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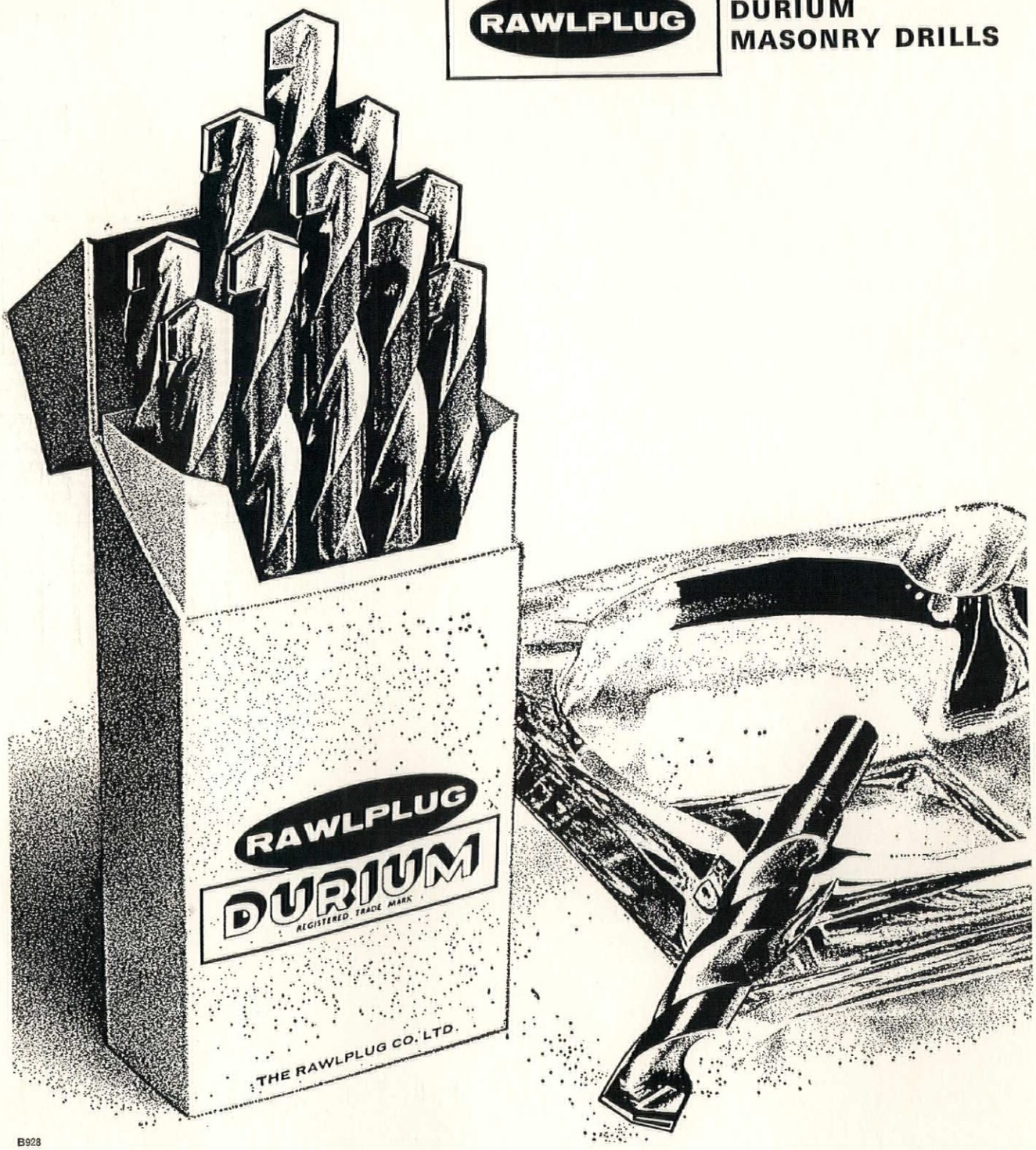

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Letters

Piacentini

Sir, In the Aug. issue of *AD* your contributor Joseph Rykwert reviews the work of the Italian architects Figini and Pollini. This excellent appraisal—at the same time chronicling the trends in Italy over the past 50 years—seemed lacking in one small respect. No work by Piacentini was illustrated.

Writing in 1925 (Anno 5!), in *Architettura e Arti Decorative*. Fasc. 1–2, Settembre–Ottobre, Antonio Munoy suggests Marcello Piacentini, born 1881, as *forse l'artista più rappresantativo* of the preceding ten year *nuove tendenze* period; suprising, for in his work there seemed sparse evidence of the new tendencies.

Nevertheless, he was, like our own Sir Edwin Lutyens, an outstanding architect and I've often wondered why he is not more mentioned. His work always added so much either to landscape or streetscape as exemplified by the Bergamo Centro Cittadino (a competition win of 1908 and built ten years later) with its upper city backcloth and the robustly sweeping Albergo degli Ambasciatori in Rome.

Each, although working in the classical tradition, gave his work a personal flavour which is at once recognizable. It gives pause to reflect that scarcely ever today can a building be given such attribution and in this sense the interesting Figini/Pollini buildings seem not only lacking, but, in some cases, over derivative. Indeed, the 1935 Milan house seems to owe its origin to a celebrated prototype from the 1930 Weissenhof Siedlung at Stuttgart.

In these times our carcases are aseptic and superb but who is going to demonstrate *di nuovo* how they can be fleshed and characterfully clothed? *Cio che gli occhi non vedono, il cuore non desidera,* runs the Italian proverb. Fortunately the eyes, if they choose, can still see—the eloquent if silent Piacentinis' and Lutyens'—and thus may the heart come to grieve for a robuster kind of building many of us perhaps are waiting for. In the meantime gratitude to your contributor for his article and for the reminder of one-time maestro, Marcello Piacentini. *Herbert Thearle*

Learning by faith?

Sir, An educational experience of Peter Cook has made us love him dearly—it also gives us grounds for the opinion that articles like 'Control and choice living' in your 11/67 issue, have to be treated with caution.

H. G. Wells wrote of a Martian invasion 'It has robbed us of that serene confidence in the future which is the most fruitful source of decadence'; we are of the opinion that the future has replaced the past as the most significant source of *architectural* decadence.

Any hypothesis of the future can provide a romantic and polemical basis for the design of objects. It effectively prohibits any precise use of language as a larger reference system. Checking is not possible. Discussion cannot establish anything except internal logic. So it is quite possible to accept the position where an object is derived only by polemic, where the only criteria of success and failure are not real. The result of polemic manipulation is liable to be nonsense, in any terms—see any speech by Lyndon Baines Johnson—because premises and conclusions are vague emotional 'charges' that vary from person to person.

A student who is faced with a teacher who adopts this form of thinking must take any published designs as articles of faith. He is increasingly obliged to establish his own faith, whether the same or different, in the same way. In the last analysis it is this that reduces useful discussion more and more and will eventually lead to the complete disintegration of the social contract that architectural thinking must have—it must relate to some sort of reality. It will also lead to the complete disintegration of language as the discursive tool for intra-personal exchange. As the realm of discussion is slowly eroded the only portions that are left involve technique—the external expression of an object. This takes many forms—from theoretical technology to the correct methods of applying Letraset.

Polemic is required to establish belief. A crisis of belief occurs when no meaningful goals can be established from it. This is happening now and a dilletante involvement with slogans, superficially feeding on the certainties and techniques of others, is a frightening and visible result. *Stephen Gage*

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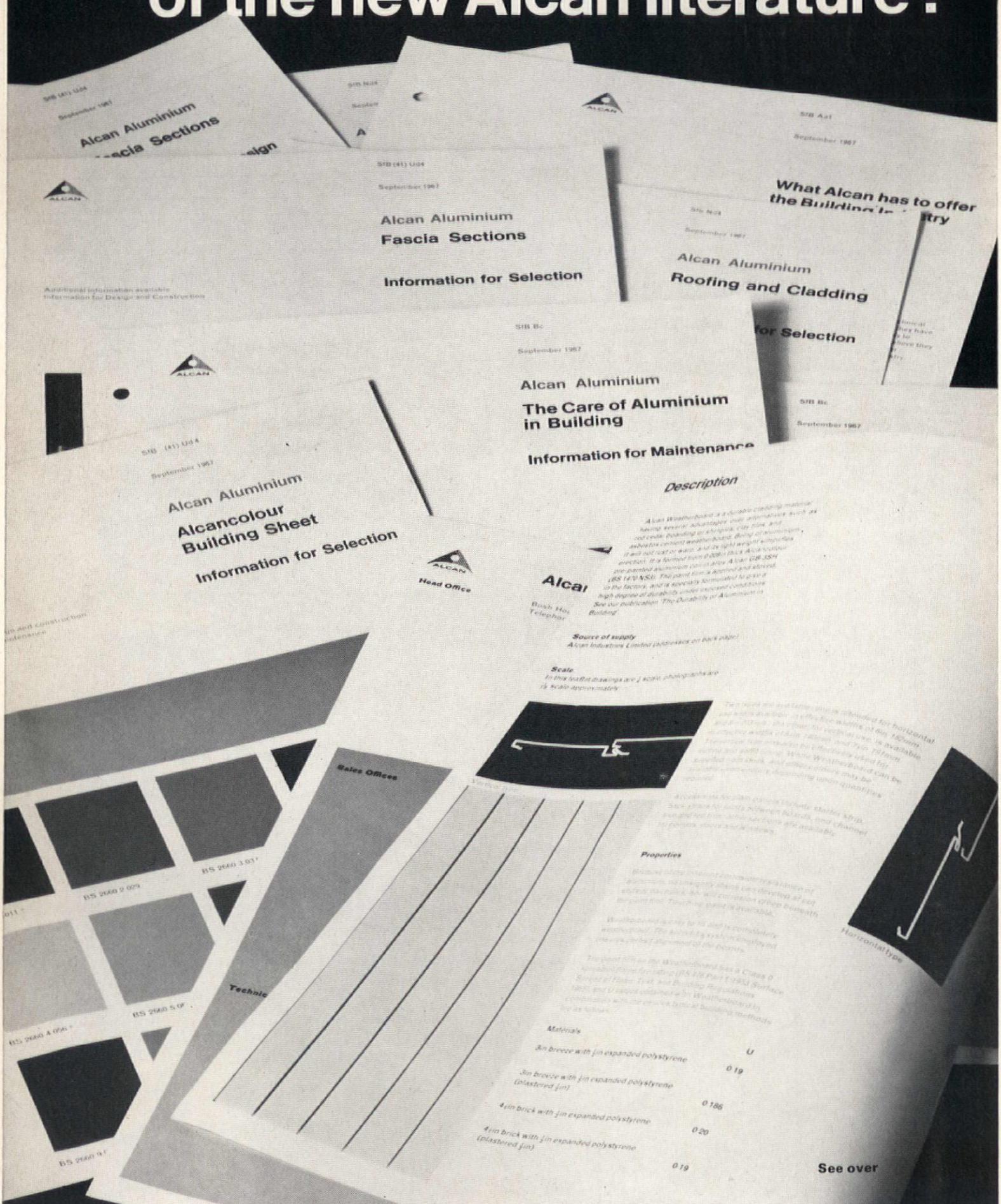

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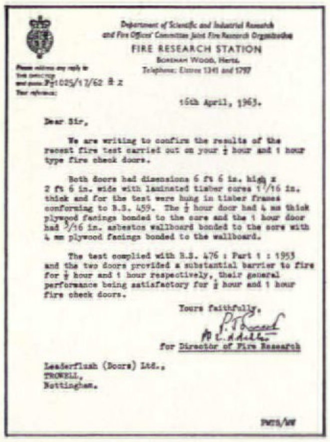

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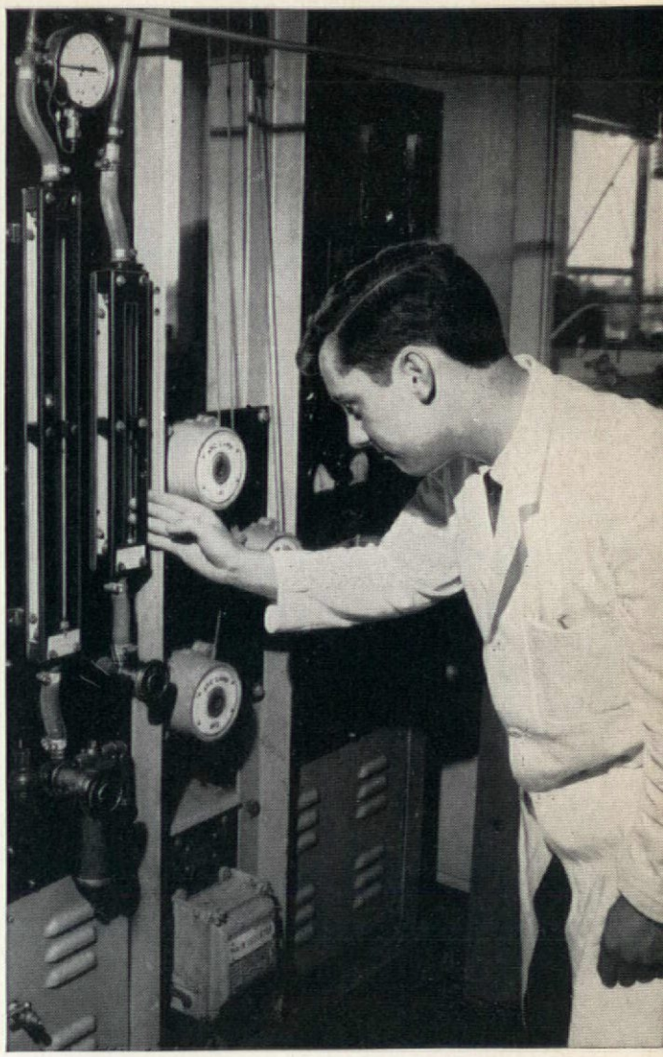

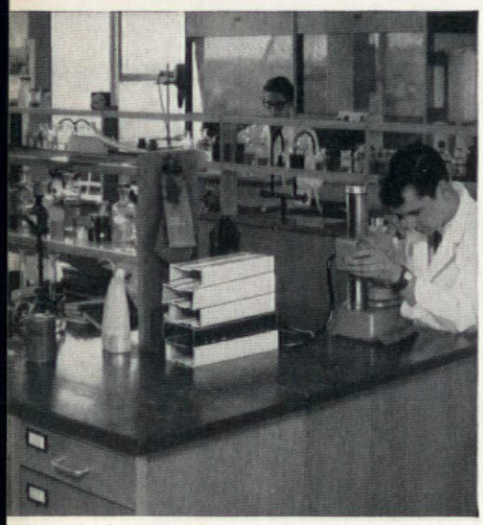

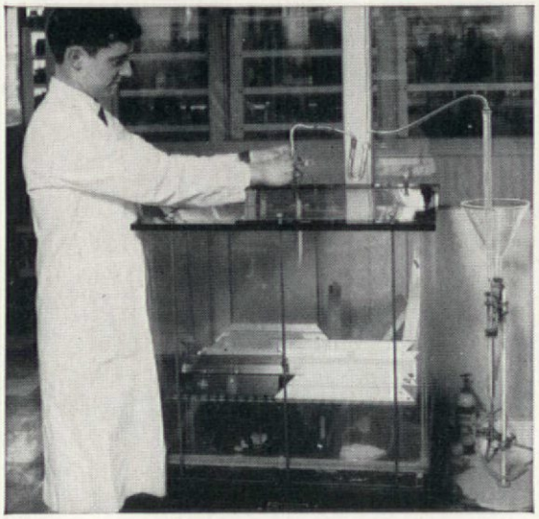

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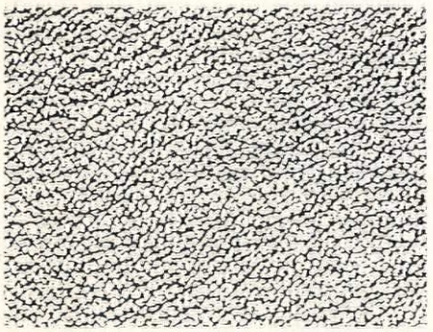

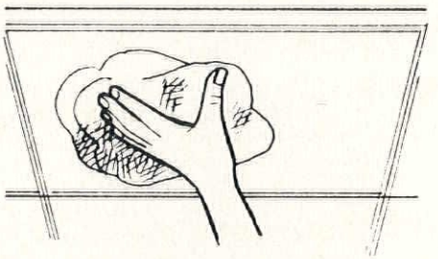

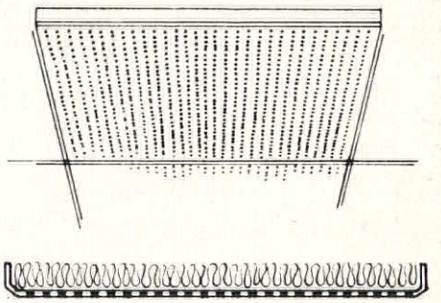

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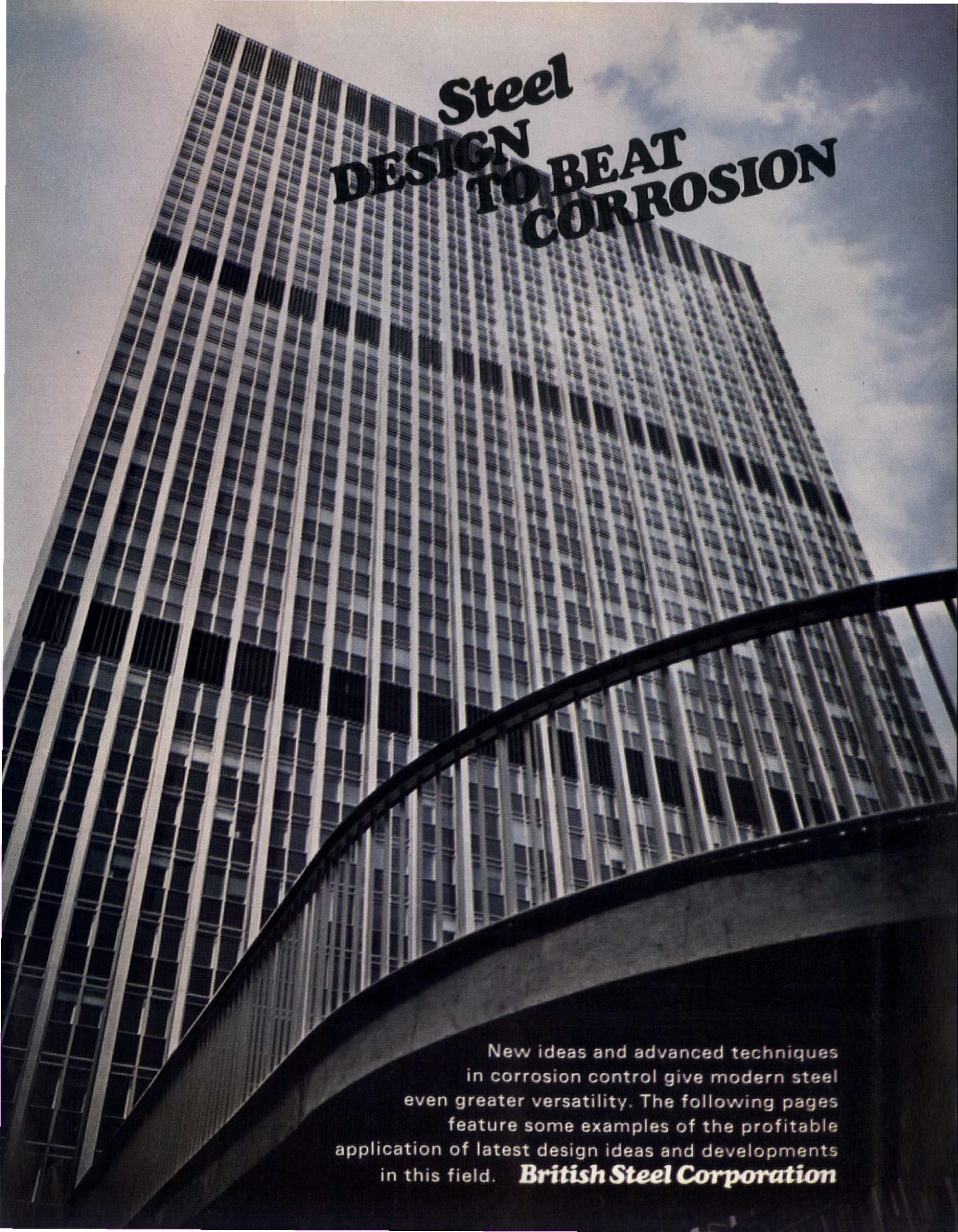

Steel
DESIGN TO BEAT CORROSION
New ideas and advanced techniques in corrosion control give modern steel even greater versatility. The following pages feature some examples of the profitable application of latest design ideas and developments in this field.
British Steel Corporation

Modern answers to problems of corrosion mean more scope for imaginative design in Steel

New ideas and improved techniques in corrosion control, special steels and newly-developed steel products together provide more efficient, cost-saving answers to every type of corrosion problem today. Developments and anti-corrosion measures described in these pages are succeeding dramatically in giving longer useful service life to steel components, products and structures, together with the advantages of lower maintenance costs or the elimination of maintenance altogether. Designers and manufacturers are profiting by the steel industry's investments in research and new plant. The results—in better defences against corrosive attack and rusting—yet further extend the potential uses of steel through increasing its durability and scope for imaginative design.

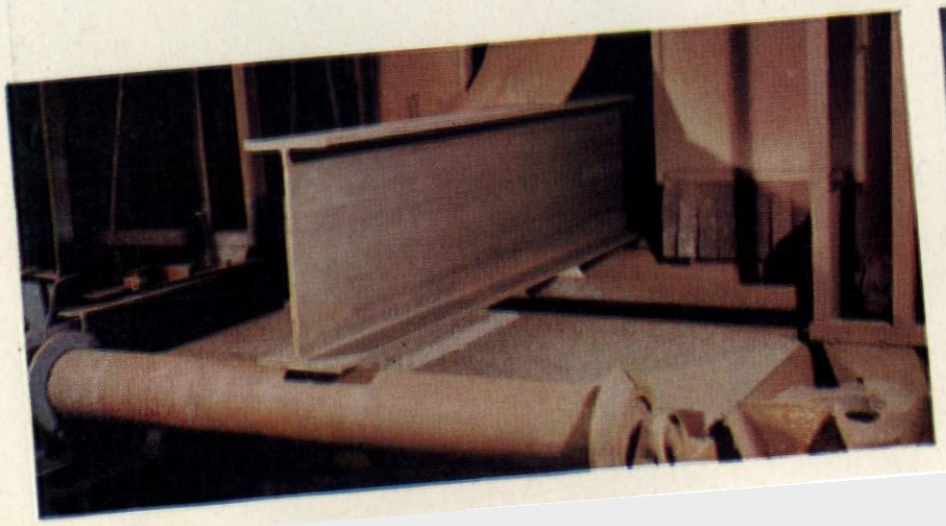
Design to beat corrosion—at the drawing board stage. A highly effective means of combating corrosion is to 'design out' all features likely to promote it. Rounded contours and corners are preferable. Crevices which trap moisture and dirt should either be avoided completely, filled by welding or use of mastic paste. Provision of adequate drain holes can also eliminate collection of water and dirt. Joints and fastenings can be arranged to give clean uncluttered lines. Welded-in bulkheads at ends of box-section girders inhibit internal corrosion. Versatile tubular steel in the form of Circular, Square, or Rectangular Hollow Sections, can help the designer to avoid sharp edges which are prone to damage and cannot be evenly coated for corrosion protection. Suitable maintenance systems to achieve maximum economical service life must be planned *at the design stage* and all surfaces needing future attention should be readily accessible.

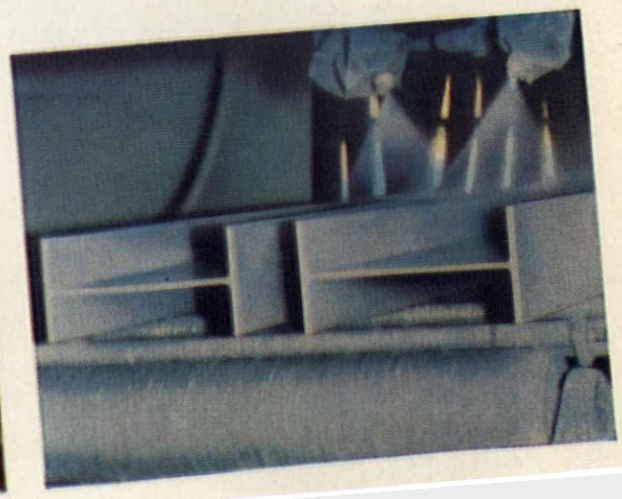
New steel products and better coatings. 'Pre-finished' corrosion-protected steel sheet with p.v.c. laminate, plastic or paint colour-coatings can now be easily formed into products that need no expensive finishing. Available coated on both sides and also pre-galvanized, these pre-finished sheets are economically produced on continuous process lines and are now available in *any practical length.* In steel sheet cladding and roof decking applications, erection is thus speeded and costly site painting eliminated. The physically strong decorative coatings employed, which include alkyds, acrylics, p.v.c. and other high adhesion paints and plastics, provide excellent long-life barriers often equivalent in thickness to *seven normal coats of paint.* Dip coating of steel products also imparts tough, smooth adherent nylon, p.v.c. or polythene surfaces to combat rust or chemical attack. Modern calcium plumbate paints react to create an excellent bond when used on galvanized or other zinc coated steel surfaces. Other paints based on coal-tar epoxides, polyurethane, vinyl co-polymers, Neoprene or Hypalon, can also be used to give enduring protection and decoration. And in the finishing of large steel structures, the excellent barrier properties of micaceous iron oxide are also now being exploited.

Special steels and anti-corrosion measures extend service life economically. Various grades of Stainless Steel, and low-alloy steels such as Cor-Ten, can often be employed very economically today, to combat corrosive attack and maintain good appearance. They are particularly suitable where protective coatings are impractical or when regular maintenance attention will be uneconomic. Their high-strength properties are also useful in design. Higher first cost will often be well justified by long-term reduction of maintenance costs. Important anti-corrosion methods and steel finishes that also assist good design, by resisting rust and extending service life, include highly effective hot-dip galvanizing, vitreous enamelling, spray-coating or electro-deposition of anodic metals such as zinc or aluminium. These methods give mild steel suitable rust-protection for a wide range of uses and meet a variety of different service conditions.

Surface preparation—key to top protection. Effective life of protective schemes is increased five-fold when mill-scale and residual rust are first thoroughly removed from steel by blast-cleaning or pickling rather than by ineffectual weathering and wire-brushing. Today, blast-cleaned and shop-primed steel plates and sections can be supplied by rolling mills, steel stockholders and fabricators. The quick-drying prefabrication primers, sealing, and rust-inhibiting coatings now used permit rapid handling, economical and efficient shop treatment of the steel by automatic plants under ideal, controlled conditions. The primed steel can be safely flame-cut and welded.

Prefabrication Primers for rust-free steel. *Molecular reactive coating is sprayed on to an ideal roughened, 'clean' steel surface immediately following the abrasive blast cleaning process. Metal coating in direct contact with steel acts as a sacrificial anode, and gives cathodic protection. Special anodic or stainless steel sealing coats applied later give long-term protection, under corrosive conditions.*



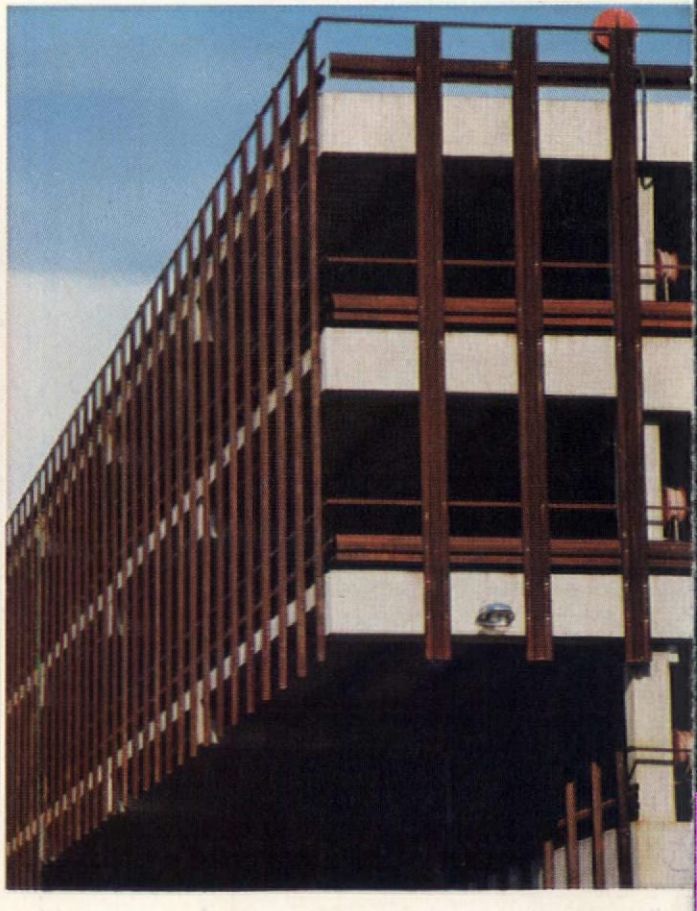


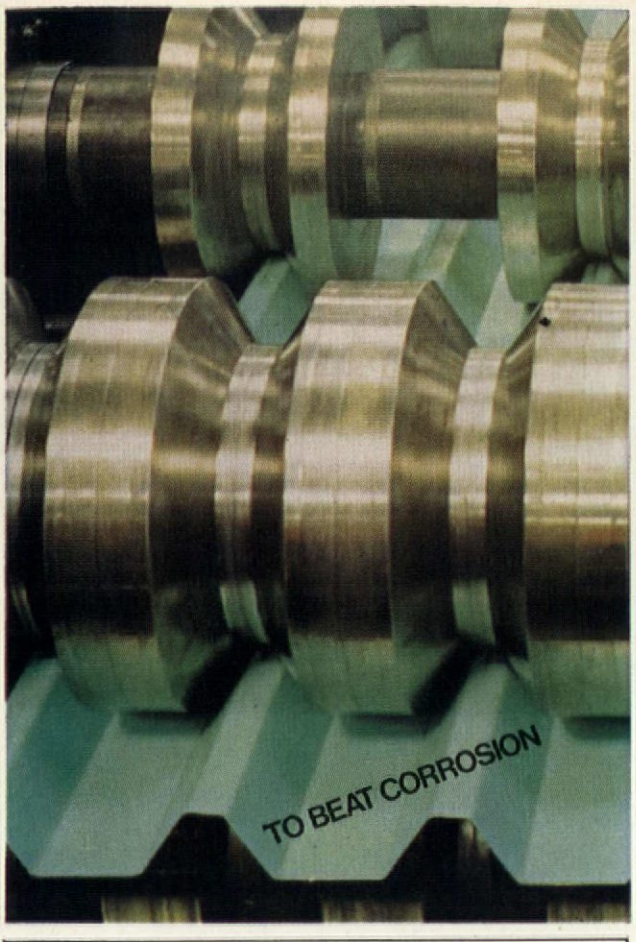
Long-life colour-cladding *'Colour Galbestos' is one of the versatile steel sheet architectural cladding products now giving attractive maintenance-free colour protection to modern buildings. Steel is degreased, pickled and passed through molten zinc. Pure asbestos felt is immediately pressed onto both sides, impregnated for additional strength and corrosion-resistance before colour-coating with modified polyester resin.*

Corrosion-resistant fasteners *which ensure freedom from plant failure and unsightly rusting, are well worth a little extra in cost. Improved forging techniques have actually* reduced *cost of many types in Stainless Steel. Special fasteners employing insulating gaskets, washers or sleeves prevent bi-metal corrosion.*

Better rust-protection. *'Zintec' electro-zinc coated mild steel sheet gives excellent paint adhesion for lasting finish, plus protection of hidden parts. Coating withstands severe forming, prevents creeping rust and eliminates the need for pickling, phosphating and chemical pre-finishing.*

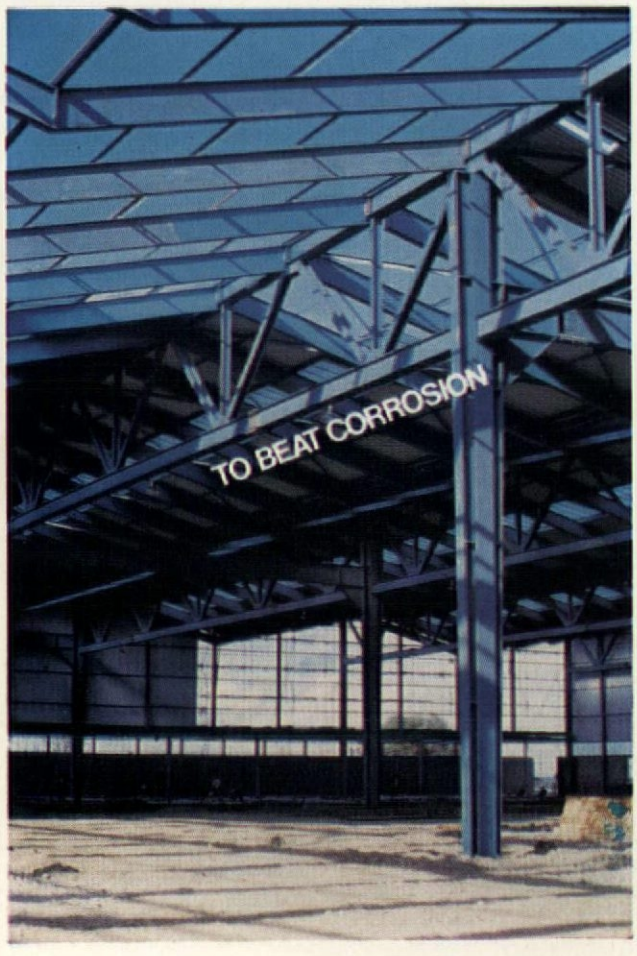
Architectural 'bare' steel. *High strength low-alloy 'weathering' steels such as Cor-Ten offer high resistance to atmospheric corrosion. A distinctive decorative surface patina develops and darkens with time into a dense coat of purplish-brown colour. The tough oxide film forming on bare steel fenders and cladding sections of this multi-storey car park at Doncaster, eliminates all need for future maintenance.*

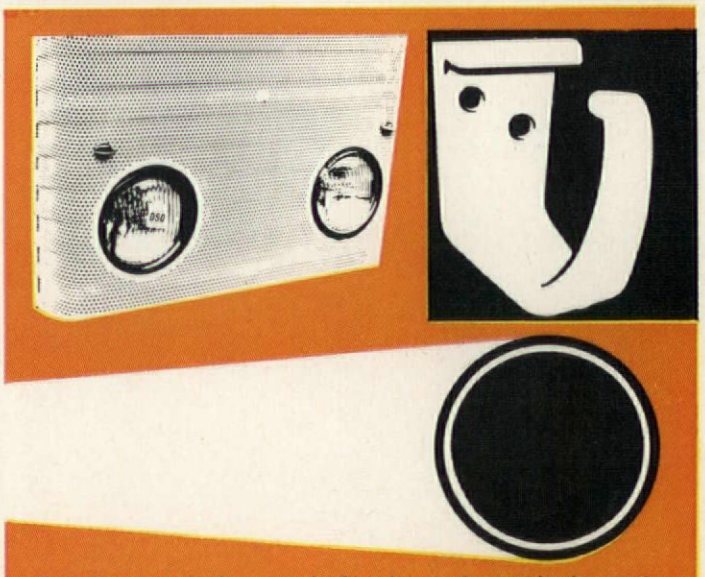




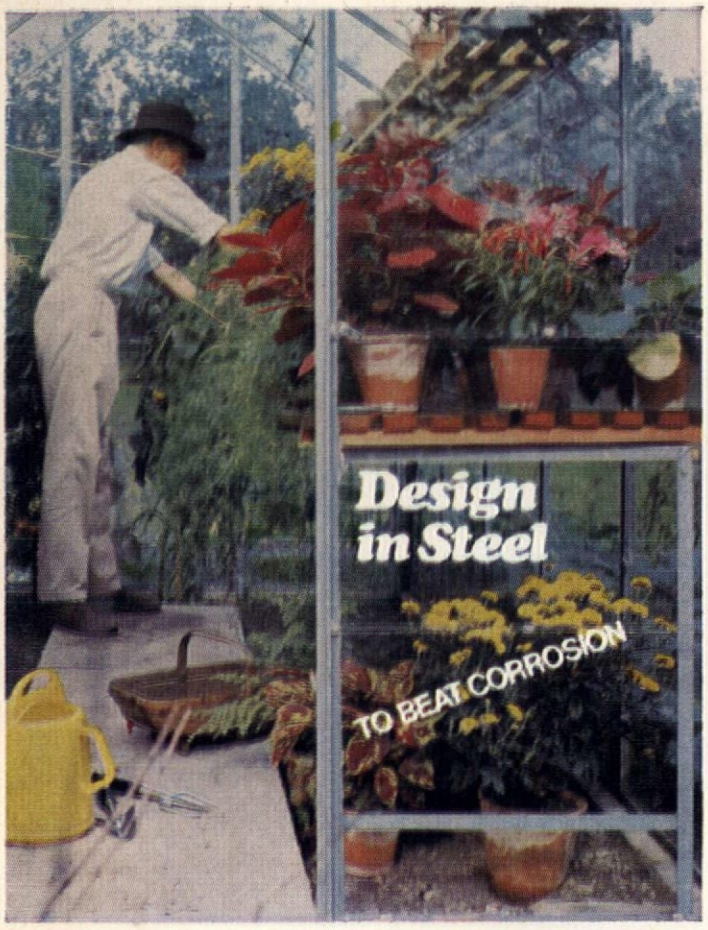
Steel Sheet—strong, light, versatile, corrosion-protected. *Hot-dip galvanized steel sheet is one of the cheapest and most versatile self-protected sheet materials available to industry. Easily formed and fabricated. Additionally coated with plastic or paint colour finishes it gives even greater resistance to corrosion, and cuts maintenance costs.*

Corrosion-protected steelwork. *Standard steel-framed industrial buildings and special fabricated structures alike can now have the long-term corrosion-protection and maintenance-saving advantages which initial blast-cleaning and anodic metal priming of basic steel members provide. Welding and flame-cutting of the treated steel presents no difficulties.*





Plastic-coated—for good. *The latest thermoplastic coating techniques permit engineers to use the strength of steel with the excellent decorative, wear and corrosion-resisting properties of special coatings. Steel traffic bollard above is nylon dip-coated for long maintenance-free service. P.V.C. dip-coated roof gutter bracket and tractor grille combine strength with long-term corrosion resistance. Steel tubes with continuously extruded HD polythene sheathing, are ideal as maintenance-free signposts.*

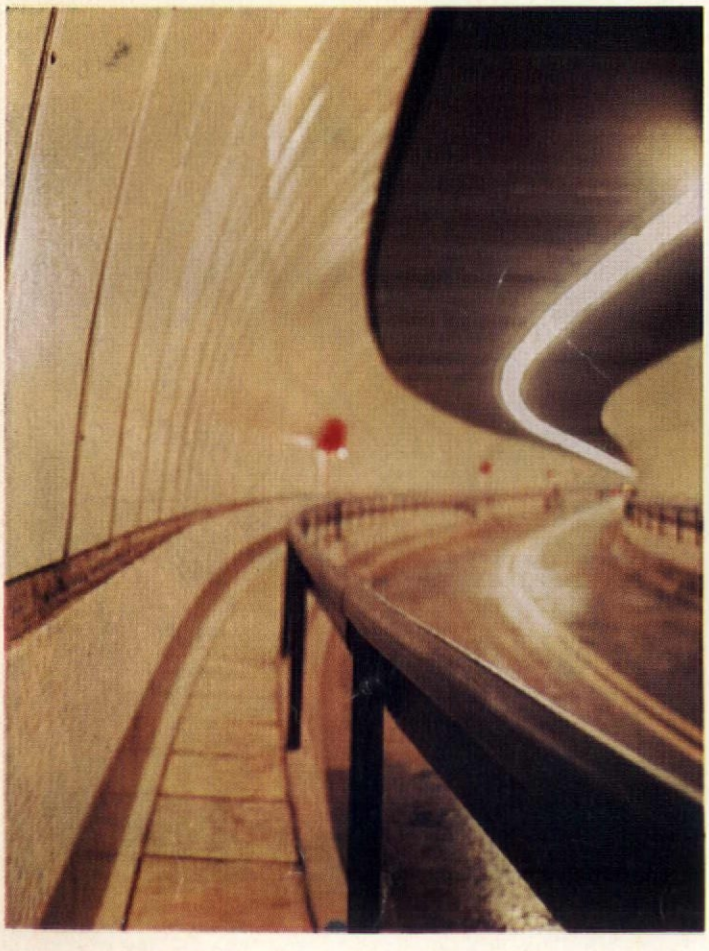


Safeguarding appearance and strength. *Galvanizing provides highly efficient, consistent corrosion protection—and usually at the least unit cost. Steel window-frames and greenhouse components are typical fabricated steel products hot-dip galvanized for long maintenance-free service. Modern dipping plants with high throughputs can also handle large structural steel components.*

New vitreous enamelling techniques *and special steels mean more economic production of strong, light pressed steel products with tough colourfast hygienic glazed surfaces, resistant to severe corrosive attack. Porcelain-enamelled steel panels lining the new Tyne tunnel resist traffic fumes, are easily cleaned and held in pvc-coated steel channelling so that usual costly tunnel maintenance is eliminated.*

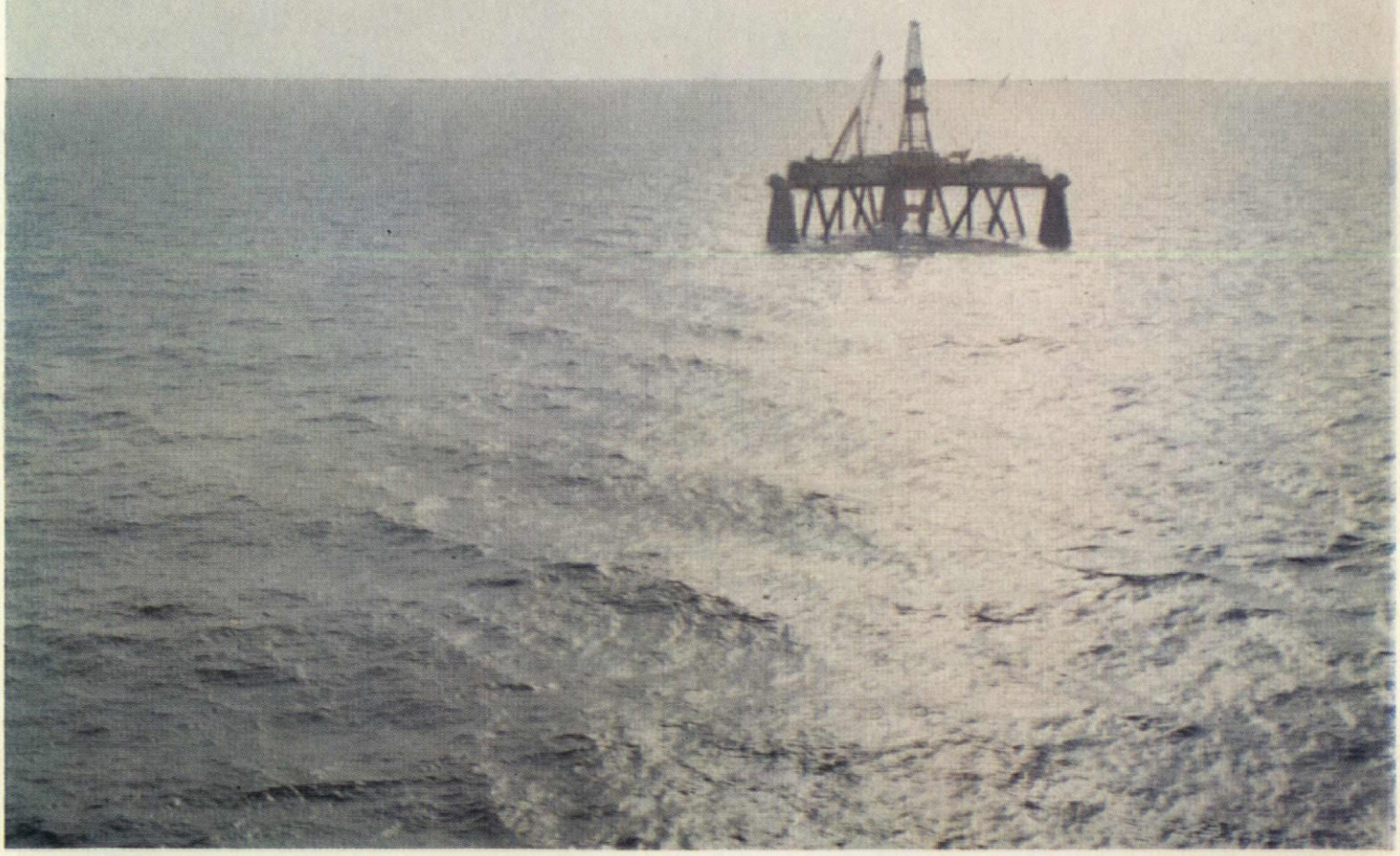
Stainless steel: good design policy. *Good design must aim to keep maintenance to a minimum. Stainless steel needs no special attention other than occasional cleaning, is ideal in high-rise architectural projects.* Cover—*Britannic House, London, headquarters of the BP Group of Companies. Stainless steel curtain walling and mullion cladding in highly corrosion-resistant 18/10/3 quality.* Above—*Stainless steel windows in multi-storey Council flats at Barbot St., Edmonton, will eliminate costly painting.*

Galvanized for 'Rolls-Royce' performance. *To combat corrosion and maintain vital structural strength over this superbly-engineered car's considerable life, some 150 pressings of hot-dip galvanized steel sheet are used for underframe parts and reinforcements. The new 'Silver Shadow' is the first Rolls-Royce with body of unitary construction.*



TO COMBAT CORROSION IN HOSTILE ENVIRONMENTS

The steel industry is meeting growing demand for 'clean steel'—blast-cleaned and ready-primed. For aggressive conditions, such as those met by marine structures, the shipyard practice of shot-blasting and immediate application of a suitable prefabrication primer to cleaned steel, is particularly desirable. Six basic types can at present be specified: Zinc rich epoxy; Extended zinc epoxy; Zinc silicate; Aluminium epoxy; Red iron oxide epoxy; Vinyl etch primers. The new BS Code CP 2008 outlines useful protective schemes for fully or partly immersed marine structures, including the vulnerable 'splash zone'. Cathodic Protection Systems also counteract electrolytic action of rusting by impressed current or sacrificial anodes.



Design in Steel

British Steel Corporation
22 KINGSWAY, LONDON WC2

REFERENCES **Cover** ☐ Stainless steel curtain-walling and mullion cladding, 'Britannic House', London, fabricated by Morris Singer & Haskins, Ltd., Basingstoke. Architects: Joseph and F. Milton Cashmore and Partners, London, E.C.4 **Inside** ☐ Automatic blast-cleaning and priming of steel by Sanders & Forster Ltd., London, E.15. Prefabrication primer by Metalife Limited, Harrogate ☐ Greenhouse by The Crittall Manufacturing Co. Ltd., Braintree ☐ 'Silver Shadow' body parts in galvanized steel sheet by Rolls-Royce ☐ Tyne Tunnel porcelain-enamelled steel lining panels by Escol Panels Ltd., London ☐ Stainless steel windows for London Borough of Enfield, by Drawn & Rolled Sections Ltd., Bridgend, Glam. ☐ 'Metalife Clad' steelwork for Joseph Sankey & Son Ltd., designed by W. S. Atkins & Ptnrs, Epsom, and fabricated by Modern Engineering, Bristol ☐ Dip-coating of steel products by Plastic Coatings Ltd., Guildford ☐ 'Colour Galbestos' cladding by H. H. Robertson (UK) Ltd., Wirral, Cheshire ☐ Stainless steel fasteners, Fredk. Mountford (Birmingham) Ltd. ☐ 'Selascrews', '-nuts' and '-caps' by The British Screw Co. Ltd., Leeds ☐ JCB excavator with Zintec electro-zinc coated steel sheet cab and engine cover, by J. C. Bamford Excavators Ltd., Uttoxeter, Staffs ☐ Steel-clad multi-storey car park construction supervised by Doncaster County Borough engineer and planning officer, P. Greaves, CEng., MIMun.E, AMI Struct, E, AMICE, AMIWE. Designed and erected by John Mowlem & Co. Ltd., Westgate House, Ealing Rd., Brentford, Middx. ☐ BP's North Sea Drilling Rig 'Sea Quest', built by Harland & Wolff Ltd., Belfast.

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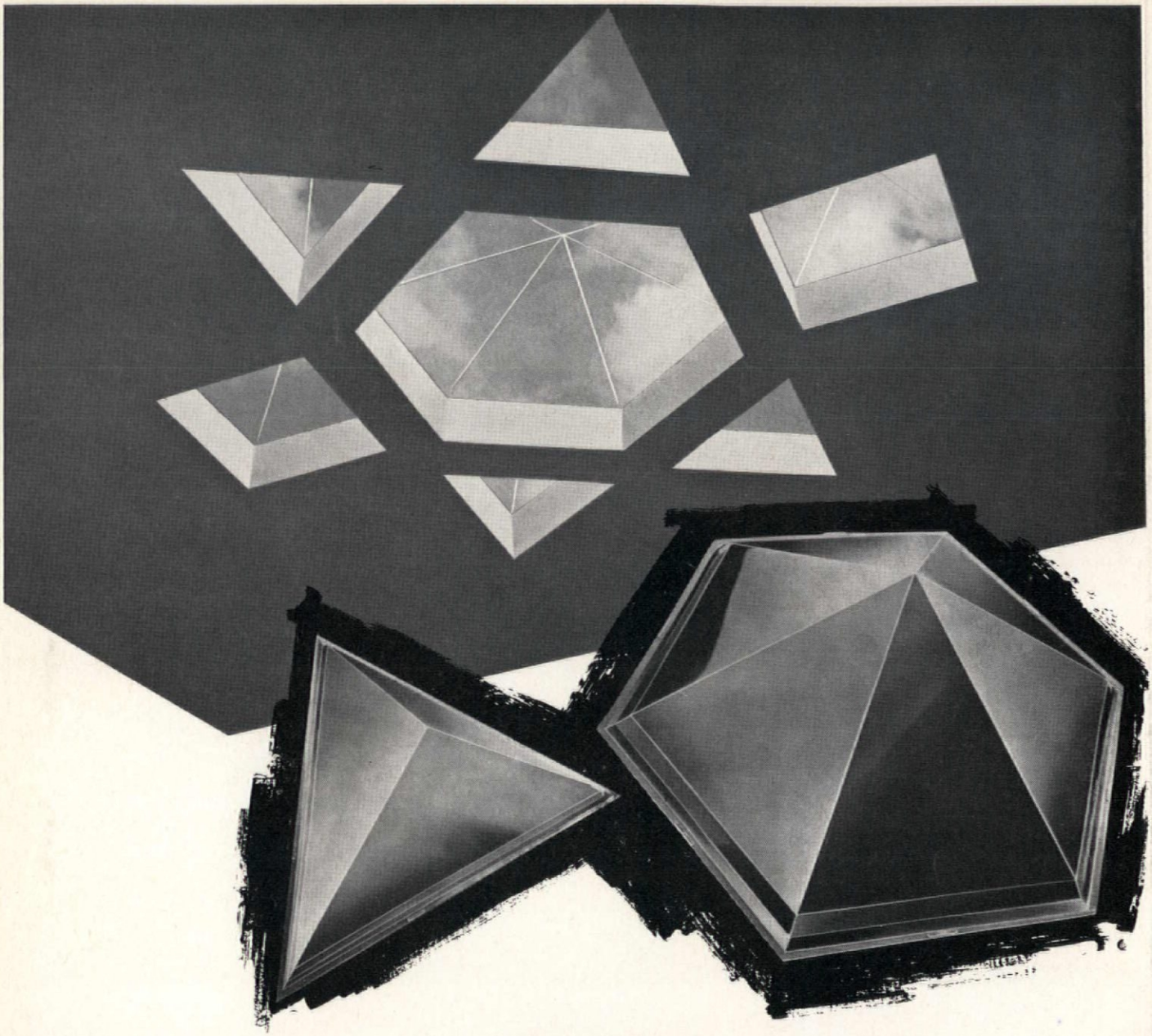
'Protection of Iron and Steel Structures from Corrosion', BS Code 2008—an important new publication now obtainable from the British Standards Institution, Newton House, 101-113 Pentonville Rd., London N1. 205 pages. Price 42/-.



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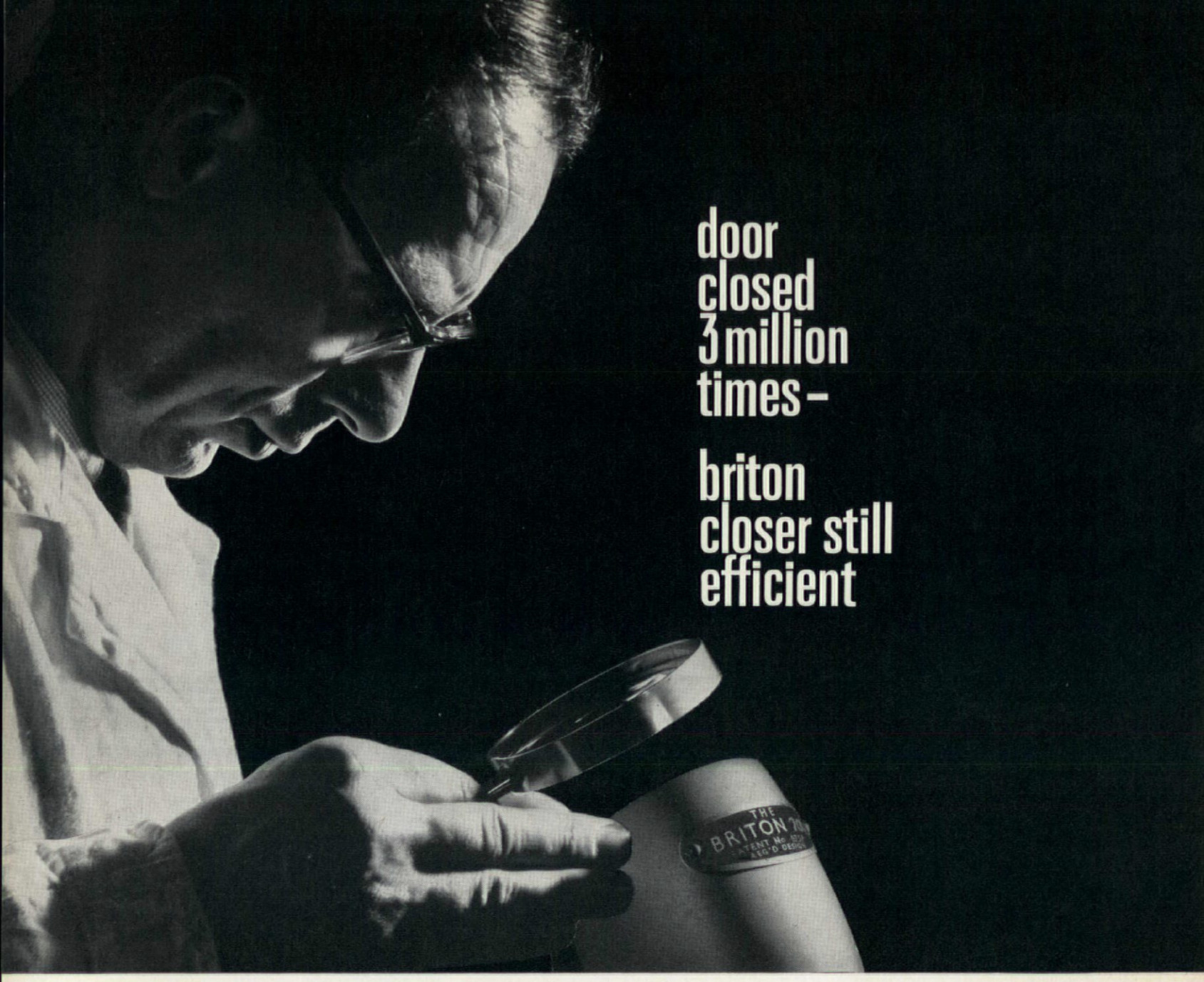

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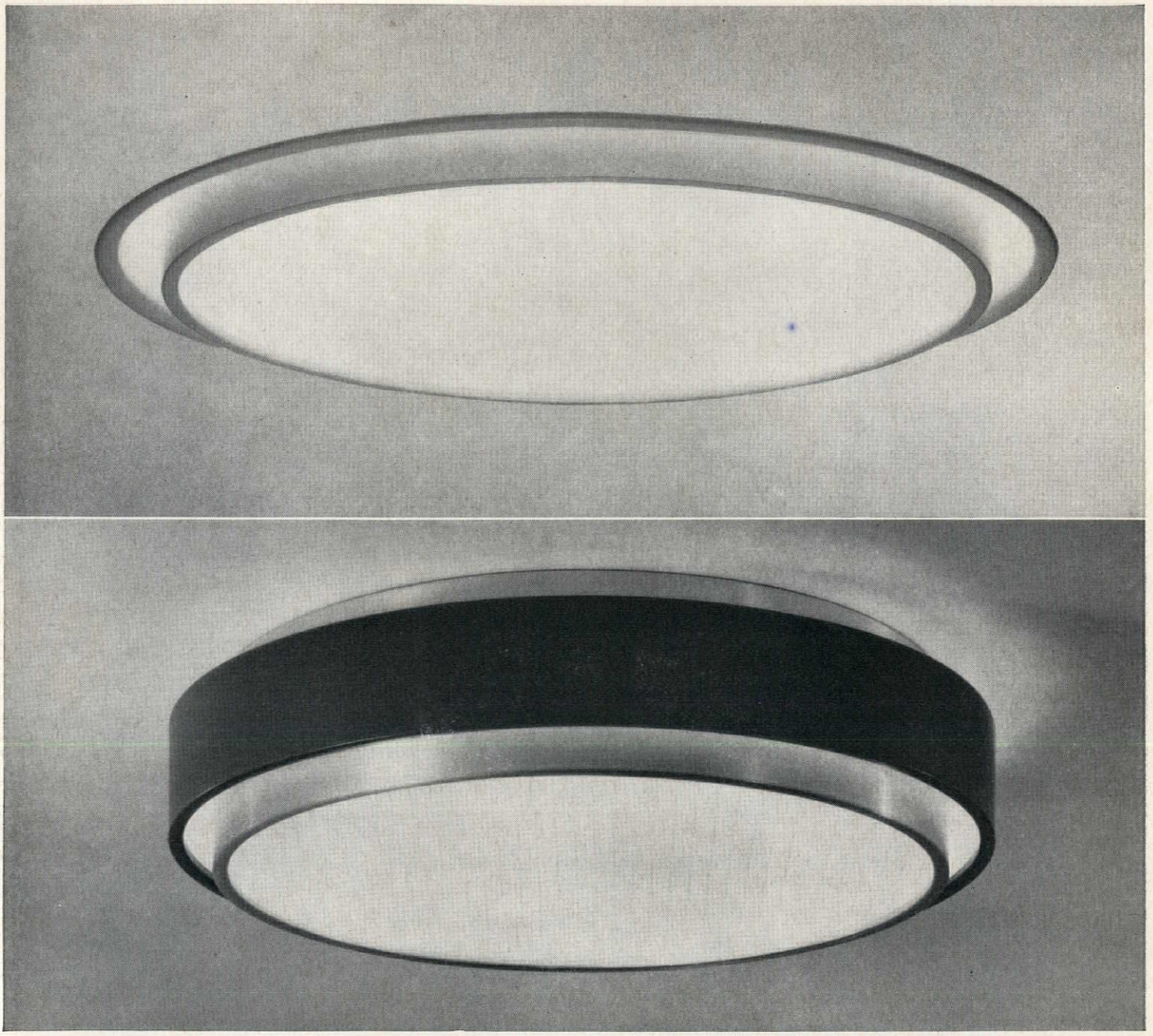

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Barbour Index (63)

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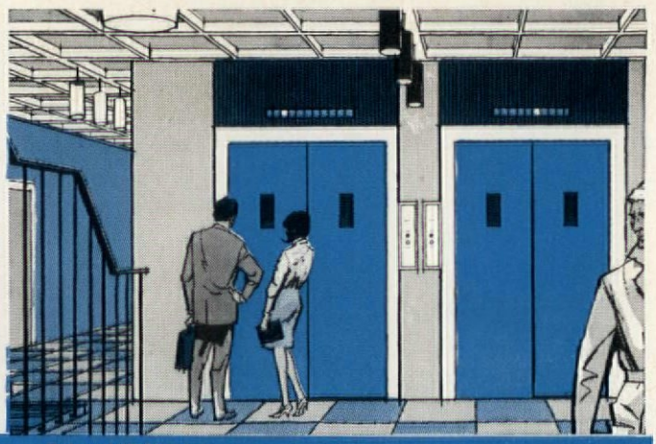
hille

Bolton Berry Garage Doors



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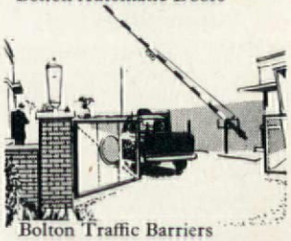
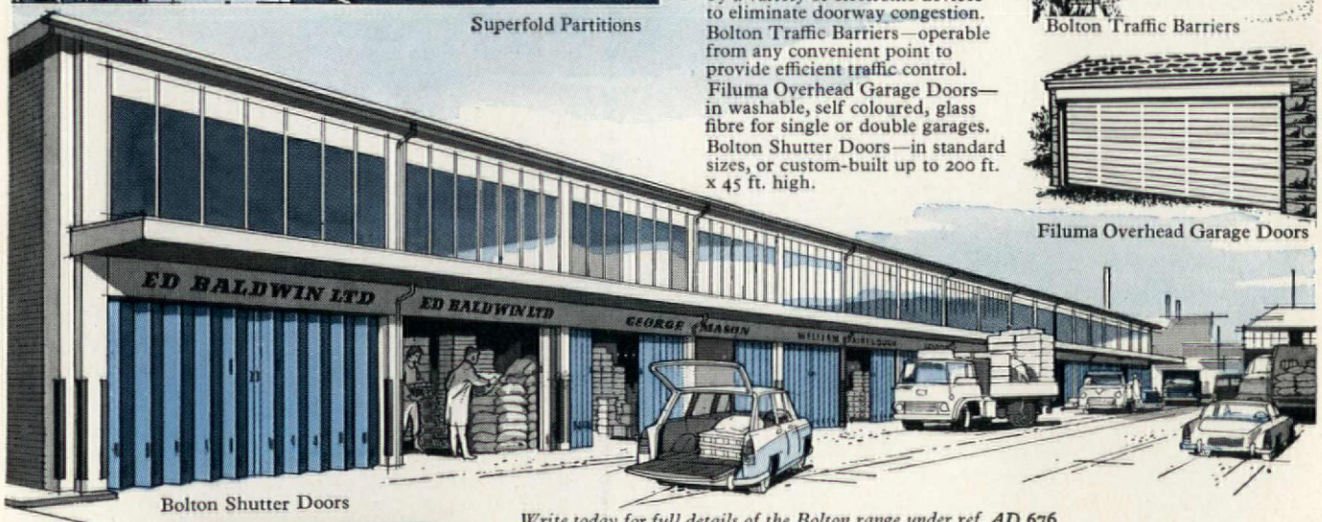


Bolton Traffic Barriers

Filuma Overhead Garage Doors



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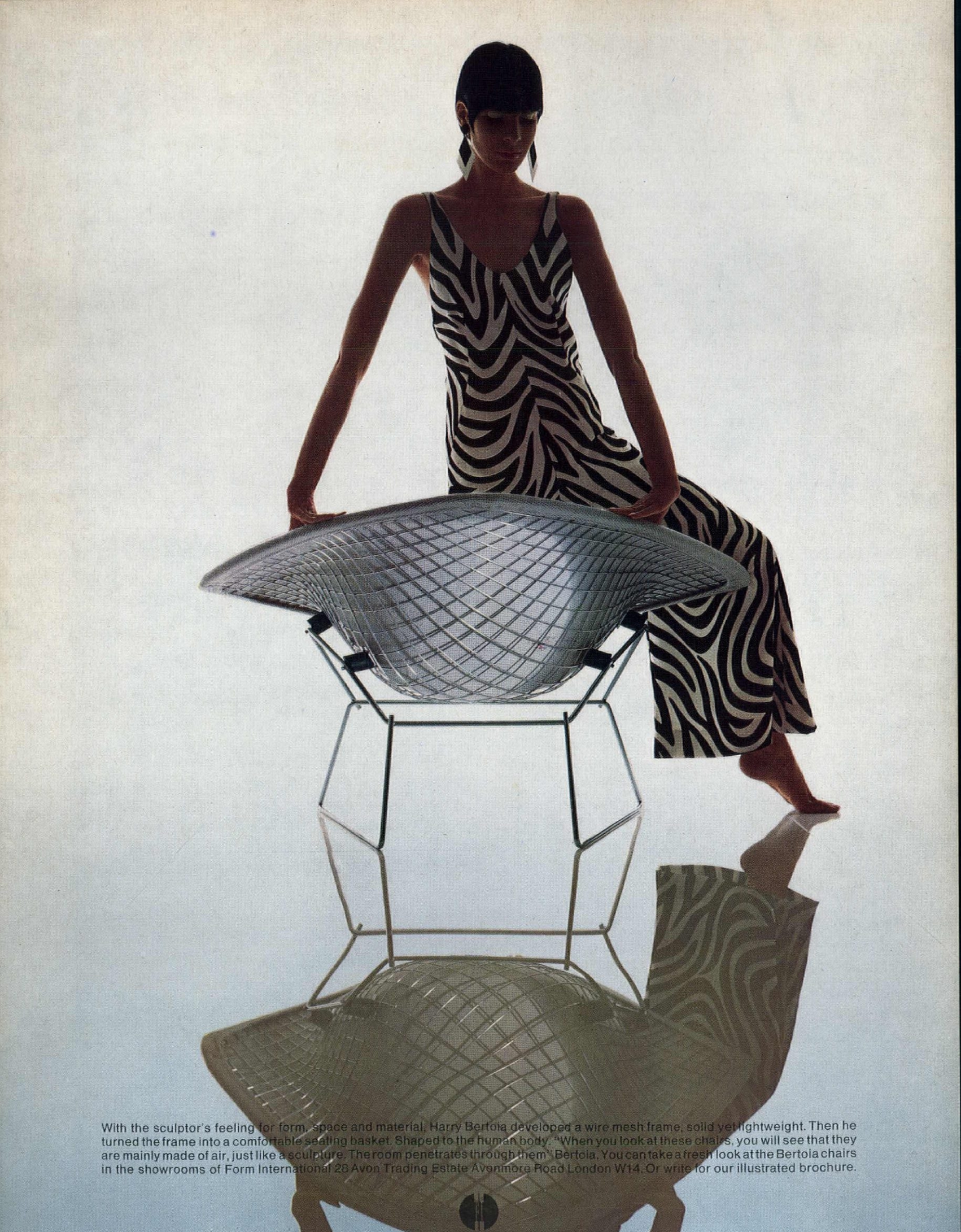

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AD Competition 1/68

What, where, when and by whom?

