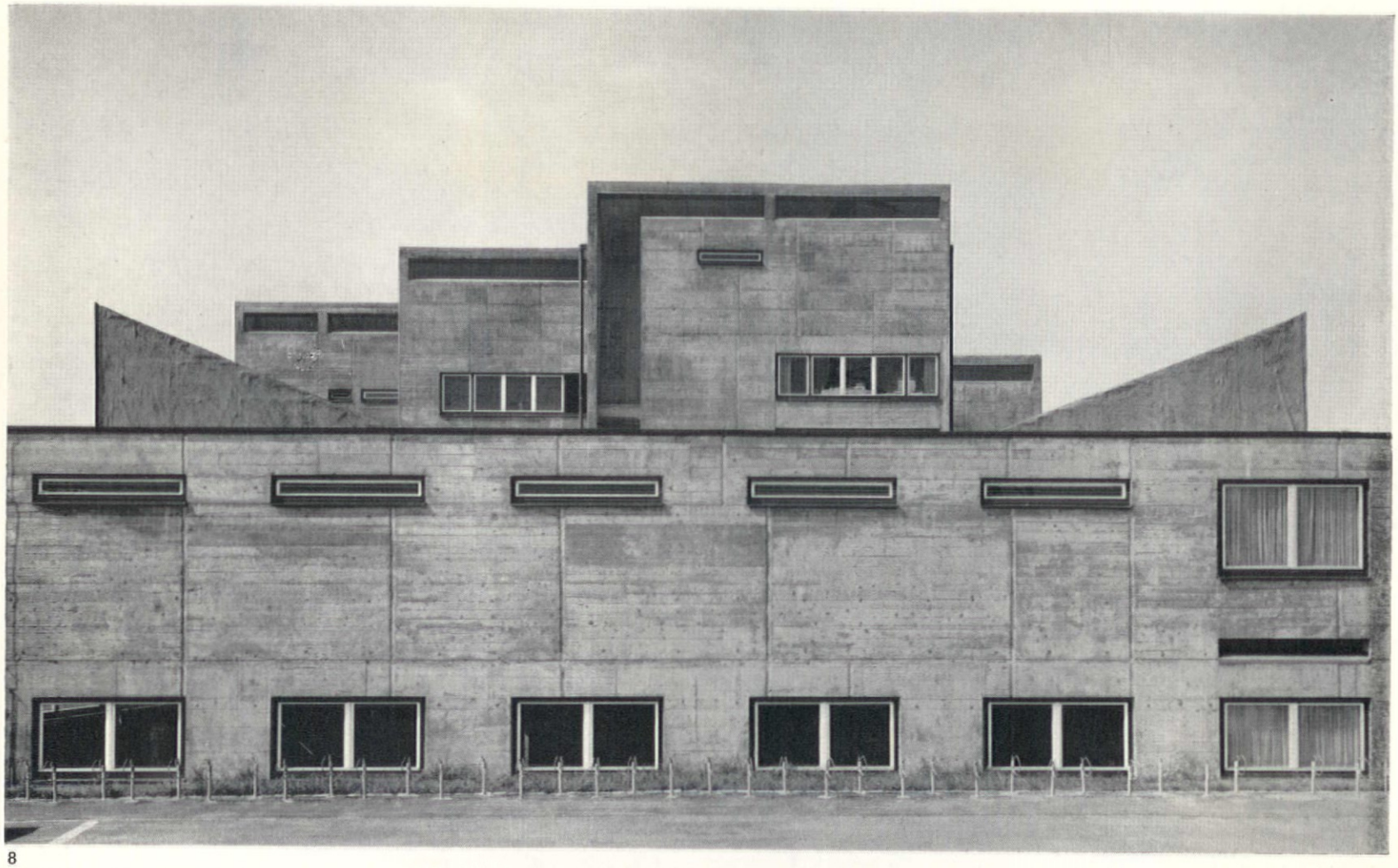

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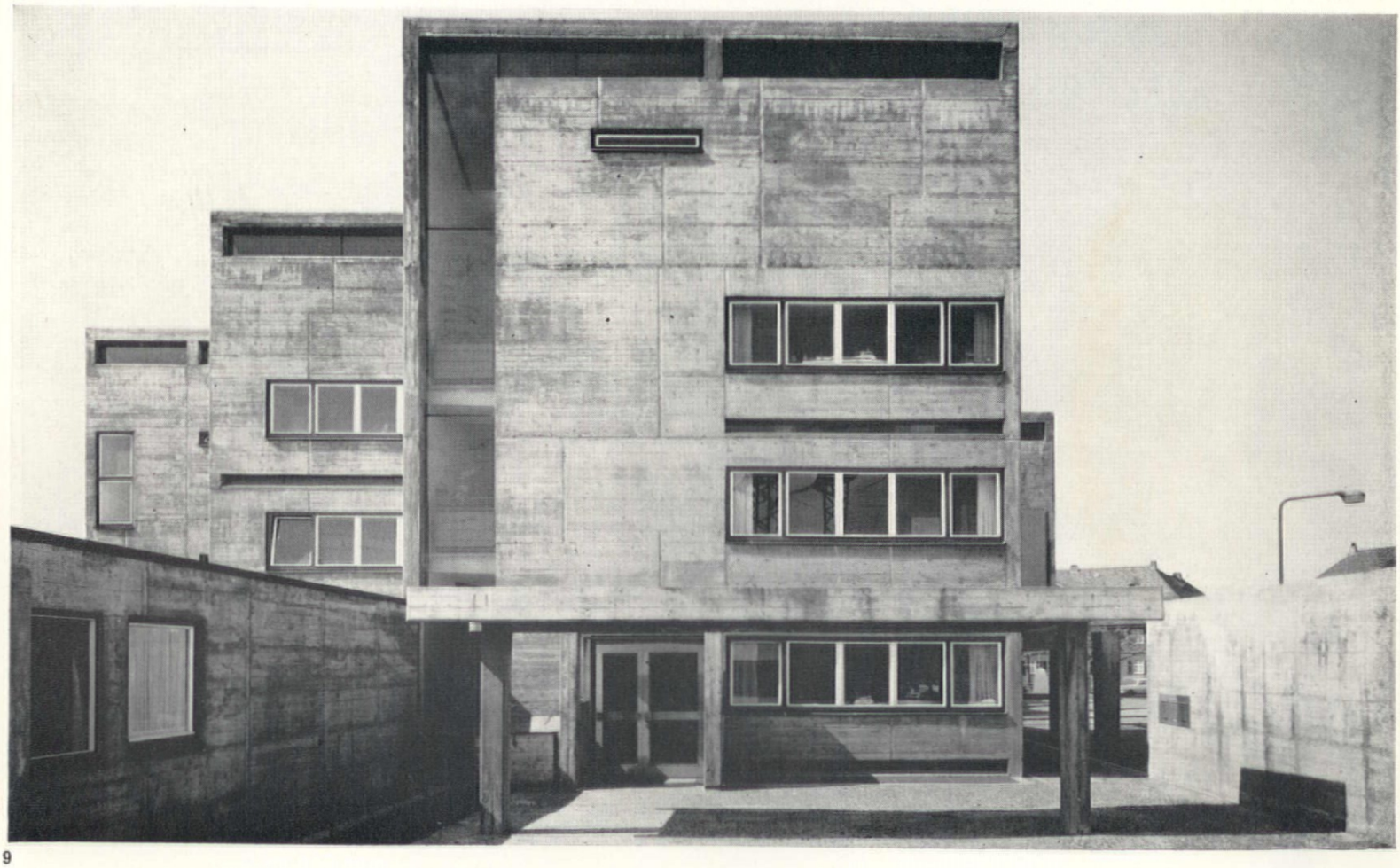

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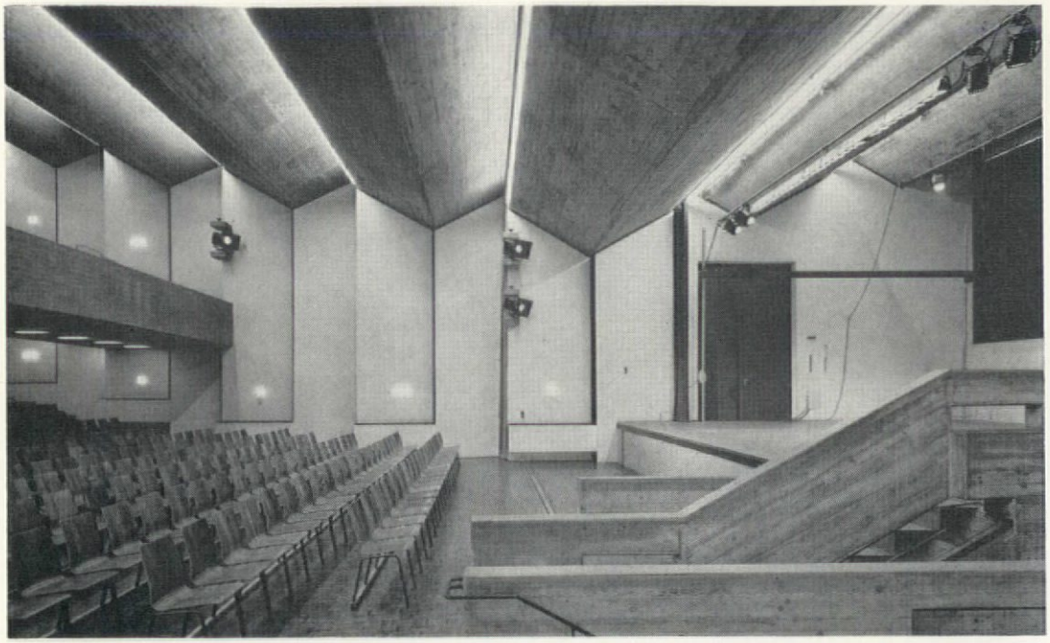

