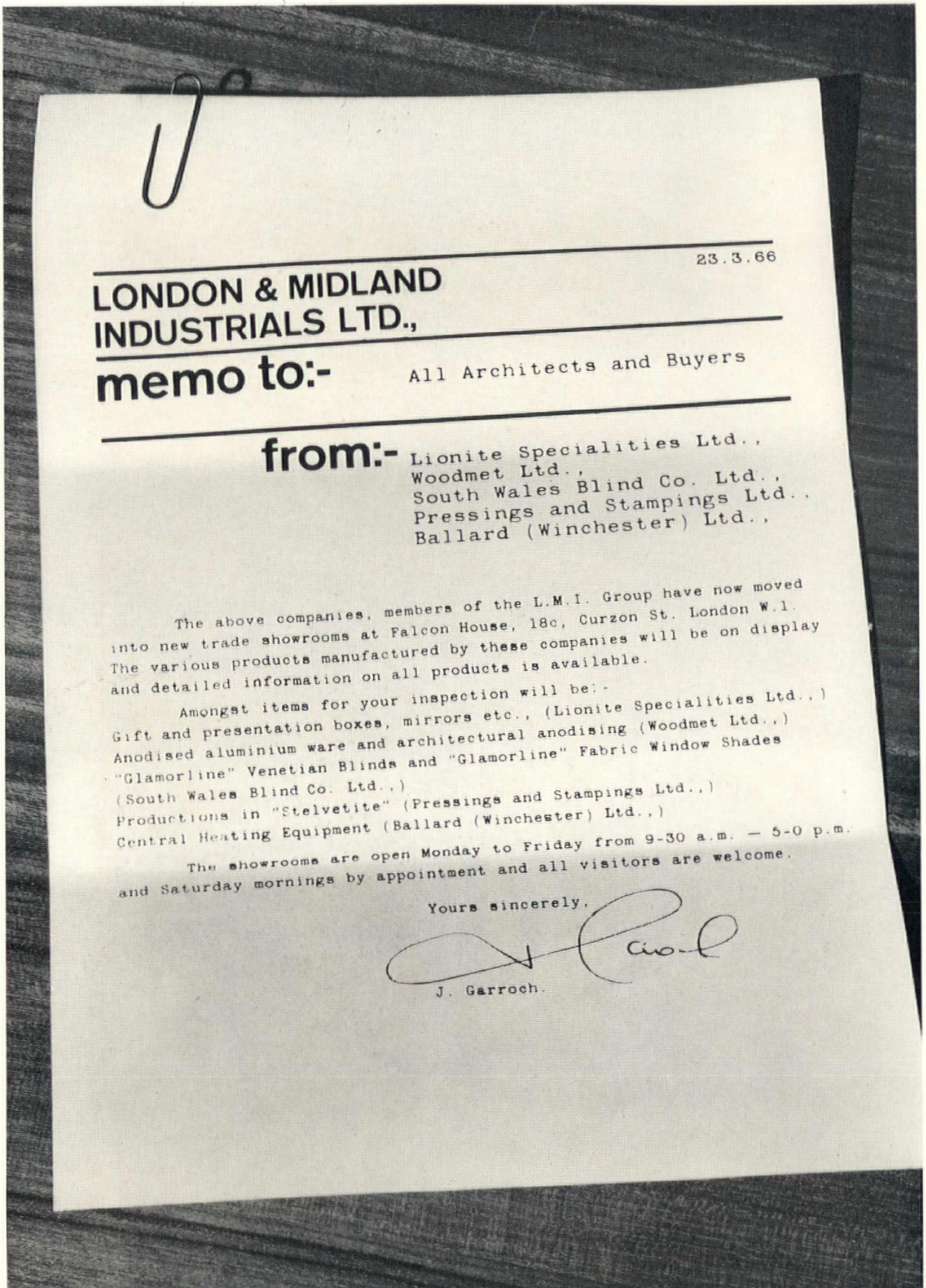
4 ARCHITECTURAL DESIGN

April 1966

Price 5/-



23.3.66

LONDON & MIDLAND INDUSTRIALS LTD.,

memo to:- All Architects and Buyers

from:- Lionite Specialities Ltd.,
Woodmet Ltd.,
South Wales Blind Co. Ltd.,
Pressings and Stampings Ltd.,
Ballard (Winchester) Ltd.,

The above companies, members of the L.M.I. Group have now moved into new trade showrooms at Falcon House, 18c, Curzon St. London W.1. The various products manufactured by these companies will be on display and detailed information on all products is available.

Amongst items for your inspection will be:-
Gift and presentation boxes, mirrors etc., (Lionite Specialities Ltd.,)
Anodised aluminium ware and architectural anodising (Woodmet Ltd.,)
"Glamorline" Venetian Blinds and "Glamorline" Fabric Window Shades (South Wales Blind Co. Ltd.,)
Productions in "Stelvetite" (Pressings and Stampings Ltd.,)
Central Heating Equipment (Ballard (Winchester) Ltd.,)

The showrooms are open Monday to Friday from 9-30 a.m. — 5-0 p.m. and Saturday mornings by appointment and all visitors are welcome.

Yours sincerely,

J. Garroch.

Volume XXXVI April 1966 **4**

Contents

Editor Monica Pidgeon

Technical editor Robin Middleton

Editorial assistant Stephen Bell

Editorial secretary Judith Wilkinson

Advertisement Manager David Dottridge

Consultants
Walter Bor, Theo Crosby, Kenneth Frampton, Ernö Goldfinger, Gontran Goulden, Denys Lasdun, Prof. Z. S. Makowski, Frank Newby, Peter Smithson

Overseas correspondents
Argentine Gerardo Clusellas **Australia** Mary Andrews, Andrew Young
Austria Wilhelm Schütte **Belgium** Roger Thirion **Brazil** Harry Cole
Canada Anthony Jackson, Blanche Lemco van Ginkel, Peter Oberlander
Chile Carlos Garcia Huidobro **Colombia** Alec Bright
Ceylon Geoffrey Bawa **Denmark** Jørgen Sestoft **Finland** Olavi Kantele
France Bernard de la Tour d'Auvergne, Yona Friedman
Germany (West) Hans Kammerer, Gunther Kühne, Peter Pfankuch
Greece Orestis Doumanis, Panos Koulermos **Hong Kong** Chung Wah Nan
Hungary Elemér Nagy **India** Eulie Chowdhury, K. V. Satyamurty **Israel** Olga Tieder
Italy Letizia Frailich Ponti, Teodora Olga Sammartini
Japan Nobuo Hozumi, Günter Nitschke
Kenya Richard Hughes **Mexico** Jorge Gleason **Netherlands** Jan Piet Kloos
Norway Bengt Knutsen **Peru** Eduardo Orrego J. **Poland** Prof. Boleslaw Szmidt
Roumania Anton Moisescu **Spain** Carlos Flores **Sweden** Orjan Lüning
Switzerland Lucius Burckhardt, Roland Gross **Uruguay** Ernesto Puppo
USA Arthur Baker, Peter Carter, John Fowler, Henry Hill, Burdette Keeland, David Lewis, Donlyn Lyndon, Sy Mintz, Tim Vreeland
USSR Prof. N. D. Kolli **Venezuela** Dirk Bornhost.

Subscription rates
UK £3-0-0 p.a. post free. Single and back copies, 5s. 0d. each plus postage.
UK Students 36s. p.a. post free for direct subscription with publishers.
Name of School/College and Year of Study must be stated.
Overseas £4-0-0 p.a. post free. US and Canada $11.50 post free.
Single and back copies 5s. 6d. each plus postage.

Publication date Seventh of each month.

Publishers The Standard Catalogue Co Ltd.
26 Bloomsbury Way, London, W.C1
Telephone: HOLborn 6325.
Telegrams: Britstanex
Telex: 261244 Whitstan, London

Code 2

The way ahead

Donald Gibson*

During the next 25 years as many new buildings will be built as already exist in Britain.

Three things are urgent. Firstly, an overall plan for the nation. Secondly, we should learn to use good new ideas quickly. Thirdly, we need a construction industry which will be capable of meeting the load.

The new towns, because of their smallness and openness, failed to make some of the contribution to living which I would like to see.

I would like to see this country concentrating its efforts on building a few great new cities rather than very many new small towns. Venice or Bath or Edinburgh are largely beautiful because of the sites which they have inherited. We should prospect for sites for new cities with the objects in view of natural beauty and of amenity and of pleasure.

From time to time there has been talk regarding the possibility of development at Solway Firth, Morecambe Bay and the Wash. If they could be used as sites for new power stations, then the waste heat could be put to use for fish farming. In addition to sites for new towns, these areas could on a national scale provide enormous fresh-water catchment areas, as well as sea-water fish farming lagoons and first-grade agricultural land, especially with cheap heating laid on.

We keep hearing of new and better ways of producing energy, but the cost of electricity to the consumer still continues to rise. With district heating it would be possible to reduce the cost of family heating by 30 per cent if we accept the idea of building large new cities. A study at Buckinghamshire is very attractive. The city is designed to have a monorail service to all its districts and in this way the heat from a power station in the centre can travel above ground and not in costly ducts, and in this way it can reach all the districts in the new city.

The idea of a monorail is not new. In Buckinghamshire the idea was that this would be the public service linking up all the parts of the city as a free service, chargeable on the rates. But if you think that when you design a new system you can have every station at an exactly separate distance from adjoining stations, it means that simply by having double track at the stations and single track everywhere else one can start all trains at the same moment and stop all trains at the same moment quite automatically, so that there is really no need either for drivers, guards, attendants, ticket collectors, accounting machines, etc. So there are some economies offered.

In London I would suggest that the time has come to scrap the Undergrounds: the trains, not the tunnels, are the bottleneck. If they were replaced by a continuously moving travolator they could carry ten times the present loading with seats for everybody. The stations would need modifying to cope with the extra load. Again free travel and no tickets would help the movement of people at the stations. This would make a nice subject for feasibility study by mechanical engineers, using the present track and power pick-up and introducing a slowing down conveyor belt at the stations to form a bridge between the continuous moving belt and the stationary platform.

The idea of moving conveyor belts for people is an excellent idea. It could be done in so many ways, either on plastic rollers, or each section being motorized, or having motorized connections at certain intervals.

* *Extracts from a lecture at the University of Manchester (Roscoe Building) on March 3rd.*

I would like to see an 'under-water' road through the Thames to take the east-west traffic off the streets of London. It should be quite simple to fabricate large tubes down the Thames estuary. Each tube could be floated up the river, and sunk into a dredged trench and joined together. The new roadway would not obstruct shipping and it would not affect the flow of the river or the tides.

In the new cities I see the new school consisting physically merely of a 'school house' near to the centre of each district of the town. Each house would be the place for assembly and dining and common rooms with some non-specialist teaching rooms and that's all. The rest of the school would be outposted, art room to Art Gallery; school library to Public Library; history rooms in Museum; and so on.

We have just seen a great deal in our national newspapers about aircraft carriers and islands in the Indian Ocean. It might be worth doing some development to see how well we can make new islands of our own. For the first time, our new techniques make this a possibility. The new air-conditioning plastics, wonderfully buoyant, sea-water resistant, unsinkable, strong and needing no maintenance could be cast as large pontoons. They could be hollow for soil and tree planting. They could be joined together with a decking of the same material incorporating a flexible light steel mesh. The outer fringe would need indentations to allow waves to be dissipated and so not to affect the main area of the islands. Sailing, swimming and fishing would be the sports, and soil drainage would be very simple and cheap. I would like to see a live experiment to try out the idea in practice.

Another matter relating to the sea, which should be of interest to building in Britain, concerns timber, a basic requirement for most building. The most abundant source of the best forest timber is the Pacific seaboard of Canada. Now we have atomic submarines it should be possible to use the much shorter northern route under the ice-cap using atomic tugs, towing great trains of bundled logs. Each bundle of logs could be held in a simple chain harness with ailerons to keep the load submerged not only under the Arctic ice-cap but during the whole crossing, so as to avoid resistance and damage by waves and storms. Every bundle of logs would have its own aileron harness, connected by a hydraulic tube to those towing behind, so that the tug would be in command of the whole cargo train. The chain harness could be weighted by keels to stop the logs rotating and to weight the logs until they only just floated, so that ailerons would have very little effort to make and would thus offer little resistance to forward movement.

Our 'land use zoning' generally results in separate areas for industry, and offices, and shopping, and housing, which *compels* movement of people and traffic. The only valid separation seems to be for the type of industry which generates smells or noise. For the rest, assuming the development can be conceived as a whole in three dimensions, there could be enormous gain from mixing. Why should we not, in high development, have the housing on top, the offices below them, and the shops on the ground floor? And why hang on to daylight codes when you can produce a better environment for offices by using air conditioning and internal gardens, with less waste in corridor space?

There is a need for a *National Ideas Centre* where a small but skilled staff could see that any idea would get passed to the most appropriate Government Department, or industry or individual.

WHEREVER **water** COMES OUT–

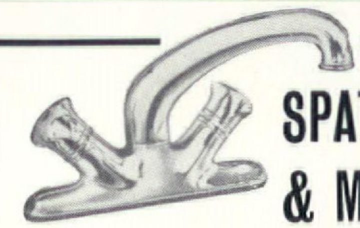
IT'S BEST TO SPECIFY FITTINGS BY

F. H. BOURNER & CO

(ENGINEERS) LIMITED

SUPA TAPS

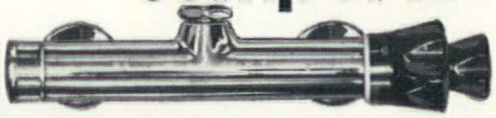
The modern taps for modern homes. Speedy washer change, simplest hose connection, resistant to back pressure, non-metallic seatings, pencil slim, anti-splash flow, feather light touch, smart, gleaming chromium finish. Models for Baths, Basins, Kitchens, wall mounting, etc.



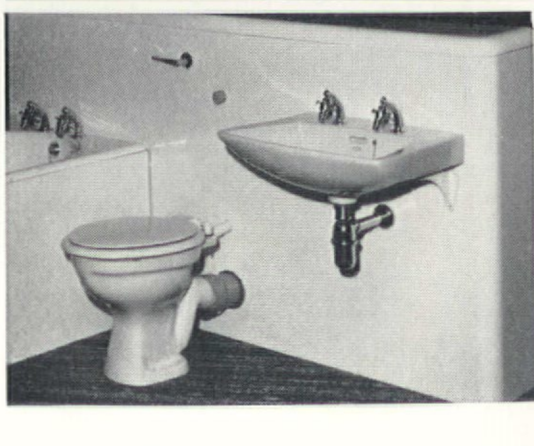
SPATAPS & MIXERS

Well designed, attractive fluted non-rising heads for efficiency and hygiene. For Kitchens, Bathrooms, Bedrooms. SPA Bath Mixers are designed to combine mixer and spray in one attractive and compact unit.

temperfix THERMOSTATIC MIXERS



The most advanced hot and cold water mixer. Maintains the heat set regardless of temperature or pressure variations. Particularly suitable for children, the elderly and the incapacitated. Wide range of models for homes, schools, hospitals, hairdressers, etc.



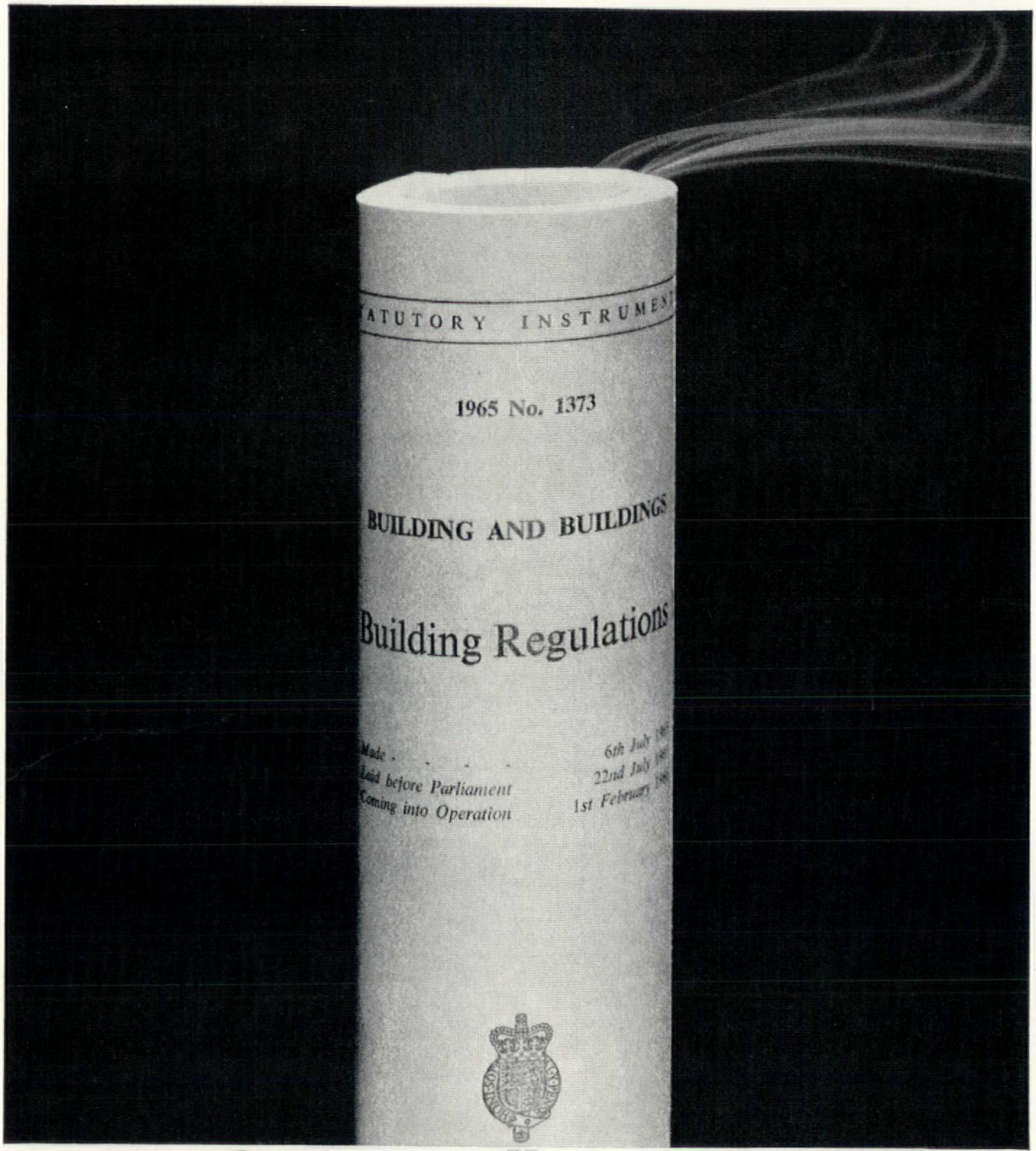
supak PRE-PLUMBED UNITS

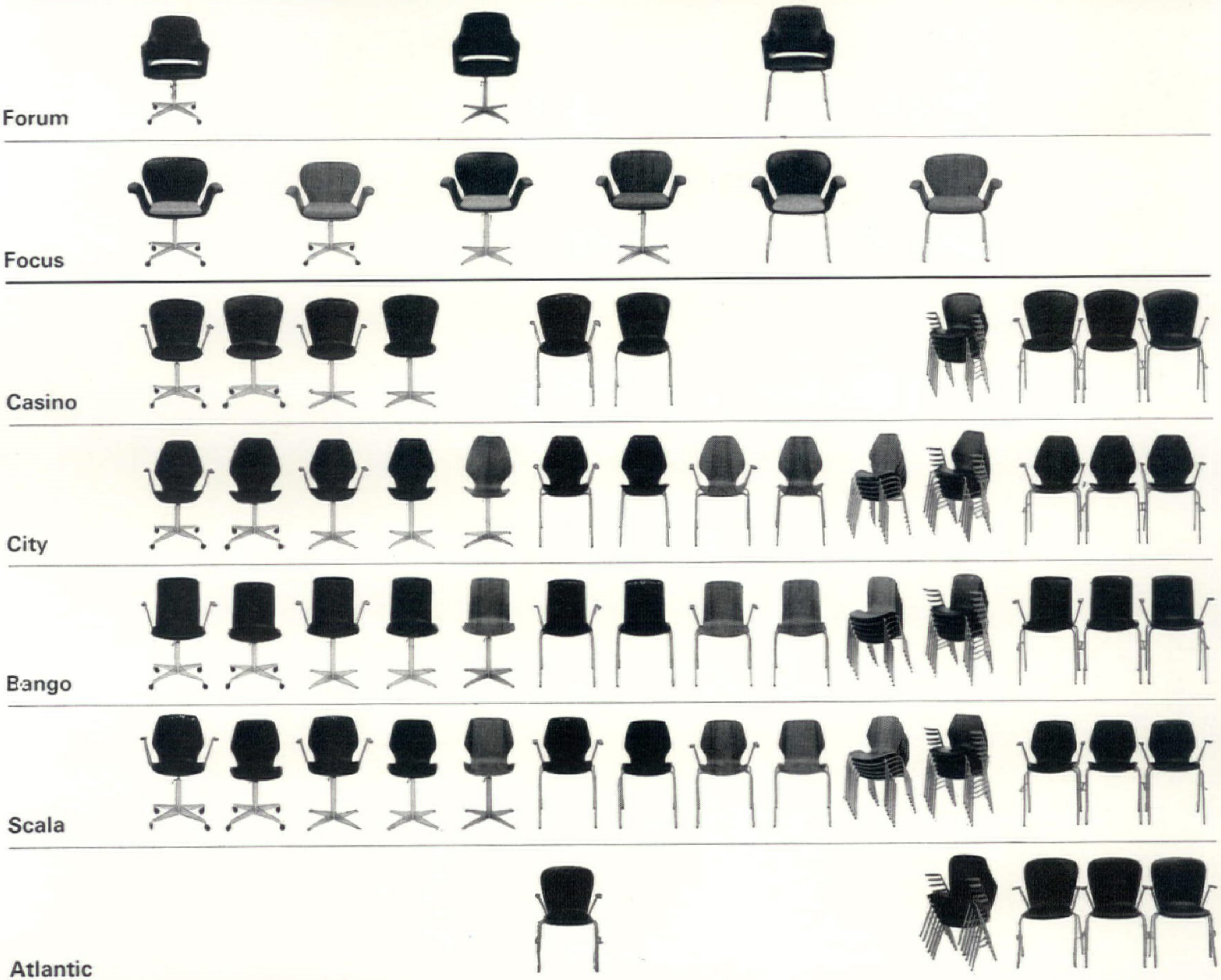
the low-cost prefabricated bathroom unit for maximum flexibility of design, high speed installation and maximum hygiene—giving a smooth surface for a clean finish.

For full particulars and technical specifications write to:

DELTA GROUP

F. H. BOURNER & CO. (ENGINEERS) LTD.
Manor Royal, Crawley, Sussex. Tel: Crawley 26166. Telex: 87283


1965 No. 1373
BUILDING AND BUILDINGS
Building Regulations



westnofa
Quantum Range

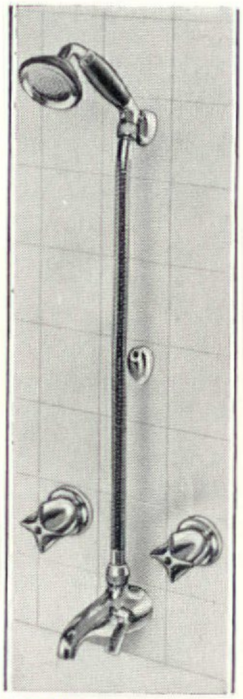
Quantum Range consists of seven chairs made from moulded plywood supported on steel frames.

All the shells can be supplied upholstered and most of them are also available in a variety of natural wood finishes. The shells can be mounted on swivel bases with or without castors and arms, or on leg frames, with or without arms and linking device.

Each chair in **Quantum Range** is a distinct design on its own and can be used alone or in conjunction with the other chairs. The many models available give **Quantum Range** a high degree of flexibility as regards design, function and price. The components are to a large extent interchangeable.

Please write for a catalogue or see **Quantum Range** in our showrooms.

Westnofa (London) Limited,
24 Rathbone Place,
London W.1.
Telephone: MUSeum 2582



6500-W
Concealed Bath Mixer
with "High-Low" Shower
Attachment

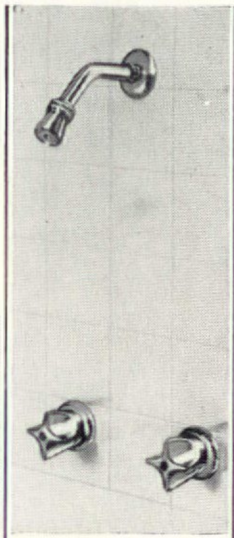
Barking Brassware **concealed fittings** for modern bathrooms

For many years BBC have been combining fine design and precision engineering to produce excellent bathroom fittings that look good, work perfectly and incorporate original design concepts that lead the industry—perhaps that is why they are the most wanted fittings on the market today.
Now there is a complete range of concealed fittings to choose from—showers, including the famous High-Low shower, basin sets and many more.

BBC fittings are designed to look good and work perfectly.

Write today for the latest BBC brochure and let Barking add the fashioning touch to your bathroom.

6700-L
Concealed Bath Mixer

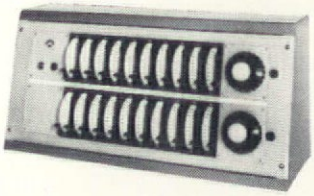


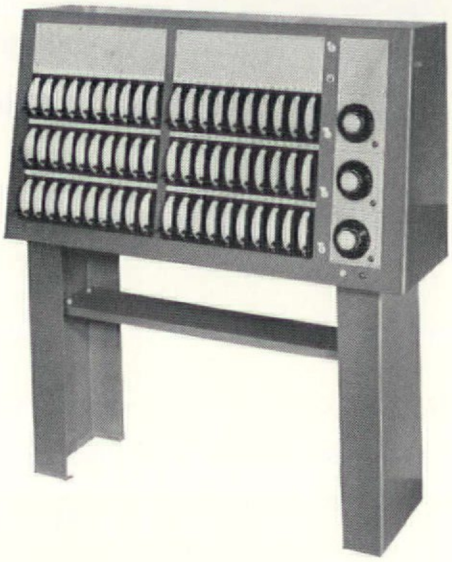
6550-B
Concealed Shower Mixer
with "Adjuspray" Rose

6860
Concealed Basin Set
with Pop-up Waste

BARKING
BRASSWARE

BARKING BRASSWARE CO. LIMITED
5, River Road · Barking · Essex
Telephone: RIPpleway 3057





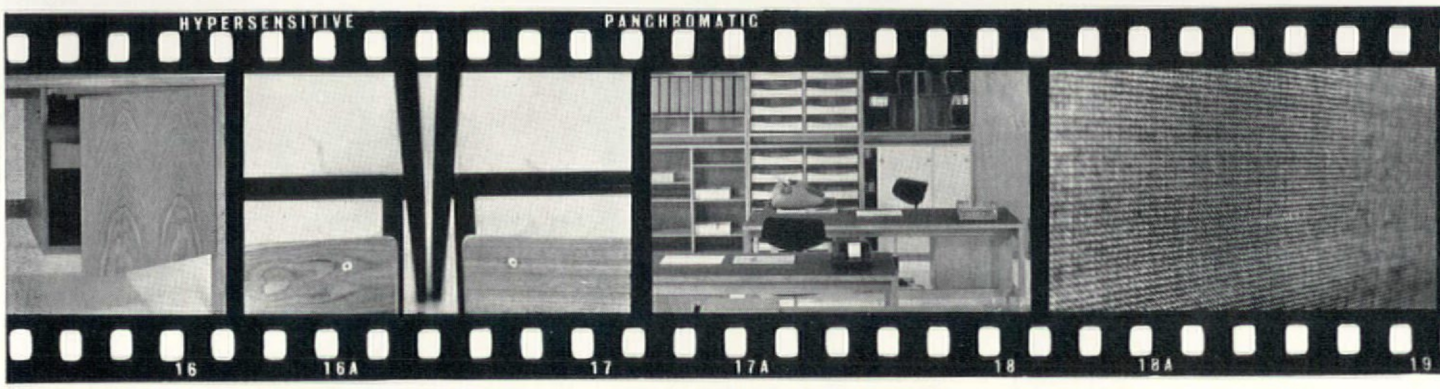
Strand Thyristor systems have for some time provided the lighting control for large stages such as the Royal Opera House, Covent Garden, Glyndebourne Festival Opera and the National Theatre (Old Vic). Now these new dimmer systems with their appropriate control units bring the benefits of preset lighting control and variable load dimming within reach of every size of theatre. Besides affording true presetting in schools, civic theatres and for similarly small stages the new systems are much more compact and actually cost less than the saturable reactor dimmers which they replace. As the only system possessing this degree of flexibility it is now becoming standard practice for it to be specified on every occasion and the following provide excellent examples of its successful use in small theatres. Jeannetta Cochrane Theatre, London, The Westminster Theatre, Studio Theatre, Cannon Hill; The Swan Theatre, Worcester; Latimer Upper School, Hammersmith, and others at home and abroad.

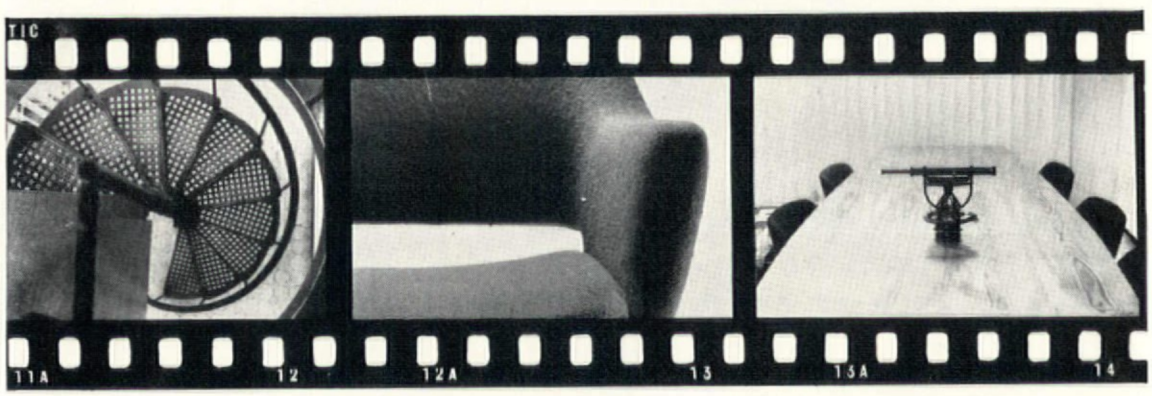
Just a matter of scale

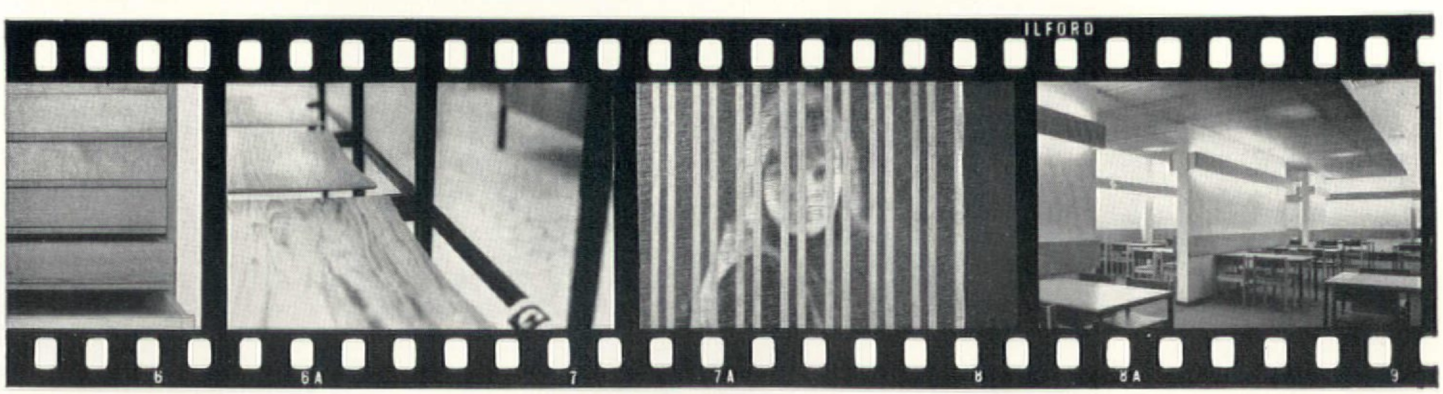
THE STRAND ELECTRIC AND ENGINEERING CO. LTD., 29 KING ST., LONDON, W.C.2. TEL: TEMPLE BAR 4444

Conran in camera

As the pictures show — Conran are not only furniture manufacturers. With a wide range of exclusive carpets at their disposal, an enormous selection of fabrics (geared to contract needs), carpet and curtain making facilities and a skilled team of site fixers — Conran are throughly equipped to work on a very broad spectrum of contract furnishing requirements.





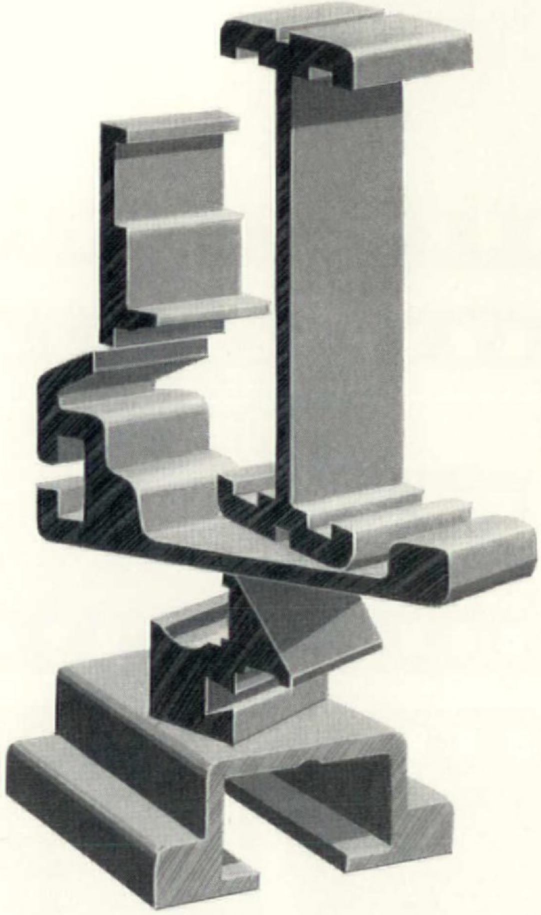


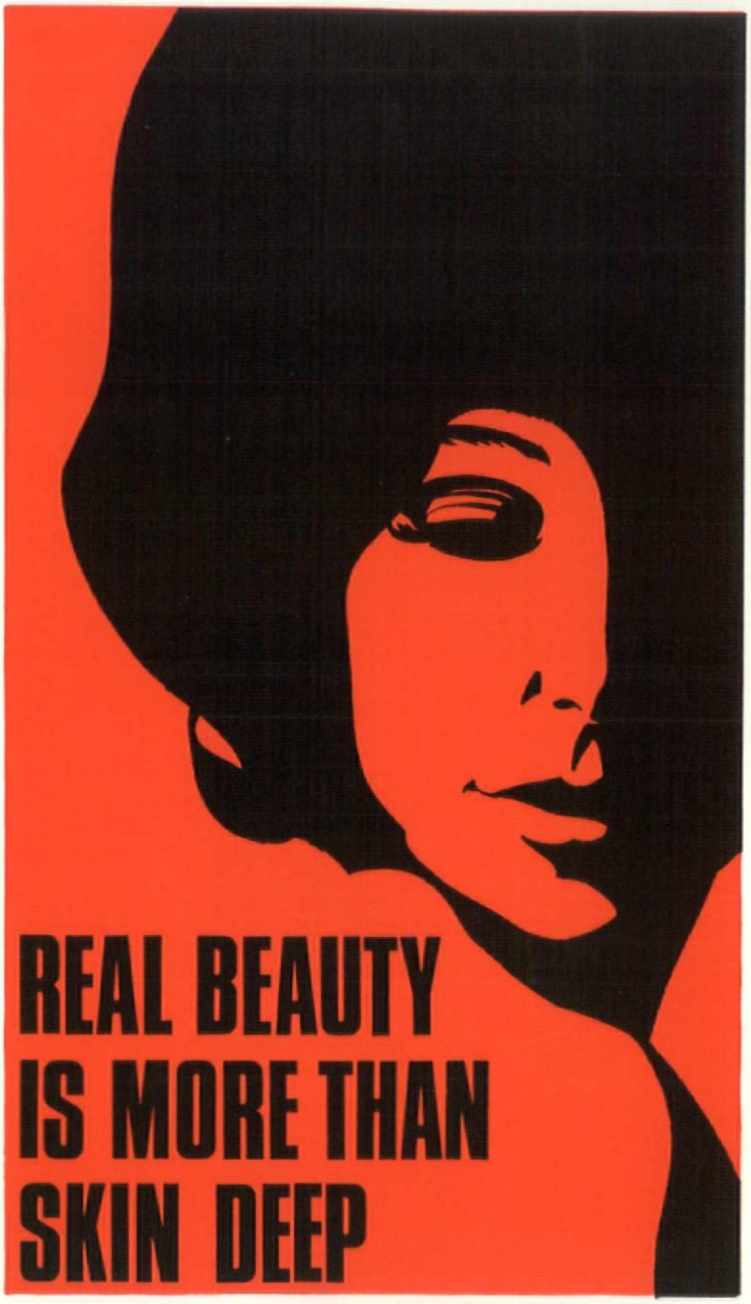
For the record — the furniture range covers all seating requirements, embraces 3 desk ranges (timber or metal framed) and will happily meet specifications as far apart as a study bedroom to a budget or the most elaborately fitted boardroom.
We have showrooms in London and Manchester, a comprehensive catalogue and sampling system and technical representatives covering the country.
Please visit or contact either of our showrooms if there is more information you would like about what we can do.

Showrooms—

5 Hanway Place London W1 LANgham 4233

3 Smithy Lane King Street West Manchester 3
Blackfriars 4558





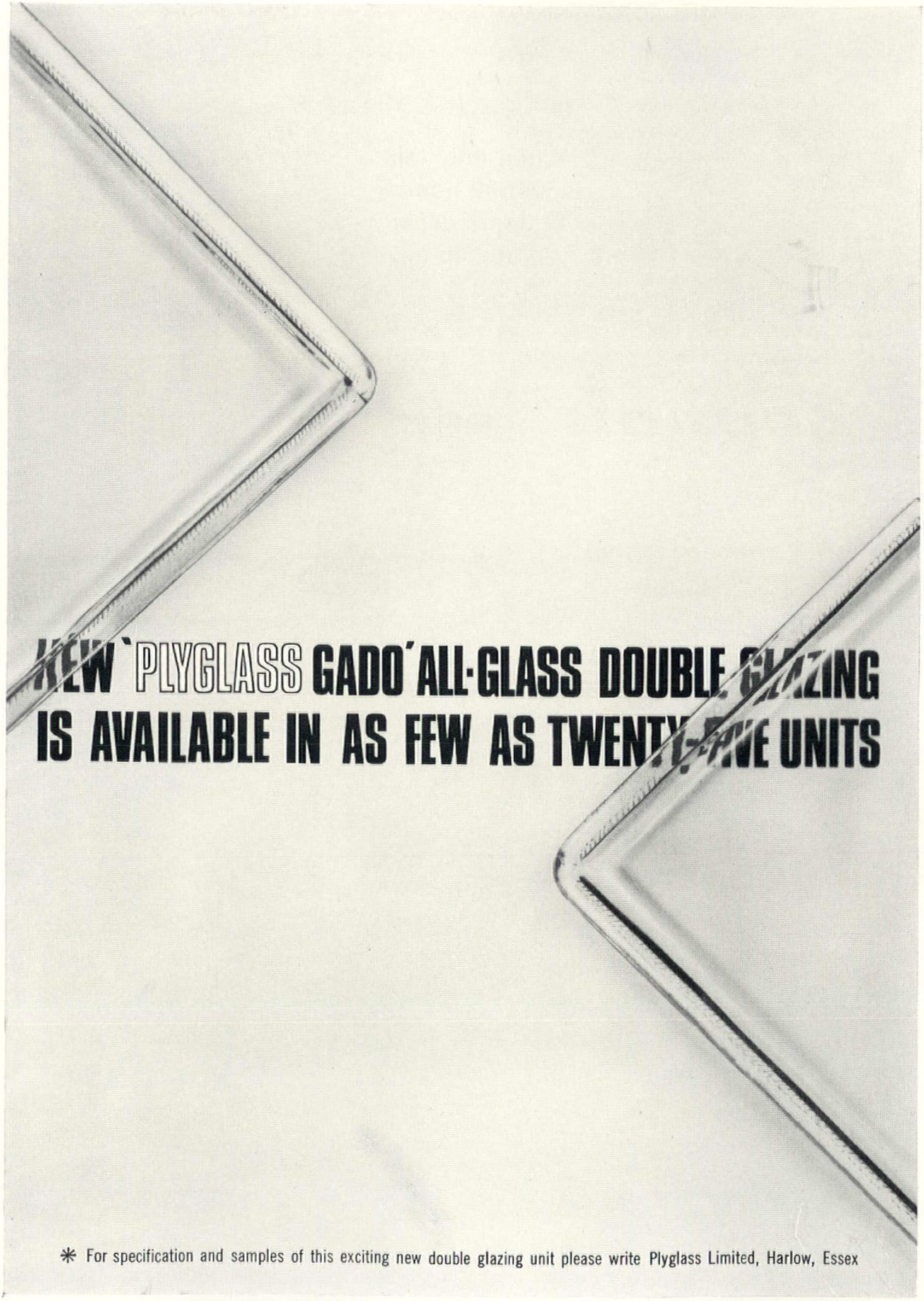
So it is with doors. Even if you use the best paints in the world, they will not give satisfactory results on an inferior base. Therefore, always be sure that you use the best foundation available—a Gliksten "Silkstone" Door. It has a perfect surface to bring out the full beauty of paint, and the edges are completely knot-free. The "Silkstone's" flush, unbroken surface ensures a perfect finish. The "Silkstone" is supplied in a special off-white primer which prevents the absorption of moisture on the site, and provides excellent adhesion for final painting. The "Silkstone" only requires the usual two finishing coats.

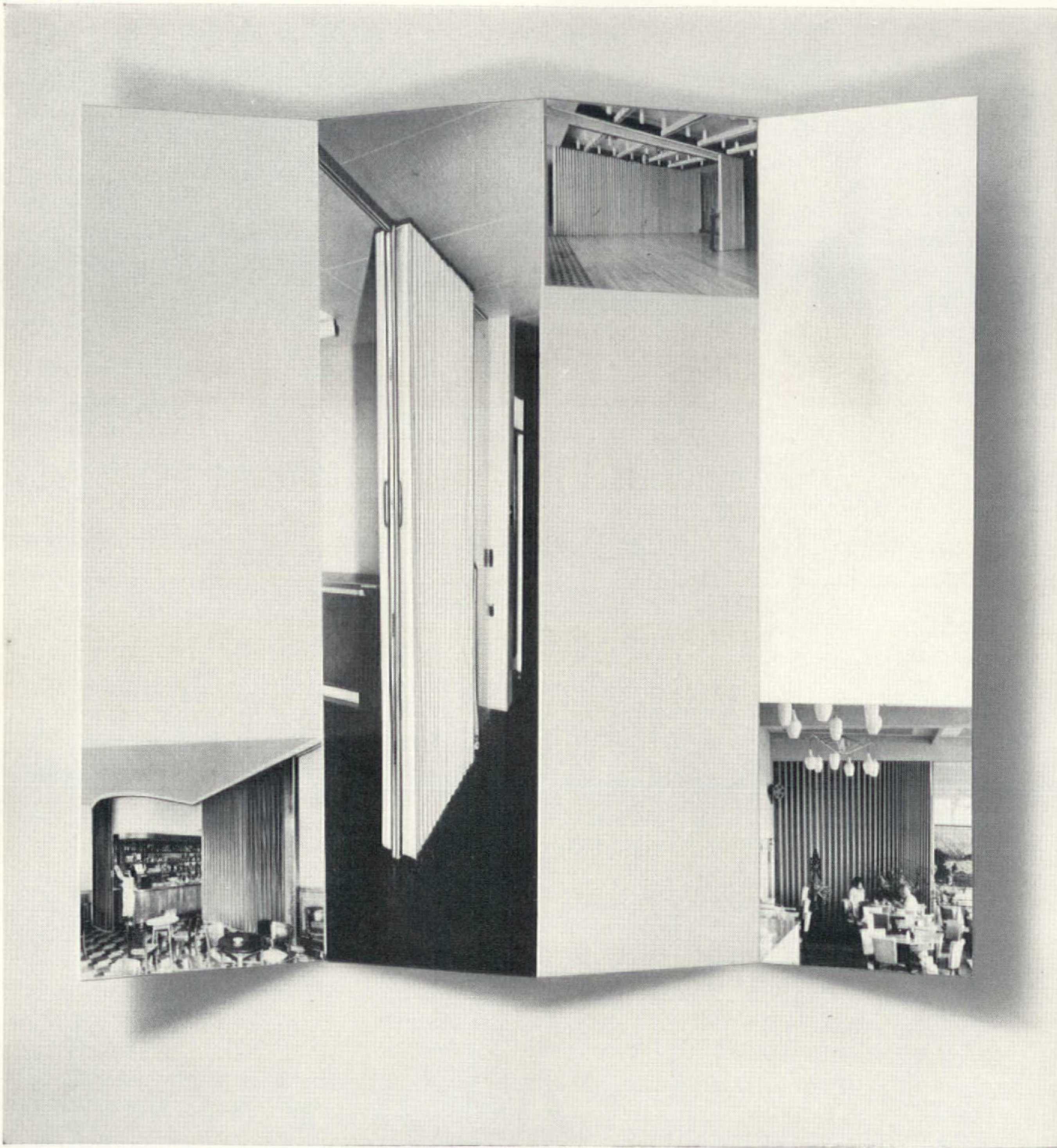
Standard sizes can be delivered at once. Exterior doors are also available. Barbour Index No. 382.

Please write for full details of the "Silkstone" door and others in the Gliksten range, including the beautifully veneered Mark XII—the door that says quality at a glance.

GLIKSTEN DOORS LTD

Carpenters Road, London, E.15. Tel: AMHerst 3300
87, Lord Street, Liverpool, 2. Tel: Central 3441
Leads Road, Hull. Tel: Central 76242


NEW 'PLYGLASS GADO' ALL-GLASS DOUBLE GLAZING
IS AVAILABLE IN AS FEW AS TWENTY-FIVE UNITS
* For specification and samples of this exciting new double glazing unit please write Plyglass Limited, Harlow, Essex



The *Modernfold* range of space dividers—every day more and more Architects discover this simple solution to the problem of making the maximum use of available space in Schools, Hospitals, Churches, Libraries, and a host of other types of buildings new and old. Modernfold space Dividers, made to individual requirements, are covered in specially made Everflex Vinyl Cloth in a wide choice of colours. They are quiet in operation and, although draught proof, require no floor track. The Vinyl covers are mildew proof, flame proofed to BSS requirements and backed to prevent stretch or shrink. *Where maximum sound resistance is required the* Modernfold SOUNDMASTER *tested by A.I.R.O. (figures gladly submitted), leads the world.*

modernfold

WRITE FOR FULL DETAILS TO:— **HOME FITTINGS** (Gt. Britain) **LIMITED**

DEPT. AD29 BRIDGE WORKS, WODEN ROAD SOUTH, WEDNESBURY, STAFFS. TEL: WEDNESBURY 0761 ONE OF THE BROCKHOUSE COMPANIES

ALSO MANUFACTURERS OF THE BROCKHOUSE MONO-CONTROL AND SUN-AIRE VENETIAN BLINDS

COMposit 1141 Ext 1180....

A secretary's extension. One of the many permutations possible with COMPOSIT office furniture.

The COMPOSIT secretary's desk is a combination of any one of eight types of table or pedestal desk (such as the 1141 shown) with the 1180 typists' extension.

4′0″ x 1′6″ x 2′3″ high, and with a willow grey 'Arborite' top, the 1180 extension can also be supplied with a 3 drawer pedestal or a drop-front stationery fitment.

The COMPOSIT range is veneered in Afrormosia/Teak with timber or square tube frames. There is also a selection of matching chairs.

COMPOSIT FURNITURE is designed by J. W. Leonard FSIA to satisfy all office needs - from board room to back room - with compatability, versatility----- and economy.

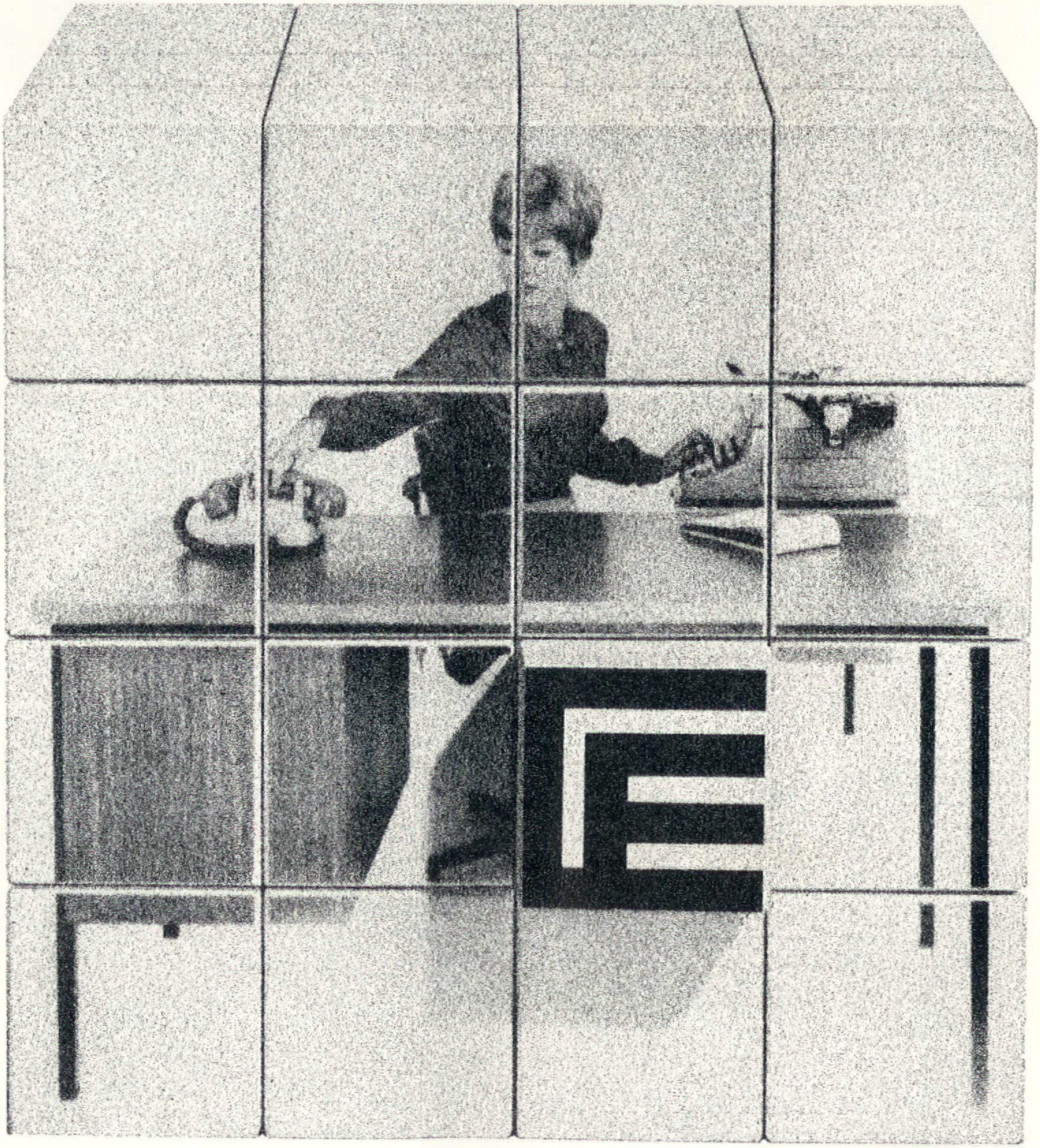
Leasing arrangements are available for orders exceeding £500.

Esavian Limited
Esavian Works
Stevenage Herts
Telephone Stevenage 500

London Showrooms
185 Tottenham Court Road. W1
Telephone Langham 3436

Birmingham Showrooms
Charles St, West Bromwich
Telephone Tipton 1631

Glasgow Showrooms
101 Wellington Street C2
Telephone Central 2369

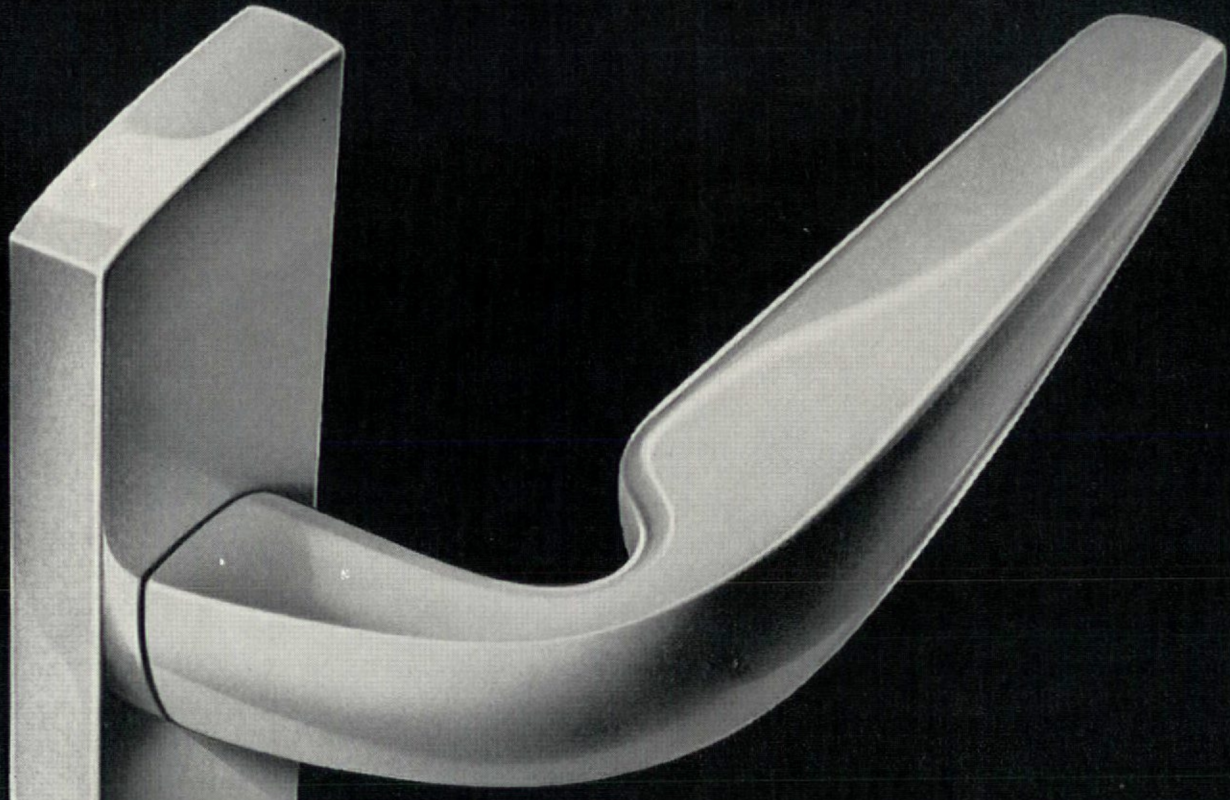


COMPOSIT FURNITURE is manufactured by ESAVIAN Ltd

EVERED

SfB (30)

UDC 682.5/6



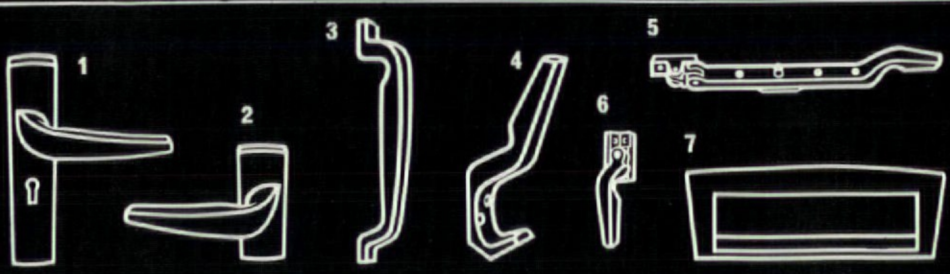
THE COUNTY SUITE

a family suite of door and window furniture

Put an extra touch of brilliance to your new project by insisting on the Evered County Suite — the *matching* door and window furniture. Note the fluid lines, the smooth, expensive-looking finish, the carrying-through of a design theme. The County Suite is consistently good in every detail and adds that unmistakable note of distinction wherever it is employed. There is a *complete* family of fittings to supply every need, in a choice of two finishes: silver anodised or tinted anodised on cast aluminium. This is the suite to set off *your* masterpiece; send for illustrated brochure giving full details of the County Suite before you settle for second best!

ARCHITECTS' INFORMATION SHEETS for the entire EVERED Architectural range are readily available.

Evered and Company Limited
Surrey Works, Smethwick 40, Staffs.
Tel: Smethwick 0881 (STD Code 021)
London Office: 1B South Grove, Tottenham, N.15.
Tel: Stamford Hill 8832 (STD Code 01)



1 Spring Loaded Lockset.
2 Spring Loaded Latchset.
3 Door or Cabinet Handle.
4 Hat and Coat Hook.
5 Casement Stay.
6 Wedge Casement Fastener.
7 Gravity Flap Letter Plate.

Farosheet Synthetic Rubber Roofing offers unique advantages to architects

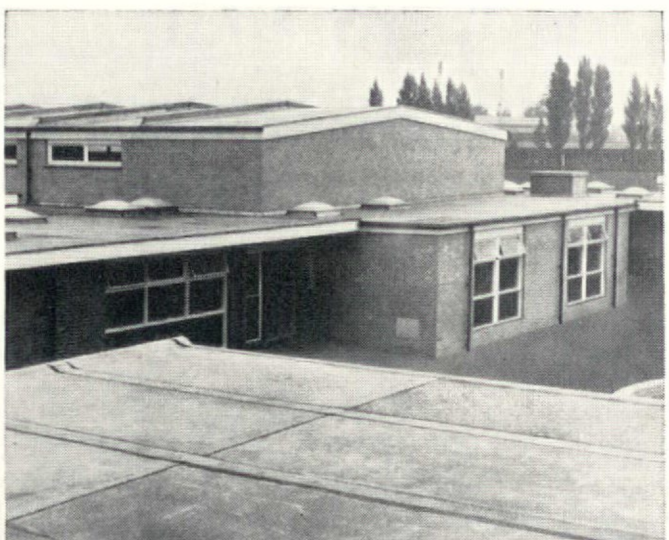
Farosheet is a product completely in tune with today's needs. It offers advantages which you get from no other weathering.

1 It can be factory-bonded to insulation boards or roof-decking of the architect's choice, before it reaches the site, leaving only the joints to be sealed when it is finally laid. This means a great saving in site-labour costs. It can also be applied *in situ*.

2 It has an excellent fire-rating—EXT.F. AA on concrete decking, and EXT.F. AB on insulation roof boards.

3 It requires negligible maintenance, and has a working life in excess of thirty years. The first five years are guaranteed maintenance free.

Farosheet is one of the lightest and easiest to handle of all roofing materials, and this in itself reduces site-work and delays. It is manufactured by Farmiloe Sealants Limited, who are pioneers in the field of synthetic rubber roofing. Farosheet is a patent-protected laminated sheet of vulcanised Neoprene and unvulcanised butyl rubber. Farmiloe Sealants Limited are always pleased to advise architects on the use of this exciting product. In particular, they are able to offer to water-proof any insulation board which the specifier requires. Thanks to their good relationships in the industry they can approach the board manufacturer who supplies the board which the architect requires and sort out all proofing problems direct.



Recent contract for Farosheet: ST. PETER'S SCHOOL, WISBECH
Architects: MITCHELL, MOBBS & TAYLOR
Main Contractor: R. WALLACE
Roofing Contractor: TANNER & HALL LIMITED

Reed PAPER GROUP

farosheet SYNTHETIC RUBBER ROOFING

FARMILOE SEALANTS LIMITED · REED SITE · LARKFIELD · NEAR MAIDSTONE · KENT · Telephone: Maidstone 77151/2/3

The month in Britain

Michael Manser

Architects were still smarting under the *Observer* attack, but in Bedford more buildings were discovered to contain engineering miscalculations, and at Ferrybridge cracks were discovered in one of the cooling towers remaining from those blown over last autumn.
Denys Lasdun's South Bank Theatre got the final go ahead, but the Opera House, vital part of the overall conception, may be omitted.
Phillip Dowson and Phillip Powell both gave their view of architecture at the RIBA, and arrangements were announced for Myron Goldsmith (SOM) to give his views at the RIBA annual discourse next April 19th.
Also from the RIBA came the news of a second term of presidency for Lord Esher and, more alarming, that there had been a drop of 15 per cent in commissions to private architects. Almost by coincidence the council re-interpreted the Code of Conduct to all our members to submit unsolicited articles to the press, to appear in films or television programmes provided they avoid *undue* self-advertisement. The RIBA then suggested that ARCUCK should have a go at their Code too, and courteously upbraided national press editors who omit to name the architects of buildings in the news and, even worse, publish architect's perspectives as 'artist's impressions'.
Mr Crossman (MoHLG) allowed a planning appeal by the Abbott of Prinknash Abbey for a new Benedictine monastery and Church at the Abbey near Gloucester; appointed Sir Robert Matthew holder of a public inquiry into the future of Broad Sanctuary, Westminster; gave permission to Manchester to extend its airport runway so as to get direct jets to America; announced that the government would take part in the scheme run by the National House Builder's Registration Council to provide guarantees and standards of construction (mortgagors being asked to cooperate); and proposed a Centre for Environmental Studies. The Ideal Home Exhibition opened, and his Ministry exhibited a 5M patio single-storey house. But they ought to know better than to flog bungalows at this juncture of the land famine.
Cunard opened their arms wider and co-opted Theo Crosby and Stefan Buzas to the Q4 design team.
The Gulbenkian Foundation gave £3000 to the University of Cambridge School of Architecture for the initial costs of an investigation under Sir Leslie Martin into the use of land in urban areas, and a Chair and Research Group in Traffic Studies was set up at University College London with grants from the GLC, the Automobile Association, ICT, Shell Mex and BP, Public Works Exhibition, and the Rees Jeffreys Fund. The Design and Industries Association appointed Maurice Jay as its general secretary.
The Polytechnic, Regent Street, undertook to train an additional 300 planners during the next five years, in collaboration with the GLC and London Boroughs.
The BSI arranged a conference at the Imperial College of Science and Technology for April on Britain's change to the metric system and its relation to international standardization. And at Durham University from April 15th to 17th the Junior Liaison organization will hold a conference on Recruitment for Building!
The fifth world meeting of the International Road Federations is still making plans for its London assembly in September, but in Glasgow the corporation revealed that their consultants recommend an immediate ban on heavy traffic in one of the main shopping streets; and Bristol became the first city to publish a City Centre Policy report to cover the years up to 2010.

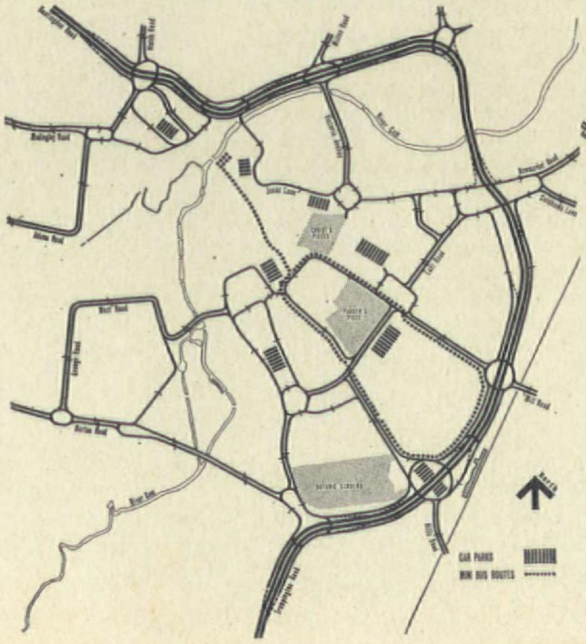
NBA certificates

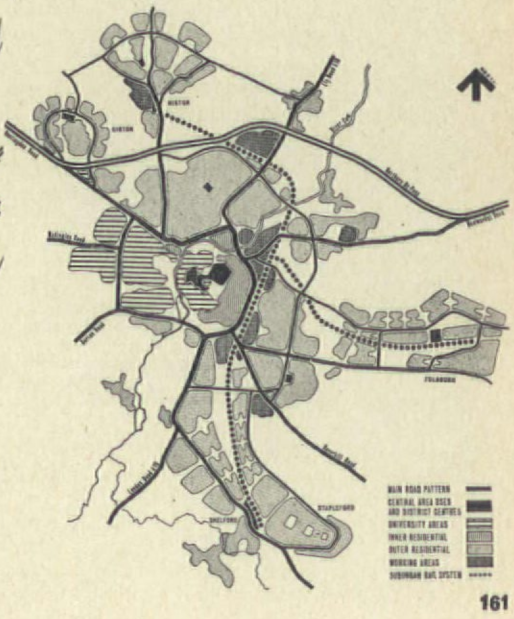
Raymond Wilson

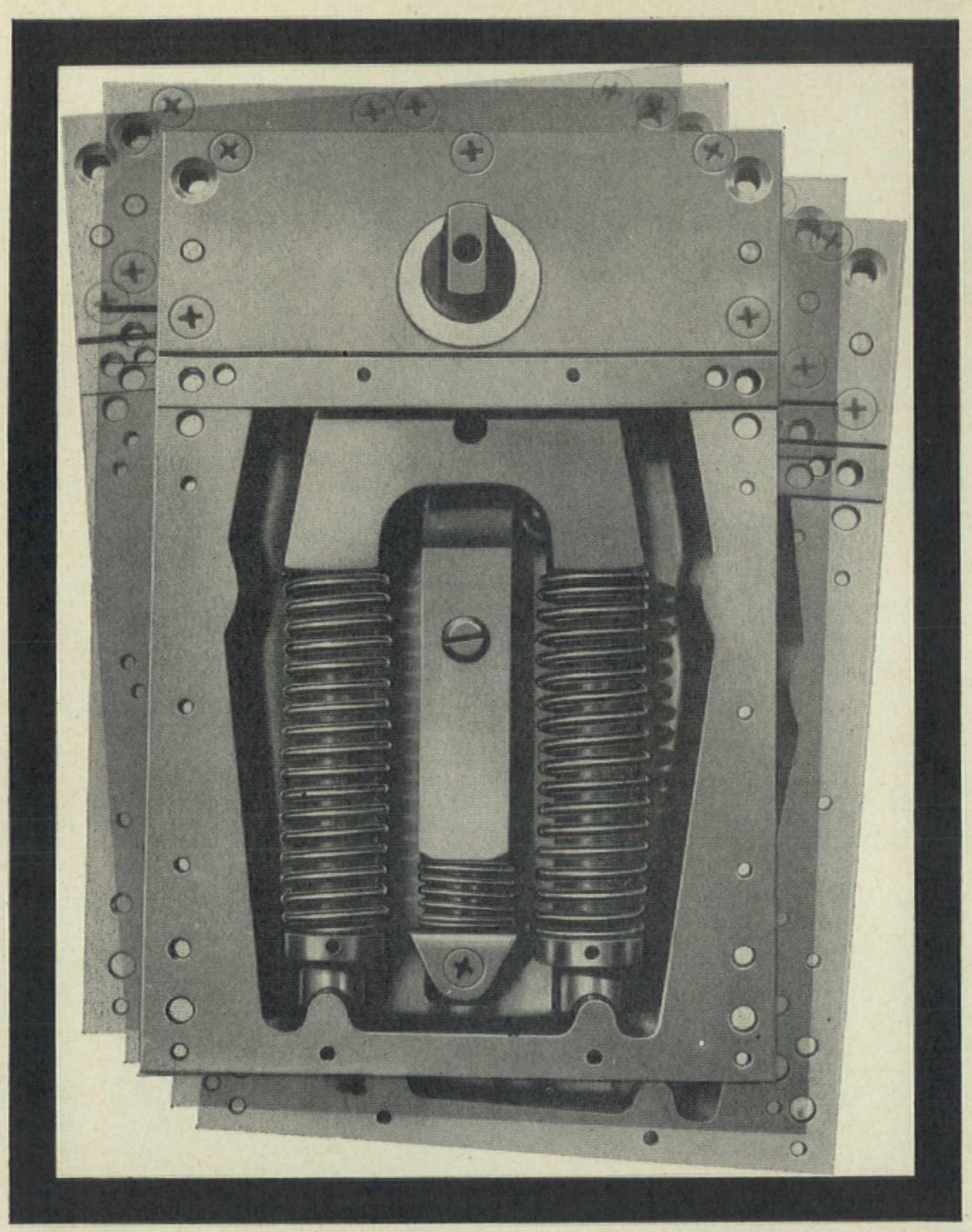
No doubt laudable of the National Building Agency to assist the local authorities in their embarrasing task of selecting a system, but how has such an artificial situation arisen in the first place?
The large number of systems that have sprouted in the last four years, most of them based on a considerable amount of capital and ignorance, are the result of coffee and lunches in the corridors of power, and the exhortations of responsible persons in, or associated with, the government. Political expediency meant that houses rather than components were emphasized, and quantity rather than quality. Everybody leapt onto the bandwagon.
It is not hard to speculate on the outcome: collapse, loss of money and goodwill amongst the smaller firms, oppression and insult to our environment by the giants, constraint and neglect to the users, and the mass-creation of megalithic slums for the twenty-first century. Of the hundreds of initial systems, only a portion will receive certificates of worthiness. Worthiness, by what criteria?
If instead these firms had been encouraged to produce elements for a nation scale 'open' system, then there would have been work for everybody, including the designers; who are after all the most advanced, thinking in terms of rationalized techniques, in the world. The excuse of dimensions and joints just does not hold water. The Modular Society has been formed now 11 years and dimensional thinking goes back to the work of Albert Bemis in 1936. Work on joints has as ancient a lineage, and much has been done by our own Building Research Station.
Such a system could cope for the sporadic demands of the local authorities as well as the need for high key flow-production of the manufacturers. The cream of design talent (at present destitute but fashionably interested in industrialization) would be drawn into official departments.
The record of the Civil Service and organizations under its influence for meddling in the free economy of the building industry is unique. They should either allow it to wend its capitalist way according to market and demand, or the Government should re-organize the L.A. system for housing and nationalize a sector of the building industry (NBI?). Either way there would be less wastage.

