The Architects' JOURNAL for January 22, 1959

THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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

ILA	Institute of Landscape Architects. 1, Park Crescent, Portland Place, W.1.	Museum 3473
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. 68, Gloucester Place, W.1.	Welbeck 9966
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
JFRO	Joint Fire Research Organisation (DSIR & Fire Offices' Committee) Fire Research Station, Boreham Wood, Herts.	Elstree 1341/1797
LDA	Lead Development Association. 18, Adam Street, W.C.2.	Whitehall 4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1.	Trafalgar 7711
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	Abbey5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 58, Portland Place, W.1.	Langham 0064/5
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Mansion House 9383
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 5533
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.	Whitehall 5322/9245
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, E.C.3.	Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, 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

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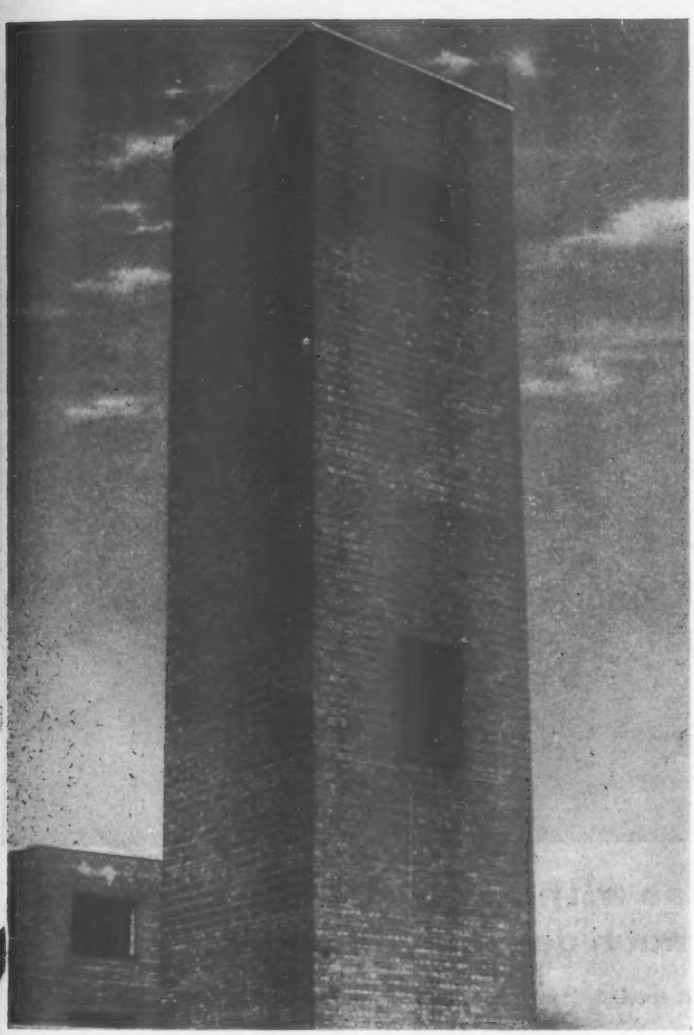

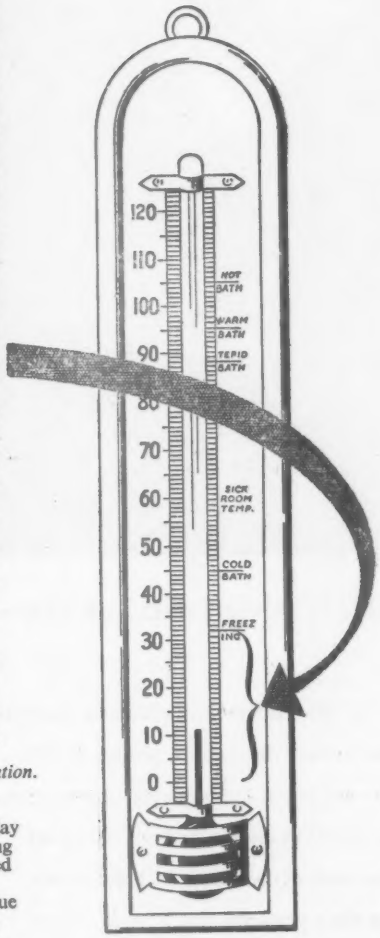

Architect: Mr. H. C. Bishop, A.R.I.B.A., Chief Architect to the Sunderland Corporation. Contractors: Messrs. R. Mathews Ltd., 25, Villiers Street, Sunderland.
The 63-ft. high Fire Observation and Practice Tower illustrated above was erected during the winter of 1955/56 (the coldest winter for ten years.) During erection, day temperatures varied from 55 deg. F. to 19 deg. F., with bricklaying work continuing without a break. Despite the repeated cycles of freezing and thawing that occurred throughout the erection period, the Tower is today sound, the mortar in perfect condition and the brickwork absolutely impervious. That this was possible was due to the careful supervision of the Contractors' Agent and the use of Febspeed Plus, the cement frost-proofing compound that towers above all others.

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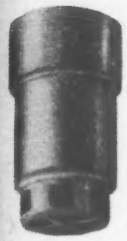
TECHNICAL DATA SHEET No. 3

Minerva

FIRE PREVENTION BY NUCLEAR DETECTION

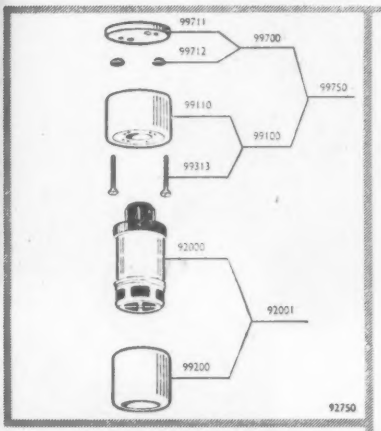
MOUNTING THE MINERVA DETECTOR



For the earliest possible detection of incipient fires in buildings, Minerva Detectors are mounted at or near ceiling height. They are distributed over the area to be protected on a basis of one per thousand square feet. The exact positioning of each detector is determined by a survey carried out by a Minerva Engineer skilled in laying out a pattern of Minerva Detectors to give the best possible cover. Regard is paid to the construction of the building, to the nature of the occupancies of the various areas and to other related factors such as the positions and height of partitions or storage racks, the effect of windows, air conditioning vents etc. likely to affect the ease with which the combustion products arising from an incident anywhere in the area can approach the positions chosen.

Three types of fitting and assembly are available and are used according to the shape and construction of the ceiling. They are illustrated schematically in fig. 1. They all incorporate the unique moulded socket into which the Minerva Detector is plugged and held firmly in position by the screw-on cylindrical retaining cover. The open ionisation chamber protrudes through this cover.

Fig. 1



For normal flat ceilings the assembly illustrated 92750 is used, the adaptor plate 99700, through which connecting wires are brought via waterproof grommets 99712, fitting to a standard B.E.S.A. box. This box may be surface or flush mounted.

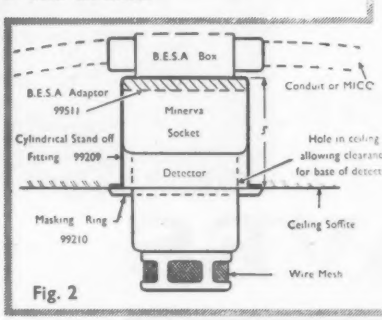
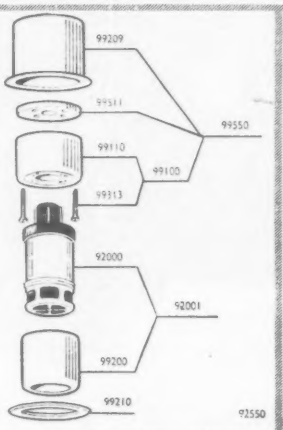


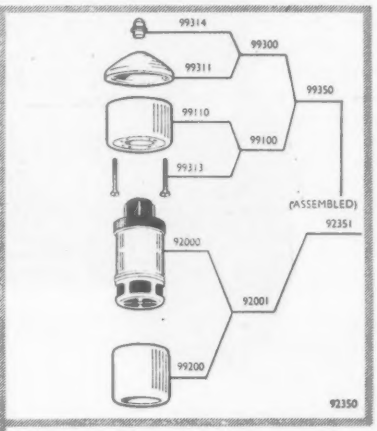
Fig. 2



In many cases where false ceilings exist it is advisable to recess the detector so that little more than the open chamber of the Minerva Detector protrudes through the ceiling soffite.

In such case the assembly 92550 is used, a B.E.S.A. box being mounted on a cylindrical stand-off fitting, the lip of which is supported in the ceiling. This provides a waterproof mounting for the detector socket. A masking ring 99210 fixed to the retaining cover fits flush to the ceiling and covers the edges of the hole through which the detector is plugged into its socket.

Fig. 2 illustrates the method of bringing conduit or M.I.C.C. to the B.E.S.A. box and shows a section of the completed assembly.



If decorations make it undesirable to mount directly to the ceiling, or in cases where the height of the ceiling exceeds 20 ft. and in the case of pitched roofs or sloping ceilings, it is often advisable to hang the Minerva Detector a short distance below the surface. In such cases, assembly 92350 is used, the back of the detector socket being closed by a conical cover, the connecting wires, which serve also to support the assembly, passing through a cord grip at the apex of the conical cover. If very high locations are chosen for the Minerva Detectors, it may be advisable to arrange for them to be able to be lowered for ease of inspection and maintenance. Suitable pulleys, weights and ancillary equipment for this purpose are available.

TE CUSTOS URBIS

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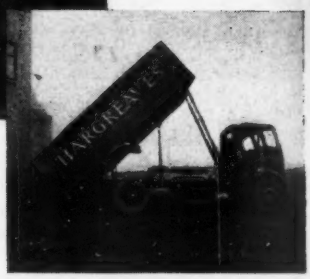

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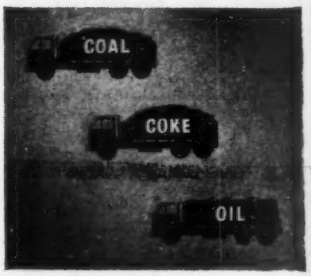

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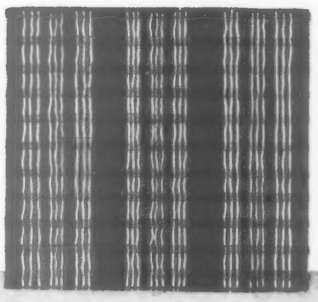

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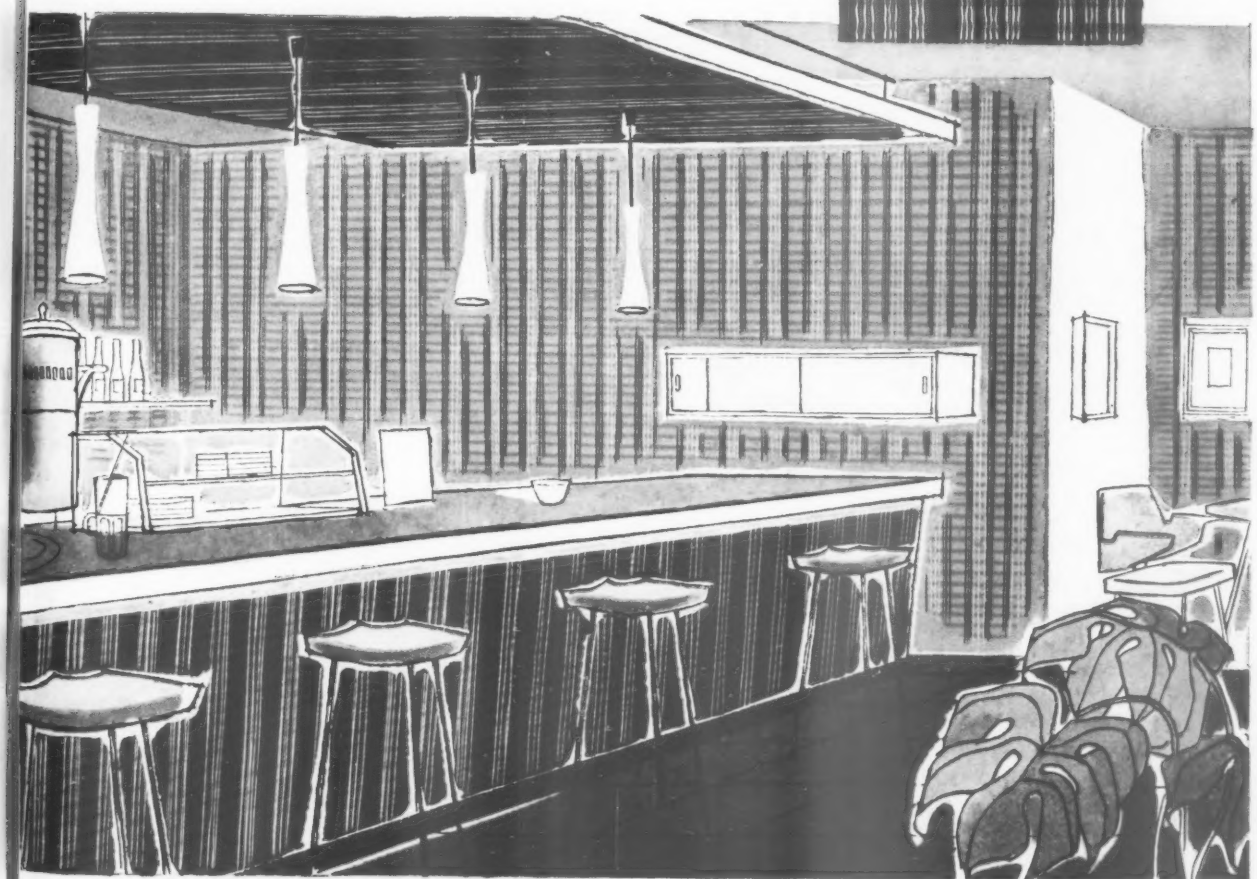

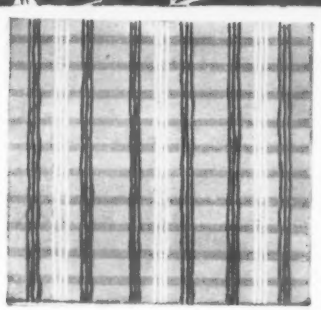

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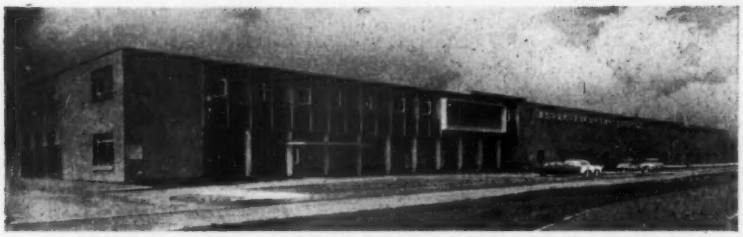

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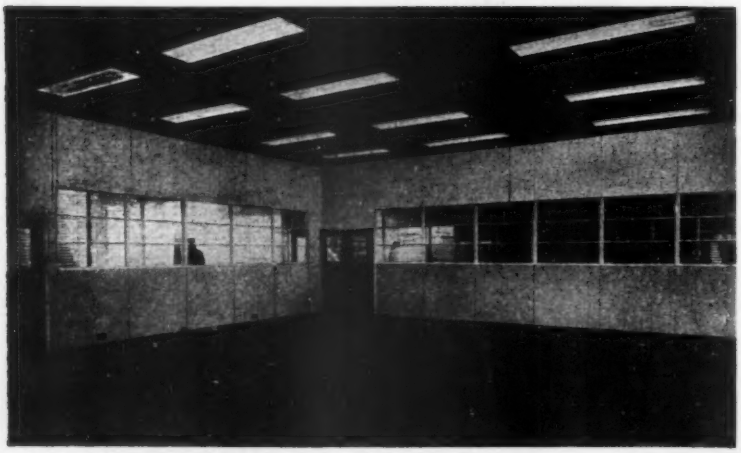

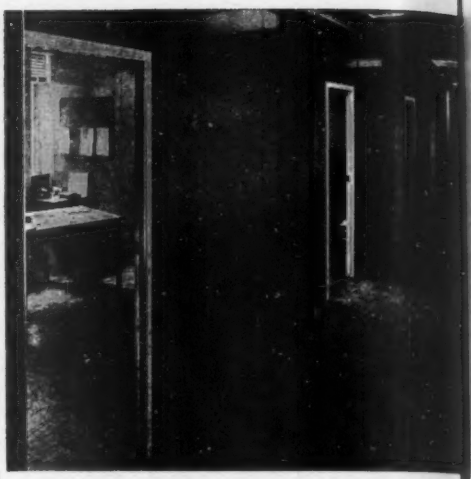

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" FLUSHFORM " fits tightly to floor, ceiling and walls whatever design of architraves, skirtings or ceilings.

WIRING
Ducts incorporated in the core can accommodate all forms of Electrical services.

GLAZING
" FLUSHFORM " takes all types of glazing.

ALTERATIONS
Whenever re-organisation is necessary, " FLUSHFORM " can be taken down and re-erected without undue expense, waste or inconvenience.

SOUND REDUCTION
" FLUSHFORM " 2in. thick has the remarkable sound reduction value of 34 decibels.

FIRE RESISTANCE
" FLUSHFORM ", 2in. thick, has a thirty-minute fire rating. FRO.S1. No. 1112. Incombustible sheet material can be used where exceptional safeguard is needed.

MOULDINGS
Because " FLUSHFORM " assemblies are individually made such items as skirtings, doors, frames, etc., can be profiled to suit existing work.

FIRMIN & COLLINS

LIMITED

DOVER ROAD, NORTHFLEET, KENT

Telephone: *GRAVESEND 4844/5*

" FLUSHFORM " SAVES TIME, SPACE AND BUILDING COSTS!

SPECIALISTS IN PREFABRICATING AND ERECTING DRY PARTITIONING

Top illustration shows a flush-mounted model with 13 amp. socket. Underneath is a surface-mounted model with 15 amp. socket.

The new Siemens Ediswan 'Cambridge' cooker control units are being produced in a really comprehensive range to satisfy all possible requirements. In two basic styles, for flush or surface wall mounting, they are available with socket controls for either 13 amp. or 15 amp. circuits (to BSS 1833 and 438). All models can be supplied with pilot lights. The housings are of zinc-coated steel, finished in cream stove enamel, and the front plate of the flush unit is specially adjustable to ensure correct mounting.

Although officially rated at 30 amp., all Cambridge units will carry up to 45 amp. continuously on the cooker circuit as well as supplying the socket outlet.

For full information send for leaflet PD 18/1952.

List Prices (inclusive of plug)

Surface or flush-mounting unit with 13 amp. socket control 28s 0d
Surface or flush-mounting unit with 15 amp. socket control 31s 8d
Pilot light for all units, extra 10s 0d

SIEMENS EDISWAN

SIEMENS EDISON SWAN LIMITED *An A.E.I. Company*
PD 18
38-39 Upper Thames Street, London EC4 *Telephone: Central 2332* *Telegrams: Sieswan Cent London*

D 1710

Contemporary Acoustics

at the New Change Offices of the

BANK OF ENGLAND

including treatment of Heated Ceilings

to the design of

VICTOR HEAL F.R.I.B.A.

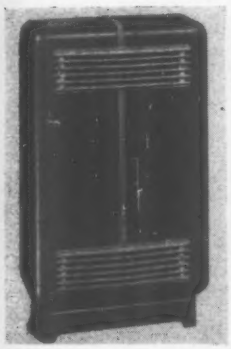
by

HERMESEAL

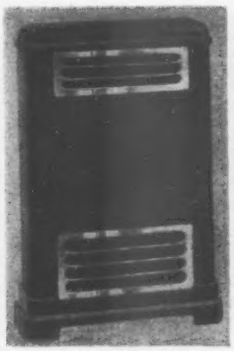
HERMESEAL ACOUSTICS LIMITED

HEAD OFFICE: 4 PARK LANE, LONDON, W.1. TELEPHONE: GROSVENOR 4324

Why should I specify Harper Gas Radiators?



Model No. 3161. *Finish—Base and body heat resisting coinage bronze paint. Baffle vitreous enamelled. Louvres cream vitreous enamelled.*
Burner—Cast iron with luminous bray jets. ¼in. gas inlet, can be fitted for R.H. or L.H. feed. Governor—Constant pressure.
Gas Consumption—18 cu. ft. per hour at 2½in. W.G.
Maximum output per hour—8,100 B.Th.U. at 500 c.v.
Dimensions—Height 29½in. Width 17¾in. Depth 7in. Weight 42 lb.



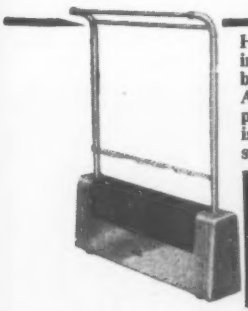
Model No. 3160. *Finish—Heat resisting coinage bronze. The top louvre and the door (which has concealed hinges) are cream vitreous enamelled.*
Burner—Cast iron with luminous bray jets ¼in. B.S.P. inlet for R.H. or L.H. feed.
Governor—Constant volume. Gas Consumption 12 cu. ft. per hour at 2½in. W.G.
Maximum Output per hour—5,400 B.Th.U. at 500 c.v.
Dimensions—Height 25in. Width 17in. Depth 6¼in. Weight 31 lb.

Model No. 4008. *Finish—Base and body heat resisting coinage bronze or pearl blue. Baffle vitreous enamelled, Louvres cream vitreous enamelled.*
Burner—Cast Iron with luminous bray jets ¼in. gas inlet, can be fitted for R.H. or L.H. feed. Governor—Constant Pressure.
Gas Consumption—8 cu. ft. per hour at 2½in. W.G.
Maximum Output per hour—3,600 B.Th.U. at 500 c.v.
Dimensions—Height 20⅜in. Width 12⅝in. Depth 5¾in.

Harper Radiators fit in to so many plans conveniently because they are so economical, require virtually no maintenance and are available in a range which meets the most fastidious tastes in design.

We shall be happy to send you illustrated leaflets of the full range.

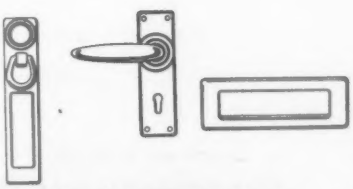
Also makers of Harper castings, Harper Meehanite and Harper Ductile Castings.



Harper No. 325 Gas Heated Towel Rail. Easily installed, compact and economical. A single luminous burner keeps bathroom towels warm and dry. A governor controls gas consumption (4½ cu. ft. per hour). Finished in ivory and green. Provision is made for screwing to the floor although it is stable enough to stand unsupported.

HARPER

JOHN HARPER & CO. LTD. ALBION WORKS WILLENHALL



Harper's make a comprehensive range of door furniture in cast iron and finished in bronze lustre vitreous enamel to withstand exposure to severe weather conditions. May we send you details of the full range?

The General Electric Company and Thermal Insulation

At this manufacturing centre three new open roof bays were lined with ½ inch Insulating Gypsum Plasterboard, reducing the potential heat-loss, by comparison with uninsulated bays, by 14½%. This made possible a reduction in the capital cost of the heating installation, and over a heating season of 200 days allowed a saving of £456 in fuel bills.
The General Electric Company, Witton, Birmingham.

SAFE INSULATION

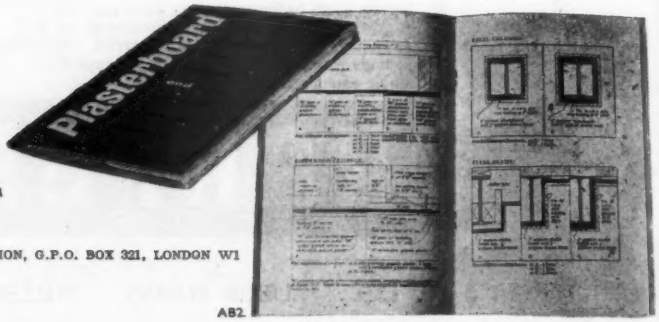
pays for itself

Insulating Gypsum Plasterboard conforms to Section II of B.S.476, having Class 1 surfaces of very low flame spread on both sides. It only costs about 5d. per square foot, and in addition very low fire insurance premiums can be obtained for building linings in this class. At the same time, Insulating Gypsum Plasterboard provides a high degree of thermal insulation. Alternatively, plain plasterboard, which has the same qualities of fire resistance, may be used at a cost of approximately 4d. per square foot.

Gypsum Plasterboard is a first-class building material, being easy to handle, erect and decorate.

IT'S THE CORE THAT COUNTS

All plasterboard has an incombustible core of Gypsum, which contains 20% combined water. During a fire this water is gradually released in the form of vapour, which provides an effective barrier to the fire's progress.



FACTS AND DIAGRAMS

concerning fire resistance and thermal insulation are contained in our free illustrated brochure.
Write today to:
THE GYPSUM PLASTERBOARD DEVELOPMENT ASSOCIATION, G.P.O. BOX 321, LONDON W1

AB2

What are these men doing?

They are having a telephone conversation . . .

With the new Ring-Master intercom there's no dialling or lifting of receivers—no need to stop what you're doing, in fact. The caller just presses the numbered buttons for the extension required. Conversation can be held quite normally at either end—even when the speaker is some way from the desk unit! And with the crystal-clear sound reproduction, voices can be recognised immediately.

The revolutionary Ring-Master system can bring *instant push-button contact* to *your* organisation, however small or large—from 2 to 999 extensions!

Ask for further details of the Ring-Master—telephone or write to one of the addresses below.

Extra facilities for visual paging, calling preference, public address and secretary interception can easily be added.

Ring-Master loudspeaker internal telephone systems

E.M.I. SALES & SERVICE LTD., HAYES, MIDDLESEX. Tel: SOUthall 2468

London Sales Office: 363-367 Oxford Street, London, W.1. (GROsvenor 7127/6; MAYfair 8597).
North Region Sales Office: Regent House, Cannon Street, Manchester. (Deansgate 6043).
Birmingham Sales Office: City House, 111/117 John Bright Street, Birmingham, 1. (Midland 5821).
Scottish Sales Office: 135 Renfield Street, Glasgow, C.2. (Douglas 6061).

he most economical

thermal insulation

plus the bonus of

fire resistance

For further details, turn the page . . .

With the passing of the Thermal Insulation (Industrial Buildings) Act, there is now a statutory obligation for all new factories and similar structures to be insulated in accordance with prescribed standards. Further legislation to cover dwelling houses is projected.

In consequence, owners of buildings are naturally concerned with providing the best means of insulation with the minimum of capital expenditure. But, of the many methods available, which should they select?

Common sense dictates the choice of an insulating material that offers the greatest return for initial outlay . . . a material that is not only highly efficient and most economical, but one that also provides exceptional fire resistance at no extra cost.

An insulating material that possesses these advantages and complies with all the requirements of the new Act is readily obtainable today.

Improvements in the better thermal insulation of houses, bungalows and flats can be provided for now—early in the design stage.

EARLY CO-OPERATION WILL ENSURE GOOD DESIGN

Paramount INSULATING PLASTERBOARD

1 for Industrial Buildings

In large factories, workshops and other similar types of buildings, thermal insulation is essential—to keep internal temperatures at a comfortable level, improve working conditions, reduce absenteeism and achieve higher production.

Paramount Insulating Plasterboard, consisting of plasterboard with a veneer of polished aluminium foil inseparably bonded to one surface, serves the double function of keeping the building warm in winter and cool in summer. Used as a roof lining (under corrugated sheeting and with an air space), the "U" value complies with the Thermal Insulation (Industrial Buildings) Act. Paramount Insulating Plasterboard is inexpensive. In old buildings, initial outlay can be recovered by fuel savings in 2-5 years. In new structures, the cost of its use is usually offset by lower expenditure on smaller, less costly heating equipment.

2 for Farm Buildings

On farms where pigs, chickens and other livestock need to be kept warm, dry and healthy, Paramount Insulating Plasterboard plays an important part. Used as a lining to roofs and ceilings, it helps to maintain interior temperatures at required levels, forms an effective and permanent barrier against moisture and greatly reduces the risk of fire. Strong, durable, inert, easy to handle, cut and erect, Paramount Insulating Plasterboard is the most economical means of insulation, costing less than 6d. per sq. ft.

3 for Domestic Buildings

In private houses, the need for efficient thermal insulation is equally important. The current trend toward "open plan" houses and the rising cost of fuel make insulation imperative. To be really comfortable, large undivided rooms must be warm and dry, irrespective of weather conditions.

Paramount Insulating Plasterboard helps to achieve this aim by preventing heat losses. In doing so, it reduces fuel costs to the minimum and provides an added benefit in the form of high fire resistance.

Thermal insulation is a major consideration to potential buyers. Houses incorporating Paramount Insulating Plasterboard are easily sold.

BLUE HAWK PRODUCTS

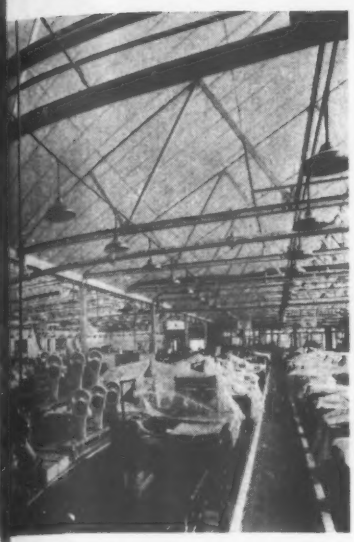
British Plaster Board insulating a

Paramount PLASTERBOARD

The ideal building board for fire-safe construction. Made from Gypsum, the incombustible mineral, this popular board is graded as a Class 1 material—that is, one that constitutes no fire hazard. It requires no expensive fire-retarding surface treatment or impregnation of any kind and is, in fact, the most economical form of fire protection—costing about 4d. per sq. ft. It also provides good thermal and sound insulation.

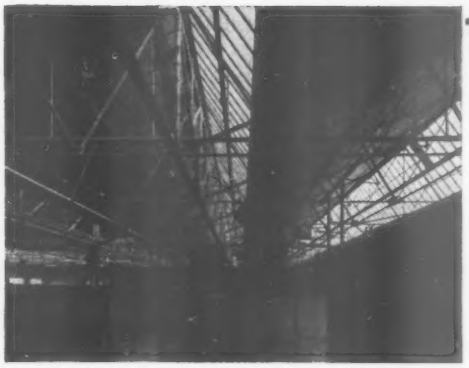
Paramount Plasterboard, employed as a lining to walls, partitions and ceilings, acts as a highly effective barrier to flame spread. Used to clad structural steelwork, it increases resistance to intense heat from minutes to hours.

AP 158



Paramount Insulating Plasterboard used as a roof lining in the factory of Venner Accumulators Ltd., New Malden. Note the parking meters!!

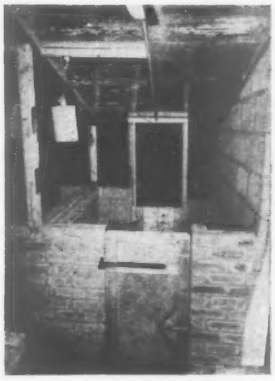
1



1 *Paramount Plasterboard used for the roof lining of the new factory for Messrs. Bryant & May Ltd., Glasgow. Making matches in safety!!*

Walls and ceilings of Paramount Insulating Plasterboard cut fuel costs by preventing the losses in this new home. **3**

3 *Paramount Insulating Plasterboard forming the ceiling of a modern home. (View in the roof space)*



The roof of a piggery lined with Paramount Insulating Plasterboard. **2**

2 *30,000 chickens are kept warm and dry by using Paramount Insulating Plasterboard in this one house alone.*

BLUE HAWK PRODUCTS

the range of

BRITISH PLASTER BOARD

gypsum/fire-resisting products includes

Thistle

- ☐ Plaster Baseboard
- ☐ Plaster Lath
- ☐ Board Finish Plaster
- ☐ Browning and Wall Finish Plasters
- ☐ Metal Lathing Plaster
- ☐ Acoustic Plaster
- ☐ Concrete Bonding Plaster
- ☐ Insulating Plaster Baseboard
- ☐ Insulating Plaster Lath

Paramount

- ☐ Plasterboard
- ☐ Insulating Plasterboard
- ☐ ¾" Plasterboard for Two-inch Solid Partition
- ☐ Dry Partition
- ☐ Cove
- ☐ Water Resisting Plasterboard
- ☐ Plastic Faced Plasterboard

Paraclip

- ☐ System of Suspended Ceilings and Wall Linings

Blue Hawk

- ☐ Flooring
- ☐ RSJ Clip

For further information please
TICK the products in which you are interested.
PRINT your name and address below.
CUT OUT along dotted line.
SEND TO:

THE
BRITISH PLASTER BOARD
(Manufacturing) LTD

BATH HOUSE, 82 PICCADILLY LONDON, W.1. TELEPHONE GROSVENOR 8311

NAME & INITIALS .....

PROFESSION OR STATUS .....

COMPANY OR ORGANISATION .....

FULL POSTAL ADDRESS .....

.....

(BLOCK CAPITALS PLEASE) AJ

This advertisement is produced to B.S. 1311, 1956, governing Trade & Technical publications.

AP 158

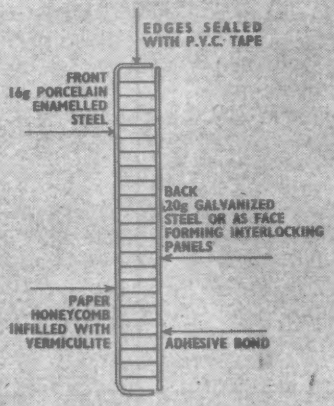
ESCOL

PROJECT FOR: Evershed & Vignoles Ltd.
ARCHITECTS: S. T. Walker & Partners in association with Stanley Peach & Partners
CONTRACTOR: Wm. Moss & Sons Ltd.
The ESCOL panels are coloured Grey & Yellow to clients particular specifications

PORCELAIN ENAMELLED STEEL INFILLING PANELS

(Bonding Patent No. 796118)

Stewart and Gray are the patentees and sole manufacturers of ESCOL. The process has been entirely developed in the U.K. during the past four years, and the Company, which is entirely British and has no connections with foreign manufacturers, are unrivalled leaders in the manufacture of porcelain enamelled steel infilling panels.



PANEL SECTION TYPE C
Composite panel consisting of 16 gauge porcelain enamelled steel face, bonded to phenolic resin impregnated paper honeycomb and 20 gauge galvanized steel back. The paper honeycomb cells are infilled with granular vermiculite. The paper honeycomb is rigid and water resistant. The galvanised back sheet may be replaced by an enamelled steel panel.

ESCOL HAS BEEN SPECIFIED AT HOME AND OVERSEAS FOR
SCHOOLS · OFFICE AND FACTORY BUILDINGS · LABORATORIES NUCLEAR POWER STATIONS · GENERATING STATIONS · RAILWAY STATION BUILDINGS & BRIDGES · AIRPORT INSTALLATIONS HOSPITALS · CINEMAS · MULTI-STOREY FLATS · SHOPS & STORES

Our experience gained in 4 years of panel production backed by our research and development organisation is at your service.

There is an ESCOL panel to meet your specific requirements.

MEMBERS OF THE VITREOUS ENAMEL DEVELOPMENT COUNCIL AND THE PORCELAIN ENAMEL INSTITUTE

ESCOL PANELS ARE MANUFACTURED IN THEIR ENTIRETY BY

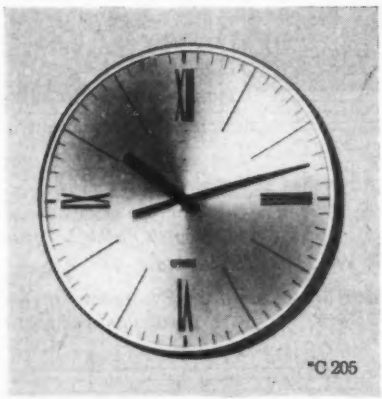
STEWART & GRAY LTD

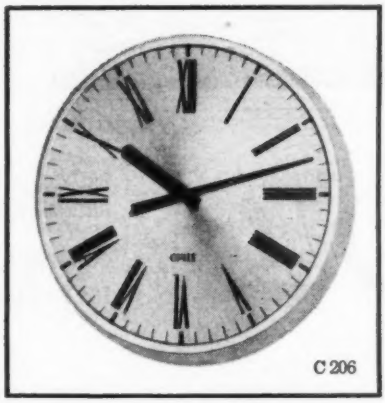
SWAINS ROAD TOOTING SW17
Telephone: MITcham 1634

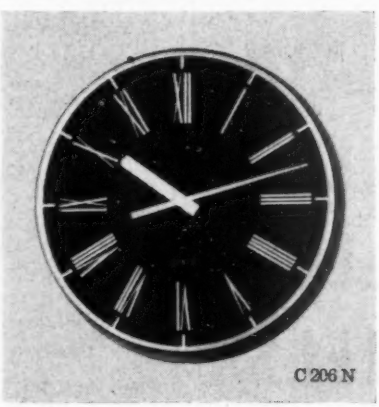
Face Value!

These models have been specially designed by a leading Industrial Designer for use in modern surroundings. They are available in a range of sizes to suit most normal requirements. If required clocks can be made to special designs to suit particular circumstances or decorative schemes.

* *These Clocks have been accepted by the Council of Industrial Design for inclusion in Design Index.*







The model numbers given refer to Mains operated clocks but the same designs are available for operation on our Controlled Electric "Master" Clock System.

Details of our full range of clocks for Mains operation are given in our catalogue book 5 section 7 and for our Controlled Electric "Master" Clock System, in our catalogue book 5 section 1. The appropriate catalogue will be sent to you on request.

GENTS' OF LEICESTER

ELECTRIC CLOCKS

GENT & CO LTD · FARADAY WORKS · LEICESTER

London Office & Showroom : 47 Victoria St. S.W.1.

Also at BELFAST · BIRMINGHAM · BRISTOL · EDINBURGH · GLASGOW · NEWCASTLE

Other Products include:— BRACKET CLOCKS · TOWER CLOCKS · FIRE ALARMS · BURGLAR ALARMS
PROCESS TIMERS · LIQUID-LEVEL INDICATING APPARATUS · DOMESTIC AND INDUSTRIAL BELLS AND BUZZERS, ETC.

Main Office Block at
Head Wrightson & Co. Ltd.
Teesdale Iron Works, Thornaby-on-Tees.

Architect:
Justin H. Alleyn B. Arch., F.R.I.B.A.

Contractors:
John Laing and Son Limited.
Gypunit Partitions erected by
Gyproc Products Ltd. Contracts Department
under the direction of the
Works Engineer of Head Wrightson & Co. Ltd.

GYPUNIT PARTITIONS
in the Purchasing Department.

GYPROC AT THORNABY

GYPSTELE CEILING and
GYPUNIT PARTITIONS in
a corridor.

. . . are undertaking the extensive work of partitioning both the new and the existing premises of Head Wrightson & Co. Ltd . . .

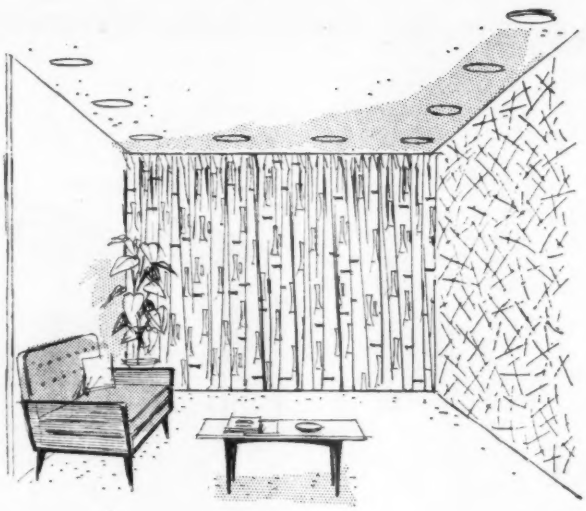
USING GYPUNIT PARTITIONS

GYPUNIT Partitions are easily and speedily erected, light in weight, demountable and adaptable to individual requirements. The surface spread of flame classification is Class 1 (B.S.476). For extra quietness there is a Double-leaf GYPUNIT Partition giving high sound reduction. GYPUNIT Partitions are described fully in "Architects' Journal" Information Sheet A21G2. Copies available on request.

GYPROC PRODUCTS LIMITED

Head Office: Singlewell Road, Gravesend, Kent. *Gravesend 4251/4*
Glasgow Office: Gyproc Wharf, Shieldhall, Glasgow, S.W.1. *Govan 2141/3*
Midland Office: 11 Musters Road, West Bridgford, Nottingham. *Nottingham 82101*
London Office: Bath House, 82 Piccadilly, London, W.1. *Grosvenor 4617/9*

S/GU8



'VYNIDE'

GOOD LOOKING
EASY TO CLEAN · DURABLE

HERE IS A P.V.C. MATERIAL which has proved itself for interior decoration of offices, schools, public buildings, hotels and ships. 'Vynide' has many advantages — good-looking, long-lasting, easy to clean and easy to apply. And the range of patterns has just been extended to include exciting new colours and effects. Architects interested should send for the pattern brochure and leaflet giving useful hints on the application of 'Vynide' to various types of wall surfaces.

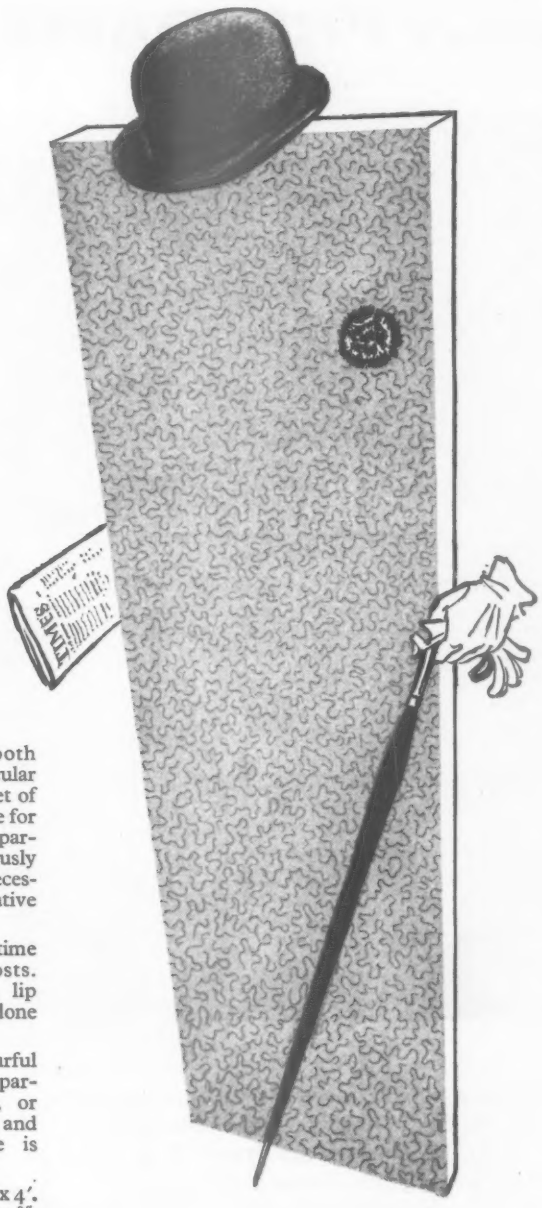
"Rexine" has also been included as a useful extension to this range. Send now for your patterns.

