

# THE ARCHITECTS' JOURNAL

FINE ARTS



## Standard contents

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

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Stragal's Notes and Topics

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## CURRENT BUILDING

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Details of Planning, Construction,

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Architectural Appointments

Wanted and Vacant

No. 3387]

[Vol. 131

THE ARCHITECTURAL PRESS

9, 11 and 13, Queen Anne's Gate, Westminster,

S.W.1.

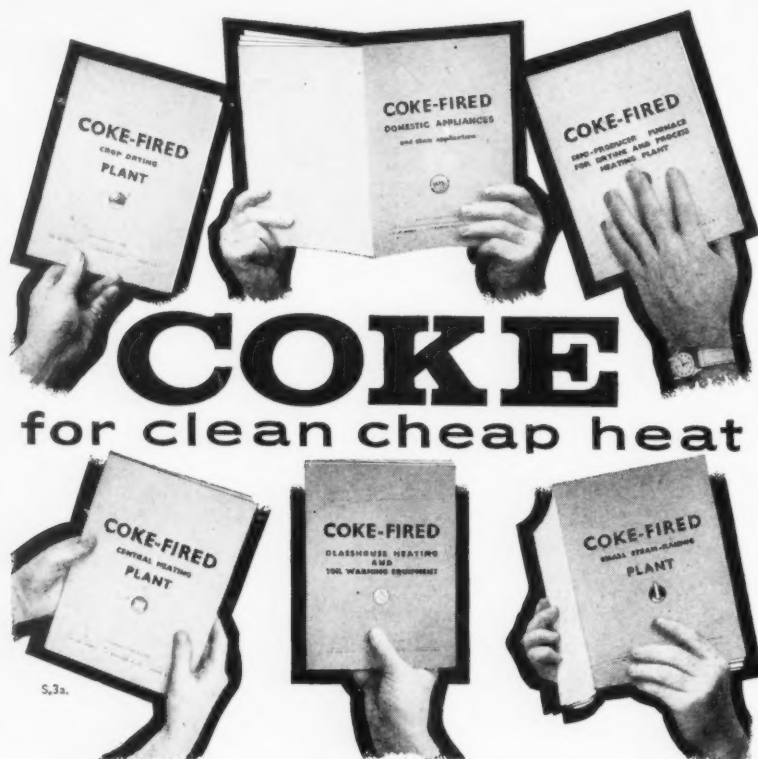
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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ii one week, II to Z the next. In all cases where 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.: J. H. Holden,<br>College of Art, Cavendish Street, Manchester 15  |                      |
| 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, Portland 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       |
| BE     | Building Exhibition. 11, Manchester Square, W.1.  | Hunter 1951          |
| 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         |
| CABAS  | City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough<br>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.,<br>Shire Hall, Bedford.   | Bedford 67444        |
| CCA    | Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.  | Belgravia 6661       |
| CDA    | Copper Development Association. 55, South Audley Street, W.1.   | Grosvenor 8811       |
| COLD   | Council of Industrial Design. 28, Haymarket, S.W.1.   | Trafalgar 8000       |
| CPRE   | Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.  | Sloane 4280          |
| CUC    | Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.  | Sloane 9116          |
| CVE    | Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.   | Reading 72255        |
| DIA    | Design and Industries Association. 13, Suffolk Street, S.W.1.   | Whitehall 0540       |
| EJMA   | English Joinery Manufacturers' Association (Incorporated). Sackville House,<br>40, Piccadilly, W.1.   | Regent 4448          |
| EPNS   | English Place-Name Society. 7, Selwyn Gardens, Cambridge.   |                      |
| FAS    | Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.   | Welbeck 9966         |
| FASS   | Federation of Associations of Specialists and Sub-Contractors,<br>14, Bryanston Street, W.1.  | Welbeck 1781         |
| FBBDO  | Fibre Building Board Development Organization Ltd. (Fidor), Stafford House,<br>Norfolk Street, W.C.2.   | Covent Garden 3008   |
| FBI    | Federation of British Industries. 21, Tothill Street, S.W.1.  | Whitehall 6711       |
| FC     | Forestry Commission. 25, Savile Row, W.1.   | Regent 0221          |
| FCMI   | Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.   | Sloane 1002          |
| FDMA   | The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.  | Ilkeston 623         |
| FLD    | Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.   | Ulverston 201        |
| FMB    | Federation of Master Builders. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)  |                      |
| FPC    | The Federation of Painting Contractors, St. Stephen's House, S.W.1.   | Whitehall 3902       |
| FRHB   | Federation of Registered House Builders. 82, New Cavendish Street, W.1.   | Langham 4341         |
| GPDA   | Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.  | Monarch 8888         |
| GC     | Gas Council. 1, Grosvenor Place, S.W.1.   | Sloane 4554          |
| GG     | Georgian Group. 2, Chester Street, S.W.1.   | Belgravia 3081       |
| HC     | Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.   | Whitehall 2881       |
| IAAS   | Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.   | Belgravia 3755       |
| ICA    | Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.   | Grosvenor 6186       |
| ICE    | Institution of Civil Engineers. 1, Great George Street, S.W.1.  | Whitehall 4577       |
| IEE    | Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.   | Temple Bar 7676      |
| IES    | Illuminating Engineering Society. 32, Victoria Street, S.W.1.   | Abbey 5215           |
| IGE    | Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.  | Sloane 8266          |
| IHVE   | Institution of Heating and Ventilating Engineers. 49, Cadogan Square  | Sloane 1601/3158     |
| IIBDID | Incorporated Institute of British Decorators and Interior Designers,<br>37, Soho Square, W.1.   | Gerrard 5056         |



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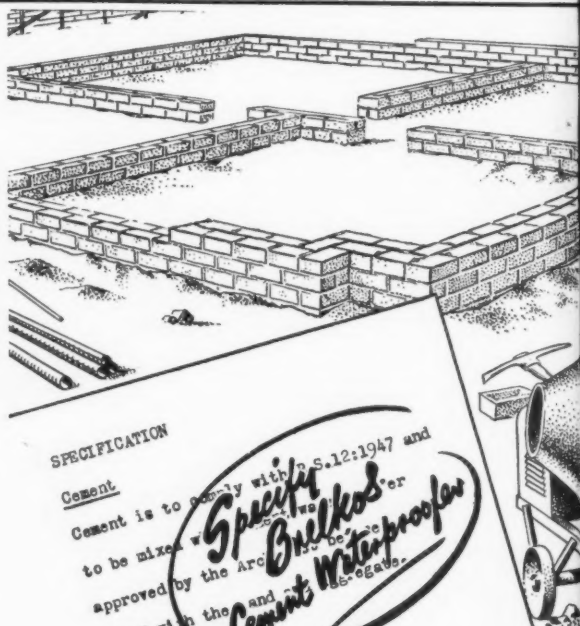
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when added to  
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Problem:

**HEAT**

Solution:

**COLT**

Ventilation

Place:

**LEYLAND MOTORS LIMITED  
LEYLAND LANCASHIRE**



The Architects, Messrs. Harry S. Fairhurst & Son, F/A.R.I.B.A., who designed this factory for Leyland Motors Ltd. installed Colt Ventilators throughout for three reasons:

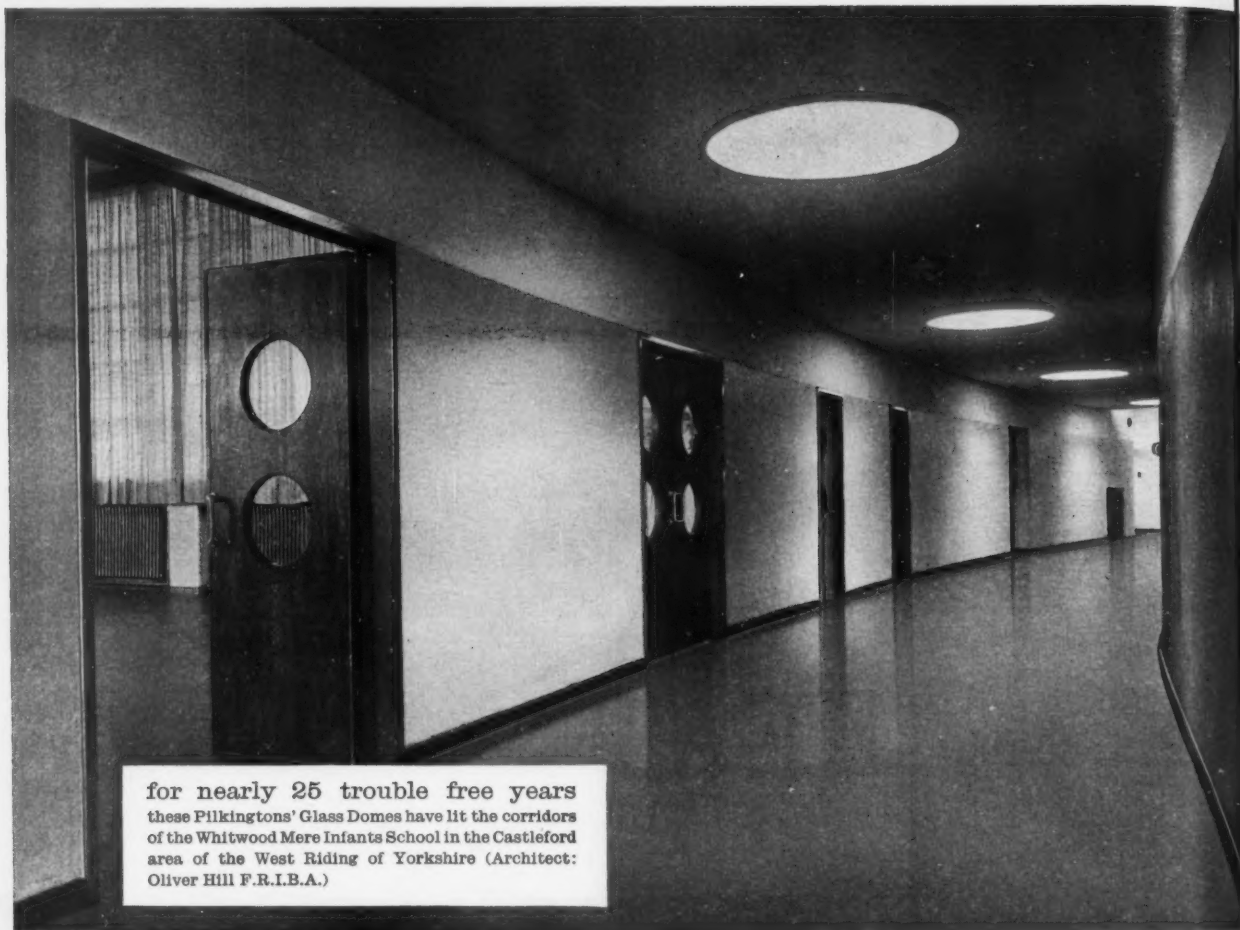
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2. They liked the low silhouette which would not impair the appearance of the building.
3. The installation weighed 72 tons less than any other ventilation equipment available, thereby showing considerable saving in structural costs.

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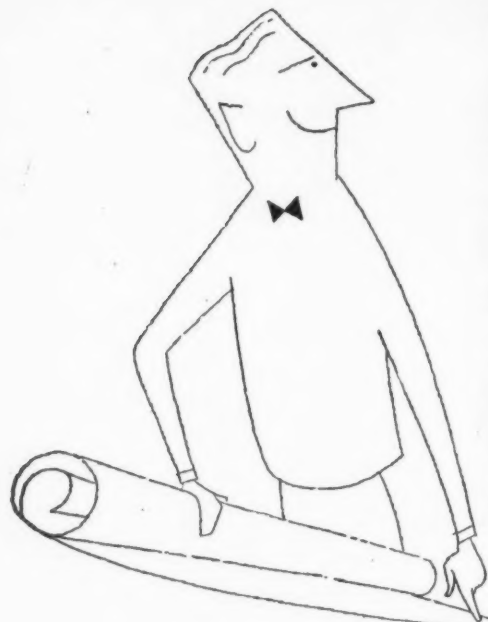
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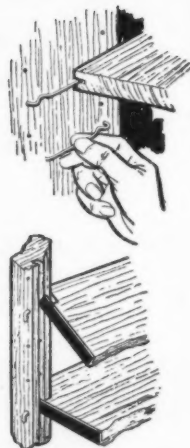
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with  
**GREENWOOD-AIRVAC**  
**'Continuous' Rooflight**  
**Ventilators** \*

**A 60 FEET LONG INSTALLATION**



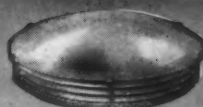
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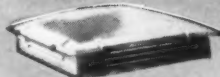
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- Available with internal controllable shutters.
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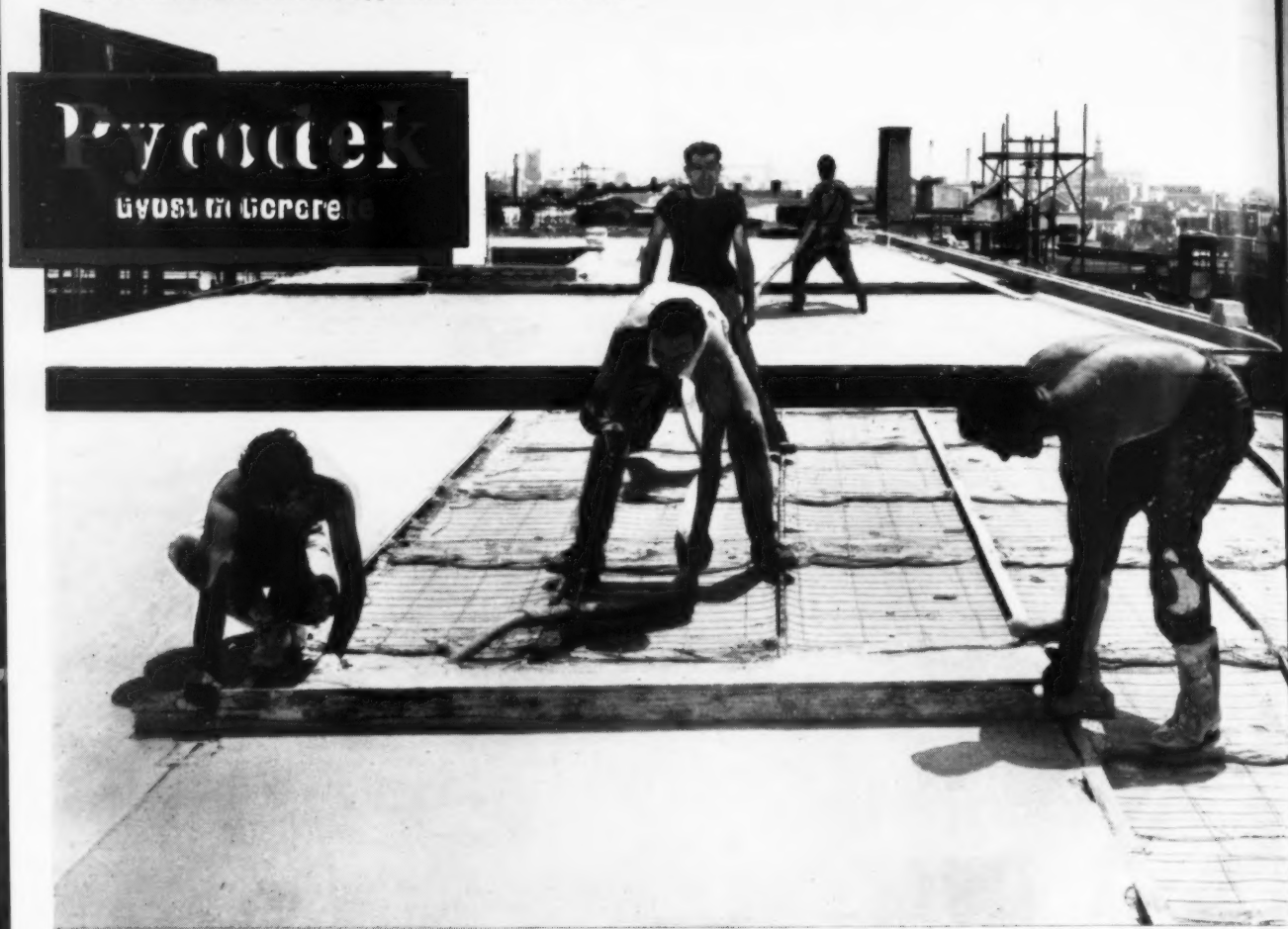
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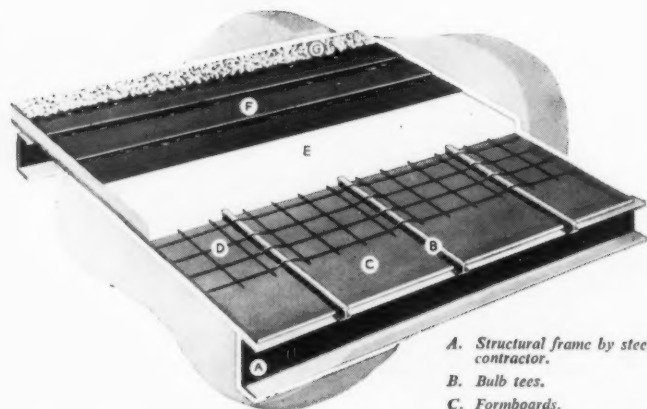
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- B. Bulb tees.
- C. Formboards.
- D. Galvanised reinforcing fabric.
- E. Pyrodek gypsum concrete.
- F. Built-up roofing.
- G. Gravel finish.



# THERMOGLAS

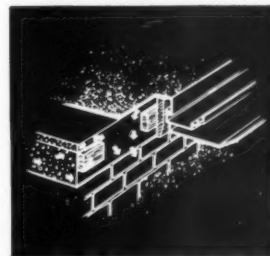
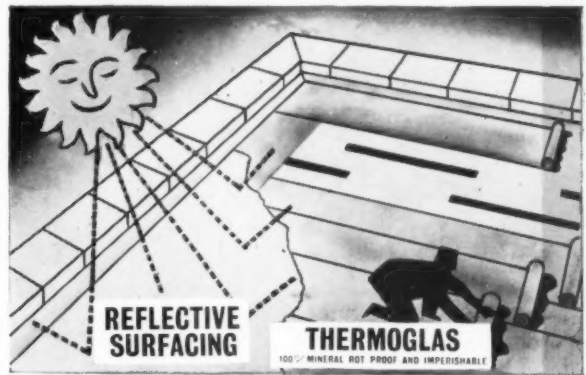
## and roof ventilation . . . .

. . . a technique designed to protect the weather-proofing of flat roof structures against influences arising from :-

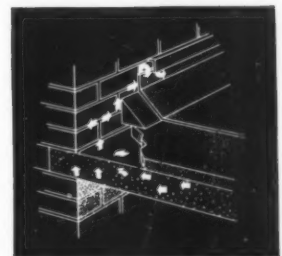
- \* Moisture and air in insulation
- \* Heat build-up on insulation
- \* Water in lightweight concrete
- \* Roof movement

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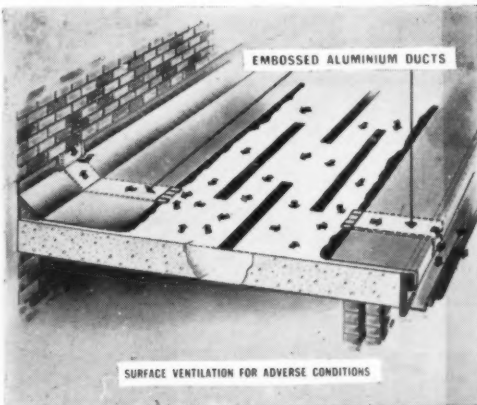
Where conditions are adverse surface ventilation is provided and metal ducts are fixed to relieve pressure to the outside air.



Drying in depth for extreme conditions is arranged at planning stage.

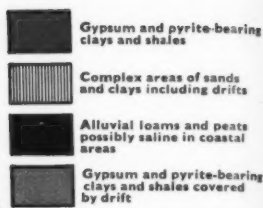


Typical detail is shown but others are available to suit design and advice will be given on request.



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# TUNNEL

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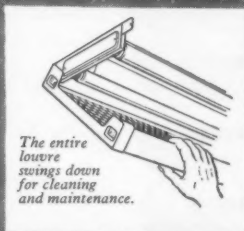


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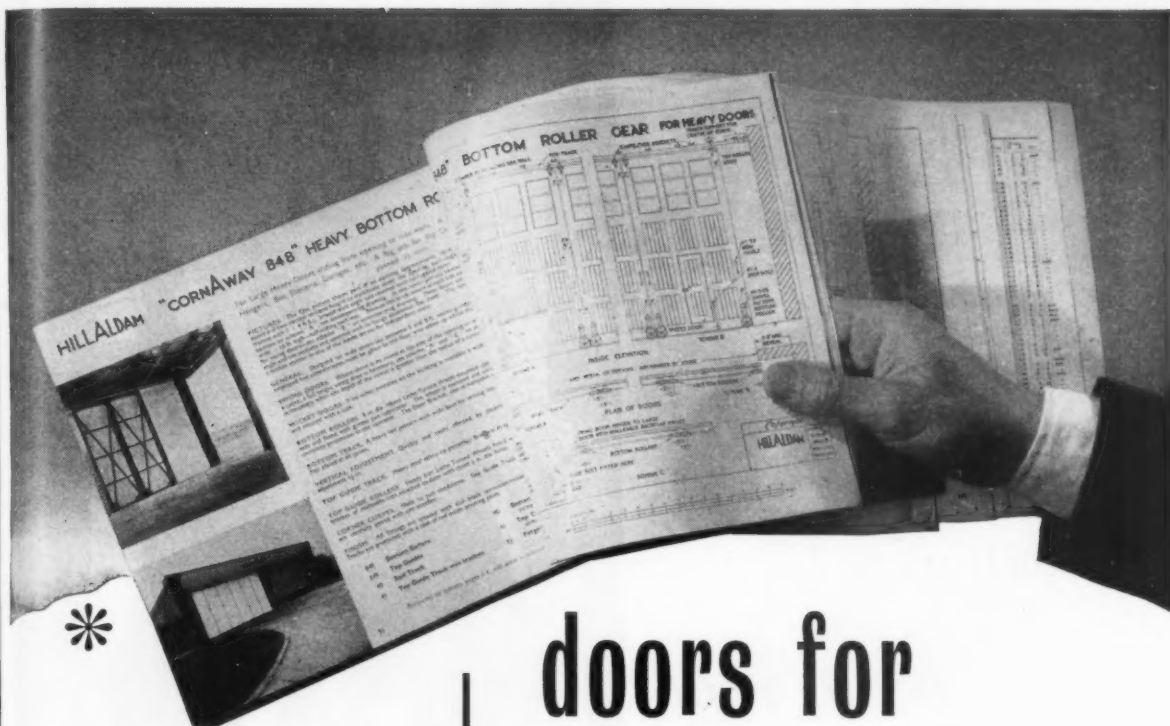
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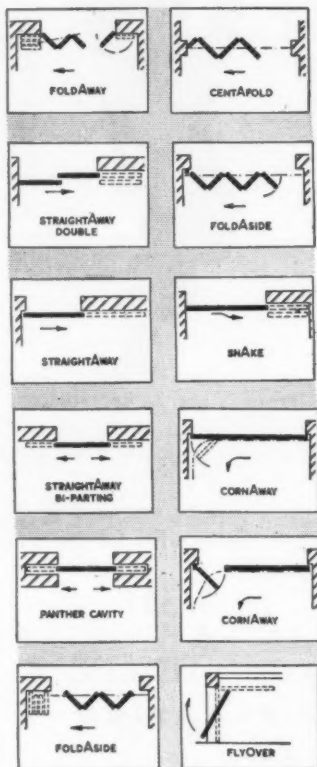
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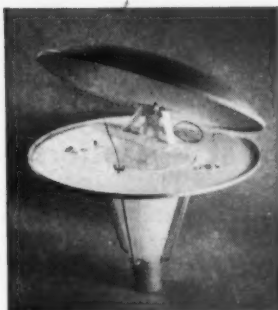


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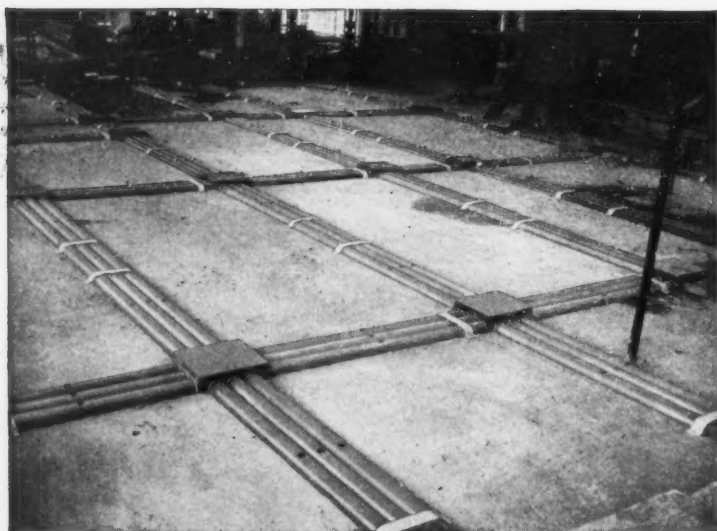
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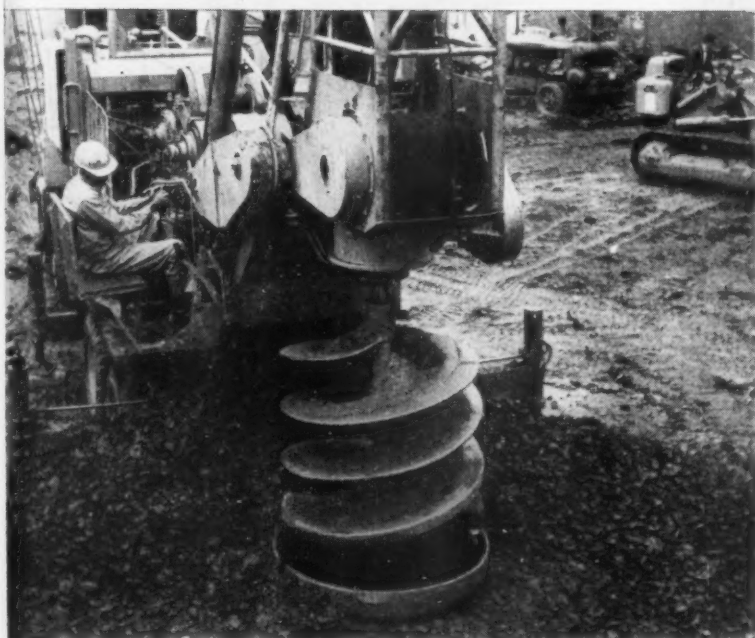
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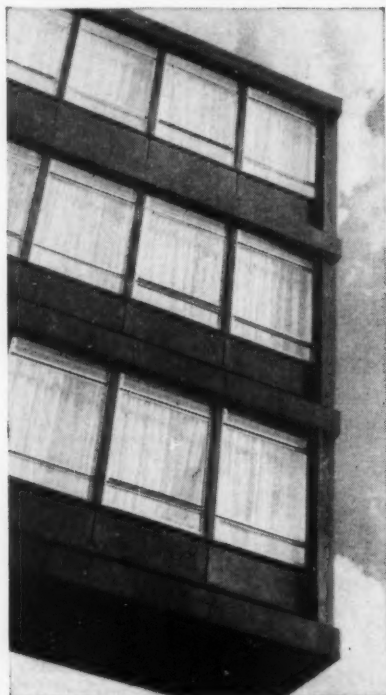
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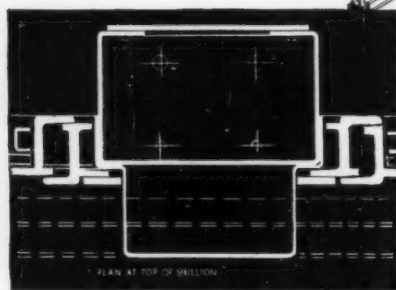
### Peter Robinson's Store, Strand London

Architects: Denys Lasdun & Partners

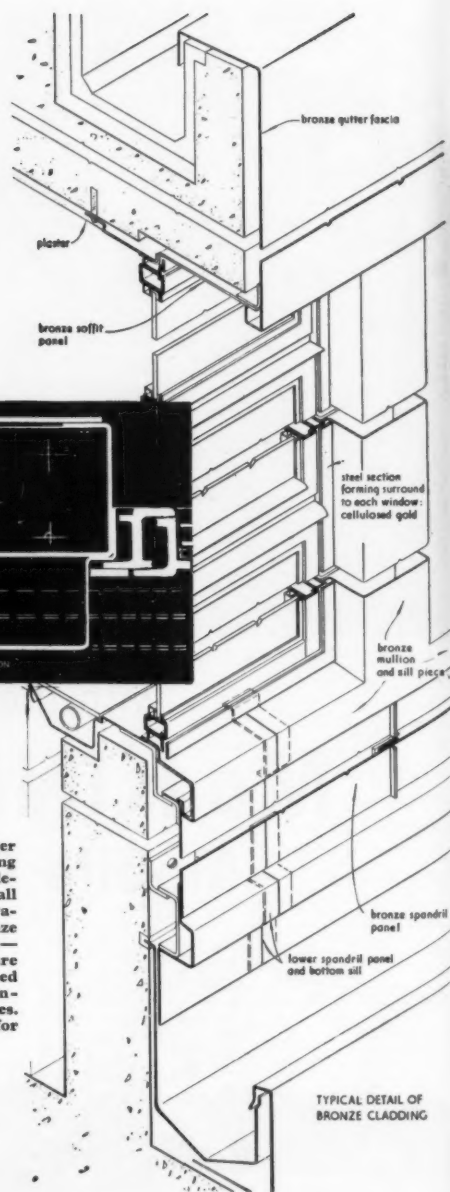
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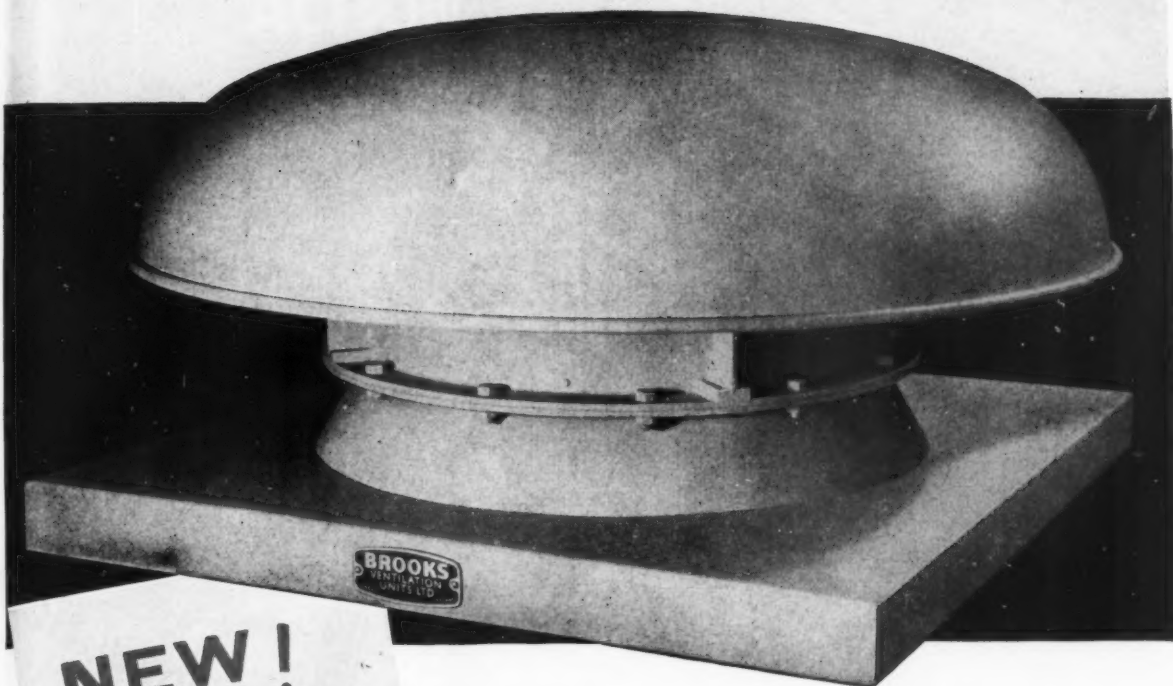
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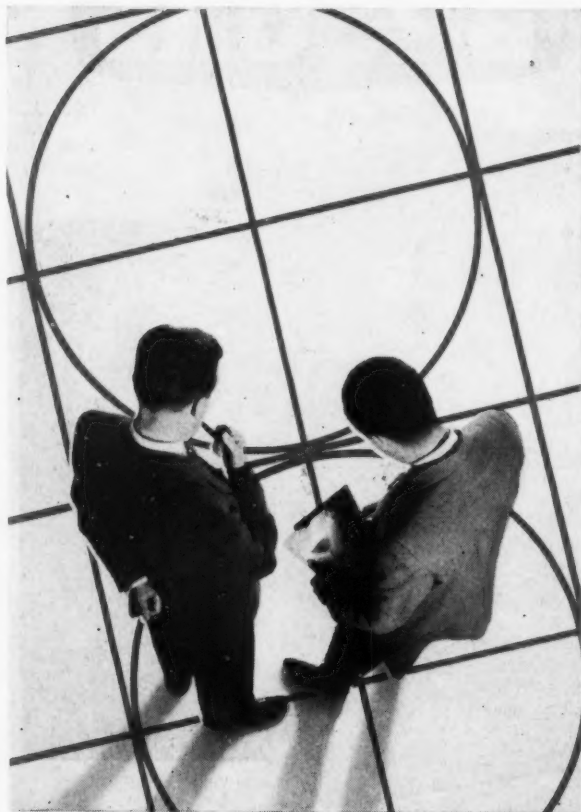
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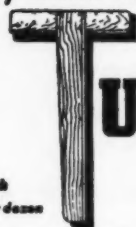
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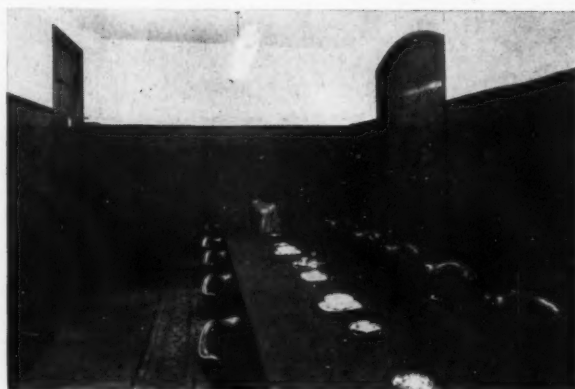
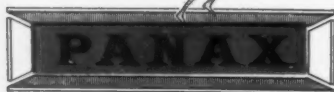
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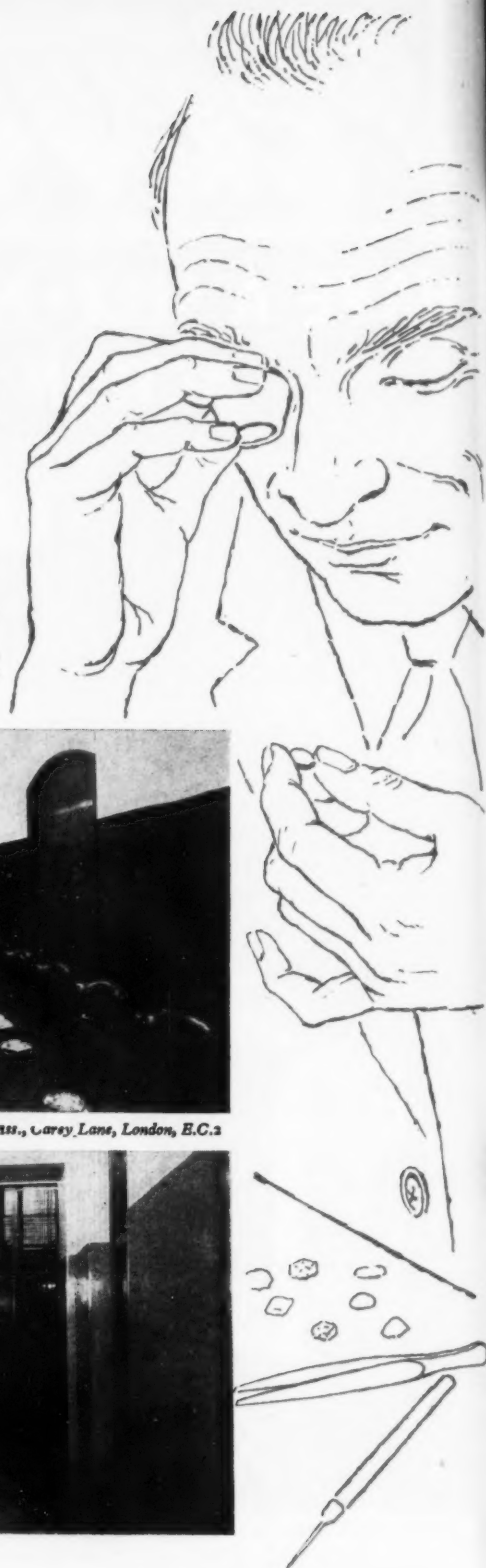


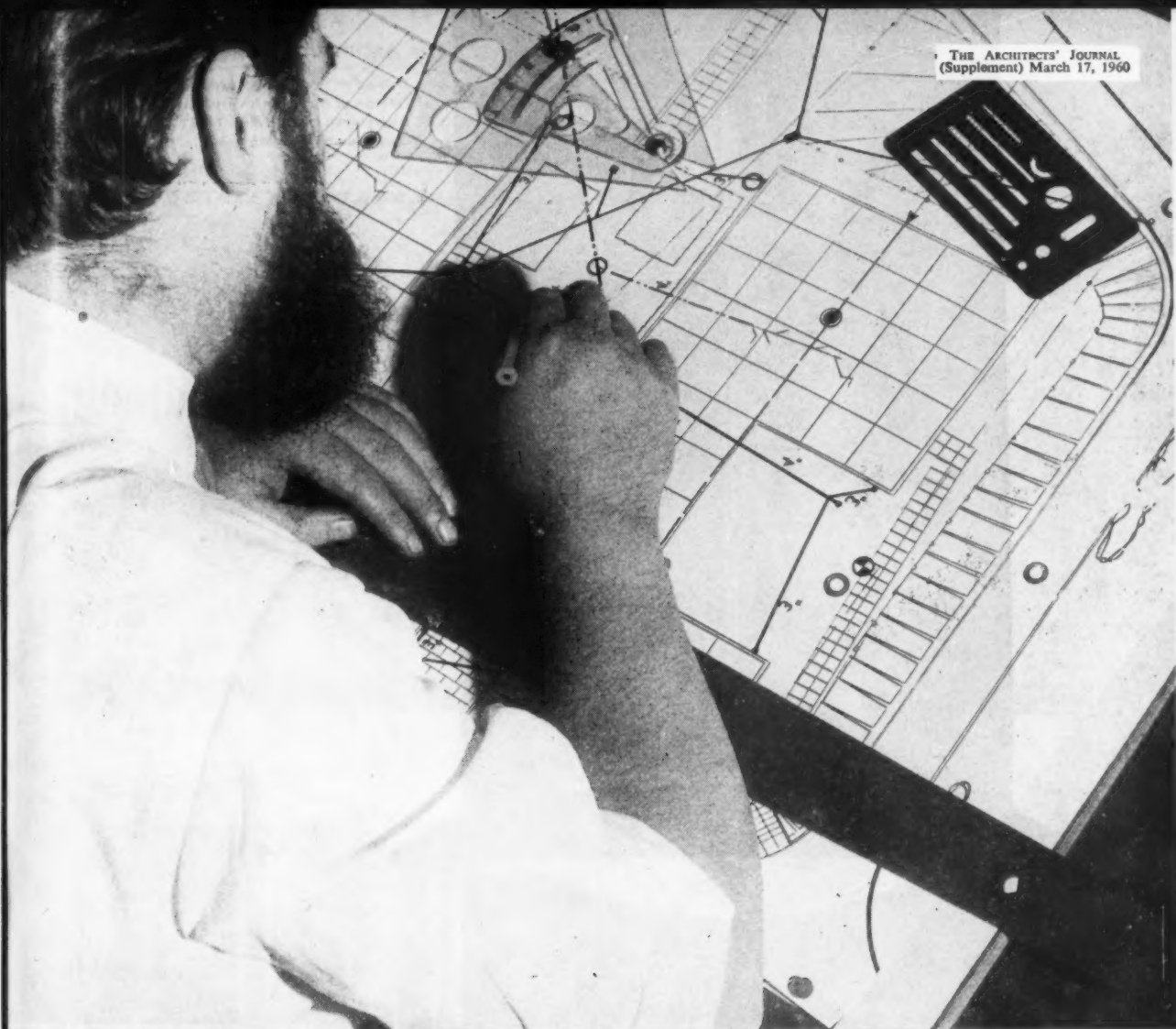
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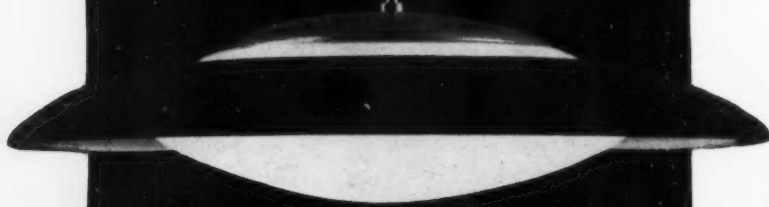
THE ARCHITECTS' JOURNAL (Supplement) March

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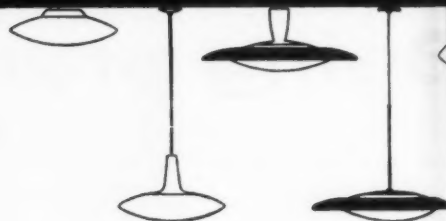


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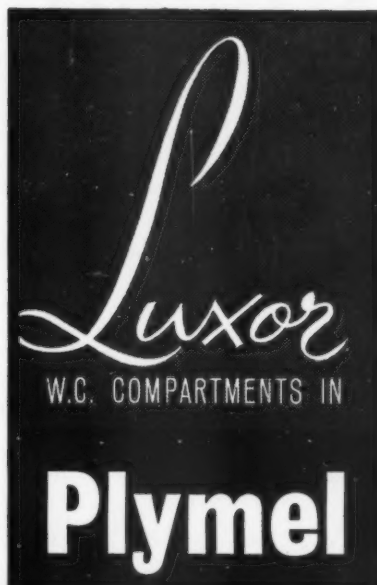
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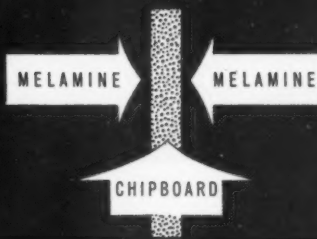
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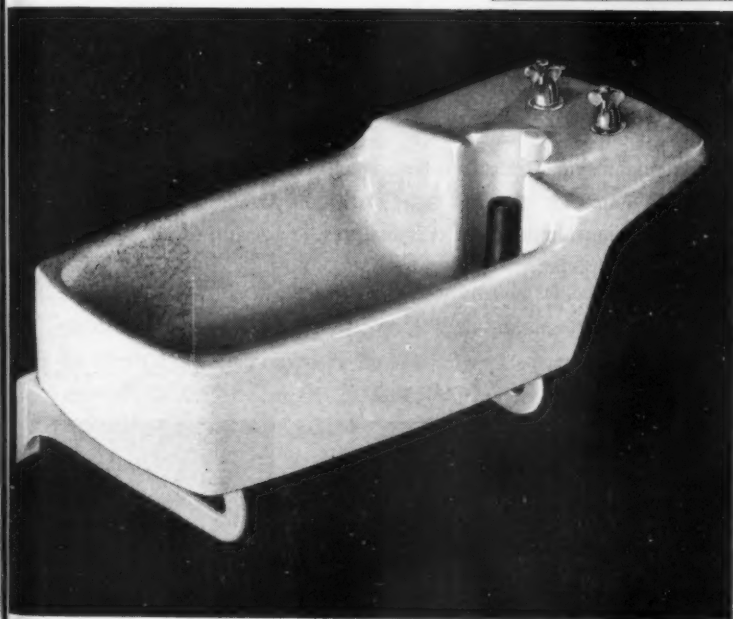
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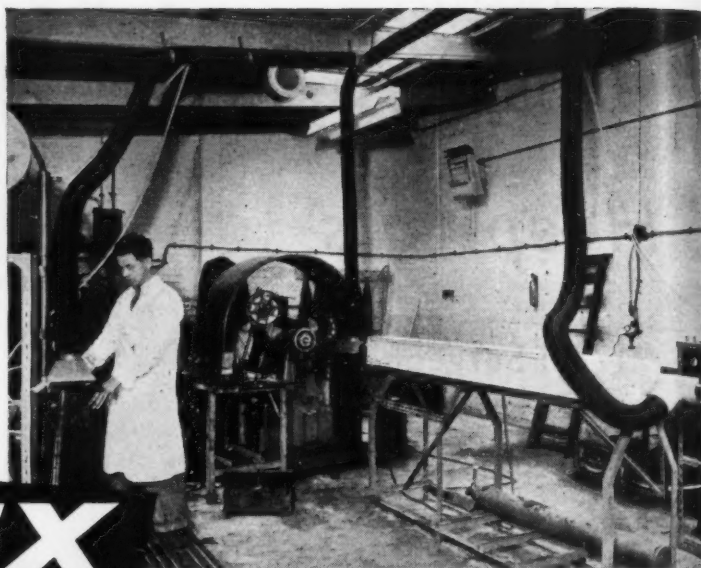
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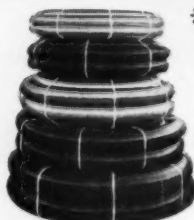
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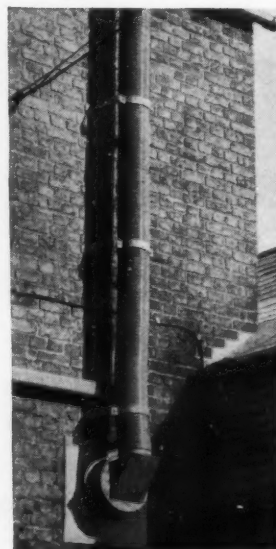
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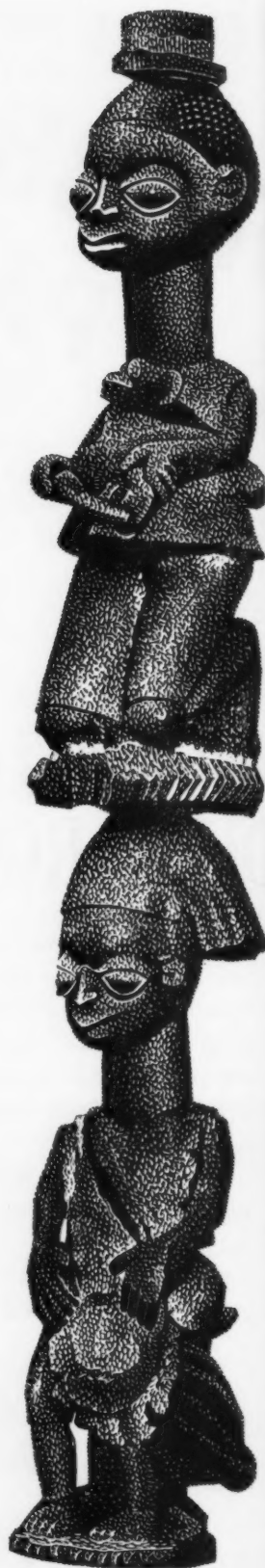


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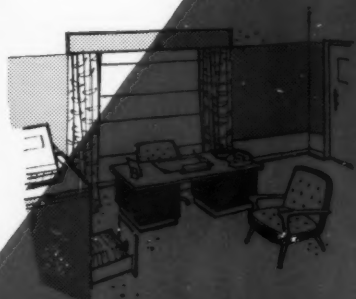
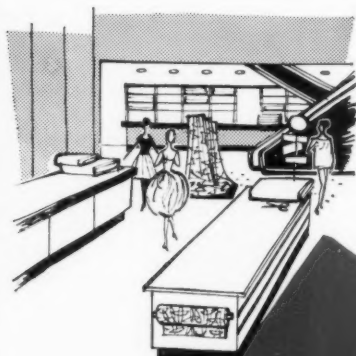
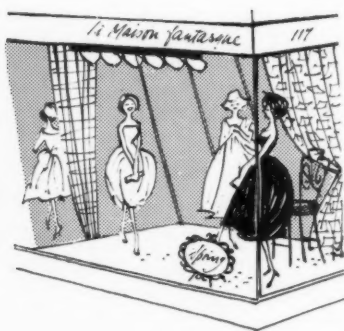




Here's the panelling material for today's shops

# POLYPANOL-H/F

It's a hard p.v.c. foil laminated to top quality hardboard



Modern shops need the modern panelling material—Polypanol-H/F. It's made by Plastics Marketing Company Limited, by laminating superbly decorative p.v.c. foil to a hardboard of excellent quality. It's ideal for counter fronts and shop window linings, for wall linings and ceiling panels, for flush doors and display boards, because it offers all these outstanding advantages.

Low price • Tough, hard surface which won't easily scratch or rub off • Superb modern fast colours and delightful surface emboss • Realistic wood grain patterns available • Surface not affected by most domestic products including liquids and oils • Long life • Easy to use • Easy to clean • Flame resistant.

The Polypanol-H/F can be treated in the same way as you would normally treat the base material alone.

#### STANDARD SIZE ON 1" HARDBOARD BASE

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There is also a light weight, semi-flexible 2mm grade of Polypanol-H/F which is particularly suitable for curved surfaces.

For further information about this important modern panelling material and for samples contact your local stockist or write to

## POLYPANOL-H/F

PLASTICS MARKETING COMPANY LIMITED

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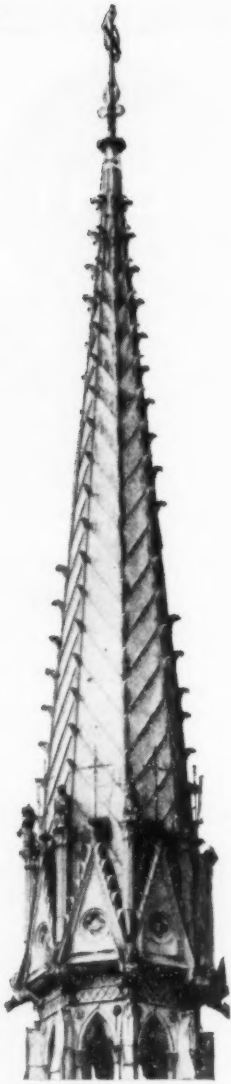
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Original zinc covering on spire of Wellington College Chapel, Berkshire, built 1868. Photograph by courtesy Z.D.A.

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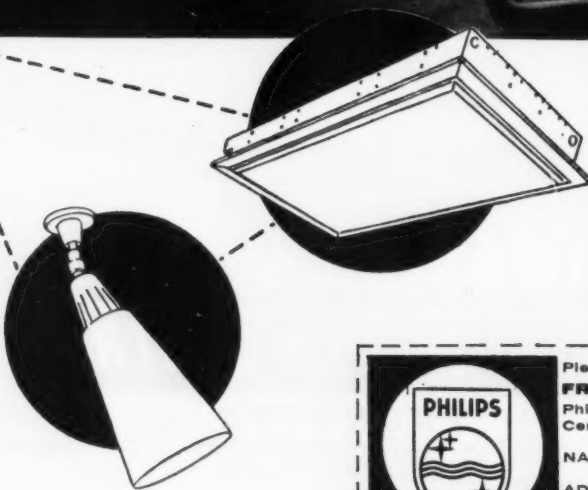
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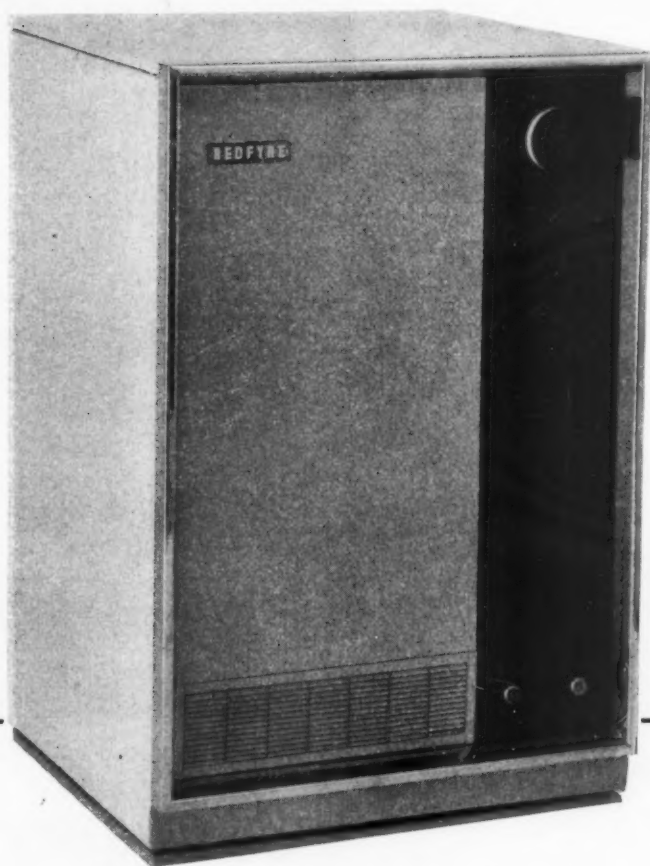
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The new Redfyre Centramatic 50 can provide full central heating and ample domestic hot water for a three or four bedroom house on as little as 25/- worth of fuel a week averaged over the year. It can do this partly because it is thermostatically controlled, and partly because of its unique electric ignition system which completely cuts out wasteful idling.

The Centramatic 50 is designed to fit perfectly into a modern kitchen. It has the right dimensions (36" high x 21" deep) and an attractive variety of 3-tone colour schemes. It is fully insulated, and does not rely on

chimney draught for efficient combustion (although it needs a chimney flue in which to exhaust).

The Centramatic 50 comes as a packaged unit. It requires no specialised installation techniques. The local supplier can service it yearly, and that is all the attention it should need.

The Redfyre Centramatic 50 is suitable for heating systems requiring up to 50,000 B.T.U's per hour and costs £128 retail. There is also a larger version, the Redfyre Centramatic 80, which has an hourly output of 80,000 B.T.U's and costs £149 retail.

*Full technical specifications of the  
Redfyre Centramatic oil-fired boilers are available. Please write to*

**NEWTON CHAMBERS & CO. LTD., REDFYRE PRODUCTS, THORNCLIFFE, SHEFFIELD**

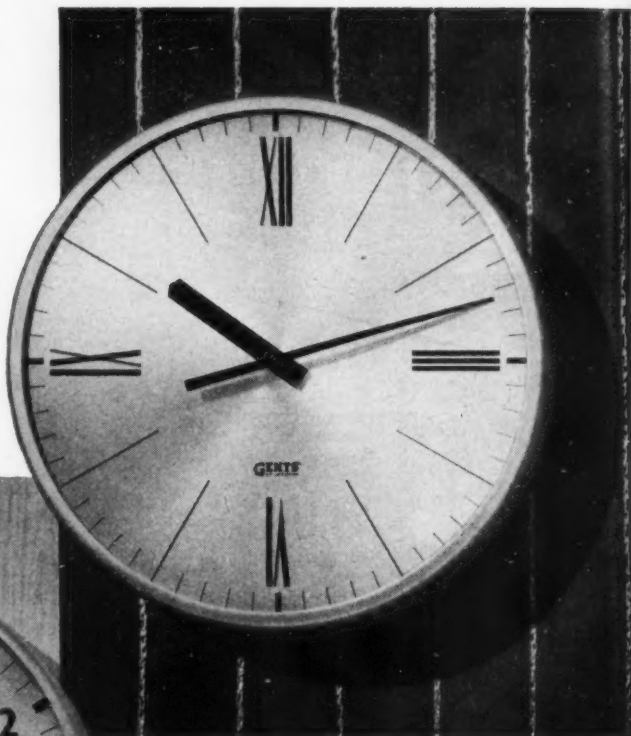


Maximum legibility and good taste are combined in the Gents wall clocks shown here.

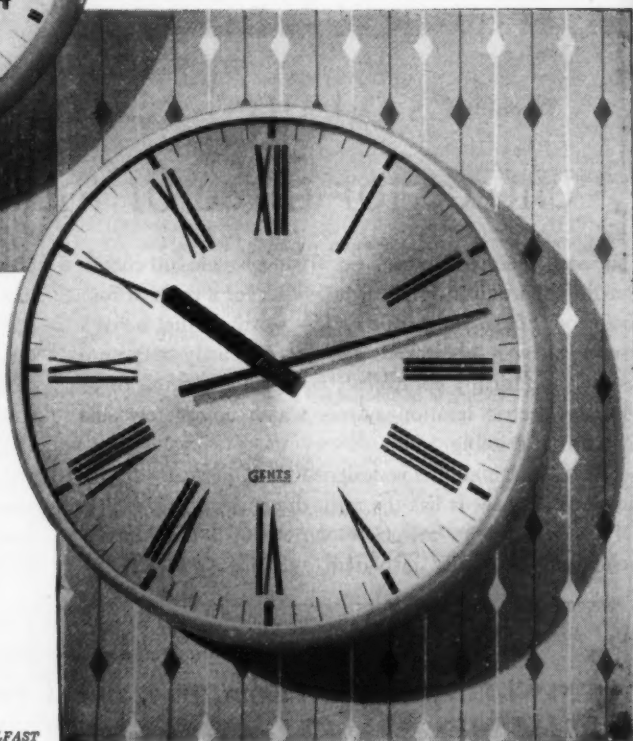
Styled by a leading industrial designer they provide a choice of standard models which fit happily into present-day surroundings and décor.

These and others in the extensive Gents range have been selected by the Council of Industrial Design for inclusion in Design Index.

All are available for operating either on A.C. Mains or as part of a Master Clock System.



*In every way...Right!*



*May we send you literature?*

# **GENTS**

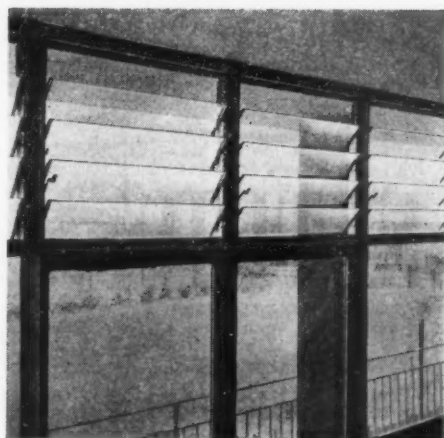
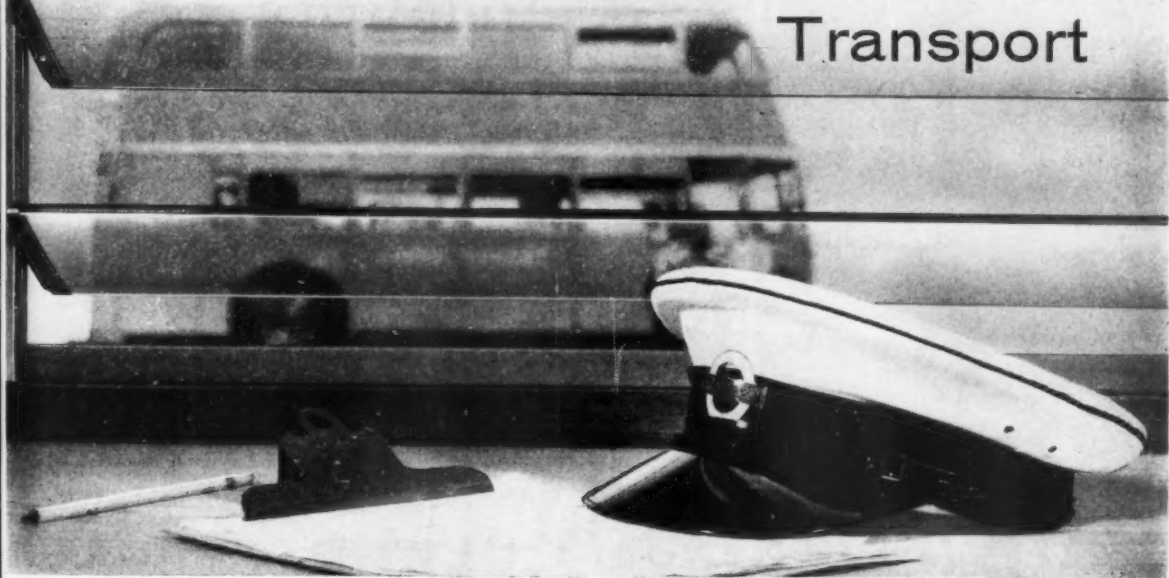
OF LEICESTER

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... and a fresh outlook, too, since they installed 'Naco' Sunsash Adjustable Louvres in their garages! 'Naco' Adjustable Louvres are used extensively in light and heavy industry; by British Railways, Shell Mex & B.P. Ltd., the British Standards Institution, Nestlé Co., Ltd., and almost all County Councils, as well as many other leading organisations in over 90 countries. In windows and doors, they answer lighting and ventilation needs; and they are weatherproof. Suitable for conversions as well as new buildings, 'Naco' Louvres cost no more than most standard windows. Finishes available are zinc plated steel sprayed with aluminium lacquer, or anodised aluminium. Both have alloy bearings.

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hand-drying  
—less expensive  
—more hygienic

The 'ENGLISH ELECTRIC' Hand-Drier will quickly pay for itself by sheer savings in running costs.

