

THE ARCHITECTS' JOURNAL



standard contents

every issue does not necessarily contain
all these contents, but they are
the regular features which
continually recur

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Wanted and Vacant

No. 3307]

[Vol. 128

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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ig one week, Ih to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1.	Holborn 3411
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland	Trafalgar 8000
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Sloane 4280
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 9116
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Reading 72255
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reliance 7611
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Whitehall 0540
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Trafalgar 8855
DOT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Regent 4448
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Welbeck 1781
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	Kensington 4577
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Whitehall 6711
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Regent 0221
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), 47, Princes Gate, Kensington, S.W.7.	Sloane 1002
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Ilkeston 623
FC	Forestry Commission. 25, Savile Row, W.1.	Ulverston 201
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Whitehall 3902
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Langham 4341
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Monarch 8888
FMB	Federation of Master Builders. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)	Sloane 4554
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Belgravia 3081
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Whitehall 2881
GPDA	Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.	Belgravia 3755
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Grosvenor 6186
GG	Georgian Group. 2, Chester Street, S.W.1.	Whitehall 4577
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Temple Bar 7676
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Abbey 5215
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Sloane 8266
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	

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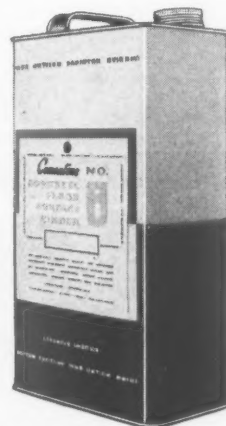


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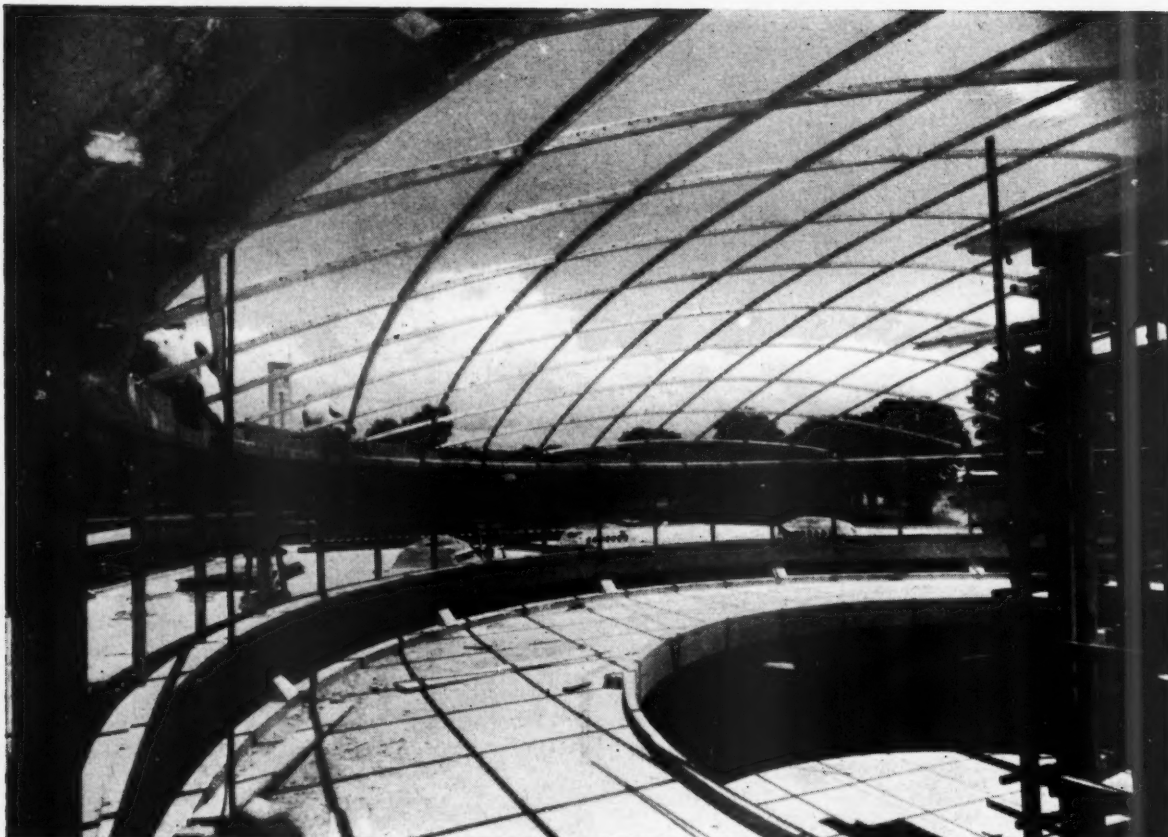
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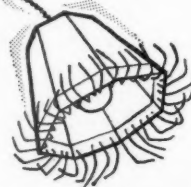
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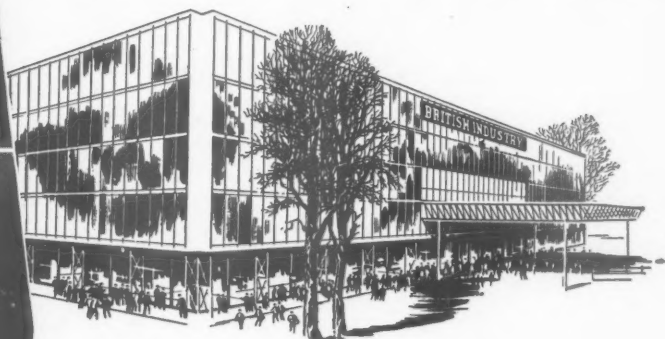
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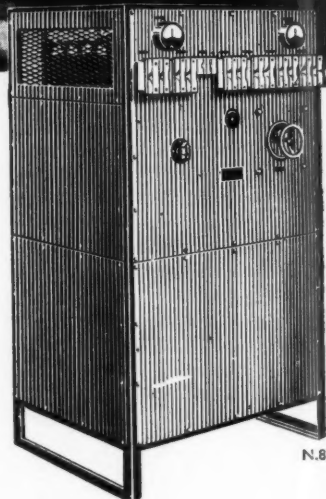


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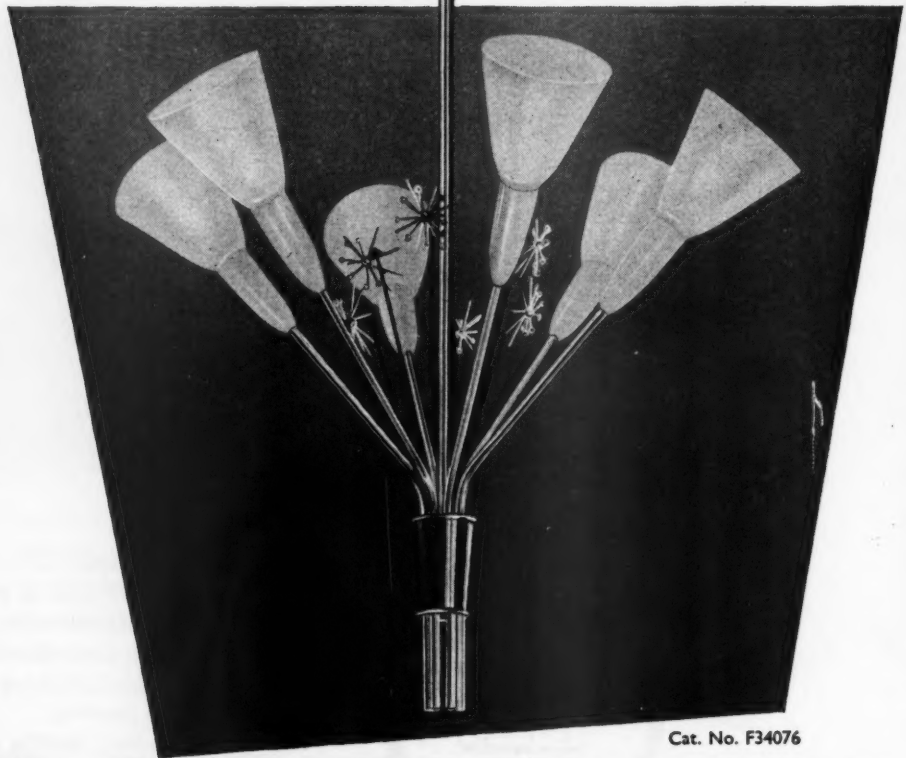
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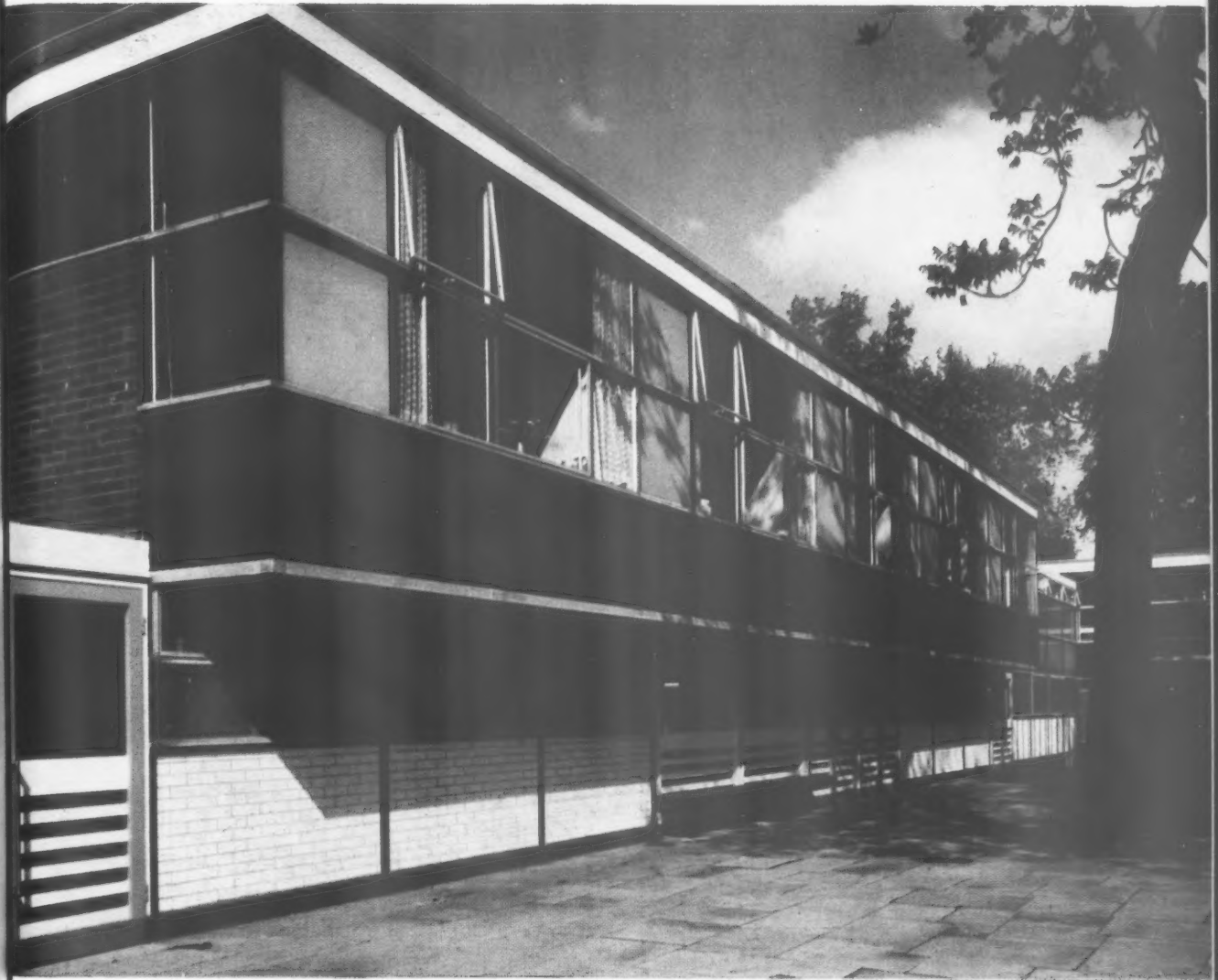


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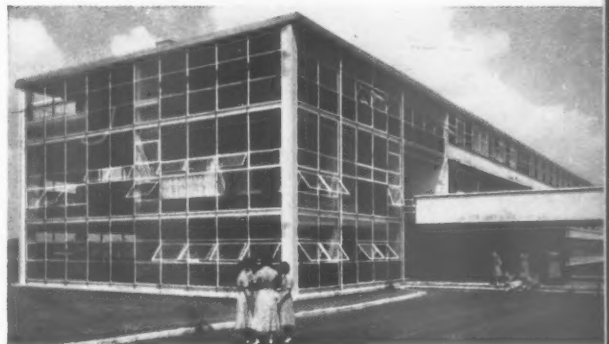
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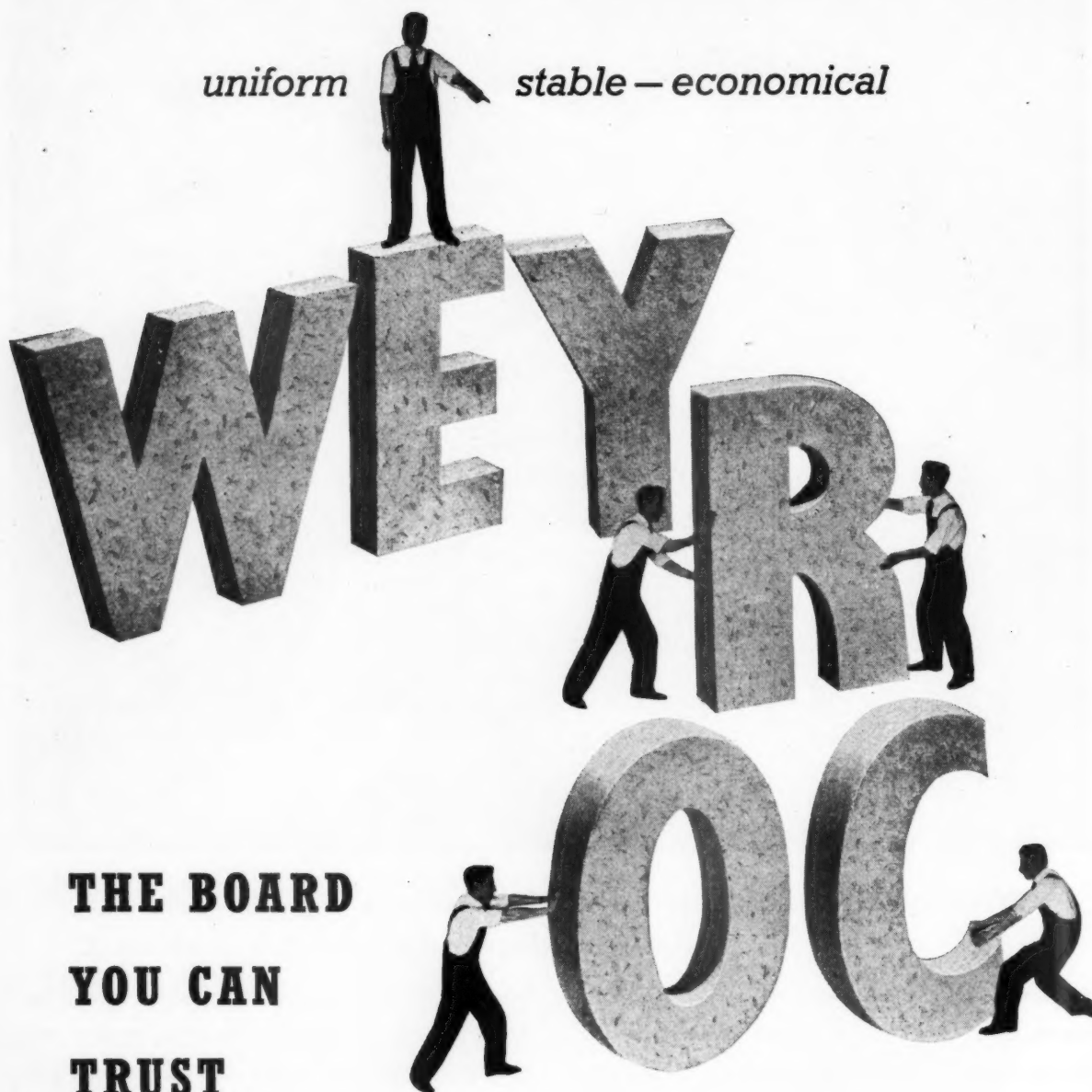
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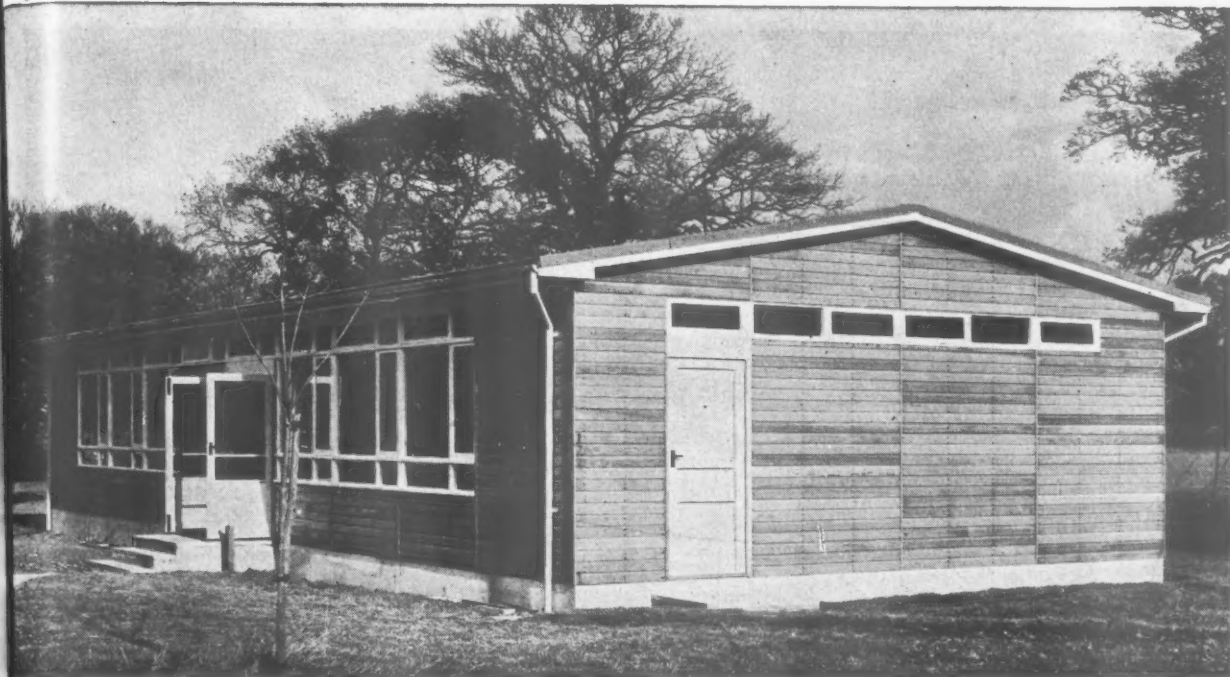
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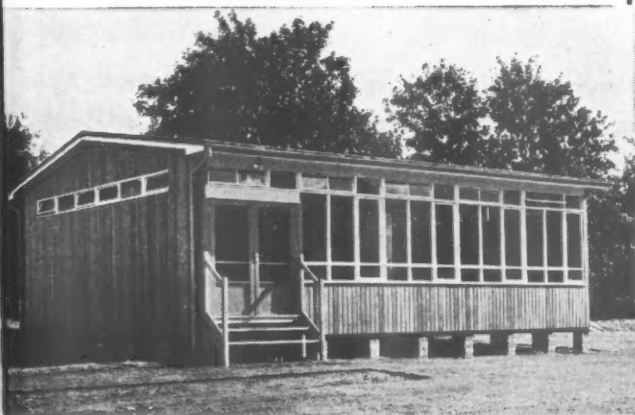
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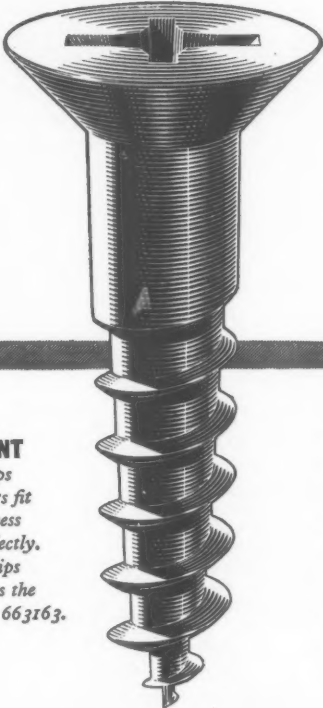
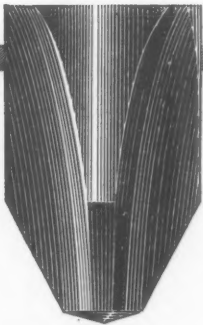
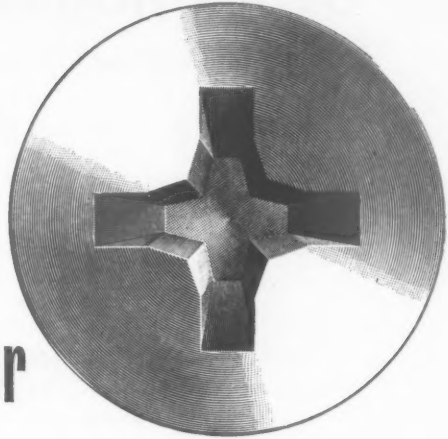
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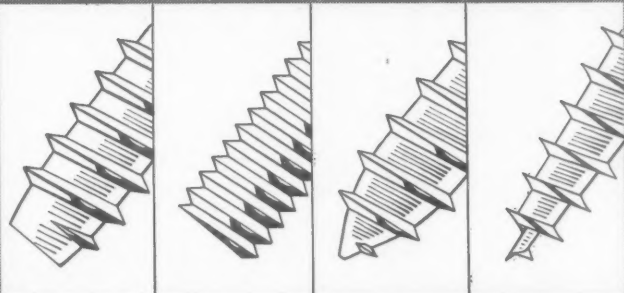
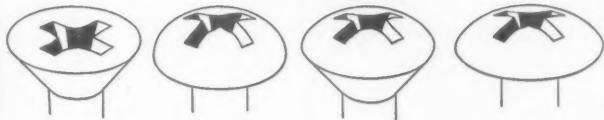
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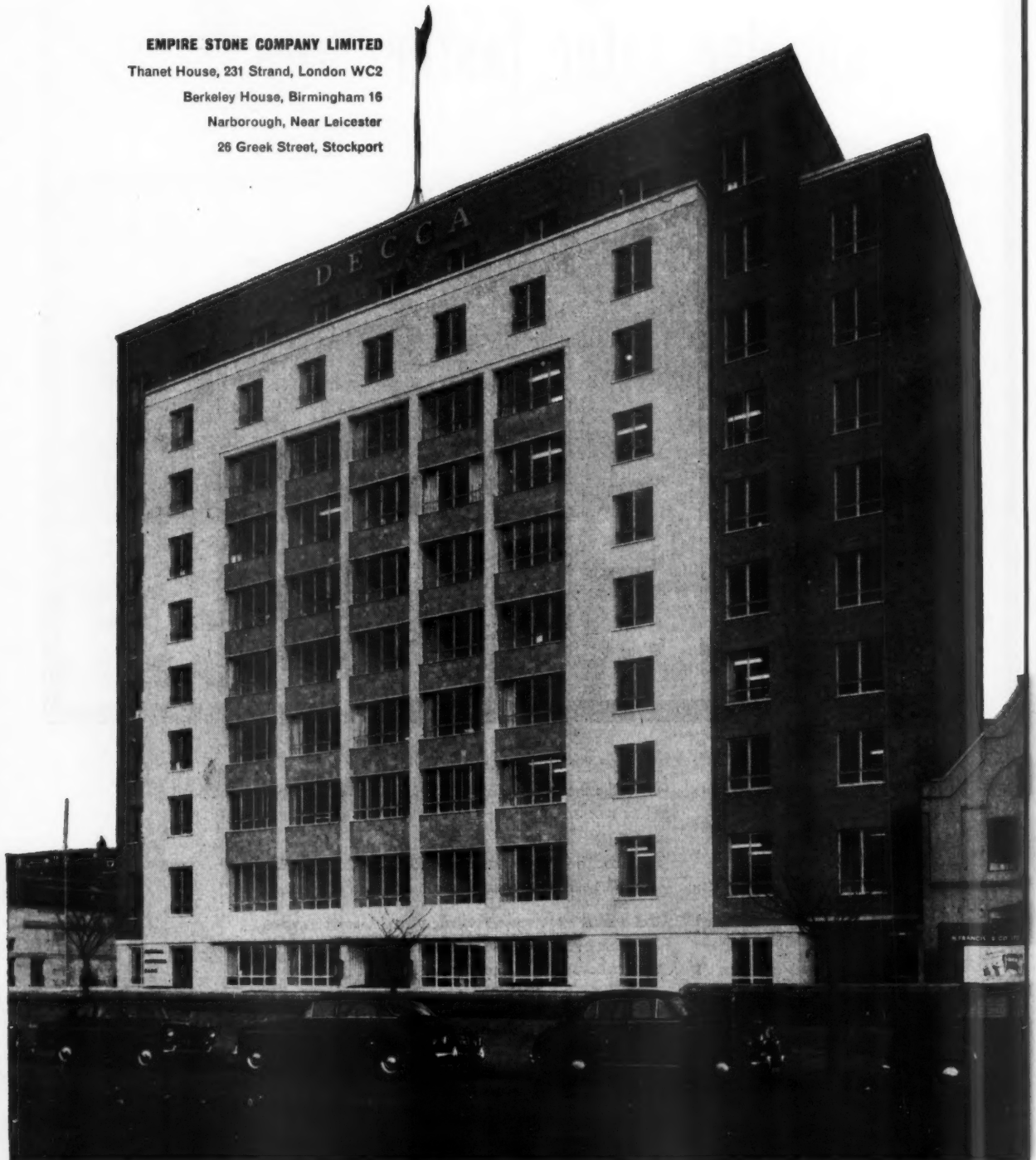
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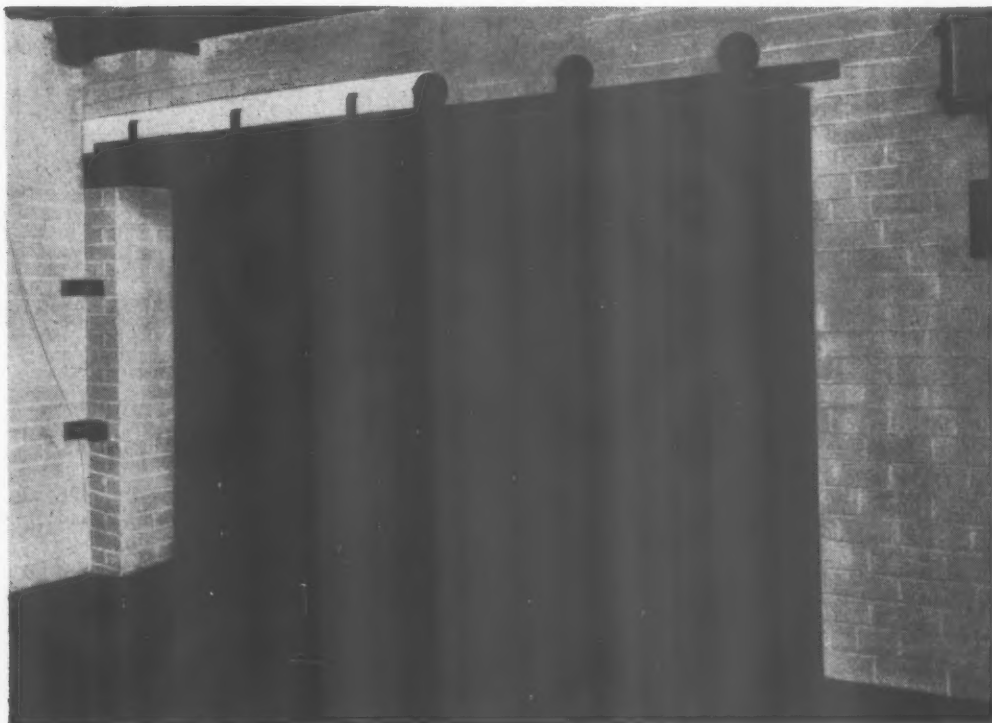


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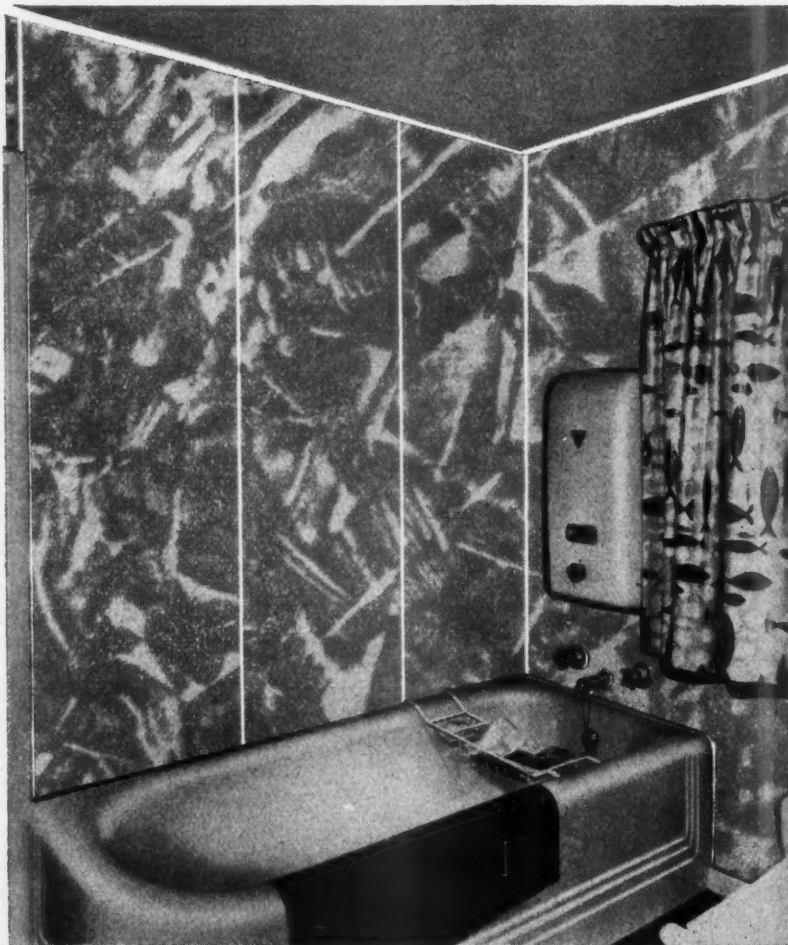
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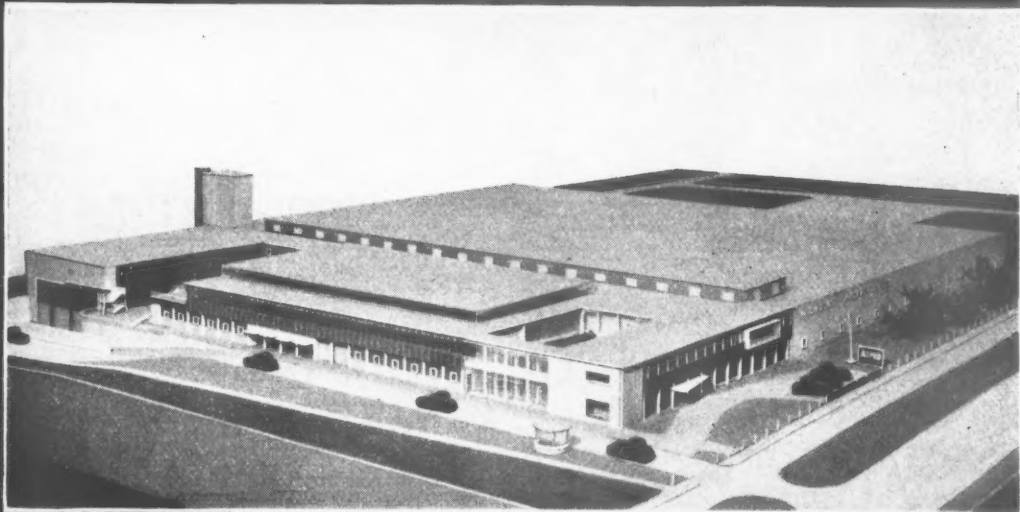
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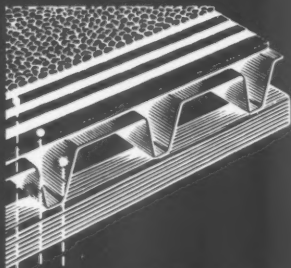


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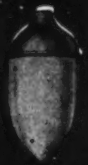
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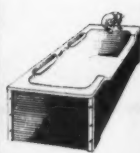
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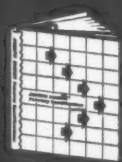
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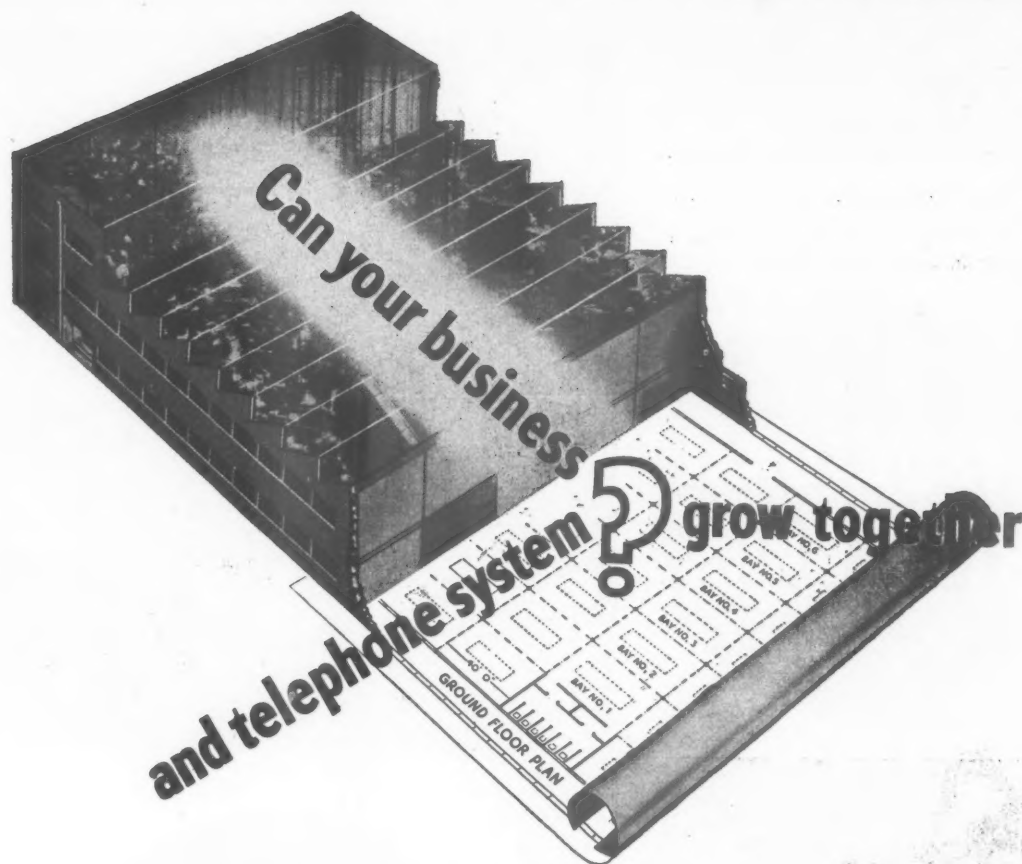
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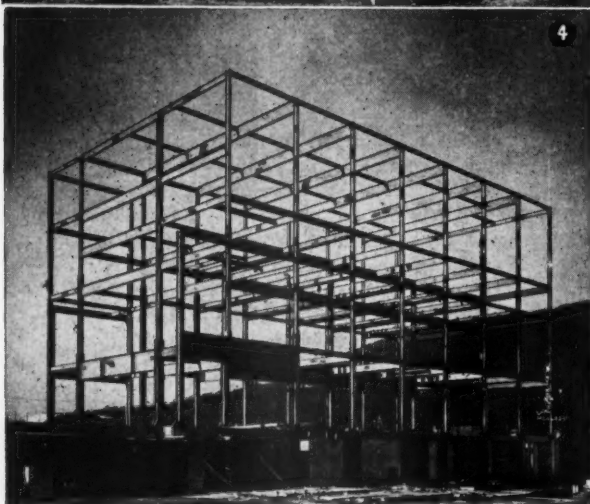
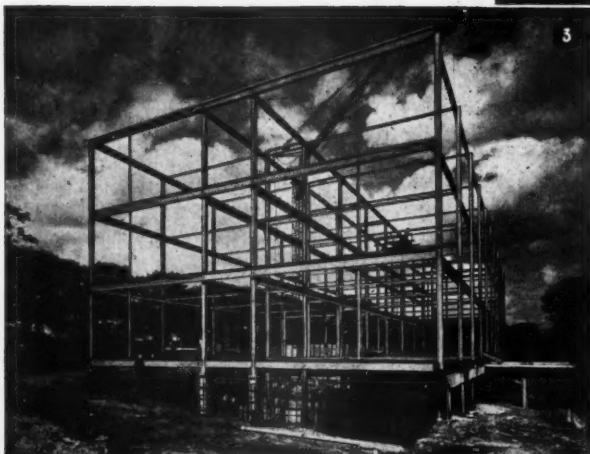
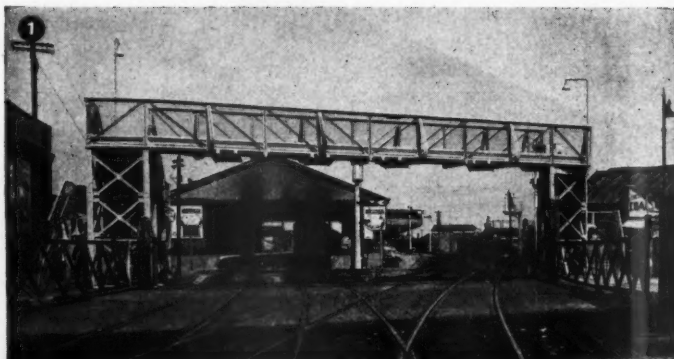
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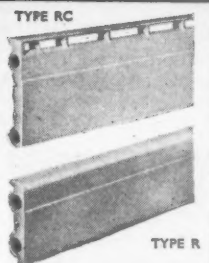


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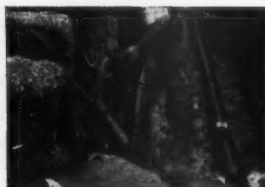
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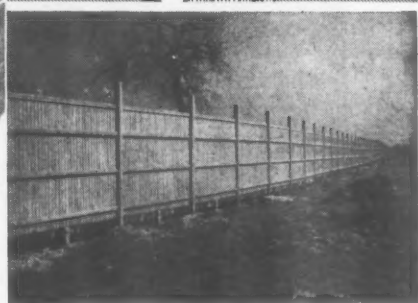
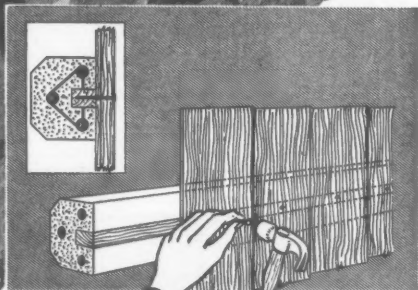
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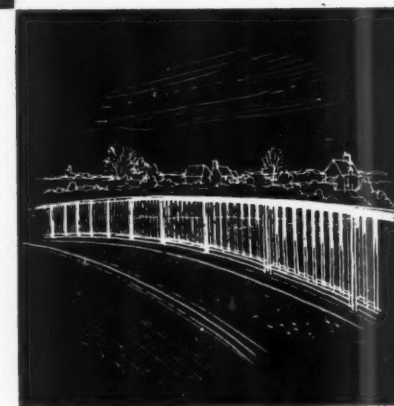
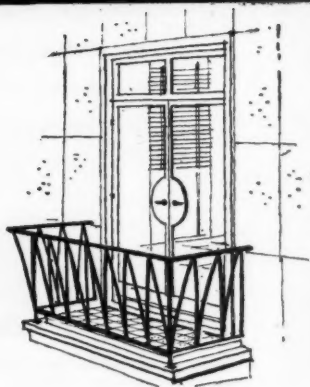
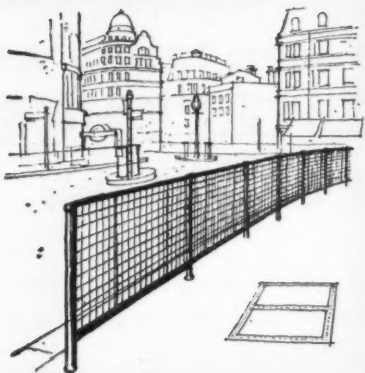
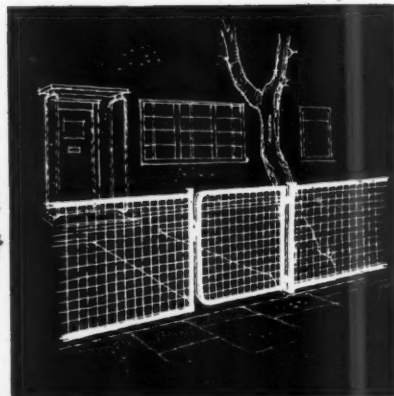
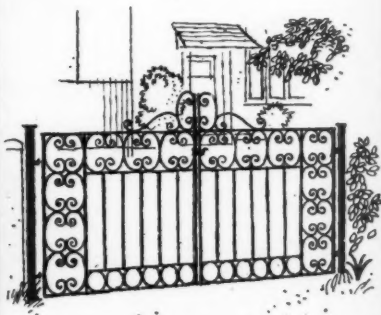
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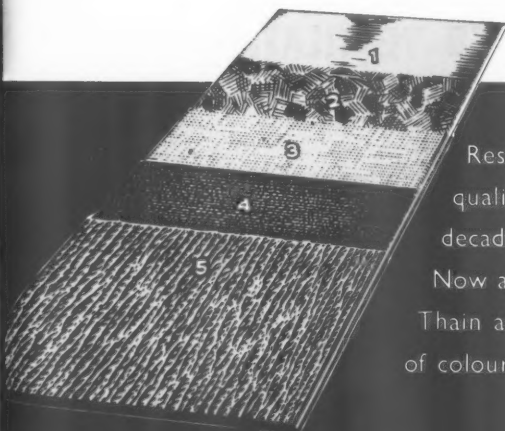
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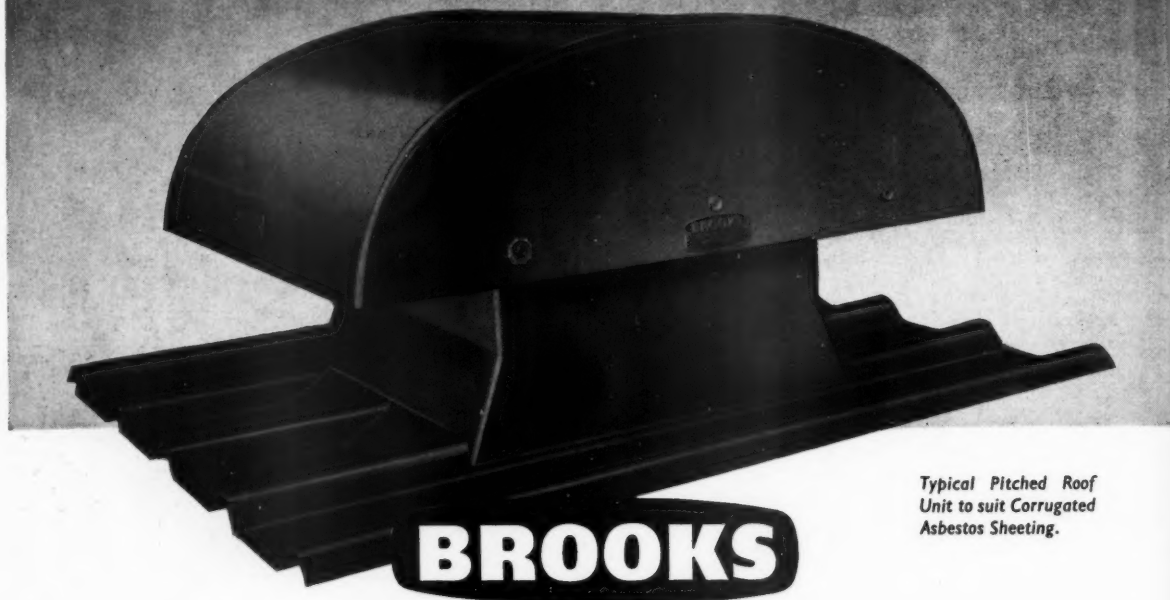
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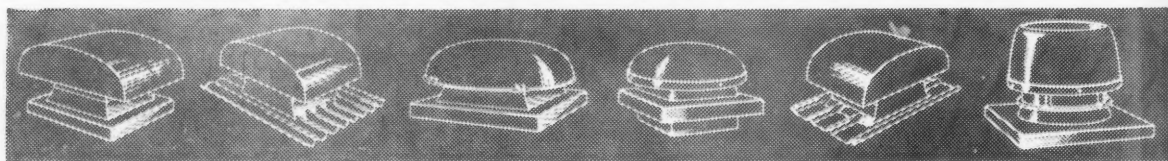
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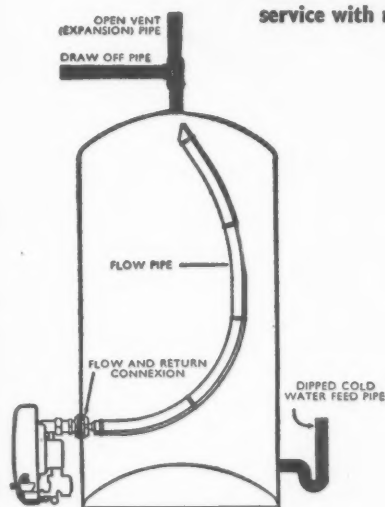
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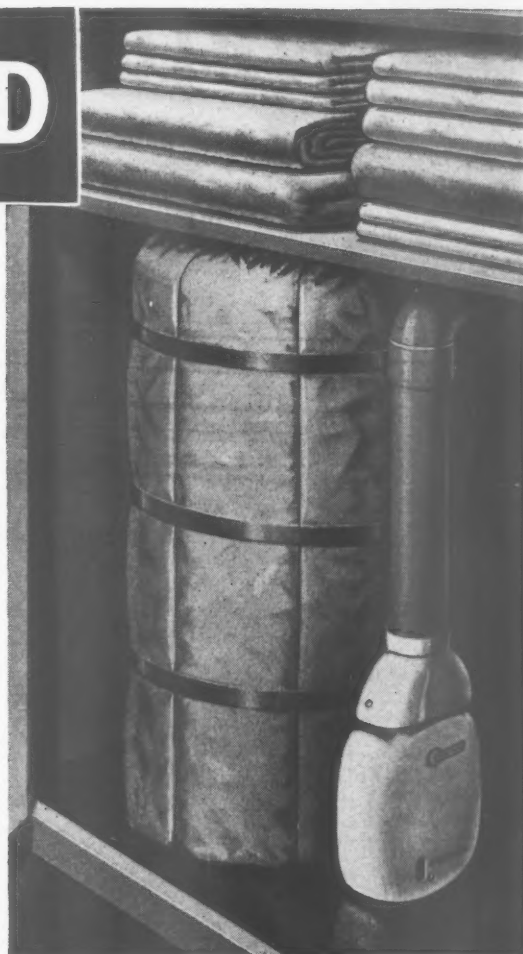
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Water Heaters

Bowater T/A* Panel

* Thermal/Acoustic

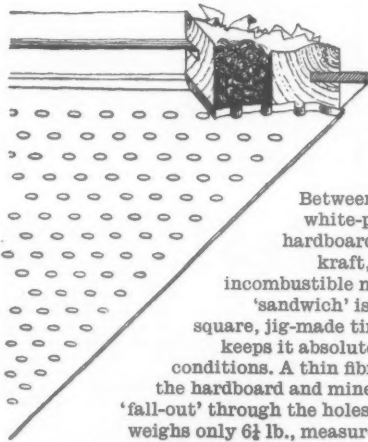
**MAKES
BUILDING
NEWS!**



However you look at it—structure, appearance, performance—this new Bowater dual-purpose panel is the greatest development in both thermal and acoustic insulation for years. And we know from experience that it's exactly what many architects and builders have been wanting for a long time. Here's a quick summary of its most important points . . .