'VYNIDE' *and* **"REXINE"** *are registered trade marks, the property of the Leathercloth Division of I.C.I.*

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

V.198/A

Melamine Faced Bartrev Particle Board



Avtrev is the newest factory-made board embodying Melamine plastic surfaces on a core of Bartrev particle board, providing a constructionally stable and rigid sheet material that is hard wearing, stain, heat and moisture resistant—colourful and attractive too—all at low cost. Avtrev is supplied either with one decorative Melamine face balanced by plain brown plastic, or with both sides faced with Melamine in any combination of the wide range of colours and patterns available..... earning for Avtrev the description "The Best Dressed Board."

The fact that Avtrev can be supplied with a decorative Melamine face on both surfaces is of particular interest, since one sheet of Avtrev will often suffice for cupboard doors and partitions where previously two boards have been necessary to obtain a decorative surface on both sides.

Avtrev can save you time and reduce your costs. Simply cut to shape, lip and fix, and the job is done—and done well.

Use Avtrev in colourful patterns for doors, partitions and furniture, or wherever a decorative and hard wearing surface is required.

Sheet Sizes 6′ x 4′, 8′ x 4′.
Thicknesses $\frac{3}{8}$″, $\frac{1}{2}$″, $\frac{5}{8}$″ or $\frac{3}{4}$″.
Price from 4/8d. per sq. ft.

AVTREV

THE BEST DRESSED BOARD

BARTREV BOARD COMPANY LIMITED,
Henrietta House, 9 Henrietta Place, London, W.1. Tel: LANgham 8041/8

MS

DRI-SIL

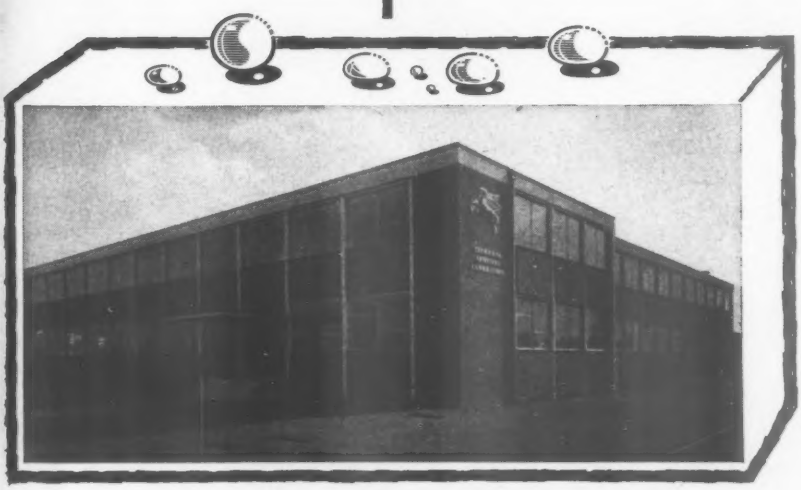
silicone masonry treatments DEFY DAMP

Masonry treatments based on DRI-SIL silicones penetrate into brick, mortar, stone and concrete resulting in a highly water-repellent impregnation. The treatments are easily applied, and are effective for many years—thus reducing maintenance costs.

DRI-SIL silicone masonry treatments

- ✳ Preserve buildings from the damaging effects of weathering.
- ✳ Keep buildings cleaner because water-borne dirt is less liable to penetrate into the surface pores.
- ✳ Prevent staining and streaking.
- ✳ Do not block the pores of building materials; thus do not inhibit "breathing."
- ✳ Improve the thermal insulation of buildings by preventing the absorption of moisture by the walls.

All over the country DRI-SIL treatments have been used on many buildings large and small, old and new. Use a masonry treatment based on DRI-SIL silicones to guarantee the quality.



Proof of the effectiveness of these treatments is shown in this table		% Water absorption after 24 hours' immersion	
		Initial Test	*Retested after 3 years' natural weathering*
Sandstone	untreated	7·0	6·2
	DRI-SIL treated	0·1	0·2
Cement Block	untreated	6·0	5·9
	DRI-SIL treated	0·4	0·7
Common Brick	untreated	20·0	20·1
	DRI-SIL treated	0·1	0·3

The external concrete frame of this imposing new Technical Service Laboratory for the Mobil Oil Company at Coryton (Architect S. Greenwood A.R.I.B.A.) is faced with precast concrete units treated with a water repellent based on DRI-SIL silicone. *Photo by courtesy of Mobil Oil Company Ltd.*

THESE FIRMS SUPPLY WATER-REPELLENT MASONRY TREATMENTS BASED ON DRI-SIL

Allweather Paints Ltd, London, WC2
Atlas Preservative Co. Ltd, Erith, Kent
Lewis Berger (Gt. Britain) Ltd, London, E9
Bitulac Ltd, Newcastle-upon-Tyne 1
Bituminous Compositions Ltd, Morley
S. Bowley & Son Ltd, London, SW11
British Bitumen Emulsions Ltd, Slough
British Paints Ltd, Newcastle-upon-Tyne 2
Cambridge Timberproofing Laboratories Ltd, Trumpington
Chemical Building Products Ltd, (Dept DS2) Hemel Hempstead
John S. Craig & Co. Ltd, Glasgow
W. David & Son Ltd, London, N1
Stuart B. Dickens Ltd, Borehamwood, Herts.
Duresco Products Ltd, London, SE7
Evode Ltd, Stafford
T. & W. Farmiloe Ltd, London, SW1
Farrow & Ball Ltd, Verwood, Dorset
Fluorlife & Chemicals Ltd, Manchester 17
Joseph Freeman Sons & Co. Ltd, London, SW18
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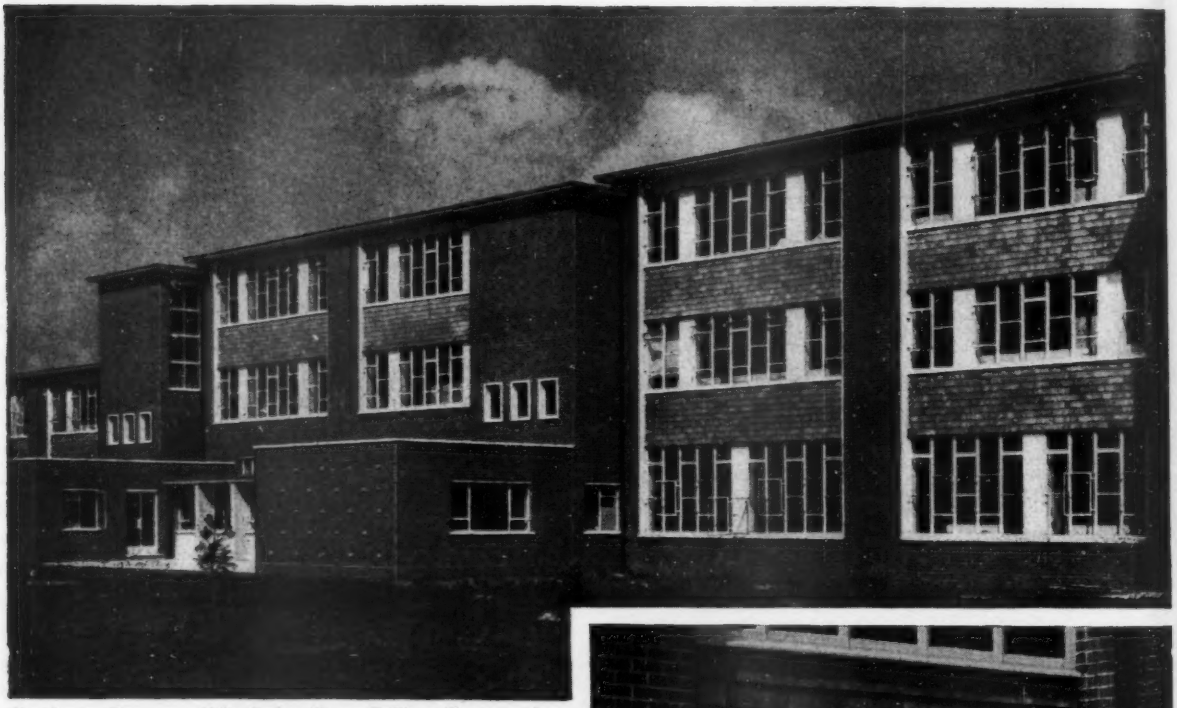

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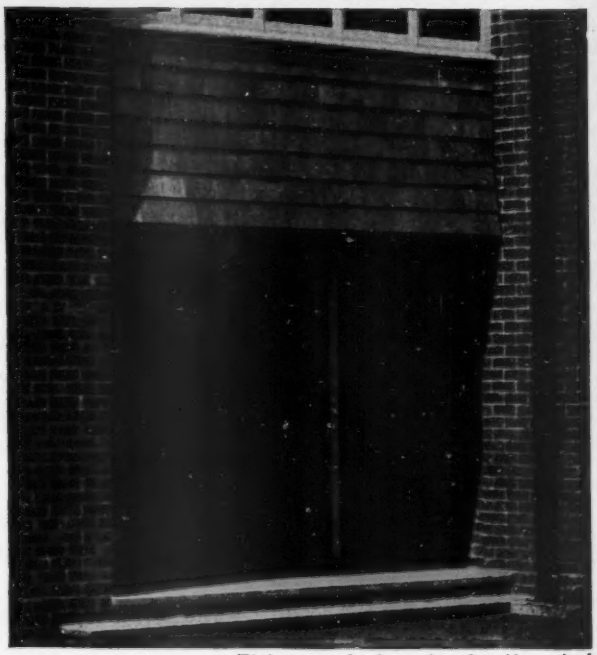

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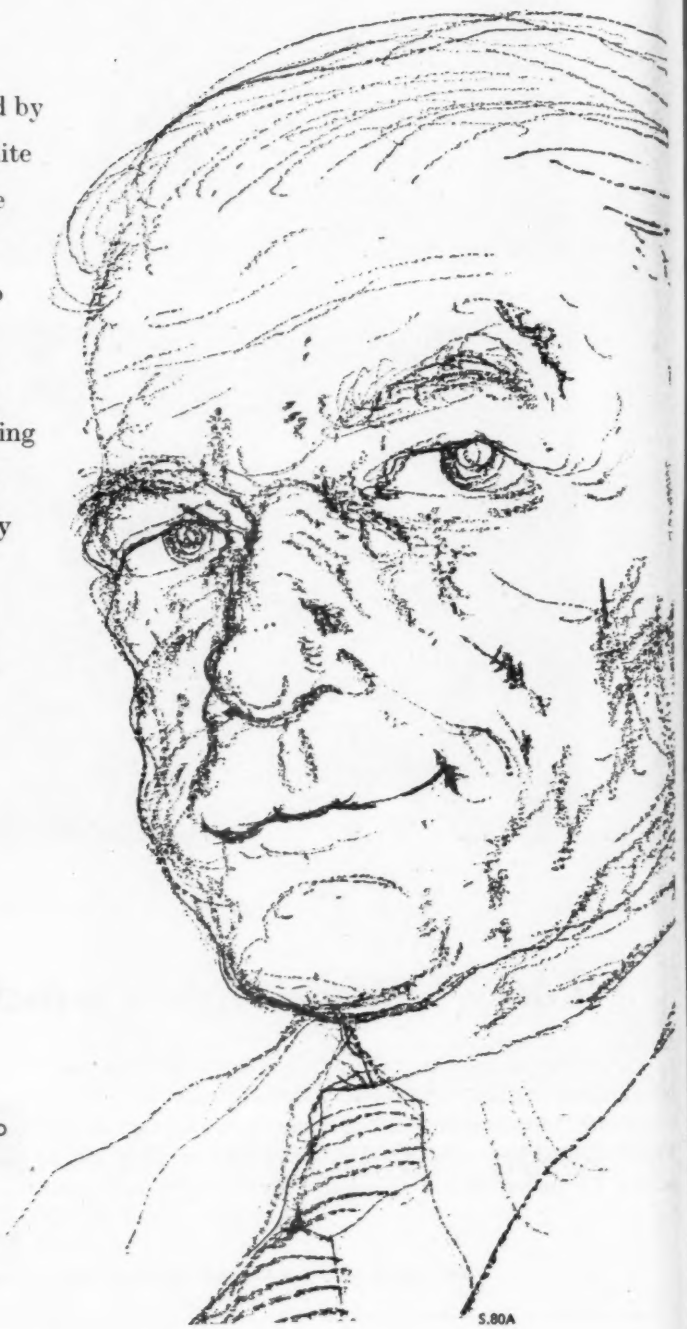

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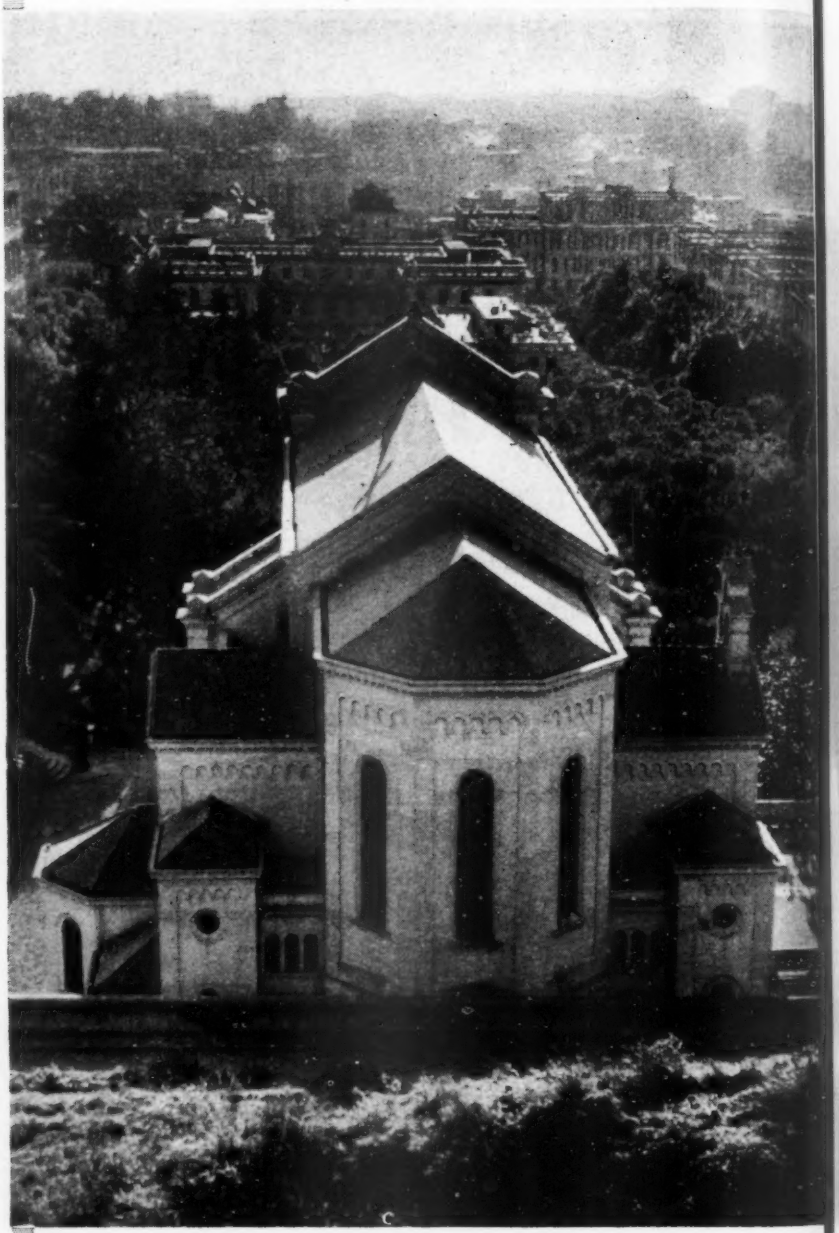

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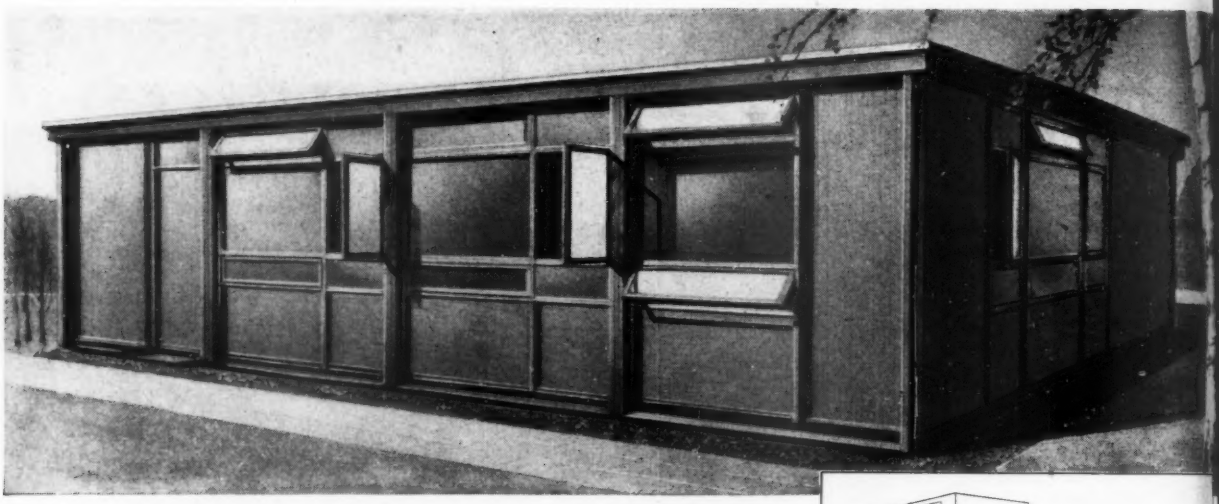

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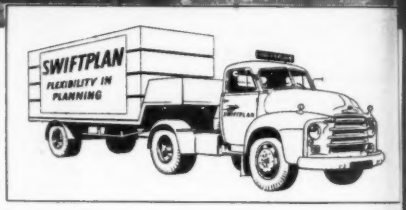

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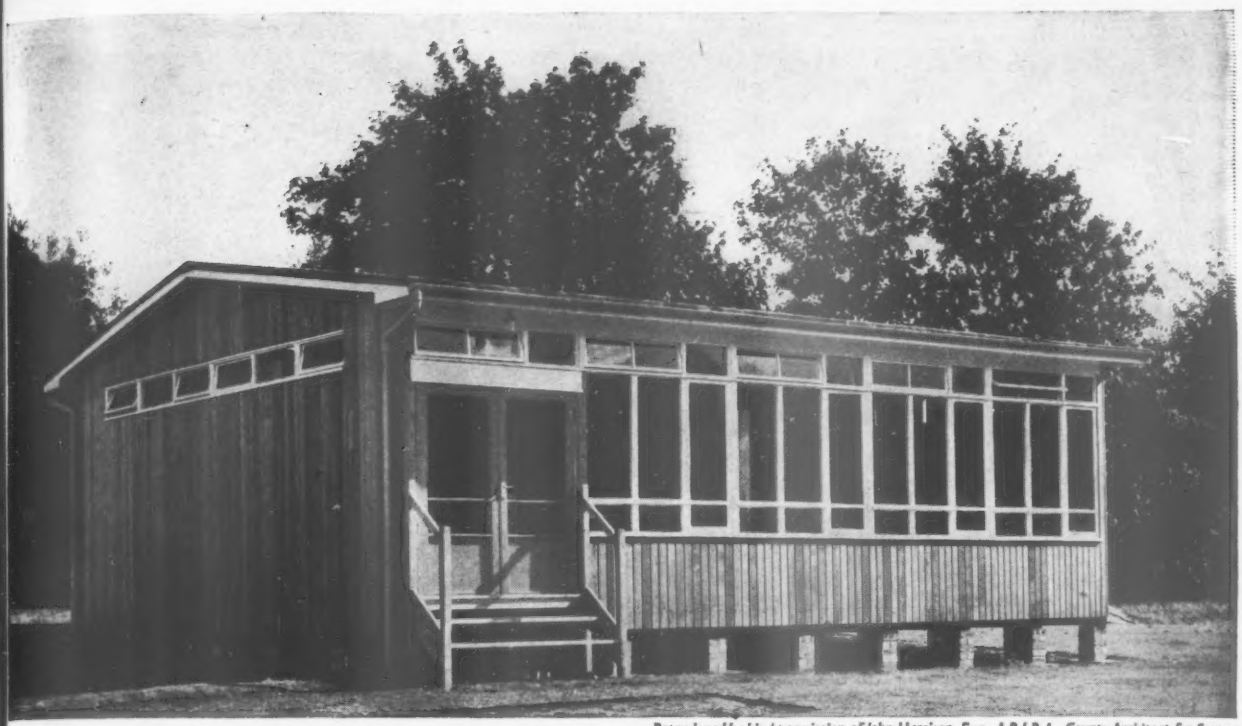

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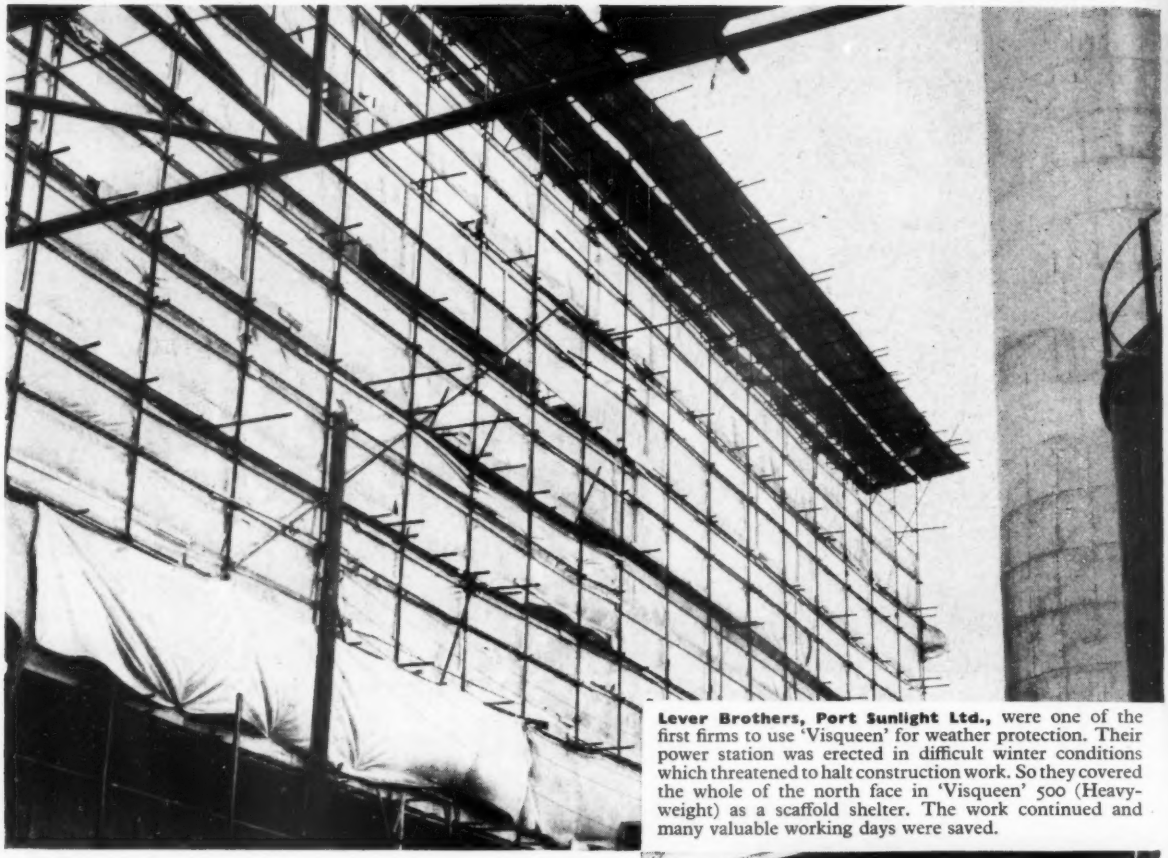

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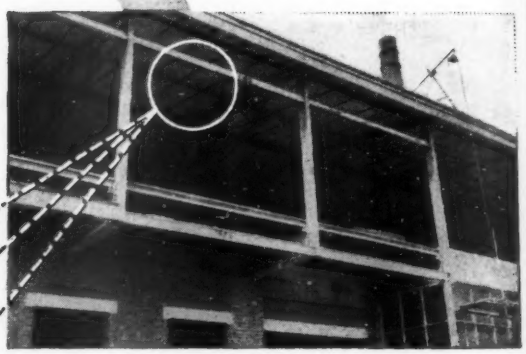

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The Architects' Journal

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RETURN TO THE GOLD STANDARD

The announcement that Ludwig Mies van der Rohe has been awarded the RIBA Gold Medal is welcome news. It will be even more so if it indicates a real break in the Little Englander tradition that the Gold Medal should only go to a foreign architect once every three or four years. In the last seven years four of the medallists have been international figures of the very first order so that the Gold Medal begins to look like the Nobel award for architecture which is what the JOURNAL has consistently stressed it should become. No doubt one day it will again be awarded to a British architect, although it should not be forgotten that it could, and surely should, be awarded to others than architects who have promoted and facilitated the knowledge of architecture, and there are those in this category, both here and elsewhere, worthy of the award.

*

That the Gold Medal should be awarded this year to Ludwig Mies is most fitting for not only does it give public recognition to the most controversial architect of our time, but it gives it at a moment when his career has been crowned with the com-

The award of the RIBA Royal Gold Medal to Ludwig Mies van der Rohe adds topical interest to these photographs of two of his most recent works: right, the Seagram Building, and, below, an addition to the Metals Research Building at the Armour Research Foundation of Illinois Institute of Technology, Chicago. The Royal Gold Medal will be presented to Mies van der Rohe by Basil Spence, President of the RIBA, on May 26.

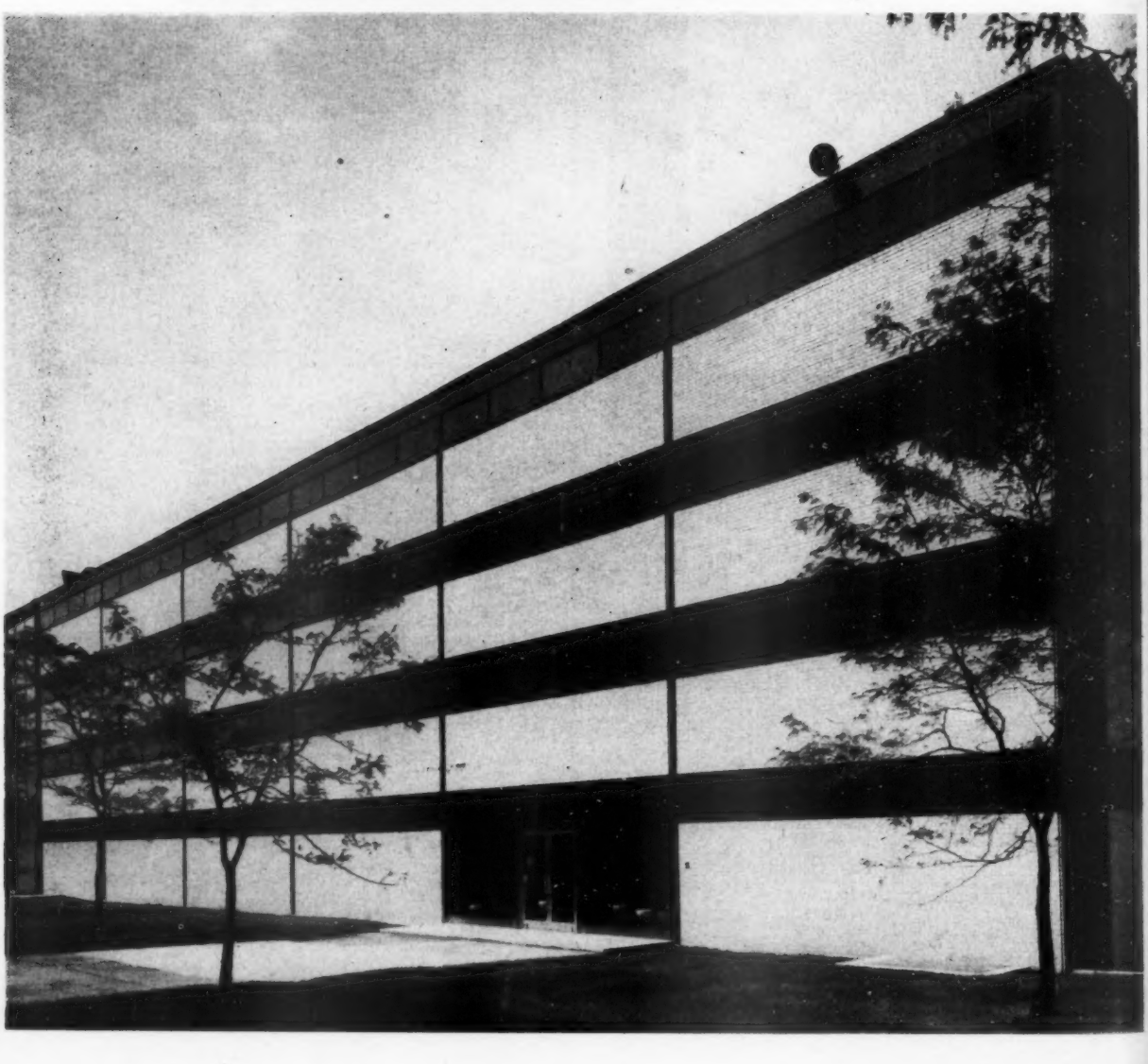
pletion of "375 Park Avenue," or as it is better known here, the Seagram Building, which many beside myself consider to be one of the two or three most important post-war buildings, and certainly the finest skyscraper since Louis Sullivan's Garunty Building of 1893.

*

It is very hard for those who have seen Mies' buildings to transmit to those who have not the grave classical, almost disappointingly, unfashionable quality they possess and the growing sense of utter perfection as one becomes more involved in, and familiar with, them.

I have not yet seen the Seagram Building, but I have seen enough of it in model and photographs, and through the eyes of others, to realize that it has to a high degree those qualities which are present in Mies' other buildings. To quote Professor Jordy*: "The doctrinaire starkness of the Lake Shore gives way to the luxurious subtlety of the Seagram—the one as appropriate to the Chicago of Holabird and Roche as the other

* *Architectural Review*, December, . 1958. Professor William H. Jordy.



to the New York of McKim, Meade and White." What often surprises me is that Mies' architecture is not really liked in England—true it has that almost brooding gravitas, that high seriousness which perhaps does not appeal easily to the British—for unlike the architecture of le Corbusier or even Wright, Mies' buildings do not depend on the sharp light of a Mediterranean sun to bring them to life. They belong to the North and are often best seen in winter or twilight. I seldom remember a more exciting architectural experience than first seeing the Farnsworth house set in a snow-covered landscape against the dark winter trees. I have seen it since in high summer, but that winter vision was breathtaking. It is interesting to find Professor Jordy writing that Seagram "appears to best advantage in late evening sun as shadows climb the lower storeys."

*

Yet the implied success of 375 Park Avenue as in nearly all Mies' later buildings lies perhaps in the fact that it is not a new idea but the development of an idea which in this case was projected nearly 40 years ago in those sketches for a glass skyscraper —sketches which with the other project sketches of the time have for us much the same magic as the architectural pages of Leonardo's sketchbooks.

*

One observes over the years the perfecting of a system and notices that after a first overwhelming sense of presence when confronted with a Mies' building, one is rapidly involved in observing minutiæ and if one allows the camera to follow the eye one finds it has recorded scores of details some at very close range (not to be used as a crib, they can never be that)—but as an automatic record of classic relationships. This is very much the same process that takes hold of one on entering the Acropolis for the first time, a sense of presence and a realization of a perfected system. Peter Smithson uses this word "system" and suggests that all Mies' buildings and even the smaller objects such as the chairs are fragments of it. The very word "fragment" gives a slightly romantic-hellenistic overtone which is no doubt intended—modern semantics are nothing if not subtle. Yet it does imply what is sensed by many, that these buildings belonging to the neo-classical tradition post-date a classical system for a technological age. The curtain wall initiated by the skyscraper project of 1919 might have been expected to reach perfection in the Seagram Building. In fact it has been rejected, for this is surely not a glass building but one carved in bronze with glazed slits in it. This is metal masonry. Nor for nothing is Ludwig Mies van der Rohe the son of a master mason, trained in the trade himself.

*

"I don't want to be interesting, I want to be good," this least talkative and most conservative of modern architects has said of himself. Yet sometimes mere goodness is the most interesting quality of all.

FELLO ATKINSON

The Editors

WANTED: DEDICATED ARCHITECTS

THE praises of the architectural department of the Ministry of Education for getting more for less have been sung often enough. As a result other organisations have set up development groups, the mechanism by which the educationists, administrators and architects of the MOE have been seen to obtain results. Last week the Ministry of Housing and Local Government announced that a housing development group will be formed, under a new chief architect, and charged with studying housing design and constructional techniques and demonstrating the results with a building programme.

At the same time the Ministry of Health announced that it would once again have its own architect's department for handling the increasing hospital building programme, and it stated that it required a new chief architect.

It is unfortunate that no mention is made of the MOH unit doing anything but the stultifying task of checking the health authorities' plans, but as the MOH has already a very small research unit, perhaps a proper research and development group will be formed before long.

At any rate, with architectural development groups at the LCC, the War Office, the University Grants Commission and, of a kind, at the Post Office section of the MOW, the position as regards development work could be considered as encouraging. The snag is, of course, the small number of architects with the necessary experience in this exacting work to staff these relatively new groups, and the even more limited number whose career demonstrates that they have the experience, temperament and imagination to be in charge of development work.

It is a sad but true fact that too many of our best architects have left jobs with central and local government for the world of private practice before finishing their twofold task of making public offices places where imagination and progressive ideas could flourish, and where the more restrictive aspects of bureaucracy were abolished. In consequence, only in two offices, the MOE and the LCC, can be found the type of architects needed for these posts, and neither can afford to act as a training department for the rest of the country. This is a matter of professional policy probably too difficult for the RIBA to appreciate and handle, but it might occur to the Treasury officials, who, it is believed, have valued the achievements of the MOE, that if they want the idea and the ensuing benefits of development groups, to spread more widely, some form of training ground should be created. And what better training ground could exist than the MOE? Would it not be a sound policy, for the next few years, to increase the architectural staff at the MOE so as to ensure that there is a nucleus of architects, who are trained in the special attitude of mind of the development worker and who are available to staff, or lead, new groups as they are formed?

FOR THE SAKE OF AULD LANGSIDE

We have all been complaining for years about competition assessors who don't provide satisfactory reports. And a moan has already gone up about F. R. S. Yorke's failure to make any sort of public report about the Langside College competition. ASTRAGAL joined in this week and stopped a real —if you will forgive me—yorker. It seems that the assessor was merely obeying orders. The RIBA always tells all assessors that their reports should be confidential.

*

Why haven't we heard this before? The reason is simple. The assessor is given his directions *in confidence*. So no assessor has ever liked to tell anyone that he wasn't supposed to tell anyone the reasons for his choice. The surprising thing is that any reports have ever been published.

*

Anyway, now that we know, let us all pass a vote of no-confidences. Presumably the RIBA wants to prevent people wrangling over awards. (There are criticisms in our Letters column this week about the Wokingham school winner exceeding the cost limits.) But it is surely important that the assessors should be exposed to criticism. This is the only way to ensure that both competitors and assessors do their job properly.

None of this, incidentally, is a criticism of Mr. Yorke, who did at least tell a newspaper representative that "the award was made largely for the excellence of the planning."

THE GOLD MEDAL

Wouldn't it also be a good idea if the RIBA produced an assessor's report every time it announced the award of the annual Gold Medal? Basil Spence, who would like to see an engineer get it some day, thinks the idea is worth considering. He would also like to see the abolition of the existing unwritten law. This states that there should be a balance between British (or Commonwealth) and foreign architects. The value of such a citation would be immense. How many of you knew, until this moment, that Bill Morris, of Canada, got the medal last year in recognition of his very great help to British architects in Canada?

*

Anyway, things are looking up. Mies van der Rohe got the recommendation this year almost unanimously (one committee member dissented) after a record meeting of 12½ minutes. With a bit of luck we shall stay on the "gold standard" (Fello Atkinson's words on another page), and parochial and national considerations will count for less than they have done.

A BUST IN PORTLAND PLACE

Basil Spence thinks—and ASTRAGAL cordially agrees with him—that the RIBA has had poor value for money in many of the presidential portraits commissioned (at £500 a time) in recent years. It is good news that the RIBA Council has approved Spence's initiative in persuading Epstein to make a bust of him for very much less than his usual fee. Spence told his press conference the other day an entertaining story about the good-natured bargaining between him and Epstein (Epstein: hasn't the RIBA any money? Spence: but it's only head and neck) at the end of which Epstein told a nice story about Bernard Shaw, who wanted to know why Epstein was only doing his head and neck, and not the whole man. "What," he asked Epstein, "do you think of that?"—and the sculptor turned round to find a stark naked sitter. Shaw, Epstein confided, was "very skinny."

Basil Spence is setting an interesting example. ASTRAGAL looks forward to the time when Epstein offers a future president even better value for money.

HOME FOR BARCLAY SQUARES

The Anti-Uglies — that team of Counter-Attacking Royal College of Art students—have been at it again. Their latest victim is the proposed head office for Barclays Bank (see picture opposite) a building which makes nonsense of any talk of replanning the City. It is all the more sad when you read the report to shareholders by Barclays chairman, who wrote with enthusiasm of the prospect of having an office that was "efficient" and "modern." Apparently his board of directors asked for something in between "contemporary" and "traditional" but "rather on the traditional side." Mr. Tuke said to me at the reception "I'm not quite sure what we've got."

*

When are business men going to realize that a fuddy-duddy view of architecture is not going to get them the modern office designs that they surely see the need for? Do they really want old-fashioned designs complete with light wells, when tower blocks for offices could provide all the light that is needed? Mr. Tuke said he didn't think a tower block would have been possible, because two large banking halls were wanted on the ground floor!

*

At the time of writing the Anti-Uglies are back in Kensington. Let's hope they won't be needed again in the City when the Midland Bank publishes its scheme for a 14-storey office block, which is to go up across the road from Barclays.

FENCE-SITTING

Nearly 700 people tried to get into the TCPA conference on the Town and Country Planning Bill, but only 550 could make it. Nevertheless, they did their stuff. Most of the speeches from the floor were by people who were either anxious about the Bill or completely hostile towards it. What did the TCPA have to say? No collective view was put forward, and Sir Frederick Osborn, who said the TCPA were concerned with the effect of legislation on the character and quality of planning, said they were not quarrel-

ling with the principle of "fair compensation." (Who does; but what *is* fair?). And none of the leading lights of the TPI, which is said to have registered its opposition to the Bill, hinted that their Institute was worried about the assessment of compensation on compulsory purchase at "market value."

*

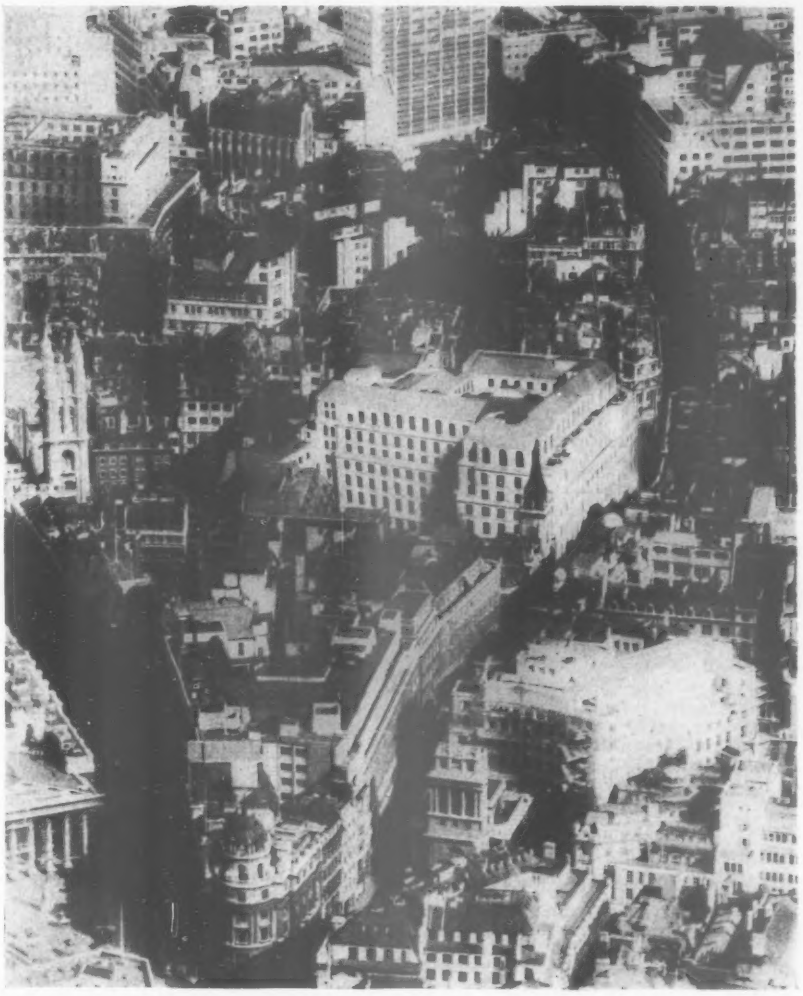
This was a very odd conference. The platform, which was packed with supporters of the Bill (apart from Peter Self, the TCPA vice-chairman) held three chartered surveyors but only one practising or qualified town planner—Desmond Heap, who is a legal member of the TPI. Where were the representatives of the RIBA's town planning committee? And where were the architect-planners who are known to be opposed to the Bill—people like Arthur Ling and Sir William Holford?

