The Architects' JOURNAL for November 20, 1958

THE ARCHITECTS' JOURNAL

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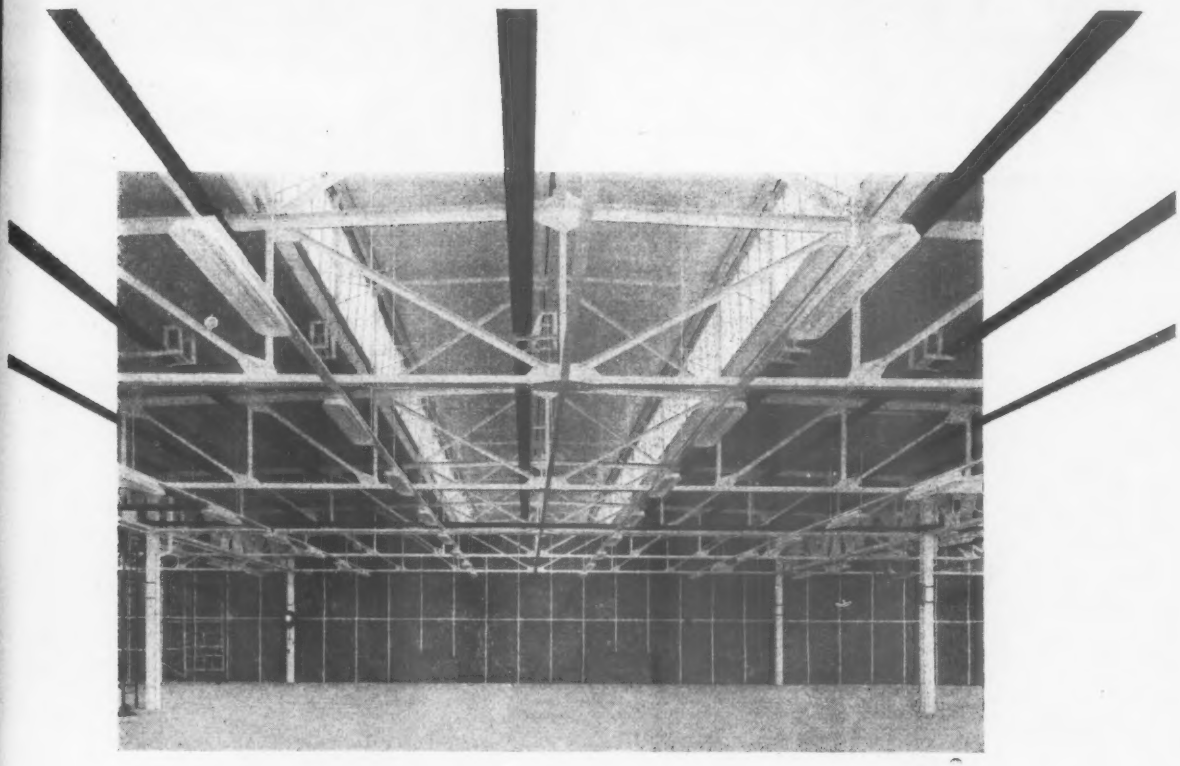
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ii one week, Il to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

ILA	Institute of Landscape Architects. 2, Guildford Place, W.C.1.	Holborn 0281
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 7179
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's Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2.	Gerrard 6933
MOT	Ministry of Transport, Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record, 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers, 10, Storey's Gate, S.W.1	Abbey 5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2.	Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
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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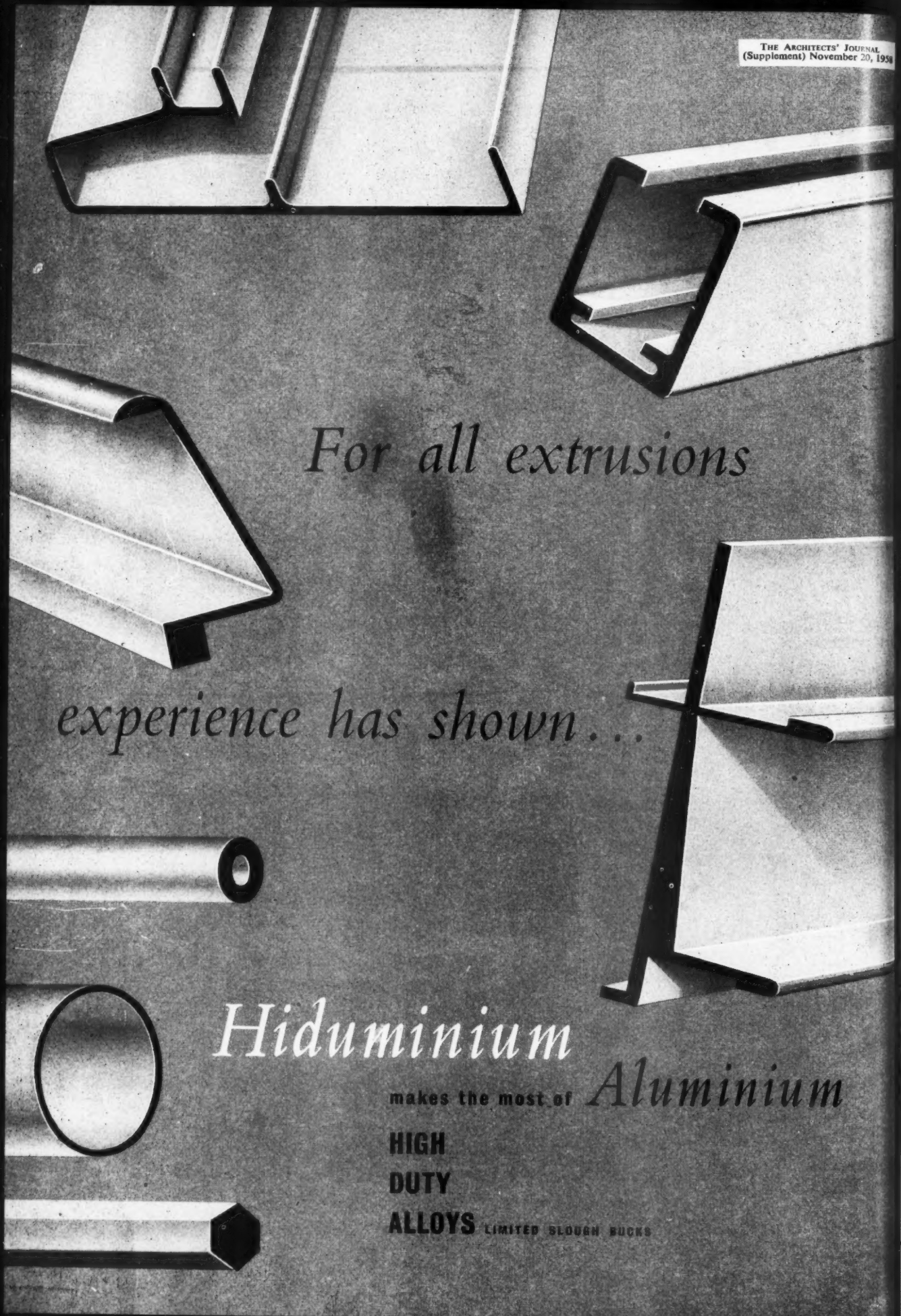
(Supplement) November 20, 1958



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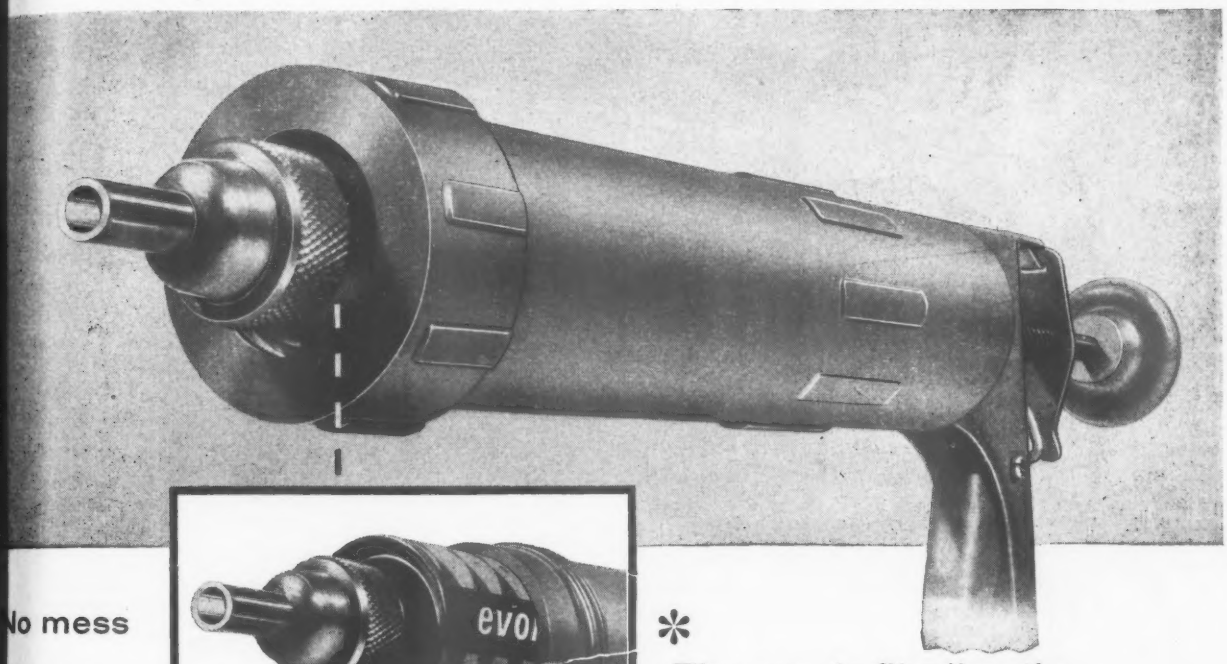

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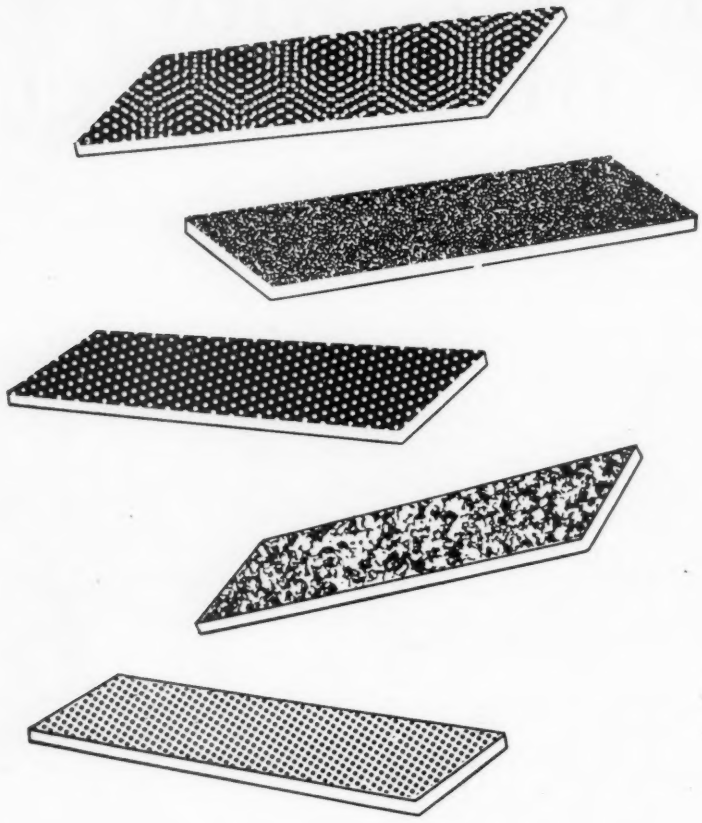

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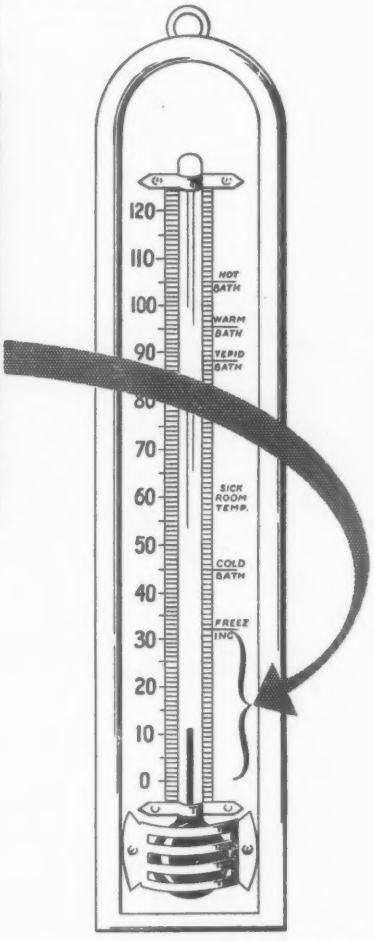

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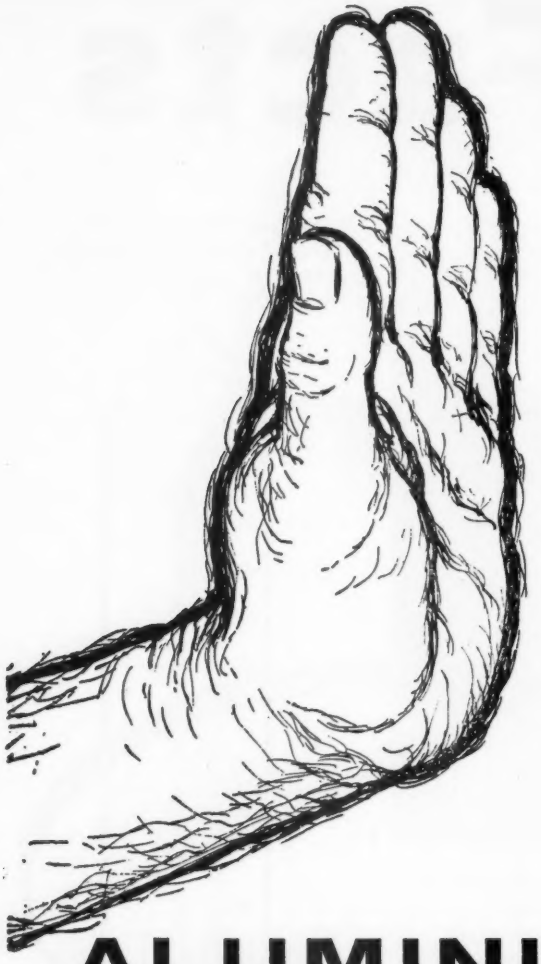

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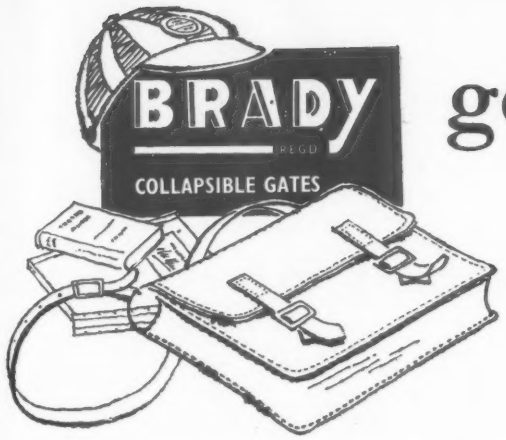

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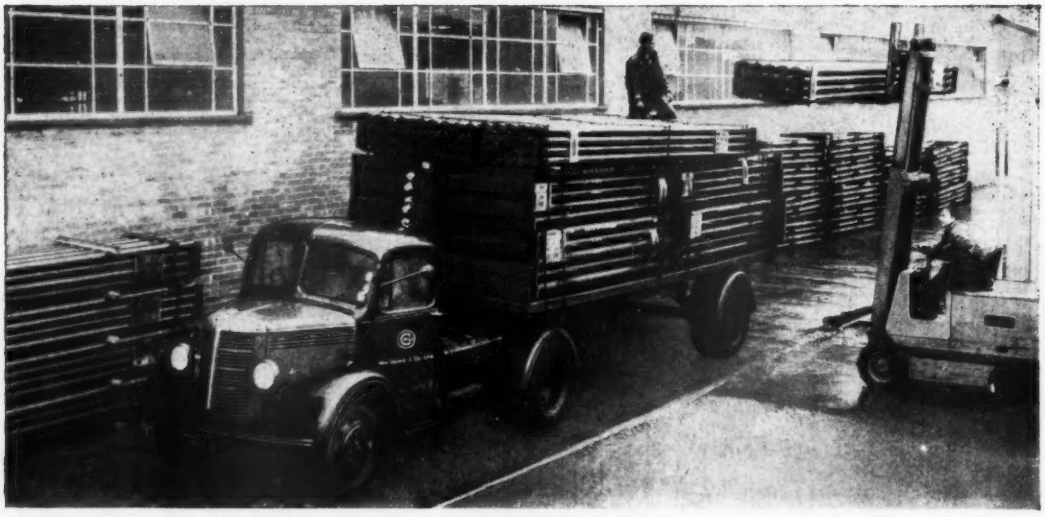

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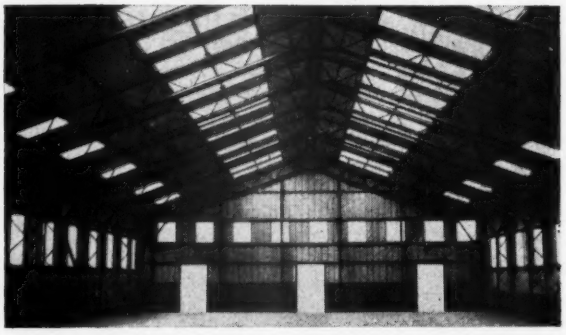

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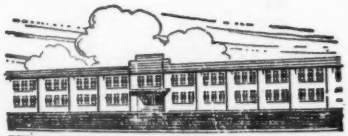

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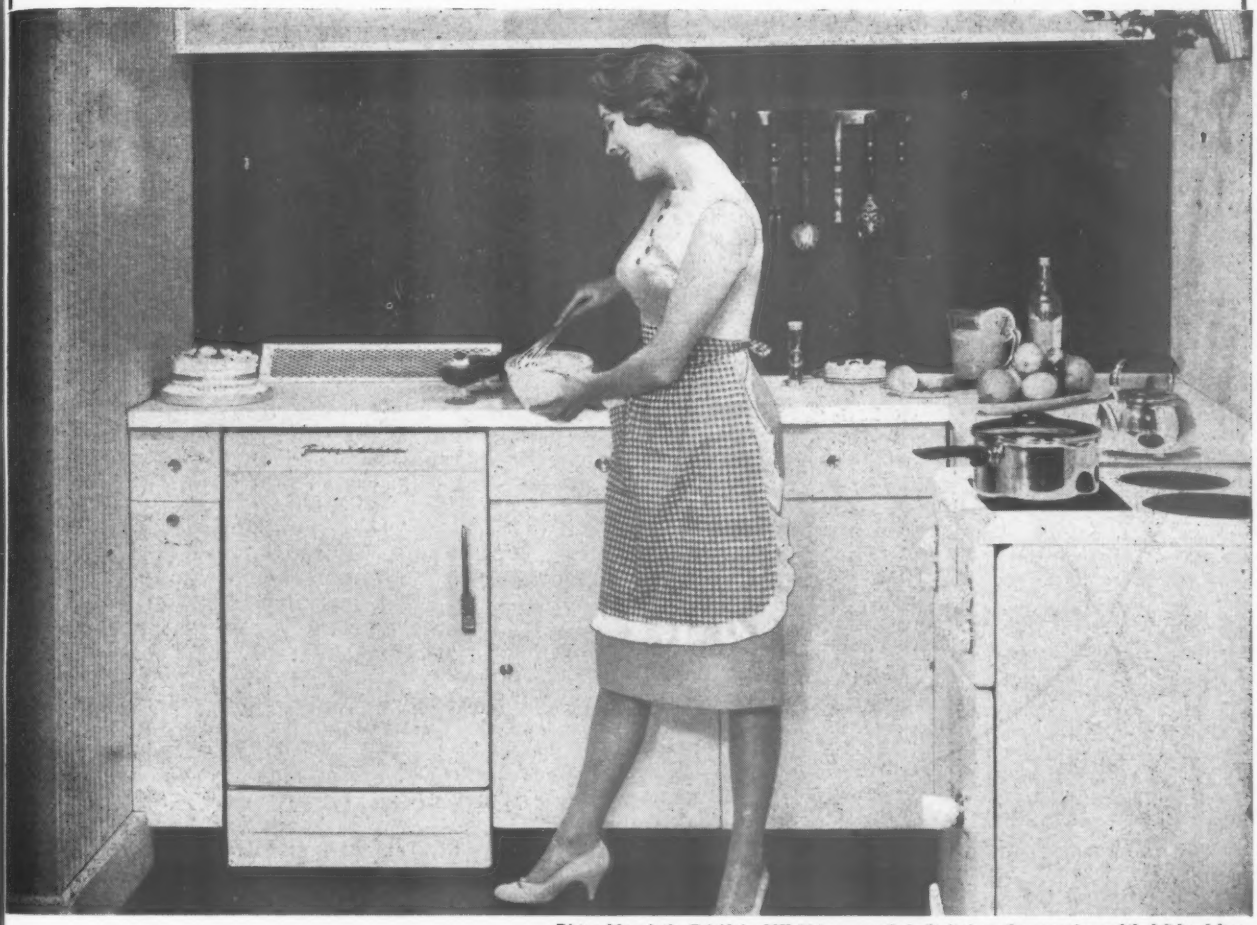

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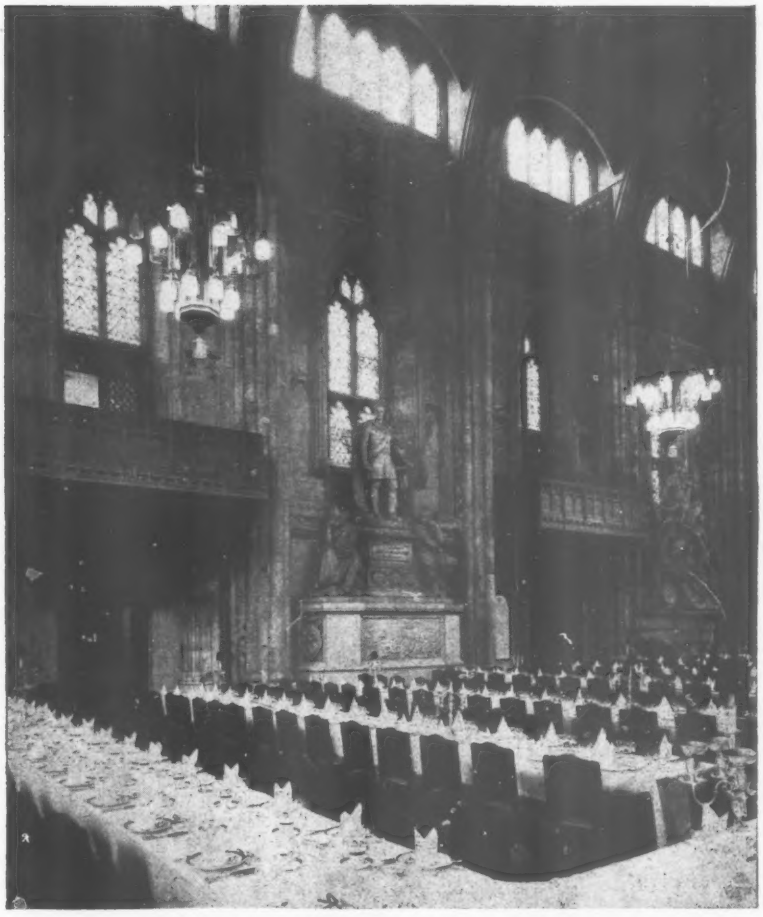

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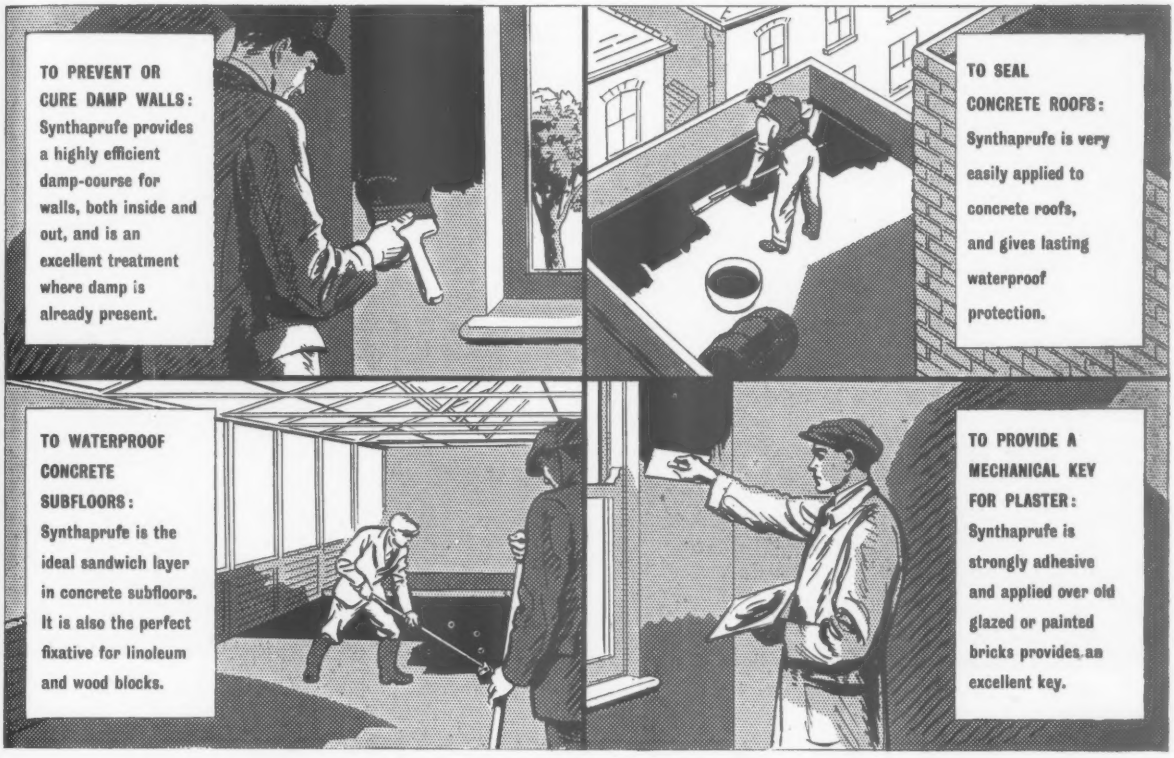

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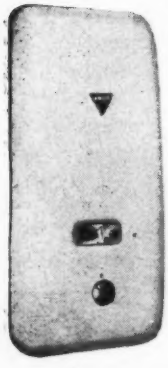
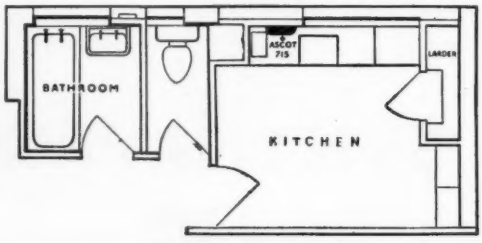
Tower Court Flats, Clapton Common

ASCOT IN NEW HOUSING (7)



Tower Court Flats, Hackney, is one of a number of schemes designed by different architects around the perimeter of Clapton Common for the Hackney Borough Council. Tower Court consists of 2 blocks of flats: a four-storey block containing 16 two and three-bedroom maisonettes, and a nine-storey block containing 51 flats of bed-sitting room, one-bedroom and two-bedroom design.

To provide an instantaneous hot water service throughout all the flats at Tower Court, Ascot 'balanced flue' multipoints were installed in the kitchens.



PLAN OF KITCHEN AND BATHROOM IN A TYPICAL TOWER COURT FLAT SHOWING POSITION OF ASCOT 715

RESPONSIBLE AUTHORITIES

Director of Housing Development: Geo. L Downing, O.B.E., M.I.C.E., M.I.Mun.E., A.M.I.Mech.E.

Architect: Harry Moncrieff, F.R.I.B.A., A.M.T.P.I. of Co-operative Planning Ltd.

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The following tables have been prepared to provide a simple check on fault level in electrical sub-circuits.

TABLE A

Table A shows the resistance in ohms per yard per core of a series of cables likely to be used in installation work.

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14/·0076	·0006	0·042	7/·064	·0225	0·00137
23/·0076	·0001	0·02557	19/·044	·03	0·000887
1/·044	·0015	0·01671	19/·052	·04	0·000635
3/·029	·002	0·01308	19/·064	·06	0·00042
3/·036	·003	0·0084	19/·083	·10	0·00025
7/·029	·0045	0·0056	37/·072	·15	0·00017
7/·036	·007	0·0036	37/·083	·20	0·000128
7/·044	·01	0·0024	37/·103	·30	0·000083
7/·052	·0145	0·001723			

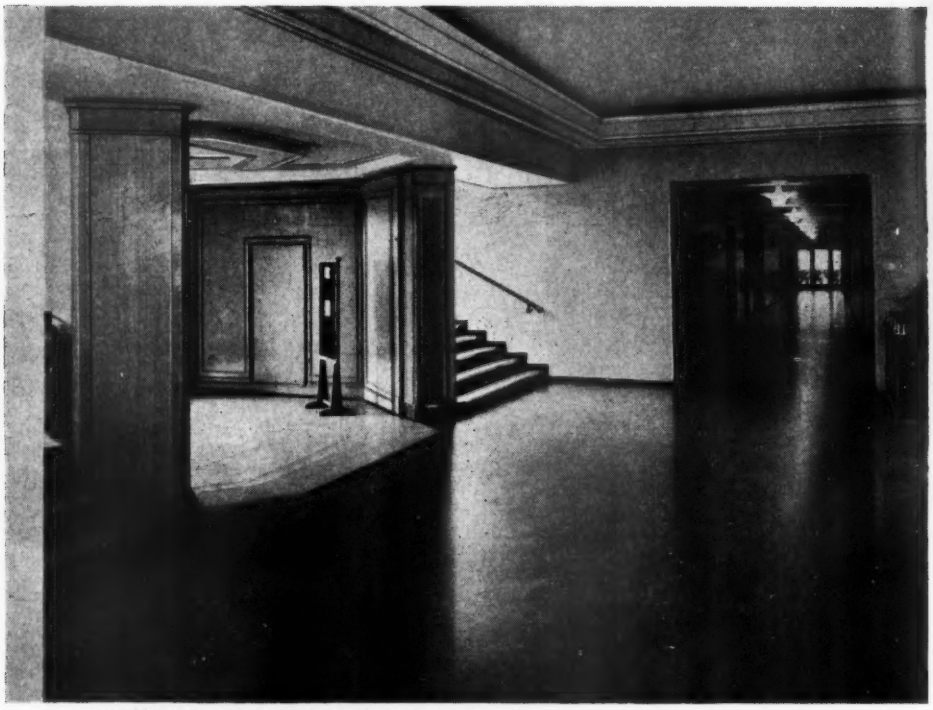
TABLE B

Table B shows what minimum value of total resistance (in ohms) will produce faults of 750, 1000, 1500 and 2000 amps. in relation to a wide range of transformer sizes.

Transformer rating kVA	Minimum added resistance per core in ohms to limit short circuit current * to :—							
	750A		1000A		1500A		2000A	
	230/400V	250/440V	230/400V	250/440V	230/400V	250/440V	230/400V	250/440V
25	·109	—	—	—	—	—	—	—
30	·193	·175	—	—	—	—	—	—
40	·250	·261	·145	·130	—	—	—	—
50	·272	·292	·181	·184	·055	—	—	—
75	·292	·319	·210	·226	·120	·124	·065	·051
100	·299	·329	·219	·234	·136	·146	·091	·093
150	·304	·334	·226	·247	·146	·159	·106	·112
200	·306	·338	·228	·250	·149	·164	·111	·119
250	·307	·338	·229	·251	·151	·166	·112	·122
300	·307	·339	·230	·252	·152	·167	·113	·124
400	·308	·339	·230	·253	·153	·168	·115	·125
500	·308	·339	·230	·254	·153	·169	·116	·126
750	·308	·339	·230	·255	·153	·169	·116	·127

* These are calculated for transformer reactance of 4.5%

FLOOR THAT HAS TO BE SURE



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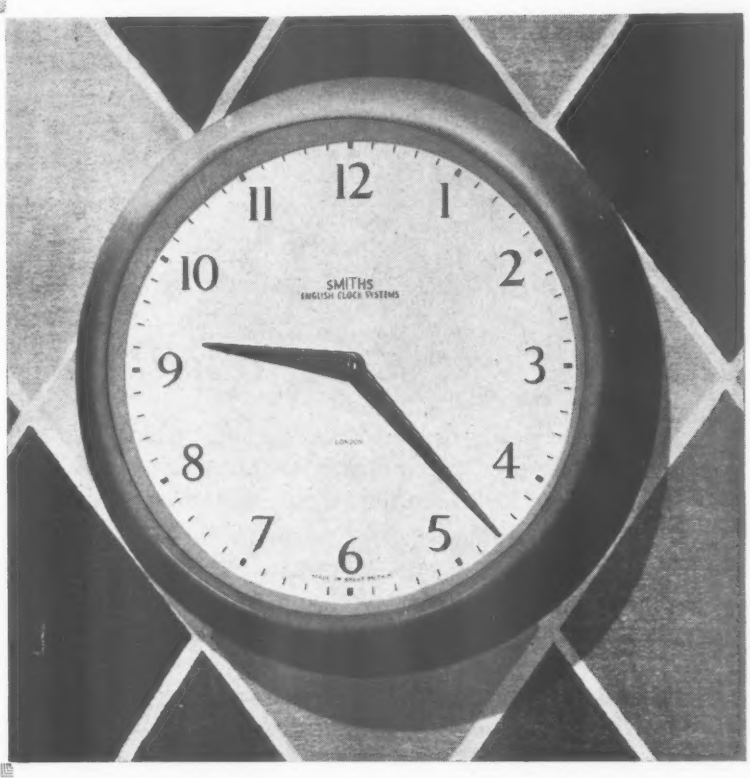

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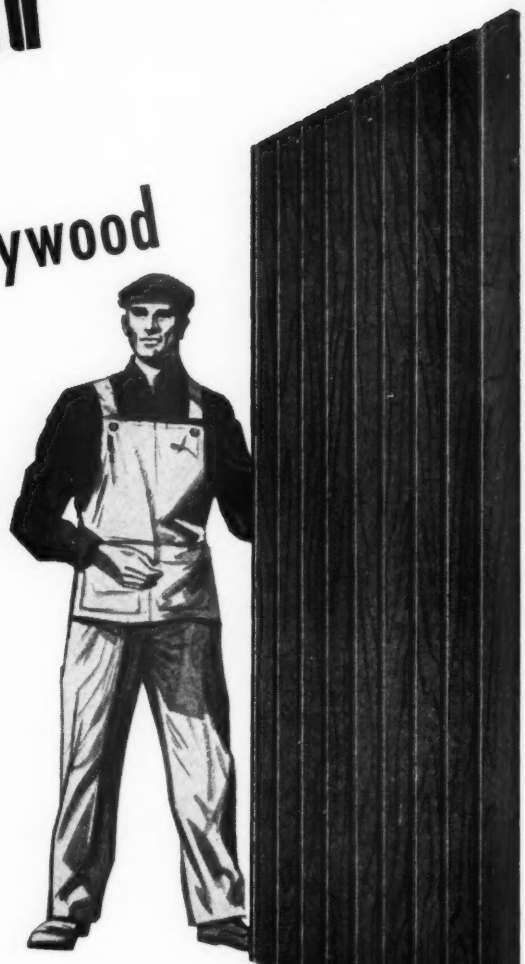

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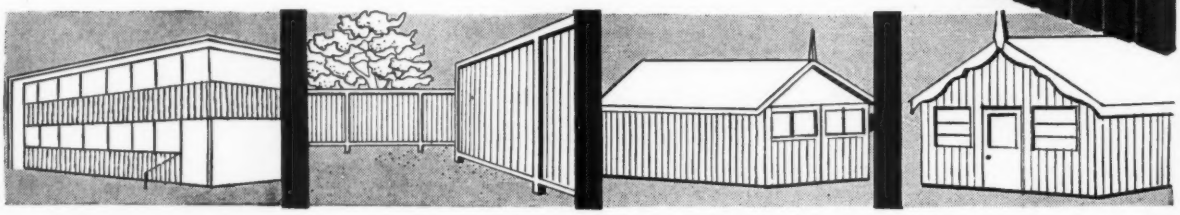

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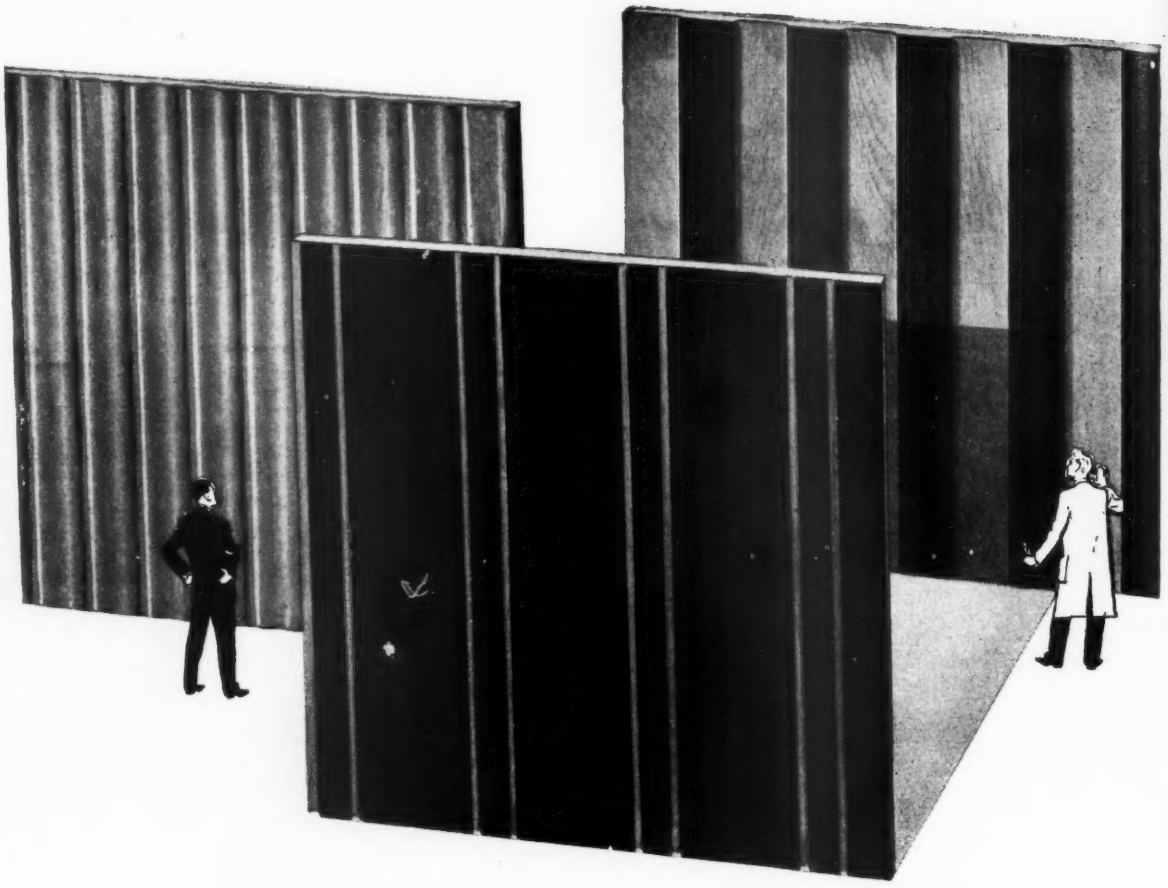

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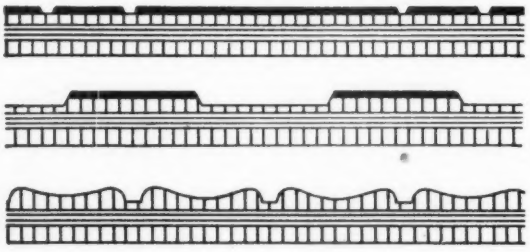

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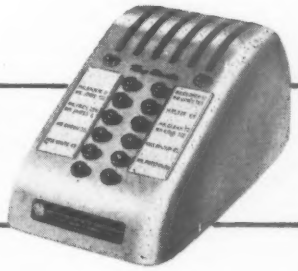

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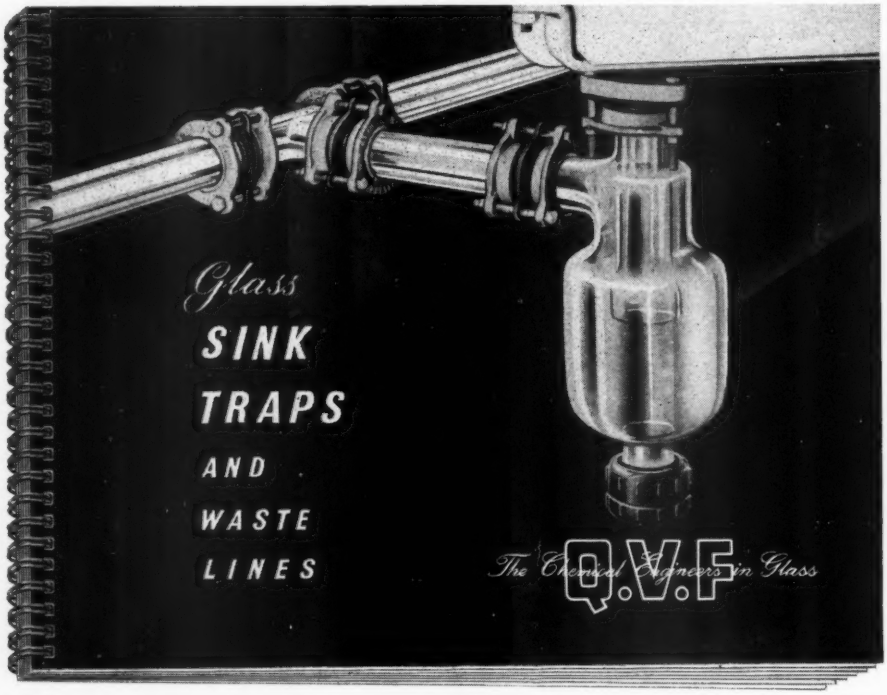