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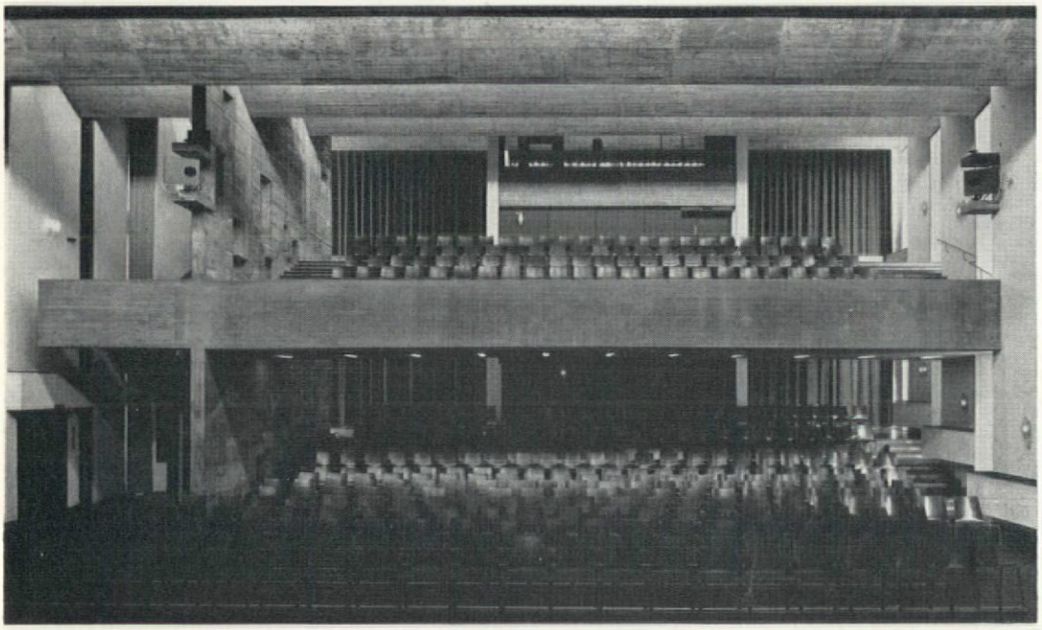

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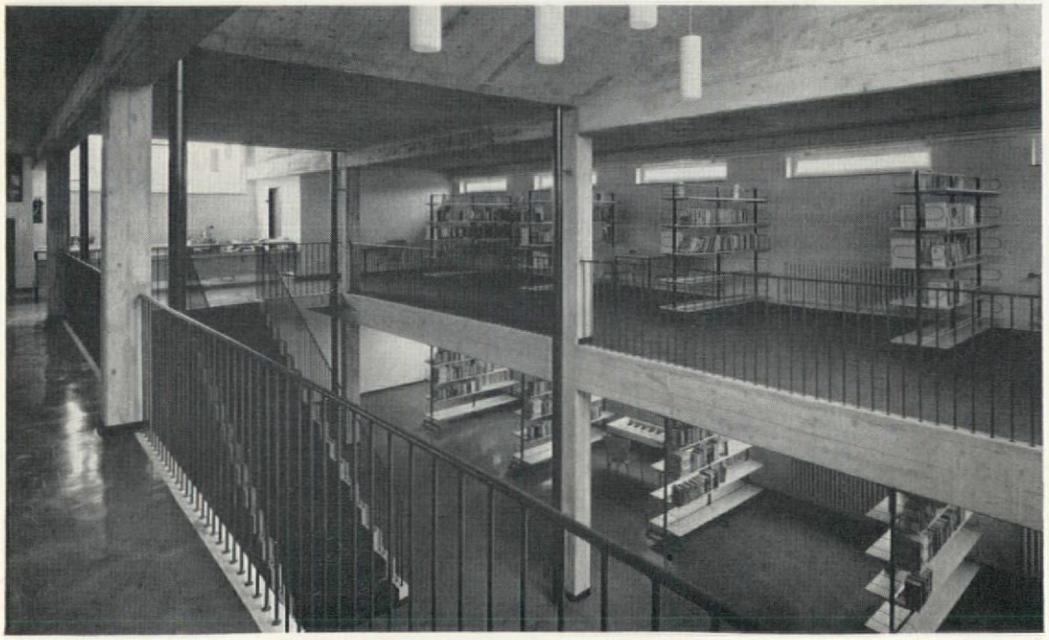

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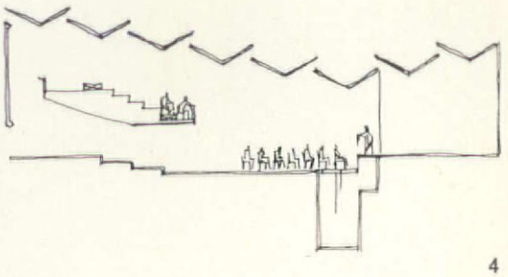

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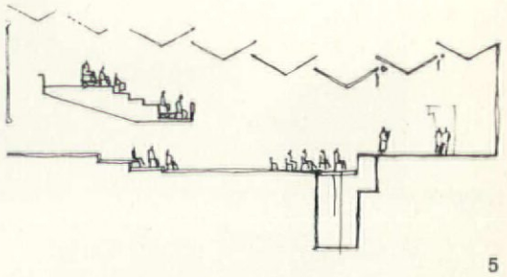

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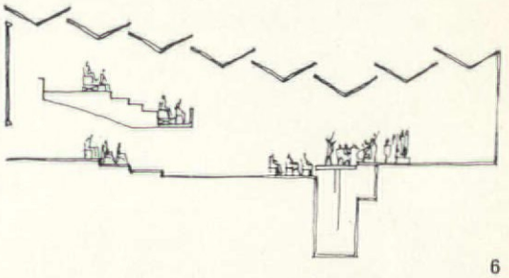

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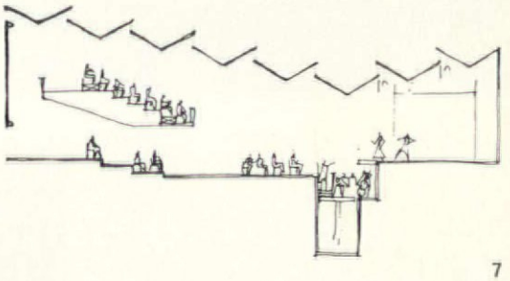

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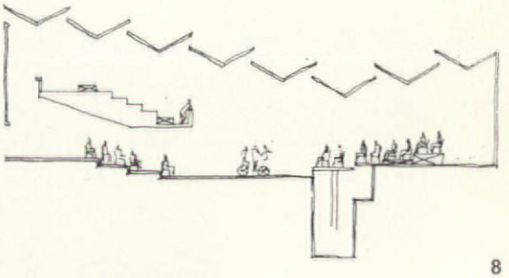

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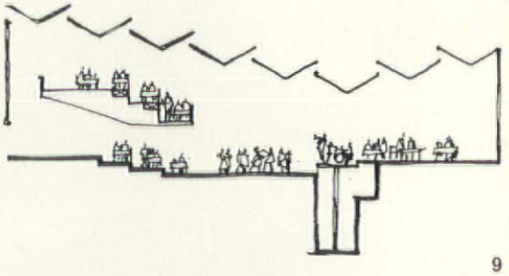


9

1
Cross view of the main hall arranged as an auditorium

2
View of the main hall from the stage

3
Library gallery

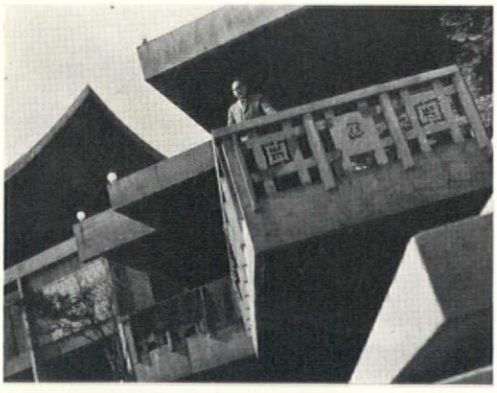
4–9
Diagrams showing variations in the use of the main hall for lectures, plays, concerts, musicals, circus performances or dancing

French embassy, Seoul

Kim Chung-up

1

2



3

1
Ambassador's residence seen from in front of the the Embassy
2
The Ambassador's residence and the Embassy seen from south east
3
The Ambassador's office and Chancellery (right) buildings
4
South elevation
5
East elevation
6
Plan at lower level

Ambassador's residence
1 bedroom
2 servant's room
3 kitchen
4 main hall

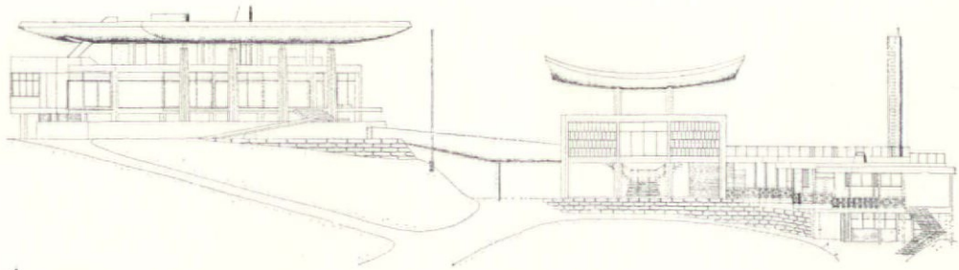
Chancellery
5 waiting
6 Chancellor
7 Consul
8 Commercial attaché
9 Cultural attaché

7
Plan at upper level

Ambassador's house
1 small reception room
2 big reception room
3 dining room
4 bedroom

Ambassador's office
5 ambassador
6 reception room

Chancellery
7 roof garden



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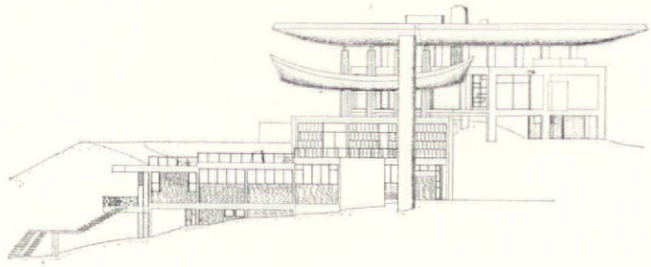

