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**Volume XXXVI May 1966** **5**

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Le Corbusier's design of the single-bed ward unit for his hospital in Venice


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**Publication date** Seventh of each month.

**Publishers** The Standard Catalogue Co Ltd.
26 Bloomsbury Way, London, W.C1
Telephone: HOLborn 6325.
Telegrams: Britstanex
Telex: 1261244 Whitstan, London



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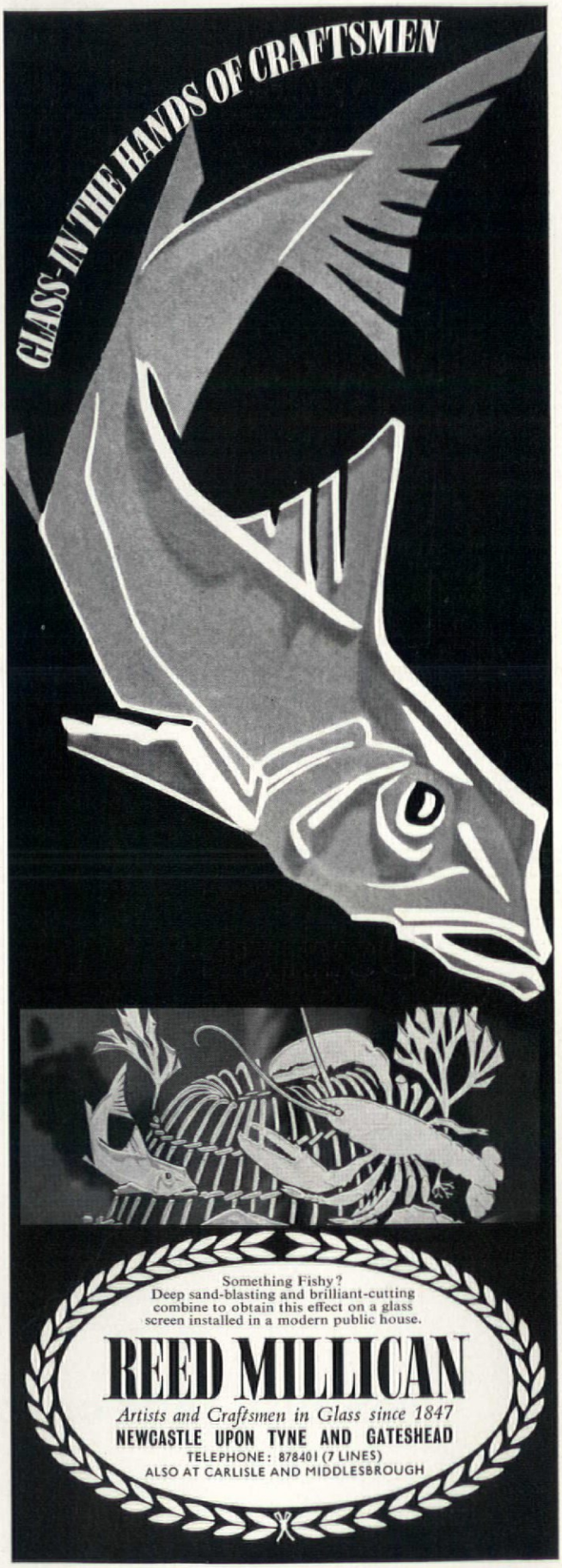

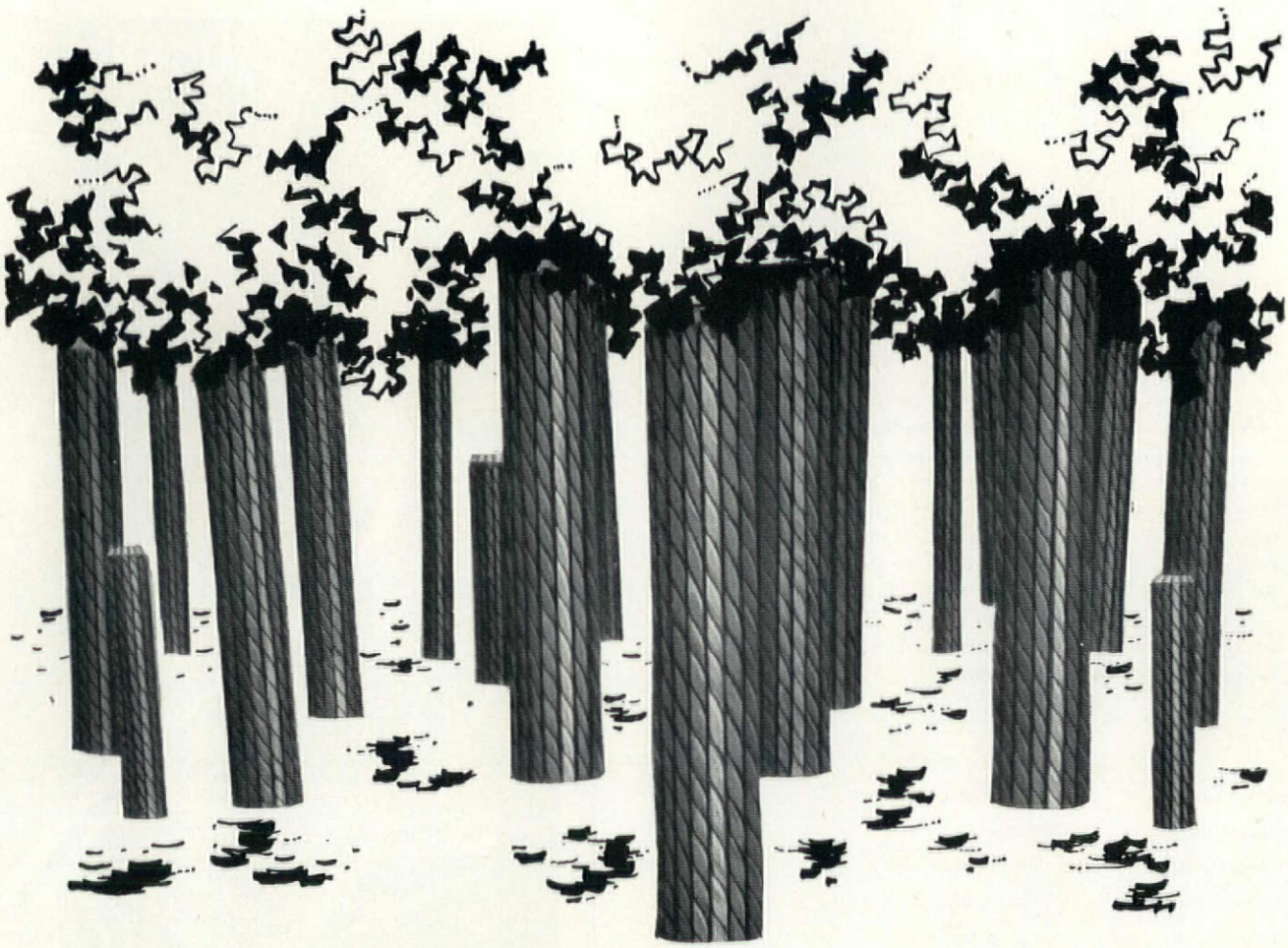

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# Books

**The withering away of the city**
*York Wilbern. Leonard Hill. 25s.*

Prof. Wilbern begins well with a good swinging description of the forces for change and decentralization in the American city and the move, also, away from the country to the great cities. Once or twice one felt he might even have some new positive structure, like a semi lattice*, to suggest. But the book tails off into a description of the many agencies, Federal, State, municipal or autonomous, that make up the admin. side of US planning. These agencies conflict, overlap, occasionally cooperate, proliferate boards and committees and then, rather disappointingly, coalesce into a quite ordinary tree-like structure rather like our own bureaucracy. We are witnessing the growth of city forms at an early stage, but over a very large area. This is not exactly the withering away of the city, but the growth of a metropolis. A few generations will fill the empty spaces on those two-acre lots. Yet the present chaos of competing organizations, the intensely personal and political nature of civic involvement, makes the present structure a very fruitful situation for urban experiment. The very nature of the organism produces continual crises—schools, pollution, slum clearance, that create opportunities for characteristically thorough reforms, and projects of great drive and imagination (as in the highway programmes). *Theo Crosby*
(*Incidentally, 'semi lattices' are explained in Christopher Alexander's essay 'A city is not a tree', *Design* February 1966. Required reading.)

**Rebuilding cities**
*Percy Johnson-Marshall. Edinburgh University Press. £4 4s.*

At last someone has really understood, and applied Marshall McLuhan's slogan 'the medium is the message' to a technical book. In Percy Johnson-Marshall's four-guinea volume the medium, in this case the coffee table art book, is the message, or at least most of it. His text runs to under 40,000 words of local authority prose and he backs it up with the pictures of Coventry, Rotterdam and Lansbury that effectively demolish his arguments (but not of Le Havre which might reinforce it). It may be that our planning legislation has done some good; certainly it has helped to *contain* development and to *prevent* sprawling at least up to a point. Its positive solutions give less cause for self congratulation. Where the planner thinks of himself as architect on a great scale his solutions are usually banal. As, for example, Route 11 ('frankly borrowed from Lever House in New York') or Edinburgh University where a fine, grainy, delicately scaled square is submerged in great, slabby blocks, and a few taller slabs thrown in to consciously destroy the skyline.
The book is mainly about those planning experiences that P. J.-M. has undergone: Coventry, London, and the example he obviously most admires, Rotterdam. There is an historical introduction and a 'work in progress' ending, and a splendid index. Written three years ago, before the present spate of new thinking, and new opportunity, in planning, it seems sadly out of date.
The awful thing is that P. J.-M. is a fine, loquacious, enthusiastic, earnest and concerned person, whom to know is to love, who has been in the forefront of every planning battle. He has heard all, seen all, been everywhere. His slide collection is unrivalled. His book may, and in a way it does, explain all about planning (as a fellow reviewer has written); in which case we're in for thinner times ahead. *Theo Crosby*

**Parade** and **The green-eyed mouse and the blue-eyed mouse**
*Bob Gill. Curwen Prints. 45s. and 12s. 6d.*

Here we have a linking up of versatility: Bob Gill, one of the partners in Crosby, Fletcher, Forbes & Gill (designers and architects) and Curwen Prints* who run the lithographic Curwen Studio plus the gallery of the same name, (in Charlotte Street, London). Product: two charming and colourful children's books which were published in time for last Christmas. *Parade* is based on such a good idea that it should be merely the first of a perennial series. The good idea is that the pages (about 24in wide by 15in high) are printed on board and inserted loose into the cover, so that, if desired they can be hung as a frieze round nursery walls; and the pictures are designed in such a way that it does not matter in which order they are arranged. The books can be seen at the gallery, which is open daily with exhibitions of prints.
* See *AD* 9/65 page 468.

# LANDMARKS



*Photo Henk Snoek* *College House*


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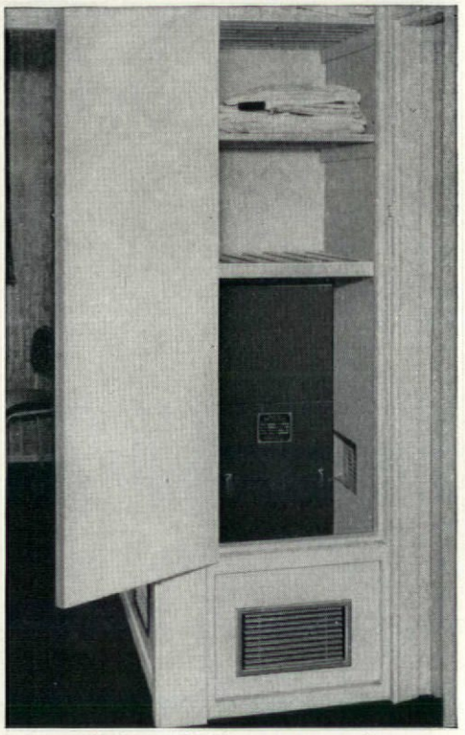
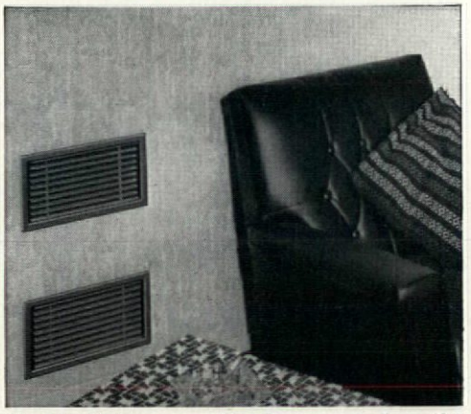


*Halcyon F60 in purpose-made compartment in hall*



*View in living room showing warm air outlet (below) and return air inlet.*

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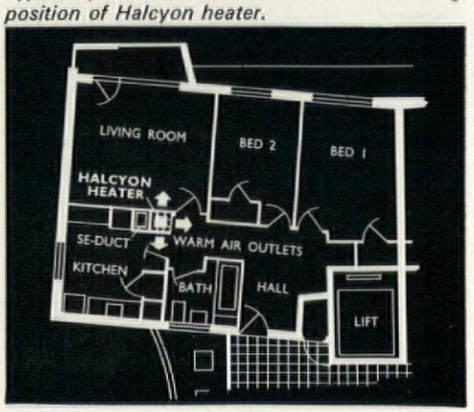
*Typical plan of two-bedroom flat showing position of Halcyon heater.*

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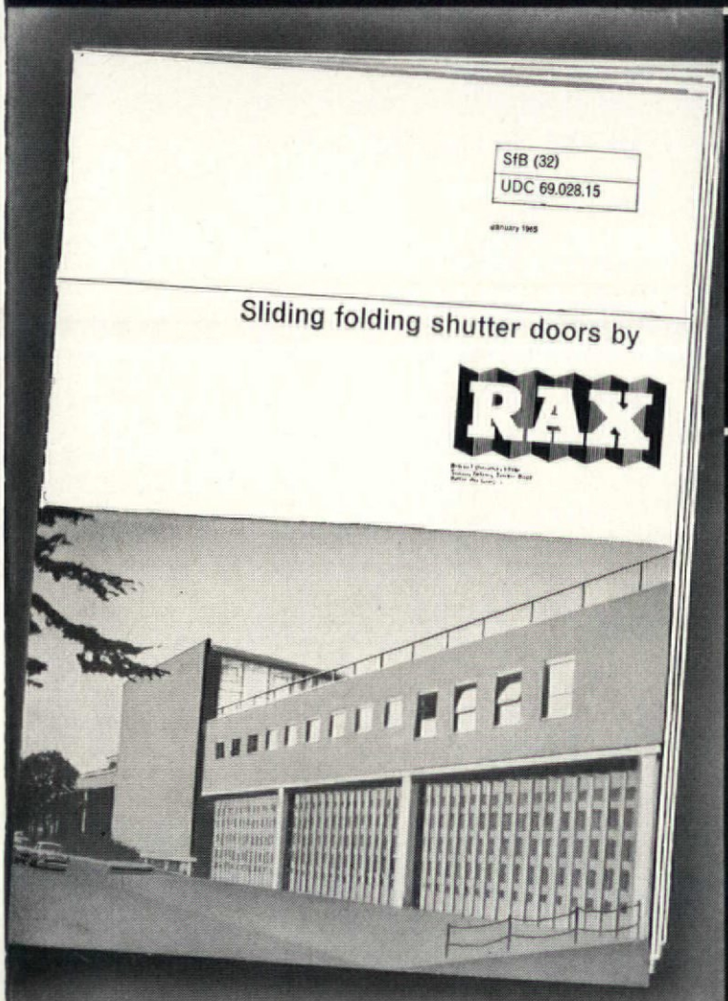


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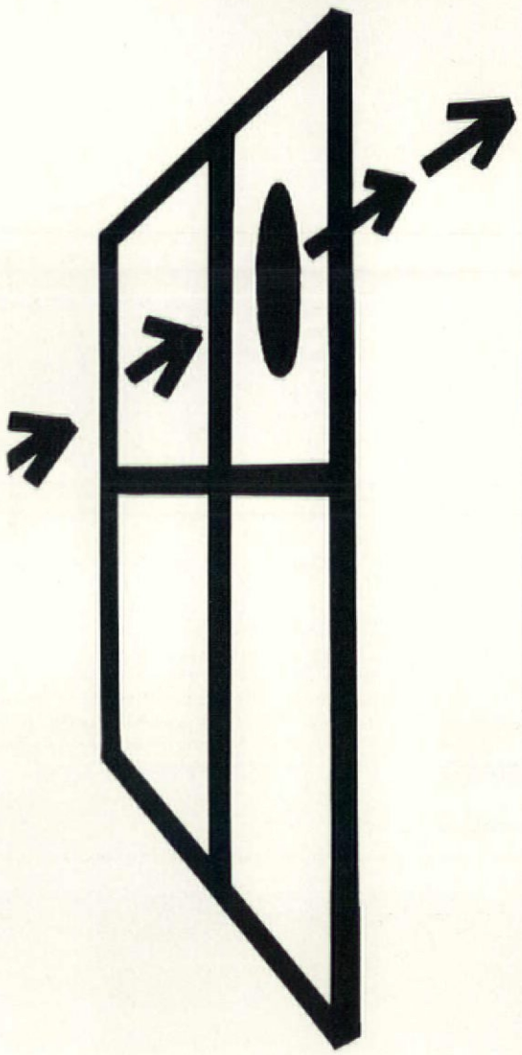

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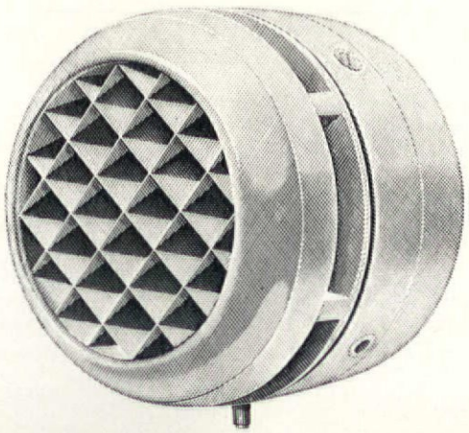

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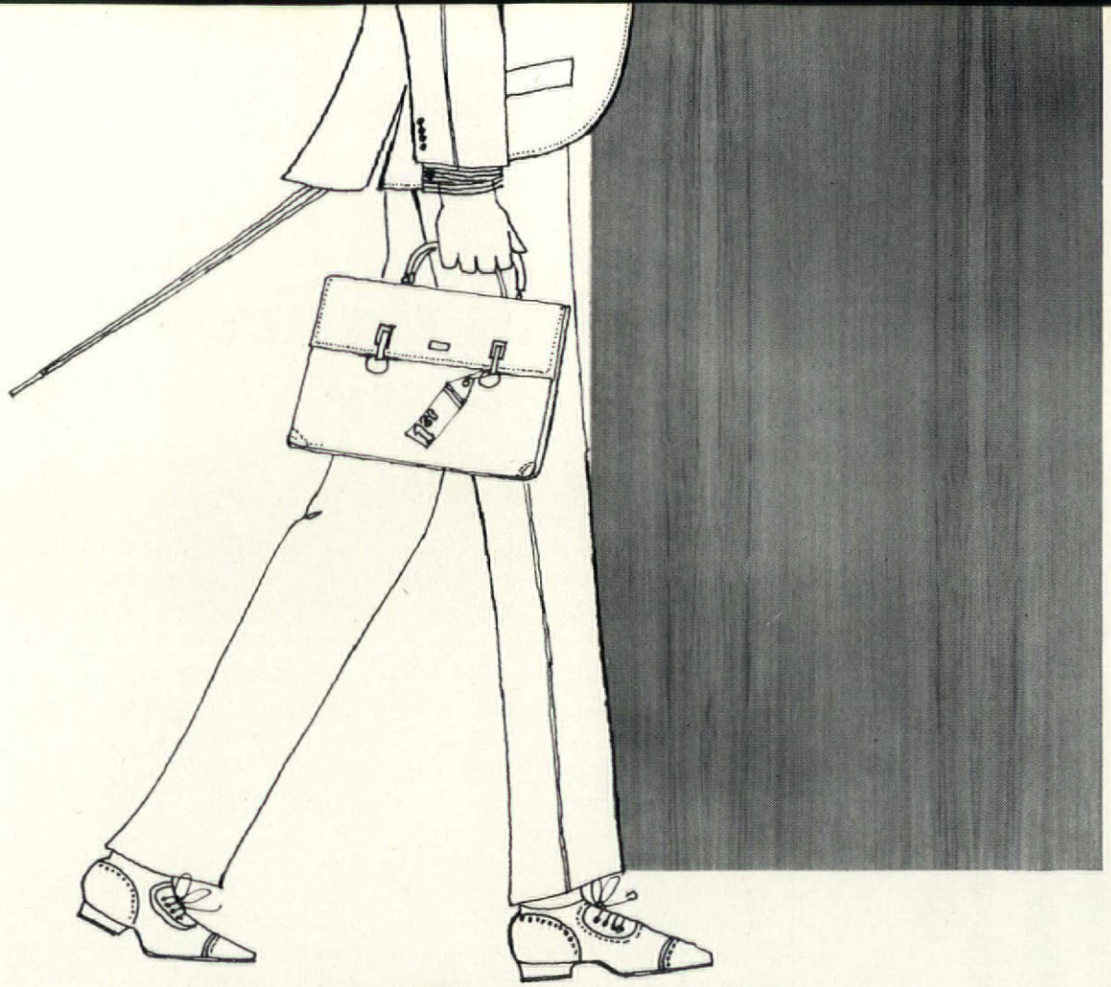

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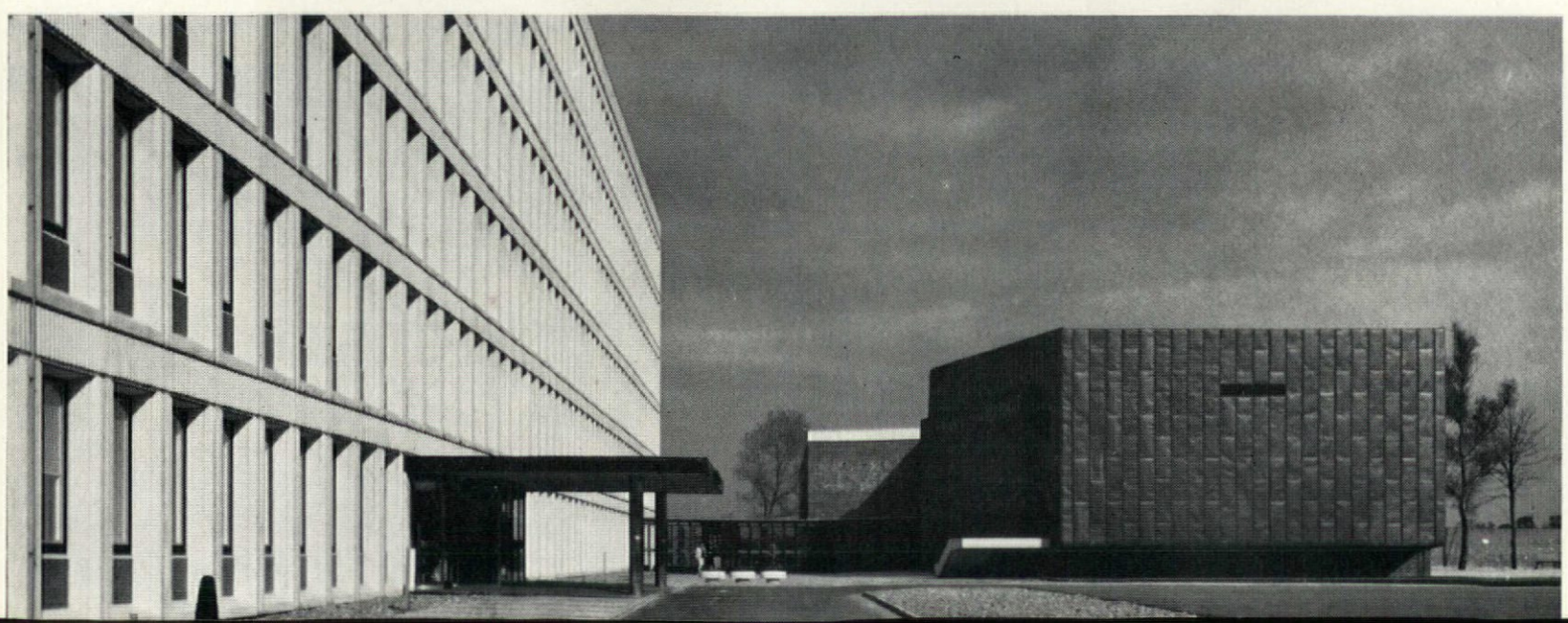




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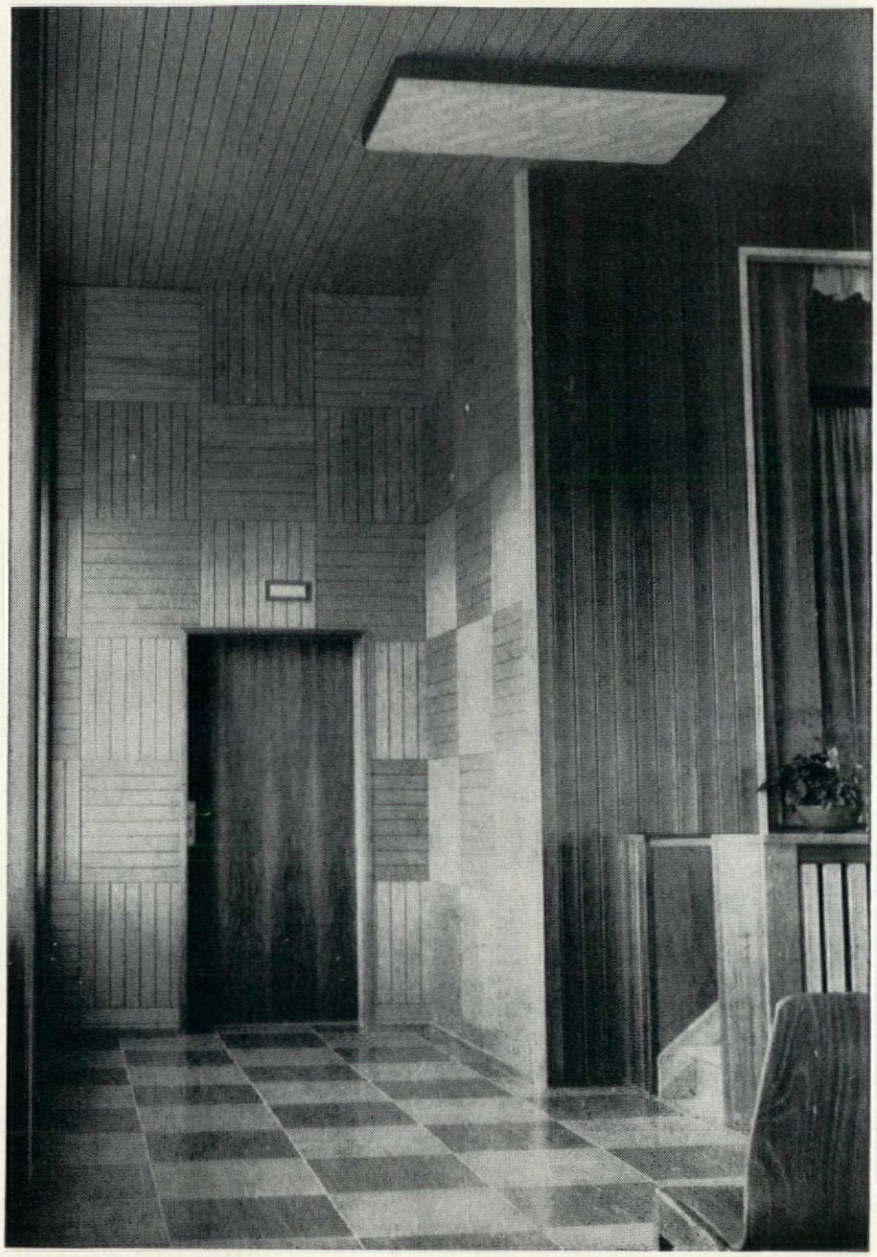

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# Conran Contracts **News Letter**

Conran Contracts is specifically organised to supply the entire range of furniture and furnishing needs of public authorities, universities, colleges and schools, executive and general offices, hotels and restaurants and clubs. We undertake the complete cycle of furnishing—from assisting our clients in the preliminary selection of merchandise, preparing specifications and tenders through to the supervision of deliveries and installation on site. To do this as effectively as possible we work in close collaboration with the client and his architects and when required we can draw on the services of Conran Design Group for the detailing of interiors and special furniture.
In addition to the very large range of standard Conran furniture, fabrics and carpets, we are able to supply specially designed and made furniture and augment our own ranges with supplies from most other manufacturers—at realistic prices.
We hope that the examples that follow will provide an indication of the scope and versatility of Conran Contracts' activities.

## Penguin Books Ltd



Penguin Books Limited are one of an increasing number of major companies who are standardising the furniture throughout their offices. Conran Contracts have supplied the Euclid range of desks, tables, storage cabinets and bookcases, together with desk chairs, conference chairs and typists chairs to the specification of the client.



## Centre file

Centre-File Limited, who operate a large new computer centre, are standardising their office furniture and have nominated Conran Contracts to supply the Pythagoras range of related desks, tables and storage cabinets, together with desk and conference chairs throughout their offices.

## St James' Club Manchester

Conran Contracts won the tender for carpeting, curtaining and the supply of furniture throughout the new premises of the St. James' Club in Manchester. Furniture was drawn from the ranges of a number of manufacturers and we were responsible for planning deliveries and site supervision in conjunction with the client's Architects Casson Condor & Partners.

## Oxford law library



The Common Room at the Oxford University Law Library required well designed, well made unit seating and tables, which were both comfortable and adaptable. The University Surveyors Office specified Summa Unit Seating for this contract to be supplied by Conran Contracts.

## Buckinghamshire County Council

The Architects Department of the Buckinghamshire County Council required 240 plan presses and drawing tables for use in the new County Council Offices at Aylesbury : Conran Contracts won the competitive tender with the Pythagoras range.

## Runcorn Development Corporation

In the new Runcorn Development Corporation Offices, Conran Contracts supplied all the furniture from the Abacus Unit Seating in the entrance hall to the Euclid desks, tables, storage cabinets and bookcases in the Senior Executive Offices.

## City of London Real Property Company Limited

For the executive offices in their head office building The City of London Real Property Company required an integrated range of desks and tables of various sizes, storage cabinets, bookcases, desk chairs and typing chairs. C.L.R.P. Architects asked Conran Contracts to supply the Euclid range throughout these offices and also to provide carpets, curtains and accessories.

The Conran C100 desk chair was used in the Penguin, Centre file and City of London Real Property Company projects. It is comfortable well made and reasonably priced.



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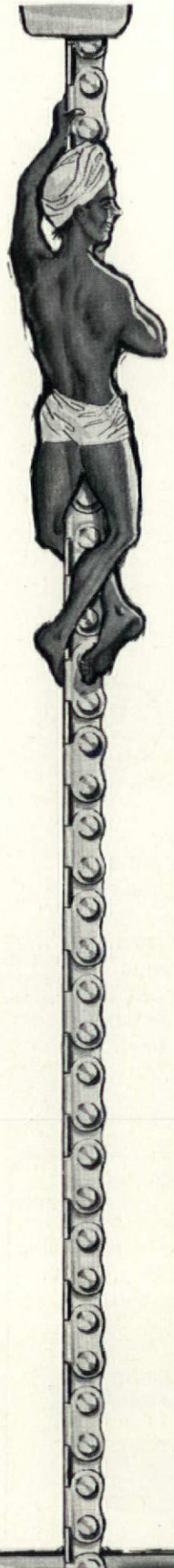



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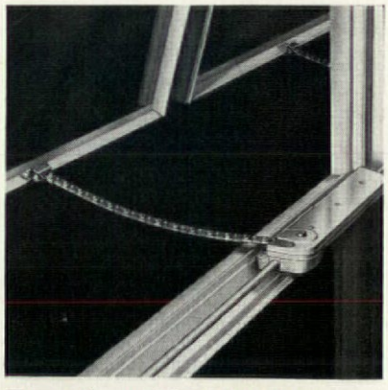
***Illustrated literature on Teleflex window control gear range and sliding door gear supplied on request.***



*The push-out chain and head unit*

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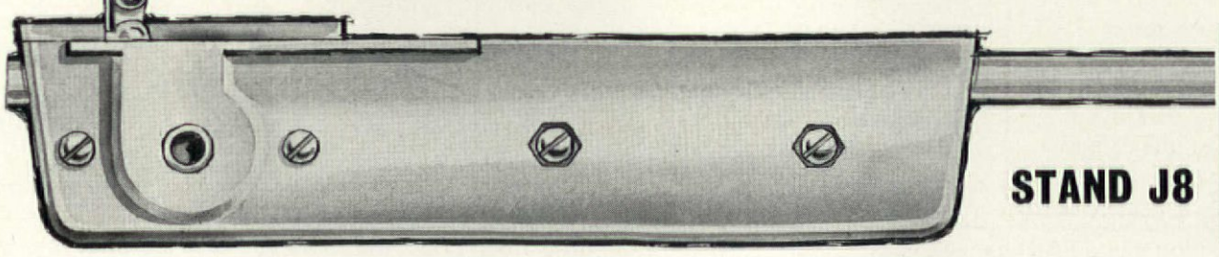

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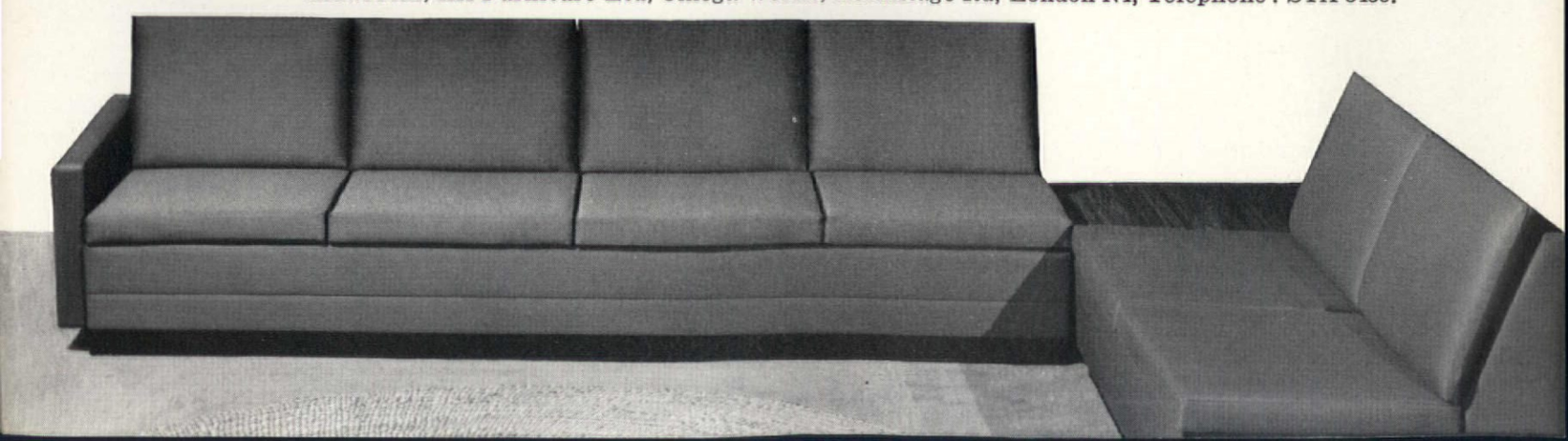

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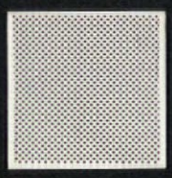

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Striated

**These panels represent a major advance in suspended ceiling development. There are no visible signs of fixing when the panels are installed which adds considerably to the aesthetic appeal of the ceiling. The simple design of this unique fixing method offers substantial economies in time and labour. "TURNALL" SECRET FIX CEILING PANELS are supplied complete with 4 clips already in position for immediate fixing on to standard 18 gauge metal tees.**
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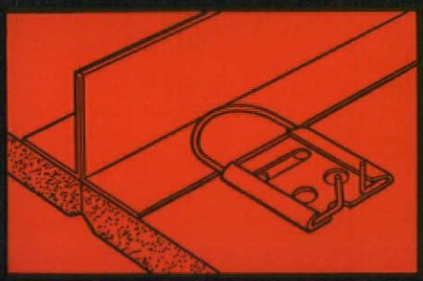

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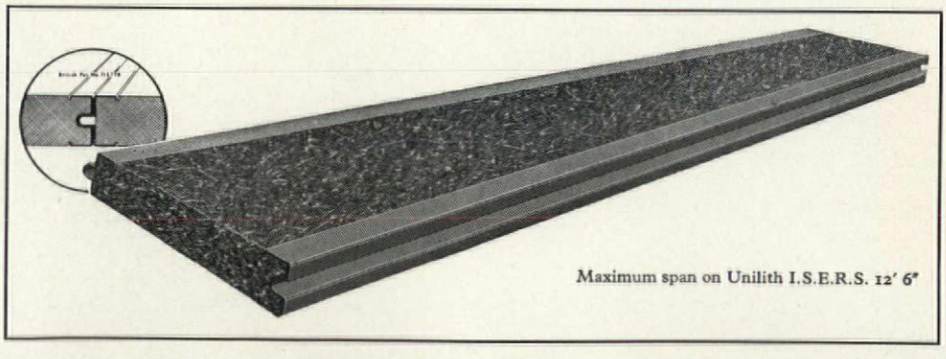

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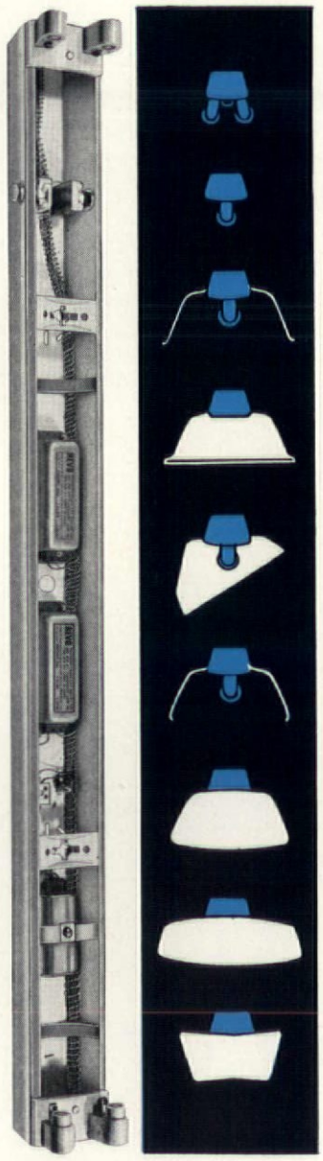
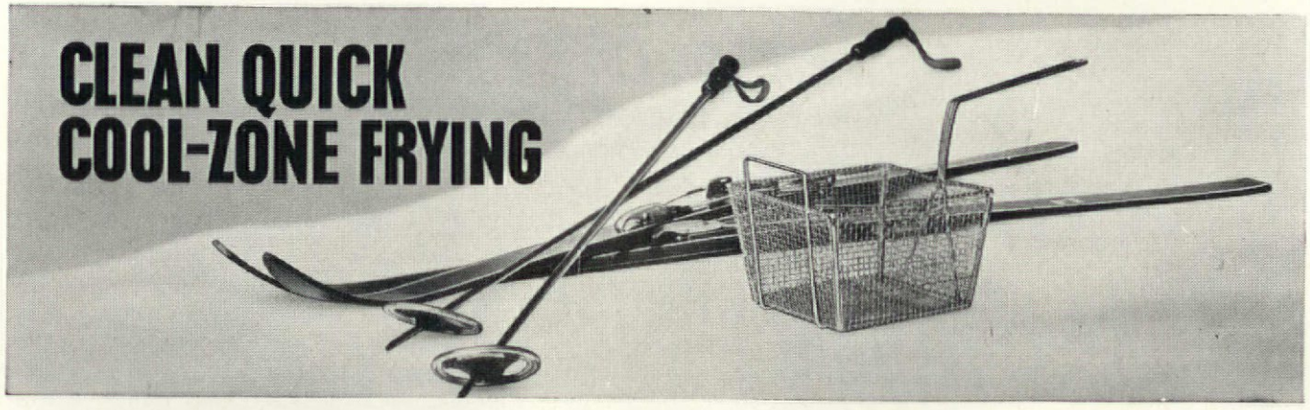
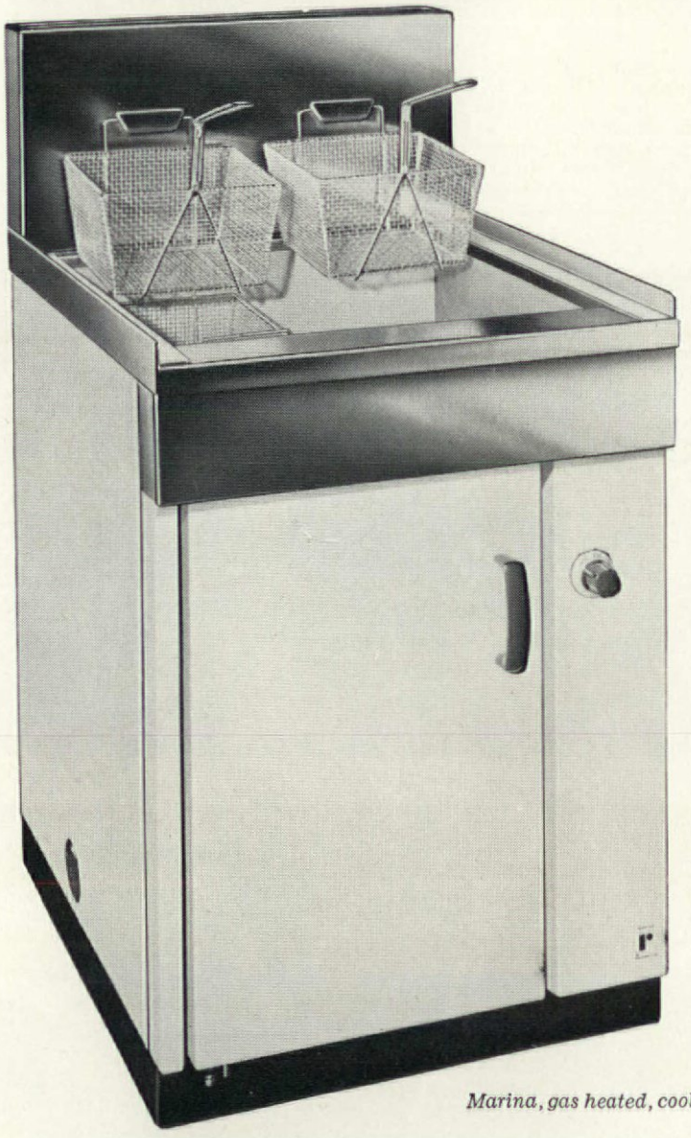






# CLEAN QUICK COOL-ZONE FRYING





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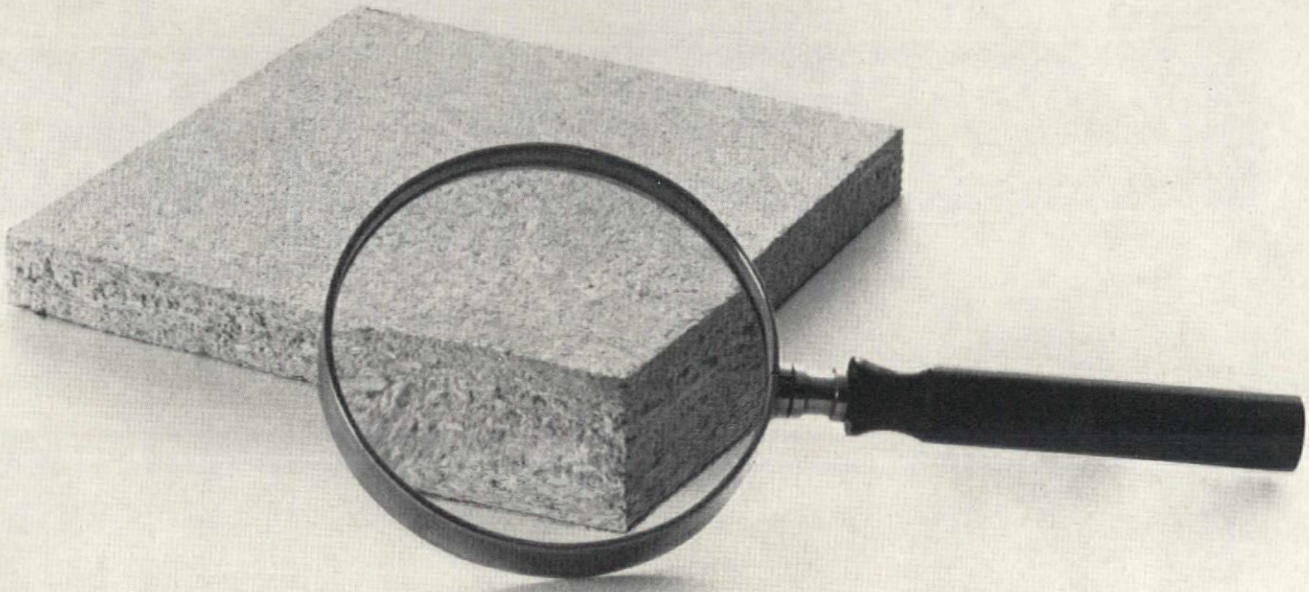

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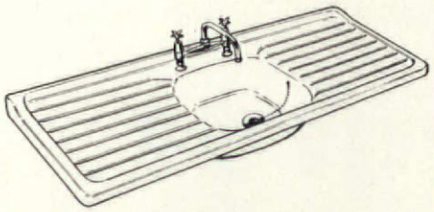

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| MODEL VA<br>MODEL VN | 18½ x 36<br>18 x 42 | £5.10.9<br>£5.16.0 | VITREOUS ENAMEL SINKS & VANITORY BASINS |
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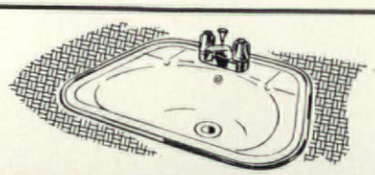

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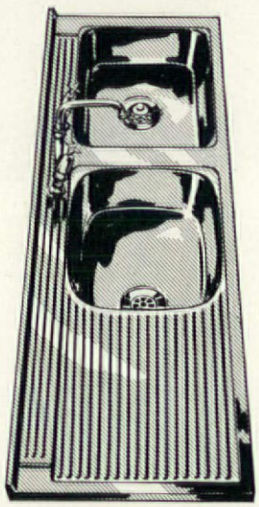

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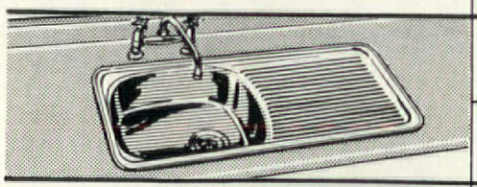
| MODEL DL<br>MODEL BDW | 18 x 54<br>21 x 63 | £24. 0.0<br>£30. 0.0 | |
| MODEL TL<br>MODEL TN<br>MODEL TW | 18 x 72<br>18 x 84<br>21 x 84 | £29. 0.0<br>£30. 0.0<br>£35. 0.0 | |



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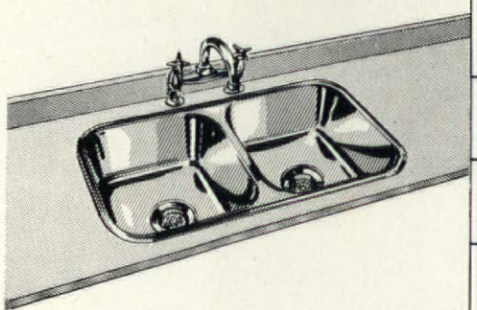
|---|---|---|---|
| MODEL FL | 16¼ x 35⅞ | £15.10.0 | STAINLESS STEEL INSET SINKS |
| MODEL FDL | 16¼ x 53⅞ | £25. 0.0 | |



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| MODEL X | 16 x 18 | £7.10.0 | STAINLESS STEEL BOWLS |
| MODEL XX<br>MODEL WXX | 18 x 31<br>21 x 31 | £15.10.0<br>£17. 0.0 | |
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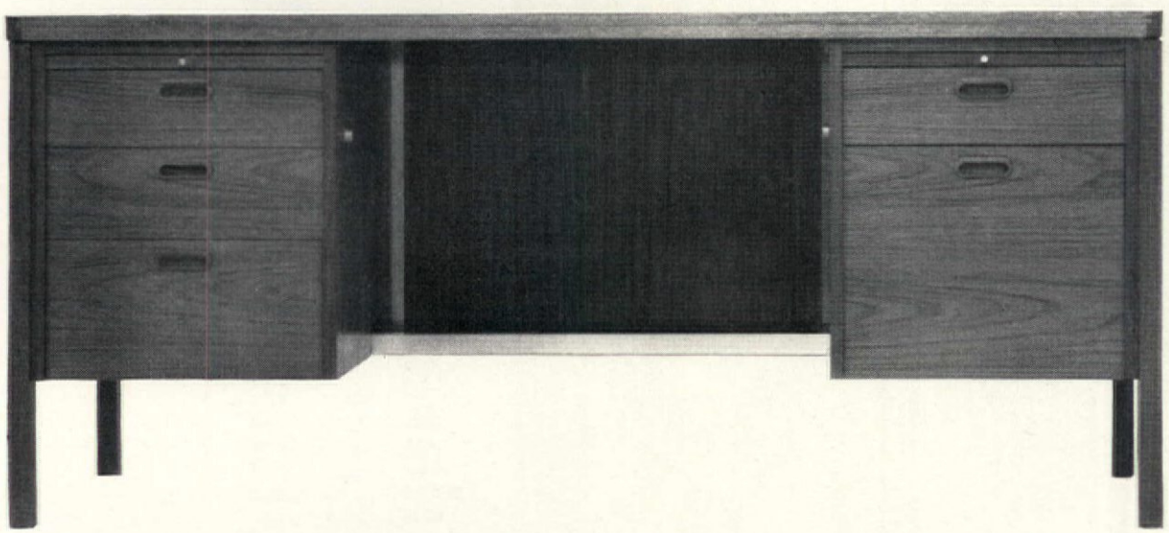

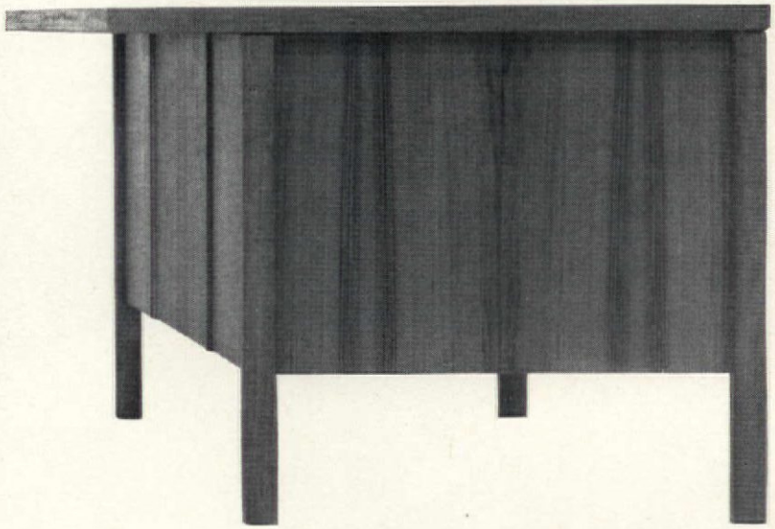

**LUCAS FURNITURE** Teak Range desks, designed by Herbert Berry FSIA and Christopher Cattle MSIA. Available with wood or satin chromed steel legs. Model T/DP53 is as sturdy as it looks, but easily demountable to get round tight corners. The price is £72 8s, including tax. Matching Teak Range pieces include single pedestal and typists' desks, storage, bookcases and tables. Lucas have furniture for all contract needs, including four ranges of desks, plan chests, unit storage, beds and a wide range of contract chairs. On show at The Design Centre, and in our showrooms. Write for details to Lucas Furniture, Old Ford, London E3. Advance 3232. Barbour Index No. 410



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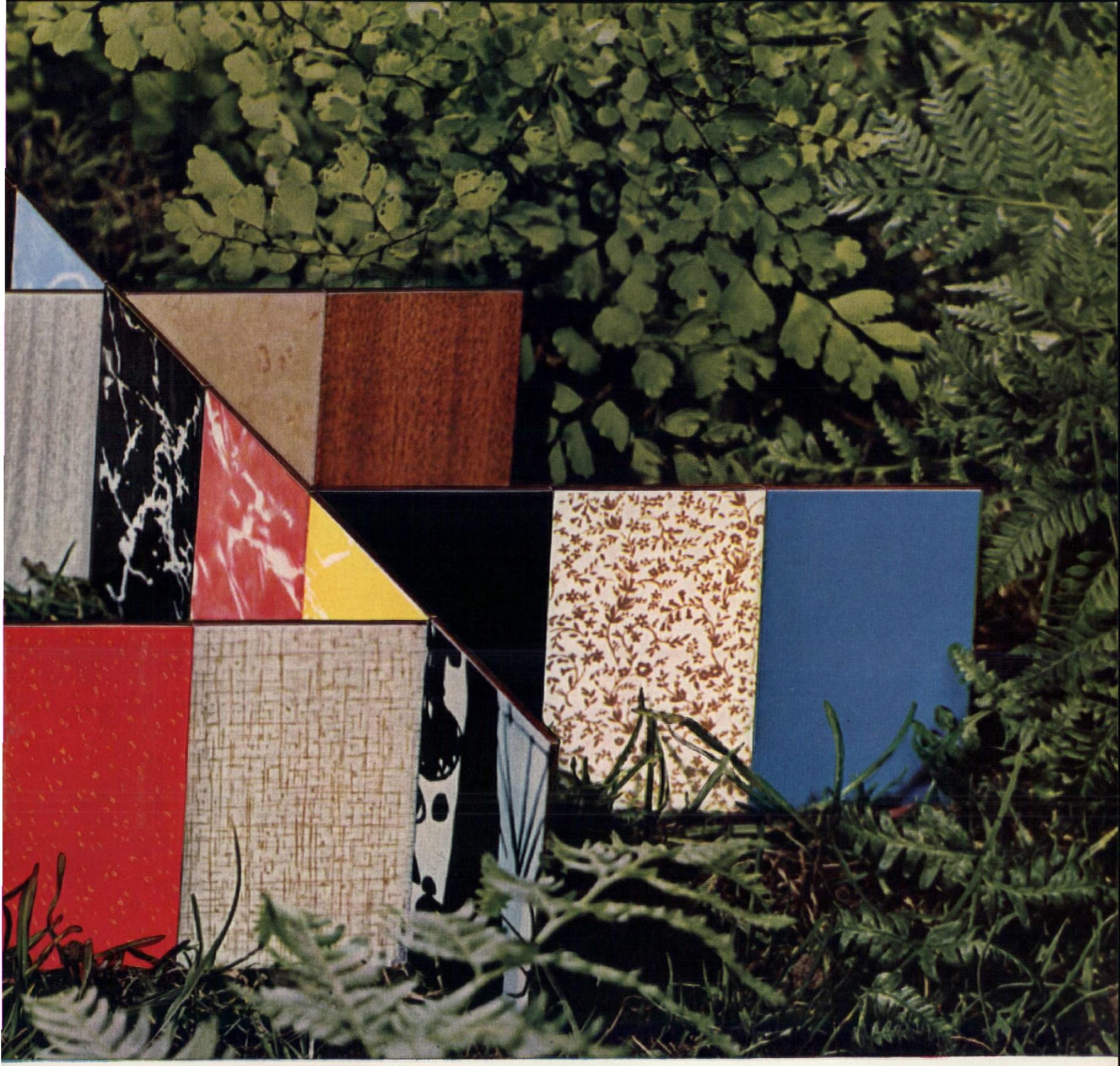

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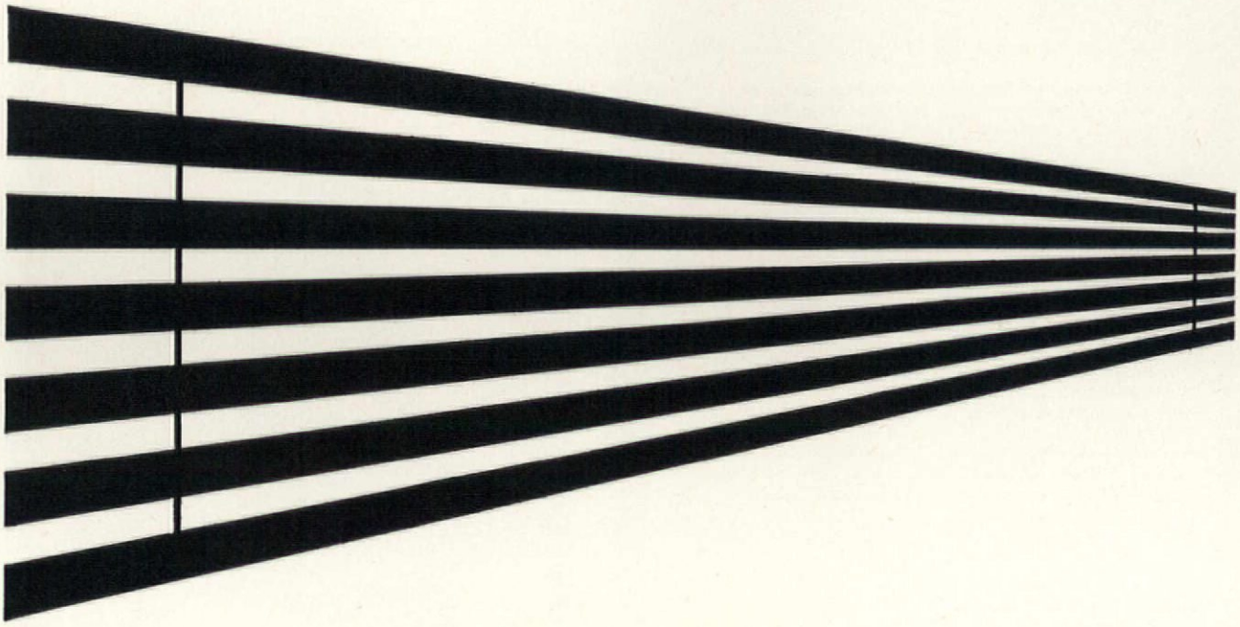


# new brockhouse mono control® venetian blind

Single action raising, lowering and tilting. Eliminates the need for self-locking and end stop devices. Self-levelling operation always ensures the blind is held horizontally correct. Flexible terylene lifting cord in the raising mechanism overcomes the breaking problems of the normal Steel or Bronze tapes. All moving parts constructed in thermo-plastic material achieve quieter, smoother operation. Simplicity of design reduces maintenance problems to a minimum. Corrosion proof external fitting is an added possibility.

*All types with the exception of the MONO-MATIC are available in either 2" or 1⅜" slat widths and in a choice of 17 colours.*
*MONO-MATIC available with 2" slats only.*

*Mono-Control is registered as a Brockhouse patent.*

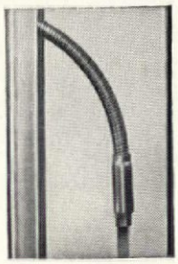
## mono control

Rod operated, with a cranked handle. Raising or lowering is achieved by continuous rotation of the handle in either direction.



## mono flex

Designed for installation between all types of Double Glazing including windows of varying pivoting actions. This model incorporates a flexible drive.



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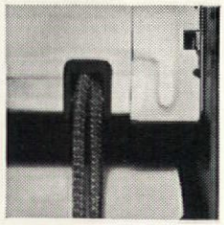
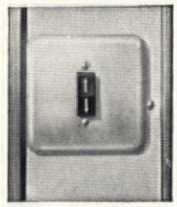
Uses 3/16" diameter endless Terylene cord re-inforced with pliable P.V.C. No cordlocks—no normal take-up spools, reduction ratio permits the rapid control of lowering and raising.



## mono matic

Electrically operated by motor, housed in the headmember. Can operate one or more blinds. Two press button switches control raising and lowering at the rate of 19.5′ per minute Fingertouch control on either button adjusts tilt



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| Small chair | Overall height | 30 " | £8.18.2. |
| | Overall width | 19 " | |
| PL 81 | Seat height | 17½" | Retail Price |
| Armchair | Overall height | 30 " | £11.1.7. |
| | Overall width | 23 " | |
| PL 82 | Seat height | 15½" | Retail Price |
| Easy chair | Overall height | 29 " | £15.14.1. |
| | Overall width | 26½" | |

**Composit Leasing**
**As the actual manufacturers of COMPOSIT FURNITURE including the 900 and 1100 series desk ranges Esavian Limited are able to offer exceptionally favourable terms, since their leasing contracts are subject to full normal discounts. Such contracts can, in addition, embrace ancillary equipment including office machinery.**

COMPOSIT FURNITURE is designed by J. W. Leonard FSIA and made by Esavian Ltd at Stevenage, Hertfordshire.

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PL 82



PL 81



PL 80

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Whenever you have to cope with a fluctuating space requirement —Superfold it! Wherever you have a dividing problem— Superfold it! In short, these versatile, colourful Bolton partitions can effectively answer all your dividing problems. Built on the same principle as the famous Bolton Shutter Door (and to the same high standards), Superfold partitions can be made in any size up to 20ft. high by 100ft. wide, and you can choose from the widest available range of leathercloth coverings. If you would like to know more send today for leaflet reference AD657.



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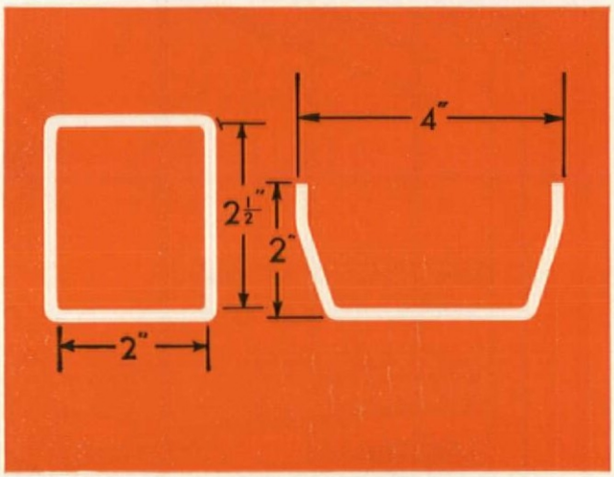
# introducing Limpet

# PVC RAINWATER GOODS




## A new complete range of unique design.

Here, at last, is a superb range of high-quality PVC rainwater goods which, through its unique rectilinear design, provides new scope for distinctive elevational treatments. No longer need gutters and downpipes be 'hidden'; the LIMPET line is neat, good-looking . . . a very interesting architectural feature in itself. LIMPET rainwater goods have been exhaustively tested by the manufacturers, J. W. Roberts Ltd. – a company of the Turner & Newall Group. But its unique rectilinear design is not the only reason why its success is assured. Far from it. Consider all these other advantages!

* EASIER & QUICKER TO FIX. All gutter outlets, unions and fascia brackets are designed to allow gutters to be snapped into position. Built-in neoprene seals ensure water-tight joints and allow for expansion. Gutter unions and outlets act as support brackets and simplify erection, and with single screw fixing, easier alignment is achieved.

* AMAZINGLY LIGHT, STRONG & DURABLE. Made from specially formulated high-grade PVC, LIMPET rainwater goods will take normal ladder loadings and will withstand frost, ice, snow and anything the climate can produce.

* MORE WATER CAPACITY. 4" width gutter in the new rectilinear shape will handle more rainwater than a 4½" nominal half-round gutter. The new shape of the downpipe has a cross sectional area equivalent to a 2½" diam. downpipe and maintains the same discharge capacity.

* CONVERSION PIECES. A special change piece from rectangular to circular is available where downpipes are required to fit directly into a circular back inlet gully.

* ADAPTABILITY & ECONOMY. Swan necks are available in a range of sizes or can be fabricated on site to fit intermediate dimensions. Separate pipe connectors rather than socket-ended pipes allow pipe off-cuts to be used up on site.

* MAINTENANCE FREE. Needs no painting. Will not corrode or rust.