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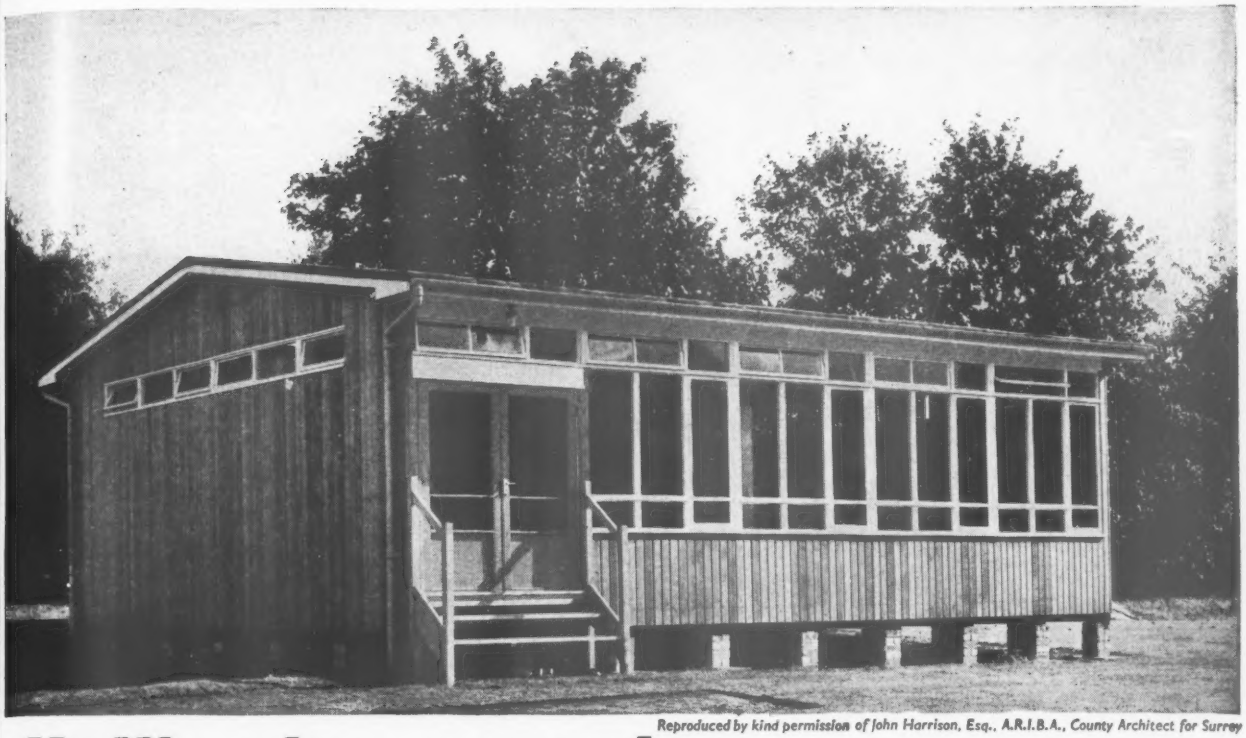

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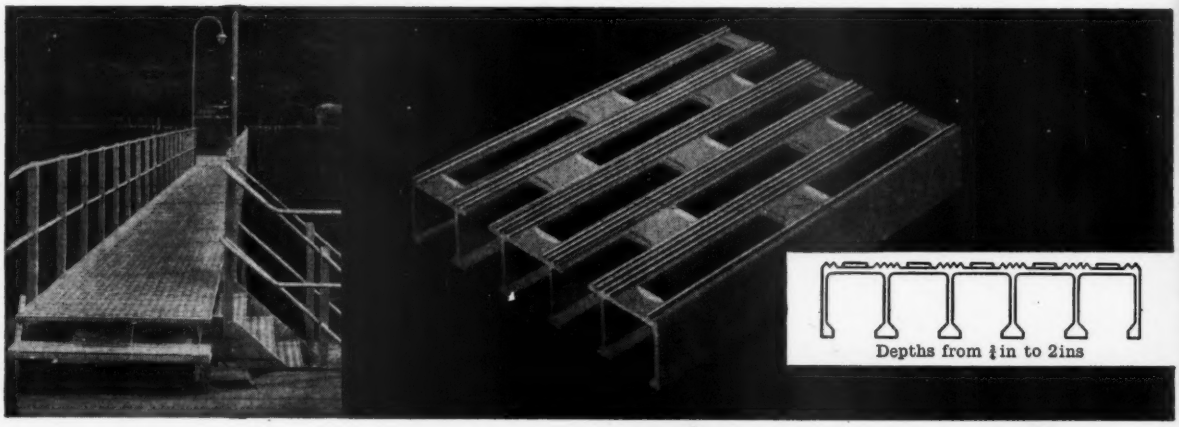

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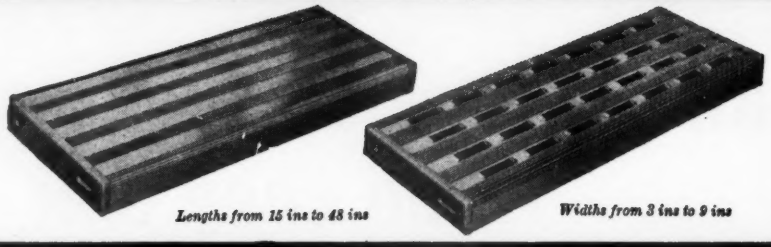

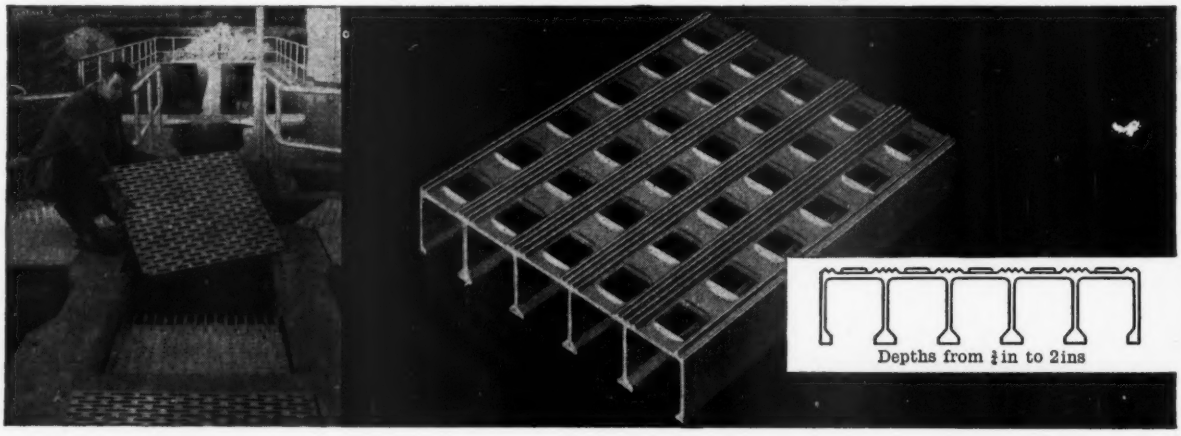

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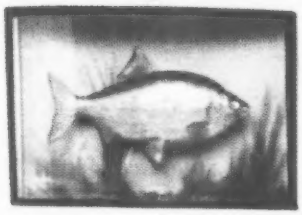

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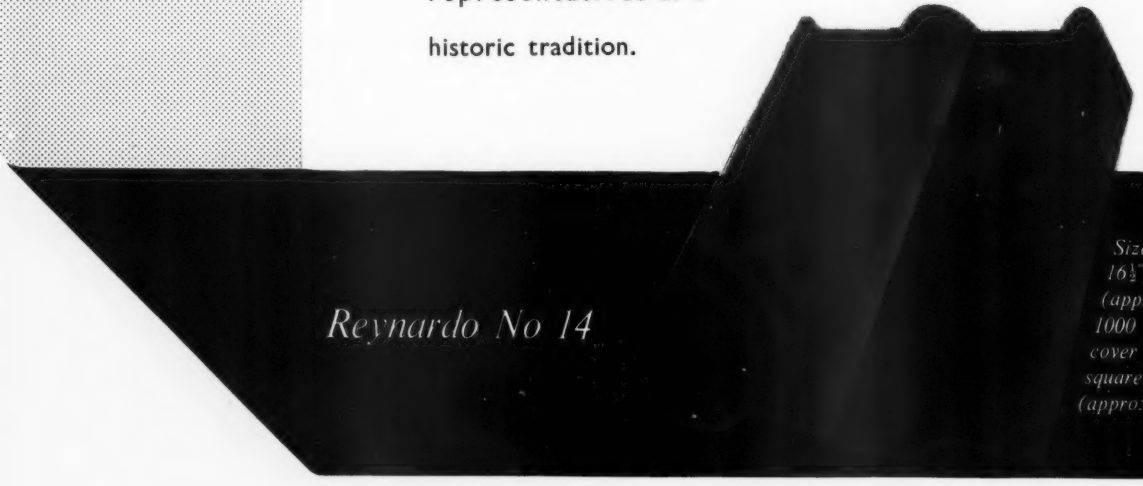

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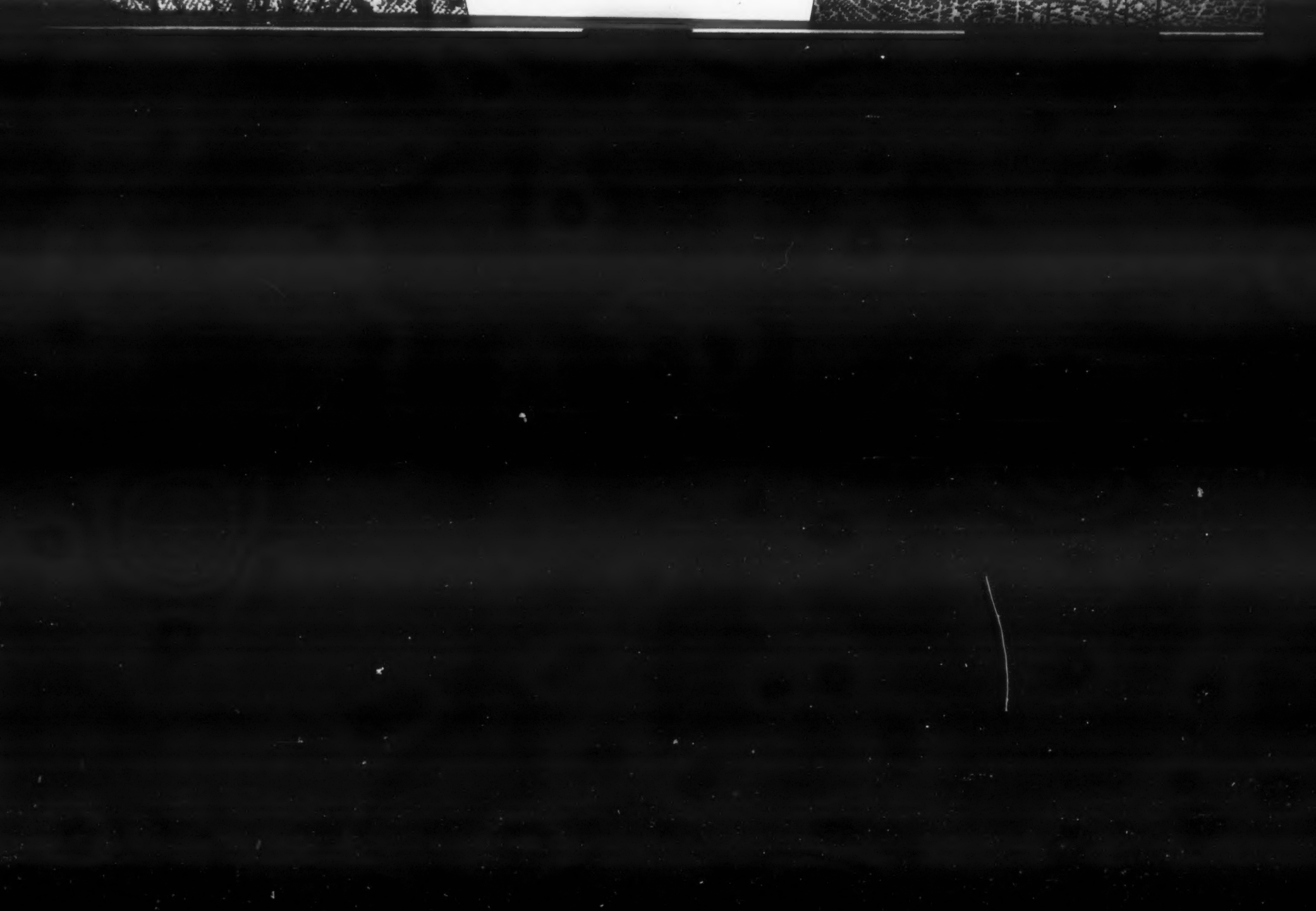

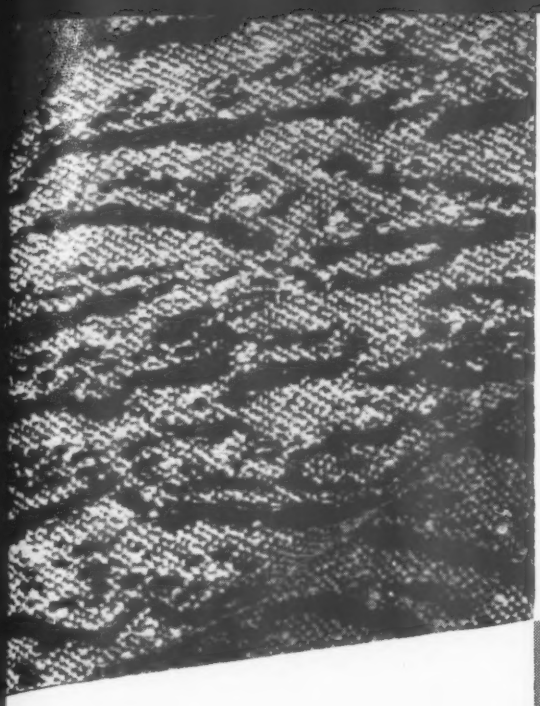

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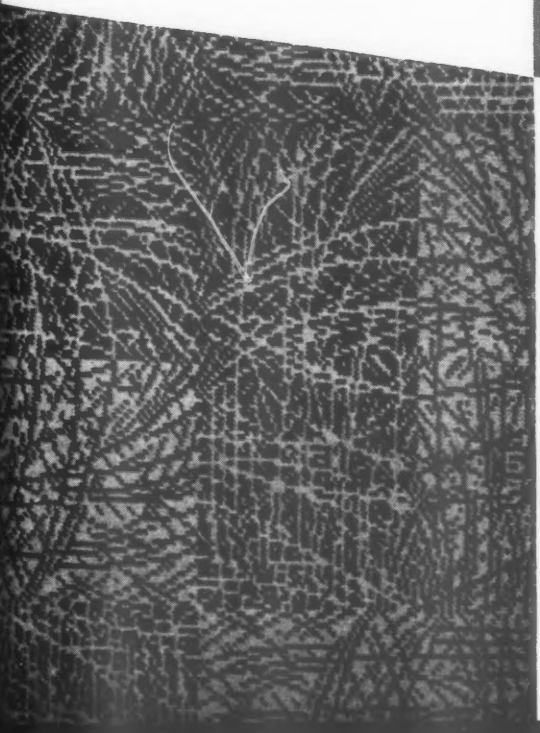

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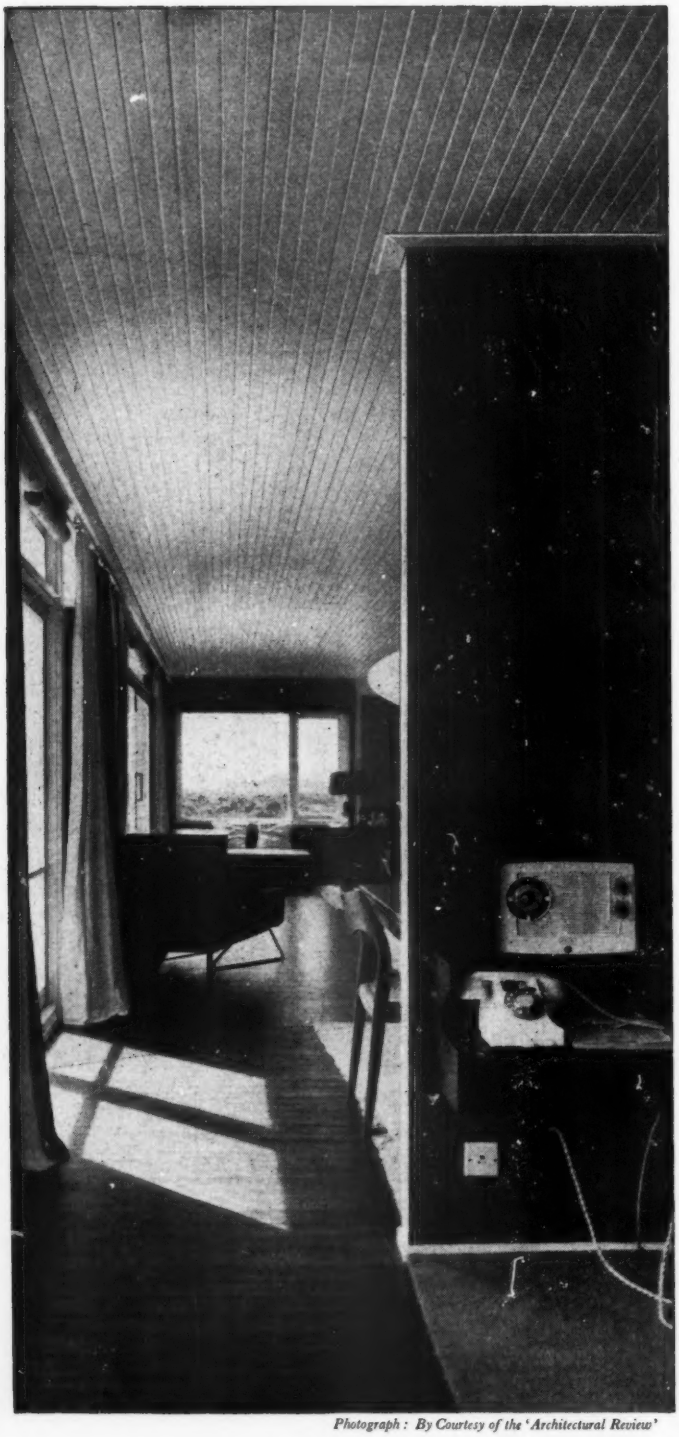

Photograph : By Courtesy of the 'Architectural Review'

In this design timber has been used for windows, flooring, ceilings and partitioning —all with pleasing effect reflecting the warm, liveable qualities of wood.

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ASSOCIATE ARCHITECT	R. A. Green
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TGA TD130

The newly completed Ford Parts Depot at Aveley, Essex, is designed in the most modern idiom of industrial architecture. It is therefore not surprising to find that the office block, including the canteen (illustrated above), is heated throughout by Crane Skirting Heating. This modern system uses heating panels in place of the conventional skirting to distribute warmth evenly at all levels without taking valuable floor space and without creating local 'hot spots'. The panels seen here are the 9-inch Type RC (Radiant-Convector). There is also **Type R (Radiant) which, in addition to the 6-inch size, has lately been made available in the 9-inch size for situations requiring additional heating surface.** The panels are in 2-ft. and 1-ft. lengths and are strongly made in cast iron for resistance to damage. Skirting Heating is the perfect modern method of space heating.

Once again, skirting heating by Crane

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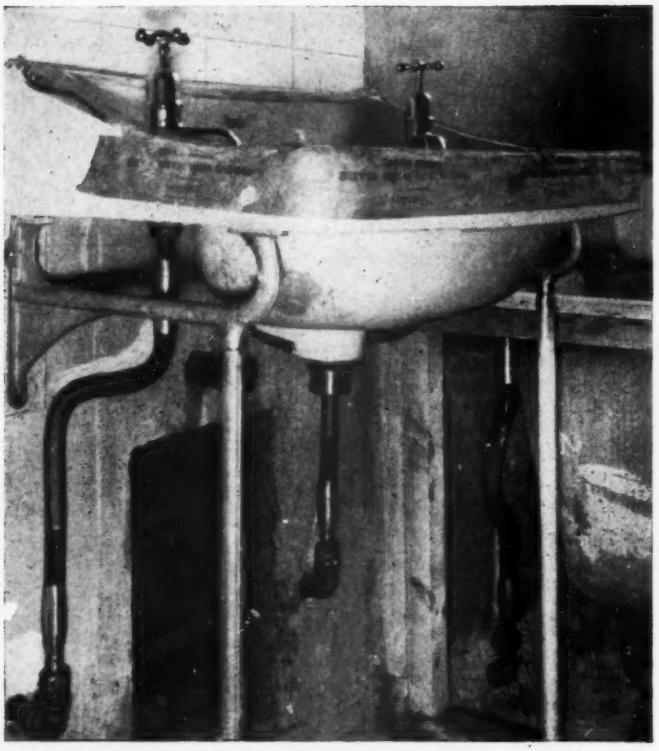

Lead short connections for baths, wash basins and sinks on the L.C.C. Estate of 928 flats at Loughborough Road, S.W.

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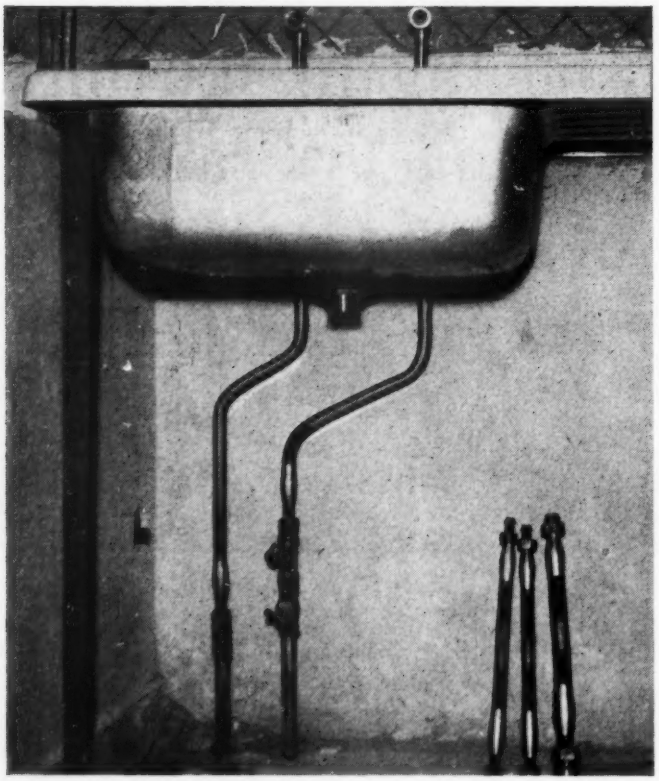
Contractors: Tersons Ltd. *Plumbing Contractors*: Z. D. Berry & Sons Ltd.



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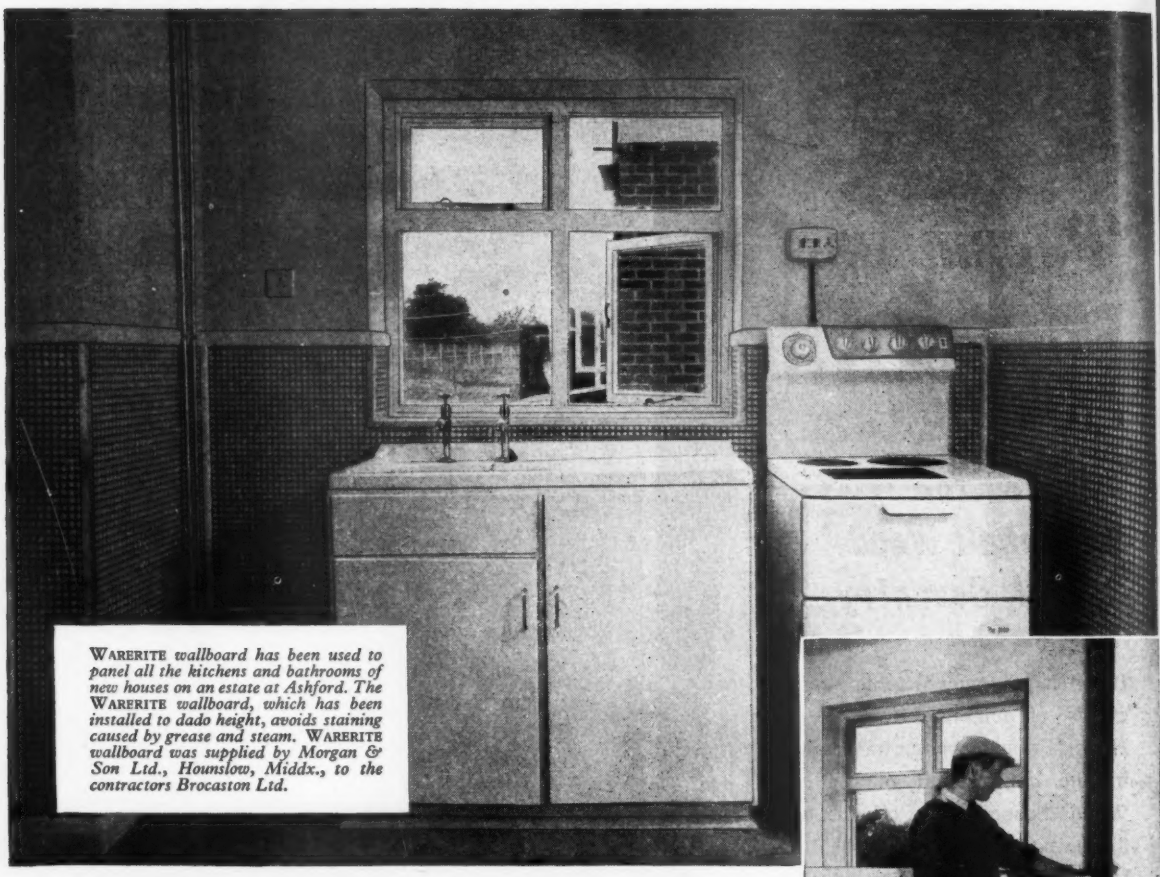
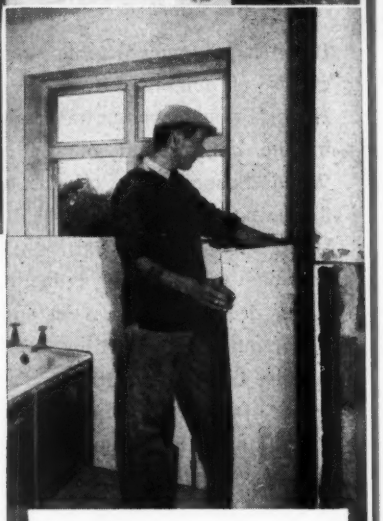


WARERITE *wallboard has been used to panel all the kitchens and bathrooms of new houses on an estate at Ashford. The* WARERITE *wallboard, which has been installed to dado height, avoids staining caused by grease and steam.* WARERITE *wallboard was supplied by Morgan & Son Ltd., Hounslow, Middx., to the contractors Brocaston Ltd.*



WARERITE wallboard can be pinned to timber grounds and the joints masked by face fitting wood, metal or plastic cover strips. Alternatively wood, metal or plastic fixing sections can be used.

WARERITE REGD. wallboard

WARERITE wallboard is economical, quick and easy to install — cuts on-site time and costs. Ideal for kitchen and bathroom walls, ceilings, flush doors, bath panels and cupboard fronts, it is resistant to steam and moisture and easily wiped clean. There is a choice of 16 attractive colours, patterns and woodprints.

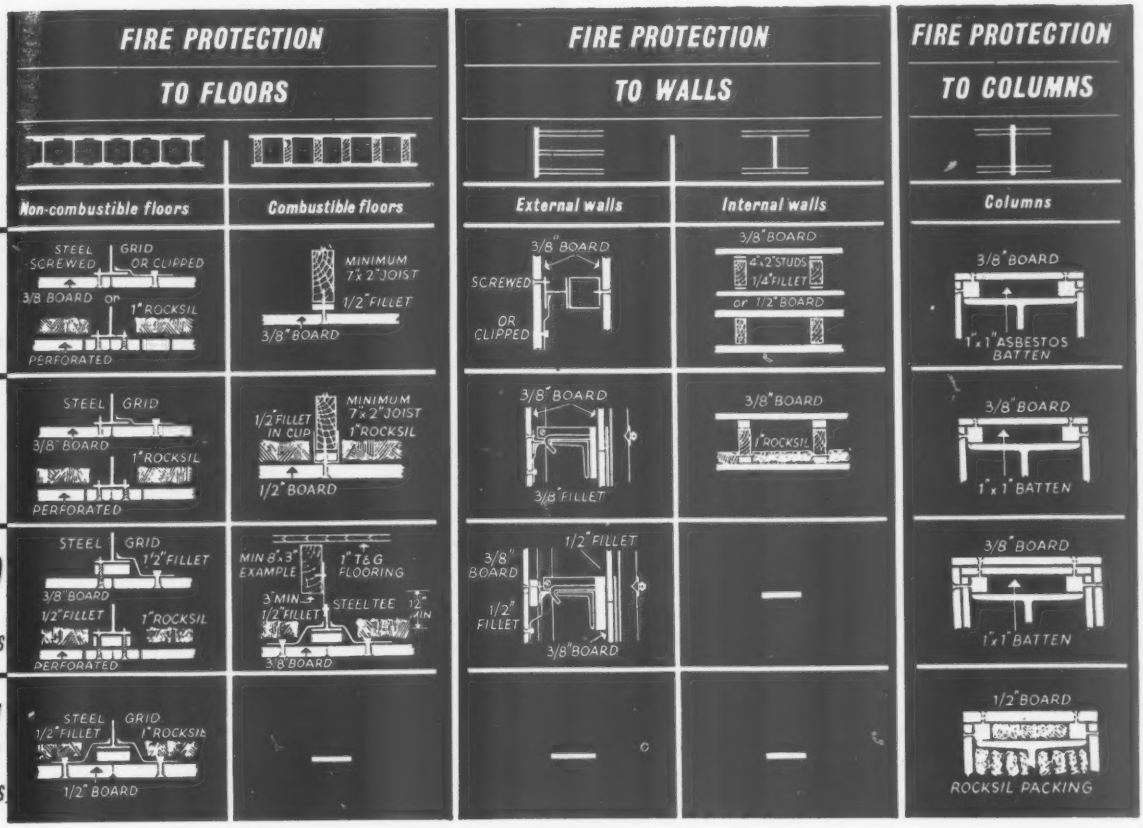
★ Eliminates tiling, plastering and painting ★ Easy to fix ★ Saves on-site time and costs ★ Attractive colourful patterns ★ Easily cleaned melamine face ★ Speedy fixing with 8 ft. x 4 ft. board ★ Costs 3/4d. sq. ft. with reductions for quantities.

WARERITE *wallboard is stocked by Distributors throughout the Country.*

WARERITE REGD. wallboard ✳ **with the lovelier patterns!** B REGD.

A product of BAKELITE LIMITED · 12-18 GROSVENOR GARDENS · LONDON SW1 · Telephone SLOane 0898

TGA WW17



Proven fire protection

By means of extensive full scale tests by the Joint Fire Research Organisation, Cape Building Products Limited have successfully evolved constructional details for the fire protection by Asbestolux of a wide range of structural elements. This range of details will be continually extended by further tests carried out in the course of a long term development programme.

These specifications apply only to Asbestolux and cannot directly refer to any other board material. No other sheet material has been proved to give so great a range of fire protection.

In a public demonstration firing staged by Cape Building Products on 28th May 1957, a full-size 3-bay industrial structure stood up virtually undamaged to temperatures in excess of those required by the British Standards 6-hour Fire Test. For a full account of this demonstration, write for a free copy of the 'Report and Findings.'

ASBESTOLUX

the unique asbestos insulation board

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CAPE BUILDING PRODUCTS LIMITED Cowley Bridge Works, Uxbridge, Middlesex. Tel: Uxbridge 4313
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TA453

Pyrodek

Trade Mark

poured in place gypsum concrete roof

An entirely new lightweight roof construction in which Gypsum Concrete is poured into place to a depth of 2 in. on bulb tee sections, formboard and reinforcing fabric to form an incombustible roof economical for areas of over 500 square yards.

VERSATILE CONSTRUCTION

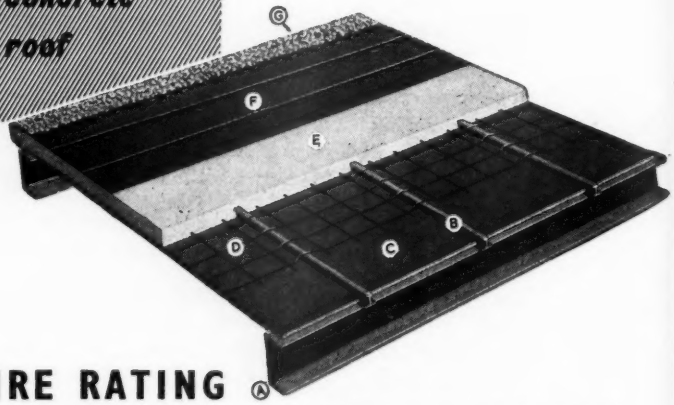
The system permits versatile design and can be adapted for use whether the supporting structural frame is steel or reinforced concrete, or whether the roof is flat, low pitched or curved.

HIGH SPEED CONSTRUCTION

The Gypsum is pumped into place from an automatic gauging and pumping equipment sited at ground level which enables up to 1000 square yards of Gypsum to be poured in one day. The set of Gypsum concrete is approx. 15 minutes after pouring and the roof will take light roof traffic after 1 hour.

1000 square yards of Pyrodek was specified for Maville Works, Nottingham, after it was gutted by fire. The building, which was modified from pitched to flat roof design, was re-roofed by ten men in ten working days including laying steelwork and formboard thus assisting in the early re-occupation of the building.

Ⓐ *Purlin.*
Ⓑ *Bulb tees.*
Ⓒ *Formboard.*
Ⓓ *Galvanised reinforcing fabric.*
Ⓔ *Pyrodek gypsum concrete.*
Ⓕ *Built-up roofing.*
Ⓖ *Gravel finish.*



FIRE RATING

The Department of Scientific and Industrial Research and Fire Offices' Committee Joint Fire Research Organisation subjected 'Pyrodek' to a standard fire resistance test. An extract from their report reads:—
"A 'Pyrodek' gypsum concrete roof approx. 3 inches thick was subject to a fire resistance test in which the soffit was exposed to the heating conditions specified in British Standard 476: Part 1. The specimen roof provided a barrier to the passage of fire for 2 hours 15 minutes when tested without imposed load on its upper surface. No collapse occurred, no cracks and holes formed through the specimen and the insulation provided by the deck prevented ignition of the bitumen on its top surface. The roof therefore provided fire resistance of the 2 hour grade."

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JN/F54

The Entrance and Entrance Hall to these new Longbridge premises for the Austin Motor Co. Ltd., were constructed by our organisation to the designs and under the direction of Harry W. Weedon and Partners.

OUR DESIGN AND TECHNICAL SERVICE IS READILY AVAILABLE TO ASSIST IN THE DEVELOPMENT OF ALL TYPES OF DECORATIVE SCHEMES.

Harris & Sheldon Ltd.

The organisation with a background of 75 years experience.

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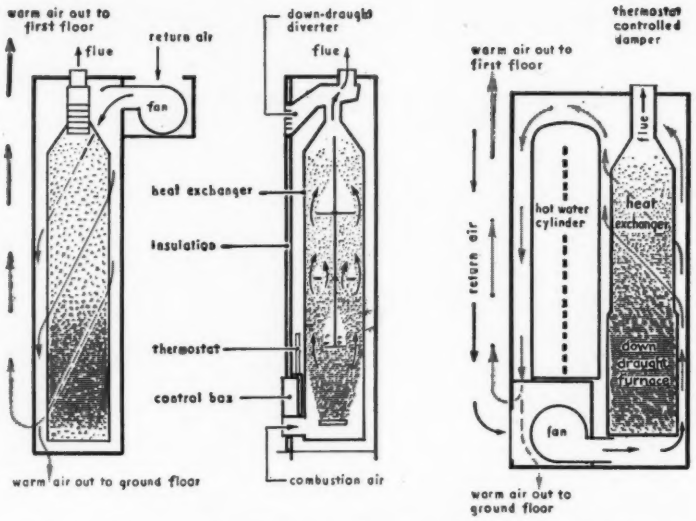
DUCTED WARM AIR

gives a HIGHER COMFORT STANDARD than ANY OTHER HEATING SYSTEM



The best DUCTED WARM AIR system is called RADIATION DUCTAIR

These are the main advantages of ducted warm air heating:—

Speed of response—adjustment of the room thermostat alters temperature faster than is possible by any other system (e.g. to raise a room of 1500 cu. ft. from night background temperature of 55°F to 'breakfast-time' 60°F takes only 20 minutes, where insulation is to Egerton standards.) As soon as the thermostat calls, the full rated output of the unit is made available.

Flexibility. Speed of response means fuel economy can be effected by turning down the thermostat when rooms are not in use, knowing that the temperature can be restored quickly when required. (This is very valuable in, e.g., schools where intermittent heating is required.) For further economy whole rooms can be "turned off" by closing outlet grilles.

Uniformity of temperature distribution. *Low level* discharge and high level return allow very low temperature gradients. This avoids that "cold feet and hot head" feeling characteristic of some older systems.

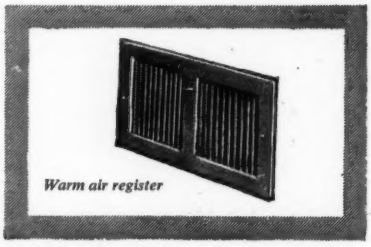
Freedom of planning—by heating the *whole* building *all* the enclosed space becomes useful space. Ducts are easily accommodated at planning stage and they make no demands on wall space. Outlet and return grilles are unobtrusive. Ducted warm air makes both "open" and conventional planning easier and offers scope for new ideas.

Clean heating—since warm air is "moved" into the room—instead of merely rising from an outlet—there is no discoloration of walls. (The warm air has, of course, no contact at any point with flue gases.)

Ventilation—the circulation of warm air is stimulating to the occupants and does away with the "heavy" feeling associated with earlier forms of central heating.

Clothes drying—efficient drying cupboards can be incorporated simply and cheaply. This is of particular value in multi-storey flats.

Drying out. A warm air system can be used to speed the drying out of new buildings for early occupation.


Warm air register

Here are the reasons why:—

Running costs—Radiation engineers take running costs to be the true efficiency index of an appliance. Here is a short example—many others, in detail, may be seen on request. *Bungalow at Oulton Broad, Suffolk. 1500 sq. ft. insulated to Egerton standard. Heated by Ductair 0.50. Average oil consumption over 2 years (heating period 1 Oct. to 31 March) . . . 625 gallons domestic fuel oil. Standard of heating attained: Living room 60°F. Bedrooms 55-60°F (day and night averages.) N.B.* plus *domestic hot water during heating season. Out of season hot water by immersion heater.*

Installation costs—the Ductair system is cheaper than, for example, a fully thermostatically controlled radiator system using comparable fuel. Detailed comparisons are available.

Precision construction—tailored to the particular requirements of each contract, all Ductair is of the highest workmanship. This is essential in producing units of accurately predictable performance to give years of trouble free service.

Nationwide network of Radiation-trained stockists. To speed design and on-site work, Radiation have established more than 40 fully trained area stockists to provide real "head office" attention near your site. Regional design specialists can be called in by any stockist to meet new or unusual problems. Radiation offers a full after-sales service for Ductair equipment.

10 years' working experience in Britain. After a detailed examination of the best American practice in this field and research, Radiation have developed the Ductair system over ten years. This gives Radiation unrivalled experience *under the actual climatic and living conditions peculiar to this country.*

50 year background of research and experiment Radiation technicians, for well over 50 years, have been concerned with making better use of fuel. This is reflected in the simplicity of the highly efficient equipment they have evolved. It means too that Radiation engineers have an unusual ability to see their own system against a background of many alternative systems—an understanding particularly valuable at discussion stage.

RADIATION DUCTAIR is more than just another central heating system. It offers a fully integrated service to architects and builders. Its aim is to raise comfort standards and to make possible the more efficient use both of fuels and building space.

DUCTAIR units (of all sizes, powered by Solid Fuel, Gas, or Oil) have been successfully installed in buildings of all kinds—from houses to shops, flats to schools, churches to pubs. Write to us about the sort of buildings that are of interest to you. We particularly welcome new problems—we've been solving them all our working lives.

DUCTED WARM AIR *systems offer all these advantages and, where required, hot water can be produced by utilising the heat of the appliance "when idling". There is clearly a strong case for warm air heating as such—but which particular system? We believe that* Radiation Ductair *is best able to answer your needs.*

Radiation DUCTAIR

RADIATION GROUP SALES LTD., WARM AIR DIVISION, 10 MORTIMER STREET, LONDON, W.1

MAJOR ROAD DEVELOPMENT

calls for IBSTOCK FACING BRICKS

CHISWICK GARAGE
(G. W. JOHNS), Ltd)
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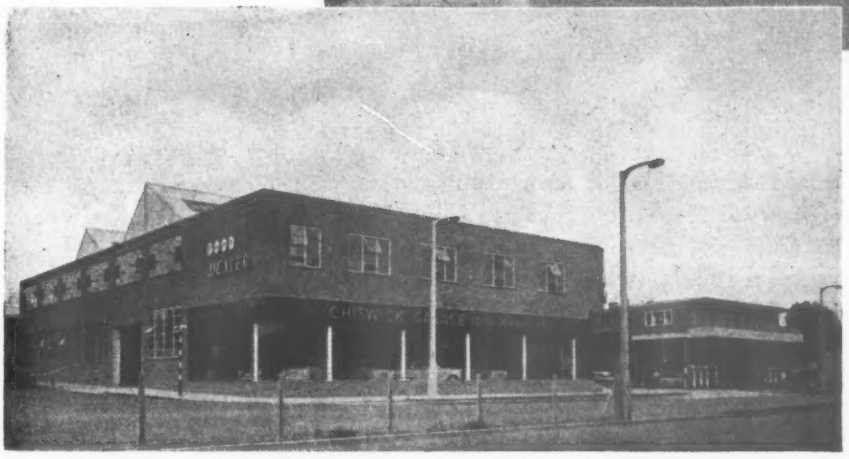

Bricks: 12½in. Salmon Brown Rustics.
Architects: The late Joseph Fielden Dixon, A.R.I.B.A., and Sydney Clough, Son and Partners.
Contractors: Bone Brothers & Judd Ltd.

