

THE ARCHITECTS' JOURNAL



standard contents

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

NEWS and COMMENT

Astragal's Notes and Topics

Letters

News

Diary

Societies and Institutions

TECHNICAL SECTION

Information Sheets

Information Centre

Current Technique

Working Details

Questions and Answers

Prices

The Industry

CURRENT BUILDINGS

Major Buildings described:

Details of Planning, Construction,

Finishes and Costs

Buildings in the News

Building Costs Analysed

*Architectural Appointments
Wanted and Vacant*

★ 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. 100 Park Street, Grosvenor Square, W.1.	Mayfair 7086
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197
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
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
MARS	Modern Architectural Research Group (English Branch of CIAM). Trevor Dannatt, A.R.I.B.A., 71, Blandford Street, W.1.	Secretary: Welbeck 4713
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, W.C.2.	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.	Abbey 5111
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
NHBRIC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1.	Trafalgar 6838
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. 5, Old Palace Yard, 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
RSH	Royal Society of Health. 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
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	Society of Industrial Artists. 7, Woburn Square, London, W.C.1.	Langham 1984/5
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 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1.	Grosvenor 6636

No. 3175]

[Vol. 123

THE ARCHITECTURAL PRESS

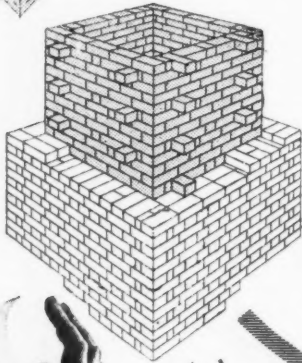
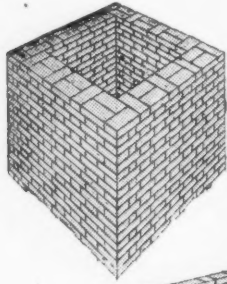
8, 11 and 13, Queen Anne's Gate, Westminster, S.W.1.

'Phone: Whitehall 0611

Price 1s. 0d.

Registered as a Newspaper.

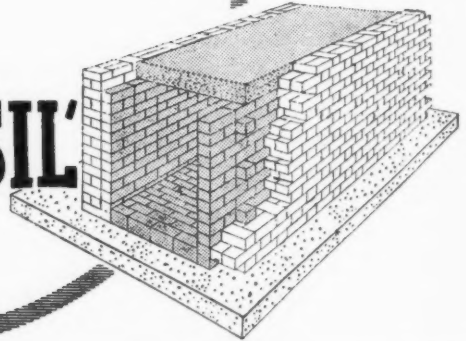
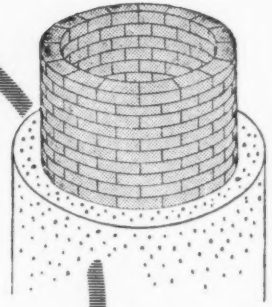
R J. 123' 32-Mr' 56



MODERN FLUES

are lined
with

'FOSALSIL'



M O L E R
PRODUCTS LIMITED

HYPHE WORKS · COLCHESTER

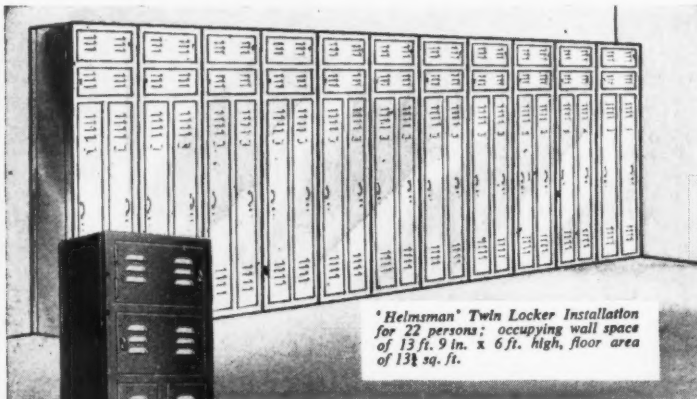
Phone :

COLCHESTER 3191 (3 lines)

Grams :

FURMOL, Colchester

Sole Manufacturers of 'FOSALSIL' FLUE BRICKS



'Helmsman' Twin Locker Installation
for 22 persons: occupying wall space
of 13 ft. 9 in. x 6 ft. high, floor area
of 13½ sq. ft.

Save **MONEY** and
37½% WALL
SPACE ON
CLOTHES
STORAGE!



Each Twin Locker Unit provides separate accommodation for the clothing and personal belongings of two persons. Fitted with modern streamlined SLIDEX Handle with 3-Point Latching, lockable with padlock. Standard size: 72in. by 15in. by 12in. deep. Wide choice of colours and other sizes. **LIST PRICE £4.13.9** (in nests of 3) per person. (£9.7.6 per Twin Locker.) (Traditional 6-Lever Lock in lieu or in addition if required.) Other 'Helmsman' Products: Shelving; Open-type; solid sides; solid back and sides; Cupboards; Bin Units; Cabinets; All-steel Desks. Full details gladly sent on request, or 'phone Mr. Quin at Larkwood 4411.

Helmsman **TWIN TYPE**
STEEL CLOTHES LOCKER (Patent No. 699842)

W.B. BAWN
& COMPANY LIMITED

Discounts for quantities; special quotations for complete installations; prompt delivery; normal commercial credit terms to business undertakings.

BYRON WORKS, BLACKHORSE LANE, LONDON, E.17
Telephone: LARKWOOD 4411/4



ings
ble
zes.
ever
pe;
ails



Illustration above shows the advantageous use of Ceramic Tiles for window sills and ledges.

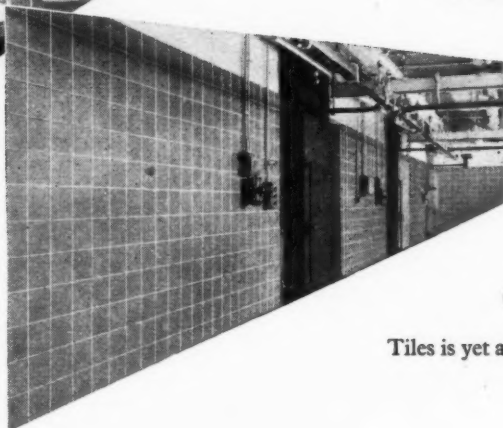


Illustration on right shows Ceramic wall tiling round the exteriors of the meat refrigeration chambers.



CHOOSE CERAMIC TILES

Hygiene and an easily cleaned surface were uppermost in Wall's

mind when planning their new sausage factory at Godley,

Cheshire. That they chose Ceramic

Tiles is yet another tribute to the surface, proven by the tests of time.

Ceramic

T	I	L	E	S
----------	----------	----------	----------	----------

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



*The brand name
that maintains
its high reputation*

GYPSUM PLASTER

*Grades for all
purposes*



FIRE RESISTANCE

"Murite" Plasters when set revert to Gypsum. This mineral contains 20% of combined water which must be driven off before dangerous temperatures can be reached. This water barrier is one of the reasons why "Murite" Gypsum Plasters have such excellent fire-resisting properties.



WORKABILITY

"Murite" Plasters are simple to use. Scientific factory processing and a controlled set give superb working properties and allow ample time for first class results to be obtained.



ECONOMY

"Murite" Plasters have a greater covering capacity than other similar plasters. The undercoat grades also require less sand therefore they effect a considerable saving in use.



SPEED

"Murite" Plasters set completely within a few hours. If required, two coat work can be completed the same day and certain types of decoration can be started almost immediately without fear of failure.

*Send for descriptive
folder to*

CAFFERATA & CO. LTD.

NEWARK-UPON-TRENT, NOTTS.

TELEPHONE: NEWARK 2060

TELEGRAMS: "CAFFERATA, NEWARK"





Hydralime is there for good

Time alone can substantiate the claims for a building material. Lime/sand mixes gauged with cement have proved the ideal mortar for all types of construction. Lime/sand/cement mortars can be designed to give maximum strength to the brickwork in relation to the particular strength of the brick used. (See B.R.S. Digest No. 75 on the strength and stability of walls.)

HYDRALIME



SCIENTIFICALLY HYDRATED LIME COMPLIES WITH ALL THE
REQUIREMENTS OF B.S. 890

H.5

A PRODUCT OF THE CEMENT MARKETING CO. LTD., PORTLAND HOUSE, TOTHILL STREET, LONDON, S.W.1.

TAYCO

domestic boilers

installed in

all the New towns

CRAWLEY

HEMEL HEMPSTEAD

HARLOW

BASILDON

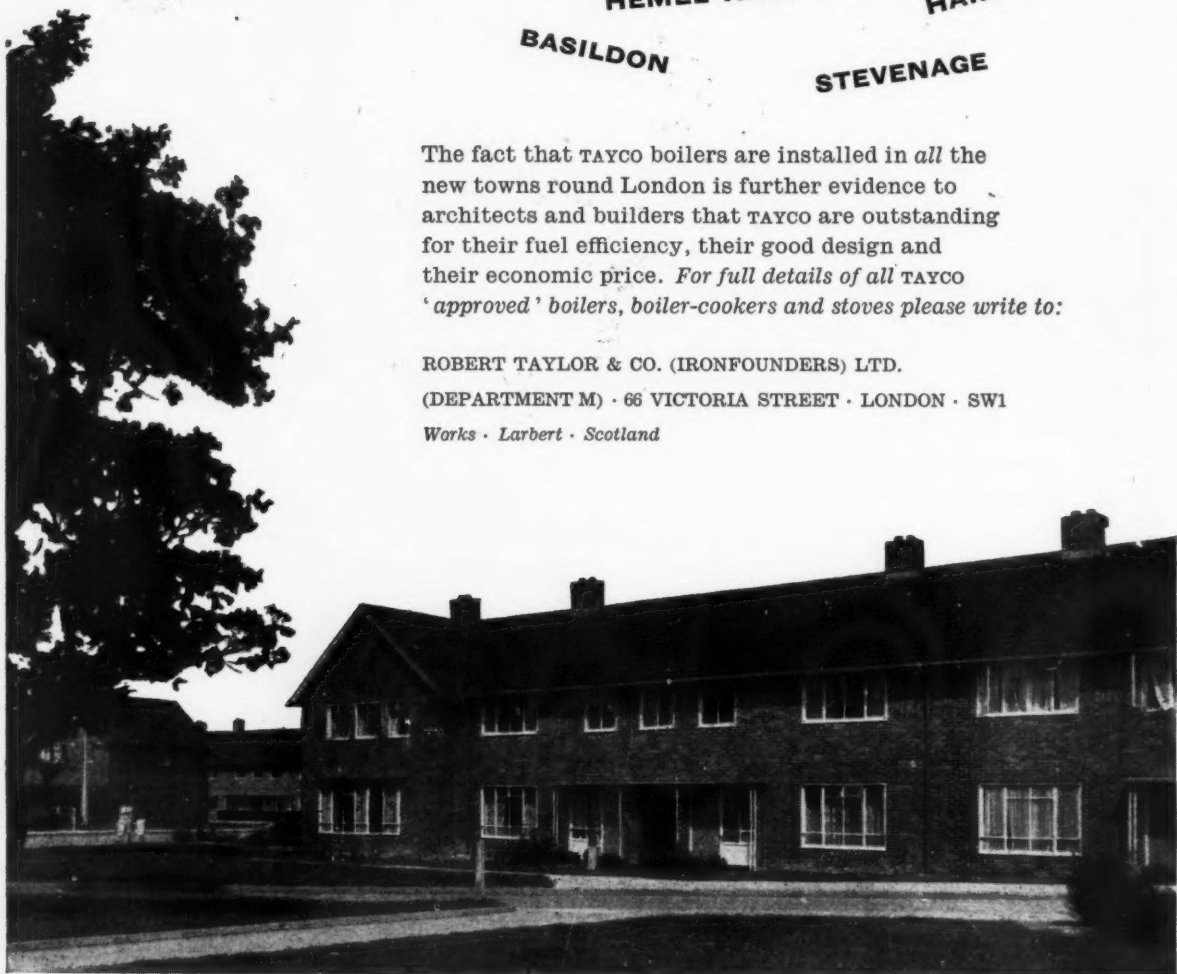
STEVENAGE

The fact that TAYCO boilers are installed in *all* the new towns round London is further evidence to architects and builders that TAYCO are outstanding for their fuel efficiency, their good design and their economic price. *For full details of all TAYCO 'approved' boilers, boiler-cookers and stoves please write to:*

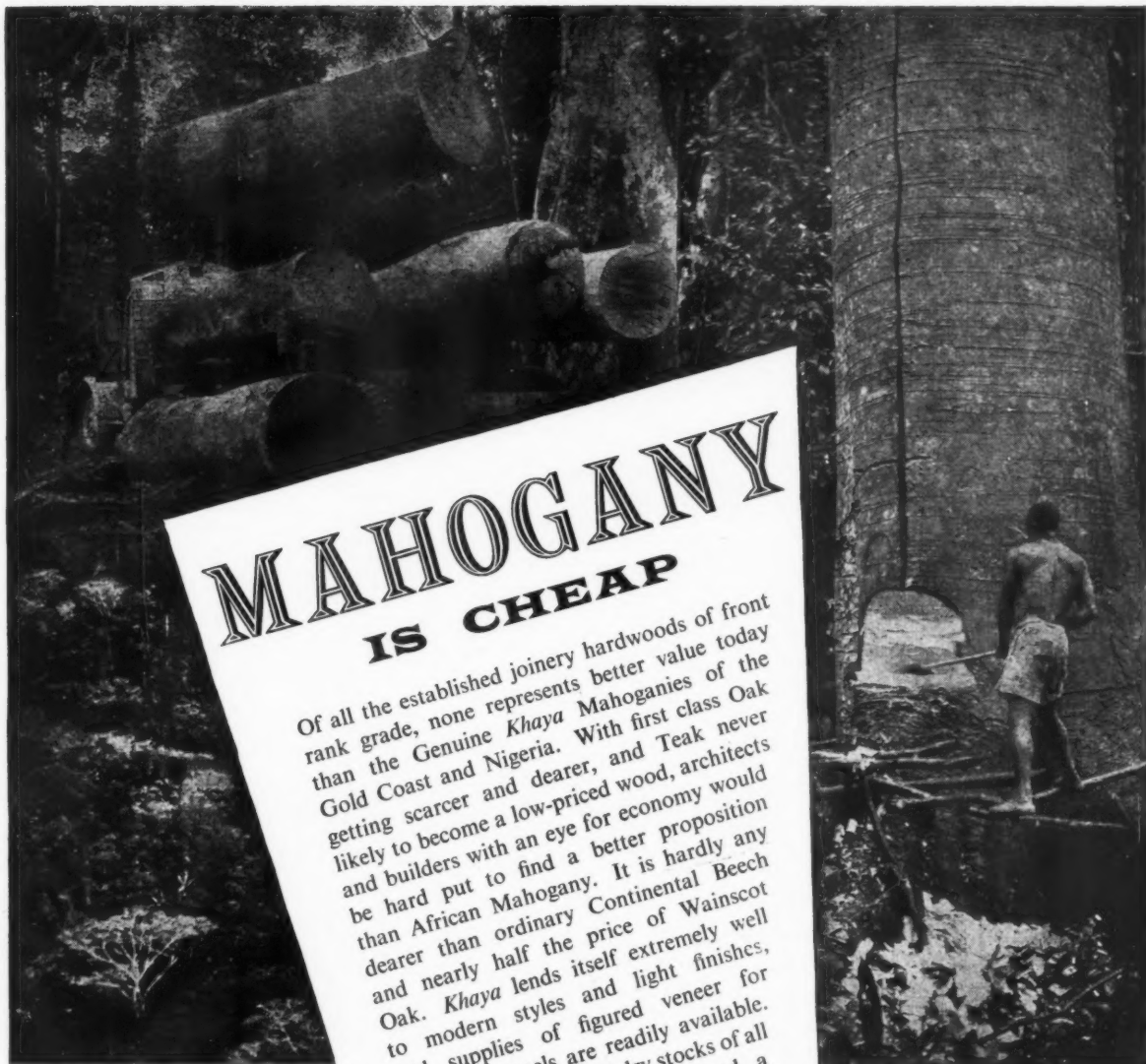
ROBERT TAYLOR & CO. (IRONFOUNDERS) LTD.

(DEPARTMENT M) · 66 VICTORIA STREET · LONDON · SW1

Works · Larbert · Scotland



TW38



Photos by courtesy of
The United Africa Co. Ltd.

MAHOGANY IS CHEAP

Of all the established joinery hardwoods of front rank grade, none represents better value today than the Genuine *Khaya* Mahoganies of the Gold Coast and Nigeria. With first class Oak getting scarcer and dearer, and Teak never likely to become a low-priced wood, architects and builders with an eye for economy would be hard put to find a better proposition than African Mahogany. It is hardly any dearer than ordinary Continental Beech and nearly half the price of Wainscot Oak. *Khaya* lends itself extremely well to modern styles and light finishes, and supplies of figured veneer for matching panels are readily available. We have square edged dry stocks of all thicknesses from 1" to 5" and a large selection of solid and sawn logs.

M·A·MORRIS·LTD



RAVENSDALE WHARF · STAMFORD HILL · LONDON · N.16 · TEL. STAMFORD HILL 6611 (6 lines)

DRIES IN 4-6 HOURS

"EASY ON THE WRIST"

YEARS MORE DURABILITY

IMPROVED COLOUR PERMANENCE

MAXIMUM WEATHER RESISTANCE

BEAUTIFUL FINISH

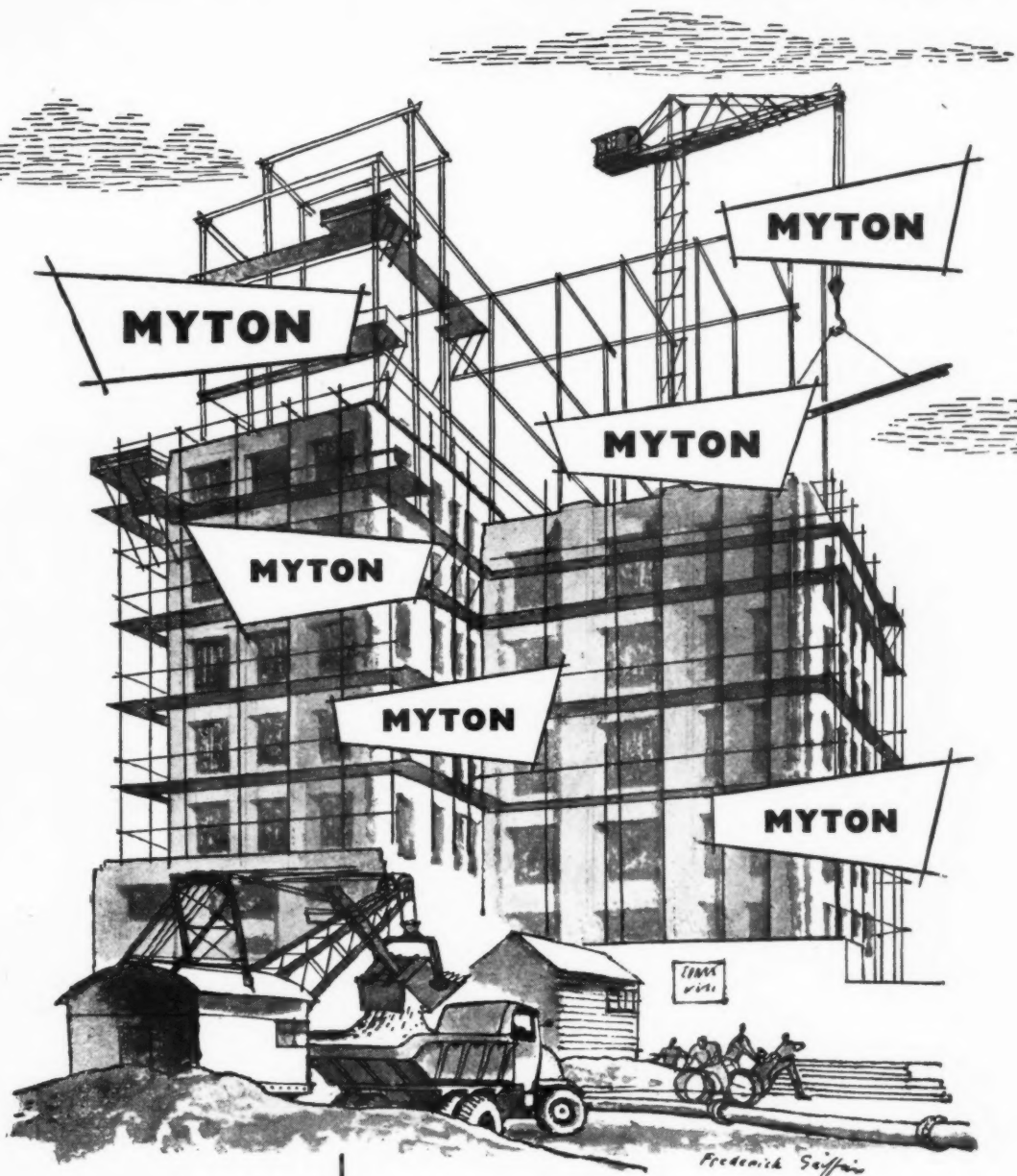
LUXOL 1
Alkyd Enamel

BRITISH PAINTS LIMITED

PORTLAND ROAD, NEWCASTLE UPON TYNE, 2.
LONDON: CREWE HOUSE, CURZON STREET, W. 1.

"Luxol 1" is a modern alkyd finish of outstanding merit combining great beauty of appearance with remarkable durability. "Luxol 1" gives a much longer life than traditional gloss paints.

BRITISH PAINTS LIMITED
EMBRACE THE WORLD



**You'll be seeing
more and
more of**

MYTON

It is of considerable interest and significance that
MYTON LIMITED are now a part of the **TAYLOR WOODROW
GROUP OF COMPANIES**, with all the valuable
advantages which automatically spring from membership
of that vast organisation

MYTON LIMITED Building and Civil Engineering Contractors

now a member of the **TAYLOR WOODROW GROUP**

HEAD OFFICE: NEWLAND, HULL

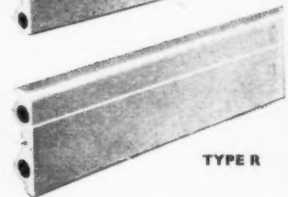
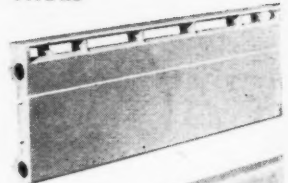
You don't notice the perfect heating system!



CRANE CAST IRON SKIRTING HEATING is virtually invisible—yet it distributes warmth evenly to every point in the room! It simply replaces the normal wooden skirting, leaving the entire floor space of the room free from obstruction, and can be finished in any colour to fit in with decorative schemes. Here indeed is a heating system that gives unlimited scope for 'free' architectural planning and interior decoration. There are two types of Crane Skirting Heating—'RC' (combined

Radiant and Convection) and 'R' (Radiant). Both ensure that there are no 'cold spots' or 'hot spots' anywhere in the room. Furthermore, the temperature gradient for type 'RC' is only two or three degrees Fahrenheit—and for type 'R' no more than one or two. Crane Skirting Heating can be used on hot water (up to 120 ft. head) or low pressure steam systems. Write to the address below for a copy of our free booklet giving full details of the Crane Skirting Heating System.

TYPE RC



TYPE R

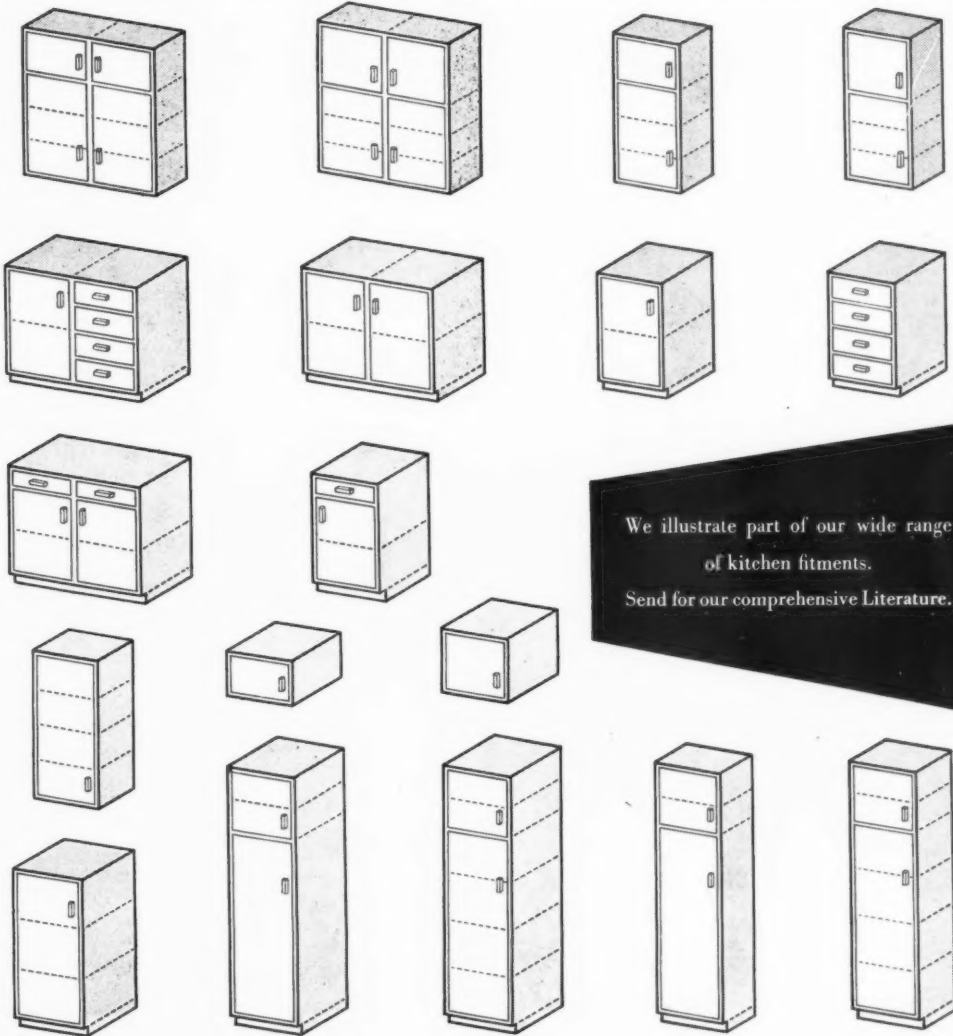
CRANE BOILERS AND HEATING EQUIPMENT

CRANE LTD., DEPT. J.11, 45-51 LEMAN STREET, LONDON, E.1
Branches: Birmingham, Brentford, Bristol, Glasgow, Manchester. London Showrooms: 118 Wigmore St., London, W.1

24

STANDARD KITCHEN UNITS

with a quality guarantee



QUALITY STANDARD JOINERY by

Windows, Doors, Stairs, Kitchen Fitments etc.

**BOULTON
AND PAUL**

BOULTON & PAUL LTD., RIVERSIDE WORKS, NORWICH

AP/1.12

SLIDING DOOR GEAR

FOR THE WORLD'S BEST

Specify

ELLARD



Much valuable space can be secured by the appropriate use of sliding doors in the modern dwelling house. The busy housewife will find her work considerably reduced by having easy access from room to room, as can be seen by the illustration at left. The awkward manoeuvring when "getting around" with cleaning equipment, or at meal times, is entirely removed by the use of sliding doors. In addition, free and complete ventilation of all rooms can be quickly obtained giving a general feeling of light and airiness at all times. There are other advantages which will readily occur to discriminating architects. The all-round efficiency of sliding doors can only be maintained by using first-class door gear. Specify ELLARD "Estate" Sliding Door Gear—it is the best of its kind, competitive in price, smooth and trouble-free in action. ELLARD Door Gear is used on most large housing estates.

Easy access to and from the garage, and unobstructed working space, are valuable assets to the motorist. The illustration at right shows a typical example of ELLARD "Radial" Sliding Door Gear as supplied to numerous private and housing estate garages throughout the country. ELLARD "Estate" and "Radial" Sliding Door Gears can be readily obtained from your nearest ironmonger or merchant.



CLARKE ELLARD ENGINEERING COMPANY LTD
WORKS ROAD · LETCHWORTH · HERTFORDSHIRE · TELEPHONE 613/4

BMJ



1

OPC—
=

OPC—
OPC—
OPC—

No o

ALL

2 in. T

RAMIT

STRAMIT

2" BUILDING SLABS

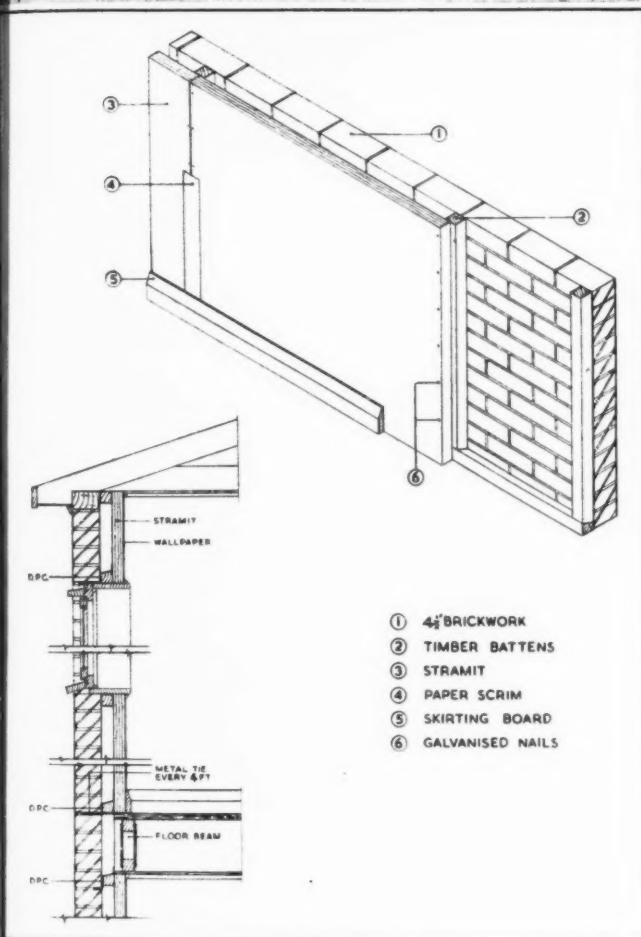
AND U

—the measure of heat-loss through a construction, in B.Th.U's per hour, over one square foot of its area, when the temperature-difference between its two sides is 1° F.

With domestic coal busily climbing the price ladder and growing ever more unpopular in the eyes of health authorities, the insulation of private houses has today taken on a new importance.

At the same time, the standards of comfort currently demanded in the average home are higher than ever before. Budgets are tighter.

Faced by this challenge, architects are everywhere engaged in experimenting with new, novel and intensely practical forms of construction. For instance, the use of cross-walls which take the load and thereby permit fresh scope for lightness and elegance of design on the outer faces of the building. Our illustration shows an example of this construction. The outer skin depicted here is of brick, but it can just as readily be of a less traditional material—and the fact that the 'U' figure for the walling illustrated is no greater than 0.16 is surely a fine testimony to the thermal efficiency of Stramit.



**No other building slab
possesses
ALL these properties**

Stramit combines light weight with great strength and rigidity ★ It has a good fire-resistance rating and a high degree of sound-absorption ★ It will take oil paint, emulsion paint, distemper and similar finishes without special preparation ★ It is pre-cut to size to save time on site and to avoid cutting to waste ★ It provides an excellent roof deck and is ideal for lagging cold-water cisterns.

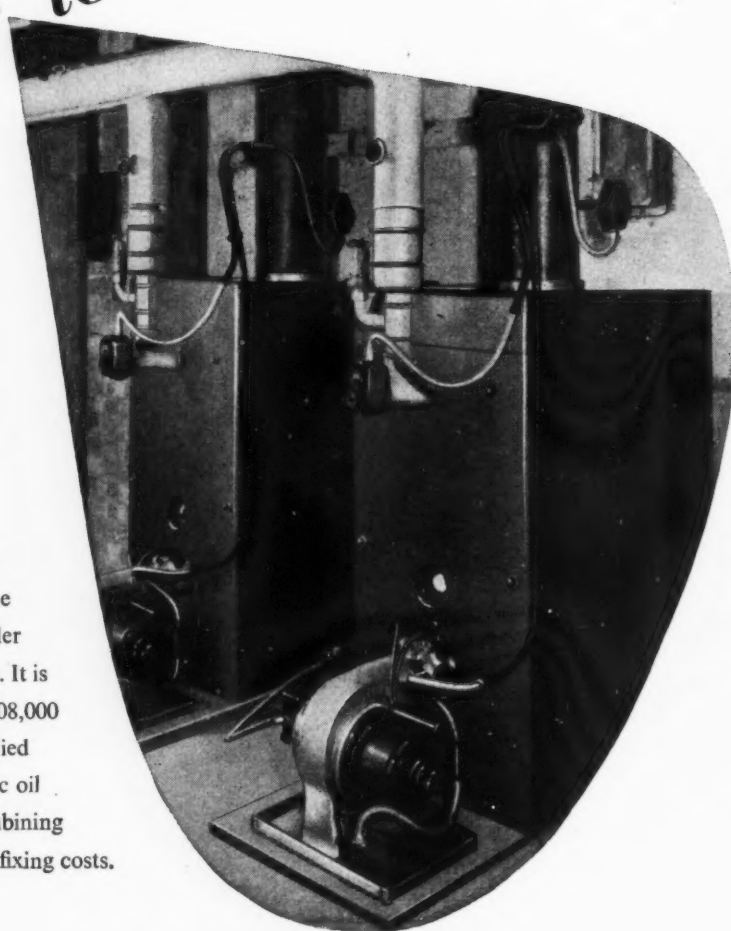
2 in. Thick ; 4 ft. Wide ; Any length (Stock lengths:— 8, 9, 10 & 12 ft.) Available from stock through leading merchants.

Send NOW for YOUR copy of our fully detailed TECHNICAL BROCHURE (SAR) and Building Research Station Reports.



It stands to reason

Only a boiler designed from the very first for oil will extract the maximum efficiency from oil. The argument for the Potterton oil-fired Boiler is as simple as that. The Potterton achieves a true working efficiency of 78% of the heat from the oil transferred to the water (the maximum that can be used in any boiler without fear of excessive condensation). It is available in a range of outputs from 108,000 B.T.U. to 288,000 B.T.U. and is supplied as a complete unit with fully automatic oil burners, and fitted controls—thus combining optimum performance with minimum fixing costs.



POTTERTON *Oil-Fired* BOILERS



Thomas De La Rue & Co. Ltd. (Potterton Division), 20/30 Buckhold Road, Wandsworth, S.W.18.

DLR 532



Abyssinian tribesman—an illustration from the story of the Lake Tana expedition, "Into the Blue" (published by Collins)

*what can he have
to do with PAINT?*

Just this. He has encountered one of the most rigorous tests a paint has ever had—an ordeal by travel on the *Lake Tana expedition. Manderlac enamel protected the expedition car on the four-month journey to the source of the Blue Nile. 12,000 miles of scorching sun, salt-laden humidity, torrential monsoon rains and the paint was as good as new. Mander's quality has NO superior.

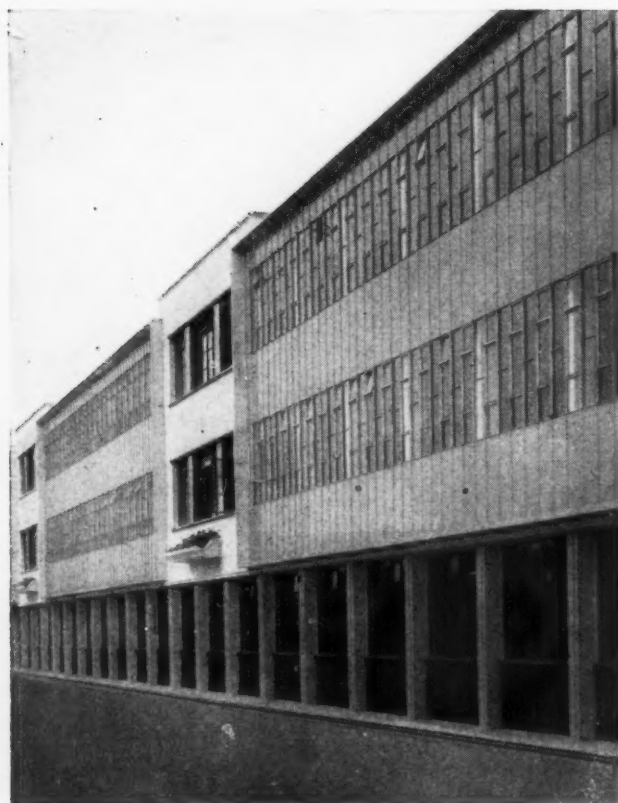


MANDER'S *have the answer*



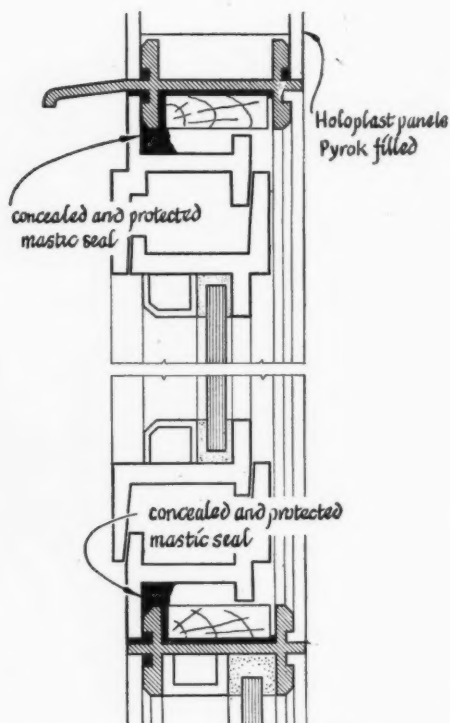
Mander's Architectural Advisory Service will be glad to supply details, specifications and colour cards of their complete range. *Send for the interesting leaflet on the expedition.

MANDER BROTHERS LTD., WOLVERHAMPTON



Experimental and Design Office Block
De Havilland Aircraft Co. Ltd., Hatfield, Herts.

ARCHITECTS: Messrs James M. Munro & Son, B.Sc., A.R.I.B.A.

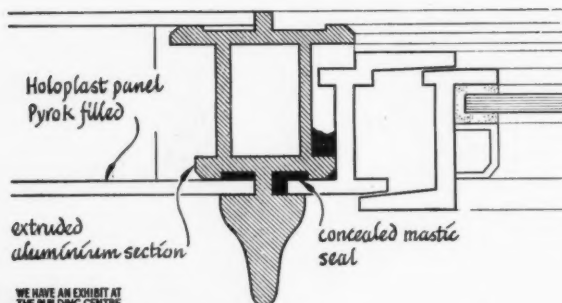


Typical vertical section showing use of specially designed aluminium sections

*In the cladding
of framed buildings*

SECOMASTIC

provides lasting protection at the joints



Typical sectional plan

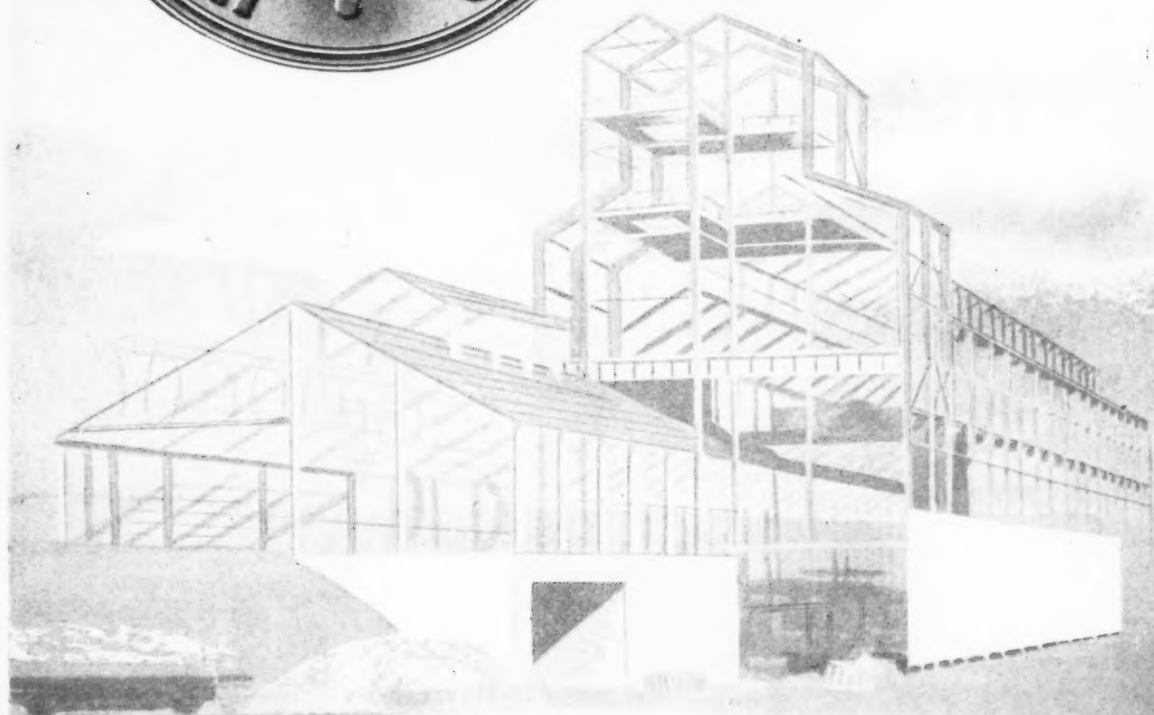
An important problem common to all techniques for cladding framed buildings is that of providing an effective and lasting waterproof barrier at the joints.

Correctly used, a non-hardening mastic can make a valuable contribution to the solution of this problem. But since the maintenance free life of the joints will be determined by the life of the mastic, the greatest care should be taken in using the correct grade applicable to the type of joint.

The Technical Department of SECOMASTIC Limited has studied the special problems connected with the sealing of joints in Wall Cladding and is in a position not only to advise on the particular grade of mastic best suited to a specific case, but also, where applicable, to collaborate in the design and detailing of suitable joints.

Please address all enquiries to Architectural Dept.

SECOMASTIC LIMITED · BRACKNELL · BERKSHIRE · Telephone: BRACKNELL 910 (5 lines)



**We design, fabricate & erect
structural steelwork**

UNITED STEEL STRUCTURAL COMPANY LIMITED

Associated with The United Steel Companies Limited
SCUNTHORPE · LINCOLNSHIRE

USS:15

VYDOK DOCKERLUX

VYDOK
The Perfect
Emulsion Paint
in matt and
eggshell finishes



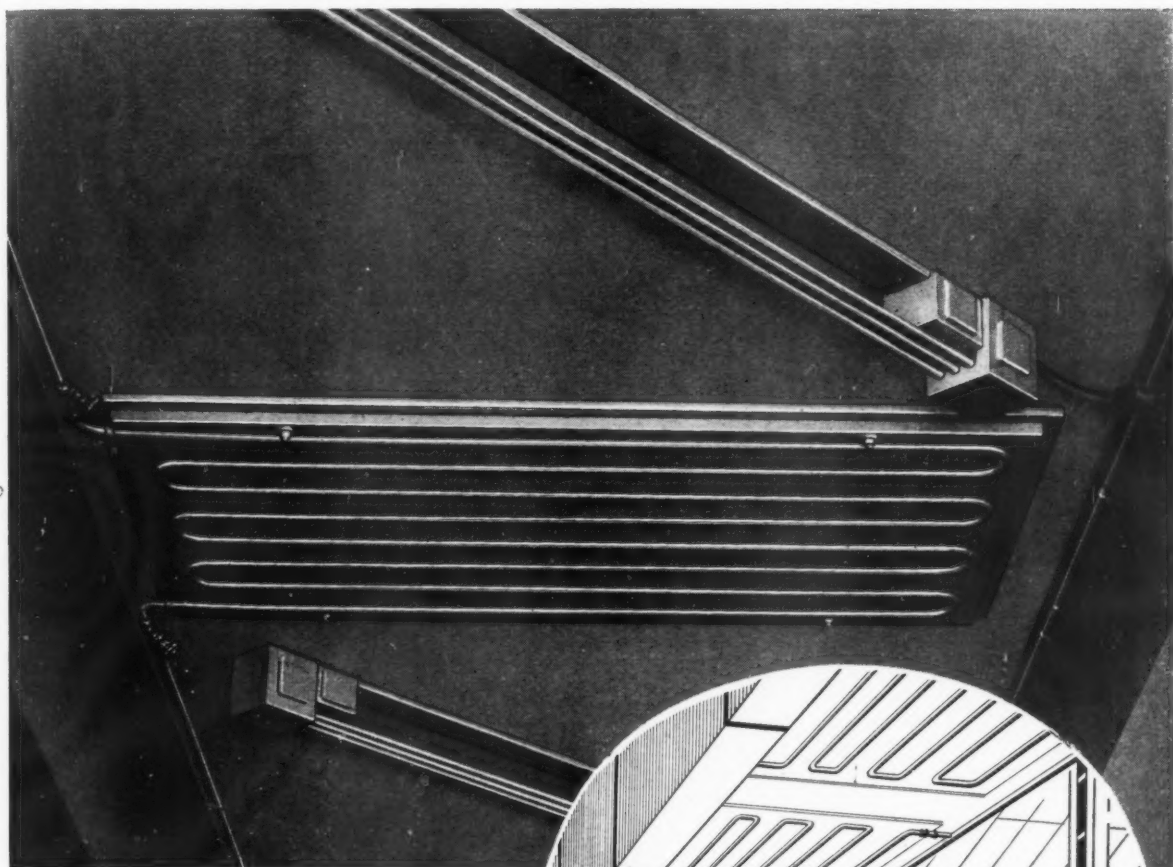
DOCKERLUX
The finest
Gloss Paint
in the world



DOCKER BROTHERS Ladywood, Birmingham 16. LONDON SHOWROOMS: 17 BERNERS ST. W.

BRIGHTRAD

RADIANT PANELS



FOR CEILINGS

- EFFICIENT
- SPACE SAVING

Here is an unusual but pleasing way of employing Brightrad Radiant Panels. Mounted in the ceiling, they may be arranged to harmonise with fluorescent lighting fittings as shown above

We invite you to write for our booklet "Heating and Air Treatment in Industry" and other literature on the heating of industrial buildings.

THE BRIGHTSIDE HEATING & ENGINEERING CO. LTD. SHEFFIELD

(Subsidiary of The Brightside Foundry & Engineering Co., Ltd.)

BELFAST, BIRMINGHAM, BRADFORD, BRISTOL, EDINBURGH, GLASGOW, LIVERPOOL, LONDON, MANCHESTER, NEWCASTLE, PORTSMOUTH

BP (48)R



IS EMERGENCY LIGHTING included in your plans?

It pays to specify NIFE at the outset

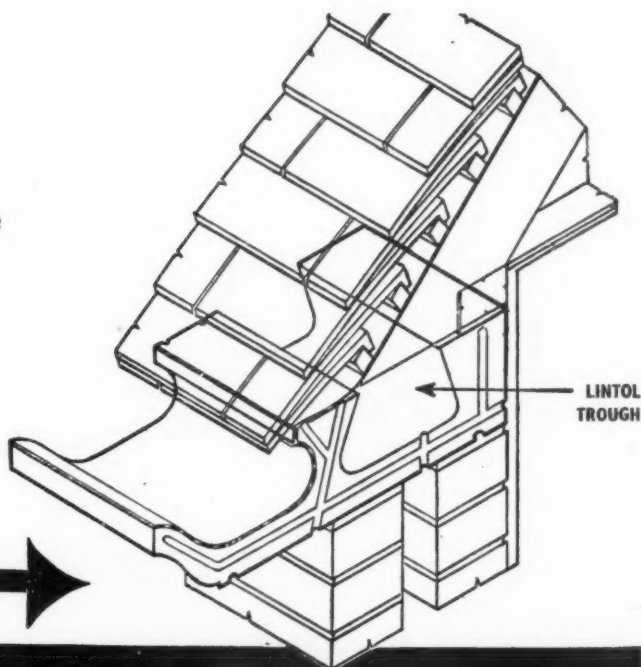
By specifying Nife-Neverfayle equipment at the outset you can reduce building costs and save valuable space for other important plant. As this compact equipment occupies only one-third of the space of conventional equipment, and as it can be installed adjacent to other equipment, a separate battery room is not needed. It is simple to install

and operate. The Nife Steel Alkaline battery is completely dependable and power is always instantly available. Maintenance costs are negligible. Schools, Hospitals, Town Halls, Theatres, Swimming Pools and Large Stores need reliable emergency lighting—and Nife are the people to provide it. Write for illustrated booklet EL/G.