IT'S MADE LIKE A SANDWICH



Between a facing sheet of white-painted perforated hardboard and a backing of kraft, there's a layer of incombustible mineral wool. This 'sandwich' is set in a perfectly square, jig-made timber frame which keeps it absolutely rigid under all conditions. A thin fibrous skin between the hardboard and mineral wool prevents 'fall-out' through the holes. The entire panel weighs only 6½ lb., measures 2 ft. square and is 1 in. thick. Hardboard splines are provided to slot the panels together.

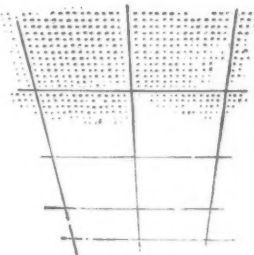
EFFICIENCY?

Here are the Vital Statistics

Sound Frequency (c.p.s.)	250	320	400	500	640	800	1000	1250
Sound Absorption Coefficient	.64	.59	.71	.77	.80	.87	.86	.87

These figures clearly show that, in its Acoustic capacity, the new Bowater panel is way ahead. Its performance is particularly good in the lower frequencies where noise in industry and in ordinary daily life is most common—and most dangerous. In Thermal insulation, too, the panel sets an exceptionally high standard—the thermal conductance (C value) is as low as 0.22. A dual-purpose panel indeed!

HIGH, WIDE AND HANDSOME

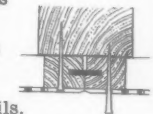
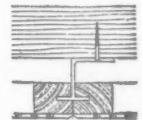


Ceilings of Bowater T/A Panels are a fine sight—walls and partitions, too. A perfectly flat surface is ensured by the rigid construction of every panel and by the hardboard splines which connect them.

EASE OF FIXING

Fitting up Bowater T/A Panels is simplicity itself. There are three ways of doing it:

- 1 Special Concealed Securing Clips—screwed to the existing structure—hold the panels secure with an air-gap above which adds to their already outstanding thermal efficiency.
- 2 For suspended ceilings, specially designed Bowater Metal Fixing Systems are available.
- 3 Finally, panels can be simply nailed up through the appropriate outer perforations—and thus the frame—using two inch galvanized lost-head nails.



Drop us a line for further information and the name of your nearest distributor.

Bowater T/A Panels

BUILDING BOARDS DIVISION, BOWATERS SALES COMPANY LIMITED,
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CRC TAI

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FLEXIBILITY OF ARRANGEMENT

The height of SPUR brackets can be altered without the use of tools whenever storage needs change. Alignment is automatic. Both right-angled and slanting brackets are available.

UNOBSTRUCTED ACCESS

No upright supports at front or side are needed with SPUR. This means a more pleasing design as well as easier access to shelves.

PRE-DETERMINED STRENGTH

Uprights are available in lengths up to 94½ in., and brackets are supplied in seven standard sizes up to a maximum of 18½ in. Loadings have been calculated for each size, and the largest will support 1½ cwt.



WALL FIXING OR FREE STANDING

The uprights are easily screwed to walls, but where free standing units are required with shelves both sides—in libraries or storerooms for example—double-sided uprights can be used. Special collars are available for fixing uprights to the floor and ceiling.

ATTRACTIVE FINISH

SPUR uprights and brackets are attractively finished in four standard colours: Willow Grey, Terra Cotta, Frost White and Jet Black. Alternatively they can be nickel or chromium plated, zinc sprayed or galvanised when required for special service.

RANGE OF FITTINGS

A full range of accessories such as shelf straps and book supports give the SPUR system added flexibility.

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Birmingham.



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Sheppard Fidler, City Architect.

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Low transport and storage costs
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FILON applications

(Indoor and outdoor)
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Concrete shuttering · Fencing · Glazing
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for light with lightness and strength with economy

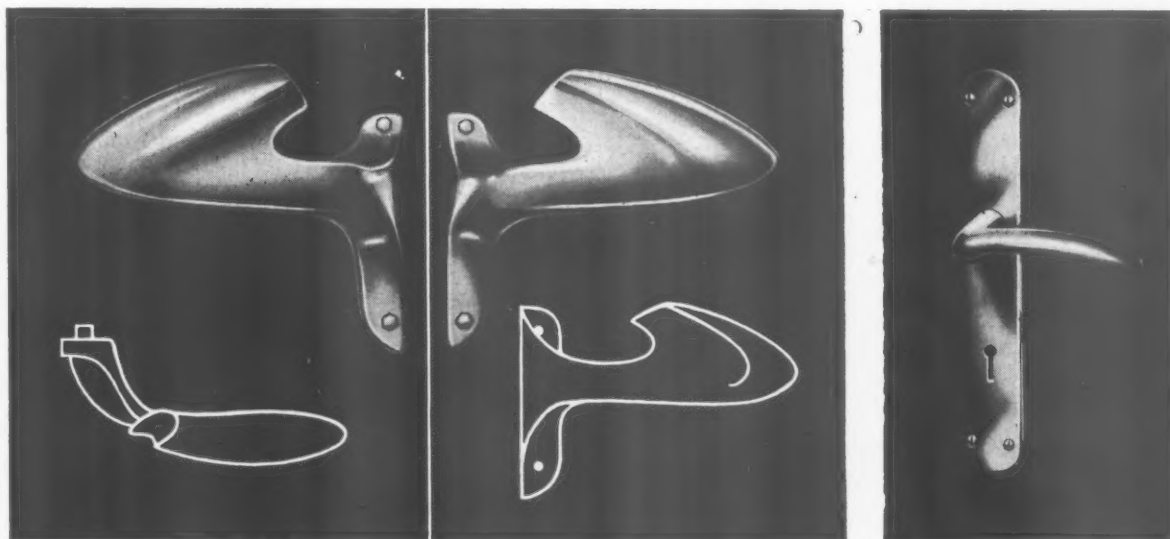
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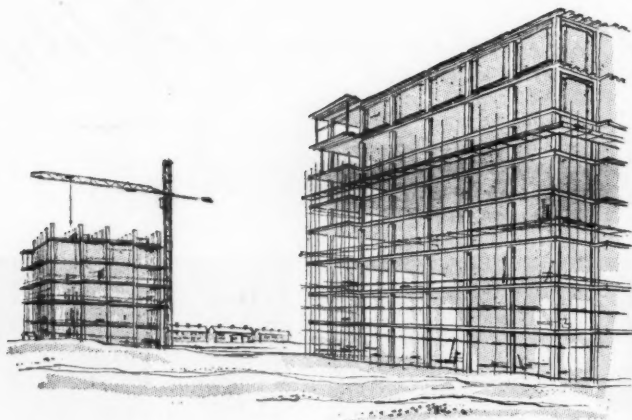
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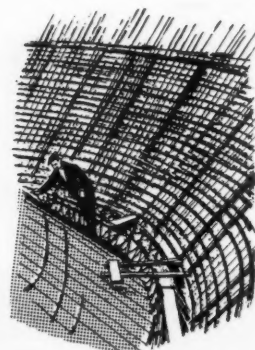
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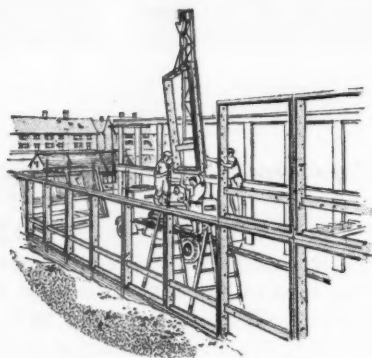
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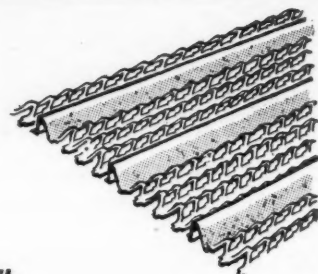
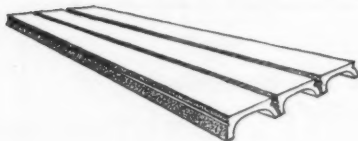
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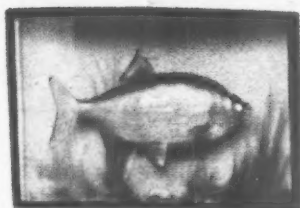
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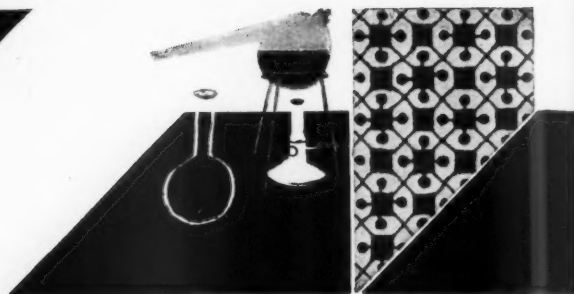
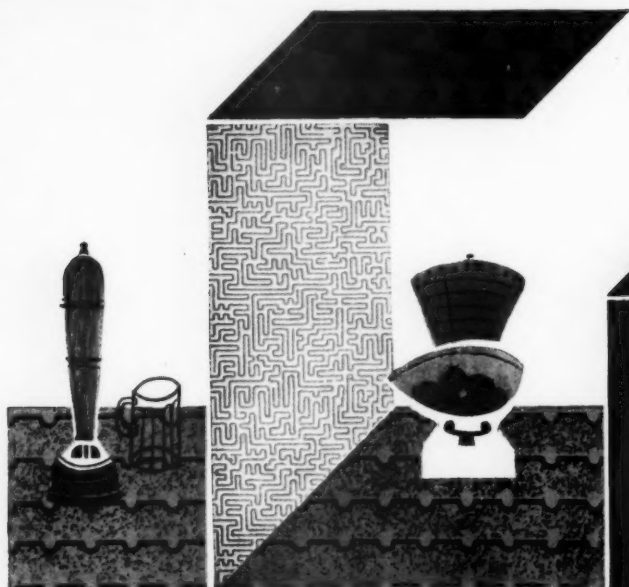
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This 'ARMOURCAST' Glass Door is also available with door check and closer. For further information consult the Technical Sales and Service Dept., Pilkington Brothers Ltd., St. Helens, Lancs. (St. Helens 4001) or Selwyn House, Cleveland Row, St. James's, S.W.1. (WHItchall 5672-6). 'ARMOURCAST' is a registered trade mark of Pilkington Brothers Limited. Supplies are available through the usual trade channels.

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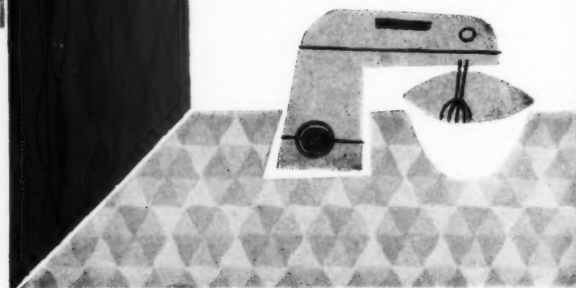
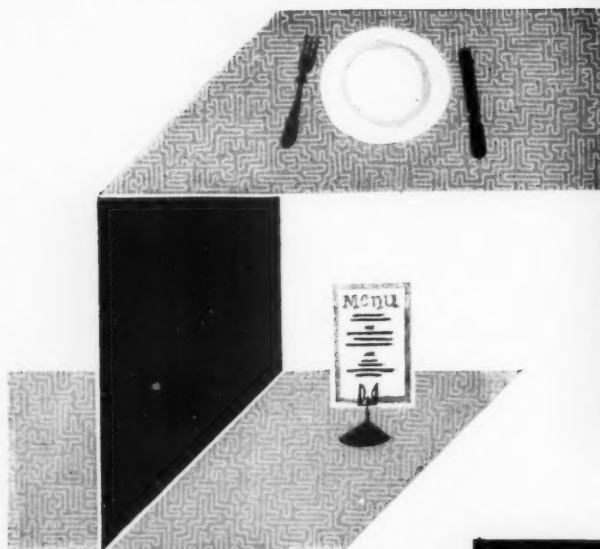
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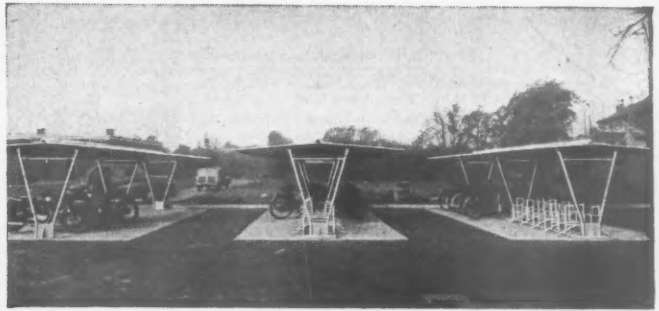
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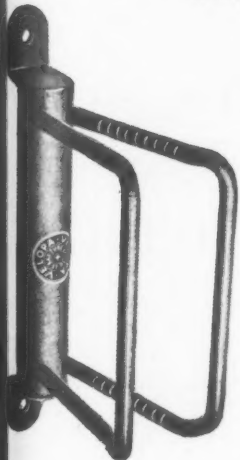
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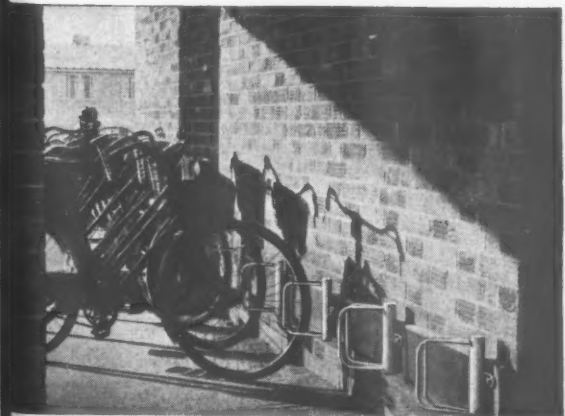
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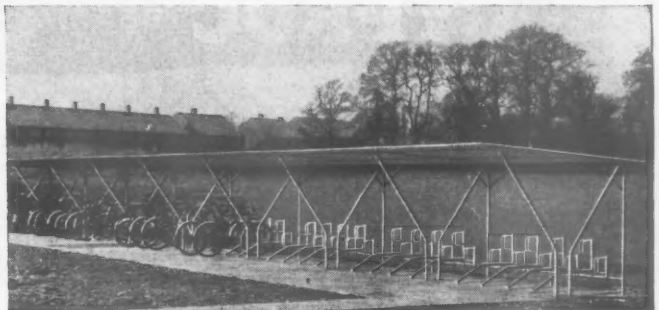
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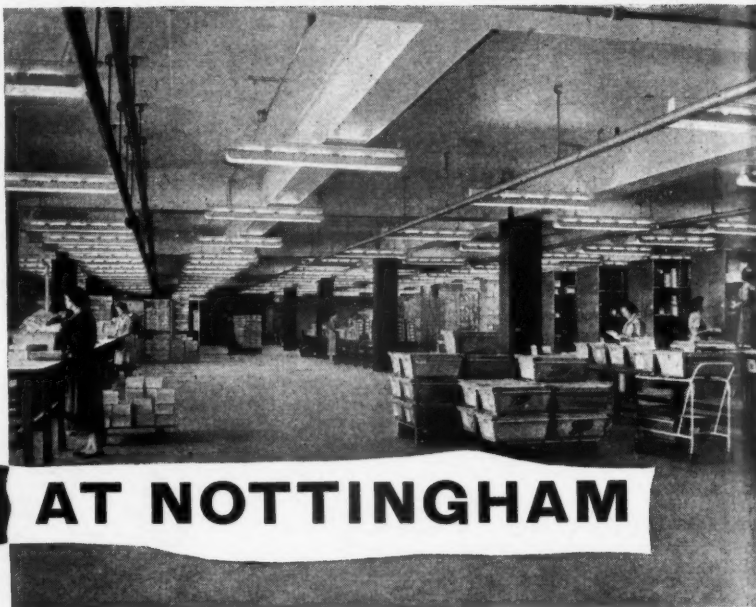
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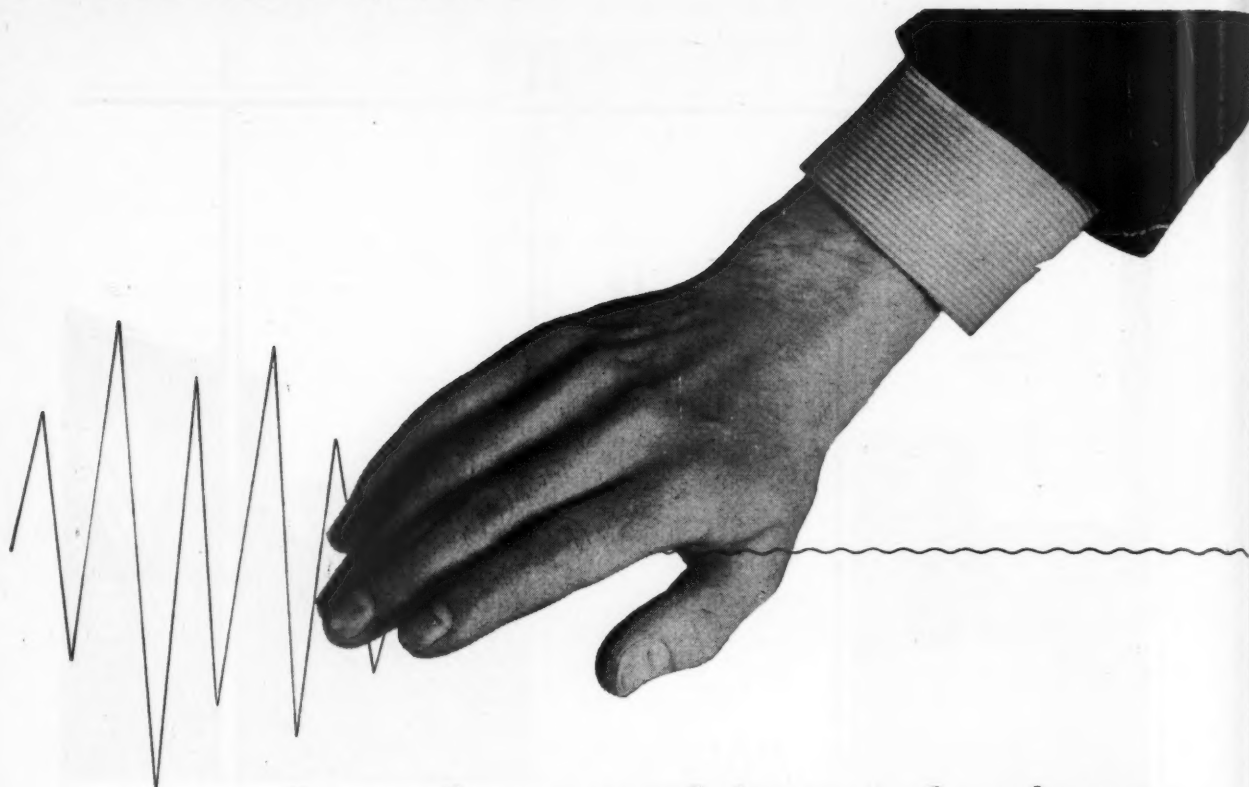
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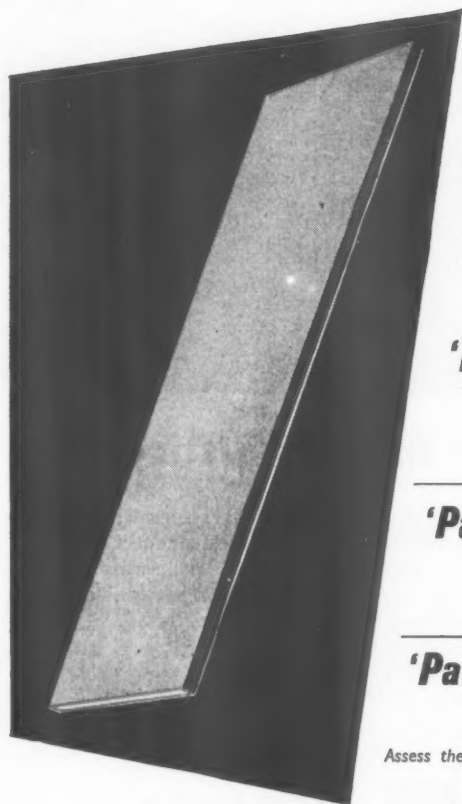
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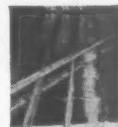
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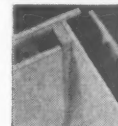
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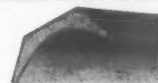
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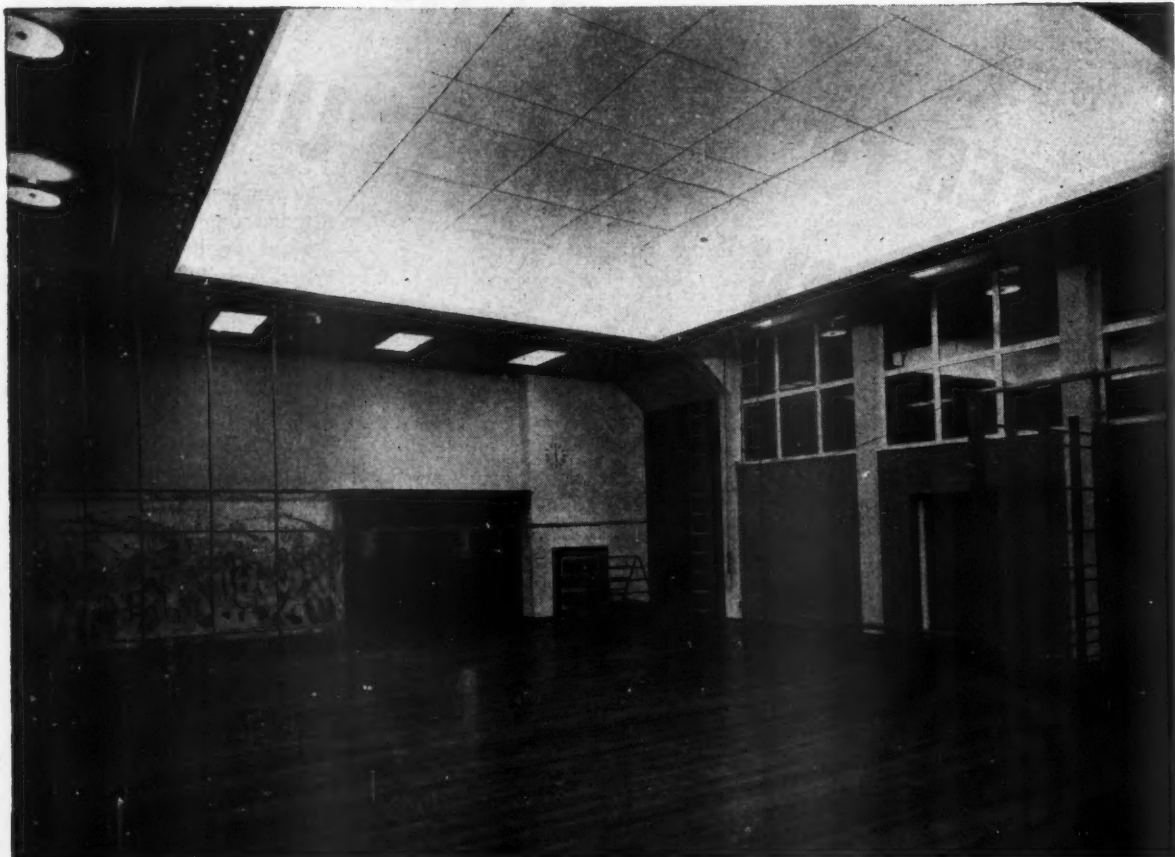
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Lanchester & Lodge	University of Belfast	Muninga, Iroko and Teak blocks
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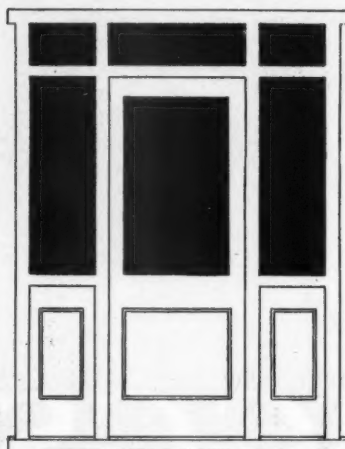
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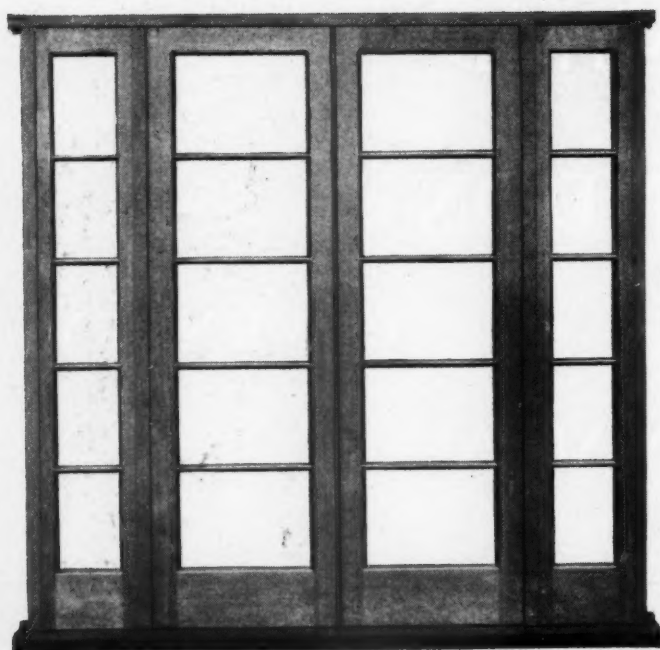
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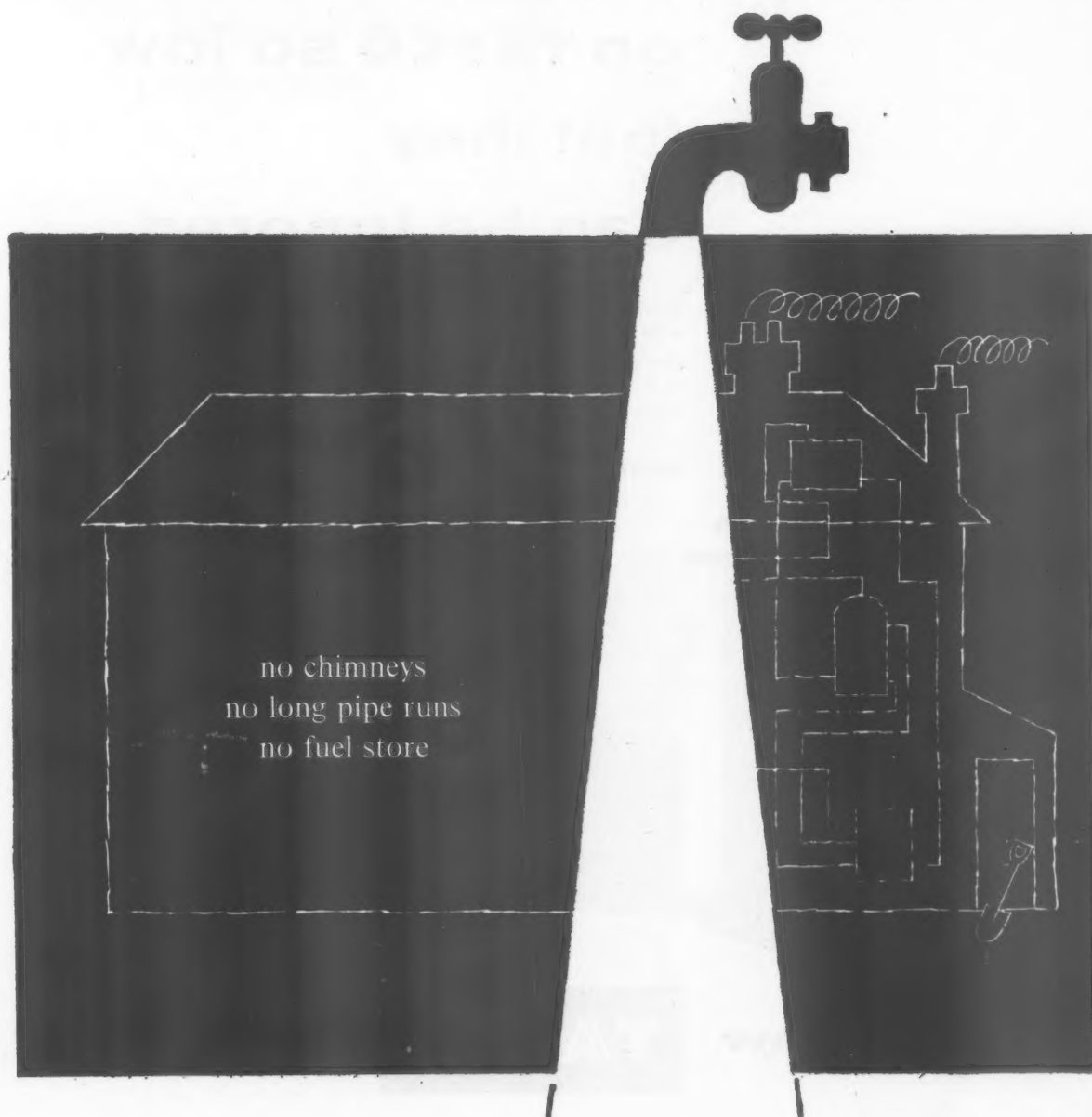
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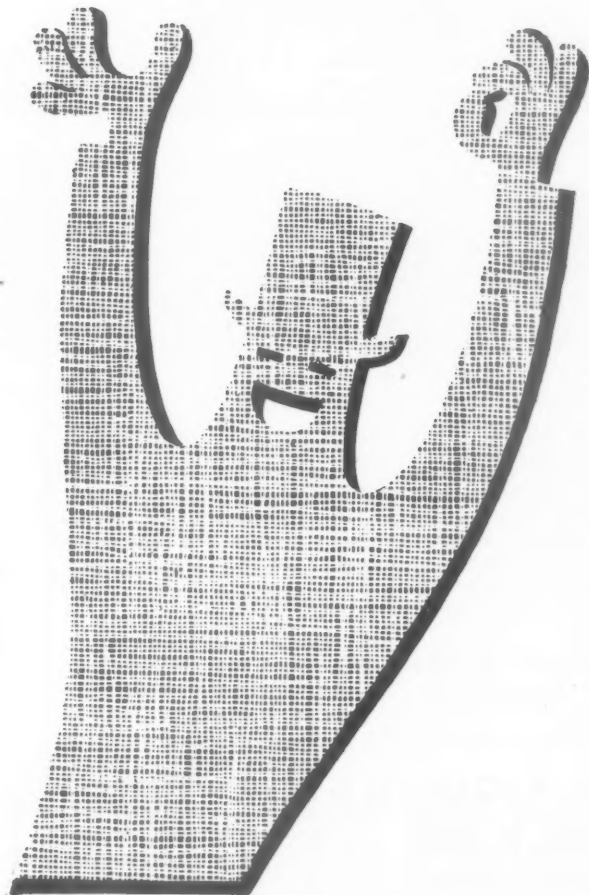
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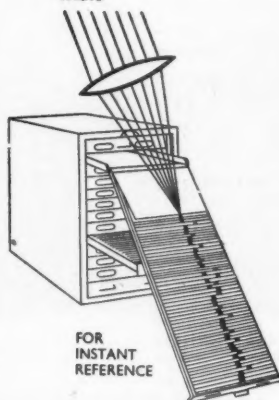
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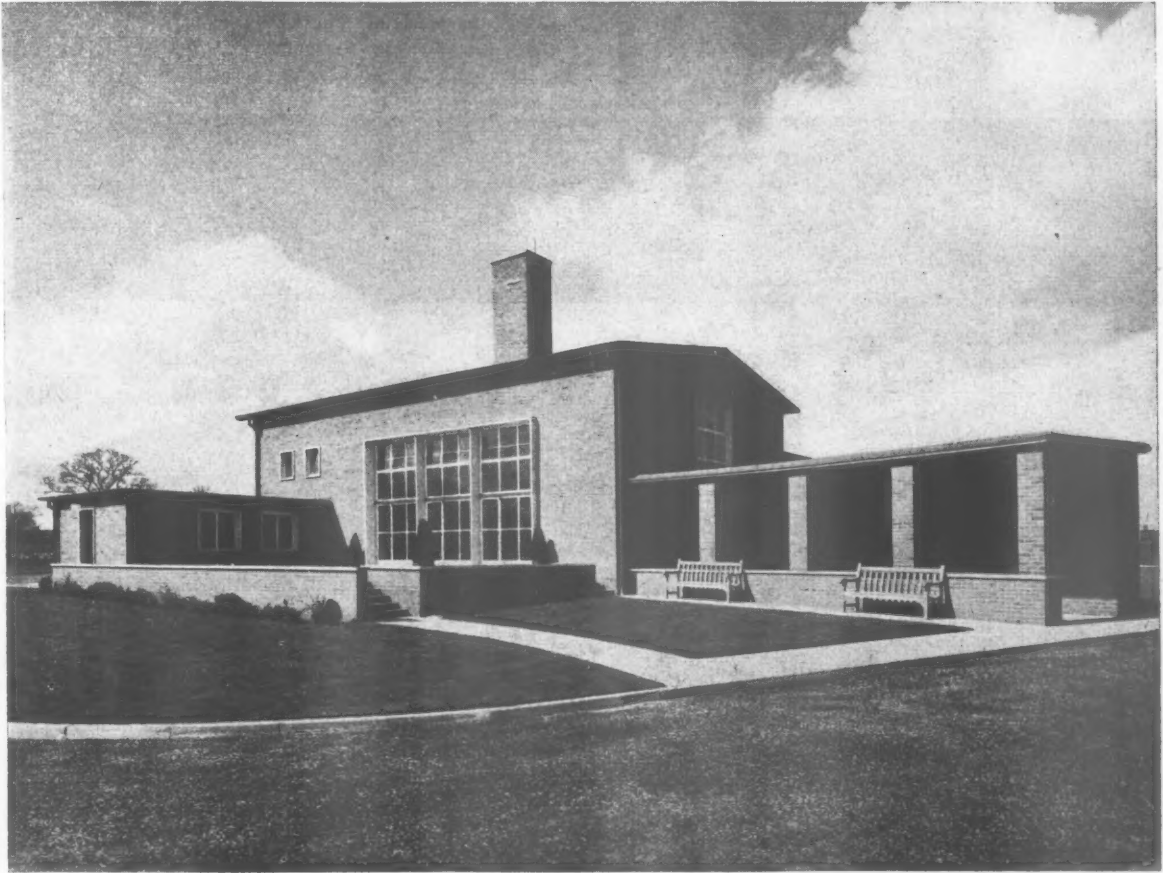
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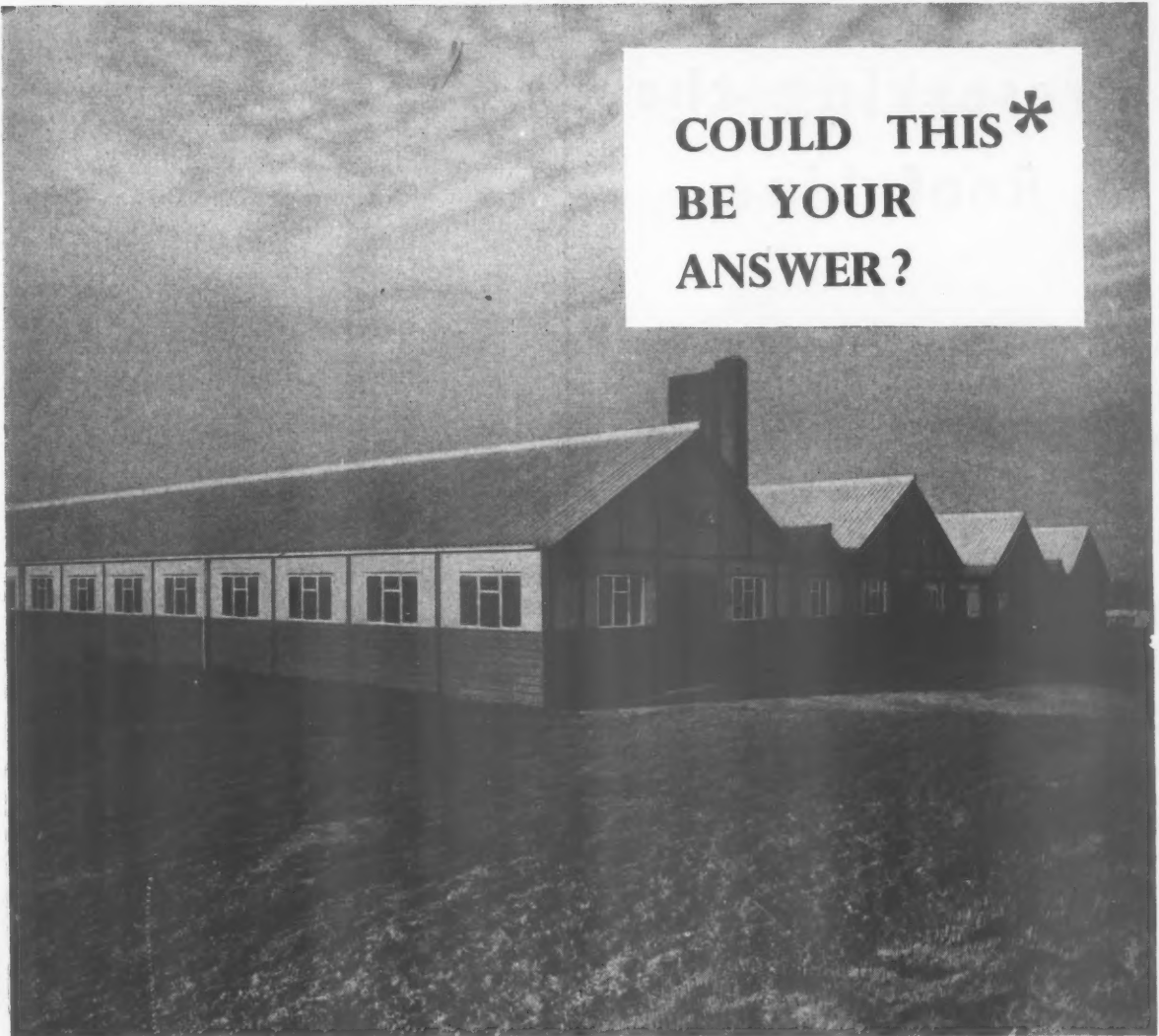
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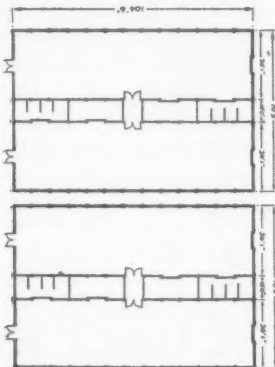
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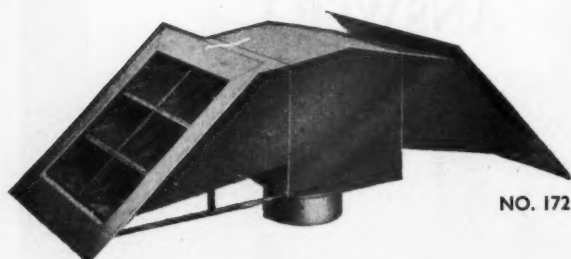
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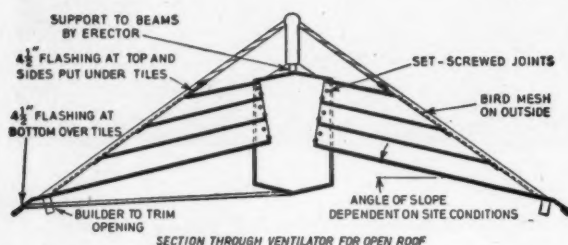