Ibstock facing bricks were chosen for this major road development because they are hardwearing and very attractive in appearance. Ibstock Natural coloured Machine and Hand Made Facing Bricks are being used all over the country on many prominent contracts.

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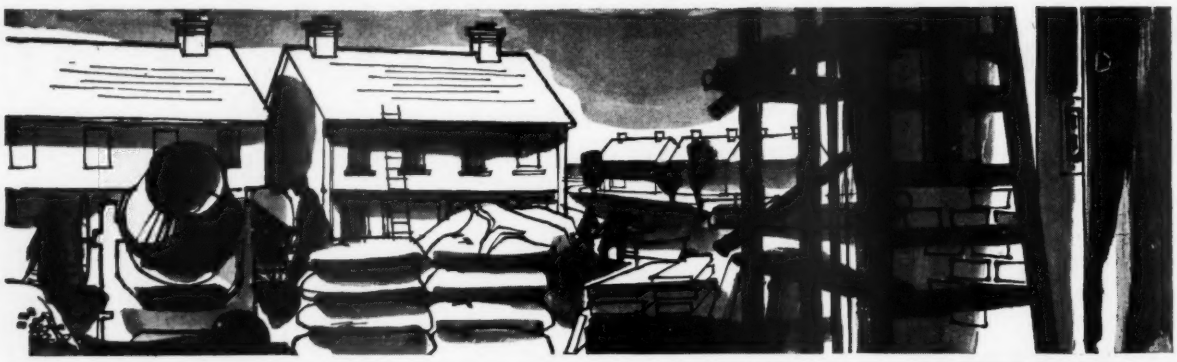
Telephone: Western 1281 (2 lines).



Redfyre Bacboilers provide low-cost water heating in new housing schemes at Aycliffe, Peterlee and Stevenage

A Redfyre Bacboiler supplies ample domestic hot water, and heats one or two radiators as well. (Or it will heat up to four radiators if hot water isn't needed.) Installation is simple and quick and maintenance costs low. Two new Ministry approved Redfyre grates with Bacboilers are now available — the new Hearth Redfyre with sunken grate and underfloor draught; and the Redfyre 60, a new low-cost controlled-burning fire with exceptionally clean modern lines. All Redfyre fires are fitted with 30% chrome, semi-steel bottom grates for longer life.

Bacboilers like this are being installed in new homes at Aycliffe.
Chief Architect: G. A. Goldstraw, O.B.E., B.A. (ARCH.), A.R.I.B.A.

REDFYRE

Full technical information from

NEWTON CHAMBERS & COMPANY LIMITED
REDFYRE PRODUCTS, THORNCLIFFE, SHEFFIELD

A series of extra large size Rectangular Glass Domes fixed on the roof of St. Helens Technical College.

chitect : Hubert Thearle, F.R.I.B.A., Liverpool.

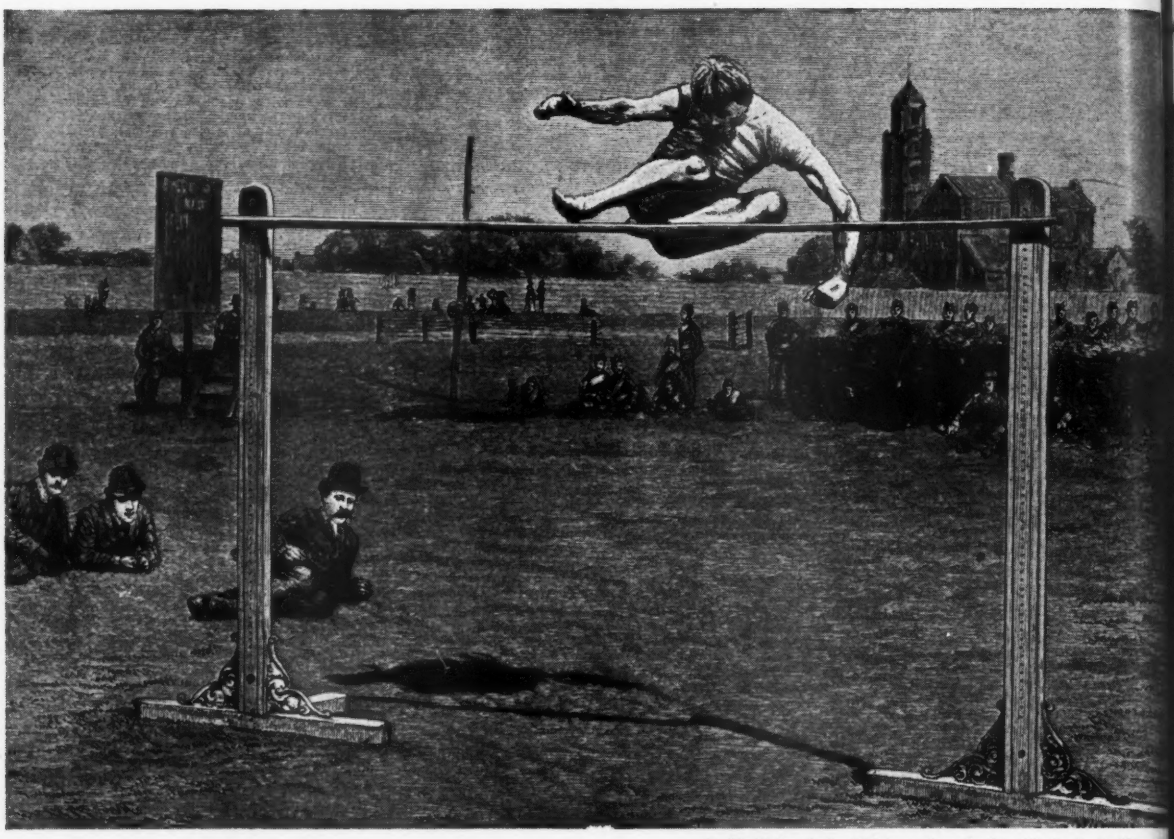
Contractors : St. Helens Corporation, Building Dept., St. Helens, Lancs.

Because of their permanence and lack of maintenance Seddon Domelights were chosen to provide daylight through the roof of this college. Incidentally, their size is 84″ × 48″

SEDDON
DOMELIGHTS

SEDDON & SONS LTD., ST. HELENS, LANCASHIRE

Telephone : St. Helens 5451/2



Paddy Kelly winning high jump championship of Ireland—Dublin 188

WHAT GOES UP... MUST COME DOWN!

That is why so many lighting installations incorporate L.E.F. Raising and Lowering Gear

When planning new lighting installations, remember that special consideration must be given to the maintenance of lights sited high up.

There is no more practical way of dealing with these than by the installation of L.E.F. Raising and Lowering Gear. This ingenious contact suspension gear enables lights to be lowered to ground level for maintenance and raised again. An important factor from the architect's point of view is that L.E.F. gear can be built into the ceiling and is then completely concealed.

Many well known buildings, street lighting systems, factories, aircraft hangars, etc. have L.E.F. Raising and Lowering Gear. It is the complete answer to difficult light maintenance problems, but be sure to consult London Electric Firm at the planning stage so that they can meet your technical requirements.

LEICESTER UNIVERSITY—Percy Gee Building

This hall is an excellent example of the concealed fitting of L.E.F. Raising and Lowering Gear which is used for each of the lights. Close liason by L.E.F. with the contractors from an early stage resulted in a trouble-free installation.

Architects: Thomas Worthington & Sons, Manchester.
Contractors: Witcombe & Blackwell Ltd., Leicester.
Photograph: Thomas-Photos, Oxford.
(reproduced by permission of the University Authorities)

L&F **LONDON ELECTRIC FIRM LTD., South Croydon, Surrey. Telephone: Uplands 4871**

Tib. 123

Walton-on-Thames, Hersham and Qatlands Hospital; Sidney Road, Walton-on-Thames.
Architects: Westwood Sons & Partners, F/F.R.I.B.A.

TOMO DOUBLE GLAZED WINDOWS

—BY TEST,† THE BEST!

The natural choice for this fine new hospital building in Walton-on-Thames was TOMO double-glazed WINDOWS. Shown here are horizontal-pivot-hung and hopper-type windows and double-glazed doors in Utile framing. The spandrel below the window is in vertical cedar boarding.

The excellent thermal-efficiency achievement of TOMO double-glazing (amply demonstrated in the report of the recent B.R.S. Tests quoted below) was one good reason why these superb windows and doors were chosen for Walton Hospital.

Noise is an enemy of hospital life and in this instance TOMO double-glazing was especially suitable because of its remarkable sound-reduction properties. (The amount of reduction in sound level depends, of course, on the thickness of glass and the space between panes—32-ounce glass spaced at 1⅞ in. gives a reduction of approximately 40 decibels.)

TOMO double-glazed WINDOWS afford all the advantages of finely-controlled ventilation and total indoor window-cleaning. They are suitable for inward or outward opening and can be top-hung, bottom-hung, side-hung or pivot-hung.

† BUILDING RESEARCH STATION TESTS

When a standard-production TOMO WINDOW Wall-Unit (8 ft. × 8 ft.) was tested at the Building Research Station, Garston, the mean thermal transmittance of the complete unit was found to be 0·31 B.Th.U. sq. ft. h/°F. This is equal to the thermal transmittance of a traditional 11-in. cavity brick wall! This impressive result was further improved to 0·29 when the TOMO pleated blinds, fitted between the panes, were lowered.

The U-value of the window-area only was found to be 0·38 which, with TOMO pleated blinds down, became 0·35. At 0·38, TOMO double-glazed WINDOWS are substantially (29%) better than the U-value of 0·47 quoted for conventional double windows in the I.H.V.E. Guide to Current Practice, 1955.

FOR UTMOST EFFICIENCY IN THERMAL INSULATION AND SOUND REDUCTION

—SPECIFY

TOMO DOUBLE GLAZED WINDOWS

—purpose-made in finest timbers to Architect's size, style and finish

To: TOMO TRADING CO. LTD., COWLEY PEACHEY, UXBRIDGE, MIDDLESEX (Phone: West Drayton 3751)
Please send me your 24pp. TOMO double-glazed WINDOWS brochure.

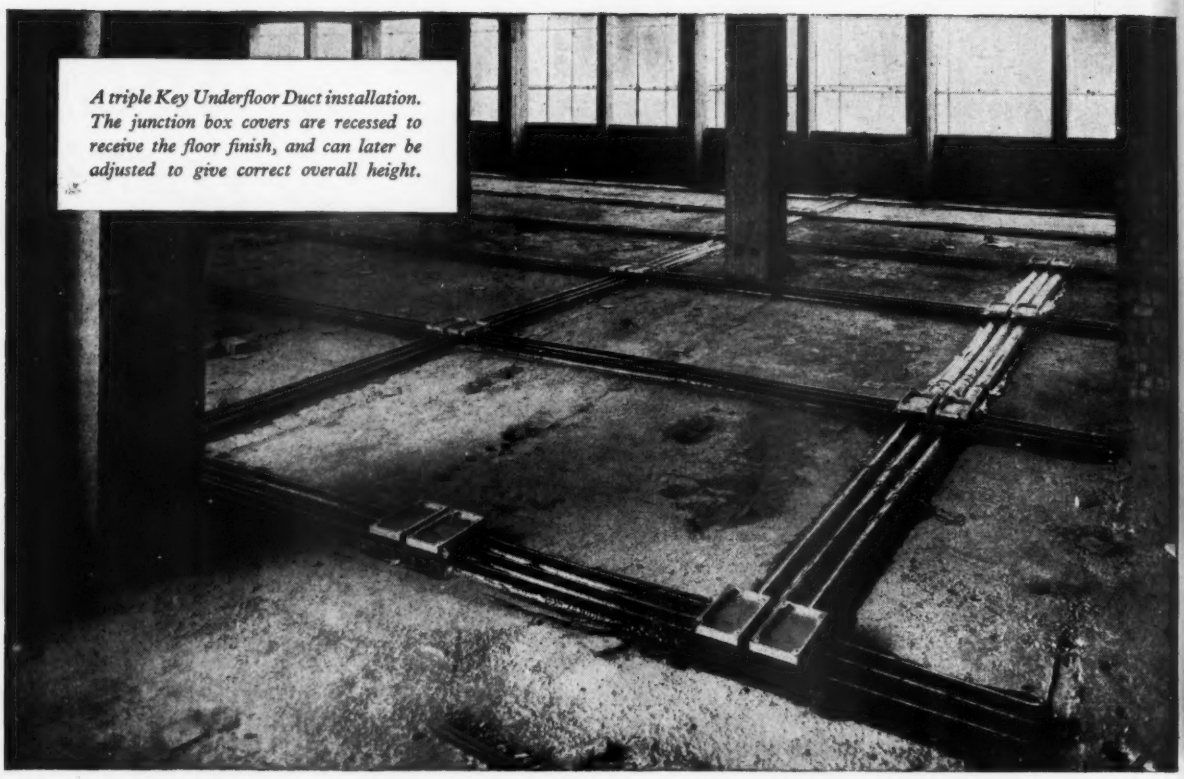
Name .....

Address .....

.....

For the attention of ..... A.J. 11

Now and for the future—
Key Underfloor Duct
solves wiring problems economically



A triple Key Underfloor Duct installation. The junction box covers are recessed to receive the floor finish, and can later be adjusted to give correct overall height.

Electric power and telephone outlets can be installed and added as necessary when Key Fibre Underfloor Duct is used. On a materials plus labour basis the cost of installations is lower than any metal system. Because of their light weight and ease of cutting and fitting, Key ducts can be quickly laid. Since there is no necessity to pre-position outlets, the architect can install an underfloor duct scheme, and later fit outlets to suit the occupant's requirements. The fitting of these outlets is a quick and simple matter and the most complete range of fittings is available for lighting and telephone systems.

easy to lay—low cost
completely adaptable

KEY UNDERFLOOR DUCT
conforms with B.S. 815 and is the original Underfloor Duct System. Key have the widest experience of Underfloor Duct Systems in the U.K.

Speed the job—cut the cost with the

KEY **UNDERFLOOR DUCT SYSTEM**

ALSO KEY FIBRE CONDUIT FOR HEAVY DUTY CABLES

A PRODUCT OF **KEY ENGINEERING COMPANY LIMITED**
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Caludon Castle School, Coventry.
City Architect: A. G. Ling, Esq., F.R.I.B.A., A.M.I.P.I.
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Accotile Flooring is especially recommended for the busier walks of life such as schools, hospitals, libraries, shops and commercial buildings. Accotile Floors are extremely hard wearing and retain their original lustre in spite of the heaviest traffic. From the wide range of colours, countless designs can be evolved. In addition to its outstanding durability, Accotile provides a hygienic floor which is draught proof and requires the minimum of care to maintain its well groomed appearance. For heavy duty specify Accotile the modern thermo-plastic flooring. Samples and full details will be sent at your request.

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360

The accurate control of colour in any tone or shade!

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Newport (Mon.) Head Post Office
Architect: D. M. Jones, B.Arch., Dip.C.D., A.R.I.B.A.
Chief Architect's Division, Ministry of Works

Colour and Texture give LIFE to a building

Large plain exteriors, which otherwise might appear monotonous, can be made lively and interesting with Brick. Good brickwork, with its characteristic texture, is a valuable medium to the designer of modern buildings, and the great variety of brick types and colours available offer exceptional scope for imaginative treatment. A brick exterior requires no periodical rejuvenation; it remains a source of pride throughout its life.

BUILD IN BRICK

Issued by The National Federation of Clay Industries, Drayton House, London, W.C.1

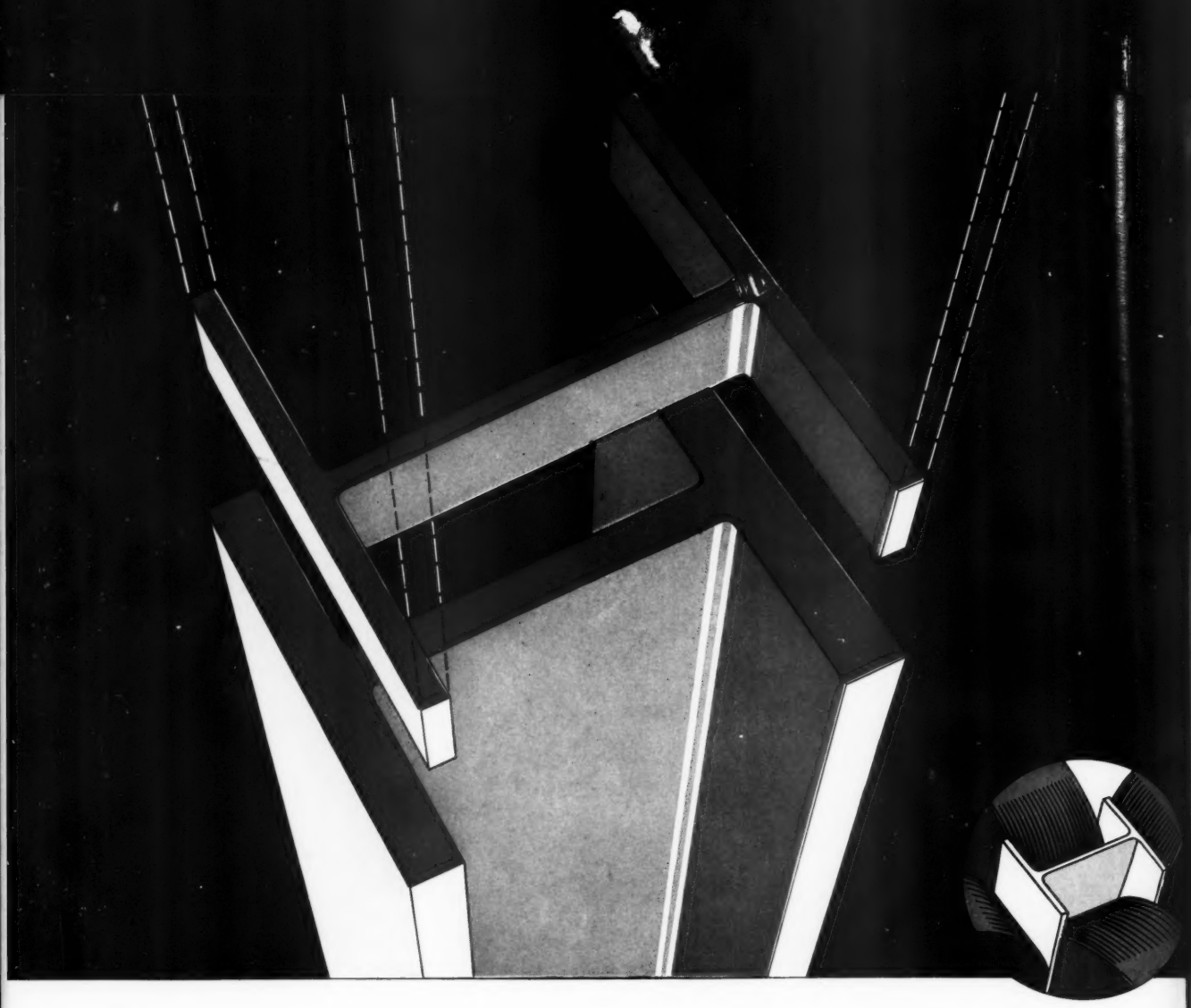

Diagram showing the arrangement of the rolls, which are adjustable to control the flange and thickness. Other rolls, not shown, size the edges.

Each section best for its purpose

Our new Universal Beam Mill makes available a full range of new and important beams and column sections, some having wide flanges.

The new mill produces — without changing the rolls — complete 'families' of related sections such as are advantageous for the columns of multi-storey buildings. The illustration shows two of a range of such sections; the flange thickness can be altered as shown by adjustment of the rolls, while the surfaces shaded in blue remain practically unaltered.

New, large beams, are available in different weights. These new beams and columns are already leading to substantial economic and other advantages.

EARLY DELIVERY OF THE FULL RANGE OF SECTIONS

DORMAN LONG

Leonard for Showers

Uniform's off and a naiad's gone
to take a shower with nothing on.
If she is wise she will take good care
that Leonard's the name the shower valves bear.

If she does not she is apt to find
that the cold's not cold and the hot's unkind.
Leonard irons out the bumps and keeps
things in their places
Complexions count not only where the face is.

More about Leonards in pamphlet No ZC/2

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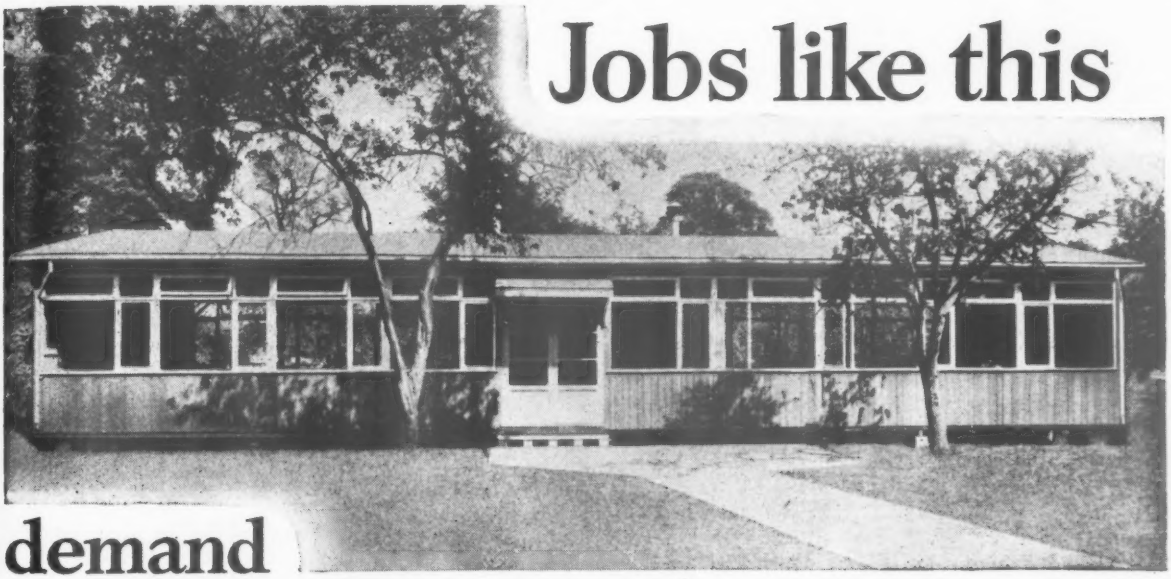
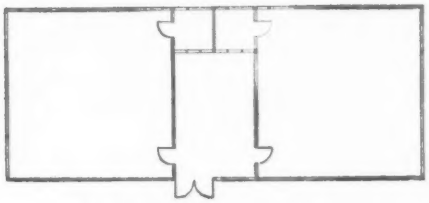
Jobs like this

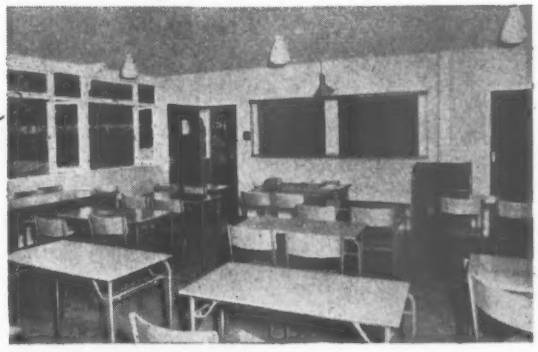


demand *versatility... speed... economy...*

SPECIFICATION
A timber building to form two classrooms, each 24' x 24'. A store room for each classroom and a cloak bay to house 80 coat pegs. A timber floor and flat ceiling providing space for electric lighting. The building to be based on a panel unit, capable of being dismantled and removed to another site in approximately two years' time. Erection to be carried out by supplier on a prepared foundation.



FAIRFORD FARMOR'S SECONDARY MODERN SCHOOL near Cirencester, Glos.



Photographs by courtesy of the County Architect, Gloucestershire County Council.

Thorns' Contemporary Design, which conforms to Ministry of Education recommendations for school buildings, was eminently adaptable for this requirement. The consequent saving in time and cost was substantial. A trained THORNS' team was ready to start erection as soon as the foundations were completed.

The size agreed upon was 60ft. × 24ft. × 8ft. 6in. eaves. Walls were clad with vertical tongued and grooved boarding of Western Red Cedar with building paper behind, and lining of hardboard and insulation board. Partitions, similarly lined, were fitted to plan. The floor was constructed of tongued and grooved boards on joists, with sleeper plates. Rain-water goods were included in the contract.

THORNS

THORNS' prefabricated sections, as used at Fairford Farmor's School, are available on a 6ft. multiple basis.

All or any part of the construction work is undertaken by THORNS, at the client's request.
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Ask THORNS to quote for your own job.

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Asphalters advise . . .

BLACK SHEATHING FELT every time—the one-thickness underlining that acts as a perfect keying medium for hot asphalte.

This durable combination of waterproofed jute and flax fibres resists cracking and creeping—and gives complete isolation from the substructure.

It weds ideally with the asphalte to form a homogeneous layer, giving absolute waterproofing—that is why experienced asphalters advise BLACK SHEATHING FELT.

★ HANDLES PLEASANTLY ★ EASY TO LAY
★ DOES NOT WRINKLE

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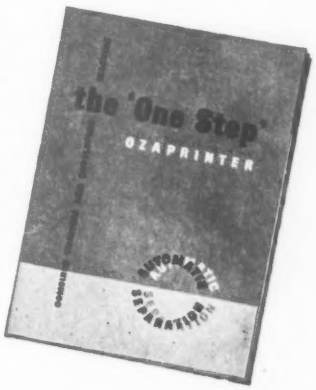

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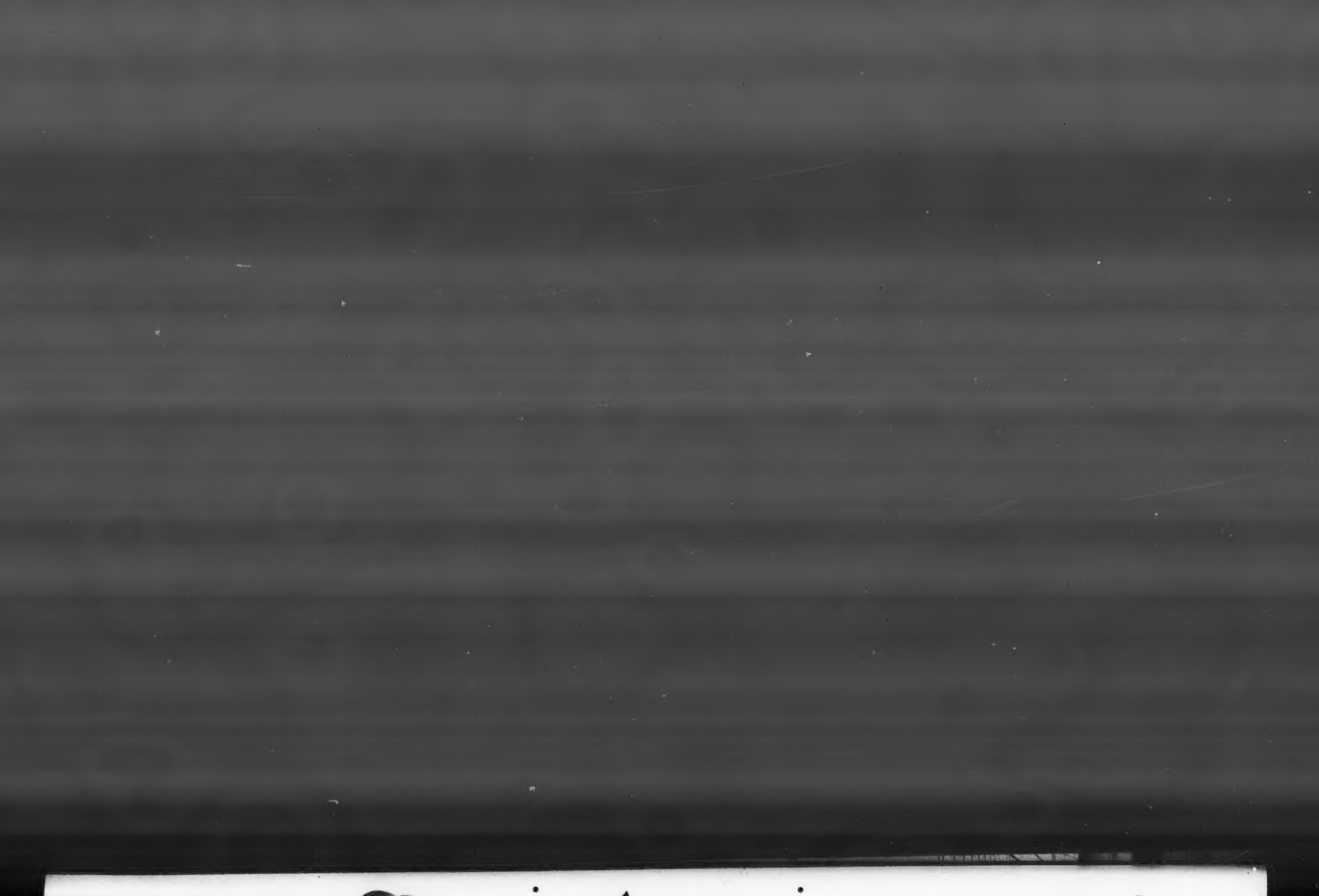

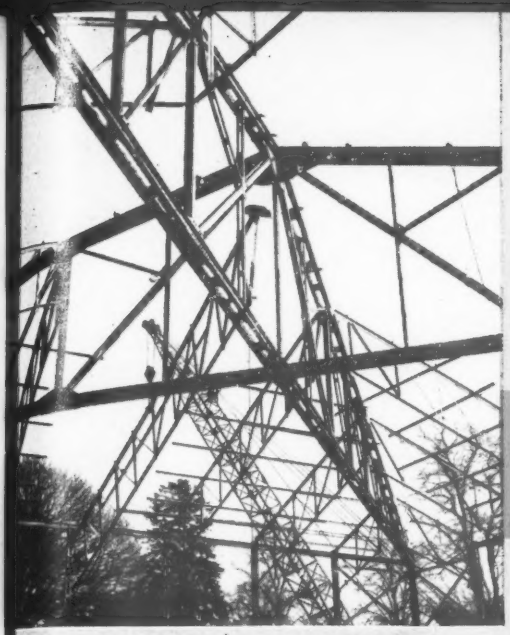

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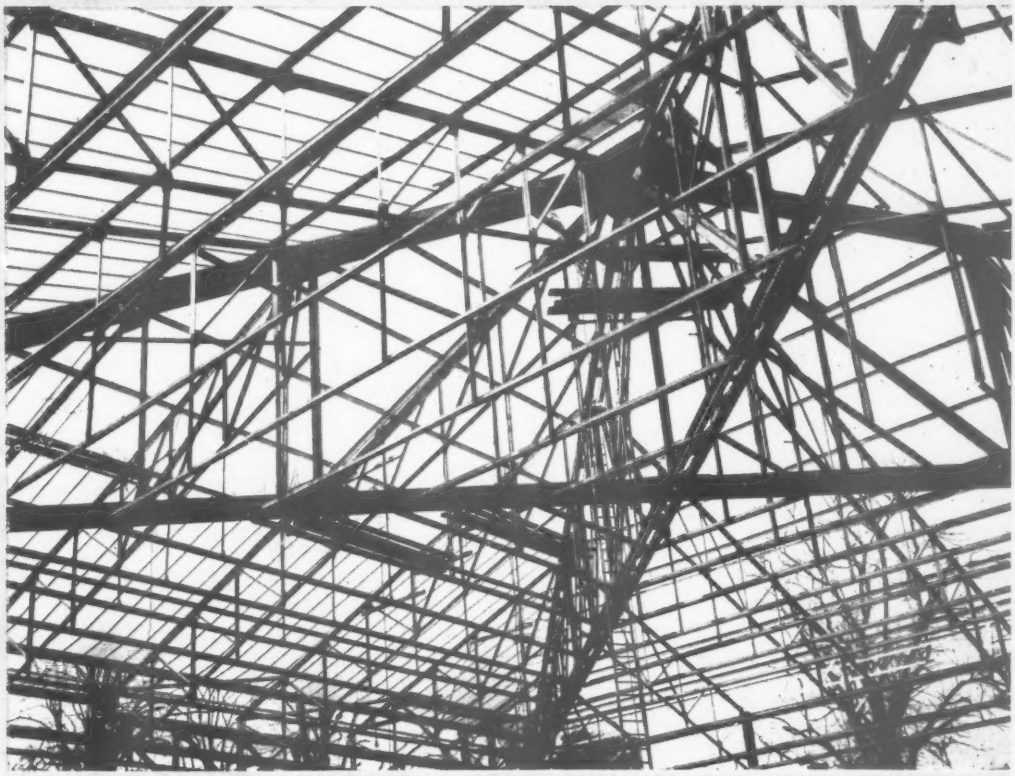

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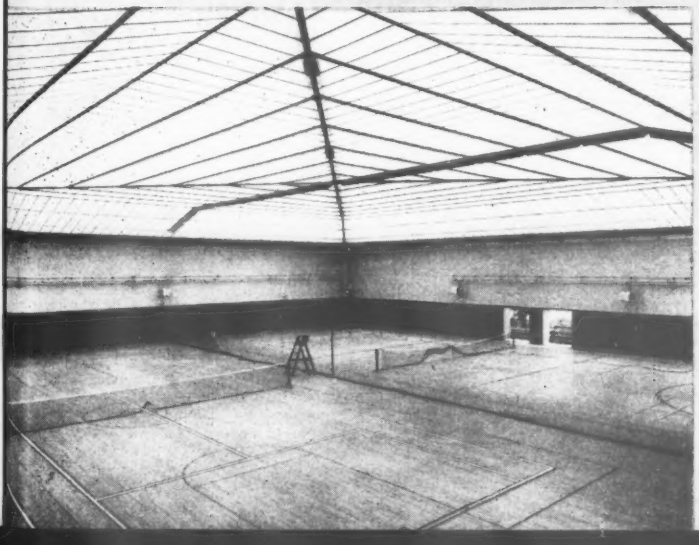

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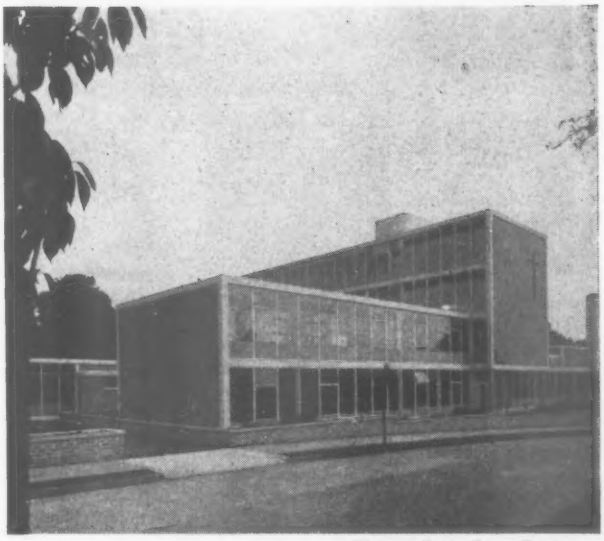
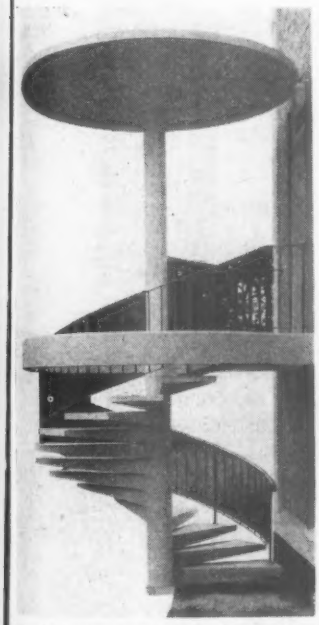


The new Bonus Pastor Roman Catholic School at Downham, Kent, recently completed by W. H. Gaze and Sons Ltd.

Architects: Archard & Partners.



The delicate concrete spiral staircase at the Bonus Pastor Secondary School, constructed by Formcrete Ltd. who were also responsible for the whole of the reinforced concrete frame. Messrs Formcrete is the Reinforced Concrete Specialist Subsidiary Company of W. H. Gaze and Sons Ltd.

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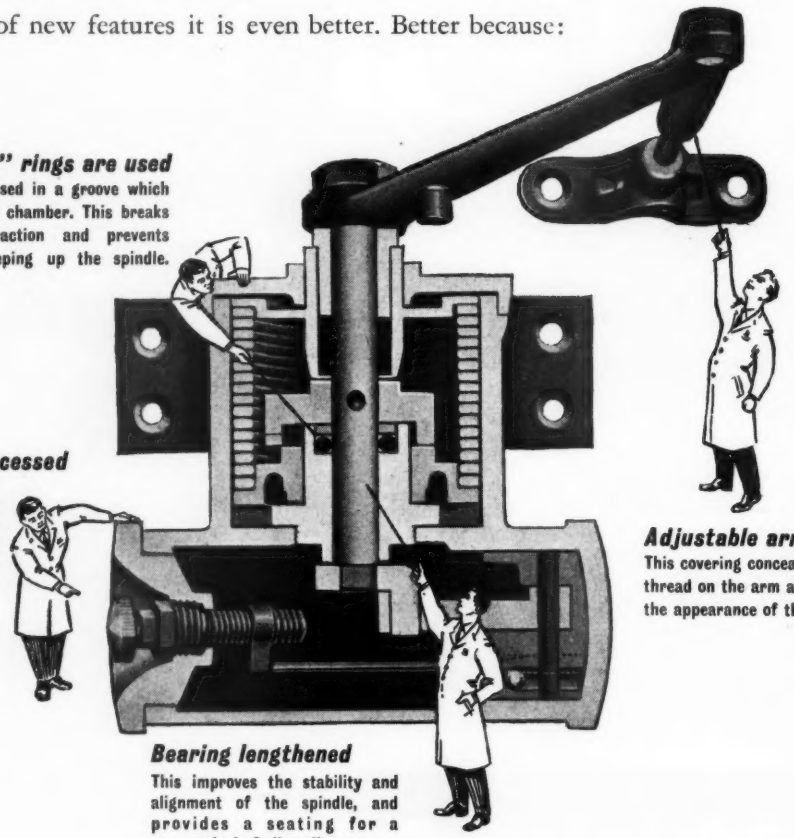

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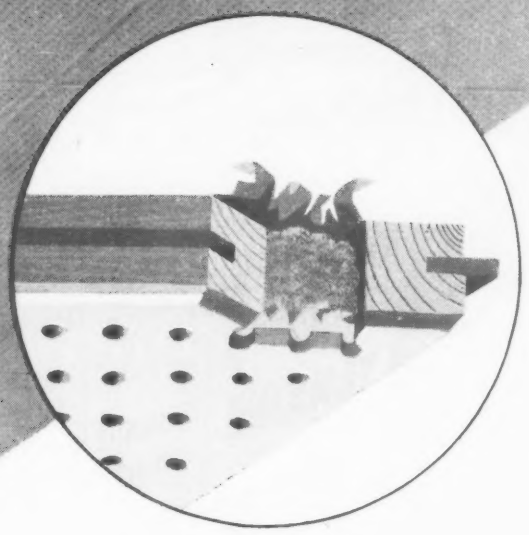

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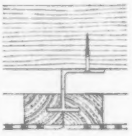

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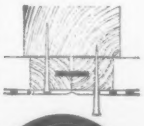

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THE ARCHITECTS' JOURNAL

No. 3325 Vol. 128 November 20, 1958

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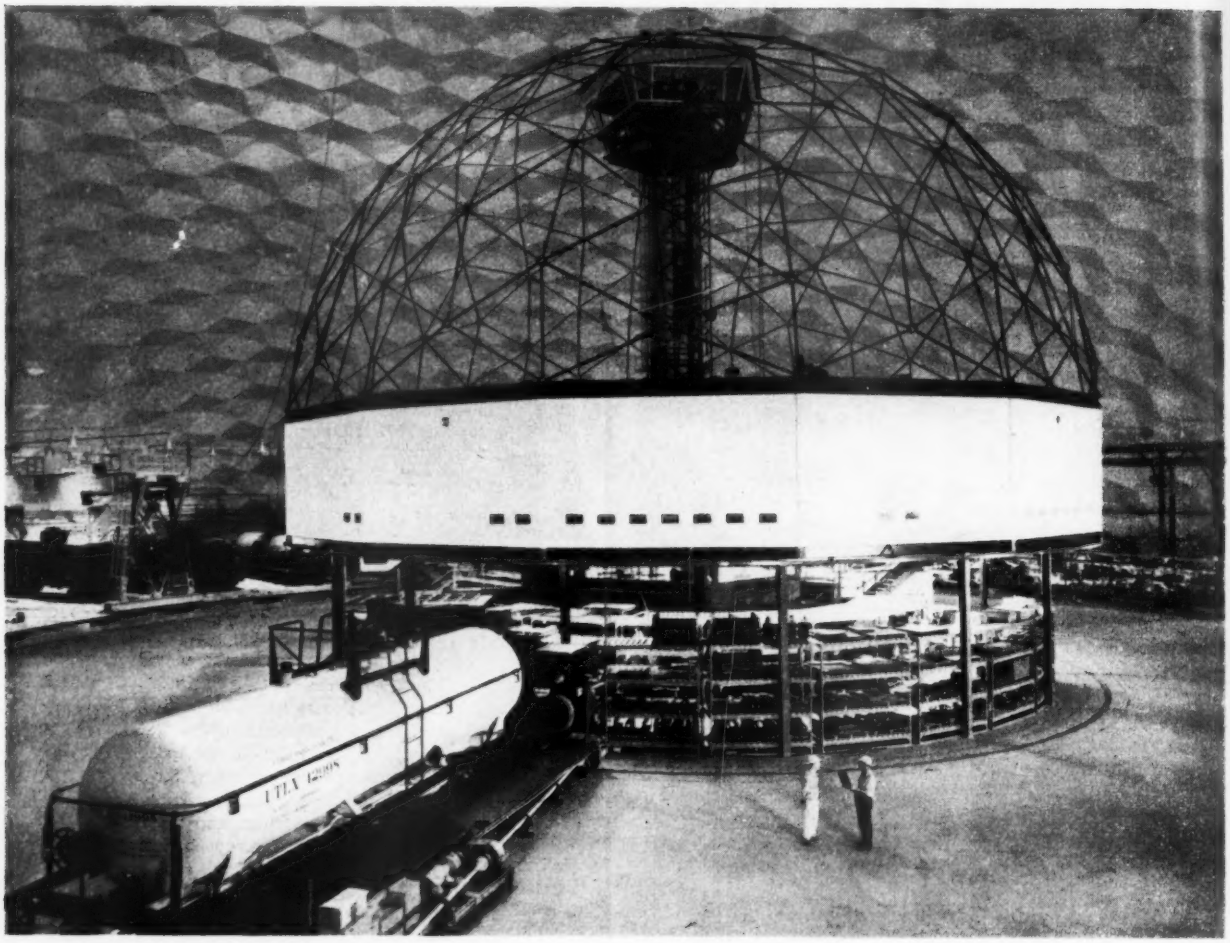
NOT QUITE ARCHITECTURE

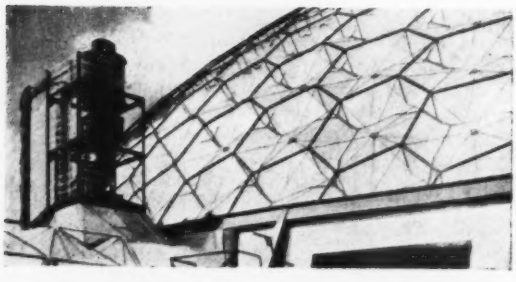
A QUESTION OF CHARACTER

It was painfully obvious at the public enquiry in Hampstead last week into Erno Goldfinger's proposal to build a block of two flats and a maisonette in the Vale of Health, that the two sides did not speak the same language. Erno Goldfinger, Sir John Summerson and the New Hampstead Society, who supported him, and the LCC, which was not only ready but eager to grant planning permission, spoke the language of town planning and architecture. Hampstead Borough Council and the objecting residents did not.