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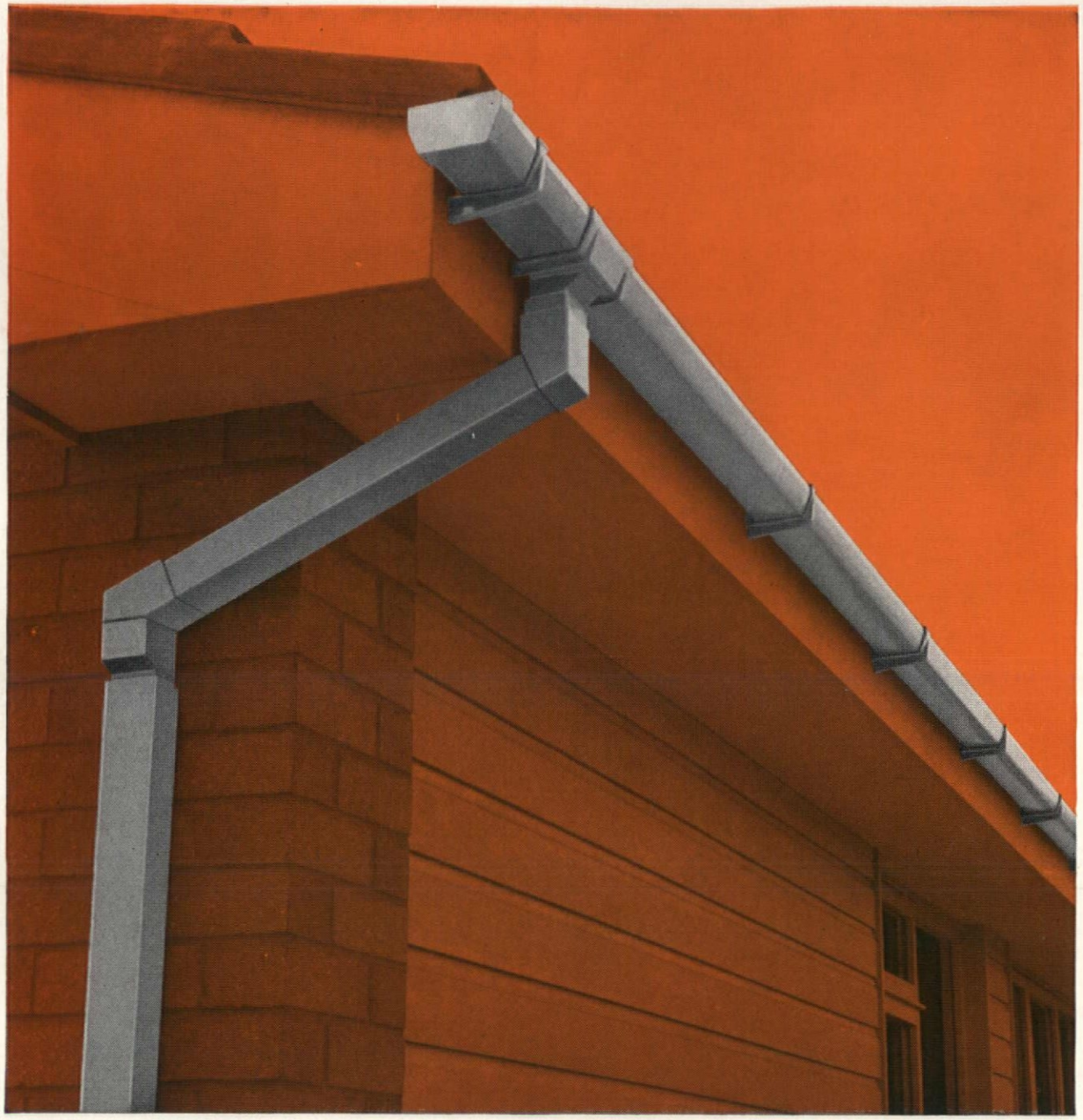
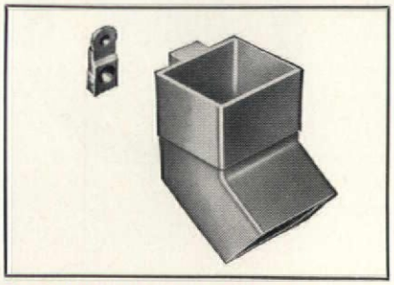
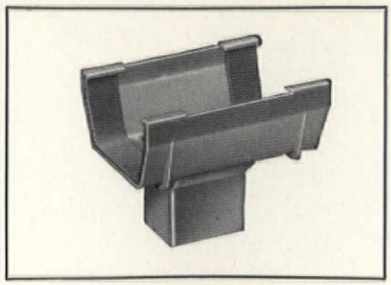
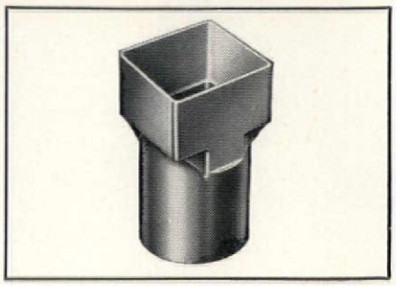




The wall clip is fixed by a masonry pin or screw, and the shoe is placed over it and snapped into position.

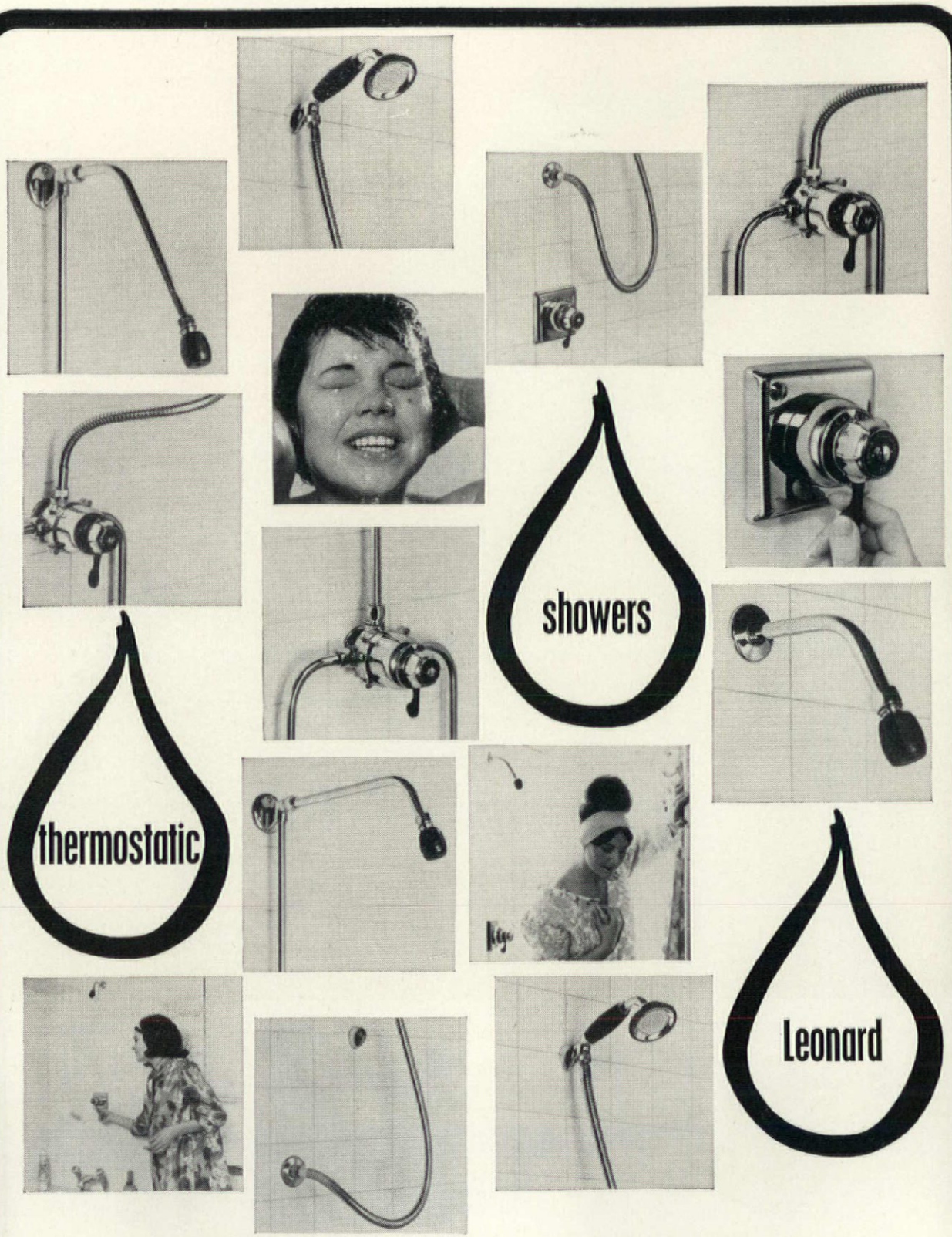


The gutter outlet has well radiused corners allowing for a smooth flow of water. This component also acts as a support.



The change piece is used when a downpipe is fitted directly into a back inlet gully, the circular section is cemented into the gully.

## THE Limpet LINE ADDS THAT TOUCH OF DISTINCTION




Once a shower was a primitive thing. And looked it! Now it can be flexible or fixed — with the plumbing hidden behind the bathroom tiling. But not concealed is the aptness of a Leonard Thermostatic Shower. Its modern style, its unvarying efficiency and spot-on finger-tip control of water: flow and temperature. If ever a better shower is made, there's one thing certain — it will be a Leonard.

Walker Crosweller & Co. Ltd., Cheltenham.

# Cosmorama

## The month in Britain

*Michael Manser*

Few people were surprised that the Labour Government stayed in power; all the ministers concerned with building remained at their posts except Charles Pannell.

Secure in his job for the next few years minister Crossman approved a £6 million redevelopment scheme including 440 dwellings for Erith, designed by R. Seiffert and Partners.

Kenneth Cambell of the GLC told the Housing Centre Trust that higher densities than ever used today would be possible if the inflexible zoning regulations were changed and the *Evening Standard* bravely told its readers that unless the world, and Catholics in particular, faced the population explosion squarely no density figure would be adequate.

In Birmingham a young mini-tycoon took advantage of a high wind and a handy bulldozer to remove a scheduled building which blocked a development scheme. The local council announced their intention of taking advantage of legislation to make him replace it while in Liverpool Mrs Topham received permission to sell the Grand National course for housing.

Also being demolished were the partly built foundations of the new County Hall at Bedford, while in London at Peter Dunican's talk to the Institution of Structural Engineers on the Art of Structural Engineering, Bernard Clarke, new consultant to Bedford rapturized about structural forms in nature. He told of finding shell and fishes by the sea which were just like concrete structures and recommended the audience to a book on the subject which was out of print.

British Petroleum opened the first English self-service petrol station at Watford (capable of ingesting one pound notes) and at Ramsgate, Hoverlloyd dispatched the first cross-channel hovercraft.

Peter Masefield promised a direct rail link between London Airport and Victoria Station and British Rail's vaunted London/Manchester 2½-hour train service had a trial run. McAlpines offered to build mini-hotels, prefabricated, for towns threatened by World Cup matches and meanwhile, perhaps to avert the situation, somebody stole the Cup and left it under a bush.

The Government proposed an unworkable measure to give leaseholders the right to buy their freeholds—which some experts described as a kind of confiscation, and more usefully the Building Centre appointed Jacob Blacker to prepare a maintenance manual which architects can give their clients.

Booking forms for the international Dialogue of Experimental Architecture, to be held on June 10th and 11th can be had from J. Pearlman, New Metropole Arts Centre, The Leas, Folkestone.

The Annual International Seminar on Architecture and Design, held in Finland the last two years will take place again from July 10th to 16th, programmes to be obtained from Finlandia Travel, 56 Haymarket, London.

## Architects' study tours

May 12th to May 17th, Denmark and Sweden, travelling by chartered Caravelle. £68 'all in'. Organized by the Bristol Building and Design Centre, Colston Avenue, Bristol.

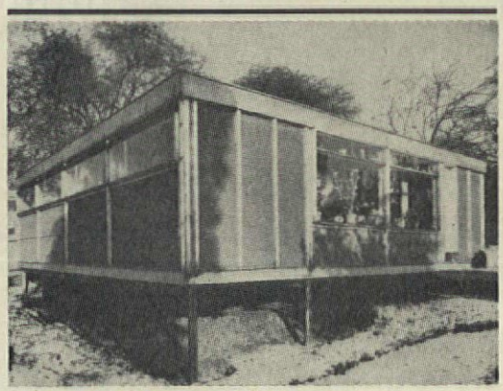
September 18th to October 10th, USA by chartered jet. Cost about £150. Organized by the AA, 34 Bedford Square, London W1.



## AD Project Award

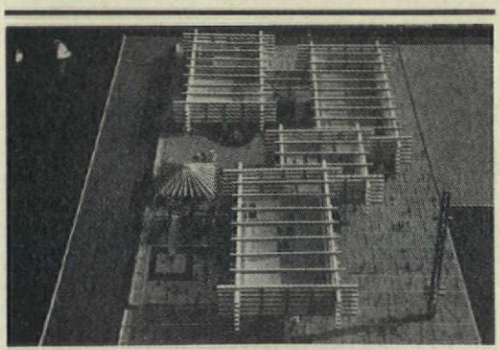
Derek Walker, winner of AD's 1965 Grand Project award, receiving his certificate from Denys Lasdun at the presentation ceremony at the Building Centre on April 7th.

In future the entry date for the Project Award competition will be the last day of October; announcement of the winning scheme will be made in the first week of January.



## Low-cost house—Britain

Walter Segal has built a four-bedroom house at Highgate, London, 715ft² in area, costing less than £800 in labour and materials. Full coverage of this achievement is given in the *Architects' Journal* of March 23rd.



## Japan at Expo '67, Montreal

The Japanese pavilion for Montreal by Yoshinobu Ashihara and Associates is a straightforward essay in realizing with prestressed concrete an architectural image that is more often associated with timber construction. Visitors will climb up to the first exhibition hall then drop down successively—'like water flowing downstream'—into two others and a restaurant.

*The Canadian Architect* January 1966

## Scottish Environmental Group

The new Scottish Environmental Group inaugurated in March is to follow the general pattern of the organization of the group formed in London in 1964—a learned society holding periodic meetings and discussions, the primary objective being close cooperation between specialists.

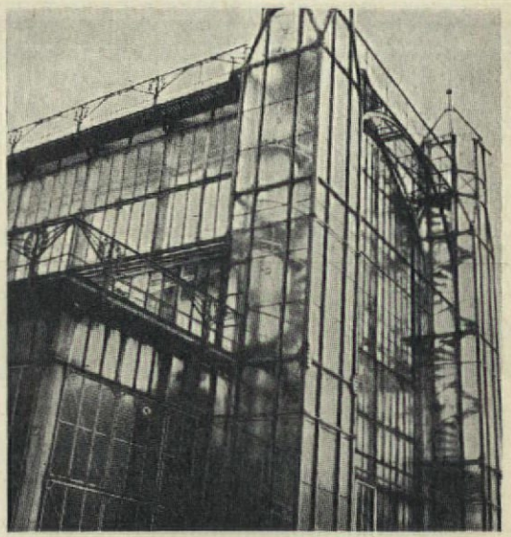
## Carlton House Terrace project

Five societies are to group together to set up an Arts and Design centre at Carlton House Terrace where they have been granted a 99-year lease by the Crown Commissioners.

The ICA, as one of the participating societies, is hoping to raise at least £100,000 for this project by the biggest charity auction sale ever held in Europe of paintings by such artists as Picasso, Bacon, Braque, Calder, Dubuffet, Duchamp, Miro and Schwitters, to be held at Sotheby's, New Bond Street, on June 23rd next.

## Berlin modern

In an idiosyncratic and surprising survey of Berlin architecture of the twentieth century Monica Hennig-Schefold, writing in *Werk* March 1966, has presented a range of buildings often all too familiar, such as Mendelsohn's Einstein tower and Behrens' assembly shop for the AEG turbine factory, but equally unfamiliar and often rudely overlooked—the greenhouse of the Dahlem botanical garden of 1909, and the Shell building of 1931 by Emil Fahrenkamp, both reproduced here. The total resulting effect is neither as strong nor as stimulating as the *Werk* issue on Paris during the thirties, but it does show that there are still a great many buildings in Berlin that are little known and worth a detour.





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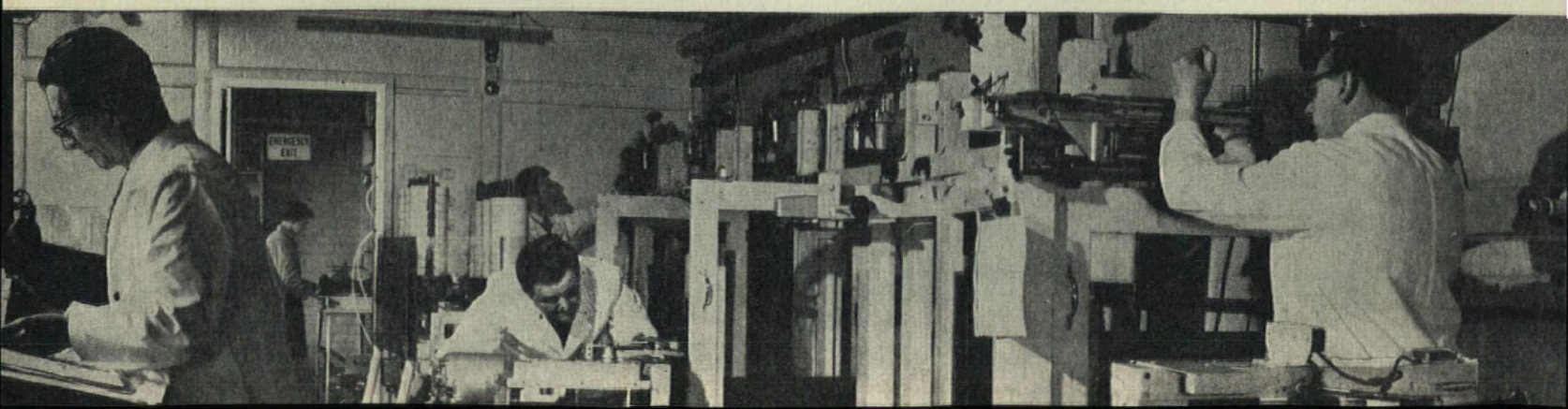





## Getting moving

A mobile architecture in the Detroit tradition is being steadily evolved—and architects have no part in the evolution. Georg Holtl of Tilling, Bavaria (see *AD* November 1965) has ordered from Gottlob Auwärter KG of Stuttgart-Möhringen a more elaborate, larger and technically superior version of a travelling hotel intended for tours in North and South America. In April this was shipped from Germany to the US. The Rotel is 39ft 4in long, 7ft 10in wide and is usually 12ft 8in from the ground, though this height can be decreased by 6in when negotiating low bridges or overhead wires by simply reducing the pressure in the air suspension. The weight of the vehicle is 12½ tons. It is powered by a Büssing 172bhp horizontal diesel engine.

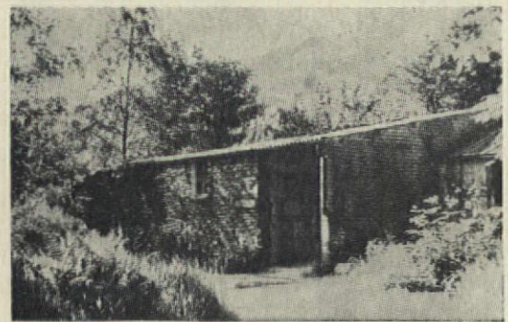
In the observation room there are 27 seats arranged around folding tables; above, in the sleeping compartment, are 21 transverse single bunks and three double bunks. To the rear are washing and changing rooms, lavatories, a shower cubicle and a fully equipped kitchen. The whole is air-conditioned, the plant being powered by a Volkswagen petrol engine which also supplies power for lighting and water heating.

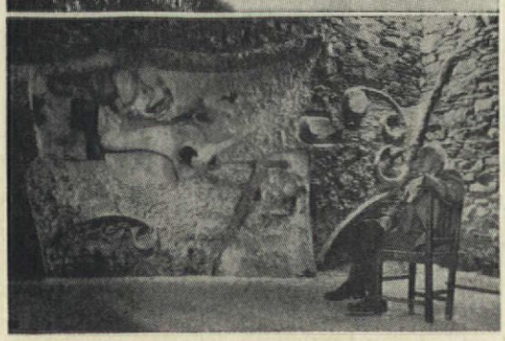
*Financial Times* April 15th, 1966 *Photo: J. Moon*



## Low cost housing—USA

The problem of housing migrant farm labourers in California has been resolved by using a cheap, durable prefabricated shelter that can be opened up or folded away as required—the Plydom house. First devised by Herbert Yates of the Plydom Corporation of Canada it is now manufactured by their US subsidiary, International Structures Corporation. The house is in the form of an accordion made of rigid polyurethane board laminated between sheets of Kraft board coated with polyethylene. Window panels at the ends are of timber and aluminium. The whole is weatherproof, fire and insect resistant and well insulated. It is easily transported—the roof and sides folding into two units 14ft long and 14in square weighing, together, 140lb, the end panels and platform bringing the total to 520lb—and can be erected by two unskilled workers in less than an hour. The cost is £180. The polyethylene coating determines the life span 5–7 years. A core unit for the houses, consisting of a simple kitchen and bathroom is being worked out by Sandford Hirshen, one of the architects responsible for the programme. *Fortune* April 1966.

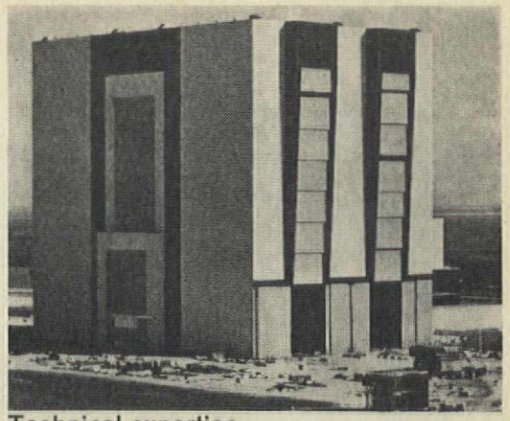




## Merz Barn

Kurt Schwitters's turgid *merz* buildings in Hanover and Norway, though no longer extant, are well enough known. But his third architectural collage, which he began to put together after the last war in a shed at Cylinders Farm, Langdale near Elterwater in the Lake District, has rarely been illustrated and is known to only a few addicts of this Dadaists' uneven *œuvre*. When Schwitters died on January 8th, 1948 only a part of one wall was complete. This has now been found to be deteriorating. It is however, in one sense, to be saved by moving it to the University of Newcastle upon Tyne. The zeal and good intentions of the preservers is admirable, but with a fragment of a Schwitters' architectural assembly to maintain, it is essential to realize that the surroundings no less than the original shed are integral to the work and that there are strong arguments (not only of the Chateaubriand sort) for letting it rot *in situ* rather than to preserve an isolated part of the whole. Some means should have been found of keeping the Merz Barn intact in Elterwater.

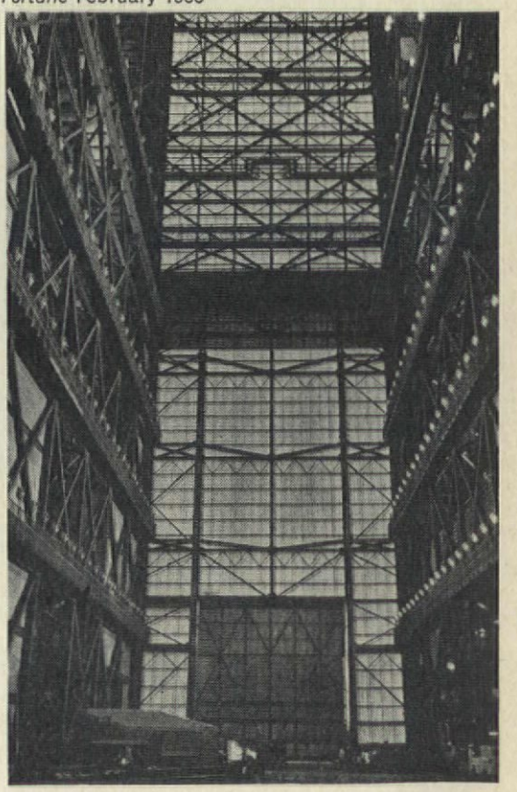
*Werk* 3, 1966



## Technical expertise

Architects, along with almost everyone else, have been so deeply stirred by the sheer unexpected fantasy of the technological advances that have resulted from the US programme to land a man on the moon by 1970, that it is something of a let-down to find that the sort of building that has resulted from the same clear and dispassionate thinking, would, to all external appearances have fitted quite well into Mussolini's Rome '42 or, scaled down, have served as a railway station in Calabria. Indeed although the new rocket assembly building on Merritt Island, Florida is enormous (525ft high) it has no sense of scale. Nor does it appear to be more than a simply and simple-mindedly styled up cube. But internally it is of a breathtaking complexity and richness and clearly there is nothing to touch it in technical variety in the realm of architecture as we know it. The problems with which the designers, URSAM contended have quite simply not existed before. So large and cavernous is the central volume that thunderstorms could form in the interior and fans have to be maintained to keep the air moving. Statistics on the lighting and circuitry are all but incomprehensible to most architects. Everywhere brilliant technical mastery has resolved the problems involved in launching a rocket and it has been allowed to condition the resultant forms of the building; is this then *the* functional building?

*Fortune* February 1966





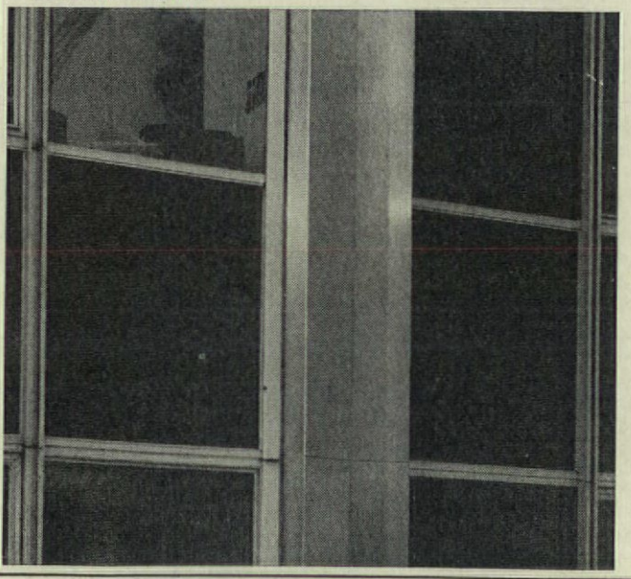
# 'M'-section column covers on Winchester House –in 'Silver Fox' stainless steel

The latest application for "Silver Fox" stainless steel can be seen on the recently completed Winchester House in the City of London, where it is used to clad the eight 20-storey high, two feet wide, structural columns on each of the main elevations above the podium.

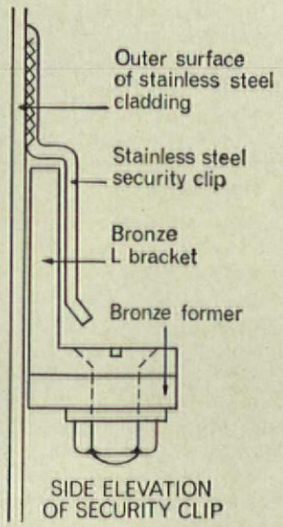
"Silver Fox" stainless steel enhances the aesthetic feeling of the building and provides the architect with a material of strength and durability, with minimum maintenance—a quick wash down will bring it up like new.

Winchester House, London. Owners: St. Martins Property Corporation Ltd. Architects: Gunton & Gunton. Contractors: Trollope & Colls Ltd. Stainless Steel fabrication: Culford Art Metal Ltd.

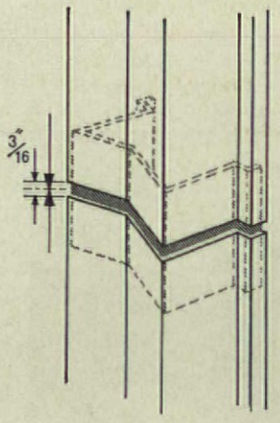
Manufactured as an inverted "M" section in 11′ 8″ storey-height lengths from a single 14G sheet, the dull-polished stainless steel covers produce differences in light reflection to provide a clean and slender appearance to the heavy structural columns.



The stainless steel covers are secured by connecting cleats, spot welded to bronze angles and tees, which are in turn bolted to the concrete columns.




SIDE ELEVATION OF SECURITY CLIP

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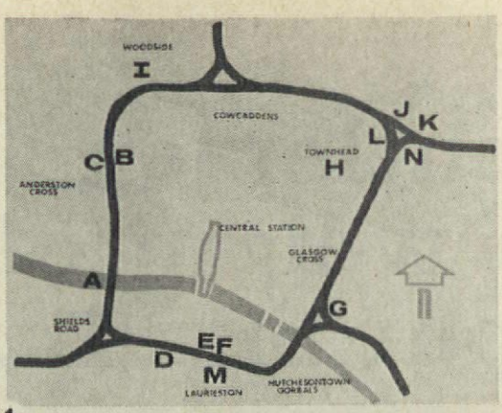
## Glasgow

'There are two aspects of the growing use of vehicles which closely affect our daily life. The first is mobility and ease of access and most of this Report has been concentrated upon ways and means to release the full potential of the motor vehicle as a means of transport for both business and pleasure. We make no apology for this. We believe that this mobility does enlarge the life of the ordinary citizen to a greater degree than any other single innovation of the 20th century.'

This somewhat sinister introduction to the Environmental Studies section of the recently published *Highway Plan for Glasgow* leads to a very humane and careful study of how to accommodate an estimated increase from 429,000 vehicle trips in 1961 to nearly 1,150,000 by 1990, in a city whose population is likely to grow by only 20,000—to just over 1½ million—during the same period. Glasgow has had a series of 'Highway Plans' in the past, fortunately very little of them having been carried out, and the present study by Scott and Wilson, Kirkpatrick and Partners (commenced prior to the publication of the Buchanan Report) has been carried out in close collaboration with a lively and active City Architectural and Planning Department.

The city has 29 comprehensive redevelopment areas and though these occupy only 8 per cent of the city's built-up area the highway proposals **1** make the fullest possible use of them as well as other available land, such as disused canals, which apparently can offer little in the way of recreational value. Multi-level segregation in the CDA's is illustrated by sketches showing how the urban motorways could be treated in the Anderston Cross Development area **2** and at Charing Cross with its municipal and commercial bridge proposals **3**; at the enormous Townhead interchange **4**, however, the relationship between urban structure and motorway collapses. The quality and excitement of the crisscrossing motorway structures is terrific, but the landscaping and detailing of pedestrian ways and gardens just does not hold water, and looks no more successful than the now tatty lavatorial labyrinths under Birmingham's Inner Ring road. The consultants have presented a frank and very complete report, which those unskilled in traffic engineering techniques can follow easily. A series of alternative studies for one-way systems, and closing various main streets to traffic shows how it would be possible to gradually sort out the central area **5** and, though lacking architectural concepts as embodied in the Liverpool and Leicester plans, leaves room for the integration of new architectural forms as and when central area re-development takes place, without prejudicing the future to designs of the 1960s. The main defect in these proposals for over 100 miles of urban motorways and expressways is the lack of integration of an imaginative public transport system, but this may follow, as a report on this subject is now being put in hand. The proposals are estimated to cost £218 million, but estimated savings to road users at plan completion amount to £93 million annually, while road tax revenue from vehicles in the study area between 1965 and 1990 at present rates would bring in £720 million.



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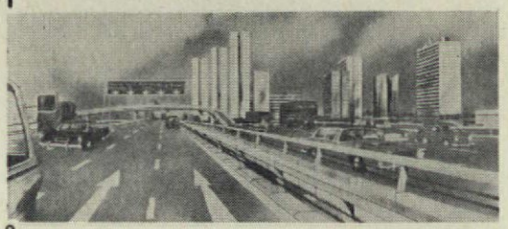
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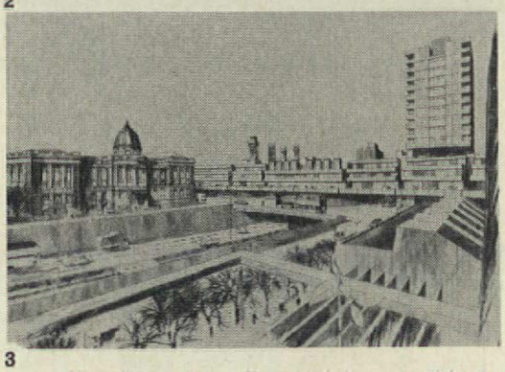
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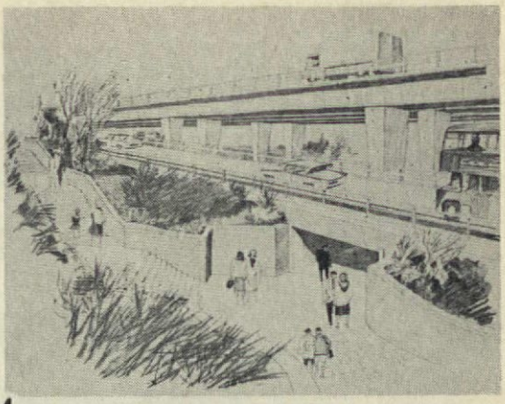
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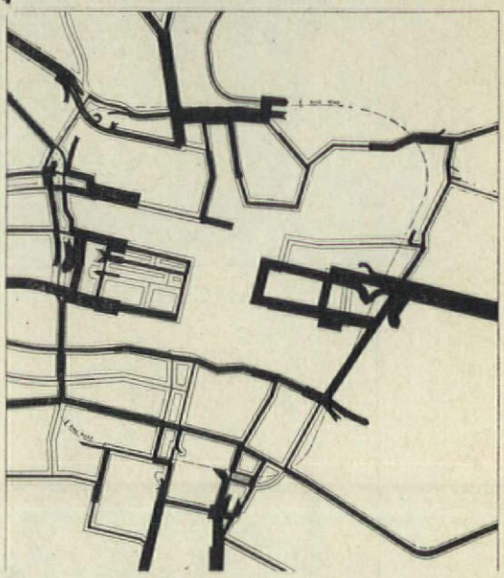
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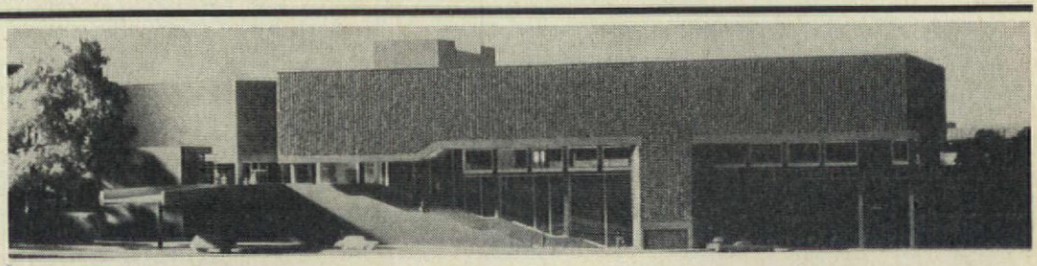
## Corby

Corby New Town suffered more than most of its contemporaries in the 'austerity' period, having a centre that is undistinguished save for its penetration by a spine road at ground level, decorated with County Council Sarcophagi to house 'bedding plants in season'. The original plan for 40,000 was too small to create any sense of urbanity out of the collection of UDC and Stewart and Lloyds works housing existing in a loose scatter prior to the Development Corporation taking over. John Madin and Michael Holt have now produced their extension plan to take the town up to 75,000 by the end of the century, and though still small for such a prosperous steelworks town, the additional population makes it possible to extend the centre and to convert the abortive spine road into a pedestrian mall and create a new market precinct. At this stage, though three-dimensional design is missing, one can judge the future quality of design from Madin's previous housing at the Calthorpe Estate and Bron-y-mor. One fascinating study in the development is the integration of Great Oakley Village into the town, with Oakley Hall and its parkland as part of the towns future continuous open space pattern.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## Swindon

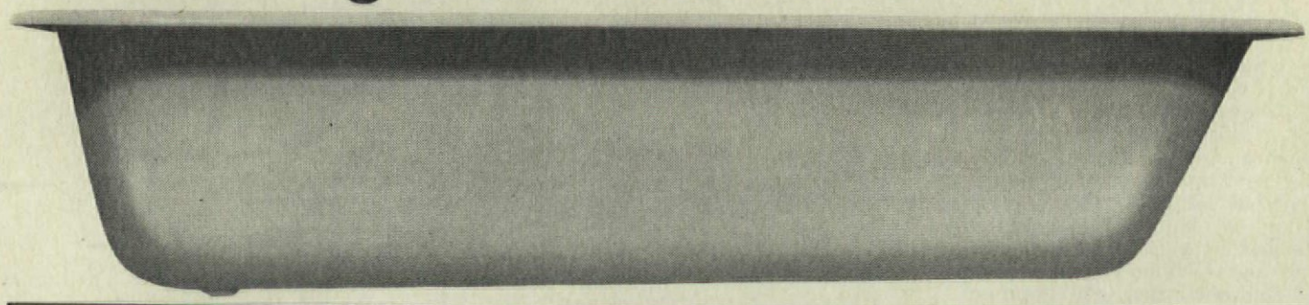
Swindon has become well established as a growth point between London and Bristol by the successful joint efforts of the Borough Council and the old LCC, so it is not surprising that Llewelyn-Davies Weeks and Partners in their *New City* report for the MoHLG on the Newbury, Swindon and Didcot area should favour that the site for the new city suggested in the SE Study should be an extension of Swindon—in a north-west direction. Their report does not go as far as Wilson/Womersleys' *Northampton, Bedford and North Bucks Study*'* in suggesting patterns of urban form. Though making allowance for natural growth in Newbury and Wantage, and other parts of Berkshire, there will doubtless be heard a great sigh of relief throughout the Vale of the White Horse, and one expects, from many other parts of England, that this one empty place in our midst, conjuring up visions of this land's pre-history, will remain undisturbed for our generation at least.

Without waiting for the outcome of the report, Swindon Borough Council have been continuing their expansion programme, which not only includes new housing and industrial areas of considerable extent, but also the complete reorganization of the central area into a series of related pedestrian ways served by a ring road; this is now well advanced, and the first stage of the civic buildings complex by Casson, Conder and Partners has now been approved **6**. The complete scheme from the courts in the centre, across the new 'mall' of Regent Street and around Regent's Circus will form an essential link to the centre from the new Technical College.

By their careful use of levels Casson and Conder look as if they have pulled off a piece of imaginative civic design that could set a higher standard than recent commercial building.

**AD* March 1966, page 109

# gentlemen — a weight off your mind...



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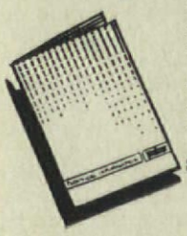

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## Don't serve Bass as Watneys on the stage Mrs Worthington

*I. Chippendale*

Looking in Folk Museums at all those clever things made out of natural anomalies in wood I feel an attack of the crafts coming on. But when next in the woods I can never remember what they were to be useful for, winding wool? I don't do it. Drip-drying blayberry candles? I have yet to meet one. So next time round Stockholm or Oslo or the basement at Bath I must take the Ruskin between my teeth and make a sketch: I must make a scribble as to how each clever bit of Bavarian farmhouse actually hinges and never mind the drivers' snears, because I have a rotten memory for details. I forget things you know like the Golux in Thurber's *Thirteen Clocks*. I cannot apply other people's details—but in England this comes into the class of what the fairy should give you at your christening. The traditional details with a Le Corbusier become a fund of notions that undergo a mutation process: like Brecht's Bavaria—with me its more likely to result in Brecht's bookcase—a plank on two bricks.

The total lack of mutation of notions makes post-war British theatre unexceptional. In that the playwriters have not insisted on the visuals being an intrinsic, indivisible part of their theatre; I find them unexceptional also. It is sloppiness to hide behind the remaining written word of Shakespeare (since no visuals remain) happy in playing the innocents ignorant about visual commitment. But the lack of total recreation makes the broohaha stick in the gullet. 'But Brecht had forty years to perfect his company.' A splendid excuse is it not from the anti-establishment Establishment? Forgetting apparently that anyone who likes has had any part of 400 years to perfect scenery and costumes for Shakespeare.

British scenery is vile! This is an opinion that is a perfectly possible aesthetic judgment which I, or a painter, or a sculptor, or anyone familiar with internally consistent patterns or systems—a poet, scientist—can, and do make. To us who have to drive through the troubles that beset our particular profession, it is irrelevant if we don't 'understand' the intricacies and back-biting of stage management, scene painters union, tight budget or how Shakespeare put on his plays. No one alive actually *saw*—we can all read the same documents if need be. To fight through is designers' business, if not, hand over to someone so green as to be unaware, an innocent, free alike of past productions and 'darlings'.

Brendan Behan in murk is not good enough. Why not white Hockney?

Krapps last banana or the couple in the dustbin in Op Art would certainly cut the fatigue.

Not that this is a wish for a Tinguely's *Peter Pan* —a Giacommetti *Puss in Boots* would not be the tin this feline would know was good for her.

Yet if I see another Craig stippled tread and riser on the British stage I might behave like that architect who laughed like Howards Asprin at the Festival Ballet in the Festival Hall so laboriously made acoustically perfect—for music—that *Les Sylphides* sounded like off-beat Ram Gopal.

Realism I can take. It makes no demands. Recedes. Gives no fake message. A bed is a bed for Oblomov or the previous Daz Milligan. From Peter Blake I could accept mild gimmicks like medals, or Union Jacks instead of fur in the coverlet context. With realism one can concentrate.

But what one is getting instead is a cheap mess of modernistic symbols, slung together like a modern church: the mish-mash of symbols, which I, and others, either place instantly or are nagged by: the use of which symbols makes it obvious the British cribber had no idea where they came from originally and is therefore visually illiterate as well as stupid. The normal cacophany of unrelated loot, is unrestful and unmeaningful to most and definitely hurtful to several. To say so is not a criticism of American banks, Girard restaurants, nor does it cast aspersions on personal household taste to state that one does not want them on the stage Mrs Worthington. It is like the old story crying wolf. No-one will ultimately believe in the art of illusion. This is boring. Amid a plethora of new theatres and proposed fun palaces and leisure miles, there is no illusion, no fun, no art of transposition. Yet the Mrs W's are convinced they are the it in with it.

Brecht has gone through British theatre, since Tynan wrote him up mid-fifties, like a dose of salts. The air is thick with allusions to Brecht. Mother Courage carts trundling into practically everything except an Angus Wilson.

I want to brood on the Ensemble productions for my own ends without continual theatrical reference debasing them. Yet before Tynan integrated the Shakespeare peasant it was Wolfit, Geilgud, *et al.*, acting out devalued Forbes Robertson, as in the 40s Hubert Worthington did Franco-British Beaux-Arts, and a very un-*beau-joli* it was too.

If architecture were to continue to parallel stage design our building would be basic Bauhaus with a stainless steel safe in the front window, blue period Picasso in Carters' tiles, a Fornasetti paladin round the back, and the secretary wearing a great brass sun mask instead of the Top Gear they wear if you're lucky in real life.

It must be dreadful in-breeding, how else could the wheel of fortune not have turned on to ex-RCA type talent? The stage lacks not only immediate punchy marketability of it all but, most obviously to an architect, the light mindedness of any under-40 with art/architecture training. Mentally theatre is still strike-a-light. Our fun needs foot candles, our illusions need illuminating: even allusions would be brighter if of an LEB lighter kind.

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## Dubuffet's drawings

*Jasia Reichardt*

Art is like a game—it has no purpose, and its only function might be described as that of articulating life. One might hesitate to apply this premise to any artists whose work is based on some highly programmatic idealism, since their intent would resist such seemingly light-hearted approach. Only with artists who feel similarly about art as John Cage feels about music, could one posit such outrageous notions that art can be anything, everything—a conglomeration of errors and ecstasy and a string of responses to unpredictable environment. Whereas Cage made a definite point of employing sounds he detested, eg radios, Dubuffet is also conscious of making deliberate use of images that contain the essence of familiarity and terror. Dubuffet is one of the few artists who are completely unhampered by those ideas, terminology, associations and scruples which so often run as a subsidiary parallel to any art manifestations, as a qualification of their validity. 'Aesthetics bores me' declared Dubuffet and proceeded to explain how neither beauty nor ugliness, analysis nor embellishment, are of the slightest importance to what he is trying to do.

His work has been prolific in the variety of approaches rather than themes. His subject matter is basically man and nature, and this is so literally true that very rarely can these themes be divided. Whether Dubuffet composes figures out of dried leaves, or synthetic textured matter, or the filigree network of drawn lines, there is an idea of interchangeability between the texture and pattern of nature (eg earth surface), and the human image. This is clearly demonstrated in his drawings and gouaches (Scottish National Gallery May–June) where it may be easier to examine the continuity between his work of different periods, than the more technically complex paintings and collages. The drawings are about, and of, uninhibited rapture and joy. None of them are large, although the use of scale is such as to allow the image to assume proportions of striking grandeur. The interchangeability between the image and texture/pattern operates as follows. Either the image, eg *The beardbook*, comprises an entire microcosm within it which can be delved into like a crater, or the drawing, eg *Six personages on a black ground*, appears like a pattern within which the images are included. Therefore the image either contains or is contained within the texture of a landscape. The flamboyance and spontaneity of the drawings and their extraordinary impact is due as much to the vision of the artist as his approach. 'My position', wrote Dubuffet, 'is exclusively that of celebration, and whoever has though to detect in it intentions of humour or satire, of bitterness or invective has misunderstood it.'



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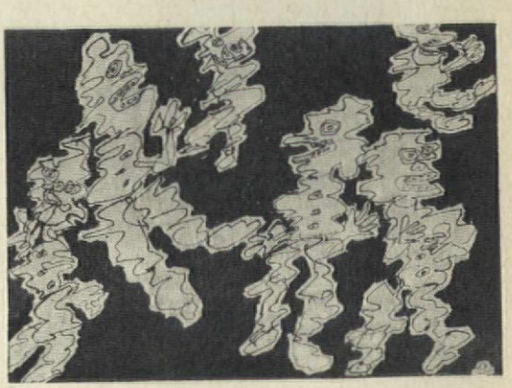

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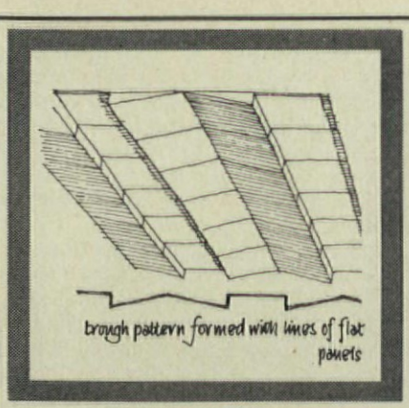
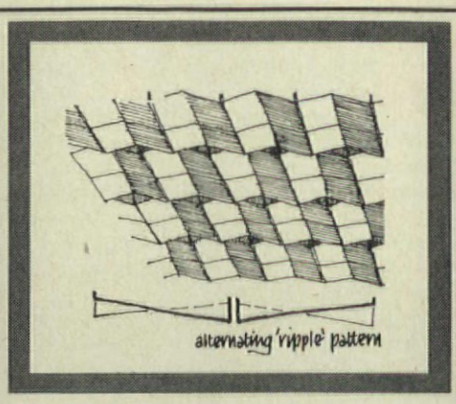
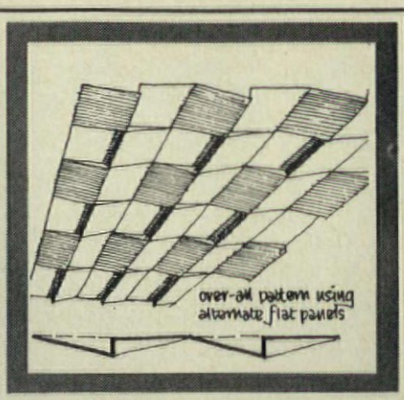
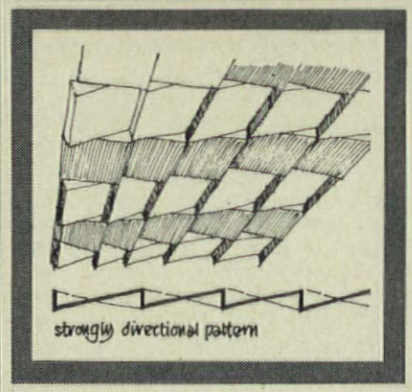
1
*The beard book* 23½in × 13½in, July 1959

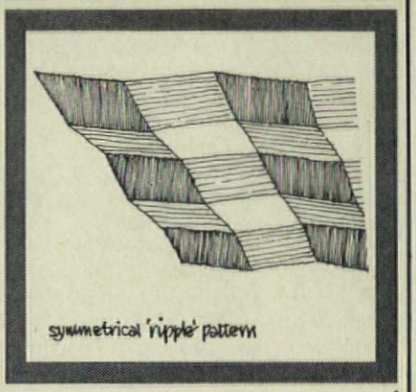
2
*Six personages on a black ground* 10in × 13¼in, October 1961

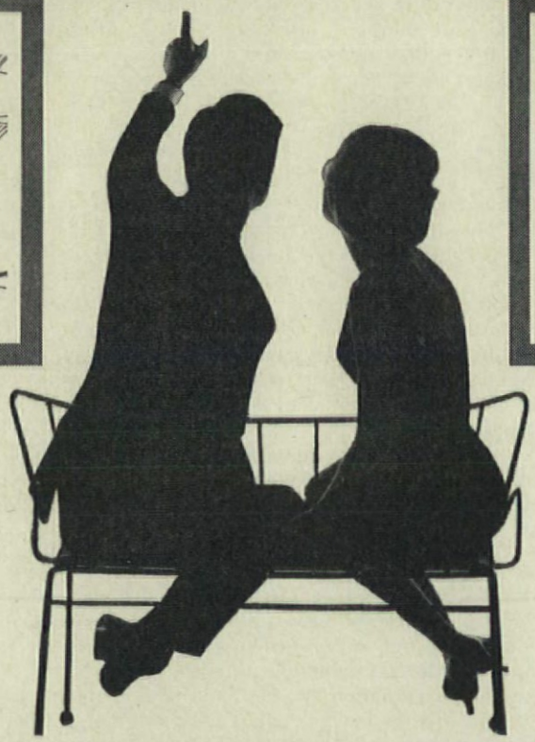


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# Around Britain—5

## The North West—Regionalism

*Dennis Sharp*

The Department of Economic Affairs issued their regional study *The North West*, in 1965. In this 178-page document the newly defined region (population 6½ million) was dissected, analysed and sewn up. It was not the intention of the survey team to dictate policy but some idea of the future of the region was indicated—at least in terms of the known problem. Most importantly the house stock must be improved. It was estimated that 281,600 additional dwellings will be needed by 1981. The really tough problem, however, will be the gradual renewal or elimination of the 440,000 dwellings that 'are either unfit to live in or are likely to be so' by 1981—one in every five households.

Aggravating the housing issue is a serious shortage of land in the congested South-East Lancashire towns. To offset this New Towns are being created at Skelmersdale, Runcorn, Leyland/Chorley and a major overspill area is proposed for Risley, near Warrington. Plans are also underway for a further New Town in Central Lancashire but so far no site has been specified. It is being prepared by Robert Matthew, Johnson-Marshall and Partners and may be as large as half a million population. The NW Economic Council rejected the idea of a Liverpool/Manchester amalgamation. By so doing they have probably missed the greatest creative possibility of the lot. A linear city that linked the two nodes would bring new life to the no-man's land in between. This land is now used for low-scale development. What is needed is population concentration with an efficient supporting transport network.

As well as the official plans for extension and renewal a number of unofficial probative schemes have been put forward—as stimulants to local opinion—that suggest the future for the NW could be exciting if conventionalism can be overcome. These include the Morecambe Bay Barrage Proposals (Leeming); Red Rose Linear City joining Manchester and Liverpool (Cullen/Alcan); Ribble City (Billingham/Fineberg); Dee City (Sharp/Hughes) and Sir Donald Gibson's recent idea for a Lakeland City (shades of Bruno Taut's *Alpine Architektur* here).

All this is happening. But what is being done? The answer must be—with the exception of the planning league leaders, Liverpool—precious little. That which is underway is fairly conventional cut and fill. The historic city of Chester is changing—but one fears for the worst. Stockport is having a new universal heart, rectilinear, glass-sided and pedestrian. Macclesfield is having a face-lift. Knutsford—a delightful small country town of about 12,000 people—is threatened with overspill. The Wirral Peninsular—one of the most highly priced and attractive areas in the NW—is ruined by indiscriminate planning. In Lancashire the coast line is filling up. Blackpool is having a new centre—which it has been claimed it cannot afford! Bolton has a new plan by Shankland, and Preston is redeeming its housing. The older Cotton Towns are competing with each other for the most vital central areas and by so doing are neglecting their history and established form. In North Derbyshire, Buxton is dead.

*Regional Independence*

In view of all this activity it is not surprising to find that the most explosive topic of conversation among architects is regionalism. At this years' North Lancs Society Dinner Roger Booth (County Architect) presented an RIBA Vice-President (Bill Howell) with two small hand bombs—one for his collection and one to blow up 66 Portland Place. This Guy Fawkes gesture was of course a joke, but it did stress the point that provincial architects are determined to operate a professional policy within the Region for themselves, by themselves. So far the groundwork for a regional organization of architects has been done. It could be a formidable body, representing something like one-sixth of the profession in the UK. Controversy rages about where the Regional Centre should be. Manchester claims it could provide the only reasonable centre but Liverpool has age on its side.

*The capital of the north?*

Liverpool has had its share of publicity over the past few years but what, many people ask, is happening in Manchester? It proudly claims to be Britain's second capital which, when you look at the place, sounds absurd. Manchester is by no means a distinguished city, but it is a very important one. Since the war it has gone through a social renaissance but physically—outside the main city centre—it still remains a wreck half in and half out of the twentieth century. It is difficult to understand how a city as proud as Manchester can bear to have its image tarnished by the negligence one finds within its boundaries. Filthy half-empty rows of houses, roads fit only for donkey traffic, derelict sites that look as if they are the results of nights of bombing, new homes without landscape treatment, stinking old canals that look and smell like running sewers, are all within a few hundred yards of the centre. And still no consistent plans have emerged for the City, apart from a number of new projects in action areas.

Unless its position changes drastically (and one suggestion by William Mather, a leading Manchester industrialist, is that it should become a 'city-state') its future on the world map is not assured. From the entertainment point of view the City is having a boom time, boasting 300 or so clubs and a few notable theatres and cinemas. In a decade or so it could also boast a new arts centre—if Whitehall and Bernstein cough up the cash.

*The concern for quality*

One reassuring fact about the NW is that many people are becoming very concerned about their environment and architects are showing a new concern for quality in design. This may have been influenced by the London firms who have been working in the area, but it is also due to many younger architects coming back into the main centres and into the established firms.

In Manchester the firm of Cruickshank and Seward have set a good standard with their buildings for the University **1** and Leach, Rhodes and Walker **2** have evolved a distinctive type of office building. Liverpool also has a number of smaller firms producing excellent work.

The 1965 Civic Trust Awards for County Council areas reinforces the view that design standards are going up and Walter Bor's remarks as assessor for Lancashire that the submissions 'were quite outstanding not only in number but also in quality' has put new heart into the local offices which too long have suffered from local indifference.

The Lancashire Class I Award went to the industrialized housing at Lydiate **3**; Harding and Horsman for Messrs Calders Ltd.

In Cheshire the Class I Award (Assessor: Roger Booth) went to the North-West Gas Board HQ **4**, Altrincham, by Building Design Partnership.



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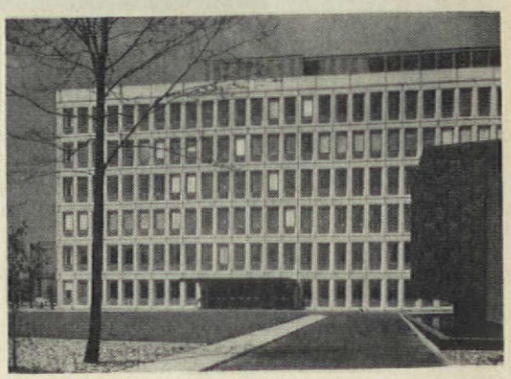

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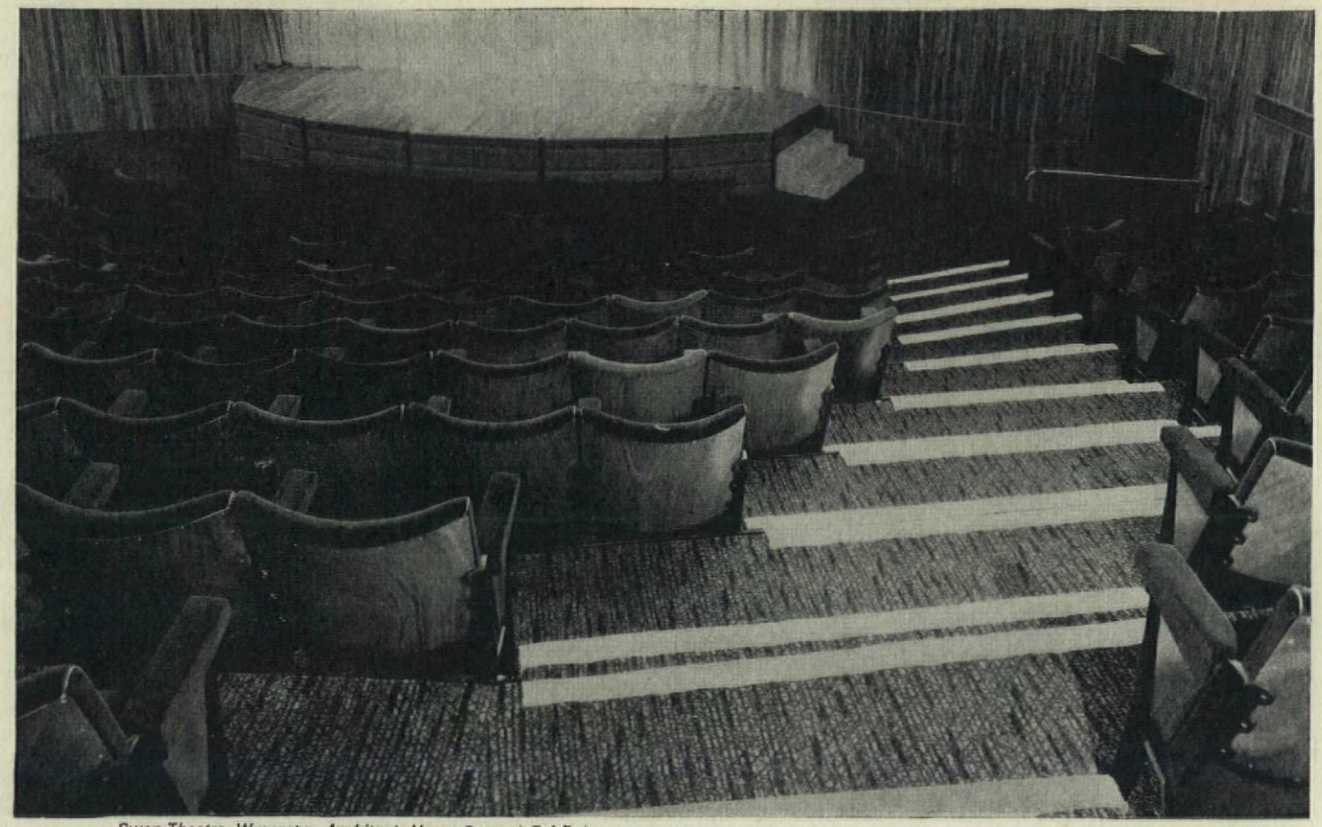

*Swan Theatre, Worcester. Architect: Henry Gorst, A.R.I.B.A.*

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# Dans ce numero

## L'hôpital de Venise 1965

Le Corbusier

*p.* 223

En 1906 Venise avait été un grand évènement pour Le Corbusier. Il avait pensé que c'était une ville unique au monde. Soixante ans après le voici chargé par les autorités vénitiennes d'intervenir comme Architecte Urbaniste.

Le grand hôpital de 1200 lits en est le prétexte: choix du terrain utile et favorable, invention urbanistique et architecturale.

Il se trouve que les responsables de Venise sont en plein accord avec les plans de Le Corbusier.

Ils sont même enthousiastes.

En disposant horizontalement les volumes de l'hôpital, Le Corbusier a cherché à éviter que la silhouette de Venise ne soit altérée. (*Extrait de* l'Oeuvre Complète de Le Corbusier, 1957–1965) pp. Le programme se réalise sur trois niveaux.

Le premier niveau au sol est le niveau de liaison avec la ville; là se trouvent les services généraux et tous les accès, soit par voie d'eau, soit à pied ou soit par un tunnel relié au 'Pont Translagunaire'.

Le second niveau est l'étage des soins préventifs, des soins spéciaux et de réhabilitation: un niveau de technologie médicale.

Le troisième niveau est la zone d'hospitalisation et des visiteurs. Le hauteur de l'hôpital au-dessus du sol est de 13,66m qui est la hauteur moyenne des édifices de la ville. Le premier et le second niveaux ont 5m qui est parfois divisée en deux étages de 2,26m chacun. Le dernier niveau mesure 3,66m et cette hauteur est par endroits réduite à 2,26m. Dans la majorité des cas cette double hauteur de 2,26m est réservée aux conduits et aux circulations.

L'Hôpital étant un hôpital fondamentalement destiné aux malades aigus (ceux-ci doivent y séjourner en moyenne 15 jours, dont 5 alités), Le Corbusier a cherché à créer deux structures qui permettent dans les deux cas le séjour dans les meilleures conditions. Pour les malades couchés, soumis aux soins intensifs *l'unité lit*, pour les malades levés, la *calle*, le *campiello* et le *jardin suspendu*.

### Niveau 1

Le niveau 1 concentre au sol tous les services qui sont reliés directement à la ville et qui constituent tout ce qui dans un hôpital est en dehors de la partie médicale et qui concourent à son fonctionnement, (administration, cuisines, buanderies, chaufferies, ateliers, dépôts de vivres, etc . . .). Une grande partie de ce niveau sera ouverte au public et aux voitures et sera aménagée de telle façon que chacun y retrouvera toutes les ressources d'un quartier de la ville; hôtels pour les visiteurs, trattorias, magasins, fleurs, tabac, journaux, etc. . . . Une église y sera construite pour les habitants de la ville et reliée à l'hôpital.

### Niveau 2

Le niveau 2 est entièrement réservé à la technologie médicale. Il est divisé en deux parties, l'une pour le personnel, les médecins et les malades séjournant à l'hôpital et l'autre pour les malades externes.

### Niveau 3

Chaque malade dispose d'une *unité lit* de 3m par 3m avec des panneaux mobiles permettent une fois fermés l'isolement total et les soins au lit.

Chaque Unité a une ouverture vitrée de 3m sur 1m placée au-dessus d'un plafond situé à 2,26m de haut qui ne peut être vue par le malade. Cette ouverture projette la lumière sur un mur courbe de 3,66m de hauteur situé en face du malade, lui évitant l'éblouissement.

Un panneau coloré à l'extérieur de l'Unité donnera la couleur à cette lumière. Les panneaux seront de différentes couleurs, et mobiles, pour permettre un contrôle précis de l'intensité lumineuse.

Des jardins suspendus seront aménagés sur le toit du couloir médical, visibles par des ouvertures prévues à cet effet.

*L'Unité lit*, élément à l'échelle humaine conçue par Le Corbusier a donné naissance à *l'unité de soins* de 28 malades qui fonctionne comme un groupe de soins indépendant. C'est divisée en deux parties, une qui contient les *unités lit* et une autre les soins et les prolongements. Ces *unités de soins* sont groupées au nombre de 4 autour d'un *campiello* central et sont desservies par 4 *calle* formant un ensemble que Le Corbusier a nommé *unité de batisse*. L'adjonction de diverses *unités de batisse* permet par la disposition ainsi créée la flexibilité pour la distribution et l'usage des diverses *unités de soins*.

La structure créée par les *calle* et les *campielli* devient le lieu du malade debout. Ces lieux qui ne sont pas seulement des lieux de circulation sont munis de tout l'équipement qui permet la vie sociale des malades (lieux de rencontre avec les visiteurs, etc . . .). Quelques uns de ces lieux seront transformés en jardins suspendus.

Le *campiello* intéressant un service est relié par une rampe à un système de distribution placé à mi-hauter du niveau médical et relié à l'ascenseur central (dispatching) permettant ainsi la liaison entre les services et ce niveau et, également la distribution du personnel et des médecins dans les divers services sans perturber les communications entre les autres parties du niveau, car cette circulation est indépendante. Ces circuits sont réservés exclusivement à l'usage du personnel médical et des malades. Au même niveau sont situés deux autres services également indépendants, l'un pour les choses sales, l'autre pour les choses propres, entièrement mécanisés tous les deux.