SUMMER IN MOSCOW

Snow-bootedly and belatedly the IUA's UK Committee has held a discussion on last summer's congress in Moscow. None of the speakers could resist telling us more about Russia than the Congress. To JOURNAL readers it was all rather familiar—apart from the talk by the student, Paul Drake, who had attended the separate student's conference at Leningrad, and gave a good (though long) impression of the boozing, the arguments and the gerrymandering of these semi-political conferences. Other speakers showed too many coloured slides, and for ASTRAGAL the evening proved conclusively that there is next to *nothing* to learn from Russia about architecture and town planning. Keith Scott, however, though harshly limited to five minutes, showed—with superb slides—what a fascinating place the Kremlin is. It was a pity the evening had not been more carefully planned, so that the best slides (and commentary) could have their fair share of the time allocated.

LEEDS KINDLY LIGHT

When the JOURNAL surveyed British universities at the beginning of last year it showed that the only two universities with a great architectural tradition had only just begun to wake up to the fact that they had spent the last hundred years wrecking it. While the other twenty-odd universities were slowly becoming aware that the



Pauline Boty of the RCA's Anti-Ugly group, scattering rose petals on the coffin of British Architecture outside Barclays Bank new head office building. Inside a muslin-draped marquee, Anthony Tuke, the chairman of Barclays, laid the foundation stone before a City audience who were unaware that outside the Anti-Uglies were mocking the building. A wreathed coffin, inscribed "RIP, Here Lyeth British Architecture," was borne up Lombard Street by mourners and candle-bearers carrying placards "This is Architectural Bankruptcy," "The City is Ugly Enough Already" and "Barclays Build Blindly." The air view, above, shows the model on its one-acre site at the corner of Lombard Street and Gracechurch Street. Not only is the new office built round a central light well, but it is separated from two other banks in the same block by a deep, narrow light well following the irregular boundary of the site. The architects are Sir Herbert Baker and Scott.

less tradition they had the better chance there was of getting something architecturally contemporary and worthwhile, if only they could find competent modern architects. One of the universities which had all the disadvantages: heavily industrialized town, pompous neo-classic buildings, and the most awkward and ill-considered planning, was Leeds.

*

It is, therefore, with the utmost thankfulness that we learn that Peter Chamberlin (of Chamberlin, Powell and Bon) has been appointed the university's consulting architect. "The university," says the press statement, "has now reached a stage . . . when it is necessary for the whole question of subsequent planning to be considered. This will involve a review of the need for future buildings and of their siting . . ." This is great news for all who have faith in the modern movement.

EXPENDITURE BUDGETING

We ought, it seems, to call Cost Control either Expenditure Planning, or Price Budgeting or something—because costs are things that have happened, so you can't plan them. This news comes from the RIBA's Missenden Abbey week-end conference where jokes about nomenclature were only one of the signs among nearly 60 architects, quantity surveyors, builders and clients that costs (ASTRAGAL sticks to that old-fashioned word) and means of their control are a much needed common language.

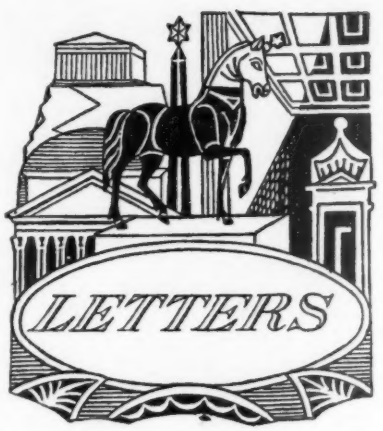
*

There were two double-act papers on cost planning, another by W. J. Reiners of BRS (who showed how prices vary from costs), one on "communications" (the meaning of a symbol depends on the conjoint of experience of sender and receiver . . . . etc.), and one of programming for the Drawing Office. To wind up on Sunday morning there was a provocative gallop by E. J. Cook of Costain's through the motions of organizing a big job *fast*.

*

Stirrat Marshall opened the conference with a plea for cost (sorry, expenditure) control, and on Friday Richard Sheppard came to give the gathering official blessing. Another such conference is planned for Bristol later in the year.

ASTRAGAL



Edward D. Stone

Cedric Price, Bill Cowburn, A.R.I.B.A.

H. A. L. Tozer, A.R.I.C.S.

Douglas Jones, F.R.I.B.A.

Peter Womersley, A.R.I.B.A.

Denis J. Robinson, A.R.I.B.A.

D. W. Wilcox

H. D. Krall, A.R.I.B.A.

E. Levin, A.R.I.B.A.
Chief Architect, Timber Development Association

E. G. Newnum, F.R.I.B.A.

Disgusted (New York)

SIR,—I found your facetious presentation of the United States Embassy in New Delhi in extremely bad taste. You have earned my disgust.

EDWARD D. STONE.

New York.

Wokingham School

SIR,—The most disturbing feature of the Wokingham Infants' School Competition was a sentence in the conclusion of the report by the assessors E. D. Lyons, J. T. Castle and T. D. W. Whitfield. It stated "it provides ideas for those who are already well established in work of this sort."

In the General Comments the assessors write that "where, moreover, the competitor has had originality as his main preoccupation it has tended to be his main achievement." It would appear, therefore, that the assessors consider the results of such a competition an opportunity for unlimited plagiarism by the "well established."

This we consider, at the least, unethical.

CEDRIC PRICE.
BILL COWBURN.

London.

SIR,—I am a quantity surveyor and I was asked to advise an architect friend regarding his entry for the Wokingham Infants' School competition. Having had experience of new schools and the negotiations which ensue with the Ministry of Education, I advised him that it was necessary to plan down to something of the order of 10,000 sq. ft. of floor space and to site the building so as to reduce the length of service road, drainage and main services in order to produce a scheme which could be carried out within the Ministry of Education current cost limits.

My advice was acted upon and I know that it influenced the design, no doubt adversely from an architectural viewpoint. I am therefore astonished to find that my approach, which I know is practical and necessary, is ignored by the assessors in awarding the first and second premiums when they, from their report, are as aware of the hard facts of life as I am. I would like to hear whether your readers consider this unrealistic attitude towards cost a fair interpretation of the assessors' duties in a competition for a cost controlled project.

H. A. L. TOZER.

Manchester.

Street Furniture

SIR,—The design for a new telephone box for the GPO (AJ, January 8) shows the need for an authority to be responsible for the design of all street furniture.

For such an authority it would be a simple matter to originate a series of standard designs for bus shelters and stops—seats—litter boxes—and so forth, which would be both visually and *physically* related. These elements could then be used singly or in conjunction with each other as occasion demanded.

For instance a telephone box could either stand on its own or form part of a bus shelter, just as seats, litter boxes and bus signs could do.

At present these bits and pieces bear no relationship to one another; but, if they did, they could be of great help to authorities who have to provide the public with these amenities and who try to do things as decently as they can.

DOUGLAS JONES.

Essex.

National Architecture

SIR,—Michael Laird's critical study of two houses recently built in the Borders (AJ, January 1) prompts me to write to you about nationalism in architecture. This is ground over which we have skirmished privately before now, and he does make it clear that this is subjective criticism. But I see that the article is entitled—Two Scottish Houses.

Speaking subjectively myself, I should like to say that the houses were designed by one foreigner—(which I must now regretfully consider myself, although I do come from the right end of England)—trained in a foreign capital city, for two other foreigners, and that it is perhaps a geographical accident that they have appeared just on the wrong side of the Border—presumably twenty-five miles south they would merit unqualified architectural approval.

I find it hard to believe that there is some mystical element at work in the twentieth century, on a tiny island in a shrinking world, which can make a building English, Scottish, or Welsh. It is certainly possible to detect slight differences two centuries ago, say between the English and Scottish work of the Adam brothers, or James Gibbs—although both were more positively Mediterranean in outlook, than British—but this is a long time ago. Scottish architecture is surely something belonging to Baronial days, both real and Victorian—a thing of massive stone, tiny windows, crow-stepped gables and steep-roofed turrets, which it is true is still being built here. But even if the turrets and gables went, a twentieth century domestic architecture based upon stone walls and small windows, would be limited, almost certainly expensive, out of scale, and difficult

to build because of the shortage of masons and quarries, although it would certainly look more Scottish—at least to a Scot—than the two under survey. I think personally that its indigenous quality would be of the kind that makes a semi-detached suburban "villa" typically English—something that could possibly lead to good building, but not good architecture.

This is surely the only thing that matters, and to try today to make a building consciously express the "soul" of a small area of land and its inhabitants—whether Scottish or English—is a step backwards. Modern techniques of building and systems of communication are supposed to have emancipated us from regionalism.

It is now impossible not to be influenced by the experiences of architects all over the world, and this growing internationalism seems to be finding expression not merely in structures like the UNESCO building, but in the fact that a British architect can be designing buildings in Ghana or Pakistan: a Scandinavian in Toronto and Sydney: and a whole host of naturalised Europeans in America.

Perhaps it is this unwillingness to accept "foreign fragile" influences into Scotland, and then let rugged "Scottishness"—if it exists or is strong enough—transmute them, that accounts for the present architectural doldrums.

Nationalism apart, I should like to thank Michael Laird for his critical study—he has let me off too lightly.

PETER WOMERSLEY.

Melrose.

Office Practice

SIR,—How to be an efficient architect in five easy lessons (Lesson 1: AJ, January 8, pp. 51-58). Oh really! Was this article prepared by an office where the members are not on speaking terms for the benefit of similar offices?

Why waste time preparing senseless charts on timber or any other traditional material which has been more adequately done in print. Not to mention using symbols which are illogical—"good" ought to have the solid; "passable" half solid, and the ring for "bad." Manufactured items change too rapidly for this idea to be applied.

What a way to deal with trade literature—"preferred," "occasional" and "rejects." Clients have a habit of preferring rejects—"their Managing Director is a friend of mine"! About 50 files of any type, each labelled with a different trade or material, will readily enable any piece of literature to be found.

No doubt we shall read in due course how to run the job outside—progress charts, for example (another waste of time in 95 per cent. of cases). There is only one way to run a job—settle *everything* before it goes out to tender except the colour of the paint and the client's potential changes of mind. Are we to be invoked into having a weekly site meeting with the general contractor and 25 sub-contractors, 20 of whom will not be required in any one week?

I can hardly wait for future issues so that I may learn why I can only cope with £40,000 of work per annum efficiently.

DENIS J. ROBINSON.

Sutton Coldfield.

SIR,—The article by W. Sinclair Gauldie and Arthur F. S. Wright (January 8) was most interesting, and whilst in no way intending to "pick holes" in the subject matter, I do feel there were two small points which may be worthy of comment.

Dealing on page 56 with the visual method of expressing comparisons, three gradings were shown symbolically by the use of circles. Comparisons would seem to be intended by the amount of dark and light within the circles, but the key seems to me to be fundamentally wrong (if, in fact, the example shown was one in actual use and not merely intended as pure illustration).

The unshaded circle denotes a positive, the wholly shaded circle neither positive or negative, whilst the half shaded shows the negative. Surely when dealing with total opposites the unshaded should indicate the "Yes," the wholly shaded the "No," and the half and half the "in-between." I found it confusing relating the key to the tables.

Secondly, the results given by the use of the legend would not seem to be in accord with experience concerning the properties of the various timbers.

If I may be permitted to add a third point, with regard to the Classes of Firms mentioned on page 57, it has been my experience that the architect is getting extremely tired of both being snowed under with literature, and being almost forced to adopt some method of filing which will grow progressively more complex to the delight of the O & M manufacturers, and when his tired brain says "where shall I go for this, or to whom shall I turn for that," in nine cases out of 10 he picks up the 'phone and asks to speak to a person whom he knows and trusts.

D. W. WILCOX.

Potters Bar.

The Editors reply: the mistake in the captioning of the chart key noted by both our correspondents was due to a printer's error for which we apologise. The legend should have read as follows:

Fine Art Commission

SIR,—I have recently had my first personal experience of the RFAC, and the procedure is interesting. The Commission meet once a month. In the morning the designs are displayed and discussed by the architect members of the Commission with the architect. In the afternoon the full Commission meet and the design is further discussed. The architect is not present. Subsequently the findings of the Commission are intimated to the interested parties by letter. Suggestions for modifications must necessarily be tentative and vague, and are no doubt often misunderstood. If the pressure of business allows, the design may be re-submitted the following month, but it is more likely that two months will elapse before reconsideration is possible. There is no time limit as in an application for Town Planning consent.

It is not surprising, therefore, that few clients would voluntarily submit, nor any architect having gained his clients' support for his design, and the Local Authorities acquiescence, advise submission; and it is usually only in cases in dispute that reference is made to the Commission.

Much of the Commissions' work is concerned with the trivial, and it is in this that they fail. Their consideration of a design is necessarily superficial, wastes a great deal of time, and on a national scale the improvement effected is insignificant.

It is in fact exactly those broad issues, such as that referred to in your Editorial, that merit their consideration. It is the location of new towns, of power stations and atomic plant, of land used by the Services, and building and civil engineering work carried out for the Crown, in fact those activities which are outside the law, that are those which most require the attention of such a body.

If this is outside the terms of reference of the RFAC, reconsideration of the usefulness of the Commission in its present form seems warranted.

H. D. KRALL

London.

The Editors write: Much of what Mr. Krall writes is very much to the point, although according to the JOURNAL'S information only a small part of the Commission's time is in fact occupied in discussing in detail the design of buildings, the Commission being reluctant to go very far in this direction for the reasons Mr. Krall gives. The broad issues referred to at the end of his letter are those to which the Commission gives most attention, the difficulty however being that it has very little power beyond that of making recommendations, and its views on matters like the siting of power stations, though given to the Government, are not acted upon. Also, many projects are referred to it at too late a stage.

Wood Trim

SIR,—We are interested in the present and future use of wood trim in housing and public buildings.

In order to assist us in our investigations we would welcome your readers' co-operation in providing us with references of any particularly interesting examples which have come to their notice.

E. LEVIN.
Chief Architect, TDA.

RIBA Staff

SIR,—On reading the Report of the Finance and House Committee of the RIBA (AJ, January 1) I was startled to see that it is roughly estimated that the expenditure on the staff (including pensions, staff pension scheme and the same items for the library) will rise in 1961 to close on the appalling sum of £80,000 for the year. The amended estimate for 1958 is given as £64,360—which is bad enough.

Without, of course, being in possession of details as to how these sums are shared by the fortunate recipients, I am unable to avoid feeling that the amounts involved must make the mouths water of a very large proportion of the membership, and possibly engender envy.

I also note that in 1961 it is expected that the amount to be collected in examination fees will be some £16,000 more than the expenditure on examinations. This, in my humble opinion, is little short of shameful.

E. G. NEWNUM.

Hants.

DIARY

Architects' Christian Union. A reception in the Henry Jarvis Hall, RIBA, 66, Portland Place, W.1. Guest Speaker, John Henderson. 7-8.30 p.m. JANUARY 22

The Metropolitan Problem. Talk by Erno Goldfinger at the ICA, 17/18, Dover Street, W.1. 6.30 p.m. JANUARY 27

Value for Money in Town Planning. Talk by Dr. Nathaniel Lichfield at the RICS, 12, Great George Street, S.W.1. 5.45 p.m. JANUARY 27

Housing Authorities and Housing Trusts: their Changing Role. Talk by Martin Bond at the Housing Centre, 13, Suffolk Street, S.W.1. 6 p.m. JANUARY 27

Reminiscences on Sir Edwin Lutyens. Speakers: Sir John Summerson, J. Brandon-Jones, F. Furneaux Jordan, Hope Bagenal and others. At the AA, 34/36, Bedford Square, W.C.1. 8 p.m. JANUARY 28

Illusionist Decoration of the Italian Renaissance. Fred Cook Memorial Lecture by Sir Anthony Blunt at the RSA, John Adam Street, Adelphi, W.C.2. 2.30 p.m. JANUARY 28

KENT DECISION

Urban Renewal

A recommendation which could have far-reaching effects on the future character of many towns comes from the Kent Planning Committee. It suggests that the County Council, as local planning authority, should encourage local authorities and private developers to re-develop obsolescent or otherwise unsatisfactory built-up urban areas in the county, instead of using up more of the rapidly dwindling undeveloped land outside the towns.

The Committee has been examining its policy for future operations in the light of the competing claims of farmers, manufacturers and house builders for the use of land in Kent.

A report from the County Planning Officer, James W. R. Adams, to the Committee states: "Demands on agricultural land in Kent for non-agricultural development have been so heavy and continuous between the two wars and since the last war, that very little land of indifferent agricultural value remains for future development. So much of this indifferent land is now used or is needed for open space, recreation grounds, school playing fields or other open land uses that it can be stated as a generalization that the supply of virgin sites for building development in Kent has or shortly will come to an end in very nearly every part of the administrative county, in the light of agricultural policy.

"This, however, does not mean that there is no scope for extensive future building development. On the contrary there is enormous scope in the form of the re-development of a number of different kinds of obsolescent areas.

"Some of these areas are only obsolescent in the sense that houses and gardens are too large, others are obsolescent in the more literal sense that houses are not capable of being economically modernized and rendered wholly satisfactory homes to meet the requirements of the contemporary family. Many centres of towns are dull and depressing, and could be greatly improved as places where the inhabitants can meet each other and obtain relaxation as well as shop in comfort and conveniently.

"Considering the foregoing factors together, one is encouraged to believe that the denial of any further virgin sites for building development, except in very special circumstances, although an apparently drastic and inconvenient action, might well lead to such an improvement in the convenience, character and visual design aspects of the towns in Kent, that in the long run those responsible for the policy would be praised for their foresight."

The Planning Committee has reached certain conclusions which the County Council will be asked to consider at its meeting on February 25. The first is that the County Council adhere to the existing basic planning policy of regarding agriculture as the major single industry in Kent, and continue to safeguard good agricultural land. The second is to give every possible encouragement to the re-development of obsolescent or otherwise unsatisfactory built-up areas in preference to the use of further undeveloped land for building purposes, and to consider sympathetically proposals for the erection or conversion of buildings to provide flats or maisonnettes in town and country "where such development appears to be expedient for economic reasons and particularly when it facilitates the re-development of obsolescent urban areas."

RICS

Maintenance of Modern Buildings

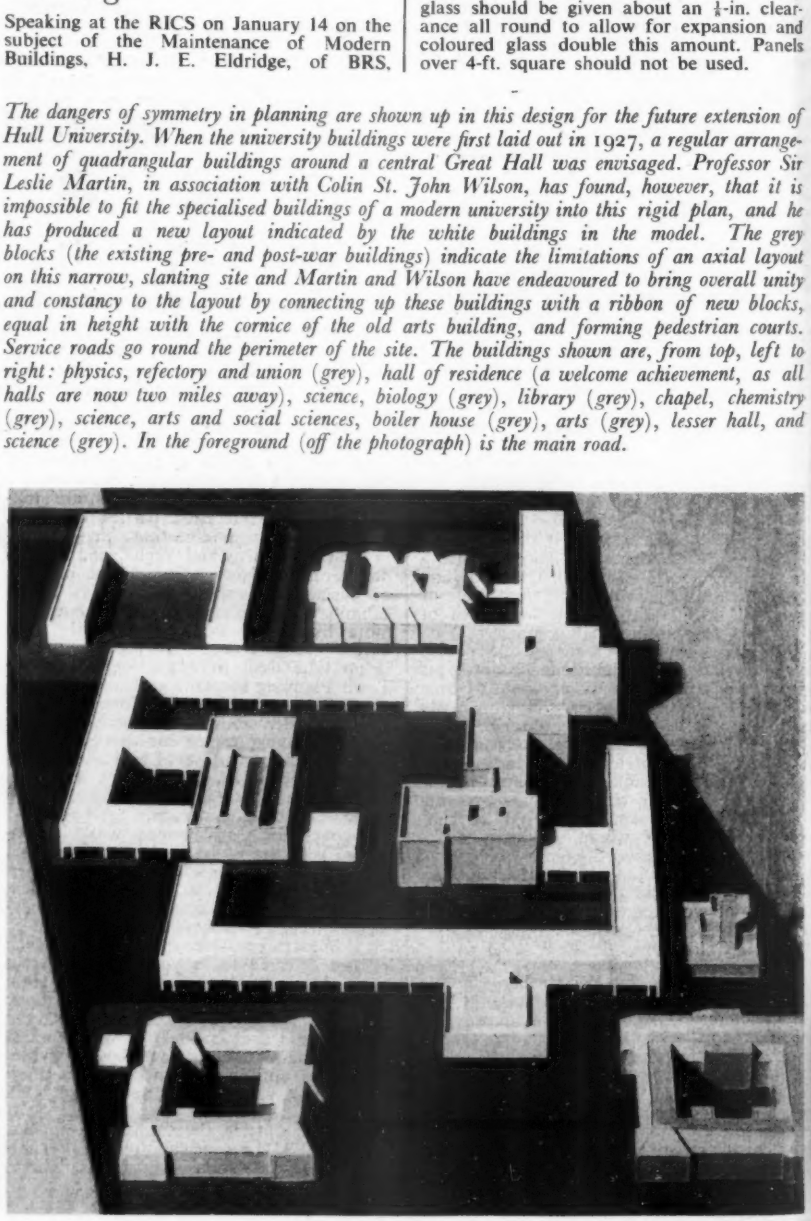
Speaking at the RICS on January 14 on the subject of the Maintenance of Modern Buildings, H. J. E. Eldridge, of BRS, pointed out some of the hazards that are involved in the design of tall buildings.

Balconies, for example, pose a particular problem. Both inset and projecting balconies sometimes act as a sort of "cooling fin" on the building. The low temperature of the balcony is transmitted into the building and causes condensation on the floor above and the ceiling below. Mr. Eldridge would not commit himself on how to counter this effect; but it is clear that some form of insulation is required at this point.

Balconies present a further problem in that they can be the cause of a down-draught through the chimney flue. Wind passing along the face of the building draws the air out of an inset balcony which in turn evacuates air from the room behind. Mr. Eldridge said that it was as well to keep these problems in mind although the solutions to them are not yet apparent.

Mr. Eldridge next discussed trouble caused by the difference in the coefficients of expansions and chemical properties of material. Glass, in particular, is prone to fracture through temperature changes and even the difference caused by the shadow of an open window falling on a glass panel below it is sufficient to cause failure. Clear glass should be given about an ¼-in. clearance all round to allow for expansion and coloured glass double this amount. Panels over 4-ft. square should not be used.

The dangers of symmetry in planning are shown up in this design for the future extension of Hull University. When the university buildings were first laid out in 1927, a regular arrangement of quadrangular buildings around a central Great Hall was envisaged. Professor Sir Leslie Martin, in association with Colin St. John Wilson, has found, however, that it is impossible to fit the specialised buildings of a modern university into this rigid plan, and he has produced a new layout indicated by the white buildings in the model. The grey blocks (the existing pre- and post-war buildings) indicate the limitations of an axial layout on this narrow, slanting site and Martin and Wilson have endeavoured to bring overall unity and constancy to the layout by connecting up these buildings with a ribbon of new blocks, equal in height with the cornice of the old arts building, and forming pedestrian courts. Service roads go round the perimeter of the site. The buildings shown are, from top, left to right: physics, refectory and union (grey), hall of residence (a welcome achievement, as all halls are now two miles away), science, biology (grey), library (grey), chapel, chemistry (grey), science, arts and social sciences, boiler house (grey), arts (grey), lesser hall, and science (grey). In the foreground (off the photograph) is the main road.



COMPETITION

Elevated Motorway

The Prestressed Concrete Development Group of Terminal House, Grosvenor Gardens, London, S.W.1, invite the submission of designs for a competition for lengths of elevated road, based on the use of prestressed concrete, either on its own or in conjunction with reinforced concrete, resulting in safe, attractive structures. They should show the treatment proposed for (1) an elevated road on the same line as an existing road and carried above it on piers in the central strip, and (2) a length of this road short-circuiting a section of the lower road, the area below the elevated road being used as a car park. The first prize is £500, and £500 may be awarded to any other competitor or competitors. Questions must be submitted by February 28, and designs by not later than June 30. The assessors are H. C. Adams (MOT), C. P. Andren, Traffic Engineer, A. G. Jury, City Architect, Glasgow, Col. G. W. Kirkland, President, PCDG, and Sir Herbert Manzoni, City Engineer, Birmingham.

RIBA

Suspended Ceilings

The second of the RIBA Science Committee's Discussion meetings, held last week, was on "Suspended Ceilings." The Chairman, Thomas Mitchell, opened the meeting by reiterating the purpose of these discussions which is an informal exchange of experience between architects and members of the building industry. He then introduced Peter Matthews, the senior lecturer in Construction at the AA School, who outlined the scope of the discussion and drew attention to the key problems.

The design issue

Basing his remarks on experience gained in writing two articles for the *Architectural Review*, he began by asking if it were wise for the manufacturers of unit suspended ceilings to try to emulate the plaster ceiling in point of flatness. Suspended ceilings are sure to be, to some extent, uneven and the smallest divergencies are sure to show up. Preoccupation with this problem on the part of manufacturers has caused them to concentrate on suspension and on the many different ways of producing a similar effect, when they might more profitably have been thinking of three dimensional surfaces. This point was taken up in the discussion by Michael Brawne, who pointed out that the suspended ceiling as an architectural form had been allowed to stagnate, and risked suffering a reaction on the part of architects similar to that which has already been experienced by the curtain wall. The Americans have been able to develop three-dimensional ceilings because the size of their jobs has warranted the time and effort. Over here, responsibility for development must rest with the manufacturer.

Housing-partitions

Peter Matthews next pointed out that few systems had been designed to receive partitions butting up against them and, as an example of one way of dealing with this, instanced an architect-designed system which was being developed for Thorn Electrical offices in St. Martin's Lane (architects Basil Spence and Partners). This has been designed on a module of 4 ft. 2 in. (running in both directions). The infill panels (which are of glass fibre laid on expanded metal) are supported on the lighting trunking, which is of an inverted channel section to receive partition posts. A later speaker questioned whether 4 ft. 2 in. was not too small a module for office partitioning.

Sound insulation

The consideration of partitions led Peter Matthews to the problem of sound insulation above the ceiling. Howard Lobb pointed out that the use of absorbents in the ceiling aggravated the problem, since, by lowering the threshold of sound, they made certain characteristic office sounds (*e.g.*, electric typewriters) more strident. The most useful contribution came from Mr. Cayley, of Burgess Products, who instanced his firm's use of a comparatively heavy pack over the ceiling itself (up to 6 lb. per sq. ft.) with heavy density Rockwool slabs wedged tightly between the ceiling and the partition head.

Are ceilings too expensive?

Peter Matthews then discussed cost, giving his view that traditional plaster or expanded metal was still the cheapest alternative. This subject was also taken up by many speakers. John Kay, an MOE architect, complained that it was difficult to get a ceiling which fulfilled all the requirements under about 40s. per sq. yd.; but that schools' budgets only allowed a figure of 30s. to 35s. per sq. yd. fixed, a target which they had only been able to hit by persuading the fibrous plaster manufacturers to adopt mass production methods.

Two useful contributions were made by a director of Campbell Denis, Limited, the contractors, who drew attention to the wastage in time and material in the cutting and fitting round the perimeter. He suggested that architects should use unit ceilings in the centres of rooms and should then surround them with traditional plaster to take in irregularities and avoid cutting. He also said that money could be saved if more work could be done on the bench and less in the air. This was two to three times quicker and was within the capacity of semi-skilled labour. He instanced the Plasrib system where almost all work was done in this way. One manufacturer blamed the high cost of ceilings on the fact that there were too many manufacturers in the field, with the result that none could benefit to the full from the economy which comes from large scale mass production; and added that if thorough laboratory testing were insisted upon many would disappear. Howard Lobb was of the opinion that suspended ceilings show an overall economy when heating lighting and acoustics are incorporated, as this permits a more intensive use of the floor space.

Fire hazard

One subject which was raised early in the meeting by Edwin Williams of the LCC and provoked much discussion was fire hazard. Edwin Williams pointed out that suspended ceilings are a special danger in that they tend to harbour fluff and tinder and that fires starting above them may get a good hold before they are noticed. As suspended ceilings are not an "element of structure" they evade control under the Fire Regulations unless they happen to be in rooms of excess cube (i.e., over 10,000 cu. ft.). As they often pass over escape routes, fires starting above them can easily cut people off from safety. Edwin Williams said that "flamespread" was a more important consideration than incombustibility and that hard boards which had been treated on the surface offered an insufficient protection.

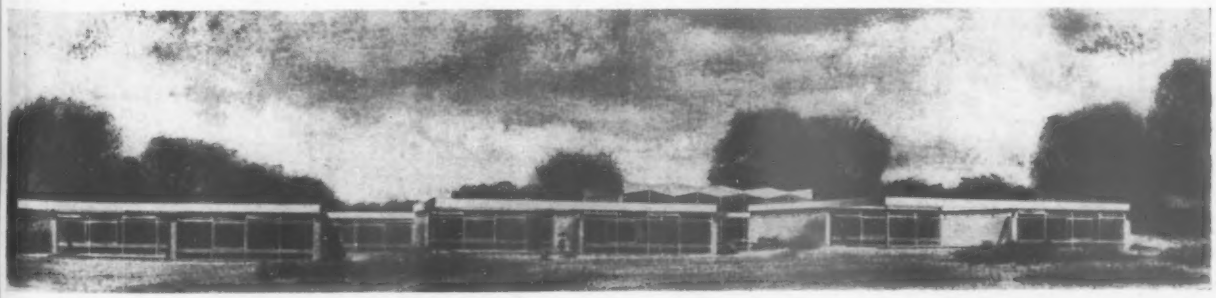
Derek Philips drew attention to the fact that in the US they had found it necessary to limit unfireproofed perforations in otherwise fireproofed ceilings to 2 per cent of the ceiling area. In practice, however, the perforations occasioned by the lighting installation will normally amount to about 7 per cent of the ceiling area. This suggested that it was advisable to make lightfittings themselves out of heat-resistant materials, and as an instance he cited the fittings in Messrs. Bowater's offices at Northfleet where plaster had been used giving a two hours' fire reistance. A further example was given by Howard Lobb of John Bickerdyke's fibrous plaster trough fittings for the City and Guilds Institute. These had proved cheaper than metal fittings, even though purpose made, as they had evaded purchase tax.

New products

Among new (or impending) products of interest which came to light during the evening were a square edged ceiling tile soon to be put on the market by Burgess which is intended to give only a pencil line edge between tiles in place of the usual V-sectioned groove and a French illuminated ceiling ("Isora") which uses thin p.v.c. sheets 0.006 in. thick and which has been designed to bring this class of ceiling into the industrial field.

The evening was marked by the increased presence of manufacturers' representatives. This was to be expected and if some of their contributions had a promotional twist, they tended in the main to build up rather than to obscure the picture. The meeting was well attended and fulfilled its purpose admirably.

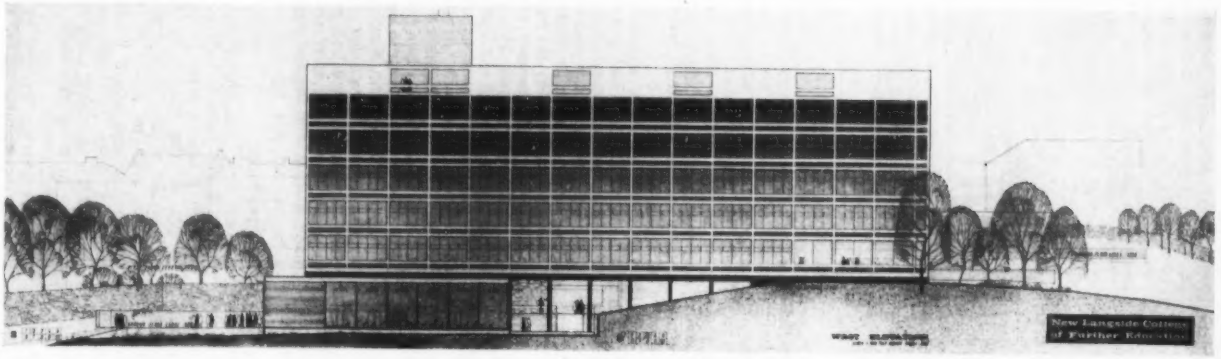
Perspective of the first prize-winning design by Wells and Hickman in the competition for the Wokingham Infants School.



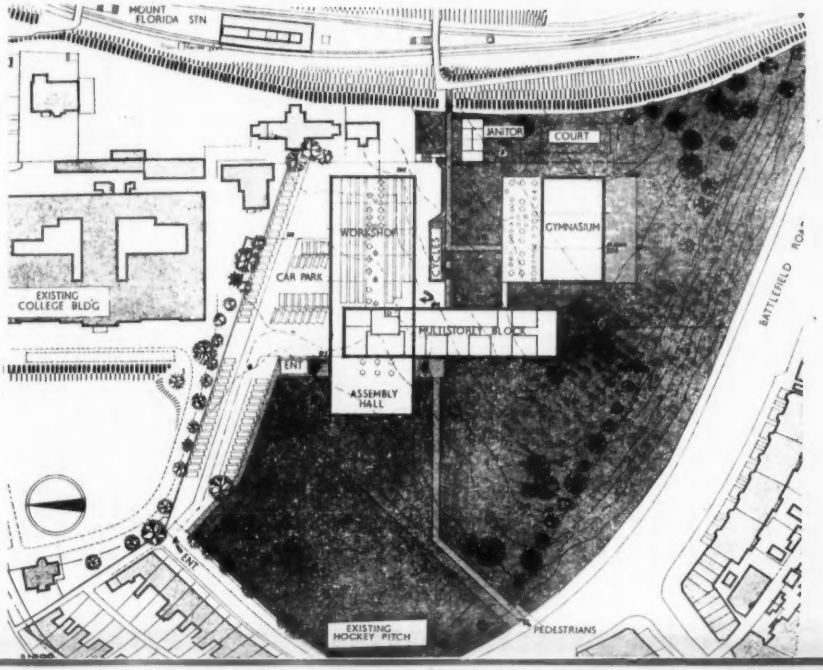
LANGSIDE COMPETITION: SECOND PRIZE-WINNING DESIGN BY ALISON AND HUTCHINSON AND PARTNERS

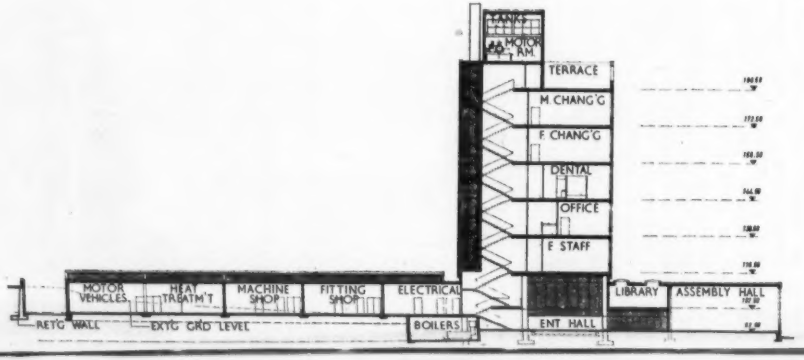
The second-prize-winning design by Alison and Hutchison and Partners incorporates three principal blocks. A six-storey slab block, partly raised on columns and placed due north and south (giving east and west lighting) contains all the classrooms and practical suites, students' communal and dining facilities. The height and disposition of this block obscures much of the broken skyline of Florida Drive. At its northern end this block is superimposed over a low block, comprising at its westerly end assembly hall and library, entrance hall and administration, and at its eastern end the workshops. The levels have permitted the inclusion in the administration section of a mezzanine floor around the whole of the entrance hall. The main entrance and the "public" part of the College are thus sited most accessibly, both to the vehicular approach and to the additional pedestrian way from Battlefield Road. The three gymnasia are in a self-contained single-storey group linked only to the multi-storey block by a short approach.

The competitors have felt that the scheme should be considered essentially from the point of view of the ultimate and completed project. At the same time, the College must function perfectly and be satisfactory aesthetically while only Phase 1 has been erected. The solution has been to position the classrooms and practical rooms of Phase II in a multi-storey extension of the principal slab block to the same height



Above, the west elevation. Below right, site plan. Below left, section AA.





and outline; the assembly hall and library in a single-storey unit projected in front of the main entrance hall in a dominating and focal position, and the third gymnasium

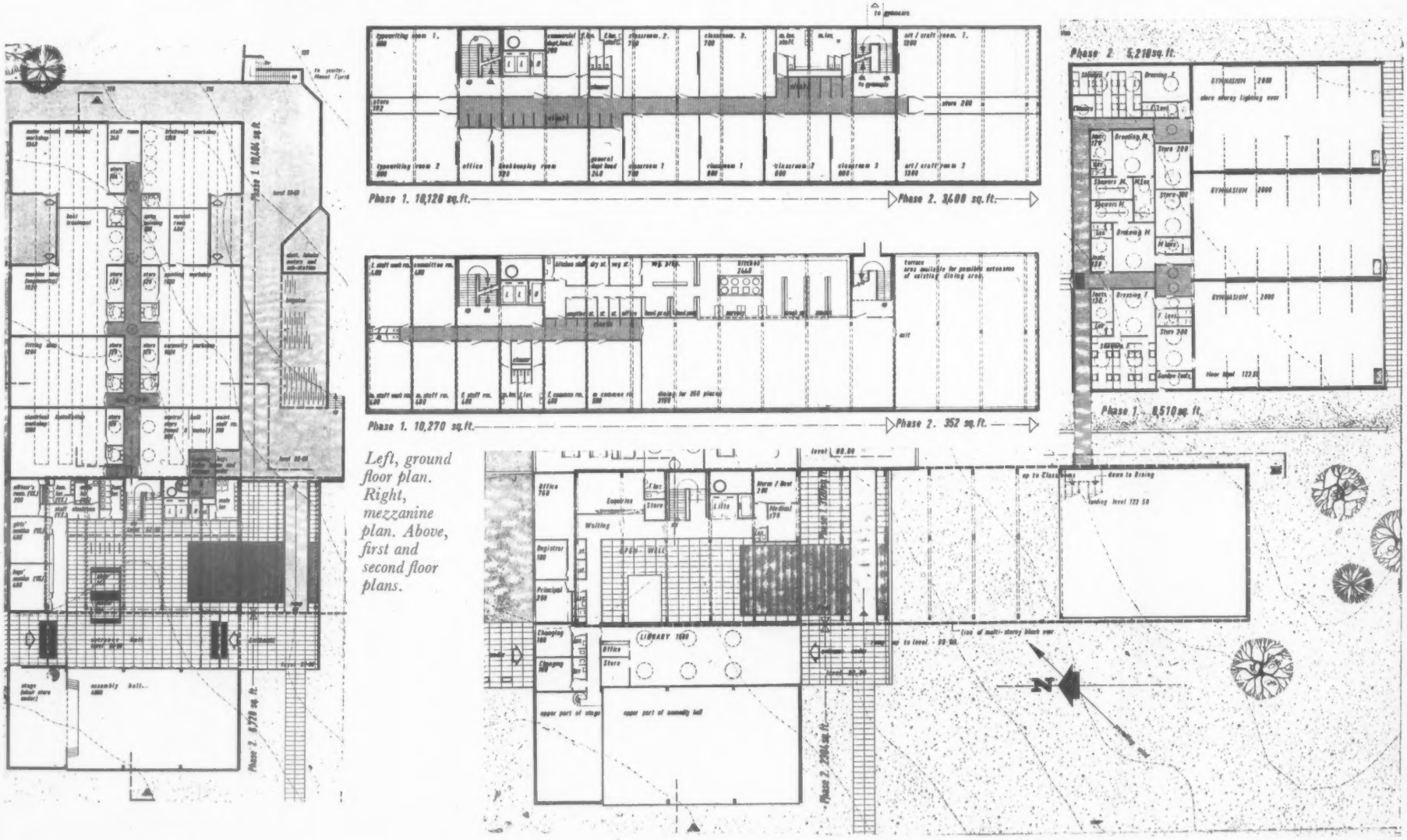
The multi-storey block has a frame of *in situ* reinforced concrete erected on a principal grid of 16-ft. bays, columns and longitudinal beams being exposed on the eleva-

rails at sill level, with coloured glass panels below, backed with laminated timber. Solid panels at gable ends are of exposed aggregate concrete slabs. The workshops are of

crete externally, with painted steel windows. In the gymnasia block 9-in. brick walls support prestressed concrete roofs; aluminium windows. Heating throughout by warm air

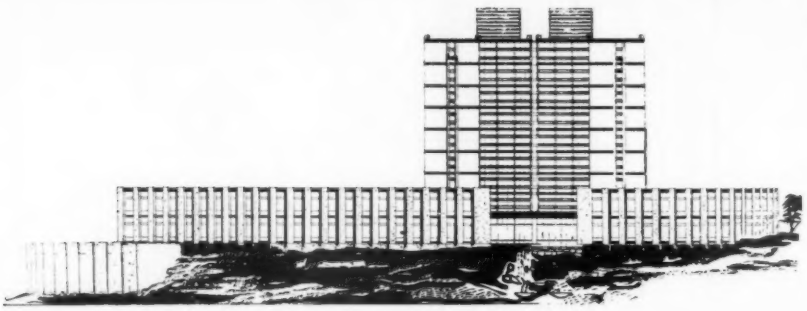
and outline; the assembly hall and library in a single-storey unit projected in front of the main entrance hall in a dominating and focal position, and the third gymnasium and ancillary accommodation as a simple extension to the east of the two in Phase I.

The multi-storey block has a frame of *in situ* reinforced concrete erected on a principal grid of 16-ft. bays, columns and longitudinal beams being exposed on the elevations. Aluminium window walls in hardwood surrounds incorporate deep concrete rails at sill level, with coloured glass panels below, backed with laminated timber. Solid panels at gable ends are of exposed aggregate concrete slabs. The workshops are of brick division walls, pre-stressed r.c. roofs, facing bricks and exposed aggregate concrete externally, with painted steel windows. In the gymnasia block 9-in. brick walls support prestressed concrete roofs; aluminium windows. Heating throughout by warm air from horizontal cabinets in each room and principal circulation areas.