*

The site is a narrow one, wedged between a Victorian terrace on one side and some Victorian villas on the other. It is occupied by the Athenæum, aptly described by Mr. Goldfinger as "a barn with Gothic windows" and "a blot on the townscape." It began life as a dance hall, has since done service as a garage and workshop, and has acquired rights as a non-conforming industrial user which the LCC is very anxious to see replaced by a residential building. Mr. Goldfinger's design, although much less bulky and taking less light from its neighbours than the Athenæum, infringes both zoning and daylighting standards. The case put by Mr. Goldfinger (and supported by the LCC) for approving the design was nevertheless straightforward. The Vale, though zoned at 30 to the acre, was a village left forgotten in Hampstead Heath, tightly knit around the streets at densities running up to 150 or more, and open to the Heath at the back. The buildings surrounding this site had neither architectural merit nor charm in their own right but were given great character by their density and domestic scale. It was precisely this that he and the LCC were endeavouring to preserve, by treating the building as a stop at the end of a four-storey terrace, lining up with it, and projecting slightly in front of it.





The Harmony of the Spheres

The scene, above, of a hemispherical space-frame within a quarter-spherical shell dome could only be the work of Buckminster Fuller, and represents the completed state of his Union Tank Car dome near Baton Rouge, of which the AJ published progress shots in June of this year. The inner hemisphere contains the operational brains of the waggon-repairing business conducted within the main shell, with a control room at its head and stores underneath. Around this hundred foot hub turns a moving platform that collects the tankers from the incoming railway lines and delivers them to the relevant repair bays against the outer wall or to the projecting paint shop that can be seen in the aerial view, lower left. This mode of operation, reviving the round-house practice preferred in the pioneer days of railways, obviates the problems of line-flow repair works, where the whole line must, inevitably, move at the speed of the slowest job, and may even have to be backed up, and for this reason the Baton Rouge plant, though smaller than some other installations, can handle much more traffic. Structurally, the main dome (built from an inventory of only seven types of components including fixings) is a shell braced on the outside by a framework of tubes and stays, middle left, to produce what is effectively a three-dimensional truss of about four-foot deep section. Those who like to draw historical parallels may like to ponder the apparent similarities between this structure and, not classical domes, but gothic vaults, unsupported within and lavishly braced without. Those who don't like to draw historical parallels may still like to ponder that this is the largest dome conceived so far by the mind of man, and ask themselves why it should be possible to create such spherical structures only in a universe that—as Professor Lovell pointed out in his first Reith Lecture—we no longer believe to be governed by the harmony of the spheres.

The Hampstead Borough Council objected to the elevation, and to the infringement of density standards. But there is a good deal of quackery about density. Two flats and a maisonette on the site would have a density of 84, at the LCC's standard of 3·6 persons per dwelling. A single family house, which would have satisfied Hampstead Council and the local objectors, would have a density of 28—even if it had 13 bedrooms and housed more people! The terrace houses next door have densities of 140 to 150, and no garages, whereas Mr. Goldfinger's block could garage at least four cars. His client, moreover, does not want a four-storey house. Mr. Goldfinger considered that 30 to the acre set him an æsthetically insoluble problem.

*

Hampstead's assistant solicitor, J. M. Clarke, wanted the elevation to "harmonize," and charged Mr. Goldfinger with "expressing a modern idiom in an Olde Worlde neighbourhood" (surely the first time that Victorian terraces have been endowed with Olde Worlde qualities). Mr. Clarke seemed to argue, too, that since the existing buildings have neither merit nor charm a new building should not have them either. Mr. Grose, who combines the jobs of Hampstead's assistant engineer (for which he is qualified) and planning adviser (for which he is not), said that Mr. Goldfinger's building would look all right on its own in a thickly wooded site, perhaps in Scandinavia or the Far East. He capped this comment (which is hard to reconcile with the tributes paid by Hampstead to Mr. Goldfinger's reputation) by erecting a whole edifice of argument on the assumption that the Athenæum (designed as a dance hall) is church architecture (because it has Gothic windows), and more appropriate to the scene than Mr. Goldfinger's "violent intrusion."

*

Sir John Summerson brilliantly put his finger on the real issues. New buildings, he said, must follow the best lights of the profession at the time, and not conform to an almost mythical "painterly character" (in which charm arose from density and decay) which was irrelevant when it came to a question of new building. He conceded that a modern architect could design a building of flexibility and compromise to which nobody would object: "it just happens that here we have the work of an artist of some consequence."

*

The real reason for the objections, Sir John thought, was that the layman (with whom he sympathized) found it extremely difficult to envisage from architectural drawings the scale and feeling of a building before it was put up. He felt confident that if he could give a tutorial to half a dozen of the objectors he could win them round. Would it not be a good idea if next time Hampstead Council, instead of asking a professional adviser "to give comments on the building itself, but not in relation to the site" (as Mr. Grose said it did), took advantage of Sir John's offer?

M. M.

The Editors

MORE JOBS?

ARCHITECTS who have read about the £150 million worth of additional public investment promised by the Chancellor of the Exchequer recently will be waiting for the clients to come knocking on their doors. But, before they order a new car or promise the bank manager a reduction in the overdraft, they would do well to look beneath the headlines.

First of all, "investment" includes much that is not building. In the public sector as a whole non-building investment is comparable in bulk to building. So we might begin, from the architect's point of view, with a figure of £75 million instead of £150 million. Then we might look at what the Chancellor said, rather than at the sub-editors headline summaries. "For 1959-60 we envisage a level of public sector investment about £125 million to £150 million higher than that of last year." This is not the same as saying "As from now new investment projects are being launched which will involve expenditure of £125-£150 million next year." Such a promise, if it had been made, would have been suspect anyway, for it is absurd to suppose that a ten per cent. increase in expenditure in the public sector could be achieved in 1959 by pressing buttons as late as November, 1958.

In other words, some unspecified but large proportion of the Chancellor's £150 million must represent expenditure to be incurred next year on jobs approved and designed some time ago. Confirmation of this reasoning appears later in the Chancellor's speech. "Looking forward a little further, our expectation is that we shall need to keep the level of public sector investment in 1960-61 at about the same level (*sic*) as that to which it will be rising in 1959-60." This stable level of activity is not consistent with sudden surges of fresh approvals. Relatively little investment has so short a "cycle-time" that

it can be approved, designed, started and finished within twelve months. It therefore follows from the Chancellor's plan for 1960 that little of the additional investment in 1959 can take the form of new work put into the pipe-line as a result of very recent decisions.

Architects should therefore take a sober view of the Government's plans for expanding the economy. They cannot expect a flood of enticing new jobs. But on the other hand they can take some encouragement from the Government's apparent recognition of the disadvantages of "switchback" or "whistle-stop" planning. The investment programme (and this applies even more to the public than to the private sector) is not a tap to be turned on and off to compensate for inevitable fluctuations in the rest of the economy. Sudden changes in investment, whether up or down, produce waste and inefficiency; they are in any case inappropriate remedies for short-term changes in the level of general economic activity. If the Chancellor's somewhat Delphic pronouncement really means that the Government have grasped this, architects ought rather to welcome the prospect of some stability in the building industry than to lament the absence of a sudden spate of new orders.

A MOMENT TO STOP MOANING AND ACT

When Basil Spence suggested that planning committees should be abolished, he was, we suspect, simply chucking stones at the Ministry's windows as a means of drawing attention to a grievance, namely, the arbitrary aesthetic censorship exercised by lay committees. The Minister, if he is now wide awake, cannot fail to notice, however, that the uproar over aesthetic or elevational control has not produced any clear, specific proposals. Neither the RIBA Council nor any other professional body has been able to reach agreement and formulate a policy.

We hope that the RIBA Council will be sufficiently alarmed by the Town and Country Bill to make representations to the Minister about it. This would surely be the moment also to formulate and submit specific proposals on the question of aesthetic censorship. For, if the law has to be changed, now is the time to do it, when the Bill is before Parliament. It will certainly not be easy. There are many good reasons for not giving architects *carte blanche*. It may well turn out, on examination, that administrative action and education are needed, rather than new legislation. A circular by the Minister stating that he will not support any attempt to control the elevations of plans for individual houses submitted by registered architects might remove nine-tenths of the grievances. But it is certainly time, if this controversy is not to go on interminably and without result, to descend from the clouds of generalities to the formulation of specific proposals on behalf of the profession.

ARCHITECTS DEFENDED

It is good to see that national papers are giving some attention to the ludicrous way architects are treated by planning committees. This week's *Observer* told the AJ story of the house that couldn't be built at Epsom because the outside staircases made it look like a block of flats, and because it would have been "out of keeping" in "a good class residential area." And the *Spectator*, which had an article on the whole subject a month or two ago, referred last week to the flats for Hampstead by Erno Goldfinger which the Minister of Housing is considering, and to the absurd fact that "ministerial time should be wasted on ponderous consideration of the work of professional men, when so much unprofessional and outrageously bad stuff is being built." This sort of publicity of the weaknesses of planning could be very useful. It is also helpful when a well-known public figure gets involved in a planning brawl, and the Humphrey Lyttelton case is continuing to call attention to the price to be paid when an imaginative man gets himself an unorthodox architect and has to cope with a local council and a building society.

FIGHTING A LOAN BATTLE

Incidentally, even the builders are turning on the building societies. There were complaints at the recent

conference of registered housebuilders that societies won't advance money for under-floor heating. Now that the societies are becoming virtually part of the Establishment, financed by the Government, their intolerance of modern design is more intolerable than ever. Let us hope that Mr. Brooke is not going to advance money to those societies which exercise a dictatorship over the appearance of houses. Perhaps the RIBA could call a conference of building society surveyors and tell them a few facts about modern building materials and designs.

REASON AND RHYME

Some of you will remember J. M. Richards' study of early industrial buildings in a special issue of the *Architectural Review*. It is now published, with more text and illustrations, in book form.* Unlike most standard text books it is something you will want for the sheer pleasure of looking at the illustrations—photographs by Eric de Maré of mills, warehouses, docks and so on.

*

If you would like something of the literary background to much of this austerely elegant, rudely classical architecture, get hold of *The Industrial Muse*†, a well-annotated anthology by Jeremy Warburg, covering industrial poetry from 1754 to John Betjeman. This fascinating book includes poetry because it is industrial, not because it happens to be in or out of critical favour.

PALMY DAYS

If you are wondering what has happened to Italian modern architecture, have a look at the pictures on this page and wonder again. Ugo Luccichenti did those houses for a great building organization, the SGI, whose good name depends on a lot of high-density housing schemes with reasonable rentals. The prices of these houses, outside Rome, with their Kraal-like fringes of thatch, are about £12,000 each. Maybe these *are* realistic prices, but the price of the tatty palm trees is £550 a time. Whatever happened to the cheap Italian labour we used to hear so much about?

ART FOR ARCHITECTS' SAKE

Architects will enjoy Percy Westwood's collection of watercolours at the Building Centre. It ranges from gems that anybody would want to pieces that only collectors would buy. You would need a fortune today to pick up the odd Canaletto or Bonnington in the way that Westwood was able to. But—a sad thought—would any architect want to collect such things nowadays, even if he had the means? It all seems very remote from the way we live.

*

Less remote is the Jackson Pollock exhibition, elegantly displayed in a transformed Whitechapel Gallery until early in December. When you look at these paintings you realize what a painter modern architecture lost with his death. A Pollock of the prime period is as effective at sixty feet as it is at six inches—it could dominate a grand staircase or animate a domestic wall. It's surprising, though, how few people at Whitechapel were bothering to take the close view and see the richness in the paint and the craft in the painting. Are the critics to blame? They have been so busy one-upping each other that they haven't had time to tell us ordinary consumers what the pictures are about or how to look at them.

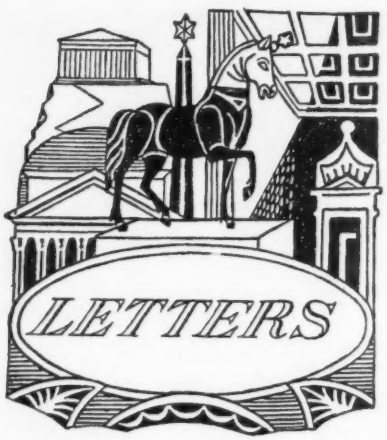
HOUSING THE PARSON

The exhibition of parsonage houses at the Church Commissioners' offices at Millbank last week was very much what ASTRAGAL had expected. For the most part, the houses illustrated (one sheet of eighth-scales, occasionally labelled "Working Drawing") were of that curious compound style, arts-and-crafts and Georgian in differing proportions, with which one associates the Commissioners. There were, however, a handful of modern houses (using the term loosely), the most promising of which was that by Leslie and Peter Barefoot. Apart from an interesting plan *and* section, this gave 2,123 sq. ft. for £5,951, including fees. The average cost per sq. ft. was around £3 10s., and this may well be due largely to the unrealistic requirements set by the Commissioners. Why should a parson, for instance, need solid fuel fires in his study, living room and main bedroom? Underpaid as he usually is, he cannot afford domestic help and his wife is already overworked. A change of policy is needed.

ASTRAGAL

Housing in Rome. See "Palmy Days."

* *The Functional Tradition*, Architectural Press. 35*s*.
† Oxford University Press. 15*s*.



Denis Clarke Hall, F.R.I.B.A.
President, The Architectural Association

A. N. Harris, F.R.I.B.A.
County Architect, Northamptonshire

E. Turnbohm, A.R.I.B.A.
Past President, Tees-side Branch Northern Architectural Association

Demos

John Powell, A.R.I.B.A.

James Stanworth,
Student A.R.I.B.A.

R. Llewelyn Davies, F.R.I.B.A.
Director, Nuffield Foundation Division for Architectural Studies

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

Dargan Bullivant, A.R.I.B.A.

Architectural Technicians

SIR,—In your Editorial of November 6, in which you referred to my Presidential Address to the Architectural Association, you inferred that I advocate the division of the "technical aspects of architecture from its managerial and aesthetic aspects," and also formally absolving the modern architect from "understanding the technicalia of his building." In fact I stated the exact reverse. Having described the wide range of knowledge an architect should have, I said: "However, all these principles should be known and studied before a man can call himself an architect, and therefore must be known and understood before qualification."

You also state that you are convinced "that a large proportion of the routine work done by architects is unnecessary, and is due to lack of organization both in the office and in the industry." This I do not agree with. Organization means efficiency which in turn means accuracy, and accuracy can only be achieved by routine work.

If the standard of the architects is to be raised, which I think we all agree should be done, I stated: "can then the profession as a whole afford to be staffed within its scale of fees entirely by highly qualified operatives, earning salaries in proportion, supported only by a few part-time students?"

Further, Michael Pattrick, at the Annual Prize Giving of the Architectural Association stated that education to the two advanced levels for entry would almost certainly reduce the entry by as much as 60 per cent, and would probably cut the number of those taking training outside schools from 4,000 to 40.

Finally, you refer to the real harmony that exists in architects' offices derived from a common educational background. Harmony in an office depends on the individuals, whatever their background, and the present wide variety of training can hardly be described as a common background, but, a different type of training between the architect and the technician, as suggested, is purely one of duration and emphasis, leading to two different qualifications.

DENIS CLARKE HALL.

London.

"Bucks Does It Again"

SIR,—ASTRAGAL's opening remarks in the JOURNAL for November 13 are just about the most nauseating piece of nepotism I have ever come across. All that remains now is for us to be treated to a cosy little photograph of ASTRAGAL entertaining his new nephew by adoption in the "Bride of Denmark" along with the rest of the architectural family at Queen Anne's Gate.

I have never considered that a "lecture-cum-bun-fight" is a world-shattering technical advance, and surely ASTRAGAL realizes that other counties have been holding productivity meetings for years and often with their local builders who are the people that matter, and that for years many counties have been sending their senior assistants to the York Institute of Architectural Study for courses in office and project management.

ASTRAGAL is not likely to hear of development in other counties unless he makes inquiries.

A. N. HARRIS.

Northampton.

SIR,—ASTRAGAL asks "Why don't we ever hear stories of first-rate designs from Northumberland, Cumberland and Durham?" The answer is probably, "There are none so deaf as those who will not hear." The good designs are here to be seen, good sensible buildings well suited to our northern climate, and highly commended by knowledgable architects when displayed in the NAA Centenary Exhibition, earlier this year.

We in the north do venture forth a good deal and know what is going on in the rest of the country. After visiting and (more important still) re-visiting some of the much-publicized wonders of the southern counties, we return home with thankful hearts, well and unashamedly satisfied with the results of our own efforts. We are sorry for you, living so far away. Do come.

E. TURNBOHM.

Darlington.

Why Boycott The Competition?

SIR,—I have read Denis Berry's letter very carefully and I do not think it is a fair statement of the possible disadvantages of the RIBA Small Houses competition. The reference to the assessors as "divine" members of our profession is meant to be offensive but merely stresses their difficulties.

But let us examine each of his own implied suggestions as an alternative to the competition system.

1. "Encourage the employment of more architects."

Surely the competition is a practical attempt to answer this demand.

2. "Influence the standards of local authorities."

How? Nobody has yet told us the way this should be done, but surely the findings of the assessors if they do their work properly will do just this.

3. "Investigate the whole system of aesthetic control."

Brave words, and in fact the President of the RIBA has already started on this crusade, yet one cannot help but feel that despite his prestige, his is still a voice crying in the wilderness.

4. "Agitate for the replacement of Borough Engineers by architects."

One suspects (I did not want to use this argument) that Mr. Berry is sufficiently young not to have been embittered by long and futile attempts to persuade local authorities that an architect has received aesthetic training and knows more than an engineer or a sanitary inspector. When the public realize this fact, then and then alone will the Borough Engineer be replaced by an architect.

5. "Form committees of architects to sit in judgment on shameful developments and to publicize their findings in every way possible."

This, of course, has been attempted in the past and has met with much opposition—and seemingly as much antagonism as has been aroused by the publication of the names of the "divine" assessors for the present competition in the mind of your correspondent.

6. "Buy space in the local Press to stir public opinion."

This really is a naive belief in the power of the Press and the value of advertisements. If a campaign is to succeed and obtain a 5 per cent. response, I am afraid that many hundreds of thousands of pounds would have to be spent. A "double-spread" in one issue alone of the magazine which is sponsoring the present competition would cost well over £1,000!

A great deal of what your correspondent writes is true, however. There can be no argument that proper supervision by an architect should produce a better article. Are we, however, in the face of years of failure, to sit down and do nothing, or merely hope that one day something will be done to implement the six points enumerated by your correspondent?

I am afraid your correspondent is being unfair to the promoters in suggesting that the client will be fooled into believing he is "getting the services of an architect 'at cost price'," because elaborate precautions have been taken to ensure that the public will know just "how much" it is buying.

Already *some* improvement is to be noted in the work of the speculative builders and for this the leading lay magazines are justly entitled to some credit as producers of practical means of raising design standards.

If the profession cannot even agree by a democratic approach upon a method of popularizing the work of architects without a member calling for a boycott, how can we ever produce a united front to educate the public your correspondent appears to despise?

I have a better opinion of my fellow men and women and believe that they can be taught. For this reason I welcome the competition.

Of course, when the 30 winning designs are produced, the fun will start. Every one of the 16,000 or so architects resident in Britain will have the time of his life criticizing the assessors' choice, and because we do not have a State Architecture, this is precisely as it ought to be.

For heaven's sake let architecture be *news*. At the present moment it is relegated to back pages by editors who have only a vague idea of the work of an architect.

Let us give this thing a chance and stop quarrelling in public. How are we to influence that public if they are to be treated to an exhibition of dirty washing when so many of them look to us hopefully for guidance?

DEMOS.

SIR,—Much of what my friend Dennis Berry has written about the forthcoming competition may be true. I must, however, differ on two essentials:

1. If only 5 per cent of time is spent on design, detailing has already ceased to be part of design. This suggests the old truth that fees on houses are inadequate to do a proper job.

2. All housing will sooner or later become part of a social service irrespective of whether we buy or rent our houses or flats. The present government have taken a further step in this direction by announcing government assistance to the building societies.

This competition is merely a symptom in a long chain of events in a chaotic industry concerning small house builders and most of their architects. The service resulting from this competition is, therefore, quite sound provided that the competition itself is repeated every two or three years with previous winners barred from participating on two successive occasions.

JOHN POWELL.

Leicester.

SIR,—I have had the opportunity, during the last two or three years of examining at close quarters an assortment of speculative building in this area, and have no reason to suppose that it is generally any better or worse than that in any other part of the country. The estates can be divided obviously and distinctly into those having some sort of architectural conception, and those without; there is a gulf set between them but a gulf of varying depth; I am concerned with the latter.

Apart from some black spots, the standard of finish, construction, and detail is reasonable, horribly dull, of course, but that is not the point at issue. Unless one wants to split hairs the difference between the low-cost architect-designed house and the speculative effort is one of æsthetics.

As regards the competition, the "Book of Plans" approach is worthy of a little calm, unheated consideration. It has disadvantages as Mr. Berry points out, in the first place it is bad for the architects' pocket, but surely a minor modification of the conditions could overcome the site and orientation problem, and I should have thought the provision of half-inch and a few full-size details would not have been too much to ask from the winners.

If a purchaser goes to a speculative builder he is presumably shown a plan which he can either accept or reject, it is presumed that the standard of finish and detailing will be that of the show house; if there is no show house it is the job of the sensible purchaser to approve some work completed by the builder of his choice. Which is the better, to have a dull or downright bad scheme built to a given standard, or to have a first class scheme built to the same standard? It is a question of the lesser of two evils and one has to reconcile oneself to the fact that comparatively little house designing is in fact done by architects, a problem which those in authority seem unable to tackle.

Every architect knows that the copy book system was fairly widespread in the 18th century, accepted by craftsmen and backed by a number of famous architects. These books were intended primarily as a guide to builders but also to stimulate interest and to give people some sort of basis on which to found their taste. The books ranged from details to complete schemes for buildings of every size and purpose, quite irrespective of the site and orientation.

The system may have been unethical and is certainly not a contemporary philosophical idea, but it had the effect of raising the standard of humble building to the level of architecture. The system being as it is today, it is thoroughly bad vernacular building which is to blame for our national architectural bear garden.

Masterpieces can look after themselves and can withstand any amount of misplaced conviction and architectural prejudice, both of which are rather commonplace these days.

It is too late now to heckle this competition or the book of plans: if this had been thought necessary it should have been done forcefully and effectively two or three years ago.

One assistant at least has no intention of boycotting the competition, even the remotest chance of financial gain is enough, ethics or no ethics. Not only that, there are some simple souls who derive a naïve pleasure from the designing of houses, all 5 per cent. of it.

JAMES STANWORTH.

Cheltenham.

St. Thomas's Hospital

SIR,—Your report of a lecture given by me at the Royal Institute of British Architects on October 21 includes a sentence which could be read as suggesting that the Nuffield Foundation Division for Architectural Studies is responsible for the design of the new hospital for St. Thomas's.

This is not, of course, true, and is not what I said. The architect for the new St. Thomas's is W. Fowler Howitt and in collaboration with the authorities at St. Thomas's he conducted an interesting experiment (reported in *Hospital*, Lond., 1957, *53* (6) 383-91) in which he demonstrated that the general idea underlying our experimental ward unit at Larkfield Hospital, Greenock, was applicable to teaching hospital use. In Mr. Howitt's very interesting scheme for St. Thomas's he is applying some of the ideas developed in our research.

RICHARD LLEWELYN DAVIES.

London.

Suspended Timber Floors

SIR,—In your editorial comments on MOHLG's proposed new bye-law on thermal insulation in dwellings (AJ, October 23), you quite rightly surmised that the rather low "U" value of ·40 for floors was put in on account of the traditional suspended floor. That much was implied in the Ministry's covering letter when circulating the draft bye-law for comments. For similar reasons the value of ·30 was adopted for external walls (being that of an 11 in. brick cavity wall) despite existing official recommendations for lower "U" values.

I believe you are mistaken, however, in assuming that the suspended timber floor "must be on its way out." Indications point to the contrary. Since the ban on timber ground floors was lifted several years ago, there has been a steady drift back to the suspended timber floors. They remain popular with builder and user for several cogent reasons, of which I shall mention only their resilience and greater thermal comfort. In buildings with intermittent heating (and most of our houses are in this category) there is every advantage in using flooring of low thermal conductivity and thermal capacity (warm to the touch) such as wood.

Moreover, the adoption of higher "U" values would not necesarily rule out the use of suspended timber floors. For moderate extra cost insulating membranes can be laid over the joists. Even the use of building paper in this way will reduce the "U" value to ·30 or less.

E. LEVIN.

London.

The Technical Editor replies: The case is based, surely, on the experience that the space underneath is excessively draughty and that, even when the boards are t. and g., it leads to excessive air infiltration. We are of the opinion that the issue of the flooring surface (on which we wholly agree with Mr. Levin) should be separated; and that the way to make the best of both worlds is to use a timber flooring laid on battens on a solid sub-floor.

Paper Size Standardisation: The Facts To Date

SIR,—C. G. Turner's letter in the AJ for October 30 revealed a confused point of view upon the standardization paper sizes which may be shared by other manufacturers and advertising agents.

I fully sympathize with anyone trying to decide what size to adopt at present for their publications. Valuable as Mr. Turner's letter is in making clear the difficulty of deciding what sizes to go for it contains some misleading information.

The facts about standard sizes at present are these:

1. The British Standard Specification for paper sizes of trade and technical literature is BS 1311.
2. The sizes contained in this standard include *both* the International Standard Paper Sizes known as the "A" series as well as the range previously used. The inclusion of both is a necessity in a period of transition.
3. The "A" series sizes are much to be preferred for the widespread adoption of paper standardization and are intended for stationery as well as printed matter.
4. The British Standards Institution has made clear this preference by commencing the change over of all its own publications to "A" series sizes. The first printed standards are already out.
5. BSI has been quickly followed by other organizations including the RIBA Technical Section which is *now* using "A" size paper with all the accessories that go with it. This was announced recently in the *RIBA Journal*.
6. Building development associations, such as the Natural Asphalte Mine-Owners and Manufacturers Council are following with the printing of stationery and publications to "A" series sizes.
7. Some manufactures of building products are known to be reprinting their catalogues and leaflets to "A" series sizes.
8. The British Federation of Master Printers are supporting the "A" series sizes, and several printers already have experience of using the paper.
9. Large paper makers such as Wiggins Teape are laying stocks of paper in five different qualities but users are not dependent on stocks if the quantity need is more than one ton.
10. Small printers already have access to "A" series size paper, envelopes, etc.
11. There are no unsurmountable practical difficulties arising out of the use of existing printing, duplicating and filing equipment.

Rational paper size standardization is badly needed and is long overdue in this country. The progress made since March, 1958, when BSI announced its momentous decision to change to "A" series sizes has been very fast. It can only be a matter of time before we approach the fortunate position of other continental countries such as Sweden with its 100 per cent. standardization.

The length of the period of transition depends not on printers and paper makers but on *users* of paper such as architects, quantity surveyors and *producers* of publications.

I hope that C. G. Turner and all concerned with publications in the building field will think seriously about "A" series sizes and decide to take the plunge now.

DARGAN BULLIVANT.

London.

COMPETITION

Sanitary Fittings

Associated Builders Merchants Ltd. announce in our advertisement columns today a two-stage competition for the design of sanitary ware, open to architects and commercial designers. The three main items are a lavatory basin, a low-level closet suite and a urinal complete with flushing apparatus. The prizes will be £1,000, £350 and £250 for the three sets of designs which, in the opinion of the assessors, represent the best of those submitted. The board of assessors consists of two architects nominated by the RIBA (P. A. Newnham and F. B. Pooley) and the managing directors of two merchant-members of the ABM Ltd. (W. M. Goslett and C. J. B. Pratt). In the first stage the three best sets of designs will be chosen. In the second stage the three chosen competitors will co-operate with manufacturers nominated by ABM Ltd. in the production of prototypes of the three nominated items, and preliminary designs of three further items which are "en suite." The winner of stage 2 will be given the opportunity of collaborating with ABM Ltd. in the design of further building components on a lump sum fee basis. Particulars from Associated Builders Merchants Ltd., Broken Wharf, Upper Thames Street, London, E.C.4. Closing date for receipt of designs, March 31, 1959.

HOUSING RESEARCH

The Edinburgh Group

The composition of the Edinburgh University team for post-graduate research into housing can be given in more detail. The basic group, which will operate throughout the five years of the study, will consist of the Senior Research Architect, a sociologist and a quantity surveyor, with the assistance of a secretary and technician. The quantity surveyor will carry out a cost study, which will include a preliminary cost analysis of selected examples of recent housing development, as a basis for the cost planning of the two "live" projects. These live projects will be the work of two parallel teams of architects, the leaders of which will take part in the general research during the first year. The assistant project staff will include architects with special knowledge of Landscape, Building Science, etc.

The research project is timed to coincide with the growth of the teaching department in the university, and a number of appointments will be made to the university staff of research workers who will be expected to do some part-time teaching and may, eventually, on the completion of the study, be employed as regular teaching staff. The Senior Research Architect will be appointed a Senior Lecturer at the University of Edinburgh. Some of the regular teaching staff will be expected to give part-time services to the project, while the number of undergraduates remains small.

All posts will be salaried, and whether supported by University or Trust funds will in the main be at the Lecturer (£900—£1,650) and Senior Lecturer (£1,750—£2,150) standard. Some Assistant staff salaries will correspond to University Assistant standard (£700—£850). Staff may be appointed for a limited length of time, which will not exceed five years.

Professor Matthew hopes to complete the formation of the nucleus of the team in the first weeks of the New Year.

AA

Aerial Experiment

How would you like to have four hours in Rotterdam and be back by tea time? That is what the fourth year at the AA have done, thanks to the initiative of Peter Matthews, who is on the staff. It was an experiment in looking at towns from the air combined with a quick visit to Van Nelle and the Lijnbaan; the route was from Southend to the eastern edge of the Zuyder Zee at Elburg, then via Naarden, Amsterdam and Leiden to Rotterdam.

The weather was kinder than it might have been and the Dutch air traffic controllers were very patient with an Elizabethan airliner which at one time was jigging around the eastern boundary of Schipol aerodrome at circuit height. The trip was an unqualified success and it deserves to be the first of many, if only for the staggering sight of Naarden's star-plan fortifications in November sunlight (if only Naarden were as exciting on the ground).

It also revealed some easily overcome pitfalls. One is that a high-wing aeroplane, which is fine for straight-line viewing, is awkward for circling, because the wing blanks out the object. Another is that the Dutch are building polders so fast that the map and the ground no longer agree; Elburg proved elusive: a third, oddly enough, is that this type of navigation by map and local knowledge is now almost a forgotten art for airline crews accustomed to steering from one radio beam to another.

The most surprising thing of all was probably the price. The firm (BKS Ltd.) charged £95 an hour for a 55 seat Elizabethan with a cruising speed of about 180 knots, with sandwiches, coffee and air hostesses thrown in (nice friendly ones, not the lacquered jobs you sometimes see in and out of LAP). On a direct trip to Rotterdam with a full load this works out at £3 10s. per person *return*. Brussels would be the same, Paris about £5, Switzerland about £10, the South of France about £14. It is worth a thought for those with 54 aunts, or children.

IAN NAIRN.

RICS

Presidential Address

F. G. Fleury, in his presidential address last week to the Royal Institution of Chartered Surveyors, urged, among other things, closer co-operation between the quantity surveyor and the architect, and the need to broaden the Cost Research Panel. He said:

The realization is growing daily that the chartered quantity surveyor, with his intimate knowledge of pricing, is the adviser *par excellence* on the cost plan. One of our most distinguished architects told me recently that, whatever building he is designing, he always prepares on his own responsibility ¼-inch pencil details on which he takes the advice of his quantity surveyor before submitting the scheme to his client. I would like to see the quantity surveyor ever more closely joined with the architect in the earliest stage as part of the building team.

You will be aware of the considerable publicity that has been attracted by the investigation into the cost of flats and houses by the Cost Research Panel and their report to the Minister of Housing. All the facts of this report have been accepted, although there has been some comment on the fact that it deals solely with the cost of concrete, brickwork and tiles, and does not consider the dwelling as a place in which people live. But this was not within the terms of reference, and I see nothing illogical in making a specific investigation into costs alone. It is only when the results of such an investigation are known that they can be weighed with sociological factors, and I very much doubt if quantity surveyors would claim as a body that they are by training and experience competent to advise upon social questions. We are, however, in the Royal Institution, very complete in that we have our housing and urban management section, which is concerned with all aspects of management and whose members advise the largest housing authorities in this country. Having attended their conference earlier this year, and knowing the very wide nature of their interests, it seems to me that on such a question as high flats they might profitably join the chartered quantity surveyors on the research panel. Indeed, I would go further and suggest that in future research work consideration should be given to the inclusion of valuation and building surveyors on the panel, the former whenever research concerned matters such as the economic return to be obtained by using a particular type of construction, and the latter on questions of expenditure on maintenance and repair likely to flow from different types of construction.

BCCF/CCA

Concrete Products Exhibition

A new travelling exhibition of precast concrete products organized jointly by BCCF and CCA had its London showing at the Institution of Civil Engineers from November 11-14, prior to a three-month tour of the provinces. The exhibition is mainly photographic, but includes examples of a few of the more portable concrete products such as claddings and paving slabs. The President of the BCCF, R. H. Bates, in opening the exhibition, described the rapid rise of his industry since the war and the far-reaching change which has taken place in the nature of concrete products themselves. This has raised them from the whimsical (*e.g.*, gnomes) and the substitute to that of recognized basic products with their own visual standards. He pointed out that 90 per cent. of all city pavements are now paved with concrete flags and that, since the war, concrete roofing tile production has increased forty-fold, raising the proportion of concrete to other tiles from one sixth to four fifths. He also drew attention to the phenomenal rise in structural precast concrete. The most interesting single exhibit is a design for precast concrete battery garages prepared by Grenfall Baines for the Federation. This is not yet in production, but a number of the member firms of BCCF are now working on their own versions. There is no doubt that the prefabricated structure class is the weakest section of BCCF's activity. For, though the photographs on the two screens dealing with garages and farm buildings have evidently been chosen with great care, the designs exhibited are of poor quality. It is to be hoped that more architects are called in to help.

FLATS IN BERLIN, 1958

PROBLEMS & TECHNIQUES COMPARED WITH ENGLISH PRACTICE

By J. Eastwick-Field and J. Stillman

2. The Hansa Quarter

The rebuilding of the bombed Hansa Quarter of Berlin as an architectural experiment was well reported at the time of the Interbau exhibition in 1957. Nevertheless, the descriptions of the many individual buildings were of necessity fairly short and little impression could be given of the appearance of the whole scheme, since at that time only about a third had been completed—it was planned in fact to have another exhibition when all the buildings were complete.

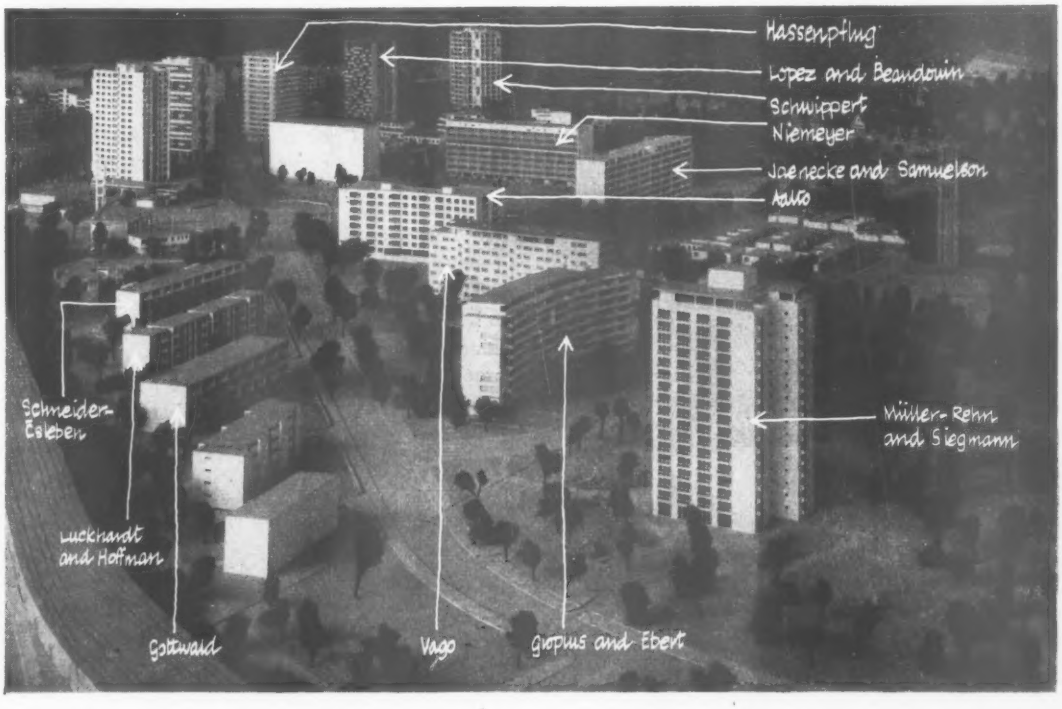
In this article we shall discuss a number of technical problems commonly encountered in the design of high flats, landscape, facing materials and balconies, and we shall mention only such points about the general organization of the scheme as have an influence on the detailed design. In the next article we shall examine windows, circulation and services.

Briefly, the Hansa project consisted of replanning and rebuilding an important central district of Berlin (near the border and visible from the East Zone) to house 4,000 people, compared with 5,000 before its almost total destruction in the war. Most of the dwellings are contained in high slab and point blocks, but there are some lower flats and houses together with a library, two churches, a restaurant, shops and an underground station.

The city of West Berlin conceived the idea of inviting internationally well-known architects* to design the individual buildings as a means of introducing "fresh ideas" into the very large programme of social housing which is being carried out.

* Is there any significance in the fact that no English architect was entrusted with a major block? F. R. S. Yorke prepared a design for a terrace of four houses, but even this could not proceed for financial reasons. One wonders whether we are not losing our architectural reputation abroad and whether this is not due to our Government's lack of enthusiasm for international Exhibitions and "public relations" generally. In Berlin we received brochures about their reconstruction *in English* but we cannot send back similar material even in our own language, let alone in German.

Models of the flats described in this article, indicated by the architects' names.



There are certain distinctions between the Hansa flats, however, and the social housing which should be mentioned:

(*a*) whatever the original intention may have been, the Hansa flats finally cost some 50 per cent. more than the social housing;

(*b*) the Hansa quarter was and still is occupied mainly by "professional" people;

(*c*) the financing of the Hansa quarter was organized by a special corporation which sold the completed blocks of flats (with controlled rents) to private owners. A few flats and houses have been sold to their occupiers.

As compared with English requirements, the flats are mostly quite small: 25 per cent. of the population of West Berlin is classified as "one-person families" and there is still a shortage of 100,000 small apartments.

Landscape

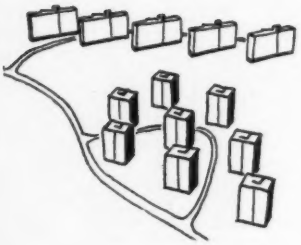
Although in our first article we mentioned the excellence of landscaping it is a point worth repeating—so many English schemes are spoiled by unimaginative layout, ugly fences, lamp posts, and garage or store blocks. The Berliner's love of trees and flowers finds practical expression in the Hansa quarter. No doubt the special conditions—small professional families with (as yet) relatively few children, living within walking distance of their work—have made the design task easier. But one feels that if we could work on a similarly large scale a similar high standard could be achieved. We have an equally good reputation as garden lovers.