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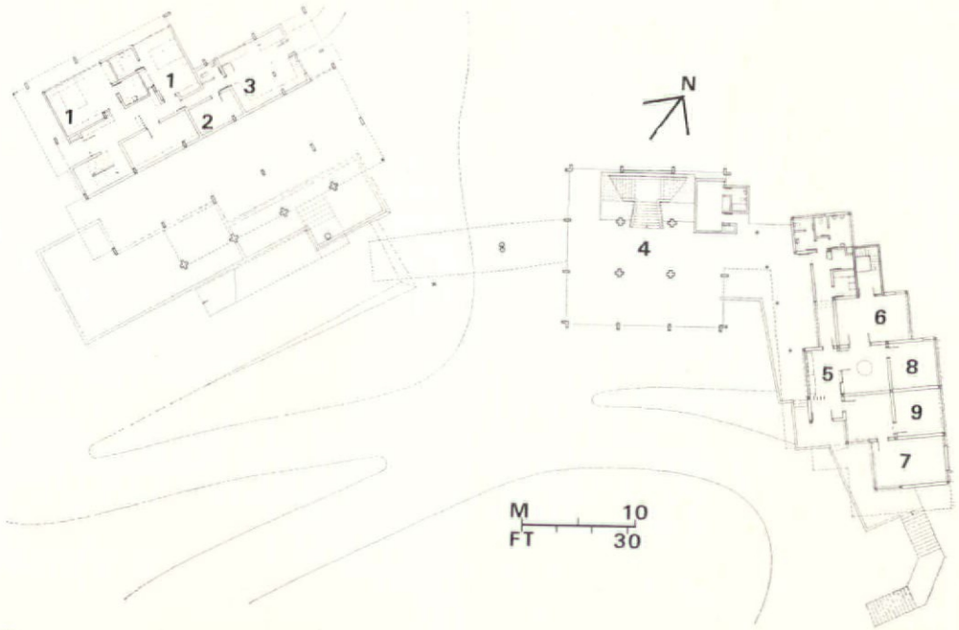

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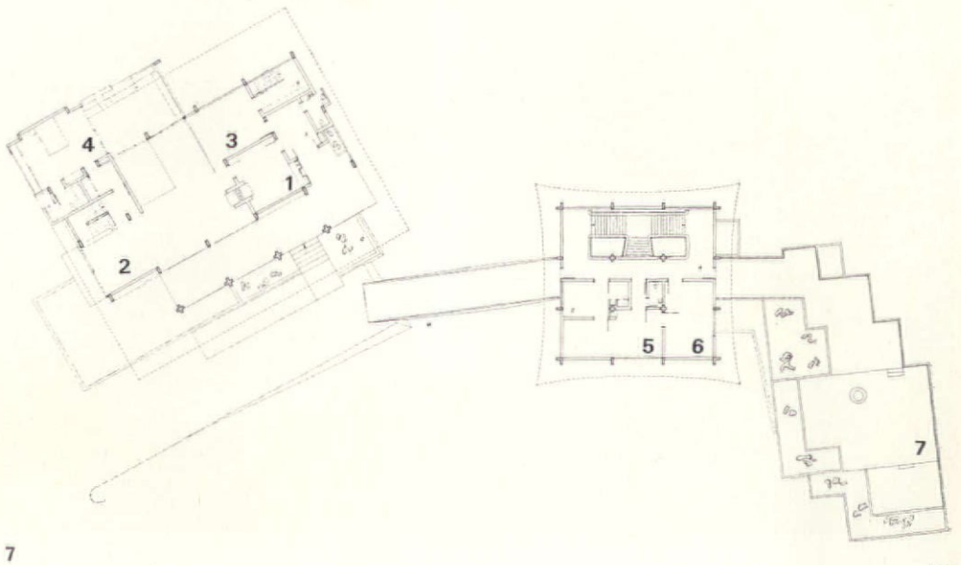


7

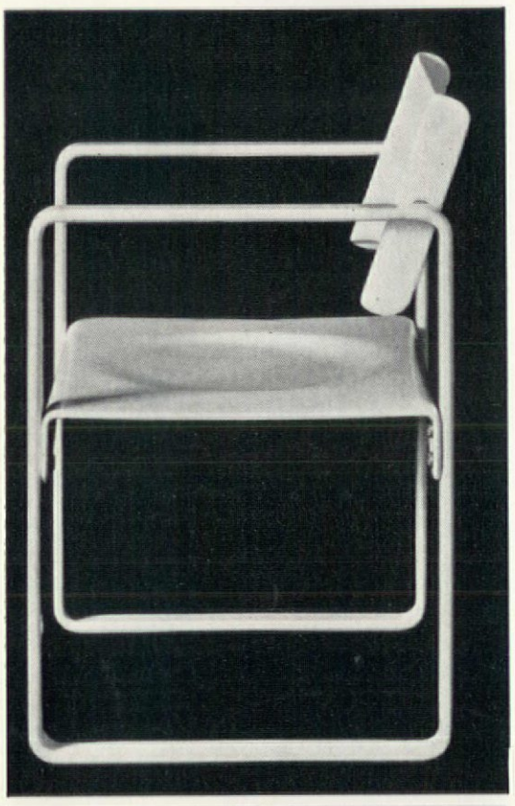
Design

Variations on the chair

1

2

3



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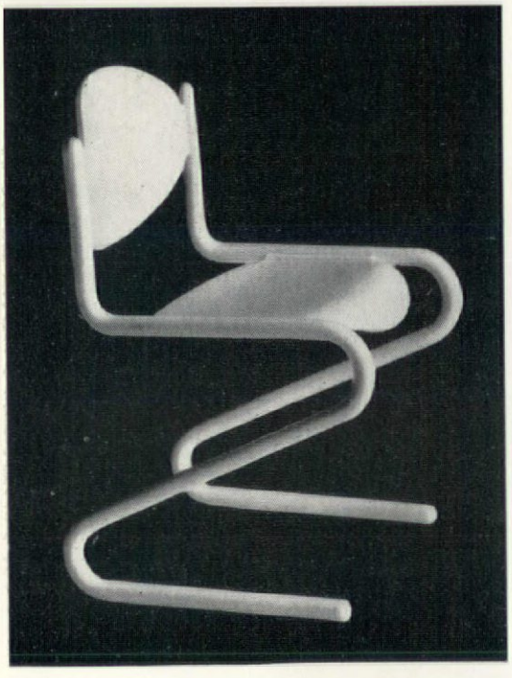

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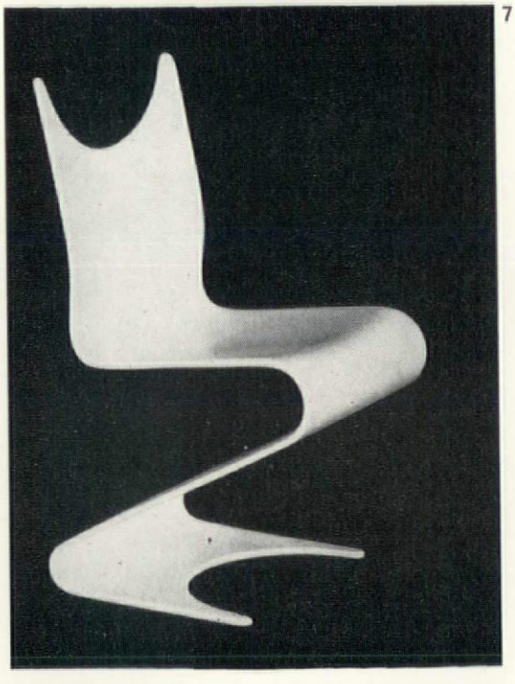

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Balls

Star of the Cologne Fair earlier this year was Eero Aarnio's fibreglass swivle *Ball chair* **1** for Askon Tehtaat Oy designed for hotels, restaurants, air terminals, etc. The shells and bases are orange, red, black or white, lined with orange or black covered foam rubber with Dacron and foam rubber cushions to match.

Askon (England) Ltd., 21–24 Chiswell Street, EC1.

The *Globus chair* **2** will probably also be a star when launched by Gimson & Slater, Ltd. this month. Designed by Overman Tranas of Sweden, it is being made under licence in Britain. The main frame, on a polished aluminium swivel disc base, is of moulded polystyrene with foam upholstery and separate cushion.

Edgar Rise, Nottingham.

PW

Vasa are wholesaling and retailing the *PW* **3** seating range designed by Garry Griffiths, made of 1in ply frames, polyurethane finished in a range of eight stains and colours and bolted together with steel angle brackets. There are separate foam plastic cushions covered in fabric to choice. Retail prices are: £40 for armless chair, £50 for the easy chair illustrated, £66 for two-seat sofa (exclusive of fabric).

31 Lowndes Street, London, SW1.

Panton

Verner Panton (Denmark) has developed three chairs for Holzringfabrik August Plommer of Plüderhausen Wurttemberg to make under licence. They are of moulded plywood so treated as to be both springy and rigid at the same time. One **4** has shaped seat and back supported between two jointless shaped plywood frames. A second **5** uses S-shaped 30mm thick 15-ply supports glued to circular cross-sectioned milling, and is easily assembled. The third **7** is a single bent panel, moulded in one process.

Moebel interior design 1/66.

Buttoned on

Also knock-down and of moulded ply was Tecno of Milan's easy chair **6** at Cologne Fair, with removable leather covering buttoned on with emphasis.

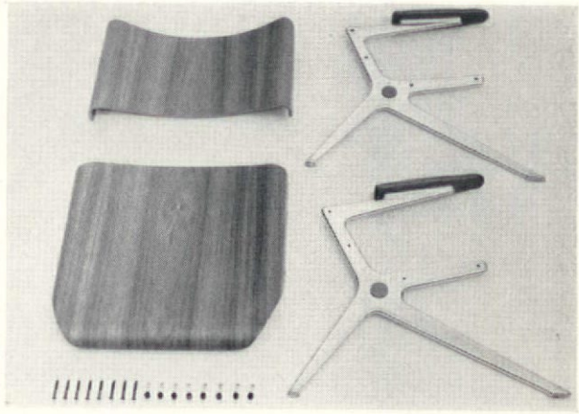
Moebel interior design 3/66.