Answer

name of building or construction.....

address .....

date of construction .....

designer (if any).....

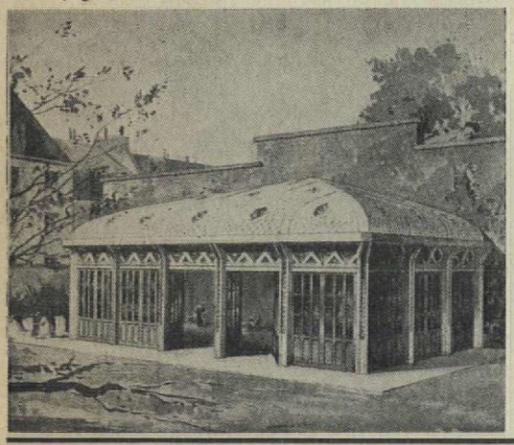
Name of competitor .....

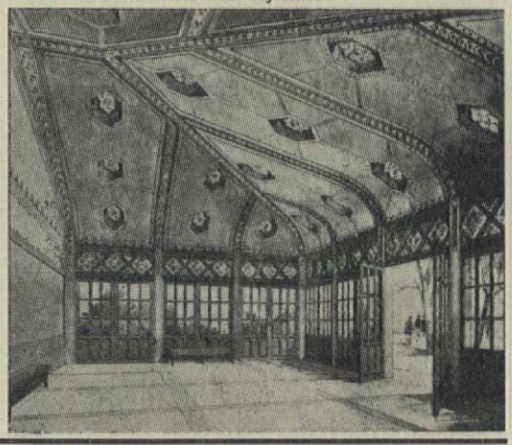
Address.....

Cosmorama

WHAT, WHERE, WHEN, BY WHOM?

On your marks, you 'travel-snobs and know-alls'! Here is the first of *AD*'s teasers. You are asked to identify the building shown in the photographs below, give its address and date of construction and the name of the designer (if any). These details are to be filled in on the appropriate coupon on page *AD* 24. The sender of the first correct entry opened on the 20th of this month will be given £5. The name of the winner (once again, if any) will be announced next month. Try hard.





Diary

BRITAIN

January 26–27. Bristol weekend computer course for architects. Apply Department of Extra-Mural Studies, 20A Berkeley Square, Bristol 8.

February 13–26. London Exhibition, 'Modern Theatre architecture in Germany'. Royal Festival Hall. Organized by Institut für Auslandsbeziehungen, Stuttgart, and arranged by architect Fritz Bornemann.

February 29. London *Symposium Thermal Environment in Modern Buildings.* (Inf. Institution of Heating & Ventilating Engineers, 49 Cadogan Square, London, SW1.)

March 27. London. *International Electrical Engineers Exhibition,* Earl's Court.

March 31–April 4. York University. *Historic towns and cities conference* (Inf. Pamala Ward, Kings Manor, York).

April 3–5, London. Alcan University Conference No. 3. *Human factors in urban planning.* (Inf. 8 Hill Street, London, W1.)

April 23–26. London. *Transport Engineering Conference* (Inf. Institution of Civil Engineers, Great George Street, London, SW1.)

April 25. Cambridge. *Conference 'The Contribution of Lighting to an Improved Environment.'* (Inf. Illuminating Engineering Society, York House, Westminster Bridge Road, London, SE1.)

June 26–29. Cambridge. RIBA Conference.

OVERSEAS

April 22–27, Barcelona, Spain. UIA *3rd Colloquium on industrialization of building.*

April 28–May 5, Agadir, Morocco, UIA *3rd Colloquium on housing.*

May 19–26, Detroit, Michigan, UIA *5th Seminar on industrial architecture.*

June 16 for a week, Aspen, Colorado. International Design Conference. (Inf. IDCA, Box 664, Aspen, Colorado, USA.)

June, Amsterdam. *6th Congress of International Precast Concrete Society.* (Inf. W. Simons, Bd. A. Reyers, Brussels 4.)

June 21–September 22, Brno, Czechoslovakia *2nd Biennial of Applied Graphic Art.* (Inf. Organizing Committee of the Biennial, Husova 14, Brno.)

July 6–13, Ekistics Tour of Greek settlements. Attendance of closing session of the Delos 6 Symposion. *July 15–26.* Ekistics Seminar, Athens. (P. Psomopoulos, International Programs, Athens Centre of Ekistics, PO Box 471, Athens, Greece.)

September 9–14, New York. *7th Congress International Bridge and Structural Engineering Association.* (Inf. E. K. Timbly, c/o Howard Needless, Tammen & Bengendoff, 99 Church Street, N.Y.)

September, Nicosia, Cyprus. *2nd Regional conference of Eastern Mediterranean countries.*

October, Mexico DF. *Exhibition of sports architecture at Mexico Olympic Games.*

December, Mexico DF. *Colloquium on museums.*

(Inf. UIA secretary, RIBA).

Competitions

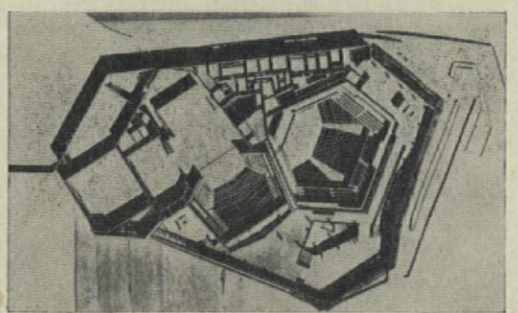
Particle Board

Written papers on the use of particle board. Total prizes DM20,000. Closing March 1st, 1968. Information from: British Plastics Federation, 47–48 Piccadilly, London, W.1.

Poster Design

For posters displayed in public from Jan. 1st to Dec. 31st. Entries by Jan 31st, 1968. Details from The Promotion officer, CoID, 28 Haymarket, London, SW1.

ROSPA's Design for Safety Housing Competition. Winners Colin Taylor and Lawrence Isaacson of London, who got £1000 for the design of a terrace house, while D. & M. Howitt won £250 for a report on modernization of old houses.



Model of theatre at Ingolstadt, by the architect H. W. and M.-B. Hämer. The theatre opened in 1966, and details will be shown at the German theatre exhibition at the Royal Festival Hall, London, Feb. 13th–26th. (See Diary.)

FT award for industrial architecture

AD gives an annual design award for building projects, sometimes of any category, sometimes of only one category (see page 9).

The *Financial Times*, has now launched an annual award for outstanding completed industrial buildings, and for their first choice have given it to the architects N. W. Foster and R. Rogers (the erstwhile TEAM 4) for their design of the Reliance Controls factory* at Swindon. The structural engineers were Anthony Hunt and Partners, the G. A. Hanscomb Partnership were the quantity surveyors, services were designed by G. N. Haden & Sons, and the building was erected by Pope Brothers of Swindon. The assessors were Anthony Cox, Philip Dowson and Sir Colin Anderson.

The other five works on the final short list compiled by the assessors are listed here in alphabetical order of architectural firms:

City of Leeds wholesale markets, by John Brunton and Partners, in association with E. W. Stanley, City Architect of Leeds.

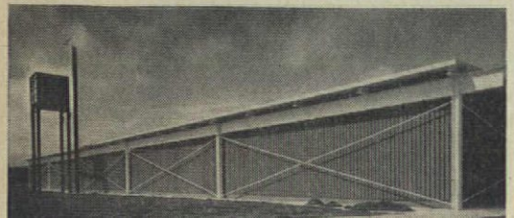
Chrysler Cummins Ltd., Darlington, by James Cubitt and Partners.

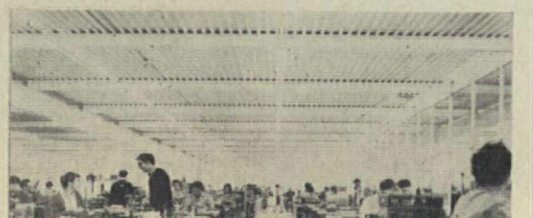
E. M. Edwards works, Neath, by Alex Gordon and Partners.

Factory for Rotork Engineering Co., Ltd., Bath, by Leonard Manasseh & Partners.

Factory for Elliott Bros. (London) Ltd., Rochester, by Yorke Rosenberg Mardall.

*See *AD* 1/66.





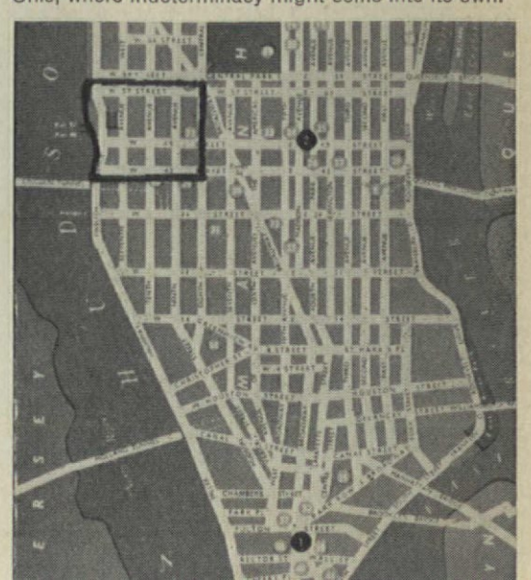
Man of the month

James Stirling, seeking Twiggy anonymity.
(*See* Manhattan revamped) *Photo: Hope Warmfeld*

Manhattan revamped

James Stirling is no doubt smiling broadly behind his Twiggy mask. John V. Lindsay, mayor of New York, announced on November 19th last that the City Planning Commission together with the Port Authority, have commissioned him to study ways to integrate the development of a chunk of Manhattan with the new passenger ship terminal to be built there. The area of Manhattan, from 40th to 58th Streets, and from Eighth Avenue west to the shoreline, is at present built up with car spare-part concerns, small hotels, some apartment blocks and run-down warehouses. It is in need of rehabilitation. The Stirling report, to be prepared in conjunction with the New York architect Arthur Baker, is not intended as a typical urban renewal study, rather as a rarified architectural conception that will act as a catalyst in the development of the whole area as a place for recreation and celebration. The great passenger liners will arrive there. Naval vessels will berth there. The coming and going of passengers, tourists and visitors could, given the proper setting, be occasions of public ritual on a grand scale. The report is to be ready within five months. But the aim—as Reyner Banham has pointed out in *New Society*, 7.12.67—is clearly to provide some aesthetic ordering, not social organization.

This aim is already endemic to New York planning, even of the most enlightened kind. The Museum of Modern Art designs for Manhattan were exercises in the manipulation of form (see *AD*, 5/67, p. 203). The real test of new British planning in the USA will probably be provided by the Lord Llewelyn-Davies and Weeks partnership designs for Detroit and Toledo, Ohio, where indeterminacy might come into its own.



City that begins with an event

Theo Crosby (architect, sculptor, designer, author), after his experience as one of the exhibition designers for the British Pavilion at Expo 67, addressed the Royal Society of Arts last November on *The design and purpose of world exhibitions*, finishing up with a challenging proposition, which we think demands serious consideration by Powers That Be. The following is an abbreviated version:

A temporary pavilion loses much point if it pretends to be permanent: it should be a celebration. It should be cheap, and it should look cheap and expendable.

Even so, to last six months it would probably cost very little less than a permanent building, and takes very little less time to build. It might take the form of a useful element in a city; we need extravagances in cities very badly indeed. Alternatively it might take the form of a permanent structure, a terrace, a series of levels which might be used for other purposes later, with a temporary filling. In either case the advantage of retaining the primary structure as a permanency means that a good deal of money is not wasted.

One might venture a suggestion for a future pavilion at another world exhibition. It might be a permanent gift, something for a nation that has everything, a gold Aston Martin. It could be for instance, a world weather centre, complete with satellite links, computers, a vast automated world map. Perhaps a cybernetic tower, with news and weather data externalized.

Such a pavilion would demonstrate friendliness, technology, and, if it worked, our competence. It would be a marvellous teaching machine. The main thing is that it should be intricate, complex, memorable. Putting all our money into a single exhibit would be a worthwhile gamble, and a constant reminder to our host nation.

We may not have a turn at being a host nation for many years, but it may be very well worth while to try for one in the '70s or '80s. We must first explore and understand the political, social and economic use that such a world exhibition could be to us. To have it in London would be very little gain. London is already amply served and needs protection rather than development. For an exhibition is a development tool above anything.

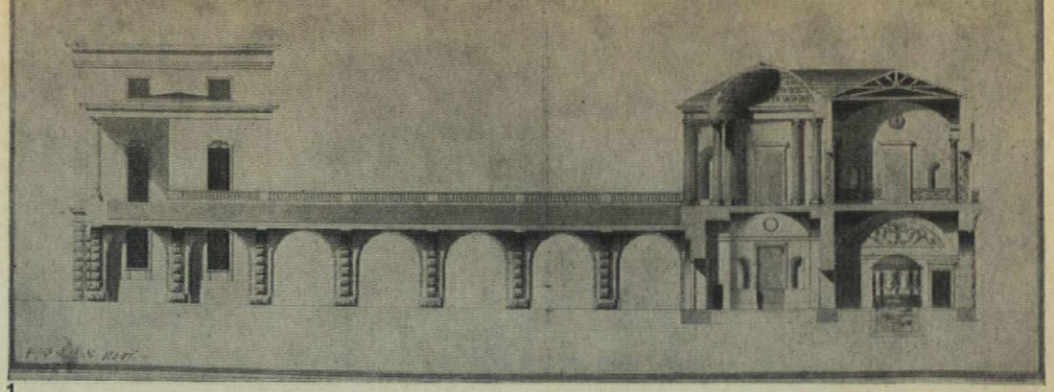
We all know that we must soon begin to build real cities, not new towns or expanded villages, and proposals for cities of a million or more are in the air. The Birmingham–Rotterdam–Ruhr link is soon going to be inevitable, and to take it through London will grow industry solid in the south-east. The empty east coast, natural gas and fine harbour possibilities at Harwich or Ipswich make a more logical situation for a city. We will probably have to build such a city, one day.

Why not anticipate this city by means of a great exhibition that would provide its centre, its infrastructure of pedestrian decks, layers of parking under, its rapid transit system, its central area moving pavements and minirails. Other countries could be invited to provide those buildings we otherwise never get round to: multi-projection cinemas, concert halls, opera houses, markets and stadia. Instead of ending with an instant city, as with most exhibitions, we could begin with one, and go on to add those suburbs. In the past, exhibitions have demonstrated housing and schools. Examples like Habitat could be used as the beginning of coherent living units, rather than remaining expensive gestures with no programme of growth envisaged.

The most important point is that this kind of prototyping really comes out of another budget—out of public relations and advertising (with its own returns) and not out of run-of-the-mill housing expenditure. It provides the capital injections that have always been necessary to improve environment.

To improve, or to create a worth-while environment you have to spend money, to waste a little. It is necessary to be prodigal, because the bread comes back as surely as with any more prosaic investment. Who now thinks of the financial scandals of Edinburgh New Town, the Renaissance Popes, Peter the Great, or Haussman's Paris? Their gestures are our tourist attractions.

Why not try for something truly on the scale of the twentieth-century, of the new technologies? Let us have a really modern city, a city with everything; a city that begins, rather than ends, with an event.



1

Charles Cameron exhibition

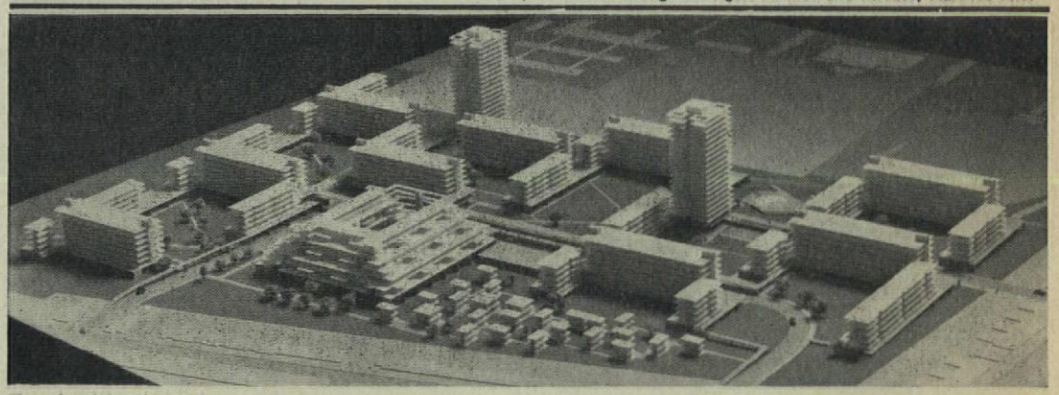
Sandra Blutman

The exhibition of drawings by the eighteenth-century Scottish architect Charles Cameron (*c.*1740–1812) shown last summer in Edinburgh is on view at the Arts Council Gallery in St James's Square until January 13th. Cameron is chiefly remembered as architect to Catherine the Great of Russia; were it not for Catherine's patronage, he would undoubtedly have remained a minor imitator of Robert Adam. How Cameron came to be invited to Russia, his years in Rome, and some interesting background to his publication on the Roman baths are all admirably discussed by Tamara Talbot Rice in her splendid introduction to the catalogue. Cameron's character does not appear to have been wholly admirable and his success was to some degree achieved by obscuring his true origin and linking himself inexplicably with the Camerons of Lochiel.

Nevertheless, his drawings are very pretty indeed and well worth seeing. Most of those on view, lent by the Hermitage in Leningrad, are for Catherine's Palace at Tsarskoe Selo. His superb ability as a decorator is well brought out by the many exquisite wash drawings for ceiling and wall schemes, often using the richest of materials and the most delicate of colours. The similarity of these designs to those of Robert Adam and his followers in England was helped in execution by the importation of a large number of Scottish craftsmen. Like Adam, Cameron formed his decorative style in Rome and absorbed a variety of influences, particularly antique Roman and eighteenth-century French.

It is difficult to form a clear idea of Cameron's architectural skill in planning or in the exterior articulation of forms from the drawings on display. Several drawings by Robert Adam are included to illustrate the similarity in style between the two architects. The inclusion of a lovely drawing for a nobleman's house attributed to Sir William Chambers, however, has no apparent relation to Cameron and little relevance to the exhibition.

1 Sectionthrough the Agate Pavilion and Terrace, Tsarskoe Selo.



For fashion's sake

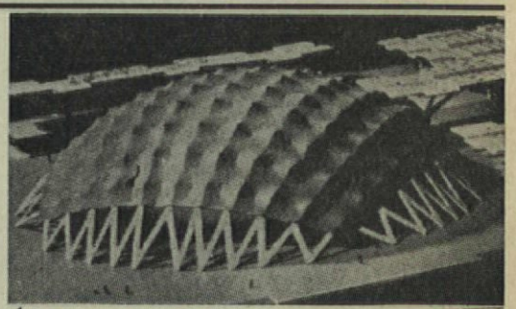
On the site at Broadwater farm (Haringey), Borough Architect C. E. Jacobs has not only included slab and tower blocks but also a fashionable ziggurat, in this case wrapped round shops and other amenities—a medley of forms for all.

1968 Olympic buildings

The competition for the Olympic buildings in Mexico was apparently hurriedly organized, so that entries might have been of an altogether different order had the contest been closer to the UIA norm. However, the design for the Sports Pavilion **1, 2**, was won by Felix Candela, in association with Enrique Castaneda and Antonio Peyri. Candela has said: ' I am building a steel structure for a 500ft dome. . . . By using a two-way system of arches to make a hemispherical dome, and then setting little shells of wood between the arches, I think I can substantially reduce the total cost and weight of the structure. . . .'

For the swimming pool and gymnasium complex the project of Manuel Rose, Antonio Recamier, Edmundo Bringas and Javier Valverde was selected, a double catenary structure uniting the twin groups of dressing, spectator and competition spaces.

Canadian Architect, 1/67



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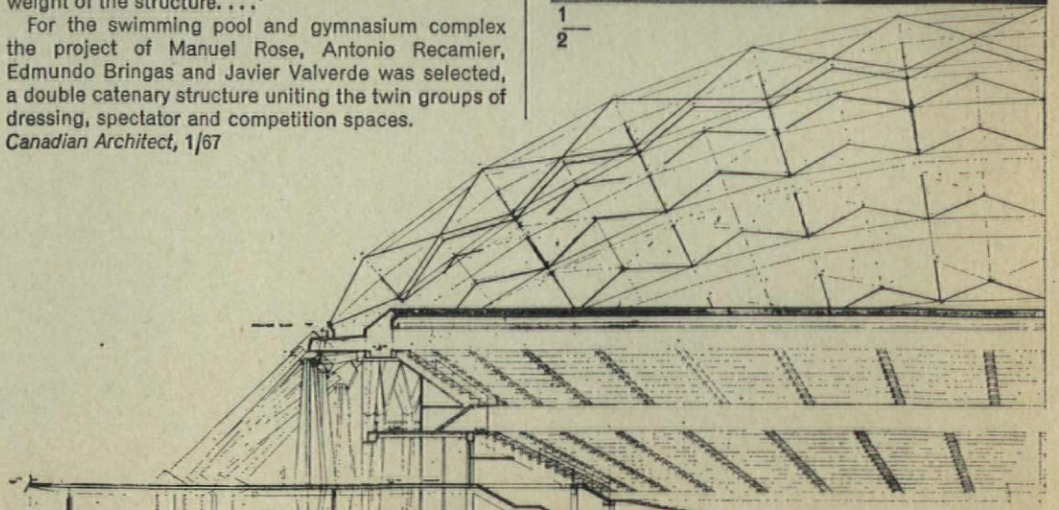
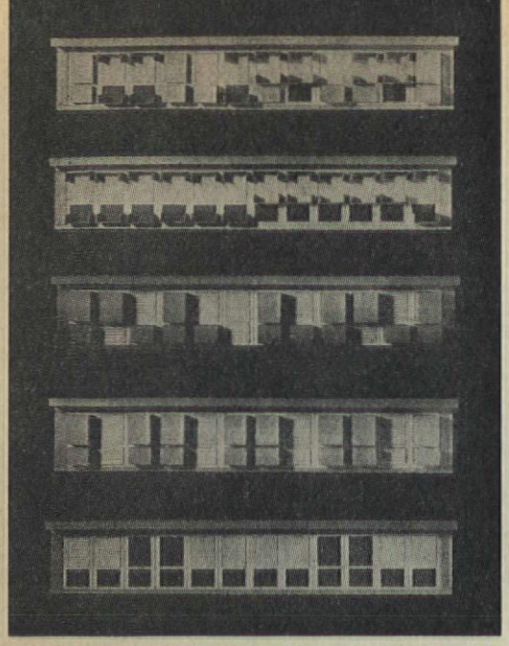
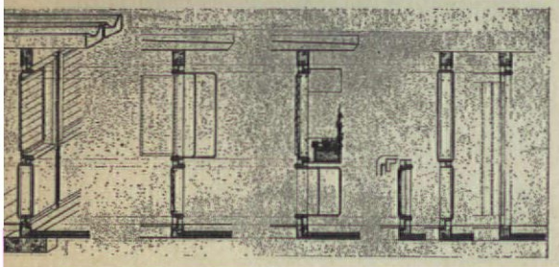
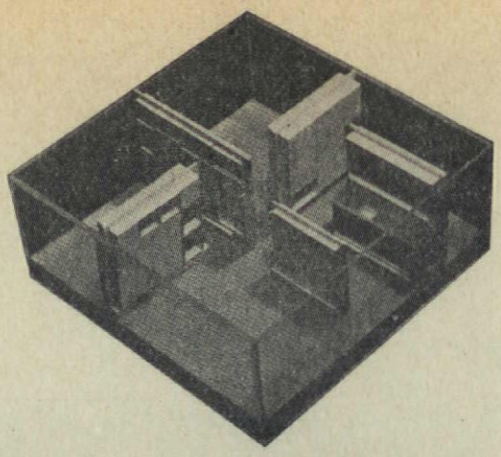


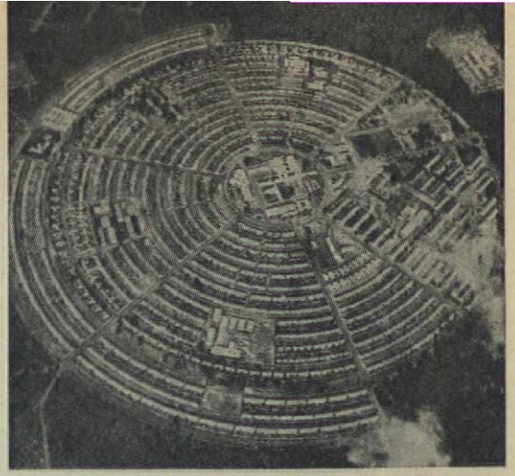






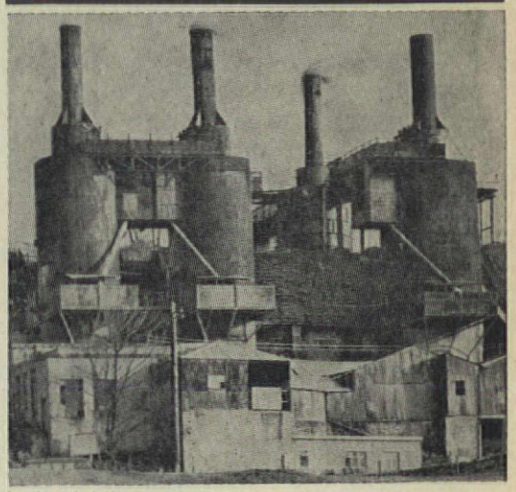
Bits and pieces

Component systems for industrialized building seldom go further than a good joint, a universal cladding panel with or without a window or a well worked out planning grid. Like nesting tables they appear to have boundless possibilities but their usefulness is strictly for the special occasion. A scheme with more, by Cuban architects, is published in *Aquitectura/Cuba* no. 336, 1966. A complete set of components has been worked out with wall frame, roof deck and an interesting range of moulded asbestos cement wall panels which double as storage units. The system is for single-storey only and the torsional effect of deep panels on the frame is questionable, but as an idea which carries right through into the internal subdivision of space and layout of services, giving what must be a very flexible choice for consumer, it offers much.



New town planning techniques in Brazil

Urubupunga, a new town about 500 miles north-west of São Paulo, built for the workers employed on a £250 million hydro-electric scheme.
The Times, September 18th, 1967.



Industrial derelicts

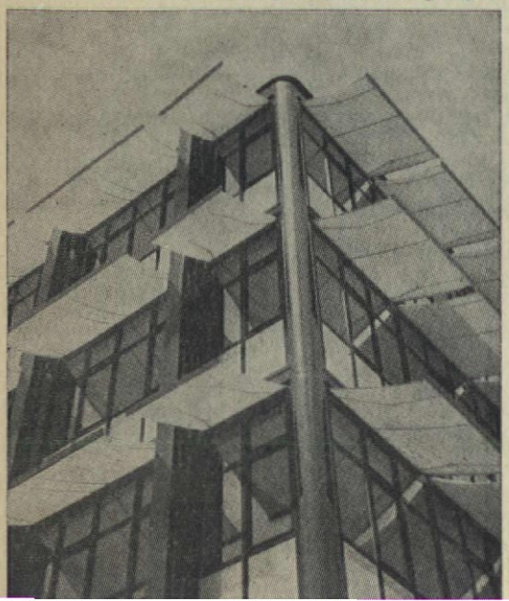
Glamorous and intriguing photographs of the decaying relics of nineteenth-century industrial complexes in Europe, taken by Bernd and Hilla Becher, have been appearing in an array of continental magazines in recent months, the finest selection is in *l'Architecture d'Aujourd'hui*, September 1967.

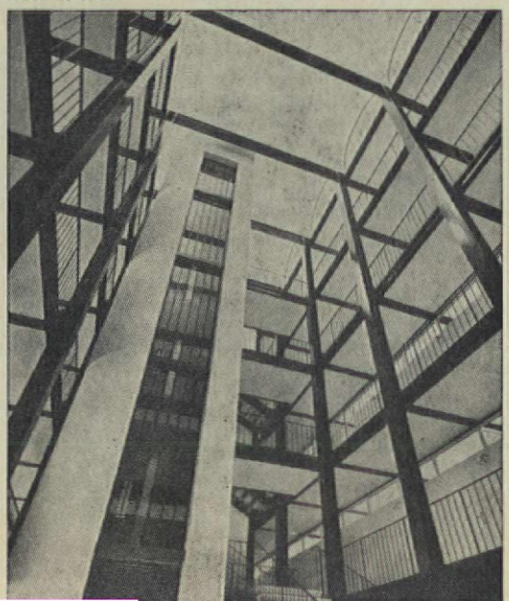
Paseo de la Marina

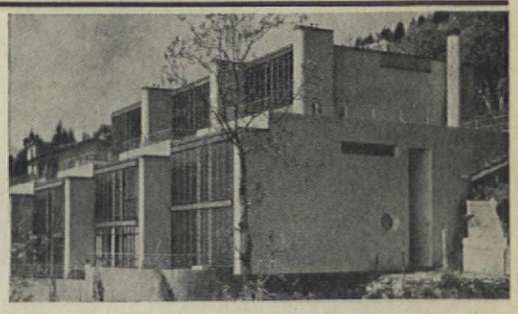
The eighteenth and nineteenth century curtain-walling in La Coruña is one of a series of intriguing and revealing photographs by Carlos Flores, illustrated first in *Hogar y Arquitectura*, which he edits, and later reproduced in book form under the title *Townscape Español*.

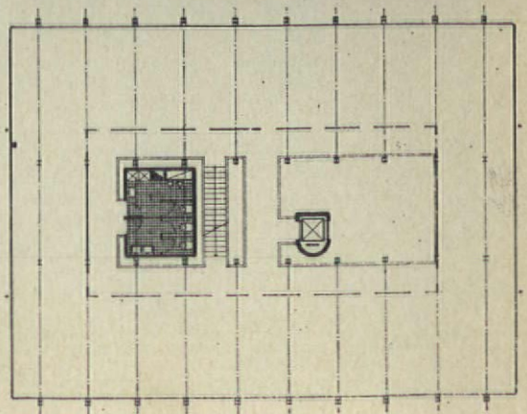
Swiss style

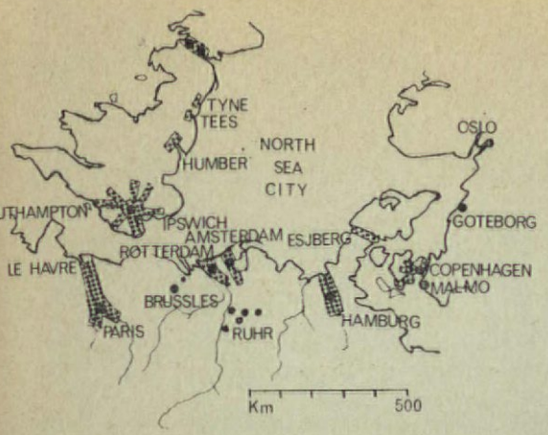
Two crisp and elegant buildings of the round corner variety, both by Luigi Snozzi and Livio Vacchini, have recently been completed in Switzerland—a group of seven houses on the via Caselle, Orselina and an administrative building at Bellinzona for Fabrizia SA, consisting of four floors of offices planned around a well, topped off with transverse barrel vaults.
Werk 9, 1967











Towards a North Sea city

Leslie B. Ginsburg

A thousand years ago urban life in Europe was beginning again after centuries of decay following the breakdown of the *Pax Romana*. Pirenne, historian of medieval cities, attributed this early renaissance to the cutting off from Europe of outside forces, particularly from the Mediterranean, and having to depend within itself for its economic survival.

Today, a new urban form is emerging in Europe, this time an outward looking city, yet one looking inwards to a European sea—the North Sea—rather than to a world ocean; this is also the result of pressures of trade and population growth forcing the highly industrialized north European countries to expand within themselves on an unprecedented scale.

Le Havre to Hamburg has been compared to the North American Megalopolis in area and population, but it differs profoundly in the cultural distinction of its parts and in the constraints of land use planning, in some cases exercised for nearly 50 years, but in all cases for the last 20.

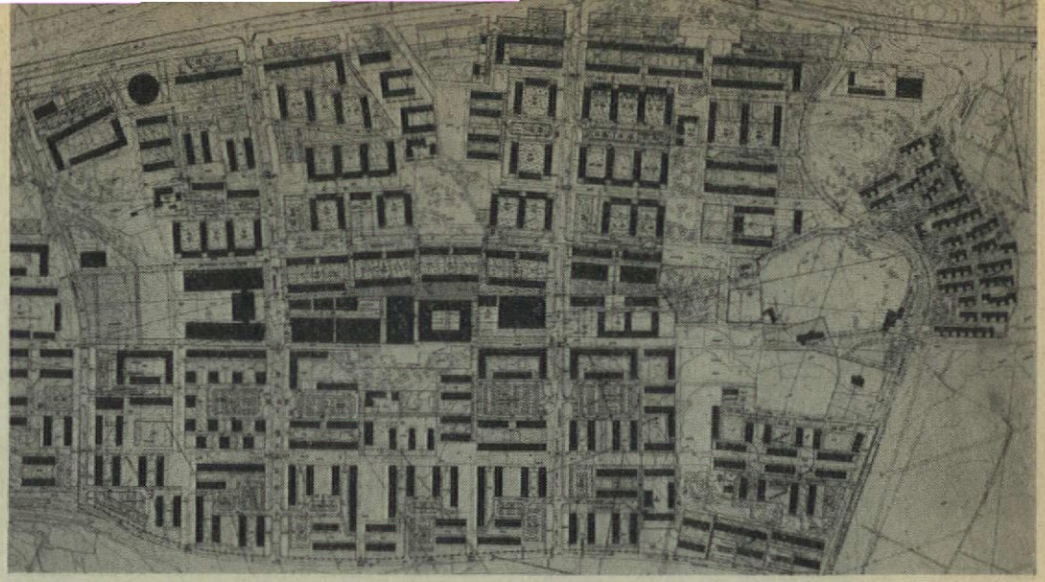
The *Schema Directeur* for the Paris region was published in 1965, with its strictly controlled corridors of development on either side of the Seine from Paris to the coast. Very much a part of the total planning of the French scene, it was ably backed up by that unique research body *Institut d'Aménagement et d'Urbanisme de la région Parisienne* whose publications are a model of the way in which urban and regional research studies should be carried out, and published. Would that we in the UK could depend on a similar organization, instead of the fragmented work of a dozen agencies all having different objectives.

Last year the Dutch abandoned their traditional Randstad trend plan for twin development corridors embracing Rotterdam and Amsterdam in urban belts perpendicular to the sea coast. Earlier the Danes, having converted the Copenhagen 'Finger Plan' into a 'Thumb' plan, had stretched the old index finger westwards to encourage growth from Roskilde, through to Frederica and on the sea at Esbjerg. Further south the Germans after the war had visualized an expansion of Hamburg and Altona down the Elbe.

Now in England, where the idea of rings of satellites had budded into the new town, and is about to flower into a ring of new cities around London, the Economic Planning Council for the South-east has brought Britain's planning into a formal European line with its 'corridors of development'[1] concept, and while several of these run inland to pick up Peterborough, Milton Keynes and Swindon, the remainder, in spite of MoHLG's present rejection of Ashford's expansion, move to the coast: trade and leisure pull England to the coast in urban expansions at South Hants, Brighton, East Kent, Southend and Ipswich. Elsewhere other Regional Boards are working hard on Tyneside and Teesside, where growth is lateral, and at Humberside, where future growth patterns are not yet known.

The great need now is to create the sub-regional design teams, and to bring the consultants in to work with them, to ensure that the actual implementation of the corridors is as bold and imaginative in its detailing as the plan is in its sub-continental approach. Very few local planning authorities in this country would be competent to handle this work as they are constituted at present, and we cannot—or can we?—designate the whole of south-east England as a single new town!

[1] *A Strategy for the South-east*, first report by the South-east Economic Planning Council. HMSO 15s.



New community for Stockholm

Michael Spens

Construction of a new type of Swedish suburban community has now begun in the sparsely wooded area of Spånga, six miles north-west of Stockholm's city centre. This new satellite within the Greater Stockholm area shows in its concept a marked advance on previous satellite communities.

The 'general plan' shows a very much more closely grained, more urban structure that is sharply in contrast to the dispersed layouts of the earlier communities of Vällingby and Farsta, where Arcadian parklands accommodated clusters of point-blocks among the trees. Now nature has been tamed between the buildings.

The current phase will provide for three neighbourhoods, named after three neighbouring hamlets there, as Rinkeby, Spånga and Tensta. The total population will rise to 32,000. The overall structure is linear, the communications spine created by the underground line which links the three neighbourhoods being overlaid at pedestrian level by a belt of building which disposes all neighbourhood centres, schools, stations along a major pedestrian spine that gives access to parks; and lower levels in a hierarchy of fully segregated pedestrian routes and spaces. Each of three local centres is served by a station.

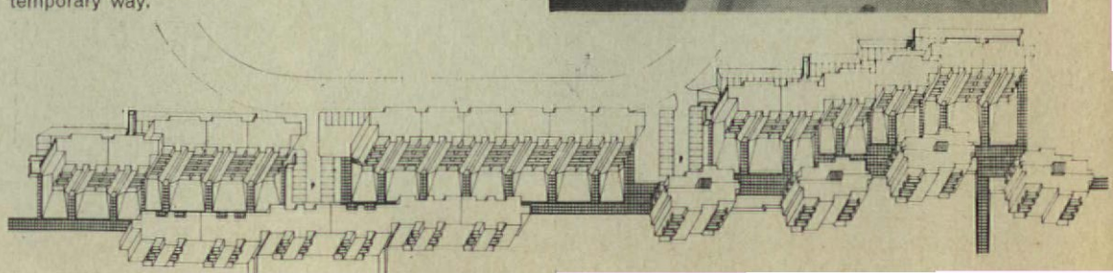
The site is 2½ miles long and some 1100 yards wide. A hierarchy of roads leads from the major autoroute that lines the long northern edge of the site, feeding culs-de-sac containing car-stacks of up to three storeys ultimately, and serving the blocks of densely-grained three-storey family housing from the same access points. Within these superblocks are carefully thought-out open areas; it is intended that every square foot should have its reason, and a purpose both in summer and in winter. The mesh of housing superblocks is contained within a more or less rectangular planning-grid. The belt of housing to the north of the services belt or strip does accommodate taller six-storey blocks for small family units, and emphasizes the higher contours; but the southern strip of superblocks accommodates mainly families with young children. Such families express a clear preference for contact with the ground in Sweden as elsewhere and such a requirement was built into the brief at the beginning. Other demands are for better services and car-parking facilities, and with the rise in living standards there, more generous allocations of space. A stringent planning requirement there also is that no doorstep should be more than 600 yards from the local centre. One-family houses are an exception to this rule; and there are 83 atrium houses to be built in a close-knit group on a slope near the historic Spånga church beside the central strip.

The programme for the total community, designated as the Järvafältet area with a population of 70,000, will run through the 1970s. A shift from quantitative to qualitative housing considerations is evident on the part of the authorities, together with a new concern for the total environment, in close detail. The pattern of the future of Swedish communities can already be read, in the move towards atrium-housing, vertical car stacks and in the now accepted linear planning philosophy, well-suited to a rapid-transit orientated suburban structure.

Silver-lining to 'Gropius-City' (Berlin-Britz-Buckow-Rudow)

Stefan Wewerka

The project of a suburb-town originally planned by Walter Gropius and popularly known as 'Gropius-town' has been under way for a few years. But the name is misleading as the original plan has been forsaken by the architects who were commissioned to carry out various parts of the residential area. One part looks slightly less depressing, the section built by the firm of architects Kleihues & Moldenschart in 1966, comprising 216 dwellings, all excellently organized. Here the houses are built along a public way where children can play in safety and pedestrians are undisturbed by traffic. Parking is at the rear, arranged in two rows, one in the basement of the building, the other in the open at basement level, neither visible from the road and connected to a service road. For the people in the area, the internal route has proved to be a familiar setting in-so-far as certain traditions of nineteenth-century Berlin planning have been reused in a contemporary way.



In the beginning . . . .

Ruth Lakofski

Way back in those gloriously apathetic days at the Architectural Association c.1956, there was an idea hovering in the air—the idea that no architectural vocabulary would be possible again until the advent of the 'moon-age'. The idea was visually vague—a jumble of rocket-like shapes, in cloud, superimposed on a blurred photographic image of Manhattan. But it was there. And in its certainty it knocked to pieces those architectural illusions for which there had been battles. A phase-out took place.

The illusion had been wonderful. One could conduct one's life as a struggle for perfection, justifying unnecessary sleepless nights and filthy clothes. A building was seen as a mixture of crossword puzzle and three-part Bach invention, capable of perfect and finite solution, and ending as a work of art, such that every bit was vital to the whole; each part of plan and structure was related and reflected in the two- and three-dimensional end-product. The word 'inevitable' was frequently used. How satisfying this was and how therapeutic. What personal psychological failures and imperfections were sublimated in this striving for perfection. But illusion it was, and out it went.

This was the end of a phase, and the beginning of a phase-out. Some people went East to Burma and Morocco; some turned to films; some sat in that well known back courtyard designing endless clothes for cripples. Others took a deep breath, swallowed the illusion and carried on into the dark ages. Throwaway fibreglass villages, appliance houses, and brothels in Bombay simmered away quietly in the AA cauldron—all was quiet on the moon-front.

Suddenly, in 1961, Archigram burst into the semi-void, cutting across new experiments in pre-fabrication, traffic interchanges and office complexes. Their early days showed no revelling in the old apathy, but a loud, clear enthusiasm. Exhibitions were staged, atmospherically related to the old *This is Tomorrow* (which at the time had been labelled *This is Yesterday*). Drawing followed drawing, each more tantalizingly pretty than the last. Enough coloured paper was used to stretch from Kettles to Royal College and back again via Hornsey. And the therapy which others found in meticulously hatching and colour washing had taken another form. 'You may find us too hung up on technology,' says Dennis Crompton. But amongst all the visuals one wonders where this technical core is. As one of their ardent supporters, Reyner Banham, has said, 'Archigram may not know how their city works but at least they know what it looks like'. Certainly they have made the world conscious that *une architecture autre* is possible, they have activated almost a generation, and each new image lifts us all a little out of some rut (or into a newer and sweeter one). During the Archigram delivery of the Terry Hamilton Memorial lecture at the ICA on November 26th—*Eight non-fictions**—David Greene looked up at the coloured slides and said, 'We started off trying to scrap architecture, but with our drawings, all we've made is a Zoom one. It's all irrelevant. It will have to go.'

Maybe that old 1956 feeling was right—phase out until the first shanty town in space shows us that the architecture we know is totally useless. Then begin. Or maybe in the meantime one could start to think seriously in terms of extensions of the body and the brain, stimulating the human organism so that shelter becomes as dated a word as homosexuality and abortion. If not where can we phase out? Even the East now is home from home.

* Metamorphosis, The Nomad, Indeterminacy, Hardware/Software, Emancipation, Exchange, Comfort, Response.

Pleasure planning

Lecture by Cedric Price, AA 7:XII:67

Although the AA dining room has now been converted into a lecture hall the difference in comfort between those sitting and those standing was merely one of posture. Mr Price kindly distracted the audience from the inconviences, however, by showing slides of his own work and highlights from the well-known Archigram collection—accompanied by light music. With the visuals over and a promise of a 45 minutes' talk to be followed by the eternally embarrassing and unnecessary phenonema 'discussion'. Price proceeded to split our sides, split hairs and knock architects all over the place. But seriously—this year's Reith lectures have been surprising. We had all thought that the family was the last remaining coherent social group that could decently be articulated. Now Dr Leach has thrown that, the family is the source of all our discontents. And if it is not social grouping which binds us (it is the binding element in people behaviour which makes the need for architecture—no binding, no building), then it must be our activities which will give us the fixes and the props for architecture. Architects do need to be supported by buoyant thoughts from other disciplines and who is coming over to tell them about behavior now? Is it to be Levi-Strauss or perhaps Joan Littlewood herself?

Professor Whitfield Lewis at the last RIBA conference is quoted as saying, 'There is an important distinction to be made here as to what the user needs and what he wants'. What he needs apparently is a 200 sq. ft garden just big enough to hang the washing out so that the baby in the pram won't catch the drips. 'No,' says Price, 'he needs clean clothes and a clean car.' Providing a washing line and roadside hard standing is not the same thing as providing the object clean.

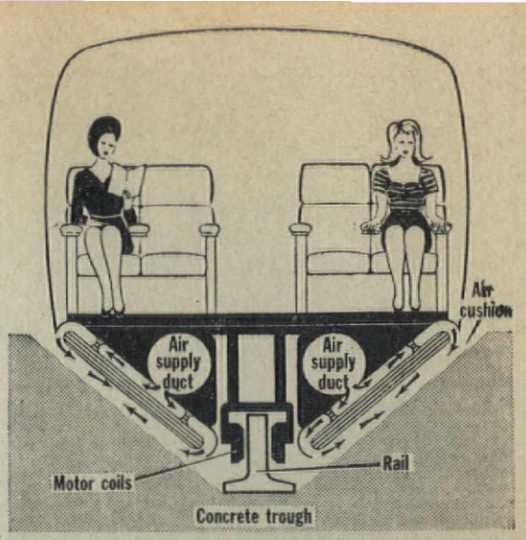
Think again about that word 'activity'. Getting what we want is not the issue. (Price admitted that the affluent society is only 25 per cent of the population.) It is important to realize that there is a growth in self-paced activities and a corresponding decline in spectator sports (copious statistics here). What we do when we have what we need throws the what-they-need-is-not-what-they-want type of argument right out, but at the same time moves towards a better definition of leisure. The pursuit of the activity is unquantifiable in terms of any apparatus or enclosure. We enjoy London in spite of, rather than because of, its buildings.

J. R. James, when asked how he defined the boundaries of urban areas called them 'areas of least tension'. These zones would be the best place to live. You could enjoy the areas of maximum tension by visiting them, but at the same time not belong to the frenzy. These boundary zones therefore may become places of greatest activity by virtue of their negative qualities. The Fun Palace concept is already a dead duck. Half of its estimated ten-year useful period has passed. The focus that it would have been has almost become a fact through extensive colour supplement publicity. Had it been built the colour supplement spectators would have outnumbered those for whom it was originally intended. There lies a distinction that better not exist. The small Fun Palaces (see *AD*, November 1967) which were more deeply enmeshed in the fabric of our boroughs would have failed to attract the attention of the affluent 25 per cent and might have worked, i.e. nobody would have noticed them. In fact the large Fun Palace died even earlier when its designers realized that very act of naming its activities contradicted its intentions—never mind the building. Mark II might be a telephone credit card for free so long as you only tell a joke. Architects, in the words of Price, should stop making 'activity delineations' and start hotting up their 'multi-directional behavioural potential,' and as for Pleasure Planning, it does not exist—it's a spoof.

Heywood Hill

In addition to verbal references made in the talk, reference was made to the following publications:

Inventing the Future Environment, M.I.T. Conference. October 1966.
World Design Science Decade Reports, Carbondale, Ill.
Christopher Sparks, *An Innovator's Notebook*. A Pen-nib publication.
Leisure in America: Blessing or Curse? Monograph 4 in a series sponsored by the American Academy of Political and Social Science edited by James C. Charlesworth.
J. B. Cullingworth, *Planning for Leisure*. Urban Studies Volume I, May 1964.
John Barr, Free Time Britain. *New Society*. April 15th, 1965.
Forecasting the Future, *Science Journal*. October 1967.
The National Recreation Survey—Report No. 1.—British Travel Association—University of Keele.
Working Papers of the Commission on the Year 2000 of the American Academy of Arts and Sciences, especially Volume II.
Bertrand de Jouvenel, *On Attending to the Future*. Paper presented at the AIA conference, June 1967.
Thomas P. F. Hoving, *Critique of Sebastian de Grazia's Report on the Problems and Promise of Leisure*. Paper presented at the AIA conference, June 1967.
Sebastian de Grazia, *Re-Creation: Leisure, Psychology and Reflection*, Paper presented at the AIA conference, June 1967.
Herbert, J. Gans, *The Levittowners*. Penguin, Alan Lane Press. 1967.
Erich Jantsch, *Technological Forecasting in Perspective*. Published by OECD, Paris, 1967.
Melvin M. Weber, *Explorations into Urban Structure*.

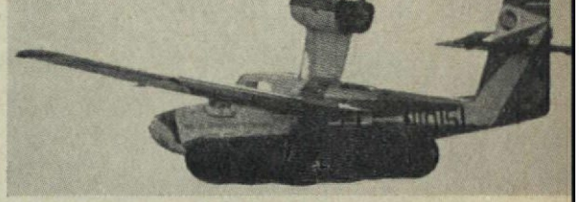


High speed trains

Japanese National Railways envisage by 1985 a nationwide network of high-speed trunk railways even faster than the fabulous Tokaido[1], with trains achieving 155m.p.h. The total construction cost is estimated at $10·8 billion. Six new routes are planned connecting Tokyo to (1) the new airport at Narita; (2) Mito; (3) Utsonomiya; (4) the south of Gumma Prefecture; (5) Kofu; and (6) the Shonan area.

In both Britain and America a tracked hovercraft train[2] has been under consideration for some time, combining the air cushion principle with linear motors to achieve anything from 150 to 300m.p.h. But in France the Aérotrain prototype tracked hovercraft[3] has been under test for nearly a year and has already achieved 233m.p.h. using jet engines. Noise, however, being an obstacle, a linear motor is now being worked on, and the new system will be tried out on a 13-mile line by mid '69.

[1] The high-speed, standard gauge, railway linking Tokyo to Kobe, on which special trains travel at 120m.p.h. with no rocking about (soup and coffee never slops over!).
[2] *The Times*, 16.7.67
[3] *New Scientist*, 14.12.67



Hoverplane

A new technique for landing both large and small planes on rough ground, without the need for runways, has been developed by Bell Aerosystems. The Air Cushion Landing Gear plane is slowed down first by means of a propeller, then it drops down onto the cushion of air contained within its inflatable rubber bag. *Industrial Design* 9, 1967

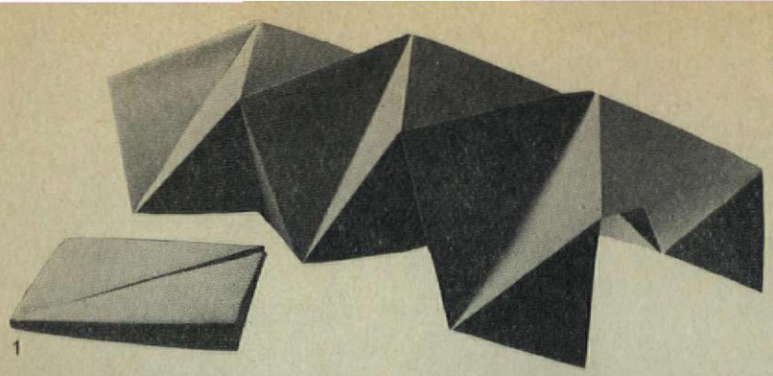
Interdesign 2000

Interdesign 2000, a competition designed to produce ideas on working and living furniture for AD 2000, was sponsored by Christian Holzäpfel, the German manufacturer of quality office furniture and a precision partition system.

At last the results are out: first prize (US $10,000) goes to Siegbert Nummela of Finland, for his design consolidating radio, TV, tape recorder, slide projector and screen into one multi-function 'audio-visual room element'. The second prize ($8000) was awarded for the plastic cabinet system of Waldemar Rothe, Minden.

Third prize ($6000) went to the team Beigel/Deckelmann/Gronenborn/Weinberger of Munich, whose futuristic 'Jobpit' will enable the operator to do virtually all office work at one console.

Designs of the following have also been bought: Jerome Caruso (Illinois, USA), Peter Cory (Wein), Michael Dupree (Chesham, England), Uwe Freidinger (Karlsruhe, Germany) Helmuy Keller (Schwalbach, Germany), Eric Renner (Michigan, USA), Fred Sachs (Weybridge, England), W. Schmid and H. Lienhard (Zurich) H.-J. & E. Schubert (Wiesbaden, Germany), and Akihiko Yanagihara (Japan).



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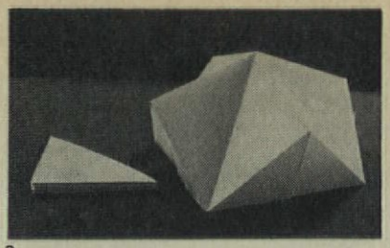

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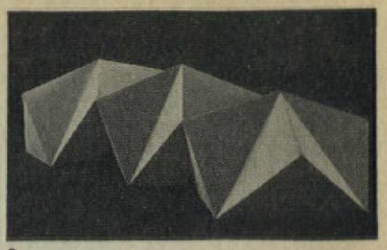

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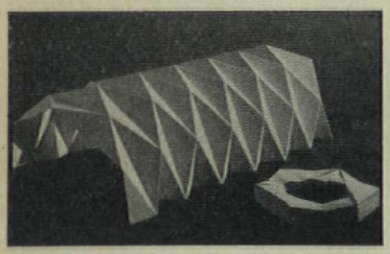

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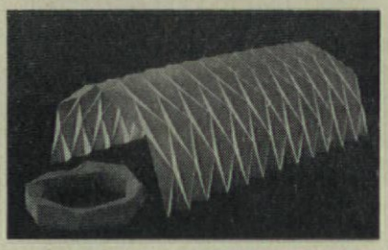

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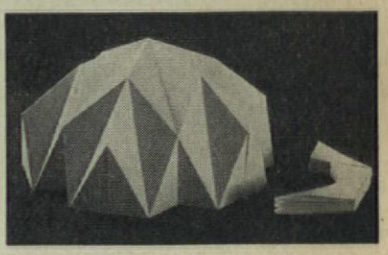

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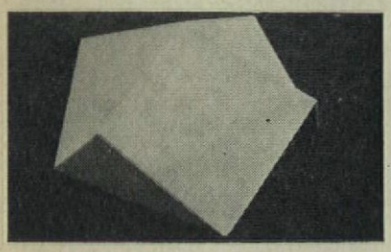

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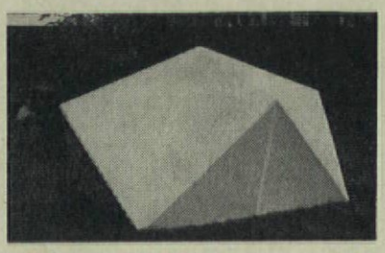

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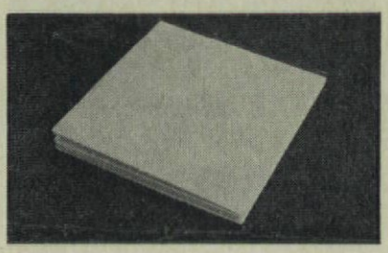

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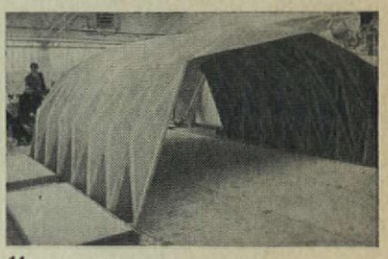


11

Folding structures

Arthur Quarmby

About two and a half years ago I was reading a book on structures, and came across an illustration showing how to make a folded-plate structure out of one sheet of card, with no cutting or jointing.

I made one of these and folded it in accordance with instructions, and it formed a rather delightful barrel vault out of a series of identical triangles. Then, purely by chance, I found out something which was not in the book; the fact that the two ends of the barrel vault could be pushed together and the whole thing would close up like a concertina. And yet more interesting than a concertina, because the cross-section of the vault shrinks in area as the closing process is carried out: it folds in on itself into a very compact form.

It did not happen as smoothly as that at first; the angles were inaccurate and so was the form of the vault, both folded and unfolded. However, my associate partner Jack Sugden solved the angle problem, and opened the way for further developments.

Right from the time of the first model we realized that this was not an origamic exercise with card, but an enclosure technique capable of application on a fairly large scale, especially with the help of the high strength-to-weight characteristics of certain rigid plastic foams.

The first folding form discovered was the hexagonal barrel vault, shown in open and folded form on **4**. From here it was a simple matter to adjust the angles used, first by trial and error and then by calculated prediction, to form several other barrel vaults. Typical examples are the square vault of **1** and the octagonal vault of **6**.

These three form the basis of a useful range of storage buildings, but at this stage of the development it was discovered that some similar work was being carried out by the International Structures Corporation of the USA, some of whose products were being used to house immigrant agricultural workers in California. However, closer examination revealed that the two designs were very much more unlike than would have appeared at first. The ISC shelters were based on a quite different geometrical theory, were jointed at the apex, when demounted did not fold into a more compact shape, and only one standard length (relative to the span) was available.

However, it took some time to assemble this information, and development work was set back. During this period a range of folding domes, mostly shallow, had been devised and patented. These were based upon radiating lines, so the component triangles changed shape, becoming shorter and fatter the further they were located away from the centre.

Experiments were therefore carried out with the same triangles as were used in the barrel vaults, and I finally discovered that domes could in fact be made from these components, **2**, **5** and **7**. It was also apparent that, on account of the consistent geometry, half a dome could always be used to close off the end of the appropriate barrel vault **3**, and that it would fold in consistently with the vault.

Patents have been obtained for all these forms by my clients, and also for several alternative folding techniques for each structure, for various types of transport and storage. Work continues (rather erratically) with the investigation of other folding techniques and forms, and as yet there seems to be no end to the variations possible.

The development work carried out to date suggests that a thermosetting foam panel ½in thick with thermoplastic skins both sides would be adequate for spans of up to 40ft, and that for buildings with a limited life a completely flexible joint would be adequate. For more stringent requirements a properly engineered, piano-hinge type joint might be necessary.