### Mécanisation et automatisation

L'hôpital est étudié comme un outil de travail devant fournir aux malades les meilleurs soins aux moindres coûts. A cause de la solution horizontale, la mécanisation et l'automatisation ont été poussées à l'extrême.

## L'Ambassade de France à Brasilia

Le Corbusier

*p.* 229

Le Corbusier est chargé par le Gouvernement français d'établir les plans de l'Ambassade de France dans la nouvelle capitale de Brésil.

Brasilia est une ville complètement neuve dont les urbanistes et architectes sont Lucio Costa et Oscar Niemeyer.

Le Corbusier a toujours eu des sentiments d'amitié pour ce pays qu'il a connu en 1929 et en 1936 et plus tard encore.

Le ministre de l'Intérieur lui a dit 'Nous avons décidé de poursuivre le caractère de nos entreprises modernes qui est dicté par vos théories. Vous avez bâti déjà pour nous, dans la Rade de Rio, le Palais du Ministère de l'éducation nationale et de la Santé publique.' (*Extrait de l'Oeuvre Complète de Le Corbusier, 1957–1965*).


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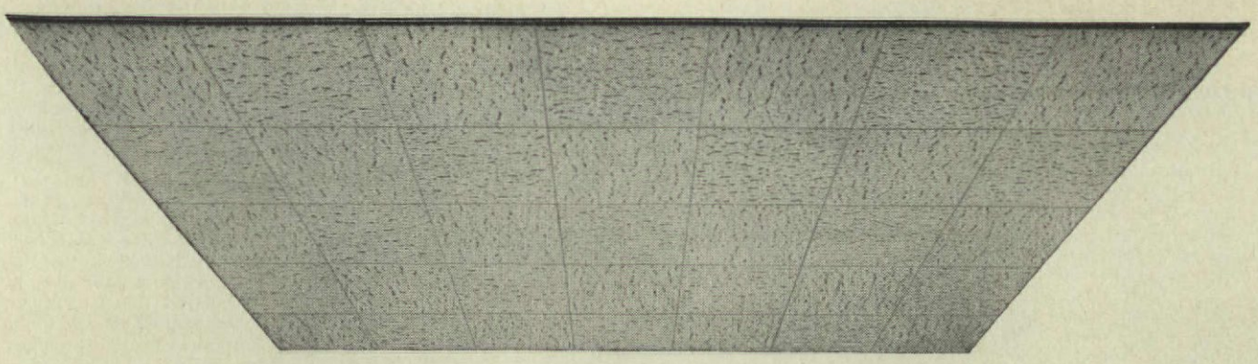

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AT46B

# En este numero

## Hospital en Venecia, 1965
### Le Corbusier

En 1906, Venecia había sido una revelación para Le Corbusier. El la vió como una ciudad única en el mundo. Sesenta años más tarde fué comisionado por las autoridades venecianas para intervenir como arquitecto y urbanista.
Un gran hospital para 1.200 camas fué la ocasión; elección del terreno más útil y favorable; invención urbanistica y arquitectónica.
Sucede que las autoridades de Venecia estan de acuerdo con los planos de Le Corbusier. Mas aún, están entusiasmadas con ellos. Usando una disposicion horizontal, Le Corbusier ha tratado de evitar toda alteración del perfil histórico de Venecia. (*Extracto tomado de la Obra Completa de Le Corbusier, 1959-1965*).
El programa es realizado en tres niveles principales.
La planta baja se relaciona con la ciudad; aquí se encuentran los servicios generales y todas las entradas, ya sea por agua, a pié o a través de un túnel al 'Puente de la Laguna'.
El primer piso es para tratamientos preventivos, tratamientos especiales y recuperación: un Departamento de Tecnología Médica.
El segundo piso es la zona de hospitalización y visitantes.
El hospital tiene una altura de 13,66m la cual es la altura media de los edificios de la ciudad. El primer y segundo niveles son de 5m de altura, que a veces es dividida en dos, cada piso de 2,26m.
El último piso es de 3,66m de altura, que es reducida en algunos lugares a 2,26m.
En la mayoría de los casos esta doble altura de 2,26m es reservada para conductos de servicio y comunicaciones.
En este hospital, que se proyecta principalmente para enfermos graves (los pacientes permanecen en el hospital por un término medio de 15 días, de los cuales 5 en cama), Le Corbusier trató de crear dos estructuras las cuales posibilitan el permanecer en las mejores condiciones posibles. Para los que guardan cama, bajo tratamiento intensivo, la *unidad cama*; para los pacientes que caminan, la *calle*, el *campiello* y el *jardín suspendido*.

### Planta baja

En la planta baja estan concentrados todos los servicios que estan directamente relacionados con la ciudad o con el funcionamiento del hospital, tales como la administración, cocinas, lavanderías, calderas, talleres, almacén de alimentos, etc. Una gran parte de este nivel será para el público y para los vehículos y los visitantes encontraran aquí todas las amenidades de un distrito urbano; hoteles, trattorias, tiendas, kioskos, etc.... También una iglesia para ser usada por ambos, ciudad y hospital.

### Primer piso

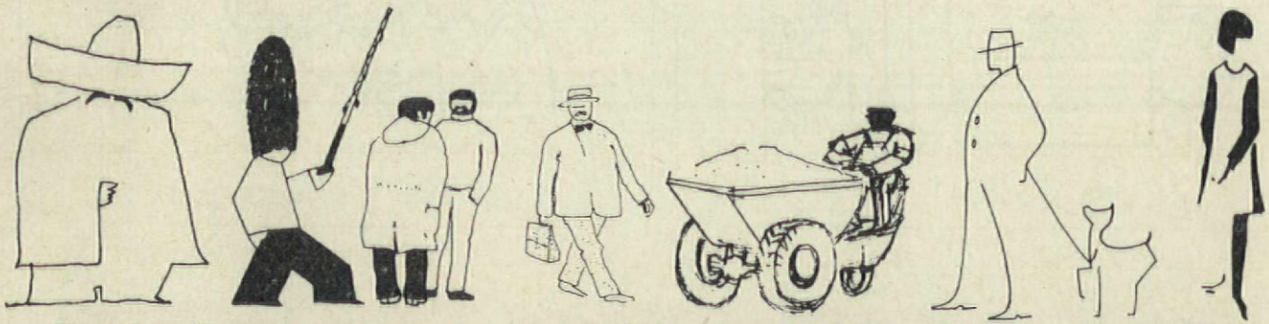
El primer piso esta enteramente reservado a la tecnología médica. Está dividido en dos partes, una para el personal, doctores y pacientes residentes, y la otra para pacientes no-residentes. Aquí también se han hecho esfuerzos para asegurar crecimiento y flexibilidad.

### Segundo piso

En el segundo piso cada paciente tiene una *unidad cama* de 3×3m, con paneles deslizantes para asegurar aislamiento total y tratamiento al lado de la cama.
Cada unidad tiene una abertura vidriada de 3×1m colocada sobre el nivel del cielo a 2,26m y fuera del campo de visión del paciente. Esta abertura refleja la luz en una pared curvada de 3,66m de altura en frente del paciente, protejiéndolo del deslumbre; mientras que un panel coloreado, afuera de la unidad, le dará color a esta luz. Los paneles serán de diferentes colores y movibles para permitir un control preciso de la intensidad luminosa.
Los jardines suspendidos serán organizados sobre la cubierta del corredor de ejercicos, visible a través de aberturas provistas con este propósito.
La *unidad cama*, es un elemento a la escala humana concebido por Le Corbusier, que ha dado lugar a la *unidad terapéutica* para 28 pacientes que funciona como un grupo terapéutico independiente. Es dividida en dos partes; una que contiene las *unidades cama* y la otra, las piezas de tratamiento y secundarias. Estas unidades terapéuticas estan reunidas en grupos de cuatro alrededor de un *campiello* central y son servidas por 4 *calle* formando un conjunto que Le Corbusier ha llamado la *unidad de construcción*. La unión de varias *unidades de construcción* produce flexibilidad de distribución y utilización de las diferentes *unidades terapéuticas*.
Las areas de la *calle* y del *campiello* son la reserva del paciente ambulatorio. No solamente son canales de circulación, pero también proveen todas las amenidades para la vida social de los pacientes (lugares de encuentro con los visitantes, etc. . . ). Algunos de estos lugares serán transformados en jardines suspendidos.
Comunicación entre las salas y los servicios especializados relacionados situados en el piso de tratamiento, es a través de ascensores situados al centro del *campielli*.
El *campiello* relacionado a un servicio es unido por una rampa a un sistema de distribución ubicado en el nivel superior del piso de tratamiento, y unido también al ascensor (despacho) central; no solamente para enlace entre los servicios a este nivel, pero también para la circulacion de personal y doctores en los varios departamentos sin disturbar las comunicaciones entre las otras partes del piso; porque esta circulación es independiente y reservada exclusivamente para el uso del personal médico y de pacientes.
En el mismo nivel estan situados dos otros servicios, asimismo independientes, uno para las cosas 'sucias', y otro para las 'limpias', ambos enteramente mecanizados.

## Embajada de Francia, Brasilia
### Le Corbusier

Le Corbusier fué comisionado por el gobierno francés para diseñar los planos de la Embajada de Francia en la nueva capital del Brasil. Brasilia es una ciudad completamente nueva, cuyos urbanistas y arquitectos son Lucio Costa y Oscar Niemeyer.
Le Corbusier siempre tuvo sentimientos amistosos hacia este país que el había conocido en 1929 y 1936 y más tarde. El Ministro del Interior le dijo: 'Hemos decidido continuar el estilo de nuestras empresas modernas que han sido dictadas por sus teorías. Ud. ha construído ya el edificio del Ministerio de Educación Nacional y Salud Pública para nosotros'.

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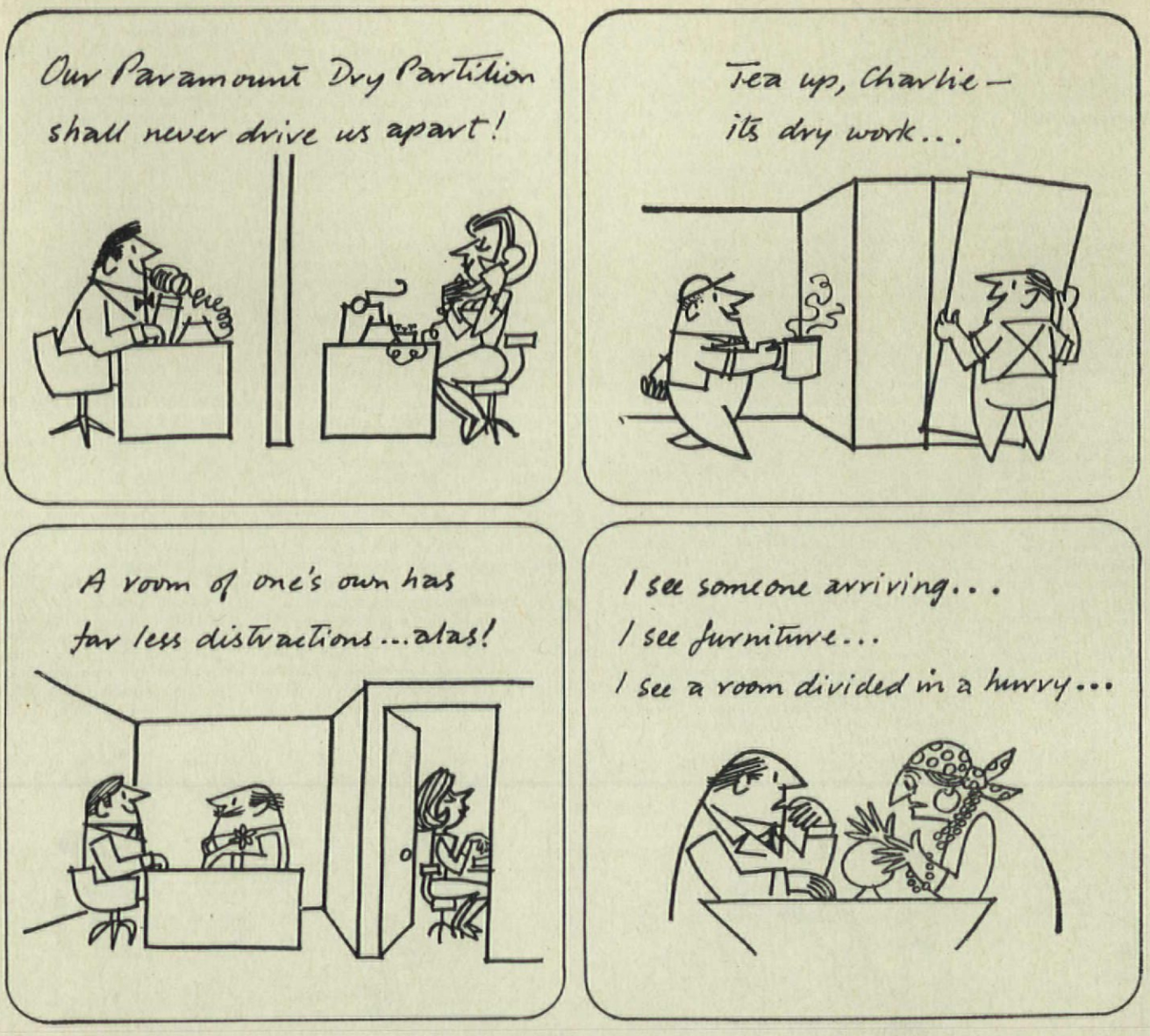


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# Formal and Functional interactions

## A study of two late projects by Le Corbusier

*Alan Colquhoun*

The French Embassy building in Brasilia and the hospital in Venice seem to represent two extremes in the work of Le Corbusier.

The Embassy refers directly to the concept of simple volumes intended to 'release constant sensations' and to the related idea of the 'surface' which form the basis of Le Corbusier's classicising tendencies.* The Hospital, on the other hand, seems to derive from opposing tendencies which are typified in his investigations into patterns of growth, his interest in the irregular and spontaneous forms of folk architecture and the direct transformation of a functional organism into its appropriate form.

Yet if we look more closely we can see that the polarity of these attitudes is present in both projects, and that each owes more to its complementary principle than at first seems the case.

The most immediately striking fact in the Embassy project is its division into two buildings of simple but contrasting volumes. An architect wishing to express the functional interaction between the residence and the chancellery would have developed his scheme in a single complex. But in such a solution it would have been difficult to avoid the administration overpowering the residence. Le Corbusier has evidently wanted to make the Ambassador's house carry the traditional meanings associated with embassies, and to do this he has had to separate the two buildings completely.

The residence has the low cubic form of a villa, placed across the lower half of the site and looking towards the lake, dominating the site from the east and screening its upper half. The chancellery is situated near the western site boundary, where it has a more direct relation to the centre of the city—a cylindrical seven-storey tower, its height giving it views over the residence towards the lake, its cylindrical form enabling it to act as the complement of the smaller, rectangular mass of the residence.

A driveway links the two buildings and the opposite ends of the site, switching across the site between one building and the other, and underlining their complementarity by giving the site rotational symmetry—a frequent device of Le Corbusier's.

The chancellery is the only example in Le Corbusier's *œuvre* of a fully worked out cylindrical building (no plans of the cylinders at Strasbourg and Meux have, as far as I know, been published) but his early studies of simple solids, the photographs of grain silos in *Vers une architecture,* and his drawings of Pisa, indicate a life-long interest in this problem.

In this solution, a circular *brise soleil* screen encloses an irregular orthogonal building, whose walls and floors only extend to the inner face of the circle at certain points. The impression of an object within an object which this gives is enhanced by the fact that the enclosing arc only extends for about three-fifths of a circle, allowing the corner of the enclosed building to emerge sharply from its sheath at the point of lift-shaft and staircase. The effect of this is to slice off the circle in response to the driveway, and to divide the building into an entrance and movement zone, and a quiet working zone. Balconies prolong the *brises soleil* on the driveway side, and their random spacing allows the lowest one to detach itself and to be read as a canopy over the entrance. A central hall on each floor, offset slightly from the centre of the circle, gives onto rows of offices facing north and east. These offices and their private balconies vary from floor to floor, giving constantly new relations with the inner surface of the *brises soleil.* The cylinder is therefore hollowed out, and its interior surface is always felt as independent of the enclosed structure.

This concept of the simple solid differs radically from that of the renaissance. The platonic form of the circle acts as a field within which a functional arrangement is established. This arrangement, which has been freely chosen, resembles topologically the generants of the circle, but results in a 'chaotic' plastic organization. It is necessary to express both the functional and the platonic systems, since to express only the first would result in *apparent* disorder, and to express only the second would deny the functional reality and assert a form that was empty of meaning.

It also differs from such circular schemes as the Dymaxion House, where the platonic idea assumes the guise of mechanical determinism, and becomes a sort of biomorphic absolute, saving man from the necessity of choice (of preferring one functional arrangement to another).

The same ambiguities exist in the Ambassador's house, working within a different set of functional and formal determinants. The problem has been reduced to three elements: a main body consisting of the reception rooms and their offices; an 'attic' containing the Ambassador's private apartments; and a vast porch-vestibule linking the two and containing the main staircase. The entrance and reception rooms are on the first floor, and two broad ramps connect this level with the ground, one leading to the entrance porch from the west, the other leading from the reception rooms on the east to a *parterre* surrounding a pool. From the south east corner of this site the entrance ramp seems like a podium supporting the chancellery, and by suppressing the intervening ground, ties the two buildings together.

The motif of a porch at one end of a block is a recurrent one in the work of Le Corbusier. It first appears at Garches (though this itself is a derivative of the *Esprit Nouveau* pavilion) and reappears, slight modified, in the High Court at Chandigarh. In the Ambassador's house it acts as a lens through which the chancellery is related to the Ambassador's house and the lower end of the site (the two buildings are sited so that the chancellery can be seen through the porch from the east boundary, and so that the offices on the east face of the chancellery look through it towards the lake). It is the eye of the building, the aedicule through which one enters its mysterious inner spaces and by means of which they enter into relationship with the public space of site or city. Both at Garches and in the embassy, its deep penetration at one end of the block activates the building diagonally, and creates a counter movement to that implied by the strictly orthogonal shell.

The classical overtones of this porch are obviously intentional, and its position implies an ironical rejection of symmetry and gives it a curious, rhetorical independence. Equally subversive is the way in which it breaks through the solid wall of the attic, and in doing so allows one to attribute to this floor an importance equal to that of the reception rooms—an importance which is reinforced by the 'domestic' scale of their *brise soleil.*

The apartment floor is a derivative of the director's flat in the Maison Suisse. Here, however, the walls are not penetrated as they are in that building, partly because the linking action of the porch makes this semantically unnecessary, and partly because at the Maison Suisse the piloti necessitate the visual hollowing out and lightening of the top floor. Here the absolute privacy of the Ambassador's residence is established and roof patios form private open spaces which repeat, on an intimate scale, the public open spaces related to the reception rooms.

Both in this building and in the chancellery the *brise soleil* belong to the type first used in India, consisting of deep reveals supported independently of the main structure. The earlier *brises soleil* were conceived of as projections from the glass wall. Their use as independent structures is one of the major developments in Le Corbusier's later style, (although he continued to use them in their original form in certain late buildings). When used in this way they become perforated walls, which re-establish the transitional space between outside and inside lost when the solid wall was destroyed and replaced by a 'dimensionless' and impenetrable skin. The continuous penetrability of this element at ground level made it possible to dispense with piloti without implications of weight and massiveness, and in this way also made it possible to put the principal rooms on the first floor. In the Ambassador's house, the ground floor can be read either as open or solid, thus permitting it to be partially concealed by solid ramps, which give the impression of the ground floor rising to meet the first floor. Where rooms occur on the ground floor, the *brises soleil* carry right down to the ground but where the space is void, the spacing is doubled to suggest vestigial piloti, without however, destroying the surface value of the *brises soleil.*

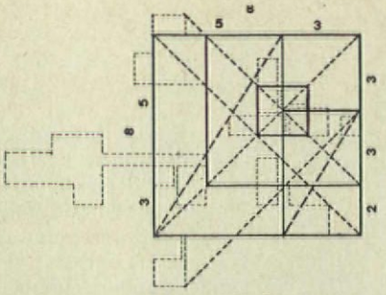
While the organizational problems in the Brasilia buildings are relatively simple, those in the hospital at Venice are complex and specialized. It is possible (even within the height restrictions imposed by the site) to imagine a solution in which vertically organized blocks of different classes of accommodation would be related horizontally, but Le Corbusier has decided to separate the different classes vertically, so that each level serves a different purpose, and a cross section at any one point is, in principle, typical of the whole organization. This has obvious advantages both from the point of view of administration and that of extensibility. But it also repeats the pattern of the city, with its overall texture—a solid mass of building penetrated by canals and courts. In Venice, the city itself is the building, and the hospital is an extention of this building, spreading, tentacle-like, over the water.

The hospital is sited near the north-west end of the Grand Canal, and extends over the lagoon separating Venice from Mestre. The decision to contain the wards in a solid wall, and to light them from the roof would seem to be justified by the proximity of the Railway Terminal and the industrial squalor of Mestre. The building covers a large area, and is comparable in its mass and public importance to such groups as the *Piazza S. Marco,* the *Ospedale civile* and the monastery of S. Giorgio Maggiore. It therefore forms an important addition to that small but significant collection of buildings symbolizing the public life of Venice. The solution combines the monumentality suggested by this rôle with an intimacy and textural quality in harmony with the city's medieval scale. If built, it would go a long way towards revitalizing the 'kitchen sink' end of

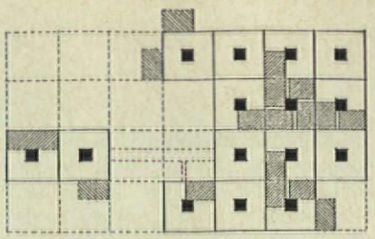
**Vers une architecture* and *Oeuvre complète,* Vol. 1.




Plan of Venice showing the relationship of Le Corbusier's hospital to the Ospedale Civile, the Piazza S Marco, Santa Maria della Salute and San Giorgio Maggiore



Geometrical schema



Additive schema

city which needs more than the tourist trade to keep it alive.

The ground level accommodation occupies an L, with an isolated block contained within the arms of the L. Reception, administration and kitchen occupy the L, and the nurses' hostel the isolated block. A straight access system breaks through the L, where gondola and car entries converge onto a common entrance lobby thrown across the gap. The gondola approach route is bridged by a route linking religious and recreational centres at its extremities. At level 2 there is an entresol containing extensions of the ground level accommodation.

The analytical and treatment departments are on level 3, and are arranged freely round the cores. They include the operating theatres, which are organized round the cores in an analogous way to the wards above. The fourth level consists of a horizontal interchange system between all lift points, patients using the central, and staff the peripheral, corridors.

The ward block, which occupies the entire top floor, is both the largest department of the building, and represents its typical element, and the organization allows this element to extend to the limits of the building, with which it becomes identified by the observer, whatever position he may be in.

The basic unit of the plan, and its generator, is a square group of wards rotating round a central lift point—which Le Corbusier calls a *campiello* (p. 226, Fig. 1). These units are added together in such a way that wards next to each other in adjacent units merge, thus 'correcting' the rotation, and making the independent systems interlock. An agglomerate of units creates a square grid with a *campiello* at each intersection.

The plan differs from those isomorphic schemes where the unit of addition is elementary (as implied, for instance, in the roof of Van Eyck's school at Amsterdam). Here the basic unit is itself hierarchically arranged, with biological rather than mineral analogies, and capable of local modification without the destruction of its principle. It is obviously related to such layered matrix schemes as the Candilis, Woods and Josic project for Berlin University.

The concept of the top floor plan is reminiscent of the Islamic Medresas of North Africa, where sub-communities of students' cells are grouped round small courtyards, forming satellite systems round a central court. But, as in the Medresa, the whole dominates the parts, and the additive nature of the schema is overlaid with a strong controlling geometry.

The geometric, as opposed to the additive schema, consists of a system of overlaid squares and golden section rectangles. The smaller of the two squares establishes a centre of gravity asymmetrical in relation to the scheme as a whole, and related to it diagonally. This centre is also on the intersection of the rectangles formed by dividing the total square according to geometrical proportion. The additive grid consists of eight units, which allows for division on the Fibonacci series into 8, 5, 3, 2. The centre of the small square is the centre of gravity of the treatment department and the main vertical circulation point for patients, round which there is an opening in the top floor giving light to a ground floor court which wraps round the central core. As at La Tourette, the traditional court with circulation round it is modified by a cruciform circulation system on its axes—a typical Corbusian superimposition of functional and mythic orders.

The central core (which from another point of view is merely one of a number of equidistant lift points) assumes a fixed relationship with the south-east and south-west faces of the building only. Conceptually, the building can extend on the north-west and north-east faces, and these are developed in a freer way over the lagoon to the north-west, and the *Canale di Gannaregio* to the north-east, where one assumes further extension could take place. (Between the first and second project a new site has in fact become available and it is possible to see how extension has been achieved without detriment to the overall schema.)

The wards are grouped round the central light well, extending in a wing over the lagoon, and form a U shape over the gondola entrance to provide the echo of an *avant cour*. From this 'soft' side a bridge extends over the canal to an isolated ward complex on the opposite side.

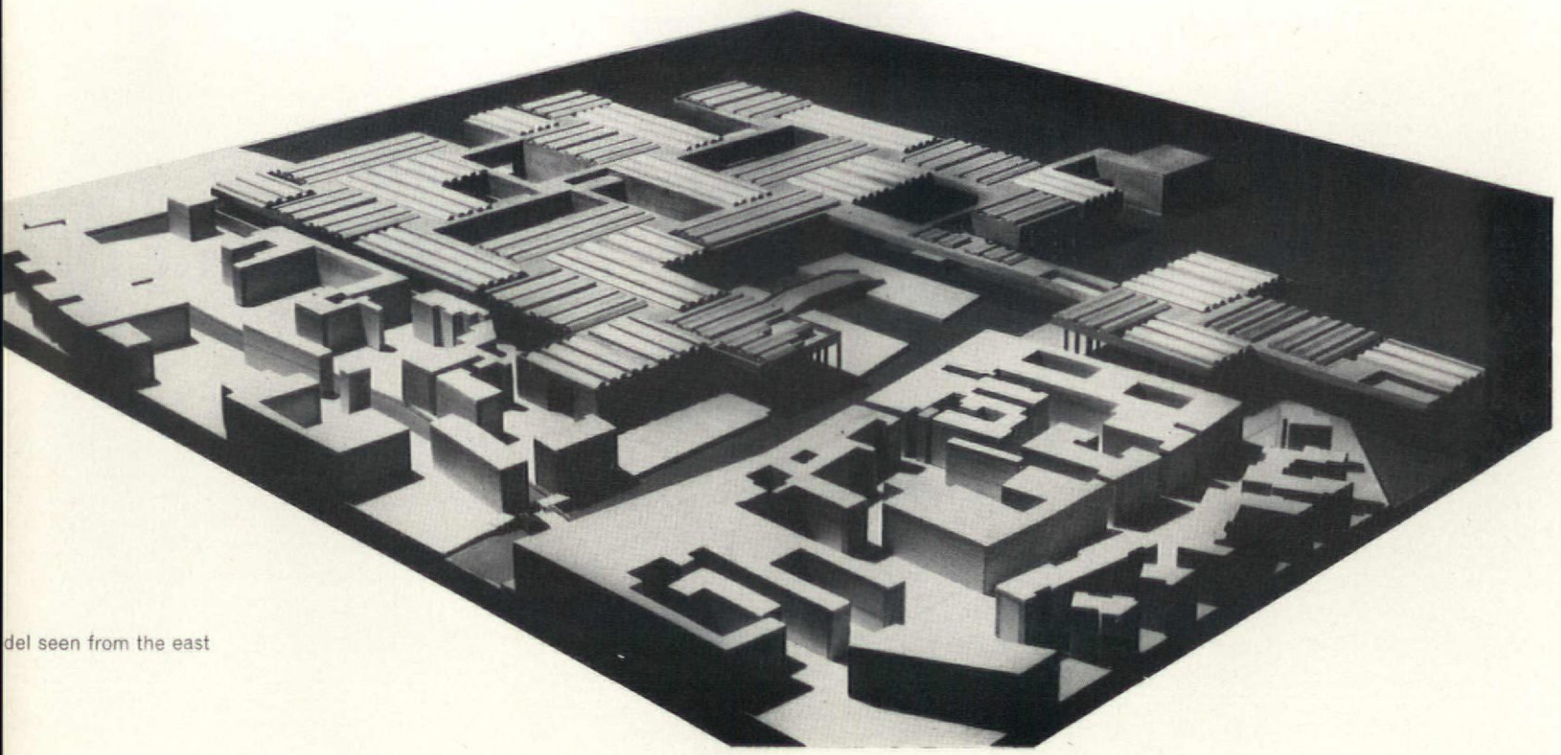
Despite the uniqueness of this building in the work of Le Corbusier—a uniqueness that can be explained by the complexities of the problem and by the peculiarities of the site—a number of prototypes exist in his earlier work. At Poissy the flat cube, projected into the air and open to the sky was first established as a 'type' solution. It seems clear that this sort of 'type' solution cannot be equated with the '*Objet Type*' discussed by Reyner Banham in his *Theory and Design in the First Machine Age*, since Le Corbusier frequently uses the same type in different contexts. We must assume that his concept of 'type' relates to a mythic form rather than to the means of solving particular problems, and that, as with physionomic forms or musical modes, a number of different contents can be attached to the same form. A similar idea is apparent in the *Musée Illimitée*, also connected with the problem of extensibility as at Venice, though solving it in a different way. In the 1925 *Cité Universitaire* project a solid single-storey block of studios was proposed, where the rooms were lit entirely from the roof.

There are also a number of projects where a building on *piloti* extends over water, possibly stemming from Le Corbusier's early interest in reconstructions of prehistoric lake dwellings in central Europe. La Tourette resembles such schemes through the way in which the building is projected over rough sloping ground which, like water, offers no foothold for the inhabitants of the constructed world suspended above it.

But in the hospital scheme the potential symbolism of these forms has been harnessed to a new and unique problem. The *piloti* space forms a shaded region in which the reflections of sunlight on water would create continual movement. Over this space, which is articulated by innumerable columns whose grouping would alter with the movement of the observer, floats a vast roof, punctured in places to let in the sunlight and give a view of the sky. This roof is in fact an inhabited top storey, whose deep fascia conceals the wards behind. It is the realm of the sky, in whose calm regions the process of physical renewal can take place, remote from the world of water, trees and men which it overshadows. But apart from its suggestions of sunlight and healing, it has more sombre overtones. The cave-like section of the wards, the representation in the drawings of the sick almost as heroic corpses laid out on cool slabs, the paraphernalia of ablution, suggest more personal obsessions and give the impression of a place of masonic solemnity, a necropolis in the manner of Ledoux or Soane. Typical of le Corbusier is the way in which the logic of a total conception has been relentlessly applied to the organization of the wards, and has resulted in a solution which stands the accepted idea of 'convenience' on its head. There is a civic *gravitas*, a ritualistic seriousness, about this scheme, wholly at variance with a society whose values are based on the likely opinions of the average man multiplied by n, and it is possible that such a '*machine à guérrir*' may not commend itself to the committee in whose hands the fate of the building lies.

In spite of its different purposes, and the different organizational patterns which these produce, the Venice hospital resembles the Brasilia scheme in the way in which it evokes complex and overlapping responses. The analytical way in which the constituent functions are separated allows them to develop pragmatically around and within fixed patterns. The form is not conceived of as developing in a one-to-one relation with the functions, but is based on ideal schemata with which the freely deployed functions, with their possibilities of unexpected sensuous incident, engage in a dialogue. The building is both an agglomeration of basic cells, capable of growth and development, *and* a solid which has been cut into and carved out to reveal a constant interaction of inside and outside space.

The impression of complexity, here as at Brasilia, is the result of a number of sub-systems impinging on schemata which, in themselves, are extremely simple.



del seen from the east

# enice hospital, 1965

Corbusier

*1906, Venice had been a revelation for Le rbusier. He saw it as a city unique in the rld. Sixty years later he was charged by the netian authorities to intervene as architect d townplanner.*

*large hospital with 1200 beds is the pretext: oice of the most useful and favourable piece ground; urbanistic and architectural inven- n.*

*happens that the authorities of Venice agree h the plans of Le Corbusier. They are even husiastic about them. By means of the hori- tal disposition of the hospital, Le Corbusier tried to avoid any influence upon the his- cal skyline of Venice.'**

The programme is carried out on three main levels.

The ground level links with the town; here are to be found the general services and all the approaches, either by water, on foot or by a tunnel to the 'Lagoon Bridge'.

The first floor is for preventive care, special treatments and recovery: a Department of Medical Technology.

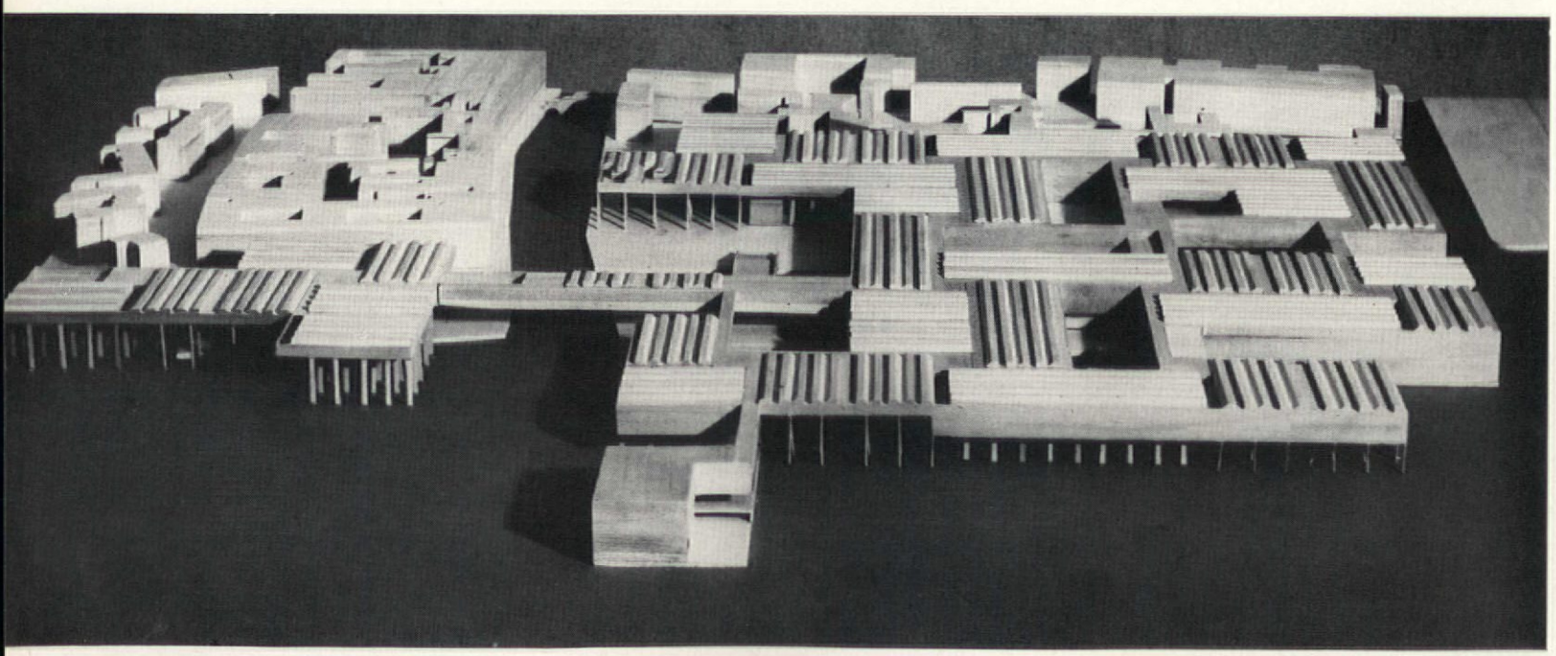
The second floor is the zone of hospitalization, and visitors.

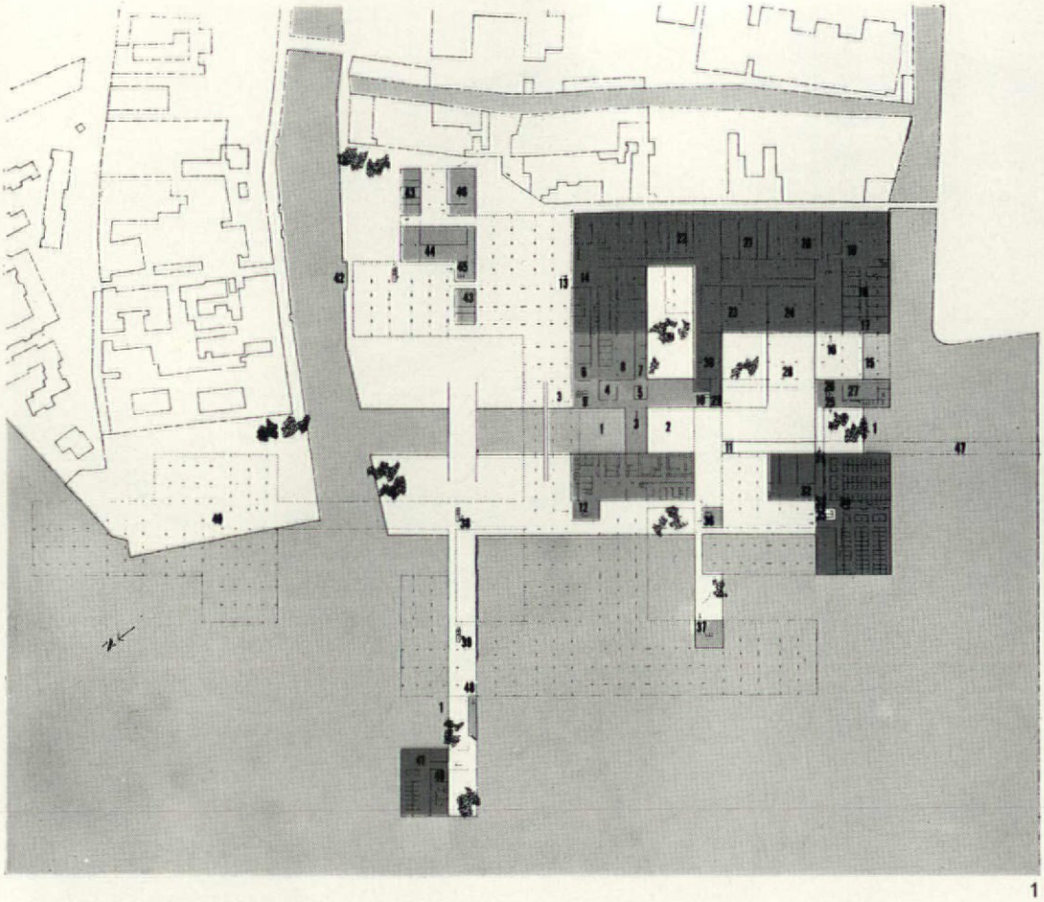
The hospital is 13·66m high which is the average height of the buildings of the town. The first and second levels are each 5m, which is sometimes divided in two, each floor of 2·26m. The last floor is 3·66m, and this height is in places reduced to 2·26m. In most cases this double height of 2·26m is reserved for service ducts and communications.

The hospital being primarily intended for the seriously ill and emergency cases (patients must remain in the hospital for an average of 15 days, five of which are spent in bed), Le Corbusier tried to create two zones both of which will enable a stay under the best possible conditions. For the bed-cases, undergoing intensive care—the *bed unit*; for the walking patients—the *calle*, the *campiello* and the *hanging garden*.

* (Extract from '*Le Corbusier. The complete architectural works, 1957–1965*' Thames & Hudson)

del seen from the north-west





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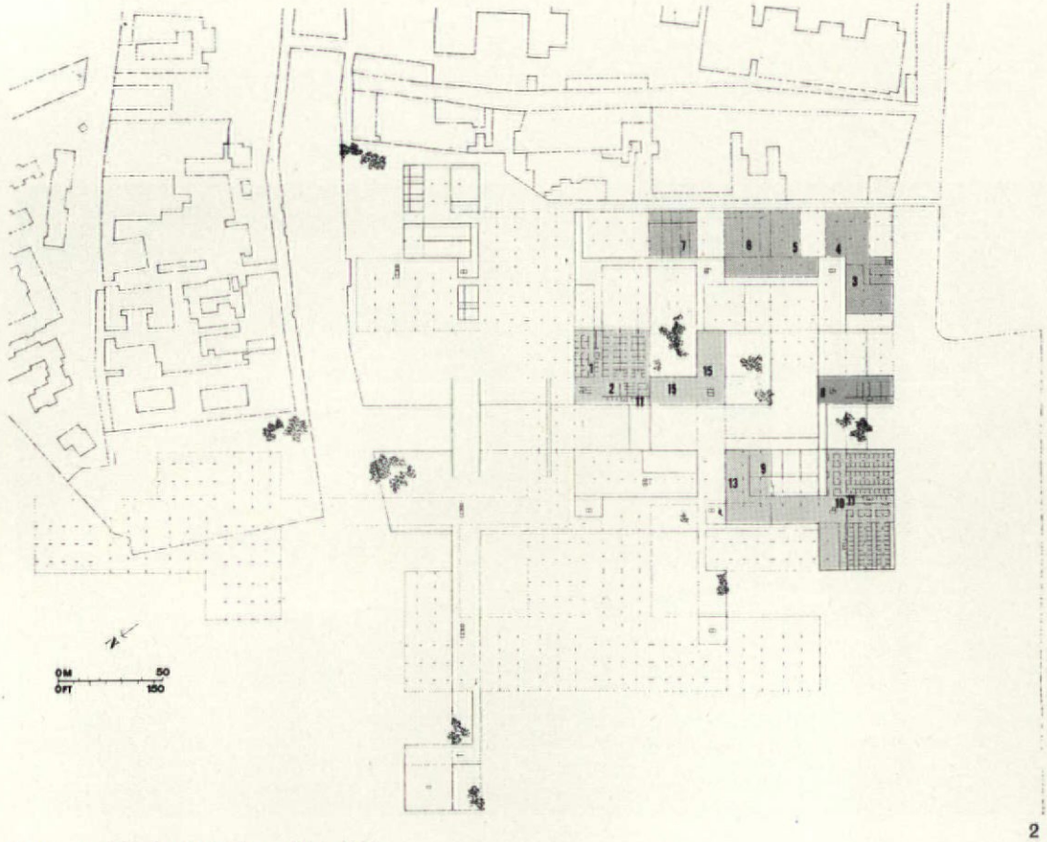
# H VEN LC

Le Corbusier

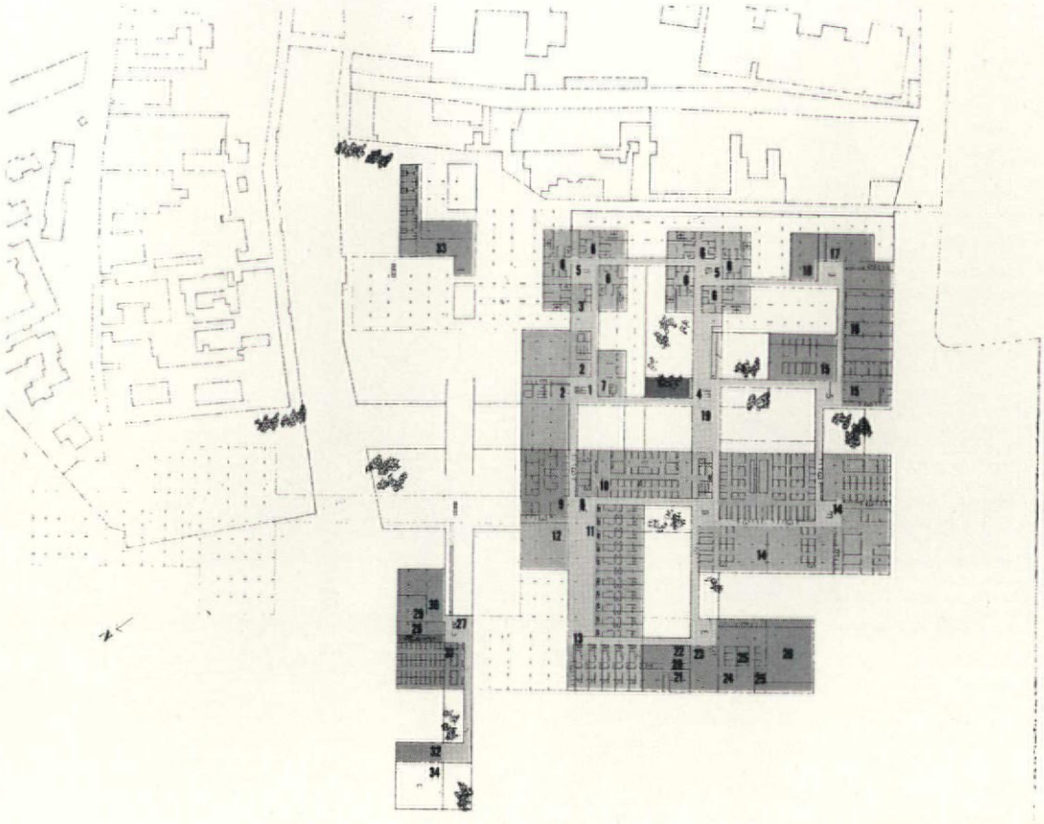



2

1
Plan at level 1—Ground floor
Grey tones indicate areas as follows: very light, *wat*
light, *public and circulation*; medium, *medical a*
*treatment*; dark, *administration and service*
1 gondola set down
2 car set down
3 patients' entrance
4 reception
5 police post
6 doctors and nurses
7 diagnostician
8 casualties
9 lifts
10 stretcher lifts
11 ambulance entrance
12 radiology and ambulant patients
13 administration entrance
14 administrative offices
15 cavana
16 service entrance
17 locker room
18 kitchen
19 food stores
20 laundry
21 staff locker rooms
22 dispensary
23 stores
24 heating
25 mortuary
26 autopsy laboratory
27 mortuary chapel
28 parking
29 nurses' entrance
30 nurses' changing rooms
31 nurses' school entrance
32 nurses' school
33 nurses' hostel entrance
34 nurses' hostel
35 physical therapy entrance
36 visitors' entrance
37 medical centre entrance
38 doctors' quarters entrance
39 nuns' quarters entrance
40 priests' quarters
41 friars' quarters
42 landing stage
43 kiosks
44 café
45 hotel entrance
46 cinema
47 link to the auto-route
48 ramp to the church
49 pediatrics and maternity

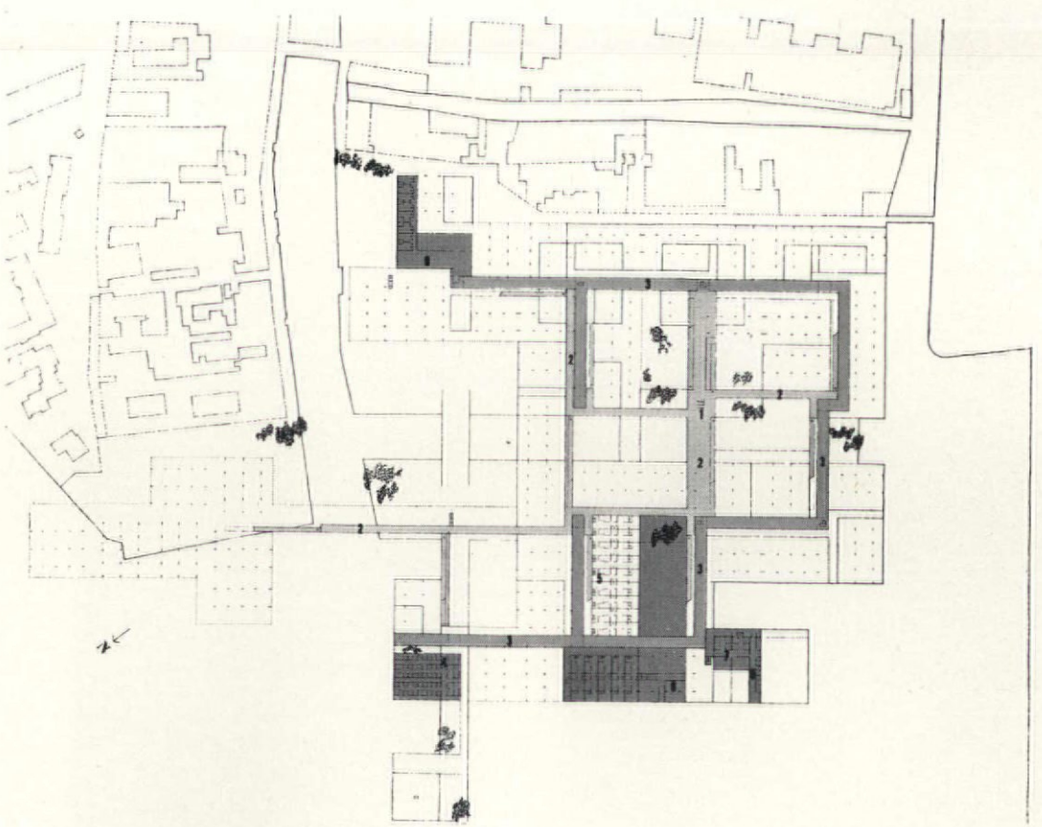
2
Plan at level 2
Grey tones indicate areas as follows: very lig
*staff accommodation*; light, *service areas*; mediu
*mortuary*
1 doctors' and duty nurses' quarters
2 waiting room
3 food store
4 kitchen
5 wash room
6 locker room
7 stores
8 mortuary
9 nurses' school
10 nurses' hostel
11 waiting room
12 service
13 mess
14 void
15 refectory

n at level 3—First floor
y tones indicate areas as follows: very light, *cir-*
*ation*; light, *medical treatment*; medium, *adminis-*
*ion and accommodation, etc.*; dark, *hanging garden*
lifts
waiting rooms
recovery rooms
arrival of patients
stretcher lifts
operation theatre
blood transfusion
ambulance arrival
dispensary
radiology
doctors' rooms
stomatology
diagnostics
exercises
anatomical pathology
laboratories
chemist
sterilizing centre
medical centre
library
lecture theatres
store
seminar hall
seminars
committee rooms
conference halls
nuns' hostel entrance
service
mess
common room
sisters' quarters
chapel
hotel
void



3

n at level 4
y tones indicate areas as follows: very light,
*ents' circulation*; light, *service circulation*;
ium, *accommodation and offices*
stretcher lift
patients' corridor
service corridor
nuns' hostel
doctors' offices
library
committee rooms
technicians' gallery
hotel
void



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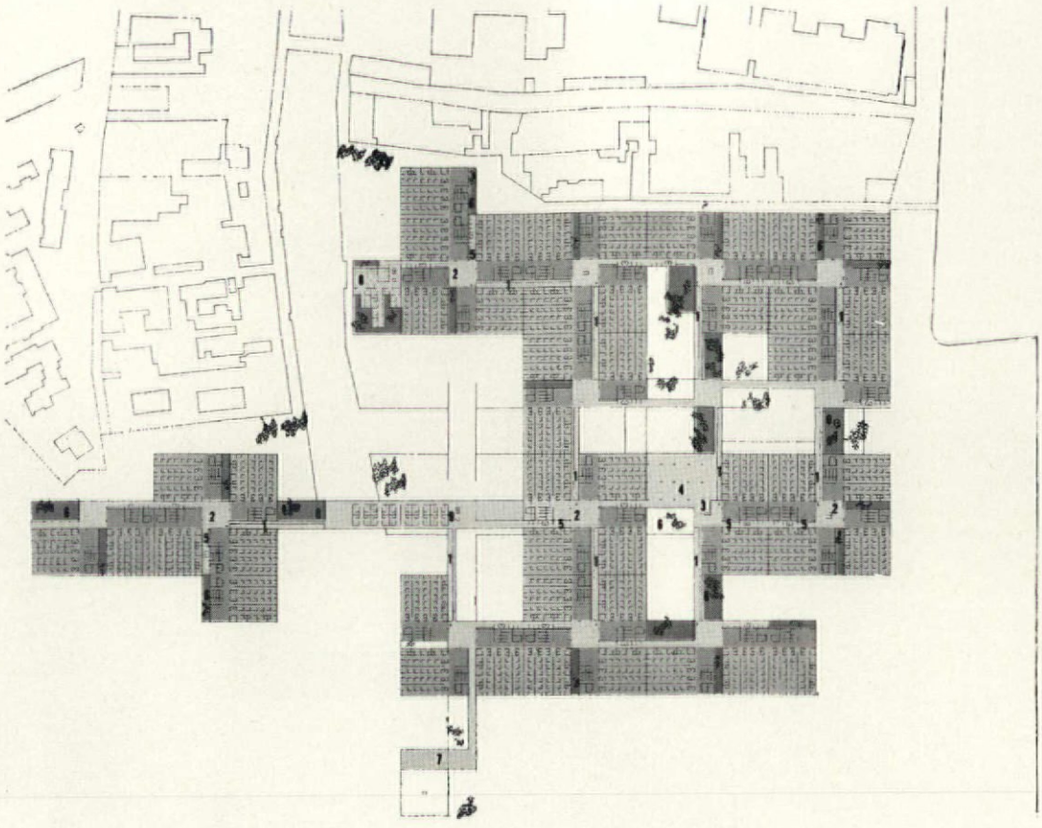


1
Plan at level 5—Second floor
Grey tones indicate areas as follows; very light, *circulation* (*calle, campielli*); light, *bed units*; medium, *treatment*; dark, *hanging gardens*

1 ramp for patients' arrival
2 service lifts
3 visitors' lifts
4 waiting rooms and lounges
5 day room
6 garden
7 chapel
8 director's house
9 doctors' quarters



2
North façade overlooking the lagoon



3
East façade to the canal



4
East–west section through the bridge and the doctors' quarters



5
North-south section



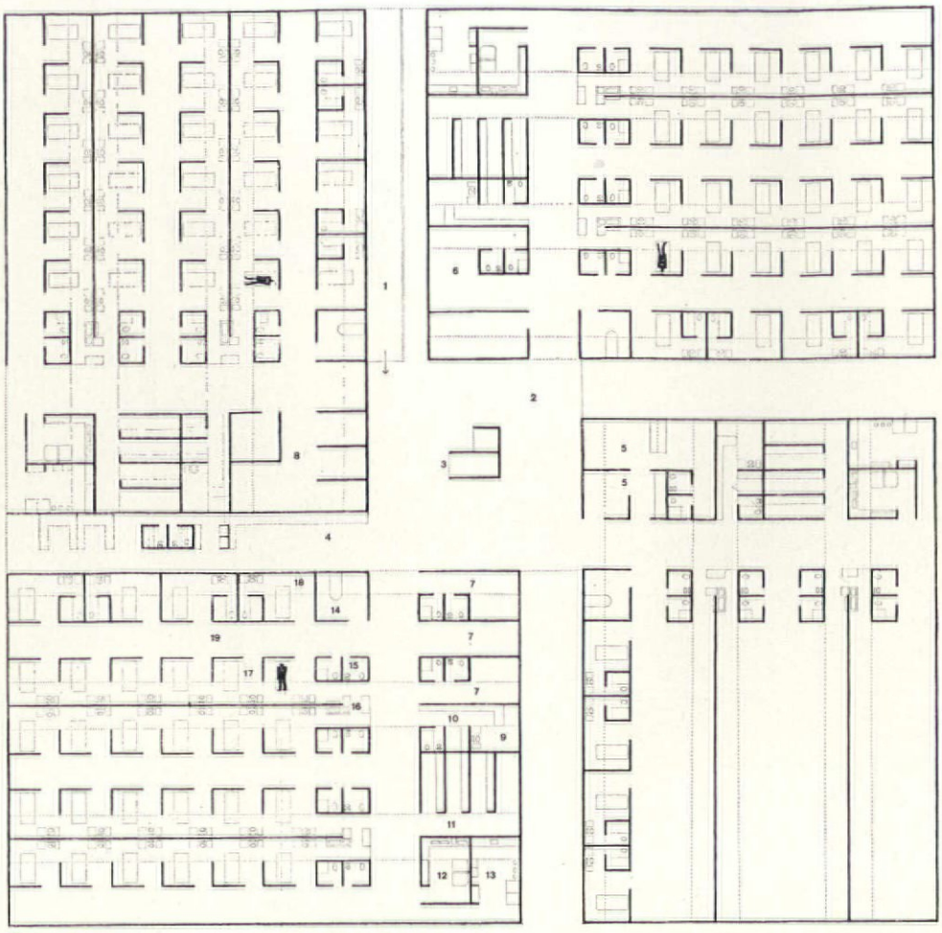

6
East–west section through the link to the autoroute

*Ground floor*
At ground level are concentrated all the servic which are directly connected with the town with the running of the hospital, such as a ministration, kitchens, laundries, boiler-hous workshops, food stores, etc. A large part of t level will be for the public and vehicles, a here visitors will find all the amenities of urban district: hotels, trattorias, shops, kios etc. Also a church to be used by both town a hospital.

*First floor*
The first floor is entirely reserved for medi technology. It is divided into two parts, one staff, doctors and overnight patients, and other for outpatients. Here too an attempt h been made to ensure growth and flexibility.

*Second floor*
On the second floor each patient has a *bed u* of 3×3m, with sliding panels to ensure to isolation and care at the bedside.
Each unit has a glazed opening of 3×1m plac above a ceiling 2·26m high and hidden from patient. This opening reflects the light ont curved wall 3·66m high in front of the patie protecting him from dazzle; while a colou panel outside the unit will give colour to t light. Panels will be of different colours, a movable to enable a precise control of lumino intensity.
Hanging gardens will be arranged over the r of the exercise corridor, visible through op ings provided for this purpose.

*The bed unit,* an element on the human sc conceived by Le Corbusier, has given rise to *therapy unit* for 28 patients which functions an independent therapy group. It is divid into two parts; one contains the *bed units* a the other, the treatment rooms and ancillari These *therapy units* are grouped in fours rou a central *campiello* and are served by four c forming a whole which Le Corbusier has cal *unité de batisse.* Linking of several *unités batisses* produces flexibility of distribution a utilization of the different *therapy units.*
The areas of the *calle* and the *campielli* are preserve of the ambulant patient. They are only channels of circulation, but provide all amenities for the social life of patients (meet places with visitors, etc.). Some of these pla will be transformed into hanging gardens.
Communication between wards and relev specialist services on treatment floor is means of lifts situated at the centre of *campielli.*
The *campiello* relating to a service is connec by a ramp to a distribution system placed on upper level of the treatment floor, and connec also to the central (despatch) lift; not only liaison between the services and this level, also for the circulation of personnel and doct in the various departments without disturb communications between the other parts the floor; this circulation is independent reserved exclusively for the use of med staff and patients. On the same level are situa two other services, likewise independent, for 'dirty' things, the other for 'clean', b entirely mechanized.
The hospital is designed as a working which must provide patients with the best c at the least cost. On account of the horizo architectural solution, mechanization and a mation have been pushed to the limit.



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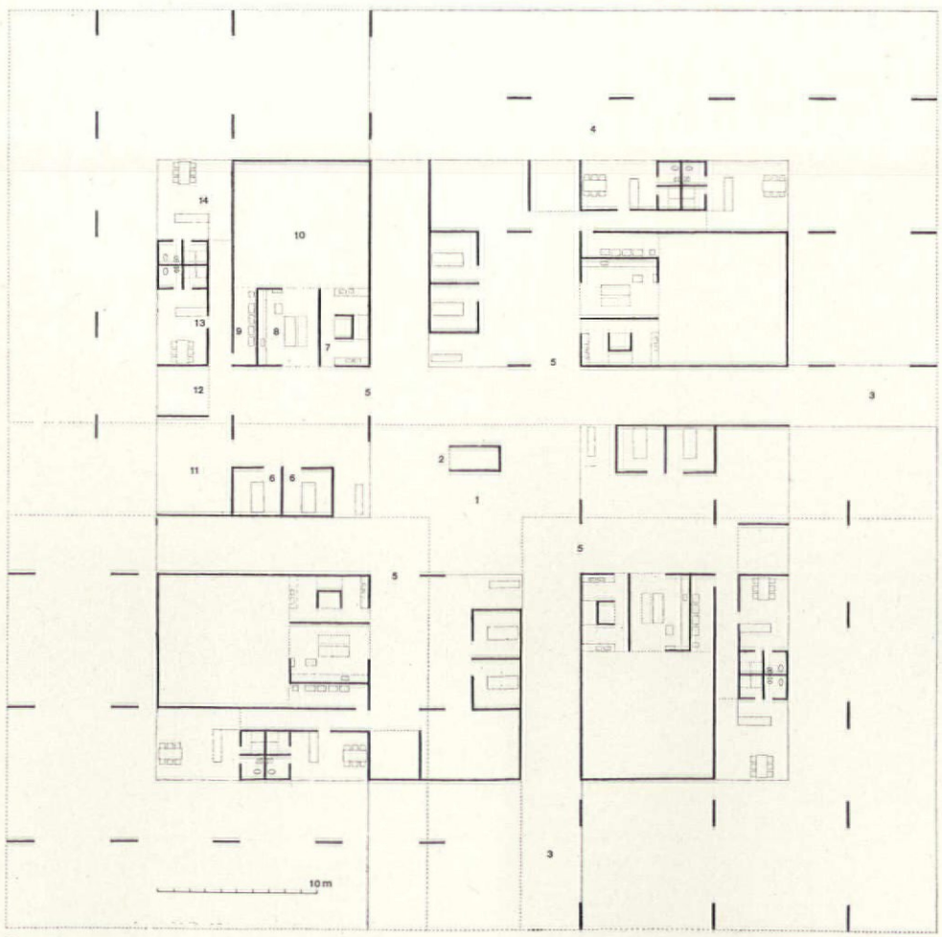
7
Plan showing typical grouping of *bed units* around a main circulation area (*calle* and *campielli*)
1 patients' ramp
2 circulation area
3 stretcher lifts
4 waiting area
5 ancillary rooms
6 ward doctor's office
7 duty room
8 examination and treatment
9 ward sister
10 wc's and nurses' changing rooms
11 clean store
12 kitchen
13 soiled goods store
14 bath
15 w.c.s, showers
16 nurses' duty room
17 ward
18 isolation ward
19 corridor

8
Plan of typical organization of rooms under a *bed unit*
1 circulation
2 stretcher lifts
3 patients' corridors
4 terrace
5 operating theatre entrance
6 recovery rooms
7 sterilizing
8 patient's preparation
9 scrub-up
10 operation theatre (aseptic)
11 operation theatre (septic)
12 waiting area
13 nurses' rooms
14 doctors' rooms

9
Plan of typical grouping of single ward units

10
Section through typical ward units

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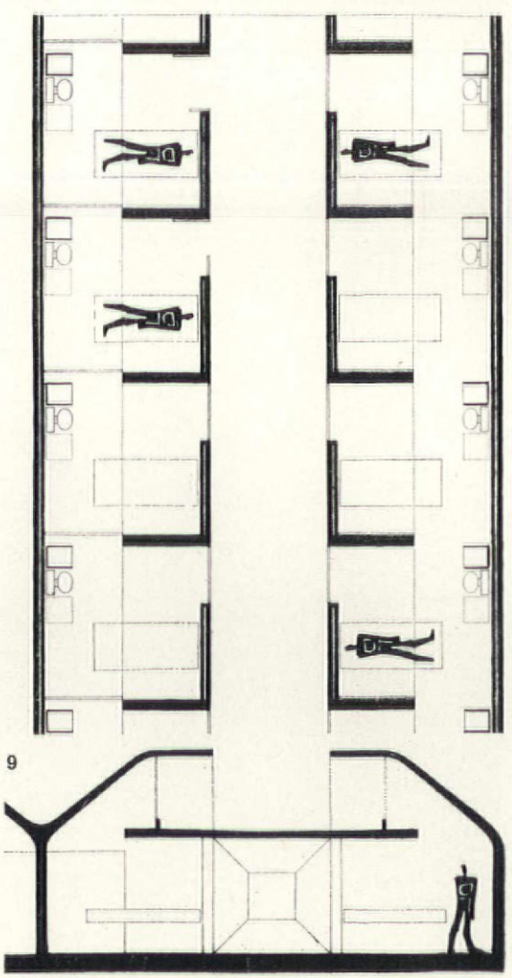

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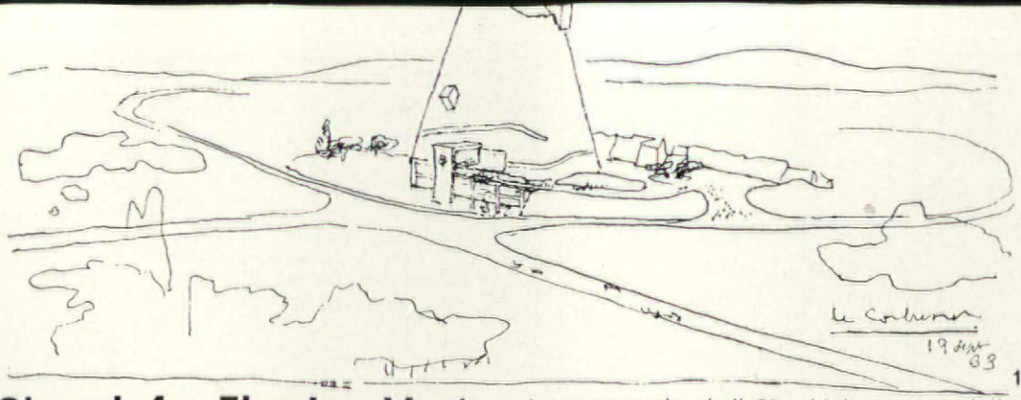

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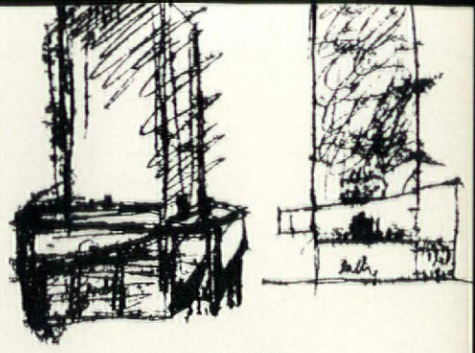


2

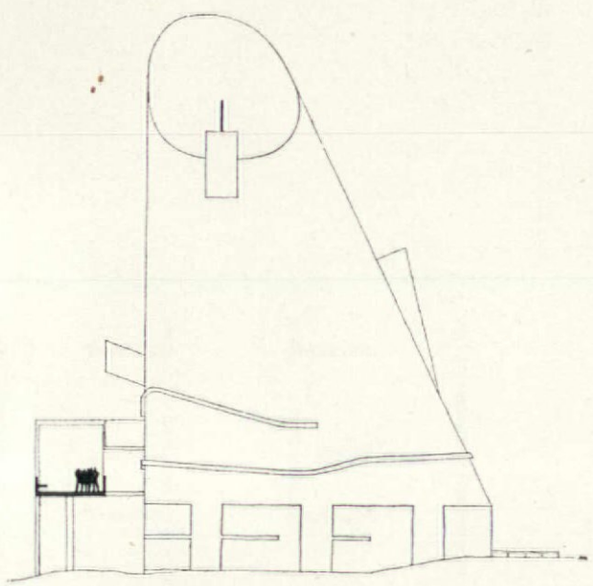
# Church for Firminy-Vert

Le Corbusier

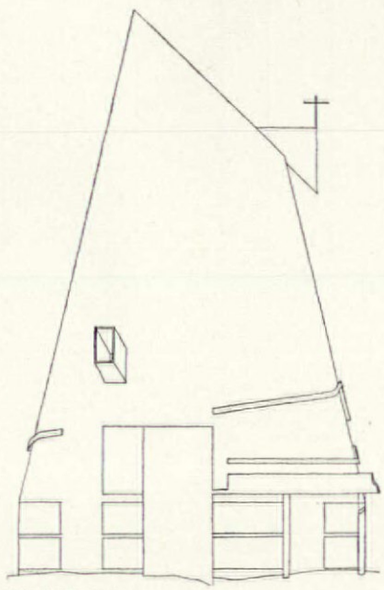
After Ronchamp, a church of pilgrimage, and La Tourette, a conventual church, Le Corbusier found himself faced with the problem of creating a parish complex combining places of worship, parish activities and presbytery.
His design was born of an idea he had earlier. The dipping site dictated the form, that of a large concrete shell 30m high, square at the base (24m side), ovoid at the top, placed on its 12 'feet', 6m high.
Light for the chapel and nave comes from a slit 1·83m from the ground, following the curve of the floor. In the nave, two apertures for light in the roof, and another in the wall opposite the main altar, allow the sun to penetrate directly at certain times. Diffused light comes from the perforated and inclined wall above the main altar.