Axis

Hille's *Axis* knock-down seating, **8**, **9**, **10** by Robin Day, utilizes components which can be assembled as single chairs or in series. Aluminium side members weighing from 5 to 5½lbs provide the legs and back and seat support in one piece, formed by a new process of low-pressure diecasting, which has seldom been used

8

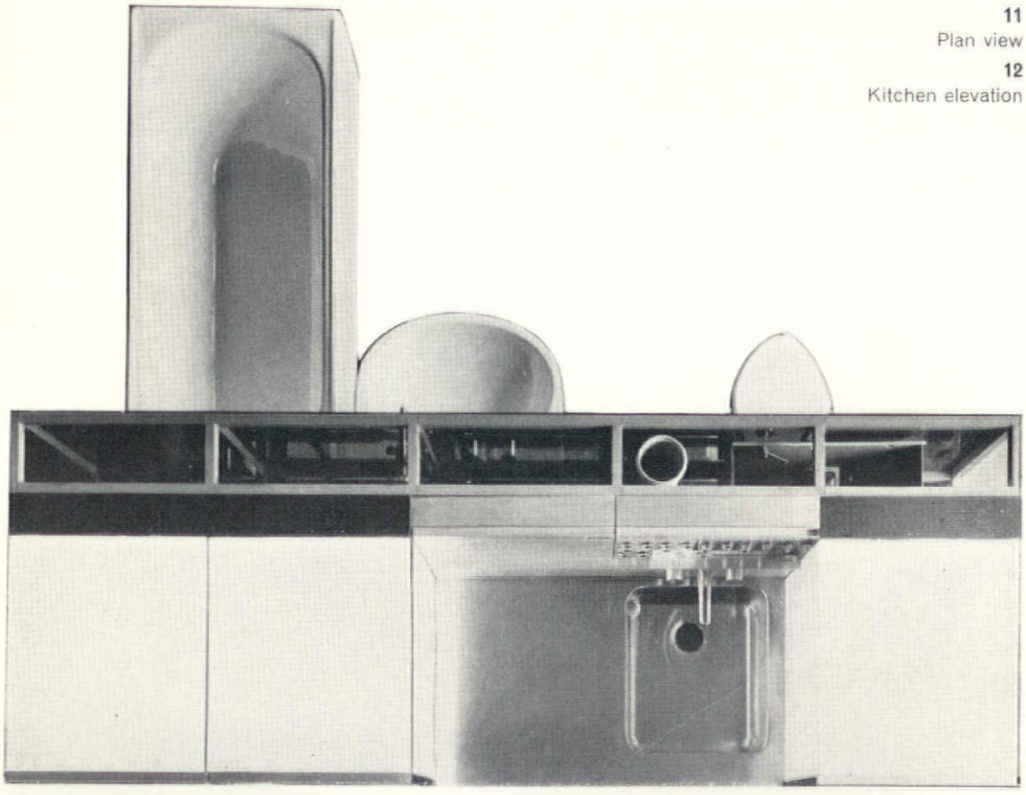
9



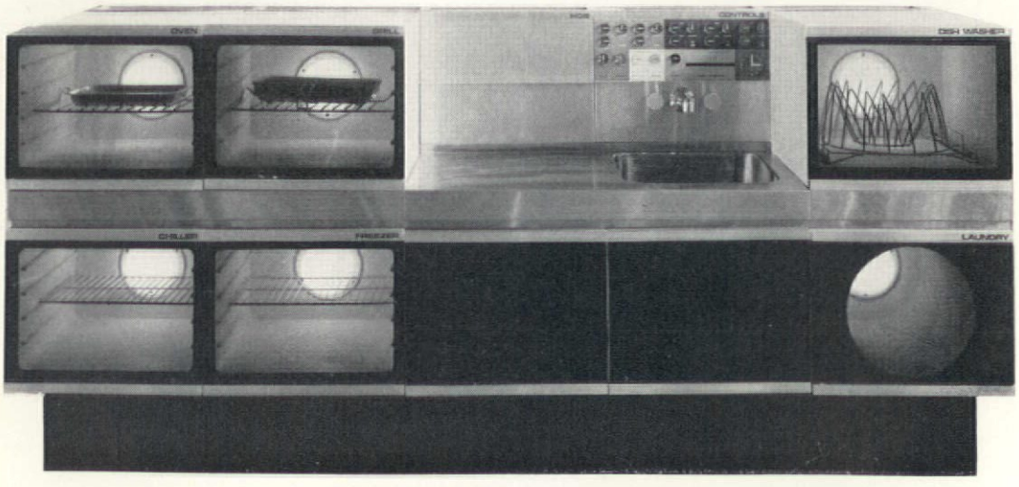
10

for furniture before and which has the advantage of producing a fine jewel-like surface finish. William Mills Ltd., a subsidiary of The British Aluminium Company Ltd., were interested in exploiting the process and cooperated with Hille at all stages in the development of *Axis*. Despite high tooling costs, the chairs retail from £23 for the sidechair and £26 for the armchair. The separate seats and backs are either upholstered or of formed laminated veneers, shaped for comfort, and finished in teak or rosewood. Each aluminium side piece can be used as a single or double frame. Single chairs or rows of units, sharing side frames, can thus be assembled together. A table top is available for bolting between two frames.

Hille, 41 Albermarle Street, London W1.
William Mills Ltd., Friar Park Road, Wednesbury, Staffs.
British Aluminium Co. Ltd., Norfolk House, St James's Square, London, SW1.



11
Plan view



12
Kitchen elevation

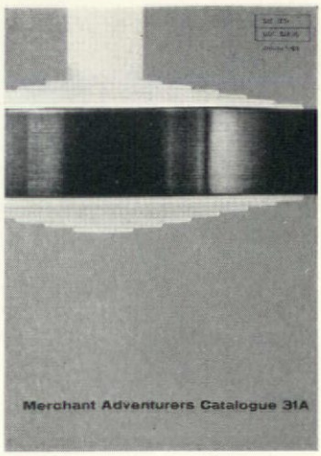
Experimental services wall

The third stage of Allied Ironfounders' services wall was among the most interesting exhibits at the recent IBSAC exhibition. In stage one, several years ago, they had made a demountable wall of melamine-faced flaxboard to which all plumbing, heating and electrical connections were clipped at factory stage, leaving only the coupling up of appliances to be done on site.
In the second stage of development, however, the wall (of light steel framing) was visualized as a *container* of services and *supporter* of appliances, which in their turn furnished the various service rooms with the respective functions of kitchen or bathroom or heating boiler compartments. Not just another heart unit, but a testbed for solving the problems of integrating the multitude of services within a services wall.
The third stage formed part of the Modular Society pavilion at IBSAC, to provide a forum for discussion with the object of ensuring correct motivation for a future programme.
The prototype system **11** had a prefabricated light steel framed cell or core incorporating all the services and providing cantilevered support for a range of modular kitchen and sanitary appliances. The kitchen units were identically sized, for additivity and interchangeability, whether merely for storage, or equipped with differing mechanisms. The wall also housed an electronic control panel and retractable cooker hob. The exhibit illustrated an experimental range of services assembled from an open system having a dimensional relationship of 5M (50cm + 0 ± mm).
The basic conflict in the design of the kitchen units **12** is between a modular arrangement of the component parts and ergonomic requirements. The designers opted for standardized components. Which means that the oven (no room there for the British standard turkey), the grill, chiller and freezer are all the same size—as are the dishwasher and laundry. The components on the lower range are far too deep for easy access—the laundry would be a real backbreaker.

Cadbury Road, Sunbury-on-Thames, Middlesex.

lighting concepts . . .

Available in 3 alternative versions with louvre opal glass diffuser or lens, these units form part of a wide range in the recessed section of Catalogue 31A, which illustrates some of the best ideas in tungsten lighting to-day

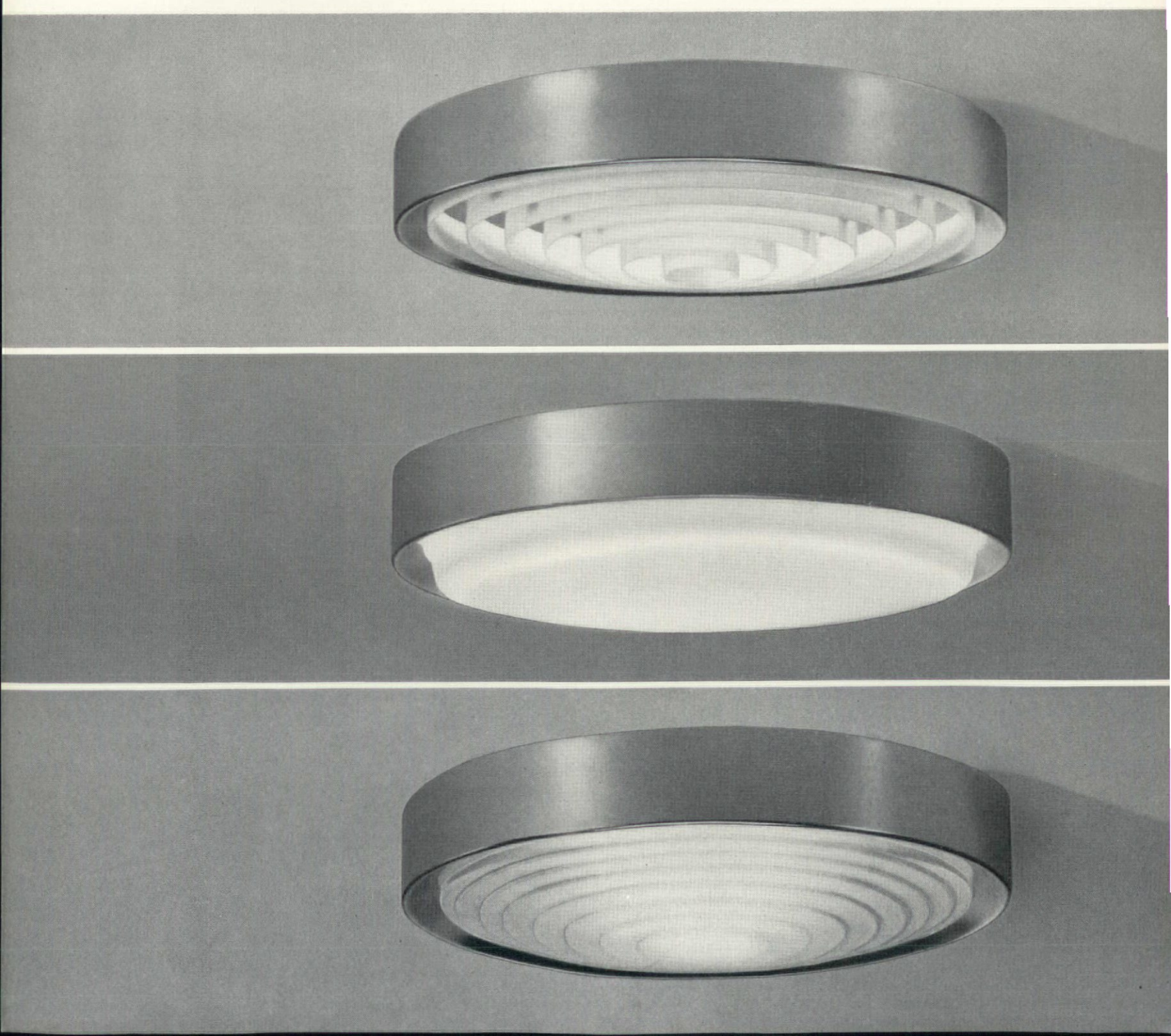


Merchant Adventurers

Feltham, Middlesex. London Showroom: 231 Tottenham Court Rd. W1

MA LIGHTING

1940 anodised aluminium semi-recessed units made in 7 sizes up to 16" diameter



Product analysis 9

SfB (32)
UDC 69.028.1

Internal doors

Alexander Pike

The principle of the door has remained unchanged for centuries and today we generally accept a product which is intrinsically no better, and in some respects much worse than that provided 300 years ago.