Two full-size prototype structures have been built to date, in addition to those constructed by my clients. The first, **11**, was an octagonal-based barrel vault constructed from taped triangles of hardboard, with the assistance of students of the 3-D department, Bradford College of Art.

This proved the effectiveness of the totally flexible joint, but also the ineffectiveness of hardboard for this application. The strength-to-weight ratio of hardboard is a small fraction only of that of the thermosetting foams, and it proved to be rather difficult to persuade the construction to arch up into the correct folded vault configuration.

8, **9** and **10** illustrate the full-size version of the model in **2**, the folded form being a square and not a triangle as it was not possible at the time to use the necessary push-together zip technique upon one ridge which permits the dome to fold down into a triangle. This prototype was built by my partner and I for a television programme; when erected it is 8ft square × 6ft high, and folds down into a square 5ft 6in × 5ft 6in × 4in high. Its weight was approximately 40lb. If used for a tent it could sleep six persons and could retail at about £25.

The larger structures are more economical in their ratio of material to floor area, and could be put on the market in spans of up to 40ft for approximately 5s per sq. ft of ground covered.

A substantial amount of development work has already been carried out into hinging and jointing and holding-down techniques, but much more remains to be done.

The remainder is governed largely by the market, which is large, but fragmented and varied. These are basically cheap, disposable, easily stored and erected, highly insulated, rot- and vermin-proof storage buildings.

Interest has been aroused in the armed services, manufacturing industry, service industries, agriculture, and a hundred and one odd applications catered for by no existing building type. The future for these structures and others in the pipe-line seems fairly rosy, but they do need to be put into production fairly quickly. My clients are manufacturers of the raw materials, and so manufacturing and marketing outlets are a little difficult.

Book notes

Urban structuring
Alison and Peter Smithson. Studio Vista: London. 12s. 6d. *Reinhold Publishing Corporation, NY.* 1967. $2.45

This thin book does not do justice to the urban philosophies of two top gurus of international architecture. The reorientation of architectural urbanism, which started in the early 1950s and is only now being heard in the physical planning offices of the urban world, is due in no small measure to the work of Alison and Peter Smithson, who, long before it was fashionable, turned against the globalism of the architectural utopians and, with love, toward the existing city, in a socially based vision of a 'fragmentary utopia', pragmatically attained, 'without any "old hat" notions of radically changing people's way of life'.

Urban Structuring is a record of the development of this thought from 1951 to 1964. It is an expanded version of *Uppercase 3*, which appeared in 1960, and includes the Golden Lane, Cluster City, Sheffield University, and Hauptstadt Berlin projects, all the London studies, and the Mehringplatz/Blücherplatz, Citizens' Cambridge, and Street, Somerset, projects. As in the earlier version, the five Smithson concepts: association, identity, patterns of growth, cluster, and mobility, are used to structure the research and to evoke images; though now mobility is given more than half the book, as the Smithsons, (as did Kahn before them) conclude that the movement system should be the major means of structuring urban form. "Today our most obvious failure is the lack of comprehensibility and identity in big cities, and the answer is surely in a clear, large-scale road system—*the "urban motorway" lifted from an ameliorative function to a unifying function.*'

Contradictions, the result of shifts in opinion over the years, have not been expunged; the dense multi-level Golden Lane project is followed by the Berlin 'open city' project and the statement 'We are so used to overcrowding, we even accept it when presented as an ideal'. An early enthusiasm for the sociology of neighbourhoods is replaced by a broader perspective on the society at large.

The book is dull because it is too brief. Editing has deadened the Smithson's prose, and the illustrations are insufficient to give the richness of their ideas. They lack the reinforcing of the work of their friends—*Team 10 Primer* made more lively reading—or of their own built work. But the trouble lies deeper than this. Architectural urbanism has met the blank wall of its own amateurism. If the Smithsons would study regional science, urban land economics, and transportation (as opposed to highway) engineering, this would help them understand the city as an activity system of linked establishments, and give bite to their concepts of association, and the structuring of form through movement. The Philadelphia movement study which they have found so influential, was in part the result of Kahn's association in the mid-forties with a group of bright non-architect planners. How might the Smithsons have benefited from such an association. In fact, the movement system is not the only ordering system for city form. There are many others to be understood and creatively exploited by architects.

Seen from the United States their notions on urbanism appear peripheral to the main issues here of urban unrest, the relation of planning especially in ghetto areas to social needs and democratic processes, and the physical problems of the population explosion. Also they fail to grapple with the realities of the mass-pop culture in a pluralist and affluent society. These don't lead to easy identities. Even the complexities of a Pollock and a Paolozzi are too simple today, though we may learn from a Warhol or Rauschenberg. The trouble is that while we wait for the difficult image of the process city from the few urban architects such as the Smithsons, who are thinking in these terms, the field is over-run by the easy revisionism of the mega-structures.

Denise Scott-Brown

Liverpool builds 1945–1965
Ronald Bradbury, Liverpool Corporation, £1 10s.

Liverpool lustily blows its own trumpet in describing the works of the City Architect's Department tediously presenting convincing statistics of achievement. Building 55,000 dwellings and 88 new schools in 20 years is a worthwhile achievement, but quantity alone is insufficient when results fall short on aesthetic and environmental standards, a point this book's profuse illustrations emphasize.

Costing so little this book could have been good value had the presentation reached higher standards. Poor layout, lack of continuity between text and photographs—why so many devoid of people—and committee report jargon makes for difficult reading, whilst a complete absence of layout plans is a serious omission. Indeed it is difficult to comprehend for whom the book is intended.

Many buildings rise above the general mediocrity noticeably the new Weights and Measures Department, Allerton and Larkhill libraries and the reconstructed William Brown Library, whilst brief descriptions of proposed developments indicate promise of better environment. These improvements seem to coincide with the division of responsibilities on the appointment of a new Housing Director—indicating perhaps that pressures of joint responsibility overwhelm one department?

John. G. Roxburgh

Il sistema teatrale a Milano
Guido Canella (with Maurizio Calzavara and Lucio Stellario D'Angiolini). Dedalo libri. 1966. L.5.000

Schools of architecture quite frequently interest themselves in some specialist subject, and, having explored the seductive byways, bring their researches to fruition with a great big exhibition. Few manage the next step—necessary, advisable, or foolhardy—of getting the work published. The *Elementi di composizione* classes of the architectural faculty of Politecnico di Milano have pulled it off—with the help of the Savings Bank of Lombardy. British banks please copy.

Their book, *Il sistema teatrale di Milano*, is presented as the first volume of a series to deal with Architecture and the City. It is divided into three basic sections: historical, vehicular, and hypothetical. I, personally, found the first fascinating; the other two boring. The compilers evidently agree with me; 'development' fills nearly three-quarters of the book. The approach, for a work of theatre-architectural history, is original. Eight sub-sections describe the theatrical situation of Milan at various points of time: 1573, 1704, 1801, 1856, 1894, 1911, 1938, 1965. Each is preceded by a useful (if not always entirely legible) town plan siting the theatres catalogued, and well described in the text. These plans are annotated with, *inter alia*, population figures, and the number of inhabitants served by each theatre seat in its own period.

For once, in a modern Italian book on this subject, distinction is made throughout between theatres and cinemas, and cinema-theatres, a form still widely found in Italy; although for the purposes of the calculations they are all lumped together.

Plans and photographs of theatres not readily available in reproduction elsewhere are fairly liberally sprinkled throughout the text. Albeit for a £3 subsidized book they could be a *little* glossier; and, in the sporadic sermonizing, and non-historical, chapters, fewer. Too many are here of the 'significant image' variety which signify nothing but the vanity of the architect-photographer, or whoever.

The final part of the book, *Projetti didattici*, is a series of designs for hypothetical theatres contained within four different buildings: a subsidized theatre-centre, and educational groupings of one kind and another. They neatly demonstrate the axiom that every theatrical innovator gets his following sooner or later. In this case it is Norman Bel Geddes, whose American schemes of the 1920s seem a long way from home in a conjectural Brave New Milan. Still, they could be worth a try. Angle-stage, i.e. audience on two contiguous sides of a square, is still a rarity, despite Mr Lasdun's design for the National Theatre.

Victor Glasstone

Dublin decorative plasterwork of the seventeenth and eighteenth centuries
C.P. Curran. Alec Tiranti. £2 10s.

For more than a quarter of a century Mr Curran has been the recognized authority on Dublin and indeed on Irish plasterwork. By diligent research in newspapers, municipal records and the Registry of Deeds, fortified by forays into the field of European inconography (and in particular that of Cesare Ripa) he has established a valid typology of the surviving specimens and arranged them in a significant order.

Much of the material in this book has already been published by Mr Curran, but in places not readily accessible to the English reader.

The seventeenth century is soon diposed of, for little remains from before 1700 save the Ormonde work of 1565 at Carrick-on-Suir, the O'Brien work of 1610–20 at Bunratty, and the great Chapel ceiling of 1686 in the Royal Hospital at Kilmainham. The eighteenth century falls naturally into four parts: the compartmented ceilings of the Palladian period; the figured ceilings introduced by the Francini brothers; the rococo phase in which Robert West was the leader; and finally the neo-classic 'silver age' of Charles Thorp and Michael Stapleton, in which the influence of Adam and Wyatt gradually reduces the freedom of the native style to the norms of the international neo-classic. The movement is at first away from geometry towards freedom and fantasy, reaching its apogee in about 1760, then returning remorselessly towards a geometry of a different kind, the rigidity of circle, segment and ellipse, fan-pattern and pendent plaque, In an era in which the manifestations of design were so closely inter-related, it comes as no surprise to find the same progression in the arts of bookbinding and domestic silverware. By 1780 there is little to distinguish Irish work from that being done in England. But in the meantime Irish decoration had been on a trip of its own. Mr Curran's book is the worthy memorial of that voyage.

Maurice Craig

Corporate design programs
Olle Eksell. Studio Vista/Reinhold 12s. 6d. $2.45

Design coordination and corporate image
F. H. K. Henrion, A. Parkin. Studio Vista/Reinhold. £6 6s

Both books deal with the same subject, but in complementary fashion, The small one by Olle Eksell tells 'how to do it' (like all its predecessors in this excellent series edited by John Lewis), while the other, after discussing the problems to be overcome, shows excerpts from 27 programmes by different designers.

The former gives better value for money, but the latter provides excellent illustrations, especially as it can afford to be printed in colour. Henrion's programme for KLM is shown fairly fully, making one look forward to seeing how he will deal with his most recent commissions, design images for the GPO and BEA.

Both authors convincingly stress the importance of a corporate design image for no matter how small a firm, and that it shall be created by an independent designer in full consultation with the 'top man' (no less) of the company. Both describe the complex design manual which has to be prepared after enormous research. 'Needs and proposals have to be projected as much as twenty years into the future for a successful scheme', say Henrion and Parkin.

The jacket of their book is worth framing, 'printed in four colours by letterpress using the Dufex process. The material is wax-laminated aluminium foil'.

Publications received

Environment for Man, the next fifty years
Ed. William R. Ewald, Jr. 308 pages. American University Publishers Group Ltd. Cloth 52s. Paper 22s. 6d.

La Citta a Immagine e Somiglianza dell'Uomo
Vittorio Mazzucconi, 511 pages. Ulrico Hoepli—Milan, 7000 lire.

2000 Years of London
Michael Hanson. 232 pages. Country Life Ltd. 90s.

Roads in England
Ministry of Transport. 96 pages. Her Majesty's Stationery Office. 11s.

The Levittowners
Herbert J. Gans. 474 pages. Pantheon Books. $7.95

Kaduna: 1917, 1967, 2017
Max Lock and Partners. 245 pages. Faber & Faber Ltd. 8 gns.

Berliner Architektur der 20 er Jahre
Ludwig Hilbersheimer. 104 pages. Florian Kupferberg Verlag, Mainz. DM 24.

Apollo in der Demokratie
Walter Gropius. 140 pages. Florian Kupferberg Verlag, Mainz. DM 28.

Zodiac 17
263 pages. Edizioni Communita. 5000 lire.

Report on Concrete Practice: Part 11. Site Supervision and testing
Institute of Structural Engineers with Cement and Concrete Association. 60 pages. Cement and Concrete Association. 15s.

An Introduction to Timber Engineering
H. J. Andrews, 221 pages. Pergamon Press Ltd. 45s.

Curtain Wall Construction
Ed. in chief, Konrad Gatz. 174 pages. Published by Architect and Building News by Iliffe Books Ltd., 84s.

A Manual of Application for Two-Part Polysulphide Sealants
11 pages. Sealant Manufacturers' Conference. Free.

In the superurbs*

Michael Frayn

The suburbs are all right after all. They are not, as has been commonly supposed, deserts of boredom, conformity, competitiveness and wife-swapping. They are not a dreadful social aberration which will in time be mercifully blotted out by enlightened town-planning, and living in them is not spiritually or morally inferior to living in the centre of cities.

These, at any rate, are the general conclusions which are likely to be drawn from the study of one particular lower-middle-class suburb in New Jersey made by the American sociologist Herbert J. Gans, and reported in his book *The Levittowner*.† His findings are said to have been violently attacked by orthodox professional opinion in America; a sure sign that they will eventually be violently accepted.

I accept Mr Gans's findings right now, ahead of the rush, and only wish I'd had the wit to find them first. For a long time now I've nursed the vague project of writing a guide-book to my native London suburbs. Like most guide-books, it would touch upon the geography, history, architecture, customs and economy of the region. Whenever I've mentioned it to people they've either laughed and said it could be devastating, or asked if the suburban joke wasn't a bit played out. The idea of actually *describing* the suburbs, without either laughing at them or moralizing about them, evidently seems to most people about as far-fetched as mapping a plate of mashed potato.

One of the reasons why the suburbs are thought to be such hotbeds, or perhaps coldbeds, of boring conformity is that they boringly *fail* to conform to the tastes of intellectuals. So anyone with intellectual leanings leaves at the first opportunity. Somewhere in the centre of the city, of course, they run into other disaffected intellectuals fleeing from *their* suburbs, and settle down on the spot to set up a boring conformity of their own.

Of course, the boring conformity of the intellectual community doesn't seem like boring conformity to the intellectuals, any more than the boring conformity of the suburbs seems like boring conformity to the suburbanites; each, to its adherents, seems full of the most stimulating diversity.

Let us not forget Progel's First Law of Social Appearances, which states: 'The homogeneity of a group seen from outside is in inverse proportion to its heterogeneity seen from within.' Or as Samuel Crink (1721–1897) puts it: 'Likeness is in the eye of the unlike; the like see nothing but their unlikeness.'

All the same, if I had money invested in the future prosperity of the suburbs, I think I should at this point discreetly begin to withdraw it. When moderate people like you and me, and all the others who will eventually come round to Mr Gans's ideas, start thinking that an institution is a good thing after all, its prime is past; nothing but stagnation and decay lie ahead.

Remember what we thought of Victorian architecture, until it started to become ripe for demolition? Remember what filthy things we thought steam-trains and steam-ships were, until just before the rise of the motor-car and the aeroplane? Now, of course, we know that it is the motor-car and the aeroplane which are ruining our countryside and destroying our character. We shall come round to them only when they invent the . . . whatever it is that will mark the end of our civilization next.

This is the general moral history of ideas: in their mewling infancy they are interesting and challenging and on the point of opening up a wonderful new age. Then, when they grow strong and effective, and start opening up the wonderful new age, it turns out that they are inhuman, soul-destroying, contemptible, and ridiculous. And finally, in old age, when their strength begins to fail, they are regarded with understanding and affection, and showered with honours.

Remember how television was turning us all into a nation of square-eyed morons until McLuhan said really it was doing us all a world of good and the young were growing up as a new electronic, superrace? Immediately, of course, we hear that fewer and fewer young people are watching television.

The other day I heard an architect talking nostalgically about pre-fabs as the best attempt yet at popular housing. High-rise flats—created in a messianic attempt to avoid the suburban sprawl we now think might be fine after all, and currently reviled in their turn—even these we shall one day come to feel affection for. Truly, there is almost no limit to the capacity of human beings to adapt themselves to the ideas imposed upon them for their own good.

It's odd how we feel impelled to react to everything in moral terms. Why does *everything* have to seem good or bad to us? Particularly when we know that whatever we now think good we shall eventually think bad, and vice versa. We're like tossed pennies, that can register nothing but heads or tails! Good god, is there really no aspect of the universe that we don't feel compelled either to encourage or discourage with our little smiles and frowns?

Let us put ten minutes aside each day to practise feeling morally numb. The more things in the universe which we can contemplate with neither approbation nor disapprobation, the more moral energy we shall have left to concentrate on the things which really do need something done about them. Let our commonest moral reaction be a shrug, our commonest moral discourse 'I dunno', and 'Sawright Ispose'.

Then, faced with new ideas like adolescent self-determination and the spread of unfamiliar intoxicants, we might learn to express our unease and fear just as plain unease and fear, and instead of leaping in to condemn and ridicule, just modestly shuffle from foot to foot, and lick our lips uneasily, and tremble.

From the moral point of view (if one can say this) it would be great improvement.

*First published in *The Observer* 15.10.67, p.11
† Published by Penguin, Alan Lane Press, £3 10 0, and Pantheon Books, New York, $7.95.

ARCHITECTURAL DESIGN PROJECT AWARD

Entries were received from the following private firms, organizations or local authorities. Where more than one scheme was submitted, the number is shown in brackets.

Private firms or organizations

Architecture Research Unit, University of Edinburgh. Austin-Smith, Salmon, Lord (3)/Attfield and Jones/Barber, Bundy and Greenfield/Baxter, Clark and Paul/Bicknell and Hamilton, (2)/Blair, Wm. and Ptnrs/Building Design Partnership/Burn, F., Smith and Ptnrs/Brock, David, Le M/Chapman, W., Dobson and Ptnrs/Covell, Matthews and Ptnrs/Cocker, Philip/Deal, John M./Diamond, Redfern and Ptnrs/Drury, Brian/Davenport and Percival/Emberton, Tardrew and Ptnrs/Faber, J. and Bartholomew, (2)/Gammon, J. R., Williams, H. O., and Assoc., (3)/Garbett, Keith/Gillinson, Barnett and Ptnrs/Glynn-Smith, Dyer Assoc/Goldfinger, Ernö and Assoc/Gore, Gibberd and Saunders/Hagon, Cook and Assoc/Harding, Douglas/Harvey and Millard/Herbert, Mervyn, (2)/Higgins, Ney and Ptnrs/Hird and Brooks, (5)/Hodges, Desmond/Llewellyn-Davies, Weeks, Forestier-Walker, and Bor/Lock, Max and Ptnrs/Luder, Owen, Ptnership, (2)/Mather and Nutter/McKinstry, Campbell, Clendinning and Burnett/Melvin, John/Moggridge, Hal/Morris and Steedman/Multon, Leonard, J./Nelson and Parker/Nops, Colin/Palmer, Walter, G. and Assoc/Howard and Pank/Park, Rowell, Baird and Ptnrs/Powell Bowen, S./Raimes, A. S. and Assoc/Ralphs and Mansell/Renton, Howard, Wood Assoc/Riley, Christopher/Robbie and Wellwood/Robereck, Wright and Jones/Roberts, D., and Clarke, G./Roberts, John and Assoc/Rogers, Richard and Su (2)/Scott, Kenneth and Assoc/Seal, Mervyn and Assoc/Sergeant, John/Shankland, Cox and Assoc/Sharpe, Derek (7)/Smith, Derrick/Smith, Douglas, H./Spencer, Trevor and Ptnrs/Stephen, Douglas, and Ptnrs (2)/Stephenson, Arthur/Stillman and Eastwick-Field/Tasker, Kenneth/Walker, Derek and Attenborough, John and Jones, Bryn/Watkins, Gray, Group 1/Wheeler and Sproson, (2)/Whicheloe, Macfarlane and Towning Hill/Whitehorn, Donald and Ptnrs/Whitehouse, Raymond, Assoc/Williams, J. S./Williamson, F. D. and Assoc (5)/Yorke, Rosenberg, Mardell.

Official Architects' Departments

Accrington Municipal Borough Engineer's Dept/Cambridge, City Architect's Dept (3)/Dartford Borough Council Borough Engineer's Dept/Dawley Devt. Corp., Chief Architect's Dept/Glenrothes Development Corporation, Chief Architect's Dept/GLC Architect's Dept. (2)/Halifax County Borough Architect's Department, (2)/London Borough of Camden, Architect's Dept/London Borough of Ealing, Architect's Dept/London Borough of Hackney, Architect's Dept/London Borough of Hammersmith, Architect's Dept/London Borough of Hillingdon, Architect's Dept. (2)/London Borough of Islington, Architect's Dept/London Borough of Lambeth, Architect's Dept/London Borough of Merton, Architect's Department (2)/London Borough of Southwark, Architect's Dept. (2)/Llangollen Urban District Council, Architect's Dept/Leeds, City Architect's Dept (2)/Manchester City Corporation, Director of Housing (3)/Newcastle-upon-Tyne City and County, Housing Architect's Dept/Nottingham Corporation, City Architect's Dept/Runcorn Development Corporation, Chief Architect's Dept. (2)/Stoke-on-Trent, City Architect's Dept/Sutton-in-Ashfield Urban District Council (Notts.), Dept. of Architecture/Stafford Borough Council, Architect's Dept/Washington Development Corporation, Architect's Dept.

The jurors in session: (l. to r.) Eric Lyons, Colin St John Wilson, Phillip Powell. *Photo, Sam Lambert*

AD Project Awards 1968

For this, the fifth *AD* Project Award scheme, the category of entry was restricted to HOUSING AND HOUSES and competitors were required to supply information on a standard questionnaire based on the one issued by the Guest Editors of the earlier Housing Primer (*AD*, 9/67).

The jurors, Eric Lyons, Phillip Powell and Colin St John Wilson scrutinized 139 entries from which all trace of authorship had been removed.

The housing projects which the jurors faced had to be assessed both in terms of known criteria and for the possibility of discovering original ideas. Three days is not a long time to study so many schemes, and the first problem was to determine a way of judging which would allow the cream to float unanimously to the top without being too much disturbed by differences of opinion. All entries were first inspected by each juror in turn without consultation between them. At the end of this stage, opinions were recorded by number and those with one or more definite approvals passed forward. Each scheme thereby had three separate chances that its merits would be recognized and it would go to the next judging without being contradicted by the other two jurors. As it happened the opinions were generally in agreement, a factor which alleviated the burden of judgment all the way through, but at the same time was in danger of adversely affecting its quality. Had more far-flung and contradictory viewpoints been held by the jurors some entries with more unusual but otherwise worthy concepts might have come to light. Were the jurors too ready to give approval to the images they recognized and to reject the drab and the far-fetched? There was more diversity in the total entry than in the final selection and this would seem to be a reflection of the jurors' agreement rather than an indication of promising developments in British housing.

A criteria often employed when judging architectural competitions is that an idea should be carried right through all aspects of design. This is an easy quality to recognize and has much to do with presentation of material. For housing this is perhaps a less valid approach because social, political and economic restraints pull an idea in many directions and the over-emphasis of one aspect can become a positive disadvantage.

For the second stage of the judging, for which about a third of the entry was selected, the jurors had to study each scheme very thoroughly to make sure the reasons for which it had been chosen were not negated by failures in other ways. The jury discussed the schemes openly and selected a dozen from which, by further detailed scrutiny the award winners were chosen.

In general the jurors predictably found a state of confusion. Housing in this country does not appear to be following any one direction: densities varied, high- and low-rise shared equally, and there was no clear unifying tendency of the intuitive–formal kind supplied by the Unité in the nineteen-fifties on the one hand, nor, on the other, of the fundamental user–requirement analysis. Nothing outstanding was found so, once again, there was nothing worthy of gold.

The differences in the scale of the schemes made judging difficult. On what common basis do you assess the rehousing of 20,000 people and a single family house? The fat reports submitted describing the larger projects, tended, by their nature and enormity, to hide the purposes behind them all. Indeed, so much information had been agglomerated without any design priorities that the jurors questioned whether they existed as design solutions at all. At the other end of the scale individual houses failed to reach the final selection very much for the same reasons, but inverted. Whereas the large schemes amounted to a welter of statistics, the one-off house is so particularized and unique that to someone outside the context its actuality appears just a sculptured enclosure and therefore cannot be measured in terms of group housing schemes. Other designs eliminated were those suffering from misplaced ingenuity, and also those with good ideas but which were interpreted in such a way that they created a dreary environment.

The final choice weighed heavily in favour of the simple scheme with a bias towards formality and a certain smoothness of profile. Where no new principles were there to be acclaimed, the jurors opted to back what they considered to be the most promising trend. *H H*

Winning schemes

Cranfield House development, Harefield, Middlesex (p. 10)
for London Borough of Hillingdon
Austin-Smith/Salmon/Lord

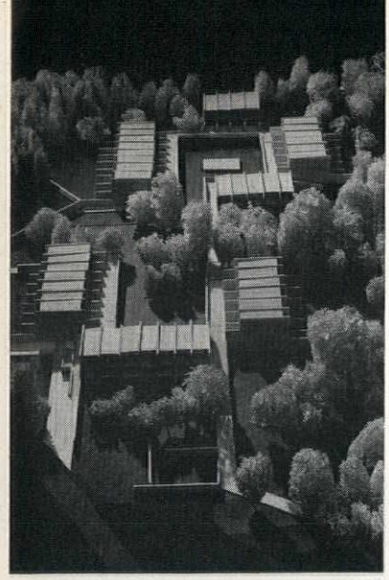
Development at Tynant, Beddau, Llantrisant, Glamorgan (p. 11)
for T. J. Hopkins, Llantrisant and Llantwit Fardre Rural District Council
J. R. Gammon, H. O. Williams & Associates
Job architect, Alan Jones

Castlefields Community, Runcorn New Town (p. 15)
for Runcorn Development Corporation
Runcorn Development Corporation Architect's Department
Chief Architect and Planning Officer, F. Lloyd Roche
Project, Architects, R. Harrison, P. Riley, B. Lowe

Pains Factory, Acacia Road, Mitcham, Surrey (p. 13)
for London Borough of Merton
London Borough of Merton Architect's Department
Design Group, M. Kitchen, P. Bell, D. Lea, R. MacCormac

Pollards Hill, Mitcham, Surrey (p. 12)
for London Borough of Merton
London Borough of Merton Architect's Department
Design Group, M. Kitchen, P. Bell, D. Lea, R. MacCormac

Ingledew Court, Sandringham Drive, Alwoodley, Leeds (p. 14)
for Yorkshire Housing Society
Derek Walker & John Attenborough & Bryn Jones
Job Architect, R. S. Mosscrop
Design Team, P. Powell P. Kellett



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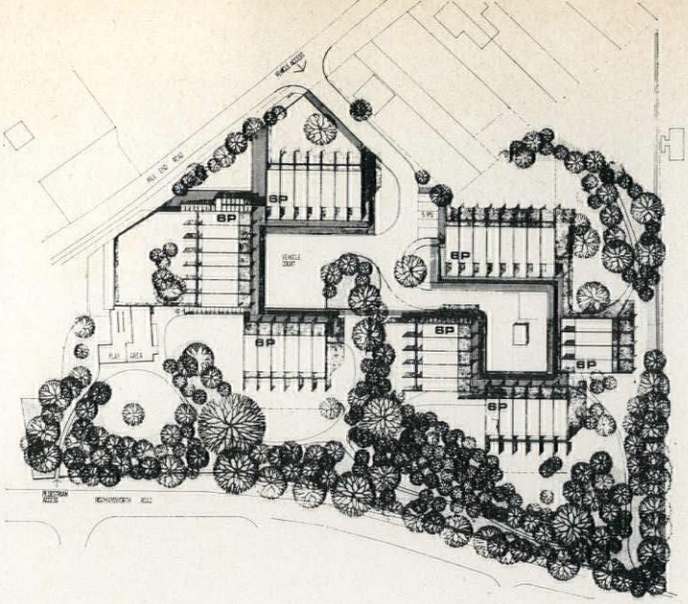

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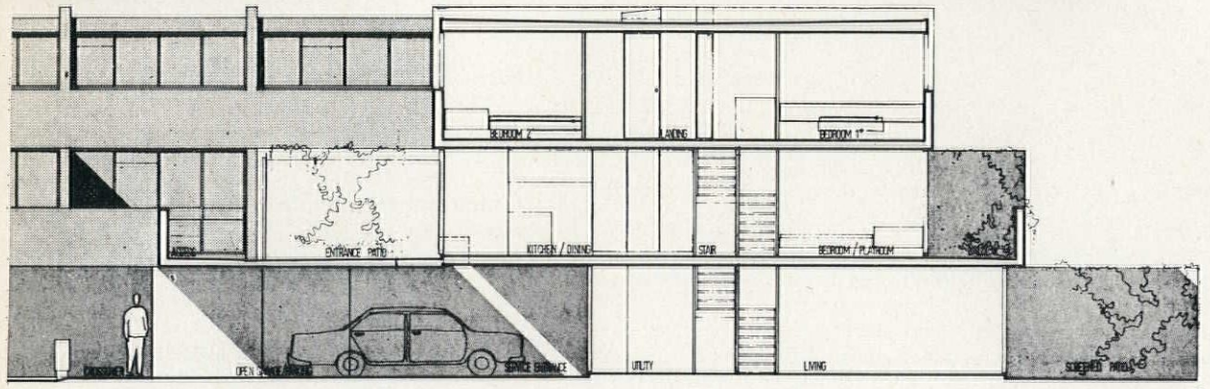

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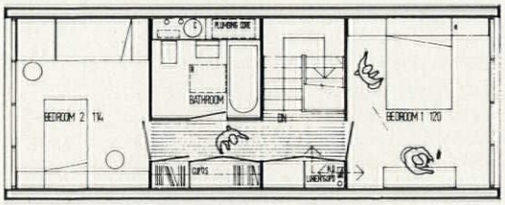

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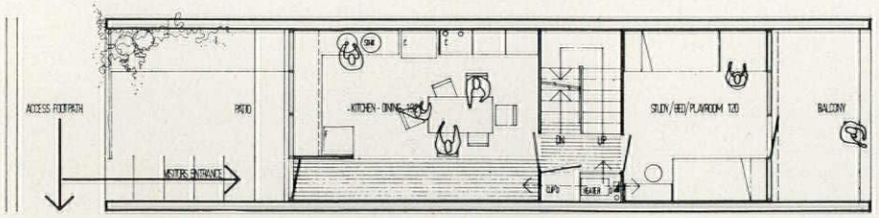

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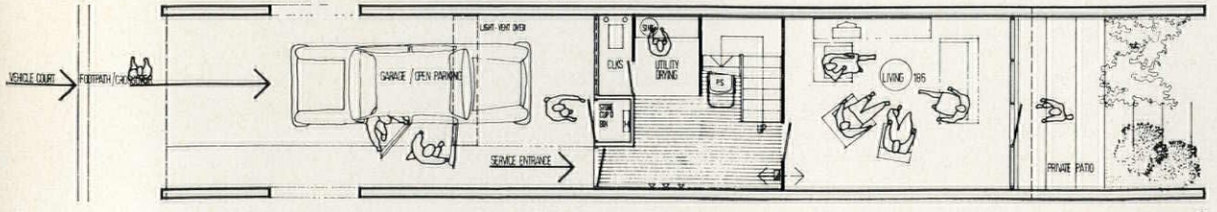


6

ARCHITECTURAL DESIGN PROJECT AWARD

Cranfield House site
Harefield, Middlesex

Architect The Austin-Smith/Salmon/Lord partnership

Client London Borough of Hillingdon

Site area 4·79 acres gross. Permitted area for housing agreed with MoHLG for cost yardstick density purposes, 3·3 acres

Density in bed spaces per acre 78·2

Density in dwellings per acre 13

Special existing features The site, formerly the grounds of Cranfield House, has fine mature trees covered by preservation order. They leave little space for development

Number of vehicle entrance/exit points One on west boundary, serving 2 vehicle courts. No through access. Pedestrian access is separate

Total number of dwellings 43

Percentage of
(a) *Flats* Nil
(b) *Houses* 100
(c) *Maisonettes* Nil

Private outdoor space Each house has an average of 30ft defined garden, grassed and unfenced, with 12ft screened private patio front and back, and 6ft balcony at first floor

Car parking
(a) *Residents' garages* 43
(b) *Residents' hardstanding* Nil
(c) *Visitors' hardstanding* 5

Distance from residents' garage or hardstanding to his home Adjoining dwelling and service entrance

Maximum 'carry distance' for refuse collection Generally 60ft

Method of refuse collection Bins

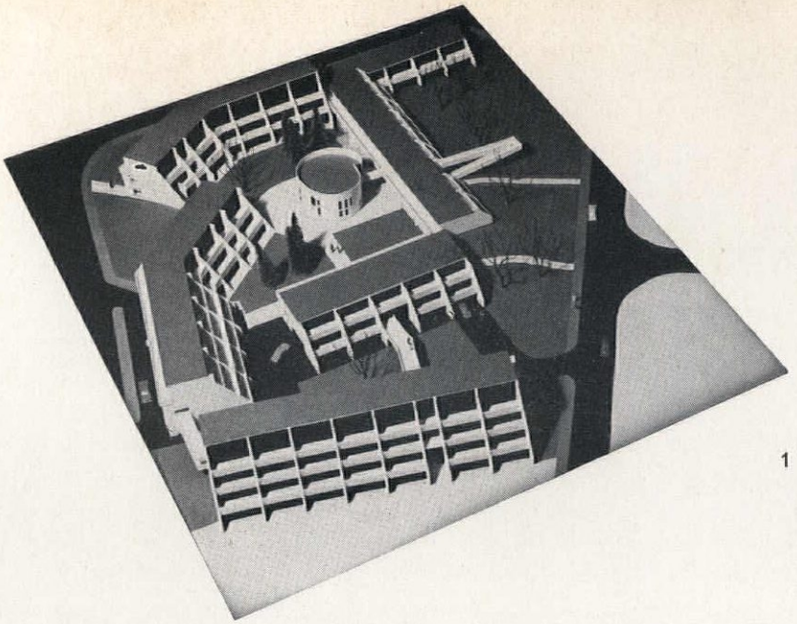
Brief description of construction Houses are built in a rationalized construction on modular dimensions, based on 12ft clear bay form with brick crosswalls, timber floors and roof. Dwellings clad in selected quality joinery infill frames or brick spandrels; roof and balcony finishes are mastic asphalte. High overall level of insulation achieved by whole structure. All internal partition construction dry, and walls and ceiling dry lined. Components (door sets, staircases, cupboard units, plumbing wall services, etc.) to be delivered to site prefinished ready for erection

Additional information The Borough has many small infill sites and agreement was reached to serialize three sites* and further housing programmes. Layouts designed to give privacy (on to landscape) on one side and allow vehicle and pedestrian access and servicing on other. All sites supplemented with additional tree and shrub planting and landscaped. Finishes chosen are white brick walls and black treated joinery, although scope for variable finishes is possible. High standards of finish are achieved within tight Ministry cost yardsticks

Estimated total cost of complete contract £205,516 inclusive roads and landscaping

*A second site is illustrated on p. 18

1
Block model, looking north
2
Site layout
3
Section and elevation of 6-person terrace houses
4, 5 & 6
Second, first and ground floor plans of 6-person houses



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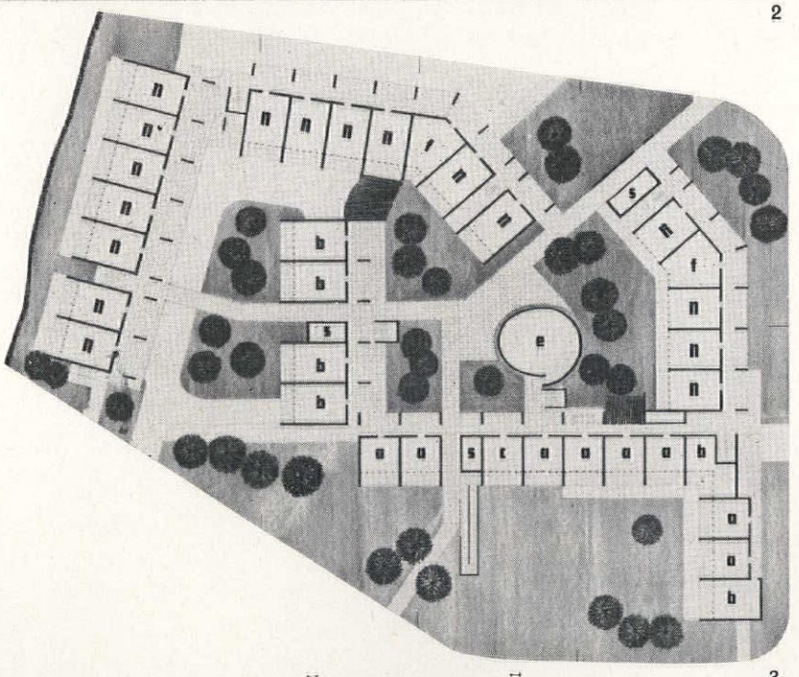


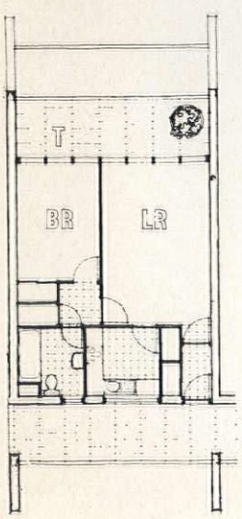
3

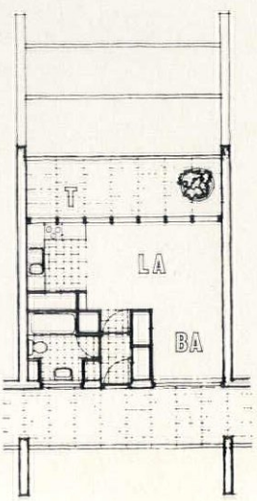
Tynant, Beddau, Llantrisant, Glamorgan

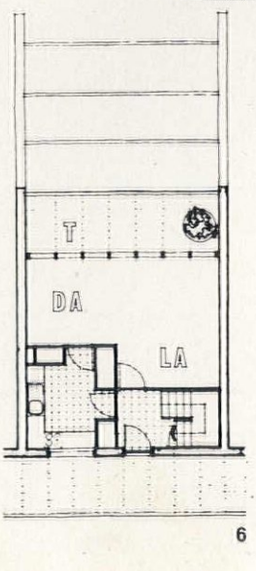
Architect J. R. Gammon, H. O. Williams and Associates
Job Architect Alan Jones
Client T. J. Hopkins, Llantrisant and Llantwit Fardre Rural District Council
Site area 2·14 acres approximately
Density in bed spaces per acre 95·3
Density in dwellings per acre 48·1
Special existing features The site is virtually an island site, already built around on two sides with eventual development on the two remaining sides.

The scheme of medium rise high density utilizes the contours to give the best possible aspect inwards and outwards, using interlinked landscaped open areas traversed by pedestrian ways and ramped access. Although the unit has blocks of five storeys, no tenant has to rise more than one flight of stairs or alternatively can use the ramp access

Number of vehicle entrance/exit points 3
Total number of dwellings Old aged persons' block, 33 (including warden's flat plus two guest bedrooms)
General housing, 68 units
Percentage of
(a) *Flats* 75·3
(b) *Houses* Nil
(c) *Maisonettes* 22·8
(d) *Others* 1·9
Private outdoor space Communal planted and paved area. Flats have a terrace or balcony
Car parking
(a) *Residents' garages* 45
(b) *Residents' hardstanding* 24
(c) *Visitors' hardstanding* 20
Distance from residents' garage hardstanding to his home
Maximum 140ft
Minimum 10ft
Maximum 'carry distance' for
(a) *Residents* 50ft
(b) *Refuse collection* 50ft
(c) *Fire hose* 100ft
Children's play areas 5
Other amenities Tenants' communal room
Brief description of construction Load bearing brick cross walls, rc slabs, ramp and walkways
Estimated total cost of complete contract £400,000







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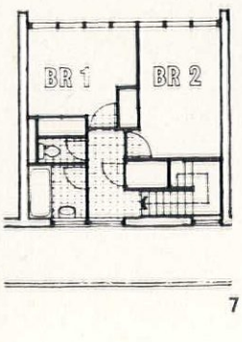
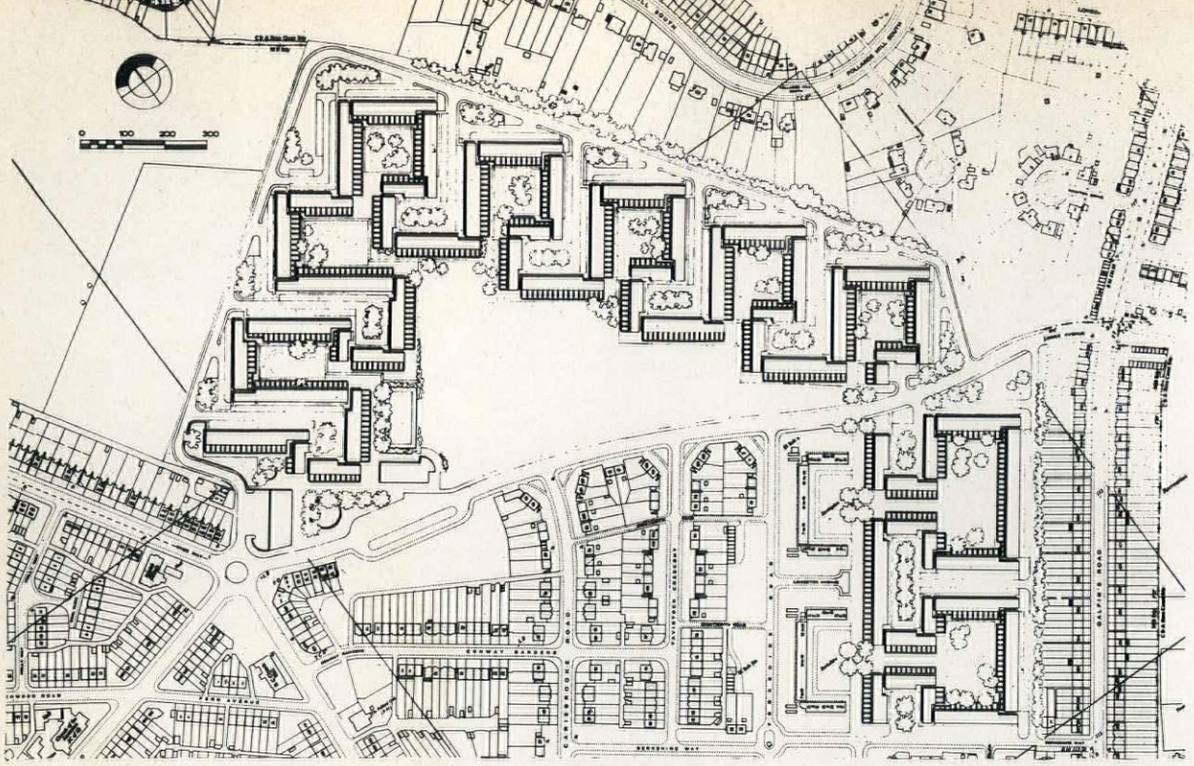


7

1
Block model from the south
2
View of housing from the east
3
Site layout and plan of housing at second level
a OAP one-person flat
b OAP two-person flat
c warden
e OAP communal room
f one-person flat
n two-person flat
s store
4, 5, 6 & 7
Plans of two-person flat, one-person flat and upper and lower floors of a four-person maisonette



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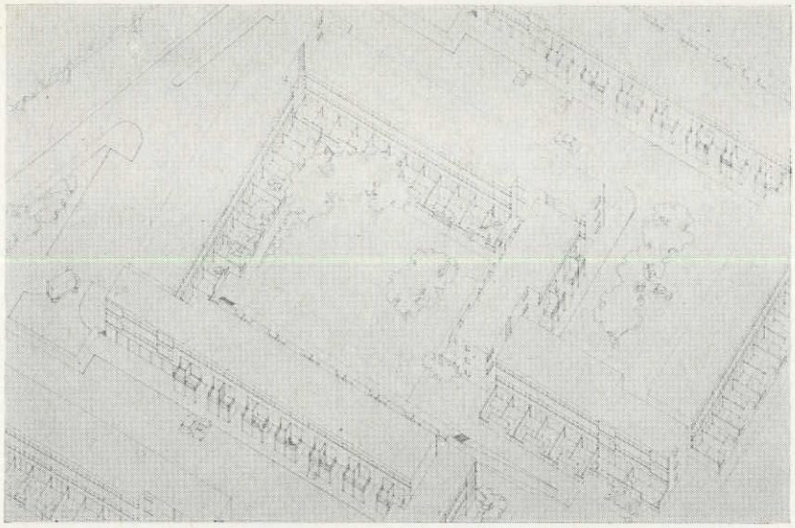

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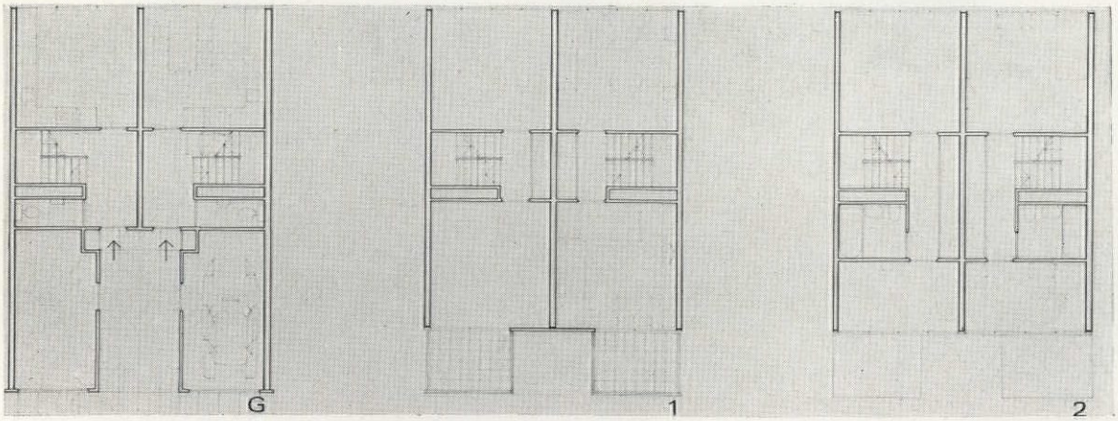

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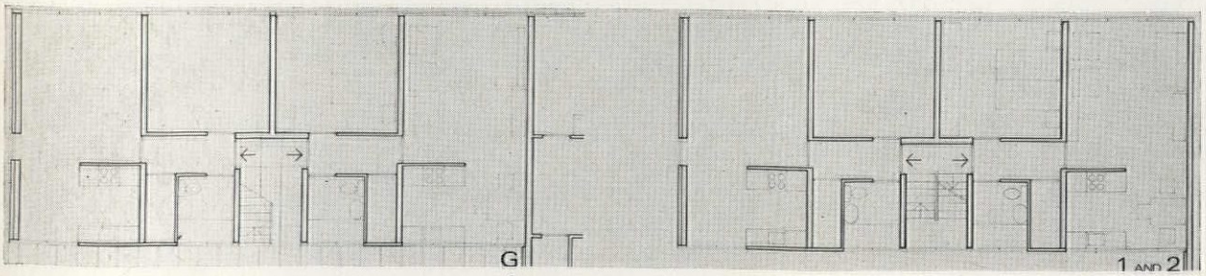


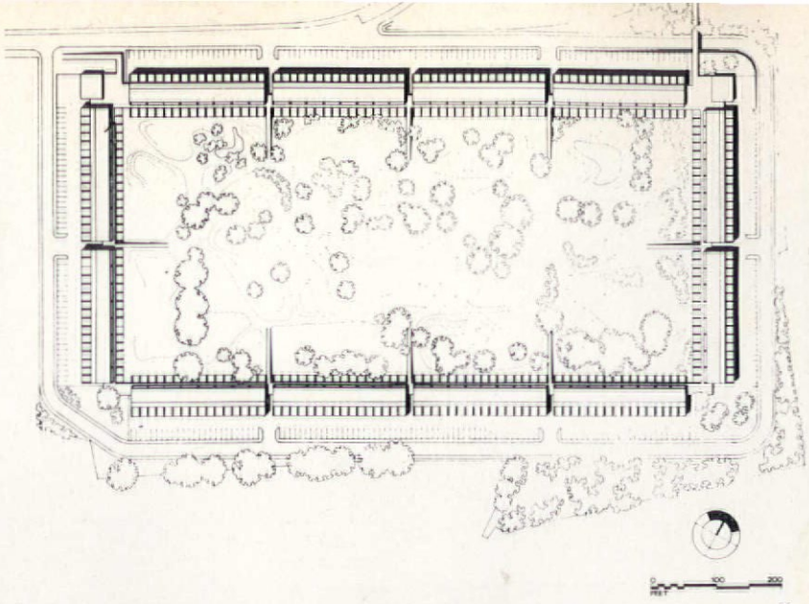
6 7

Pollards Hill
Mitcham, Surrey

Architect London Borough of Merton, P. J. Whittle, Borough Architect
Design team Mike Kitchen, Peter Bell, David Lea, Richard MacCormac
Client London Borough of Merton
Site area 32·82
Density in bed spaces per acre 104
Density in dwellings per acre 38
Special existing features Pollards Hill
Number of vehicle entrance/exit points 4
Total number of dwellings 850
Percentage of
(a) *Flats* 34
(b) *Houses* 66
(c) *Maisonettes* Nil
Private outdoor space House and ground floor flats each have a garden
Standards Space and storage standards are to Parker Morris level. Heating (gas warm air) is above it
Car parking
(a) *Residents' garages* 667
(b) *Residents' hardstanding* 183
(c) *Visitors' hardstanding* 425
(d) *Service vehicle hardstanding* 21
Additional 80 hardstanding for existing dwellings without garages
Distance from residents' garage or hardstanding to his home
Maximum 150ft for two-person flats
Minimum Within house
Maximum 'carry distance' for
(a) *Residents* two-person flats 36ft; all houses nil
(b) *Refuse collection* two-person flats 36ft; all houses nil
Method of refuse collection Paper sacks
Children's play areas 9, up to one-third acre
Shops. Tenants' meeting rooms, etc Space has been provided for community and shopping facilities at a point from which routes distribute to the bus stop, existing shops, school site and playing fields, so that each facility gains support from the others.
Brief description of construction Terrace houses with brick or concrete (no fines) party walls. Ace extruded asbestos cladding and sliding metal windows suspended timber floors
Additional information The planning principle of confining housing to the perimeter of open areas, developed for this and other sites in the housing programme, has been derived from studies made under Sir J. L. Martin in Cambridge ('Land use and Built Forms'. Sir Leslie Martin and Lionel March, Cambridge Research April, 1966)

1
Site layout
2
Axonometric of one of the housing courts
3, 4 & 5
Five-person house, ground, first and second floor plans
6 & 7
Two-person flats, type B, ground and first and second floor plans

1



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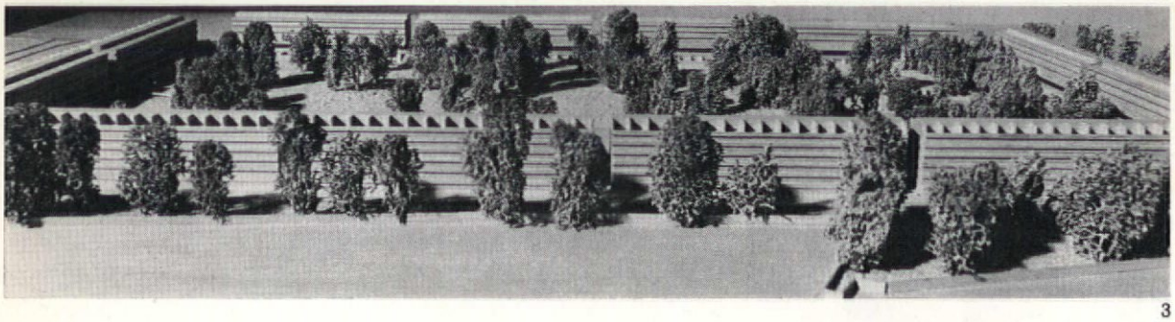

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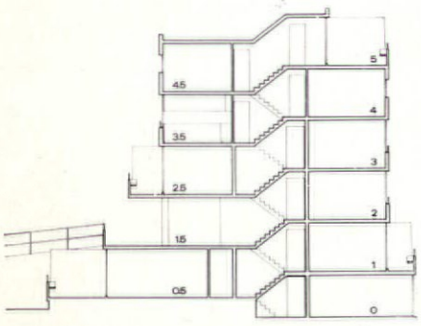

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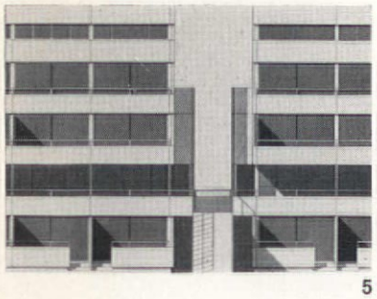

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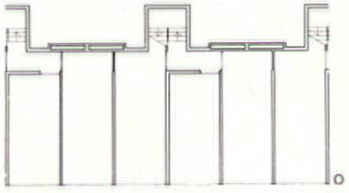

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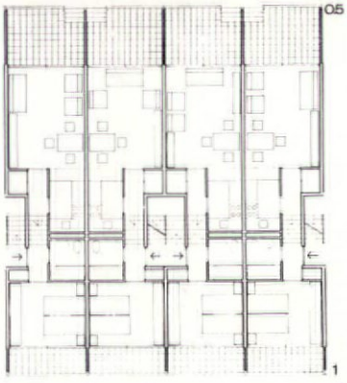

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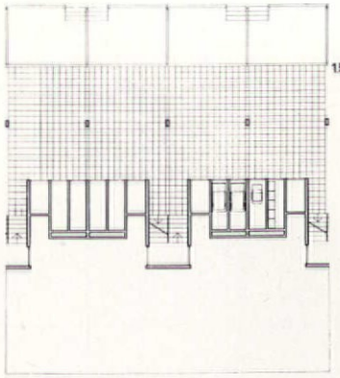

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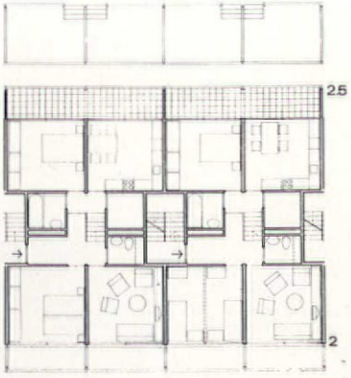

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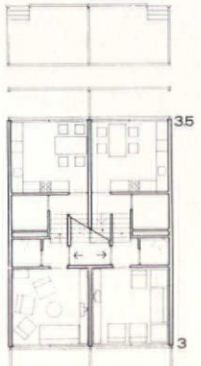

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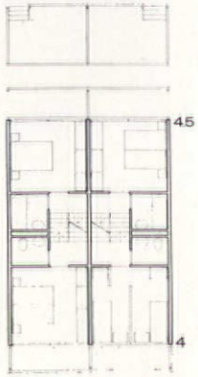

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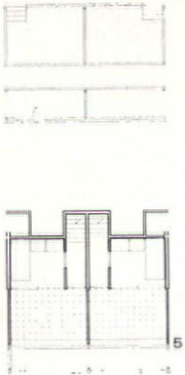
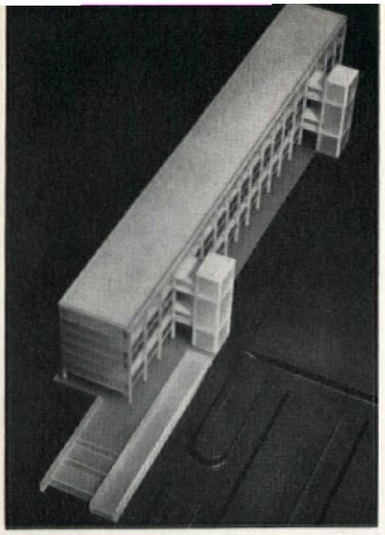


12

Pains Factory, Acacia Rd, Mitcham, Surrey

Architect London Borough of Merton, P. J. Whittle, Borough Architect
Design team Mike Kitchen, Peter Bell, David Lea, Richard MacCormac
Client London Borough of Merton
Site area 16·75 acres
Density in bed spaces per acre 100
Density in dwellings per acre 28·75
Special existing features 200 exceptional mature trees
Number of vehicle entrance/exit points 1
Total number of dwellings 480
Percentage of
(a) *Flats* 60
(b) *Houses* Nil
(c) *Maisonettes* 40
Private outdoor space Each flat has a garden and balcony, each maisonette a terrace or balcony
Car parking
(a) *Residents* 288
(b) *Residents' hardstanding* 192
(c) *Visitors' hardstanding* 240
Distance from residents' garage or hardstanding to his home
Maximum 20ft (vertically) to garage, and 250ft to hardstanding
Maximum 'carry distance' for
(a) *Residents* 150ft
(b) *Refuse collection* 100ft
(c) *Fire hose distance* to be decided
Method of refuse collection Paper sacks. Chute from turntable store between blocks
Children's play areas 8 acres
Shops. Tenants' meeting rooms, etc Four shops (two by vehicle and pedestrian access, two pedestrian access only)
Brief description of construction Rc crosswalls and slabs. Precast construction cladding and sliding metal windows
Additional information The planning principle of confining housing to the perimeter of open areas, developed for this and other sites in the housing programme, has been derived from studies made under Sir J. L. Martin in Cambridge ('Land use and Built Forms'. Sir Leslie Martin and Lionel March, Cambridge, April 1966)
Confining building to the edge of the site preserves an area of exceptional woodland where children are free to be noisy and active without disturbing residents. The wall of dwellings protects the site from vehicles though they remain immediately accessible from every dwelling. To overcome the problem of aspect for dwellings on the south sides of the site living rooms are provided on both sides of the block to give a choice of sun or view

1
View of existing site
2
Site layout
3
Block model
4
Section through housing unit
5
Detail of court elevation
6–12
Plans of housing units at levels indicated on the section diagram



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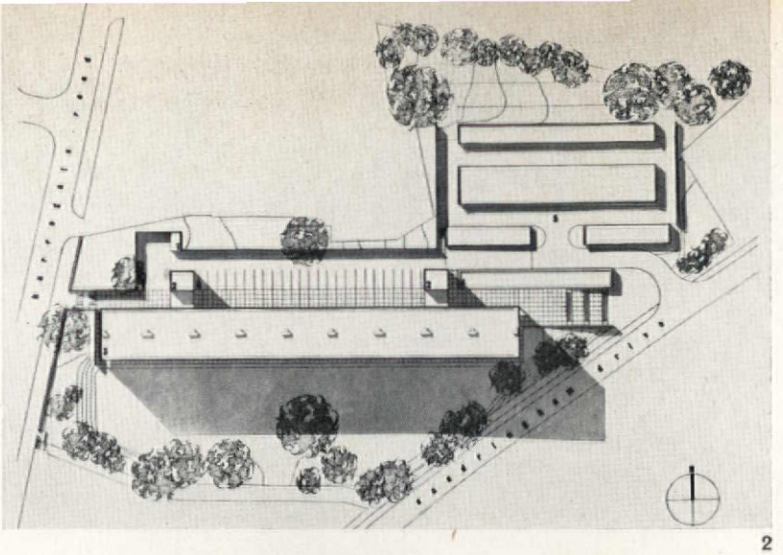

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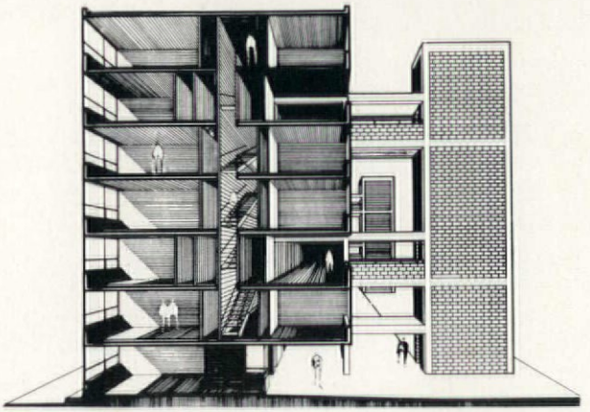

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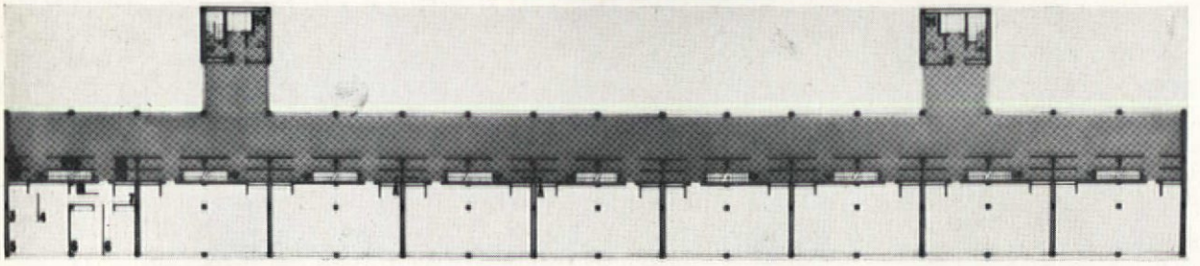

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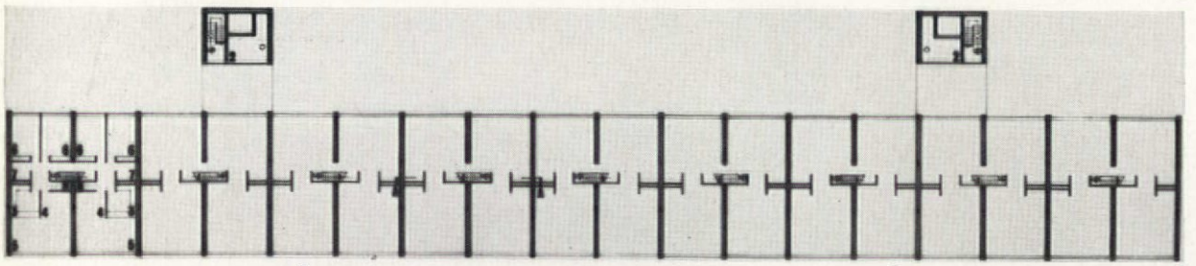