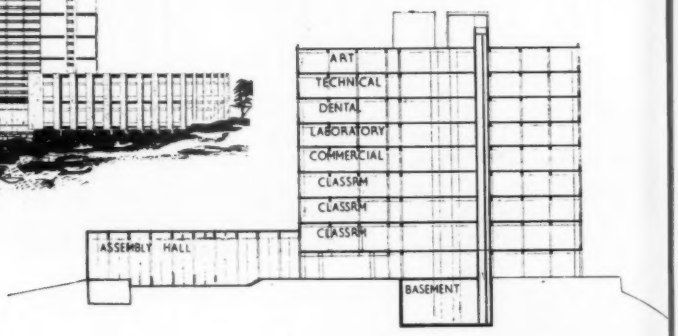


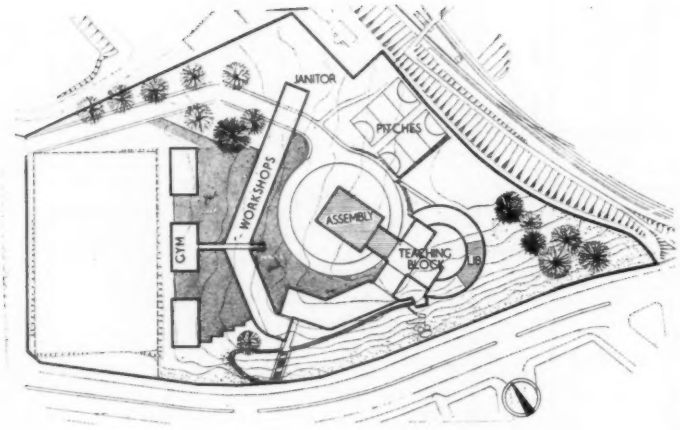
Left, ground floor plan. Right, mezzanine plan. Above, first and second floor plans.

LANGSIDE COMPETITION: THIRD PRIZE-WINNING DES



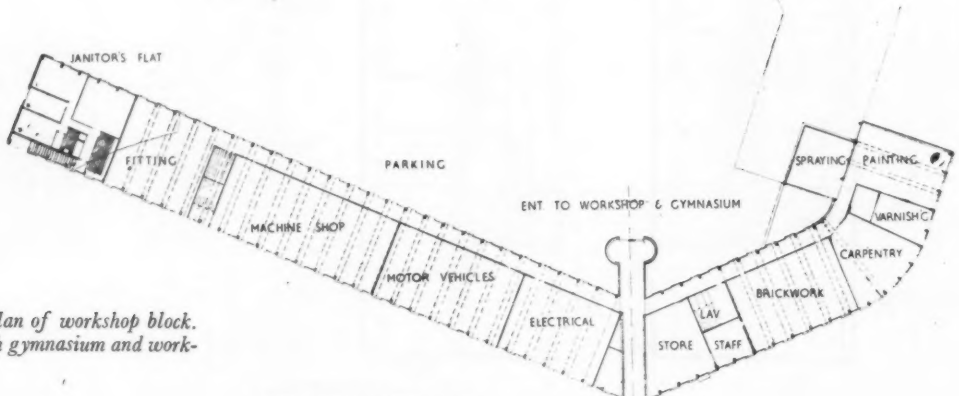
Left, south-west elevation. Below, section through assembly hall and teaching block. Below left, site plan.



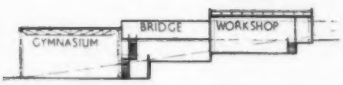


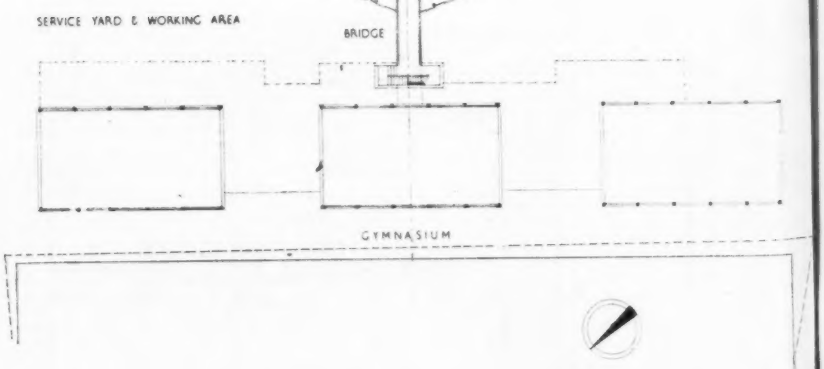
The third prize-winning design is by Mervyn Handley, who submitted the following report: The site, irregular in outline and contour has, nevertheless, three distinguishing features: 1. Fairly even slope to the N. West. 2. Abrupt scarp to the S. East. 3. A miniature plateau.

The cumulative shape cannot be ignored, but, being nothing in itself, it demands exploitation by the exaggeration of its silhouette. A continuous base chasing the contours in terraces supports a vertical cross of nine storeys. Economic planning on this site suggests a vertical circulation. To preclude lengthy corridors stepped to differing site levels, two lifts at 300 ft. per minute have been introduced.

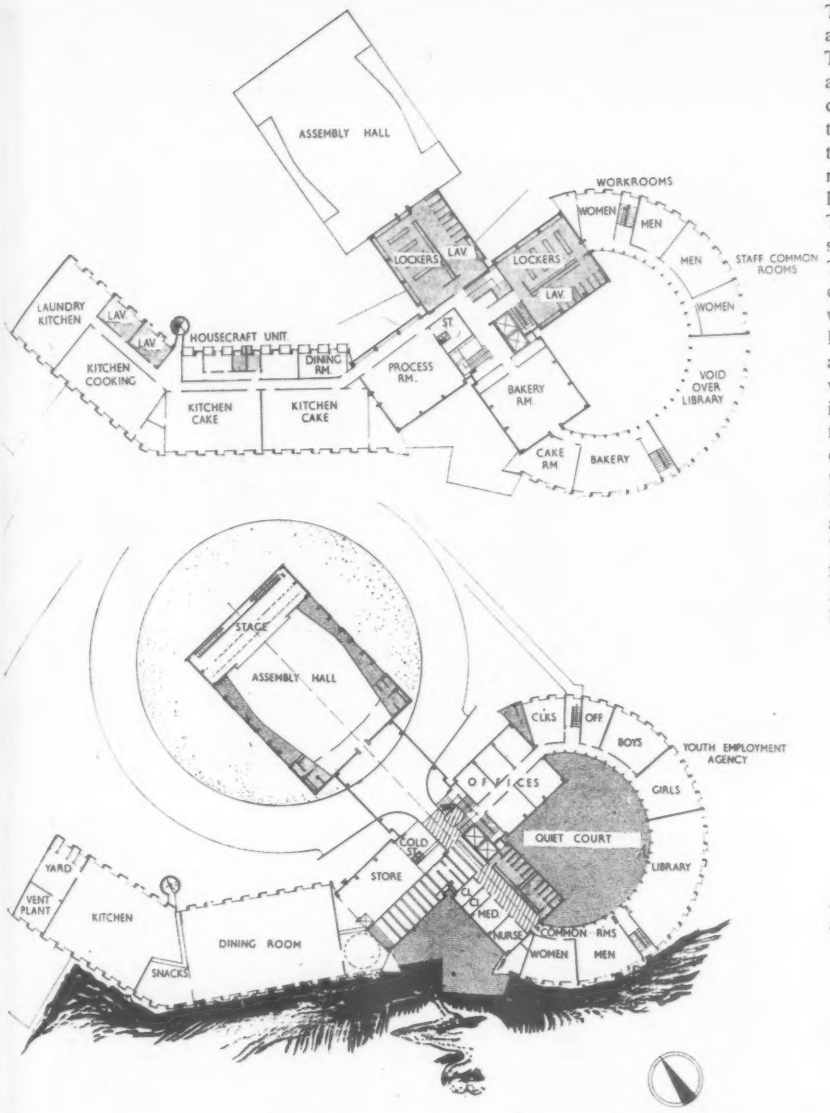


Right, ground floor plan of workshop block. Below, section through gymnasium and workshop block.





DESIGN BY MERVYN HANDLEY



The strong rhythm at low level gives order and stability.

The distinctive elements of: (a) workshop and gymnasium, (b) other accommodation, can be accommodated happily in this shape, the workshops and gymnasium providing the stable base with northern aspect permitting easy development of the assembly hall at the focal point.

The single-storey base buildings are constructed on a simple Portal frame.

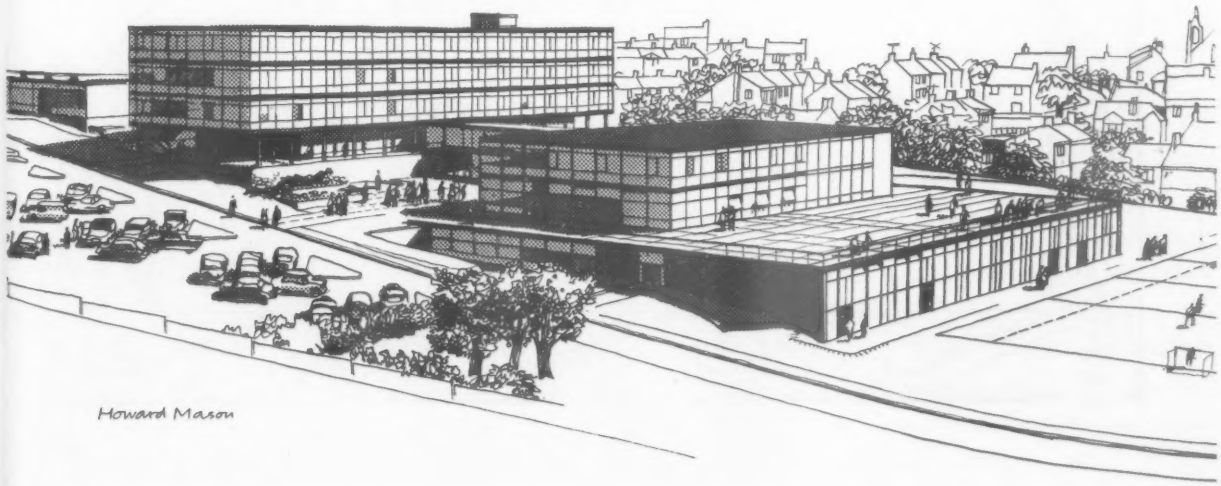
The two-storey buildings on reinforced concrete beams and stanchions, both covered with precast concrete panels are bush hammered black, and the panels have their aggregate exposed. Reveals are enlivened with white glazed asbestos tiles. The cross is constructed on a reinforced concrete frame, the northern arm being easily divorced for construction under Stage 2 without detriment to the initial appearance.

Floors generally are pre-stressed concrete, and are finished with thermoplastic tiles. Workshops and gymnasium walls are finished in fair faced sand lime bricks. All other walls are plastered. Roofs are built-up felt.

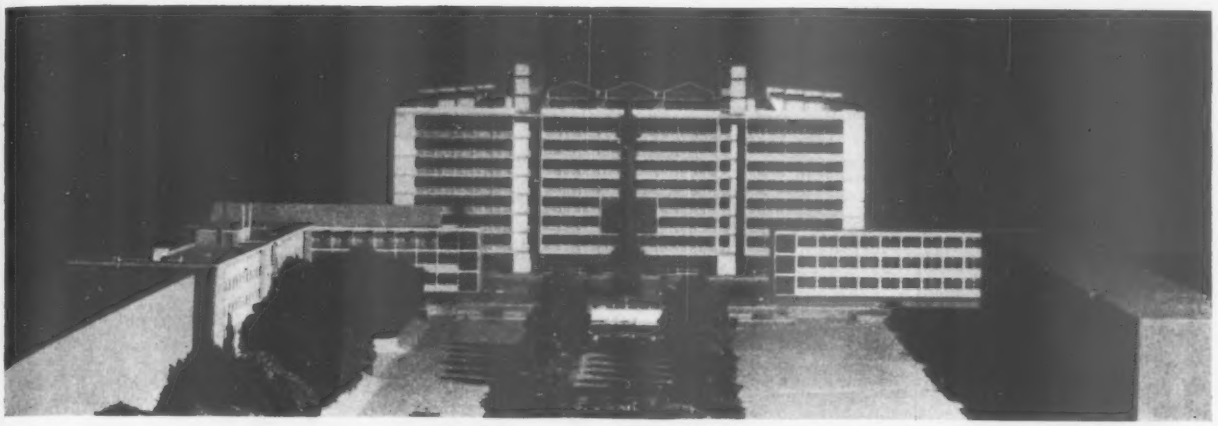
Left, ground and first floor plans, main building.

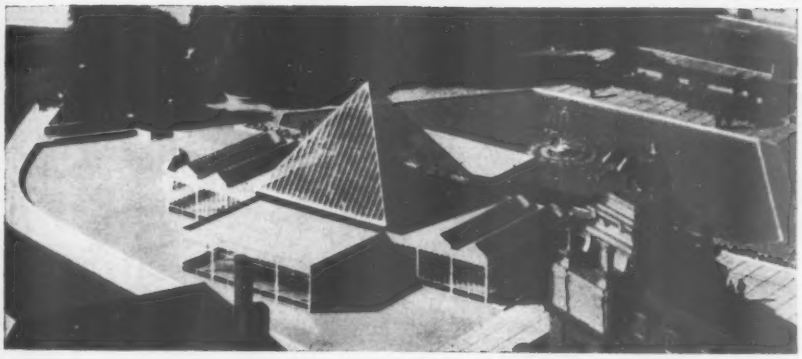
FIRST PRIZE-WINNING DESIGN BY BOISSEVAIN AND OSMOND

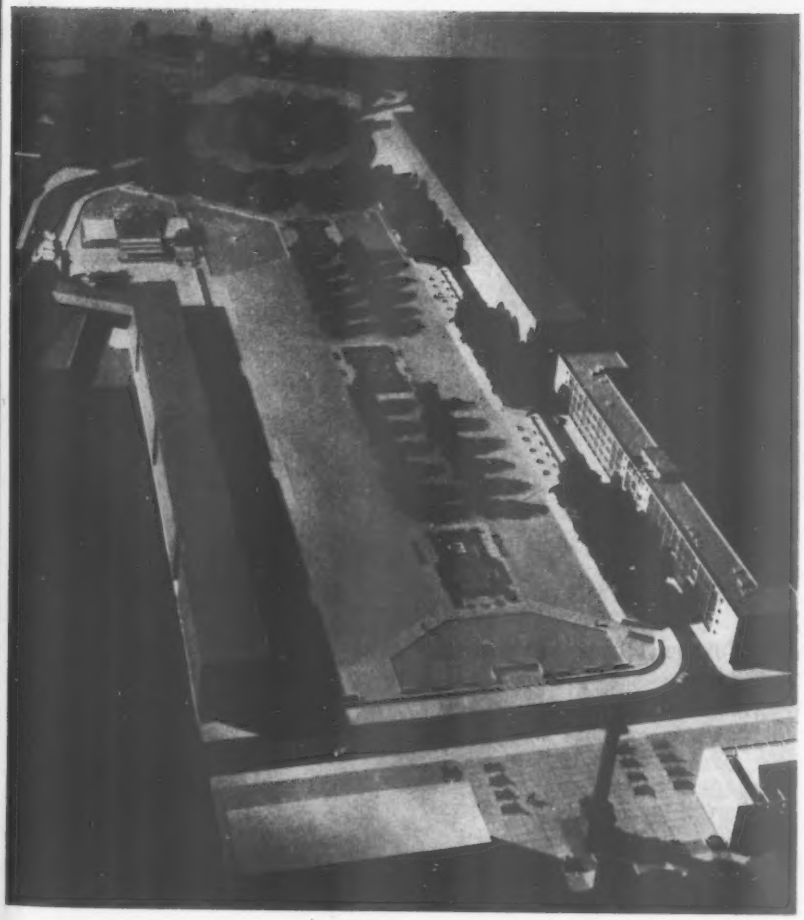
Details of this design were illustrated on pages 38 and 43 of the JOURNAL *for January 8.*



REDEVELOPMENT OF QUEENS GARDENS, KINGSTON-UPON-HULL







Queens Gardens is a large, rectangular open space in the city centre of Hull, which was formed in 1937 by filling in an old dock. Apart from the Wilberforce Monument at the north end, the gardens are characterless, being for the most part an uneven expanse of grass, bisected by roads with traffic roundabouts at each end. The Corporation having decided that the gardens should be the principal civic centre for the City, appointed Frederick Gibberd to prepare a new design, to act as consulting architect for the surrounding buildings and to design the new College of Technology. The new design takes the traffic out of the gardens, leaving them as a unified pedestrian precinct bounded by buildings. It exploits the very strong vista down the centre of the gardens, terminated by the Wilberforce Monument, and closes it by the nine-storey building of the College of Technology (above). The northern roundabout which made an island of the Wilberforce Monument is taken out and the area paved to form a forecourt to the College. The Winter Garden (centre) and a small public restaurant overlook two pools at the far end of the gardens (bottom). The new buildings down the long sides will be to a standard height of four storeys, forming long side walls to the space. The Police Headquarters on the west side, by Priestman and Lazenby, is completed and was illustrated in the JOURNAL *for October 3, 1957.*

Architects: T. P. Bennett & Son. Contractors: Taylor Woodrow Construction Ltd.

Over 5,000 sq. yds. of Marleyflex floor tiles were used on all 6 floors of the new Western House building for the Taylor Woodrow Group.

MARLEY

SEVENOAKS · KENT · SEVENOAKS 55255 · LONDON SHOWROOMS: 251 TOTTENHAM COURT ROAD, W.1

F/9/1

technical section

7 PRACTICE

architectural management: a method study 2

W. Sinclair Gauldie and Arthur F. S. Wright continue their account of their office reorganization by considering, first, their methods for hastening the making of decisions and, second, the kind of drawings that are wanted of the architect and how to prepare them.

PRE-CONTRACT STAGE—DECISION

Problems

Failure in decision-making is generally rooted in failure of information, which in practice often means that the information exists but is not handy for reference.

The architect-as-artist naturally tends to pursue the Ideal ("stretching his sad perfectionism on the rack," to quote Charles Morgan) and so to delay decisions in the hope of a better solution just round the corner. The architect-as-executive, on the other hand, has to face the fact that success in action depends on rapid decision, accepting the best *available* solution. The closeness of his approximation to the Ideal will therefore depend largely on the extent of his information and his ability to analyse it.

Failure may also result from defective liaison between members of the architectural team, leaving everyone (except the builder's foreman) with the impression that a decision has been made, or is being made, by someone else.

The process of decision, therefore, has to be (*a*) *assisted* and (*b*) *forced*.

Solutions

(*a*) *Decision-aids*. (*i*) Information—which must be reliable and readily available in a form which permits easy reference and comparison. Difficulties of decision are already half-resolved if the information-techniques which we have already outlined are effectively and consistently applied.

(*ii*) Liaison—the early allocation of individual responsibilities within the design team.

We should add here that our conception of liaison has an important bearing on the approach to a job right from the start. It is essential that the master-designer should make clear which decisions he intends to make himself and which decisions he will delegate —and to whom. This largely depends on what we call the "calibre" of the job. In any mixed practice there are jobs which demand no more than simple solutions and foolproof details, and others which call for all the inventiveness and original thinking which the office can command. There is no virtue in elaborating the run-of-the-mill job if it means—as it generally does—starving the "one-off" job of the time which it deserves.

Correct assessment of "calibre" is important because of its effect not only on liaison but on the whole drawing-office programme and probably on the cost and erection-time of the building (cf. Clive Wooster, AJ, October 13, 1955).

(*b*) *Decision-forcers*. (*i*) The Deadline. Some definite time-limit is commonly necessary, and it is better for this to be deliberately fixed rather than enforced by the state of the job or the entreaties of the q.s. Deadlines for the obvious decisions should be fixed as soon as sketch-designs are approved: they must not be artificial and it takes a good deal of experience to time them accurately and fairly.

(*ii*) The Schedule. Apart from their normal purpose, standard schedules for finishes, etc., help to force decisions simply because any blank spaces act as conscience-prodders.

(*iii*) The Memory-tickler. The more obvious this is, the better. Notebooks are too easy to keep shut, especially when they contain reminders of unpleasant decisions (psychiatrists have a word for this). We have found nothing to beat a pocketful of postcards, each punched with a couple of holes so that it can be hooked conspicuously on a "reminder board" which we shall describe later.

Generally

This is a field in which a great deal more could profitably be done. Ideally, of course, the architect, like the army officer, should be *deliberately* trained in decision-making, which is the key-quality of leadership. This is still a major deficiency which must be made good if his often-repeated claim to be "the leader of the building team" is to be something more than a polite fiction.

. . . . . .

Having made his decisions, the architect must communicate them, and this he does in two ways—by drawings and by words.

PRE-CONTRACT STAGE—COMMUNICATION: DRAWINGS

We have to consider: the kind of drawings we should provide; the clearest and most economical ways of making them; the problems of indexing, issuing and filing.

Kind of drawings

The first communication is usually with the client, and the kind of drawing produced for this purpose is so much a matter of individual temperament and the circumstances of the job that we do not propose to generalize about it.

The type of drawing prepared for the various statutory approvals likewise calls for no comment.

We propose to concentrate on the drawings required for the actual processes of estimating and building.

technical section

In modern building—even of the "traditional" kind—site work has become largely a matter of assembling things which are manufactured off-site. The traditional form of working drawing takes too little account of this fact, and consequently mixes information required *only* by the manufacturing operative with information required *only* by the site operative, to the confusion and irritation of both.

This sort of drawing, of course, comes naturally off the architect's mental production-line, as part of his private creative process. He is trying to make his design grow all of a piece, in order that the whole thing works and is properly dimensioned.

But it is not necessary for his final drawing to take the same form, for it is emphatically not the form best suited to the constructional needs of the job. *There is no virtue in providing all the necessary details if they are presented in a form so complex or diffuse that the foreman turns his back on the mass of paper and tries to do the whole job off the eighth-scales.*

Working drawings are not just another outlet for the architect's creative urge: to be fully effective they must be tailored to suit the practical process of building. As we see it, the main requirements (and the conclusions we draw from them) may be listed as follows:

1. The builder needs drawings which can be related to the facts of production. They must also be easy to handle and understand, and must not be complicated by redundant information.

Therefore: While the architect may draft his "roughs" in any form that suits him, his *finished* drawings should be set out to suit the production methods of the industry—that is, designed deliberately for the uses to which they will be put. These are four in number:

(i) *Arrangement:* To show the general layout of the building, identify its parts and set out the main dimensions.

(ii) *Services:* To show runs of services—a development of the above.

(iii) *Manufacture:* To give details for off-site manufacture (precast work, joinery components, etc.) and "shop" work generally.

(iv) *Assembly:* To illustrate in detail, where necessary, how certain of the parts are put together.

It does not follow that these need be kept wholly in watertight compartments. On a small house, for instance, it is helpful to have all the details concerning the roof on a single sheet. The one essential is to avoid muddling the operative (particularly the site operative) with information which is superfluous to his needs.

2. The builder must be able to locate rooms, doors, windows, etc., without having to grapple with descriptions like "Detail of window at north-west corner of south typists' room, second floor." He also needs quick and simple ways of identifying drawings.

Therefore: Rooms, doors, etc., should be numbered on a simple and consistent system, and so should the drawings.

3. The builder must be able to collate readily all the information required for the ordering or manufacture of materials or components.

Therefore: This information should be presented as far as possible in the form of schedules (which emphasises the need for numbering, already referred to) and plans should be "keyed" for the quick identification of the principal finishes.

4. The builder needs all the drawings as early as possible, preferably at the very start: so does the q.s. The architect, on the other hand, dislikes rushing his process of design and detailing.

Therefore: We must make more use of efficient type-details and have our own source-material ready to hand, so that the architect's limited and expensive time can be employed to the best advantage.

Preparation of drawings

This analysis has led us to systematise our drawing-office procedure so as to deal specifically with the requirements 1, 2, 3 and 4 above, and we shall now describe briefly how we set about it.

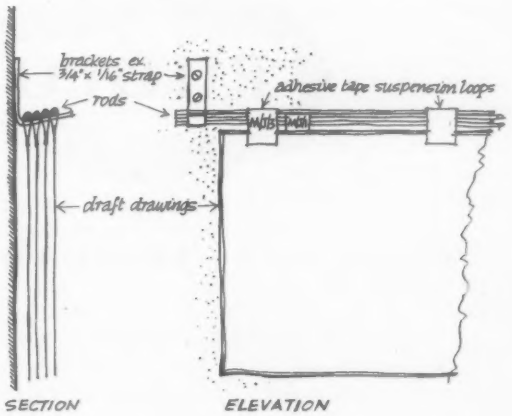
Requirement 1: ease of handling and interpretation

From the draft working drawings (usually roughed-out in the traditional form) the final drawings are prepared in accordance with the four basic use-classes noted above.

Unless there is a very compelling reason to the contrary, all these drawings are done on cut sheets of tracing paper, standardized at 30 in. × 20 in. and printed with a standard title-panel. This enormously simplifies handling, storage and reference in the office and on the site.

At the detailing stage, it is often necessary to co-ordinate several partially-completed drawings. We dislike filing such drawings among the completed ones, but, if allowed to lie around, they take up a lot of horizontal space, which is always at a premium in an architect's office. It occurred to us that such drawings could be consulted more easily on the wall, and the

Fig. 1. Wall hanger for drawings in process of completion.



method adopted was to provide each drawing with three temporary adhesive-tape loops, through which a thin metal rod is threaded. The drawings then hang in packs from short brackets fixed to the wall (Fig. 1): they can either be consulted as they hang, or taken down. We expect to improve on this rather primitive device, but, even as it stands, it is a first-class space and time saver.

Arrangement-drawings. These, of course, include the traditional site plan and "eighth-scales" (actually we prefer ¼-in. wherever possible). The habitual ½-in. section through the building needs critical examination—in most cases it is an elaborate and unhelpful phoney.

Floor and ceiling levels are best shown on ¼-in. sections at the appropriate locations. For defining accurately the levels of window openings and details of outer wall cladding, we have found it convenient to make a sheet of *wall sections* at ½-in., illustrating and identifying each variant bay. Otherwise half-inches are best treated as "assembly-drawings," illustrating specific points only.

Numbering of rooms, etc., together with the use of pro-forma schedules, helps to keep the arrangement-drawings free from clutter. At the same time, constant doubling-back to schedules for basic information can be an unjustifiable irritation at the rough construction stage. We find it best to give each room a set of symbols for finishes of walls, floor, ceilings, etc., thus:

G.08 TYPISTS' POOL w2
f2
c1
s3

These refer to a key legend on the drawing and on the Schedule of Finishes. The symboling saves time and space, and is particularly appreciated by the q.s.

The objection to "doubling-back" applies also to door sizes but these do tend to clutter a small plan. We think it reasonable to give *exceptional* door sizes only, with the note "All doors not otherwise figured are . . . × . . ."

The arrangement-drawings are, of course, the one set which are certain to be required both in the shop and on the site, as well as for issue to specialist sub-contractors. The multiplicity of prints required (especially here in Scotland, where we often have a separate contractor for each trade) precludes any absolute dependence on colouring as opposed to hatching.

For the same reason, it may be worth while to explore the possibilities of photo-reduction, in spite of its expense. For example, a pencil tracing 30 in. × 20 in. can be photo-reduced to a 13 in. × 9 in. black-line print on translucent paper for 7s. 8d. This translucency can be used as "master" to give ordinary dye-line prints of the same size for about 6d. each as against 1s. 6d. for 30 in. × 20 in. dyelines from the original. The smaller prints also have their attractions from the point of view of storage and job-supervision. If photo-reduction is to be considered, the fact must be taken into account at the drawing-board stage, since it involves making lettering and figures clear enough to reduce legibly. This is another argument for eliminating the clutter of small print which so often obscures the working drawings and exasperates the foreman.

Finally, schedules of doors, finishes, etc., have to be read both for arrangement and manufacturing purposes, and are always issued in duplicate for that reason.

Services-drawings: It goes without saying that the main contractor should be informed of the runs of services, especially if of a specialized or unfamiliar kind. The dangers of showing these on the general arrangement-drawings should be equally obvious—revision of a minor detail (such as the switching of a light-point) invalidates the job-copies from which other trades are working. In our view, services-drawings should always be made on translucent TTS prints of the arrangement-drawing and printed-off and issued as separate drawings. The main contractor's job copy of the services-drawing can with advantage be itself a TTS on transparent linen, to facilitate overlaying for quick reference.

The variety of scales and drawing-sizes used by specialists is often a needless irritation and so, wherever practicable, we require them to show their runs on translucencies which we give them, and to conform otherwise to our standard size of sheet.

Manufacture-drawings: These go to people like joinery manufacturers, pre-casters and the like. Here (and, we think here *only*) is the place for the good old-fashioned full-size detail, with the proviso that half- or quarter-full-sizes are just as useful for most purposes and save a lot of paperchasing (schools of architecture, please note).

In the "manufacture" category also comes the type-detail, to which we shall refer again in a moment. The double function of schedules (arrangement and manufacture) has already been noted.

Assembly-drawings: These are really just dimensioned sketches—an attempt to rationalize the process by which the supervising architect uses rough perspectives on bits of floorboard to enlighten the puzzled operative. Furthermore, a few sketches on a single sheet can take the place of a proliferation of orthodox plan-section-elevation details.

Since the sizes of manufactured elements are already determined, these sketches need only to be approximately to scale and after a little practice they can be made very quickly (try using a backing sheet ruled off with a grid of 30 degree lines and verticals). The process may have the added virtue of forcing the architect to sort out some awkward points of three-dimensional detail *before* they have to be botched-up on the job.

We illustrate (Fig. 2) a very simple application of the idea, to show the variations of wall-openings in a small house (it was being built far from the office by a very unsophisticated labour force). These were actually drawn alongside the ground floor plan, to avoid cross-reference. On a bigger job, the treatment

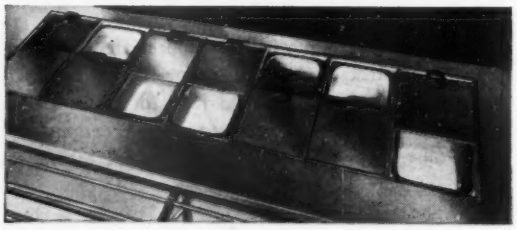
This continuous run of hot- and cold-cupboards, complete with cash section and tea and coffee set, forms the counter of the staff canteen installed at the Bank of London & South America. The colours and appearance have been specially planned by Falkirk's designers to blend with the overall decor.

Falcon food service equipment in stainless steel

Falkirk provide everything for serving food in bulk, including hot- and cold-cupboards, countering, belt conveyors and set-up tables, sinks, cabinets, bins, pot-racks, and tabling.

The equipment can be supplied to any size or specification, to suit all kinds of catering establishment, large and small.

It will resist the roughest treatment, and conforms to the highest standards of hygiene. Heating, where applicable, can be by steam, gas, or electricity.



Hot-cupboards can be supplied with bains-marie, shown here with flush sliding covers to provide extra plating space. Frames are interchangeable, to take rectangular, square, or round containers.

Features such as this self-cleaning door-slide ensure the utmost cleanliness with Falcon equipment.

Falcon food service equipment is made by

THE FALKIRK IRON CO. LTD

18 DERING STREET, HANOVER SQUARE, LONDON, W.1. TELEPHONE: GROSVENOR 8941/9

PROPRIETORS: ALLIED IRONFOUNDERS LTD.

technical section

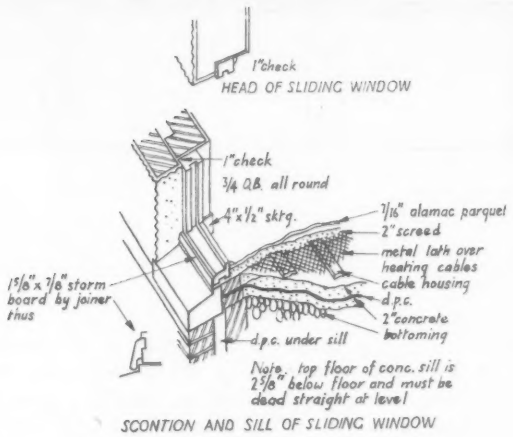


Fig. 2. Three-dimensional sketch to elucidate assembly.

of openings, etc., would justify a separate sheet of such sketches.

The orthodox type of working drawing has its place as an assembly-drawing too, but the number of these is much reduced, due to the existence of the manufacture-drawings, and we would not now use them where sketches would be clearer.

Requirement 2: easy reference

For the numbering of room and structural components, the best system is the simplest: useless complication arises from attempts to link door and window numbers with the numbers of the rooms in which they occur. We use the Army method of room notation:

Basement: B.01, B.02, etc.
Ground Floor: G.01, G.02, etc.
First Floor: 1.01, 1.02, etc.,
and so on.

Doors are then numbered by going back to the starting point and numbering each door in continuous sequence (DB.01, etc.) and windows are numbered in sequence around the perimeter (WB.01, etc.). The same procedure can be applied to radiators and other repetitive components.

It is an advantage to give doors the suffix (F) where they have fanlights, as these are only too easily overlooked (*e.g.*, DG.12 (F)).

For notation of stanchions and beams in framed buildings we apply BSS.1192 where the choice is ours, but if the designing engineer uses a different notation we do not upset his drawing office by altering it.

All these numbers are applied as soon as sketch plans have been finally settled, so that preliminary schedules of finishings can be drawn up and approved.

The numbering of drawings should also be done as simply as possible. For each drawing we have a job-prefix, followed by a function-prefix and a number, *e.g.*, JMS/J/12. Successive revisions are shown by suffixes A, B, C, etc., *e.g.*, JMS/J/12A.

The job-prefix usually consists of the client's initials or a condensation of the title by which the job is known in the office (*e.g.*, MH is Mayfield Hostel). We find this mnemonic notation easier than a numerical one, and competent indexing takes care of the odd coincidence of initials.

The function-prefix simply sorts out the different classes of drawing under the following heads:

PS—Preliminary sketches.
A—Approvals (Town & Country Planning, etc.).
SW., SD, etc.—Schedules* of windows, doors, etc.
J—Job. This includes all working drawings, other than the schedules. For identification purposes there is no point in trying to distinguish between the four aspects of these already noted.
R—Record plans.

To simplify indexing, the numerals run consecutively from start to finish, in the order of preparing the drawings, irrespective of prefixes, *e.g.*

JMS/PS/1
JMS/PS/2
JMS/A/3
JMS/J/4
JMS/J/5

We often find it useful to put on the arrangement-drawings a table of some at least of the relevant details. This has a particular application to contemporary work, which may look so deceptively simple that the builder does not expect a detail drawing at all and so, overlooking its existence, invents his own solution for better or worse.

Requirement 3: easy collation for drawing

Schedules have to meet certain practical requirements if they are to be fully effective.

(*a*) *They must not be over-elaborated.* Resist the temptation to include things like paint colours which cannot normally be defined or selected at a very early stage.

(*b*) *Their layout must allow plenty of room for making entries.* Cramped or microscopic printing is a sure source of error and omission.

(*c*) *They should be the same size as the normal working drawings.* We do not expect general agreement on this point, but we have two good reasons for it—the necessity for more space than foolscap allows, and the fact that the schedules are to be used as supplements to the drawings rather than as documents.

(*d*) *They should be designed to facilitate cross-reference to other drawings.* For instance, our standard schedule of finishes has a keying panel (Fig. 3) so that the corresponding symbols can be quickly put on the plans of the rooms.

With the imperial size of sheet, cross-reference can sometimes be eliminated altogether. We have managed to combine quarter-full-size type-details of windows, precastings, door frames and skirtings with the schedule to which they refer, so that no cross-reference is necessary at the assembly stage. This is

* Actually we call them "charts" instead of Schedules, since the latter word is always used in Scotland for the Bills of Quantities and some confusion arose from the double meaning.

technical section

Fig. 3. Keying panel for schedule of finishes.

also a very considerable help to the QS.

We keep a stock of translucent prints of the blank schedules. One of these, when filled-in, forms the master-copy for the job, giving as many paper dye-line copies as we need.

Requirement 4: drawings must be quickly produced

Type-details are a means of providing " off-the-shelf " details of recurrent items.

As we mentioned earlier, our office has a tradition of detailing very fully, and we believe this to be more necessary today than ever: it is certainly appreciated by the contractor and QS, and is to some extent reflected in tenders. At the same time, we are only too well aware of its effect on us in terms of drawing office costs. A qualified man's time is justified when he is producing a detail which calls for fresh invention in design and construction. It is not justified when he is drawing-out an undistinguished solution to a run-of-the-mill problem.

Between acceptance of a standard manufactured article—say a BS window—and the designing of a " one-off " article, there is a great no man's land of detail which is really pattern-book stuff. That is to say, the designer's task is selection rather than creation.

So we are building up a stock of standard sheets embodying details which we have found reliable and set out in a form which enables the appropriate detail to be reproduced for issue by simply marking and titling a translucent print from which the necessary number of paper copies are then printed off.

Preparing and codifying these details takes a lot of hard thinking if they are to be really effective, and in this we have been guided largely by Scandinavian practice. The Danes in particular have carried the systematization and clarification of type-details and specifications to a very high pitch of efficiency. This is a subject which will be discussed at greater length in the next article.

The Gas Council on Coke

On the following pages is a supplement on coke which is sponsored by the Gas Council. This is the fifth of a series of supplements which have as their object to give a full technical description for architects of the different uses to which gas and coke can be put. Like Information Sheets, these supplements are a journalistic hybrid: they are " advertisements " in the sense that the space they occupy is paid for by the sponsors and that their ultimate object is to foster the greater use of gas: but they are " editoral " to the extent that the means chosen is to provide as much reliable information as possible and that this information has in fact been " approved " by the JOURNAL'S *Technical Editor. We hope that readers will extract and keep these supplements for future reference. For this purpose a special binder can be obtained, free of charge, on application to the Publicity Manager, Gas Council, 1 Grosvenor Place, S.W.1. Alternatively, readers may apply through the business reply folder at the back of this issue. The first four supplements " Domestic Space Heating 1. Fires and unit heaters," " Domestic Space Heating 2. Central heating by gas and coke," " Domestic Water Heating " and "Gas Flues "appeared in the* JOURNAL *for November 29, 1956, April 25, 1957, and September 26, 1957, and April 24, 1958 respectively.*

DOMESTIC HEATING

coke

After pointing out that the supply of coke is increasing, this supplement describes its efficiency as a producer of heat and a non-producer of smoke and enumerates the different types and sizes of coke. Passing next to marketing, it draws attention to the practice of placing forward orders to ensure a continuous supply. Next follows detailed information on storage, delivery and ash disposal, giving specific requirements of the main building types affected. The supplement finishes with data on the cost of conversion to coke burning appliances and a bibliography on the rendering of the Clean Air Act.

Coke is derived wholly from home produced coal and supplies are unlikely to be reduced or cut off following international disturbances or due to shortages of foreign exchange; neither does it require the use of any of our limited resources of hard currencies. While its price must fluctuate with changes in the cost of coal and labour at home, these fluctuations are in step with the value of the pound at the time. In the case of oil the governments of the producing countries are demanding, and obtaining, ever higher proportions of the realization price. This must, ultimately, mean that increases in the selling price are inevitable.

Availability

The gas industry has undertaken to expand the production of coke so that it can meet the increases in demand arising from the implementation of the Clean Air Act. The industry accepts the necessity of providing deliveries of consistent quality and of suitable grades for all types of appliances in current use and supplies have been increased by about 70 per cent. compared to prewar figures. The rate of increase of availability shown by the annual figures has been remarkably steady.

Annual production of coke in England, Scotland and Wales

1937	7·00 million tons
38	7·20
39	6·76
40	6·66
41	7·16
42	7·45
43	7·86
44	7·55
45	7·61
46	8·03
47	7·68
48	8·54
49	9·04
50	10·28
51	10·06
51/52	10·11 (G.C. Year—April/March)
52/53	10·30
53/54	10·60
54/55	11·20
55/56	11·10
56/57	11·40
57/58	11·60

In the past the industry has depended on the use of a rather restricted range of coking coals, production of which has been falling for many years. Following a long programme of research, techniques have been evolved which make possible the use of a far wider range of coal types than was possible before. Shortage of suitable coal is not, therefore, likely, despite the fact that consumption within the industry exceeds 27 million tons a year.

Advantages of coke

Coke, burnt in efficient appliances, provides an adequate and convenient heat source at the lowest possible running cost. It is an authorized fuel under the Clean Air Act and where changes of equipment and plant are necessary to comply with the terms of the Act, the capital costs of conversion will be lower for coke-burning appliances than for any other possible alternative.

Broadly speaking, the overall efficiency of appliances burning coke is above that of those burning bituminous coal. The report of the Committee on Air Pollution (the " Beaver Report ") states that " Coke has a higher thermal efficiency in use than coal and it has been assumed that . . . 16 cwt. of coke burnt in a modern appliance is equivalent to 1 ton of house coal burnt in the older, out-of-date appliances now in common use." This comparison provides for a higher

gas supplement

heating standard for the more efficient appliance, as it will normally be installed as much to increase the comfort conditions as to lower the running cost. Coke in graded sizes is the most readily available of all the authorized fuels under the Clean Air Act.

Coke production

Coke is the solid residue—mainly carbon in a cellular state—remaining after suitable types of bituminous coals have been heated in closed retorts or ovens out of contact with air. The volatile products given off consist of crude gas which, when purified, is the town gas of commerce, together with tar, benzole, creosote and ammonia. These are of fundamental importance to the home and export trade in fine and heavy chemicals.

Three different types of coke are available:

1. *Hard coke:* made primarily for the foundry trade, it is of industrial importance but, specially prepared, is suitable also for domestic purposes.
2. *Gas coke:* produced where gas is the primary object of carbonization, this is lighter and softer than foundry coke, more reactive and so more suitable for domestic use and for the less specialized industrial purposes.
3. *Low temperature cokes:* generally sold under their proprietary names such as "Coalite" and "Rexco." These are produced by carbonization of special coals at much lower temperatures than are used for other types. They contain more volatile matter and are more reactive, easily ignited and so suitable for domestic use in open fires.

All are authorized fuels under the Clean Air Act.