NIFE - NEVERFAYLE

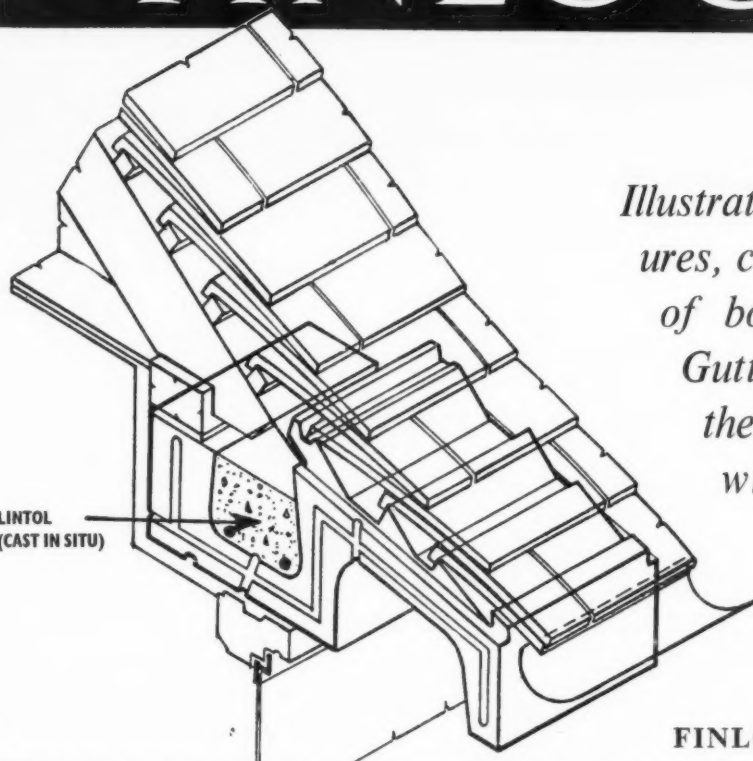
EMERGENCY LIGHTING EQUIPMENT REPAYS ITS ORIGINAL COST MANY TIMES OVER

- * Cut Gutter Costs
- * Cut Lintol Costs
- * Cut Downpipe & Drainage Costs
- * Cut Maintenance Costs
- * Improve appearance
- * Improve insulation by sealing the eaves



GUTTER

FINLOCK



Illustrated technical brochures, covering every aspect of both the FINLOCK Gutter and Sprocket and the FINLOCK service, will gladly be sent on request.

SPROCKET

FINLOCK GUTTERS LIMITED

FINLOCK HOUSE, 25 FRANT ROAD, TUNBRIDGE WELLS, KENT. Telephone : Tunbridge Wells 3396/9

We deliver to all parts of England, Scotland, Wales and N. Ireland.

Works at: Southborough, Kent; Royston, Herts; Cwmbran, S. Wales; Crewkerne, Somerset; Leeds, Yorks; Wakefield, Yorks; Musselburgh, Scotland; Belfast, N. Ireland.

the new **EKCO** *selling line...*

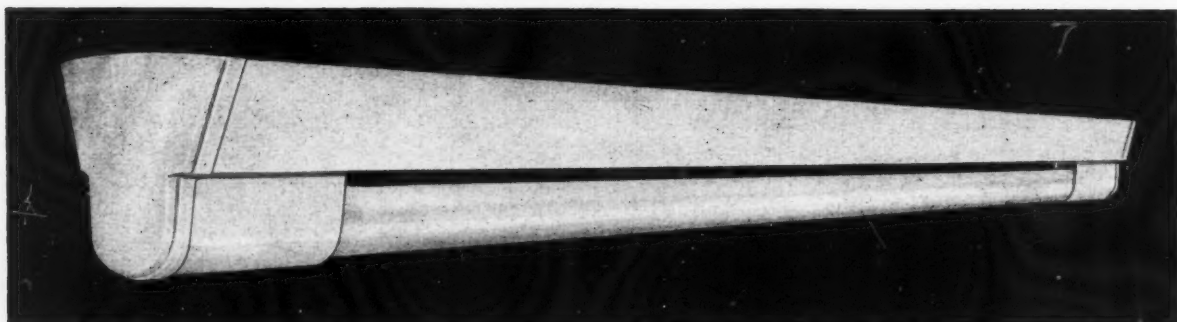
5ft, 4ft and 2ft SLIM BATTEN FITTINGS

▶ MODERN SLIM DESIGN

▶ SIMPLE INSTALLATION

▶ INDIVIDUALLY CARTONED

▶ FINISHED HIGH GLOSS WHITE STOVED ENAMEL



EKCO SLIM BATTEN FITTINGS

5ft, £4.4.0

(EXCLUDING TUBE)

4ft, £3.13.0

(EXCLUDING TUBE)

2ft, £3.3.0

(EXCLUDING TUBE)

EKCO-ENSIGN ELECTRIC LIMITED

45 ESSEX STREET • STRAND • LONDON W.C.2 • Tel: CITY 8951

Sales Offices, Illuminating Engineering Depts., Showrooms and Depots:

SOUTHERN 45 ESSEX STREET, LONDON WC2. CITY 8951

NORTHERN BLACKETT ST., MANCHESTER 12. ARDWICK 4661

MIDLANDS 68 CAROLINE ST., BIRMINGHAM 3. CENTRAL 2997

E. MIDLANDS 57 HOUNDS GATE, NOTTINGHAM. NOTTS 45862

SCOTTISH 26 INDIA STREET, GLASGOW C2. CENTRAL 2012

SOUTH WALES 50 BRIDGE STREET, CARDIFF. CARDIFF 33803

EL18

HARMONY SUSTAINED

*Bungalow at Higher Lane,
Langland, Swansea. Designed
by: Clifford G. Vaughan, Esq.,
L.R.I.B.A., Chartered
Architect, 1 St. James' Gdns.,
Swansea.*



Model Roof shewing
Tiles and Accessories.

The large area of roof on a Bungalow is usually its most striking feature, and it is most important that harmony is sustained with the rest of the building and its surroundings. Dignus 11" x 7" Sandstorm Clay Roofing Tiles afford the answer—available in shades of Red and Antique colours which mellow to perfection. May we send you further details?

BEST QUALITY TILES ARE GUARANTEED FOR FIFTY YEARS

Maximum output maintained—
continuity of supplies guaranteed

DIGNUS *Siles*
11" x 7" SANDSTORM CLAY ROOFING

DIGNUS LIMITED · KEELE · NEWCASTLE · STAFFS

dm DG18



Brush off the fear of FIRE!

With OXYLENE BORAM Fire Retardant Coating which raises inflammable surfaces to Class 1 "surface spread of flame" (B.S. 476-1953).

Oxylene Boram can be overpainted or applied to painted surfaces without loss of fire retarding qualities. It gives real fire protection and is approved by Local and Fire Authorities.

Free Technical Service.

Write for particulars.

OXYLENE BORAM

Also Fabric
RINSE for
Textiles

FIRE RETARDANT COATING

"The one-powder mix"

THE TIMBER FIREPROOFING CO. LTD.,

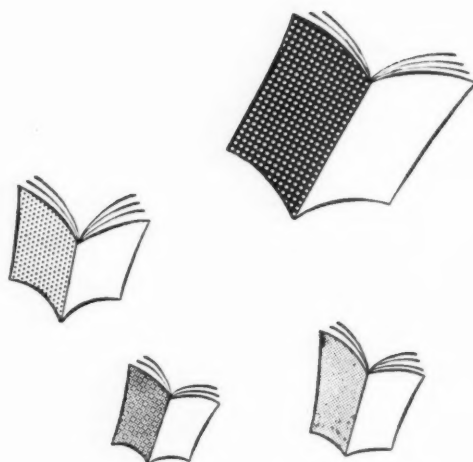
13a Old Burlington Street, LONDON, W.1.

Tels; GROsvenor 6421/2

Works at:— Market Bosworth, Nuneaton
Queen Elizabeth Avenue, Hillington, Glasgow, S.W.2.

DHB/2376

we draw the line at fire!



There's a lot to be said

for



COKE

**and it's all in the
Gas Council Technical Handbooks***

They are practical books written by experts for experts. They are useful as reminders of the advantages of coke in specific applications. The information given is full, reliable and up-to-date. These handbooks are free. You can get them from your Area Gas Board or direct from the Gas Council.

- Coke-fired Central Heating Plant
- Coke-fired Small Steam Raising Plant
- Coke-fired Domestic Appliances and their Application

COKE IN THE HOME

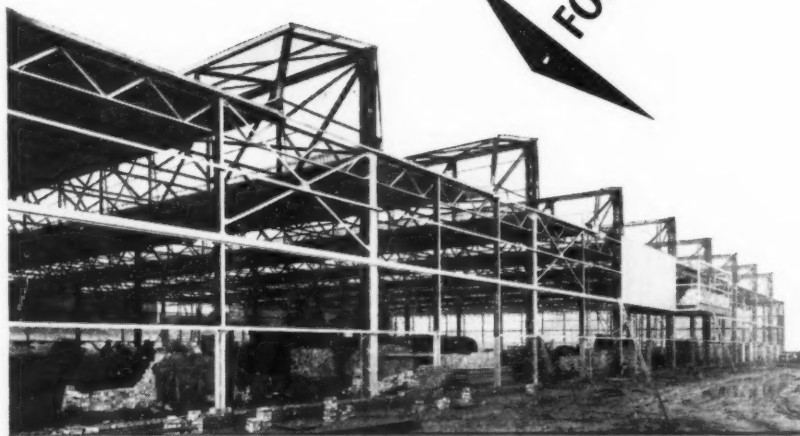
Indispensable—if you are concerned with the fuel service in the modern home—is the Gas Council's official **Coke Burning Appliances Handbook**

Copies can be purchased from your Area Gas Board or direct from the Gas Council

THE GAS COUNCIL COKE DEPARTMENT 1 GROSVENOR PLACE LONDON SW1

steelwork

FOR ROVER'S NEW FACTORY BUILDING

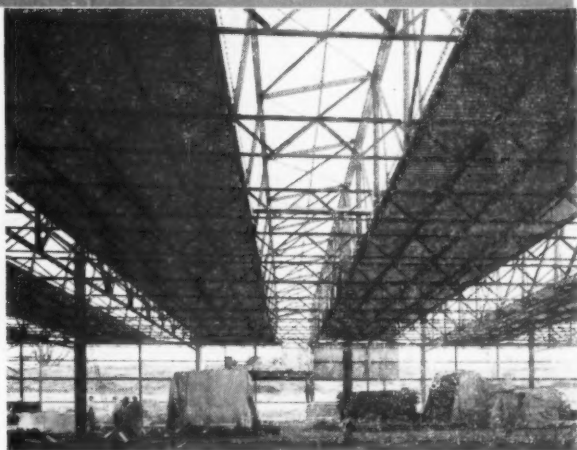


This new No. 1 Shop for the Rover Co. Ltd. is 500ft. long by 200ft. wide and employs approximately 540 tons of steel. The Monitor roof is of welded construction supported by 300 special lattice beams and 100ft. span lattice girders assembled on the site.



Architects: Hasker & Hall, A.I.A.A., A.R.I.B.A.
13, Welbeck Street, London, W.1.

Consulting Engineers: T. Bedford, M.I.C.E., M.I.Struct.E. M.I.Mech.E.,
41/2, New Bond Street, London, W.1.



Fabrication and Erection by :

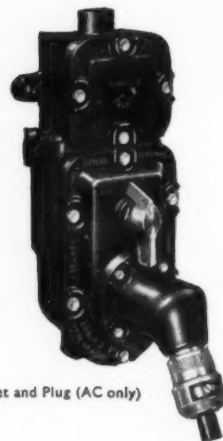
Rubery, Owen & Co. Ltd.

Structural Division: P.O. Box No. 10
DARLASTON, WEDNESBURY,
STAFFS.

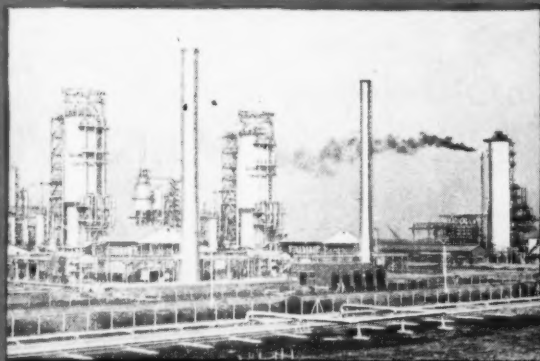
Tele.: James Bridge 3131 (P.B.X.)

Offices at: LONDON, BIRMINGHAM,
COVENTRY, SOUTHAMPTON.

To supply 250V, apparatus via screened trailing heavy TRS cables. Skirted plug pins. Slow-break 15 amp. double pole switch, interlocking plug. Stoved black-enamel or galvanized. Note the special cable grip (patent applied for)



Switch Socket and Plug (AC only)



Flameproof on the Isle of Grain

Here's the scene at The British Petroleum Company's Kent Oil Refinery on the Isle of Grain, showing some of the main processing units.

Simplex Flameproof Equipment is installed in this and many other refineries because the range of equipment has been designed to meet the most stringent requirements of the Oil Industry.

Note too, that Simplex are constantly expanding their range of Flameproof gear. Additions to the Simplex Flameproof range include SWITCH, PUSH BUTTON, PILOT LIGHT and METER UNITS.

.....
: flameproof equipment by
:
.....

complies with current B.S. specifications

all recently Buxton certified

Simplex

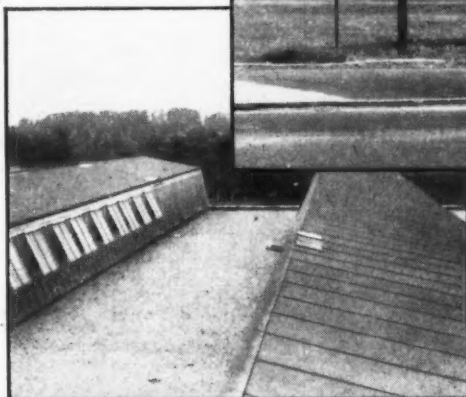
Simplex Electric Co Ltd, Oldbury, Birmingham

A  COMPANY

To Architects about to plan roofs —



relies on **BITUMETAL**



Where Craftsmanship, Dependability and Endurance mean so much, there you will find "BITUMETAL", Briggs Modern Development in Aluminium Roofing. The Rover Company Limited chose "BITUMETAL" for their large new factory at Solihull, Birmingham because, in addition to reliability, it provided Roof plus Insulation plus Ceiling in one unit at an economical cost.

Ask your nearest Area Manager for full technical details on "BITUMETAL" and discover how adaptable it is for small buildings as well as large.

WILLIAM



& SONS LTD

Vauxhall Grove,
London, S.W.8.

Regd. Office,
DUNDEE.

Offices and Depots also at ABERDEEN · BELFAST · BRISTOL · DUBLIN · EDINBURGH · GLASGOW · LEICESTER · LIVERPOOL · NORWICH

by FALKS



FALKS
FALK, STADELMANN & CO. LTD.

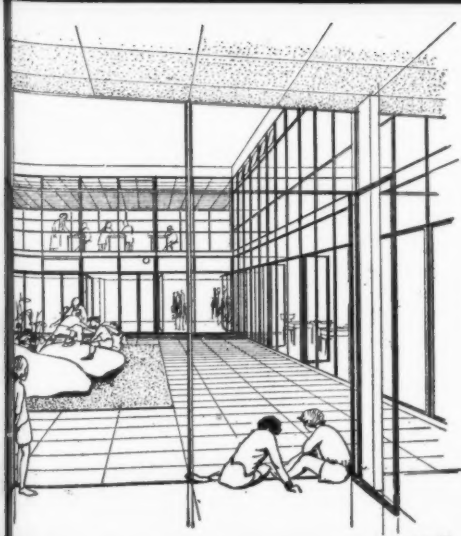
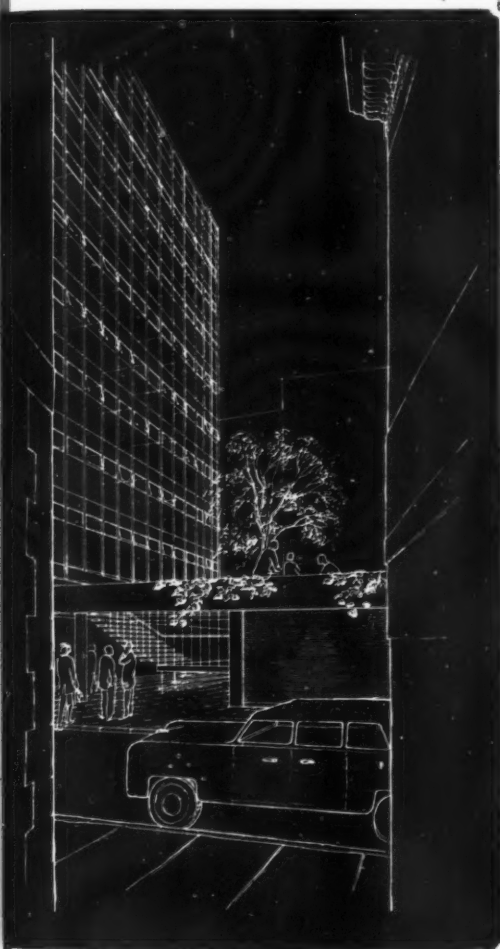
London Showrooms: 20/22 MOUNT STREET, PARK LANE, W.1
Telephone: MAYfair 5671/2



THE ARCHITECTS' JOURNAL for January 5, 1956

CRITTALL FENESTRA WALL

Crittall Fenestra Wall brings to the building industry the answer to a need that architects themselves have made clear—window walls of glass and solid panels; economical, flexible and safe.



The basic—and unique—principle of Crittall Fenestra Wall lies in the separation of the cladding elements from the structural elements. This Crittall system introduces a new and remarkable flexibility to curtain wall construction which is particularly economical and offers exciting new prospects in the field of design. Write for Catalogue 175 which gives full details of the Crittall Fenestra Wall system.

CRITTALL

THE CRITTALL MANUFACTURING CO LTD · BRAINTREE · ESSEX

Factories and Depots throughout the country



Members of the Metal Window Association

THE ARCHITECTS' JOURNAL
for January 5, 1956

Acoustics by **BURGESS**

now!

LARGE 2 FT. BY 2 FT.

ACOUSTIC TILES

BURGESS PRODUCTS CO. LTD. ACOUSTICAL DIVISION, HINCKLEY, LEICESTERSHIRE

3

A

LC

Pr

A NEW 'Phorpres' product . . .



A 3" SIX-CAVITY BUILDING BLOCK

- ★ *Fully load-bearing*
- ★ *Low cost*
- ★ *Good thermal insulation*

Available in course heights of $8\frac{1}{8}$ " and $9\frac{3}{8}$ ", this new "Phorpres" product has a crushing strength which complies with BS.1190:51. It also meets the requirements of the Model Byelaws, Series IV (Third schedule, paragraph 3). An unventilated double skin cavity wall using 3" building blocks in conjunction with $4\frac{1}{2}$ " brickwork gives a thermal transmittance "U" of 0.27.

LONDON BRICK COMPANY LIMITED Head Office: AFRICA HOUSE, KINGSWAY, LONDON, W.C.2 Holborn 8282

Midland District Office:
Prudential Buildings, St. Philip's Place, Birmingham, 3
Colmore 4141

South-Western District Office:
11 Orchard St., Bristol, 1
Bristol 23004/5

Northern District Office:
St. Paul's House, 20-22 St. Paul's Street, Leeds
Leeds 20771



BY APPOINTMENT
TO HER MAJESTY
QUEEN ELIZABETH II
BRICK MAKERS

LB.45

FOR CONCRETE REINFORCEMENT



Architects : Norman & Dawbarn. Contractors : St. Pancras Borough Council, Building Department.

The photograph shows a nine-storey block of residential flats in course of erection for the St. Pancras Borough Council. The reinforced concrete frame was carried out in our patent FRAMEWELD system.

FRAMEWELD

TRADE MARK

PATENT No. 589066

A real time and money saver

T. C. JONES

AND COMPANY LTD
REINFORCEMENT ENGINEERS

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

Bute Street, Cardiff • Tel : Cardiff 28786



Treorchy, Glamorgan • Tel : Pentre 2381

there's nothing quite like

hardec



the **balanced** board
with the 'built-on' decorative
plastic surface

Hardec, the new surfacing and decorating material, has made its mark. This balanced board, with all the tough, decorative qualities of laminated sheet *plus* the dimensional stability only balance can give, was designed to fulfil a particular purpose : all-round economy at the highest quality.

Now, specified by more and more architects, used by an ever-increasing number of builders, Hardec has proved itself up to the hilt. It cuts costs directly—Hardec is decidedly less expensive than similar quality materials; and indirectly—Hardec is simpler to use, and its balanced construction minimises the possibility of dimensional instability.

The architect who specifies Hardec knows it will match his intentions : to the builder Hardec brings the profit of a job well done, and to the client, lasting satisfaction.

Available in sheets 8ft. × 4ft., 6ft. × 4ft., and 4ft. × 4ft.
all $\frac{1}{8}$ " thick nominal, at 3/6 per sq. ft.

Balanced Construction Hardec has a colourful hard-wearing melamine plastic surface, a hardboard core, and a plain plastic backing. This balanced construction minimises dimensional instability.

Attractive Colours There is a wide range of clearer, cleaner colourful linen prints—including buff, green, pink, blue, grey and a variety of natural wood grain finishes. Hardec wipes clean with a damp cloth and the colours and patterns never fade or lose their freshness.

Long Lasting The Hardec surface is scratch- and chip-resistant and is not readily marked by tea, coffee, fruit juices, alcoholic drinks, weak acids and many chemicals, steam or boiling water, and it is resistant to cigarette burns.

Many Uses Hardec is ideal for partitions, panels, ceiling and wall linings, flush door facings, splash panels and table tops. It is finding ever-increasing use in houses, schools, factories, restaurants, bars, shops—and many other applications.

Simply Worked Hardec is worked as readily as ordinary hardboard, with the usual woodworking tools. It is easily fitted on site or machined in quantity. In damp situations the edges of the board should be sealed to prevent ingress of moisture.

Made by the manufacturers of Weyroc man-made timber

THE AIRSCREW COMPANY & JICWOOD LTD · WEYBRIDGE · SURREY · Tel: Weybridge 1600



MORRIS SINGER 'HOLOFORM'

PURPOSE MADE WINDOW WALLS

*'Executives are invited
to send for our
Metal Window Book
entitled "The Design
and Treatment of
Metal Windows and Doors".'*

'Holoform' purpose made metal window wall
installed at 26-32 Oxford Street, London W1.
Supported in pressed steel mullions and head
and cill members, the first floor consists of
fixed glazing with glass louvres in the transome panel.
Other windows are purpose made universal casements
with vertical pivot windows operated by Duplex handles
with horizontal pivot windows operated by remote control.
Architects: Messrs Fitzroy, Robinson & Hubert H. Bull.

THE MORRIS SINGER COMPANY LTD

Ferry Lane Works, Forest Road, London E17 · Telephone: LARKwood 1055

Don't just say felt...

Specify

BLACK SHEATHING FELT

There's a great difference between ordinary roofing felt and Black Sheathing Felt. A difference that is very important to the architect and builder. You can prove this for yourself by feeling the texture of B.S.F. —the tough fibres, evenly saturated with pitch, that become wedded so perfectly with hot asphalte. Split open a piece of B.S.F. and see how the open texture assures maximum insulation. In both cases, you will see the perfect penetration of the pitch with every fibre of the selected jute and felt used.

An experienced craftsman says this about B.S.F.: "If the underlay is Black Sheathing Felt you've got a proved thermal insulator very much better than any other. Architects who specify Black Sheathing Felt do us a good turn!"



- PLEASANT TO HANDLE
- DOES NOT FRACTURE
- DOES NOT ABSORB MOISTURE
- DOES NOT SHRINK



BLACK SHEATHING FELT

Specify and use it as the Underlay for Mastic Asphalte Roofs and Floors

Manufactured by:

D. Anderson & Son Ltd., Manchester; Engert & Rolfe Ltd., London; John Erskine Ltd., Belfast; Robt. McCalmont & Sons Ltd., Belfast; F. McNeill & Co. Ltd., London; Permanite Ltd., London; John Rogers Ltd., Belfast.



quality service to the building industry by

Stellith wood wool slabs and channel reinforced roofing slabs offer many advantages, including exceptional structural strength, light weight, excellent heat insulation and sound absorption properties, easy handling, cutting and fixing and effective resistance to fire and moisture. Their many uses include:—

STELLITH*

- 1 Structural insulating roof deck with channel reinforced STELLITH
- 2 Structural insulating roof deck laid in steel tees
- 3 Structural insulating roof deck over timber joists
- 4 Structural insulating roof deck over concrete purlins
- 5 Sarking over rafters
- 6 Structural insulation under all types of metal roofing
- 7 Structural insulating lining to concrete or steel frames
- 8 Insulating lining under asbestos or corrugated iron roofing
- 9 Suspended ceilings
- 10 Insulation over concrete roofs
- 11 Permanent insulating shuttering to roofs and floors
- 12 Permanent insulating shuttering to walls
- 13 Self-supporting partitions
- 14 Timber stud partitions
- 15 Insulating lining to brick walls
- 16 External wall cladding
- 17 Insulating tank and cistern cladding

Technical information sheets on the above and other uses of STELLITH available on request to:—

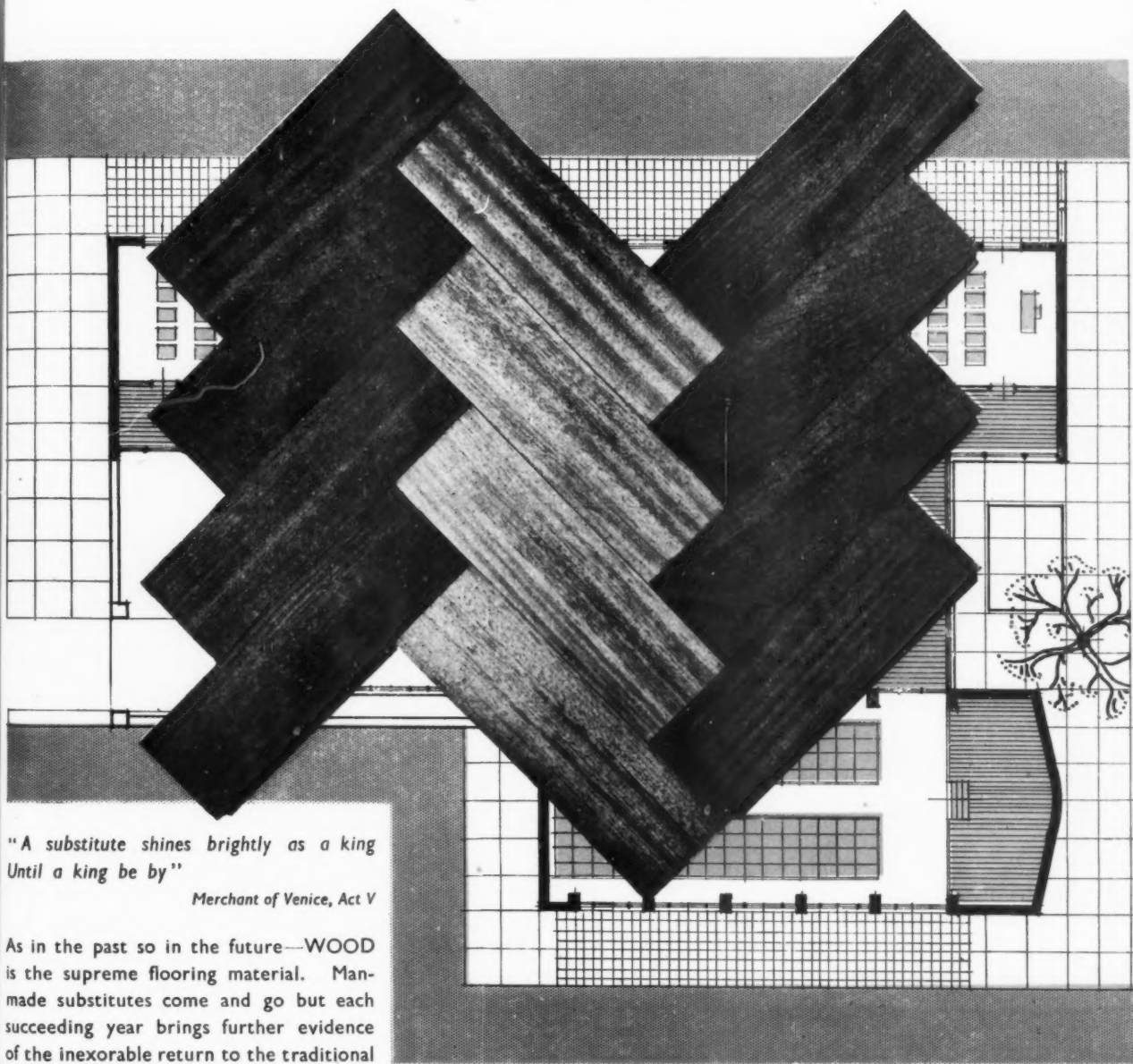
***STELLITH**

wood wool slabs and channel reinforced roofing slabs

STELLA BUILDING PRODUCTS LTD.

Tudor Avenue, North Shields, Northumberland. Tel: North Shields 1474/5

FLOORS for the future . . . by HOLLIS



*"A substitute shines brightly as a king
Until a king be by"*

Merchant of Venice, Act V

As in the past so in the future—WOOD is the supreme flooring material. Man-made substitutes come and go but each succeeding year brings further evidence of the inexorable return to the traditional **HARDWOOD** for floors. Many excellent hardwoods are now available at moderate cost which combine **BEAUTY, DURABILITY** and **COMFORT** with **ECONOMY**.

SPECIFY—MADE IN ENGLAND

to ensure precision in manufacture, controlled moisture content and stability of the floor.

HOLLIS BROS. LTD.

LEICESTER • HULL • LONDON • BIRMINGHAM



Picture of Mr. Smith extending his factory

Supine, serene, successful, and supremely happy is Mr. Smith. The problem of adding two more bays to his factory may cause anxiety to lesser mortals, but not to sagacious Mr. Smith! He succeeds in extending his legs *and* the capacity of his business at one and the same time. His decision to use steelwork and let BOOTHS get on with it* makes sure that he'll be well satisfied with the result and that his brow will remain unfurrowed.

**Mr. Brown and Mr. Robinson please copy with advantage!*

STRUCTURAL STEELWORK FOR FACTORIES, BRIDGES,
POWER STATIONS, GARAGES, STORES, SCHOOLS.
STEEL FIREPROOF DOORS AND ROLLING SHUTTERS.
STEEL AND GLASS PARTITIONS. WELDED TANKS
AND PRESSURE VESSELS.



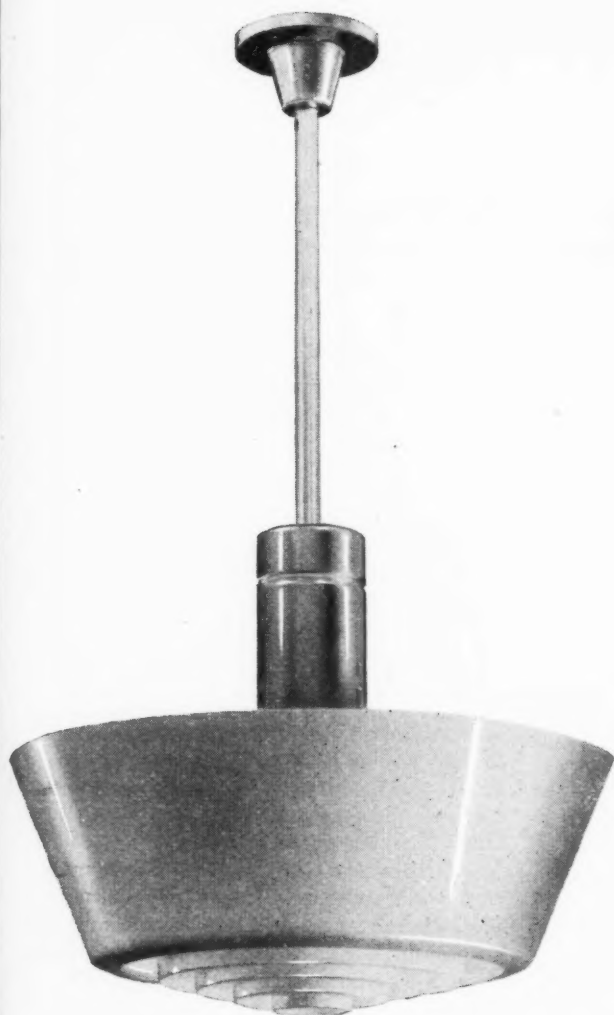
JOHN BOOTH & SONS (BOLTON) LTD., HULTON STEELWORKS, BOLTON

Telephone : BOLTON 1195

LONDON: 26 VICTORIA STREET, WESTMINSTER, S.W.1.

Telephone : ABBey 7162





Produced in quantity

to a high standard

at a new low cost

VENTURA 80





for full details ask for

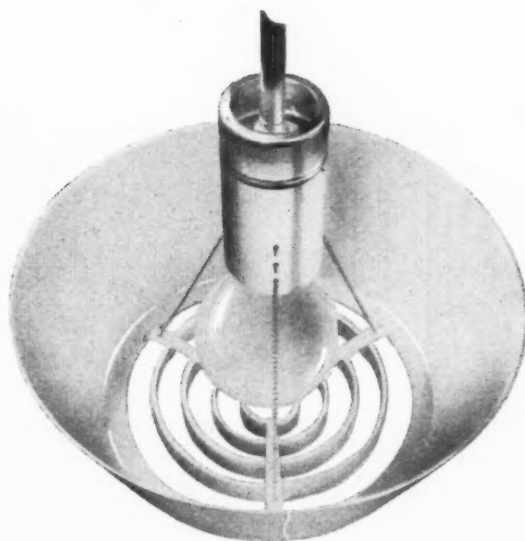
publication V.80.

SPECIFICATION. The 12" diameter louvred diffuser is moulded in a white translucent non-static high temperature plastic, and its position is adjustable for use with a 200w. 150w. or 100w. lamp.

Direct downward lighting is obtained through the louvred aperture, the top is open giving shadowless ceiling illumination. Diffused general lighting with low brightness is obtained through the translucent sides.

Metalwork is in anodised aluminium, finished satin silver.

	V.80. Basic Type for attachment to existing suspensions	22/8 + 5/2 P.T.
	V.82. Ceiling Type	26/8 + 6/0 P.T.
	V.84. Flex Suspension Type	28/0 + 6/4 P.T.
	V.86. Tubular Suspension Type	30/8 + 6/11 P.T.



MERCHANT ADVENTURERS LIMITED
43, PORTLAND ROAD, LONDON W.11. TELEPHONE PARK 5617/8/9

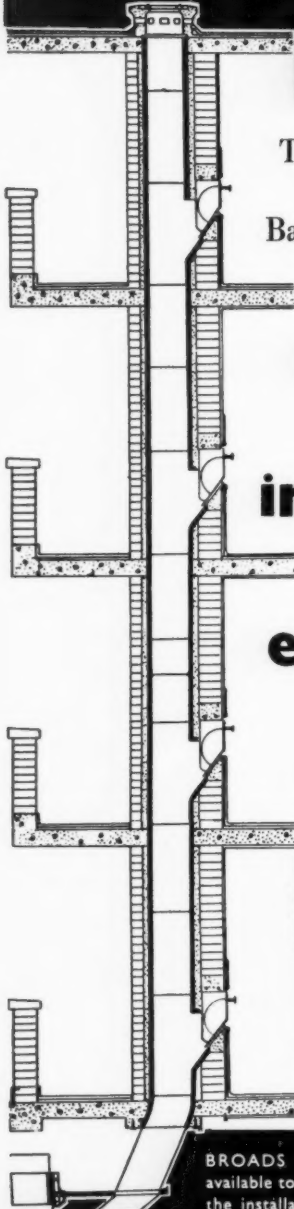
VENTURA DIVISION
'GRAMS MERCHADVEN LONDON

BROADS

PATENT

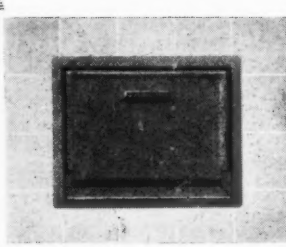
'multiflor'

refuse chute



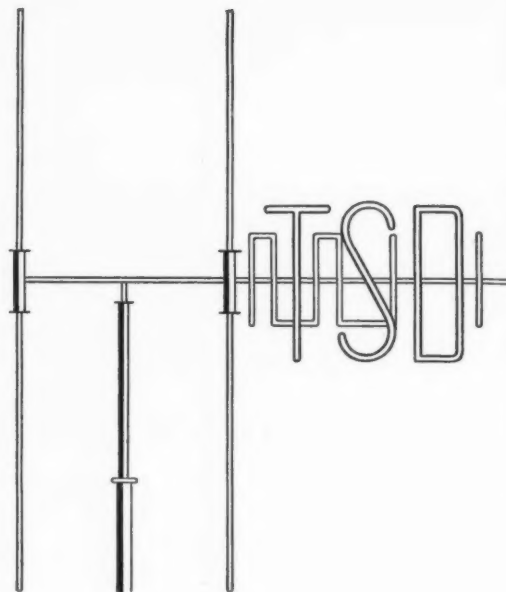
The complete system
from
Basement to Roof level

-
- hygienic**
-
- impervious**
-
- easy clean**
-
- Simple operation



BROADS Technical Service Department is available to prepare lay-out drawings showing the installation of the 'MULTIFLOR' Refuse Chute to suit any particular contract.
Illustrated Brochure sent on request.

BROADS MANUFACTURING CO., LTD.,
4, SOUTH WHARF, PADDINGTON, W.2.
Tel: PADddington 7061 (20 lines)



Unique Frequency

As a company specialising in the development and manufacture of sealing compounds for joints, EXPANDITE Limited are unique. Consequently they have amassed considerable information in this field which is not common knowledge.

The Expandite Technical Service Department provides a consultancy service which is available to all who care to ask. The Department is constantly dealing with the many and varied problems posed by Government Departments, Local Authorities, Civil Engineers, Architects and Industrial Organizations.

The advice is given free and incurs no obligation. The Technical Service Department is there to help you with *your* sealing problems. It will provide the best advice and ensure only the right materials are used to the best effect.

"Joints in Concrete Structures"

This is the title of an informative and useful 16 page paper published by Expandite Limited. A copy will be forwarded on request.

EXPANDITE

LIMITED

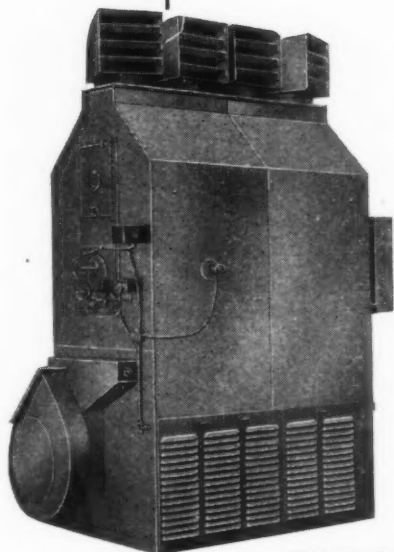
CHASE ROAD · LONDON · N.W.10

Tel: ELGar 4321 (10 lines)

ASSOCIATES AND DISTRIBUTORS THROUGHOUT
THE WORLD

FACTORY HEATING BY

DRAVO



THE ROVER CO. LTD. CHOSE
DRAVO TO HEAT THE EXTENSION
TO THEIR FACTORY AT SOLIHULL

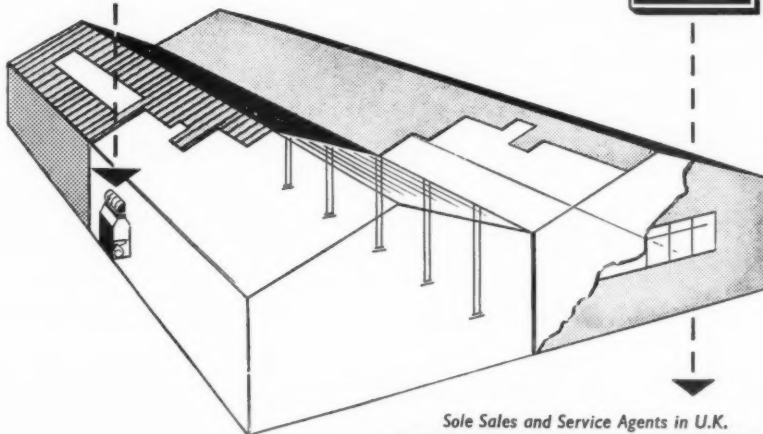
DRAVO direct oil-fired heaters supply warm air over a wide area at working level within a few minutes of start-up. After rapid build up, fully automatic controls maintain temperature at the predetermined level. The automatic operation of DRAVO, combined with its guaranteed 80% combustion efficiency, ensures that fuel consumption is kept to a minimum. Large capacity units of robust construction mean fewer units are required—fewer burners, controls, motors, etc., to buy, install and service. Less attention required, thus, maintenance cost is very low. Fewer units and fewer vent stacks, fuel lines, etc., and simplicity of installation requiring no expensive builders' work, means low capital cost.

ONE DRAVO UNIT
CAN HEAT A SPACE
OF UP TO 500,000 cu. ft.



Available in six sizes —
from 400,000 to 1,500,000
B.Th.U. outputs.

Manufactured by
Coventry Radiator &
Presswork Co. Ltd.



Sole Sales and Service Agents in U.K.

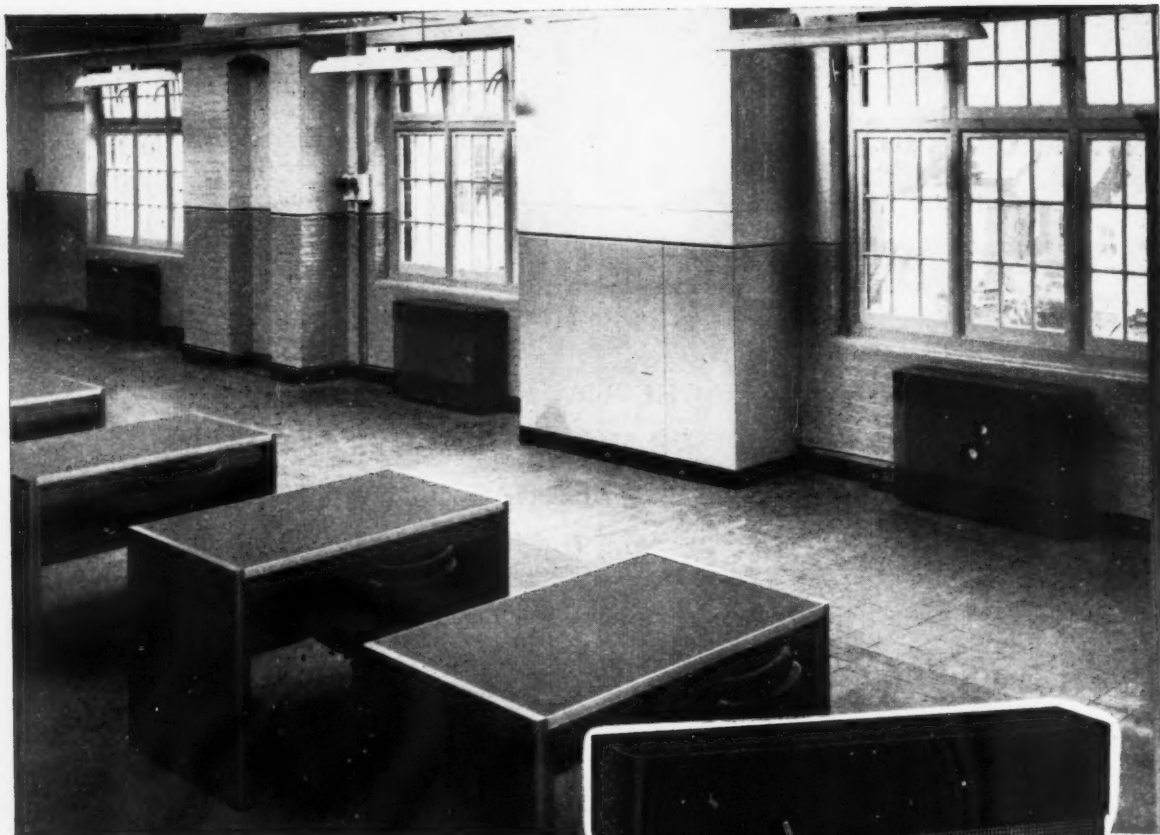
WEATHERFOIL HEATING SYSTEMS LTD

19 Berkeley Street, London, W.1 Telephone: GROsvenor 5146

REGISTERED OFFICE: BATH ROAD, SLOUGH, BUCKS

Branches:

COVENTRY: Broadgate House. Tel: 40110 LEEDS: 5 Heath Road, Leeds, II. Tel: 77616



Photograph by courtesy of the London Co-operative Society Ltd.

*One of
the many
Applications*

FOR USING

DRU gasar Balanced Flue Gas Heaters

The RESULT of EXPERIENCE!

- Available in 7 sizes, from 30 to 114 cu. ft. p. hr.
- Completely sealed combustion system ensuring free ventilation of the products of combustion to the outside air.
- High heating-up rate.
- No condensation.
- Absolute Safety.
- No chimney flue required.
- Ingenious Lighting.
- Long Service Life.

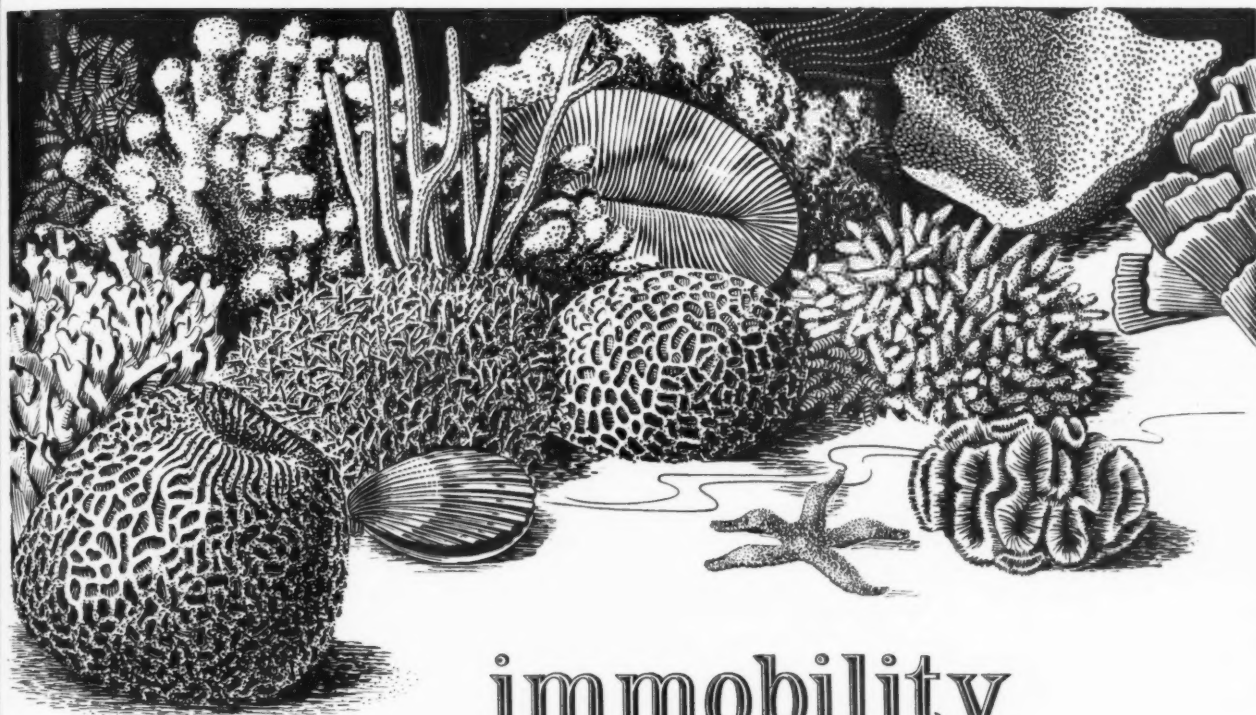


- There is no projection on the outside wall

Please apply for full particulars to Sole Agents for the U.K.:

F. A. BORCHARDT Ltd., 3 Chesterfield Road, London, W.4.
Telephone: CHIswick 4905.

Telegrams: FREDBOR, Chisk. London.



immobility

NATURE makes her own barriers to man's progress. The great Barrier-Reef, made up of innumerable corals of fantastic shapes and brilliant hues, is a typical example; extending for some twelve hundred miles along the eastern seaboard of Australia, it presents a permanent, immovable restriction to the passage of shipping.

In industry, mankind, too, unwittingly builds his own barriers, which collectively cause a tremendous restriction on productive output. Until recent years there has been no practical alternative but to divide working space in industrial buildings with immovable walls. Today, these same walls—often

erected to suit the production needs of 50 or even 100 years ago—merely serve as a barrier to planned production.

The modern method of allocating working space is by the use of movable walls in the form of Rowe Metal Partitions. These can be quickly erected, and dismantled and re-erected to any required layout to avoid congestion or wasted space in Offices, Factory Workshops and Store-rooms. Rowe Partitions are being used by leading businesses throughout the world, saving the cost of expensive alterations and always enabling maximum use to be made of existing space.

We invite you to send for illustrated literature giving full details.

Immobility is no problem at the new factory extension of the Rover Company Ltd., Solihull, where Rowe Metal Partitions are extensively used. Architects: Hasker & Hall.

ROWE BROS. & COMPANY LTD.
PALL MALL LIVERPOOL, 3 CENTRAL 5401

Also at Birmingham, Blackpool, Bristol, Bridgend, Exeter, Glasgow, London and Vancouver and Toronto, Canada.

Factory at Kirkby, Nr. Liverpool.

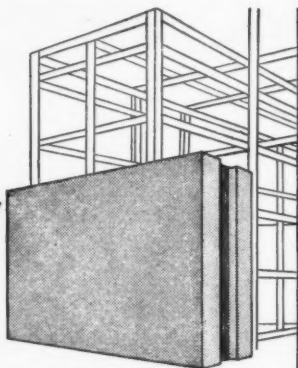
A Product of the Rowe Manufacturing Division.

xliii



PROTECT THE STEEL WORK with

LIGNACITE LIGHTWEIGHT BUILDING BLOCKS



The following is an extract from the Report, a complete copy of which will gladly be forwarded on request.

A fire resistance test in accordance with B.S. 476: 1953, has been carried out on a non-loadbearing wall of Lignacite precast building blocks nominally 4½ in. thick finished on one face with a skim coat of plaster.

The specimen wall satisfied all requirements of B.S. 476 for 4 hours 7 minutes. The performance of the partition was judged on the criteria of stability, integrity and insulation defined in the standard.