Although the principle of fitting a wooden plate into rebates in a frame has remained unaltered, the construction of the door itself has been considerably refined to use materials in the most economical way. In some cases, this process has, of course, been extended beyond the structural capabilities of the material, creating a poor product. The modern standard flush door incorporating skeleton or solid cores was first introduced between the wars and has since been further developed by the use of more efficient core materials, which are now available in great variety. It embodies the principle of stressed skin construction used extensively in aircraft design, in which the facing materials act in structural combination with separating cores or ribs. Considerable care is necessary in the manufacture of such doors as the face plys must be accurately balanced and equally stressed. Failure to maintain an equal pull on each of the face plys will result in warping.

Before the last war flush doors were usually faced with birch or alder plywood, but birch is now almost unobtainable in sizes suitable for standard doors (and requires scarf-jointing on the face), and no reliance can be placed on the erratic supplies of alder. Instead beech plywood is now commonly used, having the dense smooth grain which provides the essential characteristics for obtaining a good paint finish. As doors employing the stressed skin principle must be maintained in a precise balance, the better doors are manufactured with scrupulous attention to detail to preserve this balance: to minimize the risk of shrinking, swelling or warping the core material should be reasonably inert. Western red cedar is frequently employed for this purpose as its low coefficient of expansion makes it less vulnerable to changes in temperature and humidity. It is also highly resistant to decay and infestation. By observing the principle of alternate laminations for the construction from one face to the other each member is integrated so that any movement of one is counteracted by another to break down stresses which might cause distortion.

Methods of construction have gained considerable impetus from glueing and pressing techniques originating in the aircraft industry and radio frequency glue is now commonly employed. As a further precaution against tendencies to warp some firms apply electronic testing methods to ensure that each of the core components has a sufficiently low moisture content before assembly.

Standards

The standards applicable to doors for internal purposes are BS 459 Part 1: *Panelled and glazed wood doors*. Part 2: *Flush doors* and Part 3: *Plywood faced fire-check flush doors and wood and metal frames*.

Design Bulletin No. 8, issued by the Ministry of Housing and Local Government in 1963 related general principles of dimensional coordination to housing and recommended preferred increments, in order of precedence, of 1ft, 4in and 1in.

When assessing these recommendations in relation to the changeover from inch/foot to metric measurement, scheduled to take place within the next ten years, the door industry finds it difficult to recommend the production of door or door sets specifically designed for use in a 4in modular system. Instead, it prefers that components should be based on a 10cm module, which would be readily capable of use in a 4in system.

The reverse procedure would not of course be possible, and it is likely that the industry will adopt the metric standard in one changeover rather than accepting the 4in standard for a temporary period.

British Standard 459 covers doors of $1\frac{3}{8}$in and $1\frac{3}{4}$in thickness—the latter being used for $\frac{1}{2}$-hour fire check or exterior doors. Apart from these, $1\frac{3}{8}$in thick doors are also manufactured as a standard. The economic and manufacturing advantages of standardizing on one thickness are obvious, and there are indications that this might now be possible. The Fire Research Station at Borehamwood have now accepted tests on specially constructed Swedish doors, $1\frac{9}{16}$in thick with an intumescent paste seal round the edges and $\frac{15}{32}$in stops, as being equivalent to the British Tests for half-hour fire-check doors. This $1\frac{9}{16}$in (40mm) thickness has been adopted for recommendation as a national standard by the Standardization Committee of Flush Doors of the *Federation Européenne des Syndicats de Fabricants de Menuiseries Industrielles de Bâtiment*.

Design criteria

The manufacture of standard doors has reached a level of development at which most of the design criteria are dependent on economics.

Aesthetics

Tend to be assessed by form rather than by finish, for which a wide range is available, all dependent upon cost.

Structural performance

The strength of the door is usually related to cost, and it must be borne in mind that facing materials sufficiently strong to hold the door rigid and true are not necessarily strong enough to support fixings for latches, pull handles, etc., and blockings may be necessary at the position of these fixings.

This is particularly important where multi-cellular core materials are employed.

Sound insulation

Although the door usually forms the lightest part of any wall and is consequently the most vulnerable to sound penetration, its acoustic insulation properties are not normally taken into consideration unless it is intended for particular applications when a special design is usually prepared. From this point of view solid cores offer obvious advantages.

Installation

The practice of using door sets is becoming more widespread and promises considerable savings over the traditional method of assembly. The actual cost reduction will depend upon the efficiency of the method of production and the degree of pre-finishing of the door and/or frame, but the following cost comparison based on quantities of 500, indicate the scale of reduction possible.

A. Door set consisting of room-height frame 7ft 6in high with transome and plywood panel over, 6ft 6in hardboard-faced unlipped flush door with cellular core, factory finished with two coats of plastic paint. Door pre-hung in frame on lift-off hinges with latch and striking plate fitted. Lever handles supplied and fitted by the general contractor.

B. Traditional assembly of the same dimensions and details, but frame taken as manufactured and primed by the contractor and fixed separately with a similar door and hung on site. Frame and door site painted, two coats. Allowance made for supplying and fitting butt hinges and lever handles and latch.

A. Door set			
Supply cost of door set	5	10	0
Supply cost of lever handles		10	0
	6	0	0
5 per cent profit on £6 0 0		6	0
Fix door set		12	0
Fix handles		2	6
Paint frame and panel two coats		19	0
Total:	£7	19	6
B. Traditional assembly			
Supply cost of door	1	4	0
Supply cost of handles, latch and hinges		13	9
	1	17	9
5 per cent profit on £1 17 9		1	11
Supply and fix ex. 4in × 2in frame incl. stops	3	13	4
Fix frame		12	0
Supply and fix panel over door, incl. beads		12	0
Hang doors		15	0
Fix latch and handles		12	6
Prime frame		7	6
Paint two coats on frame and panel		19	0
Paint two coats on door	1	9	0
Total:	£11	0	0

It will be seen that standard door sets show definite economic gains purely from the point of view of assembly, quite apart from the simplification of the partitioning resulting from the use of the storey height frame.

Manufacturers' approach

Manufacturers of standard products for building are rarely able to display evidence of having established a systematic design procedure for their products, and market research followed by postulated design criteria is unusual. It is not surprising that, in general, the makers of such a long-established element as a door should fail to be outstanding in this respect. There are, however, certain instances wherein manufacturers have shown an earnest desire to discover market requirements and redesign their products in accordance with the findings.

Leaderflush, for example, have carried out surveys in depth to establish appropriate features and finishes. As a result of one survey two door types were redesigned so that the frames would accommodate a far wider range of ironmongery, including larger kicking plates and concealed overhead door closers. Another survey, carried out with a view to rationalizing production after an analysis of three months production to order, revealed that doors were made in over 400 different sizes and with more than 300 different sizes of aperture. Cuts in these numbers enabled greater efficiency to be maintained and prices held level. This firm now offers twenty sizes of aperture, but claims that success has not been complete, because whilst most architects on official work accept the imposed standards 'the remaining architects generally seem to have an ineradicable predilection for the random'. Basic improvements in design cannot be carried beyond a given point until the consumer realizes that this is a process in which he must actively participate and that his intelligent application is of equal importance to the conscientious manufacturer's efforts.

Criticism

Whilst the conventional details employed for doors in building have remained unchanged, the development of doors for other purposes in other industries has proceeded with startling rapidity. We find ourselves in the anomolous situation of attaching plastic or copper weatherstrips to domestic doors to improve their efficiency whilst the technology of car manufacturers has produced doors which can be supplied in a wide variety of shapes, totally sealed against strong winds and driving rain by gaskets fully integrated in the design.

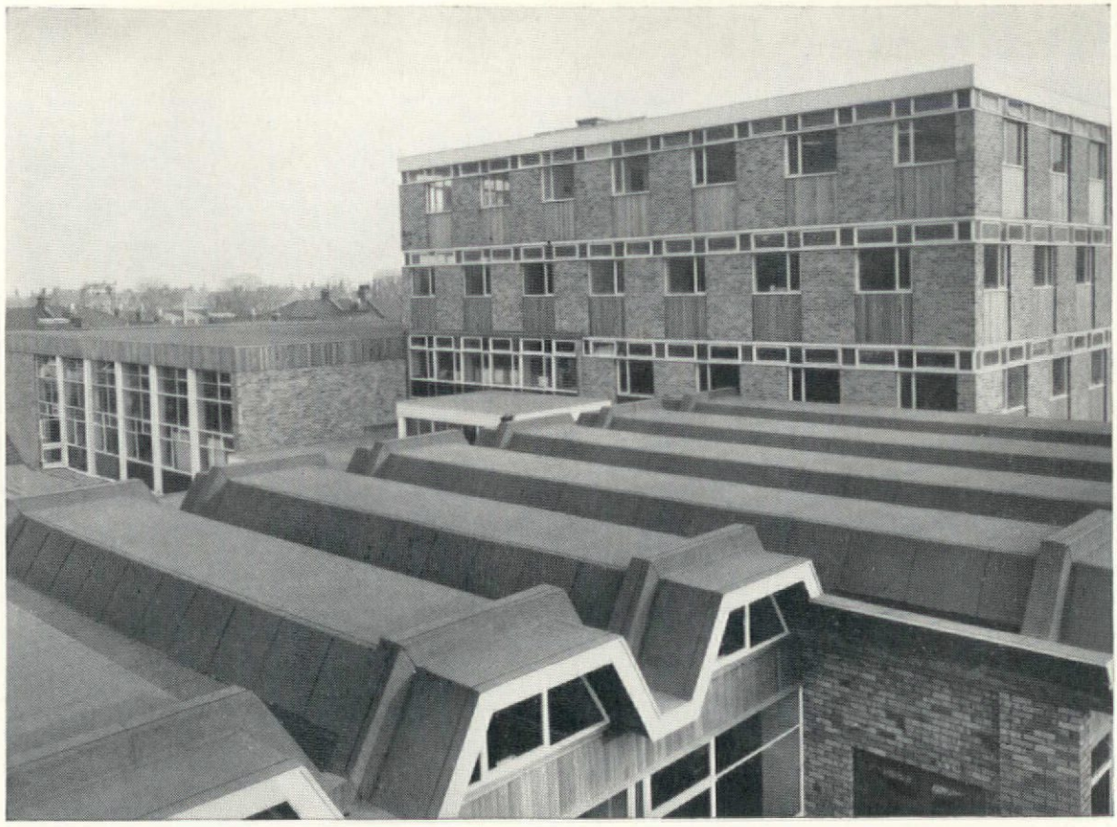
It would be unfair to blame individual manufacturers of doors for failure to achieve such advanced techniques in the design of their own products, particularly as it has to be incorporated in a detail over which they have little control. It is unfortunate, however, that the building industry as a whole finds itself unable to inaugurate research into these and allied problems, and particularly regrettable that the producers of system buildings give no indication of research into new methods, in a field where their application is more likely to be fostered.

