THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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Registered as a Newspaper.

★ 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 Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

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. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IQS	Institute of Quantity Surveyors, 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institute of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, 6, Fitzroy Square, W.1.	Euston 7171
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1.	Abbey5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
N.P.L.	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5051
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

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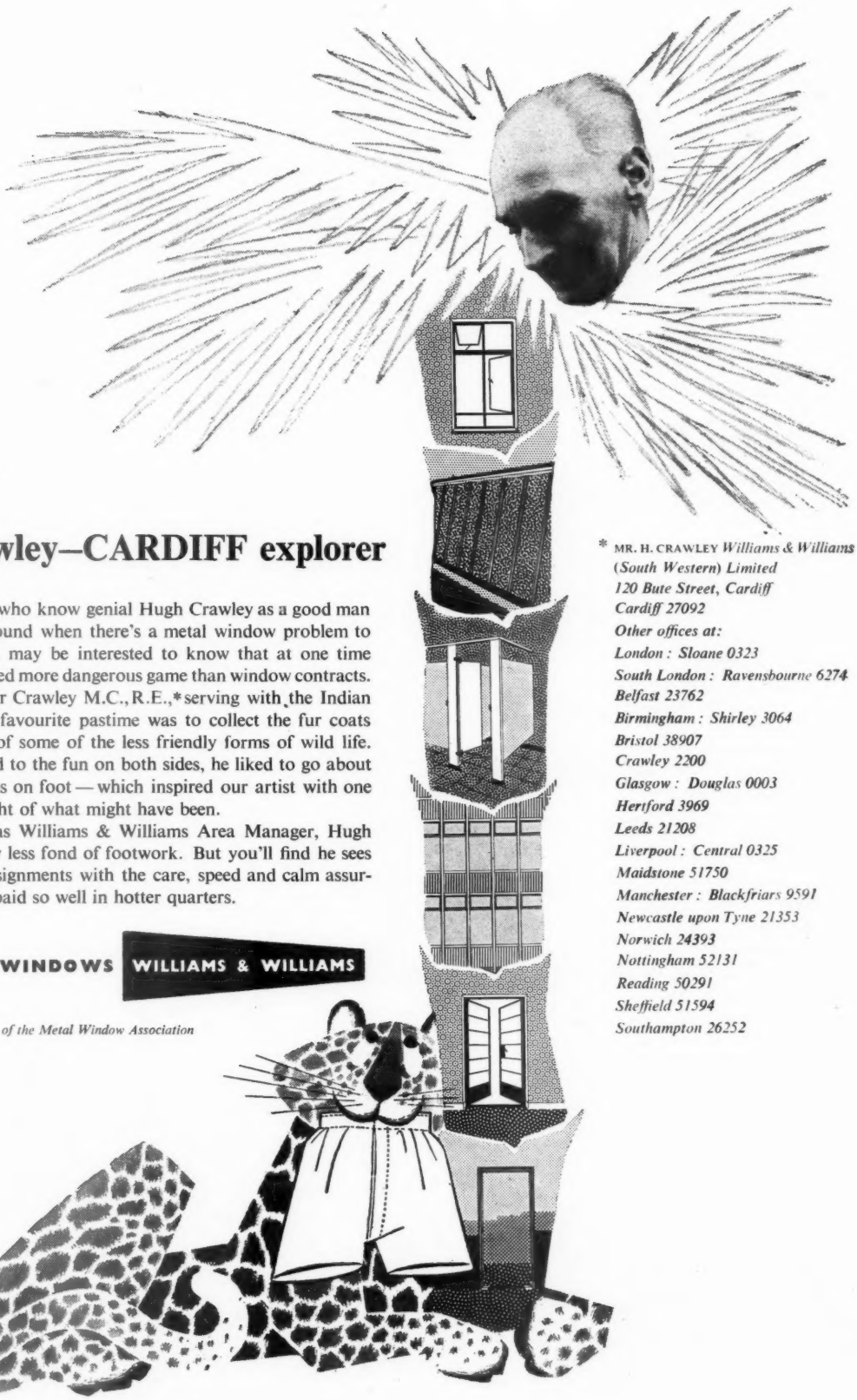

Hugh Crawley—CARDIFF explorer

Architects who know genial Hugh Crawley as a good man to have around when there's a metal window problem to be tackled, may be interested to know that at one time Hugh stalked more dangerous game than window contracts.

As Major Crawley M.C., R.E.,* serving with the Indian Army, his favourite pastime was to collect the fur coats and skins of some of the less friendly forms of wild life. And to add to the fun on both sides, he liked to go about the business on foot — which inspired our artist with one wild thought of what might have been.

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THERE GOES

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a second-by-second scheme
for that factory
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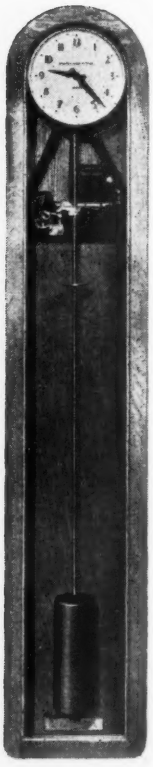

What's inside? Baldry's challenge (one you may need if you're concerned with factory equipment) to the matter of the escaping moment. Full details, in fact, of Smiths Master Clocks. Important? Yes indeed—for in every factory time means efficiency, and that means money saved. And for perfect timing you could install no better master clock than Smiths. For they are utterly reliable—their accuracy does not depend on the mains. That is vital—for every time contrivance in the building is linked to the master clock. Factory hooter. Wall clocks. Time recorders. Each one is a slave to the one clock. Only a master clock is capable of the perpetual accuracy needed for such a vital job. And Smiths make just such *invariably* efficient master clock pendulum movements. For Smiths are known the world over for perfection in time. Already many large concerns rely on them alone. Can Smiths help *you*? Details will gladly be sent to you on request.

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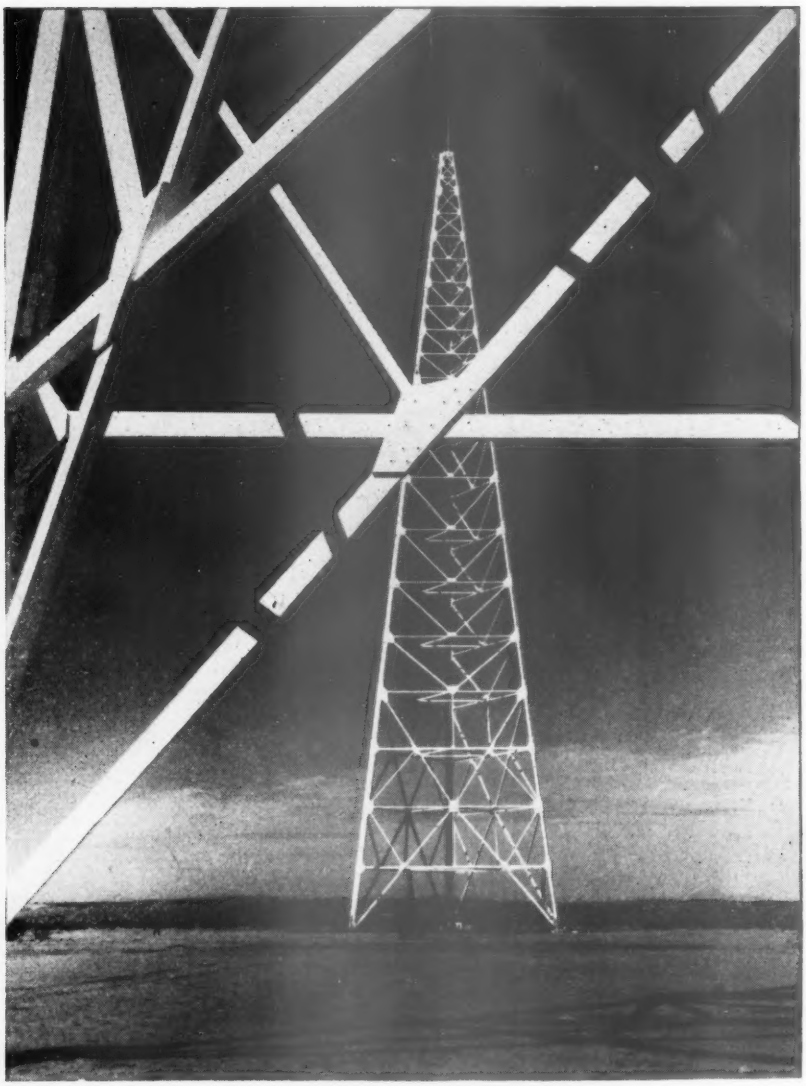

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Photo by courtesy of Summerbell Roof Structures of Los Angeles, U.S.A.

This is claimed to be the highest timber structure in the world, a 357′ high tower of glued laminated timber construction, one of two built in California for the U.S. Navy Ordnance Department. An O.E.E.C. Report on "Glued Laminated Timber Construction" written following a mission to the U.S.A. has recently been published, and can be obtained from H.M. Stationery Office, price 8/-. The Report, of value to designers and manufacturers interested in the great structural and architectural possibilities of laminated timber, deals with the technology of laminating, design principles, desirable specifications, quantitative data required for design, and estimates of cost.

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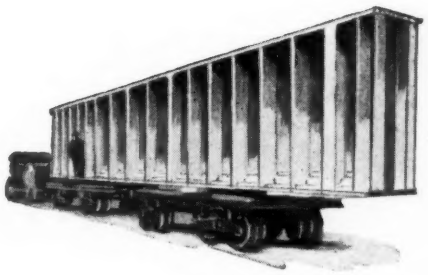

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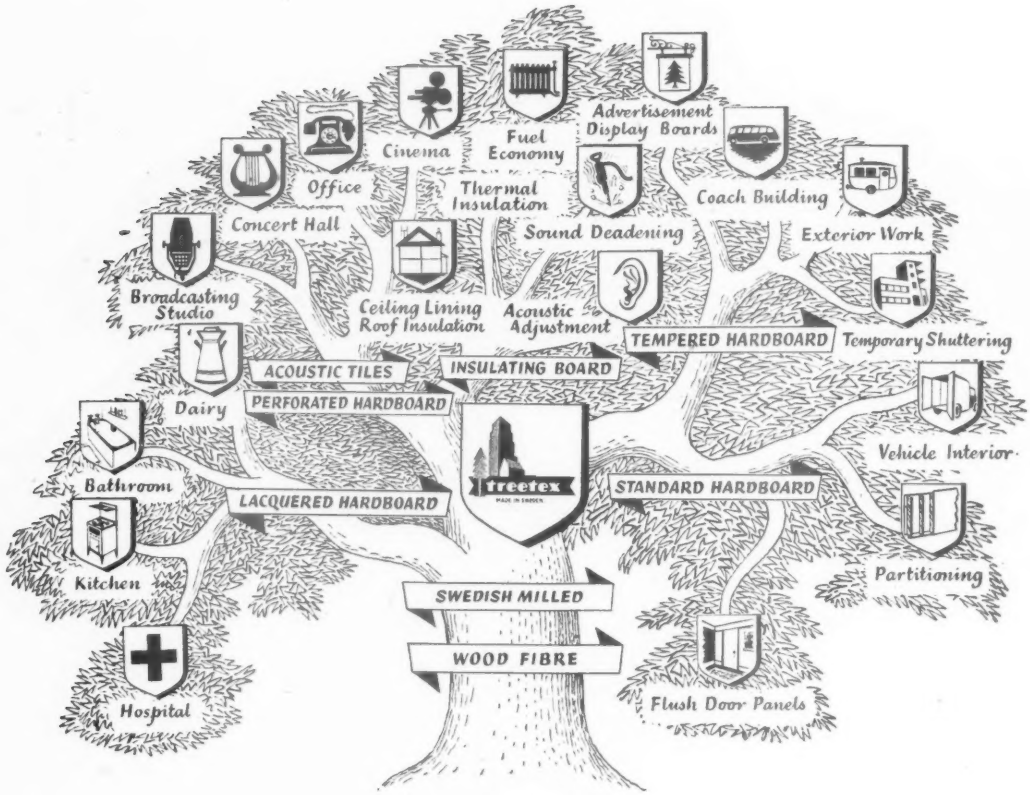

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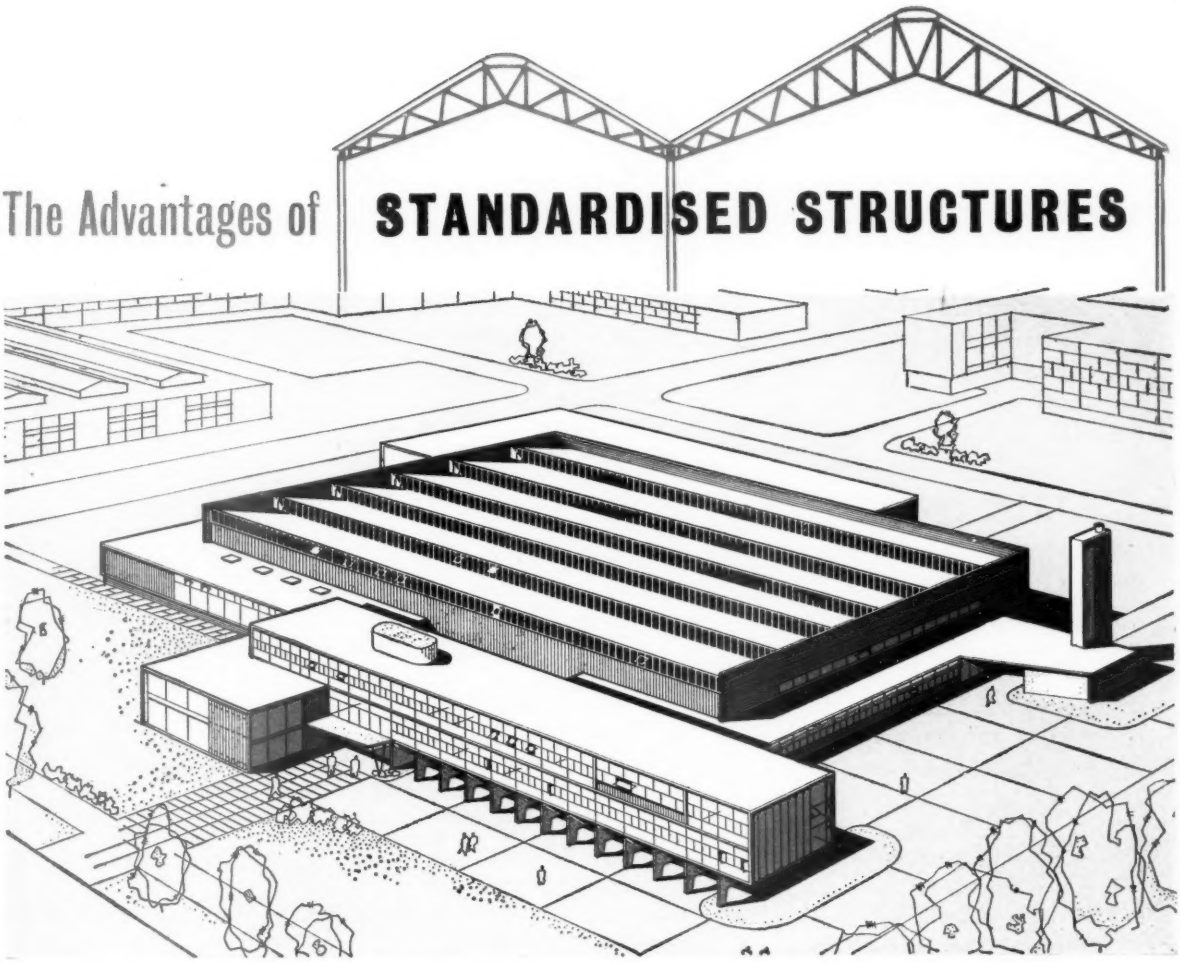

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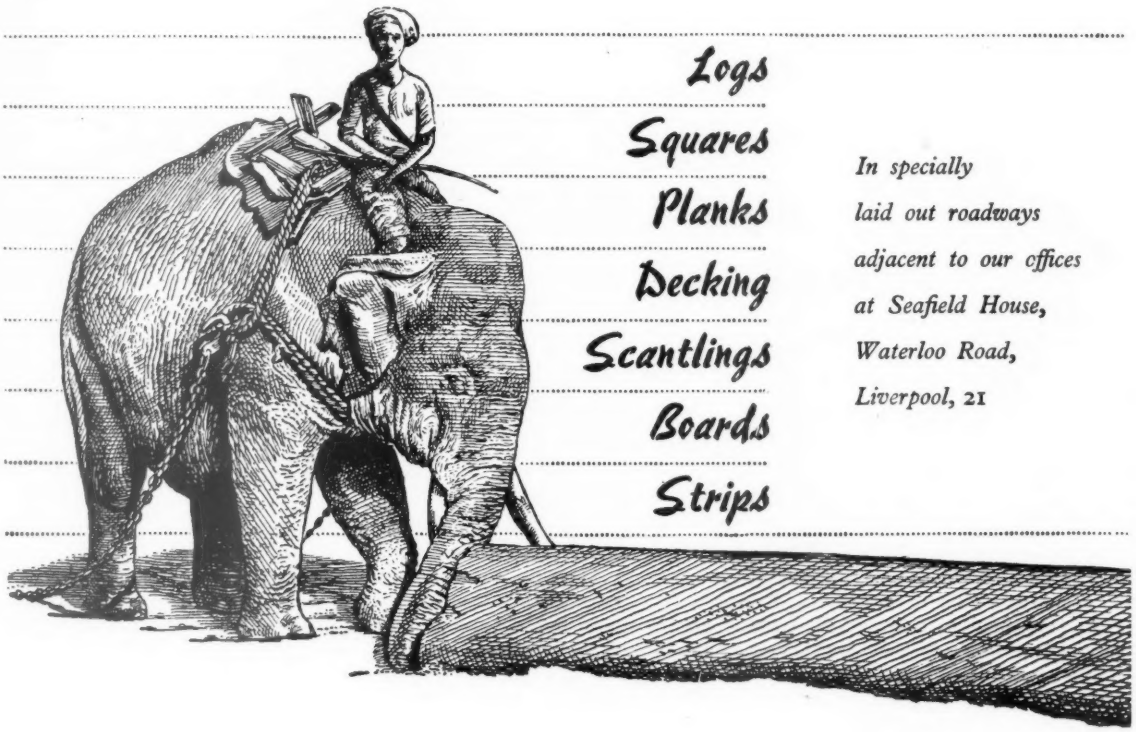

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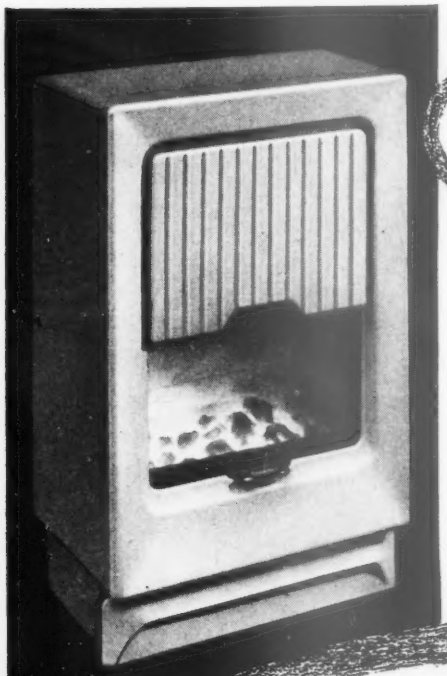

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It is nationally advertised and electros and stereos are available FREE on request for your own local press or catalogue advertising.

It's the new stove with the open fire look !

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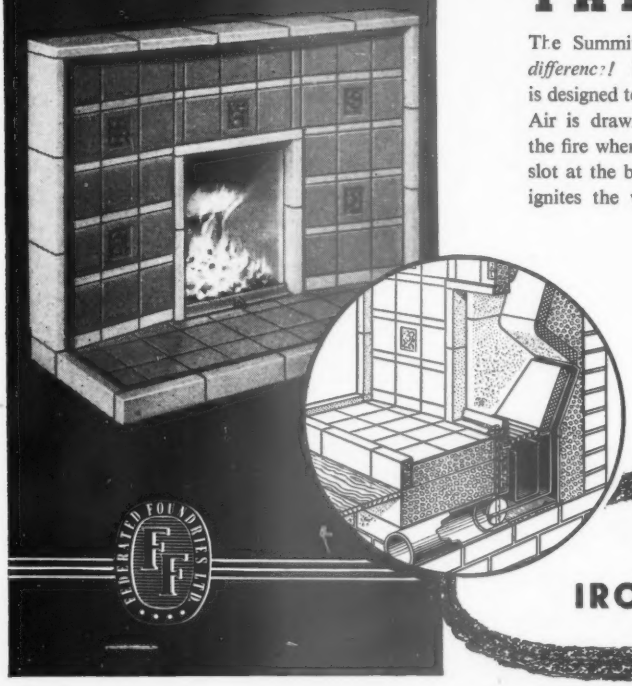

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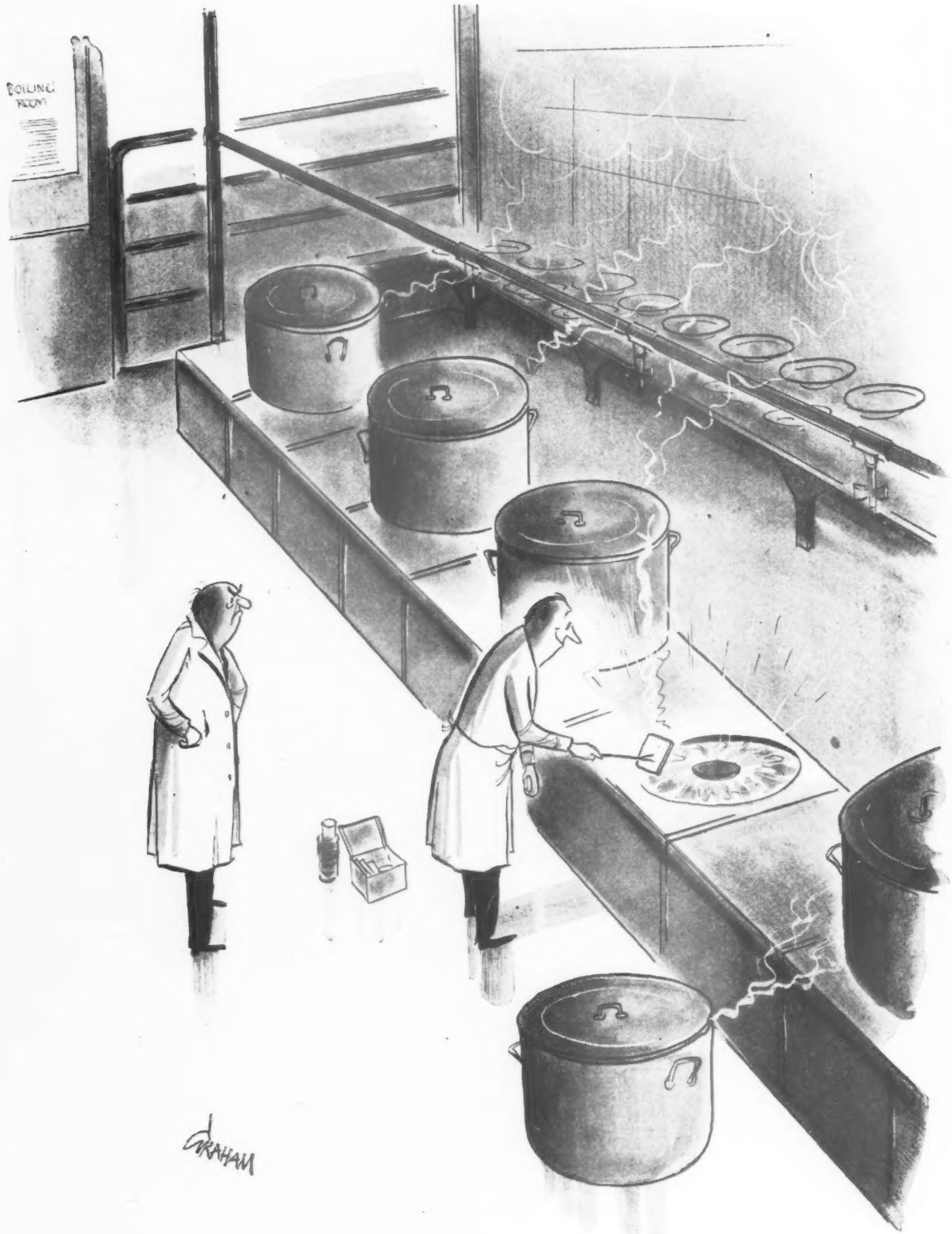
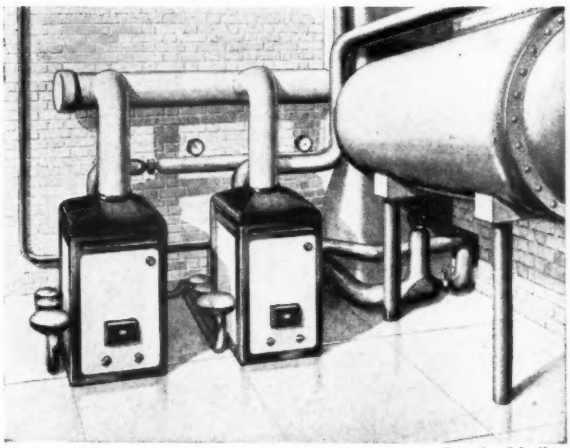


There's always another use for gas

There's always another use for gas...



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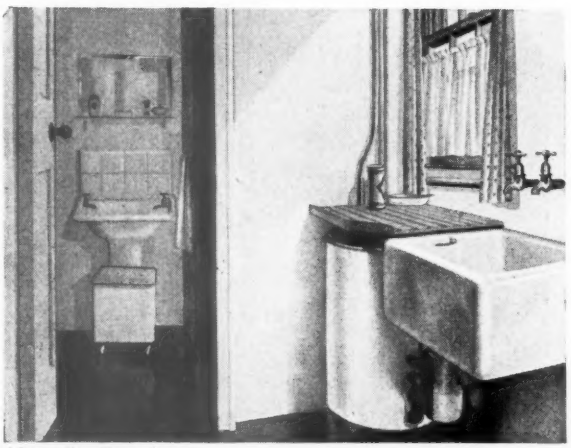

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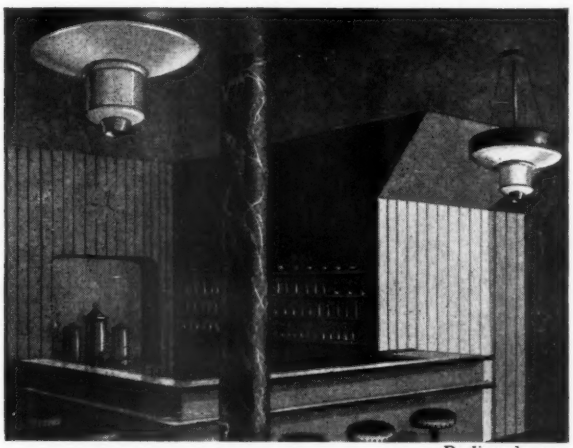

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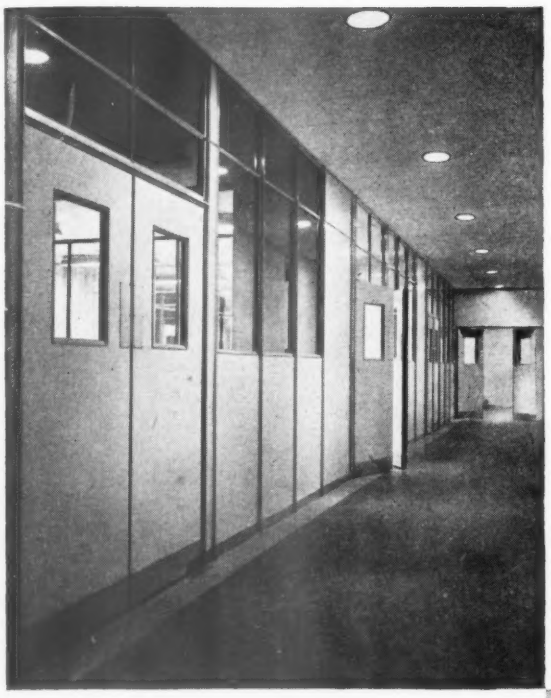

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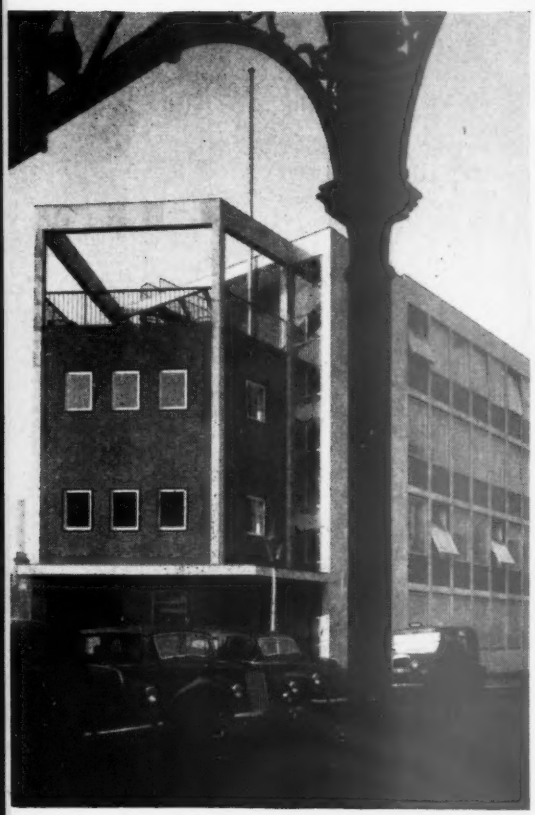

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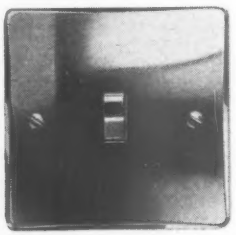

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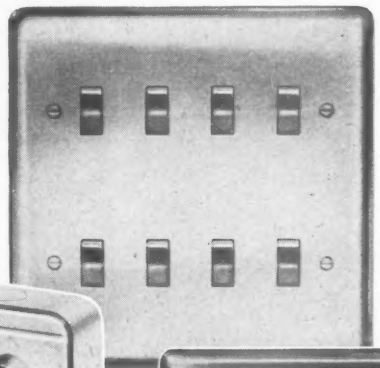

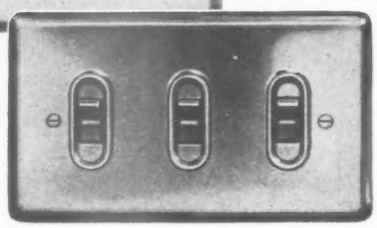

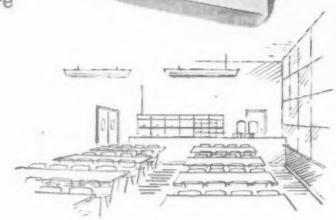

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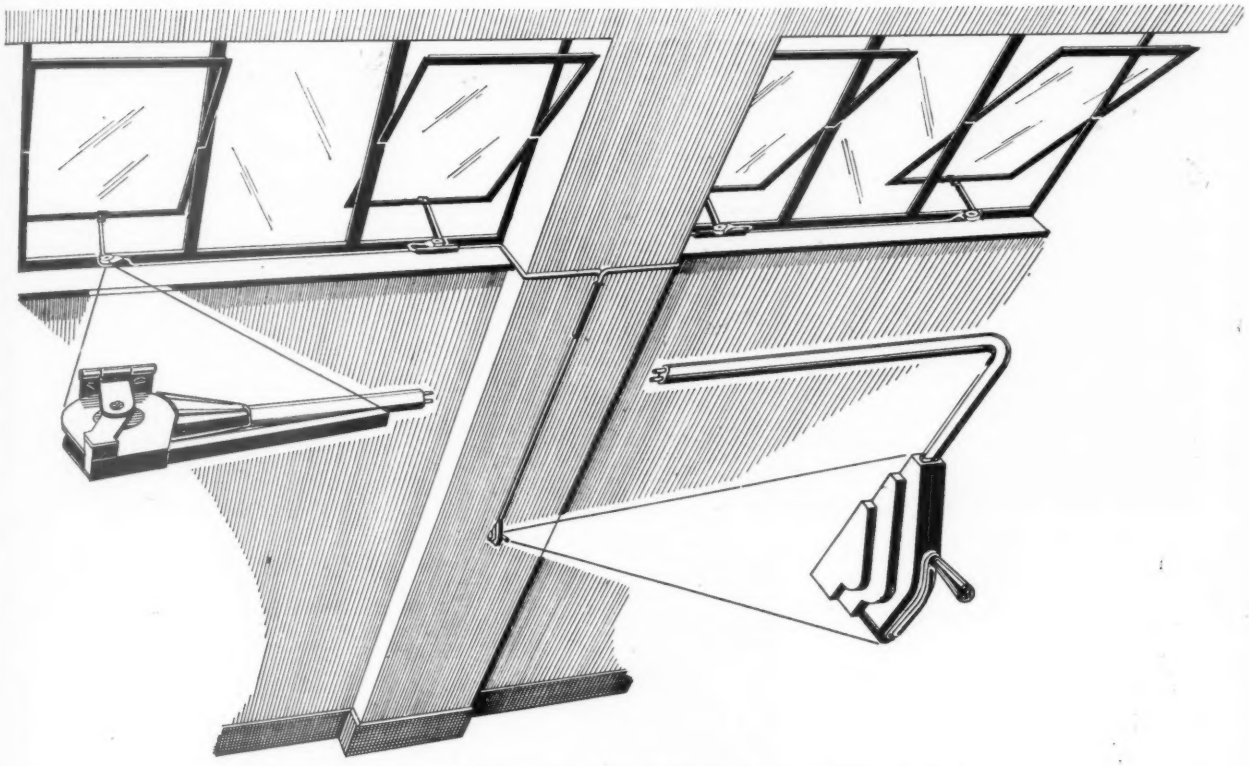

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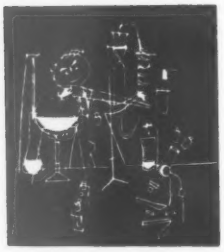

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MESSRS. JOHN LAING & SONS LTD., New Research & Development Centre, Manor Way, Boreham Wood, Herts.
BRITISH ALUMINIUM LABORATORIES, Amersham Road, Chalfont Park, Bucks.

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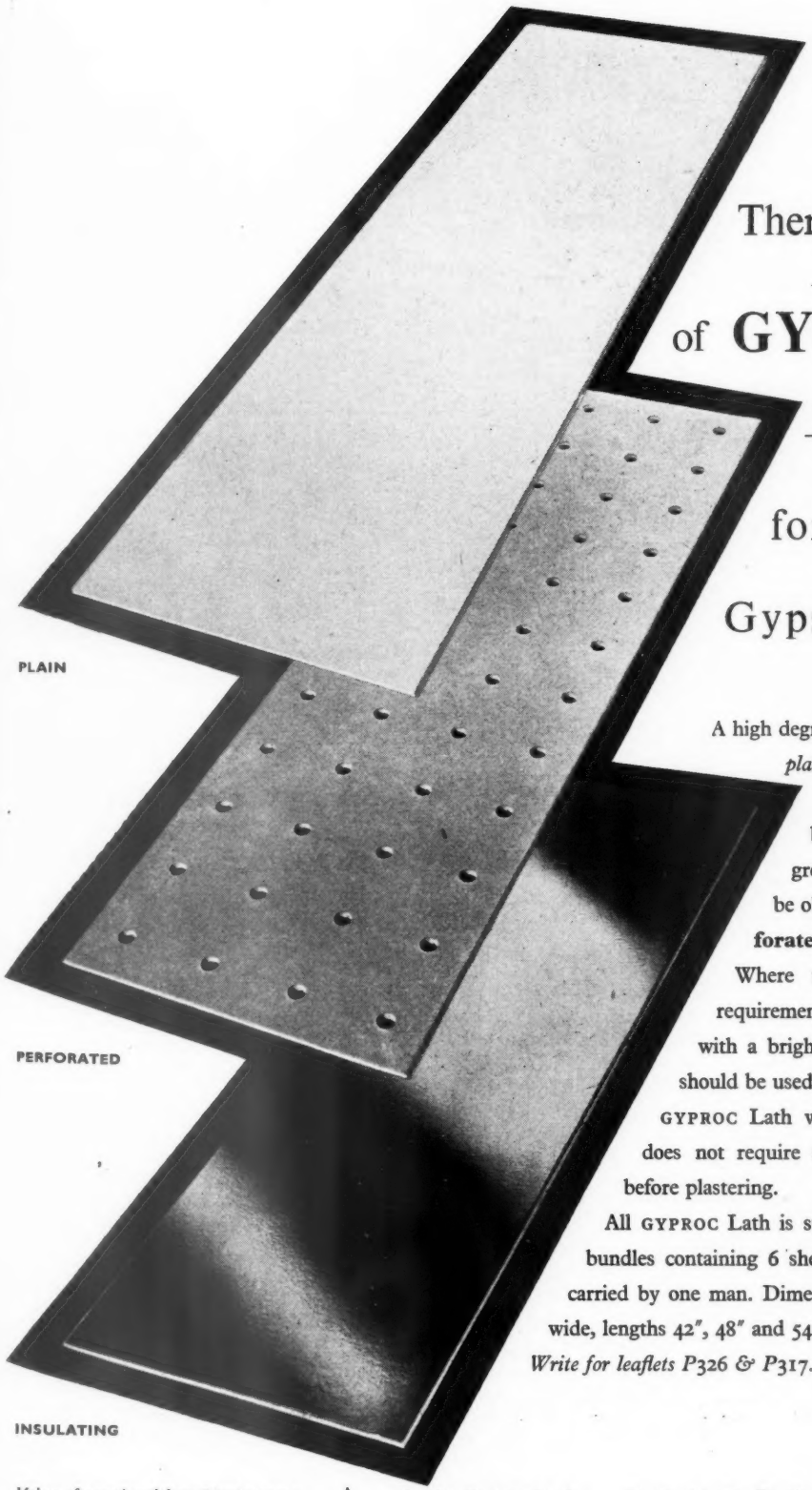
FRENGER CEILINGS LTD 67 GREAT RUSSELL STREET W.C.1. Chancery 5534



There are three types of GYPROC Lath —the perfect base for Paristone and Gypstone Plasters

A high degree of fire resistance is afforded by *plain* **GYPROC Lath** plastered with either Paristone or Gypstone, but for special purposes an even greater degree of fire protection can be obtained by using **GYPROC Perforated Lath,** plastered with Paristone. Where thermal insulation is a specific requirement, **GYPROC Insulating Lath,** with a bright aluminium veneer on one side, should be used.

GYPROC Lath with its specially designed edges does not require scrimming before plastering.

All GYPROC Lath is supplied in bundles containing 6 sheets, easily carried by one man. Dimensions 16″ wide, lengths 42″, 48″ and 54″.