This economical method of hand-drying is also the most hygienic. Each hand-dry is as thorough and germ free as the first. The Hand-Drier is pleasant to use and makes for a tidy cloakroom.

Both motor and element are continuously rated.

Send for Publication FP/106 to The English Electric Co. Ltd., F.H.P. Motors Department, Bradford.

# 'ENGLISH ELECTRIC'

hand-driers

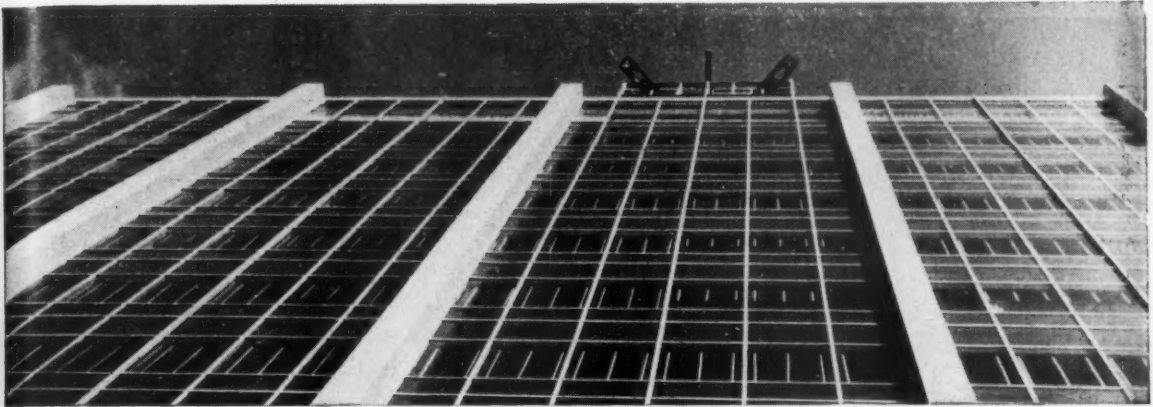
*"48 pleasant, hygienic 'hand-dries' for one unit of electricity"*

THE ENGLISH ELECTRIC COMPANY LIMITED, MARCONI HOUSE, STRAND, LONDON. W.C.2.

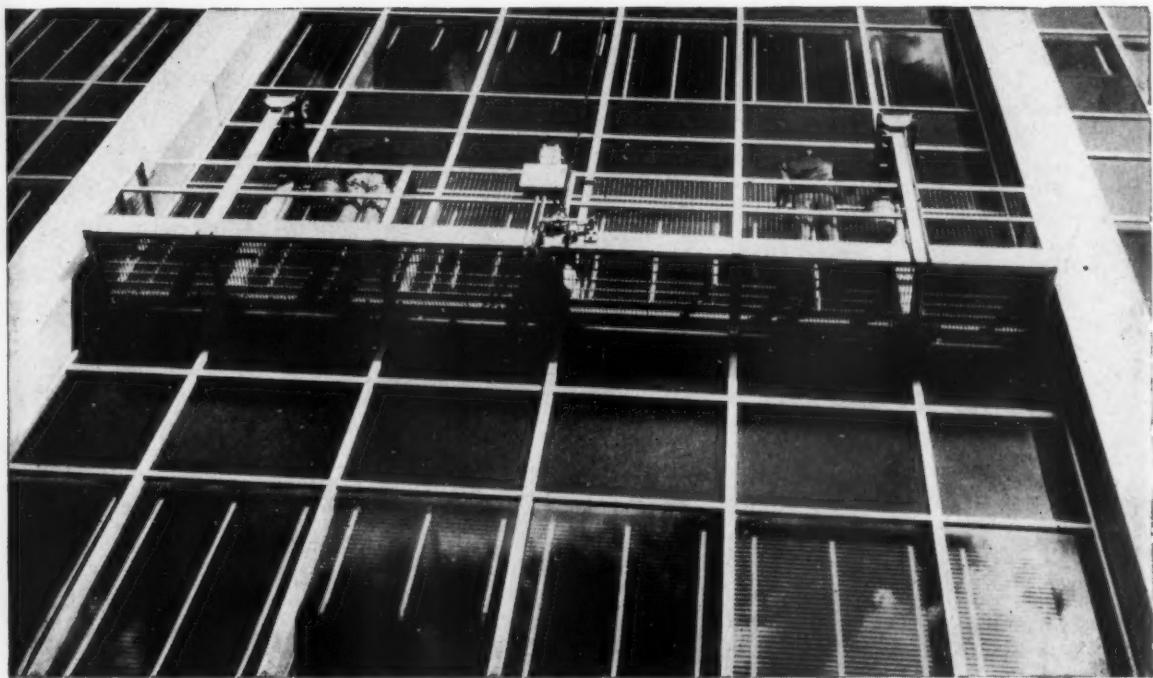
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## How to clean acres of glazing!



The increased use of curtain walling, with its vast areas of glass and other sheet cladding materials, plus the demand for sealed air-conditioned buildings, has given rise to a major functional problem—that of accessibility for cleaning, service and renewal.

The 'ESCALER' Elevator system solves this problem. Providing completely safe access to every square inch of building face, the architect gains complete freedom in fenestration which hitherto was conditioned by the scale of opening lights.

The 'ESCALER' system includes roof track, roof car and platform tailored to suit the modules and contour of new buildings.

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For buildings up to six storeys high, angulated cable versions are available.

The 'ESCALER' system lends itself to flexibility and we welcome discussion with Architects at the planning stage of any new project. Layouts of proposals are submitted without obligation.

## The ESCALER Elevator



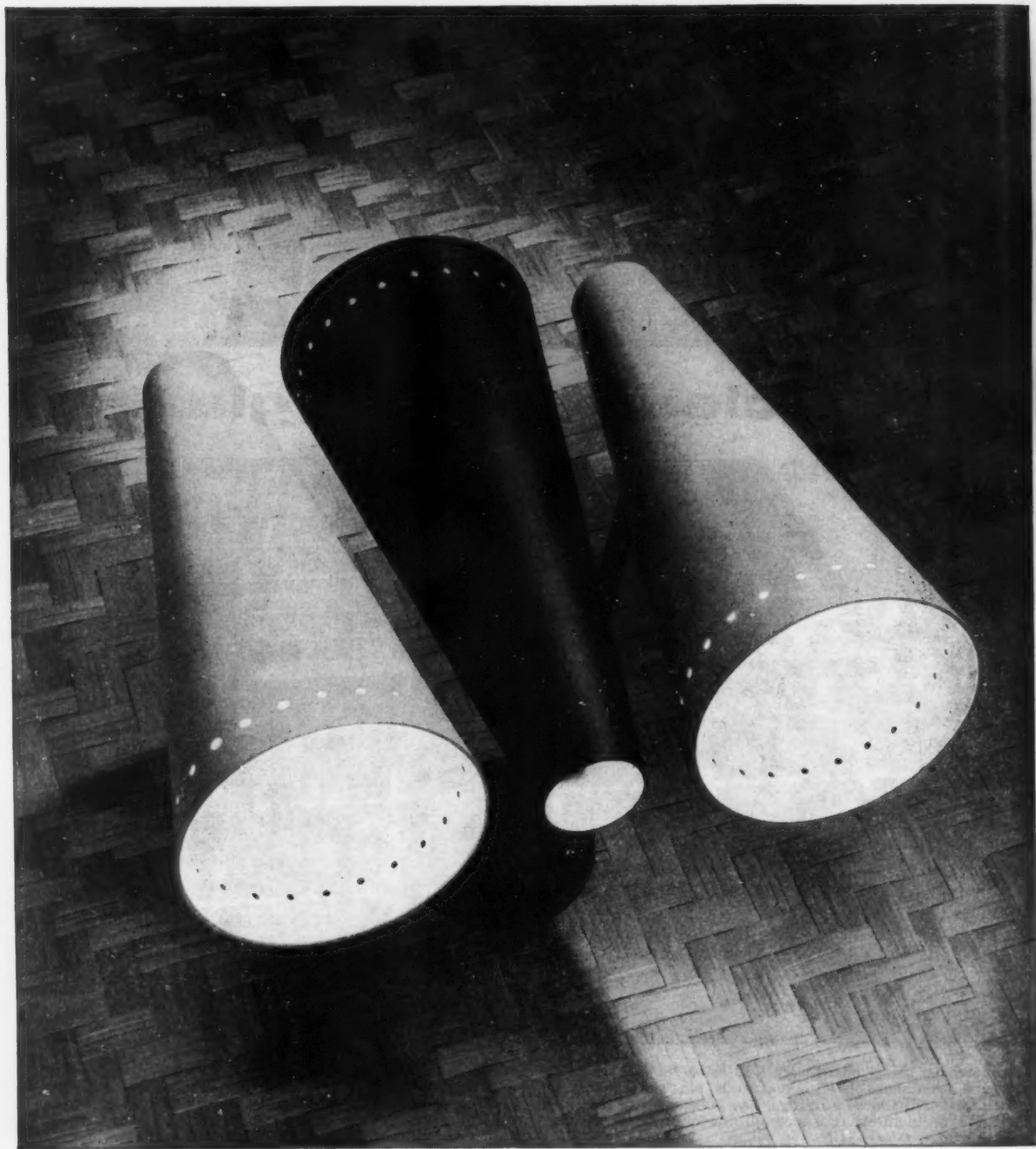
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*Architect:*  
John Dryburgh, A.R.I.B.A.  
A.R.I.C.S., A.M.T.P.I.  
City Architect, Cardiff.  
*Contractors:*  
George Wimpey & Co. Ltd.

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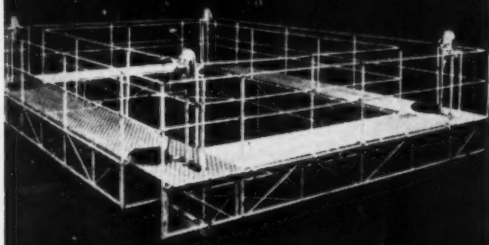
*A block of multi-storey flats fitted with Standard Reversible Casements. Large picture windows can be reversed from the inside for easy cleaning. Whether standard or purpose-made, Jonwindows have a contribution to make to the architectural concept.*

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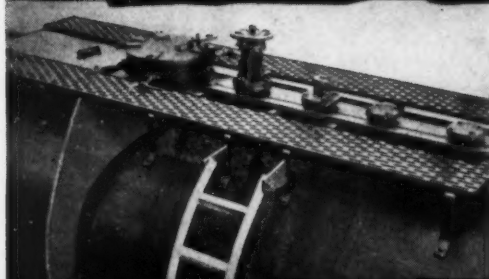
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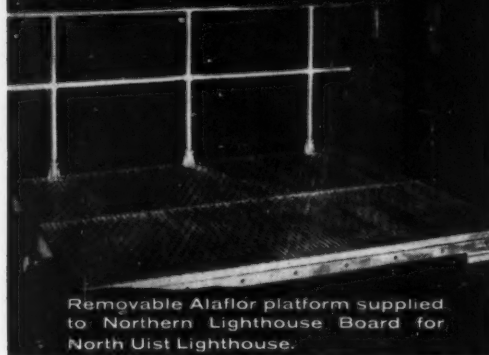
Alaflor installed in Radio Chemical Laboratories at the National Chemical Laboratory, Middlesex.



Alaflor suspended staging for inside boilers, as used by Sterling Safway Scaffolding, Jarrow.



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Removable Alaflor platform supplied to Northern Lighthouse Board for North Uist Lighthouse.

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**flooring that is  
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**Extruded  
Aluminium  
Flooring  
and Treads**

This is the flooring industry cannot ignore — it has so many virtues, both technical and price-wise. Take a 'step' in the right direction now, write for literature today.

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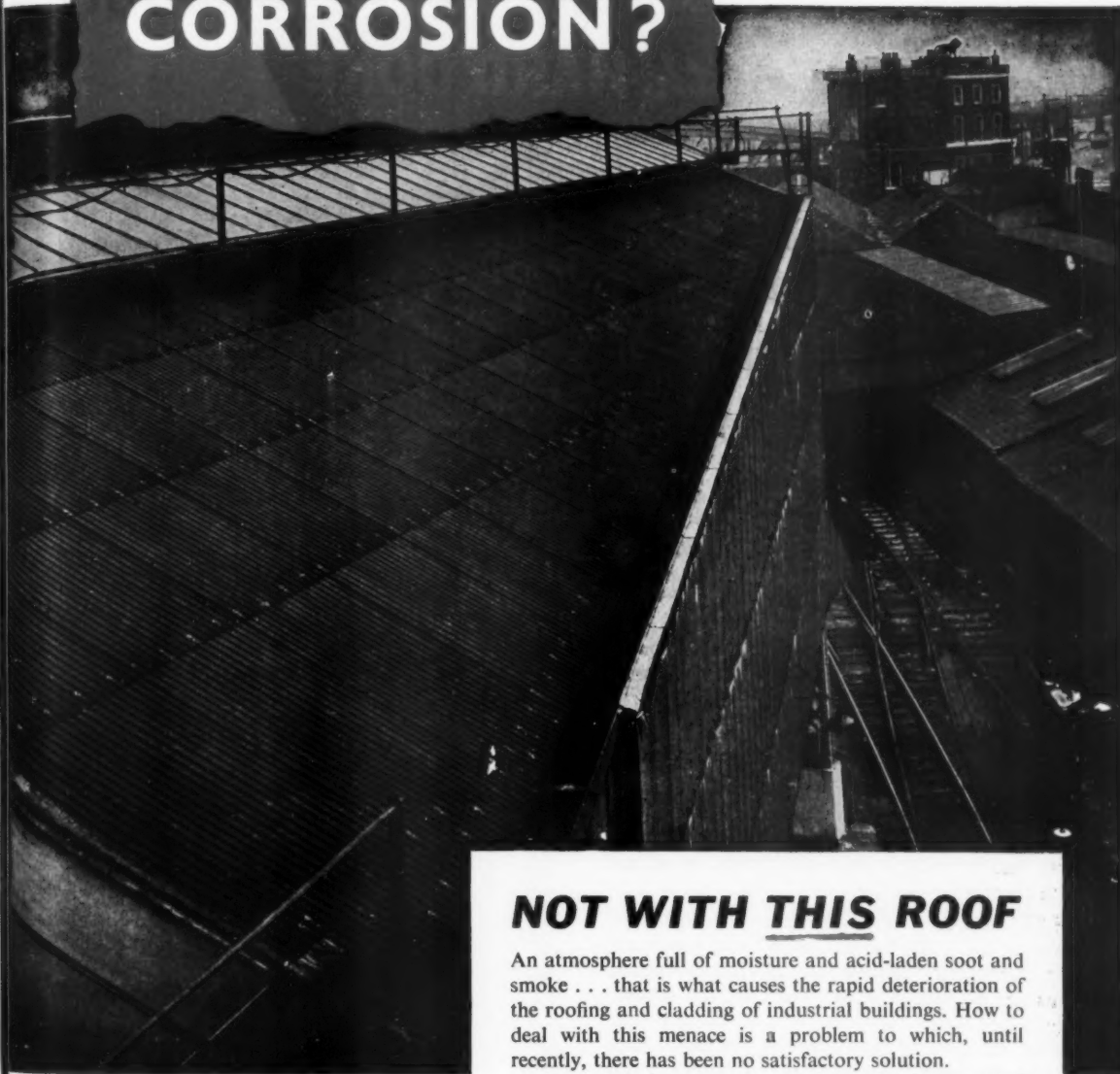
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These strong, rigid, laminated plastic sheets are economical, too. They last longer than any other sheets, need no maintenance, and are free from breakages in transit.

For roofing and cladding where corrosion is worst, always specify . . .

### FOR CONTEMPORARY CLADDING TOO

'Corroplast' is also ideal as side-cladding for contemporary buildings, giving a most colourful and attractive appearance. Available in three integral shades, or in a range of stove-enamelled finishes.



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## Modernise with **HARD COKE**

- ★ for **LOW COST** automatic **HEATING** and **HOT WATER**
- ★ **Convactor HEATING STOVES**
- ★ **Solid fuel COOKERS**

For **ROOM HEATING** Hard Coke is particularly suited for openable and closed stoves. Attractive in design, and highly efficient through the use of convection, these are amongst the most efficient appliances obtainable, when the correct fuel is used.

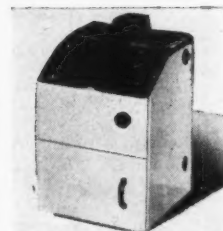
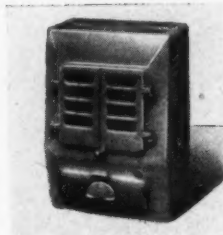
For **HOT WATER** the modern domestic boilers, with thermostatic control, operate with the highest degree of efficiency on Hard Coke.

For **COOKING** special Grades of Hard Coke are available for solid fuel cookers — clean, efficient and most economical for the modern housewife.

For **CENTRAL HEATING**, the new small bore system, operated on Hard Coke is economical to install and to run, at least as efficient as oil and much cheaper.

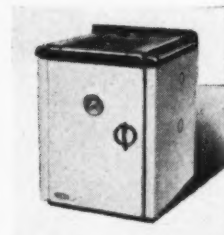
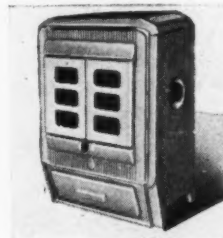
**WHAT IS HARD COKE?** It is the authorised smokeless fuel made by the British Coking Industry. It is particularly suitable for continuous-burning appliances because these can really be run *continuously*. (Hard Coke, made from *crushed* washed coals, contains no stone or 'bats' to clog the bars). Hard Coke is slow burning, giving great economy, and is consistent in size and quality.

*COURTIER Type R Free-standing openable stove, in several sizes. Inset types also available.*



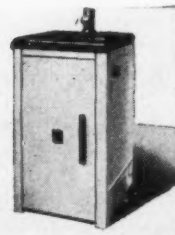
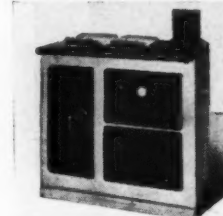
*REDFYRE Magazine Boiler, 20,000 B.T.U. incorporating fuel hopper, saving frequent refuelling.*

*TORGLOW 1B. A free-standing openable stove with thermostat.*



*GLOW-WORM Aristocrat Mk. III. 12,000 B.T.U. output, and provided with thermostat control.*

*WELSTOOD HEATSTOR neat insulated cooker, free-standing, with boiler. In several colours.*



*IDEAL Neo-classic Sectional Boiler. Serving small-bore piping system with electric pump and mixing valves, provides central heating with full hot water supply and automatic control, cheap to install and cheap to run.*



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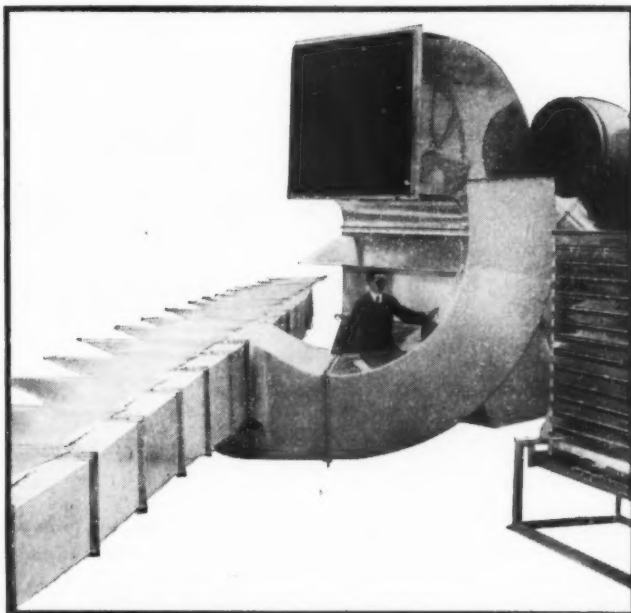
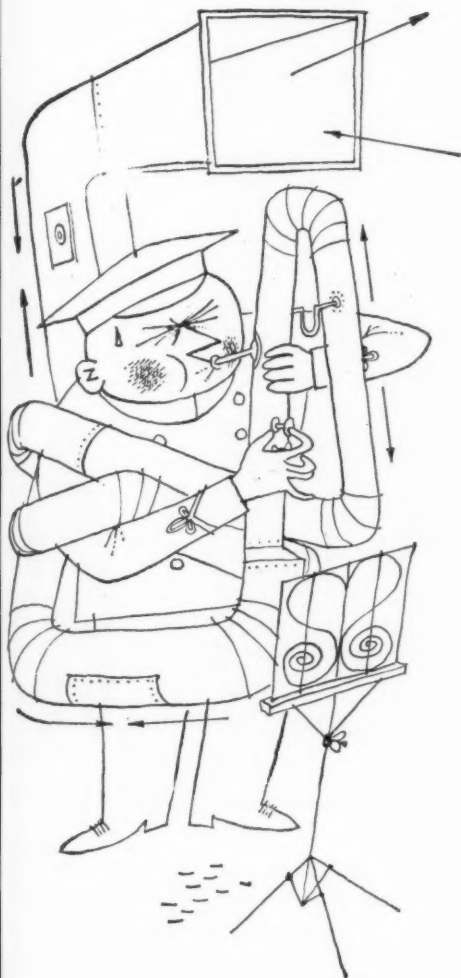
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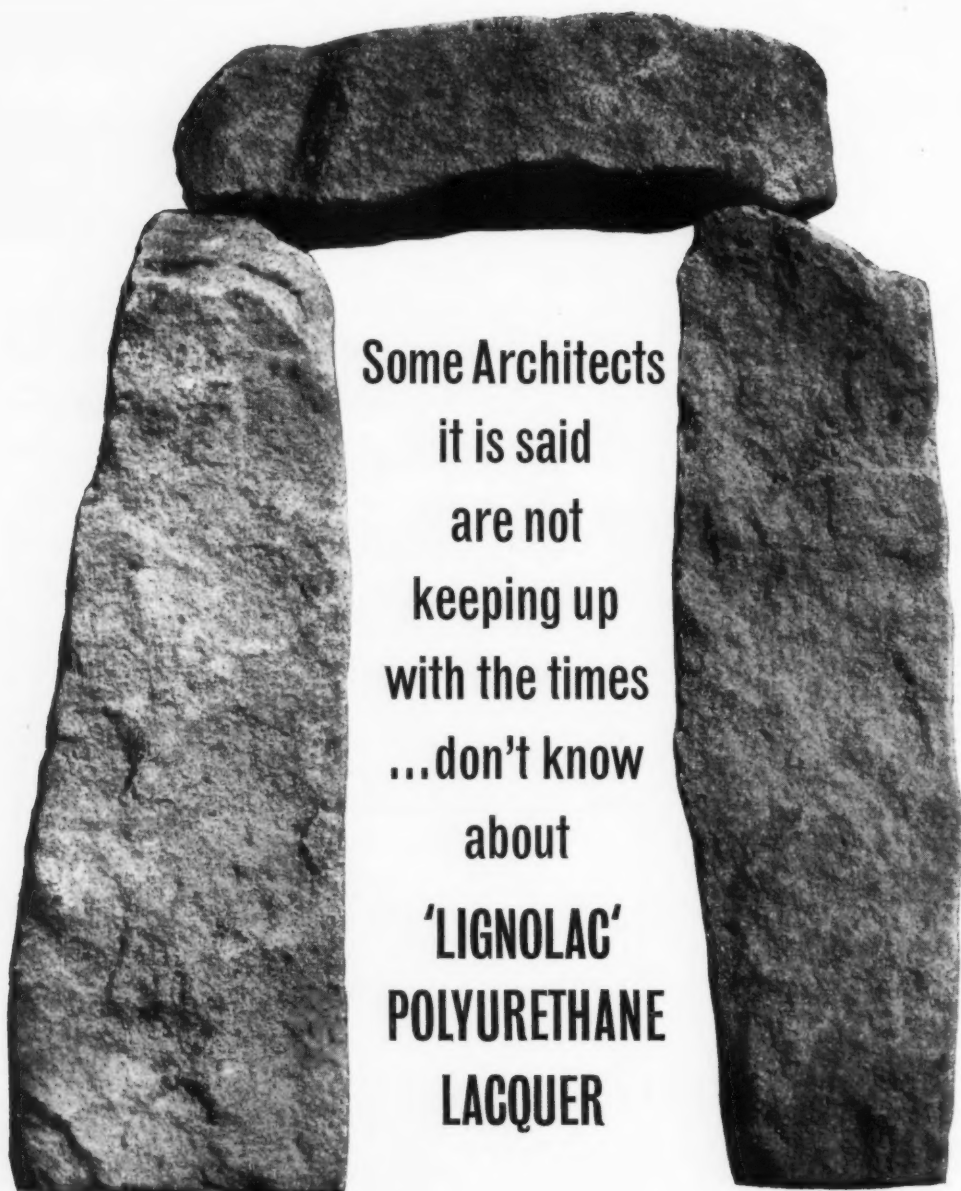
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are not  
keeping up  
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...don't know  
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LACQUER

..... a totally new type of clear finish that completely supersedes all conventional materials for exterior cladding and floors.

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Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Manchester, Norwich, Plymouth, Sheffield, Southampton, Swansea and all principal towns.

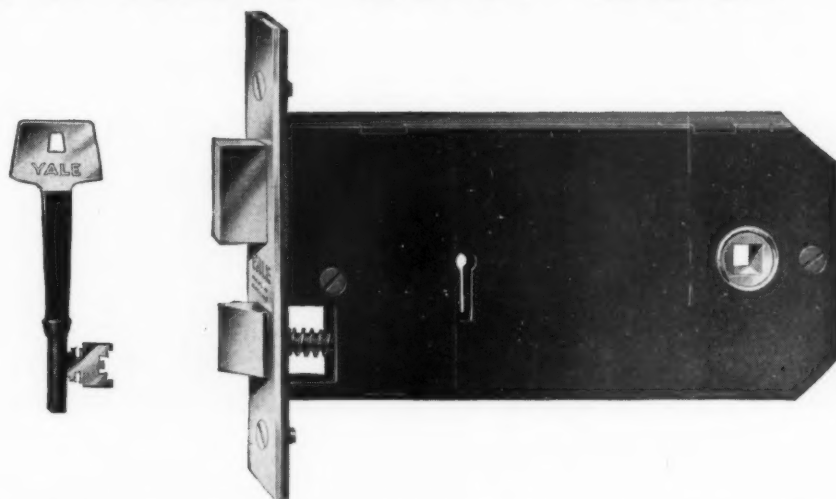


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## A COMPLETE RANGE OF

# 3 LEVER LOCKS

### at a NEW LOW COST



- 144 differs off levers alone (standard).
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- 3,500 differs available off levers and wards.
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This new range of 3-lever mortice locks enables you to specify greater security at a most moderate cost. The range—which includes both horizontal and upright type locks, two deadlocks and a sliding door locking latch—covers every need for a mortice lock.

**Master keying.** The locks can be master keyed in suites to include sub-masters, sub-grand masters and grand masters . . . and because all differs come from levers alone, a greater degree of security is assured.

**Literature.** If you have not already received your copy of the booklet giving full specifications, write to the address below.

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This set enables Yale 3-Lever Mortice Locks and all other standard Yale plain forend mortice locks to be converted into fully rebated locks. The set is completely reversible for left or right hand, inward or outward opening doors.

*Where there's a door there's a need for*



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## It pays you and your clients to put in *solid fuel* central heating

**Lowest running costs.** The big news in central heating these days is the amazing cheapness of the solid fuel systems. For example, the average weekly running cost for a two- or three-radiator system can be as little as 9/9d! Just compare that with oil, gas and electricity—see chart on right.

**Lower installation costs.** Compared with oil, solid fuel systems are much cheaper to buy and install. The new solid fuel boilers are really streamlined and require very little attention. They are thermostatically controlled and finished in gleaming vitreous enamel in a range of modern colours. This is going to mean a lot to every househunter!

**Excellent credit facilities.** What's more, the entire cost of the equipment and installation can be spread over five years.

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**Compare the costs.** These are typical weekly costs, averaged over the year, for centrally heating a three-bedroomed house or bungalow—and hot water summer and winter. Look how much cheaper solid fuel is.

| 6 or 7 radiators and hot water ▼                  |   |        |        |
|---|---|--------|--------|
| 2 or 3 radiators and hot water ▼                  |   |        |        |
| <b>COKE</b><br>In independent boiler              | 9/- per cwt                                       | 9/9d   | 15/-   |
| <b>SMALL ANTHRACITE</b><br>In gravity feed boiler | 12/- per cwt                                      | —      | 14/1d  |
| <b>GAS</b>  | 1/4d therm plus, say, 2.8d a week standing charge | 16/1d  | 23/6d  |
| <b>ELECTRICITY</b>                                | 1d unit (No standing charge included)             | 18/2d  | 29/10d |
| <b>OIL</b>  | 1/5½d gallon                                      | 12/10d | *22/8d |

\* plus 2 - to 6 - a week maintenance cost.

**For architects.** 'Central Heating for Houses', a complete, 120-page illustrated survey of all the various systems available, from the open-fire-and-back-boiler to the small-pipe system. Copies 2/6d each. Write for this booklet and for list of other technical publications to the Coal Utilisation Council, 3 Upper Belgrave Street, London, SW1.

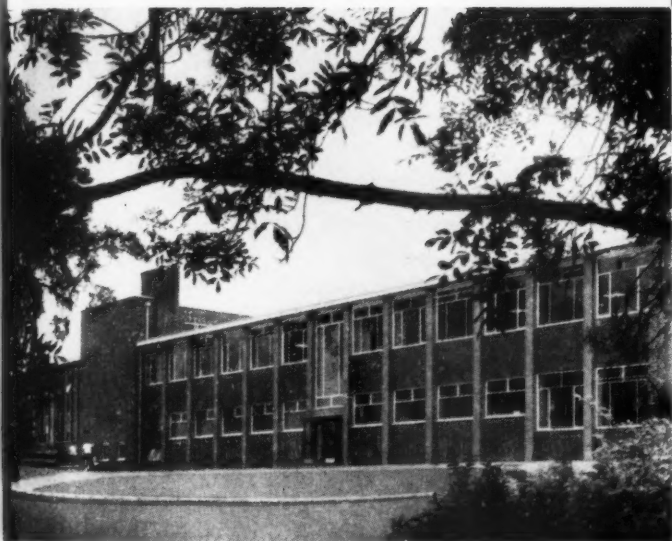
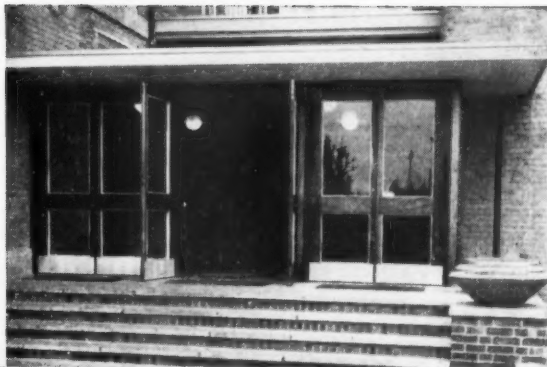
The cheapest  
central heating  
there is –  
**SOLID FUEL**



ISSUED BY THE COAL UTILISATION COUNCIL



Entrance Detail



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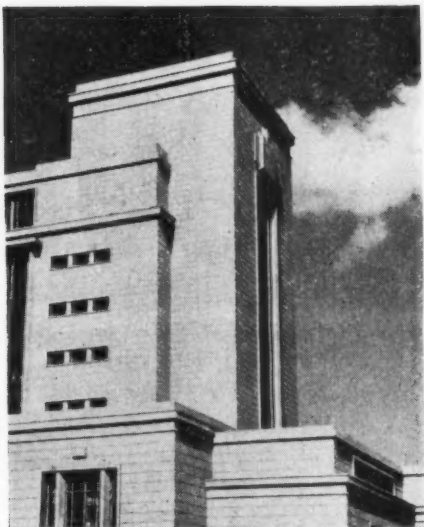
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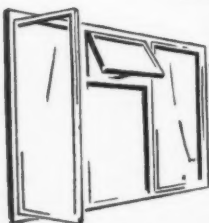
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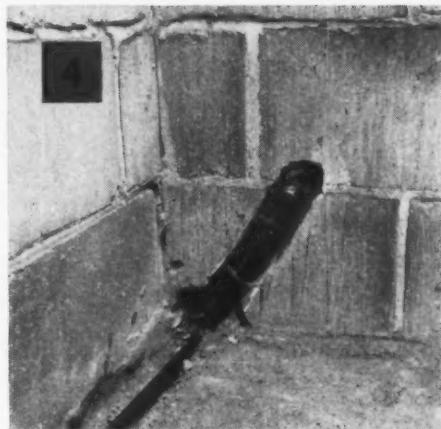
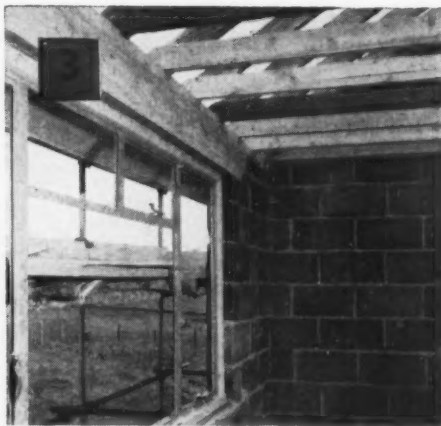
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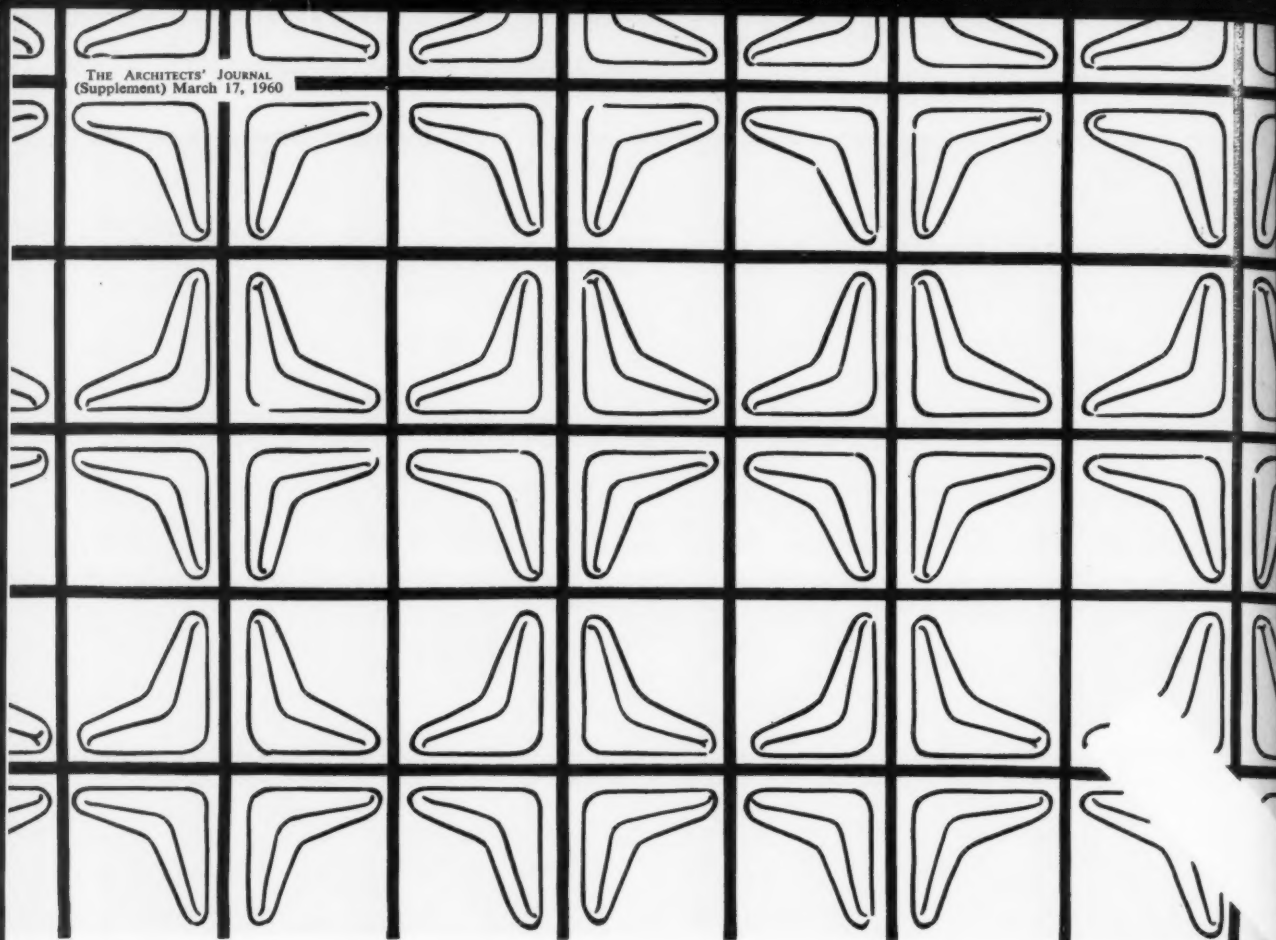
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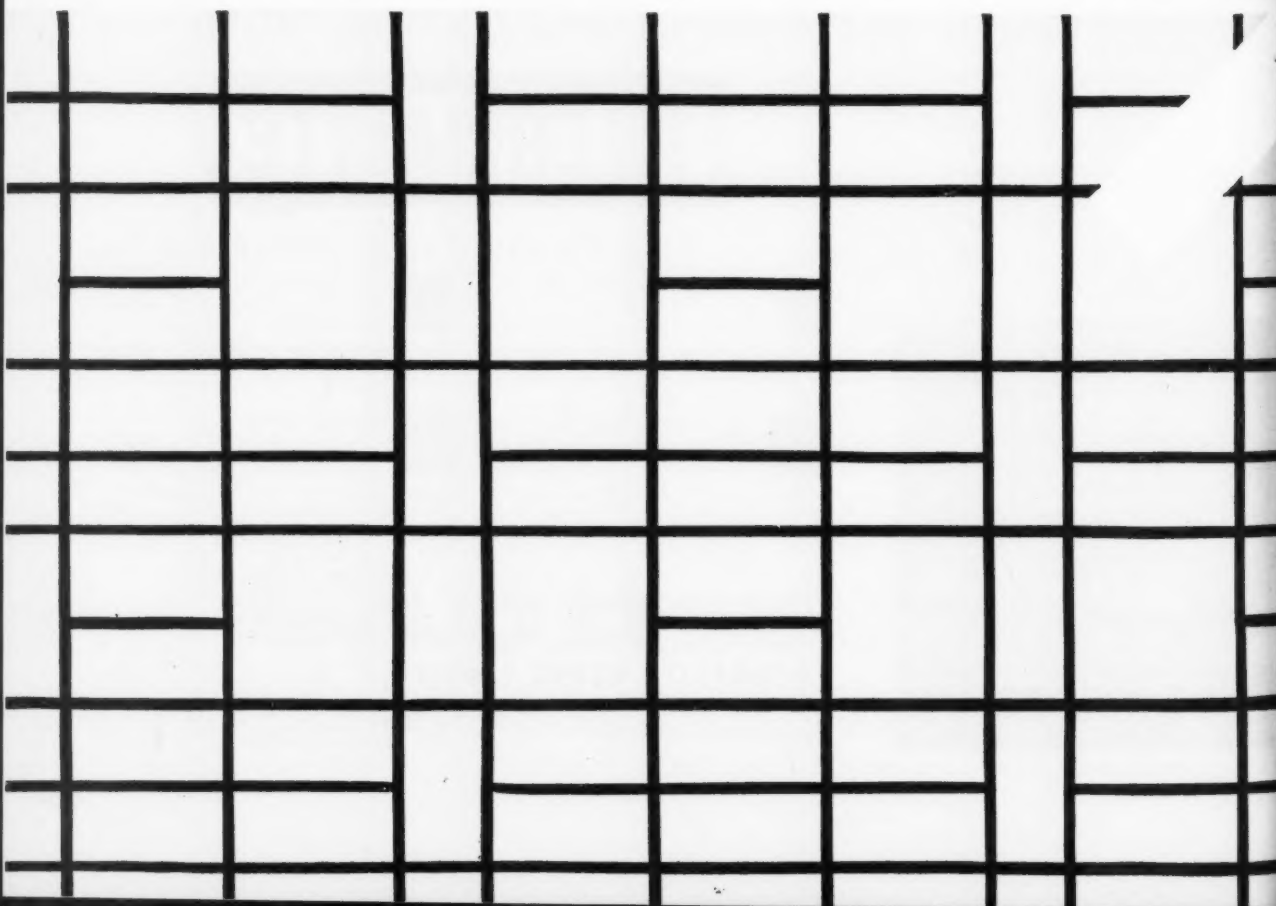
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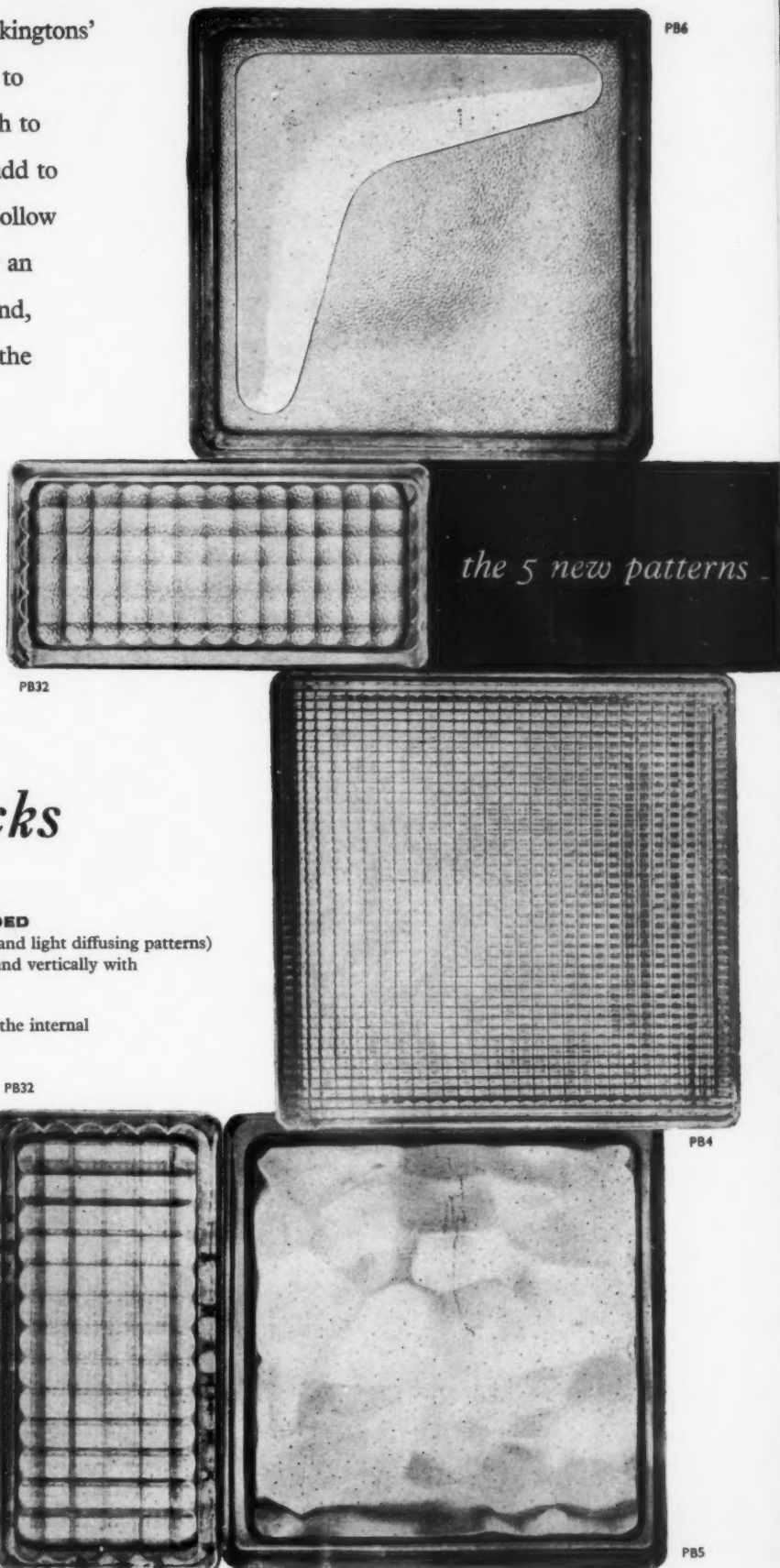
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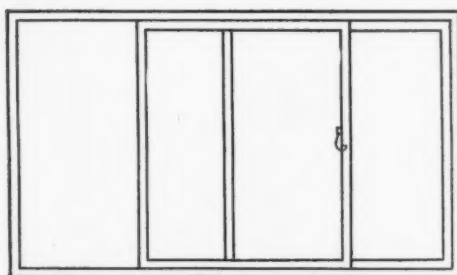
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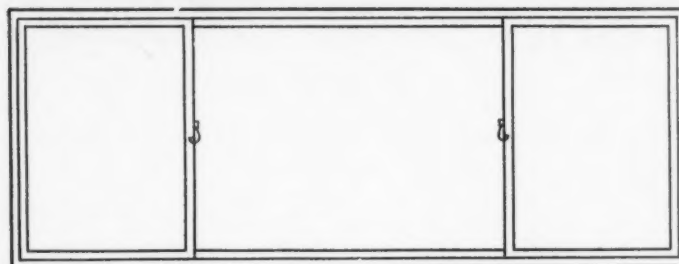
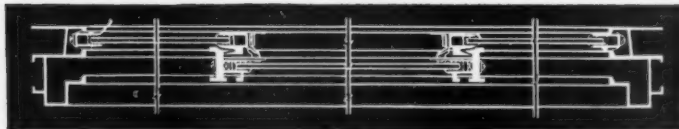
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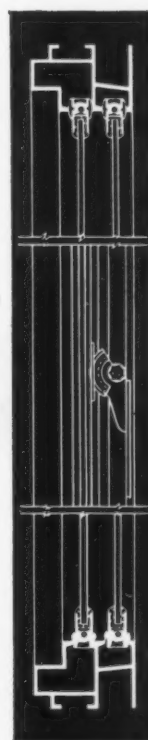
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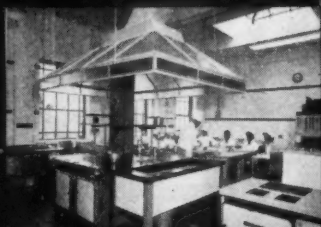




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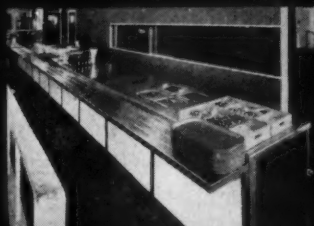
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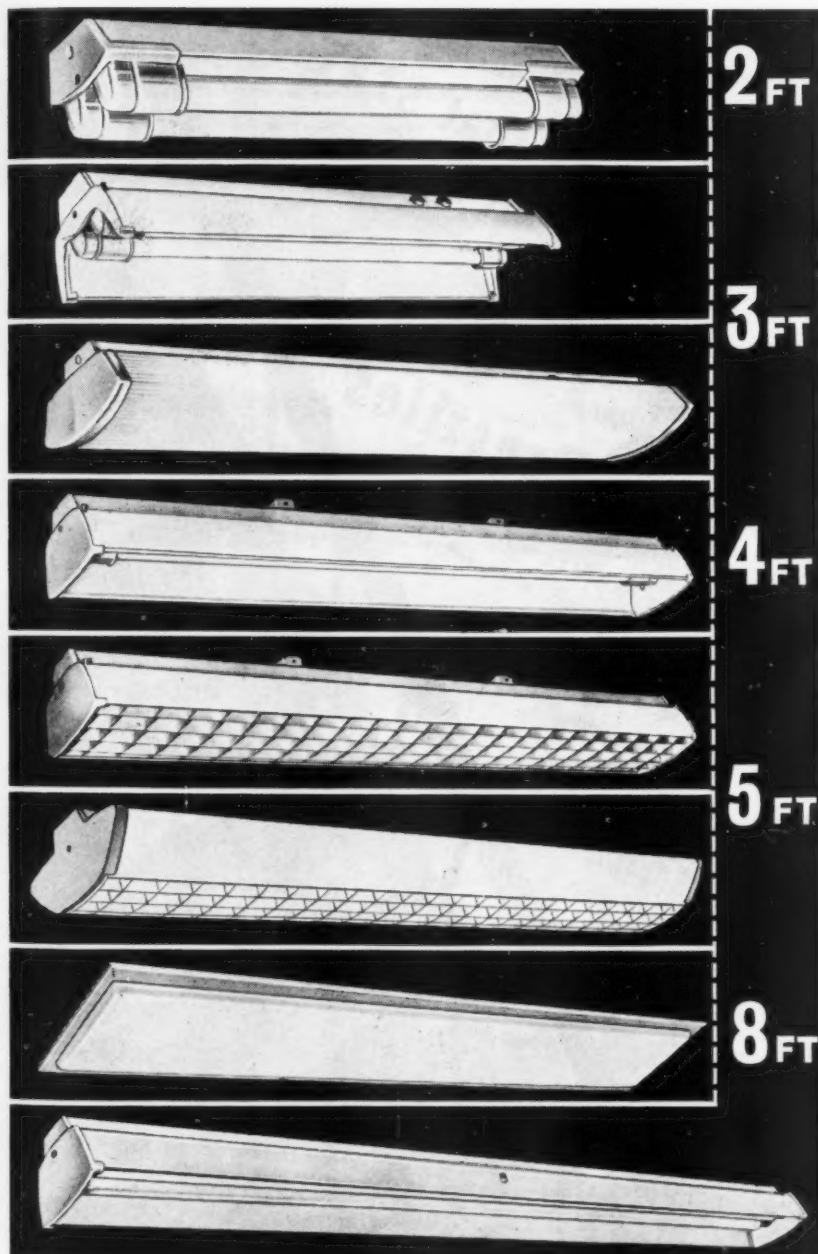
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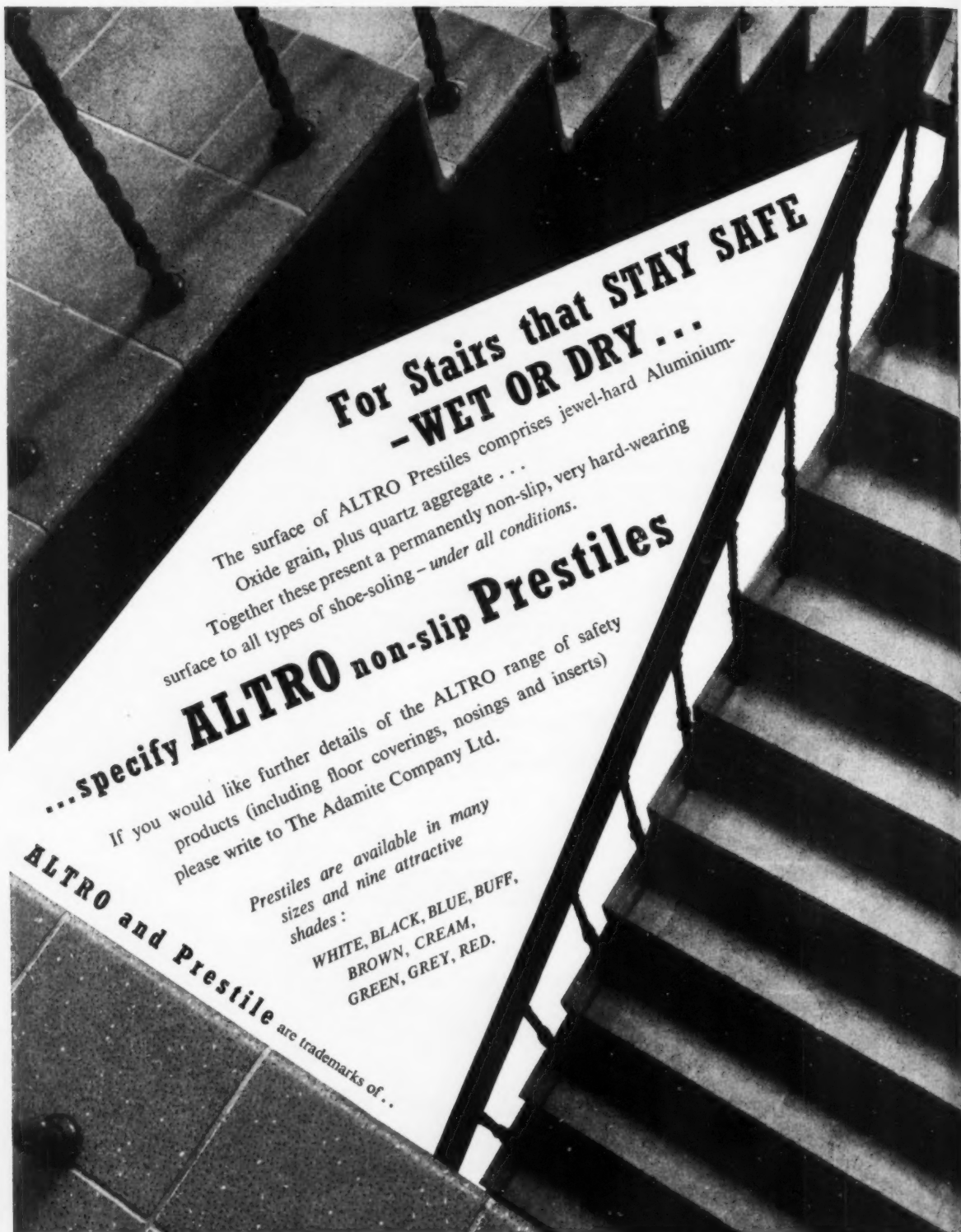
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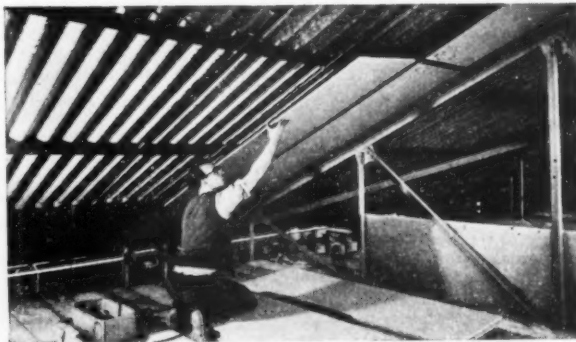
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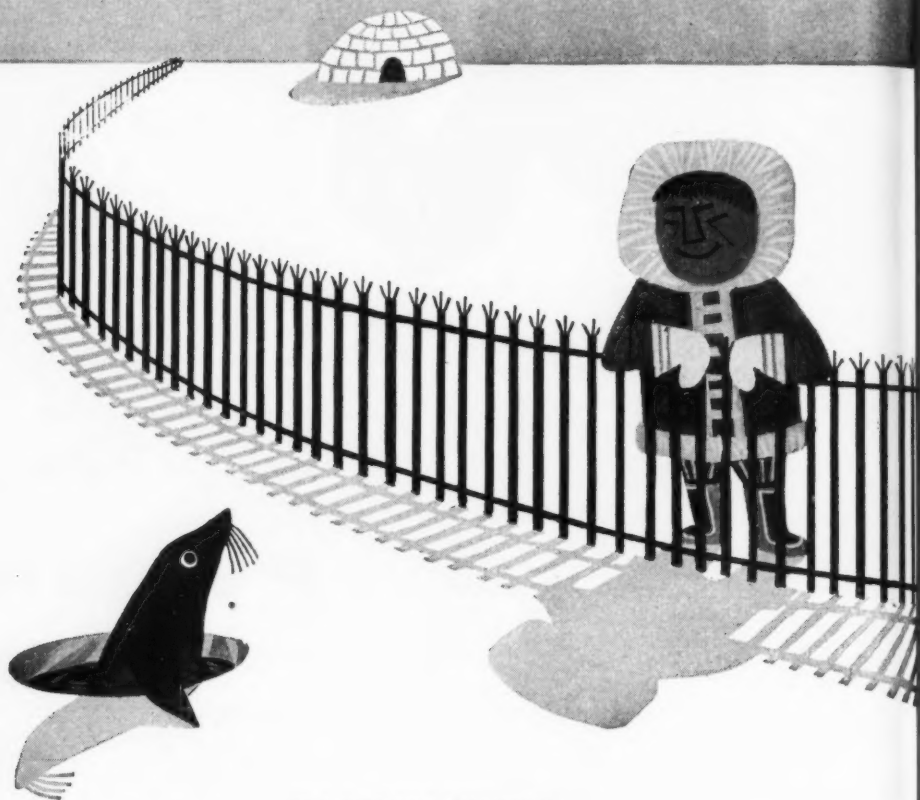


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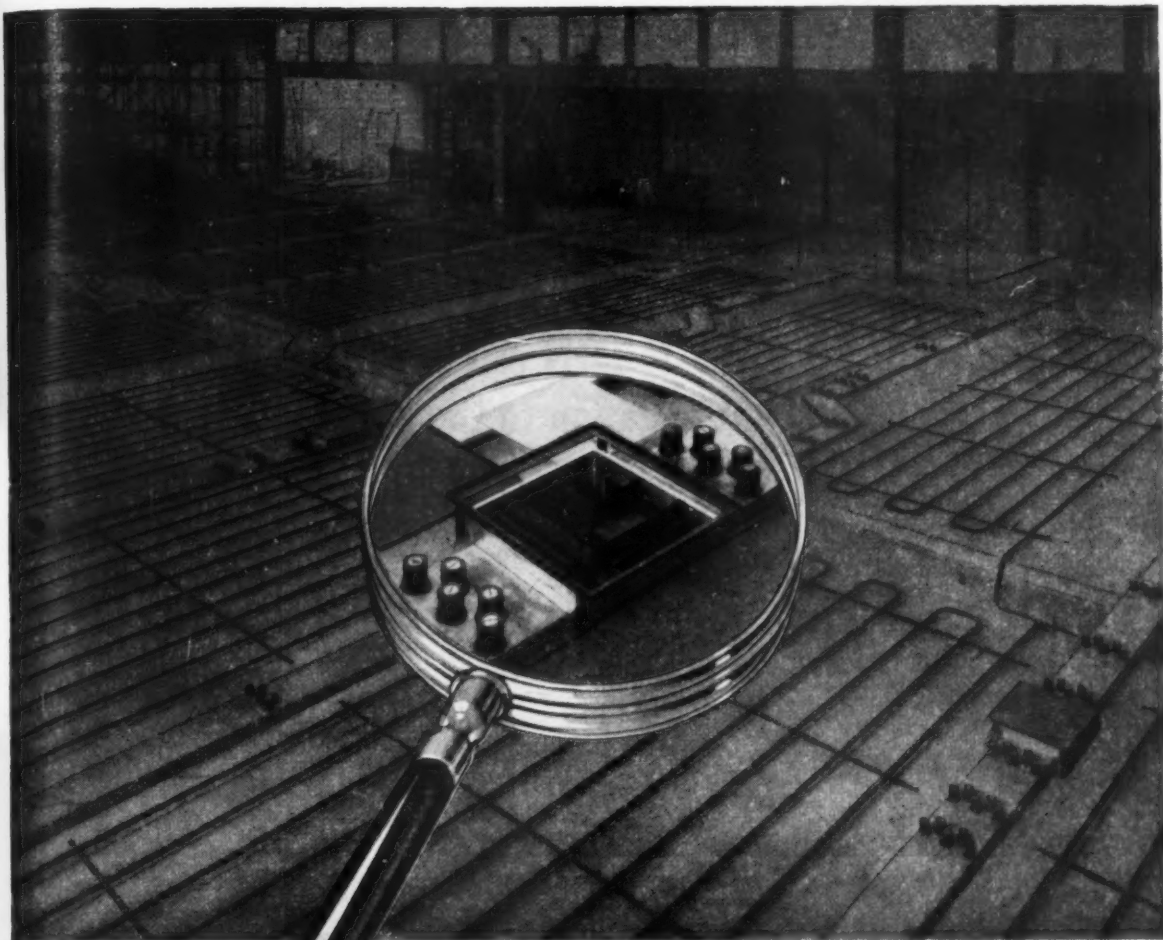
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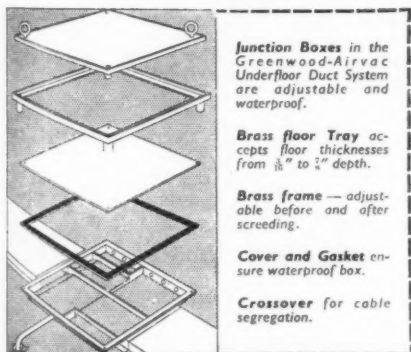
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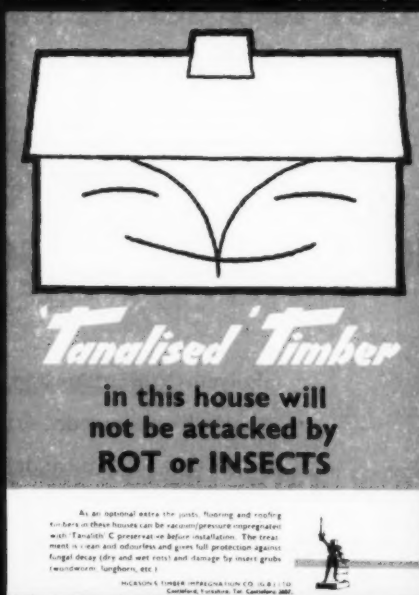