1
General view of the proposed church at a crossroads the site of an old quarry

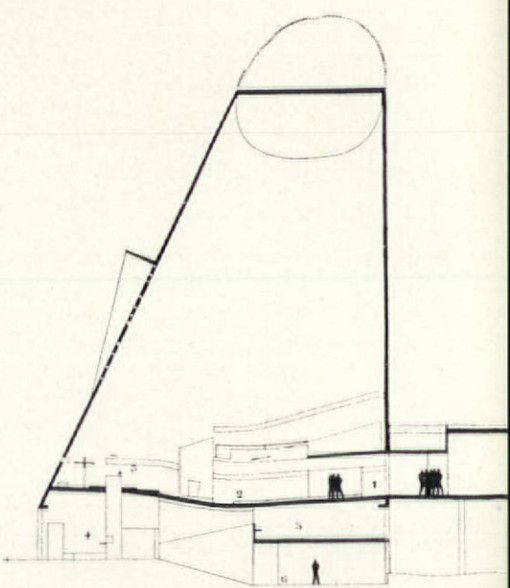
2
Sketch by Le Corbusier of a church conceived tween 1925 and 1930 which served as a basis for Firminy design



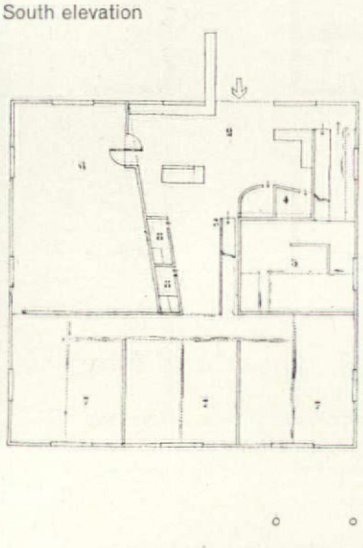
South elevation



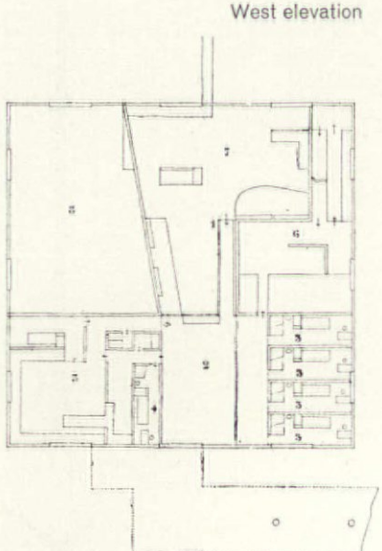
West elevation



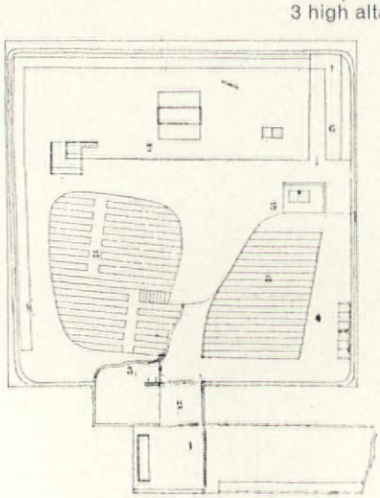
East–west section
1 entrance to church
2 chapel
3 high altar
4 entrance hall
5 priests' quarters
6 instruction rooms



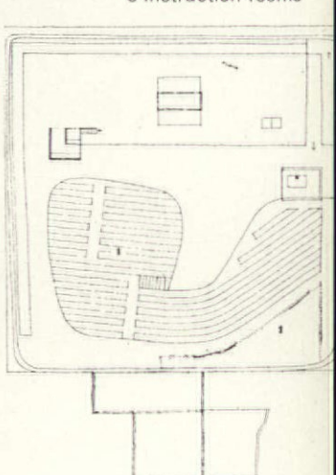
Plan at level 1
1 square
2 entrance hall
3 ramp
4 parlours
5 sacristy
6 parish hall
7 catechism
8 w.c.s



Plan at level 2
1 ramp to presbytery
2 common room
3 priests' quarters
4 servants' room
5 curates' cells
6 sacristy
7 void
8 void



Plan at level 3
1 porch
2 entrance
3 baptistry
4 chapel
weekday alter
6 sacristy ramp
high altar
pews



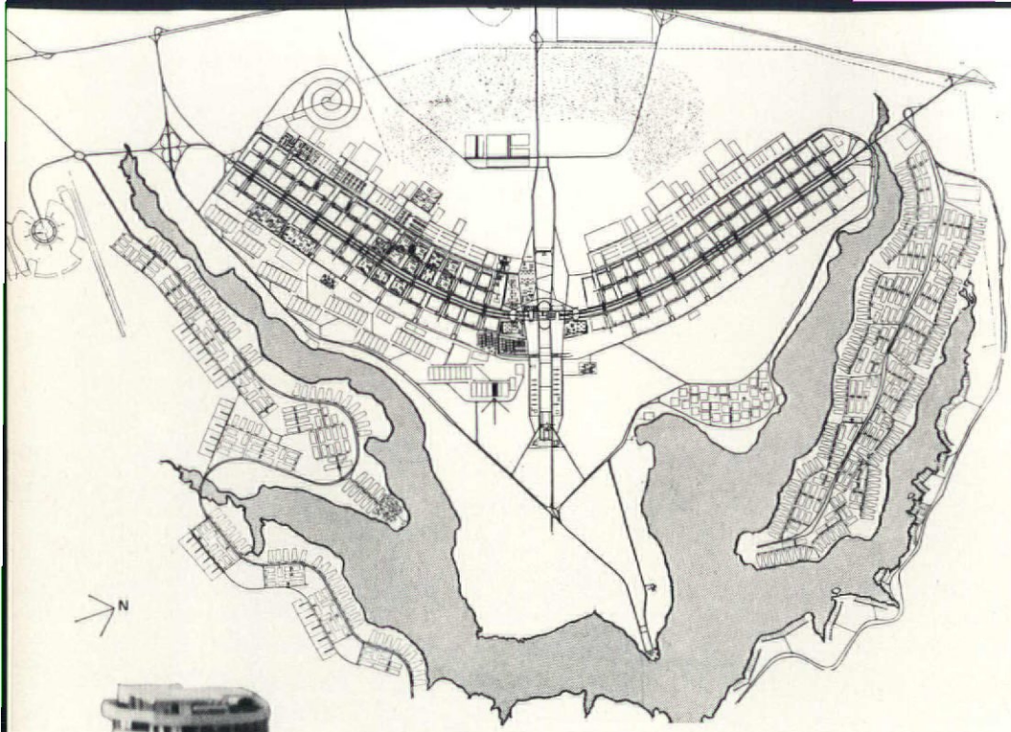
Plan at level 4
1 pews

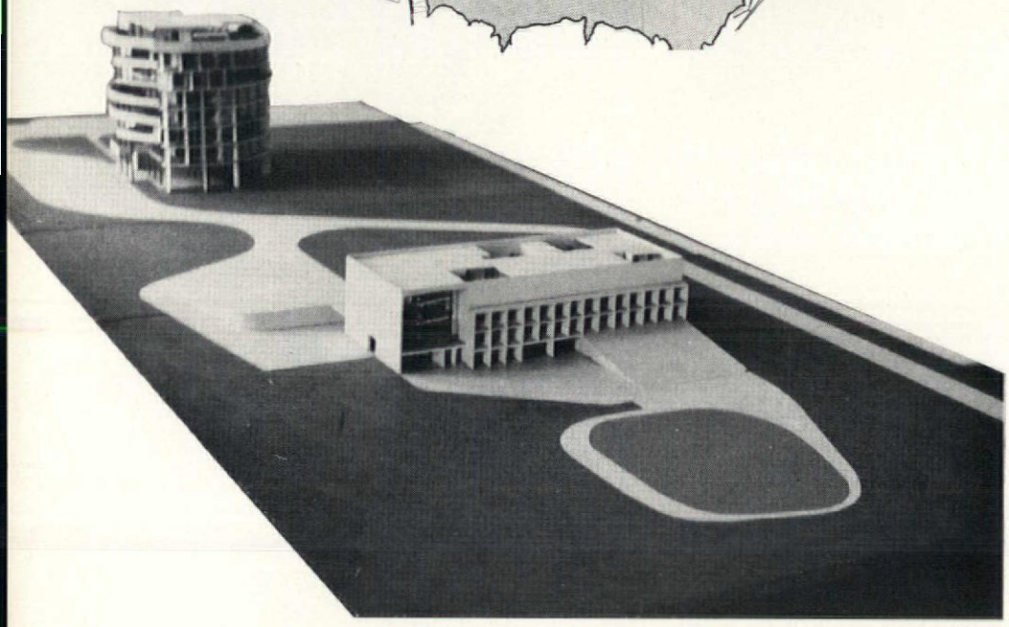
# French Embassy, Brasilia

Le Corbusier

'Le Corbusier has been charged by the French Government to design the plans of the Embassy of France in the new capital of Brazil.
'Brasilia is a completely new city whose town-planners and architects are Lucio Costa and Oscar Niemeyer.
'Le Corbusier has always had friendly feelings for this country which he had known in 1929 and 1936 and later on. The Minister of the Interior told him: 'We have decided to continue the style of our modern enterprises that are dictated by your theories. You have already built the building of the Ministry of National Education and Public Health for us.'

(Extract from '*Le Corbusier. The complete architectural works, 1957–1965.*' Thames & Hudson)

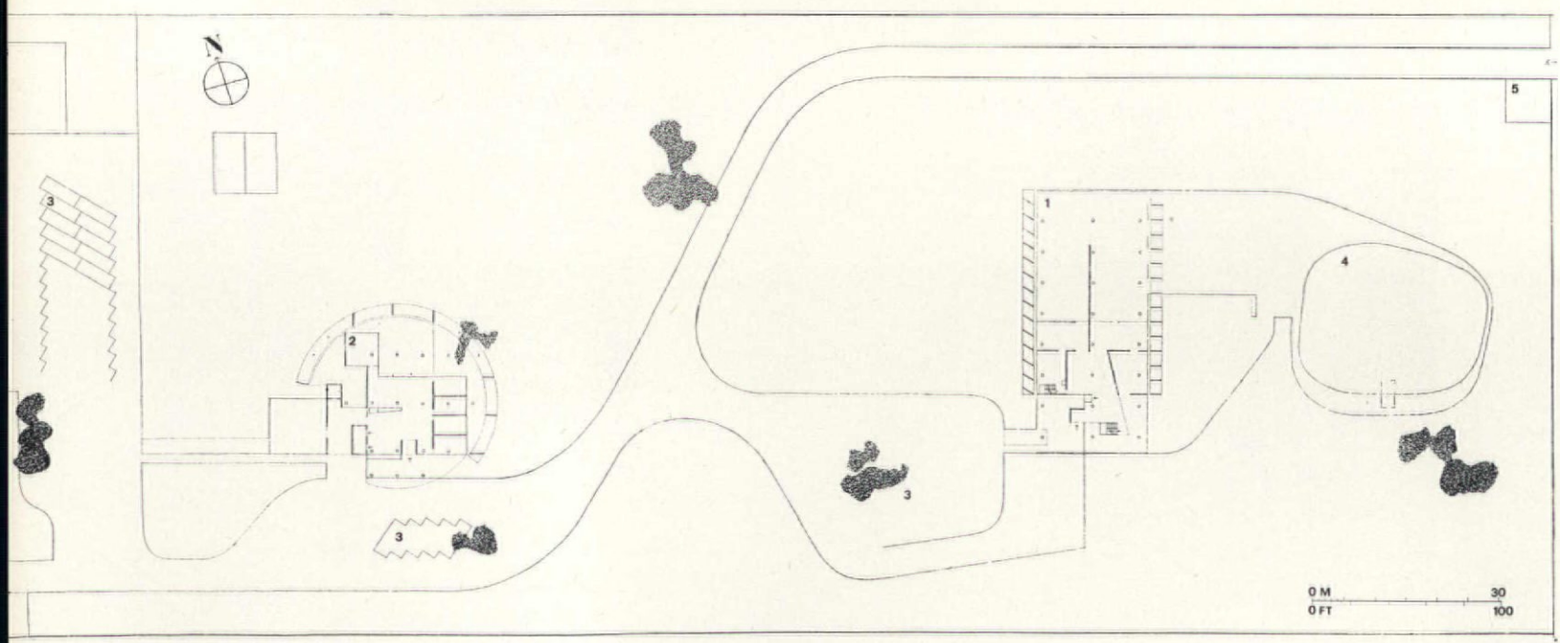


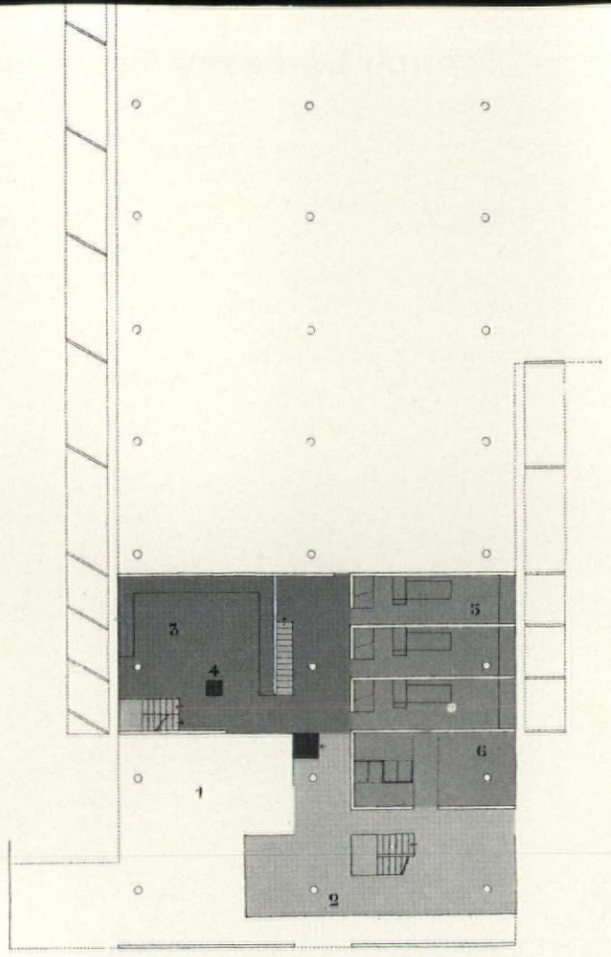



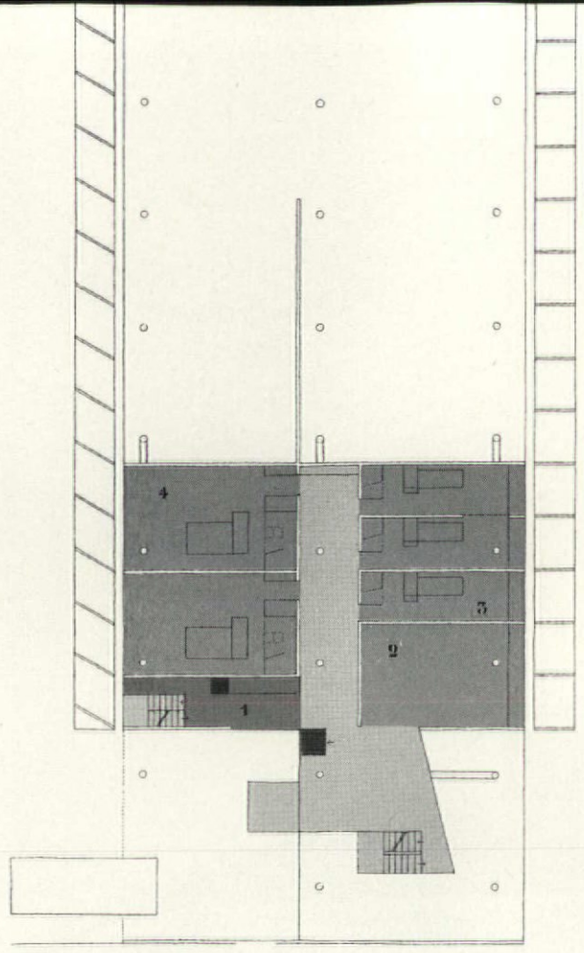
1
Plan of Brasilia with the site of the French Embassy marked black and indicated with an arrow. Adjoining sites in the block, reading from left to right, are allocated for the embassies of the UK, Australia, South Africa, Holland, France, UNO, USA, with Portugal and the Vatican on independent sites at the end of the block

2
View of the model. The circular building is the chancellery

3
Site plan
1 Ambassador's residence
2 chancellery
3 parking
4 swimming pool
5 porter's lodge
6 servants



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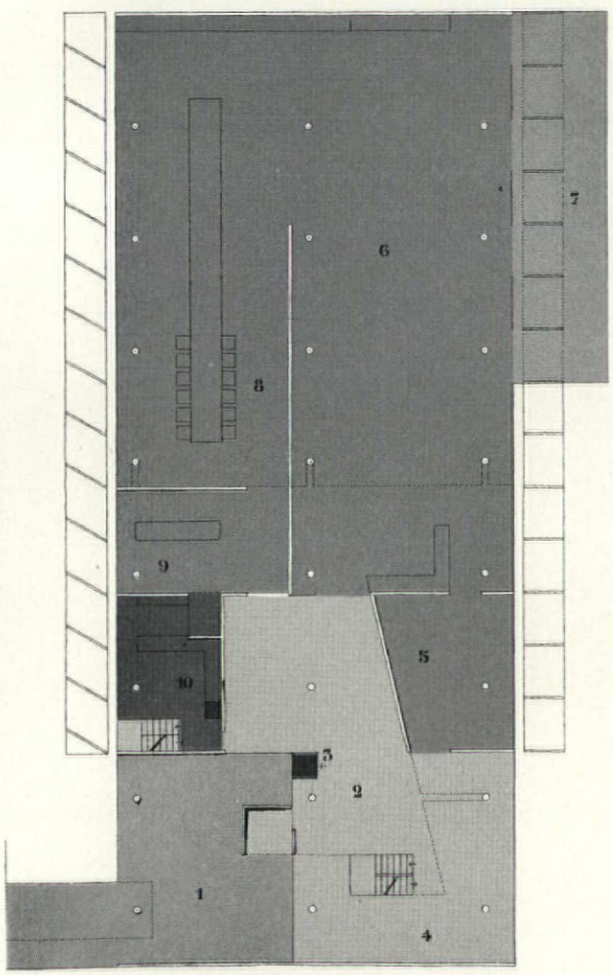


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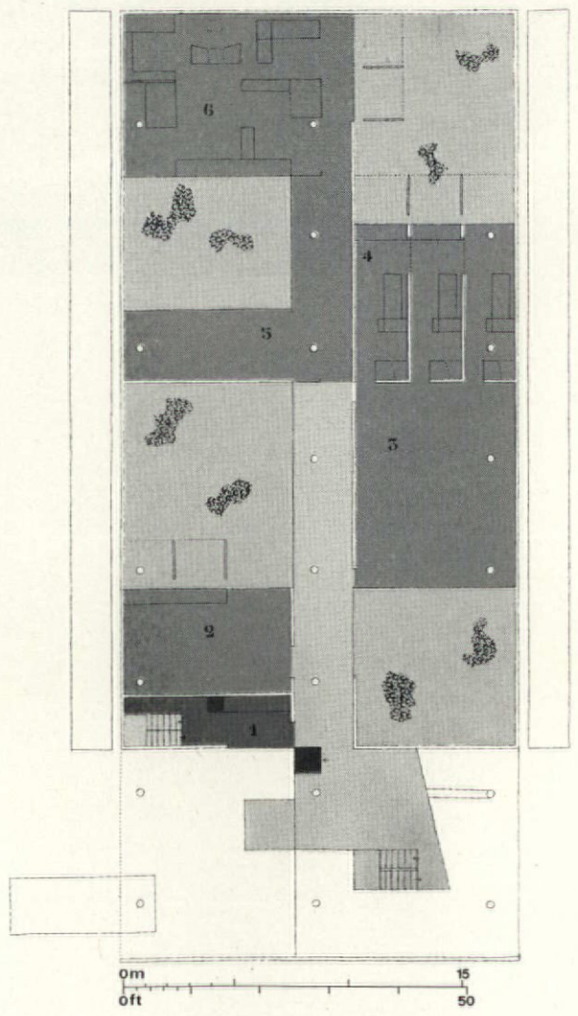

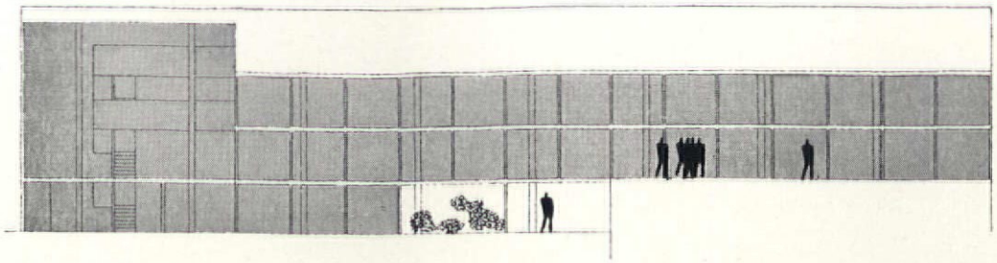

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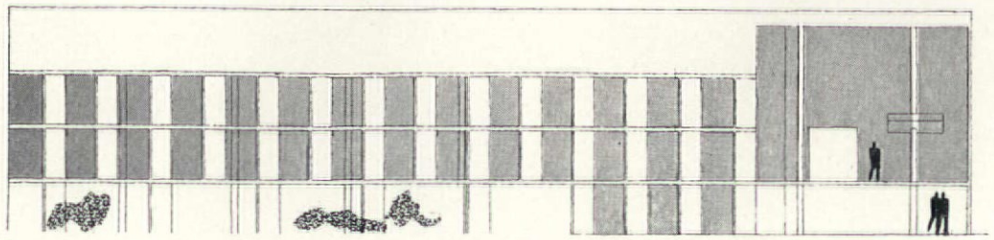
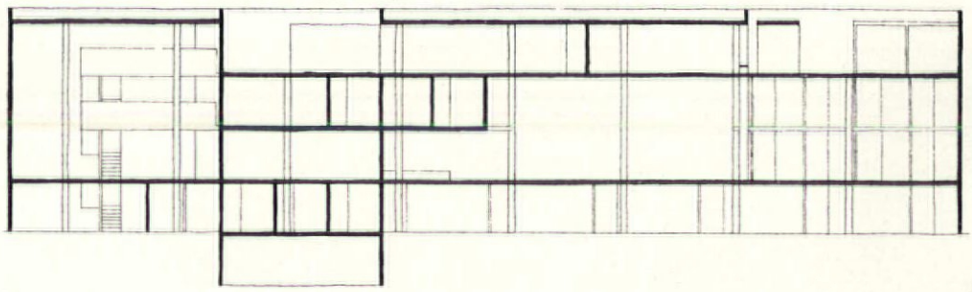


6

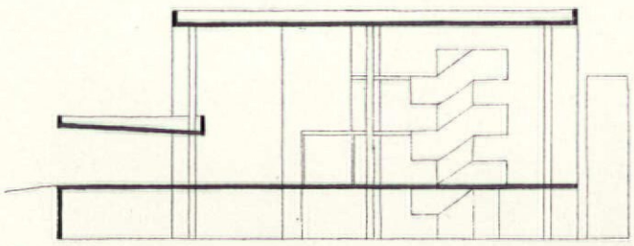
es on plans indicate built-up area on each floor.
st tone represents *circulation area*, next in inten-
*open terraces*, then *living areas*, dark tones *service*
s and black for *lifts*

at level 1
ntrance
loakroom
tchen
ervice lift
ervants' rooms
loakroom



7

at level 2
entrance
reception
ift
cloakroom
small reception room
reception room
terrace
dining-room
small dining-room
pantry



8

at level 3
ervice pantry
mall reception room
ngle bedroom
ouble bedroom

at level 4
ervice pantry
mall reception room
lay room
hildren
orary
mbassador's suite

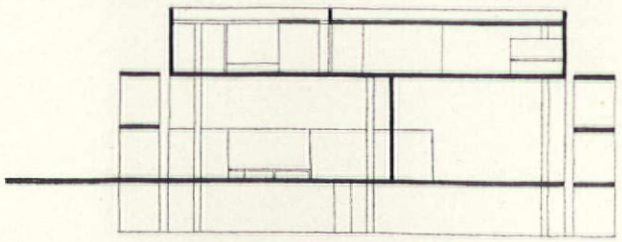
elevation

t elevation

g section

s section throught the entrance

s section through the dining-room

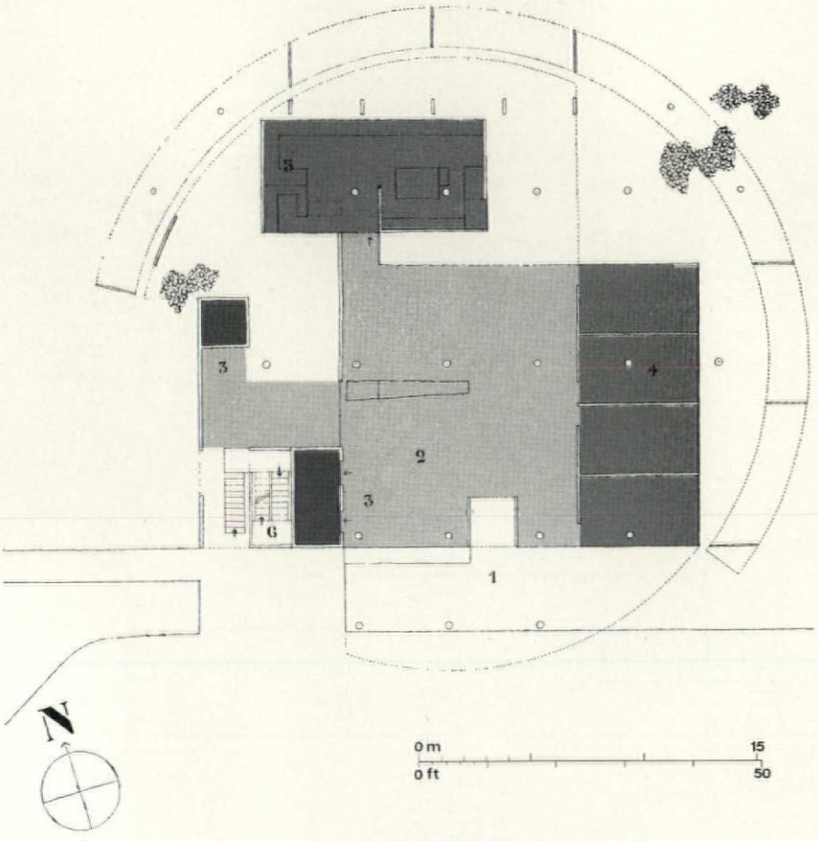


9

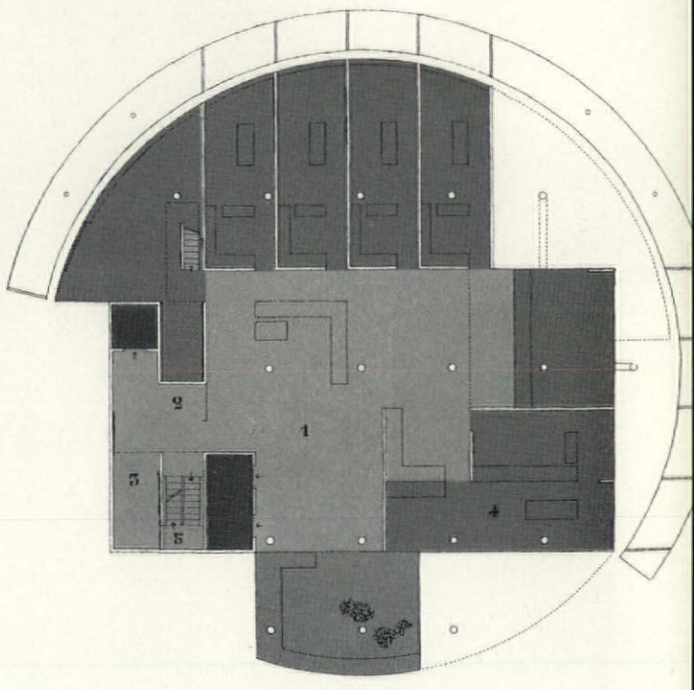
## Chancellery building

Tones on plans indicate built-up area on each floor. Palest tone, *circulation and reception areas*, next in intensity *open terraces*, then *office space*, darkest tone represents *lifts*

1
Plan at level 1
1 entrance
2 reception and waiting
3 lifts
4 consulate
5 porter's flat
6 escape stair



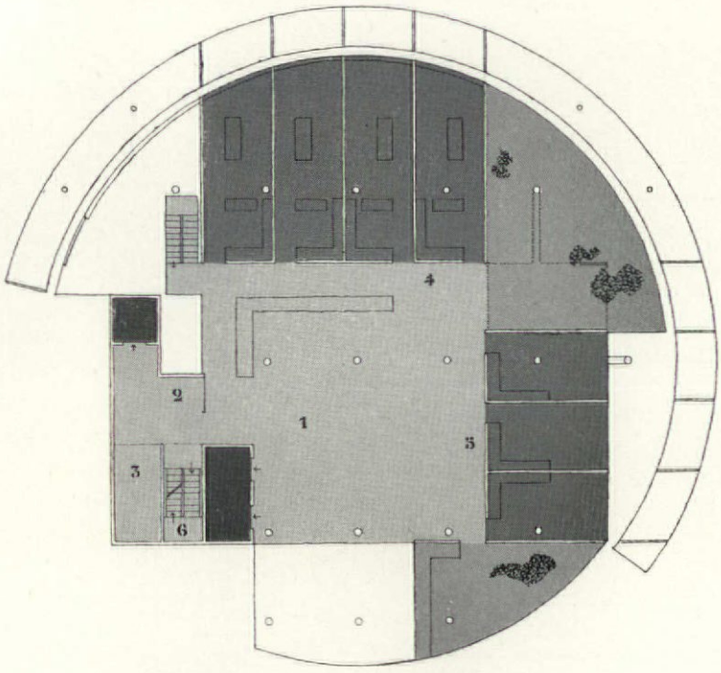

2
Plan at level 2
1 reception and waiting
2 service
3 w.c.s
4 commercial attaché
5 escape stair



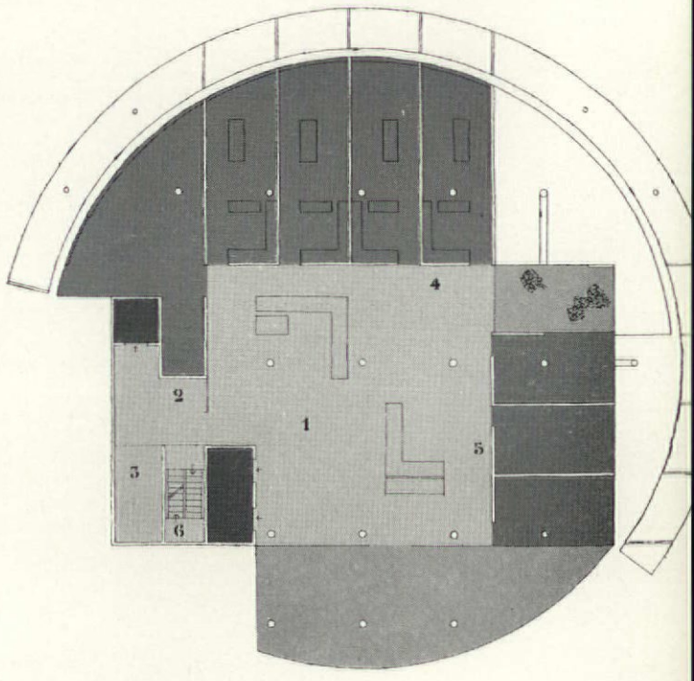






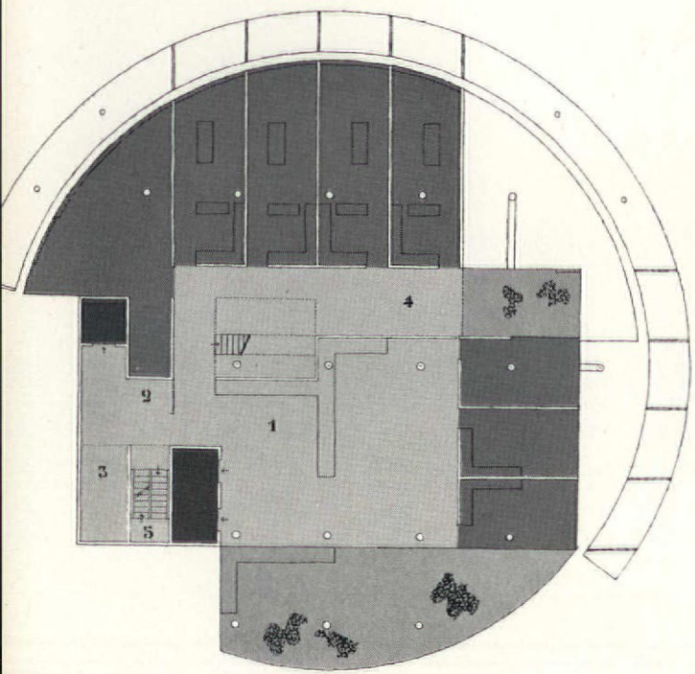




3
Plan at level 3
1 reception and waiting
2 service
3 w.c.s
4 commercial attaché
5 financial attaché
6 escape stair

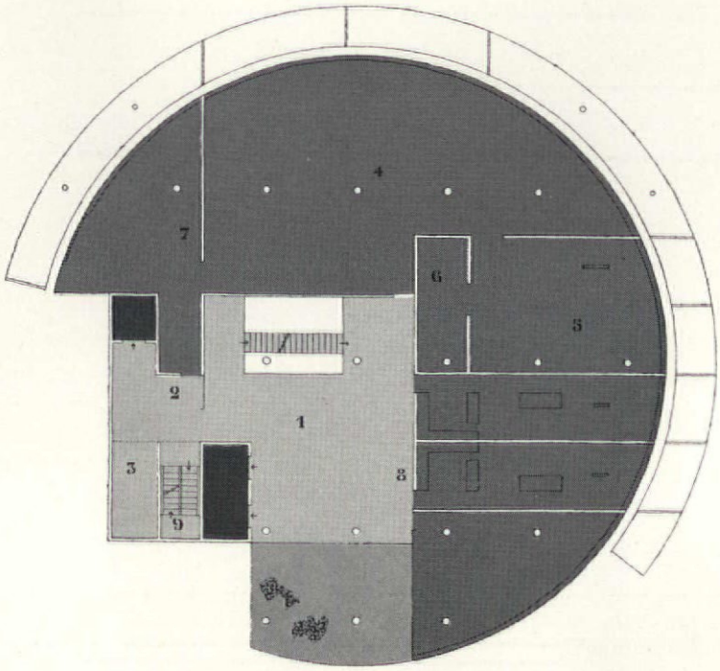


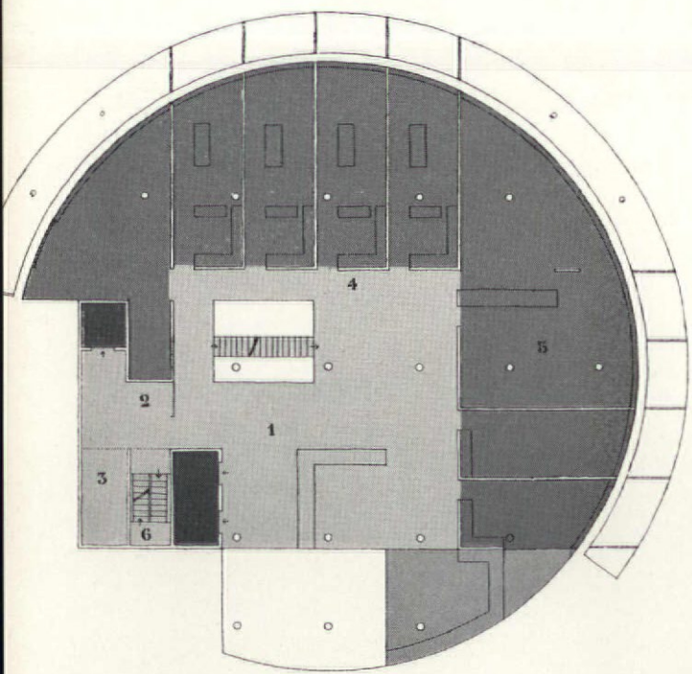

4
Plan at level 4
1 reception and waiting
2 service
3 w.c.s
4 cultural attaché
5 general office
6 escape stair

n at level 5
reception and waiting
ervice
v.c.s
nilitary attaché
scape stair

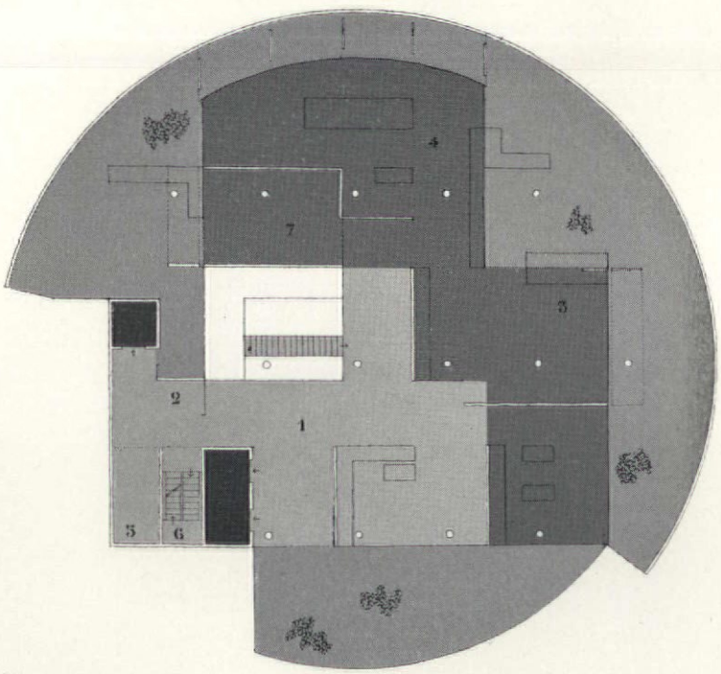


6
Plan at level 6
1 reception and waiting
2 service
3 w.c.s
4 archives
5 cipher room
6 strong-room
7 courier
8 offices
9 escape stair

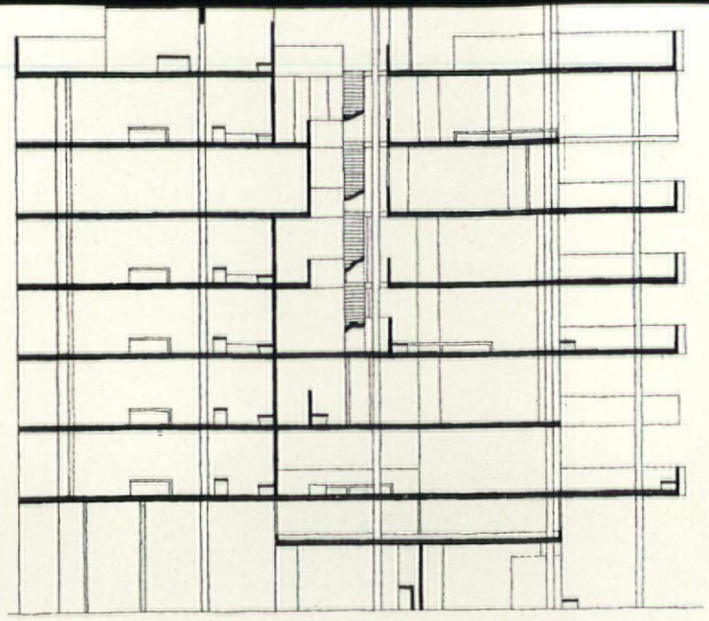




at level 7
eception and waiting
ervice
.c.s
ounsellor
ecretariat
scape stair



8
Plan at level 8
1 reception and waiting
2 cloakroom
3 ambassador
4 assembly room
5 w.c.s
6 escape stair
7 secretary



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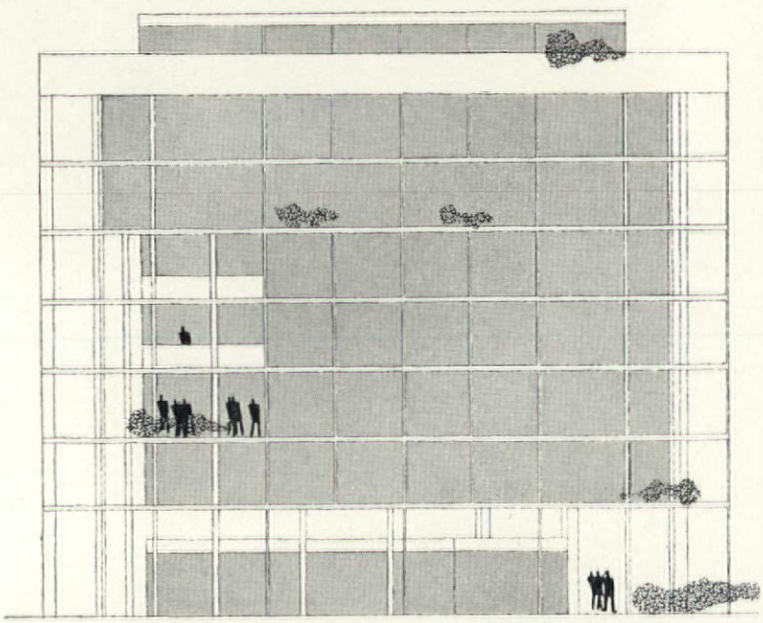

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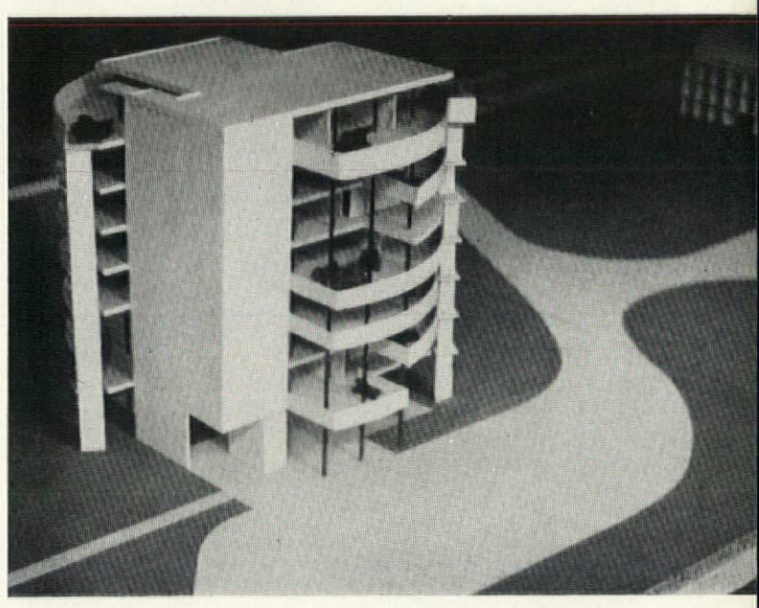
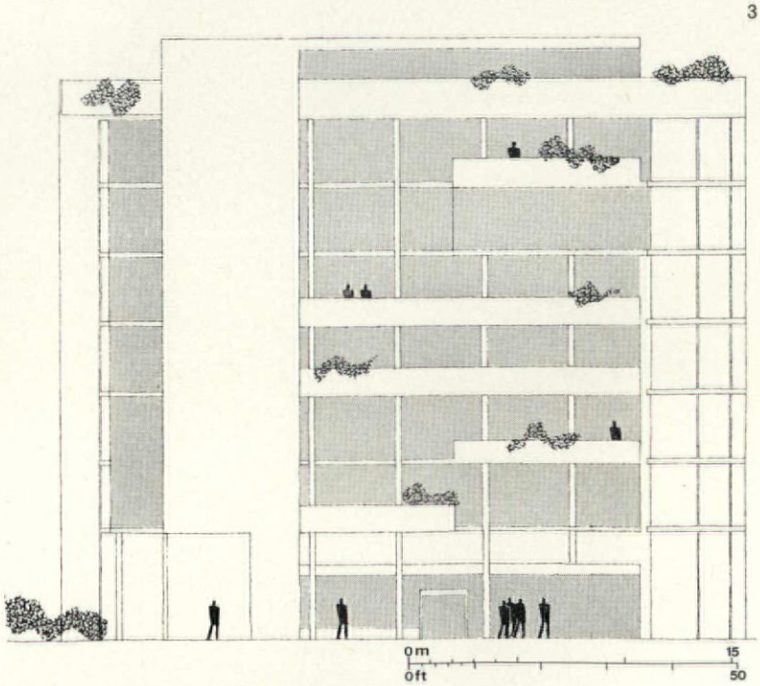


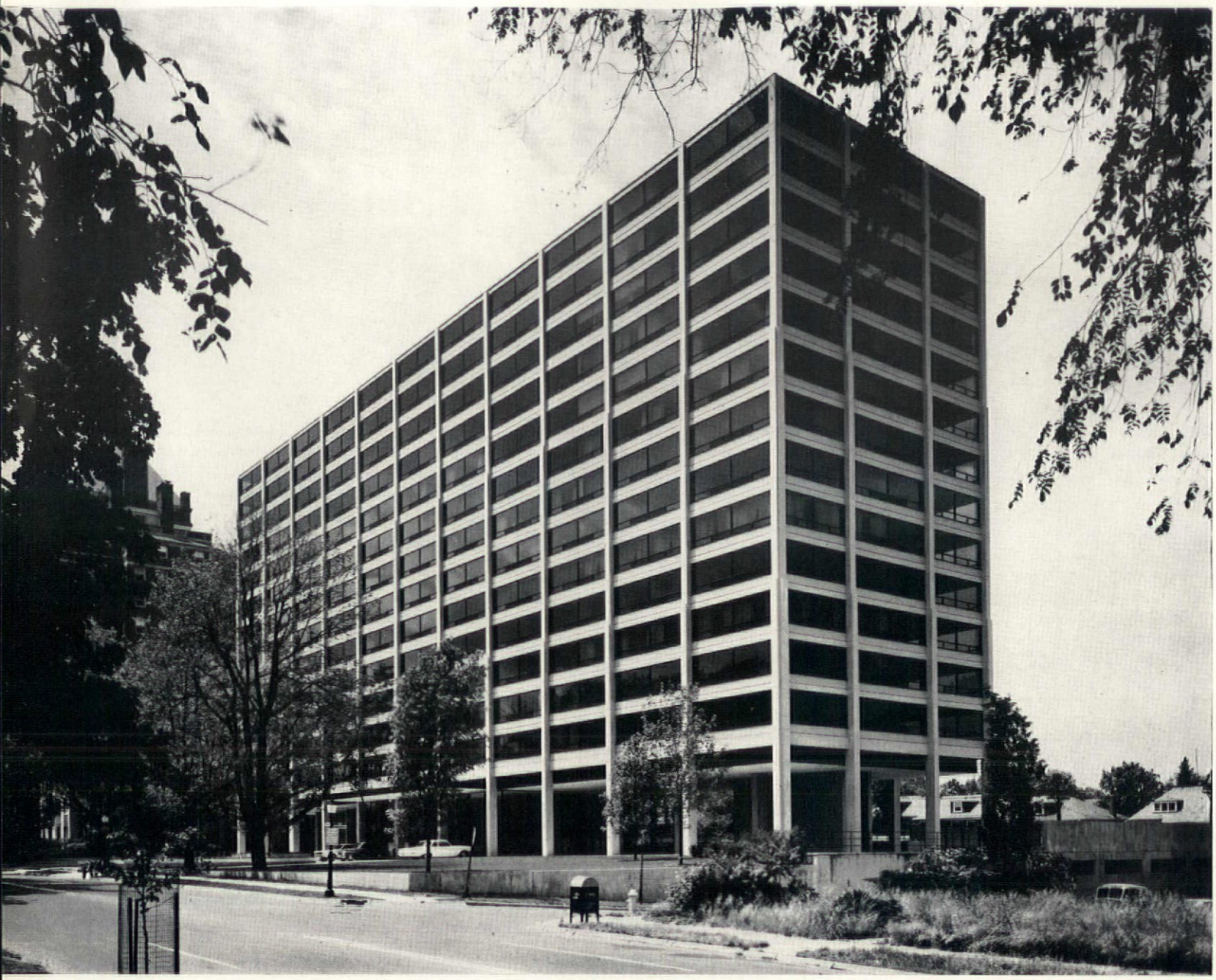



1
North–south section

2
North elevation

3
South elevation

4
View of the model from the south-west





# Highfield House, Baltimore, USA

Mies van der Rohe

Structural engineer: Farkas and Barron

*All photos Hedrich Blessing*

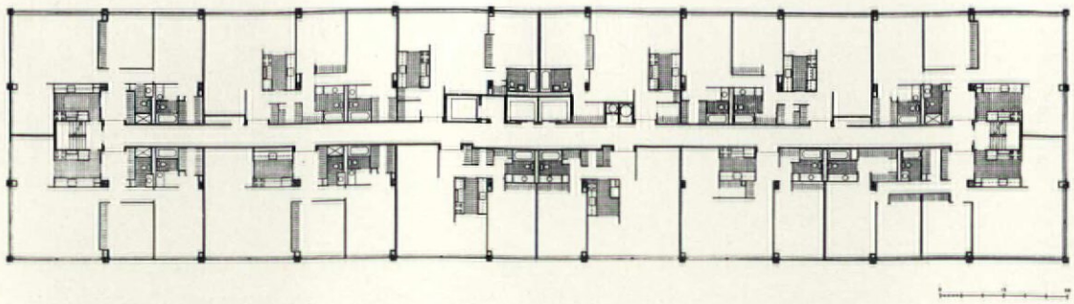
Highfield House, completed in 1964, contains 165 apartments ranging in size from single to three-bedroom units.

A 15ft slope in the site has not only enabled all car parking to be located out of sight under an extensive ground level terrace but has also made possible the planning of an 80ft × 100ft sunken recreational court containing a swimming pool and a fountain.

The structure is of reinforced concrete; bay sizes of 23ft 6in × 23ft 6in and 23ft 6in × 18ft 4in and a floor-to-floor height of 8ft 9½in. Set between the exterior columns are black aluminium hopper window frames glazed with grey tinted glass, and spandrels of buff facing brick.

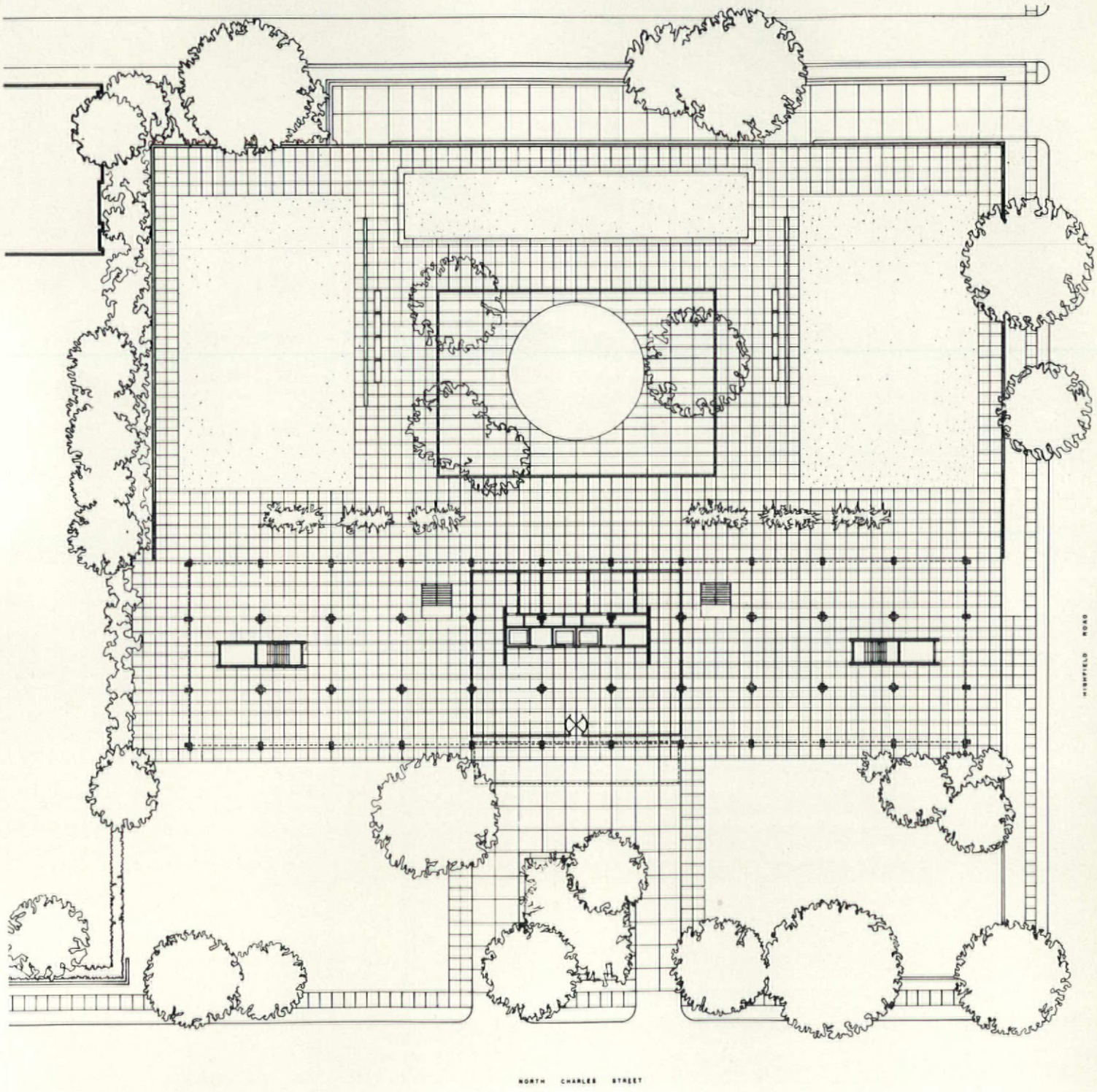
The building is air-conditioned.