The duration of the fire test was 4 hours 22 minutes. On the exposed face the plaster remained intact throughout, except for a few small cracks. Steam and vapours were emitted from the unexposed face between 35 minutes and 2 hours 10 minutes from the start of the test but no observable distortion of the wall was observed and no cracks were visible in the blocks or joints at the end of the test.

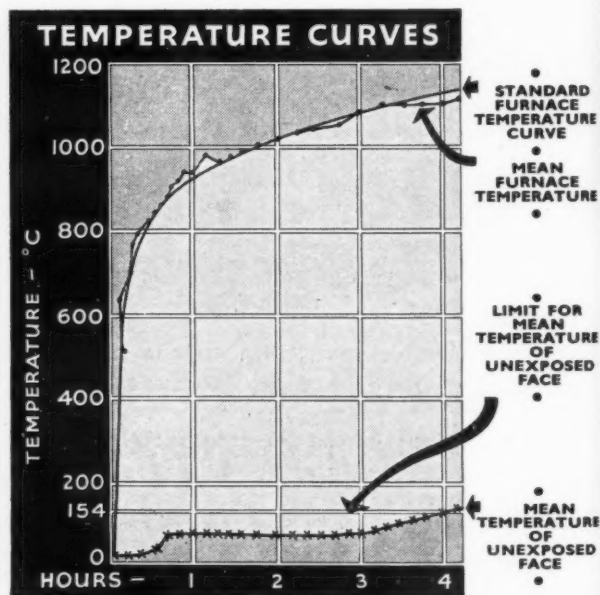
The limiting rise in temperature (mean) of 139° C. on the unexposed face was reached after 4 hours 7 minutes. Just before the test was stopped, at 4 hours 20 minutes, the temperature rise on the unexposed face was 143° C.

A non-loadbearing wall 10ft. square of Lignacite building blocks nominally 4½ in. thick finished on the face exposed to the furnace with a skim coat of plaster

REPORT OF A SPECIAL INVESTIGATION ON LIGNACITE CARRIED OUT BY THE DEPARTMENT OF SCIENTIFIC & INDUSTRIAL RESEARCH AND FIRE OFFICES COMMITTEE, JOINT FIRE RESEARCH ORGANISATION

as described in this report fulfilled the insulation requirements of B.S. 476: 1953 for 4 hours 7 minutes. The wall maintained its stability and integrity up to 4 hours 22 minutes, when the test was terminated.

The Lignacite wall therefore provided fire resistance of the 4-hour grade.



LIGNACITE

LIGNACITE (North Eastern) Ltd., Whitley Bridge, Nr. Goole, Yorks.
Telephone: Whitley Bridge 354/5.

LIGNACITE (North London) Ltd., Meadgate Works, Nazeing, Essex.
Telephone: Hoddesdon 2277.

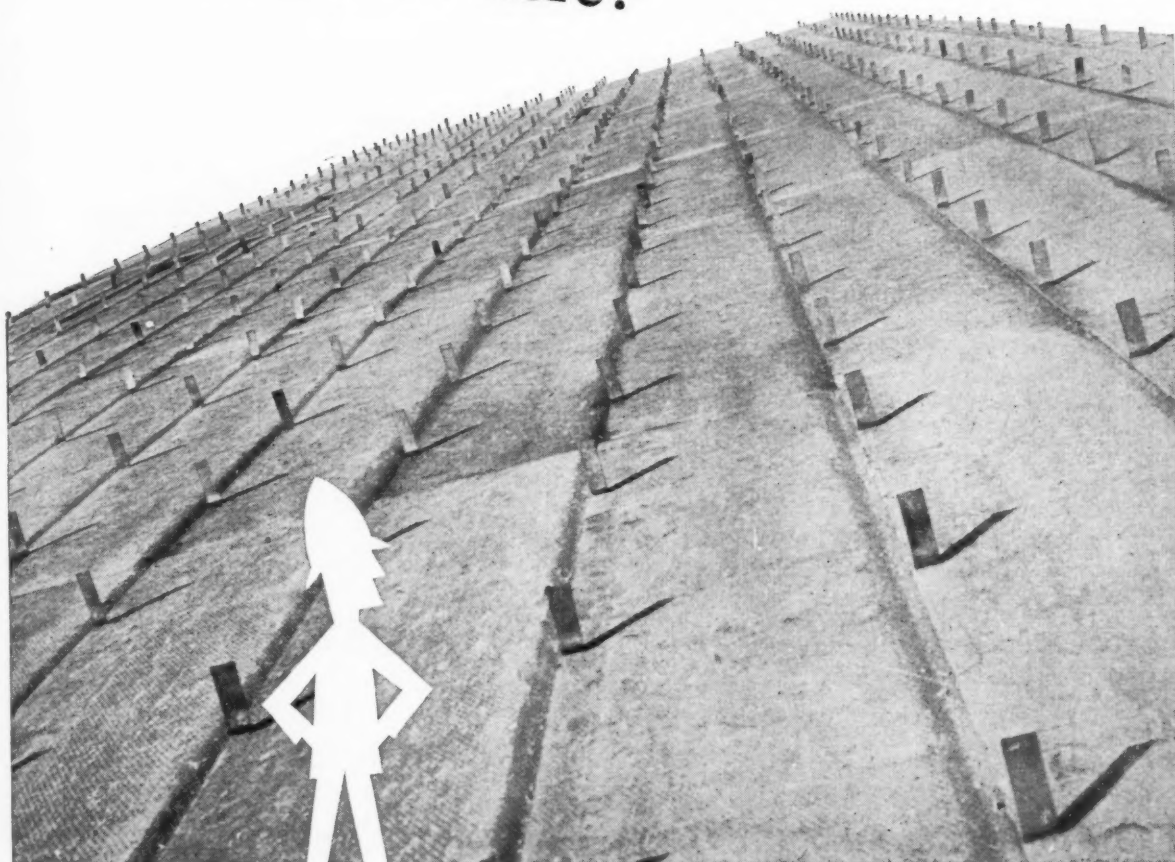
LIGNACITE (Home Counties) Ltd., Bracknell, Berkshire.
Telephone: Bracknell 666.

LIGNACITE (Fordingbridge) Ltd., Fordingbridge, Hampshire.
Telephone: Fordingbridge 2177.

LIGNACITE (South Eastern) Ltd., Ninfield, Sussex.
Telephone: Ninfield 345.

LIGNACITE (Brandon) Ltd., Brandon, Sussex.
Telephone: Brandon 350.

What's going on here?



The above illustration could suggest a number of things ; perhaps a plantation in its early stages or even a cemetery for pets. It is, in fact, a stage in the laying of copper to a shallow-pitched roof with the clips firmly anchored to the decking.

Braby have, for more than a century, been the leading specialists in Copper Roofing and examples of their work are to be seen on many Cathedrals, Churches, Public Buildings, Colleges, Factories, Docks, etc.

The Braby Technical Staff is always available for consultation on questions of Copper, Aluminium or Zinc Roofing.

ONE OF THE WIDE RANGE OF

BRABY

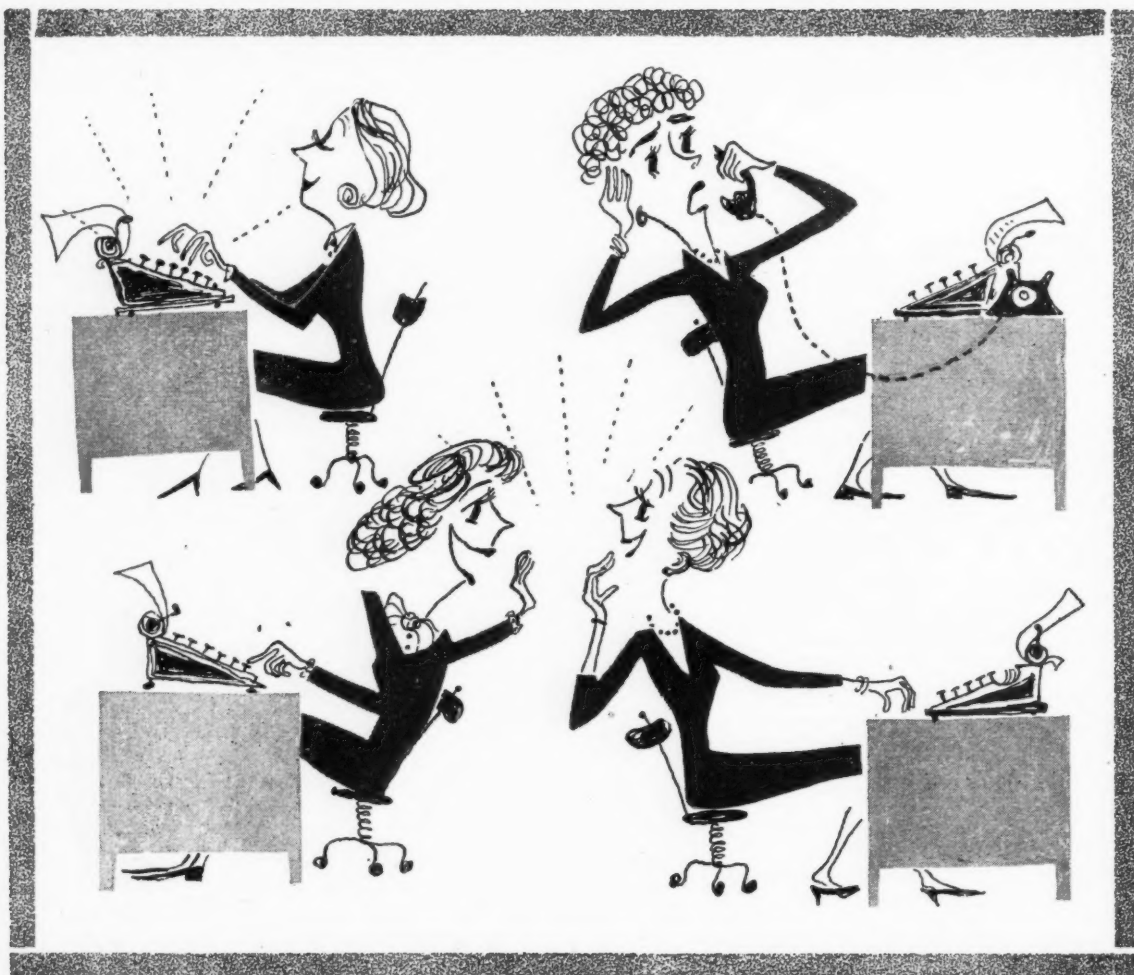
ACTIVITIES

FREDERICK BRABY & COMPANY LIMITED

Head Office: 352-364 EUSTON ROAD, LONDON, N.W.1. TELEPHONE: EUSTon 3456

OTHER FACTORIES AT: London Works, Thames Road, Crayford, Kent. TELEPHONE: Bexleyheath 7777
Havelock Works, Aintree, Liverpool, 10. TELEPHONE: Aintree 1721
Eclipse Works, Petershill Road, Glasgow, N. TELEPHONE: Springburn 5151
Ashton Gate Works, Bristol, 3. TELEPHONE: Bristol 64041. And Falkirk.

OTHER OFFICES: 110 Cannon Street, London, E.C.4 (Export). TELEPHONE: MANsion House 6034
Queen's Buildings, 10 Royal Avenue, Belfast. TELEPHONE: Belfast 26509
Palace Street, Plymouth. TELEPHONE: 62261.



Meet Mesdemoiselles Potter, Pettigrew, Jones and Unwin

They are what is known as a pool. Not one of those peaceful pools that encourage deep reflection and concentration: contrariwise. While May Potter is pounding out a report on her noiseless, Sheila Jones is telling Mavis Pettigrew about last night, while Phyllis Unwin is carrying on with difficulty a telephone conversation about an important client who's lost in the lift or somewhere. If only a girl could *hear*. Shut up, Sheila, do!

No, no, Miss Unwin! Don't blame Sheila, blame the architect who forgot Fibreglass sound absorption when he designed the tower of babble in which you work. This easily-installed, everlasting material will enhance concentration, save time lost in repetition, reduce errors and improve tempers out of all proportion to its modest cost.

wrap that office in

FIBREGLASS
TRADE MARK

FIBREGLASS LIMITED, RAVENHEAD, ST. HELENS, LANCs. (ST. HELENS 4224). FACTORIES AT ST. HELENS, LANCs. AND POSSILPARK, GLASGOW.



THE ARCHITECTS' JOURNAL

EDITORIAL BOARD: (1) *Consulting Editor*, F. R. Yerbury, O.B.E., Hon. A.R.I.B.A. (2) *House Editor*, J. M. Richards, A.R.I.B.A. (3) *Executive Editor*, D. A. C. A. Boyne. (4) *Editor Information Sheets*, Cotterell Butler, A.R.I.B.A. (5) *Editorial Director*, H. de C. Hastings.

GUEST EDITORS (COSTS): (6) N. Stanley Farrow, M.B.E., M.I.O.B.; A. W. Cleeve Barr, A.R.I.B.A.; James Nisbet, A.R.I.C.S.; Ivan Tomlin, A.I.B.E.; E. F. L. Brech, B.A., B.Sc.(ECON.), M.I.I.A.

TECHNICAL EDITOR: (7) Lance Wright, A.R.I.B.A.

SPECIALIST EDITORS*: (8) Planning (9) Practice (10) Surveying and Specification (11) Materials (12) General Construction (13) Structural Engineering (14) Sound Insulation and Acoustics (15) Heating and Ventilation (16) Lighting (17) Sanitation (18) Legal.

ASSISTANT EDITORS: (19) *Chief Assistant Editor*, Kenneth J. Robinson. (20) *Assistant Editor (Buildings)*, L. F. R. Jones. (21) *Assistant Editor (Production)*, W. Slack. (22) *Assistant Editor (Information Sheets)*, V. A. Groom. (23) *Assistant Editor (Costs)*, J. Carter, A.R.I.B.A. (24) *Photographic Department*, H. de Burgh Galwey, W. J. Toomey. (25) *Editorial Secretary*, Monica Craig.

* To preserve freedom of criticism these editors, as leaders in their respective fields, remain anonymous.

9, 11 & 13, Queen Anne's Gate, Westminster, London, S.W.1 Whitehall 0611

No. 3175 January 5, 1956 VOL. 123

Subscription rates: by post in the U.K. or abroad, £2 10s. 0d. per annum. Single copies, 1s.; post free, 1s. 3d. Special numbers are included in Subscriptions; single copies 2s., post free 2s. 3d. Back numbers more than 12 months old (when available), double price. Half yearly volumes can be bound complete with index in cloth cases for 30s.; carriage, 1s. extra.



ROYAL GOLD MEDAL, 1956

The RIBA's announcement of the award of the Gold Medal to Walter Gropius comes as a welcome, though not unexpected, surprise to his friends and contemporaries in this country. It is slightly shocking to realize that Walter Gropius is now 72 and, indeed, that most of his *avant garde* contemporaries, particularly Mies van der Rohe and Le Corbusier, who worked at the same time in the Behrens office in the first decade of the century, are in their 70's. To many of us they are still *enfants terribles* of 20th century architecture, for it is this triumvirate, and others, who pointed in the 20's to a positive new way by their example. Walter Gropius differs from his con-

temporaries in many important, if self-abnegating, ways. He was, and is, above all a teacher, and as founder and first Director of the Bauhaus from 1919 to 1929, and later as Nelson Robinson Professor of Architecture at Harvard University, he has had a greater influence on the training of architects than any other man.

*

As a practising architect he remains an enigma. He has, above all, preached the gospel of collaboration and group working. Whereas one can clearly see the benefit of his philosophy in the high standard of work that comes from local authorities and private offices today, it leaves us an obscure picture of his own work. Indeed, so strongly does he seem to feel on this question of collaboration that he would appear, at times, almost to under-rate his own part in the buildings which are asso-

ciated with his name. It is probably true to say that he has hardly ever carried out a building without collaborating with another, or a group of other architects, and yet whether it be those excellent pre-1914 factories, the Bauhaus at Dessau, those buildings which he did in partnership with Maxwell Fry in this country or the houses and schools he has done in America, first with Breuer and later with the Architects' Collaborative, they all bear an unmistakable stamp of quality which does not always appear in the works of his associates. The honour conferred on him by the RIBA is all the more welcome to us in this country since Walter Gropius was the most eminent of the emigré architects to practice here. No doubt the RIBA will be packed with those anxious to applaud him when he comes to receive the award in a few months' time.

It has been drawn to our attention by the President of the Royal Institute of British Architects that certain comments offered by ASTRAGAL in the issue of December 8, 1955, might be misunderstood as a grave reflection upon his integrity and that of the Institute.

The reference to an impression amongst members that the Institute were recommending the names of Architects as a means of rewarding dutiful Committee Members was not intended as a statement of fact and we admit that there is not the slightest substance in this suggestion, which we unreservedly withdraw.

We extend to the President and the Institute our sincere apologies.

NO SPACE FOR ARCHITECTURE

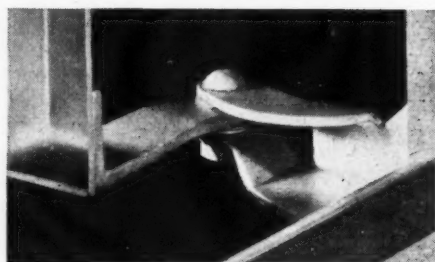
The opening of the important exhibition of American modern art at the Tate Gallery yesterday underlines the really serious shortage of exhibition space in London—especially exhibition space available for architecture. The Tate Gallery exhibition, which has been brought over by the Museum of Modern Art in New York, was shown in Paris in the summer. It was a great success there, and the greatest success of all, I am told, was the architectural section. This has been omitted altogether from the London showing.

*

It is not the Tate Gallery's business to exhibit architecture, nor is the space

HOPE'S

HOT-DIP GALVANIZED WINDOWS



WITH THE PATENT FRICTION HINGE

NOTHING TO WEAR OUT

NOTHING TO GO WRONG

NO STAY TO CLUTTER THE CILL

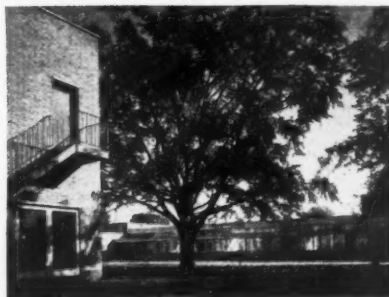
LESS MAINTENANCE

SINGLE-HANDED OPERATION

OF LASTING QUALITY

SEND FOR STANDARD WINDOW CATALOGUE NO. 284

HENRY HOPE & SONS LTD
SMETHWICK, BIRMINGHAM
& 17 BERNERS ST., LONDON, W.1



ASTRAGAL comments on the previous page on the award of the RIBA's Royal Gold Medal to Walter Gropius, shown top left. The other illustrations will serve to remind readers of some of his familiar designs carried out in this country and America. The English examples: a house at Sevenoaks, above left, and Impington Village College, top centre, designed in partnership with Maxwell Fry nearly twenty years ago, are still notably fresh in feeling and would be certain to arouse considerable opposition from some present-day planning authorities. Top right, the house Gropius designed for himself in Massachusetts, and above right, the famous dormitories for Harvard University.

available there. But it is a tragedy that while the rest of the exhibition is on show in London, the architectural section must remain in store. The RIBA does its best to exhibit architecture to the public, but the Henry Florence hall is required for other purposes—such as examinations—and is in any case always booked up well in advance.

*

There is apparently nowhere else where a fairly big exhibition like this can be shown—nor indeed are there enough places for small exhibitions. Is there, I wonder, any chance of the exhibition hall which was talked of in connection with the South Bank development getting built? The completion of the area alongside the Festival Hall has been mentioned lately by the LCC in a general way. If the LCC could bring these plans to fruition soon and include a good-sized exhibition gallery in them, they would be doing London a very good turn.

OUTRAGE IN THE HOUSE

A debate on *Outrage* in the House of Commons is a thought which should

make any self-respecting borough surveyor blench. Yet this very thing happened last Wednesday week on the Christmas adjournment. Nigel Nicolson tabled a motion, signed by 25 MPs of all parties, deploring "the ravaging of the countryside and defacement of the towns by ill-planned development" and urging the setting up of a "council of civic design to assist and advise local and public authorities"—analogous to the COID but concerned with the siting of objects once they had been (well or badly) designed.

*

Having had the allotted time halved by Mrs. Castle on the maltreatment of Mau-Mau suspects, Mr. Nicolson was forced to halve his speech also; but even so, it was a brilliant and eloquent statement of the facts of the case.

*

Having been stated so well, the whole subject was comprehensively white-washed, first by Chuter Ede and then in the ministerial reply, by Mr. Deedes, as you can read for yourself in the full report of the debate given on pages

7-10. It is true that Mr. Deedes said that the MOHLG was considering "a council of civic design, or something equivalent" and so the debate could have been called successful; but at a deeper level it was profoundly depressing. There was never a glimmer of recognition, in the carefully negative officialese of Mr. Ede's and Mr. Deedes' remarks, that the subject under discussion was one that had to do with the English landscape at all; that it was just another administrative matter on some council minutes, but something that is happening everywhere and all the time. The subject was so devalued that when the subject changed, at 1.44 p.m., to Pig Marketing, ASTRAGAL could hardly tell the difference.

For Mr. Ede, postwar local authorities have done no wrong; speaking of the LCC prewar St. Helier estate in Surrey he said "it set a standard which, I am glad to note, other local authorities in the county have followed in their postwar developments." ASTRAGAL advises a visit to the LCC's postwar estate at Merstham, or Croydon BC's postwar expansion of New Addington—both in



The AJ Research Fellow, 1956

As announced on page 7, Michael Ventris, above, has been awarded the first Fellowship by the AJ Research Board. The value of the Fellowship, which is of approximately a year's duration, is £1,000. The subject of this Fellowship, as readers will be aware, is "Information for the Architect." To this study Michael Ventris brings his AA training (which concluded with a Dip. Hons.), four years' experience with the Architects and Building Branch of MOE, and the ex-

ceptional analytical ability which enabled him to be the first to decipher the early Greek tablets from Mycenaean sites. He is, suitably, at once a member of the MARS Group and a Fellow of the Society of Antiquaries. His recreations are skiing, colour photography, foreign languages and goggle fishing—accomplishments which will doubtless help him to run down, snap, interpret and spear the architect's information for us all. See also the first leading article opposite.

POINTS FROM THIS ISSUE

AJ £1,000 Research Fellowship award announced ..	below and pages 4 and 7
New Year Honours List	page 7
Gropius receives RIBA Royal Gold Medal	pages 1 and 7
House of Commons debates "Outrage"	pages 3 and 7
IUA bans foreign architectural competition	page 10
James Gardner and Howard Lobb and Partners to work on Brussels Exhibition, 1958	page 10

the Green Belt—as an antidote to complacent thinking.

*

The answer may be that if all council meetings on planning matters were conducted out of doors at the scene of the crime, there might be a startlingly rapid improvement. Meanwhile, ASTRAGAL, always misanthropic, continues to put his trust in his favourite private antidote to Outrage—kicking up hell.

THE LONDON SOCIETY OF ARCHITECTS

There is no such thing as the above, of course. The AA is supposed to look after the interests of architects in the London area in the same way as the Allied Societies do in the provinces. It is a pity, therefore, that so many people think of it, erroneously, as a kind of old-boy's club. It is a pity, too, that it is not used to disseminate (very discreetly, of course) the views of the RIBA council and the issues with which the RIBA are concerned among London architects. Oddly enough, ASTRAGAL often finds that provincial architects are better informed on RIBA Council matters than London architects, largely because the chairman or President of a local society undertakes to keep his society council (which may include a representative of most of the larger offices in the area) fully informed on RIBA Council affairs. But this is not universal practice, and misunderstandings arise, as the following quotation from the presidential address by H. A. Hickson, to the Sheffield, South Yorkshire and District Society of Architects and Surveyors, shows:

"On attending the first meeting (of the RIBA) one is confronted by a highly complicated mass of documents and reports marked "private and confidential." One wonders why one should attend meetings as a representative of an Allied Society if one is not allowed to divulge the matters discussed. A number of us asked the secretary, Mr. Spragg, about this, and we were informed that we could discuss these matters with our councils, using some discretion. We asked because it was apparent that items were sometimes settled before the Members of the Allied Societies could have a voice in the matter, and several controversial items were due to be presented. Thereafter any subjects arising which I felt would affect the members of your society I placed before your council. We then had discussions which were helpful to me in voting, or ... getting a motion on the order paper allowing me to speak."

This sincere statement does suggest that more publicity for RIBA Council and Committee activities would benefit the whole profession.

ASTRAGAL

The Editors

THE MAN FOR THE JOB

WE did not envy the AJ Research Board their task of deciding to whom to give their first Research Fellowship. What kind of man is best qualified to survey the architect's information for him? Ought he to have had a few years' or half a life-time's office experience? Ought he to have received this experience in an *ordinary* office (whatever that may mean) or in one of the small number of offices which we consider to be exceptional? Ought he to be a "BRS type," to whom daylight factors and U-values are second nature? These and many other questions like them are not easily resolved. The Board's choice of Michael Ventris has the merit that it cannot be called a compromise. For though he is by no means an outsider to the practice of architecture, no one could say that his experience was typical. It is not, after all, the common lot of architects to receive an honorary doctorate from the University of Uppsala for deciphering Mycenaean script. Though readers will doubtless see a similarity between this last and some of the technical data they have to unravel, the point about this decision is that the Board have judged that, in this matter, ability was more important than experience. In this they are surely right. During his four years with the MOE, Michael Ventris will have had a sufficient insight into the problem set, and will have had an occasional glimpse of what architectural practice might become if the architect's information were organized for him: but his real strength lies in the fact that he brings to this tough undertaking intellectual powers which are quite exceptional among those of his generation who have received an architectural training. We have cause to expect something really good.

EDUCATION IN THE LONDON AREA

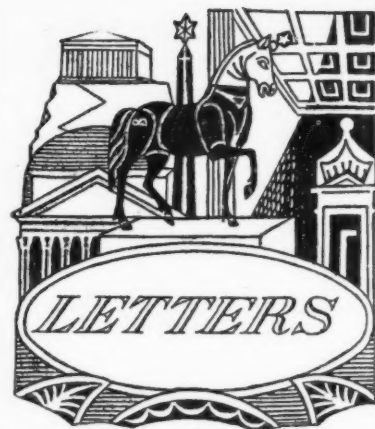
"Encouragement should be given to the association of studies in architecture with those in building. It is felt that this association would prove most profitable in educational establishments providing the widest possible range of building

studies, including building management and research." This is perhaps the most important statement in the brief report recently published by the London and Home Counties Regional Advisory Council for Higher Technological Education. Other recommendations are: First, that as there is no reason to expect any appreciable increase in the demand for architects in the foreseeable future or that the profession will wish to recruit a larger proportion of entrants from those who have taken a full-time course; only a limited number of full-time architectural schools should operate. Second, that these schools should be well housed, staffed and equipped and be above "minimum" standards, especially as regards the number of students required to maintain a flourishing school at all stages of the course. Third, allowance in these numbers should be made for students from other parts of Britain, or overseas, wishing to be educated in the London area. Fourth, to ensure that a limited number of full-time schools can effectively serve the region, hostel accommodation should be provided for those unable to travel daily from school.

All these seem innocuous and worthy enough, particularly when one takes into account the information given in the appendices of the report. These show that there are 13 schools providing full-time courses for over 1,200 students, and 18 schools (the bulk of the 13 full-time schools are included in this figure) providing part-time day or evening courses for over 1,300 students.

The implication of the first recommendation given above would seem to be that full-time schools of small size provide less satisfactory training than part-time schools and that there is a limited demand for full-time school-trained men by the profession. Why else should this report recommend a limited number of full-time schools? Why not limit part-time schools as well? There may well be good evidence that small full-time schools are unsatisfactory, but one would like to hear it. No one can claim that school training is perfect but many are aware of their imperfections and endeavouring to correct them. It has usually been accepted that full-time training, preferably at a university, is the best. The present faults of full-time training should not be used to encourage what is essentially an inferior method—the part-time school. It is regrettable that this otherwise worthy report does not adequately substantiate its arguments. And it is surely extraordinary that a report concerned with the *provision* of courses of architecture should go out of its way to comment on one educational issue: the need for associated building and architectural studies, referred to above, when there are so many other equally important educational problems to study, such as, for instance, costs, office efficiency in the widest sense for both architects and builders, and the organization of site operations.

Architectural Education in the Region (Second Report): Full-time Courses. Published by the Regional Advisory Council for Higher Technological Education, Tavistock House, South, Tavistock Square, London, W.C.1. Price 1s. The membership of the sub-committee was as follows: D. E. Woodbine Parish, Chairman, regional advisory committee for the building industry; D. H. Beaty-Pownall, FRIBA, Board of Architectural Education, RIBA; Everard Haynes, MA, Secretary, Board of Architectural Education, RIBA; T. E. Scott, FRIBA, head of the Northern Polytechnic School of Architecture; D. A. G. Reid, M.Sc.(Eng.), Principal, Briston School of Building; C. E. Gurr, M.Sc., Chief Education Officer, Middlesex; J. Addison, H.M.I., Ministry of Education (assessor). Mr. Beaty-Pownall and Mr. Everard Haynes were nominated by the RIBA Board of Architectural Education. Mr. Addison served as the MOE's assessor, and the remaining members were selected representatives of the regional advisory committee of the building industry.



P. A. Kreamer

A. A. Stuart Sharp, A.R.I.B.A.

Anthony D. C. Smith, Director, Francis
Morton (Spring Floors) Ltd.

Alan Roscoe-Hudson, A.R.I.B.A.

How To Avoid "Buck- Passing"

SIR,—I must point out the mistake—or at least I hope mistake—which appeared on p. 762 of the JOURNAL of December 8, that houses were insulated to a U rating of 1. Surely this sort of error should not creep into a journal of your type?

Secondly, it seems a pity that before writing his latest article Mr. O. J. Masterman didn't study those which have gone before. Amongst other things the site-office "Cautionary Tale" came into Basildon Jones's first appearance in your pages. We realize there are an awful lot of poor sub-contractors, bad Clerks of Works, shocking architects and putrid contractors and, to judge by the beneath-photograph credits in this series, only one good engineer in this country, but to keep telling us so will not make them any better.

Surely the answer to this whole problem was given by Nevin only a few weeks ago: Let the client go out to competition for the whole job, let him state his requirements and have selected firm's design, price and be prepared to carry out the scheme which they propose to fill the bill.

Only with this system shall we lose this acrimonious "buck passing" which seems to pervade the industry today and weld together a team with one object in view, i.e., the speedy, economic and satisfactory completion of the job.

And lastly, page 780. Surely 0.17 is more than a little optimistic for the U value of an 11-in. composite cavity wall even if the inner leaf blocks are hollow?

P. A. KREAMER.

Sanderstead.

[The Guest Editor articles, as Mr. Kreamer would surely agree, do rather more than merely tell readers how inefficient everyone is. If he reads them again he will find a great many practical and constructive suggestions. Mr. Kreamer's "answer to the

whole problem" was described and commented on at length in the JOURNAL for November 24, page 696, under: "Combined Design and Construction Contracts." As regard Mr. Kreamer's references to U values, the first was a misprint for 0.1. The second, which had been supplied by the architect of the building, would seem to be optimistic; the value given by BRS for such a wall is 0.22.—Eds.]

Support For Exasperated Architect

SIR,—Hear! Hear! Evans for President!
A. A. STUART SHARP.
Watford.

[Mr. Sharp is referring to a letter from a Torquay architect, J. Evans, whose letter appeared in the JOURNAL of December 22. We regret that owing to a printer's error Mr. Evans was referred to as a member of the staff of Easton and Robertson. This attribution belonged to the author of the letter preceding that of Mr. Evans, which was titled "A Leakage of Sound."—Eds.]

Sprung Floors

SIR,—Mr. Malcolm Mitchell's recent letter on the subject of sprung dance floors implies a dearth of available systems with which to meet his requirements, and complains of the lack of versatility and the high cost of those already in general use.

If I may be permitted to comment on these points in turn—of the types mentioned by Mr. Mitchell, one, diagonally braced wood, is not strictly a sprung floor at all and, at best, can be classed as semi-resilient; the other, Hardwood on concrete, is not even resilient.

Among the fully sprung systems, however, there is available from the firms who specialize in these floors a very wide choice ranging from simple inexpensive installations using semi-elliptical spring fitments to the more elaborate coil spring installations complete with a locking device by which the floor can quickly and easily be made either absolutely rigid or fully sprung, according to the use the floor is required for on a particular occasion.

The coil spring systems are individually designed to meet the needs of any proposed scheme and are so constructed that any particular part of the floor responds to movement, so that the weight of a single dancing couple is sufficient to spring the section of the floor they happen to be on at any time. Admittedly, under crowded condition the springiness is reduced by the added weight but it always remains efficient until the weight becomes so excessive as to bring into operation the check buffers inserted to prevent damage to the springs through overloading.

It is true that the degree of spring cannot be adjusted from one moment to another to suit anticipated loading, as a refinement of this order would increase the cost beyond all proportion and the need for such adjustment has never been found necessary in practice. I maintain that available systems provide a fair compromise between versatility and cost which should suit all reasonable requirements.

ANTHONY D. C. SMITH.

Hayes.

SIR,—In reply to the letter from Malcolm L. Michell, he might be interested in the floor construction of the Sports Hall at Vordingborg, Denmark. This is a resilient all-wood floor construction which I think is highly successful. The system was illustrated in *Wood* on page 455 of the November, 1954, issue.

ALAN ROSCOE-HUDSON.

Oxford.



A J RESEARCH BOARD

Award of Fellowship

The ARCHITECTS' JOURNAL Research Board announce that they have awarded their first Fellowship, which is to be devoted to the subject of "information for the architect," to Michael Ventris, O.B.E., A.R.I.B.A., A.A.D.I.P.L. (HONS.). The value of the Fellowship is £1,000, and is tenable for approximately one year.

[For editorial comment on this award see pages 4 and 5.]

NEW YEAR HONOURS

Knighthood for Secretary, RICS

The following architects, engineers, surveyors, scientists and others connected with the building industry have received awards in the New Year Honours List:

Knights Bachelor—Brigadier A. H. Killick, Secretary, RICS; G. M. McNaughton, chief engineer, MOHLG; A. G. Pugsley, Professor of Civil Engineering, University of Bristol; Professor Solly Zuckerman, deputy chairman, Advisory Council on Scientific Policy.

GCB—Sir H. Corti Emmerson, Permanent Secretary, MOW (Permanent Secretary designate, MOLNS).

CMG—R. Turner, Assistant chief architect, MOW.

KBE—Sir Hugh Beaver, for public services and services to industry.

CBE—Alderman H. N. Bewley, chairman of the Housing Committee, Liverpool County Council; C. C. Burdige, regional director, Leeds, MOW; S. H. Clarke, Director, Fire Research Station, Department of Scientific and Industrial Research; W. G. Fiske, chairman, LCC Housing Committee; Mrs. E. C. Mee, HM Inspector of Schools (Chief Inspector), MOE; G. V. Strudwick, Director of Contracts, MOW; E. S. Watson, HM Inspector of Schools (Divisional Inspector), MOE.

KCVO—Professor A. E. Richardson.

OBE (Colonial Office List)—G. C. W. Baldwin, executive engineer, Public Works Department, N. Rhodesia.

OBE (Prime Minister's List)—W. S. Catlow, senior civil engineer, War Office; L. R. Chambers, secretary, National Council Building Material Producers; Miss L. F. Chitty, chief correspondent for Shropshire, Ancient Monuments Department, MOW; Alderman W. R. Dixon, chairman, housing committee, Ripon City Council; V. I. Gaster, principal regional officer, E. region, MOHLG; J. R. James, senior research officer, MOHLG; I. G. Lindsay, for service to architecture in Scotland; D. St. C. Macphail, lately chief architect and surveyor, Department of Agriculture for Scotland; D. M. O'Herlihy, borough surveyor, Tynemouth; W. C. Orr, principal, MOW; A. W. Wilkins, HM Inspector of Schools, MOE.

RIBA

Royal Gold Medal, 1956

The Queen, on the recommendation of the RIBA, has awarded the Royal Gold Medal for Architecture for 1956 to Dr. Walter Gropius, an Honorary Corresponding member of the RIBA. Dr. Gropius, who is 72, was trained in Germany, and set up in practice in Berlin in 1910 after three years as an assistant to Peter Behrens.

His first commission, undertaken in 1911, at the age of 28, in collaboration with Adolf Meyer, was for the Fagus Shoe-last Factory at Alfeld-on-the-Leine. The building was, to quote Mies van der Rohe, "so excellent that he became with one stroke one of the leading architects of Europe." This was followed in 1914 by the equally revolutionary "Hall of Machines" for the Werkbund Exhibition in Cologne.

After the first World War he was appointed Director of the School of Arts and Crafts

continued on page 10

The exposure of the national disease of subtopia, so capably diagnosed in the Architectural Press publication "Outrage," has now attracted the attention of Parliament. We publish below from Hansard the full account of the debate which took place on Wednesday, December 21. ASTRAGAL comments on this debate on page 3 of this issue.

PARLIAMENT

Town and Country Planning Debate

MR. NIGEL NICOLSON (Bournemouth, East and Christchurch): In view of the lack of time I shall cut out much more than half of what I intended to say, and I hope that hon. Members will not regard the shortness of my speech as diminishing in any way from the importance of the subject I wish to raise.

Six months ago, the *Architectural Review* published a special issue about the increasing defacement of our town and countryside by ill-planned, ill-designed, ill-conceived, and ill-executed building and suburban sprawl masquerading under the name of development. The book was by Ian Nairn; its title,

"Outrage." It exploded like a rocket in the faces of Government Departments, local authorities, and owners and occupiers of private land. This House would itself be guilty of the charges of desecration which it brings, if we were to scoff at its evidence or ignore its moral.

What was the argument of that book? Let its own introductory words speak for themselves:

"If what is called development is allowed to multiply at the present rate, then by the end of the century Great Britain will consist of isolated oases of preserved monuments in a desert of wire, concrete roads, cosy plots and bungalows. There will be no distinction between town and country. . . . The end of Southampton will look like the beginning of Carlisle: the parts in between will look like the end of Carlisle or the beginning of Southampton."

The whole book, and its many hundreds of illustrations, substantiate that opening attack. If hon. Members think it exaggerated, let them read the book and then go out into their constituencies and look around them with the new eyes which its perusal will have given them. Let them mentally strip a familiar street or favourite landscape of its accretions during the last 10 or 20 years and then consider whether without them, both would not be improved. That is not because these things are of themselves ugly; it is not because all modern methods of production, distribution and exchange are necessarily vile. It is because they are wrongly sited and badly planned.

The book must speak for itself as I have no time to summarize it. Wherever one goes, in town, in suburb or in countryside, one sees the grappling arms of concrete stretching out to embrace the fields without drawing in any of their freshness. One sees ugly lamp standards, badly designed housing estates, and the Service Departments, particularly the Air Ministry and the Army, allowing their sprawling camps and abandoned airfields to desecrate what remains of the countryside. If this process continues, we shall be overwhelmed by what the *Architectural Review* called "Subtopia." We shall find that it will be too late to save what we have come to regard as the unchanging and unchangeable character of England.

I wish to ask my hon. Friend the Parliamentary Secretary, whom we all congratulate on his promotion, what view his Ministry takes of this outrage? What powers does he have and how does he use them? Does he use planning consent, which is the instrument of authority, to prevent desecration? At what point is a decision made which will affect the whole appearance of an old market street or a stretch of countryside? Is not the decision made by the borough or the county engineer, who, if he ever thinks of the scenic value at all, thinks of it last, after he has considered all the byelaws, the traffic and other regulations of his department? He is left with no time at all—perhaps no wish at all—to consider whether the thing should be built in that shape and in that place. Those who have had the power to prevent these things have not cared, and those who have cared have not had the power to prevent them.

It is for that reason that I and several of my hon. Friends and hon. Members opposite put down a Motion, which now stands upon the Order Paper, which I should like to be read in conjunction with this debate. In the Motion, we suggest that the Government should set up a council of civic design on the lines of the Council of Industrial Design, which could give advice to those public or private bodies who are not too proud to mistrust their own judgment.

I do not want it to be thought that I am suggesting that such a body should have powers of compulsion. I do not wish to set up a Ministry of Fine Arts, or to assume that any group of people can constitute themselves into arbiters of national elegance. The council, whose constitution I suggest, would simply extend the work which could have been done by the Royal Fine Art Commission, a body so distinguished in its membership, so modest in its ambitions, so shy of publicity, so misnamed, so starved of money, that it has no more hope of resisting the onrush of "Subtopia" than Canute had of resisting the onrush of the waves.

Let this council of civic design set up its headquarters in London, and maintain a permanent exhibition, to which all those interested in good planning and design can go for advice and illustration. There are some things, even in the changeable word of taste, which are wrong absolutely, and too many of them have found their way into our villages and towns, so that our eyes have become dulled by surrender to the second rate. This debate should have taken place 10 years ago.

Now that my hon. Friend the Parliamentary Secretary to the Ministry of Housing and Local Government is about to leave that Ministry for another—

MR. EDE (South Shields): He has left it.

MR. NICOLSON:—let him leave on his desk for his successor the Official Report of this short debate, having marked with red ink all the relevant passages attacking, as the *Architectural Review* has attacked, this outrage on our land. Let us not wait another decade before something constructive, or, as we put it in our Motion to which I have referred, something creative, is done to save the countryside and towns.

MR. EDE (South Shields): The hon. Member for East Bournemouth and Christchurch (Mr. N. Nicolson) has placed us all under a debt to him by bringing this matter forward today. I am sorry that he should be so pessimistic about what has happened and what may happen in the future. I regret very much his attack on the county and borough engineers, who, very often, have to be reminded that they are the servants and not the masters of the local authorities.

For the local authorities themselves I would say that I do not agree that the housing estates which have been created since the last war have, by and large, deserved the criticisms which the hon. Member made. If we compare what housing authorities have done since 1945 with what private enterprise, the nobility and gentry and industrialists, did in the last years of the eighteenth century and the early years of the nineteenth I think one can certainly say that public enterprise is well vindicated by what it has done.

I was in part responsible for the administration of what I believe to be the most beautiful county in England—but there are many claims to that distinction, and if anybody else likes to claim it for his county I hope he will agree, no matter where he comes from, that my County of Surrey can be regarded as the second. As I say, I had some responsibility for its administration, so I know the difficulties which were created in the north-eastern part of Surrey before local government had powers to control development and eyesores. Those can be compared with what the London County Council did with its St. Helier estate between the wars. That was a London County Council of whose political complexion I found myself in violent dislike, but it set a standard which, I am glad to note, other local authorities in the County have followed in their post-war developments.

I admit there are many things now going on that one regrets, but I doubt whether what the hon. Member has suggested will be sufficient to effect an improvement. I have noticed in some recent cases that under the present Administration some things which local authorities would have prevented have, on appeal, been allowed by the Ministry. There have been cases in which the Minister of Housing and Local Government has overruled the local planning authority when it has desired to control development and to frustrate bad development. He has done so when the cases have been considered on appeal to him.

Everybody who has been concerned with administration in this matter, whether at the local or the national level, knows that one is always brought up against the hardship that proper development would mean for the owners of small pieces of land. One can quite easily ruin what is now a fine street, or has the makings of a fine street in it, by allowing in it one patch of shoddy development. I hope that the local authorities will have from the Minister of Housing and Local Government rather more sympathy when they have to incur local odium by resisting what they regard as unsuitable and unsightly development, and when appeals are made to the Minister, who gives the final decision.

I congratulate the Parliamentary Secretary on his promotion. In this matter he has gone to the right place, though; unfortunately, there is no offence in the criminal law when people uglify their surroundings. When I moved from the Ministry of Education to the Home Office I said that I was like a doctor turned undertaker, because I buried the mistakes of my previous occupation. The hon. Gentleman, I regret, will have no opportunity of doing that.

I hope that I speak for the whole House when I say that all the matters brought up by the hon. Member for East Bournemouth and Christchurch give us concern. I am quite certain of this, that it is only by a rising standard of public opinion in support of local authorities and Ministers when they take a strong and reasonable course in these matters that any improvement can be ultimately effected. I distrust bodies like the Royal Fine Art Commission. It wanted to put four kiosks on Hampton Court

Bridge, one of the most beautiful bridges that has been erected in this century. It was felt that the sight of some ugly building might be avoided if one looked one way at those kiosks. However, if one looked the other way one found that Hampton Court itself was obscured, and Hampton Court is far more beautiful, after all, than any kiosk that any fine art commission could possibly devise on the end of a bridge.

There are various bodies concerned with this matter of planning and development. There is the Society for the Preservation of Ancient Buildings. It is quite right to preserve many an old building which gives us a sense of what the country looked like in a time of gracious living. There is the Historic Buildings Council, on which I have the honour to serve on the nomination of the Minister of Works. I hope that by my drawing attention to this it will not be found that I thus have an office of profit under the Crown, although there is an hon. Member on the other side of the House, the hon. Member for Westmorland (Mr. Vane), who can be paired with me. There is the Georgian Group, and there are other bodies. I do not think they should be able to exercise any compulsion on local authorities or on Ministers. I am quite sure that they would be better advised to direct their energies towards educating public opinion rather than criticizing local government officers and bodies.

MR. NICOLSON: The right hon. Gentleman really is misrepresenting me. Having cut out three-quarters of my speech, I yet had time to say that I was not proposing any powers of compulsion at all. The right hon. Gentleman must be familiar with the Council of Industrial Design. Let him take that as a model for my council, for things out-of-doors, whereas the Council deals only with things indoors.

MR. EDE: I was supporting the hon. Member's plea and then he talks to me in that indignant way. I tremble to think what would happen to me if the hon. Member had delivered the other three-quarters of his speech. I try to support him, with moderate enthusiasm, and then he tries to suggest that I am opposing him.

I want to make it quite clear that I do not want to see either the Ministry of Housing and Local Government, with regard to development, or the Ministry of Transport, with regard to bridges, asking these bodies to step in to deal with these local authorities who generally employ quite competent people for their major designs. I sincerely hope that public opinion will be steadily built up so that local authorities and Government Departments will realize that they have a trust which they have to discharge when these developments take place.

THE PARLIAMENTARY SECRETARY TO THE MINISTRY OF HOUSING AND LOCAL GOVERNMENT (MR. W. F. DEEDS): I agree with the right hon. Member for South Shields (Mr. Ede) that we are indebted to my hon. Friend the Member for East Bournemouth and Christchurch (Mr. N. Nicolson) for initiating this debate and for bringing to everybody's notice this very

stimulating document entitled "Outrage." I must correct my hon. Friend in one particular—the document did not explode like a rocket in my own Ministry. Nevertheless, it has stimulated a good deal of discussion. Its approach is intellectual on a difficult subject, and its main thrust is directed at neither town nor country but at the kind of twilight areas in between and, what the document depicts with great effect, misplaced amenities.

The "blurb" of the document refers to the question of priority of claims. I think that in this island of 50 million people and 50 million acres the task of settling the priorities between the conflicting claims upon these acres is not only one of my right hon. Friend's most fascinating functions, but also quite the hardest and heaviest which falls to him.

I want to meet my hon. Friend as far as I can. Perhaps I should first attempt to define responsibility. I will not attempt a summary of the Town and Country Planning Acts, the broad effect of which he knows. For the local application of the principles of these Acts we look, and not in vain, to local planning authorities, for whom all local authorities are, as it were, sub-agents. Powers may or may not be delegated by the planning authority to the local authorities.

These Acts are not comprehensive. There are a good many elements referred to in "Outrage" which give concern, but which are not wholly covered by the provisions of the Acts. For example, there must be a clash between the demands of defence and the interests of amenities. When that happens the Government try to satisfy themselves that the defence project is urgently needed, or cannot be met in some other way. The Post Office takes care over its plans for local post offices, and the planning authorities take a lively interest in the sites. As to the countryside, it is an open question whether telegraph poles enhance or distract from the appearance of lonely country roads. These are examples which are outside the terms of the planning Acts.

There is very little new development going forward on the railways at the moment, but such development needs the approval of the planning authorities. Whether some of the London stations would be improved by complete or partial removal is a matter of dispute. After all, a number of people are in support of St. Pancras Station. The closing of branch lines, which some people might regard as the removal of an eyesore, does not seem to be welcomed by others, and people become sentimental about the chugging of trains among our hills and valleys. Works connected with the provision of electricity supplies are partly outside the provisions of the Act. As far as possible, care is taken in the routing of overhead lines and the siting of power stations, but there are bound to be some difficult cases.

There is the aftermath of war damage. These sites are gradually being cleared in the towns by rebuilding, but in the countryside there is unquestionably a great deal of untidiness and of now unwanted war works. My right hon. Friend is prepared to give financial help towards total or partial

restoration where he is satisfied that the damage to amenities is so great that it is in the national interest to remove the cause. Planning authorities have certain powers to deal with these cases. There are other examples of matters which do not come within the framework of the planning Acts and within the purview of the planning authorities, to whom we look for the effective implementation of those Acts.

I share with the right hon. Member for South Shields the feeling that it is wrong to be too pessimistic and to suggest that nothing has been achieved. There are in "Outrage" passages which lead one to the darkest pessimism about the whole outlook for this country, but I do not think that that is quite right. The post-war decade compares very favourably with the inter-war years, for example, in the prevention of ribbon development and sporadic building, which undoubtedly the later Town Planning Acts have effected. The Green Belt has been more strictly regarded than some people are ready to believe, and my right hon. Friend has quite recently issued some very clear and fresh guidance to local authorities on the subject.

Again, there is the policy designed to check sprawl, which is one of the great enemies in this matter, by means of overspill schemes. I do not want to embark on that theme. I should be out of order if I did so. There are opportunities for discussing that policy under another Measure which is now before the House, but it is fair to say that the checking of sprawl is one of the major roads towards what my hon. Friend the Member for East Bournemouth and Christchurch seeks to achieve.