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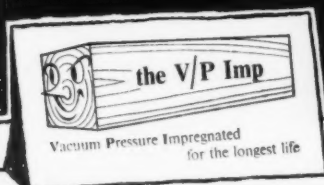
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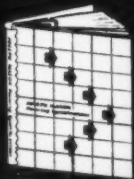
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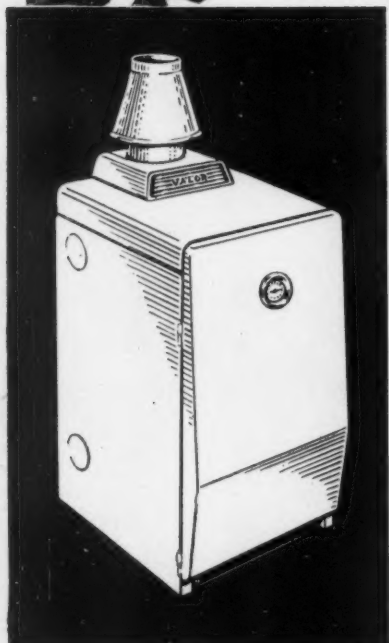
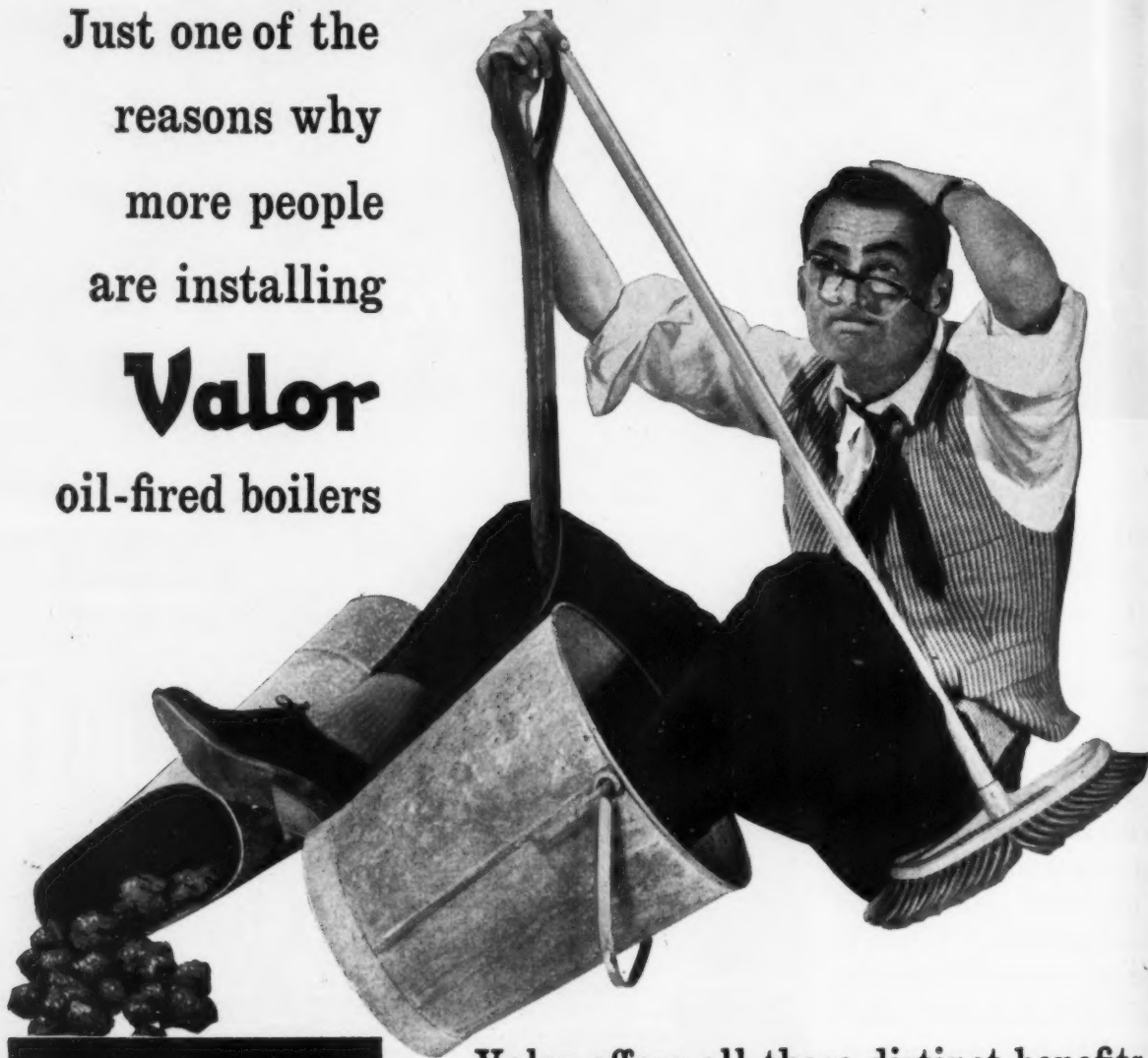


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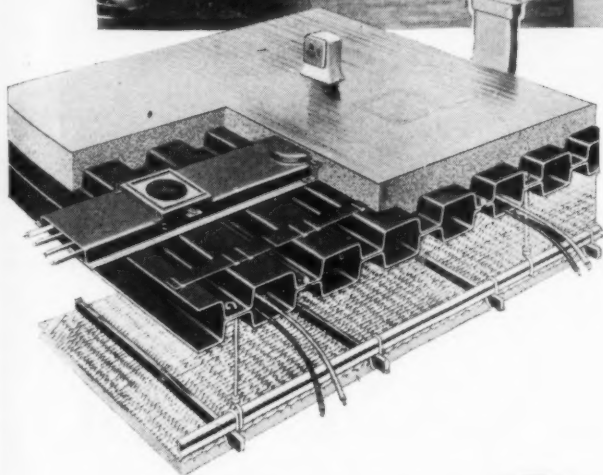


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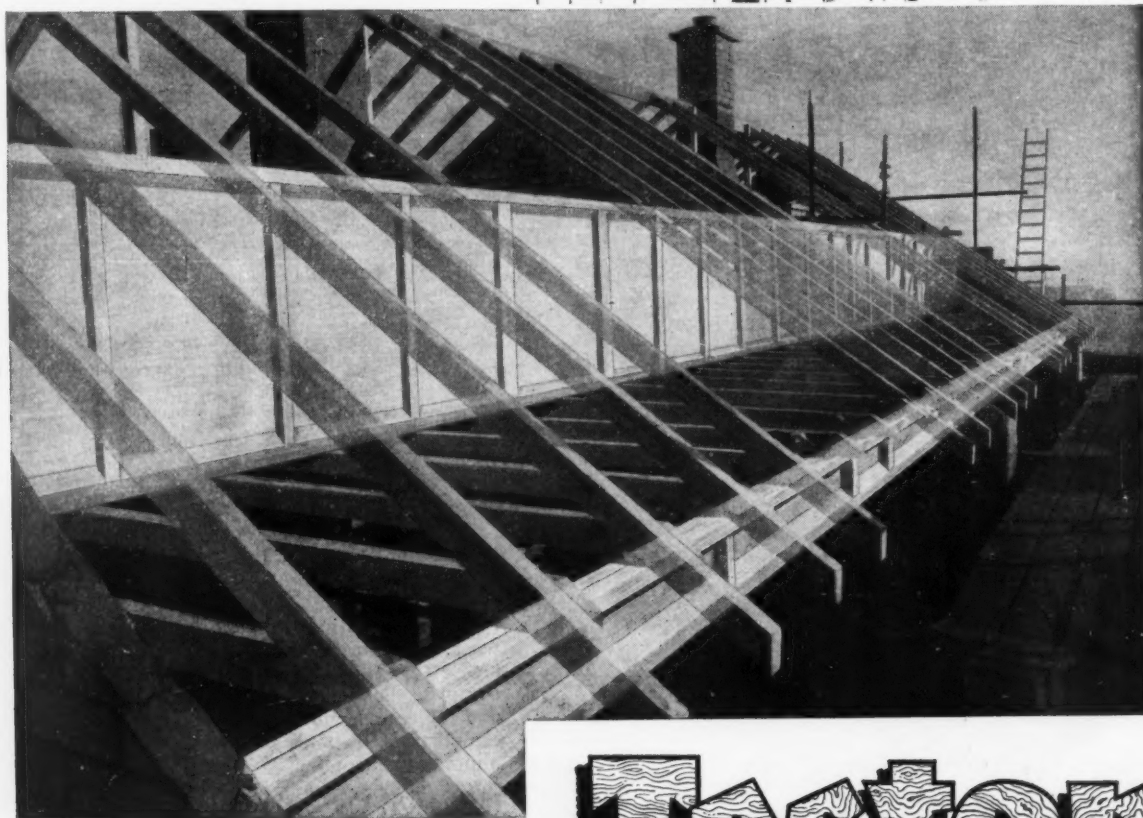
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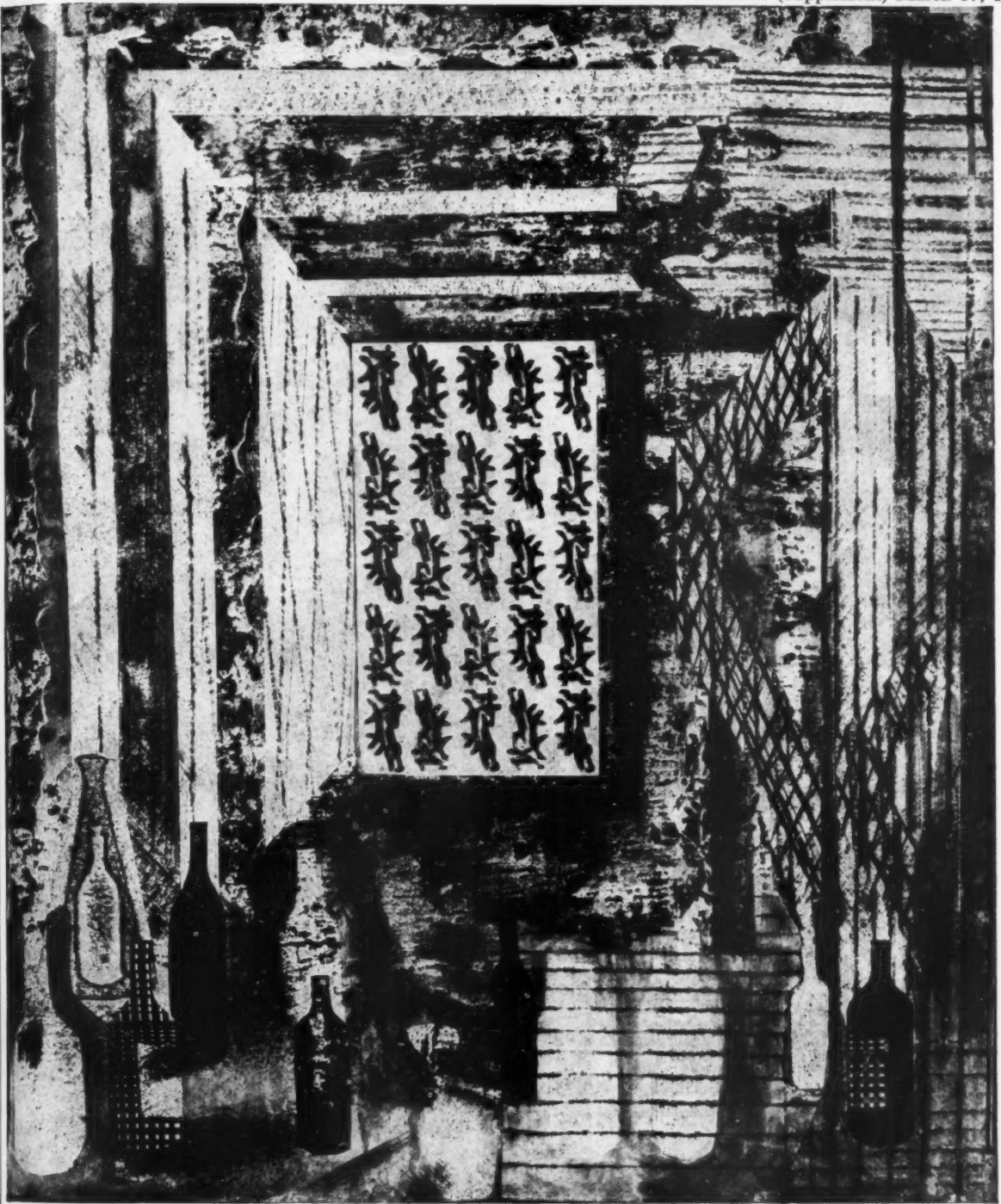
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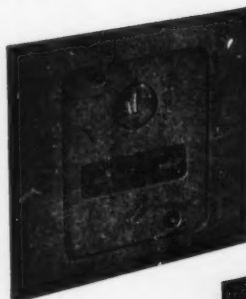
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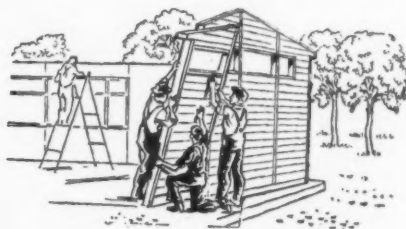
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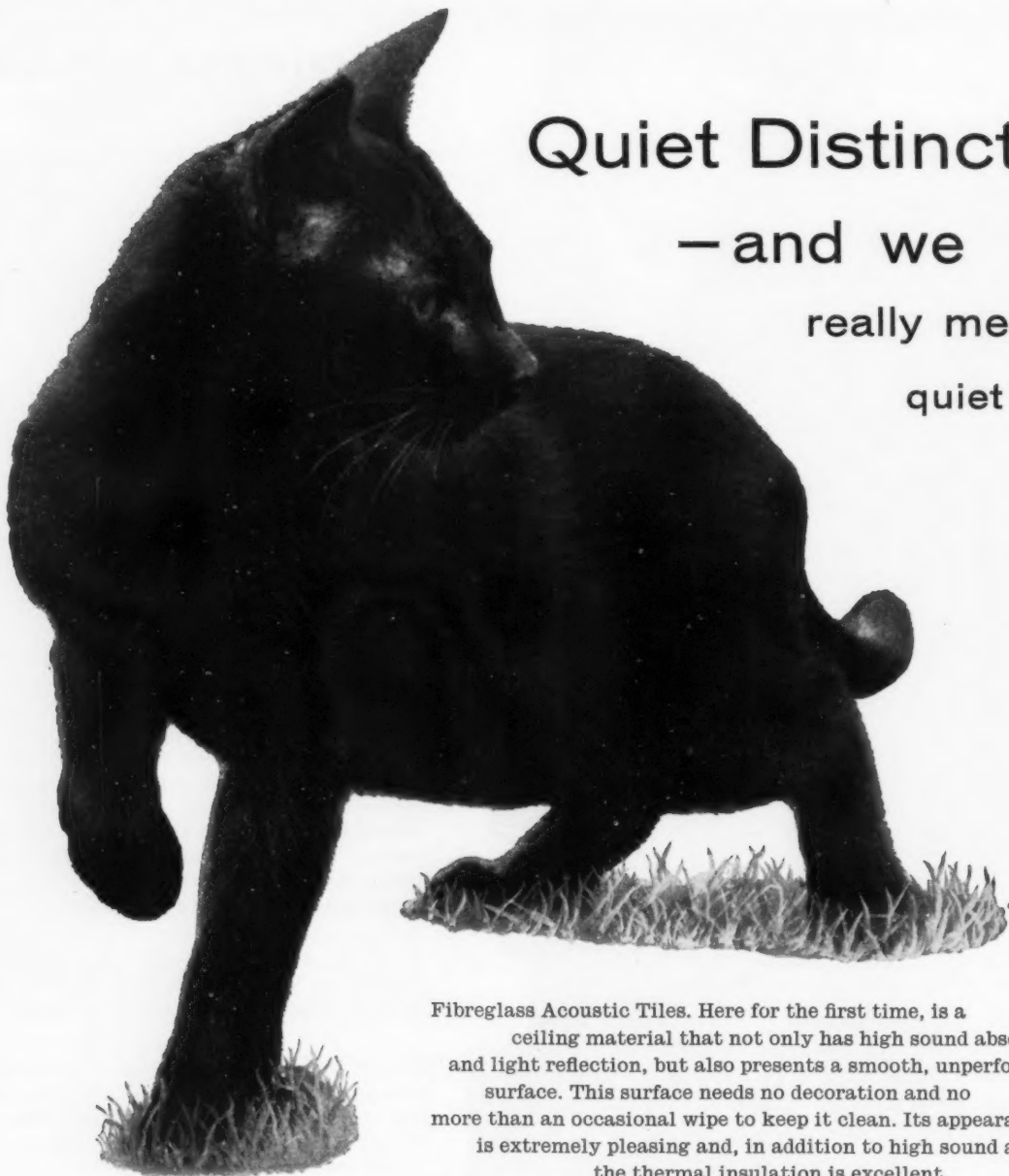
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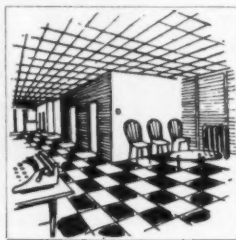
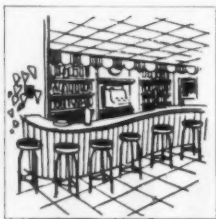


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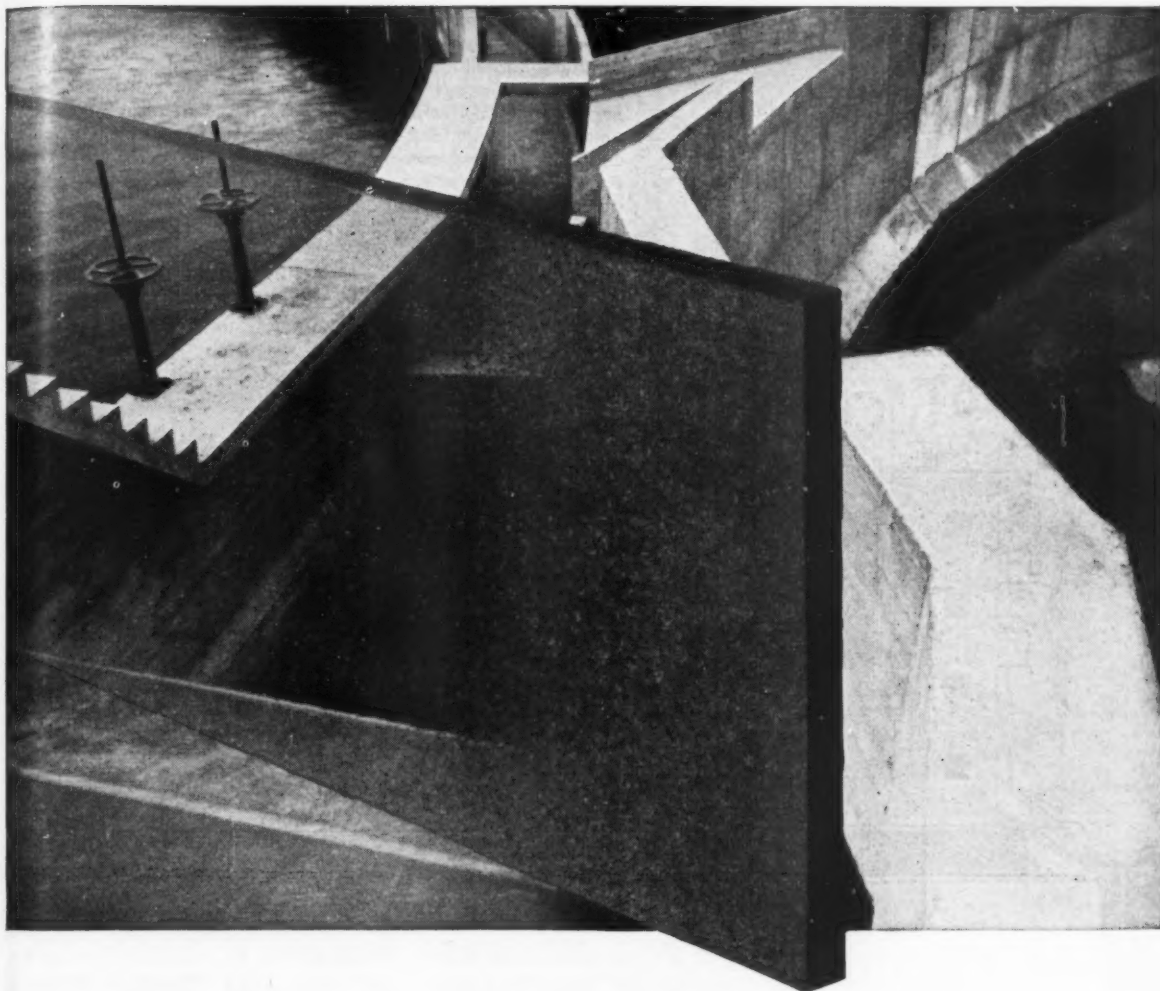
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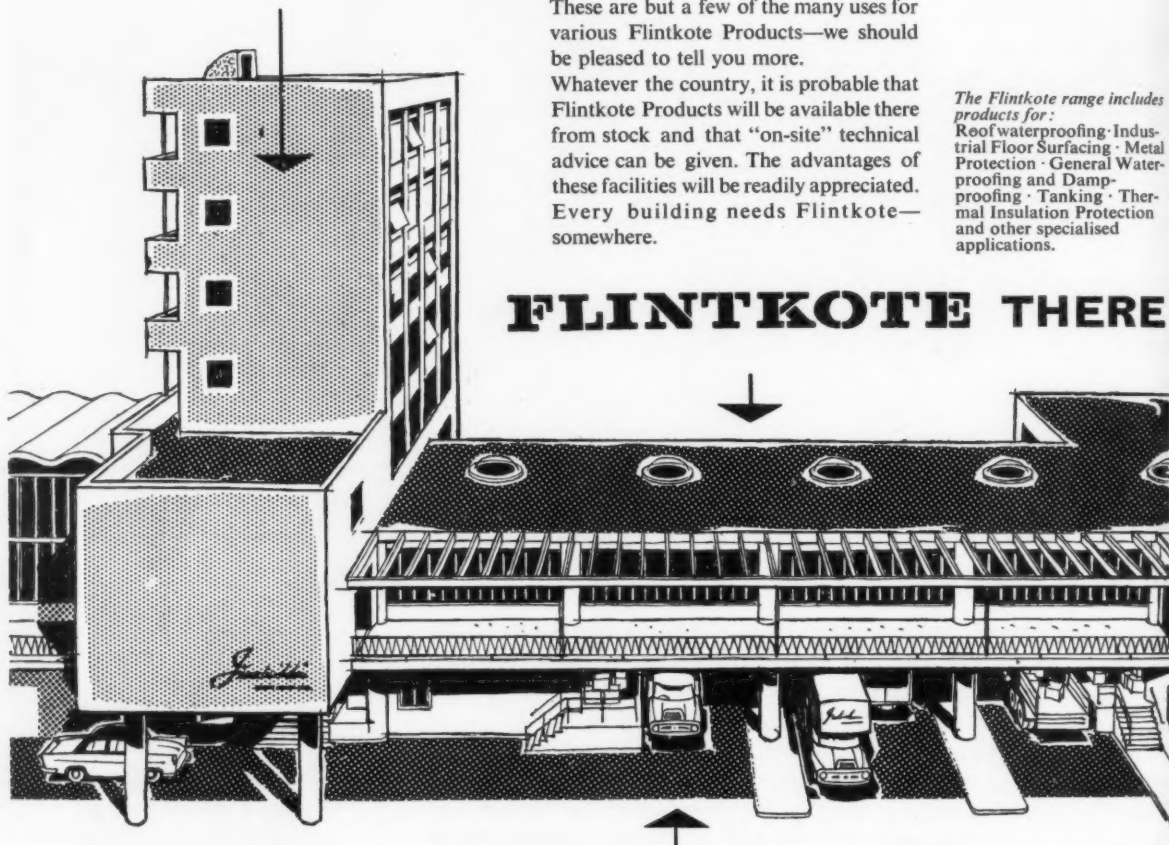
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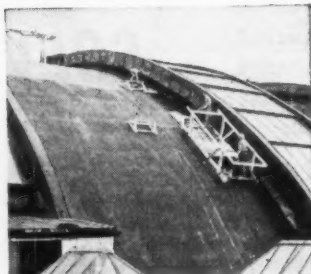


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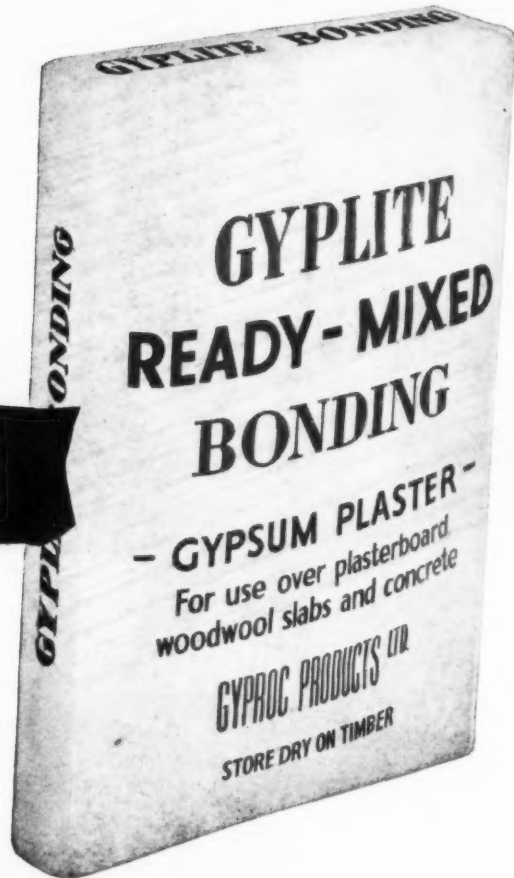


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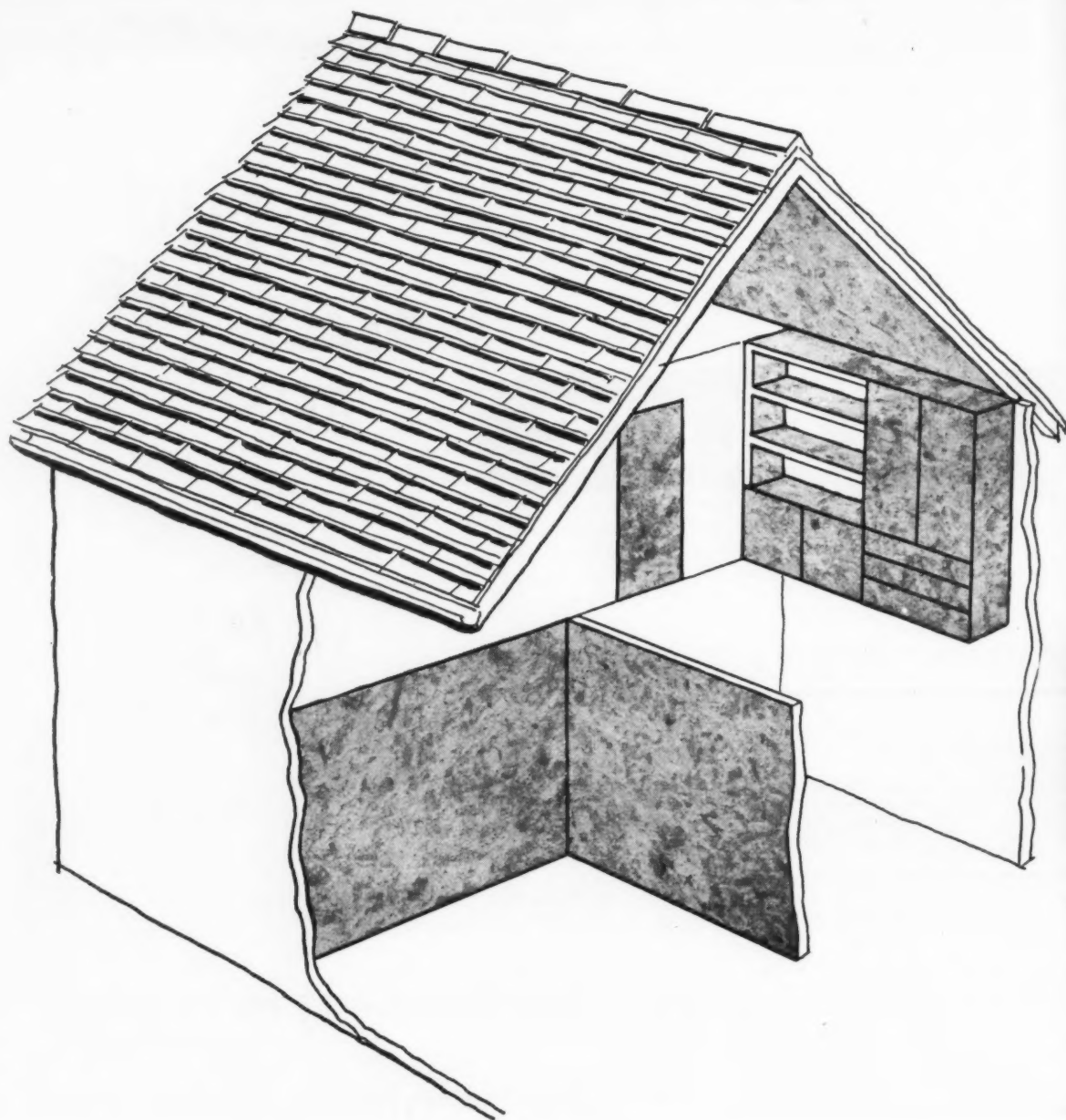
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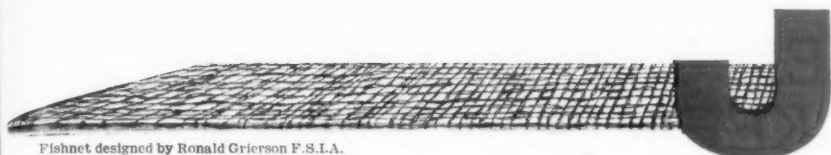
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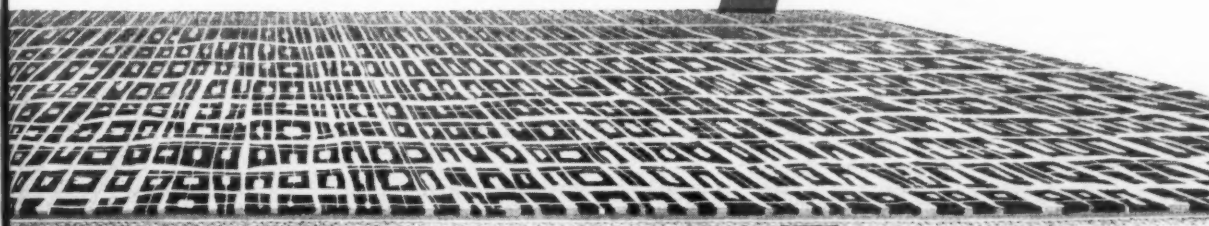
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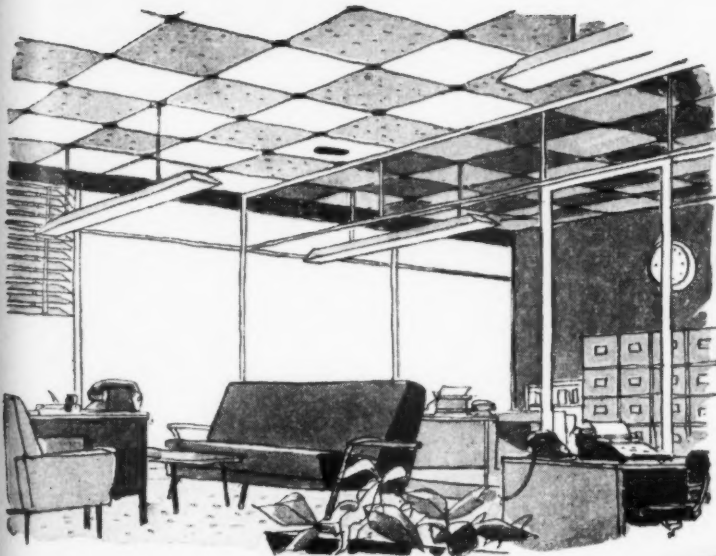
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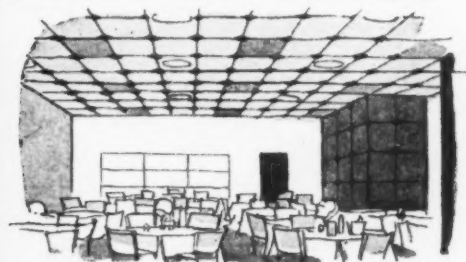
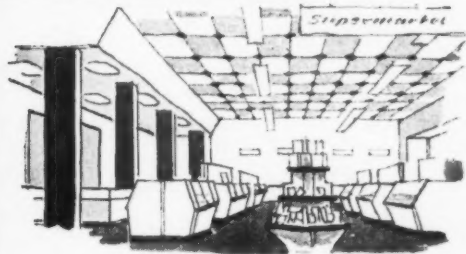
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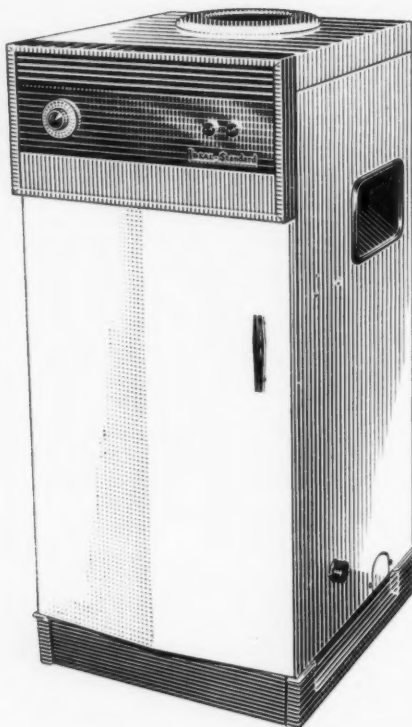
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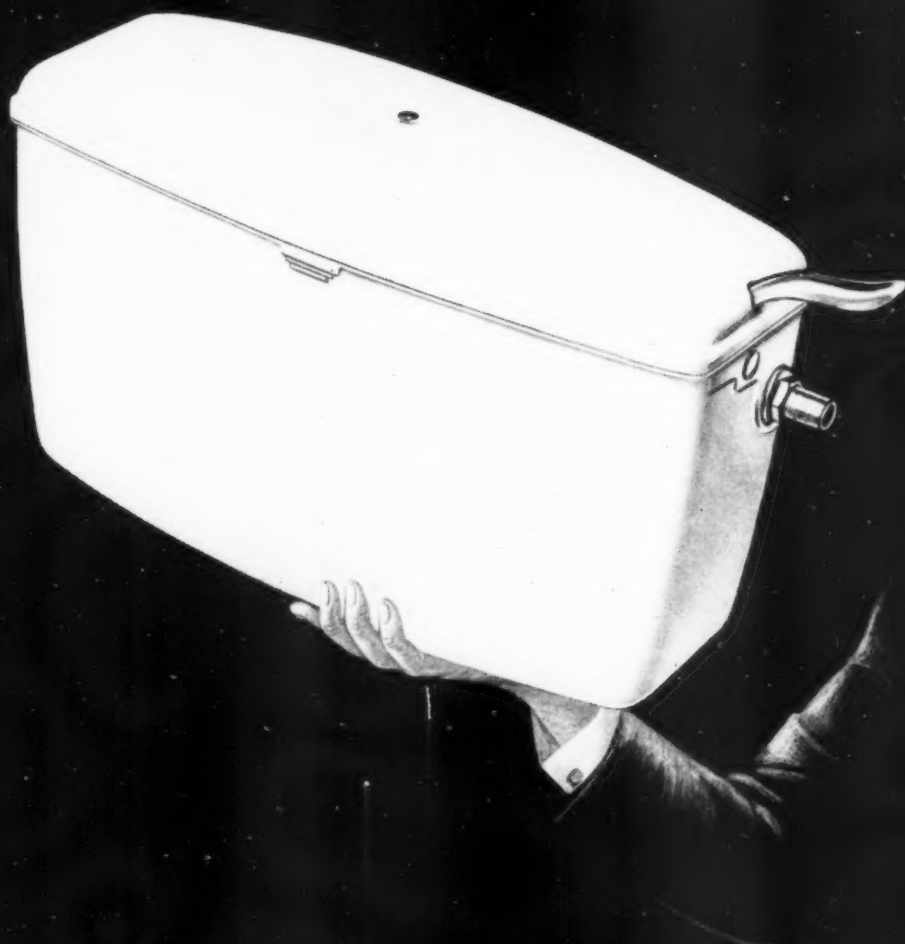


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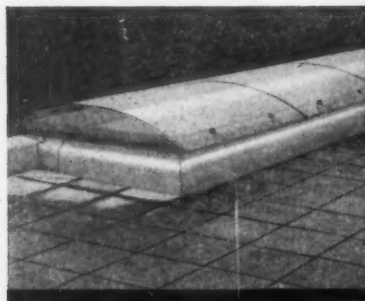
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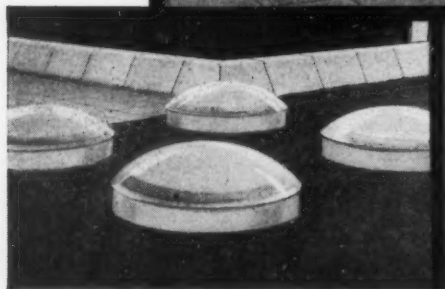
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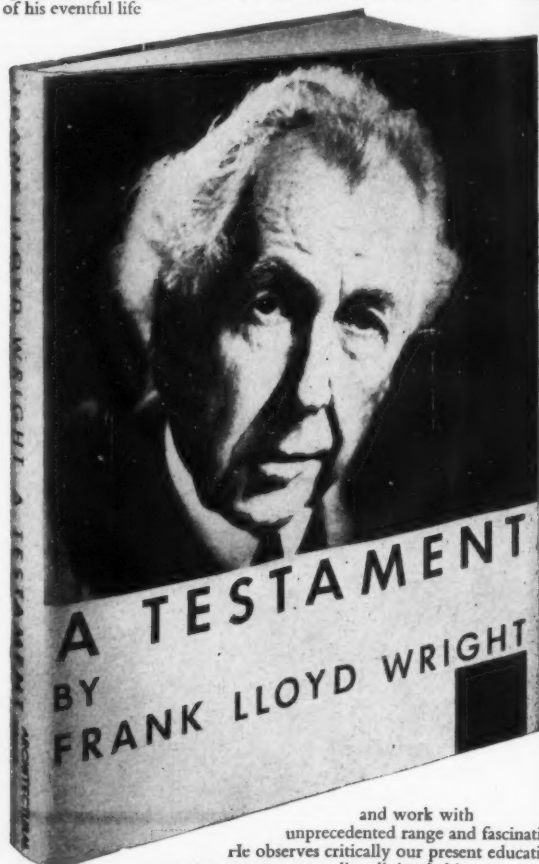
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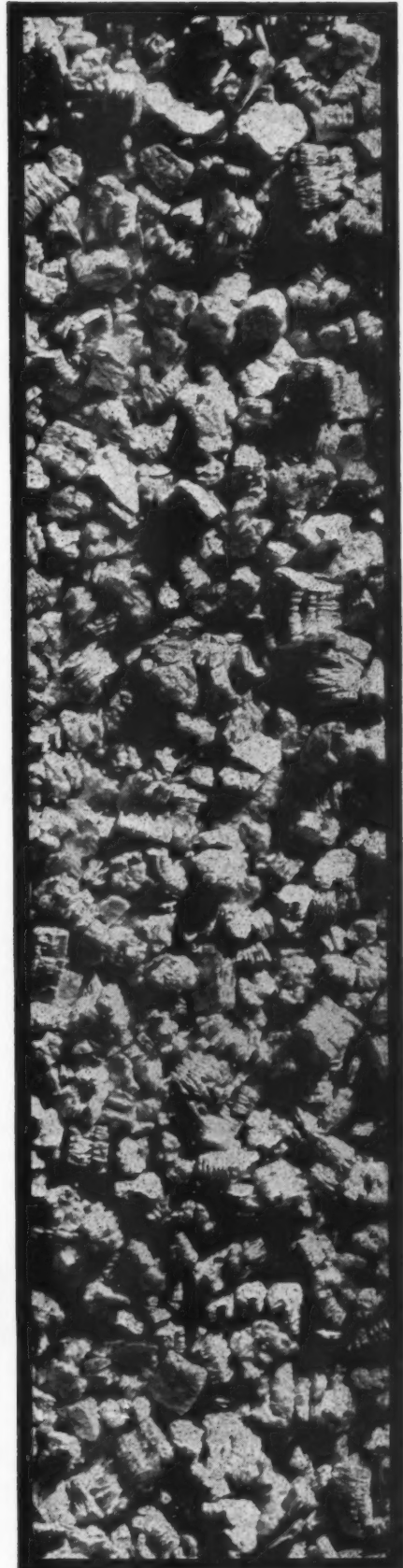
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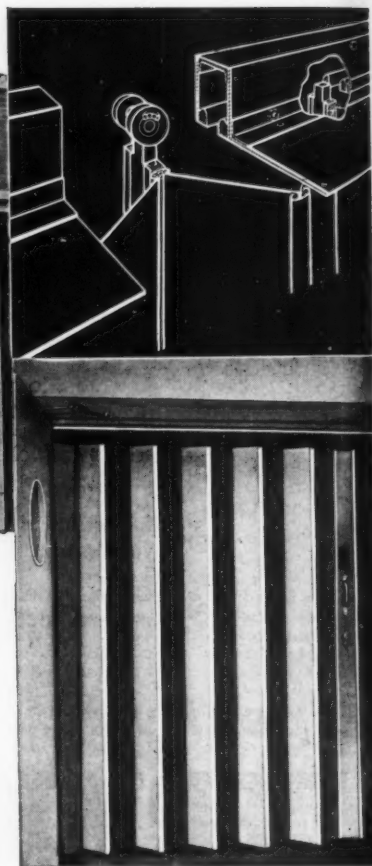
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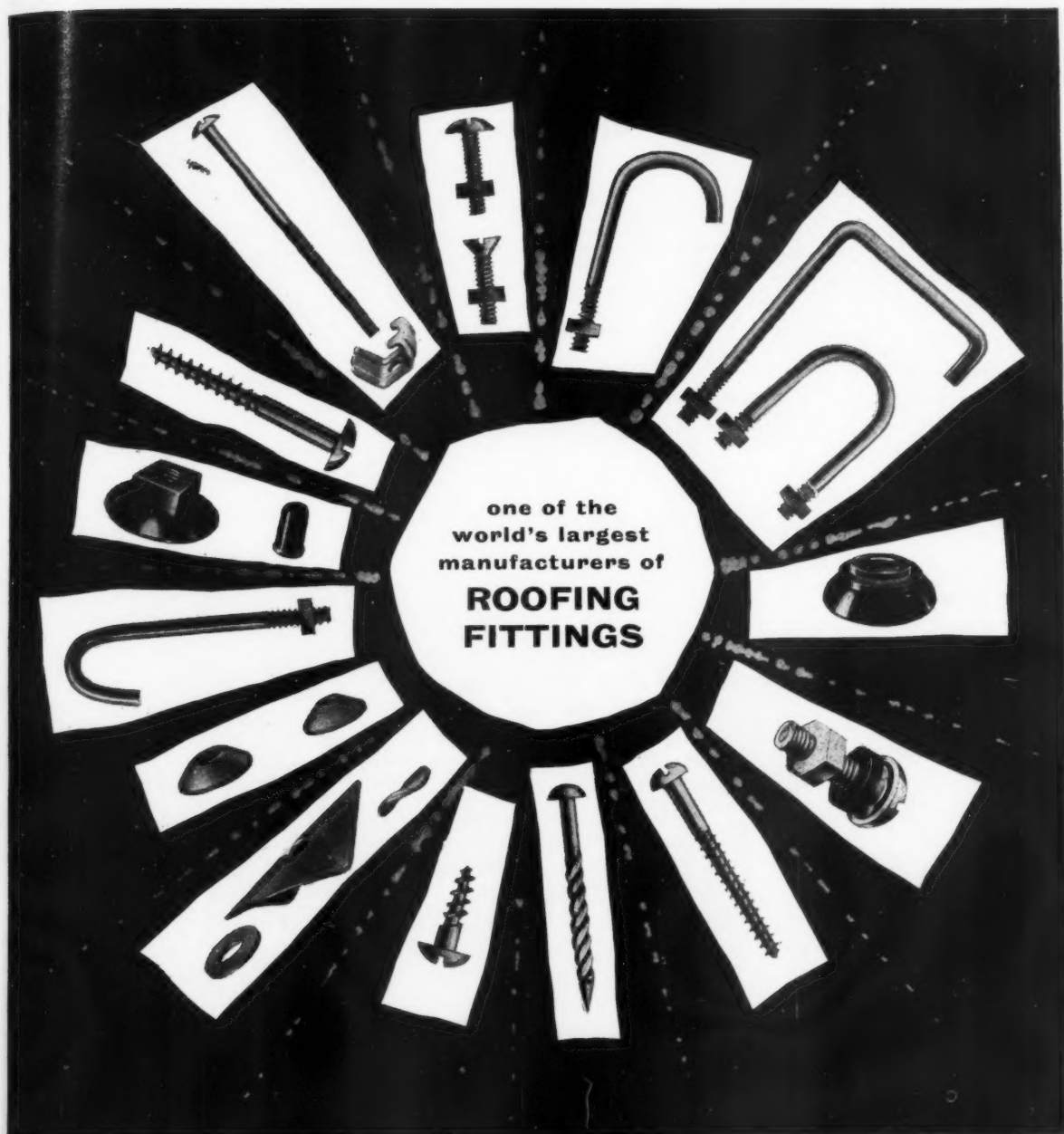
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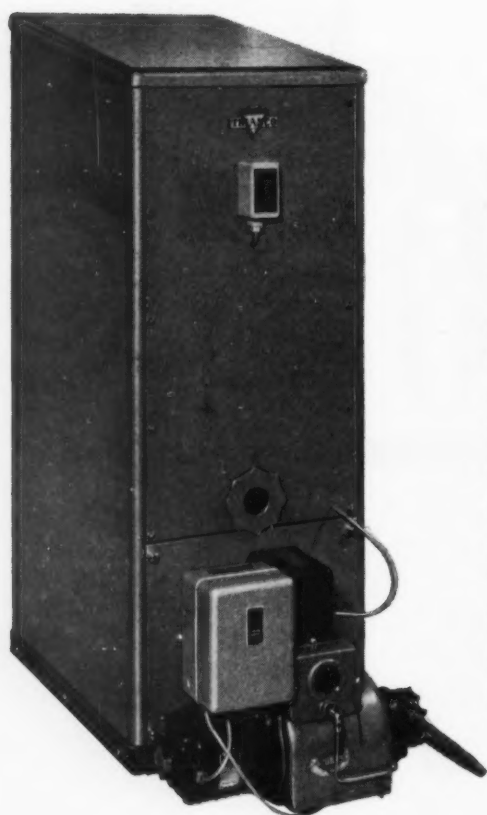
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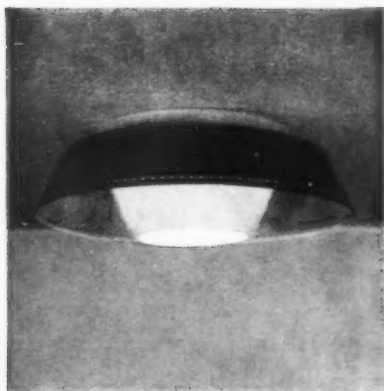
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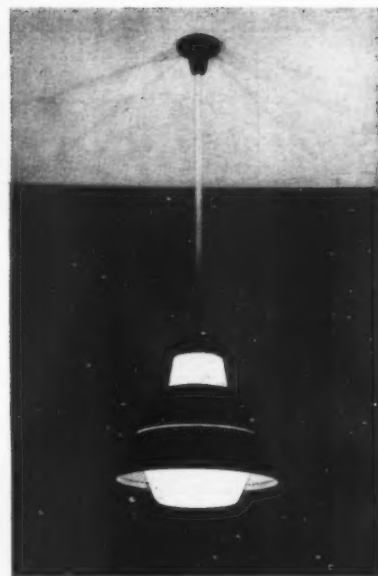
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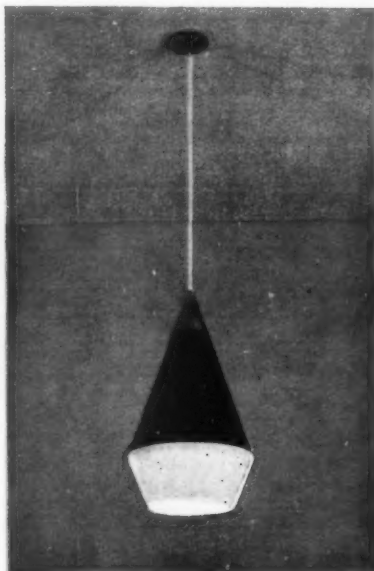
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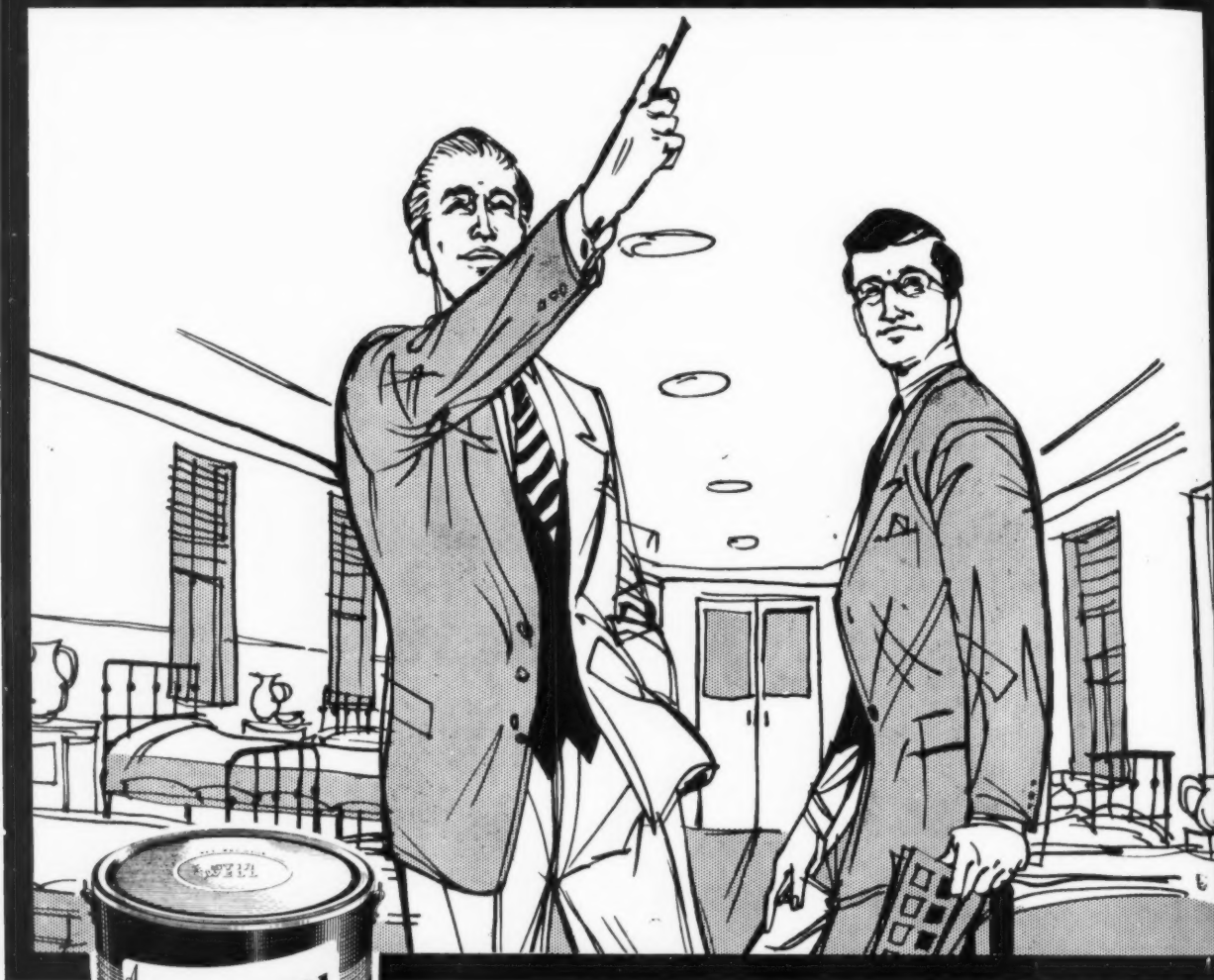
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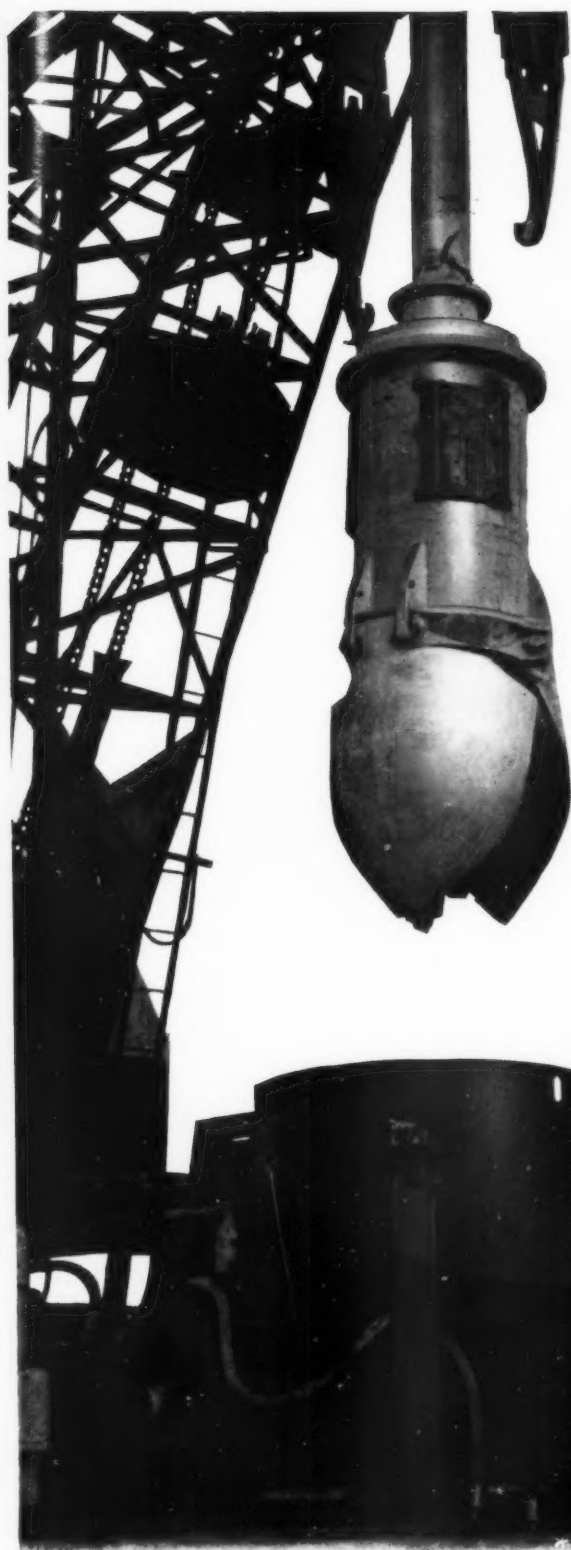
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The Architects' Journal

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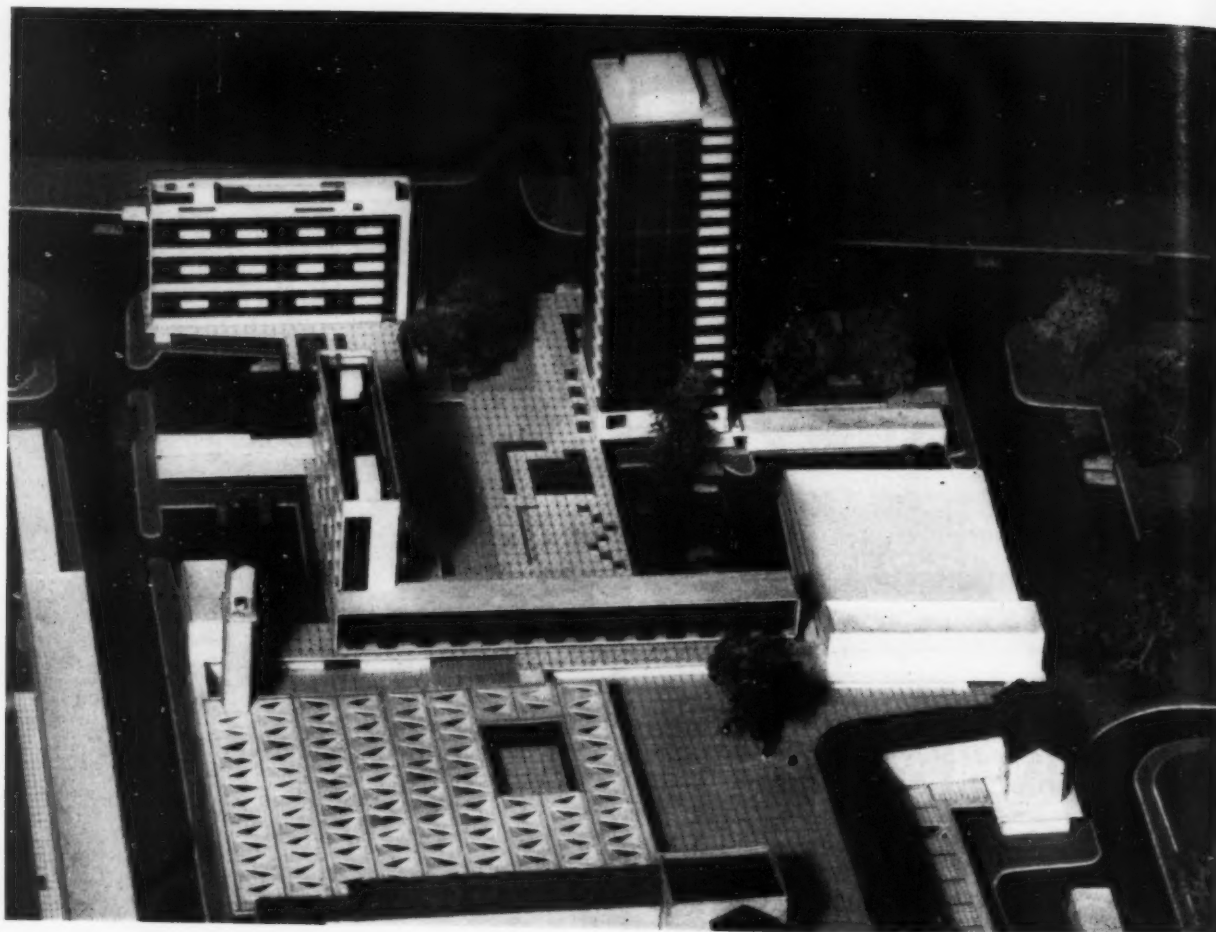
NOT QUITE ARCHITECTURE

## Getting Ahead

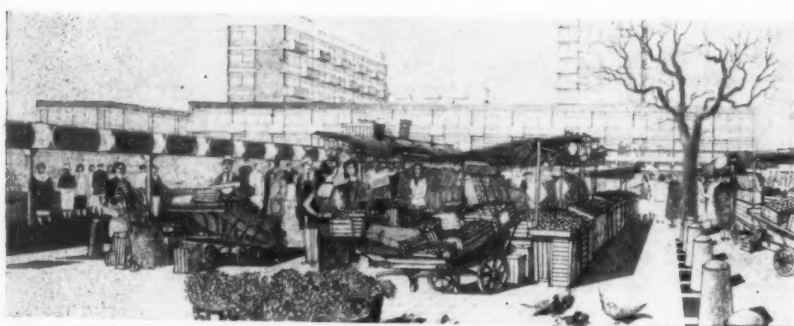
"May I have the pleasure . . ." he said. "I would doubt it," I said, "you see I want to buy a hat." We waded through the unaccustomed pile, winding between the free-standing display units to a niche or aedicule round which were ranged some hundred specimens of man's crowning glory. I explained right away that I was an architect and felt that this automatically limited my choice to something both superior and different, but not outrageously so. I had given the matter some thought even before I went into the shop and decided that the narrow brimmed bowler was definitely not for me. It was not the right symbol for one thing and I avoid the furred umbrella which is its just counterpart on principle. Moreover, my briefcase is not one of those slim light brown affairs with a sleek gold zipper and no handle which for some reason always reminds me of the smooth dachshunds which once were such constant companions of certain elegant ladies, but a well-kicked spaniel dog-eared utility model bulging with out-of-date catalogues, electricity bills and too-long drawings sticking out of the ends.

\*

"I had in mind something of about Archrome range No. 5-061 in colour," I muttered, "and a bit rough or furry, perhaps, although I haven't quite decided about the shaving brush in the band, or perhaps smooth and stitched. Anyway," I went on, "it wants to be suitable for town or coun-



## *Two Levels at Lansbury*



One of the disadvantages of planning a shopping centre in overcrowded London is the overspill of population which is normally created. The LCC Planning Division have nearly solved this problem in their designs (not yet approved) for an extension to Chriss Street Market, Lansbury. An 18-storey tower block of flats largely retains the existing population, and open space is provided by turning the extensive roof of the single-storey shops at the foot of the tower into a planted terrace. The development of the Market is shown on the model, top, and in the perspective, above, with Frederick Gibberd's existing market in the foreground. Both can be seen at the LCC

exhibition: "New Sights of London" at the Tea Centre. An elaborate, folded-slab roof covers part of Gibberd's originally open-air market, and helps to relate its rather new-town scale and density with the more urban quality of the extension. The shops and 6-storey flats of the new market will extend to East India Dock Road (which runs from left to right at the back of the model), thus fulfilling the planners' original intention. Gibberd's Chriss Street Market was the first pedestrian shopping centre when it was built for the Festival of Britain in 1951. This pioneering quality is going to be maintained in the two-level, two-purpose pedestrian shopping extension.



try sites and I cannot guarantee not to wear it at the seaside or at funerals."