Cambridge future

In his report, *The Future Shape of Cambridge,* Gordon Logie, the City Architect, describes the possible development fo the city up to 2011. Natural increase, changes in employment policy, and growth in commuter population, could cause the population of the employment exchange area to rise to 340,000 by this date; 120,000 of these could live within the city boundary. University population, which has increased by 25 per cent in 20 years, will continue to grow. The Birmingham/Ipswich and London/Norwich motorways will intersect between Cambridge and Newmarket, bringing London, Ipswich and Norwich within an hour's driving at 60 mph. To meet these conditions Logie proposes a 'main town road' of motorway standard linking Huntingdon Road in the north to Trumpington Road in the south, collecting all the major radials on the east side of Cambridge. Distribution loops from this road stop short of a pedestrian centre which includes nearly all the university area. The west side is free for the university expansion. An extensive system of cycle paths, mini bus routes and a possible suburban railway service provide balanced transport facilities. Surrounding villages absorb the increase in population.
At last Cambridge has a planner who recognizes that the scale of transport operations required to save the historic centre cannot be achieved without expanding the supporting population. Even so, the traffic consultant's report (not yet available) may show that the scale of Logie's traffic proposals is not large enough. They are almost identical to previous proposals by the university for a 'stabilized Cambridge of 100,000'. If the city is to be allowed to grow independently of the university, a redeveloped centre would be easier and cheaper to build, easier to service and more free to expand if it was located on the 'main town road', perhaps by the railway station. Here it might be combined with the regional shopping centre. The problem of mass car access to the Lion Yard and the historic centre would cease to exist. Transport within the city could be further decreased if the residential density on redeveloped central area sites were increased above the 40–50 ppa recommended by Logie. Studies carried out at the Cambridge University School of Architecture indicate that a population of 160,000 could be accommodated within the city, if these sites were built up to densities of 100 ppa maximum.
Finally, if the cost of all these operations is prohibitive, might not all the city's objectives be achieved if it became a government-subsidized expanded town?







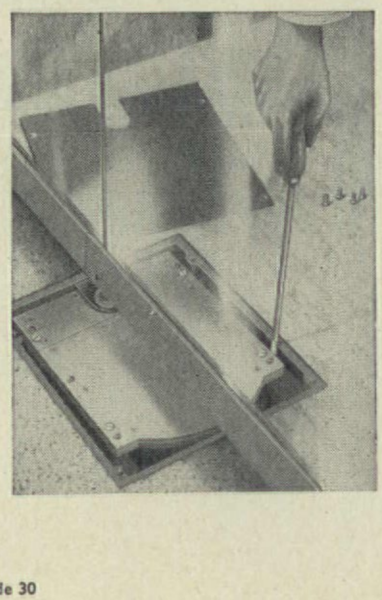
MORE ADJUSTMENT

less cost with the adjustabox

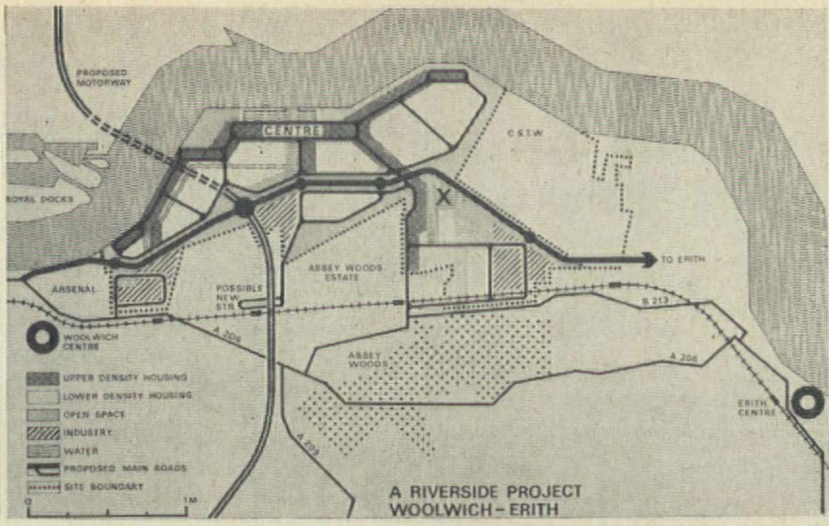
The 'ADJUSTABOX' is an entirely new loose foundation box for mounting floor springs allowing for alignment of door in all horizontal directions. The 'Adjustabox' compensates for inaccuracies in fixing, and eliminates the need for adjustable shoes and straps. This together with improved production methods, enables a fully adjustable floor spring to be offered at a considerably reduced cost.
The 'Adjustabox' is available for Newman's Monarch, Britannic and No. 900 Floor Springs.

NEWMANS *Makers of the famous Briton Door Closer*

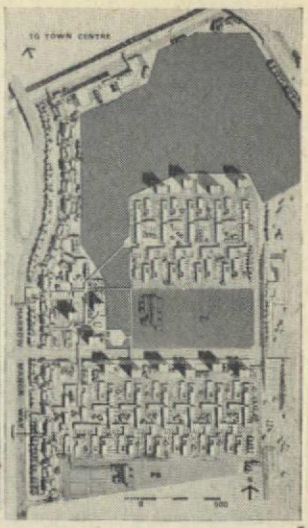
WILLIAM NEWMAN & SONS LIMITED
HOSPITAL STREET, BIRMINGHAM 19



1



2



3

Woolwich–Erith riverside project

A draft master plan for a completely new Thames-side community of up to 60,000 Londoners, who will enjoy a three-mile riverside walk with restaurants and pedestrian segregation, has been prepared by the GLC in co-operation with the Bexley and Greenwich Borough Councils, for the development of 1300 acres of flat, low-lying land on the Woolwich–Erith site. The plan also includes a proposal for a new river crossing.

Six hundred acres, or nearly half the whole area, will be set aside for housing, at, on average, 100 people to the acre, but there will be higher density development right along the river bank to take advantage of the visual interest of the river and its activities. Because of soil conditions, homes will be built on pile foundations with an average depth of 30ft to 40ft.

The development will have its own central area (complementary to Woolwich and Erith), planned next to a new yachting marina, with shopping and entertainment centres, public buildings, tall blocks of flats and maisonettes and a college for further education.

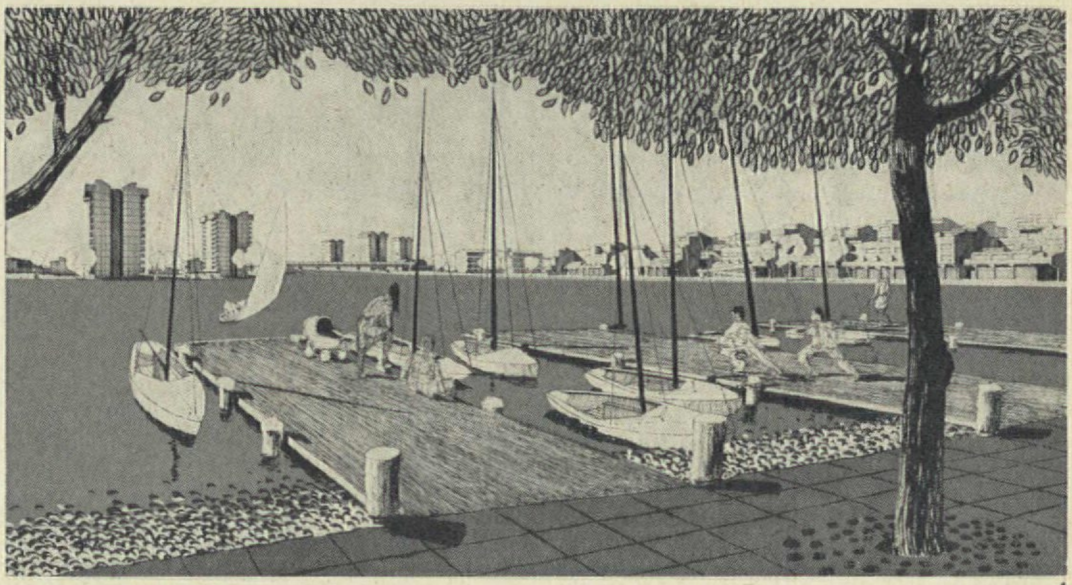
In addition to the large proportion of parkland and open space, new lakes are included for sailing and water sports. One of them may be linked to a new system of canals.

An east–west motorway would connect Erith and Woolwich. Elsewhere on the site a partly one-way circulatory traffic system would concentrate traffic on a few main distributor loop roads. No through traffic would be allowed within the areas inside these loops.

A walkway network links homes with schools and the central area, and is linked to upper level walkways right through the encircling higher density areas.

Work on the first stage housing scheme for 5000 houses is due to start on the ground this year. Its 85 acres site, which encloses one of the new lakes, lies to the east of the existing Abbey Woods Estate. Development, though mainly of two-storey houses and gardens with ground-level pedestrian circulation through linked squares, includes three-storey row housing and four-storey north–south elevated linear housing, along Harrow Manor Way, with a continuous first floor pedestrian deck, and vehicular access and garaging below.

The preparation of the draft plan was undertaken by a special team formed jointly by the Architect to the Council and the Director of Planning.



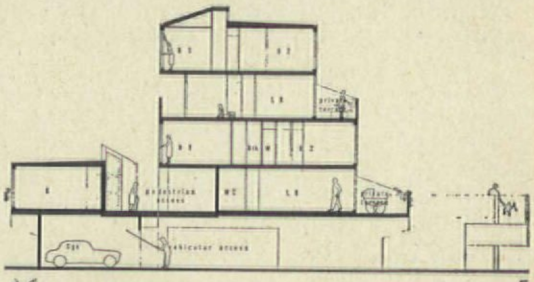
4

1
Highest density housing is concentrated to take best advantage of river and riverside walk. Dwellings are mainly of the 'through plan' type for N–S views. Upper level walkways, full width of blocks, provide protected play areas, access to dwellings, and continuous routes to the centre

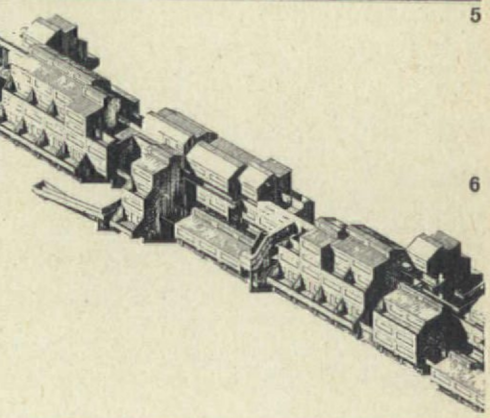
2
Draft plan for whole area. X marks the position of the first stage site plan (3)

3 & 4
Plan and view of the first part to be developed, 85 acres, housing for 5000 round a new lake. Main feature is four-storey 'linear housing' (to left of 4. Also 5, 6) with continuous pedestrian deck linking to local centre (marked by 13-storey point blocks)

5 & 6
Section and isometric view of linear housing, with four-storey maisonettes and single-storey old people's flats on the pedestrian deck at first floor level, and garages below



5



6

†

Raymond Lopez, Paris, February 11th, 1966

Frederick J. Kiesler, New York, December 1965. The funeral was an improbable, zestful affair; the Juilliard String Quartet played Mozart and Schoenberg, and Robert Rauschenberg rolled in a car tyre and painted it yellow, blue, green and white.

UIA 9th Congress, Prague 1967

The date has now been announced: July 3rd to July 8th. The Executive and Working Committees meet during the preceding week, June 28th to July 2nd.

Calamity in Sydney

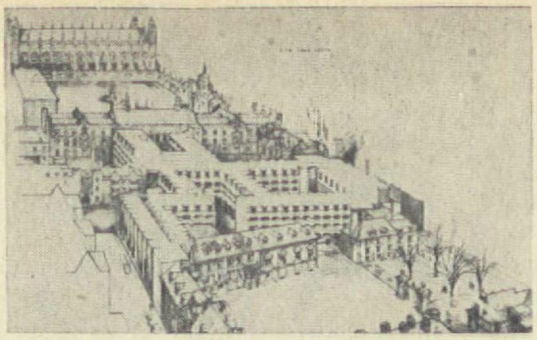
Jørn Utzon in head-on disagreement with Minister of Works over spiralling-cost opera house*. Consternation among fellow architects.
* See *AD*, March 1965

Erratum

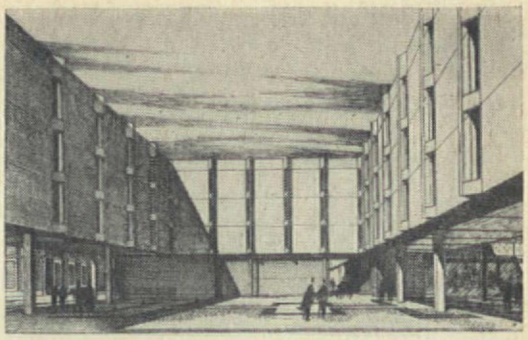
The descriptive text of the school by Wilhelm Shütte published in *AD*, February 1966, p. 99, does not relate to the illustrations. Professor Schütte's school is for mentally handicapped children. The noteworthy feature of the design is the use of glazed side walls to the classrooms. The walls between the classroom and corridor is not entirely glazed, but permits a great deal of light to be borrowed from the corridor. The wall giving onto the balconies can be folded back entirely.

Cambridge buildings

Well-mannered is the word for James Cubitt and Partners' new buildings for St Catherine's and King's College, Cambridge. What is more problematical is to decide if this is intended as a compliment or otherwise. Absolutely the agreement of the two colleges to demolish the muddle of buildings that lay between them, on either side of King's Lane, and to redevelop the site to their mutual advantage with the approval and help of the city authorities, represents a triumph of diplomacy. Granted the utmost willingness on all sides, it is difficult to imagine any architects arriving at a solution that would be acceptable to all. Yet Cubitt and Partners have apparently succeeded—and succeeded despite all oddity in the programme. The façades where King's Parade breaks into Trumpington Street are to remain. But King's Lane is to be realigned and virtually to disappear as it becomes instead a walkway through courts and under buildings. St Catherine's is to have a basement car park for 50 vehicles, there are to be 150 new bed



sitters (each with its own bathroom), both colleges are to get new kitchens, St Catherine's is to have a new hall, a graduate's parlour, a library annexe and sick bay, King's will have a research centre, a music room and a club room. This assortment the architects have grouped together with tact and restraint, contriving ranges of three-storey buildings (on columns for the most part) around a series of courts so that there is a long vista from St Catherine's



first court through to Chetwynd Court. As an example of infill it is judicious and thoughtful. But in the detail the restraint imposed is beginning to show its edge—there are sharp and unlovely adaptations of oriel windows around some of the courts, the articulation of the façades to Queens' Lane is curious and mannered and the buildings as a whole appear to rest uneasily on their piloti. Perhaps less restraint and tact would have produced a more robust design.

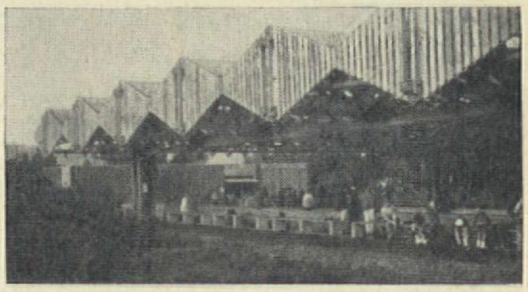
Scottish outpost of commercialism

Frank A. Walker

The sudden impact of intensive development upon a country village is generally cause for alarm, especially architecturally. In Aviemore, however, where a multimillion pound investment is being made in the Cairngorm ski slopes, appraisal must start on a different footing. Surprisingly, this is a dull, untidy place. One might be forgiven for hoping then that the lavish development presently under way could improve the look of the village. Alas for such naïveté! With new forms beginning to take shape, it looks as if Aviemore will remain a visually depressing place.

By autumn, the first hotel in the new £3 million holiday centre will be doing business, and city dwellers will flood in hoping for rejuvenation. But even at this early date it seems they will arrive in a built environment as bleak and jaded as the office blocks and shopping plazas from which they are escaping. Yet elsewhere in the village there are similar more modest new buildings, whose design makes climatic sense in this part of the world.

By far the most interesting development in the area is at Coylumbridge. Extensive hotel amenities and unpretentious architecture have been combined to make this outpost of commercialism a success. Buildings whose forms and disposition cope with the elements, materials that will weather well and blend and contrast subtly with the surrounding heather, birch and pines, interiors which wrap a 'foresty' warmth about one after the biting white zest of the slopes, all suggest a thorough design concern. (We show here the covered ice rink.)



Hospitals

Leeds 1

A possibly unique degree of collaborative intimacy between administration and architects, Building Design Partnership, after almost four years of work, produced a planning report for amalgamating and rebuilding three of Leeds' central hospitals plus a medical and dental school into a single teaching hospital, designed to have 1500 beds and graduate 100 medical and 60 dental students a year, besides providing a district hospital service.

The complex, to cost £25 million and build over 15 years, starting 1967–70, lies on a 44-acre site (crossed by a sunken inner ring road) between the university and city centre. The architects have covered the ground with a maximum four-storey 'low dense' build-up of departments round a series of courts which allow natural light where necessary in a generally artificial, fully flexible environment.

Sensibly the architects show no elevations at this stage, but hope to contain the inevitable changes of designer and detail brief by a bold expression of the initial structure, behind and between which the essentially indeterminate envelope can develop.

Accepting the difficulty of giving form to what is virtually more a suburb of Leeds than a building, one can still question the result's contribution to the townscape and especially on such a central site, where it could seem neither a continuation of the university's courtyard system nor a convincing piece of motor-age massing. Only 15 years' time and a willing government will tell. *Kenneth Appleby*

Northwick Park 2

The North West Metropolitan Regional Hospital Board announced last month that work has begun at Northwick Park on their £13 million combined district hospital and clinical research centre, architects Llewelyn-Davies Weeks and Partners. Outside of the United States this is the only such organization in the world. Phase I is due for completion in 1969 and the whole Trollope and Colls' contract is to be complete in 1973. It was the exemplar in John Weeks' 'Indeterminate Architecture' paper given at the Bartlet School in 1964 and Reyner Banham gave it an historical nod in his paper on the history of clip-on architecture in *Design Quarterly 63* (1965) (see *Architectural Design*, November 1965).

Manchester 3

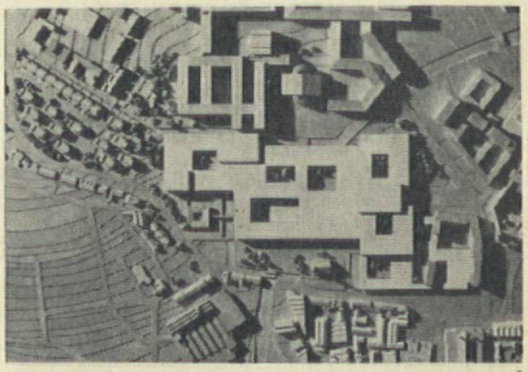
Work has begun on United Manchester Hospitals' New Saint Mary's Maternity Hospital in Hathersage Road, Manchester. It will cost approximately £2½ million.

Saint Mary's has an international reputation in the field of obstetrics and gynaecology and it has long been renowned as a teaching hospital. It is also an approved training school for midwives.

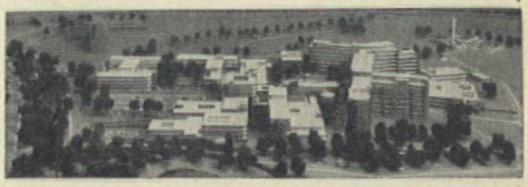
The architectural concept, that of a square-on-plan tower block resting upon a two-storey podium, was chosen by the architects, Watkins, Gray associates because the two-storey podium makes almost full use of the whole site and the tower block enables related departments to be stacked one above the other, with the advantage of vertical communication. The majority of the tower block is mechanically ventilated or air conditioned.

The concrete structure is essentially an economical frame necessary only to create large volumes.

The horizontal concrete 'eyebrows' are intended to reduce solar heat-gain in the building and to reduce solar-glare.

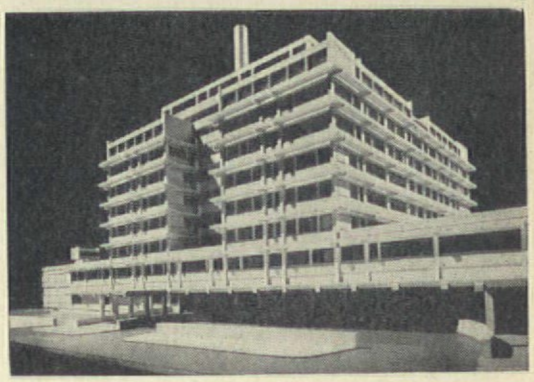


1



2

3



Around Britain—4

Edinburgh and the Lothians

In June 1962 the principal of Edinburgh University presented to the city a scheme for comprehensive redevelopment of the university prepared by the town planning consultant to the university. The area comprised 125 acres and the aim of the plan was to provide the right buildings for town and gown, in a proper setting, with safe and easy access for pedestrians by vertical separation and uncluttered flow for vehicular traffic. It was a comprehensive planning exercise which ensured a background for exciting possibilities of redevelopment on a realistic basis. Always aware of history, public reaction declared the plan to be the making of another New Town, a successor to the first and second great developments, instigated by public enterprise in the eighteenth century and implemented by such men as James Craig, William Playfair and Robert Adam. **1, 2**

In 1965 the Corporation at last announced its plans for a large commercial and residential development in the area between St Andrew Square, Waterloo Place and the Calton Hill. Apparently emanating in this case from the developer, the description 'New Town' was again employed, and the coinage of the term in its Edinburgh sense finally debased.

In the presentation stages of two such major redevelopment proposals, the reference to historical Edinburgh is significant. In the former case it was a reference to a high tide of culture and building, in the latter case, irrespective of the merits of the proposals, it was a lump of sugar for the sensitive public to take with the pill of commercial development.

The city, with a population of nearly 500,000, finds herself in an isolated case amongst the top ten British cities.

Whilst the others, like her neighbour Glasgow, maintain a struggle to regenerate great areas of decay, and remove the hangover symptoms of their industrial pasts, Edinburgh has not a large-scale problem of this nature. Her problems are created by the quality of her historic fabric and the fineness of her siting, both of which must temper actions designed to keep abreast of the times. The Corporation has a patchy record in its approach to this problem, where it alone is fully responsible for broad strategy and shaping the way ahead. The citizens and preservation bodies, ever ready to publicly decry the loosing of old stones in central Edinburgh, appear to be unable to distinguish genuine worth, and they have not been appraised of the likely price of keeping the city in touch with social development and preventing it becoming a kind of folk museum with traffic. (Hence the New Town references.) Even the lively Edinburgh Architectural Association, the local body of architects, has not until recently concentrated on regularly advising the Corporation of the seriousness of the situation and the problems of the future.

In a tally of recent action the Corporation can claim the aid of several consultants in the town planning and traffic fields, and participation in a Greater Edinburgh Transportation Study.

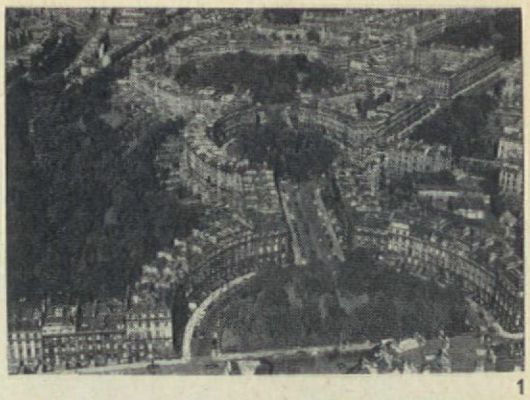
On a narrower front the Corporation can point to associations with private architects such as Ian G. Lindsay and Partners, who have produced highly satisfactory work in their task of cavity filling parts of the Royal Mile and face-lifting Cramond Village. Such associations have also produced the bulky but workmanlike Napier Technical College and several council housing schemes at Leith and in South Edinburgh. The Castle Terrace multi-storey car park has been commendably set into a valley and the central area scene; but less commendable is much of the City Architect's Department council housing. As the siting of the multi-storey car park is good, the proposals for housing at St Leonard's, bordering the Queen's Park and near Holyrood Palace, have been poor. One block has slipped off the plans onto the ground in the vicinity of the Palace, and exhibits doubtful taste in such surroundings.

Private architects with clients other than the Corporation have contributed a variety of qualities to the Edinburgh scene. With one exception **3** (the Standard Life offices), the further away from Princes Street and George Street the buildings are, the better their quality is. There has been no disservice done to the city in the building of its first high block **4**, for the university, at George Square and it has been subtly clad in black slate. The square, now being redeveloped by the university to a comprehensive plan, **5** will soon have other major buildings of the educational precinct erected and, together with the proposed new Royal Infirmary adjacent to it, is the most concentrated area of building activity in the city. For new buildings which take advantage of their siting, however, it is difficult to find a better example than the library erected in the Royal Botanic Gardens by the Ministry of Works and the proposed new extension to the area of glasshouses promises to match the excitement of the existing Victoria ones (see *AD* 3/65, p. 104). But whilst the individual efforts of private architects and others responsible for building have variously detracted from, and occasionally added to the dignity of Edinburgh, it is at a much broader level that focus and thought are necessary. The city has not yet been mortally wounded and the balance of whether it will be ruined or improved depends on action now.

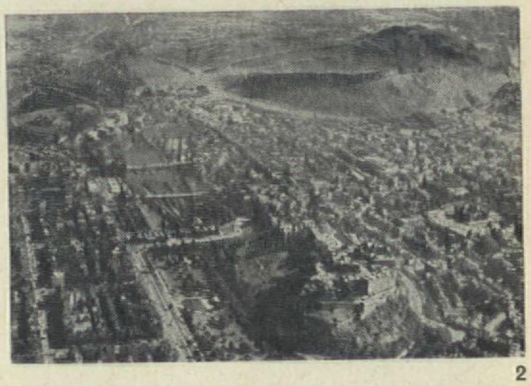
Fundamental problems of relating the city and the growing region with its greater industrial, population and traffic factors must be faced. The problem of stabilizing the city population at a level in keeping with its unique physical setting has to be considered, as has the ancillary problem of a scarcity of housing land in both sectors. Already at Alnwickhill, an area of high landscape value on the city's southern side, proposals have been put forward to build council housing, and withdrawal of those proposals after a public inquiry has induced in the housing committee a frantic reshuffling of proposals for available sites. The Corporation have announced their intention to provide for central area road traffic by developing an improved primary road network, part of which will be a new inner ring route. Such a proposal must be questionable in the structure of present traffic pressures on the city, and it will not prove a comfortable girdle for so old a lady. Surely solutions to this problem can be evolved, and not taken from the stockroom of past practice elsewhere? Further question marks hang over such matters as the formal adoption of the university's proposals to comprehensively redevelop the area round it, and the topical sites which British Rail have cast off to be centres for new property development at Haymarket and at the old Caledonian Railway Station.

Looking at Edinburgh as the natural capital of her region, these deficiences are highlighted. To the west where growth is the keynote and a regional plan has been initiated by the Scottish Development Department, Livingston New Town already has its first inhabitants. To the east the rural county of East Lothian is steadily maximizing its potential as a recreation area for the city in the fullest and best sense of the term, whilst to the south the Borders are stirring in the promise of new plans and new life ahead. Yet 'Auld Reekie' appears to be only partially aware. Her development plan review is imminent and may in fact meet many of the points raised here. While hope springs eternal it is doubtful whether such a document will achieve the heights of determination, authority and expertize necessary to meet the current need. Sneakingly, at the back of the mind lingers the thought that responsibility for this national attribute of a city should pass to other hands which have the tools to act expeditiously as no local authority have? But time, oh time, is of the essence!

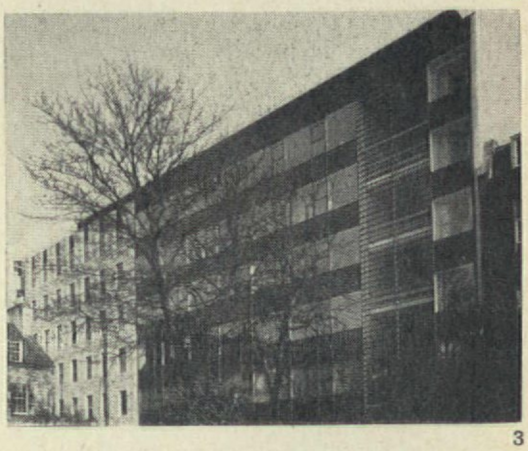
Photos: 1 Planair, 3 & 4 Henk Snoek, 2 & 5 courtesy Percy Johnson Marshall



1



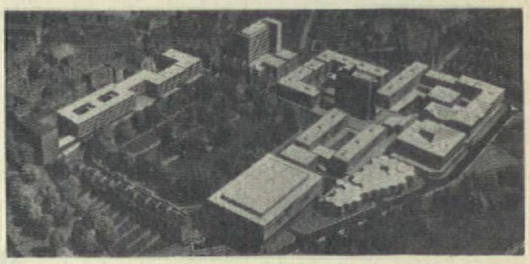
2

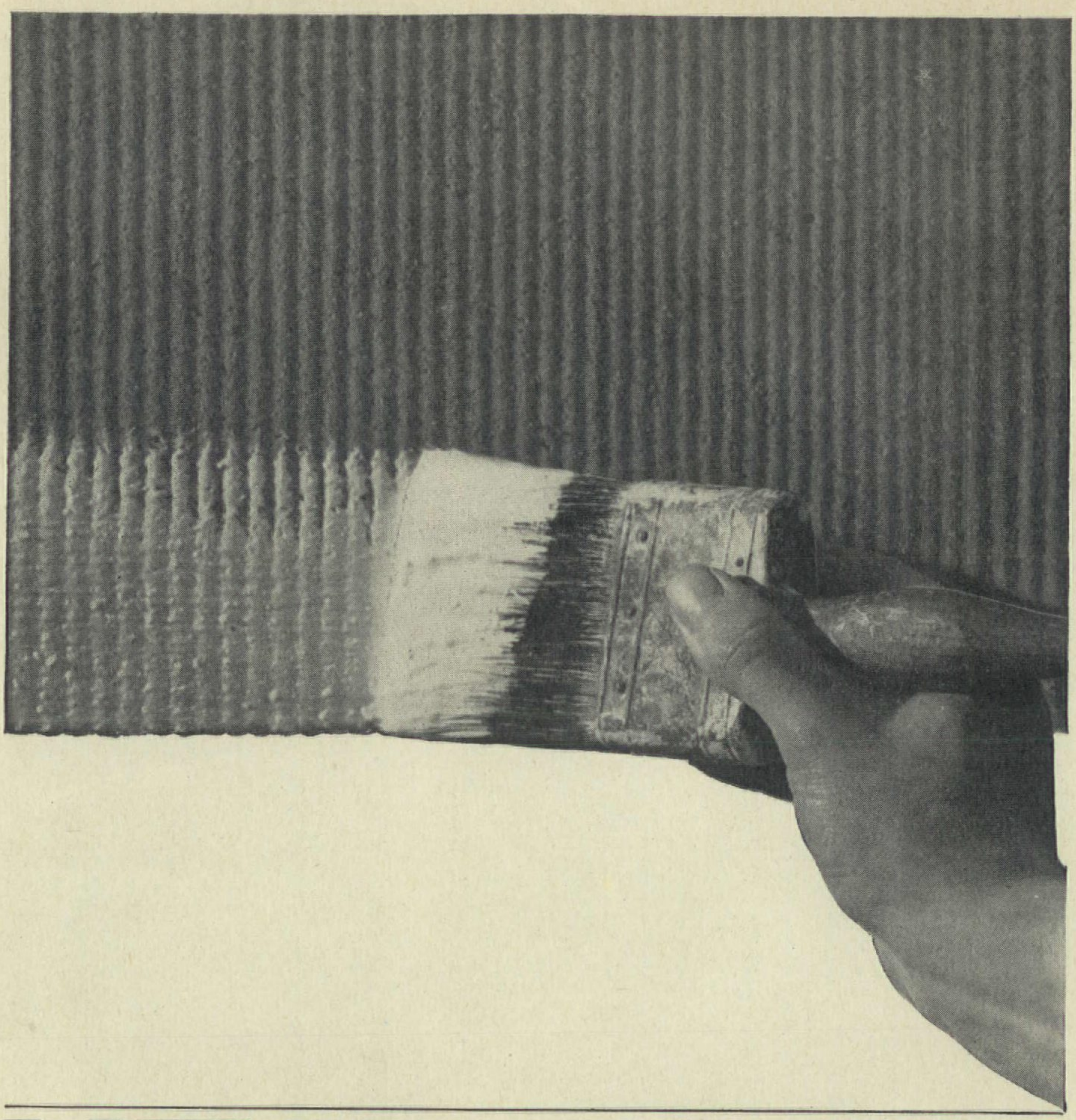


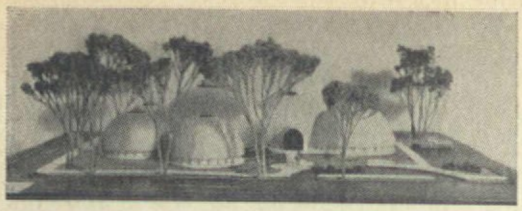
3

4

5







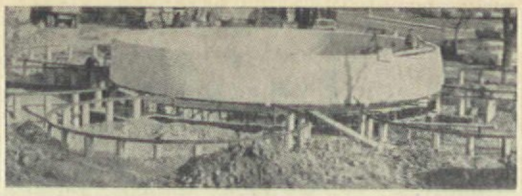
Polystyrene pantheon

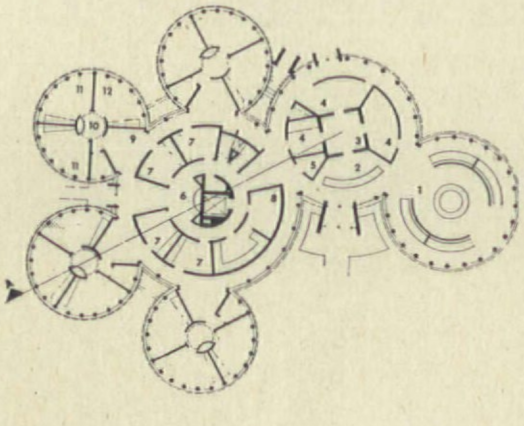
Vision and technical expertise are so rarely fused in the exploratory buildings of the more adventurous designers that one is tempted to suspend judgment and applaud their zest and determination. But some more thought in their controlling is required.

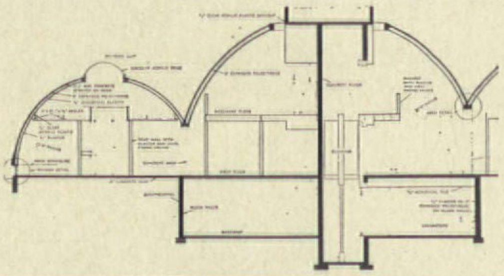
E. H. Brenner, in collaboration with the engineer Floyd E. Burroughs and the Dow Chemical Company, has designed a clinic in Lafayette, Indianapolis, that is made up of a series of seven domes, all around 40ft in diameter, which are composed of layers of extruded polystyrene (see *AD*, January 1966, p. 40). The whole building can literally be made to ooze out of a small, hand-operated machine. The material is cheap, light and strong and a natural insulator. It is immensely appealing. But somehow the concept has become bogged down. Not only is the whole heavily plastered internally to ensure a familiar appearance, but the formal concept and plan are so crudely adapted to the structural form and the new techniques that their adoption seems pointless. The section shows a deplorable inability to think beyond traditional ways of articulating internal spaces.

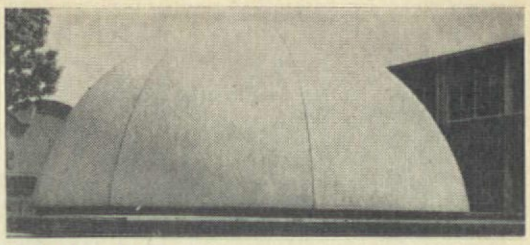
Until such time as the new vision, form and technique can be fused, it were well to rely instead on less artful novelties of technology such as the US Defence Departments' igloo that springs up from a brick of compressed plastic foam at the touch of a match.

Architectural and Engineering News January 1966



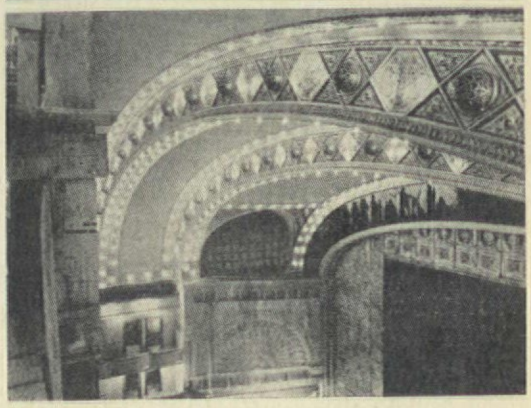






Bakelite dome

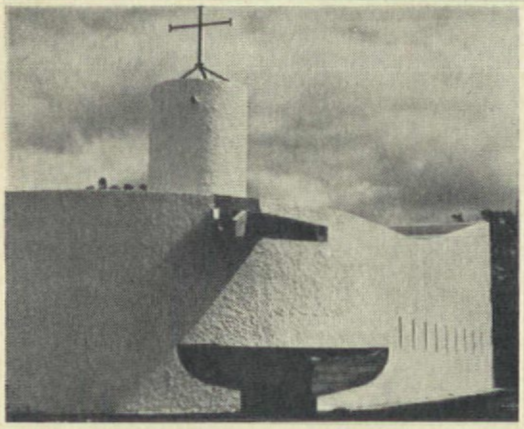
Meade, Taylor and Wilson, with Messrs. Bakelite, built this glass fibre reinforced polyester dome, 28ft diameter, for the South Shields Marine and Technical College planetarium. The 8 segments are edge bolted through flanges.



Sullivan resurgens

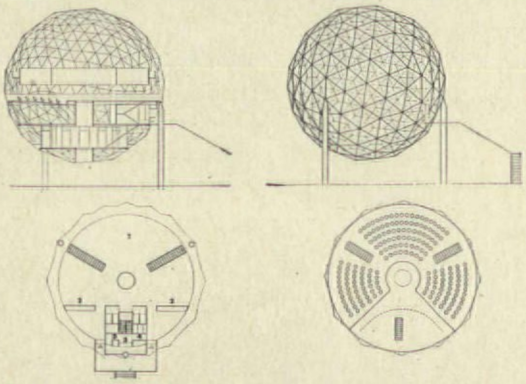
Adler and Sullivan's great Auditorium Theatre, Chicago, referred to by Frank Lloyd Wright as 'the greatest room for music and opera in the world—bar none', has been piously restored, right down to the original seating plan.

Architectural and Engineering News 1/1966



A prophet not without honour

In Uruguay Le Corbusier's sculptural style has been internationalized in Joël Petit de la Villéon's small chapel in Montevideo, and then nationalized once again with a curly-ended wrought-iron cross on the top.



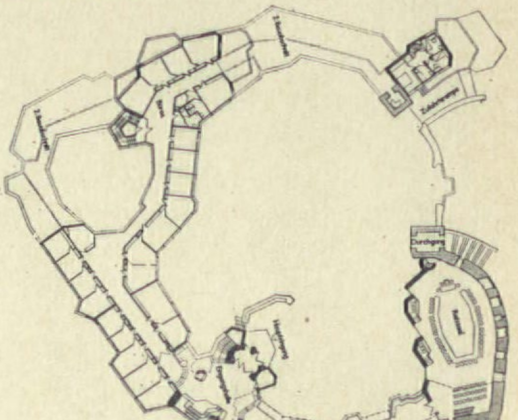
Dome dilemma

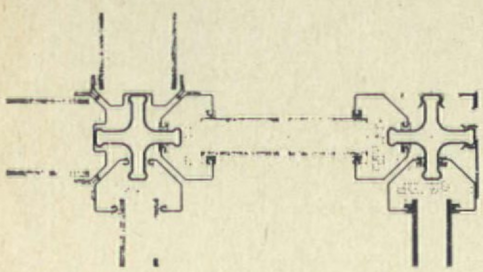
Peter Rudolph's design for the Diogenes experimental theatre in Berlin reveals yet again the great difficulty that architects find in manipulating the technological feats of Buckminster Fuller and other such experimenters. How can the geodesic dome be related to its surroundings or to other forms? How divided? How entered? *Bauwelt* 46 1965

The castle air

Gottfried Böhm has managed, with rare distinction, to build the new town hall of Bensberg on the site of its medieval castle. Retaining all that exists of the old walls and towers, following the general layout of the plan, he has yet managed to put up a building that is convincing and entirely appropriate. There is a vigorous unity between the old and the new.

Bauwelt 10 1966



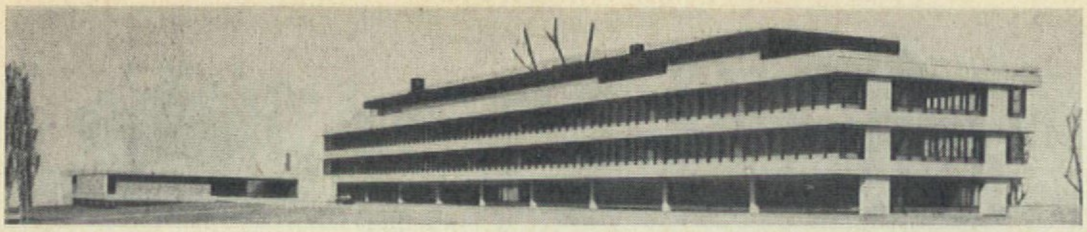


HBC system 4

Raymond Wilson

Electric light bulbs connected by means of plasticine is equivalent to the general level of standardization and achievement of joints in the building industry. As elusive of classification as snow flakes, joint details, on account of their logic, universality, functional order, and abstract beauty, have attracted collectors and enthusiasts.

The Holland Building Corporation, in conjunction with a plastics branch of Dutch Shell, have devised a number of very sophisticated lightweight building kits of interchangeable columns and panels, suitable for multi-storey schools and laboratories, and single-storey bungalows. These details are from their System 4 in steel, plastic and synthetic materials.

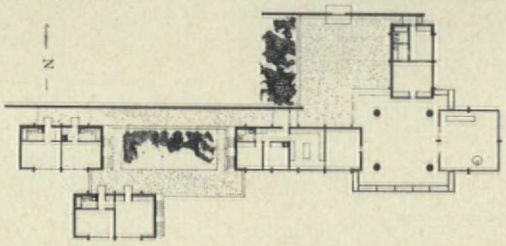


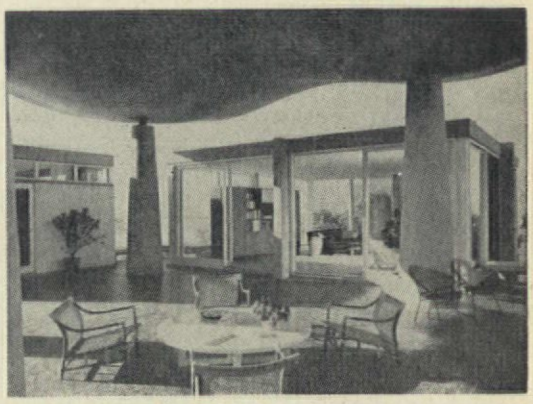
Gulbenkian headquarters

The model of the Calouste Gulbenkian museum and headquarters in Lisbon (by Alberto Pessoa with Sir Leslie Martin as consulting architect) at present under construction.

Johnson still undecided

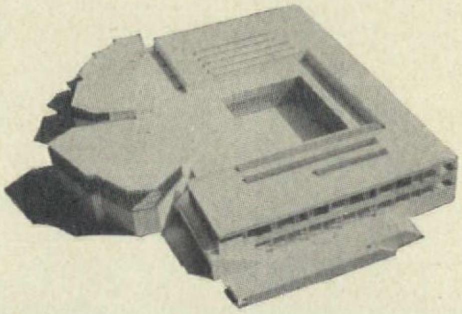
Philip Johnson has satisfied clients. The Boissonas family have commissioned him a second time to design a house, on this occasion on a wild and magnificent site at Cap Benat, overlooking the Mediterranean. The whole is made up of a series of carefully planned pavilions that can be opened up one at a time or used all at once, while giving everyone a reasonable amount of privacy. The plan is admirable for Mediterranean idylls. The oddity is the wildly waving umbrella-like roof on tapering columns that makes up the focus of the group—it seems that Johnson cannot decide on his architectural themes and stick to them, he wants the best of all possible worlds, the cubic and the current favourite, concrete baroque.
Interiors December 1965

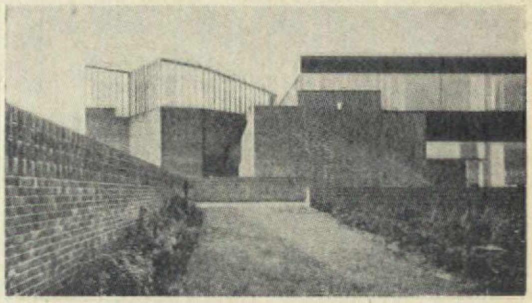




Brick simplicity

The Ålberg Teachers' College by Nils Andersen and Salli Besiakow is of those rough and sturdy and all too familiar materials, brick and timber. But there is a simplicity and straightforward elegance to all the detailing that confers upon the whole a degree of dignity not often seen in current English attempts to handle these materials—and absolutely none of that lumpishness and air of heavy contrivance achieved by our admirers of Victorian brick engineering.
Arkitektur 6 1965





Harvey grouped desking installation at Hoover Ltd. Perivale, Middlesex

If you have 300 desk problems

hard luck! Harvey only make 297 different desks

We are now producing the widest, finest, most functional family of desks ever. 297 desirable desks and companion units, created for us by one of the world's leading design teams—Bernadotte & Bjørn of Scandinavia. To produce such a revolutionary new range of office furniture, we spent two years studying the needs, wishes and problems of every office user. Major companies with Harvey desking installations include Hoover Ltd., Smith's Meters Ltd., Cadbury Brothers Ltd., Yardley & Co. Ltd. Why don't *you* take advantage of the Harvey Planning Service?

Choosing the exact Harvey desks, or desk, you want is as easy as reading the 24-page colour booklet THINK FIRST OF HARVEY, which you get with a well placed tick in the coupon below.

As well as making Britain's finest office furniture, Harvey make Britain's finest office filing and storage equipment, clothes lockers, partitioning and shelving. All the Harvey answers are contained in four booklets.

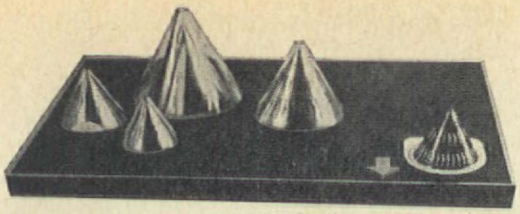
HARVEY have the answer

A MEMBER OF THE G A HARVEY GROUP OF COMPANIES

AD1

Please tick the items you are interested in, attach this to your letterhead, add your name and post to
G. A. HARVEY OFFICE FURNITURE LTD.
VILLIERS HOUSE, STRAND, LONDON W.C.2.
Telephone WHItehall 9931.

Desks and office furniture ☐ *Filing equipment and systems, cupboards and plan cabinets* ☐ *Office partitioning* ☐ *Clothes lockers and shelving* ☐



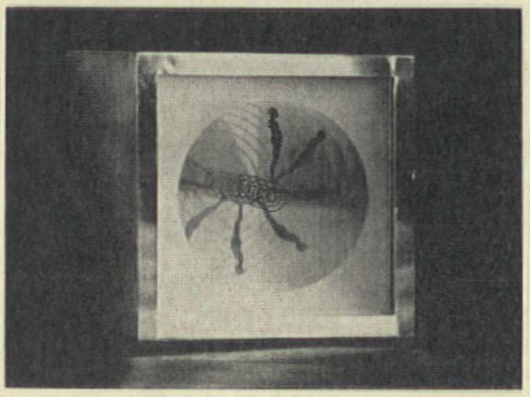
Landscape: Four Figures with Devices, 1965, stainless steel and bronze, 48in × 48in × 15in

The falling man

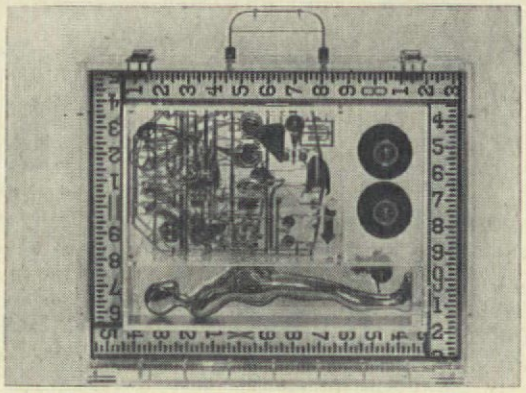
Jasia Reichardt

Since the early 1960s Ernest Trova's work has been based on a single image—that of an androgenous, armless, hairless figure. In his paintings, this figure is reminiscent of a silhouette treated as a pattern element, and in the three-dimensional works it carries strong associations with the film prize Oscar, or rather the artist's imaginative version of it. To this manikin, which sometimes forms the radius of a circle, the side of a triangle or the ray of a star, Trova gave a name, The Falling Man.

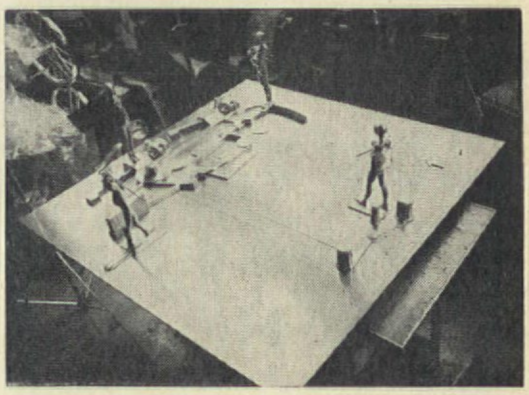
His paintings are remarkable for eaxctitude of finish, close colour harmonies, structural precision and, above all, the obsessive use of the simplified human figure, both as the subject matter and the formal ingredient of the painting. The falling man could be considered as a surrealist device, an aspect which is stressed even further in the three-dimensional works, where the figure is often chrome-plated and accompanied by similarly glistening bric-à-brac that has surgical or electronic associations. Trova's 'Car Kit', for instance, which is housed in a plexiglass suitcase is reminiscent of an anatomical or surgical display case in which every element potentially fulfils a very specific function. However, in Trova's case this function is emphatically contradicted—his wheels do not turn, handles cannot be operated and the various instruments which might be associated with cutting, winding or clipping are petrified in a glossy chrome exterior. In this respect Trova touches on something akin to the sort of atmosphere evoked in de Chirico's paintings of deserted piazzas at high noon; and this very element of incongruity and mystery is consistently the most characteristic aspect of all his work. 'Why should not the impulse to mystify serve to originate new discoveries in art?' asked Cocteau. Yet one cannot, in all seriousness, consider Trova's works as discoveries. The discovery here is limited to an ingenious choice of an image which provides content, form and structure all in one—the falling man. The works themselves (Hanover Gallery till April 8th), like the boxed screens where the image is painted on each glass pane in a different place, the cones, and cubes, are objects of imagination and elegance—if they differ from the works of Fornassetti, for instance, another champion of elegance and incongruity, it is because Trova excludes any idea relating to utility and function. The content of Trova's play with the symbol of mechanized humanity deals neither with idealism in terms of philosophy, nor radical ideas in terms of art—it hinges rather on cryptic deadpan humour with a disturbing undercurrent of foreboding.



Box: concentric diminishing figures, 1965, glass, plexiglass and silver, 7in × 7in × $8\frac{7}{8}$in



Car Kit, 1965, Chrome, plexiglass and perspex, $17\frac{1}{2}$in × $14\frac{1}{2}$in × $4\frac{1}{2}$in



Study for a monument, 1964, Formica and plexiglass, $38\frac{3}{4}$in × $24\frac{1}{2}$in

The architect's 'bill of rights'

Jerzy W. Soltan*

* Extracts from Prof. Soltan's Gropius lecture, at the Boston Urban Design Conference, May 1965.

One of the really outstanding features of the modern architectural movement of the early twenties in Europe was the great importance and also the great hope that was attached to the rational attitude and social involvement. At that time a clear statement of this attitude was paramount. But although the leading pioneers shrank, in their definitions, from oversimplifications, the fact is that it was in an oversimplified form that rationalism won the architectural world for the modern movement. 'The idea of rationalism', Walter Gropius said, 'which many people aver is the outstanding characteristic of the new architecture, is only its purifying role. The other aspect, the satisfaction of the human soul, is just as important as the material.'
He also said, 'What is far more important than the structural economy and its functional emphasis is the intellectual achievement which made possible a new spatial vision—for whereas the practical side of building is a matter of construction and materials, the very nature of architecture makes it dependent on the mastery of space.'

Architecture at the beginning of the twentieth century belonged to the world of art. To move it closer to the rational world of science was an important event. It was and is admitted that in art intuition plays an important role. Did not Benedetto Croce say: 'Art is sufficiently defined when only defined as intuition.' However much Croce's statement was diluted in the 'pre-modern' times by the fact that definite rules for architecture existed and were taught, the very notion of architecture remained connected with art and intuition. But can one teach intuition? The moderns proposed to make architecture rational, scientific. But what was science for them? What is it for us? And what is intuition? How far are they one from the other? Science, intuition, art—the Apollonian and Dionysian attitudes.

To the question 'can one teach intuition?' or, rather, 'can one teach art?' the Institut de France would answer positively, and so would the Ecole Nationale Supérieure de Beaux Arts.
The attitude that architecture belonged to the world of art—but that rules for 'artistic architecture' could be taught—prevailed in many countries. Architects were really fortunate, they could assume that they knew how to make things artistic. Symmetry and axes, ready-made elements such as columns, capitals, pediments, timpanums, cornices, friezes, and so on, were available as a vocabulary.
The public knew that buildings equipped with this classical paraphernalia belonged to the world of distinguished architecture and hence to the world of art. But not much was known about the functions or the structure of buildings—the whole rationale underlying architecture.
The modern movement integrated these rational, physical, economic and social aspects of design with architecture, considered up to then as an art: *Die Wohnung für das Existenzminimum, Rationelles Bebanungswesen, La Ville Fonctionelle*, these are the slogans of the first congresses of modern architecture—CIAM in 1929 Frankfurt, 1930 Brussels and 1932 Athens. The whole modern attitude was permeated by the spirit of the *Neue Sachlichkeit*.

Time passing—situations, political ones included, intervened. The European elements of the modern movement reached this country. Functionalism and constructivism became for many an American architect a very definite starting point in his work. They began to flourish here too. However, the concern with social problems—so important in the European version of the movement, so organically connected with it—was not much a part of the movement here, nor is it the concern of many American architects today. The focus shifted to the visual expression. But as the visual was the weakest aspect of the imported credo, it became its undoing. Architects got frustrated with the Mondriaan effects enveloping rather indiscriminately whatever could be enveloped.
Today, when looking back at these times and trying to sum up the world situation, one has to admit that as any particular kind of philosophy or outlook upon the world attracts particular kinds of people—and logically, a particular philosophy of architecture has to attract particular minds, abilities, talents and temperaments, so the rational one has attracted those who are predominantly concerned, interested and able to handle the social and material part of the architect's work—missing often more spiritual, poetic and plastic aspects of it. A logical mind and a social awareness do not always coexist in one body with the gift of poetic integration and plastic imagination.
The lack of historical visual aids—the modern movement made a *tabula rasa*, it had done away with all historical leftovers—did not help the mediocre. Does it mean that this a-historical or even anti-historical attitude was wrong? Of course not. It means only that it is easier to be in the middle of a well-established culture and movement, to use an existing vocabulary and grammar, than to create everything at once: vocabulary, grammar, content. Revolutionary epochs are blessings for great heroes. But what about the lesser heroes?
Again I want to make my point clear. The assumption was that if you put the functions together decently, if you succeeded in getting an economical, logical structure and did not hide these achievements, but exposed them frankly, you got the reward—form, that is, aesthetic quality would appear.
Architects shied away from discussion on spiritual needs. 'The whole world', someone said, 'is under the stress of the industrial revolution, the machinistic revolution and the social revolution. Wars are being fought. Is it a proper moment to talk about *spiritual* needs when so many basic *material* ones are unsatisfied? Spiritual needs, poetic values, visual qualities—these matters are always so subjective; we have to deal with objective realities.'
One evening in 1947, after work in the empty rue de Sevres Atelier in Paris, Le Corbusier was persuing a publication on modern architecture—early buildings from all over the world were represented. Standing behind Corbu, two of his closest acolytes of this time—Wogenscky and myself—watched above his head and listened. Le Corbusier by grunts revealed his lack of enthusiasm, then began to grumble openly: '*C'est pas beau ca*,' he said. Wogenscky intervened. '*Mais M. Le Corbusier, ce sont des frères.*' '*Oui*,' said Corbu, '*c'est vrai*,' and slammed the book in anger.

In the early fifties even the most inaccessible fortresses of the old regime began to change their attitude towards the notion of architectural modernism. The very symbol of the anciens—old Professor Lemaresquier—the man who indirectly started the whole CIAM movement by his unfortunate (or was it fortunate?) intervention at the Palace of the League of Nations competition in Geneva—started to lower his *pompierist* banner and raise the modern one. The Soviet Union and the governments of the socialist countries of eastern Europe also stopped their fight with the modern movement in architecture in the middle fifties. The Congress of the UIA, held in Moscow, was the crucial moment. Constructivism, functionalism—notions and terms banned for many years—reassumed their place in the vocabulary of the architect and the theoretician.
Step by step, unnoticed as it might have seemed, the world of architecture became *nolens-volens* united. It became unfashionable not to be modern. Yet the moment the modern movement won, the notion of modernism lost its meaning. One can be modern in relation to something that is old, but it is hardly possible to be modern *per se*. Winning the world meant—at least superficially—unanimity. But unanimity meant no criticism, and it is criticism which leads to quality.

At approximately this same time the meanings of science and art underwent some modification.
It is probably not that Benedetto Croce's statement, 'art is intuition,' would mean much less today, but rather that science—considered before as so very much the antithesis of art—moved in the opinions of many closer to art. Elements of discussions of these problems reached these Gropius lectures through Joseph Passonneau and his concern with C. P. Snow. Herbert Simon, a psychologist and a man of science, has said:
'There is a fair amount of evidence to support the hypothesis that the creative processes in art and science are substantially identical, that however "the two cultures" may be divided in our society—however little scientists may know about the arts or artists about science—the processes they use in their respective field are basically the same kinds of thinking processes.
'This basic identity of the creative process in the various fields of art and science is denied only by people who aren't familiar with both of those fields and who are misled by the differences in the products.'

The British astrophysicist Fred Hoyle is even bolder. He says 'only predictions really count in science. It is no good doing a lot of experiments first and discovering a lot of correlations afterwards, not unless the correlations can be used for making new predictions. Otherwise it's like betting on a race after it's been run.'
However, even Hoyle does not seem to doubt that in science one has to know a lot, and know well before one dives into the subconscious, where the great discoveries occur. Predictions yes, but experiments and correlations also. Whereas in some domains of art it is assumed that one can know less during the supreme moment of diving. That's an important difference in the 'artistic' and 'scientific' attitude.

Among the everlasting attempts to find the right place for architecture between the subjective and the objective, the Hochschule für Gestaltung—the School of Design in Ulm—in the forties made a bold attempt to put architecture definitely into the world of science. Mathematicians and engineers, as well as psychologists, sociologists and economists, were put together to provide parameters for objective design. As for the practical application of their principles, Ulm is mainly concerned with product design, but the general philosophy obviously reaches architecture too. Tomas Maldonado, the rector and leading spirit of the school during this period and one of his main collaborators, the German Gui Bonsiepe, have written: According to the mathematician the design of a product scarcely differs from the design of a mathematical system, whatever its type. Though the existence of a specific area—which cannot be so readily reduced to the form of determinative data—is admitted, this area—*the designer's area*—is seen by the mathematicians as so small that one may consider it as a negligible quantity.'
This would mean, continue Maldonado and Bonsiepe, that 'all design problems could be solved algorithmically, that is, by the employment of a mathematical or logical construction'. Now let us see what would be necessary to set up equations of this kind? And here is the answer. Such algorithms would have to be established with the aid of the following mathematical disciplines that would vary from case to case: combinatorial analysis, theory of games, theory of information, mathematical logic, switching algebra, linear programming, system theory, theory of queues and combinatorical topology.'
And all this, don't forget, means only to build up the mathematico-logical system or equation. Economical, physiological and psychological data have still to be

furnished, classified and prepared for the use of the mathematician. And all this to produce, for instance, a door knob. This is too much. Maldonado and Bonsiepe react in defence of design:
'The mathematical disciplines mentioned should not lead to the erroneous conclusion that creative thought and action in both the fields of science and design can be reduced to algorithms. Like all activities intended to integrate various special disciplines, design must defend itself against each of these disciplines. Formerly the conflict was centered between the designers and the engineers—today it's the mathematicians.'
'Scrupulousness, obstinacy and *furor teutonicus*' in the Ulm work—definitions used by its enemies as expressions of condemnation—should be considered, I believe, as compliments. Indeed, nobody reproaches Ulm for a lack of seriousness and dedication. And isn't this something positive? Isn't there something heroic in this attempt to pull up the platform of objective knowledge, to widen it, to make it, so to speak, more solid before the leap into the unknown occurs. We notice efforts of this kind in America too. Are not, for instance, the studies and propositions of François Vigier or Chris Alexander aiming at the same goal—to strengthen the objective? Isn't it a moral and a social obligation to make this objective platform as strong as possible? Doesn't the future of our civilization depend on it too? However, the fact remains that in Ulm the scientific experiment with design—in its maximal, that is, all-embracing mathematical aspect—had to be thwarted by its own initiators and as a result was limited to an aim formulated as *search for method and for objectivity*.
To many architects, designers and theoreticians of design it was one more disenchantment with science. Not in the field of building possibilities. Here modern technology went beyond all expectations, and almost anything became possible. But in the very process of design, where even the Ulm people had to admit that, after all the scientific preparations, the moment of synthesis has to come. To confuse the debate, the moment came when everyone got so fed up with the 'match box' buildings. 'The rise and fall of the curtain wall' (a phrase of Paul Rudolph's) is one of the many attempts to express the disappointment with them—the curtain wall being a typical feature of match box architecture.

It is in the light of these events that one must look at the next permutation of architecture—the change of the direction in the 'seesaw' movement. It started in the fifties when many an architect altered his course.
'A quest for Emotion in Architecture', as the American architect Morris Lapidus calls it. A modern formalism was born.

One cocktail more, one vodka too much, and a decent rationalist becomes a wild emotionalist. This occurs everywhere. Evolution is a normal, even a positive, element in human life, but this not evolution we're talking about. Can one change an intellectual or an artistic attitude like a hat? Can one change it at all? Human minds are distributed between the rational and the emotional extremes. In general the modern movement attracted the rational minds. Could these minds ever shift to the opposite extreme? Isn't this movement from rationale to feeling in many cases a cold-blooded affair, characteristic of the uninvolved? 'That arty way,' as Serge Chermayeff puts it, is definitely not the alternative to reducing everything to mathematics. Yet this alternative was accepted by many, but even then what is so ridiculous here is the speed. Can one in a few months or even days shift from the world of functionalism and constructivism, expressed visually by a decent spatial 'Mondriaan' to a world wilder than Ronchamp and the Philips Pavilion put together? Can one become *Plus catholique que le pape?* Musn't this process of change, if authentic, be preceded by effort of mind?

New sensibilities have to be developed, new sources of imagination uncovered, new forces of association mobilized. As Le Corbusier says, '*Les yeux qui ne voient pas*'—the poetic events in life around have to be revealed. A new culture has to be built up. This does not occur overnight. All this means additional effort on the part of the architect. Is he willing to undertake it? Frankly, how much time do we architects, the majority of us, dedicate to the activities I am speaking about? How much do we know of even the most simple, basic, merely visual language and grammar?
And supposing that we do know, is this kind of very basic grammar sufficient to move to the new world? Was it sufficient for the moderns of the early twenties? *A total attitude, a culture*—that is what is necessary!
If the architect is not equipped with those qualities and qualifications, yet dares to transgress the boundaries of the rational, his work may become ludicrous—for he is trying to smuggle in luxury merchandise, which in truth is second rate. Second rate and luxury—isn't this association particularly ugly? And that is where the moral issues intervene; it is an inner subjective judgment that asks: Can I undertake this problem along these lines? Am I prepared to play this kind of music? Have I the right? What are the chances of my breaking my neck? I am a bold man, also eloquent. I can talk my client into doing it. I can afford the risk of doing it. But architecture is a social activity, too. My naïveté, or stûpidity, is not my private affair. My building cannot be stuck away in a drawer. It remains as a witness of man's promiscuity.

Architecture has to associate both with science and art; it often does neither. It then becomes meaningless and, as such, it can partake of any of these fields—be considered by scientists as a piece of art and by artists as the result of scientific attitude.
In the time when the neo-formalism started, I had the privilege of seeing from time to time the Franco-Rumanian sculptor, Constantin Brancusi. We discussed architecture, naturally, as well as sculpture, and he would often become angry. 'You architects,' he used to say, 'you are queer birds *des drôles d'oiseaux*. You do not know anything about art and yet you try to be so damned artistic. You better stick to your structures and functions and leave art alone. Or else learn something about it. Develop some culture and some sensibility.'

Reason and common sense can be useful in any domain. Thus they can be useful in the domain of building too. But second-rate emotionalism without common sense becomes idiotic. In other words, the emotional attitude in architecture is valid, but it has to be treated as an element organically permeating the rationale—acting with the common sense and not in its stead. It involves the architect in plenty of work—very personal work the aim of which would be to enrich him. One of the fields of work, probably the most obvious, is the visual one. Although the architect speaks about it often enough, he doesn't seem to do much. After some vague experience in the so-called basic design at school, he frankly states that he has no time, and then he limits his experience to occasional visits to art galleries, discussions with some sculptor or painter whom he intends to ask to adorn the building (after he has realized that without these aids it will be too dull). The successful architect pushes his visual experience as far as to acquire a print or (according to his success) an original drawing, painting or culpture. An exceptional one will practice personally—making sketches here and there in the manner of a Sunday painter, yet often without having the time or concern to integrate this activity into his main one—design. Thus these two streams—architecture and painting—can flow side by side for years in one man's life—parallel, without ever touching.
The man in whose life these activities form a totally integrated monolith is, of course, Le Corbusier. In the preface to a to a publication of his paintings and drawings published in 1948 he is explicit: 'If any value be accorded to my work as an architect, it is to this secret labor—I believe—that its profound virtue must be attributed.'
However, it is not the visual training only that can help the architect in his quest for emotion. In fact, I think we overstress the visual. Isn't it, as Gropius says, that 'an aesthetic conception has fatally displaced a creative conception of art.'
In architecture and in urban design, *paramount* and also *artistic* decisions are taken, so to speak, on the level of programming. It is not only the wise, but the poetically stimulating choice and juxtaposition of functions, that decide about the deeper quality of a project. 'To design well one needs talent; to program well one needs genius,' says Le Corbusier.

The architectural merits of the Rockefeller Center have been analysed and discussed from a formal point of view and praised extensively.
However, its real emotional impact and strength lies in the minute white square of the skating-rink, at the feet of the grey towers, with tiny puppet-like figures hovering and zig-zagging on it. This was a great decision—a surrealistic decision—a fairytale decision. The Hansel and Gretel skaters dancing in the skyscraper forest. A masterpiece of programming and juxtaposing functions: a skating rink as a signal spot of the heart of a world capital. After this decision, the architecture—so very grey—and the sculpture—so very gold—became unimportant. Who notices them? Who cares?
One can really conclude that with this streak of genius in programming the architect can allow himself the luxury of being a bad designer, or at least to abstain from design. 'The drabber the better,' would he say. 'Let my main decision work for me.'
Somebody will say that programming was always a part of the architect's job. Undoubtedly, yes. It is only that with the neo-formalistic trends, the programming of the content was neglected and the merely visual aspect of design developed, but in such a superficial manner as to attract the curses of a Brancusi. Modern cliches begin to appear just as classicist cliches existed until a short while ago. Modern cliches are applied with little or no relation to the programme. Sunbreakers may be hung on northern elevations and ramps may lead to nothing. But ramps and sunbreakers are typical examples of these cliches. They are identity cards of some sort of Architects' Club. Connoisseurs and the enlightened public begin to know them just as columns were known to the previous generation.