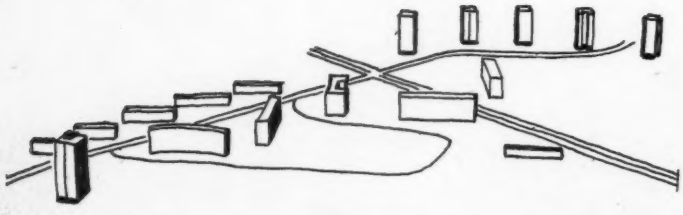
External appearance

Whilst not intending to make any general æsthetic appraisal, we feel bound to comment on the visual effects of the choice of facing materials, of balconies and windows, and of the basic plan form, choices which are greatly influenced by "technical" considerations.

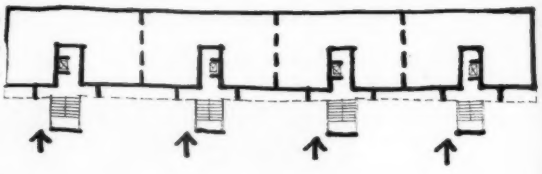
The shape of high blocks

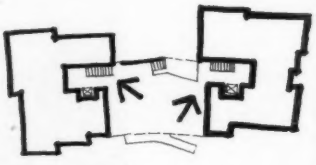
Until recently there seems to have been a clear distinction between plans resulting in symmetrical "point" blocks and plans resulting in "slab" blocks. This distinction is clear in the Hansa development (below) and also at Roehampton (left); but recently there have been a number of designs for high flats in which some of the characteristics of each are combined, resulting in buildings of a different proportion.

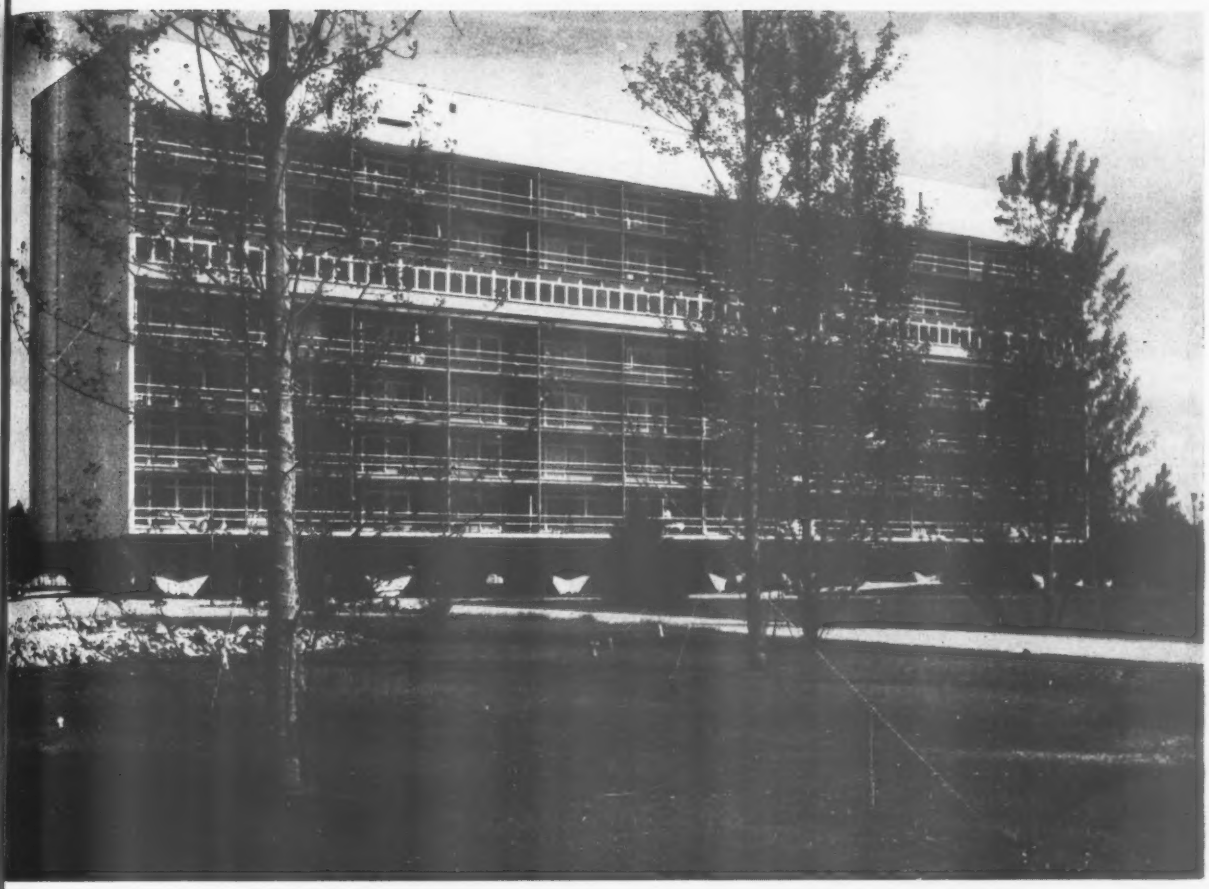




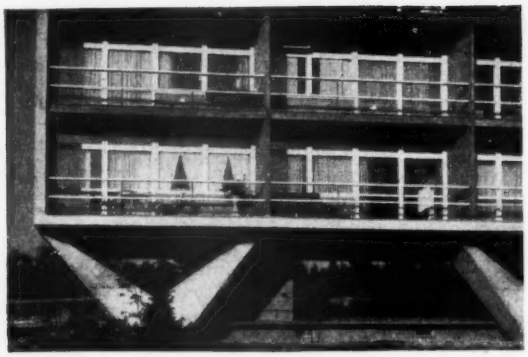
Before seeing the Hansa quarter we had felt predisposed towards point blocks. One was aware of fears that large slabs can be oppressive: gloomy on their shadow side—a fact which is sometimes so strongly emphasised one would think these shadows bring night and arctic cold with them! But apart from this feeling, point blocks—in housing at least—result from a compact internal circulation serving 4, 6 or 8 flats on each floor which seems preferable to either gallery access or even access in pairs. Having seen the Hansa buildings we feel that at least in this scheme the objections to slab blocks have less force than we had imagined. Neither the slab blocks of 8-10 storeys containing an average of 80 flats nor the point blocks of 16-17 storeys containing about 100 flats, are particularly awe-inspiring. But then they are spaced well apart and the slabs are nowhere parallel and opposite each other. This is achieved by facing two blocks south and four east/west. Perhaps in comparing a typical point block such as the Hassenpflug project with a typical slab, the Jaenecke and Samuelson project, below, one has a feeling that the point block is a finite building with an obvious and satisfactory means of access, whilst the slab is an arbitrary collection of units each with its own entrance, strongly reminiscent of the arrangement of the old tenement blocks. (Old college buildings are often satisfactorily arranged "access in pairs" but brought together by being formed in quadrangles. Terrace houses remain houses in rows rather than whole streets making single buildings.) Neither Jaenecke and Samuelson nor Gropius make any attempt to unify the approach to their buildings; Niemeyer, however, provides a focal point linked to a single external lift tower, Vago provides dramatic entrance canopies and Aalto, whose slab may be said to consist of two linked point blocks, takes advantage of the space between the two at the ground floor for his entrance (see sketch below).



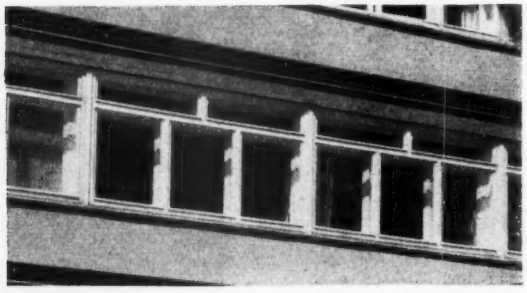




Above, new planting in front of the Niemeyer block. The trees are up to 25 ft. high and held by wire stays until they take root. Note the absence of dwarf walls and hairpin fences. We were surprised at the disappointingly small "scale" of this building—a characteristic which is not conveyed by photographs of it. Below left, a well designed pavement with borders of basalt blocks—instead of a grass verge—to discourage people from walking too near the traffic. Below right, children playing at the base of the Niemeyer building—ramps are good fun with two and three wheelers. Bottom right, typical parking arrangement. There are no garages and as yet few cars to be seen. The inevitable demands of the "motor age" have not been faced up to even to the extent that they have been in London.



The Niemeyer building. Untreated concrete, timber windows and metal balustrading. Special care was taken to obtain the smooth even coloured concrete with a most successful result. The effect of tenants' curtains is very obvious and not always to the advantage of the design. One of these balconies is seen from the inside on page 744.



Bedroom windows in the Niemeyer building. Timber windows in double sashes both opening inwards. The top lights had to be left fixed as an economy measure. The original intention was to provide clear glazing where there are now strips of black tiles just above the floor lines, but this was not permitted under the building regulations. The grey-green sill panels above are in coloured rendering, as are the black spots on the lift tower seen in the foreground (below). This tower was also to have been glazed in the original design.

Before leaving this subject we should mention Le Corbusier's Berlin *Unité*, which we shall discuss in a future article. This is a slab block really big enough to impress: it has a scale one would expect from "The City of Tomorrow." It is wonderfully sited on a well wooded ridge on the outskirts of the city, and strikes one as a "monument" which one can hardly imagine repeated a number of times on any one site, although of course this is what Corbusier planned in his *Cité Radieuse*.

Corbusier has a single group of lifts to serve his internal corridors and his usual large entrance hall complete with shop and post office on the ground floor, so in this respect his block avoids the planning difficulties inherent in more conventional plans.

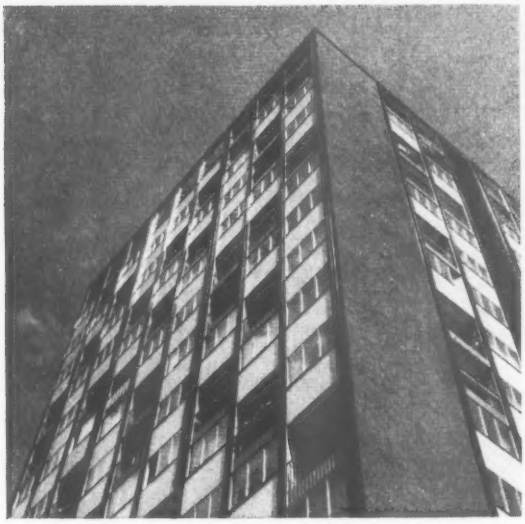
Facing materials

The Hansa quarter has inevitably and perhaps purposely become an exhibition of the different architectural ways in which modern buildings may be expressed. No two of the dozen or so major buildings on the site bear any resemblance to each other, which is the more remarkable because they all have to satisfy the same functional requirements, and, no doubt for the economic circumstances obtaining in Berlin, they are all built with load-bearing reinforced concrete walls.

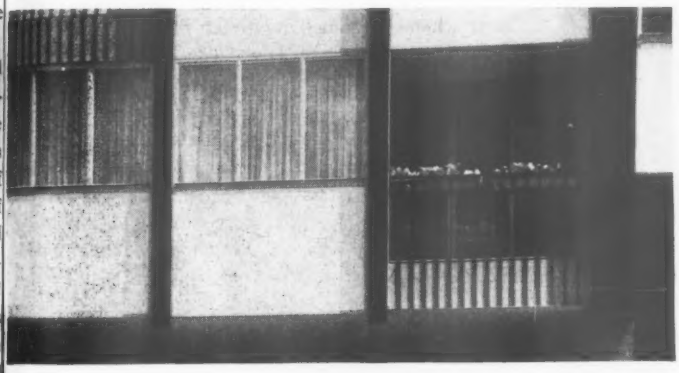
The functional requirement of heat insulation needed for the cold winters, coupled with an economic incentive, has however compelled most architects to face the problem of the "window in the wall" rather than the use of an all glass façade, a solution which of course altogether avoids the difficult problem of choosing walling materials. The Swedes, Jaenecke and Samuelson, are amongst those who have adopted full-width windows above cill height but, being accustomed to cold winters, they have them *triple* glazed. (This also helps with the floor heating which has been adopted by these architects, and will be described later.) Only Niemeyer has adopted an almost all glass façade, set behind balconies to form a large scale "*brise soleil*," but one feels that in this as in other respects as well this building has not been sufficiently adapted to conditions in Berlin.

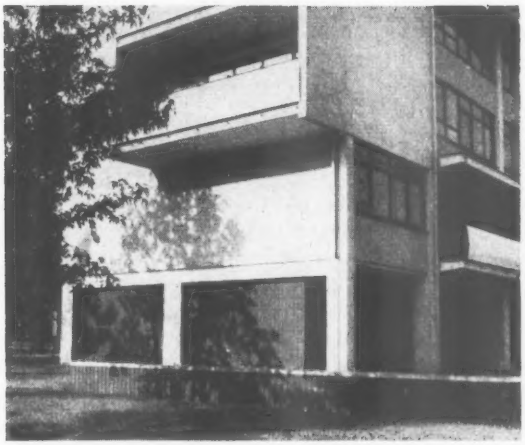
Having grown accustomed to pictures of tall American glass clad buildings, where for prestige reasons the extra capital and maintenance costs may be well worth while, the Berlin buildings do on the whole have an "old fashioned modern" look about them. The final scheme exhibits as great a variety of facing materials as one would expect from a similar number of buildings designed by British architects: but the materials are a rather different selection from those with which we are familiar. In particular there is very little brick work, and although there is plenty of concrete in one form or another we did not see any exposed aggregate facing panels. This diversity of facing materials for walls suggests that architects have yet to find satisfactory successors to stone and brick. We think the following list will prove this point:

Underground station	Glazed tiles.
Niemeyer slab block	Unpainted smooth concrete pilotis and cross walls. Green rendered cill panels on east side.

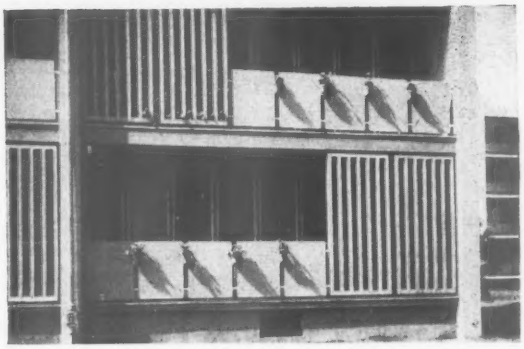


Above and below: 16-*storey point block by Lopez and Beaudouin (France). Black painted pressed steel mullions and balcony railings. White enamelled steel sill panels, blue windows. This is not, as it might at first appear, a framed structure, but again a reinforced concrete cross wall construction. The mullions are used as ducts for heating pipes which serve radiators fixed inside the sill panels.*

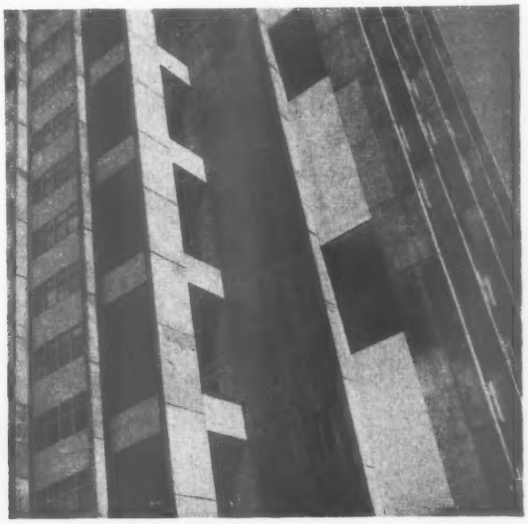




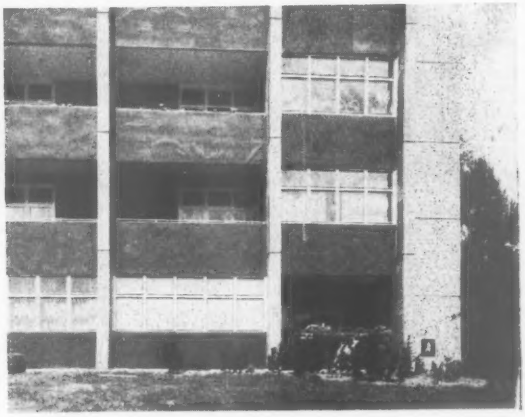
Block by Walter Gropius and Professor Ebert. Balcony fronts in white enamelled steel. Walls of concrete painted white, infilling panels under windows rendered light grey. Balcony soffits and rear walls painted bright blue with balcony sides orange. This block is exceptional in having metal windows. See AJ Working Detail, October 31, 1957.



Four-storey slab block by F. G. Gottwald (Germany). Precast concrete grilles to balconies and asbestos panels. The in-situ *concrete cross walls are rendered pale grey with scraped texture. Good finishes but dull colour and dull proportions.*



Above and below: 16-*storey point block by Hans Schwippert (Germany). Exposed concrete which in spite of the bold form of the building does not seem to us to achieve more than a rather dirty appearance. The sill panels are covered in what appears to be a plastic sheeting and are red-brown in colour, on one side of the building, and cream on another. This building expresses its reinforced concrete cross wall construction, with walls cast against precast facing panels of dense concrete where exposed.*



Coloured glass facing panels on the west side of the Pierre Vago block (the living rooms and balconies are on the east side). The panels, in white, pale blue, and mustard yellow, are stuck to the wall flush with the windows and surrounding walls, in what appears as an abstract pattern, perhaps indicating the various planning arrangements of the flats and maisonettes of which there are 16 different types. After a year's weathering the facing still looked fresh and clean although in one or two places the mastic had come through the joints.

4-storey superimposed maisonettes by Schneider-Esleben	Cross walls with large infilling panels of blue glazed tiles.
4-storey block by Luckardt and Hoffman	White painted frame. Wall facing of white glazed " Eternit " asbestos panels. Balustrades of red plastic sheets.
Gropius and Ebert slab block	Painted concrete and rendered cill panels. Balcony fronts of white enamelled steel.
Müller-Rehm and Siegmann point block	Painted precast concrete panels.
Alvar Aalto slab block	Very smooth lightweight concrete facing slabs.
Pierre Vago slab block	White, blue and yellow coloured opaque glass facing panels.
Library by Werner Düttmann	Red brown smooth brick.
3-storey block by Kay Fisker (Denmark)	Black painted vertical boarding.
16-storey point block by Hassenpflug	Prefabricated cladding units containing blue grey asbestos facing panels.

Alvar Aalto's celebrated block faced with very smooth concrete panels made with expanded clay aggregate and imported specially for this building. The panels are a creamy grey colour which make the building a pleasant contrast to the more highly coloured buildings surrounding it. A number of the panels have discoloured and crazed but this has not as yet detracted from its good appearance.

Hansa does not as yet provide any answer to the problems of facing materials, although it makes many suggestions. We do not think that its appearance is spoiled by the use of so many materials, but we feel that had one architect built the whole scheme using a more restricted range of materials and ideas, it might have read as one large-scale piece of architecture rather than an assorted group of individual buildings. In this respect it is interesting to compare it with the Roehampton scheme by the LCC architects. At what stage variety should consciously be introduced into a large scheme is something which is difficult to determine, though we ourselves believe that the danger of repetition causing monotony is nowadays much exaggerated.

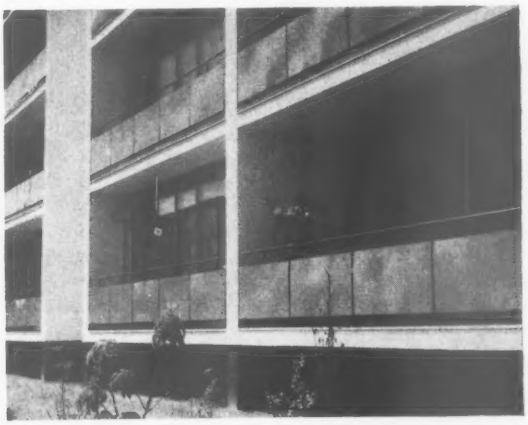
We can use the examples of Bath, Bloomsbury or Edinburgh to support this argument, but on the other hand we can also find examples of buildings of very contrasting styles existing harmoniously side by side, or country towns which exhibit together all the traditional materials, stone, brick, whitewash, slate, tiles and thatch. These towns were not, of course, developed consciously at any one time and whilst there is no doubt of the delight which they give, it remains to be seen whether a new development such as the Hansa quarter can, consisting of individual buildings of differing designs, ever be so successful.

Hansa at any rate is now very bright and colourful. Perhaps the white impervious sheets (*e.g.* Eternit on the Luckhardt and Hoffman building and enamelled steel on the Lopez and Beaudouin point block) are the most stimulating examples. For years we have heard the scientific arguments which have biased us in favour of a pervious face to buildings, and have also come to accept the fact that crisp white buildings of the kind attempted by the first modern architects are impracticable because of their poor weathering properties. Such buildings are certainly impossible in London and other big cities unless they are regularly maintained, but the Berlin air is probably much cleaner. Modern sheet materials such as those used at Hansa very successfully extend the range of architectural expression and it will be interesting to visit Berlin in five or ten years to see how these hard white finishes are faring.

Some of the architects have chosen materials which they could expect to continue to look well without attention. Others seem to us either to have been hope-

Below: 4-storey "point block" by the Swiss architect, Otto H. Senn. Concrete walls, apparently straight from the shutter, illustrate the patchy appearance which untreated concrete so often presents and which so many people dislike, unless special precautions are taken to avoid it, or to disguise it with pronounced shutter marks or other modelling. This building is only a year or so old.

Above and below: the low block by Professors Luckhardt and Hoffmann. Facing panels of white "Eternit," a popular Continental asbestos board having a hard polished surface. The general effect is good. These panels were stuck to the wall but have had to be fixed with screws as well (seen in the joints) to satisfy the local building inspector. The balustrades are filled with red plastic sheets.

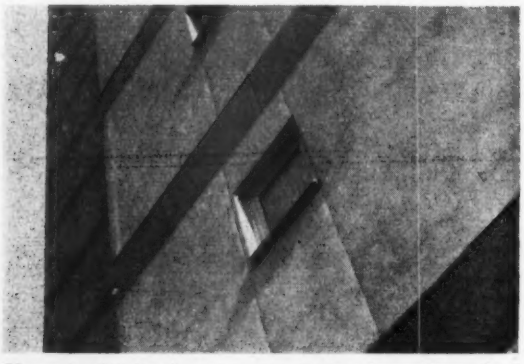


Below: a close up of concrete left smooth from the shutter, showing characteristic staining and blow-holes with some accidental effects produced by paint splashes.

Above: a detail of a window to the underground station where it joins Duttmann's library. This shows one of the few uses of brick—in this instance a narrow brick with a smooth, regular face, and red-brown in colour. The concrete frame is "natural" and the V shapes on the window are part of the Interbau exhibition symbol, painted on the inside of the glass.

A living room in the Niemeyer building showing the full-width window and balcony with the Aalto building in the background. The thin rod seen at the end of the left-hand curtain is used to facilitate drawing the curtains.

Seventeen-storey point block by Müller-Rehm and Siegmann. Storey height smooth precast concrete facing panels of 5-cm. lightweight concrete cast on to 5-cm. woodwool used as permanent shuttering to a 20-cm. in-situ concrete wall. Painted cream with grey bands at floor levels and royal blue canvas wind shields fixed to some of the balcony railings. This block, containing small flats for single people, has a restaurant on the ground floor, with a yellow awning.



Close up of painted precast concrete panels on the end of the Müller-Rehm and Siegmann building.

lessly optimistic about the appearance of plain concrete (as used in their particular designs) or have resorted to painting external concrete walls, which must commit the owners to very high costs in maintenance.

Balconies

Every flat in the Hansa quarter has a balcony. They are mostly recessed or semi-recessed across the front of the living rooms and large enough to be useful for sitting out or for children to play on. The average size is 18 ft. × 6 ft., they are, therefore, more than an incidental item of cost.

Balconies have become so firmly associated with modern flats that their provision is seldom questioned. In Berlin, where quite large living rooms can be afforded the balcony is a welcome addition, but in this country the combined living-dining room is sometimes so small and the use of the balcony in our climate so limited that one wonders whether it would not on occasions be wise to incorporate the balcony area in the living room to gain extra space for use all the year round.*

In studying this problem, however, one finds that sitting out and children's play are only two of several advantages of having balconies, even discounting their use as "architectural features."

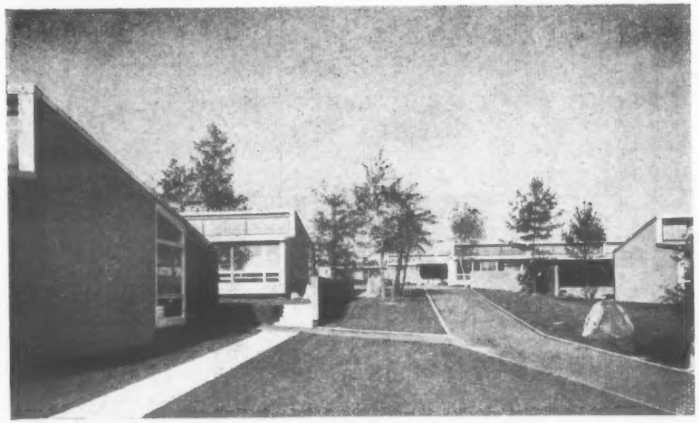
Most important from the architect's point of view is that they enable the glazing of the living room to be brought down to the ground and this glazing to be easily cleaned and maintained on the outside. Balconies across the full width of the living room with floor to ceiling glazing give a sense of spaciousness which contrasts with the claustrophobic conditions of rooms with smaller windows and high sills. As in England the tenant is expected to be able to clean his own windows from the inside and this tends to limit the size of window which is practicable, as we shall discuss in more detail later. High sills (to opening parts at least) are of course necessary in tall buildings for reasons of safety—in London 3 ft. 6 in. is a common minimum dimension, in Berlin 1·2 metres.

We did not see any washing or furniture on the balconies (and certainly no coal!) no doubt because the flats all have laundries with drying facilities, each has a largish store cupboard, and they are all centrally heated.

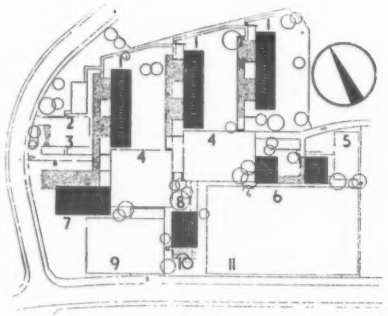
There is no consensus of opinion amongst the Hansa architects as to the best means of treating the fronts of balconies. Four schemes have solid fronts, two are partly solid partly railing, two have open steel railings (vertical) and three have steel framed balustrades with infilling panels of glass, coloured plastic sheet, and wire mesh, respectively. It would seem from this that these architects find as we do that there are good arguments for each solution. The most questionable balconies are those on the Müller-Rehm & Seigmann block which are entirely cantilevered from the flush face of the building and are enclosed only by a steel railing. It is true that canvas wind shields were seen on a number of balconies but these would not add much to one's sense of security on the sixteenth floor.

* The LCC has published an interesting social study on this subject. See AJ, March 7, 1957.

THREE SCHOOLS IN ZURICH: 1, 'CHRIESIWEG' PRIMARY SCHOOL

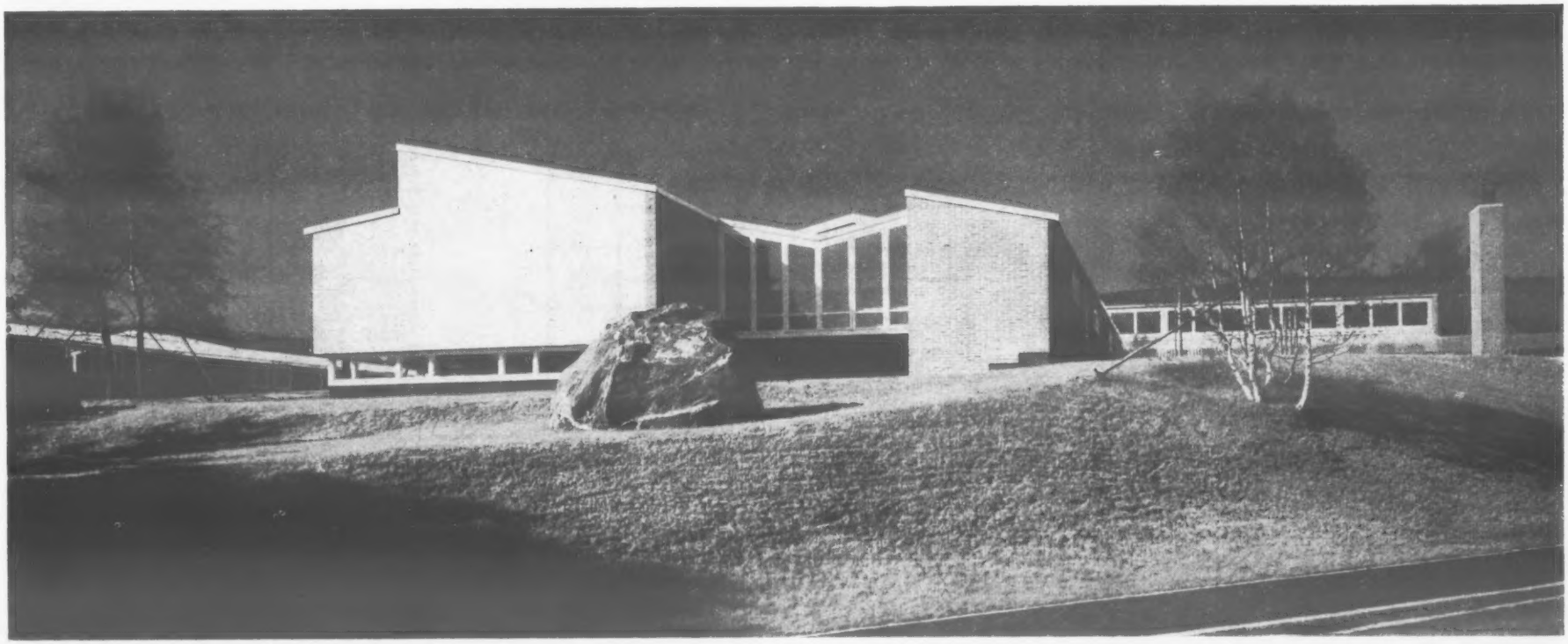


We tend sometimes to be a little complacent about the new schools built in Britain since the war: in the following pages we illustrate three primary schools built in Zurich since 1954 which should challenge complacency and spur imagination. Two of them won prizes in a schools competition in 1953. Below, a general view of "Chriesiweg," prize-winning primary school, designed by Cramer, Jaray and Paillard, beautifully and simply landscaped with grass, birch trees and rocks. Left, the south-east entrance, with kindergarten on left, junior school on right, showing the friendly domestic scale of the

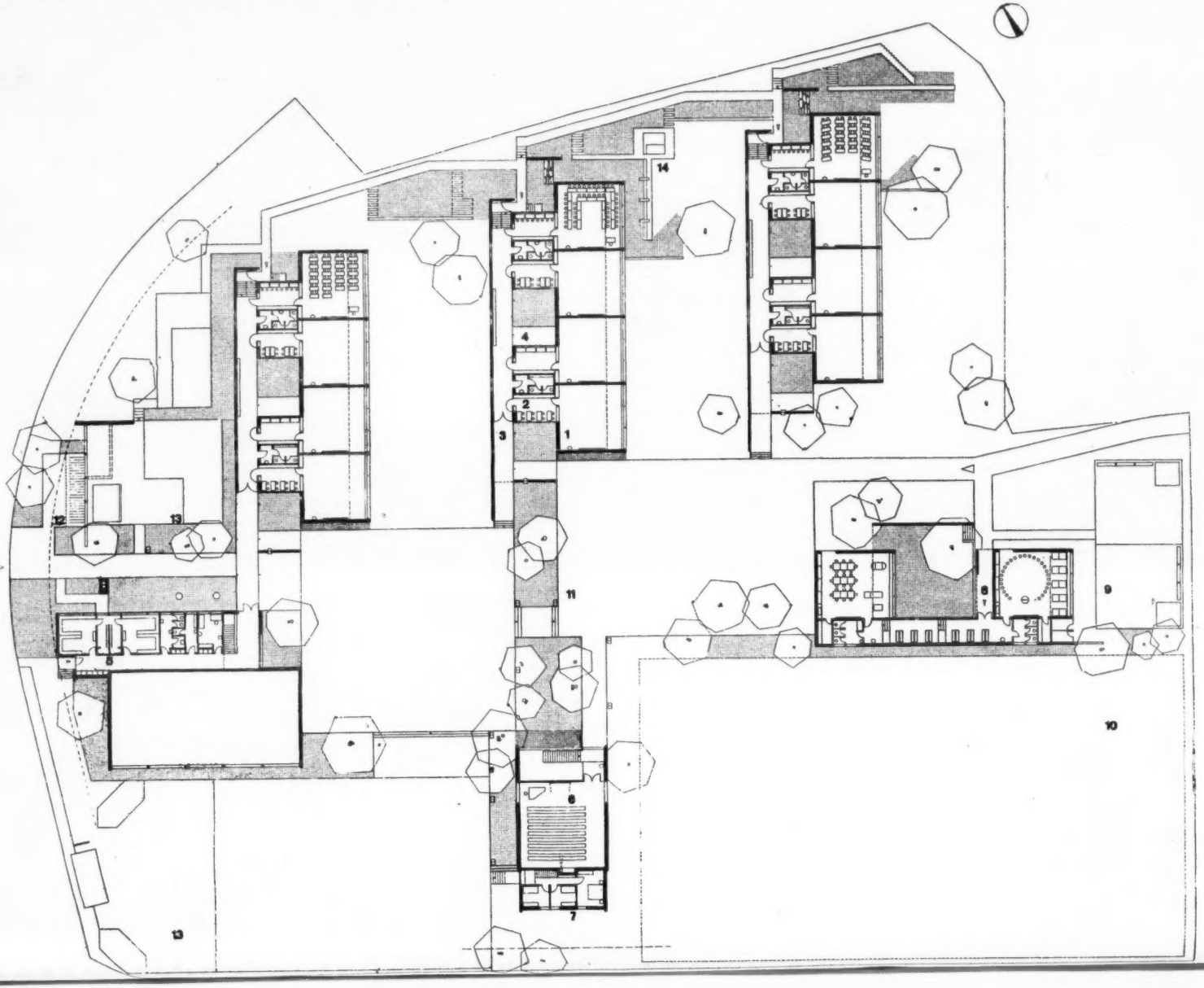


Site plan

1. Junior classroom blocks. 2. Apparatus. 3. Cycle stand. 4. Recreation area. 5. Playground. 6. Two nursery classes. 7. Gymnasium. 8. Assembly hall block. 9 Apparatus, physical training and recreation area. 10. Schoolkeeper's house. 11. Playing field.



THREE SCHOOLS IN ZURICH: 1, 'CHRIESIWEG' PRIMARY SCHOOL continued

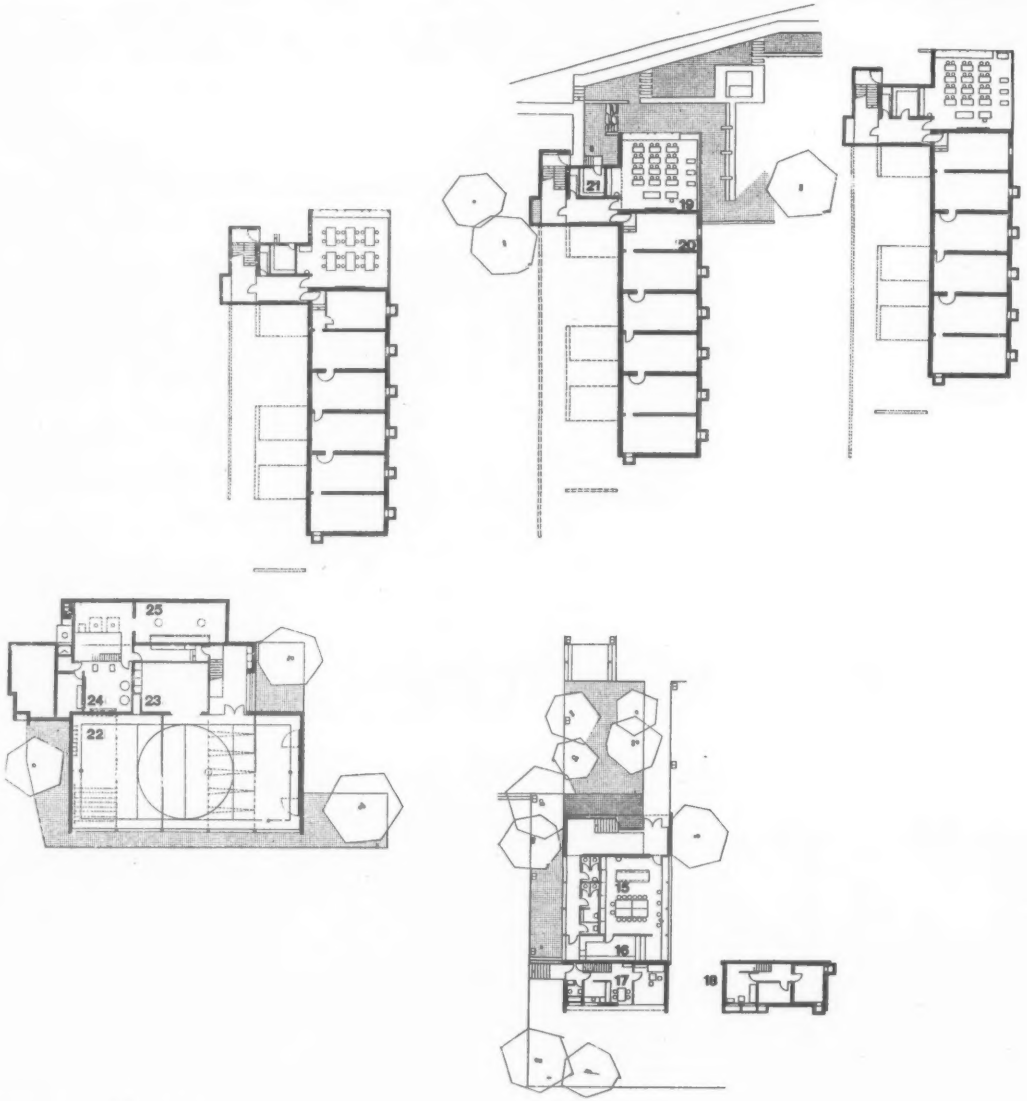


KEY for plans on this and opposite page

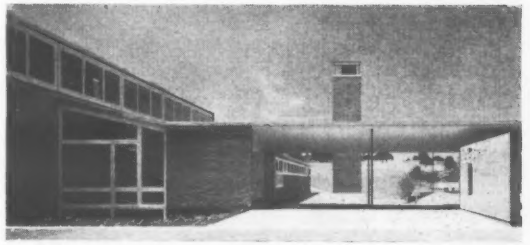
1. Classroom
2. Hobbies room
3. Arcade
4. Enclosed yard
5. Gymnasium cloakrooms
6. Assembly hall, to seat 135
7. Schoolkeeper's flat (upper storey)
8. Two nursery classes
9. Nursery playgrounds
10. Playing field
11. Recreation area
12. Cycle shed
13. Physical training and apparatus areas
14. School garden with lily pond
15. Teachers' and committee rooms
16. Principal's room and store
17. Schoolkeeper's flat
18. Basement level, schoolkeeper's flat
19. Needlework room
20. Air raid shelters
21. Cleaners' and apparatus storage
22. Gymnasium
23. Gymnastic apparatus room
24. Heating plant and pump room
25. Coal store