\*

Then the charade began, and I claim that I gave it as much attention as I could spare from observing a rite which was in progress down one of the axes in the free planning. The participants were a customer, the type who never learns, who had brought his presumed wife with him, and the salesman. They were buying him a raincoat although by my standards the one he came in could easily have gone another year. I suspect he was a contractor or possibly a civil engineer. I decided this mainly because I noticed how he eyed and subsequently avoided standing under a contraption of coloured glass and timber planes which was suspended from the ceiling by thin wires—an immobile I suppose you might call it.

\*

This apprehension added an interesting element of tabu to the following procedure which took the form of a round dance with trio circling, setting to partners, do-se-do and moving mostly in a crabwise or backward direction. A triple mirror provided a fixed focus round which the various figures were woven. At about the sixth figure I nearly lost my nerve and rushed forward to prevent him from stepping backwards down the space between the vestigial handrail and the edge of the open-riser, dynamically-supported spiral stair well, to the haberdashery below.

\*

By now there was a considerable pile of rejects on my man's counter. Some had been the right shape but the wrong colour—and we had had to take a number of them over to the daylight because although the lighting was very aesthetic and no doubt designed to the IES code, you couldn't see particularly well—while others were the right colour but the wrong size and so on. The atmosphere was already becoming slightly charged, as I knew it would, when he remarked, "Do you always wear your hair so . . ." and corrected himself just in time to ". . . in that style?" It would have done no good, I felt, to explain that this depended entirely on how recently I had been to the barber's, and that with me this was an irregular and not frequent ceremony. At one point we were almost home on a number which instinct told me suited my aura, but which unfortunately relied to a slight extent on buttressing by one or both of my ears. I could see him biting back the one about a piece of folded paper inserted under the inside band, with an heroic effort. Or perhaps it was the realization that I must have a haircut sometimes. Anyway, the result (if it can be called a result) was that I had to tell him "I have to admit when you are beaten," and my exit would have been quite successful if I could only have remembered which one the door was.

H. R. HUMPHRIES

## The Editors

### DON'T TRY TOO HARD

COMMERCIALISM is turning the modern movement into the modern racket. The modern commercial client wants his new house, shop or office block to look different from its neighbour's, thus advertising his name and emphasising his success. The modern architect wants to make every design different because: his assistants would be bored if he didn't; he's got to be in the fashion or create a new one; it's bad form to fetch out old drawings; the client, the planners, the RFAC, and the critics want it. The fact that the result is often extravagance and bad town planning carries little weight, because the commercial Press, the critics, even the man in the street, are demanding change. But the only real change which should be allowed in a new design is when science, technique and the site indicate it.

Constant change in design is extravagant in drawing time, it makes the contractor's job more difficult (and therefore more expensive) and it enlarges, uneconomically, the number of building products on the market. This is not to extol stagnation, but merely to emphasise that the architect's role is not variety for variety's sake, but the optimum building for the client's requirements which can be achieved at a given moment in a given set of circumstances.

Two eminent speakers at the RIBA last week emphasised aspects of this. Dr. Doxiadis, reminding his audience of more fundamental truths of the modern movement than have been heard at Portland Place for years, emphasised that the architect has to build for the masses, not for the intellectuals, and must eschew fashion. And William Allen emphasised that "our main concern is the wise investment of the country's resources."

Unfortunately, the architect's advice on investment is often faulty because his control of costs, and of "value for money," is so imprecise. Where that control begins to exist as in the CLASP schools programme, it will be noticed that "fashion" in architecture is absent, and change is slower, but more sure. Surprisingly, William Allen spoilt his otherwise admirable survey of the profession in contemporary society by putting in a plea for unprofessional help for architects through a "lower tier." With a lower tier which has been trained in every practical aspect of architectures save design, of course the architect will be able to concentrate on more and more frantic forays into fashion until he becomes as pathetic a lackey of commercialism as the dress designer.

The lead the profession needs from its top architects today is the deliberate avoidance of fashion, best shown by the careful, precise recording and publishing of the facts on their building design, so that the casebooks of architecture can be as weighty and authoritative—if more clearly written—as those of medicine and law.



"MAN IS SOFT . . ."

As I supposed, the Doxiadis discourse, the most extensively trailed and ground-baited of the series so far, was the one for which the audience needed least mental softening-up in advance. No outer-space stuff, no information theory, but good old truths about the present plight and future prospects of cities, put across with considerable force and moral fervour.

\*

This, in fact, was the *other* kind of good discourse, the sort that is not intended as a mind-stretcher, but as a conscience-exerciser, a morale bracer. Many of the ideas he was advancing are older than the aesthetic students who nowadays affect to despise them, but they still make awfully good sense—and if you didn't hear them in the man's own voice, nor in the internal relay to the overflow audience (congratulations, RIBA, for getting the crowd-control right) you will find them summarized on another page of this issue.

\*

One point that seems to deserve notice here and now, however, is that Doxiadis was another voice in favour of some sort of linear, rather than concentric, town planning. His argument, for a change, was based neither on transport nor on simple futurist expansionism, but on the need to preserve city centres

as workable entities with a direct relationship to the parts of the city immediately around them. Shades of the MARS plan of London! (And don't say "That old thing!"—before you know where you are it may be IN.)

#### COME OUT FIGHTING

Last week Basil Spence (putting in a plea for two level traffic segregation) opened the LCC's exhibition "New Sights of London" at the Tea Centre, Lower Regent Street, which coincided with the production of a booklet with the same title, and a film (by the COI) all describing the LCC's post-war achievements. ASTRAGAL has considerable admiration for all three. The exhibition is neatly executed, the visitor entering through a slummy brick arch into the fairest prospect that the perspective artist, the model-maker and the sun-dedicated photographer could devise. The designers, the LCC's Exhibition Group, lead by Ken Mellor have been economical in effects and sparing in colour (olive green, mustard, black and white); the result is a very pleasant tour from west to east of the more choice London development, existing or proposed.

\*

The film opens with a dramatic shot of a chimney falling, followed by cranes swinging great chain-suspended weights against crumbling buildings which withstand the attack as only brickwork could. Then follows a most catholic choice of post-war building, all of which get glowing praise. "Crisp, clean, functional, design" intones the commentator ecstatically as the camera lights on a particularly slick example of modernism in the Strand. The LCC's booklet is, for half a crown, a masterly job well laid out, with good photographs and a sensible series of maps at the end. Some of the captions are rather arch, but the booklet is trying hard to make popular a difficult subject.

\*

Unfortunately exhibition, film and book all fail to differentiate clearly what is the LCC's own, unaided work, and what is the work of private enterprise or the boroughs. In particular, nowhere are any of the names given of the architects and planners who have contributed so much to the LCC's achievement and to London's pride. It makes the advertisement for more staff at the back of the booklet wry

reading. This is not being pernickety. The LCC would never publish a guide to paintings or sculpture without mentioning the artists, so why not the architects? Giving names also makes the public slightly more architect-conscious, and thus design-conscious, which is also important.

\*

ASTRAGAL's main complaint, however, is that nowhere does the LCC state what, in simple terms, its plan is, and what is stopping its achievement. It refers to a lack of money, but not why it lacks money, and it continually implies that it has achieved more than it has. No one would guess, for instance, from its account of education, that it has hardly replaced any of the existing, outworn schools, and the rest of the booklet largely conceals that its road programme is pathetic, that its contribution to recreational buildings remains at one cinema and one concert hall, that it is powerless to stop London's population increasing, and that its £500,000 for buying out industry is grossly inadequate. It describes the endeavours to restrict office building in the centre and welcomes the return of housing to the Barbican (without mentioning rents) and to Charing Cross Road, the latter being called "an example for other developers when the *need for offices has at last been fulfilled.*" Our italics.

\*

The LCC must cease being so mealy-mouthed and paralysed by its achievements. It should give more publicity to its plans, and fight more strongly and more publicly for what it wants. Nothing that ASTRAGAL has read in the past week is more pathetic than this sentence in the LCC's booklet: "The great public enthusiasm which was stimulated by the original County of London Plans seems, strangely, to have evaporated . . ." Strangely? Any-one see any motes around?

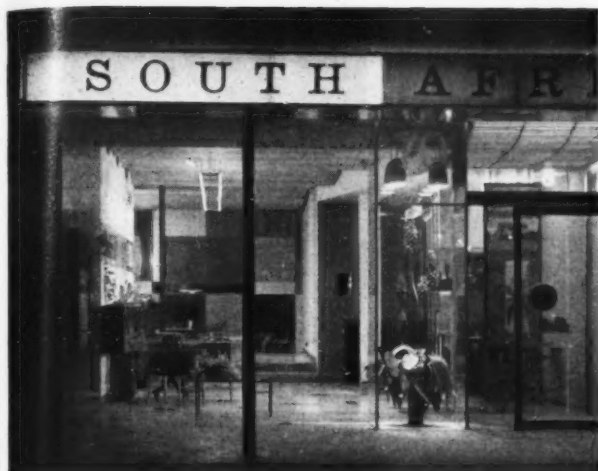
#### TWO SCHOOLS OF THOUGHT

We shape our buildings and they shape us, was roughly what Churchill said when he decided on a rectangular House of Commons; and that is about the sum of our knowledge of the effect of architecture on our minds. In six excellent articles in this week's *Times Educational Supplement* the effect of design and planning on school children is constantly assumed, but this is hardly enough today. Will it ever

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*The South African travel bureau, Piccadilly, left, designed by James Cubitt and Partners, was a landmark in post-war architecture, being the first modern "shop" in London and a design of great elegance and sophistication. Designed ten years ago, it is still a stimulus to the eye, a fair mark of its quality. Unfortunately a new fascia, right, has recently replaced the original two-colour panel. Huge fat lettering on a bright green ground more than twice the depth of the original fascia has grossly damaged the scale and elegance of the whole. It is to be hoped that the architects resisted such crude alteration to their design—if they were ever made aware of it.*

be possible to assess more precisely the effect of formal symmetry, or asymmetry, on unformed minds? Not while so little attention is paid to research of this kind. In one article two widely different schools are compared: Huxton and Wokingham, the first so admired by architects, the second by educationists. The questions the author raises are very pertinent, but, of course, unanswerable at the present. Surely enough intelligent teachers and educationists have had experience of different types of building to be able to describe fairly accurately the ideal requirements for optimum educational conditions. Or does the infant mind continually confound by reacting against environment?

#### ARCHITECT-PLANNER

I believe that until now the LCC has been the only county authority (and it isn't really a county) where the architect is also the planning officer. It is, of course, more important that this dual rôle should be held in towns than in rural areas, but Buckinghamshire is so urbanized that I'm glad to hear that its county architect, Fred Pooley, has been appointed county planning officer. I wish we could have similar news from cities where reconstruction is likely to take place.

#### ONE-OFF-MANSHIP

We're always hearing of architects who can't give their clients what they want because building societies won't lend the money for "eccentric" one-off houses. I don't suppose things will change overnight just because directors of societies have had lunch with RIBA representatives. But two suggestions were made at this amiable meeting.

One was that architects should get to know the local building societies better before the trouble starts. Another is that a man who invests in a building society before he needs a loan will get preferential treatment. Maybe, but my own view is that as building societies limit loans to around £3,000, anyone building a one-off job would probably have better luck with a bank or an insurance company.

#### THE TROUBLE WITH KITTY

Did you know that rockets estimated to cost from one to four million pounds end up costing twenty to forty million? And would you have guessed that £40,000 trials for a navigational aid in fact worked out at £300,000? This last excess was due, says the Auditor General's Report on the Civil Appropriation Accounts, to "an oversight": nobody was told of the treasury limit. Compared with this, architects and surveyors come off lightly in the report (apart from repair work which is always a guessing game), and even builders can smile—though estimates for the Preston By-Pass, the MI and the Cromwell Road were exceeded by two million, nine million and one million pounds, respectively.

\*

This all shows how little we under-

stand about estimating. Perhaps if the government spent more money on research into the subject it would also save some money. I'm sure that H. F. Broughton, at the Building Research Station, could make a staggering difference in the measurement of costs if he was given more resources.

#### COMMENTS PLEASE

As I predicted, William Allen's RIBA paper on "The Profession in Contemporary Society" was a masterly effort, though it didn't get the packed house it deserved. The fair-sized audience made only the most trivial comments. Only one of the distinguished guests from other professions had anything worthwhile to say. Sir Alexander Carr-Saunders, the former head of LSE, who is an authority on the professions, pointed out that his thirty-year-old criticisms of the faults of doctors and lawyers were still valid.

\*

I hope that architects who were not able to hear the talk—which was followed most pleasantly by the presentation of Bill Spragg's Honorary Associateship on vellum—will read it in the *RIBA Journal* and accept the invitation to send their comments to the secretary.

ASTRAGAL



## ARCHITECTURE IN EVOLUTION

*Dr. Doxiadis's RIBA Discourse*

This year's annual discourse at the RIBA by Dr. C. A. Doxiadis, architect, town planner and Professor of Ekistics, packed the hall and an overflow meeting heard his speech (if it could not see his slides) in the Florence Hall upstairs. His subject was "Architecture in Evolution," and his discourse was delivered not in an esoteric language but in simple English accompanied by perfectly intelligible diagrams and photographs.

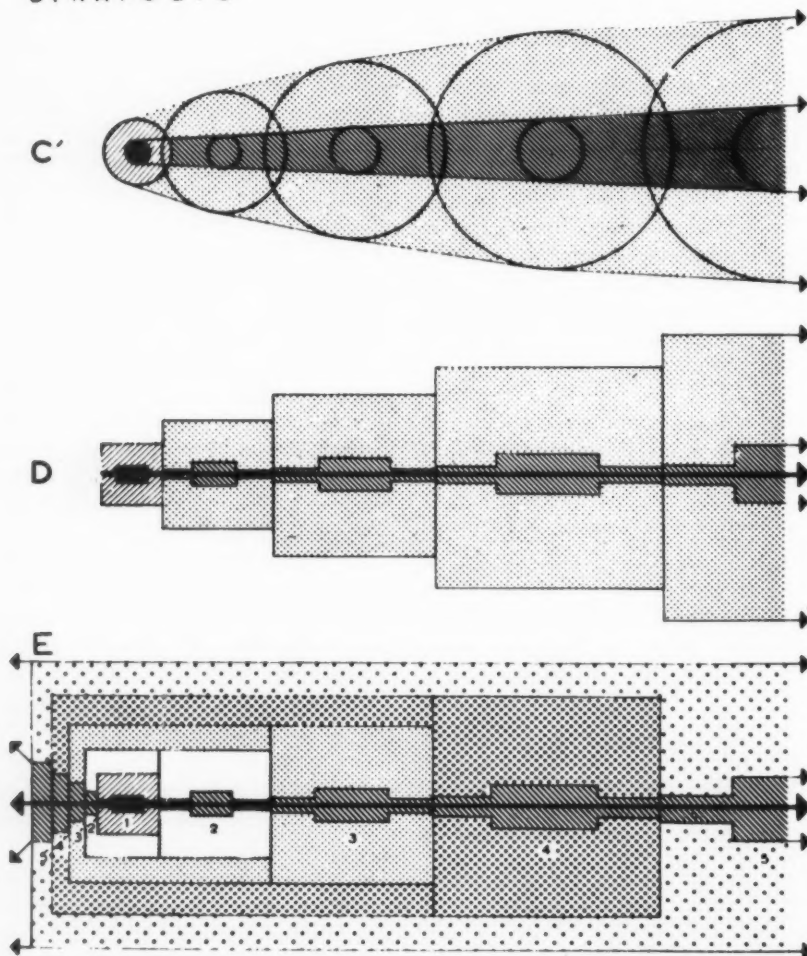
The main problem, as Dr. Doxiadis sees it, is how to keep pace with the enormous increase in the tempo of evolution, and how to meet the unprecedented demands by the

people for new architectural creation. His starting point was that while the majority of mankind live in bad conditions, architects rarely asked how many people have proper houses, schools or hospitals. He wants them to turn their attention to answering the question "how do we live" (which is more important, he says, than architectural design), to define their ideals of better ways of living, and to discover the laws of cause and effect. He doubted whether architects controlled 4 per cent. of the total architectural creation.

Architecture was suffering, he argued, from the speed of evolution, and from the revo-

*DYNAPOLIS is the dynamic city of the future, in contrast with our static cities of the past. All problems that our cities are facing today are due to their dynamic growth which works against their original static conception. The recourse will be to conceive and design cities whose centre will be able to grow gradually in one direction along with the growth of the city. The designs show how a city may develop like a full, living organism with its centre gradually transferred, either every building period or every generation, gradually, in one direction and drawing the city's life to this direction.*

## DYNAPOLIS



Center 1 will not be sufficient for the left hand part and must be partly relieved by Centers 2, 3, 4 which must be wider than Center 2, 3, 4 to serve sectors developing above and below Center 1



*Dr. Doxiadis with Basil Spence.*

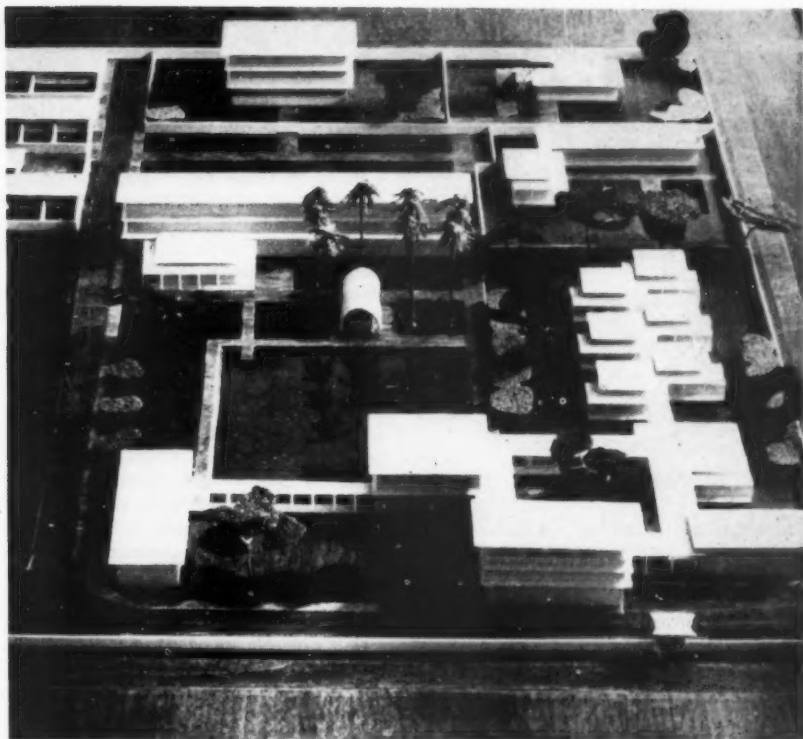
lution from the academic to the modern, which had made every architect feel that he was a god who was entitled to create something new. The result was that the streets were covered by the broken wings of architects who had tried to fly too high.

Some immediate problems were listed by Dr. Doxiadis: first, the "population explosion"—the immense growth of population; second, rapid "socialization," by which he meant society's recognition of its obligation to solve human problems; third, the intrusion of the machine into man's environment (the car had broken the love affair between man and architecture by taking over his squares, streets and monuments); fourth, the time dimension. He asked whether in a dynamic situation when fresh demands were being made for architectural creation, we should not change our concept of houses, buildings and cities if we were to keep pace with the enormous increase in tempo.

People were not refraining from building, thank God, because they had no architects. They simply went on building as they had done for centuries during which they had created good architecture without architects. In the past architects were the master masons, the master builders, and architecture was not taught in schools. Now we were training officers of the general staff—not lieutenants, captains or colonels but generals who became master builders after five years training. Dr. Doxiadis pictured the architect of today sitting at the top of a cone, banished from the site, a master builder who must descend (although some thought this degrading) to become a mason again, to control the total creation of architecture. The position of the architect had changed completely. Architecture could no longer be thought out solely by the architect (Dr. Doxiadis instanced the influence of economics on environment), nor could town plans alone solve any problems.

One of Dr. Doxiadis principal themes was the need to base the design of cities, building groups (e.g., Universities), areas and single buildings on the unpredictability of the future. They must be able to grow by linear expansion. He illustrated the old city core strangled by concentric development, and took Washington as an example of a city which could expand in one direction. Another theme was the creation of





THE DACCA UNIVERSITY EDUCATION EXTENSION CENTRE in Bengal, Pakistan, is an example of a synthesis consisting of similar elements, a synthesis which can expand and which, although conceived with typical building elements, presents a great variety of space and form, leading to the creation not only of human buildings, but of human open space, as well.

one space for man and another for the machine: it was "immoral for man and machine to live together in the same narrow space created for man." This he illustrated by layouts of housing areas and universities in which the paths of vehicles and pedestrians did not cross.

What of the future of architecture? We were moving towards an era of universal architecture, which had existed before. We had to create an architecture which considered man as the central theme, which was not

based any more on fashions. We could not be interested any longer in creating architecture for the intellectuals who had misled us so many times in the past, creating art nouveau and making modern architecture a fashion. The architect had to build for the masses: he must descend from the top of the pyramid and visit the people, and not be afraid of universal solutions.

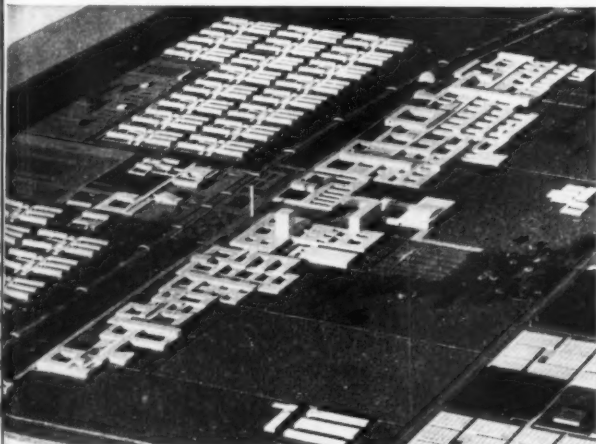
The architect could not survive as the designer of single buildings, much less of monuments, but only as a co-ordinator of

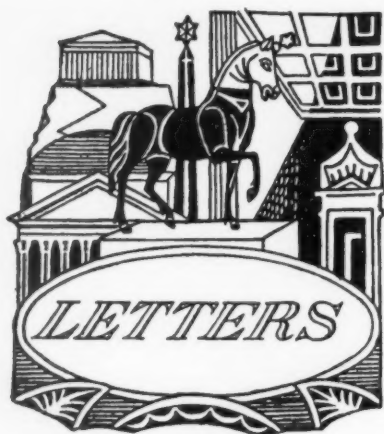
architectural activity—as a designer not of buildings but of ways of living. He must be patient, and not think the present generation is the generation in which the architects are called upon to give the final solution. Dr. Doxiadis was introduced by Basil Spence. The vote of thanks was moved by Sir William Holford, who referred to Dr. Doxiadis's courage in telling us that we were worshipping quite a number of false gods. Dr. Doxiadis also spoke briefly at the overflow meeting.

THE UNIVERSITY OF PANJAB (below left): The new campus of the University of Panjab in Lahore built for 15,000 students and a total of 30,000 including staff. It has been conceived as a dynamically expanding campus, as one can never precisely foresee the needs for expansion of such an institution on the many years or generations to come. Out of a central core, the whole synthesis has allowed for the expansion of the student and staff living quarters by the addition of residential sectors and of the academic block by the addition of new faculties along the canal and by expansions of the existing faculties perpendicular to the canal.

THE HUMAN COMMUNITY (below right): We can no longer

have automobiles and pedestrians competing with each other for space within our cities. We must separate them and provide proper and adequate space for both of them where each in one's own part will move freely and dominate the area with one's own scale. To do this, we must turn today's small city blocks into sectors which are not to be crossed by cars. The sector is controlled by man. Outside the sector the cars are able to move freely at their design speeds and have only limited access inside the sector. This is shown in this picture of West Baghdad's development for 100,000 people, consisting of ten sectors of different income groups, planned and built on the basis of this principle.





A. L. R. Sansom, *Student RIBA*

Thomas A. Markus, *A.R.I.B.A.*

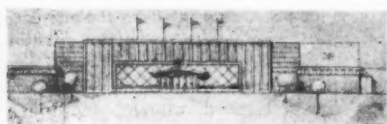
Michael Rostron, *A.R.I.B.A.*

N. Fleischmann,

*Director, Barnes & Fletcher Ltd.*

Professor R. J. C. Atkinson

### 'A Bad Eruption'



*Design by the Littlehampton Borough Surveyor for a seaside pavilion.*

SIR: I am enclosing a press-cutting found in the *Littlehampton Gazette* while visiting a neighbouring village here in Sussex. The Surveyor's design speaks for itself, I feel, but it also calls to mind one of D. H. Lawrence's letters written from Littlehampton in 1915.

"When I looked back out of the clearness of the open evening, at this Littlehampton dark and amorphous like a bad eruption on the edge of the land, I was so sick I could not come back. . . . The whole thing like an active disease, fighting out the health. . . ." That, however, was Littlehampton nearly 50 years ago; perhaps things are very different now . . . but perhaps, also, it is a case of "plus ça change, plus c'est la même chose."

A. L. R. SANSOM

Rustington

### Light Cladding

SIR: Mr. Rostron's article on light cladding in your issue of February 25 has the merit of a comprehensive instead of piecemeal approach to the complex heat transfer question. I am, however, anxious to attempt a clarification of some of his confusions on

the U value/solar radiation relationship, particularly as some of his remarks refer to one of my series of articles in the *AJ* (November 21, 1957).

1. We may be wedded for many years to having to describe the heat transfer through buildings by means of U values. By definition the U value defines a *rate* of transfer, and is based on the difference in air temperatures on either side of an assembly, with heat flow in the direction of the temperature gradient. If the net heat flow is in the reverse direction—because of transmission of solar radiation through transparent materials or its absorption at the outer surface of opaque ones—one may call this a "negative U value"; but a separate treatment of radiation would be more satisfactory. Mr. Rostron proposes an unspecific combination of both—U values for opaque materials and windows and, in a different context, radiation transmission formulae for windows. Even accepting this difficult-to-work solution, several comments are necessary.

2. The Princeton value of 0.15 and mine of 0.20 as the maximum U values for opaque cladding panels are said to be misleading in that the total insulation of the wall is critical, not the value of a part—possibly small in proportion to the windows. Princeton's value was put forward with the rider (p. 145): "When the area of the wall in relation to the window is small this may be too high a goal." Incidentally, although they use the words "wall assembly" as synonymous with "panels" here, Mr. Rostron, by removing the words from the quotes implies that they recommend this for the *whole* wall. I put in a similar rider (p. 781): "... it must always be remembered that due to large areas of single glazed windows and 'cold bridge' framing effect the overall insulation gain in the wall may only be marginal (perhaps only 1 or 2 decimals in the U value) by increasing the insulation value of the opaque panel alone." After lengthy discussion of this simple arithmetical ratio, including emphasis on the cold bridge effect of frames, Mr. Rostron concludes by recommending three values based on a calculation which ignores the frames. One value is the same as Princeton's; another is the same as mine, and a third higher by 0.05!

3. "... very exact values for the components—glass, panel and framing—are required and a high degree of accuracy is necessary for any correction factors used" until more measured U values are available. His plea for more statistical data on U values, showing how they change from minute to minute and hour to hour during the seasons is justified; his belief that such accuracy is possible for plant and energy calculations is in any case inconsistent with his acceptance of mean (24-hour) values (for the year or season) in most of his paper.

4. "The majority of panel U values, whether calculated or obtained by experiment, take no account of the effect of solar heat on the opaque panel." All exposure experiments take solar heat into account—in fact only this can explain the "negative U value" phenomenon. Calculated U values in this

country generally rely on the IHVE external surface resistance values, which vary not only with wind exposure but also with orientation. Since the effect of wind is the same on any orientation, this is a method of accounting for differences in solar radiation. True, the values are *means* and do not indicate the heat flow at times of maximum radiation; nor, however, do they indicate it at times of maximum loss. This is not their purpose. Again, the IHVE values for single and double glazing are said to "... necessarily omit the variable effect of solar radiation." For the same reasons as before, this is not true.

5. The average value for indirect radiation (15 per cent. of the direct) could be far out in many tropical areas; for instance 130 B.t.u. per hour per square foot have been measured in South Africa.

6. The empirical formula for obtaining the radiation transmission through glass, based on its absorption and transmission coefficients (both of which are properties given for normal incidence) would be misleading if used for any other incident angle without complex corrections. This is not a quibble: for instance at solar radiation incident from 60 deg. altitude, the total transmission would actually only be about 2/3 of that at normal incidence (because of the increased reflection losses and the greater glass thickness through which the ray passes) assuming radiation of equal intensity in both cases.

7. BRS and I are taken to task for considering heat gains through windows as a "welcome addition to comfort" and as a substantial reduction to heating costs" respectively. Immediately this is followed by remarks about *summer* discomfort. Of course both these remarks were made strictly in the context of *winter* heat losses; a later section of my article (p. 781) specifically deals with the question of excessive summer heat gains. Mr. Rostron himself, curiously, regards heat gains from hot cladding panels as a possible "... useful contribution to comfort."

8. Finally, BRS and I are again criticised for assuming that internal blinds can deal with radiation problems in this country. Of course external blinds or shades are necessary in countries with prolonged high air temperatures coupled with intense radiation. But internal blinds give the protection which we need—from direct radiation. The heat that nevertheless enters during the few hours on any one elevation can normally be dealt with by natural ventilation and the thermal inertia of the building. Last summer demonstrated this. External moveable devices are even more expensive (both to build and to maintain) than internal ones; fixed ones have no place in a climate with a chronic energy shortage, both of heat and daylight.

THOMAS A. MARKUS

Billinge

Michael Rostron replies: Mr. Markus's series of articles on "The Glass Curtain Wall" was the first attempt in this country to treat the subject in a comprehensive manner and provided a valuable starting point for my own investigations. I should be doing Mr. Markus an injustice if I gave

the impression that my articles are a criticism of his work, but there must, inevitably, be instances where our findings do not agree. As Mr. Markus observes, U value defines a rate of transfer of heat through a form of construction. If heat is being lost from a room through a wall at a certain rate and, at the same time, heat is put into the room, the actual rate of loss is, of course, unchanged. In other words, the actual U value of a wall remains constant. But the heat level in the room is now decreasing more slowly, that is, the effective heat loss is reduced. Since we are interested, not in the amount of heat which passes outwards through the wall, but in the rate at which the heat level in the room is changing, the use of this variable "effective" U value is, when large areas of glazing are involved, a more logical procedure than dealing separately with radiant heat gains, although in theory results should be identical.

Mr. Markus is mistaken in assuming that I condemned his value of 0.20 as a maximum U value for opaque panels. His article did refer to the modifying effects of large glazed areas and framing elements and in a worked example he showed how great this modifying effect can be. What I have attempted to do is to carry his reasoning a stage further by examining whether this modification invalidates the use of a single maximum U value, and this I found to be the case. There are, as I have shown, instances when a maximum U value of 0.20 is satisfactory, but there are upper and lower limits when a larger or smaller maximum value is functionally and economically justifiable. In evaluating my series of maximum values, the modifying effect of the frame was taken into account. Incidentally, if Mr. Markus will refer to page 10 of the Princeton Report, he will see that the "Ideal Curtain Wall" is required to have a maximum U value of 0.15, with an ultimate goal of 0.05! I maintain that these are not realistic figures where present cladding systems are concerned.

I am criticized by Mr. Markus for not accepting the "mean" allowance for solar radiation given in the IHVE values for external surface resistance. He then misapplies my "average" value for indirect radiation by applying it to a tropical area—an indication of the very great care necessary in the use of "average" results. Mr. Markus points out that the IHVE tables make allowance only for a mean (i.e., relatively constant) value of solar radiation and therefore repeat that they "necessarily omit the variable effect of solar radiation." He agrees that it is not the purpose of IHVE surface resistance values to indicate heat flow at times of extreme radiation and it is for this reason that I suggested an alternative method of calculating heat flow at such times. The method is based, firstly on the amount of heat falling on a vertical surface, due allowance being made for solar altitude, and, secondly, on the proportion of this component which penetrates into the room. The coefficients, which are also partly empirical, do take into account reflection losses at glass surfaces.

The remarks of both BRS and Mr. Markus concerning heat gains through windows were

made, as he rightly observes, in the context of winter heat losses and I apologize that this was not made clear. The point remains, however, that uncontrolled solar radiation can in this country cause excessive and uncomfortable heat gains during summer months. To say that internal blinds give all the protection required for the whole of the country is simply not true. During the survey which I made in 1957-8 and which will form the subject of a later article, in 38 per cent of the buildings examined uncomfortable summer heat gains were reported, and in more than half of these the condition persisted when blinds and natural ventilation were used. This happened, I might add, during the "average" summer of 1957 and not during last year's extreme sunshine. The conclusion is that there are some areas in this country (a minority, certainly) where external movable devices, such as sun and pinoleum blinds, are essential.

## Stabilized Timber

SIR: In your report in the issue of February 4 of the meeting of the Electrical Floor Warming Association held on January 12 the following sentence appears: "It was mentioned that timber which had undergone stabilizing treatment could lose as much as 60 per cent of its durability." We believe that we are one of the very few—to our knowledge probably the only firm—engaged in the process of stabilizing timber by "boiling" for its intended use for floor heating and many other purposes, and which we practice under an exclusive patent. Other processes, as far as we know, are being practised but are called "wood preservation" or "impregnation."

We have, of course, no complaint when properly grounded views on matters of this sort are expressed in public. In our experience, however, the assertion in this report is entirely devoid of foundation in respect of timber which has undergone the stabilization process practised by us. We ourselves could place at your disposal a large collection of documentary evidence of tests carried out by independent laboratories and users reporting on various durability aspects of our product. A trial floor laid outdoors in front of our drying kiln at our works in Romford, April 14, 1959, was laid without a damp-proof course from below and without any dressing on top. It has supported abrasive wear of forklift trucks and kiln bogies, is still intact and shows no signs of deterioration. We would, nevertheless, welcome any opportunity of subjecting our timber to any method of test which you yourself might think appropriate, when we have no doubt whatsoever that we should prove to your satisfaction and that of any other reasonable person that far from losing 60 per cent of its durability or any of it, the process in a number of ways extends and improves the durability and resistance of the timber and protects it from normal vulnerability to which untreated timber is subject.

N. FLEISCHMANN

Director, Barnes and Fletcher Ltd.  
London



## RIBA

### Council Decisions

The Council of the RIBA met on March 9. The principal discussion was on the report of the Royal Commission on doctors' and dentists' remuneration. The statement which formed the basis of the discussion, together with the Council's decisions, is reported in full on pages 429 to 432. Some of the other matters before the Council are reported below.

#### Technical editor

The Council has authorized the appointment of a Technical Editor at a salary of £1,250 to £2,000 to inaugurate the RIBA's Technical Information Service. His first task will be to get the first of a series of RIBA Notes under way. The establishment of this service was approved last year, and £2,000 was included in the 1960 Estimates as a "once-for-all" payment to launch the new service. It has since become clear, the Finance and House Committee reports, that "though the Service may well prove in time to be largely self-supporting, as intended, it would be wiser to make an annual provision towards it at any rate for the next three years, which are necessarily experimental."

The Council has approved the allocation from the Development Fund of £2,000 for 1960, £3,000 for 1961 and £3,000 for 1962. Subsequently, if the Service proved to be worth retaining but is not fully self-supporting, the Finance Committee suggests that permanent financial support could be provided for in the income and expenditure estimates, not from the Development Fund.

#### Gallup Poll

A pilot survey of the public's attitude to architects is to be undertaken for the RIBA by the Gallup Poll, at a cost of £200. Some 10 questions, possibly less, will be sent to 1,000 people who are said to be a representative cross-section of the public.

#### Deputy Librarian

The Council has authorized the appointment of a Deputy Librarian within the salary



scale £1,100 to £2,000. The Library has not increased its staff during the past twelve years although most of its activities have been extended. In particular, the Drawings Collection has been created out of a confused assembly of paper, while the book holdings have increased by about 20 per cent. At the same time, the international reputation of the Institute collections has been steadily increased, resulting in wider contact with scholars from other countries. The Librarian has virtually the same senior staff as had Edward Carter when he became Librarian in 1930. What is now wanted is a good professional librarian, of some experience, with a university background, good knowledge of languages, and a diplomatic personality.

#### Mortgage

The RIBA is to pay off £21,000 of the £64,750 outstanding on the mortgage on the RIBA building on June 17, and will save not less than £1,155 yearly in interest. It has been found that this is the best way to invest the surplus now standing in the Development Fund, in which £26,534 has been accumulated out of the surpluses of the last two years. A further surplus of £10,230 is anticipated in 1960. Should money be required to finance any special project the Institute is free to borrow again on the security of the mortgage.

#### IUA Congress

The Council of the Building Centre has voted the sum of £1,000 for arranging functions and an exhibition for the International Union of Architects' Congress next year. The RIBA Council has advanced £2,000 to the UK Committee of the IUA on loan to finance preparatory work for the Congress, but the Council has guaranteed up to £4,000 for the Congress.

#### Board of Architectural Education

The Board of Architectural Education has been reconstituted, following the recommendations of the Committee on the Oxford Architectural Conference and an earlier decision of the Council. In future there will be an Advisory Council of Architectural Education (broadly similar to the present Board), appointed annually by the RIBA Council, a Board of Architectural Education of 18 members meeting monthly and reporting direct to the RIBA Council, and a Visiting Board of 13 members, all of whom are members of the Board of Architectural Education. The Visiting Board and the Board of Architectural Education have now been constituted as follows:

#### Visiting Board

Chairman: E. D. Mills. Vice-Chairman: Denis Clarke Hall. Hon. Secretary: Bryan P. Westwood. Representatives of Recognized Schools: Professor R. Gardner-Medwin, Chairman of the Schools Committee; Eric Brown. Four members: (two in private practice), D. L. Bridgwater; C. S. White; (two Official Architects), Kenneth J. Campbell; H. J. Whitfield Lewis; A. A. Part (Ministry of Education) or his representa-

tive; F. M. M. Gray (Scottish Education Department) or his representative. One representative from the Architectural Association; one Representative from the Royal Incorporation of Architects in Scotland.

#### Board of Architectural Education

The President RIBA (ex-officio) Chairman: E. D. Mills. Vice-Chairman: Denis Clarke Hall. Hon. Secretary: Bryan P. Westwood. Representatives of Recognized Schools: Professor R. Gardner-Medwin (Chairman of the Schools Committee); Eric Brown. Four members: (two in private practice), D. L. Bridgwater; C. S. White; (two Official Architects), Kenneth J. Campbell; H. J. Whitfield Lewis; A. A. Part (Ministry of Education) or his representative; F. M. M. Gray (Scottish Education Department) or his representative; A representative of the Allied Societies Conference; E. W. Maynard Potts (Headmaster, Hendon Grammar School); A. Douglas Jones (Birmingham College of Art & Crafts School of Architecture); Sir Leslie Martin (Cambridge University School of Architecture); Lewis John (Welsh College of Advanced Technology); R. Llewelyn Davies.

#### In brief

Herbert Jackson has been elected chairman of the Allied Societies Conference, and *ex officio* a vice-president of the RIBA. The vice-chairmen are Norman H. Fowler and J. A. H. Mottram.

The five years full-time Diploma Course at the Department of Architecture, Brighton College of Art, has been recognized for exemption from the RIBA Final Examination.

#### BC

### Lightweight Screeds

A lecture on lightweight cellular screeds by Peter Cable at the Building Centre last week turned out to be a plea by Mr. Cable, who is managing director of Isocrete Co. Ltd., for the felt and asphalt roofing contractors to get together with the lightweight screed people and BRS to thrash out some of the practical problems which bedevil them. The lecture was of interest to architects, however, as Mr. Cable dealt with the composition of cellular lightweight screeds, the 1957 Thermal Insulation Act, recommended minimum falls and so on. If he was pre-occupied with the subject of blistering of roof coverings it was because this is a basic cause of misunderstanding between sections of the industry and a problem of concern to architects.

Mr. Cable described blistering as resulting from moisture—constructional moisture or condensation—trapped below the roof covering, which vaporizes under solar radiation, expands to many hundred times its original volume and creates a pressure beneath the roof covering, forcing it up into blisters. He recommended several cures. Under the heading "mechanical methods," he suggested forming openings through the water proofing layer to the screed to allow dissipation of the trapped moisture

vapour. He suggested brick ventilators, as recommended by the Natural Asphalt Mine-Owners and Manufacturers' Council, and finally the use of glass-based felt. Under the heading "practical methods" he suggested "frame bonding" in which the lower layer of felt is bonded very securely to the lightweight screed at the perimeter of the roof and along other lines so that a number of "frames" is formed in which there is no bond between felt and screed. Mr. Cable also suggested perimeter sealing and the use of surface reflective coatings. He rejected the use of a sand:cement screed laid on top of the lightweight screed as a base for felt or asphalt.

As the sand:cement screed (4:1 using clean, sharp sand) is a recommended practice accepted by the roofers, Mr. Cable drew the fire of A. W. Gittins, a past chairman of the Felt Roofing Contractors' Advisory Board. Mr. Gittins insisted that the sand:cement screed was essential, as an impervious surface through which moisture could not penetrate to the lightweight screed below and off which it would run.

C. Hobbs of John Laing made the point that moisture vaporizing problems arise from the presence of an insulation layer, and suggested that this layer, by virtue of its insulation capacity, compelled the roof covering to absorb the bulk of the temperature variations, a condition which accelerated ageing and deterioration of the felt and rendered it less able to resist moisture vapour pressures. For this reason a sand:cement screed is useful, as it helps absorb temperature variations. There is the risk, however, that if it is not sufficiently thick it may crack under load if its bond with the lightweight screed fails.

That blistering can be traced back to the introduction of thermal insulation to roofs is, if true, interesting but irrelevant. Thermal insulation is here to stay and necessarily so too. It is up to the people who make lightweight screed insulation membranes and those who make or lay roof coverings to lend their combined knowledge and experience to the problem. Let us hope that last week's meeting opens the way for this.

## DIARY

**Car Parking.** British Road Federation exhibition at the ICE, 1, Great George Street, S.W.1. 1 a.m.-6 p.m. MARCH 18 to 20

**Thinking Ahead About the Building Industry.** Talk by Peter Trench at the RIBA, 66, Portland Place, W.1. 6 p.m. MARCH 22

**Design for Shops and Shopping Centres.** One-day symposium at the RIBA, 66, Portland Place, W.1. 2 p.m.-8 p.m. MARCH 23

**Heating.** Third in a series of four illustrated talks by Oliver Cox and Robert Purdew at the AA, 34/36, Bedford Square, W.C.1. 6.45 p.m. MARCH 24

**The Ultimate Cost or Claim for Extras.** A short play by the Junior Liaison Committee of the RIBA and the Institute of Builders in the Henry Jarvis Hall, RIBA, 66, Portland Place, W.1. 6.30 p.m. MARCH 25

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## THE ARCHITECT'S EARNINGS AND STATUS

## Report Approved by the RIBA Council

1. Why has society placed such a relatively low value on the services of the architect? The disclosure of the architect at the bottom of the scale of professional earnings, published in the *Report of the Royal Commission on Doctors' and Dentists' Remuneration*\*, brings into sharp focus the fundamental questions that have been concerning the profession and the Institute in recent years. This paper analyses the findings of the Commission as they affect the architectural profession. In some cases they provide confirmation of existing beliefs (e.g. that the scale of fees gives a lower income to architects than to engineers and surveyors); in others they suggest new lines of investigation. In all cases they should act as a spur to the work of the many committees of the Institute whose work they affect.

2. The most helpful single figure that summarizes the relative positions of the professions is that of career earnings, set out below. This may be said to represent roughly what a man in each profession who was 30 in 1955 might then reasonably have expected to earn if he worked on a full-time basis until the age of 65, provided all the circumstances of 1955 remained unchanged.

Total "career" earnings: Age 30 to 65

|                     | £'000 |                               | £'000 |                             | £'000 |
|---------------------|-------|-------------------------------|-------|-----------------------------|-------|
| Architects          | 54    | Solicitors (Scotland)         | 67    | Graduates in industry       | 84    |
| Engineers           | 59    | Accountants                   | 71    | Solicitors (England, Wales) | 88    |
| Surveyors           | 63    | Advocates                     | 72    | Barristers                  | 92    |
| University teachers | 63    | General medical practitioners | 79    | Actuaries                   | 105   |

3. Architects not only showed the lowest figure for total career earnings: at almost every age average earnings of architects were lower than those of other professions. The graph [to appear in the *RIBA Journal*] shows the median income of the professions in each age group. The median represents the "middle" income, with half of all the members in the group earning more and half earning less. The median is the best measure to use for these comparisons since, unlike the average, it is not pulled up by a few very high incomes. The income figure used is the net earned income in the financial year 1955-56 after the deduction of all expenses accepted by the Inspector of Taxes, but before any deduction of capital, personal or other allowances or of tax.

4. As the graph shows, only barristers in the 30-34 age group had a median income below that of architects; for those barristers who remain in the profession, however, incomes rise rapidly thereafter.

5. The Royal Commission also inquired into professional earnings in other countries. The data on the subject was limited, but it appeared that the value placed on the architectural profession was well below that of doctors, dentists and lawyers; although accountants and engineers fared worse in some countries. In the USA architects earned more than engineers. In Canada, architects and engineers together earned more than accountants (but if a recent article in the *Daily Express* is to be believed, an architect

in Canada can expect to receive the same wage as a plasterer). Australia (Victoria) appears to put a slightly higher value on architects, placing them above engineers, chemists and accountants. In Belgium, architects' earnings are slightly higher than accountants' but less than other professions.

## Reliability of the surveys

6. The income surveys in this country were carried out by the Government Social Survey on behalf of the Royal Commission, and there is no reason to question the reliability of the results for the purpose of broad comparison of levels of professional earnings in the period covered by the surveys. A random and representative sample was chosen for each group. In the case of architects, this was a one in five sample of RIBA corporate members in the UK in March, 1958. The response rates for each profession varied from 92 per cent. (actuaries) to 60 per cent. (solicitors), with architects at about the average of 75 per cent. The architects were incidentally among the quickest in sending in their returns.

7. The results were checked back with each profession for reliability. The resulting

figures for the age distribution of architects corresponded very closely with those obtained through the RIBA's membership survey of 1957. The only significant difference was that the latter showed a higher proportion of members over 65. This could be attributed to the fact that the sample for the Royal Commission survey was selected on the basis of membership in March 1958 whereas the income figures required were those for 1955/56. Members who had died between 1955 and 1958 were, therefore, excluded from the Royal Commission results, and these were most likely to have been over 65.

8. The information obtained through these surveys related to income in 1955-56, so that the results are now out-of-date. The Royal Commission obtained information from each profession about any subsequent changes in the general level of earnings to guide them in recommending what should be the levels of doctors' and dentists' remuneration. The relativities between the other professions may now have changed. But although architects' salaries have risen since 1956, there has been no change in the scale of fees, and the relative position of the architect is not likely to have changed.

## Factors that influence relativities

9. The Royal Commission listed a number of factors such as length and cost of training, nature of the work and responsibility which, taken together, established broadly a relationship of net advantage or disadvantage for any one profession in relation to others.

Their report is, however, disappointing in its lack of any detailed description of how they reached their conclusions about what should be the levels of doctors' and dentists' earnings in relation to those of other professions, or any discussion of the underlying principles that might govern the place of a profession in society. All we have to guide us is the comment that "the relationship between earnings in different professions is determined not only by considerations of precise justice and logic, but also by tradition and economic pressures of various kinds."

10. Two important factors which influence the level of relative earnings in each profession are (a) the age distribution—a relatively high proportion of young members may tend to bring down the level of average incomes—and (b) the proportion of members working in different fields of occupation—private practice, industry, public service, etc., each of which might at any one time have different levels of earnings. For RIBA members, the proportions shown by the Royal Commission survey for 1955/56 were as follows:

|  | %     |
|--|-------|
| Private practice   |       |
| principals   | 25    |
| assistants   | 21    |
|  | — 46  |
| Public service   |       |
| central government   | 8     |
| national boards  | 5     |
| local government   | 31    |
|  | — 44  |
| Teaching   | 1     |
| Commercial/industrial firms and other architectural employment | 7     |
| Other employment   | 2     |
|  | — 100 |

## Age distribution

11. A large proportion of architects are in the younger age groups—35 per cent. were under 35 in 1955/56—as a result of an intake during the post-war years greatly in excess of the number of deaths and retirements. However, this position is not unique. More than half of the group "Graduates in industry" who are among the higher income groups were under 35 in 1955/56. The corresponding proportions for barristers was 38 per cent., surveyors (excluding those in public service) 37 per cent., engineers 29 per cent.

12. At the other extreme were the actuaries, with a high proportion of members over 45. This profession were among the highest income group, but it is a very small and highly specialized one, with very high standards of entry, and is undoubtedly finding it difficult to recruit enough new members.

## Comparison by occupation group

## (a) Principals in private practice

13. The proportion among the professions working as principals in private practice runs from virtually 100 per cent. for barristers, 62 per cent. for solicitors, 33 per cent. for accountants, 25 per cent. for architects, to less than 2 per cent. for engineers. Architects in this group still earned on the whole less than other professions, although accountants did very little better; and barristers were relatively worse off except for the top 25 per cent. [see the table on page 432]. For the top 10 per cent. of

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incomes architects fared better than accountants and general practitioners (both medical and dental).

14. The Report draws attention to the fact that in many professions high incomes in free-earning private practice are to some extent offset by the risks run of financial decline or even failure, and by the heavy capital investment which practitioners have to provide for the purchase of premises, equipment, working capital and frequently goodwill. The average capital outlay of an architect principal was £1,995, less than that for other professions both in amount and in relation to the median income. The amounts paid by individual architects varied widely; one-fifth paid nothing; one-tenth paid £6,000 or more.

15. The chances of an architect earning an income of £10,000 or more (and for architects this would be likely to happen only in private practice) were 4 in 1,000, the same as for engineers, accountants, surveyors and medical consultants, but less than graduates in industry (6 in 1,000), barristers (14 in 1,000) and actuaries (20 in 1,000).

16. Adam Smith suggested that "in a profession where 20 fail for one that succeeds, that one ought to gain all that should have been gained by the unsuccessful 20." While so great a disparity may not be acceptable to-day, the Royal Commission's comment in recommending a differential payments scheme for GPs (paragraph 346 of their report) is interesting in this context:

"We do not believe that constant striving for increased income is or should be the main incentive to good general practice, but at the same time we think it must be discouraging both to existing doctors and to potential recruits if a really first-rate practitioner has so little prospect of earning more than one who is merely satisfactory. A few higher earners in any profession are apt to make an impression out of all proportion to their numbers and rightly or wrongly to raise the esteem in which many hold their profession. We think it desirable that general medical practice should, even if only to a limited extent, share this advantage with other professions."

17. By comparison with engineers and surveyors, the two other professions which are in part concerned in building, architects in private practice fared badly at all levels. The following figures may be useful in connection with the review of the RIBA Scale of Fees:

| Principals in private practice                            | Median income<br>£ | 25 per cent earn<br>more than<br>£ | 10 per cent earn<br>more than<br>£ |
|---|--------------------|------------------------------------|------------------------------------|
| Chartered Architects                                      | 1,621              | 2,406                              | 4,053                              |
| Chartered Surveyors                                       | 2,041              | 3,168                              | 5,432                              |
| Engineers (Chartered Civils, Mechanicals and Electricals) | 3,368              | 6,712                              | 12,082                             |

#### (b) Assistants in private practice

18. Salaried employees of professional firms came in the lowest income group for almost every profession (for engineers, those working in local authorities earned less; corresponding figures for other professions in local authorities are not available separately to show whether the same is true for them).

Assistant architects fared on the whole better than solicitors and accountants, but slightly worse than surveyors and doctors; engineers and dental assistants did substantially better (see the table at Appendix C).

19. Doctors and dentists had a very small number of qualified assistants working for them—about one for every 10. In these professions the assistant generally occupies that position for a short time only on his way to becoming a principal. The Royal Commission decided for this reason not to recommend a standard or minimum rate for them, leaving their payments and conditions of service to be governed by the individual contract made with their principal. They suggested, however, that the State could influence the rate indirectly in two ways: (a) by setting an example in the salaries paid to registrars and trainee assistants (paid by the Government) and thus influencing the market and (b) in settling the distribution of the remuneration paid to GPs, to avoid making it impracticable for a GP to pay his assistant a reasonable salary.

20. Of the remaining professions engaged in private practice, solicitors had the lowest ratio of qualified assistants to principals and engineers the highest:

|             | Ratio of qualified<br>assistants to<br>principals | Median income<br>of assistant<br>£ |
|-------------|---|------------------------------------|
| Solicitors  | 3 : 10  | 762                                |
| Accountants | 6 : 10  | 773                                |
| Architects  | 8 : 10  | 802                                |
| Surveyors   | 9 : 10  | 885                                |
| Engineers   | 30 : 10   | 1,050                              |

*Prima facie* there appears to be a relationship between these two sets of figures—as the ratio of assistants to principals rises, so the median salary increases—which might suggest that an increase in the number of assistant architects in relation to principals is a good thing. But such a conclusion would be dangerous without knowing more about the circumstances of each type of practice. The solicitor, for example, has his managing clerk, a trained assistant with a non-professional status of his own; the professionally qualified assistant is usually employed, like the doctor, for a short time only prior to becoming a principal. Private practice takes in only a small proportion of engineers, and their practices are mainly large firms where a high ratio of assistants to principals would be expected. Also, they can obviously afford to pay their assistants well.

21. The staffing of private architectural offices appears to have been changing since

standard with office experience is usually the first request) and the median salary offered comes between £800 and £900. The fully qualified "design" assistant, who is frequently second preference, can command a salary of over £1,000, an increase of 25-30 per cent. over 1956. A shortage in supply, resulting from a fairly sudden increase in the volume of work coming to architects, is thus giving salaries a much needed boost.

22. It seems clear that for architects private practice has moved away from the position in which the qualified assistant works for a period merely as a stepping stone to becoming a partner or principal to one in which many architects find themselves working as assistants in private practice, at low salaries, for the whole of their working life. There has thus been a dilution of the profession since the war, related in part to the large numbers coming in during the early post-war years.

23. What steps are needed to improve the position both for principals and assistants? First, an early decision on the vexed question of the "technical assistant," now being considered by the Committee on the Training of Technicians and Technologists. Before the profession is likely to come to any agreement on this point, it seems necessary to know much more about the structure of the architect's office—to what extent non-professional technical and/or administrative assistance, office mechanization, improved methods of working, standardization, provision of central information services and so on, might help the architect to carry out his work more efficiently and at reduced cost. The Management Committee and the Technical Information Committee are tackling some of these problems, while the Professional Relations Committee are concerned with the status and responsibilities of the architect at various levels of work.

24. On the one hand we need to reduce the architect's out-goings; on the other, to secure for him a more fair reward in relation to the volume and complexity of work handled. This indicates the need not for hasty reaction but for a fundamental and long-term review of the Scale of Fees. Before this can take place, a detailed survey of the costs of a number of the more efficient architects' offices must be made, since it will be necessary to provide conclusive evidence that the existing scale gives inadequate rewards even to very efficient architects. At the same time, an attempt should be made to devise a scale of fees that would give positive encouragement to higher standards of performance and to reduced building costs. This will not be easy.

#### (c) Other salaried employment

25. Perhaps the most marked gap in earnings between architects and other professions occurred in the group working in salaried employment outside private practice, i.e. in central and local government, commerce and industry, and teaching:

26. This group covers a wide range of occupations, in which different levels of earnings occur, so that the average for the group as a whole can be influenced by the

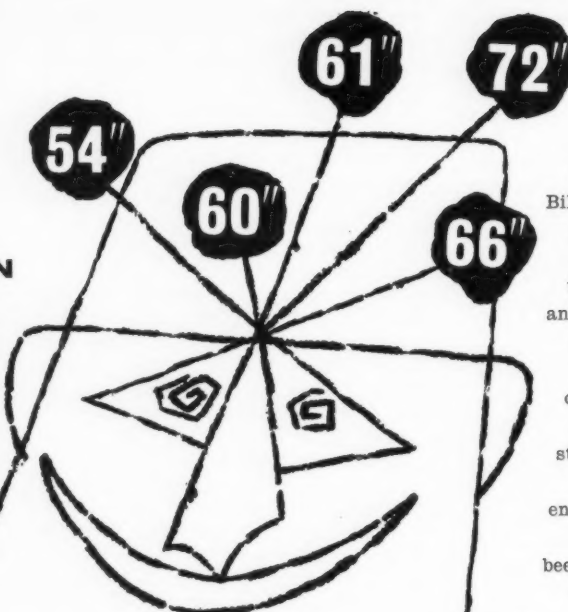
the war. In 1949 there were only 3 qualified assistants to every 10 principals in private practice; by 1958 the ratio was 9:10. Despite this increase, there is an acute shortage of assistants to-day (the RIBA Appointments Department had 375 vacancies on their books in February, 1960). But the demand is mainly for junior assistants (Inter/Final

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proportion working in particular occupations. Those working mainly in industry and commerce tend to have relatively high incomes, particularly at the top. This is also noticeable for professions which have a significant proportion of members working in a non-professional capacity (e.g. the accountant as company director). Where, on the other hand, there is a high proportion working in local government (architects, for example—see paragraph 10) then this pulls down the average.

27. The engineering profession, for which income figures are available for a number of separate occupations, illustrates the variation to be found: the large number working in industry show their influence on the median income for the group:

|   | Number in sample | Median income<br>£ |
|---|------------------|--------------------|
| Engineers in salaried employment outside private practice | 5,157            | 1,186              |
| Local authority (except teachers) and public utility      | 606              | 968                |
| Commerce and private industry                             | 2,533            | 1,181              |
| Civil service   | 754              | 1,265              |
| Salaried employment but not as engineers                  | 237              | 1,620              |

28. Similar figures for architects are unfortunately not yet available (although we have been battling with the Royal Commission and Social Survey since August 1959 to secure them). However, we hope soon to have further details for architects which will relate age and income in the main fields of central and local government, national boards, teaching, and other salaried employment, as well as principals and assistants in private practice. From this it will be possible to make a fuller analysis of the relative incomes of architects of comparable age working in these fields, and to see to what extent architects in local government fare worse than their colleagues elsewhere.

29. One associated point to consider on this is not only the relatively high proportion of architects working in local government compared with other professions, but the levels at which they are employed.

Taking the total staffs of 43 City and Borough Architects' Departments (those for which staff returns are available for 1959) nearly three-fifths of the qualified staff were to be found in the most junior grade (NJC Grade III/Special scale, with salary range £785—£1,070); and for the County Architects' Department as a whole, the corresponding proportion was more than half. (Those proportions cover wide variations between individual departments.) This again suggests that a dilution of professional staff has occurred. In this connection, the conclusion of the Ad Hoc Committee's report on salaries and responsibilities of senior architects in local government is worth recalling: "greater efficiency, in terms of low cost per £ of work done, can be achieved through the employment of a relatively high proportion of staff in the more senior grades."

30. The Professional Relations Committee are hoping to follow up this report with a more extensive survey of salaries and responsibilities. Comparison with other professions, and the relative proportions of qualified staff which they have in different local authority grades, might be illuminating, and this is something the new Association of Official Architects may want to pursue

## General comments

### (a) Public recognition

"The context in which we have made our enquiries is that of a National Health service, a service intended to be available to the whole nation; if the nation wants the benefits it must accept the cost, and provide the means to ascertain the facts and to do financial justice, neither less nor more, to those who work in that service" (paragraph 8 of the Report).

31. One would like to be able to say the same for the service of architecture, but to too many people the profession still seems to be optional, a near luxury. Its contribution to living is thought of as pleasant but inessential, and therefore not worth paying a high price for. To quote from another

paper "Doctors may be respected because nobody wants to die; lawyers because without them the verbal refinements of their calling cannot be safely interpreted; and clergymen partly in admiration of the good life and partly through suspicion, even in the mind of the unbeliever, that they may be right." But it is another matter to sell architecture to a nation of shopkeepers (and aldermen) who pride themselves on sturdy common-sense, suspect aesthetic sensibility, live and work in a 19th century industrial environment, and have literary traditions of education not those of visual art.

32. Yet if the profession can never actually be as indispensable as medicine, it could come to be regarded so through a combination of outstanding performance and astute public relations. It may be that the profession has too great a fear of "public relations" which has, rightly or not, become an integral feature of modern life. The direct competition of the "all-in service" is openly expressed in expensive advertising campaigns, on which far more than the total income of the Institute is being spent yearly. How much do the public know about the contribution which the profession has made towards offering better value for money in building, e.g., schools, CLASP? Architects are possibly unduly conscious of the impact on the public of the imperfections of the profession. Might it not be worthwhile countering this by collecting and giving greater publicity to the success stories of modern architecture? (This is not to say that we should not at the same time strain all our efforts to make architects more efficient—but it will be many years before the profession has worked out of its system the existing imperfections; and to delay a more aggressive policy until then would be too late.)

### (b) Professionalism

33. It has been pointed out that the way architects are distributed among different kinds of occupation is a material factor in their low income position. It may be that this distribution pattern (paragraph 10)

merely reflects society's needs and should not be artificially disturbed. Twice, however, this year (by the Minister of Housing and by the building societies) we have been asked whether our professionalism is not too rigidly conceived for modern conditions. If there is any substance in this, a change of outlook if not actually in the Code might be reflected in the profession's overall income.