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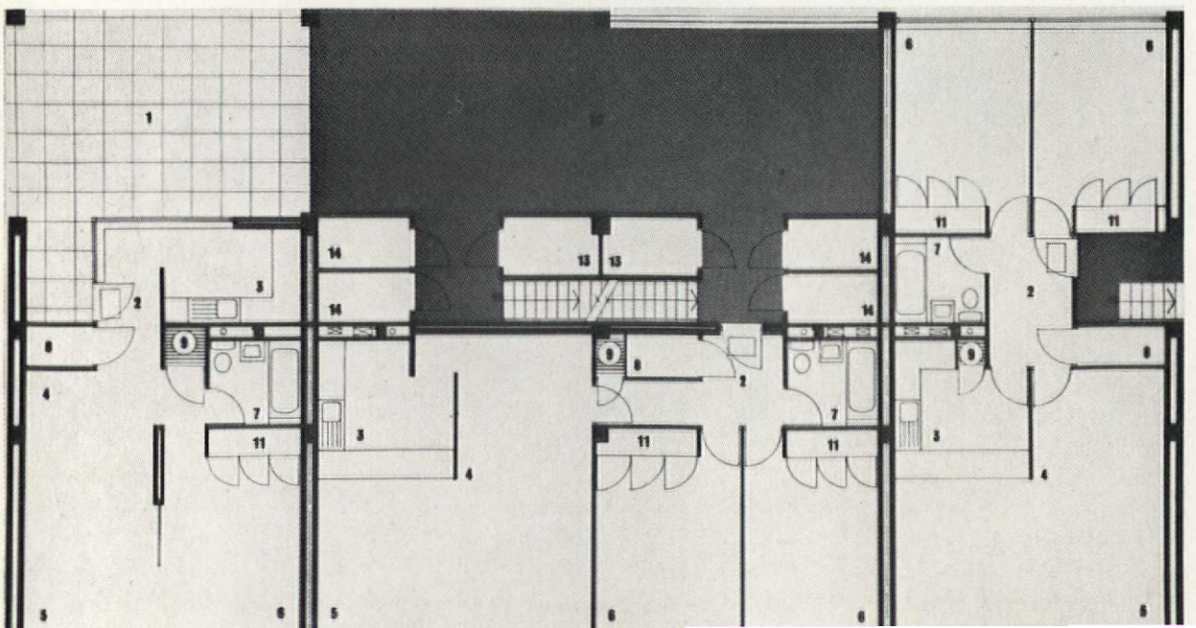


Ingledew Court
Alwoodley, Leeds

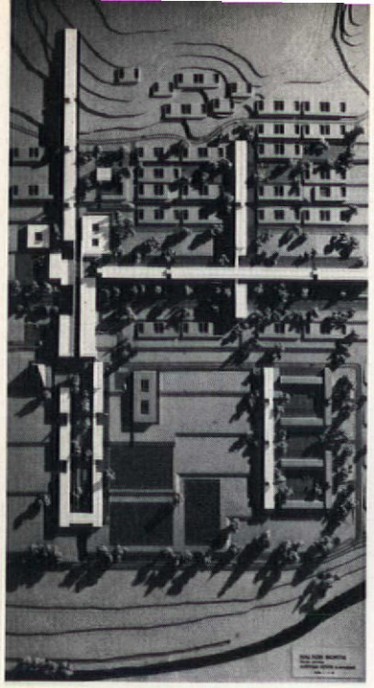
Architect Derek Walker, John Attenborough and Bryn Jones
Design team D. Walker, R. S. Mosscrop, P. Powell, P. Kellett, D. Hartley
Client Yorkshire Housing Society Ltd.
Site area 3 acres
Density in bed spaces per acre 132
Density in dwellings per acre 36
Special existing features The site is a Victorian garden where all existing trees have been retained
Number of vehicle entrance/exit points
1 vehicle; 2 pedestrian
Total number of dwellings 108
Percentage of
(a) *Flats* 100
(b) *Houses* Nil
(c) *Maisonettes* Nil
Method of heating Electrical underfloor heating
Car parking
(a) *Residents' garages* 80
(b) *Residents' hardstanding* Nil
(c) *Visitors' hardstanding* 27
(d) *Service vehicle hardstanding* 4
Provision for future increase 100 per cent garaging
Distance from residents' garage or hardstanding to his home
Maximum 250ft
Minimum 45ft
Maximum 'carry distance' for
(a) *Residents* 50ft
(b) *Refuse collection* 64ft
(c) *Fire hose distance* 64ft
Method of refuse collection Refuse shute, corporation collection, waste disposal unit to each flat
Children's play areas 2, lawned areas of one acre and ⅓ acre
Shops. Tenants' meeting rooms, etc Co-Ownership scheme: tenants' meeting and recreation room scheduled for later stage. (Meeting room to be located on rear court with roof garden)
Brief description of construction Precast reinforced concrete frame construction with exposed faces of beams and columns finished in white concrete, cast in fibreglass lined shutters, with white glazed Cornish granite aggregate finish. Floors to be precast concrete. T Beam with hollow block infill and structural screed. Roof to be similar construction with asphalt coverings. Window and wall cladding: windows in dark grey acrylically finished aluminium, with sliding sashes, glazed in tinted grey glass. Internal blinds in coloured Vitrone PVC. Infill panels to gables and access galleries, white concrete blocks. Internal staircases, steel painted white, white ribbed rubber insert treads
Estimated cost of contract £432,000, including all site works and garages

1 & 2
Block model and site layout
1 sub-station
2 service towers
3 main block
4 pool
5 garage court
6 visitor parking

3
Sectional perspective

4 & 5
Ground and fifth floor plans and first, third, fourth and sixth floor plans

6, 7 & 8
Flat plans at ground floor, at second and fifth floor, and at first, third, fourth and sixth floor level
1 circulation
2 hall
3 kitchen
4 dining
5 living
6 sleeping
7 bathroom
8 store
9 airing cupboard
10 duct
11 wardrobe
12 access gallery
13 meters
14 store



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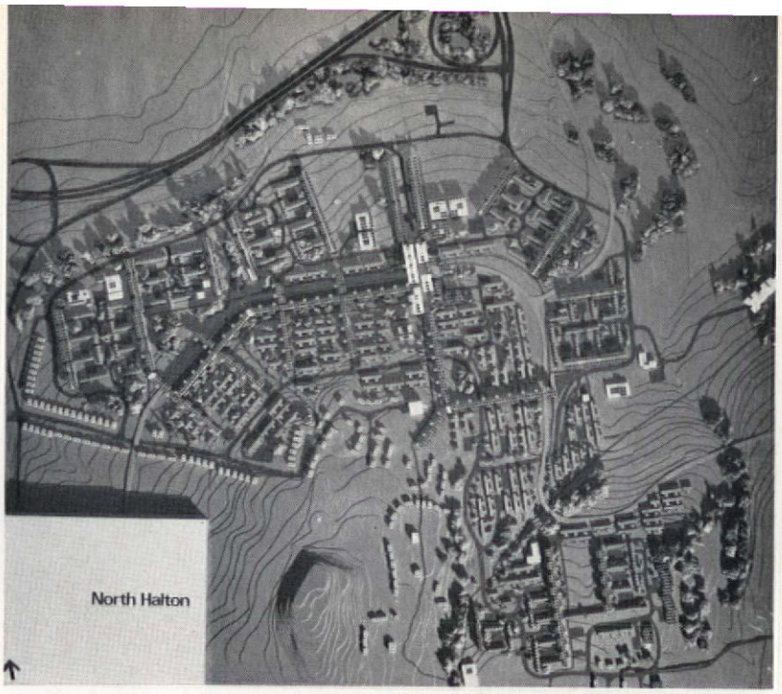
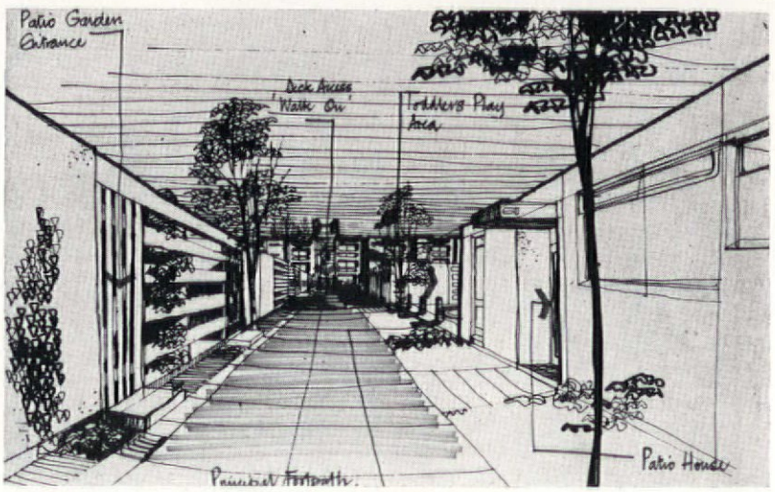


2

ARCHITECTURAL DESIGN PROJECT AWARD

Castlefields Community Runcorn New Town

Architect F. Lloyd Roche, Chief Architect, Planning Officer, Runcorn Dept. Corp.
Project Architects R. Harrison, P. Riley, B. Lowe
Site area 127 acres
Density in bed spaces per acre 82
Density in dwellings per acre 19·2
Special existing features The site comprises the northern and eastern flanks of Halton Hill which are steeply sloping with an average gradient of 1 : 15
Number of vehicle entrance/exit points The community will have three vehicle entrance/exit points from the existing road network, but in addition, the community will have a direct link with the proposed expressway surrounding the town, together with a rapid transit bus route
Total number of dwellings 2222
Percentage of
(a) *Flats* 62
(b) *Houses* 23
(c) *Maisonettes* Nil
(d) *Patio houses* 15
Private outdoor space Houses all have a garden, flats have a balcony
Car parking
(a) *Residents' garages* 500
(b) *Residents' hardstanding &*
(c) *Visitors' hardstanding* Combined 2833 places
Provision for future increase in vehicle accommodation Possible ultimate provision of 2 spaces/dwelling
Distance from residents' garage or hardstanding to his home
Maximum 600ft
Minimum Adjacent
Maximum 'carry distance' for
(a) *Residents* 300ft
(b) *Refuse collection* 150yd (trolley collection)
(c) *Fire hose distance* 150ft
Method of refuse collection Paper sack (motorized trolley collection along decks)
Shops. Tenants' meeting rooms, etc Local centre (supermarket, shops, health centre, community centre, public house, old persons' home, youth centre, two churches); junior training centre and hostel, children's home, six schools; three 'corner' shops plus public houses
Brief description of construction Walk-on deck-access flats: heavy concrete industrialized system structure, pre-cast concrete cladding. Two-storey: four heavy concrete industrialized system structure; pre-cast concrete cladding; timber roof. Patio house: single-storey rationalized traditional construction brickwork, timber roof
Estimated total cost £8,000,000



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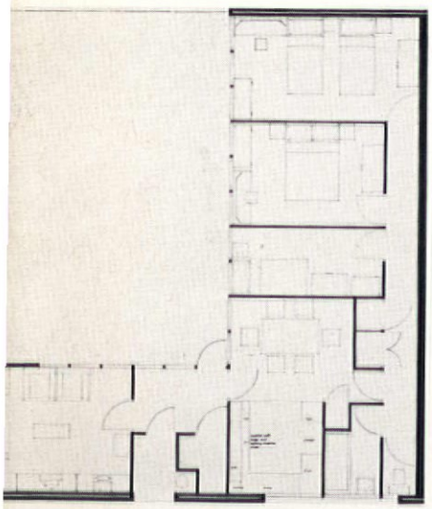

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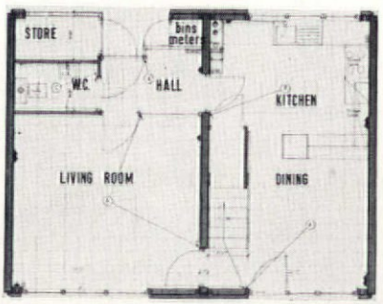

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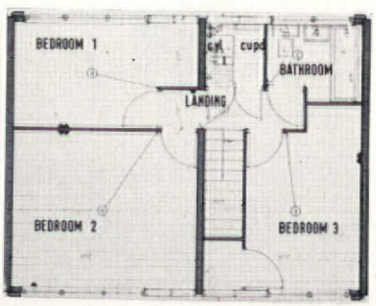

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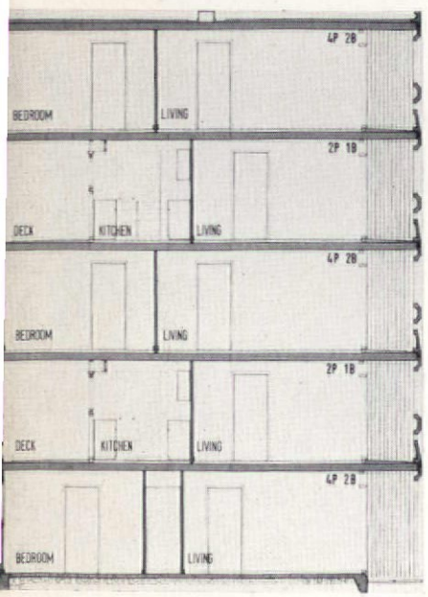

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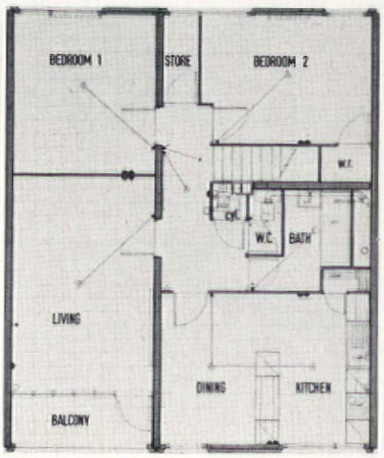

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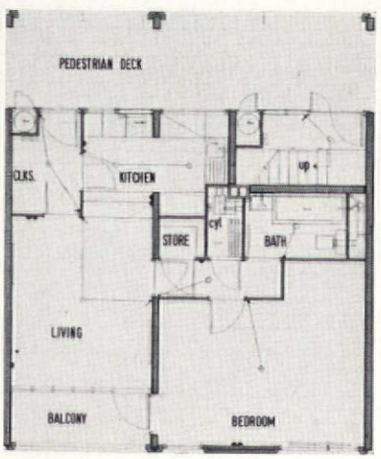

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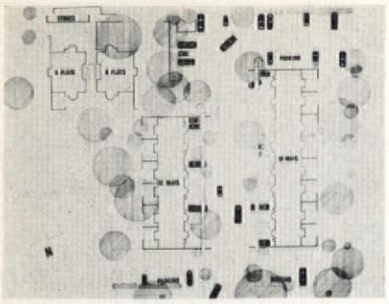
1 & 2
Block model of Castlefields Community *right*, with a detail view of the developed design for the local shopping centre and adjoining housing, *left*
3
Perspective of pedestrian route within patio clusters
4
Three-bedroom five-person, patio house plan
5 & 6
Ground and first floor plans, two-storey, three-bedroom, five-person housing
7, 8 & 9
Five-storey deck blocks; typical cross-section; four-person, two-bedroom and two-person, one-bedroom flat plans



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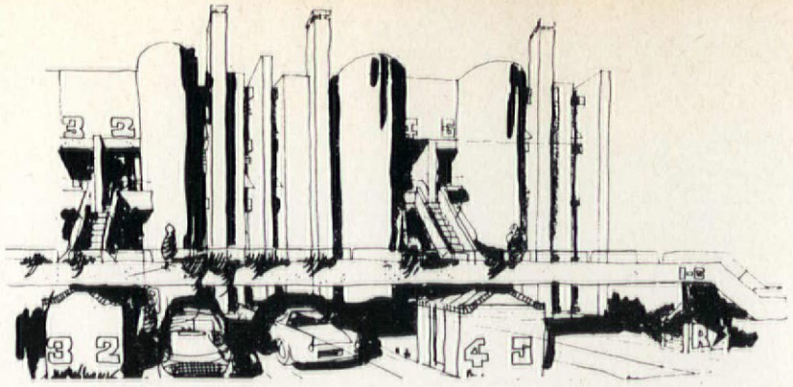


2

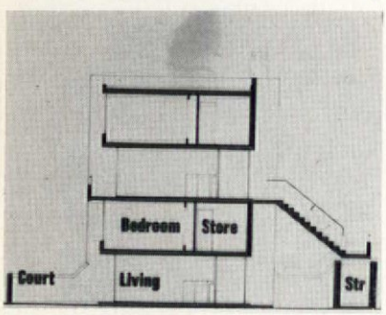
Jurors' award for verve

6 schemes

Architect Derek Sharp Associates
Job Architect Laurence Abbott

The Avenue
Beckenham, Kent

Client Manor Co-Ownership Housing Society Ltd
Site area 2 acres
Density in bed spaces per acre 74
Density in dwellings per acre 20
Number of vehicle entrance/exit points One entrance from The Avenue
Total number of dwellings 40
Percentage of
(a) *Flats* 30
(b) *Houses* Nil
(c) *Maisonettes* 70
Private outdoor space 4 flats and 14 maisonettes have a patio; 8 flats and 14 maisonettes have a balcony
Standards of space and heating Parker Morris, with extra storage
Method of heating Radial ducted, gas fired warm air
Car parking
(a) *Residents' garages* Nil
(b) *Residents' hardstanding* 1 per unit
(c) *Visitors' hardstanding* 1 per unit
(d) *Service vehicle hardstanding* Council requirements
Method of refuse collection Waste disposal units and bulk containers
Brief description of construction
Flats Buff coloured facing bricks with *in situ* concrete floors. Timber roof with screeded woodwool and roofing felt. Standard metal windows
Maisonettes Buff coloured facing bricks with *in situ* dividing floors and timber intermediate floors. All windows are standard galvanized metal
Estimated total cost £135,000



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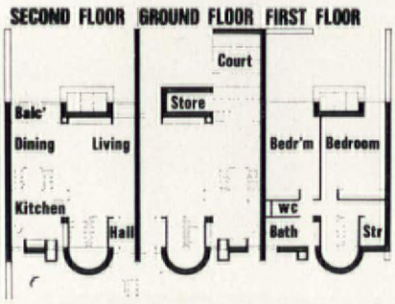

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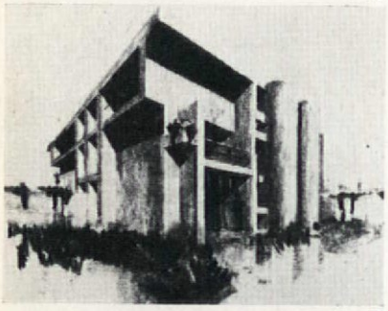

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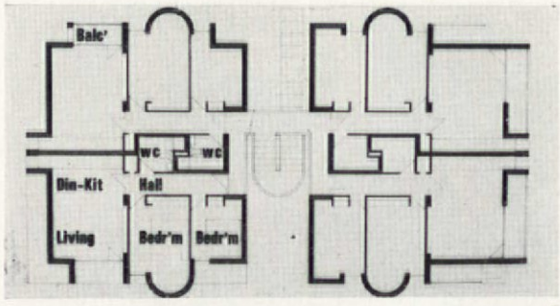

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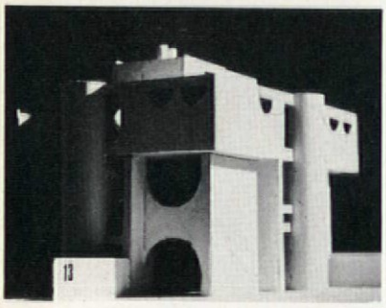

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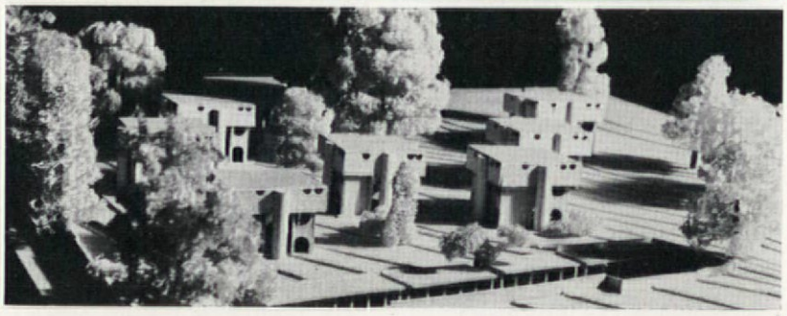

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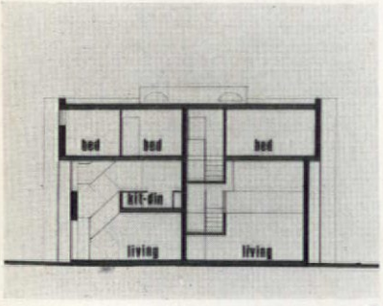

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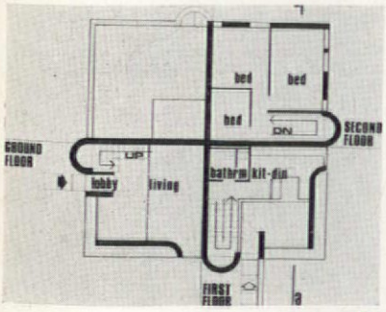
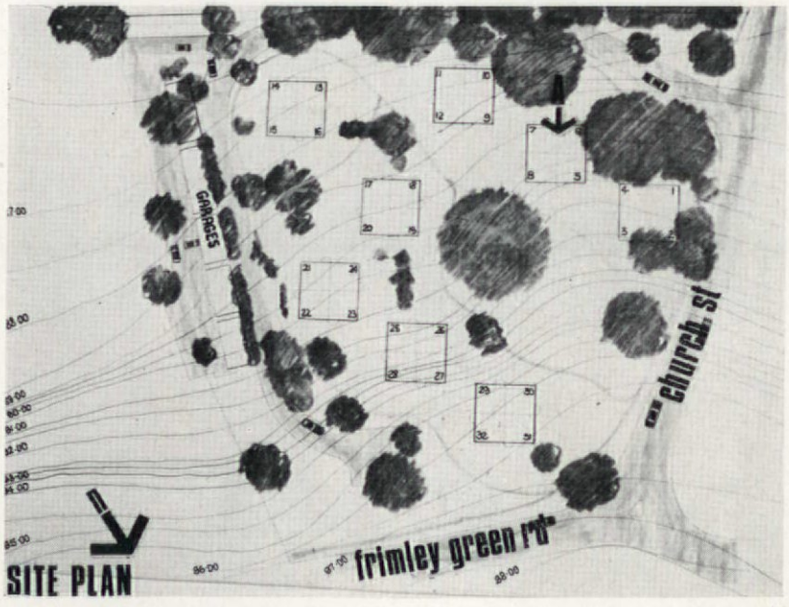


10

Manor House
Frimley, Surrey

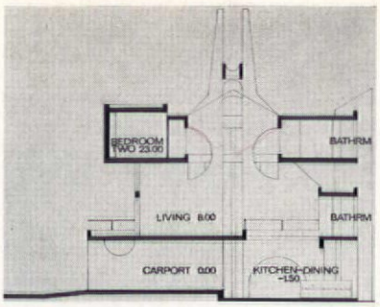
Client Manor Co-Ownership Housing Society Ltd
Site area 2 acres
Density in bed space per acre 96
Density in dwellings per acre 16
Special existing features All the trees shown on the site plan are existing and have preservation orders on them
Number of vehicle entrance/exit points One entrance from Church Road
Total number of dwellings 32
Percentage of houses 100
Private outdoor space Every house has a patio
Standards of space and heating Parker Morris
Method of heating Radial ducted, gas fired warm air
Car parking 1 garage per unit
Maximum 'carry distance' for
(a) *Residents* 60ft
(b) *Refuse collection* 80ft
(c) *Fire hose distance* 50ft
Method of refuse collection Waste disposal units and bulk refuse containers
Brief description of construction All the walls are of a white flint facing brick, radial bricks being used for the curved portions. Intermediate floors are of timber as is the roof. On the second floor RSJ's are employed to support the portion of brickwork which cantilevers over the lower floors. Window frames are of galvanized metal and the roofing finish is 3 layers of building felt.
Additional useful information This is a Co-Ownership Housing Society scheme and it is estimated that the rents will be in the region of £9 15s 0d
Estimated total cost £150,000



11

Davis House
Churt, Surrey

Client Thomas Davis
Site area ½ acre
Standards of space, heating etc Above Parker Morris level
Method of heating Ducted warm air
Brief description of construction Brick construction with Thermalite intermediate floors. Roofing felt is laid on Thermalite. Windows are metal framed
Estimated total cost £18,000



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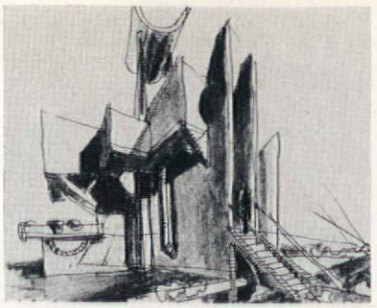
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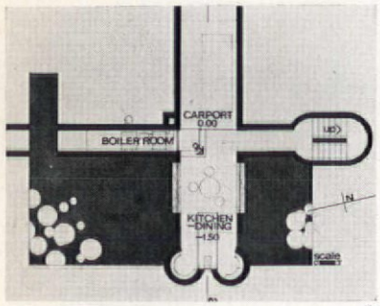

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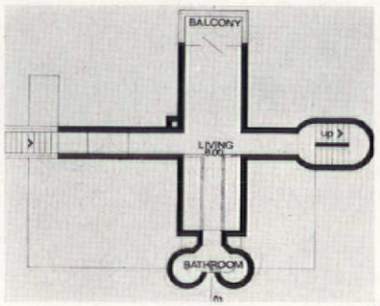

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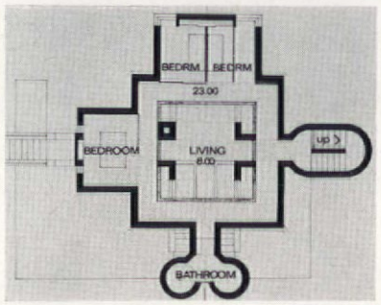

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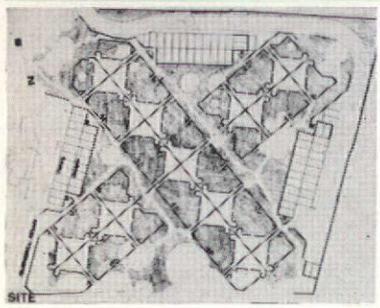

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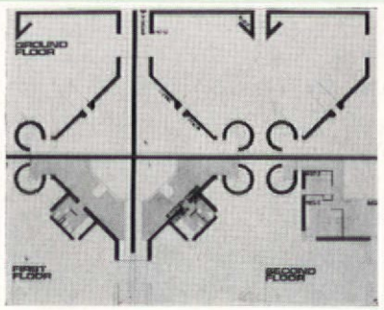

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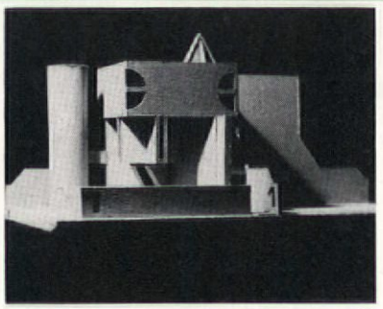
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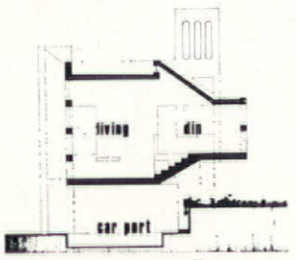
Snakes Lane,
Woodford Green, Essex

Client Apex Housing Society Ltd
Site area 2 acres. Densities are 90 bed spaces. 18 dwellings per acre. 36 patio houses in all, each with its own garage
Construction is mainly of white facing brick with timber intermediate floors. Galvanized metal windows
Estimated total cost £150,000



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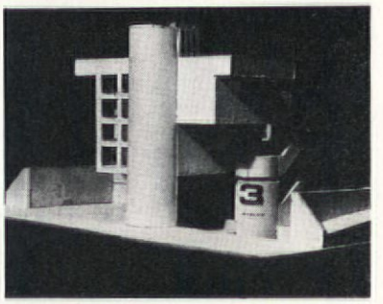
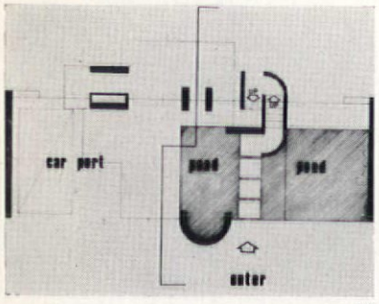


10

3 Farm End
Chingford, London, E4

Client Lesley Hills
Site area one-third acre
Total number of dwellings 1 house
Standards of space, heat, etc Above Parker Morris
Method of heating Ducted warm air
Car parking Space for 2 cars
Brief description of construction Mainly reinforced concrete framework with brick infills. Most vertical continuous plains are of brick. It is intended to render the whole of the outside of the building. Roofing finish, asphalte. Windows, standard sizes
Additional useful information The budget for this house is not very high and it is intended to omit the plaster of the inside, and to paint white emulsion. Also, where timber floors are used the rough-sawn joists will be painted. The client is prepared to accept this sort of finish as he is determined to have a house which offers him a little more than usual
Estimated total cost £7,500



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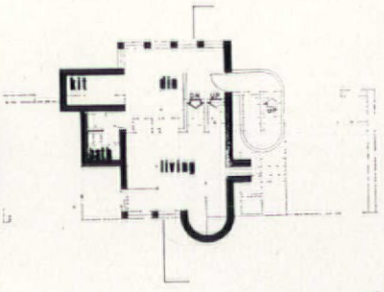

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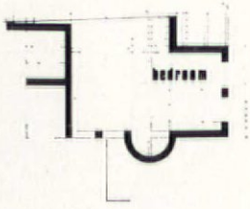

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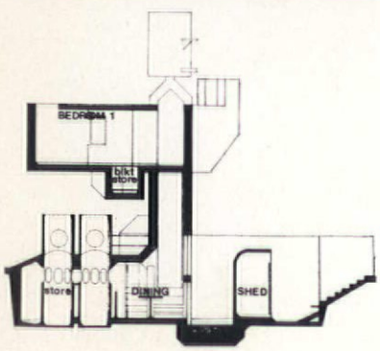

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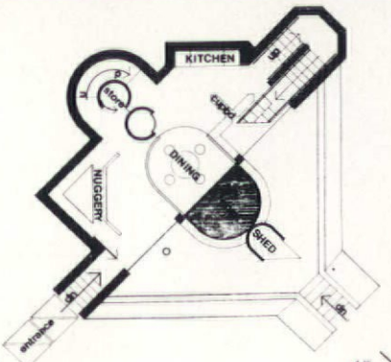

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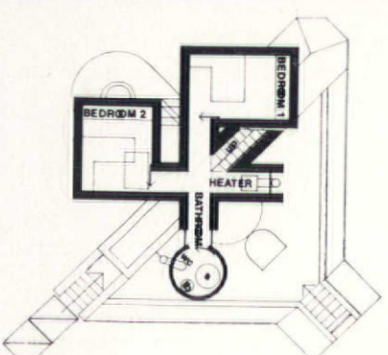


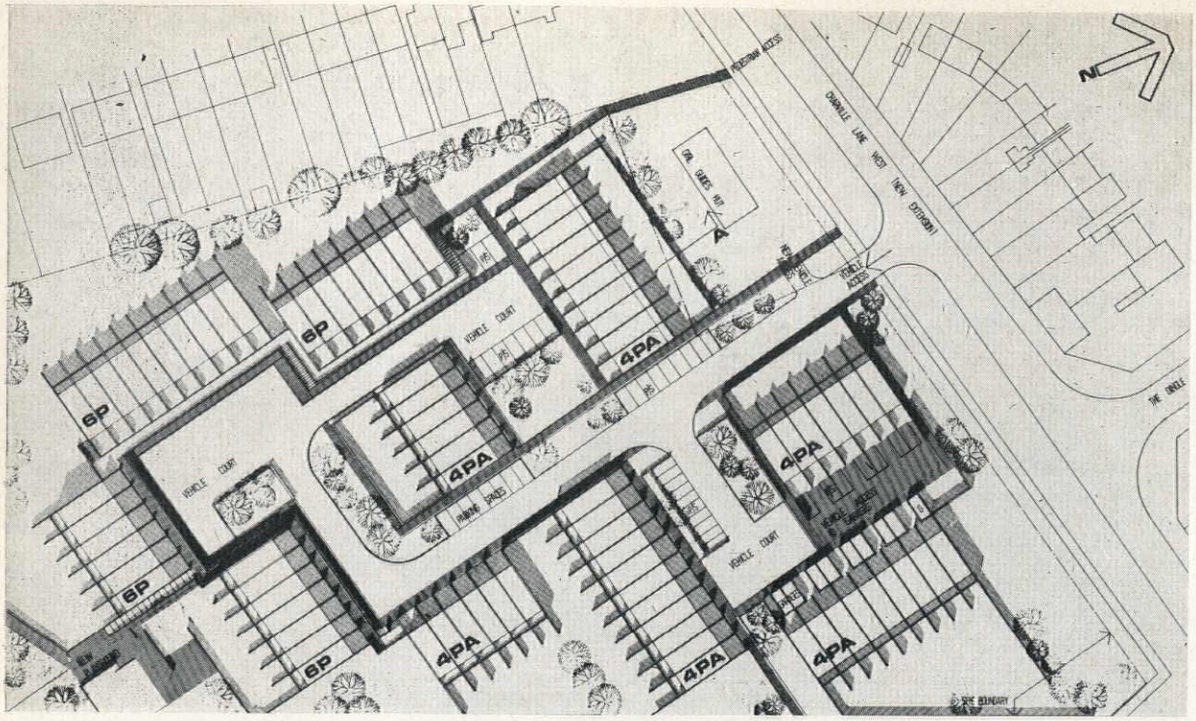
16

8 Baldwins Lane
Loughton, Essex

Client David Cockburn
One house on a ¼ acre site with houses to either side. Parker Morris standards of space, heat etc. Hot water radiators
Structure is *in situ* concrete
Extra daylight filters into the living room through holes punctured into the walls of the cylindrical stores, which have glazed roofs
Estimated total cost £12,500

13 selected designs

pages 18–30



1

Pole Hill
Uxbridge, Middlesex

Architect The Austin-Smith/Salmon/Lord Partnership

Client The London Borough of Hillingdon

Site area 5·0 acres gross for planning density purposes. Actual permitted area for housing (having deducted existing building areas, etc.) agreed with MoHLG for cost yardstick density purposes is 4·5 acres

Density in bed spaces per acre 85

Density in dwellings per acre 17·8

Special existing features The site, formally allotment gardens, is by contrast a bare and uninteresting site. Its shape and orientation is generally at a divergence with adjoining property and the line of the new access road. The brief requested that the Girl Guides hut be retained and pedestrian access be given to Nelson Close in the South

Number of vehicle entrance/exit points Vehicle access was limited to the new road frontage. Separate pedestrian access has been given adjoining the western boundary. A new pedestrian access is provided for children through to the adjoining new Primary School site

Total number of dwellings 80

Percentage of
- (a) *Flats* Nil
- (b) *Houses* 100
- (c) *Maisonettes* Nil

Private outdoor space All houses have an average of 30ft defined garden, grassed and unfenced; a 12ft screened private patio front and rear, and a 6ft wide balcony on first floor

Standards At or above Parker Morris

Method of heating Gas fired ducted warm air discharging through grilles into each room

Car parking
- (a) *Residents' garages* 42
- (b) *Residents' hardstanding* 38
- (c) *Visitors' hardstanding* 8
- (d) *Service vehicle hardstanding* Space in vehicle court

Distance from residents' garage or hardstanding to his home
Maximum 75ft to car hardstanding
Minimum Adjoining dwelling

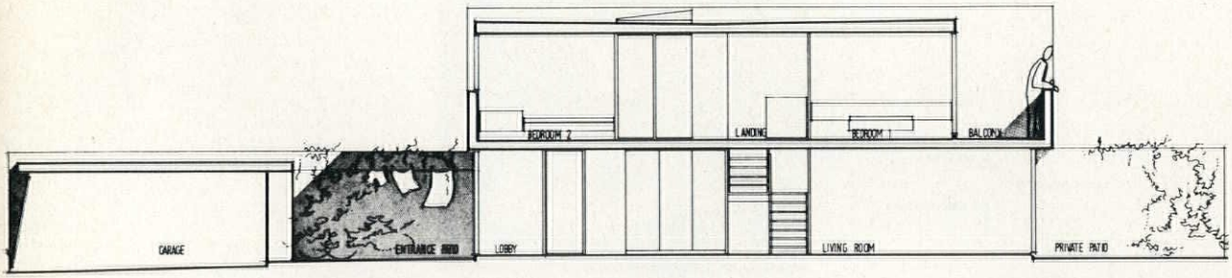
Maximum 'carry distance' for
- (a) *Residents* Not applicable
- (b) *Refuse collection* Council carry distance from bin to vehicle generally 60ft, but not to exceed 85ft

Method of refuse collection Individual bins

Children's play areas One of 3520 sq ft

Brief description of construction See 'Cranfield House', page 10.

Estimated total cost £359,767 inclusive of roads and landscaping



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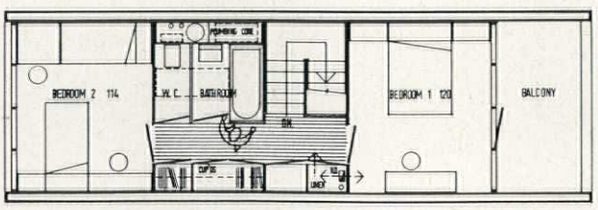

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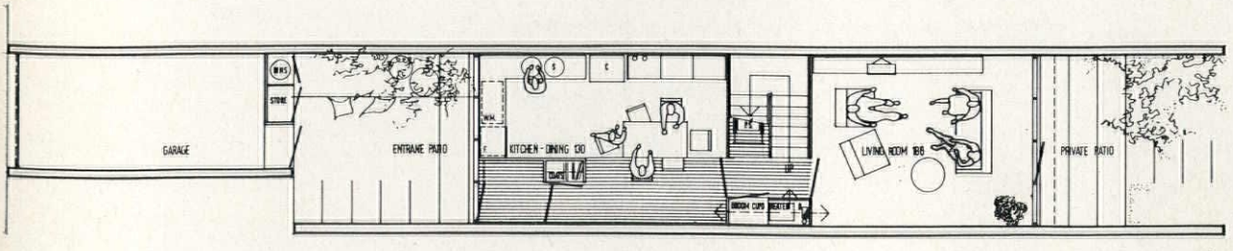

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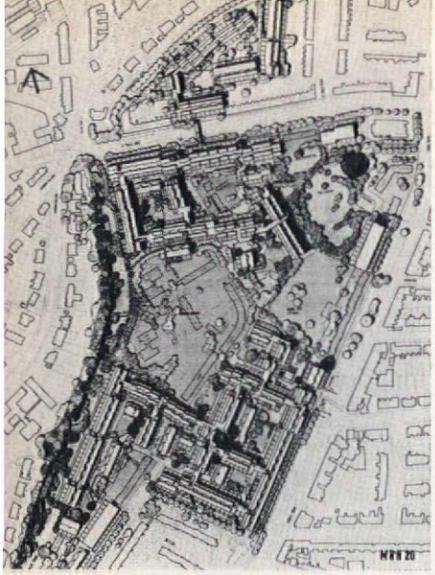
1
Site layout
2
Cross-section
3 & 4
First and ground floor plans



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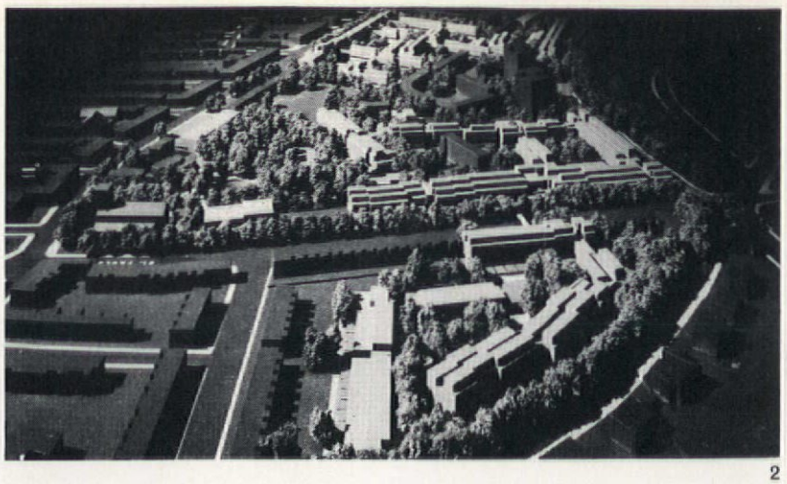
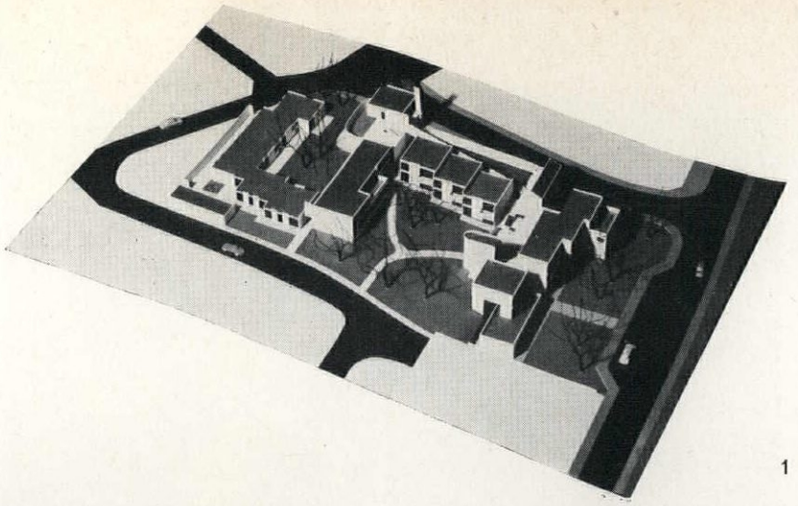


2

Marquess Road
Islington, London, N1

Architect Darbourne & Darke
Design group Partners: J. Darbourne, G. Darke, B. Grimes, *Associates:* J. Lever, K. Routledge, M. Burgess, B. Sawyer, N. Lancaster, P. Harrall
Site area 20·54 acres
Density in bed spaces per acre 200
Density in dwellings per acre 57·6
Special existing features The site is well endowed with large trees
Number of vehicle entrance/exit points 7
Total number of dwellings 1185
Percentage of
(a) *Flats* 13·3
(b) *Houses* 58·3
(c) *Maisonettes* 28·4
Private outdoor space All family units have a garden
Standards of space and heating Parker Morris
Method of heating Radiators off dwelling gas fired boiler
Car parking
(a) *Residents' garages* 414
(b) *Residents' hardstanding* 38
(c) *Visitors' hardstanding* 54
(d) *Service vehicle hardstanding* 13 no service terminals
Provision for future increase 304 spaces
Distance from residents' garage or hard-standing to his home
Maximum 300ft
Minimum 30ft
Maximum 'carry distance' for
(a) *Residents* 30ft to 150ft normal with 195ft in one case (20ft when using authorized access on special occasions)
(b) *Refuse collection* 190ft maximum. This may be reduced to 20ft for all family units, 100ft for one-bed units
(c) *Fire hose distance* The fire appliance can get within 60ft of every dwelling
Method of refuse collection Hoppers and chutes. Paper sacks later.
Children's play areas 12, from 1000 sq ft to 5200 sq ft
Shops, Tenants' meeting rooms, etc 6 shops, 1 public house. The Health Centre will be replaced by similar accommodation at later stage
Brief description of construction Load bearing brick cross walls; reinforced concrete slab floors; timber roofs with asphalt. External finishes: facing bricks, dark asbestos slates and timber windows
Additional useful information
The fundamental aims incorporated into the scheme are:
(a) provision of a large private outdoor space (minimum 300 sq ft) for all family units easily accessible to a communal space
(b) to promote an atmosphere of 'house dwelling' as opposed to 'flat dwelling' in keeping with the traditional expectation of most tenants
(c) to establish a system of low buildings which would respect the scale of existing buildings and assist in re-establishing the importance of primary buildings, e.g. St Paul's Church
Estimated total cost £5½ million

1 & 2. M2B above and at roof street level; see sections 4, 6
2 & 3. M2A at and below roof street level; see section 4
4. Section with flats M2A, M2B, H3A, H4A; see plans 1, 2, 3 & 9, 10
5. Section with flats F2A, H3B, H4C; see plans 7, 11, 12, 13
6. Section with flats M2B, F2A, H4B, H3A; see plans 1, 2, 7, 14, 15, 16
7. Flat type F2A at roof street level; see sections 5 & 6
8, 9. H3A at ground and first floor level; see sections 4 & 6
8, 9 & 10. H4A at ground, first- and second-floor levels; see section 4
11 & 12. H3B at lower ground and ground levels; see section 5
12 & 13. H4C and ground and first floor levels; see section 5
14, 15 & 16. H4B at lower, ground and first floor levels; see section 6
15 & 16. H3A at ground and first floor levels; see sections 4 & 6



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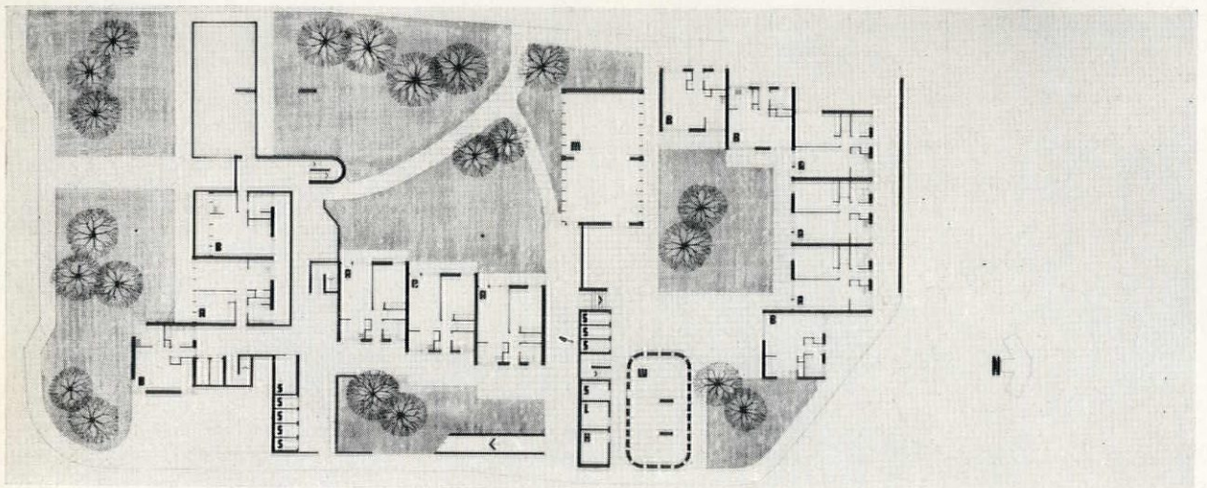

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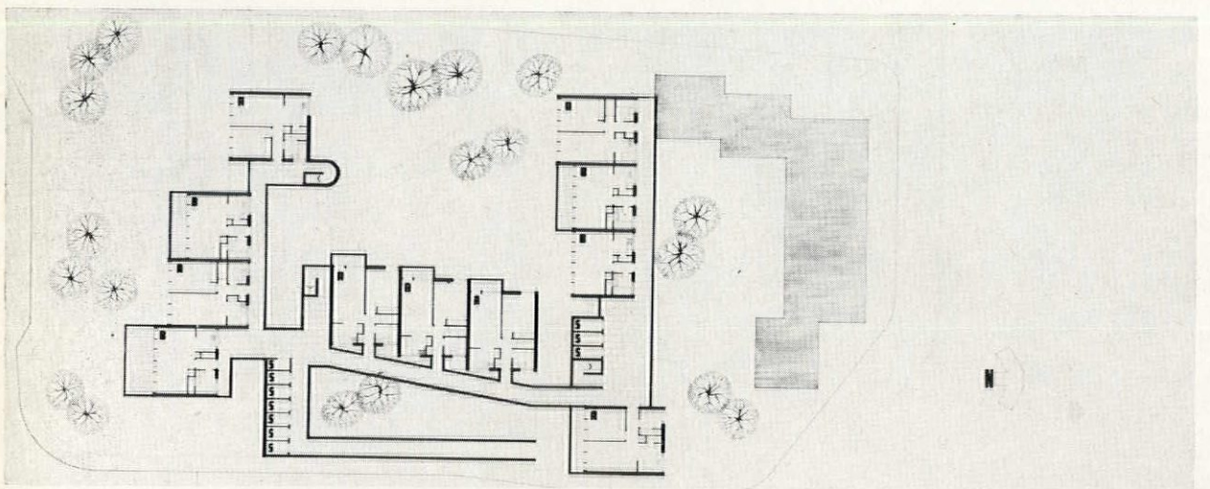

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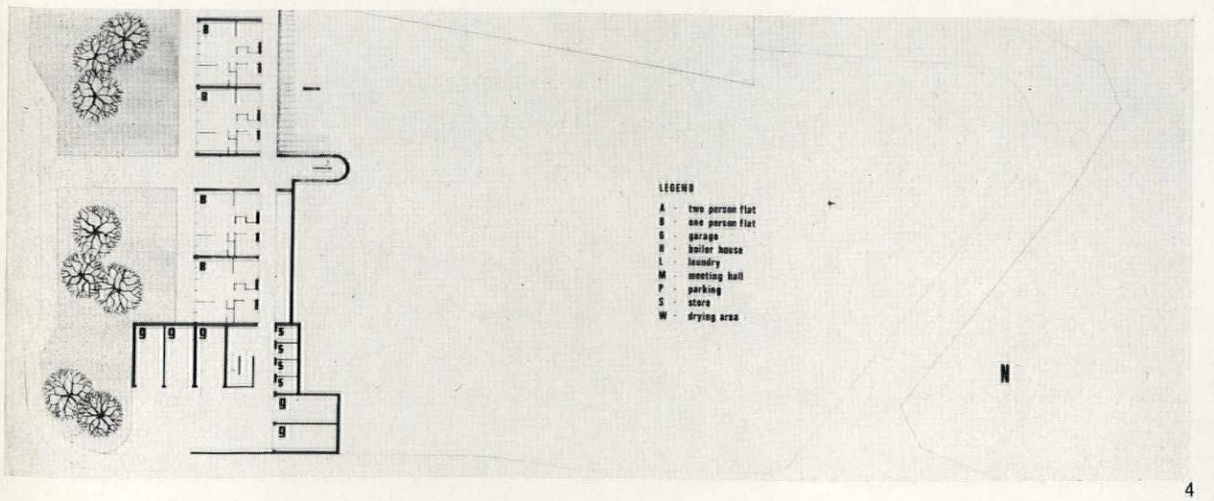


4

Old people's homes
High St, Tonyrefail, Glamorgan

Architect J. R. Gammon, H. O. Williams and Associates

Design group M. D. Picton, A. Jones, B. Hancock

Client T. J. Hopkins, The Llantrisant and Llantwit Fardre Rural District Council

Site area $\frac{3}{4}$ acre

Density in bed spaces per acre 60

Density in dwellings per acre 40

Number of vehicle entrance/exit points One to main road, gives access to existing garages, parking area and garages built behind Council houses fronting on to Heol-y-Glyn

Total number of dwellings 27

Percentage of
(a) *Flats* 100
(b) *Houses* Nil

Private outdoor space Communal garden. Twelve of the flats have a terrace

Standards Parker Morris. Heating above Parker Morris

Method of heating Coal/gas-fired central boiler house to skirting heaters, bleed off under access ramps and walkways to keep free of ice

Car parking
(a) *Residents' garages* 5 (more if required)
(b) *Residents' hardstanding* 20
(c) *Visitors' and service hardstanding* Shared
Large car park on site

Distance from residents' garage or hardstanding to his home
Maximum 120ft
Minimum Adjacent or integral

Maximum 'carry distance' for
(a) *Residents* 120ft
(b) *Refuse collection* Done by Warden
(c) *Fire hose distance* 80ft or as required by Fire Officer

Method of refuse collection Bagged refuse collected on trolley by Warden to three points

Children's play areas Nil

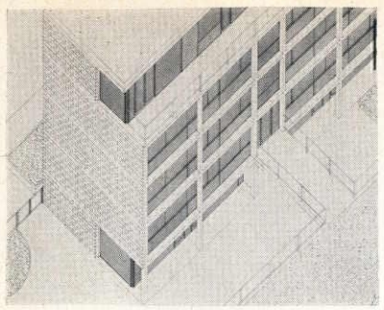
Shops. Tenants' meeting rooms, etc. No shops. Shops available within 50yds. Old people have meeting room with small kitchen and television. Also communal laundry with washing machine and dryer. External drying space also available. Guest bedrooms being planned

Brief description of construction Traditional load bearing brickwork, concrete floors and roofs (as required by mining consultants) concrete ramps, bridges and staircases

Additional useful information Half the flats are for 2 persons, half for 1 person, plus 2 guest bedrooms and a warden's flat to which flats are linked by a bell system. Contingencies of relevant Design Bulletins have been incorporated, in respect of electrics, finishes, windows etc. Design allows retention of identity plus communal living if desired

Estimated total cost £100,000

1
Block model from south-west
2
Plan at ground level
3
Plan at first floor
4
Plan at second floor



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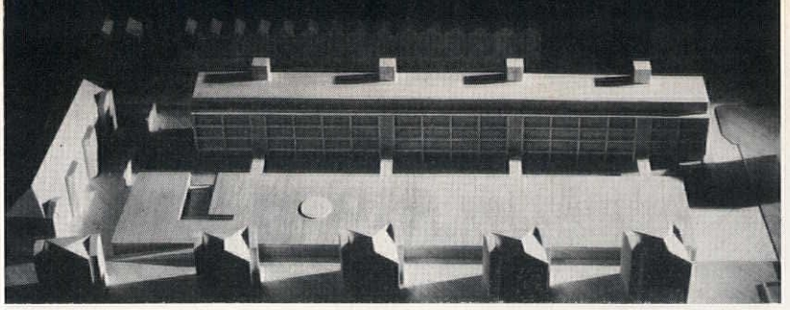

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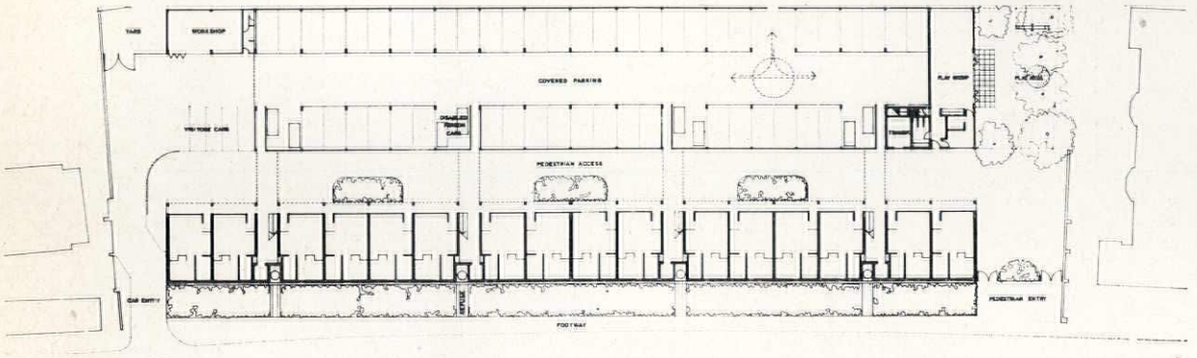

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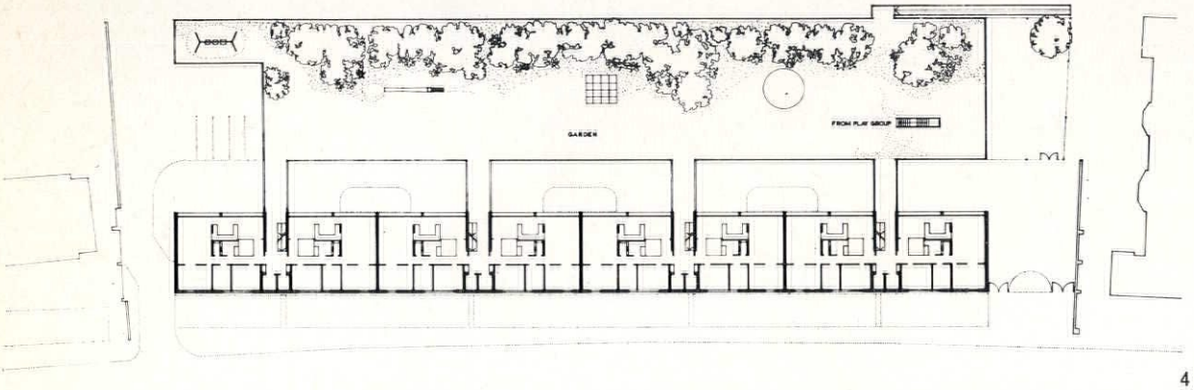

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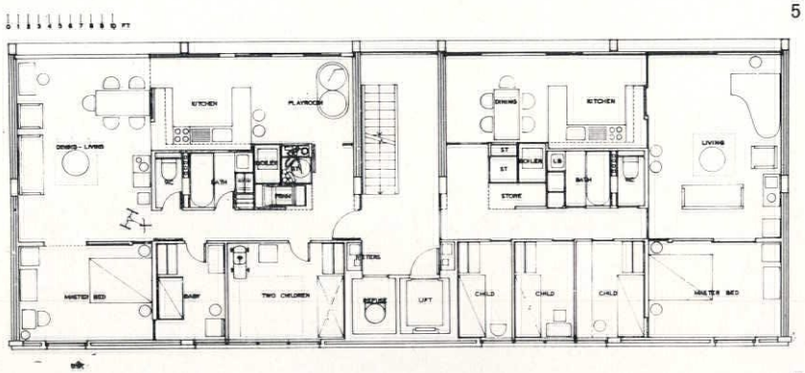

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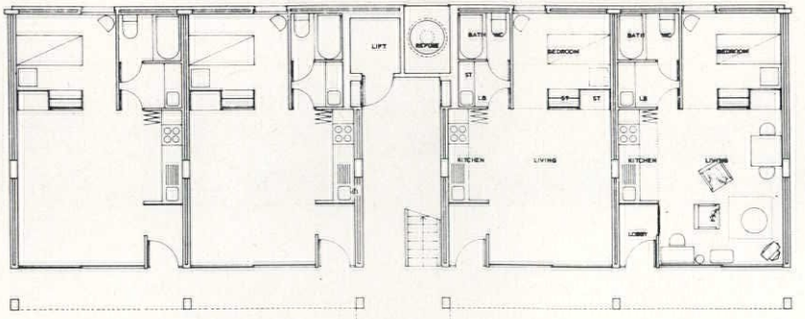

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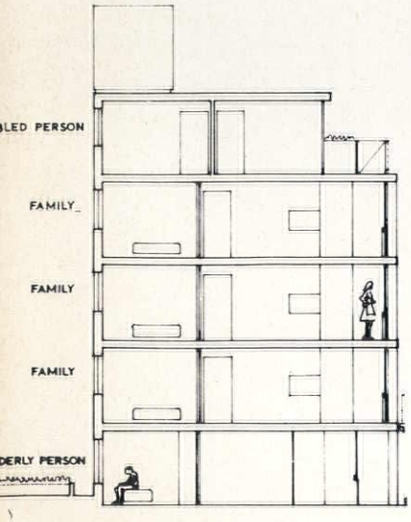

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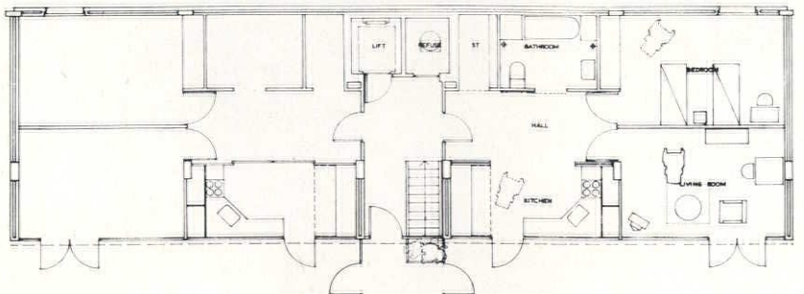
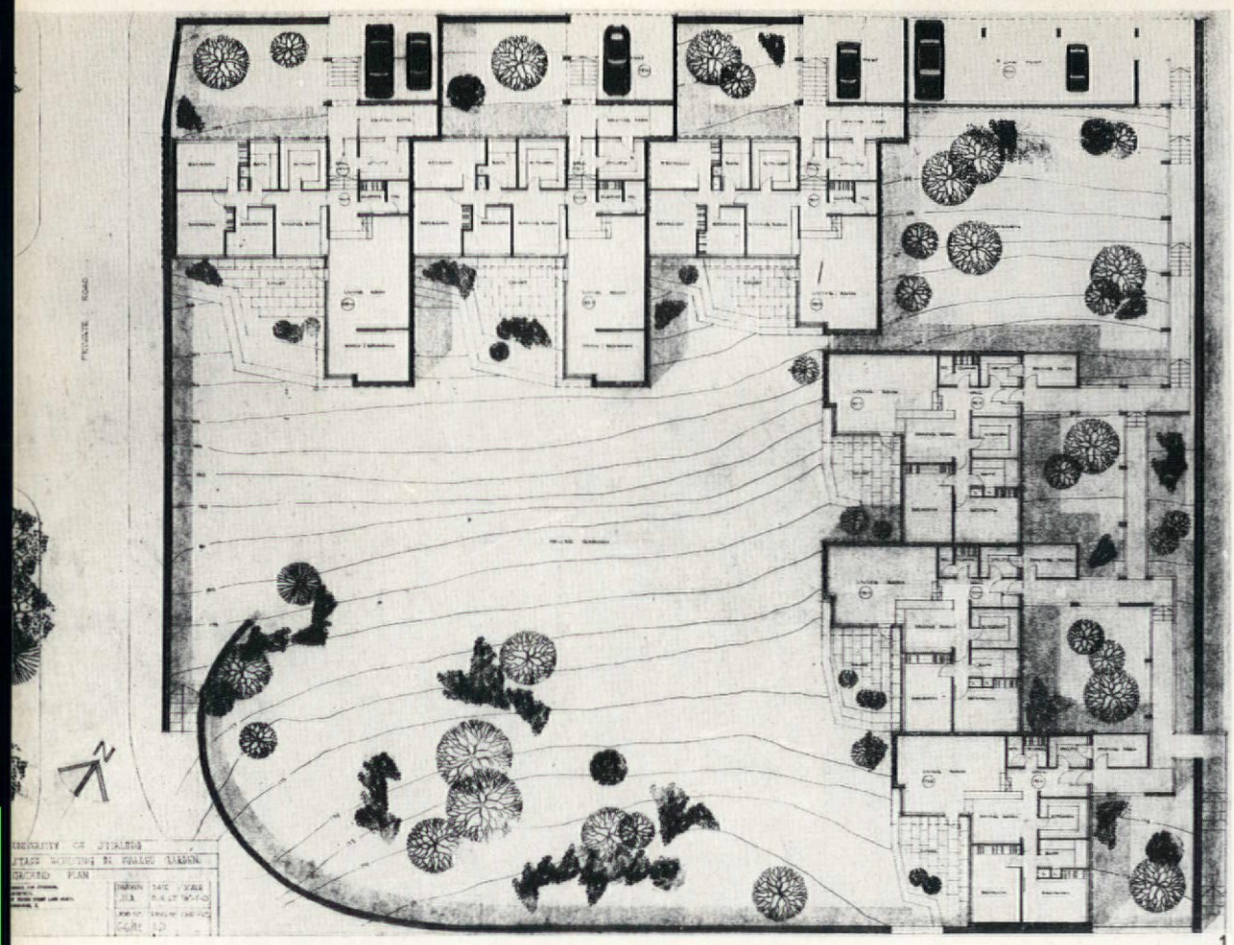