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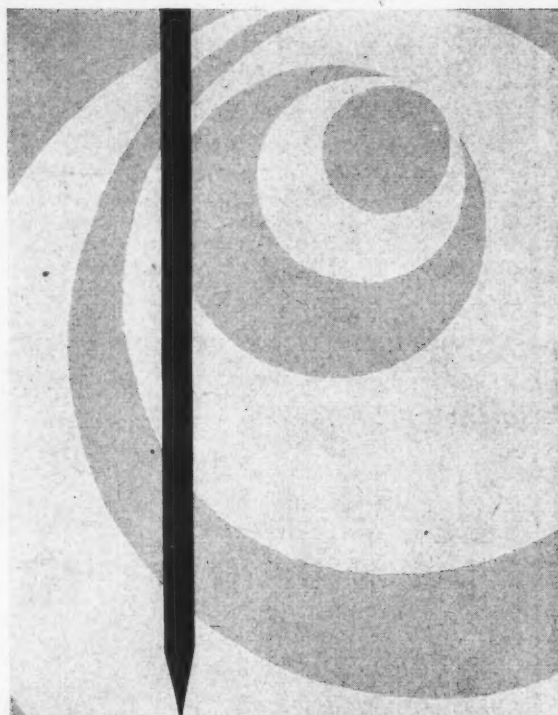
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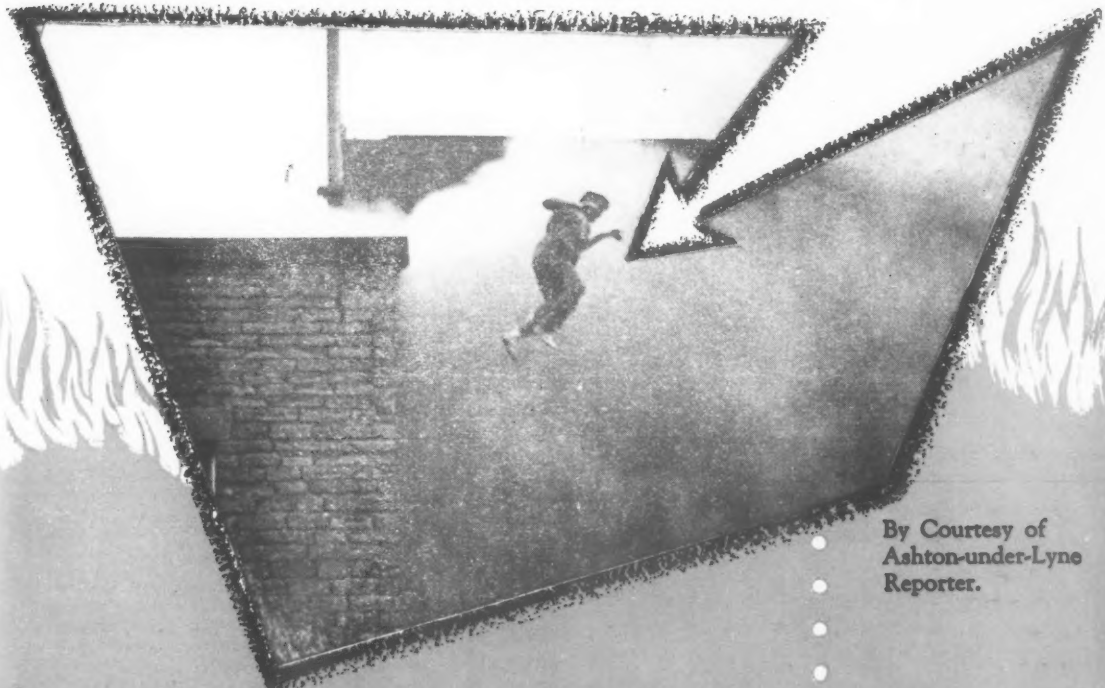


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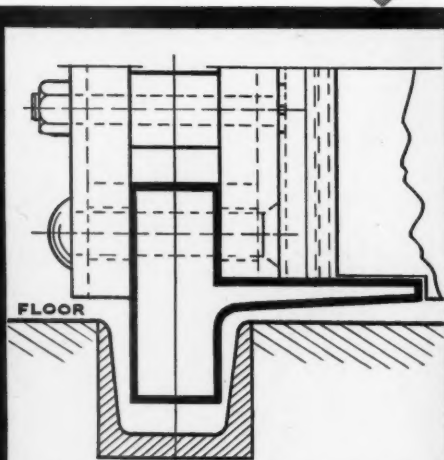
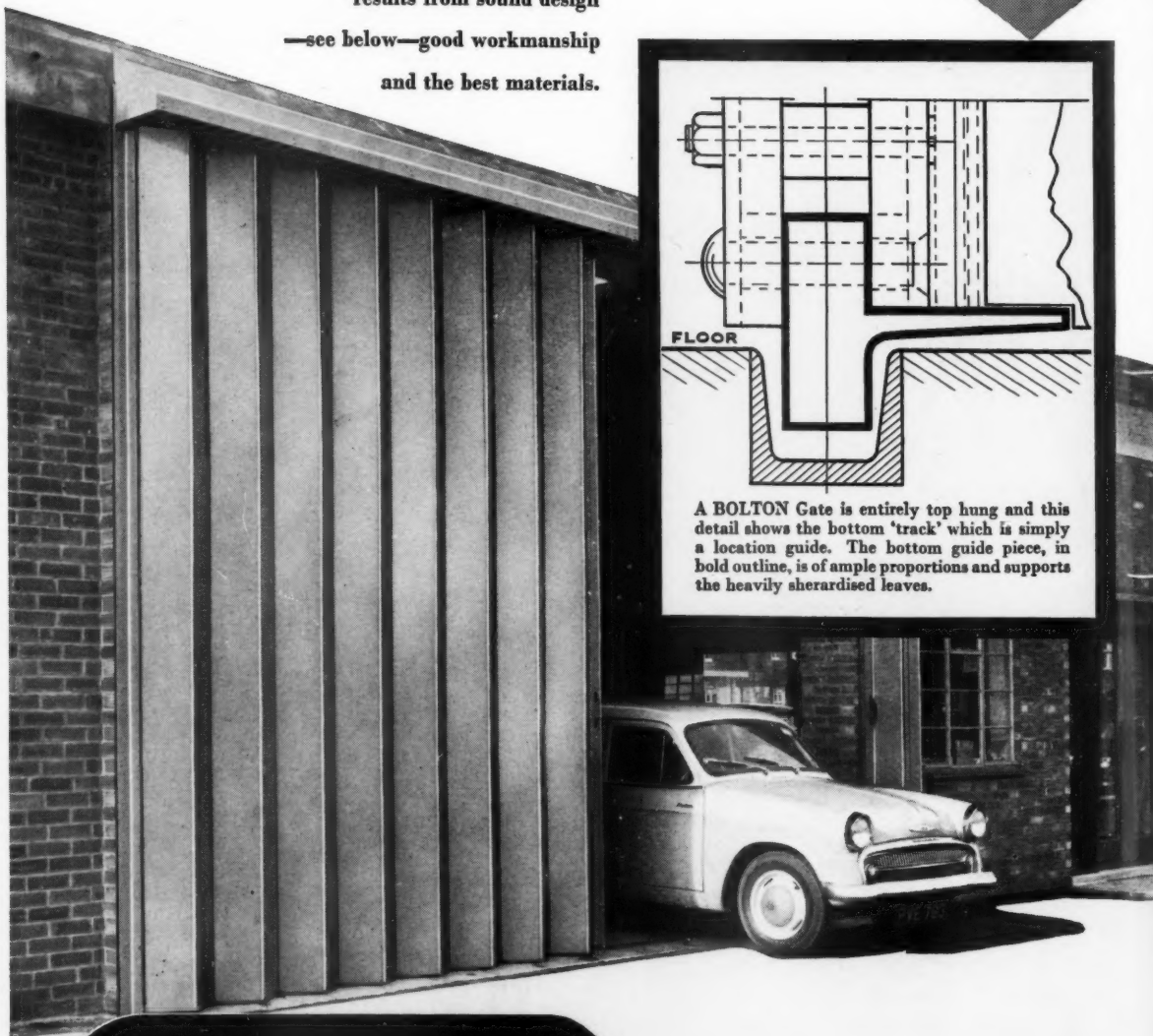


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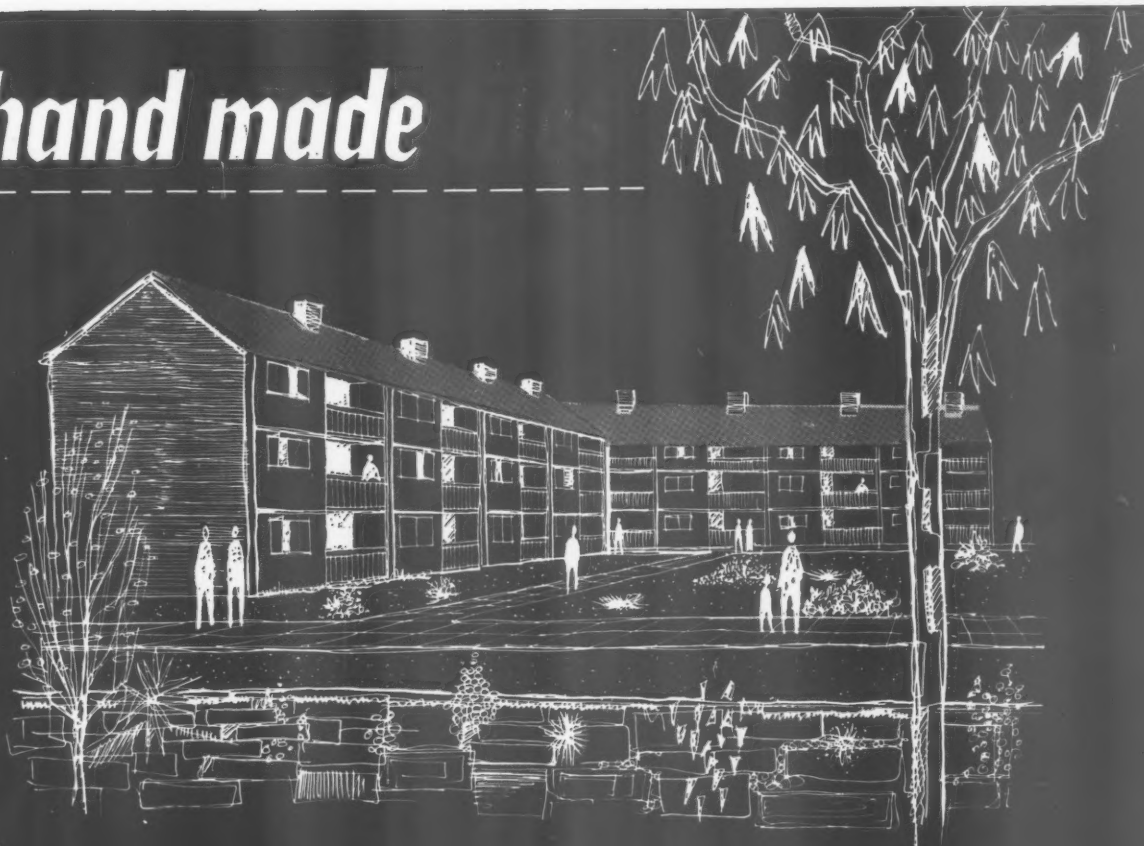
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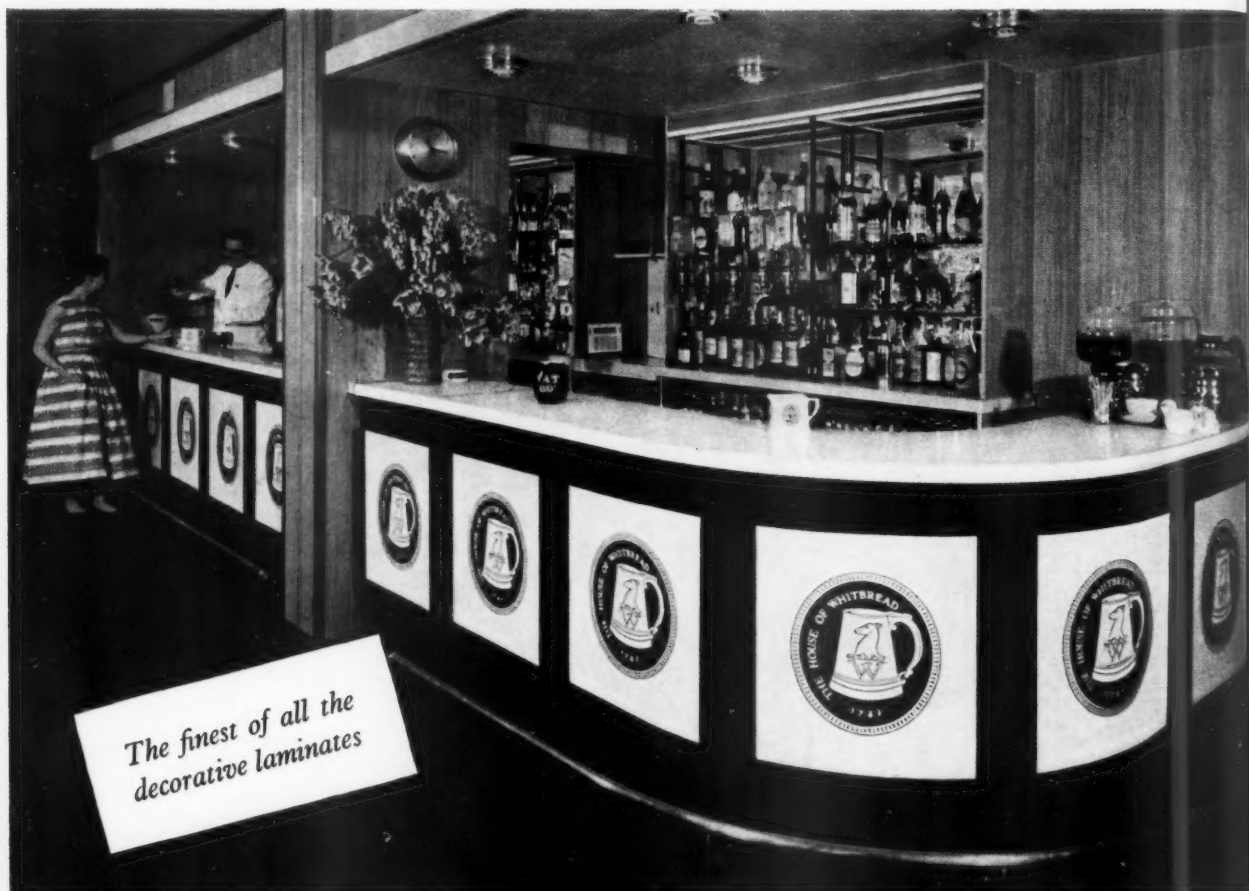


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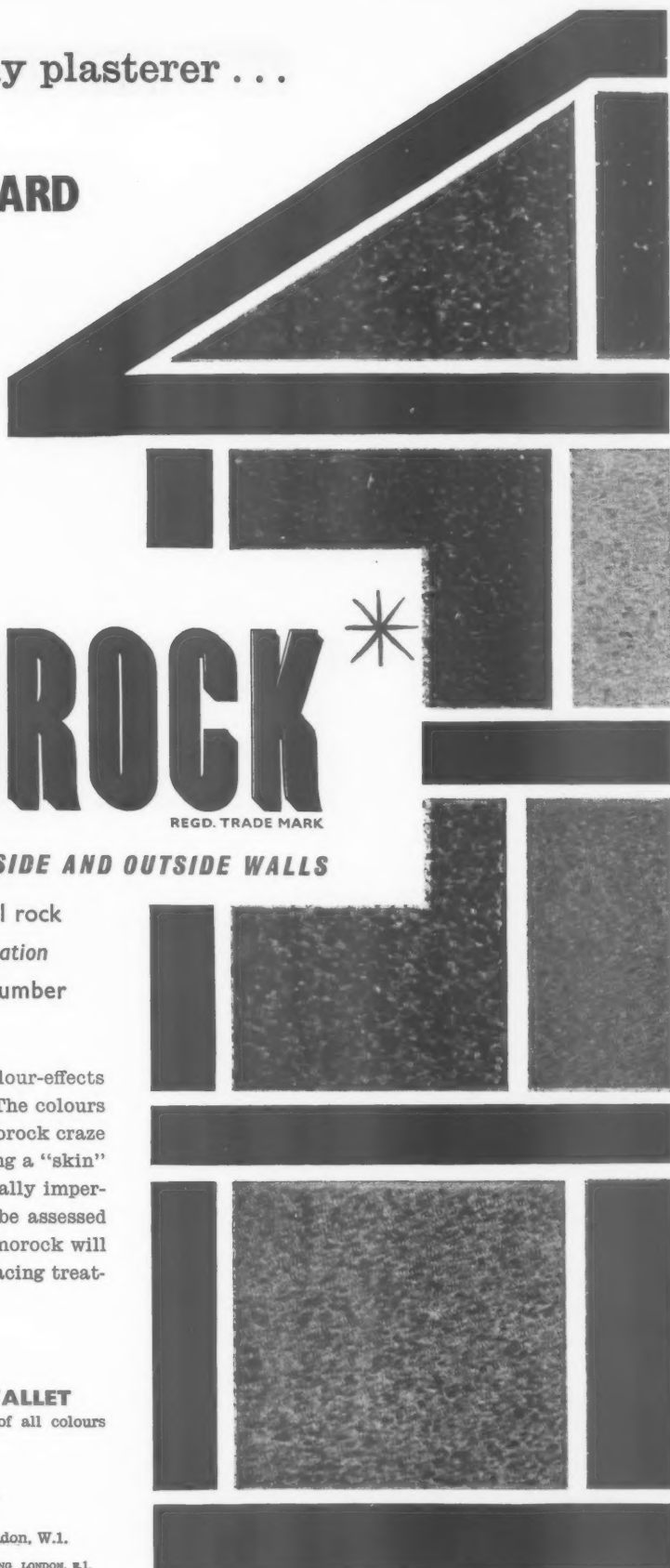
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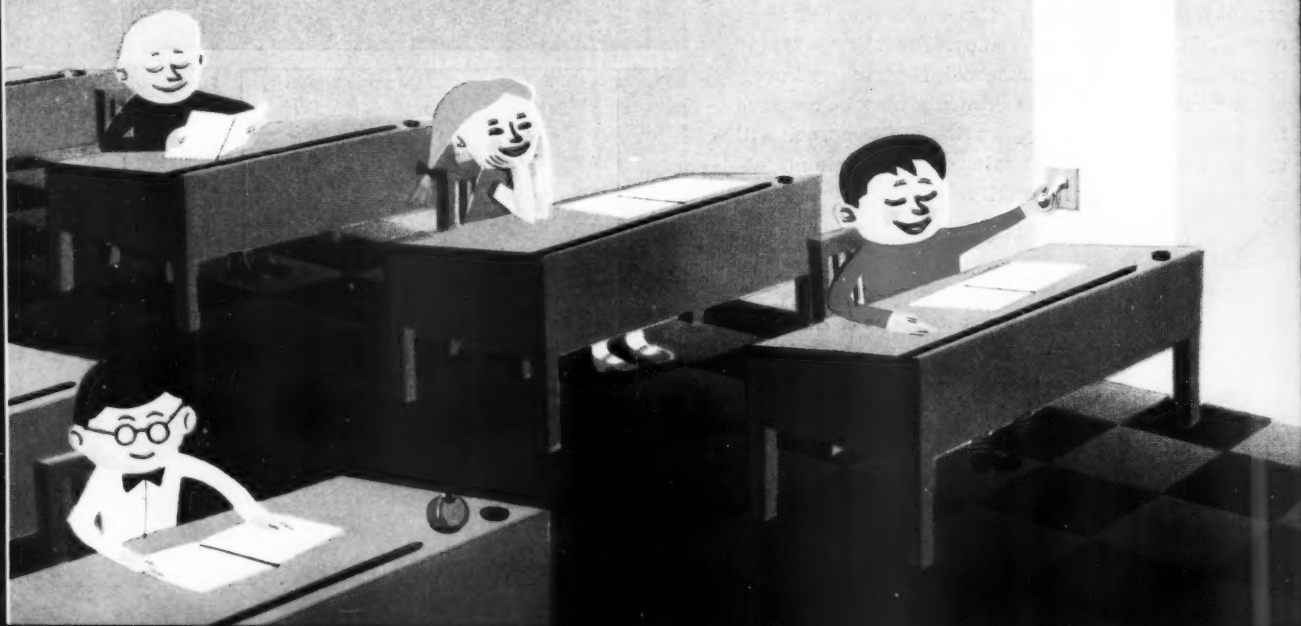
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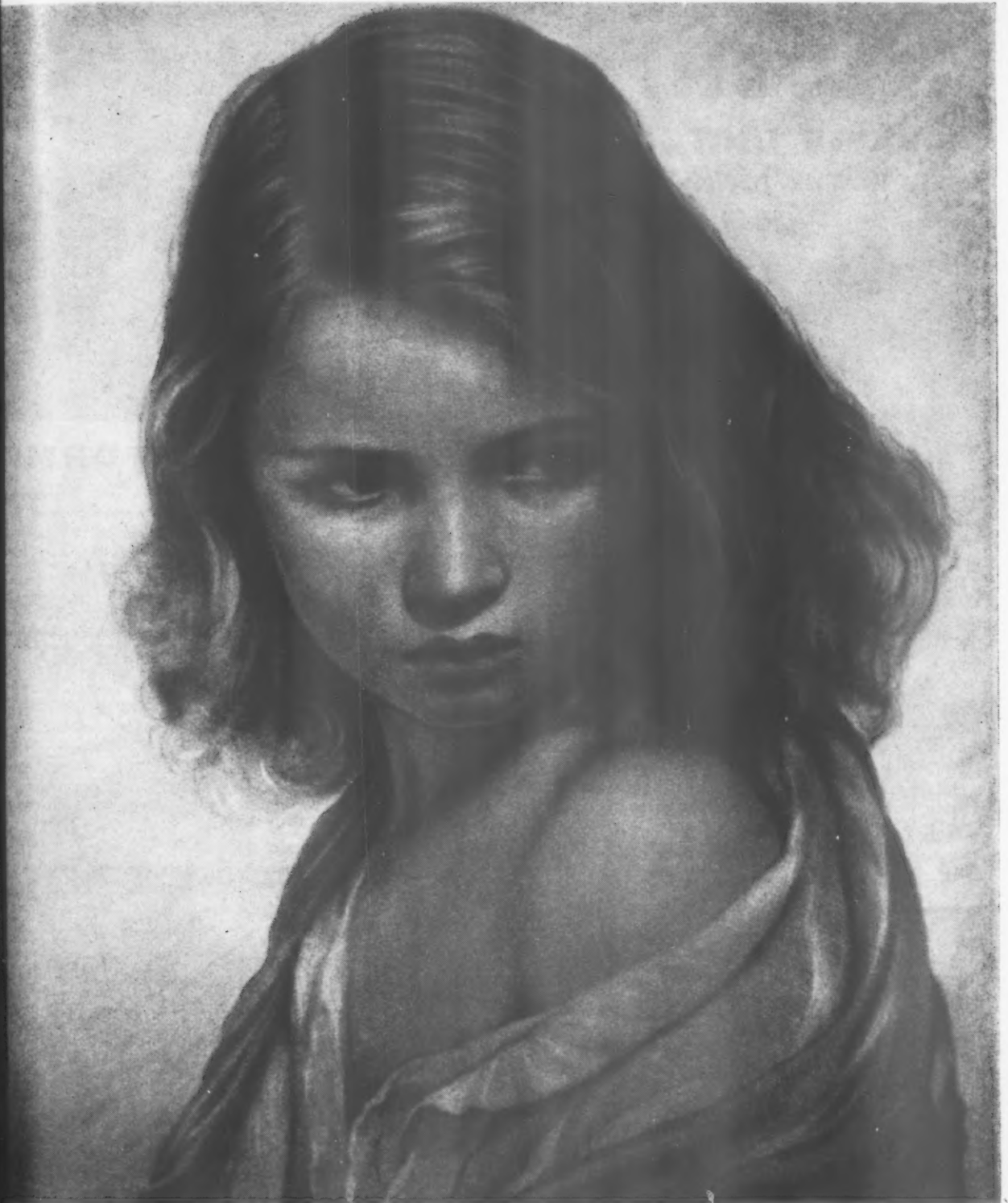
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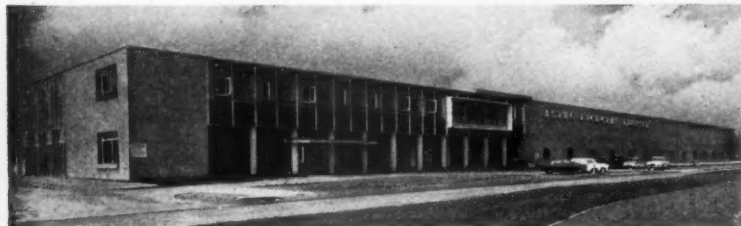


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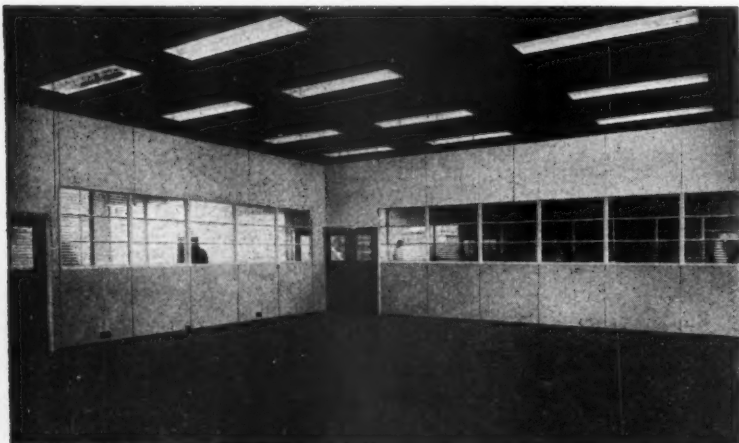
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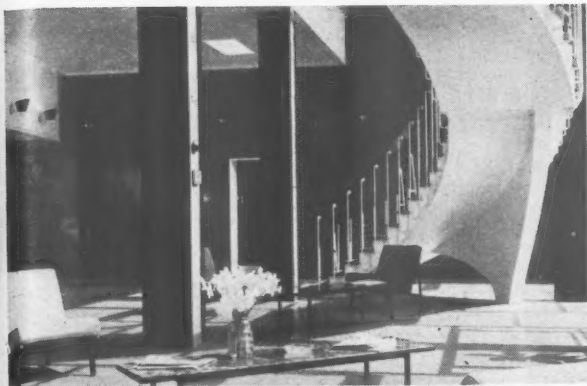
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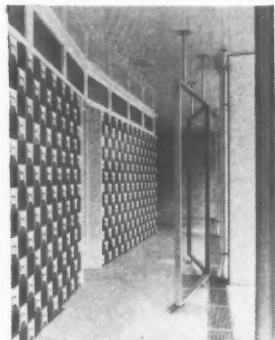
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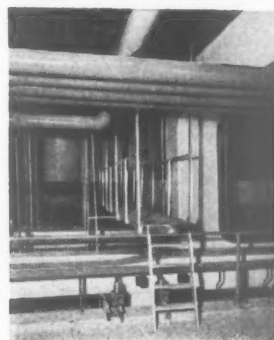
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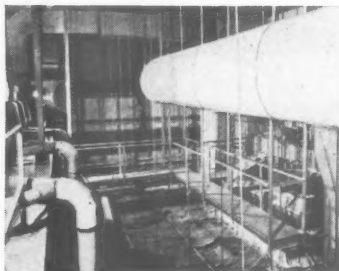
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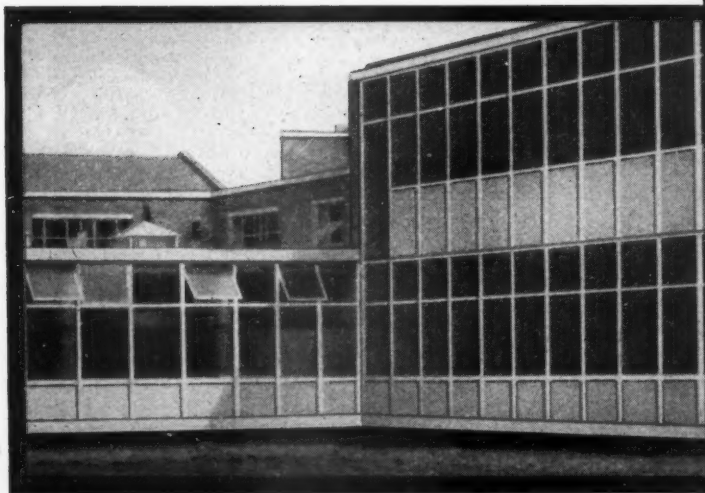
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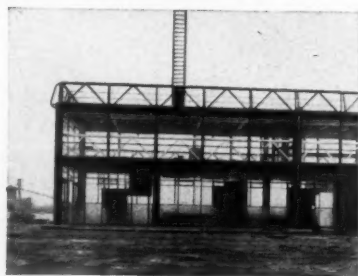
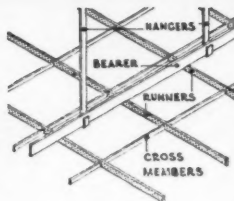
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JULY

Right: overhead nomenclature: the designations of the parts of suspended ceilings, from the first of a number of articles on this new entrant in the field of prefabricated building elements. Below: Glass Cages at Gatwick; some of the new buildings at Gatwick airport are almost brutalistically solid, others are transparent glass and steel structures, all will be fully described in a special feature.

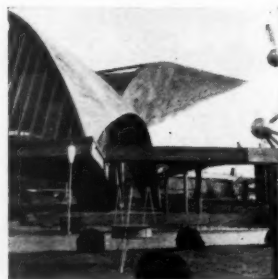


Below: Theatre in Coventry; a view across the auditorium of the newly-opened Belgrade Theatre. The interior of the National Film Theatre will also be given the full treatment in this issue.

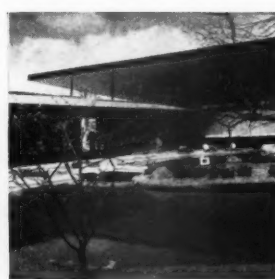


AUGUST Special Issue The Brussels Exhibition

Neotechnic dinosaur; the gigantic equilibrated structure designed by van Doeselaere and Paduart to celebrate the triumphs of civil engineering.



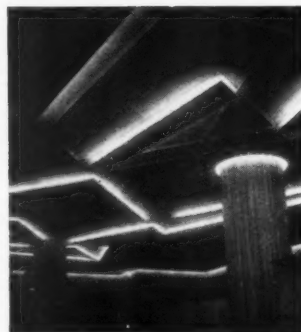
Japanese Garden; trees, water, sculptured objects and symbolic rocks in the traditional-modern garden adjoining Mayekawa's Japanese pavilion.



Turkish Delight; structure, space, light, air and traditional crafts combined in the pavilion by Izgi, Sensoy and Turegün.

SEPTEMBER

Right: Suspended Ceilings, the conference room of an office block in Rome by Aldo della Rocca, from Michael Brawne's article on the aesthetics of suspended ceilings. (See also A. R. July and September Skill articles.)



Above: National Water Park, Lymington harbour, one of the small multi-purpose boating centres serving the Solent, whose future is discussed as a matter of urgency by Geoffrey Robson.

Below: Bold Front in Birmingham, a new prestige office-block added to an existing factory, by Erno Goldfinger, one of the buildings illustrated and described in this issue.



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NOT QUITE ARCHITECTURE

U - L - M

Spells H.f.G.

A visit to Ulm means only one thing in our circle. *Hochschule für Gestaltung* doesn't roll off the tongue like Bauhaus—"Ulm," however badly pronounced, is easier than "college for the untranslatable." Brussels, the Rhine and Neckar valleys, "old" Heidelberg—three days of gentle tourism, but our arrival at the school brought us smartly back to Swiss Cottage—Joseph Ryckwert and "Prof." Anthony Froshaug, expatriate Londoners, were first to greet us.

*

One's first impression of the building, or rather buildings, for the school consists of a string of loosely attached structures, is pleasant enough. Their coherence is more apparent in the aerial photographs which decorate the prospectus than when confronted with them. The site, a hill-top some way out of town, and the rambling distribution of mainly low buildings makes it difficult to get more than a fragmentary view. On one side the VWs, Morris Minors and Fiats line up on the parking lot—on the other an ox-drawn plough is at work in an immediately adjacent field. The scene is so improbable that Inge Scholl's (she founded the school) achievement seems all the more incredible. The unfinish of the buildings is fetching but this "Brutalist" (P. & A. Smithson thought it wasn't at all bad) treatment, is due more to lack of funds than intent. Money is still required to complete the main hall and some wall and ceiling surfaces are awaiting cladding. The austere furniture, and this is uniform for both students and resident teachers, adds up to a

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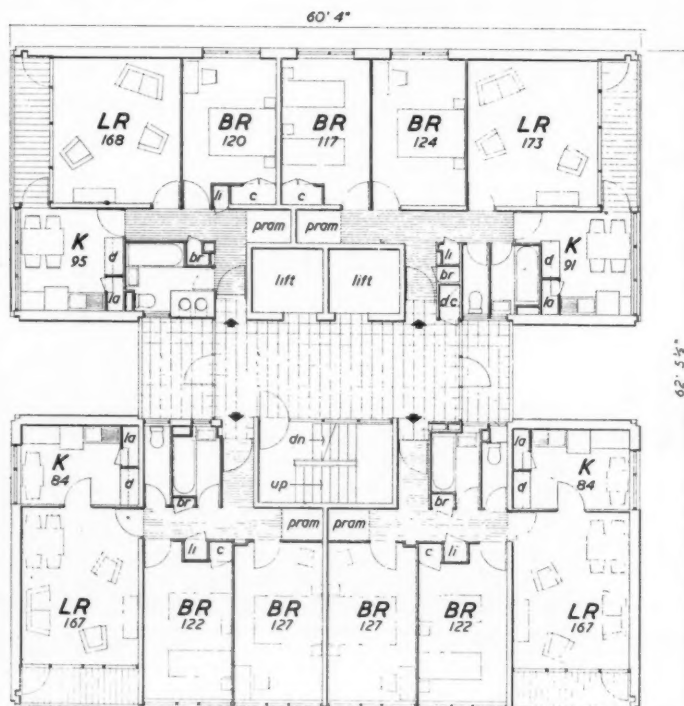
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Pioneers in Housing



The schools and general division of the LCC's Architect's Department have always been noted, in recent years, for the smooth competence of their work. It is, however, unfortunate that these departments have never emulated the housing division who, with their programme of development work, are internationally famous, and rightly, for the progress they have made in public housing. Last week, in an effort to show the variety of work undertaken by the LCC, and therefore to encourage recruitment to the LCC architectural staff, a number of recently built and currently building design schemes were shown to the Press. Conspicuous amongst these designs was this simple development of the point block plan by section architect A. H. Boyd. It takes advantage of the revised code for means of escape in case of fire in providing a single staircase only, placed centrally in the eleven-storey block. The stair is ventilated to the open-air at ground floor level (the entrance passage runs through the line of the kitchen and bathroom on the typical floor plan shown, and the ground floor flat plan is amended accordingly) and at the tenth storey (by opening on to an unglazed lobby). On the first to ninth floors the lobbies are glazed at each end, and the staircase is enclosed by a fire-resisting glass screen and self-closing doors. The lift motor room is on the tenth floor, so the occupants of the tenth floor flats have to leave the lift on the ninth floor and use the stairs for the remainder of the distance. The plan arrangement allows the natural ventilation and lighting of w.c.s and bathrooms. The structure will be a reinforced concrete frame. There will be electric floor heating. The cost, for 43 dwellings, is estimated at £106,000. The total height of the block is 100 ft., with no superstructure on the roof (the tank rooms replace bedroom space in one of the flats, leaving a single-room flat) thereby avoiding any infringement of the absurd London Building Act which makes buildings over the arbitrary figure of 100 ft. high subject to objections from neighbouring landowners and therefore liable to consequent delays in the building programme. It is in the face of such irrationalities that our greatest housing authority struggles to solve an acute housing problem in an appropriate architectural form. For further illustrations of LCC designs see pages 78-79.



standard of convenience that many an English university hostel might envy.

*

The comfortable, though not comfy, accommodation put at our disposal consisted of a two-level apartment, one of a series of eight designed for the use of bachelor instructors. The two levels were separated by a bed, one side of which was raised six inches from its floor the other side six feet from the other floor. There are no reports of anyone getting out on the wrong side of the bed but one lecturer is reported to have fallen through it to the lower level when a fracture occurred in the slotted plywood spring. The only bed covering consisted of a single utilitarian slab, of the same size as the mattress, encased in a white cotton envelope. This standard bedding is functional, in so far as sleeping and bed-making are concerned, but presupposes a monastic morality in this residential and co-educational establishment. Ulm sleeping, as so much there, gives the impression of having been created by Max Bill as his immediate response to clear-cut social and economic needs. The value of his solutions may vary, but no one (except perhaps Bill himself) would doubt the value of his most successful intuition, the importation of Tomás Maldonado (its present Rector) to the school.

*

Maldonado had invited us to learn about the school in the best possible way—to visit it and see it in action. With Maldonado to instruct us it was inevitable that learning about the school became a precise, disciplined and fascinatingly informative pedagogical exercise. With my wife's limited linguistic abilities battered on the one side by a mixture of German and French, both spoken with a thick South American Spanish accent, and on the other by my pidgin English (I am reduced to something less than monolingual in this situation) the blackboard, in constant use during these sessions, was essential for communication.

*

The severe pedagogical method, administered by a youngish staff to a student population with the high average age of 28, must present some problems. The school is ambitious and the pressures, internal and external, place a great strain on everyone connected with it. The concrete achievements, and the building is concrete enough for anyone, are formidable. The support it has been given by the West German Government, the municipal authorities and by German industry, not to mention \$250,000 from America, is well merited. This is an international school, its allegiance is only to its own high objectives, it should be supported internationally and given an opportunity to make its contribution in a field that can stand fresh ideas—the education of the designer.

RICHARD HAMILTON

The Editors

THE COST OF FLATS

IN 1956 the Minister of Housing challenged the RICS to investigate the reasons for the difference between house and flat costs. The intervening two years work has now been completed and published.* Its main conclusion is that flats are inevitably more costly than houses but that "there is ample scope for reduction in the cost of flats." The report—which we shall review at length in a later issue of the JOURNAL—ends with a number of recommendations to the Minister. They are: (1) local authorities should give architects an "unambiguous cost limit" and adequate time to prepare housing schemes; (2) there should be early consultation with the Ministry for multi-storey schemes and that some form of cost planning should be adopted; (3) the quantity surveyor should be appointed in time to co-operate in the initial stages and his bill of quantities should describe the work adequately to provide a clear basis for pricing; (4) nomination of sub-contractors should be reduced to the minimum. A last recommendation is for further cost research. No one will quarrel with these recommendations. If they are acted upon by the MOHLG and local authorities there is little doubt that the quality and economy of our future housing would improve. But we shall be less happy if the Ministry acts on the report itself, for its general effect is to persuade one that multi-storey dwellings are economically a regrettable necessity. This may be because the report, confessedly, deals only with part of the housing cost problem—cost of construction. A study of the overall costs including land, transport, maintenance, the subsidy system and so forth, in terms of value per person housed, might well show a different prospect. The RICS have done, conscientiously, what they were asked to do but it is insufficient for a major review of housing policy.

NOT THE WAY TO DO IT

The meagre and rather misleading scraps of information released to the Press about the first meeting of the new RIBA Council disclose a distressing insensitivity to the feelings of the membership. Those who participated in the AGM and voted in the recent elections have been looking hopefully for a sign of a real change at Portland Place. Yet the first thing the press receives is a bald announcement from which it appears that the Council, in reappointing a Vice-President and the Treasurer, has disregarded the AGM resolution requesting the Council only to appoint its officers from its elected members. Later some "notes" on the minutes of the meeting were issued, stating that after full discussion "it was thought" by the Council that no radical change in principle should be made until the Committee, set up to consider the constitution of the Council, had reported. This may well be a valid point, but nobody would gather from the

* Report by the Cost Research Panel to the Minister of Housing on the cost of flats and houses; The Chartered Surveyor, July, 1958.

"notes" that there was a sharp division on the Council, in which a minority thought that the resolution should be treated as binding, or that the Treasurer's election was contested to the point of a vote. Not only is the existence of a minority viewpoint concealed, but the reasons for making no radical change until the Committee reports are not fully explained. The publication of Council proceedings in this form is unfortunate, and can be misleading. On the face of it, and without having heard the arguments on either side, we would have thought that the obvious step was to act in the spirit of the AGM resolution. To act otherwise, without adequate explanation, is to risk widening the gulf between the membership and the Council. The Council's decision must be properly explained to the membership, and where there is a difference of opinion, both sides should be put. Only in this way can the interest, sympathy and support of the membership be captured. It would be truly unfortunate if a new Council, under a new President determined to put RIBA affairs straight, should run the danger of losing support so early in the session, through poor professional relations.