34. It must always be difficult to seek to operate with the freedom of an artist (necessarily optional) yet simultaneously, through working in an economic context, to hope for the rewards of an essential profession. The preamble to a paper on architects as directors of building companies, published with the Council's authority last year, says "Of itself a change in the Code is perhaps not crucial, and certainly not a panacea. Nobody suggests that it would be the answer overnight to the all-in service challenge. The subject does, however, serve to focus attention on a central dilemma of greater importance: Whether to regard Architecture as an integral part of Building and act accordingly; or sharpen the distinction between them, widening the gulf between the artist-consultant on the one hand, and the commercial constructor on the other? Whether, if the separatist course is chosen, that will restore whatever dignity, prestige and influence the profession is thought to have lost, or merely invite the modern world of big business and high finance to by-pass the profession and to let it quietly fade? Whether in the time ahead one can maintain Architecture balanced on the razor edge between an Art and a Profession, inevitably lacking some freedoms of the one, yet foregoing many opportunities of the other? Whether, therefore, in professional conduct matters to go for a brief Code, allowing maximum latitude, and simply expressed in terms of broad principal but rigorously interpreted and enforced; or to retain a detailed Code that attempts to identify and proscribe all regular activities that could be harmful to Architecture?"

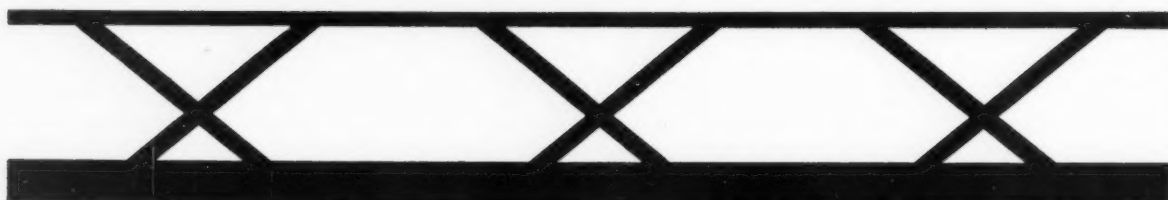
### (c) Recruitment and training

"There is, of course, no unchallenged body of principals to indicate what is the proper levels of earnings in any profession nor what should be the correct relations between the earnings in different professions. Such expressions as "fair comparison" or "internal relativities" have little value as a guide to policy; and they often lead those who employ them to imagine that they have found a solution when they have only found a phrase. The relations between the earnings of the various groups will always be in process of change, sometimes slow and sometimes swift, with every shift in the supply of, or demand for the services of the groups. This clearly is as it should be; it would be inadvisable to try to clamp down on professional earnings a rigid pattern insensitive to the varying needs of society and to the changing appeals of the different kinds of professional work.

"In the absence of doctrine which would determine uniquely the place to be taken by any one profession within the whole



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hierarchy of professions, there seems to be no escape from pure guesswork or personal preconceptions other than the test of the market: whether, that is to say, present and proposed earnings are sufficiently high to provide enough new entrants into a profession to match requirements. The professions as a whole are in competition for the young people who each year prove to be of suitable calibre; one of the social functions of a pattern of professional earnings is to bring about a proper distribution of these people."

(Professor John Jewkes in a memorandum of dissent from the Commission's Report.)

35. It seems clear that in terms of quantity there has been over-recruitment to the architectural profession. This may be challenged in the light of the present shortage of assistants. But, as has been pointed out, it is not the "design" assistant for whom there is the cry, but rather an assistant with a different kind or level of training and skill. There has been no lack of students coming into the schools of architecture in recent years. From a trough in 1953, the numbers of first year students have been rising fairly steadily. In September 1959, 1,551 new students were enrolled at schools of architecture, 8 per cent more than the previous year. In all, there were 6,368 students at schools, of whom 70 per cent were at the Recognized Schools. Most of them will have started from an O level standard of training. Very few of them were selected; they were accepted. Very few schools are faced regularly with a large surplus of good material from which to select the best.

36. It is likely that some 5,000 new architects will qualify between now and 1968 (the first year when architects with the 2 A level standard of entry will qualify). The number of architects will thus continue to increase for a further period. But a gradual fall in the number of "trainee" architects working in offices as unqualified assistants may be expected, as the emphasis in training moves to full-time courses. This underlines the need for a decision on the 'technical assistant' category.

37. The possible effect on future recruitment of the disclosure of the low level of architects' earnings must be considered. It is important that this should not discourage the potential entrant of good intellectual quality whom we wish to attract. It may be desirable to direct some special publicity at schools and school leavers implying that only the best will be good enough. At present one hears it said that architecture will do for the fifth form boy who leaves still muddled by figures, bored by words and confounded by logic but having a freak facility with a pencil.

38. The introduction of the A level standard of entry from September, 1961, is the first step towards improving the quality of new recruits. As a corollary, a fresh look may be needed at the content of architectural education that will take account both of higher intellectual standards and the needs of architectural practice tomorrow rather than today. The Officers of the Board are considering planning a conference on this subject later in the year, on similar lines to the 1958

Oxford Conference. This may or may not take in the crucial issue of compulsory practical training, which is at present in the care of a special committee.

#### Proposal for a Review Body

39. The Royal Commission have recommended the appointment of a standing Review Body, consisting of seven independent persons of eminence and experience to advise the Prime Minister about the remuneration of doctors and dentists in the National Health service. In order that the Body should have adequate information about the earnings of members of these and other professions, the Board of Inland Revenue should collect and make available to the Review Body information about professional earnings, the information to be published to the extent that the Body may determine.

40. It would be extremely valuable for the Institute if information of this kind were available at regular intervals. It is therefore suggested that the Council might express their support for the proposal, and their willingness to have information about the earnings of broad groups of architects made available for this purpose (so long as information about individuals and small groups of people is not disclosed and cannot be deduced).

#### Action to be taken

41. The Council decided that immediate action should be taken as follows:

1. The Policy Committee will look at the overall implications for the Institute of the Royal Commission's report.

2. The Professional Relations Committee will be responsible for co-ordinating the work of all those Committees of the Institute who are affected by the report, namely Practice

Management

Technical Information

Public Relations

Board of Architectural Education

Committee on Technician Class; Classes of Membership; and Practical Training.

Copies of the paper will be circulated to these Committees who will be asked to consider as a matter of urgency the points which particularly affect their work.

(3) The Allied Societies will be asked to consider the paper and submit their observations.

4. The Secretariat will go ahead with preparations for a comprehensive survey of architects' offices to meet the various needs outlined in the paper (paragraphs 23, 24, and 30). Attempts are being made to raise money outside the Institute (e.g., from industrial companies with interests in the Building industry, foundations, etc.), for special research appointments since the Institute has not sufficient resources free to undertake more than the general direction of the survey.

5. The County Architects' Society and the City and Borough Architects' Society will be invited to comment, in particular upon how far the levels at which staff are employed are dictated by the wishes of the Chief Architect and how far by questions of "parity" with other departments.

6. The Association of Official Architects will be invited to comment, in particular upon how far they think it practicable to take action in concert with, for example, local government engineers and surveyors.

7. A letter will be sent on behalf of the Council to the Government (Minister of Health and Chancellor of the Exchequer) expressing support for the Commission's proposal that the Board of Inland Revenue should collect and make available information about professional earnings (paragraph 40).

#### COMPARISON OF PROFESSIONAL INCOMES

##### Principals and assistants in private practice

|  | Architects | Surveyors | Engineers | Accountants | Solicitors<br>(England<br>and Wales) | General<br>Dental<br>Practitioners | General<br>Dental<br>Practitioners |
|--|------------|-----------|-----------|-------------|--------------------------------------|------------------------------------|------------------------------------|
| <b>Principals in Private Practice</b>                        |            |           |           |             |                                      |                                    |                                    |
| 1. Principals as a proportion of the total in the profession | 25%        | 27%       | 2%        | 33%         | 62%                                  | 79%                                | 84%                                |
| 2. Median incomes  | £1,621     | £2,041    | £3,368    | £1,665      | £2,212                               | £2,023                             | £2,055                             |
| 3. One quarter earned less than                              | £987       | £1,312    | £1,725    | £1,084      | £1,448                               | £1,483                             | £1,357                             |
| 4. One quarter earned more than                              | £2,406     | £3,168    | £6,712    | £2,500      | £3,348                               | £2,618                             | £2,781                             |
| 5. One tenth earned more than                                | £4,053     | £5,432    | £12,082   | £3,903      | £4,816                               | £3,118                             | £3,706                             |
| 6. Average capital outlay (a)                                | £1,995     | £3,937    | £7,336    | £3,907      | £3,844                               | Figures not on a comparable basis  |                                    |
| 7. Ratio of capital outlay to median income (6 : 2)          | 1 : 2 : 1  | 2 : 1     | 2 : 2 : 1 | 2 : 4 : 1   | 1 : 7 : 1                            |                                    |                                    |

##### Salaried Employees in Private Practice

|  |        |        |         |        |        |            |        |
|--|--------|--------|---------|--------|--------|------------|--------|
| 1. Assistants in private practice as a proportion of the total in the profession | 18%    | 34%    | 4%      | 16%    | 14%    | 6%         | 11%    |
| 2. Number of assistants to every ten principals in private practice              | 8 : 10 | 9 : 10 | 30 : 10 | 6 : 10 | 3 : 10 | 0 : 8 : 10 | 1 : 10 |
| 3. Median incomes  | £802   | £885   | £1,050  | £773   | £762   | £1,000     | £1,443 |
| 4. One quarter earned less than  | £698   | £730   | £901    | £683   | £652   | £900       | £1,138 |
| 5. One quarter earned more than  | £998   | £1,063 | £1,437  | £961   | £916   | £1,100     | £1,786 |
| 6. One tenth earned more than  | £1,210 | £1,311 | £1,928  | £1,330 | £1,109 | £1,200     | £2,079 |

(a) Payments by principals in private practice for goodwill and other capital invested in the practice; payments made and to be made for share of partnership assets.

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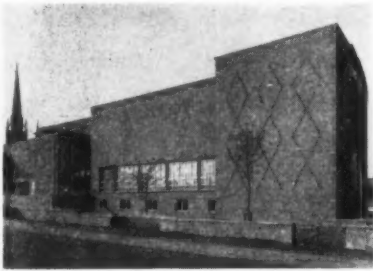
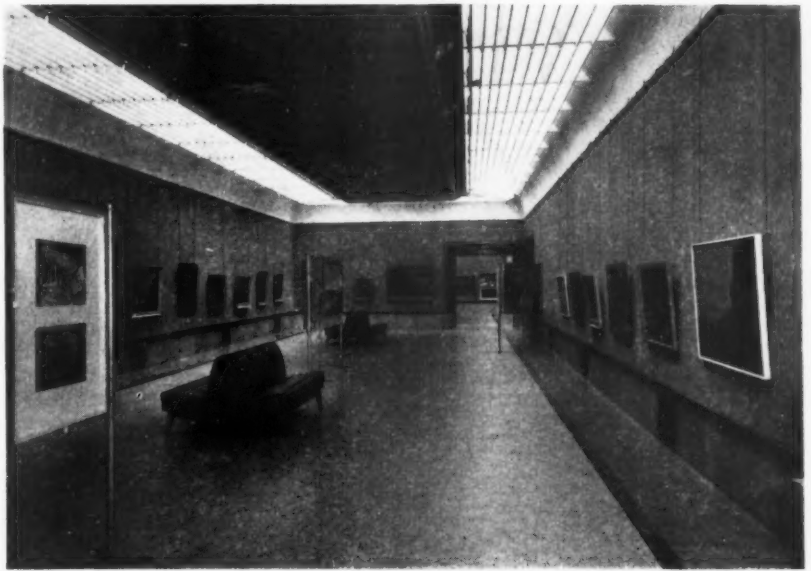
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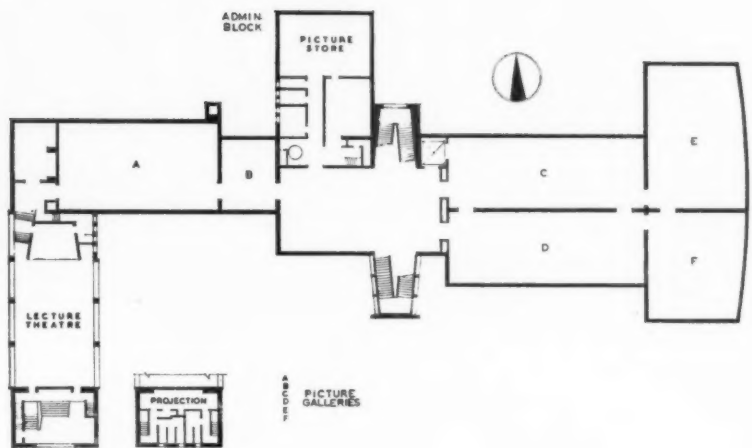


## ART GALLERY AND MUSEUM IN COVENTRY

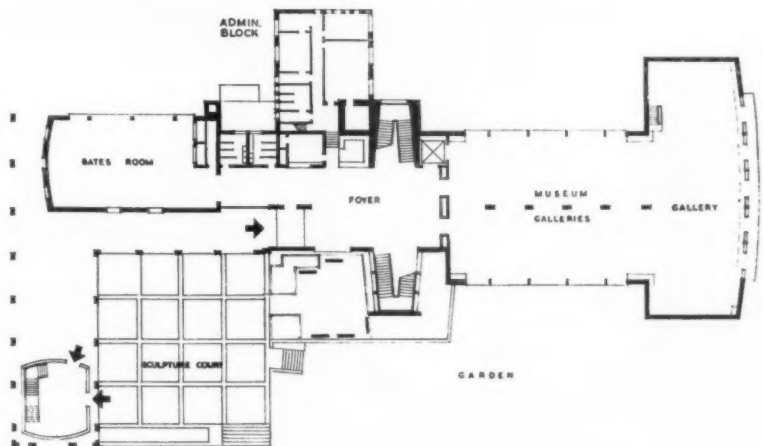
The Herbert Art Gallery and Museum for the City of Coventry was officially opened last week. It was built at a cost of £475,000 of which £275,000 was donated by the late Sir Alfred Herbert, a Midlands industrialist whose name it bears. The architects were Herbert, Son and Sawday of Leicester. There is a substantial fall to the site generally from south-west to north-east, and the basement does not extend under the Bates Room which is at the western end of the site. Total area is approximately 42,000 sq. ft. on three floors including basement of which the ground floor accommodates the museum and the first floor the



picture galleries and a lecture theatre seating 180. Heating is a combination of concealed panel heating and forced warm air in which fresh air is taken into the ventilating room at basement level and carried by duct to discharge, in the case of the galleries, at ceiling level. Air is withdrawn at skirting level and re-circulated. Full air-conditioning was considered, but the cost of refrigeration plant was felt to be unwarranted in this case. The picture galleries are top lit by natural and artificial light in a manner similar to that devised by BRS in their studies for the lighting of art galleries. The ceiling of each gallery is glazed with obscure glass for a width of approximately 6 ft. around the perimeter of the room, the centre section of the ceiling being solid except for laylights in some galleries to light exhibits in the centre of the room. There is ample height between ceiling level and rooflights to permit access for maintenance.



First floor plan

Ground floor plan [Scale:  $\frac{1}{16}$ " = 1' 0"]

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## THE INDUSTRY

*This week Brian Grant describes a bell transformer, electrical floor ducting, a cement for use with wood, a range of mortice locks, a lavatory basin and an edging strip.*

**Bell transformers**

The illustration on the right shows a new bell transformer by Gents. This has been designed so that the terminal compartment allows the full diameter of t.r.s. or p.v.c. cable to be taken through a polythene bush into the transformer, or, as an alternative,  $\frac{1}{2}$  in. conduit can be used. List price is £1. (Gent & Co. Ltd., Faraday Works, Temple Road, Leicester.)

**Electrical ducting**

The new Greenwood-Airvac Flushfyt ducting system has been designed to provide a standardised electrical distribution system in any floor which has a minimum screed depth of  $1\frac{1}{4}$  in. The ducts are made of zinc coated steel sheet and have a depth of 1 in. with a width of either 4 in. or 6 in. Both types of duct have a central division to separate telephones and any other low voltage services from mains power and lighting circuits. The ducting is supplied in 6 ft. lengths, with the necessary clips and screws to give electrical continuity. A light bedding of cement is recommended on the structural floor to provide a flat base for the ducting, which, once laid, can be used as a datum line for the screeding. Junction boxes have adjustable frames and lids to accept the final floor finish. Floor outlets can be arranged where needed, while vertical bends and skirting terminal boxes are also available. The new system can also be used in conjunction with the skirting ducts already produced by the same firm. (Greenwood-Airvac Conduits Ltd., Carlisle House, Southampton Row, London, W.C.1.)

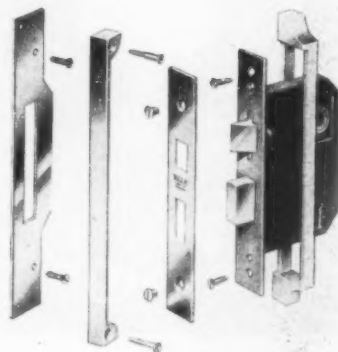
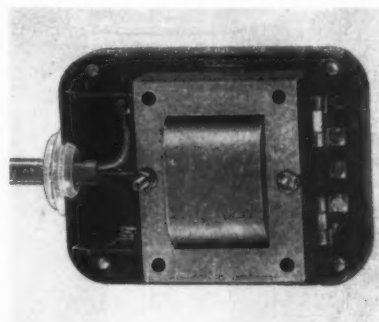
**New wood adhesive**

Bakelite Ltd. are now making a resorcinol cement, type DG. 19143, which, with the appropriate hardener, is used for constructional work in wood. The joints have excellent water resistance and durability, and the adhesive is particularly recommended for laminated timber beams and trusses. Details of properties and methods of use are provided in data sheet B.35, from Bakelite Ltd., 12-18, Grosvenor Gardens, London, S.W.1.

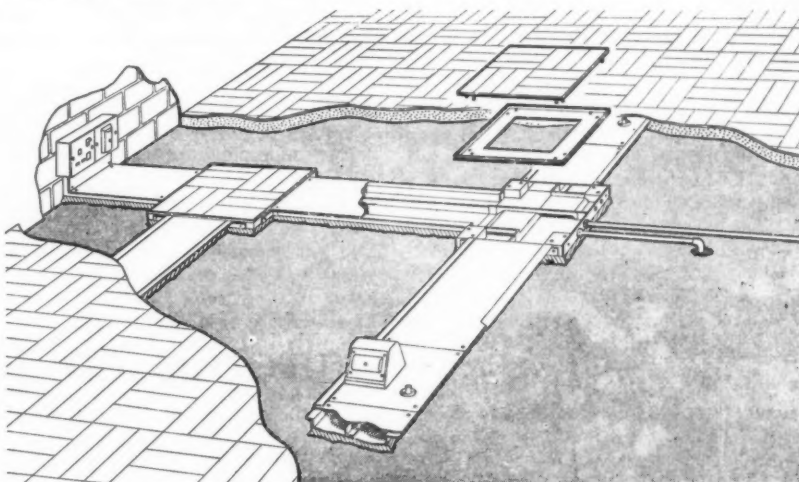
**Low-priced locks**

A new range of 3-lever mortice locks is now being made by Yale and Towne. Known as the M900 range, it has been evolved to meet the need for a high degree of security at low cost. This has hitherto been difficult to achieve except with the use of 4- or 5-lever locks. The M900 range of 3-lever locks, however, offers 144 differs off levers only, as standard. If required, 350 differs can be obtained off levers and by introducing wards, 3,500 differs are obtainable.

The range includes all of the four basic types of mortice locks; an upright lock, a horizontal lock, a deadlock and a sliding door locking latch. Standard prices to the public, will be about 10s. All locks in the range can be master-keyed. For master-keyed

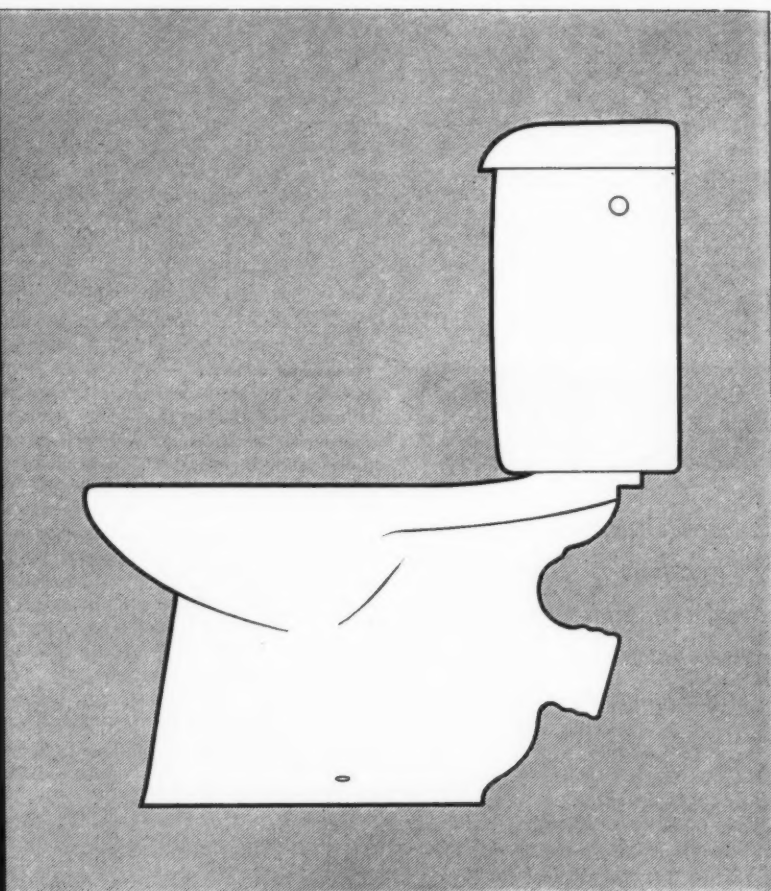


Top right, the Gent bell transformer with the cover removed showing sheathed cable taken through polythene bush. Above right, the M900 Yale and Towne mortice lock. Below, section through floor showing Greenwood-Airvac Flushfyt electrical ducting.





design



material

Fine design and a double-trap siphonic action are significant features of the new Kingston closet by 'Standard'. But just as important is the material from which it (like the matching lavatory basin) is made. 'Standard' vitreous china is non-porous and hygiene does not depend solely on the glaze. This, together with its great strength, makes it the most suitable material for sanitary ware. For good design in the right material, specify 'Standard' vitreous china.

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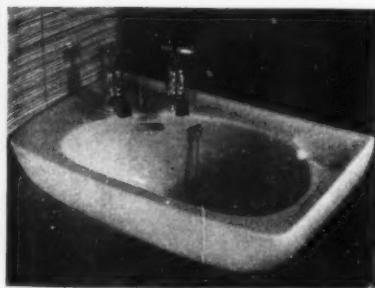
## technical section

systems, the new Yale 3-lever mortice locks provide a large number of changes, while maintaining a high standard of security. This is because all master-keyed suites include the security of lever differs and do not depend entirely upon ward differs as is common practice. All suites are available with sub-master, sub-grand master and grand masters.

When master-keyed, standard differs are up to 66 per suite off levers only, or up to 660 per suite off levers and wards. (Yale & Towne Manufacturing Company, Willenhall, Staffs.)

**Small lavatory basins**

The photograph below shows a new small basin which has just been introduced by Goslett. It is a smaller version of the Cygnet design and is made in two sizes, 18 in. by 12 in., and 15½ in. by 11½ in. These basins can be fixed either flat to the wall or in a left-hand corner. The material is vitreous china and a number of colours is available, including two-tone versions with a white bowl and a coloured outside. Prices are £6 8s. in white or £8 18s. coloured; £12 for the two-tone version. (Alfred Goslett & Co. Ltd., 127-131 Charing Cross Road, London, W.C.2.)



The Goslett basin.

**Edge trim**

The current habit of fixing plastics sheets to table tops and shelves always leaves an exposed edge of timber or chipboard, and the do-it-yourself fans don't always bother to fit an edging strip. Herzin aluminium edgings are made to suit most timber thicknesses from 7/16 to 1¼ in., and cost about 1s. to 1s. 8d. a foot in the most usual sizes from ¾ in. upwards. There are two types of edging, one a flush D section to cover only the edge of the shelf, and the other with a small lip turning over at the top, giving greater edge protection and also helping to hold the covering sheet down. All the mouldings are ready holed for screw fixing and can be bent round a fairly small radius: they also have a dovetail section groove on the vertical face to take a coloured plastic insert which covers the screw heads. There is a choice of nine colours for the insert. While most aluminium producers have a considerable range of mouldings of this kind, it saves quite a lot of trouble to be able to buy them complete with the insert. (Metal Mouldings Ltd., Park Royal Road, London, N.W.10.)

## INFORMATION CENTRE

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A

34

### 7.76 practice ARBITRATION

*The Architect as Arbitrator.* Published by RIBA 5s.

Arbitration proceedings are today governed by the Arbitration Act, 1950, and closely follow the pattern of an action in the High Court. Though the hearing of a case is usually less formal than in a court, the parties may be legally represented, the arbitrator may be given, by the arbitration agreement, power to decide questions of law as well as of fact, evidence is normally given on oath, and the arbitrator must follow strictly the rules of evidence. The responsibility can, therefore, be heavy. If he improperly admits evidence which goes to the root of the questions submitted to him his award may be set aside by the court and if he adjudicates on questions of law the disappointed party may later "state a case" for the High Court.

The publication of a booklet by the RIBA, *The Architect as Arbitrator* reflects the increasing importance of arbitration in building disputes. In some 20 pages this publication cannot be more than a summary of procedure under the Arbitration Act but, within its physical limits, it sets out clearly each step in proceedings from the appointment and acceptance of his function to the final submission of the arbitrator's fees. It also contains the full terms of the 1950 Act though one questions the value of inserting an Act of Parliament without explanatory notes in such a brief outline of a complex subject.

The booklet should awaken a broad interest in the subject—though it may be doing this at the cost of undue compression. The law of evidence is e.g., a more difficult—and tedious—subject than it appears as summarized in about one page of the booklet and a little more explanation might have been devoted to proceedings prior to hearing. Precedents of common forms of pleadings might have been inserted by way of appendix and there prove more instructive than the various Forms for the Appointment of an Arbitrator. The widely used Scott, or Referee's, Schedule is often more suited than ordinary pleadings to disputes arising out of lump sum contracts with counterclaims and set-offs and an arbitrator

should, in a suitable case, insist on its use; but this matter is not touched upon. These are criticisms of detail. This publication puts arbitration in a nutshell, presents it attractively, and warns of the complexities inherent in its subject by a small and well balanced bibliography.

Ro

### 19.226 construction: details GLAZING

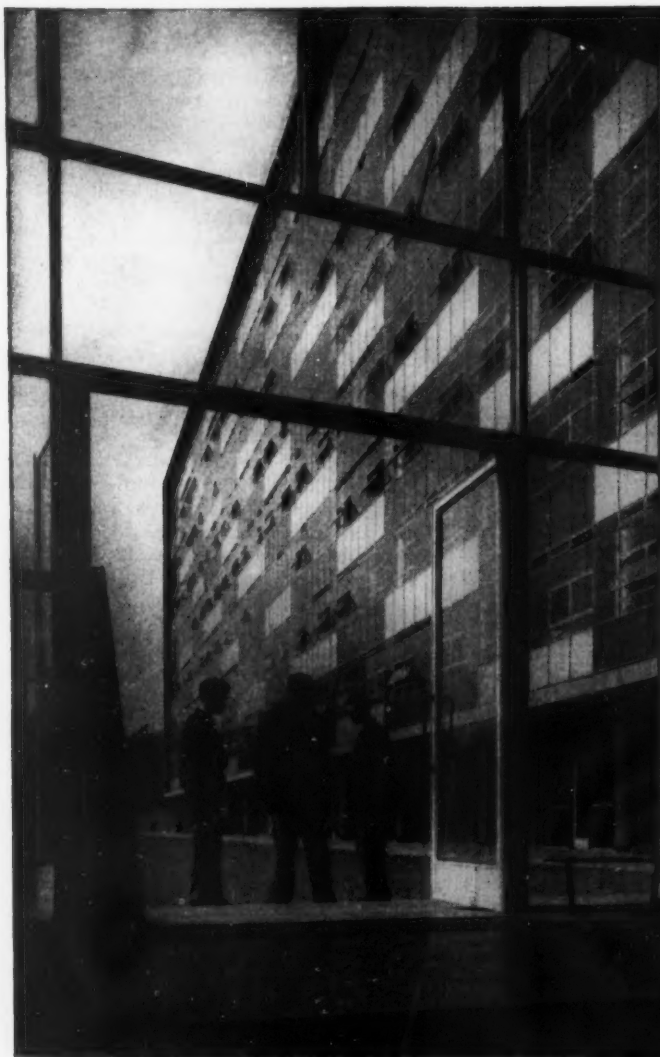
*Glazing and Fixing of Glass for Buildings.* British Standard Code of Practice, CP 152: 1960. BSI. 12s. 6d.

CP 152 is a new Code which replaces the 20-year-old BS 972. It covers all normal building applications of glass with the exception of curtain walling, patent glazing, glass blocks and lenses. It deals with terminology, design, consideration of frames and backgrounds, glazing techniques for frames of different materials and types, double glazing systems, glass fascias and maintenance and cleaning. All the operational aspects of normal glazing are clearly described and by means of sketches and definitions the terminology used by glaziers is admirably clarified. It is a pity, however, that there is not more guidance on the biggest glazing headache—curtain walling joints—because of "insufficient experience." There seems little chance of a Code on curtain walling and the special materials used being produced in the near future, and since many of the techniques, such as the use of two different compounds in the same joint, are now being applied for normal glazing of large windows other than in curtain walls, this seems a missed opportunity.

Although not within the terms of reference of the Code, functional aspects are touched upon here and there in connection with thermal or sound insulation and daylighting. Cross reference is made to two other Codes whose present editions are now over 10 years old and seriously out of date. In one of these Codes daylight calculations do not allow for Internal Reflected Components or for the standard C.I.E. sky, and in the other, figures for sound insulation of double glazing with a 1 in. air space are given which indicate a tangible benefit, whereas this document considers 10 in. as "reasonable" and "less than 4 in. inadvisable" for sound insulating windows. It is to be hoped that the Daylight and Sound Insulation Codes will soon appear in up-to-date forms.

The reference in the footnote to a BRS Digest could alter the pattern of Codes from clear and self-sufficient guides to complicated text books using technical references. If a Digest is permissible, why not a National Building Study—which usually has an author, or a technical paper by the same author, and so on?

Finally, two text points: the word "pointing" has been omitted from the title of Clause 202 and in Clause 404 (d) "face clearances" are mentioned and yet not defined in 102, "Definitions."



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## 17 CONSTRUCTION : GENERAL

### light cladding, 4 fire resistance

In this, his fourth article,\* the author, R. Michael Rostron, lists our current regulations on fire resistance, pointing out that they have been evolved for traditional building and have little relevance for light cladding. He then considers current methods for meeting them.

It is fortunate that the hazard of fire in buildings has been recognised for many years by municipal authorities and that rigid protective and preventive legislation has been imposed on all new buildings. Such legislation, however, renders impossible the absolute consideration of the resistance to fire of materials and techniques and any discussion must be directly related to current byelaws and regulations.

Building laws, in common with other legislation, are often outstripped by rapid technical advances and byelaws dealing with the spread of fire in or through walls are no exception. Most British byelaws are concerned with the design of two elements:

- (i) "Walls," in order to confine fire within the building until it burns itself out or until it can be controlled and to prevent the spread of fire from adjacent buildings, and
- (ii) "Openings," in order to prevent the spread of fire from storey to storey.

It is apparent that legislation based on these considerations is governed by the obsolete concept of a solid "wall" containing "openings" called windows. The idea of an entire "wall" consisting of, in effect, a large "window" is not admitted and it is only by excessive distortion of the true meaning of existing byelaws that such a form of construction can be carried out. Whilst it is true that most building authorities, particularly the LCC, are prepared to exercise considerable discretion in the interpretation of their byelaws, the fact that a not uncommon technique requires the enlightened application of waivers and exemptions must necessarily create anomalies and ambiguities and present the designer with a most uncertain problem. Such a position surely indicates the need for a fundamental reconsideration of preventive fire legislation based on the application and performance of new techniques. In the meantime, it is most unfortunate that further technical advances should depend on the liberal interpretation of

legislation which was never intended to encompass a form of construction based on the changed concept of the wall.

The Fire Research Station have an investigation in hand to determine the part played by external walls in restricting fire spread in multi-storey structures, but the work is not yet complete. The investigation is primarily concerned with experiments on various types of framing elements and panels to determine whether any relaxation of byelaw requirements is possible. Interim results of this research published in the Fire Research Annual Report, 1958 (HMSO), show that "a reduction in the fire resistance of the under window panels from  $\frac{1}{2}$  hr. to nil did not significantly increase the hazard of flames from the ground floor room igniting the contents of the room above it, even with the maximum fire load of 80,000 BTU/sq. ft." Experiments also showed that a projecting balcony is of little use as a firestop, although its use as such is permitted by all byelaws except those of the LCC. These preliminary results which indicate, among other things, that the back-up wall is unnecessary, suggest that when the research is complete, a more realistic approach to fire legislation may be possible.

Building in London is governed by the London Building (Constructional) Byelaws, 1952, published by the London County Council, and in the provinces by Local Authority Byelaws which are generally based on the Model Byelaws, Series IV (Buildings), 1953, drafted by the Ministry of Housing and Local Government and published by H.M. Stationery Office. In Scotland, the Model Building Byelaws for Burghs and Counties, 1953, drawn up by the Department of Health for Scotland, are applicable. School building is governed by the Standards for School Premises Regulations, 1954, and guidance and compliance with Regulation 49 (Fire Risk) is given in the Ministry of Education Building Bulletin No. 7. *Fire and The Design of Schools*, 1955. These instructions are far more flexible than the byelaws and are the only regulations which make positive provision for the use of the sheath wall. Their influence may be judged from the great technical advances made in the use of this type of cladding in schools since the war. It is possibly true to say that the greater part of our knowledge of the performance of sheath walls in this country is due to the liberal provision of these regulations. Their continued use would be inconceivable in schools of all buildings if the risk of fire spread was increased.

It should be realised that examination of the appropriate byelaws does not necessarily give a true picture of the actual situation for a particular site. In many cases a certain elasticity of existing byelaws is necessary, and the liberality with which byelaws are administered will vary from authority to authority. The following notes are, therefore, intended only as a general guide. Actual requirements will only be apparent after consultation with the appropriate Building Authority.

\* Previous articles in this series are as follows: Heat Transmission (February 25, 1960), Stability (March 3), and Condensation (March 10).



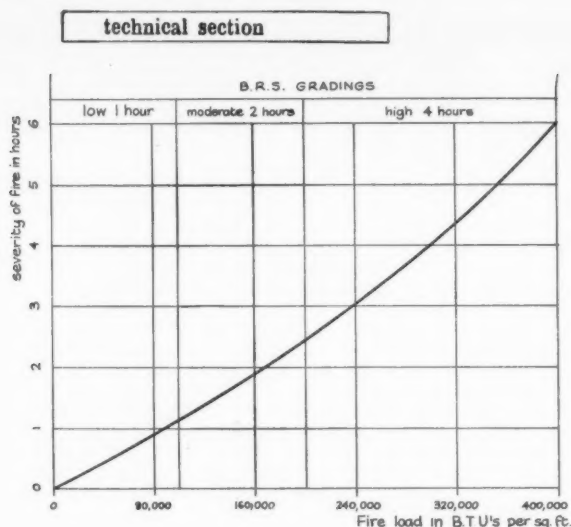


Fig. 1. Severity of fire in hours and fire load.

### Walls

The fire resistance of walls is determined by means of an experimental test carried out in accordance with British Standard 476 : 1953 (Part 1) *Fire Tests on Building Materials and Structures*. Most byelaws contain schedules showing the "minimum requirements for construction and materials to be capable of resisting the action of fire for specified periods" (LCC). If, as is often the case, the desired form of construction is not contained in the appropriate schedule, "the fire resistance must be shown to be adequate by reference to a test on a similar form of construction in accordance with British Standard No. 476 : 1953." (Model Byelaws.) The British Standard test does not by itself give any indication of the degree of fire resistance required in a particular building. This will depend on the "fire load" which varies according to the type and size of the building and its contents and the relationship between fire load and equivalent severity of fire in hours of the standard test is given in Fig. 1.

The degree of fire resistance required for external walls as set out in byelaws is usually related to the type or size of building. The Model Byelaws stipulate a general resistance of two hours for external walls in all buildings other than small houses (38), with reduced requirements for single storey buildings which vary from "no requirement" to one hour, depending on cubic capacity and the distance of the wall from the boundary (39). A four hour resistance is required for certain warehouse buildings (41) whilst panel walls of domestic buildings of two or more storeys "supported in a structural frame of metal or reinforced concrete" only need a required resistance of one hour (40).

The LCC byelaws are not quite so explicit. No requirements are specified particularly for external walls, but, although not defined as such in 1.03 external walls are usually considered to be "elements of construction" and are governed by the requirement of 9.02 which gives resistances of half, one or two hours, depending on size and type of building.

The resistance specified in Scottish byelaws varies from "no requirement" to four hours depending on the type and size of building and its distance from adjacent buildings. Under certain circumstances, a one hour resistance is required for panels supported in a structural frame. In all byelaws the frame which supports any part of the external wall must have the same fire resistance as that required of the entire wall.

Ministry of Education regulations make a definite distinction between load-bearing walls and "external panel walls if not protecting the structural frame."

No fire resistance is required for such panel walls in buildings up to three storeys and a half-hour resistance is required for buildings of four or more storeys (95). For schools of five or more storeys, however, Appendix 1 (6) requires either a continuous panel 3 ft. high, and of one hour's fire resistance between windows, or non-combustible projections. (See *Openings*.) In Ministry of Education regulations the basement is considered a "storey" unless it only contains a heating chamber.

The degree of resistance to fire of any element is concerned solely with the length of time such an element can contain the fire or otherwise perform its function. It is also necessary to ensure that fire cannot spread along or within a wall. This may well happen without necessarily affecting the resistance to fire through the wall, and tests to determine whether materials are combustible or not combustible, are described in British Standard 476 : 1953 (Part 1) *Fire Tests on Building Materials and Structures*. The same Standard also describes tests for surface spread of flame. It should be stated that *fire resistance* generally refers to methods of construction, whilst *combustibility* and *surface flame spread* refer to materials.

The Model Byelaws require walls to be composed entirely of non-combustible materials (38) except in certain single storey buildings which are required to be externally non-combustible (39). Under LCC byelaws, walls must be non-combustible throughout if they are required to have a fire resistance of one hour or more (9.02 (3)), whilst Scottish byelaws require only the external facing to be non-combustible. Ministry of Education regulations only insist on non-combustible materials for walls in buildings of two or more storeys (89).

The degree of resistance to surface spread of flame on combustible internal wall linings is specified only in Scottish byelaws (where it is a requirement of multi-storey dwellings) and Ministry of Education Regulations. Materials with a Class 1 flame spread classification are normally required, but Class 2 and Class 3 materials may be used under certain circumstances (MOE 93).

It should be remembered, however, that "the fire hazard of building boards depends, apart from the nature of the boards themselves, on the conditions under which they are used and, in particular, on the nature and amount of other combustible material with which they are associated."\*

\* National Building Studies Special Report No. 22, *Fire Hazard of Internal Linings*, HMSO, 1955, p. 8.



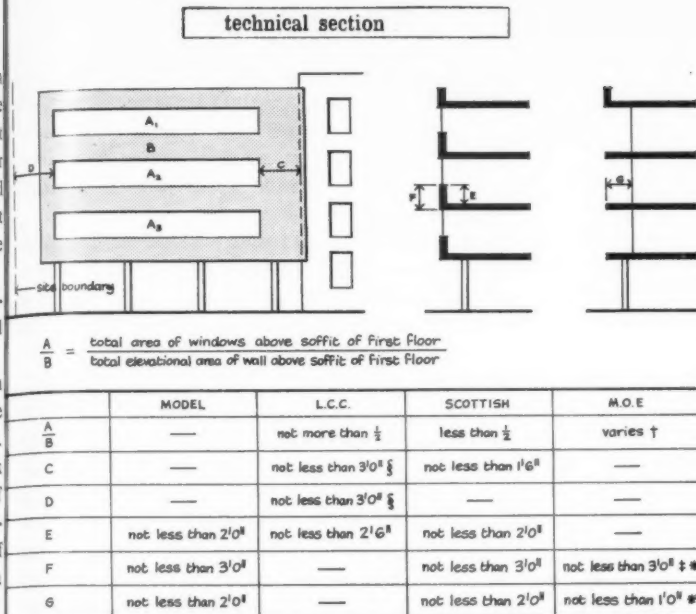


Fig. 2. Restriction of size of openings in walls.

### Openings

Since no byelaw defines a "wall," the only way in which meaning may be given to those byelaws dealing with "walls" is to regard a "wall" as that part of an elevation which is not an "opening," surely a most unsatisfactory state of affairs. The position is complicated by the LCC's requirement that "every building shall be enclosed with walls" (5.01) and "glazing or glass in the thickness of a wall shall be deemed to be an opening." (5.26, (4)). It has been pointed out\* that this requirement, if strictly applied, would result in any glass-fronted cladding panels being considered an "opening." Scottish byelaws define openings as "windows," "doors or other apertures with less than the required fire resistance." Under existing legislation, this would appear to be the most satisfactory definition and is the one most used.

All byelaws make provision for the control of size of openings as a precaution against spread of fire through openings from storey to storey or to adjacent buildings. This control usually takes the form of a minimum distance between the head of an opening and the sill

of the opening immediately above it, although in all regulations except the LCC's a suitable alternative is the provision of incombustible projections at floor level. By the application of a waiver this is also often recognised by the LCC. With the exception of the Model Byelaws, a maximum proportion of opening area to total elevational area is also specified. These stipulations are summarised in Fig. 2.

Confronted with these numerous and often conflicting requirements the architect may be forgiven for a certain degree of confusion over the fire-resisting qualities which are actually required of light cladding. Taken literally, most regulations appear to discourage the use of light cladding. Fortunately, however, enlightened application of existing legislation generally permits light cladding on a wide range of building types, provided certain basic precautions are taken.

The normal metal sheath wall consisting of panels supported in a light metal framing system has no recognised fire resistance. Whatever the fire-resisting qualities of the panel (and two hours resistance is not difficult to obtain in a cladding panel), the metal framing system will fail during the early stages of a fire, and either the panels will drop out, or the frame attachments will fail and the whole wall will collapse.

The accepted and commonest method of dealing with this problem is to use a dwarf or "back-up" wall of the required fire resistance behind the sheath wall. In the event of failure of the sheath wall, the back-up wall, which is supported by the main structure, remains to give (supposedly) a degree of fire resistance. Apart from whether this is effective or not, it is generally acknowledged to be a functionally unsatisfactory solution. The erection of a back-up wall negates many of the supposed advantages of the sheath wall, such as its thinness, speed of erection, and reduction of dead load and raises the question of the validity of the sheath wall in these circumstances. Its purpose is simply decorative and weatherproof and as such its economic and functional justification as an environmental filter is doubtful.

There are a number of alternatives to the provision of a back-up wall when a certain fire resistance is required. The obvious method is to support the fire-resistant panel independently of the sheath wall framing system, but this raises practical difficulties of means of attachment, due to the need to resolve rotational stresses when the panel is attached to the structural floor only. These difficulties are considerably reduced in the grid panel wall, when the cladding panel may be supported on three sides by columns and floor (Fig. 3).

A second alternative is to ensure that the framing system is able to withstand fire for the specified period. At present the only system commercially available which has a tested fire resistance of two hours is the Muragard system developed and manufactured by Gardiner Sons and Co. Ltd., Bristol. The framing consists of 4-in. post-tensioned concrete mullions fixed back to the structure by metal brackets protected from fire by precast concrete mullion fillers which incorporate an expansion joint. Aluminium frames are fixed between mullions and carry windows and cladding panels. The

\* T. A. Markus, "The Glass Curtain Wall, Fire Resistance," ARCHITECTS' JOURNAL, Vol. 126, p. 885, (December 12, 1957).

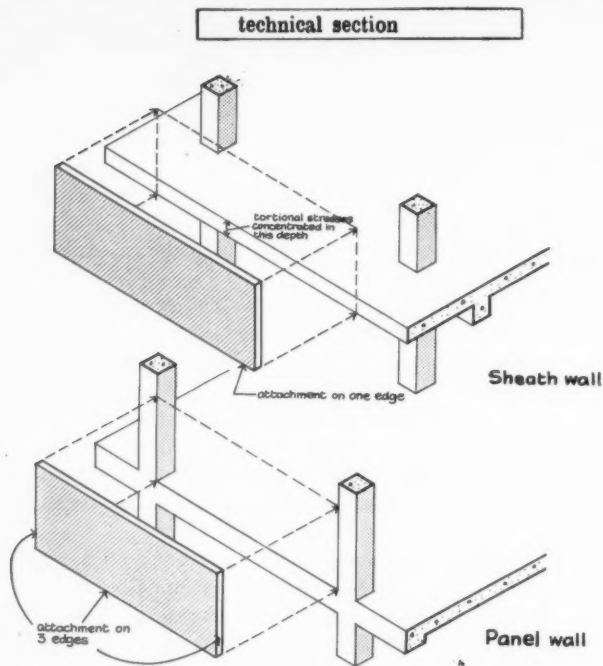


Fig. 3. Independent attachment of cladding panel to structure.

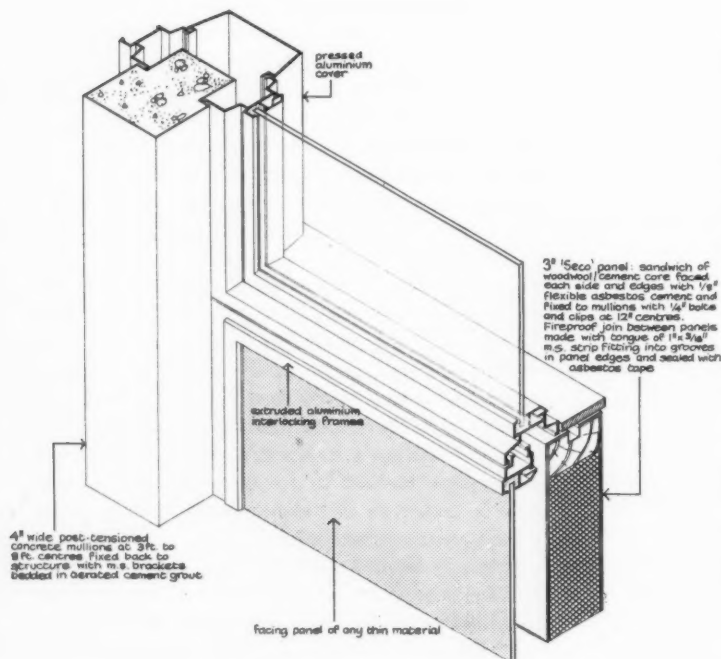


Fig. 4. Sheath wall with 2-hour fire resistance (Gardiners Muragard).

fire-resisting panel is manufactured by Seco Ltd. and consists of a wood wool/cement core faced on each side with  $\frac{1}{8}$ -in. flexible asbestos cement in a timber frame. The outer face may be any material such as glass, metal, timber or asbestos cement which can be "glazed" into the aluminium frame (Fig. 4).

All fixing lugs, cleats and bolts, whether supporting the framing system or the cladding panels, should be suitably protected from heat which will cause their failure, or conduct heat to a more vulnerable material. The enormous thermal movement of metals in a fire should not be forgotten.

All panels which incorporate a cavity are required by building regulations to have fire stops if the wall is constructed wholly or partly of combustible materials. Fire stops may consist of any non-combustible material which stops the cavity at the junction of the wall with "any other wall or with any floor, ceiling or roof and . . . at intervals of not more than fifteen feet" (Model Byelaws 46). Their purpose is to prevent the spread of fire or smoke within the cavity, but stops are generally also required for sound insulation.

The liberal attitude of the Ministry of Education Regulations to light cladding is made possible by their stringent and very definite requirements for means of escape. At the same time it should be remembered that the majority of schools are not in close proximity to adjacent buildings. When open space around school buildings is restricted, slightly more stringent requirements are imposed (Cl. 98). Scottish byelaws are alone in providing a clause (30) which permits the use of buildings which are "deemed to have no external wall," that is, when the wall does not possess the required fire resistance, or is composed of combustible materials. The use of such a wall is permitted when it is separated from adjacent property by a distance determined by the use and size of the building which it encloses.

In the light of these considerations, and with a full understanding of the principles of fire-resistant construction a revision or extension of existing legislation is long overdue. Bearing in mind the twin objects of fire legislation: the safety of life and the prevention of the spread of fire, it is possible that future legislation will follow the example of Ministry of Education Regulations in allowing reduced requirements for external walls, provided that adequate and effective means of escape and smoke control are used and space between buildings restricts the spread of fire. It is also suggested that automatic fire-fighting apparatus, by controlling and preventing the spread of fire may influence the application of statutory requirements. Insurance companies look favourably on buildings equipped with sprinkler systems, and an extension of this principle to the wall surface of the building is worth consideration. An external and automatic spray used in this way at roof level would provide a continuous screen of water down the face of the building and, by protecting the wall from excessive heat, reduce the spread of fire to or from nearby buildings.

## TECHNICAL COLLEGE

at  
designed by KEDLESTON ROAD, DERBY  
GRENFELL BAINES AND  
HARGREAVES

associates P. T. RENNINSON,  
G. L. C. ROSSANT

assistants S. D. JONES, J. BANNISTER  
quantity surveyors C. E. BALL AND PARTNERS

consultants, structural who prepared this cost analysis  
FELIX J. SAMUELY AND  
PARTNERS

SIB File No.

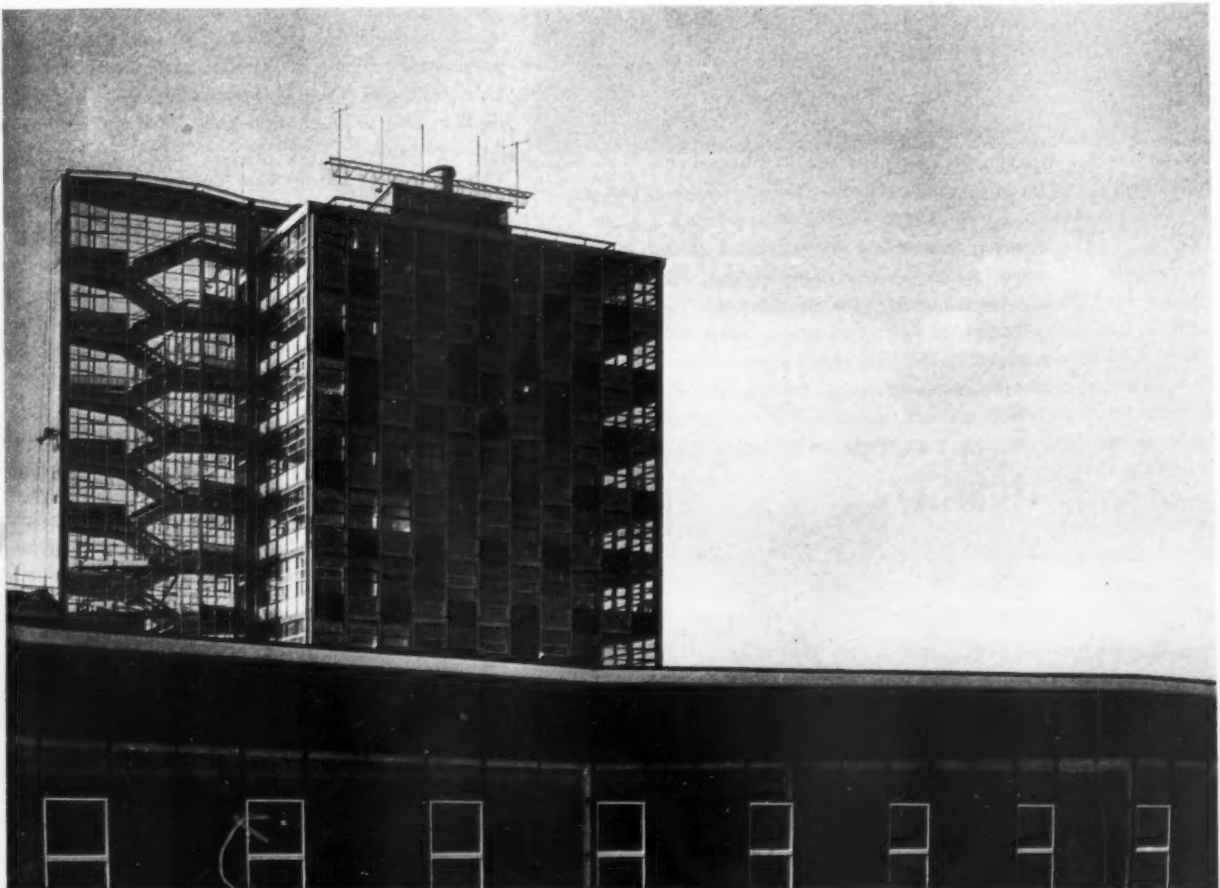
(97)

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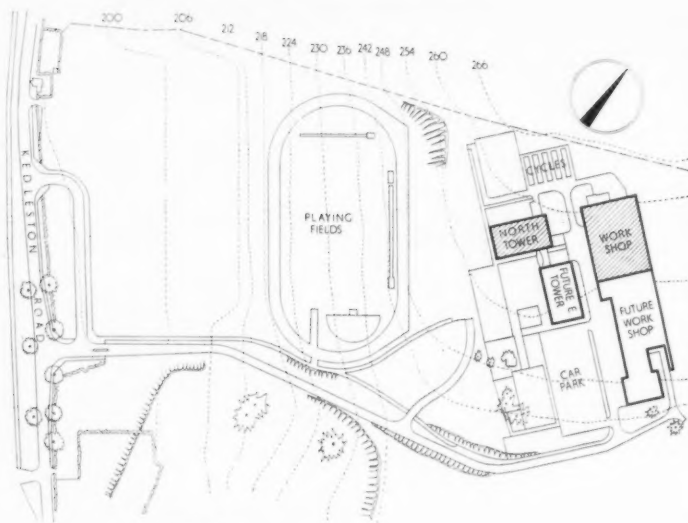
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Cost analysed in this week's issue is the recently completed First Phase of the Derby and District Colleges of Art and Technology, consisting of the first block of the College of Technology and its related workshop block. Already work is going ahead on the second phase, which is joined to the first phase, making landscaping or even clearance of the site for photographing impossible. This building should therefore be regarded as a work in progress.

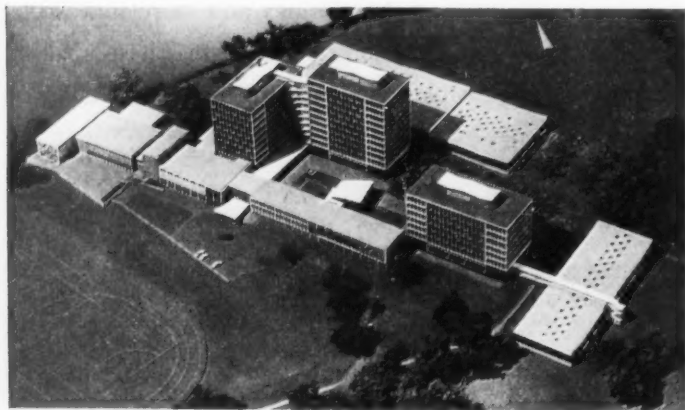
*From the north-east. In front of the tower block is the single-storey workshop block, showing the very slightly pitched roof.*



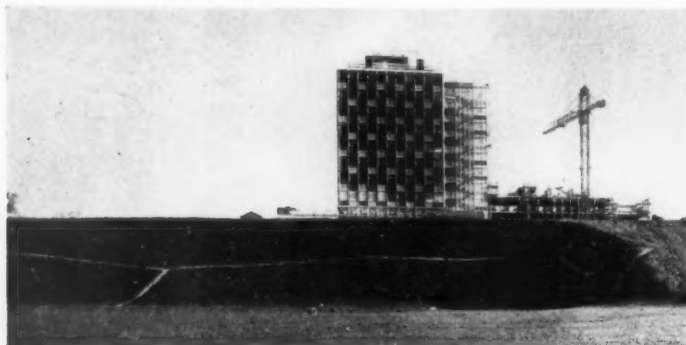
## building illustrated



Site plan



*The original model of the complete college (now somewhat altered) showing the present tower block on left, joined to the second technology block (centre) by a glazed staircase link. Behind these towers, the single-storey workshop block, with second phase extension to the right. The College of Art, the third phase, is to the right of the central concourse, which will unite the blocks at ground level with the student accommodation, common rooms, etc. An assembly hall projects into the centre of the concourse.*



*The tower block from the entrance of the site, with site of playing fields in the foreground, and the second tower block beginning to go up to the right.*

**APPRAISAL:** This is the first part only of a much larger scheme, and consists of a tower block of laboratories and classrooms with a single-storey workshop block alongside. The second stage, which has just begun, will add a second tower at right angles to the first and one floor higher, the two blocks to be linked together from the half landings of a common escape staircase. The workshop block will also be extended, at a slightly lower level than the first part.

The remainder of the second phase will consist of a low screen of administrative and communal accommodation, while the third phase, not yet finalised, will see the building of the College of Art.

The way in which the first tower crowns the hill overlooking the Derby-Kedleston Road, is therefore not the final effect, which will be less clear and dramatic from a distance when the scheme is completed. Internally, however, the scheme will gain greatly from the decision to let the Colleges of Art and Technology share the same site and recreation and communal facilities. A common student concourse will occupy a large area between the buildings, linking and passing through them on the ground floor, where all students will mingle freely and get to know one another. The first tower, eight floors high, contains those departments for which accommodation was most urgently needed, the Chemistry Department on the top three floors, Physics on the 5th and 6th, Mechanical Engineering and classrooms mainly on the 3rd and 2nd, although there are some classrooms on all floors, and part of the Electrical Department on the first floor.

This disposition is logical: the Chemistry Department being on top has simplified ventilation problems and fume cupboard extract; Physics is next to it because these departments have overlapping interests and use some rooms in common; Electrics next to Mechanical Engineering and Physics for the same reason.

This department also needs to be near the workshop and machine laboratory, which, because of the heavy loads involved and also because of noise, have been placed in a single-storey workshop block, separated from the rest of the Electrics Department by the entrance hall, kitchen and dining room which occupy the ground floor of the tower block. This splitting of the department must make for some inconvenience in use, and has involved a fairly heavy cost for connecting cables.

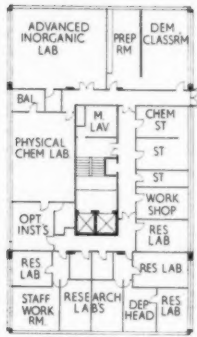
Basically the tower is a "core" plan, with a well-arranged central area containing two 20-person high-speed passenger lifts stopping at alternate half landings only, a smaller goods lift, main staircase and lavatories. This core is slightly off-centre, giving maximum room depths, allowing for a 7-ft. corridor, of 24 ft. and 20 ft. It is rather doubtful whether the theoretical minimum 3 per cent daylight factor recommended for laboratories can be achieved at these distances. The area for circulation, lavatories, etc., on the upper floors is only about 19 per cent of the total floor area excluding the escape staircase, which compares very creditably with the allowance for technical colleges of 33½ per cent. Space saved here and in the workshop will no doubt be used to provide the ground floor concourse later.

The proportions of the block on plan—less than a double square—mean that a large number of the rooms are at corners and when, as is inevitable, some of them are classrooms or

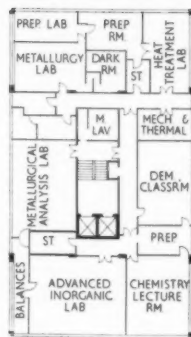


Ground block

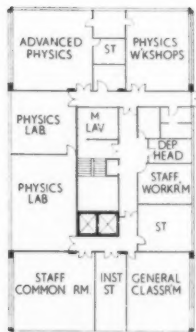




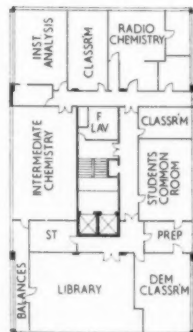
Seventh floor plan



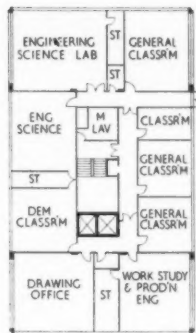
Eighth floor plan



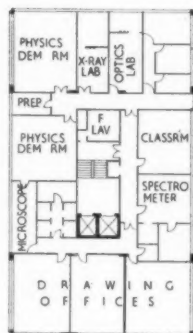
Fifth floor plan



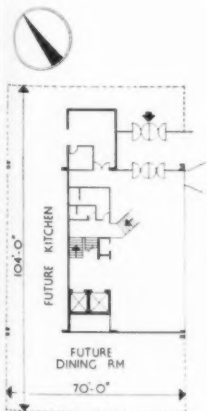
Sixth floor plan



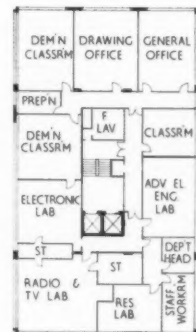
Third floor plan



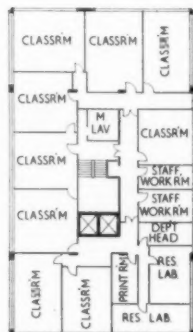
Fourth floor plan



Ground floor plan, tower block [Scale: 1/8" = 1' 0"]



First floor plan



Second floor plan

demonstration rooms the instructor has the disadvantage of facing a window wall. In addition, some of the classrooms are awkward shapes, with markedly unequal sides, the shorter being the window wall.