We hear much of what is permitted. Photographs of examples are reproduced in "Outrage," but nothing is heard of projects denied by planning authorities, often in the teeth of local protests frequently supported by hon. Members of this House. There are in particular the petrol stations. We are so often told that a petrol station is a means by which Mr. So-and-So earns his living and how outrageous it is to deny the erection of a petrol station which a county authority wishes to prevent being built.

My right hon. Friend is considering a council of civic design or something equivalent to what my hon. Friend has mentioned, and no doubt will have something to say about it in future. There is a responsibility upon a great many people besides my right hon. Friend and the planning authorities. "Outrage" itself recognizes this. I quote again from the "blurb":

"A quick, effective change of heart can only come about through pressure of public opinion. . . ."

I do not think that anyone would disagree with that. It is fatuous to pretend that the crusade can only lie with the local authorities.

In this respect the citizen has much greater power than he perhaps realizes, first in agitating locally against outrages, which he can do either alone or in conjunction with the many voluntary societies which exist for doing that sort of thing and, second,

simply in acting socially. In saying that, I am thinking particularly of the appalling litter in our towns and countryside, which suggests much scope for improvement by the individual.

I stress this because there must clearly be a limit—I hope that my hon. Friend will accept this—beyond which authority cannot go in controlling, forbidding and outlawing individual designs. It is usually said that the Ministry of Housing and Local Government does not do too little but too much in the way of controlling and forbidding. It is not easy to hold a central course. There is no hon. Member who has not at one time had a constituent enraged by the decision of a planning authority which has denied him doing something that he wanted to do. A few of us have experienced the complaints of third parties who seek to restrain someone else from development. I should have said that the first category was far more numerous than the second.

What I have now to say bears very much on the theme of "Outrage." To a degree which we have never previously experienced in this island, industry, particularly in the shape of factories, has become to a great many of our cities and towns a symbol of civic pride. That is not surprising in view of the contribution which we expect those factories to make to our national well-being and our livelihood. Nor is it a situation which ought to be really disturbing to the authors of "Outrage" because many of the new factories in their layout and design are models of modern architecture and express the spirit and the character of our times perhaps more effectively, though I do not wish to make invidious comparisons, than some of our civic architecture. It is in their siting and what they bring in their train that there is cause for anxiety and—I agree with my hon. Friend—scope for more imaginative thought.

I should like to stress the rather peculiar relations—I say "peculiar" in the best sense—which exist between Whitehall and the town hall. Everybody believes in local government autonomy until the local authority does something to which they object, and then they ask my right hon. Friend to quash it. Broadly speaking, we do not "direct." We can, of course, guide in such matters as these, but too much guidance defeats its own end, merely adding to the mass of paper which descends on the desks of local authority officials.

In such guidance, it is important that we should say not only what should not be done but what should be done. I hope that "Outrage" may produce a companion volume in the future which will show a rather more constructive approach to these problems, showing not only what is outrageous but also what is desirable. While I admire the volume, I think it paints the prospect in rather sombre colours, and that carries the danger that many may feel that the situation is now past praying for. After reading some of it, one might be forgiven for concluding that. I consider that that is very far from true. I believe there is still very much which is good—some of it is post-war creation—and that it is far from being swamped by what is awful.

Our safeguard in this matter is vigilance, and that rôle should be regarded not as the prerogative of my right hon. Friend or the local authorities, but as the responsibility of all.

News—continued from page 7

and the Academy of Arts of Weimar, which he amalgamated in 1919 as the Bauhaus. Under this name the school became renowned among architects and designers all over the world and exercised a profound and far reaching influence on the teaching and practice of architecture. In 1926, the Bauhaus moved to Dessau and occupied new buildings designed by Gropius himself. Dr. Gropius remained Director of the Bauhaus until 1928 when he resigned to resume private practice and carried out a number of projects including housing in Berlin and Karlsruhe. 1928-34 was the period of his most intensive activity in urban planning in the face of mounting political tension which finally drove him to England in 1934.

During his three years in England, Dr. Gropius worked in partnership with Maxwell Fry and designed a number of buildings notably those for the Impington Village College in Cambridgeshire, completed in 1936. He also produced a design for a building for Christ's College, Cambridge, which was never executed.

In 1937, Dr. Gropius went to America to take up the appointment of Professor of Architecture at the Graduate School of Design, Harvard; he became Chairman of the Department of Architecture in 1938 and Professor Emeritus in 1952.

Since his arrival in America, Dr. Gropius has grown steadily in influence as an educationalist and has designed a large number of buildings in partnership with Marcel Breuer (1937-40), and subsequently as a member of The Architects Collaborative, a group of young architects which he founded.

Projects designed by Dr. Gropius in America include private houses, prefabricated houses, apartment blocks, schools, colleges, office buildings, factories, exhibitions, town planning projects and a project for a complete university (the Hua Tung University, Shanghai). His scheme for a "Total Theatre" (1914) aroused considerable interest and he has also designed furniture, fabrics, a car body and a locomotive.

His publications include: *Staatliches Bauhaus* (1923); *Internationale Architektur* (1928); *The New Architecture and the Bauhaus* (1935); and *The Bauhaus 1919-28* (1938).

IUA

Unsatisfactory Competition Conditions

The Secretary General of the IUA has had his attention drawn to the following international architectural competitions:—

(a) Competition for the construction of the Sanctuary of the Madonna delle Lacrime in Syracuse.

Promoters: the Working Committee for the Sanctuary of the Madonna delle Lacrime.

(b) Competition for a monument in honour of Generalissimo Doctor Raphael Leonidas Trujillo Molina in the Dominican Republic.

Promoters: Junta Ejecutiva pro Celebración del 25 Aniversario de la Era de Trujillo.

(c) International Competition for the site of a preliminary project for the Aleppo Museum, Syria.

Promoters: Directorate General of Antiquities in Syria.

In each case the Secretariat of the IUA has examined the published conditions of the competitions and found them to be generally unsatisfactory and not in accordance with the standard regulations for International Competitions approved by UNESCO on the advice of the IUA. Member nations of the IUA have accordingly been warned not to participate. Negotiations are taking place between the IUA and the promoters with a view to bringing the published conditions into conformity with the standard regulations, and architects will be informed as soon as conditions are reported by the IUA to be satisfactory.

COI

Brussels Exhibition, 1958: Co-ordinating Designer and Chief Architects Appointed

With the approval of Sir John Balfour, UK Commissioner General for the Brussels Universal and International Exhibition, 1958, the COI has appointed James Gardner as Co-ordinating Designer and Howard V. Lobb & Partners as Chief Architects for the UK Pavilion at the Exhibition.

James Gardner was Chief Designer of the British exhibits at the "Atoms for Peace" Exhibition at Geneva last August, and of the "Britain Can Make It" and "Enterprise Scotland" Exhibitions—the first big national exhibitions to be held in Britain after the war. He was Chief Designer of the Festival Gardens, one of the co-ordinating designers of the South Bank Exhibition, and a member of the Festival of Britain Presentation Panel. Howard Lobb was Chairman of the Architecture Council of the Festival of Britain and Controller of Construction of the South Bank Exhibition. His partner, John Ratcliff, was Deputy to Sir Hugh Casson, Director of Architecture at the Festival, and later, to Mr. Lobb.

The COI is responsible, on behalf of the Foreign Office, for the planning and construction of the UK Government official pavilion at Brussels.

CCA

Courses on Concrete

The Cement and Concrete Association have announced the syllabus for short courses on concrete, its design and uses, to be held at Wexham Place near Slough in 1956. The courses in the past have been designed for engineers and supervisory grades, but in 1956 an additional course has been organized for builders.

Accommodation is available at Wexham Place, but owing to increased overheads fees for a five-day course will be increased in 1956 to £10. A special hostel for the courses at Wexham has been designed by W. R. Oram (A) and it is hoped that work on this building will commence in 1956.

DIARY

Development Plans and their Provision for Industry. Talk by S. G. L. Beaufoy. At the RICS, 12, Great George Street, S.W.1. 5.30 p.m. JANUARY 17

Symposium on Drawing Office Technique. RIBA Science Committee. At the RIBA, 66, Portland Place, W.1. 6 p.m. JANUARY 17

Exhibition of Drawing Office Technique. In connection with RIBA Symposium. At the RIBA, 66, Portland Place, W.1. Monday to Friday, 10 a.m.—7 p.m. Saturday, 10 a.m.—5 p.m. JANUARY 16 TO 20.

FACTORY EXTENSION

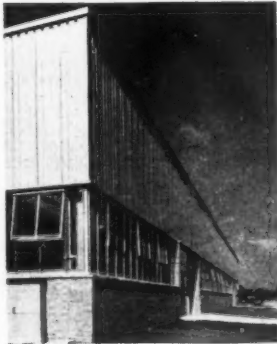
in LODE LANE, SOLIHULL, BIRMINGHAM

designed by HASKER and HALL

assistants, A. H. KING, D. R. MILLER, B. H. SHUCK, G. WILSON and J. MAIDMENT

consulting engineer, structural, T. BEDFORD, electrical, HOARE LEA and PARTNERS

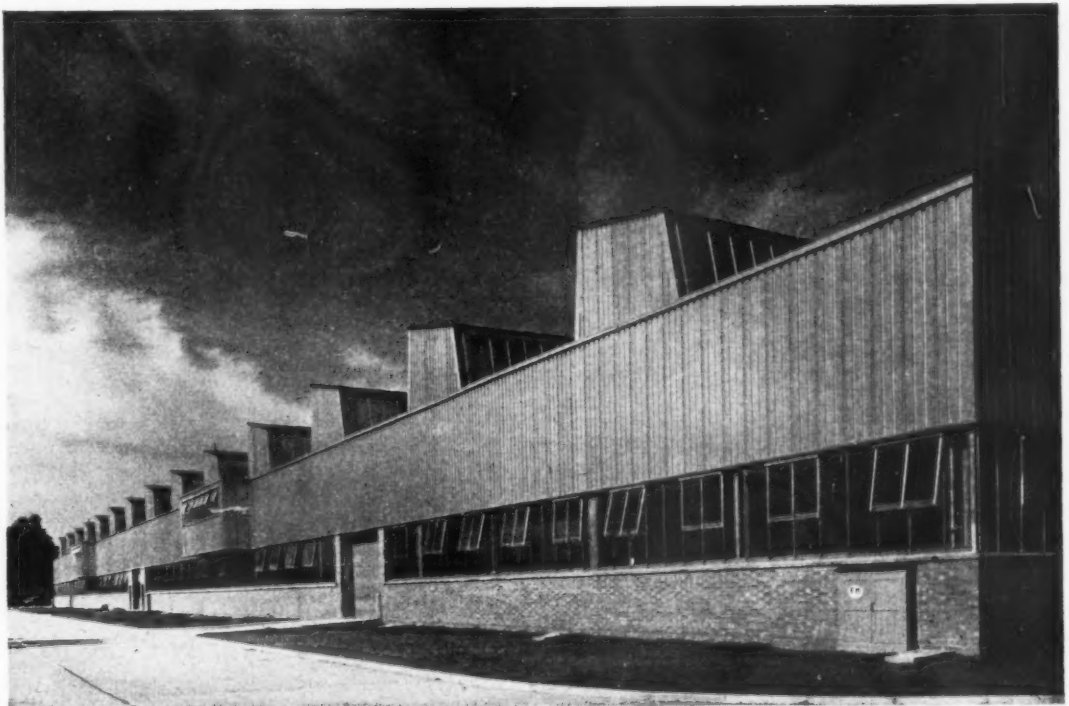
quantity surveyors, CROSER and JAMES



The south facade.

The clients, the Rover Co. Ltd., require a series of workshop units planned as an extension to their existing motor car assembly works, and the workshop illustrated here is the first of these units to be completed. The building provides 100,000 sq. ft. of floor space and nearby on the site there are ten acres of marshalling space for the despatch of vehicles. The site of 24 acres adjoins the residential borough of Solihull. The general contractors were John Laing & Son Ltd. For sub-contractors, see page 34.

The west facade.



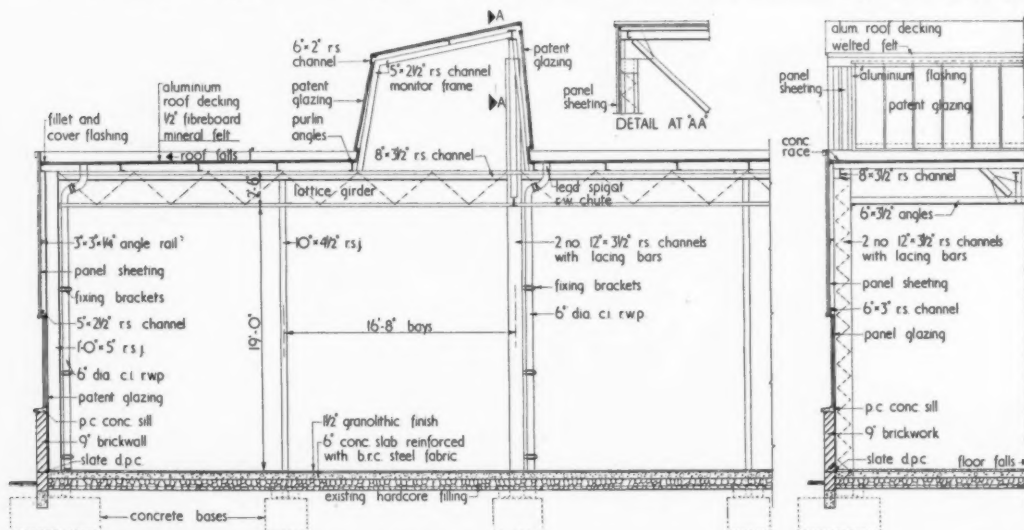
The extension consists of a single-storey monitor lighted workshop 500 ft. by 200 ft. with an average height of 19 ft. to the underside of roof trusses. In order to give an entirely clear floor area the four lavatory blocks are suspended at a high level, two on each of the long sides of the workshop. The extension has been built on the north side of the existing factory roadway with direct access to the present factory circulation, which is served by the Solihull-Sheldon trunk road. The main construction consists of steel-framed bays 100 ft. long, spanned by lattice beams set above the general roof level to form one side of the monitor roof lights. The lattice beams occur at 33 ft. 4 in. intervals, and are connected at the bottom boom by secondary lattice beams receiving the

monitor frames. Foundations are of mass concrete with r.c. ground beams. External walls consist of non-load bearing 9-in. brickwork up to an average height of 4 ft. 6 in. and above this aluminium patent glazing and corrugated aluminium sheeting, chosen for its speed of erection and good thermal insulation. The roof is constructed of aluminium decking covered with insulation board and mineralised felt having a gravel finish. This roof type was also chosen for speedy erection and good insulation. Monitor lights have aluminium patent glazing with Georgian wired glass and the opening lights are motor controlled. Wall glazing is in clear glass sheet. In all external openings there are electrically-operated galvanised mild steel roller shutters.

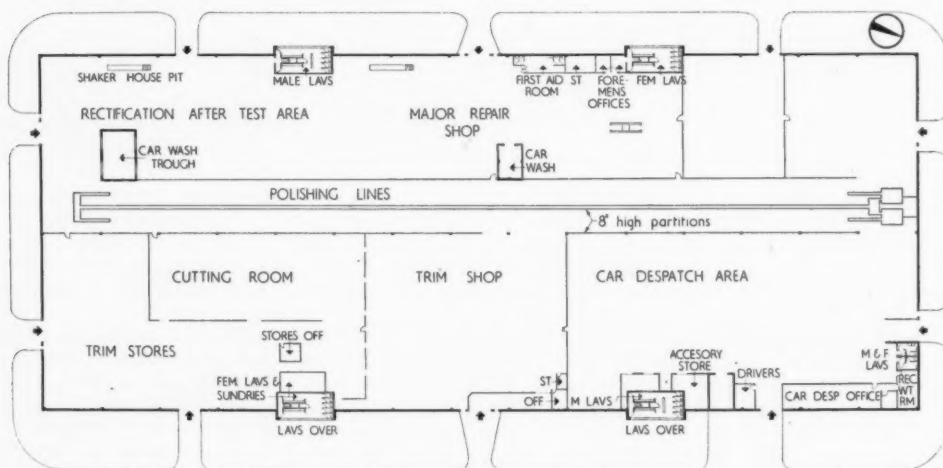


In the high level lavatories doors are of timber, aluminium faced, and partitions are of terrazzo. The floor finish is granolithic throughout. Internal finishes include cardinal red emulsion paint on the brickwork, blue-white on perimeter cladding and azure blue on the lavatory block walls facing the workshop. Rainwater pipes and waste disposal pipes are in cast iron and are situated within the perimeter walls. There are four 200-gallon copper hot water cylinders, one

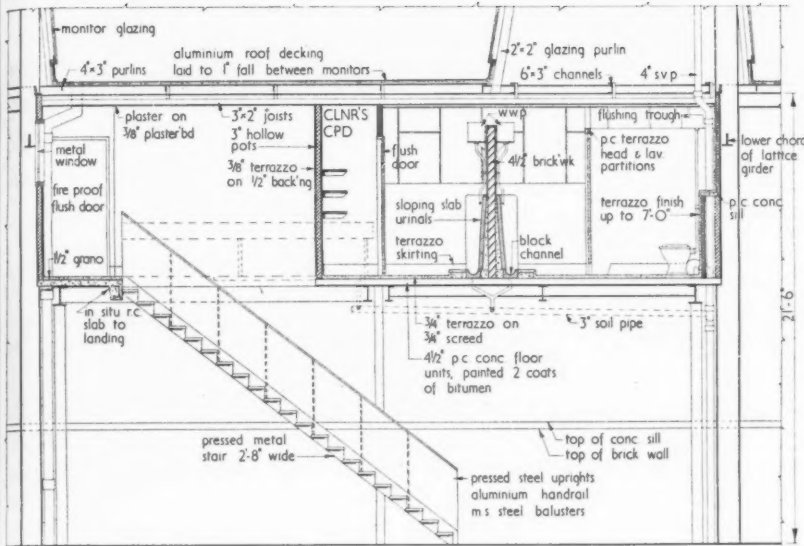
over each lavatory block and eight 200-gallon galvanised mild steel cold water storage tanks, two to each lavatory block. Heating is by five oil-fired space heaters each giving $1\frac{1}{2}$ million B.Th.U.'s and a criteria temperature of 60° F. in the workshop. There are gas water heaters in the high level lavatories. The fluorescent lighting gives an average illumination level of 25 ft. candles. The photograph above left shows the interior of the workshop, above right, typical



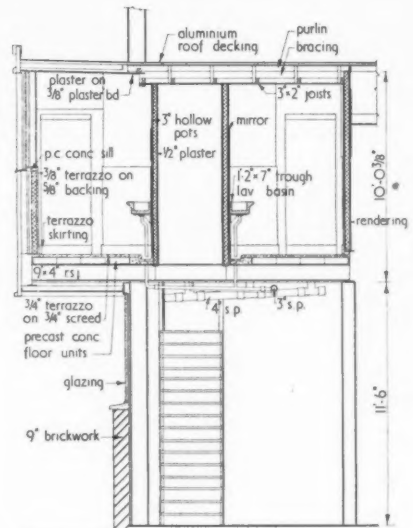
Typical part longitudinal and cross sections [Scale: $\frac{1}{8}'' = 1' 0''$]



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

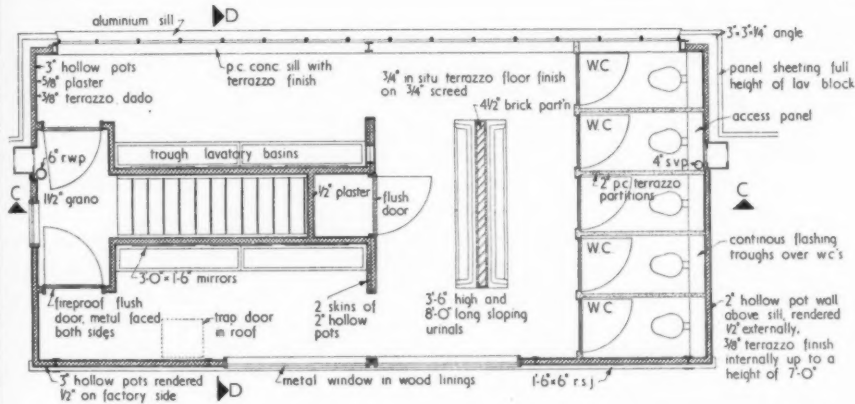


Section C-C



Section D-D

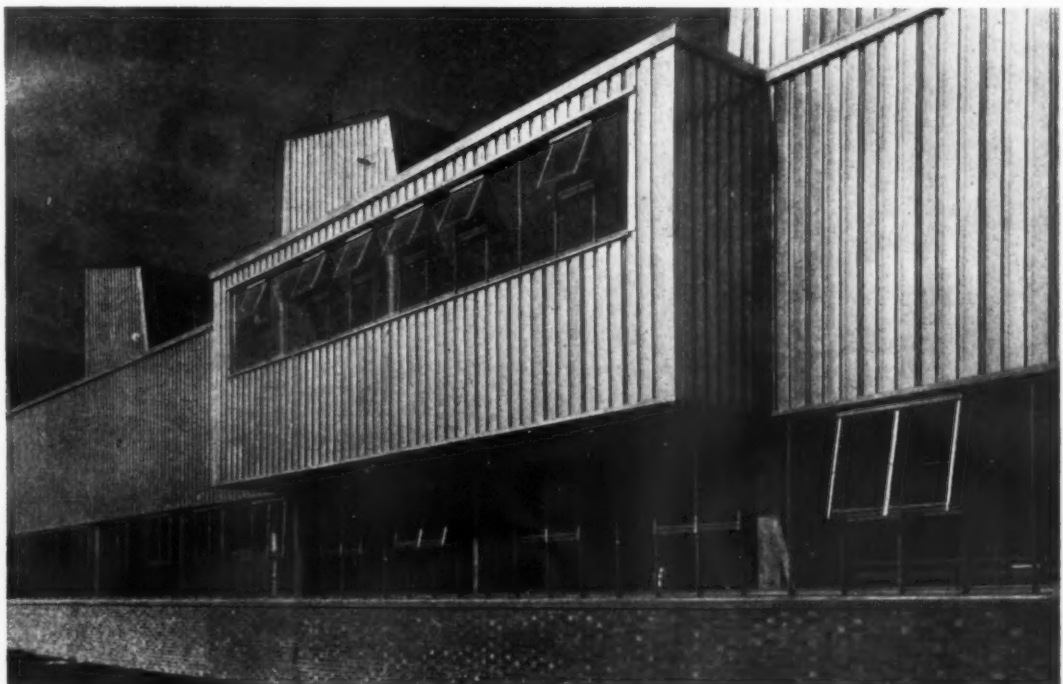
FACTORY AT SOLIHULL



Plan of high level men's lavatory
[Scale: 1/4" = 1' 0"]

monitor roof lighting and, below one of the high level lavatory blocks on the west side. Drawings were begun in June, 1954, excavation work commenced in August,

1954, building work commenced in November, 1954, and was completed in June, 1955. The factory was built by lump sum contract on R.I.B.A. form.



The Holland House youth hostel scheme, illustrated below and on the following three pages, has been designed for the Youth Hostels Association to meet the need for living accommodation for YHA members visiting London. The existing east wing of Holland House is being converted and the Inigo

Jones gateway, which at present stands near the north-east corner of the east wing and at right angles to it, will be re-erected on another site. The choice of this site marks the end of a long search by the YHA in the London area. The estimated cost of the new work and the conversion is about £100,000.

PROPOSED YOUTH HOSTEL, HOLLAND PARK

Report of the L.C.C. Town Planning and Parks Committees

The Council on December 16, 1952, and October 25, 1955, approved estimates of liability on capital account amounting to £17,000 for preserving certain features of special architectural and historical interest at Holland House. The Council was informed in November, 1953, that, because of marked deterioration in the condition of the building, it was proposed to preserve only the arcades and the ground floor of the central portion. The implication of this decision that the east wing could not be preserved was greeted with regret in many quarters and it was indicated on behalf of the Council that if there existed a worthy use of the east wing which would not involve undue expenditure the Council would be glad to consider it. A proposal of this kind was received from the Youth Hostels Association and the Council, by the LCC (Holland House) Amendment Act, 1954, obtained powers to give effect to a proposal to provide a hostel for about 200 beds based on a restored east wing and a new building to be erected on part of the grounds.

The Association have now submitted their scheme prepared by their architects. The restored east wing will be used for dormitories and the new buildings will

form a loosely linked but formal group around a new courtyard.

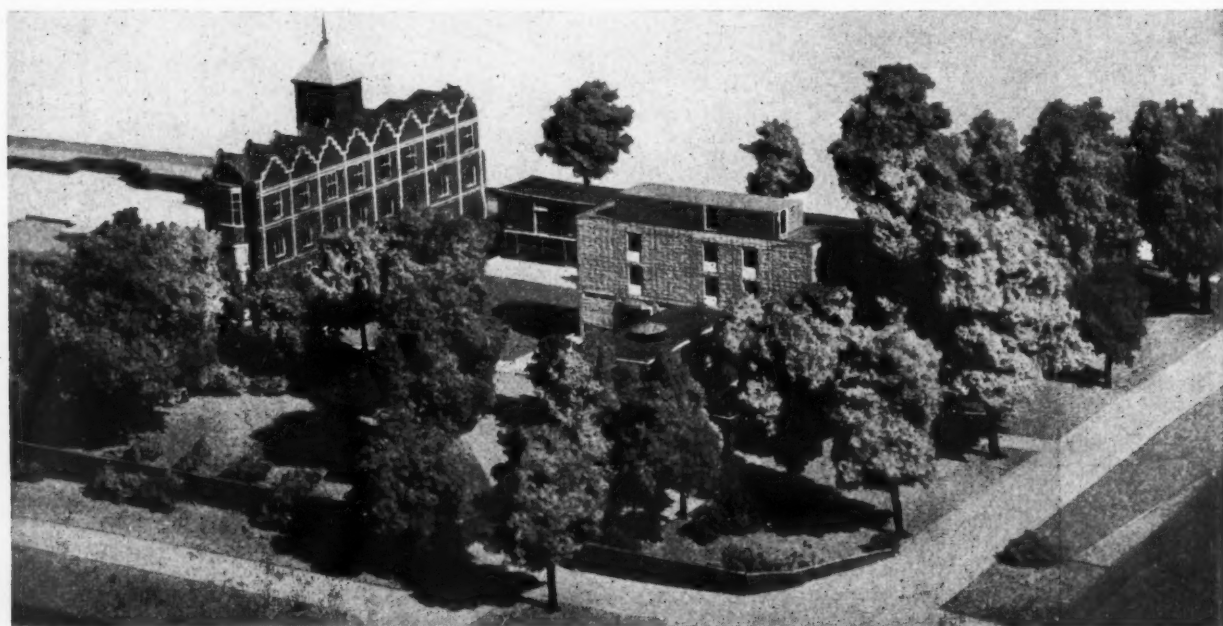
The siting of the new buildings is dictated by the fact that the east wing is to form an integral part of the scheme and these buildings have been planned to cause the minimum interference with the character of Holland Park and the minimum felling of trees. Although the scheme has met with some criticism, including objections from the borough council, the Royal Fine Art Commission has expressed the opinion that a difficult architectural problem has been well handled and has recommended its acceptance. The Town Planning Committee have given planning permission for the scheme. The arrangement between the Council and the Association will be embodied in a lease.

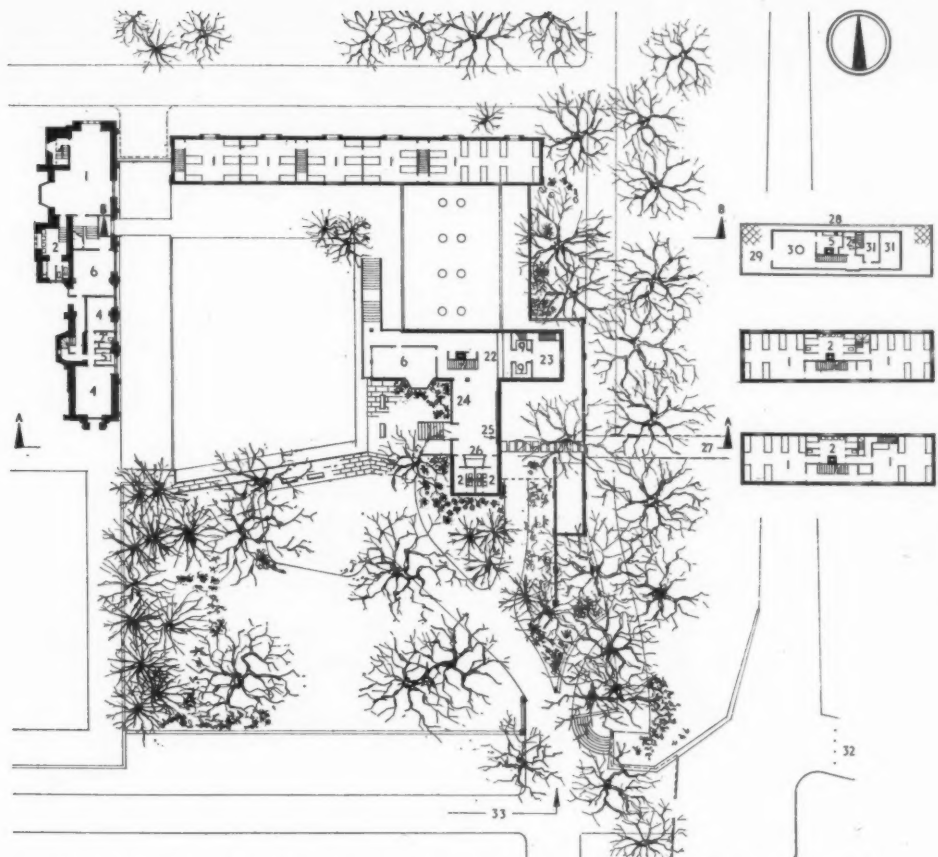
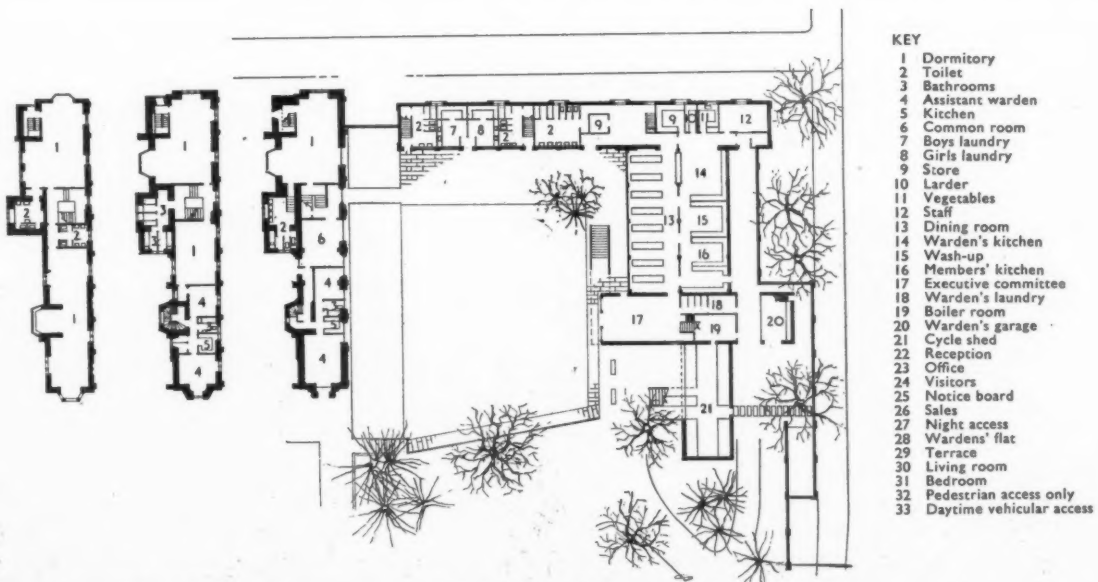
The YHA estimate that the cost of the complete scheme will be in the region of £100,000, including the intricate task of restoring and adapting the east wing and the removal of the Inigo Jones gateway.

YHA report

As part of the King George VI Memorial, it was announced in March, 1954, that funds would be allocated for the provision of five Memorial Hostels. One of

The scheme from the south-east.

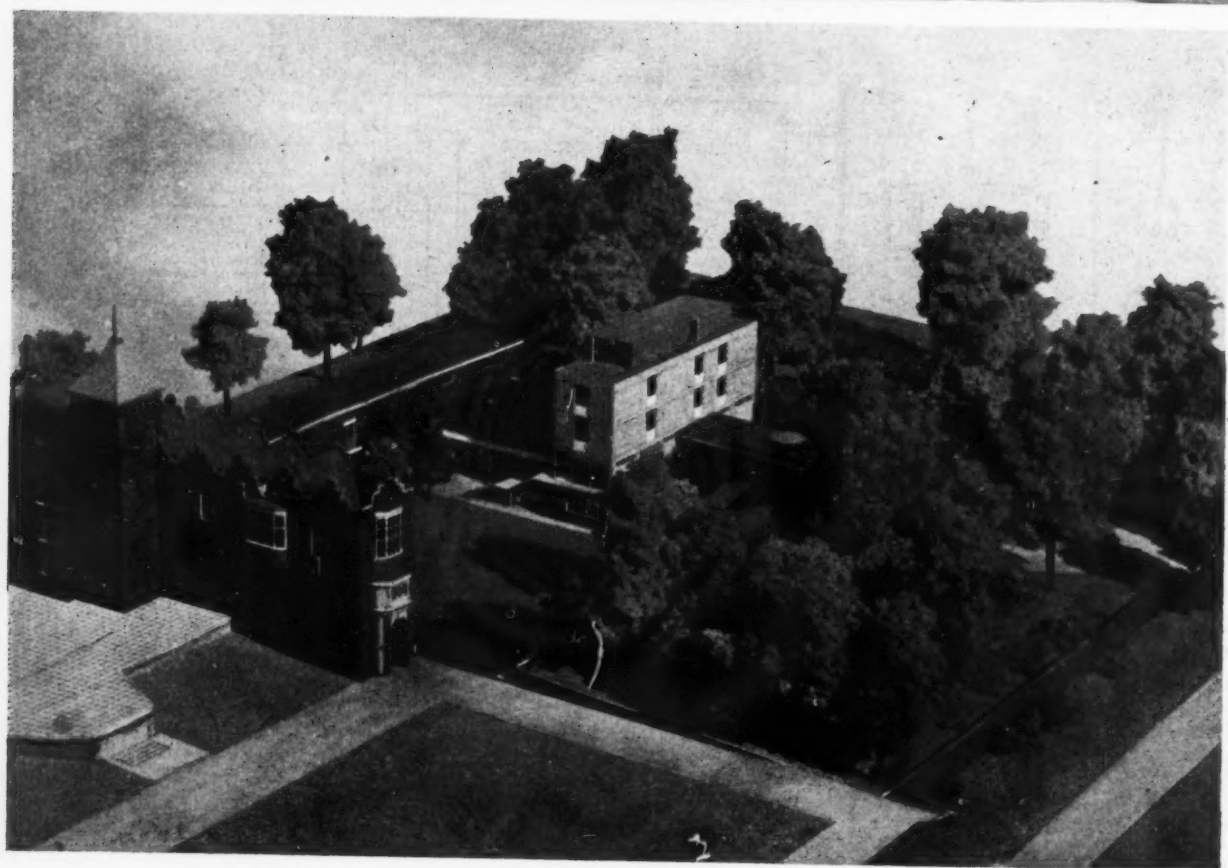
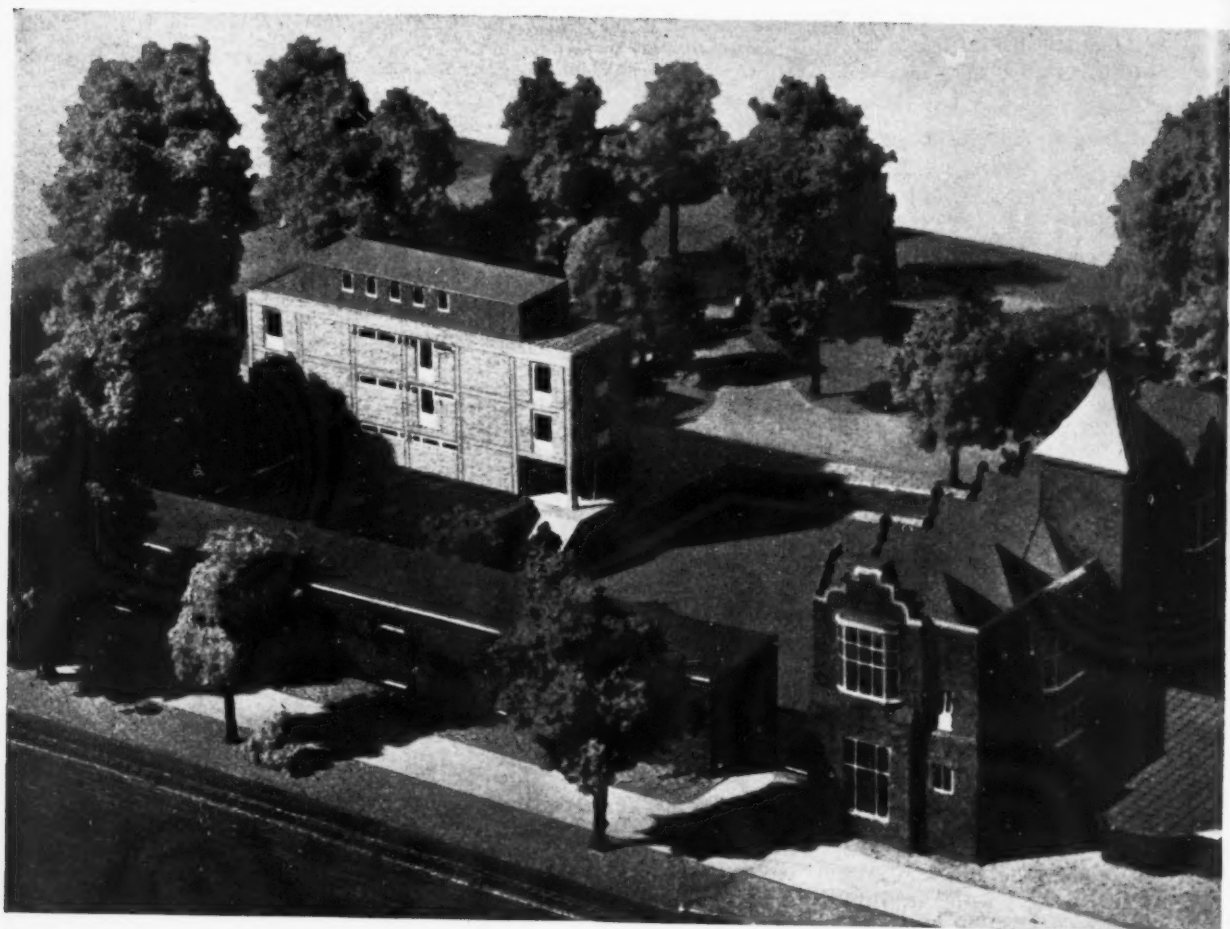


Ground, first, second and third floor plans, hostel, and ground floor plan, East Wing (Scale: $\frac{1}{4}'' = 1' 0''$)

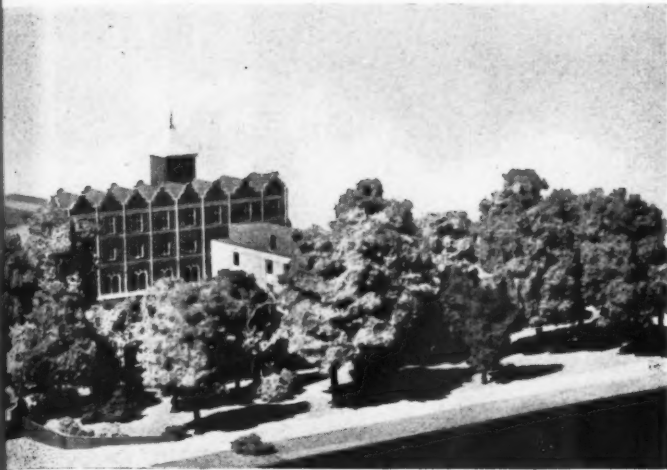
Lower ground floor plan, hostel, and lower ground, first and second floor plans, original East Wing

these hostels was to be located in central London and the proposals of the YHA to establish it at Holland House have now been approved. The LCC's agreement to the leasing of a site at Holland House marks the end of a ten years' search by the YHA for a London hostel worthy of the capital yet providing accommodation for young people at a price they can afford. London attracts young visitors not only from this

country but from all over the world. In the British Commonwealth in particular, many young people save up for a visit to Great Britain, but the high cost of sea passages leaves them little to spend in Britain. It is only the YHA that makes their visit possible. The London hostel is also the "first and last house" for hostellers using boat trains to and from continental ports. There is also a large demand for accommodation



Opposite page: top, the hostel seen from the north-west, and bottom, from the south-west. Below, from the east.



for school parties visiting London which at present the YHA is unable to satisfy. As each person usually stays only one or two nights, some thirty or forty thousand young people will use the hostel each year. Meals will be provided at reasonable prices, but as in all hostels there will also be a kitchen where members who prefer it may cook their own meals.

The architectural problem

In this project there are three main problems to be solved. To preserve, and if possible improve upon, the general setting of the East Wing, as the principal architectural feature of the Holland House gardens. To provide new accommodation needed by the YHA (who provide the economic justification for the preservation of the East Wing), in a group of buildings that should, in form, scale, colour and texture, harmonize with the

existing structure. To achieve these two objects with the minimum interference, both visual and physical, with the public enjoyment of the park.

Design principles

There are many ways of solving the problems within the limitations of the site available. Some of these have been tried and for one reason or another rejected. To build, for instance, upon the surface of the present gravel courtyard would be visually an unforgivable affront to the East Wing. To attempt an artificial symmetry about the Inigo Jones gateway by trying to force the new building into a replica of the East Wing would be doomed to fail since the replica as well as being an architectural sham would have to be more bulky, and therefore more dominating than its original counterpart. The same drawbacks would apply if the new building were to consist of a high block running east and west along the line of the Inigo Jones gateway wall.

To avoid these troubles the solution is based upon the following principles: (a) First to treat the new building group in the manner traditional to an Oxford or Cambridge College, *i.e.*, built around a courtyard with no physical contact between new and old. This keeps the East Wing inviolate, and adds to the number of places from which it can be properly viewed by the public. It also permits a graceful change from old to new. (b) To provide the new accommodation in a loosely linked group of buildings, the varying heights of which can be adapted to their position on the site; and to relate these and the old building to the formally defined courtyard. (c) To eliminate as far as possible all fences or railings, and replace them with less obtrusive forms of enclosure or demarcation, such as a pool, changes of level and the actual external walls of the buildings themselves. (d) To arrange the buildings on the site in such a way as to avoid as far as possible the cutting down of any large trees, and also to plant a few new trees in selected places.

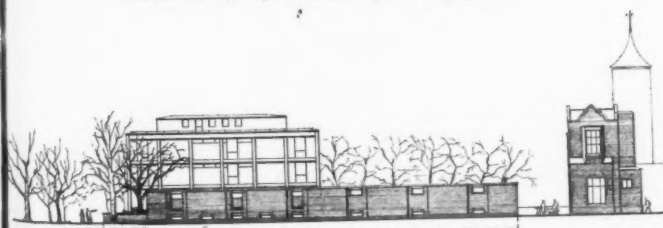
Materials to be used: The "wall block" at the north of the site, the garden wall to the east, the plinth to the entrance blocks and all the retaining walls will be built in a brick closely matching the existing wing. If that wing, after restoration, has to be cleaned, a similar red brick will be used, but if it can be left in its present sombre tone, a dark brick or artificially darkened red brick will be chosen. This low level brick architecture that wraps round the new courtyard continues the basic architectural character of the site that extends past Holland House to the west—an architecture of orangeries, high brick walls and terraced levels with retaining walls. By extending this existing character to the east the new and the old will be tied at plinth level and continue the country house scale. The tall block at right angles to the East Wing, where it rises above plinth level, is allowed to form a deliberate contrast and will be faced in artificial stone, fairly rough in texture with rubbed joints, and the frame being faced with a smooth rubbed finish of a slightly lighter tone of the same material. The joints between panel and frame will be more clearly defined than those between individual stones.



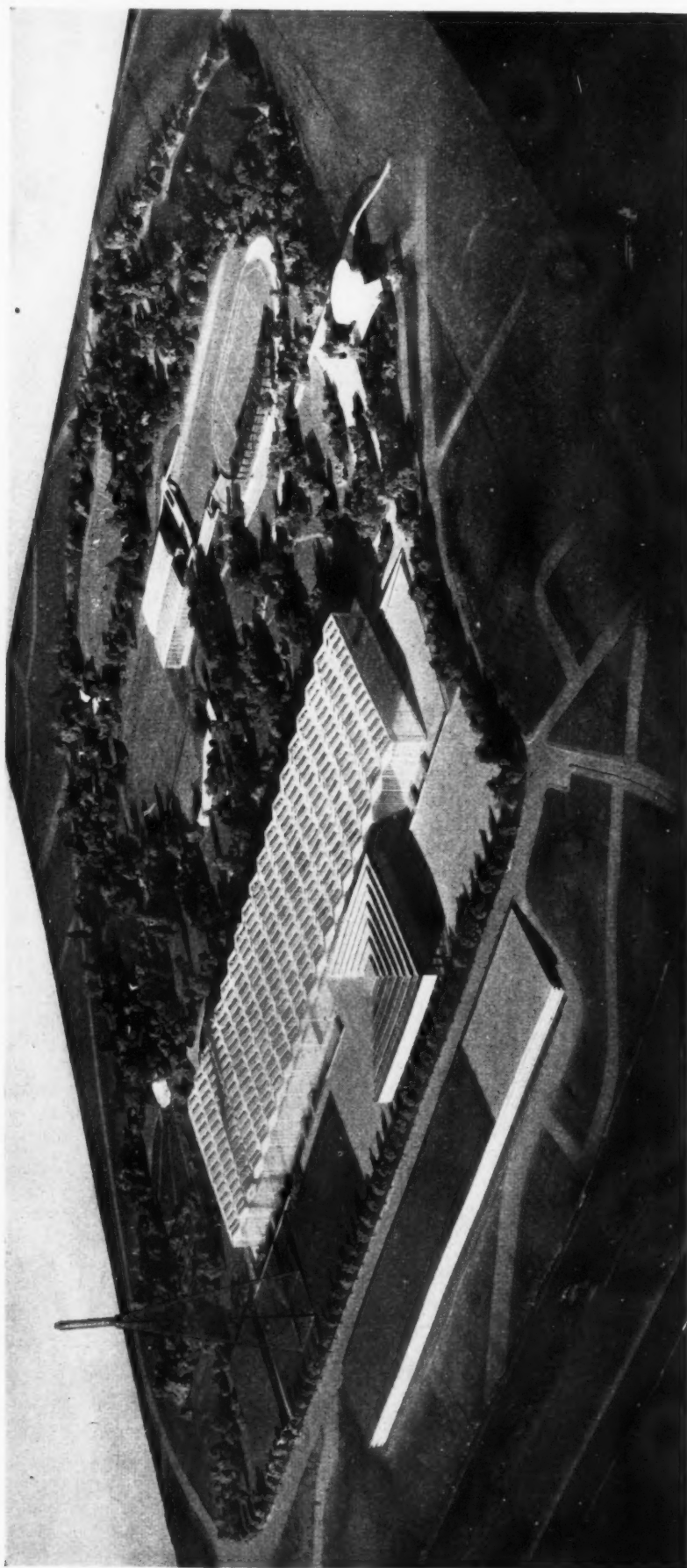
Section A-A



Section B-B (see ground floor plan on page 16)



North elevation [Scale: 1/4" = 1' 0"]



The complete scheme from the south-west. In the foreground is the proposed exhibition centre, with which this article is

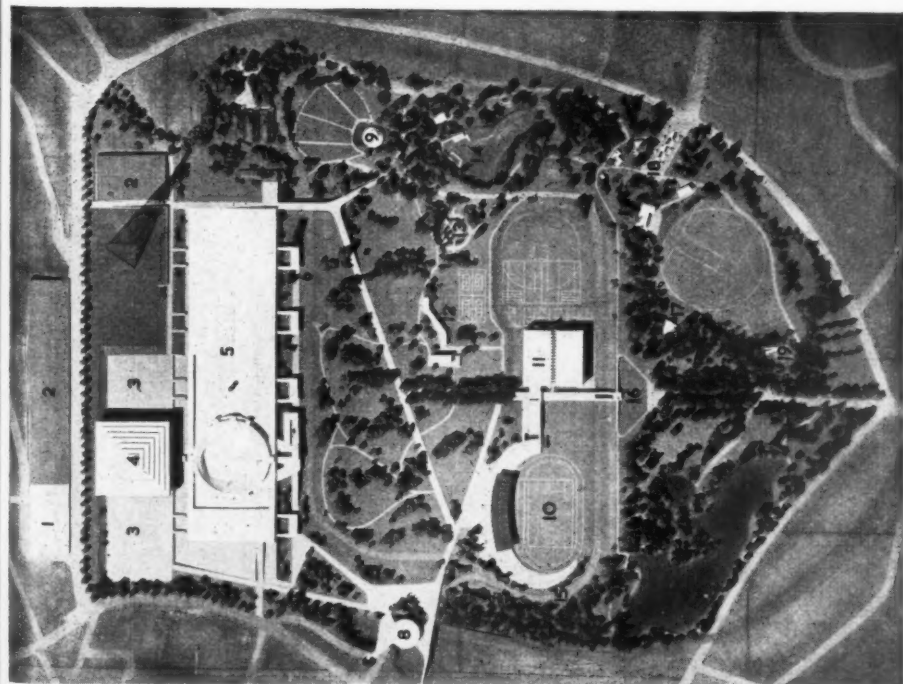
mainly concerned. The sports stadium and hall on the right were described in detail in the JOURNAL in 1954.