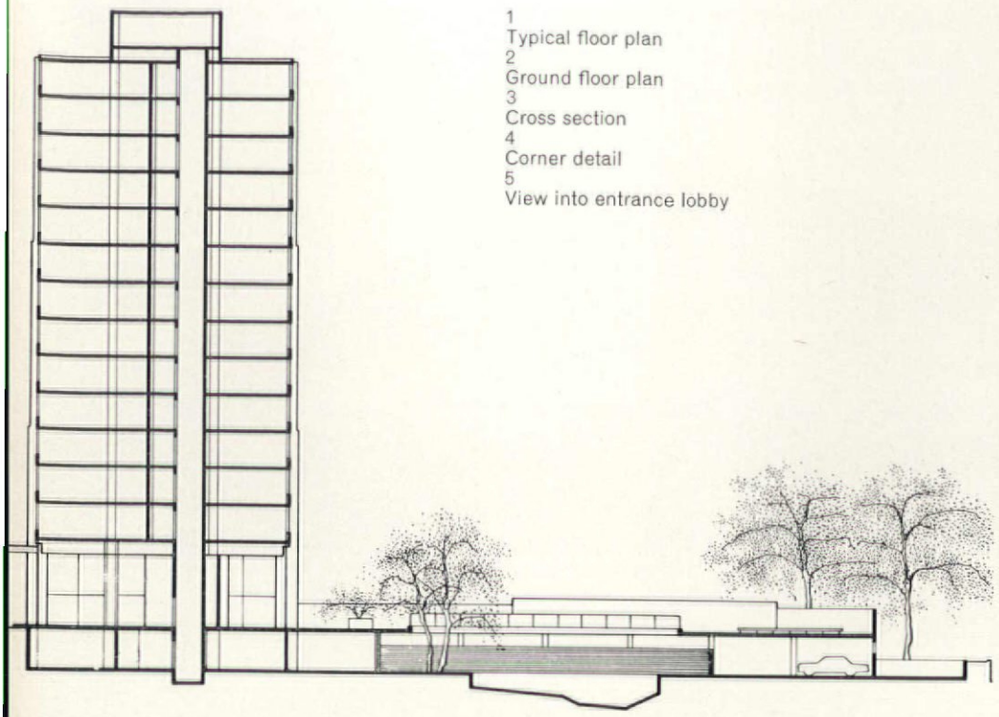
1
View from North Charles Street
2
North Charles Street entrance



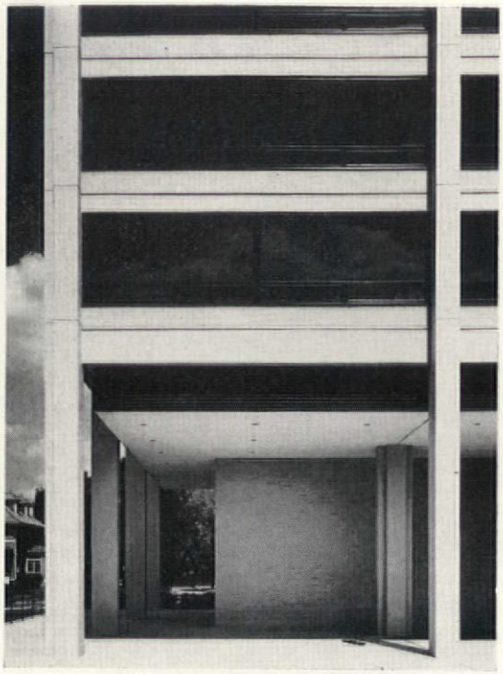
1

2





1
Typical floor plan
2
Ground floor plan
3
Cross section
4
Corner detail
5
View into entrance lobby



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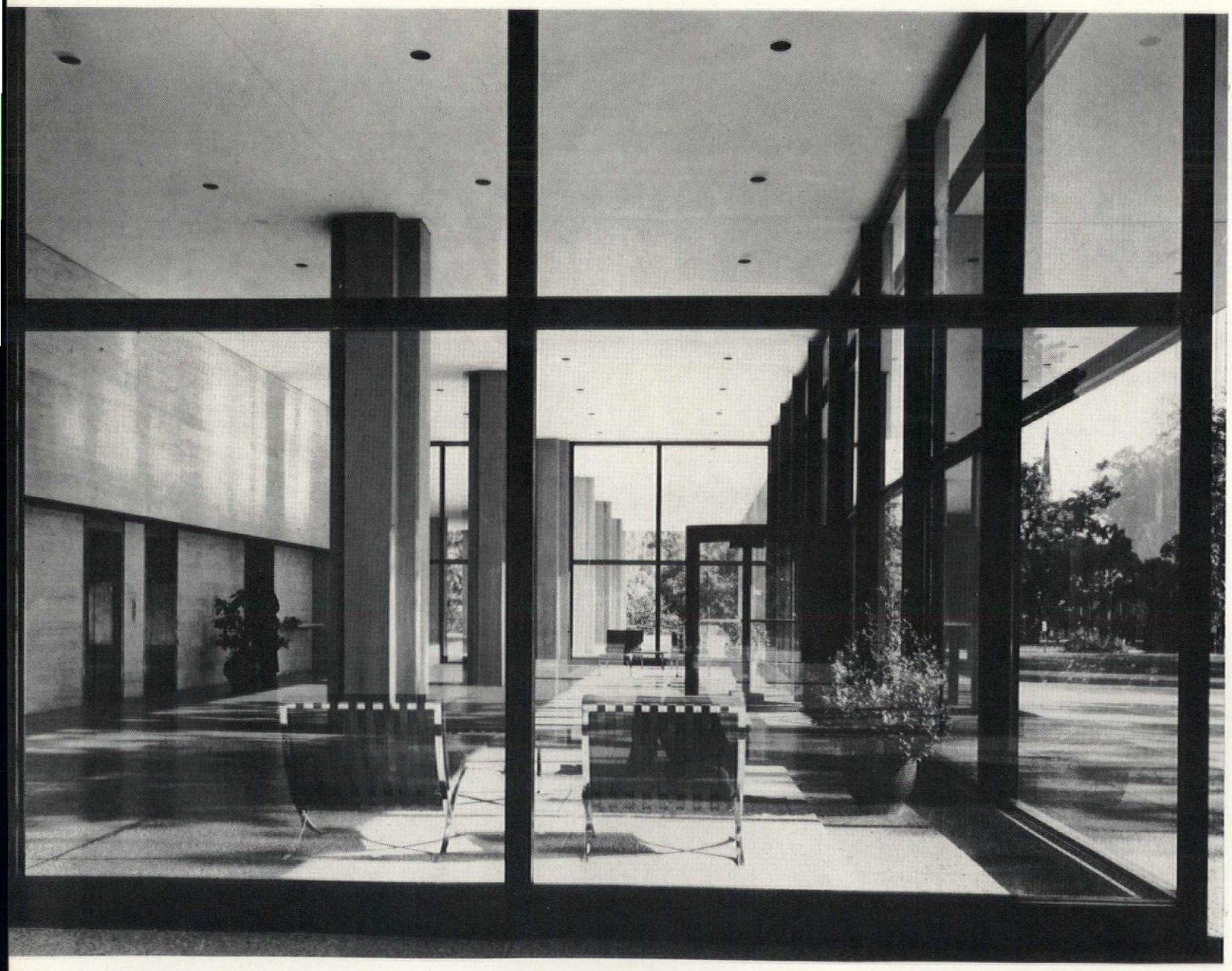

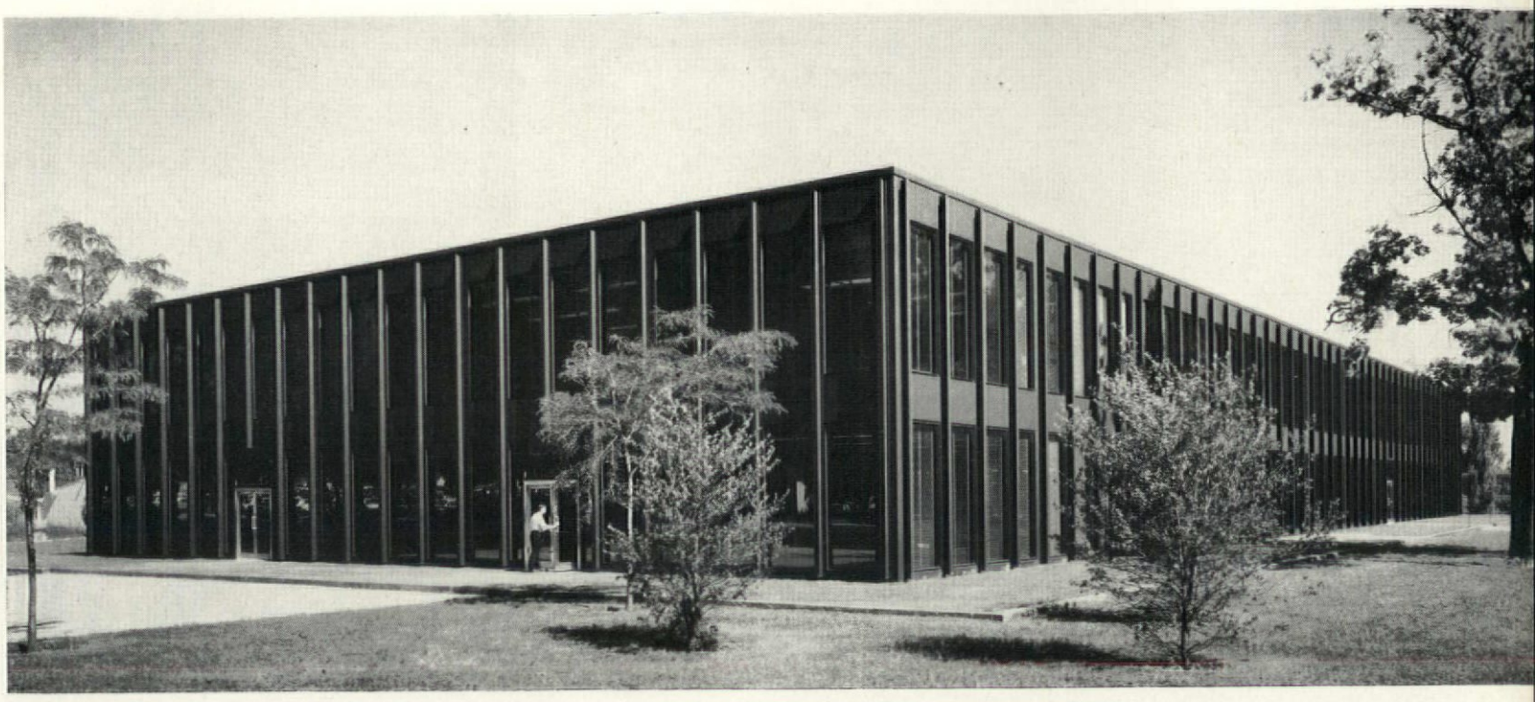

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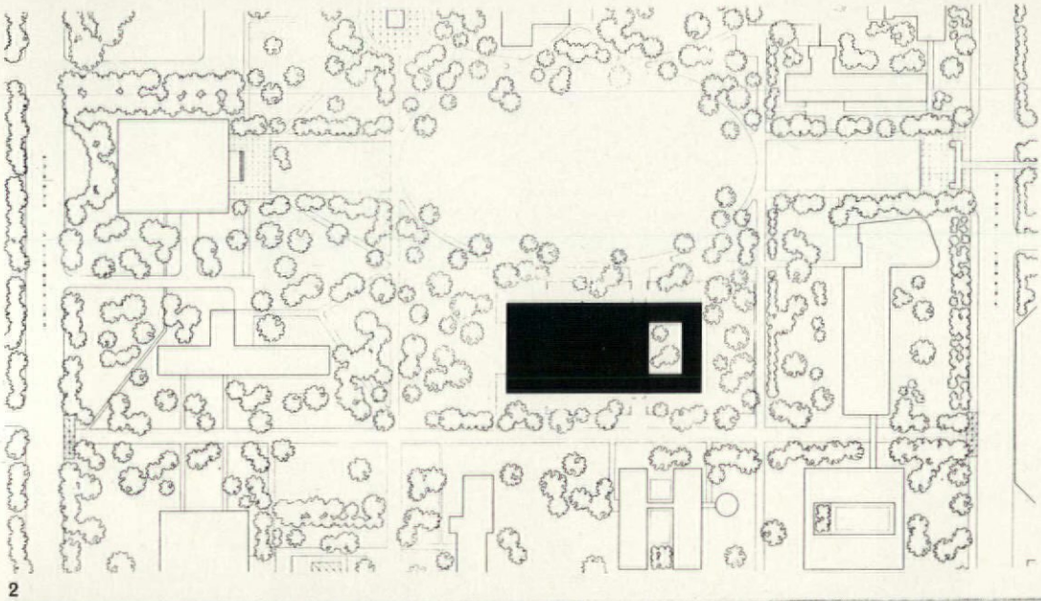


2

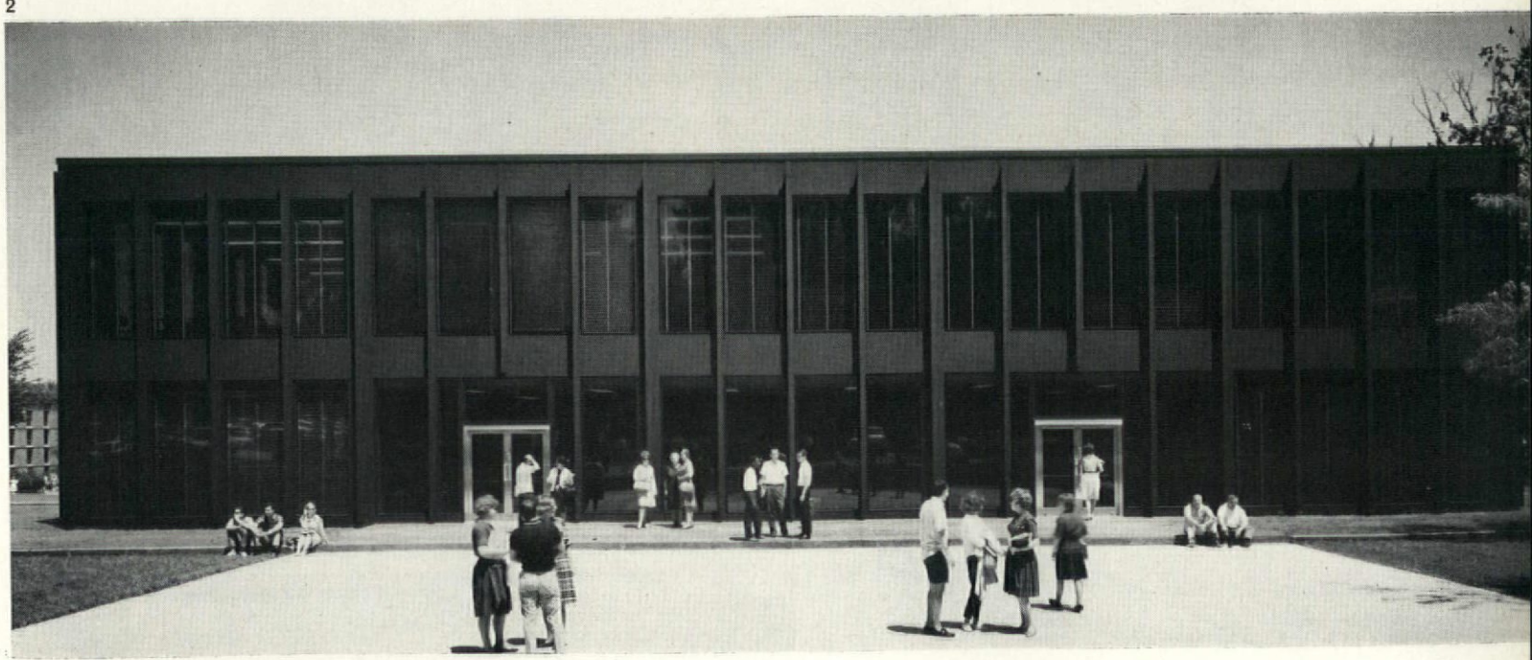
# Meredith Memorial Hal
# Drake University
# Des Moines, USA

Mies van der Rohe

Engineer: C. F. Murphy and Associates

*All photos Hedrich Blessing*

This two-storey building, with basement, vides all facilities for the School of Journalis well as classrooms and faculty offices for ge use. The classroom activities and the fa offices are separated by a 44ft × 66ft int court. The structure is of steel columns at centres. The exterior is steel with glass pa set in steel angle frames. The whole is air-co tioned, using a double duct system. Work completed in 1964.



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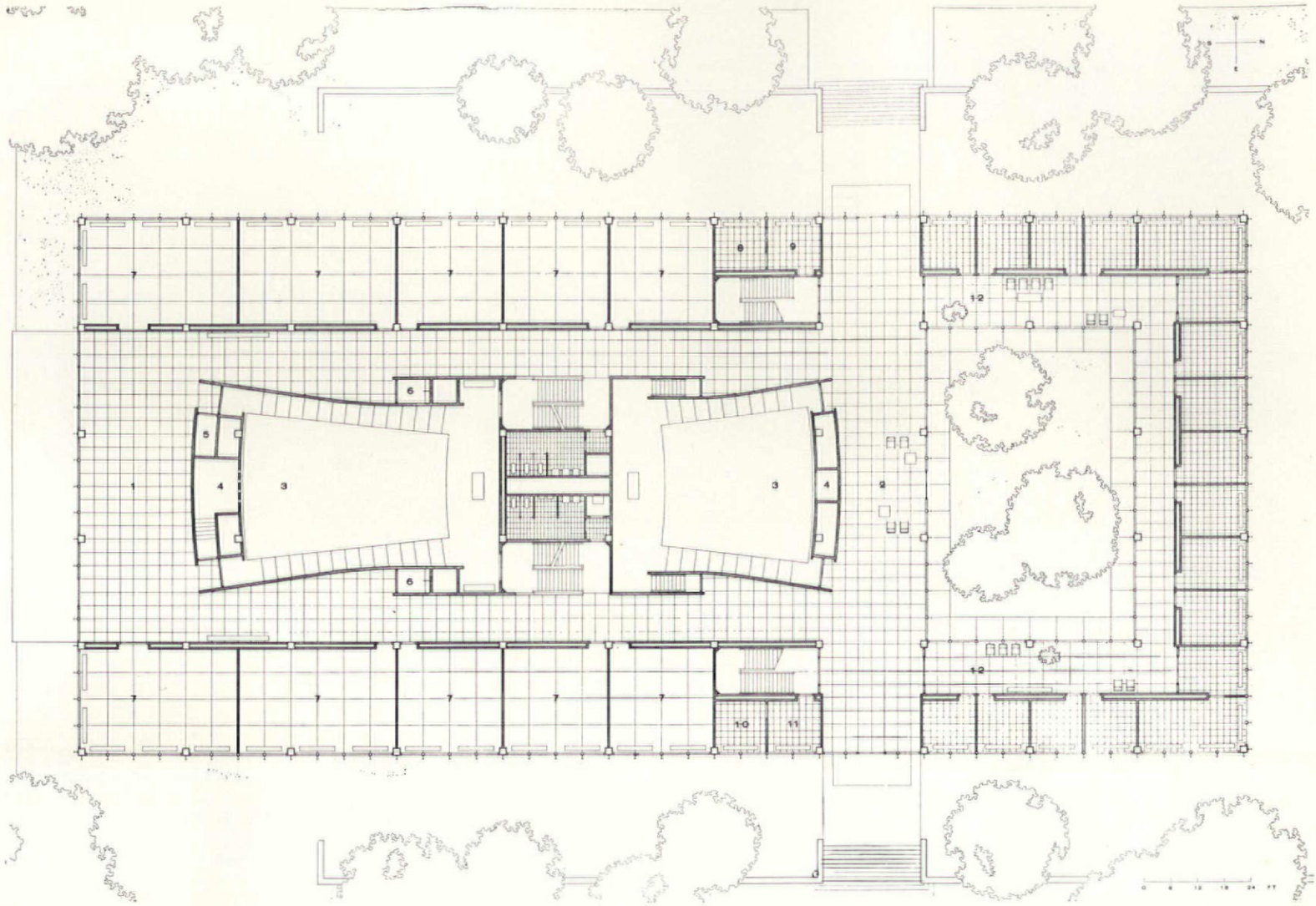
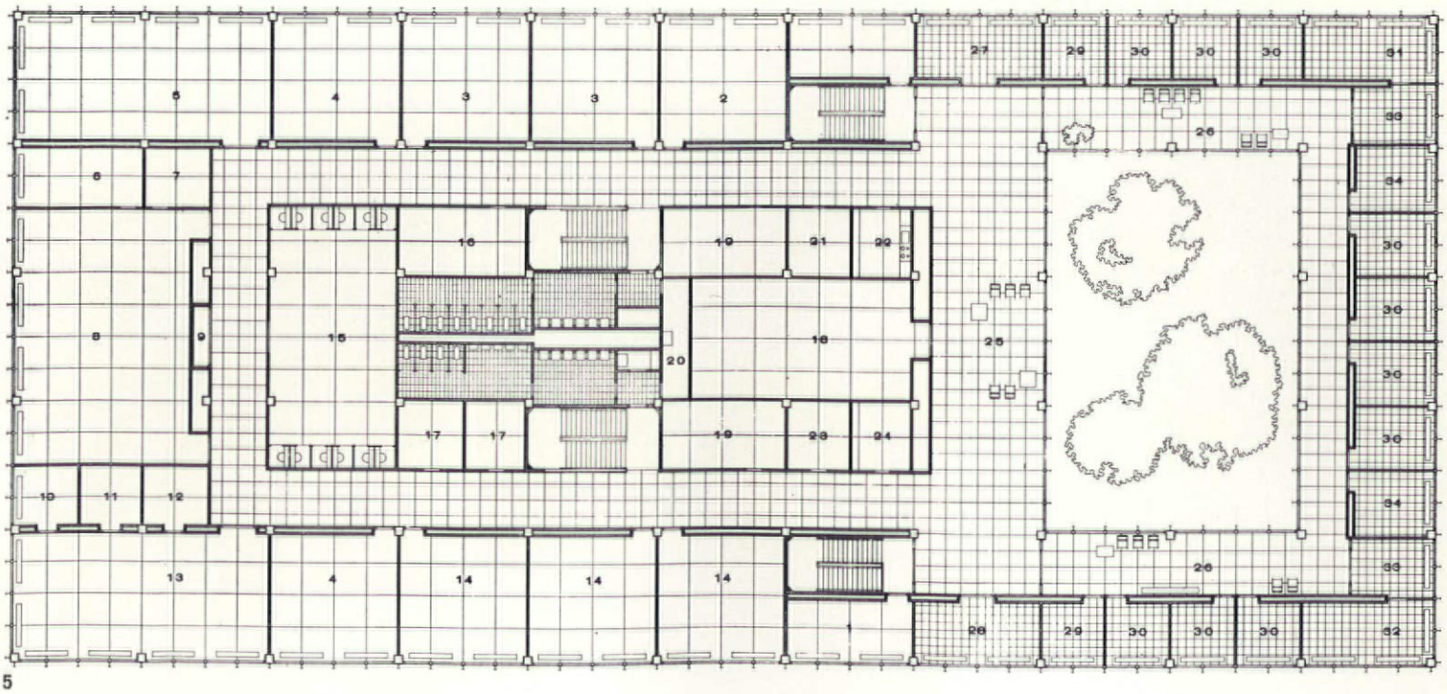


4

1
View from the south east
2
Site plan
3
South elevation

4
Ground floor plan
1 lobby
2 lounge
3 lecture hall
4 projection room
5 store
6 telephones
7 classroom
8–11 student newspaper
12 staff office

5
First floor plan
1 seminar rooms
2–8, 10–19, 21 23, 24 classrooms
9 store
22 kitchen
25 lounge
26 staff lounge
27–34 staff offices



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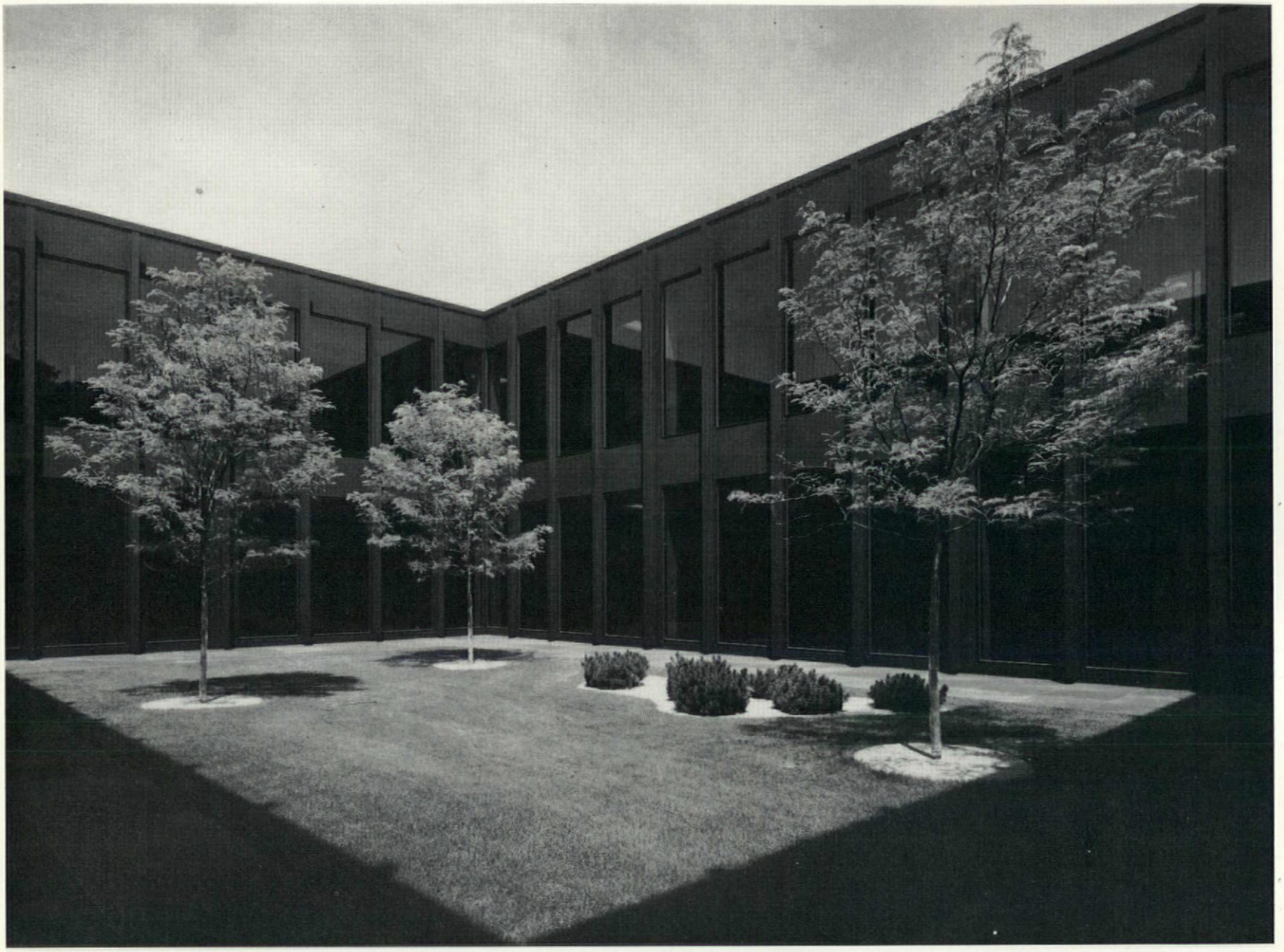
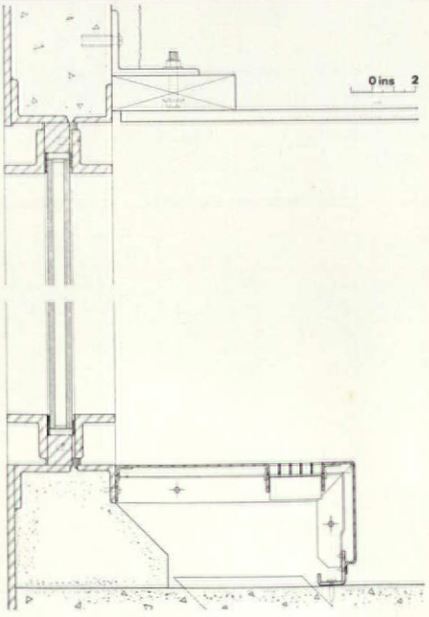


1

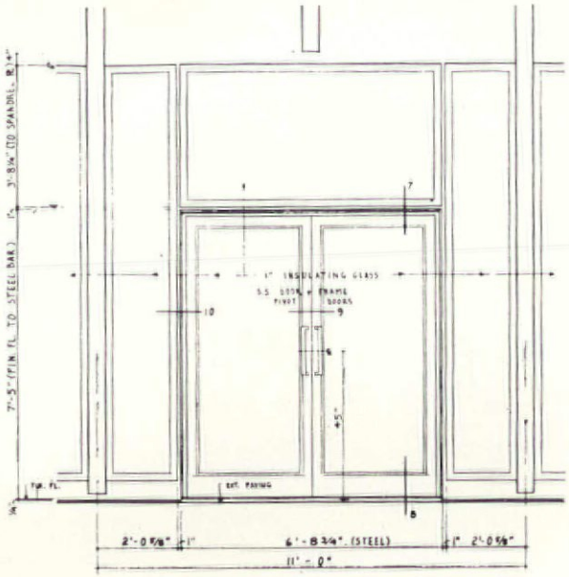
2



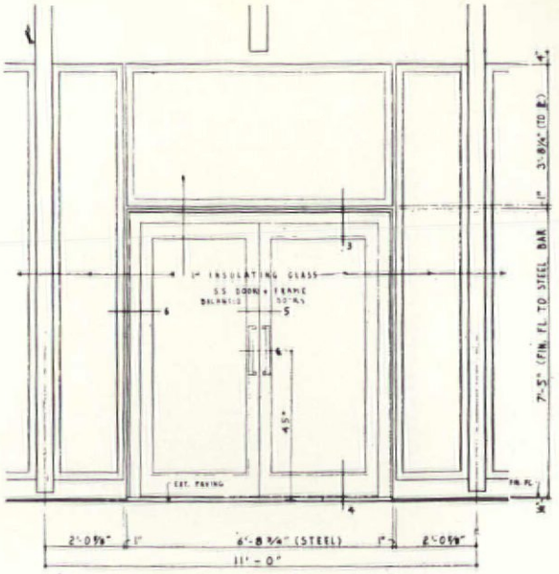
3



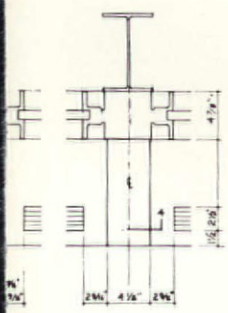

1
View of the internal court
2
Lounge opening onto the internal court
3
Idealized detail section through external wall



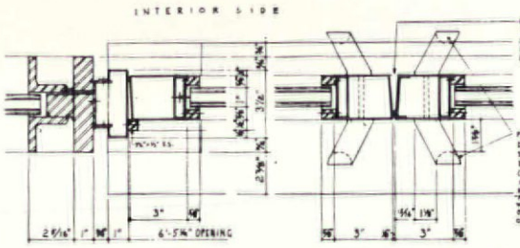
COURT DOORS
SCALE 1/2" = 1'-0"



EXTERIOR ENTRANCE DOORS
SCALE 1/2" = 1'-0"

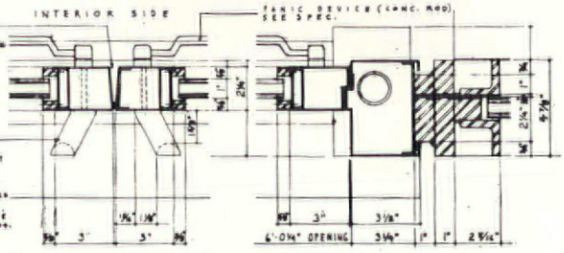


CENTER MULLION WITHOUT WALL



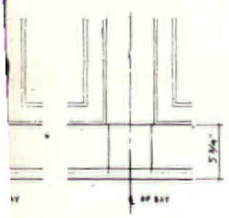
SECTION 10 - JAMB

SECTION 9 - MEETING ST.

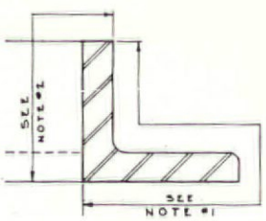


SECTION 5 - MEETING ST.

SECTION 6 - JAMB



CENTER MULLION WITHOUT WALL



SECTION - 11
MITRED ANGLE STOP FRAMED
FULL SIZE

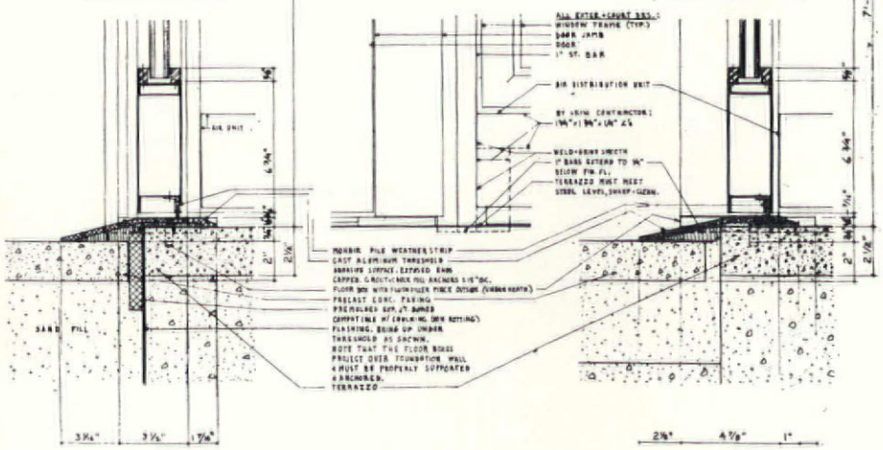
NOTE #1
WELD & GRIND SMOOTH -- WELD PENETRATION MUST GIVE SUFFICIENT STRENGTH FOR HANDLING ERECTION. WELD MUST BE WEATHER-TIGHT.

NOTE #2
FIT TIGHT @ MITRE. AFTER BLAST CLEANING, FILL ANY OPENING WITH APPROVED FILLER AND SHOP COAT. THIS JOINT MUST BE WATER-TIGHT.



SECTION 7 - HEAD

SECTION 3 - HEAD



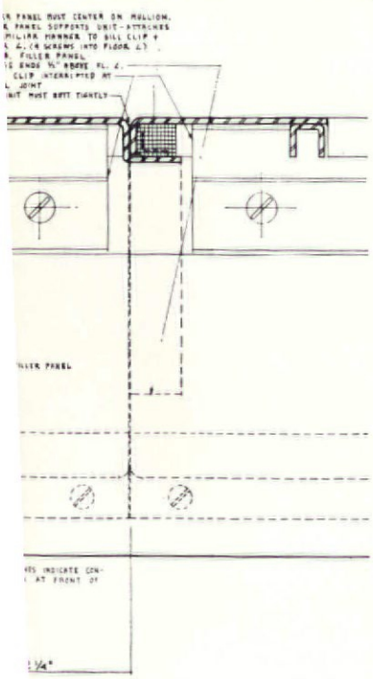
SECTION 8 - SILL

INTERIOR ELEVATION
CORNER OF JAMB + SILL

SECTION 4 - SILL

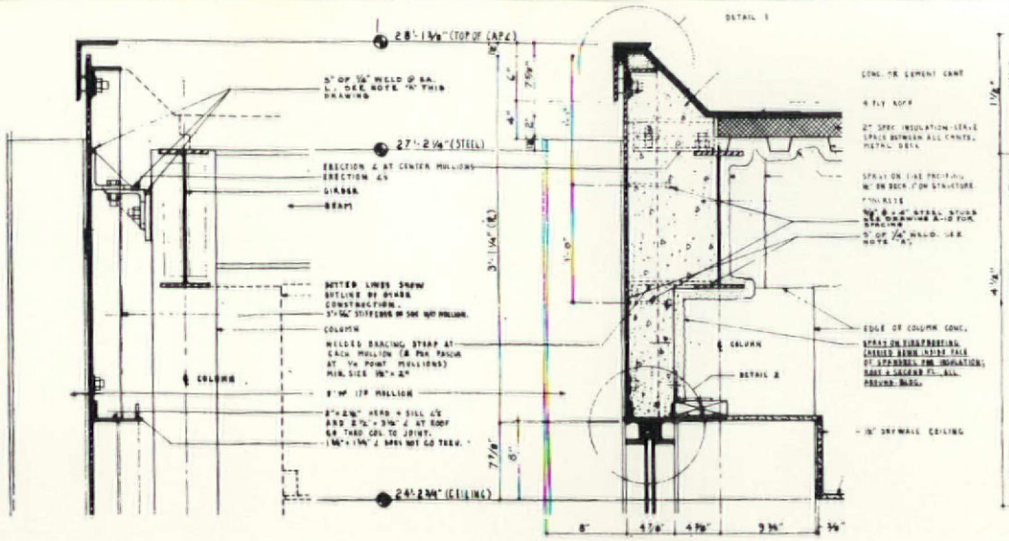
COURT DOOR DETAILS
SCALE 3" = 1'-0"

EXTERIOR DOOR DETAILS
SCALE 3" = 1'-0"



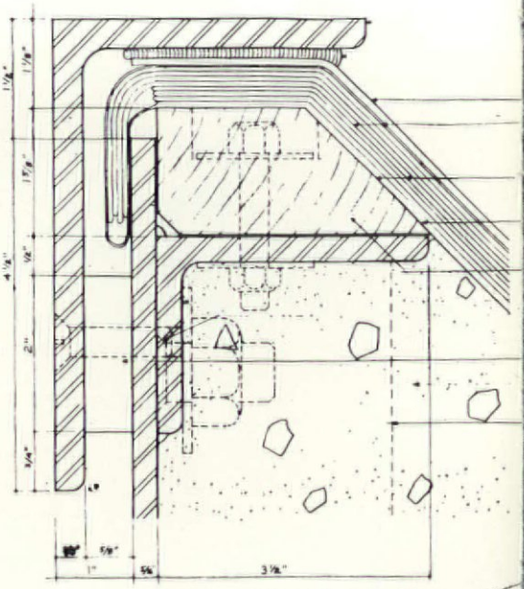
N 4 - FILLER AT
MULL WITHOUT WALL
ULL SIZE

| ARCHITECT / ENGINEER | NO. | DATE | REVISIONS | DRAWING TITLE | SHEET NO. |
|---|---|---|---|---|---|
| | | | | SKIN & MISC. DETAILS | A13 |
| | | | | SCALE AS NOTED | DATE: 7-31-63 |

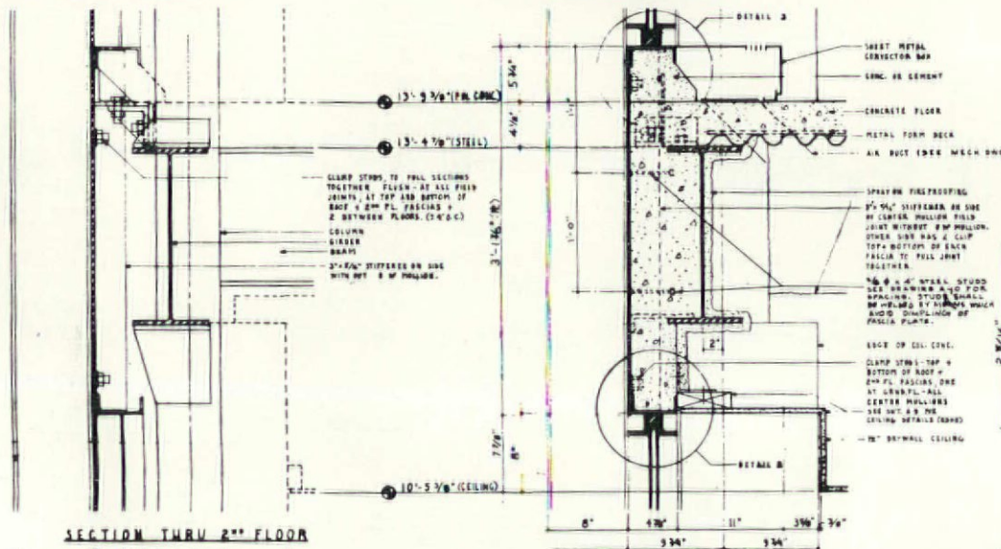


SECTION THRU ROOF

SECTION 5-A12 - ROOF

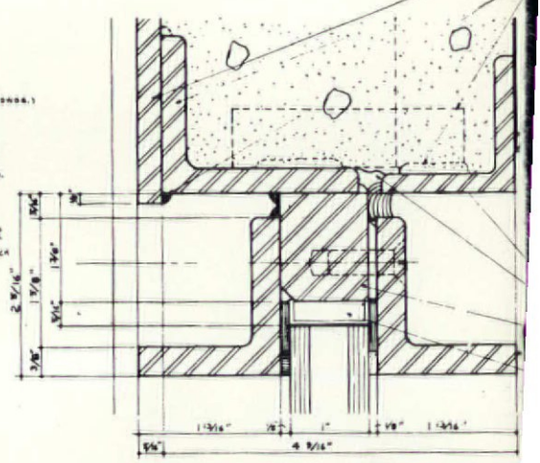


ROOF CAP - DETAIL 1 - F.S.

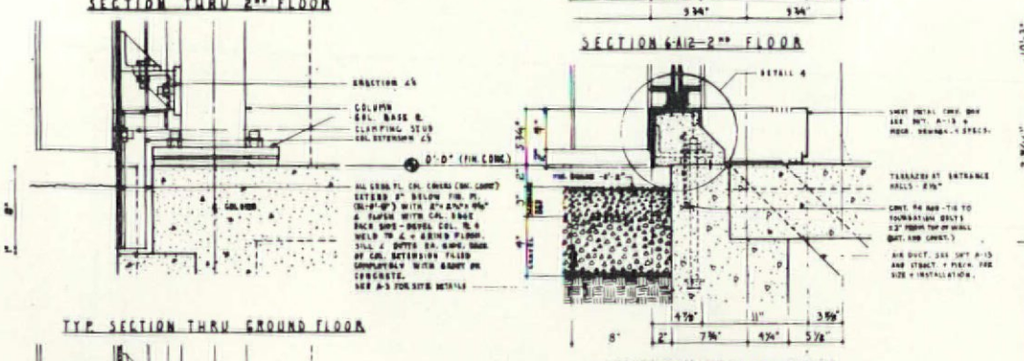


SECTION THRU 2ND FLOOR

SECTION 6-A12 - 2ND FLOOR

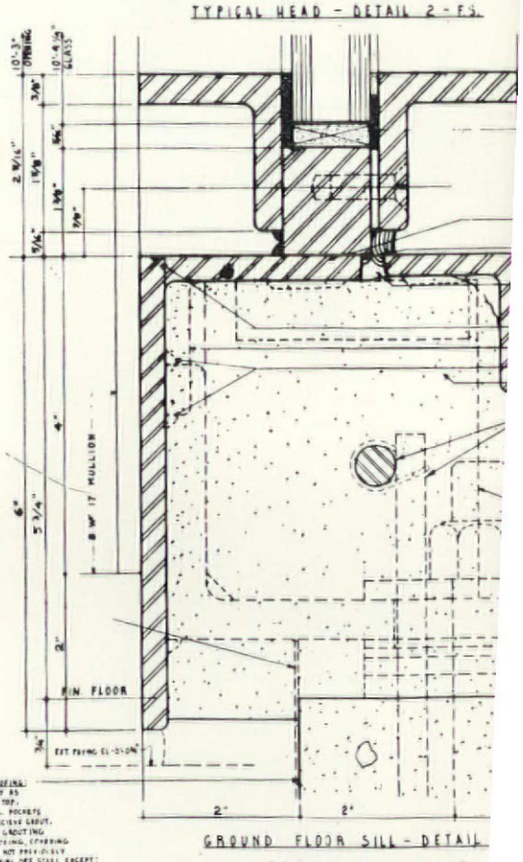


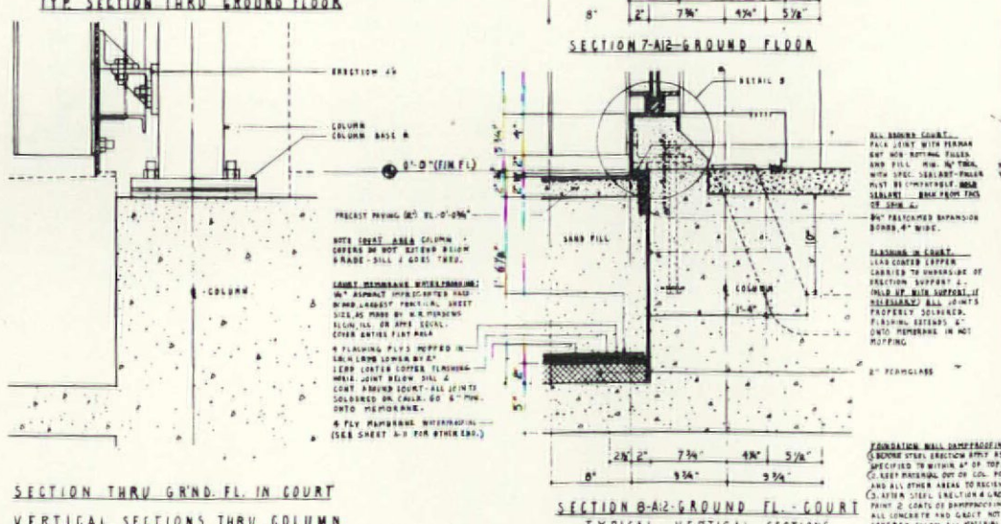
TYPICAL HEAD - DETAIL 2 - F.S.



TYP. SECTION THRU GROUND FLOOR

SECTION 7-A12 - GROUND FLOOR





SECTION THRU GRND. FL. IN COURT

VERTICAL SECTIONS THRU COLUMN

(CONCRETE ABOVE GRND. FL. OMITTED FOR CLARITY)

SCALE 1½" = 1'-0"

SECTION 8-A12 - GROUND FL. - COURT

TYPICAL VERTICAL SECTIONS

SCALE 1½" = 1'-0"

GROUND FLOOR SILL - DETAIL

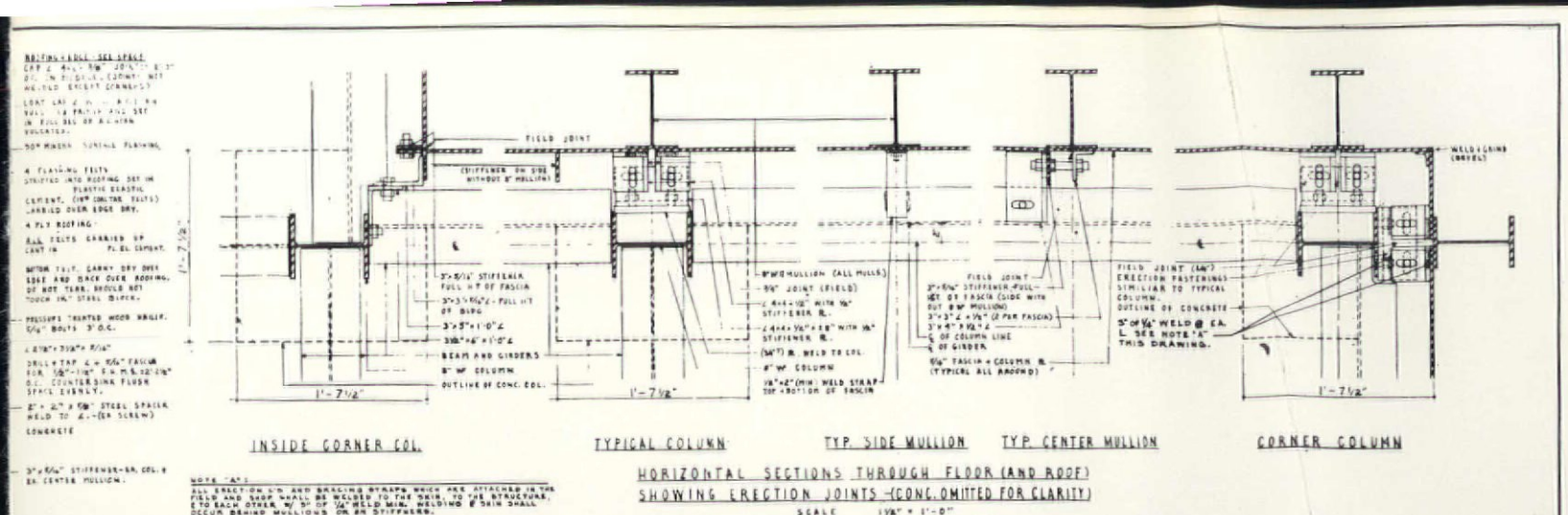
DETAIL 3 SIMILIAR

# MEREDITH MEMORIAL HALL

DRAKE UNIVERSITY — DES MOINES, IOWA

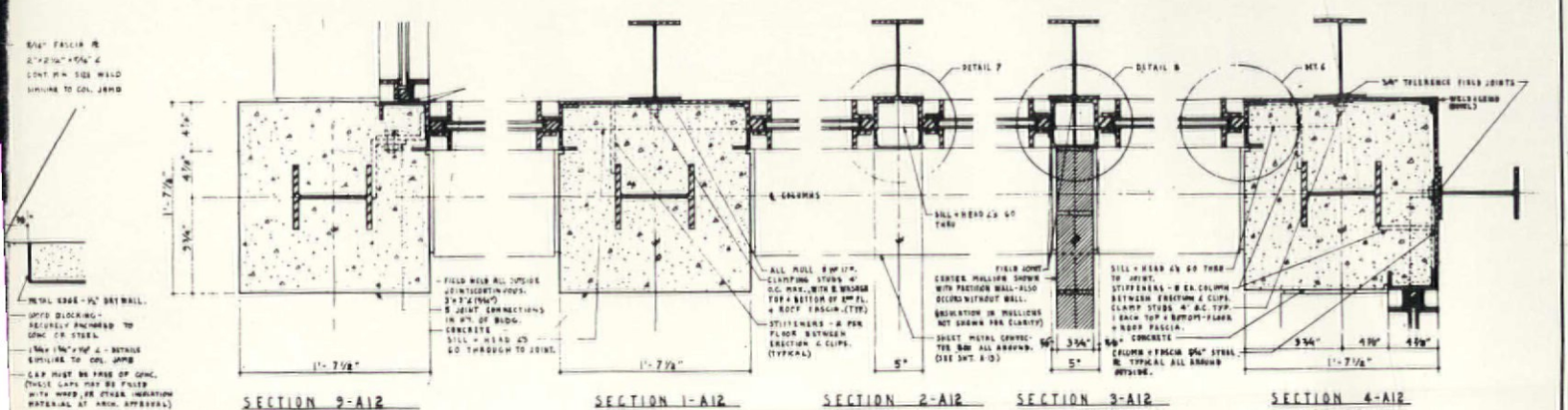
MIES VAN DER ROHE

C. F. MURPHY ASSOCIATES



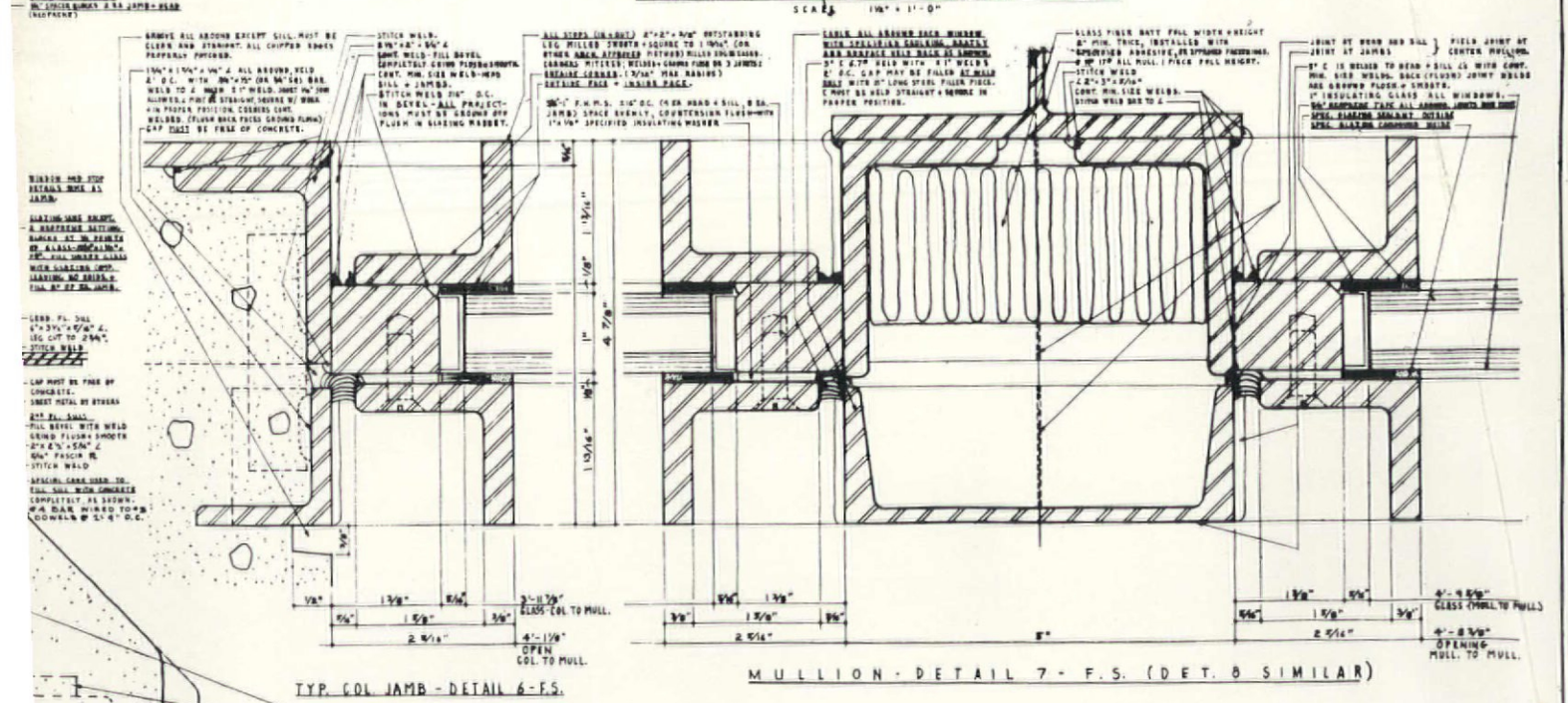

HORIZONTAL SECTIONS THROUGH FLOOR (AND ROOF)
SHOWING ERECTION JOINTS - (CONC. OMITTED FOR CLARITY)

SCALE 1½" = 1'-0"




HORIZONTAL SECTIONS THROUGH WINDOWS

SCALE 1½" = 1'-0"



TYP. COL JAMB - DETAIL 6 - F.S.

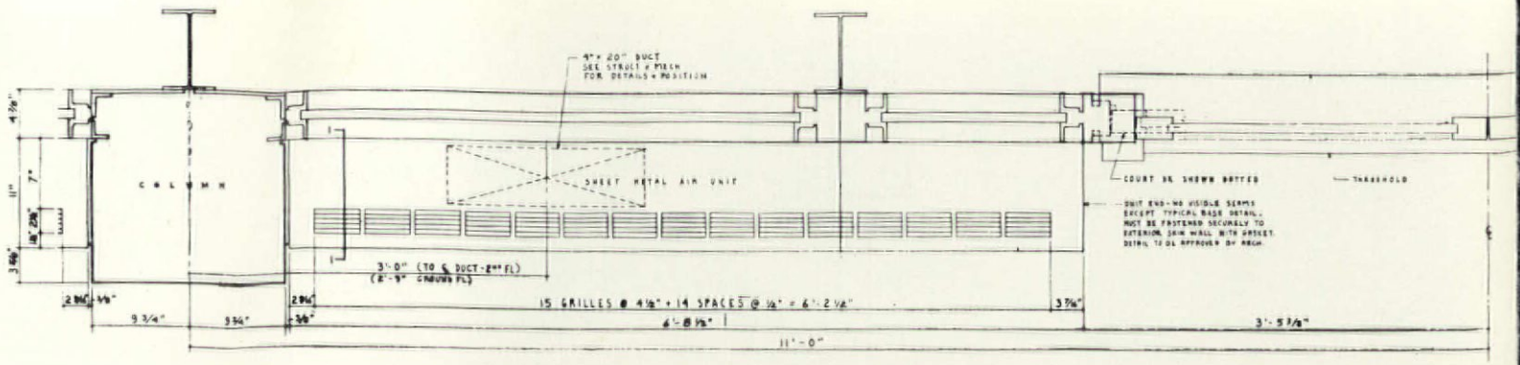
MULLION - DETAIL 7 - F.S. (DET. 8 SIMILAR)

F.S.

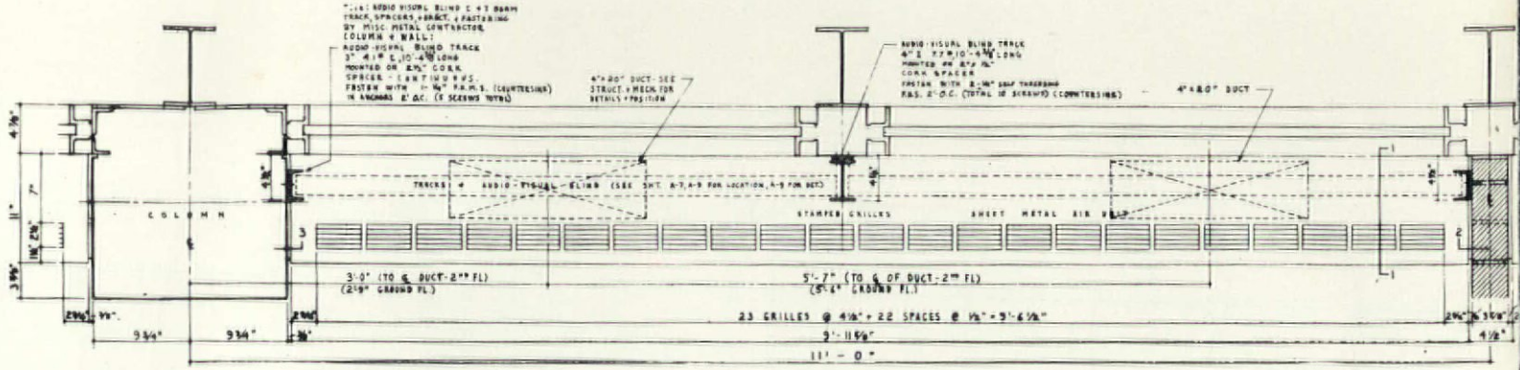
## GENERAL NOTES

1. THE SKIN DETAILS WERE DEVELOPED ANTICIPATING PANEL FABRICATION AND ERECTION. (MAX. SHOP WORK - MIN. FIELD WORK). CONTRACTOR MAY IF HE SO ELECTS FABRICATE AND ERECT BY THE STICK METHOD SO LONG AS THE INTENT OF ALL DETAILS IS FULLFILLED.
2. ANY, AND ALL WELDING SHALL BE EXECUTED IN A MANNER AVOIDING ANY DEFORMATION IN, OR ON EXPOSED SURFACES. PARTICULAR ATTENTION IS CALLED TO WELDING ON BACK SURFACE OF FASCIA PLATES.
3. DURING ERECTION, WT. OF PANELS TAKEN AT GROUND SILLS, NOT BEAMS.
4. ENERGY JOINT @ CENTER MULLION PULLED TIGHT. TOLERANCE TAKEN AT COLUMN JOINT. ALL ERECTION CLIPS AND JOINTS TO BE WELDED AFTER FINAL ADJUSTMENTS. ALL JOINTS EXPOSED TO BE WELDED. USE MIN. WELDS EXCEPT FOR THOSE REQUIRING STRENGTH. GRIND WELDS ON FLUSH SURFACE AS CALLED FOR.

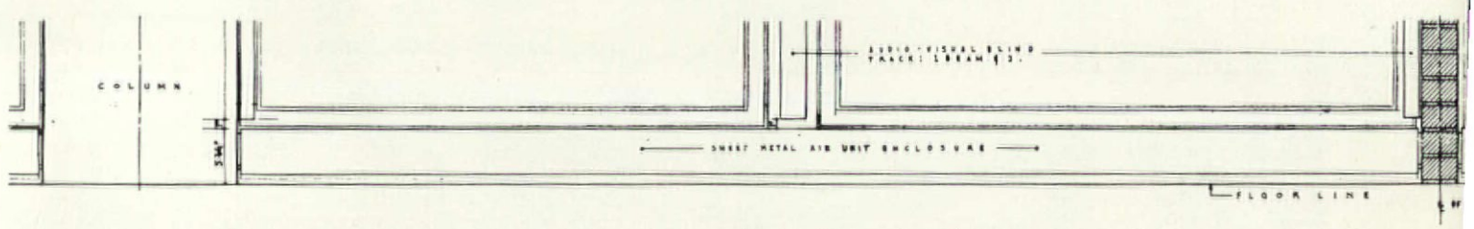
| ARCHITECT / ENGINEER | NO. | DATE | REVISIONS | DRAWING TITLE | SHEET NO. |
|---|---|---|---|---|---|
| | | | | SKIN DETAILS | A12 |
| | | | | SCALE AS NOTED | DATE 7-31-62 |



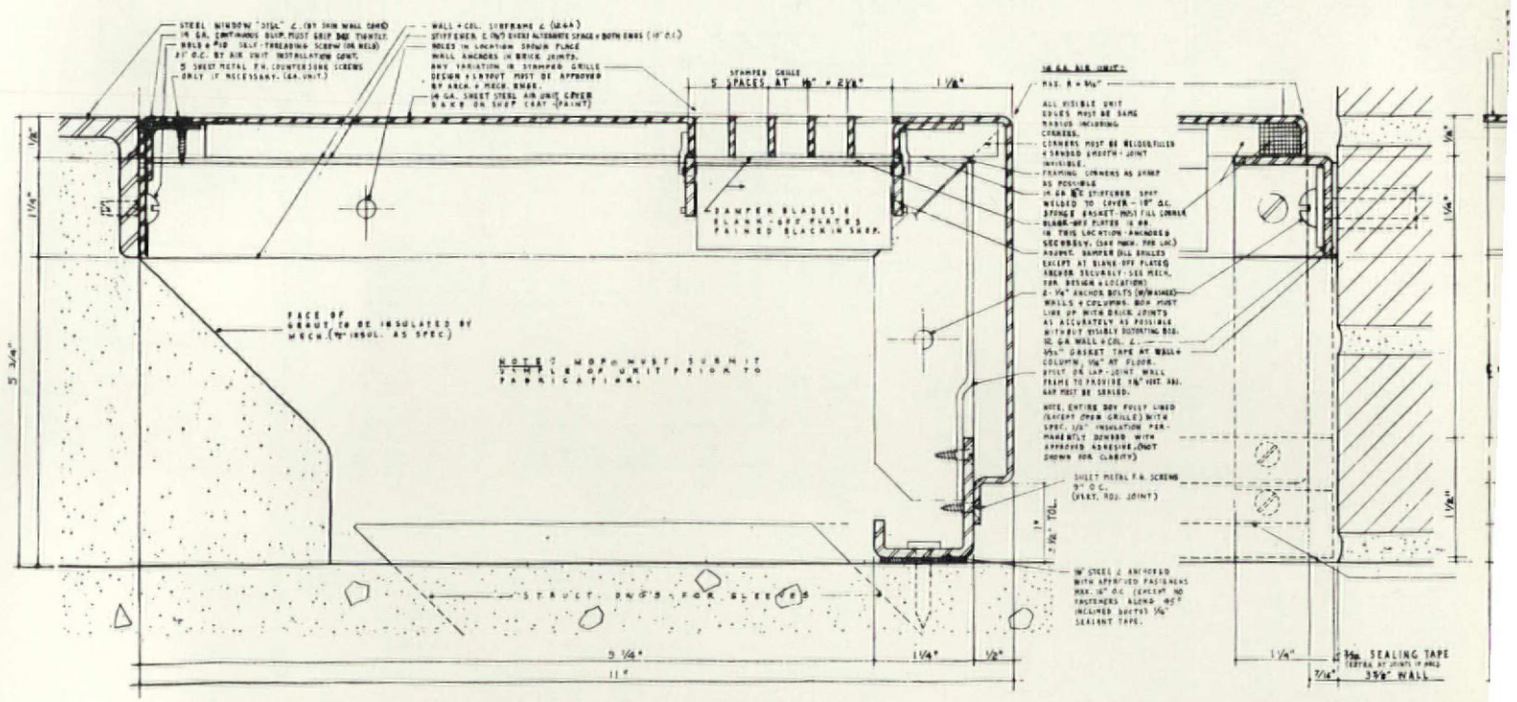

PLAN OF HALF BAY - TYPICAL ENTRANCE - (COURT ENTRANCE SIMILIAR)
SCALE 1½" = 1'-0"




PLAN OF TYPICAL HALF BAY (CENTER PARTITION WALL)
SCALE 1½" = 1'-0"




AIR UNIT AND AUDIO-VISUAL TRACKS
INSIDE ELEVATION OF TYPICAL HALF BAY (CENTER PARTITION WALL SHOWN)
SCALE 1½" = 1'-0"




SECTION 1 - AIR DISTRIBUTION UNIT - (ALL UNITS SIMILIAR)
FULL SIZE

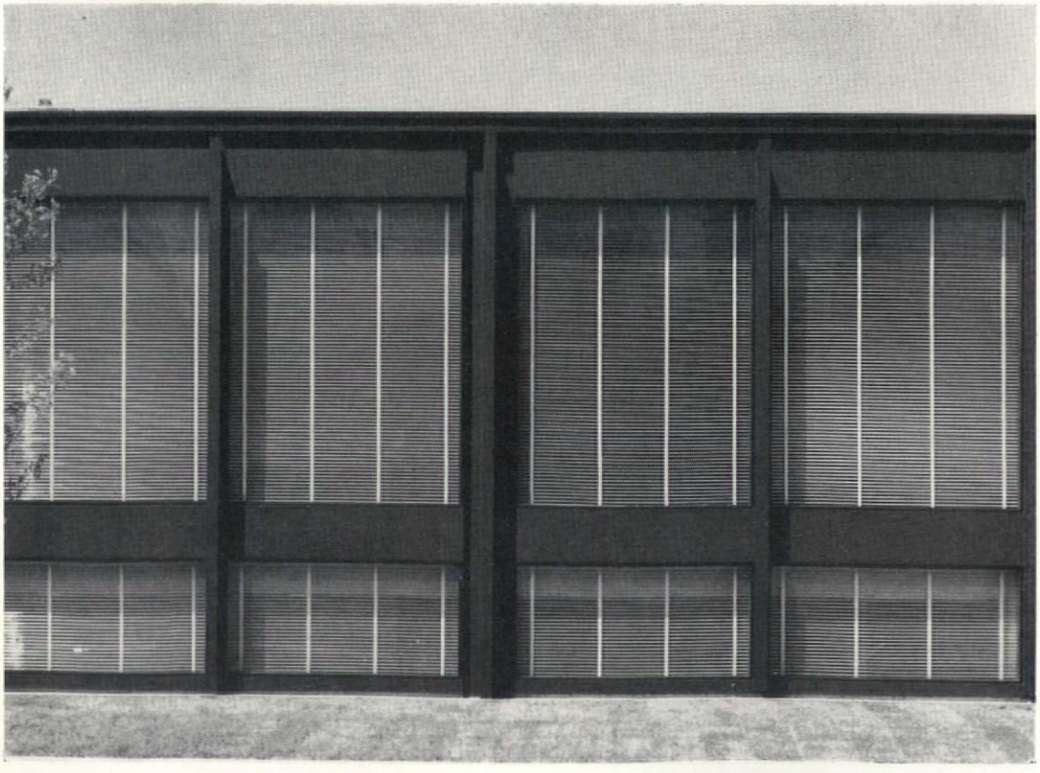
SECTION 2 - END OF UNIT
SECTION 3 SIMILIAR
FULL SIZE

**MEREDITH MEMORIAL HALL**
**DRAKE UNIVERSITY** **DES MOINES IOWA**

MIES VAN DER ROHE
C. F. MURPHY ASSOCIAT



1
2



# School of social service administration University of Chicago

Mies van der Rohe

Associate architect: J. Lee Jones

Structural engineers: Nelson, Ostrom, Baskin, Berman and Associates

*All photos Hedrich Blessing*

The two-level steel frame building, finished in 1965, accommodates nine classrooms, 60 faculty offices, four seminar and research rooms, a lounge, a lobby which can be used as a 300-seat auditorium, a library, and utility rooms. It contains 50,000ft² of floor space.

The main structure consists of a welded steel column and girder system planned on a 40ft square bay with a clear height of 19ft. The roof construction is carried on steel decking welded to steel purlins which are in turn bolted to the

▷246

1
Main entrance
2
Exterior view of classroom walls

girders. The direction of the purlins and decking alternate from bay to bay in order to give an even distribution of the roof loads. Around the perimeter of the building each bay is divided into 10ft modules by rolled steel mullions which support the glass. The same rolled steel section is also used in the built-up columns at the corners of the structural bays.

The entrances from the front terrace lead directly into a large hall which serves a wide variety of functions for both the daily and occasional use of the building. A central core houses an office, a meeting room and lockers, all for student use, as well as a kitchenette and mechanical facilities. The perimeter walls of the hall are of glass in steel frames and buff brick, with the exposed structural elements painted flat black. The walls of the core are of walnut panelling, with a rich, very dark brown finish. The floor is medium grey-green terrazzo. The ceiling is large fields of white acoustic tile with exposed structural elements painted flat black. Lighting is by recessed fluorescent troughs of the air-handling type; hence, although the building is completely air conditioned, no separate air diffusers are employed.