Ground floor plan

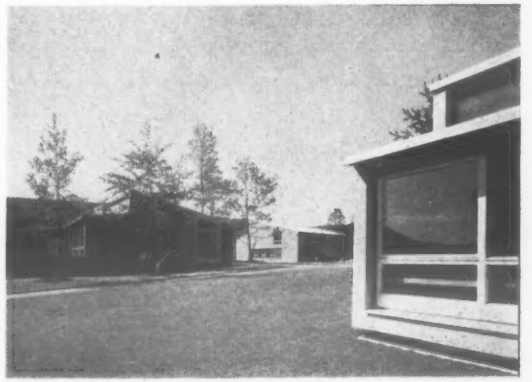
Ground floor plan

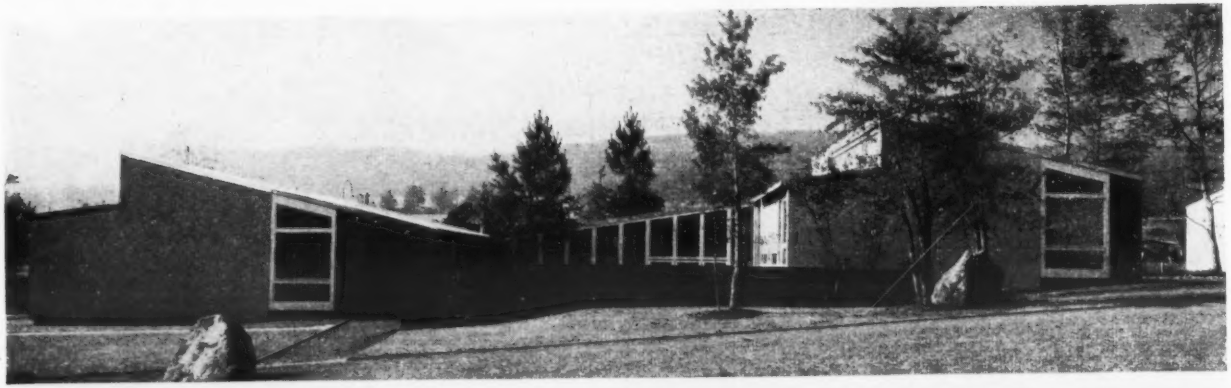


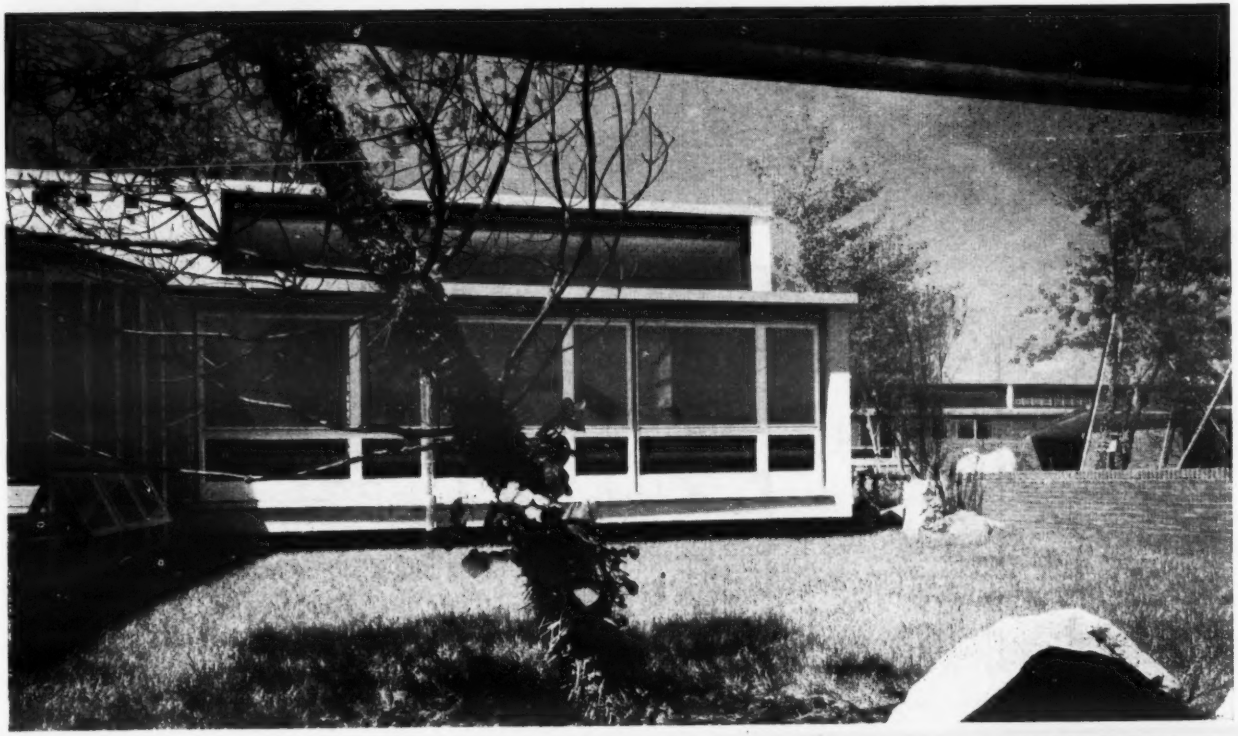
Lower ground floor plans

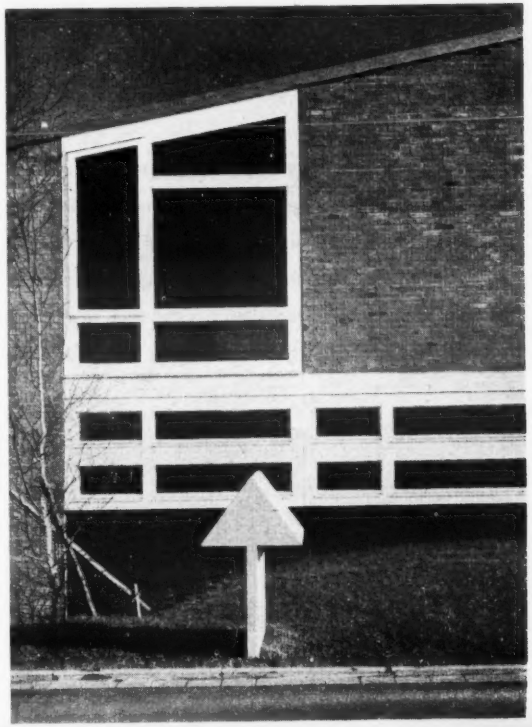


buildings and their courtyards. The architects chose a one-storey plan despite the rather small site, because they believed it enabled them to design both buildings and the spaces among and around them, of a scale better proportioned to small children than a multi-storey building. Simple materials and construction, with natural surfaces left visible were used, to arouse a feeling for texture, structure and colour in the children. Standard brick and facing concrete, steel columns, oak, softwood and glass are its essential elements. Roofs are of corrugated clip-on aluminium sheet, insulated with glass fibre slabs. Above is the entrance to the gymnasium with bell tower behind; below, the kindergarten with assembly hall beyond,

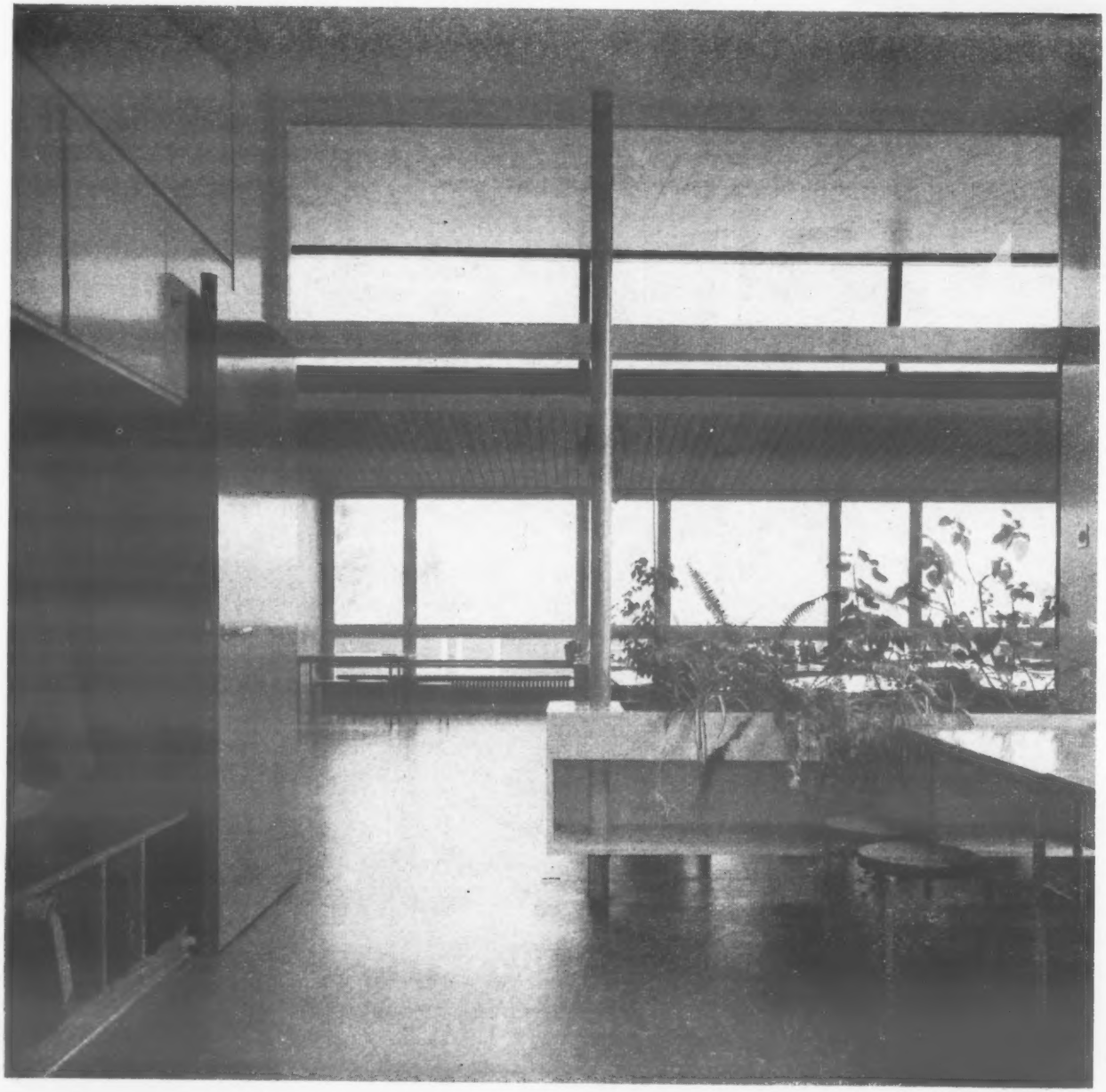




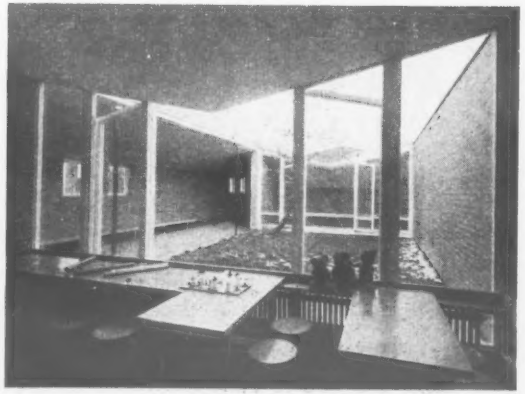




seen from a classroom pavilion. Top left, the kindergarten from the north-east; below left, its glazed facade with climbable pine tree beckoning in the foreground. Below, part of the assembly hall. Each classroom has its own lobby, used partly as a cloakroom but mainly as a " hobby room " where special groups can work on their own. Here the more advanced or more backward children can do special work, and messy handwork can be separated from " thinking and reading " groups. Here, too, the teacher can rig up visual material, such as counting aids for infant classes, or geometrical

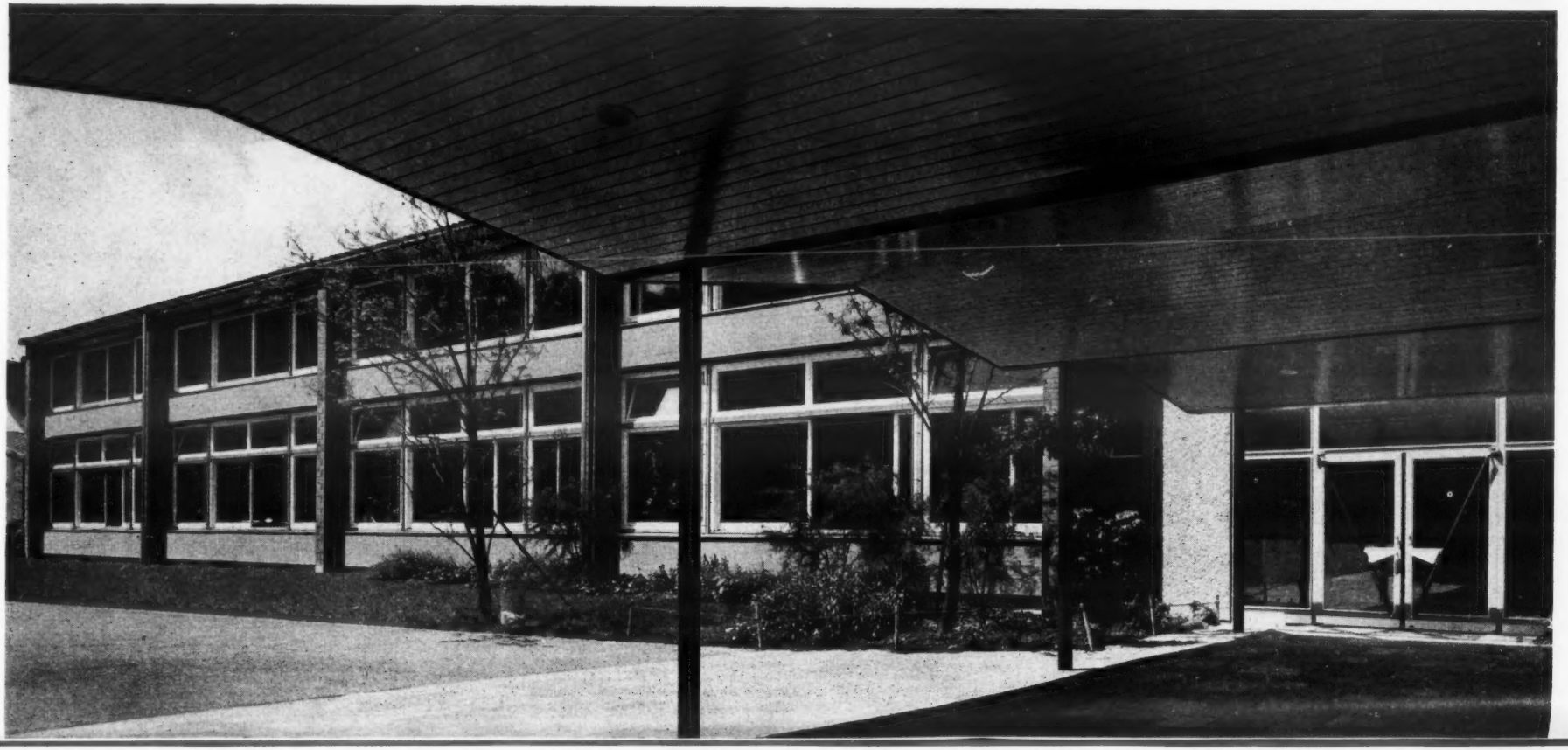


models for the juniors, or have a quiet talk with a particular child who is in difficulties. Left, a typical classroom, seen from its hobby room. The clerestory windows are double glazed in metal frames with venetian blinds between the glazing. Other windows are wood-framed, with double or compound glazing. Above, a classroom with hobby room in the background. Below, view from a hobby room, of one of the interior courtyards which completes an attractive and intimate environment for each group of children.



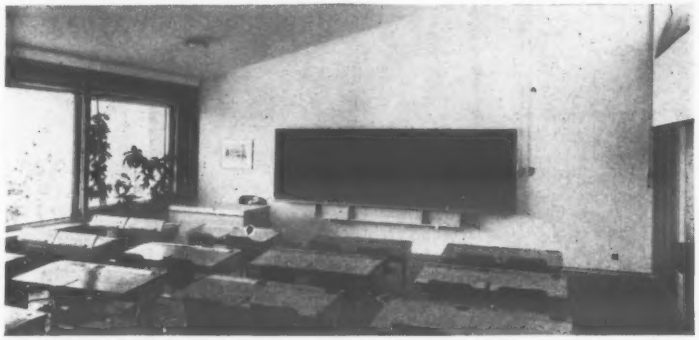
THREE SCHOOLS IN ZURICH: 2, 'IM HOFACKER' PRIMARY SCHOOL

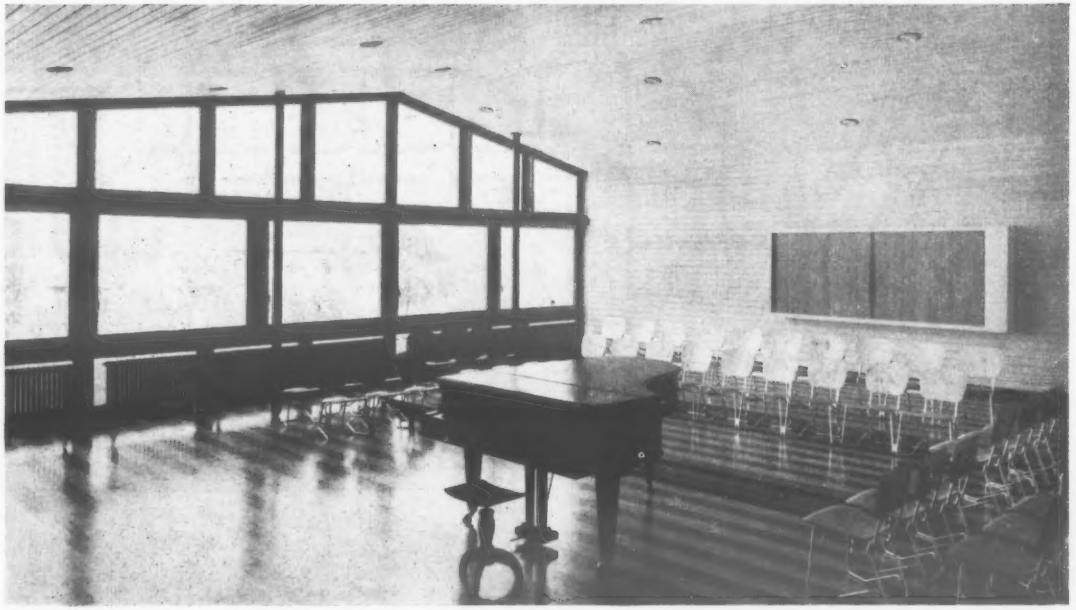
"Im Hofacker" primary school, designed by Hans Hubacher, makes the most of a splendid site, a grassy slope rising in a wide valley to the south, surmounted by woods, overlooking mountains. All the school buildings face this view. As the model, left, shows, the school plan is decentralized. The main, two-storeyed block contains 8 classrooms, linked with a subsidary block containing the assembly hall, teachers and committee rooms and schoolkeeper's flat. Two separate pavilions each contain three classrooms on the upper floor—level with the playground—and a nursery department beneath, at the level of the low-lying Hofackerstrasse. The separate, L-shaped building to the left is the gymnasium, with cloakrooms and showers in the "L," and a basement equipped to be requisitioned by the army in an emergency. Below, the main classroom block seen from the wide, covered walk to



the assembly hall. Another view of the main classroom block, right, with

the assembly hall. Another view of the main classroom block, right, with covered walk in the foreground, showing the entrance hall and stairway, with fair-faced brick wall. Below, a typical junior school classroom; note large, horizontal sliding windows, which permit half the window frontage to be opened, providing virtually open-air classrooms. A strip of high windows

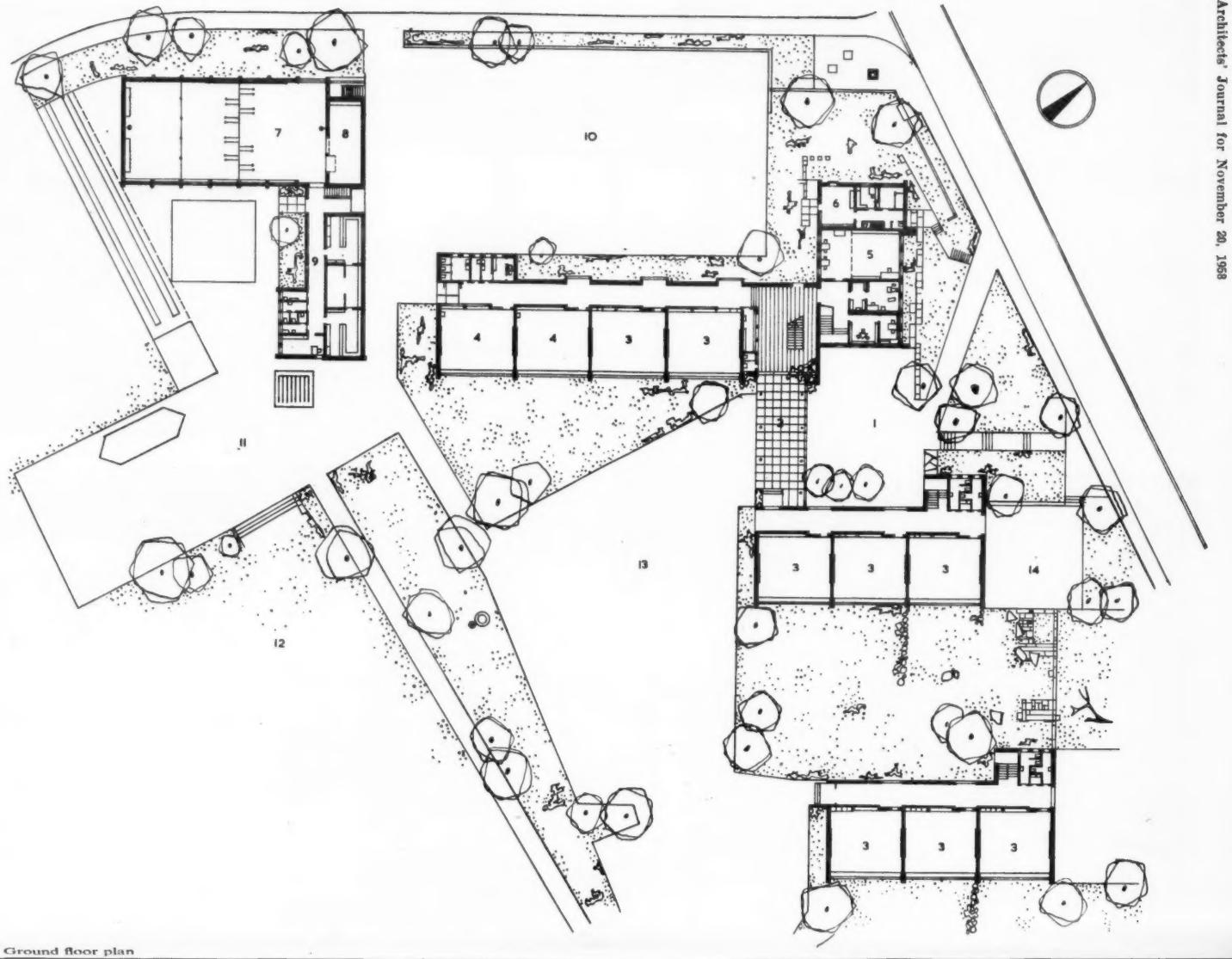




along the back wall ensures a good light in all parts of the room. Above, the gymnasium, with boarded ceiling and wall sloping to windows, end wall of fair-faced brick. Right, the music room; again, a boarded ceiling slopes and turns into an end wall, and two shades of thermoplastic flooring carry on the striped pattern.

The schoolkeeper's maisonette at the north corner presents a homely and unimpressive face to low-lying Hofackerstrasse, across a small, paved playground, provided with a fountain and large stone slabs for climbing on and jumping off. The building could be almost any small villa in the suburbs of Zurich.

Within the nursery is a delightful combination of space, light and interesting things to do, above. The far



Ground floor plan

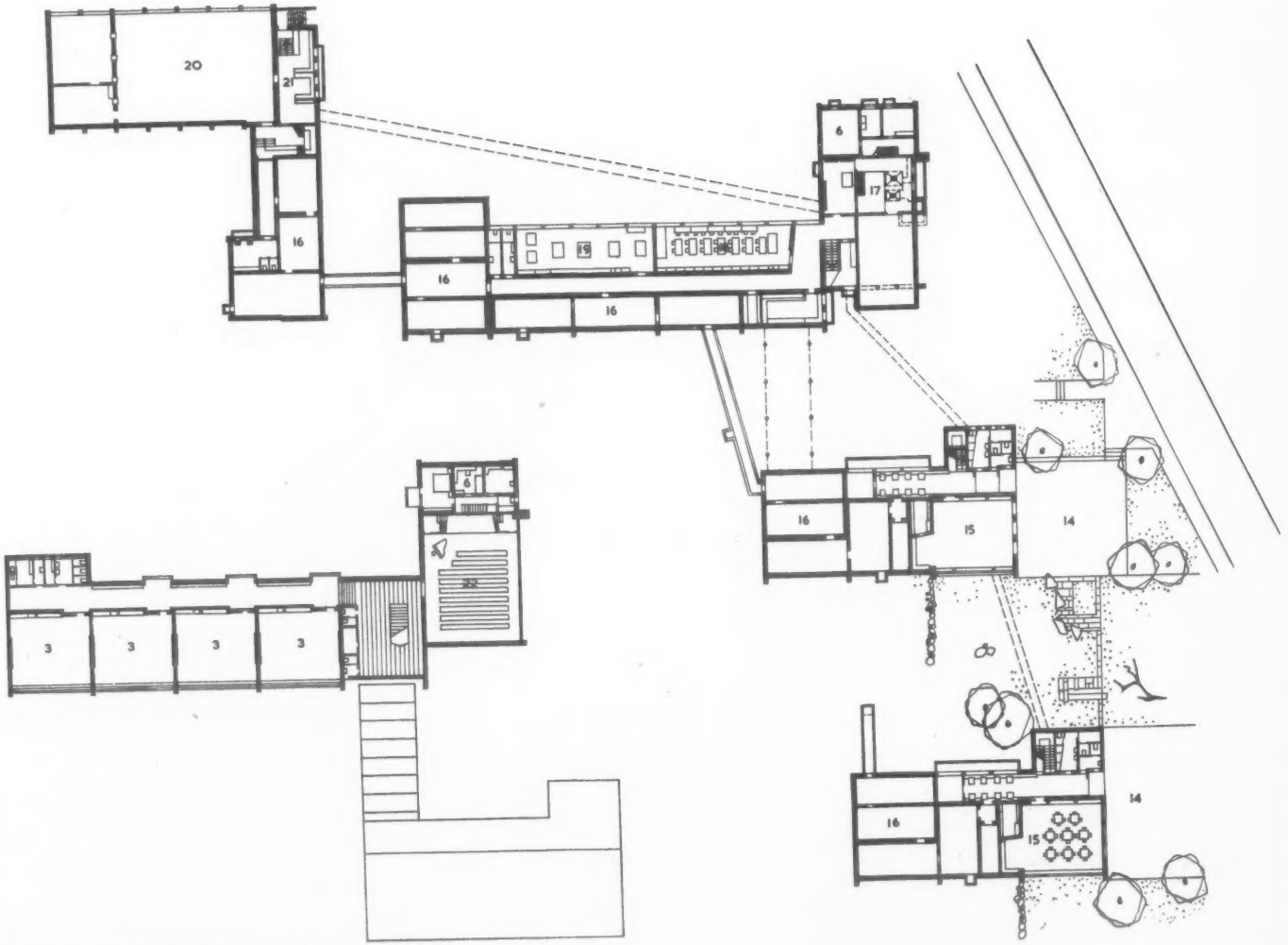
combination of space, light and interesting things to do, above. The far

Ground floor plan

wall of this room is covered with a pegboard on which the children make their own designs with coloured bricks, like the small boy, below.

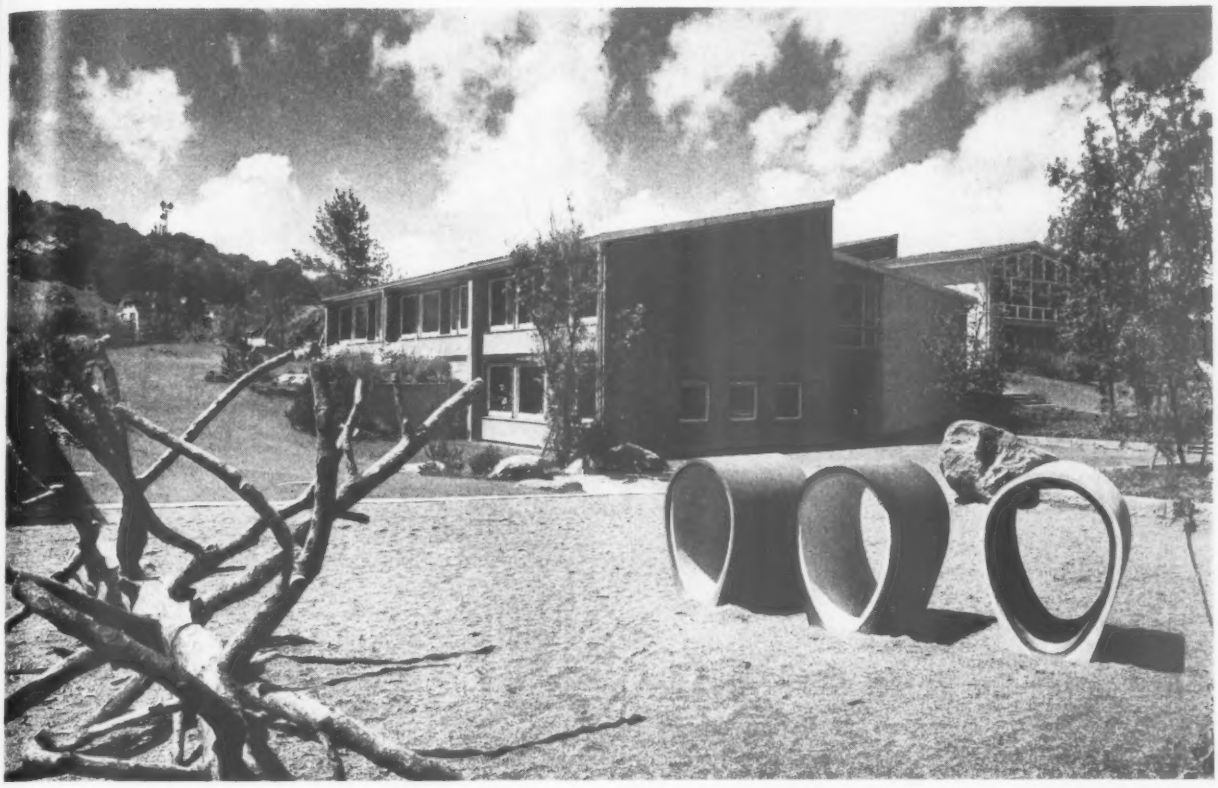
KEY:
Plans on this and opposite page

1. Main entrance
2. Recreation space.
3. Classroom
4. Girls' handicrafts
5. Staff room
6. Schoolkeeper
7. Gymnasium
8. Apparatus room
9. Cloakrooms
10. Physical training area
11. Apparatus
12. Playing field
13. Recreation area
14. Kindergarten playground
15. Kindergarten
16. Air raid shelter
17. Boiler-room
18. } Manual training
19. }
20. Playroom
21. Cloakroom
22. Hall.



First floor plan and lower ground floor plan (Scale, 1:600)

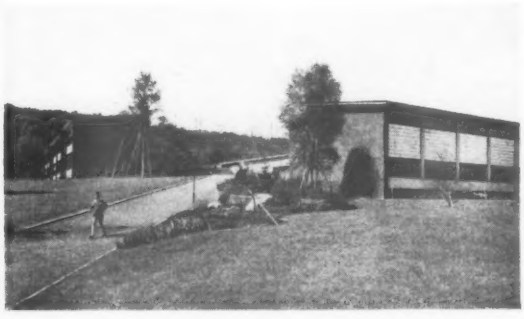
THREE SCHOOLS IN ZURICH: 2, 'IM HOFACKER' PRIMARY SCHOOL continued

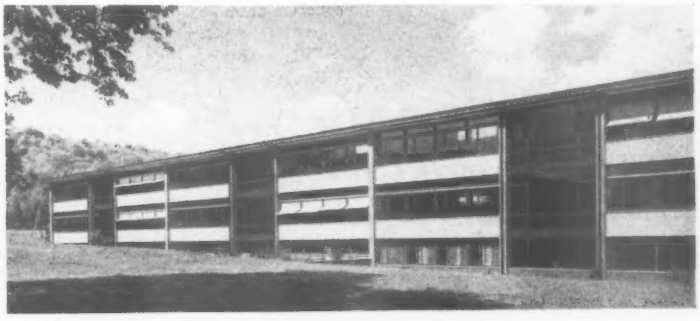


The 'Im Hofacker' school from the north-east.

THREE SCHOOLS IN ZURICH: 3, 'UNTERMOOS' PRIMARY SCHOOL

Another prize-winner, "Untermoos" primary school, designed by E. del Fabro, also enjoys and makes the most of a sloping and beautifully wooded site. Here the two-storey buildings are grouped round a rectangular central playground, used by children from the whole neighbourhood, not only at the school. Left above, the main entrance, on the east, with classroom block on left and gymnasium on right. Right above, the classroom block from the east. All classrooms are square, allowing lighting from each side and cross ventilation, and each group of four classrooms, with lobby and lavatory accommodation, forms a unit with its own entrance, at intermediate level, taking advantage of the slope. The materials used here are similar to those at "Chriesiweg" —red facing brick, concrete and large areas of glass, double glazed and fitted with external blinds. Upper floors are of mesh-reinforced ferro-concrete with flush beams. Inside walls of fair-faced brick or plastered, floors of passages and vestibules of terrazzo, in classrooms, compressed asphalt slabs.

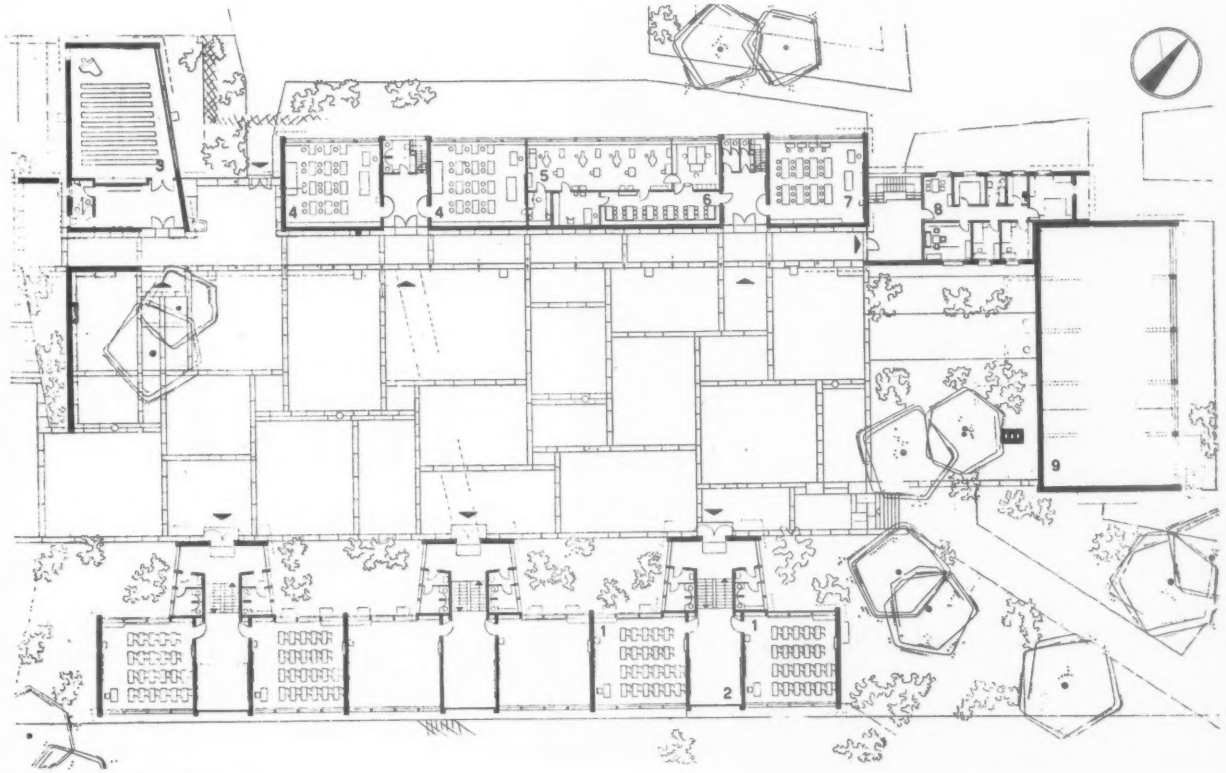




THREE SCHOOLS IN ZURICH: 3, 'UNTERMOOS' PRIMARY SCHOOL continued

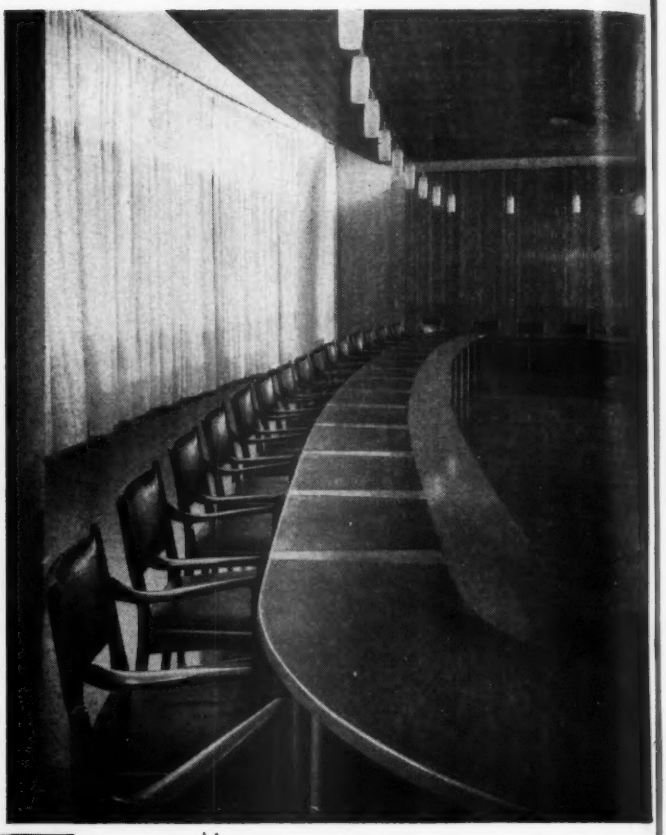
KEY:
1. Classroom
2. Cloakroom
3. Assembly hall
4. Needlework
5. School dental clinic
6. Waiting room
7. Technical schoolroom
8. Schoolkeeper
9. Gymnasium

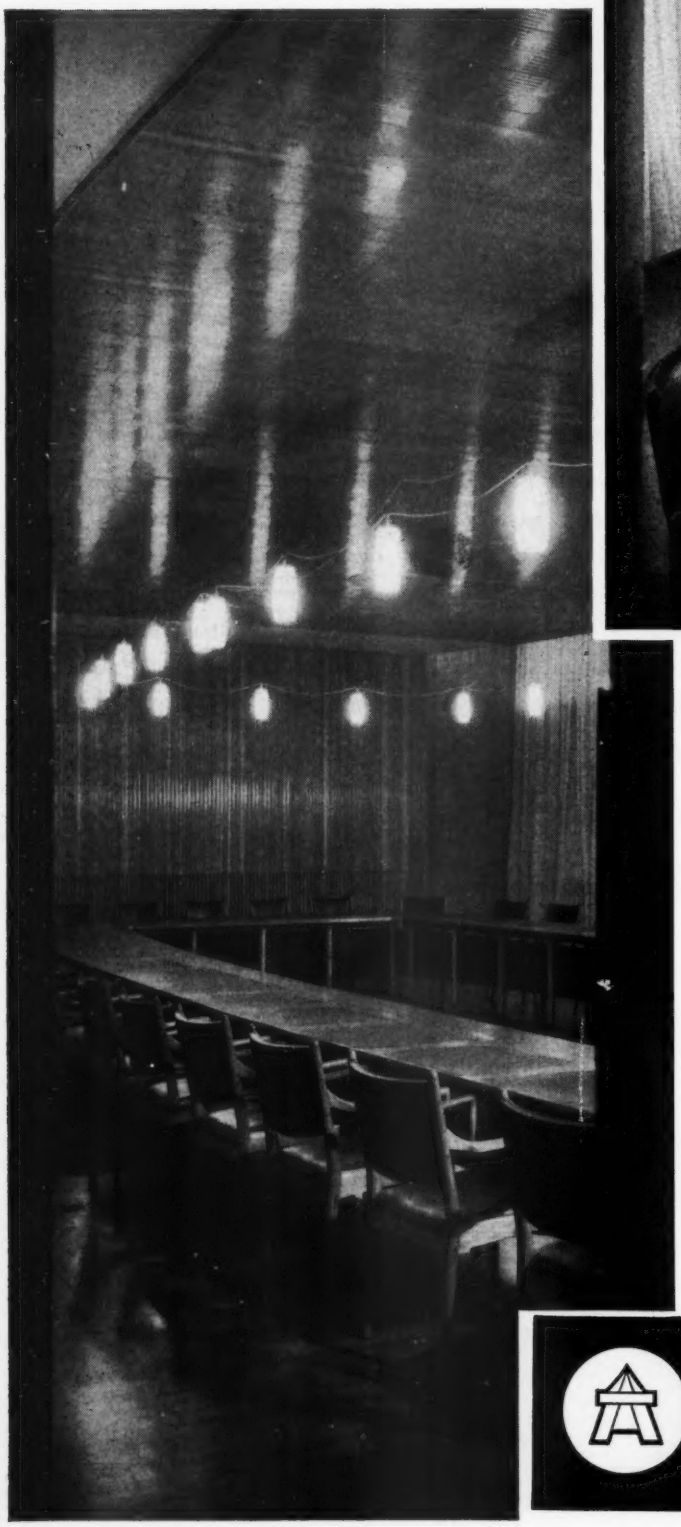
Left, the entrance stair to one classroom unit, with glazed east wall and crosswalls of fairfaced brick providing cloakroom space. Right, the central play court, looking across the west front of the classroom block. On the other side of the court is a block of special rooms, with a covered way in front, containing the assembly hall, needlework room, handwork rooms, school dental clinic, schoolkeeper's flat and offices, with basement for utility rooms. The courtyard is given variety and interest by the use of different coloured and different sized squares, divided by bands of white, and by acacia trees, an important part of the design. It is a sad comment on our dangerous world by the peaceable Swiss that all these schools have air-raid shelters.



Ground floor plan [Scale : 1 : 600

Architects: David du R. Aberdeen & Partners





T.U.C. Council Chamber

These photographs of the recently completed council chamber of the T.U.C. Memorial Building in Great Russell Street, London, W.C.1, show the table with its beech legs, mahogany top and individual dark green leather pads. The chairs are of mahogany with dark green leather backs and seats. All were designed by the architects in consultation with Heal's, who built the furniture and also supplied the light-diffusing nylon ninon curtaining.

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THE INDUSTRY

Brian Grant describes a coke boiler, two glazing developments, water cooling towers and an oil burner for boilers.

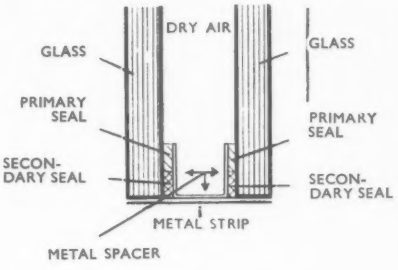
Large coke boilers

The illustration on the right shows the new Redfyre Emma coke boiler, which is now being made in this country by Newton Chambers under licence from N.V. Bronswerk, who have been producing it in Holland for seven years or more. It seems especially suitable for use in this country as it burns coke of all sizes up to 4 in. and the manufacturers claim a saving in cost of 20 to 25 per cent. over the normal type of coke-fired boiler, and efficiencies of 85 to 90 per cent.