CRYSTAL PALACE DEVELOPMENT

The LCC's proposals for the future development of the 200-acre Crystal Palace site were outlined in principle the first stage, which comprises a National Youth and Sports



The LCC's proposals for the future development of the 200-acre Crystal Palace site were outlined by the Leader of the Council at a recent Press conference. The Council's obligations under the Crystal Palace Act, 1951, are to redevelop the site as a place of "education and recreation and for the promotion of industry, commerce and art," and Sir Gerald Barry has been consultant to the Council for the entire scheme. In November, 1954,



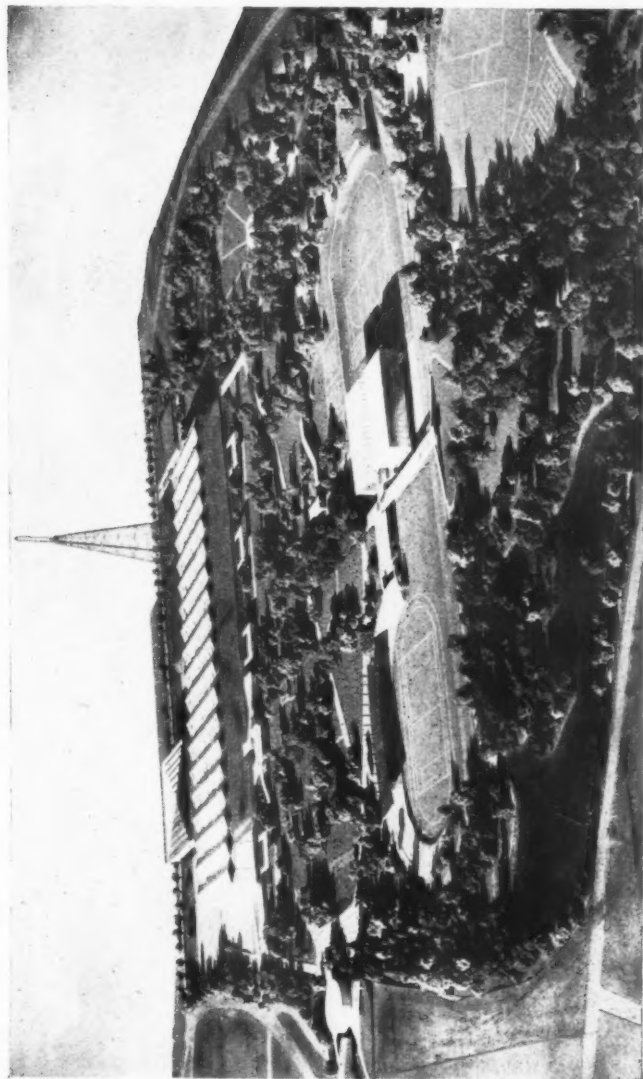
- KEY
- 1 Coach and bus station
 - 2 Multi-storey car park
 - 3 Open air exhibition
 - 4 Exhibition hall "A"
 - 5 Main exhibition hall and arena
 - 6 Restaurants
 - 7 Greenhouses
 - 8 Low level station
 - 9 Open air amphitheatre
 - 10 Sports stadium
 - 11 Sports hall
 - 12 Hostel
 - 13 Paxton memorial gardens
 - 14 Swimming lake
 - 15 Ski tower
 - 16 Motor racing paddock
 - 17 Bandstand
 - 18 Piazza, Sydenham entrance
 - 19 Staff yard

Above: key map of the scheme. North is to the right of the photograph. Right: the scheme from the south-east, with the sports centre in the foreground.

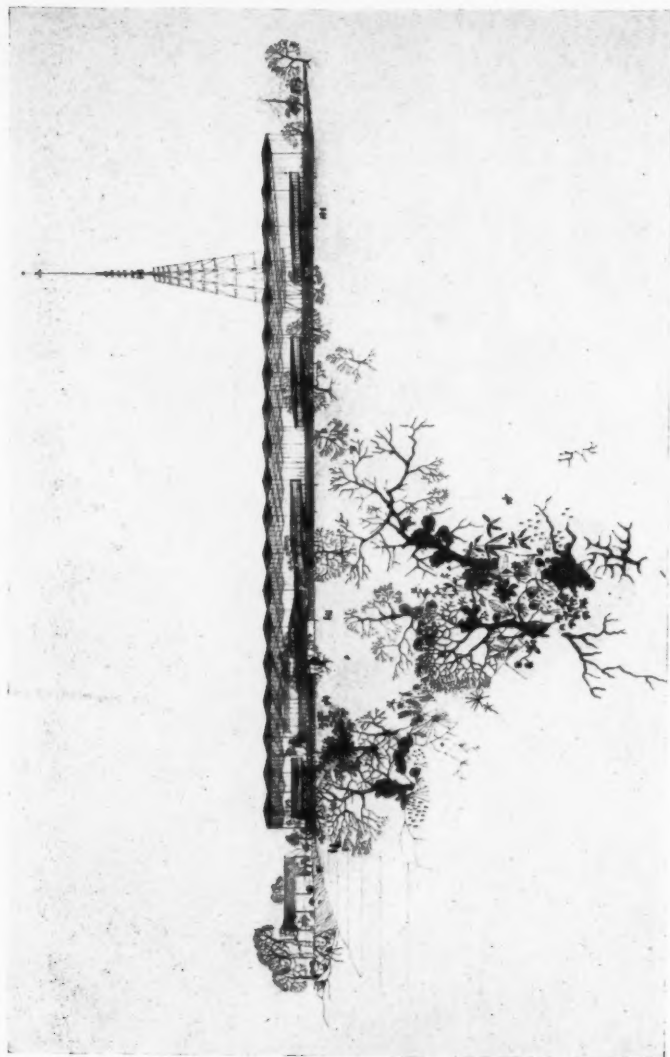
The layout and designs of the estate are the work of the Chief Officer of the LCC Parks Department, L. A. Huddart, assistants C. R. V. Tandy and L. J. Rickards. The aim is to increase the immediate usefulness and attractiveness of the site and also to prepare the way for the full development when the Youth and Sports Centre and the Exhibition Centre are built.

Internal transport and motor racing

It is intended to convey visitors on roads within the site in specially designed vehicles drawing passenger-carrying trailers. Since motor racing was restarted by the Council in 1953 over $\frac{1}{4}$ million spectators have attended the 14 meetings held. The new circuit is intended to be 2.4 miles long.



Perspective of the proposed exhibition centre, as approached from the east.



Amphitheatre

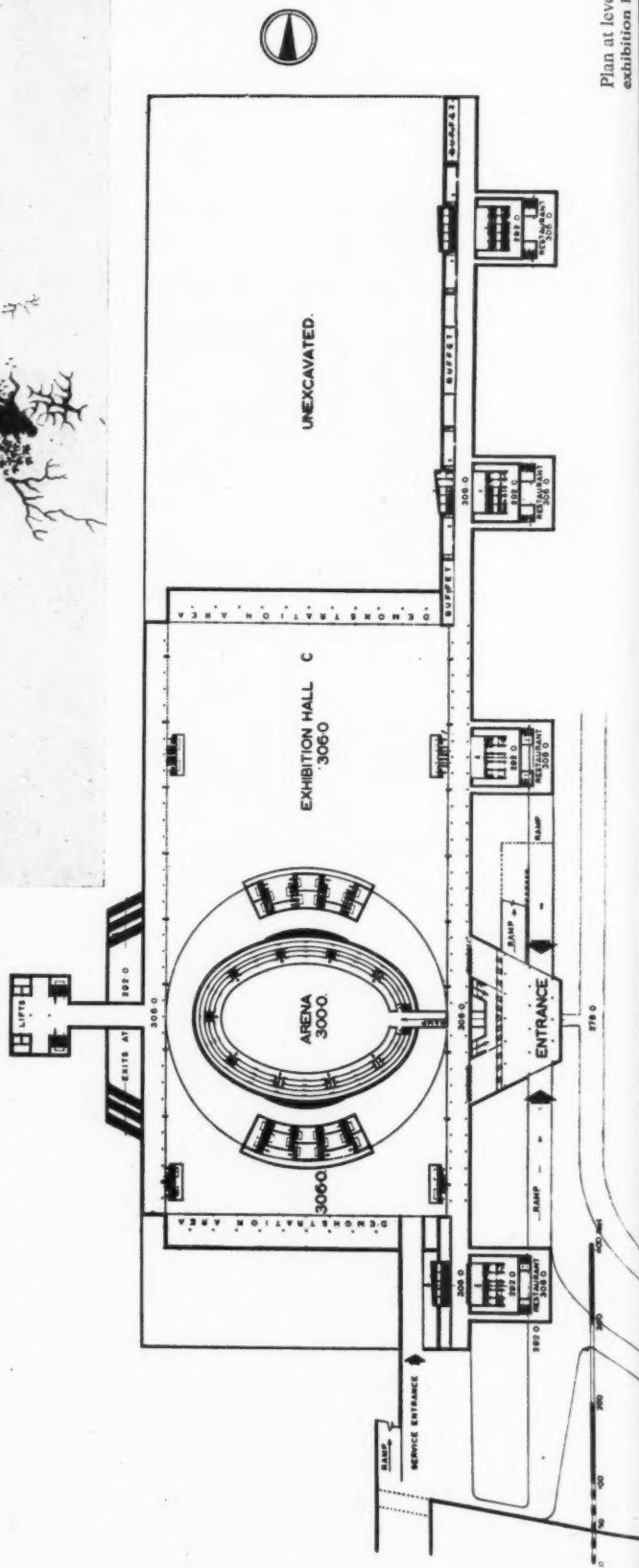
This natural grass-covered bowl will seat about 5,000 people in deck chairs and will have a stage set in the centre of a pool. Symphony concerts, pageants, ballet and large stage spectacles will be performed here.

Sydenham entrance

This entrance on the east side of the site faces the tree-lined Sydenham Avenue. Broad paved walks will be formed on two levels, flanked by kiosks and tiered flower-boxes and there will be an illuminated water feature at one end of the piazza.

Lakes area

A good deal of landscaping has already been carried out at the south-eastern end of the park, which is screened from the rest of the estate by a wooded ridge



Plan at level 306:
exhibition hall C

on which a 160-ft-high observation tower will be constructed. A children's zoo has been successfully sited for three summers and islands will be used for the construction of a number of islands. Discussions have been held between all the principal exhibiting authorities in this country, to the south-east. There is a sharp fall in levels to the south-east. In the old Crystal Palace layout this fall was overcome by the construction of a number of islands.

majority of items. Discussions have been held between all the principal exhibiting authorities in this country, using as a basis a pilot scheme for the Crystal Palace, developed on a 50-ft. module. From the greatest possible number of sources, an ideal solution has been formulated.

Site

One position only in the Crystal Palace grounds establishes itself as suitable for a building of the size proposed; that is, along the line of the upper terraces extending towards the south-eastern side of the Crystal Palace Parade on the site of the old Crystal Palace itself. This site, equidistant between the low level railway station and the high level proposal for car park, coach park and 'bus terminus, dominates the whole grounds and commands a magnificent view from many parts of its length. Conversely, it becomes a focus from

any point in the grounds. There is a sharp fall in levels to the south-east. In the old Crystal Palace layout this fall was overcome by the construction of a number of terraces, but the character of the proposed new exhibition building is such that the levels will have to be reduced in number, to two.

The site is well served by public transport, by 'bus and trolley-'bus services converging on the Crystal Palace Parade, both from London and Surrey, and by trains capable of being routed direct from all parts of the country to the low level station on the south side of the site.

It will be possible to provide parking facilities for 5,000 cars in a multi-storey garage erected on the site of the former high level station, and the building is so designed as to enable pedestrian access from it by tunnel underneath the Crystal Palace Parade. A further multi-storey garage can be erected to accommodate 2,000 cars on the site of the north tower lake within the grounds, adjacent to the Crystal Palace Parade.

Planning

The problem was to provide a building which would reconcile two apparently opposing requirements. On the one hand the desirability of having a group of several buildings offering adaptability, and on the other hand the advantage of a large single unit for certain types of exhibitions, such as motor-shows and heavy industry. To meet these requirements, it is proposed to construct two main buildings. A simple square structure at the upper level forms a main distribution centre to all levels and parts of both buildings with a more intimate type of exhibition hall over. Access is gained, either direct from the Crystal Palace Parade, or via the tunnel from the multi-storey car park.

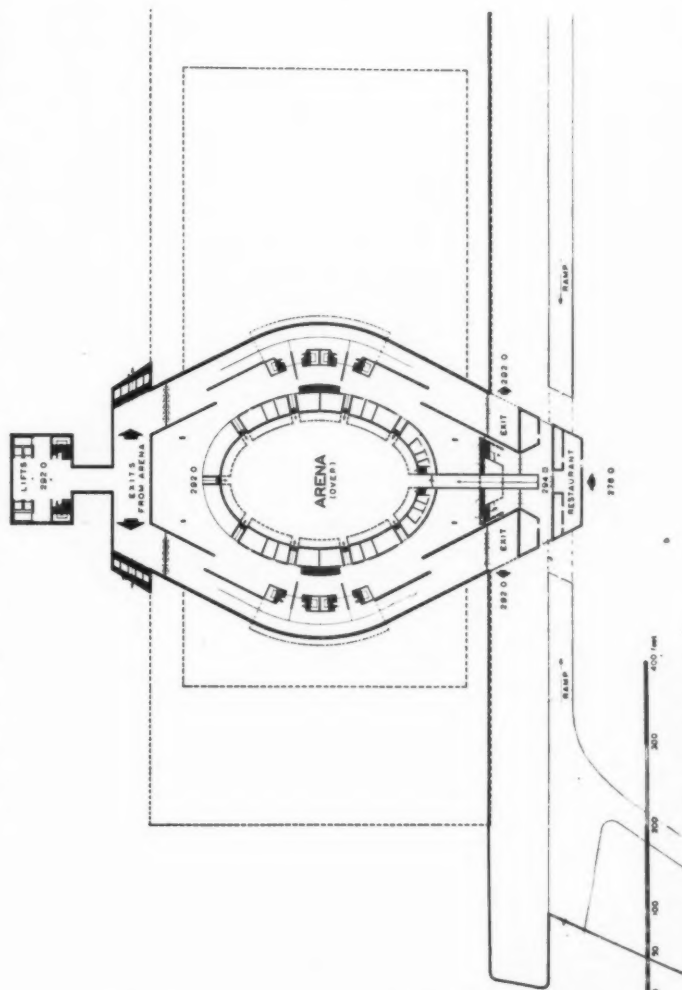
Circulation from this point of entry to other parts of the two buildings is assisted and accelerated by a system of escalators, lifts, and staircases.

The Exhibition space above the entrance is on three suspended planes. The main building itself runs along the whole length of one of the existing lower terraces; the main floor is on consolidated ground, thus being suitable for heavy engineering exhibits. Although one building, its floor is effectively divided by changes of

on which a 160-ft.-high observation tower will be constructed. A children's zoo has been successfully operated for three summers and islands will be used as bird sanctuaries.

Architectural aspect of the scheme

A comprehensive examination of the major European exhibition centres has revealed one factor, which has conditioned their management and servicing. It is simply that a unified and considered design of the magnitude of the proposed Crystal Palace does not exist. Buildings have been added, some more successfully than others on both restricted and extensive sites. The result of this extended and visually unrelated development has determined the scope and layout of exhibits. Forms of questionnaire submitted to the exhibiting authorities on all aspects of exhibition promotion show that opinions vary considerably on the



Plan of exhibition centre at level 292: concourse

level within its length in three main areas. Each area, while being capable of independent use, can also be used in combination with one or both of the others. Within one of these areas is an amphitheatre and arena which will be not only one of the largest, but the most adaptable of its kind in the country. The main Exhibition building is unified by a roof form offering the

maximum diffusion of daylight, whilst reflecting artificial light, the control and absorption of solar heating, and the elimination of exposed structural steel work.

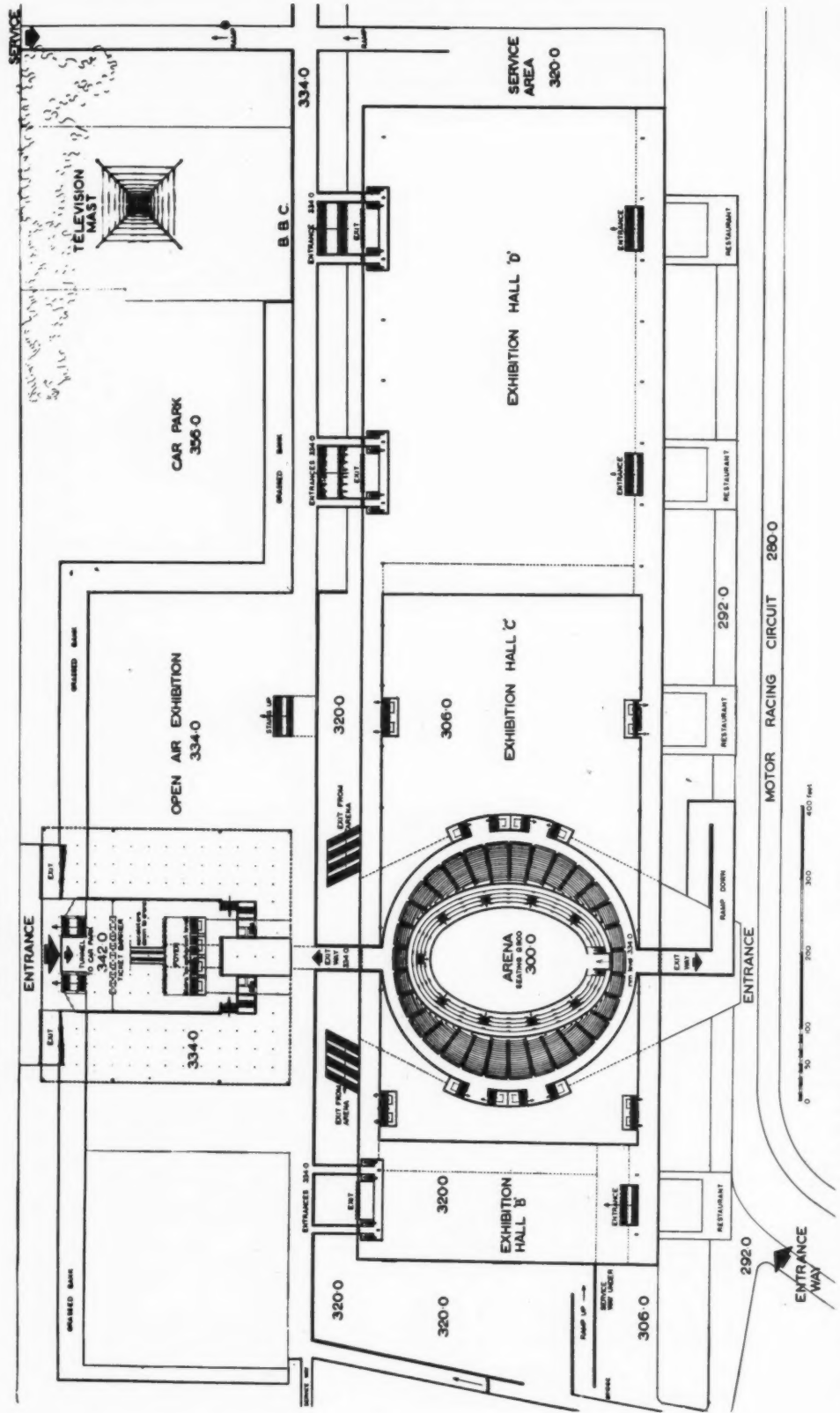
Amphitheatre

The amphitheatre is designed to cater for a varied number of spectacles. It is capable of taking a 200-metre

banked cycle track, or a show of the magnitude of the Royal Tournament at its largest, with a seating for 9,800 spectators, or a boxing contest with a capacity of 13,500. Every seat has a satisfactory sight line covering the complete arena.

The amphitheatre is constructed in the form of an inverted cone, truncated by an elliptical plane, the seat-

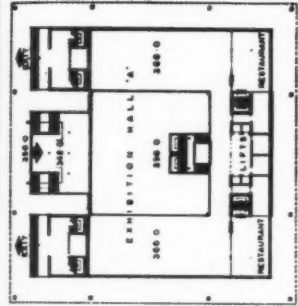
CRYSTAL PALACE PARADE 356 0



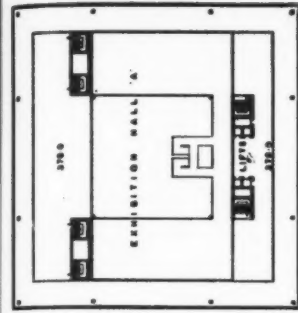
Plan at levels 320 and 334: exhibition halls B & D and open air exhibition

ing following the circumference of the cone. A 30-ft. rim encircles the cone, providing access for 7,000 seats

Plan at levels 320 and 334: exhibition halls B & D and open air exhibition



Plan at level 366



Plan at level 376

The structure

In the first instance, the greater economy of shorter spans was explored. A 50-ft. grid proved, on analysis, to be the most acceptable, both from the economy of structure and ground space. Later, upon the advice received from various exhibiting authorities, it was decided that a clear plan of the greatest possible dimension was desirable, allowing the maximum freedom of stand sizes and arrangements.

Aims of Structure: (a) To achieve a prismatic form which will give scale and interest to the building; (b) to achieve a good overall natural daylight distribution from glazing and reflecting surfaces; (c) to weld together structure and surface so that no exposed structure is seen; (d) to achieve lightness and economy; (e) to permit roof glazing to be easily cleaned. In this case it was decided to have vertical glazing only.

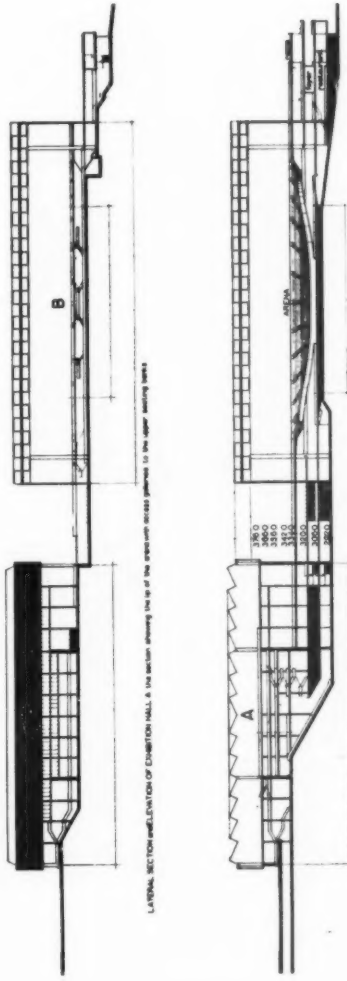
Structural Development: Three preliminary stages were considered; for the final solution see diagram on page 26. (1) Columns on a 50-ft. grid were designed to be linked diagonally with simple trusses and the roof surfaces connected alternately to the top or bottom cords of the trusses. The weakness of this

from that of the Exhibition. Spectators arriving from the Crystal Palace Parade are taken directly down to the lowest level. This floor contains all the lavatories and bars for the amphitheatre and from this floor the spectators go either directly to the arena seats or up the two-stair complex either side of the bowl to the main seating.

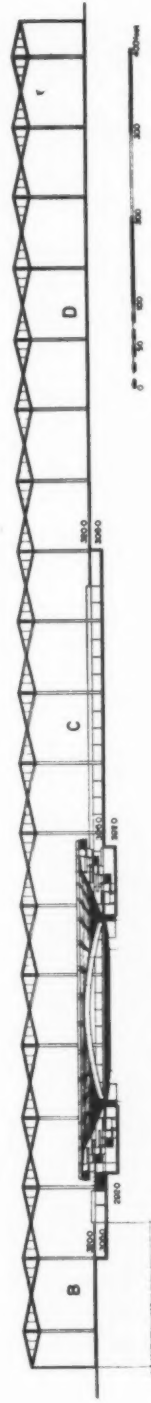
ing following the circumference of the cone. A 30-ft. rim encircles the cone, providing access for 7,000 seats in the upper bowl. The arena is sunk 6 ft. below the main Exhibition level and forms six shallow seating tiers for 2,800. The unique form of the bowl allows the greatest number of seats to be grouped on either side of the arena, whereas at either end, the seating carries up to 20 ft. above the floor, leaving two large openings connected to the main Exhibition floor. This permits the arena to be used as part of the Exhibition hall should this be necessary.

When the timber banked cycle track is installed, the elliptical shape of the arena conforms to the required standard of such a track and the raised ends of the seating allows the correct banking to be formed at the ends. The seating for such a spectacle is reduced to 7,000, which is considered the maximum number that would be required.

Circulation of the amphitheatre is completely divorced

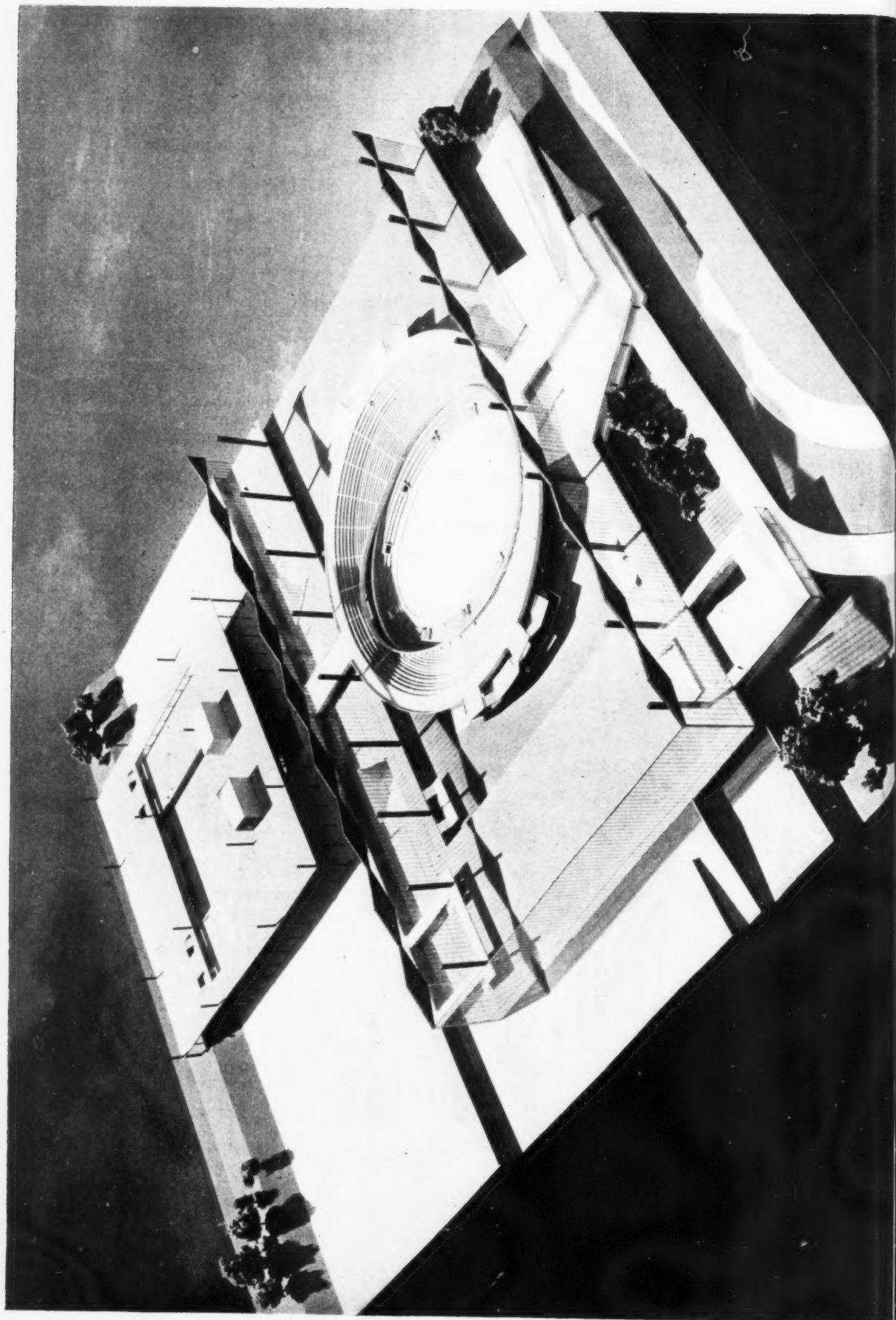


LATERAL SECTION SHOWING MAIN ACCESS FROM CRYSTAL PALACE PARADE SHOWING EXHIBITION HALL A AND USE TO ARENA SEAT TIERS



LONGITUDINAL SECTION SHOWING THE ARENA ACCESS

Elevations and sections of exhibition centre



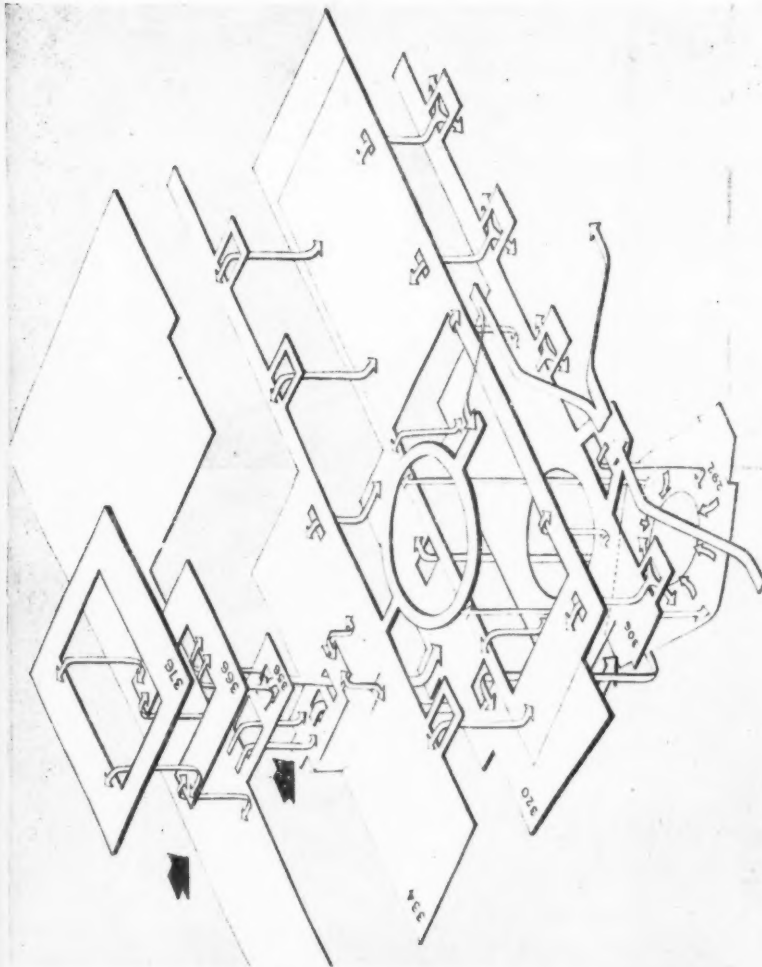
Opposite page: the south end of the exhibition centre, with

Opposite page: the south end of the exhibition centre, with the roof removed to show the arena, which seats 9,800 people, and, in the background, the small hall and entrance.

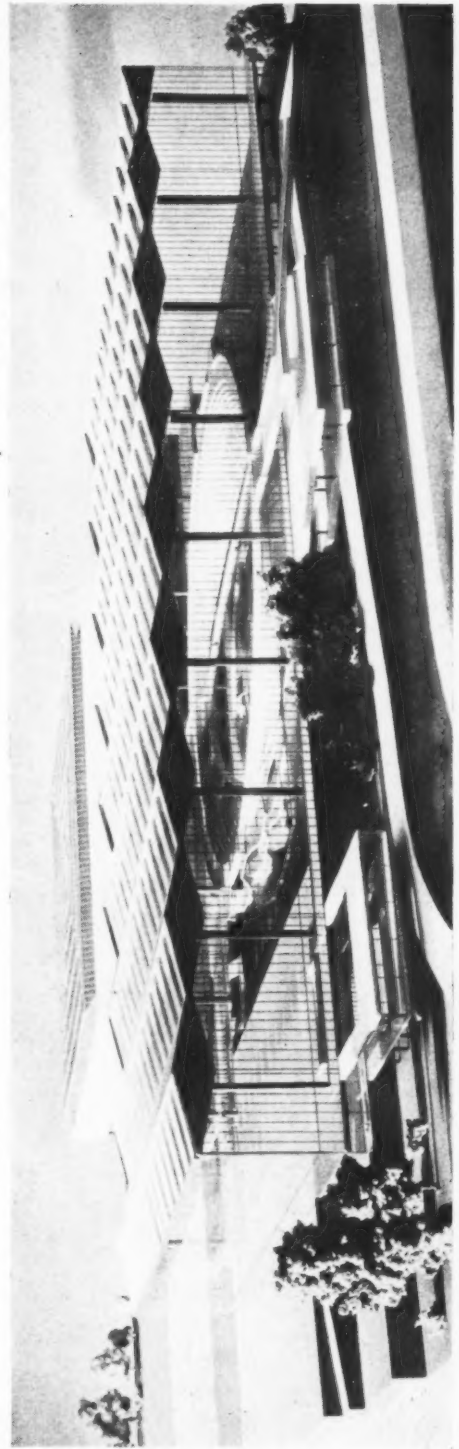
structure is the difficulty of providing lateral restraint to the tops of the long columns. (2) was a 50-ft. sq. box structure to overcome the weakness of lateral restraint, but lacks the interesting prismatic form. (3) The simplest type of the long span structures, providing roof lighting is the north light roof truss with the glazed surfaces forming the long span trusses. This was a development of this type with a prismatic form of in-filling and a 420-ft. by 30-ft. span. The top cord of the truss is exposed. (4) This is a development of the long span truss and in this case the roof is built up from the series of double cantilever trusses springing from a main truss spanning the width of the building. The cantilever truss forms the vertical glazing face and the skin construction linking them forms a series of intersecting roof slabs which will provide excellent overall natural lighting (see diagram on page 26). The construction of the roof beams allows for walking ways, giving ready access to all services. These also allow the vertical roof glazing to be cleaned in perfect safety and without the use of ladders and cradles.

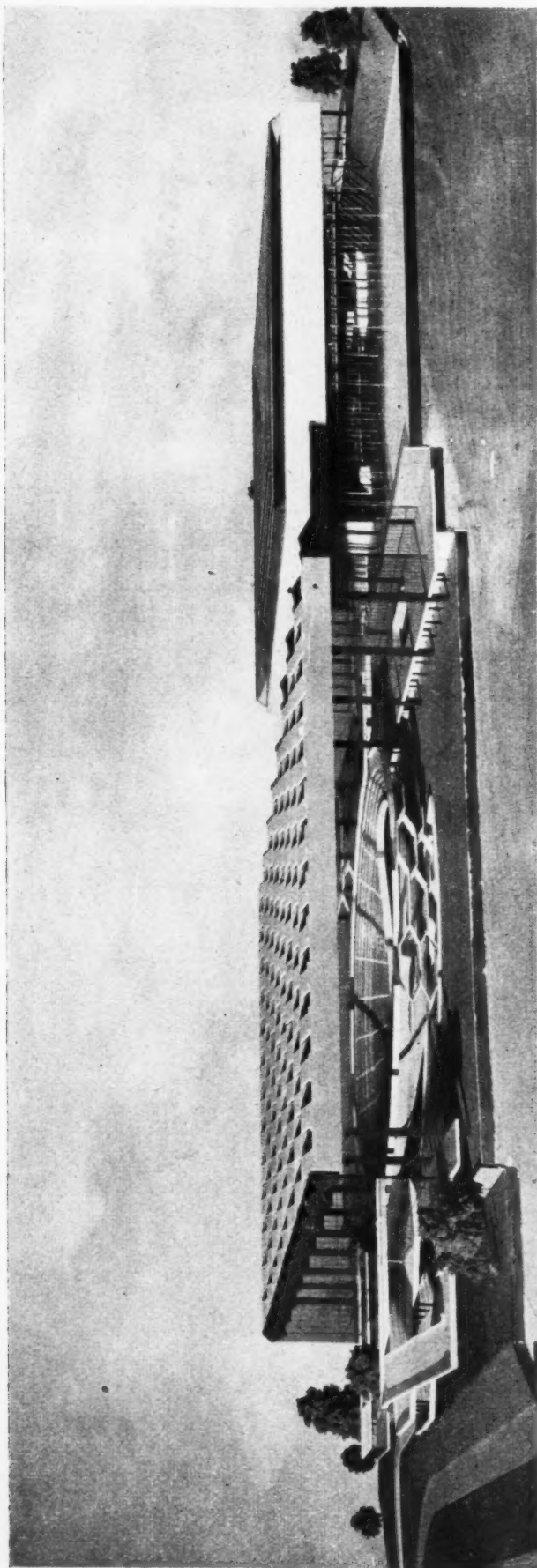
Left: circulation diagram of exhibition halls.

Below: the west end of the centre seen from the east.



- 376 EXHIBITION HALL 'A'
- 366 EXHIBITION HALL 'A'
- 356 CRYSTAL PALACE PARADE
- 334 OPEN AIR EXHIBITION
- 320 EXHIBITION HALLS B&D
- 306 EXHIBITION HALL 'C'
- 292 CONCOURSE



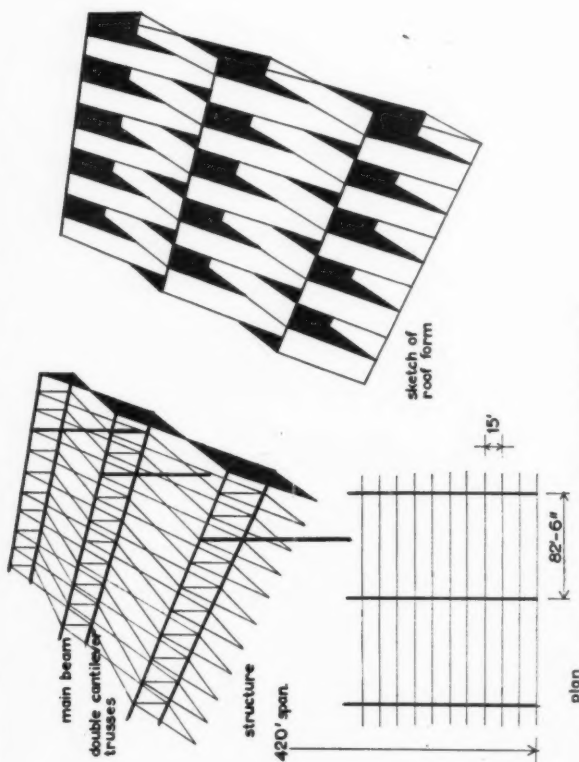


Above: a section of the amphitheatre and of the exhibition centre. On the right is the small hall and entrance.

The intersecting structural forms of the roof with their in-fillings of glass build up into an intricate woven form. It is this form which will be seen from outside and inside the building and which will give the structure its unique and striking character.

Enclosed grounds

Between the main building and Crystal Palace Parade considerable areas are provided for open air exhibits. The areas have a hard standing which when not in use could be used as supplementary car parks. On the other side of the main building is extensive parkland which would be used for agricultural shows, horse shows, etc. The design is by the Architect to the LCC, Dr. J. L. Martin; Deputy Architect, F. G. West; assistant architects, N. W. Engleback, B. G. Jones; M. J. Attenborough.



Diagrams of roof construction, main exhibition hall

TECHNICAL SECTION

The need for precision in British Standards is brought out by something which has happened concerning w.c. cisterns. The law about flushing cisterns is controlled by the Water Act of 1945. This Act authorised Water Authorities to adopt new Byelaws and in fact most of them have adopted the Model Byelaws of MOH. These in turn state that w.c. cisterns must be in accordance with BSS. 1125/1945. Unfortunately this Standard is not always as precise as it might be, and includes among other well-meaning phrases the injunction that cisterns "shall be efficiently protected against corrosion." The business of deciding what this means is left to each water authority. Taking advantage of this, the Birmingham authority has caused some consternation in the trade by stating that they will accept no cistern which has cast iron below the water line, even if coated or galvanised. Bearing in mind that the overwhelming majority of cisterns now in use are of cast iron and that breaking the Water Act makes the plumber liable to a £50 fine, this is fighting talk. Whether or not this decision becomes general, it will certainly hasten the flight to bitumen or other non-corrosive-type cisterns.

This week's
special feature

7 PROCEDURE das fertighaus, Austrian pre-fabrication

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.

We are accustomed to think that if the builder is to participate in constructional design, the work cannot be put out to competitive tender. But this week's article describes an Austrian pre-fabricated housing scheme in which these two objectives were combined, a scheme which allowed a wide variety of contractors—from the one man firm to the large organization—to take part. The basis of the project was a logical costing system which separates on-site from off-site costs, and separates labour, material and overheads—for every component. The project is intended as a first step towards a house export industry for Austria.

In the summer of 1953, the Austrian Productivity Centre launched a scheme for manufacturing pre-fabricated houses. The scheme was aided by the Mission for Economic Co-operation and made use of American housebuilding experience. The aims were: to exploit Austria's immense

timber reserves; tackle the housing problem, and start an export trade that would nourish the country's economic health. The methods evolved were ingeniously adapted to all these aims and they throw an unexpected light on problems of cost control and technical efficiency in building.

THE PROBLEM

The architects, Roland Rainer and Carl Aubock designed fifteen types of single-storey houses, in pre-fabricated units on a one-metre grid. But they did not specify materials or detail the construction—at least not in the conventional sense.

Each component part—wall panels, cupboard units, plumbing units and so forth—was described in terms of guiding dimensions and performance standards. The designs were put out to tender, each contractor determining his own method of constructing or providing the components to meet the standards laid down. The intention behind this unconventional procedure was to make use of the varying resources and methods of different contractors, allowing them to adapt constructional design to their manufacturing capabilities. But the fifteen houses were merely the pilot project—an exhibition to attract customers from other countries to whom such houses might be exported. Thus the Austrian Productivity Centre needed to gain some idea of the effect of quantity production on price. Quantity production is commonly regarded as the preserve of the large firm, but the Austrians wanted the small contractor to be able to take part also. This economically humane policy set a difficult problem in the methods of tendering.

THE METHOD

The solution was to use a unit costing system originally devised by W. K. Wittausch of the Federal Housing Administration (USA) and to employ the skill of a typographer—Ernst Hoch—to express it. The

result was a tendering document remarkable for order and clarity. The system works like this:

An outline drawing is shown (usually isometric) of each component and accompanying each drawing is a cash lined page for the tenderer to enter his price. The cost breakdown appears almost naïve in its logic. There is a main division between cost of manufacture (in the workshop) and assembly (on the site); these two headings being further sub-divided into costs of (1) material, (2) labour, and (3) overheads. Thus for any particular component there are six separate costs representing precisely the separable aspects of its making and installation. This sixfold breakdown, besides revealing in detail where the money goes, allows contractors to tender for making and supply only, if they so wish. Then each section of the work—joinery, roofing, plumbing and so forth—has a summary page on which the items are to be moneyed out for each and for all of the fifteen houses. There is also a space on the summary page for quantities of 100 and 1,000. Site works—foundations, services and landscaping—are, of course, separately priced. The conditions of tendering allowed prices to be submitted by individual firms or by groups of firms in association—for the entire project or for particular items.

Hence, when the tenders came in, the Austrian Productivity Centre had comparative breakdown prices for each item singly, for each house singly and for the whole 15-house settlement. They also had these figures for quantities of 100 and 1,000. The

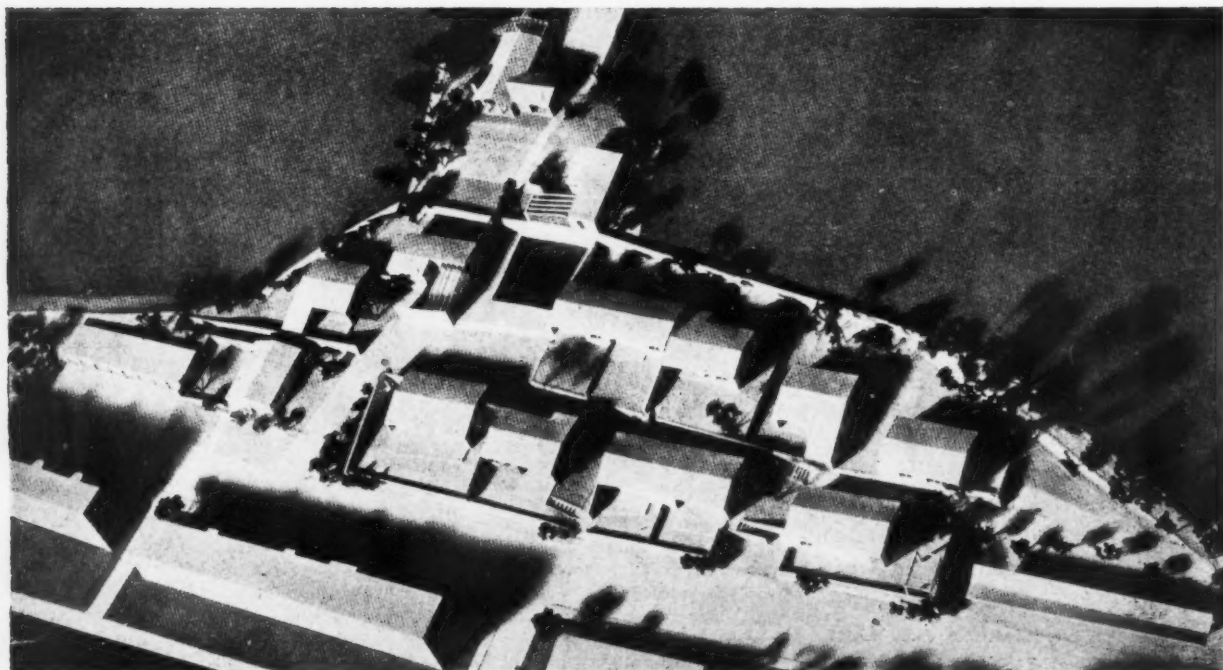
pricing system was worked out with expressive simplicity on three kinds of price entry tables. The first, for pricing each item, has three horizontal columns (for material, labour and overheads), crossed by three vertical columns (for on site work, off site work and total). The second type of table for totalling the costs in each section has 17 horizontal columns (for the 15 houses, the 100 and the 1,000 costs) which are crossed by as many columns as there are components in that section. "Section" here meaning wall components, roof and ceiling components, cupboard and fitting components, and so on. The third type of table, for summarizing the cost of the whole project has 16 horizontal columns (for the 15 houses and their totals) crossed by 12 vertical columns (for the 12 sections of the work).

How it Worked

Eleven general contractors and over 100 subcontractors submitted tenders. The firms ranged in size from six of the largest Austrian prefabricated house manufacturers to several one-man wood working shops who tendered for only one or two items that they were specially able to produce. The opportunity given to each contractor to design his own components was fully grasped, although the proposals tended to be on the safe side in thickness and weight, largely because these houses were the first of their kind to be built in Austria. Thus, in houses subsequent to the first exhibition, considerable economies will be possible.

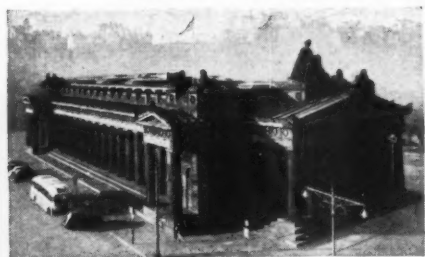
Although completely new to contractors, the sixfold cost breakdown was accurately filled in; they understood what was wanted and

Model of the exhibition settlement of fifteen houses at Vienna. The site was leased to the developers by the Municipality of Vienna, an unusual arrangement in Austria, although of course common over here.



On this famous public building

THE ROYAL SCOTTISH ACADEMY



*Photograph by courtesy of H.M. Ministry of Works and
The Royal Scottish Academy.*

The roof of this famous building in
Edinburgh was laid by the Neuchatel
Asphalte Co. Ltd., with Natural Rock
Asphalte Mastic to B.S.S. 1162.

Technical consultation freely invited

SPECIALISTS FOR 80 YEARS IN ASPHALTE
for Roofing, Tanking, Flooring and Roads.
Also NACOFELT ROOFING and Approved Laying
Contractors for ACCOTILE FLOORING.

Sole Concessionaires of all
Natural Rock Asphalte mined in
the Val-de-Travers, Neuchatel, Switzerland.

**CRAFTSMAN-LAID
BY NEUCHATEL**

THE NEUCHATEL ASPHALTE COMPANY LTD
58 Victoria Street, London, S.W.1 Telephone No. of Contracting Depts.: RENown 1321

Branches: BELFAST · BIRMINGHAM · CARDIFF · EDINBURGH · FROME · GLASGOW · LEEDS
MANCHESTER · NEWCASTLE · OFFHAM (KENT) · PLYMOUTH · PORTSMOUTH



Stainless Extractions

One of the very good reasons why T I Aluminium Mill Finish

Sheet is such an excellent material for fume extraction

plant lies in its ability to withstand corrosion

from most chemical vapours. But, of course,

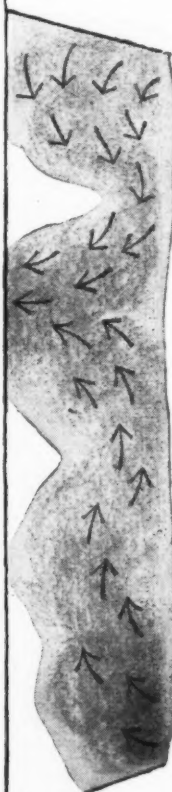
there are other important advantages

in T I Aluminium.



It is light and easy to
manipulate and erect; it can

be quickly formed into
complex shapes; it does not
rust; and, if the ducting is
used in reverse for heating
plant, the low thermal
conductivity of T I Aluminium
Sheet means less heat
loss through ducting.




The illustration shows one of four large fume extraction plants entirely constructed of T I Aluminium in a modern factory in South Wales.