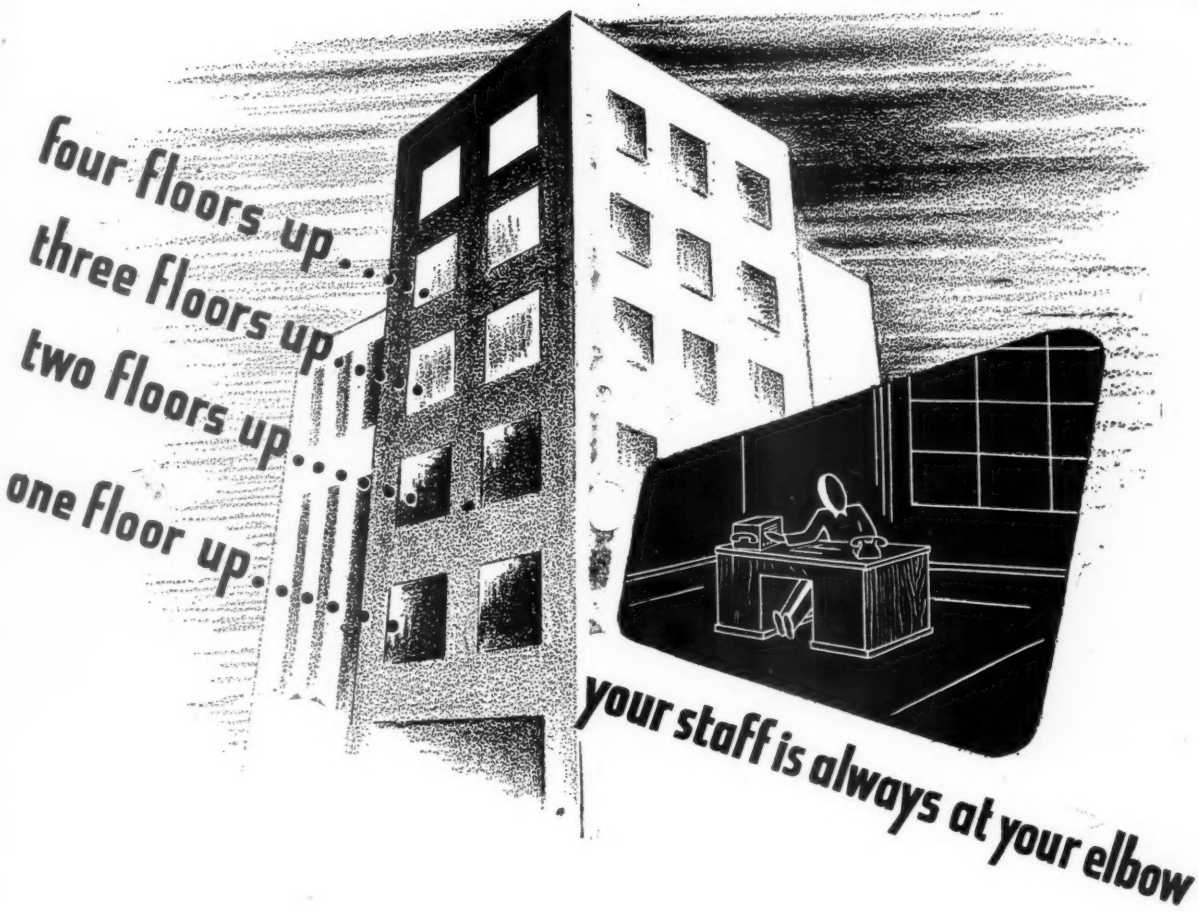
Write for leaflets P326 & P317.

Makers of acoustic and thermal insulation products including Acoustic GYPROC, GYPKLITH *Wood Wool Slabs,* GYPKLITH *Acoustic Tiles,* GYPKLITH *Fluted Panels, Insulex and* ZONALEX *Loose Fill Insulation,* GYPLITE *Vermiculite Insulating Plaster,* DEKOOSTO *Acoustic Plaster.*

GYPROC PRODUCTS LIMITED

Head Office: Westfield, Upper Singlewell Road, Gravesend, Kent. *Telephone:* Gravesend 4251-4. *Telegrams:* Gyproc, Gravesend. Glasgow Office: Gyproc Wharf, Shieldhall, Glasgow, S.W.1. *Telephone:* Govan 2141-3. *Telegrams:* Gyproc, Glasgow. Midland District Sales Office: East Leake near Loughborough. *Telephone:* East Leake 231. London Office: Bath House, 82 Piccadilly, London, W.1. *Telephone:* Grosvenor 4617-9.

LPI



Immediate contact with personnel is essential in the well-run business. Reliance Telephone systems–swiftly, easily and accurately–afford this vital link with co-directors, executives and staff by the mere flick of a switch. *Reliance saves time and labour*, and ends P.O. switchboard congestion.

Busy architects know the value of these systems for maintaining instant, direct intercommunication and avoiding delay and errors. They specify Reliance for the equipment of new premises—an essential service for the co-ordination of departments in progressive business organisations. Our advice is available to you.

Write to-day for our illustrated leaflet A.J.9.

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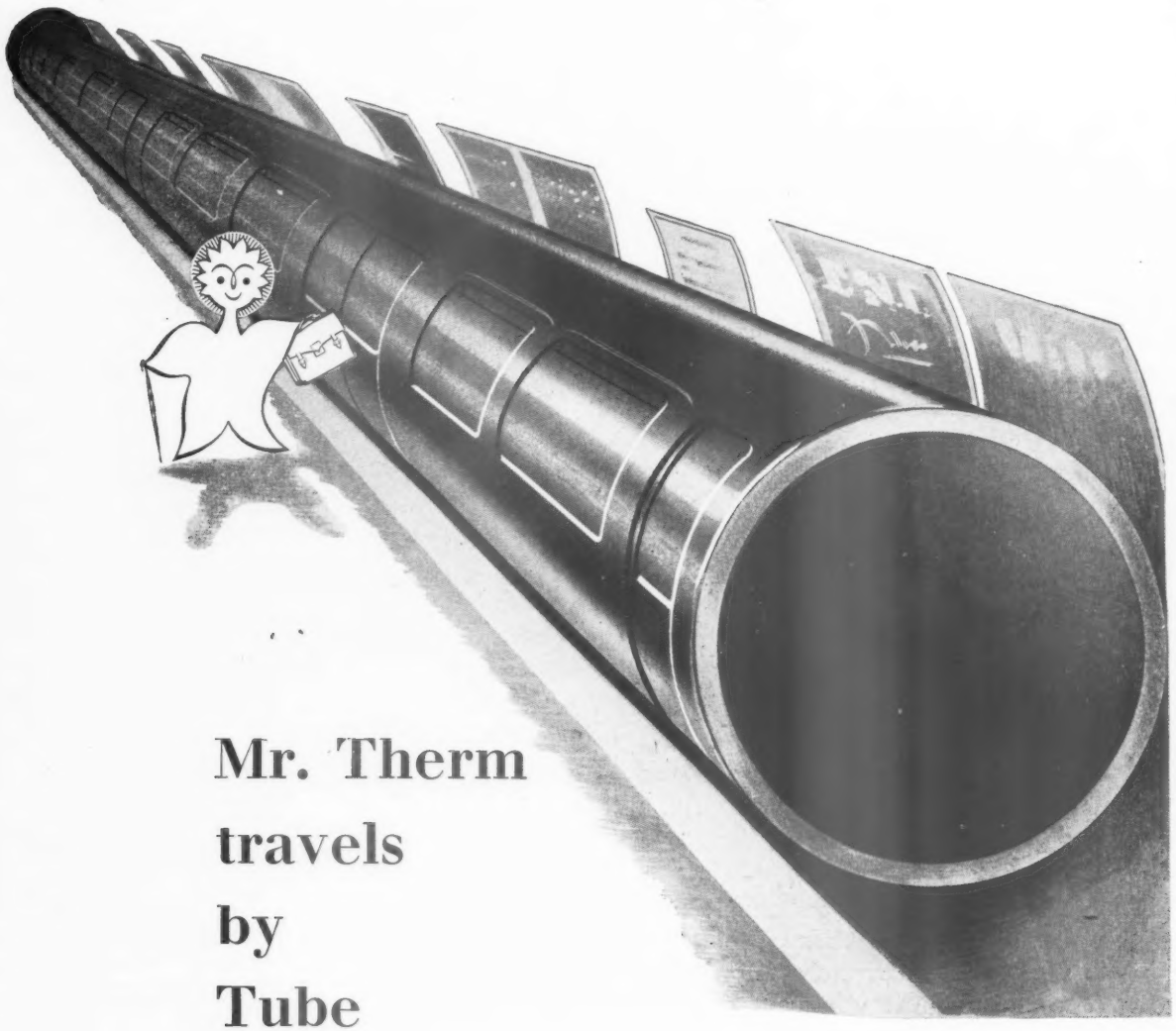
Telephone : Chancery 5341 (P.B.X.) · *Branches throughout the United Kingdom*

INTERNAL TELEPHONES · STAFF LOCATION · MUSIC FOR INDUSTRY



Mr. Therm travels by Tube

Gas has been sold in 'therms' since 1920. In the Thirties, the new unit of measurement was popularised by Mr. Therm, on the hoardings, in the papers.

Now, everyone knows Mr. Therm. His lambent figure stands for gas—and for progress. As part of this progress, the gas industry is increasingly using I.C.I. copper tubes and I.C.I. tube fittings, which have won wide acceptance on account of their reliability and consistent conformity to a rigorous specification—ensured by the latest methods of production and inspection.

For the home or the factory, the office or the school—right from mains to supply point—wherever there's gas, Mr. Therm and I.C.I. copper tubes are ideal partners.

I.C.I. COPPER TUBES AND FITTINGS

INCLUDING 'Kuterlon', 'Intex P.T.', 'Coneor', 'Instantor'

ICI

IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.I

M370

Plan for linoleum for good looks and long life

As the S.S. Arcadia of the P. & O. Line traverses the oceans of the world, the amenities within give passengers the comfort of a first-class hotel. Look, for example, at this floor in Linoleum—it sets the decor for lounge luxury travel. If you could see its record as an item of expense you would find it almost a non-recurring outlay throughout a long sea-faring life. That is the satisfaction of quiet-to-the-tread, colourful Linoleum. Moderate in first cost, it responds to a quick clean over revealing its original beauty day after day.

Linoleum supplied and laid by Semtex Ltd.

FOR LONGEST WEAR EVERYWHERE

LINOLEUM

THELMA

"THELMA" stands for The Linoleum Manufacturers' Association, 127 Victoria Street, London, S.W.1.
For further information write to the Association or to any of the following members:—
BARRY OSTLERE & SHEPHERD LTD., KIRKCALDY · DUNDEE LINOLEUM CO. LTD., DUNDEE · LINOLEUM MANUFACTURING CO. LTD., 6 OLD BAILEY, LONDON, E.C.4 · MICHAEL NAIRN & CO. LTD., KIRKCALDY · NORTH BRITISH LINOLEUM CO. LTD., DUNDEE SCOTTISH CO-OPERATIVE WHOLESALE SOCIETY LTD., FALKLAND, FIFE · JAS. WILLIAMSON & SON LTD., LANCASTER

24

SISALKRAFT

FOR SARKING

1. *Top sheet of kraft paper*
2. *First layer of bitumen*
3. *Longitudinal sisal fibres*
4. *Cross sisal fibres*
5. *Second layer of bitumen*
6. *Bottom sheet of kraft paper*

SISALKRAFT—reinforced, waterproof, pliable and clean—is specified for efficient and economical roof lining.

SISALATION (Reflective Insulation) has all the virtues of SISALKRAFT with bright aluminium foil, on one or both sides, for highly effective THERMAL insulation. Technical information and samples on request.

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the Supreme Building Paper

J.H.SANKEY & SON.LTD

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ALDWYCH HOUSE, ALDWYCH, LONDON, W.C.2

'Phone : HOLborn 6949 (20 lines)
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(20 lines)
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VL 5

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VL 503

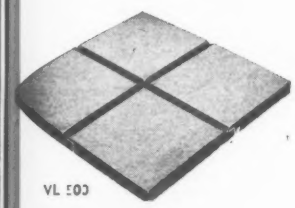
"VEELAP"

INSULATING BOARDS FOR CEILINGS AND WALLS

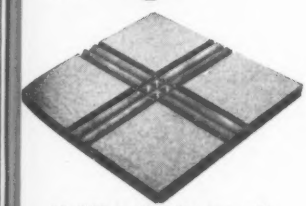
but here used as

Permanent Shuttering to Hollow Pot Floors

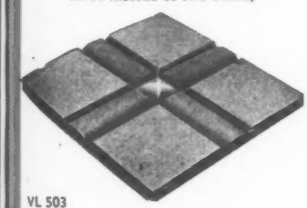
TYPES OF JOINTS AVAILABLE



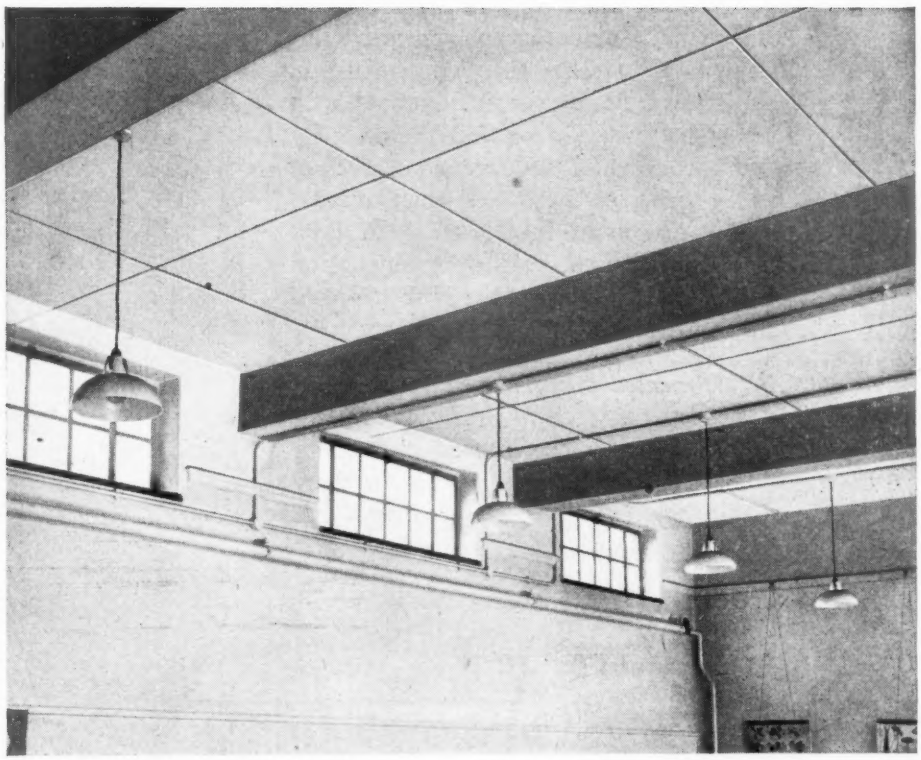
VL 502



VL 502B (as VL 502A but with three instead of two beads)



VL 503



Connaught Road Schools, Leyton. H. D. Peake Esq., M.Sc. (Eng.) A.M.I.C.E. Borough Engineer and Surveyor.

With the "Veelap" system we supply lay-outs for approval, after which the boards are cut to size and the edges processed with Veelap. The boards are then numbered on the back to conform to plan and sent to site—in other words, a prefabricated sheet using dry technique finish.

"Veelap" Insulating Board may *also* be nailed, using "Metco" Sheradised Gimp Pins, or P.K. screwed, or bonded to joists and/or battens. The "lap" takes up any movement of the boards when in place.

The "Veelap" system is now used in conjunction with our Metal fixing methods of suspended ceilings and walls (concealed fixing)

The MERCHANT TRADING COMPANY Limited.

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Telegrams: "Themetraco, Estrand, London," Telephone: TEMple Bar 5303 (8 lines)

TRUE-FLUE Ltd

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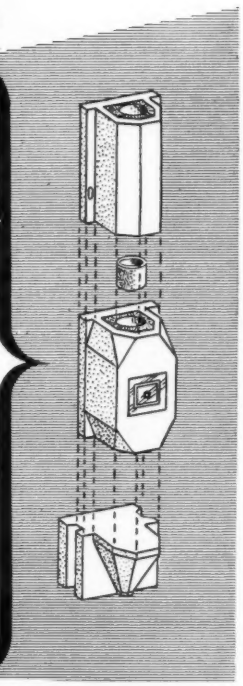
PRECAST EXTERNAL FLUE

an Outstanding problem solved!



This is an economical and efficient Boiler Flue of pleasing appearance which can be bolted quite simply to an external wall. Each section is easily handled and no elaborate scaffolding is required.

The Flue has a refractory lining and is well insulated to overcome the condensation troubles so often experienced with asbestos or iron flue pipes and can be erected at a fraction of the cost of a brick stack.

Although this is one of our most recent developments we have already supplied approaching 2,000 of these flues to various local Authorities and Contractors.

Write for illustrated booklet and price list to the address at the foot of this page.

For Scientific Flue Construction...

TRUE FLUE

TRIPLE-UNIT TYPE 'U'

PATENT No. 567066 · REGD. DES. No. 843342

These labour-saving and efficient devices, of which there are several types available, are made of heat-resisting refractory concrete and form a stream-lined connection between the fire and the flue.

The unit illustrated eliminates the labour involved in forming the Gather-Over in brickwork above the fireplace opening. When placed in position it forms a base for TRUE FLUE circular rebated linings or for the 9in. by 9in. parged flue.

The lintol has a removable front portion to enable the Unit to be built in immediately above the appliance, thus enabling a fireplace surround of more pleasing proportions to be used. The front attachment is removed when the appliance is fitted and bedded back in position when any necessary infilling around the back and sides has been carried out. The type of front attachment will vary according to the design of the heating appliance and fireplace surround.

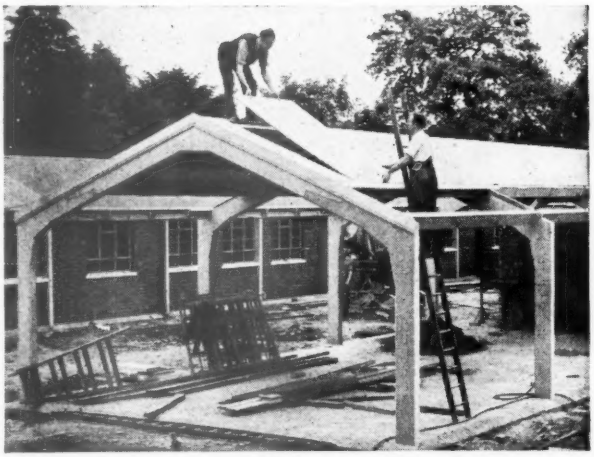
Please apply for illustrated brochure incorporating list of heating appliances with requisite Triple Unit.

TRUE FLUE LTD. CONVECTOR HOUSE · ACACIA ROAD · ST. JOHN'S WOOD · N.W.8

TELEPHONE : **PRIMROSE 7161/2**

Versatile PLIMBERITE

It's amazing in how many ways Plimberite can be used



GENERAL CHARACTERISTICS

Wherever building is being done there is an important job for Plimberite. In offices, factories, homes, schools, hospitals, Plimberite is speeding progress and cutting costs.

This resin-bonded wood chipboard can be sawn, drilled or jointed with any standard hand or machine tool. Having greater resistance to spread of flame than timber, it is classified as FLAMEPROOF. Under normal conditions, moisture movement is negligible, and Plimberite is immune from all wood destroying insects except termites. Tests carried out by the D.S.I.R. and the F.P.R.L. *prove* the stability and strength of Plimberite.

Building costs reduced — no bracing or extra studding is required, no knots, no variance from board to board. Decoration is as for timber.

STOCKISTS

There is a Plimberite Stockist in your area. Addresses will be sent on application.

TECHNICAL DATA

Size: 8 ft. x 4 ft. *Thicknesses:* ½ in. and ¾ in. *Thickness tolerance:* plus or minus $\frac{1}{32}$ in. *Density:* 50 lbs./cu. ft. *Weight per square foot:* ½ in. = 2 lbs., ¾ in. = 3 lbs. *Strength:* Using test pieces 8 in. x 4 in. on bearers at 6 in. centres, with a load applied at mid-span, the mean breaking load is: ¾ in., 750 lb.; ½ in., 300 lb. *Moisture content:* 9% to 11%. *Resistance to spread of flame:* (1) B.S. 476/1932: Class III (i.e., better than timber). (2) Approved by the London County Council as "Flameproof". *Thermal conductivity:* K = 0.90. *Acoustical reduction factor:* 26 decibels. (Mean value for range 100 to 3,200 c.p.s., ¾ in. material). *Sound absorption coefficient:* 0.20 (Mean value for range 125 to 4,000 c.p.s., ¾ in. material).

TECHNICAL ADVISORY SERVICE

Trained technicians are always available to help solve any problem which may arise. This service is given without obligation.

APPLICATIONS

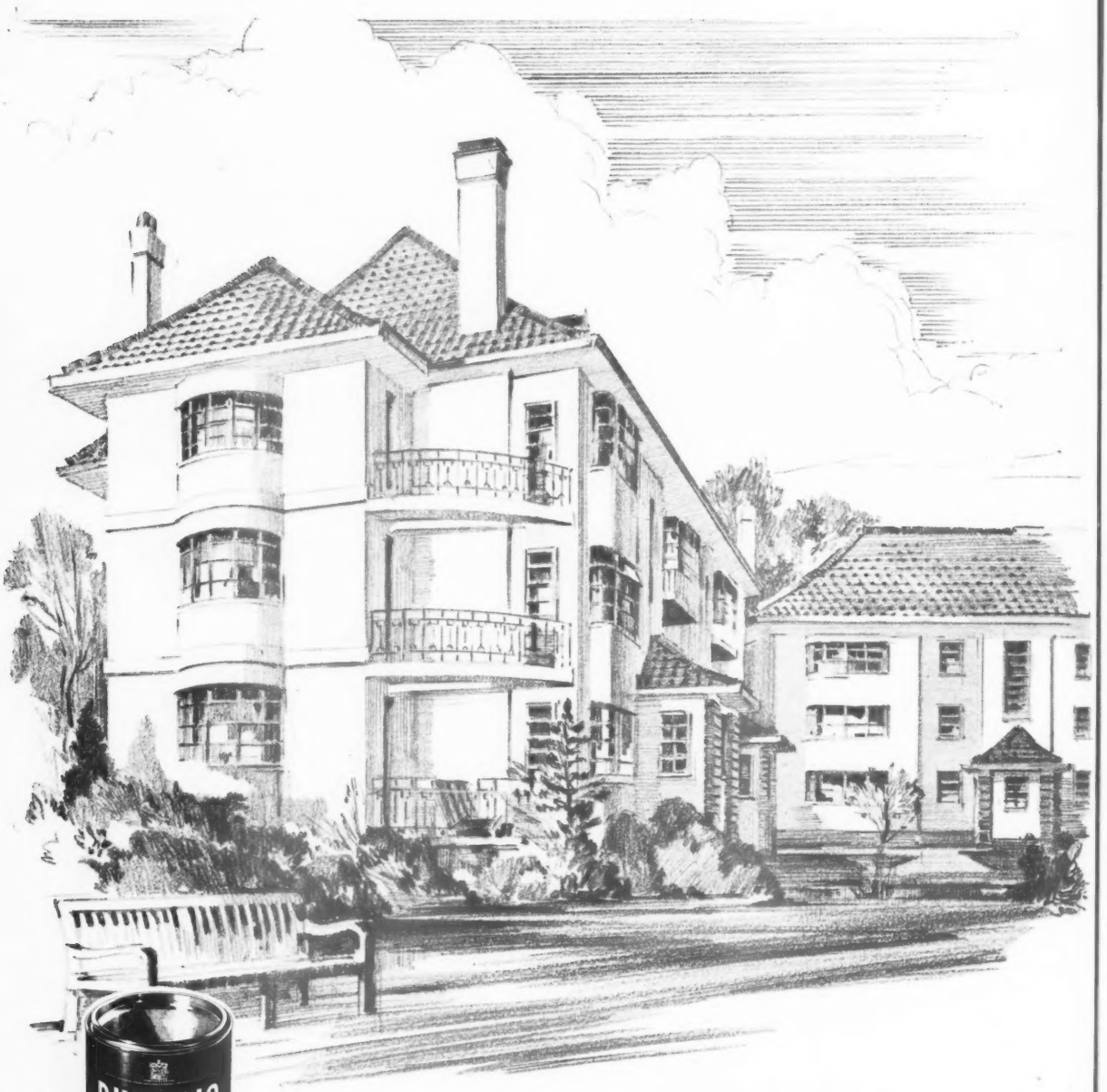
Supplied in thicknesses of ½ in. and ¾ in., Plimberite is ideal for:-

PARTITIONING ROOF DECKING
SUSPENDED AND SOLID FLOORS BUILT-IN FURNITURE
PANEL AND FLUSH DOORS SHELVES
DISPLAY CABINETS SHOP COUNTERS
VENEER CORE EXHIBITION STANDS
SHUTTERING

BRITISH PLIMBER LIMITED

19, Albert Embankment, London, S.E.11.
Telephone: RELiance 4242

PLIMBERITE
BUILDING BOARD



Quality Paints by WALPAMUR

set the consistently high standard by which others are judged. They include Duradio Enamel Paint, a durable high gloss finish, Muromatte Flat Oil Paint, a smooth and readily washable matt finish and Walpamur Water Paint, the most popular of flat finishes. There are paints, enamels and varnishes in the Walpamur range to meet every need.

BY APPOINTMENT
PAINT AND WATER PAINT MANUFACTURERS TO THE LATE KING GEORGE VI

THE WALPAMUR CO LTD · DARWEN & LONDON

150 SITE WORKERS GET HOME COMFORTS in 21 DAYS

Terrapin Mobile Buildings speed Berkshire project

A contractor, having been awarded a large Contract on which speed was a major factor, urgently required fully equipped site accommodation. He consulted TERRAPIN LIMITED. Within 21 days Terrapin building units covering 15,300 square feet had been erected on site ready for occupation. These included site offices, dormitories and ablutions for 150 men, a fully equipped canteen serving 450 men, and a spacious recreation building. This feat of construction was made possible by the unique Terrapin method of prefabrication. Each unit is assembled, **right down to the last internal fitting,** before it leaves the factory. As a result the standard Terrapin unit (410 sq. ft.) can be erected and ready for occupation within an hour. These units can be used singly or coupled together to form dormitories, dining and recreation halls, ablutions, etc. **And they can be moved from site to site without disassembly or removal of internal fittings.**

HOW TERRAPIN MOBILE BUILDINGS CAN SAVE YOU . . .

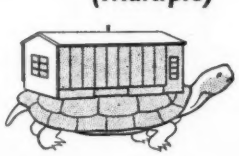
TIME **MOBILITY:** Each unit is easily transported on a standard commercial vehicle. Can be re-located without disassembly. **HIGH SPEED ERECTION:** Each unit arrives fully assembled and can be *erected by unskilled labour under supervision in one hour.* **SPEEDY OCCUPATION:** With fittings ready-installed there is a minimum time lag between erection and occupation.

MONEY **VERSATILITY:** Units can be coupled to form multiple buildings of any size for a wide variety of purposes. **DURABILITY:** Each unit is constructed in selected softwood timbers strongly reinforced with steel. **RECOVERY VALUE:** Recovery value of buildings and internal fittings in 100% (less normal wear and tear) after use on any site. **ECONOMY:** Average cost of erection is 2—3% of capital value. Removal costs are similar.

TERRAPIN

(Multiple)

MOBILE BUILDINGS



For full details of Terrapin (Multiple) Mobile Buildings send for illustrated brochure and price list on this coupon:

Please send me your illustrated brochure and price list:

NAME .....

COMPANY .....

ADDRESS .....

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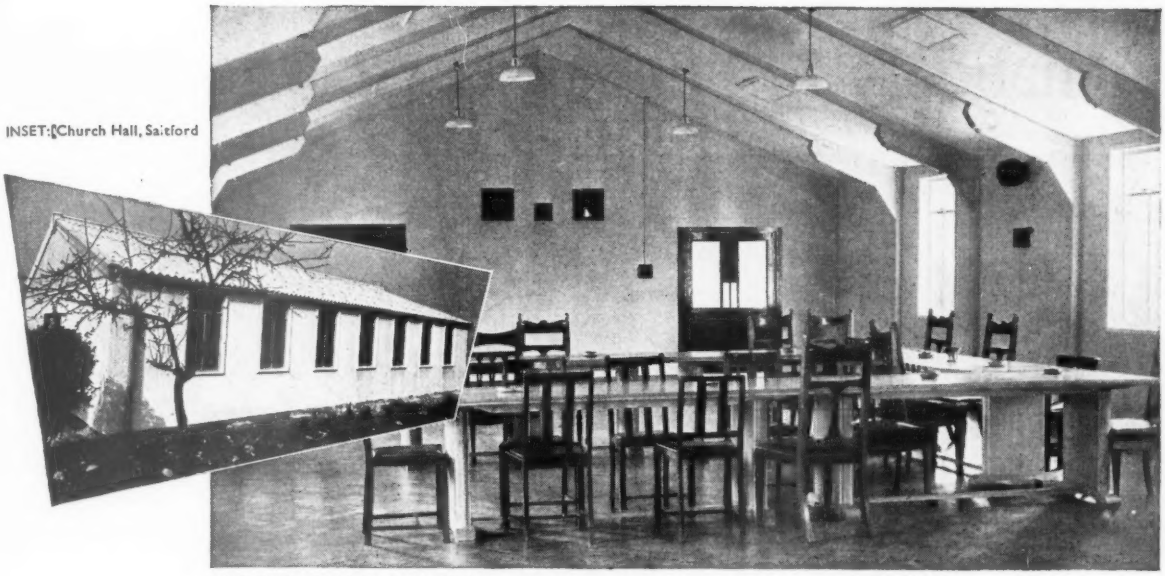
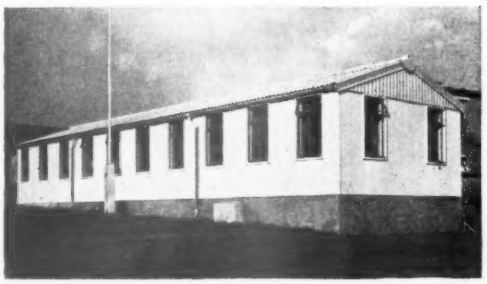
TERRAPIN LTD., 10 PORTMAN SQUARE, LONDON, W.1. PHONE: WELBECK 7996-7

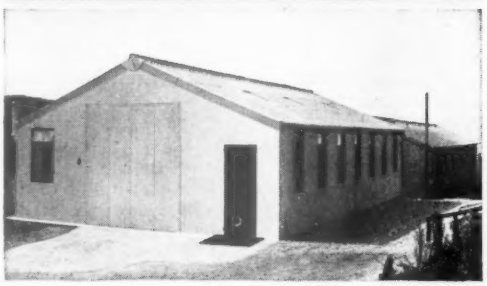


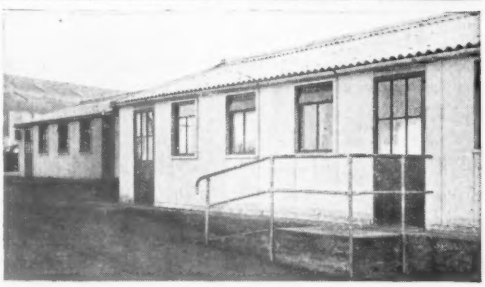
INSET: Church Hall, Saltford

NURSES' RECREATION ROOM YEOVIL — Architects: Petter, Warren & Royden Cooper, F/F.R.I.B.A. Internal Finishings by Messrs. Biss and Moyle, Builders & Contractors, Yeovil.

WOOLAWAY GENERAL PURPOSE BUILDINGS ARE NOW GENERAL PRACTICE







Top Left: Additional Class Rooms–Weirfield School, Taunton.
Centre: Workshop–Littlesea Camp, Weymouth.
Bottom Left: Offices–Canteen–Salisbury Machine Tools (Letchworth) Ltd.
Bottom Right: Scout Headquarters–Weymouth.
W/12

The reasons are simple

QUICK CONSTRUCTION
LOW COST
MINIMUM MAINTENANCE
MAXIMUM DURABILITY

Woolaway T-Panel general purpose concrete buildings are being erected in increasing numbers all over the country. They are used as workshops and stores; office blocks and canteens; classrooms and village halls and for many other purposes.

Built with exceptional speed by the comprehensive Woolaway erection service, they represent the best value for money obtainable, since their cost is low and their maintenance negligible.

They are available in three standard spans of 16ft. 6in., 18ft. or 25ft. 6in. and in any length. There are two standard eaves heights of 6ft. 8in. and 8ft. 6in. T-Panel cladding can now be supplied with attractive exposed aggregate finishes.

Specialising in rapid erection service; full particulars, prices and delivery dates gladly sent on application to:

WOOLAWAY CONSTRUCTIONS LIMITED
Small Buildings Division
24 West Bay Works · Bridport · Dorset · Telephone: Bridport 2327

Domelights in 'Perspex' Acrylic Sheet

for Infant School

Loughton. Debden, The Hereward County Infants' School, showing the lighting effect of domelights in 'Perspex'. Their light transmission is 92%. Domelights by W. J. Cox Ltd., Architect: H. Conolly, F.R.I.B.A. County Architect of Essex.

and Industrial H.Q.

Non-corrosive, weather-resistant domelights in 'Perspex' on the roof of the 'Terylene' Council Headquarters, Harrogate. Domelights by W. J. Cox Ltd., 559 Holloway Road, N.19.

The headquarters of the 'Terylene' Council at Harrogate and an Infant School in Essex both have roof-lights fabricated by W. J. Cox Ltd. from 'Perspex' Acrylic Sheet. More and more architects and authorities are specifying 'Perspex' for top-lighting flat-roofed buildings. These are some of the reasons why....

LIGHT AND TOUGH

Domelights in 'Perspex' Acrylic Sheet are easy and safe to handle. They are less liable to damage when they are being fitted and afterwards.

HIGH LIGHT TRANSMISSION

Clear 'Perspex' has a high optical efficiency, and up to 92% light transmission. Where diffused light is required to cut out sun glare, Opal or coloured 'Perspex' can be used.

ECONOMY

Domelights made in 'Perspex' Acrylic Sheet cost less. Because they're easy to fit, too, labour costs are cut. They are easily maintained; 'Perspex' is not affected by extremes of weather, sunlight, nor by smoke and salt air.

ADAPTABILITY

Domelights in 'Perspex' are not restricted to conventional designs; furthermore, special decorative effects can be obtained by using the transparent or translucent colours.

Domelights in 'Perspex' Acrylic Sheet are now available from several fabricators and merchants. Write for names and addresses to your nearest I.C.I. Sales Office.

'PERSPEX'

'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.

IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.1

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NOW— BRENTFORD

Safety TRANSFORMERS

using Class H insulation

for greater safety and reliability.....

BRENTFORD TRANSFORMERS LTD., announce a new range of dry (oilless) transformers using glass, ceramics and other similar inorganic materials impregnated with silicone resins.

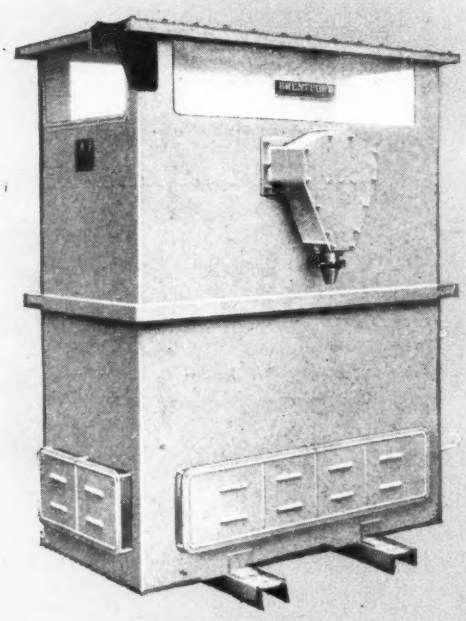
This latest development in transformers offers greatest ever safety for :—

Atomic Energy Establishments — Chemical Works — Oil Refineries — Explosives Factories — Blocks of Flats — Schools — Passenger Vessels — Tankers — Coal Mines — Radio, Radar and Television Stations — Underground Railways

BRENTFORD GREEN SEAL SAFETY TRANSFORMERS offer all these advantages :

- *Safest transformers ever developed*
- *No fire or explosion hazard*
- *Carry the lowest fire insurance rates*
- *Least affected by water*
- *Exceptionally high overload capacities*
- *Minimum maintenance—even in highly contaminated areas*

SEND FOR FULLY DESCRIPTIVE BROCHURE



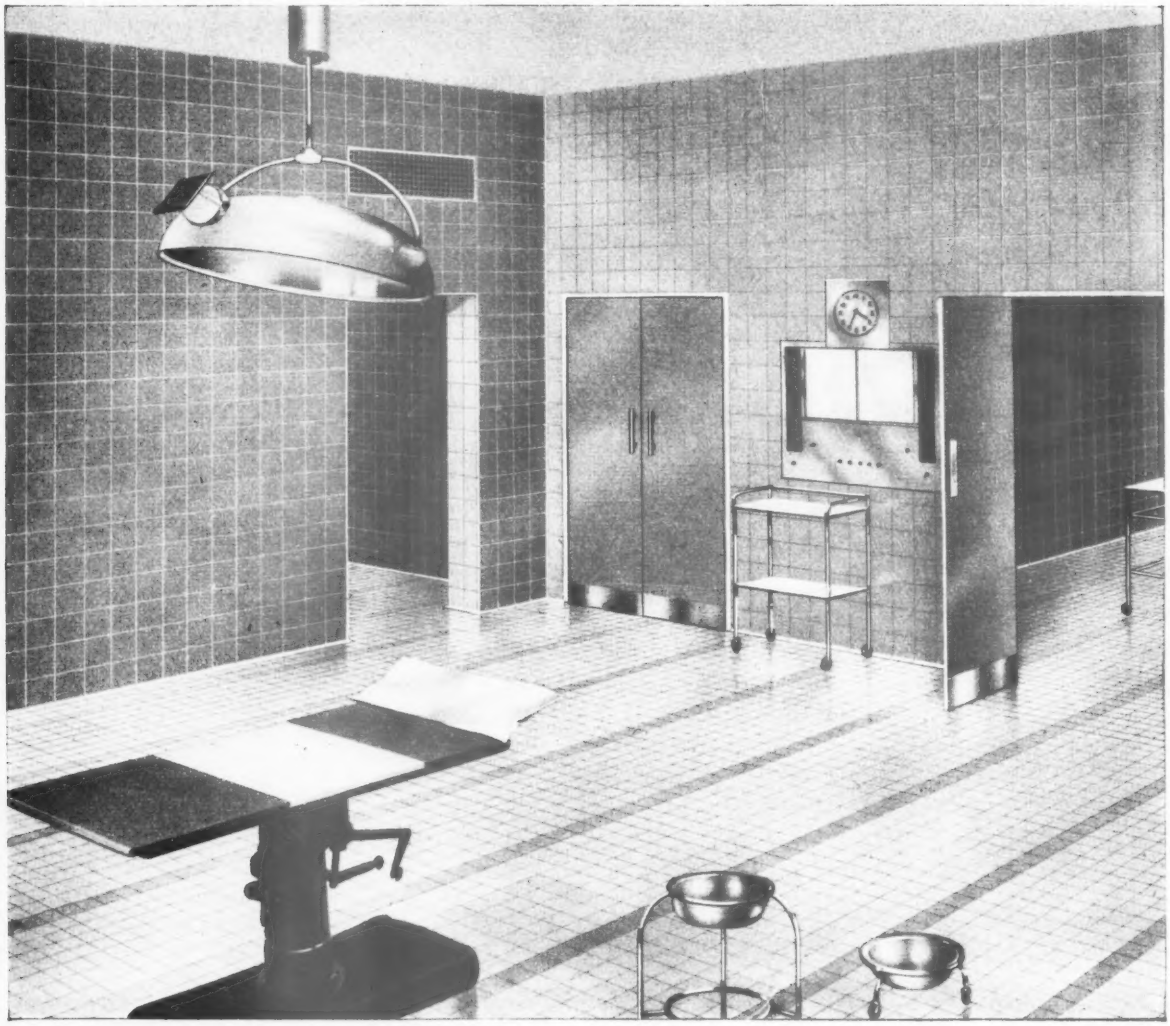
Two types are available in a range of sizes

	kVA	Voltage
Class ANH (Ventilated)	Up to 3,000	Up to 15 kV
Class GNH (Sealed in Nitrogen	Up to 2,000	Up to 15 kV

BRENTFORD TRANSFORMERS LIMITED

KIDBROOKE PARK ROAD, KIDBROOKE
LONDON, S.E.3

Telephone : Lee Green 1006-7-8



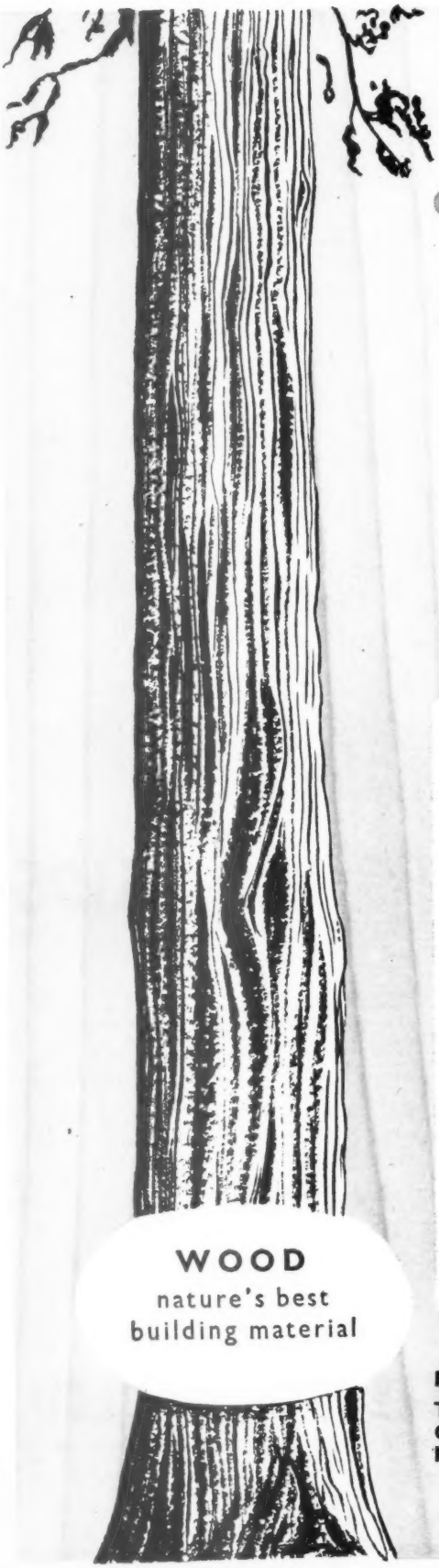
Genuine ceramic tiles —
an ideal medium for operating theatres

Cleanliness . . . how many lives have been preserved by scrupulously observing this basic principle in operating theatres? Millions no doubt. Genuine ceramic tiles are today an indispensable feature in hospital theatres. Few wall and floor surfaces compare hygienically with genuine ceramic tiles . . . completely impervious to heat, moisture, dust and dilute acids, their vitreous surface remains impeccable, sealing the non-fade colours permanently within. No special cleaning fluids are needed – old-fashioned soap and water quickly make their soft shades, restful to both patient and surgeon, fresh as the day they were fixed and they stay that way for years and years, spreading installation costs over a lifetime. Special colours are available and the Glazed and Floor Tile Manufacturers' Association will be pleased to pass any inquiry to its members.