Some of the research laboratories have been placed adjacent to staff rooms, the idea being to make it easy for members of the staff to do some private research work there—a small inducement to attract teachers of high quality who might otherwise be attracted to industry by the higher salaries?

The structure is basically an in-situ load-bearing concrete core with precast H-frames in the external walls, each frame carrying four precast concrete beams and staggered floor by floor. This is expressed on the elevation only in modified form. The floor between the beams is of in-situ concrete on corrugated asbestos-cement sheet permanent shuttering. It is worth noting that erection time in the course of building came down from seven weeks per floor to three or four, and this improved rate of progress should be maintained on the later blocks with similar structure. The site decision to precast the core staircase in order to get maximum use from the tower crane can also be repeated.

Because the beams do not bear directly on the columns, it is a simple matter to run vertical services on the inside face of the columns, and this has been done with drainage at a number of points round the perimeter, although this system inhibits flexibility and the use of window space to a small extent. The ceilings generally are of acoustic tile on battens, leaving a space which is useful for some services but not enough to conceal all runs. Where larger pipes occur they are generally concealed above small areas of lowered ceiling and no pipe runs are visible below the ceiling.

The precast H-frames in the external walls are neatly defined on elevation by making the small precast concrete unit which serves as permanent shutter for the in-situ joint between columns a dark colour, thus following what is almost the basic principle of jointing—if you cannot be sure of hiding it, emphasise it. The elevations are made to express the fact that the frames are staggered, by a chequered pattern of under-sill panels, and painted opening lights.

The columns occur at 6 ft. 2 in. centres, and this has conflicted with the very inflexible requirements of this kind of accommodation in a number of cases. Generally this has been solved in a very direct way by simply putting a full-height solid panel in the external wall to take a partition at an intermediate point. But there has been some manipulation in placing, for in some cases a partition has been kinked to meet a column, where a solid panel was considered undesirable, and there are contrary cases of a solid panel being put where there is no partition behind it.

This arrangement again inhibits flexibility, but the architect's opinion on this has been summed up in a phrase—"the flexibility myth." Whether this is a correct judgment could be decided by some follow-up studies on similar buildings where greater flexibility has been provided for. Certainly in the designing of technical colleges it often seems as if all the requirements are continually changing, at least up to the moment of completion and handover: how much they are liable to change afterwards is an interesting question for investigation. On this job the architects were faced with changes in the schedule of accommodation after building started.

At the corners of the tower the structure turns round

building illustrated

90 degrees, precast concrete beams spanning from the frames in the short sides back to a wind-bracing frame just outside the core. It would surely have been much neater if the columns could have been put in the ends of the core? However, there is a conflict here, since the plan, and therefore also the requirements of lighting and ventilation, goes all round the perimeter in a quite undifferentiated way. Faced with this dilemma, the architects decided to express the structure, first by omitting the H-frames at the ends of the long sides of the building, and second by changing the colour and material of the under-sill panels, giving up the chequered pattern both of under-sill panels and of opening lights. The justification for these changes is made clearer by the ground floor structure and it seems a pity that this interesting but somewhat expensive feature will largely be hidden by the kitchen and dining room.

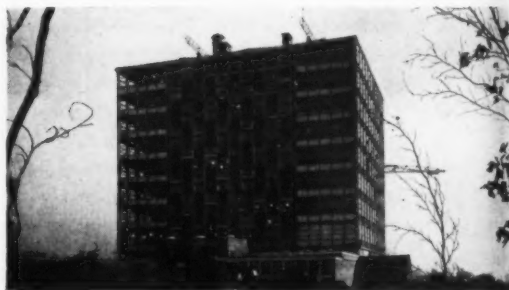
The whole design is a variant on the established formula of an area of repetitive pattern with irregularities at ground floor and roof. However, the impact is weakened and the contrast blunted because the roof is not a strong feature and the repetitive middle area has its own irregularities. There is a splendid view from the roof and full advantage is taken of the view in the glazed link staircase, already a most exciting object from both inside and outside. This staircase forms a shared secondary means of escape from the two towers, thus reducing the number of staircases required from four to three, and will also be the link between them, facilitating a more flexible use of classrooms for example. (The split level however means that trolleys and such things must be taken down to the ground and then up again.)

The single storey workshop (plan, page 448) provides a simple and effective foil to the tower: the only visible point of similarity being the up-and-down roof line. In fact, this building also has a core plan and one which is even more economical than in the tower block—approximately 13 per cent of the area for circulation and lavatories. The structure of the workshop block is in steel with box stanchions and a grid of light welded girders for main and secondary beams, the wavy roof line being achieved by alternating rows of columns of different lengths. The roof finish is 3-ply felt and the slopes are therefore wise, but the relationship of the sloping soffit to the continuous glazing is unsatisfactory, merely cutting across a standard rectilinear grid. Internally, this slope is so slight that it comes dangerously close to appearing unavoidable rather than actively desired. However, the roof structure provides good service space, and a very neat flush ceiling incorporating heating and ventilating grilles. The interior of this block is well handled. Walls and partitions are of untreated, fairfaced brickwork or concrete blocks of a most attractive slightly open texture, contrasting well with the wide, smooth joints. The standard of workmanship is good, and clear, strong but by no means obvious colours are used as simple mono-planar accents.

Rooflights are used here in considerable numbers, some rooms being entirely top lit. Because of the roof construction these have deep reveals, useful in providing the required cut-off, and the sides are sloped. This may improve slightly the gradation of light, but in this instance, where the unlit area is about equal to the area of the rooflight, it still leaves a considerable contrast at the lower angle. A better functional answer might have been a double chamfer, or a curve?



*The tower block from the north west, with single storey kitchen and dining hall projecting in front. The under-sill cladding in the centre of the tower is in exposed aggregate slabs in two colours, at the ends in opaque coloured glass. The full-height solid panels which take some partitions at an intermediate point between the frames, are surprisingly unobtrusive and give a pleasant random-ness.*



*From the west, giving view of the dining room block.*



*On the roof of the tower block, a successful attempt has been made to initiate some order into an unavoidable proliferation of tanks, ventilation plant, fume cupboard extracts, lift motor rooms and aerials. Here the "sentry box" houses a fume cupboard extract fan and roofhouse to right contains cisterns, lift motors, air conditioning plant for chemistry department, and supports a space frame for TV and radio aerials. White and grey asbestos cement sheet cladding.*

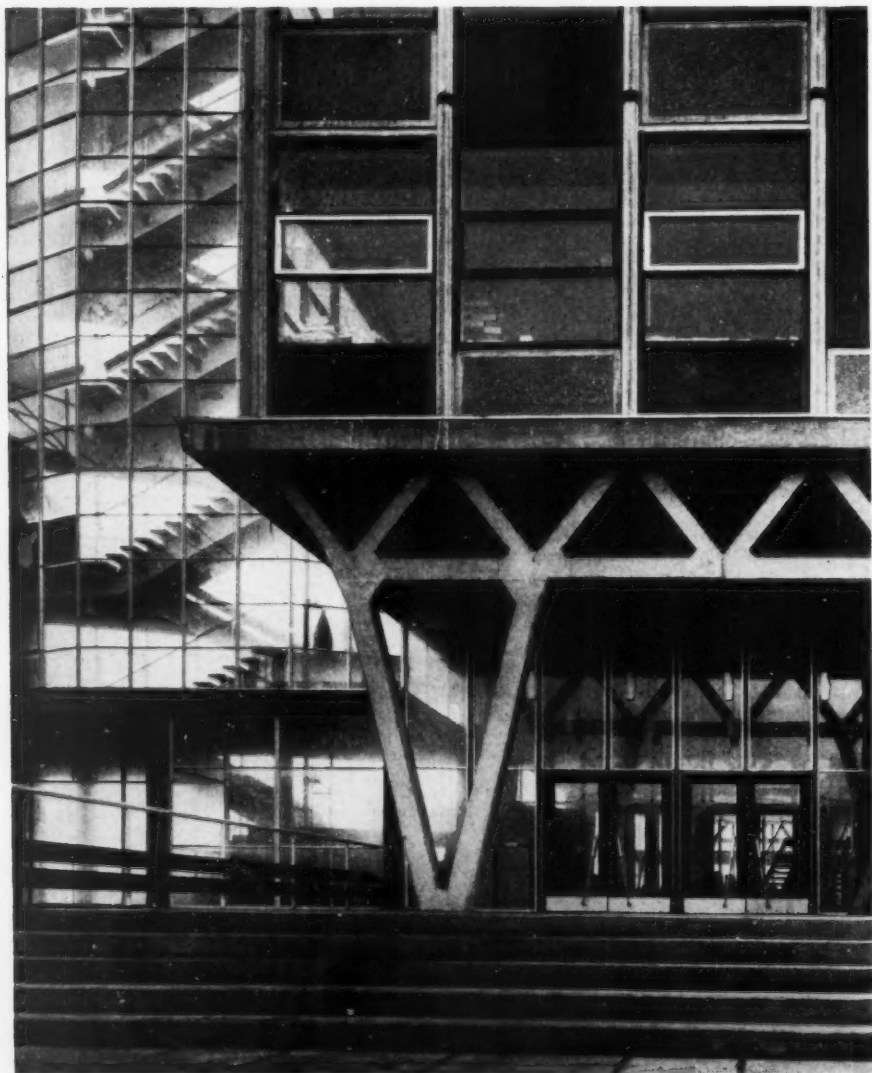


*The main entrance to the tower block, with link staircase on left. Water and oil tanks in the foreground of the link obstruct the clear view of this feature at ground floor level.*

building illustrated



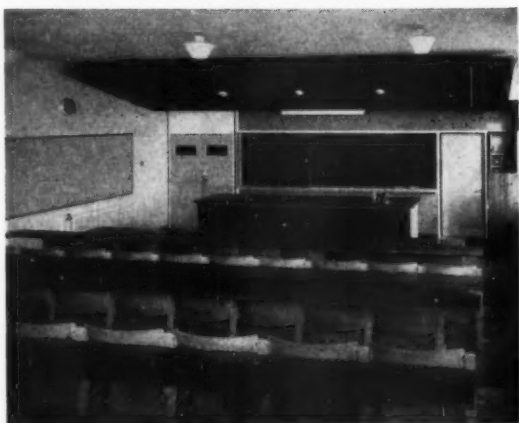
*Left: inside the link staircase wing. The use of coloured glass undersill panels at landings succeeds splendidly, particularly when it flashes and glows with colour against the sun. Below, left: close-up of the entrance.*



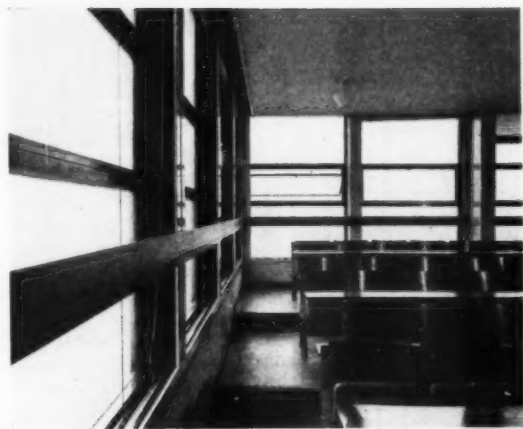




*Left: the entrance hall. The stairs lead to the lifts at half-landing level.*



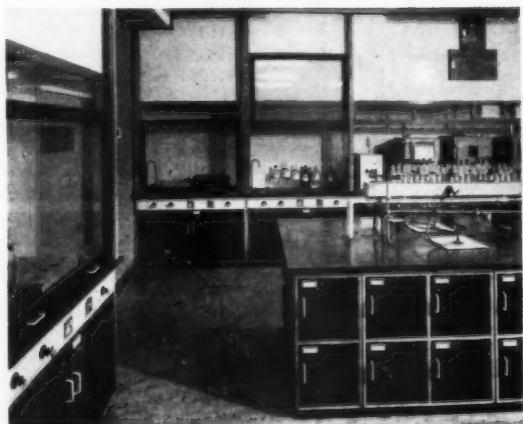
*Below left: in the chemistry lecture room on the eighth floor. The lecturer has to face the window.*



*Below left: the chemistry lecture room, looking at the two window walls. Note the services duct to the right, where the pipes are boxed in as an extension of the column.*

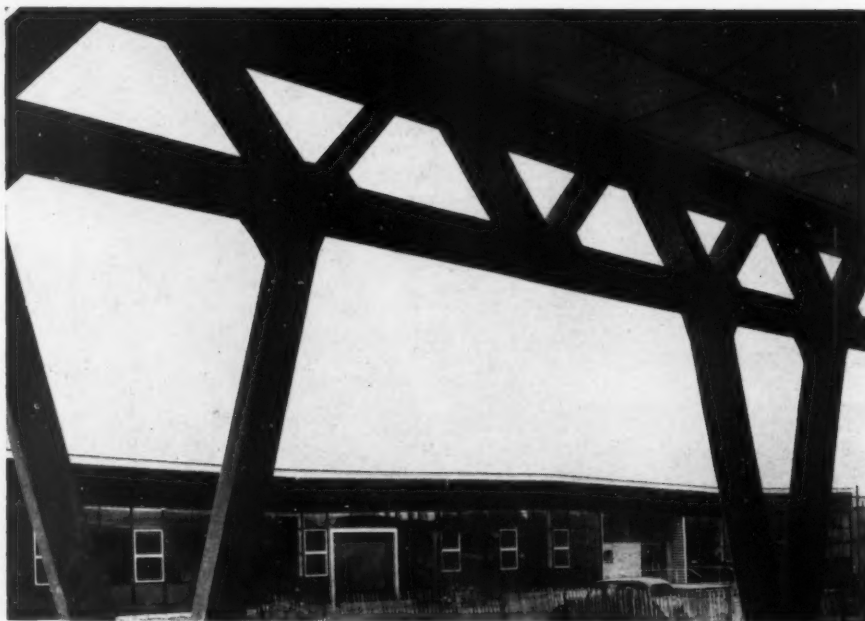


*Above: a bench panel in the electrical department.*



*Left: a chemistry bench, showing cupboards beneath and aluminium scaffolding on top.*

building illustrated



Above: the workshop block seen from the ground floor of the tower block.

Right: interior of a laboratory in the workshop block. Fairface brick and painted concrete walls and acoustic tile ceilings incorporating heating and ventilating grilles, rooflights and access doors to services.



Ground floor plan, workshop block [Scale:  $\frac{1}{4}$ " = 1' 0"]

CLIENT'S

Complete and Tech College, site, and used for served a Derby, and committee was set u architects new prem and a Co would ha and shari consists o for Mech Chemistr drawing common recreation a large an would m sections o concourse workshop pass thro

SITE

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PLANNING

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## analysis

## CLIENT'S REQUIREMENTS

Completely new premises for advanced education in Art and Technology to replace Derby's original Technical College, built in late Victorian times on a very restricted site, and two pre-war buildings, all of which are now to be used for elementary technical education. These buildings served a much wider area than the County Borough of Derby, and when their replacement was agreed to a joint committee of representatives from Derby and Derbyshire was set up to work out the requirements and choose the architects. From the beginning it was envisaged that the new premises should be planned for both a College of Art and a College of Technology and that students from both would have everything to gain by being on the same site and sharing communal facilities. The first phase of building consists of the College of Technology, including laboratories for Mechanical and Electrical Engineering, Physics and Chemistry, together with associated lecture rooms and drawing offices. The two colleges when complete to share common rooms, library, refectory hall, sports and recreation facilities, and a concourse occupying a large area on the ground floor where students would mingle freely and get to know each other. All sections of the colleges were to be visible from this concourse and students passing from classrooms or workshops to library or refectory or common rooms were to pass through it, making it the focal point of all student life.

## SITE

The site consists of a western slope which rises from the main approach road to Derby to a long crest 75 ft. above and overlooking Markeaton Park. At the base and top there is fairly level ground, while between the ground slopes fairly steeply. Area of the site is 39.71 acres.

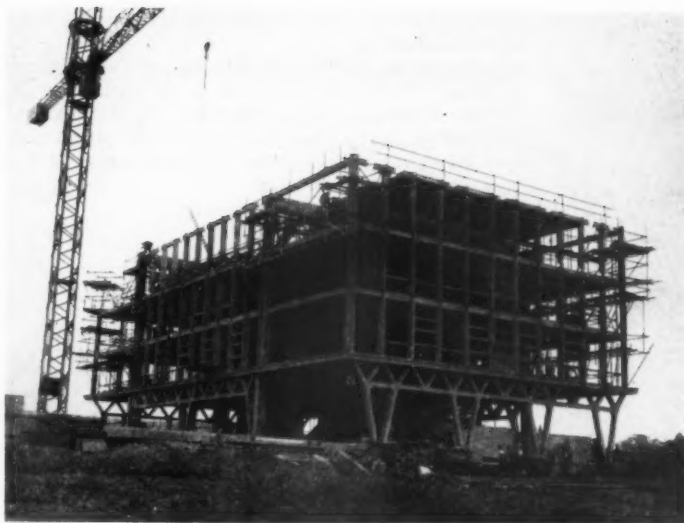
## PLANNING AIMS

The first major planning question was whether to site the buildings low down at the front of the site, or high up away from the road. Despite problems of access, the top of the slope was finally chosen, with the playing fields in front to give an adequate setting for the large complex of buildings required. Terraced levels provide football and cricket pitches, the sloping embankments between forming natural stands for spectators.

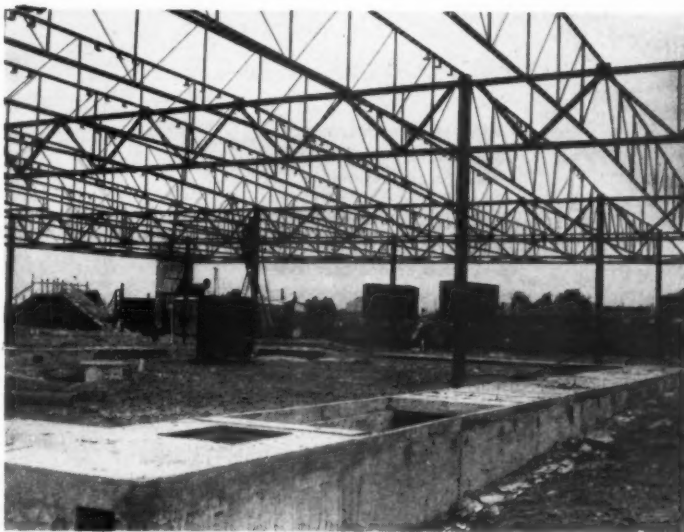
An extensive landscape planting scheme will define the large areas of the site, and the main approach and will relieve the geometrical lines of the buildings, and the large car-park area will be improved by regular planting of trees to screen the cars and cut down glare from reflection.

It was decided to poise the multi-storey buildings required over a large concourse, flowing freely between the three main masses, and providing space for informal meetings, exhibitions, dining, snacks, and in short a place for students from all departments to mingle freely. A group of common rooms in a central position is easily accessible from all parts of the concourse. Between the three main blocks and the Administration block a large open area is planned as an extension of the concourse. Floor treatments and landscaping are designed to link open and roofed areas.

For the laboratory and teaching blocks the core principle has been adopted: main staircase, lifts and lavatories form a central core which is strategically placed in the main rectangle of the plan to provide flexibility in accommodating different sized rooms, with a minimum of circulation area giving access to them. A link staircase connecting the north and east towers of the technical college enables escape provision for the two tall blocks to be met by three



*The tower block under construction. Precast concrete column, beam and sill-rail frames in external walls each carry four precast concrete floor beams supported on either side of the verticals. H-frames staggered on elevation and jointed with black precast concrete shuttering piece. Floor beams span back to load-bearing core, or from the end elevations to a wind bracing frame.*



*The workshop block under construction. Light welded steel frame, with columns of two different lengths to give the undulating roof.*

## analysis

staircases instead of four, as would have been the case with two isolated towers.

Considerable open planning in the communal parts of the building, combined with the core principle, has made it possible to bring the floor areas within the permitted limits while providing large spaces for the concourse. All lifts and main staircases rise to the towers from the concourse, which provides access to all communal rooms.

## SUMMARY OF PHASE I

## Tower Block

Ground floor area: 3,565 sq. ft.

Total floor area: 74,943 sq. ft.

Type of contract: RIBA.

Tender date: May 1956.

Work began: September 1956.

Work finished: August 1959.

Tender price of foundations, superstructure, installations and finishes: £354,816.

## Workshop block

Total floor area: 19,060 sq. ft.

Type of contract: as above.

Tender date to work finished: as above.

Tender price of foundations, superstructure, installations and finishes: £76,743.

Tender price of external works, drainage and ancillary buildings for Phase I: £43,567.

Total for Phase I: £475,126.

## Tower block

## Preliminaries and insurances

Cost includes site offices, plant, height money, protection and insurances.

## Contingencies

## Work below ground floor level

Mass concrete foundations.

## STRUCTURAL ELEMENTS

## Frame or load-bearing element

Precast concrete mullion wall construction supporting precast prestressed floor beams spanning to in situ concrete core.

## External walls

Partly formed by mullion wall construction, with infilling of exposed aggregate concrete panels, glass and mineral rendered panels on asbestos and compressed straw board.

$$\text{Ratio: } \frac{\text{solid wall}}{\text{floor area}} = \frac{0.164}{1}$$

## Windows

Painted softwood frames with metal opening casements to upper floors, metal windows to ground floor.

$$\text{Ratio: } \frac{\text{windows}}{\text{floor area}} = \frac{0.202}{1}$$

## External doors

Hardwood and toughened plate glass.

$$\text{Ratio: } \frac{\text{doors}}{\text{floor area}} = \frac{0.003}{1}$$

## Upper floors

Prestressed inverted tee beams at 3 ft. 1 in.

centres, spanning between 25 ft. and 30 ft.

2½-in. in situ concrete floor slab on permanent shuttering spanning between tee beams.

## Staircases

Two staircases, each 5 ft. 6 in. wide.

Total rise, 93 ft.

## Roof construction

Similar to floor construction, with light weight screed.

In situ concrete roof slab to penthouse.

Area: 8,900 sq. ft., including penthouse roof area, 2,000 sq. ft.

## Rooflights

Nil.

## Glazing

¼-in. polished plate and toughened plate glass to ground floor screens.

32-oz. glass to upper storey windows and link staircase.

Total of structural elements: 28s 0d

## PARTITIONS AND FITTINGS

## Internal partitions

4-in. foam slag partitions.

## Internal doors

Flush doors of painted softwood between rooms.

Hardwood glazed with ¼-in. georgian wired glass to corridors and staircase.

No. of single: 181. Pairs of double: 78.

## Ironmongery

Anodized aluminium throughout.

Ironmongery to laboratory benches is plastic covered

## Fittings

Laboratory fittings in beech and mahogany with iroko working tops.

Total of partitions and fittings: 16s 2½d

## FINISHES

## Floor finishes

| Type of finish                   | Area in sq. yds. | Price per sq. yd.    |
|----------------------------------|------------------|----------------------|
| Chemical resistant p.v.c.        | 1,312            | 22s. to 24s. 1d.     |
| Lino in corridors and classrooms | 3,316            | 16s. 6d. to 17s. 8d. |
| Stonewood in non-chemistry labs. | 1,804            | 25s. 3d. to 25s. 9d. |
| Terrazzo staircase               | 43½              | 58s. 6d. to 72s. od. |
| Thermoplastic                    | 68               | 11s. 2d.             |

## Wall finishes

Plaster generally

## Ceiling finishes

Plaster acoustic tile with silicone insulation between the tile and the batten suspending members.



## analysis

*Tower block : continued***Roof finishes**

Felt and insulation board on light-weight screed.  
White spar chipping finish.

**Decorations**

Emulsion generally. Semi-gloss paint in circulation areas.

**Total of finishes: 10s 8½d**

**SERVICES****External plumbing**

Lead and zinc flashings only.

**Hot and cold water installation**

Cold water pumped to storage tanks in the penthouse.

High pressure boosted cold water supply throughout chemistry labs.

**Sanitary fittings**

White glazed fireclay. Spray taps.

| Type of fitting  | No. of each type |
|------------------|------------------|
| Lavatory basins  | 30               |
| W.c.s            | 20               |
| Urinals          | 6                |
| Cleaners' sinks  | 6                |
| Laboratory sinks | 134              |

**Heating and ventilation**

An oil-fired boiler and low pressure hot water system.

Mechanical extract and heated ingress to all chemistry floors with background radiator heating. Elsewhere, hot water radiators and blower units.

Internal temps.: 65° F. and 30° F. externally.

Allowance has been made for height and exposure factor.

Air change, 1; Classrooms, 2; Corridors, 3; laboratories, 8-10 (extract plenum installations); internal lavatories, 12.

U of walls: 0.5. U of roof: 0.3.

**Gas installation**

Gas supplies to all laboratories, with remote control to fume cupboards.

**Electrical installation**

A.c. supply 240 volts with 13 amp. ring mains. Local DC supplies.

**Lifts**

Two 20-person interconnected control system, high speed lifts, stopping at alternate landings.

One 8-person staff lift, slow speed, stopping at each floor.

**Total of services: 28s 2½d**

**Drainage****Total per sq. ft. of floor area:**

£354.816 (net cost excluding external works)

74.943 (measured inside external walls)

*Workshop block*

s d

5½

**Preliminaries and insurances and contingencies**

s d

6 7½

**Work below ground floor level**

9 10

1 9½

Extensive hardcore filling under floors with reinforced concrete service ducts.

**STRUCTURAL ELEMENTS****Frame or load-bearing element**

7 5½

Steel box columns with welded tube trusses.

**External walls**

2 2

3

Cavity brick walls and ½-brick walls from floor to sill behind external metal windows.

4 1

Ratio:  $\frac{\text{solid wall}}{\text{floor area}} = \frac{0.214}{1}$

**Windows**

4 2½

Metal windows full height to underside of perimeter trusses. Deep timber fascia above

5

Ratio:  $\frac{\text{windows}}{\text{floor area}} = \frac{0.277}{1}$

**External doors**

3½

Hardwood, glazed.

Ratio:  $\frac{\text{doors}}{\text{floor area}} = \frac{0.011}{1}$

9 6½

Pairs of double: 2.

2 roller shutters.

**Upper floors and staircases**

Nil.

**Roof construction**

5 8½

M.s. decking.

**Rooflights**

2 3½

No. of lights: 45. Total area: 720 sq. ft.

**Glazing**

9½

32-oz. glass.

1 1½

**Total of structural elements: 23s 1d**

**PARTITIONS AND FITTINGS**

7 6½

**Internal partitions**

3 1½

6-in. hollow concrete block.  
½-brick sand lime.

5 2½

**Internal doors**

5½

22 flush softwood painted, between rooms.  
17 hardwood glazed, in corridors.

No. of single: 24. Pairs of double: 12.

**Ironmongery**

8½

Anodised aluminium.

0½

**Fittings**

2 2½

Beech and mahogany with iroko or merranti working tops generally.

= 94 8½

**Total of partitions and fittings: 6s 6d**

## analysis

*Workshop block : continued***FINISHES****Floor finishes**

Stonewood.

**Wall finishes**

Fair-faced brickwork with glazed tiling in the lavatories.

**Ceiling finishes**

Acoustic plaster tiles with silicone insulation between tile and suspension battens.

**Roof finishes**(Cost included with roof construction.)  
Insulation board and felt with asphalt.**Decorations**

Emulsion paint and water paint.

**Total of finishes: 8s 6d****SERVICES****External plumbing**

Single length of zinc cover flashing.

**Hot and cold water installation**

Copper services and fittings to lavatory block. Hot water from boiler serving whole college.

**Sanitary fittings**

|   |   |
|---|---|
| Lavatory basins                         | 8 |
| W.c.s                                   | 3 |
| Urinals                                 | 1 |
| White glazed fireclay laboratory sinks. | 7 |

**Heating and ventilation**

Generally high level blower units fixed above ceiling with flush grilles.

**Gas installation**

Steel tube and fittings, supplying gas taps to benches.

**Electrical installation**

13 amp. sockets. Services include supplies to lathes and heavy machinery supplied by education authority.

**Total of services: 23s 0d****Drainage**

Mainly c.i. within building.

**Other elements**

External works: roads, drainage, etc. £43,567.

**Total per sq. ft. of floor area:**

£76,743 (net cost excluding external works)

19,060 sq. ft. (measured inside external walls)

**COST COMMENTS**

It will be necessary to await the cost analysis of the completed project to see whether it falls within the MOE cost limits. Phase I must inevitably be costlier than the remainder of the scheme, because it bears the cost of providing the main heating and service requirements. And the tower block is so designed as to provide general accommodation at first floor level, but will later be adapted on the ground floor, with external cladding, to provide kitchen and dining areas for the entire building.

Services for the tower block, at 28s 2½d per sq ft. have taken a large chunk of the total cost, but what went into vertical wastes, for instance, has been saved in other directions, e.g., drainage costs cut to a minimum.

The vertical circulation and the services might well have been more costly. On the other hand the horizontal planning in this project—that is to say, the workshop block—seems fairly expensive, if the workshop foundations, which are inflated by hardcore filling made necessary by site conditions, are any indication.

It is interesting to compare the costs of the structural elements in these two blocks:

|               | <i>Tower block</i> | <i>Workshop block</i> |
|---------------|--------------------|-----------------------|
| Foundations   | 3s 0½d             | 9s 10d                |
| Structure     | 28s 0d             | 23s 1d                |
| Roof finishes | 5½d                | Incl. above           |
| Lifts         | 5s 2½d             | Nil                   |
|               | 36s 8½d            | 32s 11d               |

Apart from the lifts the total cost per square foot for the two buildings is very similar, which is surprising considering the very different construction and user requirements of each.

This result makes one ask whether the workshop construction is more costly than need be.

For instance, identical ceiling finish costs 2s 8d in the tower block and 3s 0½d in the workshop. More difficult fixing conditions might well be the answer in this case. Provision of architectural treatment to an undulating roof will incur higher costs than to a flat roof. Also the rooflights in the workshop block work out at a unit cost of 60s per square foot, and were made necessary by a layout resulting in lack of perimeter lighting.

**CONTRACTORS**

*General contractor:* Gee Walker & Slater Ltd. *Clerk of Works:* M. Wilby. *Sub-contractors—Heating and ventilation:* R. Longdon & Co. *Plumbing:* J. H. Shouksmith & Son Ltd. *Electrical installation:* C. Stanley Tagg Ltd. *Lifts:* Express Lifts Co. Ltd. *Laboratory fittings:* Cygnet Joinery Ltd. *Laboratory wastes:* QVF Ltd. *Fume cupboard extraction:* North of England School Furnishing Co. Ltd. *Laboratory service fittings:* J. S. & F. Folkard Ltd. *Laboratory sinks:* J. & R. Howie Ltd. *Suspended ceilings:* G. C. Horsburgh & Co. Ltd. *Linoleum flooring:* The Wardwick Flooring Co. *Composite flooring:* Stonewood Flooring Co. Ltd. *Metal windows:* Crittall Manufacturing Co. Ltd. *Precast concrete:* F.C. Construction Ltd. *Ironmongery:* Neville Watts Ltd. *Terrazzo:* Conways Ltd. *Wall and floor tiling:* H. V. Mansfield & Co. Ltd.; Stonewood Flooring Co. Ltd. *Cladding panels:* Stramit Boards Ltd.; G. R. Speaker & Co. Ltd. *Sills and w.c. partitions:* G. R. Speaker & Co. Ltd. *Sanitary ware:* Buxton Dawson Ltd. *Steel decking:* Robertson Thain Ltd. *Rooflights:* Helliwell & Co. Ltd. *Lighting protection:* A. W. Elliott (Steeplejacks) & Co. Ltd. *Roof covering:* Neuchatel Asphalte Co. Ltd. *Road surfacing:* Constable Hart Ltd. *X-ray protection:* Newton Victor Ltd. *Blinds:* Hopewells Ltd. *Reinforcement:* GKN Reinforcements Ltd. *Structural steelwork:* Scaffolding (Great Britain) Ltd. *Balustrades:* Wrought Iron Products Ltd.

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1 6½

2 0

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7 6

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12 4½

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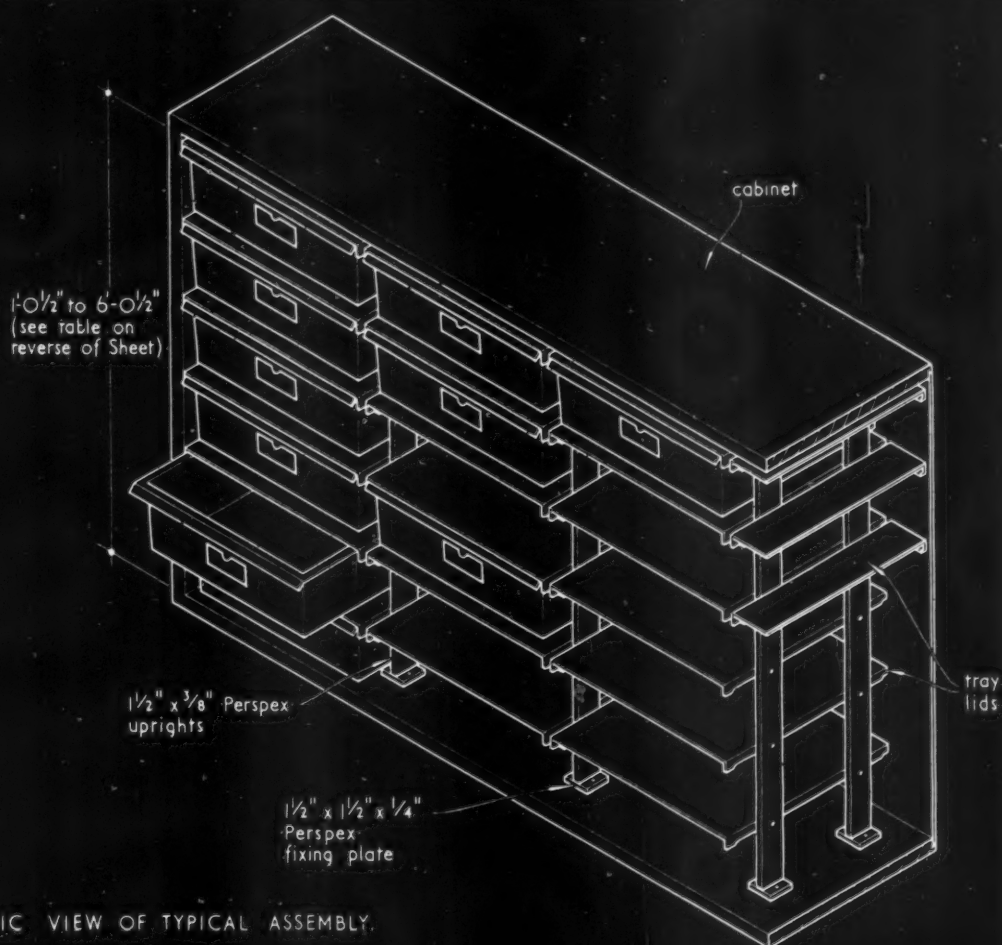




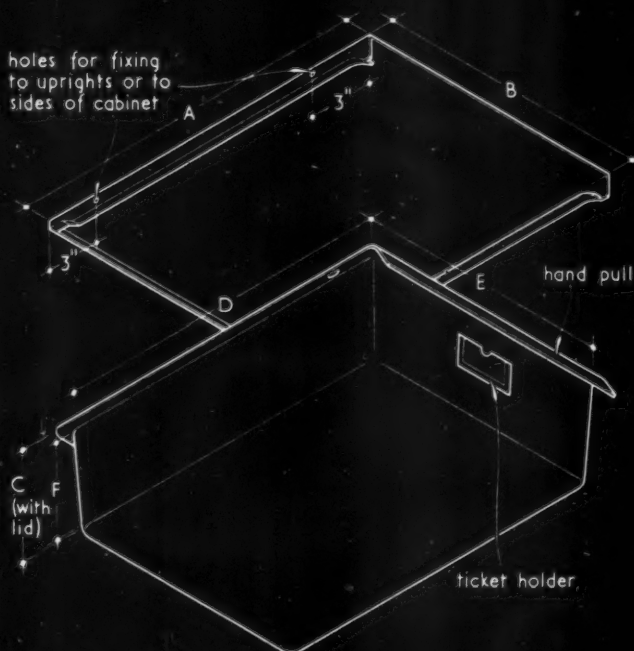
## SPECIALISED FITTINGS | SHOPS

43.H3

The Architects' Journal Library of Information Sheets 757. Editor: Cotterell Butler, A.R.I.B.A.



ISOMETRIC VIEW OF TYPICAL ASSEMBLY.



DETAIL OF TRAY AND LID.

| overall sizes including lid (ft. and in.) |     |       | internal sizes of trays (ft. and in.) |         |       |
|---|-----|-------|---------------------------------------|---------|-------|
| A   | B   | C     | D                                     | E       | F     |
| 1-4 1/4                                   | 1-0 | 3 3/4 | 1-2 3/8                               | 10 1/4  | 3 1/2 |
| 1-6                                       | 1-1 | 3 3/4 | 1-4 3/8                               | 11 1/4  | 3 1/2 |
| 1-10 3/4                                  | 1-1 | 3 3/4 | 1-9 3/8                               | 11 1/4  | 3 1/2 |
| 1-6                                       | 1-1 | 4 1/2 | 1-4 3/8                               | 11 1/4  | 4 1/4 |
| 1-6                                       | 1-3 | 4 1/2 | 1-4 3/8                               | 1-1 1/4 | 4 1/4 |
| 1-8 7/8                                   | 1-1 | 5 3/4 | 1-7 1/4                               | 11 1/4  | 5 1/2 |

TABLE OF SIZES OF TRAYS.

## 43.H3 ·SELPHASTA· DISPLAY FITTINGS

**This Sheet** describes Selphasta display fittings which consist of Perspex trays and fixing components for the storage and display of merchandise.

**Material**

All components are made from clear Perspex.

**Components**

**Trays:** The trays are moulded from  $\frac{1}{8}$  in. thick sheet and have an integral finger-pull and a ticket holder applied to the front. The sizes available are as given in the table on the face of the Sheet.

**Lids:** These are also made from  $\frac{1}{8}$  in. thick sheet with runners to take the trays moulded on the sides. They are available in sizes to fit the various trays. The depth of the runner tapers at the rear so that, when the tray is pushed right in, a "pip" on the underside of the tray rim, together with the taper, lifts the tray up against the lid, making it dustproof.

**Runners:** Separate runners are available for use where lids are not required to cover the trays.

**Uprights:**  $1\frac{1}{2}$  in. by  $\frac{3}{8}$  in. Perspex uprights are available, with  $1\frac{1}{2}$  in. by  $1\frac{1}{2}$  in. by  $\frac{1}{4}$  in. fixing plates at top and bottom drilled for two fixing screws. The screw holes for fixing lids or runners are pre-drilled, the centres varying for the different tray depths. The following table gives the height of uprights for tiers of trays of varying number and size, the maximum height being 6ft. 0 $\frac{1}{2}$  in. for twelve 5 $\frac{1}{4}$ -in trays:

| Number of trays | Height of uprights (ft. and in.) |                            |                            |
|-----------------|----------------------------------|----------------------------|----------------------------|
|                 | 3 $\frac{1}{4}$ -in. trays       | 4 $\frac{1}{2}$ -in. trays | 5 $\frac{1}{4}$ -in. trays |
| 3               | 1 0 $\frac{1}{2}$                | 1 3 $\frac{1}{8}$          | 1 6 $\frac{1}{2}$          |
| 4               | 1 4 $\frac{1}{2}$                | 1 8                        | 2 0 $\frac{1}{2}$          |
| 5               | 1 8 $\frac{1}{2}$                | 2 0 $\frac{1}{2}$          | 2 6 $\frac{1}{2}$          |
| 6               | 2 0 $\frac{1}{2}$                | 2 5 $\frac{1}{4}$          | 3 0 $\frac{1}{2}$          |

**Installation**

For installation in a wooden cabinet the Perspex uprights are fixed by screws through the fixing plates provided. They must be accurately positioned for the tray to run smoothly. The tray lids are secured to the uprights by the special screws provided. If desired, timber partitions may be fitted at suitable centres instead of the Perspex uprights and the runners fixed to these by wood screws. Special fixings are available for fixing to glass counters designed to match the frame of the counter.

**Maintenance**

The trays should be polished with anti-static Perspex polish which resists dust, removes any appearance of cloudiness and leaves a lasting high polish. The polish is obtainable from the manufacturer.

*Compiled from information supplied by:*

**Harris and Sheldon (Display) Limited.**

Address: Bilston Road, Willenhall, Staffs.

Telephone: Willenhall 821.

London Office: 46, Great Marlborough Street, London, W.1.

Telephone: Gerrard 8955.

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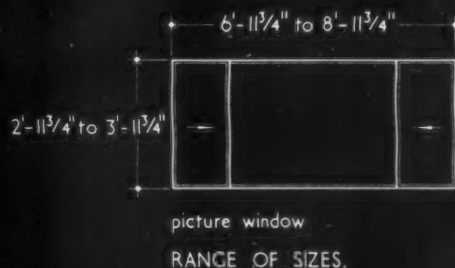
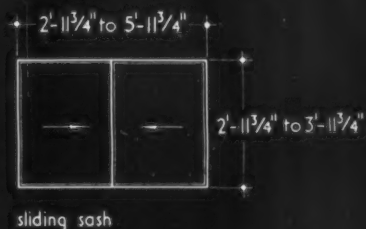
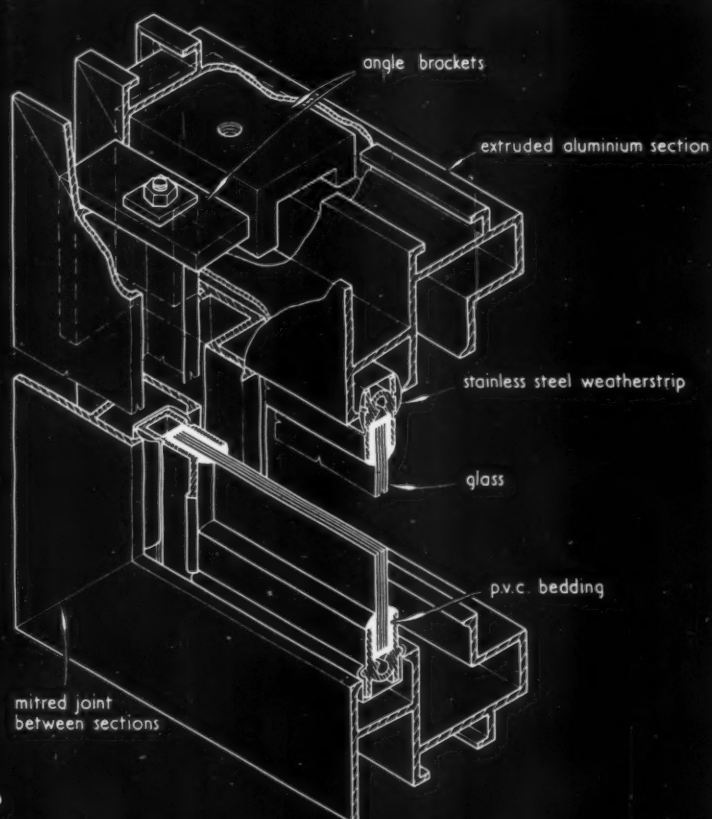
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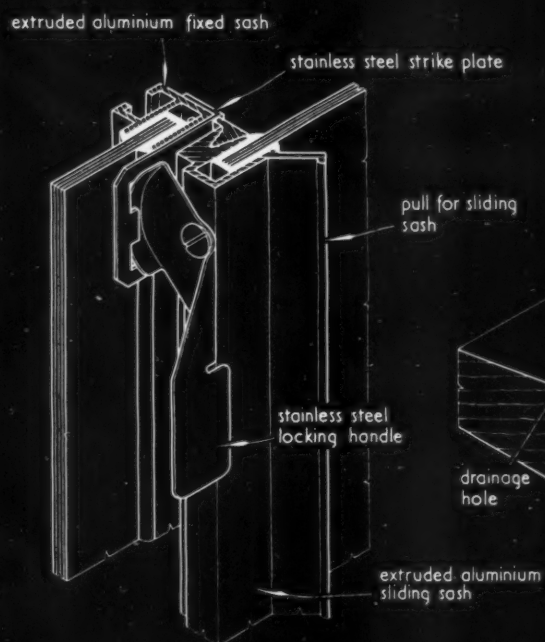
## WINDOWS | ALUMINIUM | APPLICATIONS

24.FI

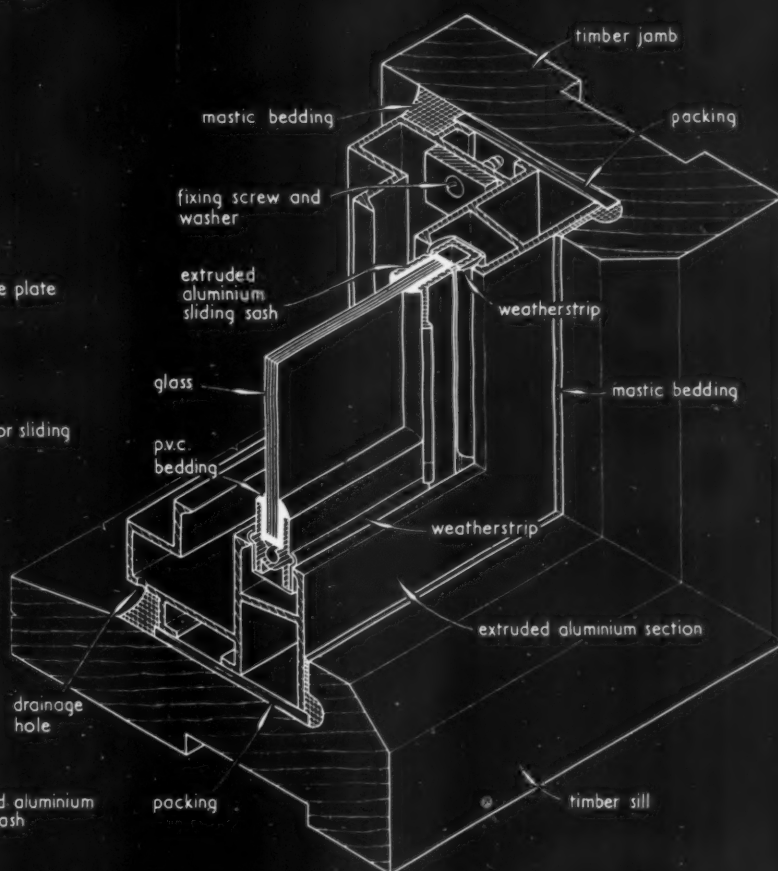
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TYPICAL VERTICAL SECTION.



SKETCH OF LOCKING HANDLE.



TYPICAL APPLICATION TO TIMBER SURROUND.

## 24.F1 · PERMATITE · HORIZONTAL SLIDING AND PICTURE WINDOWS

This Sheet describes Permatite aluminium-alloy horizontal sliding and picture windows. The drawings on the face show the construction of the windows, the sizes and types available and a typical fixing detail.

### Material and Construction

**Frame:** The framing sections of the windows are of extruded aluminium alloy, mitred at each corner and connected by two angles and four machine screws and nuts. The sill section has weep holes for drainage at approximately 9-in. centres depending on the width of the window.

**Sashes:** Both fixed and sliding sashes are of extruded aluminium alloy joined by stainless steel screws, so that they can be readily disconnected for re-glazing. Continuous flanges to the uprights of sliding sashes provide pulls as shown in the drawings on the face of the Sheet. A detail of the locking handle for sliding sashes is also given. The glass is held in aluminium-coloured p.v.c. channels set in the sashes. Weatherstrips are in stainless steel except at sills where they are of zinc and act as sliding contacts.

**Glass:** The windows are supplied ready glazed with 26 oz. glass in sliding sashes up to 3 ft. 0 in. high and 32 oz. glass in those over 3 ft. 0 in. high: fixed sashes are glazed with 32 oz. glass except for the largest sizes which have  $\frac{3}{16}$  in. glass.

### Sizes

The range of sizes in which the windows are obtainable is as given on the face of the Sheet, the intermediate sizes being in increments of 4 in.

### Fixing

The size of the opening should allow for a clearance of  $\frac{1}{8}$  in. all round the window. The main frame is fixed into the surround by screws, with plugs if necessary. To ensure that the main frame is square and true after fixing, timber or similar packing should be used at screw positions to take up the tolerance between the surround and the main frame. Square washers are supplied for use under the heads of the fixing screws. When the window is to be fitted as bricklaying proceeds, a timber sub-frame is strongly recommended: the drawing on the lower right face of the Sheet shows a typical application.

### Further Information

The manufacturer maintains a technical advisory department available to answer questions and advise on problems dealing with this subject generally.

Compiled from information supplied by:

**Templewood Hawksley Limited**

Address : 2, Buckingham Avenue, Slough, Bucks.

Telephone : Slough 23212-4.





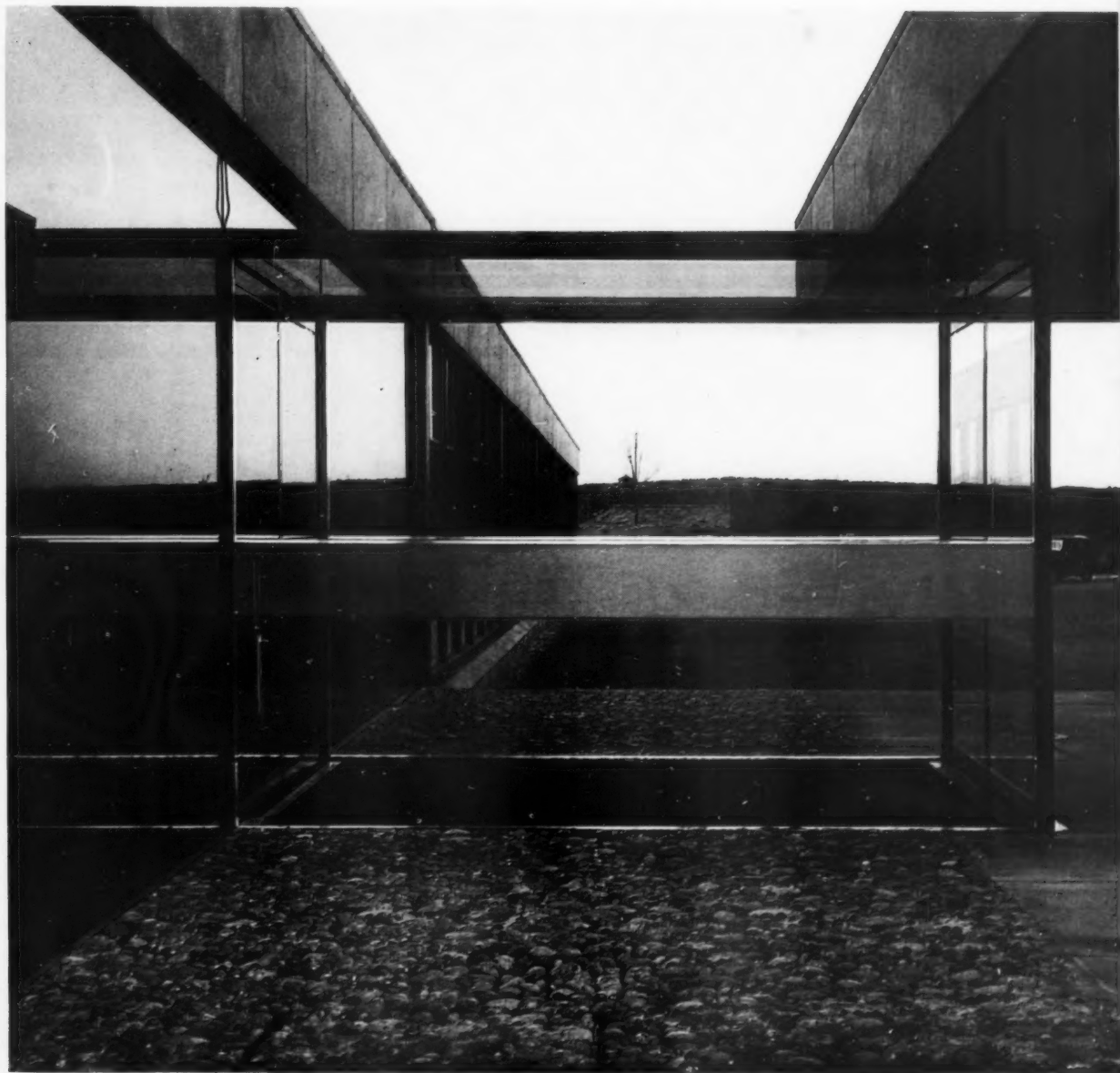


working detail

COVERED WAYS AND CANOPIES: 30

ENTRANCE LOBBY: HOSPITAL IN SWINDON

*Powell and Moya, architects.*

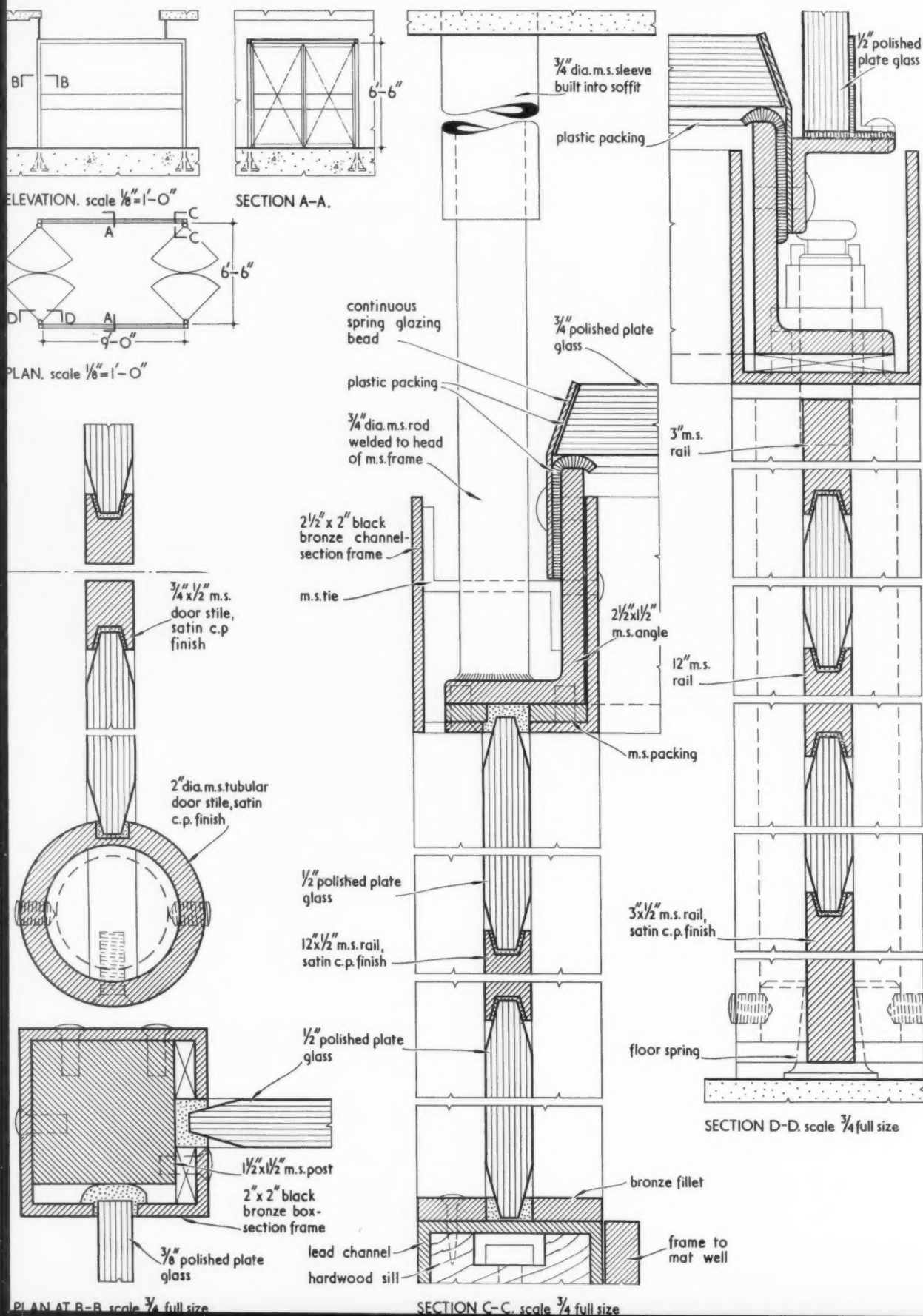


*This detail achieves an extreme of sophistication and elegance. Note the bevelling of the edges of the  $\frac{1}{4}$ -in. polished plate glass, the use of box and channel sections to give the steelwork a simple external profile and (visible on the drawing only) the method of using a continuous spring glazing bead to give a watertight fixing for the plate glass ceiling.*

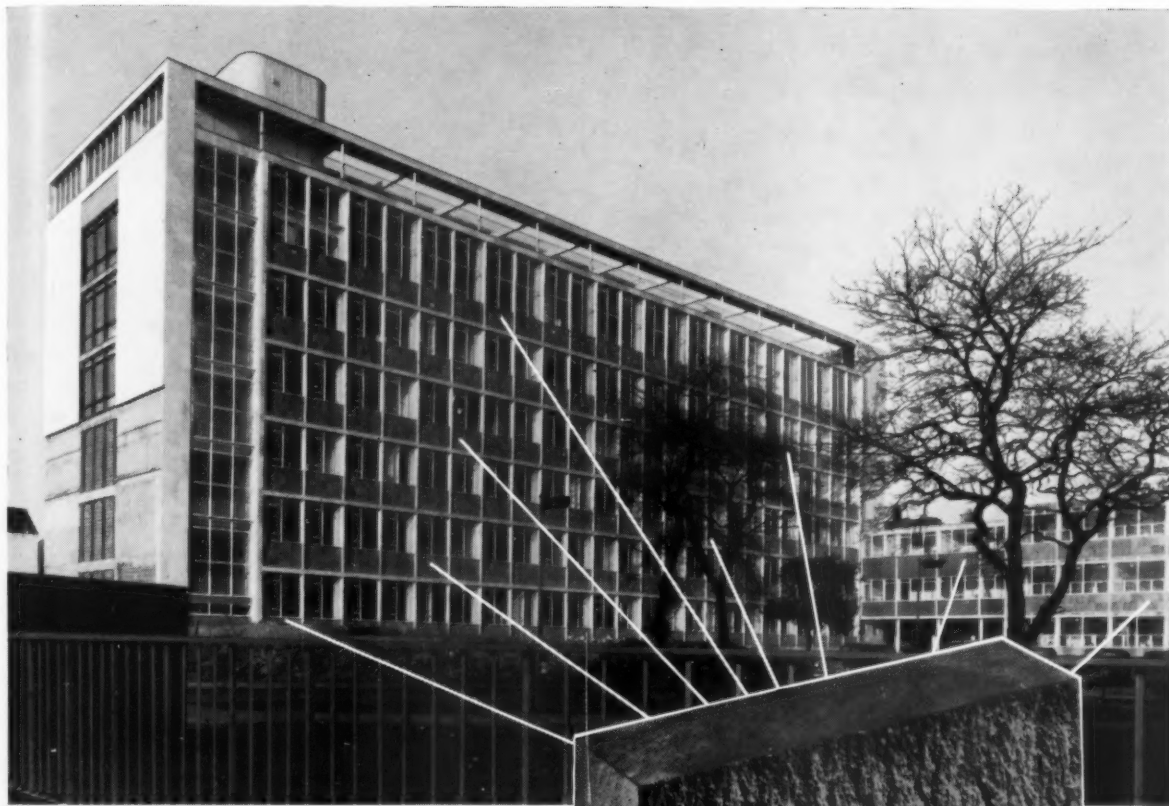
## working detail

ENTRANCE LOBBY: HOSPITAL IN SWINDON

Powell and Moya, architects.



## BROUGHTON MOOR OLIVE GREEN SLATE RIVEN FINISH



RUTHERFORD COLLEGE, NEWCASTLE-UPON-TYNE  
*Architect: George Kenyon, A.R.I.B.A.*

Ideally suited for internal and external facings, Broughton Moor Green Slate can be supplied in a variety of finishes— and remains sound for centuries. These characteristics made it an ideal choice for the Rutherford College of Technology, Newcastle-upon-Tyne, architect: George Kenyon, A.R.I.B.A., City Architect.

For this contract, Broughton Moor Olive Green naturally riven slate was used, approximately 16,000 square feet being supplied in the form of Ormcraff panels, to which the Broughton Moor Olive Green Slate was cramped and bonded. About 5,000 square feet of the same slate was fixed traditionally.