BUILDERS' PLANS

ASTRAGAL is delighted to see that steps are being taken to introduce professional standards into building management. The Council of the Institute of Builders proposes to alter its rules of membership and to change its examination procedure. Until now, only senior classes of membership (proprietors, partners and directors of building firms) have had a vote in general meetings. The Council is to

change the senior membership structure so that it can be fully representative. And it is important that the educational system will be comparable in academic standard to that of the architect.

Architects, who are often vague enough about their own educational methods and their professional organization, will be glad to know that the JOURNAL is shortly to publish a concise guide to the way these things are handled in the building world. This may help us all to develop educational theories on how to arrange joint training (and interchangeability in training) for architects, consultants and builders.

MUSCOVITALITY

Last week the Planning Forum in London heard some staggering figures about the scale of Soviet research into building and town planning. These were given by Sir Frederick Osborn, who has just returned from Russia. Apparently the reconstituted Academy of Building and Architecture comprises about twenty research institutes (employing 8,000 people), which cover everything from city building to experimental design and sanitary technique.

Some of these institutes, which have subsidiary research bodies and experimental workshops, are linked with

academies of science. There are also similar academies in some of the constituent republics, and the Union of Architects is "a sort of Academy in itself." The current research projects mentioned by Sir Frederick include research into the use and disposition of rooms, kitchen planning, dwelling types, and a study of the general development of towns. With this organization behind them Russian architects and planners (who are said to be very dissatisfied with their own designs and layouts) may have some reason for feeling confident in the future.

THAT SINKING FEELING

ASTRAGAL is appalled to learn that we shall not be allowed to see pictures of the winning designs in a recent kitchen sink competition because the organizers—the British Sanitary Fireclay Association—are afraid of cribbing by rival firms outside the association.

The association's members have "undertaken to collaborate with selected successful contestants so that the fruits of the competition will be seen when the prototypes of one or more of the winning entries are made and published." So in due course we shall see prototypes of such winning designs as manufacturers decide to produce. But what is to happen to the remainder? If this type of competition is to be respected, the organizers must arrange for all entries to be exhibited—as in RIBA competitions—as soon as possible. It would probably pay a prizewinner (who may get no more than £10) to forgo his prize and retain his right to publish his design and to seek a manufacturer. Obviously there are big legal problems involved, but surely something could be done to protect competitors from pirating and to prevent the competition system from losing its value.

POLYGLUT

The third issue of *Polygon*, the magazine of the architecture students at the Regent Street Polytechnic, is even more extraordinary than the second, and integrates into a shower of pull-out supplements as soon as you open it. The contents, which vary between freshness of approach and downright freshness, are up—or down—to the same standard, but make a change from the contents of the average student magazine.

Things and ideas are evidently on the stir at the Poly, where the students' exhibition will be open until the end of next week, in the Polytechnic's annexe in Little Titchfield Street. It is not an easy building to find, but on this occasion it is well worth looking for.

SHE WOULDN'T LET THE BOROUGH SURVEYOR

"You *are* integrated aren't you," said the girl to the architect. Five minutes later he was kissing her in a way that suggested the evening had only just begun. And when I tell you that she

was the wife of his consulting engineer, you will smell trouble, just as the city council was smelling inflated drains costs in a suspicious way. Meanwhile the planning minister was planning to oppose this integrated but indiscreet young architect, who was busy on a scheme for a new city. The minister, you see, was an ex-architect "of the academic kind."

*

All this happened in a new television play, by Ian Dallas, which the BBC screened on Sunday night. There was a Message here for any of you young architects who have been given whole

cities to plan by yourselves—"remember when you are well off, and don't give consultations to engineers' wives." My protesting telly collapsed half way through this play, but I saw enough to wonder where the author got his ideas about architects. Clearly the hero was intended to be a very special architect—a Frank Lloyd Wright at least, judging by the scale of his parties and the breadth of his admirers. Was it then, mere eccentricity that made him slog at fiddling details (we were allowed to look over his shoulder) on "Bank and Offices" and "Pleasure Gardens"? Where were his staff? By the way, you chaps who feel you are type-cast for life as chief assistants would have envied your equal in this play. He claimed that he stood between his boss and the world. "I," he said, "am his iron lung."

GULPING IT DOWN

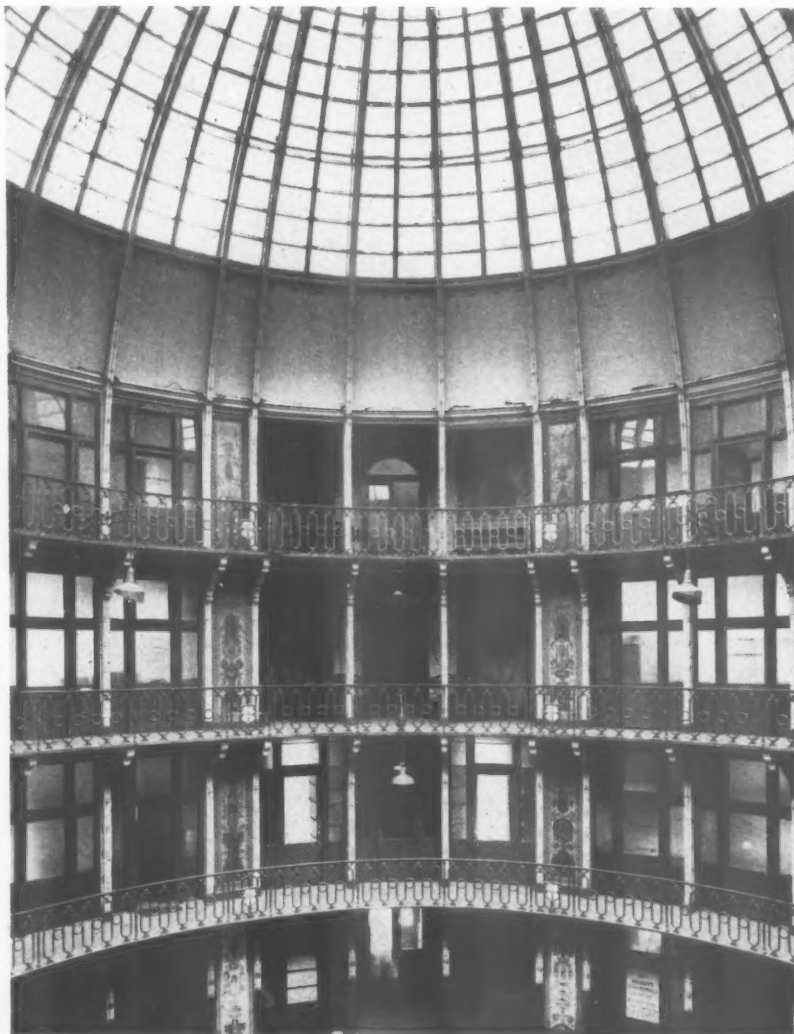
Architectural fact, as opposed to fiction, was dealt with on the same night by ITV, in one of those television design programmes which leaves the design-conscious viewer with the feeling that the organizers are afraid of design. They recognize that it has a place in television journalism, but they feel that it should be gulped down as quickly as possible. In this case Michael Patrick, principal of the AA School of Architecture, was asked: "Have we seen the future?" The question *did* mean something, because we had just been seeing a series of film flashes of modern buildings, the Span flats at Blackheath, David Greig's shop at Canterbury, the Golden Lane flats, and so on.

*

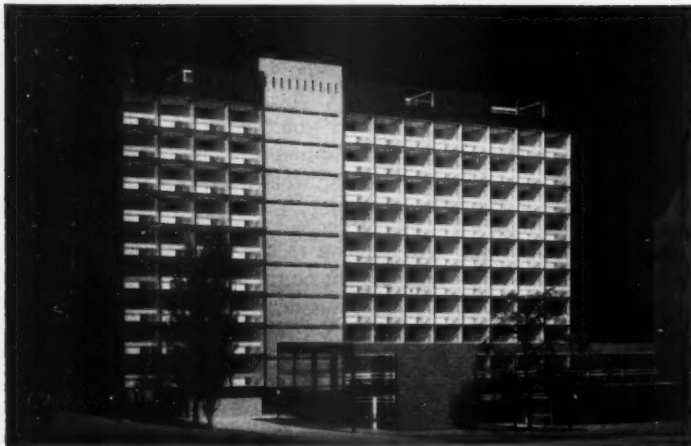
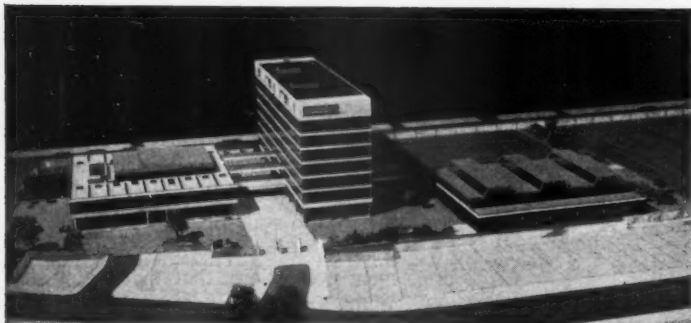
Mr. Patrick dealt with this as well as he could, and explained that these buildings were fairly representative of what we could expect. Asked why the style of the thirties was still going up, he replied that this might be "economy, or *laissez faire*, or because no good architect had been chosen." And asked if there were enough good architects, he answered boldly that of course there were, but that in England the public did not demand the standards that was asked for in countries like Sweden. An interesting point, one would have thought, to follow up, but the interviewer said, "Thank you, Michael," and went on to discuss the dominance of the female in modern society. The gulp was over.

ASTRAGAL

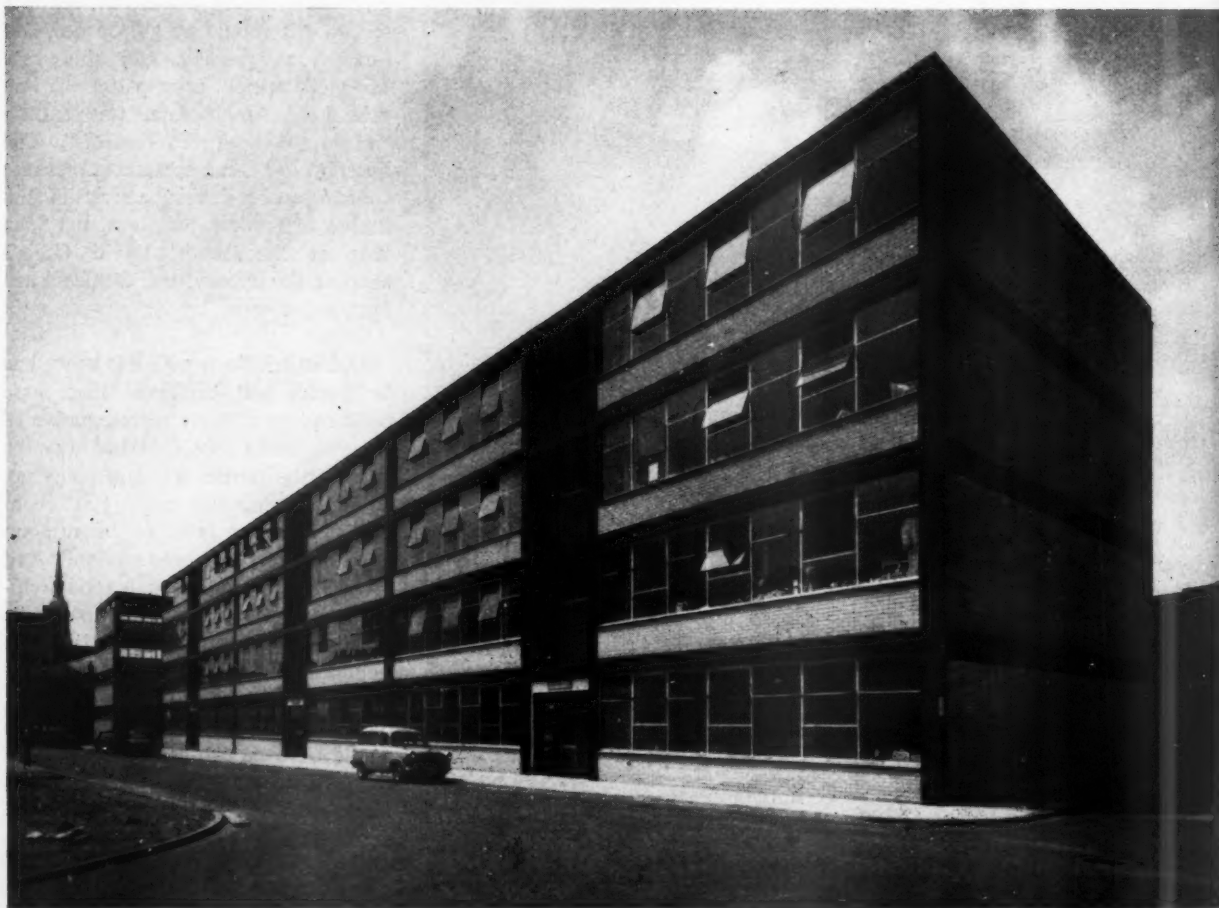
The Markets Committee of the City of London Corporation has recommended, as part of a road widening proposal, the demolition of J. D. Bunning's London Coal Exchange. The interior domed court, below, is one of the great Victorian monuments of architecture, a consistently articulated structure in cast-iron, with richly moulded ironwork and an elaborate scheme of applied ornamentation. The Coal Exchange belongs to the Corporation, and Bunning was its official architect, so that the Corporation is being asked to commit not merely vandalism but infanticide. A fine set of paintings of coal fossils once occupied the now blank panels at the base of the dome. They were only recently painted over.



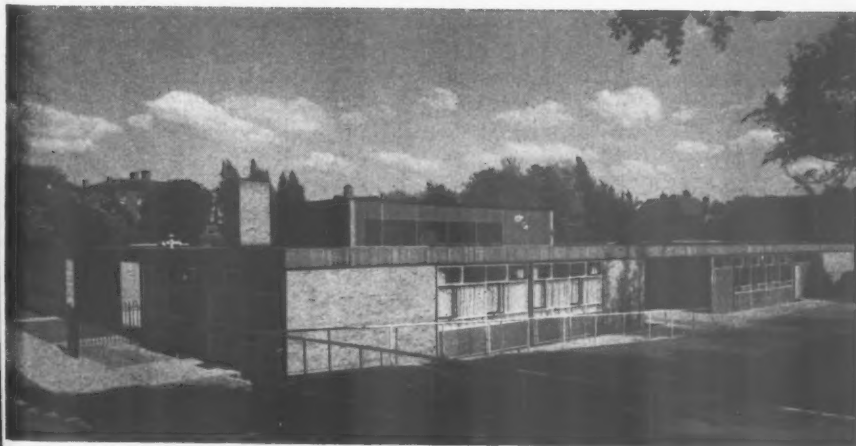
CURRENT WORK BY THE L.C.C.'S ARCHITECTS



To emphasise the wide variety of work carried out by the LCC, the Architect to the Council, Hubert Bennett, showed fifteen current or recently completed designs to the Press last week. A selection of these is illustrated here (see also page 74), which we hope to be able to illustrate more fully in due course, and with full cost analyses prepared by the recently formed cost planning section of the department. Top left is a project for a secondary school for 1,250 girls in North Wharf Road, Paddington (architect-in-charge: J. M. Kidall) on a site of $4\frac{3}{8}$ acres. Centre, left, a hostel for the Battersea Polytechnic to house 198 students. Site: Albert Bridge Road. Construction: box frame (architect-in-charge, D. R. F. Row). Below, unit workshops, or flatted factories, now nearly complete, in Long Street, Shoreditch. The basic unit is of 1,200 sq. ft., which can be combined or divided in various ways to give workshops of from 300 sq. ft. to 2,400 sq. ft. Construction: precast, prestressed concrete frame, floors and roof (Architect-in-charge: R. V. Crowe). Right, a point block on the famous Alton estate (Roehampton Lane site) which will comprise 1,868 dwellings on a



DEPARTMENT



100 acre site. The point blocks are clad in precast concrete slabs faced with Dorset shingle and Derbyshire spar. In the distance are four-storey maisonettes of brick cross-wall construction (section architect: Colin Lucas). Left, a school for physically handicapped children at Avenue Road, Swiss Cottage (architect-in-charge, W. Kretchmer). This school shares a site of four acres with a special school for delicate children.

NEWS

RIBA

New Honorary Officers

The Council of the RIBA, at its meeting on July 8, made the following appointments: Vice-presidents: J. H. Forshaw (Chief Architect, Ministry of Housing and Local Government), Lionel Brett, A. G. Sheppard Fidler (Birmingham City Architect) and Norman H. Fowler. Richard H. Sheppard was appointed Honorary Secretary, and E. D. Jefferiss Mathews, Honorary Treasurer.

Under the byelaws Mr. Fowler is appointed *ex-officio*, as chairman of the Allied Societies' Conference. The Council appoints two Vice-Presidents from among the Fellow members of Council (Associates and Licentiates being ineligible), and a fourth Vice-President must be a Fellow but need not be a member of Council. Mr. Forshaw was appointed Vice-President last year, after unsuccessfully standing for the Council in the national ballot in 1955-6-7. He did not stand this year. Mr. Brett, Mr. Fidler and Mr. Fowler become vice-presidents for the first time.

Richard H. Sheppard, who has been chairman of the *Ad Hoc* Committee, is an elected member of Council, and takes the place of Basil Spence as Honorary Secretary. Jefferiss Mathews was appointed Honorary Treasurer in 1956 and 1957.

The notes from the Minutes of the July 8 Council meeting issued to the Press say on this subject: "Before proceeding to the appointment of Honorary Officers, the Council fully discussed the resolution passed at the AGM which asked that steps be taken to restrict the appointments to those who had been elected as members of Council. It was recalled that this matter had been referred to the Committee being set up to consider all aspects of the constitution and it was thought that until they had reported no radical change in principle should be made." (See, "The Editors," p. 75)

Students' Association

The RIBA Council has agreed to express sympathy with, and support for, the aims and objects of the British Architectural Students' Association. It stressed the Institute's opinion of the importance of bringing in, through the Allied Societies, those students not studying in full-time schools.

London Government

The RIBA Council has approved a memorandum of evidence prepared jointly by the Town and Country Planning Committee, and the Committee on By-laws and Building Regulations, for submission to the Royal Commission on Local Government in Greater London.

The Rome Scholarship, 1958

The Faculty of Architecture of the British School at Rome announce the award of the Rome Scholarship for 1958 to Alfred Rigby, 24, who is at present a Studio Assistant at Manchester University School of Architecture. Five candidates were admitted to the En Loge stage of the competition and three to the final stage, of whom one, in Australia, was obliged to withdraw for personal reasons.

The Rome Scholarship in Architecture is provided for by an annual grant made to the British School at Rome by the Council of the RIBA, and is normally tenable for two years. An exhibition of the competition designs will be held at the RIBA from July 14 to 26.

RICS CONFERENCE

Emphasis on Cost Planning

Our correspondent who attended the discussion on cost planning at the Chartered Surveyors Conference at Exeter reports that its main conclusion was to affirm the need for cost planning. The theme of the Conference was "The development of land as an investment for the future" and was thus for all classes of members of the Institution—not only quantity surveyors. The titles of papers read were: "The valuation of land as an investment" by F. J. H. Brackett, "Forestry as an investment" by W. E. Hiley, "Future sources of fuel and power" by D. Hicks, "Errors in local triangulation" by J. R. Metcalf and "The future structure of the building industry" by D. M. Jeffreys (see AJ, July 10). The principal paper was "The development of land as an investment for the future" by Harold Wincott.

Apart from the papers there were a number of discussion meetings and one of these, held on Friday July 4, was on "Cost planning in building." It was led by Frederick Napp, deputy city architect of Plymouth, M. H. Thackray (former chairman of the Quantity Surveyors Committee) and Rex Procter (who is both an architect and a quantity surveyor). Mr. Napp opened the discussion by describing a cost planning exercise he carried out and eulogized the MOE and their Building Bulletin No. 4—from which he read extracts, praising the help that the Ministry has given to local

authorities in their school building problems. This was supported by M. H. Thackray, who affirmed his belief in the need for cost planning to become common practice among architects and quantity surveyors, and summed up by saying "Cost planning infers-planning." Rex Procter explained the methods he had used in the cost planning of a hospital project, preparing approximate estimates for alternative types of construction. The main problem was that there was very little data from which to set reasonable cost targets for hospitals. More than one speaker said that they thought the ARCHITECTS' JOURNAL's method of presenting cost information was a good one, but others emphasized the difficulties of comparing the costs of one building with those of another. Miss Hunt (MOE) suggested that there should be a library of costs set up at the RICS for the use of members. William James (of the Wilderness Study Group) thought that this might be dangerous. He referred to the articles published by the RICS Cost Research Panel and urged that the important thing was to grasp the principles they exemplified. Several speakers mentioned the growth of all-in service organizations and the threat to the professions that they constituted, suggesting that this made it more than ever necessary for the technique of cost planning to be developed. This point was re-iterated by the chairman, G. D. Walford (who is the new chairman of the Quantity Surveyors Committee) and who, in concluding the proceedings, said that from the discussion he took it that cost planning was a technique that was here to stay.

WORKING DETAIL COMPETITION

The Winners' Names

We publish below the names and destinations of the winners of our Working Detail competition, together with the schools or offices they came from and the amount of their awards. A point to notice about this year's results is that two of the winners are going to America, one to the U.S. and another to the U.S. and Canada as well. They are not, of course, going there on the strength of their A.J. grant, for this, we imagine, won't buy them much more than hamburgers and bus tickets: they were going already. Apart from this most of our winners are going to the sector of Northern Europe which lies between Sweden and Switzerland. There is also a change in our briefing tactics: we are sending most of our envoys to people, rather than to places. Two of last year's winners, Dariush Borbor and Derek Thomas, get awards again this year, having turned in good work last time and—what is still more remarkable—being apparently undismayed by this exacting, frustrating job. We wish them and all other envoys every success.

Name	School	Amount	Country
Dariush Borbor	Liverpool	£20	Switzerland
J. J. Bourne	Edinburgh	£20	Holland
Roger Clarke	Liverpool	£40	Germany
William Goshawk	Oxford*	£20	Spain
Michael Hacker	AA	£20	France
Brian Lamprell	Birmingham	£20	Sweden
Felix Moore	Bartlett	£40	U.S.A. and Canada
W. H. Roberts	Welsh	£30	U.S.A.
Ranjit Sabikhi	Liverpool†	£30	Holland and Denmark
B. Sheldon	Birmingham	£25	Germany and Switzerland
W. Siddons	AA	£20	Denmark
Derek Thomas	Oxford	£20	Italy
Jan Thompson	RWA	£30	Finland and Sweden

* Now with Bucks County Architects' Department. † Now with Chamberlin, Powell & Bon.



Photograph by courtesy of the Hendon Times.

Architects in Hendon, as reported last week, have taken the initiative in forming a Hendon Society; they are very critical of the above preliminary design for a civic centre, and of the fact that it was prepared, not by an architect, but by J. L. Pelham, the Borough Engineer and Surveyor. It is intended to show how the facilities required by the Civic Accommodation Sub-Committee would be included in the project. A fantastic amount of building has been crammed on to the site which, as the model shows, is intersected by a major road. It appears to contain no car park, although the car parking problem on a night when there is a concert, a swimming gala, a political meeting, an exhibition and a fire must be considerable. Key: 1, Entrance hall and exhibition area. 2, Concert hall. 3, Minor hall, committee room and bowling green. 4, Swimming pools. 5, Squash court and lounge. 6, Bus garage. 7, Catholic church. 8, Methodist church. 9, Fire station. 10, Central library. 11, Town Hall.

HOUSING CENTRE ANNUAL CONFERENCE

Redevelopment: No Real Sense of Urgency

The Housing Centre Annual Conference, which was held on July 2-4 at County Hall, London, had as its theme "Redevelopment" and was opened by the Minister of Housing and Local Government, Mr. Brooke. He said that the Conference was taking place mid-way through the first five-year slum clearance programme and he seemed well satisfied with the progress being made. So far about 250,000 people had been rehoused from slum properties and the indications were that closings and demolitions in 1958 would show a large advance on those for 1957, which numbered some 44,000; but, said the Minister, clearance was only one part of the operation; re-building in a worthy form was the main objective.

He also touched upon a point which was to be mentioned more than once during the Conference, the delay in obtaining Central Government approval to schemes, and explained that this was due to "statutory safeguards." He warned that the rate of new building to meet housing needs would have to slacken due to shortage of land and financial considerations, and suggested that to meet the situation our resources should be reappraised and redeployed by the rehabilitation of suitable existing dwellings and the redistribution of population within our existing accommodation to make better use of it. In particular this should be assisted by building more accommodation for old people, many of whom were living in premises too large for them.

The Minister, who had referred to the formation of SPUR by the Housing Centre, said in conclusion that he wanted to see a great awakening of public interest in urban renewal. He realized that the level of effort required by urban renewal is high and that new development must take account of modern trends. Redevelopment was the

planners' greatest challenge.

Max Lock then surveyed the planning scene generally and put in a strong plea for the use of the private planning consultant who, he said, was suddenly banished after the 1947 Act. The private consultant, he thought, was the answer for the smaller understaffed planning authorities.

The other paper given on the first day was by Dr. Nathaniel Lichfield, who gave an authoritative and comprehensive paper on the economic problems of central redevelopment. He showed that existing buildings in themselves are little obstacle to redevelopment; monumental building, the too solid structure, might look deterring but in economic life it was little problem. Imposing 6-storey houses might be worth less as going concerns than as sites for flats.

This paper also contained some disquieting comments. Speaking of redevelopment generally, Dr. Lichfield stated: "The important question here is that which faces us in all our activities—what economic resources do we need to carry out the job and what can we afford to spend on it? It is idle to pretend that we have even a glimmering of the answers on our present knowledge for the country as a whole, although some in local government must have ideas on the subject for their own localities. . . ." (It was stated at the Conference that Birmingham's estimate of cost for major redevelopment schemes was £50M.)

"Even if we cannot find the answers we are seeking, we all know the conclusion that would emerge from them—we cannot afford to spend what we need to, and therefore redevelopment would take longer than we would like. In consequence some selection of priorities is desirable so that resources can be spent where the need is greatest. But, assessment of priorities in redevelopment

over the country as a whole is hardly aimed at today and will not be without some big changes in central and local government practice."

Here, surely, is the root of the problem and although Dr. Lichfield's paper contained a great deal more in it than this, and Cyril Sweett gave a convincing talk on the need for cost control at all stages of redevelopment, this comment seemed in a way to make other considerations subsidiary to the need for some overall grip on this enormous problem. Even the charming coloured slides of Canterbury shown by Hugh Wilson (who, as he put it, had since moved to the frozen north to avoid the consequences of his scheme at Canterbury), and the stimulating views of Sheffield shown by J. L. Womersley—where a blue haze shimmered over the city—seemed a dangerous diversion, as if we were all fitted with rose-tinted spectacles issued by the Ministry of Housing and Local Government. Coloured slides are always larger and kinder than life and the obviously increasing skill of architects in the use of this medium is perhaps becoming too much of a "tranquillizer."

The Conference concluded with a sharp reminder of the power of the administration when Miss Ledeboer showed and discussed a small scheme for the partial redevelopment of Harwich. This town is dying on its feet for want of new blood, and yet this scheme has been waiting four years for various approvals and a start has yet to be made. We certainly have "statutory safeguards."

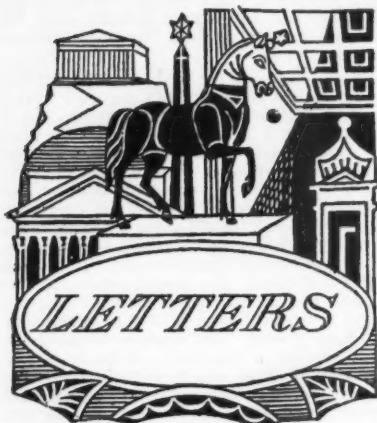
In trying to assess this Conference, one is struck by two things. First, the almost complete absence of any real sense of urgency and second, the lack of appreciation of the real size of the national problem of redevelopment. This is not critical of the conference itself, which ran with the impeccable organization one has come to associate with Miss Solomon. Many speakers urged the conservation and improvement of property, particularly the large Victorian villa, yet what can one conserve of those thousands of acres of slums or near-slums in the industrial Midlands and in the great conurbations? Speakers attacked the administrative delays, the subsidy provision, the complexity of acquisition under the Planning Act, but emphasized the need for slum clearance to be followed by comprehensive development providing a satisfactory urban environment. Yet the Minister, when asked at the opening of the Conference as to the possibility of obtaining money for the ancillaries to redevelopment, open space, playgrounds, parks and so forth, said that local authorities which are not too ambitious may be able to go ahead but others with more ambitious schemes may have to wait.

The great encouragement given by this Conference was that it showed there is an immense fund of enthusiasm for the job to be done and for it to be done well. This enthusiasm is not encouraged by an out of date administrative machinery, to be further complicated by a new block grant system (that eliminates the percentage grant) and it is not properly directed by subsidy arrangements which take no account of local circumstances. It is undoubtedly true that our resources in money are not so great as we would like but it is also true that our resources in time are limited. We all only have one life and the essence of success in redevelopment is the speed of transformation from decay to vitality.

This was the third successive Annual Conference the Housing Centre has held on redevelopment. The Housing Centre, which is doing a great service in its consistent interest in this problem, has now formed SPUR; is it too much to suggest that next year, when SPUR is a little older, the Housing Centre will devote a Conference to the national problems presented by redevelopment and the possible means of dealing with them?

J. W.

E



John Ollis

John P. B. Gilmour, Student R.I.B.A.

Lionel O. Woodward, L.R.I.B.A.

P. J. Witt Press Relations Officer, Cement and Concrete Association.

F. S. Johnstone, A.R.I.C.S.

J. R. Coulthard, A.R.I.C.S.

Ian G. Neilson, Assistant Secretary RICS

A. Thompson, A.R.I.B.A.

Stanley Milburn, F.R.I.B.A.

Erno Goldfinger, L.R.I.B.A.

After Oxford

SIR,—Peter Scher's contribution about a Faculty of Science, Art and Technology (AJ, July 3), brings up interesting questions but comes to confusing conclusions, and some of his ideas and assumptions are open to question. He suggests earlier specialization (a questionable aim) could be achieved in secondary schools by taking the existing subjects of mathematics, elementary structural mechanics, draughtsmanship, all forms of art, handicrafts, physics of heat, light, sound and electricity, chemistry, history and English and expanding them, with other suitable subjects, to form the basis of a new advanced level course. The other suitable subjects would presumably be biology (human functions) and geography (human habitat). It is difficult to see in what sense he is using the word "specialization!" It is more difficult to imagine what most schools would make of this without some lead from above, of which he holds out little hope.

Architecture does, of course, touch all these subjects but mainly from a special point of view which shows those aspects of the subjects and the connections between them which are useful to designer-constructors. The establishment of this viewpoint is our task and cannot be delegated to the lay educationist. A course in basic design and construction taken after leaving school and common in part to advanced courses in architecture, art and engineering might give a more favourable situation for exploring this common viewpoint.

Another disturbing assumption is that potential architects and (more surprisingly) artists are all likely to be good at school examinations. Many probably are but there would be a serious wastage of exceptional talent especially amongst artists by using this arbitrary sieve. The final object of his pro-

posals, that of a shorter course, is also very much open to question.

The Six Points of the Oxford Conference, which have stimulated this discussion, have on close examination the character of a simultaneous equation in six unknown or variable factors—the solution to each point depends on the solutions assumed for the others. Is the new draughtsman-technician class desirable? If so, will they share a first basic course with architects or will there be further educational isolation? If they do start off together will they need the same high academic attainments for entry? If so, why the distinction in status? If not, will the universities accept them? If they will accept them why not the architects too—letting the achievements in the basic course be the qualification for the more advanced studies of the architects, instead of "A" level G.C.E. Will the "A" level G.C.E. mean automatic acceptance or will some attempt be made to see if the candidate has the right kind of intelligence and aptitude for architecture? If so, how and by whom? And if this final selection is necessary and reliable why the crude, preliminary sieve?—and so on.

The proposals are clearly not in a form which can be implemented and it is difficult to see how a general solution workable throughout the country can be reached by thought alone. Obviously there is much to be done at a national level in the way of approval in principle by other national bodies. But ultimately most of the underlying aims will have to be worked out empirically over a period according to what is possible and desirable in particular local situations. The forms of association with other institutes of learning are likely to vary in different parts of the country, as the forms of buildings with the same functions vary on different sites.

If the RIBA waits too long for a theoretical master plan much zest will be lost. Could they not give the green light now to established architectural schools in which they have confidence to explore and exploit the opportunities which may well already exist in their particular local contexts to further the underlying aims and intentions of the Oxford Conference about which there seems to be a real consensus of opinion?

These matters are really too complex and too urgent to leave long in an atmosphere of theoretical discussion alone.

J. OLLIS.

Bristol.

Why The "A" Level

SIR,—A higher standard of entry, earlier specialization, and a shorter course in architecture are desirable. Neither Peter Scher (AJ, July 3, 1958), nor the Oxford conference have mentioned which subjects should be gained at G.C.E. "A" level by prospective architectural students.

The demands of the "A" level are great and it would be pernicious to subject prospective architects to such a rigid course which is not specifically designed for them anyway. So far as science subjects are concerned the "O" level would appear to cover most of the knowledge required at the moment. Mathematics, and particularly calculus, required for structures form part of the "A" level maths for science syllabus however.

A pass at "A" level can be by 1 per cent, this is hardly a good method of raising the standard of entry. In Arts subjects a folio of work shows the prospective student's ability and something of his attitude to the subject.

The G.C.E. "A" level has become a magic symbol of standard. If used as a standard of entry it may hinder general education and lead to over specialization.

JOHN P. B. GILMOUR.

Birmingham.

RIBA Council

SIR,—One has looked, but looked in vain, for the resignation of the responsible members of Council who have led the RIBA into the position, as a result of which the powerful and necessary resolution of no confidence was passed at the recent Annual General Meeting.

Can it be that the fruits of office are greater than pride, or is it that the hope of frustrating the spirit of this resolution, by remaining in power, is stronger than honour?

LIONEL O. WOODWARD.

Lowdham.

Weaving Shed Costs

SIR,—I should like to refer to the cost study of a weaving shed at Hackenthorne, Derbyshire, which appeared in your issue of June 5.

The price of 9s. per sq. ft. which you quote for a precast concrete frame in comparison with the steel frame structure which was erected, is so far out of line with present day prices that we approached one of the many firms which specialize in this type of precast concrete structure and asked for a design and price based on the material which you published. The price which they have given us is 4s. 9d. per sq. ft. This is 11d. less than the price for the steel frame which you printed.

Moreover, the reinforced concrete frame would have given the necessary fire protection throughout the building at no extra cost whereas it would appear from your analysis that it was necessary to encase the steel in concrete in this particular structure at the cost of an additional 1s. per sq. ft.—an item which you failed to take into account in your comparison.

P. J. WITT.

London.

The Editors have received the following reply from Moir and Bateman, architects of the weaving shed: The cost of alternative methods of construction and materials, as quoted in our cost analysis, were based on quotations received at the time of considering methods of construction in 1955.

Laboratory Costs

SIR,—I have read with interest the comparative cost analysis of the laboratories at Westcliff High School and Magdalen College School (AJ, July 3), especially since my firm, Wakeman, Trower and Partners, were the quantity surveyors for the latter school.

I was particularly interested in the comparative costs of the two above laboratories and the Sherborne School and feel that, in the case of Westcliff High School, more prominence should have been given to the fact that the cost of the laboratory fittings have not been included. Bearing in mind the wide publication of the figures shown in these analyses the omission of the cost of the laboratory fittings in one case, and not in the other two compared, is, at first glance, very misleading.

In the comparison of costs I consider that a more realistic comparison would have been achieved if each element compared had carried a proportion of preliminaries and insurances, and also a proportion of the contingencies where the analysis has been based on the tender amount. In the case of Westcliff, for example, the percentage to be added to each group of elements in respect of preliminaries, insurances and contingencies is approximately 15 per cent. whereas in the case of Magdalen it is only about 6 per cent.

May I say that I find the weekly cost analysis included in the JOURNAL of considerable interest and I hope that you will be able to continue with this admirable series.

F. S. JOHNSTONE.

London.

SIR.—May I emphasize your "rashness" in drawing conclusions from the analysis of the three laboratories (AJ, July 3), and at the same time warn your readers against falling into the same trap. To attempt to do this from three buildings each of entirely different construction with prices based on tenders received as much as 15 months apart, is very unreliable. What is possible is a direct comparison between the costs of the construction and design entailed in each element, but here again care must be taken. The value of preliminaries and insurances and also contingencies, if the figures are not based on the final account, must be proportioned out over all the other elements and then a percentage added to bring forward all contracts to the same rates of wages and materials. This would mean an addition of about 25 per cent. to the figures for Sherborne. This alone would be sufficient to upset your conclusions.

I would also point out that it is misleading to give a cost per foot super which does not include all the elements of the building. I refer particularly to the analysis for Westcliff Laboratory which does not include the cost of fittings. These figures are used sometimes when in a hurry, and it would be very easy to take the figure of 77s. 0½d. as the total cost, whereas it is probably in the region of 102s.

May I also suggest that the Building Cost Index is given in the summary of these analyses, it would facilitate comparisons of the costs of different construction, etc.

J. R. COULTHARD.

Middlesex.

[Our cost commentator writes: It is nice to have a constructive response from a quantity surveyor reader to a cost comment. I agree that comparisons require careful examination of what the figures represent—indeed, I would say that it is one of the purposes of cost comments to sound warnings. For example the comment *did* draw attention to the fact that fittings were excluded from the Westcliff price and to other differences that Mr. Coulthard mentions. On his general criticism, the AJ has always maintained that the great value of cost analysis figures is as signposts to further inquiry. For example the remarkable similarity between Sherborne and Magdalen prices for foundations, roof, partitions and doors, fittings, staircases and decorations and the remarkable *dissimilarity* between preliminaries and insurances suggest to me that the itemized build up of the latter is where the answer to the puzzle might be found.

On the Building Cost Index there is some evidence that the mere application of an overall percentage is too crude and that it is better for individual readers to make their own adjustments, which might vary from element to element.]

Research In Building

SIR.—The Royal Institution of Chartered Surveyors established in 1956 a Cost Research Panel composed of quantity surveyor and building surveyor members, with representatives of the Ministry of Housing and Local Government and the Building Research Station of the DSIR, with the following terms of reference:

- (a) To keep under review the sources of cost information available to the building industry, and to consider the desirability of creating a focal point for the collection of information;
- (b) To initiate research into matters affecting the cost of building, including the effect of standardization and repetition in design;
- (c) To draw conclusions from the results of research, to make recommendations and to publish such results; and

(d) To stimulate generally an interest in the cost aspects of building.

During the past two years the Panel has concentrated upon research into the costs of flats and houses and they reported to the Minister of Housing and Local Government in June, 1958. The Panel also prepared papers on the following subjects which form the background to their Report:

Questionnaire on building costs.

Factors affecting relative costs of multi-storey housing.

Indices of building costs by trades: multi-storey and traditional housing.

"Planning the cost": the economic control of building development.

In seeking now to clarify the priorities of their future work, the Panel seek the co-operation of all persons and organizations who are undertaking research in buildings. The Panel would be grateful for information on building research in reply to the following questions:

1. Name of person or organization: 2. Address: 3. Telephone number: 4. Nature of research project: 5. Object of research: 6. Stage reached in research.

IAN G. NEILSON.

London.

Architects' Salaries

SIR.—Green eyes look again to the United States as relative incomes are compared. Underpaid at £1,200 p.a. says *Forum* . . . compared to what?

The unfortunate economic law of supply and demand is ignored. Remuneration is based on one thing, the ease or difficulty with which you can be replaced. This applies to the clients' way of thinking, as much as any hard-headed employer of architectural assistants.

If the architect's service can be provided more cheaply by a builder's all-in service, it will be. The answer to our financial predicament is to *increase* the demand (not reduce the entry! Stop fiddling with marginal problems and increase efficiency. If we provide the goods, news will get around (though we might help speed it with more plugging of the profession).

A. THOMPSON.

London.

"Life Peerages"?

SIR.—I am writing to say how much I appreciate your editorial on the RIBA election results in your issue for June 26. It is indeed a tragedy that an architect of the stature, ability and experience of L. C. Howitt should be cut off from joining in the Council deliberations especially at this very critical stage in the affairs of the Royal Institute.

There is just perhaps one omission in your leader that I might stress, and that is I think that members, in general, do not pay sufficient attention to the Council's nomination list. I, however, agree there must very definitely be some method devised by which we can obtain the very best and most experienced administrators on the Council, and I sometimes wonder whether some modified form of "House of Lords" could be devised whereby these very valuable and experienced architects, such as Mr. Howitt, could be retained to assist and advise the Council without being subject to what, as you point out, is a form of voting which falls almost at random. Another point which has been referred to, is the early replacement of C. D. Spragg, who has given such excellent service and guided the Royal Institute over many difficult years. I hope the Committee and eventually the Council, who have this matter

under review, will make the terms of the appointment attractive enough so that it might interest some of the leading and experienced members of our profession such as has happened in the appointment of the new Director for the NFBTE.

STANLEY MILBURN.

Sunderland.

A Problem Of Character

SIR.—It was with great interest that I read Professor Richards' criticism of Booth, Ledebor and Pinckheard's building in Gordon Square, but I must disagree with two statements in this criticism.

1. There is the reoccurring theme of buildings being in the character of an existing neighbourhood (in this case Bloomsbury). The character of London's West End is the 18th century street layout with its squares and gridiron pattern of streets. This is, and has been for some 200 years, and for better or worse it is to stay with us. What does change, is the character of buildings, the mode of their construction, and it is futile to think that the scale and the spirit of 18th and 19th century Bloomsbury can be recaptured by employing "nearly" London stocks or some bogus fenestration. This will not do. The character of 18th century domestic architecture resides in the rhythm of its facades: ground floor, piano nobile and two or three upper floors. That is to say, the balancing of their horizontal rhythm of function with a vertical system of windows. This does no longer exist in modern institutional, commercial or domestic buildings. See the ridicule of it across the road where, to recreate the effect of a piano nobile, windows of the second and third floors are bracketed with mouldings and a pretence of balcony. Nor will the 18th century street grid bear cliffs of curtain walling. What is needed is to marry our new structures with our new functional requirements to the fact of urban decency.

2. This brings me now to architects' honest struggle to try to "express" fleeting function in facades. It is not modern, not even "contemporary" to build buildings and congeal for ever very temporary departmental requirements into permanent architectural expression. Departments of institutions expand and contract, and it is precisely this which can be easily and elegantly achieved by the means of modern structure. On the other hand, work of administration, study, etc., when analysed, ultimately resolves itself into a *person* and a *desk* related to floor ceiling and window, and this is the function to be catered for, with all its variations, in buildings of private or public administration.

ERNO GOLDFINGER.

London.