Ceramic TILES

c

Glazed & Floor Tile Manufacturers' Association · Federation House · Stoke-on-Trent



WOOD
nature's best
building material

CANADIAN

Western Red Cedar

a warm toned wood that combines good working qualities with exceptionally high resistance to decay and changes in moisture content.

TYPICAL USES

Boat construction, fishnet floats, conduits and shingles for roofing

Exterior finish, weather boarding or siding, window sashes, greenhouse construction

Fence-posts, telegraph and telephone poles, piling

Cabinets, panelling, clothes closets and chests

Pattern making and pencil slats

SPECIAL ADVANTAGES

Seasons readily with very little shrinkage — retains size and shape

Very durable in contact with soil or in other positions favouring decay

Straight grained — splits readily and uniformly

Good glueing properties

Quite soft and light—takes smooth satiny finish—takes stains and paints well

FOR FURTHER INFORMATION concerning Canadian woods contact The Commercial Secretary (Timber), Canada House, Trafalgar Square, London S.W.I.

Reproduced here is figure of Western Red Cedar.

This advertisement is one of a series featuring Canadian Douglas Fir, Spruce, Red Pine, White Pine and Pacific Coast Hemlock.

TIM 4

This recessed lighting scheme of the canteen in the American Embassy was designed by Philips

For Imaginative Lighting

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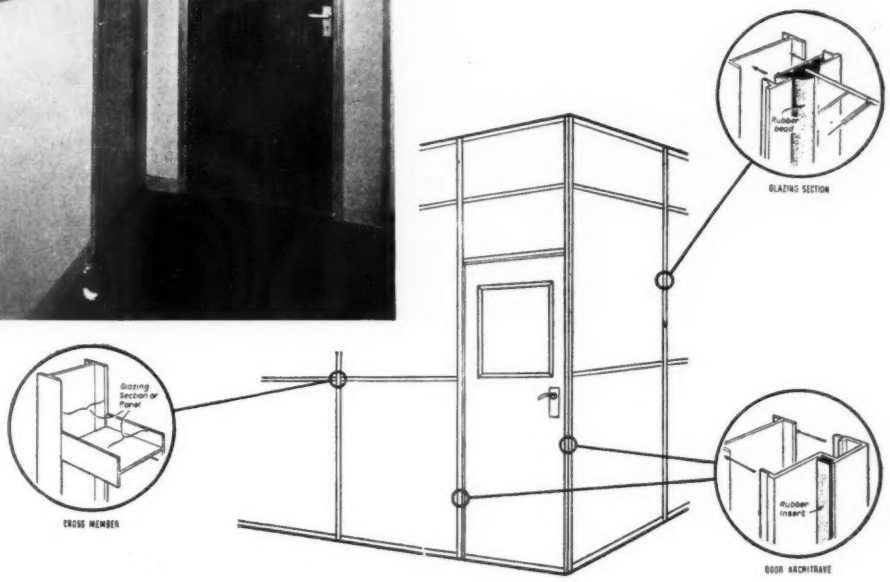

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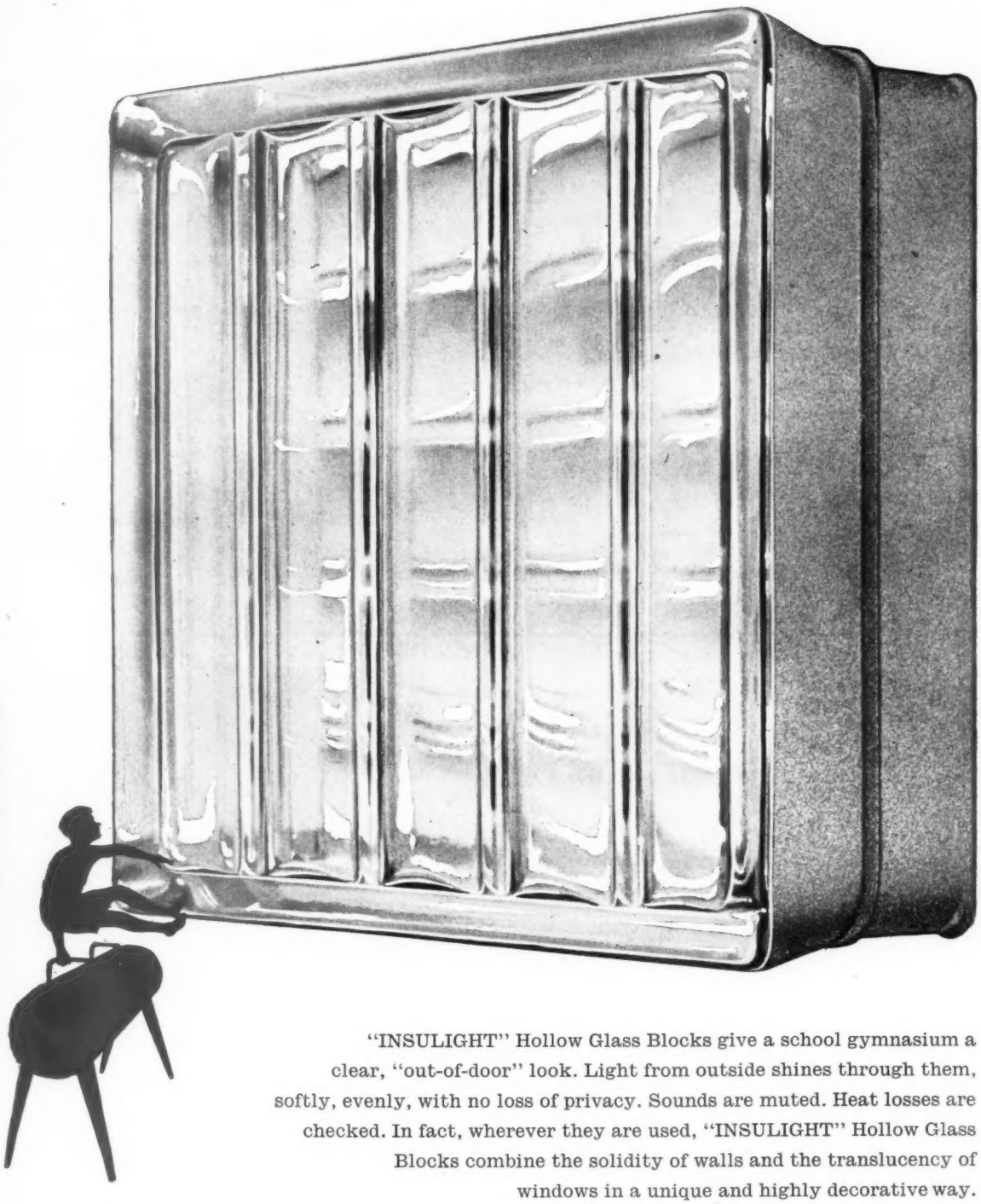

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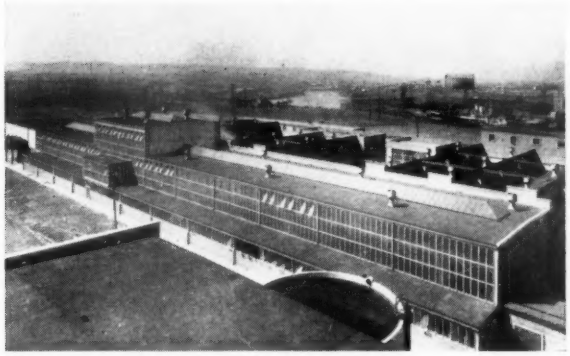

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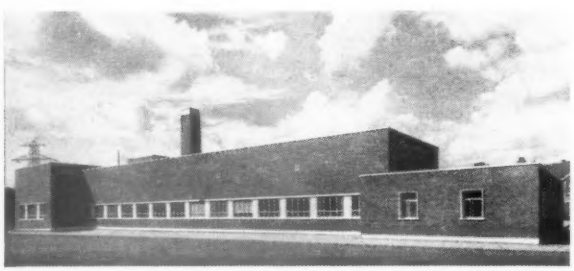

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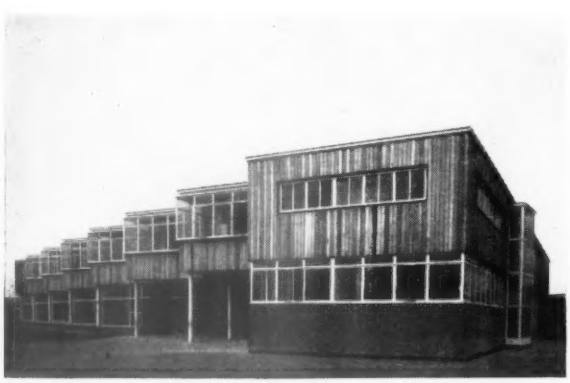
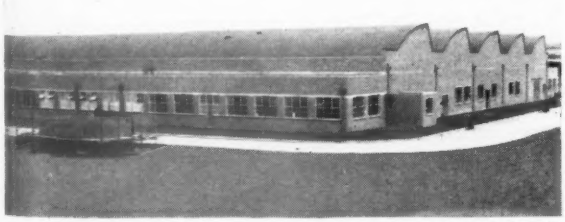


Two Storey Primary School for the Middlesex County Council.



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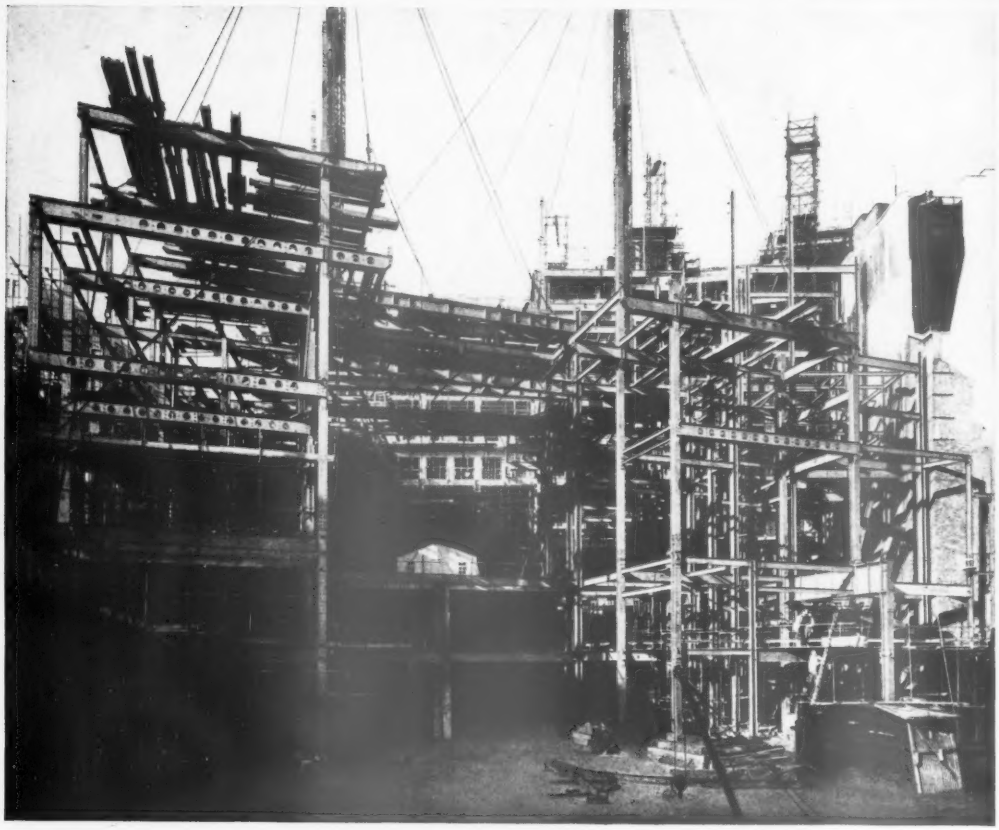

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THE ARCHITECTS' JOURNAL

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No. 3148 June 30, 1955 VOL. 121

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TURN AGAIN

MARS members and representatives of the Press gathered together at the AA last week to hear Maxwell Fry, prompted by Jane Drew, describe the MARS Group's plans for an exhibition aimed at showing how much better the new buildings in the city might be. One purpose of the meeting was to appeal for public support, which I hope the Group is getting, for they are being brave enough to carry the war into the enemy's camp. They have arranged that no less a person than the Lord Mayor shall open the exhibition in no less a place than the Royal Exchange on July 12 (to be on until the end of the month). The exhibition, which is to be contained within a simple Hills steel frame, is " designed to draw attention to the low architectural standards of new buildings in the City and to act as a practical demand for bolder and more modern techniques." It will consist largely of photographs of good office buildings (and apparently *only* office buildings) mostly from Italy, France and the Americas. Some pencil and crayon sketches—by the exhibition designer, John Bicknell—showed a pleasant, straight-forward little exhibition stand in the style MARS has been advocating for so long. Maxwell Fry said that the aim was to show the City that it had fallen behind—or below—office building in other parts of the world—or even in this country, and that the City was more retrograde than Oxford or Cambridge—which is saying a lot.

*

The exhibition is to be called " Turn Again " . . . and Nicholas Bentley has drawn an appropriate cat for display and publicity purposes.

*

Having just written the above, ASTRAGAL is dumbfounded to learn (he shouldn't be—what does one expect?) that the City have decided *not* to appoint a City architect. They have already chosen and altered two " short lists " and they failed to make their final choice, as had been expected, last week. They are now reconsidering the position. If the job was not so important the situation might be considered farcical. No wonder the City has been so long in rebuilding. Don't believe that stuff about lack of licences; you can assume that the various Governments of the day didn't think they were capable. And how right they were.

A PROFESSOR IMPRESSED

There have been two exhibitions this year at the Central School of Arts and Crafts—a most impressive one of first year work by students of furniture and interior design, and the usual selection of prize pieces from all departments, exhibited in connection with the speech day. ASTRAGAL wished that every department had been given a chance to show itself as thoroughly as the furniture first year. Nevertheless the samples shown were exciting enough, and seem to have had a strange effect on Professor Richardson, who presented the diplomas and prizes. He claimed that he found the work most beautiful, and said that he wished a list of the diploma-winners could be sent to all local authorities with injunctions to make use of them. But ASTRAGAL combed the exhibition in vain for Baroque Revival, or Regency, or Neo-Elizabethanism. On all sides were resolutely modern, not to say Borax, designs.

*

Could it be that Professor Richardson is a secret modernist and only designs the way he does because of the depraved taste of the average client?

GET ALONG TO THEM STAIRS

Speaking of professors, my Scholarly Spy reports that Professor Blunt ended the last of his series of talks on Baroque staircases, at the Courtauld Institute, with a slide of the staircase by Robert Adam at the Institute itself, and enjoined his hearers to look well at it as they left. My Spy suggests that this advice should be taken by all and—if I heard him correctly—sundry, as this Robert Adam masterpiece has now

been cleaned, restored, refurbished and its lost wall-paintings uncovered. This is good advice, for the Courtauld staircase is now one of the architectural sights of London, and the trip to 20, Portman Square (just north of Oxford Street, at the bottom of Baker Street) is strongly to be recommended.

COLONIAL COLLOQUY

At the ICA last week, George Atkinson, Director of Housing to the Colonial Office, gave a model lecture on "Architecture in the Tropics," and in spite of a somewhat recalcitrant projector for his excellent colour-slides, held a non-specialist audience pinned to their seats for an hour and a half. ASTRAGAL very much enjoyed the extra-ordinarily impressive slides, and the tartness of Mr. Atkinson's running commentary on them. No one, however great and mighty, was spared: if a failure to deal properly with the climate and the inhabitants was found, if a cliché had been used unthinkingly, then carefully-graded blame was meted out. Only two modern buildings got off scot-free—the college of technology at Chandigarh (not designed by any of the famous European architects who have worked there), and an artless village school in the West Indies.

*

Those with an eye to the main chance will wish to know that, quite by the way, Salisbury, Northern Rhodesia, was tipped off as the next capital city due for sudden expansion and mushroom development. So if you are tired of being an underpaid assistant, you know what to do.

ARCHITECTURE OF INDEPENDENCE

The Gold Coast is about to express its soon-to-be-gained independence from the Colonial Office with an official residence for the prime minister and a "state house," plans for which are at present being prepared by its Public Works Department. An unconfirmed report says that they are being designed in the style of the Age of Imperialism—a mixture of Imperial Delhi and Regency Roman. ASTRAGAL will wait anxiously for more news from this new nation of the Commonwealth—a part of the world from which we have often had details of sensible and not insensitive architecture.

The editors write overleaf about the reasons why the quality of the private enterprise houses which have won MOHLG medals is not better, and why no awards at all were made in London and south-eastern England. This year the MOHLG has also made awards for conversions and improvements: two of the medal-winning schemes are shown above. The top one (architect: M. T. Pritchard) is a 16th century house of wood cruck construction which is listed as a building of historic interest. The bottom one (E. J. Symcox, architect to the East Suffolk CC) is a building on the Yarmouth Road, Lowestoft, whose preservation and conversion, while doubtless commendable, could hardly be regarded as a prize-winning effort if it was faced with any real competition. For other awards see pages 876 and 883.

HINTS FOR HOUSEHOLDERS

ASTRAGAL has just got round to reading Eric Ambrose's modest but accurate and helpful book, *Know Your House*,* which gives the layman plenty of good advice on building and buying houses, and about the things which may go wrong. It is not intended for architects, who ought to know it all anyway, but if all clients had it the architect's life would be a lot easier. Mr. Ambrose is, perhaps, too facetious at times, and far too fond of exclamation marks, but it is easy to forgive anyone who can explain B.S. plaster classes in language the layman can understand.

* *Know Your House.* Thames & Hudson, 15s.

ASTRAGAL

DIARY

Building: a skilled creative job. Exhibition organized by the BC in collaboration with the MOW, LMBA and schools of building in the London area. At the BC, 26, Store Street, W.C.1. Monday to Friday 9.30 a.m.—5 p.m. Saturday 9.30 a.m.—1 p.m.

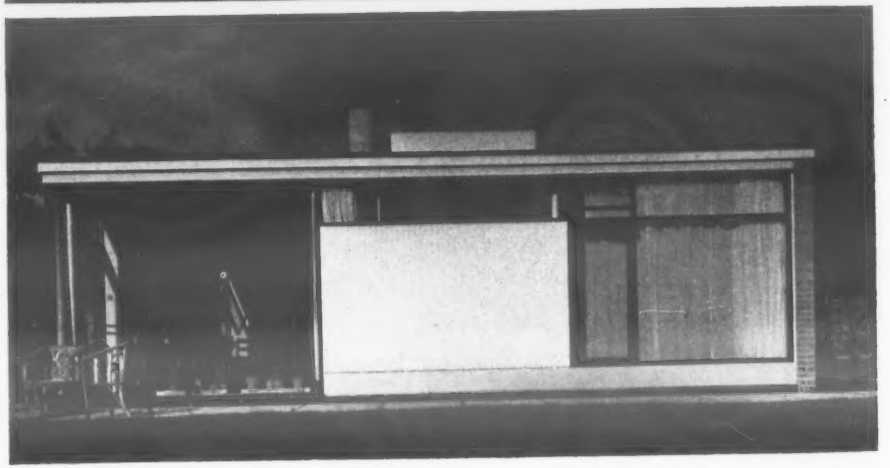
UNTIL AUGUST 6

Designs for Theatres and Theatrical Settings. Exhibition at the RIBA, 66, Portland Place, W.1. Monday to Friday 10 a.m.—7 p.m. Saturday 10 a.m.—5 p.m.

UNTIL JULY 24

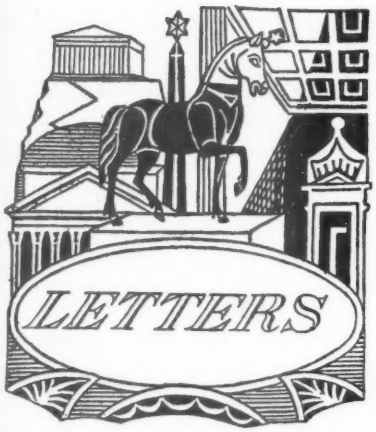
Housing Medal Awards. Presentation by the Minister of Housing and Local Government, the Right Hon. Duncan Sandys, M.P. At the RIBA, 66, Portland Place, W.1. 3 p.m.

JULY 6



Houses That Didn't Win Medals

The top two houses shown here are in Kent, the bottom two are in Greater London: yet the MOHLG has made no awards for houses in either region. Not that these houses were rejected: they were not even submitted for assessment by the regional awards committees. Nor did these committees receive entries of a similar high standard, although there is a large number of eligible buildings in each area. Is it that Greater Londoners and Kentish men are more shy than those in other regions? Probably they are not. It may be that the awards committees in the London and South East regions were looking for a higher standard of work than committees elsewhere. Certainly it is not difficult to think of more exciting post-war houses than those illustrated on pages 883 and 884. But their architects just did not bother to enter them for the awards. The result is that the houses which have won awards will be regarded by the layman as an officially recognized representative selection of good contemporary housing. It is incredible that only 432 of the houses built (or converted) in England and Wales during the past ten years were submitted for the Ministry's first awards for conversions and for private enterprise housing. Is the profession lazy? Or is MOHLG's publicity poor? (Left: top, by Brian Peake, at Otham; bottom, by Devereux and Davies, at Esher, Surrey. Right: top, by Powell and Moya, at Toys Hill; bottom, by Stefan Buzas, at Ham, Surrey.)



Alan Metcalfe, A.R.I.B.A.

A. E. Ward, Secretary, Institute of Registered Architects

O. Evans Palmer, A.R.I.B.A.

H. C. Langrick

M. Atkinson

West Riding

SIR,—After reading your article on the West Riding (AJ: June 9) one is left wondering what message it conveys.

Is it an indictment of the architects of the West Riding?

When the industrial scene is studied in its historical context it is no less interesting than the countryside, and it is also obvious that it is the effect of causes primarily outside the grasp of architects. The problems attending any attempt at visual control of the landscape have been admirably stated by Sir William Holford recently on the wireless, and it is clear from what he says that the solution is by no means simple.

Also much of the ideology in your article has been in the minds of architects and town planners for many years: it is a pet subject of satirical essays.

I suggest, therefore, in all humility, that it would be far more useful if you attempted a more detailed analysis of the industrial areas, with a view to working out a realistic method of developing these areas "to form a new and exciting 20th Century landscape."

ALAN METCALFE.

Rothwell, Yorks.

What The IRA Stands For

SIR,—I am reluctant to trespass further on your space but Leonard Howitt's letter (AJ: June 16) is a perfect example of the effect of the persistent misrepresentation which we deplore.

When Mr. Howitt says "Hitherto some of us have been under the impression that the second body (the IRA) was founded to cater for those who could not or would not bother to pass the qualifying examinations" he is saying, in effect, that any Tom, Dick or Harry can acquire the status of an architect by merely paying a subscription to the IRA. That is simply not true, and the sooner the impression is corrected the better for all concerned.

It is also interesting to note that the question, "What can the second body (the IRA) do which the first (the RIBA) cannot?" was

continued on page 876.

POINTS FROM THIS ISSUE

THE EDITORS

THE CONSTITUTION OF THE COUNCIL

IT is hard to believe that the RIBA Committee set up to examine "the whole question" of the constitution of the RIBA Council (this report was published in the May issue of the *RIBA Journal*) have not carefully averted their eyes from two major criticisms of the Council. One commonly held criticism is not that the Council has not enough representatives of the Associate class of membership, or that it is not democratically elected, but that it is possible for it to be too easily dominated by a clique working through the Executive Committee. The Executive Committee is the power behind the throne of the president. It consists of past and vice presidents, honorary secretary and treasurer, two *ex-officio* representatives and six others, the appointments for which are either long-term or are nominations readily made and therefore subject to control by a determined clique. It is on the wisdom and farsightedness of this Old Guard that the vitality of the professional body largely depends. Fortunately in the last year or so enlightened policies have, on the whole, been prevailing, but the risk still remains that reactionary forces can too easily hamper progress through this caucus.

It has also been observed in the past—and this is a second criticism of the constitution—that it is relatively easy to reintroduce a member of council who has failed to be elected by the votes of the profession, by appointing him as a representative of an oversea society.

However, the committee is to be congratulated on its attempt to obtain a better balance of representation of Associates and Fellows on the Council, and for asking for assurances from the Allied Societies' Conference that the appointments of Allied Society representatives "were influenced by the wishes of the general body of members of each Allied Society."

The most encouraging statement made in the report was with regard to the admission of Associates to the Fellowship class. It states: "The term 'position of responsibility' (for the design of architectural work—a requirement of the Fellowship examiners) was at present . . . too rigidly interpreted, and they thought that some wider interpretation should be given so as to place salaried architects on a more equitable footing with principals . . ." This seems to be a welcome sign of recognition that assistants in private and public offices who are responsible for design in fact, if not in law, are entitled to the honour of Fellowship. The next step is to recognize a salary scale to which they are entitled also.

Regions? Probably they are not. It may be that the awards committees in the London and South East regions were looking for a higher standard of work than committees elsewhere. Certainly it is not difficult to think of more exciting post-war

Is the profession lazy? Or is MOHLG's publicity poor? (Left: top, by Brian Peake, at Otham; bottom, by Devereux and Davies, at Esher, Surrey. Right: top, by Powell and Moya, at Toys Hill; bottom, by Stefan Buzas, at Ham, Surrey.)

your columns on May 1, when he authoritatively outlined the limitations of the "first" body's charter, in his capacity of chairman of the Salaried and Official Architects' Committee.

In short, the IRA is complementary to the RIBA and can do many of the things which, in Mr. Howitt's words, the RIBA is "constitutionally unable" to do.

A. E. WARD.

London.

Incompetent Assistants

SIR,—In the last two weeks, three people—two of them prospective clients and one a contractor—have told me dismal stories of incompetence on the part of architects. Enquiry soon showed that it was in each case an unqualified assistant who was primarily responsible.

This is, of course, small comfort and it suggests that, while the law defines in a more or less satisfactory way those who may practice as architects, something more is needed to control those who in fact practise architecture, and with the direct support of the profession.

Would it be helpful if, when the Code of Professional Conduct is next amended, a clause be added roughly as follows:—

"Members shall ensure that, as far as is practicable instructions are neither taken nor given on their behalf by unqualified members of their staff."

Here, surely, is a positive way to strengthen the unofficial code of professional ability of which the examination system is now the basis.

O. EVANS PALMER.

London.

Improve Our Trade Fairs

SIR,—Increasing the popularity of British trade exhibitions is of value in developing both home and export markets.

Having just returned from visiting the Hanover Trade Fair, at which attendance was phenomenal, may I refer to some of the features which I feel were responsible for its great success.

Firstly, the Fair was international in scope, with separate halls for different classes of products. Secondly, a complete block was given over to facilities for oversea visitors, including a reception point, special restaurant, accommodation bureau and a general information service. Thirdly, there were many features to attract the general public—in fact, the week-end I was there the whole of Hanover seemed to be attending; amenities included attractively laid-out grounds, with orchestras, restaurants, open-air cafés, open-air dancing, etc.

Naturally, the limitations of halls such as Olympia and Earls Court do not permit facilities on such a scale; but could not an alternative site be found as a permanent home for our major exhibitions—attractive alike to businessmen and the general public in England and from abroad?

H. C. LANGRICK.

Nottingham.

Priceless Advertisements

SIR,—Some time ago I read letters in your JOURNAL about whether or not advertisements should show prices; my own view is that it would be a good idea if more advertisements were to do it.

After all, your advertisement pages are the shop windows of the manufacturers of building materials and most shop windows do show prices.

Prices are also very often shown in advertisements in other journals.

There is no need for the prices to be completely definite, they could be as they are, in the fashion journals, for women's clothing—"about so and so."

M. ATKINSON.

Kent.

MOE

New Appointments Made By The Minister

Sir David Eccles, with the approval of the Prime Minister, has appointed D. M. Nenk, assistant secretary, to be accountant general, on the retirement of B. L. Pearson on August 2.

W. D. Pile, principal, will be promoted acting assistant secretary, and will succeed D. M. Nenk as joint head of Architects and Building Branch on August 3, 1955.

MOHLG

Housing Medals Awarded For Houses and Conversions

Eleven of the fifteen private enterprise houses (from nine regions of England and Wales) which have won MOHLG medals and diplomas for their architects and builders are illustrated on pages 883 and 884.

In two regions, London and South-East England, no awards were made, because the awards committees were unable to make any recommendations. (See page 874.)

Awards have also been made in eight regions (there are no recommendations from London, the North Midlands, and North-East England) for conversion and improvement schemes undertaken either privately or by local authorities.

The awards have been made for the following:—

Northern Region: "Martin Garth," Hutton Buscel, Nr. Scarborough (architect, Edgar Allen); *Eastern Region:* Avenue Mansions, 29, Yarmouth Road, Lowestoft, E. Suffolk for E. Suffolk C.C. (E. J. Symcox, County Hall, Ipswich); Kempston Grange, Kempston, Nr. Bedford, for Kempston UDC (John Gedge); *Southern Region:* The Old Smithy, Bloxham, Oxon (G. Forsyth Lawson, Banbury); The Row, Bletchingdon, Oxon., for Oxfordshire Housing Society Ltd. (Thomas Rayson); *South Western Region:* 5, Somerset Lane, Bath, Somerset (H. D. Roberts); *Wales:* Hafod Yspytty, Ffestiniog, Merioneth (M. T. Pritchard); *Midland Region:* 95-107, Gilman Street, Hanley, Stoke-on-Trent, for Stoke-on-Trent City Council (J. R. Piggott); Stonepits, Inkberrow, Worcestershire (T. R. Bateman); *South Eastern Region:* Cowdray Estate (W. J. Aggas).

The four remaining houses, which will be illustrated in next week's issue, are 9, Heath Avenue, Mansfield, Notts. (architect: H. J. Mein); 52, New Yatt Road, Witney, Oxon. (architect: Gerald Banks); 59, Wyke Road, Weymouth (architect: E. Wamsley Lewis), and Golden Meadow, Gulval, Nr. Penzance (architect: P. J. Barbary, of G. Bazeley and Barbary).

RIBA

Representatives Appointed

The following is an up-to-date list of representatives of the RIBA:

Representatives from the Northern Province of England. Professor W. B. Edwards, Northern Architectural Association, Joseph Gomersall, Manchester Society of Architects, W. H. Glen Dobie, Liverpool Architectural Society, H. D. Priestman, York and East Yorkshire Architectural Society, Norman H. Fowler, West Yorkshire Society of Architects, H. A. Hickson, Sheffield, South Yorkshire and District Society of Architects and Surveyors.

Representatives from the Midland Province of England. S. T. Walker, Birmingham & Five Counties Architectural Association, J. H. Lloyd Owen, Leicestershire and Rutland Society of Architects, F. C. Levitt, Northamptonshire, Bedfordshire, and Huntingdonshire Association of Architects, W. C. Baldry, Nottingham, Derby, and Lincoln Society of Architects, H. C. Boardman, East Anglian Society of Architects.

Representatives from the Southern Province of England. H. F. Walls, Devon and Cornwall Society of Architects, J. N. Meredith, Wessex Federal Society of Architects, E. S. Smith, Berks, Bucks and Oxon Architectural Association, J. B. Brandt, Hampshire and Isle of Wight Architectural Association, C. I. Hobbis, Essex, Cambridge and Hertfordshire Society of Architects, G. Crump, South Eastern Society of Architects.

Representatives of Allied Societies in Scotland: nominated by the Council of the Royal Incorporation of Architects in Scotland. A. E. Gordon, W. A. P. Jack, W. McCrea. (One representative to be appointed.)

Representative of Allied Societies in Wales. (To be appointed.) (South Wales Institute of Architects.)

Representatives of Allied Societies in Ireland. H. S. Robson, Royal Institute of the Architects of Ireland, and one to be appointed.

Representatives of Societies in Alliance with the Royal Institute Overseas. Two to be appointed: The Royal Architectural Institute of Canada and a representative in the United Kingdom, E. J. A. Weller, the Royal Australian Institute of Architects, A. Graham Henderson, Representative in the United Kingdom, J. I. King, New Zealand Institute of Architects, R. H. Uren, Representative in the United Kingdom, W. A. Macdonald, the Institute of South African Architects, Michael T. Waterhouse, Representative in the United Kingdom, G. B. Mhatre, the Indian Institute of Architects, S. Bentley, Representative in the United Kingdom.

Representative of the Architectural Association (London). Bryan P. Westwood.

Representative of the Association of Building Technicians. Kenneth J. Campbell.

Chairman of the Board of Architectural Education. P. G. Freeman.

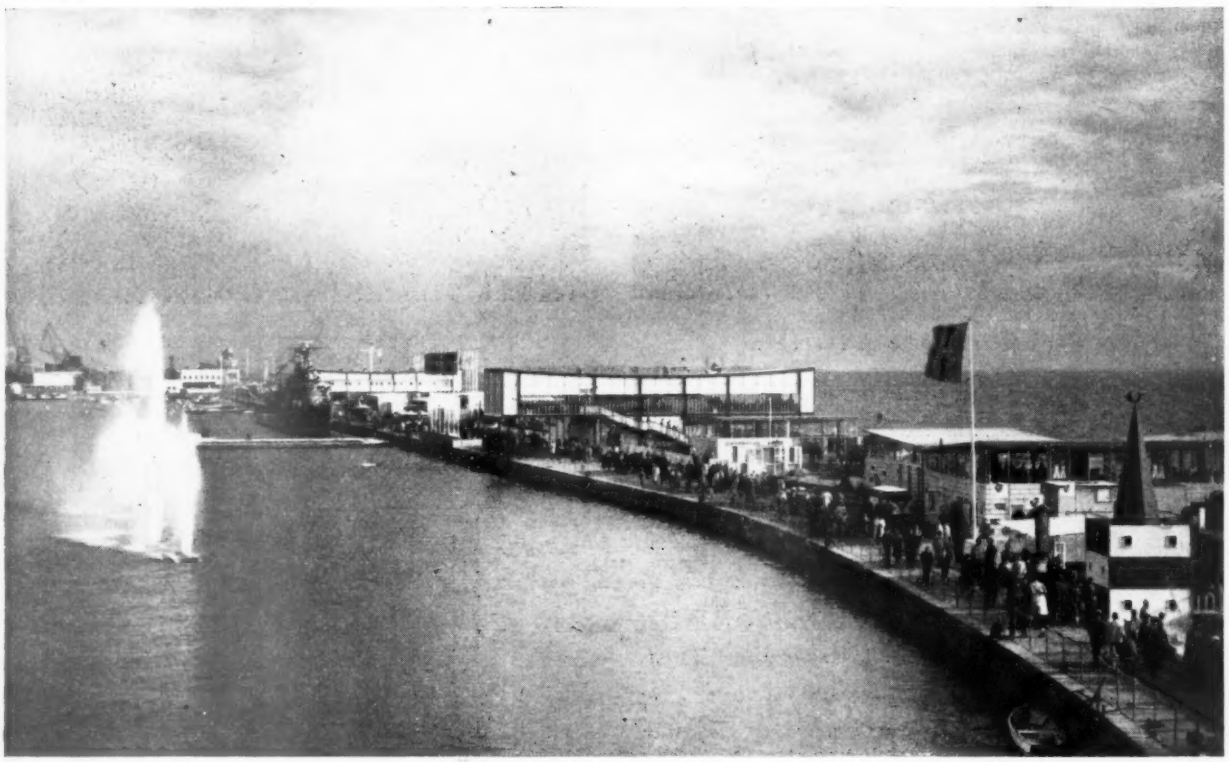
Chairman of the RIBA Registration Committee. Howard V. Lobb.

Two Representatives of the RIBA Salaried and Official Architects' Committee. To be appointed.

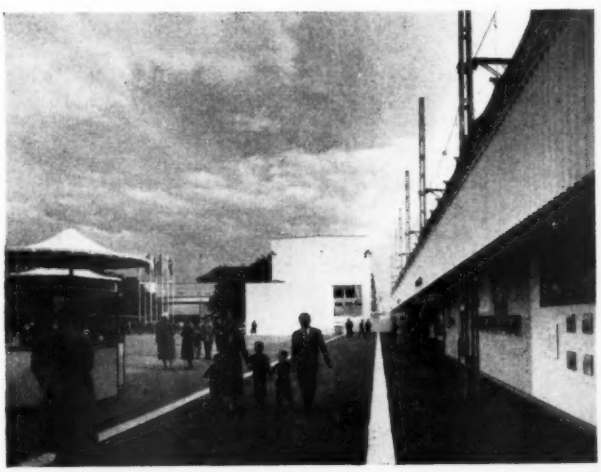
Chairman of the RIBA Allied Societies' Conference. F. Charles Saxon.