Functions were formerly dictated to the architect. Today he can participate more in their choice. Formerly building techniques did not allow him much freedom to play with them. Usually each function had its corresponding spatial volume. A sequence of functions almost automatically meant a sequence of volumes. Today the progress in building techniques and mechanical controls give new possibilities of associations of the most diverse functions. They are costly—but not excluded. Structures more and more rich in content can be erected with sandwiched functions. The not very realistic but stimulating notion of megastructure has taken shape, and is becoming a familiar element in larger-scale urban design projects. 'A city has to be a big house,' says Peter Blake.

New aspects of the social role of architecture are appearing. The Dutchman, Constant Neuvenhuis, speaking for the International Situationist Movement some time in the fifties, stated: 'The essence of the cultural revolution of the twentieth century is the shifting of the creative process from an individual, fixed standard expression to collective general practice.'
If this is possible at all, isn't it easiest to imagine it in the world of architecture—in creating elements of environment? The creative process would then be shifted from the individual expression through an individual architect to the practice of each user. Everyone wants to participate in the creation of his house, or whatever is the closest around him. It is only a matter of degree: who can do how much. Some can do more because they are able to realize what they need and want and also are able to carry out what they have decided would be good. Some can do more because the system, the overall order, which has been given to them by the architect—the system in which they move—lends itself to their individual intervention. This attitude was expressed through centuries or even through millennia by the vernacular architecture—the anonymous buildings from all over the world. The basic architectural quality, the basic order, the 'unity in variety' was achieved automatically by the clarity of the well-established aims and also by the limitations imposed by materials and building techniques.
Today, with the birth of new functions and the unlimited choice of materials and structures, basic discipline can easily disappear. The anonymous client (as Jacob Bakema calls all users willing to participate in the design and building process) can say too much if the architect does not give him the proper discipline and order.

This highly social approach to architecture, that is, designing systems for others to move in, leads obviously to a particular visual expression. Some call it the aesthetic of the open form—an aesthetic that is in perpetual formation, perpetual birth. The whole approach, whose forerunners were discussed at the last CIAM meetings and the main issues became elements of the Team X credo, have in fact become better known recently. It has reached the schools of architecture, but has not yet materialized.
Pessimists say that this is Utopian—that the average man is still not only unable to handle the complex modern technical media, but even to define his own targets. But didn't Utopian ideas sometimes stimulate realistic and realizable ones?

To sum up my main thoughts, I would like to quote Guillaume Appollinaire Kostovicki, to whom the 'machine era' owes so many formulations of its goals. 'The new spirit whose coming we are witnessing seeks above all to preserve the classical heritage of solid good sense, sure critical principles, a comprehensive view of the world and the human sou and a moral responsibility that tendsl toward austere expression or rather toward containment of feelings.
'From the romantic heritage it seeks to preserve the curiosity that leads to exploration of all domains capable of providing material for the exaltation of *life* in all its forms.'
These are words of a poet, but isn't it a perfect lesson that he is giving to an architect? Engagement and dedication have to be an integral part of any educational programme too.

Photos (reading left to right from the top)

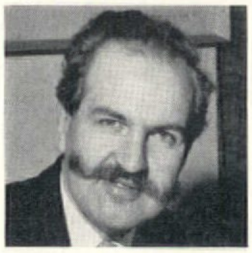
E. W. Stanley, Doug Benneworth, Derek Walker

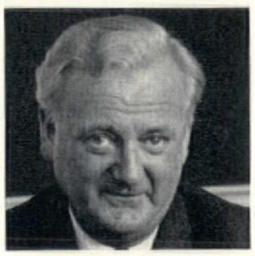
Hubert Bennett, Jack Whittle, Michael Powell

E.D. Lyons, A. Hume, F. Linden

R. Roberts, F. C. M. Morris (Worthing Borough Architect), P. Hughes (Deputy), M. G. Smith, D. M. Hall, G. H. Haynes (Group Leader)

John Bicknell, Paul Hamilton





Architectural Design's third Project Awards programme followed the same pattern as before: architects, together with their clients, were invited to submit projects still on the drawing-board but due to start building within the year. The scheme is open to all registered architects in the United Kingdom, and designs can be for any category or size of building or group of buildings. There were 177 entries this year (one less than last). This year's jurors were the architects Alan Colquhoun and James Gowan and the engineer Frank Newby.

When assessing the relative merits of the schemes presented, the jury tried to bear in mind their feasibility. But it was not always possible to assess the extent to which the final building might differ from the designers' intentions as expressed in clients' drawings and models.

Some doubt was felt on this score in the case of the winning design. They had no hesitation, however, in giving it the top award, as it impressed them as an elegant and evocative solution to a laundry in an urban area.

Grand Project Award

Laundry, Leeds

For the Leeds city Welfare Services Department

Derek Walker in association with the City of Leeds Architect E. W. Stanley
Architects in charge: Derek Walker, D. T. Benneworth

Project awards

Maintenance depot, Paddington

For GLC (for British Rail, Western Region)

Bicknell and Hamilton in consultation with the Architect to the GLC
Architect in charge: P. A. Hamilton

Pimlico area secondary school, St George's Square, Westminster

For Inner London Education Authority

GLC Chief Architect, Hubert Bennett
Deputy architect: Jack Whittle. Education architect: Michael Powell. Architect in charge: F. J. Bancroft.

Vittoria experimental primary school, Islington

For Inner London Education Authority

GLC Chief Architect, Hubert Bennett
Architect in charge: R. W. Robson-Smith

Central Station redevelopment, Southampton

For City of Southampton

Lyons Israel and Ellis and Partners
Architects in charge: E. D. Lyons, F. Linden, A. Hume

Crematorium, Worthing

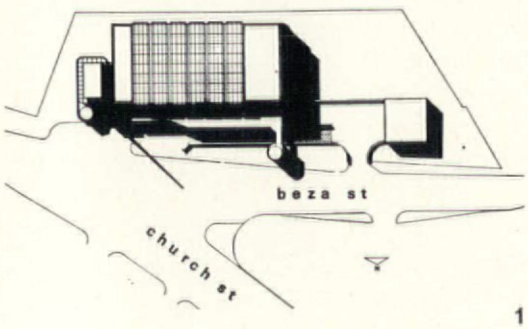
For Worthing Corporation

Borough Architect, F. C. M. Morris
Architects in charge: T. E. Roberts, M. G. Smith

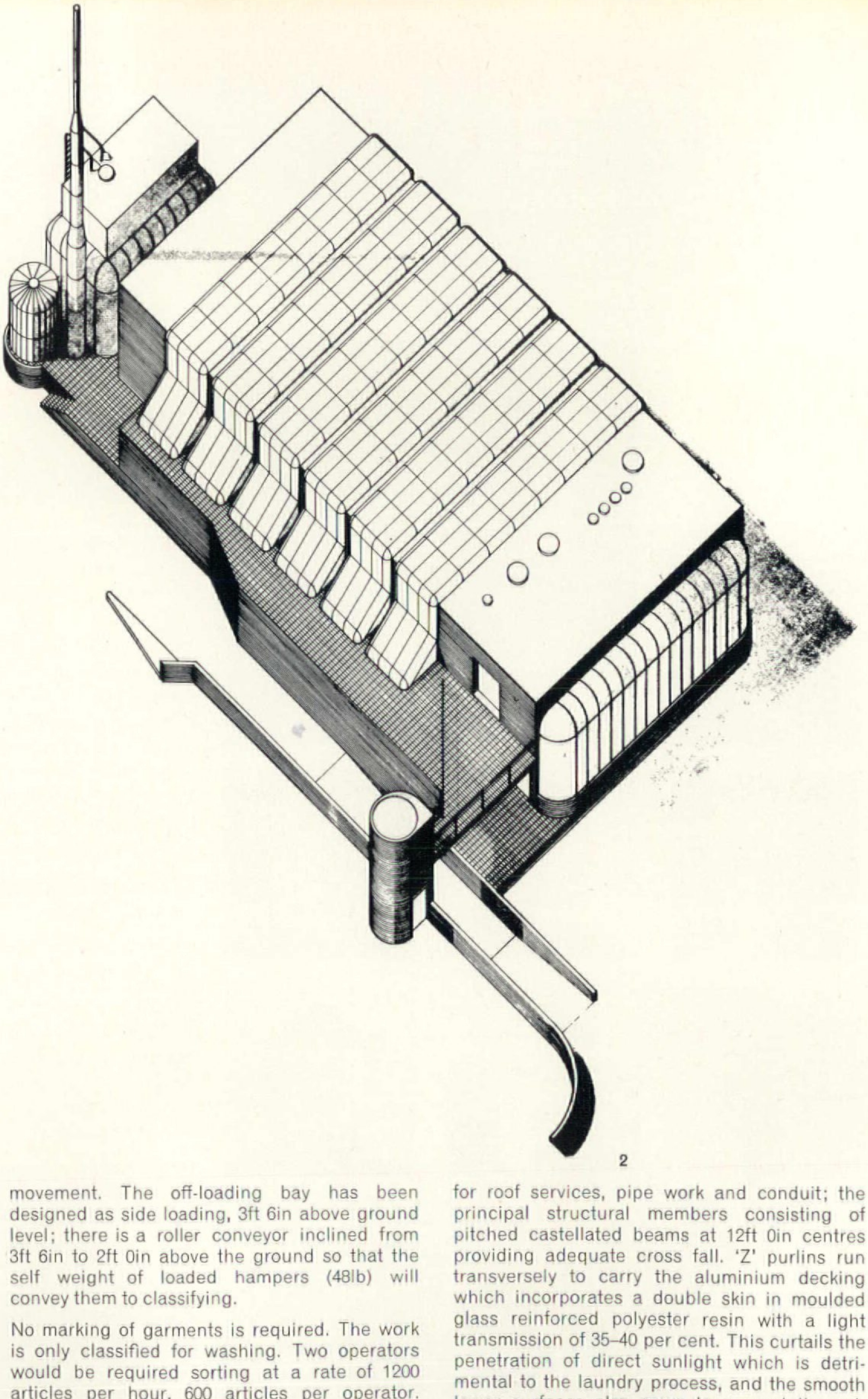
Private house

For Henry Gould Esq.

Derek Walker
Architects in charge: Derek Walker and Douglas T. Benneworth



1



2

Laundry, Leeds

For the Leeds city welfare services
Derek Walker in association with the City of Leeds architect E. W. Stanley
Architects in charge: D. Walker, D. Benneworth

The existing welfare services laundry being due for demolition the architects were asked to produce designs for a new laundry processing 48,000 pieces per week, this figure incorporating garments from various other city departments. The site acquired by the city is level having a railway cutting to the south boundary. A narrow angled bridge crosses the railway continuing Beza Street to the west. In addition to the laundry building, garaging for three laundry vehicles was required and space for possible warehousing. The only stipulation in the laundry process made by the welfare services was that wickerwork hampers manufactured by the Blind Institute for collection and delivery of garments be retained.

The vehicles used for delivery are side-loading Thames Traders carrying a load of 30 hampers and having a delivery sequence of 1¾ hours per load. In view of this and the possibility of future warehousing a flow system of traffic movement is envisaged. Access to Beza Street is restricted to 100ft from the railway bridge and the laundry building is sited to comply with this and to allow for oil tanker supply and access to warehousing without impeding laundry vehicle movement. The off-loading bay has been designed as side loading, 3ft 6in above ground level; there is a roller conveyor inclined from 3ft 6in to 2ft 0in above the ground so that the self weight of loaded hampers (48lb) will convey them to classifying.

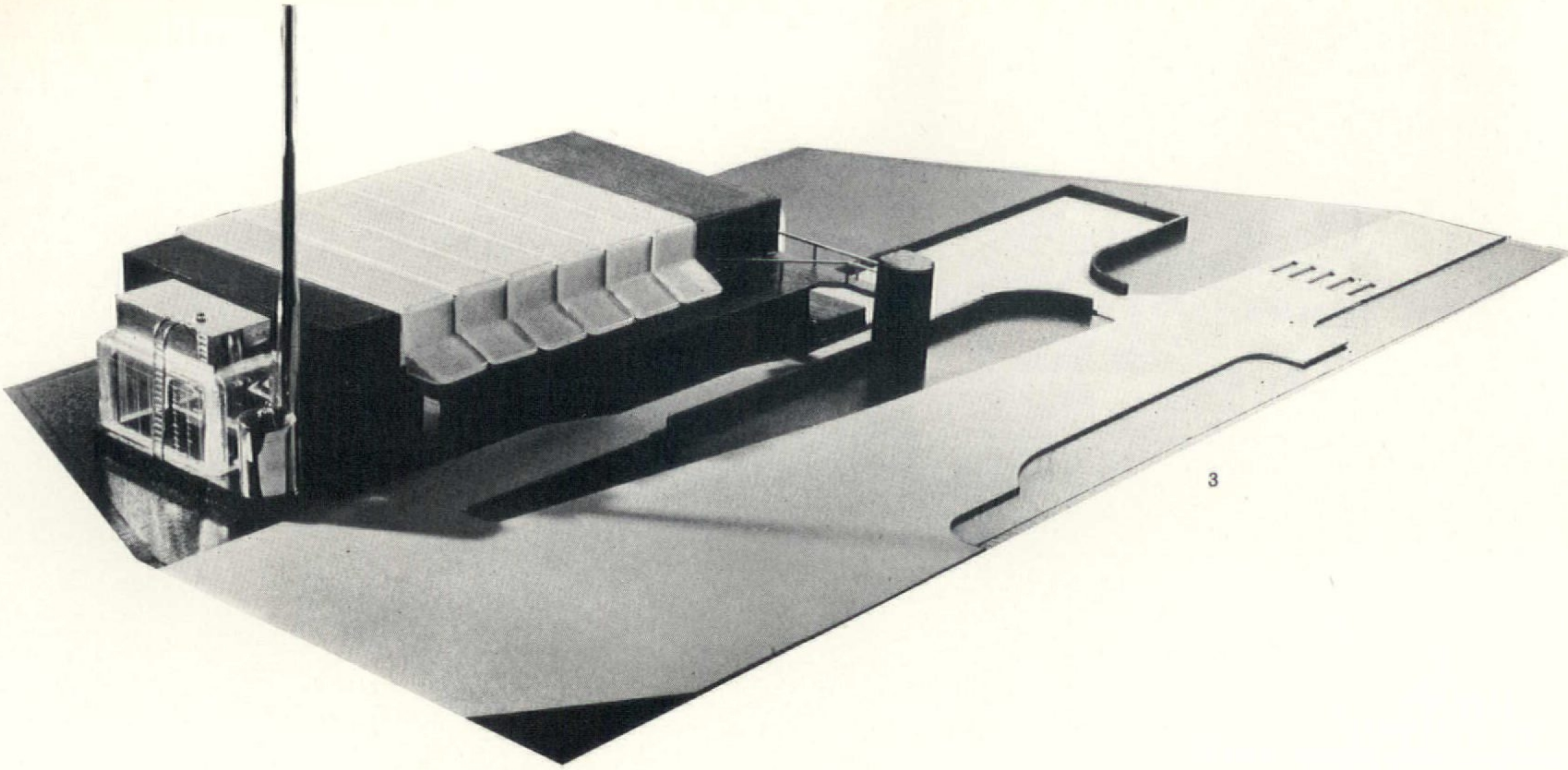
No marking of garments is required. The work is only classified for washing. Two operators would be required sorting at a rate of 1200 articles per hour, 600 articles per operator. The full hampers stand on the roller conveyor, the height to the top of the hamper being 3ft 0in to obviate unnecessary stooping. Work is taken from the hampers and placed on movable tables from where it is sorted and placed in trolleys. The laundry process then follows a set pattern: dry cleaning, washing (using washer extractor machines), water reclamation, tumble drying, pressing, calendering, folding, racking, packing and despatch.

The building is to be constructed in a load-bearing dark blue engineering brick; a paving brick of similar colour is to be used for all external areas within the site curtilage.

The main washing area is spanned to provide for roof services, pipe work and conduit; the principal structural members consisting of pitched castellated beams at 12ft 0in centres providing adequate cross fall. 'Z' purlins run transversely to carry the aluminium decking which incorporates a double skin in moulded glass reinforced polyester resin with a light transmission of 35–40 per cent. This curtails the penetration of direct sunlight which is detrimental to the laundry process, and the smooth lower surfaces also serve to prevent the collection of heavy lint on complex surfaces.

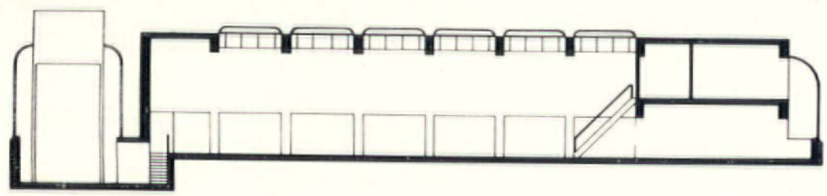
The floor is 6in reinforced concrete on solid with individual bases for the larger machinery. Internally, the walls are tiled with a white 8in × 4in glazed tile. The floors throughout are tiled with blue brindle quarries.

The reserve water tank for the laundry process is supported on a system of tubular members and provides in itself the roof to the boiler house. The boiler house cladding consists of fibreglass mouldings carried from the same supporting structure. The free-standing chimney in mild steel sheet reduces in section in accordance with the temperature gradient.

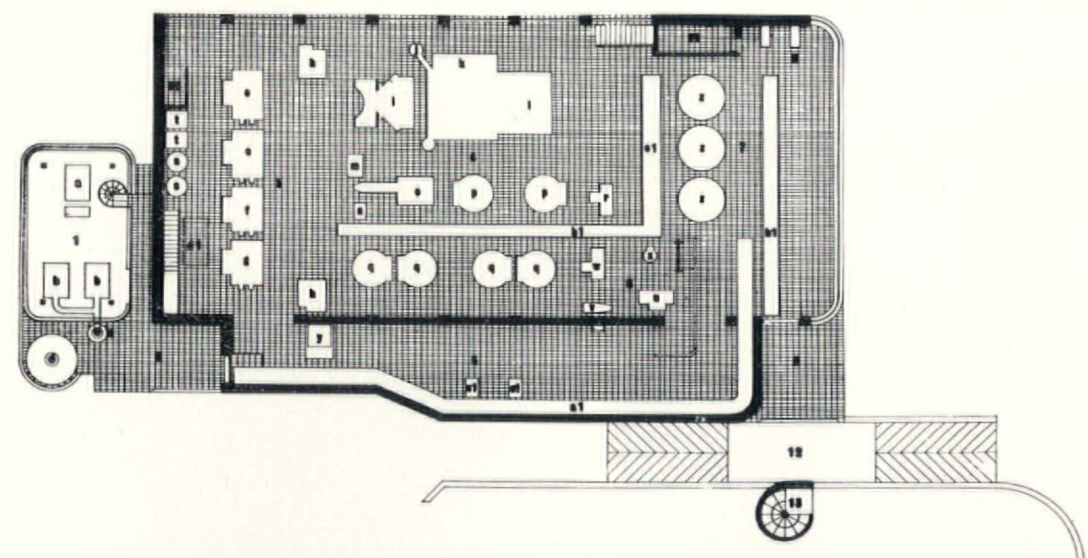


3

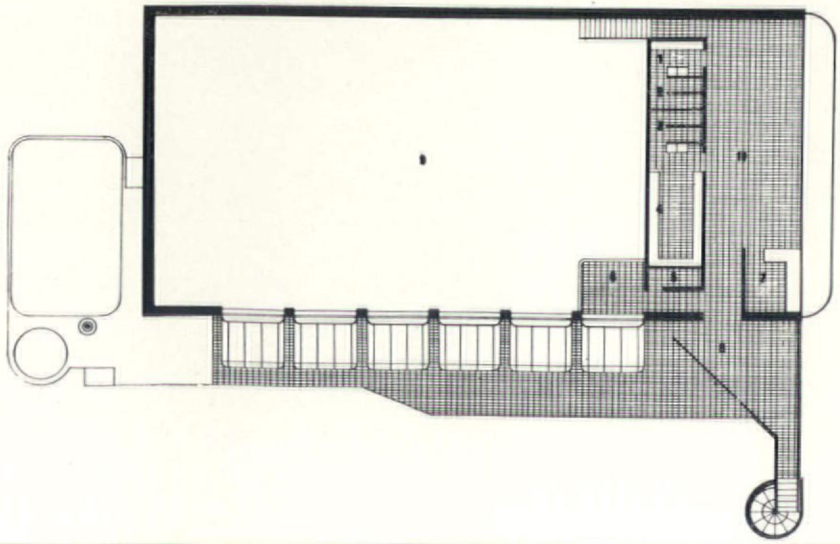
4



5



6



1
Site plan

2
Axonometric from the north west

3
Model from the north west

4
Longitudinal section

5
Ground floor plan
Key

1 Boiler house
2 reception
3 washing
4 pressing
5 classification
6 dry cleaning
7 racking and packing
8 sewing
9 loading bay
10 soap storage
11 linen bank
12 vehicle ramp
13 pedestrian access

a. hot well tank
b. boiler 400 lb/hr
c. 65ft 0in steel flue
d. 6000 gall oil storage
e. extractor (300gall)
f. extractor (200gall)
g. extractor (200gall)
h. drying tumbler $38ft^3$
i. sheet spreader
j. sheet feedmaster
k. 2-roll calender
l. folding machine
m. airfoldmatic
n. collar press
o. shirtmaster
p. 62in coat press
q. 62in presses
r. Hoffman press
s. 150gall mixing tanks
t. 150gall storage tank
u. dry cleaning
v. spotting table
w. press
x. steam finishing
y. platform scale
z. storage rack
a1. hamper conveyor
b1. conveyor
c1. collector
d1. water reclamation

6
First floor plan

1 men's lockers
2 men's w.c.s
3 women's w.c.s
4 women's lockers
5 supervisor's w.c
6 office
7 reception
8 bridge
9 void
10 canteen

Maintenance depot, Paddington

For the GLC (for British Rail, Western Region)

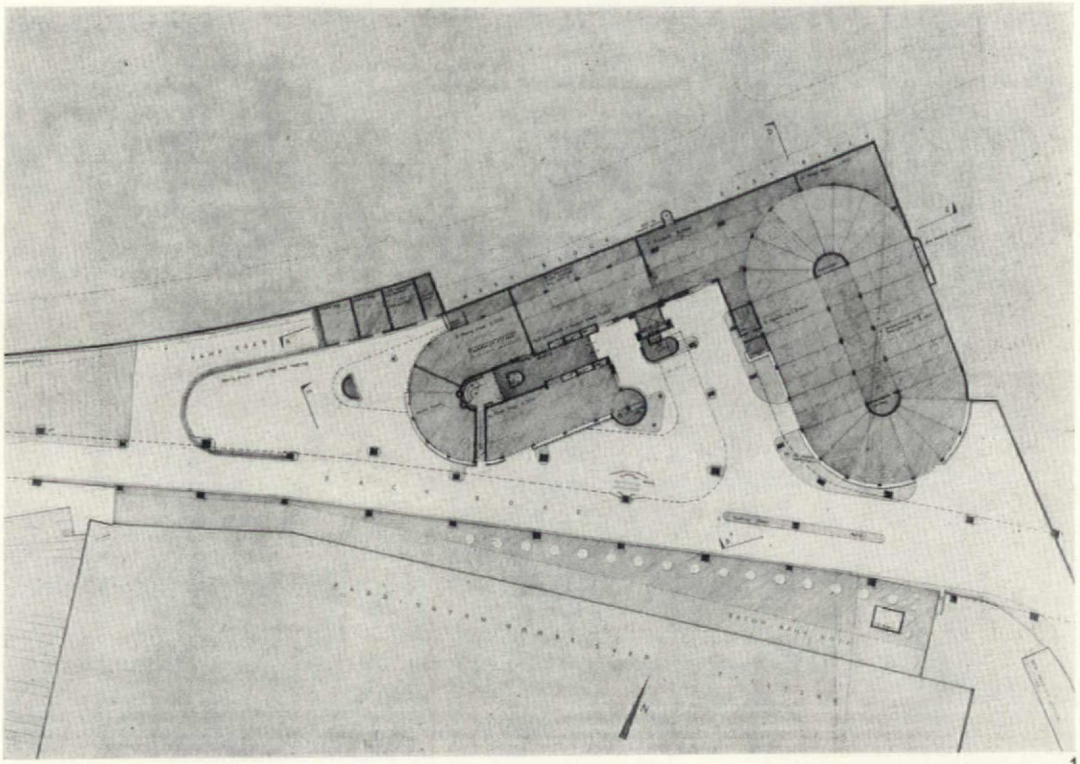
Bicknell and Hamilton
with the GLC Architect's Department

Architect in charge: P. A. Hamilton

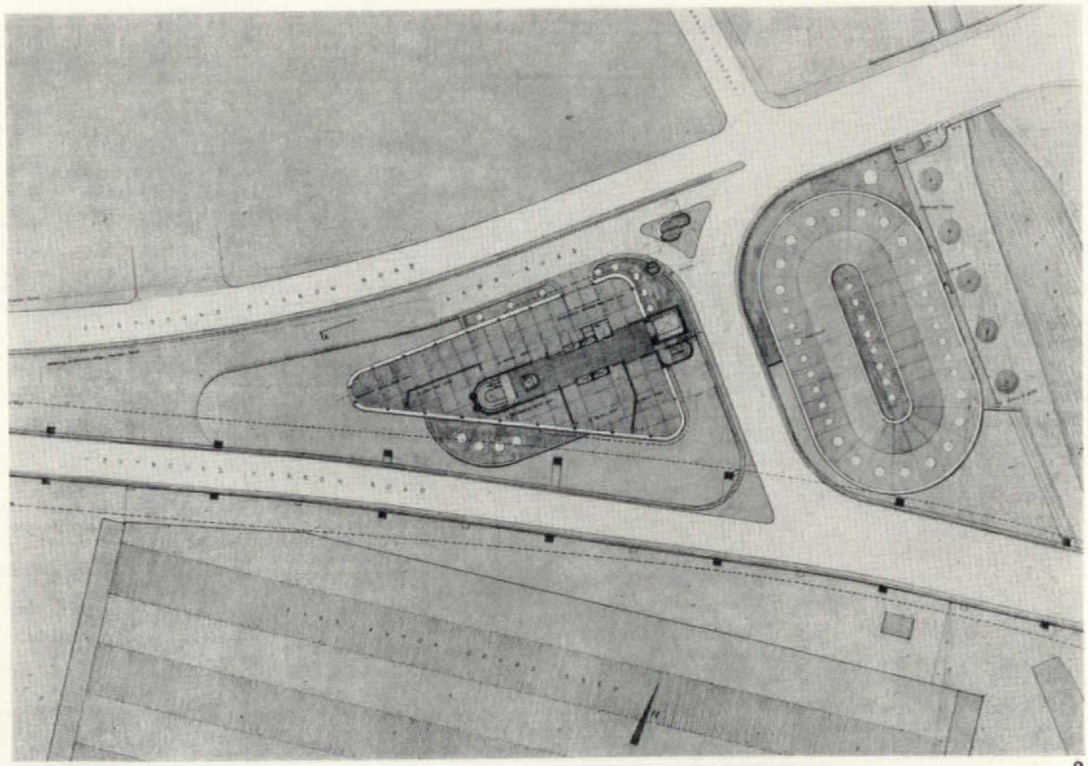
The building comprises railway road vehicle and plant maintenance facilities at present housed on the site of the new building and at Westbourne Park. These are to be displaced by the Western Avenue extension urban motorway and new accommodation is to be provided prior to construction of the motorway.

The principal vehicle maintenance facilities at level one require a 20ft clear working height. This is provided in the single-storey east block, within the new Harrow Road roundabout, whose form is generated by the road curvatures. This can be built on land available in the first phase. The space, which provides a flexible working area, continues beneath the western limb of the roundabout into the high west block, built in the second phase. Levels two and three of west block contain smaller workshops and stores with offices and staff messing facilities at level four. The existing railway vehicle entrance is repositioned to lead out of the new roundabout by means of a new 'ramp road' to the north of west block. The building envelope is tailored to the shapes of the surrounding roads. The building will be visible from high blocks of housing nearby. The left-over areas beneath the motorway and westbound Harrow Road are available for parking vehicles and plant.

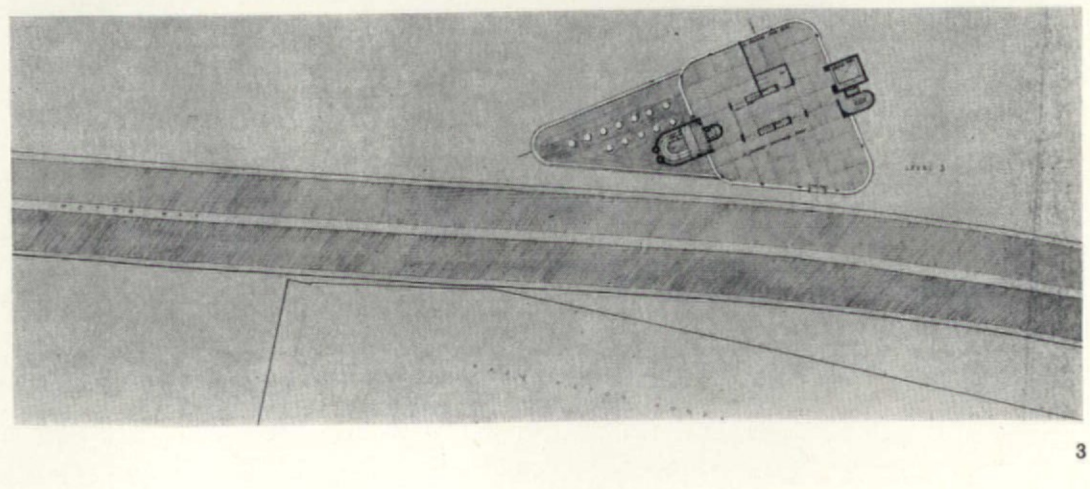
Fire and safety requirements in the vicinity of the high-level roads necessitate a heavy structure. Provision for heavy loadings with large spans is required in the working areas. Little repetition is possible and the shell of the building consists primarily of in-situ reinforced concrete. The roof trusses of east block will be precast on site. The raised portion of Harrow Road will have prestressed deck units on in-situ bents, normally at 50ft intervals. The motorway deck will be carried on steel bents resting on alternate piers of Harrow Road at 100ft centres. The east block will be roofed with zinc and the west block faced with ceramic mosaic. Air conditioning will be provided in areas close to the roads.



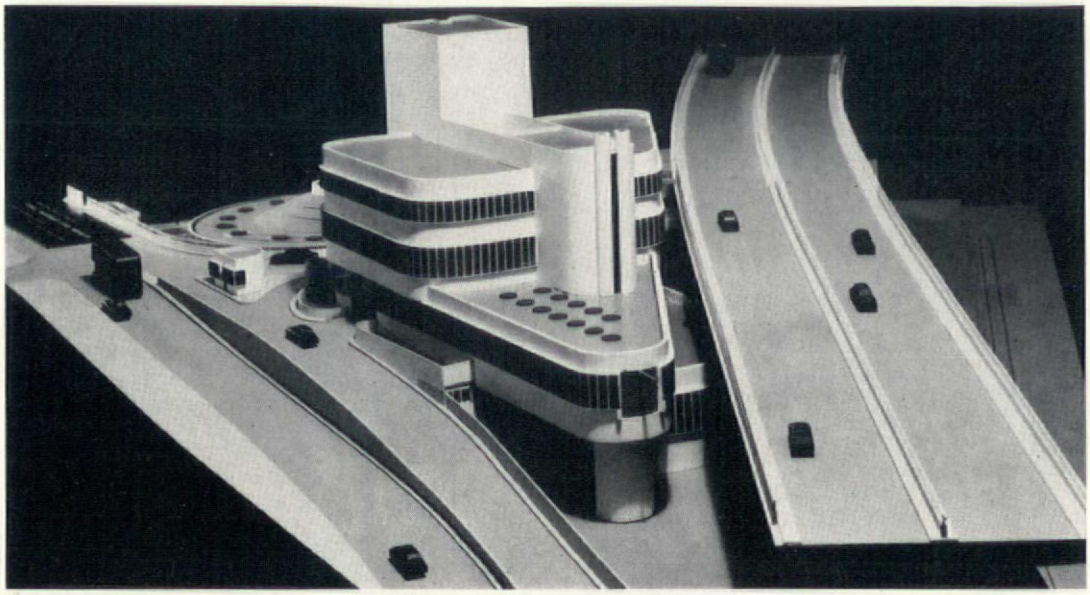
1

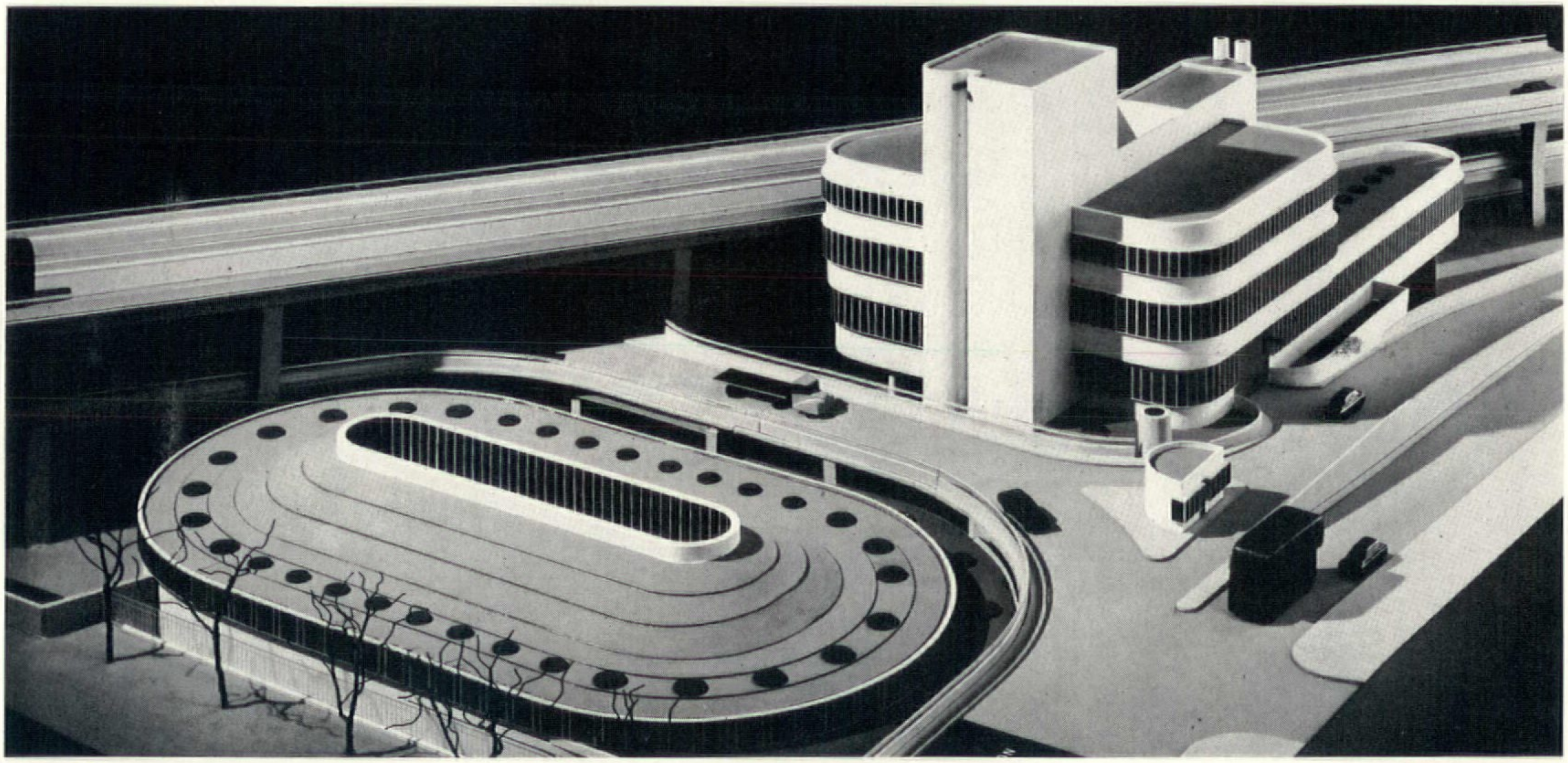


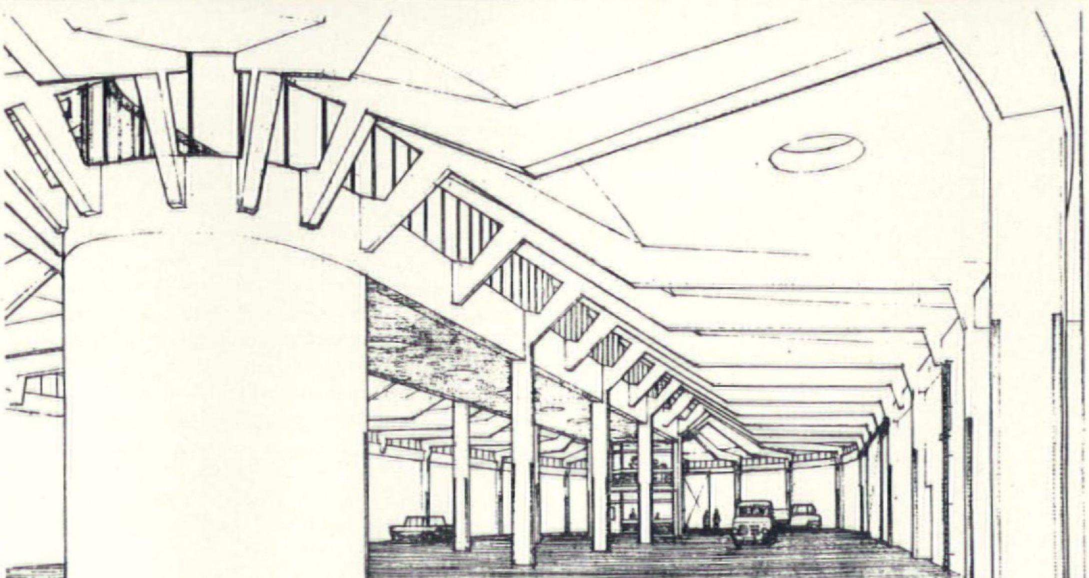
2



3


4


5


6

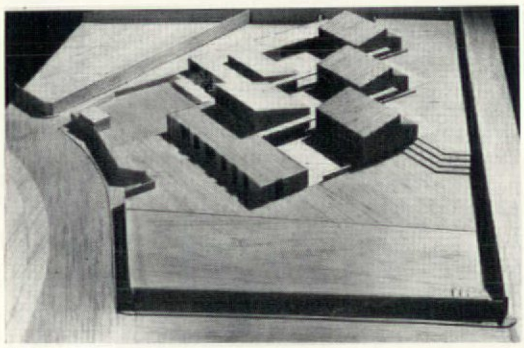
1
Plan of level one
2
Plan of level two
3
Plan of level three
4
Model from the west
5
Model from the north
6
Interior of east block
Photos: J. Maltby

Experimental primary school, Islington

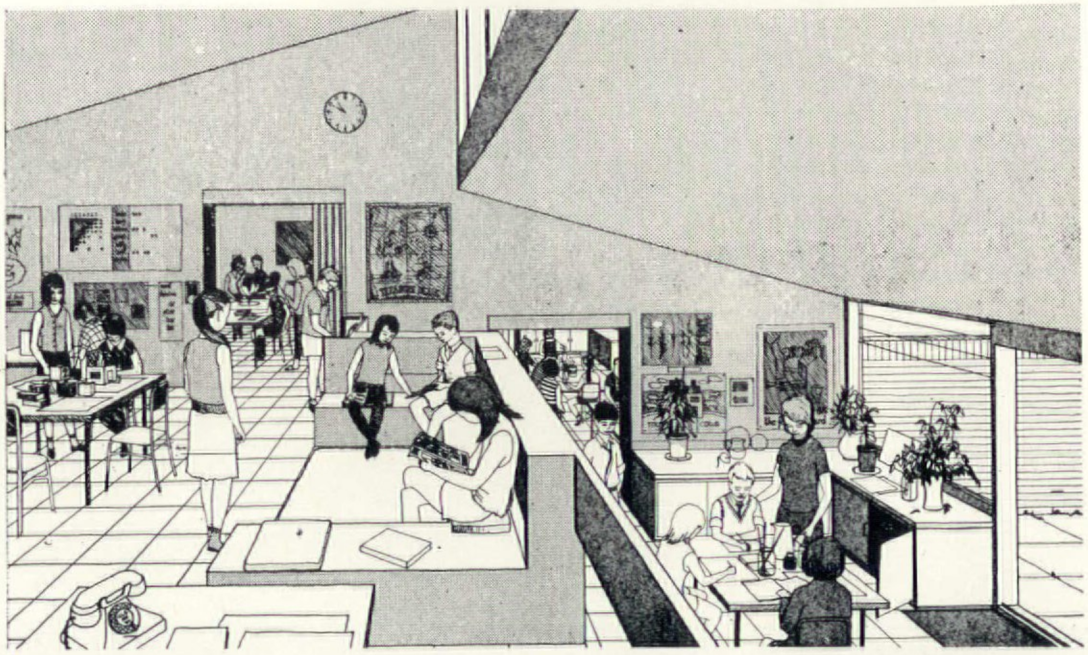
For Inner London Education Authority

Greater London Council,
chief architect Hubert Bennett

Architect in charge: R. W. Robson-Smith



1



2

The brief required that the architect work closely with a team of educationalists at the Department of Education and Science to design a 320-place primary school as an experiment based on the following educational aims:

By a close association of pairs of classes to bridge the present point of transfer between Nursery/Infant and Infant/Junior education.

All children to have direct access to outdoor teaching spaces, part of which to be covered.

To provide small additional teaching spaces to act as a base for part-time teachers.

To associate a play centre to a school and plan part of the accommodation to be used as a parents room. To develop the home/school relationship.

To provide an environment that stimulates and encourages learning.

Current Department of Education and Science cost limits not to be exceeded.

The roll is likely to rise to 320 in the summer term and it is suggested that the school should be organized into 8 pupil groups of 40. In order to avoid the disadvantage of moving children up at the beginning of each term to make room for new entrants the admission class will begin with a small roll which will build up in the course of the year.

Group A to consist of about 13 rising-fives attending full time in September, and a similar number of January rising-fives attending part-time. In January these two groups will attend full-time and the summer term rising-fives will attend part-time. In the summer term all will attend full-time. The purpose of this is to introduce most children to school through part-time attendance; the needs of individual children will be met and there will be some flexibility between full-time and part-time attendance.

Group B to consist mainly of children who turn six in the course of the educational year. These will work closely in association with the work of Group A. These two groups will span the present point of Nursery/Infant transfer.

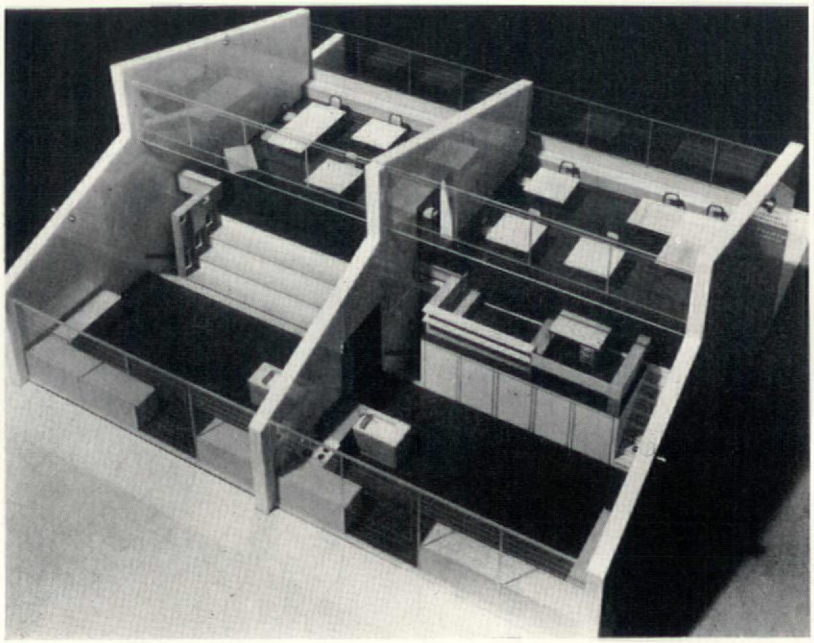
Group C will be for older Infants, and *Group D* will be the transition class. These two classes to work closely together as they will span the present point of Infant/Junior transfer. Except for some young juniors in Group D, *Groups E to H* are to contain all children of Junior age.

The principal entrance will be from Half Moon Crescent; this will also be the entrance for the infants and children attending the play centre. Entry for kitchen vehicles will also be off Half Moon Crescent, thus utilizing the existing service road. Once inside the entrance hall, the administration offices will be to the immediate right, with play centre *ad hoc* accommodation to the left. Part of the play centre accommodation is designed for use during the day as a parents' room, in which it is hoped that parents will undertake voluntary work connected with the school.

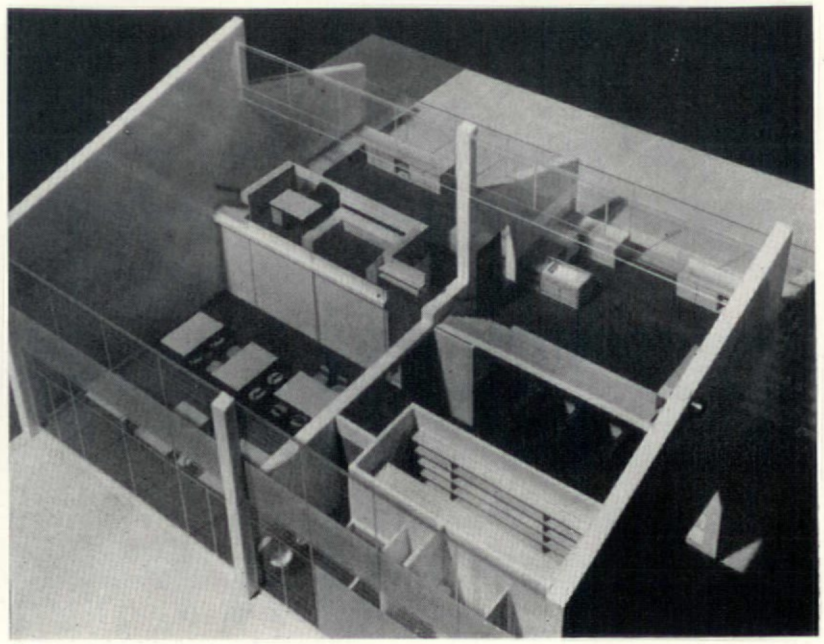
Ahead of the main entrance will be the assembly hall and enclosed corridors will lead to the four pairs of classrooms. The group A and B classroom will be at one level with through lighting and ventilation. Leading off classroom A and also shared by Classroom B will be the dining/multi-purpose room. This will be the shared dining space. Meals will be trolleyed directly from the kitchen. The outdoor teaching space will be to the south-west leading on to the infants' playground.

The remaining three pairs of classrooms C/D, E/F, G/H will all be split level, each having direct access to an outdoor teaching space, leading off a practical work area. One of the classrooms in each pair will have broad steps at the change of level from the upper part of the classroom to the lower, this area will accommodate the combined classes of 80 children and is intended for watching TV programmes, film and slide shows and science demonstrations from a mobile science trolley. The lower practical area of the classroom with direct access to outdoor work spaces will be equipped with work benches and a few will have cookers.

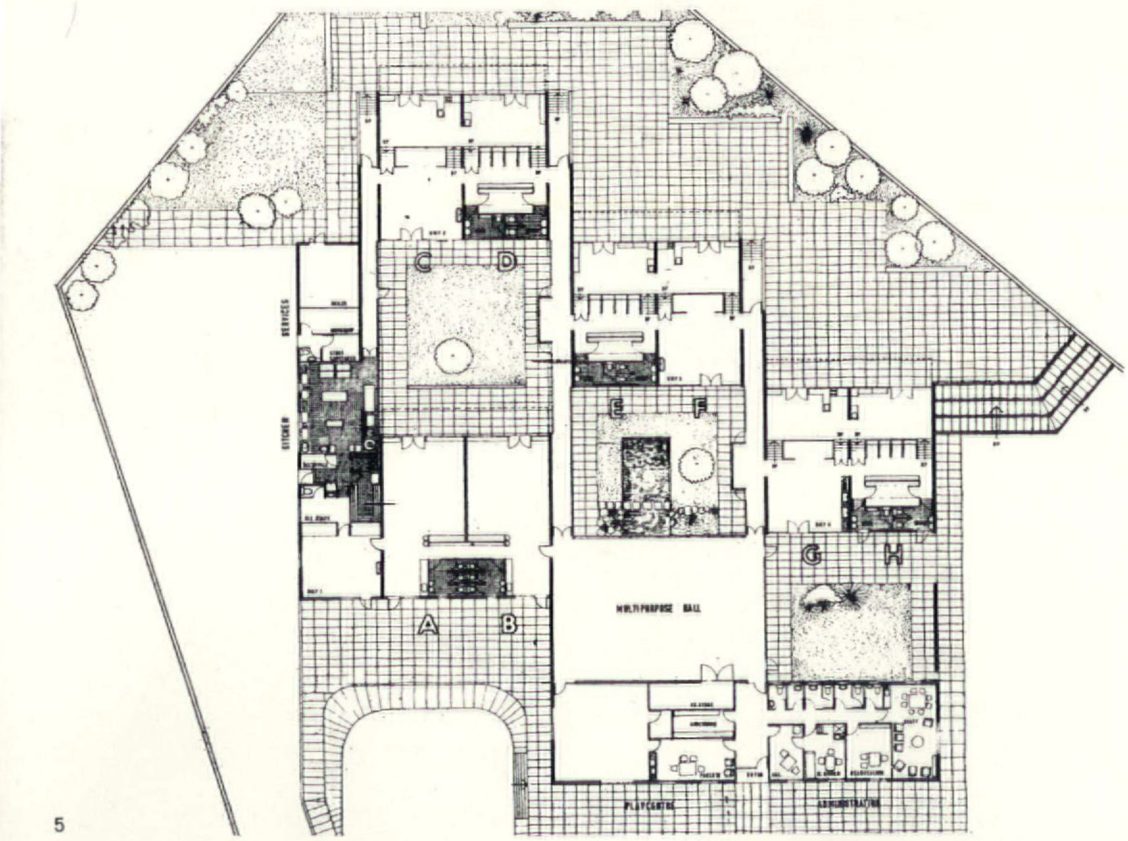
To provide the increased areas required by the educationalist within the restricting cost limitation it was necessary to examine carefully a number of structural solutions. Load-bearing brick work proved to be the most economical with proprietary laminated timber beams spanning between the walls at room and floor level. The monopitch roofs are of snap-rib aluminium and chip-board is used for the floor at first-floor level. Ground floors are linoleum on concrete sub-floor. The external walls are painted flettons with timber fascias, cladding units to infilled walls are of timber and glass.



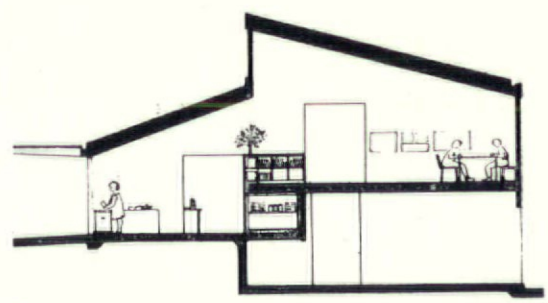
3



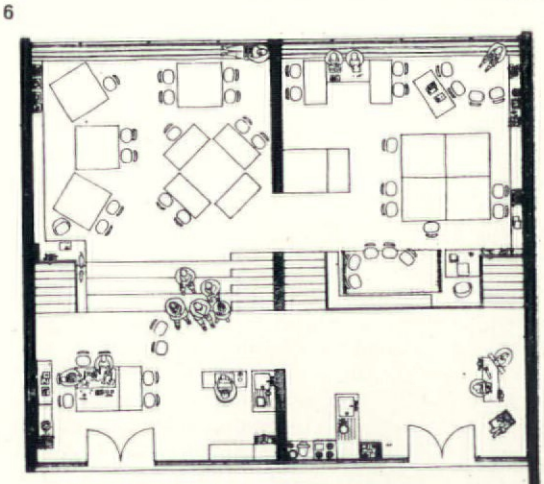
4



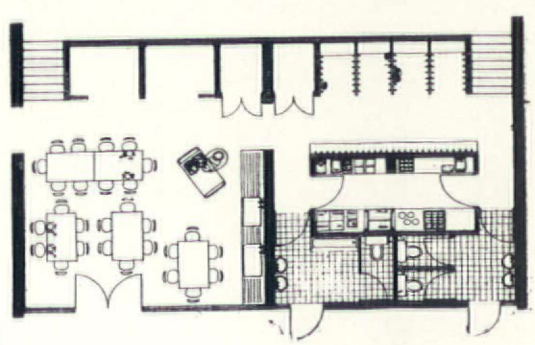
5



6



7



8

1
Model from the south

2
View of split-level classrooms

3
Model of 'stepped' and balcony classrooms

4
Model with floor of balcony classrooms removed to reveal dining level and store rooms under

5
Ground plan

6
Section through balcony classrooms

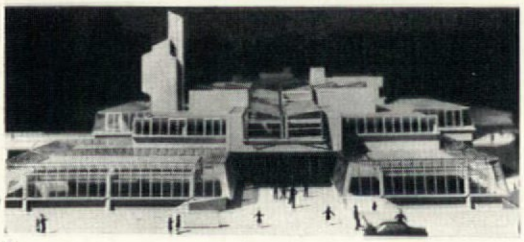
7
Plan at classroom level

8
Plan at dining/multi-purpose level

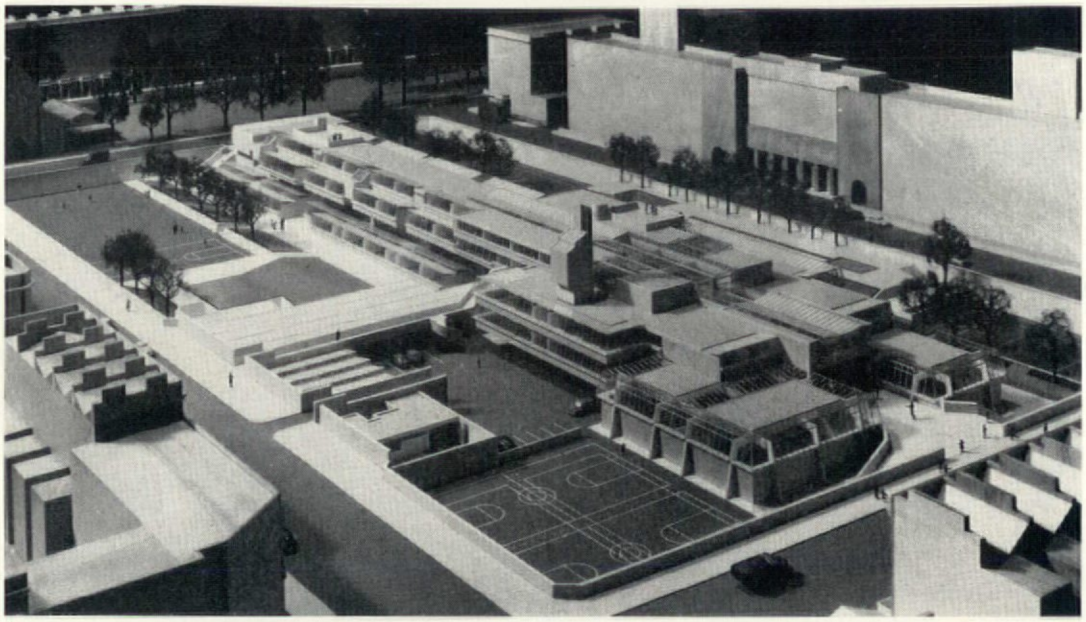
Photos: GLC Photographic unit

Secondary school, Pimlico

For Inner London Education Authority
Hubert Bennett, chief architect to the GLC
Architect in charge: F. J. Bancroft



1

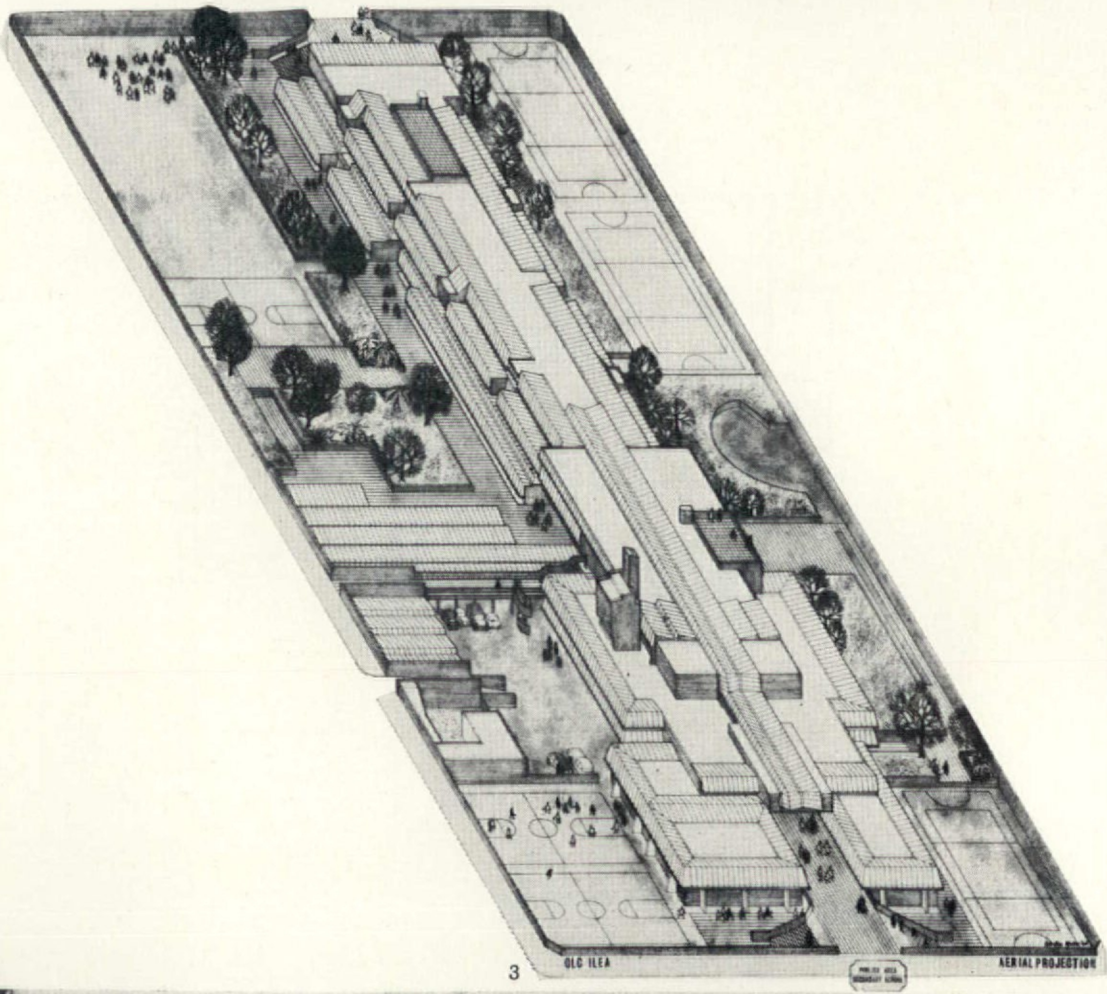


2

A secondary school for 1725 children (225 in sixth form) to be built on a 4½-acre island site bounded by Lupus Street, Claverton Street, Chichester Street and St Georges' Square, Westminster.

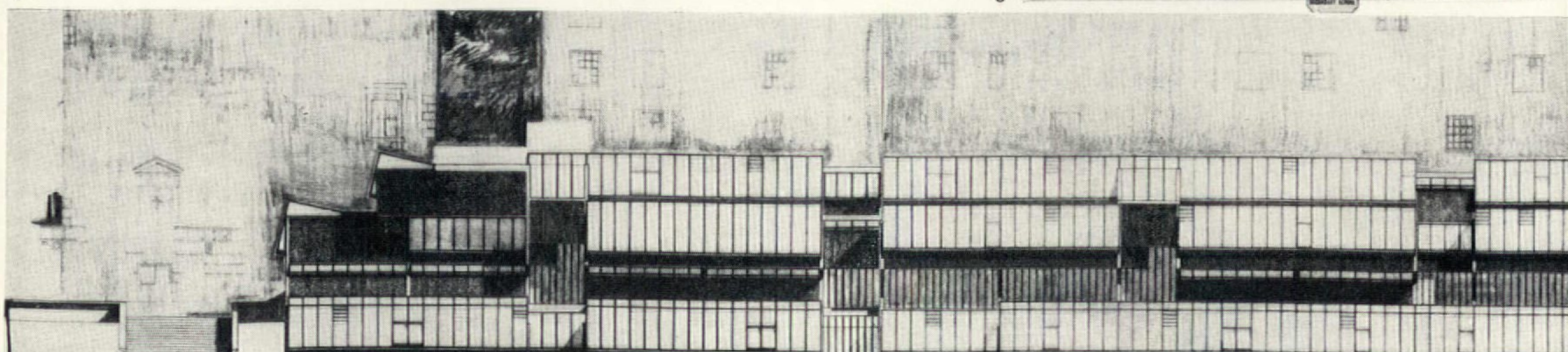
The accommodation required is: assembly hall; library; houserooms; classrooms; geography rooms, history rooms, music/drama rooms, music practice rooms; laboratories for physics, chemistry, general science, biology and engineering, art and craft rooms including pottery; housecraft and needlecraft rooms; commerce rooms; workshops for metal, wood and engineering; technical drawing offices; self-contained sixth form suite comprising teaching rooms, common rooms and study cubicles; language laboratory; mathematics laboratory; gymnasia and swimming pool; administrative accommodation; central kitchen; living quarters for a schoolkeeper; evening institute and youth service rooms. The site to include paved play areas overmarked for netball, basketball and tennis, facilities for high and long jump and shot putt, car parking and cycle storage.

The bulk of the accommodation is in one four-storey building which divides the site longitudinally into two new open spaces extending St George's Square at right angles to its main axis. That on the Lupus Street frontage terminates in St George's Church and both will be planted with grass and trees to strengthen the link with the Square. The facetted glass form of the building will be complementary to the older adjoining



3

4

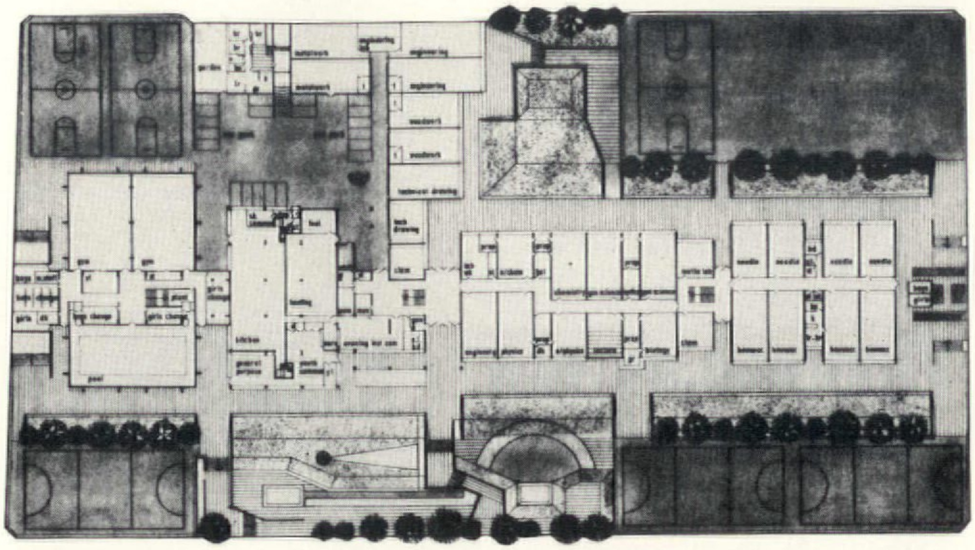


buildings and have sufficient complexity to counterbalance their greater bulk. The modelling will be continued over the adjoining parts of the site by using hardcore from the demolition of the existing houses to create various levels of paving and grass, for walking and sitting.

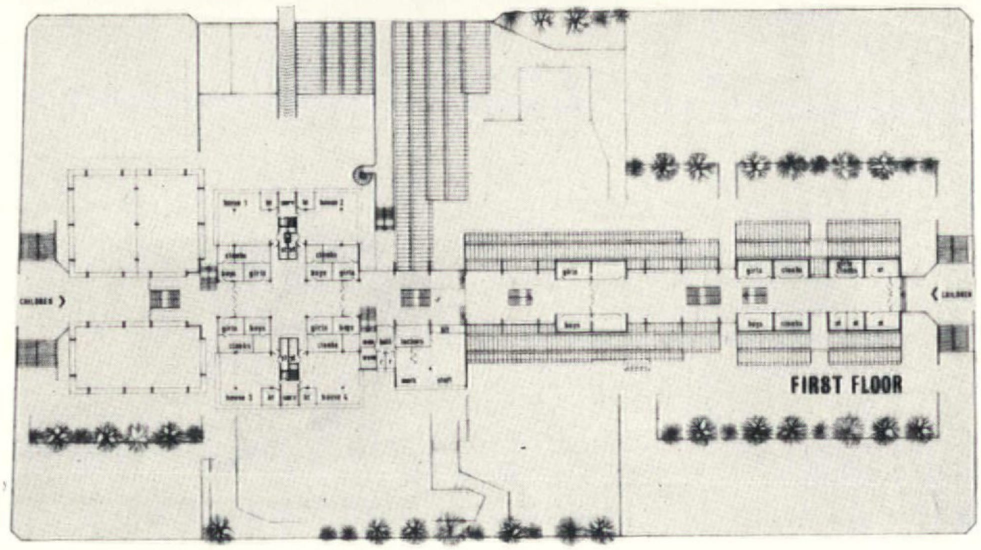
The structure including all external walling will be of in situ reinforced concrete using lightweight aggregate. Columns and loadbearing cross walls are on a 22ft 4in grid; suspended floors and roofs are solid flat slabs without beams. The concrete will be unfaced from the shutter. External surfaces generally will be ribbed either horizontally or vertically depending on position. Internal faces, including soffits to floor slabs, will be smoothly finished and decorated directly with textured plastic paint.

The glazing form has been developed to give adequate lighting in the many deep rooms. Constructed of aluminium patent glazing, the roof will be double glazed with expanded polystyrene sheet in the interspace; sidewall glazing will be single with aluminium opening lights. Fabric horizontal and vertical blinds will control sunlight.

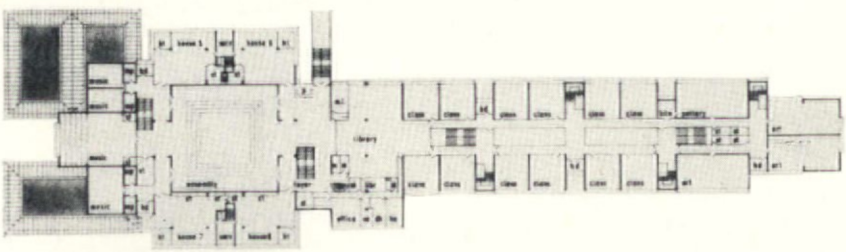
Heating will be by low-pressure hot water radiators and forced warm air convectors from an oil fired boiler plant.



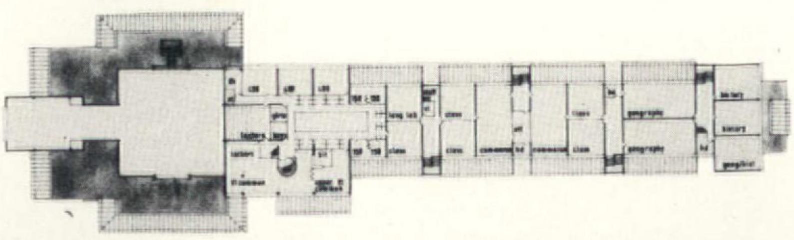
5



6

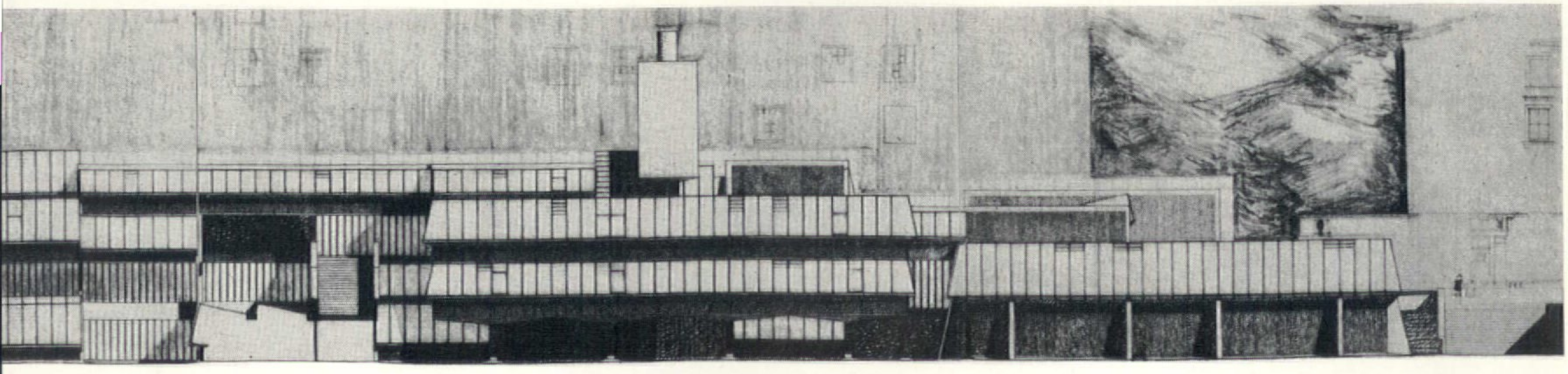


7



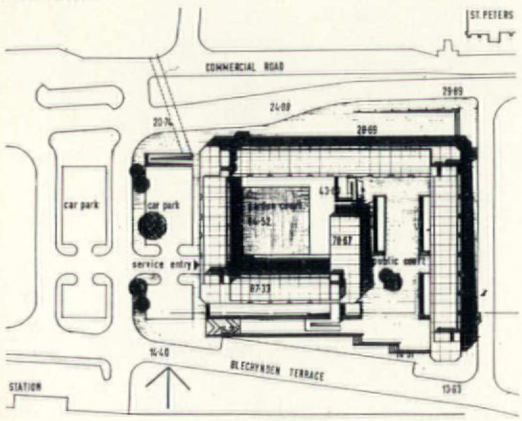
8

1
View of main west entrance
2
Model from the north west
3
Aerial projection
4
North elevation
5
Ground floor plan
6
First floor plan
7
Second floor plan
8
Third floor plan
Photos: GLC Photographic Unit



Housing, Southampton

For City of Southampton
Lyons, Israel, Ellis and Partners
Architects in charge: E. Lyons, F. Linden, A. Hume



2

The site is a prominent one, thus the scheme will possibly have some influence on the surrounding sites which are now under consideration for development. Its close proximity to the Civic Centre and the Central Station demanded an urban quality. In order to conform to the outline plans of the Southampton Planning Authorities a low development was considered necessary.