It is interesting to note that technological advances are in more evidence when firms are exploiting totally different materials than when employing traditional materials. Manufacturers of glass and rubber doors—although not primarily produced for the domestic market—show an interesting approach to the design of their products. Rubber doors were first introduced into this country in 1953 and have undergone considerable developments since that date. The Harefield Rubber Co., who specialize in this type of door, are constantly experimenting with different rubber mixes to improve abrasion resistance (current mix is known as DR74, indicating that apart from the trial mixes discarded in the laboratory this is the seventy-fourth formula which has actually been used in the manufacture of doors). Considerable attention has been paid in the design of hinges and also to the shape and position of windows so that a break occurs on the line of stress of the door when it is being opened. Latest developments are the combination of a transparent PVC upper portion combined with a laminated rubber lower part. Their refreshingly unusual approach to design is expressed by their claim that although Harefield doors are as advanced as any in the world at this moment, this is not to say that their development is regarded as by any means finished.

Similarly, the design of glass doors has in the past decade undergone more significant development than that for timber doors. Although the all-glass door was originally conceived as a frameless element, the need for connection between the glass and its pivots led to the use of metal top and bottom rails. Formerly, with a few exceptions, these were made from manganese bronze extrusions fixed firmly to the glass by means of Roses metal, a low melting point alloy having the property of expanding on cooling and setting. More recently a technique has been evolved employing a neoprene channel section between the extrusion and the glass, permitting the use of coloured anodized aluminium rails, hitherto not possible due to their susceptibility to discoloration from the heat of molten Roses metal. Continued experiment has led to the substitution of patch fittings at the top and bottom corners of the door, eliminating the necessity for top and bottom rails. Whilst the first glass doors were limited to the more expensive applications where floor springs could be fitted, designs were later introduced for a range suitable for domestic applications, mounted on flat butt hinges and supplied with latch sets.

Whilst it is obvious that those firms employing new materials cannot offer prices comparable with the cheaper timber doors, an examination of their products shows them to be of a sufficiently improved standard of design to prove greater value for money.

←Code 44



PERMANITE protection

Permanite Built-up Felt Roofing

College of All Saints, Teachers' Training College
White Hart Lane, Tottenham, London
Architects: Woodroffe, Buchanan and Coulter
General Contractors: Walter Lawrence & Son Ltd

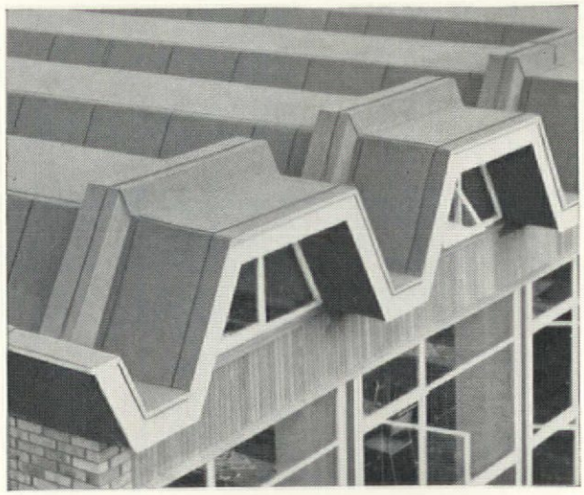
This project is an extensive re-development of an existing college to provide completely new facilities for 400 students. It comprises a dining hall, gymnasium, hostel block, teaching block and chapel.

The most striking feature of the dining hall, which is over 65 ft. long, is the folded concrete slab roof. The roof is covered with vapour barrier felt, ½ in. insulation board and 3 layers of Permanite Built-up Felt Roofing, the top layer being mineral surfaced felt. The edges of the roof were completed with "Permatrim" aluminium roof edging.

The gymnasium is a 2-storey building with changing rooms below and the gymnasium on the first floor. It is a steel-framed structure with a concrete roof insulated with foamed slag screed and topped with ½ in. sand and cement. The roof is weatherproofed with 3 layers of Permanite Built-up Felt Roofing top dressed with mineral chippings. The perimeter of the roof is finished with "Permatrim". The roof to the teaching block is treated in a similar way.

The hostel block has accommodation for 180 students with six staff flats and other staff accommodation. The block is built in load-bearing brickwork and has concrete floors. Timber purlins span between T.D.A. roof trusses. These support the roof which consists of 2 in. "Stramit" slabs and 3 layers of Permanite Built-up Felt Roofing, the top layer being mineral surfaced felt. The roof pitch is 22½°. An interesting feature is the built-in gutter units lined with built-up felt.

All the roofs have internal rainwater pipes finished at roof level with a lead soaker which is bonded between layers of felt with hot bitumen compound.



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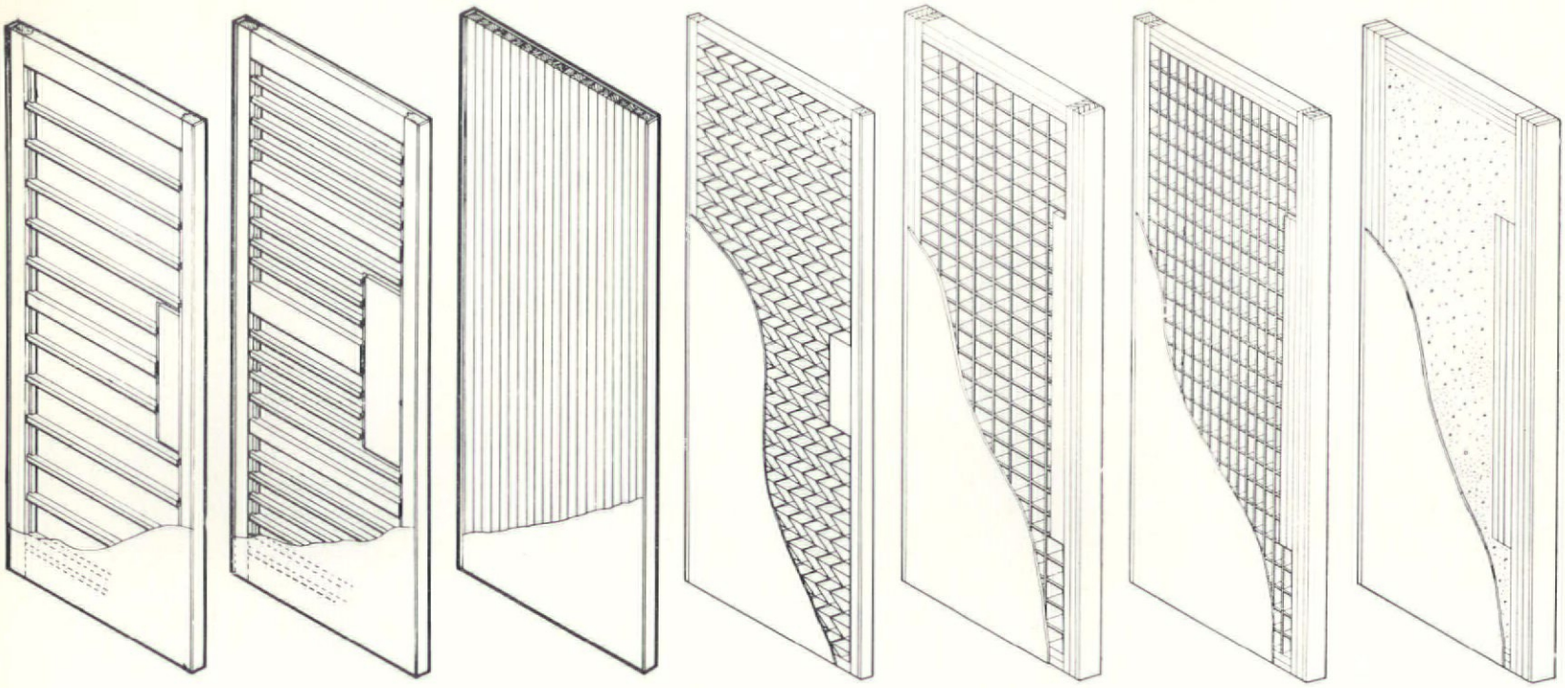
Technical leaflets describing Permanite Built-up Felt Roofing are available on request from: Permanite Limited, 455 Old Ford Road, London E3



Alternative forms of core for flush doors

Timber rails at approximately 5in centres (Leaderflush)

Half-solid. Rails at approximately 2½in centres forming a 50 per cent solid timber door (Leaderflush)

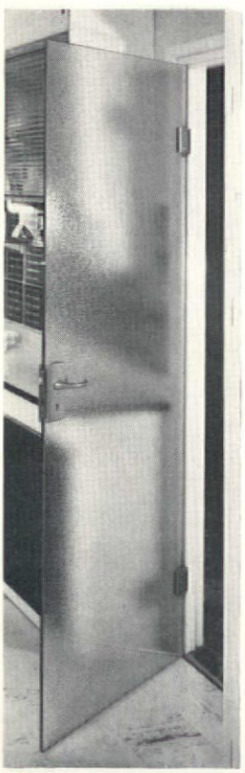
Solid core. Longitudinal laminations of reversed-grain timber (Leaderflush)