T I Aluminium Ltd

**ONE OF THE LARGEST U.K. FABRICATORS OF ALUMINIUM AND ALUMINIUM ALLOY
SHEET, CORRUGATED SHEET, STRIP, CIRCLES, PLATE, EXTRUDED SECTIONS AND TUBES.**

T I Aluminium Ltd. Head Office: Redfern Road, Tyseley, Birmingham. 11. Tel. Acocks Green 3333.

A  COMPANY

London: 10, Buckingham Place, Westminster, LONDON, S.W.1. Tel: Victoria 0902. **Birmingham:** 10, Needles Alley, BIRMINGHAM. 2. Tel: Midland 0672. **Manchester:** 14, Brown Street, MANCHESTER. 1. Tel: Deansgate 2584. **Leeds:** Russell Chambers, 54, Merriem Street, LEEDS. 1. Tel: Leeds 31870. **Glasgow:** 38, Bath Street, GLASGOW. C.2. Tel: Douglas 5161. **Bristol:** 16, Charlotte Street, BRISTOL. 1. Tel: Bristol 25401.

A Häuser 1 Fertigteile a Wandelemente

Position 101 Außenwandelement voll, beide Seiten Außenseiten, ebenso eine Stirnseite als Außenseite ausgebildet, die zweite Stirnseite zur Verbindung mit den anschließenden Elementen, der Dachkonstruktion und der Fundamente vorgesehen

908 Außerelement voll, eine Seite als Außenseite, die andere Seite Innenseite für Wohn- oder Schlafräume, rechts und links zur Verbindung mit den anderen Elementen bzw. Dachkonstruktion und Fundamenten vorgesehen

183 Wandelement voll, zur Trennung zwischen zwei Räumen, eine Oberfläche als Wand vom Wohnraum, die andere feuerhemmend ausgebildet

104 Außenwandelement wie Pos. 102, mit einer wärmedämmend ausgebildeten Heusteuer, der Stöckdicke 0,84/1,94 m mit Doppelfalls und Gummidichtung, zulen mit lotrechten 4 cm breiten Riemen aus naturbelassenem Hetholz verklebte, beschlagen mit 3 kräftigen Bändern und Zellsylinderschloß sowie Weißmetalleckern und darüber befindlichen festverglasten Oberlicht

105 Außenwandelement wie Pm. 102, mit eingebauten 75 cm hohen Verbundkippflügel über die ganze Breite des Elements, oben gehängt, nach außen ausschlagend mit 2 Auspreitzangen und 2 Weißmetall-Halboltrn, grundiert und einmal mit Standölfarbe gestrichen sowie Beistellung von Marchotglasleisten

166 Außenwandelement wie Pos. 105, mit eingebautem Verbundkippflügel, jedoch 120 cm hoch

62

Kosten bis zur Übergabe

	Werk	Baustraße	Insgesamt
je Stück Material			
Arbeit			
Region			
Summe			101
je Stück Material			
Arbeit			
Region			
Summe			102
je Stück Material			
Arbeit			
Region			
Summe			103
je Stück Material			
Arbeit			
Region			
Summe			104
je Stück Material			
Arbeit			
Region			
Summe			105
je Stück Material			
Arbeit			
Region			
Summe			106

why. In some cases contractors could, by substituting lower sub-contract tenders than their own, achieve a lower total price. This was encouraged. For quantities of 100, tenders showed a price decrease of about 10 per cent., for 1,000, about 25 per cent. Although these figures are not so high as cost reduction in the US where there is much greater mass production experience, they are remarkably good.

**PAGES FROM THE
FERTIGHAUS BOOK**

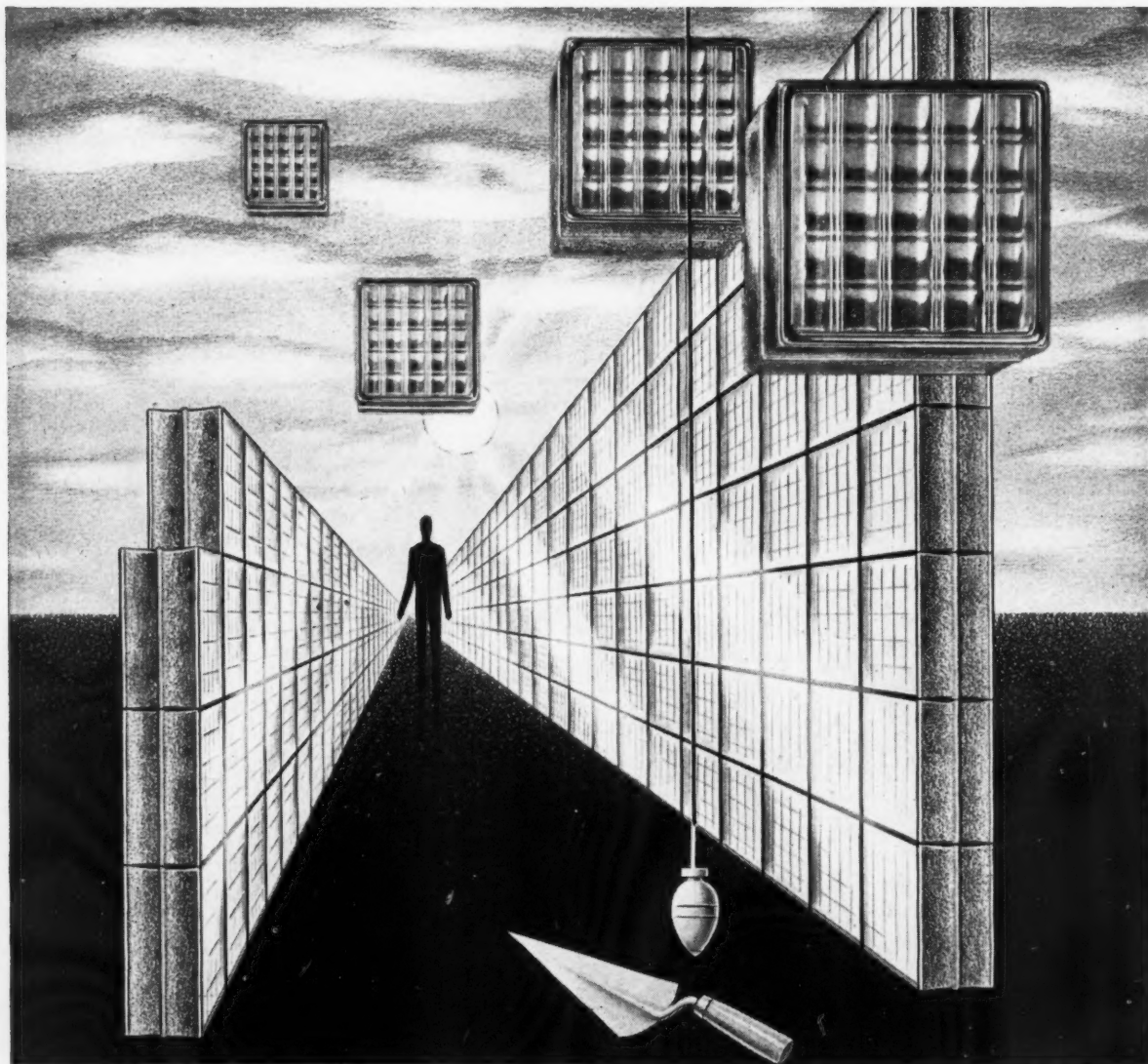
Above left: a pricing page for wall and window components. Translation: Arbeit—labour, Regien—overheads, Werk—off site work, Baustelle—on site work, Ingesamt—total.

Wandelemente (außen)

[illegible]

Die Preise sind in diese Tabelle auf Grund des Leistungsvorzeichnens eingetragen

A price summary page, the left hand column of figures represents the fifteen houses and the figures along the top (101, 102 etc.) are the component reference numbers. Translation: Einheitpreis—cost for single item, Skt—each component, Preis—price.



BUILDING WITH LIGHT Walls of "Insulight" Hollow Glass Blocks are walls of light. They bring a modern beauty to the exteriors of buildings. They bring welcome light into every part of interiors. They bring essential thermal and sound insulation. And because they are so easily kept clean "Insulight" Hollow Glass Blocks go on giving these benefits without expensive maintenance.

"INSULIGHT" HOLLOW GLASS BLOCKS

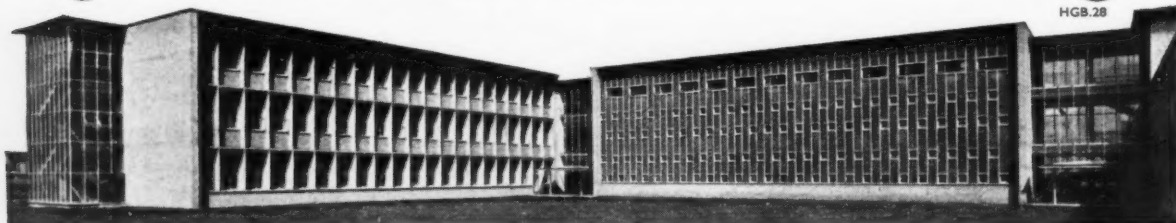
PILKINGTON BROTHERS LIMITED



Consult the Technical Sales and Service Department at St. Helens, Lancs. Telephone: St. Helens 4001 or Selwyn House, Cleveland Row, St. James's, London, S.W.1. Telephone: Whitehall 5672-6. "INSULIGHT" is a registered trade mark of Pilkington Brothers Limited. Supplies are available through the usual trade channels.



HGB.28



Approximately 20,000 "INSULIGHT" Hollow Glass Blocks were used in the construction of Renold House, built at Wythenshawe, Manchester, for Renold Chains, Ltd. Architects: Crutchshank & Seward, F.R.I.B.A., Manchester

WORKING DETAIL**ROOFS AND CEILINGS: 29****GYMNASIUM ROOF: SCHOOL AT STOKE NEWINGTON**

Robert H. Matthew, formerly Architect to the London County Council; John Broome, architect-in-charge; F. J. Samuely, consulting engineer



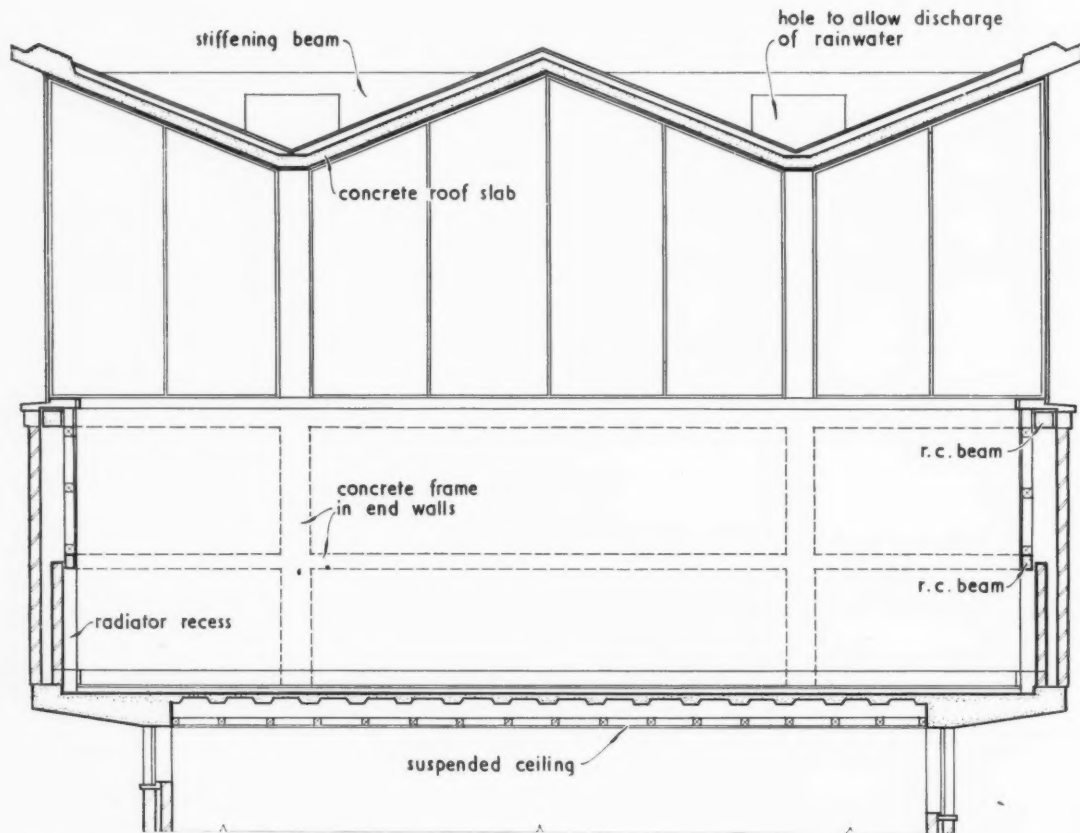
The roof is stiffened by upstand fins at 20-ft. centres which are pierced in the valleys to allow water to drain down to the two rainwater heads. The main weight of the roof is carried by four 9 in. by 11 in. r.c. columns, two in each end wall; but the brick panel wall conceals a framed r.c. structure which rises to sill level and supports the m.s. mullions. These comprise 3 in. by 3 in. tee sections and 2-in. o.d. tubes welded together and are provided with a joint at the head which permits movement.

WORKING DETAIL

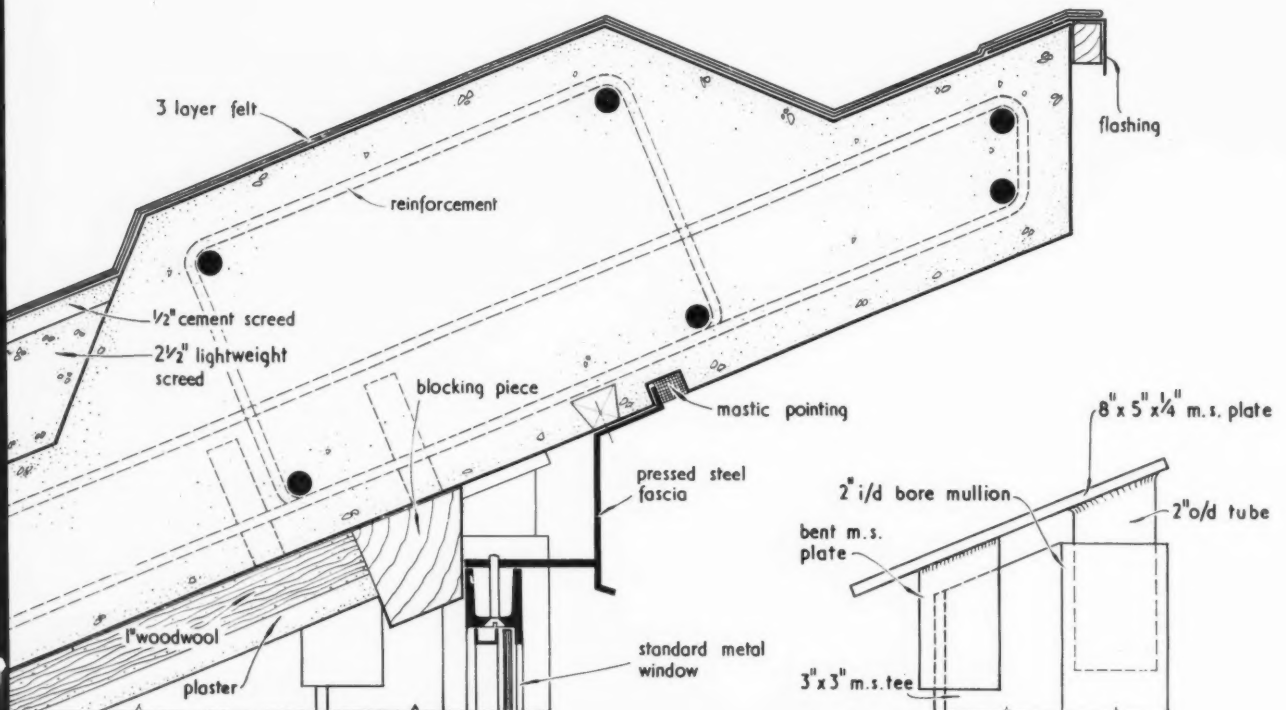
ROOFS AND CEILINGS: 29

GYMNASIUM ROOF: SCHOOL AT STOKE NEWINGTON

Robert H. Matthew, formerly Architect to the London County Council; John Broome, architect-in-charge; F. J. Samuely, consulting engineer



SECTION THROUGH GYMNASIUM. scale $\frac{3}{16}" = 1'-0"$



SECTION THROUGH EAVES. scale $\frac{1}{4}$ full size

MULLION DETAIL. scale $\frac{1}{4}$ full size

WORKING DETAIL**ROOFS AND CEILINGS: 30****WORKSHOP ROOF: SCHOOL AT STOKE NEWINGTON**

Robert H. Matthew, formerly Architect to the London County Council; John Broome, architect-in-charge; F. J. Samuely, consulting engineer

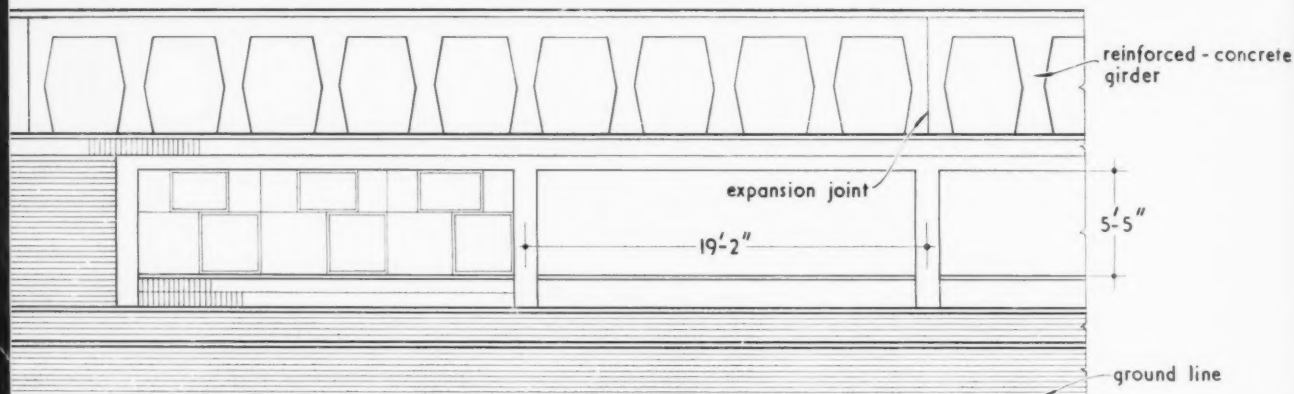
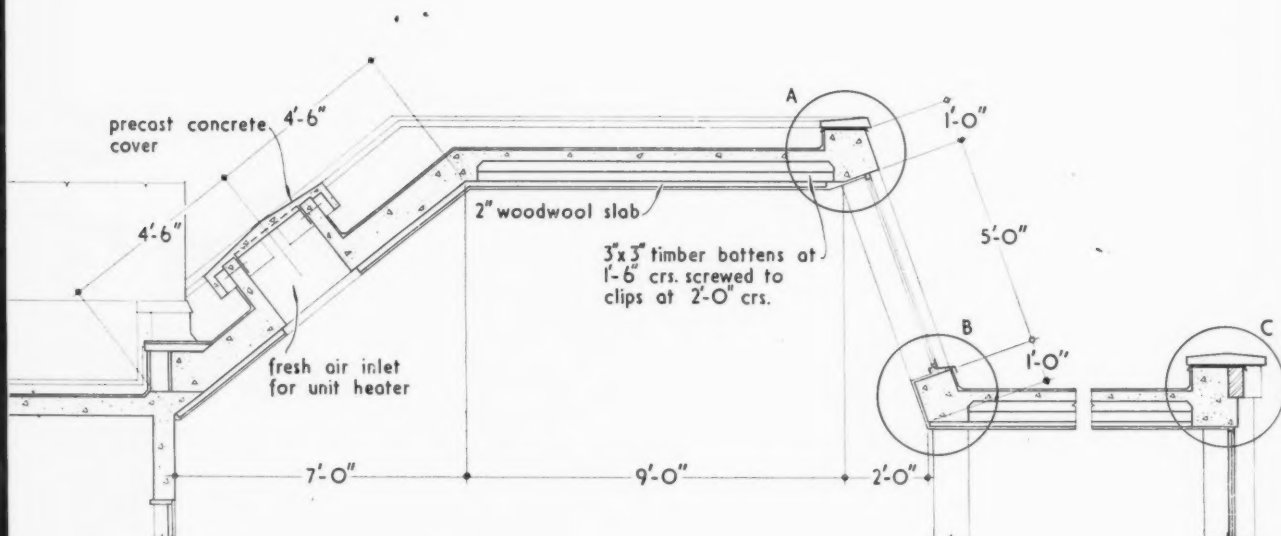
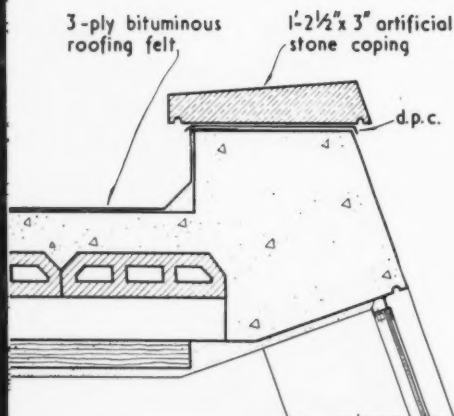


The north lights are accommodated between the struts of the reinforced concrete vierendeel truss. Unit heaters are fixed at intervals along the sloping part of the roof, each of these being fixed against an upstand vent formed in the concrete. The horizontal parts of the concrete roof are cast on hollow clay blocks and are lined internally with wood-wool.

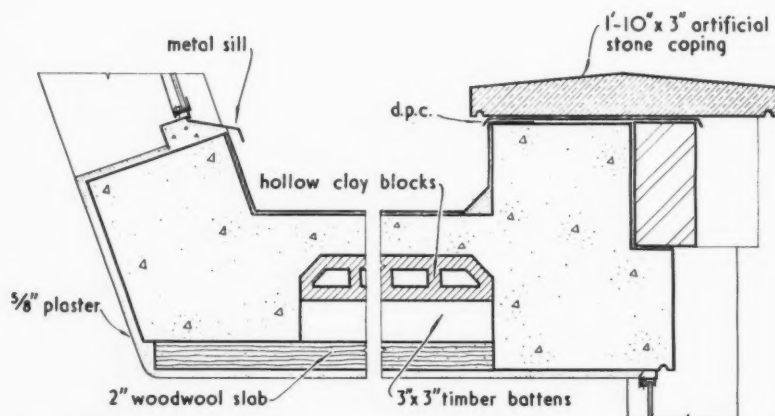
WORKING DETAIL**ROOFS AND CEILINGS: 30**

WORKSHOP ROOF: SCHOOL AT STOKE NEWINGTON

Robert H. Matthew, formerly Architect to the London County Council; John Broome, architect-in-charge; F. J. Samuely, consulting engineer

KEY ELEVATION. scale $\frac{1}{8}" = 1'-0"$ SECTION THROUGH ROOF. scale $\frac{1}{4}" = 1'-0"$ 

DETAIL AT A

DETAILS AT B AND C. scale $1" = 1'-0"$

For the
tractors
four of
tor use
contract
ing sel
standa
purpos
possibl

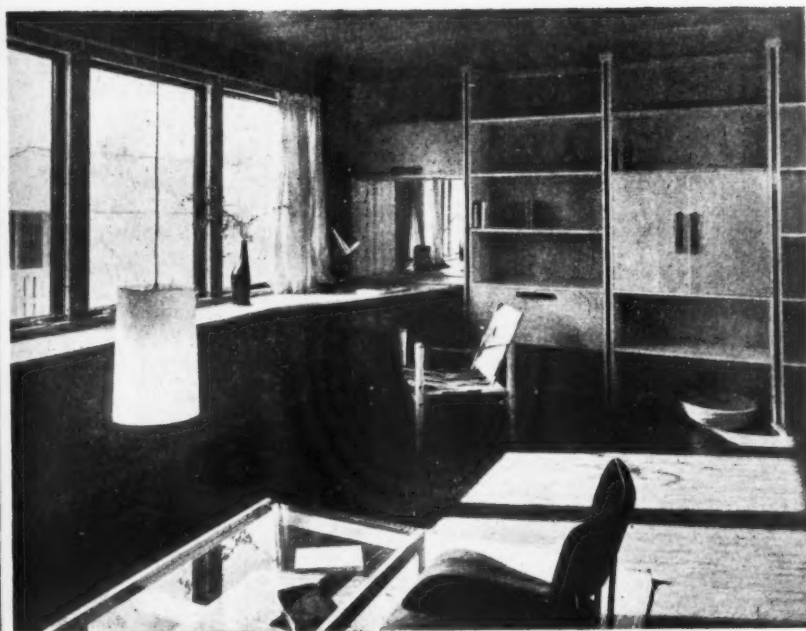


Top
Karl
have
join
par
tom
bec
tha
the

For the exhibition houses, four general contractors were selected, each to build three or four of the 15 houses. Each general contractor used components from about 10 sub-contractors, the lowest sub-tender price being selected, subject to the attainment of standards laid down. This wide selection was purposely made to give as many firms as possible experience of the work. It could

Cost and Time

The tendering document was first issued in September, 1953, work began on site in the summer of 1954 and four months later the houses were ready for exhibition. On the average, it took about two days to assemble the external wall components and roof. The roof covering was finished by the evening of the third day.



Top: the terrace of house No. 10, showing the quality of the landscaping. The landscape designer was Karl Filipisky. Above: living-room of house No. 3.

have led to formidable co-ordination and jointing problems, but this did not happen; partly because Austrian craftsmen are accustomed to high accuracy standards and partly because of the keen spirit of co-operation that developed under close supervision by the architects.

By selecting and combining the lowest tenders, a reduction of 15 to 20 per cent. of the cost as compared with overall house tenders was effected. The price of a 920 square foot house thus worked out at 150,000 Austrian schillings (£2,066 approximately or 44.80 shillings per square foot

floor area). The Austrians compare this with the cost of an average "apartment" at 90,000 schillings (£1,250 or 38.50 shillings per square foot), but point out that "apartments" usually about 650 square feet, have one water tap and sink, one electric lighting point per room, one w.c. and one fireplace—standards that are far below those achieved in the Fertighaus. It may be noted that the "apartment" cost is roughly comparable with the average cost of local authority housing in this country at 38 shillings per foot. The Vienna Municipal Department of Public Works have published the following comments on Fertighaus costs: "The pre-fabricated wall and ceiling elements plus the plumbing block require about 30 per cent. of the net building costs. It is actually here however that savings are effected, savings which make it possible to furnish the pre-fabricated house with additional equipment such as built-in cupboards, central heating and household appliances. Of these additional things, the heating installation is still too expensive—and at this point decisive savings must be effected before further development is possible and the cost of the houses can be reduced. The cost of the very ample and well produced built-in cupboards on the other hand was comparatively low, and allows the inhabitants of the house to save greatly on furniture. This, of course, cannot find any expression in comparison of building costs, but it may under certain circumstances make it easier for the prospective buyers to find the money for the initial payments. The roofing was comparatively expensive, partly because aluminium was used for export considerations and partly because the roof space of a single storey house is necessarily rather large.

CONCLUSIONS

Clearly, there are two main points of particular interest in this Austrian scheme. First, the attempt to allow contractors some participation in constructional design without abandoning the competitive tender and second, the costing system.

When participation of the contractor in design is discussed, it is usually assumed to be incompatible with competitive tendering.

Analysis of Net Building Costs

of a Prefabricated house of 84 square metres, about 920 square feet, floor space, completely equipped. Cost: £2,055.

Type of Work

Outside and inside wall elements, including windows and doors	9.28
Roof and ceiling elements	4.18
Built-in furniture	3.88
Plumbing, including geyser, bath, wash-basin, sink, and lavatory	3.58
Electric installation, including washing machine and refrigerator	3.28
Thermostatically controlled central heating, gas-fuelled	5.98

Prefabricated Parts	30.18
Builder	7.02
Carpenter	0.58
Glazier	0.44
Roofer	3.58
Plumber	0.58
Floorlayer	2.42
Building work	14.62
TOTAL	44.80
shillings per sq. ft. floor area.	



HOW JIGGED FITTING SAVES MONEY

106,000 Ascot Jigged Walled Fittings have now been put into new homes by 183 housing authorities.

How this fitting saves money is revealed by the following figures based on actual costings.

EXAMPLE ONE

Cost of fitting an Ascot 503 sink water heater sold for cash :

Using a Jigged Wall Fitting which had been installed when the property was built ... £1.7.0 — £1.10.0

Normal installation without a Jigged Wall Fitting £4.0.0 — £5.0.0

CASH SAVINGsay **£3.0.0**

EXAMPLE TWO

The effect of a Jigged Wall Fitting on the hire purchase terms for an Ascot 503/0 sink water heater:

Charge per week when the heater is connected to a Jigged Wall Fitting already installed 1/- - 1/10 per week

Charge per week including cost of normal installation without Jigged Fitting 2/- — 2/5 per week

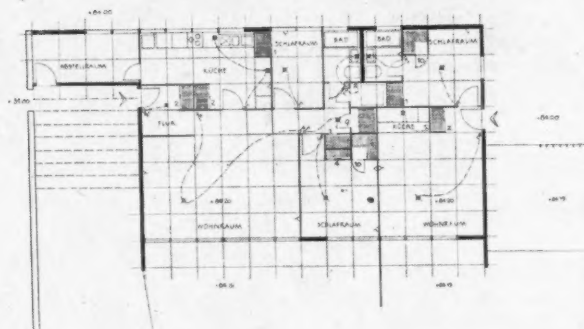
WEEKLY SAVINGsay **9d**

* *Note: These figures may vary from one district to another, but are reliable averages.*

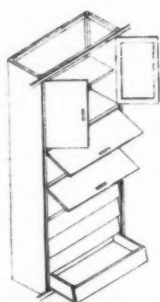
The advantages of the Jigged Wall Fitting to the consumer and to the Gas Undertakings are real. The Fitting is supplied by Ascot to Gas Undertakings at cost. Vigorous efforts are indicated to get it installed in all new houses and flats; the cost of putting it in is trifling.

Haus 4
112 m² Wohnfläche
3 Schlafzimmer

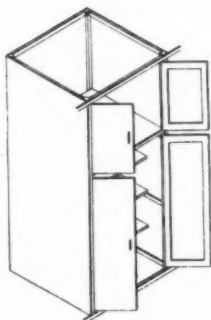
Plan 1:100 Architektur 1:200



36

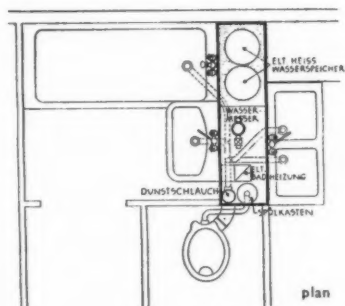


Type 3

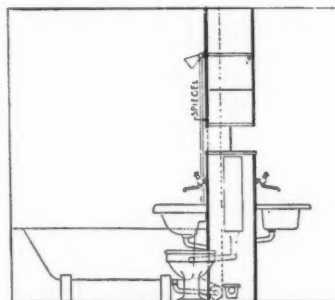


Type 8

Left: furniture; there are 14 types of storey height fittings forming hall, kitchen and bedroom cupboards. All of 1 metre width and varying depths, with shelving included.



plan



section

Left: plumbing; houses No. 4 and 15 have conventional plumbing, the others, a unit forming the division between kitchen, bathroom and w.c. The unit contains an insulated 100-litre (22 gallons) hot water tank with immersion heater, 3-in soil stack; waste branches and hot and cold water pipes all in copper. There is a plug and waste branch hose for a washing machine, a 2-kW. convection heater for the bathroom with low level inlet and high level outlet. The upper part of the units open partly to the kitchen and partly to the bath-room (with mirror door) in the form of cupboards. Some units are to have an airing cupboard with 200-w. heater, opening off the kitchen and vented through the roof. Kitchens have double sinks, electric cookers and refrigerators.

Left: plan of house No. 4. There are nine 3-bedroom, five 2-bedroom and one 1-bedroom houses varying from 565 to 1,140 ft. super floor area, all orientated for the sun. Ceiling heights are 2.4 metres (7 ft. 11 in.). Since the actual sizes were determined by the tenderers when working out the construction in detail, neither plans nor elevations were dimensioned. The contractor was merely obliged to keep to the one metre grid. Wall components are of timber framing, impregnated against wet and dry rot and with a "durable and nailable" cladding. No wet plastering was allowed on site. Thermal insulation of external walls was to be equal to 51 cm. of brickwork ($U = 0.24$ approx.) and sound insulation of internal walls was to equal 25 cm. of brickwork (50 db. approx.)

and that some alternative way must be found for assuring the building owner that he is paying a fair price. The Austrian scheme neatly side-steps this difficulty, and links competition of price with competition of technical ingenuity. This seems to be a move in the right direction and it is worth enquiring how far the method might be applied to other types of building or other forms of construction. By comparison with the architect-builder team (discussed by O. J. Masterman in the JOURNAL, October 20, 1955) the scope of the contractor's contribution would be limited, for the main plan arrangement and structural form would have to be decided before the design reached the contractor. There would have to be clearly defined boundaries within which the contractor could make his own proposals. Indeed the drawing up of a performance and quality specification by the architect and his consultants would be the key problem. The choice, for example, of a particular floor construction would influence the spacing of supports and the external wall construction; the choice of internal partition might affect the electrical installation. Problems such as these, and the difficulty of making unmistakably clear what quality work the architect required, seem to imply that the Austrian method is suitable only for part of the construction and only for certain building types.

Houses are of course the most familiar of all buildings, and it would be unlikely that a contractor would propose utterly unsuitable methods for them—even where the quality and performance specification were not precise. But for the building that is "tailor made" or has a great deal of installed equipment and services closely integrated with the rest of the construction, the contractor's freedom might have to be narrowed considerably.

On the whole, the method appears less potentially fruitful than full time co-operation between architect and contractor. Its most promising application would probably be to housing—in the way the Austrians have used it. But its problems do prompt

Nowadays more than ever, time is money and
grinning through is no laughing matter. However

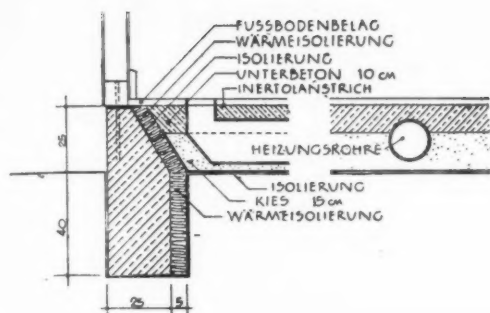
the modern answer to this old problem is provided by paints which are based on Titanium Oxide, the whitest and strongest pigment known. These paints have outstanding covering power and need fewer coats. Paints based on Titanium Oxide stand up to sun, frost and rain. They are also unaffected by smog. It pays to use paints containing Titanium Oxide for opacity and durability.



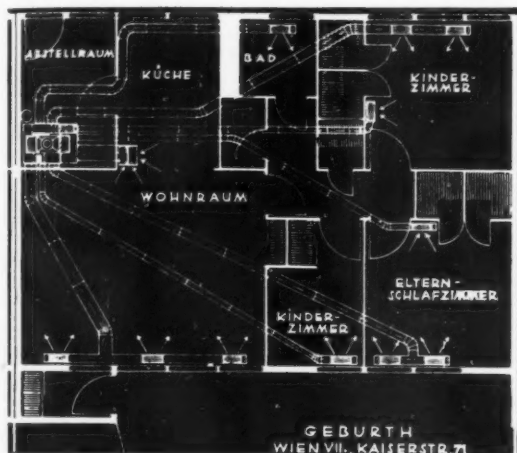
Issued in the interest of better paintwork by

**BRITISH TITAN PRODUCTS
COMPANY LIMITED**
COPPERGATE
YORK

Factories at Grimsby and Billingham and at Burnie, Tasmania. Agents in most principal countries.



Left: floor; oversite concrete and strip foundations were to be cast in one operation with thermal insulation at the edges and a damp-proof membrane. Floor finishes to be laid after the external, but if possible before the internal, walls are erected. Finishes could be beech, larch or spruce in living and bedrooms; and terrazzo, asphalt or hardwood in kitchens, bathrooms and w.c's. Flooring was to be in $\frac{1}{2}$ or $\frac{1}{3}$ metre squares.



Left: heating; individual heating in each dwelling to be calculated for temperatures of -15°C . outside and $+20^{\circ}\text{C}$. inside, double glazed windows, and air changes of 3 in living rooms and 6 in kitchens (which have separate fan extractors). The heating unit was to be room thermostat controlled, and be oil or gas fired. Distribution: by air ducts in the floor discharging under windows. Tenderers were to submit full information as to performance and efficiency.

one to reconsider whether the aim—retention of competitive tendering—is worth it. The second aspect—the costing system—is obviously complementary to contractor participation in the Austrian scheme, because it allowed a detailed cost comparison of the contractor's proposals that came in with the tenders. But it is worth considering on its own merits.

Our present costing method—based on the "Standard Method of Measurement of Building Works"—was evolved for the traditional trades, these are measured by quantity—the yard cube, foot super and so on, and these units of measurement usually include both labour and materials. But this method is not well adapted to the non-traditional construction that figures ever more prominently in our buildings. We now think in terms of the large component, the partition slab, the cladding panel, the roof deck unit and the monolithic stair flight which is delivered from the manufacturer or from the builder's workshop to the site and there assembled into the rest of the construction. Thus economy in building falls into two distinct spheres—the off site manufacturing and delivery costs, and the builder's or sub-contractor's site assembly costs. If the costs in these two spheres could be shown separately for the elements of construction in buildings, we should have a valuable guide to the relative economies of different methods. For example, components that were expensive to make, might save on assembly costs. But to divide this breakdown further into material, labour and overheads as the Austrian method does, would provide the material for even more sensitive analyses

of building economy. At present, quantity surveyors and estimators work on labour "constants"—a misnomer which everyone recognizes—for they are anything but constant. With rising wages, acute shortage of tradesmen and the increasing use of mechanical plant the "labour" content of building operations is an increasingly significant factor in economy. If cost records showed in detail the distribution of labour expenditure in building, we could be better equipped at the design stage to choose methods of construction which were economical and appropriate to the labour market. Indeed, this has already been suggested in "Site Labour Studies" (MOE Bulletin No. 12, see the JOURNAL, June 23, 1955) for school building, the man-hours figures on which such "labour planning" is based being collected by the clerk of works.

Having briefly indicated the possibilities of the Austrian method, the objections to it should be stated. It would probably be difficult to apply to the traditional trades that occur in every building, and would only come into its own with the "dry assembled" technique. It would require from builders, more information than they would perhaps be prepared to give. And any conclusions or comparisons based on such cost figures would have to be very carefully made in the light of all the factors—design, market condition, labour situation, weather, co-ordination of sub-contractors and architect—that determine the total price of a building. But before dismissing the method as being too idealistic to be practicable, it should be remembered that both the Federal Housing Administration and the Austrian Produc-

tivity Centre have used it successfully. The kind of information it provides would perhaps be most appropriate to projects designed by architect and builder in co-operation, where the price breakdown provided by the bill of quantities, or in the form of a cost analysis is not sensitive or detailed enough to guide the detailed working out of the construction. Indeed, if architect-builder co-operation is to develop, cost information on the Austrian pattern is surely what the design team would find most useful.

INFORMATION CENTRE

7.50 practice

TRADES LIST

Sells *Building Trades List*. 1956 Edition. (Business Dictionaries Ltd. 25s.)

Though this useful office reference book is in its 33rd year, it may not yet be known to all architects. This is a classified directory with about 2,700 trade headings. It is thus particularly helpful when you want to find out in a hurry who makes some rather specialized product such as a flagstaff or a luminous indicator; while at the back is an alphabetical list of trade marks and brand names coupled with the names of proud sponsors.

8.48 surveying: specification

SPECIFICATION

Specification 1955. Edited by F. R. S. Yorke and Penelope Whiting. F/A.R.I.B.A. (Architectural Press. 30s.)

Specification, now in its 57th year, packs in 1,288 pages and some of the more important revisions are those contributed by the British Standards Institution, who have brought all references to Standards and Codes of Practice up to date. Traditional trades change little, but with such subjects as illumination, aluminium alloys, metal worker, drainage and heating, technical advances over 12 months are such that these chapters usually require re-writing.

Illumination has been re-written by William Allen, A.R.I.B.A., who introduces his subject with a particularly clear notation on lighting theories and practices. The range of electrical fittings is revised and the section lists useful tables such as reflective factors of materials and colours. More is becoming known about the use and behaviour of aluminium structure and the Aluminium Development Association has brought the chapter up to date whilst restating the conditions for economical usage of aluminium and its alloys—that is when the aluminium weighs about one-sixth of a comparable steel structure. Curiously enough, only scant space is devoted to window walls, which, judging by this year's Building Exhibition, must soon demand a section of their own.

Perhaps the most difficult sections to keep up to date is J. R. Kell's chapter on heating. Here, with oil and electricity strongly challenging coal as a cheap fuel, the chapter is re-cast and the newest models of domestic heating and hot water units are illustrated.

Finally, two of the oldest crafts in building—straw and reed thatching—have been included in the roofing section.

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.)

.....
.....
.....

Please ask manufacturers to send further particulars to:—

NAME

PROFESSION or TRADE

ADDRESS.....

5.1.56

Buildings Illustrated

Factory Extension for the Rover Company Ltd., Meteor Works, Lode Lane, Solihull, Birmingham (pages 11-13). Architects: Hasker & Hall, A.T.A.I., A.R.I.B.A. Assistants: A. H. King, D. R. Miller, B. H. Shuck, G. Wilson and J. Maidment. Consulting engineers: (structural) T. Bedford, M.I.C.E., M.I.STRUCT.E., M.I.MECH.E.; (electrical) Hoare Lea & Partners. Quantity Surveyors: Crosher & James, F/R.I.C.S. General Contractors: John Laing & Son Ltd. Sub-contractors: (structure)—Asphalt: The Ragusa Asphalte Co. Ltd. Reinforced concrete: Concrete Limited; The British Reinforced Concrete Co. Ltd. Bricks: The London Brick Co. Ltd. Special roofings: William Briggs & Sons Ltd. Aluminium cladding panels: Robertson Thain Ltd. Partitions: Rowe Brothers Ltd.; Ditchburn Equipment (sales) Ltd. Patent glazing: Hills (West Bromwich) Ltd. Structural steel: Rubery Owen Ltd. Granolithic flooring: Empire Stone Company Ltd. (equipment)—Central heating: Weatherfoil Heating Systems Ltd. Gas fixtures: Thomas de la Rue & Co. Ltd. Gas fitting: The West Midlands Gas Board. Electric wiring: Lee, Beesley & Co. (Birmingham) Ltd. Electric light fixtures: The General Electric Co. Ltd. Metal staircases: Frederick Braby & Co. Ltd. Plumbing: Shouksmith Ltd. Window control gear: Arens Controls Ltd. Door furniture: Walker & Wood Ltd. Casements: The Crittall Manufacturing Co. Ltd. Roller shutters: Roller Shutters Ltd. Sanitary fittings: B.

Finch & Co. Ltd. (decorations and specialities)—Terrazzo: Marbello & Duras Ltd. Paint: Permoglaze Ltd.; Lewis Berger & Sons Ltd.

Announcement

Eustace H. Button, F.R.I.B.A., of 23, Berkeley Square, Bristol 8, has taken into partnership J. B. Ackland, A.R.I.B.A., his Chief Assistant for the past six years. The practice will be carried on under the title of Eustace H. Button and Partner.

Max Lock, F.R.I.B.A., and Partners, of 10, Great Russell Street, W.C.1, are in the process of establishing a new Middle East Branch Office, where they will be pleased to receive trade catalogues. Their address is:—Beit Abdul Hamid El Mufti, Jebel Luweibideh, Amman, Hashemite Kingdom of Jordan.

Guy Morgan, F.R.I.B.A., of 12a, Eaton Square, S.W.1, would be pleased to receive all current trade catalogues.

Lance Wright, A.R.I.B.A., of 36, Victoria Street, S.W.1, would be pleased to receive all current trade catalogues.

The present partners of the firm Peirce & Son, 30, St. Petersgate, Stockport, John S. Nichols, F.R.I.C.S., M.INST.R.A., and Thomas G. Royle, DIP.ARCH., A.R.I.B.A., have decided to change the title of the firm to Nichols & Royle, Architects, Surveyors & Valuers, as from January 1, 1956.

CORRECTION

Readers are asked to note that in the AJ for December 22, 1955, page 857, Information Centre items headed "12.5 materials: metals" and "15.134 practice: draughtsmanship" should be amended to read "16.119 materials: miscellaneous" and "7.49 practice," respectively.



TARMAC LIMITED VINCULUM DIVISION ETTINGSALL, WOLVERHAMPTON

Telephone: BILSTON 41101 (eleven lines)

Licencees for manufacture and supply to Warwickshire, Staffordshire, Worcestershire, Shropshire, Sussex, Surrey, Hampshire, Cheshire and North Wales.

LONDON OFFICE: 50 PARK STREET, W.1. (GRO 1422)

RAPID FLOORS



Laid complete, 100 sq. yards, per gang per day

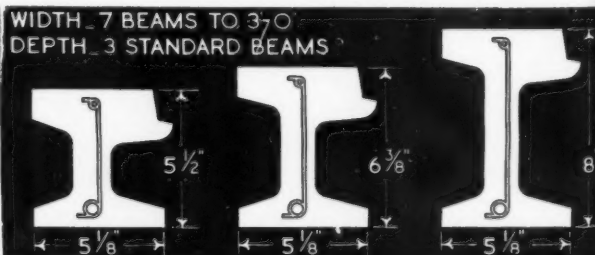
Precast Units of Approx. "I" section, designed for all loading conditions and for both simply supported and continuous spans.

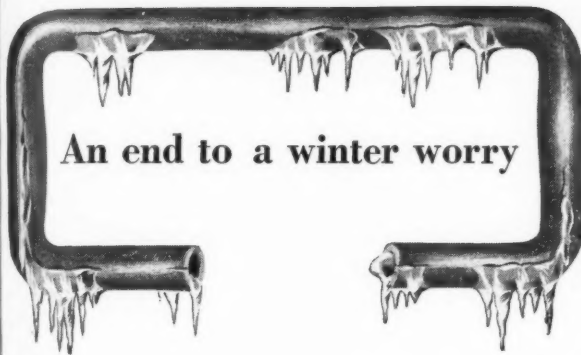
Floor thicknesses are constant over a wide range of spans. Interlocking lips render the floor homogeneous. Soffits are flush and even. Trimmings and Cantilevers can readily be provided.

Special bearings are not required, and our gangs fix straight from the Transport lorry.

The specified load is carried immediately and the floor at once provides a clear uninterrupted working platform for all following trades.

Quotations for supply only, or supply and fix as desired. Deliveries commence 6 weeks after approval of working drawings. Technical booklet free upon request.





An end to a winter worry

Water pipes of 'Shirene' never burst however hard the frost

With 'Shirene' plastic tubing, burst water pipes are now a thing of the past. Although so tough as to be **virtually indestructible**, 'Shirene' has sufficient "give" to accommodate the pressure of water turning to ice. Think of the damage and inconvenience property owners and householders will be saved. 'Shirene' is also much cheaper than conventional piping. Flexible, many times lighter than metal and far easier to work, it takes a big load off the plumber's shoulders. Builders' and plumbers' merchants too will find they're on to a good thing with 'Shirene'. Additionally, 'Shirene' is the perfect medium for agricultural supply lines, industrial or chemical plumbing, and all kinds of cold liquid conveyance. It is non-toxic, and quite unaffected by most acids, alkalis, salt water, air or soil.

White or colours can be had in a wide range of standard sizes up to 12". Larger sizes specially made. Coils of 50', 100', 250', and up to 500', each wrapped in hessian and labelled with full details. Immediate delivery of all standard sizes in all coil lengths.



SHIRENE

PLASTIC TUBING

'Shirene' is a product of Shires, the largest manufacturers of moulded cisterns in Europe. For full details and trade terms write to:

DEPT. A.1, SHIRES & CO. (LONDON) LTD.,
GREENBOTTOM WORKS, GUISELEY, YORKS.
(Factories also at London and Stoke)
Shires (Ireland) Ltd., Stannaway Drive, Crumlin, Dublin.

WILL HE BE DOING IT AGAIN IN TEN YEAR'S TIME?

No, it's "Tanalised" timber. That means this warm wood floor will last a lifetime. The modern boarded fillet-on-concrete floor with its high thermal efficiency excludes natural ventilation and makes "Tanalith" protection against **decay** and **insects** essential. Alternatively, the ventilation of the traditional suspended floor can be safely reduced if "Tanalised" timber is used. There are treatment plants throughout the country. Please write for details.



'Tanalised' Timber

HICKSON'S TIMBER IMPREGNATION CO. (G.B.) LTD.
Castleford, Yorkshire (2607) and 36 Victoria Street, London, S.W.1. (Abbey 1477)

THE COMPLETE ELECTRICAL INSTALLATION
IN THE NEW BUILDING WAS ENTRUSTED

BY

THE ROVER CO. LTD.

TO

LEE BEESLEY.

THE ELECTRICAL INSTALLATION ENGINEERS.

BIRMINGHAM, COVENTRY, GLOUCESTER.

LIVERPOOL, LONDON, SWANSEA.

Why **HANLO** *is better!*
PAT. NO. 590989

THE COMPRESSION JOINT FOR
BEFORE MAKING AFTER MAKING



LIGHT GAUGE COPPER TUBE

 Double grip means double strength.	 Streamlining gives better appearance.
 Can be 'made' in 10 seconds.	 Tested to 5200 lb. p.s.i. hydraulic and still sound.
 All castings gunmetal—water tested.	 Can be made and remade any number of times.