*An example of Broughton Moor Green Slate showing the naturally riven finish. Finely rubbed, sanded and frame sawn finishes are also supplied and all available in three distinct colours: Light Sea Green, Olive Green and Pale Green Barred. Technical pamphlets showing typical methods of fixing are available as follows:*

1. Flooring. 2. Facing. 3. Coping.
4. Cills. 5. Riven Face Slabs.

# Broughton Moor

GREEN SLATE QUARRIES LTD

CONISTON • THE LAKE DISTRICT • LANCASHIRE • TELEPHONE: CONISTON 225/6



## **...stronger....cheaper**

*The high quality of British structural steel  
is now recognized by the sanctioning of higher working stresses*

*More efficient columns and beams, new methods of  
design and fabrication — all combine to reduce the amount  
of steel and labour required, and thereby to reduce the cost.*

*The result: an overall saving.*

**STEEL-FRAMED** BUILDINGS  
GIVE GREAT ARCHITECTURAL SCOPE WITH  
UNQUESTIONED STRUCTURAL SECURITY

BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION, WESTMINSTER, S.W.1







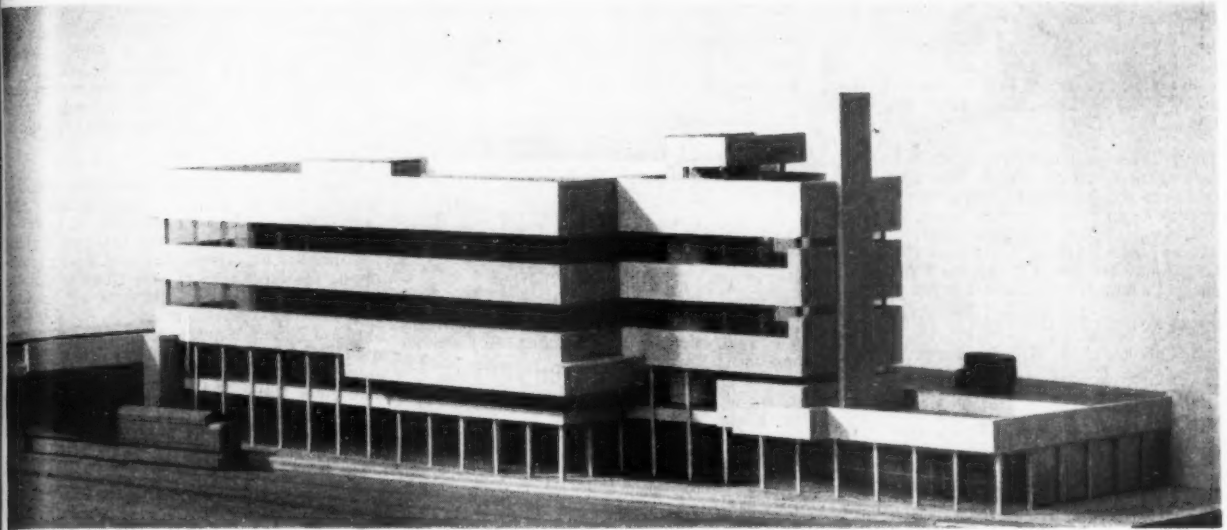
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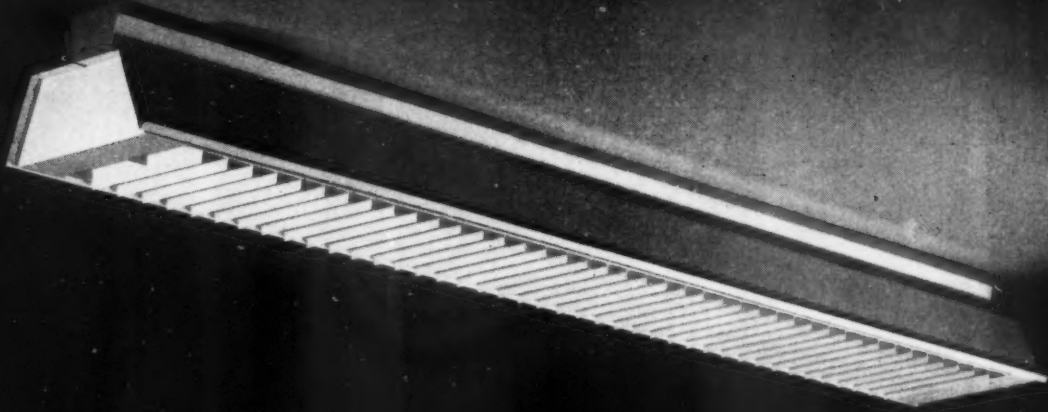
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TELECOMMUNICATIONS BUILDING FOR B.R. EASTERN REGION



The focal point of a major scheme for the development of telecommunications in the Eastern Region of British Railways will be this new telephone exchange planned for Kings Cross. When completed, early in 1962, it will deal with all calls now handled at Kings Cross, Liverpool Street, Stratford and seven subsidiary exchanges in the London area. This exchange, designed in the Regional Architect's Department (chief architect, H. H. Powell) will be the biggest "private" exchange in the country. It will have an initial capacity of 3,000 extensions which can be increased to 4,000. The project will be carried out simultaneously with railway electrification in the region.



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## Announcements

### PROFESSIONAL

Brian S. Tait, A.R.I.B.A., has taken into partnership Anthony J. Ault, A.R.I.B.A., and they will practise as Brian Tait & Anthony Ault at 19, College Green, Gloucester (telephone Gloucester 23346).

The practice of Hugh Macintosh & Partners will be dissolved on March 31 and two new practices will be formed, both of which will operate from 33 & 35, High Street, Croydon. The style of the new firms will be L. A. Macintosh & Haines, A/R.I.B.A. (telephone Croydon 5780) and Charles Buhl & Dudley Joel, L/L.R.I.B.A. (telephone Croydon 1890).

### TRADE

J. I. Case Co. Ltd., British subsidiary of the J. I. Case Co. of USA, have appointed B. D. Alergant sales-promotion manager.

W. F. Craig is now research executive at the Ronuk Laboratories in Portslade.

British Insulated Callender's Cables Ltd. have extended their branch premises in Newcastle. Their Panelc Heating Division has been transferred to 83/85, Saffron Hill, London, E.C.1 (telephone Holborn 3994).

Raymond Lister, director of George Lister & Sons Ltd., is now secretary of the Crafts Committee of the Worshipful Company of Blacksmiths in the City of London.

Electrolux Ltd. have appointed Robert J. Mant to the general sales manager's staff at the Company's Head Office, 153/5, Regent Street, London, W.1. His successor as deputy divisional manager is Ronald D. Lewis.

Froud & Partners Ltd. have moved to 58, Parker Street, Kingsway, London, W.C.2. The telephone numbers remain unchanged.

E. J. Woolf, a director of Taylor Woodrow Ltd., has left London to visit the company's activities in East Africa.

The following are now directors of Laing Lex Ltd.: E. C. Uren (chairman), F. E. Audus (executive), N. N. Chinn, R. Chinn, J. D. Chittleburgh, J. M. Robson and D. W. Turner.

A. R. Wright has joined the London branch of Leaderflush (Doors) Ltd. as a representative.

T. Pooley, joint managing director, and E. L. Townsend, overseas director, of Expandite Ltd., have left on a tour of Canada and the USA.

Norman Readman, managing director of the Consolidated Pneumatic Tool Co. Ltd., has been elected to the Board of Directors of the New York parent company—Chicago Pneumatic Tool Co.

Dudley Turner & Vincent Ltd. have moved to Boston House, 36/38, Fitzroy Square, London, W.1 (telephone Langham 6494).

R. H. G. Sutton, managing director of Urquhart's (1926) Ltd., has been appointed, in addition to his duties as managing director, deputy chairman of the company. G. T. Furman is now a director.

P. L. Gargrave is now a London representative for the UAM Group, 8, Upper Grosvenor Street, London, W.1 (telephone Grosvenor 5411).

R. A. Neesham is joining Moss Partners (London) Ltd. as sales manager on April 1.

The trading business of E. S. & A. Robinson has been transferred to a new wholly-owned subsidiary company, E. S. & A. Robinson Ltd. In order that this name may be available the present company will change its name to E. S. & A. Robinson (Holdings) Ltd.

J. R. Gordon & Co. Ltd. announce the following revised selling arrangements: All sales, other than in the County of London, will be dealt with by Powell Duffryn Timber Industries Ltd., Queensferry, Chester (telephone Hawarden 2001), and all sales for the County of London will continue to be dealt with by Learys' Fibreboards Ltd., King William Street House, Arthur Street, London, E.C.4 (telephone Mincing Lane 2424).


Causeway Reinforcement Ltd., of Five Ash Works, Dover Road East, Northfleet, Kent, have created a Trestle Sales Division under S. J. Davies.

Denton Edwards Paints Ltd. have issued a new trade price list, No. T260, February, 1960, which supersedes T259 dated July, 1958.

The Walpamur Co. Ltd. have appointed Paul Baragwanath architects' representative to the Newcastle area.

### CORRECTION

The sub-contractors for central heating and hot water services in Pembroke House, City Road London, E.C.1 (AJ, March 3) were M. & J. Lossos & Co. Ltd.



**National  
Provincial  
Bank  
Swanage**

The counter, panelling,  
doors and other  
specialist joinery  
for this new branch  
were manufactured by  
Waring & Gillow Ltd.  
to the design of  
the Bank's architect,  
Mr. B. C. Sherren, F.R.I.B.A.

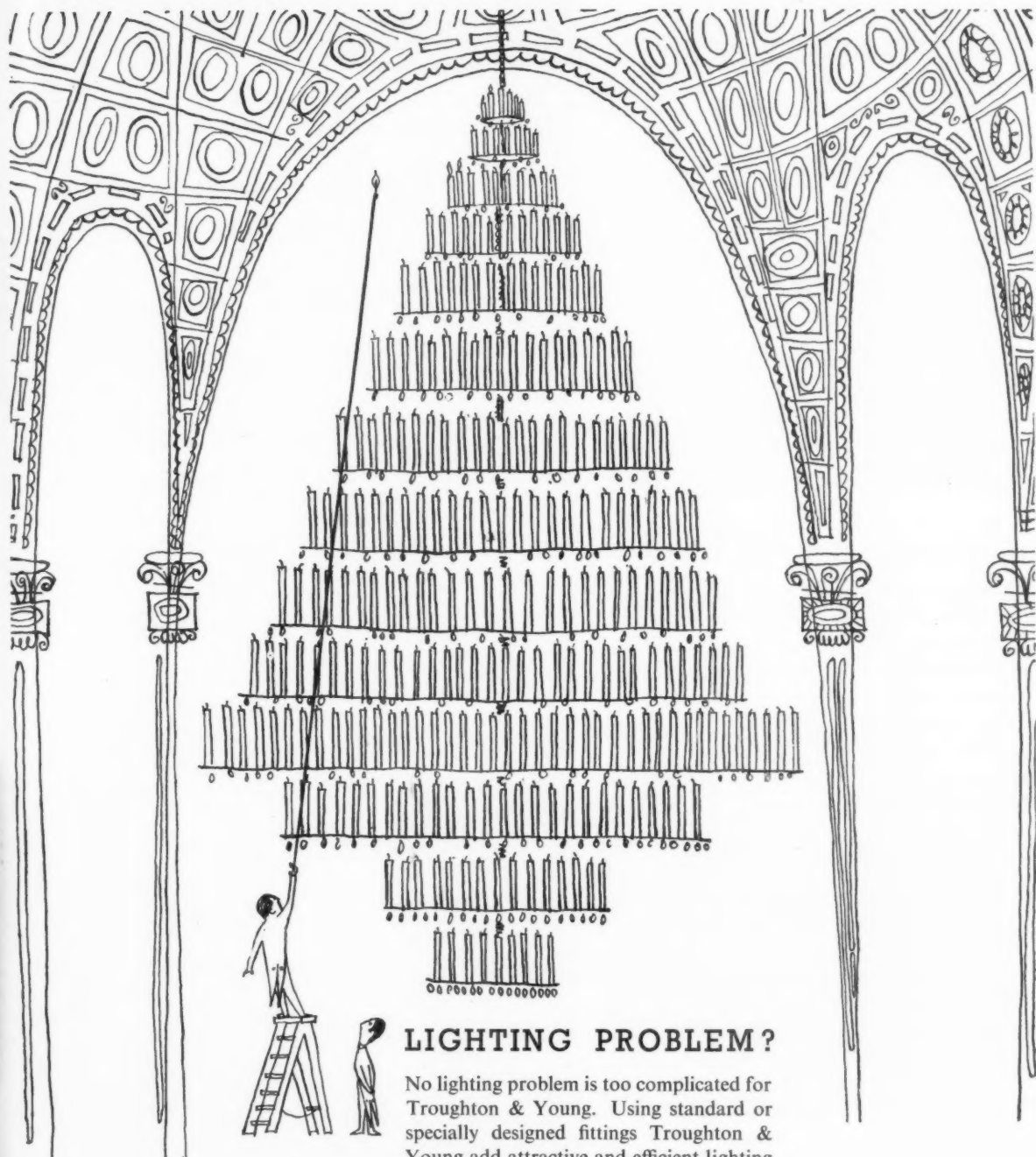
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Makers of Furniture & Panelling to architects' own designs

Contract Department, 184-182, Oxford Street, London, W.1. (Tel. MUSEum 5000)

Factories at London, Lancaster and Liverpool





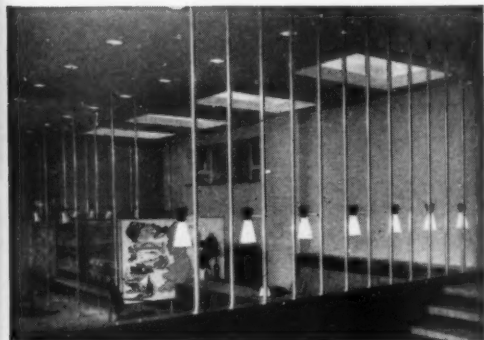
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Tel: KENsington 3444  
And at Rodney Street, Liverpool 1.



Great Northern House, Euston Road. For: British Transport Commission  
Architects: Messrs. Oscar Garry & Partners

## Shower Song

*Bending and turning and gaily carolling  
Loving the feel of the tropical rain  
Leaving to Leonard the job of controlling  
Once she gets in she just wants to remain.*

*Gone are the quirks of the old fashioned mixer  
Everything else but never just warm,  
Thermostat Leonard is fitted to fix her  
And keep the temp. fast at divinity's norm.*

"Keeping the temp. fast" is just what Leonard control by thermostat does. It turns stone-cold and stinging-hot into steady warm — immovable until the bather moves it. It makes the shower, the Leonard shower, the best bath in the world. That's why the Leonard valve has come to be specified by architects everywhere not just for showers in hospitals and schools, but also in factories and mines and ships.

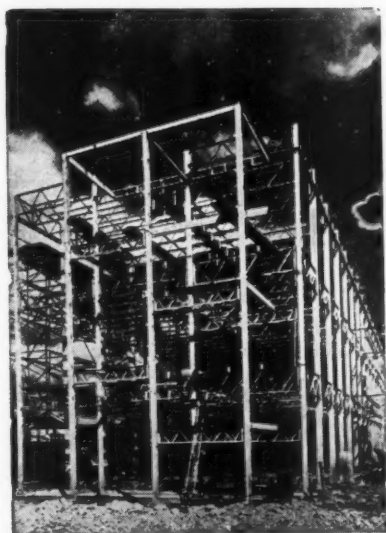
Please let us tell you more about Leonard thermostatic valves. We have composed literature to cover all applications in detail. Write for engrossing publication. SB.2 to: Walker Crossweller, Cheltenham. The impetuous should 'phone us at Cheltenham 56317 or, in London, at Holborn 2986.

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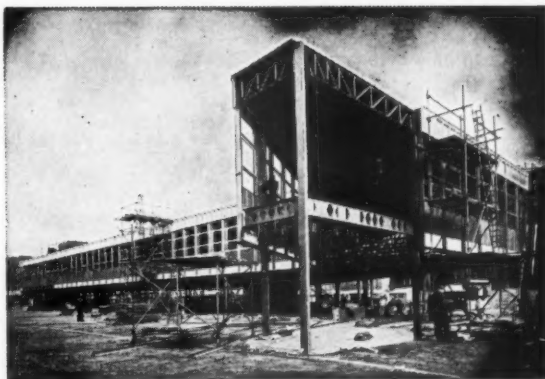
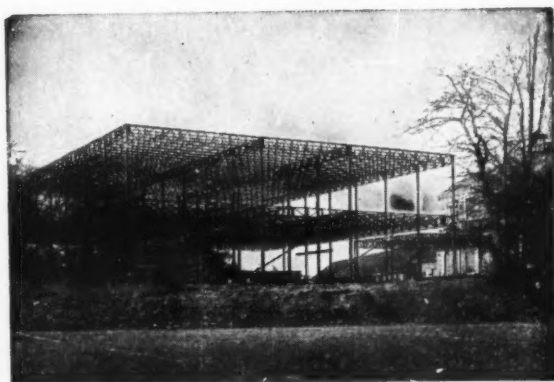
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**THE BOWATER PAPER CORPORATION LIMITED.** The Architects for the new Office Blocks at both Mersey and Northfleet designed for Lattice Steelwork on a modular grid which allowed service lines to be run between floor and ceiling and gave complete flexibility for internal arrangements. Architects: Messrs. Farmer & Dark.



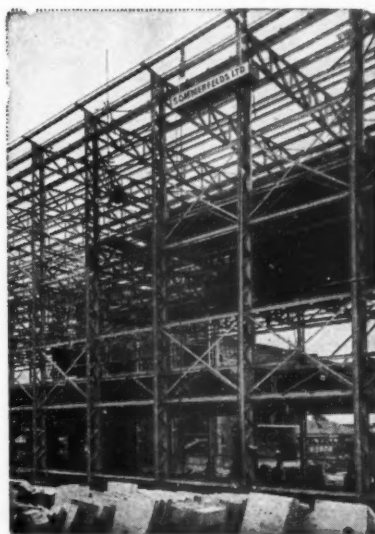
**YORK.** For the City of York a Grammar School. Sommerfelds designed the Steelwork on a 3 ft. 4 in. modular grid allowing complete freedom for the Architect to use curtain walling and internal arrangements.

Architect: E. Firth, F.R.I.B.A., A.M.T.P.I., City Architect.



**B.E.A.** For this B.E.A. Building, speed was the essence of the Contract. Sommerfelds designed the Steelwork and from unloading the first lorry on site to the completion of a 250 ton steelwork erection took three weeks.

General Contractors: Messrs. Richard Costain Limited.



**I.C.I.** For I.C.I. a Laboratory Block. A multi-storey building with a height to eaves of 44 ft. and uninterrupted spans of 50 ft. on each floor. Deep Lattice Beams and light stanchions were used with considerable saving in steel requirements.

Architects: Messrs. J. Douglass Matthews & Partners.

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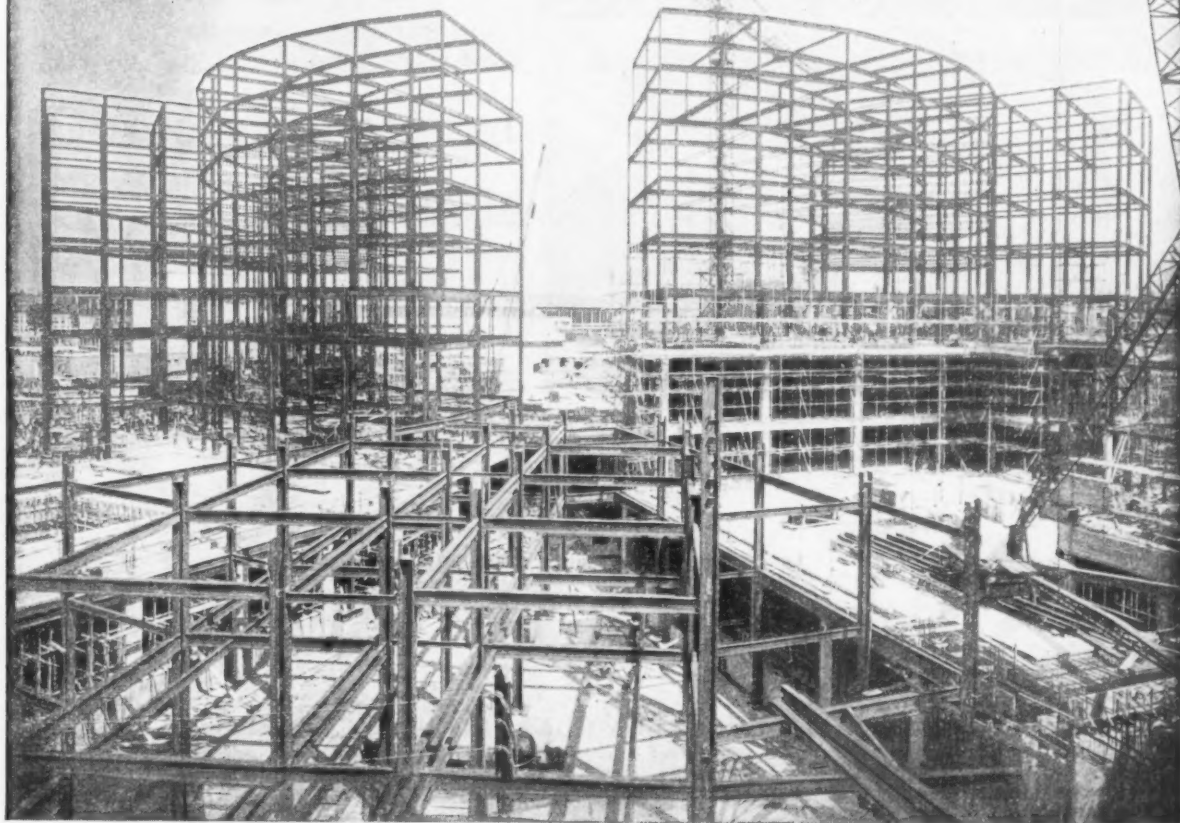
Head Office  
Wood Lane, London, W.12  
Tel: SHEpherds Bush 2020

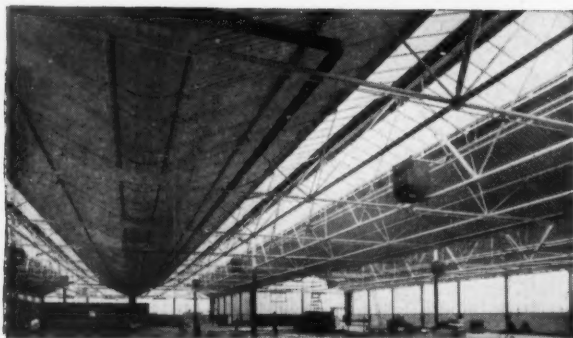
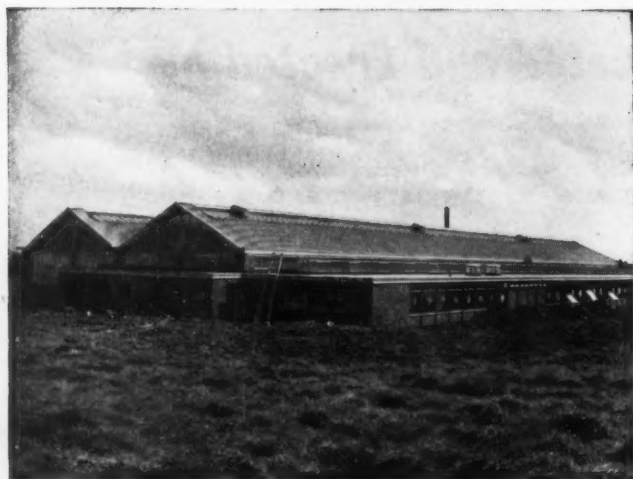


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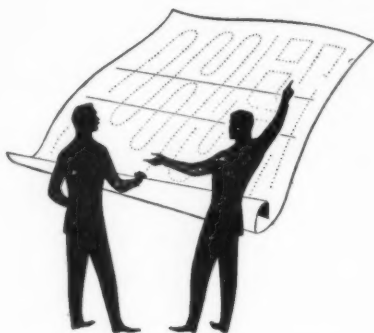
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**SNAPDEK**  
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**A complete Overhead System.** Long span Underslung Cranes are only part of the complete MonoRail handling and transfer system which can be tailored for every need, and which will enable the load to be transferred beyond the crane area to any part of the factory.

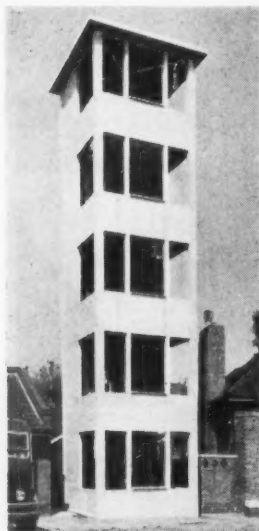
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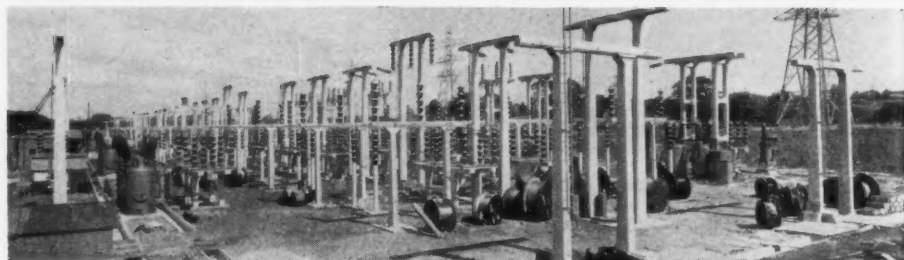
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Croft Precast Concrete Drill and Hose Towers (Photograph by courtesy of Birmingham Corporation Fire Service and "Birmingham Post").

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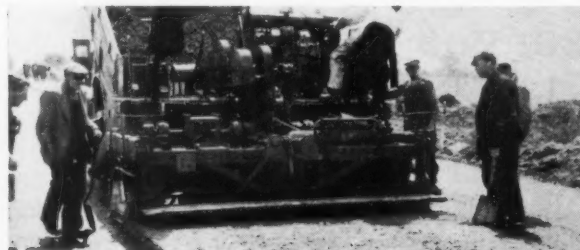
Croft Precast Granite Concrete Electrical Structures at the Penn 132 K.V. sub-station. Authority: Central Electricity Generating Board.



Croft Precast Reinforced Portal Concrete Frames for Industrial Buildings are quick and easy to erect with great permanent strength.



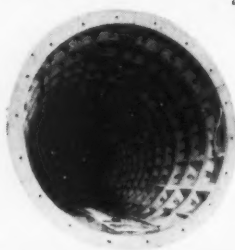
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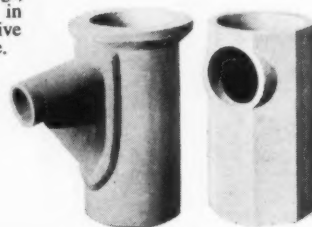


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Double lightweight four buffer full size seat and domed cover, made from guaranteed material. The best value for money on the market. Available with full range of fittings.



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Double medium weight seat and cover for competitive work. Solid underbase, four buffers, manufactured from B.S.S. guaranteed material. Available with full range of fittings.



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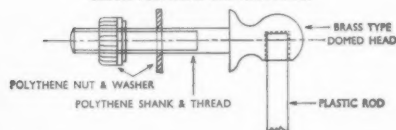
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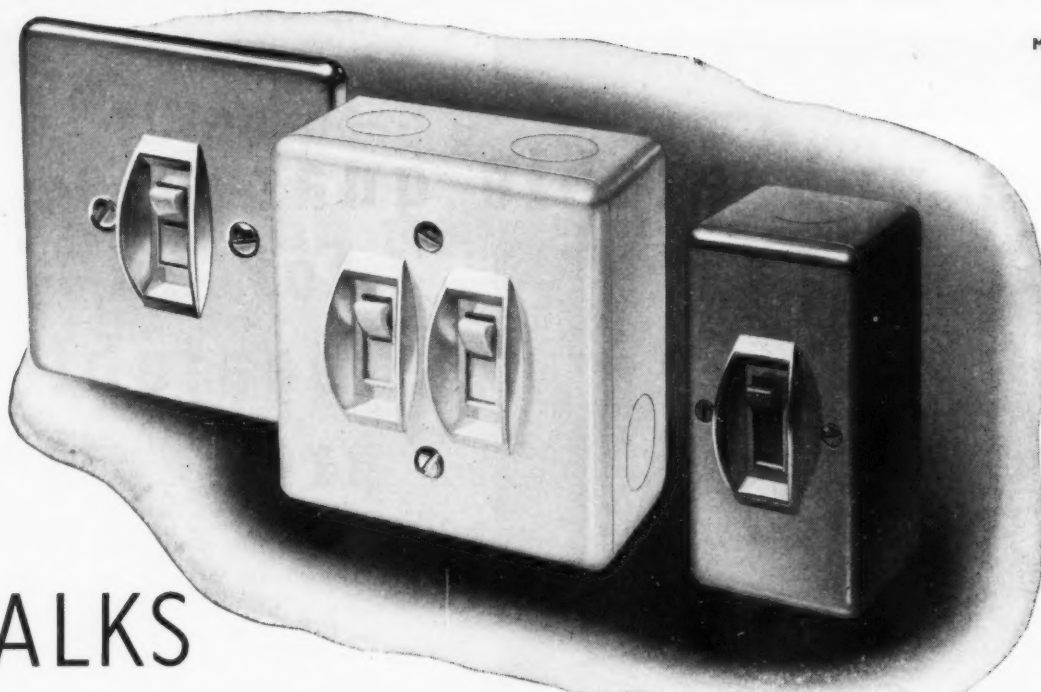
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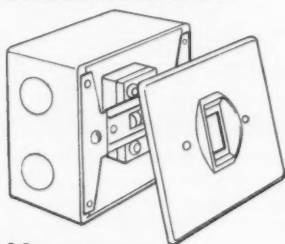
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Special features include :



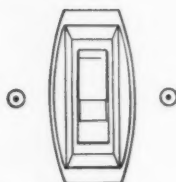
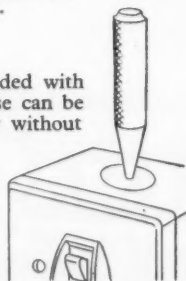
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It is possible to avoid unsightly cast iron boxes in commercial surface work. The "Metalcast" box is of the same excellent finish as the plate and permits matching flush and surface installations.



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Boxes are provided with knockouts. These can be removed cleanly without spoiling the finish. They thus obviate difficult drilling or bench work on site.

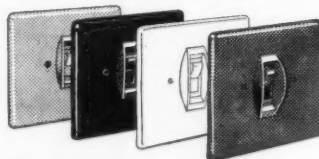


## Effective dolly protection

The dolly cannot be damaged owing to the raised side protectors which also add distinction to the design.

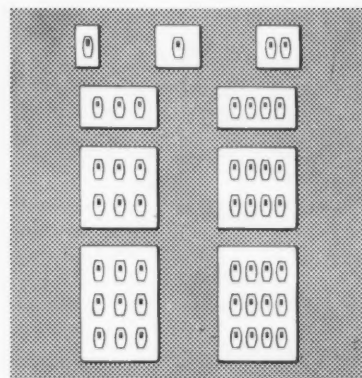
## Secret fixing

Where required for schools and institutions all models can be supplied with plate fixing by miniature Allen screws.



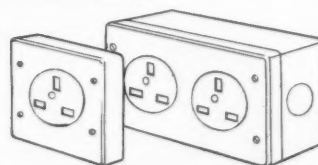
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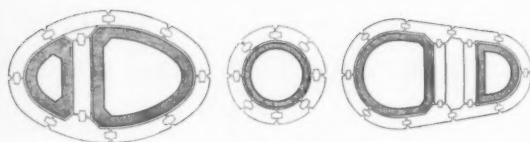
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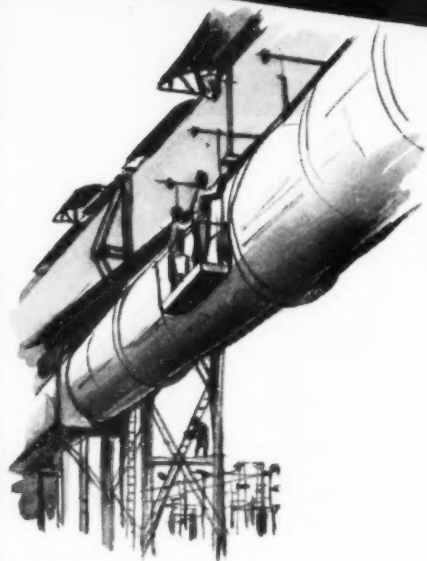
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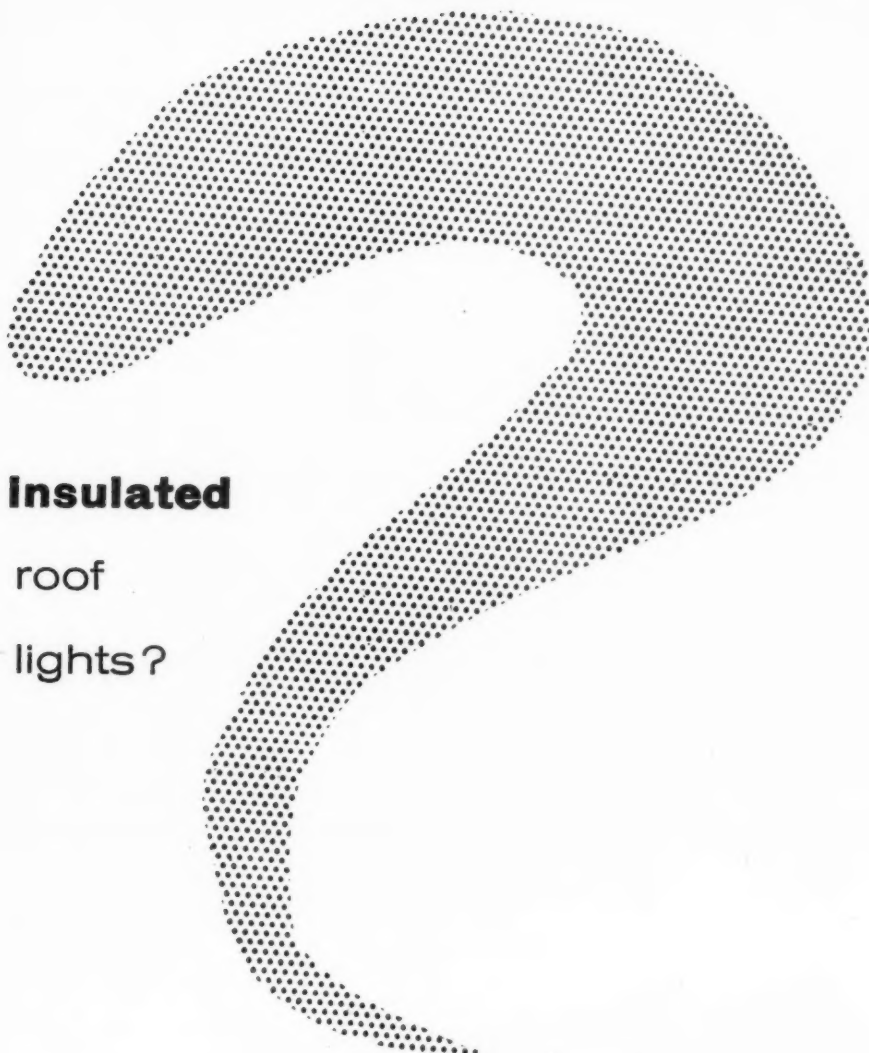
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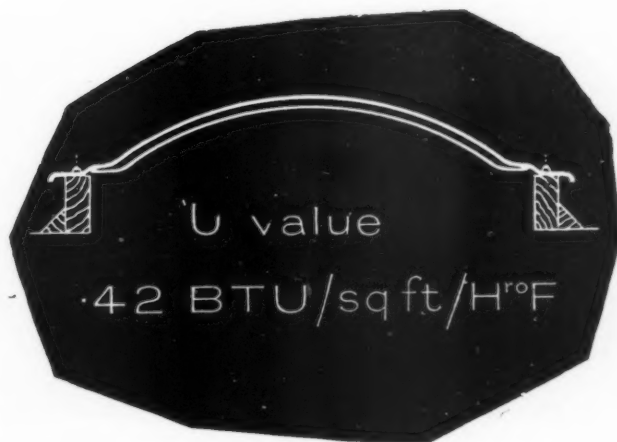
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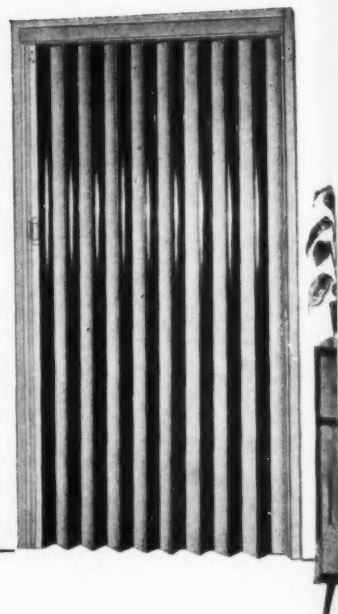
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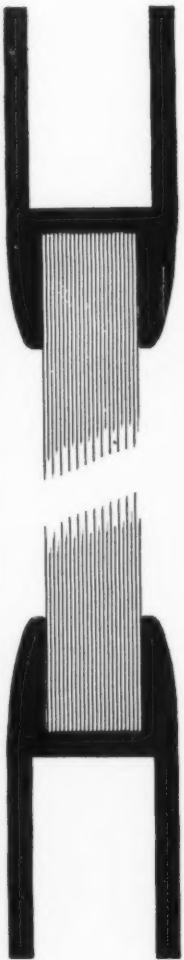
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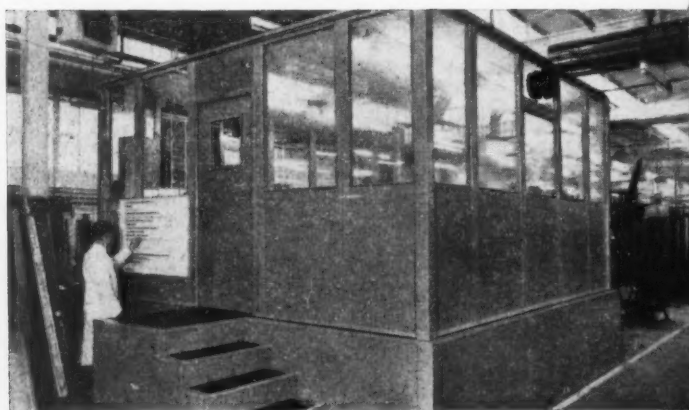
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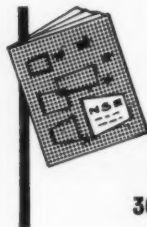
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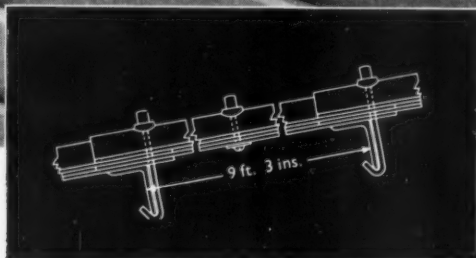
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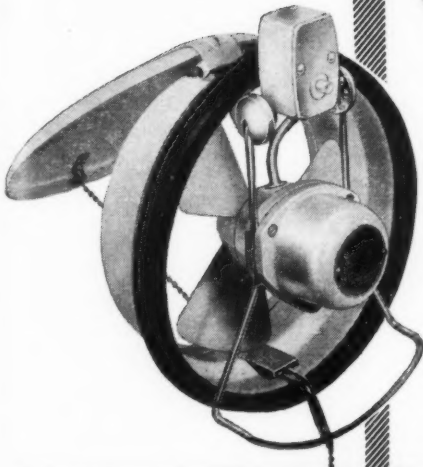
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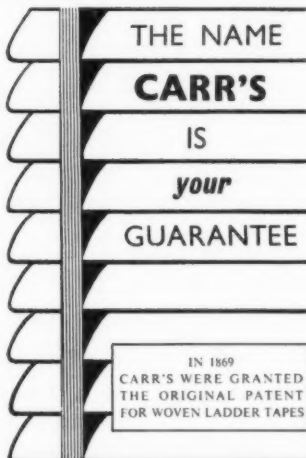
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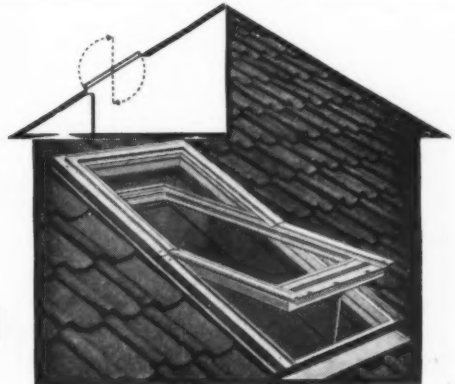
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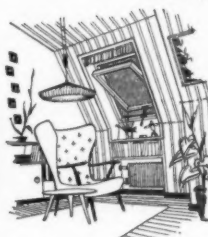


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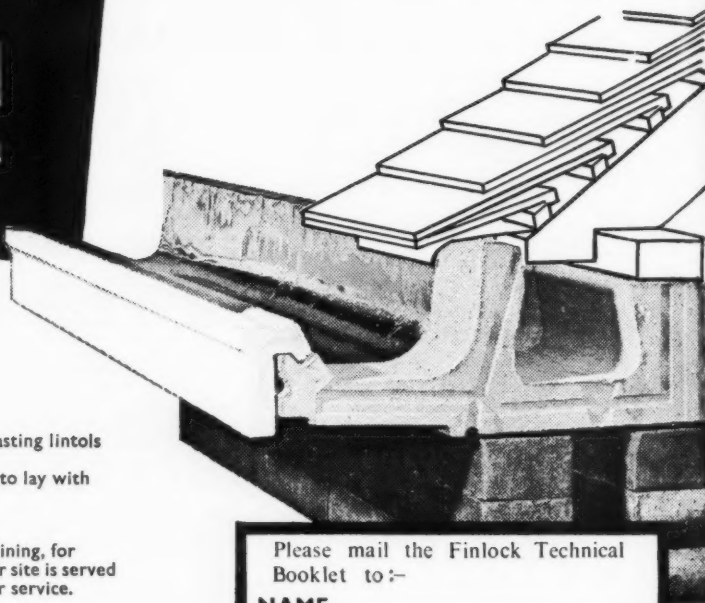
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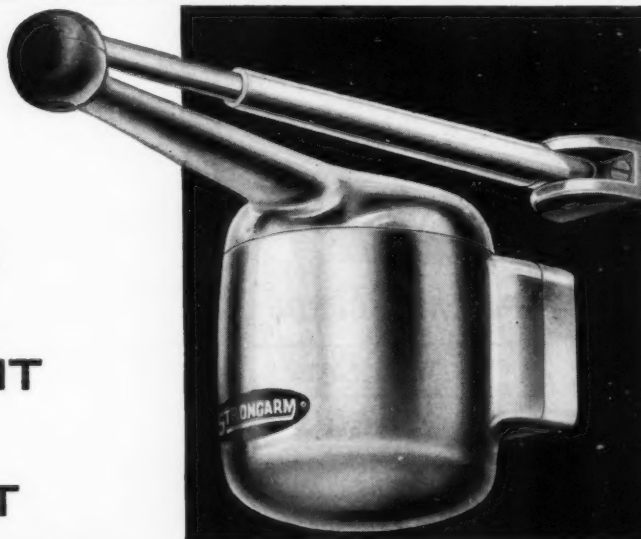
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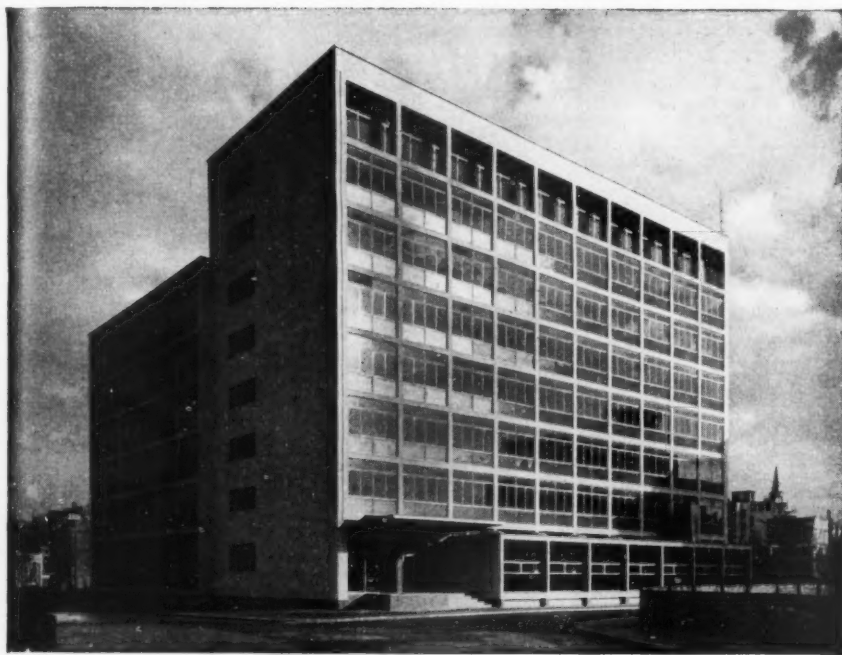


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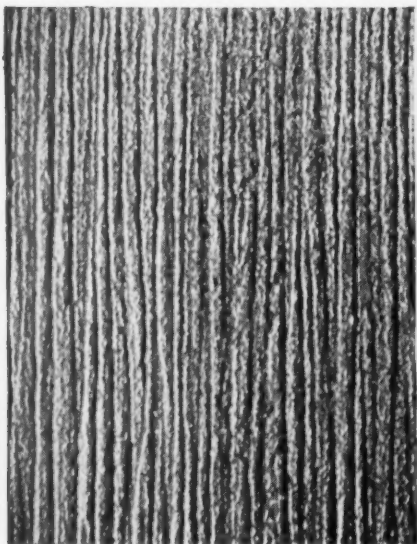
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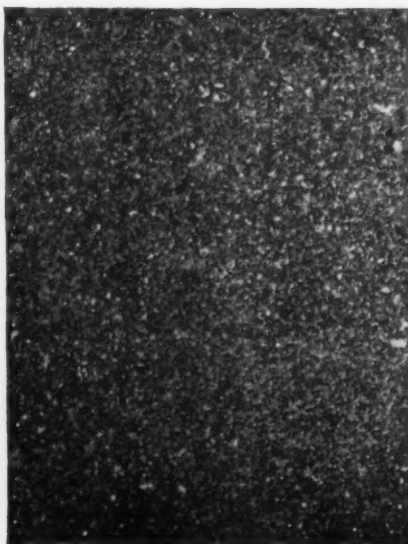
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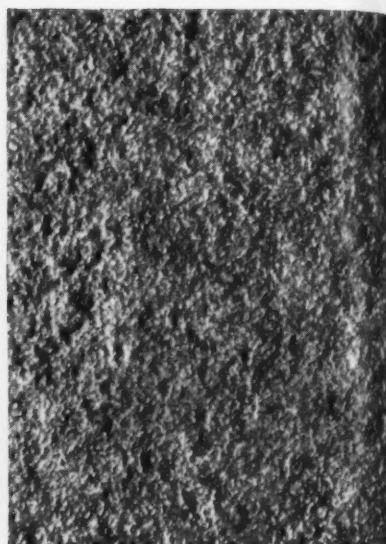
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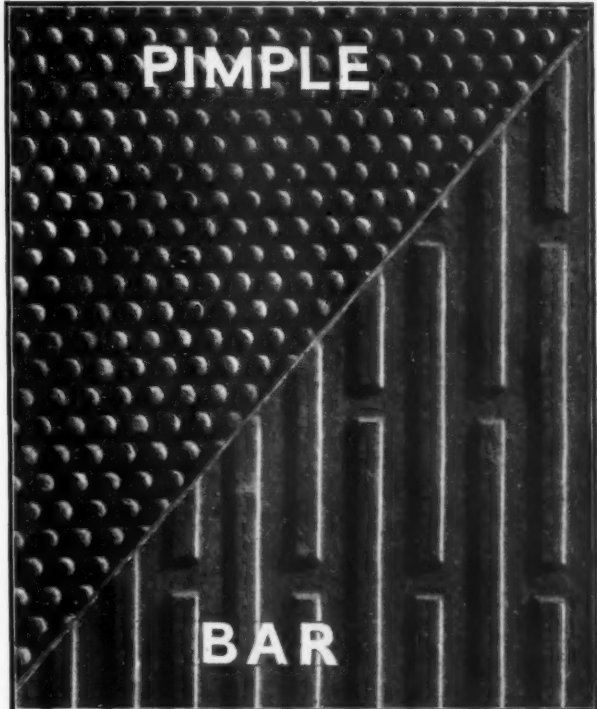
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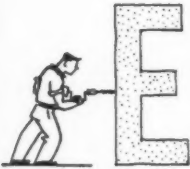
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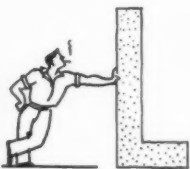




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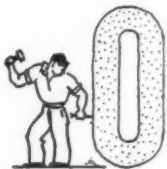
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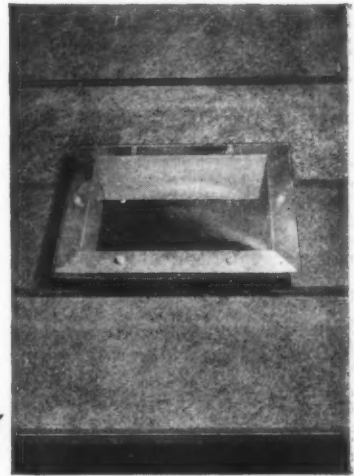
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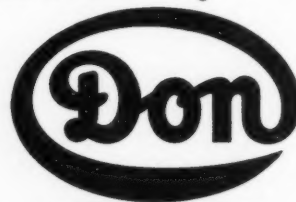
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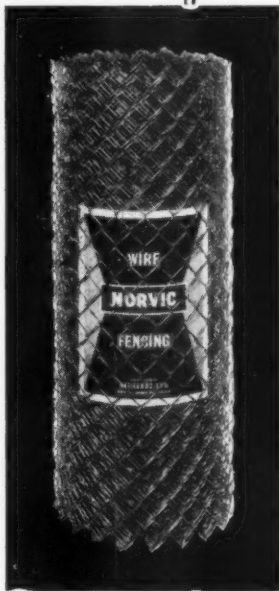
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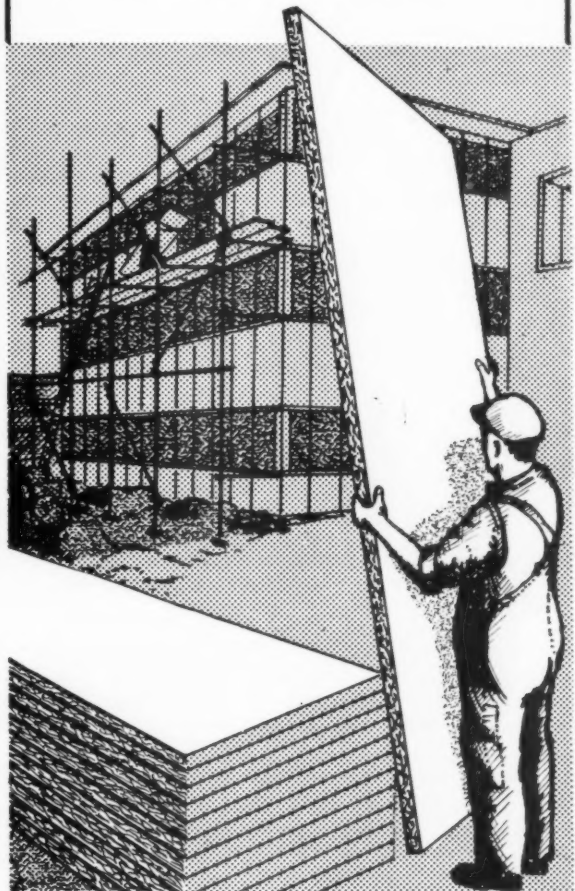
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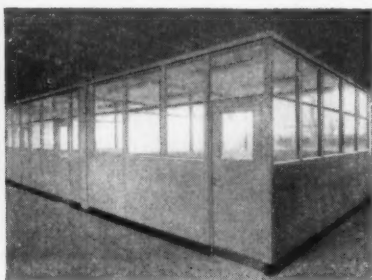


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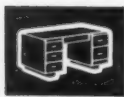
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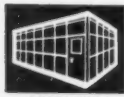
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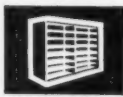
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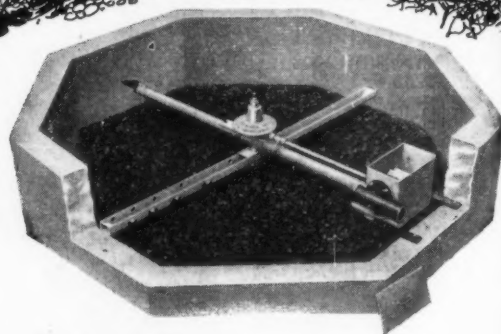
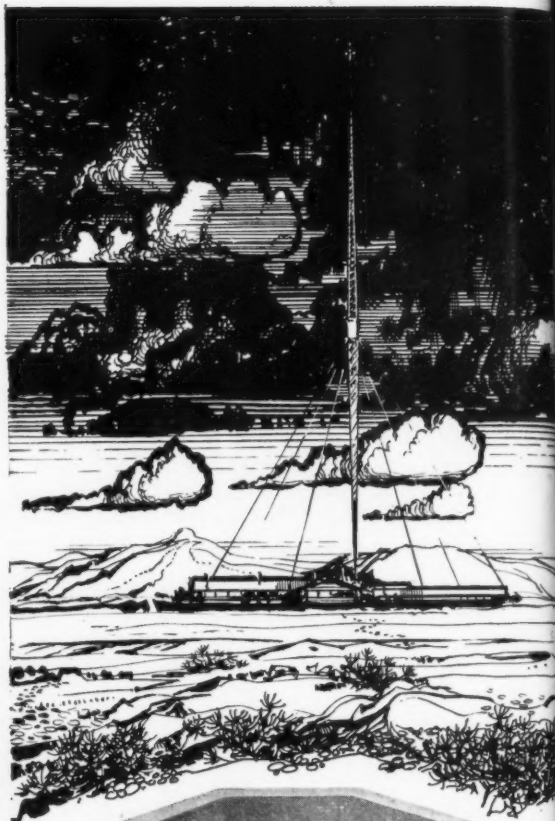


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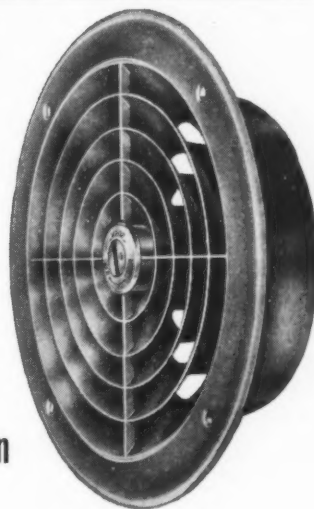
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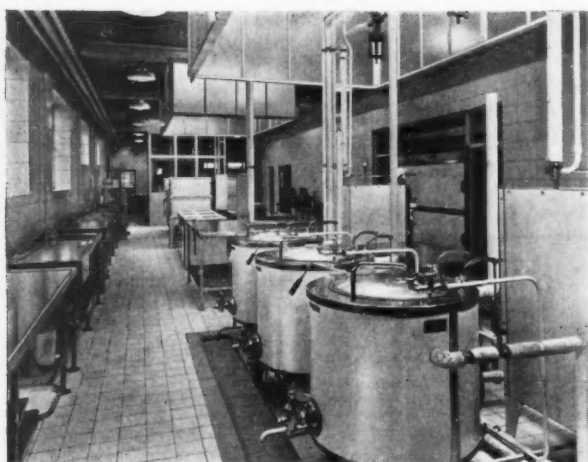
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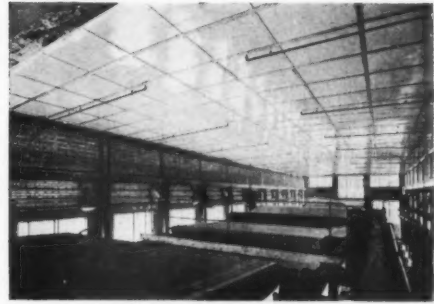
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Foreword by *Robert H. Matthew*, C.B.E., M.A., F.R.I.B.A.

THIS, THE ONLY AUTHORITATIVE, UP-TO-DATE BOOK about present-day joinery practice, is published at the recommendation of the Text and Reference Books Committee of the Royal Institute of British Architects and is intended primarily for architects, assistants and students of architecture. But, because its scope is broad and because it is concerned with the basic principles of design and practice, it will also be of great interest and value to the members of kindred professions, especially quantity surveyors, and to all who are engaged in the handling and conversion of timber, including joinery manufacturers, joiners, cabinet makers, carpenters, shop fitters and other woodworkers.

The text includes chapters on the timber yard; moisture movement in timber; an analysis of construction; the design and machining of sections; and of joints; specification and practice. Among its useful appendixes are a selection of timbers suitable for joinery, set out in tabular form, a complete list of British Standard Specifications and Codes of Practice applicable to joinery, and a general bibliography. It is comprehensively illustrated: there are nearly 90 photographs and over 200 specially drawn line illustrations—more than 80 in the chapter on joints. And there is a good index.

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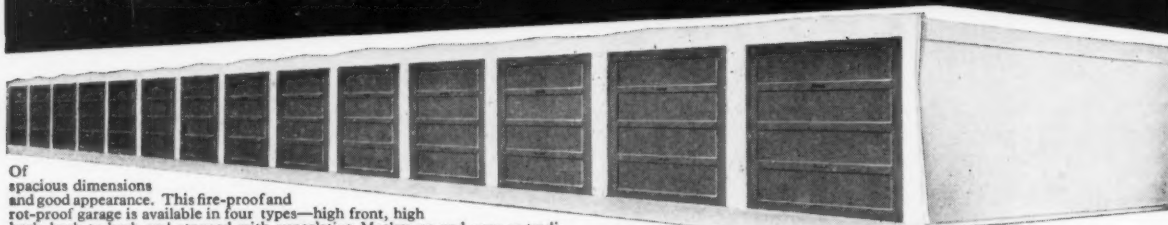
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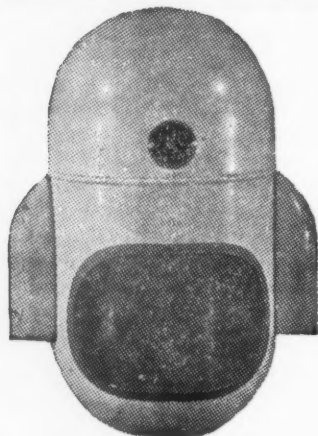
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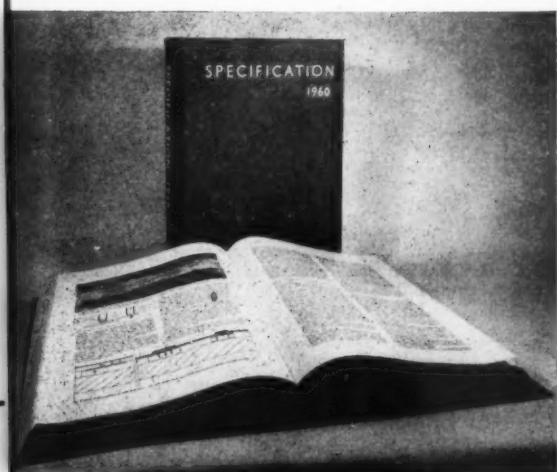
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Edited by F.R.S. YORKE, F.R.I.B.A., assisted by  
PENELOPE WHITING, A.R.I.B.A.

Comprehensively revised once again, with major additions and alterations, including one entirely new section, *Landscape Work*, by J. St. Bodfan Gruffydd, F.I.L.A. covering procedure and specification clauses for landscape architects; the separation of *Timber Engineering* from *Carpenter and Joiner*; an extension on 'Supermarkets' to the *Shops* section; additional material on 'Site Investigation' by Oliver Leach, in *Excavator*. 13 by 8½ ins., over 1500 pages (1454 last year), 35s. net, postage 3s. 3d.

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

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Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade A.P.T. I (£610-£765 per annum, plus a London Weighting Allowance of £10-£30 per annum according to age).

Applicants must have had experience in the preparation of plans, specifications, etc., including the maintenance of public buildings.

Saturday mornings are normally free of duty. Application forms obtainable from H. D. Peake, M.Sc.(Eng.), M.I.C.E., Borough Engineer & Surveyor, 7 Little Park Gardens, Enfield, Middx., returnable to the undersigned.

CYRIL E. C. R. PLATTEN, Town Clerk, 8454

BOROUGH OF BASINGSTOKE  
APPOINTMENT OF  
DEPUTY BOROUGH ARCHITECT

This rapidly-growing town is now commencing a scheme of expansion in conjunction with the L.C.C., all housing and architectural works being handled by the Borough Council's Architect's Department.

Applications are invited from Associates, R.I.B.A., who have had first-rate housing experience; salary in accordance with A.P.T. V (£1,220-£1,375); house or flat available; car allowance; N.J.C. conditions; post pensionable; medical examination.

Details giving age, training, experience, etc., and names and addresses of three referees to be sent to the Borough Architect, Eric Almond, Dipl. Arch., A.R.I.B.A., Municipal Buildings, Basingstoke, Hants, by the 23rd March, 1960. Canvassing disqualifies. 8696

HUYTON-WITH-ROBY URBAN DISTRICT  
COUNCIL  
ARCHITECTURAL AND HOUSING DEPARTMENT

(a) SENIOR ASSISTANT ARCHITECT, Grade A.P.T. IV (£1,065-£1,220).

(b) ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£765-£930).

Candidates for post (a) should be associate members of the R.I.B.A., and candidates for post (b) should have passed the Intermediate Examination of the R.I.B.A.

The work of the Department consists of a large Housing and Capital Works programme, which includes a Sports Stadium and Civic Hall.