Sutton Dwellings
Plough Way, London, SE16

Architect Frederick MacManus & Partners
Design group Brian Smith, Jeremy Dixon
Client Sutton Dwellings Trust
Site area 1·2 acres
Density in bed spaces per acre 126
Density in dwellings per acre 40
Any special existing features Flat, low lying, urban site with north frontage to busy street. Adjoining land contains 1915 development by Sutton Dwellings Trust which is to be redeveloped: date of redevelopment not yet decided
Number of vehicle entrance/exit points 1
Total number of dwellings 48
Percentage of
(a) *Flats* 100
(b) *Houses* Nil
Private outdoor space 8 of the flats have a terrace
Standards of space and heating Parker Morris
Method of heating Electric warm air units in each flat
Car parking
(a) *Residents' garages* 54
(b) *Residents' hardstanding* Nil
(c) *Visitors' hardstanding* 4
(d) *Service vehicle hardstanding* 2
Provision for future increase in vehicle accommodation Possible in redevelopment of adjoining land in client's ownership
Distance from residents' garage or hardstanding to his home
Maximum 100ft (horizontal)
Minimum 60ft (horizontal)
Maximum 'carry distance' for
(a) *Residents* 100ft (horizontal)
(b) *Refuse collection* 20ft (horizontal)
(c) *Fire hose distance* 20ft (horizontal)
Method of refuse collection Chute to refuse container at ground level
Children's play areas One of 54ft × 230ft
Shops. Tenants' meeting rooms, etc Accommodation for play group and estate workshop
Brief description of construction Frame, *in situ* reinforced concrete, floor and roof slabs. Exterior walls of cavity construction with concrete block external leaf. Metal framed windows. Single storey garage block of *in situ* reinforced concrete construction designed for grass and planted areas on roof
Additional useful information Clients brief required accommodation for old people (bed sitting room flats), disabled people (two roomed flats) and families (five person flats). Disposition of the various types of living accommodation was decided after discussion with clients, and welfare officers. Sub-soil conditions are such that basement car parking would be expensive, and the solution proposed gives the family flats a close relationship to the grassed and planted area on top of the garage block. All flats are to be approached under cover from garages, obviating the necessity for using stairs to reach the entrance door of any flat
Estimated total cost £261,500

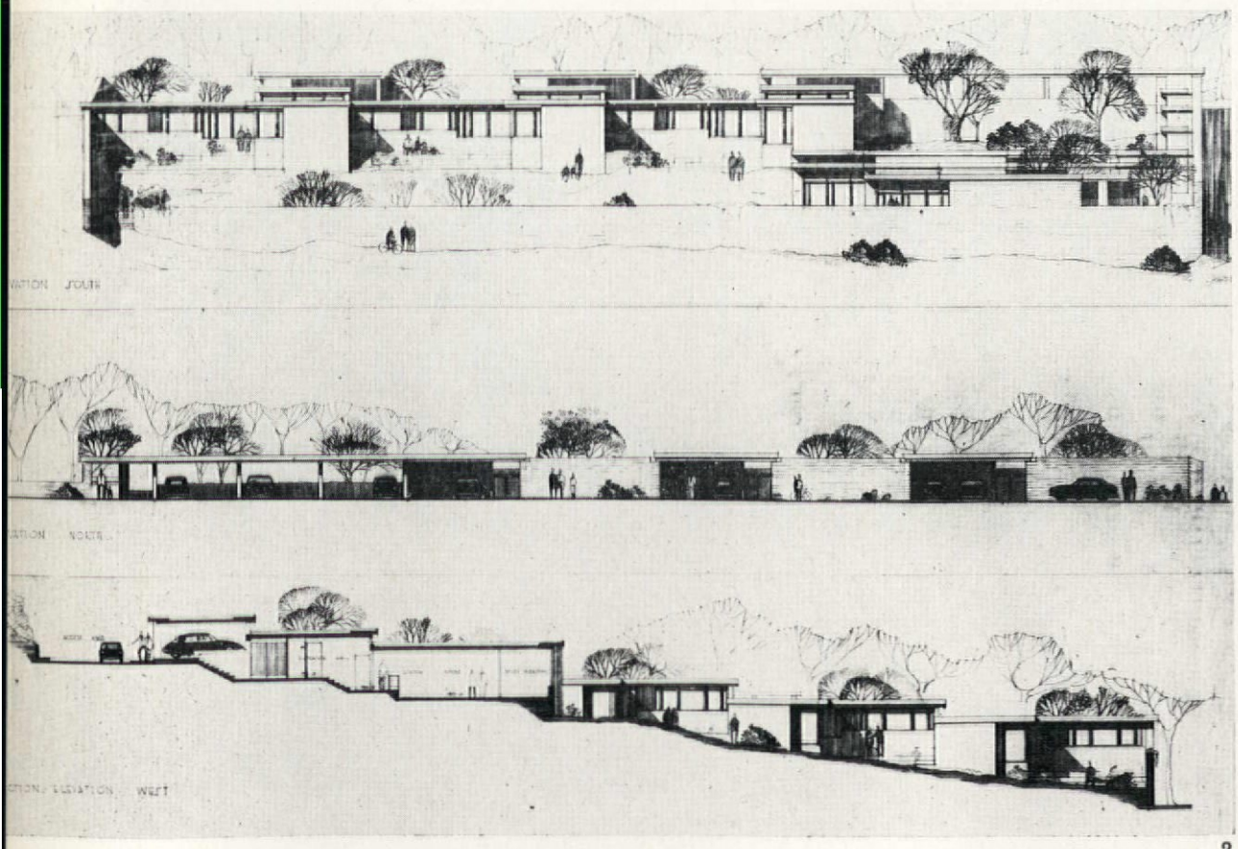
1
Drawing of south west corner of block
2
Block model from the south
3
Plan at ground level
4
Plan at deck level
5
Plan of family flats
6
Plan of single-person flats (ground floor)
7
Plan of two-person flats for disabled persons (top floor)
8
Cross-section



1

Staff residences
University of Stirling

Architect Morris and Steedman
Job architect John Renton
Client University of Stirling
Site area 1·12 acres
Density in bed spaces per acre 18·9
Density in dwellings per acre 5·4
Special existing features A unique view across acres of magnificent countryside and the Wallace Monument
Number of vehicle entrance/exit points The houses have access to a private road which is on the University site
Total number of dwellings 6
Percentage of
(a) *Flats* Nil
(b) *Houses* 100
Private outdoor space Houses have a garden and patio
Standards of space and heating Above Parker Morris
Method of heating Oil fired warm air
Car parking
(a) *Residents' garages* Nil
(b) *Residents' hardstanding* 6
(c) *Visitors' hardstanding* 6
(d) *Service vehicle hardstanding*
Distance from residents' garage or hardstanding to his home
Maximum 120ft
Minimum 18ft
Maximum 'carry distance' for
(a) *Residents* 120ft
(b) *Refuse collection* 60ft
(c) *Fire hose distance* 120ft
Method of refuse collection Dustbins
Children's play areas Walled garden
Brief description of construction Brick cross wall founded on rock. Timber floor and roof. Finishes, marble aggregate, concrete block base. White cement render to upper walls. Dark stained timber fascia, board to eaves

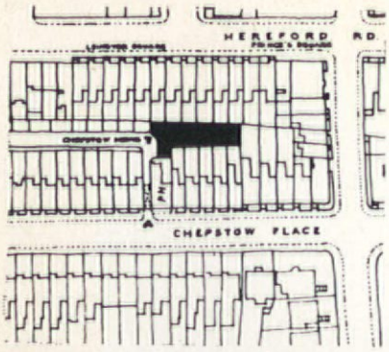


2

1
Site layout
2
South, north and west elevations

Rede Place
London, W2

Architect Rabeneck, Wright and Chester Jones
Client Park Avenue Housing Society Ltd
Site area 0·084 acres (3646 sq ft)
Density in bed spaces per acre 214·5
Density in dwellings per acre 71·5
Special existing features The site is a two-storey engineering workshop/warehouse at the end of the mews
Number of vehicle entrance/exit points 1
Total number of dwellings 6
Percentage of
(a) *Flats* Nil
(b) *Houses* 100
(c) *Maisonettes* Nil
Private outdoor space Terraces balconies
Standards of space and heating Above Parker Morris
Method of heating Gas-fired ducted warm-air
Car parking
(a) *Residents' garages* nil
(b) *Residents' hardstanding* 6
(c) *Visitors' and service hardstanding* Adjacent but off site
Distance from residents' garage or hardstanding to his home
Maximum 14ft
Minimum 12ft
Maximum 'carry distance' for
(a) *Residents* 14ft
(b) *Refuse collection* 110ft
(c) *Fire hose distance* 120ft
Method of refuse collection Individual bins
Brief description of construction Load-bearing brick external walls and cross-walls with rc beams at 1st floors over access/garages. Rc slab floors (2-way). Timber joist roofs.
Additional useful information Planning requirements dictated that the building should be within the envelope of the existing workshop. The form of the dwelling is then dictated by the Building Regulations regarding open space and ventilation to habitable rooms
Estimated total cost £48,000 (including cost of site)



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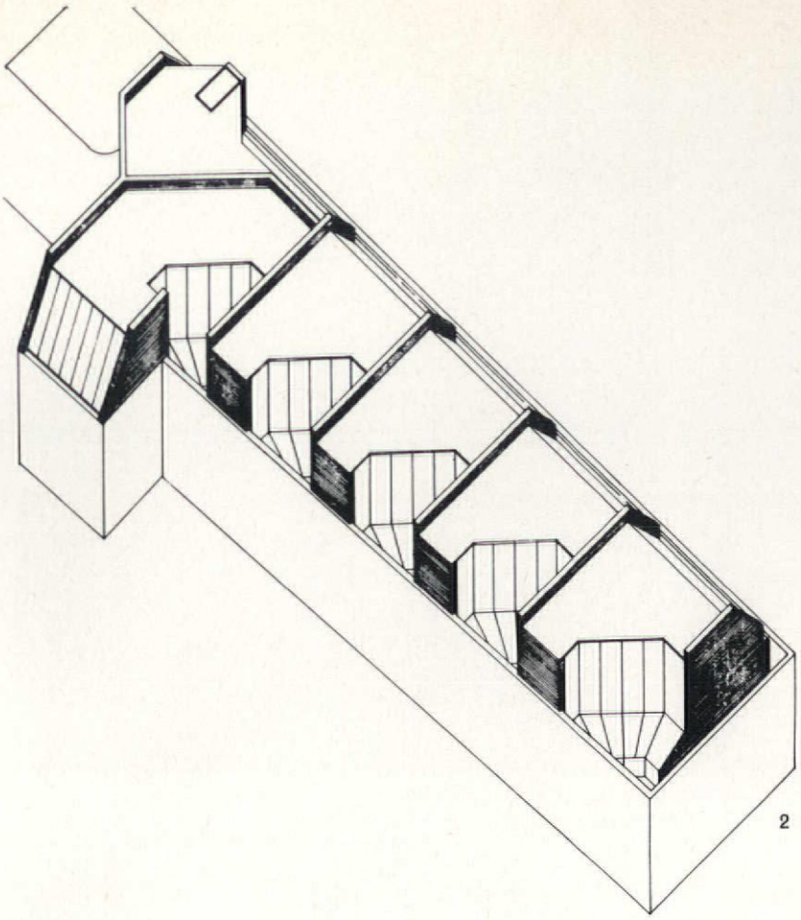
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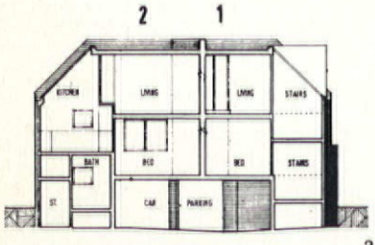

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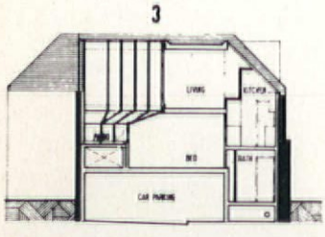

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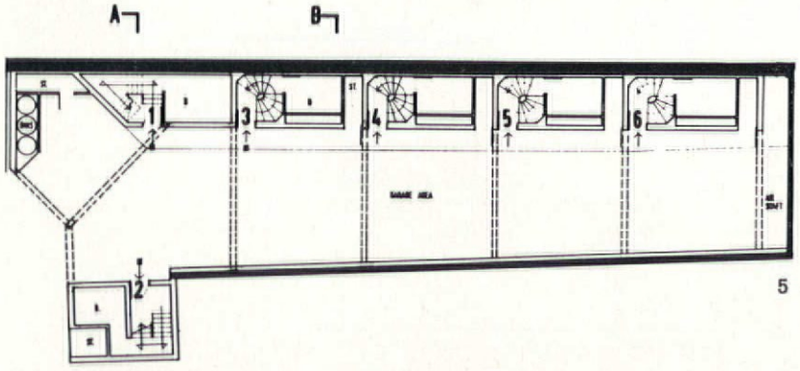

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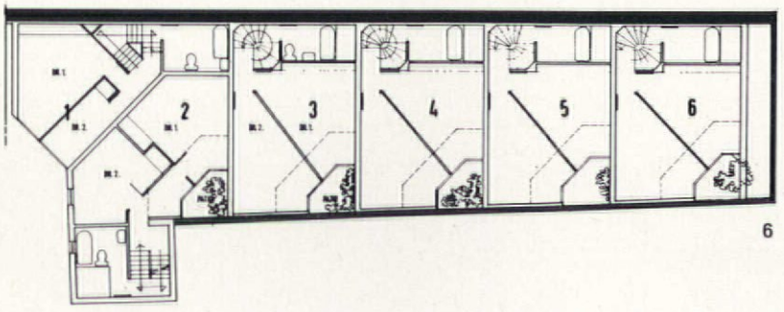

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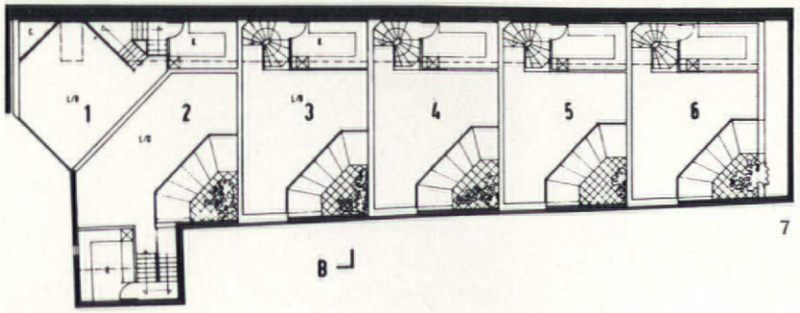
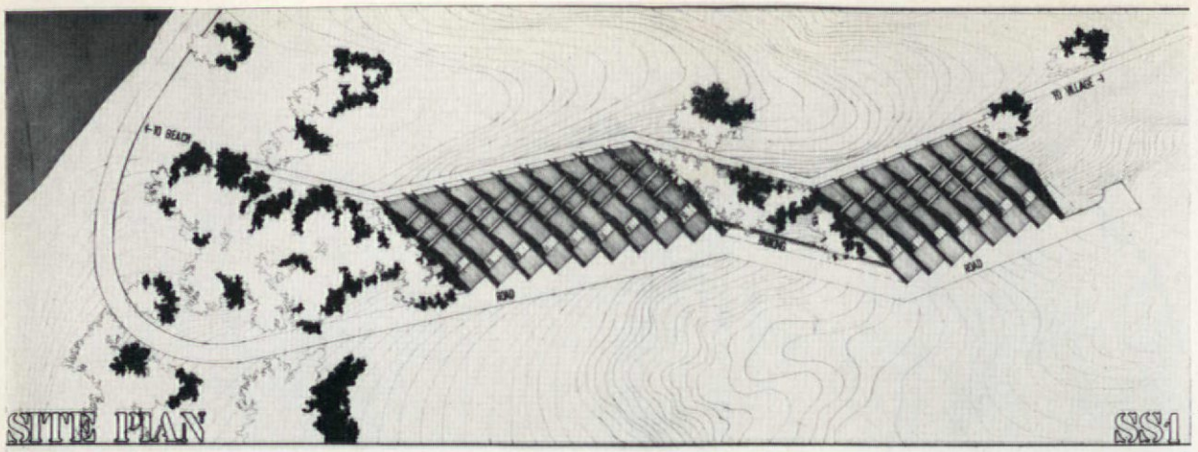


7

1
Block plan
2
Axonometric from south-west
3 & 4
Cross-sections
5
Lower ground plan
6
Ground plan
7
First floor plan



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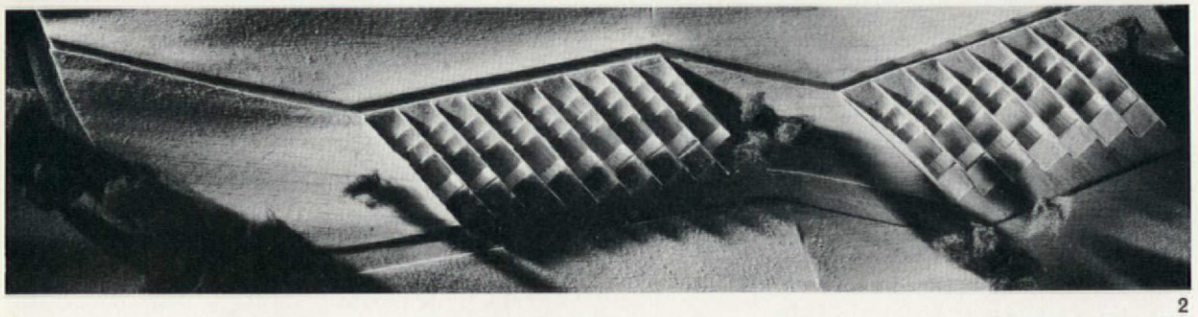

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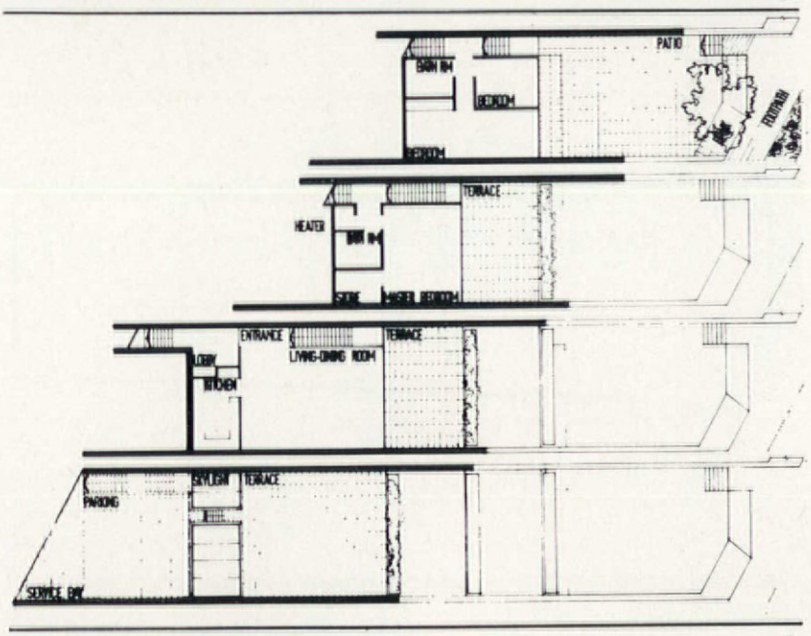

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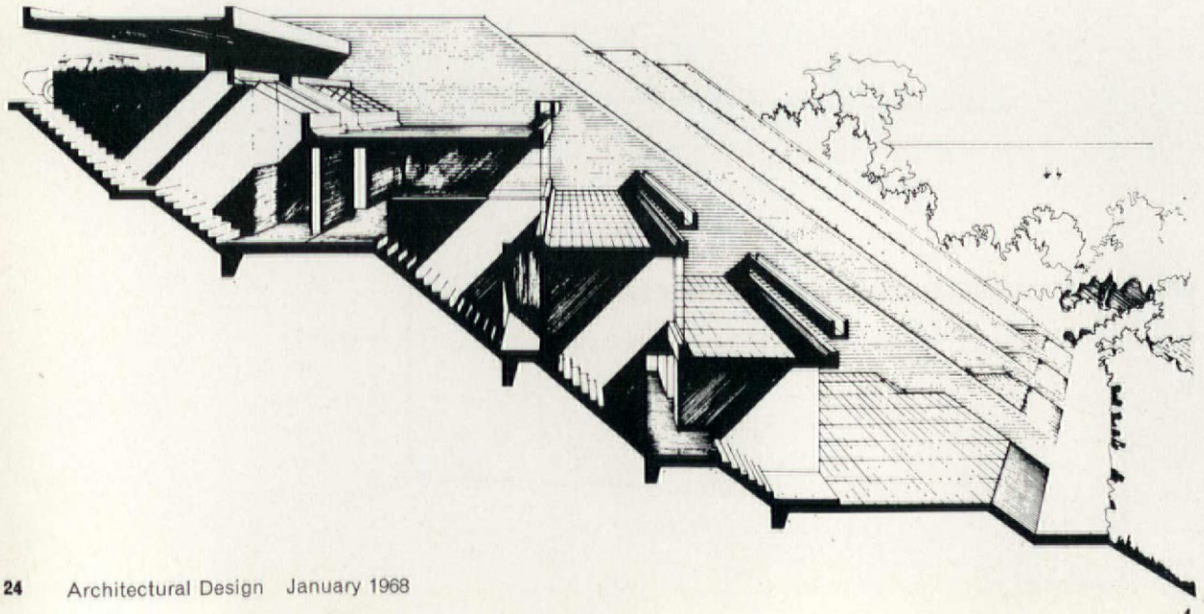
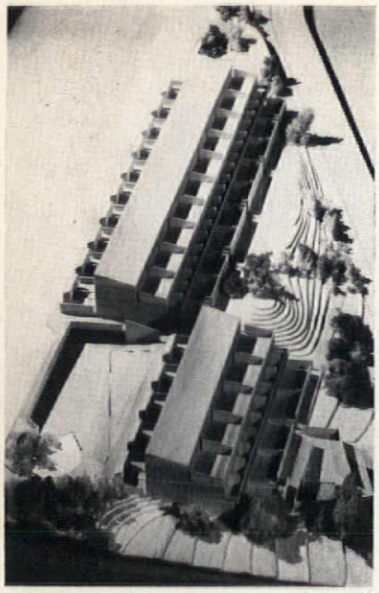


4

Seaside housing
Dartmouth Estuary

Architect Richard & Su Rogers
Design group R. & S. Rogers, R. Russell, J. Young, P. Southgate
Site area 1·2 acres
Density in bed spaces per acre 55 upwards (houses extendable)
Density in dwellings per acre 14
Special existing features A steeply sloping field facing west. Excellent diagonal view to the sea on the south-west. An existing pedestrian footpath links the site with the sea in one direction and the village in the other. There is an existing copse to the south of the site and some trees in the centre
Number of vehicle entrance/exit points One dead-end feeder
Total number of dwellings 16
Percentage of
(a) *Flats* Nil
(b) *Houses* 100
Private outdoor space Every house has a terrace
Standards of space and heating Above Parker Morris requirements
Method of heating Individual oil fired hot air
Car parking
(a) *Residents' garages* 32
(b) *Hardstanding* 25
Distance from residents' garage or hardstanding to his home Parking within own curtilage
Maximum 'carry distance' for
(a) *Residents* } All services
(b) *Refuse collection* } immediately
(c) *Fire hose distance* } adjacent to all houses
Method of refuse collection Local Council dustcarts
Brief description of construction Load bearing white brick cross walls—no plaster—with precast rc planks spanning between. Windows white acrylic finished aluminium
Additional useful information
1 All rooms and private terraces face view and sun
2 Complete vehicular and pedestrian segregation
3 No house can see or overlook any other house
4 The houses can be extended by the addition of a floor at the bottom
5 The scheme is also extendable
6 The scheme has been considered in relation to the landscape
Estimated total cost £900,000

1
Site plan
2
Bird's-eye view of model
3
Ground, first, second and third floor plans
4
Sectional perspective



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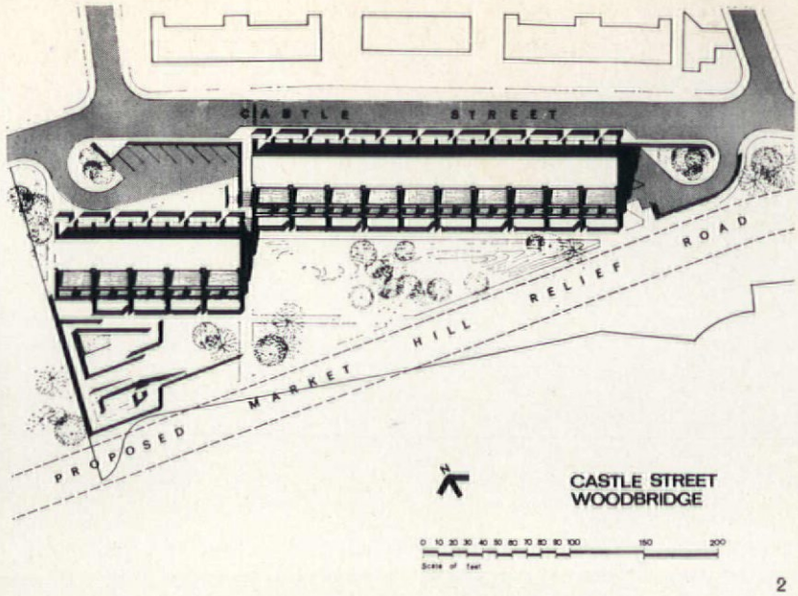

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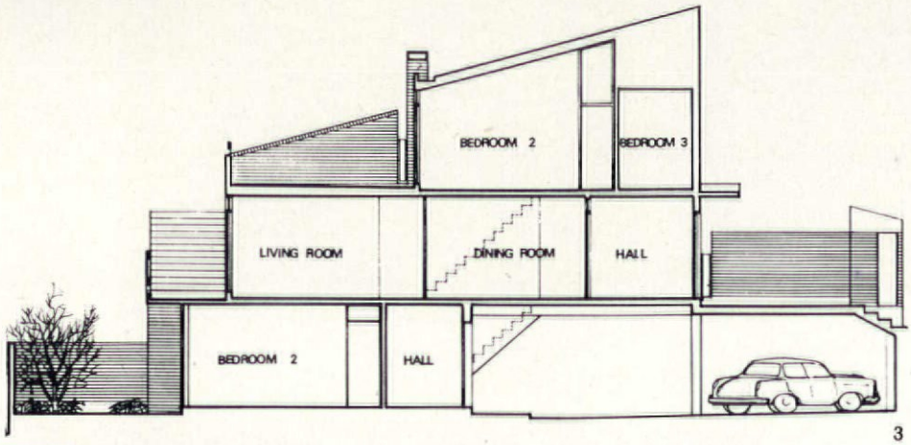

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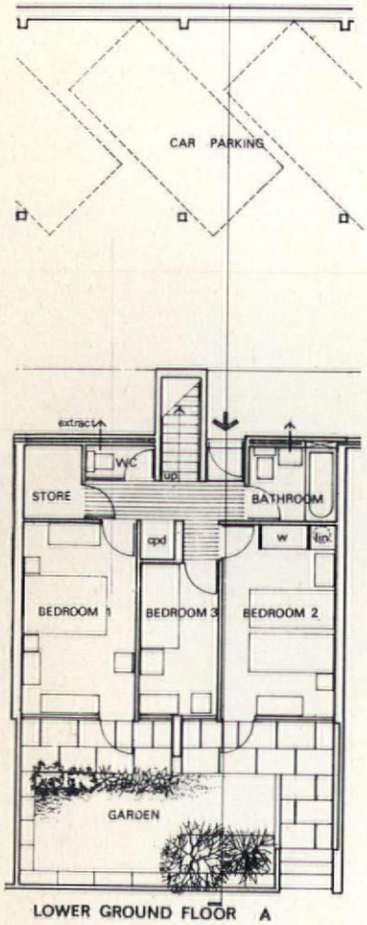
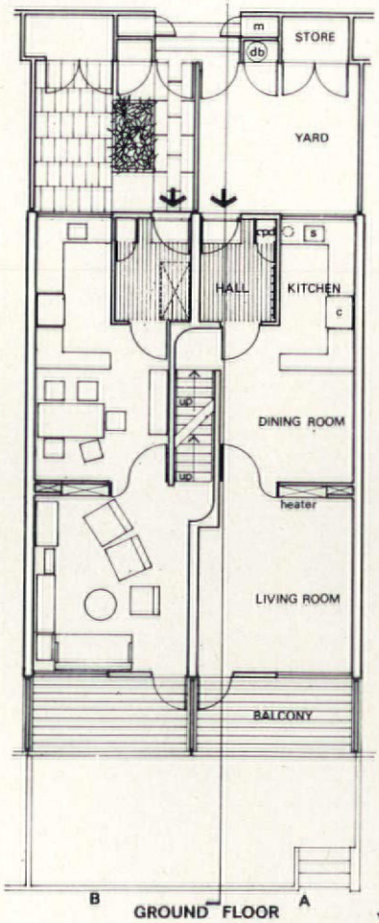


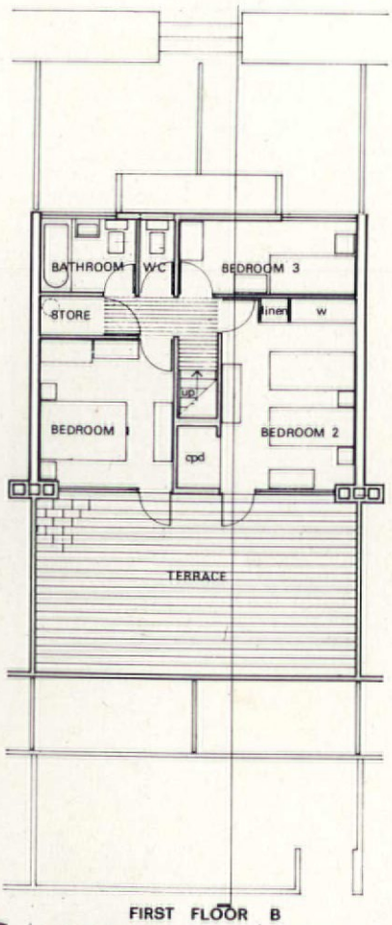
LOWER GROUND FLOOR A

4



B GROUND FLOOR A

5



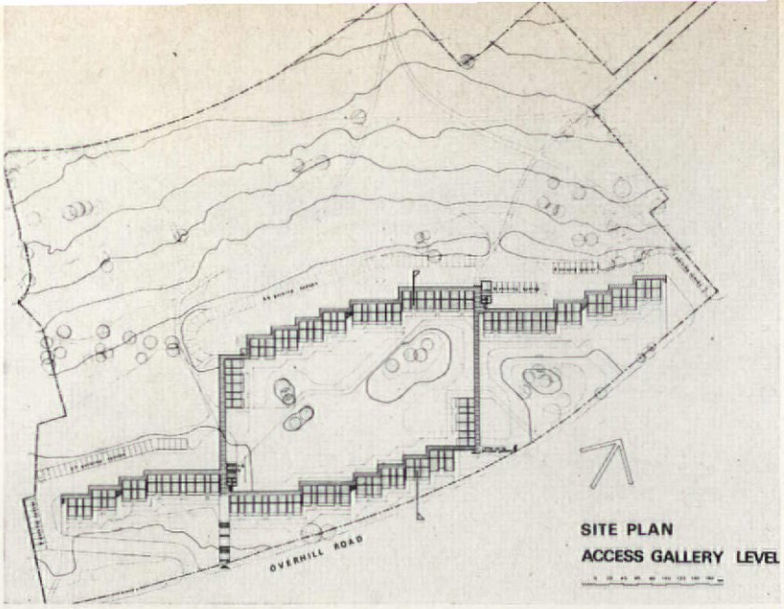
FIRST FLOOR B

6

Castle Street (South) Woodbridge, Suffolk

Architect Kenneth Scott Associates
Client Woodbridge Urban District Council
Job architect Ralph Wilkinson
Site area 1·77 acres
Density in bed spaces per acre 84·7
Density in dwellings per acre 16·9
Special existing features The site was occupied by a row of houses with cellars which have been demolished. It slopes at about 1 in 12 to the south to the bottom of a valley. There are views to the south across open green space with a few small orchards to the Central Market Hill area of Woodbridge on the opposite slope. Ground conditions are difficult with poor bearing capacities and a high water table. Peat overlying saturated silty sand on the upper part of the site will be removed to reduce levels
Number of vehicle entrance/exit points Castle Street is being widened and pavements provided. There will be one entrance from and one exit to Castle Street from this site. This is for car parking only. Normal access is directly from Castle Street. Two lay-bys have been provided on Castle Street
Total number of dwellings 30. These are all 5-person 3 bedroom units
Percentage of maisonettes 100
Private outdoor space Every maisonette has a garden or terrace and a balcony
Standards Parker Morris
Method of heating Gas fired blown warm air
Car parking
(a) *Residents' garages* Nil
(b) *Residents' hardstanding* 30 (20 under cover)
(c) *Visitors' and service hardstanding* 9
Provision for future increase Additional parking can be provided off Castle Street at east end of site
Distance from residents' garage or hardstanding to his home
Maximum 810ft
Minimum 20ft
Maximum 'carry distance'
(a) *Residents* 60ft
(b) *Refuse collection* 100ft
(c) *Fire hose distance* 120ft (in covered car park, but openings available from Castle Street)
Method of refuse collection Refuse bins
Children's play areas One approximately 3600sq ft
Brief description of construction Load-bearing brick cross walls on piled foundations support pre-cast concrete plank floors. Stair construction in situ and pre-cast concrete. Outside walls other than gables prefabricated timber framed panels with horizontal boarded cladding treated with dark brown solignum. Gable walls, boundary and terrace walls red brick. Roof construction: timber joists spanning between cross walls support concrete interlocking tiles at 15° pitch. Floors: chipboard on battens floating on glass fibre
Additional useful information Excavated material used to form artificial landscaped mound between houses and proposed Market Hill Relief Road to reduce noise. Shelter from E.-N.E. winds (E. coast situation) provided by S.W. aspect for nearly all rooms and screened terraces, balconies and gardens
Estimated total cost £108,332 (not including cost of widening Castle Street)

1
Block model
2
Site plan
3
Section
4, 5 & 6
Plans at level 1, 2 and 3



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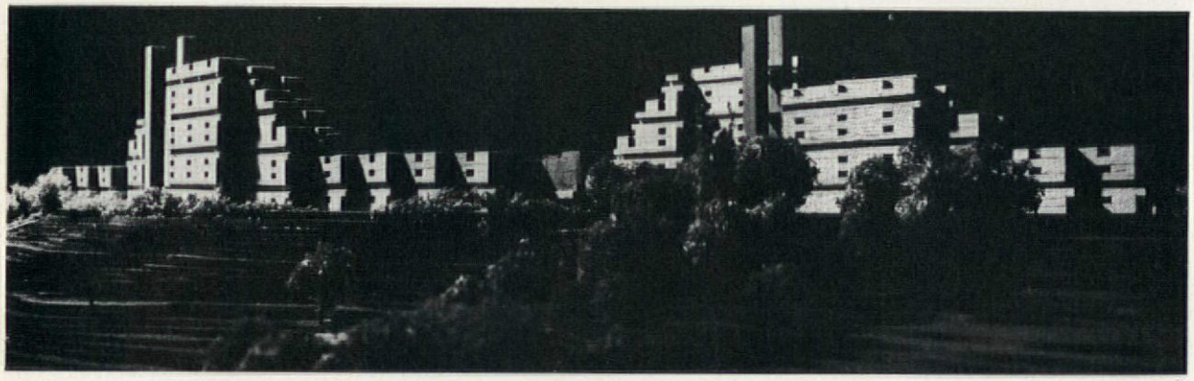

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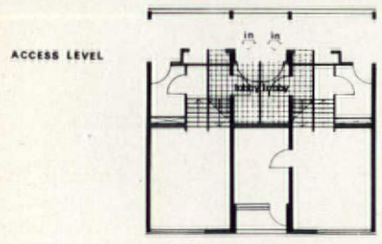

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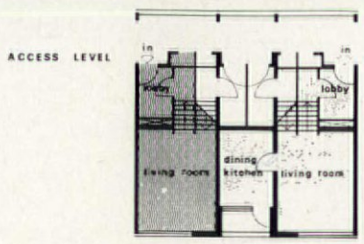

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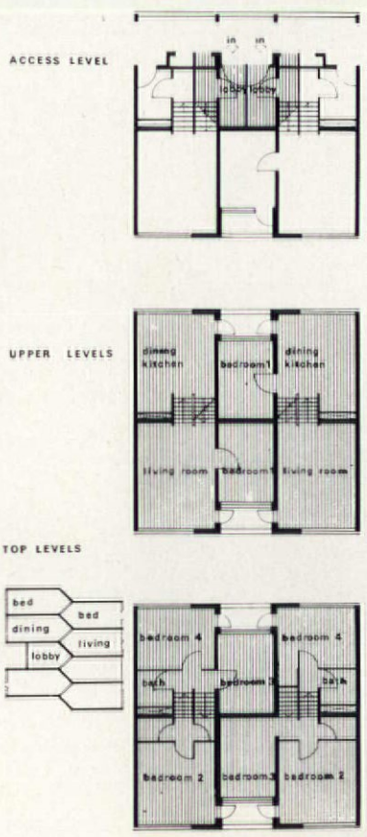

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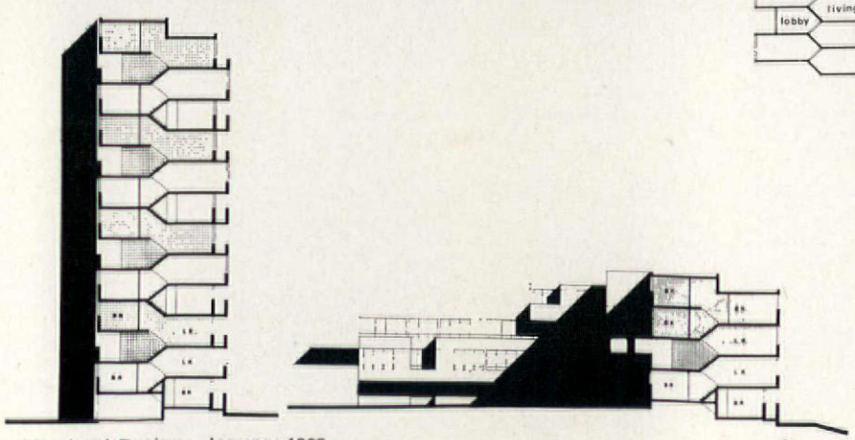
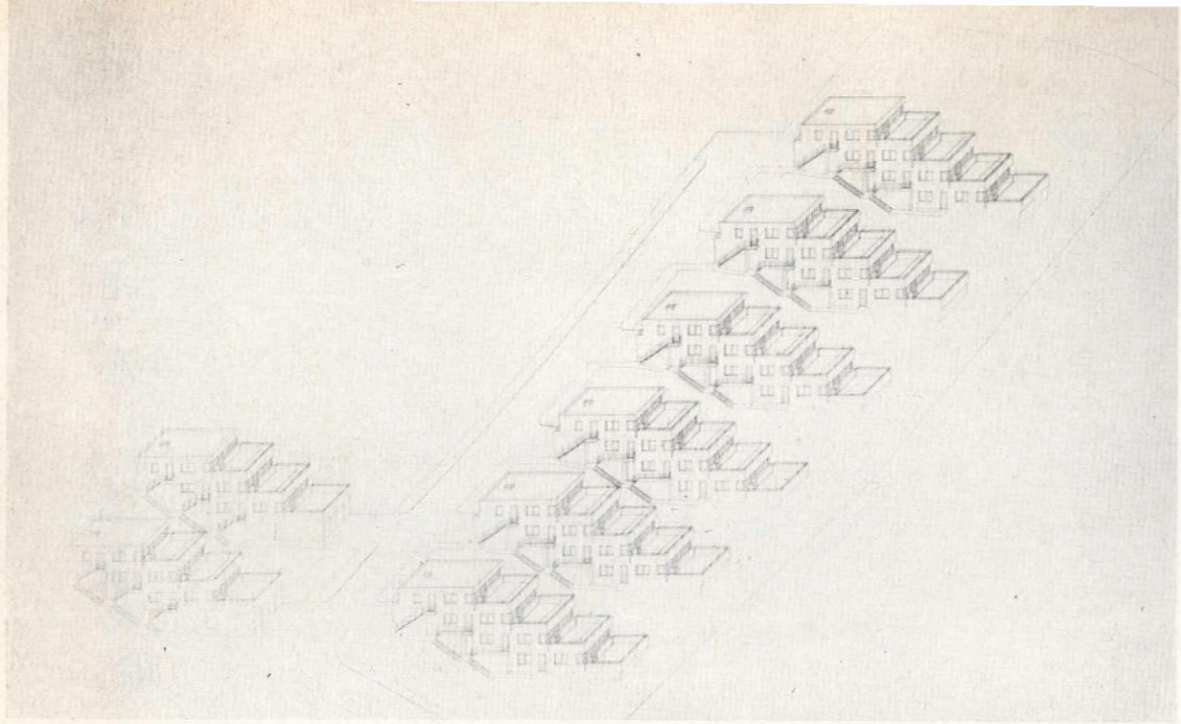


Dawson's Hill
Overhill Rd, London, SE22

Architect London Borough of Southwark, Department of Architecture and Planning
Job architect Kate Macintosh
Client London Borough of Southwark
Site area 13·78 acres
Density in bed spaces per acre 70
Density in dwellings per acre 21·3
Special existing features Suburban surroundings. The slope averages 1 : 11 over its steepest fall. This will be reduced to 1 : 13. There are magnificent views to North and South. Ground conditions are very bad, London clay extremely unstable. The slope is economically unbuildable.
Number of vehicle entrance/exit points 2
Total number of dwellings 296
Percentage of
(a) *Flats* Nil
(b) *Houses* Nil
(c) *Maisonettes* 100
Private outdoor space 66 of the maisonettes have terraces, the rest have balconies
Standards of space and heating Parker Morris
Method of heating Off-peak, controlled output, night storage, electric heaters
Car parking
(a) *Residents' garages* 54
(b) *Residents' hardstanding* 90
(c) *Visitors' hardstanding* 15
(d) *Service vehicle hardstanding* 5
There is provision for future increase in vehicle accommodation
Distance from residents' garage or hardstanding to his home
Maximum 456ft
Minimum 20ft
Maximum 'carrry distance' for
(a) *Residents* 200ft
(b) *Refuse collection* 318ft
(c) *Fire hose distance* 60ft
Method of refuse collection Paper sacks taken by trolley to chute, discharging into trailer which is towed away
Children's play areas 3 of $1\frac{3}{4}$ acres, $1\frac{1}{4}$ acres and $\frac{1}{2}$ acre
Shops. Tenants' meeting rooms, etc 2 shops; 2 laundries
Brief description of construction Cross-walls, 12ft and 8ft 6in bays. *In situ* concrete floor slabs. Brick cladding. Foundations deep piled
Additional useful information It will be the policy of the borough housing management to avoid allocating these dwellings to old people, because of the steepness of the approach roads. The slope will be landscaped for use as public open space. The 3 childrens' play areas, are: a toddlers' playground, an adventure playground and a kick-about space. The foundations represent a high proportion of the total cost, i.e. substructure and external works will cost approximately 30 per cent of overall figure
Estimated total cost £1,519,125

1
Site plan showing access gallery level
2
Block model from the north
3
Access and top level plans of one bedroom dwelling
4
Access and lowest level plans of three and two bedroom dwelling
5
Access, upper and top level plans of four bedroom dwellings
6
Section through housing blocks



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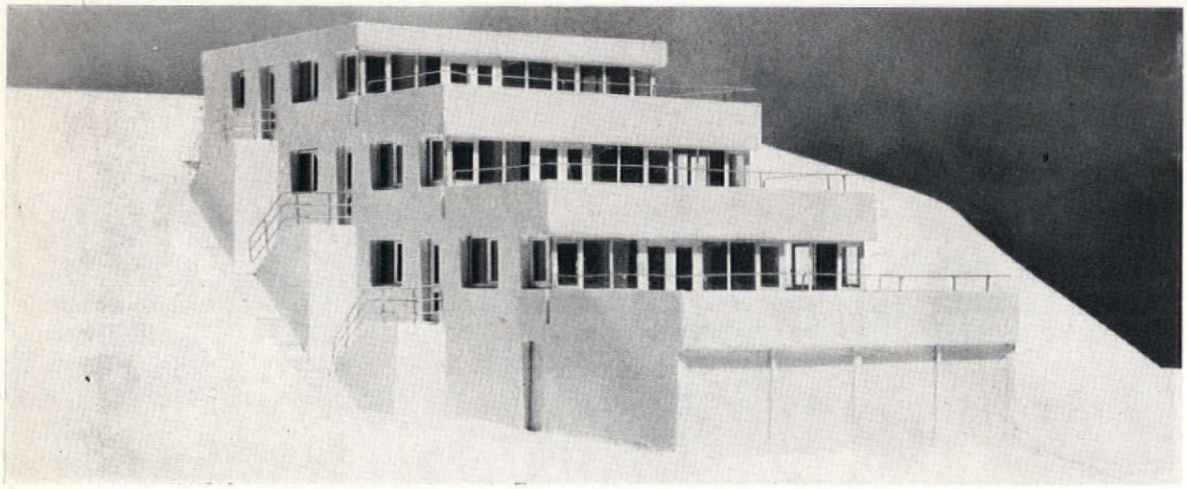

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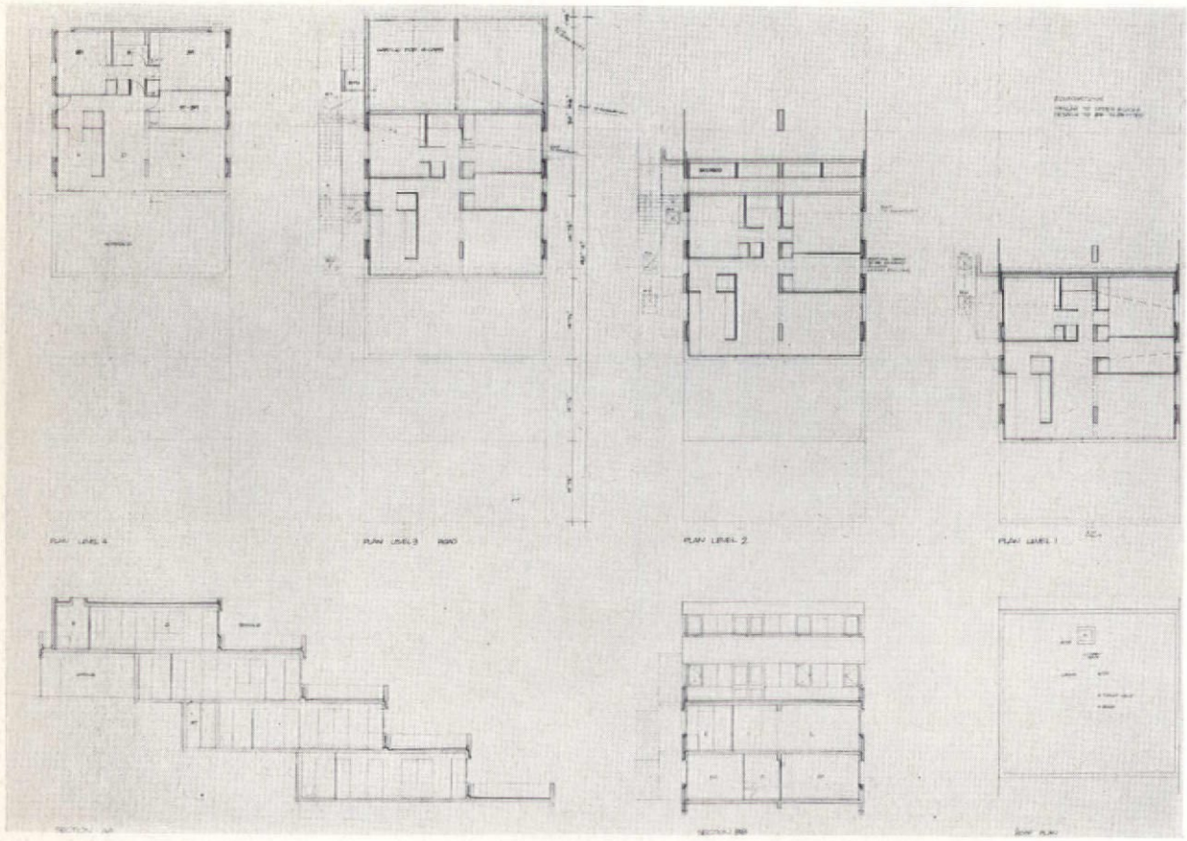
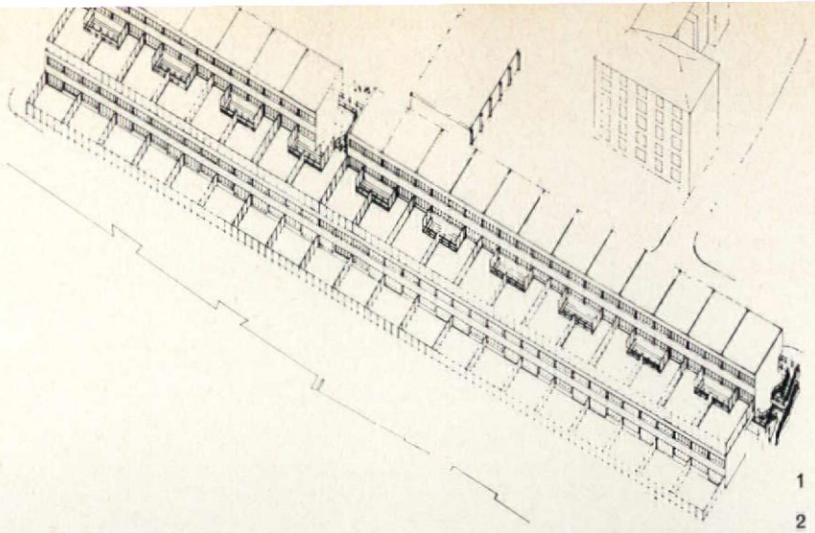


Eaves Road
Dover, Kent

Architect Douglas Stephen & Partners
Partner in charge Margaret Dent
Job architects David Bradley, David Wild
Site area 3⅔ acres
Density in bed spaces per acre 53
Density in dwellings per acre 10·6
Special existing features Steeply sloping chalk downs good view over roof tops to surrounding downs and Dover Castle
Number of vehicle entrance/exit points 1
Total number of dwellings 39
Percentage of
(a) *Flats* 100
(b) *Houses* Nil
(c) *Maisonettes* Nil
Private outdoor space All flats have a terrace 30ft by 14ft including a 30ft × 2ft 6in space for planting
Standards Parker Morris
Method of heating electric warm air heating
Car parking
(a) *Residents' garages* 40
(b) *Residents' and visitors' hardstanding* 40
Distance from residents' garage or hardstanding to his home
Maximum 80ft
Minimum 20ft
Maximum 'carry distance' for
(a) *Residents* 80ft
(b) *Refuse collection* 50ft
Method of refuse collection Bags and bins
Children's play areas Common shared land between blocks
Brief description of construction Reinforced concrete floors supported by brick side walls and central 3ft × 9in brick piers stepping down hillside
Additional useful information Site is on edge of town with downs behind. Development is in form of fingers stepping down site:
(a) to enable sun to penetrate site and dwellings as much as possible;
(b) to facilitate phasing of scheme;
(c) to keep in scale and grain with adjoining suburban development

1
Sketch of housing
2
Model of blocks set above access road
3
Plans and sections of blocks set below the access road



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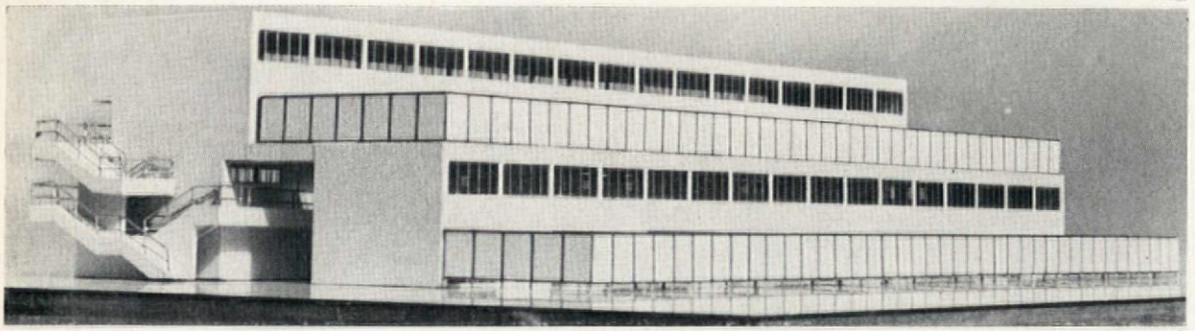

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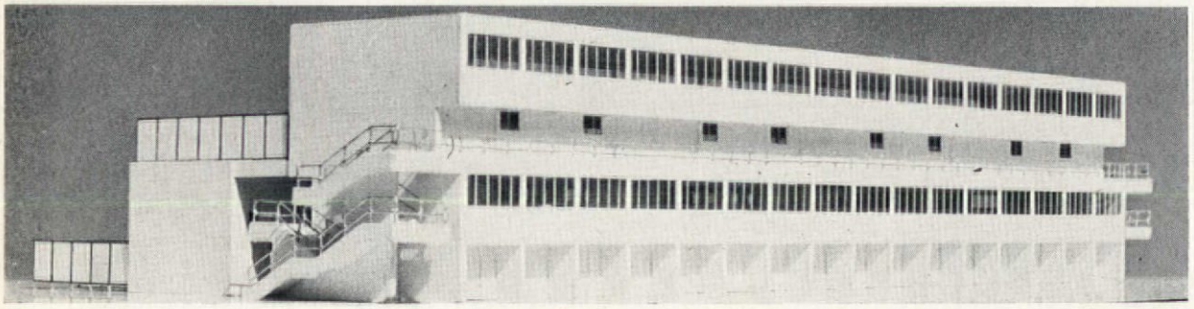

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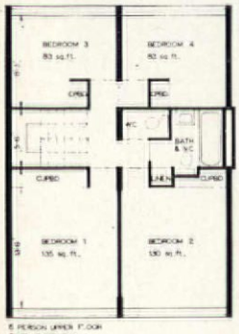

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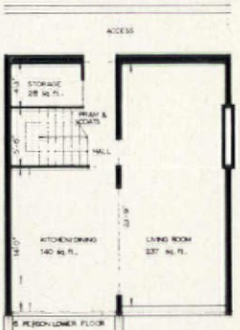

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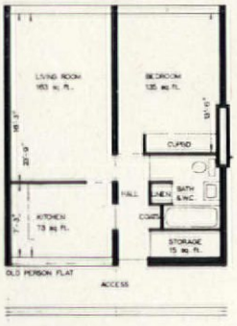

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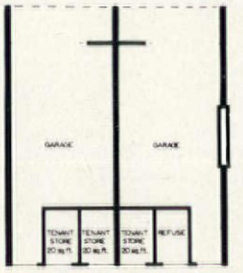

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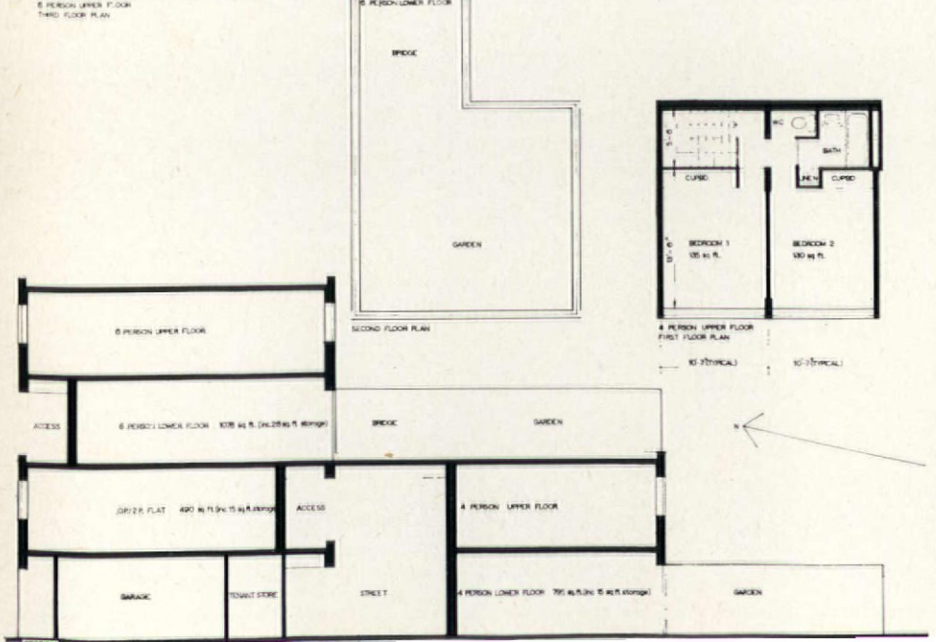

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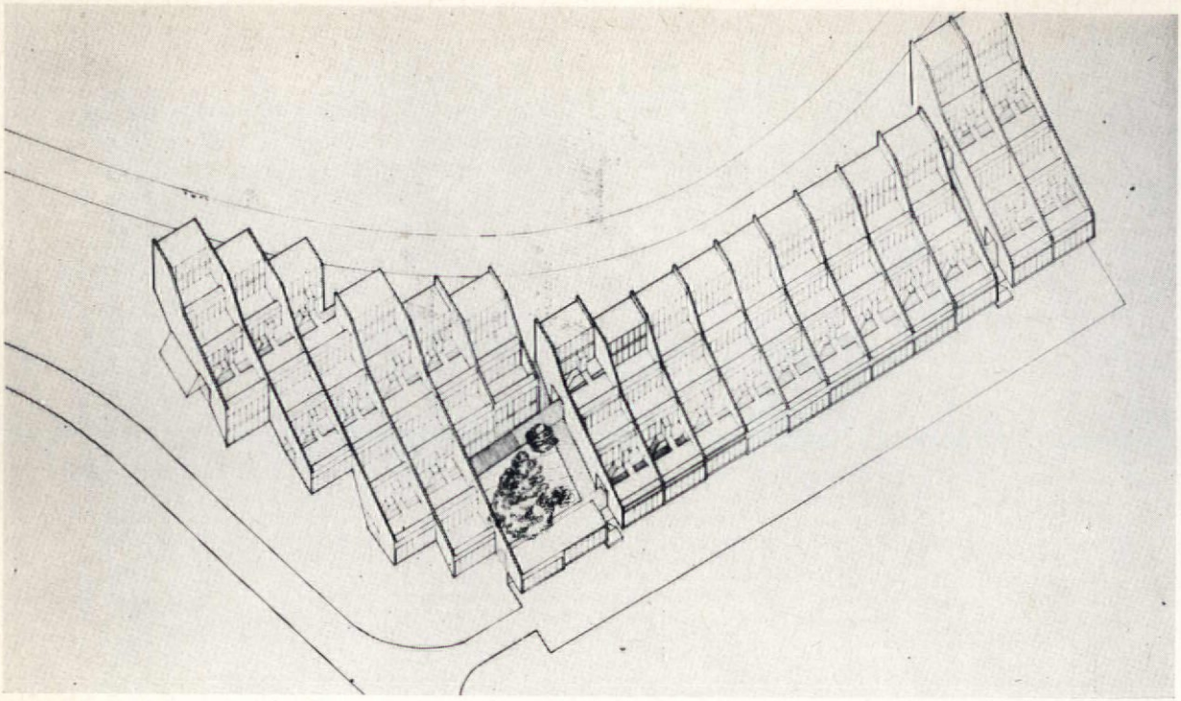
Middleton Street
London, E2

Architect Douglas Stephen & Partners
Job Architect Robin Spence
Client Greater London Council
Site area 1·5 acres
Density in bed spaces per acre 155
Density in dwellings per acre 39
Special existing features Long five storey blocks lie parallel and close to the east and west edges of the site, presenting a serious overlooking problem. There is practically no public open space in the area and the area as a whole has been developed without order of any kind
Number of vehicle entrance/exit points 2
Total number of dwellings 58
(a) *Flats* 19
(b) *Houses* Nil
(c) *Maisonettes* 39
Private outdoor space All 39 maisonettes have gardens
Standards of space heating Parker Morris
Method of heating Electric warm air
Car parking
(a) *Residents' garages* 34
(b) *Residents' hardstanding* Nil
(c) *Visitors' hardstanding* 22
Provision for future increase in vehicle accommodation Behind Hollybush House
Distance from residents' garage or hard-standing to his home
Maximum 3 floors and 120ft
Minimum 20ft
Maximum 'carry distance' for
(a) *Residents* 120ft
(b) *Refuse collection* 120ft
(c) *Fire hose distance* 120ft
Method of refuse collection Containers and paper bags
Shops. Tenants' meeting rooms, etc Old persons communal room of 1400 sq ft
Brief description of construction Cavity brick outer walls and brick crosswalls at 10ft 9in centres, supporting 10ft uniform spans of precast prestressed concrete planks. Steel casement windows. Roof gardens finished with asbestos cement tiles on asphalt. All garden screens in panels held in steel tube framing. Handrails and balustrades in mesh and steel tube framing
Additional useful information The scheme is to be to the new housing yardstick costs. The section is of inherent low cost because of its structural simplicity and it allows considerable possible variation in the proportion of dwelling types, e.g. shops or old person's flats on the ground instead of garages, four person maisonettes at the upper level instead of six person maisonettes
Estimated total cost £266,000

1
Axonometric
2
Model from north-west
3
Model from south-east
4, 5, 6 & 7
Third, second, first and ground floor plans
8
Cross-section



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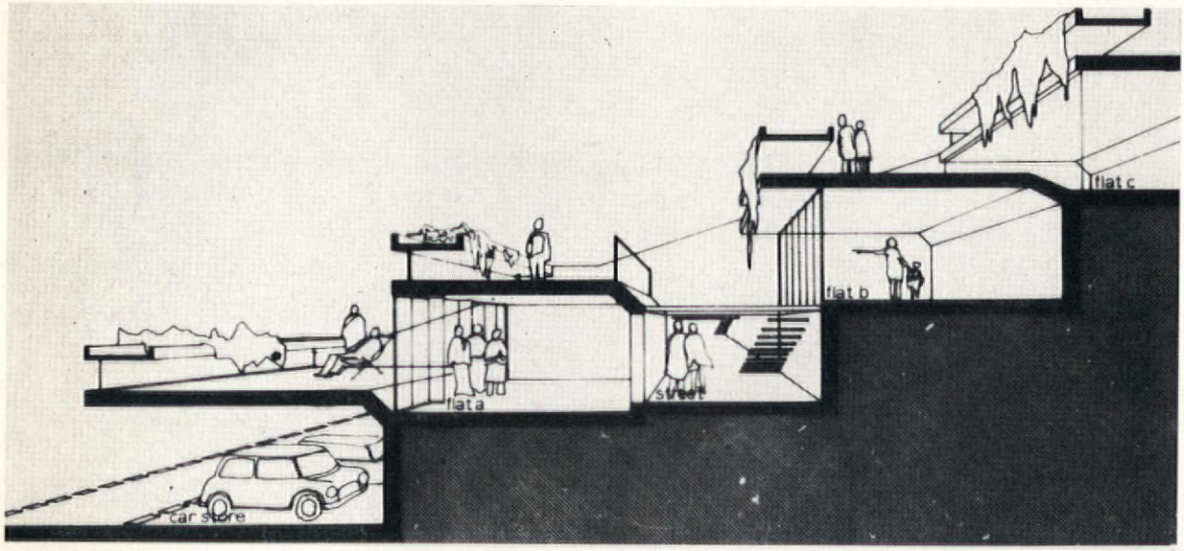

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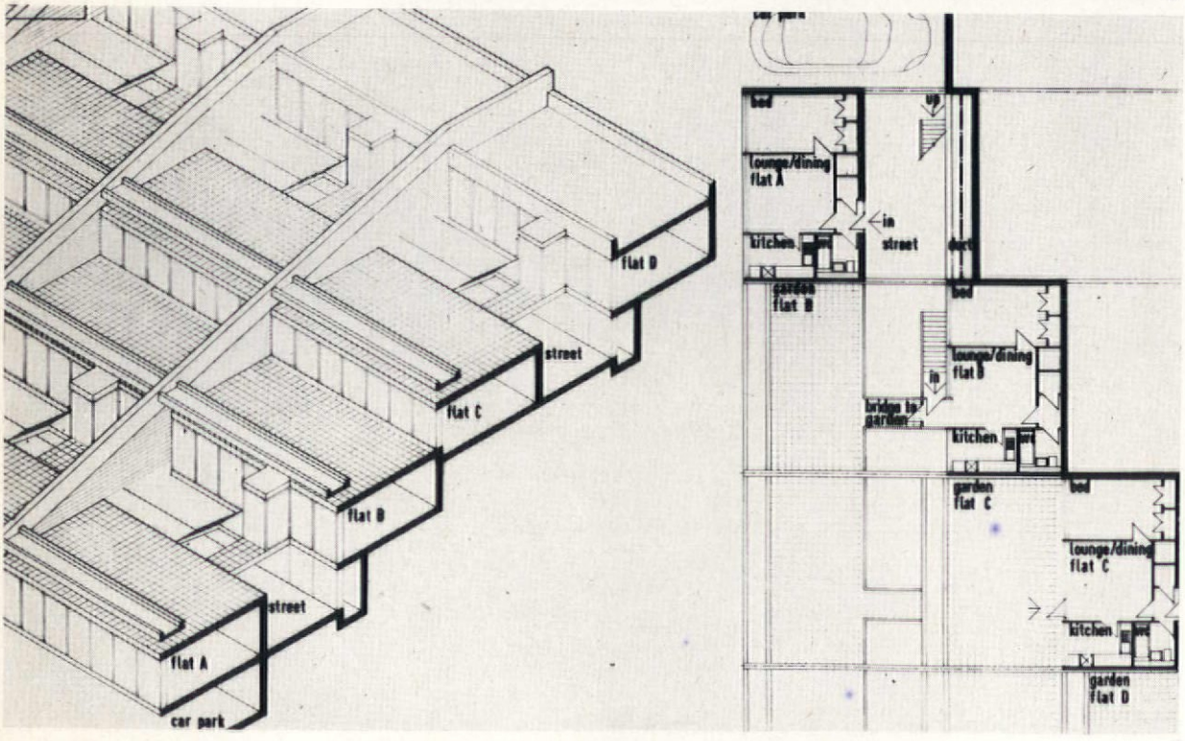


3

Baglan High Level Housing Port Talbot

Architect F. D. Williamson & Associates
Job Architect Martyn Evans
Client Port Talbot Borough Council
Site area 2 acres
Density in bed spaces per acre 90·5
Density in dwellings per acre 38·5
Special existing features The site varies between 100ft and 160ft above sea level (1 : 4 average slope). Directly above the site on the East side is a beautiful stand of conifers (2 acres) 80ft to 100ft high. All housing faces south west with magnificent view of Swansea Bay (only 1 mile to sea edge from site) the site being on a line of hills parallel with the coast behind Port Talbot. Site is directly connected to main Baglan shopping centre. Site ground conditions consist of rocks
Number of vehicle entrance/exit points One major entrance to car park from Laburnum Avenue, otherwise limited off-street parking, mainly for service vehicles
Total number of dwellings 77
Percentage of
(a) *Flats* 77
(b) *Houses* 23
Private outdoor space Communal garden. Every dwelling has 500 sq ft terrace
Standards of space and heating Parker Morris
Method of heating District heating
Car parking
(a) *Residents' garages* 50
(b) *Residents' hardstanding* 27
(c) *Visitors' hardstanding* 25
(d) *Service vehicle hardstanding* 2
There is limited provision for future increase in vehicle accommodation
Distance from residents' garage or hardstanding to his home
Maximum 136ft
Minimum 20ft
Maximum 'carry distance' for
(a) *Residents* Nil
(b) *Refuse collection* Nil
(c) *Fire hose distance* 136ft maximum
Method of refuse collection Normal bins, collected by electric trolley
Children's play areas One of 5400 sq ft
Shops. Tenants' meeting rooms, etc None. Main Baglan Shopping Centre is 200ft from southern corner of site. The pedestrian street system links directly into the Baglan central area which includes a large social club, a clinic, and two schools, a park, a library and normal shopping facilities
Brief description of construction Basic cross wall construction with inter-spanning slabs. All services carried in ducts at sides of pedestrian streets which also carries outside storage for house/flat units. All S.V.P.'s air extraction are taken to the top of the building along the inside of the concrete beams at the profile edges of the cross walls
Additional useful information 100 per cent segregation between cars and pedestrians including pedestrian link direct into shopping/clinic/library/park /schools area at southern corner of site along the main pedestrian Level A. Also direct pedestrian link into country at northern tip of site. All internal movement vertically along ramps ensures easy access for trolleys, prams, wheelchairs etc. Levels of streets vary to give plenty of interest so as not to present a flat unending access corridor. Two-thirds of housing is for housing married couples with no children the remaining third is for families with 1 to 3 children
Estimated total cost £235,000 approx

1
Isometric of housing
2
Section through housing
3
Isometric and plans of flats

Residential densities*

J. R. James

Professor of Town & Regional Planning, University of Sheffield. Formerly Chief Planner, Ministry of Housing & Local Government.