Fortunately, existing low-level cellerage occupying the greater part of the southern end of the site resolved the car parking and servicing below the level used by the public. Pedestrians can therefore use and enjoy any open space provided, without constant awareness of vehicular traffic dangers.

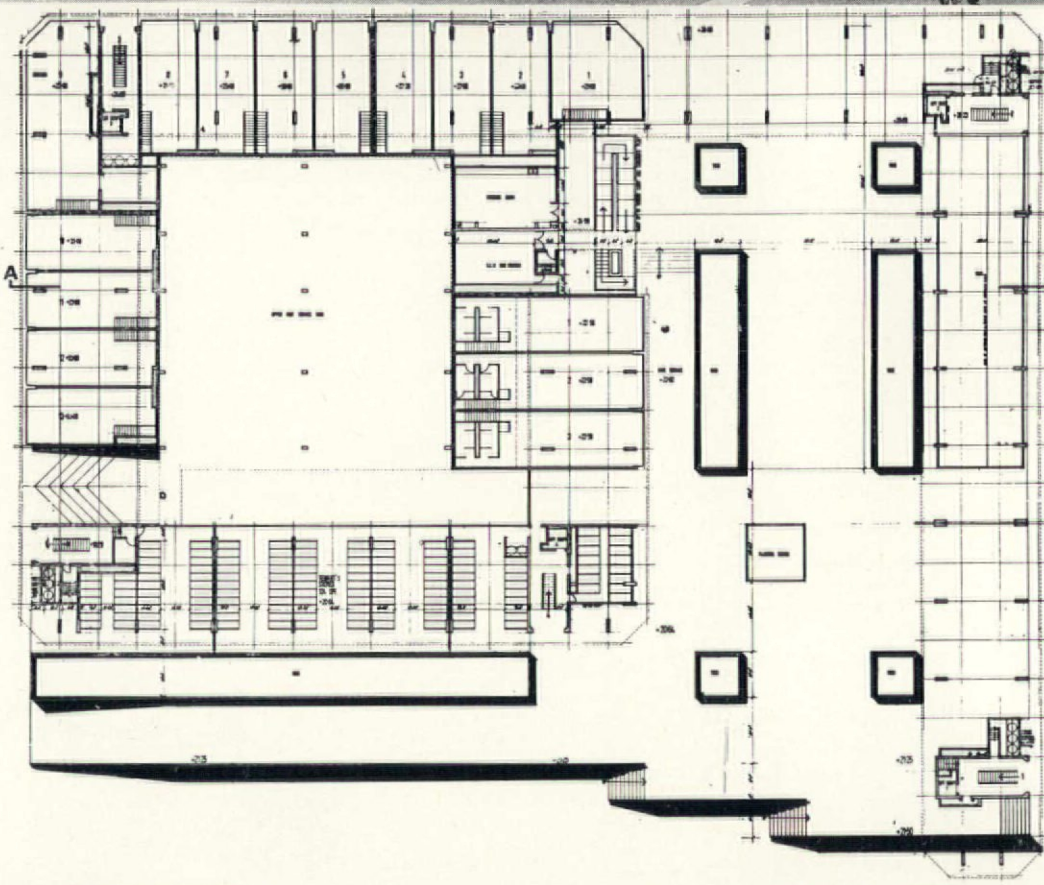
With a pedestrian deck thus achieved it was possible to satisfy a council wish that pedestrians should be able to use the site as a short cut to the station from the new development taking place in the outlying suburbs to the north and west. This meant that to the north east of the site the scheme should be raised above the deck to enable pedestrians to pass underneath. This was achieved simply by grouping the shops and cafés around a service yard to the west of the scheme and running piloti under the remainder. A natural slope on the site made it possible to introduce an extra level of flats on the south and west wings.

The children's play area is used as a cover to the service yard and protects the dwellings above from traffic noise. It is enclosed on all four sides by the aged persons dwellings and terrace. This fills the important social need of integrating the old and young people.

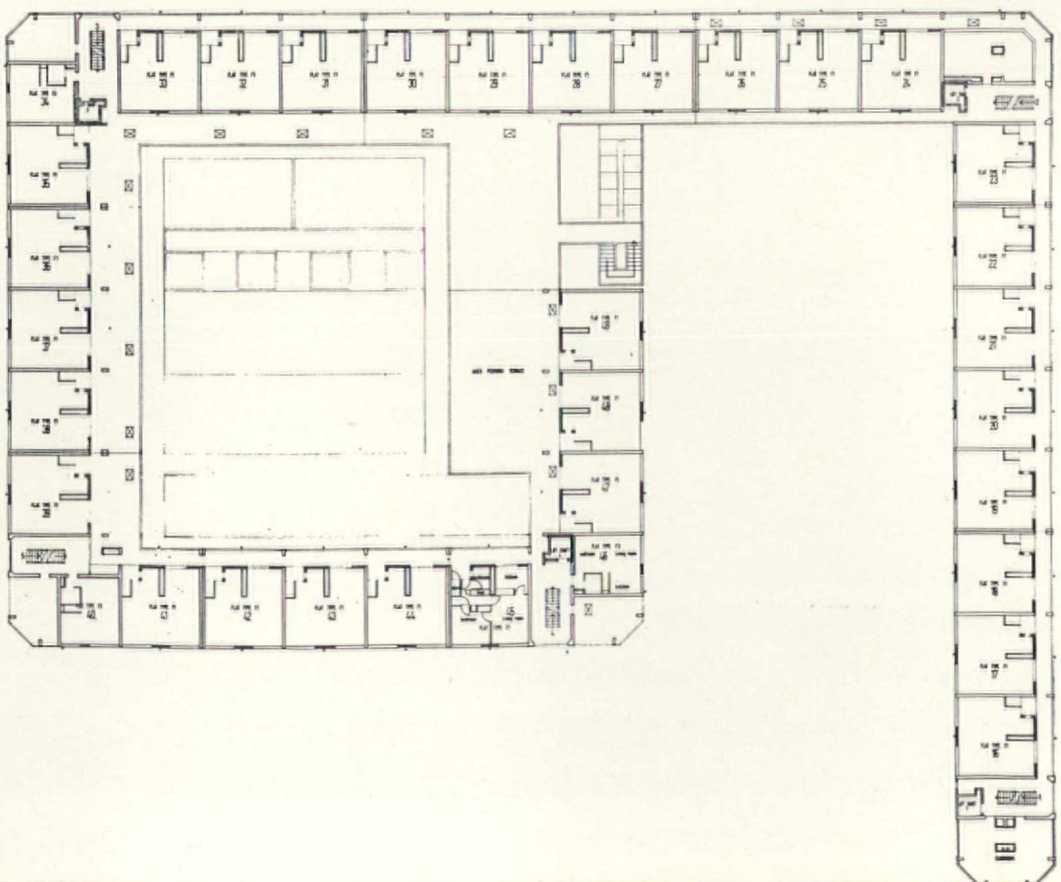
The remainder of the scheme encloses a public court which is treated as the principal meeting place for residents. The cafés are situated to the west of this court and the area is broken up usually by the shafts which ventilate the underground car park.

Floors are prestressed concrete beams with woodwool infill with structural screed and floor warming cables set in topping screed.

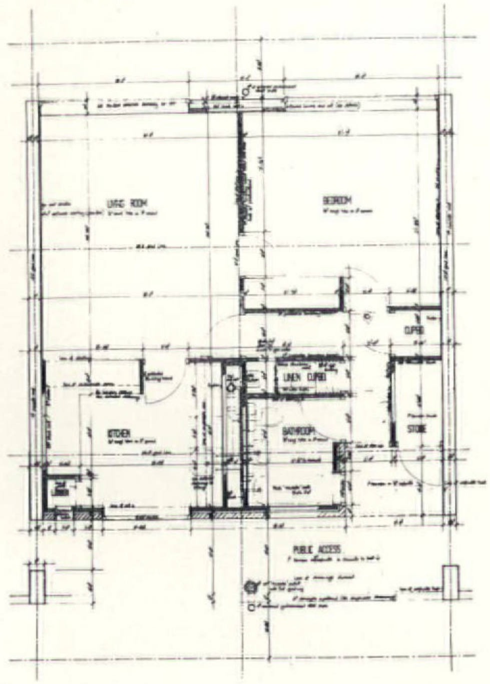
1



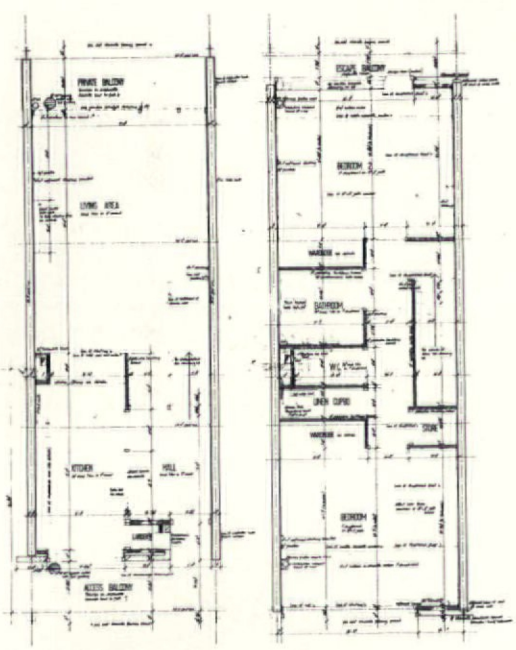
3



4



5



6

1
Perspective

2
Block plan

3
Ground floor plan, level 23·00

4
Second floor plan, level 43·69

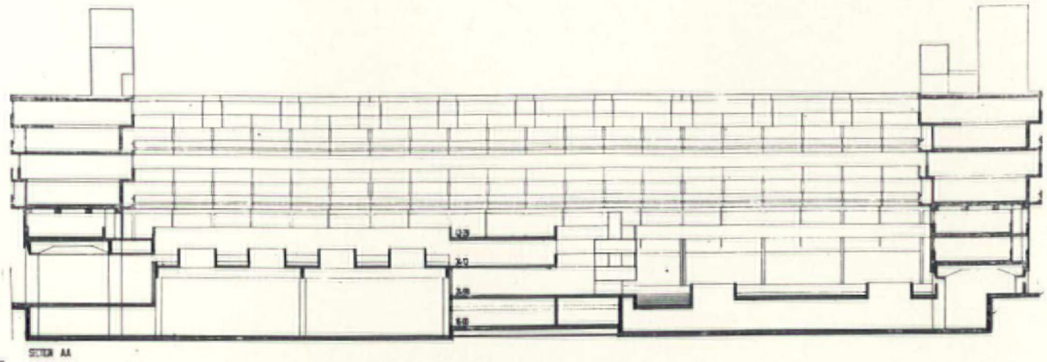
5
Plan of flat type F1, at levels 34·45 and 43·69

6
Plans of maisonette type M1, at levels 53·77 and 62·06

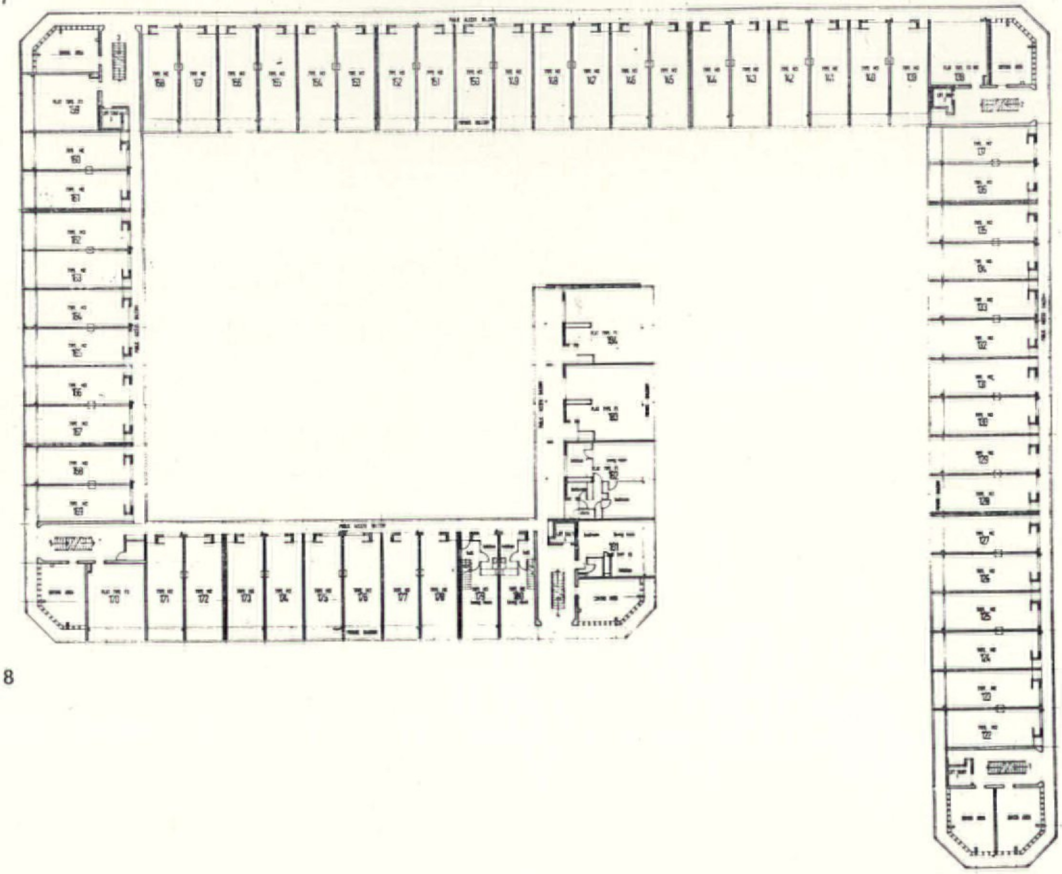
7
Section A–A

8
Fifth floor plan, level 70·69

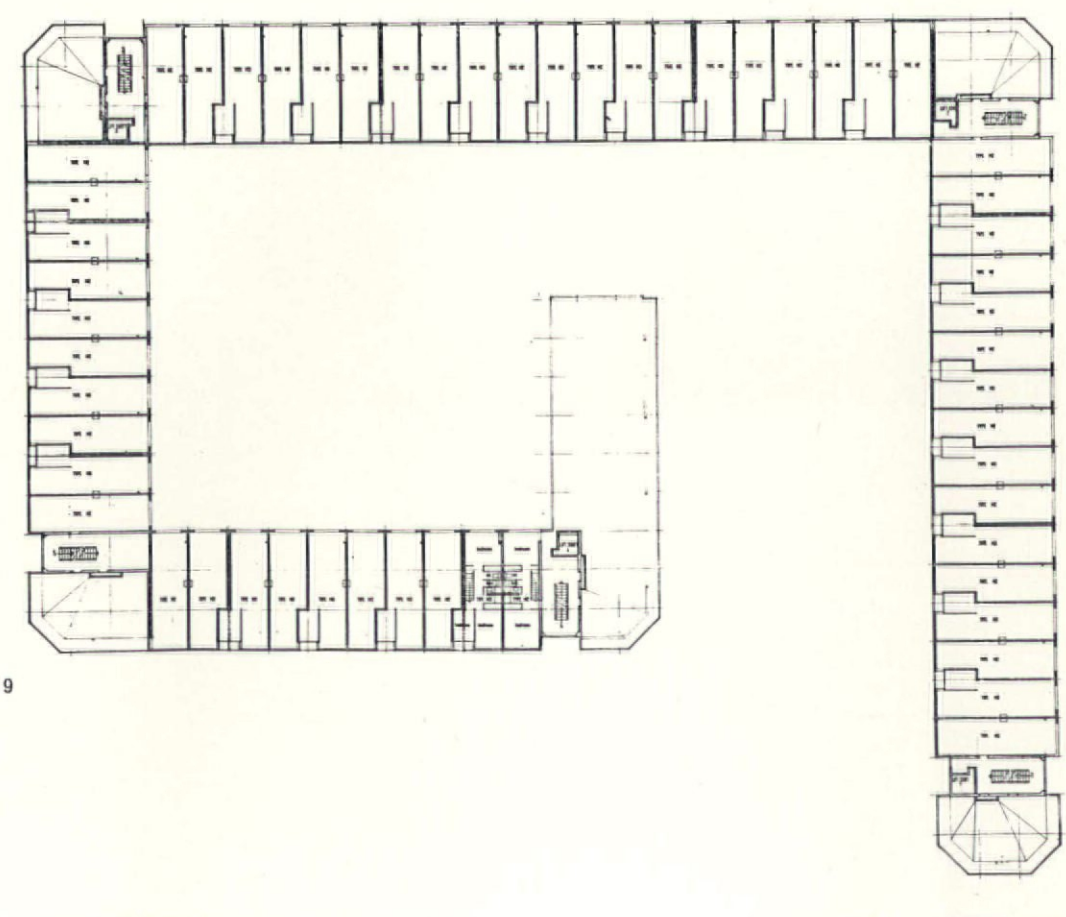
9
Sixth floor plan, level 73·93



7



8



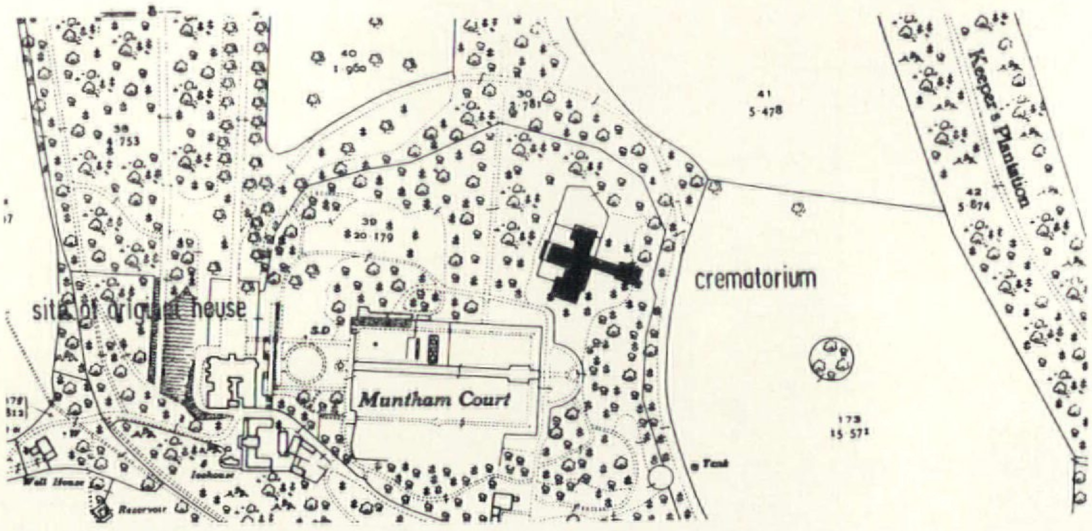
9

Crematorium, Worthing

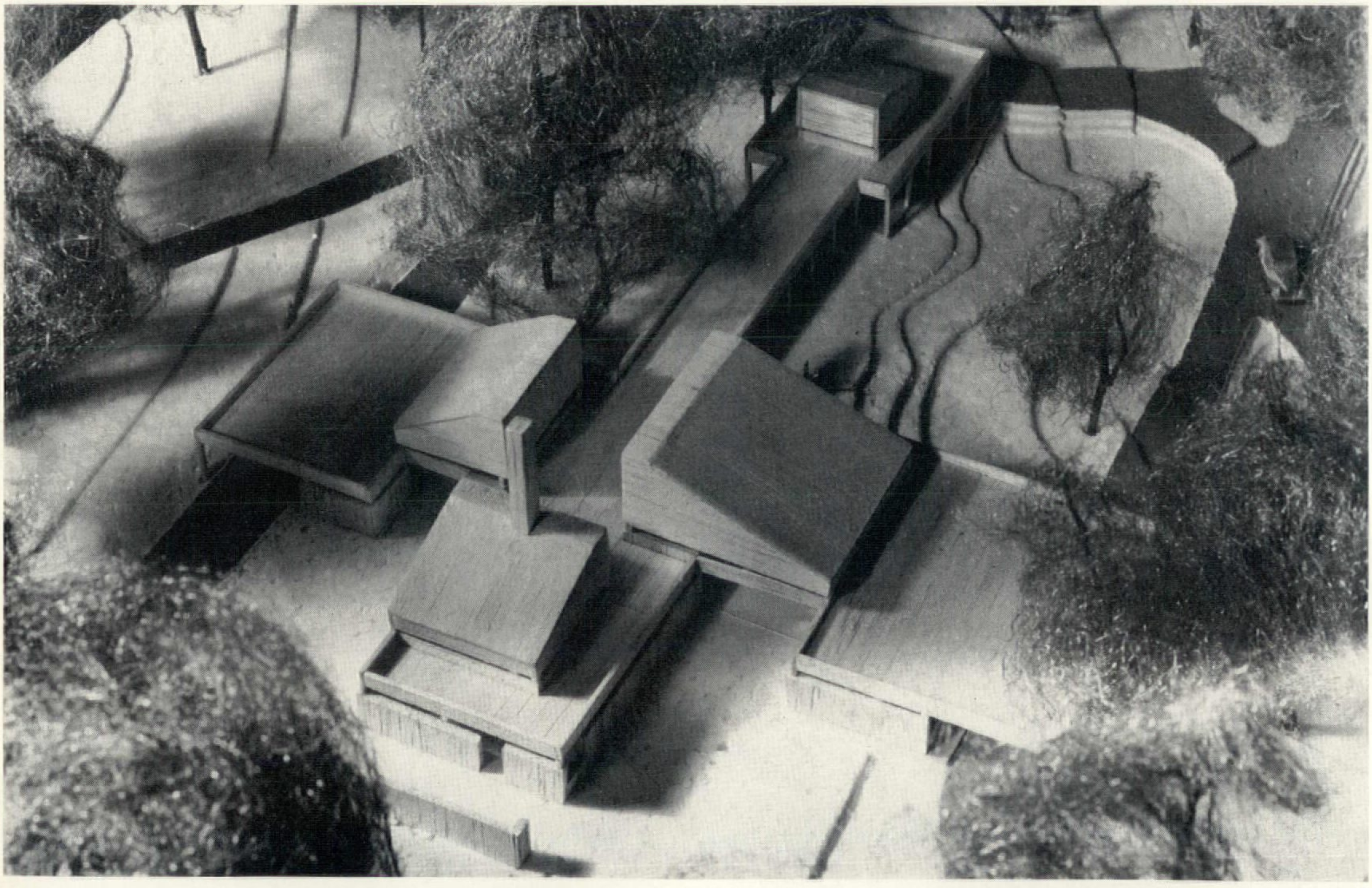
For Worthing Corporation

F. C. M. Morris, borough architect

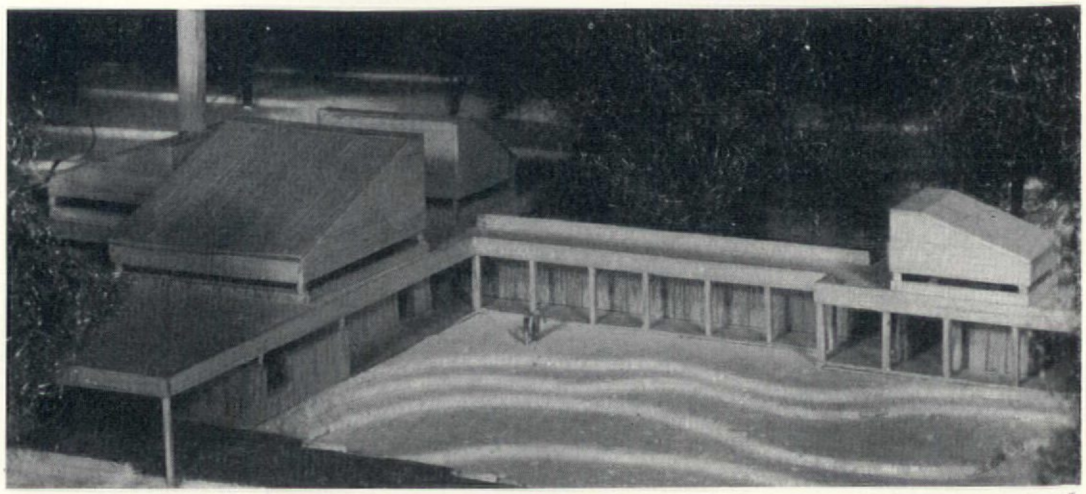
Architects in charge: T. E. Roberts, M. G. Smith



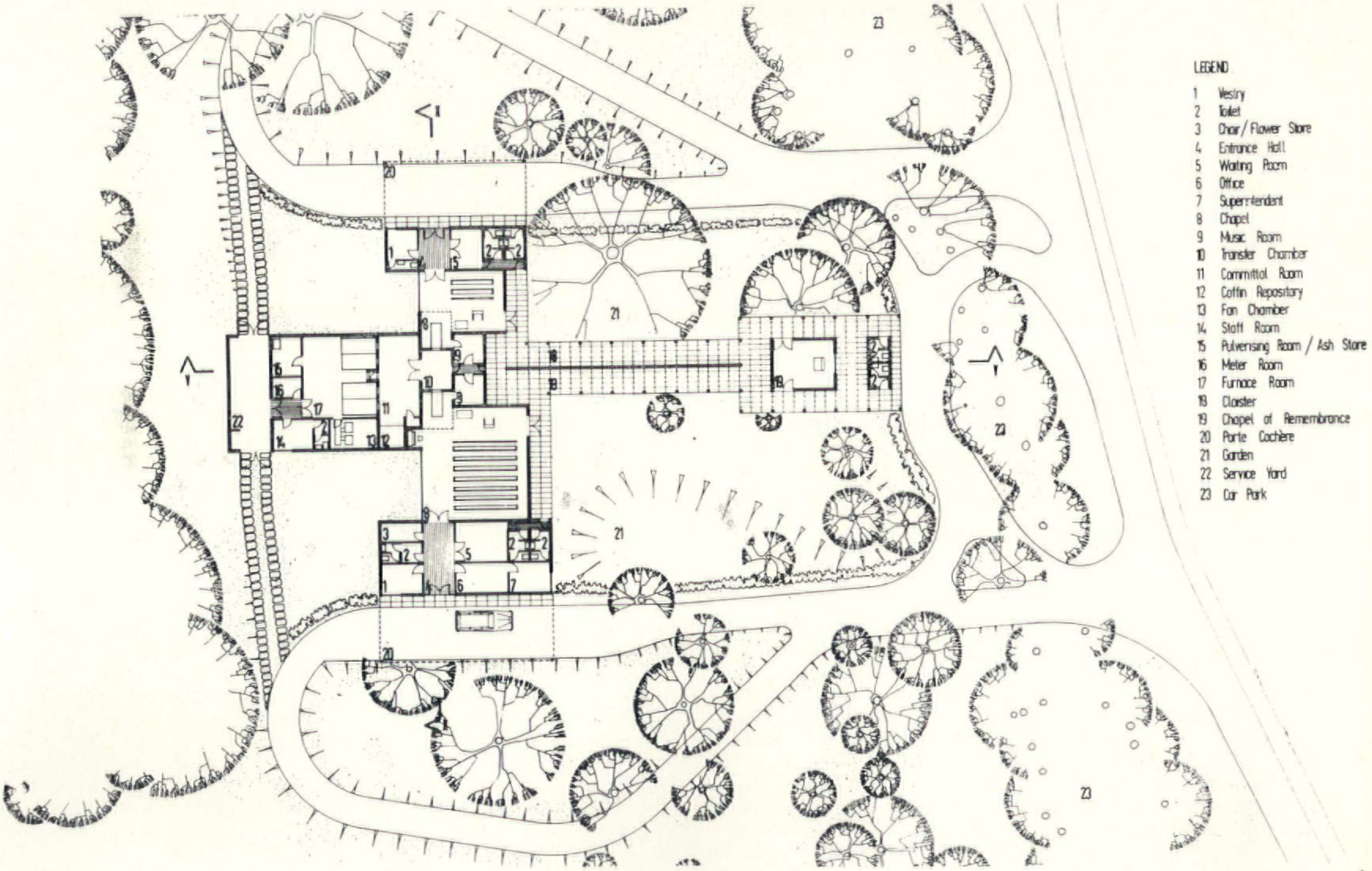
1


2

The site lies within the grounds of a large Victorian Gothic mansion at Findon. The entire area is covered with mature trees of varying types, but uniform magnificence, and it was recognized from the first that any building to be erected must accept and complement their splendour.
The brief called for a crematorium to serve the Borough of Worthing, together with the outlying districts, including Littlehampton, Lancing, Bognor and Shoreham. The population of the catchment area is approximately 180,000 and the number of cremations was anticipated to be 1500 over the first year, building up to 2500 per year over a five-year period.
The initial stage of the building was to include one large chapel, seating up to 100 people, and consideration was to be paid to the addition of a small 'family chapel' at a later date.
Representatives of the clergy and the local funeral directors were consulted and all agreed that the respective congregations in attendance at each chapel should be completely segregated, from the moment of leaving their cars at the entrance, to the time when they regained them at the end of the cloisters.
The other major considerations which affect the plan are the need for efficient operation by the minimum number of staff and the necessity for service vehicles, technical operatives, etc., to be screened from the view of the public. The chimney, whilst being accepted as a vital item, was to be concealed from the public, at least while inside the building, and was to be constructed to overcome downdraughts from the surrounding trees, with the resulting smoke and smell.
The four monopitched roofs are framed with lightweight trusses and covered with copper. The remainder of the building is entirely in reinforced concrete, columns and fascias being finished fair face and the walls vertically textured. All steps within the building have been eliminated and the inclusive cost is estimated to be £77,724.



3



4

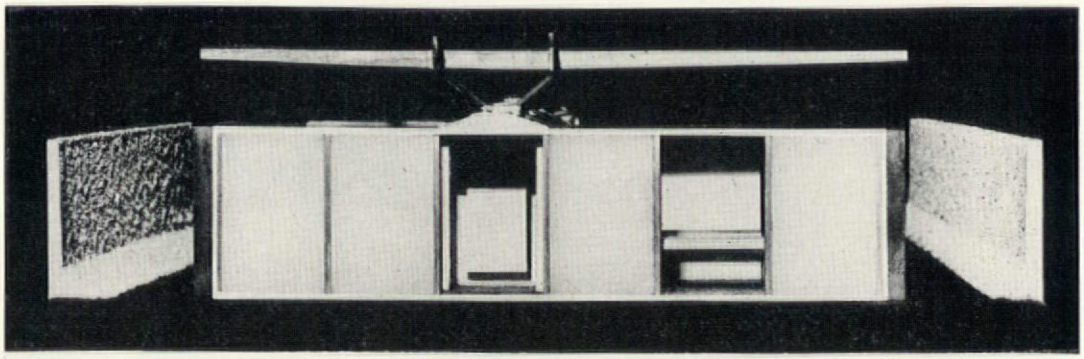
1
Site plan
2
Model from the west
3
Model from the south-east
4
Ground plan
5
Section x–x
6
Section y–y
Photos: G. M. Roberts

5

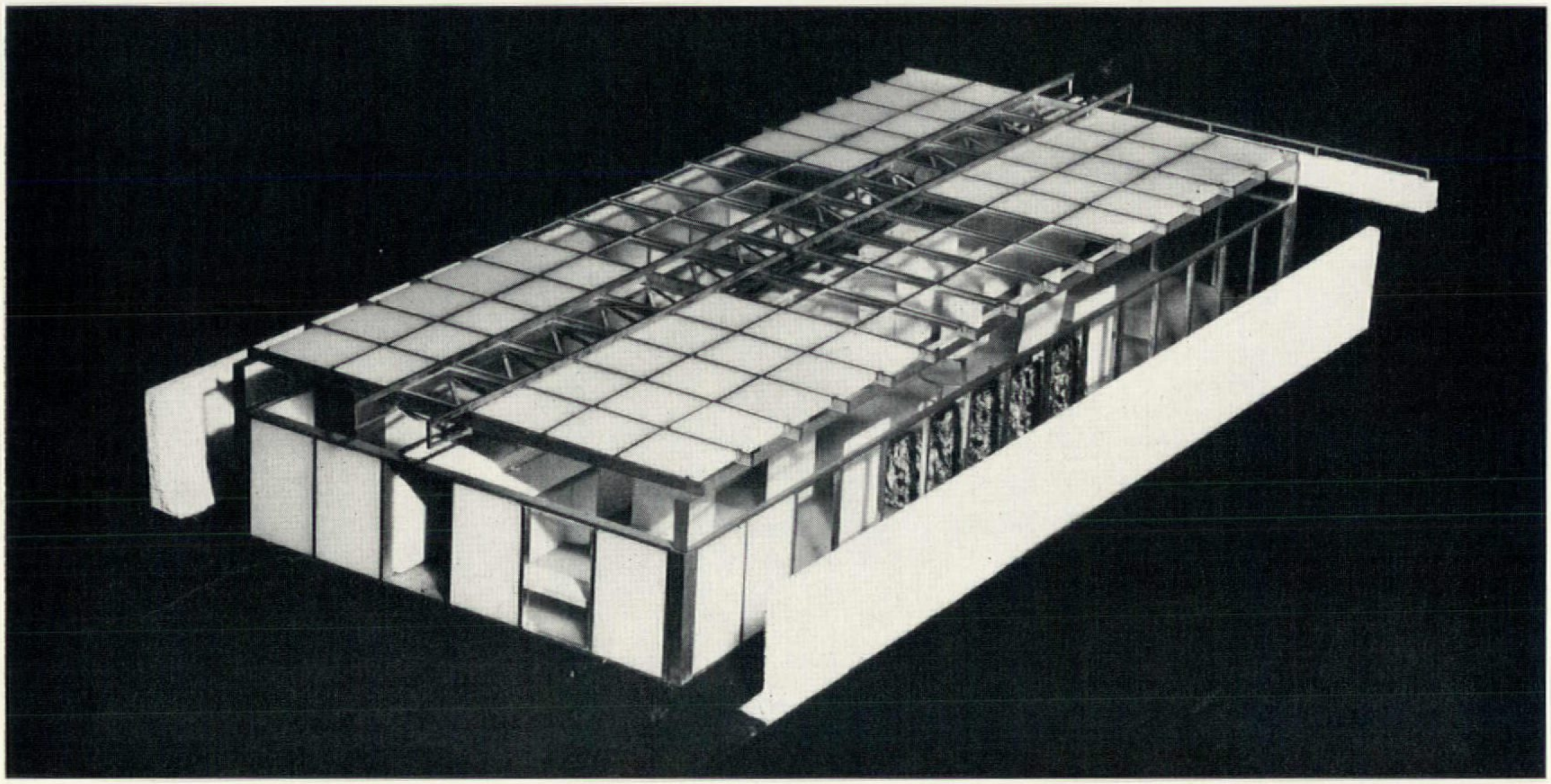
6

Gould House, Leeds

For Henry Gould
Derek Walker
Architects in charge: D Walker, D Benneworth



1



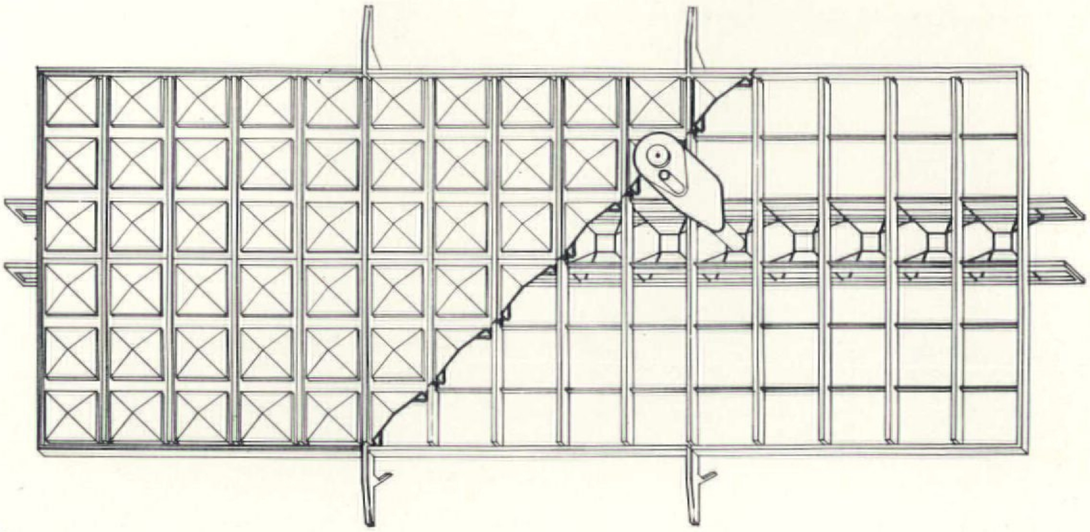
2

The client, a wealthy businessman, selected a site 45ft 0in wide × 120ft 0in long, the earth level being 10ft 0in above road level. Aspect to the 45ft 0in road frontage is south; to the north is a golf course but rising ground prevents a view. The adjoining house to the west is built on a lower level close to the site boundary and to the east a studio cottage presents an unrelieved rendered wall the length of the site. The client's wife is arthritic and the major living accommodation of the house was required to be on one level. The client also required for this reason, that the accommodation should be equipped with as many labour-saving devices as possible as domestic staff were not to be accommodated on the premises. The accommodation was to be spacious enough for entertainment but flexible enough for easy withdrawal to private areas. The list of accommodation was finally arranged as follows:

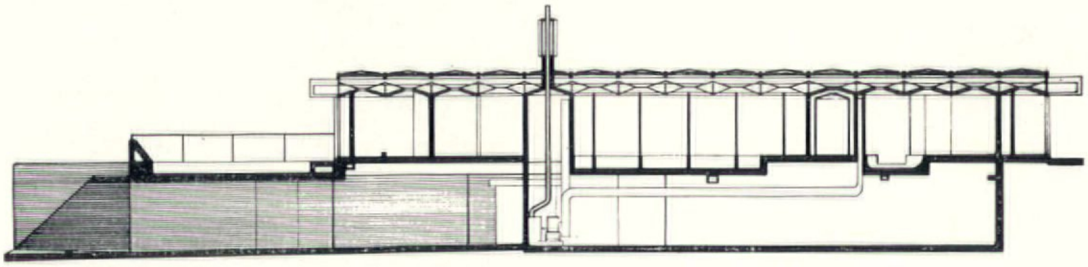
Garage for two cars, heating and ventilation plant, ground floor access; lounge; study; dining room; kitchen; utility and laundry; master bedroom; dressing room and bathroom; guest bedroom and bathroom; cloakroom.

The planning organization of the living pavilion takes place about the arboretum which becomes circulation space and an indoor garden viewed and accessible from all major rooms. By use of pivoting fins controlled electrically each room can become self-contained. The arboretum contains garden floorings, moss, cobbles and white gravel and it is separated from study and dining area by a shallow pool, the pivot tubes for cast perspex fins standing just above water level, again to provide complete visual segregation when required.

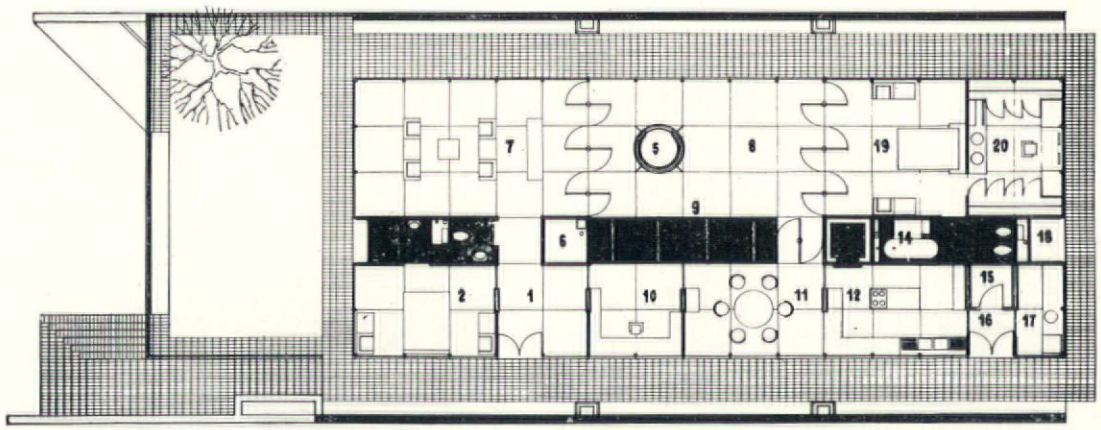
The site contours make it possible for a ground floor garage and services area which is constructed in reinforced concrete with an inner facing brick skin, silver grey in colour. All external paving, forecourt, paths, etc., within the site boundaries are in a pavior of similar colour. Parallel retaining walls along the site boundaries are brought up above ground level as screening and for wind protection; reinforced concrete below ground, they are continued in the silver grey brick above ground level. The living pavilion is serviced and freed structurally by the articulated concrete chambers containing the principal utilities and service feeds for all areas. Two chambers form the bastions for the rocker bearings which take the main supporting member to the roof—a triangular truss in welded aluminium which spans 30ft 0in between bearings with a cantilever of 22ft 6in at each end. Transverse 'I' section aluminium joists in turn support a roof composed of moulded glass reinforced polyester resin coffered panels 4ft 6in square which are of varying degrees of opacity and which incorporate artificial lighting as required. To limit deflections, the aluminium joists are linked by a stiff edge member, restrained at intervals by a vertical member which, by means of a sliding joint prevents uplift and takes care of excessive deflection under full snow loading. The triangular truss has been modified to make provision for the complicated service details, the lower boom is split and the bracing members are offset. The relatively high secondary stresses caused by this arrangement are acceptable because of the extremely light form of construction and the complete freedom given to the internal service arrangements. Lateral stability is provided largely by the triangular truss and the concrete core unit together with the stiff vertical members to the external wall up to a clerestory glazing. The external wall cladding set in aluminium 'T' sections is a continuous skin of either 1in double-glazed units; 1in plyglass or 1in glass reinforced polyester skins either side of a lightweight core. The panels are manufactured with fire-retardant properties to BS 476 Class 2 so that panels will not support combustion and are self-extinguishing to some degree. The house is fully air-conditioned.



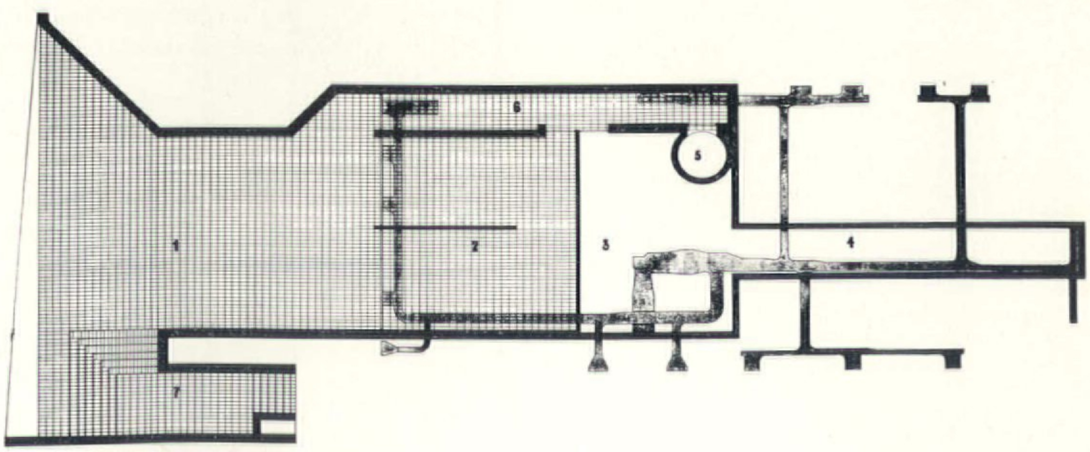
3



4



5



6

1
Rear elevation of model

2
Model viewed from the rear

3
Axonometric of roof components

4
Longitudinal section

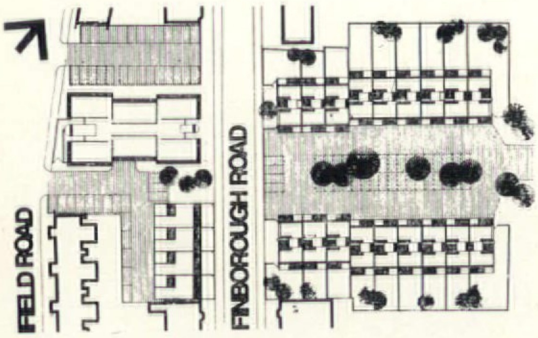
5
Ground floor plan
1 hall
2 guest bedroom
3 guest shower
4 w.c.
5 hydraulic lift
6 services duct
7 lounge
8 arboretum
9 pool
10 study
11 dining
12 kitchen
13 cold room
14 bathroom
15 utility
16 entry
17 laundry
18 tool store
19 bedroom
20 dressing room

6
Basement plan at road level
1 forecourt
2 garage
3 plant room
4 duct
5 hydraulic lift
6 passage

Selected designs

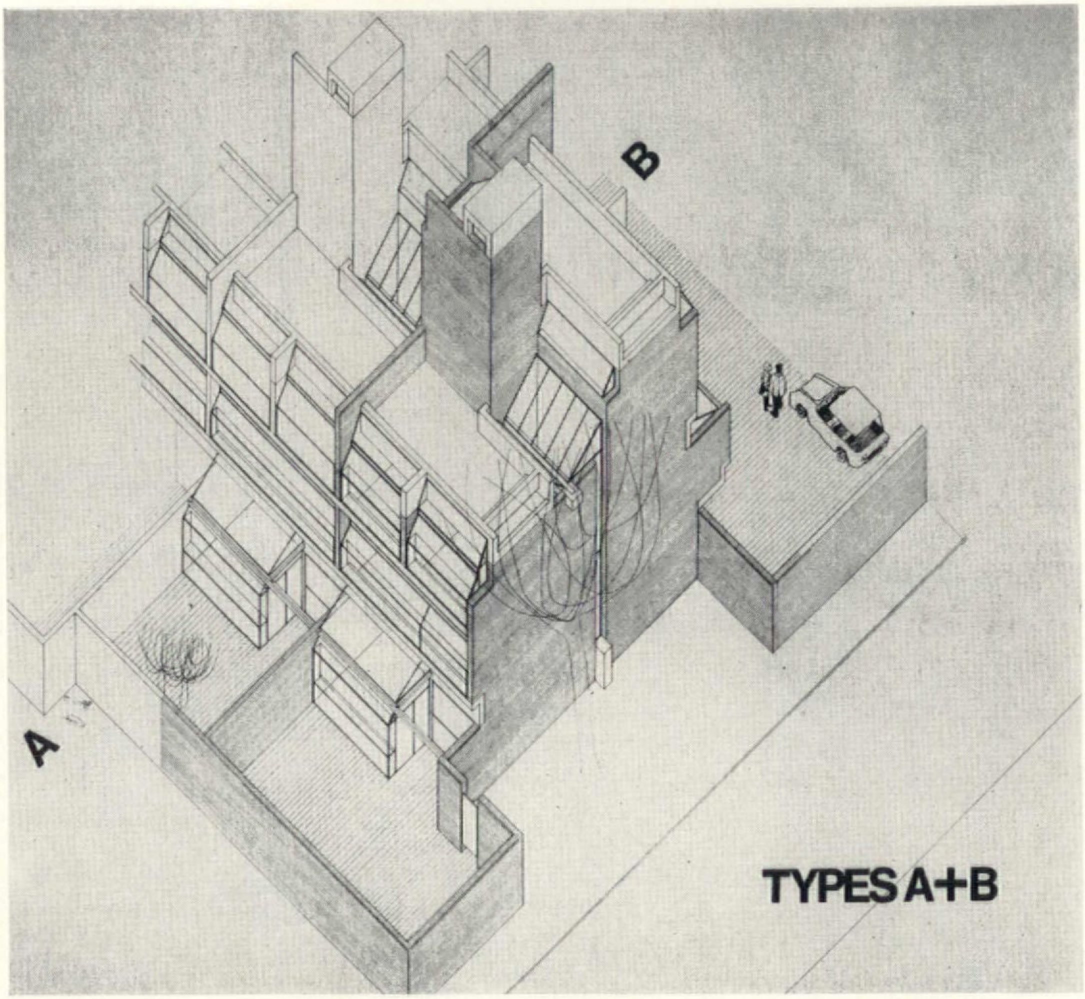
Housing, Kensington

For Davstone Estates
Owen Luder Partnership

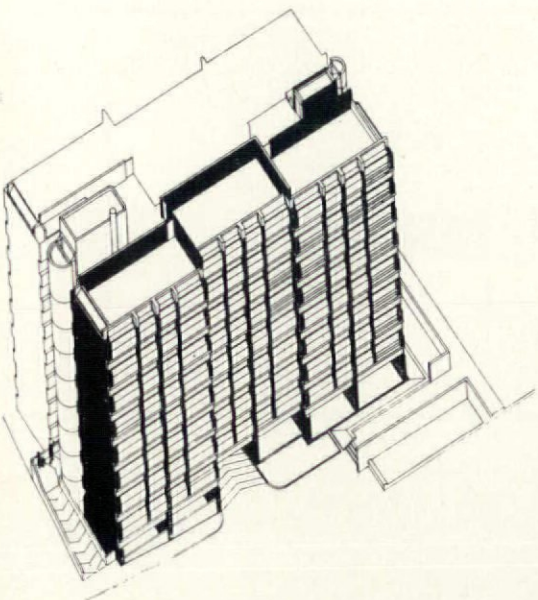


1

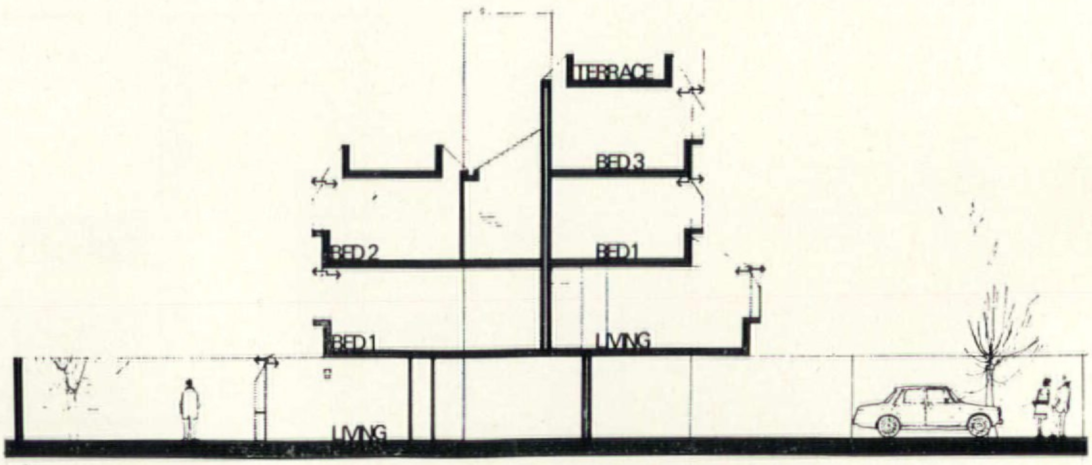
The basis for obtaining high density housing is in the form of complex units accessible from one side, yet providing the amenities of a town house.
The area of the site between Redcliffe Gardens and Finborough Road is planned as a courtyard with houses on two sides enclosed by a narrow access along Tregunter Road from Redcliffe Gardens and by the slab block of flats on the second part of the site adjacent to a further block of smaller units. This smaller block comprises four-bedroom houses and one-bedroom flat complexes.
Although it presented considerable architectural problems, the engineers recommended that the whole scheme should be constructed in load-bearing brickwork.



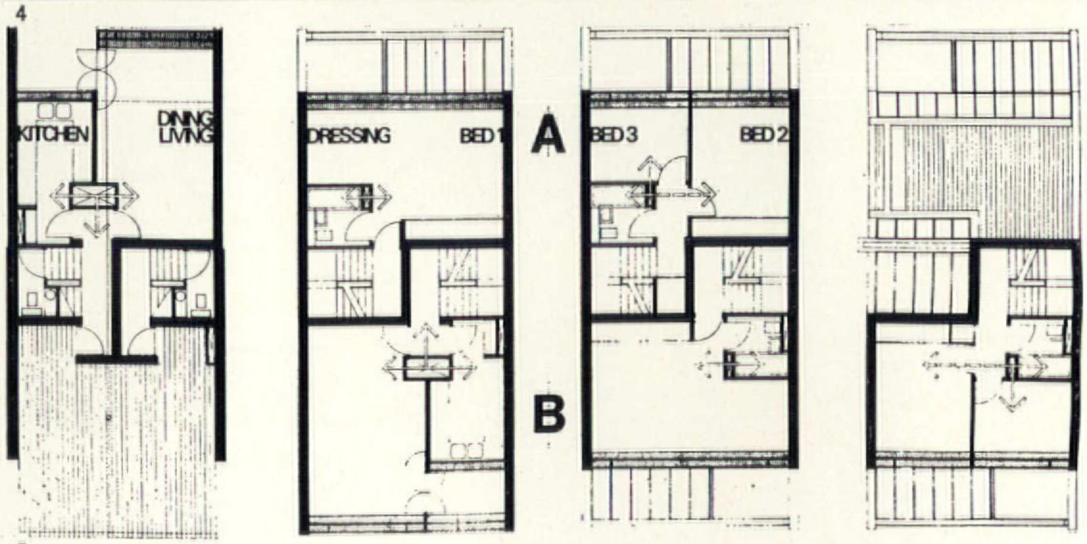
2



3



4



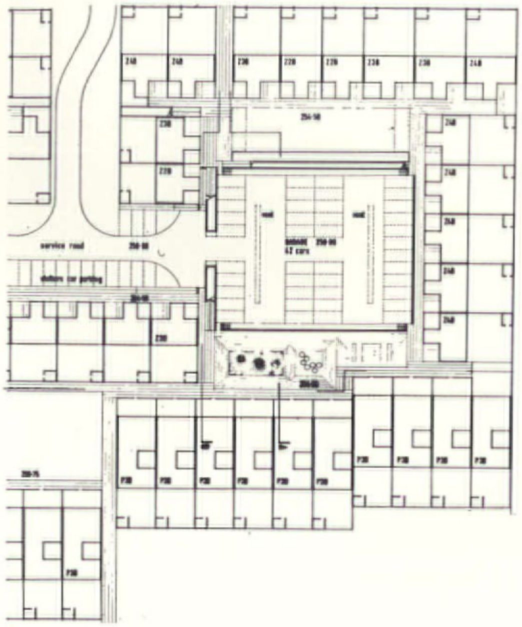
5

1
Site plan
2
Axonometric of house types A and B
3
Axonometric of tower block
4
Section through house types A and B
5
Ground, first, second and third floor plans of house types A and B

Housing, Crawley

For Crawley co-partnership housing association

Peter Phippen and Associates



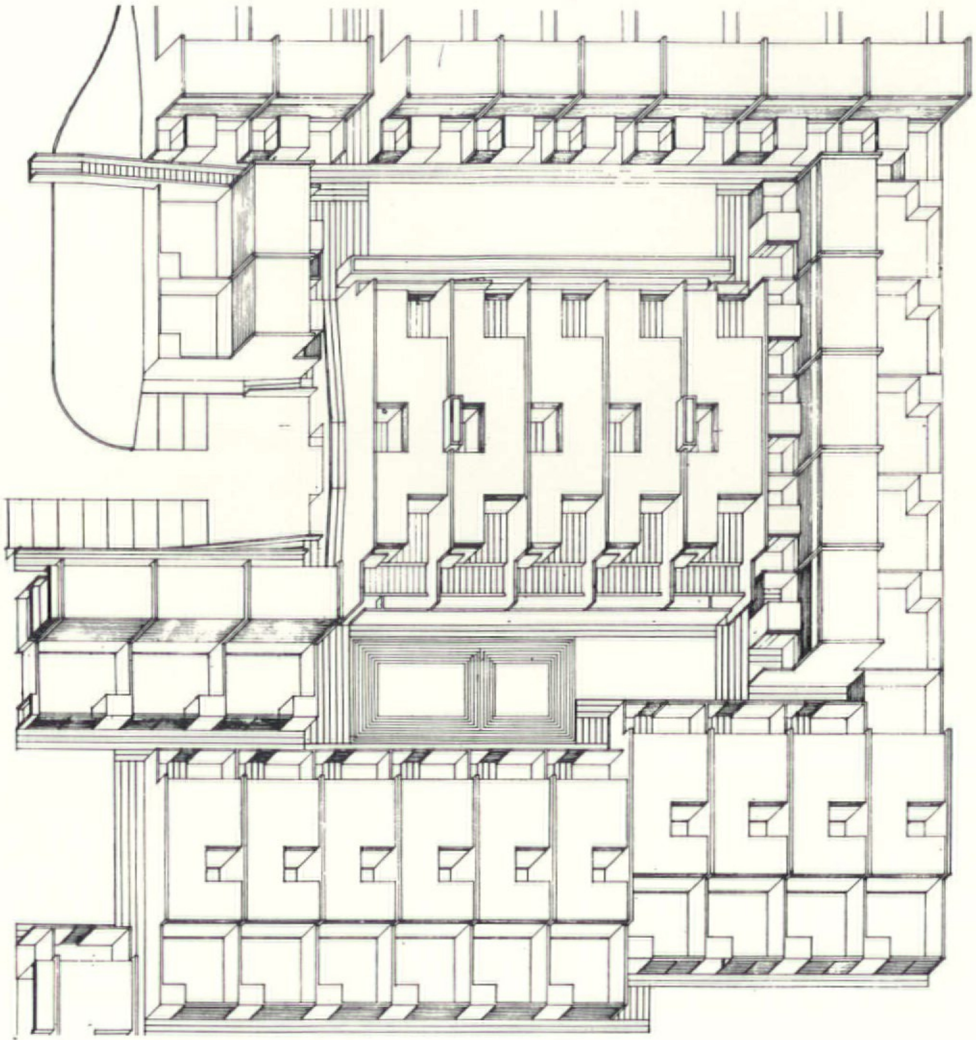
1

A basic cluster of 33 houses has been used. These are grouped around the central garage space with provision for 40 cars which is attached to the access road by a vehicular access court with parking space for cars and service vehicles. The connection between the pedestrian level and the vehicular access court is by means of ramps with a maximum gradient of 1 in 10 with alternative staircases. Loading and unloading of vehicles will be in the access court, the garage area being used solely for private parking.

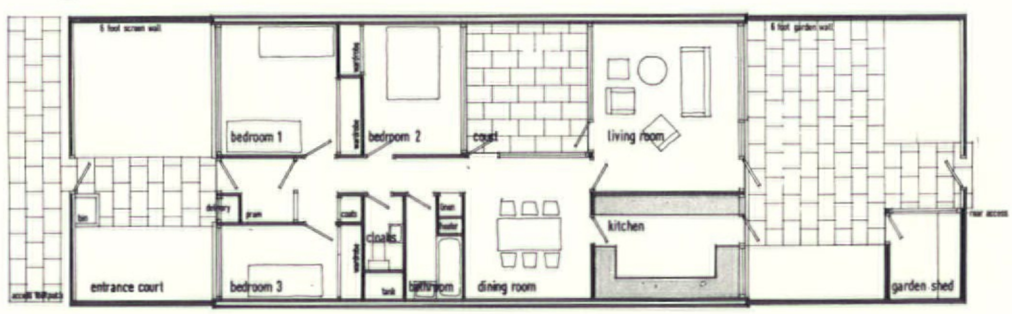
Houses around the perimeter of the site are generally single storey and this will enable views of the woodland from within the scheme both from inside and outside the houses. The single storey houses raised a half level over garages have views over the roofs of those at ground level. Two-storey houses have views from windows at first-floor level over the single-storey types.

House plans are for 1B, 3B and 4B single-storey types and 2B, 3B and 4B and Z section two-storey types. Repetitive kitchen/bathroom/staircase layouts apply to all two-storey types. Houses generally are planned for maximum flexibility of orientation. All living rooms are lit from two sides and two-storey houses have an interconnected dining/kitchen space, also lit from two sides. 3B and 4B court houses have top lighting to supplement wall glazing and to get sunlight into the house.

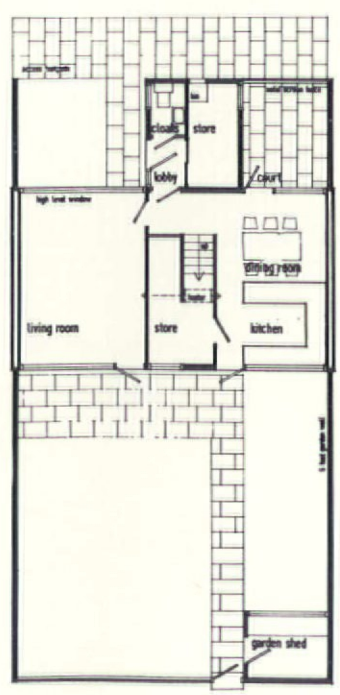
Pale buff concrete blocks will be used for party walls, external walls without large openings and garden walls. Timber boarding will be used for prefabricated non loadbearing panels and screen fences, and all boarding and joinery will have dark Solignum finish. Floor and roof construction will be of timber. Partitions and internal leaf of cavity walls will be of hollow insulating blocks with a smooth face and finished with a wood float and $\frac{3}{16}$in skim coat plaster. Windows will be vertically sliding aluminium sashes.



2



3



4

5

1
Plan of housing cluster at road level

2
Axonometric of housing cluster

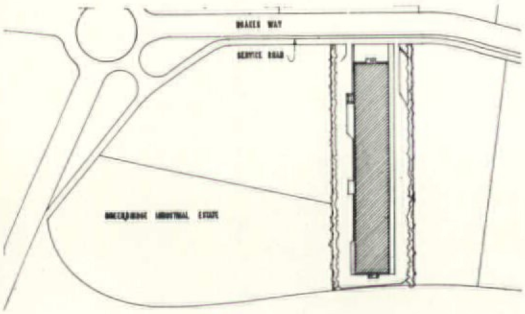
3
Three-bedroom patio house plan

4 & 5
Z-type house, lower and upper floor plans

Reliance controls factory Swindon, Wiltshire

For Booker-Bowmar Ltd.

Team 4



1

1
Site plan

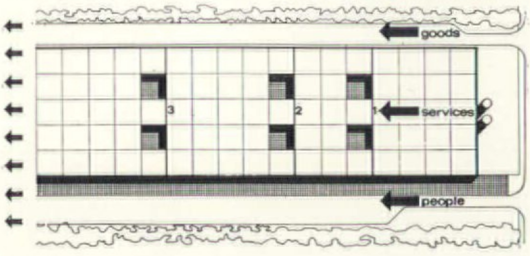
2
Growth diagram

3
Composite cut-away section

4
Typical external wall elevation

5
Typical elevation to future glazed court

In order to achieve maximum flexibility for change and expansion three principles were accepted: Linear growth along a central service spine. Linear extension of movement patterns. Integration of all services within the fabric of the building to allow maximum use of changeable non-permanent and non-structural partitions.



2

Time and cost dictated a simple one-storey building, steel construction and the maximum exploitation of minimum materials.

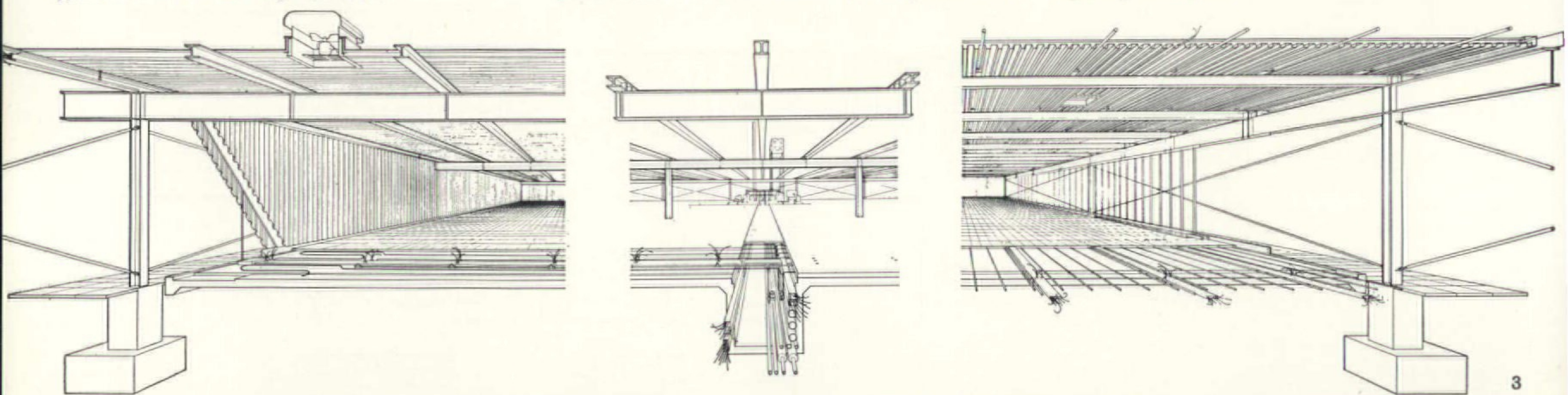
Foundations are isolated mass-concrete, bearing on clay. The ground slab is double mesh reinforced, designed to take fork-lift trucks, with a central spine duct to take all services. The columns are 8in×8in×31 uc sections at 40ft centres each way. Main beams are 21in×8¼in×55 ub sections at 40ft centres. Eight-foot long cross-heads are shop welded to the columns. Centre beam sections are temporarily bolted in position and then site welded, producing fully continuous beams. Secondary beams are 8in×8in×35 uc sections at 10ft centres. The beams are 40ft long and span between centre lines of main beams. They are site welded at the supports to give continuity and are pre-cambered against dead load deflection.

The roof deck is of corrugated steel deck with extra intermediate and beam fastenings to produce a stiff diaphragm. For wind bracing a diagonal tube bracing in a vertical plane is set in certain perimeter bays to take the wind loads from the roof membrane. There is no bracing in the plane of the roof itself.

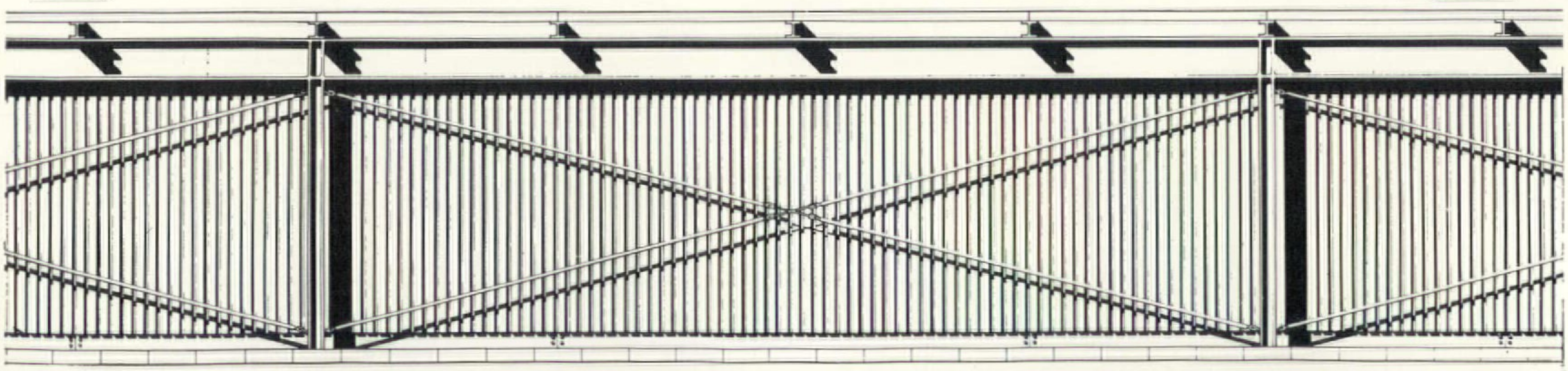
The cladding is double skin plastic coated corrugated deck units, similar to the roofing, with a ¾in expanded polystyrene sandwich for insulation, span 12ft between top and bottom cladding rails with no intermediate supports. External columns occur outside the cladding, defining the structure and external skin as two separate elements.