H55: THE HALSINGBORG EXHIBITION

Last week the JOURNAL *published some preliminary photographs of the exhibition of architecture, industrial design, home furnishings and crafts which opened at Halsingborg, Sweden, on June* 10 *and will continue till the end of August. On these pages is a somewhat fuller survey in the form of a conducted tour of the exhibition from the main entrance to the end of the pier on which the bulk of it is sited. Four architects were responsible for the general layout and design: Carl Axel Acking, Bengt Gate, Torbjörn Olsson and Sven Silow.*

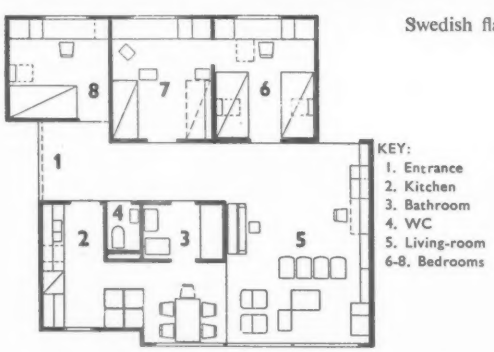


Though the major part of the exhibition is spread along the narrow stone-walled pier that separates the harbour of Halsingborg from the open strait (see photograph above and plan on page 880*), it begins on dry land. The main entrance is alongside Sven Markelius's famous concert hall and leads direct into a gravelled area (right) round which are planned the exhibits devoted to architecture and town-planning. In the background of this picture is the concert-hall, the flags to the left of it mark the entrance-turnstiles, further left is a colony of Swedish prototype houses and on the right is the long canvas-roofed building which houses the international section of the exhibition. This also serves to screen the entrance area of the exhibition from the warehouses and railway sidings that lie immediately alongside the harbour. The international section consists of furnished flats from eight countries: Switzerland, Denmark, Britain, France, Western Germany, Japan, Finland and Sweden. On the blank side wall of each flat, as shown in the photograph, are displayed photographs of recent housing in that country. The entrance to the flats is round the corner, in the passage separating each.*

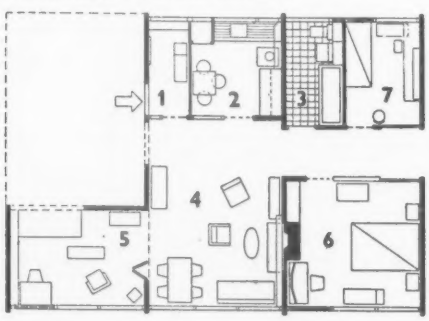


HALSINGBORG EXHIBITION

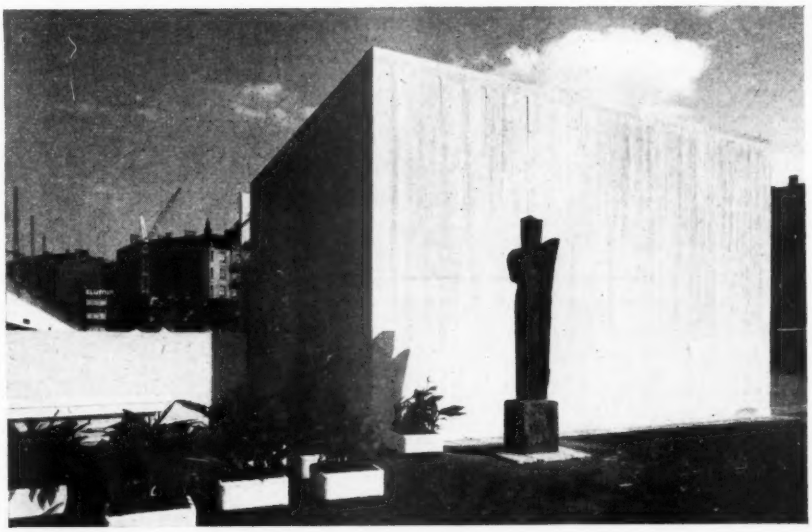
The furnished flats reflect pretty accurately the best standards of interior design current in the countries they represent and the national characteristics by which they are determined, though the Swiss flat is so austere as to be almost without character and the West German surprisingly harsh and insensitive, recalling the crude modernism of the 1930's. *The Japanese flat, with its sense of space, its untreated timber posts and beams and its unobtrusive furnishings, provides a refreshing contrast in style to the rest, which are made to seem fussy and overcrowded, but it is planned for a different way of living and direct comparison is misleading. The Finnish flat was illustrated last week; so was a corner of the Japanese. Here are the living-room and kitchen in, on the whole, the two most successful flats; above, the Swedish (architect, Sten Lindegren; interior designers, Sven Engström and Astride Sampe) and right, the British (architects Michael and Jo Pattrick; architect of the flats at Ham Common on which the interior is based, Eric Lyons). These are the only flats the visitor can walk through; the others have to be viewed through the windows or from roped-off porches and terraces.*



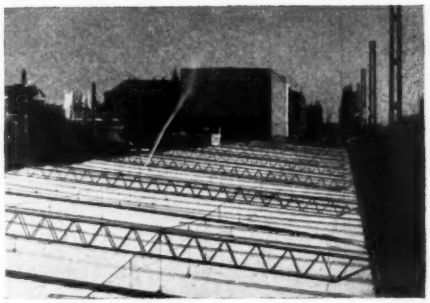
Swedish flat



British flat

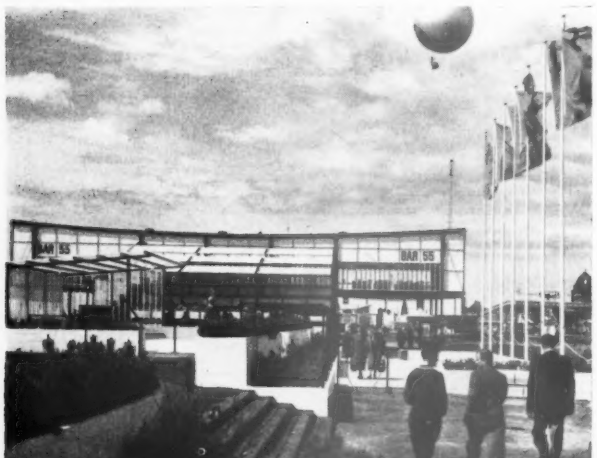


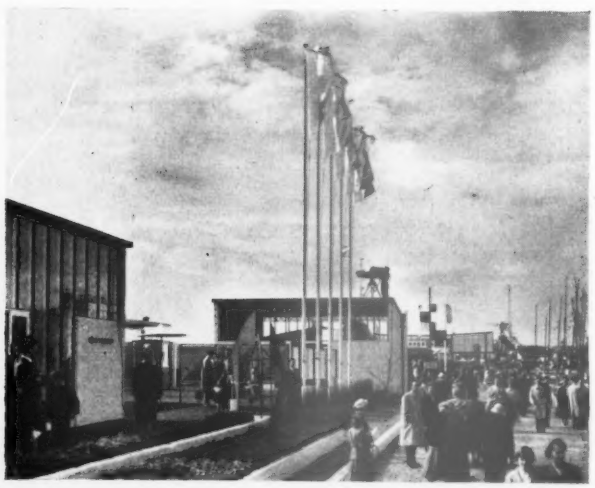
The entrance area, besides the international flats and the colony of Swedish houses, contains other exhibits concerned with building, including that on the right, a cube of screen walls entered at two corners, containing maps and models arranged by the Swedish architects' institute to explain the inter-relation of planning and building. The simple whitewashed concrete walls, left with the texture produced by the timber formwork and used as a background to planting and sculpture, are typical of the style used throughout the exhibition. From the entrance area the main part of the exhibition (on the pier across the harbour) is reached by means of a temporary bridge which spans over the railway sidings and quays. When the visitor first ascends the steps leading to the bridge he finds himself looking down on the roof of the building containing the international furnished flats, and he can see (right) how the canvas roof of this building is hung from lattice beams. Again, he sees the concert hall in the distance. As he crosses the bridge he obtains the view shown on page 877, and then descends on to the pier with its sequence of large buildings placed cross-wise on columns and small single-storey buildings linked by formal gardens, below. If he wishes, he can travel the length of the pier on the miniature train seen here.

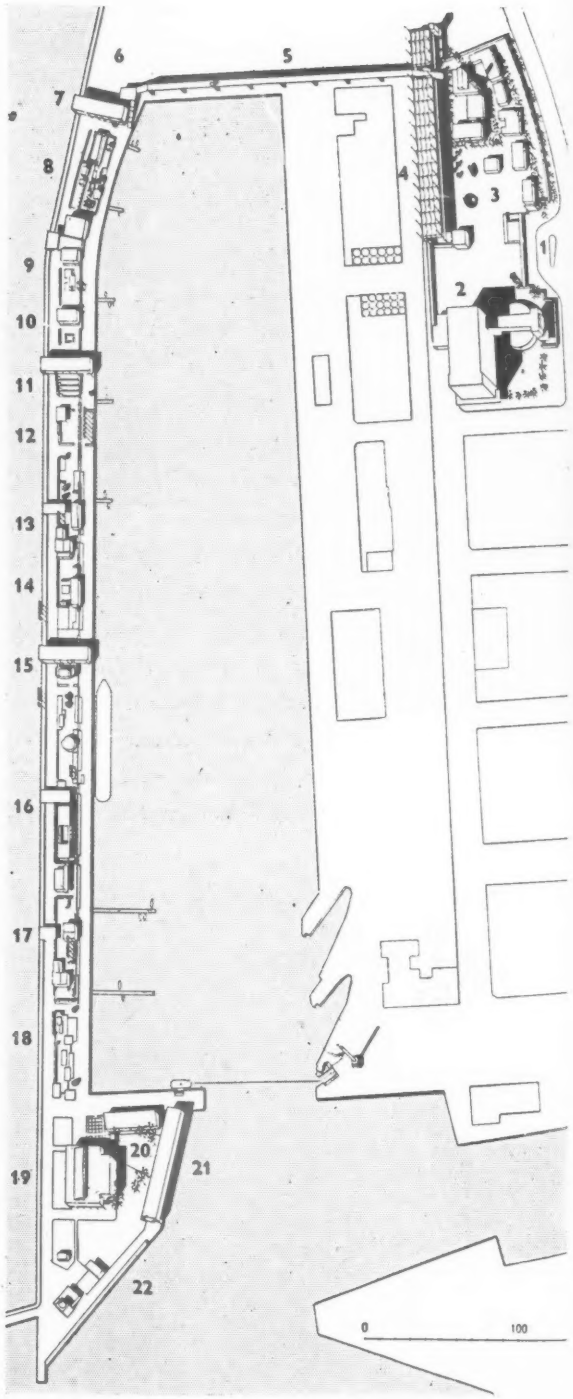


HALSINGBORG EXHIBITION

The pier (see general layout plan on right) is spanned across its whole width by three almost identical buildings, two storeys high but with the ground floor open on either wing, beneath which the main circulation of the exhibition passes. The first of these, which is entered on its upper level direct from the bridge leading from the first exhibition area, is devoted to electricity and the third to shipping—two of Sweden's most important industries. The centre one of the three is a café: a large indoor cafeteria occupying both wings on the first floor and a series of outdoor terraces, protected by awnings, stepping down to the garden in the centre, where there is also a dance-floor—see the top photograph opposite and the plan beneath it. Below is a more distant view of the same café, showing the terraced gardens which fill the spaces between the three main buildings. Set among these gardens are smaller pavilions: those between the electricity building and the café are devoted to education, school equipment and the like; those between the café and the shipping building (picture, page







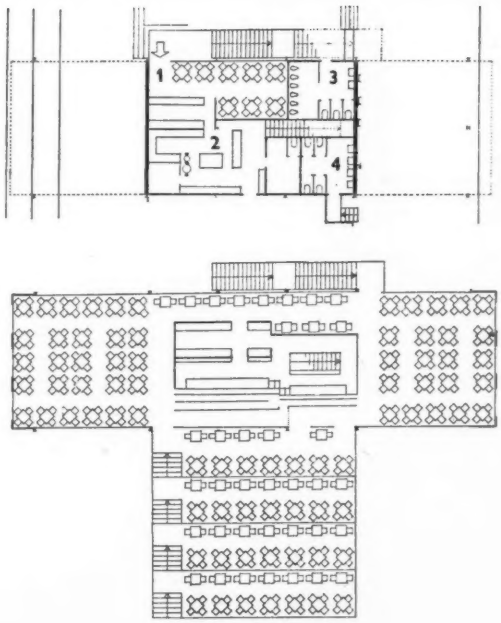
KEY:

1. Main entrance
2. Concert hall
3. Housing section
4. International furnished flats
5. Bridge
6. Fun-fair
7. Electricity building
8-10. Children's and educational section
11. Café
12. Dance floor
13-14. Bank, post office, etc.
15. Shipping building
16. Pergola garden
17. Colour exhibit
18. Rose garden
19. Restaurant
20. Scandinavian industrial design
21. Swedish industrial design
22. Church art

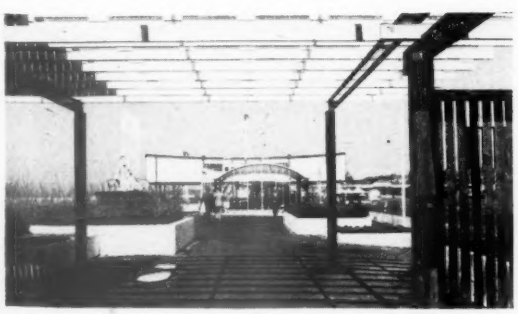
879) *are post-offices and displays organized by the big department stores, and those beyond (picture at foot of facing page) are devoted to colour—its scientific principles, its use in decoration, textile design, etc. They are ingeniously laid out by Erik Berglund. Like smaller exhibition buildings these pavilions are of breeze blocks, whitewashed, as are the screen walls that protect the gardens and plants from the sea winds.*

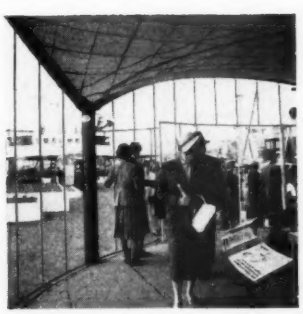
One of the gardens takes the form of a pergola with timber roof-members and plants arranged in circular concrete beds with a richly textured path winding through it (below right) formed of cobbles and sections of tree-trunk. The designers were Carl-Axel Acking and Per Ake Friberg. Looking back from this pergola-garden towards the shipping building (below left) can be seen a glass-house, exhibiting a new type trailer caravan. The building is circular in plan with an intersecting arched roof (below centre) formed of a mesh of wires with canvas stretched over it (designer Bertil Zeinetz).

KEY:
1. Cafe
2. Service
3. Men's lavatories
4. Women's lavatories



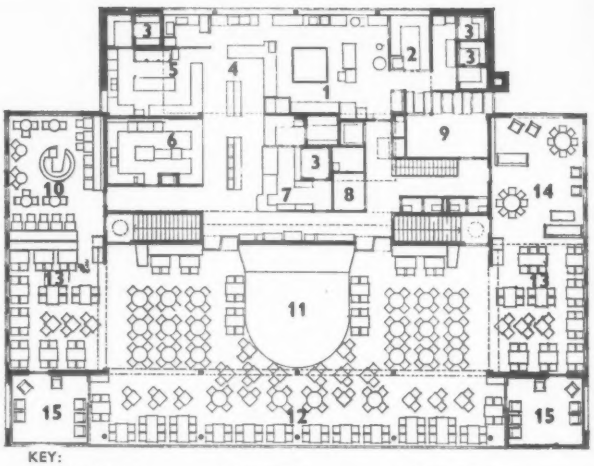
Plans of restaurant





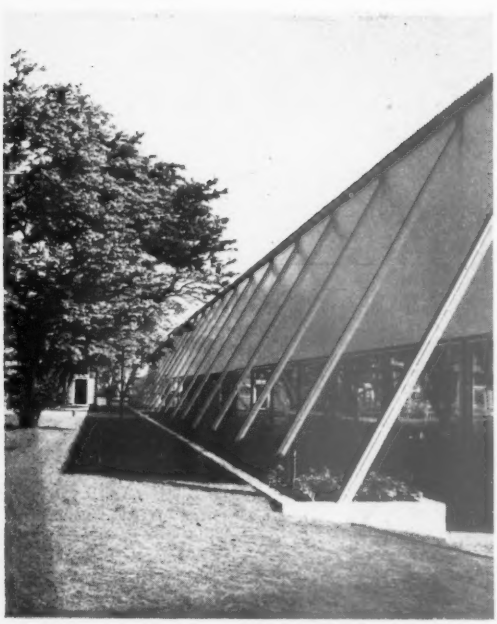
HALSINGBORG EXHIBITION

At its end the pier widens considerably, and in the centre of the triangular site thus created (see plan on page 880) is a restaurant, the one building put up for the exhibition that is to remain as a permanent amenity for Halsingborg. Its seaward facade is shown above. The restaurant itself and the main kitchen are on the first floor (see plan on right). The architect was Bengt Gate assisted by Lennart Gustafson. Also at this end of the pier is a large glazed exhibition hall (pictures below) for the display of Swedish furniture, pottery, glass and similar products. The architect was again Bengt Gate, assisted by Gustaf Rosenberg. The building, of two storeys, partly open on the ground floor, forms one side of a garden court, at the end of which is a row of smaller glazed pavilions displaying similar products from Norway, Finland and Denmark. Behind them is a jetty from which a ferry-boat crosses back to the town.

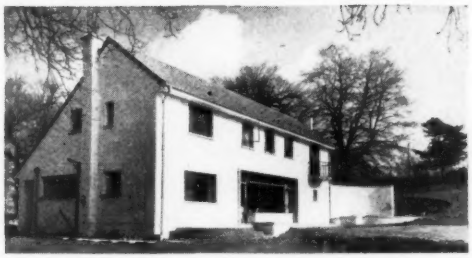


KEY:

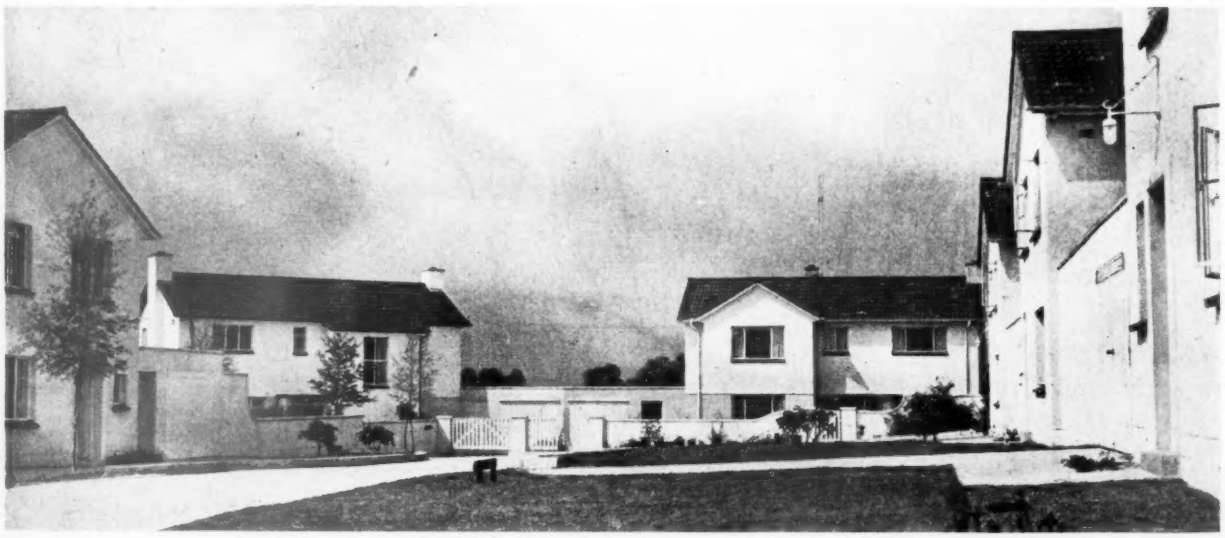
1. Main kitchen
2. Preparation
3. Refrigerators
4. Kitchen
5. Preparation
6. Larder
7. Control desk
8. Chef's office
9. Manager's office
10. Bar
11. Dance floor
12-15. Restaurants



MOHLG AWARDS FOR PRIVATE ENTERPRISE HOUSING



On this page and overleaf are eleven of the fifteen private houses for which the MOHLG has made awards to architects and builders. The houses were selected from 432, submitted from eleven regions of England and Wales, by regional committees made up of architects, surveyors, builders and laymen. The names of architects on award committees are given in brackets after each of the following captions:—Above: "Reddings," Welwyn Garden City, Herts; architects, Paul Mauger and Partners (S. V. Goodman, C. I. Hobbis, L. S. Smith, E. J. Symcox, R. Whitworth). Top right: Leeks Hill House, Melton, East Suffolk; architects, Sandon and Harding. (Architects on awards committee, as for Welwyn.) Above right: "Tanglewood," Bonvilston, Glam.; architect, W. H. Maton. (C. F. Bates, J. W. Bishop, L. R. Gower, Major B. T. Howells, J. Hughes, T. A. Lloyd, S. P. Youldon.) Below: Orchard Close, Ottery St. Mary, Devon; architect, Anthony Lamb. (R. J. Potter, W. J. Brown, S. N. Hewitt, P. K. Pope, J. F. Smith, C. F. J. Thurley.) Bottom left: Linton Lane, Wetherby, Yorkshire; architect, H. Bennett. (A. W. Thorpe, R. Cawkwell, J. S. Conway, H. L. Fox, G. A. Rowe, W. G. Wilson.) Bottom right: Ecton Avenue, Macclesfield, Cheshire; architects, Bernard Taylor and Associates. (Architects on committee, as for Kirkham, Lancs.)



MOHLG AWARDS FOR PRIVATE ENTERPRISE HOUSING

Above: "Ribby Wood," Kirkham, Lancs; architect, T. Mellor. (G. Grenfell Baines, C. T. Bloodworth, U. A. Coates, C. Y. Dawbarn, H. M. Fairhurst, Miss A. J. Rutherford, Sir Alfred Shennan.) Below left: 6, Parkside, Tynemouth; architect, G. Hall Gray. (C. W. C. Needham, E. Firth, K. A. Jones, J. H. Napper, A. V. Robertson.) Bottom left: Green Acres, Troutbeck, M. Windermere; architects, J. Jennings and J. C. Gill. (Architects on committee, as for Tynemouth.) Below right: Greycourt, Manor Park, Leeds; architect, J. Stanley Wright. (Architects on awards committee, as for Wetherby—previous page.) Bottom right: 72, Gorsey Lane, Cannock, Staffs.; architect, Laurence Williams. (S. T. Walker, A. D. R. Cowley, C. Knapper, J. S. Scott, A. R. Twentyman.) For other award winners, see page 886. See also page 873 and page 874.

In our last article (AJ May 19) we presented a survey of the practices of four architects, showing what procedures they adopt to deal with the various aspects of architectural work, particularly those which bear on the problems of cost control The survey was presented under a number of headings representing the phases through which a job passes, from the client's brief to the building operations stage. This week we set forth our own conclusions, ideas and suggestions—based on what the four architects told us and on our own experience.

THE COST OF BUILDING: BY THE GUEST EDITORS

THE ARCHITECT'S CONTRIBUTION

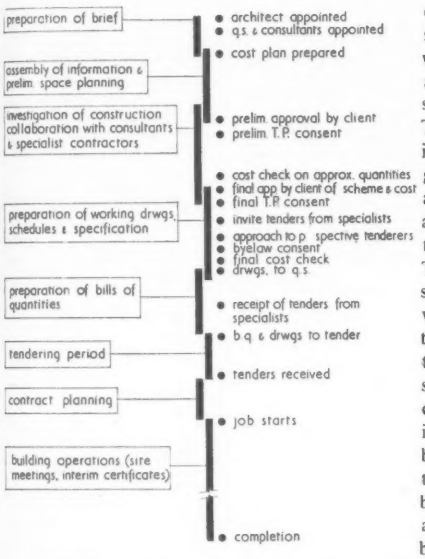


Fig. 1. Diagram showing the main stages and important dates in the architect's overall programme. When the client's brief is agreed these can be set out on a time scale, based on previous experience. For working drawings and building operations stages see Figs. 2 and 7.

CLIENT'S BRIEF AND OFFICE PROCEDURE

(A) The essentials of a brief: We wish to make clear that in our opinion it is the architect's responsibility to make sure he has an adequate brief.

There has been some publicity given to the idea of "educating the client" as a solution to the inadequacy of briefs obtained from clients. This approach is extremely difficult since the client must be known before he can be educated, and to educate the public at large is a very long-term solution. Many clients build only once or perhaps twice in their lifetime and to teach them how to brief an architect before they think of building is so impractical as not to need further discussion. For large-scale clients like local authorities, multiple firms, etc., the client may be a mass of personalities, and such evidence as is available suggests that they look to the architect to assist them in finding out what they really want. Clients generally, therefore, lack experience of being clients, and this very lack has surely prompted the contractual situation where the architect acts as the client's agent. For in this way the client has been safeguarded from his own inexperience.

The architect therefore must have all the interests of the client at heart and must give him what he needs *and* produce good architecture. At times this is not the case although not always appreciated by architect or client.

The client more often than not commissions an architect because he believes he will get a better and more economical job than if he does not, and the architect sometimes is concerned only with what he considers to be a beautiful building. Such a difference in outlook leads to costly building and it is of the greatest importance that both client and architect are working to the same end. This will be largely achieved by the architect having an adequate brief, and we are of the opinion that one of the biggest contributions the architect can make to controlling the cost of building is to develop a systematic method of enquiry which will draw from the client all the information that is required from him. The four architects who described their practices in our last article (AJ, May 19) are already working along these lines and examples of their questionnaires were illustrated, but a greater study of the subject would be very fruitful.

While it is evident that the details of a brief and the methods employed in getting it may vary, there are certain basic essentials which will be true in all cases:

(1) A clear understanding—expressed in the form of notes, figures and sketches—of the activities and functions that the building is to house and of the access to and circulation between the various parts.

(2) The conditions which each activity or function requires in respect of: (*a*) Lighting; (*b*) Heating; (*c*) Water, sanitary and other services; (*d*) Plant and equipment; (*e*) Conformity with regulations.

(3) The amount of money the client is prepared to spend, and a policy for the relationship between capital and maintenance costs.

(4) The time when the building is to be handed over to the client.

(5) Restrictions or conditions affecting the site, availability of services, etc.

We have already said that the architect must develop a systematic method of enquiry, but there will still be many cases where the client will not be able to provide the answers to complete the brief. Here again we consider it the architect's responsibility to get the information which he needs. This may be done by advising the client to employ a management consultant to examine his work processes (in the case of industry) and to report on the methods to be employed. In other cases the architect may consult authoritative manuals on a particular building type (*e.g.*, MOE Bulletins) or he may suggest that he (the architect) carries out some preliminary investigation himself, by investigation of buildings of similar type, tentative studies on the drawing board or by other means and report back to the client before completing the brief. In exceptional cases he may suggest that the problem warrants some original research into the function of a building type (*e.g.*, Nuffield Foundation—Investigation into the Design and Function of Hospitals).

In all this we see it as the architect's responsibility, and it should be on his initiative that the purposes which a proposed building is to serve are adequately investigated and described and incorporated into his brief so that he can adequately plan *for* the various functions with proper economy. This will involve the co-ordination of the various factors of structure, orientation, lighting, services, environment, etc., into a unified whole which will "work" efficiently and economically in all respects.

Some of the information which the architect will need will be obtained by:

(1) Survey of the site, including soil investigation.

(2) Investigation of town planning byelaw and other statutory requirements.

(3) Investigation of other buildings of the same type.

(4) Study of published information relevant to the building's purpose.

(5) Tentative investigation on the drawing board.

We have more to say about methods of getting a brief later on, but first we must answer the question:

(B) How does a brief affect cost? If an architect sets to work on a brief that is incomplete or based on too superficial an

assessment of requirements he cannot interpret it with the utmost economy of space and material—he will have to make allowances for "unknowns." Only with an adequate brief can he be sure that his choice of shapes and sizes of accommodation solves a particular problem with economy of space. The other way in which a brief can affect cost is in the changes and particularly the last-minute decisions which an inadequate brief can throw up at later stages of the job. A hurriedly prepared scheme with too short a time between client's instructions and the beginning of work on the site can lead to an unnecessarily extended contract period and the late discovery of an expensive item of work. Not only this, but a poor brief can disrupt the co-operative spirit between architect, client and contractor which is perhaps more important in the cost problem than we realize.

We now turn to discuss two situations which may call for different methods of preparing a brief.

(C) The Architect with a programme of buildings: In this case the architect is dealing with a succession of buildings of the same type, for which, and from which, a pool of briefing information can be accumulated. This applies not only to schools and dwellings but to buildings such as shops and public houses which are in the hands of the client's staff architect. In these cases the close and continuous relationship between architect and client and the control which they can retain over the building after completion allows a systematic study of requirements in some detail. The space allotted to each function and its relationship to other parts of the building, the kinds of floor and wall finish, the space needed for equipment, the most suitable lighting characteristics—all these can be studied, tested "in-situ," improved and standardized in the light of experience. Not least, the opinions of the users can be sought and taken into account in future work. Apart from the broader considerations of design, many details can be standardized and recorded in an office information book: balustrade heights, w.c. compartment sizes, counter heights, cupboard dimensions, and so forth. In the case of schools and dwellings—the two building types which have dominated the scene since the war—the build-up of briefing information based on systematic study has been dealt with at the national level and published in the form of the Housing Manuals and MOE Building Bulletins. In addition many architects' departments of local authorities concerned with schools and housing have built up their own information books which embody local policy and experience. Such work represents a far more searching investigation of the problem based on more widely gathered evidence than the private architect could attempt. Hospitals are a case where this is being done for public benefit by a private agency. The Nuffield Foundation are engaged on a thorough re-examination of the basic problems of medical and surgical treatment. It is instructive for other building types to note that they have arrived at solutions, which in the case of ward blocks differ considerably from the more familiar arrangement which has endured for many years. Clearly, for programme buildings, there is a case for this kind of centralized investigation on behalf of all the architects who will have to design the actual buildings, and who through limited time and resources would not be able to do it themselves.

(D) The Architect with the "one-off" job: We begin by quoting a case where the architect and his client collaborated in the preparation of the brief, a case which probably represents the limit to which the architect with the "one-off" job can go towards the ideal. The client (Messrs. Fisons Ltd.) wanted an agricultural and fertilizer research station for a range of scientific work hitherto unknown in this country. The main considerations were: flexibility of function, provision for extensions and complex laboratory services. First an outline of requirements was provided and, with the architect's advice, a site was selected. A full-time liaison scientist (biologist) was appointed by the client at the same time as the structural, mechanical and electrical consultants and quantity surveyor. This team, with the architects (Messrs. Johns, Slater and Haward), visited research establishments in England and abroad and had many meetings to thrash out planning questions and service and equipment requirements. From these a full dossier of the client's requirements was built up. The liaison scientist sorted out all the various opinions and information within his own firm and collated them. The architect states that the result of this method of work has been that no major changes were made once basic decisions had been taken. All this preliminary work took over a year and the value of the building was about £334,000.

Clearly the briefing problem was exceptional, but the method of solving it could be applied to any project.

In cases where the building is to house highly technical processes, it is vital that someone in the client's organization should be nominated to collaborate with the architect and that arrangements are made for time to be set aside adequate for this purpose. Alternatively, if there were no one who could undertake this task it would be possible for the client to call in a management consultant. He is professionally equipped in the methods of work study and other techniques to analyse procedures and operations of any kind, and from this analysis to work out the most economical manner of arranging the various activities and the circulation between them. He can thus provide a schematic "flow chart" for the architect to interpret in terms of space, structure and services. An office building might be an appropriate case for this kind of approach, where the clients were taking the opportunity of the new building to reorganize their accounting methods.

For other cases the questionnaire is probably the most effective instrument in preparing the brief. This should be drawn up by the architect after the preliminary discussions with the client, and perhaps after tentative investigation on the drawing board has revealed questions not otherwise apparent. This kind of questionnaire is used by the architects whose practices we described in our last article and has several virtues, chief among which is the influence it exerts on the client to make up his mind. It also forms a record of decisions and a useful check list in the compiling of questionnaires for other jobs.

Office Procedure: When the brief is sufficiently clear one of the architect's first tasks should be to draw up a general programme allotting time to each main phase of the job. With this he can assess how much investigation he can afford to put in on new ideas etc., and it should be up to everyone concerned to see that the dates are met. (Fig. 1.)

The architect's job before going to tender falls into two main phases, Design and Working Drawings. These in most cases overlap, but for the purposes of examination they may be considered separately.

The Design phase, which starts theoretically when the brief has been completed, includes the search for the space planning solution and the search for the appropriate structure, materials, services, finishes etc. which will satisfy the purposes and functions of the building and cost. During this phase there will be consultation with the various consultants and authorities and investigation of alternatives. This phase will be the most difficult to programme since the architect is dependent on so many individuals not under his control, but it is essential, if he is to complete his drawings by a certain time, that he must carefully judge the time he can spare for this phase and curtail the amount of investigation he thinks ideal to suit the time available. Only by drawing up a programme, allotting tasks, fixing dates for appointments of consultants, fixing dates for submitting drawings to client and authority, can he hope to leave sufficient time for the next phase.

The second phase—that of Working Drawings—is relatively easy to programme if the work done during the design stage has been adequate. At the completion of the design stage all decisions on space planning, structure, materials etc. etc. should have been made. The second phase may be subdivided into two minor phases: (i) the preparation of working drawings based on the decisions made during the design stage, when all the minor problems should come to light—this will occupy the major portion of this phase; (ii) a review and revision of all working drawings to make sure that all the alterations made during (i) have been incorporated. In both these minor phases a relatively tight programme can be drawn up and tasks and times allotted to each assistant. (Fig. 2.)

With both programes it is essential that the progress be reviewed week by week and action taken so that any work falling behind is brought up to date (Fig. 3). This may necessitate drafting in extra staff or working overtime for short spells. Only by being firm in such decisions can the architect hope to have his drawings ready by the due date. Where a number of assistants are working on one project it is most important that the drawings should be co-ordinated and this is an operation which we think does not

get sufficient attention. Too often it is left to the quantity surveyor to sort out the drawings and make them agree. On a project of any size it is necessary for the principal or team leader to make this his responsibility, which will probably leave him with little time to do any drawing himself. (Fig. 4.)

Admittedly the assessment of times for detailed tasks is difficult, but it is not impossible, and the right attitude of mind to the job is all important.

Most architects agree that there is a tendency to underestimate the time needed for working out a design problem or for making drawings. The solution employed by the four architects is to keep time sheets so that the results of past experience can be analysed and used to determine the allotment of time in the programming of the phases listed above. Programming of office work is essential to give a better planned allocation to staff time than would otherwise be possible, for it avoids to some extent the switching of assistants from one task to another and the consequent breaking up of work into short phases. It can show which of the staff will be free to tackle the new jobs that come in, and programmes can act as check lists to ensure that all the odd items that might otherwise be forgotten are attended to.

(II) SKETCH DESIGN AND COST INVESTIGATION

There are of course many cost factors mainly outside the architect's control: market conditions and materials prices, the volume of work confronting the building trade as a whole, the efficiency of the contractor's organization on the site, the sensitivity of builders' estimating methods, and so on.

Having arrived at a complete brief, and having programmed his office work, what more can an architect do to extend and secure his control over building costs?

The design stage is probably the most important stage from the point of view of the ultimate economy of the project, for it is here that the vital decisions about overall shape, apportioning of space and constructional method are made. The architect can affect the cost at the sketch design stage in the following ways:

(1) he can aim to design the building with economy of space and thus of material;

(2) he can choose cheap or expensive materials, a problem closely related to the question of balance between initial and maintenance costs;

(3) he can choose simple and straightforward methods of construction that will enable the builder to carry out the work on site more economically and easily.

(4) he can organize his own time efficiently or badly.

In all these ways the problem for the architect is that of having available the cost information on which to base his choice of materials and methods, whether for the purpose of working to a target cost given him by the client or estimating the cost of meeting a particular brief before too much work has been done. For this he is dependent on the quantity surveyor from whom many architects would like more informa-

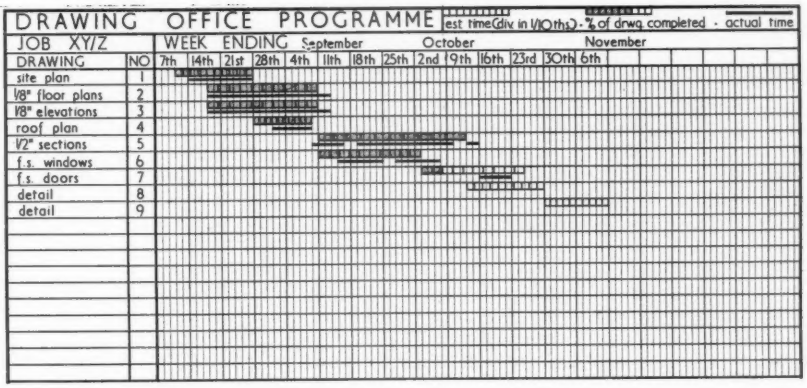


Fig. 2. A drawing office programme chart. Hollow rectangles represent time allotted for each drawing. These are divided into tenths so that percentage completion can be hatched in at regular intervals in coloured pencil; a different colour is used for each assistant. The solid line marks the actual time spent. One such chart, suitably extended, could cover a small job with, for example, forty drawings; for larger jobs two or three charts could be used covering (i) basic drawings, (ii) details, (iii) services. Pinned to the wall, the charts show at a glance the estimated time, the actual time and percentage completion of the job.

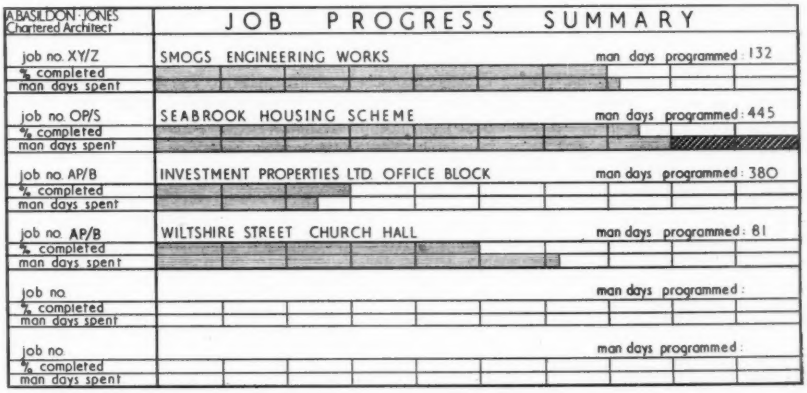


Fig. 3 (above). Job progress summary chart: the total number of man days to complete the drawings is estimated from past experience and by discussion with the staff concerned. At regular intervals actual man days and percentage completion of drawings are marked up. If the lower column gets ahead of the upper, the rate of output is lower than estimated. If the allotted number of man days is exceeded, the excess is shown by cross-hatching from right to left (as in job no. OP/S). This chart gives an indication of the cost of production of drawing office work.

WORKING DRAWINGS CHECK LIST

(¼" scale plans of block of flats).

Window types)
Window sills) Code references
Door types)
Door frames)
Blinds and curtain tracks
Thresholds
Wall and partition thicknesses and types (hatch and give key)
Ventilation grilles and air bricks
Flues (number with floor level if stacks are complex)

Floor finishes
Level of finished floors above datum
Steps (number treads)

Mat sinkings
Handrails
Falls to flat roofs, balconies and paved areas

Chases for gas and electric mains
Gas and electric meter positions
Gas and electric points
Cold water rising mains and descending mains
Rainwater pipes and outlets
Soil and vent pipes
Radiators and heating mains
Hot water cylinders
Sanitary fittings

Kitchen equipment and shelving types
Room names or numbers.(standard notation)

Dimensions: (i) plan in both directions
(all dimensions) (ii) o/a external dimensions
(to unfinished) (iii) external dimensions between windows
(wall faces) (iv) internal detailed dimensions
(Check totals) (v) show ceiling heights

Notes: key for hatching
cross reference to drawings numbers of larger scale details
" " " to schedules and typical drawings of windows, doors, kitchen fittings, etc.

Title:
Scale:
Drawings No:
N. point:
Section lines:

Fig. 4 (left). Typical check list for ⅛-in. scale plans of blocks of flats. Check lists can be compiled from past (and, perhaps, bitter) experience, and incorporated in the office information book.

tion at an earlier stage than now appears possible. Concerning approximate estimating, many of the quantity surveyor's techniques are not now so useful, and the use of a foot super or foot cube rate is unreliable and insufficiently detailed a cost guide for present-day purposes. Approximate quantities—the method discussed by Cecil Handisyde (in the JOURNAL article on May 19)—is far more reliable, especially where the quantity surveyor is familiar with the architect's constructional ideas and standards, and has access to the cost records of his previous jobs, but requires a large amount of work on the part of the architect before a cost can be obtained. It would be better still if this method of estimating were backed up by the analysis of particular elements, as suggested by F. R. S. Yorke (also in the JOURNAL article on May 19), where cost is likely to be the deciding factor affecting choice. This occasional analysis for major elements is clearly better than reliance upon intuition. It leads logically into the full MOE Cost Planning system. This is a method of setting "target" costs for the various elements, related to a target for the whole building with the object of assisting the architect to make the right choice so far as cost is concerned. As the design proceeds the estimated cost of each element is checked against the target by the use of approximate quantities or by preliminary quotations from manufacturers or subcontractors. This method is essential to the architect who wishes to make use of the new developments at his disposal but it would be of little use to the architect who repeats the same design and structure with little change.

Economy of space and material was dealt with by H. F. Broughton of BRS in a paper published in the RIBA Journal of February, 1954 ("Economy in Building") and Cost Planning will be dealt with in a future article.

(III) WORKING DRAWINGS, SPECIFICATION AND BILL OF QUANTITIES

Drawings : Under this heading there is one urgent question that overrides all others: it is the almost unanimous view of builders that the greatest single contribution that the architect can make to the better control of building costs is to *have all his drawings ready before going to tender and never to issue variation orders.* The importance of complete and final drawings has been emphasized many times, in the Reports of the Anglo-American Productivity Team, the Simon Committee on Building Contracts, the Working Party on Building, and in published statements by the RIBA, NFBTE and RICS, but in spite of this there seems to be little change in the procedures of architects on this point. All the four architects featured in our article of May 19 aim to complete drawings: we respectfully wonder to what extent they succeed. Mr. Handisyde confesses to being ruthless with himself and calling "time" on a particular problem whether or not the ideal solution has been reached. This is a realistic approach.