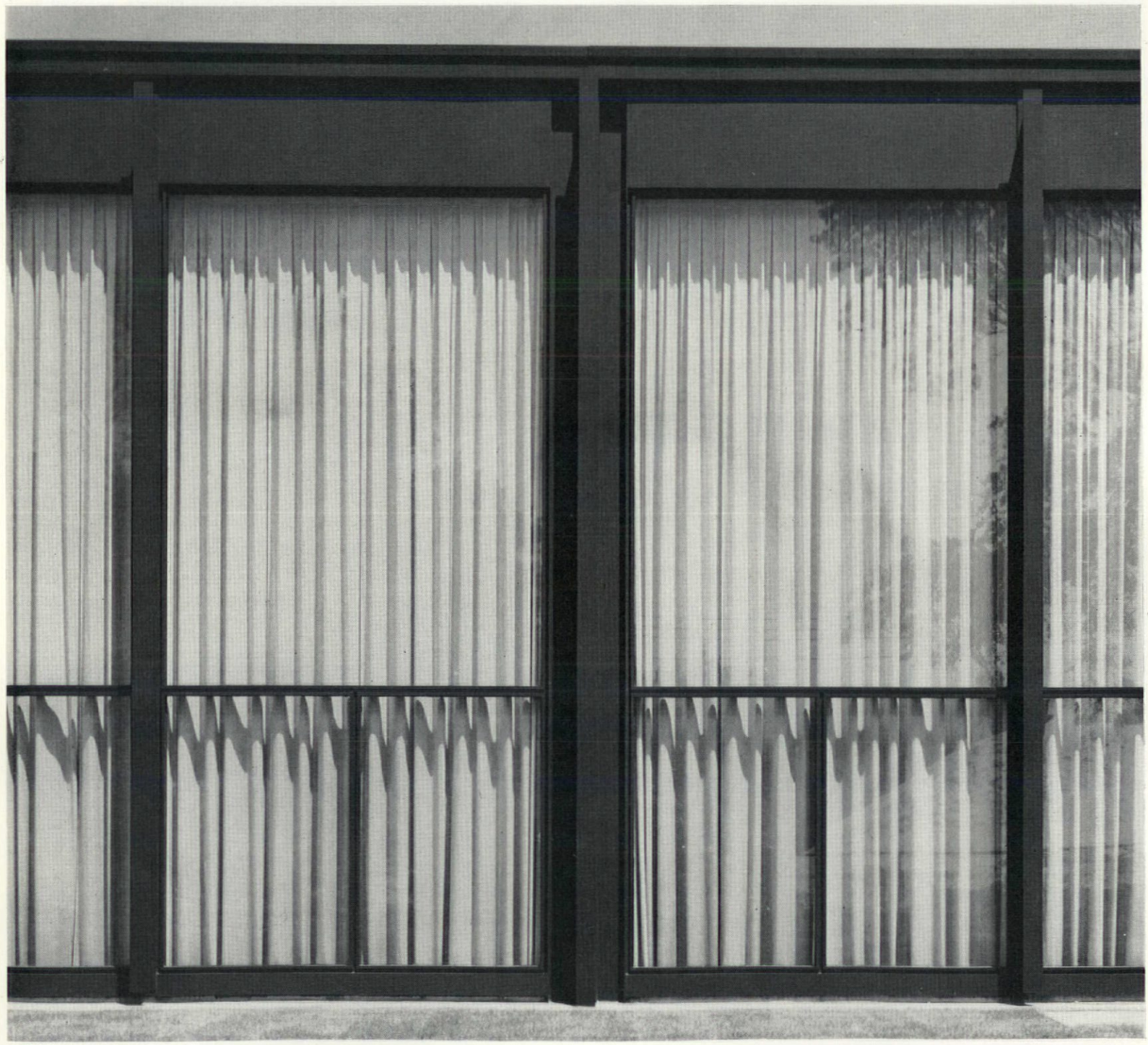
The library is south of the hall; its glass walls are draped with translucent beige fabric.

Although this is essentially a one-storey building an intermediate floor level extending across the three bays at each end of the building is raised seven feet above the level of the hall and library to accommodate two similar classroom areas. Located on these upper levels is a seminar room for 20 persons, two classrooms accommodating 50 persons each, and two larger classrooms. The finishes in all classrooms are buff brick and glass walls, white acoustical tile ceilings, black with white fleck vinyl-asbestos flooring. The glass walls in the classrooms are equipped with oyster white venetian blinds. All classroom seating is movable.

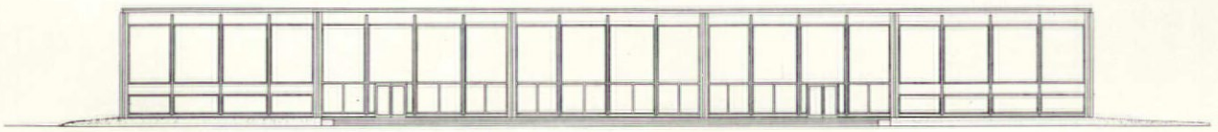
The classroom and office areas are connected by broad stairways which remain open to, and actually form a part of, the space of the central hall. These stairways continue down to a large open lobby at the lower level of the basement where additional student lockers are provided. The research centre is below the central hall and is entered from these lobby spaces, as are also the toilets and other service facilities.

1
Exterior view of library
2
Elevations
3
Library window wall detail of elevation and plan
Folded in: working drawings showing steel and glass window details

1







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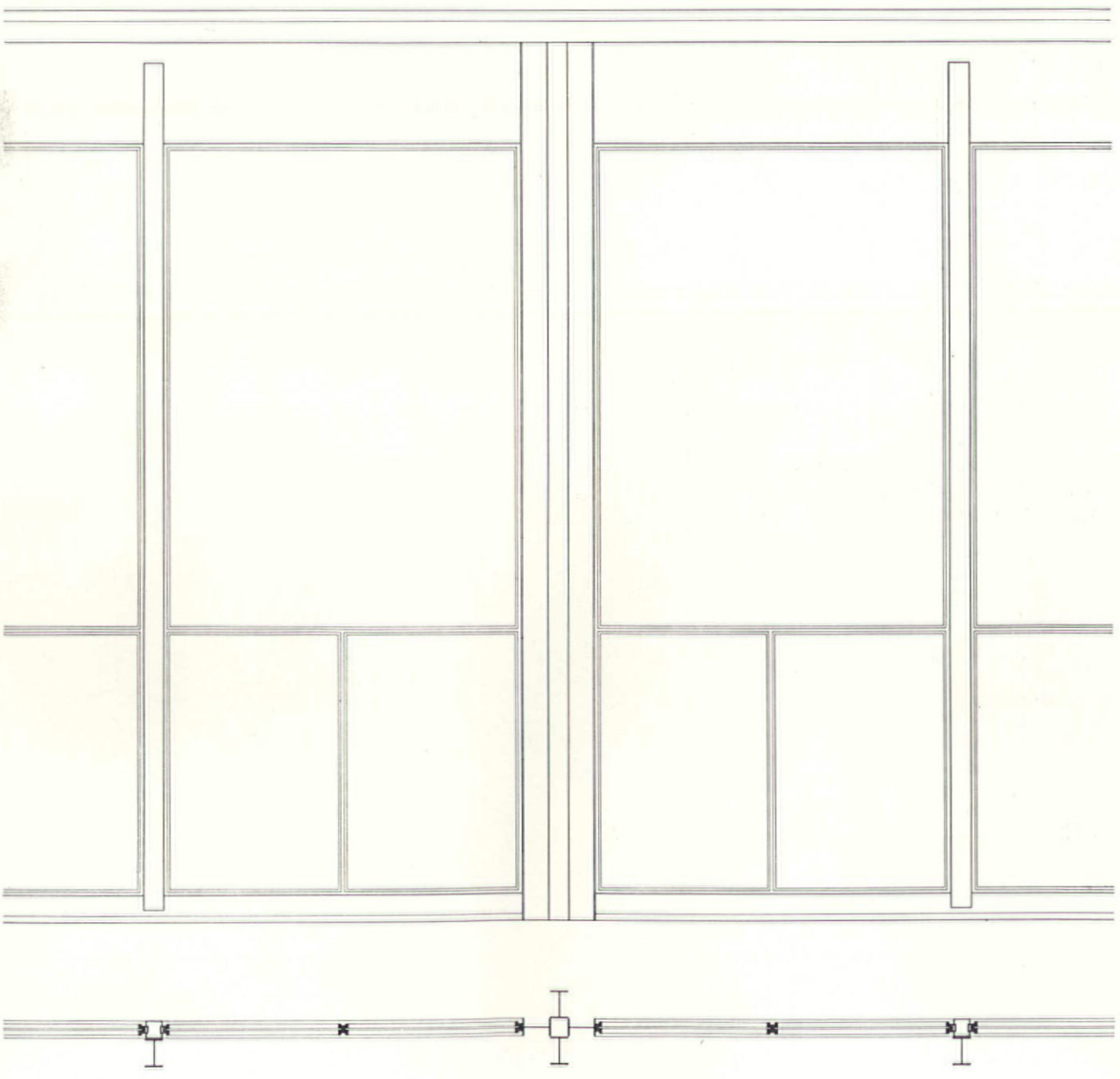

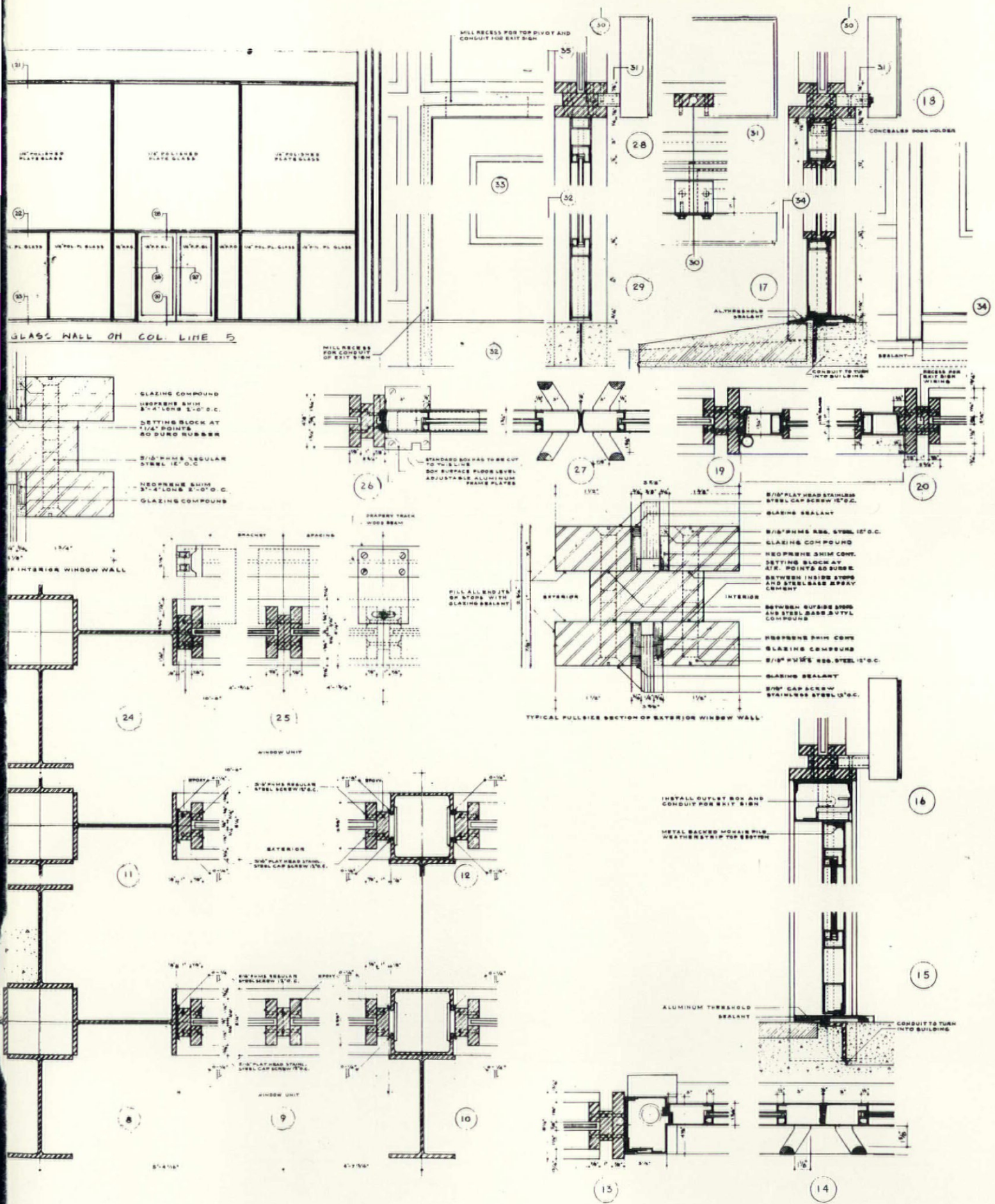


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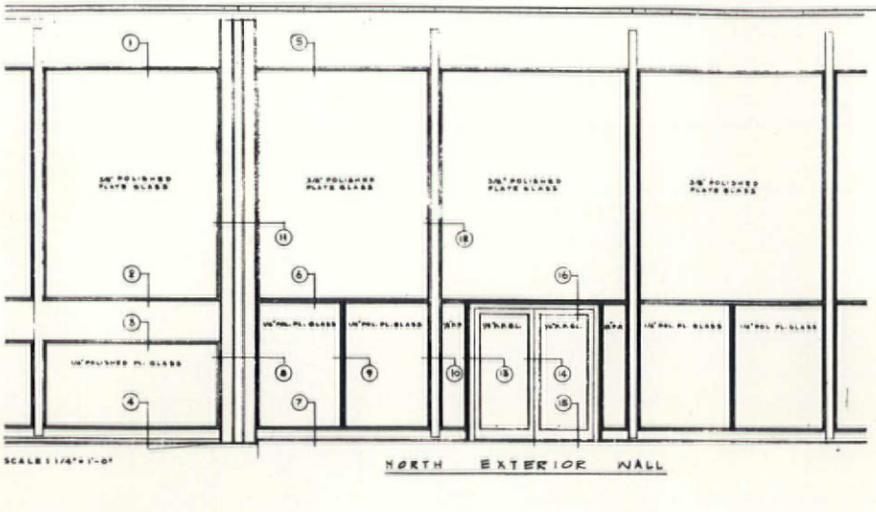
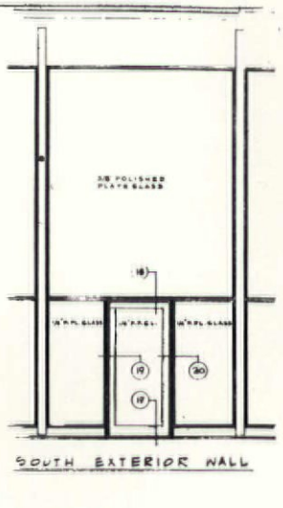
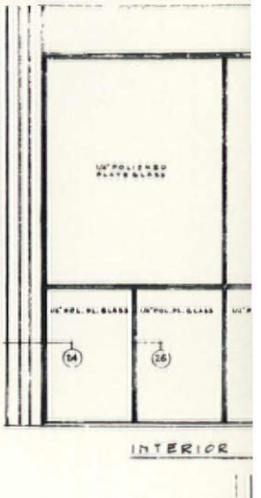
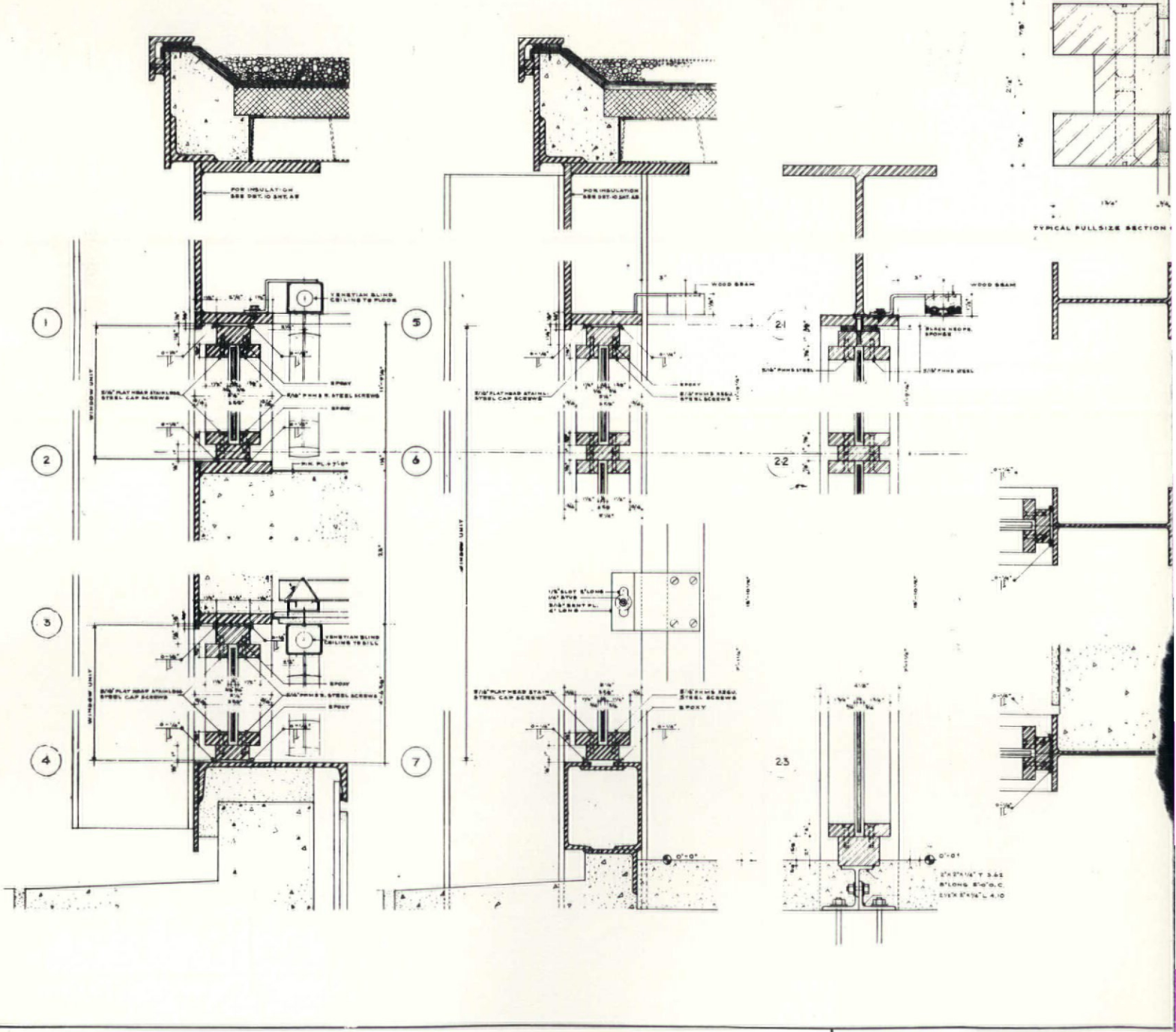
|---|---|---|
| ARCHITECT<br>CIATE ARCHITECT<br>CTURAL ENGINEER<br>ANICAL ENGINEER | NO. / DATE / REVISIONS: | DRAWING TITLE<br>STEEL AND GLASS WINDOW DETAILS.<br>SCALE: 3"=1'-0" EXCEPT AS NOTED |
| | | SHEET NO.<br>A-8<br>DATE: SEPT. 18, 1963 |




THE UNIVERSITY OF CHICAGO
SCHOOL OF SOCIAL SERVICE ADMINISTRATION
BUILDING

MIES VAN DER ROHE
J. LEE JONES
NELSON, OSTROM, BASKIN BERMAN & ASSOCIATES
WM. GOODMAN & ASSOCIATES

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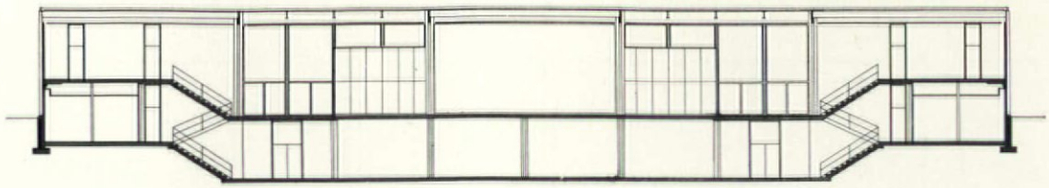

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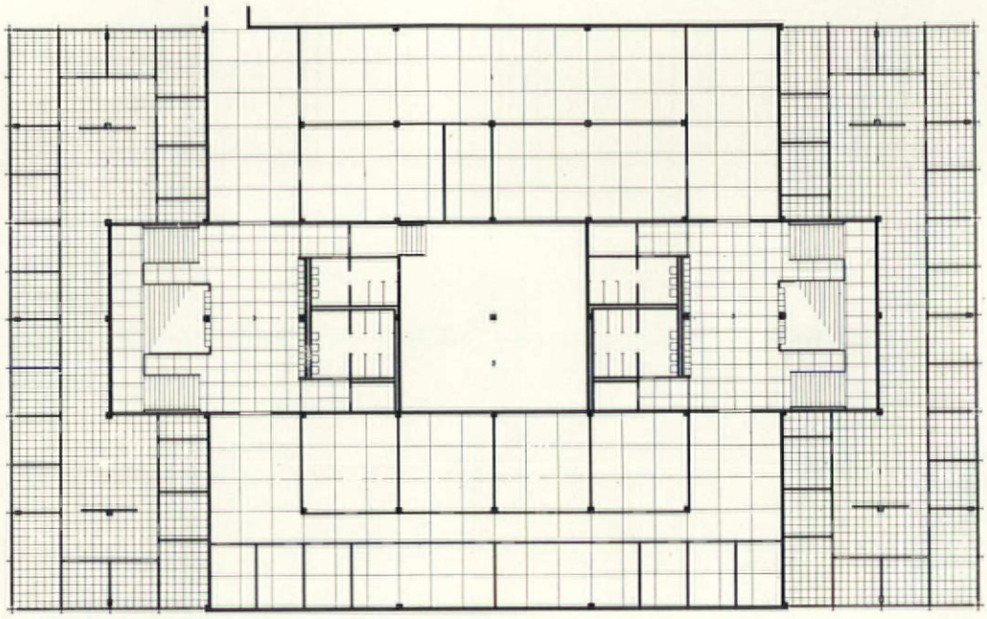
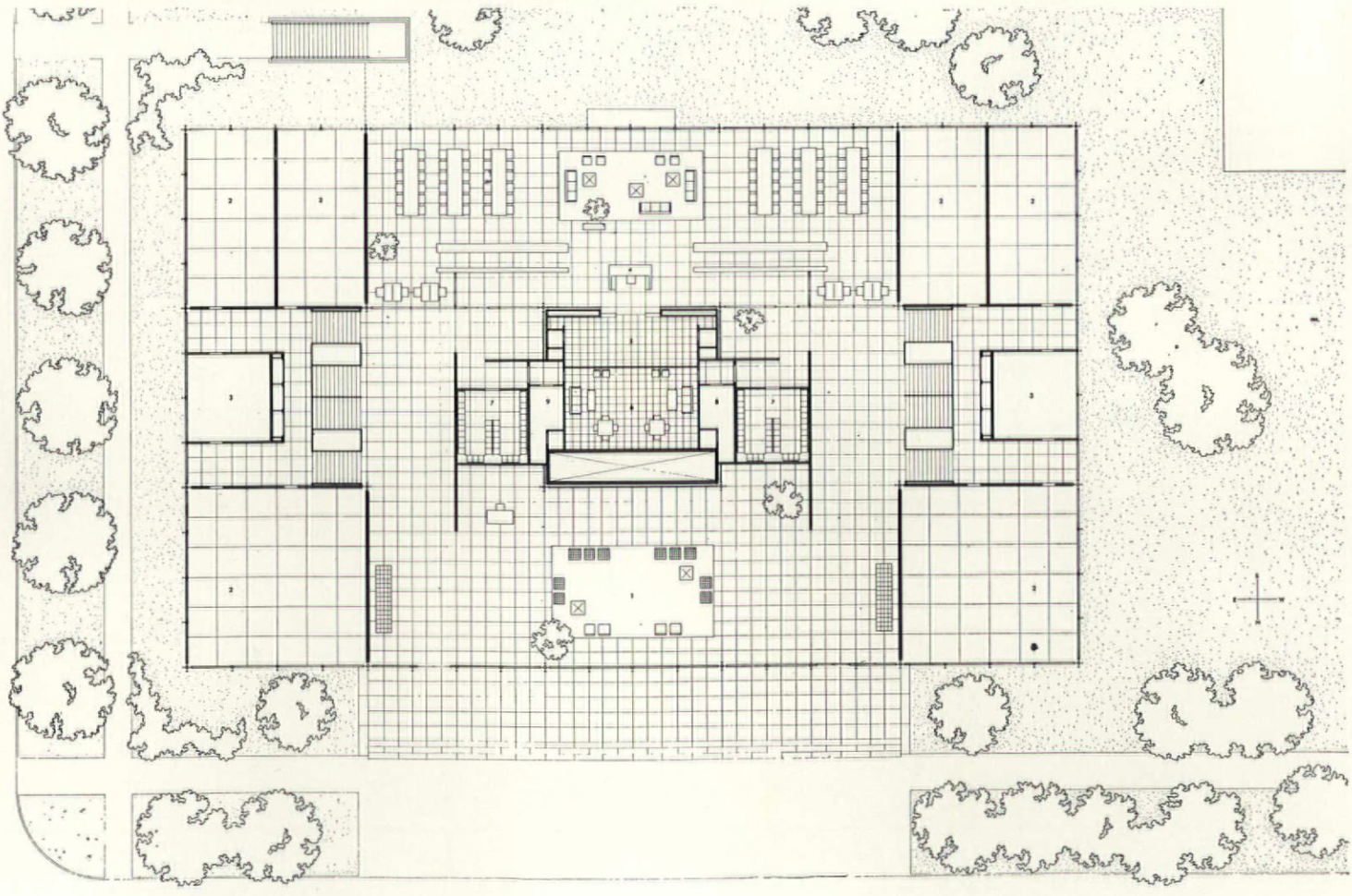


4
Longitudinal section
5
Basement plan
1 offices
2 research rooms
3 lobby
4 mimeograph room
5 service
6
Ground floor plan
1 lounge
2 classrooms
3 seminar
4 library
5 workroom
6 student meeting room
7 locker room
8 kitchen
9 office
7
Entrance lounge
8
Detail of internal column and beam junction
9
View of a staircase

6





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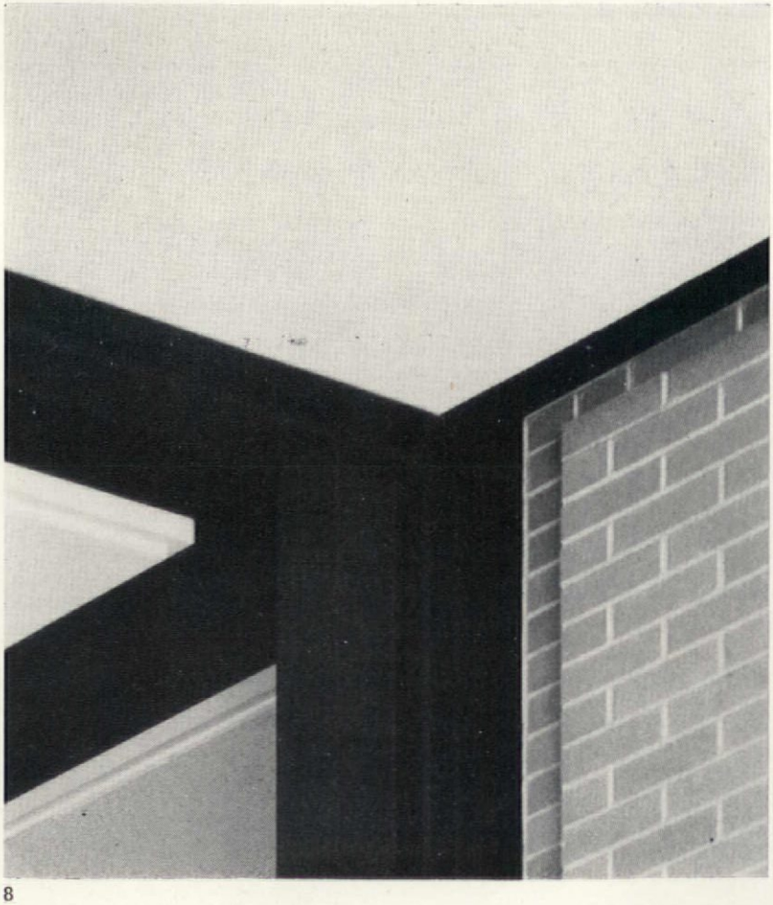

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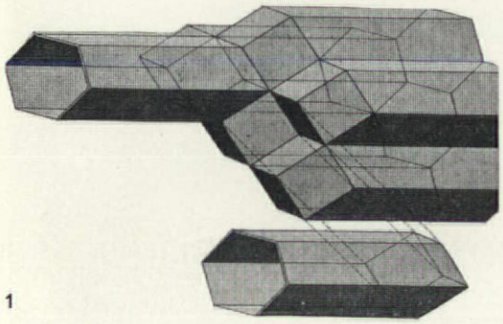
9

# An argument for basic design

William S. Huff

*Biographical Note*
*William S. Huff has been Assistant Professor, since 1960, in the Department of Architecture (Paul Schweikher, Head) at the Carnegie Institute of Technology Pittsburgh, USA—1949, received B.A. from Yale College—1962, B.Arch. from Yale's Department of Architecture, New Haven—1956–57, as recipient of a Fulbright Scholarship participated in the Grundlehre of the HfG under Tomás Maldonado—1958–60, worked in the architectural office of Louis Kahn Philadelphia—1963 and 1965, gave guest courses in basic design at the HfG. Apart from the quoted pedagogical influences of Albers and Maldonado he feels greatly indebted to Louis Kahn his works, and his 'realizations'.*



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1
Geometry of the cell arrangement of the honey bee comb
2
Schematical drawing of a pine cone seen from below
3
Contour of the pine cone

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1 Thompson, d'Arcy *On Growth and Form*, vol. 1, p. 10.
2 Newman, James R. *The World of Mathematics*, vol. 2, p. 998.
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4 *Op cit.*, vol. 2, p. 932.
5 *Op. cit.*, vol. 2, p. 537.
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7 *Op. cit.*, vol. 2, p. 931.
8 Dewey, John *Art as Experience*, p. 231.
9 *Op. cit.*, vol. 2, p. 740.
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11 *Op. cit.*
12 *Op. cit.*

## Basic design: structure—physical and perceptual

*Unity, harmony* and *proportion, rhythm, structure, scale, composition, form,* even *truth* and *virtue:* all words that once held great meaning; their very use could evoke an air of cultured sensibility. These are words that have clung to architecture, oldest of the design fields, as it entered the twentieth century, emergent from the grand traditions of the Beaux Arts; they have been used in reference to typographic design with equal effectiveness, and it is, then, only natural that they have been more recently applied to product design. But today these words are not so easily used; for, if used, they lack in firmness: not so much that we have lost their meanings, but that their meanings have lost usefulness for our contemporary design problems—or, at least, have become inadequate in covering our verbalizations of them.

In my own search, I have found amongst these words one word that was held of secondary import but which for me embodies most of the others: *structure.* The other words of the art-tradition are qualities or aspects of *it;* yet *it* is something more. By *structure* I strictly mean: *the relationship or arrangement of parts or elements. To design,* then, is first of all *to structure;* and for me the study of structure (in the abstract) is the equal of that which has been known as *basic design* or *foundation studies.*

Developments in both the natural and behavioural sciences in these past hundred years have brought us to accept that there are two ways in which we observe objects and phenomena: by a rigorous scrutiny employed in scientific investigation; and through a superficial, even detached, experiencing of the environment which we take as the 'reality' of our mundane existence.

In the face, then, of the dichotomy between scientific observation and superficial observation, I find it convenient to consider two distinct areas in the study of structure: the *physical* and the *perceptual.* The *physical* refers to how a structure, as far as we can humanly determine, actually is (from the microcosmic atom to the macrocosmic universe). In the physical manipulation of structure, we are interested in those things that are invariant and those that are variant, with the study of deformations and transformations constituting perhaps the most crucial underlying motif.

The *perceptual* refers to the normal behaviour patterns of our sensory receptors, ie our everyday touching of the world and the meanings we construct out of these encounters. Analogous to the variant and invariant factors of the physical situation, those things that possess identities (or grouping properties) and those that create contrasts are the basic concerns of perceptual phenomena.

In our basic design course, then (as it comes from Ulm's Maldonado), my students and I explore, of the physical nature of structure, such groups as can be analysed by symmetry, topology, combinatorial analysis, theories of colour and texture.

Much is to be learned about structure from an examination of both inorganic (static) and organic (dynamic) morphology. A famous passage from D'Arcy Thompson indicates what insight might thereby be derived: 'Cell and tissue, shell and bone, leaf and flower, are so many portions of matter, and it is in obedience to the laws of physics that their particles have been moved, moulded and conformed. They are no exception to the rule that God always geometrizes. Their problems of growth are essentially physical problems, and the morphologist is, *ipso facto,* a student of physical science.'[1]

At the same time, Thompson, with uncompromising scholarship and unfaltering insight, weaves a countertheme to this 'grand object'[2] of 'reducing biological phenomena to physics and if possible to mathematics'. He repeatedly warns us of the pitfalls of looking on natural phenomena from an attitude of 'mystical idealism'[3]—'inexcusable Pythagorism'.[4]

Thompson is not misled, as was Darwin along with others, into believing that the honey bee's construction of wax containers, whose hexagonal sections meet back to back in the geometry of the rhombic dodecahedron, aspires to the 'absolute perfect in economizing labour and wax'[5] (calculating as it were, the Maraldi angle before Maraldi); he quite clearly saw that the problem was a physical problem of minimal surface configurations, symmetrical tensions on materials in a semi-fluid state, and the resultant equilibrium of such a system.

Nor in the case of phyllotaxis, wherein it has been observed that spiralling pine cone scale arrangements most often fall into number-counts that are dual members of the Fibonacci series, does he succumb to the seductive presumption (as did da Vinci and Kepler) that plants are 'aiming at something which we may call an ideal angle'[6] (ie, the equi-angular spiral of the Golden Section) and flatly declares this to be 'a mathematical coincidence, devoid of biological significance'.[7]

Where this point is not understood, we find the idealization of natural forms coming closely akin to the romanticizing of happy accidents—the formalist and the expressionist joining hands at the extremes in a posture opposing rationality. Both tendencies are potential risks of all basic courses. The formal is the more difficult to recognize as being anti-rational, but, when manifest, makes open the basic studies to charges of dilettantism.

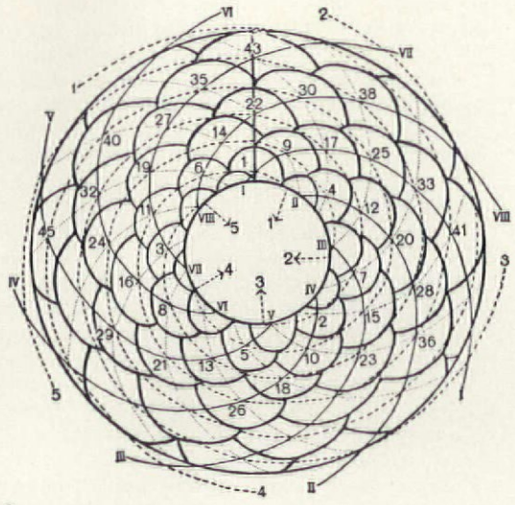
The limits, then, of looking directly to nature for our lessons of form! We must look also at the specific nature of man and his contact with nature through his perceptions. As a beautiful corollary to Thompson, John Dewey writes: 'In order to be aesthetic, structure has to be more than physical and mathematical.'[8]

For on this point at least, let us be clear: The designer's prime concern is his responsibility for the aesthetic culture (in which he must ultimately take a moral position). The designer is the coordinator, the integrator, the unifyer of the environment—the visual designer, more specifically of the visual field—where he works more in terms of relationships or arrangements than of objects or elements.

Albers, having acknowledged as critical the paradox of man's condition in respect to his surroundings, has provided us with the axiomatic verbiage: 'the discrepancy between physical fact and psychic effect'. Thus, of the perceptual (ergo, aesthetic) consequences of observing structure, we examine in the classroom the Gestalt laws, depth cues, psycho-physiological colour phenomena; and we even reach over into the basics of communication.

## Basic design: based on man's ability to arrange

Man possesses an ability which scientists tell us is contrary to the tendency of the universe—that



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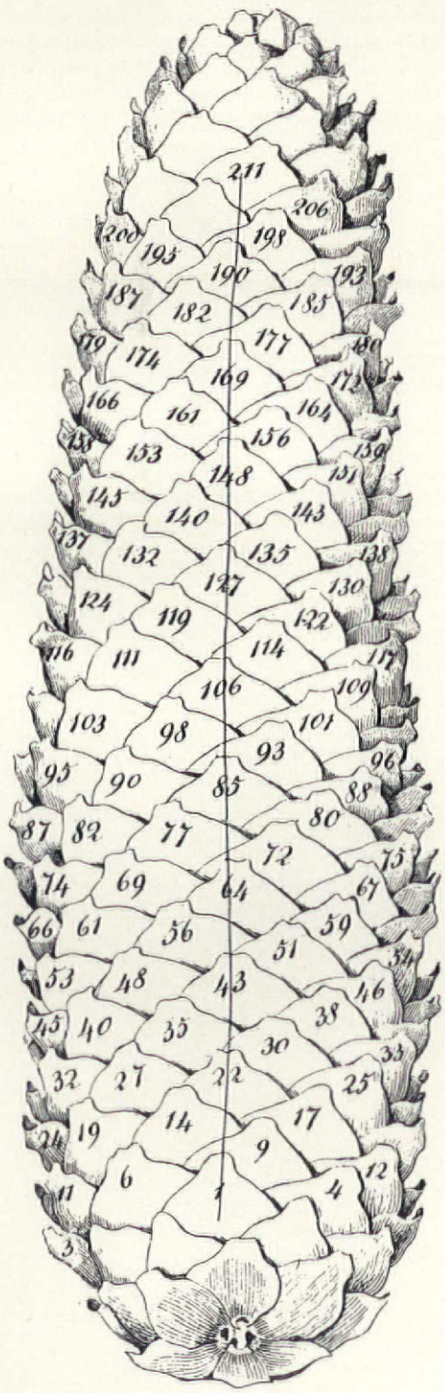

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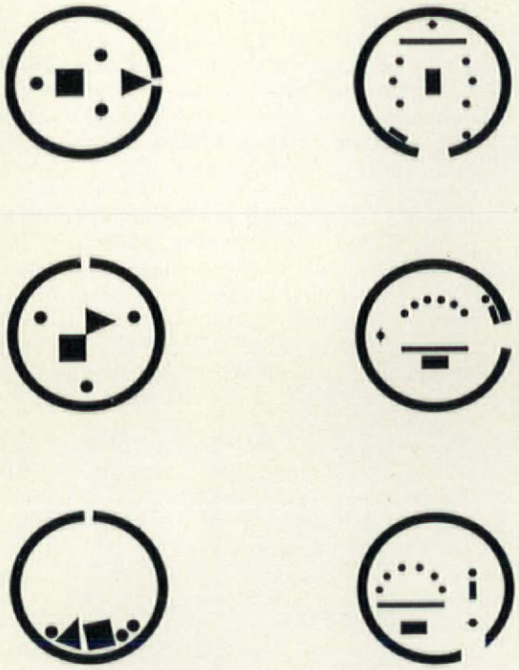
tendency being of *randomness*. Indeed, it is of the most remarkable of the properties of the human to have at his own disposal the capacity to *arrange*, to *rearrange*—to *structure:* not against the *impossible*, but against the *improbable*.
He can make a checkerboard, a highly improbable structure, with 64 congruent squares; the same squares, cast to the winds will most probably come to rest in a random arrangement. But he has discovered it impossible to devise a continuous sequence of crossings whereby he can pass over each and every one of the seven bridges of Königsberg without recrossing any one of them. Nor can he construct a polyhedron with hexagons only; for every polyhedron must have a certain number of triangles, quadrangles, or pentagons. Thus, D'Arcy Thompson's conclusion of these observations concerning polyhedra: 'So here and elsewhere an apparently infinite variety of form is defined by mathematical laws and theorems, and limited by the properties of space and number. And the whole matter is a running commentary on the cardinal fact that, under such *foedera Naturae* (laws of Nature) as Lucretius recognized of old, there are things which are possible and things which are impossible, even to Nature herself.' [9]

## Basic design: devoid of function and of meaning

While the function of basic design can be said to be pedagogic and of value in decision-making processes, Anni Albers is quite correct to refer to it in that equivocal Albersian manner as '*useless design*'. I more prosaically, and very possibly less fittingly, call it *design without purpose*. For, if one of man's natural faculties is to arrange the improbable, this faculty is devoid of meaning if it cannot fulfill his *purpose* or need. But to this end, man is endowed with a second great interdependent talent: *the ability to predict that course or those courses of action that are most likely to bring him to his desired goal*. His ability to arrange gives him the power to control, or at least influence, his condition. So it is here that he reaches over into architecture, graphics, and industrial design, also painting and sculpture, and out of the unadulterated realm of basic studies.
It has been noted that there are three areas in which children can excel because a minimal experience of the world is requisite to their performance in any one of them: music, mathematics, and chess. To this list we would suggest the addition of basic design—which proposition further suggests that its presentation comes much too late in the training of a potential designer. In contrast to basic design, architecture demands a thorough understanding of man, his behavioural patterns, and his institutions: so also for industrial design and for communications design—*meaning* becoming the critical factor in the latter.
A twin set of exercises, given by my colleague Ralph Drury to students who are making that abrupt transition from basic design to basic architecture, reveals the somewhat different processes involved in these two areas for reason of conditions (ie design factors) that are lacking in the former. Exercise 1: Arrange within a broken ring a group of regular shapes (a square, an isosceles triangle, three round dots) all of a given dimension. The results include visual solutions (ranging from the rigid to the freer interrelating of axes, directionalities, and groupings) and literary solutions (such as one in which 'gravity has pulled all of the shapes to the bottom of the ring'). Exercise 2: Arrange shapes, similar to those of the first exercise, wherein each shape has been given a name and its given dimensions are to be drawn to a given scale; the ring becomes a wall; the break, an opening; six round dots are stools; and other shapes are designated as altar, icon, kneeling bench, coat rack and waste basket. A totally new aspect has been injected: *use* or *function;* and the inclusion of the mundane suggests value determinants. Thus, on the one hand, a whole range of structural possibilities are ruled out by the delimiting factor, *function,* which is absent in a basic design arrangement; and, on the other, a certain range of relationships become desirable in their meaningfulness.
Aside from the delimiting aspect of function, we also see a conflict between the functional and the structural, since purpose has the tendency to direct the attention away from the aesthetic and towards the object. Traditionally, the architect, in his occupation with space, has understood the meaning of setting the eye on the *nothing* rather than on the *thing,* thus having some advantage over the student of product design (or, for that matter, the student engineer). But it is difficult to train the student of any of the design disciplines to see his product in the context of a total environmental field; and it is for this reason, I believe, more than for any other, that the lessons of basic design are sidetracked by the student when he is faced with a problem of applied design.

## Basic design: the problem of the 'bridge'

Paradoxically, there is a tendency for an atmosphere of self-deceipt to surround the relative ease with which basic design instructors can activate the student into grinding out those spectacular results, so often the pride of school exhibitions. Today there is a myriad of versions of the Bauhaus basic course spread throughout the world—apsects of it found even in schools of art and design that profess open hostility to that historic institution. And almost all of these courses can boast splendid results—along with admissions of failure to make, as Ulm's Maldonado calls it, 'the bridge between basic studies and applied design'.
Hin Bredendieck, student of the Bauhaus and leader of the Basic Workshop at Chicago's ID under Moholy-Nagy, has recently published an article concerning this very problem: 'The Basic Workshop Course was intended to 'release the creative power of the student' (Moholy). . . . The student is offered an opportunity to experiment freely with various materials and tools. There is a strong emphasis on initiative within a 'do-it-yourself' set-up, using conventional and unconventional means, often achieving strikingly new and strange configurations.' [10]
Basic design can sustain a student for the lean years that follow his plunge into applied design fields—especially architecture; for he can realize total accomplishment in his solving of basic design problems due to both scale and scope which do not demand the amassing of vast quantities of information; but Bredendieck's experience also gives him to point out a vexating defect: 'Although the purpose of the *Foundation Course* is to allow the student to develop his creative abilities freely and without restrictions—in the following semesters, where the students are channelled in the direction of practical problems, the smallest limitation becomes a new obstacle and his creativeness has shown a



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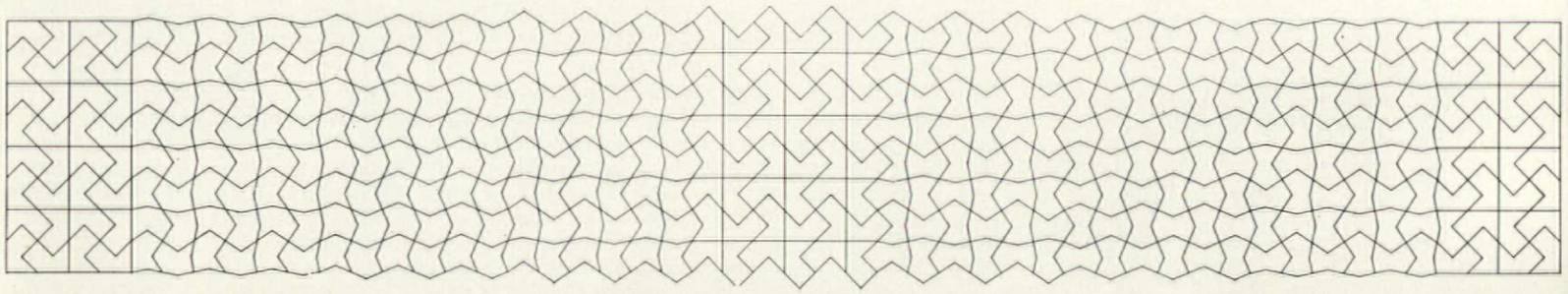
1
Left, elements without function; right, elements with function, plan of a chapel. Students of the Department of Architecture 1961–62. Teacher: Ralph Drury
2
Parquet deformation. Student: Fred Watts 1963
3
Parquet deformation. Student: Peter Hotz 1961
4
Parquet deformation. Student: Richard Lane 1963

tendency to "freeze". In most cases they completely ignored all their previous training and fell back on the conventional.' [11]

In part, it is the splendid isolation, a Platonic isolation, enjoyed by basic design that frustrates the building of the 'bridge'. For, basic design deals neither with the *pragmatic* nor the *semantic* factors of the design world; only with the *syntactic* or *structuring* activity. But aside from the rather too abstract situation of basic design, a confusion apparently arises out of the fact that one particular facet of the design process, which is of the *circumstantial*, has often been mistaken for the total process—or, in the least, not seen in proper context.

Abuses arising from mere stimulation in the name of liberation were coupled with a pseudo-technological preoccupation with the circumstances of tools and materials. Bredendieck further reveals: 'The student may well be merely the extension of his tools or even an unwitting victim of the numerous incidental events in the process. . . . The emphasis has been on the manipulative aspects, on training rather than knowledge. . . . But it is precisely the aim of design education to impart to the student the means of achieving authority and command in order to gain ascendancy over the accidental.' [12]

Bredendieck is clear in warning that the romanticizing of the *circumstantial* leads to the cult of the accidental, He is, however, not so clear in seeing that it is the very situation of the circumstantial that does separate man's art from nature's way; for it is his control and manipulation of the circumstances that makes man the designer and the honey bee, chained to its instincts. I would then modify Bredendieck's keen observations by pointing out that no less *circumstantial* than the availability of tool and material is the availability of knowledge. It is only that knowledge has become the crucial circumstance of contemporary design problems. To this extent at least, Maldonado's second reform of the basic studies (the first reform I attribute to Albers; see Ulm 8/9, page 12), with a stepping back from 'learning by doing' and the introduction of the rigorous disciplines of symmetry, topology, and perception recognizes, in designing the products for a highly industrialized society, the need to build awareness not only through the development of observation by a sensitizing of the perceptions (Itten, Albers, Moholy-Nagy) but through explorations of the expanding acquisitions of knowledge as well.



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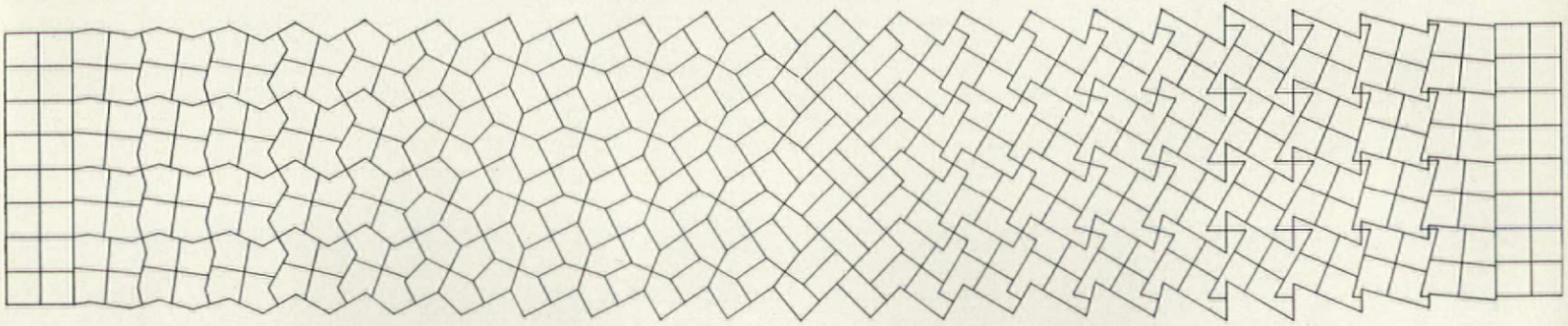

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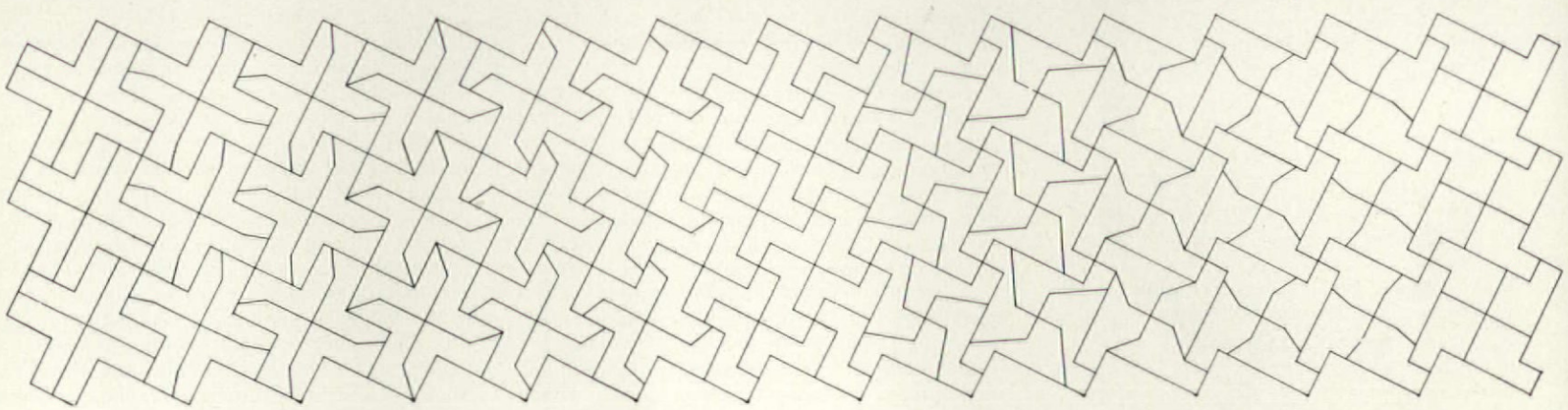

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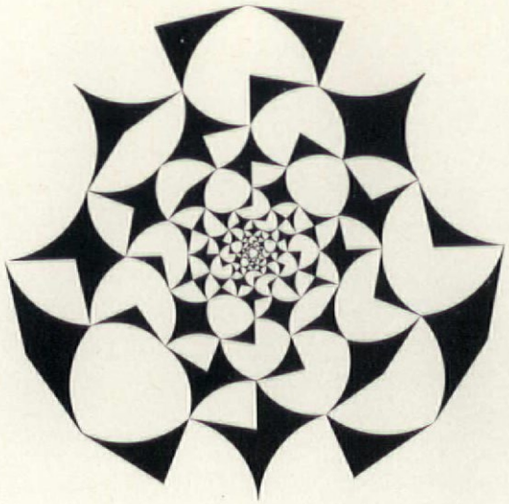

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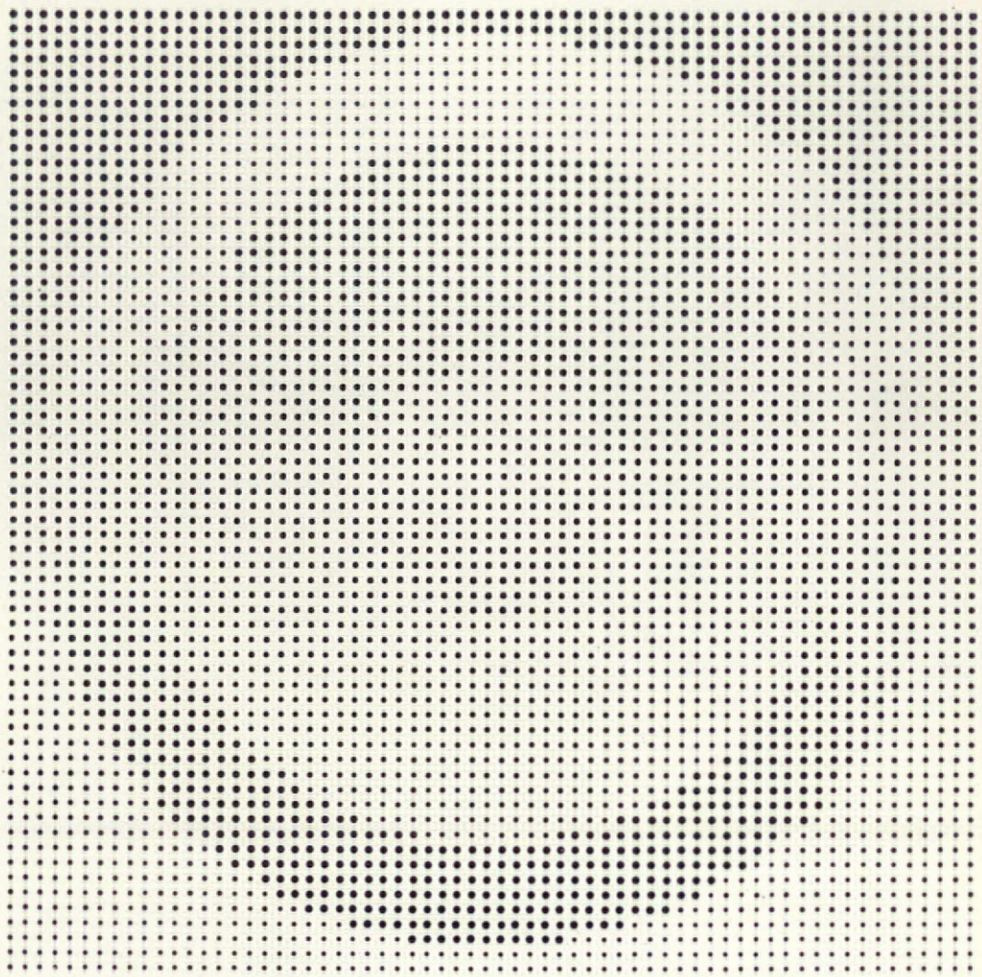
5
Symmetry exercise. Elements rotate in a combinatorial system involving groups of 3 and 5. Student: Dennis Becker 1964
6
Symmetry exercise. Translations and rotations along Cartesian coordinates, affording 900 projections of a right angle. The period of rotations is 12° for each translation affording one complete rotation in 30 translations. Student: Paul Gebrian 1964
7 & 8
Raster (square lattice), circular elements, 8 sizes. When the composition is turned upside down, concavities and convexities tend to reverse. Student: David Vannicoal 1963



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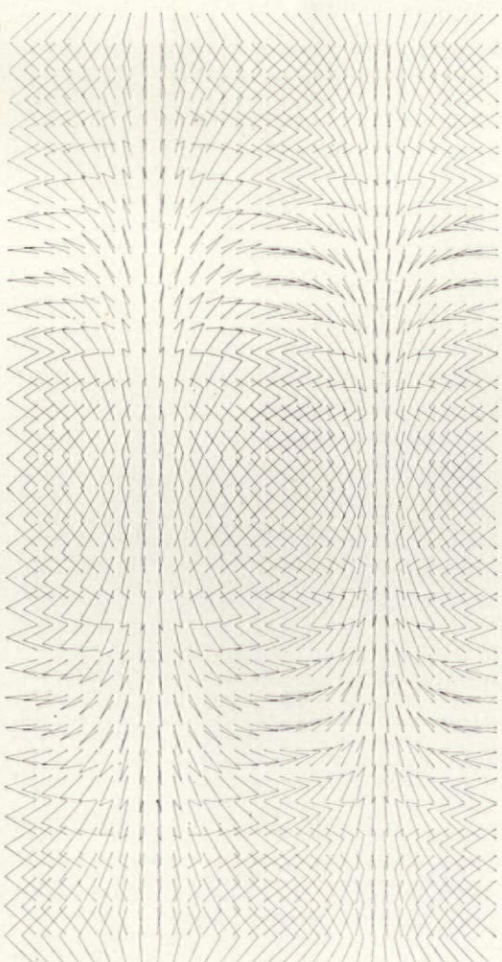

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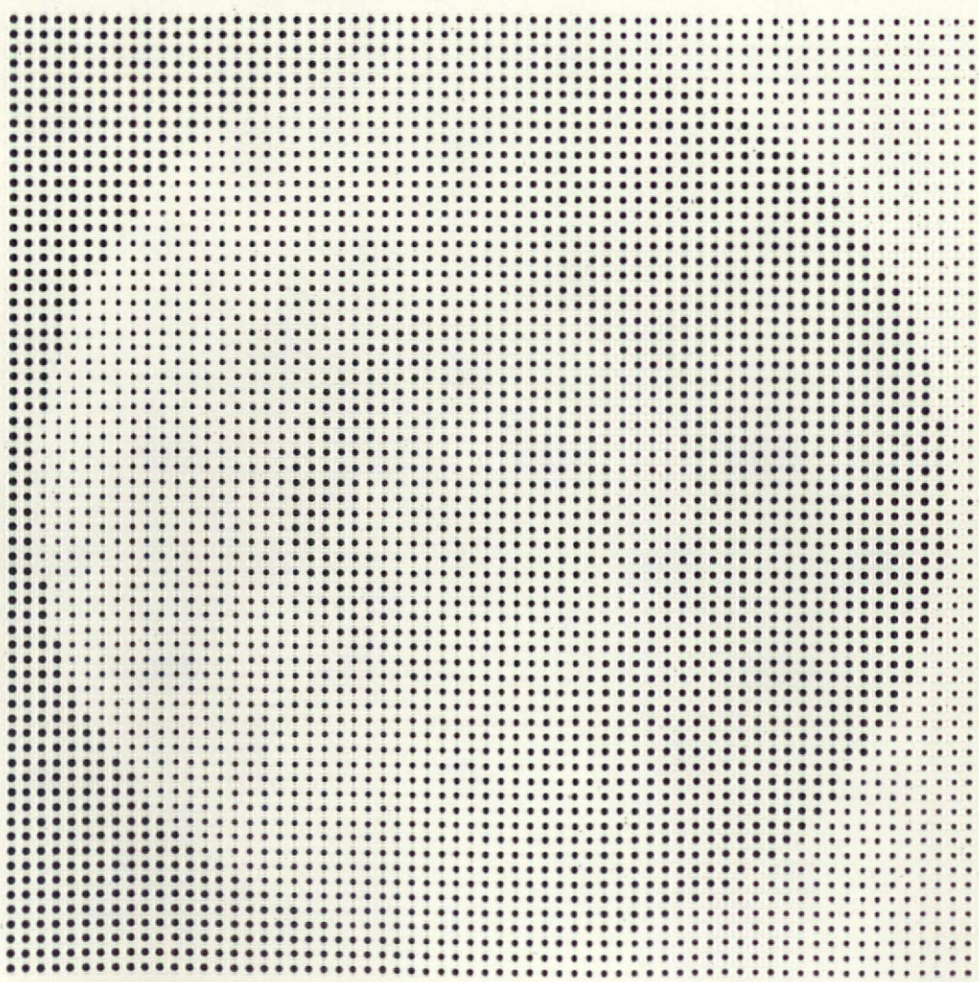

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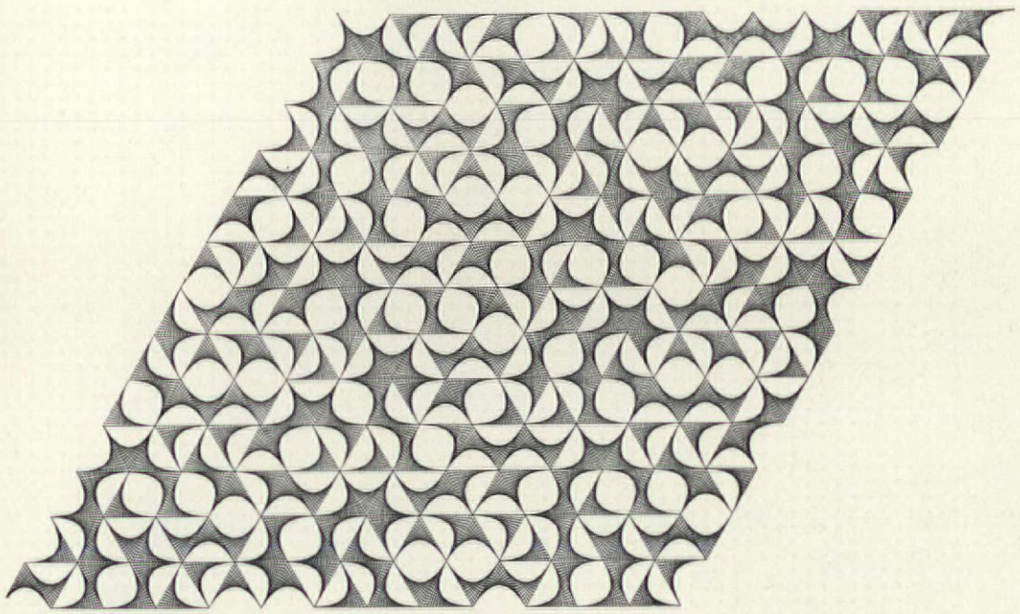


1

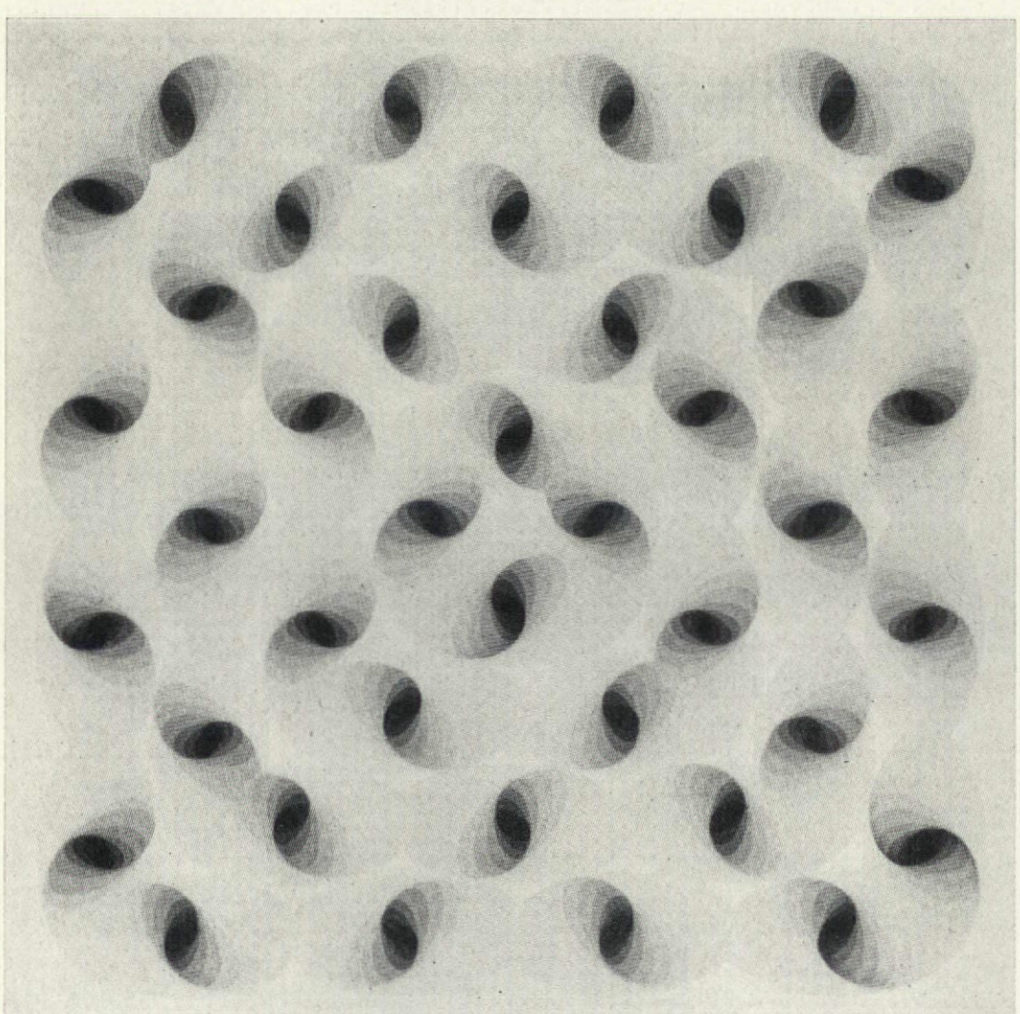
1
Symmetry exercise. The interval of repetition of a regular pattern is extended over a long period by combinatorial arrangements of 6 sub-elements. Student: Thomas Davies 1964

2
Symmetry exercise. Groups of rotating and expanding ellipses are arranged on a concentric square module in a complexity of translation, rotation, and mirror operations. Student: Michael Pollak 1964

3
Raster, square lattice. Configurations are formed with single-sized circular elements by rotating them on their circumferences around the lattice points. Student: Gerald Weismann 1964

4
Raster. An element of one size and one configuration is given various rotational positions at the lattice points of a square grid. Student: Charles First 1963. Teacher: Tomás Maldonado

2



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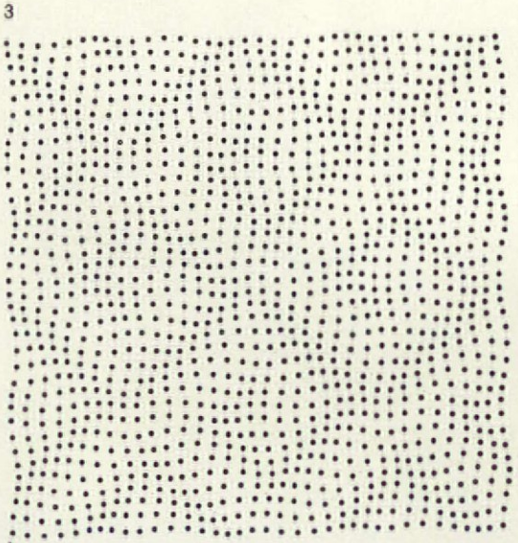

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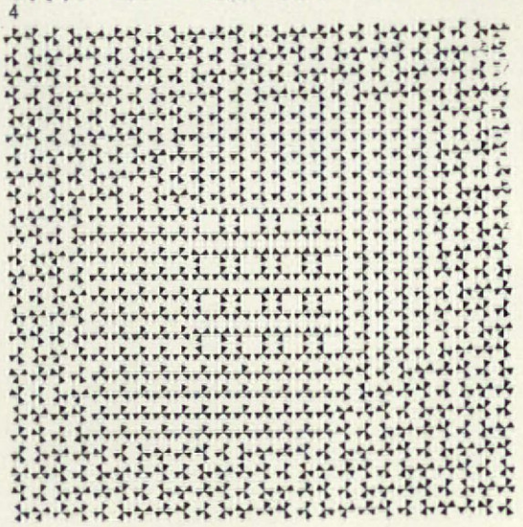



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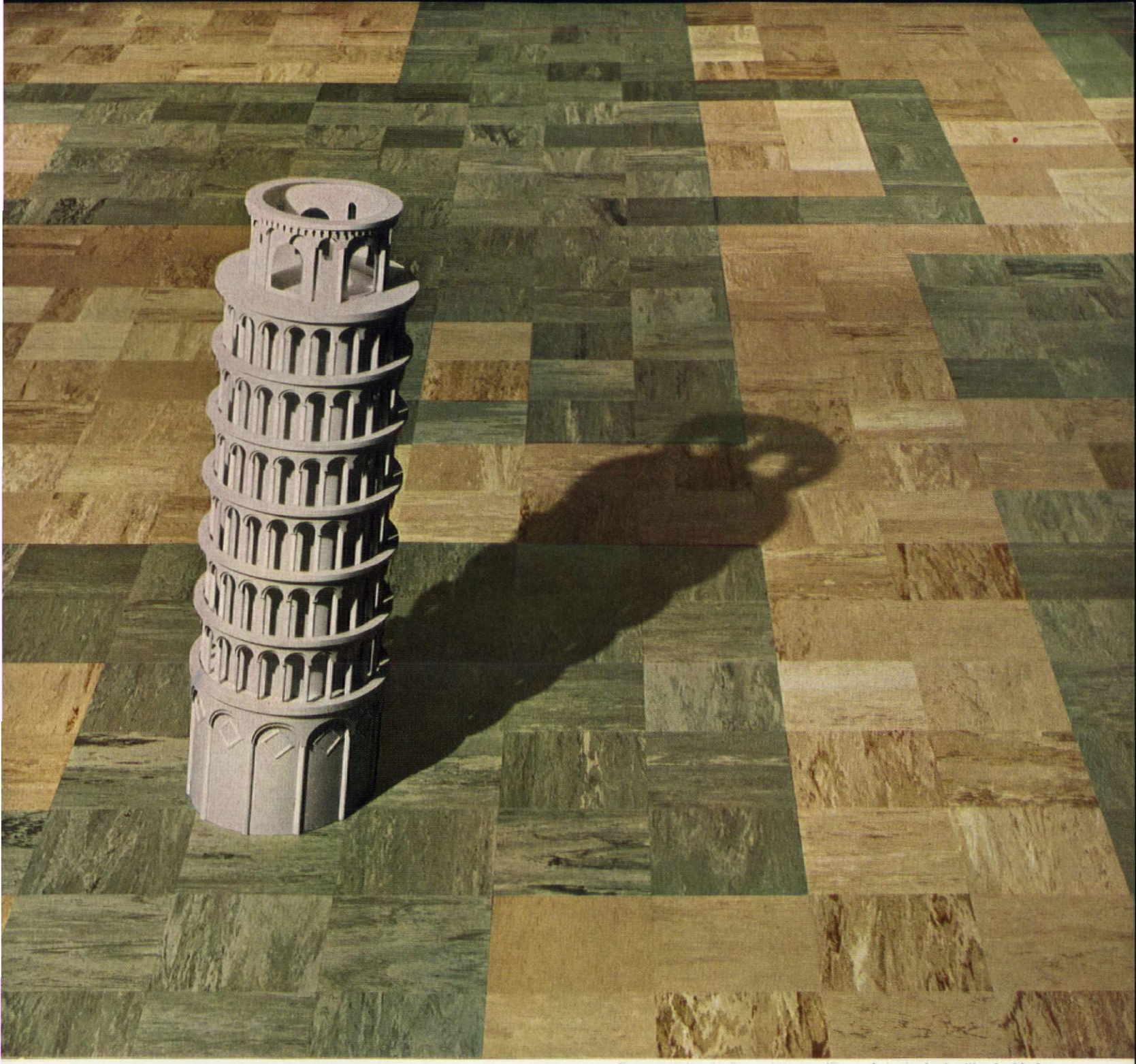

*Paper sculpture by Bruce Angrave—'Tuscan' vinyl asbestos tiles, by Marley.*

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Is the leaning Tower of Pisa due to error or accident? The controversy rages, but the Tower, a classic example of Tuscan architecture, holds its secret as well as its fascination. So does a Tuscan tiled floor, capturing the imagination with its infinite variety and the distinctive appearance of real Tuscan marble. No two tiles are alike in pattern and the design created as they are placed together is part of the secret of their timeless beauty. Marleyflex 'Tuscan' vinyl asbestos tiles shown here, are outstanding for strength, resilience, quietness and resistance to abrasion, oils, grease and most chemicals. Available in an unequalled range of subtle colours and tones.