DIARY

Japanese Art Treasures. Exhibition at the Victoria and Albert Museum. Monday, Wednesday, Friday and Saturday, 10 a.m. to 6 p.m.; Tuesday and Thursday, 10 a.m. to 8 p.m. Sunday, 2.30 a.m. to 6 p.m.

UNTIL AUGUST 17.

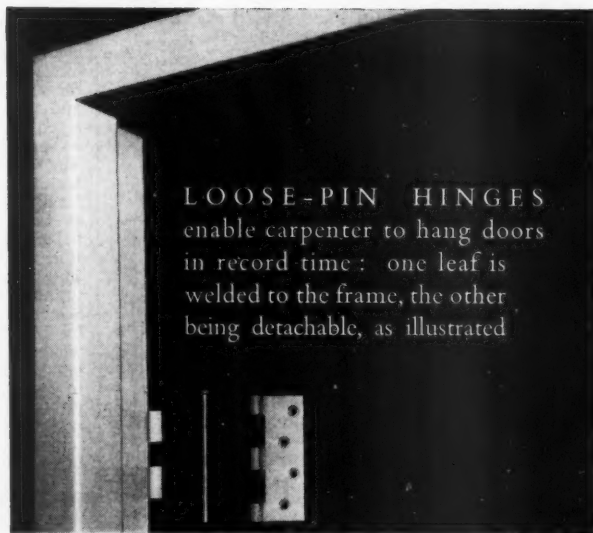
AA School Annual Exhibition. At the AA, 34, Bedford Square, W.C. Monday to Friday, 10 a.m.-7.30 p.m. Saturday 10 a.m.-2 p.m.

JULY 19 to 31

Stop and Look. Talk by Sir Hugh Casson in the BBC's Children's Television series.

JULY 25

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
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THE INDUSTRY

This week Brian Grant describes external insulation, small size lamps, a carpet heater, fibre tube for building, cable couplers and packaged bathrooms.

Insulating from the outside

Universal Asbestos have recently devised a method for insulating existing buildings from the outside, so that it is unnecessary to interfere with the roof sheeting and at the same time factory production is not interrupted by internal staging and other work. This "exterior sandwich" provides an over-purlin fully insulated roof with a U factor of 0.2 or better and is very similar to the usual sandwich construction as applied to new buildings.

Installation is simple, as the existing sheets are left in place and only the ridge capping has to be removed. Timber battens 1½-in. by 1-in. are then laid on top of the sheeting along the lines of the purlins immediately above and behind the existing hook bolts, and glass fibre is then laid between the battens, which act as spacers to prevent the glass fibre being compressed. The new outer sheets are then placed on the battens with the usual side and end laps and are then drilled in the normal fixing positions right through the battens and the old roof sheet beneath, being fixed with ⅝-in. bolts inserted from above and secured with nuts and washers against the underside of the old sheets. Modifications of this basic method will be necessary with different types of roof, but provision has been made for finishing at eaves, ridges and round roof lights, including the design of special flashing pieces. (Universal Asbestos Manufacturing Co. Ltd., Tolpits, Watford, Herts.)

Small size lamps

Since many of the current ranges of lighting fittings are designed for use with comparatively small lamps Atlas Lighting have recently introduced a series of lamps with very small bulbs. This new "Continental"

series have a silverlight internal finish to give a glare free light when the lamps are used without shades. There are two types of lamps, one with a 45-mm. diameter spherical bulb in 25 and 40 watt ratings selling at 3s. and 3s. 4d., and a 40-watt candle lamp with a diameter of only 35-mm., a size more usually employed with a 25-watt rating, at 4s. 2½d. Both types of lamp are produced with small bayonet cap or small Edison screw fittings. (Thorn Electrical Industries Ltd., 105-109 Judd Street, London, W.C.1.)

Heating through the carpet

The Isopad carpet heater measures 9 ft. by 6 ft. and has an electrical rating of 900 watts. It should be placed between the underfelt and the carpet and plugged into the nearest socket. The cables used are moisture proof and equally spaced over the surface of the heater, and two or more units can be used for larger areas. Price is £15 4s. 0d. including purchase tax. (Isopad Ltd., Barnet By-Pass, Boreham Wood, Herts.)

Fibre tube for building

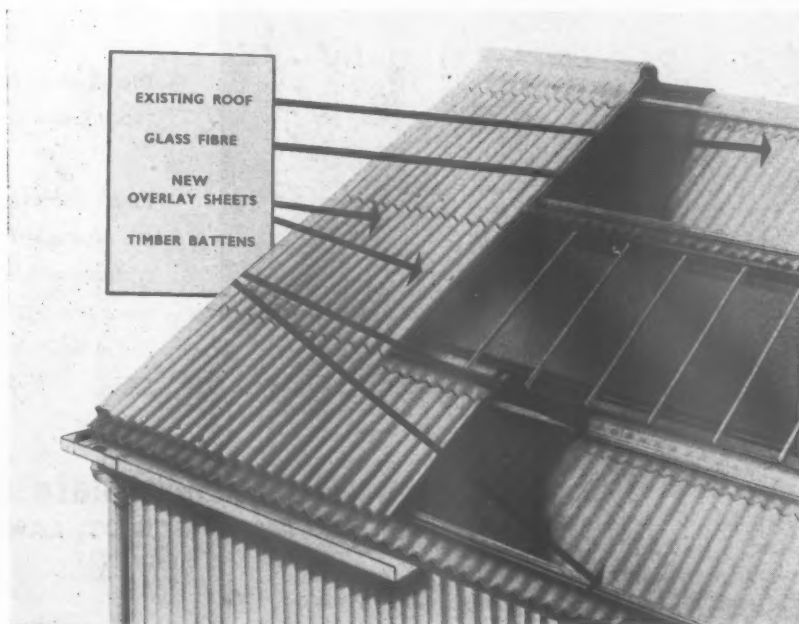
Three comparatively new types of fibre tube are now being produced for the building industry. The first, Sonotube, is intended to be used as expendable formwork

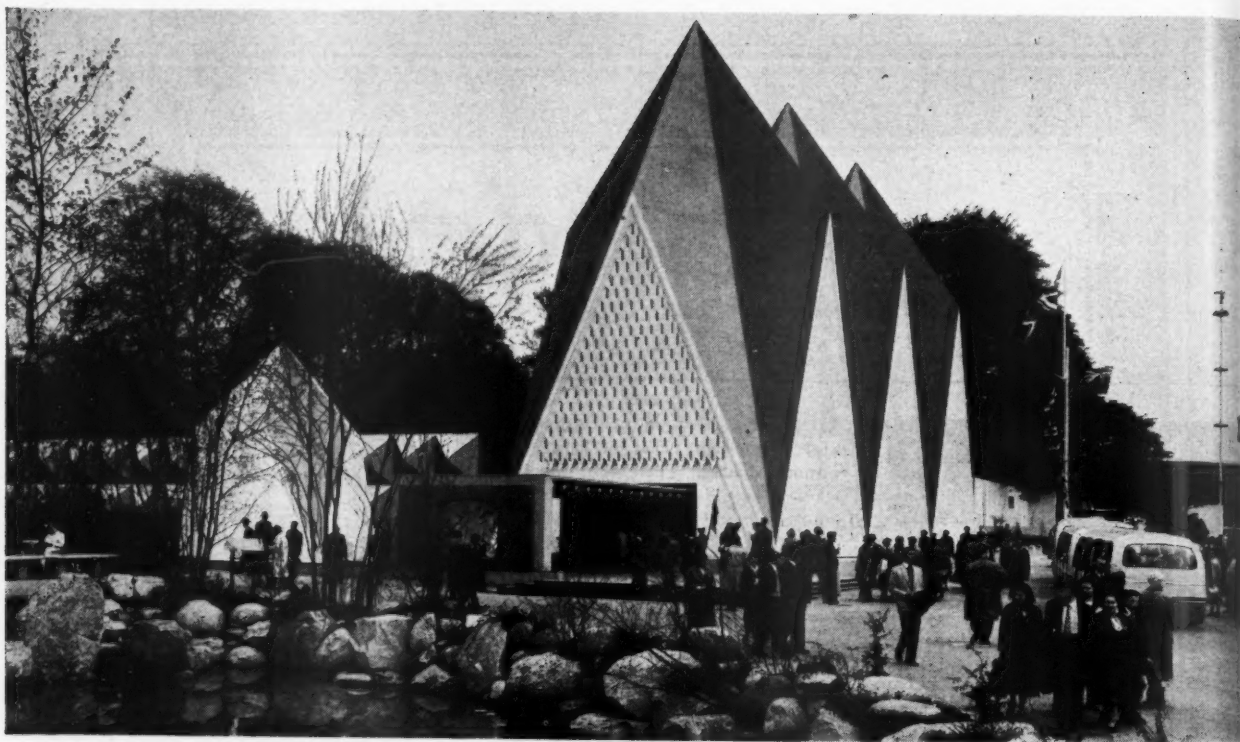


The Isopad carpet heater, which is placed between the underfelt and the carpet.

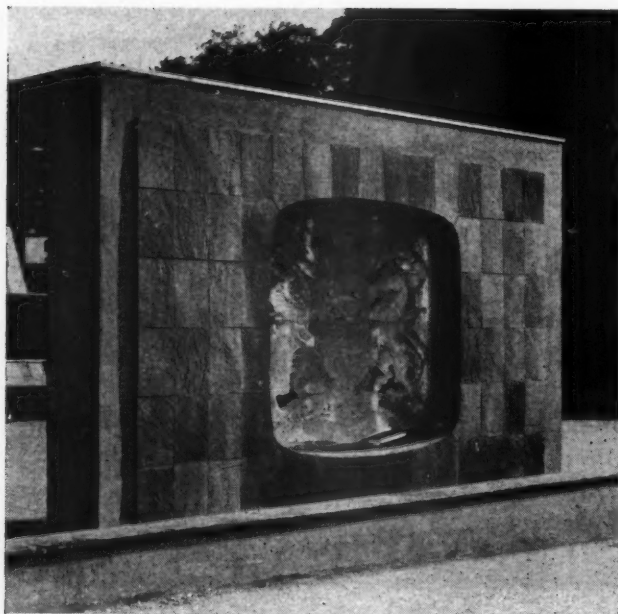
for cylindrical concrete columns and similar work, and is produced in lengths up to 25 ft. and in diameters from 2 to 36 in.

Details of the installation of external insulation of buildings, by Universal Asbestos.





Broughton Moor Light Sea Green Slate at the Brussels Exhibition



Architects: Howard Lobb and Partners

The British Pavilion at the Brussels Exhibition bears the Royal coat-of-arms, carved in 'Perspex' with a surround of Broughton Moor Naturally Riven Light Sea Green Slate. The traditional character of this slate contrasts well with the modern styling of the coat-of-arms. The beautiful texture is illustrated in the close-up of a section of the end wall reproduced at the left.

Finely rubbed, sanded and frame sawn finishes are also supplied and technical pamphlets showing typical methods of fixing Broughton Moor stone are available as follows: 1. Flooring; 2. Facings; 3. Coping; 4. Cills; 5. Riven Face Slabs.

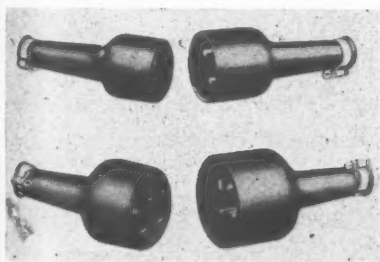
The Broughton Moor Green Slate Quarries Ltd
CONISTON, THE LAKE DISTRICT, LANCASHIRE.
Telephone: Coniston 225

technical section

Reinforcement rods can be used within the tubes, which are tough enough to withstand a considerable amount of vibration. Two grades are produced, type P where clean finished columns are required, and a slightly cheaper type W for use where the formwork can be left on the column. Sonovoids are intended to save weight by producing voids in concrete slabs below the neutral axis, in the centre of arched bridge sections and elsewhere, while Sono-airduct, as its name implies, is intended for duct work in warm air heating systems. These tubes can be cut to length on site with an ordinary hand saw and are light enough to be easy to handle. They have already been used to a considerable extent in the United States, partly, perhaps, because high costs make any type of special formwork very expensive. The problem is not quite so acute in this country, though most of the sectional formwork on the market is intended for square or rectangular columns. Standardized circular formwork should allow architects a freer hand, and no doubt there will be a reasonable market for these tubes once they become known. (TPT Construction Products, the Textile Paper Tube Co. Ltd., Romiley, Cheshire.)

Cable couplers

New rubber clad push on type cable couplers are announced by Nettle. They have no projecting lip, so that connection is quick and easy, but the manufacturers claim that the joints will withstand all but the severest exposure conditions. For maximum protection the lip or fold back type of connector is still recommended. (Nettle Accessories Ltd., Harper Road, Wythenshawe, Manchester 22.)



Nettle's cable couplers.

Packaged bathrooms

From the builder's point of view sanitary fittings are something of a nuisance on the site, since they are liable to damage, and odd items like brackets and brasswork often tend to disappear. Finch have now produced an answer to this problem by standardising a complete bathroom suite, bath, wash basin and complete w.c. suite with all the necessary fittings. This is supplied in six cartons, and the bath is wrapped in a polythene envelope in which it can remain while other trades are following on. Price is £40 15s. in green, or 25s. more in pink, but the suppliers add that no variation can be made from the standard sets, which are complete down to fixing screws. (B. Finch & Co. Ltd., Belvedere Works, Barkingside, Essex.)

24 LIGHTING
the windowless factory

On page 91 of this issue we publish for the first time in the AJ a full description of a "windowless" factory: that is, a factory of which the production area is lit wholly by artificial light. Since this is a departure which, if accepted, might have a profound influence on many classes of building, we have asked our Specialist Editor (15) for Lighting to comment. In doing so, he makes the point (*inter alia*) that though in America, the home of the windowless factory, levels of artificial illumination are comparable to the average level of illumination outdoors, in this country they are much less. Unless, therefore, we raise our levels of artificial illumination very substantially, the elimination of windows will mean that people will be getting less light than they are accustomed to and will suffer a drop in efficiency.

There is a simple but far-reaching proposition raised by buildings such as the Aspro-Nicholas factory. This is that where the factory designer can choose between natural and artificial lighting for the daytime occupation of a production building, in some, or perhaps even in all cases, artificial lighting may be the better method to adopt.

It must be borne in mind, of course, that in some cases the factory architect may be offered no choice but to use artificial lighting, as for instance with large multi-storey production blocks, where there are bound to be considerable areas which are too far from the exterior walls to receive sufficient daylight. It is, however, where there exists apparent freedom to use natural lighting, particularly with the typical case of single storey planning on open sites, that the issue is raised.

It must also be said that in such factories we may be at the beginning of a quite fundamental trend in architectural design in this country. If it is cheaper or better, or perhaps both, to have light fittings instead of glass in factories, the same argument can surely be applied equally to other building types such as schools and offices. Having taken such a step, of course, the ramifications become enormous. In school planning, for instance, if the architect is freed from the virtual tyranny of the requirements of adequate daylight, with the need for complex clerestory sections, tower blocks,



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roof lights and the other methods normally required to get enough natural light into the building, design would undergo a quite fundamental change. The basic idea behind "windowless" factories has therefore very wide implications on the whole field of architectural design, and some assessment of the validity of the proposition behind it is obviously necessary. Such an assessment is the purpose of this article.

The case for windowlessness

First we can look quickly at the various arguments put forward by the protagonists of such factories. These might be summarized as follows:

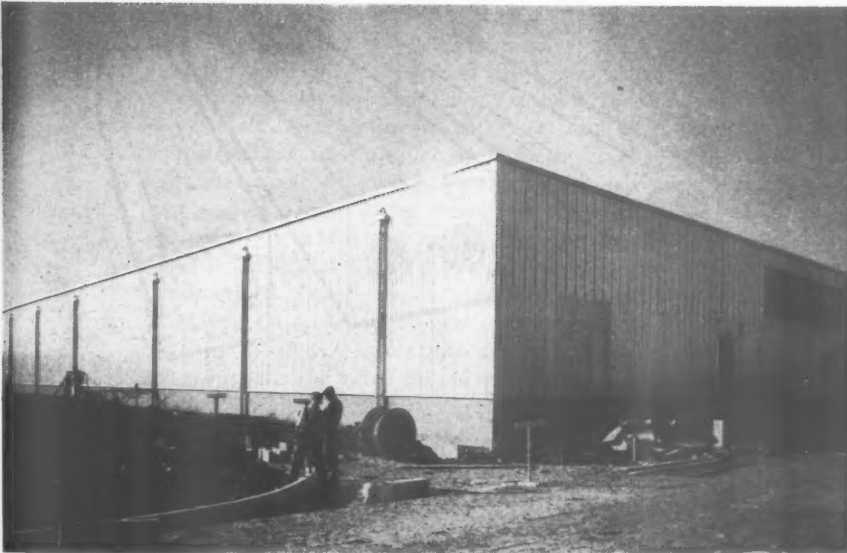
- (a) An artificial lighting installation is in any case required for night-time use, so no extra capital cost is involved.
- (b) On the contrary, there is likely to be savings in capital cost if glazing is omitted.
- (c) Such a step will allow a much higher standard of

thermal insulation to be achieved for the building as a whole, with consequent reductions in the capital and running costs of heating.

(d) These savings can be set against the running costs of the artificial lighting during daylight hours, which with the high efficiency of present-day fluorescent tubes, is unlikely to be a heavy additional overhead cost. At the same time it must be realized that the lighting is itself a source of heat and if designed to be on all the time, will reduce the heat load required.

(e) The resultant building may have advantages from the point of view of certain specific production requirements, for instance, in the single storey factory, the whole roof space may be required for bulky services, or for a suspended ceiling and air conditioning necessary to provide a suitably clean environment for the processes (as is the case with the Aspro-Nicholas factory).

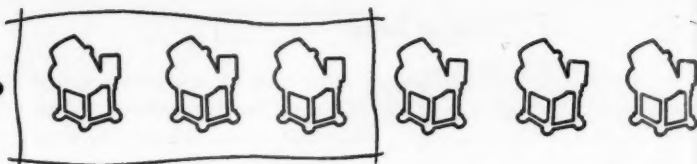
(f) Lastly, that in any case many factories one visits



This small factory at Swindon, built by Richard Costain Ltd., is entirely without windows. A completely dust-free interior was required for the production of specialized electrical components, and was the deciding factor in the adoption of this form of design. The artificial lighting inside is at the high level of 85 lumens per sq. ft., which is in line with the conclusions reached in this article.

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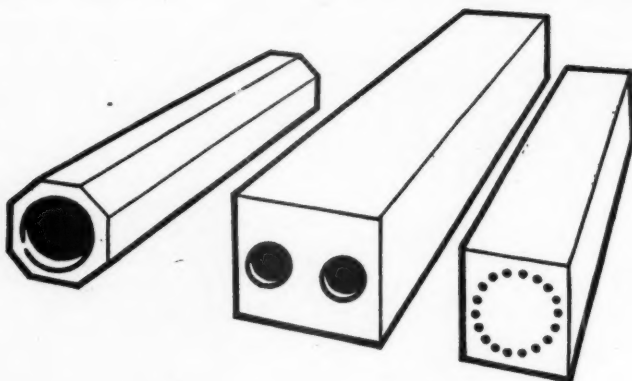
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have the artificial lighting left switched on all day anyway.

Against all these arguments one must recognize the opposite view of those who are not prepared to accept the concept of windowlessness, on philosophical grounds that the whole idea is inhuman and repugnant, and in practical terms that it is likely to lead to problems of labour recruitment and so on. Although this attitude must be respected, it tends to lose some of its force when you remember that in fact there is nothing very new about working exclusively under artificial lighting, in say department stores, or Underground stations or in the densely developed office blocks built since the war in the City.

But to attempt to assess the situation as dispassionately and as factually as possible, it is essential to go beyond all these arguments in favour of windowless factories, or for that matter, of windowless offices and schools, and to examine the basic but usually unstated assumption behind them, *that artificial lighting can be used as a satisfactory substitute for daylight*. A critical study of this assumption cannot, of course, settle the controversy once and for all, which is bound to continue for some time to come; but it can clarify and sharpen many of the points involved, and remove many of the uncertainties. It can equally lead to a clearer picture on the question of the relative capital and running costs involved. Unfortunately it is as yet only possible to consider this matter from the quantitative point of view: and to discuss whether people are going to get enough light. Physiological data are still insufficient to enable us to give any worthwhile opinion on the *quality* of the light to be expected in a windowless building. One expert, for instance, is of the opinion that the mere fact that the intensity of daylight is always varying is of great value; but this is contested. Again there is the question of whether or not daylight is "good for you," quite apart from optics; and here the most that we can say is that there is no evidence to show that those who habitually work in artificial light enjoy worse health than those who do not. On the question of illumination levels, however, we are on firmer ground, and these, as we shall see, have an immediate bearing on the present acceptance of the windowless factory in this country.

Relative levels of illumination

The normal basis for selecting suitable design levels of natural and artificial lighting in building in this country is the list of recommendations in the Code of the Illuminating Engineering Society. For conventional buildings, these can almost always be accepted by architects and consultants alike without question. Since, however, the use of artificial lighting as a substitute for daylight is, in a sense, a situation not envisaged by the Code, the methods by which they have been deduced really require re-examination to see whether they are still valid in this new field.

The general basis of the Code's recommendations are two experimentally proved facts, which can be stated in simple terms as:

(a) the more light there is, the better you can see the work you are doing, and the better you can do your job, either in terms of speed or accuracy or both;

(b) the more difficult is your job visually, the more light is required for it to be done well. Thus close work on a drawing board needs about three times as much light as ordinary reading or writing.

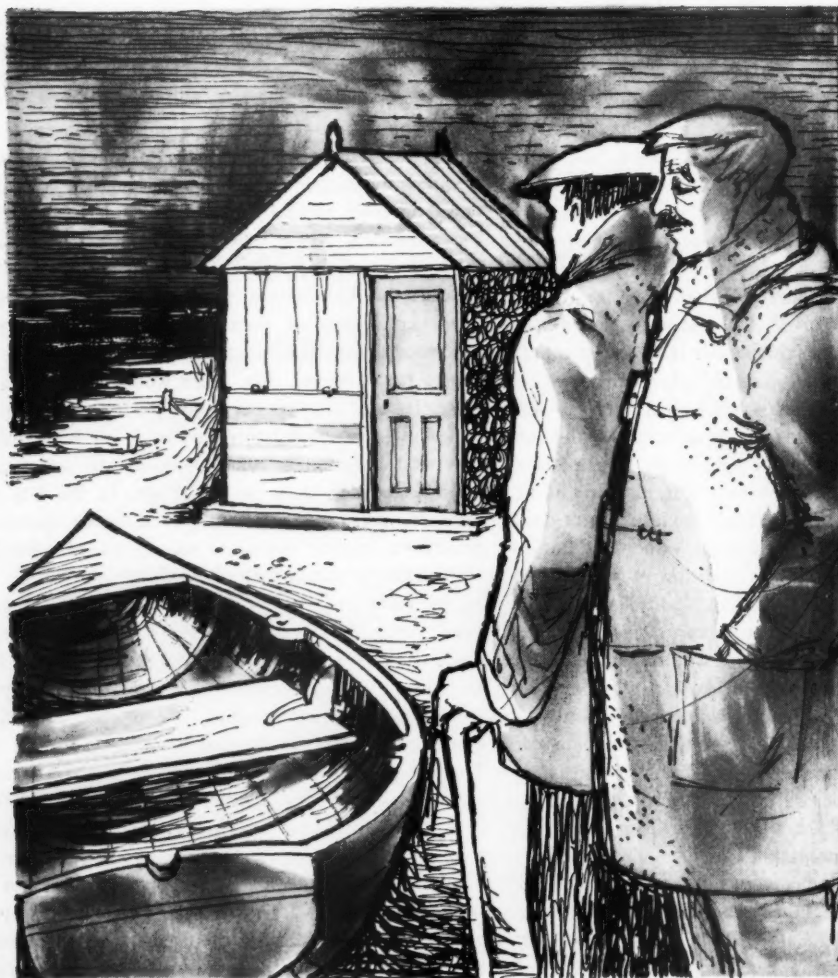
So far so good, but it is the method by which the precise levels recommended have been arrived at which is in question. For this country what is known technically as a "90 per cent. relative performance" has been chosen by the framers of the Code. In other words the levels in the Code for different types of work provide conditions under which speed and accuracy will be 90 per cent. of that possible when there is no restriction on the amount of light available. The reason for choosing a figure of 90 per cent. rather than a 100 is that it can readily be achieved for most types of work (except for those which are visually very difficult indeed, such as, say, minute inspection of fine engineering components) with levels which are both reasonable and economic. To obtain a significantly higher percentage of relative performance, however, would involve large increases in the recommended levels. This is because there is a diminishing return in the increase of visual performance as the illumination is raised. For instance, with a particular type of work 80 per cent. relative performance might be achieved at five lumens per sq. ft., but to reach 90 per cent. there would need to be 25 l./sq. ft., and for 100 per cent., 500 l./sq. ft. Nevertheless it is interesting to note that levels of illumination recommended in other countries do not correspond exactly to those in the Code. In the US, for instance, presumably because of different economic conditions, higher levels are recommended, allowing better relative visual performances.

At the same time, it is necessary very briefly to consider the conventional way in which the recommended Code levels are interpreted in Daylight Factors. The amount of daylight outdoors is, of course, varying from hour to hour and from day to day, depending upon the season, the weather conditions, and so on. There may, for instance, be as much as 5,000 lumens per sq. ft. on a bright summer day, or as low as 200 in mid-winter during an industrial fog. However, surveys have been taken of the amount of daylight over a number of years and these have shown that it can be assumed for design purposes that daylight will provide outdoors at least 500 lumens per sq. ft. On this basis the average number of hours a year when the daylight falls below this level, and requires to be supplemented by artificial lighting will be at an acceptably low figure; throughout the year on average there will be adequate daylight for roughly eight hours a day, varying from about 13 hours in summer to between four and five in December. Bearing in mind that the Daylight Factor at any point in a building is expressed as a percentage of that outside, and using this standard of daylight at 500 lumens per sq. ft., the levels recommended in the Code can be converted into Daylight

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Factors by dividing by five; thus for design purposes five lumens per sq. ft. is equivalent to a one per cent. Daylight Factor, 10 1/s. ft. to a two per cent. Daylight Factor and so on.

Having covered this background to the normal use of the recommended levels of the IES Code in lighting design for a conventional building, let us consider now the special case of a factory, or for that matter any other interior which is artificially lit in the daytime to the partial or total exclusion of daylight. We can take as an example a production building where the type of work demands a level of artificial lighting of 20 lumens per sq. ft., if we follow the Code, or a four per cent. Daylight Factor. If it were to be daylit, the actual level in the building would have exceeded 20 lumens per sq. ft. for on average about eight hours a day, the mean level in the daytime being roughly three times as high, that is to say about 60 1/sq. ft. The figure of 500 lumens, we must remember, is only a minimum figure: the *average* figure will be much greater, and in this context it is the average which matters. Artificial lighting would have been introduced when the daylight level outside fell below about 500 1/sq. ft., that is to say roughly 20 1/sq. ft. inside, this occurring during dull winter weather or at night-time. Only therefore actually at night would the factory have been lit only to 20 1/sq. ft., for most of the time the level, either as daylight, or as a mixture of natural and artificial lighting, being considerably higher, ranging perhaps as high as 200 1/sq. ft. on bright days in summer, and averaging something of the order of 50 to 60 1/sq. ft. Assuming that there is no night shift, therefore, the levels that would have been obtained in a daylit building would have been on average far in excess of the recommended level, and only for relatively short periods morning and evening would the occupants (actually) have to work at 20 1/sq. ft. This would have meant, for reasons we have already seen, that because this average level is so very much higher, that the percentage relative performance would have been noticeably greater than 90 per cent. In more simple terms, other things being equal, the output achieved in the factory would have been markedly higher than that which can result from it being continuously lit at 20 1/sq. ft. If therefore we are to partially or totally exclude daylight, to obtain what are on average similar working conditions, we have got to provide not merely the Code's recommendation of 20 1/sq. ft., but go to 50 to 60 1/sq. ft., that is to say two and a half to three times the recommended level. This argument will apply equally to other design levels.

Other reasons for higher levels

But this is not the only reason for having higher illumination levels in buildings or parts of buildings from which daylight is excluded. In this same example just discussed, if the 20 1/sq. ft. recommended in the Code were adopted for a windowless building, the level inside would on average have a far wider difference with that outside than would be the case if there

were natural lighting at four per cent. Daylight Factor. In place of a constant daylight ratio of not more than one to 25 between the inside and the outside of the building, it would average about one to 75 in the daytime, rising to one to 250 or more on bright summer days. This disparity of illumination could create two serious problems. First, on entering the building, when the level outside is high, the interior is likely to appear excessively gloomy until the eyes have time to adapt down to the lower level, this process taking several minutes. This effect could be minimized, of course, by having entrance circulation through which one would pass with carefully modulated lighting designed to assist this process of adaptation, and therefore achieve a gradual change rather than an abrupt one. This is, incidentally, a technique which has been attempted with varying degrees of success for road tunnels, to have a gradual change from daylight to the lower levels of artificial illumination inside, so as to avoid what is really a form of temporary blindness amongst drivers which might be an important potential cause of accidents. But in buildings, even with such careful treatment at the entrances, the interior on bright or sunny days is still likely to appear unpleasantly gloomy unless it is generously lit to a level of at least 50 1/sq. ft.

Second, it is for obvious reasons desirable to have view windows wherever possible in the external walls of a building, even though the lighting for functional purposes may be entirely artificial. Again, if there is this very wide disparity between the level of natural illumination outside and the artificial inside the building, the windows and the view through them will appear excessively bright and therefore glaring, and at the same time the interior will seem gloomy and underlit by comparison. Again this can be overcome if a level inside of 50 1/sq. ft. or more is adopted. The only feasible alternative would be to glaze the windows with some neutrally tinted glass which would absorb about two-thirds of the light passing through it. Such a glass is, however, not at present generally available in this country.

One further and final point that must be considered in relation to levels of illumination is what might be termed the psychological aspect. If once again the typical case of a factory process is taken, for which the IES Code recommends 20 1/s. ft. and if a level noticeably higher is taken, the occupants will welcome this improved environment, and react favourably towards it, other conditions being of course equal. Thus to raise the level of illumination in an interior which is artificially lit in the daytime becomes one useful method of providing some positive compensation for the lack of daylight.

Colour

Leaving now the question of levels of illumination, one or two other points emerge in considering the assumption stated at the outset that artificial lighting can be used as a satisfactory substitute for daylight. Perhaps the most important of these is the question of

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the relative appearance of colours under natural and artificial lighting. In most industries, and indeed for most types of interior, some limited distortion of colour raises no particular problems; in others however it may critically interfere with the work. This would be the case, for instance, with colour printing, or in food factories. All types of artificial lamps tend to cause distortion of colour in comparison with their appearance in daylight. Some types of lamp, such as "Colour Matching" fluorescent tubes, cause barely noticeable distortion, and others, such as sodium or mercury lamps, cause a very high degree of change. The problem can usually be satisfactorily overcome by the type of tube just mentioned, but it is necessary to bear in mind that this is considerably less efficient than the more normally used lamps, and therefore involves higher capital and running costs.

It is worth remembering in attacking this problem that the spectral quality of daylight itself is not uniform, but is constantly changing, so that some variation of the appearance of colours under it is bound to occur, although this fact is usually not known to people working with colour under it, who will often tend to consider any form of artificial lighting as a serious handicap.

Where the artificial lighting is seen in conjunction with daylight as would be the case with view windows, it is desirable to avoid any marked disparity between the general colour of the light from the two. Thus, for instance, in this respect "white" fluorescent tubes would be preferable to "deluxe warm white," which give a light appearing distinctly orange when seen together with daylight.

Some conclusions

Having examined the assumption, implicit in the design of "windowless" buildings, that artificial lighting can be used as a satisfactory substitute for daylight, certain important conclusions emerge.

- (a) Higher levels of illumination are required than those recommended in the Code of the Illuminating Engineering Society, about three times as high, in order to provide conditions comparable with those of a building naturally lit to the same standard.
- (b) A minimum level of at least 50 lumens per square foot appears necessary in order to prevent the interior of the building appearing excessively gloomy, either on first entering, or in relation to view windows. The use of entrance circulation which has lighting carefully modulated to aid the process of adaptation to the lower levels of illumination inside would be an advantage. If a suitable type of neutrally tinted glass were developed, it could be used to advantage in view windows.
- (c) Higher levels of illumination than those given in the Code are in any case desirable as one step towards providing working conditions in which there are obvious compensations for the lack of daylight.
- (d) The appearance of colours under the artificial lighting may raise problems where colour judgment is involved in the work. These can normally be over-

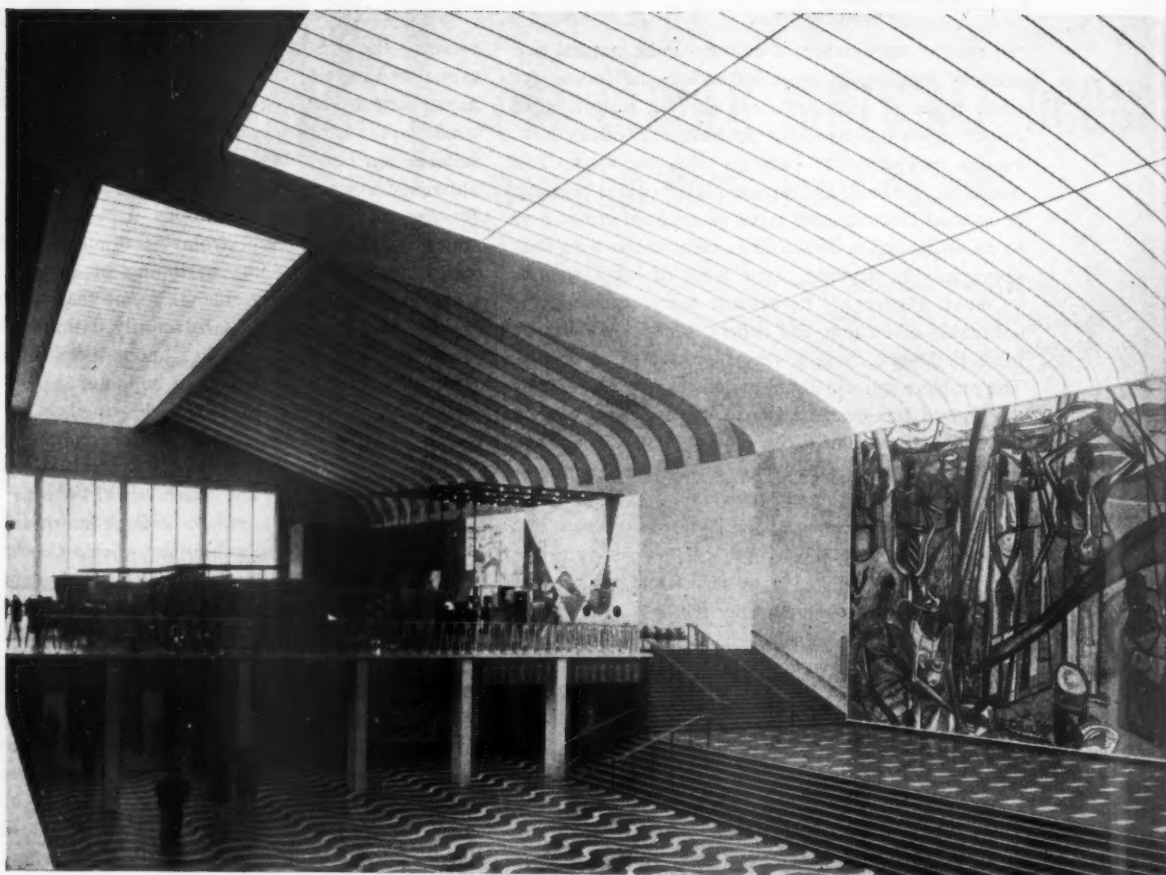
come by the right choice of lamp, but involve higher capital and running costs. Where there is a mixture of natural and artificial lighting, as for instance with view windows, the lamps should be chosen so that there is a suitable similarity between the colour of the two different forms of light.

Having reached these conclusions, a picture emerges which is rather different from the arguments which were summarized at the beginning of this article, particularly on the cost side. It seems that windows can be omitted, but only satisfactorily if the artificial installation is designed to give about three times as much light as in a conventional building, *i.e.*, costing three times as much to install, and bearing in mind the additional hours of use, considerably more than this to run. The idea of windowlessness, therefore, as a means of cutting capital costs and overheads in factories and other building types seems to vanish. However, the truth of this can only be established when a number of these factories have been built to the standard of design recommended in this article (the level of illumination in the Aspro-Nicholas factory, though complying with the Code, is inadequate by this standard, the level of illumination in the production area being only 25 l/sq. ft.) and when their capital and running costs are compared with those of conventional buildings which have equally well designed natural lighting.

It is interesting to notice that the idea of windowlessness originated some years ago in the US, where, as has already been said, the design levels adopted for various kinds of work are noticeably higher than their equivalents in this country. The levels which appear necessary from first principles for this new kind of building are thus commonplace there for conventional installations, and therefore involve no marked increase in capital costs of lighting installation. Equally, in the very different economic climate of the US the running costs of artificial lighting at these higher levels may form a much smaller element of the total production costs. There is no reason for supposing, therefore, without the most careful study, that the situation is in any way parallel in this country. Such a study, as has already been said, has yet to be undertaken.

Despite all this, however, the single storey artificially lit factory presents overwhelming advantages in comparison with a conventional daylight design for certain types of production, where complex overhead services are essential, or where a high standard of cleanliness is required. This is in fact the justification for the Aspro-Nicholas factory, and for the majority of other similar windowless factories so far built in this country. Indeed, under these special design requirements, it is difficult to see what alternative solution could have been adopted.

It must also be remembered that in recent years there have been very rapid improvements in the efficiency of lamps. These are likely to continue. So that although windowlessness may not be economic for general application now, the situation may change in the relatively near future.



Part of the Belgian Congo Pavilion which incorporates the largest single Luminated Ceiling installation in Europe. Some idea of the scope of this installation can be obtained by comparing its size with that of the figures in the foreground.

International triumph for

LUMENATED CEILINGS at the Brussels Exhibition

The evenly diffused and shadowless lighting provided by the Luminated Ceiling technique has scored an international success as the lighting system for many pavilions at the Brussels Exhibition. In one alone, the Belgian Congo Pavilion, an impressive area of 27,000 sq. ft. has been installed. Just over double this area is used throughout the Exhibition as a whole, by the United States, Venezuela, the U.S.S.R., and on many other international pavilions and trade display stands.

A BRILLIANT NEW IDEA IN ARCHITECTURAL LIGHTING

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TGA LEE

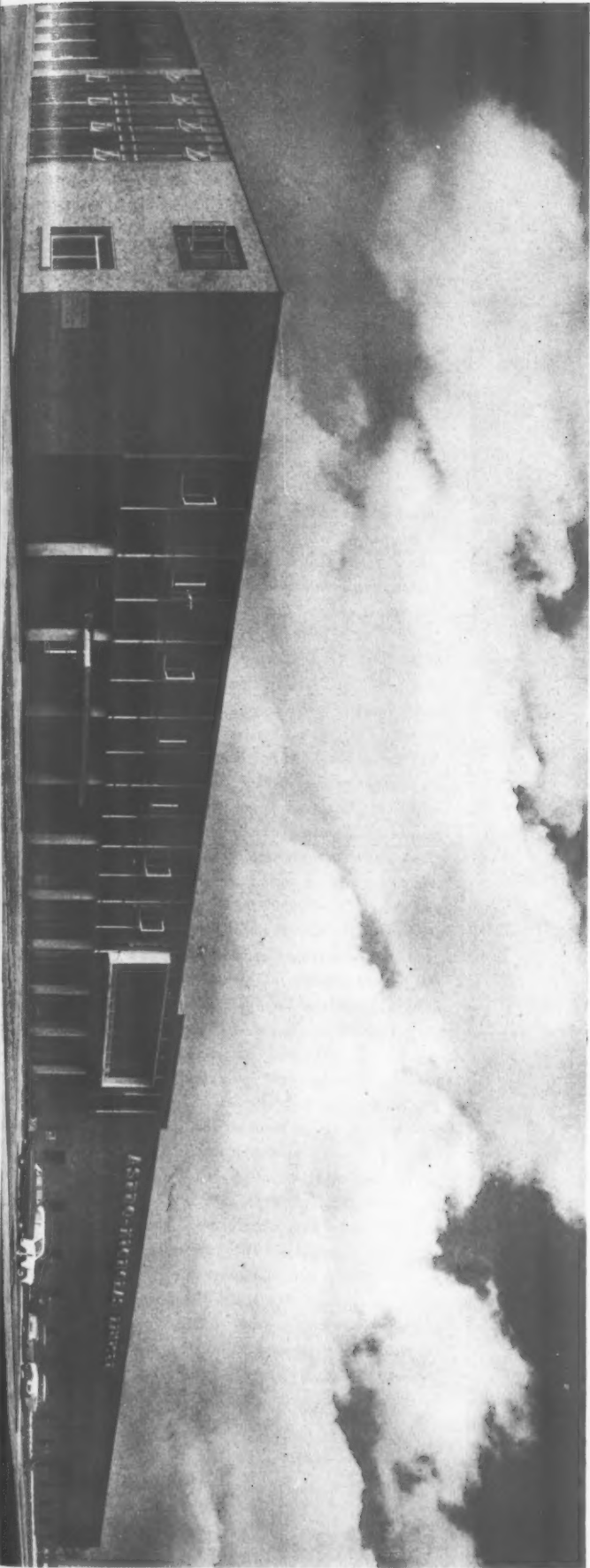
building illustrated

FACTORY and OFFICES

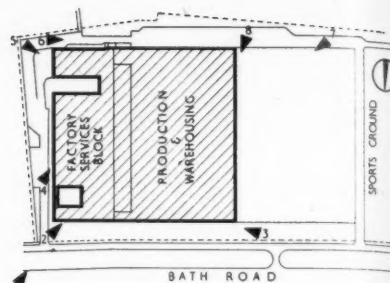
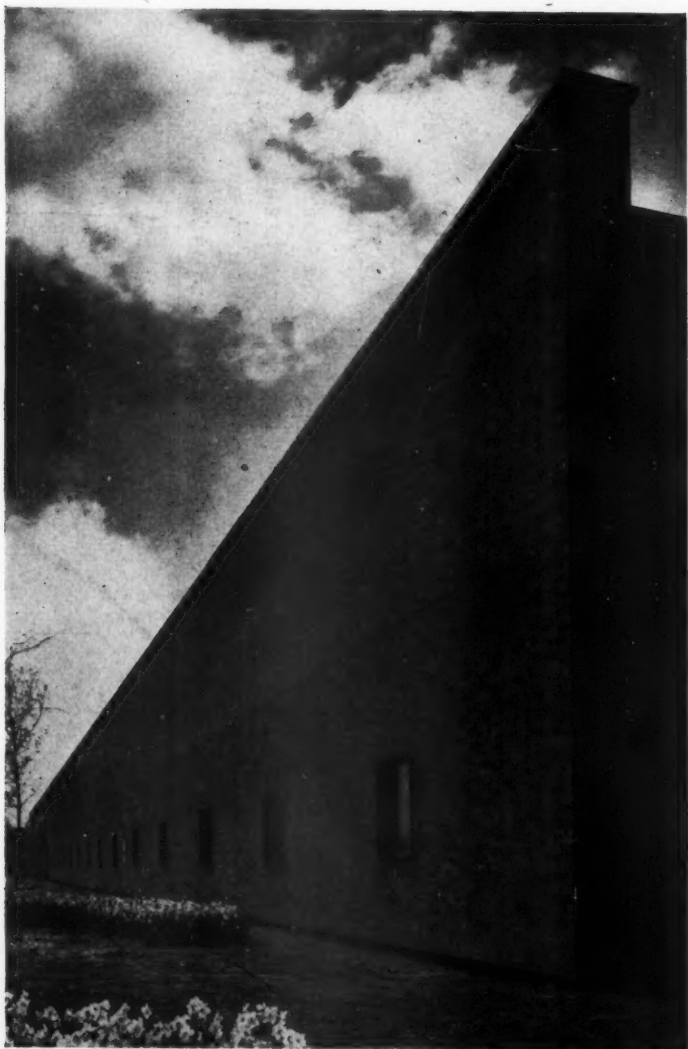
for ASPRO-NICHOLAS LTD. in BATH ROAD, SLOUGH, BUCKS; designed by E. D. JEFFERISS MATHEWS; architect-in-charge E. J. HILL; assistant architects C. G. CROWFOOT, D. SCHEN, P. DARRINGTON; assistants A. M. C. CUTLER, D. VAUGHAN RUSSELL; consultants (industrial) DR. FRANCIS CHILSON; (structural) A. C. ASTON; (f.c. staircase) NEILS LISBORG; G. H. BUCKLE and PARTNERS; (acoustics) H. CREIGHTON; (furnishings) SHEILA NICHOLSON; quantity surveyors HARRIS and PORTER; quantity surveyor on site, C. J. EATOUGH

This is the first factory to be published in this series with a production block which has totally artificial lighting and ventilation. The problems of this type of factory are discussed in the preceding technical article. The client required two main types of accommodation, a production and warehouse area, and a factory services block for offices, laboratories, work-shops, canteen and other ancillaries. Space was to be left to allow the production and warehouse area to be roughly doubled in size, and for the present this area is being used as a car park for the factory.