We consider that the best way of achieving the complete set of final drawings and avoiding variation orders is to programme the work on the lines suggested.

Specifications and bill of quantities : On small jobs, where a bill of quantities is not used, the specification becomes an important contract document. Its main function is to describe those aspects of the work that could not normally be shown on the drawings. Thus, there is no need for the specification to include, for example, dimensions of walls, foundations or carpentry work, or any other information if these will appear on the drawings. The specification should describe all items which the builder will have to price and which do not appear in the drawings. In the preliminaries section where a familiar form of contract is to be used there is little purpose in repeating contract clauses, as is often done. Only clauses that are to be altered, such as those relating to insurance of the work, need be mentioned, so that the builder in tendering clearly understands what conditions of contract he will have to observe.

In construction clauses as much as possible should be shown in schedule form (Fig. 5): suitable items are given on page 889. Apart from these, the bulk of the specification would be description of constructional method, *e.g.*, type of pointing for brickwork, laying of roof finishes, jointing of pipes, fixing of fibre board, etc. Specifications for new buildings are probably best written in the usual trade sequence, with the descriptions of quality in the preamble to each trade. But for alteration jobs, where the work is very much broken up and piecemeal, it is often more convenient to sec-

Fig. 5. Typical schedule of finishes. Other items that can be specified in this way are windows, glazing and ironmongery; doors, frames and ironmongery; concrete mixes; screeds; roof and floor finishes; plaster mixes.

SCHEDULE OF FINISHES

Location	Walls	Wall decoration	Ceilings	Ceiling decoration	Floors	Skirtings	Sundries
Access and Service Balconies	Fair faced brickwork and concrete	2 Coats Cementone No.9	Fair faced concrete	2 Coats Cementone No.2	1½" Grano. paving with carborundum. 2½" (av.) cement sand bed to falls	¾" Grano. 6" high	
Refuse Hopper recesses		Glazed wall finish	Ditto	Ditto	1½" Grano. with carborundum, direct on structural floor	Ditto	
Refuse Chamber	Glazed brickwork	Glazed wall finish to exposed concrete	Fair faced concrete	Glazed wall finish	2" Grano. paving ¾" Grano. rendering to stands	-	
Service Stairs	Fair faced brickwork	2 Coats Cementone No.9	Fair faced concrete	2 Coats Cementone No.2	Landings. 1½" Grano. with carborundum. Treads. Ditto. Risers. ¾" Grano. rendering	-	
Main stairs		Glazed wall finish	Landings Render and set in lime plaster	2 Coats flat wall paint	Landings. 1½" Grano. with carborundum. Treads and risers. As Service Stairs	Landings. ¾" coloured Grano. 2" high rounded edge.	

tionalize the work, by rooms, for example, and describe each section in turn completely. To avoid inconsistency it should be part of the office routine to check the draft specification against the drawings before these are printed and to cross-reference where possible. Lastly, there is no need for specification jargon or long-winded English. Where, on larger jobs, a bill of quantities is used the architect should give specification notes to the quantity surveyor for him to incorporate in the bill in the form of preambles to each trade. This is best accomplished if the architect makes specification notes as he works, on a sheet of paper pinned to the drawing board, or on the drawing iself, which he hands to the quantity surveyor. These notes should include information on the architect's efforts to simplify or standardize construction. For example, an architect may design room sizes to suit a standard prefabricated partition unit. Unless he explains this to the quantity surveyor, the saving on cutting or "specials" may not be apparent from the bill of quantities. Many quantity surveyors will watch for this sort of thing, so that economical construction is described in the bill, but it is the architect's responsibility to bring it to his notice. With a separate bill of quantities and specification there is always the possibility of inconsistency and confusion between the two and a tendency for the builder to ignore the specification because it is not a contract document. This tendency could be avoided by the use of the combined bill and specification which could also be used to convey more clearly to the builder what the job entails, when he is tendering.

There is room to extend the practice of expressing as much of the construction as possible in the form of schedules which can reduce the possibility of accidental omissions on the part of the architect or of mistakes on the site or in ordering from suppliers, and can simplify amendment of instructions when a variation is made. Items which can be shown in schedule form are:

windows, glazing and ironmongery;
doors, frames and ironmongery;
concrete mixes;
screeds;
roof and floor finishes;
plaster mixes;
decorative finishes (giving indication of the kinds of paint and the variety of colours to be used).

In the case of buildings based on a modular grid or with a large percentage of prefabricated or standardized components, the use of schedules can be extended to cover a greater part of the elements of the job.

Bar bending schedules, although not in the above category, call for special comment. They are the responsibility of the consulting engineer or the structural contractor, and in the opinion of the Guest Editors, should be provided with the drawings and other instructions when the contractor is appointed. The engineer is better able to prepare bending schedules than the contractor, for he prepares the structural design, and it should be noted that such work is included in the scale of charges of the Institution of Structural Engineers. In any case the bending schedules produced by the builder are always subject to checking by the engineers, which is a waste of time and causes delay at the commencement of the contract.

PRE-TENDER ENQUIRY

The architect and his client should enquire in order to find out which contractors are interested well before the tender date: three months would not be too long. The prospective tenderers should be given at least the following information:

name of client;
name of quantity surveyor;
names of consultants;
address of site;
type of contract;
approximate value of work;
date for sending out of tender documents;
date for return of tenders;
date for access to site;
date for completion of work.

In the case of jobs falling within a regular programme which is generally known to tenderers this can be done formally on a pro-forma. In the case of individual "one-off" jobs it may be advisable for the architect to make personal contact with the contractors to avoid the possibility of tenderers putting in formal tenders, if they do not want the work, for fear of "giving offence." In this way the architect can be more sure that those who in fact submit tenders are genuinely interested, and that prices are likely to be competitive, than if he sends out bills of quantities without warning, asking for tenders to be returned in a fortnight's time.

Similar advance notice and information, as appropriate, should be sent out to major specialist firms, and nominated sub-contractors and suppliers, who will later be invited to submit quotations.

These firms should not be sent only a sketch drawing and a note referring to a long telephone conversation with their Mr. Blank, since such a method, apart from almost certainly leaving a number of loose ends, places the onus for specification and for fixing the conditions of contract entirely on the specialist firm, who quite naturally are prepared to make their own conditions. The q.s. should, wherever practicable, be asked to prepare a supplementary bill for each subcontract. The invitation to tender should then enclose a pro-forma for completion by the specialist firm, with this bill and the main drawings and setting out also the conditions of contract to be observed, the discounts to be allowed, the attendance which the builder will provide, the date when work is to commence and the anticipated completion date. If this were done more frequently a great deal of frustrating work in attempting to compare tenders which are made up on quite different bases would be avoided as well as much subsequent discussion and acrimony in the running of the job and the settlement of accounts.

DRAWINGS FOR TENDER

It would greatly assist contractors when tendering if selected drawings or photostat copies of drawings were issued with the bills of quantities. Stillman and Eastwick-Field make a practice of attaching photostat reductions of the main working drawings to their bill and tell us that builders find it useful. We can see no reason why the site layout, drainage plan and the $\frac{1}{8}$ in. scale drawings themselves should not be sent, together with a schedule of all the drawings. This would overcome the difficulty of the contractor finding, after his appointment, that the drawings he saw in the architect's office during tendering have since been altered. The extra cost of printing would be insignificant against the potential value of the builder being able to study the *building* as well as the measurements of its quantities of material. To spend a few minutes in the architect's office, and then to carry back a mental picture of the drawings, is not enough for a builder's estimator. He requires sufficient drawings to assist him to decide how the job can be organised and this in turn will influence the price. This procedure would at present not reap its just reward in every case, since many builders may not make use of these drawings. In a previous article (AJ Feb. 3) we mentioned that a builder who gets only one job in every ten for which he tenders is not likely to give much thought to organisation.

One last but important item under this heading concerns the time allowed for tendering. In most cases the customary fortnight or three weeks for a medium sized job is quite inadequate: one month should be the minimum, except for very small or simple jobs. The critical item is the time the builder needs to make his enquiries of suppliers and sub-contractors. There is a strong case for sending two copies of the bill of quantities to each tenderer—one for the estimator and one for the buying department—so that both can work simultaneously. We shall at a later date have something to say about the builder's problem in estimating—problems which architects perhaps know little about and thus do not allow for.

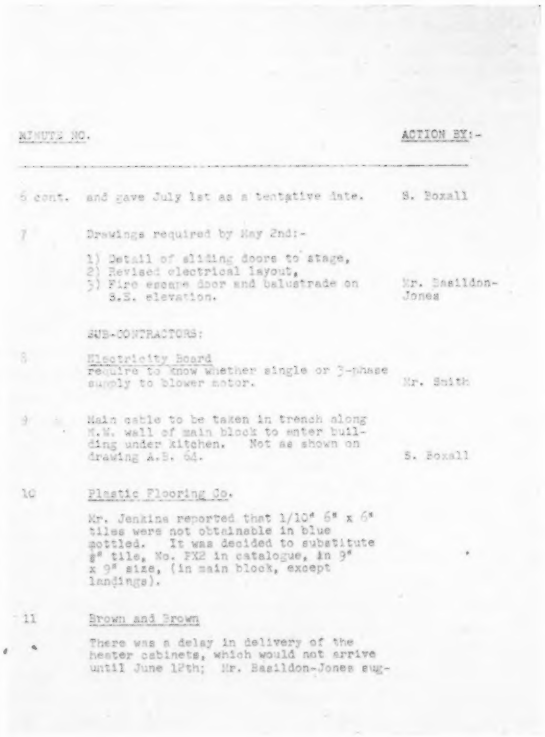
(IV) CONTROL OF COST AT THE CONTRACT STAGE

At this stage building operations are in the contractor's hands, and he is responsible for honouring the terms of the contract, provided the architect gives the necessary information, drawings and instructions and ensures that interim certificates are dealt with promptly. The architect should also co-operate in solving the minor problems in the running of a contract.

We may consider his contribution in the contract period under four headings:

Site Meetings: It is our opinion that it is the architect's duty during the construction period to make sure that the builder is keeping to his programme and maintaining sufficient progress to complete the job on the contract date.

To do this adequately he must have a detailed programme from the builder and review it at regular intervals. Such reviews should take place at site meetings with the builder, when actual progress can be compared with the programme, and action to remedy the effects of any delay can be taken immediately. It is important that causes for delay and the action to be taken should be noted in the site minutes.



MINUTE NO. — ACTION BY:-

6 cont. and gave July 1st as a tentative date. — S. Boxall

7 Drawings required by May 2nd:-
1) Detail of sliding doors to stage,
2) Revised electrical layout,
3) Fire escape door and balustrade on S.E. elevation. — Mr. Basildon-Jones

SUB-CONTRACTORS:

8 Electricity Board
require to know whether single or 3-phase supply to blower motor. — Mr. Smith

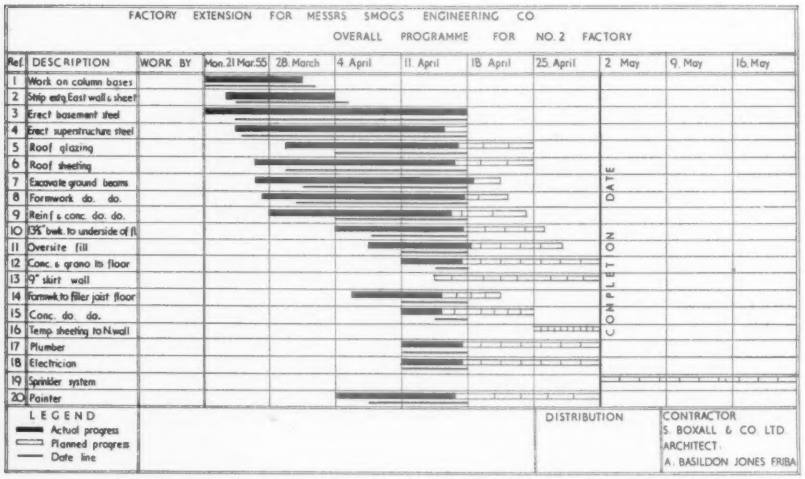
9 Main cable to be taken in trench along N.W. wall of main block to enter building under kitchen. Not as shown on drawing A.S. 64. — S. Boxall

10 Plastic Flooring Co.
Mr. Jenkins reported that 1/10" 6" x 6" tiles were not obtainable in blue spottled. It was decided to substitute 9" tile, No. FX2 in catalogue, in 9" x 9" size, (in main block, except landings).

11 Brown and Brown
There was a delay in delivery of the heater cabinets, which would not arrive until June 12th; Mr. Basildon-Jones sug-

Fig. 6 (right). Typical page of site meeting minutes. The agenda and minutes should be prepared by the architect and circulated to all concerned.

Fig. 7 (below). Overall programme for contract operations. The hollow rectangles are divided into tenths for percentage completion to be marked up. The thin solid lines show actual times taken. This chart is prepared by the builder as a basis for his more detailed phase-planning in, say four weekly periods. The architect has a copy in order to review progress.



On all jobs regular site meetings should be held, the spacing of which will be adjusted according to the size of the job, its complexity, and the stage it has reached. If dates for site meetings are fixed some way ahead, the questions and problems to be discussed and solved can be entered on the agenda in readiness if time allows. One of the great problems in job administration is the wide network of responsibility—each person depending on many others. Thus there is a case for formalizing site meetings by circulating the minutes, with the action to be taken, and by whom recorded. (Fig. 6.)

It is the architect's responsibility to call site meetings, to prepare the agenda, and write the minutes, which he should do with the necessary degree of objectivity. There should be standard agenda headings:

agreement of minutes;
progress;
sub-contractors;
suppliers;
drawings required;
contract matters;
architect's instructions.

In addition to the foreman or agent on the site, another responsible representative from the contractor's organization should always attend site meetings. The importance and value of site meetings will be brought seriously into disrepute if people are asked to attend when there is little on the agenda which directly concerns them. The representatives of sub-contractors, who may have several jobs on hand, should not have their time wasted.

Progress Control: A progress chart, showing an overall programme of the main phases of contract operations, and the dates when they begin and end, is something most architects would agree to be good practice. It has two functions: (i) to keep the architect generally informed of the progress of the contract, and (ii) to form part of the planning technique of the contractor himself. It is common feeling among architects that builders are not programme minded, and it is possible that the architects themselves contribute to that. We show an example of a progress chart giving times and percentage completion (Fig. 7).

Progress charts should be produced as realistically as possible at an early date in the job, in order to fix the time for contract operations. The production of these overall programmes should not in any way interfere with the technique of planning which the builder has to organize. It is important, however, that overall progress should be regularly reviewed and recorded on this chart.

To extend the picture of proper control during the contract stage there should be, besides regular site meetings and a progress chart, a regular accounting of the financial condition of the job. This is mainly a question of proper notification of variation orders and their prompt valuation. Mr. Yorke's practice seems worth attention. He has a printed form on which all variations are recorded by the job architect and roughly costed. At regular intervals the variations are totalled to show the balance available from contingencies and savings on p.c. and provisional sums. The rough costings are also checked by the quantity surveyor at regular intervals. Thus it is possible for the architect to know the state of the job at any stage and to make informed use of savings. A running financial statement, such as that used by Messrs. Norman and Dawbarn (illustrated in AJ, May 19), is also worth using by the architect for his own information and as a form to show the client periodically how the job cost stands. It has a number of columns in which are entered the value of interim certificates and changes to the p.c. and provisional sums when these become known. It also shows the amount of variations and by whom they are authorized.

In general we consider that the financial recording of a contract should be the responsibility of the quantity surveyor. Many of the architect's instructions can be more easily valued by him, and he will wish to know their value for interim certificates.

The important point, however, is that the financial state of a contract should always be available to both architect and client.

To complete the pattern of the Architect's contribution to control of cost, instructions and information needed by the builder should be available to him well before he needs them. The use of site meetings and progress charts should form a discipline in this respect, serving as reminders of what will be required and when it will be required. All instructions should be in writing —and copies should be sent to the quantity surveyor, the clerk of works, and the builder —whether they refer to cost or not. The architect's first job on returning from a site meeting should be to confirm verbal orders in writing.

HOUSE

at WEST MERSEA, near COLCHESTER, ESSEX

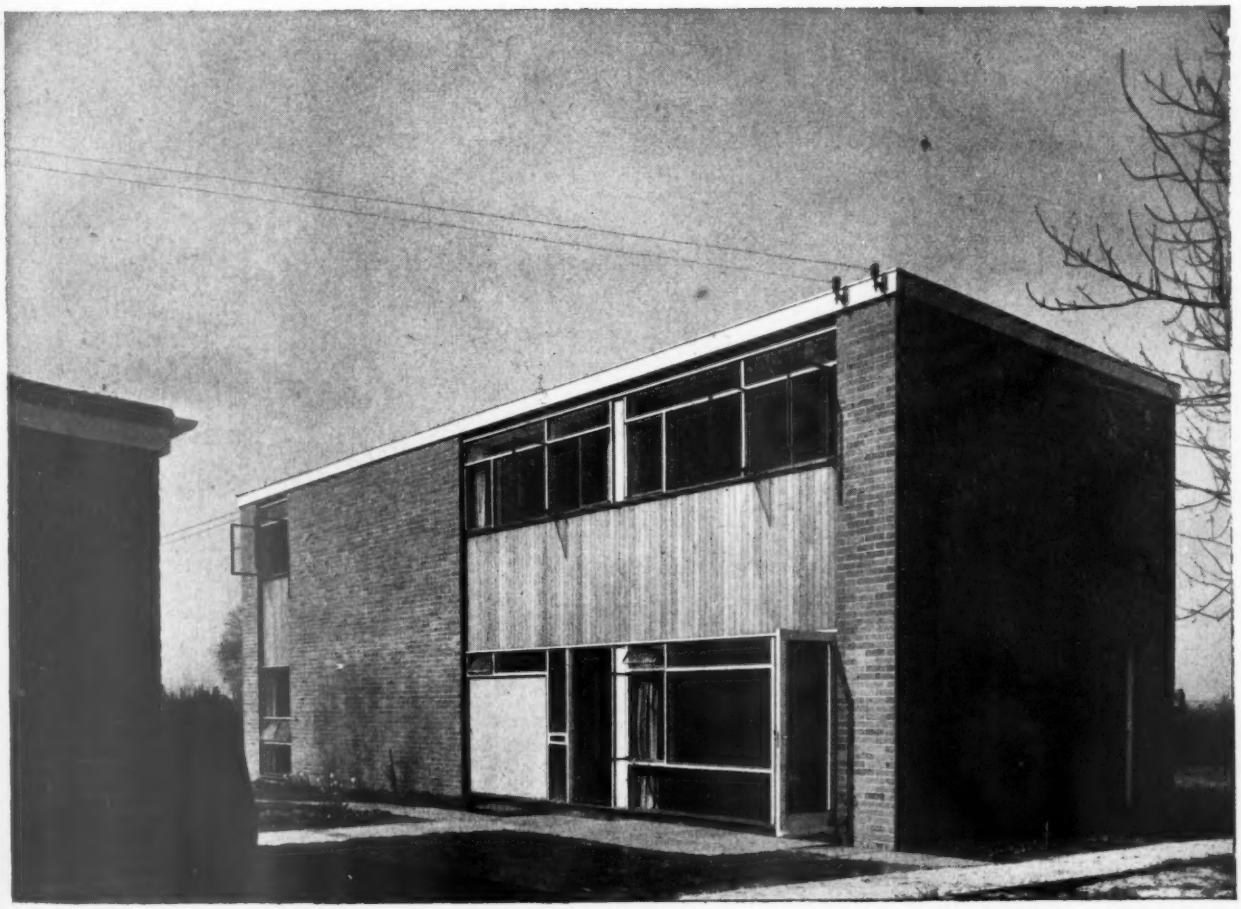
designed by RICHARD FINCH

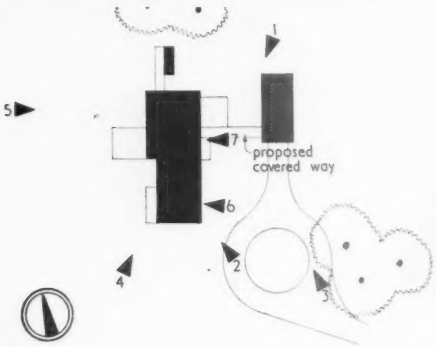
quantity surveyor, ROBERT COATMAN

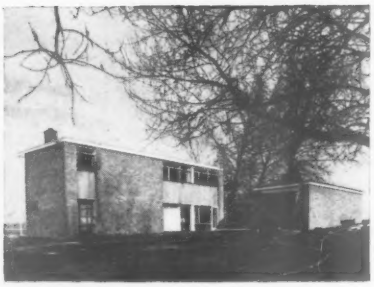
From the south-east, viewpoint 2.

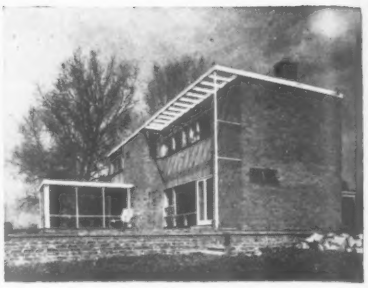
The west elevation of this four-bedroom house (on a two-acre site at West Mersea) faces marshland and the Pyefleet channel. The architect chose external materials and colours with the object of harmonising the building with its environment—sailing-boats, lobster-pots, etc. The general contractors were Nolan and Perry. Sub-contractors, page 904.

From the north-east, viewpoint 1.

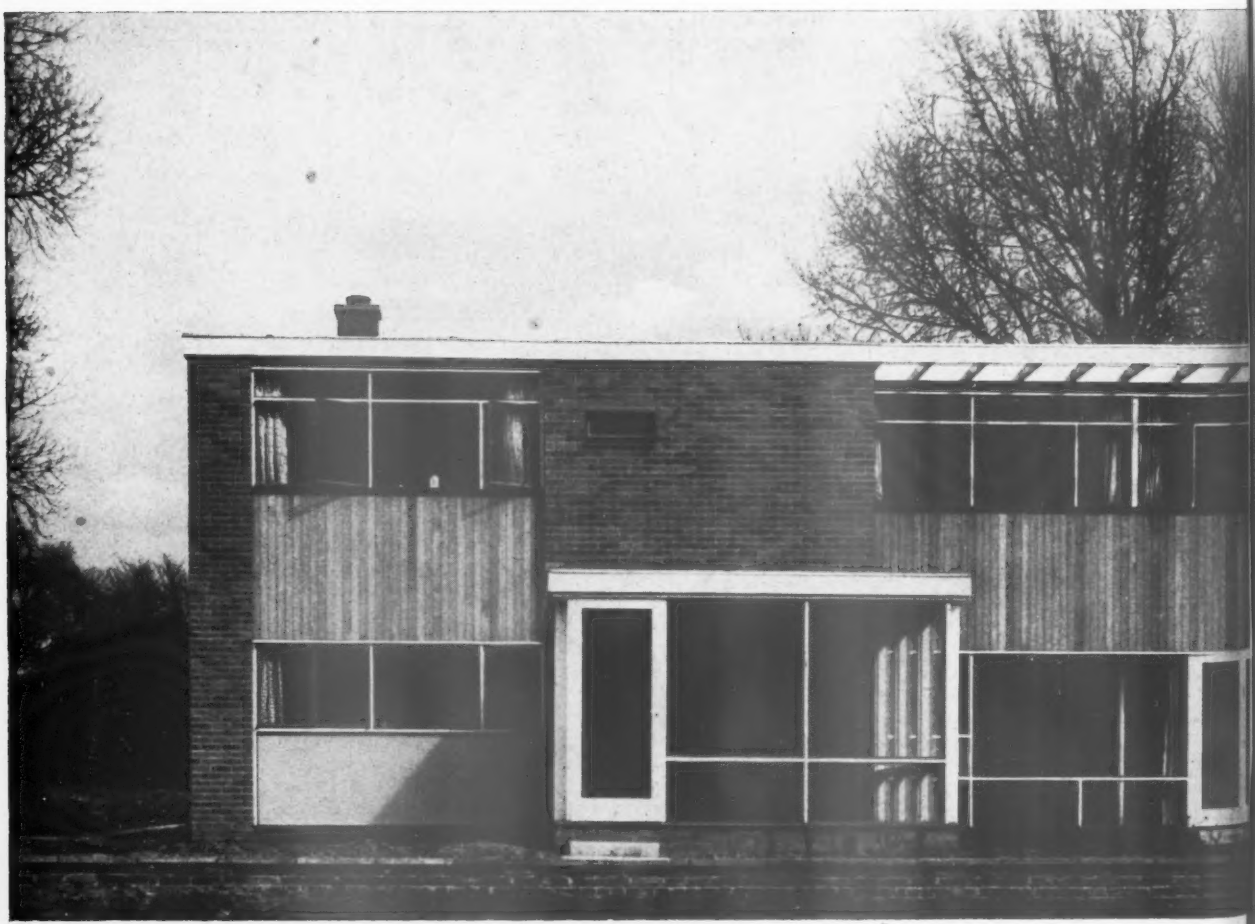


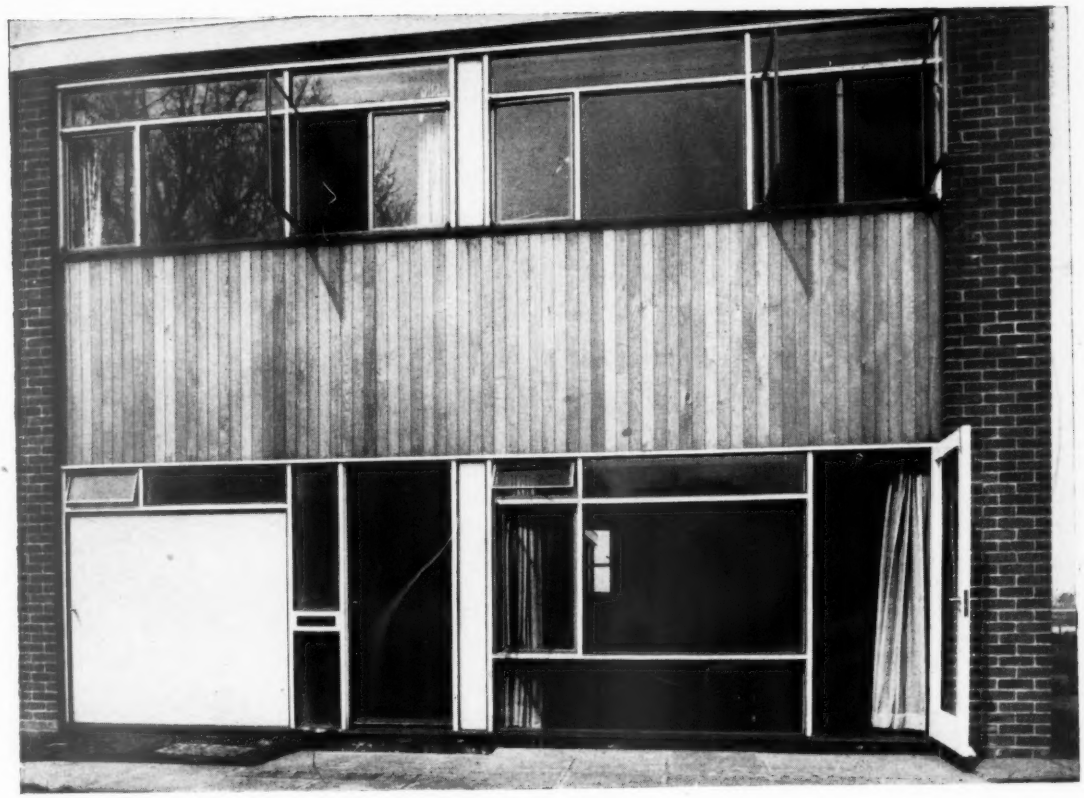






Above left (viewpoint 3): a general view from the south-east. The main entrance to the house is in the centre of the photograph. The house is framed by two clumps of fine established aspen trees.
Above right (viewpoint 4): from the south-west. This elevation overlooks the rear garden which leads down to the river's edge. The single-storey projection to the left is the conservatory. The double doors and a large, plate-glass panel define the living room on the ground floor; two of the four bedrooms are just above it. The brickwork is a dark-red, Essex stock; the vertical weatherboarding between ground and first floors is of untreated cedar.
Below (viewpoint 5): from the west. The paved and planted terrace is defined by the low, brick, retaining wall in the foreground. The kitchen, on the left, has a painted external ply panel infil below glass level. The single-storey projection in the centre is the conservatory: to the right is the living room. The pergola is supported by a 3-in. diam. MS tube fixed back to the wall at two points along its length. The infilling beneath the first floor window line is untreated vertical cedar strip. *Colour:* fascia boards, pergola, softwood frames, hardwood door stiles and rails, white gloss; metal window, opening-lights, dark grey (Munsell N6); external ply panel to kitchen, grey (N7); common brickwork plinth beneath panelled sections of elevation painted with bituminous paint; mahogany sills and glazing beads, oil only.
Opposite page, top (viewpoint 7): these two non-load-bearing, framed infils are on the east elevation and are divided by the end of a transverse loading wall. (See sketch on page 897 for principle of construction.) All opening lights are standard metal Z section and are contained within painted softwood sub-frames. The entrance door (left centre) is faced with external ply and painted black. The large white panel to the left of the door is also external ply and screens the cloakroom. The continuous hardwood sills to the first floor window line and above the brick plinth are oiled. The untreated vertical cedar weatherboarding clads the DPC, softwood framing, glass-fibre insulation and skim plasterboard internal finish. The width of the dining room is defined by the glazing to the right of the main entrance. The common brickwork which forms a plinth beneath the panels is painted with bitumen.

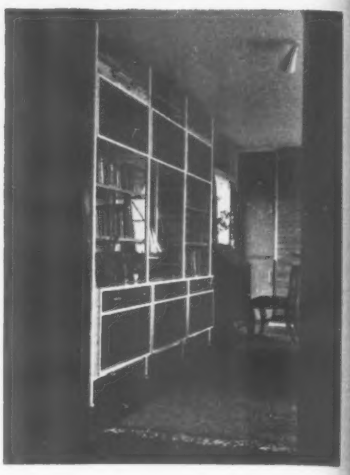




HOUSE AT WEST MERSEA

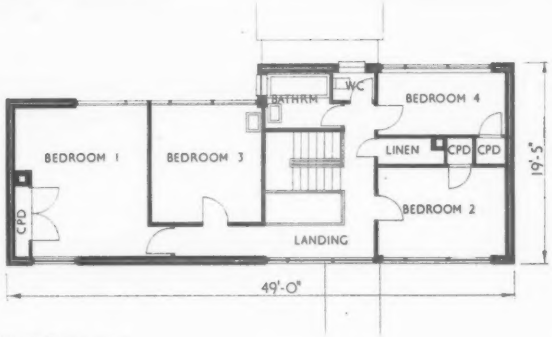
Detail of the window in the east wall of the living-room (viewpoint 6) showing a pair of top-hung standard metal ventilators set within a painted softwood sub-frame. The hardwood sill and the glazing-beads, surrounding the fixed lights, are regularly oiled, but the cedar boarding above is left untreated. A blockboard panel, painted dark green (10.0GY 3/2 Munsell), is shown in position behind the lower, fixed, glazed pane. This, together with panels in similar positions on the ground floor, can be removed.

Below: looking from the entrance hall into the main living-room: a tubular steel and rod frame supports cupboards, drawers and book shelves (designed by architect). The ceiling is skim-coated plasterboard.

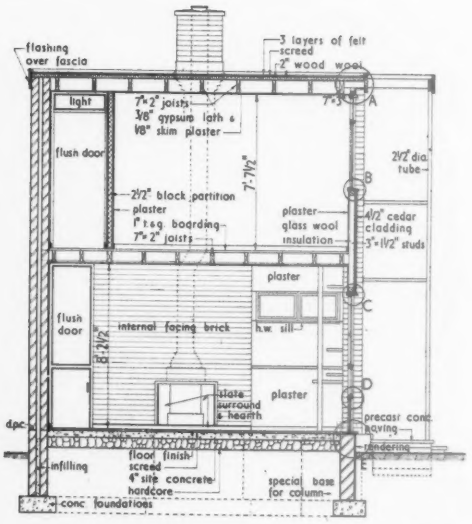


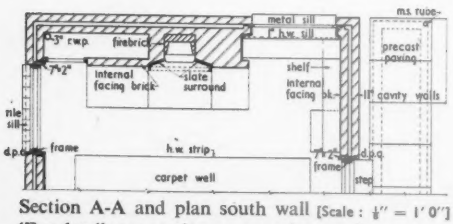
HOUSE AT WEST MERSEA

Above: south wall of the living room; the window on the left overlooks the entrance drive. This window contains two top-hung, metal-framed lights below which a painted blockboard panel can be inserted behind a fixed glass pane. The cupboards between the window and the fireplace conceal an internal RWP. The hearth to the brick fireplace is in polished slate, and is set on a concrete plinth: the skirting, painted white, is carried around the three sides. The built-in book and newspaper unit to the right was designed by the architect to his client's specification. The circular column on the right supports an RSJ and load-bearing partition above.

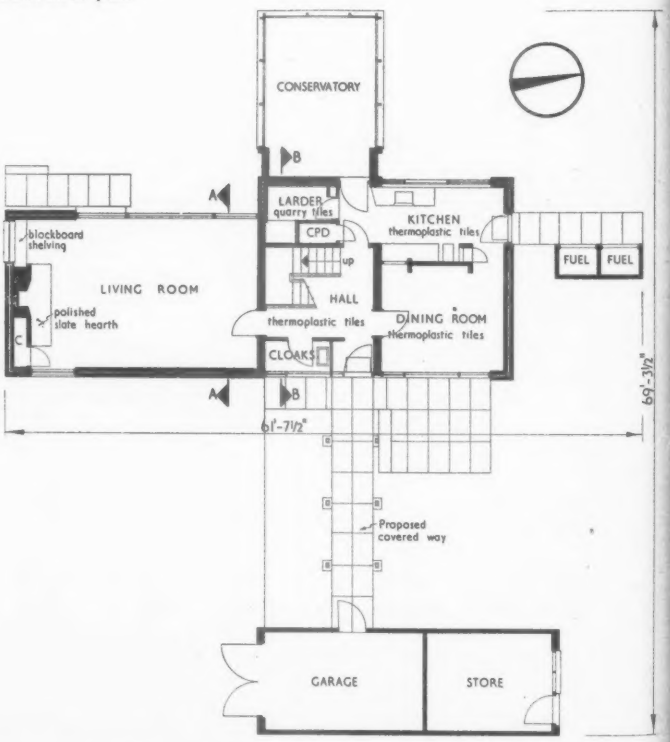


First floor plan





Section A-A and plan south wall [Scale: ½" = 1' 0"]
(For details see section on opposite page)



Ground floor plan [Scale: 1/16" = 1' 0"]

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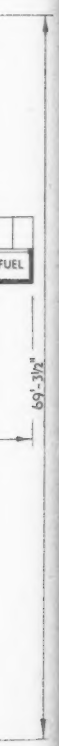
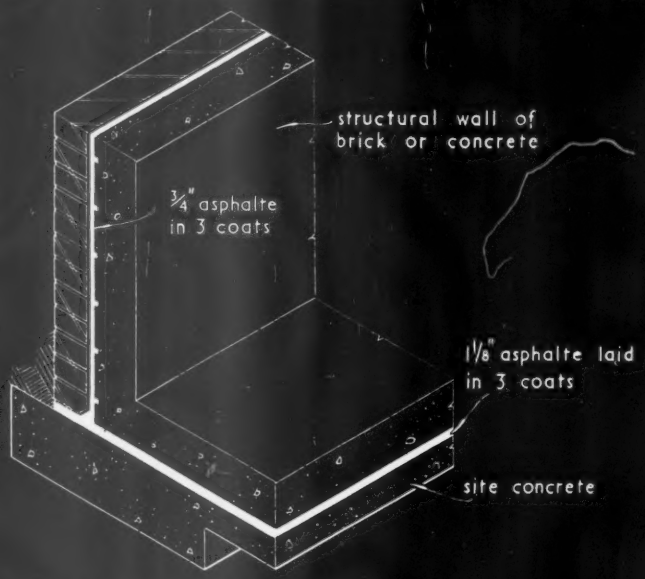
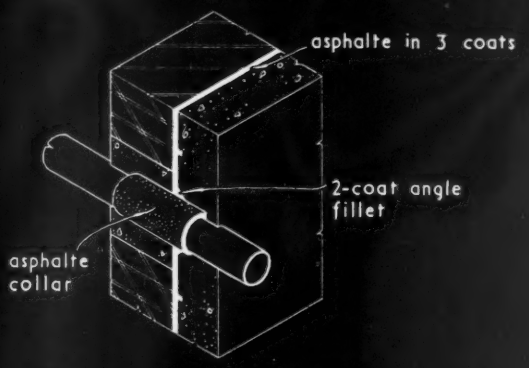


TANKING | ASPHALT

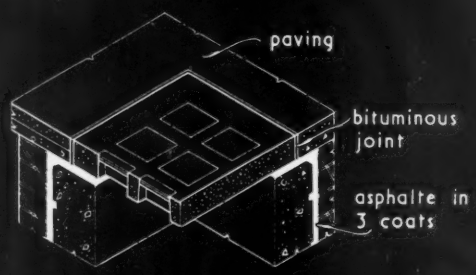
The Architects' Journal Library of Information Sheets 525. Editor: Cotterell Butler, A.R.I.B.A.



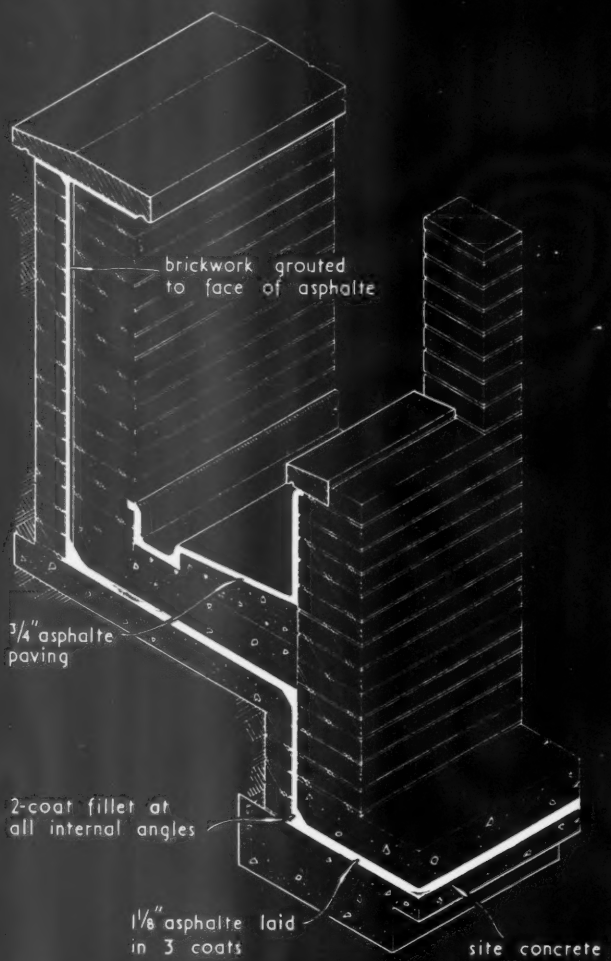
TANKING TO BASEMENT.



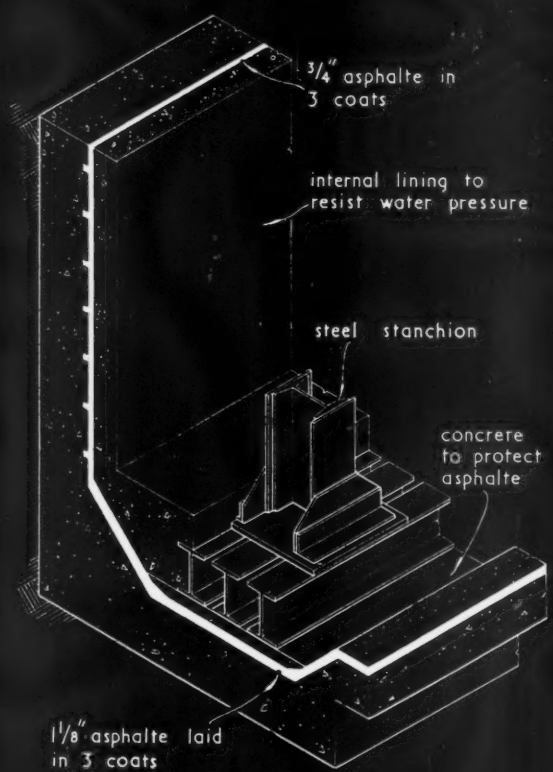
TREATMENT WHERE PIPE PASSES THROUGH TANKING.