Tested and approved by the FRS as a half-hour fire-check door to BS 459 part 3(a)

Expanded cellular board (Crosby)

⅛in hardboard lattice cells of 3½in module. ¼in softwood members forming cell module of 3¼ × 1⅝in (Crosby)

Flaxboard core (Crosby)



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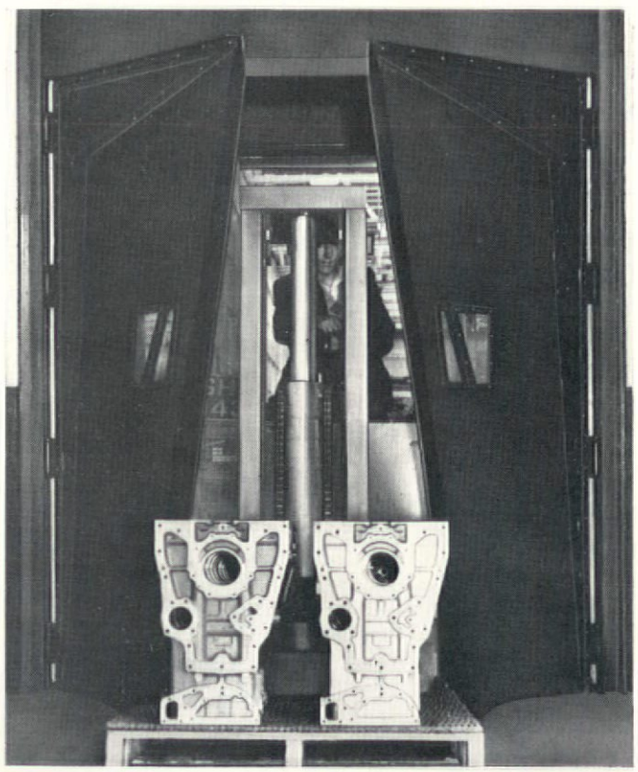

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1 Armourcast doors in ⅜in toughened rough cast glass supplied complete with three-lever mortice lock and rising butt hinges. Standard sizes 8in high, 30in or 33in wide, manufactured to a tolerance of $+0-\frac{1}{16}$in. Retail prices £9 or £9 10s according to width (Pilkingtons)

Development of flexible rubber doors

2 An early version with exposed hinges and limited vision panels split to accommodate flex line extending into upper half of door.

3 The latest model, the *Clearway* with hinge mechanism housed in an enclosing tube in an invulnerable position at the top of the door. Good visibility is obtained by forming the top half of the door of transparent PVC (Harefield)

Some manufacturers of internal doors

*Electro Hydraulics Ltd. (Industrial Sales Division), Liverpool Road, Warrington, Lancs.

*Richard Graefe Ltd., Mahtal Works, Gomm Road, High Wycombe, Bucks.

*Harefield Rubber Co. Ltd., Bell Works, Harefield, Middlesex.

Kawneer Co. (UK) Ltd., Aylesbury Road, Aston Clinton, Bucks.

*Leaderflush (Doors) Ltd., Trowell, Nottingham.

*Pilkington Brothers Ltd., St Helens, Lancs.

*E. Pollard & Co., 159 St John Street, London, EC1.

E. Parker (Timber) Ltd., Colliery Wharf, Burnhope, Co. Durham.

Magnet Timber Ltd., London Road, West Thurrock, Grays, Essex.

Manor Joinery Works Ltd., Barking By-pass, Barking, Essex.

John Sadd & Sons Ltd., Maldon, Essex.

Austins of East Ham Ltd., East Ham, London, E6.

Muirhead & Sons Ltd., Grangemouth Saw Mills, Earl's Road, Grangemouth, Stirlingshire.

Thomson & Balfour Ltd., Victoria Saw Mills, Bo'ness, West Lothian.

McCue, Dick & Co. Ltd., Duncrues Street, Saw Mills, Belfast, 3.

Boulton and Paul Ltd., Riverside Works, Norwich, Norfolk.

W. J. Simms, Sons & Cooke Ltd., Haydn Road, Sherwood, Nottingham.

C. Graham Walsh Ltd., Perry Street, Wednesbury, Staffordshire.

Crosby & Co Ltd., The Lion Works, West Street, Farnham, Surrey.

W. R. & R. Atkinson Ltd., Airedale Saw Mills, Bingley, Yorkshire.

W. Marsden & Co. Ltd., P.O. Box 24, Leeds Road, Stoneferry, Hull, Yorks.

*The cooperation of these firms and the British Woodwork Manufacturers' Association in the preparation of this article is gratefully acknowledged.

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Trade notes

Alexander Pike

To obtain additional information about any of the items described below, circle their code numbers (N1, N2 . . . etc.) on the Readers' Service Card inserted in this magazine.

N1 Convector heater

Copperad Limited, Colmbrook, Bucks.

The Minivector can operate from a central heating boiler or can optionally bring into play a 2kw electric heater. With two-speed motors and inbuilt thermostat it is available in two models: horizontal 11¾in high by 30in wide, and vertical 11¾in wide by 30in high.

N2 Glass fibre splashbacks

Berry Production Limited, 131 Middlesex Street, London E1

Manufactured from FRP in panel 6in and 9in wide and in lengths suitable for standard baths, washbasins or sinks. Moulded with a radiused top edge, panel can be provided with a soap dish if required. For bath surrounds the panels have an angled cove section to seal the junction with the bath.

N3 Robot glazier 1

James Clark and Eaton Limited, The Glass Centre, Gt Suffolk Street, London SE1

The Robot Glazier D40 permits glazing in large panes to windows up to 40ft above ground level from a 7-ton vehicle fitted with hydraulic-operated arm and sucker attachments. Safe glass weight at 40ft increasing to 1000lb at a height of 25ft. This is equivalent to a 20 × 10ft plate of ⅜in glass.

N4 Packaged wiring

Aircraft Marine Products (GB) Ltd., Terminal House, Stanmore, Middlesex

PVC-covered steel skirtings and architraves, pre-wired in sections. Cables jointed by snap-in connectors simply fitted by hand, and insulated sleeves drawn over the joint. Claimed to meet the needs of a variety of industrialized, as well as traditional building methods.

N5 Metal plated plastics

Ionic Plating Company, Grove Street, Birmingham 18

A new process for the metallic plating of acrylonitrile butadiene styrene mouldings is claimed to provide good adhesion between metal and plastic by the application of a special etching technique. Originally seen mainly as a challenge to plated zinc die castings, plated plastics now open up new fields for designers.

N6 Fluorescent bulkhead fittings

C. M. Churchouse Ltd., Lichfield Road, Brownhills, Walsall, Staffordshire

Model 1126 is an addition to the range of miniature bulkhead fittings. Two 13W 21in lamps, overall length of fitting 24in.

N7 Plastic windows

Bovis Building Products, Newcombe House, Notting Hill Gate, London W11

A range of tubular sections in FRP is capable of being assembled in a variety of different ways to provide a number of window types. The hollow sections can be used to house control systems for special fittings.

N8 Aluminium roofing 2

Midland Extrusions Ltd., Factory Centre, King's Norton, Birmingham

Spanfast consists of lengths of aluminium extrusion which slot together to form a weather-proof seal, combining structural support and roof covering in one product. Designed on a 6in module it will span 24ft at 15lb/ft² loading without exceeding span 90 deflection.

N9 Soundproof fresh air convector 3

Multivent Engineering Ltd., 831 High Road, Tottenham, London N17

The Acoustair unit will maintain the sound-proofing of a room whilst admitting cleaned fresh air. At maximum airflow the air can be admitted at room temperature with freezing conditions outside. At low airflow incoming air can provide background heating. Prices: Mk 1, without heater, £40; Mk 1H, with heater, £48 11*s*., including P.T. Polished Afromosia surround, £6 6*s*. extra.

N10 New lighting fittings

Architectural Lighting Ltd., The Studio, Spencer's Wood, Reading, Berks.

A new range of competitively priced fittings worthy of attention is now available.

N11 PVC coverstrips

Expandite Ltd., Chase Road, London NW10

Cliptee is available in 'T' sections for joints between surfaces in the same plane and 'Y' sections for surfaces at right angles. The spring clips retaining the sections are designed for joints between ⅛in and ⅜in, but Cliptee can be used in narrower joints without the clips.

N12 Cooker hood 4

Van den Bosch Ltd., Europair House, Alexandra Road, Wimbledon, SW19

The Pure-Aire 4500 is a ductless hood that has two specially coated aluminium mesh filters, claimed to have an unlimited life, for removing grease and air odour respectively. A fan unit is incorporated to recirculate purified air. Price 52 guineas.

N13 Natural ventilation grille 5

Ash & Lacey Ltd., Alma Street, Smethwick 40, Staffs.

The Lacevent grille incorporates a plastic baffle which creates ducts allowing a free flow of air in both directions without draughts. Direct light cannot penetrate, and the baffles are easily removed from the inside for cleaning.

N14 Vision panel for doors and partitions

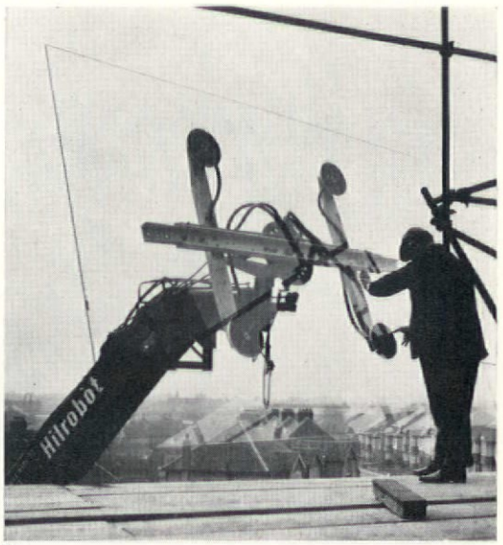
Steele's (Contractors) Ltd., Glass Works, Stamford Road, London N1

A triple glass louvre consisting of one sheet of clear glass and two sheets having alternating ½in clear and sandblasted bands. A turn of a knob brings the clear bands into alignment, permitting inspection of the interior of a room without disturbance. Size 16in × 16in. Prices: £6 6*s* each for single units, reducing to £5 12*s* 6*d* for 26 and over.