Coke sizes

The size of coke affects the performance of the appliance and care must be taken to see that the correct size is used in each appliance. Cokes are graded to the sizes shown below. The appropriate size grade of coke is quoted against each approved coke-burning appliance, but if there is any doubt, further advice can be obtained from the appliance maker or the nearest gas showroom.

Generally, for small domestic boilers, coke sold as No. 3—½ in. to 1¼ in.—is best. For open coke fires and larger boilers No. 2—1 in. to 2 in.—is the correct size. The grades normally available are given below with typical bulk densities which may be needed when calculating the sizes of storage accommodation.

Name	*Number*	*Size*	*Utilization*
Large	1	Over 1¼ in.	Industrial and large central heating boilers.
Broken	2	1 in.–2 in.	Open fires. Large domestic boilers. Openable heating stoves. Combination grates. Freestanding cookers.
Boiler nuts	3	½ in.–1¼ in.	Small domestic boilers. Closed heating stoves. Openable stoves. Some automatic boilers and automatic stokers.
Forge beans	4	⅜ in.–½ in.	Automatic boilers. Automatic stokers and certain industrial uses.
Automatic stoker fuel	5	⅜ in.–½ in.	Ditto

Bulk densities

	lb/c. ft.	*c. ft./ton.*
Large	19–25	90–118
Broken	20–27	83–112
Boiler nuts	22–30	75–102
Forge beans	23–30	75–97
Automatic stoker fuel	24–32	70–93

Coke analyses

A typical analyses of coke is given below. The "proximate analysis" is an analysis of the fuel that may be used for the calculation of the approximate calorific value of the fuel. It is necessary to know this in order to arrive at the efficiency of the appliance in which the fuel is used. The calorific values given are expressed in British Thermal Units per lb. of average fuel, but there are variations in the calorific values of cokes due to the differences in the ash and moisture content. For any detailed calculations, figures should be obtained from the gas works which will actually supply the coke for the proposed installation.

Proximate analysis (dry basis)	
Volatile matter, per cent.	0·5–2·0
Fixed carbon, per cent.	86·0–90·0
Ash, per cent.	7·0–12·0
Ultimate analysis (dry basis)	
Carbon, per cent.	83–88
Hydrogen, per cent.	0·5–1·5
Oxygen, per cent.	1·5–2·5
Nitrogen per cent.	0·5–1·5
Sulphur, per cent.	1·0–1·5
Ash, per cent.	7–12

Marketing

As has been said above, the production of coke is now steadily increasing. About half the output is marketed by the Regional Gas Boards and the remainder through the coal merchants. It is expected, however, that the proportion sold by merchants will increase with the growth of domestic sales. In most, but not yet all areas, schemes are in operation whereby forward orders may be booked for a year or an indefinite period ahead and such orders will take priority over orders not under contract. This should obviate any possible risk of delay in delivery to regular users in periods of peak demand or shortage.

PLANNING OF BOILER AND STORAGE ACCOMMODATION

Position of boiler room

Stoking and fuel delivery are regularly occurring jobs and their importance is so great that the position of the boiler house and its access must be considered from the very earliest planning stages. The size of lorries employed in fuel and ash haulage tends to increase and the restrictions on standing in the street during delivery are becoming so onerous that an access road or loading bay is virtually a necessity for large installations in congested areas. Where there are to be two basements, if the fuel store can be placed immediately below street level and the boiler below that, all fuel handling can be by gravity and the relatively small volume of ash can easily be removed by hoist from the second basement.

Storage

All solid fuels can be stored to meet peak demands

gas supplement

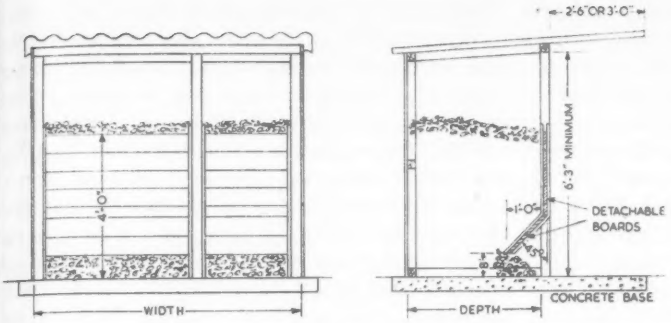


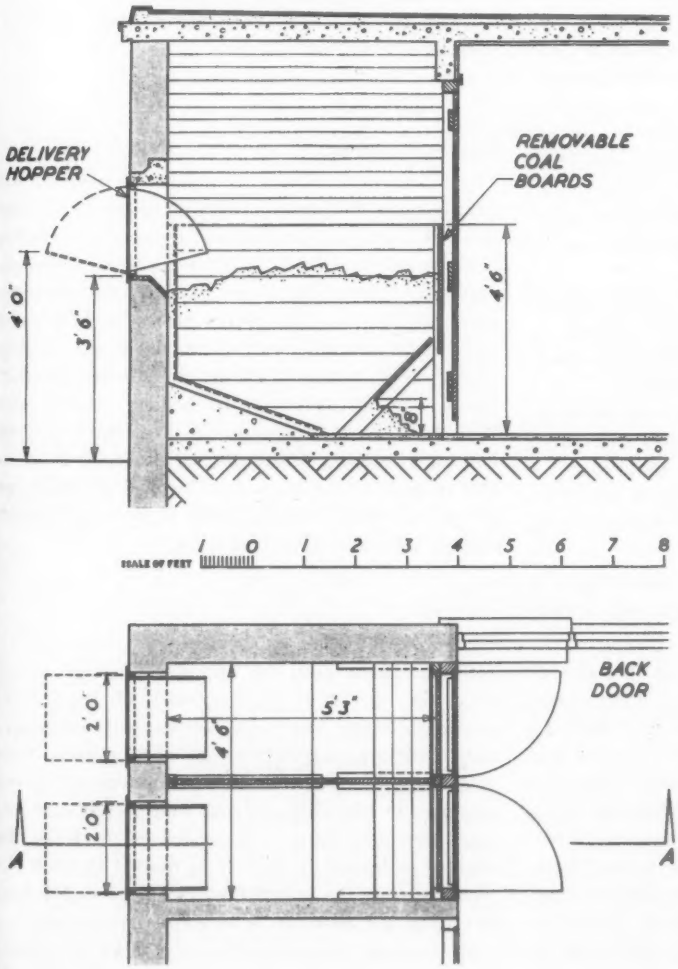
Fig. 1. Open-air fuel store for houses.

Dimensions of fuel store

Coke capacity Weight	*Cu. ft.*	*Height of fuel*	*Width*	*Depth, front to back*
15 cwt.	84	4 ft.	5 ft. 6 in.	4 ft. 3 in.
1 ton	112	4 ft.	7 ft. 0 in.	4 ft. 3 in.
30 cwt.	168	4 ft.	8 ft. 6 in.	5 ft. 3 in.
2 tons	224	4 ft.	11 ft. 3 in.	5 ft. 3 in.
3 tons	336	4 ft.	12 ft. 0 in.	7 ft. 3 in.

and, since it is clear that merchants cannot economically maintain stocks and deliver at peak rates throughout the coldest weather, some storage on the customer's premises is both essential and a convenience to the customer. The amount of accommodation to be provided will vary with the class of building. Where adequate storage space connot be provided, special arrangements can sometimes be made for guaranteed regular deliveries.

Fig. 2. Indoor fuel store for houses.



(*a*) *Houses:* the report of the Solid Fuel Installations Committee (Post War Building Studies, No. 10) recommends a minimum storage capacity of the order of 130 cu. ft. in rural and isolated positions. In any case, it seems desirable for any householder who can afford to do so to have in stock at least half the winter requirements by the end of November. The bulk density of coke varies, but for storage calculation purposes may be taken as 112 cu. ft. per ton. Where fuel stores are to be built separately in the open air, a useful type is shown in Fig. 1, together with a table of dimensions for all capacities up to 3 tons. The sides and back can be built in 4½-in. brick or block concrete or in 1¼-in. timber or framing. A roof height of 6 ft. 3 in. allows of filling from a sack carried on the shoulder, but greater height is advantageous. A good 5 in. concrete base is essential. A timber division can be provided when two grades of coke are required. Bunkers with top intake are, possibly, more convenient, but necessitate a movable roof which may lift in a gale unless it is always kept properly closed. Where the coke store is within the building there should always be loose boards up to a height of 4 ft. 6 in. from the floor. A full size door (6 ft. 6 in. × 2 ft. 6 in) in front of these is essential if there is not a high delivery hatch outside the door. If the store is filled from an external hatch, the sill should be between 3 ft. 6 in. and 4 ft. from floor level and the hatch should never be less than 2 ft. square to allow the whole mouths of the sacks to be entered. A floor sloping from the loading hatch to within 1 ft. 6 in. of the unloading door is convenient but not essential. Adequate space in front of the loading hatch, say 4 ft., to allow for shovelling up fallen coke is essential.

(*b*) *Flats:* where, because it is the cheapest method of providing space and water heating, coke is to be used in blocks of flats, some thought must be given to fuel storage and ash disposal. A joint committee of the London Regional Committee of the Coal Utilisation Council and London branch of the Institute of Housing has prepared a report giving the results of an investigation into the problems of delivery and storage of fuel in blocks of flats. The summarized conclusions of the joint committee are:

"(i) To reduce the total length of carry from the delivery lorry to the fuel store it is essential that layout

of estate roads shall permit close approach by the lorry to the entrance of the building and to this end it is desirable that those responsible for housing management should examine site layout prior to execution of the work.

(ii) The minimum width of stairs and passageways should be 3 ft., increased to 4 ft. 8 in. at the point of fuel delivery and clearance to the ceiling should be 7 ft. 6 in. Study of layout of stairs and passageways to facilitate speed of fuel deliveries is desirable.

(iii) In high flats without lifts, a bar or shelf 3 ft. 10 in. high for resting a full sack should be provided at intervals on landings.

(iv) In designing new structures the fourth storey (*i.e.*, the third floor) is the highest to which carmen should be expected to carry fuel via stairs.

(v) Economies in standards of lift provisions are undesirable where they would result in monopoly of passenger lifts by delivery carmen for long periods.

(vi) Further practical investigation is called for into effective operation of separate goods lifts or hoists.

(vii) Use of passenger lifts for solid fuel deliveries is general practice, but adaptations of passenger lift cars for dual use should be further investigated.

(viii) There are a number of delivery trolleys in use with lifts, but there are certain inherent defects which have yet to be overcome and further practical experiments should be undertaken.

(ix) The minimum capacity of fuel stores in flats should be for 6 cwt. of coke or four weeks' supply, whichever is the greater.

(x) Additional storage at ground level to permit summer stocking of fuel is desirable and, where provided, storage within the flats can be reduced.

(xi) Increase in depth of storage by raising the height of the delivery cill to 4 ft. 6 in. is a practical way of increasing storage capacity.

(xii) Provision of a clear and well placed delivery opening 24 in. × 24 in. facilitates increased storage by permitting insertion of the whole mouth of the sack and thus a level fill over the whole store.

(xiii) Steel delivery hoppers hamper clean deliveries, are greatly disliked by delivery carmen, prevent a level fill in the store and should not be installed.

(xiv) It is not important that provision is made for removal of fuel inside a flat; balcony access is quite convenient.

(xv) It is not essential that a store should have a full height doorway; delivery and removal of fuel through hatches is satisfactory."

As regards item (ix) it is recommended that storage capacity for at least one month's consumption of fuel under winter conditions of use be provided. With an open fire burning up to 1½ cwt. of coke a week a four weeks' supply of fuel would need storage space for 6 cwt. Where a continuous burning multi-duty appliance is installed, the consumption may be up to 2½ cwt. a week, necessitating storage space for ¼ ton. Therefore, it is recommended that for flats with an open fire or stove, the minimum storage space should be 34 cu. ft., whereas flats with a combination grate or insulated cooker and water heater should be provided with a minimum of 56 cu. ft. Wherever possible, the fuel store should be placed on a balcony or landing external to the flat itself; if it must be accommodated within the flat, there should be an external chute enabling the merchant to replenish the store from outside the flat. Means of locking the store should be provided, but it must be pointed out that this may tend to complicate delivery if the supplier calls when the tenant is out. The store should be strongly constructed and well lined, so that if it is inside the flat there is no chance of dust leaking between the joints of the structure.

An alternative arrangement is to group on the ground floor all the fuel stores serving a block of flats. Each tenant is then obliged to carry his own fuel in a scuttle from the store to the flats. This makes for easy deliveries and economy in construction but is least convenient to the tenant.

Where labour is available (such as a caretaker or porter) it may be found convenient to have a central store from which individual deliveries can be made by the scuttle-full. It may be necessary to make a small charge for a "scuttle service," but even so there may be an overall saving since the service charge may be more than outweighed by the normally lower cost of bulk deliveries to a conveniently placed central store as compared with small individual deliveries, often involving long "carries."

Large scale storage

The extent of storage accommodation required will depend upon the fuel consumption of the installation, the bulk density of the fuel and the maximum period between deliveries which can be tolerated. This must vary for different buildings. Broadly, the minimum solid fuel storage capacity for blocks of flats, hotels and similar establishments is usually based on four weeks' consumption. For certain trades, however, where lack of continuity of heating would cause abnormally great losses—orchid production in glasshouses, continuous heat treatment processes as in the case of glass works, some fine chemical processes and so on, and certain essential public services—far greater storage capacity may be called for.

Boiler room storage

Sufficient space must be provided adjacent to the boiler or preferably in an overhead hopper for immediate needs. The minimum is usually considered to be 24 hours consumption, but where possible three days' capacity may reduce the amount of labour employed in trimming and coke transport at week-end rates. For hand firing, a space just by the boiler fire door of at least 4 ft. × 6 ft. is needed to allow for shovelling into the boiler. Easy means of replenishing this stock are essential. Where floor levels permit, a chute arranged from a fair area of storage on a higher

floor greatly reduces stoking labour. Coke, however, does not flow easily and inclined surfaces should not be at less than 45 deg. to the horizontal and chutes not less than 2 ft. square in cross sectional area. Hand trimming of coke is arduous and virtually impossible except from a smooth shovelling surface. For this reason, feeding through a pavement coal plate into a cellar beneath is usually unsatisfactory and the volume of storage immediately beneath the plate much smaller than would be expected, due to the pyramid formed. The old practice of having a man down below to shovel back from the chute is no longer easy to arrange.

Continuous supply arrangements

In many areas it is now possible to make contracts for regular daily or less frequent supplies of coke and the removal of ash, the supplying company agreeing to hold stocks or take other agreed steps to ensure continuity of supply during peak periods. Such an arrangement, coupled with a magazine type boiler, makes it possible for the building owner to employ no stoking labour at all and to lose little or no space for fuel storage. The advantages are, of course, very much greater in areas of high density of development where the capital costs of fuel storage space would be excessive. Deliveries can be arranged at night when traffic density is lowest and when, as in the case of offices, noise and dust is of less consequence. Even with such schemes, some space for the boiler feed hopper, or for day to day consumption of hand fired boilers is required immediately adjacent to the boilers.

Store cover

Coke stored in the open air does not suffer a loss of heating value. Any increase in moisture content due to a wet period is usually superficial and quickly dries off in any ensuing dry period. A point often overlooked, however, is the need for cover for the stoker. It is not fair to expect a man to work for a large part of the day in a hot basement boiler room and then have to work in the open air loading and trimming.

Bag deliveries

In congested sites bag deliveries through pavement coal plates have, in the past, been normal custom. They are most expensive in labour both to load and unload; they create traffic difficulties and interfere with the flow of pedestrian traffic and create some dangers. The volume of storage which can be filled from one coal plate is small, so that deliveries tend to be unnecessarily frequent. Unless, therefore, there is no possible alternative, bulk delivery is always to be preferred.

Lorry deliveries

Tippers deposit a load in the form of a cone about 5 ft. in height and rather wider than the wheel track. Unless there is very exceptional control of tipping, these piles will be spread haphazardly and the effective overall depth will be less than 3 ft. If the site is divided by dwarf walls in 9-in. brick or concrete between 4 ft. and 5 ft. in height, at about 10 ft. centres, the lorries will be forced to back in and an overall stock depth of perhaps 4 ft. 6 in. to 5 ft. can

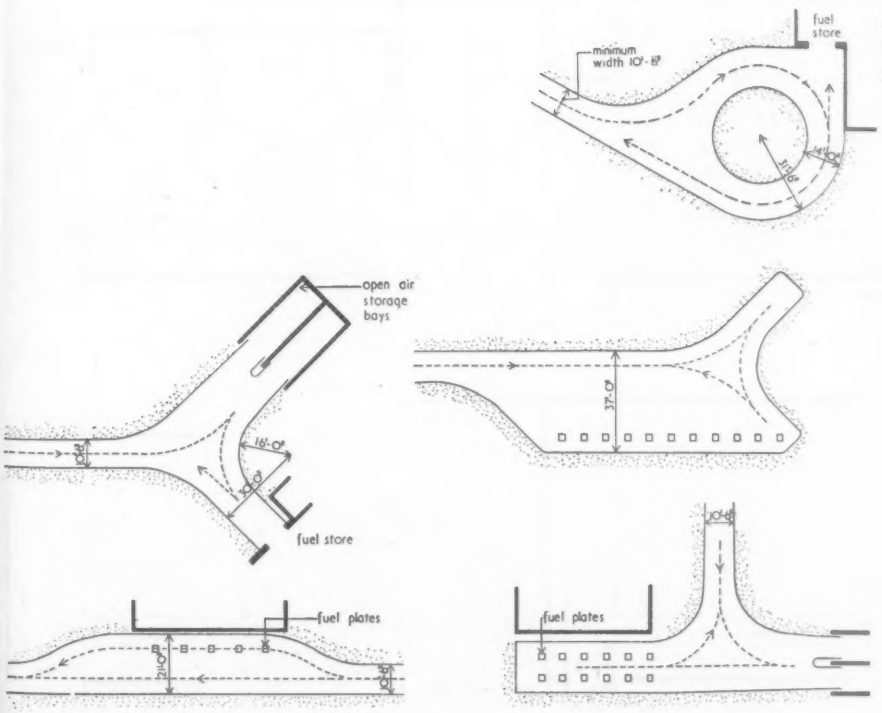
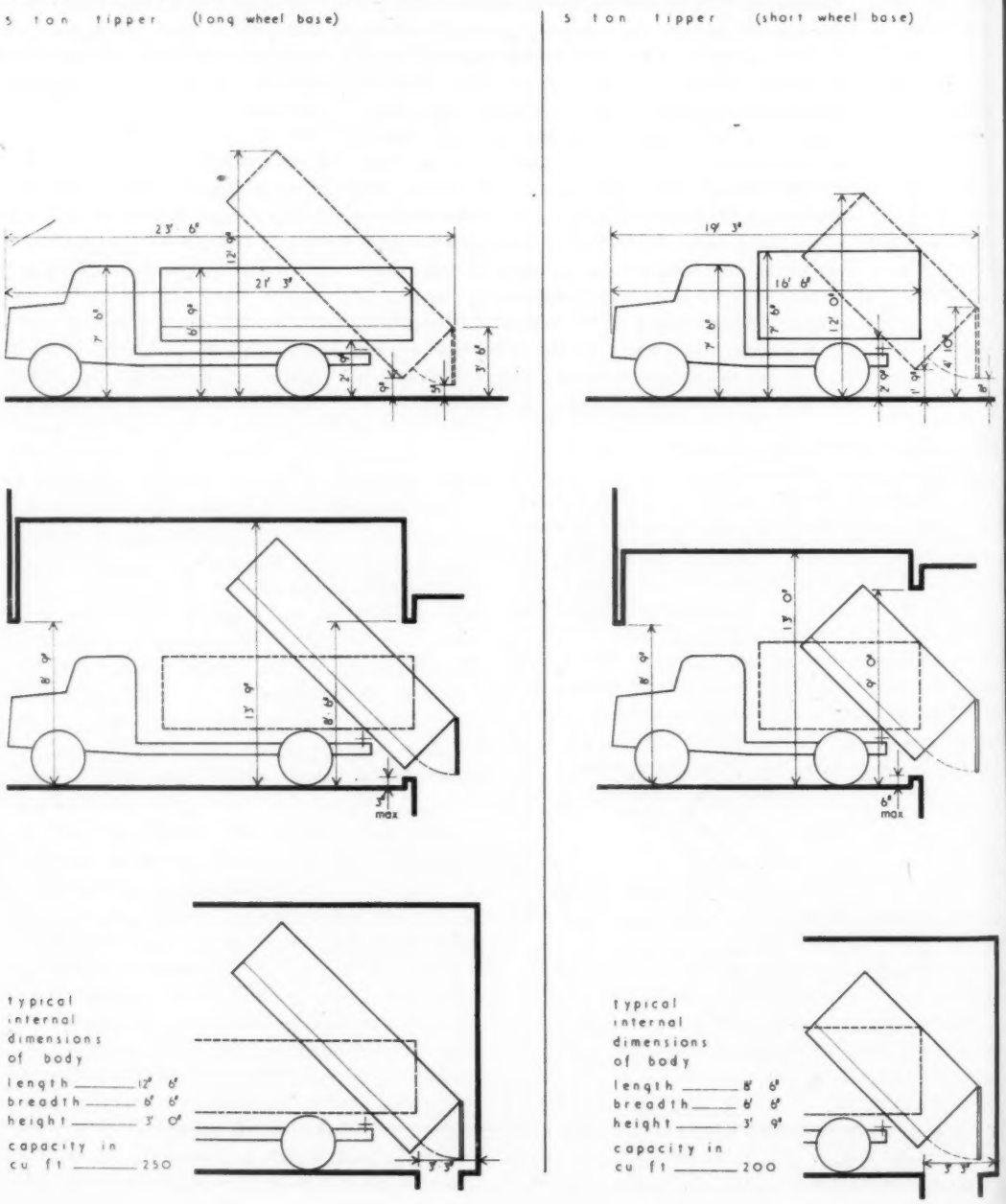


Fig. 3. Typical plans illustrating turning spaces and standings for vehicles.

be easily obtained. If the walls are marked off in horizontal bands at 1 ft. intervals and vertically at every 10 ft. in length, remarkably accurate and simple stock control is possible. Alternatively, the "L" form precast concrete portable bunkering slabs can be used. In considering the layout of these stores, the practice in the past has always been to outload the fuel in barrows or lorries by hand, since power loading was not considered economic below at least 1,000 tons per annum throughput. With the development of the tractor mounted fore-end loader, which is a relatively cheap tool, much smaller yards can be mechanized. Such a tool can be—albeit awkwardly—employed between parallel bunker walls. More recently, and in other fields (*e.g.*, grain and ore handling and the chemical industries), stock is moved without loading by small fore-end mounted bulldozer blades or, where quantities permit, with normal dozer equipment, and their use in fuel handling seems obvious. To avoid gross degrading, over running on the fuel must be absolutely prohibited. This in turn means that the bunker wall system becomes inconvenient and resort must again be made to open tipping, but with adequate control and supervision. Very large quantities of material can be shifted in this way both quickly and cheaply.

Fig. 4 (below and opposite). Dimensions of typical lorries and their space requirements for unloading.



gas supplement

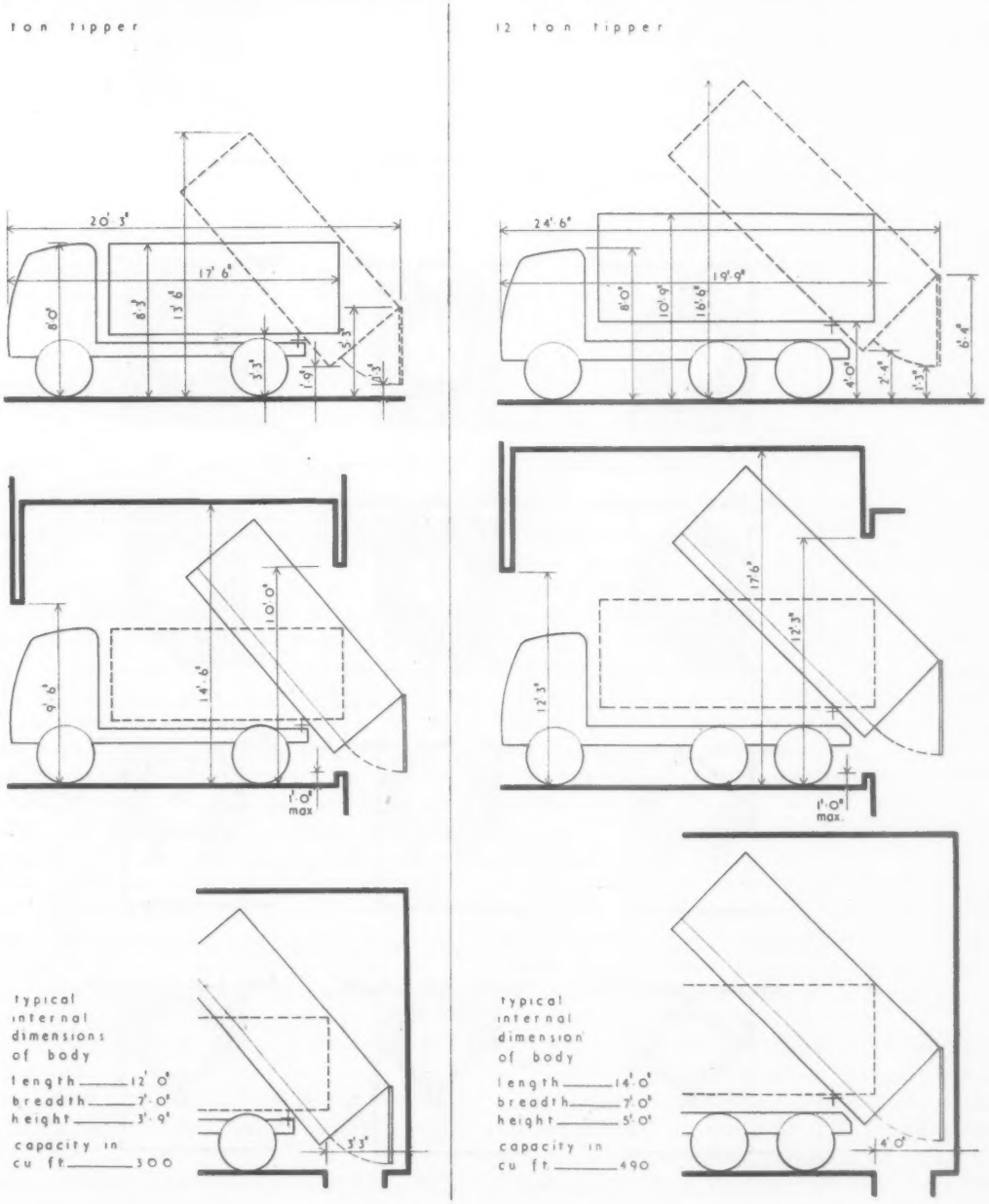
Open air storage

Flooring: fuel deposited on the open ground will be trodden in and not all can be removed. These so called carpet losses are progressive and can be considerable. In the case of coke they prevent the shovel being driven easily and greatly increase the labour of moving the fuel. With current costs of fuel and labour a concrete base is virtually essential. This must be strong enough to carry loaded lorries and laid to falls, with drain inlets outside the storage area. Gulleys, actually under coke, quickly fill and always provide a hindrance to easy shovelling. A 6-in. thick mesh reinforced slab on a good base of rolled hardcore is probably safe. On clay or other troublesome sites, more will be required. The concrete should be dense and finished as smooth as possible to reduce the effect of acid constituents washed out of the fuel.

Layout of storage: delivery to the store will mostly be in short wheel base 5-ton tippers with oversize bodies. Turning radius is normally not over 22 ft. or, say, 24 ft., allowing for clearance to bodywork and so on. Where the larger vehicles, used for long distance transport, are to be used the maximum radius is 36 ft. Road widths on the straight 10 ft. 6 in. up to 14 ft. 6 in. on sharp turns. Ramps should not be steeper than 1 in 8.

Delivery within buildings

On some sites it is desirable or essential for traffic reasons to deliver within the curtilage of the building. Normally the lorry backs in and tips over end. The space required is shown in Fig. 4. In many cases the



height of 17 ft. 6 in. is not easily obtained. In such cases, side tippers may be available and the total height requirement is not much more than cab height. Alternatively, rolling floor lorries may become more common and these require no extra head room for tipping.

Bunker design

Reference has previously been made to the difficulty of hand trimming coke except from a hard, smooth

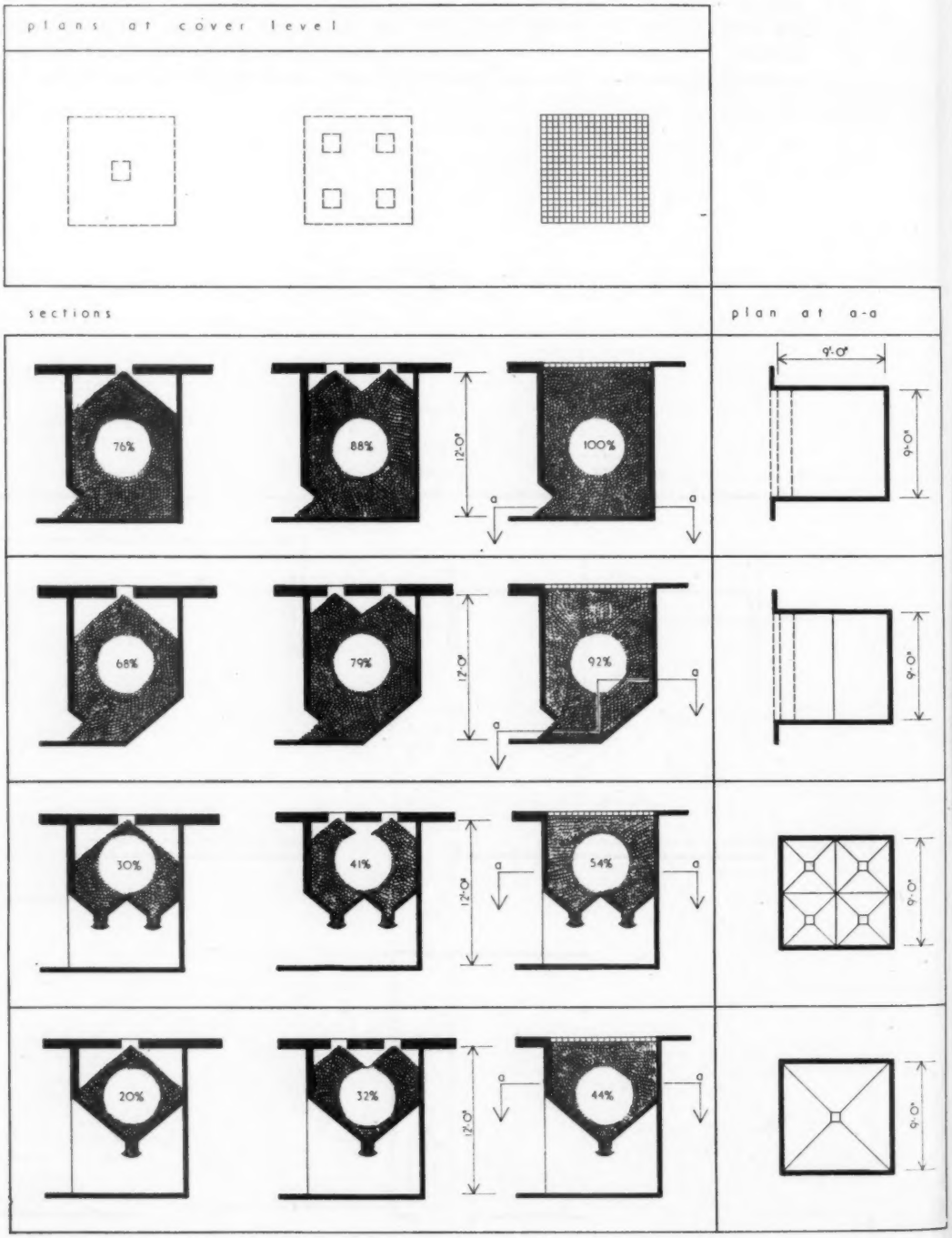
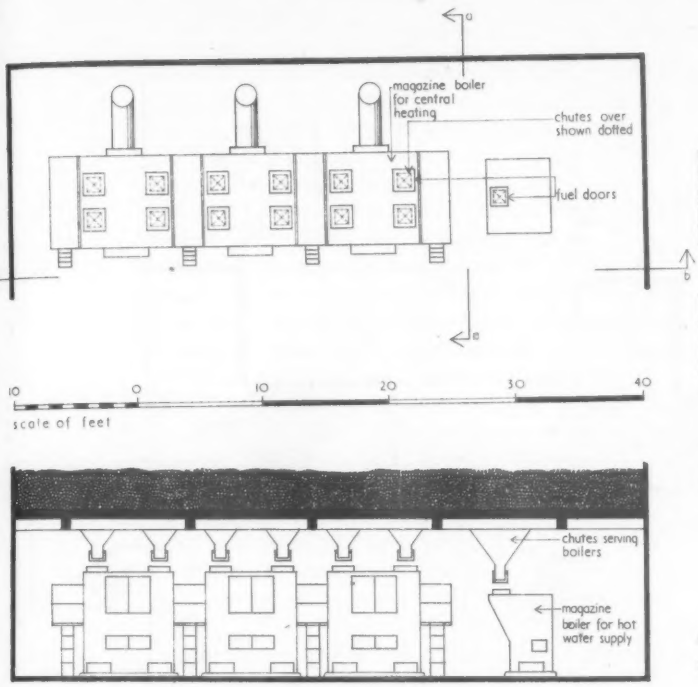


Fig. 5. Diagrams illustrating the percentage use of space resulting from different chute arrangements. Left hand column, single central chute. Central column, four chute. Right hand column, steel mesh cover.



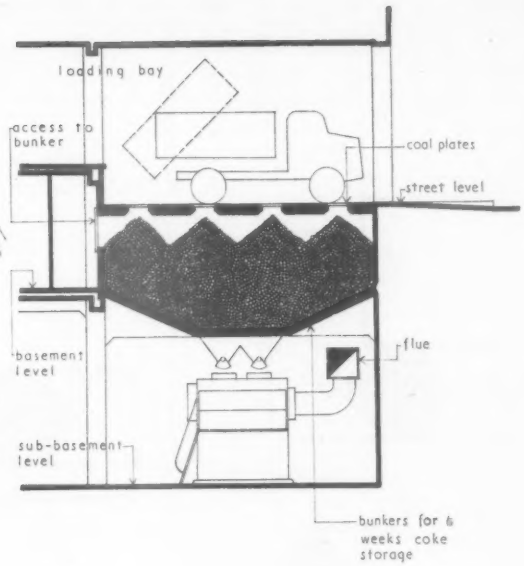


Fig. 6. Plan, section and elevation of bunker installation requiring no stacking labour.

surface. For this reason a rectangular bunker filled from a single coal plate will be an uneconomic store. Several plates will reduce the wastage. For industrial use it is better to form the cover of steel mesh of a size to pass the grade of fuel in use and so supported as to allow the lorry to run on the mesh and fill in the unused storage spaces. Fig. 5 illustrates the point, while Fig. 6 shows what is probably the most economical possible layout, specially suitable for installations to be supplied and de-ashed on contract terms, where the building owner employs no stoking labour. (See also the section on space heating.) The volume required will depend upon the availability of other —probably open air—storage and the period between deliveries that can be allowed. Desirable minima would seem to be either:

1. Three days consumption to avoid delivery at week-end rates.
2. Five days consumption for continuously operated plant where delivery over Bank Holidays is difficult. Five days being the (present) maximum Christmas holiday.
3. The content of one lorry. This is tending to increase and 12-ton fuel lorries are common compared to pre-war practice.

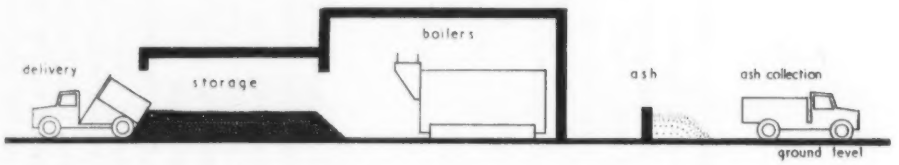
Placing of bunkers in relation to boilers: there are, of course, unlimited possible relationships between fuel store boiler and ash hoist, but the layout is usually based on one of the schemes shown diagrammatically in Fig. 6 and Fig. 7 overleaf. Because coke is more abrasive and more difficult to move than coal, the lay-out must be kept simple and compact. Any conveyor for solid fuel must create some noise and some dust, and most boilers and flues create some sound. For these reasons the boiler area should be self-contained and, if possible, built as a discontinuous structure to reduce the transmission of sound to the rest of the building.

Ash disposal

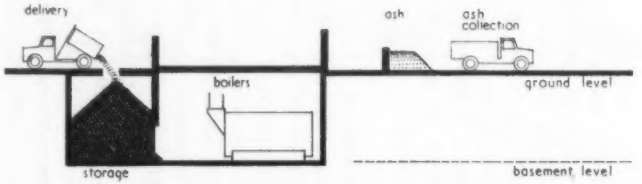
Ash production from normal cokes will not exceed 7-11 cu. ft. per ton; the original fuel varying from between 80 to 120 cu. ft. per ton. Where the ash greatly exceeds this proportion and particularly from hand fired boilers, it is worth checking the proportion of combustible material wasted in the ash.

The removal of ash is normally the responsibility of the Local Authority under powers contained in the Public Health Act, 1936, and in Metropolitan London the Public Health Act (London), 1936. The powers in the provinces are largely permissive, but are obligatory in London. Domestic ashes and the ashes from the

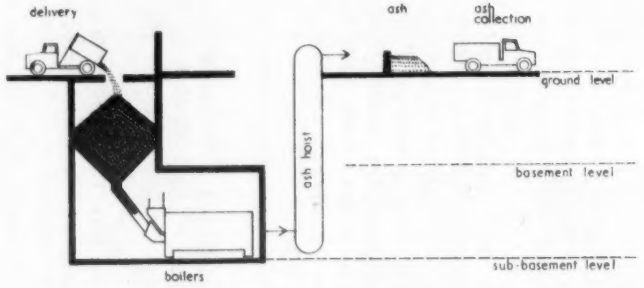
Fig. 7. Diagrams showing different relationships of fuel stores to boilers.



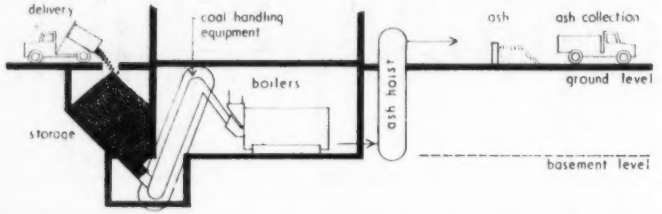
(a) Fuel and boilers both at ground level.



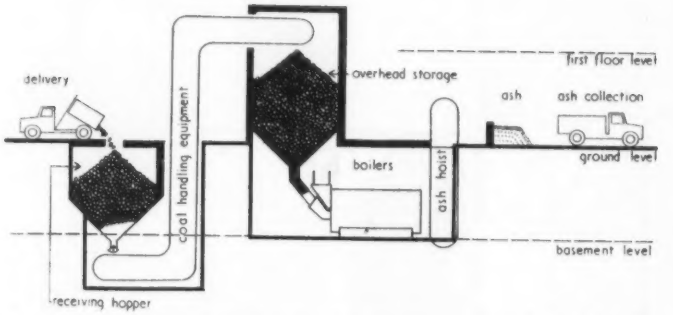
(b) Basement heating chamber. Hand firing and screw feed automatic stokers.



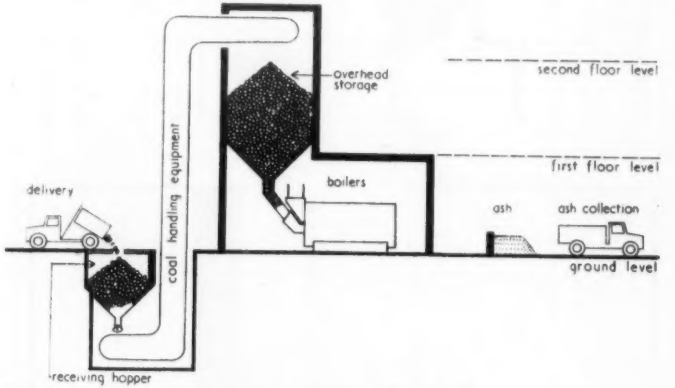
(c) Sub-basement heating chamber with basement bunkers and gravity feed to automatic stokers.



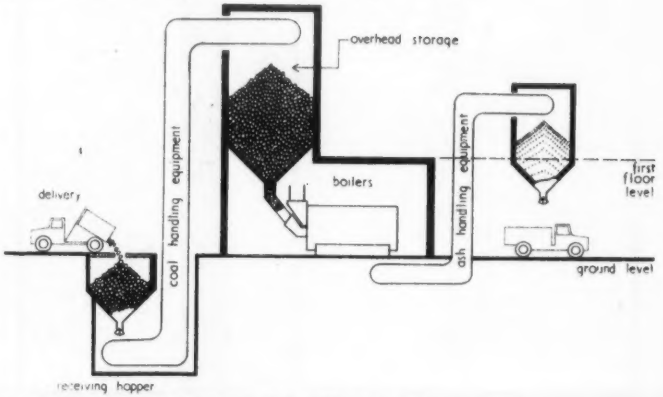
(d) Basement heating chamber and bunkers with mechanical handling.



(e) Basement heating chamber and vertical bunker with mechanical handling.



(f) As (e), but heating chamber at ground floor level.



(g) As (f), but with mechanical handling for ash.

gas supplement

heating of dwelling houses and flats and, in most cases, office blocks are included, but not ashes arising in industry or power production. In the Metropolitan area, refuse (and ashes) must be removed by the Authority within 48 hours of receipt of a request notifying the need for removal. Elsewhere collection is more often at weekly or fortnightly intervals. These facts set the minimum space required for ash storage. Since, however, there may be hold-ups and since a plant can be brought to a standstill as a result of non-removal of ash as surely as by non-delivery of fuel, similar considerations apply as in the case of determining the fuel storage capacity.

The main problems of ash handling are cost and dust. However the boiler room is arranged, there should be space and adequate ventilation to permit immediate quenching of hot ash before removal. Mechanical handling is generally cheaper and less dusty than hand work. Clean ash and clinker now fetches good prices in most districts so that it must not be mixed with other wastes.