The coke is stored in a large hopper and is fed by gravity into the fire zone, through which primary air is passed horizontally, the gas produced then passing to the combustion chamber where preheated secondary air is admitted to ensure complete combustion. Clinker forms as a pad on the water-cooled horizontal fire support and is pushed off by a hand-operated ram so that it falls on to a special trolley for removal. There are, of course, all the usual thermostatic controls, and the boiler needs little attention, for it will operate for about 8 hours at full load and up to 48 hours on low load without supervision. This means that in schools, office blocks and similar buildings the boiler will need no attention between Saturday midday and Monday morning. The boilers are produced in 17 sizes with outputs varying from 240,000 to 6,000,000 B.Th.U. per hour, and are quite compact, the dimensions of the smaller model being 23 by 80 in. on plan, with a height of 67 in. The boilers have been tested and approved by the Gas Council, and a number of them have already been installed by the East Midlands Gas Board in the depot stores at Leicester, where a 1½ million B.Th.U. plant needs only an hour's attention per day. (*Newton, Chambers & Co. Ltd., Thorncliffe, Sheffield.*)

Double glazing units

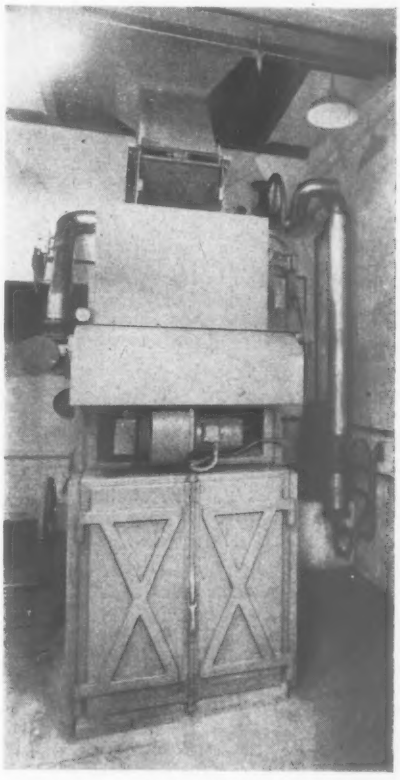
All architects know well enough that double glazing will considerably reduce heat losses, and that there are also sundry other advantages such as improved sound insulation and reduced condensation and cold down draughts. In a new range of units recently introduced by Multiglass considerable care has been taken to ensure adequate sealing of the air space, and two different sealing compounds have been used. The inner compound is moisture resistant and gives good adhesion to the glass, but it is permanently plastic and also likely to be affected by the oils used in glazing compounds, so a tougher outer compound is used to protect



A Multiglass unit with a ½-in. air gap.

the inner seal and to resist the oils. As an extra precaution a strip of metal foil is used round all edges.

The units are produced with air spaces between ⅛ in. and ½ in., the latter having a U value of 0·53 against 1·00 for a single pane of glass, and are available in various sizes from a maximum of 8 ft. super in 24-oz. sheet to 60 ft. for ¼-in. polished plate. Sand blasted and many types of patterned glasses can be used if required. Prices vary from 8s. a square foot for 24-oz. sheet with a ½-in. cavity to 15s. or thereabouts for ¼-in. plate. These prices are for normal rectangular shapes, but special curved shapes can also be produced. The company is also experimenting with decorative panels for wall cladding, and it hopes to produce units which can be used with standard patent glazing sections so that the high losses through north lights can be reduced, and there is also the likelihood that it will be possible to glaze direct into ordinary domestic window sections. It should perhaps be added that the manufacturers put forward a sound reduction figure of about 10 db. for the double units, but this is due almost entirely to the greater mass of the glass. (*Multiglass Ltd., Century House,* 100, *Westminster Bridge Road, London, S.E.*1.)



The Redfyre Emma coke boiler.

Glazing from inside

One of the obvious things to consider when designing any high building (particularly flats) is the re-glazing of broken windows, which can only be done economically and conveniently from inside the building. While it is true that reversible and projected type windows may often be the answer, these types may not always be desirable, and Crittalls have now evolved a solid unit construction whereby the complete standard range of metal windows can be supplied to glaze from inside at a cost only fractionally greater than the normal glaze-out range. All that is necessary is to add the

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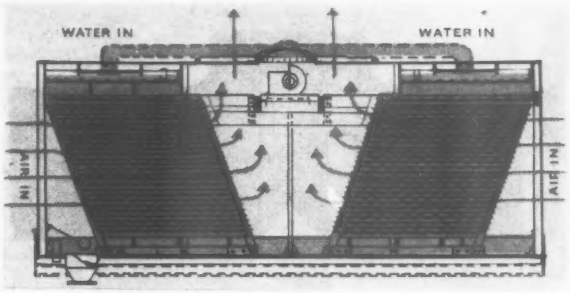
technical section



Diagrammatic section showing the working of the new Heenan & Froude double flow water cooling tower.

prefix IG to the normal SMW reference number. (*The Crittall Manufacturing Co. Ltd., Braintree, Essex.*)

Water cooling towers

While we all know the look of the rather dramatic water cooling towers round inland power stations it is easy to forget that even quite small industrial buildings may require water cooling equipment, and here the simple wooden towers often look untidy, for they generally lack scale and may also produce a very unsightly roof line. Some years ago Heenan & Froude made an agreement with the Marley company of Kansas City, and have just added a new model 8 to the range of Heenan-Marley cooling towers. This model is of the double flow type in which the cooling air is drawn in through louvres at the sides and passes across the downward flowing water which passes over a series of nail-less timber trays to provide the necessary spread. The section shows the general arrangement, and it should be added that this layout, as well as being more efficient as a cooler, is about one third the height of similar vertical towers, the largest model, which will deal with 160,000 gallons an hour, having a height of only 92 in., so that there should be no trouble with amenities and any part which may appear above a parapet will not be unduly conspicuous. (*Heenan & Froude Ltd., Worcester.*)

Oil burners for industrial boilers

The Spinfire rotary cup oil burner is made in this country under licence from Saacke & Co. of Bremen, and is available in a series of models for boilers with steam outputs from 1,100 lb. per hour upwards. The heaviest of fuel oil can be used, and the rotary cup is spun at high speed by an electric motor, and the oil is fed into the inside of the cup through a hollow rotating shaft. The oil travels along the inside of the cup and is discharged over its edge in a very thin film, which is broken up by the primary air from the fan mounted on the burner shaft. Good atomization of the fuel can be obtained with only a small quantity of primary air, and full control can be carried out by adjusting the secondary air and fuel quantity only. The manufacturers claim thermal efficiencies varying from 70 to 84 per cent. according to the type of boiler. (*Whites of Hebburn (Engineers) Ltd., Hebburn, Co. Durham.*)

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INFORMATION CENTRE

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

10.172 design: building types

POINT BLOCKS

Wohnhochhauser. By Paulhans Peters. (Callwey, Munich. 17·50 DM.)

Architects over the past 50 years have been evolving a number of new building forms which have grown partly out of a study of user needs combined with the development of new techniques, and partly out of the architects' desire to express some æsthetic idea through the interplay of visual forms. The point block is a good example. From a user standpoint it has grown out of the exploration of the possibilities of planning compact dwelling units vertically so as to give the opportunity of achieving more ground space and a better prospect, and of avoiding some of the disadvantages of slab blocks, such as shadowing and long access corridors.

This German book on point blocks gives an interesting account of a large number of experiments in the new form, and it is useful as a monograph on one particular housing solution. It is a pity that although it has a short English summary, it has not been possible to produce an English edition, as it goes methodically through all the main problems which are likely to be met.

The general arrangement of the book is clear, with good photographs and well drawn plans. It is particularly valuable to be able to compare some 45 variations of the point theme, all drawn to the same scale, especially as they include such well-known examples as Vallingby, Reimersholme, Bellahoj, Bartlesville, Ackroydon, and the two Harlow towers. The only mild complaint is that in a book published this year, the only LCC types illustrated are those of Ackroydon and Alton, whereas a whole series of new experiments have been designed, such as those at Roehampton, Tidey Street, Brandon, and Clive Street, and there are also Drake and Lasdun's cluster blocks in Bethnal Green, and last but by no means least, Great Arthur at Golden Lane.

10.173 design: building types

LABORATORIES

Buildings for Research. By the Editors of *Architectural Record.* (Published by F. W. Dodge Corporation and distributed by Interscience Publishers Ltd. 70s.)

Though the general lack of references on laboratories for the architect places a certain premium on this book, it has little more than "thumbing through" value. It is composed almost wholly of articles on individual buildings which have appeared from time to time in *Architectural Record.* The buildings themselves are often of indifferent quality and the coverage given to them is not sufficiently methodical to be of real use to the English architect.

18.198 construction: theory

REINFORCED CONCRETE COLUMNS

*Safe Loads and properties for rectangular tied columns to CP*114 (1957). By A. d'O. Smith (obtainable from the author, 17, Grosvenor Road, Richmond, Surrey. 10s.).

This is the second in this series, the first referring to square columns was reviewed in the JOURNAL for May 8, 1958. Part 2 deals with rectangular columns ranging from 8 in. × 10 in. to 15 in. × 24 in. with 0·8 per cent. to about 4 per cent. steel, either mild steel or Tentor giving a safe axial load and section modulus for 1:2:4, 1:1½:3 and 1:1:2 concrete. Provided the percentage of steel remains constant the direct load tables can be used for any shape of column of equal area to the tabulated column, also the answers can be doubled or halved for other columns in which the shorter side is double or half that of the tabulated column. This means that several thousand columns are covered by the tables. The Tentor steel answers relate only to the ½-in. to 1-in. bars.

technical section

23 HEATING & VENTILATION

designing for thermal comfort, 1

Since the war architects have grown used to the idea that thermal insulation is necessary and that some regard must be given to "U" values. This, however, is an aspect of heating which is more closely associated with the saving of fuel than with the providing of comfort. For this last, additional studies have to be made; for it is necessary to know the rate at which a building will heat up (and lose its heat) and the internal surface temperatures which it makes possible. The author of this series of two articles is Alexander Hardy, an architect who has made a special study of these aspects of heating. In this first article he recapitulates our knowledge of the conditions of thermal comfort and describes the calculations for finding out the two most important factors: the mean radiant temperature of the inside wall surfaces and the pre-heating time.

Three factors make the time opportune to consider the architectural aspects of providing thermal comfort in buildings. First, present day methods and materials tend to produce buildings with very different thermal characteristics from those of traditional construction; second, the continued rise in the cost of all types of solid fuels, and third, the increasing use of nuclear power to generate electricity.

One of the main functions of a building for human habitation is that it should be capable of providing and maintaining an artificial climate suited to the needs of its inhabitants, during their periods of occupation, at a cost relevant to the use of the building. Conditions of thermal comfort are governed by three factors; first, the physiological state of the occupants; second, the thermal characteristics of the enclosure, and third, the method by which heat is introduced into the environment. The first factor is determined by the physical activity of the occupants, the second by the physical properties of the materials making up the enclosure, and the third by the consideration of the first two factors and, in addition, volume, ventilation, first cost and running costs. The architect establishes the thermal characteristics of the enclosure and controls the method of introducing heat into the environment.

The human body

The human body is similar in its thermal reactions to an internal combustion engine: only a percentage of the fuel consumed is converted into useful energy, the remainder being given out as excess heat, which has to be lost to the surroundings. The aim is to balance the heat lost from the body with the heat gained from the environment. If the rate of heat flowing from the body is greater than that being generated, then a feeling of discomfort is registered and to overcome this condition, either physical activity has to be increased or extra thermal insulation applied to the body to reduce heat loss. If, however, the heat generated by metabolic and muscular processes exceeds that which can be absorbed by the surroundings, then overheating occurs, resulting in sweating and eventual heat stroke.

Heat is lost by the human body in three ways: by radiation, by convection, and by evaporation of moisture from the surface of the skin and from respiration. Of the total heat lost, 40 per cent. to 45 per cent. is by radiation and 35 per cent. to 40 per cent. by convection, the remainder being by evaporation. If the heat lost by any one of these processes is restricted, then the heat lost by the others is increased. Four factors govern environmental conditions: air temperature, air velocity, relative humidity and mean radiant temperature. The air temperature controls the rate of heat lost by convection in still air. Air velocity increases the rate of heat lost by convection and evaporation. Relative humidity controls the heat lost by evaporation and mean radiant temperature the heat exchange between the body and its surroundings by radiation, the greatest amount usually being lost in this way.

Air velocity and relative humidity not critical

From these facts it can be inferred that air temperature alone is not a satisfactory guide to conditions of thermal comfort. Two of these variables, however, are not common causes of physical discomfort in this country: air velocity and relative humidity. The air velocity experienced within an enclosure is determined by so many variable factors, such as area and shape of ventilation openings, external air conditions, internal air temperatures, size and shape of the enclosure, that, unless the enclosure is sealed and controlled mechanical ventilation provided, it is impossible to predict air velocities with any degree of accuracy, especially as these will frequently change considerably with different locations within the same enclosure. It is agreed, however, that air velocities in excess of 120 ft. per minute impinging on the body cause a sensation of draught, or excessive local cooling; but as the sensitivity of the skin varies not only from person to person, but from one area of the body to the other, it is not possible to take this factor into account in assessing the thermal comfort conditions within a building. The actual control of ventilation, however, is usually a simple mechanical process within the control of the occupants and discomfort caused by excessive air velocity can be quickly overcome.

technical section

The human body does not react noticeably to changes in relative humidity within the range experienced within buildings in this country. External relative humidity readings are often, for short periods, as high as 100 per cent. and the effect of this on human activity in the open is to cause over-heating, due to the reduction in heat lost from the body by evaporative processes. Air of high relative humidity, on being warmed on entering a building, has its relative humidity reduced, so that it is unusual to find internal relative humidities exceeding 70 per cent., except where considerable moisture is being supplied to the air from inside the enclosure. Relative humidities lower than 30 per cent. are unusual, except where excessive heating of the air takes place. Even so, as moisture is supplied to the air from so many sources and as the higher the temperature the greater the ability of the air to absorb moisture, such conditions do not occur often in habitable buildings. In 1931, Miura discovered that the physiological effect of a change of 20 per cent. in relative humidity at normal internal warmed air temperatures, could be corrected by a change of one degree F. in air temperature.

Calculation of mean radiant temperature

Air temperature can be determined by calculations taking into account the heat input into the enclosure, heat gained from the occupants and other incidental sources and the heat lost through the structure and by ventilation. To be able to determine the mean radiant temperature, however, requires that the surface temperatures of all the bounding surfaces of the enclosure be known.

The surface temperatures inside the room depend on the difference between air temperature on each side of the enclosing materials and on the thermal resistances of these materials. The formula for calculating the surface temperature is as follows:

Internal surface temperature =

$$\text{internal air temperature deg. F.} - \left(\frac{\text{internal surface thermal resistance}}{\text{total air to air resistance}} \times \text{temperature difference air to air}\right)$$

If we take, by way of example, an 11-in. cavity brick wall composed of bricks which have a thermal resistivity of 0·125 (*i.e.* per inch of thickness) with an internal air temperature of 67 deg. F. and an external air temperature of 32 deg. F., we have the following:

	Thermal resistance
Internal surface	0·70
Inner leaf brick	0·56
2-in. unventilated cavity	1·00
Outer leaf brick	0·56
External surface	0·30
Total resistance	3·12

$$\text{Internal surface temp. deg. F.} = 67 - \left(\frac{0{\cdot}70}{3{\cdot}12} \times 35\right) = 59{\cdot}2 \text{ deg. F.}$$

Billington defines mean radiant temperature as follows: "The Mean Radiant Temperature is that temperature of a uniform enclosure in which the radiation exchange between the body and the enclosure is the same as that in the environment under consideration." (The "body" is the standard black body used in radiation measurements having a radiation emission of $1{\cdot}73 \times 10^{-9}\ (t+459{\cdot}7)^4$, where t is the number of degrees F. difference between the body and its environment, in B.Th.U.s sq. ft. hour). If, therefore, walls, ceiling and floor of an enclosure are at different temperatures, then the radiation exchange between the body and its environment will vary with position. Although the actual MRT can be calculated for an exact location within an enclosure, this is of little value in practice, as the positions of the occupants in an enclosure can rarely be determined and are usually not fixed. It is, therefore, sufficient to consider an average value for the MRT of an enclosure and this can be computed by taking the product of the surface areas and their respective surface temperatures in deg. F. and dividing this by the total surface area. This calculation is approximate and would not be satisfactory where heating was by small areas of high temperature radiation or where the volume was great in relation to internal surface area, so that there were positions on plan at great distance from the enclosing surfaces.

Dufton's concept of "equivalent temperature"

In 1932 Dufton devised a Scale of Equivalent Temperature using three variables and relative humidity as constant; if air velocity is also considered constant then the formula is simplified to—

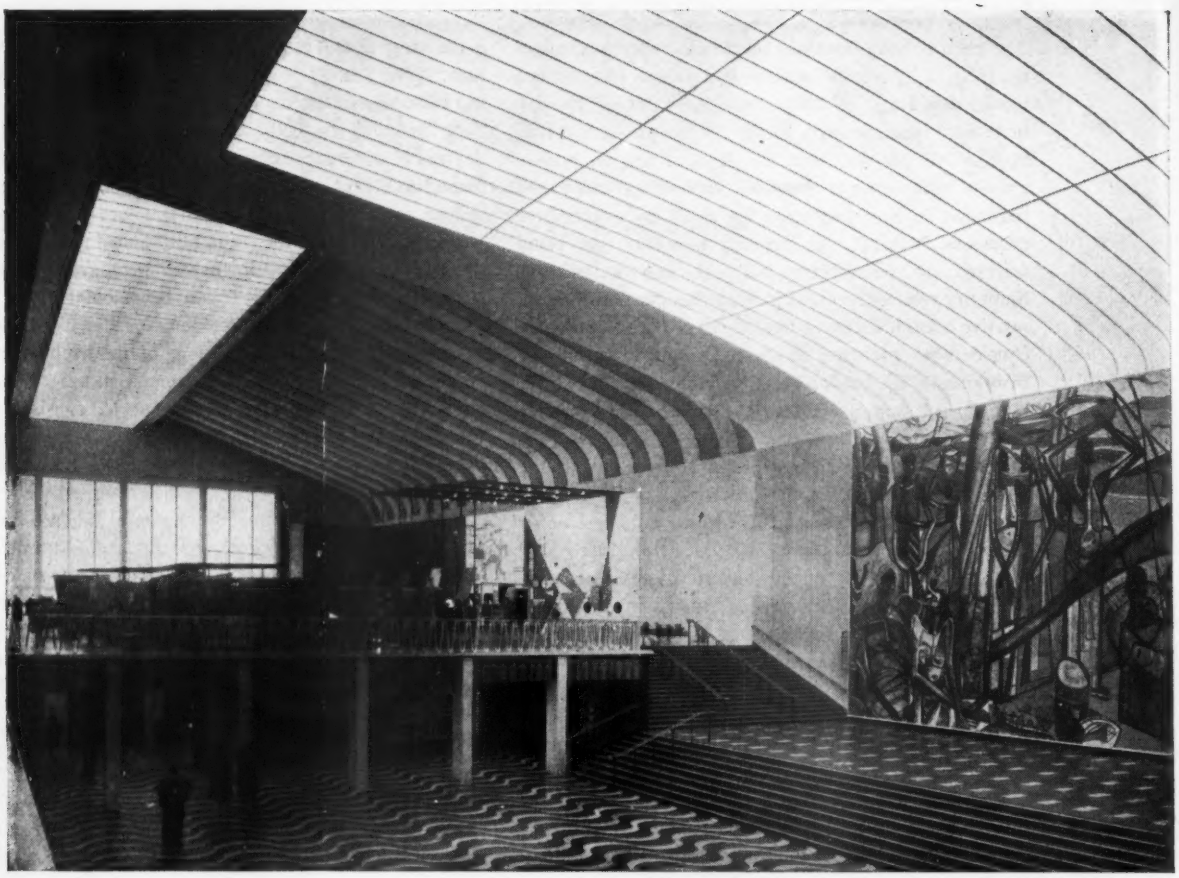
Equivalent Temperature = 0·596 ta + 0·478 tm − 7·37

Where equivalent temperature is in deg. F., ta is air temperature in deg. F., tm is MRT in deg. F.

Having calculated the air temperature and the MRT of an environment it is possible to determine the equivalent temperature, which is a direct indication of thermal comfort conditions. Any equivalent temperature can, however, be obtained from a wide range of air and mean radiant temperatures. Experiments carried out by Munro and Chrenko fixed the most acceptable equivalent temperature as 70 deg. F., and that in every equivalent temperature, conditions where the walls were a few degrees warmer than the air were always more comfortable than the same equivalent temperature with the air warmer than the walls. Equivalent temperatures where the air temperature was below 55 deg. were not acceptable. A table of air temperatures and MRTs for equivalent temperatures of 65 deg. and 70 deg. F. is given below:

		Air temperatures, deg. F.					
		50	55	60	65	70	75
E.T.	65 F	89·0	82·8	76·5	70·5	64·4	58·1
	70 F	99·2	93·8	87·2	80·8	74·8	68·5
		Mean radiant temperatures, deg. F.					

For example, from this table, acceptable standards of air and MRT for an equivalent temperature of 65 deg. F. would be 65·0 and 70·5 deg. F. and for an equivalent temperature of 70 deg. F. 70 and 74·8 deg. F.



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

International triumph for

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at the Brussels Exhibition

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

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TGA L55

technical section

Ceilings and floors

Walls are only part of the surfaces of an enclosure, ceilings and floors have also to be considered. The most satisfactory relationship between the temperature at head and floor level is when the head is cooler than the feet, but this is difficult to achieve, except where there are heated floors. A head temperature to a maximum of 5 deg. F. above the floor temperature can be tolerated without discomfort provided that there is not excessive radiation from above. Munro and Chrenko have devised tables giving the maximum temperatures for ceilings in relation to height and size of heated area. These maximum temperatures vary from as low as 77 deg. F. for a panel 7 ft. high to 164 deg. F. for a panel 12 ft. high, but these tables should be consulted as these temperatures vary considerably in relation to the dimensions of the heated area. It is quite usual to find that the whole of the heat input required for a given space cannot be supplied only by ceiling heating, without causing thermal discomfort, if ceilings are low and if the space has a poor standard of thermal insulation.

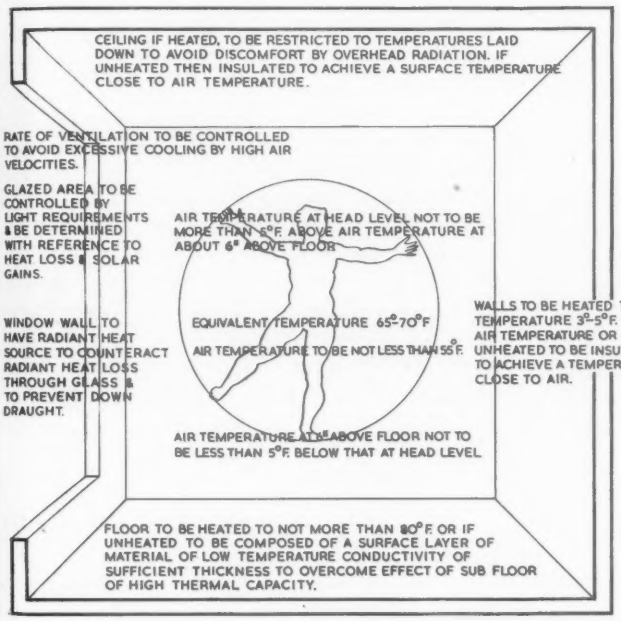


Diagram summarising the conditions of thermal comfort.

Floors require more detailed consideration, as the rate of heat lost by conduction through the feet is a decisive factor in the attainment of thermal comfort. As the floor is the only part of the enclosure with which the human body has constant contact, it is necessary to consider the way in which heat is lost by the foot to the floor by conduction.

If the temperature of the foot is 97·5 F. then any contact with a surface at a lower temperature would result in cooling, that rate of cooling being determined by the volumetric specific heat and thermal conductivity of the floor material. In actual practice there is no direct contact between the sole of the foot and the floor, as there is usually some material intervening which provides some degree of thermal insulation to the foot. So the actual temperature of the sole of the shoe in contact with the floor finish will be less than this, nearer to 90·0 F. The actual heat lost through ground floors varies considerably with the form of construction; a t. & g. softwood floor over a ventilated air space will transmit heat away from the enclosure in direct relationship to the external/internal air temperature difference and air velocity, the "U" value of such a floor, without any additional surface covering being 0·40; a solid floor in contact with the ground will not conduct heat away at such a fluctuating rate, as such heat has to be conducted away to the external air by a long path through the sub-soil to outside the perimeter of the building. The actual loss can be calculated only if the area/perimeter relationship is known; for the purposes of this calculation it is assumed that the minimum temperature of the soil under a building will be 45 deg. F. A reasonable average "U" value for a solid floor is 0·15.*

The ground floor is the most critical owing to the great variety of materials used and to their widely differing thermal characteristics. If a floor finish is integral with the site slab and has a high value for the formula $\frac{kpc}{12}$ (see table below), then the cooling effect will be rapid and continuous. Such floors would not be acceptable in areas where persons were stationary for long periods, unless heated. If such a floor slab was heated, then the maximum temperature for stationary occupation would be about 75 deg. F., or for mobile occupation up to 80 deg. F. Such a floor would not feel hot to the touch, as even at 80 deg. F. it would be about 14 deg. F. cooler than the surface of the skin.

Table of $\frac{kpc}{12}$ values for some floor finishes with their usual thicknesses

Material	$\frac{k\,p\,c}{12}$		*Usual thickness*
Granolithic	$\frac{11 \times 152 \times 0{\cdot}24}{12}$	= 33·4	2 in.
Quarry tiles	$\frac{8{\cdot}0 \times 140 \times 0{\cdot}20}{12}$	= 18·7	⅜ in.–1½ in.
Wood block	$\frac{1{\cdot}0 \times 40 \times 0{\cdot}53}{12}$	= 1·8	⅜ in.–1 in.
Linoleum	$\frac{1{\cdot}3 \times 77 \times 0{\cdot}20}{12}$	= 1·7	⅛ in.–¼ in.
Cork	$\frac{0{\cdot}28 \times 8 \times 0{\cdot}43}{12}$	= 0·08	¼ in.–½ in.
Carpet	$\frac{0{\cdot}30 \times 30 \times 0{\cdot}20}{12}$	= 0·015	¼ in.–½ in.

Floors with surface finishes react in a similar way to walls with linings of low thermal capacity; on first contact with the surface, the rate of cooling is determined by the thermal characteristics of the surface finish, but after a short period, depending on the thickness of the finish, the rate of cooling is controlled

* (See Dill, Robinson and Robinson; *Measurement of Heat Losses from Slab Floors*. US Dept. Commerce Report. BMS 106.1946.)

technical section

by the thermal characteristics of the base slab. It is therefore of little use to cover floor slabs of high thermal capacity with low thermal capacity finishes if these are of insufficient thickness. For example, the addition of a layer of 2·5 mm. linoleum to a concrete slab will have little effect on the rate of cooling of the feet, but the same layer laid on softwood t. & g. would reduce the heat loss considerably, by reducing the air filtration through the floor joints. The above table gives some indication of the relative values of floor finishes in improving the thermal comfort standards of floors. It is important to note that it is not the actual surface temperature of the floor that determines the feeling of comfort, so much as the volumetric specific heat and thermal conductivity of the floor, although these factors do control the floor surface temperature. Subjective tests have revealed that a timber floor is considered to be satisfactory and does not cause discomfort; it can therefore be assumed that floor finishes or surfaces having a $\frac{kpc}{12}$ value of greater than 2·0 would cause discomfort under conditions of continuous contact, unless heated, but would be suitable for intermittent contact in relation to the time of occupation and in the order in the above table.

Calculation of pre-heating time

The thermal characteristics of building materials which determine their effect on environment can be calculated from the following: thermal conductivity (k) in B.Th.U.s in ft.² hr. deg. F., density (p) in lb. ft.³ and specific heat (c) in B.Th.U.s lb. deg. F. The amount of heat required to raise one cubic foot of a material one degree F. is the volumetric specific heat, which is the product of the density and specific heat of that material (p × c).

The selection of materials to be used in the construction of a building by the architect are determined, not only by structural requirements, but by consideration of their properties of weather resistance, thermal insulation value and æsthetic appearance. If the construction is of loadbearing walls, then these are usually of high density materials, having high thermal conductivity; and adequate thermal insulation can only be obtained by either increasing the thickness of these materials over that required for actual structural stability or by lining the walls with an insulating layer. Where walls are only weather protecting screens, then these can be of low density materials having low thermal conductivity and can be quite thin to achieve a similar standard of thermal insulation. Although these two types of wall may have the same "U" values, their thermal characteristics will differ considerably, as can be seen from the table printed above.

Table of thermal characteristics of some building materials

Symbol: d	*p*	*c*	*k*	*pc×d*	*R*	*U*
Inches	*Density lbs. ft.³*	*Specific heat. B.Th.U.s lb. °F.*	*Thermal cond. B.Th.U.s ins. ft.² hr. °F.*	*Thermal capacity, B.Th.U.s ft.³ °F.*	*Thermal resist.*	*Thermal Transmit.*
Concrete 6 in.	150	0·24	10·0	15·0	1·60	0·63
„ 4 in.	150	0·24	10·0	12·0	1·40	0·72
Brick 13½ in.	110	0·22	8·0	27·0	2·69	0·37
„ 9 in.	110	0·22	8·0	18·0	2·13	0·47
„ 4½ in.	110	0·22	8·0	9·0	1·56	0·64
Foam slag 6 in.	65	0·23	1·7	7·85	4·50	0·22
„ 4 in.	65	0·23	1·7	5·25	3·34	0·30
Cell. conc. 6 in.	40	0·25	1·0	5·00	7·00	0·14
„ 4 in.	40	0·25	1·0	3·30	5·00	0·20

Note: *R* value has been calculated assuming a combined surface resistance of 1·0.

From this table a comparison can be made between a 13½-in. brick wall with a "U" value of 0·37 and a 4-in. foam slag block wall of 0·30; from the column "thermal capacity" it can be seen that the brick wall will require about five times as much heat as the foam slag wall to raise its temperature the same amount.

The characteristic of a material which governs the rate of temperature rise of its surface is called its "temperature conductivity"; the rate at which temperature changes are transmitted through the material. The higher the temperature conductivity, the faster the temperature change is transmitted through the thickness of the material and the slower the rate of surface temperature change. The lower the temperature conductivity the slower the temperature change is transmitted through the materials and the faster the rate of surface temperature change. Materials of low temperature conductivity, therefore, have the quickest rate of surface temperature change.

$$\text{Temperature conductivity} = \frac{k}{12pc} \text{ or } \frac{\text{Thermal conductivity}}{12 \times \text{density} \times \text{specific heat}}$$

A more important property of building materials can now be determined; that of the time that it will take for a particular wall construction to reach its maximum mean radiant temperature. In 1934 Dufton found that the time taken for a wall of homogeneous construction to reach its maximum internal surface temperature, if the heat applied to it was at least 1½ times the amount of heat required to maintain its temperature in the steady state, could be calculated from the following formula:

$$\text{Pre-heating time in hours} = \left[\frac{4\left(\frac{d}{12}\right)^2}{5\left(\frac{k}{12pc}\right)}\right]\frac{1}{P^2}$$

See previous table for symbols. P is the rate of heat input over that required to maintain the steady state temperature. This must be greater than 1½.

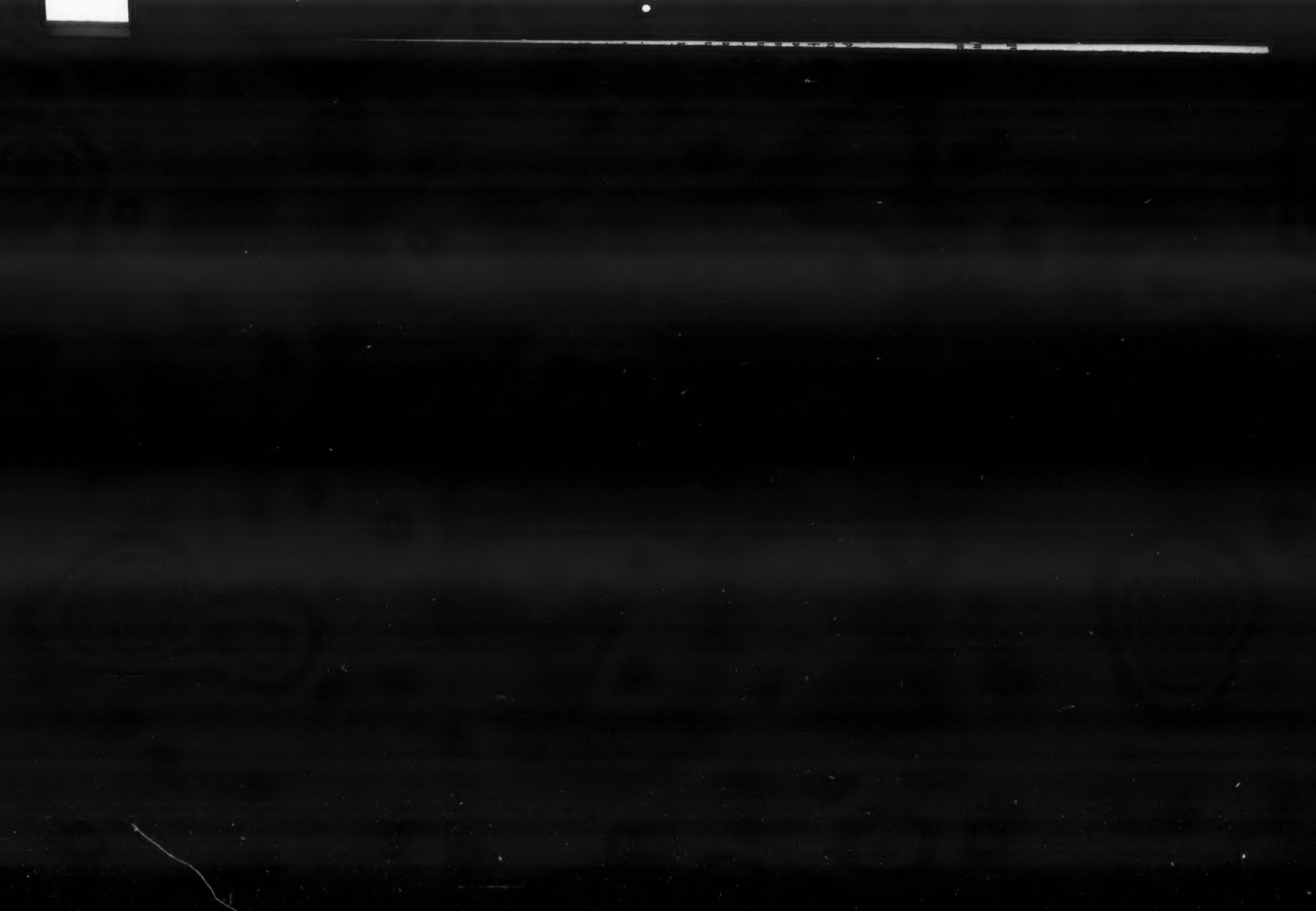
Compare the preheating time for a 13½-in. brick wall and a 4-in. foam slag wall.

13½-in. brick:

$$t = \left[\frac{4\left(\frac{13{\cdot}5}{12}\right)^2}{5\left(\frac{8}{12\times110\times{\cdot}22}\right)}\right]\frac{1}{2^2} = 9{\cdot}2 \text{ hours}$$

4-in. foam slag:

$$t = \left[\frac{4\left(\frac{4}{12}\right)^2}{5\left(\frac{1{\cdot}7}{12\times65\times{\cdot}23}\right)}\right]\frac{1}{2^2} = 2{\cdot}3 \text{ hours}$$



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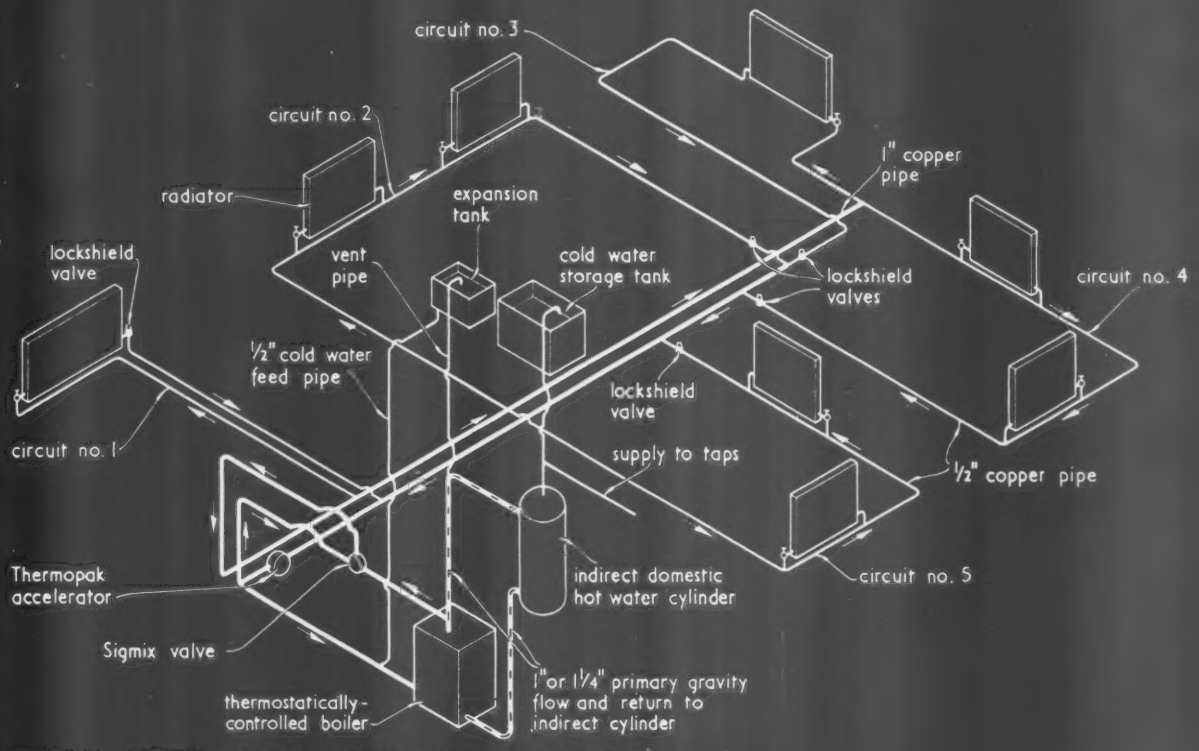


DIAGRAM SHOWING TYPICAL INSTALLATION IN BUNGALOW.

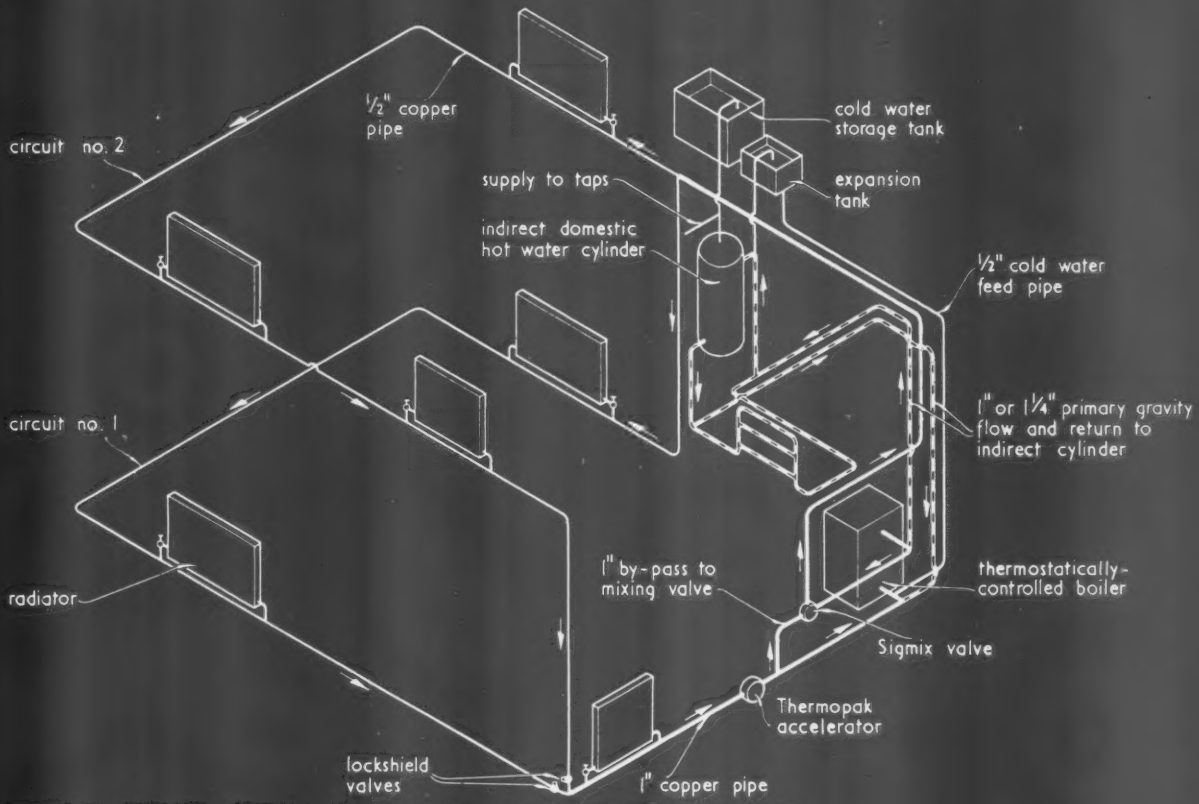


DIAGRAM SHOWING TYPICAL INSTALLATION IN TWO-STOREY DWELLING.

·THERMOPAK· ELECTRIC ACCELERATOR FOR DOMESTIC SMALL-BORE HEATING SYSTEMS.

Manufacturer : Sigmund Pumps Limited.

29.H7. ·THERMOPAK· ELECTRIC ACCELERATOR FOR DOMESTIC SMALL-BORE HEATING SYSTEMS

This Sheet describes the use of the Thermopak electric accelerator for forced-circulation (small bore) domestic heating systems. The drawings on the face show typical layouts for a bungalow and a two-storey house.

General

The following notes cover the design and installation of systems suitable for houses of normal construction up to 1,800 square feet using ½-inch copper pipe circuits. The recommendations are based on a temperature drop of 20° F. between flow and return and an outside temperature of 30° F. They involve the use of a Thermopak accelerator type CRI-A (210-250 volts a.c.) which is suitable for installations up to 60,000 B.t.u./hr. plus the heat requirement of the domestic hot water system.