I want to try to throw light on this obscure tangled subject of density.

Misunderstanding arises because the several different kinds of density used in town and country planning tend to be confused. Density is a quantity of some kind divided by the area which envelopes it. It is a measure of the average intensity of that quantity within that envelope. There are different kinds of density because the quantities we want to measure are different, as are the envelopes to which we wish to relate them are different.

Town density

First town density. Here the quantity that is being measured is the population, and the envelope to which it is related is the whole town which covers all the urban activities and uses. The concept of town density is particularly necessary in the process of starting off a new town. What is to be the size of the envelope of the town, that is of the designation area? What are the implications for the pattern of settlement and agriculture in which it is to be set? What broadly will be the 'take' of agricultural land? Experience has already given us a standard. It is possible to say that the likely density of all urban uses (including of course the town's open space) will be somewhere near 15 persons per acre. Here is a town density standard to help us to make the initial decisions about designation, but not of course to make it for us. Each new town is different and the envelope has to be adjusted here to the high land across the river needed as a land mark and recreation area, there to a specially large industrial area needed for say an ICI plant. One has to be ready to make adjustments because of new kinds of town structure: if we go for linear towns, for example, closely related to existing conurbations, reserves of land may be needed to provide the routes for a steady expansion of conurbation traffic. A town structure and its relation to the great cities makes a difference to the amount of land it will take. We may be right sometimes to build towns at higher density as we are doing at Cumbernauld and Skelmersdale. By and large, however, this standard town density of about 15 persons per acre characterizes our new towns and I personally do not envisage that there will be much drift away from this figure in the forthcoming designations. The studies we have are still producing this sort of density for the big new towns and town expansions in central Lancashire, between London and Birmingham and in the Southampton–Portsmouth area. Indeed one might almost say this is a typical British town density for it is also that of great conurbations like Birmingham–Black Country. The old cities combine overcrowding with areas of wasted and spoiled land. The new towns and cities, by eliminating both waste and overcrowding, provide us with the better environment at the same density.

The concept of town density has another use. It provides a standard against which to check existing towns. Round all of these there has been a tendency for villages and new settlements to grow haphazard and produce a spoiled semi-rural semi-urban background; a 'rurban' area which, if linked in the envelope of the town, will show a dropping of density which I think is not a healthy sign either for the town or the countryside.

Net density

By way of contrast I come down now to the other end of the scale, to density of a different kind, measured in a different way and having a completely different use. The quantity, the average intensity of which is measured by net residential density, is either the population once again, or the accommodation (in terms of houses, habitable rooms or bedspaces). But the envelope in this case is drawn tightly round the housing area; it contains not a mixture of uses and activities but, almost exclusively, a single one—housing. It is defined in the *Planning Bulletin on Density* issued by the Ministry of Housing and Local Government in 1962, as *including dwellings and gardens, any incidental open space (e.g. children's play spaces or parking space for visitors' cars) and half the width of surrounding roads up to a maximum of 20ft, but excluding local shops, primary schools and most open space and all other types of development.*

This is the kind of density with which developers and housing authorities are particularly concerned and I shall return to it when we have made a tour of the aspects of density. Here I want to say two things. First that the fixing of standards of net residential density by local authorities over wide areas is a very dangerous, misleading and deceptive exercise; particular conditions of the site, its shape and its relation to surroundings make all the difference to the intensity with which it should be used. Second, the people who are going to live on a site now to be developed will be intensely interested in having associated with their homes and immediate neighbourhood all the facilities that a town can offer in the way of good schools and playing fields, parks and open spaces, shops and civic services.

A planner is well advised not to set standards of net density. For this reason and because he must ensure that residential areas are properly equipped with facilities within easy reach, he is more concerned with density of another kind, intermediate between town density and net density, namely gross density.

Gross density

With gross density we are still measuring the same quantity (population) but are back again with an envelope containing a mix of activities and land uses, a less extensive mix than that involved in town density, but a mix which is specially important to the organization of home life. The *Planning Bulletin* I referred to defines this envelope of gross density as including all the land covered by dwellings and gardens, roads, local shops, primary schools and most open spaces, but excluding all other urban uses such as industrial land, secondary schools, town parks and town centres. It is, so to speak, the intermediate environment linking dwellings with the sort of facilities one would normally be able to walk to.

With this mix of uses covering a whole district or sector of a town a planner can expect conditions to average out and can apply standards. New town design again shows a fair consistency of practice and this is maintained in current designing as well as in the new towns already built or building.

What should be the standard of gross density? One main aim is to economize the use of land: this can best be done not by raising gross density to high levels but by keeping it above low levels. To crowd development closely and to build high does not produce an important saving in land. On the other hand great savings are achieved by preventing sprawl. If for example you can increase the gross density from 20 to 30 persons per acre you will save 17 acres of every thousand people. It is in this range of gross densities that land economies are really important. If on the other hand you have a gross density of 70 persons per acre increased to 80 then the corresponding saving of land is less than 2 acres. This fact is not realized by those advocates of high density urban development who mistakenly think we can thereby save the rural acres of England.

One of the difficulties of raising gross densities is the fact that the land needed for ancillary uses cannot easily be compressed. These tend to take up about 8 acres for every thousand people. This of course does not hold rigidly. The amount of open space provided must depend not only on what is socially desirable but also on the means of the authority which provides it. None of the standards of ancillary provision are a last word. Each must be subject to occasional review. Nevertheless it remains true that such uses of land are, and should remain, relatively incompressible, so that savings have to come disproportionately from housing. At gross densities of 60 to 65, houses take up only about half the gross residential envelope, the rest being needed for ancillary uses: any increase in gross density then involves double that increase in net density.

In short, raising gross densities to high levels produces relatively small savings of land and in so doing involves disproportionate increase in net density. Considering the expense and difficulty of high density housing I find it hard to see how it can ever be worthwhile raising gross densities into the 70 to 80 persons per acre range. But it is of first-rate importance to our land economy that we should be able to plan housing together with its local facilities at medium gross densities of 30 to 40 persons per acre and not often fall below these figures.

Gross density is thus an important and useful planning concept. Within big urban sub-divisions, forming the appropriate envelope, standards of density can be set that permit the proper planning of housing with local facilities and ensure the economical use of our national stock of land.

Layout

I now want to take net density again to see what sort of usefulness it does have and how it is related to layout.

Development control should not apply standard net densities. I have already said that a planner should beware of writing any standard net densities into his plan. Now I am coming right out into the open and making a plea for *ad hoc* development control at the level of housing layout. In the infinite diversity of local surroundings conditions and of the sites themselves, their levels, ground conditions, size and shape, it should be clear to any thinking person that no rule of thumb can be applied relating the number of dwellings to the area of the site. Development control is full of pitfalls. One never knows whether the plot for which application to develop is made will subsequently be subdivided or enlarged and its density thereby doubled or halved.

I would therefore say 'forget any net density standard in development control. Consider instead the capacity of the wider area and the gross density figure of that area which is the planned measure of its capacity. Consider whether population is tending towards capacity or away from it: whether a great many more people are needed to produce an effective local community or whether there is already overloading of the local facilities available, shops, schools, roads and public transport. Consider on the other hand how many people there are who badly need dwellings and how far it is fair to try to house them locally. Consider all the conditions of the site and the surroundings and the character of the area. And make your decision.'

But I would not admit that it is ever sensible to apply a maximum or a minimum net density standard. That may seem the equitable way but there are too many special considerations for it ever to work properly in practice. It would produce not equity but uniformity: we need diversity. Development control means weighing up all the local pros and cons. There is no easy way out.

Sensible range of net density

I have said that standards of net density should not be imposed on housing proposals. Does this mean that all net densities, from one dwelling per acre to a 100 dwellings per acre, have an equal chance of being right for our urban settlement pattern? Obviously not. There may be a few cases where one house to the acre is right. I do not want to talk about them. There may even be cases where a 100 dwellings to the acre is right but I doubt whether it could be so in this country. In the majority of cases a false assessment of local conditions will favour net densities in the middle range.

Of the forces which tend to press up net density, one is the need to economize in the amount of land which towns are taking up. To get these economies, as I have said, we should have gross densities in the range of 30 to 50 persons per acre, and this corresponds to net densities of 40 to 80 persons per acre. When you go above that figure you have rapidly diminishing returns.

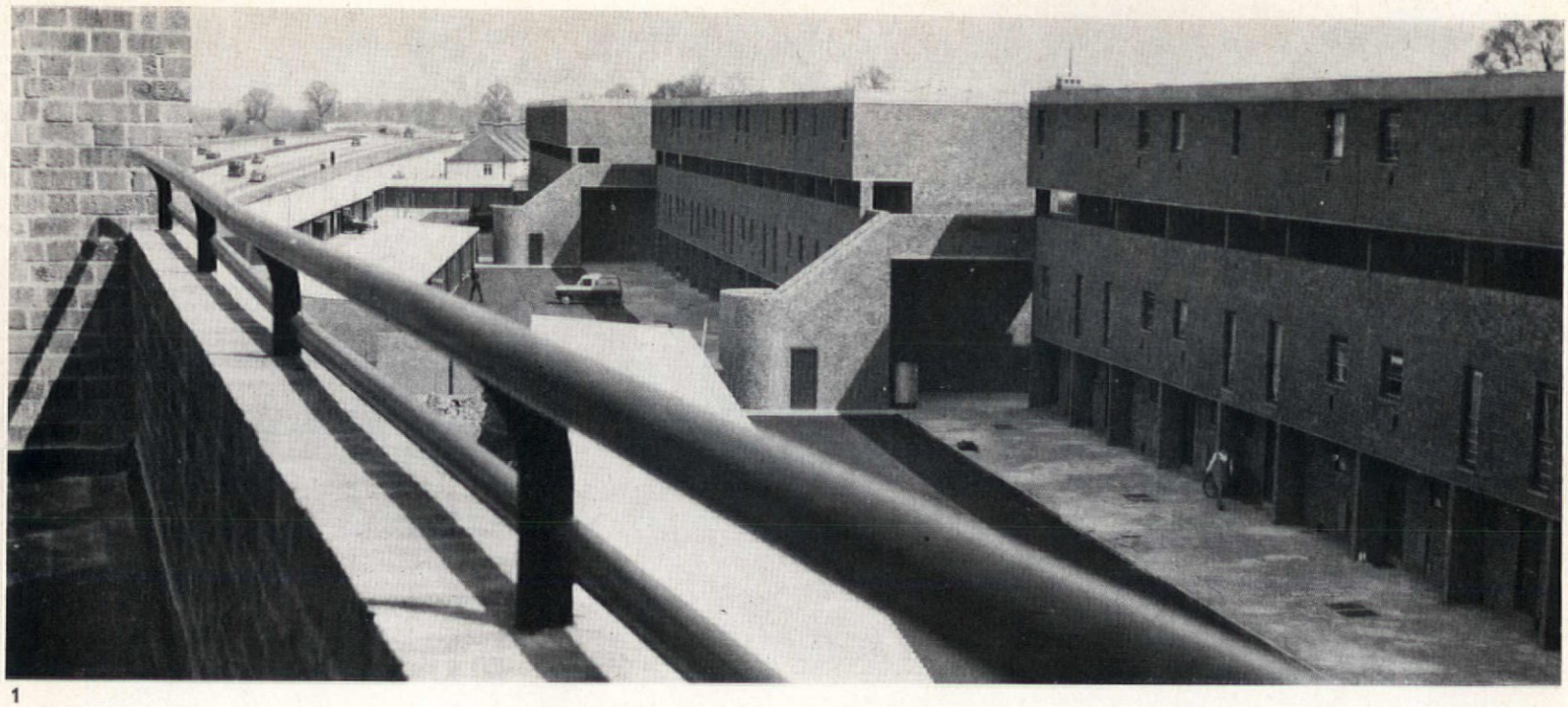
On the same side tending to press up densities is the need to get economies in development costs. Very low densities are uneconomic because services and land cost so much more per house. But here again this pressure acts only into the same middle range of densities. At net densities higher than 80 or so, the costs of development begin to go up sharply.

On the other hand are forces tending to keep the net densities down. One, of course, is the ordinary person's very strong preference for spacious living with at least some private space outside the dwelling. The powerful tendency of towns to spread round any nearby village or hamlet in a dilute semi-urban, semi-rural form is evidence of this desire for space. Some people are now advocating a return to controlled ribbon development along country roads. I am not one of them, but I believe that as far as we can we must provide for relatively spacious living within towns. We will have to have a sort of Parker Morris standard for the environment as well as for the house itself.

The second powerful force keeping net desities down is the difficulty of designing: as densities rise, the sheer intellectual and physical problem of fitting all the urban parts together becomes more and more complex.

The resultant of all these forces, one way and the other, should be allowed, if we are sensible, to keep net densities in the range between 40 and 80 persons per acre with exceptions on one extreme as on the other to meet special cases. If we do this we shall find ourselves in accord with the best current thinking of the designers of new towns, and indeed in the tradition of new town building. I, for one, am quite happy to stand in the centre of that tradition. Where there is no real pressure on land, i.e. in small towns and villages and where agricultural and amenity considerations are not of supreme importance I would tend to use the lower of these figures, i.e. the 40 persons per acre, whereas in our larger cities the higher figure is probably a better guide. However, the real point is that there should be diversity within a broad range.

*Extracts from a paper given at the autumn 1967 conference of the Town & Country Planning Association at the Royal Festival Hall, London.



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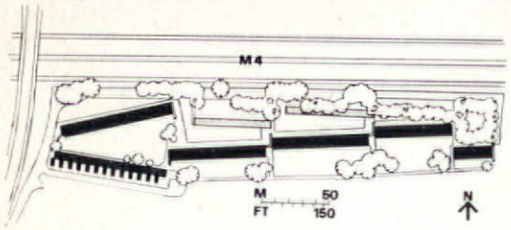


2

1
North elevation of blocks backing onto M4 motorway

2
Site plan

3, 4 & 5
Detail views from the south and east

Heston Grange, Heston

Morton, Lupton and Smith

for the Northall Housing Association*

The site is approximately 2½ miles from London (Heathrow) airport, about three-quarters of a mile from two lines of flight.

Any site so near to an airport is noisy, but neither the Ministry of Aviation nor the Building Research Station considered that the noise level from this source would be uncomfortable.

The site is 1000ft long by only 200ft deep, bounded on the north by the M4. This motorway causes a high level of noise disturbance, and from the outset posed a major planning problem. In the nineteenth century railways charged through housing areas regardless of sound, vibration or smell. Today unless we beware, motorways will do the same in a way irreconcilable with our more enlightened concern for the places where people live. It is difficult to mitigate the effects of sound from such a source. Double glazing is both expensive and only effective when the windows are shut; unless there is complete air-conditioning this cannot be reconciled with ventilation. It was thus necessary to devise a form of development and plan which would provide its own insulation against the motorway.

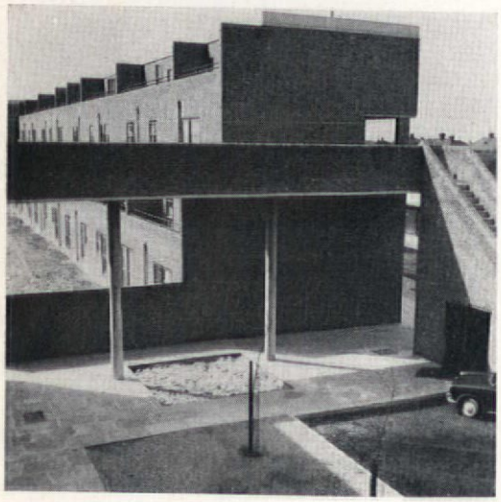
Heston Park is immediately to the south and provides a very pleasant open green with a fine row of 80ft elms on the south side. The centre of Heston is some 400 yards away, just beyond the park, and includes almost all neighbourhood amenities.

The first proposal was a high density scheme at 150 persons per acre. Site conditions led to a long undulating block seven storeys high across the site from east to west—a strong and simple form in scale with the motorway, and with the trees of the park which it embraced. Such a simple building form would have given a sense of identity not only to those who live on this site but also to Heston as a whole. This scheme would have shared the very expensive land costs, nearly £30,000 an acre, between many more people, and would have made possible the provision of communal facilities, laundries, nurseries and so on. The scheme was rejected by the planners not only because of the density but because of the height and the length of the building. In an area of two-storey housing built between the wars the fact that a new 100ft wide motorway slashed through the scene was

32▷

* The Northall Housing Association is concerned to help provide housing in areas where there is a need for it, and for that reason they acquired this site which is central to many industries. The Association is particularly concerned with the integration of immigrants. The scheme was financed under Section VII of the Housing Act 1961, and rents are calculated only to cover the costs. Rents (excluding rates) are: One-person flat, £3 13 0. Two-person maisonette, £5 0 0. Four-person maisonette, £5 12 0. Five-person maisonette, £6 12 0. Garages, 12s 6d. Three-person house and garage, £6 0 0.

3



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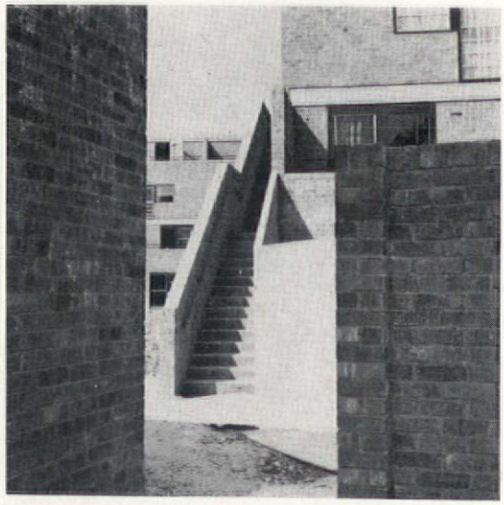

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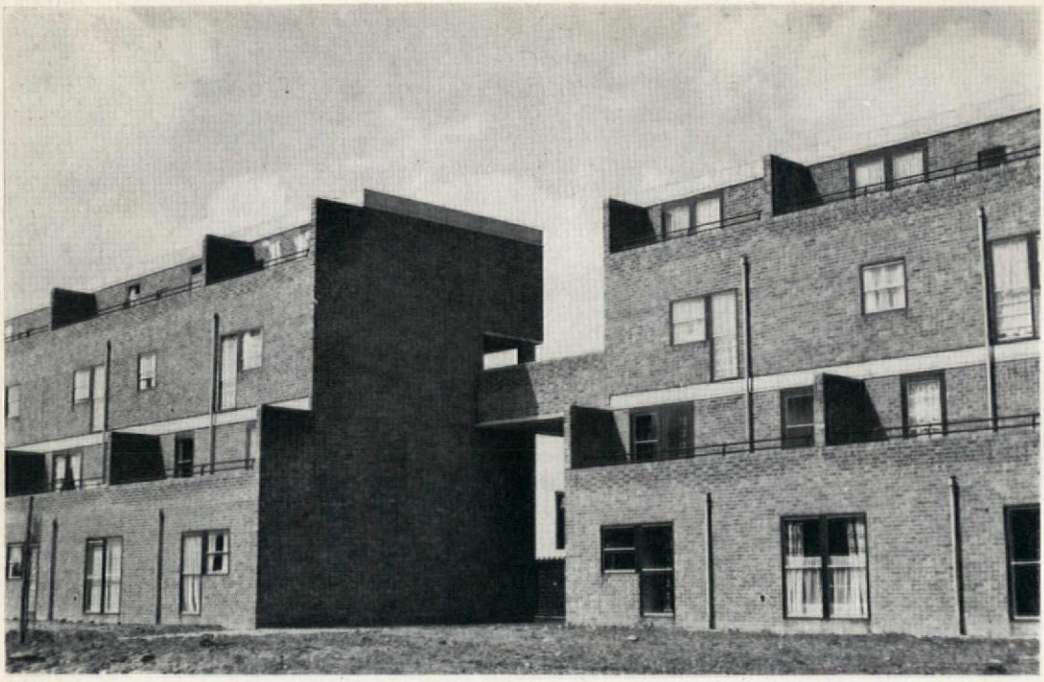


1

◁31

apparently no reason for thinking and building on a new scale. Even though the park to the south gave breathing space as well as view, the density was measured strictly within the confines of the site itself. For the Northall Housing Association this was their first major building scheme, and with interest on the cost of the land amounting to nearly £8,000 a year, it was decided not to appeal but to start afresh. The main principles which generated the first scheme were applicable at a lower density.

A simple terrace form, four storeys high, was designed to overlook the park and turn its back on the motorway. Access by car is on the north —the hard side in contrast to the south which is soft and green. The building blocks are staggered on plan. On the south this serves to enclose the park, and on the north sub-divides the housing into groups with their own garages. The blocks are joined by bridges—providing a choice of routes for those that live above the ground—and helps neighbourliness among the tenants.

The dwelling blocks consist of a repetitive basic unit occupying 45ft of frontage and the full height of the building. This unit contains a cross section of the community—a one-person flat and two four-person maisonettes occupying the ground and first floor, and a two-person and a five-person maisonette on the two top floors.

Dwellings are planned with a buffer of service rooms against the noise of the motorway. Not only the access deck, but halls, bathrooms and kitchens are on this side. All living rooms and all bedrooms are on the south, and can open their windows to the relative quiet of the park.

At the entrance to the site from the west lane, a row of two-storey houses with garages attached are provided for small families. The scale of these helps relate the higher building to the existing housing.

In due course the trees will grow on the motorway side. These will help only a little against the noise, but they will provide a screen, a texture to relieve the harshness of the road.

Site area	4⅔ acres
Density	84 persons per acre
Flats and maisonettes	22 one-person
	44 four-person
	22 two-person
	22 five-person
Houses	13 three-person

All dwellings are to Parker Morris standard.
Contract price: £360,000.

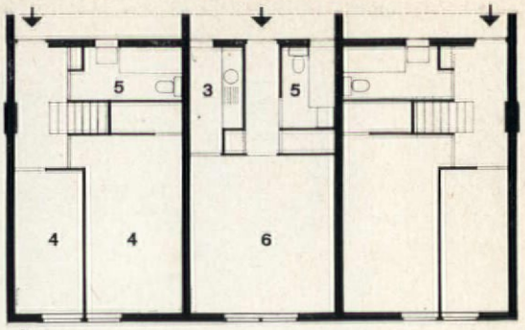
1
South elevation

2, 3, 4 & 5
Ground, first, second and third floor plans of a typical segment of the residential blocks

6
Cross section

Key

1 hall	5 bathroom
2 living room	6 bed-sitter
3 kitchen	7 w.c.
4 bedroom	8 access deck



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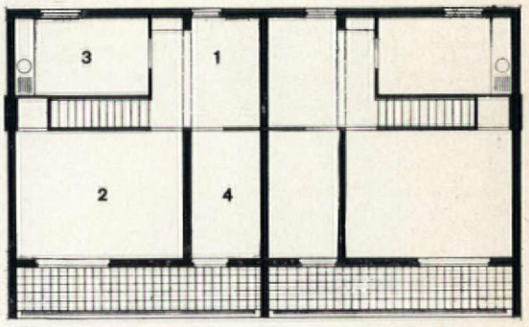

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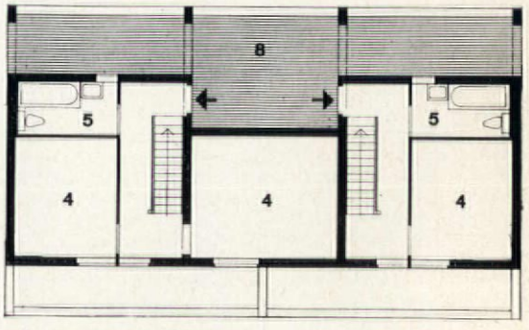

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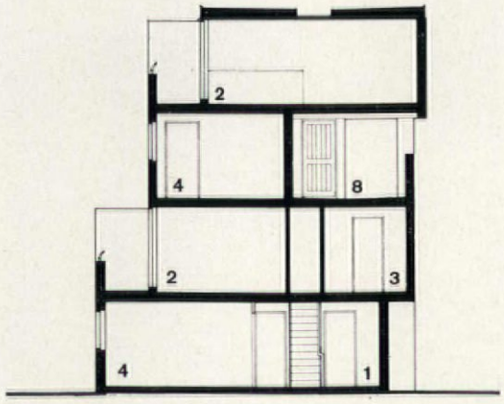

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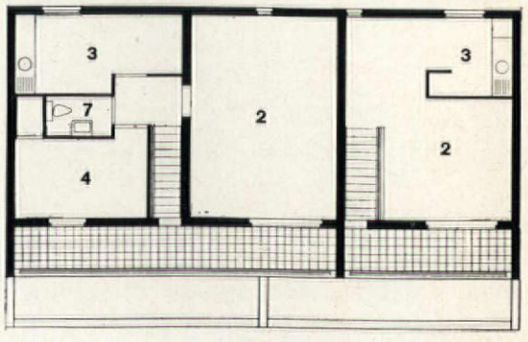

5

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1

1
View from the east: the University Street façade
2
Aerial view of Montreal central area

1 Place Ville Marie	5 Place du Canada
2 CIL Building	6 Hotel Reine Elizabeth
3 Bank of Commerce	7 Place Bonaventure
4 Place Victoria	8 Chateau Champlain

Photos: 1 Ed. Bermingham Inc., 2 Lockwood Survey Corporation Ltd.

[1] *AD 8/66*
[2] *AD 4/67*
[3] *AD 3/67 & 7/67*
[4] *AD 7/67*

Place Bonaventure, Montreal

Affleck, Desbarats, Dimakopoulos, Lebensold & Sise

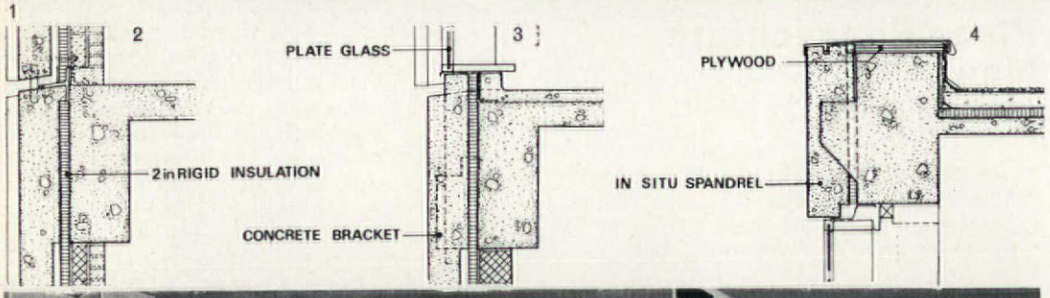
A unique multi-level city complex comprising exhibition centre, merchandise mart, shopping concourse, hotel and transport interchange. Described by Kenneth Frampton

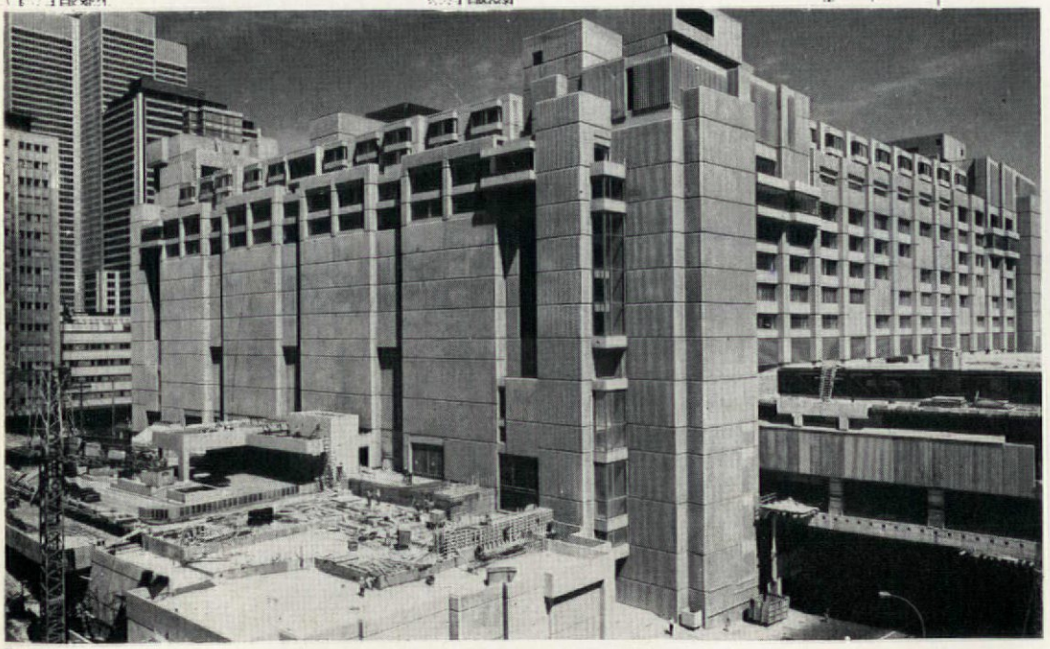
Quotations attributed to Ray Affleck are from The Canadian Architect *9/66 and* Architecture Canada *7/66*

The appearance of a vigorous architecture in Canada is as overwhelming as it is somewhat unexpected. Four structures of international stature, all completed there within a year of each other, are each distinguished by being conceived in urban terms and by a commitment to the programme as a source of built form. To Simon Fraser University[1] in British Columbia, Scarborough College[2] at the University of Toronto, and Habitat[3] at Montreal must now be added the Place Bonaventure[4] in Montreal —the oniy one to be built in an urban situation.

2

1





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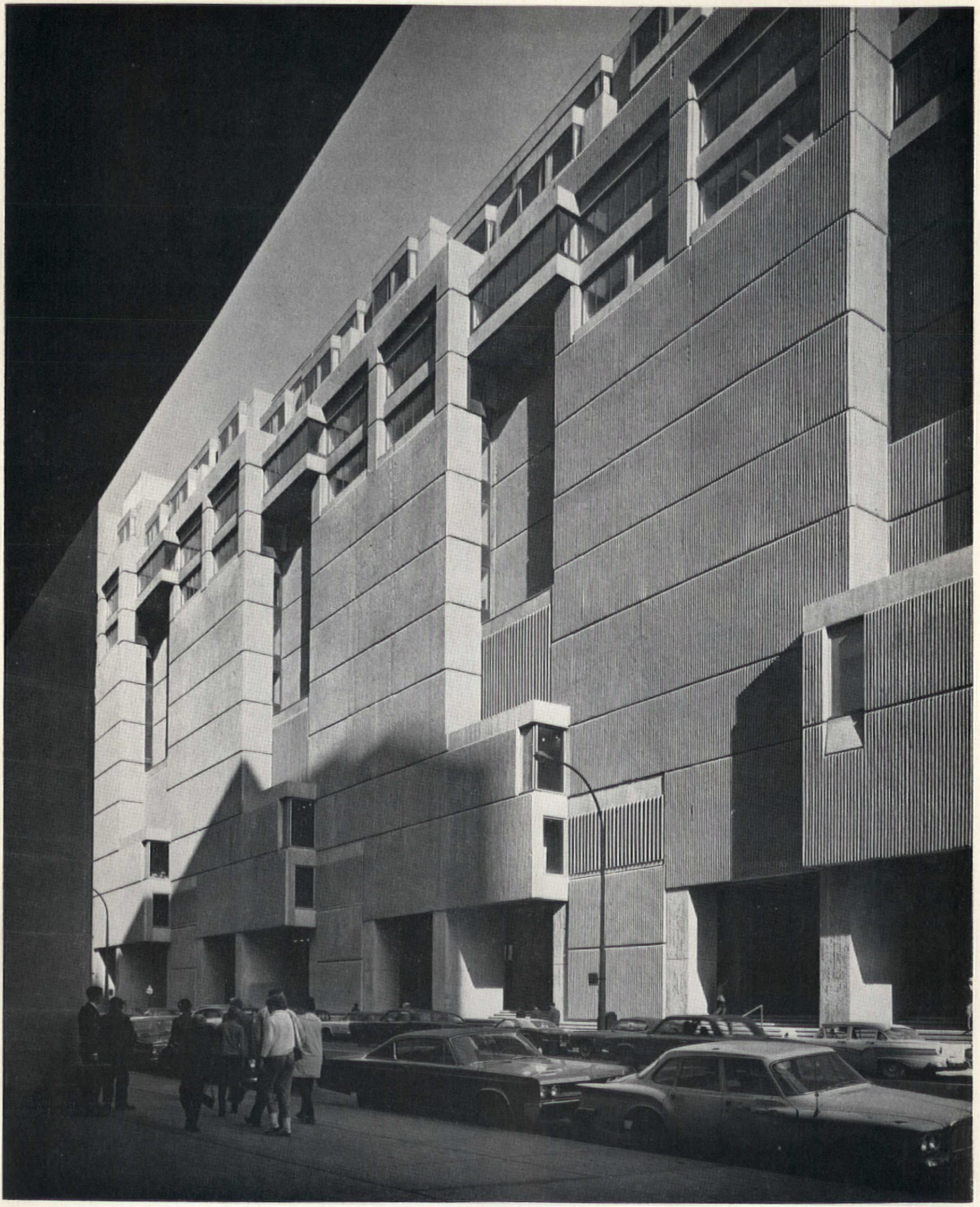
Arriving by road from the south-west, from the Expo site, via the Route Bonaventure, (at night the newly built 'great white way' into Montreal), the Place Bonaventure rises in the middle distance immediately on one's left, a vast concrete, largely windowless and enigmatic bastion built against an intemperate climate. Located in the very heart of downtown Montreal, it is naturally attended by those existing bureaucratic high-rise structures it will partially serve. Its position in this respect is not unlike the one enjoyed by Grand Central Station in Manhattan. To this end it is strategically located over the entry to the rail head of Montreal, the CNR terminus. Its planned location here is first and foremost a tribute to an enlightened public corporation who, when building their Gare Centrale, had the foresight to envisage future utilization of the over-track air space and provide knock out panels in the platforms between the tracks to accommodate future foundations. The CNR is also responsible for initiating the expanding network of covered pedestrian concourses which will eventually extend from the Place Ville Marie and the Gare Centrale over a large area of the 'downtown' city and its Metro

▷36

1
View from the east, looking up University street
2, 3 & 4
Facing details: typical jointing, sill and parapet
5
View from the south, looking towards the Mansfield Street façade and set down area still under construction
6
Lagauchetière Street façade
Photos: 1 *Jowett*, 5 *Bermingham*, 6 *M. Drummond*



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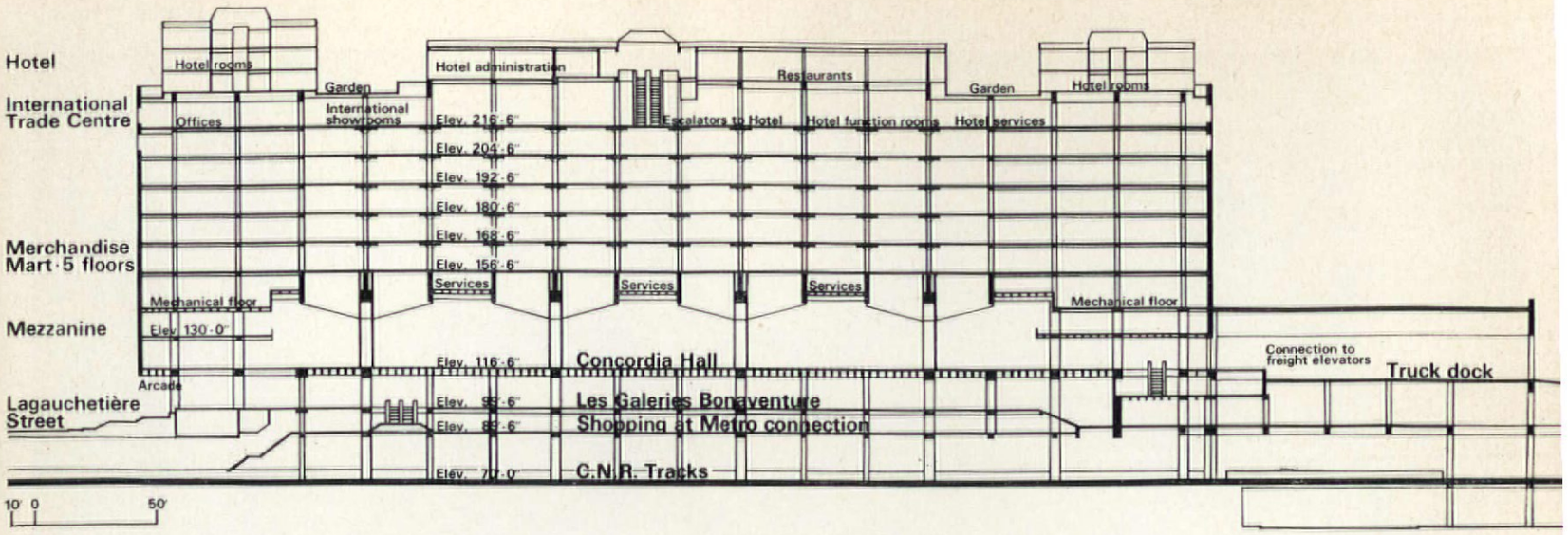


◁34

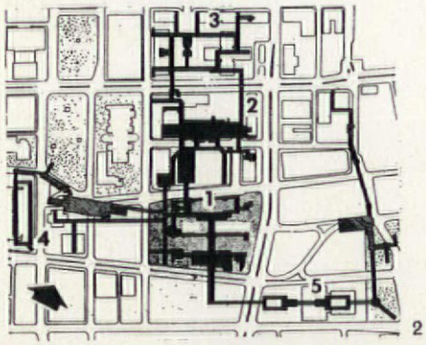
network. It is some measure of the severity of the Canadian winter and of mid-twentieth century standards of comfort that Montreal has begun to build internal public places. The four-year-old Place Ville Marie complex by I. M. Pei, the two-year-old Place Victoria (Place de la Bourse) by Luigi Moretti and P. L. Nervi, and the recently completed Place Bonaventure are buildings rather than 'places' (i.e. open spaces) in the conventional sense.

In programme, Place Bonaventure is complex and rare. It is primarily a merchandise mart (i.e. a wholesale buyers' emporium), the first of its kind in Canada, one of the first in the North American continent—the best known being in Chicago. The building's main public life derives from its concourse areas which occur at street level and again on the roof. Apart from the wholesale market, three major elements complement the building's general trading character: a retail shopping concourse, a vast trade exhibition hall located above this concourse, and a 400-room roof-garden courtyard hotel. Thus it is a trade centre in every sense and is dedicated to serving some aspect of trade at each of its typical levels; shopping at the concourse level, trade exhibitions in the great hall, wholesale buying in the mart, and the accommodation of the individual needs of buyers, salesmen, trading delegates and large conventions at roof level.

To provide these facilities the building appears to have been thought of from the outset as a warehouse structure—that is as a simple layering of floors inside a largely windowless box within which the movement of people and goods are to be channelled into relatively simple circulation patterns at each typical level, in accordance with an optimum utilization of the floor space available. Reduced to its simplest terms, the building comprises 14 such layers built directly over the rail and Metro tracks, each layer, with the exception of the two hotel layers and the great hall mezzanines, occupying the full extent of the available site area. To this end regular set-backs occur in the NE and NW façades of the block in order to accommodate an orthogonal building to a trapezoidal site.

In addition to being placed over the commuter railhead to which it is linked by escalator, Place Bonaventure is equally well placed at the intersection of the newly completed east-west and north-south Metro lines.

Through its subterranean connections via escalators to the Gare Centrale and Bonaventure Metro stops, Place Bonaventure is also linked into the so-called 'underground city' eventually to extend for five blocks in each cardinal direction around the Gare Centrale (into that which Melvin Charney has ironically termed Montreal's 'pedestrian plumbing'), a system of segregated pedestrian movement similar in scale to the elevated bridge network of Smithson's proposals for the Hauptstadt Berlin. Unfortunately no one so far has been able to build such an elevated network in Montreal—despite efforts in the early stages by the designers of Place Bonaventure. Place Bonaventure's links to the 'underground' are awkwardly concentrated in the north-west corner of the site, at the level of the Metro concourse, and the designers have naturally responded to this asymmetric pressure, by channelling the flow of people into the approximate centre of the building for the next level up, that is for the street level concourse. 38▷



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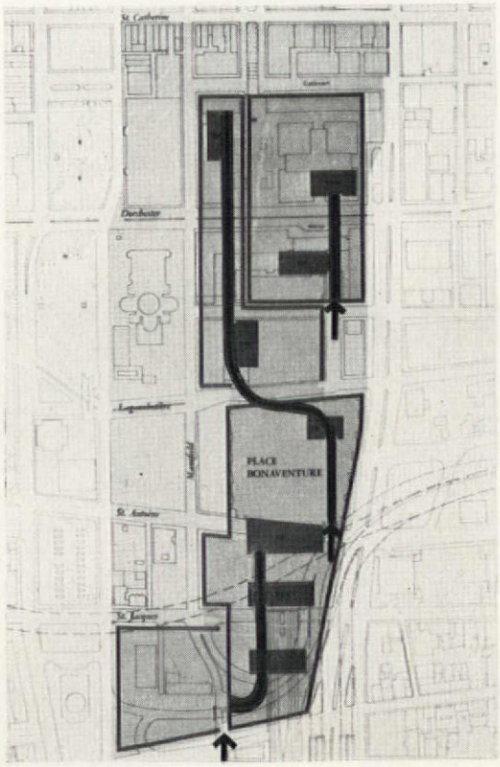

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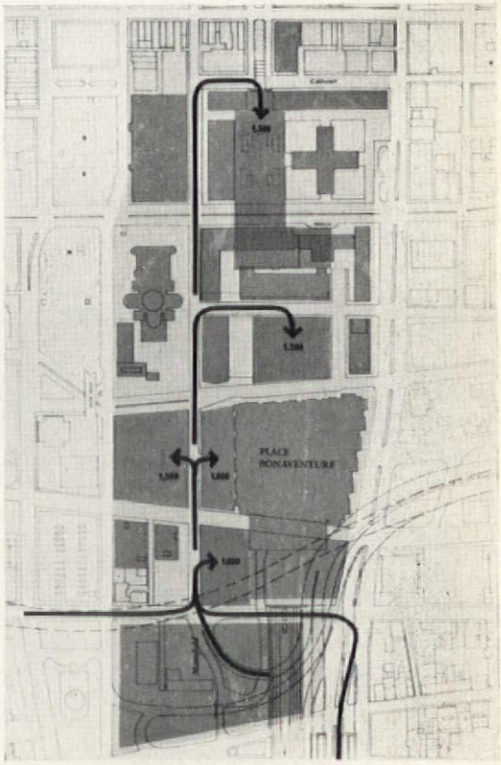
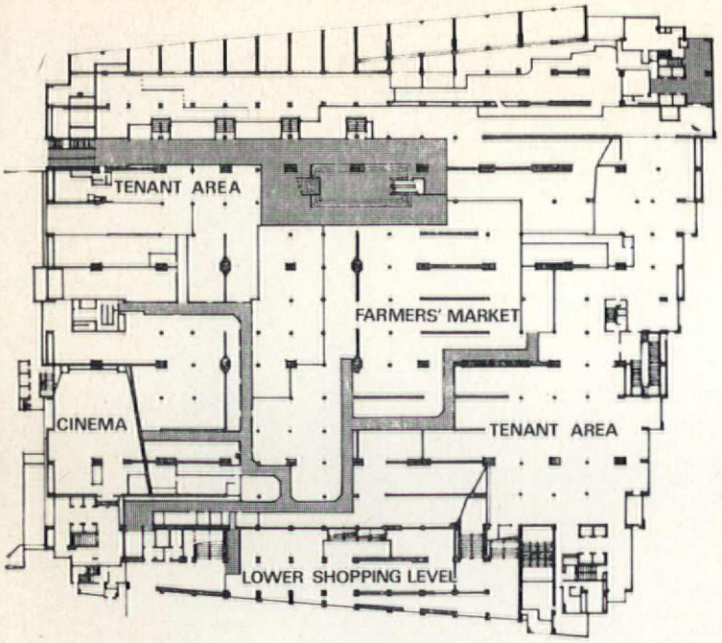
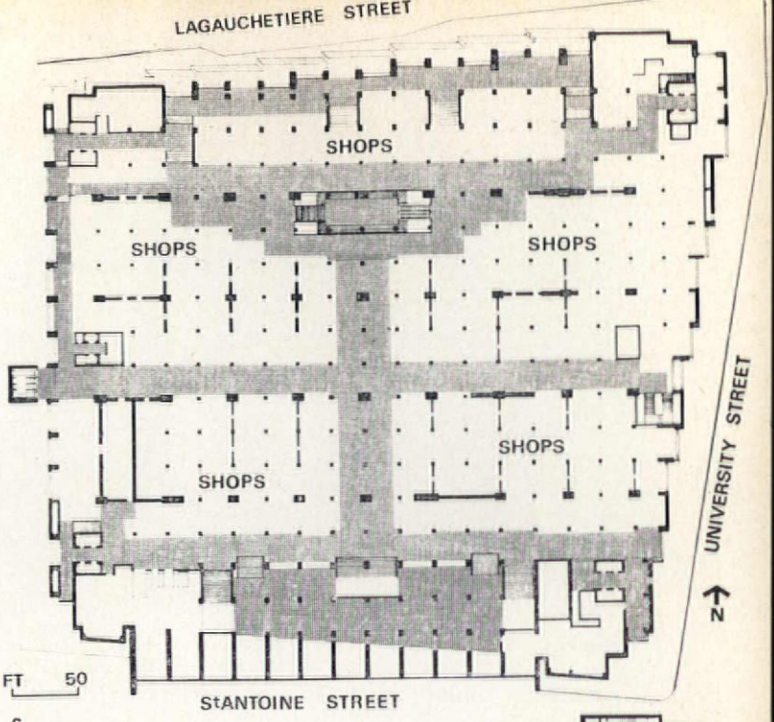


4

Top
Cross-section, north–south
2
Diagrammatic plan of the underground network of pedestrian streets linking Place Bonaventure **1** to the Central Station **2** and Place Ville Marie **3** to the north, Windsor Station **4** to the west, and Place Victoria **5**, to the east
3
Plan showing lorry access to 33 acres in the central area of Montreal, served by only three access points
4
Plan of parking facilities. Mansfield Street is to become one of the major access routes to the central area, from this 6000 parking spaces can be reached
5, 6, 7, 8, 9 & 10
Plans at lower shopping level 89ft 6in; upper shopping level 99ft 6in; Concordia Hall mezzanine level 130 ft 0 in; a typical Merchandise Mart floor; the International Trade Centre 216ft, 6in; and the hotel


TENANT AREA
FARMERS' MARKET
CINEMA
TENANT AREA
LOWER SHOPPING LEVEL

5


LAGAUCHETIERE STREET
SHOPS
SHOPS
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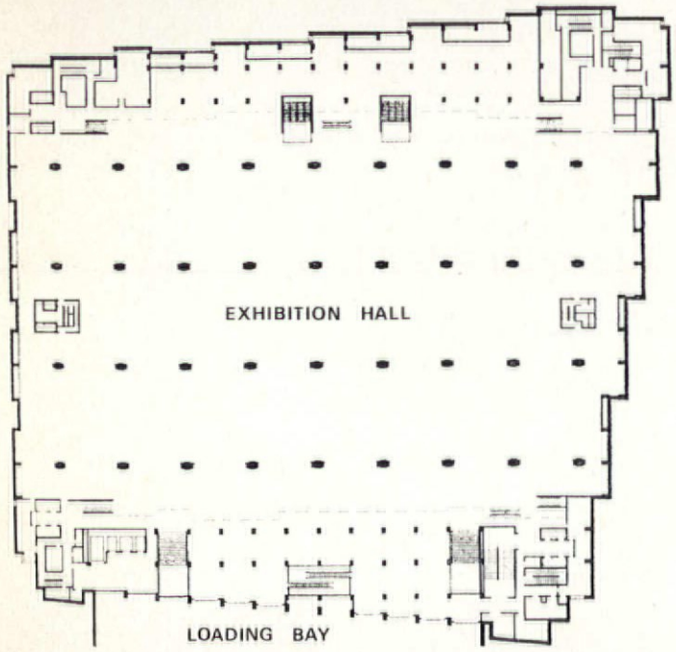
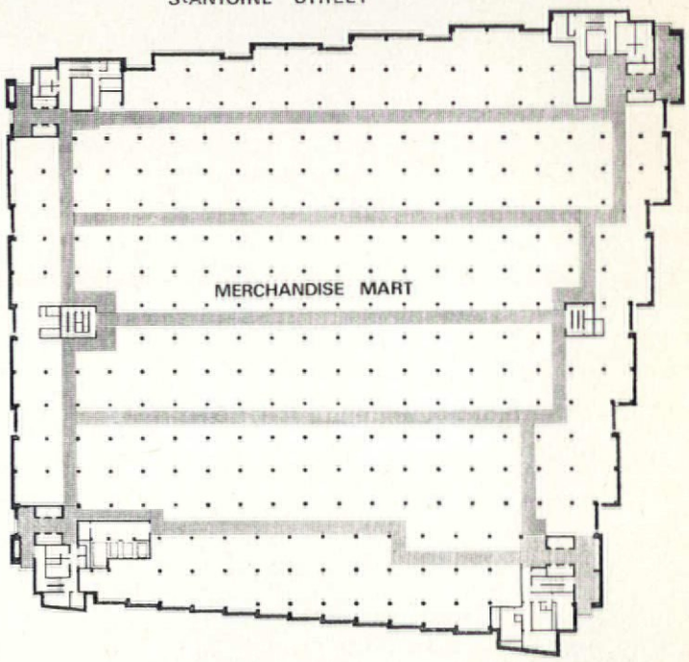
UNIVERSITY STREET
N
FT 50
StANTOINE STREET

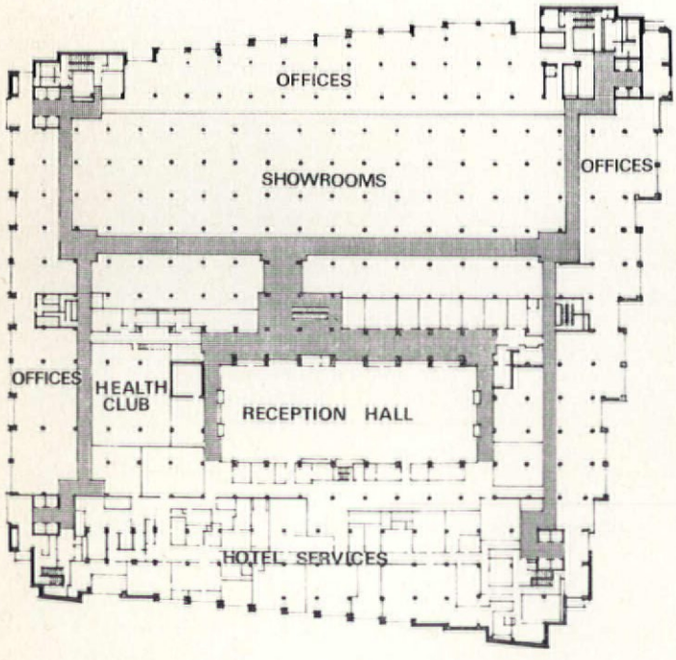
6


EXHIBITION HALL
LOADING BAY

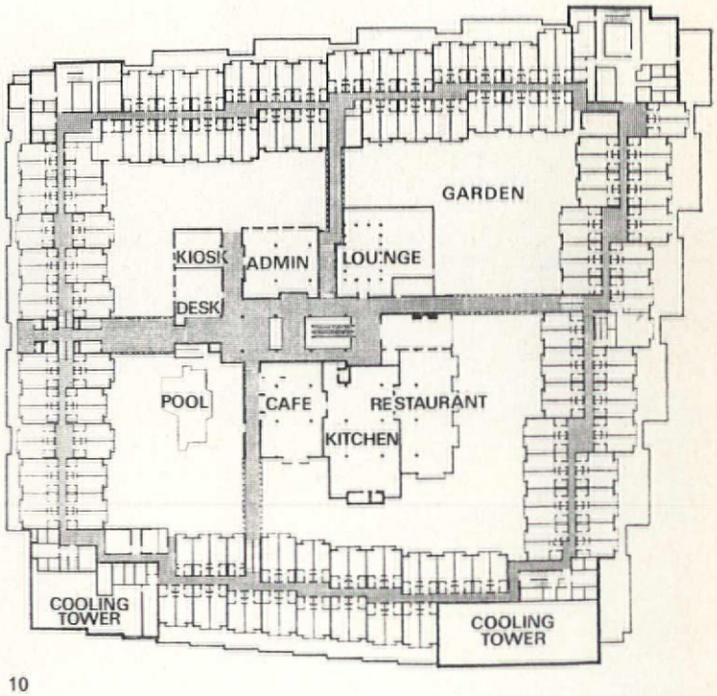
7


MERCHANDISE MART

8

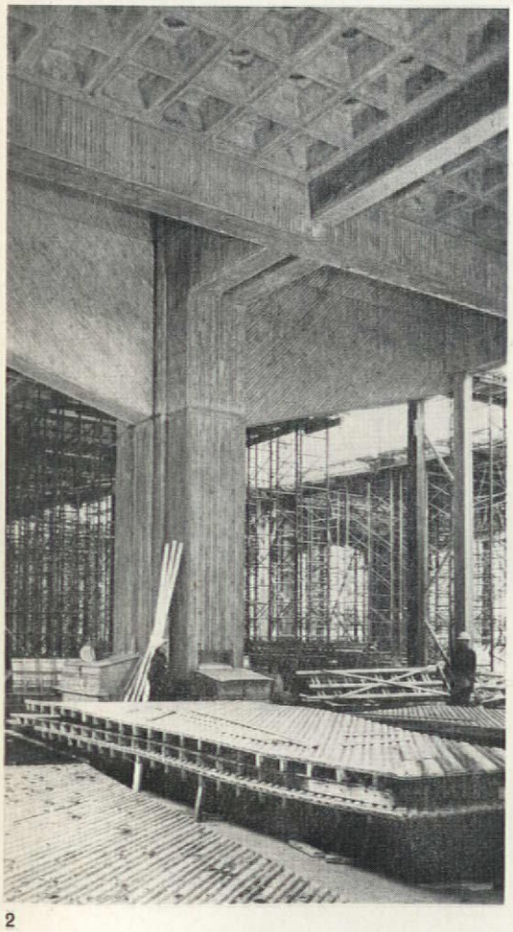

OFFICES
SHOWROOMS
OFFICES
OFFICES
HEALTH CLUB
RECEPTION HALL
HOTEL SERVICES

9


GARDEN
KIOSK
ADMIN
LOUNGE
DESK
POOL
CAFE
RESTAURANT
KITCHEN
COOLING TOWER
COOLING TOWER

10

1



2

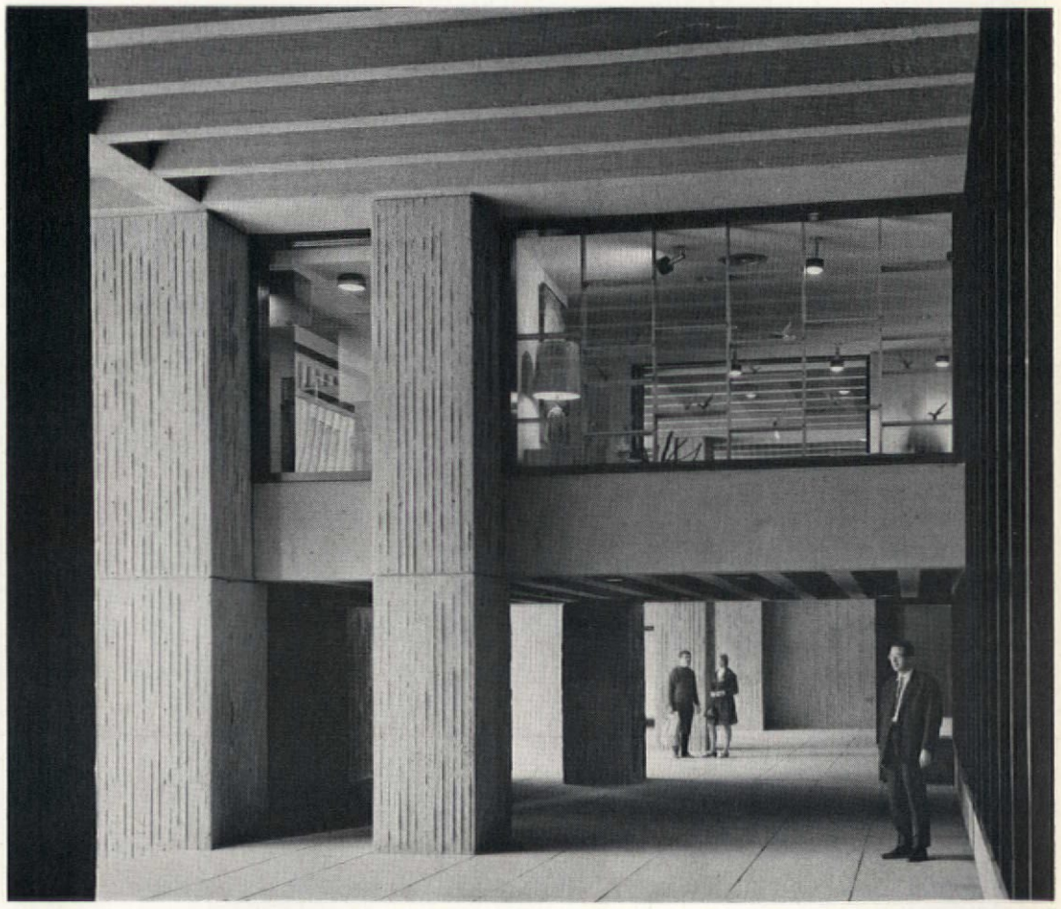
◁36

Elsewhere the approach to pedestrian movement has been to provide a coherent vertical movement system through the trapezoidal plan with major circulation/service cores established at each of its four corners, plus two subsidiary cores for escape and hotel access on the NE and SW sides. All of these cores generate different orthogonal patterns of movement between each other at the various levels. Except for the great exhibition hall, the structure of the huge layered box with its five-acre lid is simple and direct throughout. It consists generally of a 25ft × 25ft reinforced concrete frame grid with concrete floors—these dimensions being predetermined by the CNR track spacing beneath. The great hall however demanded columns at much wider intervals—a 75ft × 50ft grid being eventually decided upon after research into the size of the average trade exhibit. This long span structure was achieved through an *in situ* post-tensioned concrete transfer truss which also incorporated into its structural depth a complete system of access ways in addition to the mechanical and electrical facilities required by the hall. This in effect provided an 'energy ceiling' through which to light, ventilate and serve with power the exhibition area beneath. This area comprises forty-eight 75ft × 50ft rectangular bays with flanking mezzanines on the north and south sides of the hall, one for refreshment facilities and the other for auxiliary exhibition space. The exhibition hall is the heart of Place Bonaventure. Here the space created is of a very direct order. The structure is clear and self explicit—entirely unadorned except for the ribbed shutter pattern on the concrete face. It is roofed by a megastructure of 'cruciform' transfer trusses carried on concrete 'tree' supports. The supports rest directly on Chicago-type deep well caissons sunk up to 70ft below the CNR track level.