Continuous removal is impossible so that a dumping ground must be found, sufficient to take several days accumulation. Piling in an open site is cheap in first cost, but always dusty. Some improvement can be obtained by bunker walling, but all such schemes necessitate rehandling to load out and because of the small volumes, loaders are rarely available. Where it is at all possible, the quenched ash should be hoisted direct from the boiler room to a hopper arranged to discharge direct to lorries.

For smaller installations, containers are useful. Some local authorities provide either 1¼ or 2¼ cu. yd. containers on a rental basis, designed to fit their removal vehicles. They make a dust free system which is worth considering even where the building owner has to clear his own ash. In such cases, the containers will have to be designed to load on a flat bed lorry and not a special vehicle.

Ramps for barrowing ashes out of boiler rooms can be used up to depths of about 6 ft. and at slopes of not over 1 in 7, but they are not popular. Ash hoists using standard "ash bins" of 2 cu. ft. to British Standard can be accommodated in hoists of 1 ft. 9 in. × 1 ft. 9 in. clear plan area. The 1¼ cu. yd. container requires a hoist 3 ft. × 6 ft., gated on the small end. Delivery should, where possible, be to lorry bed height of 3 ft. 6 in., but this will necessitate some storage area for loaded containers at the bottom of the hoist. The smallest installations can be operated with a simple winch hoist, the bins having lugs or hooks for the cable attachment.

CLEAN AIR ACT

This Act, which became fully effective on June 1, 1958, prohibits the discharge of dark smoke in any area, while in smoke control areas all forms of smoke are restricted or prohibited. This goes much further than any previous attempt at controlling the smoke nuisance and covers so much wider a field that it will affect the selection of heating appliances for almost every building. It has been said that the domestic chimney is a relatively unimportant source of air pollution, largely because such chimneys rarely produce dark smoke in great quantity. In the aggregate however, domestic chimneys are greater offenders than any other group of user given in the Beaver Report table below.

Estimates of pollution from the Main Uses of Fuel in Great Britain in 1956

Figures are in millions of tons, those in brackets being the quantity of fuel burned or carbonized in each class. The table is based on that for 1953 in the Beaver Report, revised to 1956 by Dr. A. Parker.

	Smoke	*Grit and dust*	*Sulphur dioxide*
Raw Coal Uses:			
Domestic (37·2)	1·0	0·1	0·9
General industry (62·6)	0·8	0·3 (*a*)	1·8
Electricity generation (45·6)	small	0·4	1·3
Railways (12·1)	0·2	0·1	0·4
Coke ovens (29·3)	small	small	0·1
Gas works (27·8)	small	small	0·2
Coke uses (15·1) (*b*)	nil	small	0·4
Oil uses (13·7) (*c*)	small	nil	0·6
Totals	2·0	0·9	5·7

(*a*) Excluding grit and dust emissions, estimated at about 0·5 million tons, from industrial processes other than steam raising.
(*b*) Excluding consumption in gasworks and blast furnaces.
(*c*) Including diesel, gas and fuel oils and creosote-pitch mixture.

Architects and builders are well aware of the damage done to building structures by atmospheric pollution. The Beaver Report attempts to arrive at the annual cost of this pollution. It is, of course, largely an exercise in skilled guesswork, but after making every allowance, they suggest that the losses are of the order of £250,000,000 a year. Such a figure clearly justifies the expenditure of reasonable extra sums to provide efficient smokeless appliances in every building wherever situated. In smoke control areas, only the approved smokeless fuels may be used in domestic premises, so that the provision of suitable apparatus to burn these fuels economically becomes essential.

Costs of conversion

Under the general provisions of the Act, in all areas other than smoke control areas, the costs of alterations to equipment and plant fall on the user of the appliance—domestic or industrial. In smoke control areas the necessary costs of conversion can, under most circumstances, be recovered partly or, occasionally, wholly from the Local Authority.

Typical conversions of domestic appliances from bituminous coal burning types to modern gas and coke equipment are illustrated below with some approximate figures for the cost of the work. These figures are, of course, for guidance only. They include the cost of a suitable appliance, the building materials required and the labour involved. They do not include repairs or improvements to hearths and surrounds or closure plates.

(d) Basement heating chamber and bunkers with mechanical handling.

(g) As (f), but with mechanical handling for ash.

receiving hopper

gas supplement

Space heating with or without water heating

1. *Stool bottom grates:* probably the most widely used bituminous coal burning appliances, whether with or without a back boiler. To convert to an efficient long burning coke grate with gas ignition. Approximate cost £4 15s.

To convert to a convector gas fire where no water heating is required. Approximate cost £13.

2. *Register fires:* these were fitted until about 40 years ago and many are still in reasonable condition.

To convert to a long-burning efficient grate with gas ignition by removal of front bars and bottom. Approximate cost £4 15s.

To provide a convector gas fire with the necessary filling in plate. Approximate cost £15.

3. *Cast iron fireplaces:* the firebars and cast cheek plates can sometimes be removed and a new fireback installed with a long burning coke grate and gas ignition. Approximate cost £10 15s. Alternatively the fireplace can be covered with a filling in plate and a convector gas fire fitted. Approximate cost £15. Alternatively, the casting can be removed, the opening covered with a filling in plate and a convector type open coke fire with gas ignition can be installed. Approximate cost £17 10s.

Cooking, space and water heating

Portable ranges for bituminous fuel: remove range, fit filling in plate to cover the opening and provide convector type gas fire for space heating only. Approximate cost £17 15s.

Remove range, render out the recess and fit a free-standing convector type open coke fire with gas ignition and back boiler to provide space and water heating. Approximate cost (exclusive of water fittings) £32.

To provide cooking facilities a gas stove can be fitted in place of the coke fire, or alongside. Approximate cost £27 10s.

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BS2740:1956. *Simple Smoke Alarms and Alarm Metering Devices.* The alarms specified in this standard are based on the principle of a beam of light across a chimney falling on a photo-electric cell. The obscuration of this beam by smoke operates the alarm. 3s. (3s. 2d.)

BS2741:1957. *Recommendation for the Construction of Simple Smoke Viewers.* Recommends type of construction of viewers used for external assessment of smoke emission. 3s. (3s. 2d.).

BS2811:1957. *Smoke Density Indicators and Recorders.* Instruments specified operate on same principle as those in BS2740, but also indicate and record the percentage of obscuration. 3s. 6d. (3s. 8d.).

structure study

LIFTING A HANGAR ROOF AT ABINGDON, BERKSHIRE

Above, general view of the hangar roof before lifting.

A three-bay hangar 613 ft. × 110 ft. is in course of construction at Abingdon to accommodate Beverleys and Britannias of Transport Command. It incorporates the technique of "lifting" the roof structure from ground level to its final position, a technique not previously applied in this country to a complete roof structure.

Selected contractors were invited to tender for the design and construction of the hangars in accordance with a drawing and specification prepared by the Air Ministry. Six designs were submitted for consideration; one all aluminium structure, one with aluminium roof and supporting steelwork, one in precast prestressed frame construction and the others in various forms of prestressed *in-situ* construction. After considering the aesthetic appearance and stability of the structure, erection time, durability and maintenance costs, the Air Ministry accepted a tender from John Laing for a triple arch barrel vault roof in prestressed concrete constructed at ground level and subsequently jacked into position. John Laing's tender price was the lowest by about 10 per cent.; and 28 per cent. below the highest tender. Their scheme was designed by their own engineers in conjunction with Ove Arup and Partners.

Each bay has an area of 186 ft. × 110 ft. and the roof is supported by four corner columns. The vaults run longitudinally along each of the three bays with cantilever sections each 36 ft. wide, linking the bays together to provide an uninterrupted floor area of 630 ft. × 103 ft. The roof of each bay has a box beam on each longitudinal face, valley beams connecting the vaults, and a gable beam enclosing each end. The Freyssinet system of prestressing is used, each roof having 106 12/0·276 wire cables. Prestressing operations were aided by the use of "walkie-talkie" radio liaison between the two ends of the beams. The concrete shells are 3¼ in. thick at the crown and 5 in. thick in the valley.

The foundations, hangar floor and aprons were constructed in the first operation. The roof beams were cast in their correct position on the hangar floor, adhesion being avoided by a layer of building paper on the beam soffit. The vaults which behave as ordinary concrete arches initially were then concreted in a number of sections with the help of travelling formwork. On completion of the arches (above), the roof structure weighed approximately 1,400 tons.

The roof finishes of insulating board and built-up felts were applied at this stage as were the internal roof services and canopy for the sliding doors. Hydraulic jacks were then inserted at about two feet below ground level at the four column supporting points and the roof raised initially by 2 ft. 8 in.

The column consists of a series of interlocking T-shaped units to facilitate the

structure study

LIFTING A HANGAR ROOF AT ABINGDON, BERKSHIRE: continued

jacking operation; they make up a column 4 ft. 6 in. × 3 ft. 6 in. (left). With the lifting operation in full swing four 200-ton jacks were employed at each column. The method of procedure was to lock two of the jacks and retract the other two leaving room for the insertion of the next two column T-units above the jacks. A special trolley wheeled the T-units into position with the top faced "buttered" with a low moisture content mortar criss-crossed with ridges so that the mortar could squeeze sideways into the ridge as it took up the jacking load. The preparation of the mortar joint and the positioning of the unit required great accuracy. During the 46 ft. lift, guys were provided from roof structure to ground to guard against wind forces and to pull the structure back into the vertical in case of "leaning." The hoisting operation of the first roof (below) involved thirty men and was completed in approximately one week. In the centre of each hollow column are a number of Lee McCall bars which were extended as the work proceeded and, with the hoisting completed, a capping block was added and the bars stressed to compress the T-shaped units sufficiently to allow them to carry both tension and compression and act together as a column. The core of the column was finally grouted after special units had been added in place of the jacks at ground level.

Many examples of lifting technique have been described in the JOURNAL over the last few years; the hangar at Marseilles and the numerous "lift-slab" projects in the USA have already been brought to the notice of our readers. The contractors in the Abingdon project are to be congratulated in achieving the first "lift-roof" in this country and it will be interesting to see what other types of development can be treated in this way. Unfortunately, the resulting hangar is not the best advertisement for this kind of roof as the daylighting is pathetic and would only be tolerated by a service organisation which must accept gratefully what an impecunious Ministry can offer. Nevertheless there are no doubt many uses to which a "solid" roof can be put and it may well be that the design could be adapted to give a certain amount of lighting without undue extra cost.

Above, left, jacks lifting corner column. Left, one bay raised to final position.

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has delighted and surprised the clients.

The elevation to Curzon Street.

building illustrated

HOTEL EXTENSION

THE WASHINGTON HOTEL, CURZON STREET, LONDON, W.1, designed by BRONEK KATZ and R. VAUGHAN; architect-in-charge E. MAURICE MEYERSOHN, assistant MICHAEL HELM; quantity surveyors CYRIL SWEET and PARTNERS; consultants (structural) FELIX J. SAMUELY

This is the first London hotel to be cost analysed in the JOURNAL. In this extension the client required the maximum number of double bedrooms, each with its own bathroom. No new public rooms were required and the ground floor and basement were to be let independently. The plan of the building is restricted by its minute site and the section by Town Planning legislation. Within these limits, the classic problems of the urban site, the architects have provided an elegant building, containing 53 bedrooms and bathrooms, at a cost which has delighted and surprised the clients.

The elevation to Curzon Street.

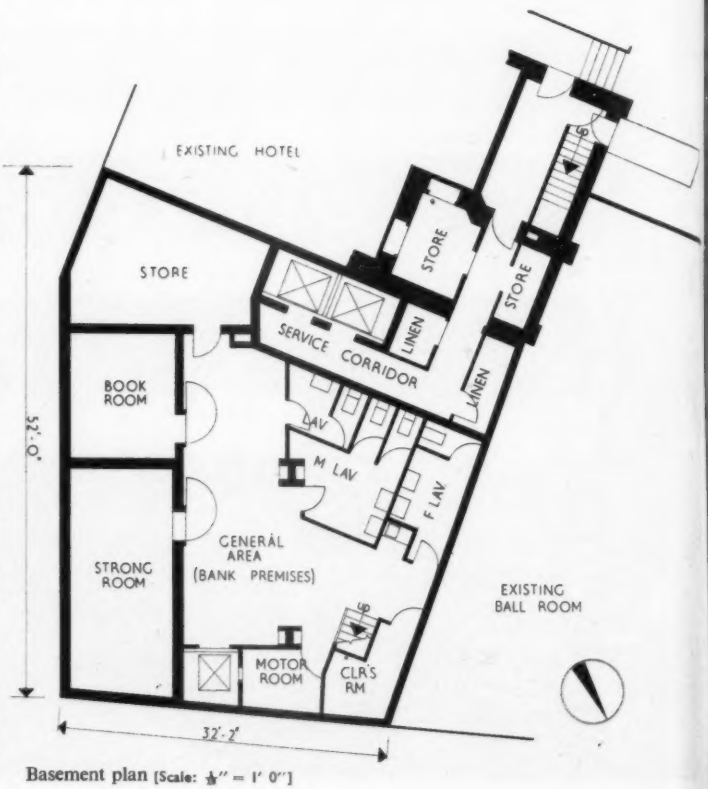
building illustrated

APPRAISAL: The standard of accommodation required by the clients was not of the Park Lane type but that of good class accommodation comparable, say, to contemporary American or Continental practice (*e.g.*, Italy's Jolly Hotels). Consequently the rooms could be of the minimum size to function adequately and within this brief early planning exercises soon established the number that could be provided, maintaining as far as possible back-to-back internal bathrooms, artificially ventilated. At an early stage also, the LCC agreed with the clients that a formal staircase would not be necessary. This basic material is handled well and a more economic plan would certainly be difficult to obtain. The structure has been organized on the assumption that columns on the perimeter or internally were to be avoided as far as possible, as they might well have imposed a further planning limitation. Consequently, the floors are carried on thin load-bearing external concrete walls, pierced for windows where required, and one internal spine beam, carried by two columns on each floor. In a public building such as this, a two-hour fire resistance is required between floors and one hour between bedrooms. For this reason the spandrel panels behind the under-sill glazing are in reinforced concrete as well. Externally the thin quality of the structure is expressed with changes in material to identify functional parts: the load-bearing wall is faced with white mosaic, floor lines with black steel, with window panels between. This arrangement is carefully proportioned and organized to explain the building; but it explains it in terms of a column and beam structure and not in terms of the external wall as a vertical structural plane. The choice of external cladding materials was limited by the client's wish that the elevations should be of glass or another material capable of being washed clean by rain; hence the mosaic. Apart from the feeling that this material, fragile and intensely susceptible to damage from movement, is incompatible with a structural element, the choice of white, while adding to the astringent crispness of the building, does not in itself help to give the load-bearing element "weight." The unfortunate inclusion of random gold glass mosaics, presumably to give sparkle, further weakens this element.

The client's budgetary requirement was that the cost should be within a limit of £3,000 for each lettable bedroom. This is the accepted figure in the provinces for hotel accommodation, although figures as high as £5,000 or £6,000 are mentioned in London, depending upon standards. The building is economically completely successful, for the cost from the analysed figures is approximately £2,470 per bedroom. To compare this building with a complete hotel is difficult: the figure of 161s 1¼d per square foot represents a building of extremely compact planning and service installation and a low floor area. It is fair to assume that the figure would have been lower had public rooms been provided with larger superficial areas as compensation, although of course so would the total income if the number of bedrooms had been reduced to make room for these. The total amount of money left after the deduction of the actual cost of a room from the £3,000 allowed would, however, be small, and it seems that had public rooms been required within the same budget, it would have been a tight squeeze if the same standard of finish were to be maintained.

The interiors have been designed by the hotel's own interior decorator and there is a fairly obvious difference between

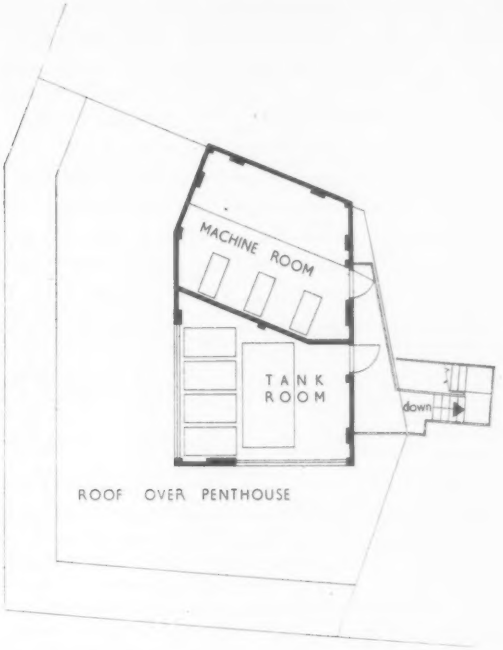
Ground floor plan



Basement plan [Scale: ⅛" = 1' 0"]

building illustrated

Penthouse plan



Roof plan

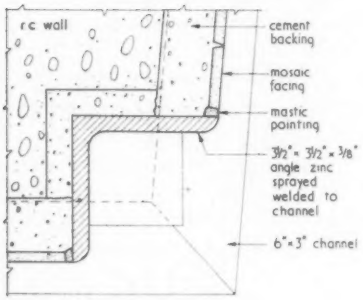
the architecture and the decor, inevitable with this sort of split responsibility. Choice of colours, fabrics, carpets and the design of the bedroom furniture is of a lower standard than that of the building generally.

The existing hotel is a vaguely pleasant building owing something to Hausmann's Paris. The vertical sign is positioned apparently to conceal the junction between the new and existing, for no other attempt has been made to provide a visual break or to carry through any sort of visual relationship. The two buildings meet without mutual acknowledgment. Above the effective roof line of the extension can be seen the eighth floor penthouse and tankrooms over it, both set back in accordance with town planning requirements.

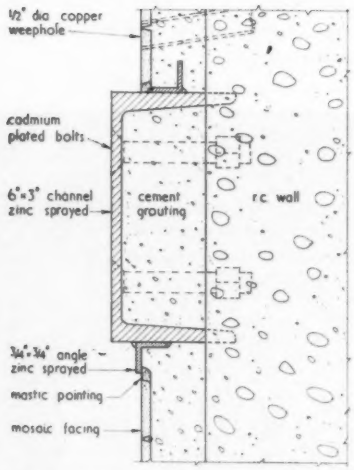
Typical upper floor plan

building illustrated

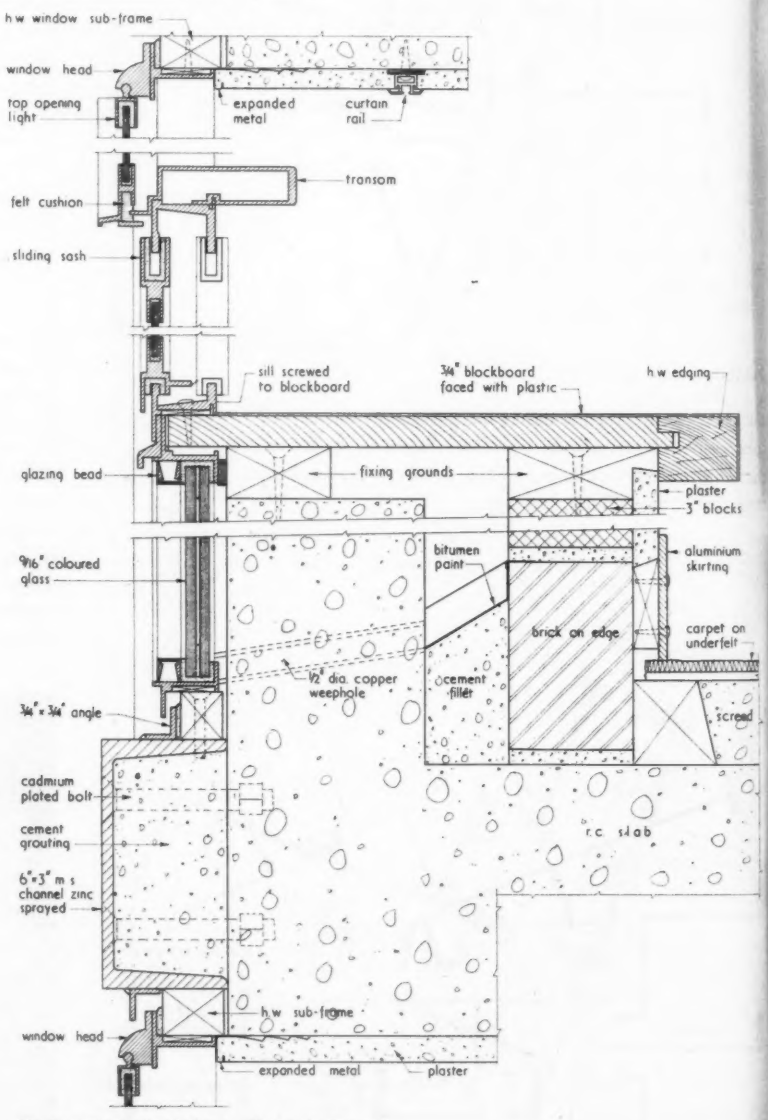
The renovations to the ground floor elevation of the existing hotel, opposite page, top, were carried out on a separate contract having nothing to do with the new extension, nor having the same architects. The choice of materials is particularly unfortunate and the ground floor junction of new to new is a minor tragedy in a scheme which is generally handled with confidence. The windows in the new building are of aluminium with horizontal sliders and tophung hoppers. The undersill panel is a hermetically sealed hollow glass unit coloured blue and backed with a reinforced concrete spandrel wall to accord with fire regulations. The ground floor bank premises, opposite page, bottom, in accordance with long-standing bank tradition, are clad with black granite, placed slightly proud of the usual load-bearing perimeter walls. The granite, 1¾ in. thick with an inner skin of 4-in. lightweight concrete block, is carried on steel framing spanning between the concrete walls. Below the granite the normal method of glazing and cladding is repeated (although the glass is here ½-in. toughened plate). Apart from doubts as to the advisability in any circumstances of using these materials at this level, architecturally the junction of the building with the ground is weak and superficial.



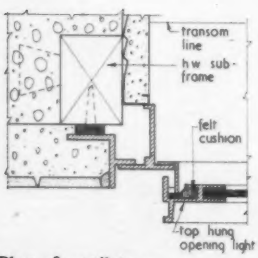
Plan at corner of building
[Scale: 3" = 1' 0"]



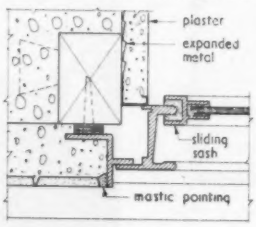
Section through mosaic



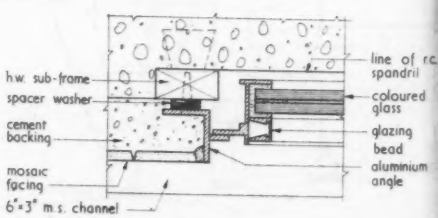
Section through window and spandrel panel



Plan of ventilator



Plan of sliding sash



Plan of spandrel panel

analysis

CLIENTS' REQUIREMENTS

An extension to the existing hotel premises in Curzon Street which would provide as many double bedrooms as possible, each of which was to have a private bathroom. No public rooms were required as those in the existing hotel were adequate to provide for the increased accommodation. The ground floor and basement were to be let independently.

SITE

A small irregularly shaped site of approximately 1,700 sq. ft. at the junction of Curzon Street and Clarges Street, in the heart of Mayfair. It is surrounded on its other two sides by the existing hotel and was originally occupied by shops and houses condemned and demolished after the war.

PLANNING AIMS

In the first instance town planning permission was sought for an 11-storey block rising straight from the building line; this was rejected on the grounds of light angles for the buildings opposite and for the internal area. After negotiation it became apparent that the maximum height permitted would be 80 ft., which is approximately the height of the existing hotel. Early planning showed that the maximum capacity for each floor would be seven bedrooms with bathrooms, from the first to the seventh floor. At the eighth floor, town planning requirements necessitated a 5-ft. set-back on both street frontages and here there are only five bedrooms and bathrooms.

Access to the new extension is through the entrance hall of the existing hotel so as to avoid duplicating reception facilities.

It was evident that a main staircase would be an unnecessary waste of space. Two 200-ft. per minute 8-person lifts on an inter-connected and collective control system run from the basement to the 8th floor. A utility stair was considered necessary to serve the staff and as a connecting link with the existing hotel, taking up the difference in floor levels between the two buildings.

At the lower floors this stair connects with the existing service stair in the hotel, thus providing an emergency escape route. A further escape route is provided by a cast iron open staircase.

The ground floor, apart from the lift lobby, and the basement of the extension were let early in the planning stage to the National Bank of Scotland, and the requirements of the bank, such as strong rooms, bullion lift, etc., were provided for early in the planning stage.

It was at first proposed that the extension should be heated from the boiler system in the existing hotel, but on receiving estimates it became obvious that it would be much more economical to provide thermostatically controlled underfloor electric heating for the new wing.

SUMMARY

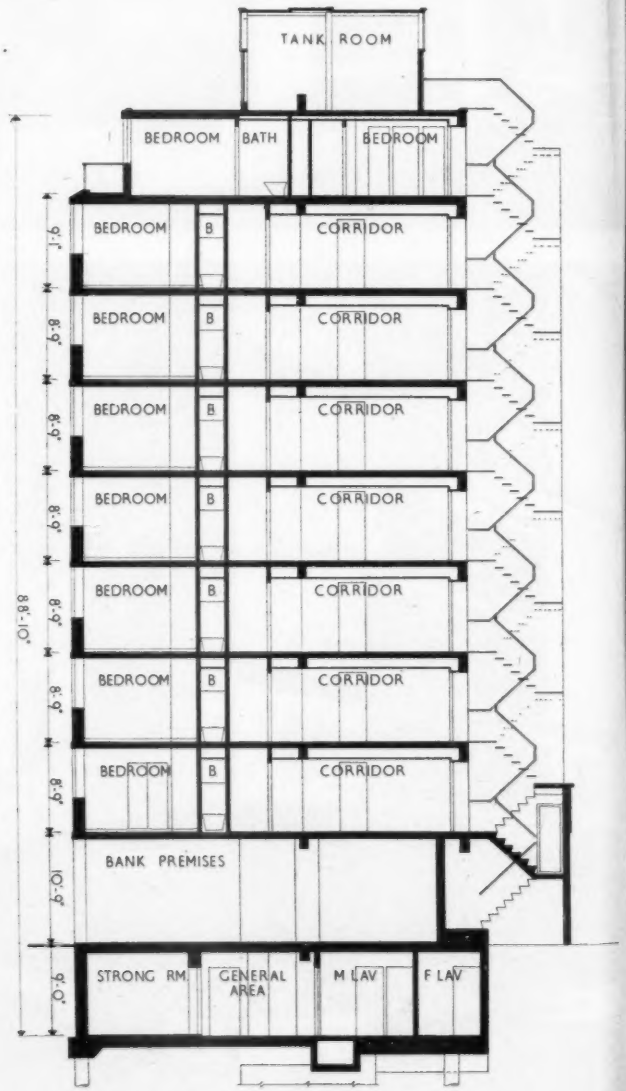
Basement floor area: 1,629 sq. ft.
Ground floor area: 1,652 sq. ft.
Total floor area; 16,250 sq. ft.
Type of contract: Bovis.
Work began: June 1957.
Work finished: June 1958.
Final cost of foundations, superstructure, installations and finishes: £130,900.
Final cost of external works: £6,600.

building illustrated

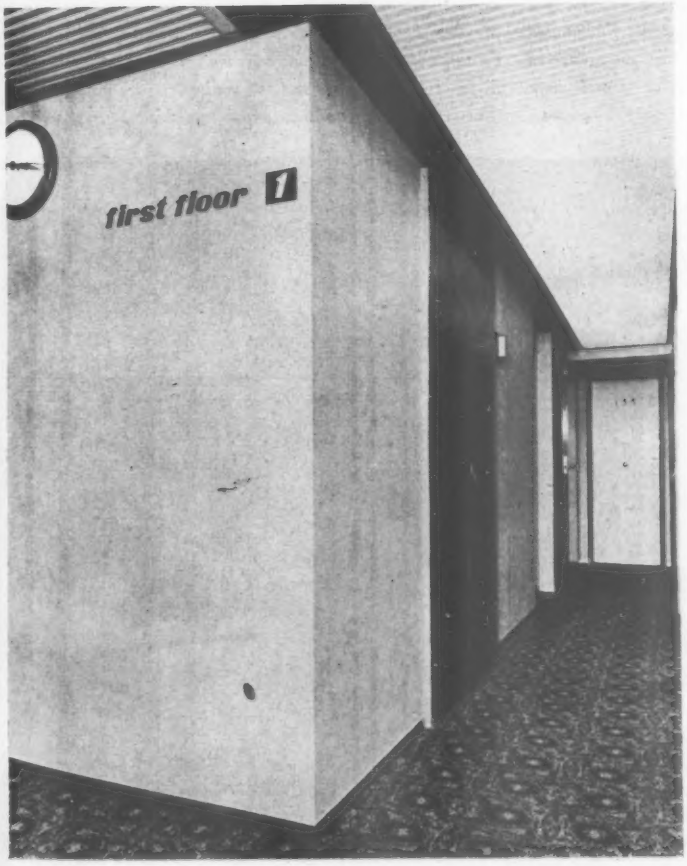
The eighth floor penthouse is set back 5 ft. and this space has been used to give each of the five rooms on the floor a large balcony. The structure changes here to simple perimeter columns of reinforced concrete having an applied finish of coloured mica aggregate bound with a resin adhesive on a render backing coat. Windows and doors are teak-framed and the balcony floor is finished with ceramic tiles on asphalt.

Below, a lift lobby on an upper floor. The emergency door leads through to the utility stair which forms a means of escape in case of fire as it is connected at its lower levels to a service stair in the existing hotel. Beyond this door is also a tiny service space where clean linen is stored and the dirty linen chute is situated. On the fourth floor one of the bedrooms is missed out and a small kitchen substituted where breakfasts can be prepared.

Entrance to the new extension is through the main entrance hall in the old hotel, which avoids duplication of reception facilities. Access upstairs for guests is only by means of two 200-f.p.m. lifts, which have an inter-connected and collective control system and are situated in the lobby, opposite page top, on the ground floor off a lounge in the existing building. The wall on the extreme left is finished with a vinyl plastic treated to look like coach hide. In the main corridors serving the bedrooms, opposite page bottom, walls are finished with a light grey vinyl plastic patterned to represent an exotic animal skin; ceilings are of suspended translucent corrugated plastic with fluorescent lighting above. These ceilings collect a great deal of dust and minor debris and need taking down and cleaning about once a month. To do this the plastic material is drawn along and rolled up at one end. It appears to be a fragile material, because it is not taking too well to this frequent handling. Corridors as well as rooms are close carpeted, over the 2-in. screed which contains electric heating cables. This system was found to be far more economical than extending the hot water radiator system from the existing hotel. Incidentally it has the considerable advantage of allowing greater planning freedom in a restricted space.



Cross section [Scale: $\frac{1}{8}$" = 1' 0"]



analysis

The following cost analysis excludes the internal partitions and finishes to the ground floor and all work peculiar to the bank, which occupies this floor and the basement, such as bullion lift, strong room walls and safety doors.
It also excludes the cost of fittings such as bedroom furniture except for the hanging cupboards. All bedroom fittings were designed by the hotel management's own interior decorator.

	cost per sq. ft.	s	d
Preliminaries		9	6
Contingencies		3	8½
Work below ground floor level		12	7

60 concrete piles, 17 in. in diameter and an average of 43 ft. long, supporting 12-in. thick reinforced concrete basement floor slab.
Retaining walls of r.c. 9 in. and 12 in. thick. 8½-in. r.c. suspended ground floor slab.

STRUCTURAL ELEMENTS

Frame or load-bearing elements — 6 0

A reinforced concrete structure with external floor-to-ceiling wall panels of 5½-in. thick *in-situ* concrete.
Rear walls from ground to 7th floor are 5-in. thick r.c. and the lift well is r.c. frame.
Floors spanning inwards from Curzon Street and rear elevations are carried by a central spine beam which is parallel with Curzon Street and is supported on each floor by two columns. Spandrel walls behind coloured glass panels are 4½-in. thick *in-situ* r.c.
Penthouse structure is of 8-in. × 8-in. r.c. perimeter columns, with plant and tank rooms, above, of load-bearing brickwork.

External walls — 12 2

The inner skin of the load-bearing external concrete walls is of 3-in. lightweight concrete block, the cavity graded to fall to a copper weep hole built into the concrete wall between each window. Load-bearing concrete walls are faced with glazed, frost-proof ceramic mosaics on the first to seventh floors. Floor lines are defined by 6-in. × 3-in. steel channels, sand-blasted and zinc sprayed before erection. Cladding to the ground floor bank premises is of emerald pearl granite slabs supported 12 in. off floor level by steel framework and bronze cramps; it is backed by 4-in. thick lightweight concrete blocks.
The rear elevation onto the existing area is of 9½-in. cavity construction, 3-in. inner skin of lightweight blocks and 4½-in. outer skin of sand-lime facings.

$$\text{Ratio: } \frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}583}{1}$$

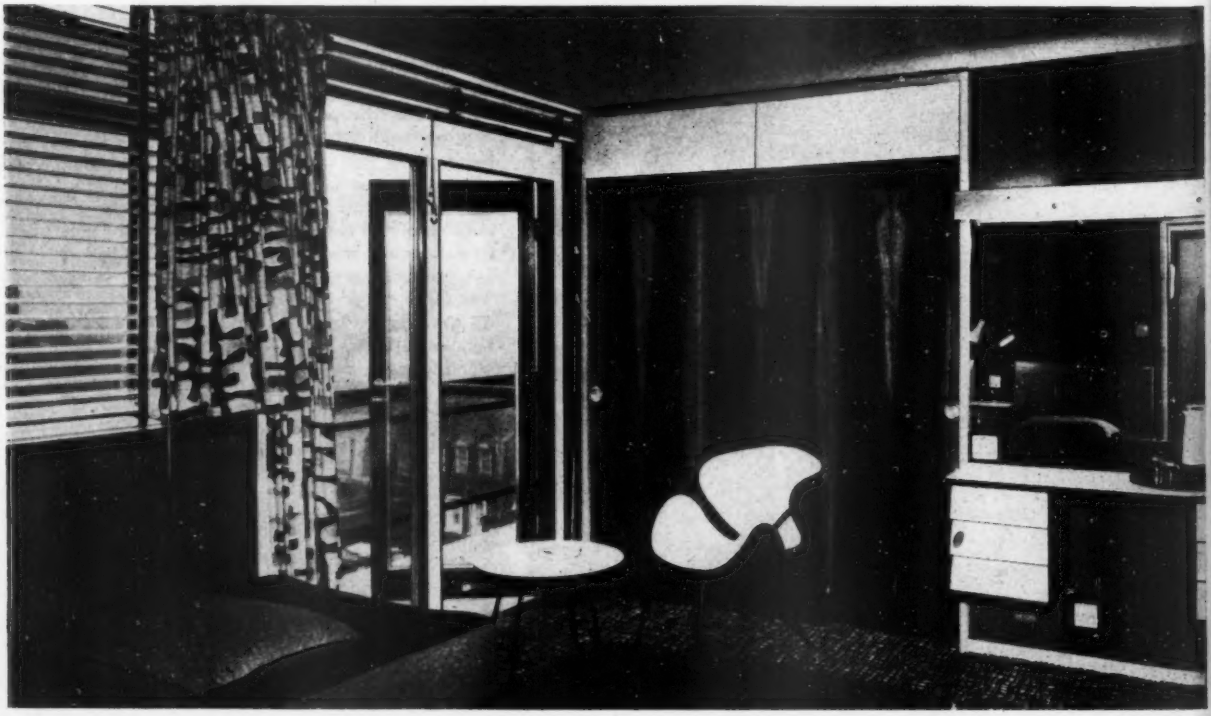
Windows — 9 11¼

Window panels of aluminium sections with horizontal sliders and top-hung hoppers. Glazed with 32-oz. glass and below the sill with 9/16-in. hermetically sealed hollow glass units. Aluminium windows below granite facings are glazed with ¼-in. toughened glass.

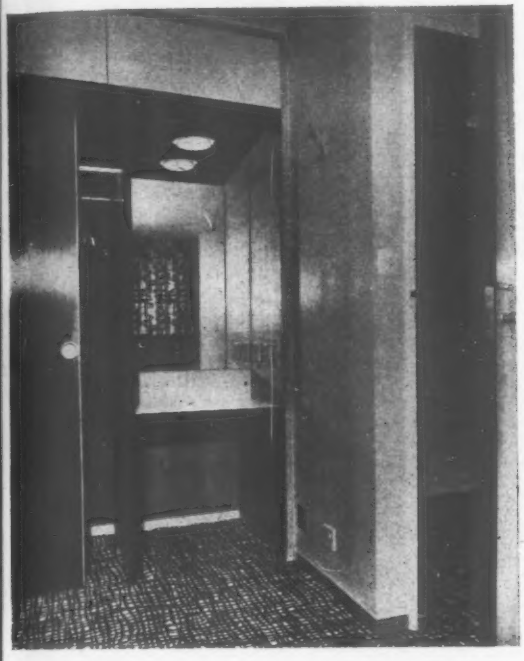
$$\text{Ratio: } \frac{\text{windows}}{\text{floor area}} = \frac{0{\cdot}121}{1}$$

building illustrated

Above left, a corner of a typical bedroom, looking into the bathroom. Bedrooms are planned as far as possible about a common service duct. Bathrooms are of a minimum size of 6 ft. 6 in. × 4 ft. 6 in. with a recess for a 5-ft. 6-in. bath. The common duct contains pre-formed welded steel soil waste and vent pipes, domestic water supplies and bathroom extract ventilation trunking. All wash basins are provided with spray type mixing taps and w.c. cisterns are of the low-level syphonic section type Bathroom floors are finished in unglazed ceramic mosaics and walls with eggshell glazed tiles to a height of 4 ft. 6 in. Suspended ceilings are of plaster on expanded metal and are illuminated by fluorescent lights with plastic covers, doors are flush veneered and top-hung on sliding gear—a possible source of annoyance from noise. Entrance doors to bedrooms are 1¾-in. fire-resisting, faced on both sides with plastic veneer. Below, a penthouse room with balcony on the eighth floor. The inside of the teak door and window frames is white plastic veneered, as also is the window board. Internal decor and fittings were not designed by the architects and the cost other than that of the hanging cupboards, is not included in the contract. The cupboard doors are hung with rather noisy sliding gear; it is intended that luggage can be stored here out of sight on the floor, which is carpeted—a continuation of the bedroom carpeting. All rooms are fitted with venetian blinds as well as curtains. Partitions between bedrooms are 3-in. lightweight concrete block, plastered both sides, chosen because weight and thickness were both of considerable importance as far as the structure and the available space were concerned. The resulting standard of sound insulation between rooms is



considered adequate by the client. The unit between the divan beds, opposite right, contains a control panel and speaker for radio, GPO and house telephone systems and switches for the bed lights. The headboards, secret-fixed to the wall, are covered with vinyl plastic treated to look like coach hide.



Fittings to bedrooms, above and below, are all variations on the same theme depending upon the room shape and location. Generally they are made of blockboard veneered in plastic. Lighting fittings are either directional bed fittings, spot lamps or fluorescent strip concealed behind metal facings. There are no ceiling fittings. All walls and ceilings are plastered and painted with three coats of plastic emulsion paint. When the building is completely dried out it is intended to redecorate with flat oil paint. Skirtings are of 2-in. × $\frac{3}{16}$-in. silver anodised aluminium.

analysis

External doors 4½

Metal louvred doors and sidelights to ground floor emergency exits in Clarges Street. Teak glazed doors to penthouse and teak framed ledged and braced doors to tank and motor rooms. Entrance doors to bank are of toughened glass with anodized aluminium top and bottom rails.

Ratio: $\frac{\text{external doors}}{\text{floor area}} = \frac{0{\cdot}011}{1}$

Upper floors 11 6½

In-situ reinforced concrete, 6½ in. thick from 1st to 7th floors, 8½ in. thick to 8th floor and 8 in. thick to 9th floor.

Staircases 10 10

Location	*Construction*	*Width*	*Total rise*
Basement to ground floor in bank.	*In-situ* r.c.	3 ft. 4 in.	9 ft.
External emergency stair.	Cast iron	2 ft. 9 in.	73 ft.
Utility link stair.	Precast concrete treads and risers cast into *in-situ* raking beams and landings	2 ft. 6 in.	60 ft.

Roof construction 8½

Timber roof over 8th floor penthouse, covered with aluminium foil and 2-in. heavy duty wood-wool slabs, and over tank and motor rooms covered with 1-in. boarding.
Area: 1,390 sq. ft.

Glazing 4½

Vertical patent glazing to tank and motor rooms. Other glazing described and cost included under windows.

Total of structural elements 51s 11½d

PARTITIONING AND FITTINGS

Internal partitions 3 4

Type of partition	*Area of each type*
4½-in. brick	120 sq. yds.
9-in. brick	180 sq. yds.
3-in. light concrete blocks	1,840 sq. yds.

Internal doors 4 2

Number of single: 171.
Number of double: 15 pairs.
1⅜-in. flush doors to basement.
1⅞-in. formica faced doors to bedrooms.
1½-in flush ply doors to bathrooms
1$\frac{13}{16}$-in doors to ducts, faced with vinyl on one side

Ironmongery 1 10½

2½-in diameter flush pull handles, mortice roller bolts, mortice budget locks, 4-in. barrel bolts, overhead sliding door tracks, kicking and push plates.

building illustrated

Shop fit
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Fittings 5 10¾

Built-in cupboards in bedrooms, with sliding doors and luggage store below. Cupboards in lift lobby. Duct access panels, linen chute, notice boards.

Total of partitions and fittings 15s 3½d

FINISHES

Floor finishes 3 0

Type of finish	*Area in sq. ft.*	*Price per sq. yd.*
1-in. granolithic	198	11s 3d
2-in. granolithic	90	16s 4d
Thermoplastic	1,504	36s 0d
Mosaic tiles	1,297	87s 0d
Cement and sand paving		
1½ in. thick	1,472	9s 0d
2 in. thick	9,115	10s 6d

Wall finishes 8 7¾

Plastered generally, with metal angle beads to external angles.
Glazed wall tiling to 5-ft. dado in bathrooms.