Viewpoint 1. The factory seen from the Bath Road.



building illustrated



Site plan with photographic viewpoints

The factory services block has been sited along the eastern boundary of the site, and the production and warehouse area centrally placed, so as to allow for its expansion in a westerly direction (see site plan). This layout has meant that both types of accommodation face the Bath Road. Bearing in mind that the warehouse needs a 20-ft. clear ceiling height (this being based on the use of fork-lift trucks for stacking), and the production area a 14-ft. clear ceiling with walkway access to overhead services, the architect decided to make the factory services block two storeys and join the two elements together to form a unified facade with a continuous eaves line along the main frontage on to the Bath Road. The differentiation between these two types of accommodation is expressed in a reverse manner to what one would conventionally expect, the offices being mainly curtain-walled (viewpoint 2, left) and the production and warehouse area having a solid external wall with small, almost domestic-scale view windows along its 310-ft. length. The prestige accommodation of main entrance on the ground floor, and the directorate suite above, have thus been generously glazed, in excess of what would normally be provided for rooms with a northerly orientation, and for quiet spaces which are in close proximity to, and directly overlooking, the continuous heavy traffic along the Bath Road. The boardroom on the first floor has been 'expressed' externally by a projecting balcony and canopy. The purpose of this feature appears to be purely elevational, since it is only about 2 ft. wide and has a northerly aspect. Bearing in mind that the production and warehouse areas are artificially lit to the exclusion of roof lights, the architect was anxious as far as possible to introduce what he termed "psychological lighting" by side windows, so that workers could have some visual contact with the exterior, to see what the weather was like and so on. This was in some respects in conflict with the client's need for privacy and wish for wall space to be available for production and the stacking of goods. The small windows (viewpoint 3, left) that have been adopted are a compromise between these conflicting requirements. They are in some way curiously out of scale and give a false impression in the photographs of the true size of the building. At the same time it appears that the problem of privacy has not been fully solved, since people have crossed the lawn from the main road to look in and as a result the client has ordered that the clear glass in these windows is to be replaced by obscured glass.

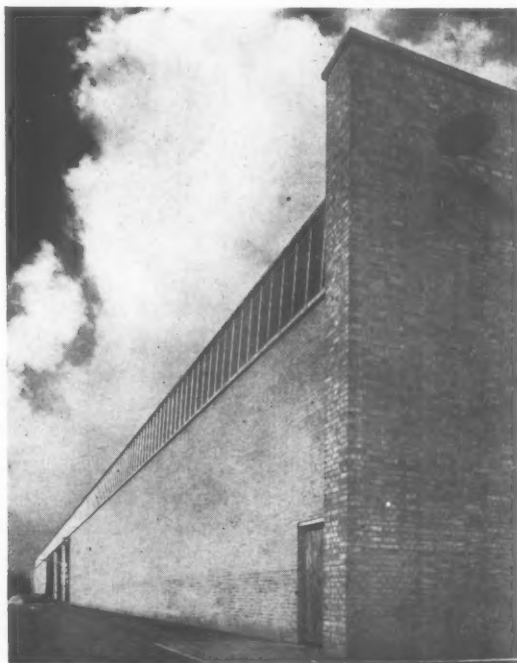
building illustrated



The workers' entrance is on the east side of the building (viewpoint 4, above left) directly into the factory services block. Employees enter on either side of the personnel office, which is used for interviewing new employees and is marked externally by patterned wall tiling. To the left of the entrance on the ground floor is cloakroom and lavatory accommodation and on the right the canteen kitchen, both being glazed externally with glass bricks. On the first floor above is the general office, treated



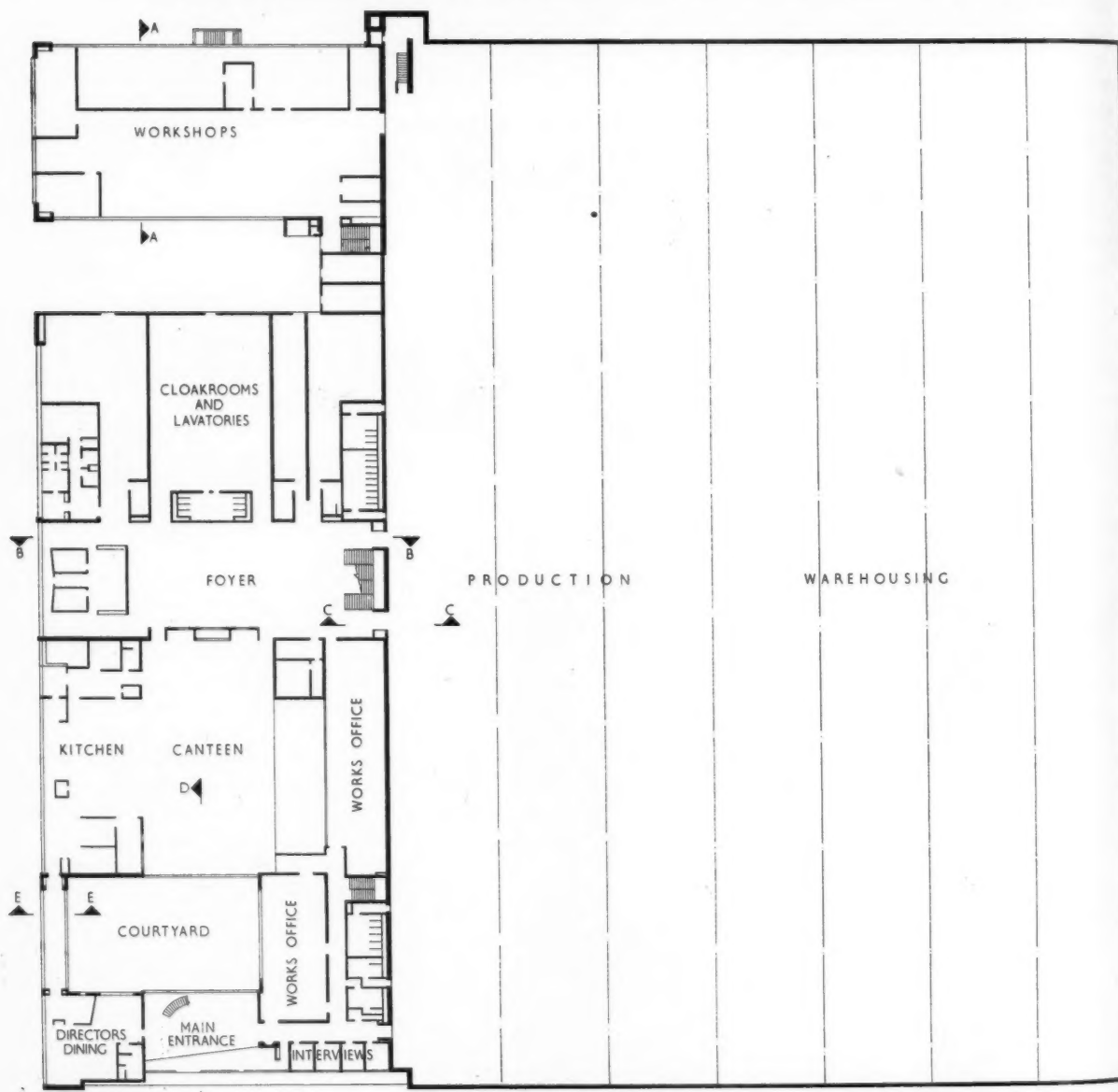
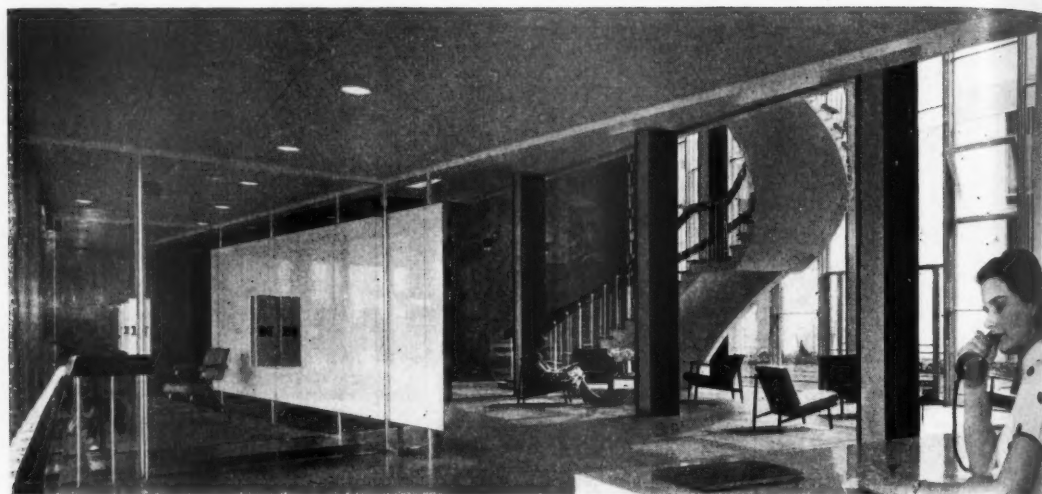
externally with aluminium curtain walling and dark brown plastic panel infilling. Further south, the factory services block is broken by a small courtyard, which will serve for future expansion and is now used for bicycle parking, beyond which is a projecting two-storey block at the corner of the building (viewpoint 5, above right), with a workshop on the ground floor, laboratories above, and a ramp down to the factory garage and boiler house at basement level. The laboratories have been placed



on either side of a spine corridor running east-west, and since these are reached by a single internal staircase, it has been necessary to provide a fire escape, which has been carried round to the courtyard to avoid fouling the garage doors.

On the south side (viewpoint 6, above left), the laboratories are treated externally with curtain walling, with brickwork at lower levels and at the corners of the block. Beyond is the boiler flue, carried up externally as a separate structure, but against the tank tower. The south side of the production and warehouse area has similar treatment to that on the north (viewpoint 7, above). The space left for further expansion at the west end of the site is at present used for car parking. The continually increasing proportion of car owners among factory employees in this country means that there is a growing demand for more parking space on industrial sites, and in this particular case it is likely to be a problem in the future, since no space will be left on the present site for such purposes when the factory is fully extended. The west wall of the factory (left) was originally conceived by the architect as being glazed, but it was found that such demountable external walling, which could be moved as the factory extended, would be more costly than brickwork. This solid wall will in any case form a useful firebreak to the building in its completed form. A large opening in the centre of the wall leads in to the loading bay of the factory.

building illustrated



Ground floor plan [Scale: $\frac{3}{8}" = 1' 0"$]

analysis

The factory is planned internally to allow for organizational methods which are familiar in the US, but are not generally adopted in this country. The most important features include a separate and self-contained directorate suite, the combination of virtually all the remaining office accommodation in to one single open space, and the use of an impressive entrance foyer for employees, as an incentive to higher standards of cleanliness and behaviour. The treatment of the main entrance hall (opposite) is also unusual for this country, in that the visitor, when he enters, is faced by a single receptionist at a normal desk, who is equipped only with a visitors' book and a telephone. The visitor is invited to wait in a lounge area which forms part of the entrance hall, with full double-storey height glazing on the south side, overlooking a small internal court, and looking straight into the factory canteen opposite.

CLIENT'S REQUIREMENTS

Two main types of accommodation were required, a production and warehouse area and a factory services block comprising directors' suite, offices, workshops, laboratories, canteen and staff lavatories and cloakrooms. Provision was to be made for future expansion of the production and warehouse area and should allow the fullest possible development of the site. A high degree of internal flexibility was required because of the uncertainty of the nature of future developments in production; in particular, certain areas of production which could not be precisely pre-determined would need to be air-conditioned. Handling and storage of raw materials and finished products were to be based on the use of fork-lift trucks, a clear ceiling height of 20 ft. being necessary for storage and 14 ft. for production. Most production areas required a high standard of hygiene and ventilation. For this reason no floor ducts could be permitted and all services to plant and equipment had to be from above.

PLANNING AIMS

The factory services block has been interpreted as a two-storey building along the east side of the site with the main entrance hall and directors' suite at the north end facing Bath Road. The production and warehouse area have been placed adjacent to this to allow for further expansion in a westerly direction. The same roof height has been used for both production and warehouse, allowing the production area to have a suspended ceiling with a continuous roof space over it for services. Owing to this there are no roof lights and the production area is therefore artificially lit to the exclusion of natural daylight.

SUMMARY

Ground floor area: 188,000 sq. ft.
Total floor area: 258,000 sq. ft.
Type of contract: RIBA (negotiated).
Tender date: May 20, 1955.
Work began: September, 1955.
Work completed: May, 1958.

The following cost analysis is based on the estimated total cost, excluding external works.

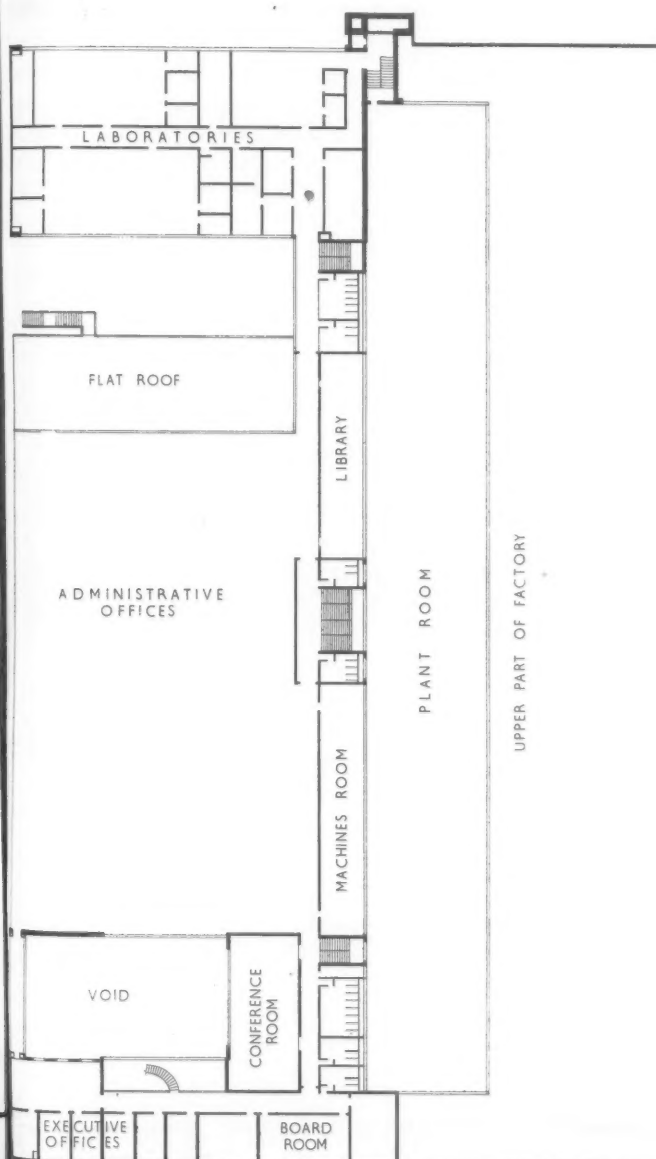
	cost per sq. ft.	s	d
Preliminaries and insurances		3	6½
Contingencies			Nil

Work below ground floor level 8 8½

Mass concrete taken down 1 ft. into firm ballast under brickwork walls and columns generally, in 1 : 2 : 4 concrete. Minimum depth of foundations established at 4 ft. 6 in. to reach a firm base. Slab foundations taken to top of slab level in each case. R.c. retaining walls and floor slab, asphalt tanked, to boiler house and garage ramp and basement. Deep excavation resulted in the basement being below the water table.

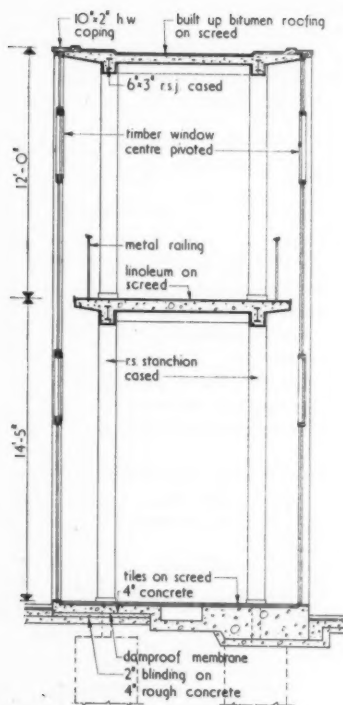
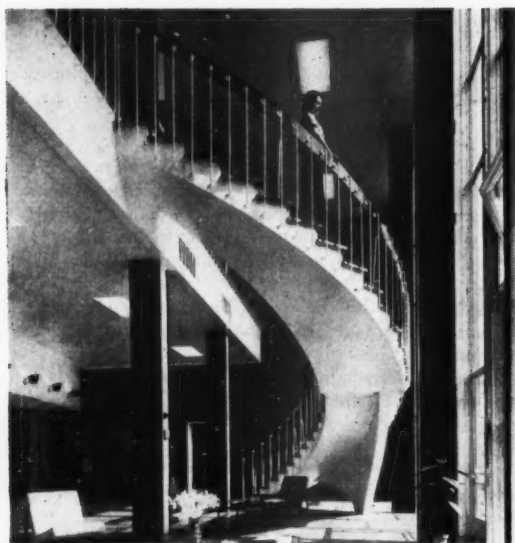
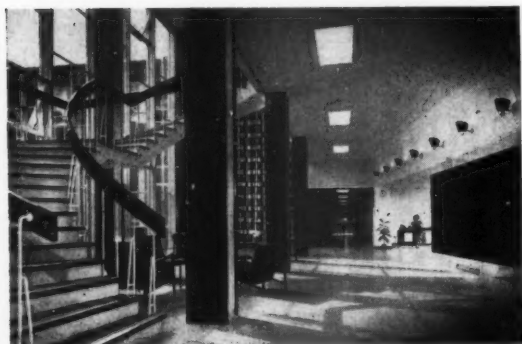
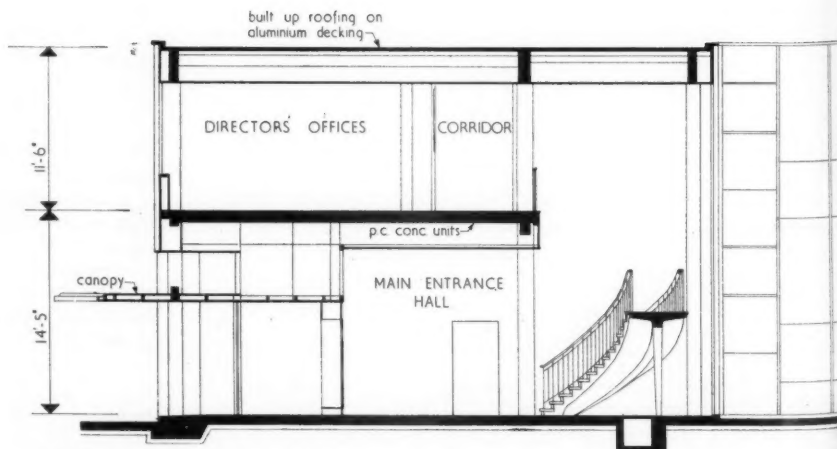
R.c. floor slab elsewhere, 6 in. above mean floor level, of mesh-reinforced concrete with waterproof. A considerable portion of the building is on compacted made up ground.

R.c. slab and retaining walls to tank farm, transformer house and site perimeters of mesh reinforced concrete with waterproof.

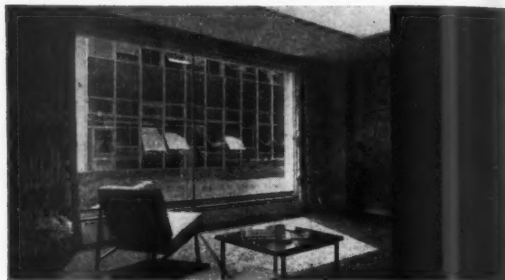


first floor plan

building illustrated

Section E-E through link
[Scale: $\frac{1}{4}'' = 1' 0''$]Section D-D [Scale: $\frac{1}{2}'' = 1' 0''$]

Left: behind the receptionist a corridor gives access to a series of small rooms used for interviewing visitors. The colour scheme in the entrance hall is mainly neutral, with black, white and greys, but relieved by a strongly patterned curtain in primary colours at the north end of the waiting area, and by the use of dark green Issorie marble facing on the opposite wall. The dramatic circular staircase (below left), up to the directorate suite is in reinforced concrete, supported on a single tapered pier, and was structurally designed by Neils Lisborg.



On the ground floor, and reached directly from the entrance hall through a doorway in the marble-faced end wall, is a pleasant small lounge (above), overlooking the internal court which separates the entrance hall and the directorate suite from the rest of the factory services block. The lounge opens out into the directors' dining room (below) with two doors leading off into a small servery. All internal surfaces in this servery are hard, in contrast to those in the dining room. The servery is supplied from the main canteen kitchen by a corridor, fully glazed on both sides, which closes the internal court on the east side.



analysis

STRUCTURAL ELEMENTS

s d

Frame or load bearing element

7 9½

Steel frame. In production area and warehouse roof, lattice girder, pairs of channels forming box stanchions, painted where exposed to view.

Span, 40 ft. and 44 ft. Light steelwork was appropriate to these spans and allowed speedy erection of frame.

Plant room floor and roof, plated r.s. sections, painted.

Span, 22 ft. by 40 ft. Heavy plant loads required stronger sections to maintain the same unobstructed floor area in the factory floor below.

Office block, r.s. stanchion and beams for smaller spans up to 25 ft.

Plate girders, lattices for longer spans, 60 ft. to 91 ft.

Lattices carry the roof over the general office, where the clients require greatest possible unobstructed floor space. Plate girder carries first floor over 60-ft. span. Steelwork selected for speedy erection and easy fixing for secondary building elements.

External walls and facings

2 9½

14-in. brickwork to full height of building on external faces. Multi-buff facings to main road frontage, buff Uxbridge flints to other frontages and tank tower, sand limes internally.

10½-in. cavity walls to first floor and on internal full height fire and dividing walls penetrating roof level. Breeze block internally to external walls.

Buff Uxbridge flints as external facings. Breeze or sand limes internally, plastered or fairfaced painted.

8-in. glass insulation blocks to east wall of kitchens and first aid rooms, providing diffused light within and preventing viewing from outside.

Sandlimes with mineral finish to north courtyard, chosen to give brightness to an enclosed courtyard with N. and S. aspect.

Glazed hardwood screens to interview rooms and main entrance hall in Honduras mahogany, and to board room, in teak. Used to give transparency and "openness," which has publicity value.

Plywood panels, veneer faced, mahogany, to face above glazed hardwood screens in ground floor offices and main entrance. These are part of the glazed entrance screen treatment.

Plywood panels, metal faced and painted, sealing panels to soffit of overhanging curtain wall.

$$\text{Ratio: } \frac{\text{solid wall}}{\text{floor area}} = \frac{0.252}{1}$$

Curtain walls

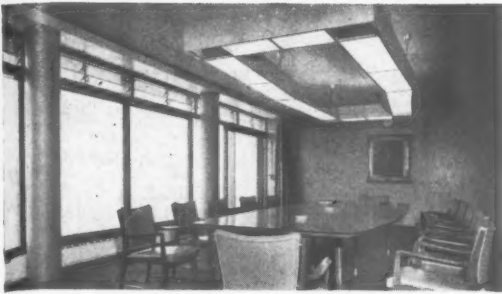
2 6½

Curtain walling with plastic panel infilling to first floor offices and laboratories generally. Finished, natural brown plastic. Corrugated aluminium sheeting to plant rooms and roof upstand, 22 gauge aluminium sheet fixed to timber studding. Both are dry construction.

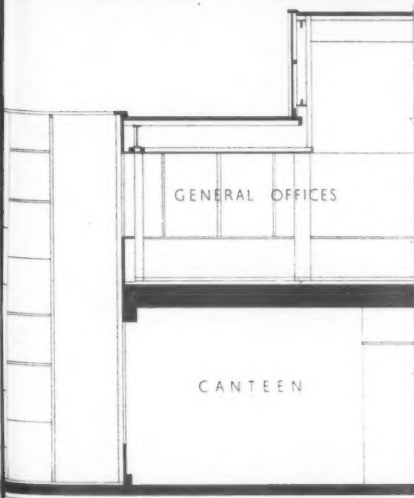
Plant rooms have a hardwood frame incorporating glass louvres of a pre-arranged pattern, an integral part of the aluminium sheet cladding.

Georgian wired ¼-in. glass. Chosen as an adaptable arrangement to suit possible changes to mechanical plant installation.

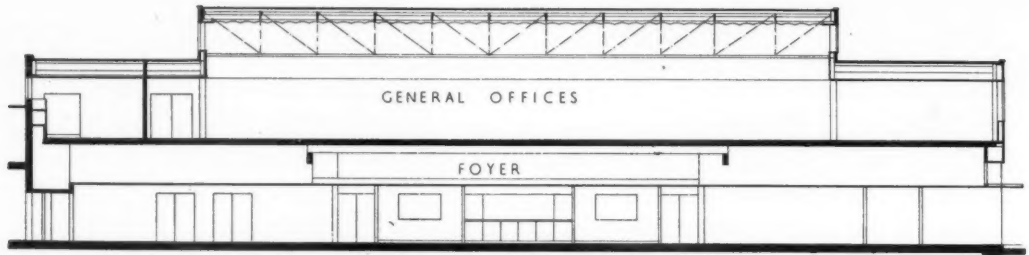
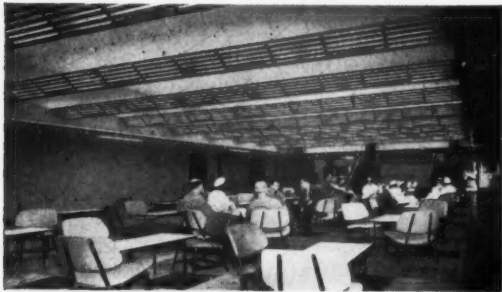
$$\text{Ratio: } \frac{\text{curtain walls}}{\text{floor area}} = \frac{0.0782}{1}$$



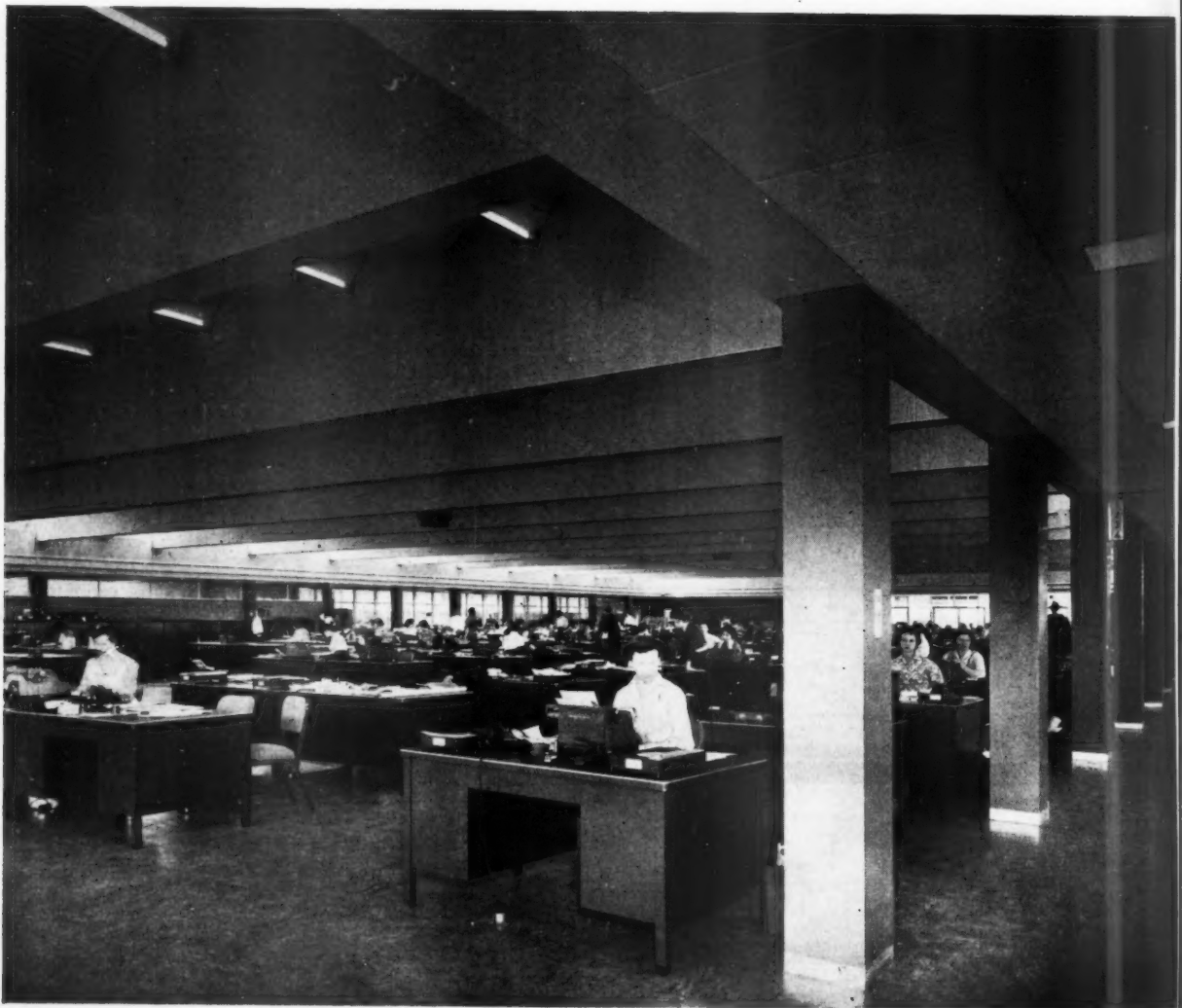
Upstairs are the directors' individual offices with a small pool of typists in the circulation space outside. The board room (above), on the same floor, has a specially designed fluorescent fitting over the table and the external wall is fully glazed by timber sliding casements, fitted with edge-sealed double glass (below) and above them adjustable glass louvres. This fenestration was not detailed to be air sealed, as natural ventilation was desired even at the risk of the noise of heavy traffic on the Bath Road below leaking into the interior, which has a low internal noise level because of the absorbent ceiling and a fully fitted carpet on sponge rubber underlay. As the architect feared, the noise from the road was too great, so the room is to be provided with sealed windows, and air-conditioning to overcome this problem.



building illustrated

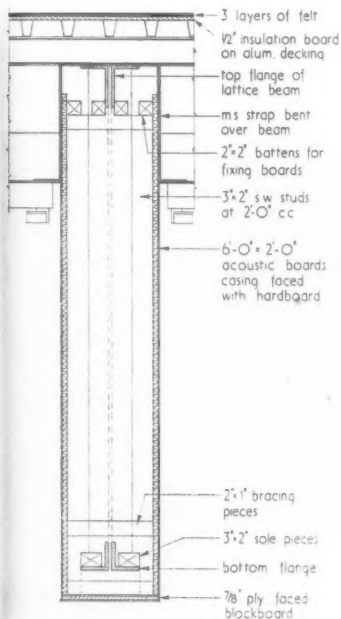


Section B-B [Scale: $\frac{1}{8}" = 1' 0"$]



analysis

The employees enter into a foyer (opposite, left) which is artificially lit to a relatively high level by specially designed semi-indirect fluorescent fittings, consisting of wood slats with glass-fibre internal lining. There is circulation space round the periphery of the hall, and easy chairs and tables placed in the centre to form a comfortable lounge. Opening off the entrance hall to the left are cloak rooms and lavatories, and on the right the factory canteen (opposite, right). This is mainly artificially lit, but has windows at the north and overlooking the internal court, and the entrance hall beyond. Fairly strong colours have been used in this area, and this appears to emphasize the distortion that occurs under the fluorescent lighting, so that one end of a wall which is daylight appears quite different from the other end under the artificial light although it is in reality painted only one colour. The well-equipped kitchen is fully visible to the whole canteen during the operation of the cafeteria service, as requested by the client. The normally complex detailing of hatches to close off this opening has been avoided by the use of venetian blinds. The canteen is intended to be used for social functions, such as dances, and has therefore been equipped with stackable furniture and a hardwood block floor.



Detail of casing to lattice beam in general office [Scale: $\frac{1}{4}$ " = 1' 0"]

A generous staircase from the employees' entrance hall leads to a clocking-in area for office staff on the first floor opening on to the main office (opposite, bottom). Virtually all the office accommodation, other than that for the directors and a small reference library, is housed in this large continuous space, the typing pool and filing being centrally placed, with other office employees round the periphery. The success of such accommodation depends almost entirely upon preventing the spread of noise, particularly by having a ceiling which will not only absorb a high proportion of the noise, but will also be broken up, rather than flat, to prevent any reflection of sound.

External doors

Directors' entrance, toughened plate glass.
Staff entrance, ebonised hardwood frame, $\frac{1}{4}$ -in. plate glazing.
Staff locker rooms, solid hardwood flush, varnished.
Warehouse, ledged, braced, framed and battened, painted softwood.
Heavy sliding doors in loading bay, 12 ft. \times 12 ft. to allow loaded fork-lift trucks to pass.
Garage, painted steel roller shutters with hand operated mechanism.

$$\text{Ratio: } \frac{\text{doors}}{\text{floor area}} = \frac{0.00744}{1}$$

Upper floors

	Span of each type	Area of each type
Precast concrete units in office block	12 ft.	34,395 sq. ft.
Prestressed floor over canteen, of precast concrete boxes, post tensioned	60 ft.	5,400 sq. ft.
In situ concrete, link corridor between directors' suite and general office	12 ft.	2,340 sq. ft.
Superloads: all 80 lb./sq. ft.		

Staircases

Office block: *in-situ* reinforced concrete, with linoleum treads and risers with mahogany edges to both.

Directors' entrance: a curved staircase with sculpturesque quality enhances the importance of the directors' suite. It is of *in-situ* reinforced concrete with precast terrazzo treads and risers, and plaster sides and soffits.

Tank tower and laboratory: steel was chosen to enable the main carcase to go ahead rapidly so that installation of plant and services could begin.

Finished grano, laid in pressed steel treads.

Fire escapes to offices and laboratory: steel.

No. of staircases: 5.

Width: 6 ft. average.

Total rise: 20 ft. 5 in.

Floor to floor height: 14 ft. 5 in.

Roof construction

Offices and warehouse: aluminium decking and insulation board on steel purlins, chosen as most economic in speed of erection and for fire insurance. Laboratory: screed laid over precast concrete units. This will become the floor of a future additional storey.

Area of roof: 20,915 sq. ft.

Glazing

Double glazing incorporated in curtain walling, with edge seal of bituminized asbestos. Chosen for increased thermal insulation.

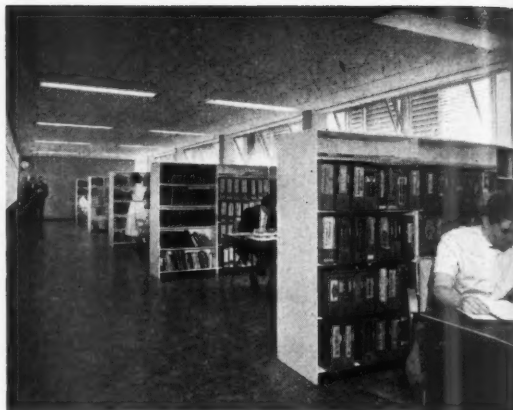
$\frac{1}{4}$ -in. plate in directors' entrance and interview rooms.

Aluminium section $\frac{1}{4}$ -in. georgian rough cast glass in warehouse.

Aluminium section 32-oz. clear sheet in office clerestory and workshops.

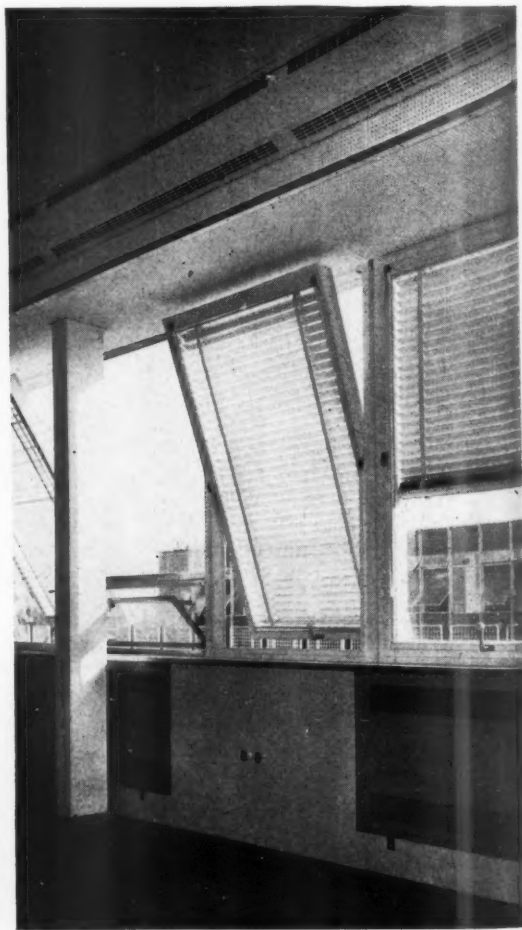
Obscured glass for high level glazing to first floor lavatories.

building illustrated



Above left, the clocking-on area for the office staff, on the first floor. Above right, the reference library, which is off the main office on the first floor. Below left, close up of the ceiling in the main office. It has been made irregular in both directions, by exposing the deep structural beams, which span 90 ft. across the central area without intermediate columns, and by having between them a waved soffit formed of slotted fibrous plaster with glass wool backing. Acoustic tiles have been used as a finishing to the beams and the design chosen has, of course, the further advantage that a far greater area of absorbing materials can be employed than would be the case with a flat ceiling. A quiet

floor, such as cork tiles, is less important in such cases than the ceiling treatment, but nevertheless a distinct advantage to reduce impact noise. In this instance, however, linoleum tiles have been used to resist indentation by furniture. Telephone lines and power for the office machines have been run in the floor screed with outlets at convenient intervals. At the outside wall on the south side (below right) timber opening lights have been set in the aluminium curtain walling with venetian blinds between two sheets of double glass. At the columns, however, metal windows have been used and blinds omitted. Below the sill level there are recessed heaters with fitted cupboards between.



analysis

32-oz. clear glass in factory windows, small windows in directors' suite, and small windows of kitchen, first aid and locker rooms. $\frac{1}{4}$ -in. plate windows on south side of offices and laboratories, two sheets being used to form double glazing with venetian sun-blinds between.

Total of structural elements

17s 3 $\frac{1}{2}$ d

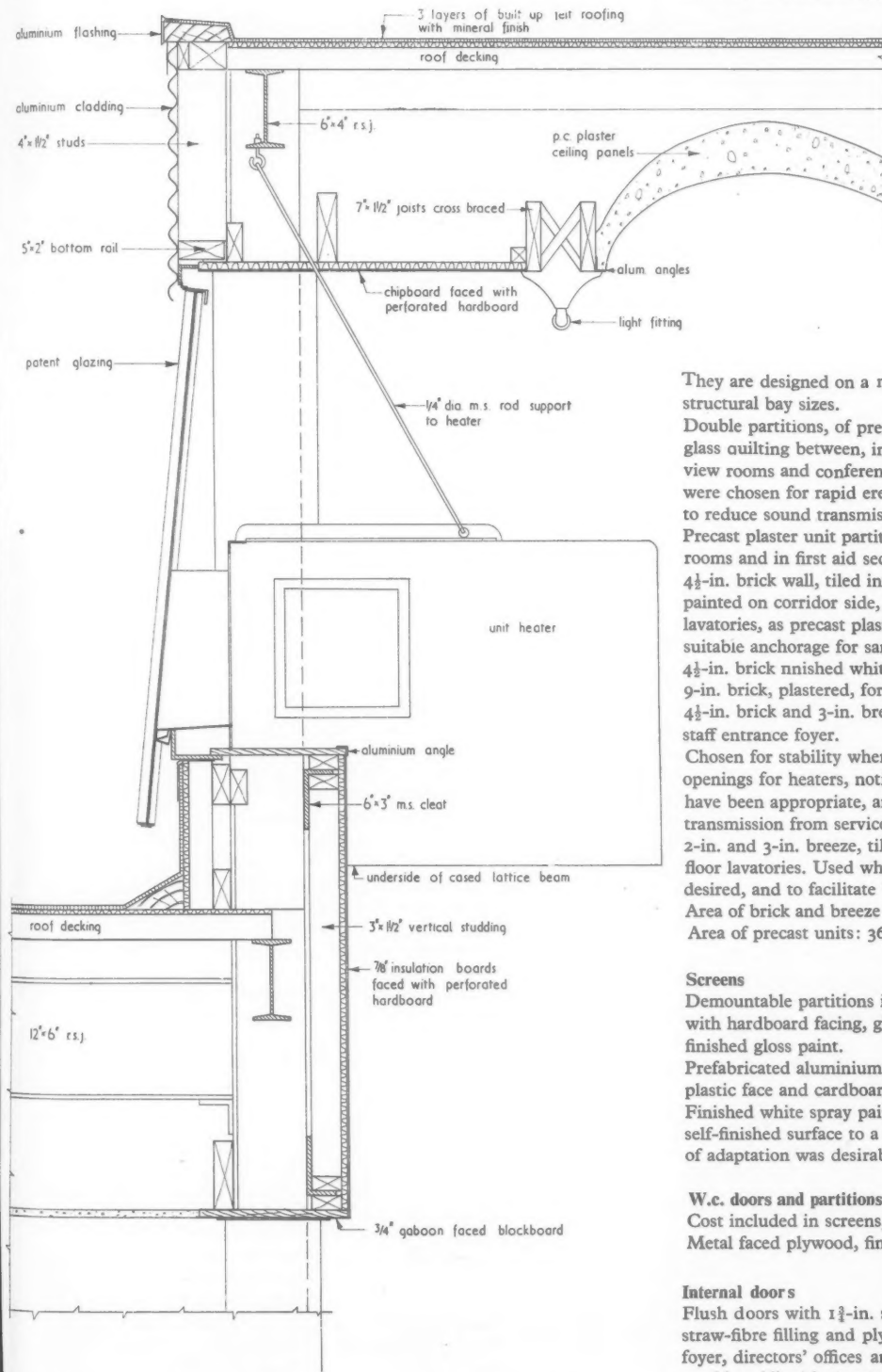
s d PARTITIONS AND FITTINGS

s d

Internal partitions

2 1 $\frac{1}{2}$

Half-glazed partitions in factory production area: precast plaster below dado, 32-oz. sheet in softwood timber framing above, all contained in steel framework. Plaster self finished and emulsion coated, woodwork painted. These partitions are designed as permanent but can if necessary be taken down and framing and timber glazing re-used.