The double grip ferrule of the Hanlo Joint ensures an absolutely permanent joint of almost welded strength and yet it can be remade any number of times without losing its efficiency. Hanlo is acknowledged by Municipal Authorities and leading Contractors to be the best Compression Joint available—the sales figures prove it too!
ASK FOR DETAILS OF THE HANLO PILLAR COCK ADAPTOR

The new fully illustrated Hanlo Catalogue is now available. Your copy will be sent on request.

HANLO — *is made by*
Lowell & Hanson Ltd

HEAD OFFICE & WORKS:
HANLO WORKS, SPON LANE,
WEST BROMWICH, STAFFS.

Phone: West Bromwich 1681. Grams: 'Hanlo' West Bromwich.
London Office: 2 Countisbury, St. Mark's Hill, Surbiton, Surrey. Phone: Elmbridge 6262.
L.G.B.



LATTICE BEAMS

- **ECONOMY**
- **RIGIDITY**
- **IMMEDIATE DELIVERY**

**OF RIVETED CONSTRUCTION
IN HIGH TENSILE STEEL**

Enterprising Architects continue to specify our H.T. Beam system for modern Schools, Factories, Canteens etc. It is most economical and allows complete freedom of design.

Write for full details and Data Sheets.

Sommerville's

LTD.

LONDON OFFICE: 167 VICTORIA ST. S.W.1
TEL: VIC. 8843 AND 1000

WELLINGTON · SHROPSHIRE TEL. 1000

NORTONIA

NON-MAGNESITE

a guaranteed product

A SYNTHETIC WOOD BLOCK laid
in Sand and Cement on a level ruled-off concrete.

NORTONIA flooring is toughened with a
P.V.C. plastic to give durability and a surface
simple to maintain by washing with soap and
water.

NORTONIA will withstand concentrated
traffic, including trucking, under wet or dry
conditions.

NORTONIA has the appearance of a wood
block floor at almost half the cost.

Ideal for Industrial floors, Schools, Hospitals,
Canteens, Shops, Garages, where appearance
—coupled with hard wear—is important.

NORTONIA has been laid in Technical
Colleges, Schools, and all types of buildings.

Samples and brochures on application to:—

THE TERRADURA FLOORING CO. LTD.

**PROVIDENCE WORKS · NORTON STREET
MILES PLATTING · MANCHESTER 10**

'Phone : COLlyhurst 1059/4533 Established 1909

Quicker Work with the FINEST VENEER

Flexwood

Available in 20 Timbers.
Guaranteed fully seasoned.



London Electricity Board Lobby. Architect : W. Mollison.
Flexwood Makore Mahogany.

It goes direct on the plaster
and bends—where wanted—
to the smallest radius.

We quote for complete installations.
Send your DRAWINGS to

**ALEXANDRIA TRADING
CORPN. LTD., 121, LONDON WALL,
LONDON, E.C.2.**

Tel : MONarch 2272 (6 lines)

dampcoursing?

THEN IT MUST BE



COLD BITUMEN COVERING

Covers 1,500 square yards with 2 heavy coats at 1½ lb. per yard super for as little as 7½d. per square yard.

Adheres to moist surfaces and green concrete. Stable to temperature changes. No pre-heating.

Apply straight from the drum. No mixing. Ask for Leaflet 1040.



Cuts Building and Maintenance Costs!

EVODE LIMITED
Stafford
England

Telephone: 1590/1/2

Telegrams: Evode, Stafford.

London Office:

1 Victoria Street, S.W.1.

Telephone: ABBey 4622/3

Not just another firm, but

ONE OF THE BEST NAMES IN JOINERY

producing wood goods of the highest
quality at competitive prices



The Midland Joinery Works Limited · Burton-on-Trent
Established 1921

Phone 5085 (4 lines)

**HOTELS
OF
THE FUTURE**



**Are you interested in the layout, equipping
or decoration of hotels ?**

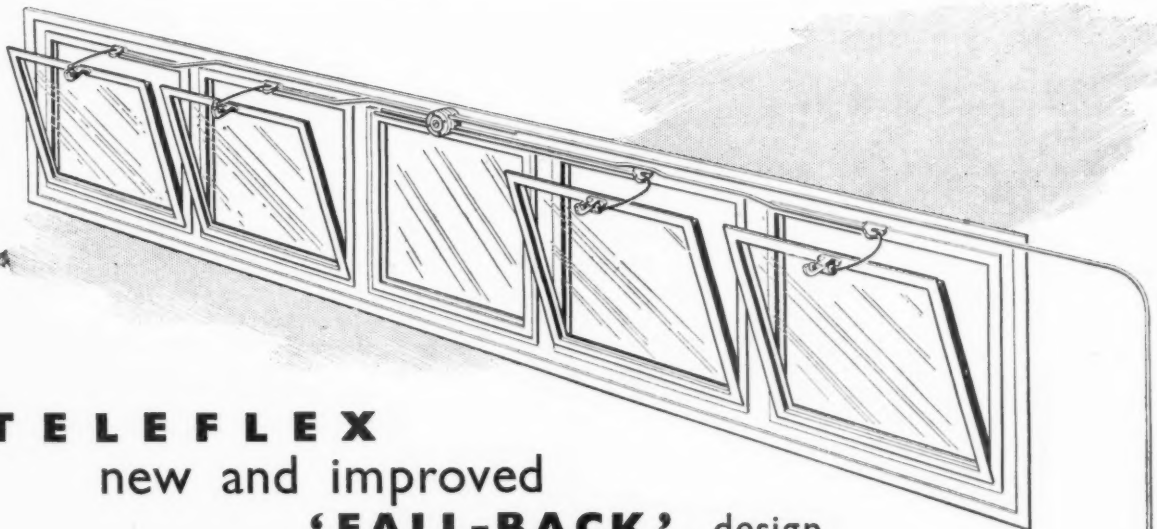
Come to HOTELYMPIA — the international hotel and catering exhibition.

Fill in this coupon with your business name and address and you will be sent two free tickets for the Exhibition and a copy of the "Hotel & Catering Review" exhibition preview number.

NAME

BUSINESS ADDRESS

Send to Mrs. Irene Ford, Hotel & Catering Review,
1 Dorset Buildings, Salisbury Sq., E.C.4.



TELEFLEX
new and improved
'FALL-BACK' design

Here is another useful addition to the wide range of Teleflex Remote Control applications which will commend itself to many ventilating projects. It has the following advantages:

- Less than 2½" internal projection of gear with window closed.
- Positive cam locking of each window when in closed position.
- Powerful thrust from cam mechanism during initial opening movement.

TELEFLEX REMOTE CONTROLS

We should be glad to send you further details promptly on request.

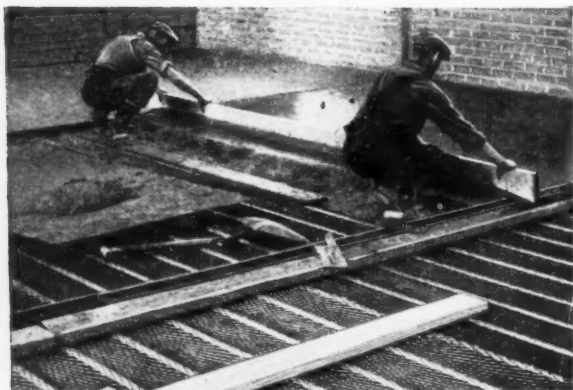
MADE AND DISTRIBUTED BY

TELEFLEX PRODUCTS LTD
BASILDON · ESSEX
Telephone: Basildon 22861



"Panelec" CUTS HEATING COSTS

Panelec Embedded Electric Low Temperature Floor Warming guarantees an atmosphere of comfort and warmth in any type of building, irrespective of external conditions—at a cost which is always comparable with, and often less than any available alternative form of heating.



Architects! *Panelec Low Temperature Radiant Warming System reduces building costs. It requires no boiler room, saves fuel storage space and eliminates pipework and radiators—simplifies the job of design too.*

Electrical Contractors! *You can install Panelec quickly and easily in old or new buildings. It is foolproof in operation, thermostatically controlled and needs no attention.*

Users! *With low initial cost and low operating cost* Panelec is fully automatic, totally concealed, causes no discolouration of furnishings or decorations, is silent and completely safe.*

Panelec is clean, safe, healthy and automatic—why not investigate its possibilities more fully? Write for Publication No. PAN. 655C or discuss the matter with Panelec Technical Advisory Service. Our Engineers will be pleased to help and advise you.

* Panelec is designed to take advantage of OFF-PEAK tariffs.



REGISTERED
TRADE MARK

PANELEC (GREAT BRITAIN) LTD
Telephone: REDHILL 3451 (5 lines) PBX.

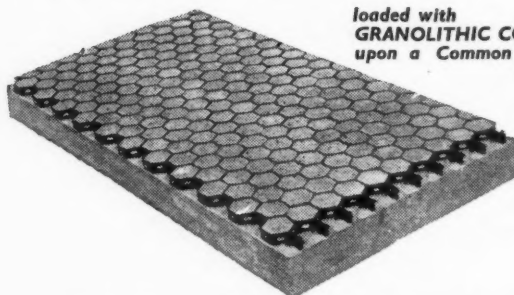
N.B. "Panelec" is the original, registered trade name for this patented warming system, which can only be obtained from the address shown here.

27 Hatchlands Road, Redhill, Surrey
Telegrams: MURELEC, REDHILL

ADAMANT FACTORY FLOORS JOINTLESS, HEAT AND WEAR RESISTING

provided by:-

"CAUSEWAY" STEEL ARMOUR



loaded with
GRANOLITHIC CONCRETE
upon a Common Concrete
Subgrade.

FOR RETOPPING WORN CONCRETE FLOORS,
RAISING LEVEL ONE INCH ONLY AND
WITHOUT BREAKING UP EXISTING SURFACES

Floors so laid and armoured will resist the worst of Steelworks or Foundry or Coke Oven conditions. CAUSEWAY HEXMETAL can be loaded with refractory cements to give a combination of resistance to both extremely high temperatures and attrition.

CAUSEWAY REINFORCEMENT LIMITED

66 VICTORIA STREET, LONDON, S.W.1.

TELEPHONE: VICTORIA 8648 & 1873

£2,108
for you at age 65

or

PENSION of £195 instead of lump sum

FAMILY PROTECTION

Capital Sums plus bonuses and a tax-free income to your wife and family in the event of your death before 65.

THE COST

£3.13.2d. per month (less than 2/6 per day).

These benefits are based on age 30 next birthday and assume continued rate of bonus.

Particulars from:

The Secretary,
A.B.S. INSURANCE AGENCY, Ltd.
66, Portland Place, London, W.1.
(Tel. LANGham 5721)

Do I know
a good pipe!



Laying pipes for 40 years and they ask me — Do I know a good Pipe?

I say DOULTON every time — they're permanent, acid proof, and as hard as you can make 'em. Down — but never out — that's my motto. Do you blame me? Who wants to dig them up again?

For Underground Resistance put down DOULTON Salt-glaze Pipes. There is security in Doulton Drainage Materials.

DOULTON & CO. LIMITED
Dept. BEP, Doulton House, Albert Embankment, London, S.E.1

Royal
DOULTON
SALT-GLAZED DRAINAGE MATERIALS

B5032

WISE
ARCHITECTS
specify
WOOD



WISER
ARCHITECTS
specify



Protim

TREATED WOOD

- ▶ PROTIM water-free impregnation protects Timber against Dry Rot, Woodworm & Termites.
- ▶ PROTIM TREATED TIMBER does not require subsequent seasoning or kilning and so saves time and money.
- ▶ PROTIM will not leach out under severe weather or marine conditions and is water repellent.
- ▶ PROTIM treatment reduces risk of shrinking or warping. It is non corrosive and will not stain plaster or bleed through paint.
- ▶ PROTIM complies with B.S. 1282 and Building bye-laws. It is permanent, economical and safe.

Protim Treated Timber is obtainable through Leading Timber Merchants.

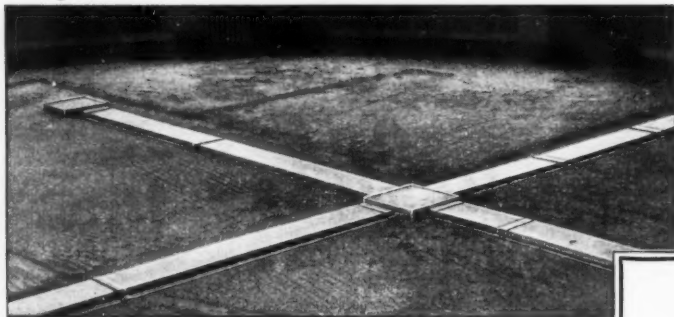
Fully descriptive booklet sent on request to

PROTIM LTD.

356-368 Evelyn Street, London, S.E.8

Telephone: TIDeway 4611

TIB 3



GREENWOOD-AIRVAC

**UNDERFLOOR CONDUIT
SYSTEM**

*For depths of screed $1\frac{1}{2}$ " and over
Rustproofed all-metal construction
Sizes from 4" x 1" to 12" x $1\frac{1}{2}$ "
Single or multiple divisions
One-way or multi-way junction boxes
Flyover separators if required
Floor outlets for future connections*

**PURPOSE-MADE
for every job**

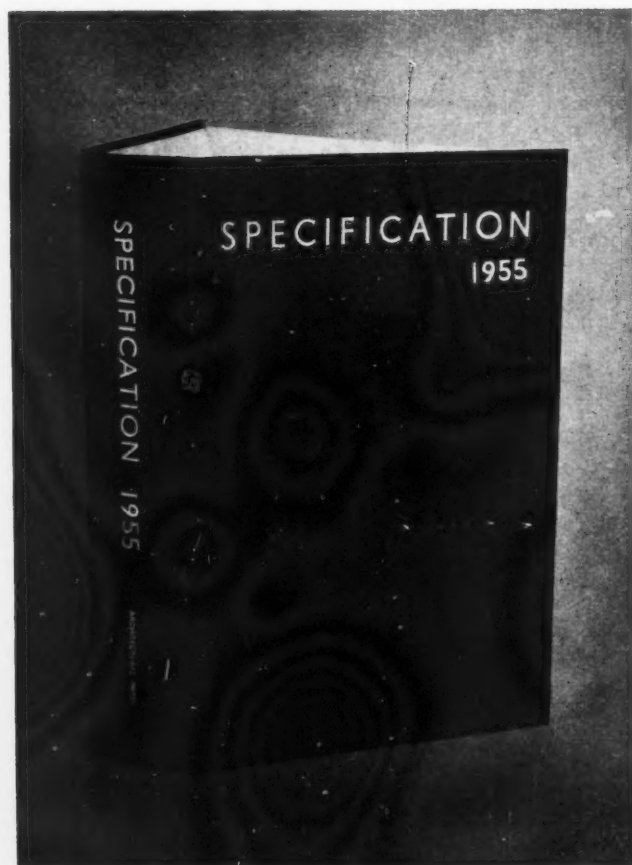
Every contract for the Greenwood-Airvac Conduit System is purpose made in that the duct size, junction box design and other accessories are made to suit the individual application although based on a standard pattern throughout. This elasticity of design enables this versatile system to meet all the requirements of architects and contractors to the mutual benefit of all concerned.

Full details are given in the publication 'Greenwood-Airvac Conduit Systems' now available on request.



GREENWOOD'S AND AIRVAC VENTILATING COMPANY LIMITED · BEACON HOUSE · KINGSWAY · LONDON · W.C.2
Telephone: CHAncery 8135 (4 lines) Telegrams: "Airvac," London

Q5



**SPECIFICATION
1955**

Editor: F. R. S. YORKE, F.R.I.B.A.

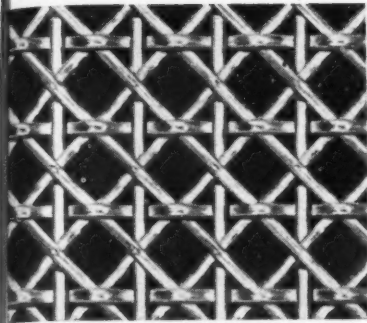
THE 1955 EDITION of this unique complete guide to the writing of building specifications, long acclaimed as the standard work covering all sections of the building industry, has been scrupulously revised throughout by its editor, F. R. S. Yorke, F.R.I.B.A., and now runs to 1288 pages (1246 pages in 1954, 1176 in 1953). It contains a completely re-written section on illumination, and also major changes have been made in the sections on electrical engineer, metal worker (particularly the references to copper alloys), structural aluminium (with the help of the Aluminium Development Association), heating engineer. In each of its 36 sections will be found not only full details of the established methods of building construction but also the latest information about the constantly changing and ever increasing number of proprietary systems and materials.

During recent years the demand for copies has been so great that the edition has been absorbed immediately on publication. You are therefore urged to place your order *now* for the 1955 edition. The price is 30s. net. Postage 2s. 3d. (3s. 2d. abroad).

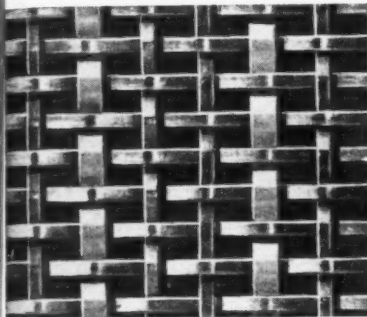
THE ARCHITECTURAL PRESS, 9-13 QUEEN ANNE'S GATE, S.W.1

Decorative and Durable

For effective screening whilst allowing a free circulation of air, Harveys make a group of products which ensure harmony with any decorative scheme. The patterns illustrated are representative of three comprehensive ranges, available in a variety of metals and finishes.



METALACE (Pattern No. M1006)
Produced in rolls of 25ft. to 100ft. by
2ft. 11in. wide.
Please ask for List No. AJ875.

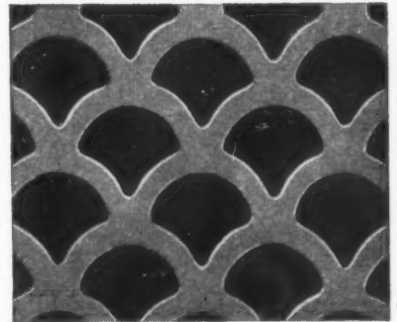


RIBBON WIREWORK (Pattern No.
1357W)
Produced in flat panels to any size.
Please ask for List No. AJ875.

**'HARCO' PATENT
METALACE
RIBBON WIREWORK
and
PERFORATED METAL
AND PLASTIC**

Harvey

G. A. HARVEY & CO. (LONDON) LTD.
Woolwich Road London, S.E.7
Telephone: GREenwich 3232 (22 lines)



PERFORATED METALS (Pattern
No. 388)

Produced in all metals and finishes.

PERFORATED PLASTICS can also
be supplied.

Please ask for List No. AJ355.

Having trouble with air?

Our experience in the design, manufacture
and installation of Air Conditioning plant
covers buildings of all types in many parts
of the world.

If you think we can be of assistance please
contact us.

Hall & Kay Ltd.

AIR CONDITIONING ENGINEERS

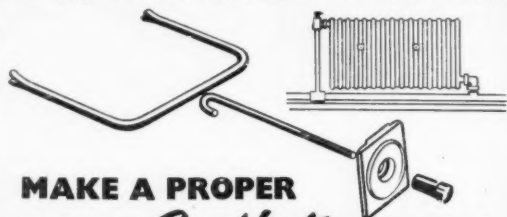
ASHTON-UNDER-LYNE, LANCASHIRE.

Tel. ASHton-under-Lyne 2281/2/3.

Grams: "Hank" Ashton-under-Lyne.

LONDON OFFICE: 50 PALL MALL, S.W.1.

Tel. WHIttehall 2776.



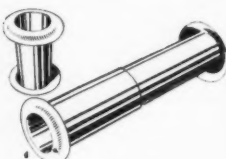
MAKE A PROPER JOB OF Radiator FIXING

Warmac Universal fitting Top stays are adaptable to all types of radiators. The Warmac flush fitting special nut renders the hook and

wedge capable of pre-assembly and makes for rapid installation. Adopt this time-saving system now!

AND OF THE PIPEWORK TOO!

Available sherardised or with polished chromium plated ends. Telescopic Pipe Sleeves save time and make a better job.



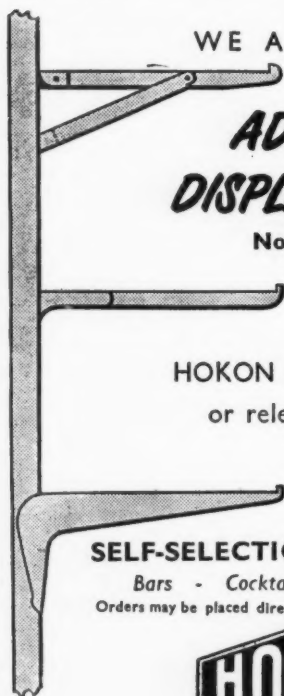
WARMAC

Send for details of these and other Warmac Specialities to Warmac Limited, Pressings Division.

L I M I T E D *Pressings Division*

PRAED RD., TRAFFORD PARK, MANCHESTER, 17

dm3WM



WE ARE PIONEERS OF

ADJUSTABLE DISPLAY EQUIPMENT

No screws, bolts or pins

HOKON Shelf Brackets are fitted or released instantaneously

The perfect answer for display fittings in

SELF-SELECTION SERVICE UNITS

Bars - Cocktail Bars - Shelving of all kinds.

Orders may be placed direct with us or through the Shop Fitting Trade.



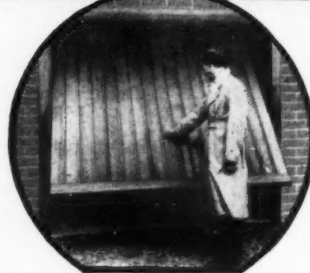
CHURCH & CO. (Fittings) LTD.

36 Minster Street, Reading. Phone : Reading 2035/6
Leeds Showroom, 62 Albion Street, Leeds 1. Tel: 30173. Agent for Northern Scotland.
C. T. A. Winram, 121 Crown Street, Aberdeen. Tel: 23373.

766

ACROW

THE ORIGINAL
UP-AND-OVER
GARAGE DOOR FITTING



More and more Architects and Builders are using Acrow Up & Over Garage Door Fittings because...

when they subtract from the cost of the fitting the saving effected by having a single-leaf door of light construction, there is little difference between the total cost of this modern easy-to-operate door and the clumsy, rapidly deteriorating, old-fashioned two-leaf type.

MODEL 1: for a minimum clearance of 16" above head of door £10.16.6

MODEL 2: for a minimum clearance of 2" above head of door £11.19.6

Prices ex-works; subject to trade discounts

All enquiries to: **ACROW (ENGINEERS) LTD.**
South Wharf, London, W.2. **AMB 3456 (20 lines)**

INCREASE HOUSE SPACE by 20%

WHY NOT SAVE £600 on a £3,000 JOB?



OR PROVIDE EASY MEANS OF ESCAPE FROM FIRE

BERNER'S PATENT LOFT ACCESS STAIRS and FIRE EXIT LADDERS serve both purposes.

As installed in tens of thousands of homes by wise and satisfied clients, or as insisted upon for escape from FIRE by the L.C.C. and other councils in large blocks of flats in London and throughout Great Britain.

SPACE USED IS MONEY SAVED

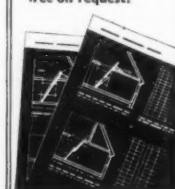
Write for fully descriptive catalogue (A.J.) and prices of the many different types varying from £15.0.0 upwards.

Our Loft Ladders are free of purchase tax.

LOFT LADDERS LTD

The first and original inventors of Loft Ladders and Loft Access Stairs
BROADWAY WORKS, BROMLEY, KENT
Tel.: RAVensbourne 2624

INFORMATION SHEETS free on request.



Some BOOKS on English architecture and social life

The Architecture of England by Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I. This popular book (70,000 copies of it have already been sold) presents in text and pictures the complete evolution of English architecture and explains, briefly, its relation to the historical background and social life of the times. Size 11½ ins. by 9 ins. 48 pages, with over 150 drawings and about 80 halftone illustrations. New edition (70th thousand). 10s. 6d. net, postage 7d.

English Architecture at a Glance by Frederick Chatterton, F.R.I.B.A. Illustrated by J. D. M. Harvey, B.A. A simple review in pictures of the chief periods of English architecture, accompanied by brief historical notes on the various styles and their details. Nearly 100,000 copies of it have already been sold, and its popularity is accounted for by the fact that it enables the amateur to identify the periods literally "at a glance." It contains over 90 line drawings and some halftone illustrations. Size 8½ ins. by 5½ ins. Eighth Impression of the Fifth Edition. 4s. 6d. net, postage 3d.

A History of the English House by Nathaniel Lloyd, O.B.E. The most authoritative and exhaustively illustrated history of the English house ever published. 498 pages with 900 illustrations. Size 12½ ins. by 9 ins. £3 13s. 6d. net, postage 1s. 10d.

A Miniature History of the English House by J. M. Richards. Specially written for those who need a small inexpensive handbook on the English house, this is a complete outline history of our domestic architecture from primitive hut to present-day house. Many illustrations are drawn from the late Mr. Nathaniel Lloyd's standard work (described above); but Mr. Richards' text is entirely original and, moreover, continues beyond the early 19th century, tracing the subsequent development of the house down to the nineteen-thirties. Size 8½ ins. by 5½ ins. 72 pages with over 90 illustrations. Seventh impression. 4s. 6d. net, postage 3d.

Parliament House: the Chambers of the House of Commons by Maurice Hastings, Ph.D. To understand the traditional plan adopted for the new Chamber of the House of Commons we have to go back to 1547 when the King's chapel of St. Stephen's became the home of the Commons. Dr. Hastings makes a brilliant and learned reconstruction of this place where so many high events and great Parliamentarians moved; he also describes Barry's Chamber and that opened in 1950, designed by Sir Giles Gilbert Scott, showing how the choir-stall seating plan has continued unchanged through the centuries. Bound in full cloth boards. Size 8½ ins. by 5½ ins. 200 pages with 78 illustrations. 12s. 6d. net, postage 6d.

English Panorama by Thomas Sharp, M.A., D.Litt. The first carefully studied and original account of the evolution down the centuries of the English scene in town and countryside, this book ends with a penetrating analysis of the problems of town and country planning which now confront us. First published in 1936, it has now been revised with much new material and is almost entirely newly illustrated. Bound in full cloth boards. Size 8½ ins. by 5½ ins. 148 pages, with over 50 halftone and line illustrations. 12s. 6d. net, postage 6d.

English History at a Glance: a chart designed by H. A. Vetter. With a historical digest by Peter Dantry and Ernest Savage. Dr. Vetter's large coloured chart is an original method of presenting history in a visual way. It is divided vertically by lines representing dates and horizontally into a series of different sections which cover the following subjects: The Land, Science, Economics and Social History, Exploration, Politics, Literature, Drama, Painting, Sculpture, Architecture, Music, Religion and Philosophy. On their correct date-lines, and in their appropriate sections, appear the names of the men who have influenced the development of English life and achievement; and these are printed on coloured labels representing the period to which they belong. The historical digest which follows the chart gives a brief account of the development of each activity, and outlines the achievement of the men named in the chart. At a glance, therefore, the reader can follow the development of, say, literature through the centuries, and, at a glance also, can see who was contemporary with whom—for instance, which writers were contemporary with which composers, and which prime-ministers with which philosophers, and so on. An unbelievably large amount of information in every field of English history, in its broadest sense, is contained in this book. Size 13½ ins. by 10½ ins. Containing a coloured chart (6 pages), text (which includes 70 halftone illustrations), a bibliography and index. 8s. 6d. net, postage 8d.

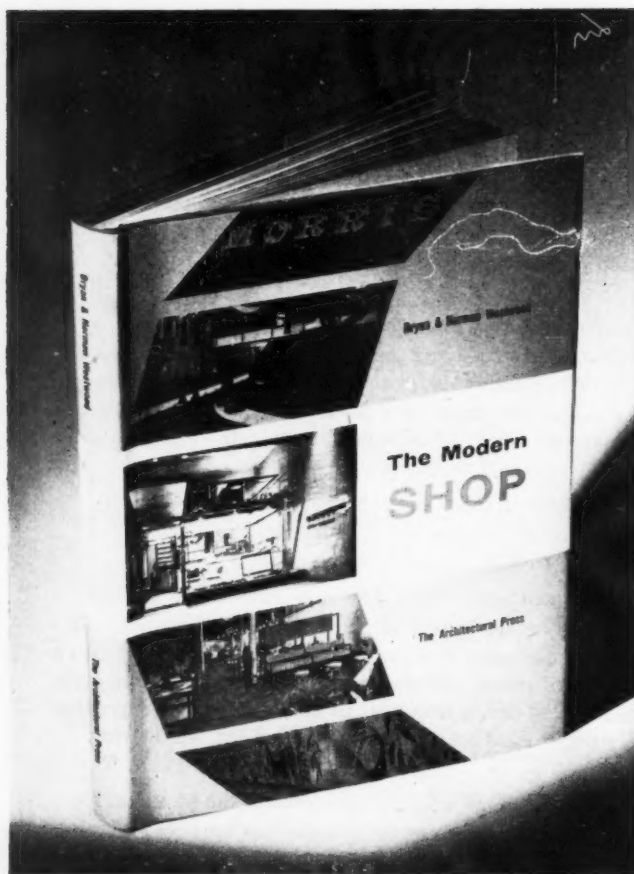
A complete illustrated catalogue will be sent on application to

THE ARCHITECTURAL PRESS 9-13, *Queen Anne's Gate, London, S.W.1*

Overseas: U.S.A.: The British Book Centre, Inc., 122 East 55th Street, New York, 22, N.Y., U.S.A

Canada: The British Book Service (Canada) Ltd., 1068 Broadview Avenue, Toronto, Canada.

South Africa: E. Maxwell Arnot, P.O. Box 275, Capetown, S.A.



just published: the revised edition of
The Modern SHOP

by Bryan and Norman Westwood

THIS NEW EDITION of *The Modern Shop* (first published 1952) has been revised and brought up to date still further, particularly by the inclusion of a considerable number of new illustrations and the addition of a further 8 pages of plates. The book is written by two outstandingly successful shop-architects, and is concerned with the planning, design and equipment of the smaller retail shop. Although the main emphasis is on the smaller shop the *principles* which the authors enunciate are equally applicable to the large shop and department store. The text of the book is practical, comprehensive and up-to-date; it includes chapters dealing with the site, the plan, the façade, the self-service shop, fixtures and fittings, lighting, heating, costs, etc. It is very carefully illustrated with well over 300 drawings and photographs which include several interesting and important very recent examples from overseas. Size 9½ in. by 7½ in. 191 pages with over 300 line and half-tone illustrations, bibliography and index. Price 30s. net. Postage 8d.

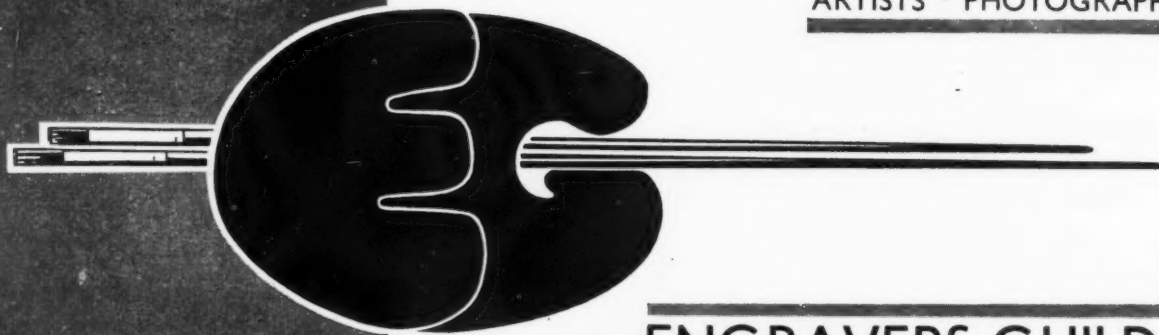
THE ARCHITECTURAL PRESS, 9-13 QUEEN ANNE'S GATE, S.W.1

AN ASSOCIATION OF ARTIST CRAFTSMEN

MAKERS OF PRINTING BLOCKS IN LINE

HALFTONE AND COLOUR

ARTISTS · PHOTOGRAPHERS



THE ENGRAVERS GUILD LTD

WINDSOR HOUSE · CURSITOR STREET · LONDON · E.C.4

CLASS
 Advertis
 Manager
 13 Quee
 should
 morning
 paper.
 Replies
 care of
 given at
 Public
 254
 The e
 advertise
 Office of
 Employ
 aged 18
 inclusive
 excepted
 of Vacan
 M
 Applic
 two AS
 Grades
 to exper
 exam., C
 condition
 Applic
 Old Str
 perience
 by Mon
 HA
 (a) A
 MANE
 (b) SE
 (TEMP
 2825 p
 cases, 2
 p.a. C
 R.I.B.A.
 work v
 Register
 ence it
 municip
 of sup
 Council
 tion fo
 particu
 the un
 return
 Town
 DE
 It is
 a Site
 to com
 The
 the bu
 drawing
 necess
 Man
 sponsi
 well-q
 by the
 Appl
 qualifi
 practi
 Sala
 Pros
 tion
 Appl
 G
 App
 appoint
 ment
 (a)
 TAN
 (2815)
 quali
 (b)
 TAN
 (4630)
 For
 the p
 ings
 essen
 of th
 App
 serve
 and
 assist
 Ho
 if re
 An
 feat
 to w
 with
 the
 Inve
 AS
 A.P.
 qual
 nam
 Tow
 pens
 cant
 or e

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 exempted from the provisions of the Notification of Vacancies Order, 1952.

METROPOLITAN BOROUGH OF SHOREDITCH

Applications are invited for the appointment of two ASSISTANT ARCHITECTS. Salary within Grades A.P.T. III & IV, £670 to £915 according to experience and qualifications. Subject to medical exam., Council's superannuation scheme and N.J.C. conditions.

Applications to Borough Architect, Town Hall, Old Street, E.C.1, stating age, training and experience, giving names of two referees, to arrive by Monday, 16th January, 1956. 7041

HAYES AND HARTINGTON URBAN DISTRICT COUNCIL

Applications are invited for:—
(a) ARCHITECTURAL ASSISTANT (PERMANENT). Grade A.P.T. II, i.e., £560-£640 p.a.;
(b) SENIOR ARCHITECTURAL ASSISTANT (TEMPORARY). Grade A.P.T. IV, i.e., £675-£825 p.a., plus London weighting in both cases, 21-25 years £20 p.a., 26 years and over £30 p.a. Candidates for (a) must have passed the R.I.B.A. Inter. Exam., good experience of housing work with a local authority; (b) must be a Registered Architect, have good general experience in design and construction in relation to municipal housing and other works, and capable of supervising large building contracts. The Council is unable to provide housing accommodation for either of these appointments. Further particulars and form of application available from the undersigned, which when completed must be returned as soon as possible.

GEORGE HOOPER, Clerk and Solicitor. 3712
Town Hall, Hayes, Middx.

DERBY AND DISTRICT COLLEGE OF TECHNOLOGY

It is the intention of the Architects to establish a Site Office for the above job, which is scheduled to commence in March, 1956.

The site Architect will be required to assist in the building of the College by interpretation of drawings and amplification of details where necessary.

Management of the Architects' contractual responsibilities will be from Head Office, and a well-qualified Clerk of Works is being engaged by the Promoters.

Applicants should be young, preferably single, qualified Architects, with at least two years' practical experience in offices.

Salary range £750 to £800.

Prospects of permanency on Group Superannuation Scheme.

Applications to: GRENPELL RAINES & HARGREAVES, 12-24, Guildhall Street, Preston. 6042

INVERNESS COUNTY COUNCIL

Applications are invited for the following appointments in the County Architect's Department:—

(a) TWO SENIOR ARCHITECTURAL ASSISTANTS. Salary scale: A.P.T., Grade VI (£750-£815), with placing according to experience and qualifications.

(b) ONE JUNIOR ARCHITECTURAL ASSISTANT. Salary scale: A.P.T., Grade III (£585-£630).

For appointments (a) a thorough experience in the preparation of sketch plans and working drawings for all local authority building projects is essential. Applicants must be Associate Members of the Royal Institute of British Architects.

Applicants for appointment (b) must have served an apprenticeship in an Architect's office and gained several years' experience as a junior assistant.

Housing accommodation may be made available, if required.

Applications, stating age, experience and qualifications, together with the names of three persons to whom reference may be made, should be lodged with the undersigned not later than 14 days after the publication of this advertisement.

R. WALLACE, County Clerk. 6047
Inverness.

COUNTY BOROUGH OF STOCKPORT

ASSISTANT ARCHITECT required. Salary A.P.T. III (£600-£725) per annum according to qualifications and experience. Applications, giving names of two referees, to Borough Architect, Town Hall, Stockport, by 21st January, 1956. Post pensionable subject to medical examination. Applicants must state whether related to any member or officer of Council. 7011

COUNTY BOROUGH OF STOCKPORT
SENIOR QUANTITY SURVEYOR required, A.P.T. Grade VII (£900-£1,100 per annum).
QUANTITY SURVEYORS required, A.P.T. Grade IV (£675-£825), and Grade III (£600-£725).

Posts pensionable, subject to medical examination. Canvassing disqualifies. Applications disclosing whether related to any member or senior officer of the Council, and giving names of two referees, to be sent to Borough Architect, Town Hall, by 21st January, 1956. 7012

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) SENIOR ASSISTANT ENGINEER (heating and ventilation) £920 × £30 (5) × £25 (1)—£1,095. Duties include design, preparation of plans, specifications and technical reports; supervision of new installations of heating and ventilation, boiler house plants and other hospital services. A.M.I.H. & V.E. essential. A.M.I.H. & V.E. desirable.

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

(c) ASSISTANT ENGINEERS (2)—£640 × £25 (4) × £30 (4) × £35 (2)—£930 according to age and experience. A.M.I.H. & V.E. desirable. Duties include preparation of plans and specifications and site supervision of heating, ventilating, steam, water and other engineering services as well as steam boiler house installations. Hospital experience not essential.

(d) 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.

(e) JUNIORS (three architectural). Male £170 (aged 16) maximum £400 (aged 25). Female £165 (aged 16) maximum £330 (aged 25). Salary under revision, equal pay to be implemented. Successful candidates expected to study for professional examination.

All appointments superannuable.—Apply naming three referees, to Secretary, 10 Augustus Road, Birmingham 15, by 23rd January, 1956. 7013

EAST SUSSEX COUNTY COUNCIL
APPOINTMENT OF AREA PLANNING OFFICER

Applications are invited for the appointment of ASSISTANT COUNTY PLANNING OFFICER in charge of the Area Office at Bexhill at a salary within Grade A.P.T. IV of the National Joint Council scales, according to qualifications and experience.

Applicants must be Corporate Members of the Town Planning Institute and preference will be given to those who also hold a recognised qualification in architecture. Applicants should have had considerable experience in the administration of County Development Plans and the general work connected with the Control of Development in Urban and Rural areas of a County.

The successful applicant will be required to provide a car and travelling allowance will be paid at the rate applicable to an H.P. car in accordance with scales approved by the County Council for essential users. The Council will be able to offer the successful applicant housing accommodation in Bexhill.

The appointment will be terminable by one month's notice on either side; it is superannuable and the successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and details of experience, together with the names of two referees, should be sent to the undersigned not later than January 31st, 1956.

Applicants must disclose in writing whether or not they are related to any member of the Council or any officer of the Authority. Canvassing will disqualify.

L. S. JAY, County Planning Officer.

County Hall, Lewes, Sussex. 7014
22nd December, 1955.

ASSISTANT ARCHITECTS, A.P.T. IV (£675 to £825).

ARCHITECTURAL ASSISTANTS, A.P.T. II (£560 to £640).

ARCHITECTURAL ASSISTANTS, A.P.T. I (£500 to £580).

SURVEYING ASSISTANT (ESTATE WORK), A.P.T. I (£500 to £580).

TECHNICAL ASSISTANT (RECORDS), A.P.T. I (£500 to £580).

Applications are invited for the above posts in the County Architect's Department, Bedfordshire County Council. Application forms from County Architect, Shire Hall, Bedford, to be returned by 20th January, 1956. 6038

WESTMINSTER CITY COUNCIL requires an ARCHITECTURAL ASSISTANT (£595-£675 plus London weighting, maximum £30 per annum). Applicants should be able to prepare sketch schemes, working drawings and approximate estimates. Duties include supervision of alterations to buildings (knowledge of structural design and London Building Acts procedure would be an advantage). Written application detailing experience, qualification, age, etc., with two cony testimonials, to Town Clerk, Westminster City Hall, W.C.2, by 18th January, 1956. 7021

CITY AND ROYAL BURGH OF DUNFERMLINE

ASSISTANT ARCHITECT.

Applications are invited from suitably qualified persons. Salary on the scale A.P.T. IV-V (£615-£715), with placings according to age, qualifications and experience.

The post is superannuable and subject to medical examination.

Applications, stating age, experience, qualifications and present appointment, together with copies of two recent testimonials, should be addressed to Leonard Howarth, Burgh Architect, 6, Abbot Street, Dunfermline.

The post has been designated by the Town Council for purposes of priority housing.

Applicants must disclose in writing whether to their knowledge they are related to any member or senior officer of the Town Council, and canvassing either directly or indirectly will be a disqualification.

J. DOUGLAS, Town Clerk.

City Chambers, Dunfermline. 7005
24th December, 1955.

CITY OF DURBAN
SOUTH AFRICA

VACANCY FOR PRINCIPAL ARCHITECT: PERMANENT PENSIONABLE POSITION

The Durban City Council requires the services of an ambitious man to take control of the Architectural Division of the City Engineer's Department under the Chief Architect. This post is on the permanent staff and the division at present consists of 27 members of the technical staff and 42 other personnel.

The Grade for the position is G.4 (£1,240/£1,540), plus cost of living allowance which at present rates is £210 p.a. for married men and £110 p.a. for single personnel. Total emoluments, including cost of living allowance, are as follows:—

	Married	Minimum	Maximum
Per annum	£1,450 0 0	£1,750 0 0	
Per month	120 16 8	145 16 8	
Single			
Per annum	£1,350 0 0	£1,650 0 0	
Per month	112 10 0	137 10 0	

As is the case with all permanent positions, this post carries pension rights. Membership of the Superannuation Fund is obligatory and, in the event of the death of a member, his wife and children receive a pension.

Applicants must be in possession of a degree or diploma in Architecture from a recognised University or be Associates of the Royal Institute of British Architects. They must have had administrative and considerable Architectural experience. The successful applicant will be granted up to £250 towards travelling expenses between the United Kingdom and Durban, payment of salary and cost of living allowance from the date of embarkation and, upon arrival, preferential allotment of Municipal housing if married.

Full particulars of the City of Durban and of the post are obtainable in the first instance from the Council's London Agents, Messrs. Webster, Steel & Co., 3, St. Helen's Place, Bishopsgate, London, E.C.3, to whom all applications must be delivered not later than the 16th March, 1956.

W. L. HOWES, Town Clerk.

Durban, Natal, South Africa. 7026
13th December, 1955.

CITY OF SHEFFIELD
CITY ARCHITECT'S DEPARTMENT
APPOINTMENT OF ASSISTANT ARCHITECTS

(HEATING & VENTILATING)

Applications are invited from suitably qualified persons for the following posts on the staff of the City Architect, Mr. J. L. Womersley, A.R.I.B.A., A.M.T.P.I.

(a) SENIOR ENGINEERING ASSISTANT (Heating & Ventilating), Grade A.P.T. VI (Salary £825-£1,000).

(b) ASSISTANT ENGINEER (Heating & Ventilating), Grade A.P.T. IV (Salary £675-£825).

The above scales are under review.

Applicants for post (a) must be experienced in the preparation of layout schemes, specifications and estimates for the installation and maintenance of heating and ventilating and domestic hot and cold water services in large buildings. The successful candidate will be in charge of a small team dealing with this type of work, in which the successful candidate for post (b) will be placed.

Both posts offer considerable scope to applicants to work on varying aspects of heating and ventilating design for all types of public buildings.

Applications, stating post applied for, age, qualifications, experience, past and present appointments (with dates and salaries), and the names of two referees, should reach me by Monday, 23rd January, 1956.

JOHN HEYS, Town Clerk.

Town Hall, Sheffield, 1. 7027

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTS, Grade III (up to £945), and ARCHITECTURAL ASSISTANTS (up to £725), for widespread construction programme, which includes houses, blocks of flats, schools of all types, and various public and industrial buildings. Application forms and particulars from Architect (A/R 35/A/2), The County Hall, S.E.1. (1189) £766

BASILDON DEVELOPMENT CORPORATION Applications invited for following posts on staff of Chief Architect/Planner, Noel Tweddell, A.R.I.B.A.:

(a) ASSISTANT ARCHITECTS, Grade IVB, salary £845-£960.
(b) ASSISTANT ARCHITECTS, Grade IVA, salary £715-£845.

Experience in design and preparation of working drawings for contemporary dwellings required. For appointment (a) some experience in site supervision and contract management also required.

A building programme of £3,000,000 a year gives an exceptional opportunity to progressive and enthusiastic architects.

Posts superannuable; housing available for rent in approved circumstances.

Applications on special form (obtainable from Chief Architect) to General Manager, Basildon Development Corporation, Gifford House, Basildon, by Friday, 20th January, 1956. Envelope endorsed "Architectural Assistant."

CRAWLEY DEVELOPMENT CORPORATION require (a) ARCHITECT Grade III, £960-£1,240 p.a., (b) ASSISTANT ARCHITECT, Grade IV, £715-£960 p.a., and (c) JUNIOR ASSISTANT ARCHITECT Grade V, £520-£670 p.a. Applicants for (a) and (b) must be qualified members of the R.I.B.A. and in the post (a) a planning qualification would be an advantage. Please state post applied for.

Apply on forms from Chief Architect (Vacancy), Broadfield, Crawley, Sussex, by January 25th, 1956. C. A. C. TURNER, Chief Executive.

H.M. PRISON COMMISSION have vacancies for three temporary ARCHITECTURAL DRAUGHTSMEN, Male or Female. Salary (Men) £463 10s. at age 21 rising to £635 at age 28, then to £725; (Women) £463 10s. at age 21 rising to £622 at age 28, then to £656. Starting pay according to age up to 28, then according to age and qualifications. The Women's scale is subject to the scheme for the introduction of equal pay into the non-industrial Civil Service.

Hours of duty, 44 plus overtime. Annual leave 24 working days rising to 28 working days after three years, plus 9 days public and privilege holidays. Candidates must have had a recognised training with a good general knowledge of building construction and surveys.

Regulations and application forms from the Establishment Officer (E.126/2/20), Prison Commission, Horseferry House, Dean Ryle Street, London, S.W.1, to be returned by 30th January, 1956.

CHESHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT
Applications are invited for the appointment of a PLANNING ASSISTANT (Architectural) in the Headquarters Office at Chester, on A.P.T. Grade I (£530-£620) or A.P.T. Grade II (£595-£675) depending on experience, or qualifications. The commencing salary will be at the minimum of the Grade.

Duties will entail preparation of building sketch designs and work on housing and town centre layouts. Applicants should be good draughtsmen and have a keen interest in design and building construction.

Forms of application and details of the conditions and duties attaching to the appointment can be obtained from the undersigned, to whom they should be returned by Monday, the 23rd January, 1956.

KENNETH O. MALE, County Planning Officer, Bridgegate House, Lower Bridge Street, Chester.

HEREFORDSHIRE COUNTY COUNCIL
Applications are invited for the following posts:
(a) One ASSISTANT ARCHITECT, Grade VII, A.R.I.B.A., to take charge of Section.
(b) Two ARCHITECTURAL ASSISTANTS, Grade II.

Superannuated posts, subject to passing medical examination and one month's notice on either side. Travel and subsistence allowance for limited period payable to married men in certain cases. Application forms from County Architect, Bath Street, Hereford, to be submitted by 16th January, 1956.

ZETLAND COUNTY COUNCIL
Applications are invited for the appointment of ASSISTANT ARCHITECT in the County Architect's Department. Candidates should be Associates of the R.I.B.A. Salary £850 rising by annual increments of £50 to £1,050 per annum in Range "A" of the Scheme of Salaries for Chief Officials. The appointment is superannuable. Applicants, stating age, experience and qualifications, and accompanied by copies of two recent testimonials, must be lodged with the Subscriber by 31st January, 1956.

JOHN N. SINCLAIR, County Clerk, County Buildings, Lerwick, Shetland. 22nd December, 1955.

THE LONDON HOSPITAL, Whitechapel, E.1, requires SENIOR ARCHITECT. Salary £850-£950 p.a. Applications, stating age, experience, etc., to the House Governor.

HAMPSHIRE
Applications are invited for the appointment of a PLANNING ASSISTANT in the County Planning Department on Grade II of the National Scales (£560-£640) to work in the Headquarters Office at Winchester.

Candidates should have passed the Intermediate examination of the Town Planning Institute or of a related professional body and have had experience in the Planning Department of a Local Planning Authority. The appointment is pensionable and will be subject to a satisfactory medical report. In approved cases, the County Council are prepared to assist newly appointed staff to meet removal and other expenses.

Applications, stating age, education, qualifications and experience, together with a copy of one testimonial and the names and addresses of two referees, should reach the County Planning Officer, Litton Lodge, Clifton Road, Winchester, by 21st January.

COVENTRY CORPORATION require GROUP PLANNING OFFICER A.P.T. VII (£900-£1,100) for Central Area Reconstruction. Planning and Architectural qualification essential. Housing accommodation may be available. Application forms and details from Arthur Ling, Bull Yard, Coventry, returnable within 15 days of publication.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD
ARCHITECT'S DEPARTMENT

Applications are invited for the following posts:

(a) ASSISTANT QUANTITY SURVEYOR. Applicants should be Associate Members of the R.I.C.S. and be thoroughly experienced in taking-off, abstracting and billing of quantities, measurement of work in progress and settlement of final accounts.