Ceiling finishes 2 4¼

Plastered generally direct to soffit of slab with vermiculite plaster. Ceilings suspended in bathrooms, plaster on expanded metal.
Lobby and corridors of 1st to 7th floors and ground floor lift lobby have suspended ceilings of translucent corrugated plastic, illuminated from behind.

Roof finishes 10½

Ceramic floor tiles, asphalt, screed and 2-in. compressed straw slabs to penthouse terrace. Area: 380 sq. ft.
Built-up felt roofing on reinforced screed above penthouse and to tank and motor room. Area: 1,390 sq. ft.

Decorations 3 6¾

Bedroom ceilings, 2 coats emulsion paint.
Remaining walls and ceilings, generally, 1 coat sealer and 2 coats oil paint.
Corridor and lift-lobby walls, vinyl plastic with a coach hide effect.
Metalwork, 1 coat primer, 3 coats oil paint.
Woodwork generally, stained and 3 coats clear cellulose.

Total of finishes 18s 5¼d

SERVICES

External plumbing 9 8½

Cast iron roof outlets and 4-in. r.w.p.s.
One pipe system of cast iron soil stacks.

Hot and cold water installation 3 6½

Hot water: four 500-gallon galvanised sheet steel calorifiers, heated from boilers in the existing building, with standby immersion heaters for exceptionally cold weather. Supply through galvanised iron pipe. All wash basins fitted with spray mixing taps. Cost, 2s. 3d. per sq. ft.
Cold water: stored in 1,250-gallon galvanised sheet steel tank, supply through galvanised iron tube. Cost, 1s. 3½d. per sq. ft.

Shop fitting and all other work to the bank premises on the ground floor, opposite page, are not included in the cost analysis, but these interiors are such a complete change from the traditional, slowly changing, banker's aesthetic that they deserve to be publicised. The stripey ceiling is slotted acoustic softboard painted venetian red and the floor is of a shaped mosaic tile contained in a rubber matrix. The mural is photographically printed on plastic material.

analysis

Sanitary fittings — s 4, d 3½

Type of fitting	*No. of each type*
Basins	59
W.c.s	58
Baths	52
Towel rails	53
Shower fittings	53
Show tray	1
Sinks	3

Heating and ventilation — 8 1¼

Electrical underfloor heating installation, thermostatically controlled to give internal temperature of 70 deg. F. at 32 deg. F. outside. Cables laid throughout, including bathrooms and corridors, in 2 in. screed. In bedrooms the floor heating is supplemented by one 1-kW. portable convector in each room. Cost, 4s. 5d. per sq. ft. Ventilation by mechanical extract system to bathrooms and basement lavatories and Plenum inlet ventilation system to basement. Cost, 3s. 3¼d. per sq. ft.

Electrical installation — 8 2¾

Type of point	*No. of each type*
Main switch and fuse panels	2
Secondary switch and distribution boards	10
Lighting	384
Socket outlets	158
Radio or T.V. outlets	56
Clock points	64
Fireplace outlets	56
Lift motors	2
Immersion heaters	10

Lifts — 15 9½

Two 200 ft. p.m. 8-person passenger lifts. These are identical but one can be switched out of service for use by waiters serving breakfast, etc. in bedrooms, and for carrying up luggage.

Total of services — 49s 7¾d

Drainage — 1 6½

4-in. and 6-in. cast iron drains run in ducts, and collection chambers under basement floor

Other elements — 6 7

External works: work on site, underpinning and making openings in existing hotel. External neon sign.

Total per sq. ft. of floor area: s d

£130,900 (net cost excluding external works) / 16,250 sq. ft. (measured inside external walls) = 161 1½

Anticipated final cost = 170s. 4d. per sq. ft

CONTRACTORS

WASHINGTON HOTEL EXTENSION:

General contractors: Bovis Ltd. *Sub-contractors: Asphalt work and built up felt roofing:* H. V. Smith & Co. Ltd. *Alloy architraves to lifts:* Potter Rax Ltd. *Staircase balustrading:* Clark Hunt & Co. Ltd. *Aluminium windows and cladding:* Quicktho (1928) Ltd. *Electrical installation:* Barlow & Young Ltd. *Escape staircase:* Frederick Braby & Co. Ltd. *False ceiling:* Expanded Metal Co. Ltd. *Floor mosaic and wall tiling:* W. N. Froy & Sons Ltd. *Glazed screen:* Williams and Williams Ltd. *Granite:* Cooper Wettern & Co. Ltd. *Electric passenger lifts:* The Express Lift Co. Ltd. *Mineralite facing:* Kendalls Flooring Ltd. *External mosaic and floor of bank:* Supplied by P. Bennion Ltd.; fixed by E. J. Orme. *Plumbing:* Fleming Eason Ltd. *Plastering:* General Plasterers Ltd. *String court channels:* Culford Art Metal Co. Ltd. *Scaffolding:* Norstel Ltd. *Ventilation:* Norris Warming. *Vitroslab cladding:* Faulkner Greene & Co. Ltd. *Waterproof rendering:* Siko Ltd. *Illuminated ceilings:* Luminated Ceilings Ltd. *Vitreous enamelled steel:* William Mallinson & Sons, Ltd.

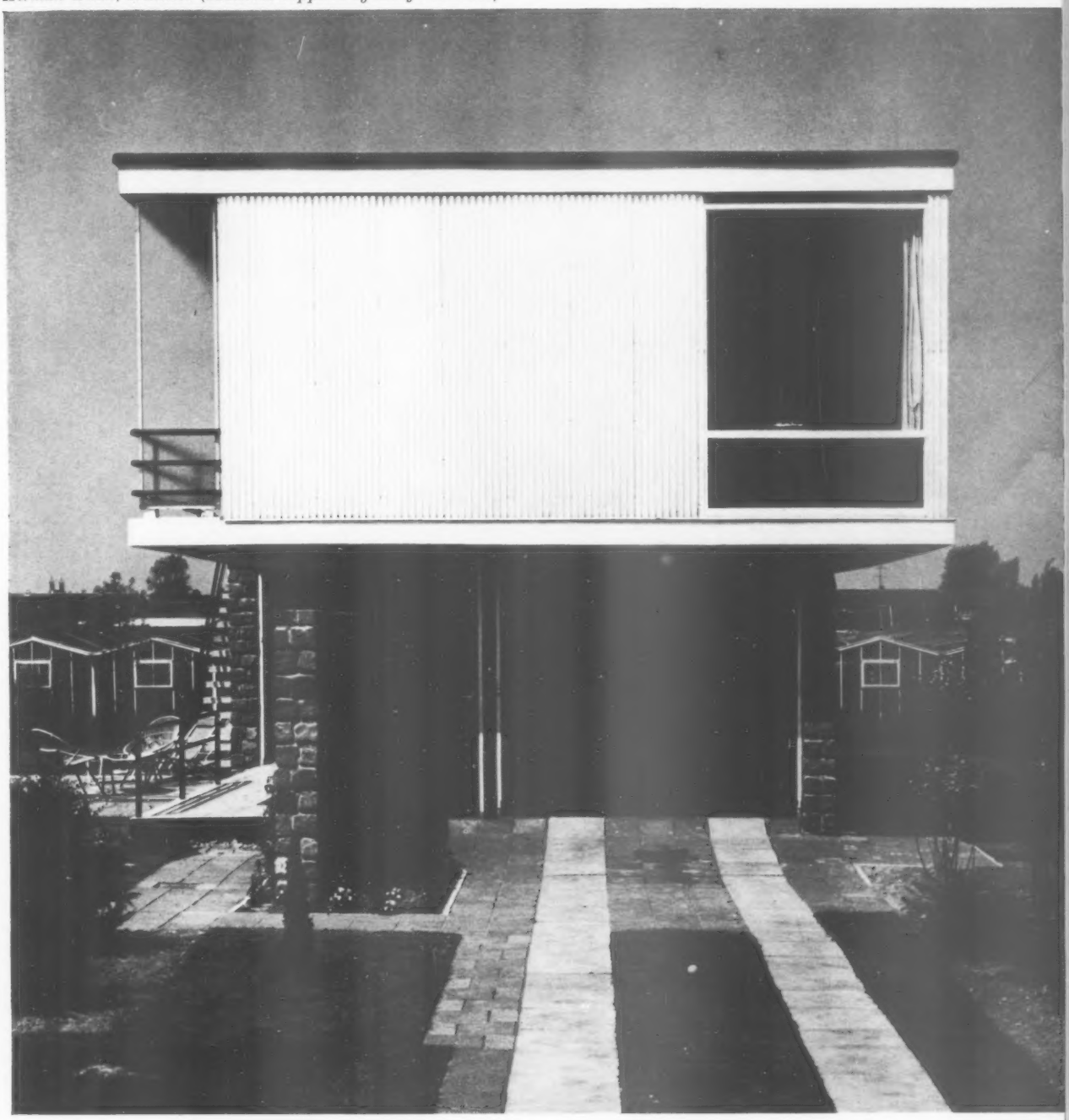
NATIONAL BANK OF SCOTLAND:

This supplements the Washington Hotel contractors' list, as the bank occupies the ground floor and basement of the building.

General contractors: Bovis Ltd. *Sub-contractors: General contractors for bank interior:* Burkle & Son Ltd. *Floor tiling:* Armstrong Cork Co. Ltd. *Staircase balustrading:* Clark Hunt & Co. Ltd. *Electric bullion lift:* Otis Elevator Co. Ltd. *Strongroom construction, doors and safes:* Chubb & Sons Ltd. *Aluminium windows:* Quicktho (1928) Ltd. *Electrical installation:* Barlow & Young Ltd. *False ceiling:* Expanded Metal Co. Ltd. *Wall tiling:* W. N. Froy & Sons Ltd. *Granite:* Cooper Wettern & Co. Ltd. *Tile coat-of-arms:* Chelsea Potteries. *Mosaic (external):* E. J. Orme Ltd. *Plumbing:* Fleming Eason Ltd. *Plastering:* General Plasterers Ltd. *Ventilation:* Norris Warming Co. Ltd. *Waterproof rendering:* Siko Ltd. *Illuminated ceilings:* Luminated Ceilings Ltd. *Marble to counter:* J. Whitehead & Sons Ltd. *Hermeseal acoustic ceiling and walls:* Sound Control Ltd. *Desks:* Andrew & Pegram Ltd. *Armourplate doors:* James Gibbons Ltd. *Fascia lettering:* Ward & Company. *Furniture to manager's desk:* Hille of London Ltd. *Mosaic flooring:* Haskel & Robertson Ltd. *Carpet:* L & S Carpets Ltd. *Rubber matting:* Redfern Ltd. *Artist of the mural:* T. Renwick Adams. *Plastic lamination of the mural:* Phillip Pound Ltd.

WALL CLADDING: HOUSE IN ROTTERDAM

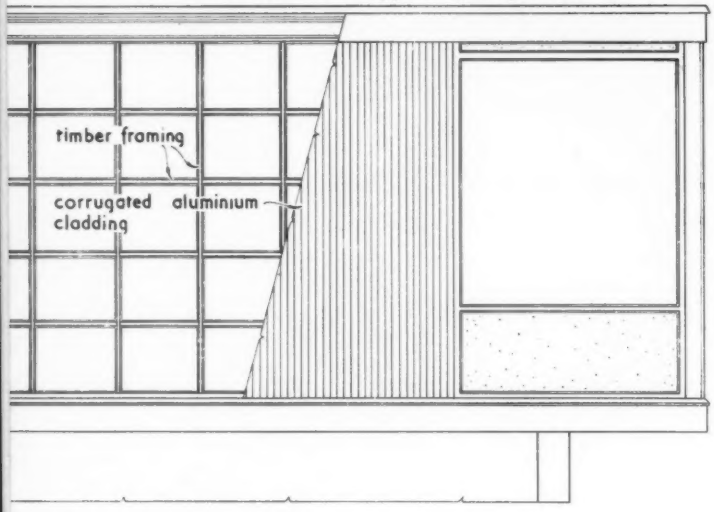
Herman Haan, architect (Material supplied by Ranjit Sabikhi)



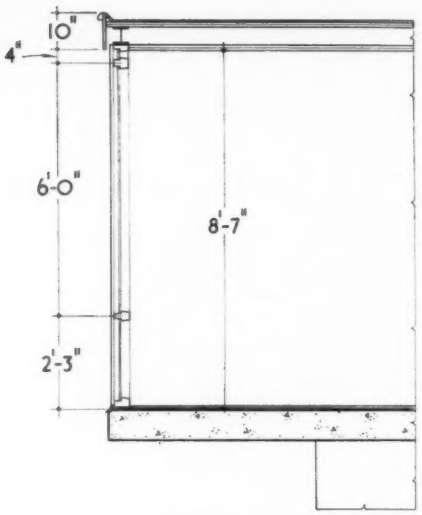
This detail shows an interesting lightweight frame construction using aluminium corrugated sheeting, insulating slabs in timber framing and plastic-faced plywood inner linings.

WALL CLADDING: HOUSE IN ROTTERDAM

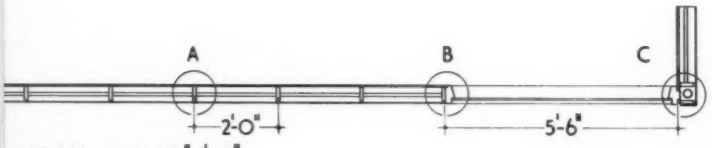
Herman Haan, architect (Material supplied by Ranjit Sabikhi)



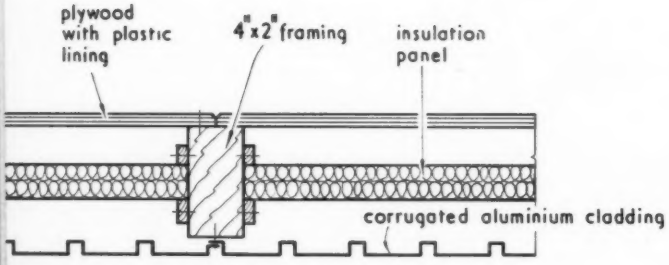
ELEVATION scale 1/4"=1'-0"



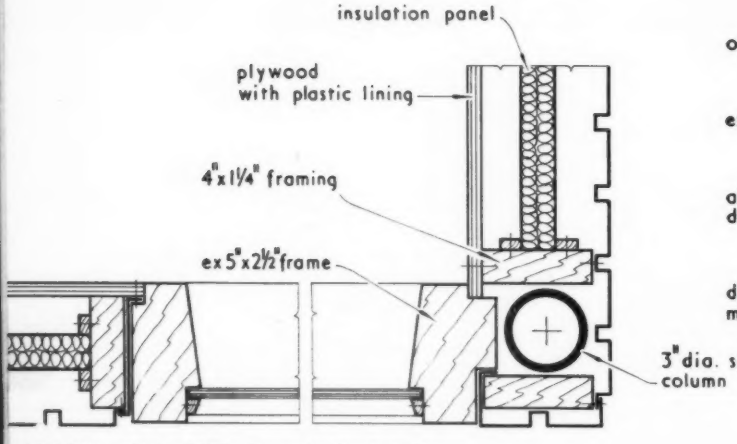
SECTION. scale 1/4"=1'-0"



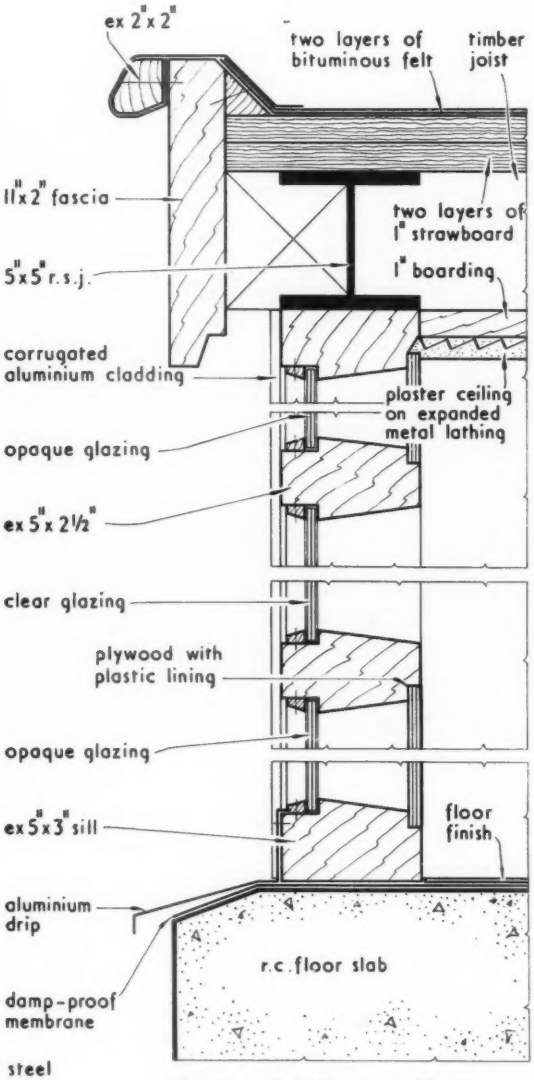
PLAN scale 1/4"=1'-0"



DETAIL AT A scale 1/6 full size



DETAIL AT B. AND C. scale 1/6 full size



DETAIL SECTION. scale 1/6 full size

note: figured dimensions in feet and inches are approximate

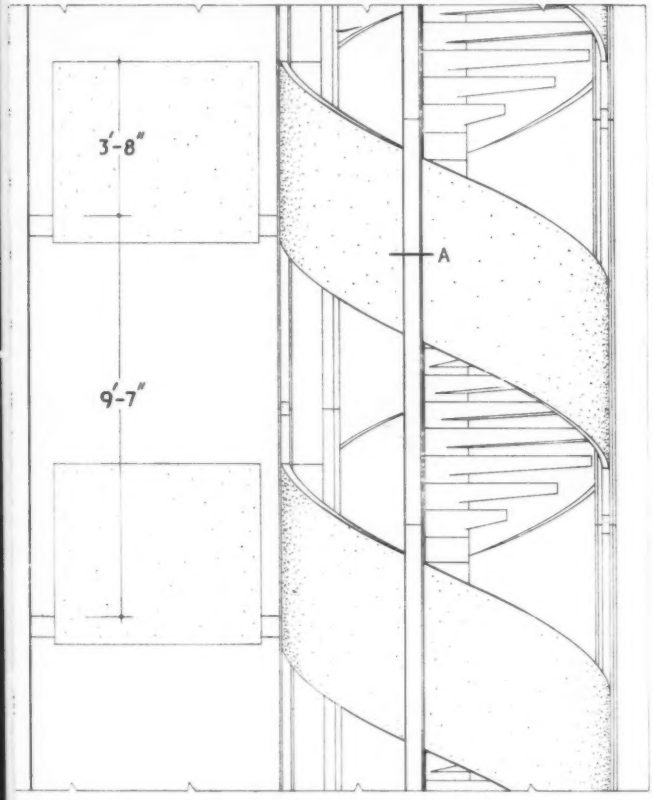
FIRE ESCAPE STAIRCASE: TOWER IN GENEVA

A. Bordigoni, J. Gros, A. de Saussure, R. Fleury, architects (Material supplied by Dariush Borbor)

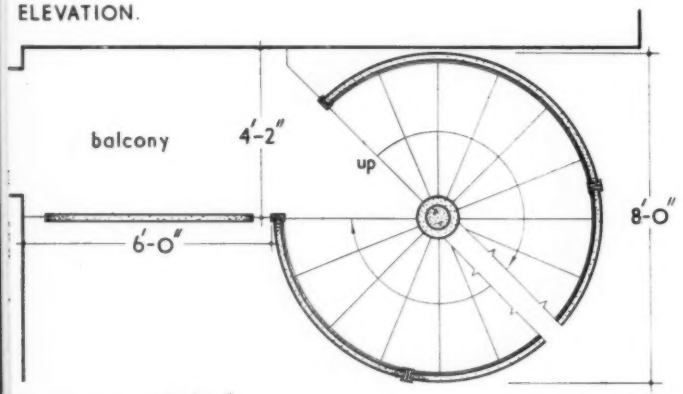
The erection sequence was, first, to fix the precast spiral treads; second, to weld the steel uprights to steel angles cast into the treads taking one rise at a time; third, to lower each curved precast baluster slab on to steel angles welded to the flanges of the uprights and grout in. A further length of steel upright was then bolted on and the cycle repeated. English readers will envy the quality and precision of the curved panels.

FIRE ESCAPE STAIRCASE: TOWER IN GENEVA

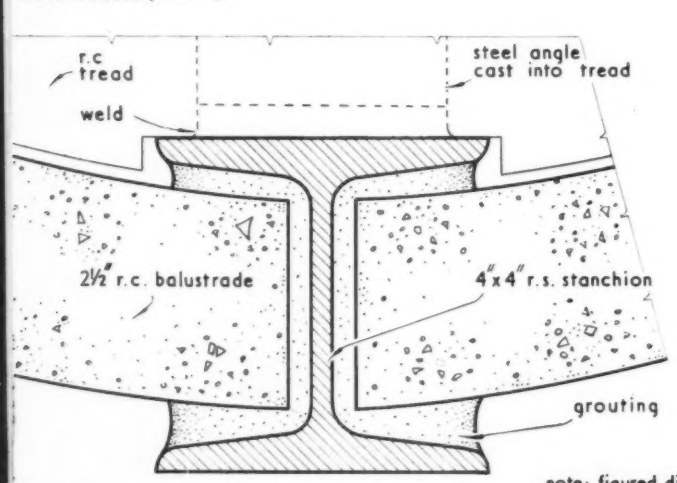
A Bordigoni, J. Gros, A. de Saussure, R. Fleury, architects (Materials supplied by Dariush Borbor)



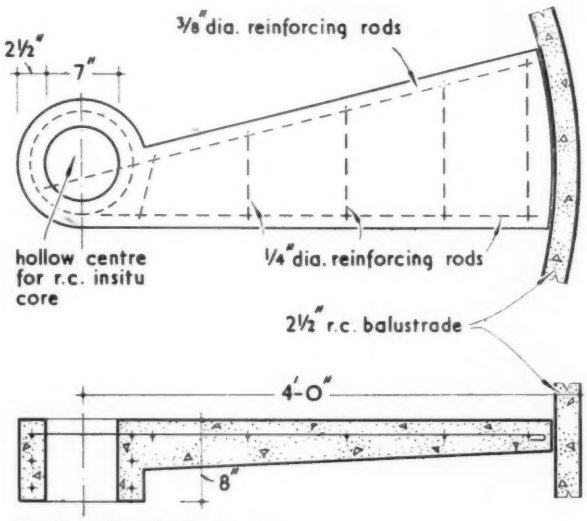
ELEVATION.



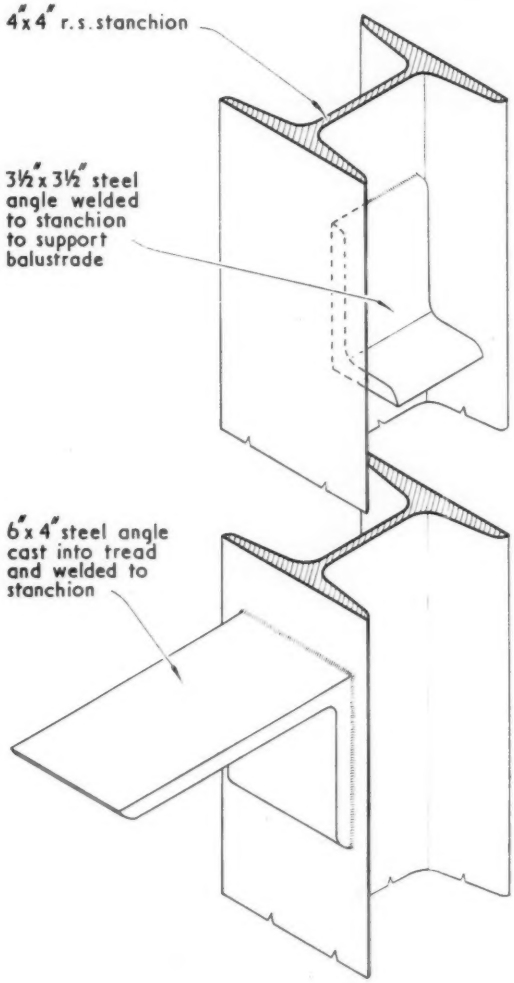
PLAN. scale 1/4"=1'-0"



PLAN AT A. scale 1/2 full size



PLAN AND SECTION OF TYPICAL TREAD. scale 3/4"=1'-0"



DETAIL OF STRUCTURAL STEELWORK. scale 1/4 full size

note: figured dimensions in feet and inches are approximate

THE BROOKWOOD MEMORIAL

Architect: R. Hobday, A.R.I.B.A., Senior Architect to the Imperial War Graves Commission.

Broughton Moor Light Sea Green Slate

was chosen for its lasting beauty to preserve the names of 3,500 men and women of the Commonwealth who died on active service during the second world war, and who have no known graves. Their names are carved in the twenty-eight panels of Broughton Moor Light Sea Green slate set in the circular columns of the Brookwood Memorial, recently unveiled by the Queen. Chiselled deep into the glassy surface of the highly polished slate, the names are clear and legible. This beautiful green slate from the Lake District, rugged and hard, will defy the tooth of time to preserve the names for centuries to come.

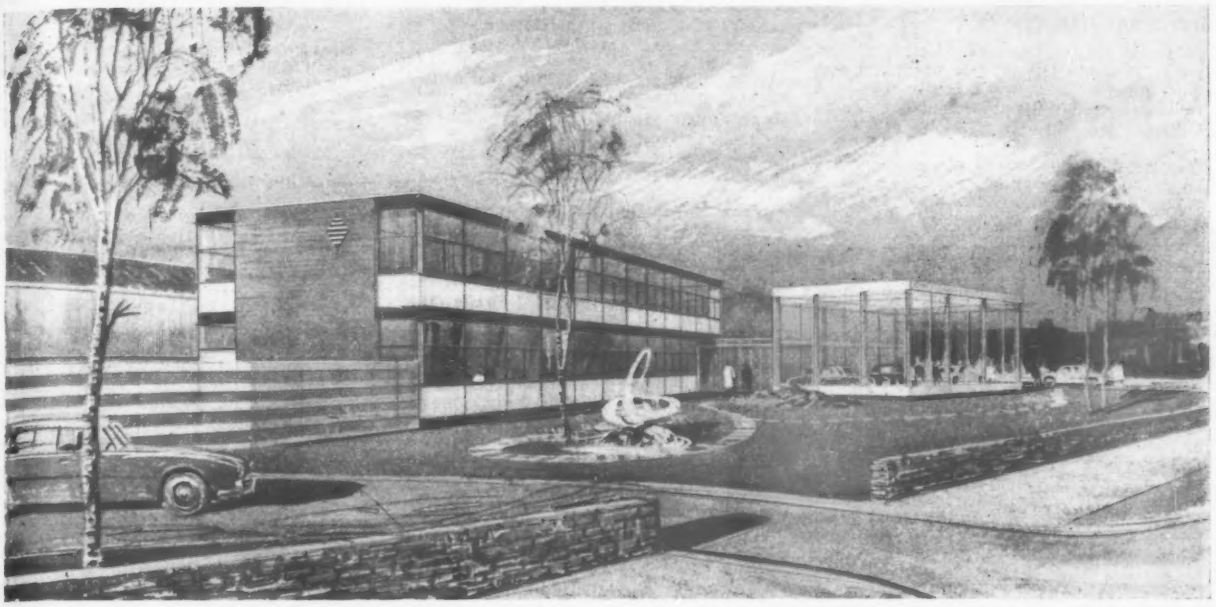
A section of Broughton Moor Slate, showing the highly polished finish. Finely rubbed, naturally riven, sanded and frame sawn finishes are also supplied, and technical pamphlets showing typical methods of fixing are available, as follows : 1. Flooring. 2. Facings. 3. Coping. 4. Cills. 5. Riven Face Slabs.

The BROUGHTON MOOR Green Slate Quarries Ltd.

CONISTON · THE LAKE DISTRICT · LANCASHIRE

Telephone : Coniston 225

CAR SHOWROOM AND FACTORY EXTENSION IN ACTON, LONDON



A glass showroom, rather like the transparent package that shows off luscious chocolates, has been designed by Clifford Tee and Gale, as part of the extensions to the Renault's assembly plant in Western Avenue, Acton, and as Renault claim that the Dauphine is catching up with the Volkswagen in popularity largely on "optique," *what could be more suitable? To the left of the showroom in the above sketch is a two-storey office block, also a light steel frame building with curtain walling largely of glass. Behind, on left, is the corrugated asbestos wall of the transit shed for new cars and repairs.*

Announcements

PROFESSIONAL

Douglas Calder, A.R.I.B.A., A.M.T.P.I., formerly Planning Officer, Isle of Man Local Government Board, was recently appointed Inverness County Architect and Planning Officer.

G. H. Wilkinson, A.R.I.B.A., A.M.T.P.I., has taken up an appointment as Town Planning Officer and Borough Architect, Ballymena, Co. Antrim, and will be pleased to receive trade catalogues.

V. B. Johnson & Partners, Chartered Quantity Surveyors of Watford and Bedford, have taken into partnership P. G. Stanley, A.R.I.C.S., who will continue to be in charge of their office at 38/40, High Street, Bedford.

C. H. Aslin, C.B.E., P.P.R.I.B.A., has taken up the position of Consultant to Morrison & Partners, Architects, of Derby, London, and Sheffield. S. Morrison, T.D., F.R.I.B.A., M.S.I.A., and W. J. Farmer, DIP. ARCH., A.R.I.B.A., M.S.I.A., have taken into partnership Francis Minter, A.R.I.B.A., in the Derby practice of Morrison and Partners, St. Alkmund House, 103, Belper Road, Derby. Also they have taken into partnership Raymond T. Dennis, DIP. ARCH., A.R.I.B.A., and Gerald F. Sheard, B.A., A.R.I.B.A., at the London Office, 30b, Wimpole Street, W.1, to which Mr. Sheard has transferred his former practice at 14, Fitzroy Street, W.1. The Sheffield practice will continue at 15, Northumberland Road, Sheffield, 10, the partners being Mr. Morrison, J. B. Jefferson, DIP. ARCH., A.R.I.B.A., and C. A. E. Davy, DIP. ARCH., A.R.I.B.A.

TRADE

A. J. & J. D. Harris, Chartered Civil Engineers of 75, Victoria Street, S.W.1, have taken into partnership R. J. M. Sutherland, B.A., A.M.I.C.E.

W. G. Lilly, of Walter Lilly & Co. Ltd., has resigned. The Board has now been reconstituted as follows: E. F. Burrows, F.I.O.B., E. W. Segrove, F.I.O.B., A. W. Davies, M.I.O.B., S. J. Gater, M.BLDG.S.I., A. E. Bayliss, F.I.A.C., Secretary

British Insulated Callender's Cables Limited have altered the telephone number of their Nottingham Branch office. The new number is Nottingham 55932 (2 lines). They have also moved their Carlisle Branch office to Durranhill Industrial Estate, Harraby, Carlisle (telephone Carlisle 22221).

Philplug Products Limited have amalgamated with Expandite Limited. T. W. Greenwood remains as Managing Director and the administrative staff continues unchanged. T. Pooley, A. Cathcart and C. R. Warr have joined the Board of Philplug Products Limited.

T. & W. Farmiloe Ltd. have appointed John Hemus as a representative in the Company's Architectural Division.

AEI Group, Siemens Edison Swan Ltd. have been divided into three divisions: cables, telecommunications and radio and electronic components. Controlling these divisions are J. S. A. Bunting, W. G. Patterson and J. W. Ridgeway.

K. W. Johnson of D. Anderson & Son Ltd. has resigned his position as Manager of the Pyrodek Division.

The Technical and General Press Service have now moved to larger offices at 13, Grape Street, W.C.2 (telephone Covent Garden 0745/6).

The Ruberoid Co. Ltd. have appointed K. A. Goodchild as sales representative for South Wales.

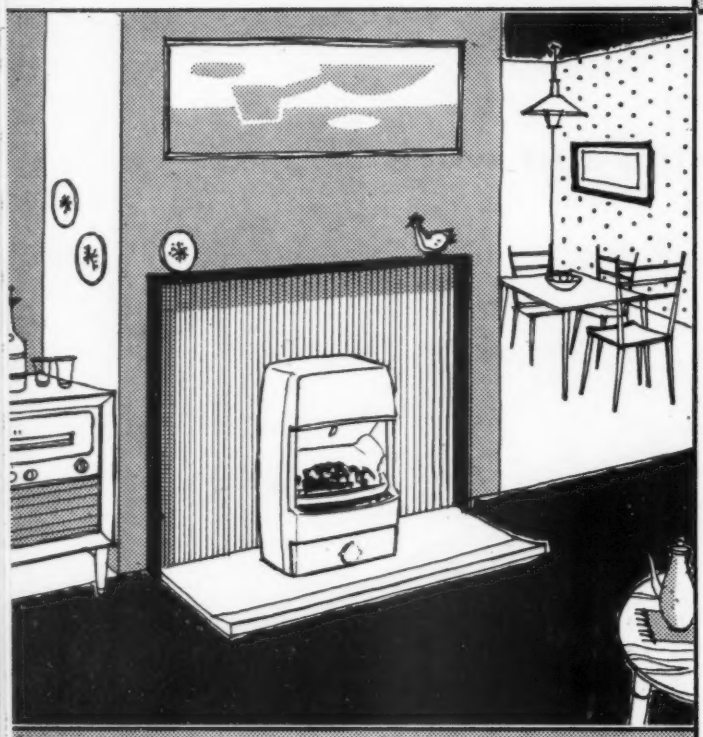
The Costain Group has formed a new company, Foundation Engineering Ltd., to take over all the functions previously performed by its Soil Mechanics Department.

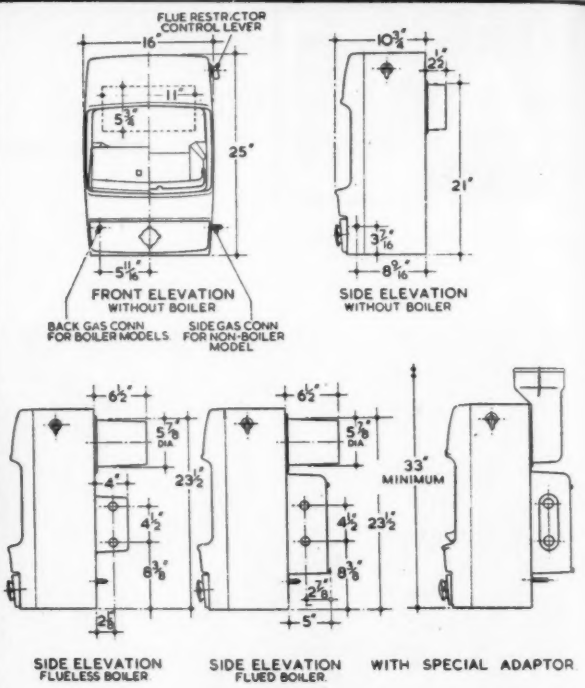
The Fire Protection Association has now moved to Garrard House, 31/45, Gresham Street, London, E.C.2 (telephone Monarch 7412).

John Hall & Sons (Bristol & London) Ltd. have made the following new appointments: T. R. Hall—Company Sales Manager, Decorative Paints Division; D. A. Clifton-Mogg—Regional Sales Manager, Northern Region, Decorative Paints Division; D. R. Guise—Regional Sales Manager, Midland and West Regions, Decorative Paints Division.

Correction

The following corrections should be noted in the index of cost analyses published in the JOURNAL for January 1. Flatted Factories at Birmingham should read 20.2.58, not 20.2.57. British Diamond Wire Die Co. should read 31.7.58, not 13.7.57. Hangar at Gatwick should read 13.11.58, not 14.8.58. *Addendum:* Warehouse and Factory in Dublin, architect Michael Scott, 5.6.58.





This new RAYBURN free-standing fire solves three problems:

An illustrated leaflet is available, giving full details of the three models available for this new Rayburn free-standing open fire. The leaflet also gives full technical information.

More warmth all over the room: The Rayburn free-standing fire is designed to stand forward on the hearth so that its wide angle of radiation gives greater all-round warmth. Also, convected currents of air pass over the exposed hot casing, giving more efficient heating, and making the whole room comfortable.

Economy: This new Rayburn fire has a variable throat restrictor, which not only ensures greater heat output per pound of fuel used, but also reduces room draughts to a minimum, thus conserving heat. All models are designed to burn Open Fire Gas Coke 1" to 2" (No. 2 size), 'Coalite', and 'Rexco'. The non-boiler model and flued boiler model will also burn dry steam coal and household coal.

Good looks *plus* efficient heating: This is seldom possible, but this new Rayburn fire has clean, beautiful lines. At last, an open fire has been produced that is attractive to look at, as well as giving outstanding performance in heating the room. Besides the usual colours—Alisheen black or copper, mushroom or black vitreous enamel—there are three beautiful new shades of vitreous enamel: primrose, birch grey, and blue.

...and hot water, too

If desired, the Rayburn free-standing fire can be supplied with either a flued or flueless boiler. It can then provide 2-3 hot baths a day, plus hot water for other domestic requirements.

Please write to:

ALLIED IRONFOUNDERS LTD
Makers of cookers, boilers, fires and baths.
28 Brook Street, London, W.1

'Durever' p.v.c. flooring made by British Mouldex Ltd., Wellingborough, in the entrance hall of a large laboratory.

When flooring is made from p.v.c.

It's better made from I.C.I. 'Corvic'

WHEN you use 'Corvic' p.v.c. polymers you benefit from the finest research and technical service in the country. I.C.I. put that service at the disposal of all users of p.v.c. Indeed, even if you are only considering using p.v.c. I.C.I. will be glad to help you.

The illustration shows p.v.c. flooring in a large laboratory. It is handsome, hard-wearing, easy to clean and maintain. The p.v.c. used by British Mouldex Ltd., is 'Corvic' — there is none better.

'CORVIC'

'Corvic' is the registered trade mark for the p.v.c. polymers manufactured by I.C.I.

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In handy cans, no mixing or heating, clean in use and finish. UNI-BOND is resistant to water, oil and petrol and dilute acids, does not crack or craze.

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- **Cuts the work of applying the final coat by one-third to one-half.**
- **Needs no Pre-sanding before painting.**
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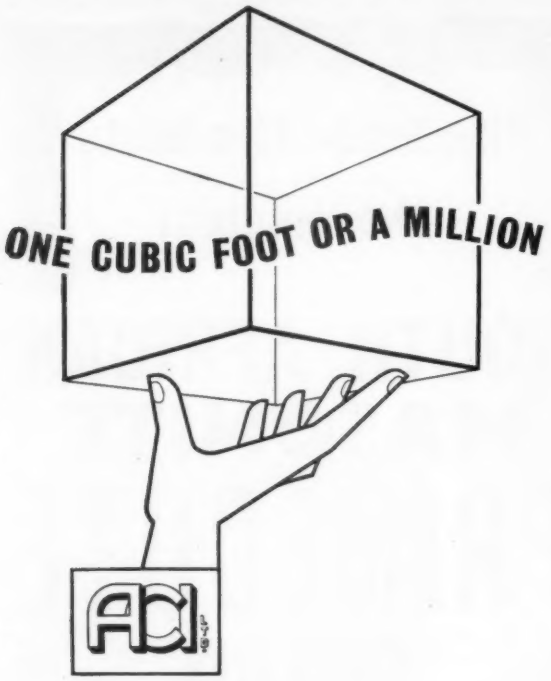

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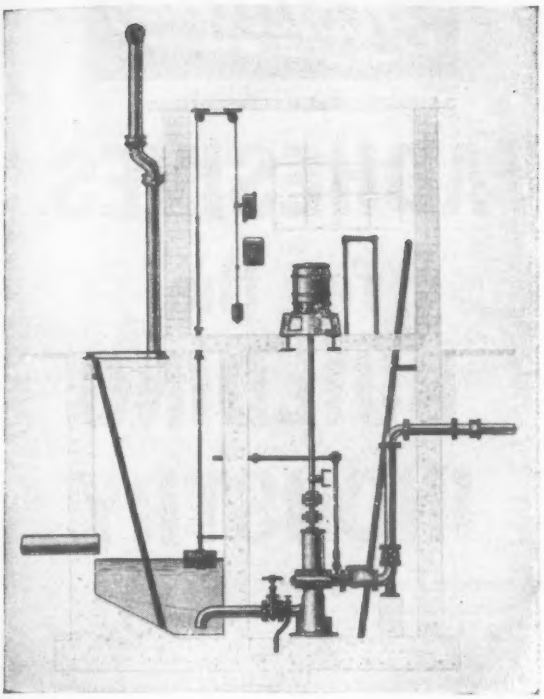

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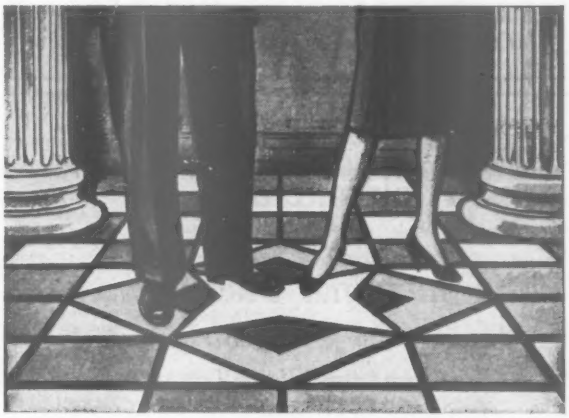
Add *DISTINCTION* to Terrazzo and Composition Floors



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Lorival Plastic Flooring Strip breaks up the monotony of composition floors. It's rigid enough to lay easily in straight lines—yet sufficiently pliable at room temperature to form attractive designs.

Three sections and ten sizes are available—made from high quality p.v.c. which wears evenly with the surrounding composition and is unaffected by cement or cold bitumen.

There is a choice of 12 colours, including black, which can be used to harmonize with any shade of decorative floor.

Write for leaflet and name of nearest stockist

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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

METROPOLITAN BOROUGH OF LAMBETH
ARCHITECTURAL STAFF

Applications are invited from architects to assist in large programme of conversion and improvement of dwelling houses. Duties: Surveys of existing properties, preparation working drawings and specifications and supervision of works in progress, etc. Appointment will be on a temporary basis for possibly two or three years. Applications will be considered from older members of the Profession with suitable experience. Salary: according to qualifications and experience within the range £875/£1,055 p.a.