Detail of high-level window on east and west sides of offices [Scale: $\frac{1}{4}$ " = 1' 0"]

They are designed on a modular basis to fit structural bay sizes.

Double partitions, of precast plaster units with glass quilting between, in directors' offices, interview rooms and conference room. Precast units were chosen for rapid erection, and double walls to reduce sound transmission.

Precast plaster unit partitions between locker rooms and in first aid section.

$4\frac{1}{2}$ -in. brick wall, tiled inside, plastered and painted on corridor side, for ground and first floor lavatories, as precast plaster does not provide suitable anchorage for sanitary fittings or for tiling.

$4\frac{1}{2}$ -in. brick finished white glazed tiling for kitchen.

9-in. brick, plastered, for telephone exchange.

$4\frac{1}{2}$ -in. brick and 3-in. breeze with wall ties, for staff entrance foyer.

Chosen for stability where precast plaster with openings for heaters, notice boards, etc., would not have been appropriate, and to reduce noise transmission from service plumbing behind.

2-in. and 3-in. breeze, tiled, in ground and first floor lavatories. Used where thinner walls were desired, and to facilitate "chasing" for services.

Area of brick and breeze: 45,529 sq. ft.

Area of precast units: 36,602 sq. ft.

Screens

9 $\frac{1}{2}$

Demountable partitions in offices, timber framing with hardboard facing, glazed above dado and finished gloss paint.

Prefabricated aluminium framing, with melamine plastic face and cardboard core in laboratories.

Finished white spray paint. Here a hard, clean, self-finished surface to a system of walling capable of adaptation was desirable.

W.c. doors and partitions

Cost included in screens, above.

Metal faced plywood, finished gloss paint.

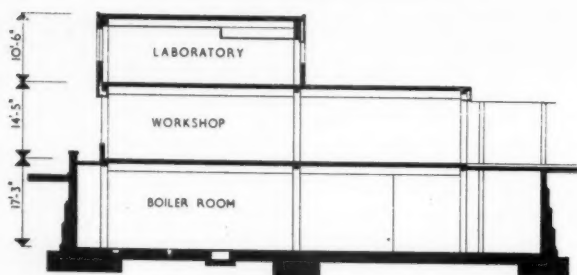
Internal doors

5

Flush doors with $1\frac{1}{2}$ -in. skeleton frame with straw-fibre filling and ply facing, off staff entrance foyer, directors' offices and directors' entrance corridor. All with ebonised finish.

Flush doors as above but with hardboard facings,

building illustrated

Section A-A [Scale: $\frac{1}{8}'' = 1' 0''$]

At the south end of the factory services block is the workshop on the ground floor and the laboratories on the first floor. These latter are divided off by demountable partitions, to allow for changes to meet possible future space demands. Benching is generally placed at right angles to the windows, and fume cupboards on the inside wall against the central corridor, with special extract ducting (below).



analysis

s d

painted black throughout office block.

Glazed doors, hardwood frame, $\frac{1}{4}$ -in. georgian wired, polished plate glazing, to staff entrance foyer and corridors generally. Finished ebonite. Chosen for fire resistance and furnished with push plates.

No. of single doors: 180

No. of double doors: 64 pairs.

Ironmongery

2½

Lever handle anodized aluminium generally, with mortice latch and mortice deadlock. Push handles in ebonised hardwood. All doors except to private offices have check action floor spring, to minimize draughts from mechanical ventilation.

Fittings

1 2½

Main entrance hall: Purpose-made hardwood framing, satin bronze and satin anodized aluminium trims.

Three directors' offices and directors' dining room:

Panelling with selected veneers and full hardwood slatted surfaces secretly pinned to battening.

Natural finish with semi-gloss varnish.

Directors' offices cupboard doors: Veneer faced block board, with painted softwood surrounds, forming panelling to one wall.

Ground floor lavatories: A cast iron, stove enamelled, bracketing system with Georgian wired plate glass splash back.

Locker rooms: A steel angle support frame to lockers 9 in. above finished floor level, with void beneath lockers for heating coils, so that clothes can be dried in lockers. Hardwood slatted seat/foot stand.

Ground and first floor offices: Softwood framing faced in hardboard houses all perimeter heating panels and provides cupboards between panels.

Kitchens and snack bar: Tops generally aluminium and plastic faced on soft-wood framing. Tray slide rail in anodised aluminium.

Conference room: Hardwood and blockboard panelling incorporating light fittings, all on soft-wood framing, with polished and ebonised finishes.

Board room: Special framing for decorative cork contoured wall map of the world.

Laboratories: Benching and fittings. Purpose-made casing to service racks in softwood and blockboard facing, with aluminium trims and skirtings. Tops oiled and treated with resins.

Staff foyer and recreation areas: Decorative fittings in sycamore, honduras mahogany and teak, wax polished.

Canteen and snack bar: Melamine faced block board and footrest fitting for service counters.

Total of partitions and fittings

4s 9½d

FINISHES

5 2½

Floor finishes

Location	Type of finish	Area in sq. yd.
Canteen	Wood block	721
Main entrance and first aid unit.	Pre-cast tiles and in situ terrazzo smooth finish, black and white aggregate.	3,505
Interview rooms.	$\frac{1}{4}$ -in cork tiles.	49
Offices, staff entrance foyer, corridors, locker rooms, etc.	Linoleum tiles	5,321
	4·5 mm. for offices etc. 6·7 mm. for foyer.	

analysis

<i>Location</i>	<i>Type of finish</i>	<i>Area in sq. yd.</i>
Lavatories, kitchen and boiler house.	Tessalated tiles ½ in. black finish.	1,082
Workshops, garage, personnel corridor, loading bay, kitchen yard, ancillary offices, special cubicles.	Granolithic with dust proof compound, steel floated.	3,505
Production areas, pilot laboratories in factory area, and warehouse.	Cement/flint aggregate specially processed, impact resisting toughened tiles.	13,480
Laboratories, gate houses.	Grey p.v.c. tiles, acid resisting.	1,115
Directors' offices, board room, directors' dining room, conference room, corridor and secretaries' space in directors' offices.	Cement/sand screed covered by fitted Wilton carpet on latex backing. 3-in. hardwood edging to facilitate cleaning.	691

Wall finishes

<i>Location</i>	<i>Type of finish</i>
Main entrance and return on to exterior face.	¾-in. Issorie Vert marble.
Lavatories, kitchen serveries, personnel corridor.	6-in. × 6-in. white glazed wall tiles.
Time clock wall on 1st floor and exterior of personnel office.	Coloured tiles in corridor.
Brickwork generally in offices.	6-in. × 6-in. decorative glazed tiles.
Upper levels of general office and casing to main lattice girders.	Lime plaster finished oil paint lustre.
	¾-in. insulation board faced with a ¼-in. perforated hardboard fixed back to studding finished emulsion paint.
Warehouse, staff foyer entrance, engineering workshops.	Fairfaced sand lime bricks, finished emulsion paint.

Casings to columns

Cost included under wall finishes.	
Stanchions in production areas.	Aluminium sheet bonded to ¼-in. ply formed blocks round column, finished gloss paint.
Ground floor offices.	Cased 2-in. concrete, finished ¾-in. plaster and oil paint.
First floor offices.	Precast gypsum casing on to 1-in. insulation board dressed around columns, finished oil paint lustre.

Ceiling finishes

<i>Location</i>	<i>Type of finish</i>
Canopies, lavatories	Lime plaster on to plaster board/XPM, gloss finish.
Kitchens, first aid unit.	Gypsum precast panel flush pointed. Gloss finish.

<i>Location</i>	<i>Type of finish</i>
Main entrance foyer, staff foyer, link corridor between director's offices and general office.	Prefabricated panel heating ceiling to metal grid, stove enamelled.
First floor general office high level between main lattices.	Purpose made acoustic ceiling of precast gypsum plaster to suspended metal framing, finished emulsion paint.
All suspended ceilings.	1-in. glass wool impregnated blanket.
Main personnel corridor and directors' dining room.	Luminated ceiling of thin, opaque p.v.c. corrugated sheet.
Personnel corridor.	Rabbit warren acoustic tiles 1-in. insulation board faced in perforated hardboard, finished emulsion paint.
Production areas, directors' dining room.	¾-in. acoustic tiles screwed to suspended metal grid V-pointed.
Generally in all areas except high level ceiling.	¾-in. acoustic tile screwed to suspended timber batten grid V-pointed.

Roof finishes

Patent metal decking and felt covering, or felt on screeded concrete. Cost of decking and concrete shown under roof construction.

Decorations

Production areas and ceilings above 9-ft. height where not self-finished.	Sealer, 2 coats emulsion.
Joinery and fittings generally.	Primer, two coats gloss.
Factory services block.	Primer, two coats oil semi-gloss.
Hardwood internal joinery.	Ebonising, varnishing and wax polishing.
Metal work.	Gloss paint.
All colours were selected from the BS colour range.	

Total of finishes

17s 0d

SERVICES

External plumbing

Rainwater disposal, down pipes, internal vertical ducts cased in with steel columns. Pitch fibre pipes, used for economy.

Exposed down pipes, aluminium.

Internal waste disposal and soil wastes, from w.c.s in vertical ducts. Cast iron pipes, LCC pattern. All pipe work and plumbing concealed but accessible from removable ducts.

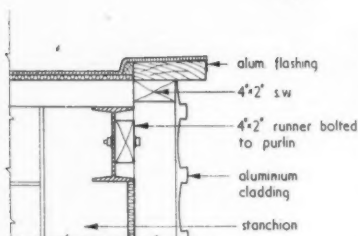
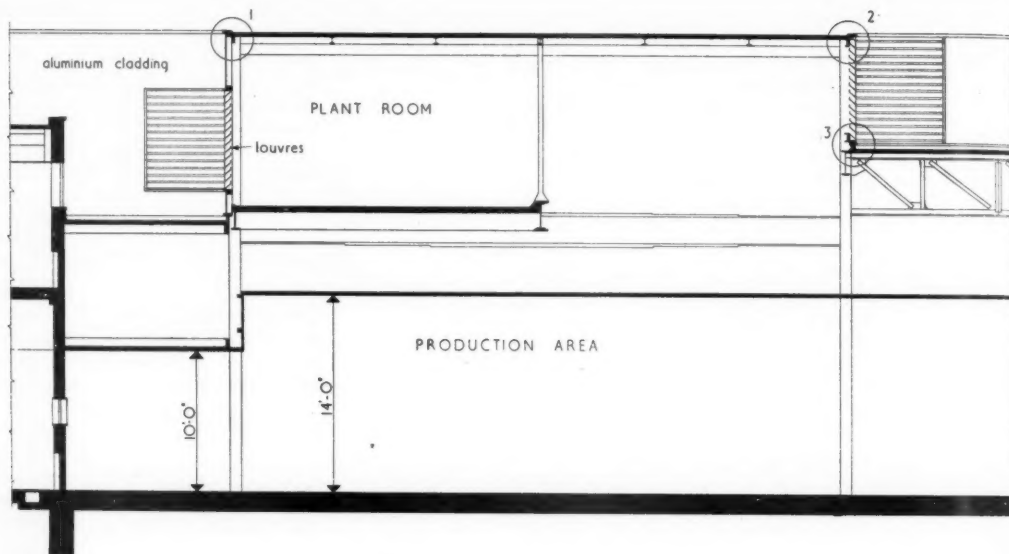
Waste and anti-syphon pipes from lavatory basins and drinking fountains, 2-in. copper. Exposed, with accessible traps.

Hot and cold water installation

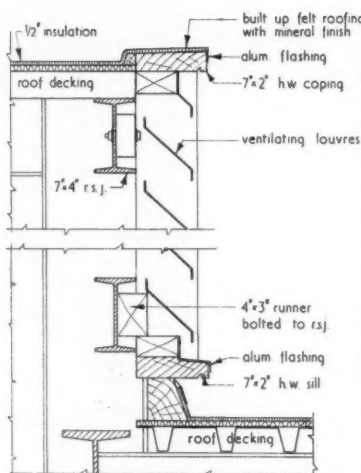
The main enters at the N.S. corner of the site and runs the length of the factory services block to the tank tower with direct feeds to drinking fountains en route. The 21,000 gallon tank has a centre

Continued on page 106

building illustrated



Section C-C [Scale: $\frac{1}{8}'' = 1' 0''$]
and details 1, 2 and 3 [Scale: $\frac{1}{4}'' = 1' 0''$]

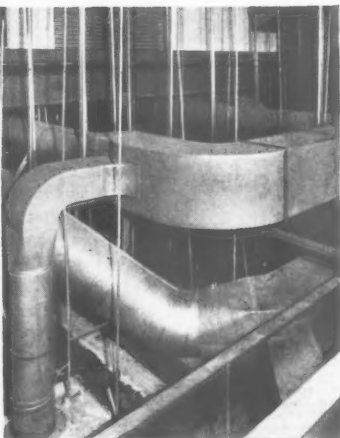
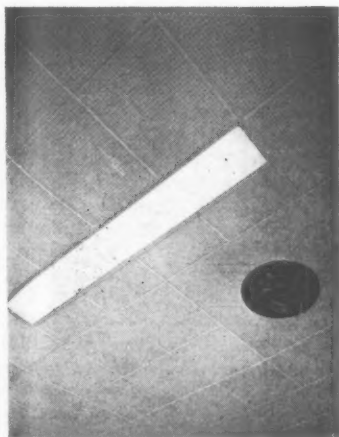


The types of production for which the client required accommodation could be divided into three main types: first, manufacture and packing of dry products such as tablets; second, liquid processing and bottling such as disinfectants; and third, the specialized packing of products made elsewhere. The client required a high degree of flexibility, especially of services, to allow for changes of processes and their layout, and in particular to have the

ability, over certain areas which could not be predetermined, to introduce full air-conditioning. The client also required overhead services and rejected the idea of floor ducts. And because of the nature of the production, demanded an interior with a high standard of cleanliness, free from ledges or other features which could harbour dust. To allow for these requirements the architect decided upon a suspended ceiling for the production area, with walk-way space above, in which the services could be placed and maintained as required. Such a step eliminated the possibility of natural roof lighting, a design decision which the architect regarded as readily acceptable since he believes it to be of no "psychological value." At the same time the architect carried out cost studies which indicated that to adopt total artificial lighting and ventilation would involve lower capital costs than roof lights with partial artificial ventilation, and that the extra running costs involved in a totally enclosed design would be a comparatively minor element of the total factory running costs. He was anxious, however, to introduce side lighting for psychological reasons, even though it could be discounted for the lighting of the main body of the production area, because of its size (daylighting in this form being only capable of penetrating at a sufficient level for about 20 ft. into the building). One method proposed was the use of internal courts, but these were rejected by the client because such planning would not make full use of the site, and because if placed within the body of the production area there would be a loss of flexibility. External side glazing was not possible on the north side facing Bath Road, and on the west side, as already stated, a solid brick wall was necessary to form a fire break when the site was fully developed. In any case, the client considered wall space desirable for stacking and production use, so that the solution finally adopted has been a totally enclosed factory, except for the small view windows on the north and south external walls. The architect has, however, taken certain precautions to ensure as far as possible a satisfactory working environment. This treatment includes careful consideration of the employees' approach into the building, through a well-lit entrance foyer, then by small lobbies which are frankly artificially lit with tungsten fittings, into the main circulation corridor (left) running the full width of the production area, with a low-level luminous ceiling and intended to give the illusion of natural roof lighting.



building illustrated



From the corridor the employees enter the production area (above) with its higher ceiling level, which is lit to 25 lumens per sq. ft. by 8-ft. fluorescent tubes behind flush diffusing plastic panels (far left). The architect was anxious to achieve a sense of spaciousness by the use of glazed screens to give views through the various areas, coupled with large expanses of unbroken wall surfaces which have soft and very light colouring. At the same time the suspended acoustically-absorbent ceiling creates a noise level which is remarkably low for a factory, and a sense of freshness is provided by the artificial ventilation, designed to give six air changes an hour with additional extracts at points where dust is created by machines, to prevent it spreading through the interior. The general effect of these measures is that spacious quiet, clean and pleasant working conditions have been created (left) at a much higher standard than those of the normal factory environment. Only when one can see daylight outside through the view windows, which makes the lighting inside seem low and gloomy by comparison, is one aware of any feeling of deprivation. The warehouse (far left) has the same structure and roof level, so that it can later be added as necessary to the production area. By omitting the suspended ceiling, however, 20 ft. clear stacking height is created which can be fully used by fork-lift trucks. These are also used exclusively in the production area for handling raw materials and products, and this has avoided the need for conveyor belts or other methods which would have tended to reduce flexibility. The warehouse is lit by suspended fluorescent through-fitting and heated by fan-boosted batteries. The floor finish throughout the production and warehouse areas is a pre-cast hard concrete tile. The plant room is placed at roof level, and runs the full length over the east side of the production block. From it (left) the ducts and other services run into the roof space over the production area, which has catwalks for servicing and maintenance.

analysis

division so that half may be emptied at any time for cleaning. One main from the tank serves the w.c., and another feeds the two storage type heat exchangers for domestic hot water, which is circulated by pumps.

Sanitary fittings

Type of fitting	No. of each type
W.c.s	70
Basins	45
Sinks	19
Scrub up	72
Urinals	29
Drinking fountains	17

Laboratory wastes are stone-ware glazed, lined c.i. down pipes with alkali resisting joints.

Heating and ventilation

Cost included under hot and cold water installation. Process and heating requirements are met by two boilers each rated at 8.5×10^6 BThU/hr, and one at 3×10^6 BThU/hr. All three are oil fired and designed to supply h.p.h.w. at a 120 lb./sq. in. The factory services block is generally heated by l.p.h.w. from heat exchangers in the boiler house with pumped circulation, supplying convectors, and in some areas skirting heaters or cast iron radiators, and in entrance hall radiant ceiling panels. In addition there is floor heating in the main entrance hall, and in employees' cloakrooms pipe coils are run below the lines of lockers. Heating and ventilating of the production area is by 32 fan units in the plant room, each consisting of air filter, heater battery served from the h.p.h.w. boilers, and centrifugal and extract fan. The air is carried by ductwork in mild galvanised steel. For air conditioned areas the plant is similar, but the humidity is reduced by passing the air over an activated alumina and cooled by cold water from an existing borehole pump.

Internal temperatures: offices and production area, 65 deg. F., warehouse, 55 deg. F.

Air change: production area, lockers rooms, 6 per hour; canteen, 10 per hour; kitchen, 25 per hour.

"U" of walls: .25 for curtain walls.

"U" of roof: .33

Drainage

Surface water: cast iron spigots and rain water shoes at connection from down pipe to drain. Thereafter salt glazed throughout. Discharge into 12-in. diam. main drainage runs. Thereafter to culvert owing to local authorities' inability to accommodate discharge. Soil drainage; salt glazed throughout. Sewerage pumped up to higher level from basement, main runs thereafter discharge to local authorities' sewer.

Chemical drainage: from laboratories. Chemical stone-ware pipe to dilution chamber.

Gas installation

Cost included under heating.

No. of points: 78.

Electrical installation

Type of point	No. of each type
13-amp. 3 pin	500
15 amp. 3 phase	140
30 amp 3 phase	37

Total of services

31s 2½d

s d

Fire precautions

Cladding. Two hours' fire resistance to all ground floor steel work.

Half an hour's fire resistance, first floor.

2½ Fire doors. Provide openings to flame proof areas. Solid timber, metal faced.

Fire fighting equipment, hose, extinguisher and alarm system, throughout building, as laid down by company regulations.

£1,065,000 (net cost excluding external works)

Total per sq. ft. = $\frac{258,000 \text{ sq. ft. (floor area measured inside external walls)}}{82} = 82$ 6½

COST COMMENTS

The client's need for air conditioning and a high standard of hygiene and ventilation for this factory means that nearly 25 per cent. of the cost (20s. 3½d. per sq. ft. of floor area) has been spent on hot and cold water, gas and the heating and ventilation installations. Other significant characteristics of the cost pattern are these:

(a) The need to provide for future expansion necessitates that the first instalment is built uneconomically in that it must carry the initial site development, service connections, source of heating and ventilating, etc.

(b) A high degree of internal flexibility precludes the use of the cheaper form of solid internal partition in favour of demountable light-weight modular-designed dry partitioning.

(c) Ceiling heights of 14 and 20 ft. for production area and warehouse have fixed the cubic content for much of the building and have a direct bearing on the costs of frame, walling, heating and lighting.

(d) The demand for unobstructed floor areas entails heavy steel beams whose cost per foot run increases disproportionately with increase of span. Once an optimum economic span has been reached the client pays extra for his open space.

(e) The desire for a "prestige" building has meant that almost as much goes on finishes (16s. 11½d. per sq. ft. of floor area) as on the structural elements (17s. 3½d.).

It should be noted that there are no contingencies in the analysis which is based upon estimated final cost. The contract was negotiated.

CONTRACTORS

1 11½

Clerk of Works: A. L. Cumming. General contractors: W. & C. French Ltd. Sub-contractors: Heating, ventilation and mechanical services generally: Z. D. Berry & Son Ltd. Acoustic ceilings: Petradene Ltd. Plaster Decorations Ltd. Heated acoustic ceilings: Frenger Ceilings Ltd. Flooring: Catesby Ltd. British Mouldex Ltd. Windows: Macleans & Co. (Metal Windows) Ltd. Window surrounds: The Bow Slate & Enamel Co. Ltd. Roofing: William Briggs & Son. Door furniture: Parker, Winder & Achurch Ltd. Doors: Gliksten Doors Ltd. Sanitary fittings: Adamsez Ltd. Power operated door and folding partitions: Bolton Gate Co. Ltd. Steel rod and mesh reinforcement: The Spencer Wire Co. Ltd. Partitions: Holoplast Ltd. Firmin & Collins Ltd. Belroc Partitions Ltd. External aluminium cladding: Carter Horseley Ltd. Curtain walling: Holoplast Ltd. Luxfer Ltd. Tiling: Carter Tiles Ltd. Entrance gates: Bayliss, Jones & Bayliss Ltd. Special aluminium fittings: Aluminium Construction Co. Ltd. Aluminium Alloy Fabrications Ltd. Special ceilings: Luminated Ceilings Ltd. External veneers: William Mallinson & Sons Ltd. Marble panelling: H. T. Clements Ltd. Locker equipment: Norwood Steel Equipment (London) Ltd. Armour plate doors: Pilkington Bros. W.c. partitions and metal faced casings: Flexo Plywood Industries Ltd. External staircases and patent glazing: Hayward Ltd. Tea hoist: Hammond & Champness Ltd. Paint: Silexine Paints Ltd.

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working detail

STAIRCASES: 42

STAIRCASE: COLLEGE IN LONDON, W.1

F. R. S. Yorke, E. Rosenberg and C. S. Mardall, architects

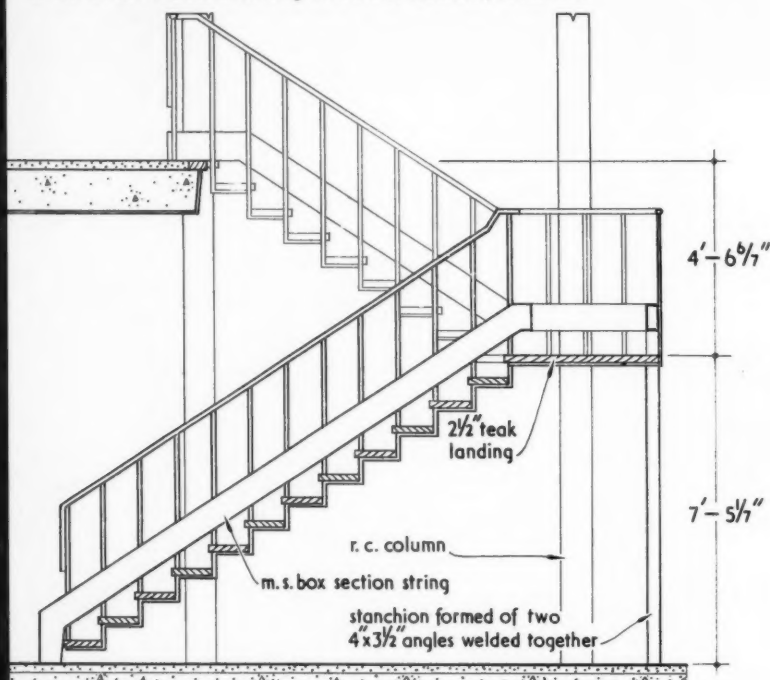


The device of raising the strings above the treads has the effect of giving an unusually strong definition to flights and landing. The balusters are more substantial than usual (1½ in. by 1 in. mild steel) as they support the treads.

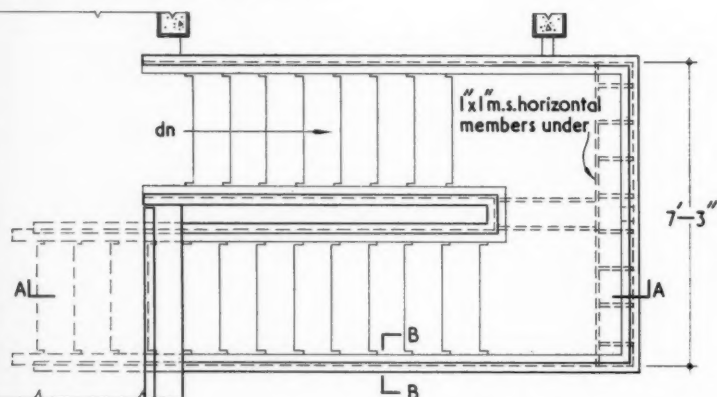
working detail

STAIRCASE: COLLEGE IN LONDON, W.1

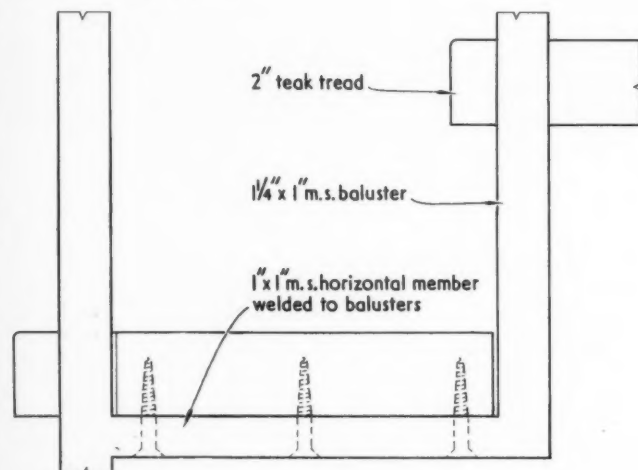
F. R. S. Yorke, E. Rosenberg and C. S. Mardall, architects



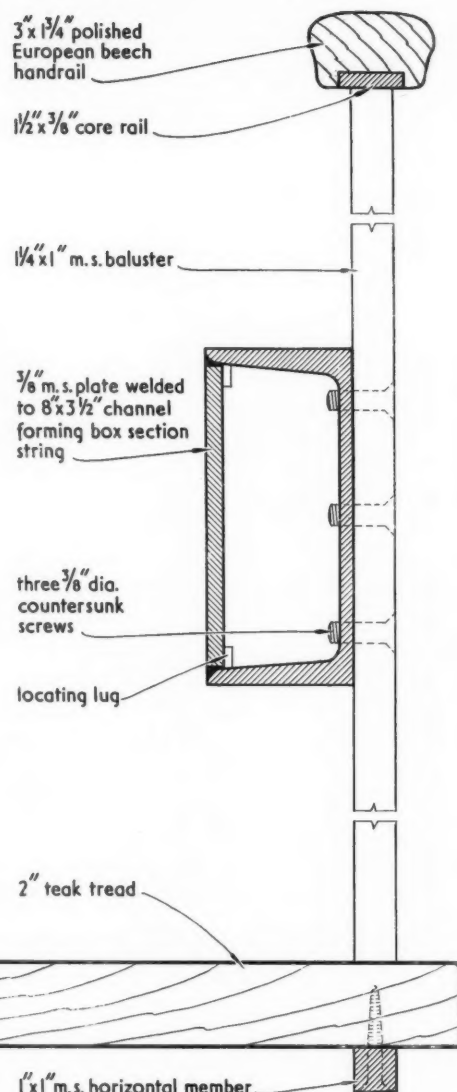
SECTION A-A. scale $\frac{1}{4}'' = 1'-0''$



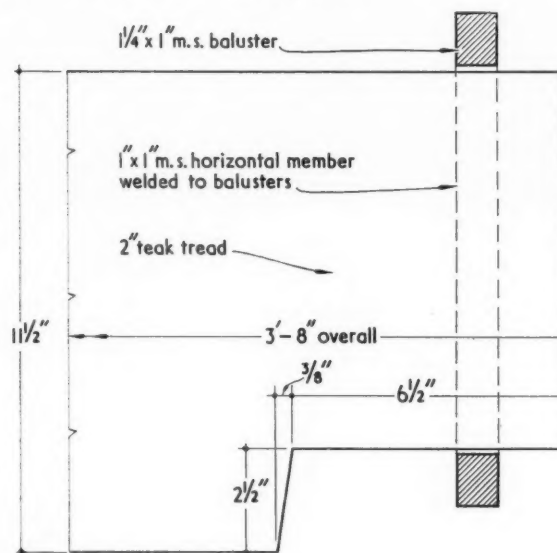
PLAN. scale $\frac{1}{4}'' = 1' - 0''$



END ELEVATION OF TREAD. scale $\frac{1}{4}$ full size



SECTION B-B. scale $\frac{1}{4}$ full size



PART PLAN OF TREAD. scale $\frac{1}{4}$ full size

working detail

WINDOWS: 65

WINDOWS: FLATS IN LONDON, S.W.3

Walter Segal, architect

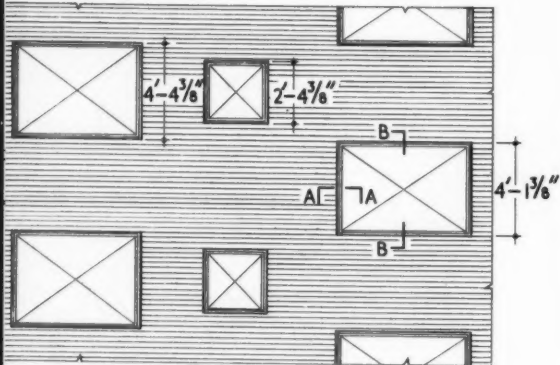
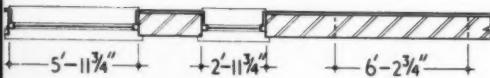
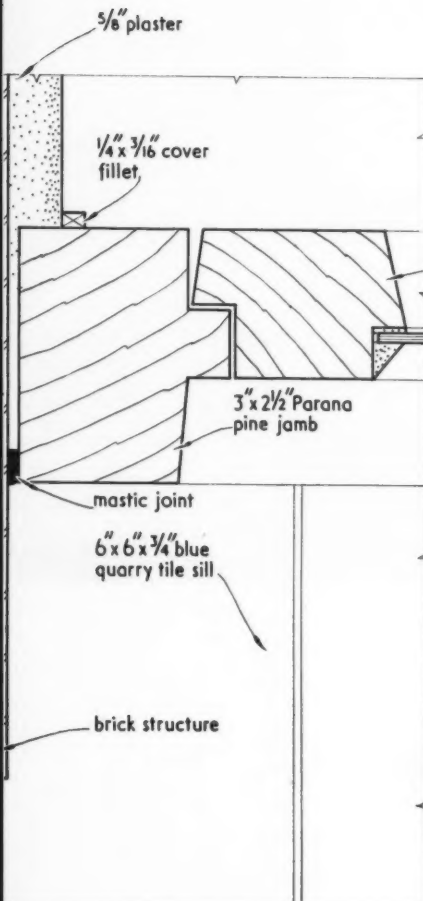
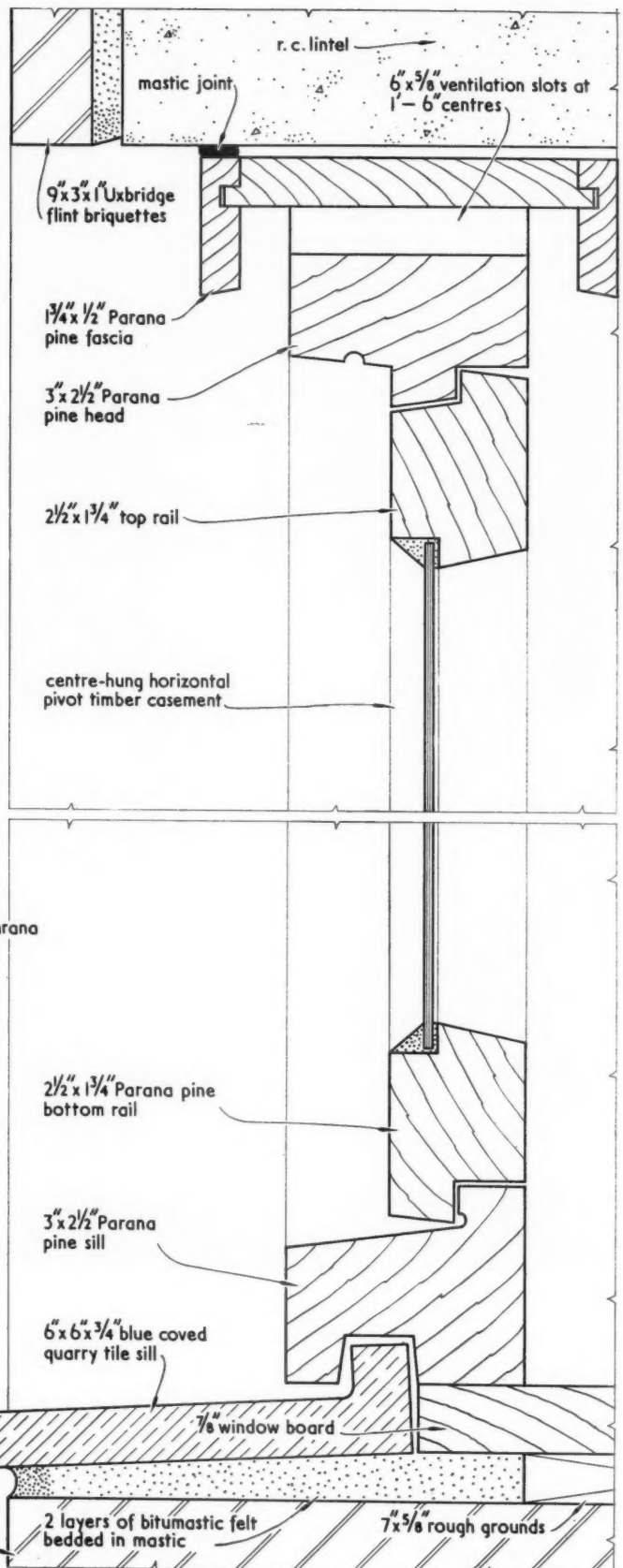


Points to notice about this facade are the reduction of the sill to a visual minimum by the use of a coved quarry tile and the insertion of permanent ventilation above the window head. The front facade of this building was illustrated as a Working Detail on July 3, 1958.

working detail

WINDOWS: FLATS IN LONDON, S.W.3

Walter Segal, architect

ELEVATION. scale $\frac{1}{8}" = 1' - 0"$ PLAN. scale $\frac{1}{8}" = 1' - 0"$ PLAN AT A-A. scale $\frac{1}{2}$ full sizeSECTION B-B. scale $\frac{1}{2}$ full size



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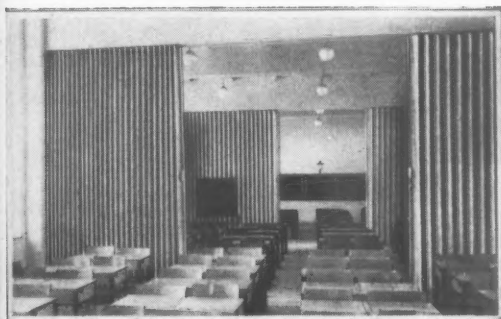
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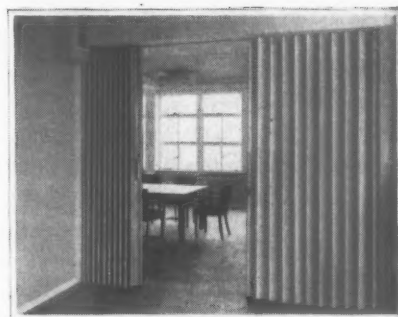


Vancouver's new £730,000 public library, designed by H. N. Semmens, has risen like a large glass book box among its commercial neighbours, refusing to be overpowered by the nightmare-size chateau next door. The building is both the chief library for the city, holding its main book collection, the administrative centre of the library system, and a reference library, and all floors had to be designed for a full stack load of books. One elevation, is exposed to the sun, so the glass is protected by a two-storey bank of vertical louvres, movement of which is controlled by a photoelectric mechanism. The building was designed with a flat roof to allow for the addition of another storey in the future, and there is provision for an additional tier of stacking space.



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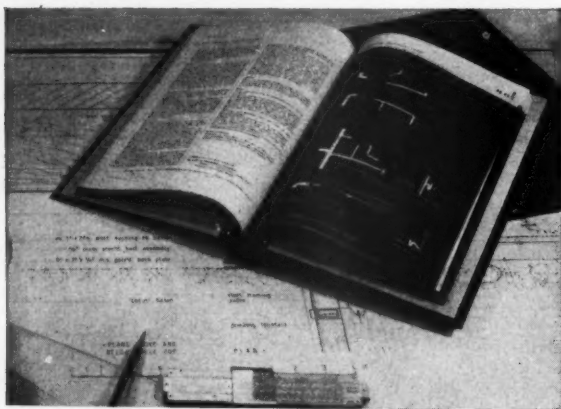
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Announcements PROFESSIONAL

G. J. W. Thomas, M.A. (cantab), A.R.I.B.A., has begun practice at 20, St. Alkmund's Churchyard, Derby, where he will be pleased to receive trade literature.

John V. Whealing, A.R.I.C.S., has begun practice at Portland House, 103, Portland Street, Manchester 1, where he will be pleased to receive trade literature.

TRADE

Leaderflush (Doors) Ltd. have appointed Messrs. Jewsons Ltd., Great Western Docks, Plymouth (telephone 60283/4) to act as sole distributors of Leaderflush doors for Devon and Cornwall.

The London office of Bennis Combustion Ltd., Bennis Mechanizations Ltd., and Saxon Engineering Co. Ltd., has been moved to Brettenham House, Lancaster Place, Strand, W.C.2 (telephone Covent Garden 2188/9). Telegrams Bennis Souphone London. This is the London office address and telephone number of the Parent Company, James Hodgkinson (Salford) Ltd.

John Hall & Sons have now opened a Northern Branch Office in Leeds, whose function will be that of a Sales Administration Office with responsibility for the North of England, Scotland, North Wales and Northern Ireland. The address is 26, Park Row, Leeds 1 (telephone 34390).

Acknowledgment

The photographs of the house at Reigate Heath, illustrated in the AJ for June 26, were reproduced by permission of *Ideal Home*.



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ACKNOWLEDGMENTS:

L.C.C. Brandon Estate, Southwark. Hubert Bennett, F.R.I.B.A., Architect to the Council.

British Railways, Great Eastern House, Cambridge. H. H. Powell, B.Arch., F.R.I.B.A., Regional Architect (Eastern Region) British Railways.

Monsanto Chemicals Limited. Oil additives engine test laboratories, Newport.

St. Aidan's Church, Speke, Liverpool. Architect: Bernard A. Miller, B.Arch. F.R.I.B.A.

Office Building. Architect: Richard Sheppard & Partners.

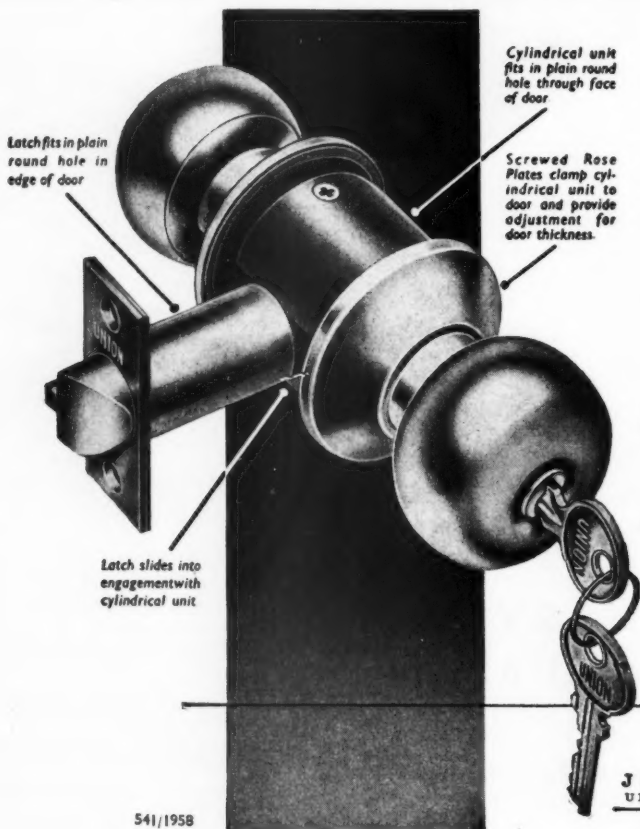


Vinculum Exposed Aggregate Panels at the Flatted Factory—
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Philip Skelcher and Partners, Chartered Architects.