TREATMENT AT PAVEMENT LIGHT.



TANKING TO BASEMENT WITH OPEN AREA.



LINING TO STANCHION PIT.

ASPHALTE TANKING. Manufacturer: Val de Travers Asphalte Ltd.

26.A3 ASPHALTE TANKING

This Sheet is one of a series on asphalte. It deals with the use of asphalte for tanking foundations and basements and for waterproof linings. Sheet 12.F1 describes the material as used in building construction and other Sheets in the series deal with specific applications in flooring and paving, in damp-proofing and in roofing.

General

The essential difference between tanking and other forms of damp-proofing work is that the former has to deal with water *pressure*. Therefore, where asphalte is used it must have structural support which in itself is sufficiently strong to resist this water pressure. The two main applications of this principle are in water-proofing foundations and in forming linings for tanks, reservoirs, etc. Although asphalte is plastic, walls and foundations must be designed to protect it from excessive structural movement. Asphalte is not affected by sulphate or other subsoil waters, and is therefore ideal for protecting concrete from corrosion by them.

Laying

Vertical tanking: This should be applied in 3 coats to a minimum total thickness of ¾ in. Where the asphalte is to be applied to the outside of a structural wall a minimum working space of 2 ft. 0 in. must be provided: it is desirable that the excavations be sloped back, but where this cannot be done the trench must be strutted from the wall. The asphalte is then applied to the accessible parts of the wall and, as the struts are removed, the asphalte must be made good, the patches being carefully joined to the surrounding material with the joints lapped. Where struts are used in this way the asphalte should be protected immediately by a skin wall of 4½ in. brickwork.

For basements where space is restricted, it is usual to provide a brick or concrete lining to the excavation, and the vertical asphalte is applied to this. It is essential that this vertical asphalte be protected as quickly as possible. Main structural walls of brickwork must be solidly grouted against the asphalte and the bottom course rough-splayed for close bedding against the angle fillet; if they are of concrete, great care must be exercised, particularly in the placing in position of the reinforcement and, secondly, tamping, to avoid damage or fracture of the asphalte; no voids should be permitted.

Horizontal tanking: The asphalte lining should be continuous over the whole site in three coats to a total thickness of 1⅛ in. with 6-in. lapped joints. Over the horizontal d.p.c. a 2-in. skin of concrete should be laid before the following trades are allowed to commence work, to safeguard the asphalte from damage by the operatives. The main reinforced concrete slab, of sufficient strength to resist water pressure, should then be provided immediately.

Where there is a change of level in horizontal tanking it should be effected by a gradual slope rather than an angle: footings should be brought to a smooth slope by the use of cement and sand. Where horizontal meets vertical asphalte it should be carried sufficiently beyond the face of the vertical work to form a tight joint and a strong angle fillet applied.

Three applications of vertical and horizontal tanking are shown on the face of the Sheet.

Treatment where pipes pass through tanking: Special care must be taken where pipes pass through the tanking. The drawing on the face of the Sheet shows one method of treatment. The pipe is first cleaned and coated with bituminous solution. The asphalte collar is applied to the pipe before the latter is inserted into the hole in the wall: this collar is then sealed to the vertical or horizontal lining with a stout angle fillet. With flanged pipes the seal is formed by placing a lead washer between the flanges: the washer is incorporated within the thickness of the asphalte.

Applications

In addition to its use for water-proofing foundations, asphalte tanking may be used for tanks, reservoirs, swimming pools and the like. Asphalte, being impervious to moisture, is also very suitable as a lining for cold storage chambers.

Relevant British Standards

B.S. 1097 : 1943 *Mastic asphalt for damp-proof courses and tanking (limestone aggregate).*

B.S. 1418 : 1947 *Mastic asphalt for damp-proof courses and tanking, natural rock containing 6 to 10 per cent. bitumen.*

Compiled from information supplied by:

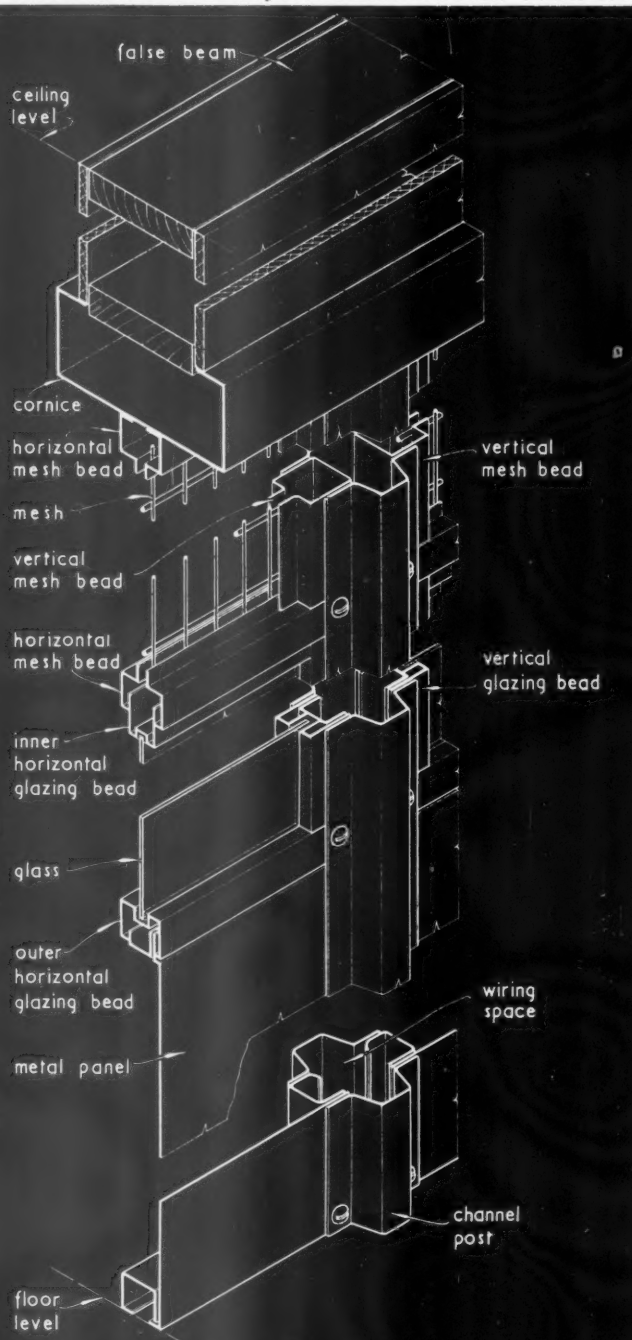
Val de Travers Asphalte Ltd.

Head Office: Val de Travers House, 21-22 Old Bailey, London, E.C.4.
Telephone: City 7001 (10 lines).
Works: Sun Wharf, Creekside, Deptford, London, S.E.8.
Telephone: Tideway 2611.
Branches: Birmingham, Canterbury, Exeter, Glasgow, Lincoln, Liverpool, Manchester, Newcastle.

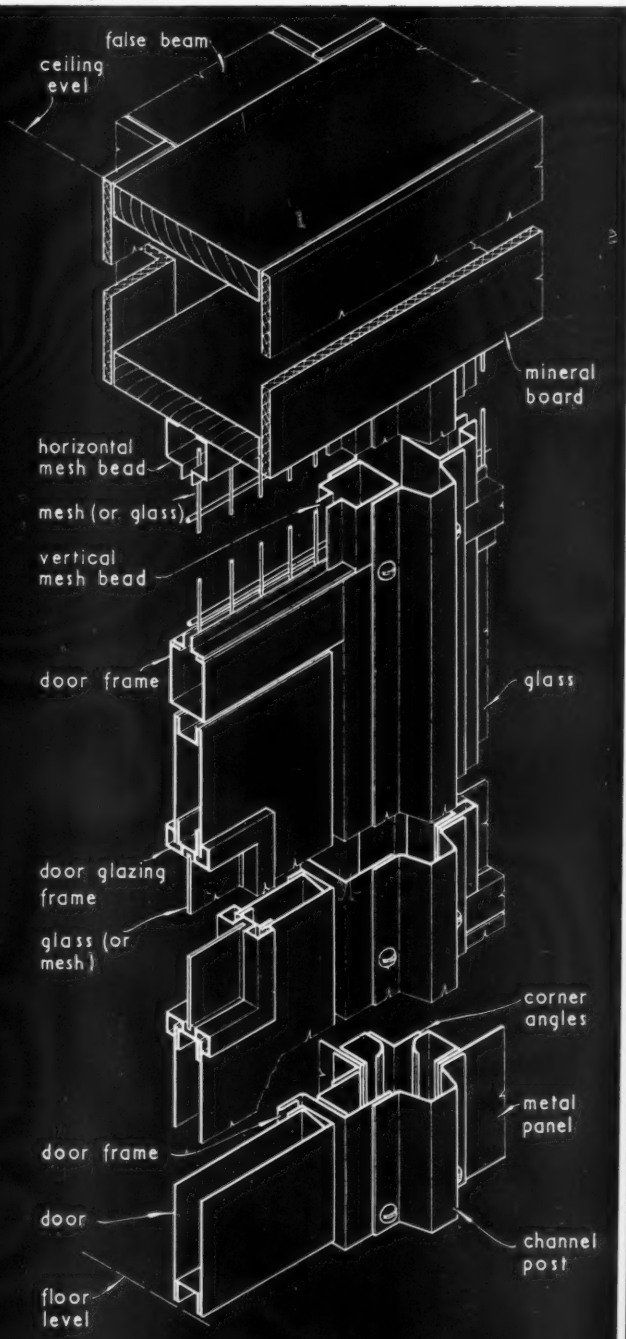
NOTE.—Throughout this series of Sheets the spelling asphalte *has been adopted to comply with this manufacturer's usage.*

PARTITIONS | METAL

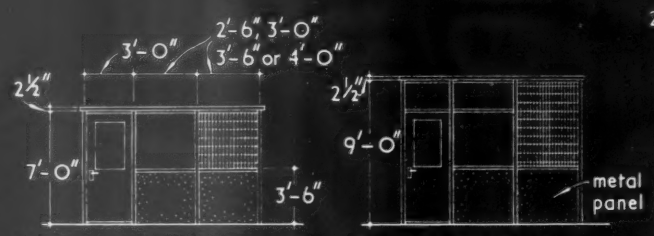
The Architects' Journal Library of Information Sheets 526. Editor: Cotterell Butler, A.R.I.B.A.

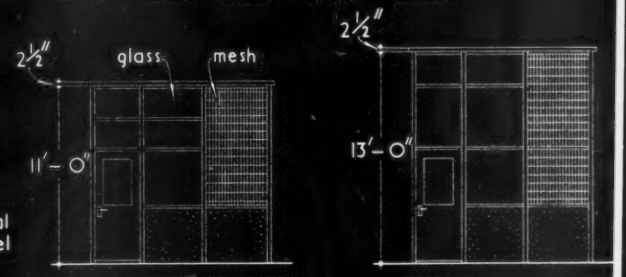


TWO-WAY POST WITH PANELS.



THREE-WAY POST WITH DOOR.





TYPICAL ARRANGEMENTS FOR PARTITIONS.

MOVABLE METAL PARTITIONS FOR FACTORIES AND WAREHOUSES. (Patent No. 654508)

Manufacturer : Constructors Ltd.

21.C2 MOVABLE METAL PARTITIONS FOR FACTORIES AND WAREHOUSES *(Patent No. 654503)*

This Sheet is the second of a series dealing with Constructors' Movable Metal Partitions and describes those for use in factories and warehouses (patent no. 654508).

General

As for office partitions, metal is used in the construction of factory partitions in order to maintain standardisation of design, saving of space, virtual elimination of fire risk and resistance to dampness, rot and vermin.

The simplicity of assembly makes them very suitable for factory layouts and schemes where flexibility of arrangement is required.

Material

The standard partitions are made of steel.

Construction

The vertical and horizontal beads together with the bottom panel of each unit are securely bolted between two halves of a pressed steel post. Standard partitions are supplied with a single bottom panel, but two panels, fitted with sound-deadening material between, are available if double casing is desired.

The upper portion of the unit is provided with the appropriate framing to take glass, welded mesh or a solid panel.

A cornice section is usually supplied for all partitions but is only essential, to ensure alignment and stability, if they are not ceiling height.

Doors: Hinged and sliding doors are available and all are flush on both sides and have an aperture to take glass or mesh. Hinged single doors 3 ft. 0 in. wide are interchangeable with panels of the same width. Standard hinged double doors are 5 ft. 0 in. wide. All hinged doors are hung on 4-in. steel butt hinges and each is provided with chromium-plated lever handles and lever mortice lock.

Sliding doors may be applied to either face of the partition without increasing its thickness. They are suspended on ball-bearing carriages which run in a concealed track at the top; the bottom track is sunk into the floor. The lower portion is double-cased to a height of 3 ft. 6 in., above which glass or mesh can be fitted. Sunken pulls and a hasp and staple for fixing on either side are provided (padlock not included).

Sizes

Panel units are made in standard widths of 2 ft. 6 in. to 4 ft. 0 in. in 6 in. increments. Filler panels are used against walls where necessary to make up uneven lengths. Heights of posts are 7 ft. 0 in., 9 ft. 0 in., 11 ft. 0 in., and 13 ft. 0 in. Hinged doors are 3 ft. 0 in. and 5 ft. 0 in. wide and sliding doors 6 ft. 0 in. wide, by 7 ft. 0 in. high (nominal) in all cases.

Electrical Services

Electrical wiring for power, light and services may be run through hollow posts and cornices, etc. Lighting switches may be mounted in the posts, and power sockets and switches on the panelling. Provision is also made for Panelec low-temperature space-heating panels to be fitted inside lower double-cased panels.

Installation

Unless otherwise specified, all partitions are delivered ready for erection by the manufacturer on the prepared site. The partitions are screwed to the floor and walls by means of screws and plugs and lateral stability is obtained by the rigid cornice top. Where it is required to enclose completely the space between the top of the partition and the ceiling, a false beam in mineral board may be provided above the cornice.

Finish

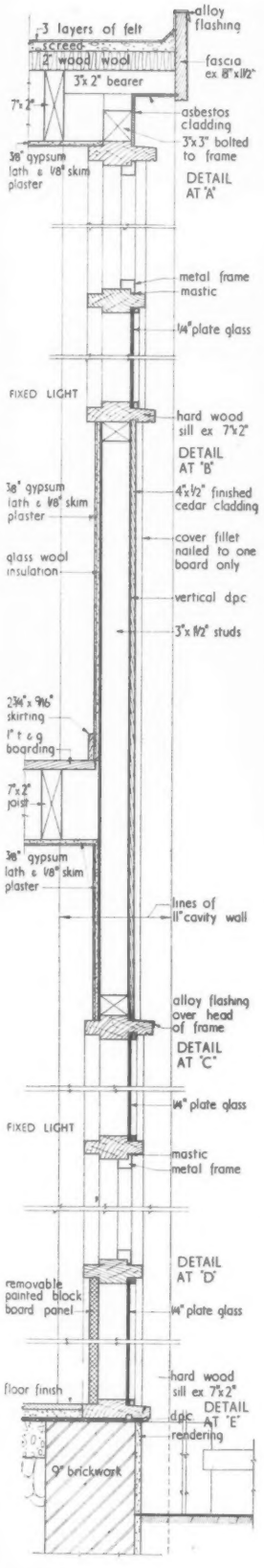
All partitions are normally finished in standard olive green or grey enamel. Other colours may be supplied if required, selected from a range of nine, as follows: eau-de-nil, polychromatic near-black, blush grey, polychromatic light grey, dove grey, aluminium, deep bronze green, turquoise blue and pale cream.

Accessories

A full range of accessories, e.g. ventilators, hinged and sliding hatches, roofs, pivoted transoms, picture hooks nameplates, etc., are made for use with the partitions to cater for all requirements.

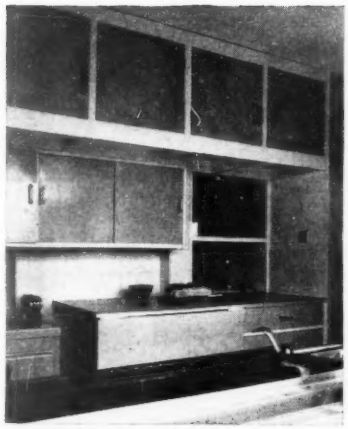
Compiled from information supplied by:

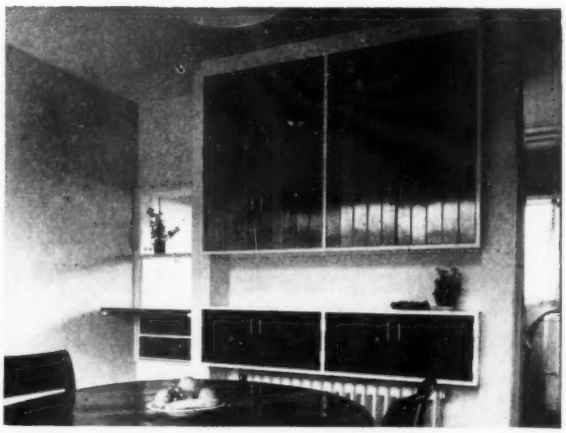
Constructors Ltd.
Head Office and Works: Tyburn Road, Birmingham 24.
Telephone: Erdington 1616.
London Office: 98, Park Lane, London, W.1.
Telephone: Mayfair 3074.

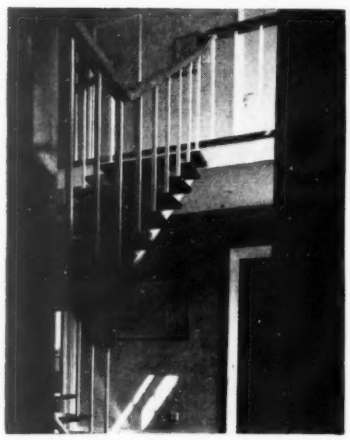


Typical external wall eaves to ground

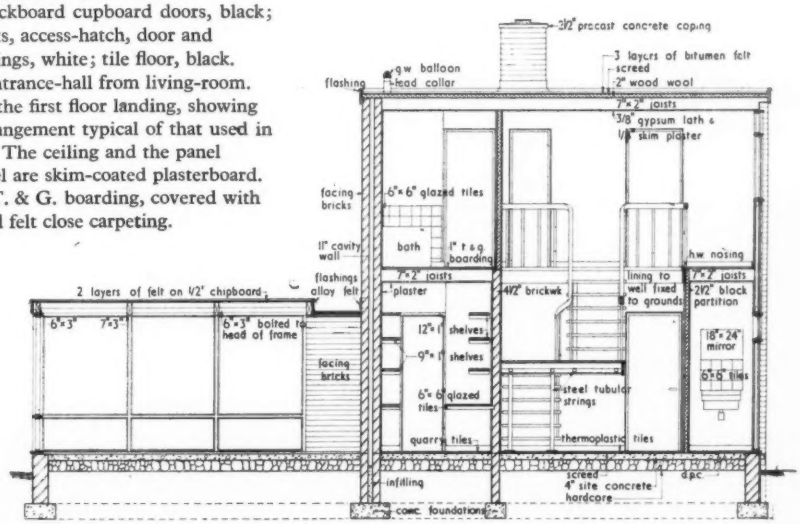
[Scale : ½" = 1' 0"]







Top left: the kitchen, which has a dado of 6-in. × 6-in. white-glazed tiles, contains storage units for kitchen utensils, cutlery and china. The tops of working areas and the hinged flap to the access hatch are finished with plastic sheet. To the left of the picture is a solid fuel boiler, with an automatic thermostat. A red quarry platform, raised ½ in. from the floor, runs along the window-wall: on this is a washing-machine, a refrigerator, a cooker and a stainless-steel sink-unit. The remainder of the floor is in black composition tile. *Colours:* plastic sheet, light blue; cupboard doors and drawer fronts, blue (5.OB 7/4 Munsell); framing to cupboards, drawers, access-hatch and doors, white; walls and ceiling, white and yellow (7.5Y 9/6); floor, red quarries, black composition tile. Top right: the small dining room, overlooking the enclosed garden court to the east, has direct access to the kitchen, both by means of the clear opening on the right or the access-hatch on the left. The glass and silver are stored in units faced either with polished pine strip or painted blockboard. The floor is finished with black composition tiles. *Colour:* ceiling and two walls, white; remaining wall, yellow grey (2.5GY 6/2 Munsell); blockboard cupboard doors, black; frames to units, access-hatch, door and window-openings, white; tile floor, black. Above left: entrance-hall from living-room. Above right: the first floor landing, showing a window arrangement typical of that used in all bedrooms. The ceiling and the panel below sill level are skim-coated plasterboard. The floor is T. & G. boarding, covered with rubber-backed felt close carpeting.



Section B-B [Scale : ½" = 1' 0"]

HOUSE AT WEST MERSEA

CLIENT'S BRIEF: his stated requirements

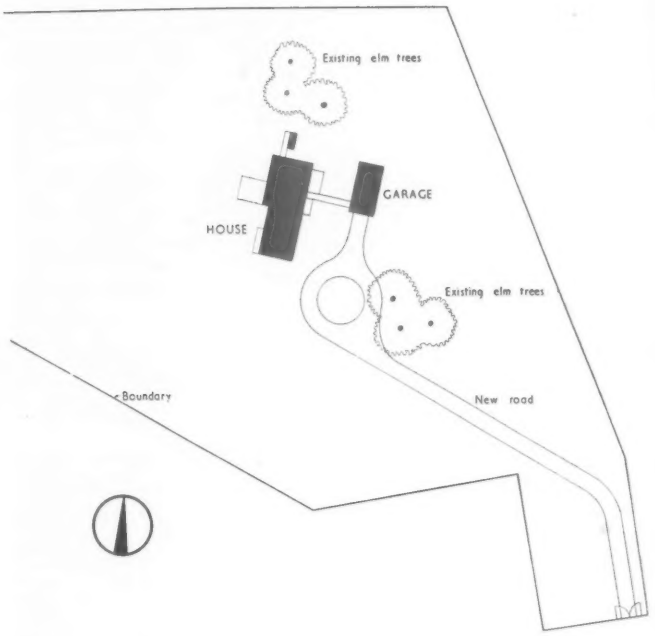
A four-bedroomed house with no change of level on the ground floor. Living-room to be separated from the dining-room. Dining-room to have easy access to kitchen, though not to be a dining-kitchen. The kitchen to overlook the water to the west. The architect to work to approx. 40s. per ft. sup.

SITE: topography, surroundings, planting

Arable land, with access to an existing lane to the south. Site slopes to the west, overlooking river and marsh land. Two fine clumps of elm trees exist on the high ground to the north and east. The site is in a well-known sailing area and is flanked by boat building sheds and traditional coastal cottages.

PLAN: general appreciation

The scheme was subjected to a licence for 1,500 ft. sup., which was rigidly adhered to, and which, in consequence, disciplined planning proposals. The house, however, was planned to take fullest advantage of the fine prospect to the west while, at the same time, allowing morning sun to reach the principal rooms. The dining-room turns in towards the site, thus overlooking the garden between the house and the garage. There is a w.c. in the ground floor cloakroom, not shown on plan.



Site plan

MAIN CONSTRUCTION

Load bearing cross and flank walls carrying floor and roof joists. Subframes, studding and infilling non-load bearing. Subframes set between vertical 7-in. × 2-in. softwood uprights built into inner skin of cavity wall, acting as a jig against which the brickwork was laid. (see axonometric sketch detail)

Load bearing element	*Location*
11-in. cavity brickwork	External walling
9-in. common brickwork	Spline walls on ground floor
4½-in. common brickwork	Spine walls on first floor

Foundation type	*Location*	*Sub-soil*	*Depth*
Strip concrete of varying width	Under structural walls	Clay, gravel under	1 ft. 9 in. below finished ground level

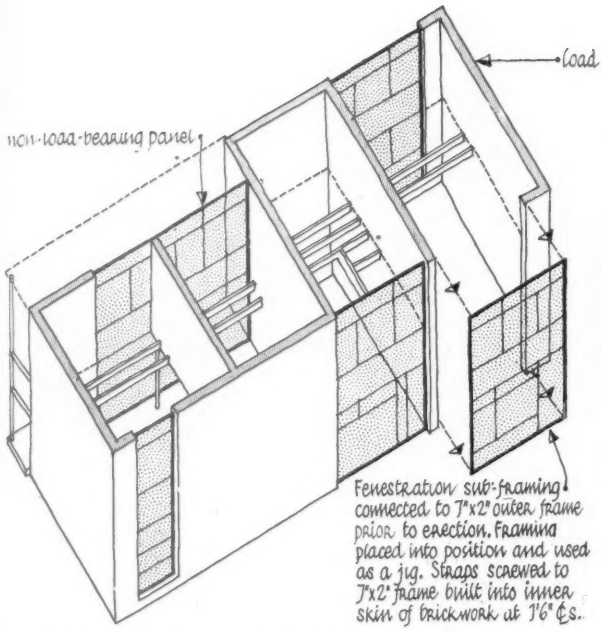
Outer wall type	*Location*	*Materials*	*Finish*
11-in. cavity	To all sides	Facing brickwork (Essex stock). 2-in. cavity. Common brick inner skin. ⅝-in. plaster	Flush pointed
Cladding to ground floor	East and west walls	¼-in. external quality plywood panel, softwood studding. Plastic sheet on ply or plaster skim on ½-in. fibreboard inner skin	Painted
Cladding to first floor	East and west walls	Vertical weatherboarding (cedar). Softwood studding. Glass fibre insulation. Plaster board inner skin, skim coated	Untreated

Roof type	*Location*	*Material*	*Finish*
Flat	Over house	7-in. × 2-in. softwood joists, 2-in. wood wool, wood wool filler, 3 layer bituminous felt	Granite chippings
Flat	Over conservatory	6-in. × 3-in. purlins, 3-in. × 2-in. softwood joists, ½-in. chip board, 3 layer bituminous felt	Granite chippings

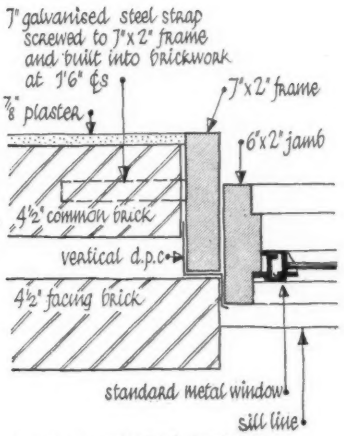
Floor structure type	*Location*	*Materials*	*Finish*
Solid	Ground floor	Minimum 6-in. hardcore, 4-in. site concrete. Damp-proof membrane, cement/sand screed of varying thickness	Carpet-well screed with ⅝-in. hardwood polished strip surround to living room. Quarry tile to larder and part of kitchen. Black composition tiles to the remainder of the ground floor
Suspended	First floor	7-in. × 2-in. joists, ⅝-in. T & G boarding	Close, rubber backed felt, carpeting

Internal wall type	*Location*	*Materials*	*Finish*
Load bearing	Transverse walls to ground and first floors	9-in. common brickwork (ground floor) 4½-in. common brickwork (first floor)	⅝-in. plaster
Non-load bearing	To various enclosures	4-in. and 3-in. lightweight concrete block	⅝-in. plaster

Ceiling types	*Location*	*Material*	*Finish*
Direct fixing	Ground and first floors	Plasterboard	⅛-in. skim coat plaster



Axonometric sketch of structural principle [Scale : $\frac{1}{16}$" = 1' 0"]



DETAIL OF JUNCTION BETWEEN LOAD-BEARING BRICK WALL AND NON-LOAD-BEARING PANEL

Detail plan [Scale : 1½" = 1' 0"]

ARTIFICIAL LIGHTING

Source and fitting type	*Location*
Tungsten. Dispersive and adjustable directional. Most of shades selected by client	Dispersive at ceiling level in bathroom, kitchen and cloakroom. Directional on wall and ceiling of living room. Pendant fittings elsewhere.

Wiring and switching types
T.R.C. carried in floors and thence in screwed conduit in walls. Flush pattern switches in C.I. boxes

Power supply type
Public mains. Lighting and power on 13-amp. ring main with all points using standard socket outlets

NATURAL LIGHTING

Wall glazing	*Location*
Softwood subframes containing fixed glazing or standard metal opening lights	To all rooms except bathroom

THERMAL INSULATION

Type	*Location*	*K-value*
2-in. woodwool	Roof	0·28
Bitumen bonded glass-fibre	Behind cedar boarding	0·28
½-in. fibre board	Behind external plywood panels	0·37

HEATING AND VENTILATION: artificial and natural

Heat exchanger type	*Location*	*Criterea temperature*	*Airchange rate*
Hospital type C.I. radiators	Living-room and dining-room	65° F. with outside temp. at 32° F.	3 per hour

Boiler type and capacity	*Fuel type*	*Stoking method*
Crane No. 4, with Satchwell thermostat control (42,000 BTU/HR)	Anthracite, coal and coke	Hand

Water heater type	*Location*
Crane No. 4 plus immersion heater to H.W.S. tank for summer use	Kitchen

Hot water storage type	*Location*	*Materials*	*Capacity*	*Remarks*
Indirect cylinder	Tank in linen cupboard off first floor landing	Copper	35 galls.	Lagged

Pipes and jointing	*Location*	*Materials*
H.W. supply	Both floors	Copper tube
Supply to radiators	Both floors	Galvanised barrel

Cold water storage	*Location*	*Materials*	*Capacities*
Supply tank	Linen cupboard	Galvanised steel	50 gallons
Expansion tank			15 gallons

REFUSE METHOD

Dust bins

SOIL WASTE

Type of system	*Location*	*Materials*	*Method and comments*
One-pipe system	W.C., bathroom	3½-in. C.I.	Deep sand traps used, layout as BRS recommendation

Drain types	*Location*	*Materials*	*Comments*
Soil	House to main sewer	4-in. S.G.P.	No public surface-water disposal exists

Rainwater disposal	*Location*	*Materials*
Sumps from flat roof	Pipes carried vertically in cupboards and duct	3-in. C.I.

COLOUR

Paint types	*Where used*
Emulsion	Internal walls
Oil bound distemper	Ceilings
Oil paint	Joinery

Colour treatments

The local vernacular has suggested the colour treatment which has resolved itself into the use of black, grey and white for exterior use and black, grey, white and light blue for interior decoration. Colours within the Archrome Range were specified and their references are given when colour is discussed within photograph captions

COST ANALYSIS

Number of rooms	7
Net tender cost	£3,433
Net cost per room	£490
Gross tender cost	£4,577
Gross cost per room	£654
Tender date	22.2.54
Gross total cost	£4,495
Cost per ancillary buildings (garage nd conservatory)	£532

	Total cost in pounds	*Cost per f.s. in pence*
Contingencies	75	12·00
Work below	238	38·08
External weather boarding and facings	515	82·40
Internal load bearing	88	14·08
Internal partitions	47	7·52
Upper floor	263	42·08
Roof	323	51·68
Floor finish	97	15·52
Windows and doors (external)	375	60·00
Doors (internal)	95	15·20
Wall finishes	125	20·00
Built-in fittings	297	47·52
Ironmongery	63	10·08
Plumbing (external)	10	1·60
Plumbing (internal)	92	14·72
Sanitary fittings	61	9·76
Electric	88	14·08
Heating	238	38·08
Drainage	27	4·32
Glazing	62	9·92
Decoration	254	40·64
Total net cost	£3,433	549·28*d.*
Cost per foot super (1,500 f.s.) = 45*s.* 9·28*d.*		= 45*s.* 9·28*d.*

LS51

Polyflex

Patent pending and registered trade mark

The 'Polyflex' toilet seat has a *flexible mounting*. Breakages are very unlikely. 'Polyflex' includes a flexible PVC rod attached to the seat and firmly fitted into Polythene seat pillars. The pillars, reinforced with a threaded brass insert, are self-centering in the WC pan with polythene washers secured by wing nuts. The 'Polyflex' seat can be fitted by the housewife without any tools, and, because of the flexible mounting, it will stay firmly in position. The 'Polyflex' is hygienic. The seat, hinge, and pillar heads cannot corrode or peel. All are easily cleaned. The 'Polyflex' is available in black, white and a range of standard pastel shades.

MADE BY LORIVAL* AND SOLD BY Shires

for your convenience

* The firm well-known as 'Lorival Plastics'—designers and moulders of components and complete articles in modern plastics.

Shires are the largest manufacturers of moulded cisterns in the country. They also make WC pans and seats, flush-pipes and complete WC suites.

LEAFLETS FROM :— DIVISION A, SHIRES & CO. (LONDON) LTD., GREENBOTTOM WORKS, GUISELEY, YORKS. (FACTORIES ALSO AT LONDON AND STOKE)
SHIRES (IRELAND) LTD., STANNAWAY DRIVE, CRUMLIN, DUBLIN

TECHNICAL SECTION

Many architects who hear that the Institute of Builders has decided to set up a Board of Building Education, with the support of the NFBTE, may well wonder what exactly the Institute is, and what its aims are. Its main object (since 1884, when it changed its title from the fifty-year old one, The Builders Society) has been to establish master builders as professionals, with high ethical standards, whose ranks could be entered only by formal examination. Entry to the Institute is now normally by examination only, with the proviso that applicants who are too old to sit for an examination must show that they possess an equivalent background, not only of practical experience but also of general education and technical competence. Architects will sympathise with the ideals for which the Institute of Builders stands: it is only to be hoped that if and when they achieve professional status in the formal sense they will manage to do so without cutting themselves off from the rank and file of the industry of which they are a part.

This week's special article

19 CONSTRUCTION: DETAILS
a continental method of constructing stairs

The number preceding the week's special article or survey indicates the appropriate subject heading of the Information Centre to which the article or survey belongs. The complete list of these headings is printed from time-to-time. To each survey is appended a list of recently-published and relevant Information Centre items. Further and earlier information can be found by referring to the index published free each year.

Though industrial techniques in building are generally not so far advanced on the Continent as in this country, craft techniques are generally superior. This week Thomas Ritchie describes a technique for building in-situ masonry staircases using plaster of Paris as a cementing agent. This technique, known as "le systeme blanc," has been in use for upwards of thirty years, and results in a stair which is very rapid and cheap to build and which meets all the functional requirements.

The staircase is always a key element in building operations. The installation of staircases in new buildings at the earliest possible moment enables work to be speeded up on each successive floor and prevents ladder accidents. Among the many forms of stair-building that can be seen today in France and Italy, one has proved to be easily adaptable to most circumstances and notably cheaper than reinforced concrete. The method known in the French building industry as "*le systeme blanc,*" perhaps because the basis of its strength and speed of erection is white plaster of Paris, is believed to have originated in Italy about thirty years ago and is now widespread in France and Italy. It has been officially accepted after many searching tests of its resistance to

"The Library, at the B.B.C., Television Centre, Wood Lane, London, W.12.
Architects: Building designed by Graham Dawbarn, Esq., C.B.E., M.A., F.R.I.B.A., of Messrs. Norman & Dawbarn, in association with M. T. Tudsbery, Esq., C.B.E., F.C.G.I., M.I.C.E., Consulting Civil Engineer to the B.B.C.
Contractors: Messrs. Higgs & Hill Limited."

sound and fire.

Most architects and builders who watch the construction of this type of staircase for the first time, find the system quite incredible and most of them are sceptical about the carrying capacity of the stairs.

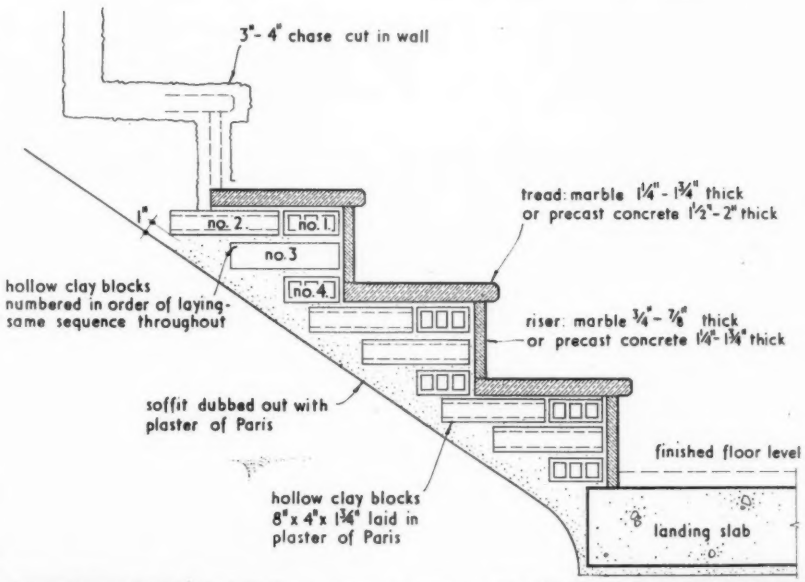
In such a staircase, not only are the materials and construction reduced to their simplest expression, namely treads and risers in marble or precast concrete, hollow tile partition blocks and plaster of Paris, but the astonishing fact is that a single specialized craftsman, with a labourer, can build one complete stair flight—floor-to-floor—for immediate use in two days.

Though the system works very well on straight flights and on flights with intermediate landings, it is particularly associated with curved staircases (which are the rule rather than the exception on the continent) and with stairs which pass from floor to floor in a single flight of 19 to 23 treads.

An essential of the system is that the enclosing walls should be of hollow tiles or of some other material which is easy to cut. These blocks, which are in common use for partitioning and panel walling in France and Italy, are easily cut or chopped with a small mason's axe to form chases, either horizontally or vertically, to contain pipes or electrical work, as well as the ends of built-in treads and risers. Any damage or weakening that may result from the chase-cutting is more than compensated for by the immense stiffening and strengthening effect contributed by the final surface finish in $\frac{3}{4}$ in. to $\frac{7}{8}$ in. thick gypsum plaster. (In fact, before plastering, block partitions are often structurally unstable.) Where a concrete structural member occurs in the enclosing walls of a stair the housing chase for treads and risers across it is cut only to the depth of steel cover, i.e., $\frac{3}{4}$ in. to 1 in., which suffices for the short length of staircase that passes the member.

MATERIALS FOR STAIR BUILDING

The treads and risers are usually of some kind of marble with treads $1\frac{1}{4}$ in., $1\frac{1}{2}$ in. or thicker, and risers $\frac{3}{4}$ in. to $\frac{7}{8}$ in. in thickness. The cost of a $1\frac{1}{2}$-in. tread and $\frac{3}{4}$-in. riser in white marble, is about £4 10s. per set, delivered on site. On cheaper work vibrated precast treads and risers are used in exactly the same way as the marble components. In general, stair widths are limited to 5 ft., but the normal is 3 ft. 6 in. to 4 ft. 3 in. Below the tread and riser assembly are placed hollow tile blocks, set in gypsum—not only to fix the steps but to form the soffit finish to



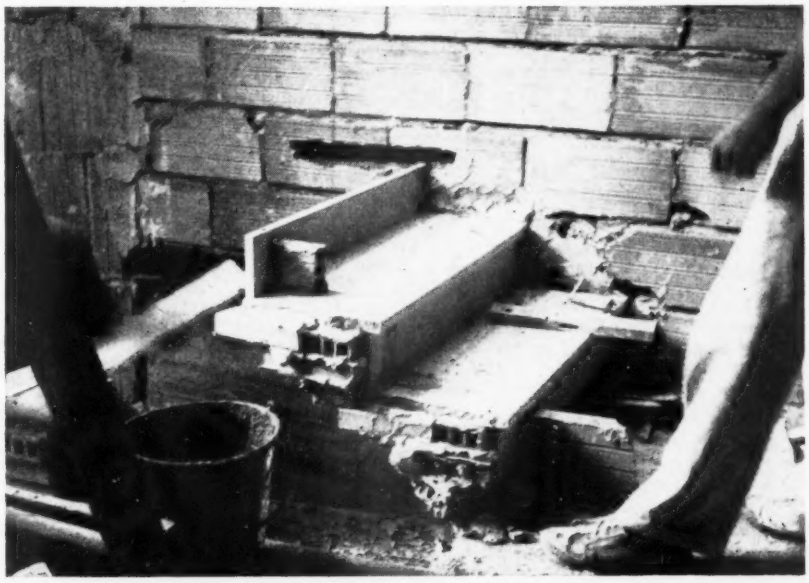


Fig. 1 (top right), section through staircase, showing sequence of laying clay blocks. Fig. 2 (above right), start of staircase from a concrete landing slab. Note the use of plastered fixing blocks keeps the risers vertical temporarily until the soffit blocks are fixed. The plaster filled tread and riser chases can be seen on the two first steps. Fig. 3 (right), the chase for the fourth tread can be seen with its riser fixed vertically by means of a portion of plastered block.

the flights. These blocks are 5 cm. thick, 10 cm. wide and 20 cm. long (i.e., 1¾ in. × 4 in. × 8⅜ in.) and are light and easily cut or shaped. The plaster of Paris is mixed in a wooden trough 4 ft. 6 in. × 2 ft. × 1 ft. 6 in. deep overall. Only a few scaffold boards are required as a standing platform for work on the stair soffit.