The plant room at the head of the building is related to a service trench.

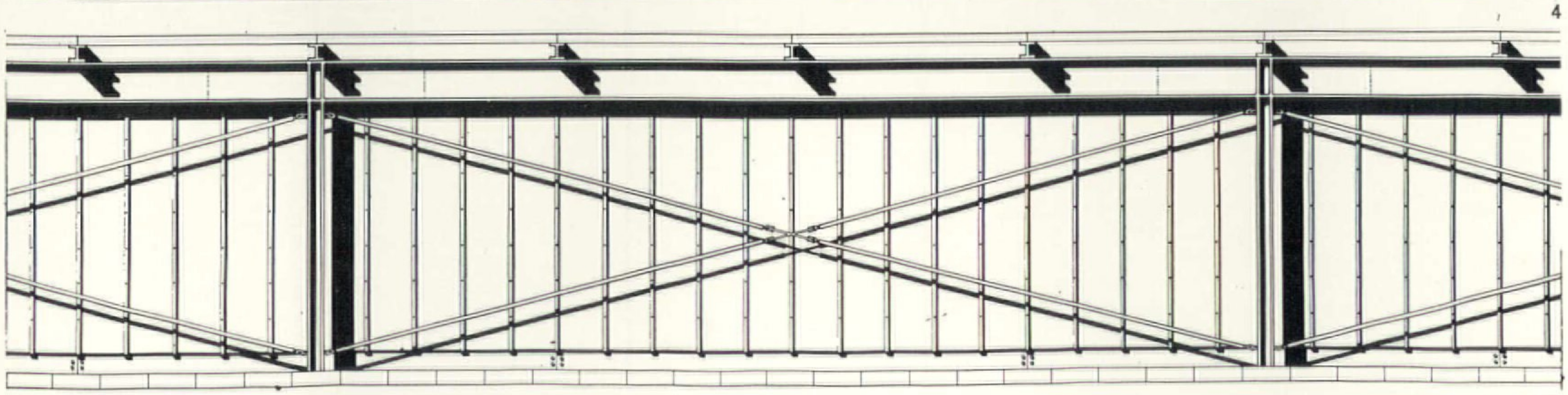
Fluorescent lighting is recessed into and wired within the roof corrugations. The main circuit is within perimeter secondary beams and extends in the direction of growth. This allows easy addition of tubes to give a wide variation of lighting intensities.



3



4



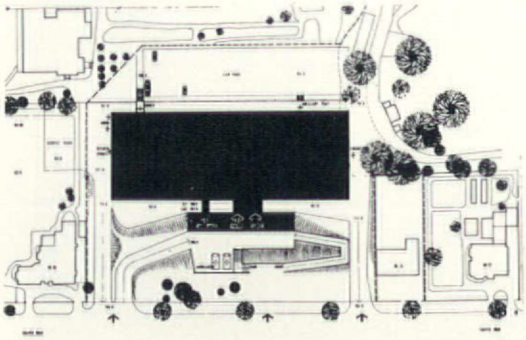
5

Maternity unit, Reading

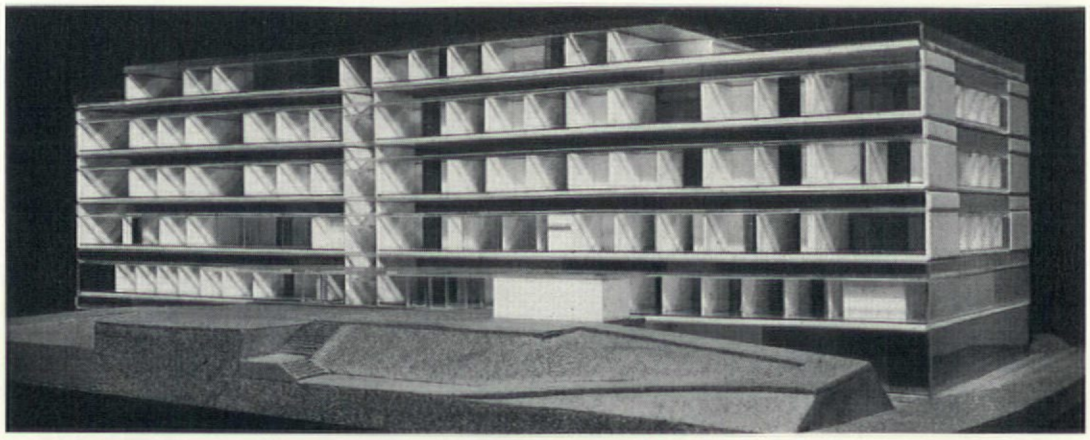
For Oxford Regional Hospital Board

A. L. Arschavir

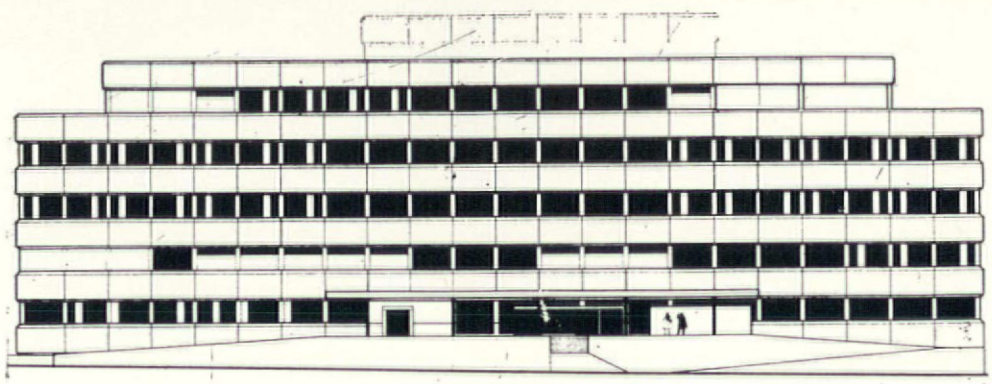
Architects in charge: J. D. Regan, J. Knott



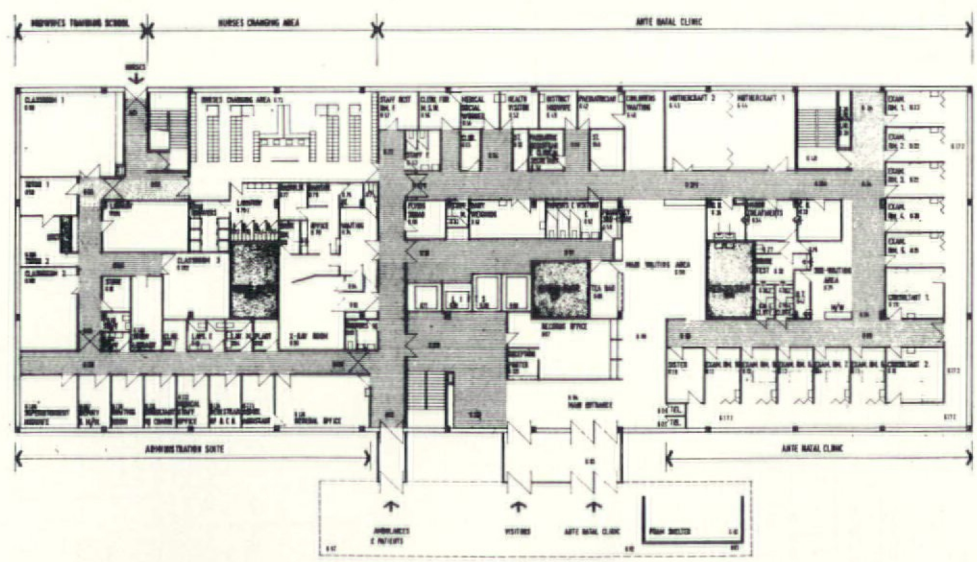
1



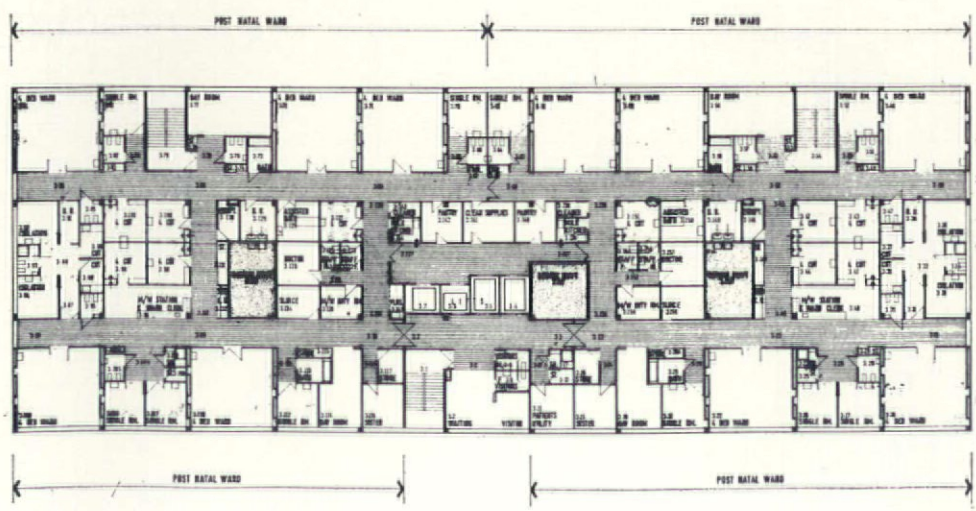
2



3



4



5

The maternity unit will be the specialist obstetric and special care baby unit for Reading and its catchment area, the population to be served by 1975 being estimated at 400,000.

In September 1965 the unit was selected for an experiment initiated by the Ministry of Health covering two principles of work within the construction industry, namely:

The use of industrialized building techniques in the construction of a hospital.

The use of a negotiated form of tendering.

The brief required that:

Over-riding consideration be given to ensuring the maximum safety for the mother and baby, through the provision of the best working conditions and equipment for the staff and a reassuring and pleasing atmosphere.

The unit should be planned to enable it to function efficiently with the minimum.

The antenatal clinic should provide for approximately 80 new and 240 total attendances a week.

The design basis should be that people and service are brought to the patient.

The in-patient accommodation should comprise 120 beds and supporting services with no marked segregation of antenatal and postnatal wards. Procedures requiring the highest medical and nursing skills should be grouped on one floor, to be known as the Acute Floor.

The special care baby unit should provide for 36 cots, together with provision for extension to meet an expected increase in workload resulting from improved perinatal mortality figures.

The theatre suite and special care baby unit should be planned on the 'clean zone' principle.

The solution adopted comprises a floor of precast inverted trough sections spanning across the building in three bays, and supported on precast beam sections running longitudinally only. The r.c. columns being of fairly simple form are constructed in situ, thus simplifying the problems of connections and jointing. The trough sections were selected because their use gives the maximum amount of space in the engineering services void below, and the thin table of the trough section enables service openings and holes to be provided with the minimum amount of difficulty.

1
Site layout

2
Cut-away model

3
East elevation

4
Ground floor plan

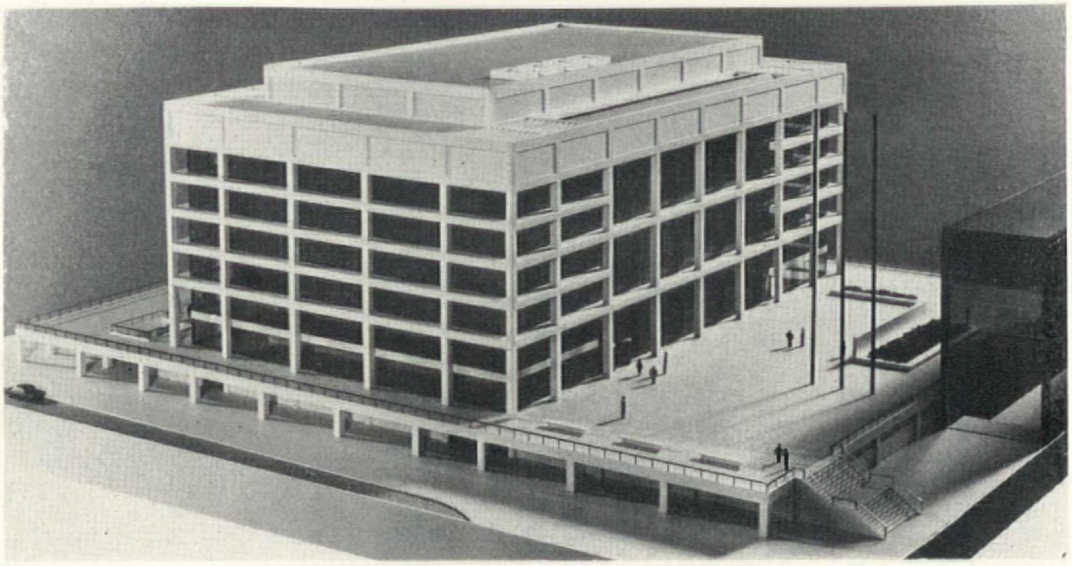
5
Third floor plan

Magistrates' court, Manchester

For Manchester City Corporation

Yorke, Rosenberg and Mardall
in collaboration with S. G. Besant Roberts, city architect

1
Model
2
Cross section
3
Plan of first court floor
4
Plan of concourse level
Photo: S. L. Galloway



1

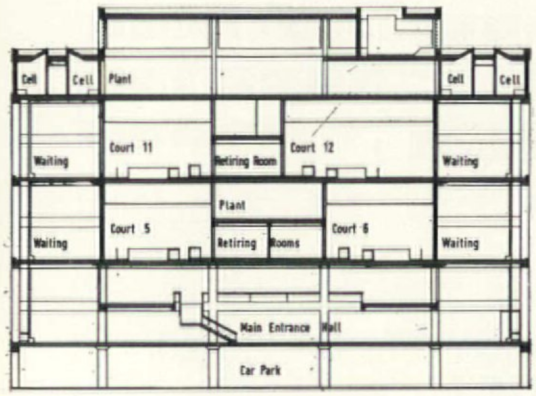
Broadly speaking, the brief could be broken down into an element of large units comprising the court rooms and waiting areas, and secondly, an element of smaller units comprising offices and other ancillary accommodation. The complex intercommunication required throughout these elements called for short and simple lines of circulation and indicated the need for compact planning.

The client's requirement for covered parking space and vehicular access at ground level resulted in the whole of the site being covered by a single storey at ground level.

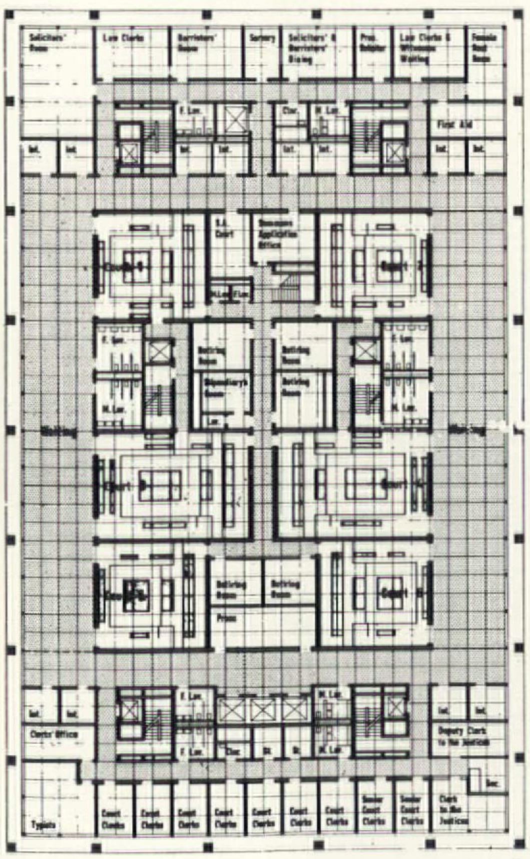
Above this level, the main block rises from a podium or concourse, which forms a roof over the ground floor. Suitable landscaping and planting will be carried out on the concourse appropriate to a public amenity of this nature.

The building is based upon a 5ft 0in planning module; a 4in module is being employed for constructional details.

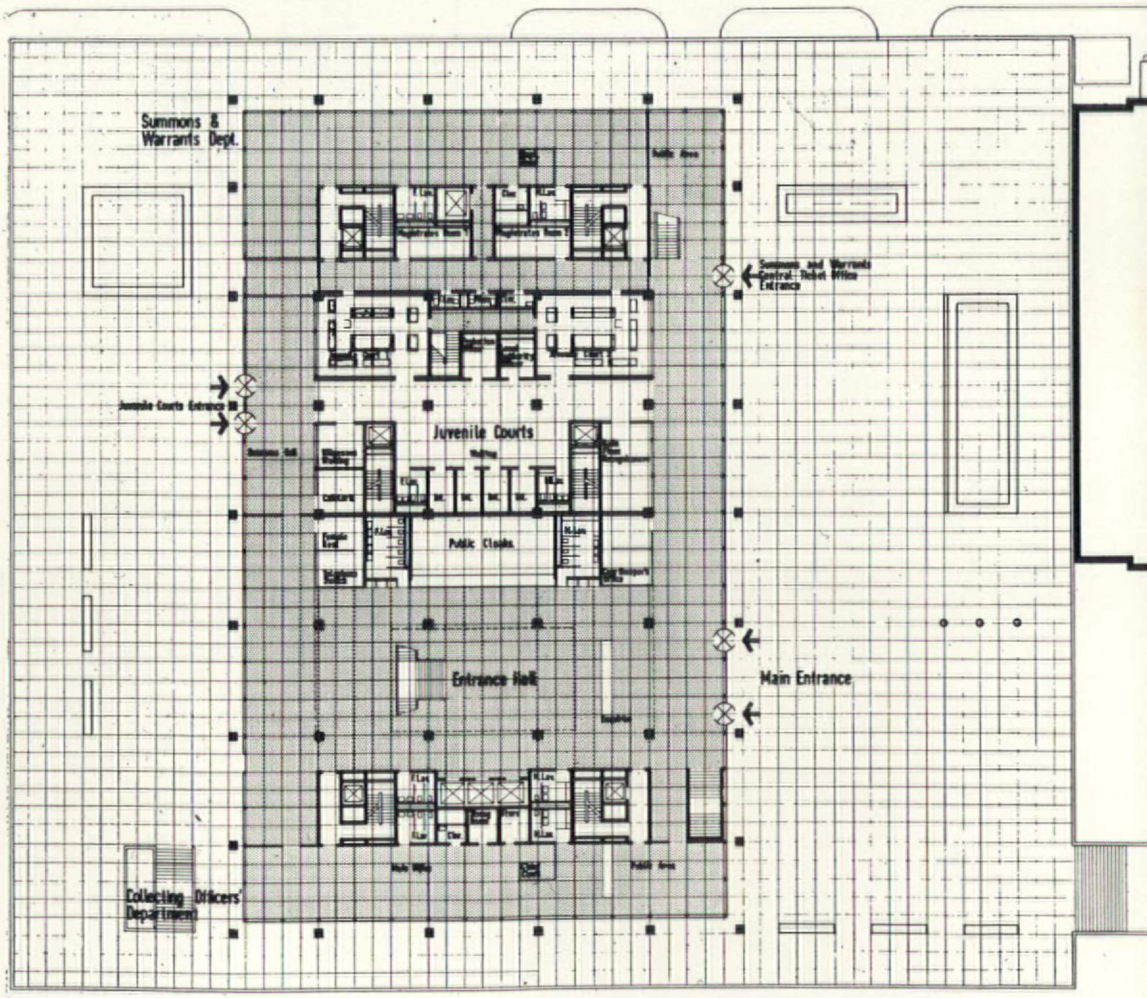
The main structure will be of in situ reinforced concrete with columns and beams fully expressed externally and clad throughout in a white ceramic facing to obtain a self-cleansing surface. The external windows, set back 5ft 0in from the structural face, will be single glazed and generally in large fixed panes of lightly tinted brown glass, set in bronze coloured anodized aluminium surrounds. Opening lights are provided at four positions on each floor to provide access for window cleaners, etc, on to the walkways between windows and columns.



2



3



4

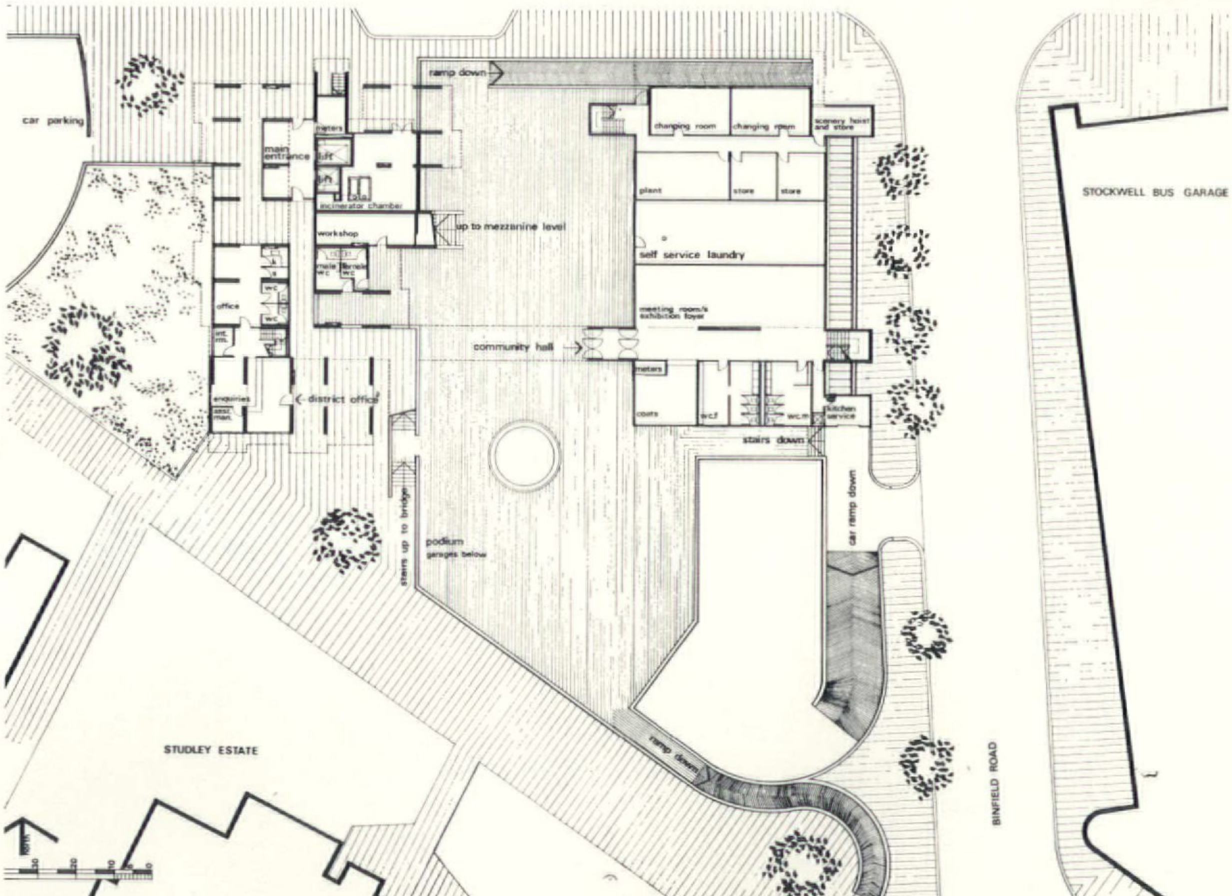
Housing and community hall, Lambeth

For Lambeth Borough Council
E. Hollamby, Lambeth Borough architect
Architect in charge: G. B. Finch

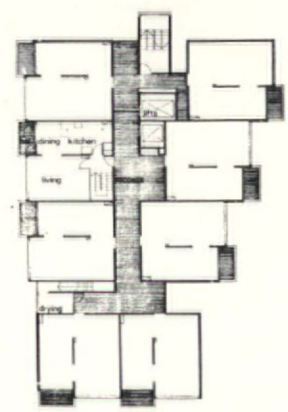
1
Model from the south east
2
Plan at ground and podium level
3
Plan at mezzanine level
4
Plan of tower, typical lower level of maisonette flats
5
Plan of tower, typical upper level of maisonette flats
Photo: J. Maltby

The dwellings are planned to the standards set out in the Parker Morris report (72 four-person maisonettes and 8 two-person penthouses) and are contained in a 22-storey point block which has been designed to be built using industrialized methods. The construction is of precast concrete structural and cladding elements produced in a site factory.
This block will be one of a series which are to be built on a number of small sites as the first stage of the increased housing programme. These dwellings will be used to house people moved when clearing large sites.
The end of Binfield Road has been diverted to link a new housing and community hall with the adjoining, existing estate. The community hall is designed to serve a number of purposes including use as an old persons' lunch club.
Refuse disposal will be by means of an incinerator.
The central heating will be unit fan-assisted warm-air heaters with a roof-top boiler room.

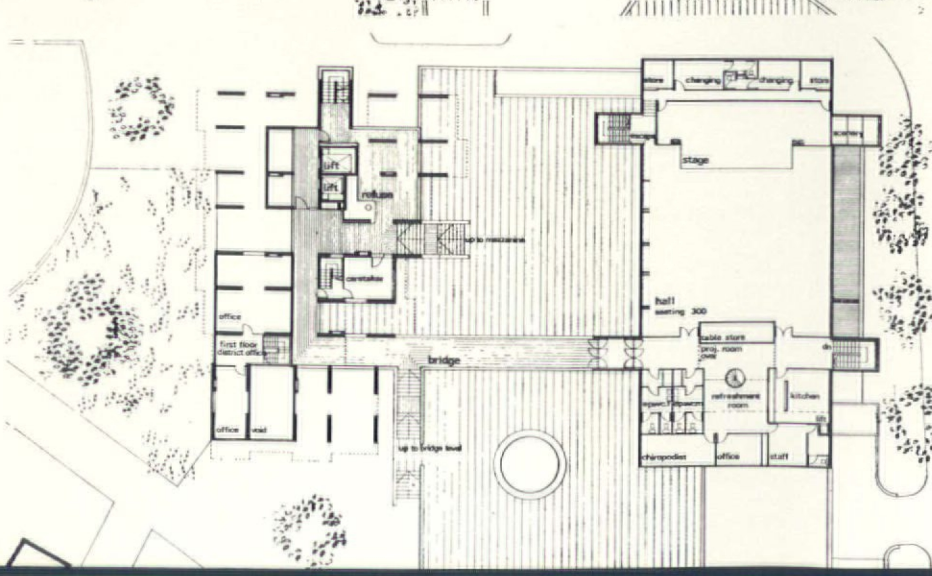

1



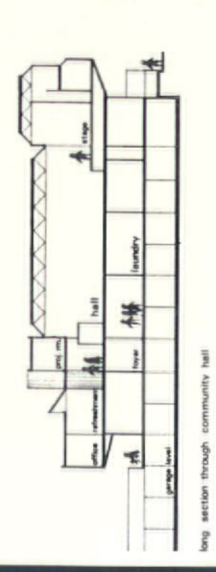
2

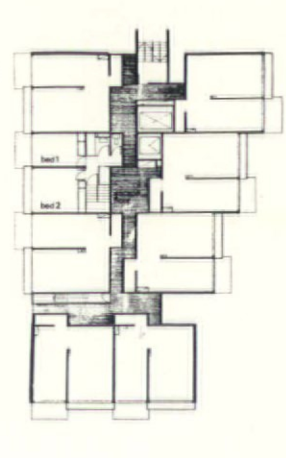


4



3

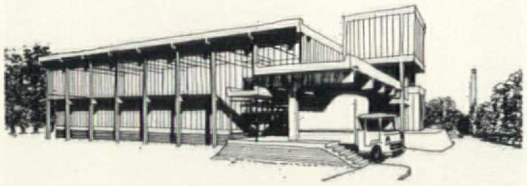




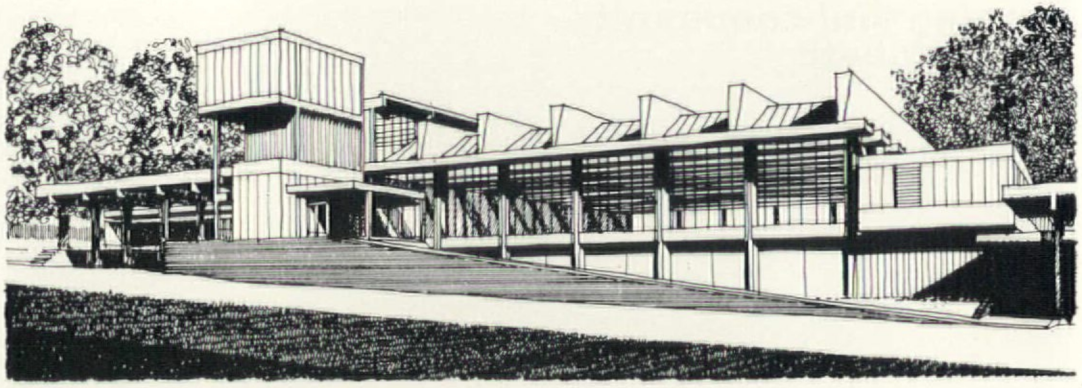
5

Laundry + sterilizing unit London

For South East Metropolitan Regional Hospital Board
Derek Stow
Architect in charge: I. Walsh



1

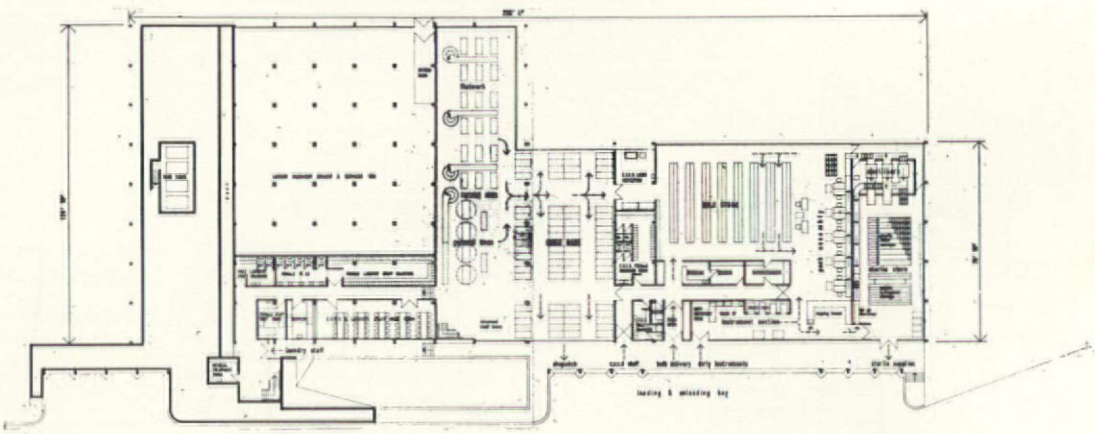


2

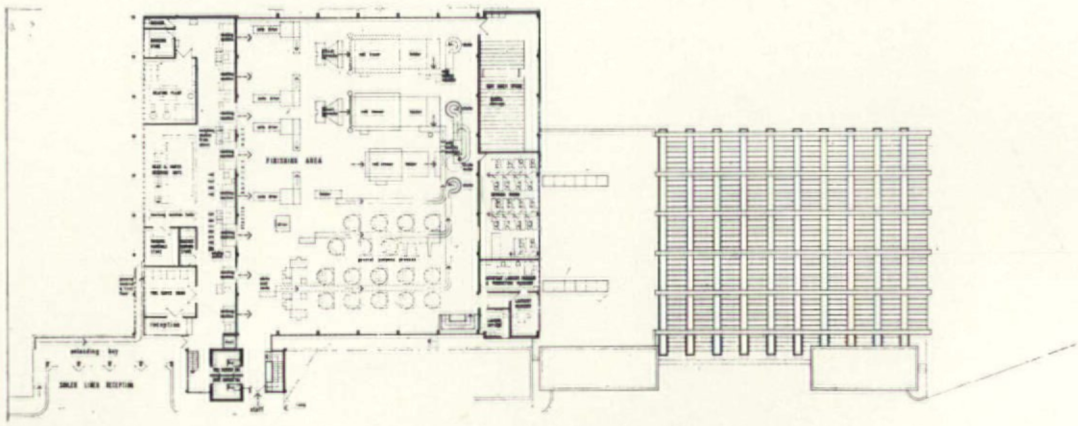
It is proposed to redevelop the southern part of the Hither Green Hospital Site as an 'Industrial Zone' serving the Greenwich, Lewisham and Woolwich Group of Hospitals. The first phase of the Industrial Zone will comprise a laundry with a productive capacity of 150,000 articles weekly. A central sterile supply department to serve 3000 hospital beds. A transport section with administration, garaging and maintenance facilities. Facilities for the storage, disposal and incineration of waste products, salvaged material and refuse. New horticultural buildings and a new multipurpose recreation hall.

By tradition buildings of this type are single storeyed. In this case there is a fall on the site from the laundry reception bay to the CSSD dispatch bay of 9ft making it possible to employ gravity as the motive force in the movement of material through the building. Returned soiled linen will be unloaded automatically from vans, elevated and stored on a gravity monorail system at the building's highest ceiling level. Thence it moves by gravity, is classified, automatically weighed in chutes, drops into overhead hoppers loading washer-hydros which discharge on the sterile side of the barrier wall. The linen passes through the finishing area on automatic conveyors, is wrapped, sealed, drops through spiral chutes to the packing area, is put on to mobile racks and loaded on to vans. Theatre linen is inspected and then joins the flowline of the CSSD. The production layout in the CSSD is in line ahead and arranged so that the automated sterilizers can take the additional load of sterile fluids from a future pharmacy extension to the north of the building.

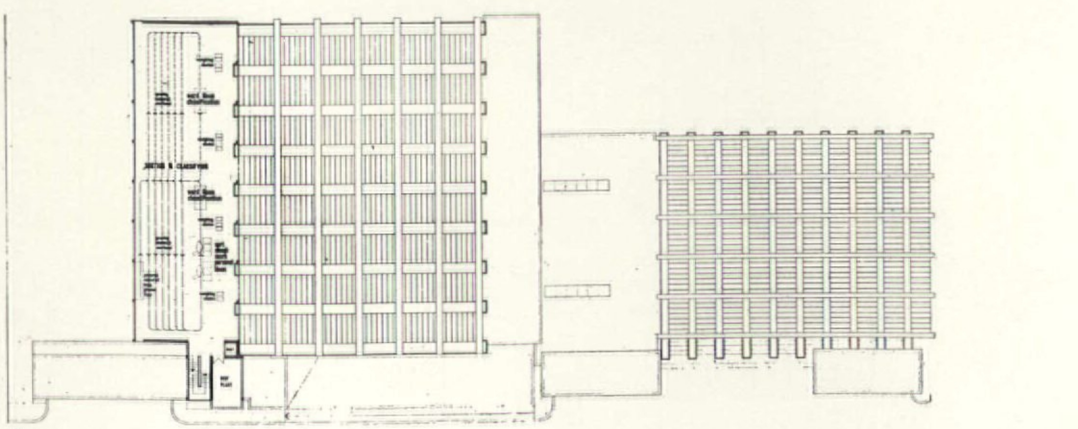
The structure of in situ concrete r.c. columns supporting in situ r.c. flat slab intermediate floors and a precast post-tensioned triangular section roof beams was evolved with the structural engineer.



3



4

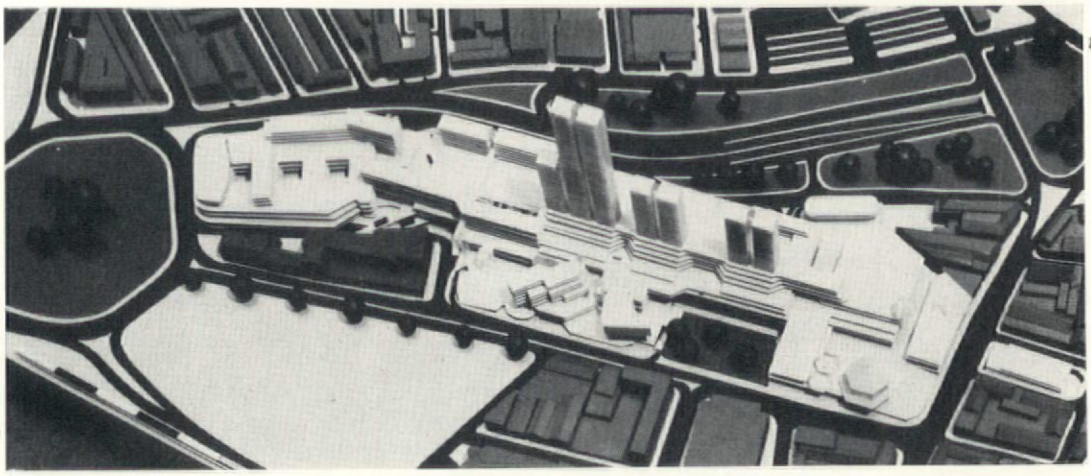


5

1
View from the south west
2
View from the south east
3
Lower ground floor plan
4
Ground floor plan
5
First floor plan

Victoria Station development Nottingham

For Capital and Counties Property Co. Ltd.
Arthur Swift and Partners

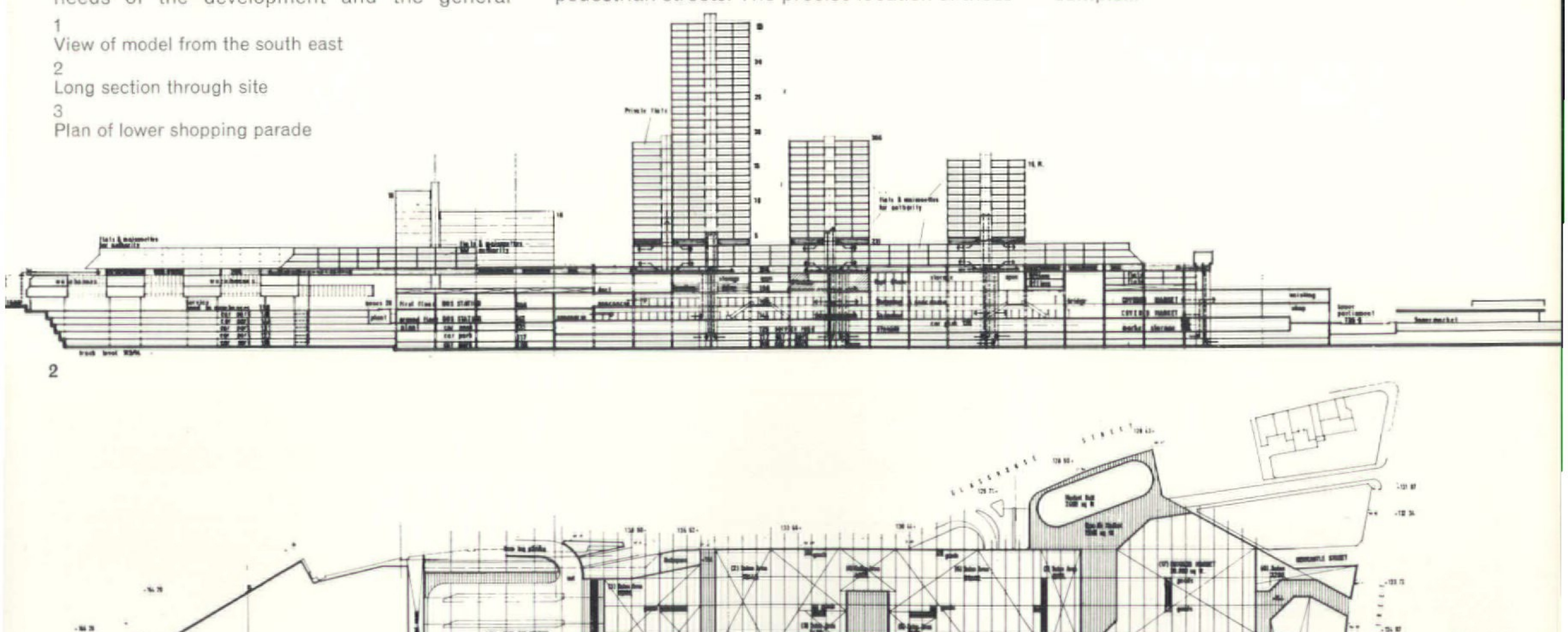


1

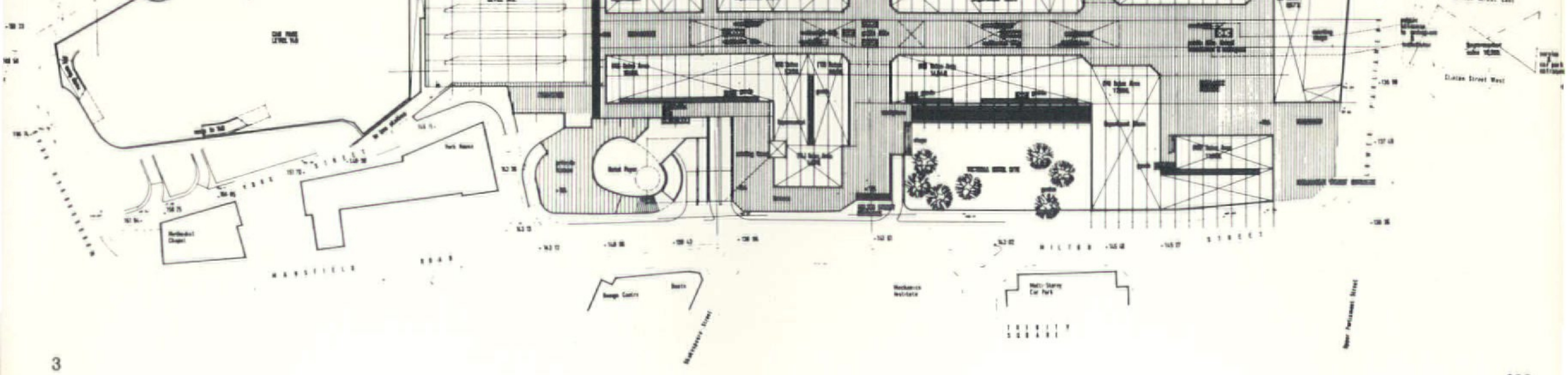
The brief supplied to the architects was to design a comprehensive mixed scheme fully utilizing the land occupied by Victoria Station, Nottingham, together with the existing cutting and the adjacent land between the cutting and Milton Street, Mansfield Road and York Street. The emphasis was to be placed on the shopping, social and civic elements which are to be planned in co-operation with the City of Nottingham's city engineer and planning officers.

The architects were asked to utilize the railway and station cutting below ground level to create a large off-street car parking pool to serve the needs of the development and the general requirements of the City of Nottingham.
The key to the conceptual solution is the provision of a series of pedestrian decks and concourses stacked one above the other, pierced to allow natural light and air to the lower levels and linked both horizontally and vertically to all the various activities within the development and to its environs. Initially, the links out with the site, will be by underpasses, but as the adjoining areas are developed, high level bridges will connect to other proposed developments to the east, west and south of the site, and the Trinity Square car park, and will create an extensive pattern of interlinked high level pedestrian streets. The precise location of these links to the environs have yet to be determined and have not been shown on the drawings.
The lowest stack of elements within the design includes layers of car parking decks, storage and servicing decks, a regional coach station and a swimming pool. The middle stack from street level to the new residential street level contains decks catering for commercial, recreational and civic activities and the upper stack provides residential accommodation maisonettes and flats with its own residential street. Other large and important elements such as the concert hall and hotel are strategically placed outside but linked and related to the major complex.

1
View of model from the south east
2
Long section through site
3
Plan of lower shopping parade



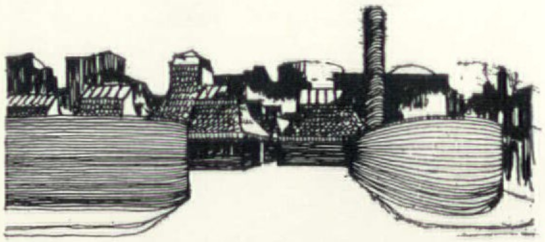
2



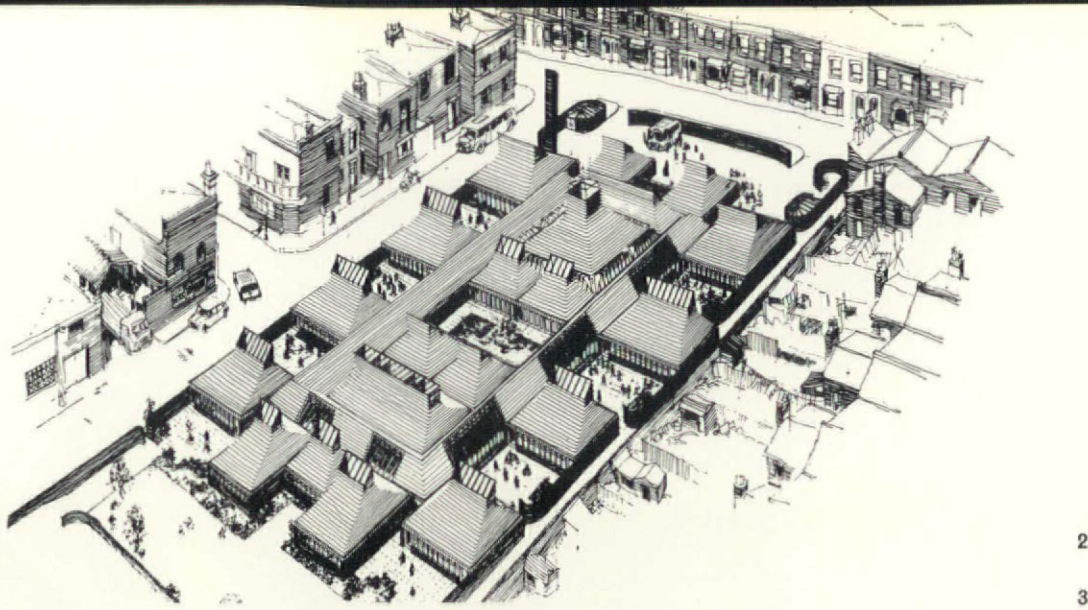
3

Bromley Hall school, Tower Hamlets

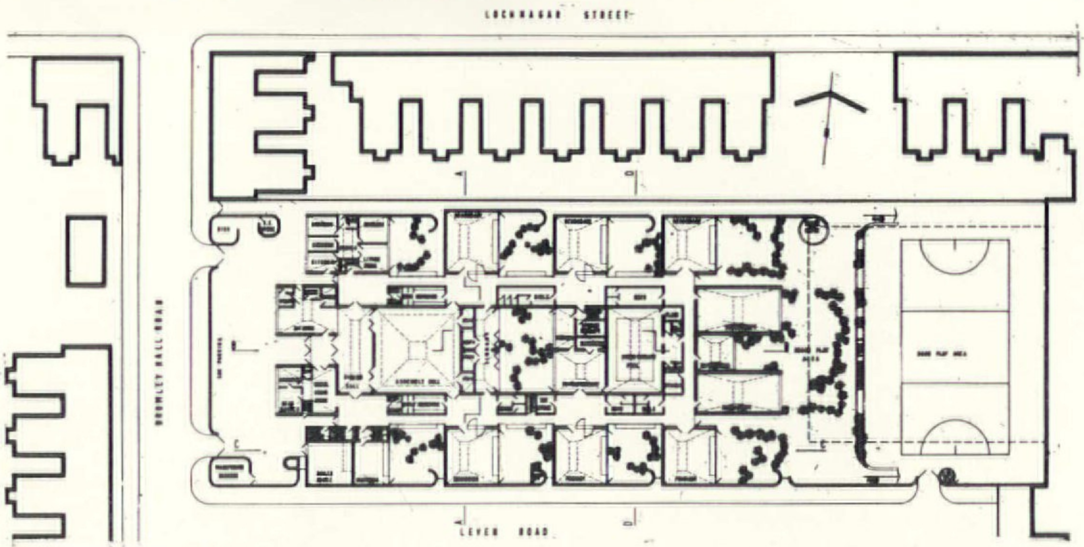
For Inner London Education Authority
Hubert Bennett, chief architect to the GLC
Architect in charge: R. W. Giles



1



2



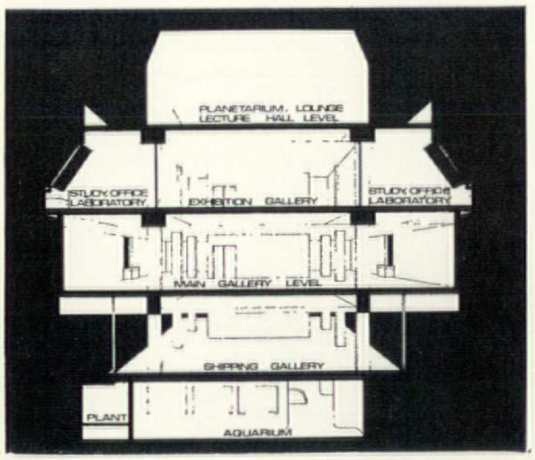
3

The brief calls for the design of a school to house 120 physically handicapped boys and girls aged from 5 to 16. The accommodation comprises three junior classrooms, three senior classrooms, craftrooms, dining and assembly halls, administrative and medical suites and a house for the schoolkeeper. All the accommodation is required to be on the ground floor with no change of level within the building. Outdoor hard and grass play areas are asked for, including paved areas adjacent to each classroom and a separate playground for the young and delicate children.
The roof is constructed of timber, restrained at the eaves by steel rings so that only dead vertical loads are transmitted to the brick walls.

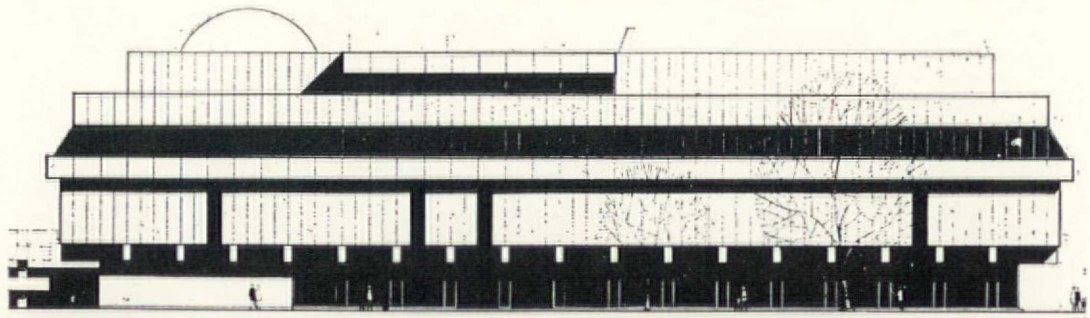
1
Entry from Bromley Hall road
2
Bird's-eye view of school
3
Ground floor plan

Central museum, Kingston-upon-Hull

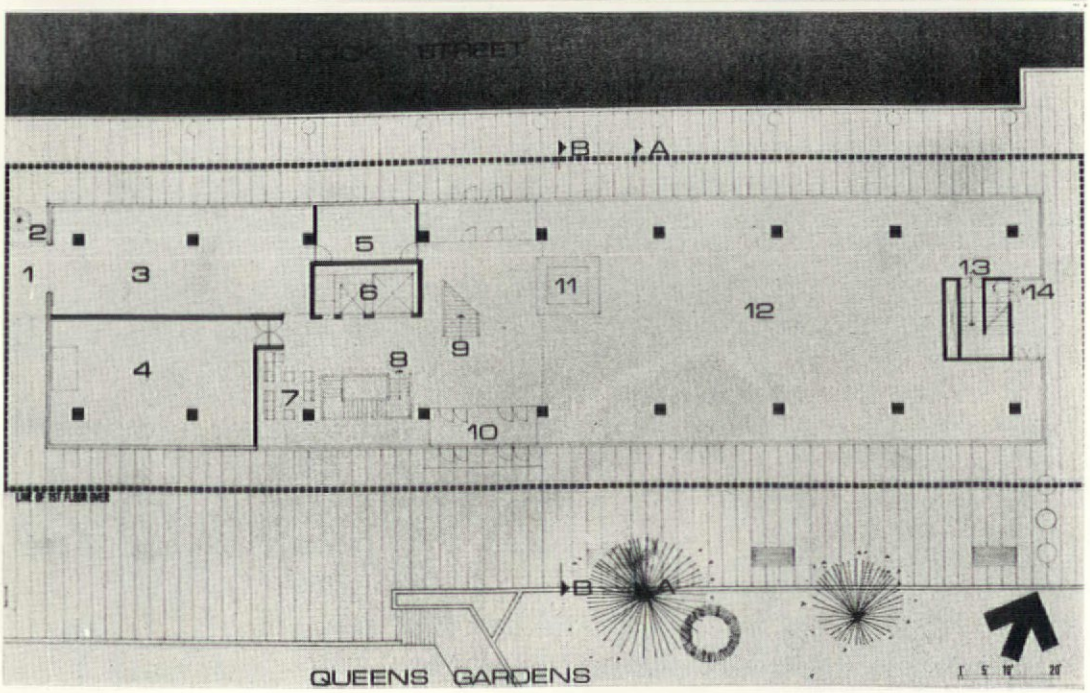
For City and County of Kingston-upon-Hull
Frederick Gibberd and Partners
Partner in charge: J. B. Forrest



1



2



3

1
Diagrammatic cross section
2
Elevation to Queen's Gardens
3
Ground floor plan

1 service
2 stair
3 reception & packing
4 exhibition room
5 loans store
6 lifts
7 waiting
8 aquarium stair
9 main stair
10 entrance
11 enquiries
12 shipping gallery
13 stair to aquarium
14 escape stair

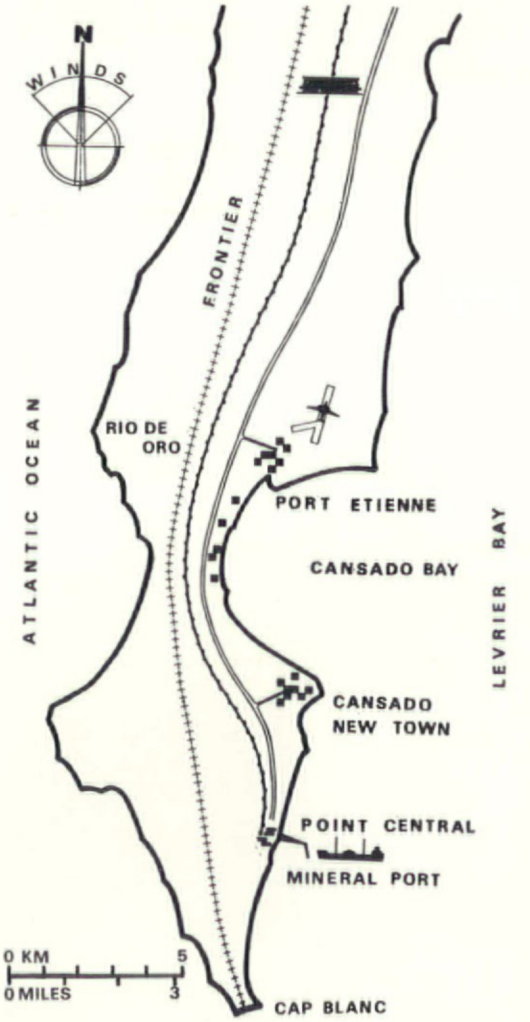
1

Cansado, Mauritania

SETAP—Société pour l'Etude Technique d'Aménagements Planifiés

Architects: G. Lagneau, M. Weill, J. Dimitrijevic and associates

2



3

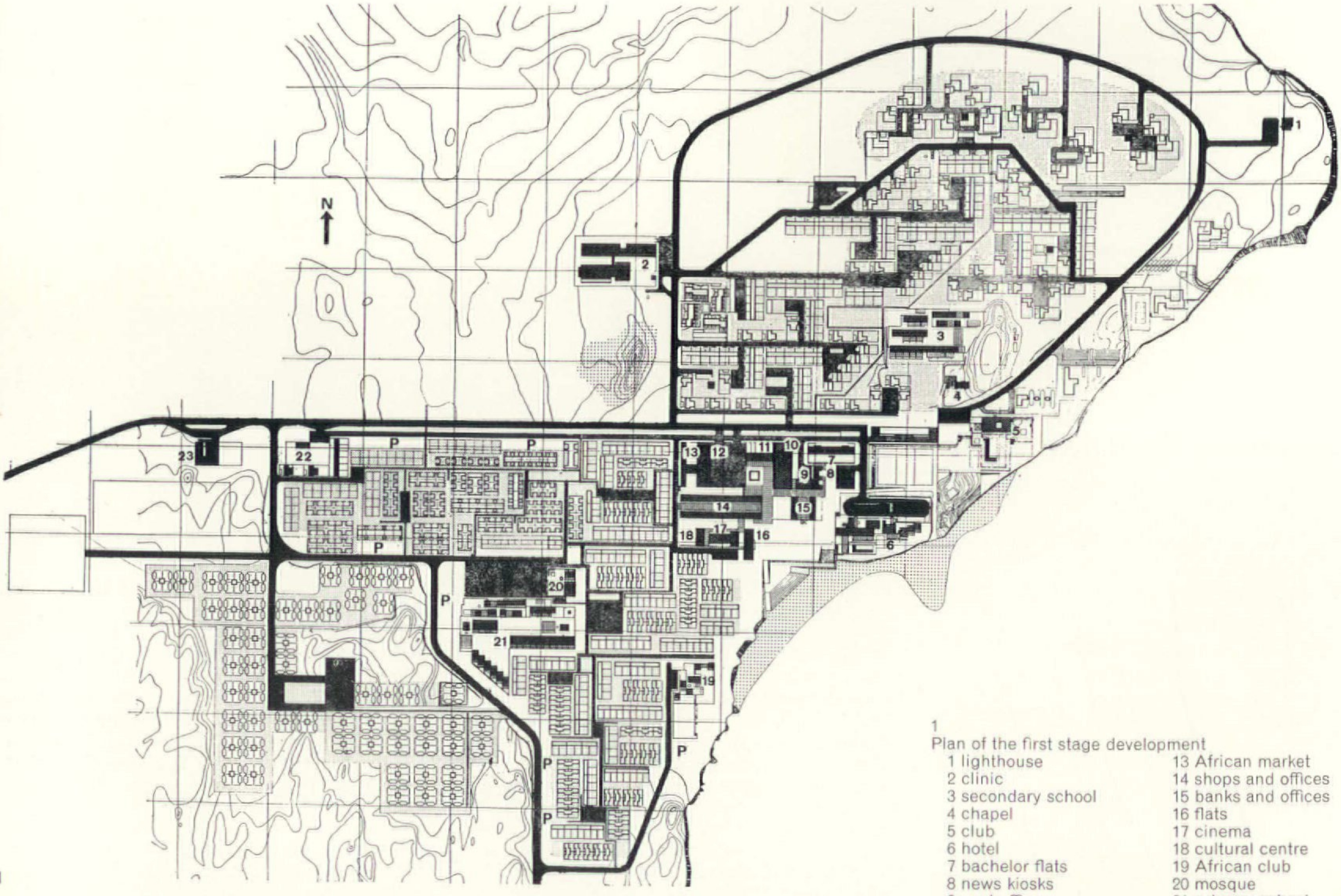
In 1952 Miferma, a mining company, was formed to exploit the rich iron deposits in the Kédia d'Idjil mountains near Fort Gouraud. The considerable yield, in the region of six million tons a year, posed transport and administrative problems. A railway was built from Fort Gouraud to Port Etienne, 635 kilometres away, from where the ore could be shipped to Europe. Port Etienne, a makeshift conglomeration of fishermen's huts and military installations was suitable neither as a port nor as a town for the staff administering the port and railhead. It was decided therefore to plan a new town, Cansado, in the neighbourhood. Planning started in 1957. Homes for 5000 were to be provided in the first instance, though an eventual population of 35,000 was envisaged. The peninsula on which the new town was to be built is neatly divided by the north–south frontier between the Rio de Oro (Spanish Sahara) and Mauritania, but the coastline available, overlooking the great Lévrier bay, was in any case the most protected and suitable for development. The whole consists of a soft and porous sandstone. There is no arable earth. Winds tear across the sandstone and sand erosion presents a considerable problem. Neither the temperatures nor the humidity are excessive. Rainfall is low. Dry winds are liable to cause discomfort from three to five months of the year (at its worst in August and September).

The nature of the site, the varied human and social forces, all have greatly affected the form of the development. Houses are oriented north–south, with few openings on the north. Materials have been chosen for their low thermal transmission. Buildings have been kept low and spread out to protect and shelter the site. But it is the different ethnic and social background of

197▷

4

1
Map of Mauritania
2
The windswept site of the future city
3
Map showing relationship of Cansado to Port Etienne
4
Aerial view of the partially completed new town. On the right is the factory for prefabrication during construction
Photo: 4 J. Coussi



1

Workers' quarter (opposite page)

The first stage of the workers' quarter shown opposite comprises 75 dwellings. They are all single or double storey. The walled gardens are designed both for privacy and shelter from the wind and will eventually be tree planted. Cars are restricted to the perimeter
Area: 1·4 hectares—3·46 acres
Density: 53 dwellings per hectare—22 dwellings per acre
Cost: 16,000F C.F.A. per m²—43s per ft²

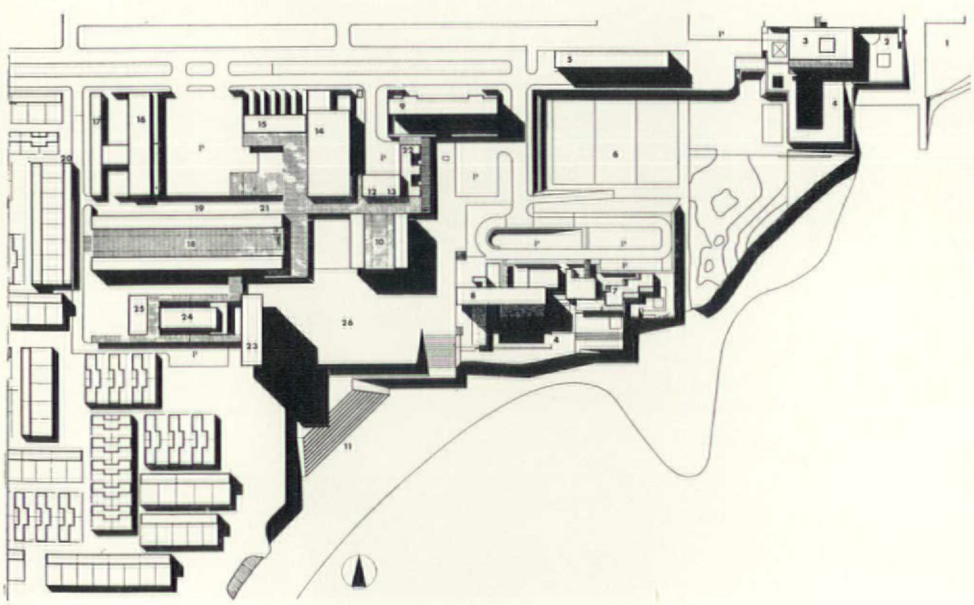
1
Plan of the first stage development

1 lighthouse
2 clinic
3 secondary school
4 chapel
5 club
6 hotel
7 bachelor flats
8 news kiosks
9 post office
10 baker
11 open shopping arcade
12 closed shopping arcade
13 African market
14 shops and offices
15 banks and offices
16 flats
17 cinema
18 cultural centre
19 African club
20 mosque
21 primary school
22 police station
23 service station

2 & 3
Plan and model of the town centre

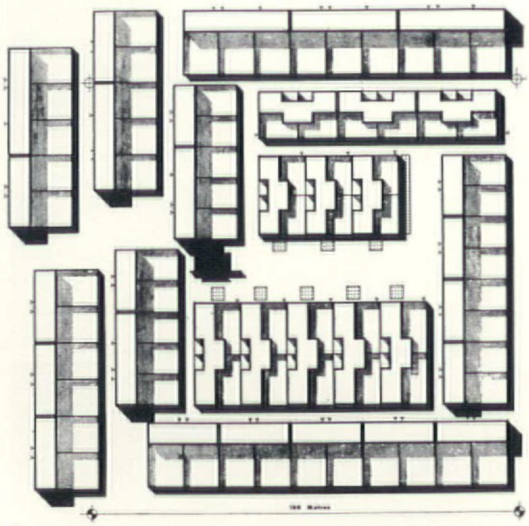
1 mini-golf
2 kindergarten
3 club
4 swimming pool
5 executive flats
6 tennis courts
7 housing
8 hotel
9 bachelor flats
10 banks, offices
11 rostrum
12 telephone centre
13 post office
14 baker
15 shopping gallery
16 shopping gallery
17 African market (stage 1)
18 shops, offices
19 service yard
20 African market (stage 2)
21 café
22 kiosk
23 flats
24 cinema
25 cultural centre
26 square

4 & 5
Plan and aerial view of workers' houses
6, 7 & 10
Street views in the workers' quarter
8 & 9
Plans of two types of workers' houses
Photos: 5 & 10 J. Coussi



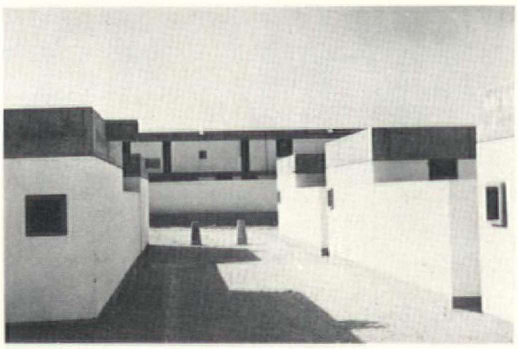
2

3

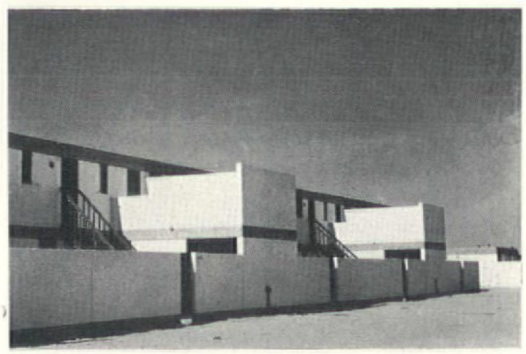


4

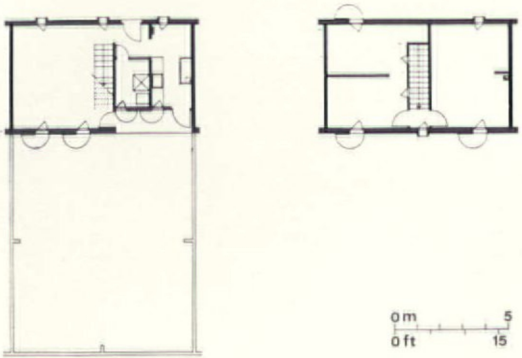
5



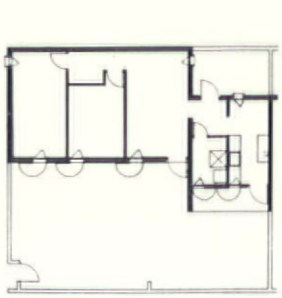
6



7

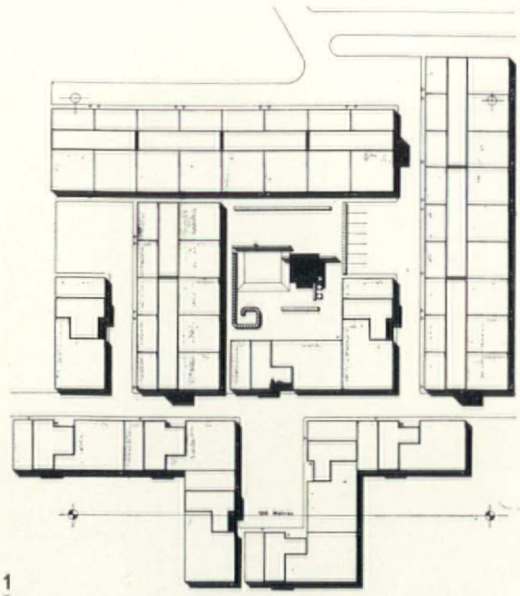


8



9

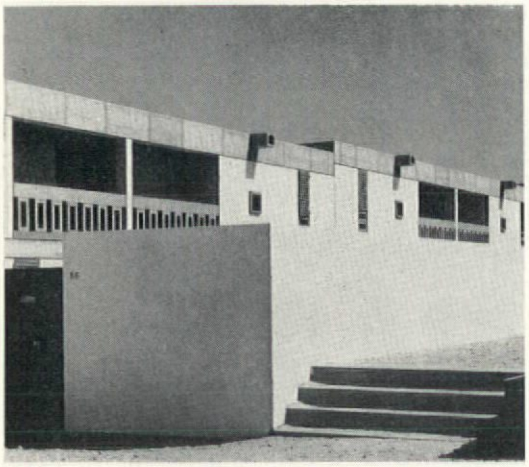
10



1

3

2



◁194

the inhabitants that has most marked the character of the town. The inhabitants of a wide and distinct origin have different needs. The Arab workers, for instance, wanted houses that allowed all domestic activity to centre around a courtyard that was altogether private. The administrative staff placed more emphasis on the need for cross-ventilation and a view. The whole was thus divided into various quarters, each with its own centre, related to the main one which is to be extended when the town is enlarged at a later stage.

Seven hundred and fifty houses, together with churches, mosques, schools and shops were built between 1961 and 1963. The structural system was the same for all houses—load-bearing outer walls of a lightweight aggregate concrete, identical tie beams and cross-beams, enabling all elements to be prefabricated in a temporary factory.