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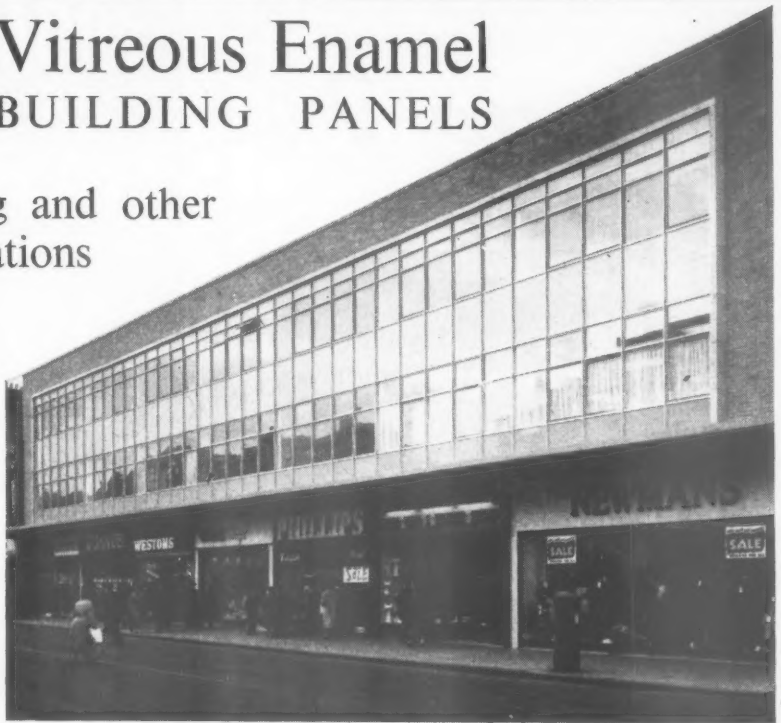
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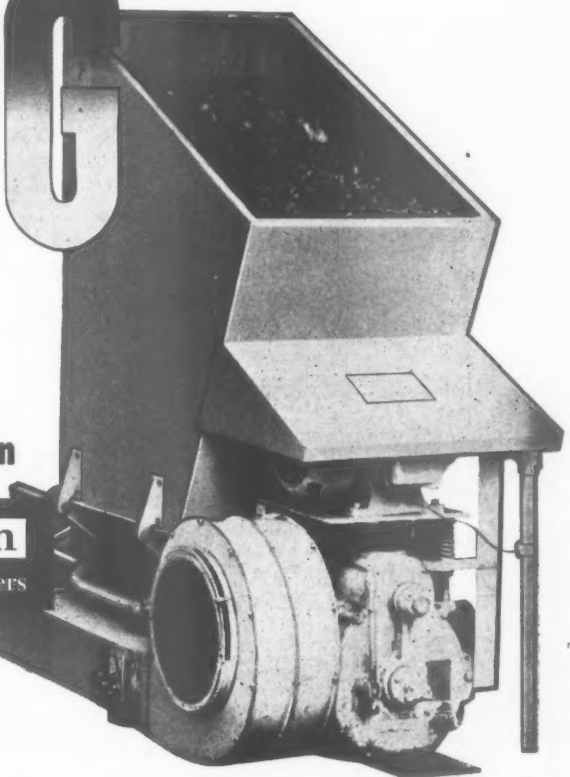
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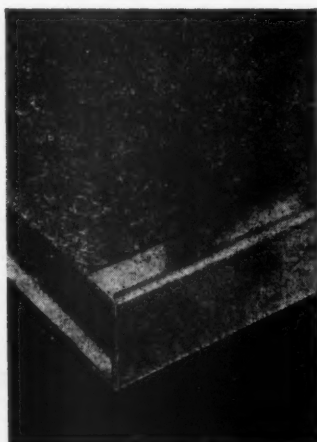
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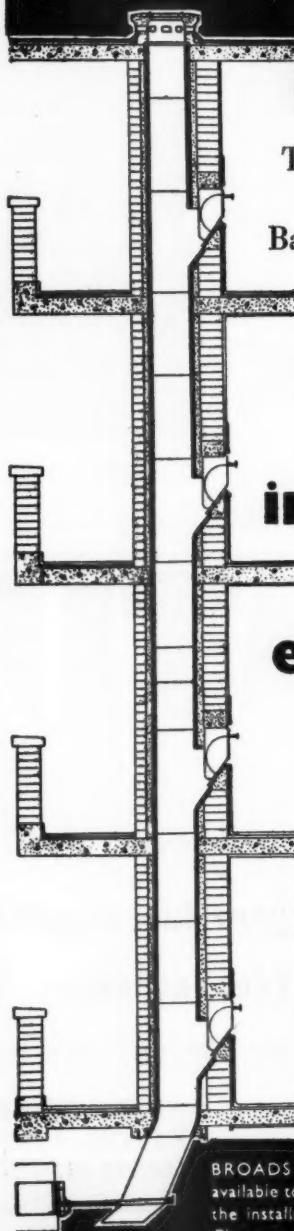
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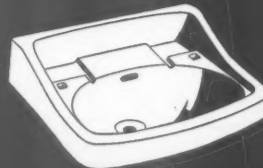
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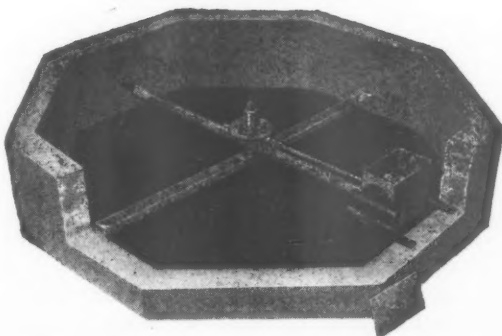


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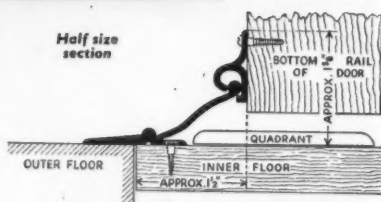
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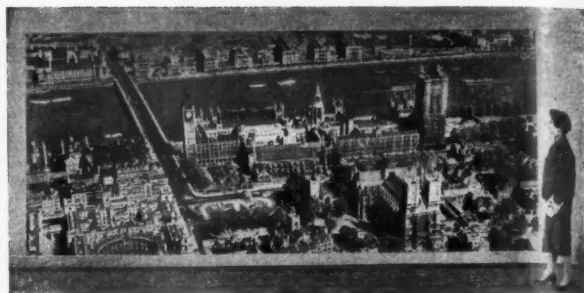
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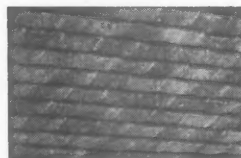
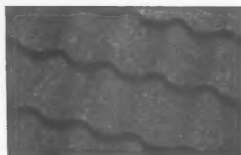
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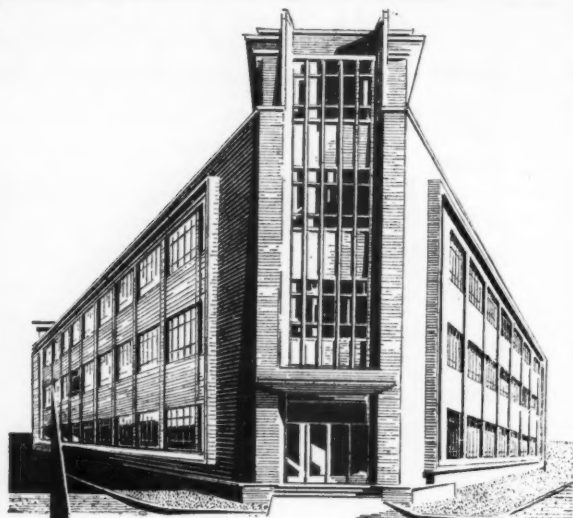


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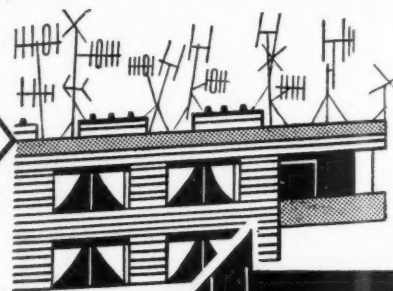
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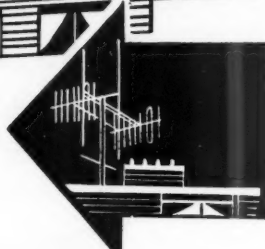
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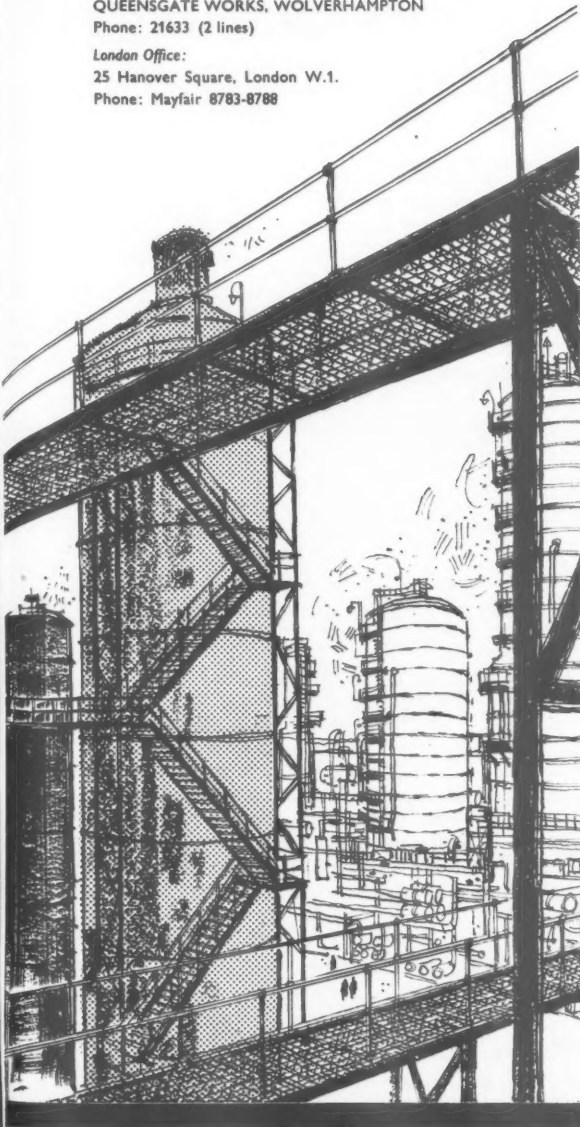


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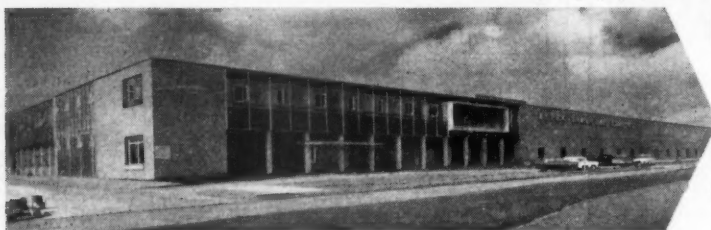
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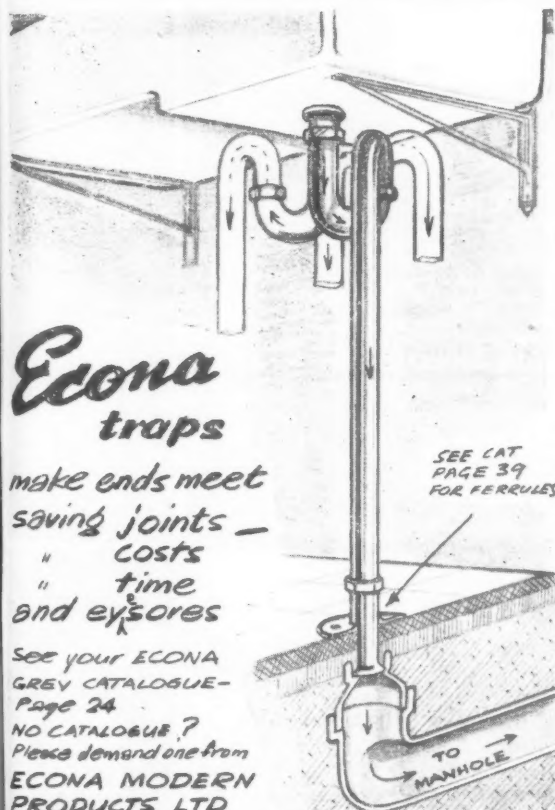
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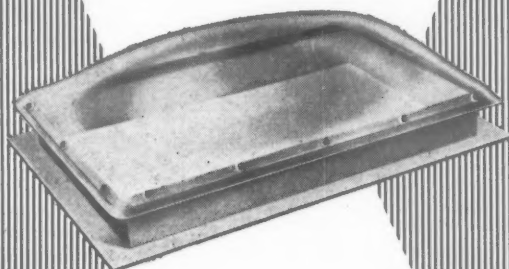
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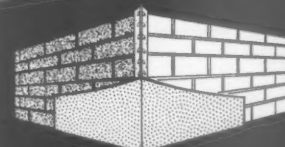
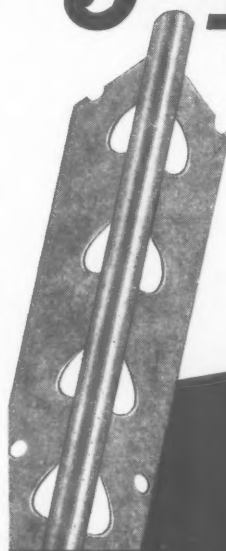
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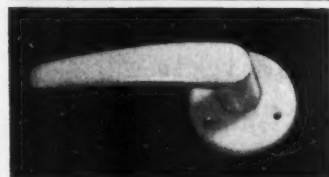
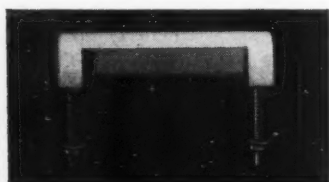
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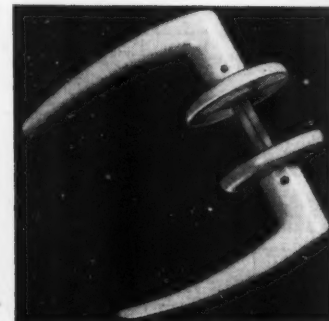
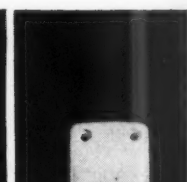
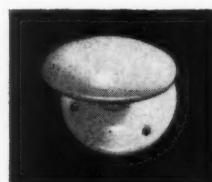
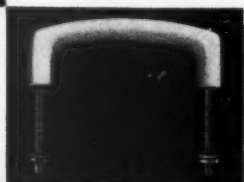
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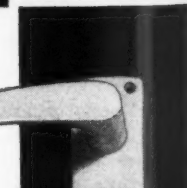
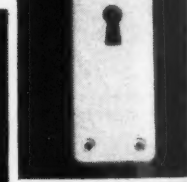
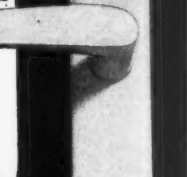
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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Public and Official Announcements

3s. per inch; each additional line, 2s. 6d.

LONDON COUNTY COUNCIL
ARCHITECTS' DEPARTMENT

Vacancies for (1) ARCHITECTS, Grade III, starting salary up to £1,999 a year. (2) ARCHITECTURAL ASSISTANTS, starting salary up to £860.

Full and interesting programme of Houses, Flats, Schools and General Buildings.

Application form and full particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, The County Hall, S.E.1, quoting Ref. A2/HK/21/58. (792) 996

ALDRIDGE URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment on Grade A.P.T. II, III or Special; starting point dependent on qualifications and experience (Special Grade for final R.I.B.A. only; A.P.T. III for part final).

Applicants must be capable of preparing and executing schemes in the large housing programme of a rapidly developing Authority. Housing accommodation will be provided and reasonable removal expenses paid.

Applications, with names of two referees, to be submitted to the undersigned by 28th July.

H. G. G. NICHOLS,

Clerk of the Council.

The Council House,
Aldridge,
Staffs.

9947

COUNTY BOROUGH OF WEST HAM
BOROUGH ARCHITECT & PLANNING
OFFICER'S DEPARTMENT

Applications invited for the permanent position of ARCHITECTURAL ASSISTANT (2 posts). A.P.T. Grade I: £575-£725 p.a. (and London allowance).

Applicants should have passed the R.I.B.A. Intermediate Examination. Starting point in Grade according to qualification and experience. The post offers useful experience in a varied architectural programme.

Application and details from Borough Architect and Planning Officer, 70, West Ham Lane, E.15, returnable by 29th July, 1958. 9923

LINDSEY (LINCOLNSHIRE) COUNTY
COUNCIL

ARCHITECT'S DEPARTMENT

Vacancies on the permanent staff for:-

(a) ASSISTANT ARCHITECT, Grade IV

£1,025-£1,175

(b) ENGINEERING ASSISTANT, Grade III

£845-£1,025

(c) ENGINEERING ASSISTANT, Grade II

£725-£845

Applicants for (a) should be A.R.I.B.A. and capable of controlling large schemes. (b) Should be Graduate I.H.V.E. and capable of designing heating installations for large schemes. (c) Preference for Graduate I.H.V.E., but applicant must have a practical knowledge and be responsible for designing small schemes, advice to stokers, and maintenance and repair of existing installations.

In special circumstances consideration will be given to starting salary above minimum of the grade. N.J.C. Conditions of Service. Canvassing will disqualify. Candidates must disclose in writing whether to their knowledge they are related to any Member or Senior Officer of the Council.

Applications, stating post applied for, giving age, qualifications, experience, present post and salary, and the names of at least two persons to whom reference can be made, to be sent not later than 31st July, 1958, to the County Architect, County Offices, Lincoln. 9966

COUNTY BOROUGH OF SOUTHEND-
ON-SEA

BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following posts:

ASSISTANT ARCHITECT } Salary Scales

ASSISTANT QUANTITY } £750 by annual

SURVEYOR } increments of

£40 to £1,030

Candidates must be suitably qualified and experienced.

The appointments will be subject to the provisions of the Local Government Superannuation Acts and the National Joint Council's Scheme of Conditions of Service so far as adopted by the Council. Medical examination.

Applications, stating age, qualifications and experience, with the names of two referees, should be submitted to the Borough Architect, 30 Alexandra Street, Southend-on-Sea, by July 31st.

Canvassing will disqualify. Any candidate who is related to member or officer of the Council is required to disclose the fact.

ARCHIBALD GLEN, Town Clerk.

9964

COUNTY BOROUGH OF DERBY
BOROUGH ARCHITECTS' DEPARTMENT

(1) SENIOR QUANTITY SURVEYORS, A.P.T. Grade IV (£1,025-£1,175 per annum). Qualifications: A.R.I.C.S. (Quantities) or A.I.Q.S. or A.I.A.S. with appropriate experience.

(2) CLERK OF WORKS, A.P.T. Grade I (£575-£725 per annum). Qualifications: Higher National Certificate in Building or similar.

Applicants should have a sound knowledge of all building trades.

Commencing salary according to qualifications and experience.

Permanent superannuable appointments, subject to one month's notice and to medical examination. National Conditions of Service.

Application forms obtainable from and to be returned to the Borough Architect, The Council House, Corporation Street, Derby, not later than Monday, 11th August, 1958.

G. H. EMLYN JONES,

Town Clerk.

3rd July, 1958.

9921

SURREY COUNTY COUNCIL

Applications invited for appointment of ARCHITECTURAL ASSISTANT GRADE I, £575-£725 p.a. plus London Allowance of up to £30 p.a. according to age. Must be of good general training.

Full details, present salary and 3 copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 9865

NORTHUMBERLAND COUNTY PLANNING
DEPT.

LANDSCAPE ARCHITECT-SPECIAL SCALE

(£750-£1,030)

Applications are invited from qualified landscape architects. Forms and information from County Planning Officer, County Hall, Newcastle-upon-Tyne, 1; Closing date 29th July, 1958. 9963

GOVERNMENT OF NORTHERN IRELAND
ASSISTANT ARCHITECT CLASS II

Applications are invited for pensionable posts in the Chief Architect's Branch, Ministry of Finance. Candidates must be Registered Architects by examination, with at least two years' experience in an Architect's Office in the preparation of working drawings. Salary scale £780 (at age 25)-£1,055 (age 34 and over)-£1,215. Transfer of existing Pension rights may, in certain circumstances, be approved. Preference will be given to ex-Servicemen. Application forms may be obtained from the Secretary, Civil Service Commission, Stormont, Belfast. 9836

PORTSMOUTH EDUCATION COMMITTEE

COLLEGE OF ART

SCHOOL OF ARCHITECTURE

Applications are invited from well-qualified architects, for the post of SENIOR LECTURER (Salary £1,350-£1,550) who will act as Deputy Head of the School of Architecture.

The successful candidate will be required to take full responsibility for the organisation of the Finals Course and such other administrative duties as will be required of him.

Form of application and further details are obtainable from the Registrar, College of Art, Guildhall Square, Portsmouth. 9967

CITY OF ELY URBAN DISTRICT COUNCIL

GENERAL ASSISTANT-SURVEYOR'S

DEPARTMENT

The Council invite applications for this appointment, within the salary grades A.P.T. I or II or Special Grade, according to qualifications and experience.

Applicants should have passed at least the Intermediate Examination of an appropriate Institution.

The appointment may be terminated by two months' notice in writing on either side.

Housing accommodation may be made available (if required).

Applications (in writing), stating age, whether married or single, qualifications, full details of experience, present and previous appointments, accompanied by a copy of two recent testimonials, should be sent to reach the undersigned not later than Saturday, 26th July.

J. E. WATKINS,

Clerk of the Council.

Urban Council Offices,

Lynn Road,

Ely,

Cambs.

9948

WORCESTERSHIRE COUNTY COUNCIL

ARCHITECT'S DEPARTMENT

SENIOR ASSISTANT ARCHITECT required.

A.P.T. Grade IV (£1,025-£1,175). Applicants should be A.R.I.B.A. and preference will be given to one with experience in School design.

Application forms should be obtained from L. C. Lomas, F.R.I.B.A., County Architect, 14, Castle Street, Worcester, not later than July 23, 1958. (G285) 9918

BASILDON DEVELOPMENT CORPORATION

which is building the New Town of Basildon

invites applications for the superannuable post of DEPUTY CHIEF ARCHITECT/PLANNER at a salary within the range £1,682-£1,967 p.a.

Wide experience of contemporary architecture and planning must be combined with ability to organise and co-ordinate the work of a large department and to represent the Chief Architect/Planner as necessary. Applications should be made on the special form (obtainable from the Chief Architect) to the General Manager, Basildon Development Corporation, Basildon, Essex, by 7th August, 1958, quoting reference: GM 5705. 9952

DRAUGHTSMAN, £425 (at age 21 or over) × £25 (6) × £30 (2) = £635, plus London weighting £20-£30. Applicants must have had suitable architectural training for at least three years and be capable of making details of Building work. Will act as Junior Architectural Assistant in a group undertaking development and alteration work to existing and future hospitals.

Applications stating age, present salary, qualifications and experience (with dates), together with the names and addresses of two referees, should be sent to Secretary, North East Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, within 14 days. 9978

COUNTY BOROUGH OF SOUTHAMPTON

BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent positions:-

(a) ASSISTANT PLANNING OFFICER,

Special Grade (£750 to £1,030).

(b) PLANNING ASSISTANT, Grade A.P.T. I

(£575 to £725)

Candidates should possess appropriate qualifications and should state their housing needs. Application forms from the Borough Architect, Civic Centre, Southampton. Closing date 24th July, 1958. 9946

COUNTY BOROUGH OF BLACKBURN

Applications invited for the established post of

ARCHITECTURAL ASSISTANT, Grade A.P.T. IV

(£1,025-£1,175). Candidates must have the necessary qualifications and experience relative to the Grade. The successful candidate will be engaged on the Central Area Re-development Scheme. Housing accommodation available if required. Application forms from Borough Engineer, Town Hall, Blackburn, returnable by 30th July.

FRANK SQUIRES,

Town Clerk.

9968

BOROUGH OF HESTON AND ISLEWORTH

Applications are invited for the undermentioned appointments in the Borough Engineer and Surveyor's Department:-

(a) VALUATIONS SURVEYOR (Grade A.P.T. III-£845-£1,025). Plus London weighting.

Applicants should be experienced in the preparation of valuations for mortgage advances under the Housing Acts, the examination of applications for improvement grants and negotiations for the acquisition of land and properties. Applicants should be Chartered Surveyors or hold an equivalent appropriate qualification.

A car allowance at the rate of £55 per annum will be paid at the pleasure of the Council to the successful applicant if he provides and uses a car in the performance of his duties.

(b) DRAUGHTSMAN/TRAINEE - Architects Section (Grade: Higher General Division-£230-£560 per annum). Plus London weighting.

Applicants should have a good school record, be interested in architectural drawing, and have obtained a General Certificate of Education.

Commencing salary will be fixed in accordance with ability and experience.

The Council is unable to assist with housing accommodation.

Applications are to be submitted by Tuesday, August 5th, on forms to be obtained from and returned to the Borough Engineer and Surveyor, 88, Lampton Road, Hounslow.

D. MATHIESON,

Town Clerk.

9945

LEADING ASSISTANT ARCHITECT

required in the office of the Architect

LONDON MIDLAND REGION

BRITISH RAILWAYS

EUSTON STATION

The appointment is for work in connection with British Railways modernization plan and also work of a general character.

The applicant must be qualified and it is especially required that he should have well developed abilities in contemporary design, structural techniques and administration. It is preferable that the applicant should have at least five years' experience since qualifying.

Salary range £1,065-£1,170 per annum.

Five-day week. Residential travel and other favourable travelling concessions available. Superannuation scheme.

Applications should be addressed to the Chief Civil Engineer (reference 67), British Railways, London Midland Region, 5a, Euston Grove, London, N.W.1. 9975

BOROUGH OF KEIGHLEY

BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following position on the permanent staff:-

ARCHITECTURAL ASSISTANT, Grade

A.P.T. I. Salary Scale £575-£725. Applicants for

the appointment should have received a sound

architectural training. "Intermediate" standard

of the R.I.B.A. will be an advantage.

Conditions of service and salary are in accordance with the National Joint Council Scheme for Local Authorities.

Applications to be made upon the prescribed form to be obtained from the undersigned, to whom same must be returned, accompanied by copies only of two recent testimonials, not later than first post, Wednesday, 30th July, 1958.

E. G. FELGATE, A.R.I.B.A.,

Borough Architect.

Borough Architect's Department.

College Street,

Keighley.

9976

COUNTY BOROUGH OF BOLTON
BOROUGH ARCHITECTS' DEPARTMENT
Applications are invited for (1) a QUANTITY SURVEYOR on Grade A.P.T. III (£845-£1,025) or Special Classes (£750-£1,030) according to qualifications and (2) an ARCHITECTURAL ASSISTANT on Grade A.P.T. I (£575-£725). Commencing salary in both cases according to experience.

Applicants for (1) should have experience in taking off quantities for architectural works and measuring for interim and final accounts.

The post(s) are superannuable and subject to medical examination. Previous local government experience not essential.

Applications, giving full details including experience, present post and salary and the names of two referees should be received by me not later than 24th July, 1958.

PHILIP S. RENNISON, Town Clerk. 9970

LONDON COUNTY COUNCIL
ARCHITECTS' DEPARTMENT
Vacancies exist for ARCHITECTS, Grade II (salary £1,037 10s.-£1,305) for Housing, Schools and General Divns. Full and varied programme of new work incl. schools, multi-storey flats, and Town Development. Starting salaries accdg. to qualifns. and expece.

Partics. and applicn. form, retuble. by 5 August, from Hubert Bennett, F.R.I.B.A., Architect to Council, County Hall, S.E.1, quoting ref. AR/EK/33/58. (1341) 9965

Tenders Invited

6 lines or under, 15s.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

COUNTY BOROUGH OF BRIGHTON
To Manufacturers of Passenger Lifts:—
PASSENGER LIFT
26/30, KING'S ROAD, BRIGHTON

The Council invite Fixed Price tenders for the installation of a complete new Lift at the above. Detailed particulars and form of tender may be obtained from the Borough Surveyor, 26/30, King's Road, Brighton.

Tenders in envelopes provided are to be delivered to the undersigned not later than Wednesday, the 6th August, 1958.

The Council does not bind itself to accept the lowest or any tender.

W. O. DODD,
Town Clerk. 9936

4th July, 1958.

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

CO-OPERATIVE WHOLESALE SOCIETY LTD.
ARCHITECTS' DEPARTMENT, MANCHESTER

APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects, capable of preparing working drawings from preliminary details. Five-day week in operation. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester, 4. 9585

EXPERIENCED ASSISTANT required in busy West End practice, about 25/27 years of age. Good opportunities for taking responsibility. Please write, giving details of experience, salary required, etc., Box 9910.

ARCHITECT'S ASSISTANT required about Intermediate standard, experienced in design, working drawings, details and specifications. House available if required. Full details to Ward & Woolnough, 8, South Brink, Wisbech, Cambs. 9959

ARCHITECTURAL ASSISTANTS required immediately for varied work. Salary £650-£850 according to experience. Apply in writing to Llewellyn Smith & Waters, 103, Old Brompton Road, S.W.7. 9939

ARCHITECTURAL ASSISTANTS required immediately, various grades, salary depending on experience, 5-day week. Fitzroy Robinson & Partners, 3, Gray's Inn Square, London, W.C.1. CHANCERY 7751. 9866

NOTTINGHAM—ASSISTANTS required in all grades who are as interested in construction as aesthetics, not brutalists or anything like them, and who are accurate, responsible and keen. Varied practice to say the least. Bartlett & Gray, A/A.R.I.B.A., Castle Gate Chambers, Castle Gate, Nottingham. Telephone No. Nottingham 53214. 9902

ARCHITECTURAL ASSISTANTS for University and Hospital Work. Good Salary, dependent on experience. Non-contributory Pension Scheme in being after probationary period. Three weeks' holiday a year, and five-day week. Reply, stating age, experience, etc., to:—Thomas Worthington & Sons, 178, Oxford Road, Manchester, 13. 9869

ARCHITECTURAL ASSISTANT required in small modern office. Salary £12 a week. L. K. Watson & H. J. Coates, 6, Gray's Inn Square, London, W.C.1. 9957

ARCHITECTURAL ASSISTANT, Intermediate R.I.B.A. Standard, required immediately in busy West End Office, for detailing, design and presentation of sketch schemes for large Central City buildings. Five-day week. Apply, giving details of experience and salary required, to Kenneth Wakeford, Jerram & Harris, 7, Connaught Place, London, W.2. 9976

JOHN LAING & SON LIMITED invite applications for the following vacancies in their ARCHITECTS' DEPARTMENT (Chief Architect: Sydney Greenwood, A.R.I.B.A.) at Head Office in N.W. London:

ARCHITECTS of Final R.I.B.A. standard, and with experience in one or more of the following: office and industrial schemes, multi-storey flats and maisonettes, private and municipal housing. ARCHITECTURAL ASSISTANTS of Intermediate or Final R.I.B.A. standard and limited experience in one of the above fields.

JUNIOR ARCHITECTURAL ASSISTANTS who are studying for a recognised qualification. These positions offer excellent opportunities for advancement and a wide variety of work in a busy office. Pension scheme after two years' service. Five-day week. Canteen, sports and social club facilities.

Applications to: Personnel Manager (A.J.), John Laing & Son Limited, Building and Civil Engineering Contractors, London, N.W.7. 9887

ARCHITECTURAL ASSISTANTS required. Five-day week. Salary range £600-£750 per year. Write full particulars age, experience, salary, etc.—R. H. Gallannagh, L.R.I.B.A., 54, Queen Anne St., London, W.1. 9900

ARCHITECTURAL ASSISTANT, Intermediate to Final Standard, required immediately. Congenial atmosphere, good salary to the right applicant. Ring: Ivor Warner, Loughton 6185. 9971

ASSISTANT required for small office in Middlesex; about Intermediate standard; previous office experience an advantage; opportunity to gain varied practical knowledge. Apply Box 9960.

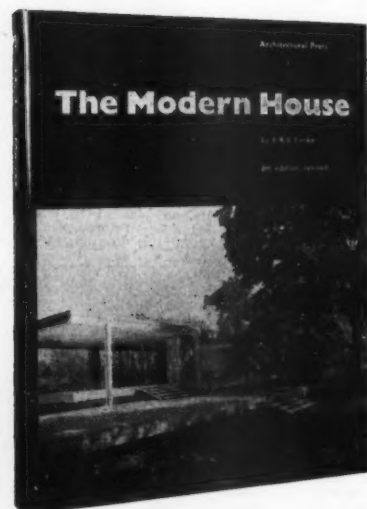
FREDERICK GIBBERD has vacancies at Harlow for JUNIOR ASSISTANT ARCHITECTS (Qualified) and ARCHITECTURAL ASSISTANTS (Intermediate standard). Work includes Technical Colleges, Offices, Laboratories, Public Buildings and Housing in the Province and in Harlow. Houses and flats available. Please apply in writing to Frederick Gibberd, 19, The Rows, Stone Cross, Harlow, Essex. 9989

LEICESTER—ASSISTANT ARCHITECT required. Must be keen and conscientious. Salary by agreement. Box 9901.

eighth, revised, edition

The Modern House

by F. R. S. Yorke, F.R.I.B.A



For this eighth and fully revised edition, the author has subjected the whole work to a most critical examination and reassessment which has led to the omission of many previously included houses, the reinstatement of some early classics, and the inclusion of sixty entirely new pages. The result is a highly selective collection which gives space only to those houses which clearly demonstrate the proper use of modern materials and building technique, and modern design concepts, and at the same time fully respond to the needs of the people who live in them. In this present edition, therefore, The Modern House will be found of greater value than ever to all practising architects and students of architecture—as well as to those thousands of members of the general public who plan to build a new home and seek the latest ideas and information.

Size 10½ in. by 7½ in. 232 pages with over 500 half-tone and line illustrations. Eighth revised edition. 50s. Postage 1s. 9d.

The Architectural Press, 9-13 Queen Anne's Gate, Westminster, S.W.1.

GOLLINS, MELVIN, WARD & PARTNERS. Growing to staff leaving for Army Service, have vacancies for school-trained ASSISTANTS interested in the design of University and Hospital buildings. Five-day week, quarterly bonuses, pension scheme. Telephone WEL 9991 for appointment. 9958

ELIE MAYORCAS requires SENIOR ASSISTANT with minimum of three years' office experience in this Country. Write, giving particulars of architectural education and experience, and salary required, to: 13, David Mews, Baker Street, W.1. 9956

ARCHITECTURAL ASSISTANT of Intermediate standard or over required for varied practice. Salary according to experience and qualifications. Write James Hartley & Son, A.R.I.B.A., Swadford Chambers, Skipton, Yorks. 9955

ARCHITECTURAL ASSISTANT required of Intermediate Standard or equivalent for Norwich Architects. Good salary in accordance with experience, plus bonus. Write giving details of age and previous experience. Feilden & Mawson, A.R.I.B.A., 71a, The Close, Norwich. 9959

ARCHITECTURAL ASSISTANT required. £600-£850 according to qualifications and experience. Varied work. Own transport desirable but not essential. Reply stating age, qualifications, experience and present salary: D. R. Harper Esq., A.F.C., D.F.C., A.R.I.B.A., Messrs. F. W. B. Yorke, Harper & Harvey, 191, Corporation Street, Birmingham, 4. 9944

ARCHITECTURAL ASSISTANTS willing and capable to undertake responsibility, required by medium size firm of London Architects. Sound prospects for right men. State age and experience and salary required. Box 9943.

TREHEARNE & NORMAN, PRESTON & PARTNERS have a vacancy for a SENIOR ASSISTANT. Salary according to experience and qualifications. Apply: 83, Kingsway, W.C.2 (HOL 407). 9942

SENIOR ASSISTANT required by busy London office engaged principally in industrial and commercial work. Five-day week, luncheon voucher scheme, salary by arrangement. Please apply to Eric Firmin & Partners, Thavies Inn House, Holborn Circus, London, E.C.1. Telephone No. CITY 8811. 9941

ROBERT POTTER & RICHARD HARE, R.F.A.R.I.B.A. require qualified ASSISTANT ARCHITECT with experience of preparation of working drawings and supervision of contracts for work on interesting projects. Write stating age, experience and salary required to De Vaux House, Salisbury, Wilt. 9940

DRAUGHTSMAN, capable of preparing working drawings, details, etc., with minimum supervision, for rapidly expanding estate developers. Salary approximately £800. Full particulars of age and previous experience to: A. E. A. Prowling Ltd., 127, High Street, Ruislip, Middx. 9926

WESTWOOD, SONS & PARTNERS urgently require ARCHITECTURAL ASSISTANTS, salary range £500-£900. Opportunity for gaining experience in varied contemporary work. Five-day week. Apply by letter, stating experience, to 21 Suffolk Street, London, S.W.1. 9927

COMPETENT ASSISTANT required in Architect's Department. Good opportunity for capable man, five-day week, and Superannuation Scheme in operation. Applications giving details of age, qualifications, experience and salary required to: H. M. Robinson, F.R.I.B.A., George J. Mason Ltd., 68, Bradford Street, Birmingham. 9928

TWO ASSISTANTS wanted by progressive London Office with wide variety of interesting work. Must have had office experience and be capable of taking a leading position under an Associate Partner. This year's holiday by arrangement. Salary range £700-£850 according to experience. Write Box 9929.

ARCHITECTURAL ASSISTANT of Intermediate standard required by Sparrow & Clater, F.A.R.I.B.A., 52, North Hill, Colchester. Salary commensurate with experience. Write stating age, full details of training, etc. 9930

SENIOR AND INTERMEDIATE ASSISTANTS required. Write only, giving full particulars to Russell Diplock Associates, 235, Vauxhall Bridge Road, London, S.W.1. 9931

SENIOR ARCHITECTURAL ASSISTANT required in Architect's Department of London Brewery Company. Must be good draughtsman. Write stating age, qualifications, experience, salary required. Box 9932.

ARCHITECTS' ASSISTANTS with ability and experience wanted at once in Birmingham and Leamington. Varied work. Schools, Housing, etc. Apply stating age, experience and salary required, to: Quick & Lee, Chartered Architects, 11, Waterloo Place, Leamington Spa. 9933

SENIOR AND INTERMEDIATE ASSISTANTS required immediately with experience in private practices for full and interesting progressive work in medium sized office. Full particulars and salary required to Deacon and Laing, Chartered Architects, 65, Goldington Road, Bedford. 9935

F. W. WOOLWORTH AND CO. LTD. Architects Department, Kensington District Office. Applications are invited for the following appointment:—

ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard, capable of carrying out surveys, preparing sketch schemes, working drawings and details.

The appointment is pensionable, five-day week. Dining room facilities. Application stating age, experience, qualifications and salary, to District Architect, F. W. Woolworth & Co. Ltd., 26/40, Kensington High Street, London, W.8. 9972

F. W. WOOLWORTH AND CO. LTD. Architects Department, Kensington District Office. Applications are invited for the following appointment:—

JUNIOR ASSISTANT to prepare working drawings from sketch plans, etc., etc.

The appointment is pensionable, five-day week. Dining room facilities. Application stating age, experience, qualifications and salary, to District Architect, F. W. Woolworth & Co. Ltd., 26/40, Kensington High Street, London, W.8. 9973

ARCHITECTURAL ASSISTANT required for a work of a Commercial and Industrial nature, Manchester area. Salary of £750-£900 p.a., dependent on experience and qualifications. Apply Box 9979.

ASSISTANT ARCHITECT required. Must be neat and expeditious draughtsman. Capable of preparing designs and working drawings for new buildings and shopfitting. Apply giving age, experience and salary required to D. Greenwood, B.Arch., A.R.I.B.A., Prices Tailors Ltd., Cardigan Crescent, Leeds, 4. 9977

MORRISON AND PARTNERS, F.A.R.I.B.A. urgently require for their Derby Office, ASSISTANT ARCHITECTS to work on an interesting and varied programme. Some practical experience desirable. Please write to St. Alkmund's House, 103 Belper Road, Derby. 9951

BIRMINGHAM. James A. Roberts, Chartered Architect, Channele House, 85, New Street, Birmingham, 2, Mid. 4315-6, requires ASSISTANTS to join teams on interesting large scale projects. 9953

ARCHITECTURAL DRAUGHTSMAN required for temporary employment from 21st July to 12th September inclusive. Applicants should be of intermediate standard. Apply in writing to Personnel Manager, Schwepes Limited, 1-6, Connaught Place, London, W.2. 9954

Architectural Appointments Wanted

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

A.R.I.B.A. (30), wide experience abroad and London, seeks responsible position, Kent or Sussex. Able designer and administrator. Car owner. Box 9885.

EXPERIENCED ASSISTANT seeks part time work at office or home. All types of details undertaken. Apply Box 9878.

A.R.I.B.A., Dip.T.P. (36). Varied experience in the design and supervision of large contracts. Seeks appointment with prospects. Car owner. Box 9915.

A.R.I.B.A. (35), 12 years' experience, contemporary outlook, now chief assistant well known London practice, must move for family reasons, seeks senior post S. or S.W. England. Car owner. Box 9937.

QUALIFIED ARCHITECT, age 44, with several years' overseas experience on various types of work, now relinquishing own practice, desires position of responsibility with large firm having interesting and important work, either at home or abroad. Box 9971.

Other Appointments Vacant

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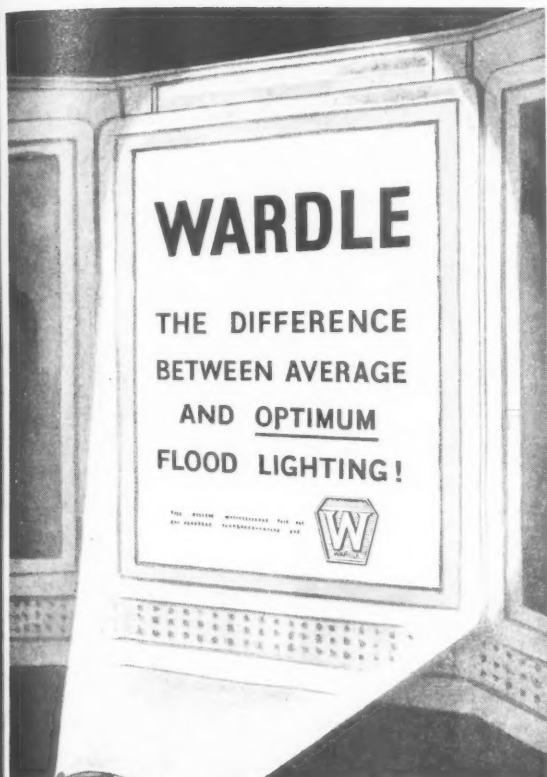
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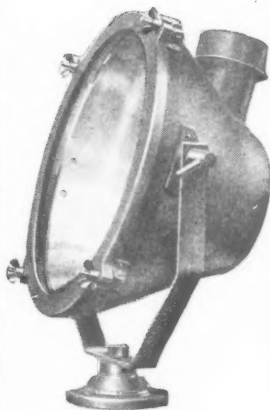
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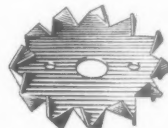
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