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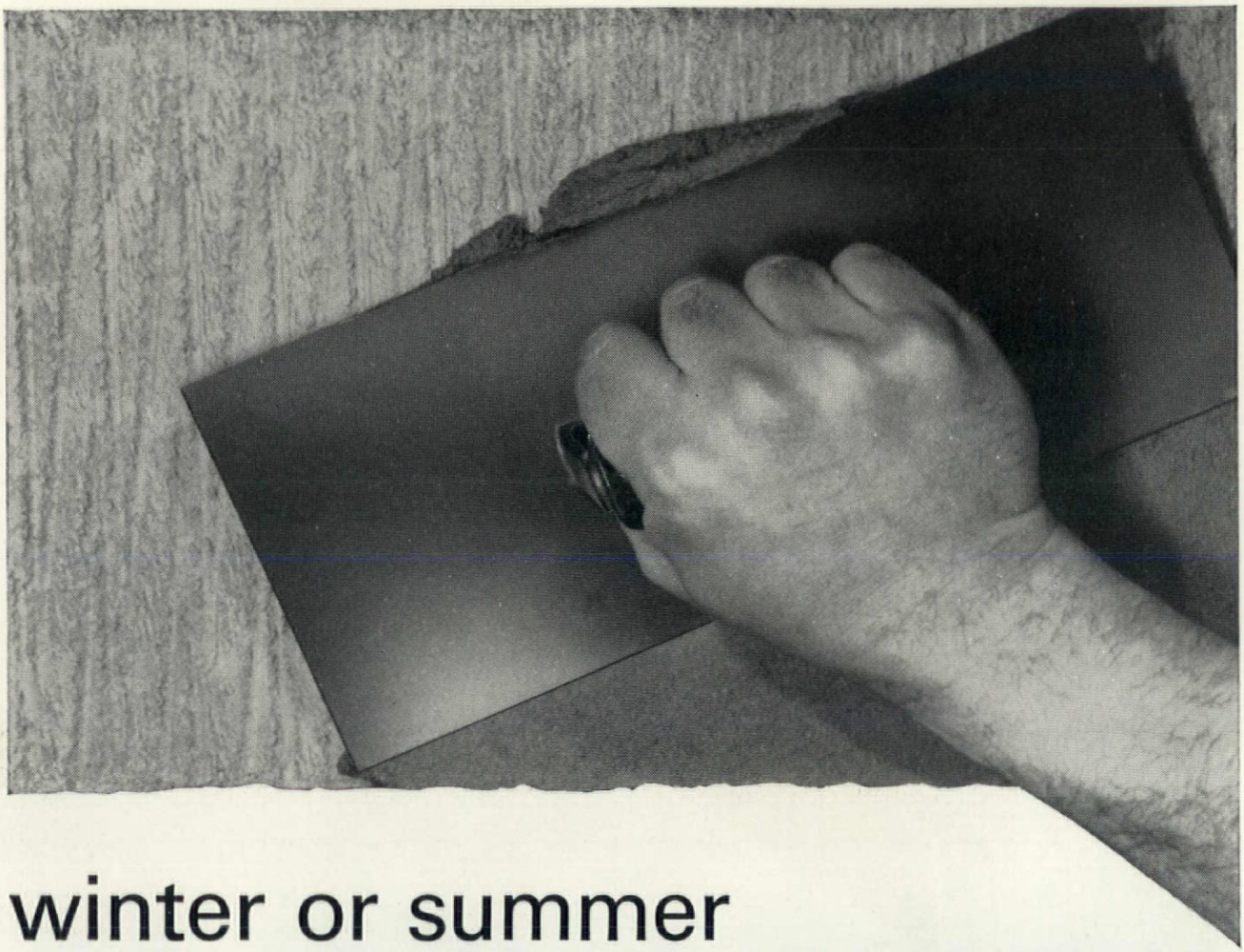
*Included in the Barbour Index File.*



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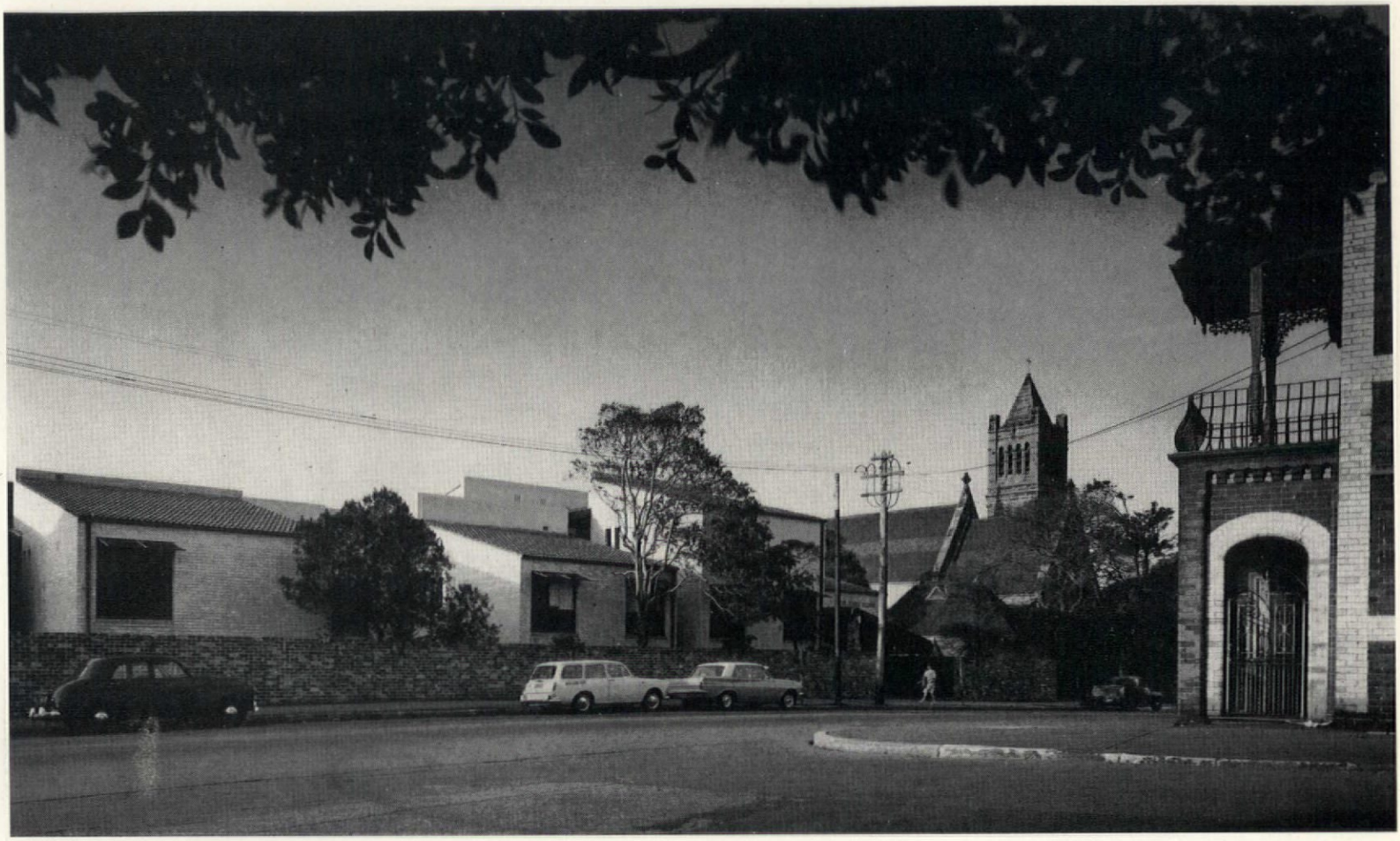


1

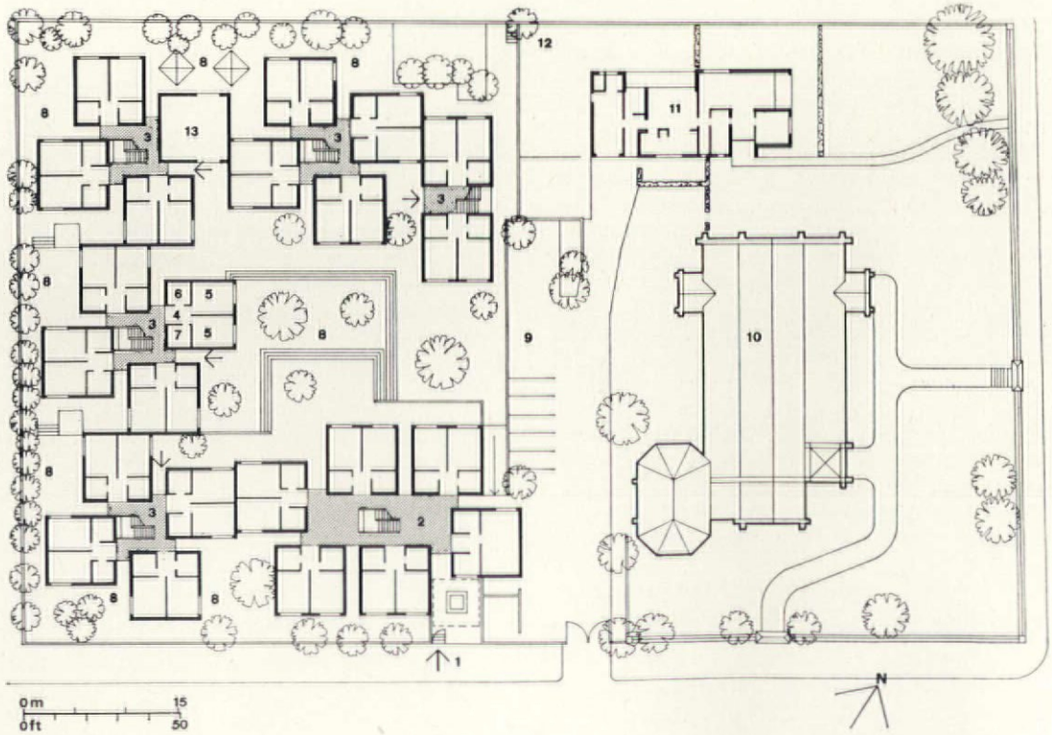
# St John's Village, Glebe, Australia

Hely, Bell & Horne

*All photographs David Moore*

This village, built in 1964, grew out of the need to provide housing on church property for approximately 100 pensioners in and around Glebe. The site is the grounds of St John's rectory, adjoining a Victorian church by Blackett. The first stage of the work involved the demolition of the old rectory and its replacement closer to the church. The cleared site is approximately an acre in extent with existing pine trees on the perimeters. The setting is unique—being in the middle of an old, but lively community near the centre of Glebe. A municipal park borders the west boundary of the site.

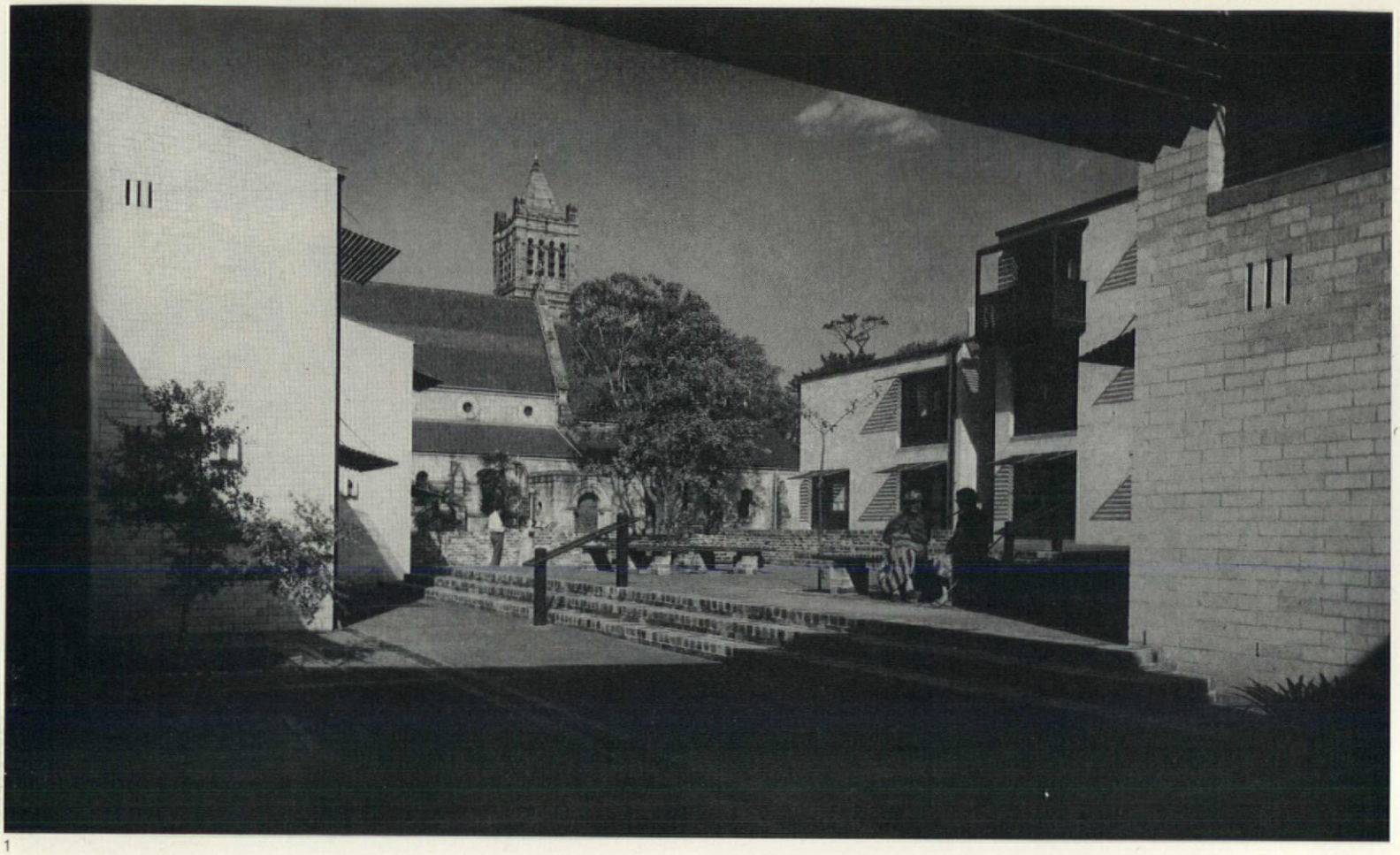
2




1
The houses of St John's village seen from the road of the same name, with Blackett's church on the right

2
Ground plan

1 main entrance
2 block accommodation
3 two-storey blocks
4 entrance
5 1 room flat or 2 bedsitters
6 bathroom
7 kitchen
8 courtyard
9 parking
10 church
11 rectory
12 park gate
13 laundry



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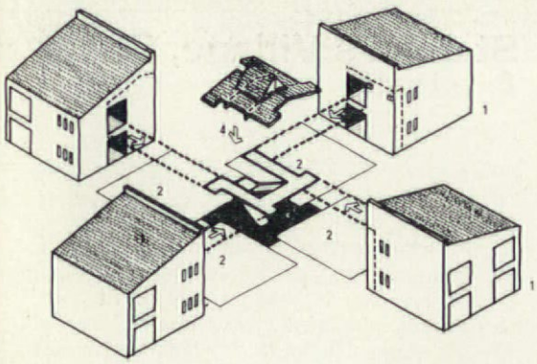



2

The Sydney Church of England Homes for Aged Persons were concerned to provide suitable accommodation for both single and married aged persons, at a rental within the means of pensioners. Special emphasis was placed on the need to provide flexible accommodation which could give maximum occupancy of the village, and a suitable living unit was designed to provide two bed-sitters (or alternatively a bedroom and living-room) complete with an entrance lobby, bathroom and kitchen for each unit. In the case of single persons, the kitchen provides for duplicate built-in cupboards, stoves and sinks —the bathroom facilities are planned to be shared. Otherwise a married couple had the private use of all the facilities of a unit.

In addition, communal facilities are provided in a fully equipped laundry, complete with six sets of tubs, washing machines and spin dryers, as well as a common room. The city council and the parish have already established social facilities nearby. The architects were requested to bear in mind the overall building cost of the scheme, which had to support itself and particular reference was made to the inclusion of maintenance-free materials being employed in the buildings.

The architects were also required to provide accommodation at the density of about 100 persons to the acre—an unusually high density for inner Sydney.

The brief was demanding, but it was realized that the planning of the village was more than merely providing high density living accommodation. It was important to ensure that the aged would have a home—in the true sense of the word—which would in no way suggest an institution. If the village was going to be a happy place for the individual aged person to live in, he or she should feel that their bed-sitter or one-bedroom unit was their own personal domain, where they could be secure with privacy, or if they so wished, they could congregate with other residents on their own terms, realizing that they were part of a larger community.

Blackett Church has remained the dominant building in the group. The village is designed as a series of individual houses closely linked together in a U around the perimeter of the site, forming a large central courtyard for people to meet socially.

The court is supplemented by a series of more personal courtyards on the perimeters of the buildings, with every living unit having either direct access at ground level on to these courts or a pleasant view from the first floor units.

Familiar building materials have been used—the walls externally are of face brick, internally rendered and painted; the doors, windows and joinery are either of Western Red Cedar or Tallowwood, oiled to enhance their natural finish, and the roofs are constructed of timber trusses and tiled. Not only are the materials the the logical ones to use for two-storey domestic construction, but they retain that very important image of *home* for the aged.

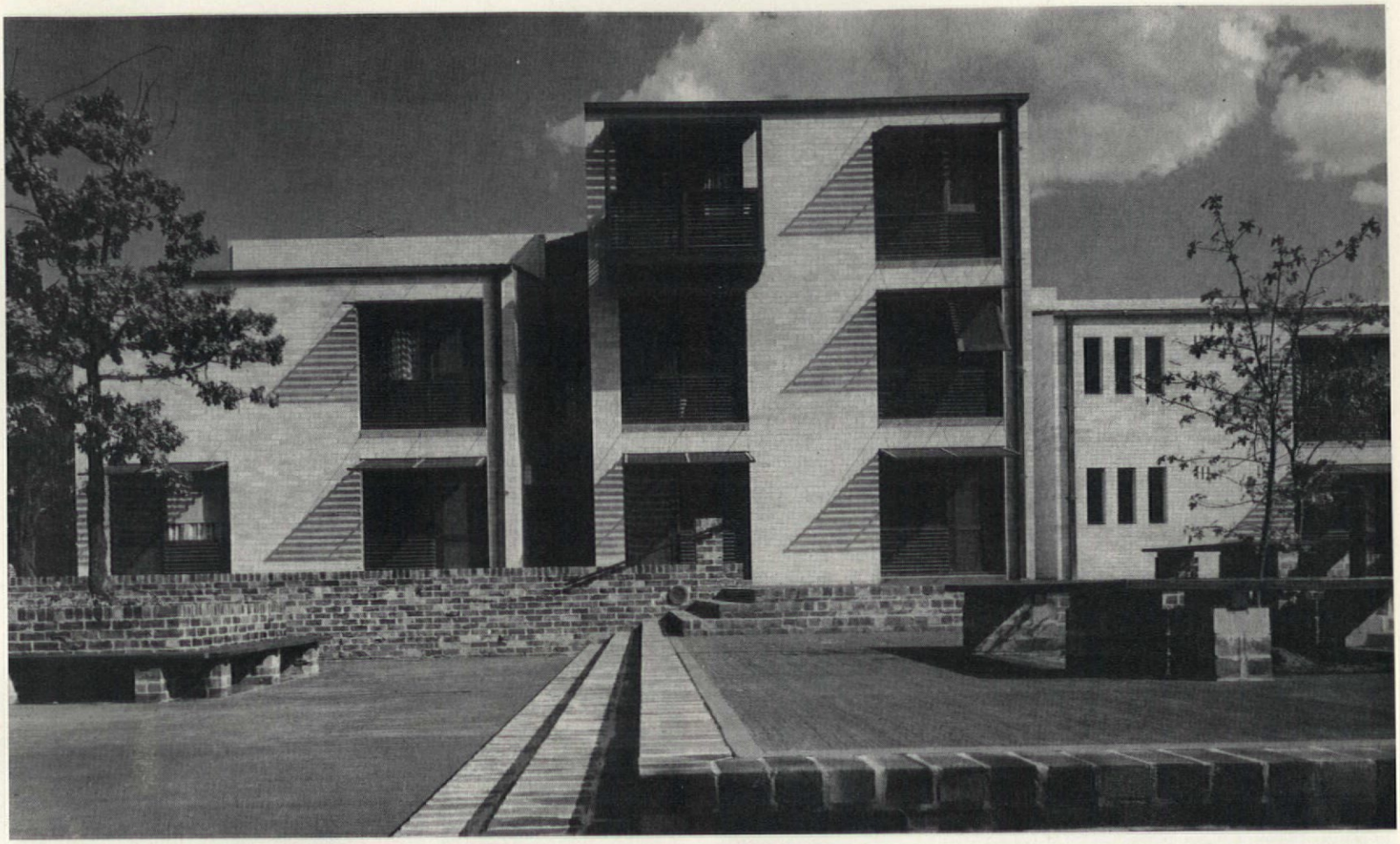
1
View of the main courtyard looking north-east

2
Cluster diagram
1 block units
2 unit plan
3 circulation
4 roof

3
Main courtyard elevations looking south-east

4
View into the main court, looking south-east

5
View across the main court towards the north-west



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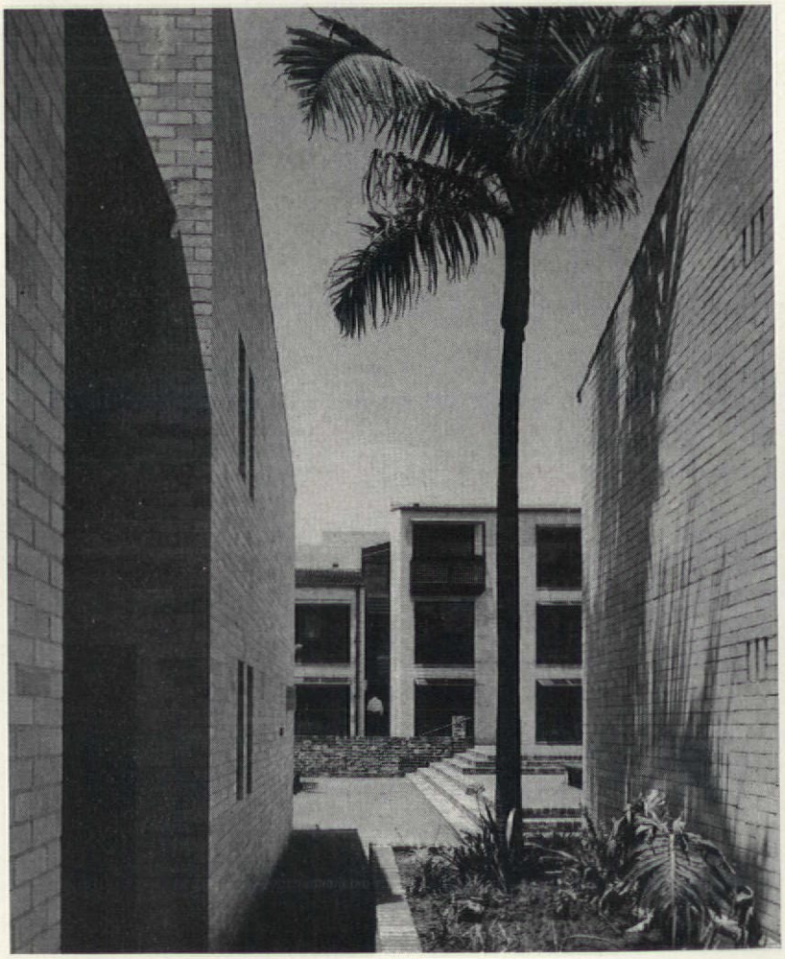

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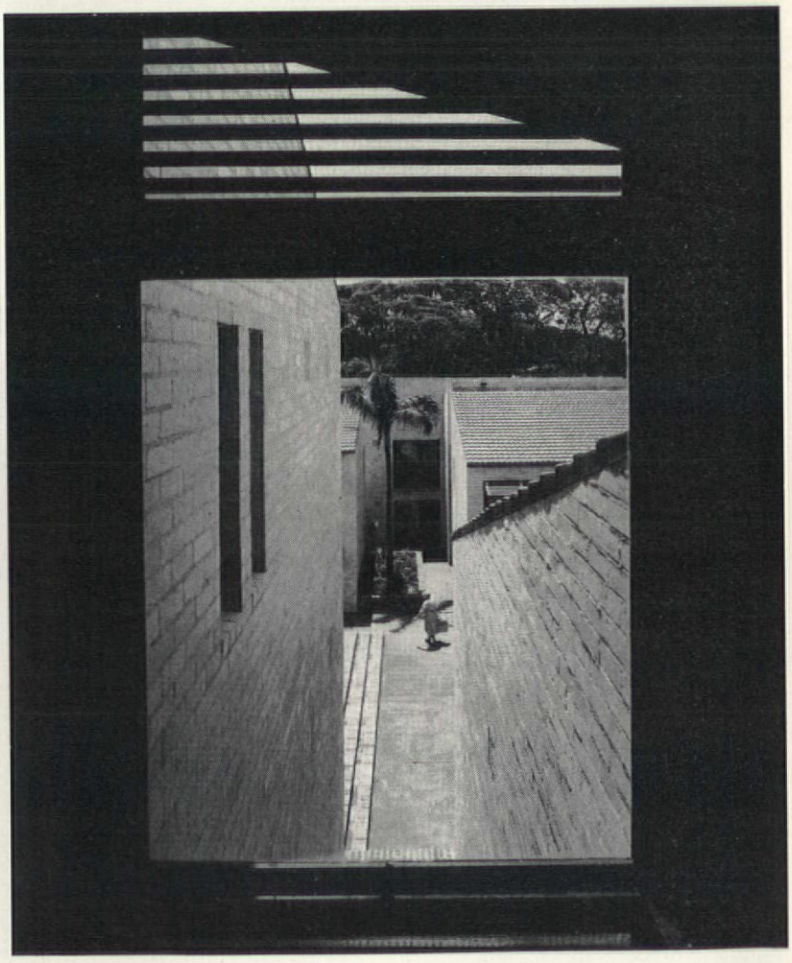

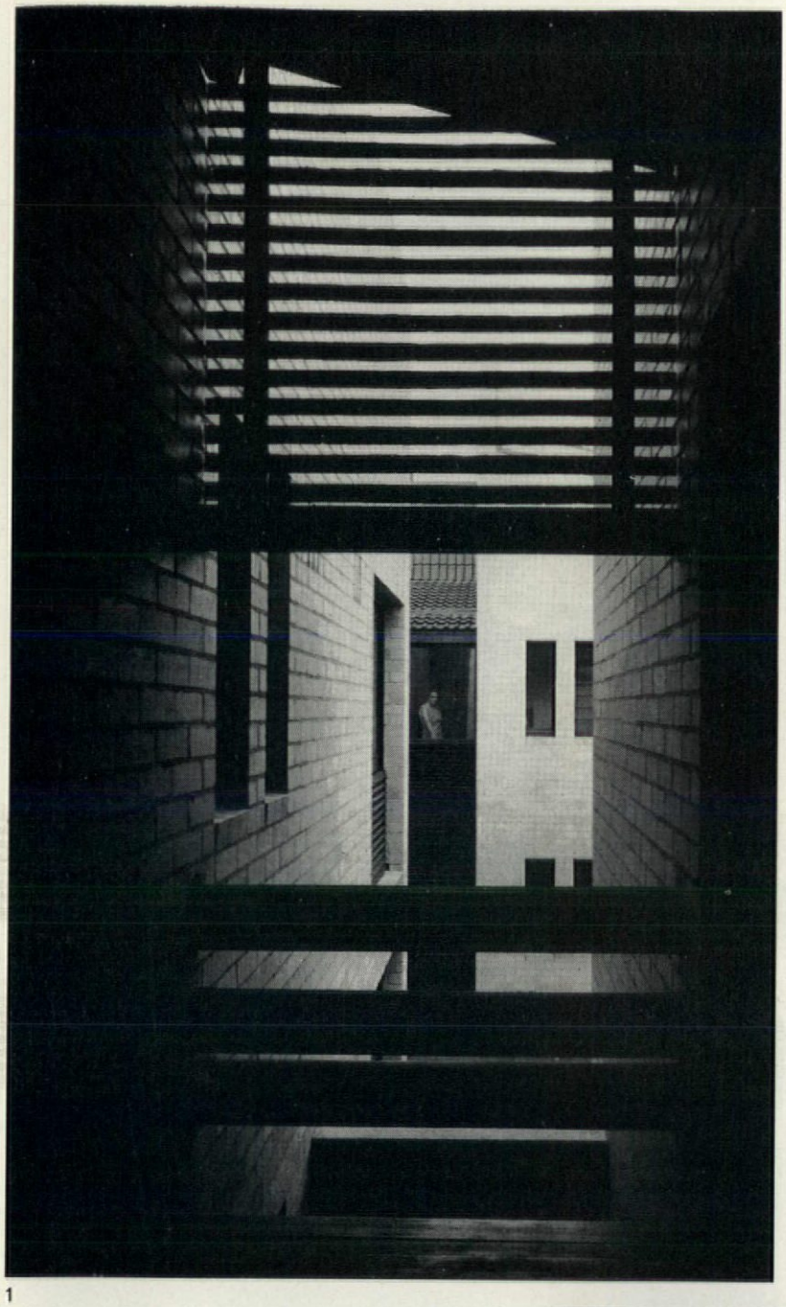

1



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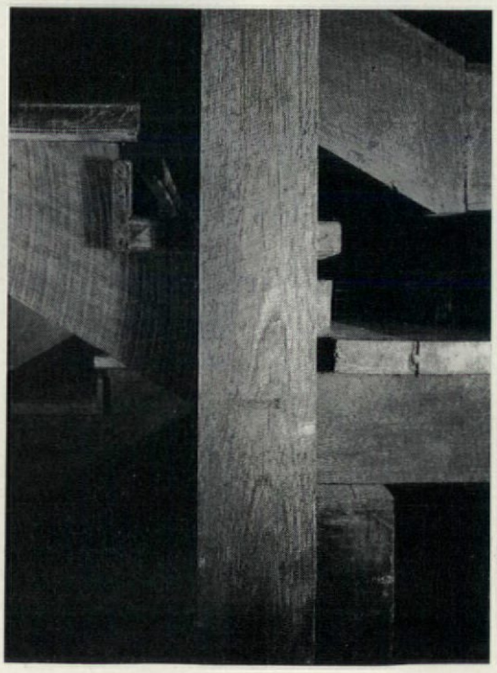

Area of site: 35,300ft².
Percentage covered: 40 per cent.
Density: 118 p.p.a.
Total floor area: 29,000ft².
(one bed-sitter 220ft²)
Structure: load bearing brick walls, reinforced concrete floor slabs, timber roof trusses.
Internal finishes: walls rendered and painted; floors generally, lino on concrete, to stairs and courtyards, brown coloured brushed concrete; ceilings generally plaster and gyproc, to stairs, pine.
Services: individual 'Dux' water heaters.

1
View from the common stair gallery of one cluster unit
2
A central staircase around which clusters of four living units are arranged
3
Rough timber stair detail



*Photograph by courtesy of D. S. Associates (a member of Allied Industrial Designers.)*

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*Sample background - Teak - is 2/3 actual size.*

# Children's camp, Yokohama

Noriaki Kurokawa is the architect of two of the buildings in the new children's parkland camp site, alongside an artificial lake in Kahoku, Yokohama. Here, children can be in contact with nature, free of adult interference and metropolitan pressures. As they are to run the camp by themselves as much as possible, the designers have aimed at flexibility of use for the abstract spaces they have provided.

The two buildings are a lodge (training and dining hall, bath and toilet facilities and some sleeping quarters for the very young), and a Hans Andersen memorial hall.

The lodge sits above the lake on an old

**The central lodge**

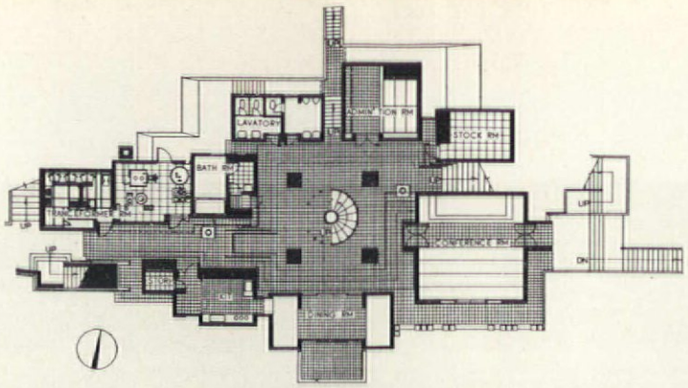
1
Ground floor plan

2
First flooor plan (roof of lower block)

3
The east approach to the lodge

4
Night view of the lodge from the north

5
Second floor plan

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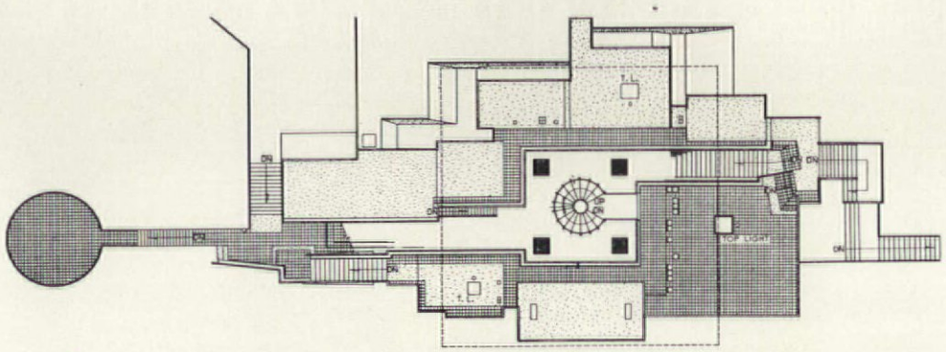


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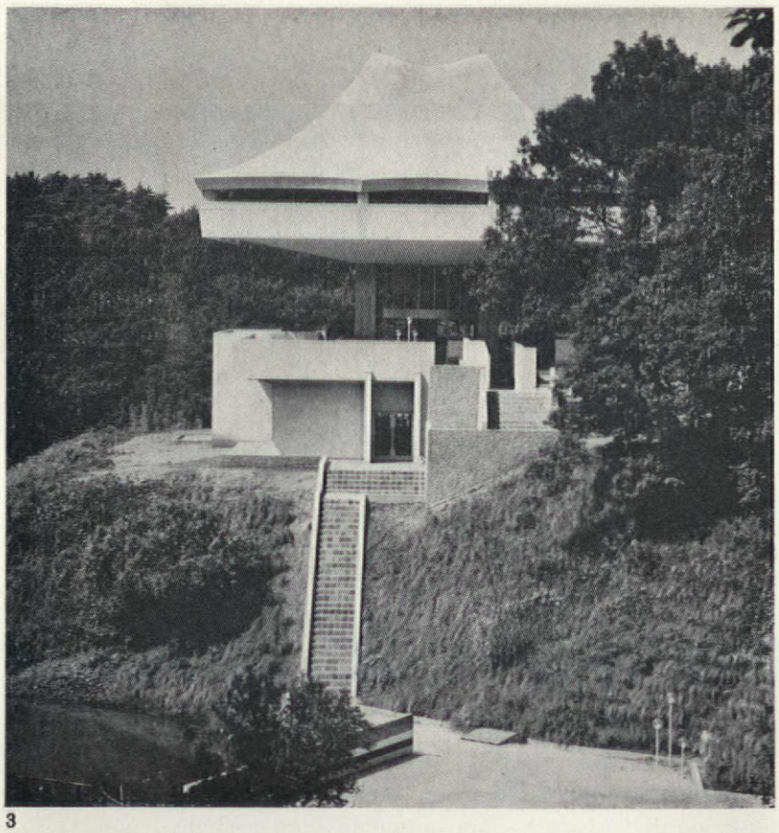

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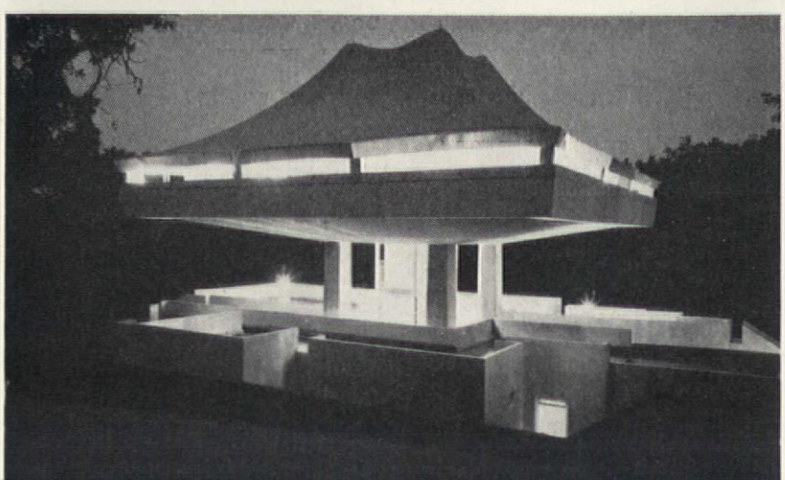

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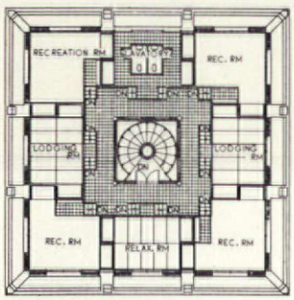


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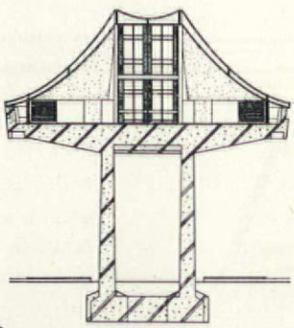

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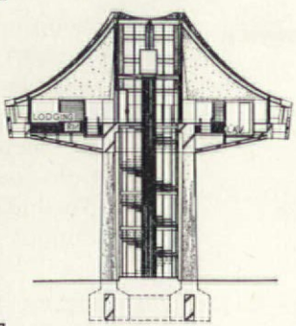


7

6 & 7
Sections through the tower

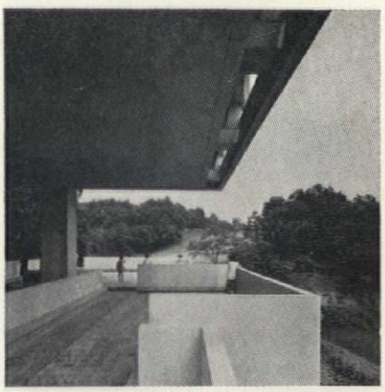
8
Access way at ground level

9
Roof terrace of the lower block

10
The second floor. The tatami-floored lodging spaces are several steps lower than the corridor



8



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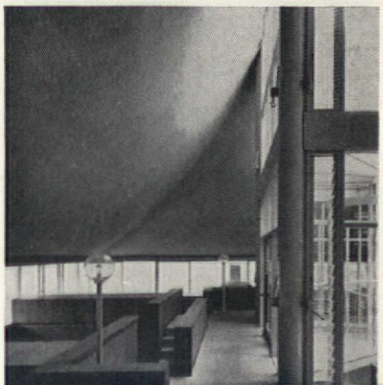

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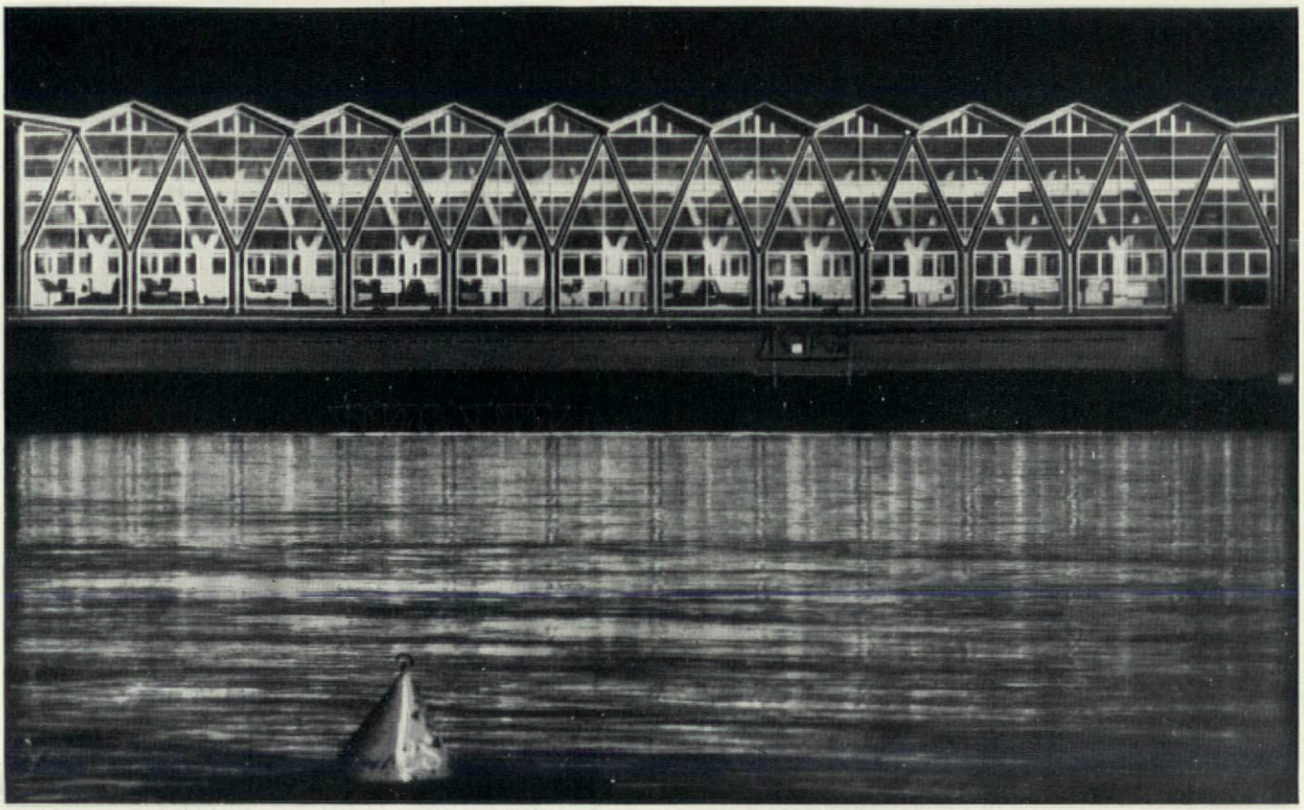

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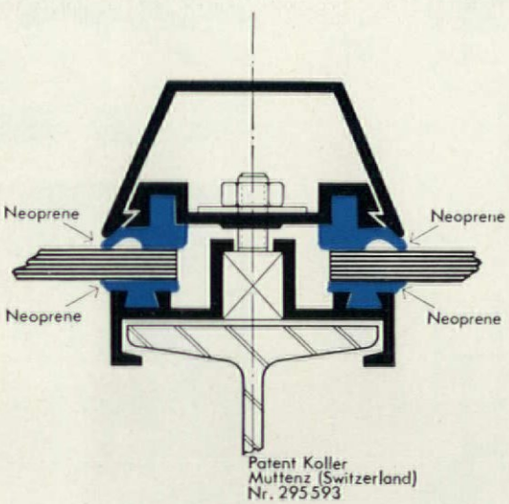


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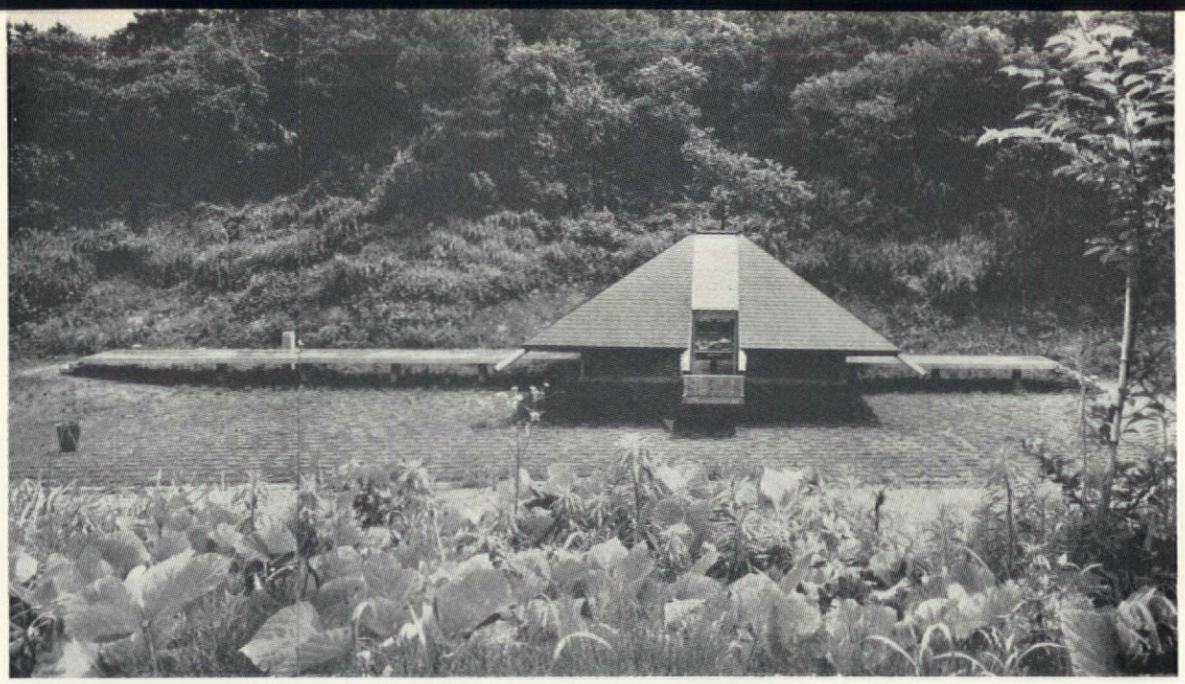
ammunition bunker. The architect intends it as a surprise to children accustomed, as he says, 'to having things tailored to their measurements' (cf. v. Eyck's Children's Home at Arnhem) and 'toys that offer no resistance whatsoever'. Instead he challenges their imagination with a concrete 'fortress' full of surprise and delight yet sturdy enough for careless treatment.

Nearby and easily accessible on a low platform reached by bridges, is the little Andersen hall with its steep roof resting on a mighty tree-trunk structure in true classical tradition

On the other side of the park, at Suzuki's traffic centre, the children learn to drive real miniature cars on a winding course near an open-plan instruction building which is of precast concrete with folded slab roof.

*Kenchiku Bunka* 10/65 and *Japan Architect* 12/65



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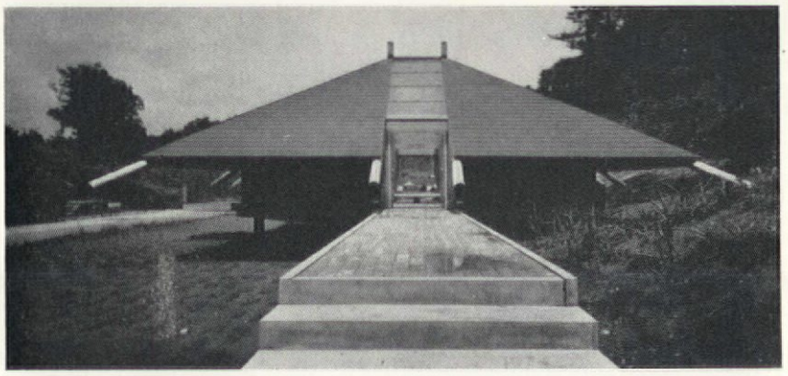


2

**Hans Andersen memorial hall**

1
View from the west

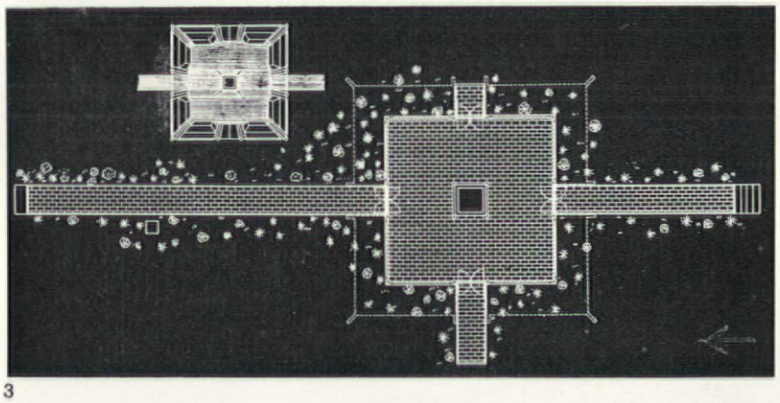
2
View from the south end of the approach bridge

3
Plan

4
Interior

**Traffic training centre**

5
The training area in front of the building



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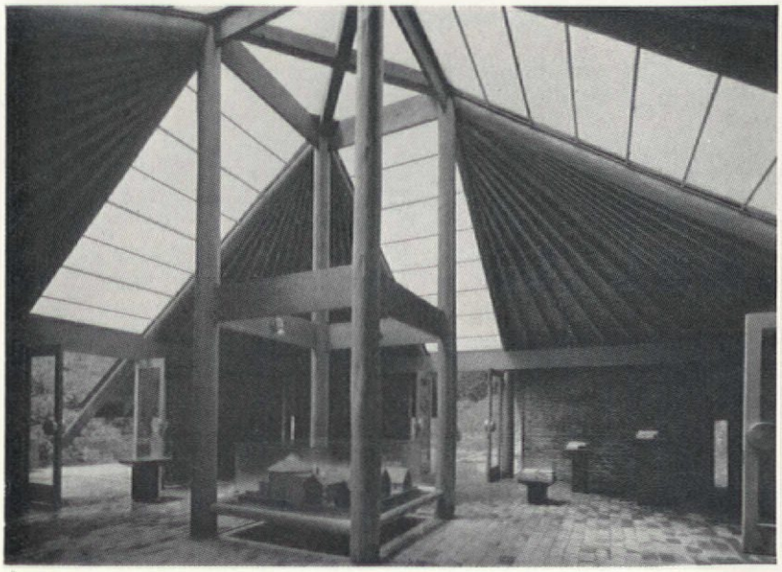

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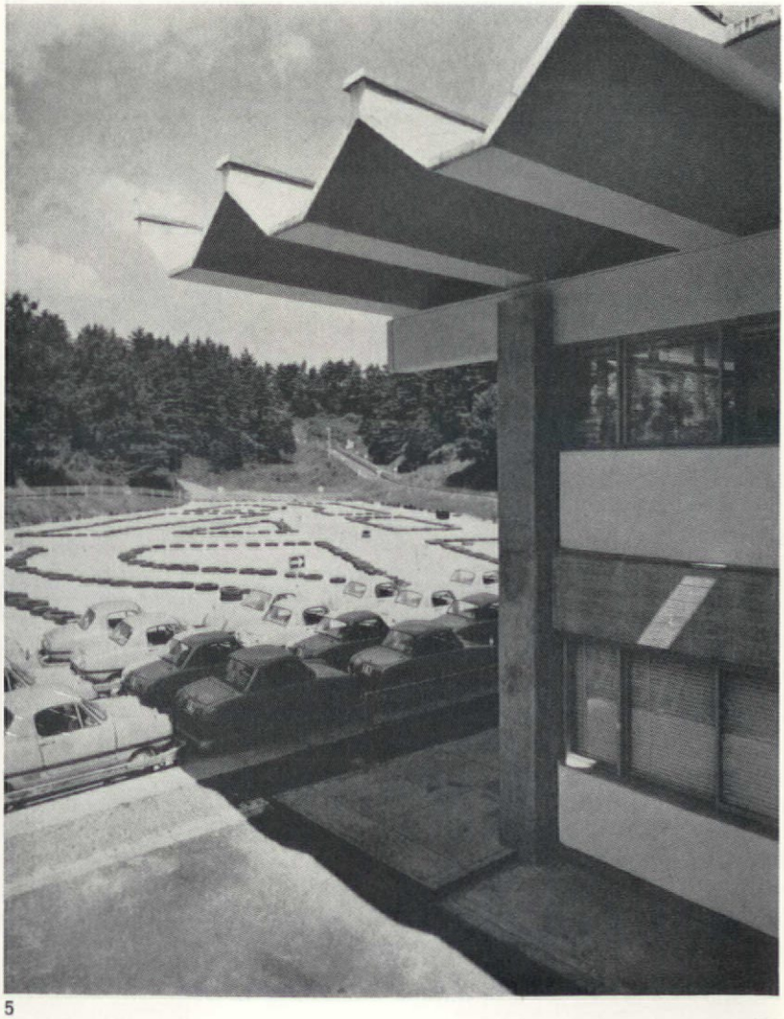

5



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# Product analysis 6

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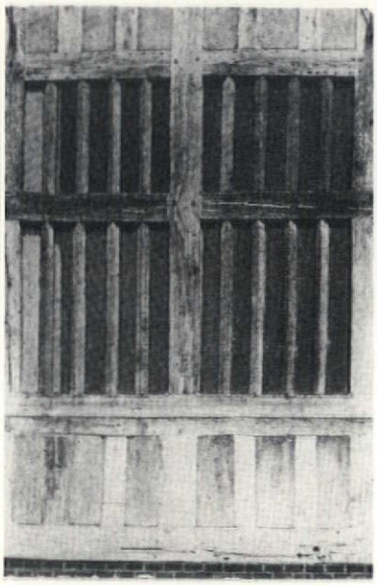
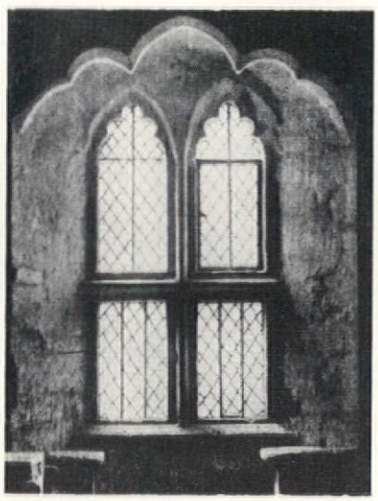
SfB (31)
UDC 69.028.2



Primitive type of window, originally unglazed, with diagonally set mullions. Kent. Late C15



Sliding wooden shutter of the type originally used in unglazed openings. Sussex. Late C15



Splayed reveals were probably employed as a device to decrease the amount of light cut-off caused by thick walls, but were also very effective in reducing dazzle
The Manor House, Martock, Somerset, c 1350

Few building elements have developed a more complex function than the window, and in none have the aims become more confused. The general trend towards a larger proportion of glazed area has created an overlap of the functions of wall, window and door and blurred the definition of each of these elements.

The primitive unglazed aperture in a solid wall served to provide natural lighting, ventilation and outlook. Glare was not consciously appreciated as a discomfort factor, and in any case could be easily adjusted by the use of wooden shutters. The problem of dazzle was acknowledged at an early date, and the effective solution of splayed reveals, reintroduced in the seventeenth century, now appears to have been forgotten.

Most of the current complications of window design have emerged during the twentieth century as a direct result of changes in environment, economic pressures, the extension of knowledge and the consequent demand for higher standards. The problems of heating and insulation, solar gain, maintenance and cleaning, sound insulation and safety have all arisen from these considerations. The most radical change during this period has been the widespread development of standard windows. The increased production of wood casements satisfied the demands of the large speculative market, and the 'cottage' window introduced by Henry Hope before the First World War became the archetype of the large family of metal windows on the market today, and was the basic foundation for BS 990.

The standard types are still used in large quantities but an increasingly discriminating market is becoming aware of their inadequacies; draught and weather exclusion, absolute prerequisites, are still given insufficient consideration; heat loss is too often a depressing discovery to be rectified by the occupier; the difficulties of maintenance can be overlooked by manufacturers and architects alike operating under the pressures of a competitive market; methods of opening (and more to the point, methods of closing) are still crude, and the standard of fittings in this country lags far behind the examples produced on the continent, for which, in many cases, there are no alternatives.

### Design criteria

The design factors solely related to the window and coming within the scope of the architect's consideration are:
Natural lighting.
Outlook.
Heating and heat loss.
Maintenance and cleaning.
Ergonomics.
Economics.
Mechanical performance.
Structural performance.
Aesthetics.

Certain other factors are equally important, but may be dealt with independently of the marketed product, and their control is frequently related more to the manner in which the element is used rather than to the performance of the window itself and may be considered as independent design factors. These are:
Glare.
Solar gain.
Dazzle.
Ventilation.
Sound insulation.

Glare, solar gain and dazzle may be considered to some extent as the undesirable products of sunlight which, unless moderated and controlled, can cause conditions of discomfort. When assessing the degree of control necessary it must be borne in mind that one of the primary functions of sunlight, in so far as the occupants of a building are concerned, is to give an indication of the passing of time (daily and seasonally) by change of position, and of fluctuations in climatic conditions by variation of intensity. The effects of solar gain are of course only a disadvantage during the summer months, and can make a contribution to the reduction of heat load during the heating period.

*Glare*

Sunlight behind cloud of even depth can produce an overcast condition resulting in extremely high and evenly distributed levels of illumination. The disabling effects of glare should not be underestimated. They are caused more by the total intensity of the source rather than by its brightness or area. Thus, given the same overall intensity, a source of high brightness and small area can create the same degree of glare disability as one of large area with lower brightness.