N15 Nylon fastener

U.S. Expansion Bolt Co. (GB) Ltd., Hanworth Trading Estate, Feltham, Middlesex

Consisting of a nylon anchor with split end and a zinc-plated drive screw, Tap-it fasteners combine the advantages of rapid fixing with easy removal. Available in 3/16in and ¼in diameters, in lengths from ¾in to 2in, and in a choice of five head styles.



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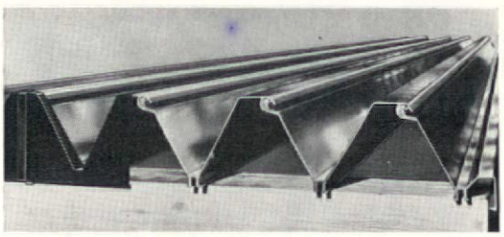
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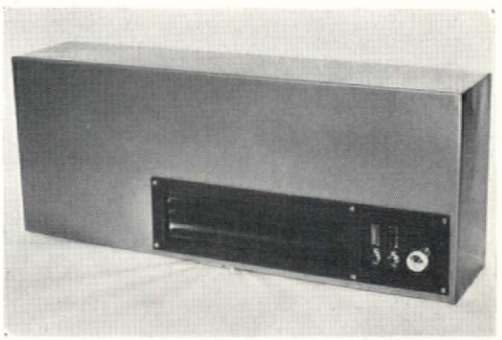
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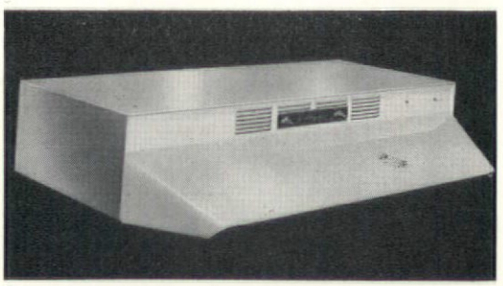
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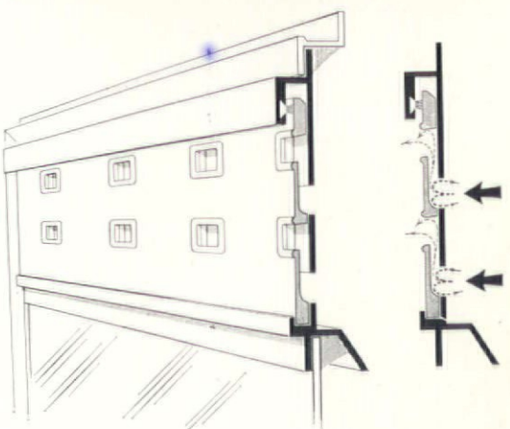
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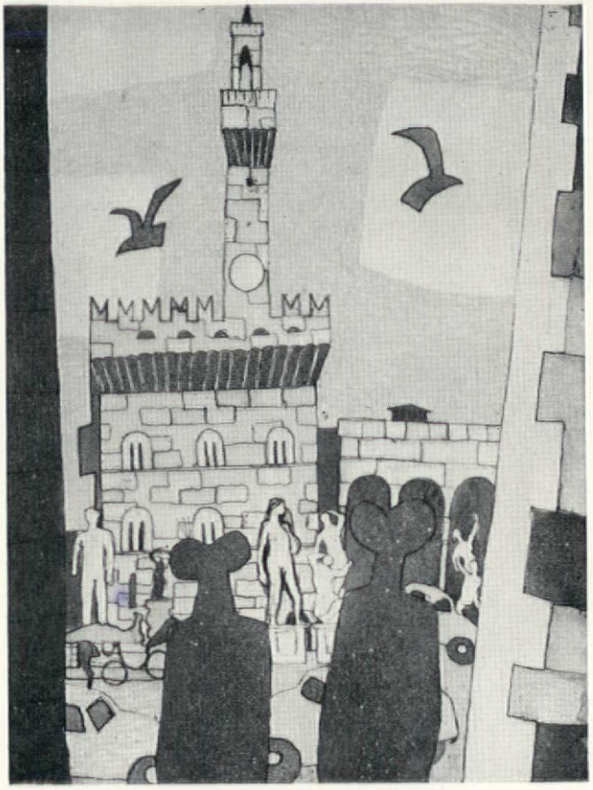

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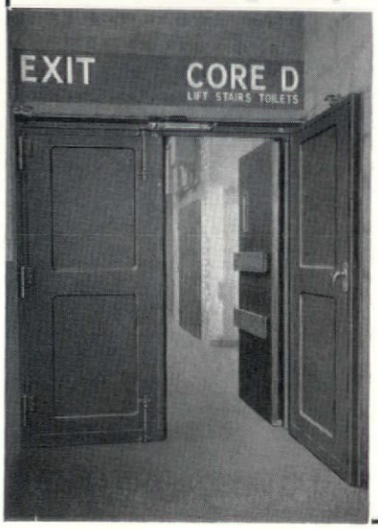

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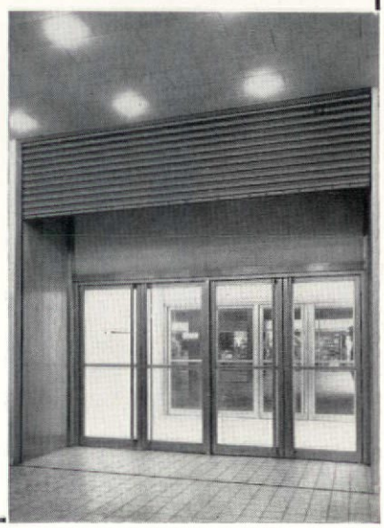

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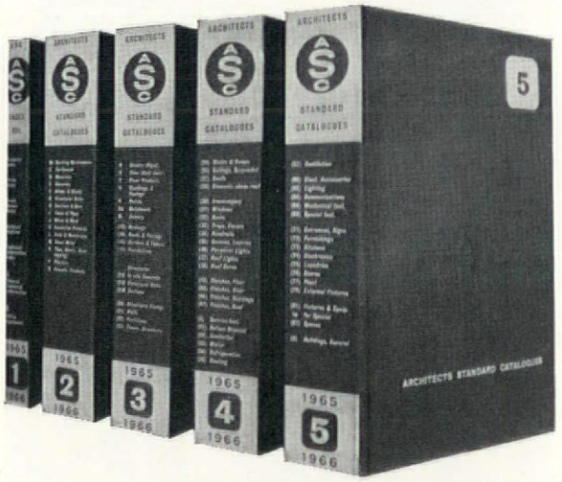

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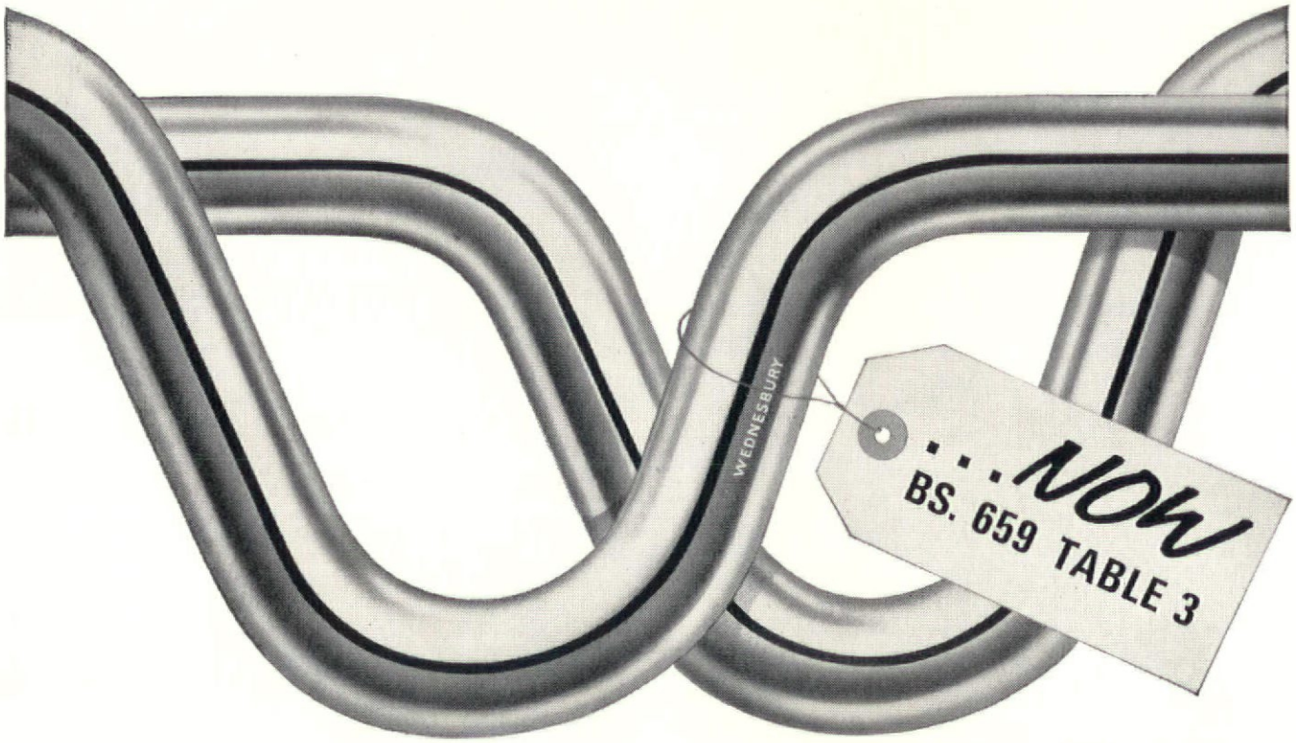

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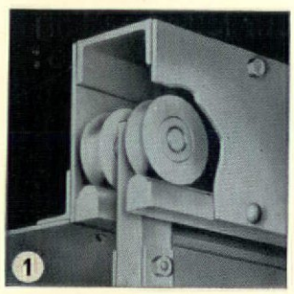

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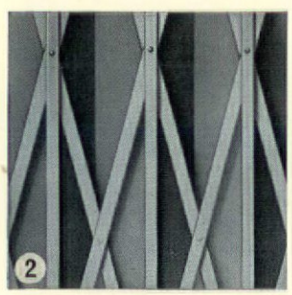

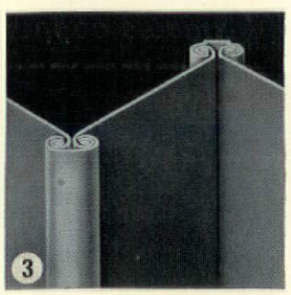

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