1

Plan showing grouping of administrative staff houses

2

General view of administrative staff quarter

3 & 4

Views of administrative staff houses with the church in the foreground

5 & 6

Part plan and general view of the blocks of flats for the administrative staff

7

Plan of two-bedroom house, two floors

8

Plan of three-bedroom house, two floors

9

Single storey, one-bedroom house

10

Single storey, two-bedroom house

11

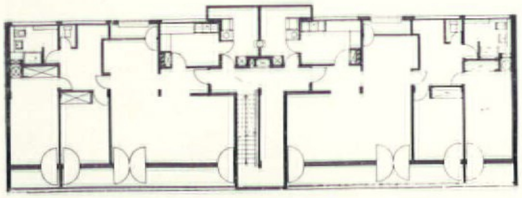
View to the coast from one of long narrow windows that are standard for all types of two-storey houses

Photos: 3, 4 & 6 J. Coussi

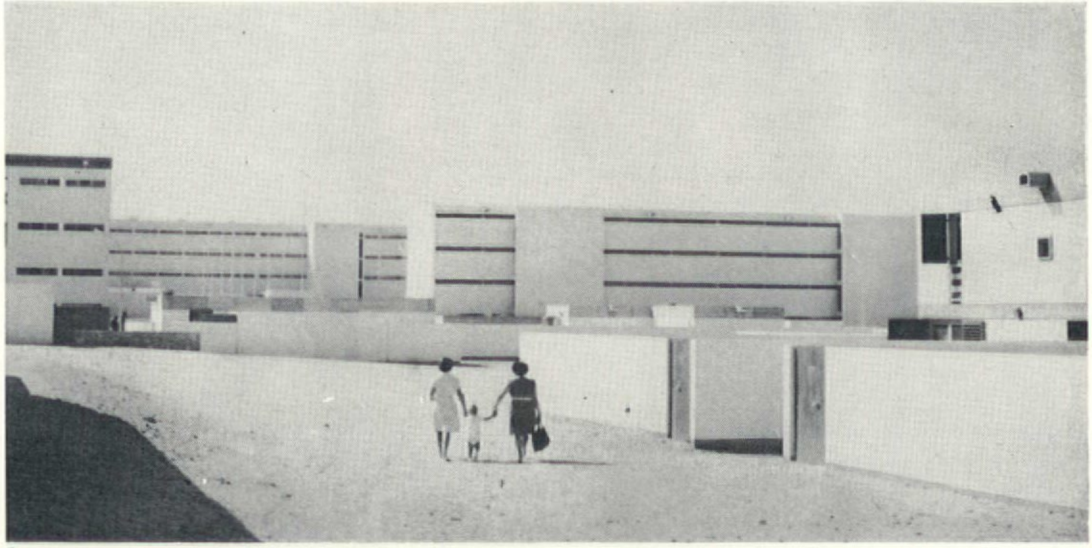
4

Administrative staff quarter

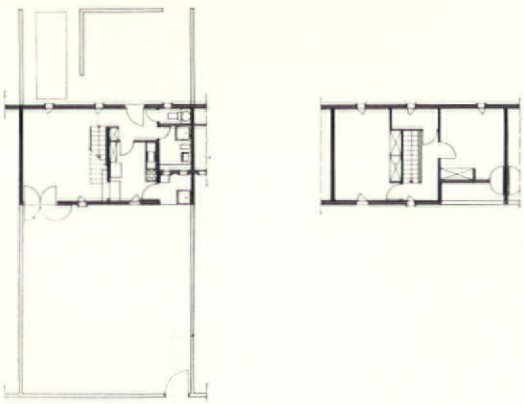
The initial development consists of 30 houses for approximately 120 people. The double-storey houses are arranged as bastions against the wind. Front enclosures are screened by low walls, courts at the rear have high walls. Each house has a garage, but through traffic is not permitted
Area: 1·5 hectares—3·7 acres
Density: 27 houses per hectare—11 dwellings per acre
Cost: 25,000F C.F.A. per m²—67s per ft²



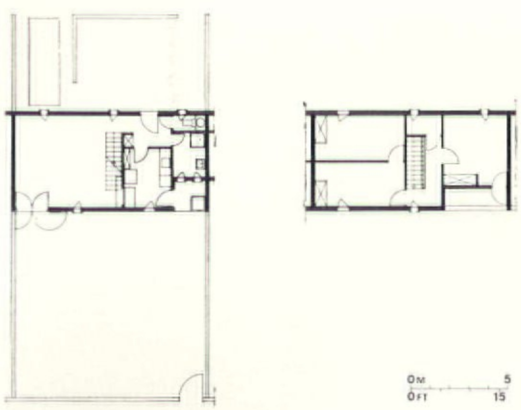
5



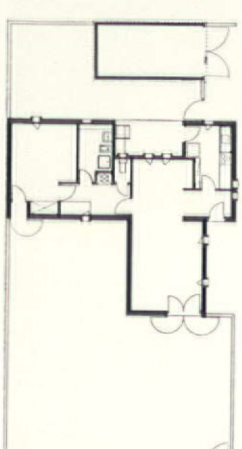
6



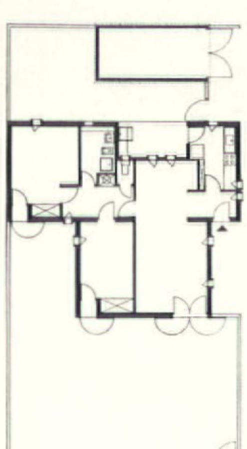
7



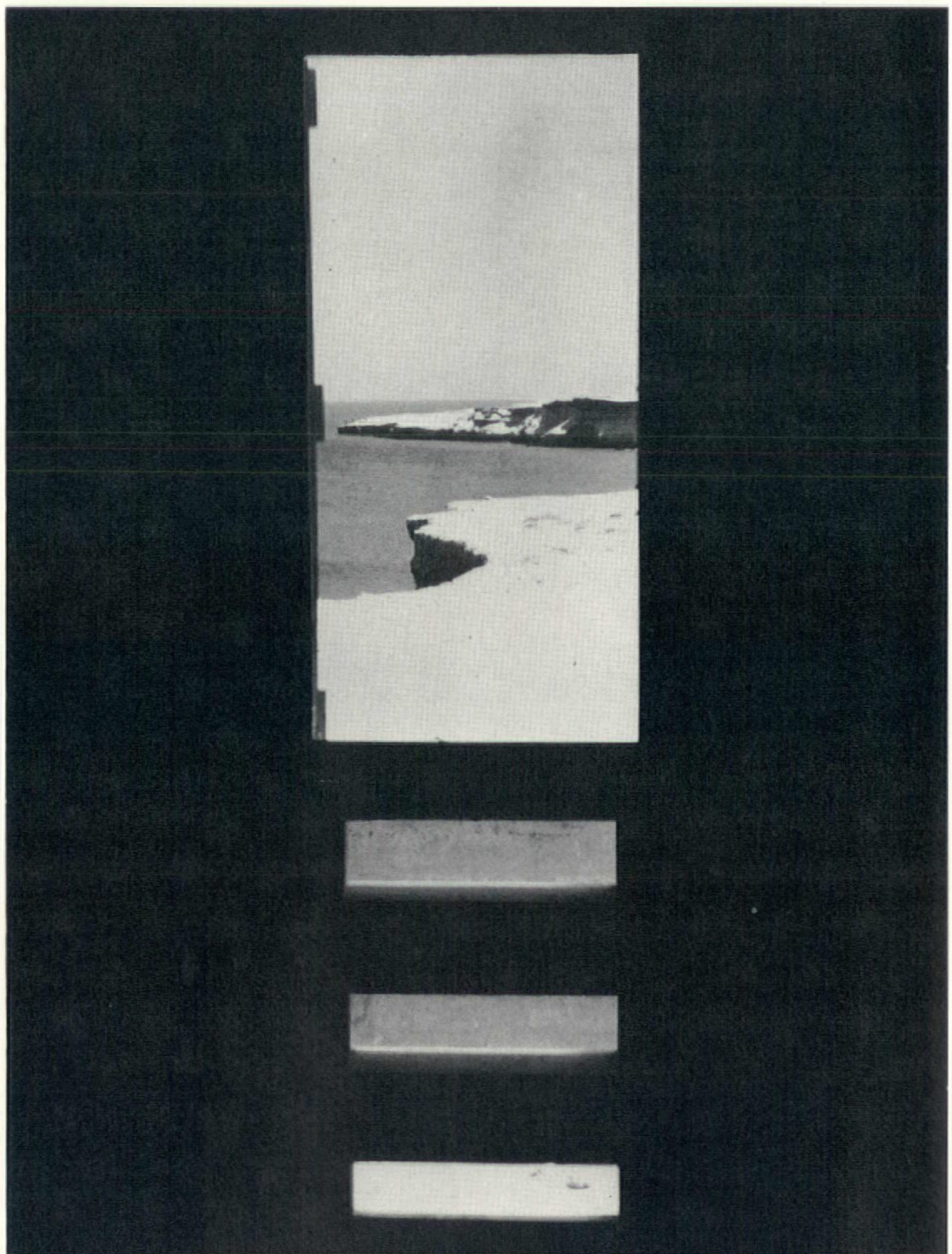
8



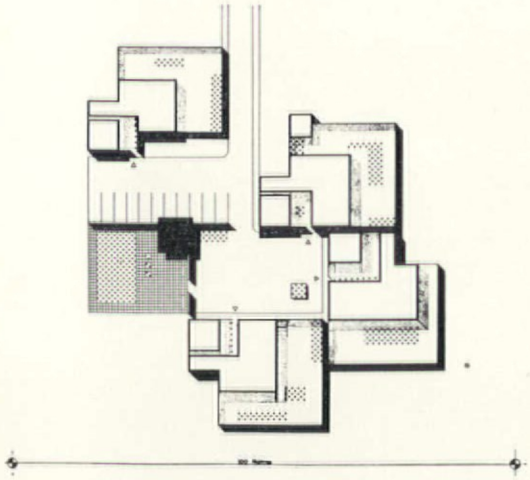
9



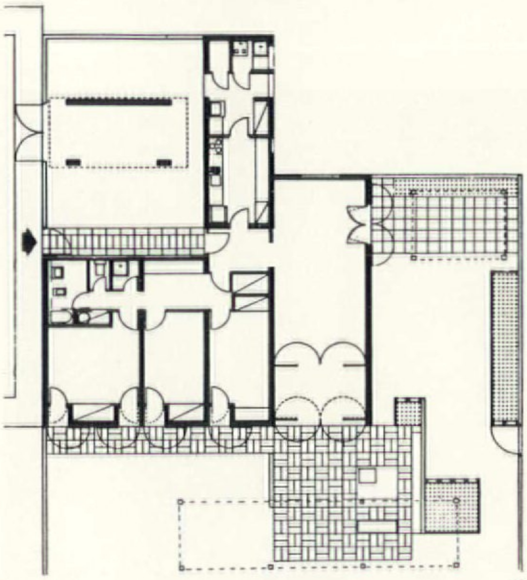
10



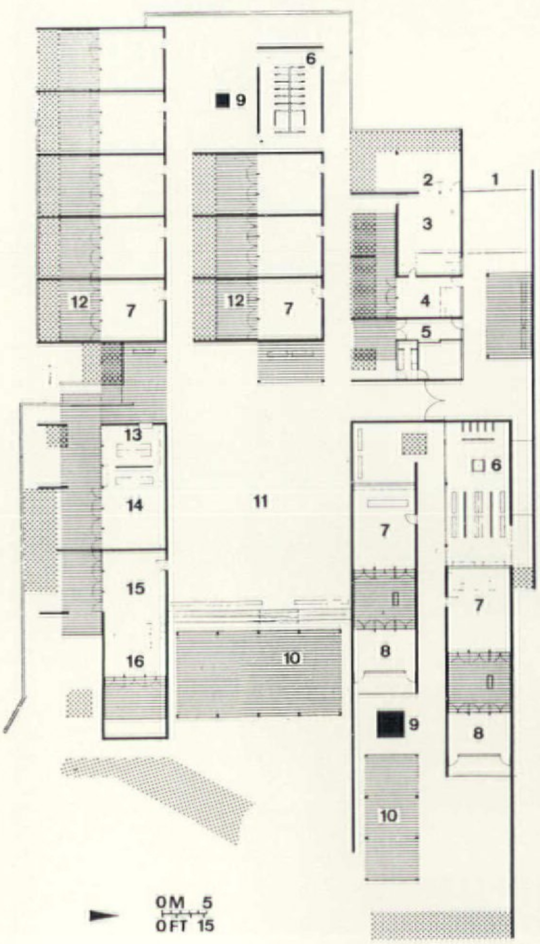
11



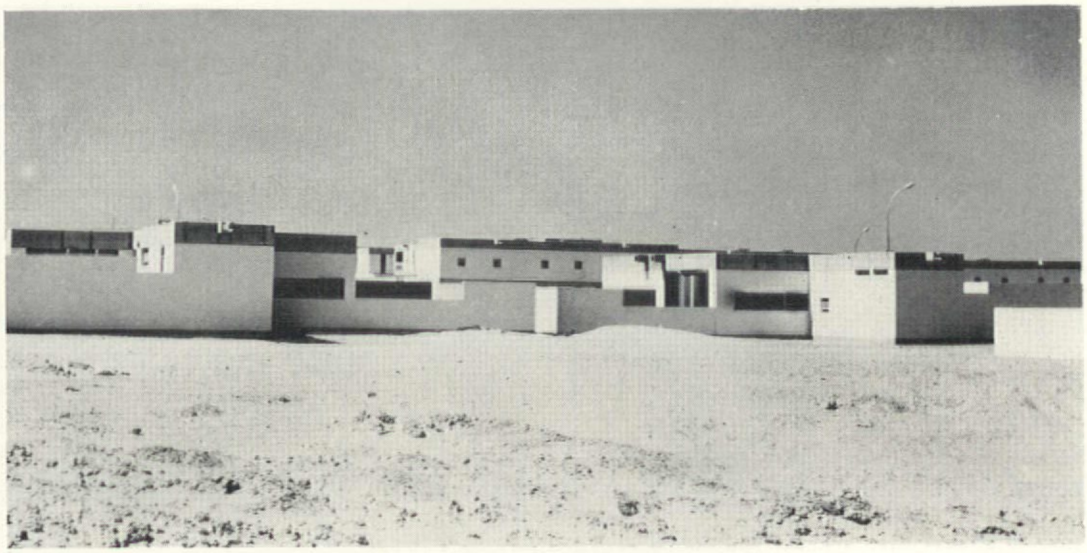
1



3



5



2

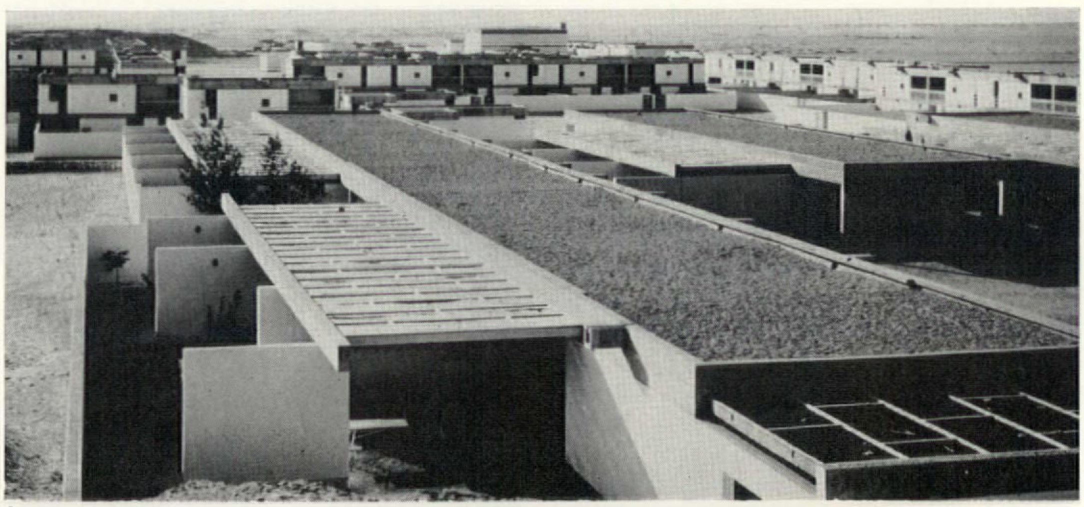
Executive quarter

A group of four houses, all single storey, with a common court and parking area. Each house is extended considerably by the high garden walls that protect the gardens and ensure privacy
Area: 0·5 hectares—1·2 acres
Density: 8 houses per hectare—3 to 4 houses per acre
Cost: 30,000 to 40,000F C.F.A. per m²—£4 to £5 per ft²

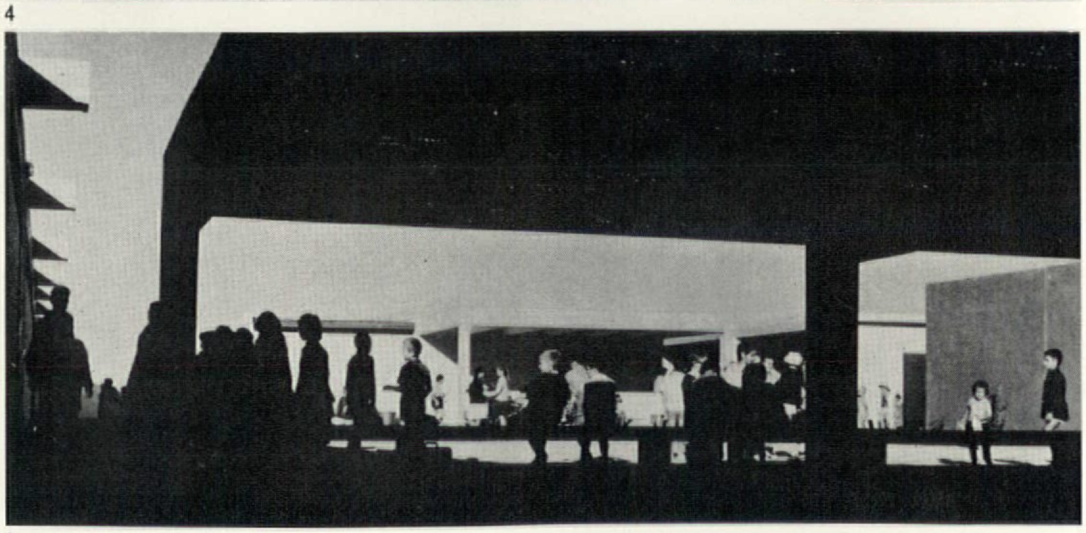
1
Site layout of four executive staff houses
2
Executive housing with two-storey administrative staff houses in the background
3
Typical plan of an executive staff house
4
View of the secondary school
5
Plan of the secondary school

1 entrance	9 fountain
2 terrace	10 pergola
3 staff room	11 court
4 headmaster	12 covered veranda
5 caretaker	13 specimen room
6 locker rooms	14 laboratory
7 classrooms	15 drawing studio
8 games room	16 studio

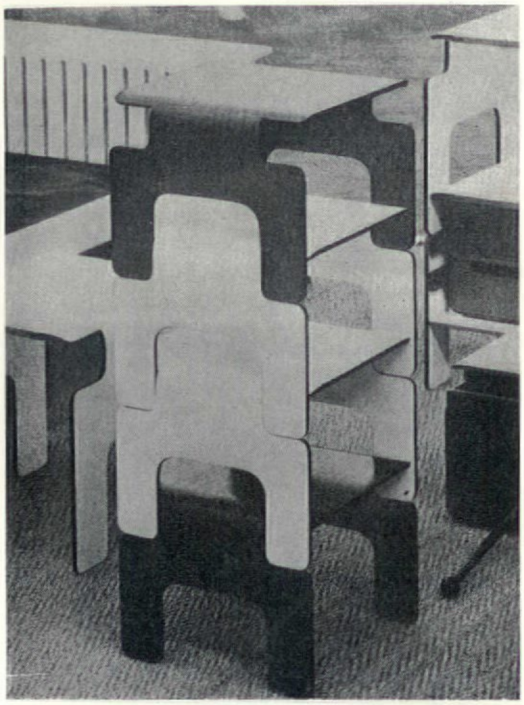
6
Court of the secondary school
Photo: 4 J. Coussi



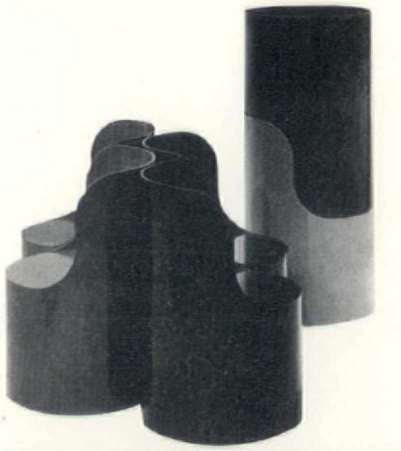
4



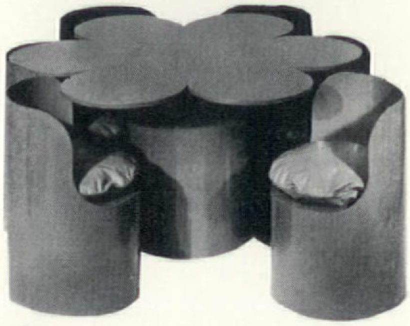
6



1



2



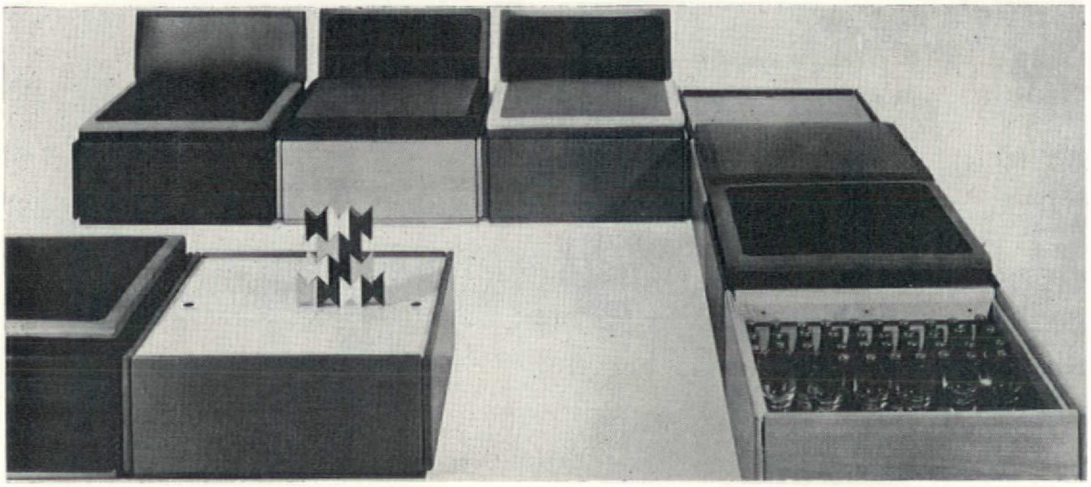
3

Design

Seats

1 Fun for children is provided with moulded ply stool/tables lacquered white, orange and chestnut; designed by Ammanati and Vitelli for Giuseppe Rossi, Albinate, and exhibited last year at the 7th Salone del Bambino, Milan.
Domus 431, 10/65

2, 3 Hull Traders' *Tomotom* chairs, designed by Bernard Holdaway to be cheap and expendable, are made of a compressed material in black, white, red, yellow, blue, green and purple, finished by a new enamelling process which gives a glossy, very strong and heat-resisting surface. The PVC cushions are in complementary colours. The stacking chair shown here costs £3 19*s* 0*d* (there is a larger one for £5 19*s* 6*d*).
7 Sedley Place, Woodstock Street, London, W.1



4

4 Conran *tote* boxes are simply storage stools or tables, 28in square. As stools they have 4in removable cushion-tops of polyether foam on a hinged base-board, and loose back cushions; as tables they have a removable vitreous enamel top. The boxes are of beech, natural or stained blue, red or dark olive with a smooth matt finish. The table tops are red, ultramarine or white. The cushions are covered with a specially printed heavy linen in six colorways, brilliant and 'Pop'. Très gay! Prices are £16 18*s* 0*d* for stools, £14 6*s* 0*d* for tables.
5 Hanway Place, London, W.1

5

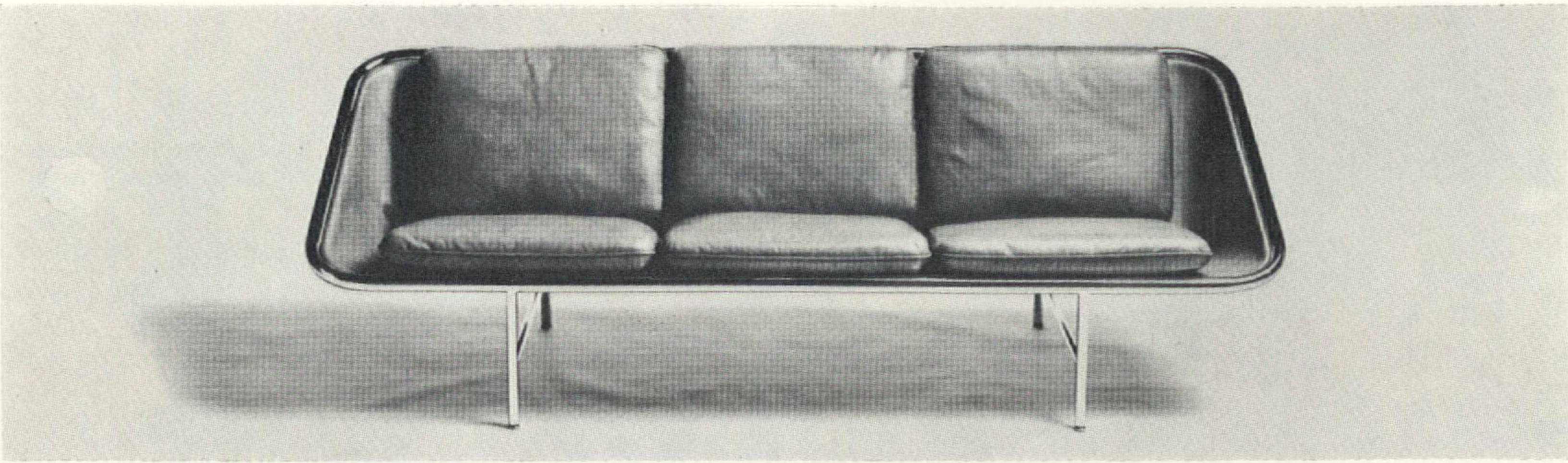
6

5, 6 Vernon Thornton and Robin Sandberg launched their version of seating freedom last autumn—an upholstered glass fibre bowl that can be anchored on a wooden base ring. The bowl is painted black or white and the foam upholstery is on Pirelli webbing support fixed only at the rim so that it can be pulled inside out for cleaning. The price ranges from £39 to £45 depending on the type of foam and fabric used.
55 Queen Anne Street, London, W.1

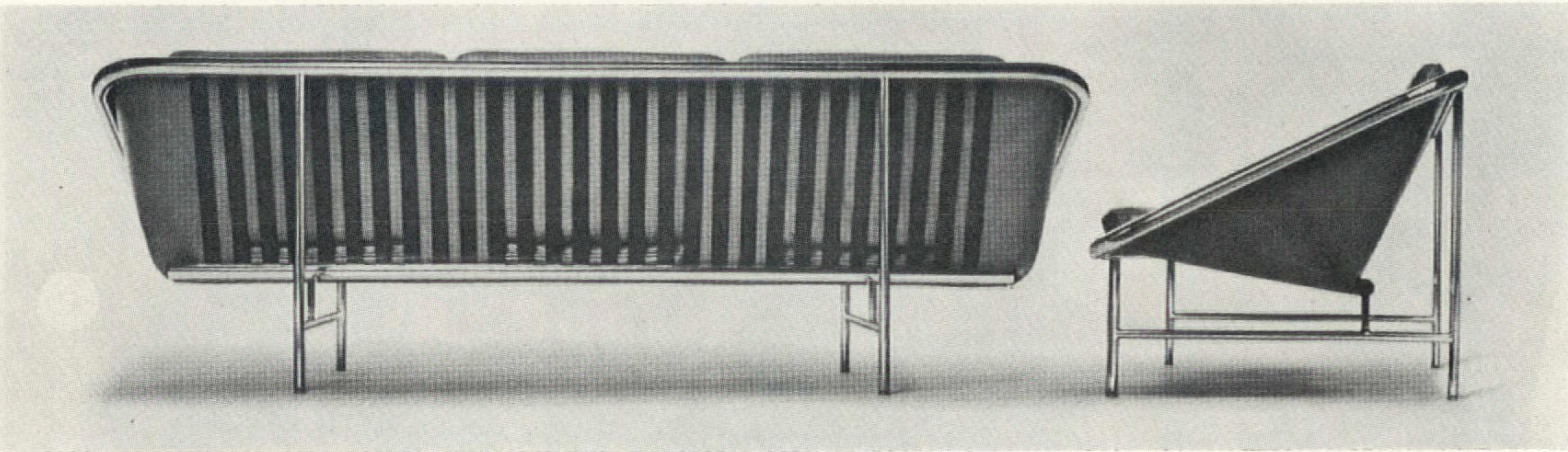
7

8

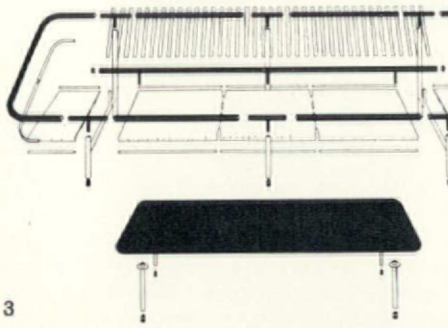
7, 8 For a long time the Danish furniture designer Nanna Ditzel has been preoccupied with the idea of doing away with conventional seats and tables, and breaking up floor levels into a series of step-seats on which are placed moulded polyether legless chairs. Already in 1952 she was photographed lying on the first prototype 'cushions' **7**. This year, at Vanfleteren's in Malines, Belgium, a room was constructed to her design, with the most recent 'cushions' which are now ready for mass-production.



1



2

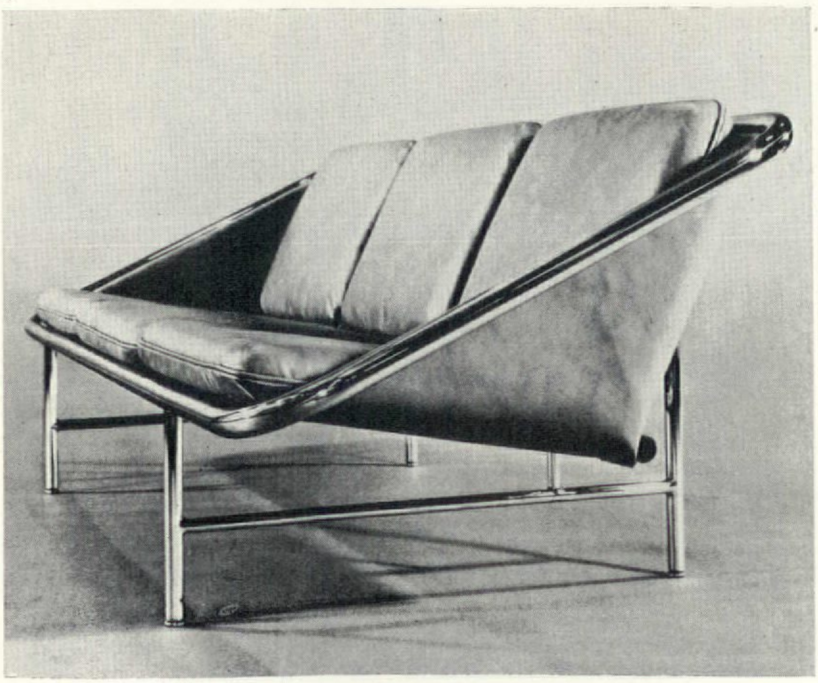


3

1–4 Nelson's elegant 'Sling Sofa' (2-, 3- or 4-seater), never yet seen on British shores, is made by Herman Miller Inc. in tan or black leather slung on a bright polished chrome base, and sold in the US for $900, $1100 and $1460 respectively. (Photo **4** Museum of Modern Art.)
Zeeland, Michigan, USA

5 The prototype chair Nelson showed at the New York World Fair is not yet on the market. He describes it as 'essentially slats of plywood covered with mass-produced upholstery and mounted on a formed-up sheet metal base.'

4

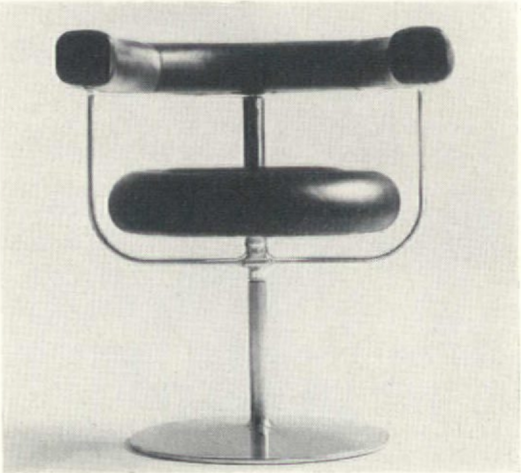


5

6, 7 Esko Pajamies has added a swivel conference chair to the series shown in *AD* Jan. 1966 (p.48) in cast bronze with leather covered foam rubber upholstery.

Boman OY, Turku, Finland

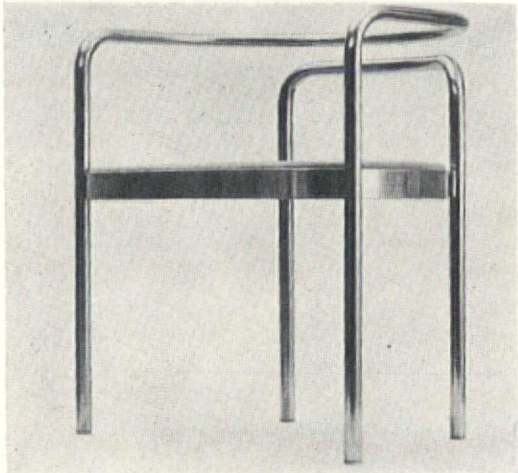
6



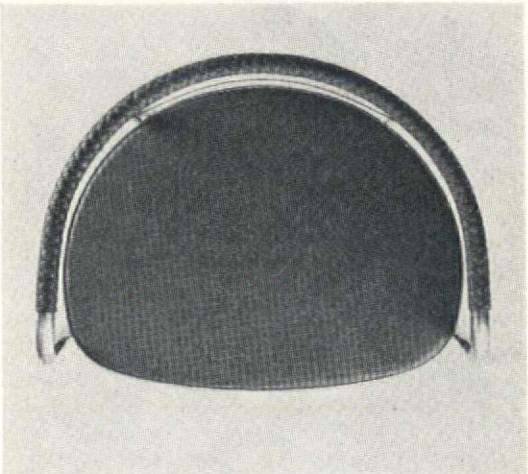
7

8, 9 The latest of Danish Poul Kjaerholm's creations to go into production is a tubular steel chair which he designed as long ago as 1962. There are two versions, one with the seat covered in fabric, the other upholstered in leather with the 'arm' bound with leather plaiting.

Spatium 3/65



8



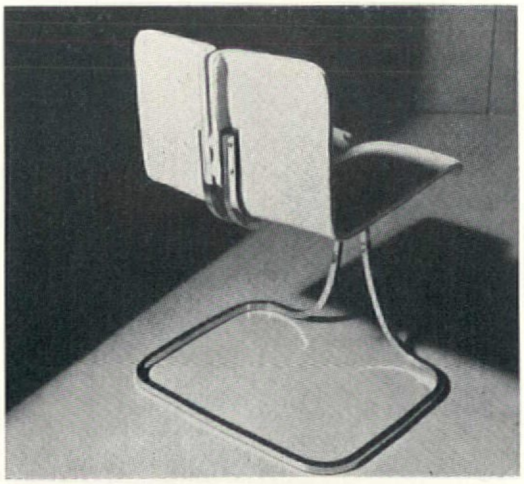
9

10 Joe Colombo's stacking chair for Arflex has a one-piece stainless steel square section frame to which are screwed twin centilevered moulded seats, upholstered in leather.

Domus, 433 12/65

11 Phillip Tester of Kent County Council Supplies Dept. designed the new Remploy chair, and the COID blessed it by installing it in their Haymarket conference room and offices. The chair, in square tube section finished in black nylon or epoxy resin, and upholstered in latex covered with black Cirrus, retails for about £9 9s plus tax.

415 Edgware Road, London, N.W.2

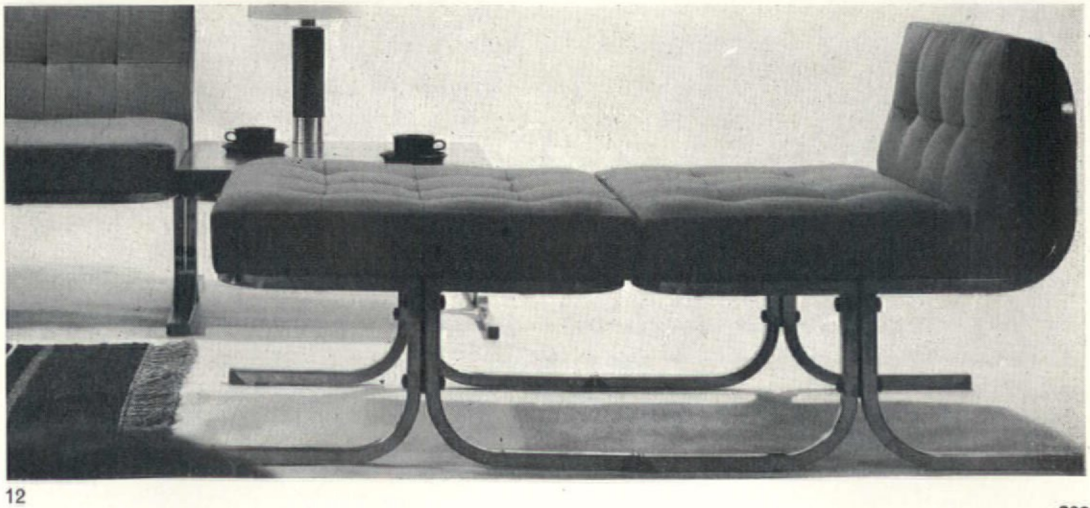


10

11

12 Among new designs by Jack Stafford for H. C. Shepherd is a modular knock-down seating system based on satin-chrome square section tube with latex foam upholstery on Pirelli sprung seat. The chair costs about £48 and the stool £29.

The Courthouse, 9–11 Justice Walk, London, S.W.3



12

2

1

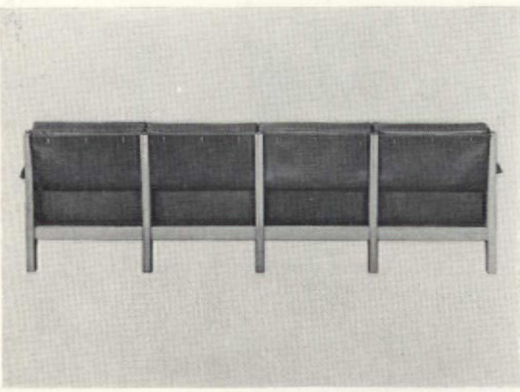
1, 2 'The most blissfully comfortable things since Jayne Mansfield's heart-shaped bed' is how Conran describes his '31 Range' easy chair and sofa with the current floppy-style upholstery. With oak back, sides and legs, and soft leather upholstery, the sofa sells for £168 19*s* 0*d* (£122 7*s* 6*d* in fabric) and the chair for £86 15*s* (or £61 4*s* in fabric).

5 Hanway Place, London, W.1

3

3, 4 Alan Newman Ltd are the British agents for a series of Swiss De Sede sumptious leather covered easy chairs and sofas. The set shown here includes a high and low back chair (£150 and £127), a 3- and 4-seat sofa (£315 and £390) and a stool (£60). The wood can be oak or walnut.

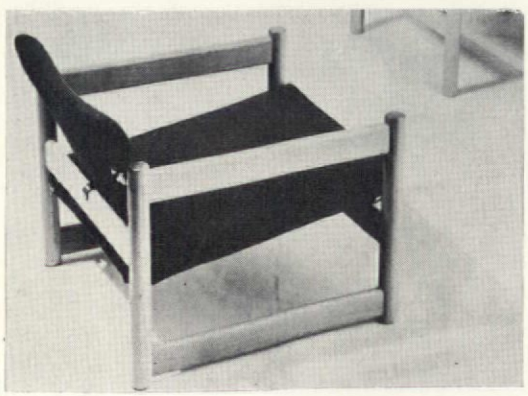
147 Ballard's Lane, London, N.3



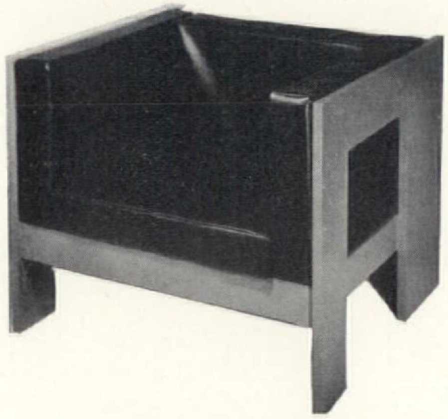
4

5 LM Furniture's newest design is a low cost chair for university use. With a heavy solid beech frame lacquered clear polyurethane, and polyether foam back and seat (supported on Pirelli diaphragm) upholstered in fabric or PVC, its contract price is £12 with a low back or £13 9*s* 0*d* with a high back. A matching upholstered stool is £7 13*s* 3*d*, or heat proof coffee table on stool base, £6 10*s* 4*d*.

43 Earlham Street, London, W.C.2

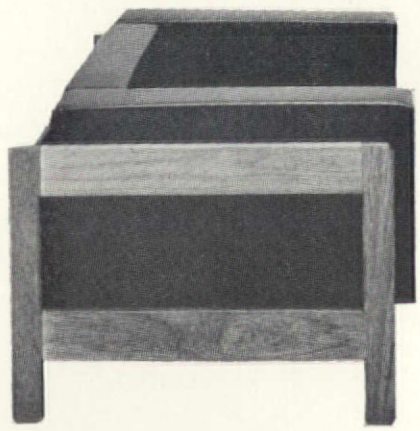


5



6

6 Brightly painted blockboard is used for a prototype chair made by Hasketon Ltd to Simon Conder's design, and Seymour West Design Associates Ltd will sell it for between £30 and £40.



7

7 Clive Hunt, furniture designer and senior partner in Tee Design Associates (Clifford, Tee and Gale stable), is the author of Heals' handsome 'Group 370' teak office furniture for the exective suite. The easy chair ($37\frac{3}{4}$in wide $\times$ $30\frac{1}{2}$in deep $\times$ 25in high), with thick polyester seating cushions supported on Pirelli webbing, costs £51 covered in a wool fabric; the matching 7ft settee, £75 16*s* 9*d* covered in PVC.

196 Tottenham Court Road, London, W.1

8 With reversible cushions designed for wear, Furniture Productions (Bradford) Ltd's 'Caribbean' sofa and easy chair sell for £75 and £37 10*s*.

Thornton Road, Bradford 1, Yorks

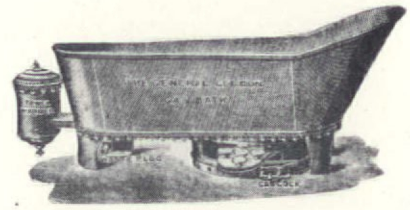
8

Product analysis 5

SfB (53)
UDC 696.123

Heart units

Alexander Pike



Ewart's gas bath, 1882

Much of the information included in this article is based on documentation in the *Vorgefertigte installationen für den Wohnungsbau,* by Rudolf Doernach for the Forschungsgemeinschaft Bauen und Wohnen, Stuttgart (referred to as FBW in our captions).

When assessing the design of products to be incorporated in buildings, the size of the unit is normally small in relation to the whole. Each part makes a small contribution and the impact of individual weaknesses, although important, is more often isolated and it is only when the example is one of extremely bad design that the total effect is influenced. A poorly designed lavatory basin can be visually disturbing or cause aggravation—but this will only persist for short periods throughout the day. It may for the most part be forgotten and will have a small effect on the function and appearance of the entire building.

However, when the product has a complex function, is of considerable size and exercises an influence beyond its own volume, it constitutes a major element and may have to be considered as initiatory for many aspects of the overall design.

The heart unit, if properly considered as a vital organism, will have a profound effect on the physical environment created within the house and, unless designed for extreme flexibility of arrangement, will also exert a considerable influence on the pattern of living experienced by the occupants.

The notion of a mechanical core in which all the heating, plumbing and mechanical services for a house could be contained, and installed as a unit, is a problem that has been pursued vigorously by many designers. Despite an almost continuous record of thorough investigations and repeated endeavours over many years, a true solution still evades us and current examples are disappointing. If blame is to be levelled it must not be for reasons of failure to provide an efficient, economic and well-designed unit but because extensive documentation of past attempts provides lessons still unlearnt, and constant repetition of past mistakes has replaced continuous development.

Failure to carry out adequate research on precedent examples is not unique amongst manufacturers of building products, but seldom has it occurred in such an acute form as in the case of heart units.

The need for such a unit is undeniable. Increasing acceptance of industrialized building methods demands the factory production of larger components, and it is claimed that bathrooms and kitchens are particularly susceptible to this approach, because the complexity of the plumbing and wiring make them relatively more expensive than other parts of the house. Manufacturers of prefabricated houses in the USA have estimated that the plumbing, heating and electrical services have frequently been responsible for 25 per cent of the total content. Comparison with American standards may be considered an unfair basis for assessing this ratio, but the proportion of expenditure on these services in low-cost prewar housing in this country has been quoted as varying between 12 and 15 per cent. The increased standards since the war, particularly with regard to heating, have certainly increased this proportion sufficiently to make these services eminently suitable subjects for cost reduction by improved production techniques.

Nevertheless, the need awaits upon a demand that can only be created by the production of a unit that provides more economically the services normally expected, or improved facilities for the same cost. Few manufacturers, if any, have been able to avoid repeating the errors of their predecessors, and it is therefore perhaps more profitable to retrace our steps and examine the original reasons for failure of past attempts rather than the present-day imitations.

Development

Victorian design varied between inventiveness, whimsicality and a love of novelty that in our own era would be labelled as gimmickery. We are unable to define which of these motives evoked the bath heating systems which emerged in the 1870s and although they bear no family resemblance to the units we consider today, they represented the first faltering steps of a child whose promising future has even now, as a centenarian, not yet been realized.

These self-contained units were gradually replaced by central water heating stoves or boilers, and no advancement towards the idea of a mechanical core occurred until 1927, when *Buckminster Fuller's Dymaxion House* suddenly made not only our services, but our entire mode of living in houses, appear out-of-date. The house made a very clear statement on the importance of the services core, situated in the central mast around which all the living accommodation was grouped. The design was based on the proposition that the house should serve two basic functions, to accommodate people and to accommodate services, so that it became in effect a machine for living around. Fuller appeared to be undaunted by the cost of providing in his core unit more facilities than were generally considered necessary—or even possible—at that time, including a laundry unit to accept dirty clothes and return them completely laundered three minutes later. He claimed that the cost of the house, assuming full-scale mass production, would be $3000—very little more than low-cost traditional houses in this country at the time. The Dymaxion house aimed to provide for the utilities which modern living had added to a house that antedated their life and for which the traditional house offered no special provision.

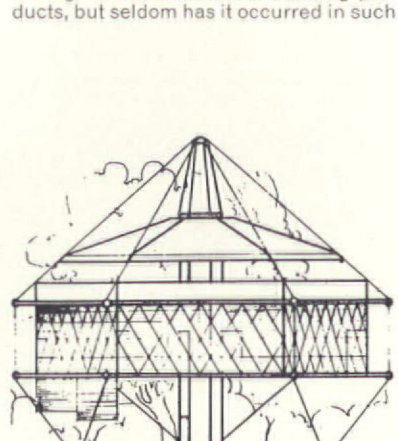
No immediate influence was apparent, but the project served to illustrate the illogicality of adding bathroom and kitchen services to the traditional plan, a point that manufacturers of factory-produced houses were soon to become aware of. The threading of pipework through the stud framing of standard American construction was a method that was no longer feasible when prefabricated panels were employed. Each section would have to be provided with pipework pre-installed and each joint between panels would require several pipe connections. The problem was hopeless, but not obviously so, although several projects for prefabricated bathrooms in the early 1930s clearly revealed the insoluble difficulties this method created. Later studies showed that kitchen and bathroom panels incorporating these pipework assemblies were costing four times the price of similar sections without these facilities.

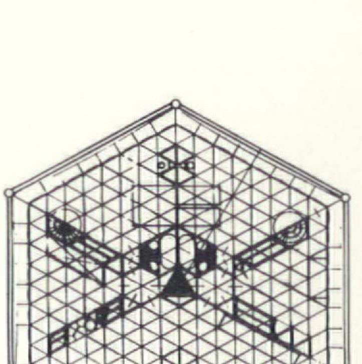
In 1932 *Raymond Hood* designed a project for a block of flats which showed a mechanical core containing lifts, bathrooms, kitchens and all services. The design was motivated neither by a method of prefabrication nor by economic reasons, but by inspiration from the car technology which separated the motor from the chassis.

Contemporary with this development, the *John B. Pierce Foundation* erected an experimental prefabricated house which included a mechanical core unit. This contained all piping and plumbing, bathroom cabinets and a built-in w.c. cistern. The bathroom backed on to the kitchen which was fitted with a sink. A centrally-located warm-air heating unit, also serving as a fireplace, was situated so that short ducts radiating from it would carry warm air into every room. This services core, possibly the first true heart unit, was later developed by *American Houses Inc.* in their *Moto-Home* in which it was incorporated as a kitchen-bathroom-laundry-heating package delivered as one crated unit (with storage units stocked with food). No attempts appear to have been made to rationalize the design for a variety of plan arrangements and a different version was required for each house type offered, nullifying the potential economic advantages. This firm ultimately rejected the services core and reverted to a simple panel system.

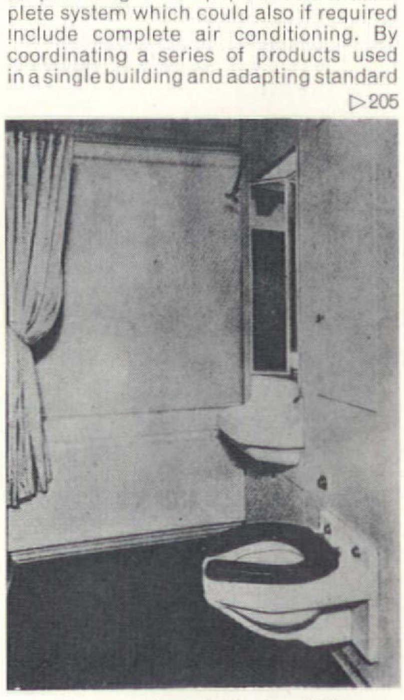
A prefabricated house produced by the *Reynolds Corporation* in 1932 provided all plumbing and equipment as a complete system which could also if required include complete air conditioning. By coordinating a series of products used in a single building and adapting standard

▷205



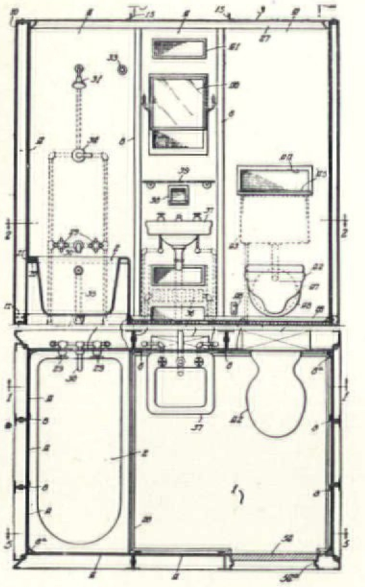


R. Buckminster Fuller's Dymaxion House 1927

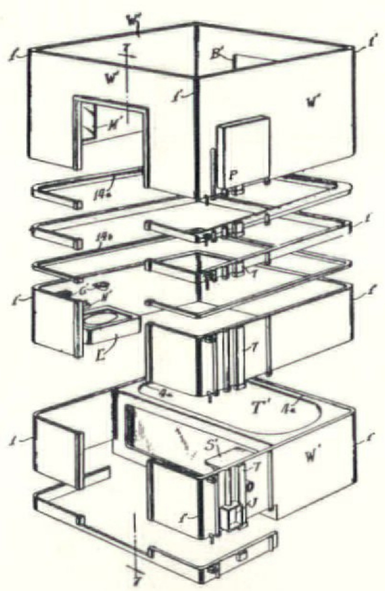


Kitchen and bathroom unit in the Pierce foundation experimental house 1932

◁204



Plan and elevation of a prefabricated bathroom, USA, 1931, in vertical panels. An early attempt to reduce plumbing costs. Number of plumbing connections same as for normal site assembly



Prefabricated bathroom, USA 1934. An obsessional approach towards integrating of panels and pipes resulting in even greater multiplicity of connections

Arcode kitchen 1936

units to an unlimited range of conditions, this manufacturer was probably the originator of the open system.

A concurrent movement during this period was the development of what was then termed the *Integrated Kitchen* (incorporated in the vocabulary of estate agents in this country as the American Kitchen). Seeking improved sales of individual items of equipment, manufacturers designed a series of separate units dimensionally and visually related to each other so that a wide variety of alternative arrangements could be employed to create a complete unit. In consequence, sales of all types of unit increased.

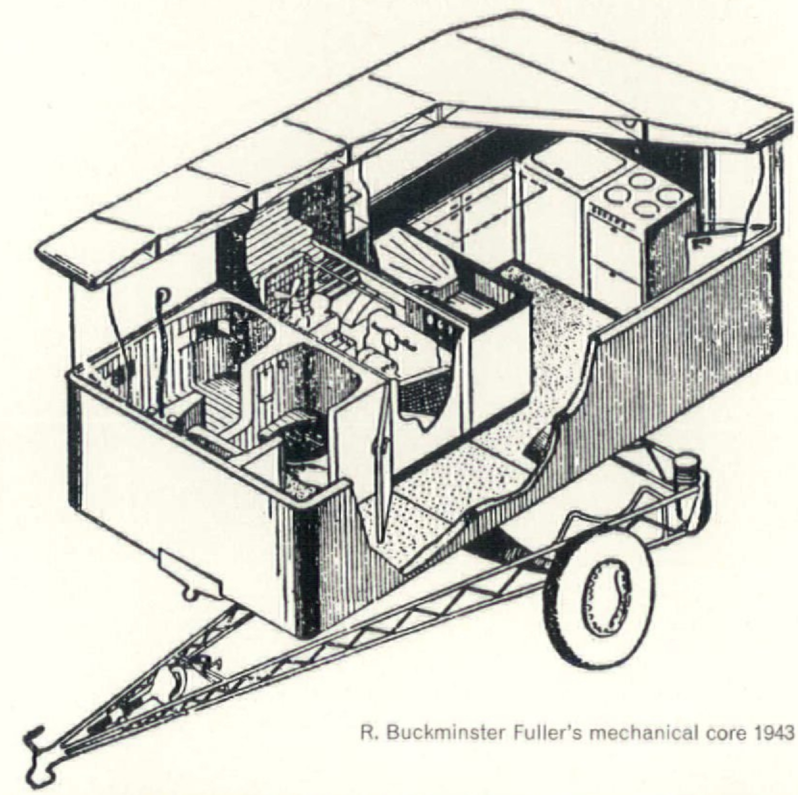
Continuing the drive towards standardization, increased volume of production and greater overall economies, a similar idea was applied to bathrooms when *George Sakier* designed a series of prefabricated partition units which incorporated all the fixings for a range of interchangeable items of equipment. The same designer was responsible for the *Arcode Kitchen* consisting of a steel core partition capable of receiving all fittings and a range of modular fitments.

In 1938, when the impetus imparted by his radical example was fading, Fuller again demonstrated his positive approach by producing the *Dymaxion Bathroom*. This unit, complete with all supplies and wastes, and a range of totally compatible and fully interrelated items of equipment—shown in *AD* February 1966, page 106—still remains the clearest proposition on integrated design yet formulated. But Fuller seems doomed to adopt the role of a slow-acting catalyst, and in spite of twelve prototypes and the considerable interest shown by the Phelps-Dodge Corporation, this extremely advanced concept exerted a negligible immediate influence—for reasons that have never been adequately ascribed. (Giedion, postulates unconvincing reasons for its failure.)

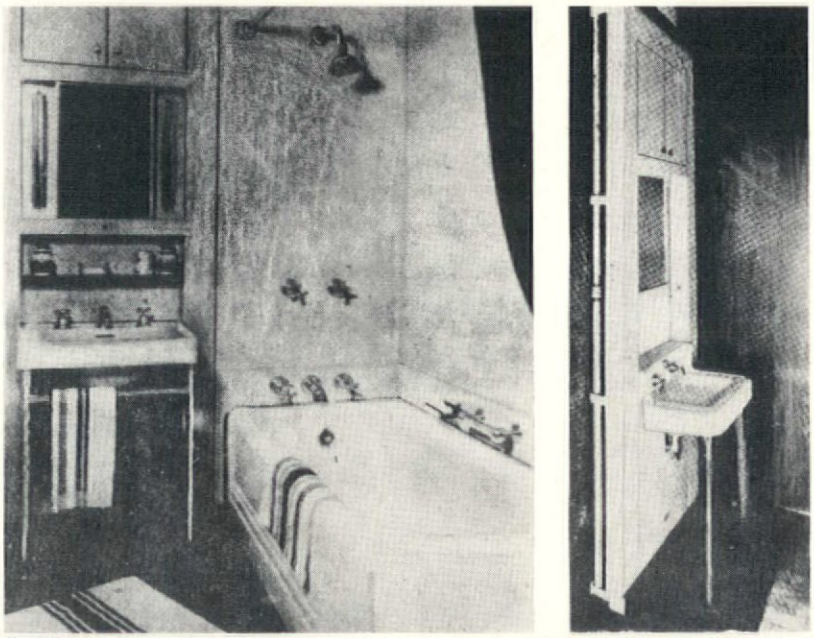
The project, requiring large and expensive matching dies, was designed essentially for mass-production, and in consequence must have been one of the first building elements of its kind to encounter the vicious cycle of production. Low volume of production means high unit cost; high unit cost means a small market; a small market means a low volume of production. This factor has bedevilled all attempts at prefabrication and mass-production up to the present day, and if not the prime reason for the failure of the Dymaxion Bathroom, it must have been a strong contribution. Nevertheless, even in its failure it carried the concept of mass-production of a Services Unit several stages further, and in 1940 was developed as part of a project for a mobile mechanical wing. This was to have integral jacks on castors for manoeuvring into position by hand and the bathroom was to be provided optionally with either a water line connection where running water was available or with combination compressed air, water and chemical fog-gun cleansing devices. The sanitary equipment was to include a sealed waste-packaging and chemical disposal apparatus. The project showed an energy unit, located between bath and kitchen, containing a diesel engine, electricity generator air compressor and tank, battery and radiator. The latter was to use domestic hot water to warm incoming air and a reversible fan would extract warm air from the living units during the summer. The kitchen and laundry area was to be fitted with a sink, washing machine, electric cooker, refrigerator and storage space. The design was never seriously considered for production but in its acknowledgement of the need for flexibility of arrangement for such a unit provided an example that is still unheeded.

Towards the end of the war, after development had been halted, the British temporary Housing Programme stimulated renewed interest and mechanical cores were considered as very suitable

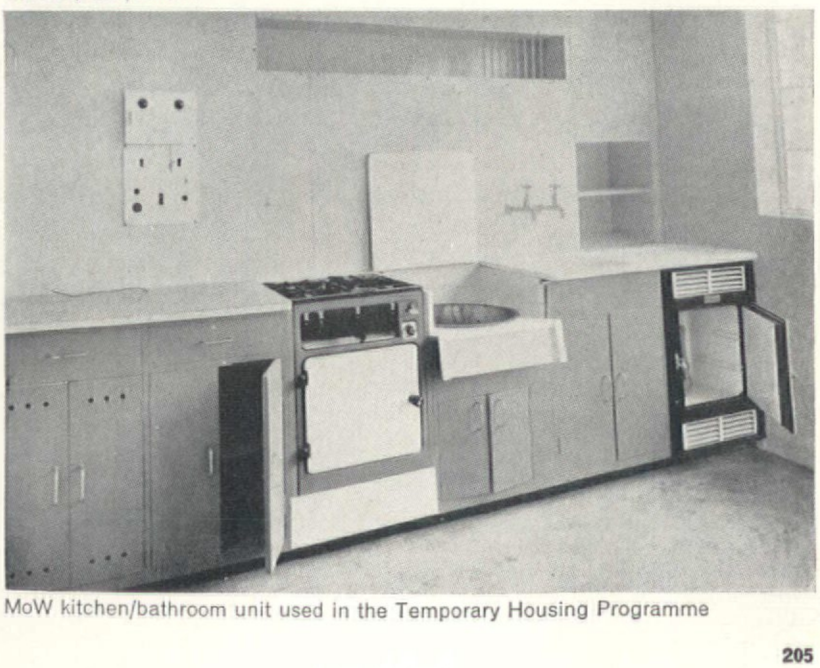
▷206



R. Buckminster Fuller's mechanical core 1943



Partition units designed by George Sakier for the American Radiator and Standard Sanitary Corporation

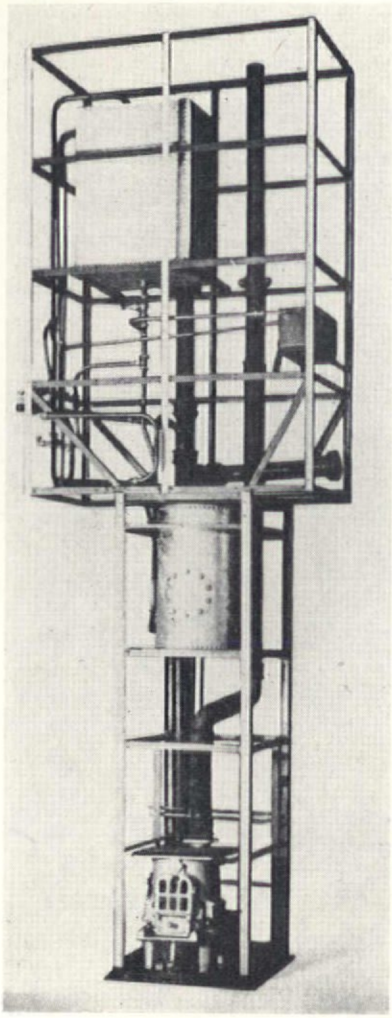


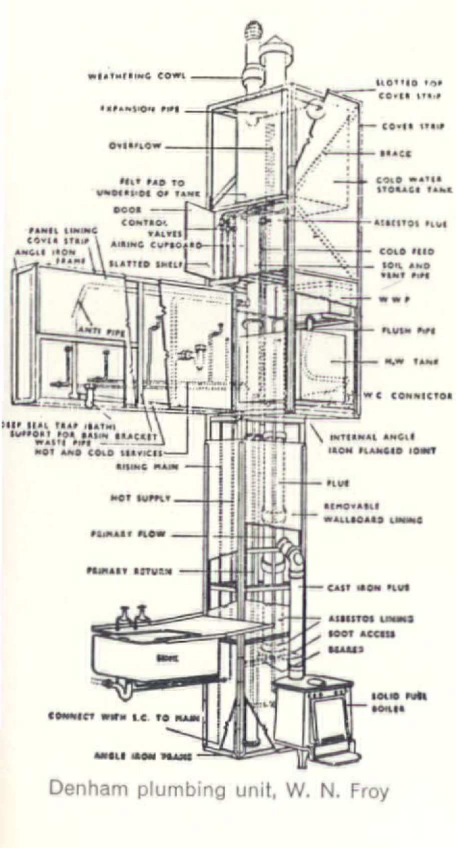
MoW kitchen/bathroom unit used in the Temporary Housing Programme

◁205

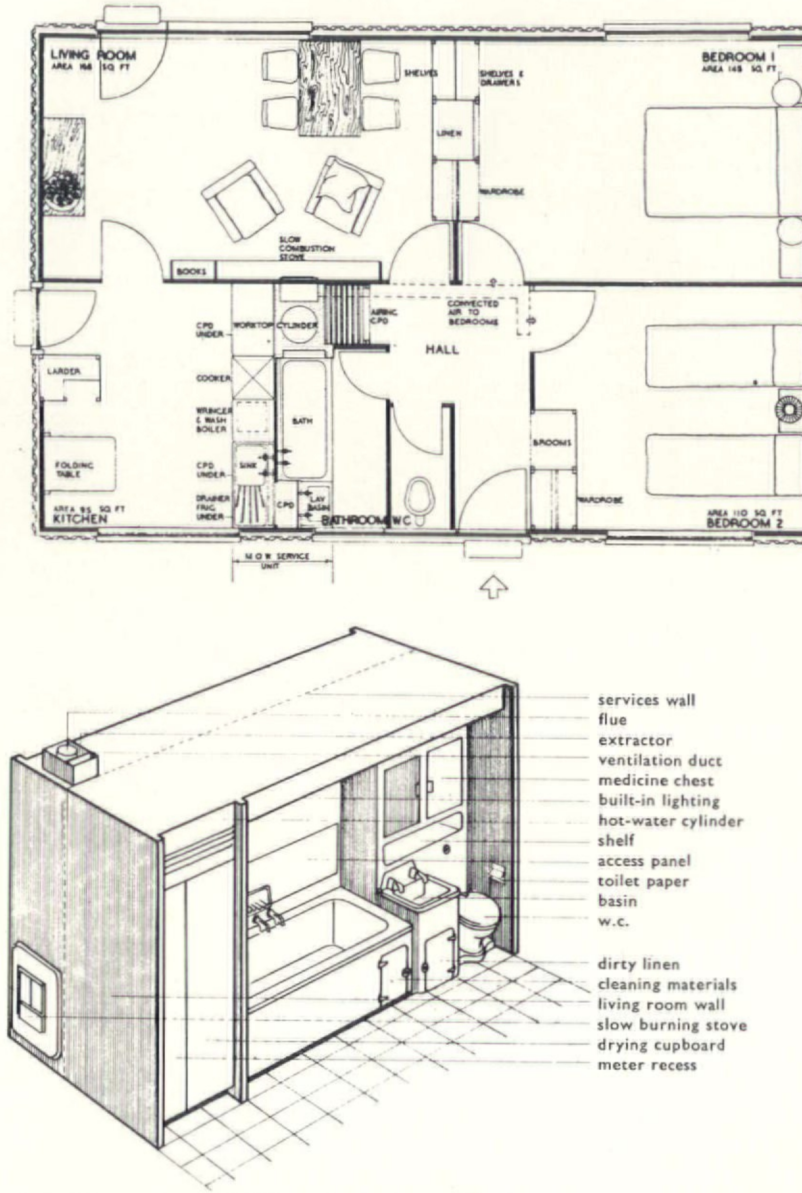
items for post-war development. This programme ensured a guaranteed market for totally prefabricated houses employing non-traditional methods and materials, and the ensuing high volume production enabled considerable attention to be paid to the working core of these houses producing examples which, for advanced thought and efficiency, have barely been equalled since. *The Ministry of Works Unit, designed by Arcon*, combined bathroom and kitchen fittings in one back-to back unit, together with the hot and cold water supply and heating unit which also supplied ducted warm air to the bedrooms—a facility not made generally available until some 15 years later, and even today not widely provided. However, it was extremely inflexible, being originally designed for a closed system, and limited the planning arrangement to two house types.
Other systems available during the immediate post-war period were the *Howard, Denham and Dent & Hellyer Units*, all of which were intended for two-storey houses. Built on a metal chassis, the advantage of structural independance was gained at the expense of additional labour and material.
Post-war development in the USA lacked the stimulus of our government-sponsored housing programme, and manufacturers of prefabricated houses often chose to assemble all plumbing on site. A few producers of compact and complex mechanical cores secured markets for then on the strength of the added facilities they offered.
The most outstanding of these was the *Ingersoll Utility Unit* made by the Borg-Warner Corporation. It contained all bathroom and kitchen equipment mounted on a mechanical core enclosing equipment and controls for heating, electricity water and gas. The unit included a warm air heater with blower, air filter, thermostatic controls and a cold air return system; an automatic water heater; a prefabricated soil and vent stack; water and gas supply systems and all wiring. This was all housed in the basic core 30in wide, 94in long and 77in high, to which battens were fixed ready to receive facing panels. The equipment provided included a bath, w.c., basin, medicine chest, cooker, sink, 7ft³ refrigerator and storage cabinets. A luxury version provided laundry equipment and larger fittings generally.
Most of the fittings employed were made by the manufacturer of the core, thereby effecting major savings, but in spite of this the unit was more expensive than similar equipment installed on site, and production was suspended because it failed to meet the market demand for an economic unit.
Another version available during this period adopted an entirely different approach. The *Mobilhome* consisted of a complete kitchen, bathroom and utility room, fully fitted with all equipment on the side of the house. The entire structural unit 24ft long, 8ft wide and 9ft high could be adapted to support timber trusses and a system of non-load bearing external walls, to form a complete house, giving weight to the theory that the mass-produced mechanical core will eventually determine the design of the house.
Far from fostering the popularity of the movement, the Temporary Housing Programme became one of the major contributory causes of public antipathy towards prefabrication. Poor siting, and unfair assessment by the uninformed, led to the derogatory use of the word *prefab* from which it could not redeem itself until, like a reprobate, it changed its name to Industrialized Building more than a decade later.
Mechanical cores shared in the ignominy and interest in their production declined. In the following years attention was intermittently focused on a few experiments with integrated units, but these were confined to bathroom equipment and failed to activate production.