Apart from the direct views of a brightly lit sky, the other main sources of glare in buildings are: penetration of direct sunlight; reflections from light-coloured external surfaces; diffusing materials. Thus areas of walls and ceilings and window reveals and mullions seen against such conditions produce contrast brightness. This can also be caused by the injudicious use of tinted glass, so that it is seen contrasted against clear glass or an open window. The effects of glare can be considerably relieved by the provision of light-coloured room surfaces, preferably with reflection factors between 30 and 50 per cent.

The usual methods for control of glare by external fitments are illustrated. The assessment of their relative merits should be made with due regard for the cleaning problems created. An alternative method, primarily intended for hospital work but equally suitable for other applications, consists of a purpose designed horizontal plastic or metal louvre system, fixed or adjustable, housed within double glazing.

Venetian blinds may also be used to control glare, but may reduce light levels too drastically, and if required at the same time as an open window is desirable, as is frequently the case, demand a suitable type of window.

*Solar gain*

Whilst ordinary glazing is transparent to most of the range of the solar spectrum, it is practically opaque to low temperature radiation in the long wave infra-red region. Thus whilst only a small part of the radiant heat emitted by the sun is absorbed by the glass and is transmitted into the building, radiation from the heated surfaces is stopped by the glass and absorbed. This, combined with conversion to conducted and convected heat, can cause heat gains producing discomfort conditions. The table from the I.H.V.E. guide shows the solar heat transmitted through ordinary glazing for differing altitudes and orientations. From this it will be seen that no control against solar gain is necessary on glazing facing north, north-east and north-west (in the northern hemisphere). A diagram on page 264 indicates the types of control available against solar gain.

The most effective forms are those which reflect the radiant heat back outside the building, and dissipate the sensible heat emission by creating sufficient space for air movement between the shielding material and the face of the glass. This applies particularly to external open weave and venetian blinds and to blinds within double glazing. It can also apply to the use of heat-absorbing glass which, when used alone, is warmed by radiation and then acts as a panel heater, transmitting low-temperature radiant heat into the room.

*Dazzle*

Unshielded direct sunlight, particularly from the low altitudes of the rising and setting sun, can cause dazzle producing acute visual discomfort. It is frequently suggested that the effects of dazzle are negligible on rooms facing not only north, but also north-east and north-west. It is of course precisely on these sub-cardinal points that the low mid-summer sun achieves the deepest penetration, justifying the use of controls in rooms occupied during early morning or late evening. With a few obvious exceptions, most of the controls for glare and solar gain will be equally effective against dazzle. The method selected should give due consideration to the retention of views and illumination levels, the degree of adjustment and ease of operation maintenance and cleaning.

*Ventilation*

It has hitherto usually been assumed that in buildings not air conditioned the windows should provide the means of ventilation. It is obvious that the increasing complexity of function of the modern window makes this proposition questionable.

Excluding consideration of the special ventilation requirements for apparatus generating heat or processes producing odours or high humidity, the natural ventilation will normally be required to function effectively under a wide range of climatic conditions.

Difficulties to be anticipated are: driving rain; strong winds, particularly gusts and eddies; still air conditions; direct air flow through apertures, causing draughts; excessive heat loss due to negative pressure or penetration of cold air.

It is unlikely that the optimum size, shape, position and operating mechanisms of window considered in relation to all other factors will correspond precisely with the requirements for natural ventilation.

Opening windows will usually provide ventilation sufficient for basic requirements, but unless specifically designed for the purpose, efficiency will be low. To avoid the possibility of draughts in cold and windy conditions, air must enter at a high level. To achieve effective ventilation under still air conditions air must enter at low level and flow out at high levels. In conditions of strong winds and storms permanent ventilation is most effectively achieved by means of baffles and adjustable grilles giving precise controls.

Few windows are able to meet these requirements in addition to those demanded for other functions, and it may

265▷

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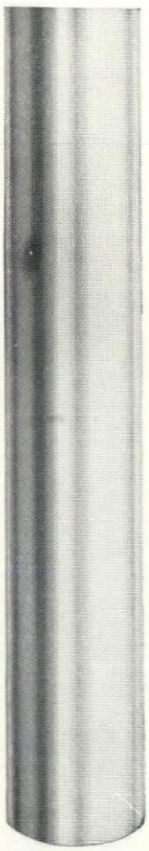

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Now all the advantages of aluminium are available in electrical conduit: excellent earth continuity, attractive appearance, lightness and strength. Backed by the technical resources and research facilities of the British Aluminium Company, Baco Aluminium Conduit fulfills the requirements of the I.E.E. regulations.

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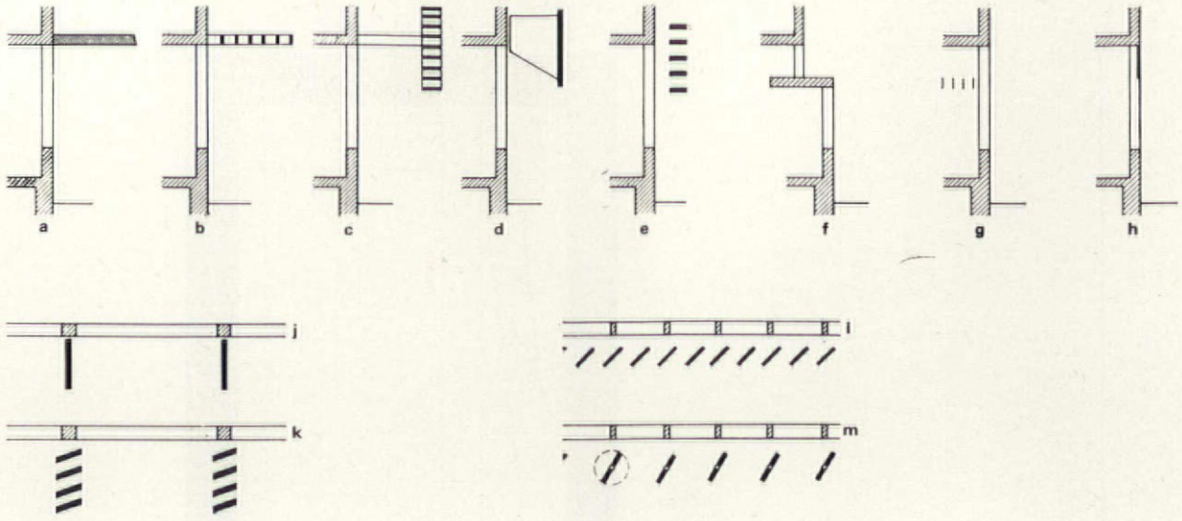
Glare controls
(a) projecting ledge
(b) (c) (d) (e) external louvres
(f) external baffle
(f) integral baffle
(g) internal louvres
(h) tinted glass
(j) solid fins
(k) louvred fins
(l) vertical louvres
(m) adjustable vertical louvres



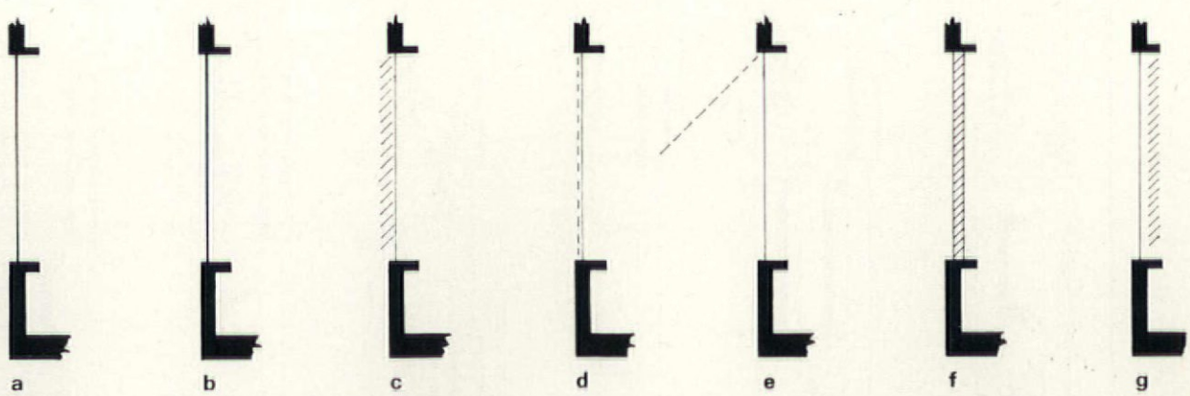

Transmission of heat through ordinary glazing

Radiation through unshaded, vertical single-pane glass windows. (Direct, sky and ground radiation for buildings up 1000ft above sea-level.)

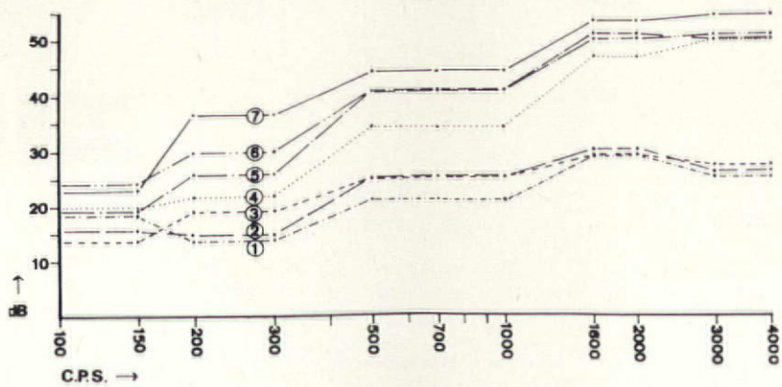
| Orientation of window from sun (deg.) (Diff. of azimuth and orientation) | Radiation transmitted through unshaded, vertical, single-pane glass windows (B.t.u./ft²hr) for varying sun altitude (deg.) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5° | 10° | 15° | 20° | 25° | 30° | 35° | 40° | 50° | 60° | 70° | 80° |
| 0° | 89 | 143 | 172 | 194 | 205 | 209 | 209 | 205 | 192 | 157 | 110 | 65 |
| 10° | 88 | 141 | 170 | 191 | 202 | 207 | 207 | 202 | 190 | 156 | 109 | 64 |
| 20° | 84 | 135 | 163 | 184 | 193 | 198 | 198 | 194 | 174 | 143 | 106 | 64 |
| 30° | 78 | 126 | 152 | 171 | 181 | 184 | 186 | 182 | 164 | 130 | 97 | 62 |
| 40° | 70 | 113 | 136 | 154 | 163 | 167 | 168 | 165 | 143 | 114 | 86 | 58 |
| 45° | 65 | 105 | 127 | 144 | 148 | 153 | 153 | 151 | 131 | 108 | 81 | 56 |
| 50° | 60 | 98 | 118 | 134 | 134 | 138 | 139 | 137 | 121 | 102 | 77 | 54 |
| 55° | 53 | 87 | 105 | 119 | 117 | 120 | 121 | 120 | 110 | 90 | 70 | 52 |
| 60° | 46 | 76 | 92 | 104 | 100 | 103 | 104 | 103 | 99 | 78 | 64 | 51 |
| 65° | 37 | 62 | 75 | 86 | 84 | 87 | 86 | 86 | 84 | 69 | 59 | 49 |
| 70° | 29 | 49 | 60 | 68 | 69 | 72 | 70 | 70 | 71 | 62 | 55 | 48 |
| 75° | 21 | 36 | 44 | 51 | 53 | 56 | 55 | 56 | 58 | 54 | 51 | 46 |
| 80° | 15 | 26 | 32 | 38 | 41 | 43 | 43 | 44 | 49 | 48 | 48 | 45 |
| In shade | 5 | 10 | 15 | 15 | 20 | 25 | 25 | 30 | 30 | 30 | 35 | 35 |

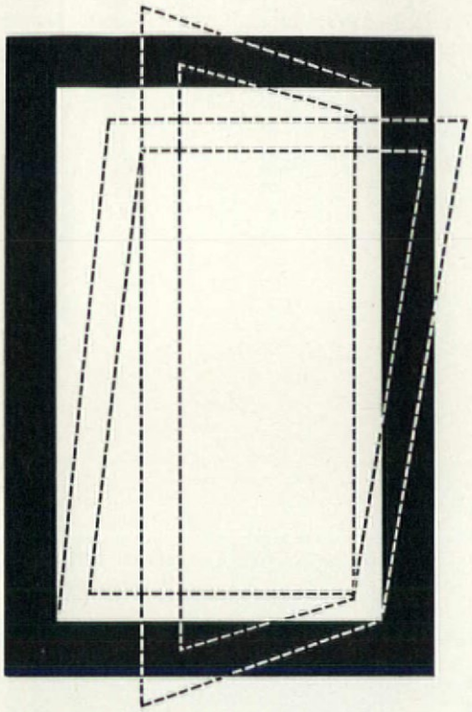
Notes:
(1) The usual air-to-air transmission based on 1 B.t.u./ft² deg. F. hr should be added.
(2) Sky and ground radiation are included in the above Table (80 per cent transmission).
(3) Transmissivity of glass for direct solar radiation taken at 0·87 to 0·41 according to angle of incidence.

Solar gain controls
(a) heat absorbing glass
(b) tinted glass
(c) external venetian blinds
(d) open weave sun blinds
(e) external blinds or louvres
(f) blinds within double glazing
(g) internal blinds




Sound reduction (dB) for frequencies (C.P.S.) shown
1 Aluminium frame, normal opening lights, 24oz glass
2 Aluminium frame, opening lights sealed with plasticene, 24oz glass
3 Wood frame, no opening lights, 24oz glass
4 Double windows, separate wood frames with 2in space
5 Double windows, separate wood frames with 4in space
6 Double windows, separate wood frames with 7¼in space
7 Double windows, separate wood frames, 7¼in space with peripheral surfaces lined with Acousti-Celotex





# an Edinburgh 1st

**Siegenia-Markant** dual purpose windows first used in Great Britain for University contracts at Edinburgh University tutorial blocks Faculty of Arts and Social Sciences. Architects Robert Matthew, Johnson-Marshall and Partners

**Siegenia** dual purpose windows allow the same sash to open two ways

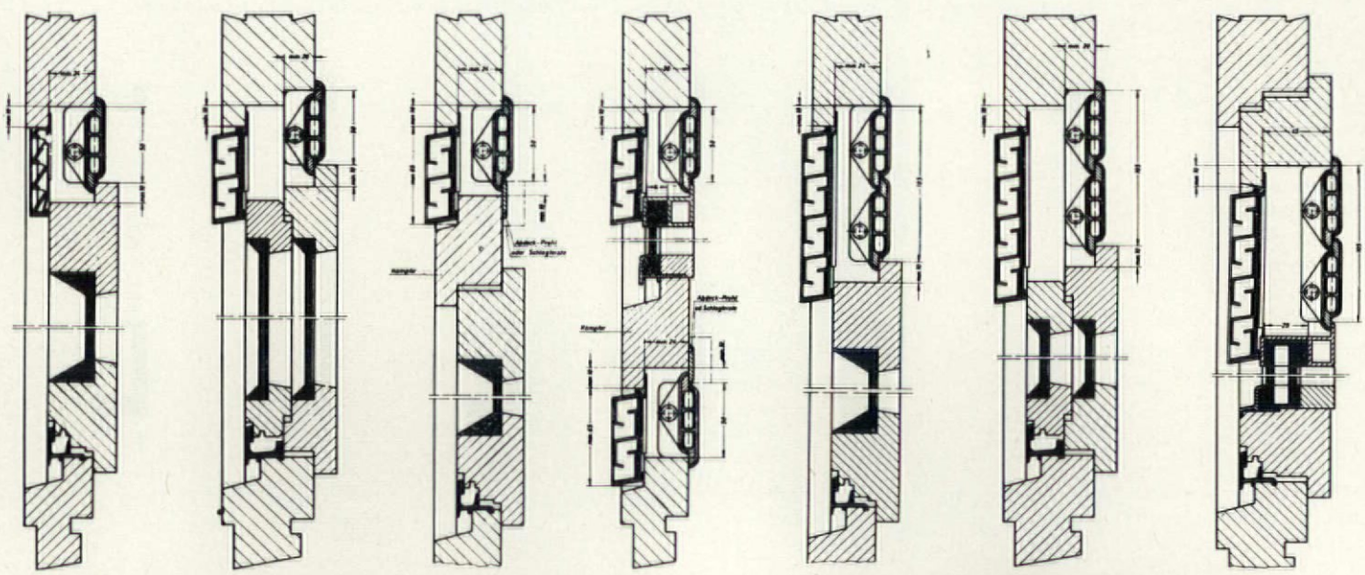
As a bottom hung casement for draught free ventilation

As a side hung inward opening casement for easy cleaning and maintenance

**Siegenia-Markant** dual purpose window fitting with foolproof operation by a single handle for both actions

Where required **Siegenia-Markant** can be supplied with a safety device to lock the side hung position

Its simplicity of operation, its high degree of security and its ease of action make the **Siegenia-Markant** the perfect fitting for Universities, Schools, Hospitals and Office Blocks



**Sial 3 Ventilators**
Methods of providing additional controlled ventilation with the dual purpose form of window

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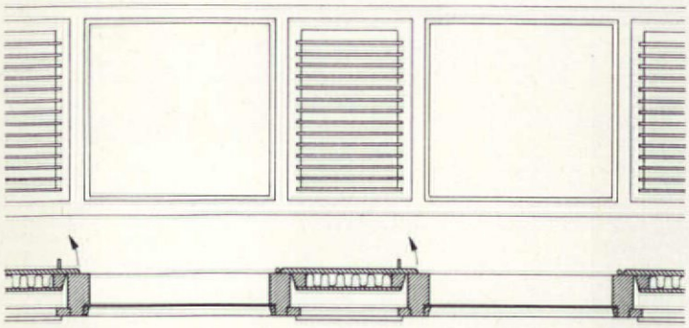
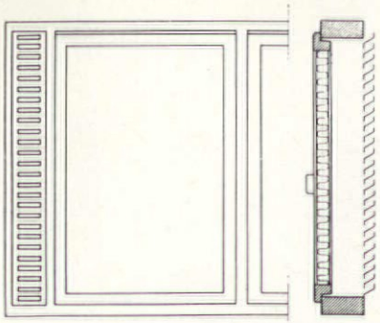
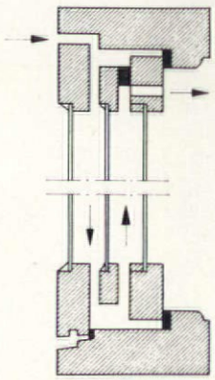


Norwegian windows with fixed lights and ventilation panels





Draught-free natural ventilation by using sashes as baffles

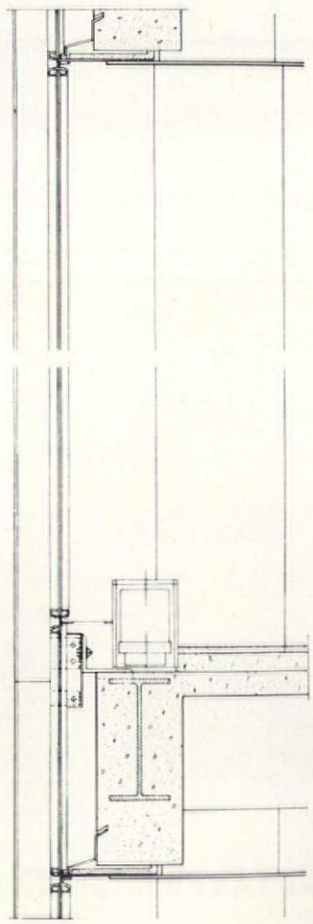
be considered unreasonable to expect such a versatile performance from a single element. Separation of the design into two distinct groups of criteria would in many instances clarify objectives and result in a more efficient product, possibly of combined elements integrated to form one unit. However such an approach might severely limit the amenity ventilation desirable in warm weather, which can only be provided by large opening windows giving direct and intimate contact with the external environment.

*Sound insulation*

New noise sources of high intensity have made sound insulation an increasingly important factor. The problem cannot be solved by the use of standard double glazing units or by two sheets of glass in rebates on opposite sides of a single frame, as sound transmission takes place at the edges of the unit or across the frame. The graph indicating sound reduction factors shows that with windows of normal construction, sealing of the gap between opening light and frame achieves insignificant results, whereas noticeable reductions are obtained when a large air space is created between independent frames. As low-frequency sounds are more readily transmitted than high-frequency sounds, the former require an air space of about 8in whilst for the latter a space of 4in is sufficient. (It will be noticed that these spacings are considerably larger than those provided by standard double-glazed windows with separate panes.) The performance can be further improved by lining the edges of the air space with a sound-absorbent material.

It is obvious that whilst providing sound insulation the window cannot be used for ventilation. Therefore the problem can only be solved effectively by well-designed ducts or mechanical ventilation. A compromise sometimes considered satisfactory consists of two sets of frames with staggered opening lights and insulation around the edges of the air space.

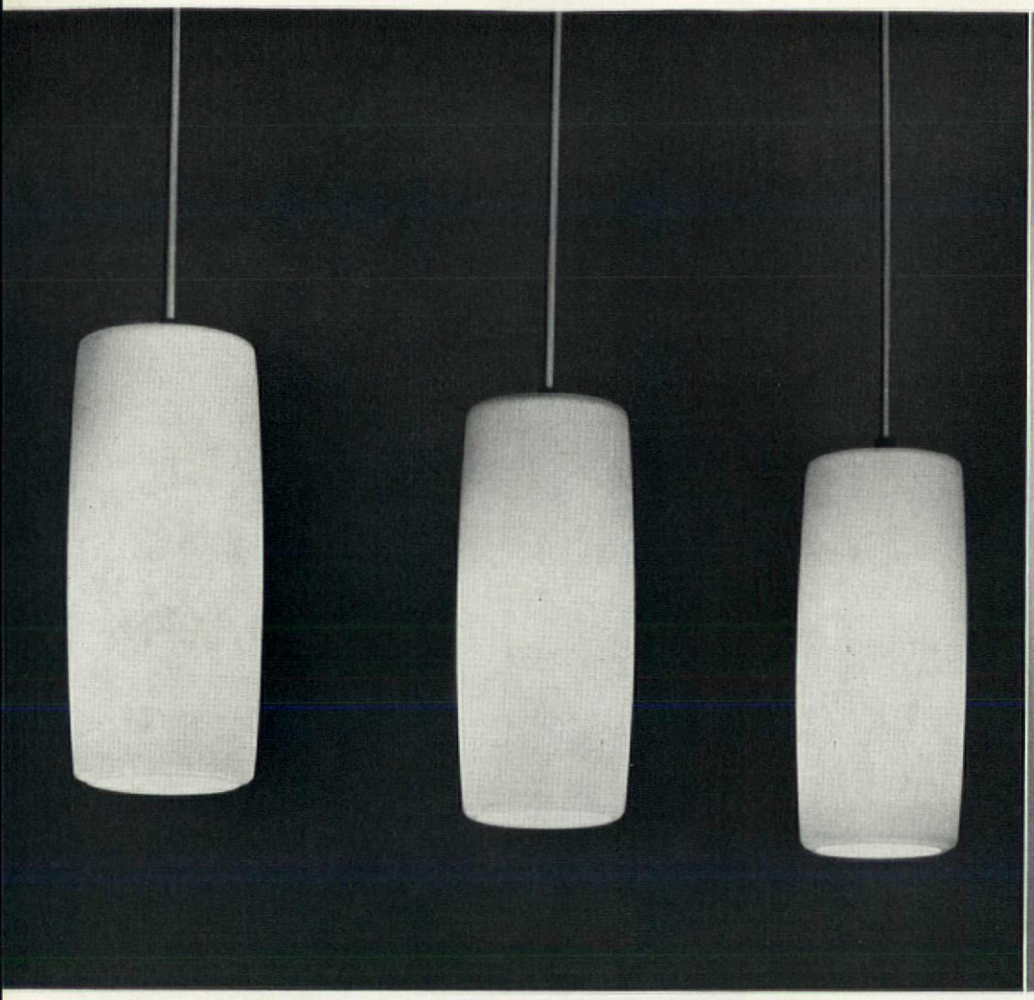
*This article has dealt primarily with those problems which can arise in connection with the use of standard window and not necessarily associated with the window itself. Future articles* (Timber Windows, *June, and* Metal Windows, *July*) will analyse the requirements for standard marketed products.





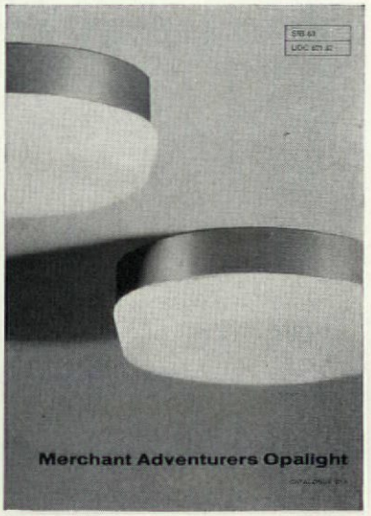
The apotheosis of the curtain wall. Total separation of the functions of lighting and ventilation achieved by the use of tinted heat-absorbing fixed glazing and total air conditioning, resulting in precise, rationalistic detailing.

Section and elevation of Seagram Building, New York. Mies van der Rohe and Philip Johnson.





*Versatile 1620 series single and multilight units from Opalight catalogue 21A*




## Opalight 21A

This publication illustrates with photographs, dimensional drawings and prices, some 450 MA lighting fittings using opal glass diffusers and provides an indispensable guide to the best ranges in Opal lighting today

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# Trade notes

Alexander Pike

To obtain additional information about any of the items described below, circle their code numbers (L1, L2 . . . etc.) on the Readers' Service Card inserted in this magazine.

### L1 Air diffuser 1

RCM (Air Distribution) Ltd., RCM Works, South Way, Wembley, Middlesex

The Liniajust Diffuser embodies a manually operated, variable direction adjustment giving horizontal right and left one-way flow, vertical flow, two-way horizontal opposed flow or horizontal and vertical flow. Suitable for installations in ceilings or walls. The fixings are concealed, sections up to 6ft can be butted together.

### L2 Air diffuser 2

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

The Imperialine 4000 range consists of a series of extruded aluminium linear diffusers suitable for floor, wall and sill installations for supply and all positions for extract. Supplied in one-piece construction in sizes up to 72in × 48in, with standard widths of 1½in, 2in, 2½in, 3in, 4in, and 5in, and lengths from 6in to 72in in increments of 2in. The diffusers are available in a range of different margin designs and with bars either straight or deflected through 15° or 20°.

### L3 Time switch 3

Venner Ltd., Kingston By-pass, New Malden, Surrey

Designed for suppliers of any type of heating system, the EC/1 is a synchronous time-switch providing manual or automatic control.

### L4 Vitreous enamelled sink top

Allied Ironfounders Ltd., 28 Brook Street, London, W1

Intended primarily for housing contracts, the new Leisure sink has a single drainer, right or left hand, in white or cream. Overall size 42in × 21in.

### L5 Drawing storage system 4

J. Hodsman & Son Ltd., 82–84 Eldon Street, York

The Planman system suspends drawings in lever-action hangers, each containing 20 drawings. A trolley carrier, with nylon ball castors and a plastic cover, hold 20 hangers. Prices: hangers £5 15s for ten, trolley carrier £16 0s.

### L6 Norwegian plastics

Norlica Plastics Ltd., 19 Rippleside Commercial Estate, Ripple Road, Barking, Essex

Fibotex Melamine forms the basis for several new products: a high pressure laminate $\frac{1}{16}$in thick, which can be produced to meet the Class 1 flame-spread test; a $\frac{1}{8}$in melamine surfaced hardboard and a $\frac{3}{16}$in Melamine surfaced oil-tempered hardboard. All available in 9ft × 4ft sheets in matt/satin finish.

### L7 Air conditioners

Advance Domestic Appliances Ltd., 66–68 Margaret Street, London, W1

Westinghouse American-built air conditioners are now available on the British market. Nine different models are available, rated from 5000 to 23,500 BTU/hr capacity, with adjustable air jet vanes and thermostats, two- and three-speed fans and automatic thermal overload protection. The smallest model measures approximately 12½in × 19in × 15in. Prices from £92.

### L8 Lighting fittings 5, 6

Ringway Lighting Ltd., 395 Staines Road, Hounslow, Middlesex

Two new ranges. The seven fittings in the Series 100 each have tinted outer glass enclosing a clear crystal inner glass, both fixed to spun aluminium holders. From £4 5s. The Copperstrip range of twelve fittings has been designed to give a diffused lighting effect. From £5 10s.

### L9 Bottled gas needle valves

W. Markes & Co Ltd., Cannock, Staffordshire

Suitable for butane, propane and Calor gas, the new valves can also be used to regulate nitrogen, hydrogen, oxygen and compressed air when only a small rate of flow is required. Designed to withstand a pressure of 100 lb/in² they are available in single, two-, three-, or four-way versions, with coloured identification discs.

### L10 Gas convector heater

Ideal-Standard Ltd., Ideal Works, Hull, Yorks

Taking the role of the solid fuel boiler, the Trident gas convector heater provides domestic hot water, visible heat for the living room and can heat four radiators.

### L11 Composite building panels

Perfonit Ltd., St Neots, Huntingdon

The Perfowal range of composite panels offer facings of hardboard, Melamine, aluminium, copper, Galavatite, lead, stainless steel or asbestos, in combination with cores of chipboard, plywood, insulation board, honeycomb, expanded polystyrene or rigid cellular PVC. Sheet sizes 4ft × 8ft. Density and thickness to specification.

### L12 Acoustic security device

Magneta (BVC) Ltd., Goblin Works, Leatherhead, Surrey

The Ghost Listener security system is based on the sound installations used for staff location or relayed music. The normal sound distribution circuits are reversed at night, feeding all abnormal noises to a central listening post.

### L13 Lightweight structural steel beams

Sanders & Forster Ltd., Bridgewater House, Warton Road, London, E15

The German Litzka beam is now being fabricated in this country. It is claimed that this method of castellation no longer restricts the increase to 1½ times the original depth.

### L14 Sonic keys

Robsonics Inc., 408 Concord Avenue, New York, USA

By calling his own number from an outside telephone, the owner of a sonic key can switch on an attached answering device and receive messages left in his absence. The same keys can be employed for changing the pre-recorded message given to other callers.

### L15 Aluminium sliding windows

Aygee (Metal Windows) Ltd., Century Works, Havelock Road, Southall, Middlesex

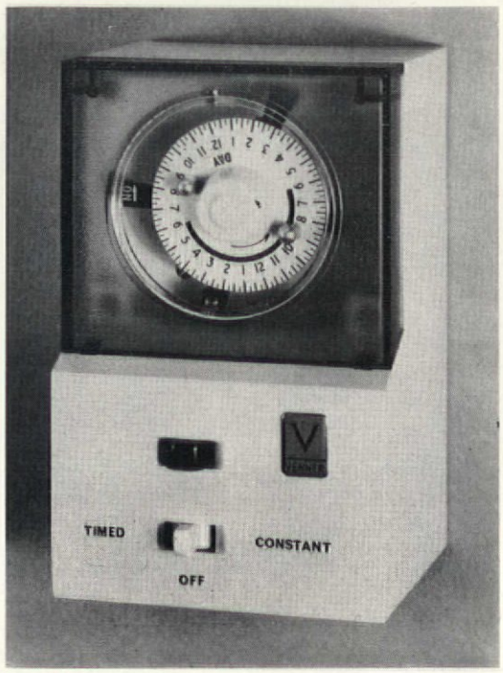
The RS 1 range of single and double horizontal sliding windows incorporate nylon glides, wool pile weather stripping and a burglar-proof locking device. There are no metal-to-metal contacts between the moving parts.



1



2

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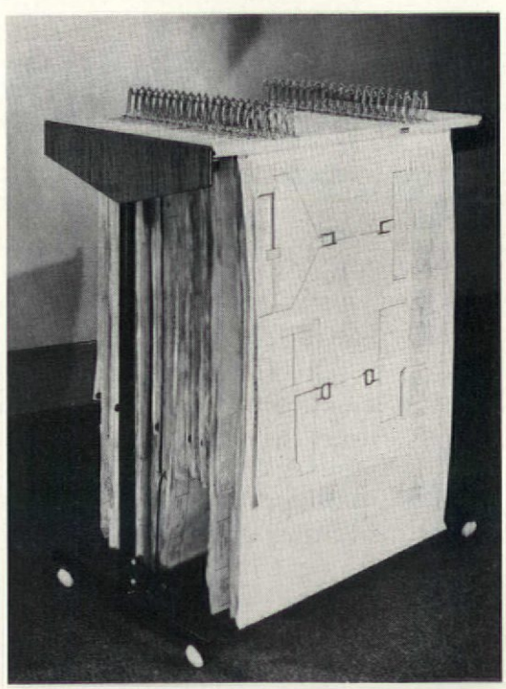

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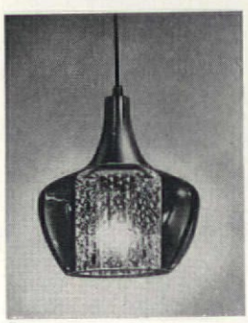

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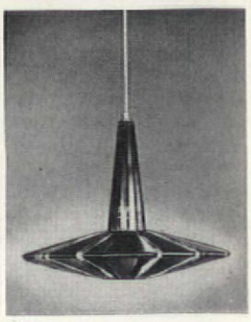
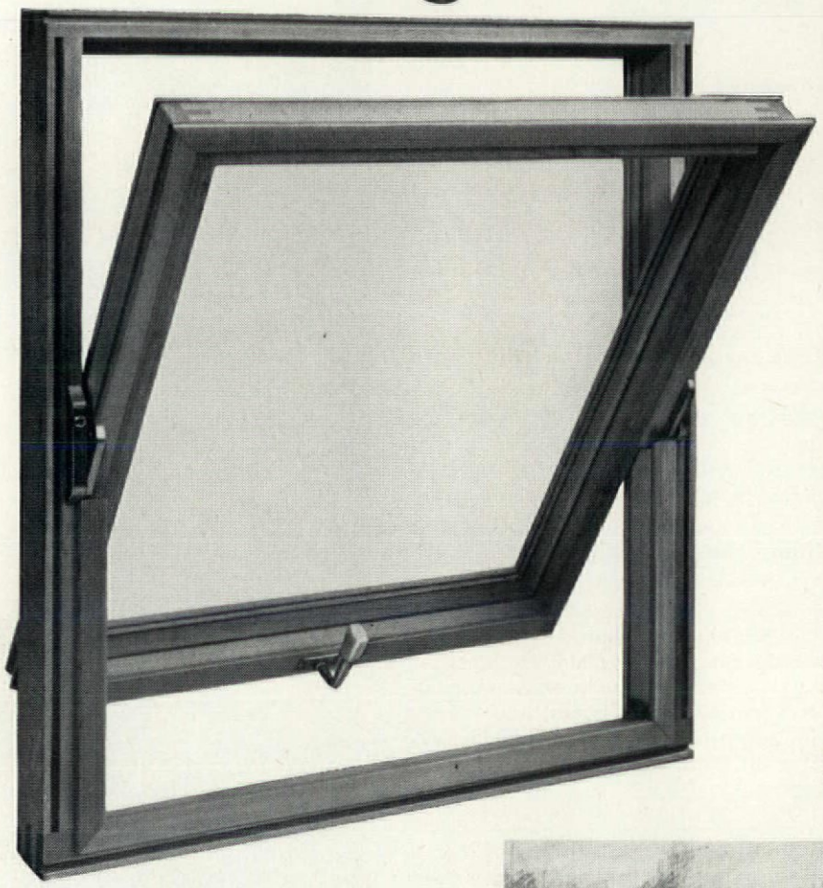


6

# THE *Berkeley* DOUBLE GLAZED WINDOW

**with the patent Balanced Pivot Hinge**



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## *at its most efficient!*

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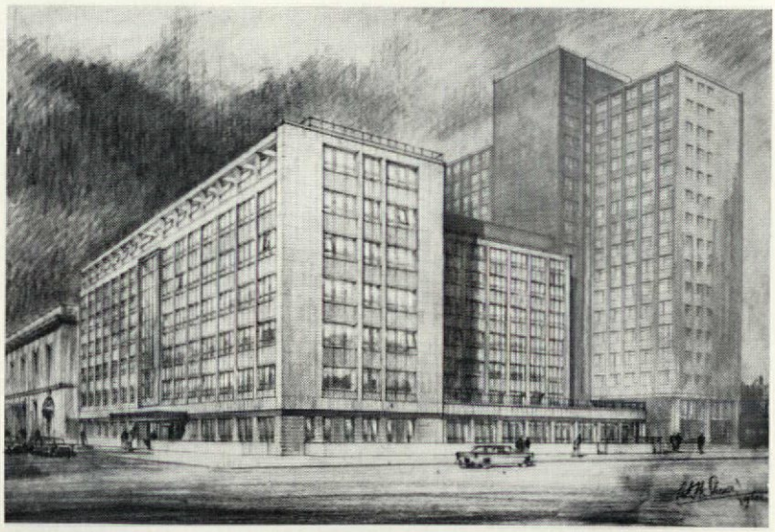

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Structural Engineer: ALAN MARSHALL & PARTNERS.
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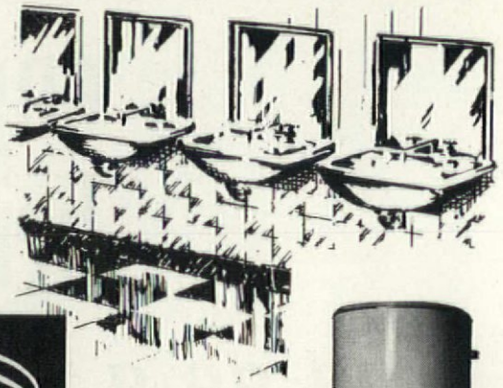

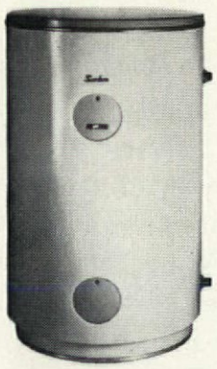

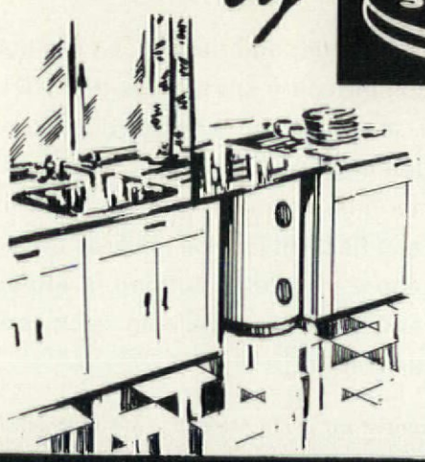

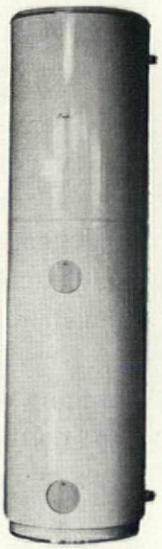

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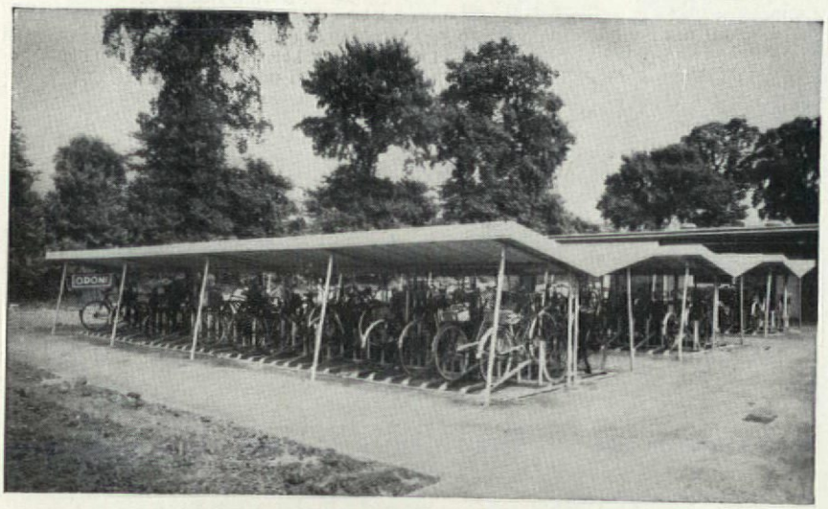

Type TD2A-R-LR ODONI Tubular SHELTER (R.D.899573) with Type 5A Pedal Cycle Stands at Gable Hall School, Corringham, Essex.
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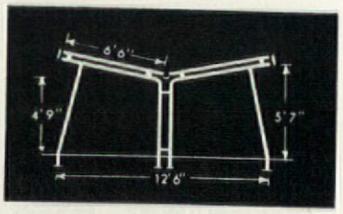


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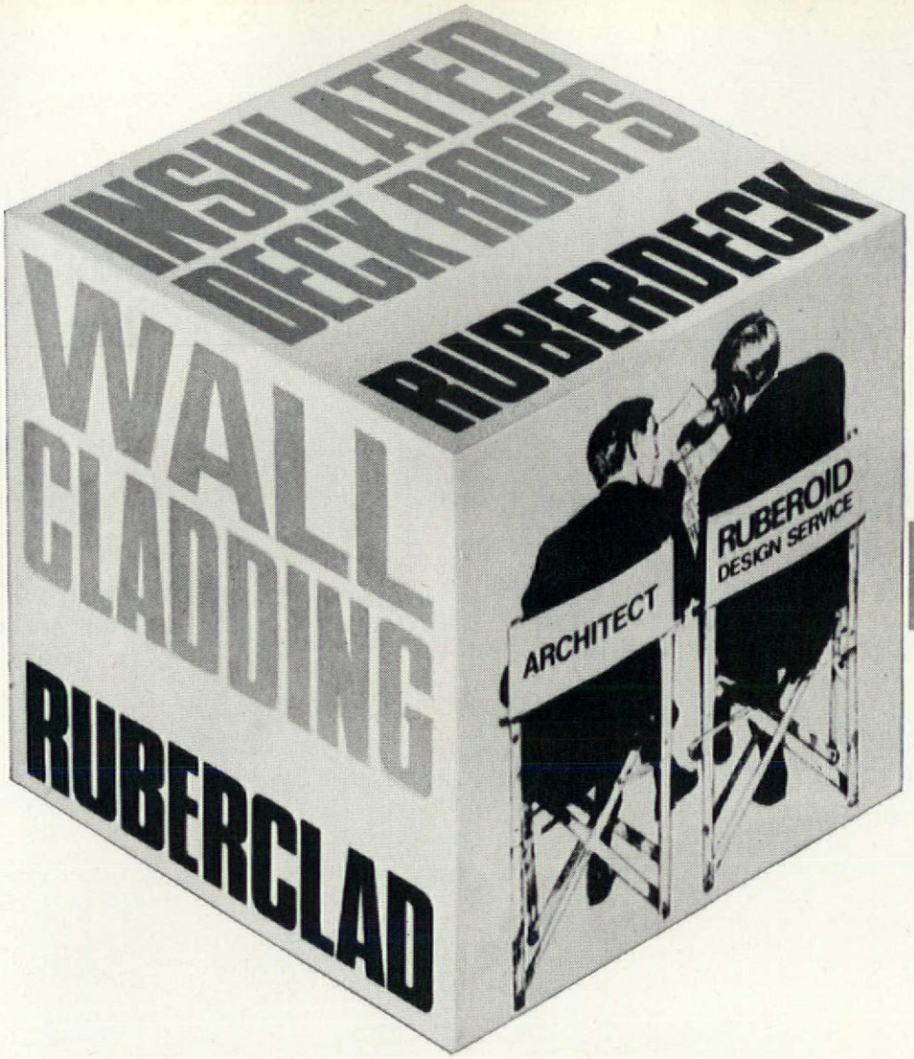


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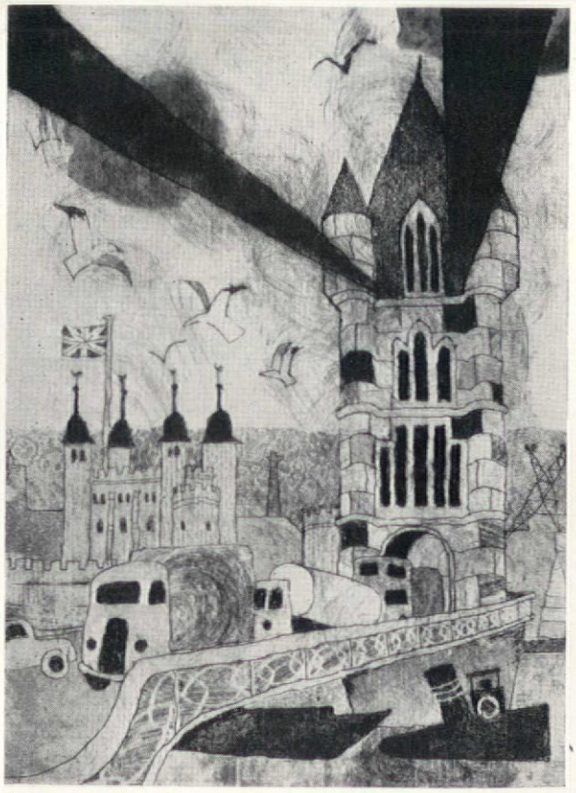

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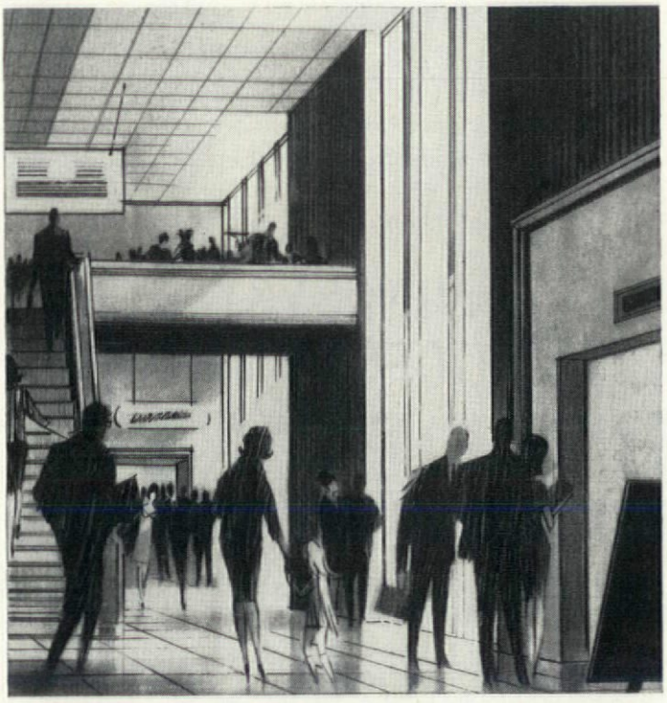

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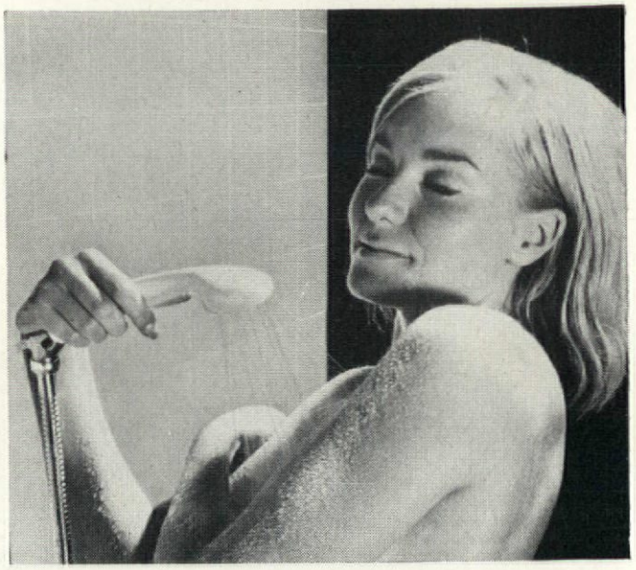

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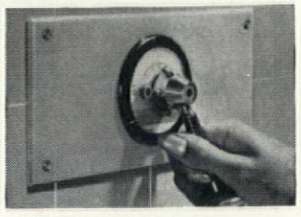

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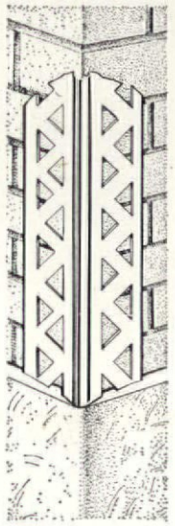

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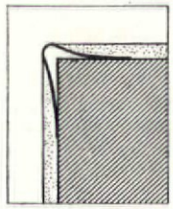

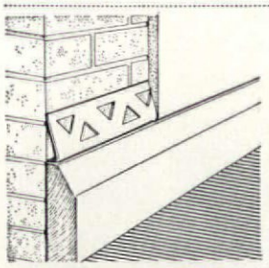

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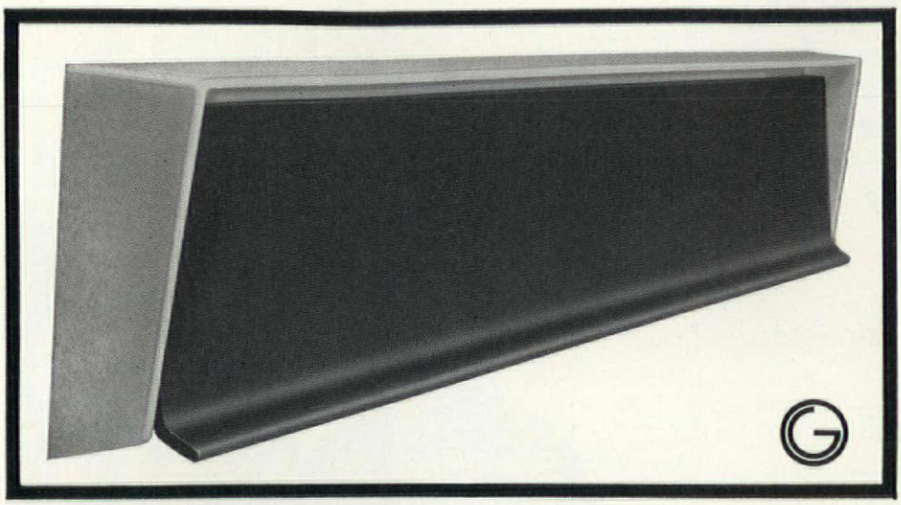

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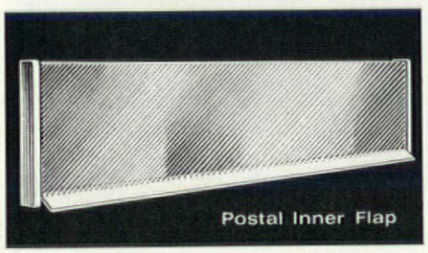


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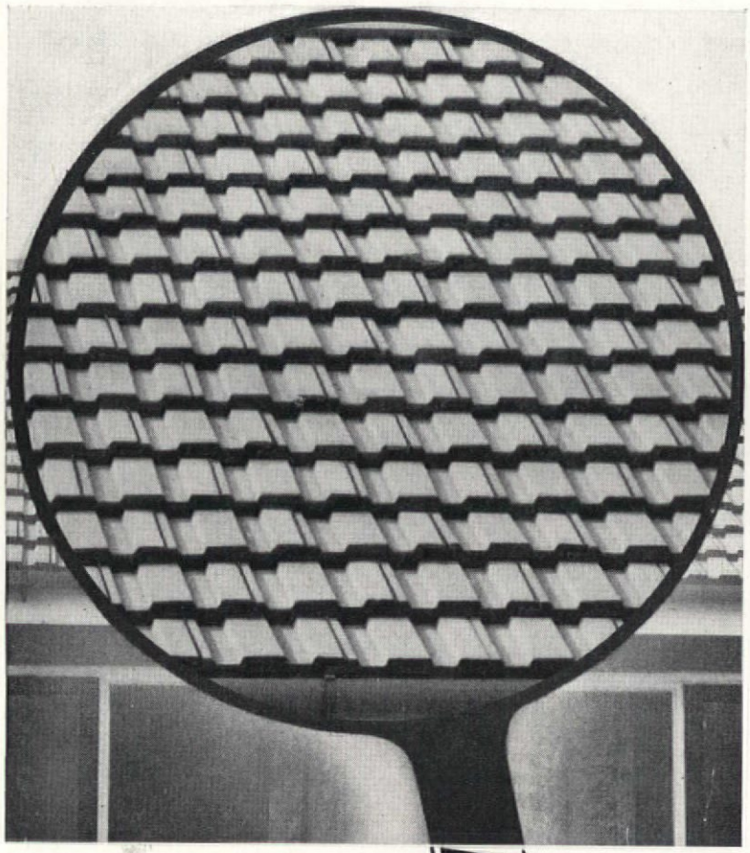

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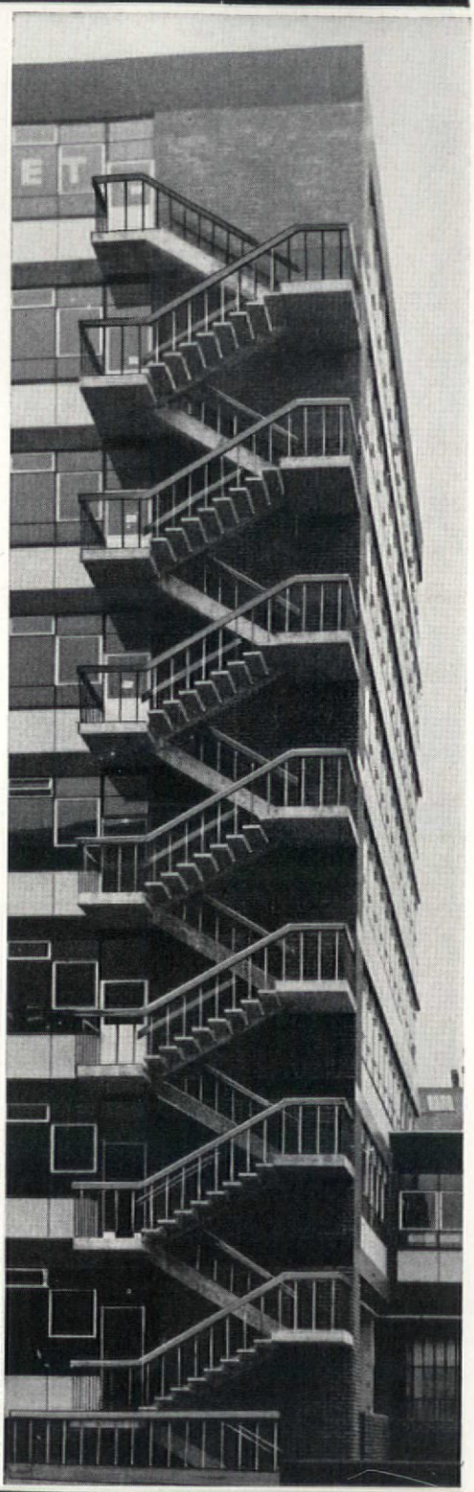

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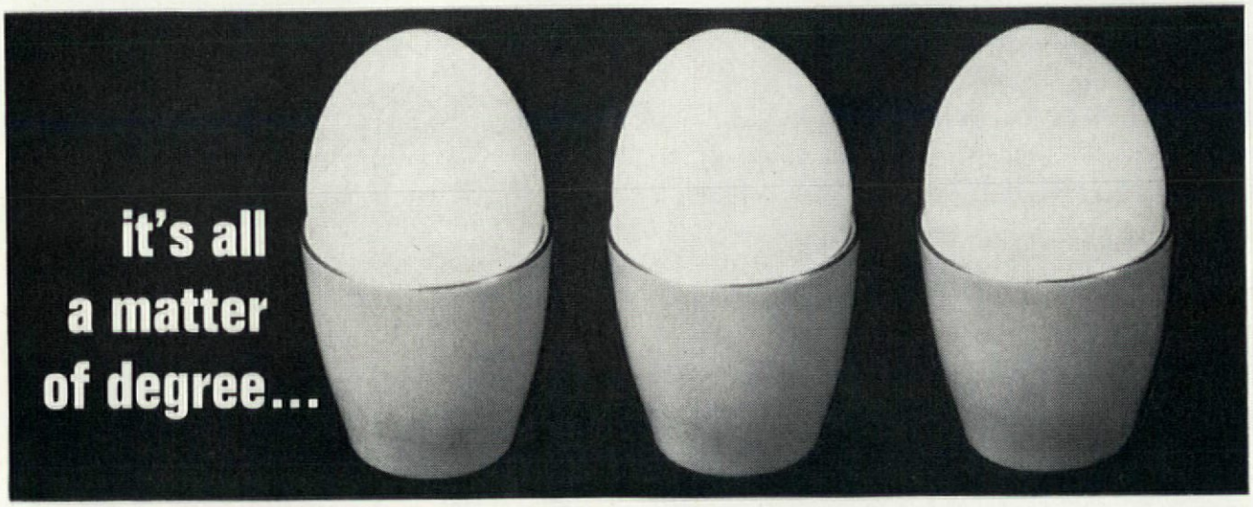


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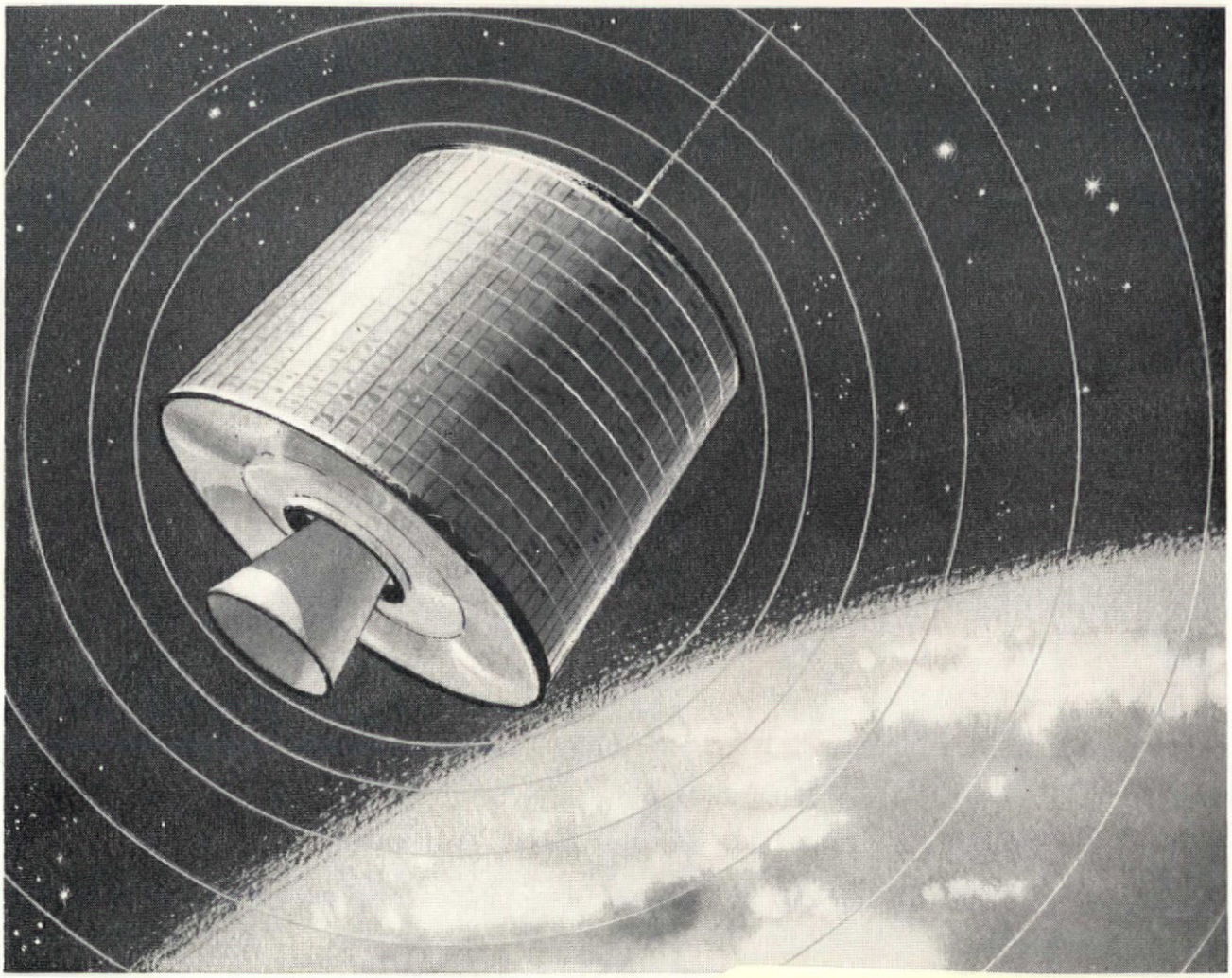
Printed in Great Britain for the Proprietors of "Architectural Design" (The Standard Catalogue Co. Ltd.), 26 Bloomsbury Way, London, W.C.1. by The Whitefriars Press Ltd., London and Tonbridge (Kent).



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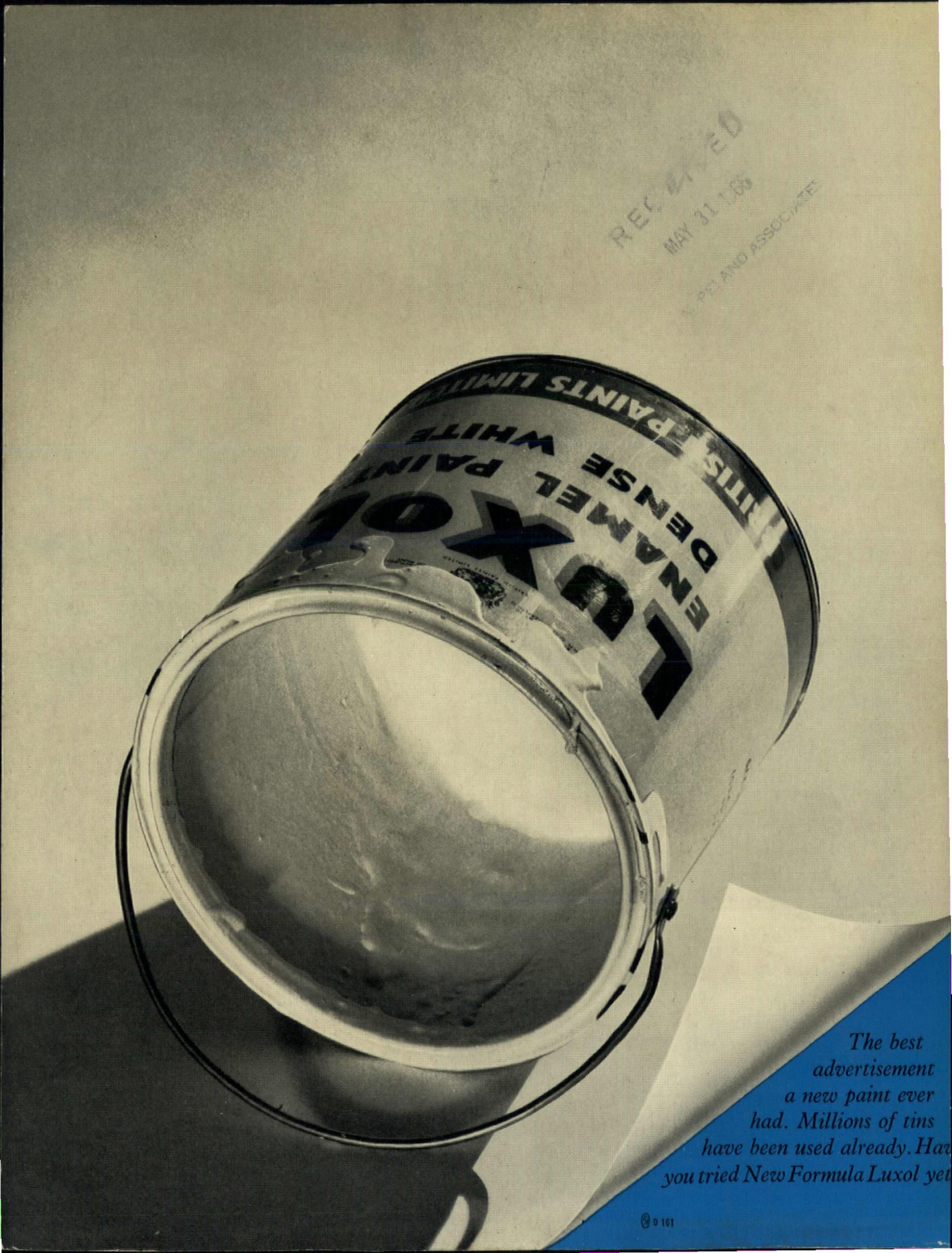


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