The stair treads arrive on the site cut to shape and size, and only minor adjustments are made. Each tread is numbered and marked with guide-sighting lines in pencil to assist the craftsman in setting out as he builds.

PROCEDURE

Starting at a landing the mason marks out the profile of the first two treads and risers on the staircase wall, and in less that two minutes hacks out, with his axe, a chase all along the profiles 3 in. to 4 in. deep—depending on whether it is a 3 ft. 6 in. or a 5 ft. wide stair—and 2 in. to 3 in. wide. The first riser is inserted in the wall chase, carefully placed on the landing slab and then temporarily, but securely, fixed by means of a small piece of block plastered to the riser and to the landing slab (see Fig. 2). The tread is then laid on the riser, with its end inserted into the wall chase, where it is wedged with bits of broken tile after being levelled. Both tread and riser chases are then filled with freshly-mixed plaster of Paris, which is slapped into the chases in a semi-liquid condition, with a square-nosed trowel. A mason then butters the hollow tiles with plaster, working with speed because of the quick-setting action of the plaster, and, starting at the wall face, he slides and pushes the first blocks firmly into place on the underside of the tread. The second course is laid below to break joint, and then the lowest single tile course, which "keys" the whole bracket system together, is fixed. The tile-stepped soffit on the underside of the treads and risers is now filled in with the remainder of the plaster in the trough. It is thrown on with the trowel and roughly smoothed in preparation for the finishing plaster coat, which is applied when the flight is completed. The drawing in Fig. 1 indicates the sequence of tile-laying and shows the soffit dubbed out to a smooth line parallel with the rake of the flight.

All these operations are achieved with the aid of a few planks let into a hacked chase in the wall, and supported at the landing end with roughly constructed timber struts to suit the constantly varying height as the stair flight ascends in the stairwell.

As soon as one tread and riser is fixed and its soffit plastered up, the mason stands on it to hack out the chases for the next step assembly, and each time finishes up all plaster mixed in the trough in fixing the soffit blocks and dubbing out across the soffit to the stairs. He stands on each step as he builds the next. It is of no importance, as regards the system of working, whether the stair is curved or straight on plan—except that more cutting of soffit blocks is necessary on the curved spiralling flights where each tread is more or less kite-shaped on plan. On straight flights the intermediate stair landings are formed from one single piece of marble let into the wall 3 in. on two sides with two courses of tile blocks below over the whole of the underside of the landing slab. The outside string is built up out of clinker blocks 3 in. thick, cut to follow the curve and laid thickly in plaster of Paris on the outer ends of the marble treads. Usually the hand-railing is in metal and a flat member about 1¼ in. to 1½ in. wide and $\frac{3}{16}$ in. thick is laid on the string kerb and rag-bolted into the blocks at about 2 ft. 6 in. to 3 ft. centres. The rest of the hand-railing is secured to this member by countersunk screws and is securely concreted into the landing slabs at the top and bottom of each flight, which thereby ensures the rigidity of the continuous curving hand-railing unit.

The string blocks are prepared with a hydraulic lime-rendering, ¼ in. thick, thrown on with a trowel and then finished with ¼ in. of crushed stone and white cement rendering (also thrown on), wood-floated and later bush-hammered, after three days setting time.

The metal hand-railing is fixed after the string finishes are completed and set. Lastly the treads are covered with 1-in. plaster as a protection while the stairs are used by workmen. This is easily prised off on completion.

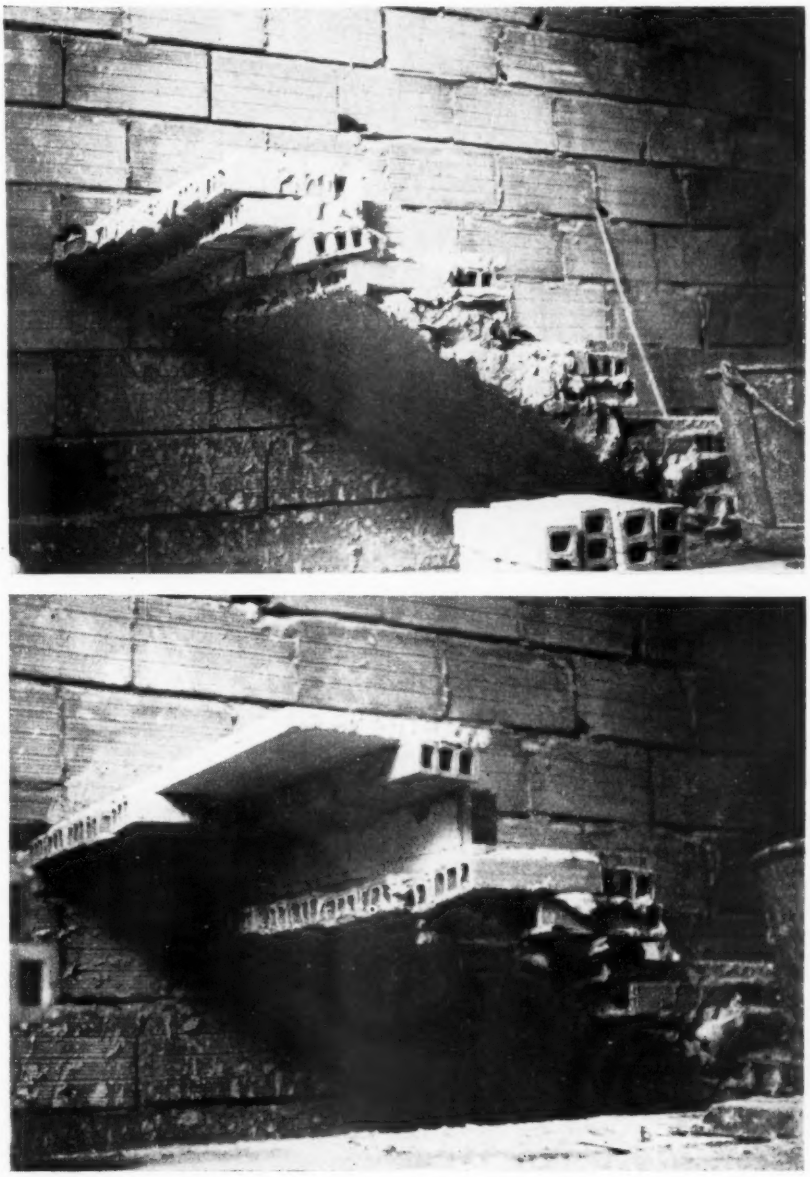


Fig. 4 (top), shows the sequence and method of laying soffit blocks below the carefully adjusted tread and riser. The rough shaping in plaster dubbing of the staircase soffit is carried up as the work progresses. Fig. 5 (above), shows a completed tread and riser block assembly, ready for dubbing-out with the plaster to form the rough stair soffit.

PRINCIPLE OF CONSTRUCTION

The underlying principle of this staircase construction is that of a two-way bracket: one is formed by the console blocks below the steps, and the other by the assembly of the blocks out from the staircase wall, in conjunction with the slight tailing-in of the

treads and risers into the wall itself. Again, the final ¼ in. to ⅜ in. plaster finish to this wall stiffens not only the wall but deepens the tailing length by another 1 in.

Each system of blocks below each tread and riser is rigidly fixed with gypsum as a stepped bracket, which in turn is firmly held along its wall end by the plaster. So rigidly and strongly do these adhesions act that in some cases a large portion of the flight has been constructed without any chases being cut into the surrounding wall face for the treads and risers.

With all types of staircases (particularly with the single flight stairs curved on plan which are the most common form with this type of construction), the continuous curved slab from floor landing to floor landing has a structural value in its rigid shape, and tends to act as an inclined strut with a thrust at each end.

On the Continent this type of staircase is so well understood that no one thinks of questioning its safety as a building element. The author has seen one of these staircases loaded with over 5 cwt. per tread in separately spaced bags of sand to ensure full dead-loading and on a flight of 24 steps without a sign of plaster cracking or other movement.

INFORMATION CENTRE

A digest of current information prepared by independent specialists; printed so that readers may cut out items for filing and paste them up in classified order.

14.77 materials: concrete
NON-DESTRUCTIVE CONCRETE TESTING

Testing Concrete by an Ultrasonic Pulse Technique—Road Research Paper No. 34. (HMSO. 1955. 2s. 6d.)

Description of investigations by Jones and Gatfield into the non-destructive means of testing concrete and applications of the method.

The usual method of defining the quality of concrete is by quoting the crushing strength of cubes at 28 days age. Usually this crushing strength bears a relation to the concrete in the member from which it was taken but no conclusion as to the actual value of the concrete in the member can be drawn. In road slabs, etc., where cores can be drilled, at some expense, the core can be crushed and the strength determined in that way but this is quite impossible in the reinforced concrete structure. Dr. Jones has worked on Ultrasonic Pulse technique since 1948 and may be considered one of the world's leading experts.

The publication gives a description of the apparatus for making high-precision measurements of the velocity of an ultrasonic pulse in concrete. The longitudinal wave velocity is discussed with reference to compressive strength, modulus of rupture and density. The effect of a large number of variables known to affect the properties of concrete has been studied and it is concluded that relative values of the velocity in a particular concrete indicates the variation in strength. However, to determine the actual strength of a member, it is necessary to know the concrete mix and better still to have cubes of the material for calibration purposes. The method can also be used to detect the formation of micro-cracks inside concrete specimens. Examples are given to show how the frost effect on concrete has been studied. An Appendix gives details of the experimental technique though this is unlikely to be understood by any other than amateur radio experts.

18.166 construction: theory
PRECAST CONCRETE

Precast Concrete. K. Billig. (Macmillan. 1955. 32s.)

Comprehensive review of the whole field of precast concrete, of interest to all who use concrete.

Precast concrete is a subject which has been covered in part by many magazine articles but rarely reviewed in book form. Dr. Billig's book is a very fine work and provides an up-to-the-minute survey of the whole subject. The first section deals with fundamentals and general data. One small criticism here is that the advantages and disadvantages quoted are very general and consequently they are at times contradicted later in the book when the author deals with the particular. The second section deals with the types of precast members, such as flooring units, walls, columns, houses, poles, sleepers and hollow blocks. The third section is very interesting, particularly for its application to multi-storey work which is now in vogue. In this section, Dr. Billig describes the actual joints which can be made by various methods. These are by welding, by connection of rigid metal inserts, by cast *in-situ* concrete, and by prestressing methods and are dealt with very thoroughly. The author does not advise the use of horizontal joints, *e.g.*, between columns both from the cost and the doubtful nature of the joint. It is unfortunate that he does not condemn the column joint outright in view of the fact than any of our leading contractors can erect *in-situ* columns as quickly and more cheaply. The last section consists of brief descriptions of actual works which have been carried out in precast concrete and is drawn from examples throughout the world.

There are 341 pages, 98 figs. and a subject index and, at 32s., the book is of exceptional value.

25.115 water supply and sanitation
PIPE FITTINGS

Cast Brass Thimbles (Spigot and Socket) and Tailpieces. BS 1182: 1955. (British Standards Institution. 3s.)

Revision of 1944 BS covers comprehensive range of soil or waste pipe tailpieces and thimbles in straight and bent designs, together with thimbles with vent arms, all for use with standard sanitary fittings.

A useful piece of reference material for any office that wishes to detail and specify correctly these uninteresting but essential parts of a job.

Readers requiring up-to-date information on building products and services may complete and post this form to the Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1

ENQUIRY FORM

I am interested in the following advertisements appearing in this issue of "The Architects' Journal." (BLOCK LETTERS, and list in alphabetical order of manufacturers names please.)

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Please ask manufacturers to send further particulars to :—

NAME .....

PROFESSION or TRADE

.....

ADDRESS .....

.....

30.6.55

Buildings Illustrated

House in The Lane, West Mersea, Essex. (Pages 891-898). Architect, Richard Finch, A.R.I.B.A.; quantity surveyor, Robert Coatinan, A.R.I.C.S.; General contractors, Nolan & Perry; Sub-Contractors: dampcourses, Ruberoid Co. Ltd.; asphalt, R.I.W. Protective Products Co. Ltd.; bricks (Essex stocks), Finnis Ruault & Nicholls Ltd.; slate hearth, Bow Slate & Enamel Co. Ltd.; roofing felt, Permanite Ltd. (including alloy flashing); flooring and stairtreads, Groom and Daniels & Co. Ltd.; central heating, Corton and Bergin; boilers, Crane Ltd.; electrical wiring, Eastern Electricity Board; electric light fixtures, Troughton & Young Ltd., Falk Stadelmann & Co. Ltd.; door furniture, Roberts (Wenag); metal casements, Crittall Manufacturing Co. Ltd.; sanitary fittings, Adamsez Ltd., W. N. Froy & Sons Ltd.; metal work, C. H. Brooks; special joinery fittings, W. A. Hills & Sons; paint, International Paints Ltd.

Announcements

PROFESSIONAL

Major K. Martin Baxter, T.D., DIP.T.P., A.R.I.B.A., A.M.T.P.I., A.R.I.A.S., formerly Deputy Chief Architect and Planning Officer, Peterlee Development Corporation, has been appointed to the newly created post for Borough Architect of Bolton, and will take up his duties on August 2, 1955. His address from that date will be Borough Architect, Town Hall, Bolton, telephone number, Bolton 4200.

Messrs. Peter Dunham, Widdup and Harrison, F.A./A.R.I.B.A., of 42-44, Hastings Street, Luton, have opened an office at 29, Bedford Square, W.C.1, telephone number, MUSeum 6575.

The telephone number of Messrs. Hammett & Norton, A./A.R.I.B.A., at 29, Sackville Street, Piccadilly, W.1, has been changed to REGent 1058, 59 and 50.

Mr. L. G. Creed, A.R.I.B.A., A.M.T.P.I., has moved to 12, Bolton Street, W.1, and his temporary telephone number is GROsvenor 3752.

Messrs. Woodroffe, Buchanan & Coulter (Mr. N. F. Woodroffe, F.R.I.B.A., F.R.I.C.S., Mr. J. W. Buchanan, F.R.I.B.A., A.M.T.P.I., and Mr. H. G. Coulter, F.R.I.B.A.), have taken into partnership Mr. W. W. Chapman, A.R.I.B.A., and will continue to practise under the style of Woodroffe, Buchanan & Coulter from 5, Bedford Row, W.C.1, and also at 41, High Street, Tring, Herts.

Mr. F. Anderson, A.M.I.C.E., who has been in charge of the Scottish office of the Cement and Concrete Association at 2 Rutland Square, Edinburgh, since 1935, retired on June 1, after 28 years' service. He will be succeeded by his deputy since 1947, Mr. Peter Russell, B.SC., A.M.I.C.E., M.INST.H.E.

TRADE

Captain Sir Aubrey St. Clair-Ford, Bart., has taken up a senior position with the Civil Engineering Division of Messrs. Tarmac Ltd., with his headquarters at 50, Park Street, W.1.

On June 18 Messrs. Chubb & Son's Lock & Safe Co. Ltd., moved from Oxford Street to their new premises at 175-176, Tottenham Court Road. The telephone numbers and telegraphic address remain the same as at present.

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

25s. per inch; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

MINISTRY OF WORKS require **ARCHITECTURAL ASSISTANTS** for drawing offices in London, Edinburgh and various provincial offices, with at least 3 years' training, some experience in an architect's office, and of Inter. R.I.B.A. standard. London salary, £442 to £695 per annum; rates elsewhere slightly less. Starting pay according to age and experience; prospects of promotion and permanency. State age and full details of training and experience to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, 20 (F), Abell House, John Islip Street, London, S.W.1. 1020

OFFICE OF THE RECEIVER FOR THE METROPOLITAN POLICE DISTRICT.

Applications are invited for unestablished appointments as ARCHITECTURAL ASSISTANTS (New Works and Maintenance Branches) and also as SANITARY ENGINEERING ASSISTANTS in the Chief Architect and Surveyor's Department.

Rates of pay, £442 10s. (age 21) by annual increases to £695 (men) and £442 10s. by annual increases to £615 (women). Overtime of approximately £24 per annum is also payable while a 45½-hour week is worked.

Conditional hours, 44 per week. *Annual leave*, 24 days.

Application forms from the Chief Clerk, Architect and Surveyor's Department, New Scotland Yard, S.W.1, stating for which drawing office application is made. 9795

SURREY COUNTY COUNCIL.

Applications invited for the following vacancies:—

(1) ASSISTANT ARCHITECT, Grade V, £750×£30—£900 p.a., plus London allowance. Should be Associate Member R.I.B.A.

(2) ARCHITECTURAL ASSISTANT, Grade I, £600×£20—£580 p.a., plus L.A.

(3) ASSISTANT QUANTITY SURVEYOR, Grade IV, £675×£30—£825 p.a., plus L.A. Should be Associate Member R.I.C.S.

Full details and present salary, accompanied by copies of three recent testimonials, to County Architect, County Hall, Kingston, as soon as possible. 1375

BIRMINGHAM REGIONAL HOSPITAL BOARD.

ARCHITECTURAL STAFF APPOINTMENTS. (Donald A. Goldfinch, E.R.D., F.R.I.B.A., Dip.T.P.—Architect to the Board.)

(*a*) ARCHITECTURAL ASSISTANTS (2) required for large new hospital project. £480 × £20 (7) × £25 (2)—£670; point of entry according to experience, maximum £560. Inter.-R.I.B.A. essential.

(*b*) ASSISTANT ENGINEERS (2)—£640 × £25 (4) × £30 (4) × £35 (2)—£930, according to age and experience. A.M.I.H.V.E. desirable.

(*c*) ASSISTANT QUANTITY SURVEYORS (2)—£640 × £25 (4) × £30 (4) × £35 (2)—£930. Final R.I.C.S. or recognised qualifications of I.Q.S. or I.A.A.S. and experience in taking off and preparing bills of quantities and settling final accounts essential.

(*d*) DRAUGHTSMAN—£390 (aged 21 and over) × £20 (2) ×£25 (6)—£580. Suitable training, including three years' technical experience, in architectural or engineering trade essential. Duties include drawing work on instructions of architectural and engineering staff.

(*e*) JUNIOR—Male £170 (aged 16), maximum £400 (aged 25); Female £165 (aged 16), maximum £330 (aged 25) (salaries under revision—equal pay to be implemented). Required for general duties but expected to study for training as quantity surveyor. Office recognised by R.I.C.S.

All appointments superannuable—Apply, naming three referees, to Secretary, 10, Augustus Road, Birmingham 15, by 11th July, 1955. 1506

CORPORATION OF GLASGOW.
ARCHITECTURAL AND PLANNING DEPARTMENT.
ASSISTANT ARCHITECTS.
PLANNING ASSISTANTS.
ASSISTANT QUANTITY SURVEYORS.

Applications are invited from suitably qualified persons. Salary on a scale £515—£915, with placing according to age, qualifications and experience. The posts are superannuable, subject to medical examination. Form of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
City Architect and Planning Officer.
1529

BOROUGH OF LEYTON
(Non-County Borough in the County of Essex; population 105,183; R.V. £782,902.)

Applications are invited for the appointment of TWO GENERAL ARCHITECTURAL ASSISTANTS Established Posts Nos. P21 and P22, Grade A.P.T. II (£560—£640 per annum) plus London Weighting Allowance, according to age, which at 26 years is at a maximum of £30.

Candidates should have passed the Intermediate Examination of the R.I.B.A. and must have had good experience in the design and construction of houses, flats and municipal buildings.

Alternate Saturday mornings free of duty and canteen facilities available.

Details of appointments and form of application may be obtained from Mr. H. D. Peake, M.Sc.(Eng.), Borough Engineer and Surveyor, Town Hall, Leyton, E.10, to whom they should be returned not later than Monday, 11th July, 1955.

D. J. OSBORNE,
Town Clerk.

Town Hall,
Leyton, E.10
13th June, 1955. 1505

INVERNESS COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for appointments as undernoted:—

(1) JUNIOR ARCHITECTURAL ASSISTANT.
(2) ARCHITECTURAL ASSISTANT.

Candidates for (1) above should have completed their period of 5 years' architectural apprenticeship and have had experience as a junior assistant. Salary scale A.P.T. Grade I, £515—£560 per annum.

Candidates for (2) above must be Associate Members of the Royal Institute of British Architects and preferably should have experience in Local Authority housing and educational work. Salary scale A.P.T. Grade V, £665—£715 per annum, with placing according to experience and qualifications. Housing accommodation may be made available, if required.

The posts are subject to the Local Government Superannuation (Scotland) Acts.

Applications, stating age, particulars of professional training, experience and qualifications, together with the names of three persons to whom reference may be made, should be lodged with the undersigned within 14 days from the publication of this advertisement.

R. WALLACE,
County Clerk.

County Buildings,
Ardross Street, Inverness. 1428

CITY OF PORTSMOUTH.
CITY DEVELOPMENT OFFICER'S DEPARTMENT.

Applications are invited for the appointment of DEPUTY CITY DEVELOPMENT OFFICER at scale salary £1,150—£1,228 15s. per annum. A car allowance is payable.

Applicants must be Associate Members of the Town Planning Institute, and should preferably hold a recognised qualification in Architecture, Engineering or Surveying.

The work of the Department includes the administration of the City Development Plan, the guidance of Urban development, Housing layout, Redevelopment of war damaged and substandard housing areas, the accommodation of Overspill, and the location of Industry.

Applications stating age, present position, qualifications and experience, together with names of three referees, must be delivered to the undersigned, marked "City Development Appointment," not later than 14th July, 1955.

Canvassing will disqualify.

V. BLANCHARD,
Town Clerk.

City Council Chambers,
Portsmouth. 1472

BOROUGH OF CHATHAM.
APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the appointment of Assistant Architect within New Grade £650 × £25—£775, commencing at £700 per annum.

The person appointed is required for the redevelopment of central areas and other works offering considerable scope and applications from persons with several years experience subsequent to their initial training only will be considered.

Applications, with copies of two testimonials or the names and addresses of two referees, should be delivered to the Borough Engineer and Surveyor, Town Hall, Chatham, by Friday, 22nd July, 1955.

The appointment will be subject to the National Scheme of Conditions of Service; to the provisions of the Local Government Superannuation Acts and the candidate satisfactorily passing a medical examination. The appointment will be terminable by one month's notice on either side.

Housing Accommodation will be available if required. 1495

COUNTY BOROUGH OF EAST HAM.
HOUSING DEPARTMENT.
ARCHITECTURAL ASSISTANT (A.P.T., II).

Applicants should have passed the Intermediate Examination of the R.I.B.A., and have had experience in the detailing of flats and houses. Salary £560×£20—£640 per annum, plus London weighting.

Further details and form of application (returnable by 20th July, 1955) from the Town Clerk, Town Hall, East Ham, E.6. 1601

COUNTY BOROUGH OF EAST HAM.
HOUSING DEPARTMENT.
SENIOR ARCHITECTURAL ASSISTANT (A.P.T. IV).

Applicants should be Associates R.I.B.A. and have had experience in Housing work of a local authority. Salary £675 × £30—£825 plus London Weighting.

Further details and form of application (returnable by 13th July, 1955) from the Town Clerk, Town Hall, East Ham, E.6. 1490

BOROUGH OF SOLIHULL.
CLERKS OF WORKS (BUILDING) A.P.T. Grade II (£560 × £20—£640).

Applications are invited for the above appointments in the Architects Section of the Borough Engineer and Surveyor's Department, where additional staff is needed for an expanding programme of work on housing and public buildings.

Applicants should have been apprenticed in the building trade and have had considerable experience as craftsmen and general foremen.

The appointments will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service and one month's notice on either side.

Applications giving full details as to age, present position and salary, qualifications and experience, together with the names and addresses of two referees, should be delivered to the Borough Engineer & Surveyor, 90, Station Road, Solihull, not later than Friday, July 1st, 1955.

In appropriate cases, housing accommodation will be made available as soon as possible.

W. MAURICE MELL,
Town Clerk.

Council House,
Solihull. 1504

I.A.A.S.
FORTHCOMING EXAMINATIONS.

The Incorporated Association of Architects and Surveyors will hold the following examinations during the week beginning 21st November, 1955:

QUANTITY SURVEYORS' SECTION:
Intermediate grade (Relegations only).
Final grade—Part I (Relegations only).
Final grade—Part II.
Direct Final grade (Relegations only).

BUILDING SURVEYORS' SECTION: (Including Municipal)
Intermediate grade (Relegations only).
Final grade—Part I (Relegations only).
Final grade—Part II.
Direct Final Grade (Relegations only).

The examinations will be held in London, and at selected provincial centres. Applications from candidates for permission to sit, made on the prescribed form, must be received not later than Monday, 29th August, 1955.

Full information on application to the General Secretary, I.A.A.S., 75, Eaton Place, London, S.W.1. 1544

BOROUGH OF SWINTON AND PENDLEBURY.
ARCHITECTURAL ASSISTANT.

Applications are invited for this position within the grades A.P.T., III-IV (£600—£725—£825 per annum), the commencing salary being determined having regard to qualifications and the gradings for Special Classes of Officers (N.J.C. Circular 113A). The work will be mainly in connection with housing development.

Form of application, obtainable from the Borough Engineer, Town Hall, Swinton, Lancs., must be returned so as to reach me not later than Monday, 18th July.

Canvassing will disqualify.

VINCENT COLLINGE,
Town Clerk.
1547

ARGYLL COUNTY COUNCIL.

Applications are invited for the post of ARCHITECTURAL ASSISTANT in the County Architect's Department, Dunoon. The salary scale will be A.P.T., Grade IV-VI (£615—£815 per annum), with placing according to qualifications and experience. The post is superannuable. Applicants must have had a general architectural training, be capable of surveying, levelling, preparing detailed drawings and specifications, and have had experience particularly in connection with Housing. Preference will be given to applicants who hold a recognised architectural qualification. THE SUCCESSFUL APPLICANT WILL BE GIVEN THE TENANCY OF A FOUR-APARTMENT COUNCIL HOUSE IF REQUIRED.

Applications, stating age, experience, and qualifications, together with copies of two recent testimonials, to be lodged with the County Architect, County Offices, Dunoon, within ten days of publication of this advertisement.

A. D. JACKSON,
County Clerk.
1562

COUNTY COUNCIL OF ESSEX.
COUNTY LAND AGENT AND VALUER'S DEPARTMENT.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT, A.P.T., I (£500, rising to £680 per annum), on the established staff.

Candidates should be capable draughtsmen, and have had some previous experience of architectural work in an appropriate professional office.

Application forms from the County Land Agent and Valuer, 69, Duke Street, Chelmsford, to whom they should be returned not later than 14th July, 1955.

Canvassing disqualifies. 1628

ARCHITECTURAL ASSISTANTS (unestablished) required by STEPNEY M.B.C. Salary up to £855 p.a., according to qualifications and experience. Apply Borough Engineer, 227, Commercial Road, E.1. 1540

CITY OF LEEDS EDUCATION COMMITTEE.
LEEDS COLLEGE OF ART.
Principal: E. E. PULLEE, A.R.C.A., F.S.A.E., F.R.S.A.
SCHOOL OF ARCHITECTURE AND TOWN PLANNING.
Head: F. CHIPPINDALE, F.R.I.B.A.

The following courses are available for the session 1955-56:

ARCHITECTURE—
Diploma course five years full-time R.I.B.A. Final Exemption.
Part-time day and evening R.I.B.A. Intermediate Exemption course.
Part-time day and evening R.I.B.A. Final course.

TOWN PLANNING—
Pre-Diploma course one year part-time preparing for the Intermediate Examination of the T.P.I.
Diploma course of one year full-time and one year part-time T.P.I. Final Exemption Diploma course, *or*
Three years' evening T.P.I. Final Exemption course (open to architects, surveyors, engineers, geographers and economists).

LANDSCAPE ARCHITECTURE—
Three years' evening course leading to the I.L.A. Final.

Further details of courses, enrolment, etc., available from the Clerk to the School, 43a, Woodhouse Lane, Leeds, 2. 1551

NATIONAL COAL BOARD—NORTH-EASTERN DIVISION.

Applications are invited for the following appointments to the staff of the Divisional Chief Architect at Denaby, near Doncaster:

(1) ARCHITECTURAL ASSISTANTS, Grade II. Scale: £440×£20 to £540 per annum.

Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects, and have had some subsequent practical experience, and should be able to prepare Sketch Plans and Working Drawings under supervision and have a sound knowledge of building construction. Those who have not yet passed the Intermediate Examination of the Royal Institute of British Architects will be considered if the circumstances are exceptional.

The above vacancies are covered by the Board's Superannuation Scheme.

(2) JUNIOR ARCHITECTURAL ASSISTANTS. Scale: £2 17s. 6d. per week at 16 years of age, rising to £8 per week at 25 years of age, according to age.

Applicants should have obtained their General Certificate of Education in sufficient subjects to enable them to proceed with the Intermediate Examination of the Royal Institute of British Architects, and should preferably be studying for such examination.

The work of the Department is varied and offers scope for those interested in contemporary architecture, consisting chiefly of Pithead Baths, Canteens, Medical Centres, Offices, Training Schools, Laboratories, Workshops and Stores, Community Centres, etc.

Application forms may be obtained from the Divisional Chief Architect, J. A. Dempster, F.R.I.B.A., Architect's Department, National Coal Board, P.O. Box No. 4, Denaby, near Doncaster, and when completed should be returned not later than the 11*th July*, 1955. 1550

MANCHESTER
COLLEGE OF TECHNOLOGY
(Faculty of Technology in the University of Manchester).
Appointment of
LECTURER IN STRUCTURAL ENGINEERING.

The Governing Body invites applications for a Lectureship in Structural Engineering in the College with the title and status of Lecturer in the University of Manchester.

Candidates should be graduates in Science or Technology and should possess a good knowledge of Theory of Structures. The person appointed will be required to undertake research work on Structures and to assist in lecturing and laboratory work in Structural Engineering.

Salary: £650 per annum, rising by annual increments of £50 to £1,350 per annum. Commencing salary according to qualifications. Superannuation under F.S.S.U. and family allowances.

Conditions of appointment and form of application may be obtained from The Registrar, College of Technology, Manchester, 1. The last day for the receipt of application is Monday, 18th July, 1955.

B. V. BOWDEN,
Principal of the College.
1549

LEEDS REGIONAL HOSPITAL BOARD.

ASSISTANT ARCHITECT—Scale £625—£890 (at present under review). Commencing salary dependent upon practical experience at full professional standard.

Applicants interested in the appointment can obtain further information regarding the scope of the work from P. B. Nash, A.R.I.B.A., Architect to the Board.

Applications, stating age, qualifications, experience (including details of present and former employment), together with the names of two referees, to the Secretary, Park Parade, Harrogate, by 9th July, 1955. 1650

THE LONDON HOSPITAL, Whitechapel, E.1, requires JUNIOR ARCHITECTURAL ASSISTANT. Salary: £440 to £650 p.a., according to experience, plus London weighting. Post superannuable. Applications, stating age, present salary and brief particulars of experience, to be sent to the House Governor. 1554

CITY OF LEICESTER.

Applications are invited for the appointment of MAINTENANCE ASSISTANTS in the City Surveyor's Department. The salary will be in accordance with Grade II (£560—£640), Grade III (£600—£725), or Grade IV (£675—£825), according to qualifications and experience, and the appointment is subject to the provision of the Local Government Superannuation Act, 1937.

Applicants should have a good knowledge of architectural practice, and be experienced in the maintenance of public buildings, preparation of specifications, schedules and plans. Previous Local Government experience would be an advantage.

The successful candidate will be required to pass a medical examination.

Applications, including age, qualifications and experience, together with copies of testimonials, should reach the undersigned not later than Saturday, 9th July, 1955.

The Council are unable to assist with housing accommodation.

JOHN L. BECKETT, M.Inst.C.E.,
City Surveyor.
Town Hall, Leicester. 1556

NEW OFFICES, ENNISKILLEN.

The FERMANAGH COUNTY COUNCIL invite British Architects to submit designs for new offices to be erected in Enniskillen, Northern Ireland, on a site adjoining the Courthouse.

Assessor: R. S. Wilshere, M.C., F.R.I.B.A., F.R.I.C.S.

Last day for submitting designs: 4 p.m., 20th December, 1955.

Last day for questions: 4 p.m., 5th September, 1955.

Conditions may be obtained on application to the undersigned on payment of £2 2s. (two guineas) deposit.

SECRETARY,
Fermanagh County Council.
Enniskillen, Co. Fermanagh.
21st June, 1955. 1630

NORTHERN IRELAND HOUSING TRUST.

The Trust invites applications for the following posts:

ARCHITECTS:

(*a*) ASSISTANT ARCHITECT, Grade I, on a salary scale of £825×£25—£900. Candidates must be Associate Members of the Royal Institute of British Architects and should have experience of housing projects.

(*b*) ASSISTANT ARCHITECT, Grade III, on a salary scale of £645×£25 (3)×£30—£750. Candidates must have one of the following qualifications—Assoc. Membership of R.I.B.A., Dip.Arch. or B.Arch., and should have experience of housing projects.

ENGINEERS:

(*c*) ASSISTANT ENGINEER, Grade II, on a salary scale of £750×£25—£825. Candidates must be Corporate Members of the Institution of Civil Engineers or of the Institution of Municipal Engineers.

Preference will be given to ex-Service candidates.

The persons appointed will be required to participate in a contributory superannuation scheme, which allows for the reciprocal transfer of benefits in Local Government Schemes in suitable cases.

Assistance in obtaining housing accommodation may be given in suitable circumstances to the successful candidates.

Please apply, not later than 7th July, 1955, giving full details of age, education, qualifications and experience, including present post and salary, to the General Manager, Northern Ireland Housing Trust, 12, Hope Street, Belfast.

For post (*a*) mark envelope 33/51.
For post (*b*) mark envelope 33/52.
For post (*c*) mark envelope 34/28. 1614

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

Applications are invited for the appointment of a SENIOR ASSISTANT QUANTITY SURVEYOR in the A.P.T., Division, Grade IV (£675—£825).

Candidates should be thoroughly experienced in the preparation of Bills of Quantities, Specifications and Estimates for Housing, Flats and Building Work of a general character, and the settlement of Final Accounts.

Preference will be given to professional Associates of the R.I.C.S.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, 1937-1953, and to one month's notice on either side. The successful candidate will be required to pass a medical examination.

Applications, stating age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle upon Tyne, 1.

JOHN ATKINSON,
Town Clerk.
Town Hall, Newcastle upon Tyne, 1.
20th June, 1955. 1596

CITY OF PETERBOROUGH.
CITY ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR ARCHITECTURAL ASSISTANT on the staff of the City Engineer and Surveyor, at a salary within Grade A.P.T., IV (£675 per annum, rising by annual increments to £825).

Applicants must be qualified Architects, experienced in school building, and capable of carrying out sketch designs, working and detail drawings and site control, with the minimum of supervision.

In a suitable case, the Council will, if desired, provide housing accommodation.

Forms of application may be obtained from the City Engineer, Town Hall, Peterborough. Closing date for applications, 14th July, 1955.

C. PETER CLARKE,
Town Clerk.
Town Hall, Peterborough.
June, 1955. 1629

PADDINGTON BOROUGH COUNCIL require ASSISTANT ARCHITECT (£705—£855 p.a.), preferably A.R.I.B.A., with experience in contemporary design, the construction and supervision of general Municipal works, particularly multi-storey flats, or should have had similar experience with architects in private practice.

Commencing salary dependent upon qualifications and experience of successful candidate. N.J.C. Conditions. One month's notice.

Applications (quoting A.219) should state age, qualifications, experience, past and present appointment (with salary), and names and addresses of two referees, and should reach the undersigned by 9th July, 1955.

W. H. BENTLEY,
Town Clerk.
Town Hall, Paddington Green, W.2. 1623

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Vacancies for ASSISTANTS, to deal with applications under the Town and Country Planning Act, 1947. Salary up to £739 10s., according to experience.

Particulars and application form, returnable by 18th July, from Architect (AR/EK/TP/4), The County Hall, S.E.1. (966) 1615

BOROUGH OF EDMONTON.
APPOINTMENTS—BOROUGH ARCHITECT'S DEPT.

(*a*) JUNIOR ARCHITECTURAL ASSISTANT (Established), A.P.T., I (£500×£20—£580). Candidates must be studying for professional qualification, and preferably should have passed Intermediate R.I.B.A.

(*b*) QUANTITY SURVEYING ASSISTANT (Established), A.P.T., II, £560×£20—£640. Candidates should have passed the Intermediate R.I.C.S.

London weighting £10—£30, according to age, is payable in addition to the salaries set out above.

Applications on forms from the Town Clerk, Town Hall, Edmonton, must be delivered by 8th July. 1622

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE.
OFFICE OF THE COUNTY ARCHITECT.

Applications are invited for the appointment of ASSISTANT ARCHITECT, Grade A.P.T., VI. Salary range £825—£1,000 p.a.

Candidates must be Registered Architects and Associates of the Royal Institute of British Architects. High standard of contemporary design essential, experienced in construction of school buildings and contract administration.

The appointment is subject to the provisions of the Local Government Superannuation Acts and to the Conditions of Service at present in operation by the County Council. The successful candidate will be required to pass a medical examination.

Applications, on forms obtainable at this office, should be delivered not later than the first post on Monday, the 11th July, 1955.

HUBERT BENNETT, F.R.I.B.A.,
County Architect.
Bishopgarth, Westfield Road, Wakefield. 1621

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, invites applications for the post of ASSISTANT ARCHITECT. He will be required to assist the Head of the Building Section of the General Services Group and to deputise for him as may be necessary, in connection with the extension, conversion and maintenance of the buildings of the Establishment and its housing estates. The work involves liaison with Scientific staff and covers a wide field, many aspects of which are novel.

Applicants should be Associates of the R.I.B.A. or R.I.C.S. (Building Section). Lesser qualifications may however be accepted in the case of a person of exceptionally wide professional experience. Wide experience in the preparation of schemes, specifications and estimates for the execution of work by direct labour and by contract is desirable.

Appointment will be made within the salary scale £695 (at age 25)—£1,065 p.a., according to age, experience, and qualifications, and the selected officer will be required to join the Authority's contributory superannuation scheme.

Requests for Application Form should be sent on a post card to the Establishment Officer, United Kingdom Atomic Energy Authority, A.E.R.E., Harwell, Didcot, Berks., quoting 2/103/343. 1641

BOROUGH OF FINCHLEY.

CLERK OF WORKS, temporary, required in Housing and Town Planning Department. Salary within Grade A.P.T., II (£560×£20—£640), plus London weighting according to qualifications and experience. N.J.C. service conditions. Superannuation. No housing accommodation.

Practical knowledge of all branches of building trade, use of level, ability to set out and read plans essential.

Applications, giving age, education, experience, qualifications and names of two referees, to: I. Fooks, F.A.I., Housing and Town Planning Department, The Avenue, N.3, not later than the 6th July, 1955.

R. M. FRANKLIN,
Town Clerk.

Municipal Offices, N.3. 1599

BOROUGH OF EALING.

The following posts in the Borough Engineer's Department are vacant:—

(*a*) TWO TOWN PLANNING ASSISTANTS, A.P.T., III (£600—£725 per annum, plus London weighting).

(*b*) CLERK OF WORKS (Temporary) for Lammas Valley Water Sewer Scheme (£675 per annum inclusive).