(b) ASSISTANT BUILDING SURVEYOR. Applicants should be Associate Members of the R.I.C.S. and capable of preparing working drawings and specifications for alteration works, site surveying and levelling.

Salary scale £640 × £25 (4) × £30 (4) × £35 (2) - £930, plus £20-£40 London weighting. Commencing salary above minimum may be paid subject to certain conditions.

Applications, stating age, qualifications (with dates), experience and positions held, together with the names of two referees, to be addressed to the Secretary, North West Metropolitan Regional Hospital Board, 11a Portland Place, W.1, by 16th January.

SURREY COUNTY COUNCIL
Applications are invited for following appointments:

(1) ASSISTANT ARCHITECT, GRADE IV, £675 × £30-£825 p.a., plus London allowance. Must be Associate Member R.I.B.A.

(2) ARCHITECTURAL ASSISTANT, GRADE II, £560 × £20-£640 p.a., plus L.A. Must be of good general training and preference given those who have passed Inter. R.I.B.A.

Full details and present salary, accompanied by copies of 3 recent testimonials, to County Architect, County Hall, Kingston, as soon as possible.

COUNTY COUNCIL OF THE COUNTY OF STIRLING
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for a number of Senior Assistants to deal with Schools, Housing and General Work in the above Department.

(a) QUALIFIED ARCHITECTS. Salary scale £1,000 × £50 to £1,200 per annum. Applicants must hold the A.R.I.B.A. have good experience in contemporary design and construction, and will require to work as Senior Architects capable of taking complete responsibility.

(b) QUALIFIED QUANTITY SURVEYORS. Salary scale £1,000 × £50 to £1,200 per annum. Applicants must hold the A.R.I.C.S. and have wide experience in preparation of Specifications and Schedules of Quantities and general surveying work.

The appointments will be subject to the provisions of the Local Government (Superannuation) Act, and successful applicants will require to pass a medical examination.

Applications, stating age, qualifications and experience, accompanied by copies of recent testimonials, should be lodged with the undersigned within fourteen days of the appearance of this advertisement.

JAMES D. KENNEDY, County Clerk, County Offices, Viewforth, Stirling.

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 exempted from the provisions of the Notification of Vacancies Order, 1952.

ARCHITECTURAL ASSISTANT required for busy office - F. X. Velarde, Windsor Buildings, George Street, Liverpool.

LANCHESTER & LODGE require SITE ARCHITECT in Leeds for University Buildings. Write full particulars Lanchester & Lodge, 10, Woburn Square, London, W.C.1.

NORTH & PARTNERS, Maidenhead, have several vacancies for experienced ARCHITECTURAL ASSISTANTS / DRAUGHTSMEN. Work of an extensive and varied nature. Also an ASSISTANT with some experience in specifications, builders' accounts, etc. Excellent salaries will be agreed. Superannuation scheme for permanent staff.

THE LONDON HOSPITAL, Whitechapel, E.1, requires SENIOR ARCHITECT. Salary £850-£950 p.a. Applications, stating age, experience, etc., to the House Governor.

ARCHITECTURAL ASSISTANTS, Intermediate standard, required in busy Birmingham office; schools, commercial and hospital work. Apply by letter to Nicol, Nicol & Thomas, A.R.I.B.A., 111, New Street, Birmingham, 2.

ARCHITECTURAL ASSISTANT required. Intermediate standard, for office with wide variety of work. Applicants to forward details of experience and salary required to Gutteridge & Gutteridge, 45, Westwood Road, Southampton.

ARCHITECTURAL ASSISTANTS (Senior and Junior) required for general and commercial practice. Apply, stating age, experience, qualifications and salary required, to Duncan Clark & Beckett, F./L.R.I.B.A., F./F.R.I.C.S., 7, West Stockwell Street, Colchester.

TWO JUNIOR ARCHITECTURAL DRAUGHTSMEN required, of Intermediate standard, either male or female. Apply, with full particulars, R. H. Gallanough, L.R.I.B.A., 54, Queen Anne Street, W.1.

REQUIRED IMMEDIATELY - ARCHITECTURAL DRAUGHTSMEN, male or female, fully experienced in preparing working drawings, details, etc. Salary up to £750 per annum, according to experience. Five-day week. Pension scheme. Apply in writing to Brian Colquhoun & Partners, Consulting Engineers, 18, Upper Grosvenor Street, London, W.1.

MALE ASSISTANTS of all standards urgently required. Five-day week. Lunch vouchers. Lanchester & Lodge, 10, Woburn Square, London, W.C.1.

ARCHITECT'S ASSISTANT required by well-known London Brewery for work in connection with Bottling Store alterations, maintenance, etc. Brewery experience not essential. State age, experience, salary required. - Reply Box 7050.

MOBASA - Post with potentialities for ASSISTANT ARCHITECT in small but growing practice. Salary up to £1,000 p.a., passages, accommodation for single man or married couple. It is the intention that a suitable enthusiastic and capable man should also be given a share of the profits after the first year. Opportunities for job supervision and all aspects of professional practice. Further details, quoting OSN 95/1, from Overseas Technical Service, 5, Welldon Crescent, Harrow, Middx.

SENIOR ASSISTANT required in Westminster office to work on contemporary industrial and commercial projects. Salary up to £900 p.a. Box 7046.

UNMARRIED JUNIOR ASSISTANT, up to Intermediate standard, wanted by Lionel Brett & Peter Bosanquet at their country office. Write, stating experience and salary, to Watlington Park, Oxon.

ARCHITECTS' CO-PARTNERSHIP requires unmarried, qualified, experienced ASSISTANT in their Lagos office. Maximum tour 18 months. Flat provided. Write 44, Charlotte Street, London, W.1, or telephone Langham 8794.

ARCHITECTURAL ASSISTANTS, with approx. 5 years' office experience, required for West End Architect's office engaged on large office building and cinema contracts. Commencing salary £625. Phone Whitehall 1624 for appointment.

WANTED urgently: Capable DRAUGHTSMEN for preparing working drawings of industrial buildings from sketch designs. Salary according to experience. Write or telephone to Percy Bilton Ltd., 113, Park Street, W.1. Telephone number MAYfair 8240.

BUSY London Office requires two ARCHITECTURAL ASSISTANTS, approximately Intermediate standard or upwards. Also requires an ASSISTANT with considerable perspective experience, particularly able to do quick interior colour sketches. Five-day week, good salaries. Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, W.C.1. HOL 5108 or 7082.

ARCHITECTURAL ASSISTANTS, Senior and Junior required, preferably with London practice experience, office and factory buildings. Write, giving particulars of experience, etc., to Messrs. Bates & Sinning, 89, Chancery Lane, W.C.2.

EDINBURGH - Senior and Intermediate ASSISTANTS required. Write, giving particulars of experience and salary required, to Messrs. David Carr & Stuart Matthew, 14, Lynedoch Place Edinburgh, 3.

JUNIOR ASSISTANT, competent to make measured surveys and prepare working drawings, required by Wallis & Smith, Chartered Architects, Basingstoke. Apply by letter, stating salary required.

ARCHITECTS' CO-PARTNERSHIP require a qualified ASSISTANT with experience. Write to Charlotte Street, London, W.1, or Telephone Langham 5791. 3275

ARCHITECTURAL ASSISTANTS (2) required in City Office with a wide and comprehensive range of commissions. Salary range £611-£767. Seely & Paget, CENTRAL 0321. 3939

JAMES & BYWATERS urgently require ASSISTANT, of Intermediate standard or higher, for detailing various types of buildings. Salary according to experience and qualifications. Apply in writing to 5, Bloomsbury Street, W.C.1. 4963

ARCHITECTURAL ASSISTANTS urgently required for detailed planning work. Intermediate and Junior. Salary according to experience. Please apply to L. O. L. Hannen & John H. Markham, 7 Victoria Street, Westminster, S.W.1. Tel. Abbey 5861. 3115

ARCHITECTS Department in City requires ASSISTANTS, 20-30 years of age. Interesting good class work. Salary according to age and experience. Apply, giving full particulars and salary required, Box 6066.

ARCHITECTS with large London practice require a qualified ARCHITECT who combines a knowledge of construction with a high standard of draughtsmanship, to work on office buildings or allied projects. Box 6034.

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. (Salary range £820 to £975 per annum.)

(b) **ASSISTANT ARCHITECTS**, capable of preparing working drawings from preliminary details. (Salary range £550 to £820 per annum.)

There is a five-day week in operation, and both appointments offer 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. 3871

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

ASSISTANT ARCHITECTS, WORKER-UP, AND SHOP FITTING DRAUGHTSMAN. Applications are invited from suitably qualified persons. Salary on a scale £485-£495 inclusive of L.W., with placing according to age, qualifications and experience. The posts are superannuable, subject to medical examination. Five-day week in operation. 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. 2824

SENIOR ASSISTANTS required for University and Hospital work. Good salary, dependent on experience. Non-contributory pension scheme in being after probationary period. Three weeks' holiday a year, and 5-day week. Reply, stating age and experience, to Thomas Worthington & Sons, 178, Oxford Road, Manchester, 13. 5078

ESTABLISHED firm of Architects, with large and expanding practice in West of England, requires able and experienced ARCHITECT (qualified R.I.B.A.), as office manager, with view partnership. Must have sound business acumen and be able to take part control, if necessary. Apply Box 5072.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, BIRMINGHAM. APPLICATIONS are invited for the following appointments in a newly formed Branch Office. Interesting and varied commercial and industrial projects.

(a) **SENIOR ASSISTANT ARCHITECT**, with experience in Store and Shop Design. (Salary range £820 to £975 per annum.)

(b) **ASSISTANT ARCHITECTS**, capable of preparing working drawings and details from preliminary sketches. (Salary range £550 to £820 per annum.)

Both appointments offer 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. 3872

ARCHITECTURAL DRAUGHTSMAN required in Luton office, dealing with extensive Estate Development schemes, industrial development, agricultural buildings, and wide range of domestic architecture. Applications, giving age, experience, etc., to Box 6015.

WILLIAM HOLFORD & PARTNERS require ASSISTANT, experienced in preparation of working drawings and details. Salary £650-£750 p.a. Write, stating age and experience, to 2, Angel Court, Throgmorton Street, E.C.2. 5068

SENIOR ARCHITECTURAL DRAUGHTSMAN required immediately. R.I.B.A. Final examination standard required. Experienced in preparing working drawings, details, supervising contracts. West End office, 5-day week. Apply, stating salary required, to Eric H. Davis, F.R.I.B.A., A.M.T.P.I., Staff Architect, Hillier, Parker, May & Rowden, 7 Grosvenor Street, W.1. 6033

ASSISTANT ARCHITECT required for small but busy country practice in Eastern Counties. Varied and interesting work. Opportunity to work on own initiative. Applicant desiring permanency preferred. State age, qualifications, experience, and salary required, to Box 6012.

ARCHITECT'S ASSISTANTS required. R.I.B.A. Pension Scheme in operation. Applications, stating age, particulars of experience, and salary required, to Wylie, Shanks & Wylie, Chartered Architects, 12, Clairmont Gardens, Glasgow, C.3. 6041

CHIEF DRAUGHTSMAN required by large firm of Builders to take charge of Drawing Office being reorganised to cope with ever-increasing work on estate development, design of houses, shops, factories, etc. Also **ENGINEER/DRAUGHTSMAN** to deal mainly with survey of new estates and design of roads and sewers. Pension scheme in operation. Applications giving full details, to the Managing Director, H. C. Jones Ltd., 183 High Town Road, Luton, Beds. 6035

HASTIE, WINCH & KELLY require **ARCHITECTURAL ASSISTANT**, able to take charge of medium-sized jobs, including Churches, Hostels, Factories, etc. Telephone for an appointment, WEL 8863, or write with particulars to 1 Bentinck Street, W.1. 6043

ARCHITECTURAL ASSISTANT required. A Good Draughtsman with office experience and knowledge of building construction. Apply, stating salary required, to Caroe & Partners, 16 Great College Street, Westminster. 6044

ARCHITECTURAL ASSISTANTS required in West End office, qualified or intermediate standard, varied and interesting work, 5-day week. Salary range, £600-£800. 6024

BRITISH RAILWAYS: EASTERN REGION
LEADING ASSISTANT ARCHITECT required in the office of the Architect, Eastern Region, King's Cross Station, for work in connection with the modernisation plan. Salary range £950/£1,050. Applicants must be qualified with considerable ability in contemporary design and administration. Previous experience of development work in dry construction an advantage. Five-day week, concessionary rail travel, and permanency after probationary period. Apply in writing to Chief Civil Engineer, British Railways (Eastern Region), King's Cross Station, London, N.1, giving full particulars as to age, education, training and experience. 6051

ASSISTANT ARCHITECTS required. Capable of preparing working drawings and details from preliminary sketches. Applications, stating age, experience, qualifications and salary required, to Mr. R. C. Steel, A.R.I.B.A., Chief Architect, C.W.S. Limited, 90 Westmorland Road, Newcastle-upon-Tyne. 6020

SUSSEX ARCHITECT on South Coast requires **ARCHITECTURAL ASSISTANT**-Intermediate to Final standard for general practice. Apply, stating age, experience and salary, etc., to Egerton W. Owen, Chartered Architect, 33, Beach Road, Littlehampton. 6021

ARCHITECTS-Jackson and Edmonds-require ASSISTANTS in the salary grades between £300 and £700 per annum. Write, stating age and experience, to 116 Colmore Row, Birmingham, 3. 6023

ARCHITECTURAL ASSISTANTS required. A Junior and Senior, in busy office with much varied work, 5-day week. Previous office experience desirable. Write, stating training and experience and salary required, to Graham Crump & Denis Crump, F.A.R.I.B.A., 43 George Street, Croydon. 6030

VARIED experience in all branches of Building Surveying and Architecture for young ASSISTANT (R.I.C.S. Inter. standard and 2 years' practical experience) in City firm of Chartered Surveyors and Architects. Box 6029.

NORMAN & DAWBARN require a **SENIOR ASSISTANT ARCHITECT** to co-ordinate the services for a series of large contracts on a site in London. Whilst some experience of large scale service problems would be an advantage, the primary requirement is ability to co-ordinate the work of various specialists and to negotiate effectively with Authorities and Heads of Departments. Applications stating age and details of career should be made in writing to 5, Gower Street, London, W.C.1. 6057

NORMAN & DAWBARN require **ARCHITECTURAL DRAUGHTSMEN** to prepare working drawings on major projects in London. Professional qualifications are not required but applicants should have had not less than five years' experience in an architectural drawing office. Accurate draughtsmanship and sound knowledge of building construction and detailing are essential. Applications in writing only to 5, Gower Street, London, W.C.1. 6058

LONDON firm of Architects require at once the following staff: (a) **SENIOR ASSISTANT ARCHITECT** to take charge of overseas section in London entailing visits abroad; experience of tropical building an asset though not obligatory; organizing ability essential. (b) **SENIOR ASSISTANT ARCHITECT** to perform special duties with a view to becoming Resident Architect responsible for supervision of extensive additions to an existing project abroad; previous site experience desirable; 3-year Resident Contract. Box 6055.

ARCHITECTURAL ASSISTANT, Intermediate standard, required by large Midlands Brewery Company. Please reply giving full details of qualifications, age, experience and salary required, to Box 6046.

ARCHITECTURAL ASSISTANT required by a City firm of Architects and Surveyors, dealing principally with commercial and industrial buildings and multiple retail shops. At least Inter. R.I.B.A. or R.I.C.S. standard. Good draughtsmanship essential. Please reply, giving details of past experience and salary required, to Vigers & Co., 4, Frederick's Place, Old Jewry, E.C.2. 6074

A. D. AMES, HOLDEN & PEARSON require **ARCHITECTURAL ASSISTANTS** immediately. Write, giving particulars of experience and salary required, to 38, Gordon Square, W.C.1. 6076

PROGRESSIVE Co-partnership practice with annual profit-sharing scheme requires keen ASSISTANTS:-Qualified ASSISTANT ARCHITECT, salary £750-£800 per annum, for housing work, and **ARCHITECTURAL ASSISTANT**, salary £600-£700 per annum. Write, giving experience and qualifications, to the Secretary, 75b, South Side, Clapham Common, London, S.W.4. 6077

ARCHITECTURAL ASSISTANT, Intermediate standard, required for Ipswich office of private Architect. Reply, giving full particulars, to Box 6078.

ARCHITECTURAL ASSISTANT required urgently. Final standard. General Commercial practice. Apply Waite & Waite, 36, Cavendish Square, W.1. Mayfair 4912, ex. 12. 6079

ARCHITECTURAL ASSISTANTS required for office in Hertfordshire. Intermediate or Final standard, for work on School, Commercial and Industrial Projects. Write, giving brief details of experience and salary required, to Box 7002.

WANTED immediately in London office of A.R.I.B.A., engaged on work for a London Housing Company. **ARCHITECTURAL ASSISTANT**, Inter. R.I.B.A. standard. Experience in preparation of working drawings, specifications, site work essential. Salary up to £625, according to experience and capabilities. Pension scheme. Box 7000.

ARCHITECTURAL ASSISTANTS required-a Senior and a Junior. Old-established practice. Industrial, domestic and hospital work. Apply in writing, stating age, experience, training and salary required, to E. William Palmer & Partners, Chartered Architects, 8, The Town, Enfield, Middlesex. 6099

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have vacancies in the London and Welwyn Garden City offices for **SENIOR** and **JUNIOR ARCHITECTURAL** staff. The work is varied and covers Ecclesiastical, Schools, Offices and Housing (Cottages and Flats). Write, stating age, salary and experience, to Louis de Soissons, Peacock, Hodges and Robertson, 3, Park Square Mews, Upper Harley Street, London, N.W.1. 6096

AN ARCHITECT (or an experienced ASSISTANT of post-Inter. standard), who can provide his own drawing office facilities, is required by the manufacturers of TROFDEK structural decking as Technical Assistant, to work in collaboration with their Representative in Newcastle-upon-Tyne. After training at Head Office, he will be required to advise Architects on the use of TROFDEK and to prepare details for their approval. Applicants should be interested in the structural problems of Architecture and be able and willing to work on their own initiative. Applications, giving age, qualifications, experience, and some indication of the salary required, should be sent to the Secretary, H. Newsom Sons & Co., Ltd., Carr Lane, Gainsborough, Lincs. 6095

GOOD opportunity for a **BUILDING AND CIVIL ENGINEERING DRAUGHTSMAN**, in beautiful and healthy surroundings, is offered in Lancaster. The work is varied and will consist of plant layout, design and development; ability to prepare from own drawings, abridged estimates and bills of quantities for new work, and for alterations and extensions is essential. This position is permanent and pensionable. Applicants should be between 28 and 48 years of age-preferably with five or more years' general industrial experience. Apply in confidence to the Staff Officer, Jas. Williamson & Son, Ltd., Lancaster. 6092

REQUIRED immediately qualified **ARCHITECT** (A. or preferably F.R.I.B.A.), to assist principal in practical administration of large hospital and other projects in London. Sound business sense and previous hospital experience essential. High salary. Apply in confidence, giving full details or previous experience, age, etc., to Box 6091.

ARCHITECTS and Architectural Assistants resident in West Surrey, who seek local post, are requested to apply for the position of **ASSISTANT ARCHITECT AND ASSISTANT** to firm of Architects, with rapidly growing and interesting practice. Salary by agreement, subject to experience and qualifications. Apply Percy, Honkins & Partners, 19, Commercial Road, Woking, Surrey, by letter or telephone. Telephone Woking 4730. 6090

JUNIOR or INTERMEDIATE ASSISTANT with initiative and capable draughtsmanship required. Varied and interesting work. Apply Alexander Flinder, 30b, Wimpole Street, W.1, or 'phone HUNter 0841. 6089

ARCHITECTURAL ASSISTANTS required for good general contemporary work in busy office in the Watford area. Excellent salary for suitable applicants. Write, giving brief details of experience, etc., to Box 7003.

ARCHITECTURAL ASSISTANT, Intermediate standard, required in expanding firm with varied practice. Excellent prospects and good salary. Write to Winter & Pickering, 114, Holborn, E.C.1, stating age and experience. 6088

JUNIOR ARCHITECTURAL ASSISTANT required for Birmingham office. Interesting work, attractive salary and prospects. C. Howard Crane & Partners, 367, Hagley Road, Birmingham, 17. 7016

JUNIOR ARCHITECTURAL ASSISTANT required immediately. Experienced in working drawings and surveys. Write full particulars and salary required to D. J. Read, L.R.I.B.A., Chartered Architect, 727, Christchurch Road, Boscombe, Bournemouth. 7010

ARCHITECTURAL ASSISTANT required by Brighton office of South Coast firm. Not below Intermediate standard. Salary by arrangement. Applications, with details of experience to E. J. Thomas, Jolly, Grant & Hunter, 11, Old Steine, Brighton. Telephone Brighton 28622. 7009

ARCHITECTURAL ASSISTANT, Intermediate standard, with previous office experience. Apply Cable & Pite, F./R.I.B.A., South Park, Sevenoaks, Kent, stating age, training, and salary required. 7008

ARCHITECTURAL ASSISTANTS required immediately. A.R.I.B.A. and Intermediate qualifications. Write, giving full particulars and when available. Wood & Kendrick & Williams, 57, Colmore Row, Birmingham, 3. 7040

EXPERIENCED JUNIOR ASSISTANTS required. Innate design sense essential, with office experience, and capable draughtsmanship. Varied work. Responsibility and salary according to ability. Write David Stern, 24, Gloucester Place, London, W.1. 7020

ROBERT SHARP & SON, A.L.R.I.B.A., require a **SENIOR ARCHITECTURAL ASSISTANT**, A.R.I.B.A., with office experience, and a **JUNIOR ASSISTANT**, of at least Intermediate standard. Apply in writing, stating qualifications and experience, to 13, Lower Belgrave Street, S.W.1. 7019

LONDON Architect (Public Buildings) requires competent **DRAUGHTSMAN**. Box 7025.

ARCHITECTS' ASSISTANT required. R.I.B.A. Intermediate to Final standard. Educational domestic and general works. Salary to be agreed, according to ability. Write, stating experience, age, etc., to Oswald P. Milne & A. Underhill, F./R.I.B.A., Hartley House, 103, South End Road, Hampstead, N.W.3. 7023

EXPERIENCED ARCHITECTURAL DRAUGHTSMAN required by a large Building and Civil Engineering Firm. Permanent position. Salary £700 per annum for successful applicants with required experience and capabilities. Apply in writing, giving full particulars of age, experience, qualifications, etc., to Box 7022.

JUNIOR ASSISTANT (TWO), with approximately 2 years' drawing office experience, required for Architect's Dept., primarily for extension of modernisation programme. Commencing salary £400-£450 p.a., depending on experience and ability. Travelling in Great Britain. Five-day week. Canteen facilities. Write, with full details posts held, education, age, National Service, to Mac Fisheries, Ltd., Architects' Department, 10/12, Little Trinity Lane, E.C.4. 7030

SIR GILES SCOTT, SON & PARTNER, on taking over new and larger offices, require additional Architectural Staff to assist in carrying out extensive works on City Offices, Factories, Domestic, etc. Write 9, Gray's Inn Square, W.C.1, or telephone Chancery 8387/8. 7028

GEORGE WIMPEY & CO. LTD. The Architects' Department seek architectural Staff enthusiastic to apply their knowledge to new construction techniques covering Houses, Multi-storey Flats, Offices, Schools and Industrial Buildings for contracts in the U.K. and overseas. Appointments range from **ARCHITECTS** to **DRAUGHTSMEN**, with special interest to those of ability, recognising the value of the designer and technician as an integral part of the production team.

Appointments are on a permanent basis, 5 days a week, at Head Office, Hammersmith. Salaries will be according to qualifications and experience, and, subject to satisfactory service, there is a Pension Scheme for those wishing to make a career with the firm.

Applicants should write, giving brief particulars, to E. V. Collins, A.R.I.B.A., Chief Architect, George Wimpey & Co., Ltd., 27, Hammersmith Grove, London, W.6. 7029

ASSISTANT ARCHITECT and ARCHITECTURAL ASSISTANT required for Newcastle office of major oil company. The work is in connection with large-scale development of service stations, involving the design of new and remodelling of existing stations. The Assistant Architect should be preferably A.R.I.B.A., capable of supervising staff and controlling work through all stages of development. Current driving licence essential. Architectural Assistant—Intermediate standard R.I.B.A., capable of handling jobs with minimum supervision. The work involves high standard of presentation, and understanding of contemporary design. Five-day week; good pension and life assurance scheme; sickness benefits and free luncheon vouchers; Social Club. Write, giving full details, stating age, experience and salary required, to Box 6085, quoting ref. YS942.

ORMAN and PARTNERS require experienced **ARCHITECTURAL ASSISTANTS** for their offices in Guildford and London. Intermediate-Final R.I.B.A. standard preferred. Apply, stating age, experience and salary, to 23A, High Street, Guildford, Surrey. Telephone 67688-9. 6082

ARCHITECTURAL DRAUGHTSMAN—Due to a rapid expansion programme a leading Merseyside Commercial Organisation has vacancies in their Architect's Dept. for young men under 35 years of age who have attained Inter. R.I.B.A. standard. Applicants must be able to prepare sketch plans and working drawings and have had experience of commercial buildings. The positions offered are permanent and pensionable, with an attractive commencing salary and opportunities for promotion. Five-day week. Applications, stating age and details of experience and qualifications, to Box 6081.

ARCHITECTURAL ASSISTANT, of Intermediate standard, with previous office experience, required for busy general practice. The practice is expanding and offers excellent prospects to the right man. Travelling expenses will be paid to those applicants selected for interview. Write, stating age, experience, and salary required, to Edwin H. Earp & Badger, Chartered Architects, Scholars Lane, Stratford-on-Avon. 6083

ASSISTANT ARCHITECT required for Edinburgh Architect's office. Salary £1,200 per annum. Must have exceptional capacity for quick and accurate work, and be able to take full responsibility for drawings, administration, and progress of various contracts. Experience of Scottish practice an advantage, and facility for fine design and sound knowledge of construction and material essential. Box 6075.

INTERMEDIATE STANDARD ASSISTANT required immediately in General Practice. Office experience and ability to drive car essential. Salary by arrangement. Apply in writing, stating experience, salary required, F. C. Levitt, L.R.I.B.A., Commerce House, Biggleswade, Beds. 5003

ARCHITECTURAL ASSISTANT—£600 to £800 per annum offered for Assistant, to take part in development and remodelling of petrol-filling stations, garages, workshops, etc., for the Bristol office of a major oil company. Must be capable of working independently, and be prepared to accept responsibility. Should be of Intermediate standard R.I.B.A. Work will involve original design, site visits, and high standard presentation. Five-day week; good pension and life assurance scheme; sickness benefits; free luncheon vouchers; Social Club. Write, giving full details, stating age, experience, and salary required, to Box 6087, quoting ref. YS944.

A BUSY expanding firm of private Architects in Warwickshire, doing varied and interesting work, require an **ARCHITECTURAL ASSISTANT** of Intermediate standard. Increasing responsibility and remuneration will be given in return for keenness and initiative. Travelling expenses will be paid to those applicants selected for interview. Write, stating age, previous training, office experience and salary required, to Box 6084.

ARCHITECTURAL ASSISTANT and ASSISTANT QUANTITY SURVEYOR required for the Birmingham office of a major oil company. Work is in connection with large-scale development of service stations, involving design of new and remodelling of existing stations. Architectural Assistant of Intermediate standard R.I.B.A., capable of handling jobs with minimum supervision. The work involves a high standard of presentation and understanding of contemporary design. Assistant Quantity Surveyor should be prepared to act on own initiative for the preparation of approximate estimates, interim certificates and final accounts for contracts up to £10,000. Five-day week; good pension and life assurance scheme; sickness benefits and free luncheon vouchers; Social Club. Write, giving full details, stating age, experience and salary required, to Box 6086, quoting ref. YS943.

GLOUCESTER—Private Architect requires **ASSISTANT**. Intermediate R.I.B.A. standard. Must be interested in contemporary architecture and have some office experience. Five-day week, good working conditions, and interesting and varied work. Apply in writing, with details of experience, salary required, etc., to Brian S. Tait, A.S.T.C.(Arch), A.R.I.B.A., The Quay, Gloucester. 7024

GOOD GENERAL ASSISTANT required for Architect in S.W.1. Small busy practice, mostly industrial. Write giving experience, qualifications and salary required to Box 7039.

EXPERIENCED ASSISTANT required, qualified or Final standard, for busy Mayfair office. Apply by letter to A. G. Paton, 20, Berkeley Square, W.1.

ASSISTANTS of Intermediate standard required by West of England firm. Applications, with details of experience, and salary required, to Eric Cole & Partners, 12, Bath Road, Swindon, Wilts.

ARCHITECTURAL ASSISTANT required, qualified, with experience of running contracts. Write full particulars to T. Mitchell Partners, 20, Bedford Square, W.C.1.

ARCHITECTURAL ASSISTANTS required for offices in London and Southend-on-Sea. Interesting and varied practice: schools, churches, commercial building and housing. Salary according to age and experience within the range £500 to £700. Apply, giving details, to Burles Newton, 25, Bedford Row, Chancery 9538, or 36/37 County Chambers, Weston Road, Southend-on-Sea, Southend 41540.

Architectural Appointments Wanted

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

ARCHITECTURAL ASSISTANT going to West Indies in August seeks temporary post with London Architects or Contractors engaged on tropical work. Salary £700. Box 6054.

ARCHITECT (Dip. Arch., Liverpool) A.R.I.B.A., with small growing practice in Merseyside area, would assist established Architects in development of projects. Considerable experience in Schools and Industrial work. Remuneration by arrangement. Please reply Box 7033.

STUDENT, R.I.B.A. (22), wishes to arrange employment NOW for demob. in August. Four years varied office experience, considered above average ability, keen to complete Final studies. Strong contemporary outlook. London only. Please indicate type of work and salary offered.—Box 7038.

ARCHITECT, A.R.I.B.A., several years' experience, desires post in London with view to permanency. Box 7054.

FINAL standard school-trained ASSISTANT (34), single, good contemporary design, 6 years' varied experience (12 chief assistant small office), interested all arts, able to take complete charge of schemes, seeks permanent position with good prospects in contemporary congenial pleasant office. Box 7058.

Other 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 18-45 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

TAKER-OFF required by Norwich Chartered Quantity Surveyors. Good salary and prospects for suitable applicant. Pension scheme. Unfurnished flat accommodation available (three bedrooms) if required.—Apply in writing, stating age, experience and salary required, Box 7036.

BUILDING INSPECTOR or CLERK OF WORKS required in Birmingham to deal with repairs and new work for business and light industrial premises in adjacent counties. Must be car driver, energetic, and have extensive practical and administrative experience. Commence about £680. Box 7015.

EDITORIAL ASSISTANT, with sound general knowledge of building construction, required for building trade journal. Salary up to £750, according to age and qualifications. Apply to Box 7017.

IMPERIAL CHEMICAL INDUSTRIES, LTD. requires a **REPRESENTATIVE**, to advise clients on colour treatment of factories and other large buildings. Applicants must have had Art and/or Architectural training, and possess outstandingly good colour sense, with ability to convey ideas clearly and enthusiastically to others. Good presence and speech are essential. Age 23-30. Salary according to age and experience. Pensionable post. Recreational facilities. Canteen. Apply in writing, giving full particulars of experience, to the Division Staff Officer, Imperial Chemical Industries, Ltd., Paints Division, Wexham Road, Slough, Bucks. 6081

CLERK OF WORKS required, London, W.1. for approx. 12 months. Start immediately. Salary by arrangement. Goldfinger, 69-70, Piccadilly, W.1. HYDE Park 5210. 6094

STRUCTURAL DESIGNER required for busy London office handling a wide variety of building schemes. Considerable scope for advancement is available to a reliable man with initiative who can work with minimum supervision and deal with site matters. Box 7004.

Services Offered

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

THE SITE SURVEY COMPANY, BLACKHEATH, S.E.3. Specialists in all types of Architectural and Engineering Surveys, grid and contour lay-outs. Telephone LEE Green 7444-5. 6018

SURVEYS, levels and detailed drawings for new or alteration projects, reports, specifications for repairs, etc. LIV 1839. 2855

GOOD LETTERING is essential for Commemorative Wall Tablets, Foundation Stones etc. Designs prepared and estimates given for the finished work in any suitable material. Renowned as a Centre for Lettering since 1934. Sculptured Memorials, 67, Ebury Street, S.W.1. 9170

FREELANCE Designing, Detailing, Perspectives, Presentation Drawings, Specifications, Supervision, Murals, Architectural Interior Shop and Store Fitting, Exhibitions. Millet, 63, Fortune Green Road, N.W.6. HAMPSHIRE 2734

"DON" ARCHITECTURAL MODEL MAKERS. Speed, courtesy and reliability, with own studio. Please phone ERITH 3843 (or HASTINGS 1807—between 1.45 p.m. and 2.45 p.m.). 5027

ARCHITECT will assist with working drawings sketch plans, perspectives, etc.—Box 7037.

Partnership

6 lines or under, 12s. 6d.; each additional line, 2s.

ARCHITECT, with own practice in Kent, offers to form Partnership with established small firm on reciprocal basis. Good office accommodation, car, etc., available. Box 6098.

For Sale & Wanted

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

RECONDITIONED Ex-Army Huts and Manufactured Buildings, Timber, Asbestos, Nissen Type, Hall Type, etc. All sizes and prices. Write, call or telephone: Universal Supplies (Belvedere) Ltd., Crabtree Manorway, Belvedere, Kent. Tel.: ERITH 2948. 1474

ARCON Steel-framed Buildings, 32 ft. x 21 ft. Suitable storage sheds, small factories, canteens, and all farm purposes. £150. J. D'Arcy (Portable Builders), Ltd., Oak Village, London, N.W.5. Tel. Gulliver 3644. 7006

Miscellaneous

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

A. J. BINNS, LTD., Specialists in the supply and fixing of all types of Fencing, Gates and Cloakroom Equipment. Harvest Works, 96/107, St. Paul's Road, N.1. Canonbury 2061.

EXCEPTIONAL offer 3rd floor at 94, New Bond St., W.1. 1,300 sq. ft. £950 p.a. Long lease available, perfect natural lighting suitable for drawing office. Tel. GRO. 6601. 8231

PASSENGER LIFTS. Many of the most attractive and efficient modern lifts installed on the Continent are by Wertheim of Vienna. Average delivery time 7 months. U.K. representative, Ian Henderson, Ltd., 184, Sloane Street, S.W.1. Belgrave 3271. 4989

OFFICES, self-cont., off Piccadilly, to let by Architects. 280 sq. ft., 3rd fl., 2 rms. & wtg. rm., carpeted. Phone installed. Rent, inc. rates, light, heat, hot water and cleaning, £300 p.a. Box 7034.

SUITE of Offices in newly constructed building, main road, Kingston-on-Thames, C.H., etc. Area approx. 630 sq. ft. sup. Suitable for Architect or Quantity Surveyor. Phone Kingston 9476. 7048

Educational Announcements

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

R.I.B.A. and T.P.I. EXAMS.—Stuart Stanley (Ex. Tutor Sch. of Arch., Lon. Univ.) and G. A. Crockett, M.A./B.A., F.F.R.I.B.A., M.A.M.T.P.I. (Prof. Sir Patrick Abercrombie in amn.), prepare Students by correspondence, 19, Adelaide Street, Strand, W.C.1. TEL. 1463/4.

COURSES for all R.I.B.A. EXAMS. Postal tuition in History, Testimonies, Design, Calculations, Materials, Construction, Structures, Hygiene, Specifications, Professional Practice, etc. Also in general educational subjects.
ELLIS SCHOOL OF ARCHITECTURE
Principal: A. B. Waters, M.B.E., G.M., F.R.I.B.A.
103B OLD BROMPTON RD., LONDON, S.W.7
Phone: KEN 4477 and at Worcester

MODELS

First class Architectural models made to Architect's drawings and specification. Photographs and quotations supplied on request. Architectural background.

ARCHITECTURAL MODELS, 114, Buckingham Rd., Heaton Moor, STOCKPORT. Tel. HEA. 2094.

WHITE FACING BRICKS

(S. P. W. BRAND)

Telephone: BULwell 27-8237/8/9 • Telegrams: "Maclime", Bulwell, Nottingham

M. MCCARTHY & SONS, LTD
BULWELL • NOTTINGHAM



PERFORATED GYPSUM PANELS

FOR
ACOUSTICS
VENTILATION

**RADIATION HEATING
PETRADENE LTD.**

23/39 Bendon Valley, S.W.18.
TEL: BAT 2497/8/9



LISTS ON REQUEST

31/6
POSTAGE 1/6

SPECIAL PURCHASE

EX-GOVT TERRY LAMPS

Spring-friction ANGLEPOISE Type. With 2" dia. Pygmy Reflector and S.B.C. Holder for low Wattage Bulbs. Mains Voltage. Span of metal Limbs 2' 3". Bench fitting. Perfect condition 31/6d. Post 1/6d. Extras available (not Terry). Larger Reflector and B.C. Holder for bulbs up to 100 watt, 5/9d. Clamp for fitting to Drawing Board etc., 2/6d.

Sample Lamp gladly submitted on approval. Extensive stocks of Photographic Scientific and Optical Equipment.

CHARLES FRANK
67 SALT MARKET GLASGOW C.1
PHONE: BEL 2106

THE TYROL HAND OPERATED MACHINE

Pat. No. 510492

FOR APPLYING TYROLEAN



OPEN TEXTURE (ROUGH CAST) FACINGS

- LIGHT WEIGHT
- RAPID COVERAGE
- SIMPLE TO USE
- EASY TO CLEAN

PRICE £9.18.0 each delivered free any part of U.K. Enquiries to: **TYROL SALES LTD.** (Div. H)

54, Park Lane, Croydon, Surrey.
Telephone: CROydon 4529

ARCHITECTURAL
— contemporary

SIGN LETTERS

IN A VARIETY OF METALS
& FINISHES

WARD AND COMPANY

128 CHELTENHAM ROAD, BRISTOL 6
TELEPHONE 21536

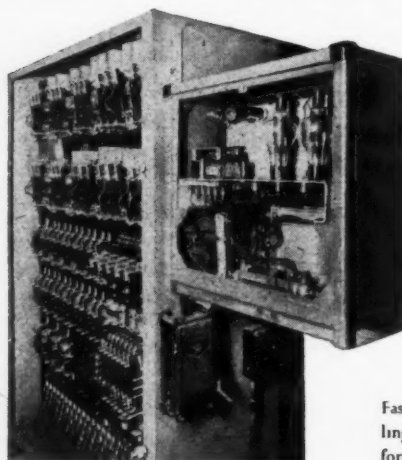
Alphabetical Index to Advertisers

	PAGE
A.B.S. Insurance Agency, Ltd.	ix
Acrow (Engineers), Ltd.	lxiv
Aircrow Co. & Jiewood, Ltd.	xxxiii
Alexandria Trading Corp., Ltd.	lvii
Anderson, D. & Son, Ltd.	
Architectural Models	lxvi
Architectural Press, Ltd., The	lxii, lxv, lxvi
Ascot Gas Water Heaters, Ltd.	lii
Austin, James, & Sons (Dewsbury), Ltd.	
Batley, Ernest, Ltd.	lxxii
Bawn, W. B. & Co., Ltd.	ii
Beckett, Laycock & Watkinson, Ltd.	
Black Sheathing Felt	xxxv
Booth, John, & Sons (Bolton), Ltd.	xxxvii
Borchardt, F. H., Ltd.	xlii
Boulton & Paul, Ltd.	xi
Bowaters Building Boards, Ltd.	
Braby, Fredk., & Co., Ltd.	xlvi
Briggs, William, & Sons, Ltd.	xxvii
Brightside Heating & Engineering Co., Ltd.	xlx
British Paints, Ltd.	viii
British Plaster Board, Ltd., The	
British Reinforced Concrete Engineering Co., Ltd.	
British Titan Products Co., Ltd.	liii
Broads Manfg. Co., Ltd.	xl
Brockhouse Steel Structures, Ltd.	
Broughton, J., & Son (Engineers), Ltd.	
Burgess Products Co., Ltd., The	xxx
Cafferata & Co., Ltd.	iv
Causeway Reinforcement, Ltd.	ix
Cement Marketing Co., Ltd., The	v
Church & Co. (Fittings), Ltd.	lxiv
Clark, James, & Eaton, Ltd.	
Clarke Ellard Engineering Co., Ltd.	xii
Crane, Ltd.	x
Crittall Manufacturing Co., Ltd., The	xxix
Coughtrie, J. & G., Ltd.	
De La Rue, Thomas, & Co., Ltd.	xliv
Dignus, Ltd.	xxiii
Docker Brothers	xviii
Doulton & Co., Ltd.	lxi
Dreadnought Fireproof Doors, Ltd.	

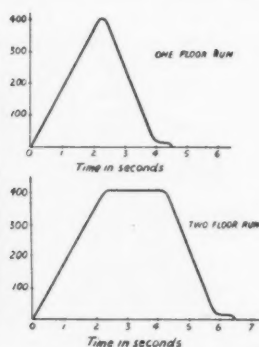
	PAGE
Econa Modern Products, Ltd.	lxxiii
Edison Swan Electric Co., Ltd.	
Ekco-Ensign Electric, Ltd.	xxii
Ellis School of Architecture	lxxi
Engravers' Guild, Ltd., The	lxvi
Evode, Ltd.	lviii
Expandite, Ltd.	xl
Falk, Stadelmann & Co., Ltd.	xxviii
Fencing & Gates, Ltd.	
Fibreglass, Ltd.	xlvi
Finlock Gutters, Ltd.	xxi
Floor Treatments, Ltd.	
Frank, Charles	lxxi
Furse, W. J., & Co., Ltd.	lxxi
Gas Council, The	xxiv
Glazed & Floor Tile Manufacturers' Association, The	iii
Greenwood's & Airvac Ventilating Co., Ltd.	lxii
Gyproc Products, Ltd.	
Gypsum Mines, Ltd., The	
Hall & Kay, Ltd.	lxiii
Hammer, Geo. M., & Co., Ltd.	
Harvey, G. A., & Co. (London), Ltd.	lxiii
Hickson's Timber Impregnation Co. (G.B.), Ltd.	lv
Hollis Brothers, Ltd.	xxxvii
Hope, Henry, & Sons, Ltd.	lxviii
Hotel & Catering Review, The	lix
Jenson & Nicholson, Ltd.	
Jones, T. C., & Co., Ltd.	xxxii
Kay, William (Bolton), Ltd.	
Kingfisher, Ltd.	
Lee, Beesley & Co., Ltd.	lvi
Lever, James, & Sons	lxxiii
Lignacite (N.E.), Ltd.	xliv
Lion Foundry Co., Ltd., The	
Loft Ladders, Ltd.	lxiv
London Brick Co., Ltd., The	xxxi
Lovell & Hanson, Ltd.	lvi
Mander Brothers, Ltd.	xv
Marley Tile Co., Ltd., The	
McCarthy, M., & Sons, Ltd.	lxxi
Merchant Adventurers of London, Ltd.	xxxix
Metropolitan-Vickers Electrical Co., Ltd.	lxxii

	PAGE
Midland Joinery Works, Ltd.	lviii
Mills Scaffold Co., Ltd.	lxxvii
Moler Products, Ltd.	ii
Morris, M. A., Ltd.	vii
Morris Singer Co., Ltd., The	xxxiv
Myton, Ltd.	ix
Neuchatel Asphalt Co., Ltd., The	xlx
Nife Batteries	xx
Norwood Steel Equipment Co., Ltd.	
Ozalid Co., Ltd., The	
Pancele (G.B.), Ltd.	lx
Paragon Glazing Co., Ltd.	
Petradene, Ltd.	lxxi
Pilkington Brothers, Ltd.	ii
Prodorite, Ltd.	
Protim, Ltd.	lx
Ranalah Gates, Ltd.	lxxiii
Rapid Floor Co., Ltd., The	
Robertson Thain, Ltd.	
Rowe Brothers & Co., Ltd.	xlvi
Rubery, Owen & Co., Ltd.	xxx
Saro Laminated Wood Products, Ltd.	
Secomastic, Ltd.	xvi
Shires & Co. (London), Ltd.	iv
Simplex Electric Co., Ltd.	xxvi
Smith & Hodger, Ltd.	
Somerfelds, Ltd.	lv
Stella Building Products Co., Ltd.	xxxvi
Stevenson, John, & Sons, Ltd.	
Stramit Boards, Ltd.	xlii
Tarmac, Ltd.	lii
Taylor, Robert, & Co. (Ironfounders), Ltd.	vi
Teleflex Products, Ltd.	lxix
Terradura Flooring Co., Ltd., The	lvii
T.E. Aluminium, Ltd.	
Timber Fireproofing Co., Ltd.	xxv
Tyrol Sales, Ltd.	lxxv
Unit Construction Co., Ltd., The	
United Steel Structural Co., Ltd.	xvii
Venus Pencil Co., Ltd.	
Ward & Company	lxxi
Warmae, Ltd.	lxix
Weatherfoil Heating Systems, Ltd.	xli
Williams & Williams, Ltd.	xli

For Appointments (Wanted or Vacant), Competitions, Open Drawings, Tracings, etc., Education, Legal Notices, Miscellaneous, Property, Land and Sales, see lxxv, lxxvi, lxxvii, lxxviii, lxxix, lxxx, lxxxi.



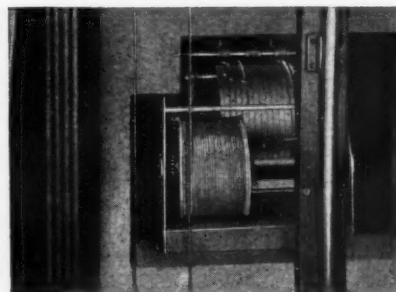
The main lift controller and electronic control equipment, which can be sited in any convenient position. Right: Factual speed/time curves for this electronically controlled lift. Below: Drum mechanism, embodying cams and followers of the control gear, photographed across the lift shaft.



Faster operation, more accurate levelling, with increased passenger comfort, are among the advantages of the new M-V electronically controlled lift drive. For the first time, this system enables a lift to operate in accordance with its position in the well irrespective of direction of travel or load in the cage. Maximum lift speed can be attained even between adjacent floors. Write for full details.



METROVICK ELECTRONIC CONTROL STEPPLESS VARIABLE-VOLTAGE LIFT DRIVE



METROPOLITAN-VICKERS

ELECTRICAL CO. LTD., TRAFFORD PARK, MANCHESTER 17

Member of the AEI group of companies

ag
viii
xv
vii
xvi
ix
xlii
xx
ix
lxxi
ii
lxi
xlii
xliii
xxv
xvi
lv
xxvi
lvi
xxvii
xlii
liv
vi
lix
lvii
xxiv
lxxi
xvii
lxxi
lxiv
xli



from
Batley,
Doors
width of
the door
leaving
height
tension
lifetime

•

•

•

Full de

ERN

* can be supplied to suit
BRANCH VENTILATION



from BATH
from SINK
from BASIN

FOR SAFETY AND COMPACTNESS
IN THE SMALLEST DUCT

Econa
MULTI-BRANCH SOIL UNITS
can help you...

ECONA MODERN PRODUCTS LIMITED
AQUA WORKS · HIGHLANDS ROAD · SHIRLEY · BIRMINGHAM
Telephone and Telegrams: Solihull 3078

— — — — —
**AVOID
THIS...**
— — — — —
Fit
— — — — —
EVERLASTO
for safety!
— — — — —



**EVERLASTO SASH
CORD**

JAMES LEVER & SONS EVERLASTO CORDAGE WORKS
DELPH ST BOLTON



**Here's a
Good Tip**

Batley, smooth-sliding, trouble-free Up and Over Doors can be quickly and easily fitted to any width or height of opening. With finger-tip action, the door slides smoothly on ball bearing wheels, leaving an unobstructed opening with clear height of 6ft. 1in. There are no springs to lose tension; nothing to warp or sag. Will last a lifetime.

- Panelled with Aluminium Alloy, double crossed braced for strength and rigidity, or in exterior grade Mahogany Plywood, with grained finish to take varnish or paint.
- Size, 7ft. 6in. wide by 6ft. 3in. high.
- Price **£18** delivered Free in England and Wales.

**BATLEY
UP & OVER DOOR**

Full details and literature from:—

ERNEST BATLEY LTD. 63 COLLEDGE ROAD, HOLBROOKS, COVENTRY.

OUTSTANDING VALUE ORNAMENTAL IRON GATES

SOLD ONLY TO THE TRADE

*Ideal for Estates and
Competitive Building.*

Special Prices for Contract
Order.

Agents throughout the
United Kingdom.

Send for catalogue and name
of nearest stockist.



THE PRESTON
Overall Height 3' 5"

Retail Prices:

3' opening -	£3.18.6
3' 4" opening -	£4.5.0
Double Gate 7' -	£10.7.10

Over 70 designs. Prices up to £75.

RANALAH GATES
43 DEVONSHIRE PLACE · BRIGHTON · SUSSEX

Telephone: BRIGHTON 22191 2 3

...you've
got
to
hand
it
to
MILLS

FOR SAFETY, SERVICE AND SATISFACTION

MILLS SCAFFOLD CO. LTD., (A Subsidiary of Guest, Keen & Nettlefolds Ltd.)

Head Office: TRUSSLEY WORKS, HAMMERSMITH GROVE, LONDON, W.6. (RIVERSIDE 5026/9)

Agents and Depots: BELFAST · BIRMINGHAM · BOURNEMOUTH · BRADFORD · BRIGHTON · BRISTOL · CANTERBURY · CARDIFF · COVENTRY · CROYDON · DUBLIN · GLASGOW · HULL · ILFORD · LIVERPOOL · LOWESTOFT · MANCHESTER · MIDDLESBROUGH · NEWCASTLE · NORWICH · PLYMOUTH · PORTSMOUTH · PRESTON · READING · SHIPLEY · SOUTHAMPTON · SWANSEA · YARMOUTH