▷207


Two-storey Howard unit



Denham plumbing unit, W. N. Froy



Arcon house plan and MoW mechanical core (FBW)

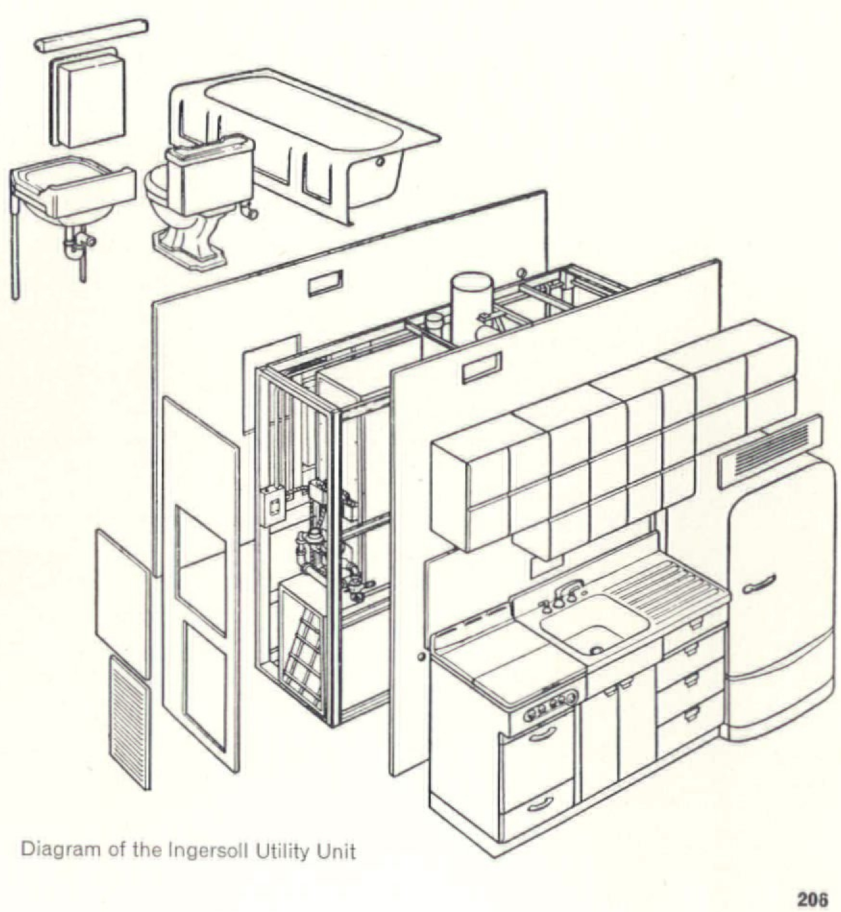
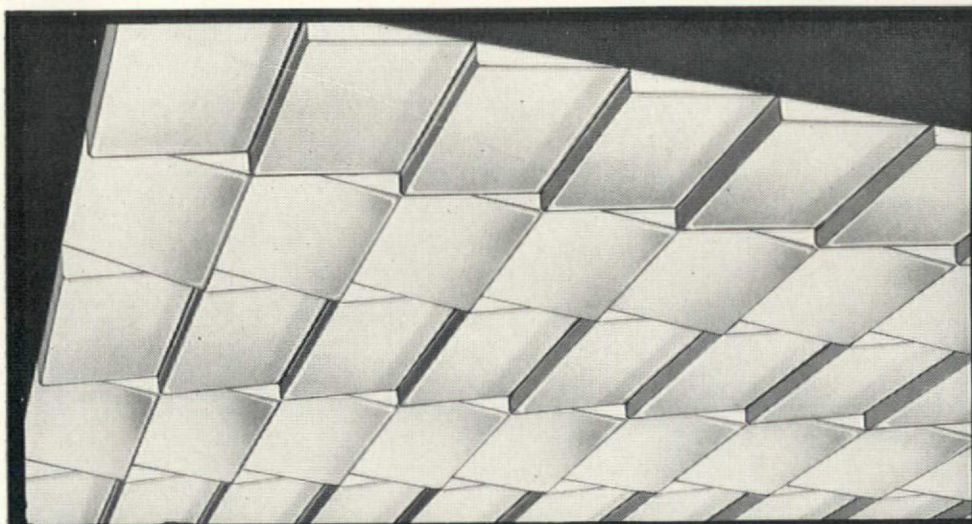


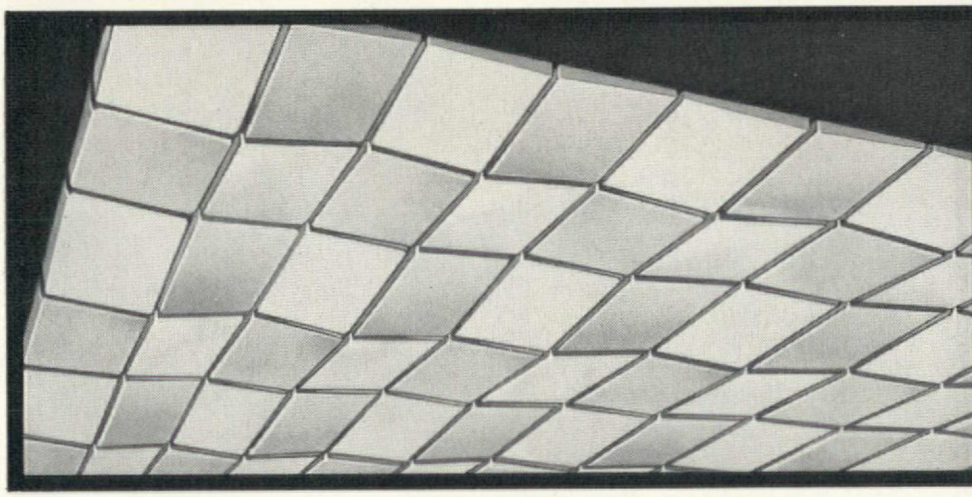
Diagram of the Ingersoll Utility Unit

A NEW CONCEPT IN CEILINGS



Each of these deep-wedge panels (type W) can be fitted into the grid in four different directions. Numerous striking, modern effects — both symmetrical and asymmetrical — can thus be created with this single panel design.

DESIGNED FOR ARCHITECTS . . . .



A subtle development of the first design is the " tilted wedge " panel (type TW). Sophisticated textural and wave-form effects can be created, again using only one basic panel design.

BY ARCHITECTS . . . .

The new ARCHITECTURAL RANGE of luminous ceiling panels has been designed expressly for ISORA by John and Sylvia Reid, A/ARIBA., F/FSIA., with the particular object of giving architects and interior designers a wide scope in which to express their individual design ideas without resorting to expensive, specially manufactured panels.

The panels are vacuum-formed to a 24" module in light-stable, self-extinguishing vinyl and can be installed, with dust covers if required, in ISORA's KT64 PVC covered gridwork or any other good quality track. We can't begin to tell you in this advertisement all about our range of ceilings; they cover the whole field of lighting, acoustics, heating and ventilation. Our staff are trained to help you with all these problems, but without involving you in any obligation.

BARBOUR INDEX NO. 224

Write for illustrated brochures and technical data, or why not ring us?

Name ....

Company ....

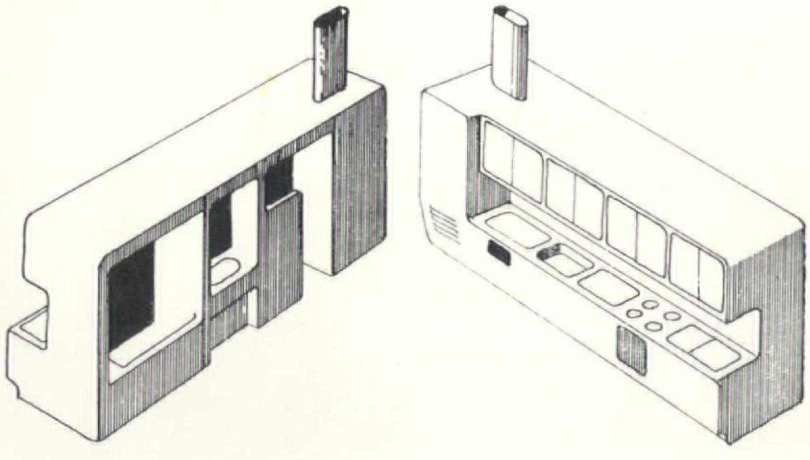
Address ....

.... A.D.

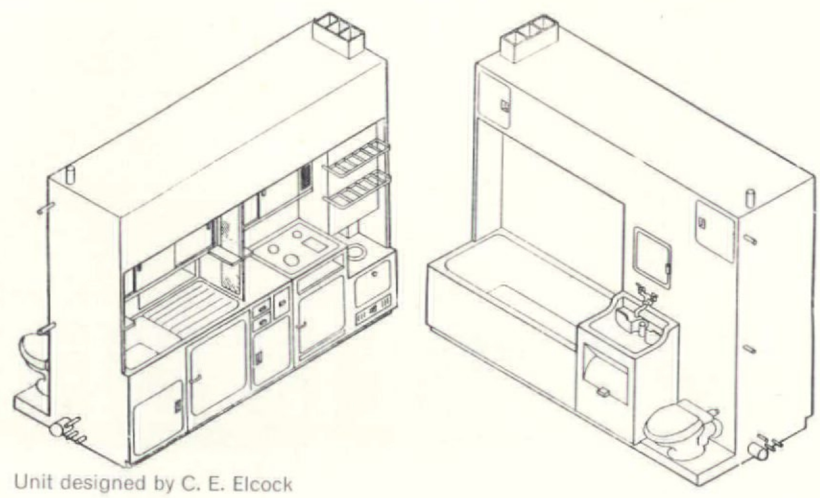
ISORA

ISORA ILLUMINATING CEILINGS LTD
BUCKINGHAM AVENUE WEST·SLOUGH·BUCKS
TELEPHONE: SLOUGH 26851
A member of the King Group of Companies at Slough

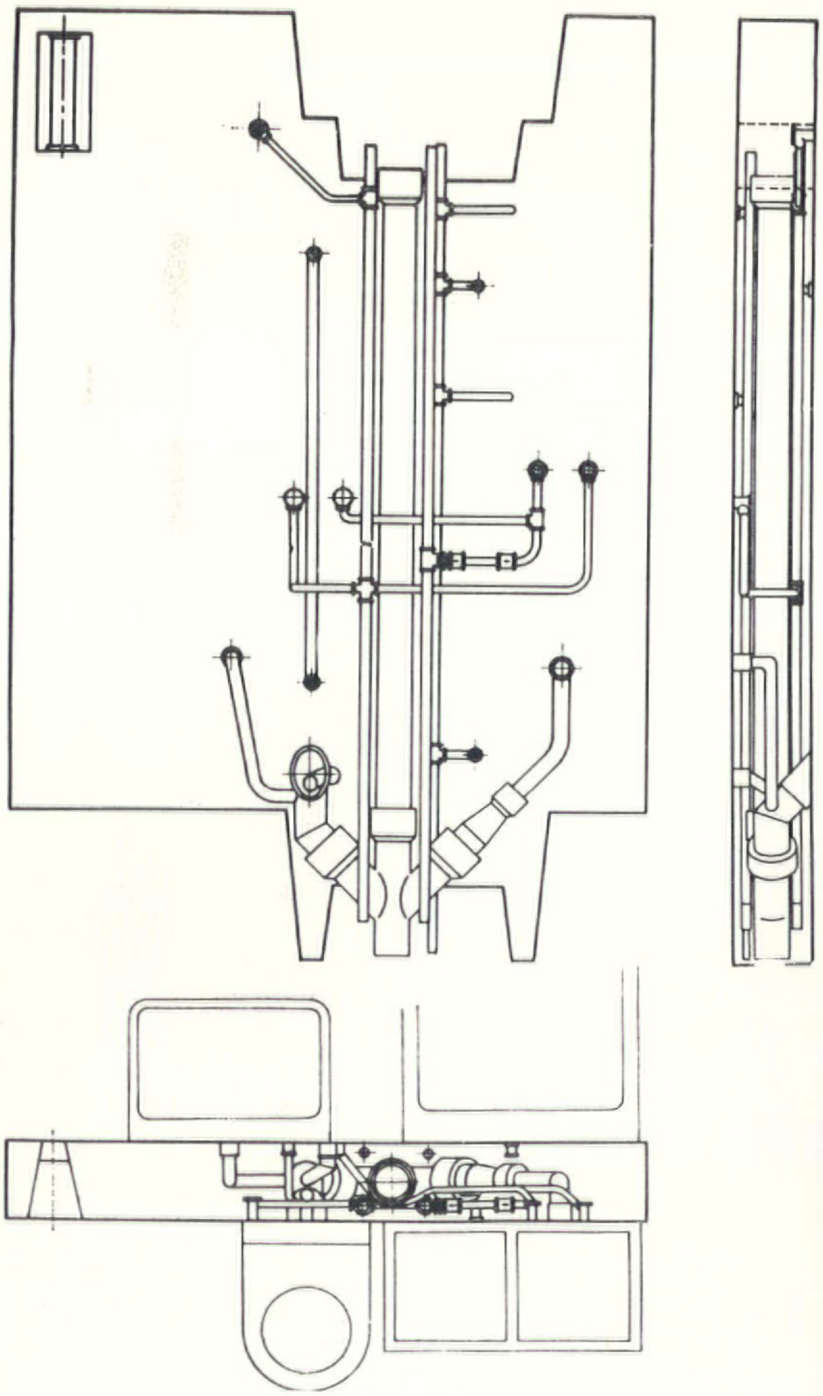
THE ESTABLISHED LEADERS IN TRANSLUCENT CEILINGS



Kitchen and bathroom unit, 14ft × 5ft, by Ralph Rapson and David B. Runnels



Unit designed by C. E. Elcock



Plumbing unit for multi-storey flats at Dunaújvátos A. Jakab, I. Somogyi and L. Egyedi

◁206

Ionel Schein's bathroom in 1965 for the *Salon des Arts Ménagers* and the unit by *Henry Dreyfuss for Monsanto's House of the Future* both demonstrated their debt to the philosophy of the Dymaxion Bathroom, but although professed to be designed for mass-production gave no indication of the manner in which this was to be achieved.

Similarly, *Alberto Roselli's* series of interchangeable bathroom fittings, designed in the same year for the Plastics Research Institute at Castellanza, provided a flexibility of arrangement with a latent potential for mass-production. They unfortunately made extensive use of fibreglass-reinforced polyester, a material not at that time susceptible to rapid high-volume production. (*AD* Feb. '66 page 105).

Failures

All the preceeding examples, with the exception of those benefiting from assured production runs during the Temporary Housing Programme, were either withdrawn from production after a short period or were never developed beyond the prototype or exhibit stage.

To summarize, the three main reasons for this lack of success were: failure to anticipate marketing problems; insufficient consideration given to the overall costing of the project and the installed price; lack of attention to the appropriateness of materials for the production processes.

Marketing problems generally arose from lack of flexibility of arrangement and insufficient output, interacting factors on opposite sides of the vicious cycle between which the manufacturer must choose a specific course.

The present

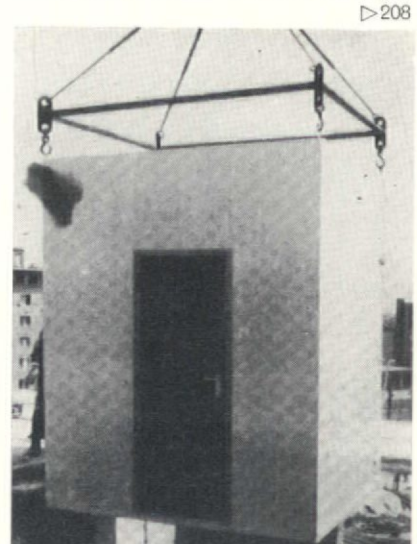
In recent years the leading developments in the production of plumbing assemblies and heart units have been taken by European countries. In Russia, the incredibly high volume of production guaranteed by state housing has resulted in acceptance of the large and heavy room-size units which prohibit plan variations. No cost comparisons are available (nor would in any case have meaning) but it has been claimed that for bathrooms of this type the site labour requirements are only 10 per cent of those necessary when all construction and installation is carried out on the site.

This type of unit has been in production in Sweden since 1957 but the cost tends to be high and precludes its use in low-cost housing. A similar type of bathroom unit, presumably intended for much higher quantity production, has now been introduced in Hungary.

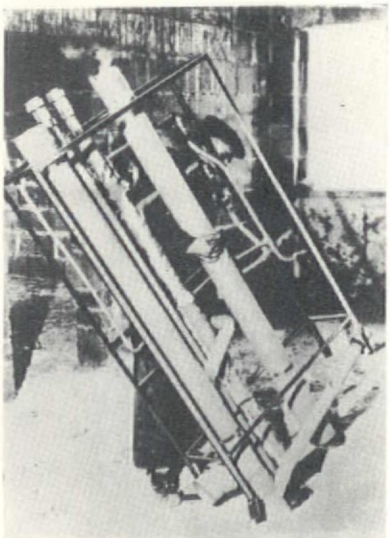
German, Swiss and French manufacturers appear to favour production of the plumbing cell and several firms have been able to sustain a reasonable output. In Britain the development of heart units is prone to a form of infantile thrombosis

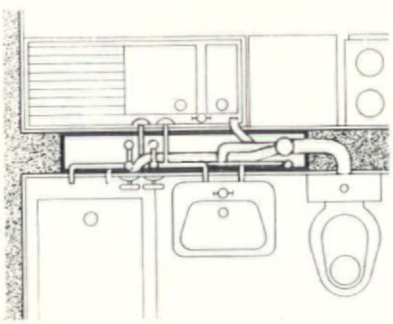
▷208

Installation block for flats at Dunaújváros being lifted

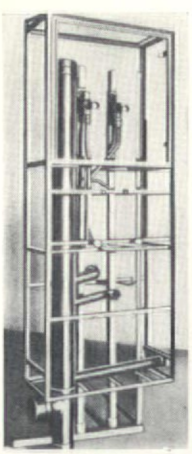


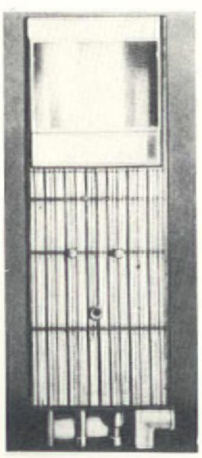
Concrete bathroom unit being placed in position, Budapest

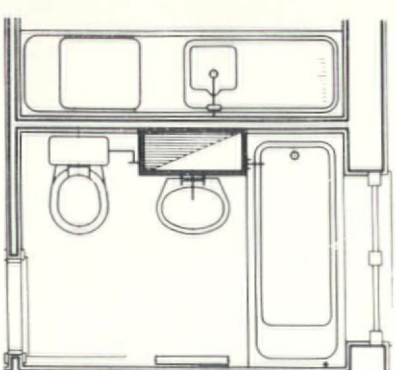




Plumbing assembly by Paul Ramm, Stuttgart. Pipes supplied in a steel angle frame, cast into concrete on site. (FBW)







Plumbing frame by Fa. Miller, made by Fa. Th. Möller, Dortmund. Site installation time 4–6 hours. (FBW)

◁207

with a high mortality rate, and few of the examples illustrated have ever been produced in quantity, or indeed, have survived development beyond the stage of the first prototype.

Design criteria

The manufacturer of a heart unit or plumbing assembly must at the outset define precisely the scope of his design, and determine the influence this design is likely to have on the surrounding areas of the building. Having done this the design process should commence with these areas. The research conducted on kitchen design has been well publicized and no manufacturers should lack the necessary information (although several examples reveal a very immature attitude). Guidance on the design of bathrooms, however, is not available. Research on user requirements, similar to that conducted in Denmark and Holland, has not been carried out in this country, and we are forced to fall back on the vague official recommendations given in the *Parker Morris* Report and *Design Bulletins: 6 and 8: Space in the Home and Dimensions and Components for Housing.* The latter, the most definitive, merely indicates the centres of outlets from fittings for pre-cut pipework, and the external dimensions of compartments for factory-produced room-sized units. In the absence of more definite information user studies must form an essential part of pre-design procedure.

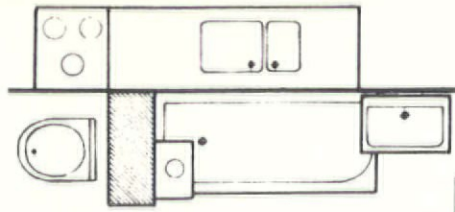
For assessment of the fabricated unit the following criteria can be applied:

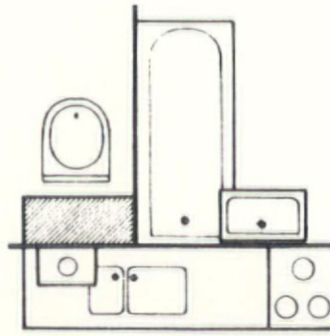
Aesthetics
It is important that the many elements to be incorporated are visually related and, when forming part of the installed unit, have a cohesive identity. In the case of a plumbing cell supplied without fittings the design of the assembly must permit an arrangement that is visually satisfying.

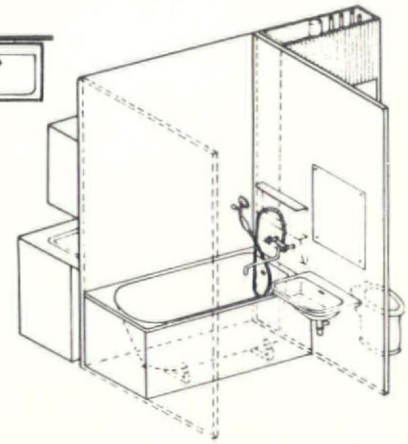
Ergonomics
The fixing positions for equipment must be located to permit positioning for a suitable work- or use-sequence, and if possible they should provide for alternative locations to suit a variety of plan arrangements. This applies particularly to the kitchen side of the unit where, in attempts to reduce the overall size of the package, manufacturers often reduce the length of the working surface below the acceptable minimum.

Economics
The factory-made heart unit cannot entirely eliminate site labour because not only must the final connections be made on the site, but also, in the case of the large and heavy units, additional labour must be employed for manoeuvring, locating and fixing. Furthermore, the transference of assembly work from the site to the factory implies the employment of more highly paid labour, which the production method must minimize to the greatest possible extent. To provide sufficient strength during transportation and handling, and possibly for self-support during erection, the factory product will often attract a higher cost for the materials which, together with the labour content applied to their fabrication, must be offset against other advantages. In this respect the two-storey unit sometimes compares unfavourably, requiring a fairly rigid frame to support the heavy items on the first floor section.
The items of equipment comprising the unit are usually standard products obtained from other manufacturers, and unless high discounts can be obtained from large orders the resulting costs for double transport and handling can weaken the viability of the project. Furthermore, when incorporated in a heart unit these items of equipment

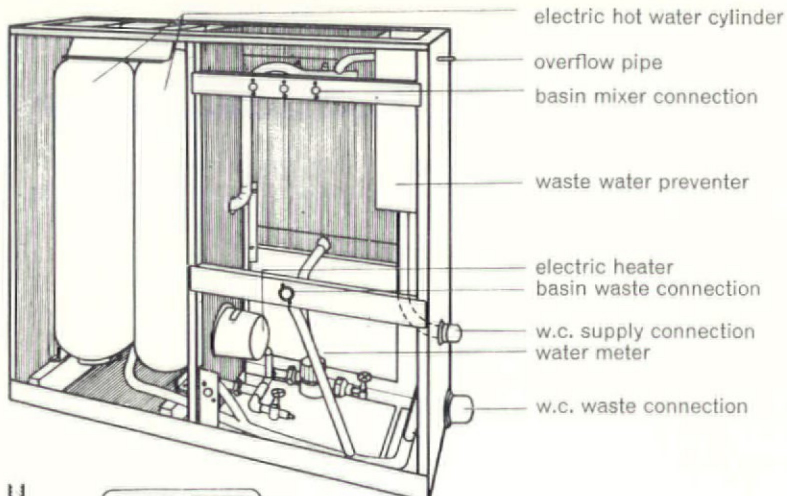
▷209

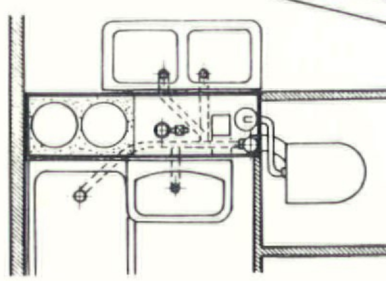




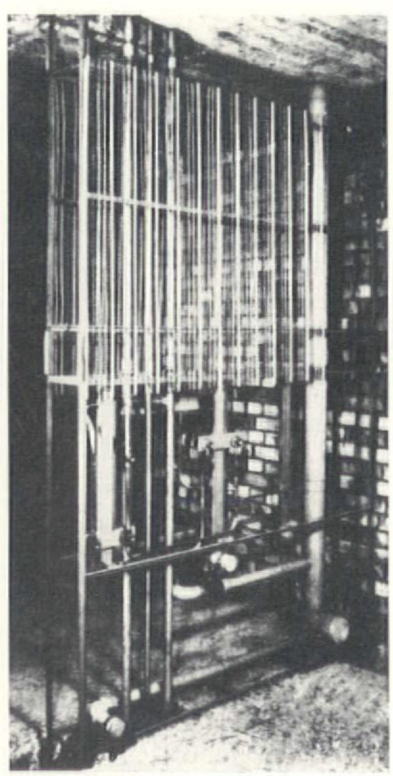


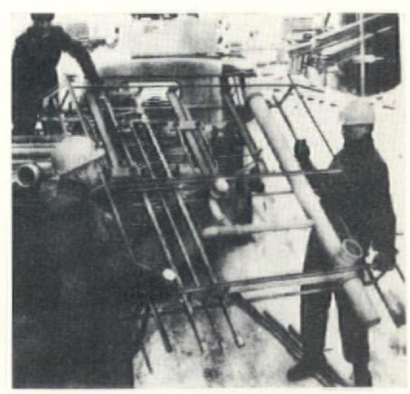
Plumbing unit by Titze-Stimmerling, German Academy of Building, Berlin. Steel-angle frame, supplied with dividing walls in a range of materials. (FBW)

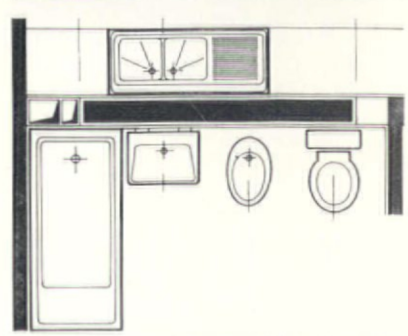




Plumbing unit designed by Twaroch, made by Erix-Installationsblock GmbH, Vienna. Electric heater and sanitary equipment included. (FBW)







'Sanbloc', plumbing assembly by Sanbloc-GmbH Installations-Fertigbau. (FBW)

PERMANITE protection

'Permalead' dampcourse

Hastings Grammar School, Sussex
Borough Engineer & Surveyor: E.O. Baxter, M. Eng., AMICE
Chief Education Architect: L.F. Morris, FRIBA
Project Architect: P.J. Kirkham, ARIBA
General Contractors: Messrs. Halse & Sons Ltd.

Situated in an area of 42 acres, which was formerly the school playing fields, the new Hastings Grammar School buildings cater for 570 boys.

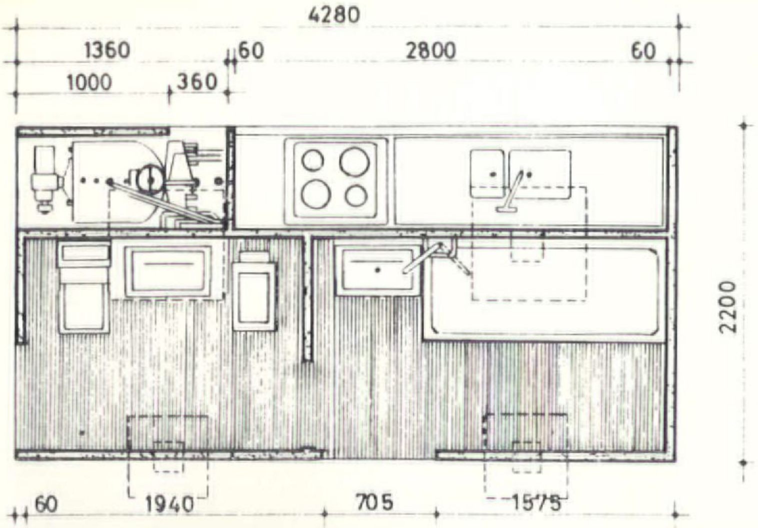
Because of the varied nature of the accommodation, three different systems of construction were used. For the gymnasium, changing rooms, administration block and kitchens, load bearing brick work was employed. For the long-span single and two-storey areas, steel frame construction was used.

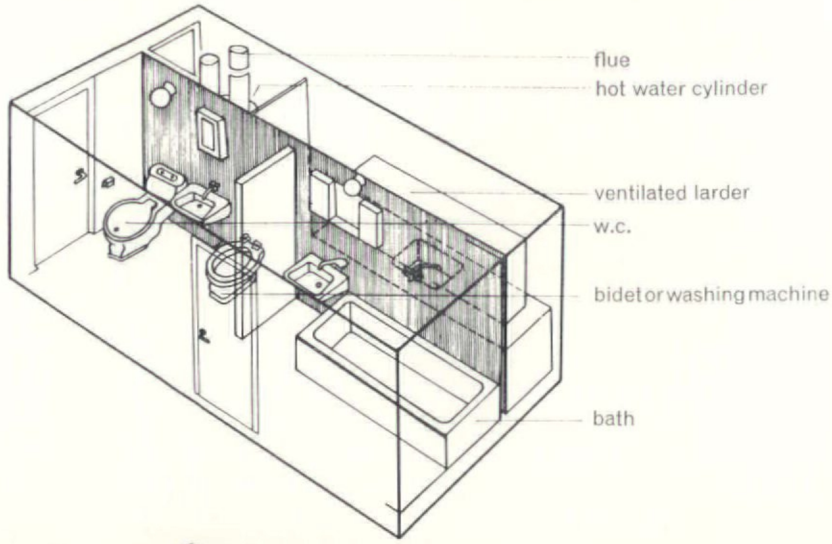
Care was taken in the choice of external colours to create the sense of unity necessary to an extensive scheme with such varying volumes. The white opening lights, black panels and grey facias help to achieve this unity—as do the white rendered panels. Stimulating colours were used internally in the communication areas. In the teaching and study areas 'low stimulus' colours of suitable reflection values have been used. Colours were chosen from the grey/brown, grey/yellow range.

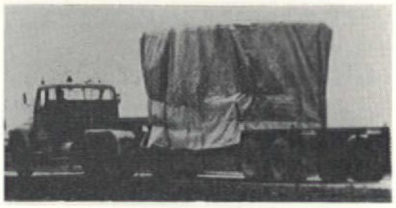
The damp-proof course selected for this interesting project was "Permalead" one of the range of D.P.C.'s manufactured by Permanite Limited. "Permalead" is a hessian based bitumen damp-proof course, with a lead core to provide an additional barrier to rising damp.

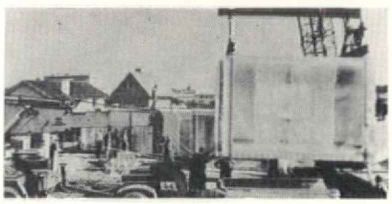
write PERMANITE protection into your specification

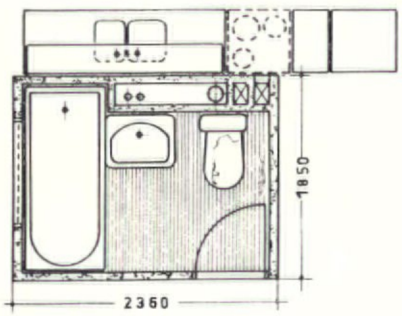
Further details of Permanite dampcourses can be obtained from the manufacturers: Permanite Limited, 455 Old Ford Road, London E3. Telephone: ADVance 4477 (20 lines)

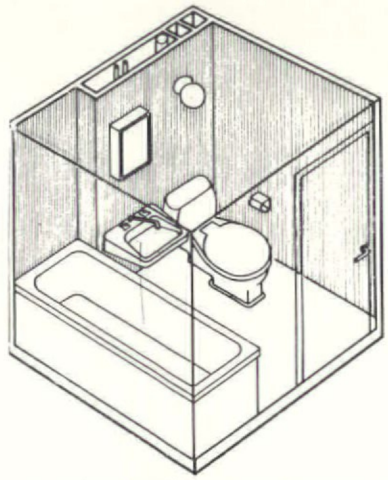












'Building heart' unit manufactured by Skanska Cementgjuteriet, Sweden. Reinforced concrete room unit containing kitchen, w.c., bathroom and heating chamber. Supplied complete with w.c., bidet, bath, two basins, sink, cooker, exhaust fan and cupboards. Weight 9 tons. Not intended for low-cost housing, but successfully marketed at the rate of about 600 per year for many years. Mobile loader and low loader necessary. A smaller version, the 'Kidney' has walls and floor cast on to steel plates subsequently welded together to make the room unit. (FBW)
Dimensions indicated in centimetres

◁208

cannot be nested, or otherwise transported economically. The total packaged unit is liable to be a very bulky, air-containing unit requiring a low-loading vehicle—the least economic combination for transport.

Function
The size of the unit and its comprehensive character make the function complex, and at this point the necessity for user studies becomes apparent. Apart from efficient mechanical function, the unit must provide the services in the positions where they are required, or might be required in an alternative layout. It must also provide for an arrangement of fittings that enables these services to be used in a convenient way. If the heart unit is to be considered as a universal facility it should provide heating for the house apart from the supply of hot water. Whereas the number of appliances supplied will not vary greatly for different sizes of house, the heat output requirements will vary considerably and the unit must be capable of accepting a variety of different sizes of heater.

Production
Unless a fairly high rate of production can be achieved and fullest advantage taken of machine techniques, the economic disadvantages of the factory product can be onerous. Nothing is gained by performing labours in exactly the same way as on the site yet using highly paid labour under conditions where overheads and operating costs are very much higher. The materials to be used must be chosen not only on the basis of the function they will be called upon to perform but also on their ability to contribute to a high rate of production. Materials requiring craft techniques are unlikely to be acceptable for even the smallest parts of the unit.

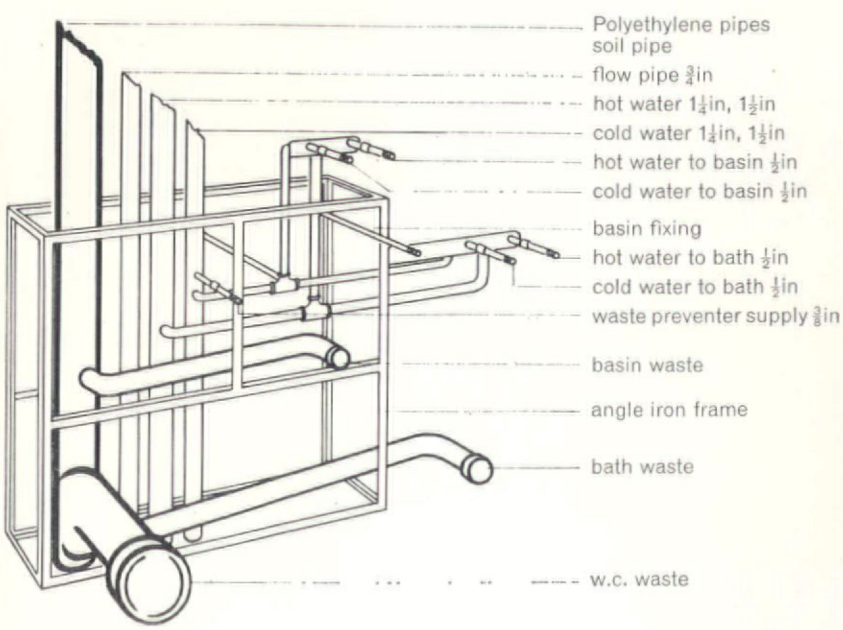
Marketing
It must not be assumed that, because there has been an interest in heart units for many years and that there is a generally expressed feeling that the need for such a unit exists, marketing will be an easy matter. Inability to asses the size and potential scope of the market—and in some instances, neglecting to consider it as a vital criterion—has been the cause of many failures in the past. This has been a fairly frequent occurrence in the USA and the sudden disappearance of some models in this country in recent years indicates that errors may have been repeated that could predictively have been avoided.

Mechanical performance
Consistent with the basic intention and by the very nature of the design, all pipework and items of equipment in the unit will be fairly closely grouped and losses through the system minimized. The assembly must satisfy the normal demands for hot water in winter and summer and be capable of accepting a suitable heating source for the entire house; the transmittance of sound and heat must be maintained at acceptable levels; all parts of the core must be easily accessible. It is unlikely that this criterion should present any design difficulties.

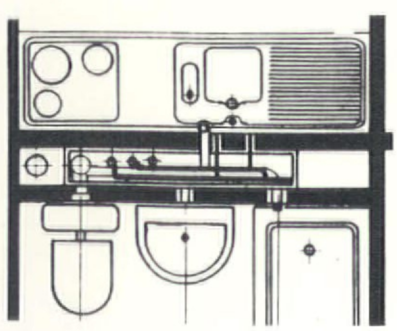
Structural performance
The heart unit as a fully self-contained item of combined equipment is primarily applicable to houses and therefore the demand will be predominantly for two-storey versions which suffer from a number of serious disadvantages: they normally require to be installed at an earlier stage of construction and may require protection if damage by following trades is to be avoided; they must provide a built-in structural support for the upper section; to achieve any acceptable degree of planning flexibility alternative versions must be available.
The back-to-back version for single-storey houses will obviously be cheaper to produce (and possibly to install) but the limited market will reduce production runs and limit the advantage to be taken of mass-production techniques.

Transport and erection
Generally speaking, the larger the unit the more difficult and wasteful it is to

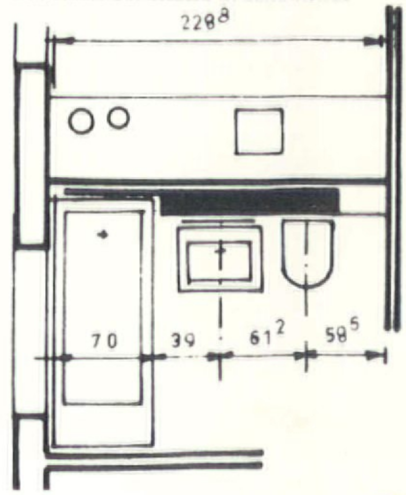
▷210



Left and below
Plumbing assembly designed by G. Togni for Manifattura Ceramica Pozzi, Milan. (FBW)



Plumbing assembly by Karl Bosche. Geberit-Armaturen, und Sanitäre Apparate AG, Überlingen. Flexible coiled pipe connectors to upper floors. (FBW)
Dimensions indicated in centimetres



LEA VALLEY KITCHENS FOR SALFORD RE-DEVELOPMENT

Fresh concepts in convenience and beauty for Salford's re-development plan include the superb Lea Valley Continental 21" Contract Kitchens.

Phases 2 and 3B of the scheme to be completed in April 1966 comprise flats, maisonettes and houses for the aged — a total of 99 dwellings — all to be equipped with this modern kitchen furniture.

Designed and manufactured by Lea Valley Joinery Ltd. — the units are of seasoned timber finished with exclusive MELAMITE, a durable satin smooth melamine surface. Here is the perfect kitchen equipment, produced for building developments where economy is of major consideration.

Architects and builders are invited to make use of our specialised services — layout suggestions and quotations supplied on request. Write now for colour brochure and further information.

LEA VALLEY JOINERY LTD

62 BILLET ROAD, LONDON E.17 Larkswood 1937 & 1944.

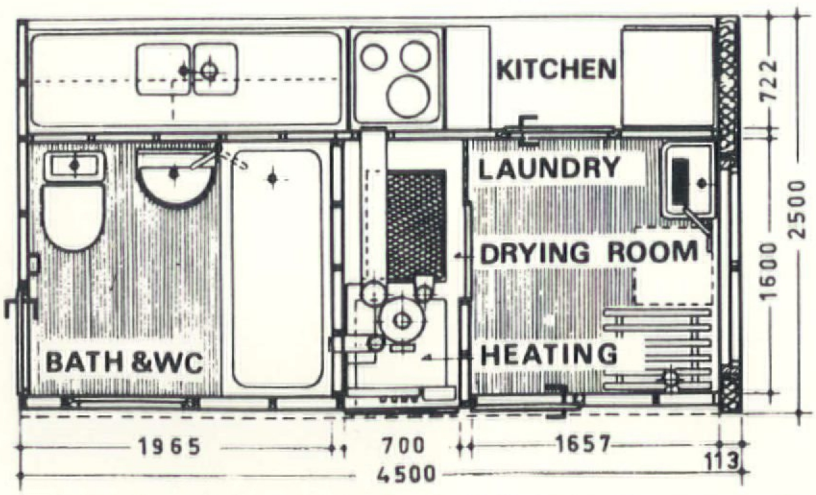
Lea Valley Continental 21" Contract Kitchen Units to be installed in Bury New Road Re-development, Salford City.

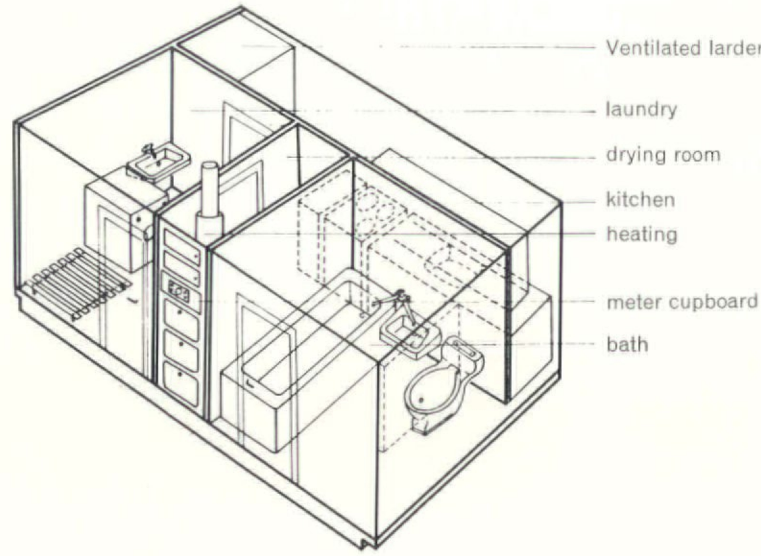
Engineer: G. Alexander McWilliam, B.Sc., M.I.C.E., F.R.I.C.S., M.I.Mun.E.

Architects: Cruickshank & Seward.

Quantity Surveyors:
Frank Hyams & Partners.

General Contractors:
Shepherd Taylor Ltd.





Interblock unit manufactured by Interpares AB, Hedemora, Sweden. Combined bath and w.c., separated kitchen and laundry, heating and drying room. Walls of timber framing and panels built on r.c. floor. Weight 3·5 tons, delivered on a special two-wheeled trailer fitted with jacks for off-loading. (FBW) *Dimensions in centimetres*

◁209

transport. Unless the scheme is a large one on which mechanical equipment is already being used on a reasonable scale, the same may be true of erection. The heart unit for a house will undoubtedly be the heaviest single item in the building—and probably the only one requiring heavy lifting gear for its erection. If installation of the unit is to be confined solely to those schemes sufficiently large to warrant the use of such equipment, then the market for the product will be considerably diminished. Alternatively, economic gains in the production process may be negated by high transport charges and the cost of the site equipment.
Apart from the broad general groupings outlined above, the designer of a kitchen and bathroom to be built in the traditional manner would consider, amongst others, the following detail criteria:
sound insulation
thermal insulation
water absorption
steam penetration
scratch and abrasion resistance
corrosion resistance
impact resistance
simplicity of installation
The designer of a heart unit for factory production must consider, additionally:
number, size and weight of components
feasibility of alternative arrangements
transport
erection
protection during installation
vulnerability after installation.

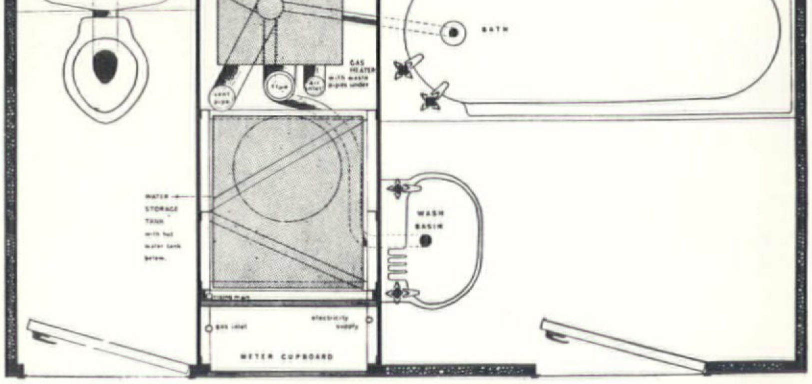
Manufacturers' approach

Obsession with a basic idea and an over-zealous enthusiasm may have blinded some manufacturers to the valuable records of past attempts. Most firms are reticent to acknowledge failures, and even less likely to publicize their reasons. This normally restricts dissemination of information on any product and limits its overall advancement. In the case of heart units much of this valuable material is already available, and even if accurate cost analyses are not published there has nevertheless been sufficient academic interest in the subject to expose the details of previous examples and the reasons for their failure—and in a very limited number of cases, their success.
Considering the number of occasions on which these factors have adversely affected the development of the product, manufacturers' attitudes to marketing and publicity are often naïve, and too frequently overlook the fact that there can be no mass-production without mass-marketing.
The confidence of the consumer in the product is undermined at the sudden emergence of a new version on which the veil is briefly lifted and then tantalizingly lowered. Designs in which all the factors contributing to success or failure have not been fully analysed are suddenly presented—and with equal swiftness withdrawn. This leads us to assume that no versions are available as ready-made standard products, and that most publicity material is intended to evoke interest, after which specific models are fabricated to order.
Most heart units presented to the market in recent years have concentrated on the mechanical aspects of the design; they have not produced particularly well integrated bathrooms and have rarely provided efficient working kitchens. Most manufacturers appear to have lost sight of the main objective—the fact that the services contained in the mechanical core are provided merely to feed supplies to these units, one factor amongst many to be considered if the bathroom and kitchen are to become efficient units, fully compatible with the functions for which they are intended and earning the right to be called the heart of the home.

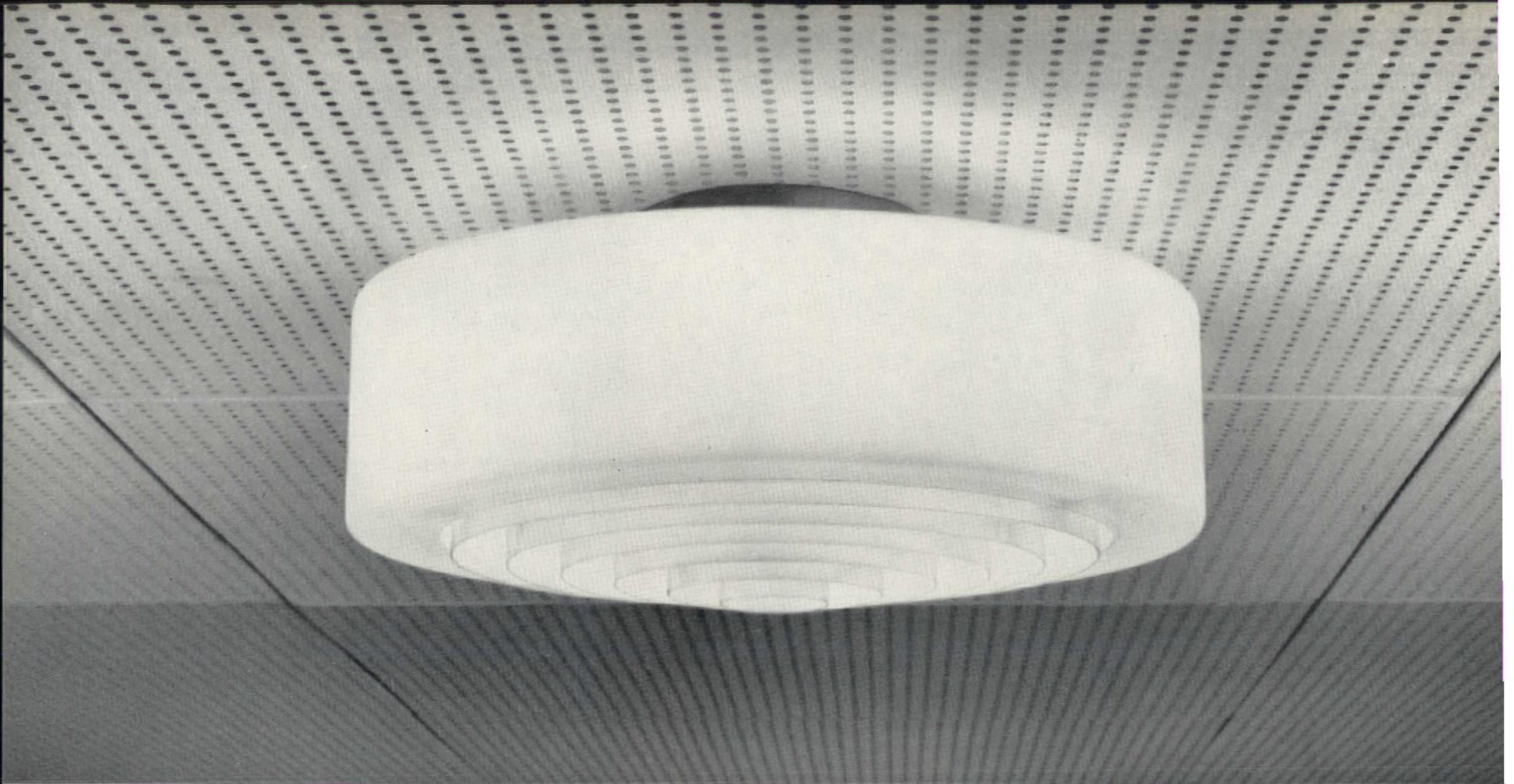
Criticism

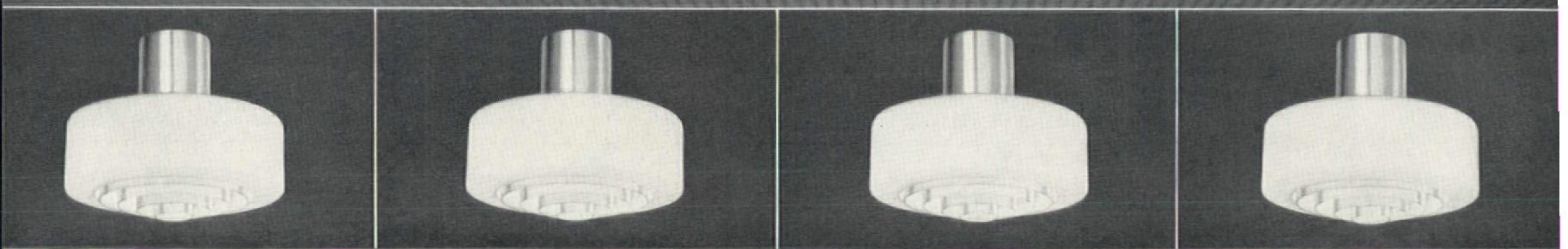
Before attempting to criticize the units available on the market it is perhaps necessary to question the motivation and ask ourselves whether those who specify or use the product actually require it in that form. Is the comprehensive all-purpose heart unit, with fixed positions for all fittings, better for our needs than a services supply and waste stack providing a variety of alternative locations? Or are we demanding a heart unit because we feel that this is the best way to produce an economic answer?
It is questionable whether a standard heart unit can provide sufficient flexibility of plan arrangement to secure the large market necessary to achieve significant price reductions, particularly when one considers its role as a major component in relation to the currently popular movement towards open systems.
We may subconsciously be attracted to the sophisticated ideals of the heart unit because it demonstrates a degree of organization of services that we are normally not accustomed to expect—but similar, and possibly improved, standards of refinement could be achieved for one-off versions if sufficient attention was given to their design. With no tangible evidence of the economic advantages of factory produced units at this stage in their development, there is a strong possibility that the well-designed purpose made component might be cheaper.
To assess the validity of the heart unit it is necessary to consider the characteristics of the two basic types in conjunction with the more simple alternatives:
Total assemblies. These are room-units supplied complete with all fittings and equipment pre-installed.
Plumbing cells. Pipework assemblies enclosed by facing panels to form a duct. If fittings and equipment are not installed at the factory (usually in a back-to-back arrangement) all supply and outlet points are provided ready for connection.
Pipework assemblies. Supplied as a framed unit ready for fixing panels. All connections are in position but fittings are not usually provided.

▷211

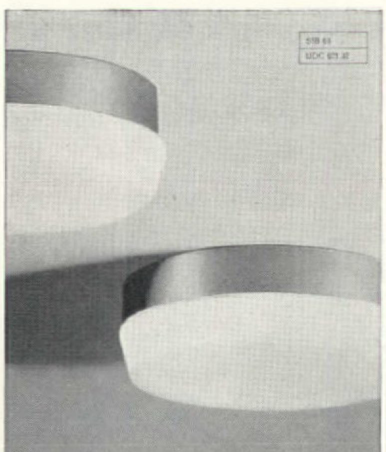


Arcon bathroom unit 1964. Designed for a Ministry of Housing 5M pilot scheme in Sheffield. 10ft 8in × 6ft 0in based on a 4in module. Weight 1¼tons. Frame of cold rolled steel sections with floor and wall sections bolted on. Skeleton timber frame faced with ¼in hardboard or plywood. Supplied with steel lifting tackle and jig. Off-loading time claimed to be three minutes; and connection of four services, 45 minutes





Louvred 1560 series ceiling 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

MA LIGHTING

Merchant Adventurers

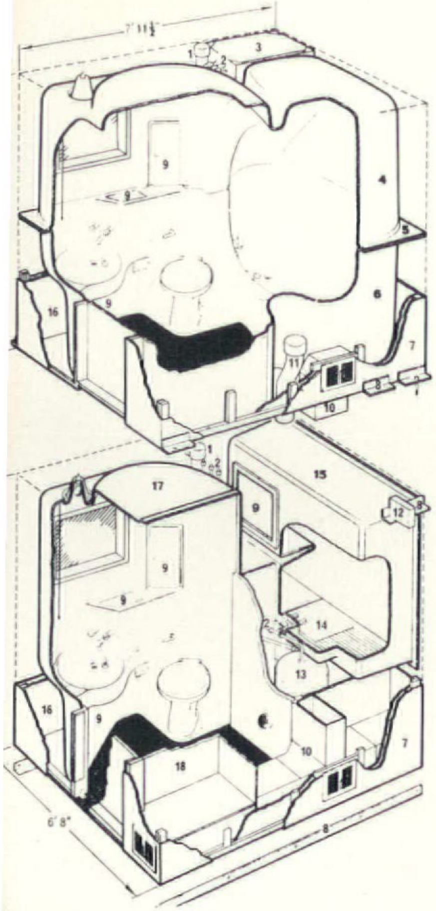
Head Office:
Feltham, Middlesex (FEL 3686)
London Showrooms:
231 Tottenham Court Road W 1

◁210

The more complex assemblies, particularly the large room-sized components are obviously only suitable for a limited range of plans and must be specifically designed for suitable projects. If used outside this context the limitations imposed by their use must be assessed and accepted at a very early stage. Performing such an important and complex function the larger units will tend not merely to influence, but rather to generate the design, and will exert a considerable influence on the plan form and very probably on the method of construction. The effect on kitchen planning can be disastrous, and most versions can be faulted in this respect. In attempts to produce compact units, the kitchen fittings are usually grouped along one wall, too tightly compressed to allow space for their individual functions and frequently poorly-related to work-sequences and storage spaces.

The smaller assemblies can be more readily incorporated in a greater variety of plan types. Those without fittings leave a wide range of choice for the user, but fixed positions of connections may necessitate adjustments for certain items and will dictate the general layout. However, no advantage can be taken of factory-made connections, and installing of equipment will attract site costs, although the fitting in position of the entire assembly is usually easy and can be carried out without special tools and mechanical lifting apparatus. Most versions are capable of being carried by two men and are small enough to be manoeuvred through the openings available during the later stages of construction.

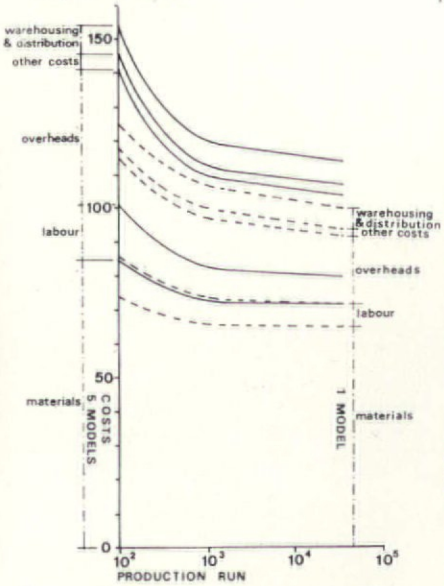
The economic basis for heart units is disappointing. As the number of industrialized building systems proliferates (variously estimated by *The Times*, 400; MOPBW, 300; the *Industrialized Building Annual*, about 260; NBA, 180) so the overall market for the highly specialized unit diminishes. This creates a situation more propitious for the smaller unit, but it appears that this increased demand is unlikely, with existing methods of production, to reduce costs appreciably. Nor does it appear probable, from the scant figures available, that even massive increases in output are likely to have a significant effect.



ICI Heart Unit, 1964. Interior surfaces of vacuum formed acrylic sheet moulding reinforced on the exterior with fibreglass-strengthened polyester. The two-storey unit has cloakroom and part of the kitchen below, bathroom above. The moulded frames are enclosed in timber framed plywood panels

Key

1	s.w.v.p.	10	warm air duct
2	h. and c. services	11	warm air flue
3	cold water tank	12	first floor joist
4	upper mould	13	h.w. cylinder
5	flange joint	14	sink
6	lower mould	15	kitchen unit
7	internal wall	16	external wall
8	m.s. angle	17	cloakroom
9	access panel	18	cupboard

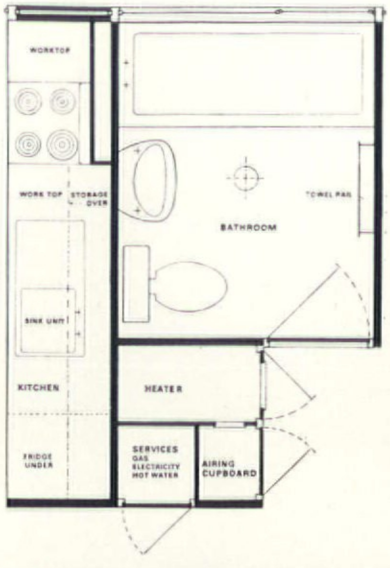


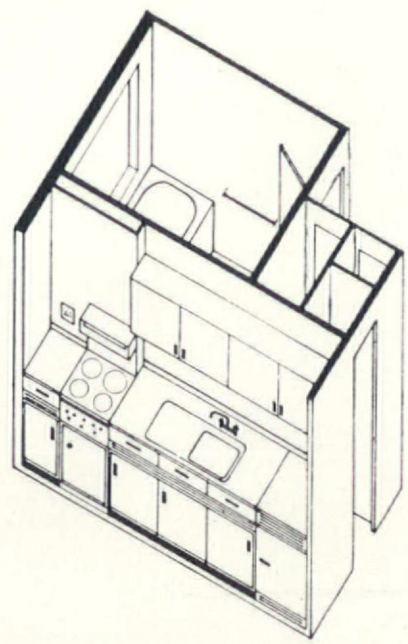
The graph above contains some revealing analyses of the demerits of the heart unit and carries certain indictments against methods of production:

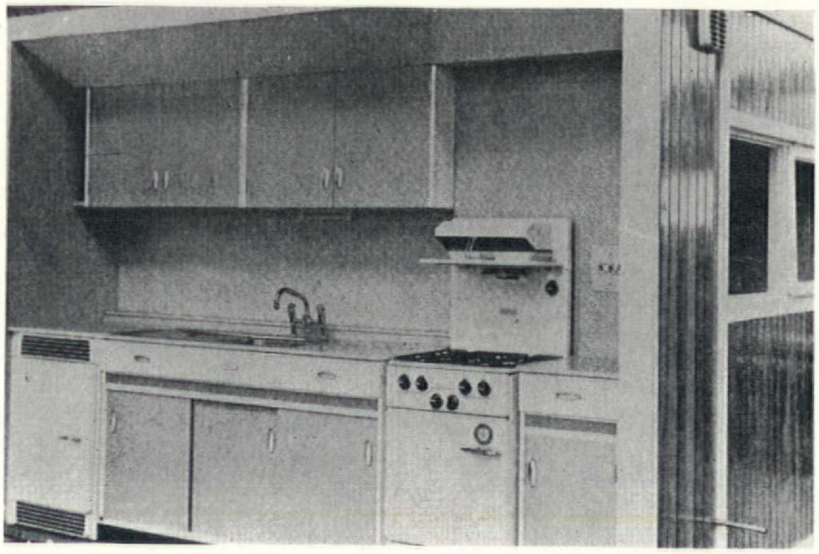
A large proportion of the cost is absorbed by materials—slightly higher than for construction on site because metal profiles are necessary for pipe attachment and cladding support.

The labour costs are clearly less than for site erection, but as equipment has to be

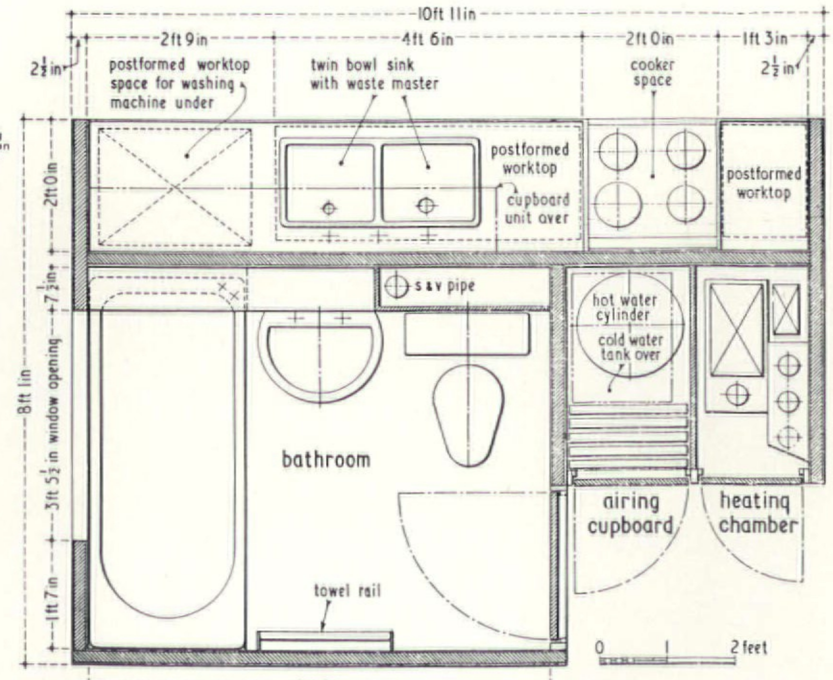
▷212







The Howard Heart Unit 11ft 1in × 8ft 3in, sandwich construction with fire-resistant phenolic foam core, PVC soil pipe, acrylic and FRP bath. Cupboards outside bathroom contain heating equipment for hot water supply and warm air circulation. Kitchen provided with extract fan



Planimec Unit, Sir Robert McAlpine and Sons Ltd. Timber floor supporting sandwich wall panels of melamine faced hardboard

hushed flush!

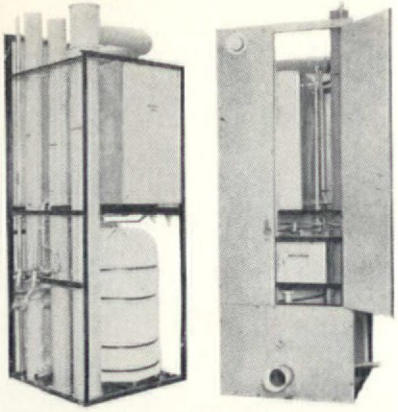
That's the "Lincoln" closet, with its double trap siphonic bowl, in action.
Designed by "Ideal-Standard". Specifically for the smaller bathroom. Hygienic: in non-porous vitreous china. Reliable: every bowl is test flushed before it leaves the factory. Wash down bowl if preferred. Close-coupled cistern. Choice of Corallin, Pearl Grey, Ming Green, Regency Blue, Ivoire de Medici, Primrose, Turquoise, Sky Blue or White.

"Ideal-Standard" and "Lincoln" are trade marks of Ideal-Standard Limited.

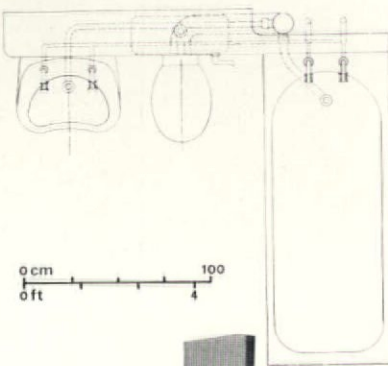
Write for further details to:
Ideal-Standard Limited, P.O. Box 60, Hull.

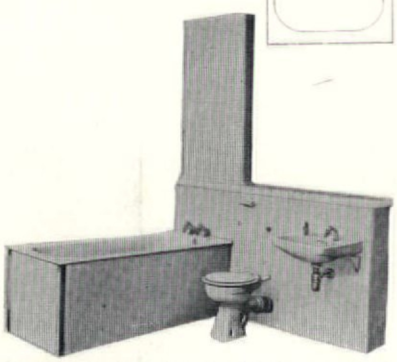
THE LEADERS IN HEATING AND SANITARY EQUIPMENT

IDEAL-Standard
LIMITED

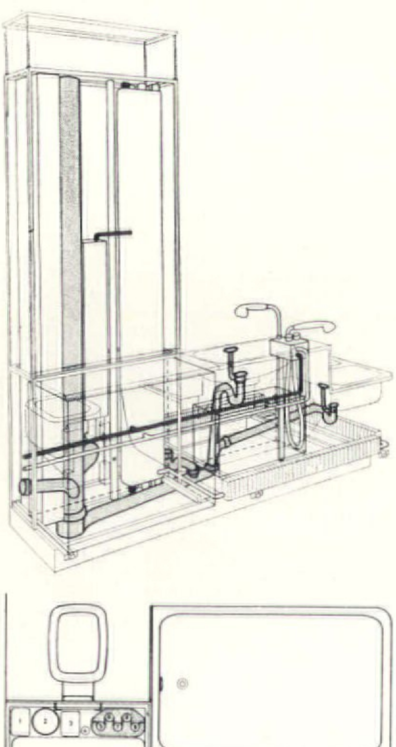


Mini plumbing and electrical services unit, 2ft 8in square, by Drake and Scull Engineering Co.





Redfroy Unit, Series 11g. Eastwoods Froy Ltd. Bath, basin and w.c. grouped around a duct 4ft 6in high, 24½in wide and 6in deep, clad in glassfibre



Student design for an island core unit. Walter Kiehlneker HfG Ulm.

◁211

installed on site, and all connections made, the true figure would be greater. The high value for overheads, which includes the cost of machines, factory space, running costs and labour, is to be expected. The production rate on site is far slower, but labour costs may be cheaper and as this type of unit can be installed at an advanced stage of construction, weather presents no problems. Overheads on site would be less.

Warehousing and distribution costs are concomitant disadvantages of the factory-made product and frequently include double-handling and transport charges.

The production method shows that an increase in production from 1000 to 40,000 units permits a totally disproportionate decrease in cost of labour and a startingly insignificant decrease in overheads per unit. It is hardly conceivable that this production increase should not pass the point where improved techniques or more advanced machines would increase the slope of the graph. Furthermore it is difficult to understand why five models with a total combined output of 40,000, averaging 8000 each should cost more per unit than one model at 1000 off.

The future

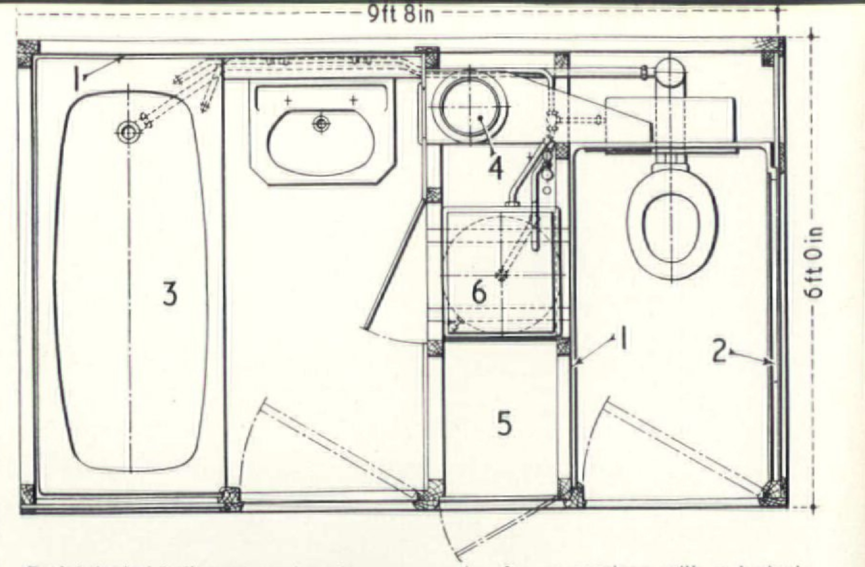
When the Whittingham and Mitchel bathroom was being developed it was estimated tooling costs might reach £200,000, but that this could be justified by an annual production of 12,000 units at £500 each, producing a turnover of £6,000,000. This is perfectly true—but what if sales were only 6000 units a year? —or 600? The not inconsiderable investment of £200,000 represented merely tooling costs, and excluded general overheads, materials, labour, distribution etc. The total investment would be very great indeed—far too large a risk.