Ease of pedestrian access and truck service were also important factors affecting the design of the exhibition hall, it being crucial to keep the hall near street concourse level to satisfy the demands of access and to facilitate the rapid mounting and demounting of exhibitions. This requirement led to the provision of a large truck dock at hall level across the south side of the exhibition hall, providing continuous loading dock facilities as well as means of direct truck access and egress to the floor of the hall itself. The scale of this building is difficult to pitch. It is of great credit to its designer that in spite of its considerable size it remains sufficiently intimate to be in scale with its own immediate urban location. The decision to divide the façade vertically in opposition to the building's inherent horizontal stratification has no doubt assisted in achieving this intimacy of scale. It has also unfortunately produced a somewhat disturbing ambiguity as to its spatial content.

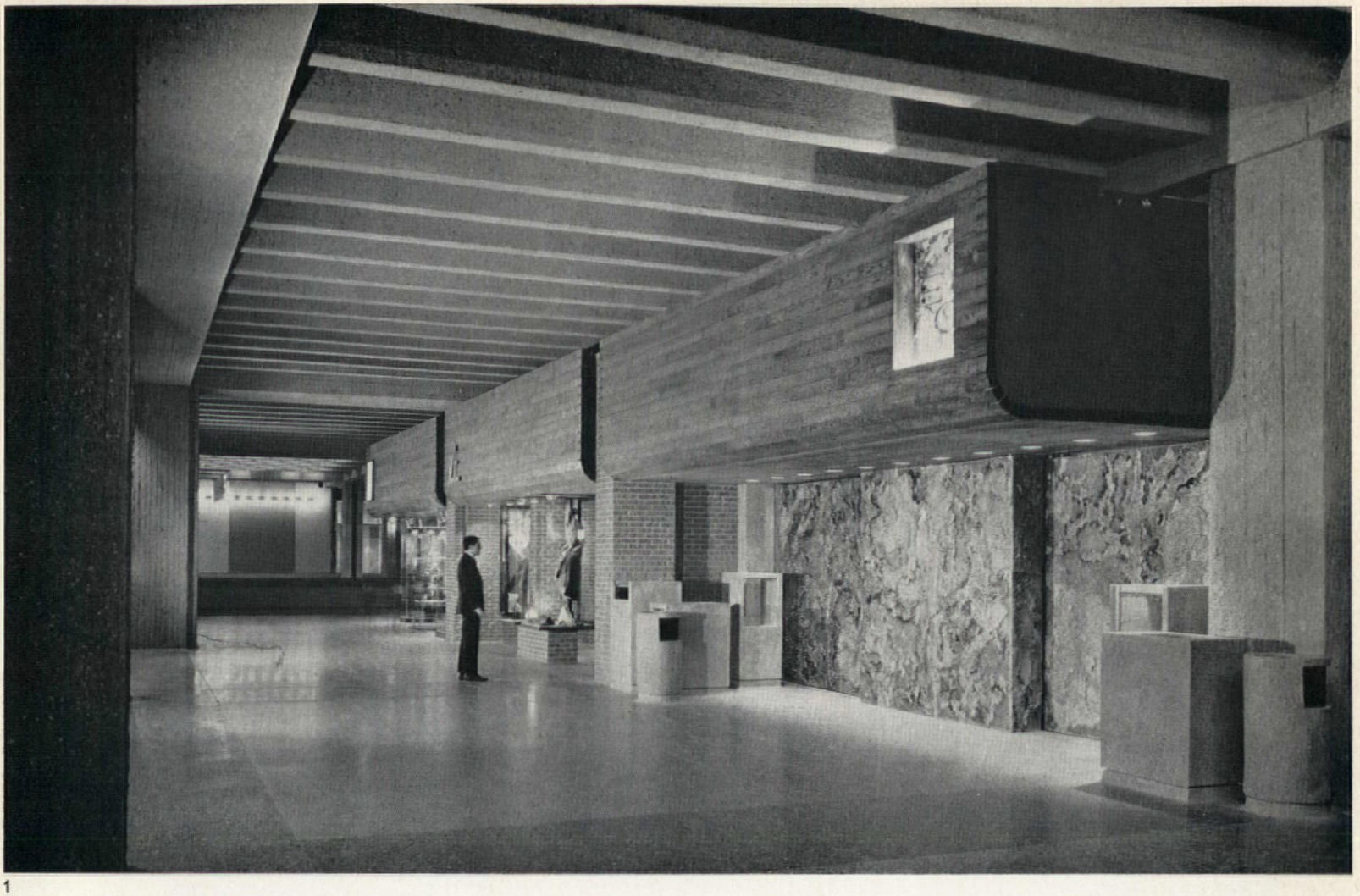
It is hard to realize on first encounter that the building provides a total rental area of 2,000,000 sq. ft, of which 500,000 sq. ft is exhibition space, 150,000 sq. ft ground level shopping, 100,000 sq. ft rentable office space and 1,000,000 sq. ft merchandise mart. This is in addition to specialized accommodation such as the 700-seat basement cinema

3



4

1
Concordia Hall
2
Construction of the columns in Concordia Hall
3
View of Concordia Hall from the gallery
4
View of the shopping arcade along Lagauchetière Street.
Photos: 1, 4 M. Drummond, 2 Ed. Bermingham Inc., 3 H. R. Jowett

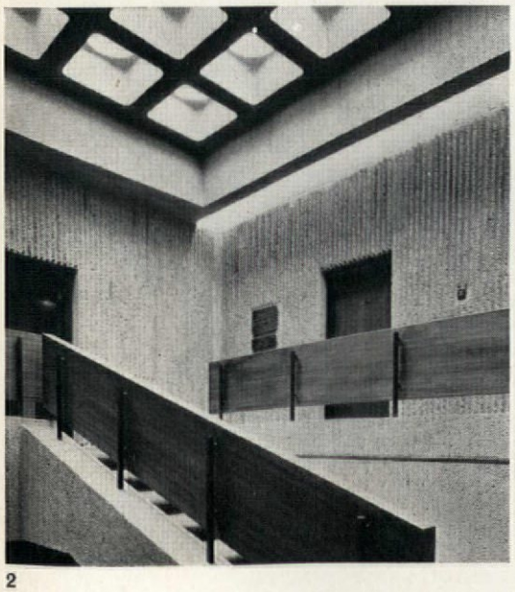


1

Every part of the building except for the steel truck dock roof is of reinforced concrete including even the poured concrete cladding panels, which had initially been envisaged as pre-cast concrete elements. The enclosing walls of the box are thus double layered. The external layer is merely a suspended concrete, rain-repellent skin, while the inner wall comprises an insulated concrete framed structure with self-insulating aerated concrete blocks as infilling. The windows are of aluminium finished in acrylic paint.

Out of this 'brut' concrete material the designer has assembled the so-called 'base building' within which the public has been allowed to install itself with a considerable degree of freedom. The limit of this 'freedom' has been varied by the 'design team' in various parts of the building. Thus the merchandise mart is equipped with standard architect-designed shop fittings throughout, whereas in the shopping concourse the form of the individual shop unit has been left open to more free tenant interpretation, the 'control' only recommending a list of 'approved' designers for the detailed design of the individual units. This policy has succeeded in certain areas and been something of a failure in others, particularly where the architect ill advisedly relinquished his control over the public rooms of the hotel, which were designed by an American interior decorator, 100 per cent *Kitsch* from floor to ceiling.

The 'Shangri-la' winter garden roof hotel is very appropriate in its scale, and successful in its general realization, especially where a modicum of restraint has been excercised in the application of surface cosmetics and where the architect has been able to refrain from 'arting-up' the fenestration. Here the initial design aim of achieving an 'architecture of the route' has



2

3

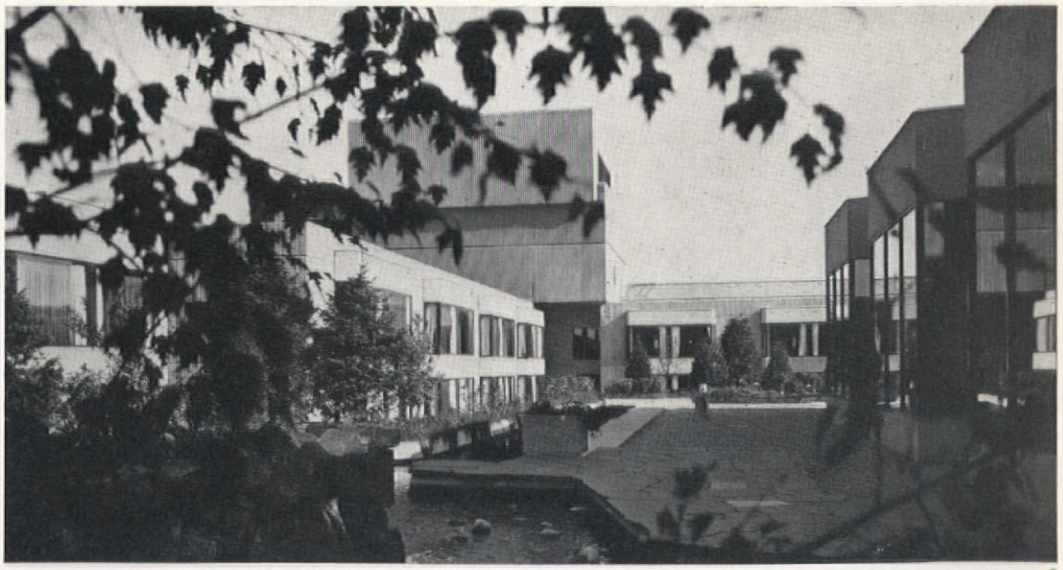
4

been brilliantly realized. One enters a labyrinth of carpeted *luxe* and comfort, interlocked with 'mountain greenery' and water that would have been the envy of Dr No. Yet despite the gratifying hedonism of the environment and the ingenious and stimulating planning, one recognizes in the rich, but inexplicably heavy hotel corridor walls executed in 'Rudolphian corduroy concrete', that peculiar insiduous propensity for 'le style Roman-Americain' that pervades the whole of the North American continent. It can be found here, as the 'ghost styling' throughout Place Bonaventure.

Ray Affleck rightly claims as proof of the virtue of a totally integrated design team, comprising architect, owner and contractor (a similar team existed in the case of Scarborough), the general success of this truly remarkable building planned and built within four years. The contractor executed the work at cost plus a fixed 'professional' fee. One cannot but applaud Affleck's general proposition that such teams should generally replace the traditional linear and relatively separate roles of owner, architect, and contractor, with all the posturing and destructive evasion that this entails.

1
Individual shopfronts at 99ft 6in level, designed by Cranfield Stephens & Associates, nominated by the individual tenants
2
Internal stair
3
Shopping arcade at 99ft 6in level
4
Hotel swimming pool
5
Hotel lobby
6
Hotel roof-garden
Photos: 1, 2, 4, 5, 6 M. Drummond, 3 H. R. Jowett

5



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Affleck convincingly maintains that a truly creative work arises out of constant inter-disciplinary conflict, initiated at the outset and maintained throughout the job. In this process of design by concensus it is hardly surprising to learn, as Affleck reports, that many basic design ideas are suggested by non-architect members of the design team. All this may be much more readily accepted than Affleck's rather less lucid notions as to what 'architecture' is, or rather what it may become in the latter half of the twentieth century. One may accept his assertion (after Summerson and others) that the programme is the essence of twentieth century architecture. However his further concern for the necessity of perceiving 'form as process' should perhaps be modified to a behest to perceive form as 'process' and as 'non-process', if one is to lay claim, as he does elsewhere, to 'an architecture committed to the precarious balance between change and continuity rather than ideas of control and permanence'. Continuity in this context must imply form as 'non-process'.

A real contradiction arises once an architect or designer, consciously or otherwise, attempts to represent 'process' symbolically in terms of fixed form. For 'process' is essentially ephemeral, or 'tenant work' as Affleck refers to it in relation to his notion of 'base building'. Once the 'base building', in the name of 'poetry', is symbolically rendered as being indicative in itself of the living elements it contains—that is, of being in a state of process—the balance of the initial proposition collapses; the base building has itself become 'figurative' and, metaphorically speaking, one can no longer see the 'figure' for the shifting of the 'ground'.

The random displacements in the horizontal coursing in the external cladding to Place Bonaventure have no doubt arisen as a result of adjusting the pattern of the units to fit the fall of the site. However the random nature of the coursing breaks and the interjection of arbitrary fenestration have both been subject to conscious 'design choice'. They impart to a façade already staggered in plan, the suggestion of a shifting crystalline mass in a constant state of mutation. Such literal symbolization, albeit unconscious, is an indulgence, resulting in a picturesqueness and lack of clarity which it was presumably the initial intention to avoid. At first reading this façade immediately suggests to the beholder six vertical elements on its perimeter running up the full height of the building; their function, either service or access, varying according to evident changes in projection and/or fenestration. As it is, nothing of the sort occurs.

The declared aim was to achieve an architecture of the movement system and to arrive at an 'architectural celebration of significant nodal points within the system'. Yet paradoxically, as we have already seen, it is these very points that are difficult to perceive. Situated at the extreme four corners of the building they have been handled in such a manner that they tend to merge both internally and externally with the massive cladding of 'the box' walls. In a very practical sense, not only these nodal points but also the lift and lavatory doors contained therein are difficult to locate; imposing a heavy demand on the graphic sign system of the building, yet to be completed. The overall effect is labyrinthine, and this is emphasized by the suppression of certain incidental 'process' elements on the south-western façade such as escalators and elevators where these link from the Metro and street concourses to the Metro and garage situated below. On the same façade it has conversely been necessary to resort to an 'historical' formal device—a projecting *porche cochère*—to indicate the presence of the hotel entrance node at this point. Altogether the 'open ended' approach has not been open ended enough on this façade.

As the architect is frank enough to admit, he found the façade the most difficult element to cope with. Somewhat less acceptable however is his suggestion that this difficulty is due to the weight of historical baggage carried by the architect, for the encumbrance in this instance barely qualifies as historical, it being all too clearly derived as surface syntax from Paul Rudolph's Art and Architecture building completed in New Haven in 1963. It is this that is the 'cultural weight'; these forms, romantically derived from the late 'brut' work of Le Corbusier, are manipulated and emasculated without sufficient understanding of the mythical complexity that attended their initial appearance in the Master's work. Here we come to the crux of the issue: the powerful 'cultural' influence of the east coast of America—its present compulsion towards the creation of mannered architectural forms that are expressionistic, theatrical and monumental. Hence the present propensity of American designers for *'l'art brut'* texture and heavy rounded forms. It is this that is echoed in the detailing of the Bonaventure building. The corridors of the International Trade Centre on the top floor have appliqué arched ceilings, and the arch can be found arbitrarily 'applied' elsewhere in the building. Affleck's baggage in the last analysis, is that latter-day compulsion of talented designers to make, in spite of all protestations to the contrary, a total work of art.

To talk of 'an architecture of total experience', as Affleck does in *Architecture Canada*, is to aspire to pre-empting the cultural situation. It is to dream of a *gesamt kunstwerk* and to envisage an operatic architecture of theatrical proportions, as opposed to permitting an appropriate interplay between life process and the existential restraints of a permanent context. All things, art form and media, are not immediately transferable into each other. A 'pop' object is no longer a vehicle for further advertising once it becomes 'art'. Similarly a 'happening' ceases to be a 'happening' once it is no longer instantaneously ephemeral; hence it can never be a building in any permanent degree.

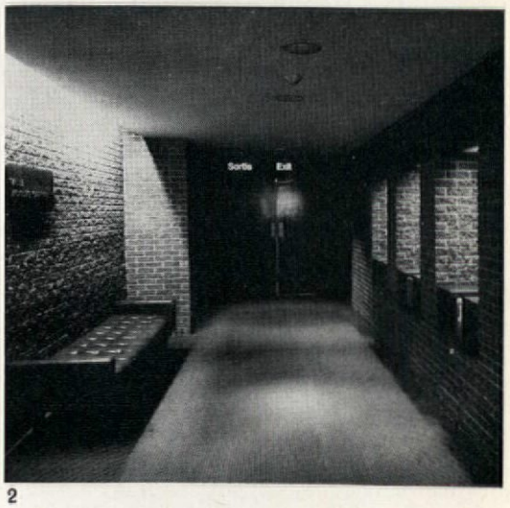
The ultimate success of the Place Bonaventure resides in its stature as a piece of intelligent programming and not in its latent 'camp' content, nor in the theatrical effect of its somewhat mannered surface treatment, nor in its unconvincing expression of primary elements. Its high point as architecture resides in the great exhibition space concealed within its interior.

It was one of Le Corbusier's later aphorisms to say that to design well you need talent, but that to programme well you require genius. Affleck's achievement and contribution lies in this: in his commitment to the programme as a source of 'structure' and in his advocacy of a realistic approach to design, in which all parties concerned are equally involved in determining the design from the outset, and in which the separate stages of design, budgeting and fabrication become parts of an almost continuous process.

Architect-in-charge: Ray Affleck
Project manager: J. E. La Rivière
Project designer: Eva Vecsei
Project architects: D. Lazosky and H. K. Stenman
Project administrator: N. Holloway
Design co-ordinators: Mrs T. O'Brien and Antoine N. Haddad
Tenant Architect: R. Khosla
Lighting and graphics co-ordinator: I. Reichman
Interior design: H. de Koning
Structural consultants: R. R. Nicolet & Associates
Lalonde, Valois, Lamarre
Mechanical and electrical consultants: Jas. P. Keith & Associates
Landscape architects: Sasaki, Dawson, Demay & Associates
Hotel interior: Roland Wm. Jutras Associates, Inc.
Town planning consultant: Vincent Ponte
Traffic and parking consultants: DeLeuw Cather & Partners
Lighting consultant: Wm. M. C. Lam
Acoustics consultants: N. J. Pappas & Associates
Graphics consultants: Paul Arthur & Associates
Girard, Bruce, Garabenian & Associates
Hotel consultant: Wm. Tabler
Contractor: Concordia Construction Inc.

1 & 2
Interior corridors
Photos: 1, 2 H. R. Jowett

1



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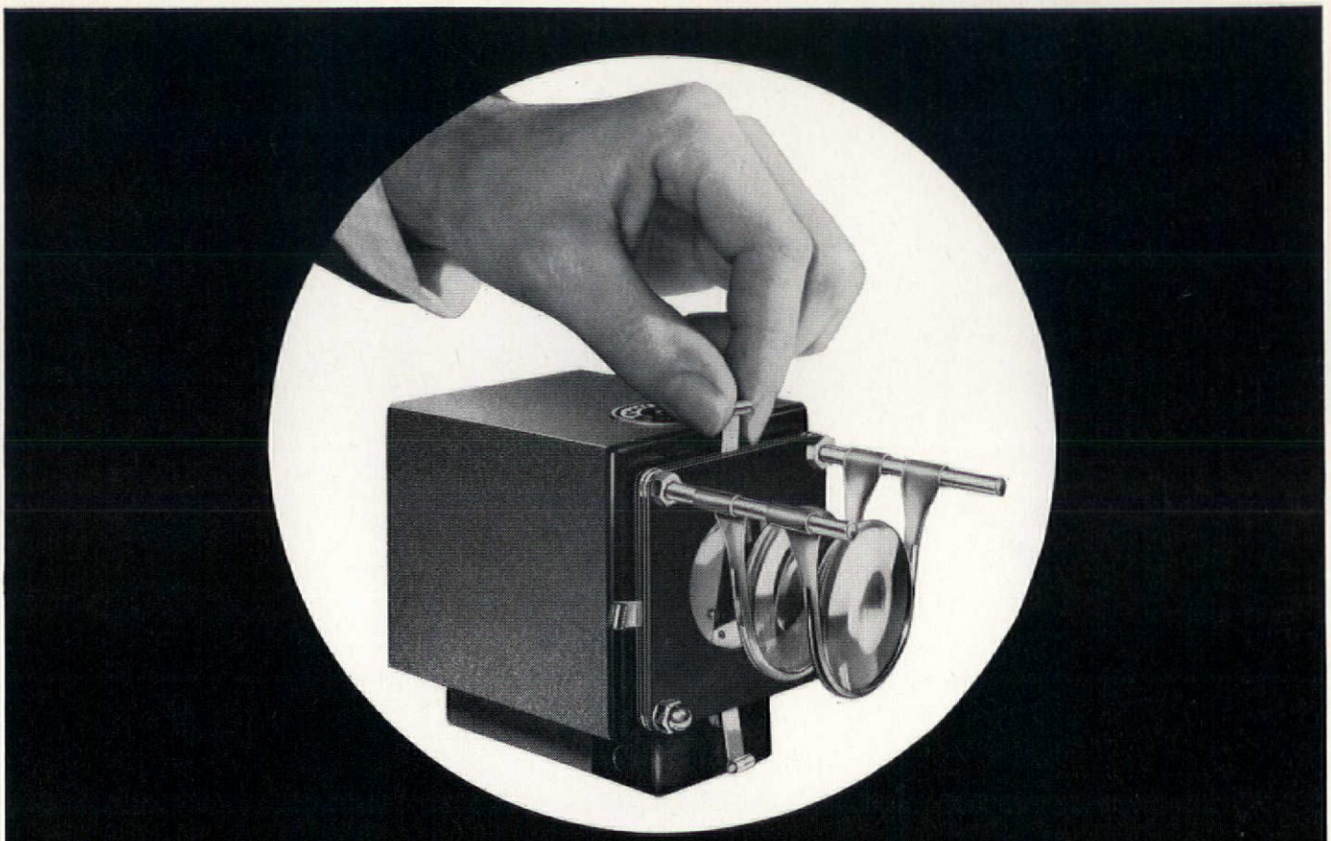

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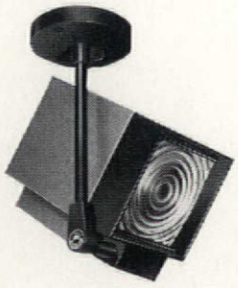

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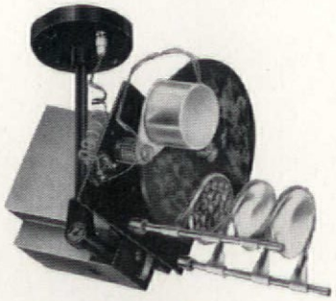

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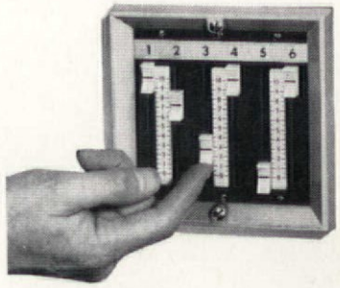

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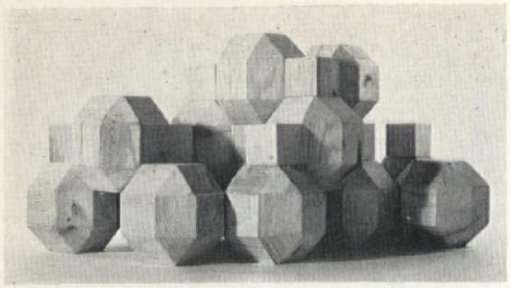

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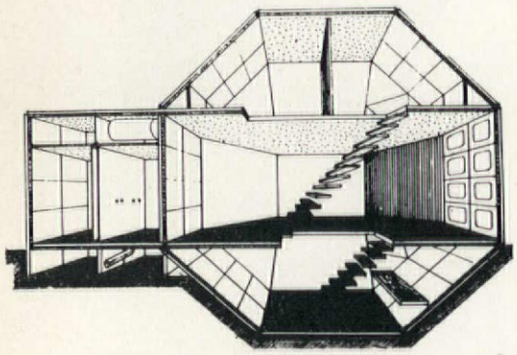

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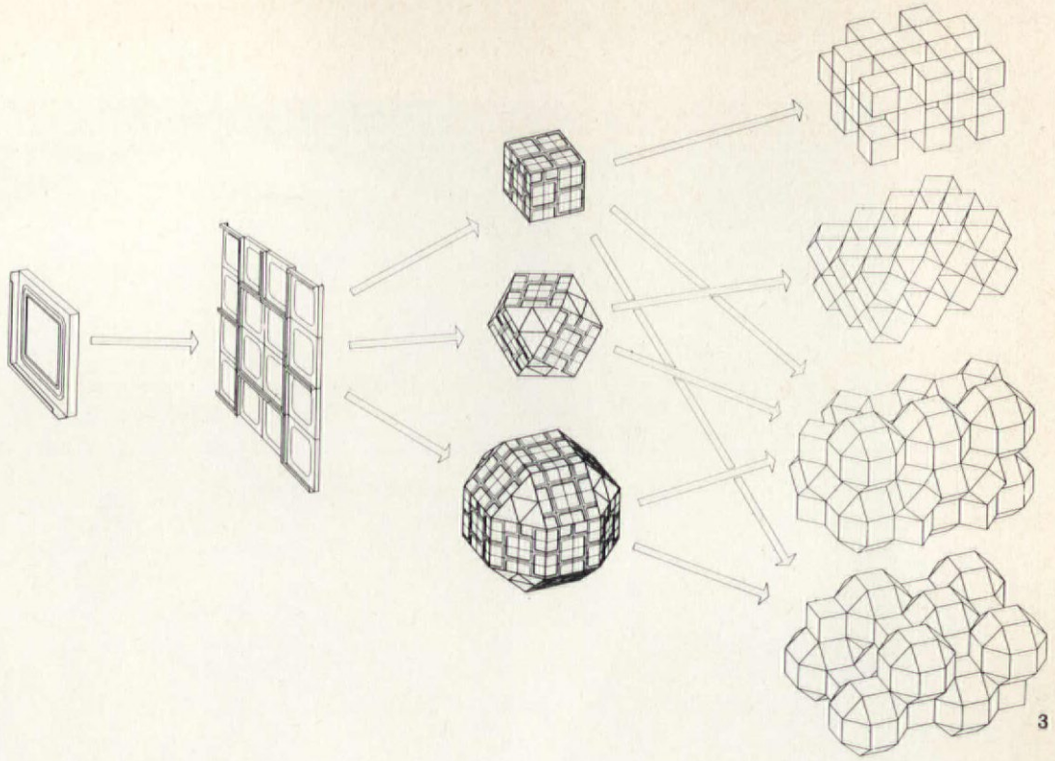

3

Construction games

D. G. Emmerich

Most people today—as indeed throughout history—are ill-housed. The standards and the shortage of housing are chronic. But the shortage is due not to the population explosion alone, rather to our inadequate organization of the building industry. We have lost our aptitude for building. The architect is no longer even a 'gentleman builder', he has virtually disqualified himself as a practitioner. He knows next to nothing about building. The craft of building that once provided houses and sometimes works of art has been elevated to an Art of Building. Architects now decree how one should move, behave and even breathe; they are arbiters of living rather than builders. Such knowledge of the technique and organization of building that they do possess, seems a reminiscence almost of war-time techniques. Maginot, not Le Corbusier, should be the cult-hero of modern French architects. Housing blocks, roads and cars are deployed like so many bunkers, strategic roads and tanks. Even the ethics of the modern architect are derived from war. Success is measured in terms of conspicuous consumption. Architects are paid by the pound, not in relation to their skill or to the quality of their work; the more material they use the more they earn, the more ineffective they are as engineers the greater their reward. Not surprisingly, they are loath to encourage structural economy and finesse.

The results of this attitude have been disastrous to our environment. Weight generates immobility. Heavy construction techniques have proved impossible to adapt to the mobile patterns of twentieth-century life. People therefore have had to be adapted accordingly. They have had to be severely disciplined. They cannot move their homes, they cannot even move parts of them. To move a 100lb partition in one's own house is regarded as a crime unless planning permission has been obtained, whereas a collision of 2000lb loads, moving at 100m.p.h., on a public road is accepted as no more than an accident. The road hogs alone have some power and freedom to act.

Our towns are planned like 'occupation zones', with rigid codes of practice, standardized cells and standardized equipment. All are contrived to give form to set and static 'master plans'. Our planners believe in final solutions. But restrictive planning is ludicrous. Coercion in the pursuit of a norm leads usually to abnormal behaviour. The standard patterns and cells prescribed by planners cannot be accepted as a norm; we must be free to adopt new standards at any time. Constraint in our freedom to shape our environ-

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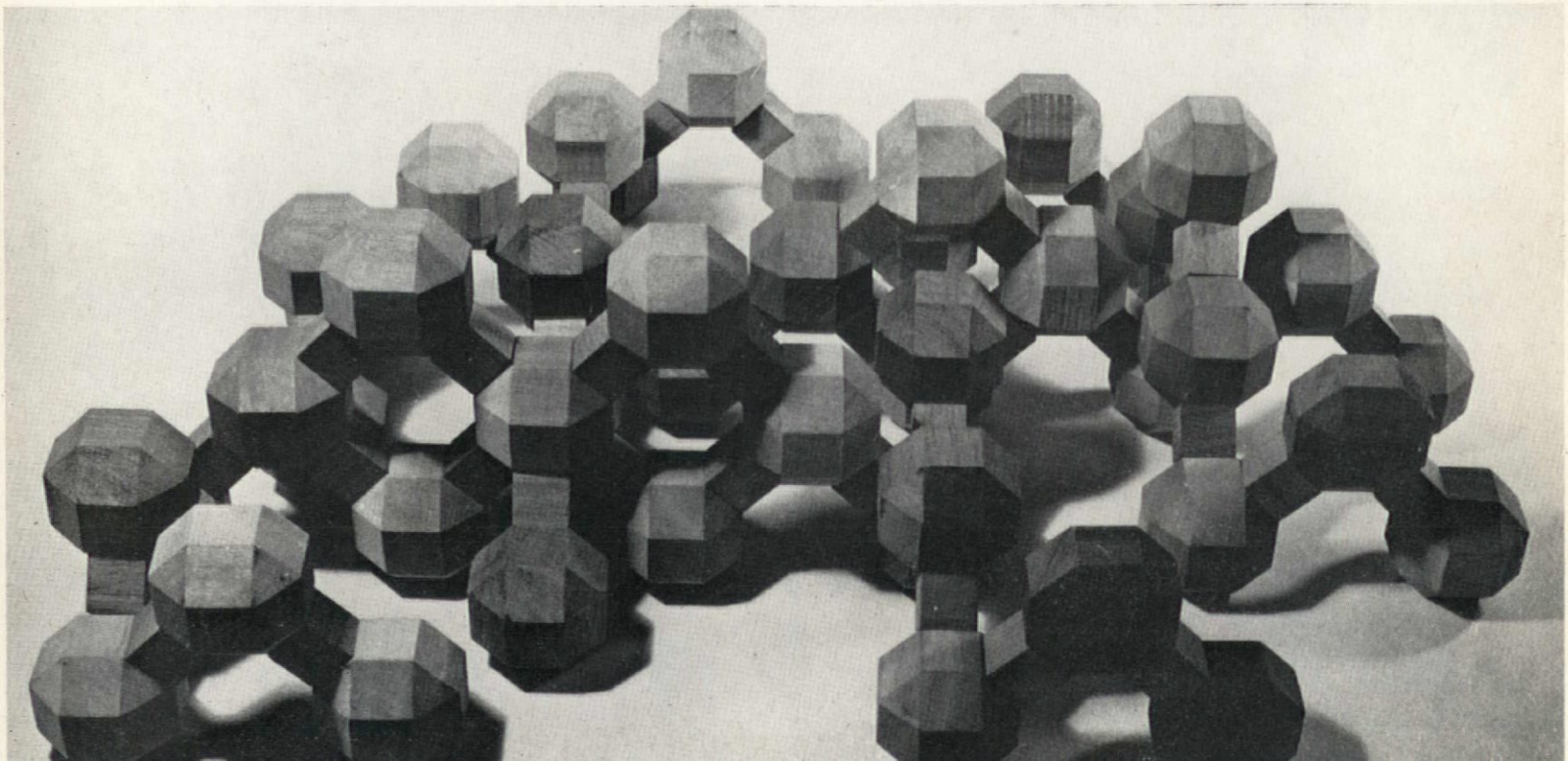

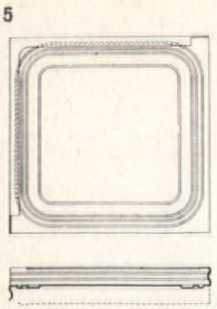

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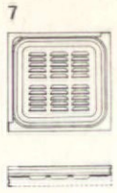

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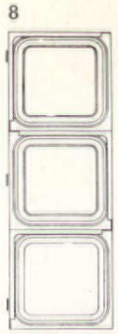

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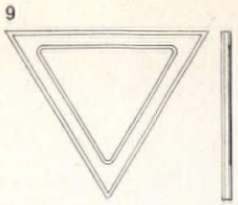

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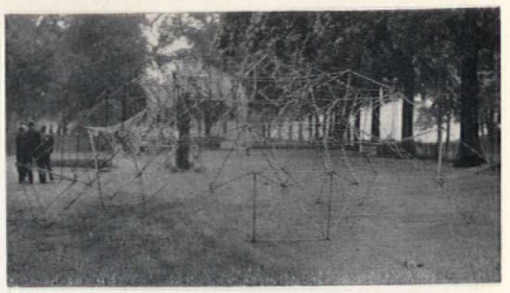

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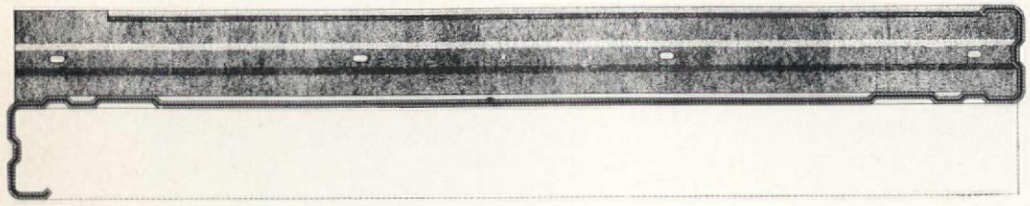

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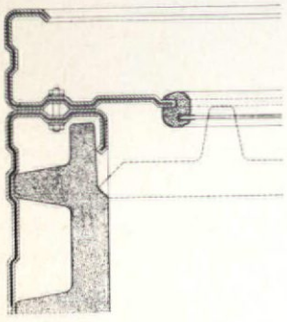

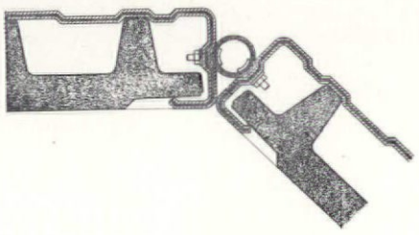

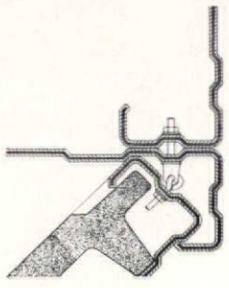

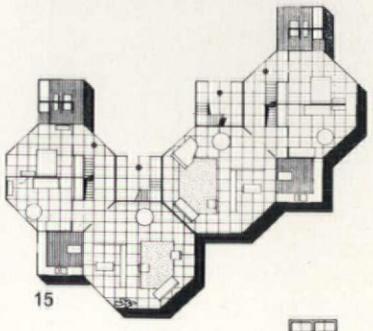

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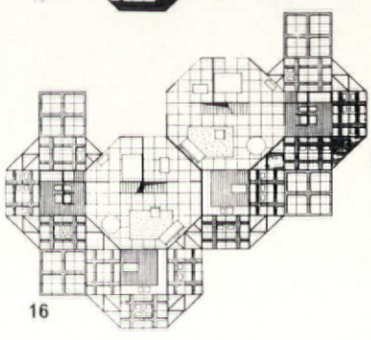

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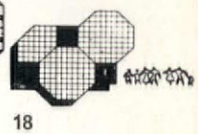

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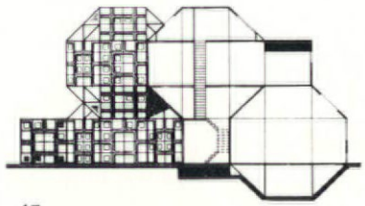


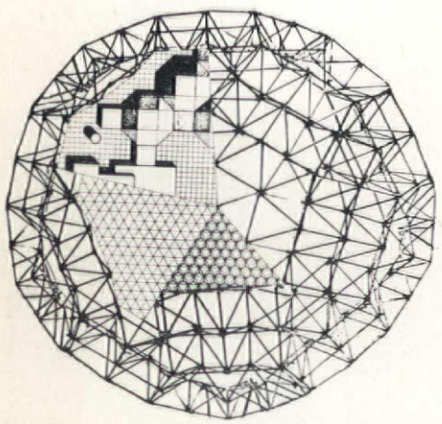
17

ment will make us pathological wrecks—doctors, at least, are unanimous about this, 'An organism,' J. Lacroix has written, 'is not thrown into an environment with which it must comply, it structures its environment at the same time as it develops its capacities.'

Man is a rational creature; but only at times, stiff rationality is tempered with *ludens* characteristics. Man likes to play. He will accept control and uniformity only if it can be turned into a game—artificial insemination, for instance, is unacceptable, however 'functional' it might be. Similarly modern architecture, with its 'functional' basis, has proved unpopular. Beyond the satisfaction of his basic needs, man requires to express himself. Because he is so often prevented from doing so, he turns against the man-made environment, he scratches on walls, rips out telephone boxes and becomes a delinquent. Our towns should be collective creations; not the result of teamwork, which is inevitably a mild and mediocre compromise, but the result of individual choice and expression. The rehabilitation of man in our industrialized society might, perhaps, be founded on techniques of auto-construction. This is the only hope for the architect. He might fruitfully design construction games for adults. Instead of condemning men to spend their lives in brick and concrete boxes of his own contriving, he might encourage them to create freer, more spontaneous and no doubt healthier agglomerations than our present asphalt jungles.

The techniques of war, after all, have changed. They are now based on lightness and mobility, so we can stop gaping at bunkers and Thames fortresses and study the structure of crystals, soap bubbles and even packaging techniques.

1 & 4
Models showing housing units close and loose set
2
Section through a dwelling, part sunk so that no foundations are required
3
Diagram showing development of various geometric solids from two standard panels
5
Elevation and section of standard steel panel, plastic coated, 80cm square, weight 7kg. The resilience of the plastic ensures weather-proofing after bolting, no additional finishes being required
6, 7 & 8
Window, ventilation and door panels
9
Secondary panel
10, 11, 12 & 13
Detail section and joints for standard panel
14
Experimental lightweight frame, erected at the International Space Structures Conference, London, 1966
15, 16, 17 & 18
Plans and section and diagrammatic plans for extension of a typical dwelling
19 & 20
Combination plan and elevation of a community, part exposed, part contained within a lightweight domed environment



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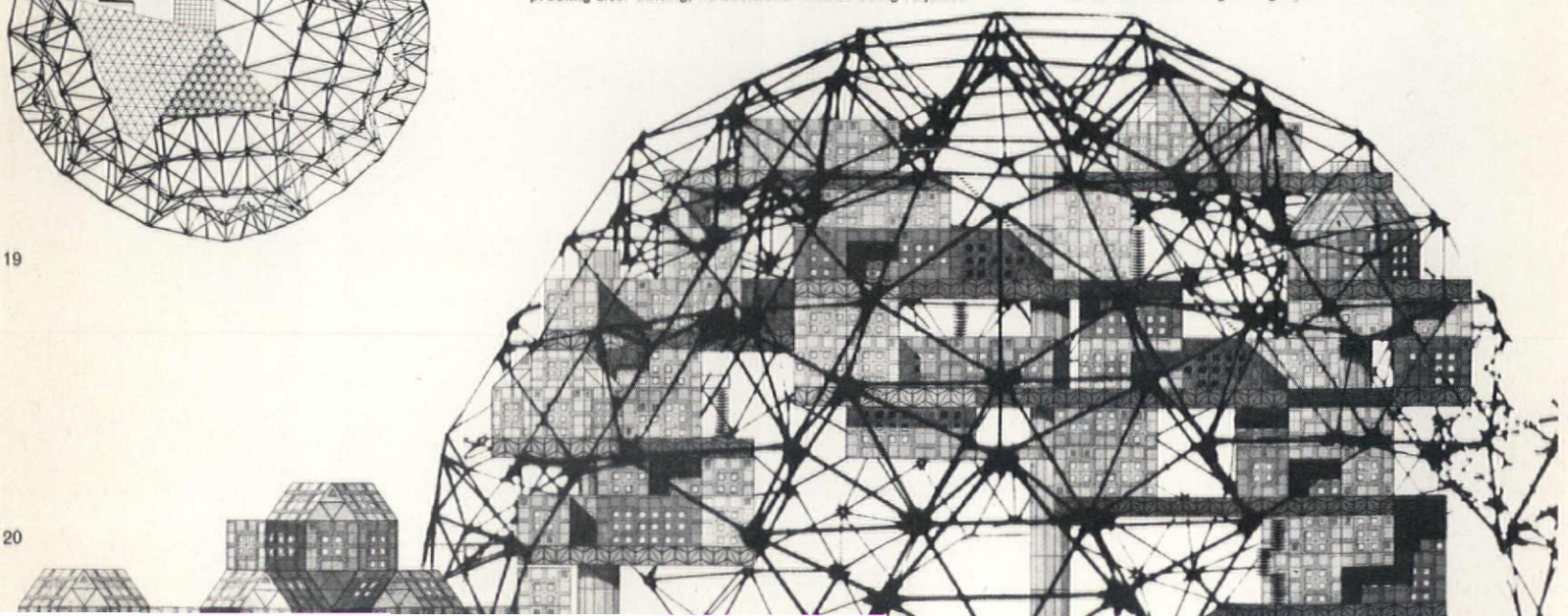

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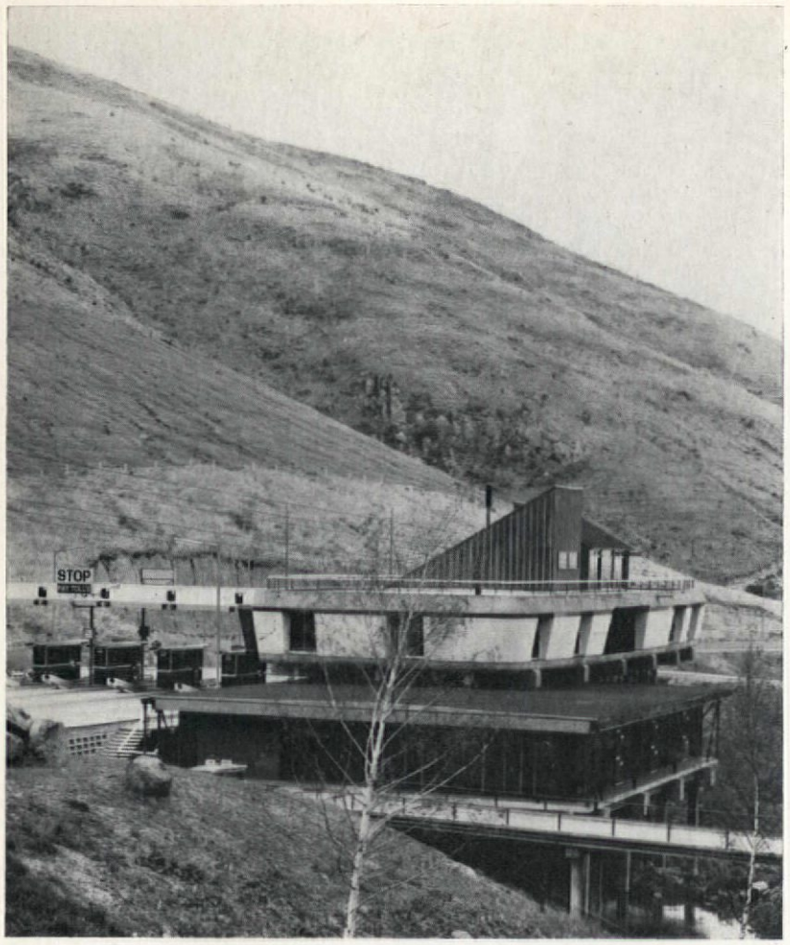

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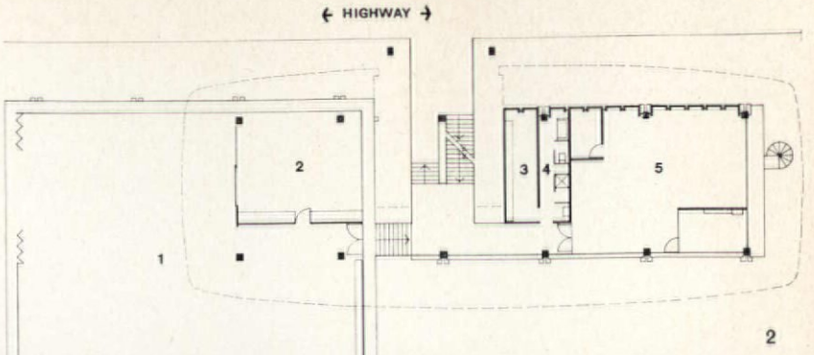

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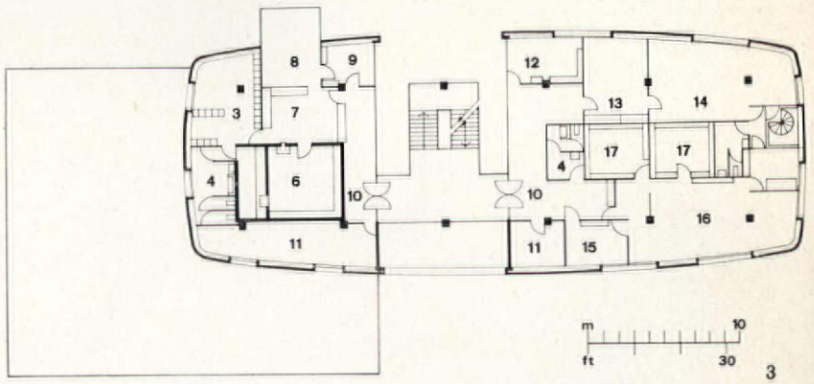


3

1 garage
2 workshop
3 locker room
4 w.c.
5 workshop and store
6 money room
7 registry
8 supervisor
9 tunnel superintendant
10 lobby
11 A.T.E.
12 manager
13 ante room
14 boardroom
15 chief clerk
16 main office
17 files

Toll gate, Christchurch, New Zealand

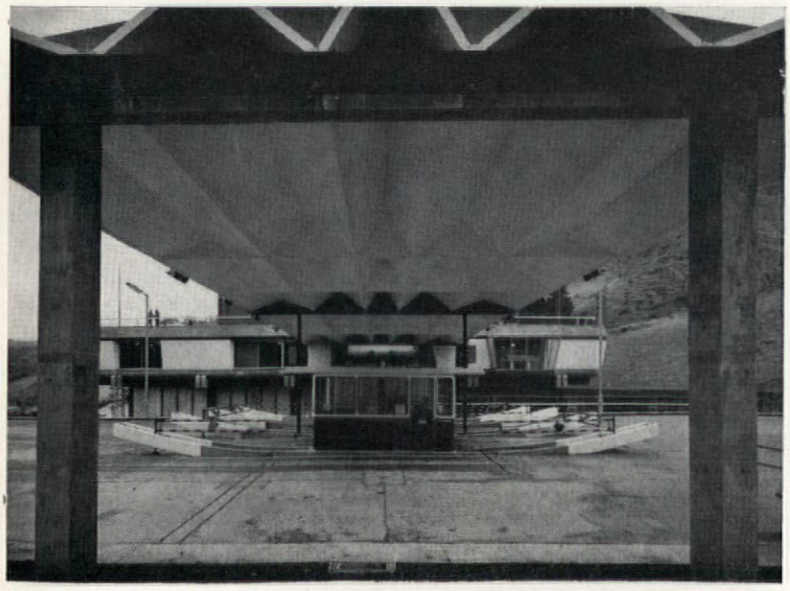
Peter Beaven

Christchurch and the port of Lyttelton, after years of planning, have finally been joined by a road tunnel, 1½ miles long. The new route, however, is subject to a toll fee. This is administered by an authority who are responsible also for maintenance and fire control. The building illustrated here is thus not a toll gate alone, but an administrative office, housing a staff of 50. The architects contrived a building that was intended not only to reflect the maritime connection, but to be organized so as to create a sense of security in a gently formed envelope, in strong contrast to the open and rugged surrounding scenery.

The main building is fairface reinforced concrete with a dark grey additive to highlight the painted trim in white. The canopy over the roadway is of precast concrete. The roof is copper clad with details painted in red. Timber throughout is oiled Australian hardwood.

1
General view of the toll gate
2
Lower level plan
3
Upper level plan
4
Motor canopy
5
Main stair
6
Cloakroom

4



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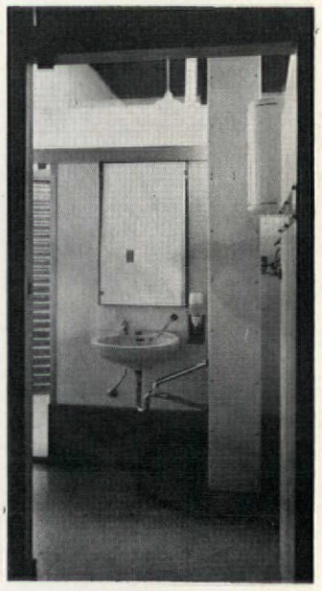

Hippodrome, Buenos Aires

Mario Roberto Alvarez* and Associates
Photos: Antonio Sambieri

The hippodrome, for the Club Hípico Argentino, is designed to Olympic specifications, with a rectangular arena 130ft × 260ft. Spectator seating banks, holding 5000, flank the arena on two sides. A third side has 'judges' boxes, a press box and offices, with public toilet facilities below ground level. The fourth side is left open and allows for future extension to the extent of 330ft (100m). This side will then be enclosed by a glass curtain wall with large doors for the horses and riders. The spectators enter by small staircases adjacent to the seating.

The sub-structure is made of exposed *in situ* reinforced concrete, as are the columns which support the roof. This is a prefabricated double parabola of tubular steel with a maximum height above ground of 50ft. It is 270ft long and 260ft wide and clad on all sides with trapezoidally folded aluminium sheets, insulated with glass fibre quilt.

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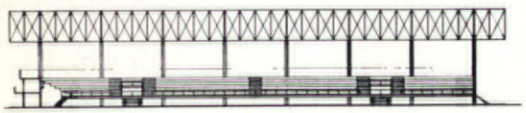

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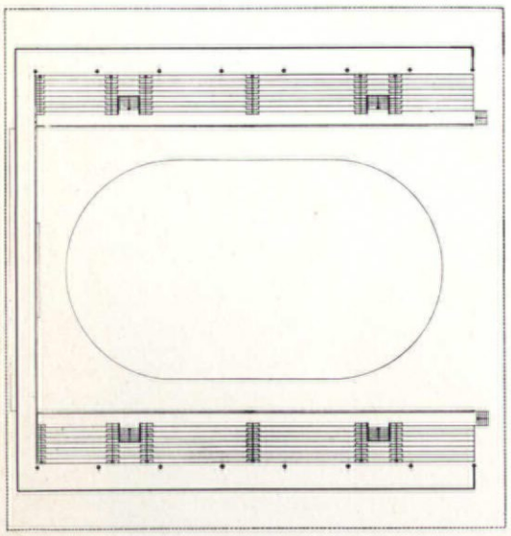

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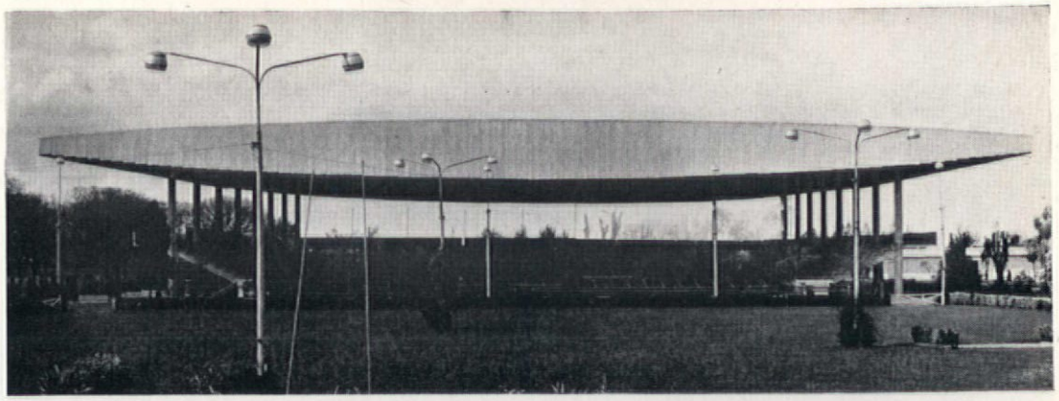

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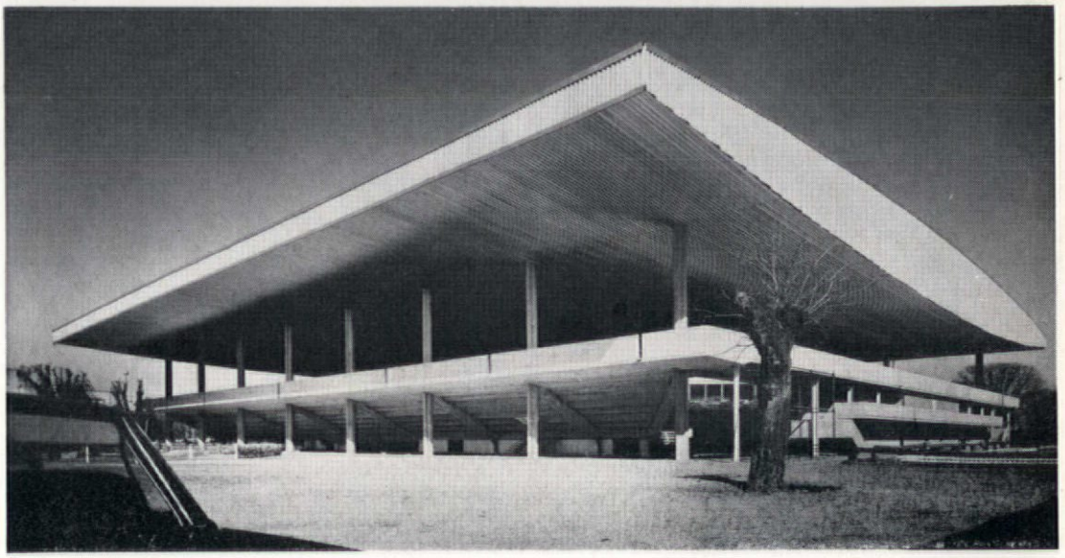

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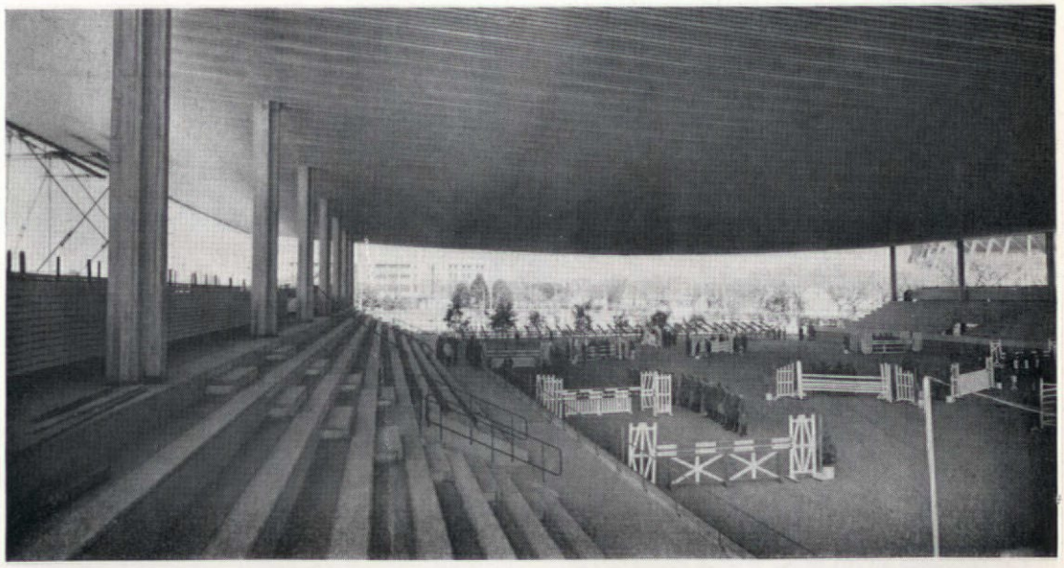

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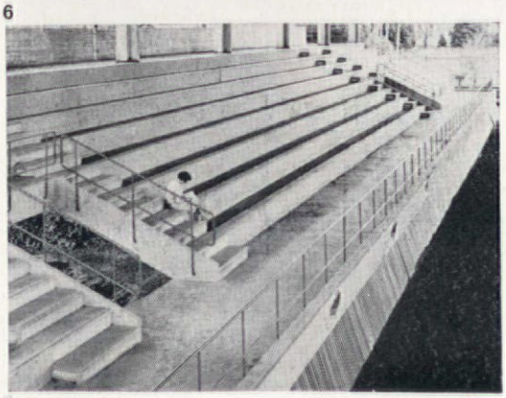

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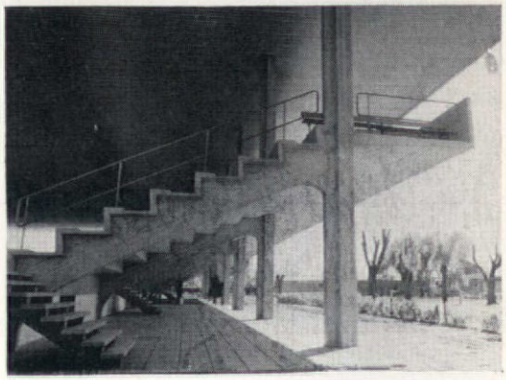


8

1
Cross-section

2
Longitudinal section

3
Plan

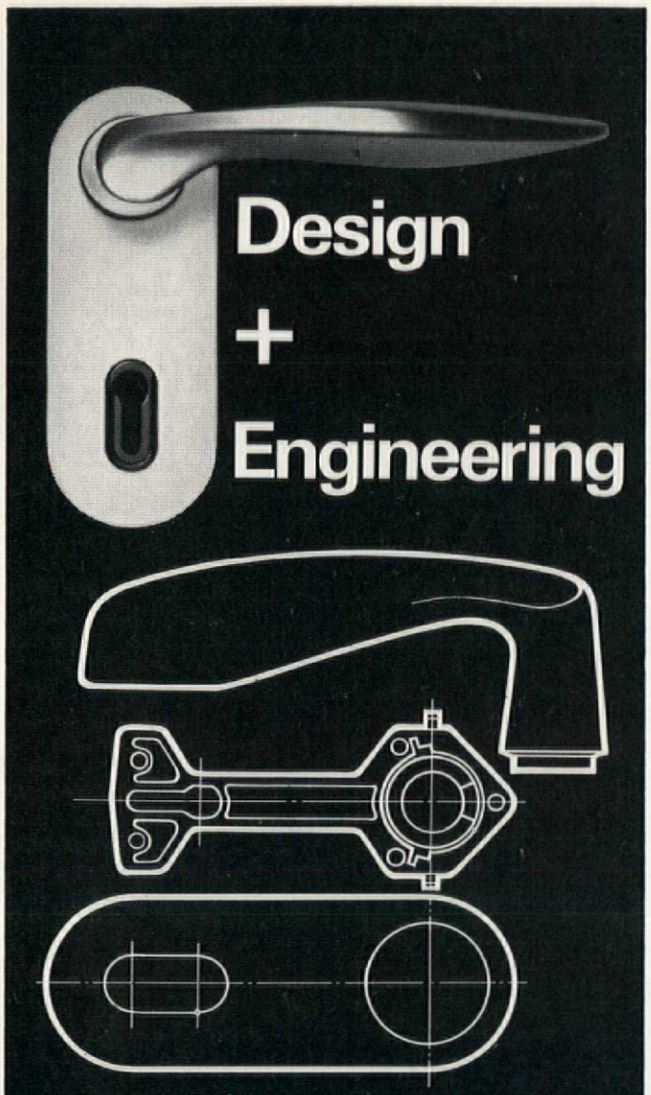
4
End elevation, left open for extension

5
Exterior, revealing the tiered seating and the office accommodation

6 & 7
Interior views

8
Underside of seating

*Other work by this architect has been published by the Instituto de Arte Americano e Investigaccones Esteticas B.A.