(*c*) TWO GENERAL ASSISTANTS (Male) for Architects' and Engineers' Offices. Commencing salary between £180 per annum at age 15 and £380, according to age and qualifications, rising to a possible maximum of £505.

(*d*) JUNIOR MALE CLERK, Housing Section. Salary as (*c*) above.

Full particulars and application forms obtainable from the Borough Surveyor, Town Hall, Ealing, W.5.

Closing date: 14th July, 1955.

E. J. COPE-BROWN,
Town Clerk.

1633

COUNTY OF LEICESTER.

(*a*) SENIOR ASSISTANT ARCHITECT (£750—£900).

(*b*) SENIOR ASSISTANT ARCHITECT (£675—£825).

(*c*) ASSISTANT ARCHITECTS (£650—£775).

Candidates for (*a*) and (*b*) must be Registered Architects experienced in design and construction of modern buildings and capable of carrying through projects from inception to completion; for (*c*) be Registered Architects or have passed parts 1 and 2 or R.I.B.A. Final and be capable of preparing working drawings from sketches and taking charge of smaller contracts. Apply by 16th June, 1955, on form obtainable from County Architect (a), 123, London Road, Leicester. 1649

CITY OF BIRMINGHAM.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments in the Housing Design Section, which is responsible for a large housing programme for suburban and central redevelopment areas, including multi-storey flats of both traditional and new-traditional construction, garages, and large shopping centres:—

SENIOR ASSISTANT ARCHITECT (Group Leader), Grade A.P.T., VI (£825—£1,000 per annum).

ASSISTANT ARCHITECT, Grade A.P.T., V (£750—£900 per annum).

Applicants must be Associate Members of the R.I.B.A., or hold equivalent qualifications, and the commencing salary will be according to experience.

The posts are permanent, superannuable, subject to a medical examination, and to one month's notice on either side.

Applications, endorsed with the heading of the post, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned not later than 23rd July, 1955.

Canvassing disqualifies.

A. G. SHEPPARD FIDLER,
City Architect.

Civic Centre, Birmingham, 1. 1597

GOVERNMENT OF UGANDA.
ARCHITECT—EDUCATION DEPARTMENT.

Duties include the examination and approval of building plans submitted by various voluntary agencies (*e.g.*, Mission Schools), and examination of contracts entered into by them; to inspect the work in progress; to draw plans for at least one Government Senior Secondary School.

Appointment is on contract for one tour of 30-36 months in the first instance, with possibility of renewal of contract or transfer to pensionable establishment, in the salary scale £852 to £1,620 per annum. Starting point according to experience. A 10 per cent. cost-of-living allowance is also payable.

Free passages are provided for the officer and his family; either by air up to total cost of four tourist class fares or by sea up to total cost of three 1st class fares. Furnished quarters, if available, are provided at reasonable rents. Leave is granted at rate of 6 days for each month of resident service.

Candidates between the ages of 25 and 35 should be A.R.I.B.A., and have had experience of school building work of an Education Authority in England.

Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience, and quoting reference No. BCD.114/9/025. Closing date for receipt of initial enquiries, 2nd August, 1955. 1595

BRITISH MEMORIAL FELLOWSHIP IN ARCHITECTURE.

Applications are invited for a FELLOWSHIP IN ARCHITECTURE, carrying a grant of £1,000 (Australian), which is intended to cover the cost of transit by sea to and from Melbourne, Victoria, Australia, and all expenses for a period of approximately ten months' study and research in the State of Victoria.

The Fellowship is available to a young Architect who has had experience in carrying out work, or as Assistant in projects of some calibre.

Applicants must not be over 36 years of age.

All particulars available from the Hon. Sir John Lienhop, Agent-General for Victoria, and Chairman of the British Memorial Fund Committee, Victoria House, Strand, London, W.C.2.

The closing date for the receipt of applications is the 5th August, 1955. 1620

GOVERNMENT OF HONG KONG.
ARCHITECT—PUBLIC WORKS DEPARTMENT.

Duties include the preparation of designs, sketch plans and working drawings for Government buildings, and the supervision of erection and carrying out of contracts in connection with Government buildings.

Appointment is on contract for 3 years in the first instance, in the salary range £1,256 to £2,178 per annum. A temporary cost-of-living allowance is also payable. Gratuity of £150 to £250 per annum payable on satisfactory completion of contract.

Free passages are provided for the officer, his wife and children up to 3 in number. Leave is granted at the rate of 1 day for each seven days' resident service. Government quarters, if available, are provided at low rents.

Candidates under 35 (but older candidates would be considered) must be A.R.I.B.A., preferably possessing a University Degree in Architecture, and have had at least 1 year's experience after qualifying.

Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience, and quoting reference number BCD.112/51/06. 1561

COUNTY BOROUGH OF STOCKPORT.

TWO ARCHITECTURAL ASSISTANTS required for work on new Educational Buildings. Salary £675×£30—£875 per annum. Application forms and conditions of appointment from Director of Education, Town Hall, Stockport. 1579

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY PLANNING AND DEVELOPMENT DEPARTMENT.

Applications are invited for the appointment of a PLANNING ASSISTANT, on A.P.T., Grades I-II (£500—£640 per annum), in the Central Area Planning Office at Stafford.

Applicants for the appointment should have had training in an Architect's, Engineer's, Surveyor's or Planning office, and preference will be given to those who have passed the Intermediate Examination of the Town Planning Institute or its equivalent.

Applicants should give details of age, education and training qualifications, present and previous appointments and experience, and the names of two persons to whom reference can be made. Applications, in which relationship to any member or senior officer of the County Council, must be disclosed, should be sent to D. W. Riley, County Planning and Development Officer, 41a, Eastgate Street, Stafford, not later than 12th July, 1955.

T. H. EVANS,
Clerk of the County Council.

1558

MIDDLESEX COUNTY COUNCIL—COUNTY ARCHITECT'S DEPT.

(*a*) ASSISTANT ARCHITECTS, Grade V (£750—£900 p.a., plus London weighting).

(*b*) ASSISTANT ARCHITECTS, Grade IV (£675—£825 p.a., plus London weighting).

(*c*) ARCHITECTURAL ASSISTANTS, Grade III (£600—£725 p.a., plus London weighting).

(*d*) ARCHITECTURAL ASSISTANTS, Grade I (£500—£580 p.a., plus London weighting).

(*e*) JUNIOR ARCHITECTURAL ASSISTANTS (Male). Salary (Gen. Div.), *e.g.*, £200 at 16; £285 at 20, etc.

All established and pensionable subject to medical assessment and prescribed conditions. Posts (*a*)—(*d*) appointments to grade minima. Application forms (stamped addressed foolscap envelope) from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 11th July (quote Q.721 AJ). Canvassing disqualifies. 1583

HORNCHURCH URBAN DISTRICT COUNCIL.

Applications are invited for the following appointments:—

ARCHITECTURAL ASSISTANT, Grade A.P.T., IV (£675—£825).

ARCHITECTURAL ASSISTANT, Grade A.P.T., II (£560—£640).

TEMPORARY CLERK OF WORKS (BUILDING) (£610 p.a.).

Full details of appointments and forms of application can be obtained upon application to me, and completed applications in envelopes suitably endorsed as to the post applied for, should reach me not later than Saturday, 9th July, 1955.

P. L. COX,
Clerk of the Council.

Council Offices, Hornchurch.
22nd June, 1955. 1607

KUMASI COLLEGE OF TECHNOLOGY.
(*Principal*: W. E. DUNCANSON, Ph.D., D.Sc., F.Inst.P., A.M.I.E.E.)

Applications are invited for the following posts:—

(1) SENIOR LECTURER IN BUILDING, to teach senior students in the building industry. Opportunities to carry out research on building materials and methods. Qualifications: degree, L.I.O.B. or H.N.C. in Building, with industrial and teaching experience.

(2) LECTURER (Grade A) in CIVIL ENGINEERING, to teach one or more of: Hydraulics, Structures, Soil Mechanics, Geology.

(3) LECTURER (Grade A) in MECHANICAL ENGINEERING.

(4) LECTURER (Grade A) in SURVEYING, to teach land surveying and allied subjects in surveying, civil engineering and other courses.

Qualifications for (2)—(4): degree and/or Corporate Membership of I.C.E., I.Mech.E., or R.I.C.S. Industrial or other practical experience and some teaching experience desirable.

Salary scales: Senior Lecturer, £1,400×£50—£1,850; Lecturers (Grade A), £880×£40—£1,560. Initial salary according to experience. Posts are pensionable, but temporary appointments carrying gratuities and 10 per cent. higher salaries or arrangements to continue F.S.S.U. might be made. Houses with basic furniture provided at moderate rental. Free 1st class passages to and from Gold Coast, once each way for each tour of service, for persons appointed, wives and up to three children under 13. Generous home leave, normally annual, on full salary.

Write for further information to Secretary, Advisory Committee on Colonial Colleges, 1, Gordon Square, London, W.C.1. Closing date for applications (6 copies): 20th July, 1955. 1648

NORTH RIDING COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment on the permanent staff of TWO ASSISTANT ARCHITECTS who must have passed the Final R.I.B.A. Examination or the equivalent School Examination (Special Scale £650—£775).

Appointment subject to the provisions of the Local Government Superannuation Act, 1953, to a satisfactory medical examination and one month's notice in writing on either side.

Forms of application are not being issued but applications should state age, qualifications and experience, together with particulars of present and previous appointments and the names and addresses of three persons to whom reference can be made, to be delivered to the undersigned not later than 15th July, 1955.

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

H. G. THORNLEY,
Clerk of the County Council.

County Hall,
Northallerton.
20th June, 1955. 1651

NORTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD.

ARCHITECT required in Board's Architect's Department for survey of hospital building maintenance work. Must be Registered Architect and have thorough knowledge of building construction.

Appointment is for six months in the first instance and suitable for a retired officer. Salary for full-time appointment £940 a year, or pro rata for part-time work if preferred. Further information on request (Museum 3380, Ext. 314).

Applications, giving details of experience, to C. E. Nicol, Secretary, 11a, Portland Place, London, W.1. 1652

URBAN DISTRICT COUNCIL OF BASILDON.
Population 50,000, rapidly increasing.
ENGINEER & SURVEYOR'S DEPARTMENT.

ARCHITECTURAL ASSISTANT, Superannuated. Salary £560—£640 commencing according to experience. R.I.B.A. Intermediate. Housing provided. Application form from and returnable to Mr. S. A. Wadsworth, A.M.I.C.E., A.M.I.Mun.E., Council Offices, Billericay. Closing date for applications 16th July, 1955. 1654

WOKING URBAN DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT—A.P.T., GRADE III.

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in Architectural Section of the Engineer and Surveyor's Department, at a salary in accordance with A.P.T., Grade III (£600—£725 p.a.).

Candidates should have had experience in the preparation of sketch schemes and working drawings for houses, flats, etc., and preference will be given to persons who have passed the Intermediate Examination of the R.I.B.A.

The appointment is subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Acts, and the successful candidate will be required to pass a medical examination.

Forms of application may be obtained from Mr. H. P. Tame, A.M.I.C.E., M.T.P.I., Registered Architect, Engineer and Surveyor, Council Offices, Woking, and are to be returned to the undersigned, endorsed "Architectural Assistant," not later than Monday, 11th July, 1955.

M. SHAWCROSS,
Clerk of the Council.

Council Offices, Woking.
17th June, 1955. 1609

BOROUGH OF MACCLESFIELD.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of TEMPORARY ASSISTANT ARCHITECT, on Grade IV (£675 to £825).

Applicants should be A.R.I.B.A. or registered Architects.

Application form and details from the Borough Architect, E. Allan Heppenstall, A.R.I.B.A., A.M.T.P.I., 3, Jordangate, Macclesfield (returned by 12th July, 1955).

Housing accommodation will be made available if required.

23rd June, 1955. 1659

BOROUGH OF WREXHAM.

Appointment of:—

(*a*) TWO ARCHITECTURAL ASSISTANTS. Salary £650—£775.

(*b*) ENGINEERING ASSISTANT. Salary £650—£775.

Applications are invited for the above appointments, candidates to supply details of qualifications, experience, and the names of two referees.

HOUSING ACCOMMODATION.

Further particulars from the Borough Surveyor, Bodhyfryd, Chester Street, Wrexham. Closing date: 11th July, 1955.

PHILIP J. WALTERS.
Town Clerk.

Guildhall, Wrexham.
15th June, 1955. 1660

CRAWLEY DEVELOPMENT CORPORATION require a capable DRAUGHTSMAN, preferably experienced in an Architectural office. Salary scale £390—£520 p.a. Contributory superannuation. Application forms from the Chief Architect (Vacancy), Broadfield, Crawley, Sussex, returnable by 14th July.

C. A. C. TURNER,
Chief Executive.
1639

BOROUGH OF RUGBY.
ASSISTANT ARCHITECT.

Required in Borough Surveyor's Department. Salary A.P.T., IV (£675 × £30—£825), the commencing salary within the scale to be determined in accordance with the qualifications, ability and experience of the successful candidate.

Housing accommodation will be provided if required.

Application form from Borough Surveyor, Burford House, Rugby, to whom applications should be sent by 6th July, 1955.

T. L. DUFFY,
Town Clerk.
1602

ISLE OF ELY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR ARCHITECT on Grade A.P.T., IV (£675×£30 to £825 p.a.).

The post is permanent, subject to the National Scheme of Conditions of Service, Local Government Superannuation Act, and to a medical examination.

Application forms obtainable from the County Architect, County Hall, March, Cambs., to be returned by 18th July, 1955.

R. F. G. THURLOW,
Clerk of the County Council.
1580

JUNIOR ARCHITECTURAL ASSISTANT required. R.I.B.A. Intermediate or equivalent necessary. Salary A.P.T., I-II (£500 to £640, plus London weighting), according to experience.

Application with two referees to Town Clerk, Town Hall, High Holborn, W.C.1, by 16th July, 1955. 1591

BOROUGH OF LUTON.
BOROUGH ARCHITECT.

Applications are invited from experienced Members of the Royal Institute of British Architects for the new whole-time appointment of BOROUGH ARCHITECT, at a salary scale of £1,800, rising by annual increments of £51 10s. to £2,057 10s. per annum, commencing at a point within the scale commensurate with qualifications and experience.

Further particulars of the appointment and forms of application may be obtained from the undersigned, to whom applications should be sent not later than Saturday, 30th July, 1955.

A. D. HARVEY,
Town Clerk.

Town Hall, Luton. 1645

COUNTY BOROUGH OF SOUTHAMPTON requires under N.J.C. conditions of service:

(*a*) ASSISTANT ARCHITECT, Special Scale £650—£775.

(*b*) ARCHITECTURAL ASSISTANT, Grade A.P.T. II £560—£640.

(*c*) ASSISTANT QUANTITY SURVEYOR, Special Scale £650—£775. Applicants must have passed the final examination of the Royal Institution of Chartered Surveyors (Sub Division IIIQ) and have had experience in housing work.

(*d*) QUANTITY SURVEYOR'S ASSISTANT, Miscellaneous IV £465—£545, experienced in site measuring for builder's work.

Applicants must possess the appropriate qualifications and experience for Special Classes of Officers under N.J.C. conditions of service and have had experience in Municipal housing estate development and administration of contracts.

If housing accommodation is required please state requirements.

Apply with copies of two testimonials to the Borough Engineer, Civic Centre, Southampton, by Monday, 18th July, 1955. 1655

CITY OF BIRMINGHAM EDUCATION COMMITTEE.
COLLEGE OF ART AND CRAFTS.
BIRMINGHAM SCHOOL OF ARCHITECTURE.

Principal: Meredith W. Hawes, A.R.C.A., N.R.D.
Director of the School of Architecture:
A. Douglas Jones, Dip.Arch(Liverpool), F.R.I.B.A.

SENIOR LECTURERS.

Applications are invited for the appointment of two Senior Lecturers in Architecture, one of whom will be full time and the other either full time or ⅔ full time. Able architects with a broad outlook and with enthusiasm for teaching are required for these posts.

Salary will be in accordance with the Burnham (Further Education) Scale 1954 for Senior Lecturers (£1,065×£25—£1,215 per annum for a full-time appointment, or ⅔ of this amount for the part-time appointment). The successful applicant will be required to take up duty as soon as possible.

RESEARCH IN MODULAR DESIGN AND TEACHING.

Applications are invited for the appointment of a full-time assistant (Grade A). The successful candidate will be expected to undertake research work in the field of Modular Design together with some teaching. The appointment is for a period of one year.

Salary will be in accordance with the Burnham (Further Education) Scale 1954 (£450×£18—£725 (man); £405×£15—£580 plus equal pay increment (woman)).

Forms of application may be obtained from the Principal, College of Art and Crafts, Margaret Street, Birmingham, 3, on receipt of a stamped addressed foolscap envelope and must be returned not later than ten days after the appearance of this advertisement.

E. L. RUSSELL,
Chief Education Officer.
1656

SHIPLEY URBAN DISTRICT COUNCIL.

ARCHITECTURAL ASSISTANTS required, within A.P.T., Grade IV (£675—£825), commencing according to experience and qualifications. Positions superannuable and subject to the provisions of the National Scheme of Conditions of Service.

Applications, giving age, details of training, qualifications and experience, together with the names and addresses of two referees, to the Engineer and Surveyor, Town Hall, Shipley, Yorks., by 10 a.m. on Monday, 11th July, 1955.

HOUSING ACCOMMODATION will be provided if required.

ERNEST PEARS,
Clerk and Solicitor.

Town Hall, Shipley.
21st June, 1955. 1610

EASTERN ELECTRICITY BOARD.
CHILTERNS SUB-AREA.
ARCHITECTURAL ASSISTANT.

Applications are invited from candidates who have had a good technical training, and preferably several years' experience in an Architect's office. Candidates should be capable of preparing detailed drawings and specifications of Building and Civil Engineering Work, including Showrooms, Stores, Garages, Workshops, Offices, Sub-Stations, etc.

Salary: N.J.B., Schedule D, Grade 5 (£640—£740), applicable to a Senior Draughtsman.

The successful candidate will be required to contribute to a superannuation scheme, and may be required to undergo a medical examination.

Apply, by letter, within 14 days, to the Manager, Chilterns Sub-Area, Eastern Electricity Board, Prebend Street, Bedford.

20th June, 1955. 1608

ASHBY-DE-LA-ZOUCH RURAL DISTRICT COUNCIL.
APPOINTMENT OF CHIEF ARCHITECTURAL ASSISTANT.

Applications are invited for the post of CHIEF ARCHITECTURAL ASSISTANT, to work under the direction of the Council's Surveyor.

The person appointed will be required to prepare Estate layout plans, specifications, House designs, and working drawings for the Council's various Housing Schemes, and to supervise the completion of Contracts in connection therewith. Preference will be given to holders of Examination qualifications of the Royal Institute of British Architects.

The salary will be in accordance with A.P. & T. Division, Grade IV (£675 to £825), commencing within this Grade according to qualifications and experience. The successful applicant will be required to provide a car, for which a travelling allowance of £150 per annum will be paid.

The appointment will be for the duration of the Council's housing programme, and will be subject to (*a*) the National Joint Council Scheme of Conditions of Service, (*b*) the Local Government Superannuation Acts, (*c*) passing a medical examination, and (*d*) termination by one month's notice on either side. The Council will assist in the provision of housing accommodation, if required.

Applications, stating age, qualifications and experience, and giving names of three referees, should be delivered to the undersigned not later than Saturday, 16th July, 1955.

Canvassing, either directly or indirectly, will be a disqualification.

J. E. R. WILKINSON,
Clerk of the Council.

Council Offices, South Street,
Ashby-de-la-Zouch. 1616

THE CORPORATION OF GLASGOW.
ARCHITECTURAL AND PLANNING DEPARTMENT.
SENIOR PLANNING OFFICER.

Applications are invited for the post of Senior Planning Officer in the Planning Division of the above Department at a salary scale of £1,025×£30—£1,175.

The successful applicant will be responsible for the work of the Redevelopment and Central Area Section of the Division, and should have had experience in Comprehensive Development Area procedure. Candidates should be Corporate Members of an appropriate professional body and must be Members of the Town Planning Institute.

The appointment will be subject to the provisions of the Corporation's Superannuation Scheme and to the passing of a medical examination, and will be terminable by one month's notice in writing by either party.

Applications, stating age, full particulars of experience and qualifications, accompanied by copies of not more than two recent testimonials, together with the names and addresses of two referees, should be sent to the undersigned within 14 days of the publication of this advertisement.

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

Architectural and Planning Department,
20, Trongate, Glasgow, C.1. 1598

HEMEL HEMPSTEAD DEVELOPMENT CORPORATION.

Applications invited for appointment of PLANNING ASSISTANT. Salary scale £520×£33—£685 p.a. Starting salary in accordance with age and experience.

Applicants should have passed Intermediate Examination of the Town Planning Institute.

Experience in Planning Office essential.

Conditions of service broadly similar to Local Government, with opportunity of entering Local Government Superannuation Scheme.

Housing accommodation may be available.

Applications (endorsed "Vacancy 26"), giving age, qualifications, experience, and names of two referees, to reach the General Manager, Westbrook Hay, Hemel Hempstead, by 8th July. 1640

MIDDLESEX COUNTY COUNCIL—COUNTY ARCHITECT'S DEPT.

ASSISTANT ARCHITECTS required for work in connection with new Schools, Technical Colleges, etc. Commencing salary £650 p.a. × £25 (5)—£775 p.a., plus London weighting (21-25 years £20 p.a., 26 years and over £30 p.a.). Prescribed conditions. Must have Parts I and II of R.I.B.A. Final Examination. Application forms (stamped addressed foolscap envelope) from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 18th July (quote Q.740 A.J.). Canvassing disqualifies. 1603

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

ARCHITECTURAL ASSISTANT: Intermediate approaching final. Commercial and industrial work; large-scale contracts. Watson, Johnson, Stokes, Victoria Square, Birmingham. 4896

OPENING for QUALIFIED ARCHITECTS as Assistant Designers with an expanding firm of new traditional builders. Must have good general practical knowledge and a keen interest in new building methods. A prospect exists for working overseas. Starting salaries range between £650 and £750 according to experience, with an increase after six months' satisfactory service. Messrs. Reema Construction, Ltd., Milford Manor, Salisbury, Wilts. 9235

ARCHITECTURAL STAFF, all grades, wanted, interesting and varied work of contemporary character; light and airy offices. Apply J. Seymour Harris & Partners, 4, Greenfield Crescent, Edgbaston, Birmingham, 15. 8786

ARCHITECT'S ASSISTANTS required (1 Senior and 2 Juniors) for West End Office. Write, stating full particulars and salary required, to Box 8725.

ARCHITECTURAL ASSISTANT required in small private office. Intermediate to Final standard. Write, stating experience and salary required, to: A. F. Bennett, 35, Queen's Gate Mews, London, S.W.7. 9266

RONALD WARD & PARTNERS require several capable ARCHITECTURAL ASSISTANTS with contemporary outlook and willing to use own initiative. Salary range £400 to £800. Interesting and varied work, home and abroad. Congenial working conditions. Apply 29, Chesham Place, S.W.1. Telephone Belgravia 3361. 7023

SENIOR ASSISTANT required in busy practice in West End. Age about 30 years, qualified with several years' experience and capable of running contracts. Box 9968.

YOUNG QUALIFIED ARCHITECT, with two years' office experience in preparation of working drawings and specifications, required by The Granada Group. Applications, stating age, qualifications, and salary required, to Chief Architect, The Granada Theatres Limited, 149, Regent Street, London, W.1. 1482

JUNIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required urgently in London Office with widely varied practice. Good salaries, 5-day week. Lewis Solomon, Son & Joseph, HOL 5108 or 7032. 8481

ARCHITECTURAL ASSISTANT required by Major Oil Company undergoing expansion, for its Sheffield office. Applicants should be of Intermediate standard, and must be capable of carrying out work on the design and re-modelling of service stations. Social Club, Pension and Life Assurance scheme, generous sickness benefits. Write, giving full details of experience, age and salary required, to Box 9262, quoting Ref. A.A. 588.

REQUIRED for progressive London office, ARCHITECTURAL ASSISTANT. Intermediate stage or above, some office experience. Please write for interview. Box 1019.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, BIRMINGHAM.

APPLICATIONS are invited for the following appointments in a newly formed Branch Office to be opened in July. Interesting and varied commercial and industrial projects:—

(*a*) SENIOR ASSISTANT ARCHITECT, with experience in Store and Shop design.

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings and details from preliminary sketches.

Salaries offered up to £915 (*a*) and £745 (*b*), according to experience, with prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9851

REQUIRED by West End London Architects, YOUNG ASSISTANT with good practical experience of detailing. Keen interest more important than qualifications. Box 1233.

ARCHITECTURAL ASSISTANTS required urgently for London office. Intermediate stage or above, and with practical experience, particularly in traditional domestic and other work. Please write stating age, experience, and salary required to Box 9896.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, MANCHESTER.

APPLICATIONS are invited for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECTS, with experience of work on commercial and industrial projects.

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings from preliminary sketches.

Salaries offered up to £915 (*a*) and £745 (*b*), according to experience, with prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9852

CO-OPERATIVE WHOLESALE SOCIETY, LTD ARCHITECT'S DEPARTMENT, LONDON.

APPLICATIONS are invited from the following:—

(*a*) ASSISTANT ARCHITECTS of Inter. R.I.B.A. standard;

(*b*) WORKER-UP with experience of commercial/industrial buildings.

The salary range offered for the above appointments is up to £745. per annum according to age and experience, with prospects of up-grading.

Applications stating age, experience, qualifications and salary required to W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 99, Leman Street, London, E.1. 1210

GOLLINS, MELVIN, WARD & PARTNERS, 15, Manchester Square, W.1, require SENIOR and JUNIOR STAFF. Competent working drawings essential. Opportunity to work on contemporary buildings. Write or telephone WELbeck 9991. 1267

ARCHITECT'S ASSISTANT, Intermediate Standard, required in the Architect's Department of a London Brewery Company. Write with full particulars to Box 1344.

ARCHITECT'S ASSISTANTS required by Manchester firm of Architects. Some previous office experience desirable, and not less than Intermediate R.I.B.A. standard. Write, stating age, experience, qualifications, and salary required. Box 1385.

SALARY of £900—£1,000 offered by West End firm for a SENIOR ARCHITECTURAL ASSISTANT. Knowledge of school and hospital work an advantage. Write, giving full details of age, experience, etc., to Box 1365.

ARCHITECTURAL ASSISTANTS, Senior, Junior and Improvers required by Watford Architects to augment working groups; varied and interesting projects, good opportunities. Phone Watford 7296/7 or write Box 1396.

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have vacancies for SENIOR and JUNIOR ARCHITECTURAL Staff in their London, Welwyn Garden City and Plymouth offices. The work is varied and covers Industrial, Ecclesiastical, Offices, Schools, Housing (Cottages and Flats). Accommodation within a reasonable time is available at Welwyn Garden City. Write, stating age, salary, and experience, to 3, Park Square Mews, London, N.W.1. 1425

ASSISTANTS with initiative required for busy West End office. Apply Morrison, Rose & Partners, Chartered Architects, 8, Park Street, Mayfair, W.1. Telephone GROsvenor 7522. 1431

ARCHITECTURAL ASSISTANT, Final standard, required by Sheffield Architects for work on new city building. Full details and salary required to Box 1384.

SENIOR ASSISTANT to Architects' Department of East London Brewery. Experienced War Damage, Maintenance Repairs, and Alterations to Licensed Premises. Please state age, experience, and salary required, Box 1437.

ARCHITECTURAL ASSISTANTS required in the office of the Architect, British Railways, at King's Cross Station. Salary range—(1) £780—£815, (2) £660—£750. Applicants for (1) should preferably be qualified and have had considerable experience in the design and construction of buildings, and (2) qualified or have passed Inter. R.I.B.A., with practical experience. Five-day week, concessionary rail travel, permanency to suitable applicants and opportunities for progressing. Apply in writing, giving particulars as to age, experience, and qualifications, quoting reference (1) 1446 and (2) 1447, to Chief Civil Engineer, British Railways, King's Cross Station, London, N.1. 1441

ARCHITECTS in South Kensington require a SENIOR ASSISTANT, fully qualified and with some 3 to 4 years' experience. Salary £14 to £15 a week, according to suitability. Five-day week. Apply Box 1465 or 'phone Kensington 1242.

JUNIOR ARCHITECT, R.I.B.A. Intermediate standard, required at Guildford. Varied work, mainly factory. Five-day week. Salary by arrangement. Box 1467.

ARCHITECTURAL ASSISTANT required, with minimum qualifications of Intermediate R.I.B.A. Preference will be given to applicants having some experience in the design of industrial buildings and housing. Write, stating age and full particulars, to A. E. Cresswell, A.R.I.B.A., 40, Claremont Road, Cricklewood, London, N.W.2. 1468

SENIOR ASSISTANT required for general practice in London and the Home Counties. Five-day week. £950 p.a. Write particulars to Box 1469.

QUALIFIED ARCHITECT, interested in Church and School work, required. Salary dependent on qualifications and experience. Some practical building experience necessary. Ring Thomas F. Ford & Partners (VIC. 4853) for appointment. 1471

ASSISTANT required for East Lancs. office. Intermediate standard. State experience and salary to Box 1464.

ASSISTANT ARCHITECT required for the London Head Office of a major oil company. The work is in connection with large-scale development of service stations, involving the design of new and the re-modelling of existing stations. Should preferably be an Associate Member of the R.I.B.A., capable of supervising staff and controlling work through all stages of development. Must hold current driving licence. Pension and Life Assurance Scheme. Generous sickness benefits; luncheon voucher scheme; social club. Write, giving full details, stating age, experience and salary required, to Box 1296, quoting Ref. RO/AA 713.

ASSISTANT QUANTITY SURVEYOR. Applications are invited for the appointment of ASSISTANT QUANTITY SURVEYOR at the London Co-operative Society's Works Department, Manor Park, London, E.12. Candidates should have reached Intermediate Examination Standard of the Institute of Quantity Surveyors and have had experience in London Building practices and prices. Inclusive salary £624 per annum, rising to £682 10s. by three annual increments of £19 10s., subject to satisfactory progress. Applications, stating age, qualifications and experience, should be addressed to the Staff Office London Co-operative Society Ltd., 54, Maryland Street, Stratford E.15, endorsed "Assistant Quantity Surveyor". 1632

KATZ AND VAUGHAN require ASSISTANT. AMBassador 3740 and 1553. 1631

ARCHITECTURAL ASSISTANTS required of Intermediate and Final standard, preferably with office experience. State age, qualifications, experience and salary required: Pyle & Saint, Chartered Architects, Thomas Street House, Cirencester, Glos. 1618

SENIOR ARCHITECTURAL ASSISTANT, with good practical experience, required for responsible position with varied and interesting work in old established Cardiff office. Write, stating qualifications, experience and salary required. Box 1542.

ARCHITECTURAL ASSISTANTS required, with about four years' office experience. Write or telephone giving full particulars, including age and salary, to Hasker & Hall, Architects, 13, Welbeck Street, W.1. (WELbeck 0061). 1626

FULLY qualified ARCHITECTURAL ASSISTANT required in position as MANAGING-ASSISTANT, Doncaster-Sheffield Area. Applicant must possess strong personality and be capable of complete control of Contracts from Sketch Drawings to Final Accounts, excluding Quantities. Full details of experience and salary required to Box 1624.

ARCHITECTURAL ASSISTANT at or above Intermediate Standard required by West End firm for Branch Office in North Essex Country Town. Must be good draughtsman with sound knowledge of construction and capable of taking charge of small drawing office. Salary according to experience with bonus and subsistance allowance. 1619

WANTED.—Good ARCHITECTURAL DRAUGHTSMAN for London Office (Public Buildings). Box 1568.

INTERESTING permanent appointment for qualified or near-qualified ARCHITECTS with opportunities for contemporary designing. Pleasant working conditions and good salary with prospects for right men willing to take responsibility. Help available in acquisition of new house. Apply in writing, stating age, experience and salary required to Forshaw, Massey & Greaves, 11, King Street, Newcastle, Staffordshire. 1625

JUNIOR ARCHITECTURAL ASSISTANT with some office experience required. Write or telephone giving full particulars, including age and salary, to Hasker & Hall, Architects, 13, Welbeck Street, W.1. (WELbeck 0061.) 1627

ARCHITECTURAL ASSISTANTS required for busy practice, industrial, housing and other varied work. Intermediate standard. Write giving full details of experience, age and salary required—Francis W. Keyworth, 31, Friar Lane, Leicester. 1636

AN ARCHITECT'S SENIOR ASSISTANT required; experienced in building in London and capable of handling large contracts. Four figure salary contemplated. Percy V. Burnett & Partners, 12, Bloomsbury Square, London, W.C.1. HOLborn 6177. 1637

ARCHITECT'S ASSISTANT required immediately, Intermediate standard. Quick neat draughtsman; some office experience. Apply H. Bramhill, F.R.I.B.A., 32, Junction Road, N.19. Telephone Archway 6162. 1638

ASSISTANTS, Intermediate to Final, nation-wide practice. High standard of presentation, contemporary architectural and landscape design. Write or 'phone: Thomas H. Mawson & Son, 84, Church Street, Lancaster. Telephone "Lancaster 2185." 1642

MESSRS. HARRODS LTD. invite applications from suitably qualified and experienced persons for the posts of SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS and SHOP-FITTING DRAUGHTSMEN in their Architect's Office. Successful applicants will be required to carry out the designs, working drawings and supervision of work in the existing Store Building, Factories and Workshops. The posts are permanent and pensionable. Good working conditions, Restaurant and Sports Club. Applications in writing, giving full particulars, should be addressed to M. Kenfield, A.R.I.B.A., Messrs. Harrods Ltd., 44, Hans Crescent, S.W.1. 1644

ARCHITECTURAL ASSISTANTS required in busy West End Architect's Office, Intermediate or Final Standard. Preference will be given to applicants with office experience. Write to Stone, Toms & Partners, 28, South Audley Street, Mayfair, W.1. Tel.: Mayfair 6363. 1557

A RESIDENT ARCHITECT is required by Aden Airways to supervise the erection of their Staff Flats at Aden.

The appointment will be a temporary one, and will be for approximately eighteen months.

The successful applicant, who should be qualified and between the ages of 35 to 45 years, will be required to take up the appointment within six weeks of acceptance.

Free air passages will be provided for the applicant and his family and accommodation with heavy furnishings will be made available in Aden.

The work carries entire responsibility for the erection of fifty-four Flats with garages and servants' quarters.

The basic salary offered is £900 per annum, and a station allowance of approximately £820 per annum will be paid to a married man, and approximately £485 per annum to a single man.

Applications in writing to Staff Manager, Subsidiaries, B.O.A.C., Airways House, Great West Road, Brentford, Middx. 1646

W. H. SAUNDERS & SON have vacancies in their Southampton and Coventry offices for Intermediate or Final grade ARCHITECTURAL ASSISTANTS, preferably with some office experience, for work on large scale projects including schools, shop development and industrial buildings. Permanent progressive posts and good prospects. Applications giving full particulars to 1, Carlton Crescent, Southampton or 23, Eaton Road, Coventry. 1647

LONDON ELECTRICITY BOARD require—

ENGINEERING DRAUGHTSMEN in Central London and at Woolwich, West Ham, Hampstead/Willesden, and Beckenham, Kent. Salary: N.J.B. Grade 6—£536 10s./£661 10s. per annum inclusive.

SENIOR DRAUGHTSMEN in Central London, Hampstead/Willesden and Beckenham, Kent. Salary: N.J.B. Grade 5—£672—£777 per annum inclusive.

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ARCHITECTURAL ASSISTANT required immediately. Experienced in preparation of working drawings, details, specifications and Estate Development, etc. Please apply with full details of experience, age, salary required, etc., to L. r. Halton, L.R.I.B.A., 57, High Street, Bexley, Kent. 1575

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TWO SENIOR ARCHITECTURAL ASSISTANTS required immediately. Apply, giving full particulars, to Chippindale & Edmondson, Chartered Architects, Dale Chambers, Dale Street, Bradford. 1593

ARCHITECT in City Office of large organisation requires QUALIFIED ASSISTANTS to deal with substantial contracts of industrial type. Applicants should be experienced in design and supervision of work. Salary £800—£900, according to experience; also ARCHITECTURAL DRAUGHTSMEN with several years' drawing office experience. Must be quick, neat and accurate. Salary £500—£700, according to experience. Applications stating age, qualifications, detailed experience and present salary, to be addressed to Box 1600.

ARCHITECTURAL ASSISTANTS required for busy London practice. Must be keen, quick and accurate, and of Inter. R.I.B.A. standard. The work involved covers a varied field and applicants must be capable of carrying responsibility. Write stating age, qualifications, experience and salary required, to Box 1604.

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CECIL Howitt & Partners, Architects, St. Andrew's House, Mansfield Road, Nottingham, require JUNIOR ARCHITECTURAL ASSISTANTS, preferably Inter. R.I.B.A. standard. Please apply in writing, giving full details and stating salary required. 4705

RAMSEY, MURRAY & WHITE have a vacancy for ARCHITECTURAL ASSISTANT, about Intermediate standard, preferably with office experience. Salary according to qualifications. Apply 32, Wigmore Street, London, W.1, or telephone WELbeck 1409. 9823

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ARCHITECT'S ASSISTANT; Inter. standard of ability. C. E. Ware & Son, 20, Richmond Road, Exeter. 1590

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JUNIOR ARCHITECTURAL ASSISTANT required, preferably with good knowledge of construction. Reply, stating age, salary and training: Cessford Ball, 205, Lavender Hill, London, S.W.11. 1586

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TRIPE & WAKEHAM, 16, Fitzhardinge Street, W.1, require ASSISTANTS, either qualified or unqualified, with upwards of 2 years' experience. 1612

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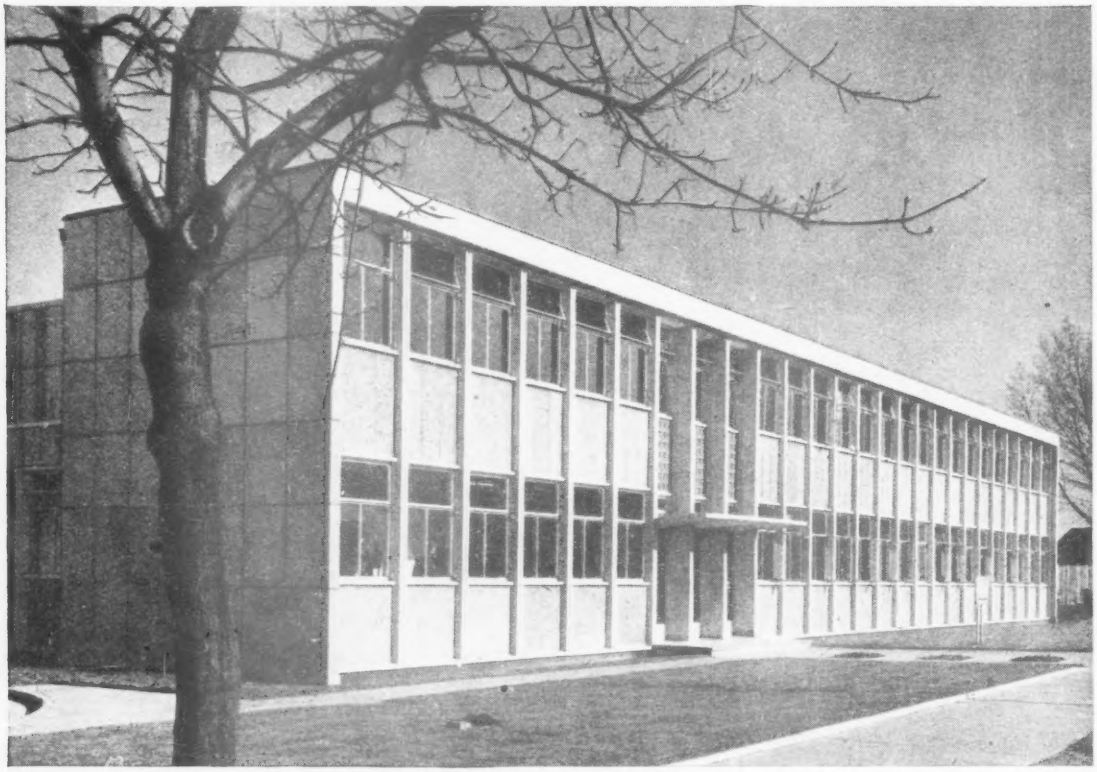

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