A recent study compared a conventional bathroom equipped to Local Authority standards, costing £240, with a simple prefabricated unit using equivalent fittings but with improved finishes. The factory-made article, based on quantity production (whatever that might mean) cost £275 to produce, exclusive of manufacturers' profit, distribution and installation costs. The slight advantages offered by the prefabricated unit do not justify the wide gap that exists between these two figures which could only be closed, at great risk, by increasing production on a large scale.

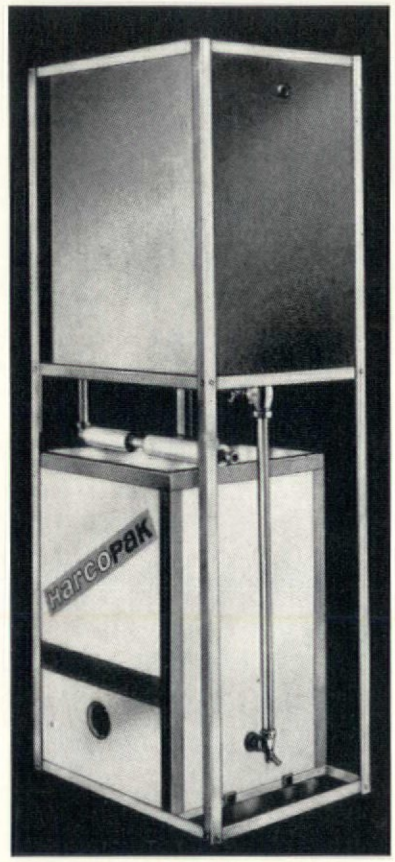
The next stage in the development of the heart unit is obscure. Costs cannot be reduced until production is increased; increased production means standardization and lack of flexibility; lack of flexibility means a smaller market.

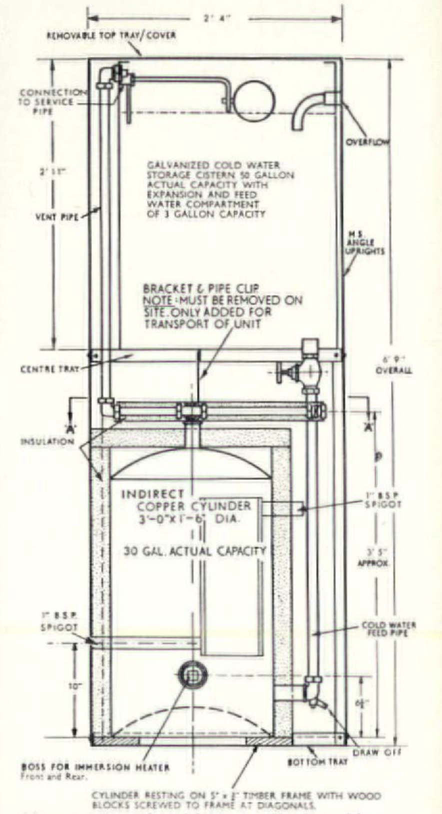
Having started with the basic concept of a mechanical core in which the pipework assembly is organized for supply and waste fittings is the primary aim, we have now reached the stage where we are considering the installation of units weighing several tons—an unprofitable pursuit unless all other units of the house are organized on the same scale.

Perhaps we should re-examine our intentions. The basic initial consideration is to reduce the amount of labour spent on the complicated connection of pipework on the site. Surely our technological research should be directed to this problem at the source. Much of the complexity of making connections is derived from the rigid form of the pipes. We need flexible piping to which connections can be swiftly and cheaply made. The heart would then be supplied with an arterial system to which the precordial units could be attached at any time in any variety of positions. The problem should not be too difficult. After all a car radiator hose contains hot water under pressure and can be fitted in a matter of minutes using two inexpensive clips.

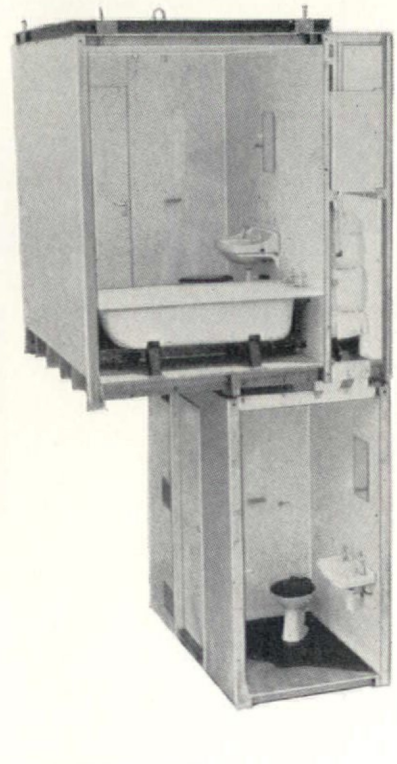


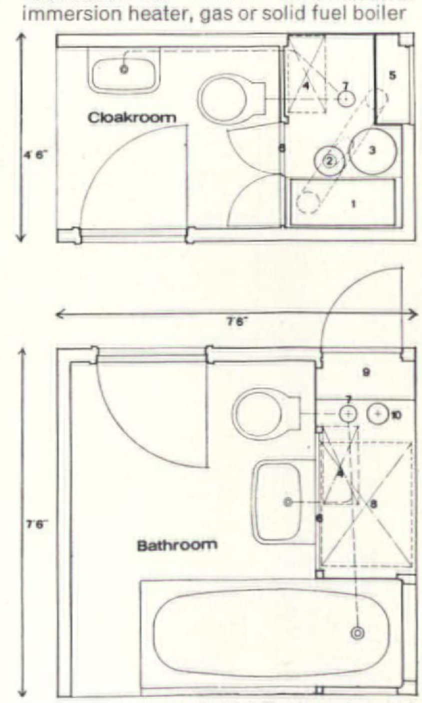
Prefabricated bathroom produced as an exercise for comparison with a typical Local Authority bathroom, costing £240





Harcopak plumbing unit by Harvey Fabrication Ltd—suitable for an electric immersion heater, gas or solid fuel boiler





Heart unit by Courtauld Engineering Ltd—upper and lower elements can be used together or separately

Trade notes

Alexander Pike

To obtain additional information about any of the items described below, circle their code numbers (K1, K2 . . . etc.) on the Readers' Service Card inserted in this magazine.

K1 Warning kerb 1

The Longford Midland Concrete Company Ltd., Bedworth Road, Coventry

The Longford Fog Warning Kerb is an hydraulically pressed concrete block, 10in wide, 3ft long and either 5in or 6in deep, with a transverse pattern on the surface, designed to provide an audible and visible warning of the presence of the road edge under conditions of fog and rain.

K2 High-strength lightweight blocks

The Lignacite Group of Companies, 119 Parkway, London, N.W.1

Special Lignacite lightweight concrete blocks are now available for the loadbearing inner skins of cavity walls to buildings more than two storeys high.

K3 Protective coating

Porce-Master Chemical Company, 261 Goldhawk Road, London, W.12

Claimed to be impervious to water, oils, petrol and many chemicals, HB.70 is a tough protective coating based on synthetic resins which can be used on wood, metal, plastics or concrete.

K4 Tube clamp 2, 3

Tebrax Ltd., 161 Borough High Street, London, S.E.1

For the fabrication of tubular assemblies where other types of connector would be visually unacceptable, the Triclamp consists of a pair of aluminium alloy discs held by a screw and nut.

K5 Fluorescent lighting fittings 4

Courtney, Pope (Electrical) Ltd., Amhurst Park Works, London, N.15

The new Gold Medal range includes one and two lamp fittings with a prismatic diffuser on the underside designed for low-brightness, glare-free lighting at high efficiencies. Available in 4, 5 and 8ft versions.

K6 Electric warm air unit

Falks Ltd., 91 Farringdon Road, London, E.C.1

The Electricaire centrally-sited warm air unit for whole or partial house heating is available with alternative elements rated at either 6·3Kw or 8Kw. Running costs expected to be £42 to £50 a year—claimed to be 15 per cent lower than that of a comparable gas installation.

K7 Combined shaving socket and light

H. H. Electrical (London) Ltd., 216 Kensington Park Road, London, W.11

A combined fitting incorporates a 60w opal strip lamp with a transformerized shaver-socket, both operated by a single cord-operated switch. Size $15\frac{1}{2}$in × $3\frac{1}{4}$in × 2in. Price £5 5*s*.

K8 Solar controlled venetian blind

J. Avery & Co. Ltd., Sunblind House, 82–90 Queensland Road, London, N.7

Slats are tilted by a motor connected to an automatic control box. This is activated by a photocell when the light intensity outside the building reaches a pre-set value. The cell, $1\frac{3}{4}$in diam, is mounted externally and can be used to actuate banks of up to 30 blinds.

K9 Ceramic fireclay sinks 5

Armitage Ware Ltd., Armitage, Staffordshire

A new range of kitchen sinks, with a tough glaze claimed to be completely craze- and scratch-proof, is available in white and six colours. An integral tidy compartment is combined with an easily cleaned overflow. Sizes are 42in × 21in and 63in × 21in.

K10 Foil ceilings

The Expanded Metal Company Ltd., Ashburton Grove, London, N.7

The Expamet Dryspan ceiling consists of a PVC based foil, impervious to stains and requiring no decoration, tensioned to battens fixed to the wall surface. Installation in panels up to 30ft × 20ft is claimed to be extremely rapid. Cost, approximately 25*s* 0*d* per square yard erected.

K11 Square light

Crouse-Hinds, 7th North Street, Syracuse 1, New York, USA

Asymmetrical reflectors, intended for floodlighting and car parking areas, but suitable for other locations, project light in squares, giving the same intensity of lighting at the edge of the square as at the centre.

K12 Plastics consultancy

Gilbert H. Harris, 142 Church Hill Road, Cheam, Surrey

Specialist technical advice on the uses and properties of plastics and rubber.

K13 Solid core door

The Merchant Trading Company Ltd., Adrienne Avenue, Southall, Middlesex

The Metco Polyport door comprises a solid core of chipped deal, pressed to form a homogenous construction, faced on both sides with a layer of PVC or linoleum, pressure bonded. Sizes 6ft 6in × 2ft, 2ft 3in and 2ft 6in. Nominal thickness, $1\frac{3}{4}$in.

K14 Earthenware hexagonal floor tiles

Les Produits Ceramiques de Maubeuge, BP 80, Maubeuge (Nord) France

In hexagons measuring approximately 2in across the flats and $\frac{1}{4}$in thick, Antique blend tiles of matt-vitrified earthenware are supplied in factory-cemented plaques about $2\frac{1}{2}$ft^2 in area, containing a mixture of different shades of red.

K15 Combination gutter, fascia and soffit

Vectis Laminates Ltd., Three Gates Road, Cowes, Isle of Wight

A composite unit consisting of a $3\frac{3}{4}$in gutter, $5\frac{1}{2}$in fascia and $10\frac{5}{8}$in soffit made of glass-fibre-reinforced polyester. Available in lengths up to 25ft in a wide range of colours.

K16 Curtain track

Antiference Ltd., Bicester Road, Aylesbury, Bucks

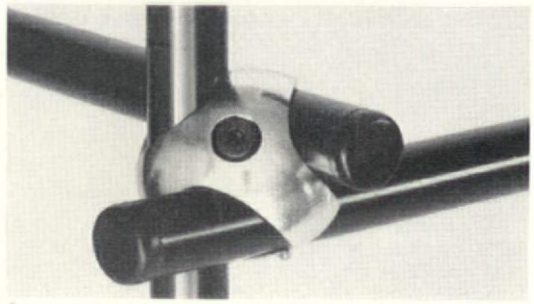
The Kirsch Architrac range of twin channel aluminium curtain tracking has ball bearings fitted to all rollers and pulleys. Maximum lengths of 16ft for one-way draw, 32ft for two-way draw and 64ft for multiple draw.

K17 Touch-dial telephone 6

Modern Telephones (Great Britain) Ltd., 90 Tottenham Court Road, London, W.1.

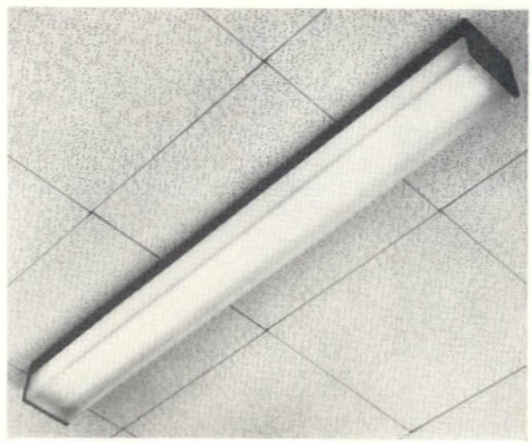
The electronic touch-dial telephone features 10 numbered keys instead of the conventional dial, and it is claimed that transistors and printed circuit connections give great reliability. The instrument can be connected to any private automatic exchange.

1

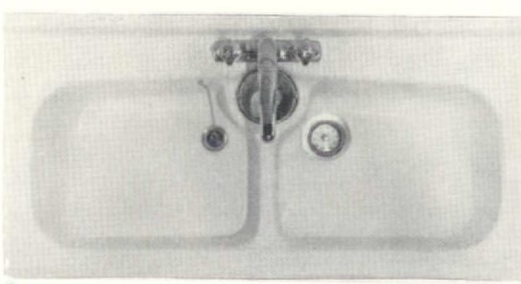


2

3



4



5

6

"Don't just talk about woodgrain laminates. Show me some that really look like wood..."

The professional decorative laminate

So we did (and these are only a few of them).

You could check any of the woodgrain samples above against the corresponding natural wood and find a remarkably close match. Arborite woodgrains are acknowledged the most technically perfect in the business. And you can have any of our wide range of woodgrains in texture finish, which gives them a surface close in 'feel' to natural, untreated wood.

Over 300 colours and patterns. 51 subtle plain colours (41 of them exact or close matches of B.S. specifications). Plain colours are difficult technically. Must be absolutely flawless. Only Arborite go to the lengths of offering so many.

Texture finish in all colours and patterns including woodgrains. Professionals who specify large areas of wall cladding are sometimes shy of high-gloss surfaces. Obviously. Reflected light plays unsightly tricks. Texture finish gives the pleasing non-reflecting surface they want. And only Arborite can give it in any colour or pattern they want.

Twin Trim for 'invisible' joints and corners. Familiar aluminium extrusions become exclusive to Arborite when coated with a matching laminate. Cove, corner, counter-nosing, cap and divider profiles can match many colours and patterns.

Postforming grade — curves as small as $\frac{3}{8}''$ inside radius. Controlled application of heat needed . . . but what a wonderful advance in laminate techniques for contoured working surfaces and other fittings involving small radius bends.

Solid grade Arborite—practically a new material in itself. Exceptionally strong and rigid. Solid thicknesses of Arborite up to $1\frac{1}{4}''$ are in use as laboratory bench tops, shower cubicles or window sills, partitions etc. Only Arborite offer you Solid Grade.

What else can we do? Apart from these special features, Arborite meets all the normal specification needs. High gloss and furniture finish (matt) as well as texture. Variety of thickness grades from $\frac{1}{32}''$ to $1\frac{1}{4}''$. Normal bending grades for $3''$ radius curves upwards. Standard sizes $10' \times 4'$ and $8' \times 4'$ with others, including $12' \times 5'$, available. Edge Trim—flexible strips of bending grade Arborite for neat edging.

Technically minded—technical service. Just as we control the quality of Arborite at every stage by expert laboratory work—so we like to help you control the quality of your installation. From the design to the finished job, just call our technical service whenever needed.

Arborite is in business to do more for architects than any other laminate can.

ARBORITE

® Trade Mark Registered

Arborite standard grade ($\frac{1}{16}''$) is tested and approved by BSI to BS3794

A DOMTAR COMPANY

Send for your Arborite manual and samples

Arborite Limited, Bilton House, 54/58 Uxbridge Rd., Ealing, London W.5. Telephone: EALing 0116

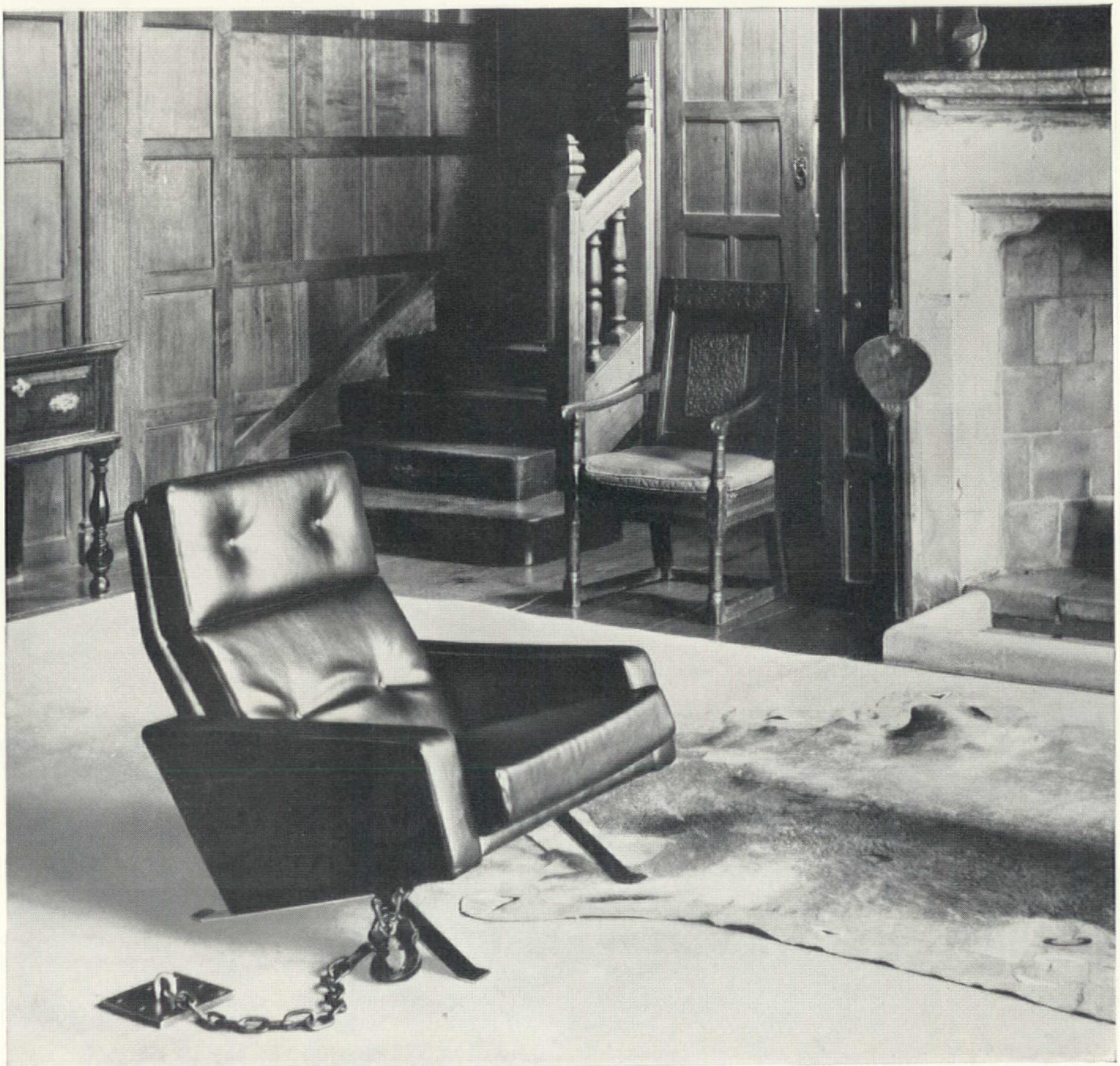
Name..........

Company..........

Address..........

....

Please send me Arborite literature and samples AD/W



Wrighton Californian Contract Kitchen Keyed to Today's Living

Wrighton's Californian Contract range of kitchen furniture strikes the perfect balance between high quality and moderate cost. Distinguished design and modern production techniques combine practical features with lasting beauty. The exclusive Decpol high-gloss polyester finish comes in a variety of delightful colours. Eastwoods Froy Limited, specialists in kitchen planning and Wrighton distributors, will supply colour brochures, suggested layouts and quotations on request. Architects and builders should contact Eastwoods Froy at the address below:

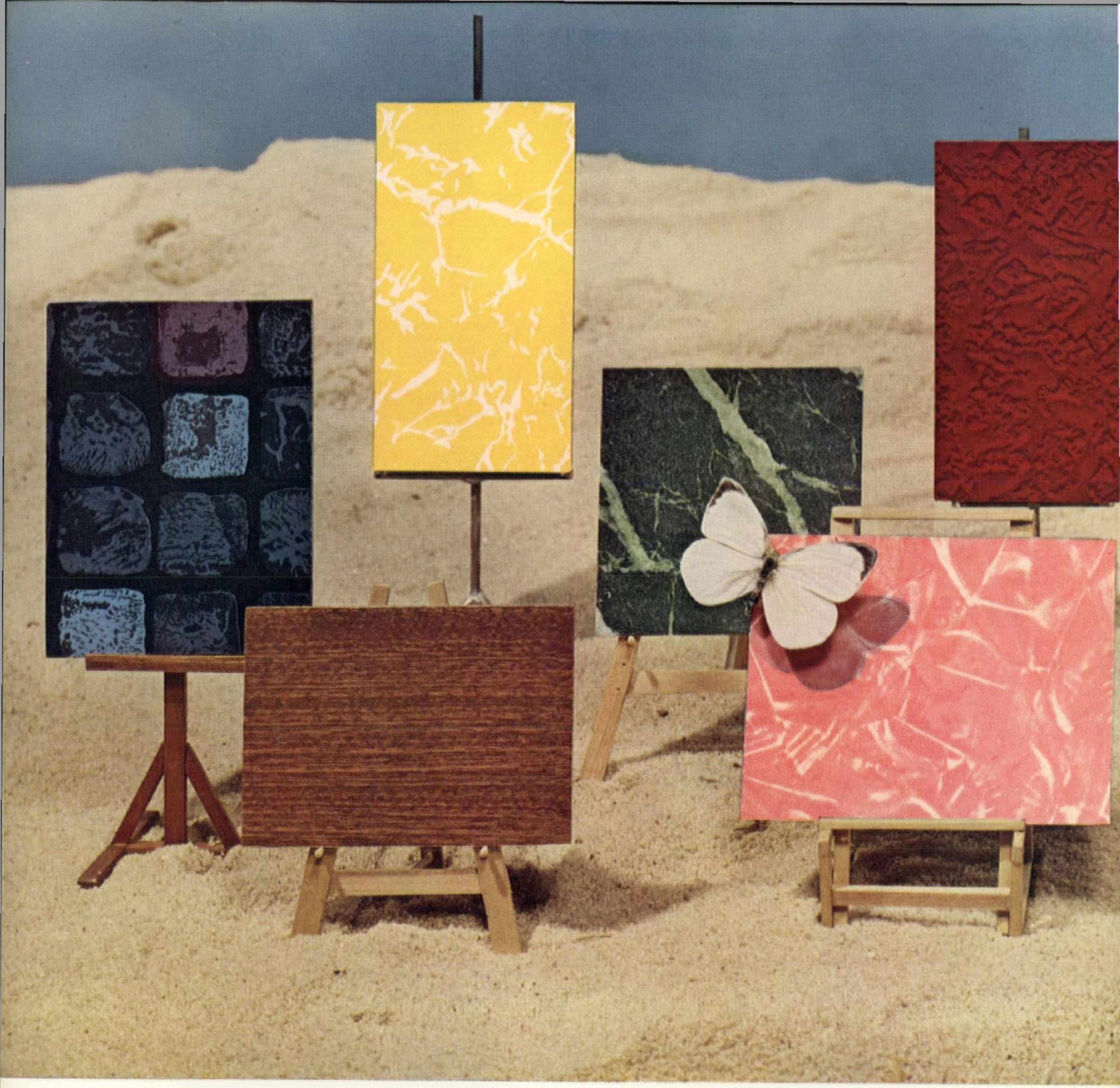
EASTWOODS FROY LIMITED

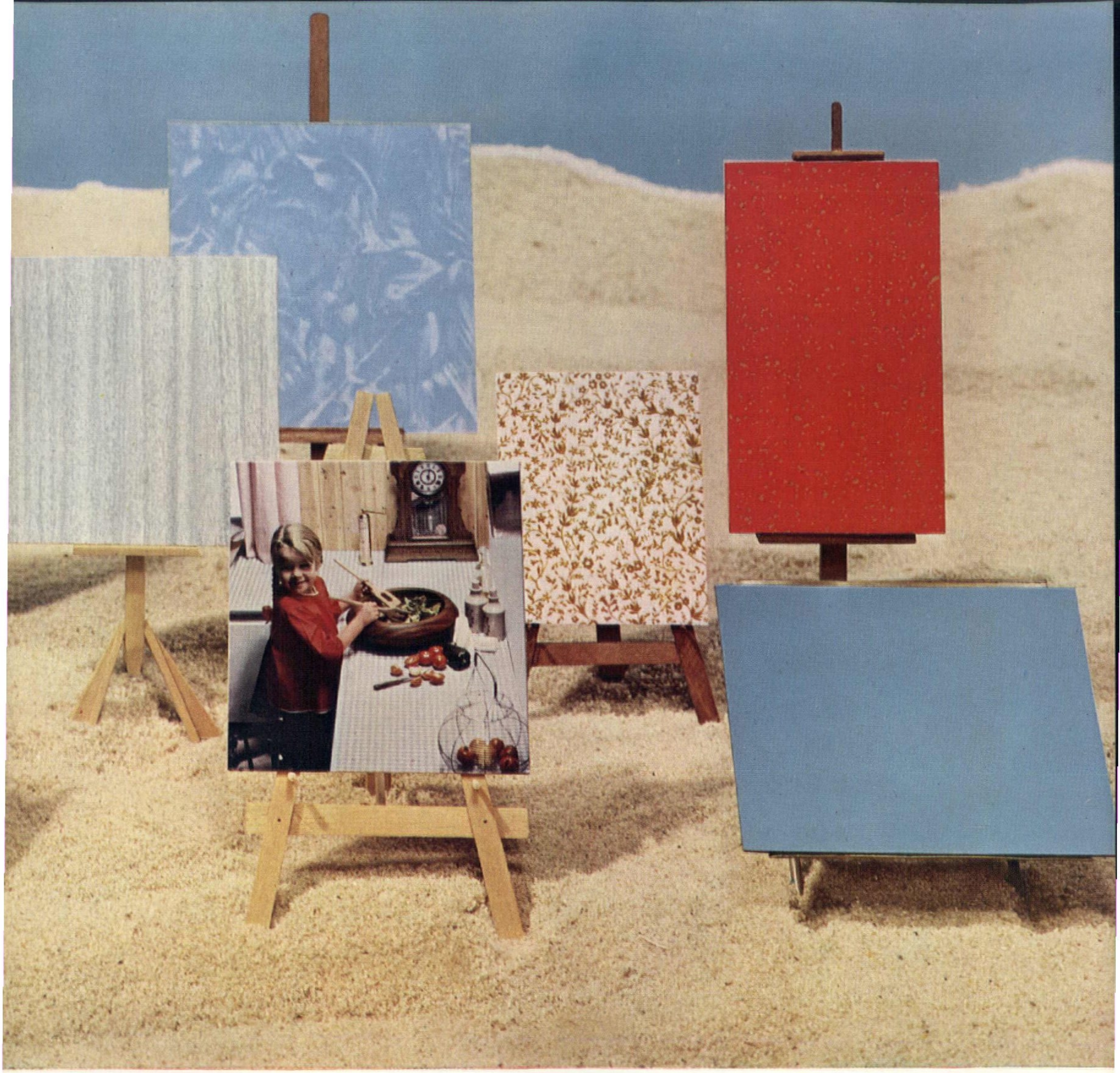
A Member of the Redland Group

WRIGHTON

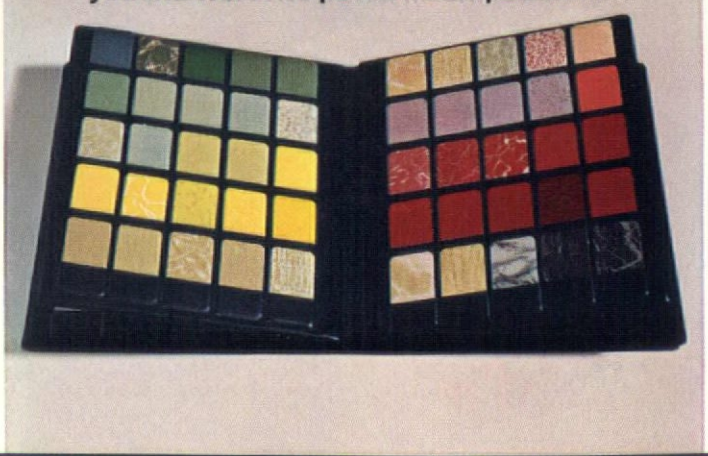
National Sales Office and Architectural Showrooms
64/66 King Street, Hammersmith, W.6

Showrooms and Warehouses throughout the country





Ask our technical representative to show you the Warerite pattern compendium



Only Warerite decorative laminates offer architects so many advantages. A wide range of exhilarating colours and designs *and* a planned variety of grades and thicknesses. Warerite has a tough super-hard melamine surface too, that will stand up to years of hard wear without losing its handsome finish. On any consideration ... aesthetic, functional or economic ... Warerite is the best surfacing material of its kind.

Write for technical data and colour brochure to the manufacturers: Bakelite Limited 12 18 Grosvenor Gardens London SW1 A BXL COMPANY

WARERITE

THE BEST OF THE DECORATIVE LAMINATES

W412

A proud nation shows its achievements to the world

Forth Road Bridge
(Built in partnership with Sir William Arrol & Co. Ltd., and The Cleveland Bridge & Engineering Co. Ltd.)

Birchenough Bridge

in a variety of interesting ways. Dorman Long has built many of the world's great bridges, some of which are important enough to be commemorated on stamps. Used in thousands, even millions,

SYMBOLS of NATIONAL PRIDE

Marshal Carmona Bridge
(formerly the Vila Franca Bridge)

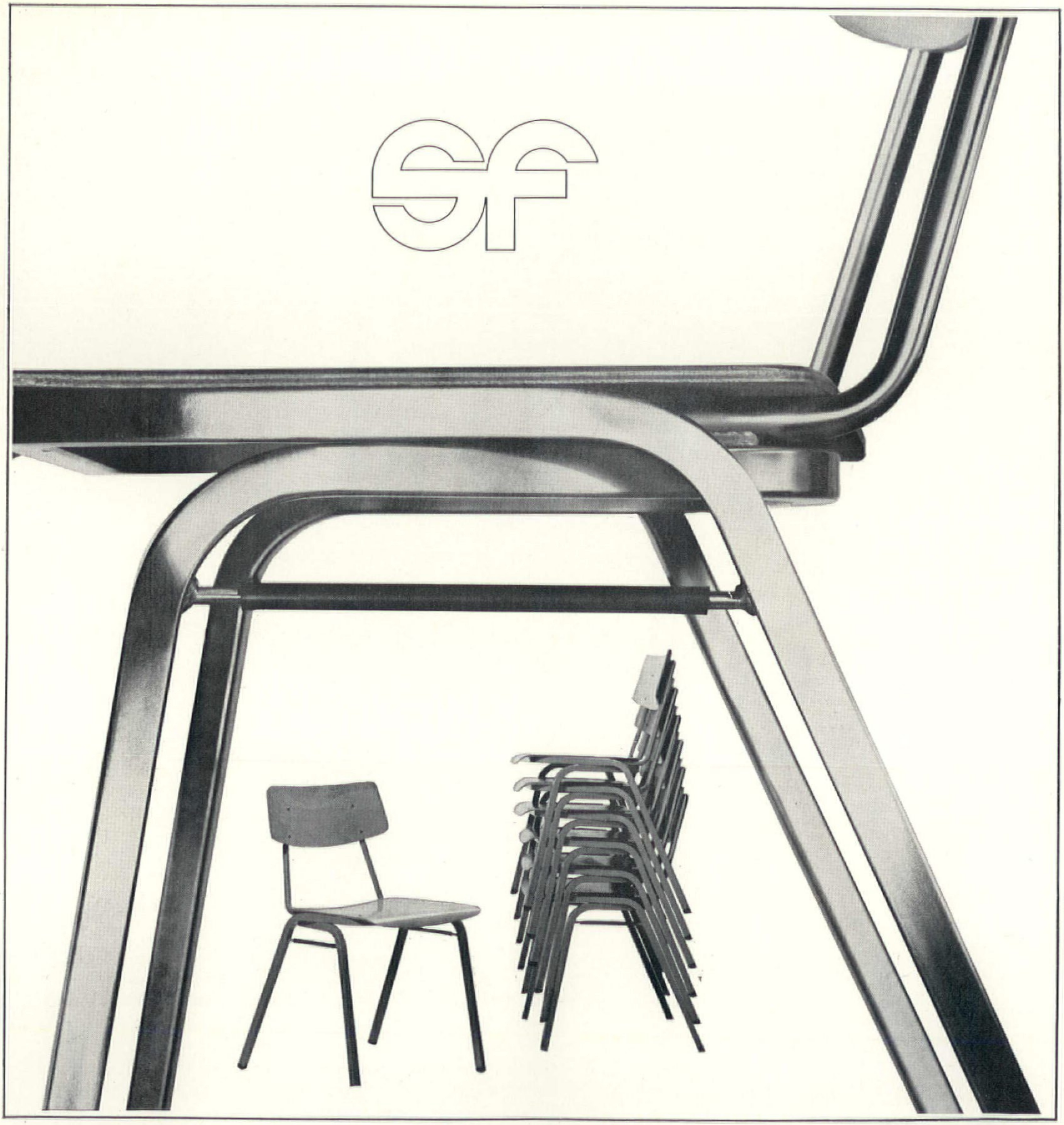
Sydney Harbour Bridge

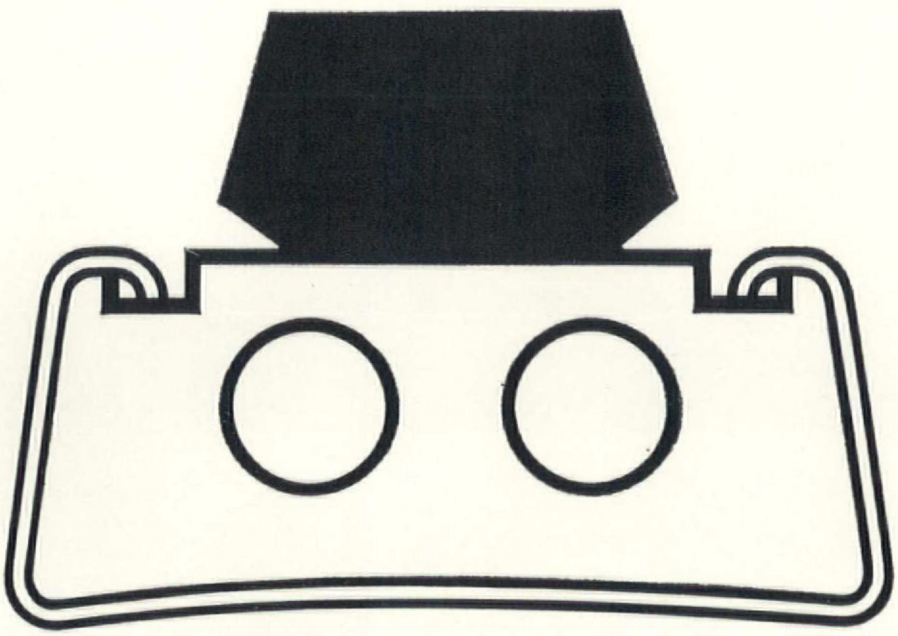
these stamps are one of the ways in which Dorman Long bridges have become world-famous symbols of national pride.

Chirundu Bridge

DORMAN LONG

Builders of Bridges





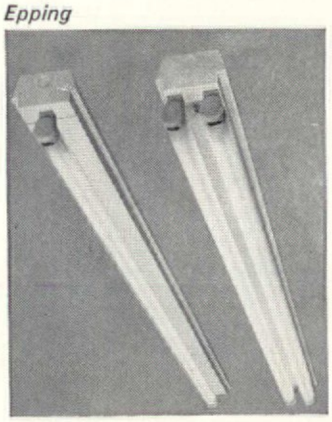
Epping aluminium vinyl enamelled channel with Ealing diffuser

Fluorescent lighting fittings

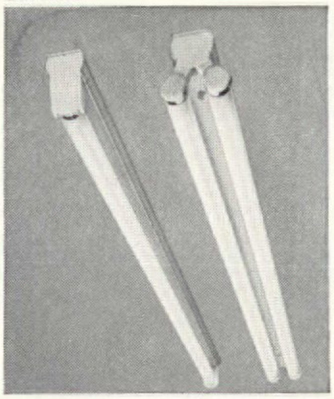
Lumitron offer a large and competitive selection of carefully detailed fittings for every lighting application. **Available for immediate delivery** from all Lumitron Trade Counters. Enquiries to

Lumitron Limited
Sales Office and Showroom
33/34 Alfred Place
London W C 1
Langham 0184

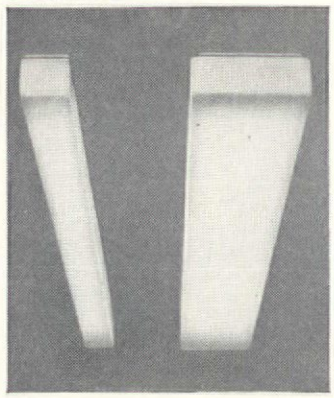
Epping



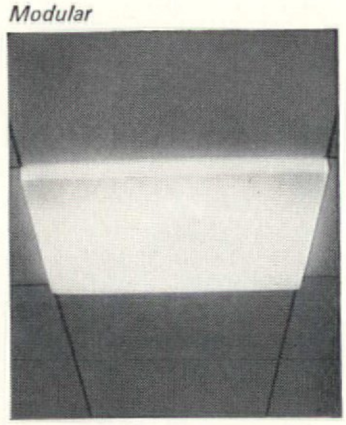
Slimline



7000 series

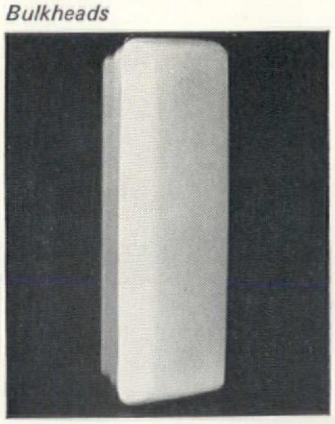


Modular

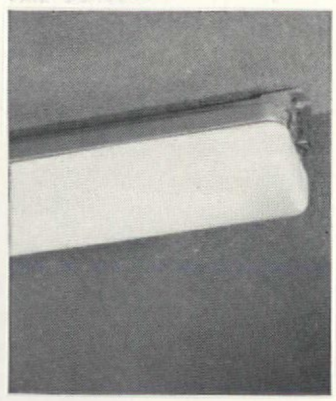


Circular

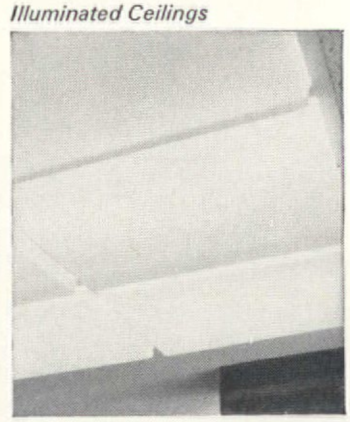
Bulkheads



Anti-Corrosive



Illuminated Ceilings



SEE BARBOUR INDEX

lumitron

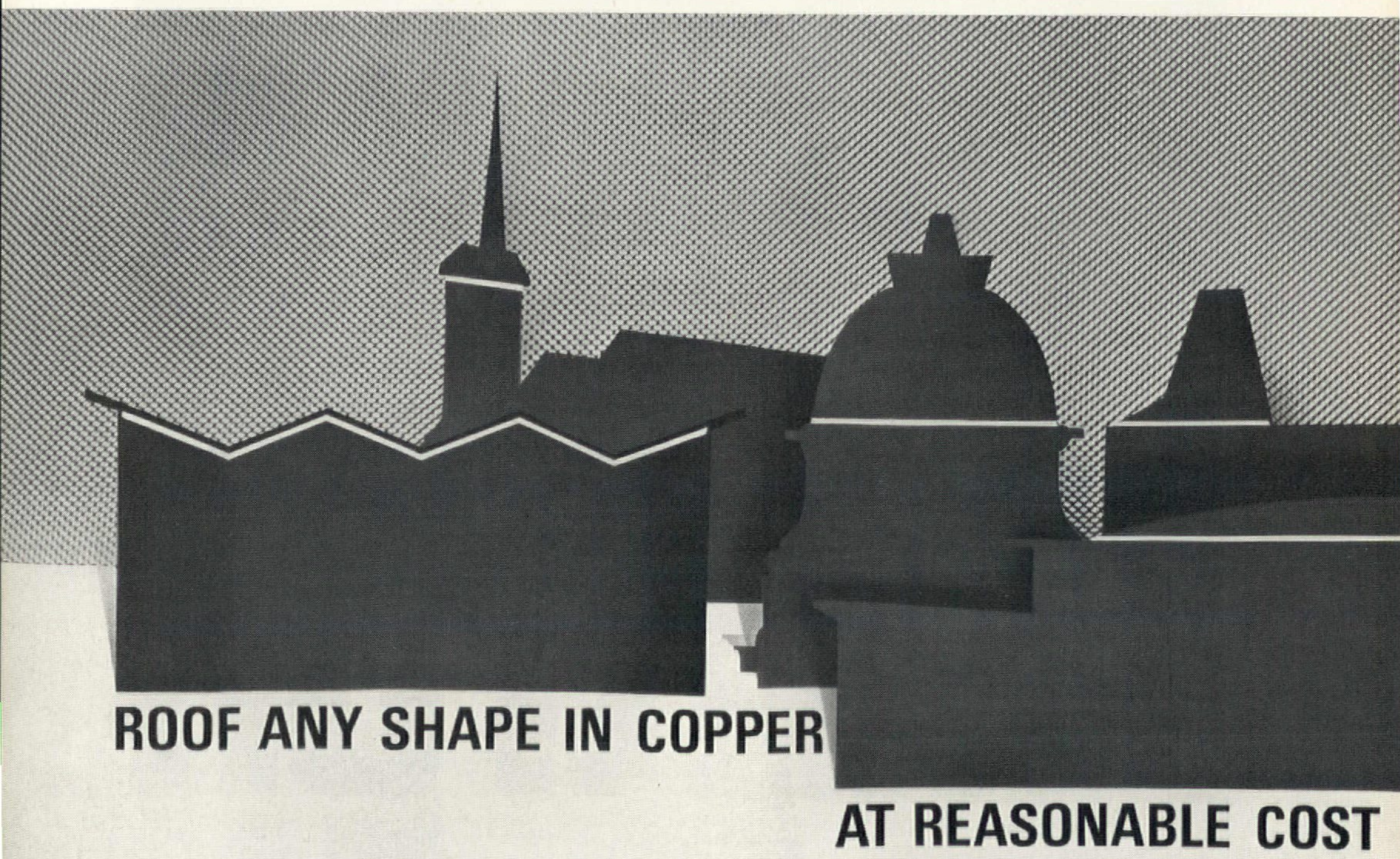
Kandya

Trimma kitchen cabinets

The addition of a peninsular unit widens the planning possibilites of this already versatile range of furniture. Designed by Frank Guille DesRCA FSIA. Write for our catalogue.

Kandya Limited Silverdale Road Hayes Middlesex Hayes 5121

Code 57



T56

same again please

Draughtsmen with a thirst for consistency are more than satisfied with Turquoise Drawing Pencils. Pencil after pencil, batch after batch, they never vary. In each of the 17 grades a separate formula is used; the result—true, constant grading. Turquoise gives you perfect reproduction by any method. Maximum strength and smoothness, minimum point wear. Consistent in all grades 6B to 9H. There are Turquoise Drawing Leads as well, 2B to 6H. Time gentlemen please, to send for a sample pencil and further details to Eagle Pencil Co., Ashley Road, Tottenham, London, N.17.

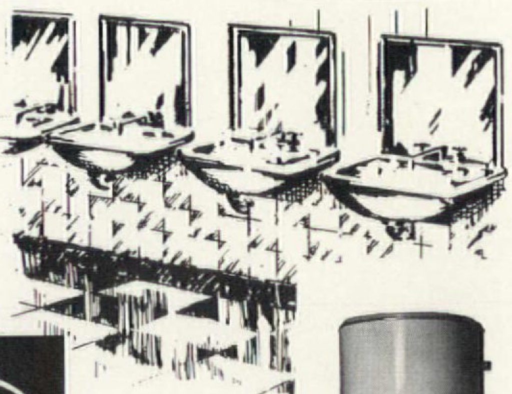
TURQUOISE
DRAWING PENCILS

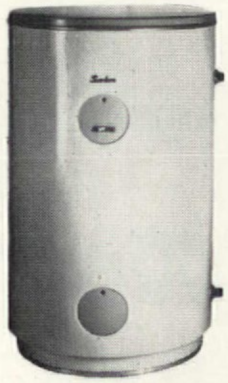
Code 61

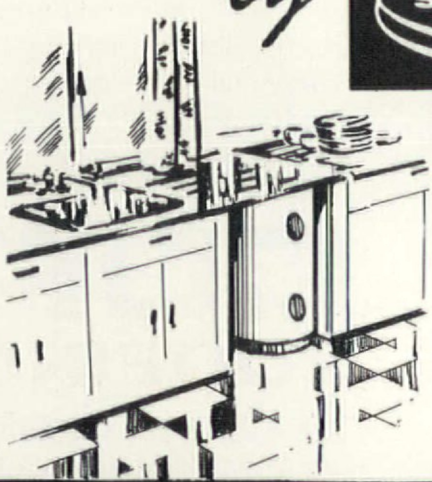
Specify

automatic electric WATER HEATERS

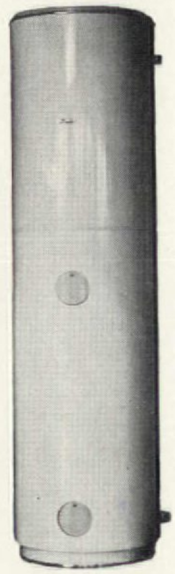
by **santon**







Models Designed for EVERY REQUIREMENT including OFF-PEAK

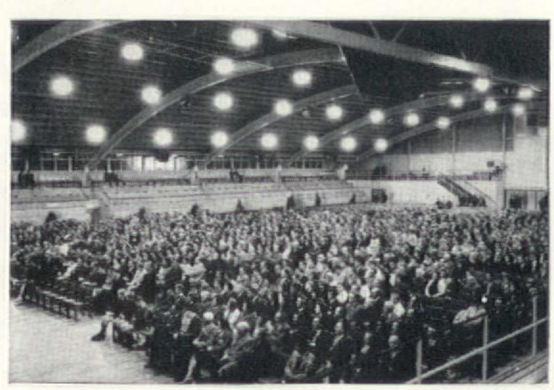


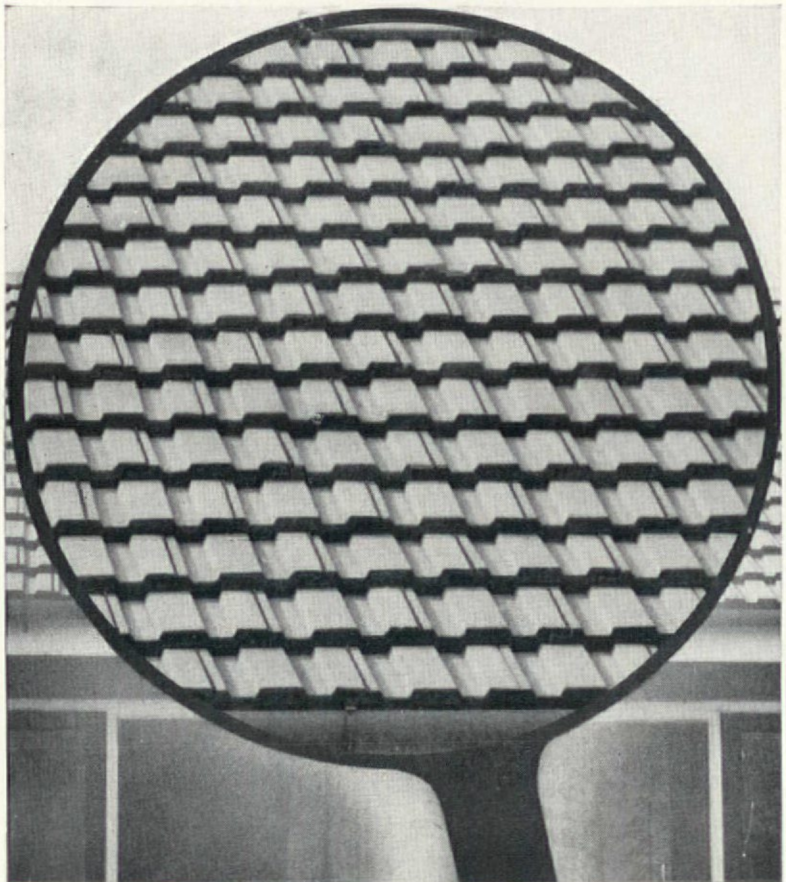
FOR FULL DETAILS PLEASE WRITE

Santon Ltd, Somerton Works, Newport Mon.

Telephone Newport 71711

BARBOUR INDEX 204





ANCHOR VANGUARD

Take a CLOSER look at
The ANCHOR VANGUARD
a 15″ × 9″ concrete roofing tile to B.S.S. 550:1958

A simple-to-lay interlocking tile with a full range of accessories, specially designed for laying without nailing

Roof pitches may be as low as $17\frac{1}{2}°$

Roof truss details are available for clear spans from 18′ to 36′

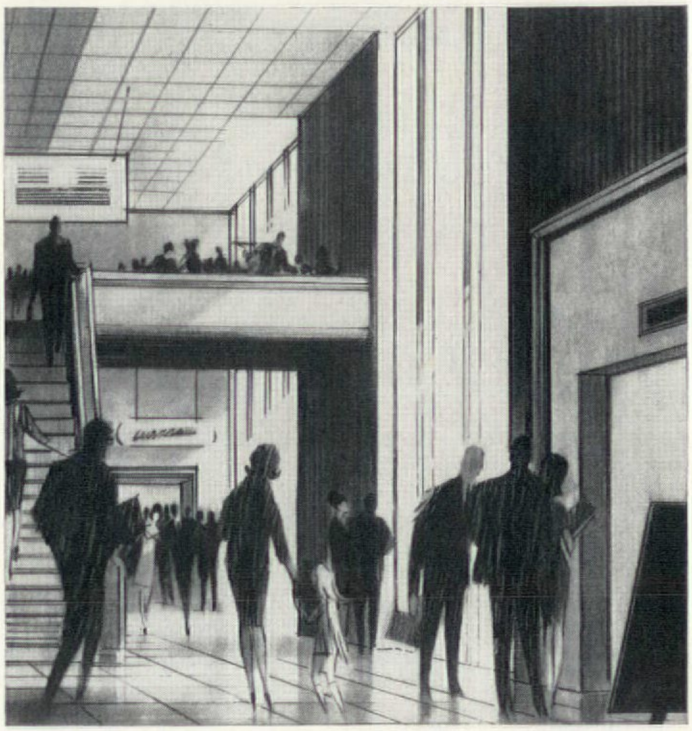
Guaranteed for 50 years against lamination and decay

Colours
Available in Slate Blue, Red, Green or Brown. All colours extend throughout the Tile

Technical Service
Sample tile sent by post. Additional details are available on request as well as roof truss designs

full details from
ANCHOR BUILDING PRODUCTS LTD.
BROOMHILLS ROAD, LEIGHTON BUZZARD, BEDS.
Telephone: LEIGHTON BUZZARD 3236

LOOK



what happens when you fill a BUILDING with PEOPLE . . .

. . . you need SIGNS

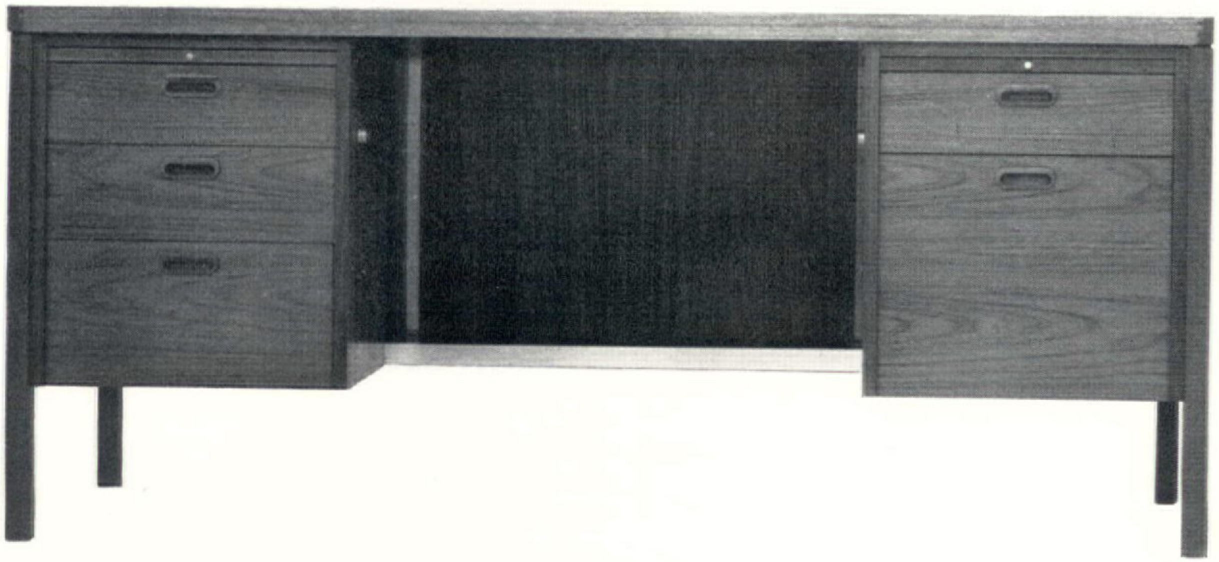
hundreds of them! Cautions, Directions, Locations, Requests, Telling people *where* to go, (ACCOUNTS FIRST FLOOR), where *not* to go (PRIVATE) *how* to go (LIFT TO ALL FLOORS). All designed to make life easier and safer for the occupants.
Now this is where we come in. At the GROUND FLOOR, you could say.

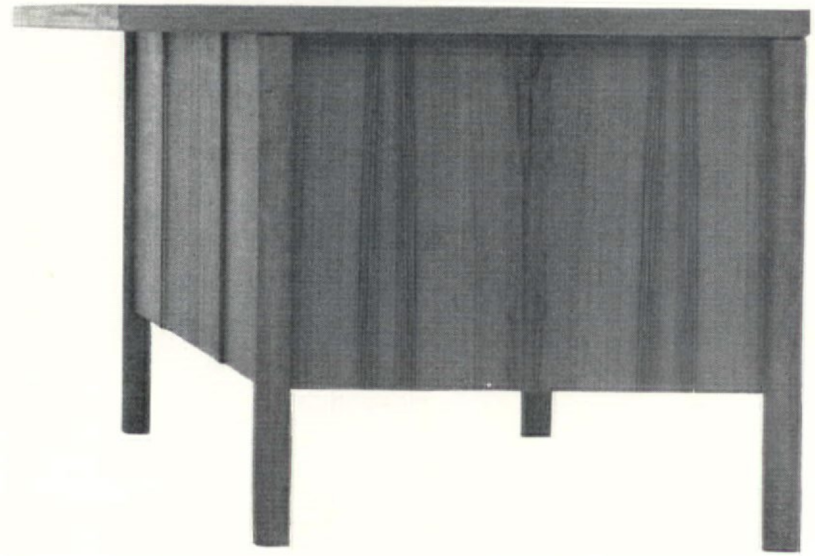
BRIBOND LAMINATED PLASTIC SIGNS can start by making *your* life easier and safer.
They're tough, durable, fully resistant to oils, acids, alkalis—even most solvents—and they're fire resistant. They're also very good looking, and, considering all these virtues, surprisingly economic. Send us the coupon and we send you more details.

NAME..
ADDRESS..
....
....
AD/1

SPECIAL SIGNS to your own specification, are just as welcome.

BRIBOND SIGNS LTD
VICTORIA RD., BURGESS HILL, SUSSEX
TELEPHONE: BURGESS HILL, 5611





Subscription Form

Please

☐ *commence a new subscription to start*

with the............................issue 19......

☐ *renew my current subscription*

as follows

☐ UK 1 year subscription **60/-** including postage

☐ UK Student rate 1 year subscription **36/-** including postage

☐ Overseas 1 year subscription **80/-** including postage

☐ Remittance enclosed

☐ Invoice to be sent

USA and Canada **11.50** dollars. Foreign remittances by bank draft, money order, or local postal order.

Name...

Professional qualifications ....

Address..

....

....

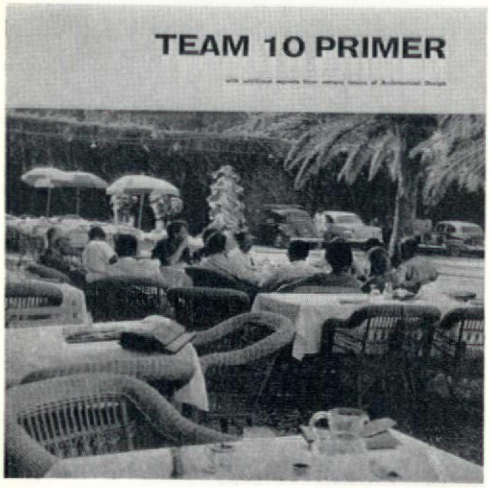
If a Student state School..

Year of Study............

Code 70

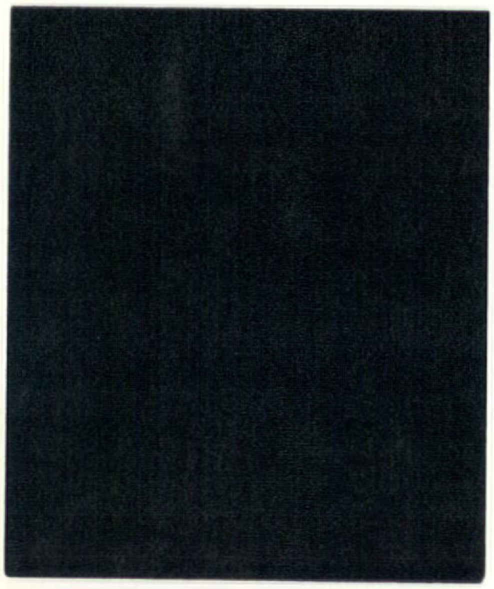
J. B. Bakema
Aldo van Eyck
G. Candilis
S. Woods
A. & P. Smithson
John Voelcker
J. Soltan
Gier Grung
Ralph Erskine
J. Coderch

TEAM 10 PRIMER



The Aim of Team 10

Aim of Team 10 has been described as follows:
Team 10 is a group of architects who have sought each other out because each has found the help of the others necessary to the development and understanding of their own individual work. But it is more than that.
They came together in the first place, certainly because of mutual realization of the inadequacies of the processes of architectural thought which they had inherited from the modern movement as a whole, but more important, each sensed that the other had already found some way towards a new beginning.
This new beginning, and the long build-up that has followed, had been concerned with inducing, as it were, into the bloodstream of the architect an understanding and feeling for the patterns, the aspirations, the artefacts, the tools, the modes of transportation and communications of present-day society, so that he can as a natural thing build towards that society's realization-of-itself.
In this sense Team 10 is Utopian, but Utopian about the present. Thus their aim is not to theorize but to build, for only through construction can a Utopia of the present be realized.
For them 'to build' has a special meaning in that the architect's responsibility towards the individual or groups he builds for, and towards the cohesion and convenience of the collective structure to which they belong, is taken as being an absolute responsibility. No abstract Master Plan stands between him and what he has to do, only the 'human facts' and the logistics of the situation.
To accept such responsibility where none is trying to direct others to perform acts which his control techniques cannot encompass, requires the invention of a working-together-technique where each pays attention to the other and to the whole insofar as he is able.
Team 10 is of the opinion that only in such a way may meaningful groupings of buildings come into being, where each building is a live thing and a natural extension of the others. Together they will make places where a man can realize what he wishes to be.
Team 10 would like to develop their thought processes and language of building to a point where a collective demonstration (perhaps a little self-conscious) could be made at a scale which would be really effective in terms of the modes of life and the structure of a community.
It must be said that this point is still some way off.



The object of this Primer is to put into one document those articles, essays and diagrams which TEAM 10 regard as being central to their individual positions.

In a way it is a history of how the ideas of the people involved have grown or changed as a result of contact with the others, and it is hoped that the publication of these root ideas, in their original often naïve form, will enable them to continue life.

The first part of the document —the role of the architect—is concerned with the attitudes which the subsequent project material speaks about in another way. The project material has been roughly grouped into three sections—'Urban infra-structure', 'Grouping of dwellings', and 'Doorstep'. Each of these sections tends to be dominated by one person or group—he or they, whoever developed the root idea—and the complementary or commentary material by others is printed alongside making a kind of counterpoint. The following material is also included.

Tel Aviv—YAFO Central Area Project.
Project for Bochum University.
Project for the Free University of Berlin.
Town-planning advisory scheme and report for Berlin.
London Study. Greenways and landcastles.
London Study. Transportation Net South.
Cambridge—A planning study.
Reorganization—Paris/Berlin.
London roads study.
Criteria for mass housing.

76 pages and cover.
Good quality paper.
15/- including Postage.

ORDER FORM

Please send.........copies at 15/- each of the Team 10 Primer

Name ....

Address ....

....

TEAM 10 PRIMER

To The Standard Catalogue Co Ltd.
26 Bloomsbury Way
London W.C.1.
Tel: Holborn 6325

Advertisers Index April 1966

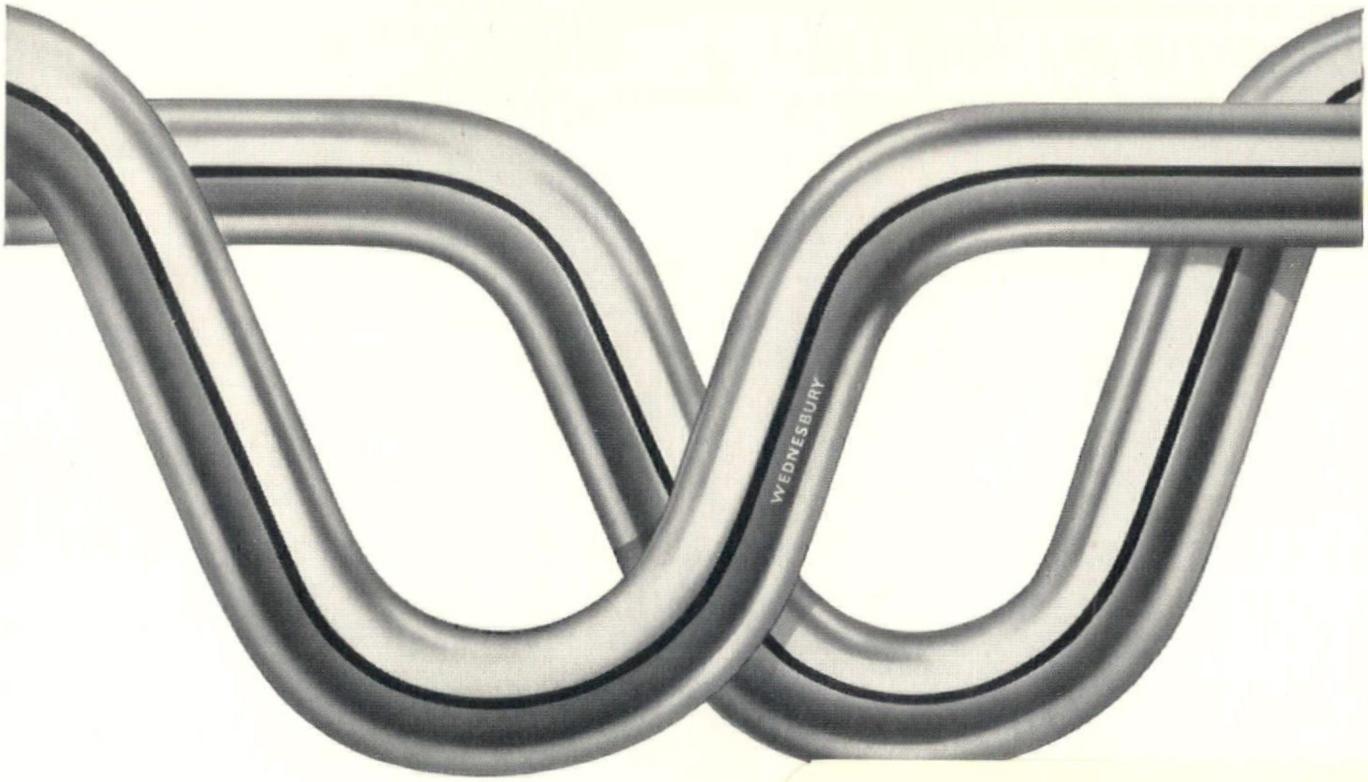
Please note the Architects Standard Catalogue SfB section reference shown against those advertisers who file information in that publication. Please use ASC for quick technical information.

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)

For a material saving...

WEDNESBURY BLACK LABEL

Lighter Gauge Copper Tube



Wednesbury Black Label Tube has now been
Association for closed circuit work.
For a copy of a progress report on the developme
copper tube, please tear out this page, and senc

To:
THE WEDNESBURY TUBE CO. LTD. BILSTON, STAFFS.

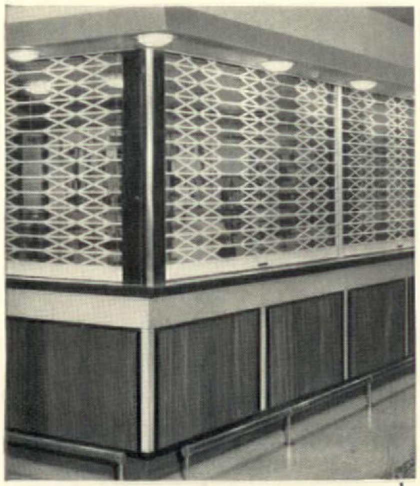
Please send me your progress report
on Wednesbury Black Label Copper Tube.

NAME ....

ADDRESS ....

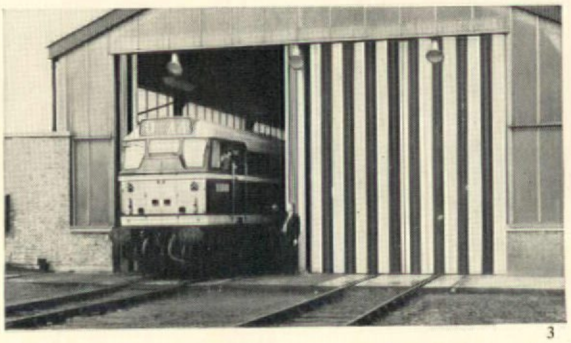
....

....

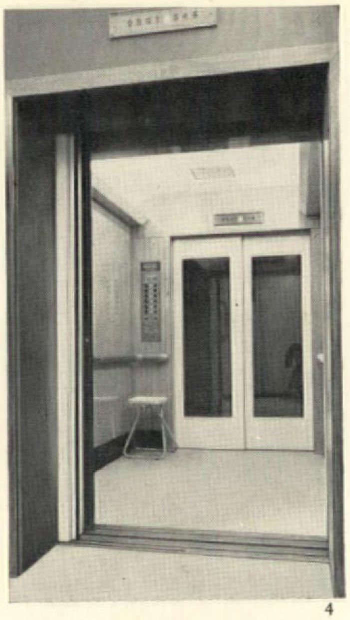


1

2



3



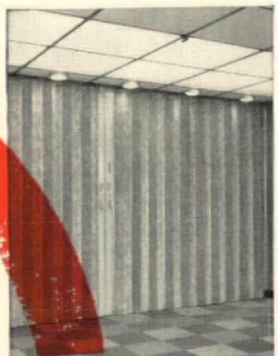
4

5

☐ Attractive appearance ☐ Smooth, silent operation ☐ Absolute minimum of maintenance required ☐ Made from tested top-quality materials ☐ Custom-built to your exact requirements

Write now for full information under ref. AD 612

BOLTON DOORS everywhere!



6

7

8

1. Security plus sales appeal with Bolton Bar Counter Grilles (rolling and bunching types available). 2. Bolton-Berry overhead garage doors—standing sizes for single or double garages. 3. Bolton Shutter doors on a diesel locomotive depot. 4. Fully glazed two-speed lift doors fitted to landings and a through car. 5. Ray operated shutter doors. 6. Space-saving Superfold folding partition. 7. Fully automatic, floor mat actuated, glass sliding door (hinged types also available). 8. Automatic opening Shutter Doors fitted to a fire station.

BOLTON GATE CO LTD

BOLTON, LANCS

BRANCHES IN LONDON, BIRMINGHAM, GLASGOW AND THROUGHOUT THE COUNTRY

The Biggest name in Doors!

BG612