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A new discipline in office planning

Context is a new integrated suspended ceiling/partition/storage system—introduced in 1967 and developed and manufactured jointly by Tenon Contracts Ltd and Conran & Company Limited.

Context has been designed to meet the growing demand for intelligently related building components offered by separate manufacturers.

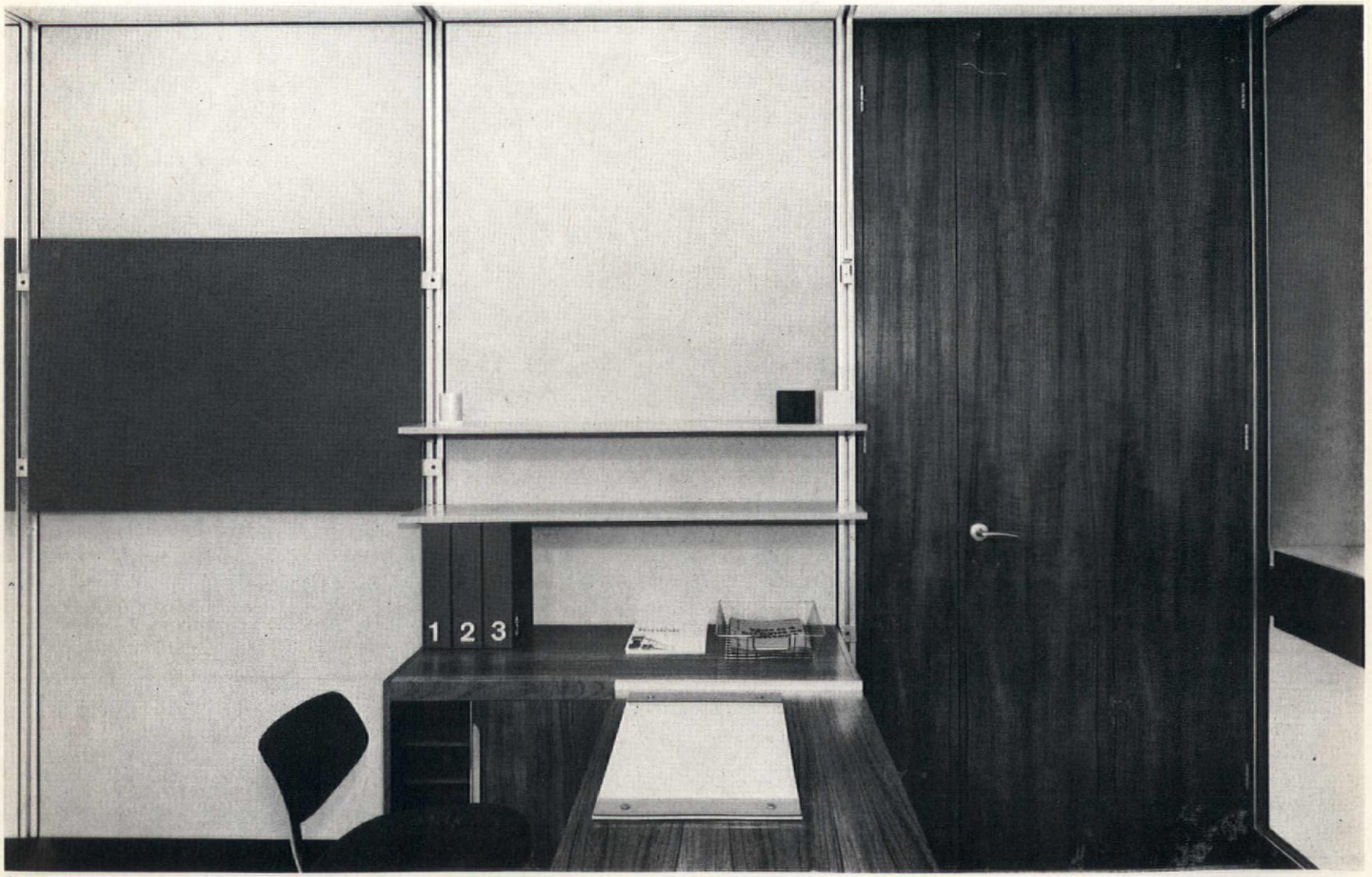
It has been increasingly apparent that to fragment each of the major interior elements of a building's structure was to invite and in fact encourage poor detailing. The villain is often the developer who rarely allows his architect to consider suspended ceilings, partitions and storage at the time of the building's conception—on the Continent a more realistic approach often prevails—the developer frequently leases to his client a specified number of partitioning modules (of a predetermined manufacture) which are then erected to the tenant's choice—often selected from a manual offering a choice of solid, glazed, part glazed, etc. This preserves the overall identity of the building and ensures the use of a uniform product on all floors—often important when there is a quick turnover of tenants, and one or more suddenly requires additional floor space with coordinated interior fittings. It is unfortunately common in the UK to see floor after floor with as many as eight or nine different partitioning systems in use with equally conflicting lighting fittings and flooring—all contributing to a visual confusion that is hard to justify in a commercial building whose interior should reflect its function—regardless of multiple tenancies.

The collaboration between Conran & Co. and Tenon was a rationalization of the interest they shared in the promotion of good business interiors and the manufacture of equipment for them. Conran felt that there should be a partitioning system capable of receiving storage without clumsy screw fixings and Tenon were equally aware of the inadequacies of the then existing systems of their own and competitive manufacture. Both companies were convinced that storage units and accessories such as pinboards **1**, coathooks **7**, numberplates **6**, shelving **8** and particularly blackboards **2** were needed by the majority of office users—not only lecturers and bookmakers. The large advantage that the Context system has to offer is that although all accessories are not obliged to be purchased at the time of erection, the fact that they are available ensures that the client can renew his furnishings to a predetermined standard compatible with the original installation.

Too often the office manager, capable in his own sphere, is permitted a free hand in the choice of panel coverings, layouts and piecemeal equipment purchases—Context can limit the area of his jurisdiction after the architect or designer has relinquished his responsibility. The system has been carefully detailed with dimensional relationships preserved between ceilings, partitions and storage **1**. The articulation and the mechanics of the products are deliberately expressed—screw fixings are not hidden and in fact are accented in black and contribute to the overall engineered feeling of the range.

Glazing is held by flexible plastic strips **11**, coiled up and easily stored and cut by scissors by the glazier on site. Transoms are secured to uprights by a concealed bracket locking mechanism which is re-usable and provides exceptional rigidity.

The extruded aluminium clips **4** that support the accessories, chair rails and storage units are adjustable for height and position on toggles—operated by Allen screws. They are equipped with grey plastic spacers which protect the metal from damage and provide an attractive shadowline beneath the fixture.



1

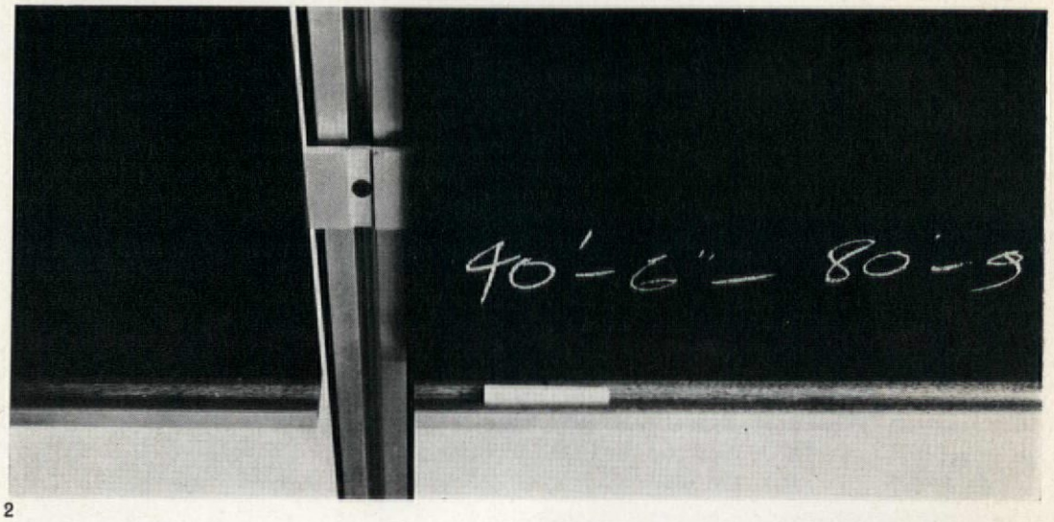
The panels—either flax or polystyrene cored, are fitted with black plastic connectors that engage into the post slots—they are slightly recessed and restate the 'separation' motif that is a characteristic of the system.

The storage units again make use of large screw fixings (operable with a coin) and they are deliberately limited to three basic cabinet sizes **1, 13,** veneered in teak, with a variety of normal internal options for adjustable shelving or lateral filing. The elaborate pencil trays and cocktail cabinets and other over-sophisticated interior fittings are so rarely called for in normal office use that they have not been offered.

Context storage units are compatible with a range of free-standing Conran furniture—Euclid—also veneered in teak, and desking from this range can be simply attached either to the partition chair rails or to the suspended cabinets **1, 13** to provide simple and inexpensive work stations saving one pedestal and a set of legs. The cabinets have no backs (to avoid purchase tax), and although more expensive than stove-enamelled steel office cabinets they offer the knock-down facility which is particularly useful in high-rise office buildings and a much-enhanced aesthetic appeal which complements the partitions upon which they hang and frees floor area for cleaning.

The Context suspended ceiling system **16** resembles externally the design of the Context post and can be used either in a truly modular way with a plastic boss **17** at every grid intersection or in a single directional way which can be useful for showroom applications where true modularity is not so important. The gridwork carries power cables on its upper surface and

1
A typical Context office setting with wall hung accessories and storage
2
Blackboards—twin mounted on double clips
3
Glazed transom, post and door frame junction
4
Single storage unit clip with coin-operated assembly bolt
5
Jacking device at post base
6
Indicator/name plate with perspex slider
7
Coathook with protective plastic spacer.
8
Adjustable shelving bracket
9
Teak veneered chair rails and clip, mounted across fully glazed modules
10
Prototype rocker-action lighting switch with snap-in plastic wiring cover in post
11
Flexible plastic glazing technique
12
Context used to form a drafting bay
13
Large and medium Context storage units in use with a Euclid typing extension
14
All accessories are fixed with Allen key operated toggles—adjustable for height.
15
Tenex PVC wall covering collection—for panel facings
16
Integration of post to ceiling grid
17
Plastic boss at each modular ceiling intersection
18
Spotlight toggle-fixed to ceiling channel



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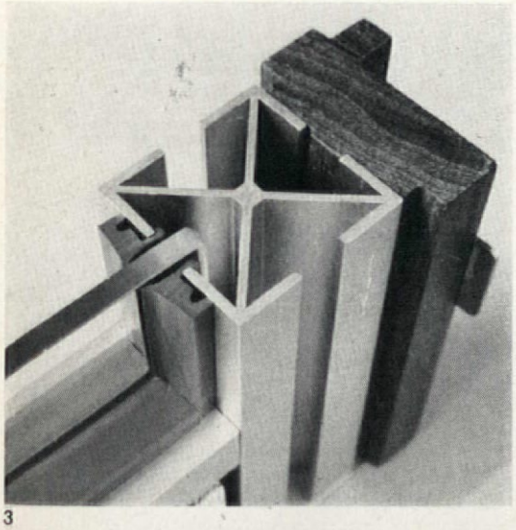
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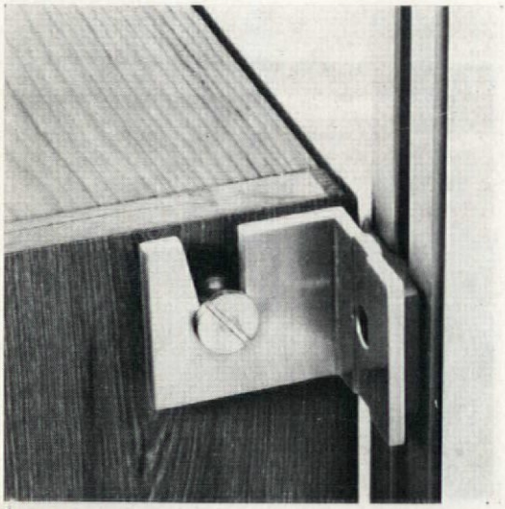
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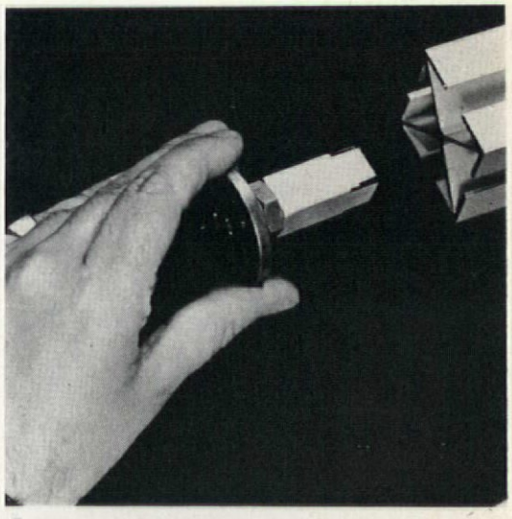
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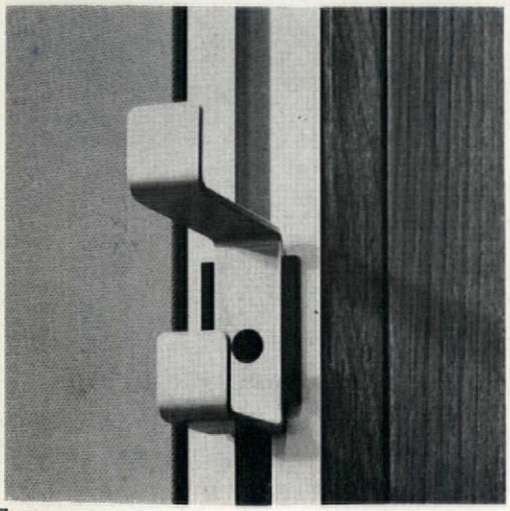
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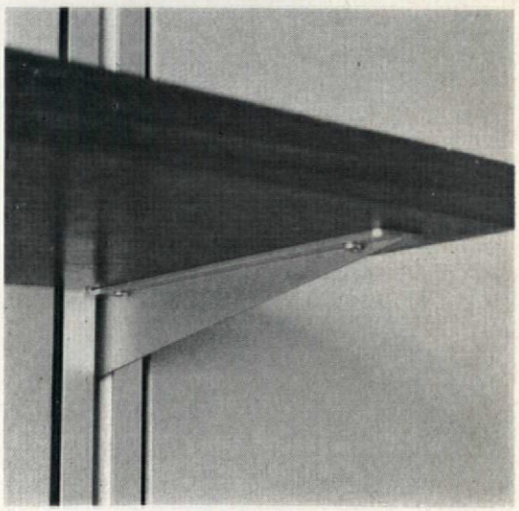
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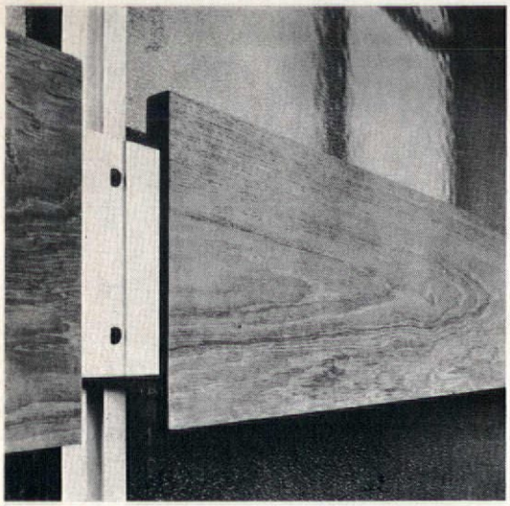
lighting can either be inset between the aluminium grid or toggle-fixed to the exposed slot **18**. With the plastic boss the Context post can be quickly engaged at every module intersection and with the ceiling in use there is no further necessity for the use of a separate partitioning ceiling channel for either glazed or solid partitions. In this application both elements 'grow' from the ceiling slot, providing a particularly attractive form of integration. A cruciform steel connector supports an adjustable bolt and strap fixed to the structural soffit above. The partitions can be used either full height or freestanding **12** and there is an optional pressure jack for use where penetration of the structure is to be avoided **5**.

The system also lends itself for exhibition and display work and is being expanded to form a comprehensive solution to shopfitting. A three-position adjustable shelf bracket has been developed and counters and panelling are shortly to be available in metric sizes with fascias and lighting baffles in matching dimensions.

Messrs. I.B.M. (UK) Limited have used Context in half glazed freestanding units for their new headquarters at Chiswick. Half height work stations have been formed to accommodate senior members of their staff as a more disciplined alternative to the Bürolandschaft technique pioneered in Germany. The London Press Exchange—the largest advertising agency in Europe—have re-equipped their new offices completely with Context which has proved particularly suitable for the provision of studio facilities and the exacting storage required for creative staff **12**. In the public sector both the South Western Electricity Board in Cardiff and the North Eastern Gas Board at Newcastle have been quick to grasp the potential of Context in buildings where layouts are constantly altered.

A companion window walling range is shortly to be introduced and will provide a particularly easy method of integration between ceilings, partitions and the inner face of the window mullion—making it unnecessary to attach or remove supplementary channels. The system will incorporate many of the technical features of the



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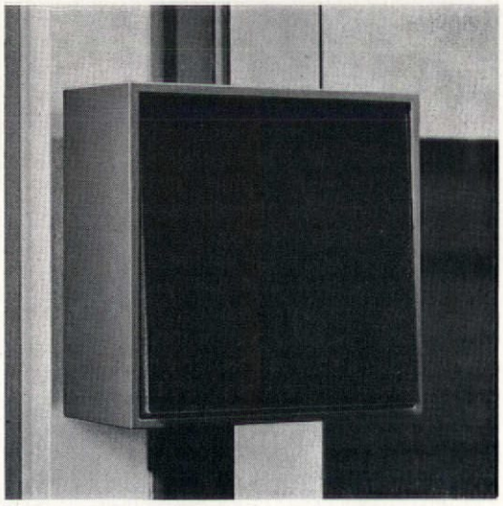

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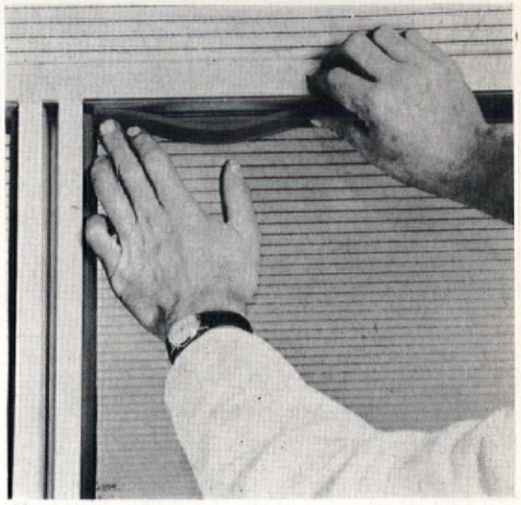

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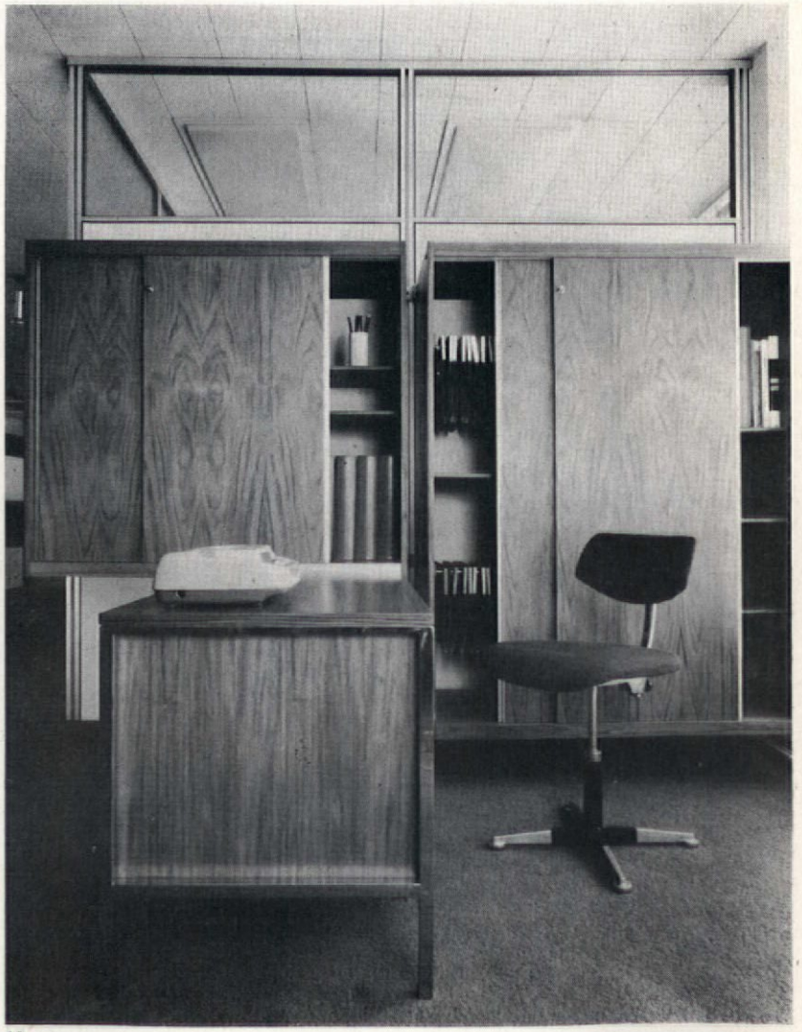

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14

15

Company's Tenlok range and will offer split mullions and thermal tolerance within each module.

The square Context post is the pivotal component of the whole system and is really the sole justification for the use of a framework. It allows every unit to be modular and interchangeable, and it supports the accessories already mentioned. The slots provide the post with a sculptural elegance which is particularly apparent when comparing it with the solid aluminium posts used by competitive systems which even with pencil grooves and other superficial attempts at surface relief tend to look heavy. The design of the post itself provides a four-way separated compartment for electrical cables which can be run down the post at the time of erection and completely hidden or fed from the ceiling or the floor at a later date. In this latter case the slot is closed with a snap-in plastic extrusion **10** to comply with electrical safety regulations. This component is extruded in grey to match the flexible glazing rubber and the plastic clip spacers.

There is a purposefulness about the total Context system that is disciplined and highly functional. Its very nature imposes certain restrictions on office planning on the one hand but it liberates layouts on the other. It is not a system for eccentrically shaped buildings whose form has been dictated by medieval street plans or compulsory purchase. The rationalization of the basic components make it a particularly attractive proposition for bulk purchasers who can move it easily themselves with their own maintenance crews and hold limited stocks of the post section whose design makes it unnecessary to keep supplies of separate members for corner and three-way junctions—it is a system with fewer components fulfilling more functions.

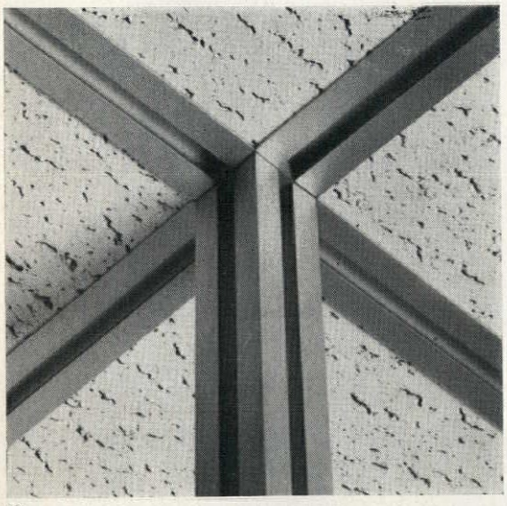
The design went through several modifications during the two years of its development. It was hoped originally to provide an interlocking two-piece post but this proved insufficiently strong to support the storage units. The basic conception, however, has remained unaltered almost from the original brief and the shaping of the framework has been determined by its function to support accessories and to provide a modular take-down wall system.

The storage units were always intended to be in knock-down form although this brought structural difficulties not encountered with pre-assembled carcass furniture. Teak was chosen for both units and doors and chair rails because of its proven sales record but for sizeable interiors other veneers such as beech, oak or pine are a feasibility but 'off the shelf' repeats are obviously prejudiced.

If used in its most basic form with either fully glazed or full height solid panels **1** the partitioning is very competitive with other systems. The ceiling grid is dearer than the simple concealed 'T' patent systems marketed by ceiling tile manufacturers and is not designed to compete with them. The curtain walling is also competitive and in terms of ease of integration with the other elements—obviously cheap to install.

The total Context system has excited much architectural interest both at home and abroad—particularly in Germany and Holland where it is being offered through direct export. A growing number of international companies with a large number of branch offices are standardizing on its use for all interiors with significant savings in administration time and advantages in interchangeability and the preservation of a constant image.

Although similar ranges have been designed and built as 'one-off' prestige exercises Context represents the first commercial venture of its kind under one design programme and repeatable for future additional requirements without costly rejigging and disruption of assembly lines.



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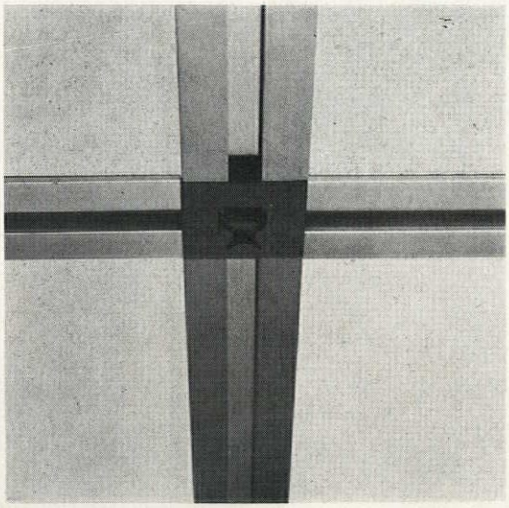

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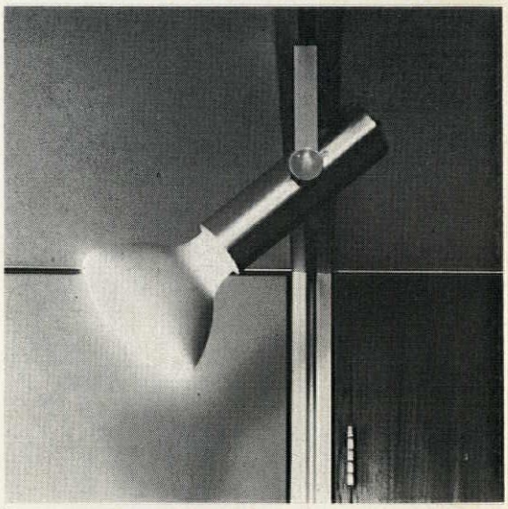

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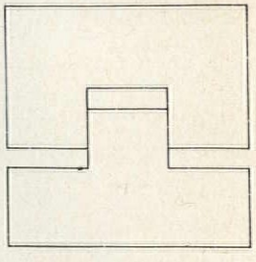

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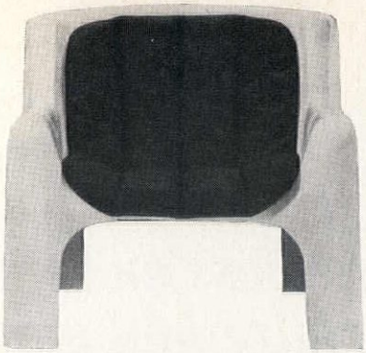

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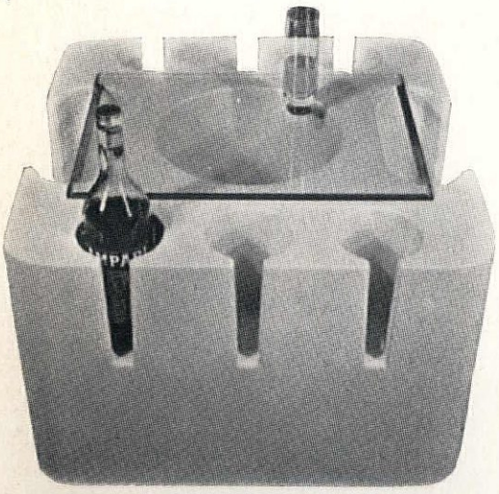

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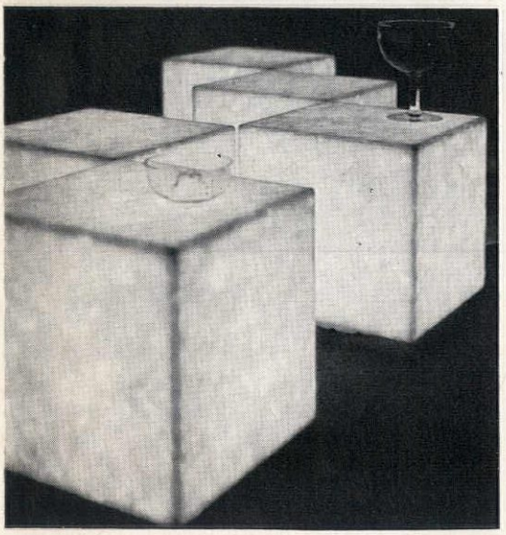

6, 7

Design

Plastics

Studio Artemide, first Italian firm to produce plastic furniture which expresses the material's technical and characteristic qualities, have launched a reinforced plastic domestic 'bar' **4** stamped in one piece. Tall and short bottles are slotted or ranged along the four sides; the hollow centre is meant to take an ice bucket; the plate-glass top is countersunk to prevent slipping. The designer, Sergio Mazza, also collaborated with architect A. Mangiarotti to design the 'Cathedra' chair **1**.

Arflex latest FR polyester chair **2** by architect Carlo Bartoli, is also stamped in one piece. It comes in shiny white, red, mustard and dark green, with matching upholstery cushion.
Ottagono, 7/67 *MD,* 12/67

Hille's latest is the Hexagon chair **3** designed by Peter Murdoch and made, probably for the first time, entirely from a one-piece moulding of rigid expanded polyurethane foam, with no base. Approximate price £30, according to the upholstery. The moulders of the shell were HIA Plastics Ltd.
41 Albermarle Street, London, W1

Bellamine

Upon the 19in high 'Kompas' table **5,** designed by Alan Turville for Hille, there hangs a tale:

Raw sugar factories throughout the world produce annually, as a by product, millions of tons of crushed sugar-cane fibre, Bagasse, some of which is used as fuel for the factories, the rest going waste. In 1964, Tate & Lyle Ltd. and S. Hille & Co. Ltd. formed a company called The Bagasse Products Co. Ltd. to make use of the surplus bagasse, and launched a mouldable material Bagelle in board or powder form, and Bellamine or finished board. Bagelle has since been used for interior fittings in the automobile industry, road signs, front panels of TV sets, table tops, etc. It can be cut to shape, moulded, veneered, etc., and needs no sanding before facing. It comes 3ft 1in wide and in lengths of up to 11ft, the weight varying from 14 to 18oz per square foot, and costs from 10½d. per lb. Laminated to Melamime-impregnated paper under high pressure, it becomes Bellamine, a high-density board which can be used for exterior cladding of buildings, road signs, kitchen furniture or anywhere where resistance to moisture is vital. Its screwholding properties are 50 per cent better than chipboard.

The little white knockdown Kompas table is the first Hille product to be made of Bellamine and it costs only £4 4s.
41 Albermarle Street, London, W1

Lighting cube

Günter Schmitz, while on the architectural staff at Ulm (Hochschule für Gestaltung), designed the Corpus-Gel lighting cube **6** for Schneider + Fichtel AG which is now in production. Made of polished slabs of translucent marble, veined or pure white, it comes in two sizes, 12in³ and 16in³ (30cm³ and 40cm³), and stands on a plastic base which carries the electric lamp holder and provides ventilation.
Schmidener Strasse 115, 7 Stuttgart-Bad, Cannstatt

Martin chair

New from *Finmar* is the Martin knockdown chair **7** in various colours which is assembled without screws or glue, has leather-edged canvas seat and back and retails for £8 15s.
32/34 Avon Trading Estate, Avonmore Rd., London, W14

...the Marley tiles have really been a great success and much admired. Although we have had more than four million visitors to the pavilion so far, the tiles show no signs of wear and look as good as the day they were installed.

Mr L. A. Miller, Technical Manager of the British Pavilion at Expo '67. September 1967

There was nothing special about the feet at Expo '67. Two to a person and variously shod, they strode, click-clacked, elegantly lingered and sometimes even clomped. But there *was* something special about the floor of the British Pavilion. Entirely composed of Marley HD heavy duty vinyl tiles it looked beautiful, felt comfortable and refused to allow feet by the million to make the slightest impression upon it.

If you want a tile which combines a satin smooth surface and really beautiful marbleisation with outstanding wear resistance, indentation recovery, resilience and non-tracking properties you should think again about Marley—and HD.

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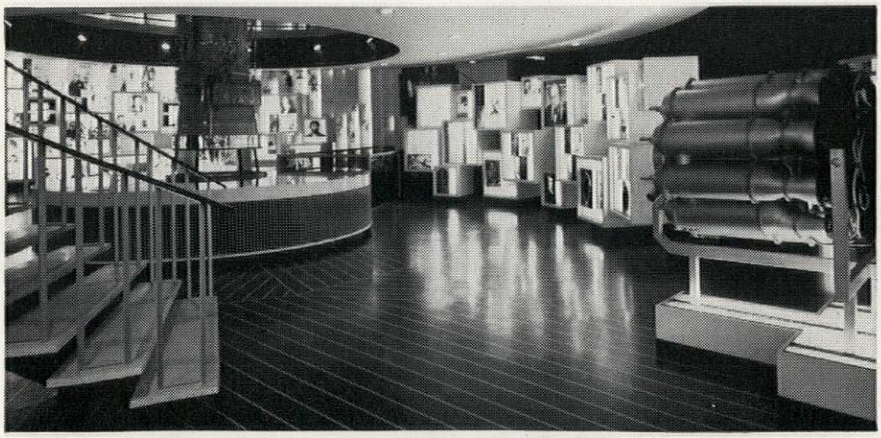

British Pavilion, Expo '67. Architects: Sir Basil Spence, Bonnington & Collins.

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THE QUEEN'S AWARD TO INDUSTRY 1967

MFH 5

Trade notes

Alexander Pike

To obtain additional information about any of the items described below, circle their code numbers (C1, C2 . . . etc.) on the Readers' Service Card inserted in this magazine.

C1 GRP wall panels
Surface Productions Ltd., Adelaide House, King William Street, London, EC4
Consisting of two GRP laminates with a core of polyurethane foam, the panels are available with cores from $\frac{1}{2}$in to 2in thick, and have a high gloss, ripple-free finish. The flanges on one side of the panel slot into the preceding panel whilst those on the opposite side serve for fixing. Alternative fixing methods can be provided.

C2 Flame-retardant laminate
Formica Ltd., De La Rue House, 84/86 Regent Street, London, W1
Decorative laminates $\frac{1}{16}$in and $\frac{1}{32}$in thick are now available in a flame retardent grade to meet the Spread of Flame requirements of the Building Regulations Specification 1965. When bonded to a non-combustible substrate, the $\frac{1}{32}$in thickness satisfies Class 0 to which laminates used for wall cladding in public areas must conform.

C3 Notice boards
Tayside Floorcoverings Ltd., Newburgh, Fife, Scotland. Newburgh 201/4
Databoards with self-healing, cork facing, in six colours, are now obtainable with aluminium framing in satin anodized finish.

C4 Pre-weathered roofing slab
Stramit Ltd., Eye, Suffolk
The basic Stramit roofing slab is now available with a layer of built-up roofing felt applied to the top surface using hot bitumen. All edges are bitumen protected and the underside is finished with showerproof bitumen-impregnated liner. Deckfast is available in 2ft or 4ft widths, and in any length between 6ft and 12ft (for orders of 24 slabs or more). Thickness 2$\frac{1}{8}$in, weight 4lb per sq ft. Prices from 12*s* 0*d* per sq yd.

C5 Aluminium roof trim 1
Parovents Ltd., 149 Kennington Park Road, London, SE11
Parotrim is for asphalte or felt roofs and incorporates a water-check and curved vertical surface for greater strength. Each 8ft length has a jointing spigot and angle pieces are welded sections 6in × 6in. Claimed to offer material and labour savings in the region of 28*s* per lineal yard over traditional methods.

C6 Fire vent rooflight
William J. Cox Ltd., London Road, Tring, Hertfordshire
The Coxdome Mk. 5 rooflighting system now includes a fire vent model with a fusible link which is automatically activated at temperatures above 72°C, opening the dome top to an angle of 110°. Price, £29 18*s* for 36in × 36in size.

C7 Aluminium windows
Domestic Aluminium Windows Ltd., G.P.O. Box 40, Broad Plain Bristol 2
Incorporating two top hung panes and a fixed lower pane, the 45 HR range is available in widths of 2, 3 and 4ft, and heights of 3ft 8in, 4ft, and 4ft 4in. The windows are opened by a rotary handle which can only be operated when a safety catch is manipulated simultaneously, in the larger windows these controls are 4ft apart and therefore cannot be opened by small children, making the window suitable for installation in multi-storey flats. Price approximately 15*s* per square foot.

C8 Automatic sliding hinging doors
Stanley Door Operating Equipment Ltd., Alperton, Middx.
Auto-slide doors have pneumatic actuators mounted above the entrance and concealed by the track enclosure. The doors run on overhead tracks, leaving the threshold clear. In emergencies, a light push converts them into hinged doors. Maximum sizes of opening, single door 3ft 6in (overall width 7ft 8in) double door 7ft (overall width 15ft).

C9 Garage door
Charles P. Moody Ltd., 215/217 Coldharbour Lane, London, SW9.
The Chasmood 2000 garage door gear is designed for the individual who wishes to install a one-off up-and-over door of special material or to convert hinged or sliding doors. Price £12 10*s*.

C10 Epoxy resin flooring additive
Protective Materials Ltd., Watery Lane, Birmingham 9
An addition of only 2$\frac{1}{2}$ per cent of V Mat WD to a standard mix of concrete, sand and cement or grano is claimed to increase the strength of the resultant floor by 100 per cent for as little as 7*s* 0*d* per square yard, enabling floors to be laid to $\frac{1}{4}$in thickness without bond failure.

C11 Ceiling suspension system
George Whitehouse & Co. (Birmingham) Ltd., Worcester Road, Kidderminster, Worcs.
A new type of fixing method for all types of ceiling tiles comprises a series of half perforated slots in a rolled tee section to enable it to accept self-tapping screws at any point.

C12 PVC Skirting board
Allied Structural Plastics Ltd., Dunstable, Beds.
Aspect skirting board, in white PVC, incorporates especially designed cabled duct system. Fixing is by simple wall clips which allow individual sections to be removed quickly, for access to the cable ducts. The ducting system isolates mains voltage wiring from telephone, television and radio aerial wires. Provided in a semi-gloss finish, weight 3oz per foot. Approx. 2*s* 6*d* a foot.

C13 Fan convectors 2
Myson Heat Exchangers Ltd., Ongar, Essex
The three models in the Envoy Estate range have maximum outputs of 9000, 14,000 and 20,000 Btu/h and are suitable for use with two-pipe small bore heating systems. Hot water circulates through a heat exchanger over which air is drawn by a tangential fan. A micro-cellular filter excludes dust, etc. Two fan speeds are provided and a thermostat gives a range from 50° to 85°F. Size 15$\frac{1}{8}$in high, 4$\frac{5}{8}$in deep, in lengths of 19$\frac{13}{16}$in, 28$\frac{7}{16}$in and 40$\frac{13}{16}$in.

C14 Modular shower units
Valbania Ltd., Wyvil Road, London, SW8
A system of integrated shower equipment and multi-partition cubicles, the Valba 700 series offers a wide range of layouts. The materials used include glass-fibre reinforced Perspex for shower trays and walls, aluminium framed shower screens and curtain tracks, and specially developed plastic adhesive foam strips for water sealing.

C15 Shower handset 3
Walker Crosweller & Co. Ltd., Cheltenham, Glos.
Claimed to have been engineered to generate the optimum spray under widely varying pressures, the Kelta 919 shower handset is provided with two wall sockets, each with a three-position ratchet, to give a choice of six different trajectories. The nozzle is designed to give a narrow spray near the outlet for localized washing, broadening for normal showering at a greater distance.

C16 Built-in refrigerator
Electrolux Ltd., Oakley Road, Luton, Beds.
Providing greater capacity than its predecessor, the Electrolux LC 21, 1·9cu ft refrigerator occupies less space because of its thin walls. Finished in white with blue and silver trim, it has 4sq ft of shelf space and a one-star frozen food compartment to store up to 6lb for one week. For building-in, 28$\frac{1}{16}$in high, 18$\frac{1}{2}$in wide and 19$\frac{3}{8}$in deep. Price £32 11*s* 2*d*.

C17 Lighting fitting 4
Allom Heffer & Co. Ltd., 17 Montpelier Street, Knightsbridge, London, SW7
The CD6 Darklite 150w fitting is of all-metal construction and has a reeded low brightness liner. Available for ceiling mounting, either stove-enamelled black or anodized satin-silver, or for flush fitting with a recessing trim. Prices from £6 4*s* 7*d* to £6 9*s* 1*d*, according to finish.

C18 Bathroom safety grip
H. E. Rudge. & Co., Ltd., Leopold Street, Birmingham 12. 021-440 2633
The Rudge Griplift provides a strong yet adaptable support that can be used in any position whether standing or sitting without interfering with freedom of movement. This is achieved by means of a ball and socket joint which can be secured rigidly in any position by two screws which tighten the ball joint against a fibre friction pad. The arm of the grip is 20in long and has a polypropylene grip.

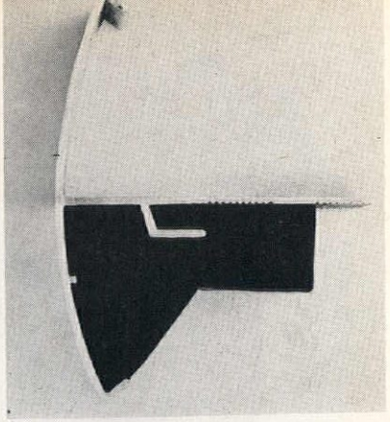
C19 Rigid insulated ducting
Bowater Flexpipe Ltd., Lever Street, Bolton, Lancs.
Ducting of rigid heavy-duty fibre, incorporating fire- and moisture-retarding and anti-bacteria resins, is insulated with a $\frac{3}{8}$in outer coating of rigid urethane. It is lined with aluminium to give smooth bore and heat reflection, and will withstand up to 250°F. Available in eight sizes from 3in to 10in diameter, in lengths up to 6ft. Prices from 3*s* 6*d* per foot (3in) to 10*s* per foot (10in).

C20 Contact fasteners
Selectus Ltd., Biddulph, Stoke-on-Trent, Staffs.
The Velcro fastener consists of two nylon strips, one covered with minute hooks and the other with corresponding loops, which when pressed together adhere to give a secure closure, but can be peeled apart. Suitable for many applications on upholstery and carpets. Available in 17 shades, in $\frac{5}{8}$, $\frac{7}{8}$, 1$\frac{1}{4}$ and 2in widths.

C21 Tubular assembly system
Goodhopes Engineering Ltd., 14 Wood Street, Kingston-upon-Thames, Surrey
Tubofix is a multidirectional assembly system composed of 14g steel sections 1in square with a $\frac{5}{16}$in open slot on one face. A variety of connectors, brackets and accessories enables the system to be employed for all storage and display purposes. Prices, tubes in black acrylic finish, 3*s* 6*d* per foot, connectors from 2*s* 8*d* to 6*s* 6*d*.

C22 Protective film
Tak Chemicals Ltd., Hayes Lane, Lye, Stourbridge, Worcs.
Takgard Peelable Grease claims to overcome the disadvantages of grease when used as a protective film. Based on quick drying solvents the grease sets into a tough film which can be removed by peeling off. Durability, 3–6 months externally, at least 12 months in semi-indoor conditions.

C23 Moisture detector
Channel Electronics (Sussex) Ltd., 2 Fitzgerald Avenue, Seaford, Sussex
The Aquatrace moisture detector is completely self-contained: dampness is indicated by a flashing neon lamp, the rate of flashing being related to the moisture content of the material under test. Size 5$\frac{1}{2}$in × 1$\frac{1}{2}$in × 1$\frac{1}{4}$in. Battery 9v, Price £7 12*s* 6*d*.



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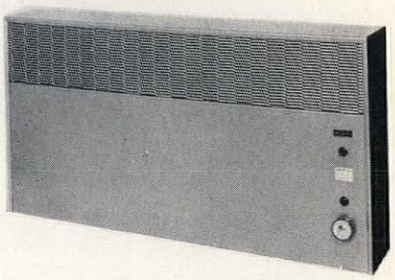

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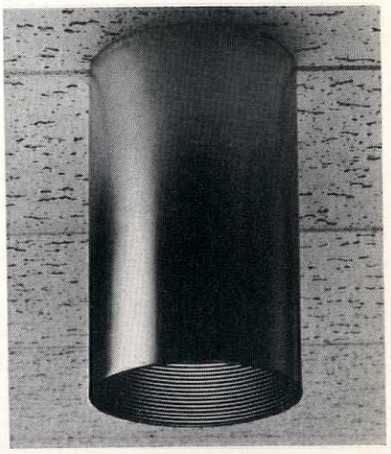

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C24 Light beam communications
AEI Limited, Control Equipment Div., New Parkes, Leicester
The system can transmit speech over a line of sight up to one mile. The beam is transmitted by an infra-red lamp modulated by a speech signal through solid state circuits working from four 1$\frac{1}{2}$v batteries. The apparatus is lightweight and portable, and can be set up and operating within minutes. About £295.

C25 Vacuum lifting equipment
VVB Takraf, 701 Leipzig, Barfussgaesschen, German Democratic Republic
For rapid and safe handling of heavy constructional assemblies, vacuum lifting attachments for cranes and hoists are now available in 2·5- and 5-ton capacities. The vacuum lifter has four or eight suction pads, requiring only five seconds for sucking down. Once attached, the pads will adhere safely for several hours, even with power supply failure.

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The Calculon 5

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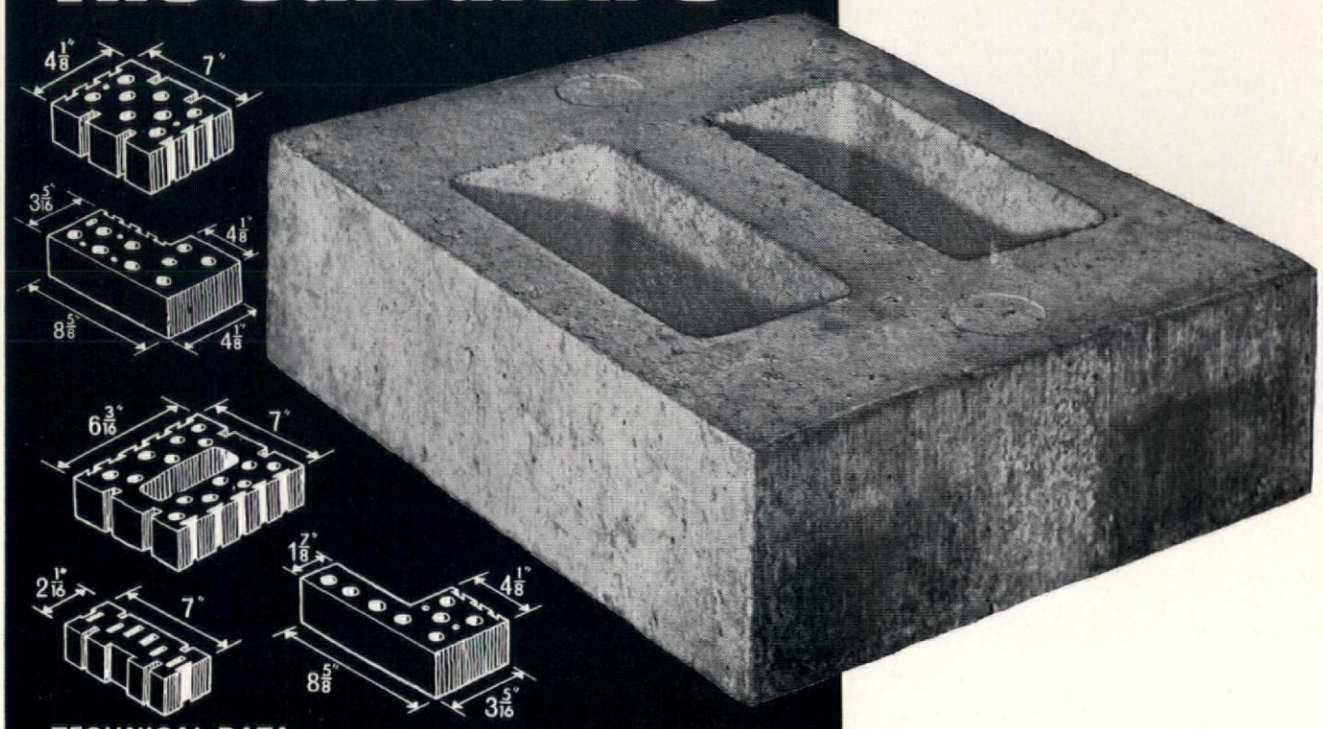

TECHNICAL DATA

SIZE
Nominal dimensions 9 x 7 x 3 in., actual 8⅝ x 7 x 2⅝ in., subject to normal standard tolerances.

COMPRESSIVE STRENGTH
Calculon 10 averages 10,000 lb. per square inch.
Calculon 75 averages 7,500 lb. per square inch.
Calculon 5 averages 5,000 lb. per square inch.

WEIGHTS
Average Calculon 10 and 75 weights are 9·8 lb. per brick, 2 cwt. 21 lb. per pack of 25 bricks, 4 cwt. 22 lb. per yard of 48 bricks and 4 tons 7 cwt. 56 lb. per 1,000. Average Calculon 5 weights are 9·5 lb. per brick, 2 cwt. 13 lb. per pack of 25 bricks, 4 cwt. 8 lb. per yard of 48 bricks and 4 tons 4 cwt. 92 lb. per 1,000.

RATES OF LAYING
Results of trials carried out by our own staff indicate a 30% increase in the speed of laying when compared with 9 in. solid walling.

MEASURED RATE
The measured rate for Calculon 75 in the London area is 60/6d. per yard super, which compares favourably with 74/9d. per yard super for a 9 in. wall in grade 'B' wirecut bricks. Similarly Calculon 5 at 46/6d. per yard super, compares with 68/9d. per yard super for a 9 in. wall of 5,000 lb. per square in. in standard pressed bricks with one frog. (For more detailed information on measured rates refer to Technical Sales Department, Horsham 2351).

DESIGN DATA
The use of Calculon 75 bricks would show a saving of approximately 17½% when compared with 9 in. solid brickwork in a wall designed to the new Code of Practice 111 (1964). For further details of the economies of use of Calculon, refer to booklet LB5.

The Calculon is a component designed to meet requirements for highly stressed brickwork. It can be used to advantage for most internal loadbearing walls, both cross walls and spine walls, or a combination of both. Where necessary for design considerations, it can also be used as an internal skin to a cavity perimeter wall. Made in three strength grades, Calculon 10 and Calculon 75 are perforated bricks with 23% perforation while Calculon 5 is solid. Each type incorporates an adequate hand hold to aid speed of laying.

Redland Bricks Ltd.

Graylands, Horsham, Sussex. Tel: Horsham 2351
London Showroom: Redland House, 42 Kingsway, W.C.2.
Northern Area Sales Office:
Elland Road, Leeds 11, Yorkshire. Telephone: Leeds 75206.

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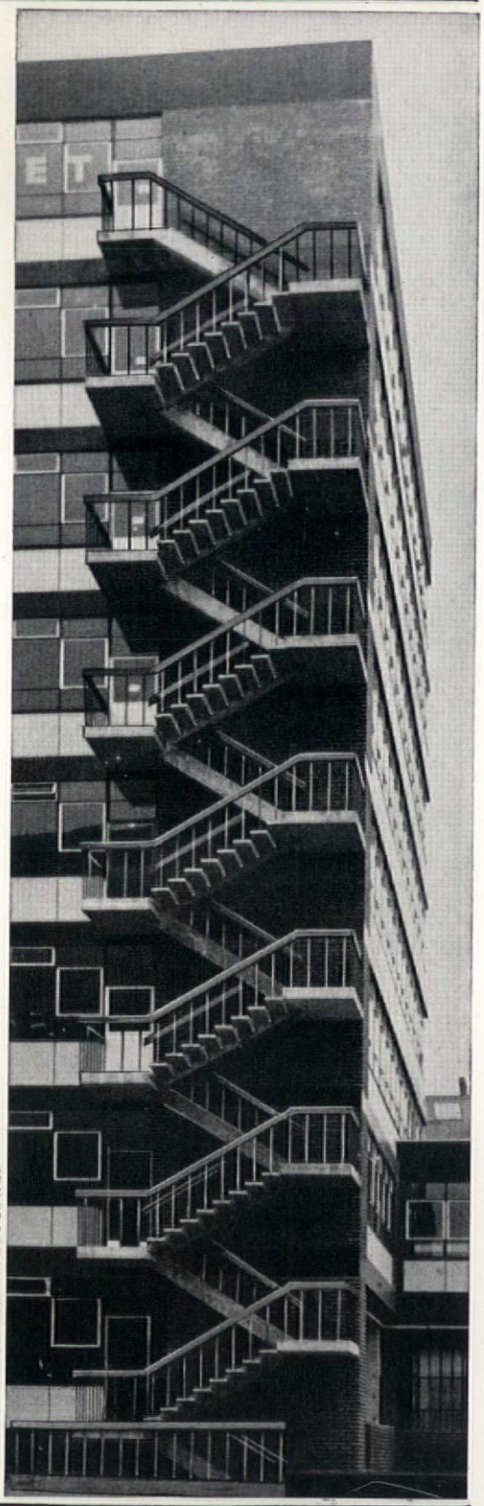

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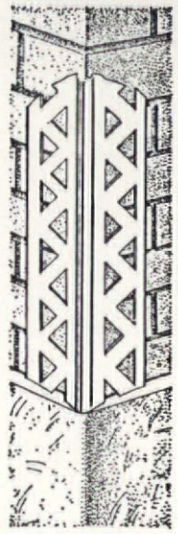

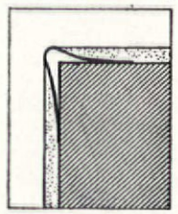

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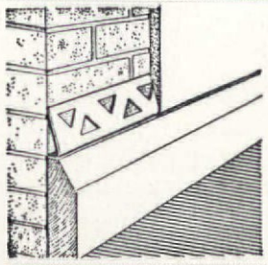

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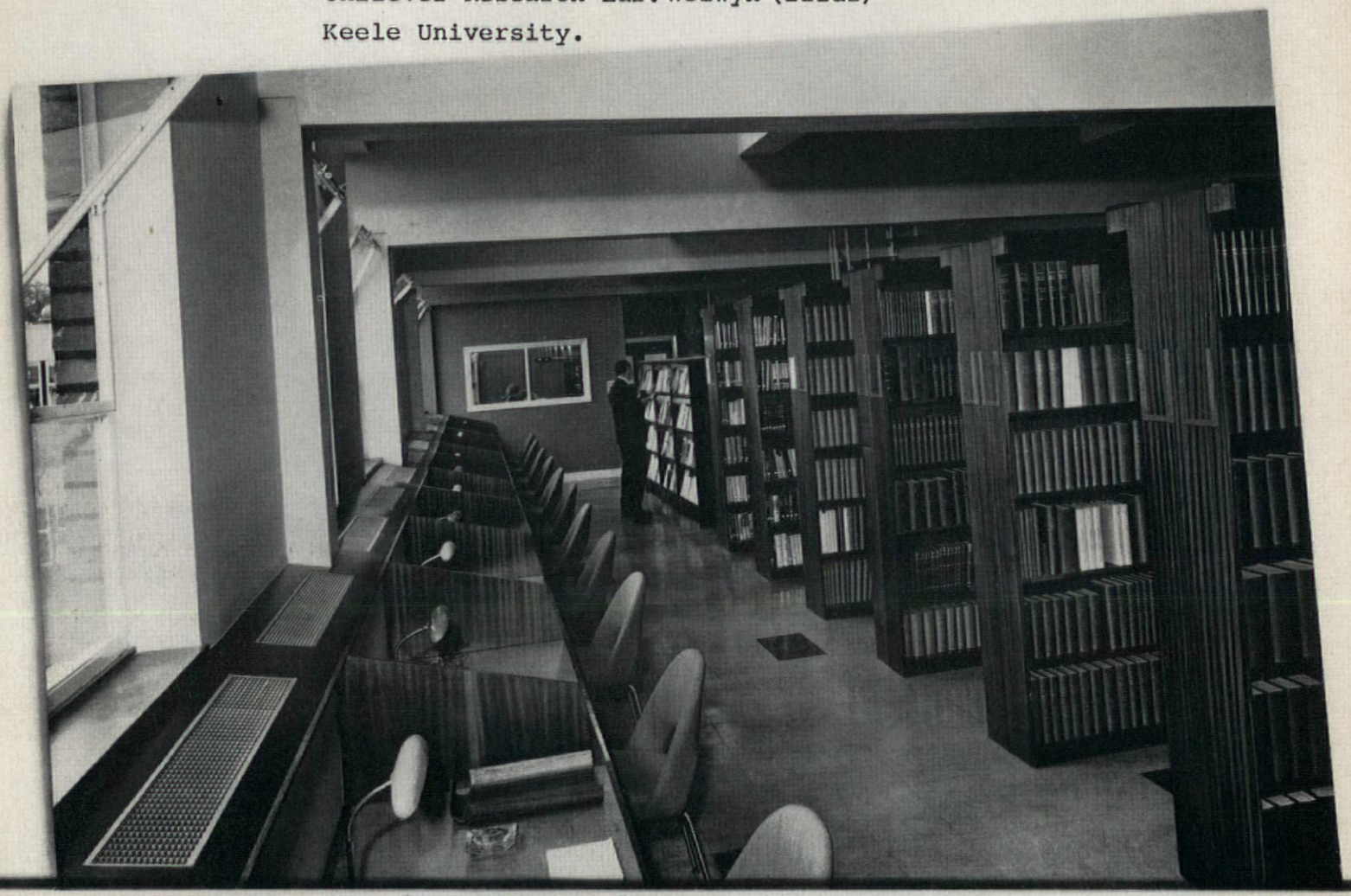

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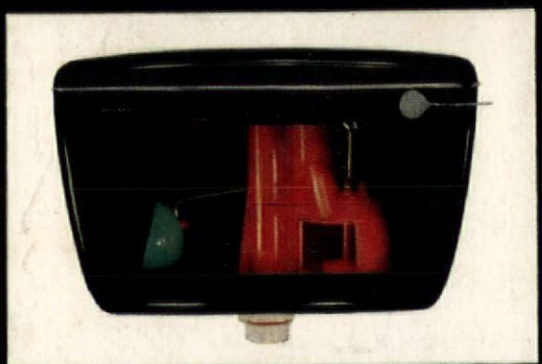

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