Applications, stating age, qualifications and experience, together with the names of two persons to whom reference can be made, should reach R. T. Chappelle, A.R.I.B.A., Architect and Housing Director, "Grasscroft," Archway Road, Huyton, not later than Monday, 28th March, 1960.

Canvassing disqualifies. D. WILLGOOSE, Clerk of the Council. 8869

CORNWALL COUNTY COUNCIL  
County Planning Department-PLANNING  
ASSISTANT. A.P.T. II (£765-£880) or A.P.T. III (£880-£1,065).

Starting salary according to qualifications and experience. The department has a varied programme of design work throughout the County and requires an assistant to work in the Headquarters Drawing Office, Truro, mainly under the technical direction of the Assistant Planning Officer (Architecture).

The customary service conditions of the Local Government Service will apply and the successful candidate will be required to pass a medical examination.

Applications, together with the names and addresses of three referees should be addressed to H. W. J. Heck, County Planning Officer, County Hall, Truro, to reach him not later than 31st March, 1960. (No application forms are being issued).

Clerk of the County Council. 9034

ADMINISTRATIVE COUNTY OF LEICESTER  
(a) SENIOR ASSISTANT ARCHITECT £1,075-£1,220.

(b) ASSISTANT ARCHITECT £785-£1,070. Candidates for (a) must be chartered members of the R.I.B.A., have had considerable experience and be capable of taking charge of contracts from inception to completion; for (b) must have passed Parts I and II of the R.I.B.A. final and be capable of executing working drawings.

Lodging allowance and removal expenses may be paid to a married man. Apply to County Architect, 123 London Road, Leicester. 8763

BOROUGH OF LEYTON  
(IN THE COUNTY OF ESSEX)  
COMMITTEE FOR EDUCATION  
APPOINTMENT OF ARCHITECTURAL  
ASSISTANT

Applications are invited for the permanent appointment of Architectural Assistant, Grade A.P.T. II, £765-£880 per annum, plus London weighting. The successful applicant will be employed by the Essex County Council, and will work in the School Architect's Section of the Borough Engineer and Surveyor's Department, Town Hall, Leyton, E.10. Five-day week is operated.

Details and forms of application from the Borough Education Officer, Education Office, Kirkdale Road, Leytonstone, E.11, to whom they should be returned within 10 days from the appearance of this advertisement.

D. J. OSBORNE, Town Clerk. 8905

BOROUGH OF ILKESTON  
APPOINTMENT OF ARCHITECTURAL  
ASSISTANT

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The post is superannuable, being subject to one month's notice on either side and to the passing of a medical examination.

A five-day working week is in operation, housing accommodation will be provided if required, and consideration will be given to financial assistance in connection with removal expenses.

Ilkeston is a progressive town of approximately 35,000 population lying some 8 miles from Nottingham and 10 from Derby, being in close proximity to the Peak District National Park.

Forms of application and conditions of appointment may be obtained from A. O. Marshall, M.I.Mun.E., M.I.Struct.E., F.I.A.A., Borough Surveyor & Water Engineer, Town Hall, Ilkeston, Derbyshire, to whom they are to be returned by Wednesday, 6th April, 1960.

J. YATES, Town Clerk. 8902

BOROUGH OF CHATHAM  
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the above appointment at a salary within Special Grade (£785-£1,070) and A.P.T. IV (£1,065-£1,220) according to qualifications and experience. Preference will be given to applicants who are professionally qualified and suitably experienced.

Applications, with the names and addresses of two referees, should be delivered to Mr. J. A. T. Richards, Borough Engineer and Surveyor, Town Hall, Chatham, not later than Friday, 25th March, 1960.

HOUSING ACCOMMODATION WILL BE AVAILABLE IN AN APPROPRIATE CASE.

The appointment will be (a) in accordance with the National Scheme of Conditions of Service, (b) terminable by one month's notice on either side, and (c) superannuable, subject to satisfactory medical report.

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ROWLAND NEWNES, Town Clerk. 8918

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JUNIOR ARCHITECTURAL ASSISTANT, A.P.T. I-£610-£765.

The appointments will be subject to the Local Government Superannuation Acts, the National Scheme of Conditions of Service and to termination by one month's notice on either side. Housing accommodation is available and two-thirds of any removal expenses incurred will be paid by the Council.

Applications, giving details of age and experience (stating for which appointment application is made), together with the names and addresses of two referees, should reach the undersigned not later than Friday, 1st April, 1960.

JOHN R. RIDING, Clerk of the Council. 8976

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SOUTHWARK

Applications are invited for the following appointments in the Borough Engineer and Surveyor's Department:-  
ARCHITECTURAL ASSISTANTS, A.P.T. I (£640 to £795 p.a.) or A.P.T. II (£795 to £910 p.a.).

Vacancies in design groups dealing with mixed housing and other development. Applicants should possess Intermediate R.I.B.A. for A.P.T. II. In under 25 years of age, the salaries will be £200 per annum less.

The Council has a large programme for housing development on sites already available, scheduled for clearance within the next ten years. In addition, a number of public building projects are envisaged, including new public buildings within the Elephant and Castle Development Area.

Applicants are requested to attach to their application forms, in typescript if preferred, brief details of their experience, particularly under the following headings:-

- (a) Housing schemes.
- (b) Public buildings.
- (c) Other buildings.
- (d) Office organisation.
- (e) Site supervision.

Please indicate clearly the post and grade applied for.

Council's Conditions of Service of Officers and Superannuation Scheme apply. Medical examination. No housing. Canvassing will disqualify. Further particulars from the undersigned. Closing date 30th March, 1960.

E. J. PITT, Town Clerk.

Southwark Town Hall  
(near Elephant & Castle Underground Station),  
Walworth Road,  
S.E.17. 8946

COUNTY BOROUGH OF BARNSELY  
BOROUGH ENGINEER & SURVEYOR AND  
PLANNING OFFICER'S DEPARTMENT  
APPOINTMENT OF ARCHITECTURAL  
ASSISTANT AND PLANNING ASSISTANT

Applications are invited for the following:-  
(a) ARCHITECTURAL ASSISTANT-Special Classes (A.P.T. I, £610-£765 or Special Grade, £785-£1,070).

(b) PLANNING ASSISTANT-Special Classes (A.P.T. I, £610-£765 or Special Grade, £785-£1,070).

THE COMMENCING SALARIES WILL BE FIXED WITHIN THE APPROPRIATE GRADES ACCORDING TO EXPERIENCE AND QUALIFICATIONS. For appointment (a) candidates should have completed their training and be at least Intermediate R.I.B.A. standard. Applicants for (b) must be taking T.P.I. or Diploma Course. Study facilities are available.

The posts are superannuable and subject to passing of medical examination, N.J.C. Conditions of Service, and one month's notice of either side.

HOUSING ACCOMMODATION CAN BE PROVIDED IF NECESSARY AND 50 PER CENT OF REMOVAL AND TRAVEL EXPENSES WILL BE PAID IN APPROVED CASES.

Applications, stating age, present and previous appointments, qualifications, experience etc., together with the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, by Friday, 25th March, 1960.

Canvassing will disqualify. A. E. GILFILLAN, Town Clerk.

TOWN OF BARNSELY  
ARCHITECTS  
GLENROTHES DEVELOPMENT CORPORATION

Architects (2) with A.R.I.B.A. required for the design and construction of Commercial and Shopping premises, Industrial Buildings and Housing. Salary grade rising to £1,375 per annum with placing according to age and experience.

Houses to rent available if required. Medical examinations under Superannuation Scheme. Application forms from Secretary and Legal Adviser, Glenrothes Development Corporation, Glenrothes, Fife, to be returned by 4th April, 1960.

NORTH RIDING COUNTY COUNCIL  
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of an ASSISTANT ARCHITECT on the permanent staff who must have passed the Final R.I.B.A. Examination. Salary is Special Scale, £785-£1,070, point of entry will depend on experience.

The National Scheme of Conditions of Service and the Local Government Superannuation Act apply, and a medical examination is required.

Forms of application are not being issued. Applicants should state age, qualifications and experience, together with particulars of present and previous appointments and names and addresses of three persons to whom reference can be made, to be delivered to the undersigned not later than 24th March, 1960.

Canvassing, directly or indirectly, will be deemed a disqualification and candidates should state in writing whether they are related to or members of, or senior officers under, the Council.

HUBERT THORNLEY, Clerk of the County Council.

# CITY OF OXFORD CITY ARCHITECT AND PLANNING OFFICER'S DEPARTMENT

Applications are invited for the following  
**SENIOR ARCHITECTURAL ASSISTANTS.**  
A.P.T. Grade IV (£1,065-£1,220) (Grading  
under review).

Suitable housing accommodation, if required,  
will be provided by the Council for the above

The successful applicants must be Members  
of the Royal Institute of British Architects and  
will be engaged mainly on educational and civic  
buildings. Applicants should have several years'  
experience and possess a wide knowledge of  
modern methods of construction and contract  
procedure and must be capable of carrying  
through contracts from sketch stage to com-  
pletion with minimum supervision. A high  
standard of design ability and a keen interest  
in contemporary architecture are essential.  
Applicants are encouraged to control their own  
contracts from sketch design onwards.

The appointments will be subject to the  
National Conditions of Service and the success-  
ful candidates will be required to pass a medical  
examination.

Application forms to be obtained from the City  
Architect and Planning Officer, Town Hall,  
Oxford. Closing date: 25th March, 1960.

**HARRY PLOWMAN,**  
Town Clerk.

8852

# GLASGOW CORPORATION ARCHITECTURAL AND PLANNING DEPART- MENT

**PLANNING ASSISTANTS**  
Applications are invited for posts as Planning  
Assistants, minimum qualification Final Exami-  
nation of R.I.B.A. or T.P.I. Salary Scale £795-  
£1,200 per annum, with placing according to ex-  
perience. The posts are permanent and super-  
annuable, subject to medical examination.

Form of application may be obtained from the  
Principal Administrative Officer, 20, Tron-gate,  
Glasgow, C.I.

**A. G. JURY,**  
City Architect and Planning Officer.

8803

# CITY OF WORCESTER APPOINTMENT OF BUILDING MAINTENANCE SURVEYOR

Applications are invited for this appointment  
to the staff of the City Engineer and Surveyor  
within A.P.T. Grade I (Salary £610-£765 per  
annum).

Candidates should have a thorough knowl-  
edge of building work and should be capable of pre-  
paring reports, estimates and specifications and  
of supervising all types of building maintenance  
work and minor building works.

The post is superannuable and the successful  
candidate will be required to pass a medical  
examination.

Housing accommodation will be made available  
if required and assistance towards removal ex-  
penses will be given where reasonably incurred.

Further particulars of the appointment may be  
obtained from the City Engineer and Surveyor, 22  
Bridge Street, Worcester, to whom applications  
should be addressed, stating age, experience,  
present and previous appointments together with  
the names of two referees. Applications are to  
be delivered by 23rd March, 1960.

**BERTRAM WEBSTER,**  
Town Clerk.

8990

# EXETER CITY COUNCIL CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following ap-  
pointments:

**SENIOR ASSISTANT ARCHITECT.** Salary  
within Special Grade (£785 to £1,070 per  
annum). Applicants must have passed Parts  
I and II of the R.I.B.A. Final Examination or  
Special Final or equivalent. Preference will  
be given to those with experience in modern  
design and construction of schools and civic  
buildings.

**JUNIOR ARCHITECTURAL ASSISTANT.**  
Salary within A.P.T. Grade I (£610 to £765 per  
annum). Applicants must have passed the  
Intermediate Examination of the Royal Insti-  
tute of British Architects.

The appointments are subject to one month's  
notice on either side and to the provisions of the  
Local Government Superannuation Acts. The suc-  
cessful applicants will be required to pass a  
medical examination.

Applications, stating age, qualifications, pre-  
sent and previous appointments and salaries, full  
details of experience and earliest possible date  
of availability, should be sent to the City Archi-  
tect, Municipal Offices, Exeter, not later than  
18th April, 1960.

**BOROUGH OF MALDEN AND COOMBE  
BOROUGH ENGINEER AND SURVEYOR'S  
DEPARTMENT**

**SENIOR ASSISTANT ARCHITECT**  
Applications are invited from Chartered Archi-  
tects for the appointment of Senior Assistant  
Architect, "Special" Grade, £785-£1,070 plus  
allowance "Weighting," commencing salary accord-  
ing to experience and qualifications. Forms of  
application, which must be returned endorsed by  
the candidate, must be obtained from the Council  
not later than 18th April, 1960.

**HAROLD E. BARRETT,**  
Town Clerk.

8998

Municipal Offices,  
15, Malden,  
Surrey.

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# CITY OF WINCHESTER

Applications are invited for the post of  
**ARCHITECTURAL ASSISTANT** in the City En-  
gineer's office (C. C. Steptoe, A.R.I.B.A., Chief  
Assistant Architect). It is essential that the  
applicant should be a neat and accurate draughts-  
man and have had previous experience in an  
architect's office and have passed the Intermediate  
Examination of the R.I.B.A. Salary, according to  
experience, will be within Grade A.P.T. I of  
the National Scales, and the appointment is  
subject to the Local Government Superannuation  
Act. This post has been designated as a key  
post for housing purposes and suitable housing  
accommodation will be made available.

Applications stating age and details of ex-  
perience together with names and addresses of two  
referees, should be addressed to the City Engineer,  
Guildhall, Winchester, and should reach his office  
not later than Thursday, 7th April, 1960. Can-  
vassing, either directly or indirectly, will dis-  
qualify.

**R. H. McCALL,**  
Town Clerk.

9005

# BOROUGH OF CHESTERFIELD

Applications are invited for two **ASSISTANT  
ARCHITECTS** within the grades A.P.T. II/  
Special £765-£1,070. The commencing salary will  
depend on qualifications and experience.

A car allowance is payable and housing ac-  
commodation will be provided if required.

A substantial programme of capital works is  
envisaged for completion during the next few  
years.

Chesterfield, which has a population of early  
70,000, is situated bordering the Peak District  
National Park.

Applications stating age, qualifications, training  
and experience, naming two referees, to the  
Borough Engineer, Town Hall, Chesterfield, not  
later than Thursday, 31st March.

**RICHARD CLEGG,**  
Town Clerk.

9008

# THE NORTH WESTERN ELECTRICITY BOARD

**SENIOR DRAUGHTSMAN (ARCHITECTURE  
AND BUILDINGS), SUB-AREA ENGINEERING  
DEPARTMENT, OLDHAM**

Applicants should have a good general and  
technical education and be experienced in the  
preparing of working and detailed drawings for  
commercial and industrial buildings.

Salary Scale: £790/£890 per annum Schedule  
D, Grade 5. N.J.B. Conditions.

Applications must be made on a form to be  
obtained from the Manager, No. 3 Sub-Area, The  
North Western Electricity Board, Union Street,  
Oldham, and returned to him so as to be received  
not later than 28th March, 1960.

**NORTHERN POLYTECHNIC, HOLLOWAY,  
LONDON, N.7**

The Governing Body invites immediate ap-  
pointments for the following appointments to the  
Department of Architecture, Surveying & Build-  
ing, to commence in September, 1960:

(a) **LECTURER IN ADVANCED CONSTRU-  
TION AND RELATED SUBJECTS.** Suitable  
practical experience essential. Some teaching  
experience desirable.

(b) **LECTURER IN DESIGN AND WORKING  
DRAWINGS.** Experience in the planning, con-  
struction and equipment of large buildings  
essential.

Applicants should be Associates of the Royal  
Institute of British Architects. Salary scale—  
£1,370 x £35 x £1,510 x £40 x £1,550, together  
with allowances in accordance with the Burnham  
Award.

Apply for further particulars (stating appoint-  
ment in which interested) and form of application.  
**R. H. CURRELL, F.C.A.,**  
Clerk.

8994

# COUNTY BOROUGH OF SOUTHAMPTON BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following  
permanent posts:—

(a) **SENIOR ASSISTANT ARCHITECT,** Special  
Grade (£785-£1,070).

(b) **ARCHITECTURAL ASSISTANT,** Grade  
A.P.T. II (£765-£880).

(c) **SENIOR QUANTITY SURVEYOR,** Special  
Grade (£785-£1,070).

Applicants should possess appropriate qualifi-  
cations and should state their housing needs and  
commencing salary required.

Application forms from the Borough Architect,  
Civic Centre, Southampton, returnable by 26th  
March, 1960.

9032

# CITY AND COUNTY OF NEWCASTLE UPON TYNE CITY ARCHITECT'S DEPARTMENT

The City Architect will be pleased to receive  
applications for the following Established Post in  
the Quantity Surveying Section of the Depart-  
ment:—

**SENIOR ASSISTANT QUANTITY SURVEYOR,**  
A.P.T. DIVISION, GRADE III (£880-£1,065  
per annum).

Application forms and full particulars may be  
obtained from George Kenyon, A.R.I.B.A.,  
A.M.T.P.I., City Architect, 18, Cloth Market,  
Newcastle upon Tyne, 1.

Closing date for receipt of completed applica-  
tions, Monday, 28th March, 1960.

**JOHN ATKINSON,**  
Town Clerk.

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# THE UNIVERSITY OF SHEFFIELD

Applications are invited for the post of **TECH-  
NICAL ASSISTANT (ARCHITECTURAL)** on the  
staff of the Planning Office which offers oppor-  
tunity for interesting work on the New Buildings  
Programme. Applicants should have drawing  
office experience in an architectural office, and  
have a knowledge of working drawings. Starting  
salary £600-£750 per annum according to age and  
experience. Applications stating age, qualifica-  
tions and experience, with details of present  
post and the names of two persons to whom  
reference may be made should be submitted to  
the Bursar, The University, Sheffield 10, not  
later than 21st March, 1960.

8973

# HEMEL HEMPSTEAD DEVELOPMENT CORPORATION

**SENIOR ARCHITECT** (Vacancy No. 188)  
Salary scale £1,065-£1,220 or £880-£1,065 accord-  
ing to qualifications and experience.

Applicants should have passed Final R.I.B.A.  
examination. Experience in design and execution  
of housing, neighbourhood shops or industrial  
buildings desirable.

Conditions of service similar to those in Local  
Government.

Housing accommodation available.  
Applications, endorsed "Vacancy No. 188,"  
giving age, education, qualifications and experi-  
ence and names of two business referees, should  
reach General Manager, Westbrook Hayes, Hemel  
Hempstead, by 25th March.

8958

# SCOTTISH QUANTITY SURVEYORS' ASSISTANTS

**DO YOU WANT TO WORK IN ENGLAND  
IN A GOVERNMENT DEPARTMENT  
WITH GOOD OPPORTUNITIES AND  
PROMOTION PROSPECTS?**

If so, and you have passed either the **FIRST  
or INTERMEDIATE** examinations of the Royal  
Institution of Chartered Surveyors and are  
eligible to sit the next examination in the  
Quantity Surveying Section, write immediately  
to:—

**THE CHIEF QUANTITY SURVEYOR,  
WORKS DIRECTORATE,  
THE WAR OFFICE,  
CHESINGTON,  
SURREY.**

For application forms and further particulars of  
the

**FREE FULL TIME NON-RESIDENTIAL  
TRAINING COURSE IN ENGLISH QUANTITY  
SURVEYING PRACTICE** to be held from 30th  
May, 1960 to 30th July, 1960 at THE COLLEGE  
OF ESTATE MANAGEMENT, LONDON.

Salaries ranging from £402 at age 19 to £900  
per annum, according to age, qualifications and  
experience, will be paid during the course.

Successful candidates will be offered appoint-  
ments in the WAR OFFICE, Works Directorate,  
CHESINGTON, Surrey.

Completed application forms **MUST BE RE-  
TURNED** by 4th April, 1960.

# BOROUGH OF ASHTON-UNDER-LYNE APPOINTMENT OF ESTIMATOR/SURVEYOR

Applications are invited for the above ap-  
pointment in the office of the Borough Engineer &  
Surveyor at a salary within Grade I of the  
Administrative, Professional and Technical Divi-  
sion of the National Scales (between £610 and  
£765 according to experience).

The duties will include estimating for both new  
and maintenance work in connection with the  
Council's Direct Works Department and also  
preparing schedules of materials for ordering  
purposes, assisting with bonus calculations and  
giving assistance to the Quantity Surveyor.

The provision of housing accommodation for  
the successful candidate will be considered if  
necessary.

Particulars of the appointment and application  
forms may be obtained by application to the  
Borough Engineer & Surveyor, Municipal Offices,  
Ashton-under-Lyne and should be returned to  
me by Monday the 28th March, 1960.

**G. A. MALONE,**  
Town Clerk.

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## SENIOR ARCHITECTS ARCHITECTS

### Architectural Assistants

London Consulting Engineers have vacancies in their Architects Department, for work on major industrial projects.

These positions are permanent and pensionable.  
Five day week. Luncheon Vouchers.  
Write with full details to:  
Personnel Manager,  
W. S. Atkins & Partners,  
158 Victoria Street, LONDON, S.W.1

SHOREDITCH BOROUGH COUNCIL

## SENIOR ARCHITECTS

has vacancies for qualified  
Senior Architects for varied  
and interesting programme of  
important Public Buildings.  
Salaries £1100 - £1400 p.a.

Applications to : BOROUGH ARCHITECT, TOWN HALL, E.C.1.

BOROUGH OF SWINDON

## Assistant Architects

Applications are invited for the undermentioned appointments. Applicants should have the qualification shown or an equivalent qualification.

The department is engaged in a large and varied development programme, including housing schemes, neighbourhood shopping centres, civic works and industrial buildings.

A five-day week is in operation.

Housing accommodation and removal assistance may be offered.

The commencing salary in each grade will be in accordance with experience. Candidates who are taking final examinations this year may be appointed in A.P.T. II and transferred to an A.P.T. Special Scale vacancy on qualifying.

### (a) Assistant Architect

A.P.T. Special Scale (£785-£1070). Final R.I.B.A.

### (b) Junior Assistant Architects

A.P.T. II. (£765-£880). Inter R.I.B.A.

Applications, giving details of qualifications, appointments and experience should be submitted to the Town Clerk, Civic Offices, Swindon, within fourteen days. Canvassing will disqualify.

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*Press, 9-13 Queen Anne's Gate, S.W.1*



**ARCHITECTS AND MAINTENANCE SURVEYORS.** Pensionable posts for men and women at least 25 and under 35 on L.I.60 (extension for Regular Forces service, Overseas Civil Service, established civil service and temporary Government service as Architect or Maintenance Surveyor). Candidates must be registered Architects or, alternatively, for Maintenance Surveyor posts, have achieved Corporate membership of R.I.C.S. (Building Section), or have passed examinations necessary for attaining Corporate membership. Starting salary (men, London) from £830 to £1,125 according to age. Scale maximum (London) £1,300. Promotion prospects. Write Civil Service Commission, 17, North Audley Street, London, W.1, for application form quoting S.9-61. 8964

**Valuation Office, Inland Revenue.** require **BUILDING SURVEYOR** for Eastern Region based on Cambridge. Salary range £1,285-£1,785. Starting salary depending on qualifications and experience. Sound knowledge and experience of building construction and costing of offices, factories, schools, public buildings, etc., required. Membership of R.I.C.S., R.I.B.A., or other appropriate qualification is desirable. Posts unestablished but term of years envisaged. Forms from Ministry of Labour, Technical and Scientific Section (K), 25, King Street, London, S.W.1, quoting J.78/OA. 8951

#### COUNTY BOROUGH OF TYNEMOUTH BOROUGH SURVEYOR'S DEPARTMENT STAFF

Applications are invited for the following posts:  
1. **SENIOR ASSISTANT QUANTITY SURVEYOR, A.P.T. IV** (£1,065-£1,220). Must be professionally qualified.

2. **ASSISTANT ARCHITECT, Special Grade** (£785-£1,070).

3. **SENIOR ASSISTANT ARCHITECT, A.P.T. I** (£610-£765).

4. **ASSISTANT QUANTITY SURVEYOR, A.P.T. I** (£610-£765) or **A.P.T. II** (£765-£880), according to qualifications and experience.

The Department has a full and varied programme of work, including four-storey flats, Municipal Offices, Main Drainage, Sea Defence Works and a five-year Road Programme.

Application forms, together with Conditions of Appointment, are obtainable from D. M. O'Hertly, Esq., O.B.E., B.Sc.(Eng.), M.I.C.E., 16, Northumberland Square, North Shields, to whom they should be returned by the 31st March, 1960.

The Corporation may assist in the provision of housing accommodation for posts (1) and (2).  
**FRED G. EGNER,**  
Town Clerk. 9041

#### 4th March, 1960.

#### SHEFFIELD REGIONAL HOSPITAL BOARD ARCHITECTURAL COMPETITION NEW HOSPITAL AT BOSTON, LINCOLNSHIRE

The Board, who are the Promoters of this competition, invite Architects resident in Great Britain, Northern Ireland and Eire to submit designs in competition for a new hospital to be sited at Boston, Lincolnshire.

The hospital will comprise some 474 beds with the usual ancillary departments.

The Promoters have appointed Mr. John Murray Easton, F.R.I.B.A., as Assessor to adjudicate on the designs received and to make the Award.

The competition will be conducted in two stages. The Preliminary Stage comprising a sketch scheme leading to a small scale, plans, sections and elevations in sufficient detail to explain broadly the general planning, massing and composition of the scheme.

From the competitors taking part in the Preliminary Stage, the Assessor will select six to proceed to the Final Stage and to prepare more detailed schemes in accordance with the requirements set out in the Conditions.

Each of the six selected competitors will receive a premium of £500, provided that such schemes are in accordance with the Conditions. The author of the design placed first by the Assessor will receive, in addition to the premium of £500, a further premium of £1,500, both sums to merge with the fees payable to the author of the selected design.

For the purpose of this competition, the word "architect" shall mean any person who, at the time of his application for the competition Conditions is registered under the Architects' (Registration) Acts 1931 and 1938 or, being qualified for registration, had already made application to the Architects' Registration Council in the prescribed form, to be admitted to the Register.

Any applicant for the Conditions should state his registration number, and in the case of an unregistered person who has made application for registration, the date of such application and the number of the receipt issued by the Architects' Registration Council in respect of the admission of the applicant.

Where application is made by a firm, the registration numbers of the architect partner or partners of the firm must be given.

Applications for Conditions, schedules of accommodation, site plans, etc., accompanied by a deposit of two guineas, are to be addressed to the undersigned. Deposits will be returnable upon receipt of a bona fide design, or if Conditions are returned within one month before the date of submission of designs.

**LEONARD W. FAULKNER,**  
Secretary to the Board.  
Sheffield Regional Hospital Board,  
Fulwood House,  
Old Fulwood Road,  
Sheffield, 10. 8948

**MIDDLESEX COUNTY COUNCIL  
JUNIOR ARCHITECTURAL ASSISTANTS** required in Westminster. Salary £285 rising to possible maximum of £760 or A.P.T. I, £610-£765 plus London weighting up to £30.  
Post-entry training scheme is in operation and staff appointed will be expected to study for the examinations of the R.I.B.A.  
Application forms (s.a.e.) from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 4th April. Pre-scribed conditions. (Quote C.86 A.J.) 8955

**SURREY COUNTY COUNCIL  
COUNTY PLANNING DEPARTMENT**  
Applications are invited from suitably qualified persons for the post of **PLANNING ASSISTANT** at the Headquarters Office at Kingston-upon-Thames, on the Special (Qualified) Grade (£785 x £40/45-£1,070 plus London Allowance) for development control work.

Applications (endorsed "Confidential-County Planning Vacancy") stating age, qualifications and experience, with details of present post and salary, and the names of two referees, must be received by the County Planning Officer, "Elmhurst," Penrhyn Road, Kingston-upon-Thames, not later than 4th April, 1960. 9040

#### CITY AND COUNTY OF NEWCASTLE UPON TYNE CITY ARCHITECT'S DEPARTMENT

The City Architect will be pleased to receive applications for the following appointments in the Department in connection with the New Town Hall project:-

1. **SENIOR ASSISTANT ARCHITECTS** (two vacancies), A.P.T. Division Grade IV (£1,065-£1,220 per annum).

These posts will offer ideal opportunity for Architects wishing to work on an important building involving finishes of high quality. It is anticipated that work on the site on the first three blocks of the New Town Hall will commence in April, 1960, and the whole project is estimated to cost over £2,000,000. A high standard of design ability and an appreciation of art and experience in good quality building work is essential.

Application forms and full particulars may be obtained from George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle upon Tyne, 1.

Closing date for receipt of completed applications, Monday, 28th March, 1960.

**JOHN ATKINSON,**  
Town Clerk. 8940

Town Hall,  
Newcastle upon Tyne, 1.  
4th March, 1960.

#### COUNTY BOROUGH OF DERRY BOROUGH ARCHITECT'S DEPARTMENT

(a) **SENIOR ASSISTANT ARCHITECT, A.P.T. Grade IV** (£1,065-£1,220 per annum). Qualifications: A.R.I.B.A.

(b) **SENIOR ASSISTANT ARCHITECT, Special Grade** (£785-£1,070 per annum). Qualifications: A.R.I.B.A.

(c) **JUNIOR ARCHITECT, General Division** (£210-£595 per annum). Qualifications: Probationer R.I.B.A.

OR  
**ASSISTANT ARCHITECT, A.P.T. Grade I** (£610-£765 per annum). Qualifications: Intermediate R.I.B.A.

(d) **JUNIOR QUANTITY SURVEYOR, General Division** (£210-£595 per annum). Qualifications: Student member R.I.C.S. with previous experience in Quantity Surveyor's Office.

OR  
**ASSISTANT QUANTITY SURVEYOR, A.P.T. Grade I** (£610-£765 per annum). Qualifications: Intermediate R.I.C.S. with good experience in working up Bills of Quantities and Final Accounts, measuring on site and taking off for small works.

Commencing salary according to qualifications and experience. Permanent superannuable appointments, subject to one month's notice and to medical examination.

National Conditions of Service.  
Forms of application obtainable from and to be returned to the Borough Architect, The Council House, Corporation Street, Derby, not later than Monday, 28th March, 1960.

**G. H. EMLYN JONES,**  
Town Clerk. 8954

4th March, 1960.

#### RADNORSHIRE COUNTY COUNCIL COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of **ARCHITECTURAL DRAUGHTSMAN**. Salary A.P.T. Grade II (£765 to £880). Good drawing board experience essential and candidates should have a knowledge of school and house design and construction. Preference will be given to those holding the Intermediate R.I.B.A.

The appointment will be terminable by one month's notice in writing on either side and will be subject to the provisions of the Local Government Superannuation Acts and to the passing of a medical examination.

The Conditions of Service will be those of the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services. Travelling allowance as casual user on County Scale.

Applications stating age, qualifications and experience with the names of two referees must be received by the undersigned not later than 31st March, 1960.

**D. C. S. LANE,**  
Clerk of the Council. 9031

County Hall,  
Llandrindod Wells,  
Radnorshire.

#### EAST LOTHIAN COUNTY COUNCIL ASSISTANT ARCHITECTS

Applications are invited from Qualified Architects for two posts of Assistant Architect in the Property and Works Department. Salary scale £795 to £1,075 per annum with appropriate placing. Superannuation. Persons appointed may reside in Edinburgh if desired. Applications, stating age and experience, with names and addresses of two referees to the undersigned by 28th March 1960.

**THOS. GIBB,**  
County Clerk. 8953

#### County Buildings, Haddington.

#### COUNTY BOROUGH OF SOUTHPORT TEMPORARY CLERK OF WORKS

Applications are invited for the temporary appointment of a Clerk of Works to supervise the erection of houses and other major building work.

The wage is £690 per annum. Candidates must have a sound knowledge of all trades, setting out, levelling, and experience in the erection of traditional public buildings. The appointment is subject to the Local Government Superannuation Acts.

Application forms obtainable from the Borough Architect and Town Planning Officer, 99/105, Lord Street, Southport, to be returned by 2nd April, 1960.

#### FAREHAM URBAN DISTRICT COUNCIL (Population 58,000. Area 18,000 Acres)

#### ARCHITECTURAL ASSISTANT (TEMPORARY)

Applications invited for the above appointment in Architects' Section of Engineer and Surveyor's Department. Salary Grade A.P.T. I (£610-£765).

Candidates must have suitable experience and a sensitive approach to modern design and have passed the Intermediate R.I.B.A. Examination or its equivalent at one of the recognised schools of architecture.

Appointment is superannuable and subject to the National Scheme of Conditions of Service, a satisfactory medical examination, and one month's notice on either side.

Applications, stating age, qualifications and experience and past and present appointments, with names and addresses of two referees, to Engineer and Surveyor, Westbury Manor, West Street, Fareham, Hants, by 28th March, 1960.

**B. W. RANDS,**  
Clerk to the Council. 9058

"Merton,"  
5, Grove Road,  
Fareham, Hants.

#### CITY OF CANTERBURY

Applications are invited from persons who have passed the Final Examination of the R.I.B.A. for the appointment of an **ASSISTANT ARCHITECT, Special Scale** (£785-£1,070). Commencing salary according to qualifications and experience.

Applicants should have had good general experience in design and working drawings.

Housing accommodation available if required.

Applications, together with the names of two referees, must reach the City Architect and Planning Officer, Mr. John L. Berbers, F.R.I.B.A., A.M.T.P.I., not later than Friday, 1st April, 1960.

Canvassing will disqualify.

**J. BOYLE,**  
Town Clerk. 9064

Municipal Buildings,  
Canterbury.

#### COUNTY BOROUGH OF BOLTON BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited from qualified architects for the post of **PRINCIPAL ASSISTANT ARCHITECT, Grade A.P.T. IV** (£1,065-£1,220).

The successful candidate will be expected to lead a group on varied work, and the commencing salary will be within the grade according to experience.

The appointment is superannuable and is subject to medical examination. Applications, giving full details of age, qualifications and experience, and the names of two referees, should be received by me by 10 a.m., Monday, the 28th March.

**PHILIP S. RENNISON,**  
Town Clerk. 9017

Town Hall,  
Bolton.

#### COUNTY BOROUGH OF BRIGHTON ASSISTANT HEATING AND VENTILATING ENGINEER

Applications are invited for the appointment of an Assistant Heating and Ventilating Engineer in the Borough Surveyor's Department, in accordance with A.P.T. Grade III (£880 to £1,065) the commencing salary to be fixed in accordance with qualifications and experience.

The appointment will be subject to the Conditions of Service and Salary Scales of the National Joint Council and to the provisions of the Local Government Superannuation Acts, 1937-1953.

The successful candidate will be required to pass a medical examination and the appointment will be subject to one month's notice on either side.

Applicants must be associate members of the Institution of Heating and Ventilating Engineers and have experience in the design of low pressure hot water heating systems and allied plant.

Application forms may be obtained from D. J. Howe, M.I.C.E., M.I.Mun.E., Borough Surveyor, Engineer & Planning Officer, 26-30, Kings Road, Brighton, and are to be returned not later than noon on 2nd April, 1960.

**W. O. DODD,**  
Town Clerk. 9011

County Buildings,  
Brighton.

**CITY OF LIVERPOOL  
EDUCATION COMMITTEE  
COLLEGE OF BUILDING**

PRINCIPAL: T. E. Hall, Dip.Arch., A.R.I.B.A.  
Applications are invited for the following teaching appointments (full-time) in the Department of Building and Professional Studies. Duties to commence as soon as possible.

- (1) LECTURER to teach selected Surveying subjects to the standard of the R.I.C.S. Final Examinations in full-time and part-time professional courses. Applicants must hold the Associateship of the R.I.C.S. in the Valuation Surveying section.
- (2) ASSISTANT LECTURER (Grade "B") in Architecture. Applicants should hold a degree in Architecture and/or Associateship of the R.I.B.A. The person appointed will be required to teach selected subjects up to the standard of the Final R.I.B.A. Examinations in a newly established sandwich course and/or in part-time courses.

For both appointments professional experience is essential and teaching experience desirable.

- Salaries:**  
(1) Men: £1,370 x £35 to £1,550 per annum.  
(2) Men: £700 x £27 10s. to £1,150 per annum.  
(plus allowances for graduate qualifications and training, and increments for Industrial Experience and War Service).

Particulars of appointments and application forms (returnable by 31st March, 1960) from H. S. Magnay, M.A., Director of Education, 14, Sir Thomas Street, Liverpool, 1.

THOMAS ALKER,

Town Clerk and Clerk to the Local (J.6081) Education Authority. 9025

**CORPORATION OF THE CITY OF ABERDEEN  
CITY ARCHITECT'S DEPARTMENT  
ASSISTANT ARCHITECTS**

Applications are invited from qualified Architects (A.R.I.B.A.) for supernumerary appointments in the above Department. Salary Scale £795 rising by annual increments of £35 to £1,075 per annum. Commencing salary will depend on experience and qualifications.

Applications, stating name, address, age, qualifications, experience, previous and present appointments held, and the names and addresses of three Architects to whom reference may be made, should be sent to The City Architect, on or before 23rd March, 1960.

J. C. RENNIE,  
Town Clerk. 9042

Town House,  
Aberdeen.  
10th March, 1960.

**COUNTY BOROUGH OF CARLISLE**  
Applications are invited for the appointment of ASSISTANT ARCHITECT in the City Surveyor's Department at a salary in accordance with A.P.T. Special Scale £785-£1,070. Starting salary according to qualifications and experience. Applicants should be A.R.I.B.A. This post is in a Section normally carrying out General Work, but at present Educational Work is also being done.

The office is sectionalised, the architectural work being under the immediate control of the Deputy City Architect.

Forms of application from City Surveyor, 18, Fisher Street, Carlisle, returnable to him not later than 31st March, 1960.

H. D. A. ROBERTSON,  
Town Clerk. 9010

**GOVERNMENT OF HONG KONG  
BUILDING SURVEYORS PUBLIC WORKS  
DEPARTMENT**

Post A. To examine and approve plans submitted by private architects to ensure compliance with the Buildings Ordinance.

Post B. Maintenance of and alterations and additions to Government buildings, including preparation of drawings and estimates and the general supervision of works.

Pensionable or contract/gratuity appointments. Salary within the range £1,500-£2,865. Rented quarters. Free passages.

Candidates must be A.R.I.C.S. (Building) with at least one year's experience after qualifying. Write to Director of Recruitment, Colonial Office, London, S.W.1, giving full names, age, qualifications and experience, quoting BCD 112/51/02/E2. 9002

**AIR MINISTRY Works Designs Branch** requires in LONDON and PROVINCES, ARCHITECTURAL ASSISTANTS with adequate training and drawing office experience. O.N.C. (Building) an advantage. Work includes site layouts, sketch plans, working drawings and details for variety of technical and domestic buildings in permanent and semi-permanent construction. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 working days leave per year initially. Overseas tours for which special allowances granted. Salary in LONDON ranges from £680 (age 25) to £900 p.a. for men; from £673 to £868 p.a. for women; somewhat lower in PROVINCES. Commencing salary dependent on age, qualifications and experience. Applicants who must be natural-born British subjects, should write to Air Ministry, W.G.C., Lacan House, Theobalds Road, London, W.C.1, or to any Employment Exchange (quoting Order No. Kings Cross 3744 giving age, details of training, qualifications, full particulars of former posts held and copies of any testimonials). Candidates selected will normally be interviewed in London and certain expenses reimbursed. 7498

**CORPORATION OF GLASGOW  
ARCHITECTURAL AND PLANNING  
DEPARTMENT**

ASSISTANT QUANTITY SURVEYORS

Vacancies exist for a number of qualified assistants as above. Salary scale £795-£1,240 with placing according to experience.

Applications should be addressed to the City Architect and Planning Officer, 20, Trongate, Glasgow, C.1. Those who have submitted applications during the past 12 months should not reply to this advertisement.

A. G. JURY,  
City Architect and Planning Officer. 9015

**ROYAL INSTITUTE OF BRITISH  
ARCHITECTS**

Applications are invited for the post of TECHNICAL INFORMATION OFFICER.

The man or woman appointed will be required to implement the Council's decision to initiate a technical information service: to prepare and publish the first pilot series of RIBA technical notes and subsequently to establish a permanent publication service.

The appointment is particularly suited to the younger architect and the salary range is £1,250-£2,000 with annual increments of £50.

Applications should be made on forms available from the Secretary, R.I.B.A., 66, Portland Place, London, W.1, not later than Friday, 29th April, 1960. 9081

**LONDON COUNTY COUNCIL  
ARCHITECT'S DEPARTMENT**

ARCHITECT PLANNERS required. Tasks include three-dimensional planning in Comprehensive Development Areas and all other important areas of new development throughout London, including those associated with road improvements. Up to £1,135 (under review) according to experience and qualifications.

Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council (EK/AJ 527/3), County Hall, S.E.1. 9077

**BUILDING SURVEYORS**

Architect's Department, L.C.C., has vacancies in Building Regulation Division and District Surveyors' Service for work in connection with applications under London Building Acts and byelaws. District Surveyors' Offices are located in Metropolitan Boroughs and work involves negotiations with developers and supervision of works in progress.

Up to £1,135 (under review) commencing according to qualifications and experience. Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council (EK/AJ 494/3), County Hall, S.E.1. 9076

**LONDON COUNTY COUNCIL**

ARCHITECTS (up to £1,135) (under review) required for Housing, Schools, General and Special Works Divisions. Full and varied programme of new work including schools, multi-storey flats and Town Development. Starting salaries according to qualifications and experience.

Particulars and application form from Hubert Bennett, F.R.I.B.A., Architect to Council (EK/AJ 496/3), County Hall, S.E.1. 9075

**CANNOCK URBAN DISTRICT COUNCIL**

SENIOR ASSISTANT ARCHITECT

Applications are invited for this appointment in the Architect's Department of the Council at a salary in accordance with Grade A.P.T. IV (£1,065 per annum-£1,220 per annum).

Housing accommodation available if married. Further particulars may be obtained from the undersigned to whom applications should be submitted by Tuesday, 29th March, 1960.

H. C. ALLEN,  
Clerk of the Council. 9068

**COUNCIL HOUSES,  
The Green,  
Cannock,  
Staffs.  
March, 1960.**

**GLOUCESTERSHIRE COUNTY COUNCIL  
ARCHITECTURAL ASSISTANT  
(QUALIFYING CLASS)**

A.P.T. Grade I (£610-£765), A.P.T. Grade II (£765-£880) or Special Grade (£785-£1,070). Applicants for Grade I and II must have passed the Intermediate Examination R.I.B.A. and for Special Grade the Final Examination, N.J.C. Service Conditions, superannuation, medical examination.

Apply stating age, present position, salary and date of appointment, details of previous appointments and names and addresses of two persons for reference to COUNTY ARCHITECT, SHIRE HALL, GLOUCESTER, by 25th MARCH, 1960.

GUY H. DAVIS,  
Clerk of the County Council. 9067

**THE AGRICULTURAL RESEARCH COUNCIL** invite applications for the following post at their Farm Buildings Unit at Silsoe, Beds, for work in connection with their recently announced experimental farm buildings scheme:—

ARCHITECT, registered by examination and holding professional qualifications in architecture, with practical experience of building design and supervision, preferably including work on farm buildings. Knowledge of quantity surveying and estimating an advantage. Salary scale £1,245-£1,730. Superannuation under F.S.S.U. Applications, with names of three referees, to Secretary, Agricultural Research Council, Cunard Building, 15, Regent Street, London, S.W.1, not later than 31st March, 1960. 9063

**CITY OF OXFORD EDUCATION COMMITTEE  
COLLEGE OF TECHNOLOGY**

An additional LECTURER IN CONSTRUCTION for work with students of Architecture, Building and Quantity Surveying is to be appointed from September, 1960. Applicant should be Associate of the R.I.B.A., preferably with School training, and have had good professional and some teaching experience.

Salary on Burnham Technical Scale: £1,370 x £35 — £1,550 per annum. Increments above the minimum of the scale may be allowed for approved professional experience.

Further particulars and application form (stamped addressed envelope) can be obtained from The Principal, College of Technology, Headington Road, Oxford, to whom applications should be returned by April 6th, 1960. 906

**BOROUGH OF BILSTON**

HOUSING DIRECTOR'S DEPARTMENT

Applications are invited for the following appointments:—

- (a) CHIEF ARCHITECTURAL ASSISTANT—Special Grade £785-£1,070.
- (b) ARCHITECTURAL ASSISTANT—A.P.T. Grade I, £765-£880.
- (c) DRAUGHTSMAN—General Division, £210-£595.

The appointments will be subject to the National Scheme of Conditions of Service, medical examination and the Local Government Superannuation Acts 1937 and 1953.

Housing accommodation will be made available if required.

Applications in writing, stating the post applied for, and giving age, qualifications and previous experience including any services with a Local Authority together with the names and addresses of two referees should be sent to the Housing Director, Municipal Buildings, Hall Street, Bilston, not later than Saturday, 26th March, 1960.

A. M. WILLIAMS,  
Town Clerk. 907

Town Hall,  
Bilston.  
10th March, 1960.

**COUNTY BOROUGH OF BLACKPOOL**

APPLICATIONS (by 23rd March) are invited for the following posts:—

- (a) ASSISTANT ARCHITECTS. A.P.T. Special £785-£1,070.
- (b) ARCHITECTURAL ASSISTANTS. A.P.T. £810-£765) or A.P.T. II (£765-£880).
- (c) SENIOR ASSISTANT QUANTITY SURVEYOR. A.P.T. Special (£785-£1,070).
- (d) ASSISTANT QUANTITY SURVEYOR. A.P.T. II (£765-£880).
- (e) TOWN PLANNING ASSISTANT. A.P.T. Special (£785-£1,070).

Application forms and particulars from Borough Surveyor (Arthur Hamilton, B.Sc., A.R.I.B.A.) P.O. Box 17, Municipal Offices, Blackpool. 90

**COUNTY OF BERWICK**

COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of an ASSISTANT ARCHITECT at a salary in accordance with Salary Scale £980-£1,060, with placing.

Applicants must be Registered Architects and Members of the Royal Institute of British Architects.

Applications, stating age, qualifications, experience, etc., together with the names and addresses of two referees to be lodged with the undersigned not later than 31st March, 1960.

ROBERT MARTIN,  
County Clerk. 904

County Buildings,  
Duns.

**MINISTRY OF EDUCATION requires HEAD**

ING ENGINEER for Architects and Building Branch, Curzon Street, London. Work involves study of all problems connected with heating, educational buildings, development of economic and efficient methods of heating and their discussion with Local Education Authorities and manufacturers. Qualifications, apart from membership of I.H.V.E., include an objective analytical cast of mind, initiative, ability to present a case convincingly and capacity working closely with architects and other colleagues. Unestablished post with salary scale £1,840 to £2,120; starting salary might be a minimum. Five-day week, annual leave allance of five weeks. Application forms obtainable from the Manager (P.E. 958), Ministry of Labour Professional and Executive Register, Atlas House, Farringdon Street, E.C.4, to be returned by 30th April, 1960.

**BERKSHIRE COUNTY COUNCIL**

QUANTITY SURVEYING ASSISTANT, A.P. Grade II, £765-£880. Applicants should have experience in a quantity surveying office and have passed the Intermediate Examination of R.I.C.S.

Application forms and further particulars can be obtained from J. T. Castle, A.R.I.B.A., A.M.T.P.I., County Architect, Wilton House, Parkside Road, Reading, to whom they should be returned not later than 29th March, 1960. 90

**ARCHITECTS (up to £1,135, under review)**

required for interesting work for parks and open spaces in association with landscape architects. Also QUANTITY SURVEYORS (up to £1,135, under review) and ARCHITECTS, LANDSCAPE ARCHITECTS, QUANTITY SURVEYORS and BUILDING SURVEYORS ASSISTANTS (up to £695). Apply Chief Officer, Parks Dept., L.C.C. County Hall, London, S.E.1. (WATERLOO Ext. 8076). (455).

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**CORPORATION OF LONDON**  
require ASSISTANT ARCHITECT in Architectural and Building Division of City Surveyor's Department. Applicants should have passed Final R.I.B.A.: sound knowledge of architecture necessary with capability to prepare sketch schemes, working drawings and specifications of a wide variety of buildings. Salary up to £1,325 dependent upon experience and qualifications.

Applications in writing, giving full particulars of age, experience, etc., together with names of three referees, to The City Surveyor, Guildhall, London, E.C.2, within 14 days. 9060

**PADDINGTON BOROUGH COUNCIL**  
**BUILDING SURVEYING ASSISTANT**  
(£795-£910)

Starting salary according to qualifications and experience. Candidates, preferably with Intermediate R.I.C.S. (building), should be able to prepare estimates, specifications and supervise conversion and repair work, house and civic properties, surveying, levelling and final accounts experience desirable. Furnish age, qualifications, experience, two referees' names by 31st March (quoting A.465).

**W. H. BENTLEY,**  
Town Clerk.  
Town Hall, Paddington, W.2. 9087

**INVERNESS COUNTY COUNCIL** invite applications for appointments in the County Architect's Department as follows:—

- (a) ONE FIRST ASSISTANT ARCHITECT, salary scale £1,040-£1,120 per annum.
- (b) ONE SECOND ASSISTANT ARCHITECT, salary scale £795-£1,075 per annum.
- (c) ONE THIRD ASSISTANT ARCHITECT, salary scale £605-£735 per annum.

Applicants for appointments (a) and (b) must be fully qualified and for appointment (c) should be qualified or about to qualify to Intermediate standard. Appropriate placing on salary scales will be given in accordance with qualifications and experience. Housing accommodation may be made available if required. Applications together with names and addresses of three referees to the County Clerk, County Buildings, Inverness, by 26th March, 1960. 9085

**COUNTY BOROUGH OF BIRKENHEAD**  
**BOROUGH ARCHITECT'S DEPARTMENT**

Applications are invited for the Established Posts of PRINCIPAL ASSISTANTS, Grade A.P.T. IV (£1,065-£1,220). Applicants must be qualified and have a good general experience in design and construction and capable of taking charge of large projects with a minimum of supervision. Salaries commensurate with qualifications and experience. The posts offer interesting and responsible work in connection with the Council's extensive programme of Schools and other major building schemes. Forms of application and further particulars from Borough Architect's Department, 3, Conway Street, Birkenhead. Closing date for applications: 31st March, 1960. Relationship to Members or Senior Officers of the Council must be disclosed. 9086

## Architectural Appointments Vacant

5s. per line; minimum 12s. Box Number, including forwarding replies 2s. extra.

**BRIGHT** young ASSISTANTS wanted urgently to work on a wide range of contemporary projects. Excellent prospects for men with enthusiasm and initiative. Salary range £400-£680 according to experience. Write or telephone Derby 49287. Morrison & Partners, St. Alkmunds House, 103, Belper Road, Derby. 8741

**RAMSEY, MURRAY, WHITE & WARD** require a qualified ASSISTANT. Salary according to experience. Apply to the Secretary, 32, Wigmore Street, London, W.1. 8759

**TWO ARCHITECTURAL ASSISTANTS** required—Intermediate R.I.B.A. standard—who have had good office experience. Salary £600-£800 according to experience. Housing accommodation could be provided. Reply, giving particulars of age and experience and salary required, to: Francis W. Keyworth, L.R.I.B.A., 29, Park Road, Melton Mowbray, and 31, Friar Lane, Leicester. 8776

**ARCHITECTURAL ASSISTANTS** required for private practice LONDON for interesting and varied work. Applicants should be of Intermediate standard, with office and survey experience. Salary by arrangement. Write giving brief particulars, present salary, age, etc. Box 977.

**F. B. BATES & SON, F.A.R.I.B.A.,** Chartered Architects, 70, High Street, Newport, require ARCHITECTS/ASSISTANT ARCHITECTS for their Newport and Cardiff Offices. Interesting and varied work on Churches, Schools, Hospitals, etc. Scope for initiative and responsibility in design and site supervision. Graded Salary System: In the range £750-£1,100 (according to age and experience). Saturday rota and car mileage allowance. Write above address or telephone NEWPORT 58253/4. 8670

**TAYLOR, YOUNG & PARTNERS, MANCHESTER,** require ASSISTANTS for work on schools, hospitals and other projects. Pension scheme. Salary up to £1,200 per annum according to ability and experience. Apply in writing to 195, Oxford Road, Manchester, 13. 8659

**C. H. ELSOM & PARTNERS** require ASSISTANTS for work on theatres, laboratories, shops, stores and town centre redevelopment, etc. Apply to 10, Lower Grosvenor Place, S.W.1. VIC. 4304. 8088

**ARCHITECTURAL ASSISTANT** required, Intermediate/Final standard. Varied and interesting work. Good draughtsmanship, sound knowledge of construction and ability to manage jobs, essential. Five-day week. Apply, stating age, experience and salary required, to George Lowe & Partner, 4, High Street, CROYDON 3005/9. 8045

**W. S. HATTRELL & PARTNERS**  
Architects COVENTRY

invite applications for the following vacancies:—

(a) SENIOR ASSISTANTS. (Salary £1,000 minimum). Must be fully qualified architects with some years' office experience, capable of taking a large measure of responsibility for a wide range of contracts.

(b) ASSISTANTS. (Salary £750-£1,000.) Should be of Intermediate-Final standard, capable of preparing full working drawings, specifications, etc., under supervision, and of taking responsibility for smaller contracts.

(c) JUNIOR ARCHITECTURAL ASSISTANTS. (Salary up to £750.) Up to Intermediate R.I.B.A. standard. Opportunities to gain experience on a wide range of contracts. Progressive salary depending on ability. Pension Scheme. Five-day week. Travelling expenses paid to interviewed applicants. HOUSE AVAILABLE. Replies to 1, Queen's Road, Coventry. 8685

**W. S. HATTRELL & PARTNERS**  
Architects LONDON

invite applications for the following vacancies:—

(a) SENIOR ASSISTANTS. (Salary £1,000 minimum). Must be fully qualified architects with some years' office experience, capable of taking a large measure of responsibility for a wide range of contracts.

(b) ASSISTANTS. (Salary £750-£1,000.) Should be of Intermediate-Final standard, capable of preparing full working drawings, specifications, etc., under supervision.

(c) JUNIOR ARCHITECTURAL ASSISTANTS. (Salary up to £750.) Up to Intermediate R.I.B.A. standard. Opportunities to gain experience on a wide range of contracts. Progressive salary depending on ability. Pension Scheme. Five-day week. Travelling expenses paid to interviewed applicants. Replies to 21, Cleveland Place, St. James's, S.W.1. 8686

**W. S. HATTRELL & PARTNERS**  
Architects MANCHESTER

invite applications for the following vacancies:—

(a) SENIOR ASSISTANTS. (Salary £1,000 minimum). Must be fully qualified architects with some years' office experience, capable of taking a large measure of responsibility for a wide range of contracts.

(b) ASSISTANTS. (Salary £750-£1,000.) Should be of Intermediate-Final standard, capable of preparing full working drawings, specifications, etc., under supervision, and of taking responsibility for smaller contracts.

(c) JUNIOR ARCHITECTURAL ASSISTANTS. (Salary up to £750.) Up to Intermediate R.I.B.A. standard. Opportunities to gain experience on a wide range of contracts. Progressive salary depending on ability. Pension Scheme. Five-day week. Travelling expenses paid to interviewed applicants. Replies to 15, Piccadilly, Manchester, 1. 8687

**IF** you are of R.I.B.A. Intermediate standard, and wish to increase your experience in a thriving small practice near Marble Arch, telephone MAYfair 4104. 8989

**ARCHITECT** requires CHIEF or SENIOR ASSISTANT, also JUNIOR ASSISTANT for interesting work including shops, offices and schools. Apply in writing, stating age, experience and salary required, to Rolf Marsh, F.R.I.B.A., M.T.P.I., 125/7, London Road, Chelmsford. 8991

**ARCHITECTURAL ASSISTANTS** required. Starting salary £915 per annum, Glasgow office, five-day week. Schools, Offices, etc. State experience. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. 8992

**ARCHITECTURAL ASSISTANTS** required. Starting salary £750 per annum, Glasgow office, five-day week, State experience. D. Harvey & A. Scott, 2, Lynedoch Place, Glasgow, C.3. 8993

**ARCHITECTURAL ASSISTANT** of Intermediate standard required for busy general practice. Write, stating age, experience and salary required, to Earn. Badger & Harrison, A.R.I.B.A., Guild Chambers, Scholars Lane, Stratford-on-Avon. 8995

**YOUNG** office in Baker Street, London, with contemporary outlook and much interesting and varied work, wants ASSISTANTS with experience able to take some responsibility. Ring HUNTER 1809/9. 8997

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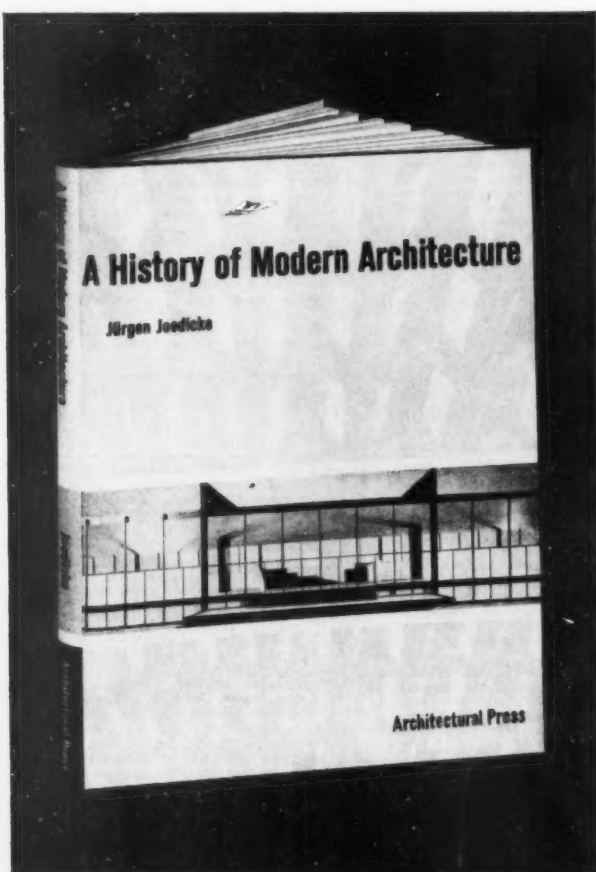
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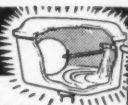
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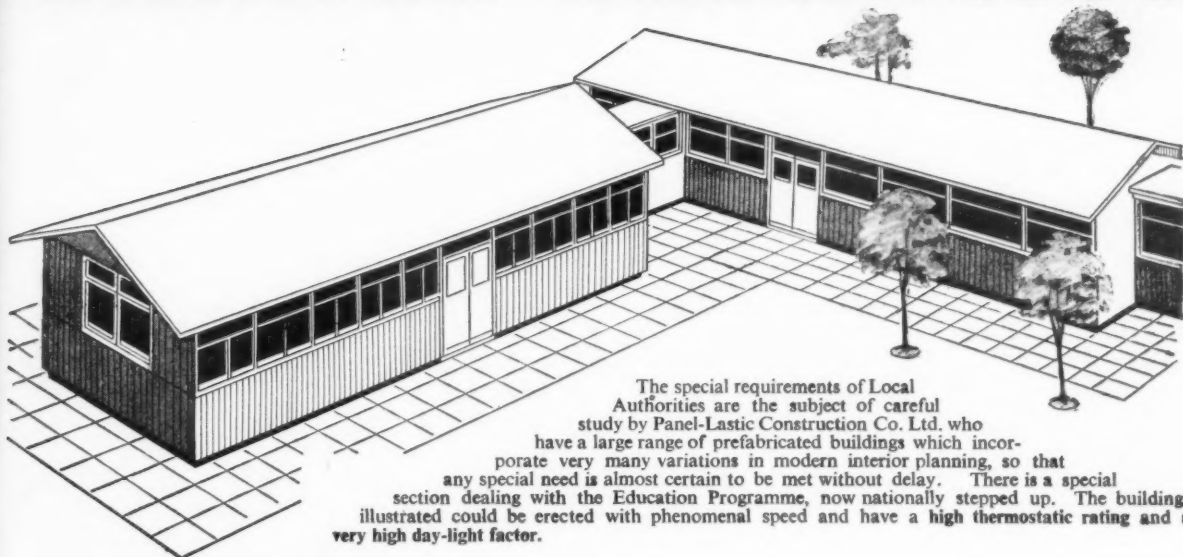


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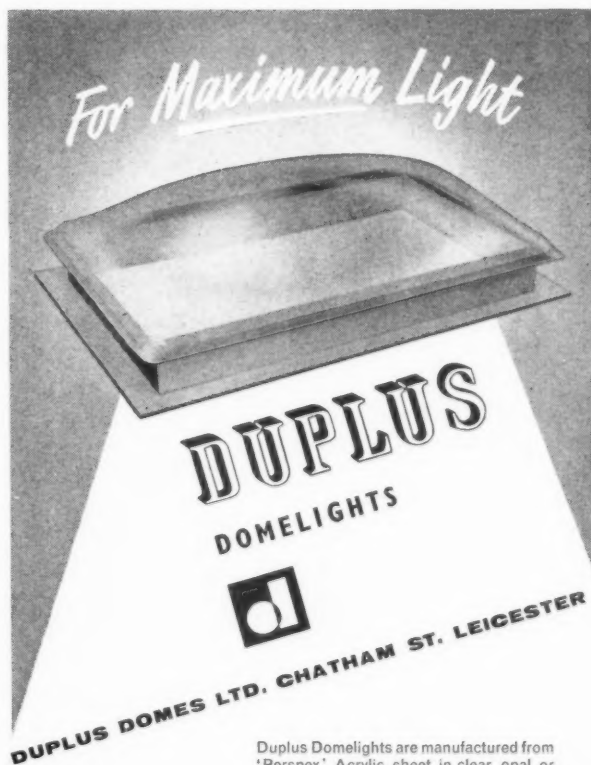


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