Full details of experience and qualifications should be forwarded to the Town Clerk, Lambeth Town Hall, London, S.W.2.

31st January. 2456

ARCHITECTURAL ASSISTANTS
Required by
MINISTRY OF WORKS

For employment in London and Provinces on design and detailing work on construction and maintenance of all types of public buildings.

Salary range £550 (age 21) to £870 p.a. London (slightly less elsewhere).

Five-day week. 3½ weeks annual leave initially. Starting pay according to age, qualifications and experience. Good prospects of promotion with salaries of £1,015 p.a. and above.

Opportunities for permanent posts leading to pensions (non contributory).

Interviews at Regional Offices where possible. Applicants should be of Intermediate R.I.B.A. standard. State age, training and experience to Chief Architect, Ministry of Works, Room 435, Abell House, John Islip Street, S.W.1. 2444

BOROUGH OF SHREWSBURY
BOROUGH SURVEYOR'S DEPARTMENT
ARCHITECTURAL ASSISTANT

Applications are invited for the post of Architectural Assistant, Special Grade, £750 × £40—£1,030.

Housing accommodation will be provided if required and removal expenses paid.

Applications stating age, qualifications and experience with the names of two persons to whom reference can be made, should be submitted to the Borough Surveyor, Guildhall, Shrewsbury, by the 26th January, 1959.

S. R. H. LOXTON,
Town Clerk.

Guildhall,
Shrewsbury. 2582

THURROCK U.D.C. (Engineer and Surveyor's Dept.) require ARCHITECTURAL ASSISTANT under Architect to the Council. Salary: A.P.T. I/II, £575—£845 p.a. Good architectural experience is necessary. Applicants must be capable of preparing working drawings in all categories and should have passed the Intermediate Examination of the R.I.B.A. The Council have interesting projects in hand, including the Indoor Swimming Bath. Appointment pensionable. Applications, stating age, qualifications, and experience, and quoting three referees, to the Clerk of the Council, Council Offices, Grays, Essex, by 27th January, 1959. Canvassing disqualifies. Relationship with Members or Senior Officers of the Council must be disclosed. 2596

NEWTON-LE-WILLOWS URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment. Salary Grade A.P.T. II. The National Scheme of Conditions of Service and the Local Government Superannuation Acts will apply. Provision of housing accommodation considered.

Preference will be given to applicants who have had experience in municipal housing.

Applications, stating age, qualifications and experience, together with the names of two referees, to be received by the Clerk of the Council, Town Hall, Market Street, Newton-le-Willows, Lancashire, not later than 30th January, 1959. 2628

BOROUGH OF POOLE
APPOINTMENT OF THREE ASSISTANT ARCHITECTS
Special Grade £750—£1,030

Applications are invited for the above appointments to the Borough Engineer's staff. Candidates should have passed the appropriate professional examinations. Starting salary will depend upon age and experience.

These are new appointments to deal with an expanded Capital Programme, including Schools, Multi-Storey Flats, etc.

Application forms from the Borough Engineer & Surveyor, Municipal Buildings, Poole, to be returned to the undersigned by Friday the 30th January.

J. G. HILLIER,
Town Clerk.

Poole.
January, 1959. 2634

BENTLEY-WITH-ARKSEY URBAN DISTRICT COUNCIL
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the position of Assistant Architect at a salary in accordance with Grade IV (£1,025—£1,175 per annum).

Applicants must have passed the Final examination of an appropriate professional body or be University graduates, and have considerable experience of municipal housing and other municipal work.

Applications, stating age, qualifications and experience, particulars of present and previous appointments, together with copies of three recent testimonials and endorsed "Assistant Architect," must be delivered to the undersigned not later than noon on Monday, 2nd February, 1959.

The successful candidate will be provided, if necessary, with housing accommodation.

The appointment will be subject to (1) the provisions of the Local Government Superannuation Act, 1953; (2) the National Scheme of Conditions of Service; (3) the satisfactory passing of a medical examination and (4) termination by one month's notice on either side.

W. H. CARLILE,
Clerk to the Council.

Council Offices,
Cooke Street,
Bentley,
Nr. Doncaster. 2616

BOROUGH OF HENDON
SENIOR ASSISTANT ARCHITECT—GRADE APT. V
SENIOR ASSISTANT ARCHITECT—GRADE APT. IV

Applications are invited for the above appointments in the Architects Section of the Borough Engineer and Surveyor's Department at a commencing salary, according to experience, within the grades APT. V (£1,175 to £1,325) and APT. IV (£1,025 to £1,175) as applicable, plus London weighting. Candidates must be Associate Members of the Royal Institute of British Architects.

The posts are pensionable, subject to National Scheme and medical examination. The Council is prepared to consider assisting suitable applicants with housing accommodation.

Applications with full details, together with names and addresses of two referees, must reach the Borough Engineer and Surveyor by Monday, 26th January, 1959. Canvassing will disqualify.

R. H. WILLIAMS,
Town Clerk.

Town Hall,
Hendon,
N.W.4. 2532

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for (1).—ARCHITECT/PLANNERS. Tasks include three-dimensional planning within London's eight major comprehensive development areas (including Stepney/Poplar, the South Bank and Elephant and Castle) and other redevelopment areas. Work includes preparation of comprehensive lay-outs for all important areas of new development throughout County, including areas to be redeveloped in connection with road improvements.

(2).—TOWN PLANNING ASSISTANTS. Duties include investigation of development proposals, surveys, report writing, preparation of data for Public Inquiries.

Starting salaries in each case up to £860 according to experience and qualifications. Application forms and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council (EK/61/58), County Hall, London, S.E.1. (2167.) 1960

THE UNIVERSITY OF MANCHESTER

Applications are invited for two posts of LECTURER in ARCHITECTURE from candidates with professional membership of the Royal Institute of British Architects and not less than three years of practical experience. Salary on a scale from £900 to £1,650 per annum; initial salary according to qualifications and experience. Membership of the F.S.S.U. and Children's Allowance Scheme. Applications should be sent not later than January 31st, 1959, to the Registrar, the University, Manchester 13, from whom further particulars and forms of application may be obtained. 2401

SURREY COUNTY COUNCIL

Applications invited for following appointments:—

1. ASSISTANT ARCHITECT, Special Grade, £750—£1,030 p.a. plus £30 p.a. London Allowance. Must be A.R.I.B.A.

2. ASSISTANT QUANTITY SURVEYOR, Grade IV, £1,025—£1,175 p.a. plus £30 p.a. London Allowance. Must be Chartered Quantity Surveyor with experience of estimating, taking off, valuing works in progress and final accounts for large public buildings, including all Specialist Works.

3. ASSISTANT QUANTITY SURVEYOR, Grade I, £575—£725 p.a. plus London Allowance of up to £30 p.a. according to age. Must have passed First Examination R.I.C.S. and had several years' experience in an approved office.

4. ASSISTANT STRUCTURAL ENGINEER, Special Grade, £750—£1,030 plus London Allowance of £30 p.a. Qualified Civil or Structural Engineer, experienced in design and detailing in steel and/or reinforced concrete.

5. ASSISTANT STRUCTURAL ENGINEER, Grade I, £575—£725 plus London Allowance of up to £30 p.a. Knowledge of detail and some design in steel or concrete.

Full details, present salary and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 2623

CAMBRIDGESHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited for the appointment of a PLANNING OFFICER on the Special Grade (£750 × £40 (7)—£1,030).

The vacancy is in the Development Control Section and the successful applicant will probably be responsible for a rural area.

The appointment is subject to the provisions of the Local Government Superannuation Acts, the Council's conditions of service and a satisfactory medical examination.

Applicants should be Corporate Members of the Town Planning Institute, should have wide experience in a Planning Office and be able to drive a car.

Applications, stating age, past and present appointments, qualifications, experience and present salary together with the names of two referees should be sent to the County Planning Officer, Gloucester Street, Castle Hill, Cambridge, not later than the 26th January, 1959.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge. 2583

CWMBRAN DEVELOPMENT CORPORATION

Applications are invited for posts as ASSISTANT ARCHITECTS in the Salary Grade A.P.T. IV/V (£753—£1,029) with a commencing salary according to qualifications and experience.

Candidates should preferably be Associates of the R.I.B.A. with suitable office experience and should have had good experience in House design, Construction and Layout. The post is superannuable and housing accommodation will be provided in suitable cases, or otherwise lodging allowance will be paid to married men for a limited period.

Applications stating age, qualifications, experience, present and former employment (together with applicable salaries) and the names and addresses of two referees should reach the undersigned by first post on Monday, 2nd February, 1959.

J. C. P. WEST, A.R.I.B.A., M.T.P.I.
Victoria Street,
Cwmbran,
Mon. 2617

COUNTY BOROUGH OF
BARROW-IN-FURNESS
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
ASSISTANT ARCHITECT
Special Grade (£750—£1,030 p.a.)

Applications are invited for a post of ASSISTANT ARCHITECT on Special Grade (£750—£1,030 p.a.). The commencing salary will be fixed according to the qualifications and experience of the successful applicant. Candidates must have passed Parts I and II of the R.I.B.A. Final examination.

Housing accommodation may be provided if required.

The Department works a five-day week.

Further details and forms of application may be obtained from the Borough Engineer and Surveyor, Town Hall, Barrow-in-Furness, to whom applications must be returned not later than Monday, 2nd February, 1959.

LAWRENCE ALLEN,
Town Clerk.

Town Hall,
Barrow-in-Furness. 2607

CITY OF CANTERBURY

Applications are invited from persons who have passed the R.I.B.A. Intermediate Examination for the temporary appointments of ARCHITECTURAL ASSISTANTS, Grades A.P.T. I (£575—£725) and A.P.T. II (£725—£845).

The successful candidates will be engaged on the design and construction of School and Housing projects. The work includes a new Technical College and all aspects of housing.

The appointments offer considerable scope for initiative and experience and are likely to extend over a number of years. Opportunities occur from time to time for promotion within the Department.

The commencing salary will be fixed within the Grades according to ability and experience.

Applications, together with the names of two referees, must reach the City Architect & Planning Officer, Mr. J. L. Berbiers, F.R.I.B.A., A.M.T.P.I., not later than Monday, 26th January, 1959. Canvassing will disqualify.

J. BOYLE.
Town Clerk.

Municipal Buildings,
Canterbury. 2591

COUNTY COUNCIL OF NORTHUMBERLAND
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited from Architects who have passed the R.I.B.A. Final Examinations, having considerable practical office experience, for the post of ASSISTANT ARCHITECT on the staff of this Department. Salary, according to qualifications and experience, on Special Grade £750—£1,030 per annum, with prospects of promotion to higher grades within the office in due course.

The appointment will be subject to the provisions of the Local Government Superannuation Acts and the successful candidates will be required to pass a medical examination.

Applications in writing, stating age, qualifications and previous experience, including any service with a Local Authority, together with the names and addresses of two referees to whom reference can be made, to be forwarded to The County Architect, County Hall, Newcastle upon Tyne, 1, within 14 days of the publication of this notice. 2670

NOTTINGHAMSHIRE COUNTY COUNCIL
APPOINTMENT OF ASSISTANT DIRECTOR OF PLANNING

Applications are invited for the appointment of ASSISTANT DIRECTOR OF PLANNING on J.N.C. Grade C, salary at present £1,295—£1,515. Applicants should be qualified Architects and have passed the Final Examination of the Town Planning Institute, or possess equivalent qualifications.

The appointment will have effect from 1st April, 1959. The successful candidate will rank third in the County Planning Department and his duties will include the initiation and design of Town Maps and detailed schemes as components of the County Development Plan, such as Central Area Redevelopment Schemes and consultation thereon with County District Councils; co-ordination of the work of the Development Plan Section and of the Architectural Section in all aspects of their work and co-ordination between these sections and Development Control sections.

Further particulars may be obtained from the County Director of Planning, Shire Hall, Nottingham, to whom applications should be submitted by 31st January 1959.

A. R. DAVIS,
Clerk of the County Council.
2601

ADMINISTRATIVE COUNTY OF LEICESTER
ARCHITECTURAL ASSISTANT, £725—£845, according to experience.

Candidates must have passed Part I of the R.I.B.A. Examination and have had some office experience, preferably on large contracts. Lodging allowance and removal expenses may be paid to a married man. Apply by 6th February on form obtainable from County Architect, 123, London Road, Leicester. 2688

CITY OF BIRMINGHAM PUBLIC WORKS DEPARTMENT
REDEVELOPMENT SECTION
PLANNING ASSISTANT, salary Grade A.P.T. II (£725—£845 p.a.).

Applicants should be suitably qualified; general planning duties will be required in connection with an extensive programme of redevelopment. Experience in landscape design would be an advantage.

The post is permanent, superannuable, and subject to a medical examination.

Applications, stating qualifications, age and experience, and naming two referees, should reach the undersigned by the 14th February, 1959.

Canvassing disqualifies.

HERBERT J. MANZONI,
City Engineer and Surveyor.

Civic Centre,
Birmingham, 1. 2651

WESTERN REGION HOUSING CORPORATION
IBADAN, NIGERIA
APPOINTMENT OF ARCHITECT

Applications are invited from qualified candidates for the post of Architect in the Western Region Housing Corporation, with Headquarters at Ibadan and Branch Office at Ikeja.

Appointment will be on contract for two tours of 18-24 months residential service, with paid leave of seven days per month of residential service. The salary scale is £1,188 × £48 to £1,380 × £54 to £1,650. In addition, an Inducement Allowance is payable to expatriate officers of £270 for salaries below £1,285 and £300 for salaries over. The point of entry will be determined by qualifications and experience. The successful candidate will be required to join the Corporation's Provident Fund, to which the Corporation and the officer each contribute a sum equal to 10 per cent. of the officer's basic salary.

First class passages by air will, on first appointment, be provided for the officer, his wife and up to three children under 18 years of age. Free medical treatment will be provided for the officer and his family. A house with hard furnishings at rental of 8½ per cent. of basic salary will be made available if the successful candidate is recruited outside Nigeria. Conditions of service generally will be those applicable to Western Region Government Officers on contract.

Candidates must have wide experience and possess one of the following qualifications:

(i) Associate Royal Institute British Architecture.

(ii) Member recognised Architectural Association within the Commonwealth.

Recent practical experience in tropical architecture is a necessity and experience in Town Planning will be considered an advantage.

The successful candidate will be appointed to the Department of Architecture and Engineering and will be resident in Ibadan. The Corporation's works are carried out by contract and the duties of the post will comprise all phases of work from sketch design to preparation of final accounts, including supervision of construction. The Corporation is engaged at present in extensive housing development of all types in a new neighbourhood in Ibadan, and an Industrial and Housing Development project at Ikeja, near Lagos.

Applications, stating age, academic and professional qualifications, previous experience, present appointment and salary, together with the names of two referees, should be sent by airmail to reach the undersigned not later than 11th February, 1959. Interviews for overseas candidates will be held in London at the beginning of March.

R. E. FITCHETT,
General Manager.

P.O. Box 867,
Ibadan,
Western Nigeria. 2667

CITY OF CARDIFF
CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following appointment:—

ASSISTANT ARCHITECT, Special Grade, £750—£1,030 per annum.

Candidates should possess the minimum qualifications and experience prescribed by the National Joint Council for Local Authorities' A.P.T. and C. Services for posts in the above mentioned grade.

General Conditions of Appointment may be obtained from the undersigned.

Applications, accompanied by the names and addresses of two referees and endorsed "Assistant Architect—Special Grade," must be delivered to me not later than the 3rd February, 1959.

S. TAPPER-JONES,
Town Clerk.

City Hall,
Cardiff. 2660

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for **BUILDING SURVEYORS** in Housing Division, experienced in structural surveys, drawing and specification writing for conversion work. Large programme of Rehabilitation of older property.

Candidates should have initiative, a real interest in this type of work and be able to act on their own judgment.

Salary up to £1,090, according to qualifications and experience.

Application form, returnable by 4th February, from Hubert Bennett, F.R.I.B.A. (Ref. AR/EK/4/59), Architect to Council, The County Hall, S.E.1. (57.) 2665

CUMBERLAND COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of two **ASSISTANT ARCHITECTS** with Special Grade (£750 × £40—£1,030), commencing salary according to experience.

Applicants must be A.R.I.B.A., preferably with experience of handling large Contracts. Post pensionable, and subject to medical examination. N.J.C. Service conditions.

Application forms and further particulars obtainable from John H. Haughan, F.R.I.B.A., County Architect, 15, Portland Square, Carlisle, to whom completed applications should be returned not later than Friday, 6th February, 1959.

G. N. C. SWIFT,
Clerk of the County Council.
2621

BIRMINGHAM REGIONAL HOSPITAL BOARD
PRINCIPAL ASSISTANT ARCHITECTS (2)

Salary £1,150 to £1,420. Applicants must be registered architects having passed the requisite examinations. Successful candidates will be responsible under the Regional Architect for work in (*a*) the Mental Health Section and (*b*) the north of the region, respectively (working from Board Headquarters). Some work carried out in the department, the remainder in conjunction with private architects. Knowledge of hospital design desirable. Superannuable. Apply naming three referees to Secretary, 10, Augustus Road, Birmingham, 15, by 31st January, 1959. 2635

LEEDS REGIONAL HOSPITAL BOARD
PROPOSED NEW GENERAL HOSPITAL AT HUDDERSFIELD
CLERK OF WORKS (BUILDING AND STRUCTURAL)

Applications are invited for the appointment of a Temporary Clerk of Works (Building and Structural), in connection with the construction of a new (600 bed: approximate contract value £3,500,000) General Hospital at Huddersfield. Salary £900 per annum.

This project will be carried out in consecutive phases under the direction of the Regional Architect, P. B. Nash, A.R.I.B.A., and Messrs. Pite, Son and Fairweather. Preliminary contracts for the formation of the perimeter road and services ring mains and for the work of bulk excavation have been completed. The main building contract is scheduled to start in April, 1959, and to continue thereafter for a period of approximately six years.

Applicants must possess a thorough knowledge of all aspects of the building trade and must have had extensive experience as Clerks of Works on multi-storey reinforced concrete framed buildings. Membership of the Institute of Clerks of Works or the possession of the Clerk of Works Diploma of the Association of Building Technicians an advantage.

Applications, stating age, qualifications, previous experience, together with the names of two Architects to whom reference may be made, to the Secretary, Park Parade, Harrogate, not later than 9th February, 1959. 2671

ASSISTANT ARCHITECTS required in the Regional Architect's Office to work on projects connected with the Railway Modernisation Plan. Must be Associates of the R.I.B.A. or have Intermediate and several years' experience. Applicants must have a keen interest in contemporary design and a knowledge of modern structural technique.

Salary range £833—£903 per annum. Prospects of promotion for entrants showing outstanding ability and responsibility. Residential and other travel concessions available. Apply, stating age, experience and qualifications, to:—W. R. Headley, A.R.I.B.A., A.A.Dipl., Architect, Chief Civil Engineer's Office, British Railways (London Midland Region), 5a, Euston Grove, London, N.W.1. 2668

CAERNARVONSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications invited for the following posts:

(1) **ASSISTANT PLANNING OFFICER**

This appointment is next in status to that of Deputy County Planning Officer. Scale A.P.T. V (£1,175—£1,325). Commencing salary according to qualifications and experience. Applicants must be corporate members of the Town Planning Institute and hold a recognised qualification in Architecture. Sound practical experience in all aspects of the work of a planning authority is required and experience in landscape architecture would be an advantage.

(2) **SENIOR PLANNING ASSISTANT**

This appointment is next in status to appointment (1) above. Scale A.P.T. III/IV (£945—£1,175). Commencing salary according to qualifications and experience. Applicants must be corporate members of the Town Planning Institute and hold a recognised qualification in engineering, architecture or surveying. Wide experience in the preparation of development plans, particularly town and village maps and preferably including comprehensive development areas, is required.

(3) **PLANNING ASSISTANT**

Scale A.P.T. Grade I (£575—£725). Applicants must have passed the intermediate examination of the Town Planning Institute or the R.I.B.A. or the equivalent examination of one of the recognised schools of planning or architecture. Experience in development control would be an advantage.

Further particulars and application forms from Clerk of County Council, Caernarvon. Closing date for applications: 28th January 1959. 2647

COUNTY COUNCIL OF ESSEX
ARCHITECTS INTERESTED IN DESIGN and building of Colleges, Schools, Health Centres and other public buildings are needed in the office of the Architect, Essex County Council. There are opportunities for varied work in a rapidly developing County. Salaries between £750 and £1,030 for Assistant Architects with R.I.B.A. Final.

Vacancies also exist for **ARCHITECTURAL ASSISTANTS**, who have reached Intermediate Standard, to assist on a variety of contemporary building work, salaries between £575 and £725.

Application forms from H. Conolly, C.B.E., F.R.I.B.A., County Architect, Essex County Council, County Hall, Chelmsford, Essex, to be returned by 6th February, 1959. 2677

COUNTY BOROUGH OF READING

Applications invited for the appointment of **ASSISTANT ARCHITECT** who has passed Parts I and II, R.I.B.A. Final or Special Final Examination or their equivalent and has had at least five years' experience. Salary range £750 × £40—£1,030, according to experience. Post permanent and appointment subject to N.J.C. Conditions. Housing accommodation will be considered. Applications, stating age, qualifications and experience, together with names and addresses of two referees, to Borough Architect, P.O. Box 1, Town Hall, Reading, not later than 7th February. 2683

LANCASHIRE COUNTY COUNCIL

Applications are invited from qualified ARCHITECTS of initiative, keen on design and modern constructional methods, to work on a large and varied programme.

The posts, which are permanent, are within the salary range of £750—£1,030; starting point according to experience.

Application Forms from the County Architect, P.O. Box 26, County Hall, Preston. Referees A/AJ. 2691

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for **ARCHITECTURAL ASSISTANTS**, starting salary up to £860. Full and interesting programme of houses, flats, schools and general buildings.

Application form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council (EK/52/58), County Hall, S.W.1. (2168) 2687

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTS, Grade III (salary up to £1,090), and **ARCHITECTURAL ASSISTANTS** (salary up to £860) for varied programme of alterations and improvements to Council buildings. Salary according to qualifications and experience.

Particulars and application form, returnable by 31st January, from Hubert Bennett, F.R.I.B.A., Architect to Council, Ref. AR/EK/3/59, County Hall, S.E.1. (37.) 2686

COUNTY BOROUGH OF SOUTH SHIELDS
PRINCIPAL ASSISTANT ARCHITECTS

Applications are invited from suitably qualified persons for the above appointment in the Borough Engineer's Department, salary in accordance with Grade A.P.T. IV (£1,025 × £25—£1,175).

Housing accommodation will be made available to the successful applicants if necessary.

The selected applicants will be required to pass a medical examination for the purposes of the Superannuation Scheme.

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields, and should be returned to him not later than 10 a.m. on Monday, 9th February, 1959.

R. S. YOUNG,
Town Clerk.
2682

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for the appointment of an ASSISTANT QUANTITY SURVEYOR on the permanent staff of the Board's Regional Architect generally in accordance with Whitley Council conditions of service. Applicants for the post must be Corporate Members of the Royal Institute of Chartered Surveyors (Quantity Surveying Branch) and have had sound practical experience in working up and taking off of quantities for contracts, checking contractors' accounts, estimating and analysing prices.

The commencing salary for the post will be within the scale £700 × £25 (3) × £30 (1) × £35 (6)—£1,015 p.a., plus London weighting allowance. Application forms may be obtained from the undersigned at 40, Eastbourne Terrace, W.2, and must be completed and returned by not later than 10th February.

E. G. BRAITHWAITE,
Secretary.
2686

EAST KILBRIDE DEVELOPMENT CORPORATION

The Corporation invite applications for the following posts in the Planning Section of the Chief Architect's Department:—

(1) SENIOR ARCHITECT/PLANNER, Grade II—Salary scale £1,139—£1,366 per annum. Applicants must be A.R.I.B.A. and A.M.T.P.I. Work will include preparation of residential layouts, Town Centre planning, village re-development and open space proposals. The town's population is 25,000 at present and the development will proceed to 50,000 in the ensuing years.

(2) ASSISTANT PLANNER—Salary scale £679—£811 per annum. Applicants should have at least passed the Intermediate examination of the R.I.B.A. or T.P.I.

(3) DRAUGHTSMAN—Salary scale £562—£716 per annum. Candidates should have general experience of drawing office procedure and a particular ability in drawing maps and plans. The work will include compiling and maintaining statistical records for the Planning Section.

The commencing salary in each case will be in accordance with qualifications, experience, etc. The appointments are subject to the Corporation's Conditions of Service and Superannuation agreement. Selected candidates will require to pass a medical examination. A house or flat will be made available, if required. Application forms may be obtained from the General Manager, Torrance House, East Kilbride, to whom completed forms should be returned not later than 9th February, 1959. Canvassing directly or indirectly of the members of the Corporation will constitute an absolute disqualification. 2658

CAMBRIDGESHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Appointment of SENIOR ASSISTANT ARCHITECT, Grade A.P.T. IV (£1,025/£50/£1,175).

Applicants should be Members of the Royal Institute of British Architects and have had extensive experience of the design and construction of schools and other County buildings, and should be capable of supervising assistant staff as necessary.

The appointment is subject to the Local Government Superannuation Acts, 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory medical examination and termination by one month's notice on either side. Commencing salary in accordance with experience.

Applications, stating age, present salary, present and previous appointments, details of training and experience, together with the names and addresses of two referees, should be submitted to the undersigned, not later than 3rd February, 1959.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall,
Cambridge.
12th January, 1959. 2675

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

Applications invited for the established post of DEPUTY GROUP ARCHITECT. Special Grade, £750 × £40—£1,030, and London Allowance. (Commencing point in Grade according to experience and qualifications.)

Must be A.R.I.B.A. Application form and details from Borough Architect and Planning Officer, 70, West Ham Lane, Stratford, E.15, returnable by Tuesday, 10th February, 1959. 2679

COUNTY BOROUGH OF SOUTH SHIELDS
PRINCIPAL ASSISTANT QUANTITY SURVEYOR

Applications are invited from suitably qualified persons for the above appointment in the Borough Engineer's Department, salary in accordance with Grade A.P.T. IV (£1,025 × £50—£1,175).

Housing accommodation will be made available to the successful applicant if necessary.

The selected applicant with be required to pass a medical examination for the purposes of the Superannuation Scheme.

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields, and should be returned to him not later than 10 a.m. on Monday, 9th February, 1959.

R. S. YOUNG,
Town Clerk.
2655

DENBIGHSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited from suitably qualified persons for the following appointments, viz.:—

(*a*) SENIOR COUNTY PLANNING ASSISTANT, A.P.T. Grade IV (salary £1,025—£1,175 per annum).

(*b*) DEPUTY AREA PLANNING OFFICER (Wrexham), Special Scale (salary £750—£1,030 per annum).

Appointment (*a*) is to the Headquarters Staff of the County Planning Department at Ruthin and appointment (*b*) is to the Area Planning Office Staff at Wrexham.

Application forms and further particulars can be obtained from me. Completed applications, giving the names of two referees, must be returned by 7th February, 1959.

W. E. BUFTON,
Clerk of the County Council.

Council Offices,
Ruthin,
Denbighshire. 2652

CORPORATION OF LONDON require for City Planning Office (Civic Design Section) TEMPORARY PLANNING ASSISTANT, within scale £560 rising to £880, according to age and experience.

Candidates should have a sensitive and contemporary approach to design and preferably an architectural background: duties include assistance with redevelopment proposals in the City of London as well as work of a general nature.

Local Authority experience not essential.

Applications with details of training, experience, age, present salary and two recent referees, to The City Planning Officer, Guildhall, London, E.C.2, within 14 days. 2648

PLANNING ASSISTANT required for BANFF COUNTY COUNCIL. Salary Scale £945—£1,085, according to experience. Applicants must be A.M.T.P.I., with experience in dealing with applications for planning permission and in the preparation of and legislation relating to development plans. Appointment superannuable. House available. Applications, stating age, experience, and whether married, together with copies of three recent testimonials, to be sent to County Architect, 13, Cluny Square, Buckie, by 16th February, 1959. 2678

CITY OF BATH TECHNICAL COLLEGE

Principal: A. H. Yates, B.Sc., B.Sc.(Eng.), A.F.R.Ae.S.

Applications are invited for the post of HEAD of the Department of Building and Allied Trades. Salary in accordance with the Burnham Technical Scale for Grade II, Head of Department, £1,400 × £50 — £1,600 + 5%. Further details and an application form are available from the Principal, Lower Borough Walls, Bath, Somerset. 2695

EAST BARNET URBAN DISTRICT COUNCIL
SENIOR ASSISTANT ARCHITECT

Applications are invited for the appointment of a Senior Assistant Architect in the Engineer and Surveyor's Department. The salary will be within Grade A.P.T. III (£845—£1,025) plus London weighting of £20 or £30 per annum, according to age. If necessary, the Council would be prepared to consider providing housing accommodation.

Conditions of Appointment and Forms of Application, returnable by the 5th February, 1959, may be obtained from the Engineer and Surveyor, Town Hall, Station Road, New Barnet, Herts. 2680

ADMIRALTY

Good quality ARCHITECTURAL ASSISTANTS are required at Pinner (Middlesex) for work with Professional Architects on the preparation of designs for the following wide range of new works:—

(*a*) New Housing designs and estate layouts.
(*b*) All forms of single accommodation comprising sleeping, messing and recreational buildings, including gymnasia, stores, educational buildings and cinema/lecture halls.
(*c*) Specialized buildings for technical equipment.
(*d*) Industrial buildings, stores and offices associated with H.M. Dockyards.

Facilities can be granted to those still studying for professional qualifications, but preference given to near qualified candidates wishing to obtain widest possible experience.

Salary according to age, qualifications and experience, ranges from £550/£870, and opportunities occur for promotion to Leading Grade, salary maximum £1,015. Five-day week. Annual leave 18 days rising to 22 days after 10 years' service. Appointments are temporary but with long term possibilities.

Candidates, who must be British subjects, are invited to apply in writing, giving details of experience, to Civil Engineer-in-Chief, Admiralty, Chamberlain Way, Pinner, Middlesex. 2704

HALTEMPRICE URBAN DISTRICT COUNCIL
ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited for the temporary appointment for a period of about 2 years of a JUNIOR ARCHITECTURAL ASSISTANT in the Engineer and Surveyor's Department, at a salary in accordance with Grade A.P.T. I (£575 × £30 = £725) or A.P.T. II (£725 × £30 = £845) according to qualifications and experience. Applications, giving experience, qualifications and age, and the names of two persons to whom reference may be made, should be forwarded to the Engineer and Surveyor not later than noon on 2nd February, 1959.

A. B. GLASSPOOL,
Clerk of the Council.

Anlaby House,
Anlaby, E. Yorkshire. 2614

TRAIN TO TEACH
BUILDING SUBJECTS
EXCELLENT CAREER PROSPECTS

Applications are invited for TRAINING as FULL-TIME TEACHERS OF BUILDING SUBJECTS in TECHNICAL COLLEGES AND SIMILAR INSTITUTIONS.

The next course of training will begin in September, 1959, and end in June, 1960.

Applicants should normally:—

(1) Be between about 25 and 45 years of age.
(2) Have practical experience in the building industry.
(3) Possess one or other of these, or similar qualifications, L.I.O.B., A.I.O.B., A.R.I.C.S., A.I.Q.S., A.M.I.Struct.E., A.R.I.B.A., B.Sc. (Tech.), Higher National Certificate. 1st Class Full Technological Certificate in a Craft accompanied by the Ordinary National Certificate.

Substantial Grants available free of Income Tax with free tuition, board and lodging.

Write for details and application form to:—

The Director (S/I/40),
Bolton Training College,
Manchester Road,
Bolton

or

The Director (S/I/40),
Huddersfield Training College,
Holly Bank Road,
Lindley, Huddersfield.
(2349.)

2712

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, SCOTLAND
ARCHITECTURAL STAFF

Applications are invited for the following superannuated posts, Headquarters in Edinburgh:—

ASSISTANT ARCHITECT—Salary Scale £700 to £1,015.

ARCHITECTURAL ASSISTANT—Salary Scale £525 (at age 21 or over) to £730.

Applications giving details of age, qualifications and experience to the REGIONAL ARCHITECT, 18 ROTHESAY TERRACE, EDINBURGH, 3, within SEVEN days. 2691

EAST SUFFOLK COUNTY COUNCIL
ASSISTANT ARCHITECTS
Special Grade: £750 × £40—£1,030

Applications are invited for the above appointments; commencing salary according to qualifications and experience.

Full particulars of age, present and previous positions, qualifications and experience, together with copies of two recent testimonials to the County Architect, Mr. E. J. Symcox, F.R.I.B.A., County Hall, Ipswich, by 3rd February, 1959. 2706

BOROUGH OF SUTTON AND CHEAM
BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT
APPOINTMENT OF
ARCHITECTURAL ASSISTANTS

Applications are invited for the appointments of:

(*a*) Architectural Assistant, Special Grade (£750—£1,030 per annum, plus £20/£30 London "Weighting" per annum). Applicant should have good general experience in Housing and Public Buildings.

(*b*) Architectural Assistant, Grade APT 1/2 (£575—£845 per annum, plus £20/£30 London "Weighting" per annum).

The commencing salary in both appointments will be according to ability and experience.

The appointments which are terminable by one month's notice in writing on either side, are on the permanent staff of the Corporation, are subject to the provisions of the Local Government Superannuation Acts 1937-1953, and to the National Scheme of Conditions of Service.

The successful candidates will be required to pass a medical examination. Forms of application may be obtained from Mr. N. H. Michell, A.M.I.C.E., M.I.Mun.E., Borough Engineer & Surveyor, to whom they should be returned, accompanied by copies of two recent testimonials, not later than 12th February, 1959, endorsed "Architectural Assistant"—Appointment (*a*) or (*b*) (whichever applies). Applicants must state whether they are related to any member or holder of any senior office under the Borough Council. Canvassing in any form will disqualify.

ARTHUR PRIESTLEY,
Town Clerk.

Municipal Offices,
Sutton, Surrey.
January, 1959. 2709

SOUTH AUSTRALIA
ARCHITECT-IN-CHIEF'S DEPARTMENT, ADELAIDE
SPECIFICATION WRITERS

Salary Range: £A1,176/£A1,336 p.a.

Duties: To prepare specifications for various types and designs of new buildings such as hospitals, schools and police stations and also for alterations and additions to existing buildings.

Qualifications: Applicants should possess a good general knowledge of architectural construction and of the associated building trades and have had extensive experience in the writing of specifications.

ARCHITECTURAL ASSISTANTS

Salary Range: £A1,176/£A1,336 p.a.

Duties: Under the direction of an Architect, assist in the preparation of sketch plans and working drawings for public buildings. Measurements of existing structures for alterations. Generally to assist an Architect in his duties.

Qualifications: Applicants must have had several years of practical experience on good class architectural work—preferably public buildings. It is desirable, but not essential, that they have reached an intermediate stage of an approved architectural course.

First class passages from England will be provided for successful applicants and their families. Houses on rental basis will be arranged.

Applications or requests for further information should be made in writing to the Agent-General for South Australia, South Australia House, Marble Arch, London, W.1; applications should give full names, address, date of birth, marital status, academic qualifications, practical experience and particulars of war service (if any). Copies of testimonials should be submitted with the application. 2707

THE UNIVERSITY OF LIVERPOOL

Applications are invited for TWO LEVERHULME POST-GRADUATE FELLOWSHIPS, one in the School of Architecture or the Department of Civic Design, and one in any Department of the Faculty of Arts. The Fellowships will be tenable for one year at a value of £600, but may be renewed for a second year.

Applications, three copies, stating age, qualifications and experience, proposed field of research, the names of two referees and, in the case of the Fellowship in Architecture or Civic Design, enclosing copies or photographs of work, should be received not later than 1st March, 1959, by the Registrar, from whom further particulars may be obtained. 2710

GLOUCESTERSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of ASSISTANT ARCHITECT, Grade "A" (£1,270—£1,380), to prepare a master development plan for the general re-organisation of the Shire Hall Buildings, including the Central Police Station, Magistrates' Court, Workshops, etc., together with further office accommodation. The appointment offers considerable scope in design and planning and the successful candidate will be required to devote the whole of his time to this work. Applicants must be Registered Architects and Associate members of the R.I.B.A., and whilst a planning qualification is not essential, Membership of the Town Planning Institute or a Diploma in Town Planning would be an advantage.

N.J.C. Service Conditions, Superannuation, Medical Examination.

Application, stating age, present position, salary and date of appointment, previous appointments, names and addresses of two persons for reference, to be submitted to County Architect, Shire Hall, Gloucester, by 4th February, 1958.

GUY H. DAVIS,
Clerk of the County Council.
2705

BEESTON AND STAPLEFORD URBAN DISTRICT COUNCIL
JUNIOR ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment. Salary A.P.T. Grade I £575—£725. Commencing salary according to qualifications and experience.

Applications, accompanied by the names and addresses of two referees, should be forwarded to the Surveyor, Town Hall, Beeston, Nottingham, not later than 31st January, 1959. 2697

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies exist for ARCHITECTS, Grade II (salary £1,037 10s.—£1,305) and Grade III (salary £815—£1,090), for the Housing Schools and General Divisions. Full and varied programme of new work including schools, multi-storey flats, and Town Development. Starting salaries according to qualifications and experience.

Particulars and application form, returnable by 14th February, 1959, from Hubert Bennett, F.R.I.B.A., Architect to Council (ref. AR/EK/5/59), County Hall, S.E.1. (82) 2701

Architectural Appointments Vacant

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A COMPETENT ASSISTANT, with several years' experience and capable of working with little supervision, required in Branch Office, Birmingham, engaged on a varied and interesting programme of commercial projects. Applications, giving full particulars and salary required, to: G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 1674

ASSISTANT required in busy West End Office. About Intermediate level. Write stating age, experience and salary desired. Box 2081.

RONALD WARD & PARTNERS require ARCHITECTURAL ASSISTANTS with contemporary outlook and willing to use own initiative. Salary range £600 to £900. Congenial working conditions. Five-day week. Apply 29, Chesham Place, Belgrave Square, S.W.1. Telephone Belgravia 3361. 2398

ARCHITECTURAL ASSISTANTS required for several large projects. Excellent opportunities to suitable applicants. Five-day week. Please write giving full particulars of experience and salary required to Johns, Slater & Haward, F./A.R.I.B.A., 32, Foundation Street, Ipswich. 2531

LLEWELLYN SMITH & WATERS require SENIOR and JUNIOR ASSISTANTS for a widely varied programme of work. Salary according to experience. Please write, stating qualifications, experience and age, to 103, Old Brompton Road, S.W.7. 2446

ARCHITECTURAL ASSISTANT required from about Intermediate standard to recently Qualified, for interesting and varied work in practice mainly concerned with commercial projects. Five-day week. Congenial working conditions. Salary by arrangement. Apply in writing, giving full particulars, age, to J. Alfred Harper & Son, Union Chambers, 63, Temple Row, Birmingham. 2447

ARCHITECTURAL ASSISTANTS, aged 28-45, required by London firm of architects with large and varied practice. Apply stating age, experience and salary required to Box 2537.

CHIEF ASSISTANT required for Architect's Practice in St. Albans. Possibility of working partnership subject to satisfactory service. Write giving particulars to Box 2520.

ARCHITECTURAL ASSISTANT, Intermediate standard, required for Architect's Practice in St. Albans. Salary by arrangement. Write giving particulars to Box 2521.

ARCHITECTURAL ASSISTANT required in West End Office. Preferably qualified, with minimum of two years' experience, to work on industrial buildings. Salary according to age and experience. Box 2574.

EXPERIENCED ARCHITECTURAL ASSISTANTS required with a good sense of design and a sound knowledge of building construction. All applications in writing please with full details. C. H. Elsom & Partners, 10 Lower Grosvenor Place, S.W.1. 2474

SENIOR ASSISTANT required of Intermediate/Final standard in Croydon office. Varied practice of interesting work. Good draughtsman and sound knowledge of construction essential, together with ability to manage jobs. Five-day week. Salary according to experience. Apply George Lowe & Partner, 4, High Street, Croydon 3608/9. 2611

ARCHITECTURAL ASSISTANT, male or female, required in London Head Office of Mobil Oil Co. Ltd. Intermediate R.I.B.A. and experience in contemporary design necessary. A high standard of presentation is required, and candidates must be capable of working independently. Good salary offered; Pension Scheme and full range of employee benefits; five-day week. Write, giving full details of experience and salary required, to Employment Adviser, Mobil Oil Co. Ltd., Caxton House, Westminster, S.W.1, quoting Ref. AAL 9812A. 2708

NORFOLK Office requires Single ARCHITECTURAL ASSISTANT of about Intermediate standard. Experience in Local Authority Housing an advantage. Reply with details of age and salary required to Box 2627.

COLLINS, MELVIN, WARD & PARTNERS require STAFF to work on Hospital, Office and University projects. Age and experience are less important than design ability and enthusiasm. Five-day week, quarterly bonuses, pension scheme. Telephone Welbeck 9991 for appointment. 2622

COMPETENT ASSISTANTS intermediate and final stage, must be first class draughtsmen, with practical experience, for progressive posts in Architect's small private office where ability, industry and ambition more essential than qualifications. Please state age, experience, salary required. Harold Bailey & Farrier, 7 Thornton Hill, S.W.19. 2638

WILL any JUNIOR ASSISTANT who prefers to work in a small Private Office, and is interested in the preservation of Historic Buildings, please apply to L. H. Bond & R. W. Read, 44, Castlegate, Grantham. 2553

H. & H. M. LIDBETTER require JUNIOR ASSISTANT up to Intermediate standard. Apply, stating age, experience and salary required, to 2, Verulam Buildings, Gray's Inn, London, W.C.1. 2565

ARCHITECT (Qualified) for Country Practice, north-east Midlands. £1,000 per annum approximately, with prospects for good man experienced in Housing and Domestic Work. Car driver essential. Assistance with housing. Box 2660.

PRINCIPAL in Bloomsbury requires two young ARCHITECTS (Professional Practice examination not essential) to draw up and develop new schemes. Belief in the integration of design construction and economies essential. Good draughtsmanship desirable. Apply with details of training to Box 2577.

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NORMAN & DAWBARN invite applications from ARCHITECTURAL ASSISTANTS at Intermediate/Final standard with at least three years' office experience. Salary between £750 and £900. Work mostly in London. Write to: 7, Portland Place, W.1, giving full particulars. 2649

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