Heat Requirement of Rooms

To determine the heat requirement in B.t.u. of each room, the volume in cubic feet should be multiplied by one of the following factors:—

For a required temperature of	65° F:	4·3
,, ,, ,, ,,	60° F:	3·7
,, ,, ,, ,,	55° F:	3·1
,, ,, ,, ,,	50° F:	2·5

For full central heating, calculations should be based on temperatures of 60° to 65° F. for living rooms, 60° F. for halls, etc., and 50° to 55° F. for bedrooms.

Choice of Boiler

The total heat requirement is the sum of the figures obtained for the various rooms, with 25 per cent. added to facilitate balancing the system and to allow for extreme weather conditions. This gives the required boiler rating which must not exceed 60,000 B.t.u./hr., plus the requirement for domestic hot water. For the latter a minimum of 12,000 B.t.u./hr. should be allowed for a 30-gallon cylinder or 20,000 for a 60-gallon cylinder where consumption is high. The boiler must be thermostatically controlled and the setting of the boiler thermostat should be 180° F. The boiler may be of any reputable make which fulfils these conditions and can be solid fuel, gas or oil fired.

Sizes of Radiators

The required sizes of radiators in square feet are obtained by dividing the heat requirement of each room by 165, which is the average figure of heat emission in B.t.u./hr./sq. ft. for normal types of cast iron or steel radiator. (Where radiators of higher heat emission are used the radiator manufacturer should be consulted.) To allow for heat emitted by exposed piping, the size of radiators should be reduced by 1 square foot for every 5 ft. 0 in. of ½-in. copper piping exposed in a room.

Installation

The radiators should be planned on three or four main circuits, the length of each depending on the heat load but in no case exceeding that given below.

Heat load per circuit (B.t.u.)	Maximum length of ½-in. copper pipe per circuit (ft.)
15,000	80
12,000	100
10,000	140

These figures allow for a common flow and return in 1-in. diameter copper pipe. The total length of 1-in. pipe should not exceed 100 ft. 0 in. for systems up to 40,000 B.t.u./hr. or 60 ft. 0 in. for systems up to 60,000 B.t.u./hr.

The pipes should be carried horizontally, on skirting boards, etc., a drain cock being provided at the lowest point of a circuit. They can be taken under floors (where they should be lagged to prevent heat loss), round door frames, etc. Capillary or compression fittings may be used, but the former are neater and less conspicuous. Pipes should be bent where possible to avoid using fittings, and bends, where necessary, used in preference to elbows. Pitcher-type tees should also be used. A lockshield valve should be included in each ½-in. copper pipe circuit to facilitate balancing the system. Radiators should be sited beneath windows where possible. The gravity circuit for the domestic hot water supply is an essential part of a small-bore heating system and should be the normal arrangement, in 1-in. or 1¼-in. copper pipe. The cold water feed and expansion or vent pipe are best fitted in this circuit, but this is not essential provided they are both fitted on the same side of the Thermopak accelerator. Otherwise there is a danger of the Thermopak circulating hot water round the cold water feed tank.

Siting the Thermopak: The accelerator should be sited in the heating system in the main return to the boiler as shown in the drawings on the face of the Sheet. For rigid mounting, the pipe from the boiler to the Thermopak should be 1-in. iron pipe. It is essential that the pump be fitted with the rotating shaft horizontal.

When the installation is completed it is important that the Thermopak be temporarily removed and the system flushed out, twice if possible, to remove all foreign matter: this will ensure the efficient operation of the accelerator.

Sigmix mixing valves: This can be included, as shown in the drawings, to control the temperature of the water in the heating system independently of the temperature of the domestic hot water system. It controls the main flow temperature by means of a bi-metal thermostat inside the valve, which operates a clack to allow a proportion of cool return water to recirculate through the system. A dial control can be adjusted to maintain the desired temperature throughout the system.

Further Information

The manufacturer maintains a technical advisory bureau available to answer questions dealing with this subject generally.

Compiled from information supplied by:

Sigmund Pumps Limited
Address: Team Valley, Gateshead 11.
Telephone: Low Fell 7-5051/10.
Telegrams: Sigmapumps, Gateshead.

SUPERIMPOSED FLOOR LOADS FOR VARIOUS TYPES OF BUILDING

In the following table a reference to a floor includes a reference to any part of that floor to be used as a corridor, "slabs" includes beams and ribs spaced not further apart than 3 ft. between centres and "beams" means all other beams and ribs.

FLOORS

Loading Class No.	Types	Minimum imposed loads lb. per sq. ft. of floor area	Alternative minimum imposed loads*	
			Slabs	Beams
			lb. (uniformly distributed over span) per ft. width	lb. (uniformly distributed over span)
1	Floors in dwelling-houses of not more than two storeys, in one occupation	30	240	1,920
2	Floors (other than those of Class No. 1) for residential purposes, including tenements; floors in hospital wards, bedrooms and private sitting-rooms in hotels, dormitories	40	320	2,560
3	Office floors above the entrance floor; floors of workrooms without central power-driven machines and storage	50	400	3,200
4	Office entrance floors and office floors below the entrance floor; floors of classrooms in schools	60	480	3,840
5	Floors of retail shops for display and sale of merchandise; floors of workrooms with central power-driven machines; floors of garages for vehicles not exceeding 2½ tons gross weight; places of assembly with fixed seating †, churches and chapels; restaurants; circulation space in machinery halls, power station, etc., where not occupied by plant or equipment	80	640	5,120
6	Floors of warehouses, workshops, factories and other buildings or parts of buildings of similar category for light weight loads; office floors for storage and filing purposes; places of assembly without fixed seating (public rooms in hotels, dance halls, etc.)	100	800	6,400
7	Floors of warehouses, workshops, factories and other buildings or parts of buildings of similar category for medium weight loads; floors of garages for vehicles not exceeding 4 tons gross weight	150	For garage floors only, 1·5 × maximum wheel load or 2,000 lb. whichever is the greater, considered to be distributed over a floor area 2 ft. 6 in. square	
8	Floors of warehouses, workshops, factories and other buildings or parts of buildings of similar category for heavy weight loads; floors of bookstores and stationery stores; roofs and pavement lights over basements projecting under the public footpath	200	—	—

ROOFS

9	Flat roofs: (*a*) Where no access is provided to the roof (other than such access as may be necessary for cleaning and repair works) (*b*) Where access (in addition to such access as may be necessary for cleaning and repair works) is provided to the roof	15 30	— 240	— 1,920
10	Pitched roofs (where no access is provided to the roof) having an inclination to the horizontal: (*a*) of 30 degrees or less (*b*) of 75 degrees or more For roof slopes between 30 degrees and 75 degrees the imposed load shall be determined by interpolation	15 (vert.) nil	— —	— —

STAIRS AND LANDINGS AND CANTILEVER ACCESS BALCONIES

11	(*a*) Used in connection with floors of class No. 1 (*b*) Used in connection with floors of Classes No. 2, No. 3 or No. 4 (*c*) Used in connection with floors of any other classes	30 60 100	— — —	— — —

* Minimum load for slabs becomes operative at spans of less than 8 ft. Minimum load for beams becomes operative on areas less than 64 sq. ft. Beams, ribs and joists spaced at not more than 3 ft. centres may be calculated for slab loadings.

† Fixed seating implies that the removal of the seating and the use of the space for other purposes is improbable.

Architects' Journal 20.11.58

2.B4 SUPERIMPOSED FLOOR LOADS FOR VARIOUS TYPES OF BUILDING

This Sheet sets out in tabular form the uniformly distributed superimposed floor loads for various types of building. They are minimum loads recommended for the design in accordance with L.C.C. by-laws and British Standards and Codes of Practice.

Superimposed Floor Loads

The figures given in the table on the face of the Sheet do not include the dead loads (weight of walls, floors, roofs, partitions and other permanent construction). For the purpose of calculating dead loads see B.S.648:1949, *Schedule of Weights of Building Materials.*

For all floors in which partitions are intended but are not located on the plans, a uniformly distributed load per sq. ft. of not less than 10 per cent. of the weight per ft. run of finished partition should be provided for: in an office building the load per sq. ft. may not be less than 20 lb.

Reductions in Superimposed Floor Loads

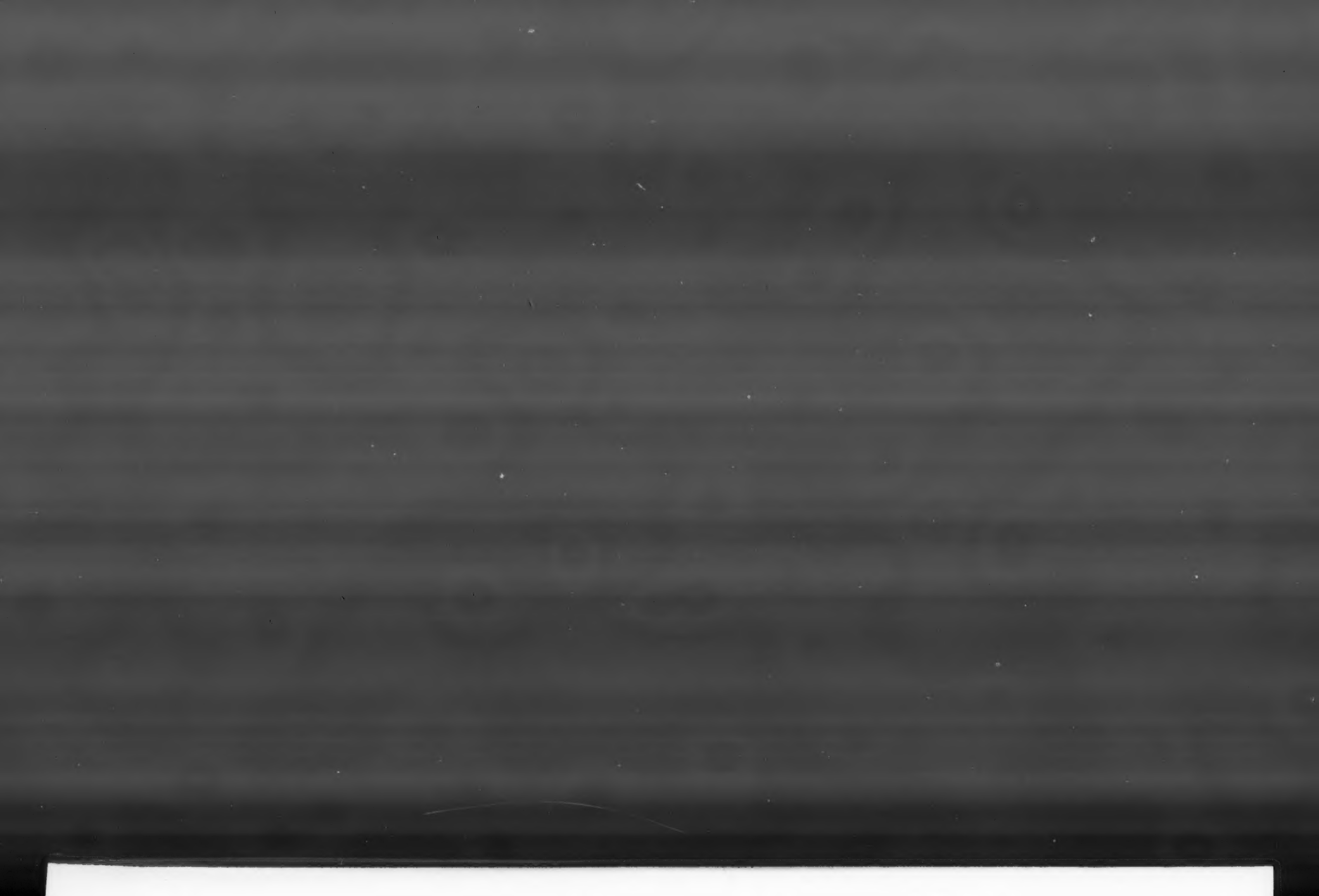
For the design of columns, piers, walls, their supports and foundations (*not* floors and beams) the following reductions in assumed total superimposed loads are permitted.

1. In B.S. Code of Practice CP3: Chapter V, 1952, Loading, as shown in the following table:

Number of floors carried by member under consideration	Per cent reduction of imposed load on all floors above the member under consideration
1	0
2	10
3	20
4	30
5 or more	40

2. No reductions are allowed in respect of warehouses, garages and floors used for storage, or in respect of factories and workshops with imposed loads of less than 100 lb./sq. ft. Reductions applied to factories and workshops with imposed loads over 100 lb./sq. ft. must not bring the load below this figure.

3. Where a single span of beam supports 500 sq. ft. or over of floor the total imposed load may be reduced by 5 per cent. for each 500 sq. ft. of floor, provided that the total reduction is not more than 25 per cent. This does not apply to warehouses or floors used for storage.



working detail

DOORS: 37

SLIDING DOORS: SCHOOL AT AMERSHAM, BUCKS

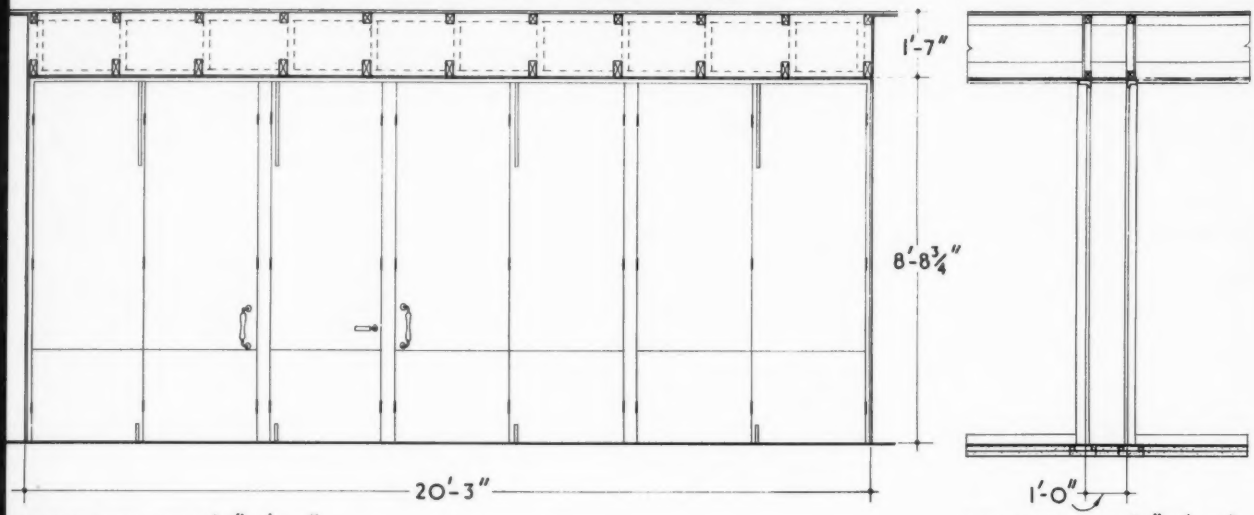
Chief Architect's Department, M.O.E., in collaboration with the County Architect, Buckinghamshire County Council; J. S. B. Coatman, Mary B. Crowley, David L. Medd and C. E. D. Wooster, architects-in-charge

This detail was designed to meet a very common requirement in schools with multi-purpose assembly halls. It has been found in practice that the opening and closing of the doors (and the reversal of the grooved thresholds) takes the caretaker between two and three minutes. The calculated sound reduction for the single leaf is 28 decibels and for the double leaf 40: but actual reductions are 25 and 38, respectively.

working detail

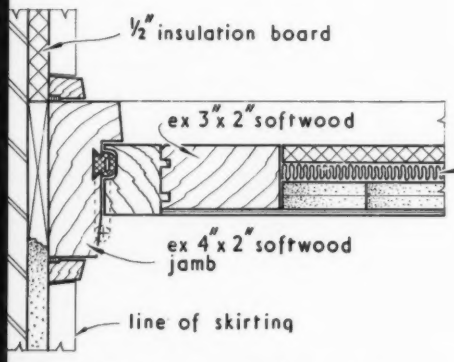
SLIDING DOORS: SCHOOL AT AMERSHAM, BUCKS

Chief Architect's Department, M.O.E., in collaboration with the County Architect, Buckinghamshire County Council; J. S. B. Coatman, Mary B. Crowley, David L. Medd and C. E. D. Wooster, architects-in-charge



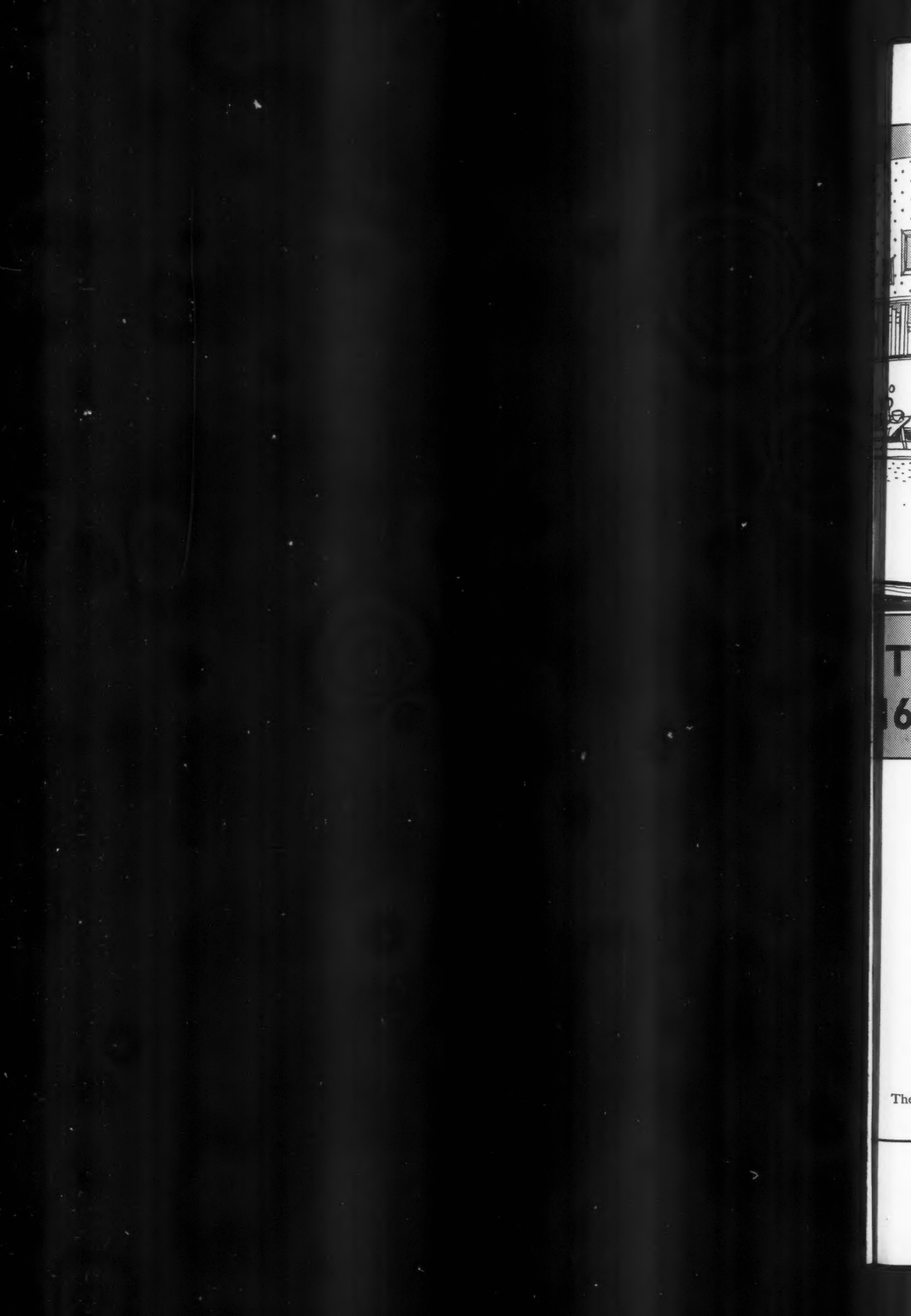
ELEVATION. scale ¼" = 1'-0"

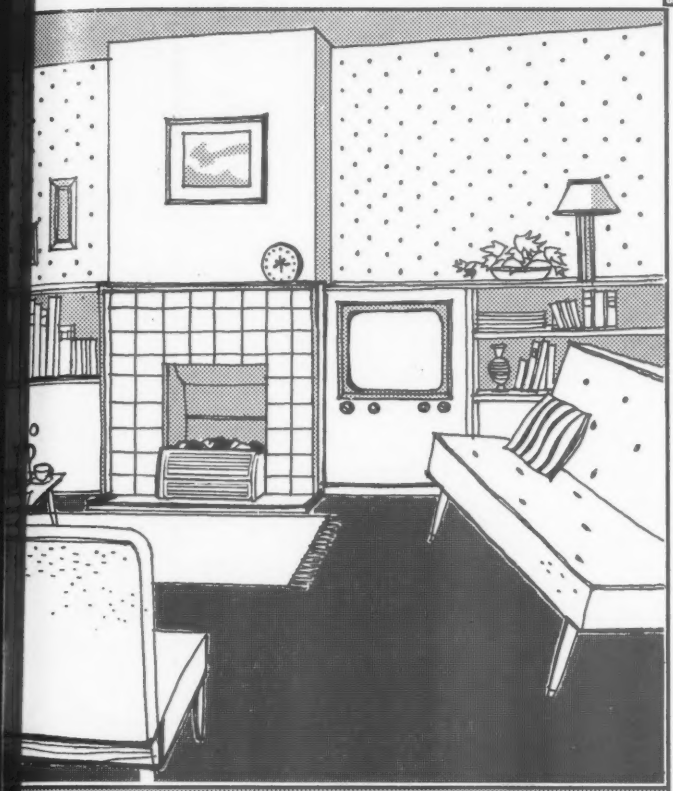
SECTION. scale ¼" = 1'-0"



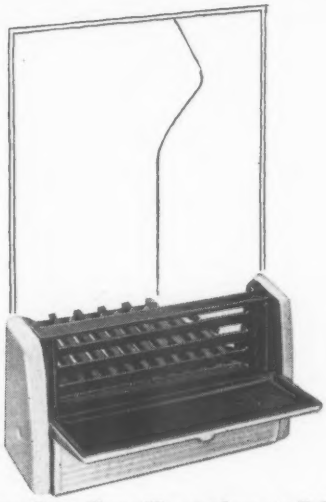
PLAN OF JAMB. scale ¼ full size

SECTION THROUGH SILLS AND HEAD. scale ¼ full size

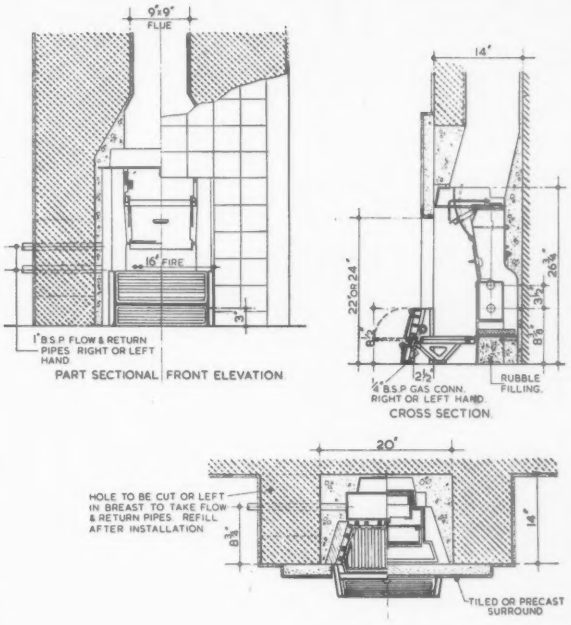




The LOWBURN 16" Drop Front Fire



The Lowburn Drop Front Fire conforms to B.S.S.2845:1957.



High radiant efficiency at low level

plus full domestic water heating when a back boiler is installed

Even a very small quantity of fuel will keep a Lowburn Drop Front Fire going, and give a bright cheerful blaze. That's because the Lowburn's drop front lies level with the bottom grate when lowered, thus ensuring that radiant heat is directed at lower level into the room.

Accurate control, and subsequent economy, is ensured by the close fit of the machined ashpit door and drop front. The ashpit door slides on machined pins to adjust the rate of burning.

The fire is continuous burning, but a front extension is required if a back boiler is fitted. The fire will burn all smokeless fuels as well as coal. Gas ignition is optional.

A variable throat restrictor, to sit on top of Milner back brick, can be supplied for the non-boiler model.

Space heating capacity of the Lowburn Drop Front Fire is 1,750 cu. ft. When the fire is installed with our back boiler flue set and throat restrictor, it will heat rooms up to 1,750 cu. ft., provide domestic hot water from a 30-gallon storage cylinder, and heat a towel rail. Alternatively, the boiler will heat up to 45 sq. ft. of radiation surface.

A combined throat restrictor and damper is available for brick-built boiler flues.

Colours available include primrose, birch grey, blue, cream mottle, mushroom or black vitreous enamel, or an Alisheen finish in copper or black.

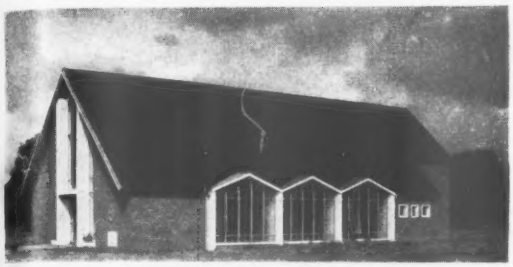
For more details of the Lowburn Drop Front Fire, write to Allied Ironfounders.

ALLIED IRONFOUNDERS LTD

Makers of cookers, boilers, fires, stoves and baths.

28 Brook Street, London, W.1

CHURCH AND HALL AT LANGNEY, SUSSEX



St. Richard's, Langney, is a small church and hall combined, designed by H. Hubbard Ford to serve the needs of a new housing area on the outskirts of Eastbourne. Below, left, is the front of the present church-cum-hall, built for less than £10,000. Altar and altar rail (shown in interior below) are cut off by curtains when the hall is needed for other purposes.

Announcements

PROFESSIONAL

Reginald F. Malcolmson has been appointed acting director and associate professor in the department of architecture at Illinois Institute of Technology, Chicago, following the retirement of the former director, Ludwig Mies van der Rohe. Malcolmson, born in Dublin, Ireland, in 1912, was educated and practised architecture as a partner in Bell & Malcolmson, Belfast, in that country before coming to the United States to study with Mies van der Rohe at IIT in 1947. He is an Associate of the RIBA and of the TPI.

TRADE

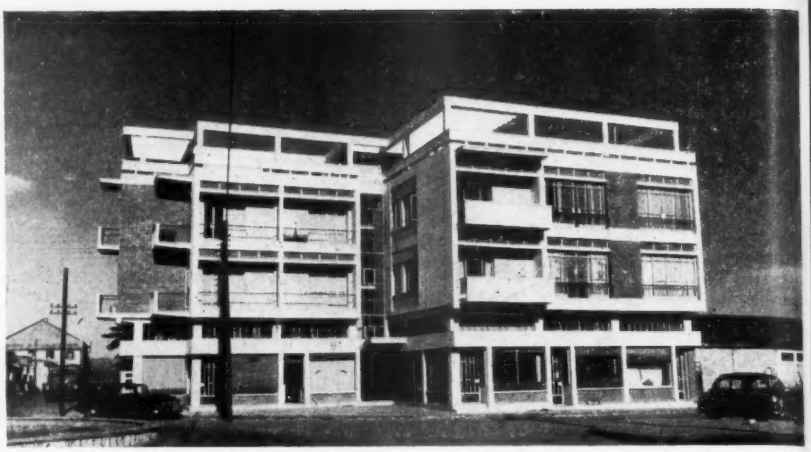
Tie-on labels are now being distributed free by the Coal Utilisation Council to members of its Panel of appliance distributors for attaching to appliances which are on display in their showrooms and which are in the current recommended list.

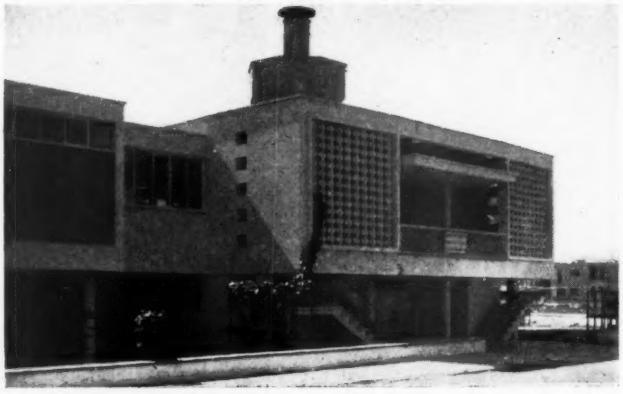
A new company has been formed under the name of Pyrestos Limited, with offices at 8, Buckingham Palace Gardens, S.W.1. This firm will be solely responsible for marketing Pyrestos Impregnated Insulating Board through all the normal trade channels.

Leaderflush (Doors) Ltd., have appointed Louis G. Ford Ltd., builders' merchants, Eastbourne (telephone 5000), to act as sole distributors of Leaderflush doors for Sussex and parts of Surrey and Kent.

Correction

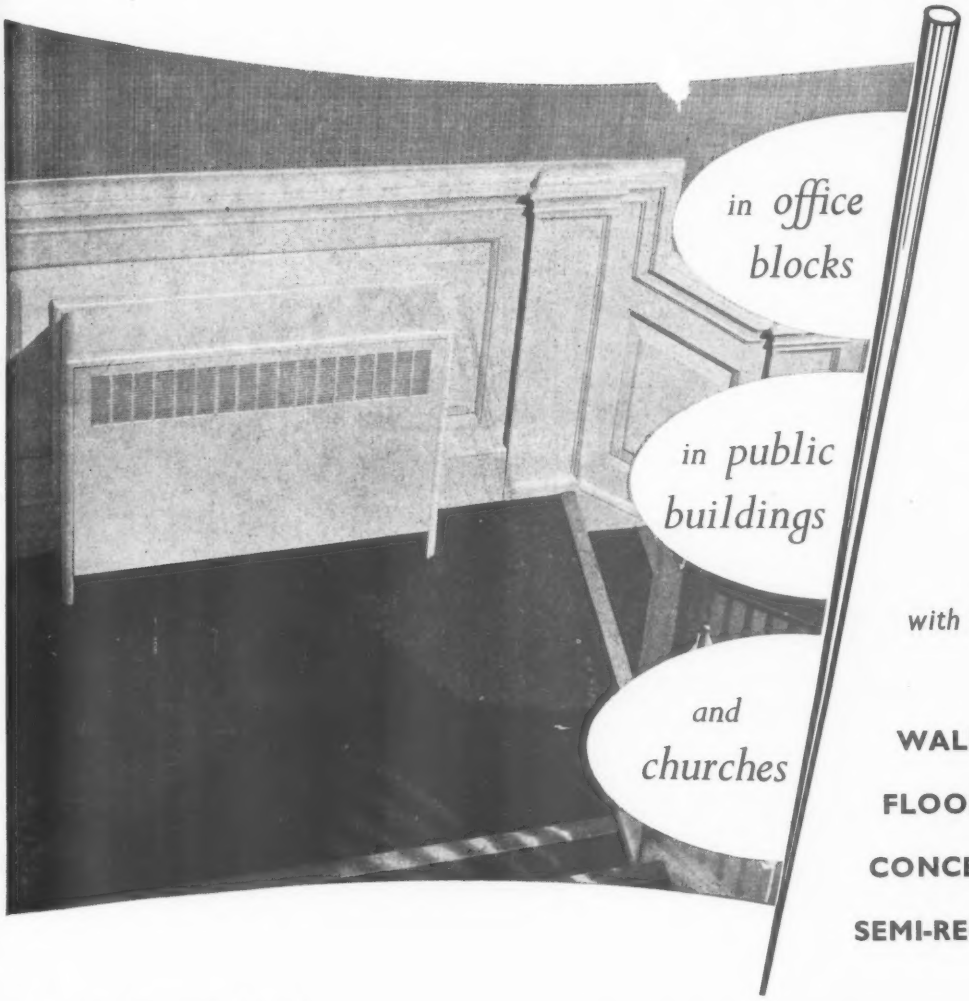
The final date for the receipt of designs is December 15, 1958, for competitors residing in Uruguay, Argentina, Brazil and Paraguay, and December 30, 1958, elsewhere. The dates were incorrectly given as 1959 in our issue of September 11.





The two buildings illustrated here were designed by Colakides, Economou and Hadjicostas, of Cyprus. Above, a block of flats with ground floor shops, at Limasol. Left, public baths for the municipality of Famagusta.

Fitting into the scheme of things . . .



with the

WALL TYPE

FLOOR TYPE

CONCEALED or

SEMI-RECESSED

When the planning reaches the heating stage remember Biddle "Vectairs". "Vectair" Convectors are simple to install, will operate from any existing steam or hot water system, and once fitted can be forgotten. They just go on, year after year—providing a clean comfortable atmosphere to live or work in, and the only "maintenance" they ask is an occasional wipe over with a damp cloth. They are as good to look at as they are to use and do credit to any surrounding decor wherever it may be. Of simple but sturdy construction, and made from only the finest basic materials, each "Vectair" contains the famous Biddle heating coil.

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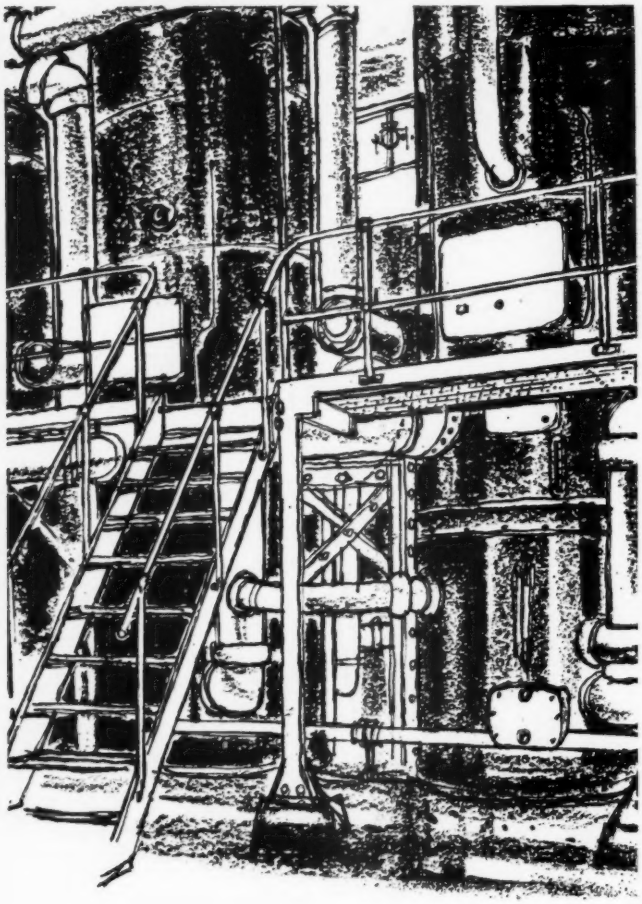
16 UPPER GROSVENOR STREET, LONDON, W. 1.

Telephone: HYDe Park 0532 (9 lines).
Cables: Efbiddle-Audley-London.



stairways, walkways, open-type flooring and platforms by

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Midlands:—39 Holland Street, Sutton Coldfield. Phone: 5354
North:—81 Medlock Street, Liverpool 4. Phone Bootle 1737

DHB/6692

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.

AIR-MAIL SERVICE available on request:
In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayment should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

Public and Official Announcements

30s. per inch; each additional line, 2s. 6d.

BOROUGH OF SCARBOROUGH
BOROUGH AND WATER ENGINEER'S DEPARTMENT
ARCHITECTURAL ASSISTANT

Applications are invited from appropriately qualified candidates for a post of Architectural Assistant. Salary, Special Scale, £750—£1,030 per annum.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937-1953, and to the passing of a medical examination, and will be terminable by one month's notice on either side. The Council may assist in the provision of housing accommodation.

Applications, in envelopes endorsed "Architectural Assistant," stating age, present and previous appointments, training, qualifications and experience, together with the names of two referees, must be delivered to the undersigned not later than the 22nd November, 1958.

H. V. OVERFIELD,
Borough and Water Engineer.

Town Hall,
Scarborough.
November, 1958. 1961

BERWICKSHIRE COUNTY COUNCIL
ARCHITECTURAL ASSISTANT

required for County Architect's Department. Salary scale A. & P. VI to VII (£880 to £1,085). Placing may be given. Candidates must be registered architects and preferably members of the Royal Institute of British Architects. The post is superannuable. House may be available. Application, stating age, qualifications and experience, and quoting two referees, to be lodged with the County Clerk, County Buildings, Duns, not later than 12th December, 1958. 1978

EBBW VALE URBAN DISTRICT COUNCIL
PROPOSED CIVIC CENTRE

Applications are invited for the undermentioned appointments on the Temporary Staff of the Architect's Department.

(*a*) ASSISTANT ARCHITECT—Grade A.P.T. III (£845—£1,025).

(*b*) ARCHITECTURAL ASSISTANT—Grade A.P.T. II (£725—£845).

Applicants for appointment (*a*) should be A.R.I.B.A. and for appointment (*b*) should have passed Intermediate Examination, R.I.B.A.

The appointments are to be made in connection with the preparation of a scheme for a proposed New Civic Centre.

The appointments will be subject to provisions of Local Government Superannuation Acts, and National Conditions of Service. The successful applicants will be required to pass a medical examination and the appointments will be subject to one month's notice, in writing, on either side.

Applications, stating age, qualifications and experience, together with names of two referees, should be sent to the undersigned not later than Saturday, 22nd November, 1958.

Applicants must state in their applications whether, to their knowledge, they are related to any Member of the Council or Senior Officer under the Council.

Canvassing disqualifies.

HOWARD J. WILLIAMS,
Clerk of the Council.

Council Offices,
The Walk,
Ebbw Vale, Mon. 1955

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

Applications invited from suitably qualified and experienced architects for the post of: CHIEF ASSISTANT ARCHITECT (N.J.C. Scale "A"—£1,185 × £50 (3) × £45 (1)—£1,380 p.a.). Commencing salary within Scale according to experience and qualifications.

The County Borough has an extensive reconstruction and slum clearance programme, and offers varied and interesting work.

Application forms and details from Borough Architect & Planning Officer, Thomas E. North, O.B.E., F.R.I.B.A., Dist.T.P., M.T.P.I., 70, West Ham Lane, E.15 (returnable by 2nd December, 1958). 1995

QUANTITY SURVEYING ASSISTANTS required by AIR MINISTRY in LONDON and PROVINCES. Duties include abstracting and billing, site measurement and preparation of estimates. Commencing salary and grading according to age, qualifications and experience. Salary ranges in London: (*a*) £545 at age 25 rising to £745 for candidates with minimum three years good experience under Quantity Surveyor or Building Contractor; (*b*) £695 at age 26 rising to £870 for candidates with O.N.C. (Building) or (Builders Quantities) or equivalent and good experience under Quantity Surveyor or Building Contractor. Approved full time study will count towards period of experience. Salaries somewhat lower in Provinces. Promotion and pensionable prospects. Five-day week, 3 weeks' leave a year. Appointments carry liability for service anywhere U.K. or overseas. Applicants normally should be natural born British subjects. Write stating age, qualifications and previous appointments including type of work done, to Manager, Professional and Executive Register, Ministry of Labour and National Service, Atlantic House, Farringdon Street, E.C.4, quoting reference PE 105/745. No original testimonials should be sent. Only applicants selected for interview will be advised. 1627

CITY OF SALFORD
CITY ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited for the following new posts:—

(*a*) TWO ASSISTANT ARCHITECTS, at salaries within the Special Grade, £750—£1,050 per annum.

Applicants should hold at least Parts I and II of the R.I.B.A. Final or equivalent and have five years' experience.

(*b*) TWO ARCHITECTURAL ASSISTANTS, at salaries within A.P.T. Grades I/II, £575—£845 per annum.

Applicants must have passed the R.I.B.A. Intermediate examination or equivalent and have some drawing office experience. Facilities for completion of professional training will be given to holders of these posts.

The work of the Department affords experience in a wide variety of municipal engineering and architectural projects carried out for all Committees of the Council.

Housing accommodation will be provided in approved cases.

The appointments will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, and the passing of medical examinations.

Applications, stating age, qualifications and details of experience, together with the names of two referees, should be sent to the City Engineer & Surveyor, Town Hall, Salford, 3, Lancs., to arrive not later than Monday, 1st December, 1958.

R. RIBBLESDALE THORNTON,
Town Clerk.
1982

COUNTY BOROUGH OF ROCHDALE

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT on Grade A.P.T. I (£575—£725)/Special Classes Scale (£750—£1,030) Preference will be given to persons already qualified who will be appointed on Special Classes Scale. Applications, however, will be considered from persons not yet fully qualified.

Applications stating age, qualifications, training, experience and names of two referees to the Borough Surveyor, Town Hall, Rochdale, by 1st December, 1958.

K. B. MOORE,
Town Clerk.
2012

RUTLAND COUNTY COUNCIL
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the appointment of Assistant Architect within the Special Scale of £750—£1,030 per annum according to qualifications and experience.

The department is engaged on building programme of new schools and extensions of existing schools and the post offers opportunity of responsibility and interesting work. Housing accommodation is available if required.

The post is subject to the Local Government Superannuation Act, 1937-1953 and the National Scheme of Conditions of Service.

Applications giving full particulars of age, qualifications, and experience, with names of two referees, should be sent to T. Brian Kennedy, A.R.I.B.A., M.T.P.I., County Architect and Planning Officer, County Offices, Oakham, not later than 1st December, 1958.

A. BOND,
Clerk of the County Council.

County Offices,
Oakham, Rutland. 2011

THE ROYAL COLLEGE OF SCIENCE AND TECHNOLOGY GLASGOW
(Affiliated to the University of Glasgow)
CHAIR OF ARCHITECTURE AND HEADSHIP OF THE GLASGOW SCHOOL OF ARCHITECTURE

The Governors invite applications for the Chair of Architecture, the occupant of which is also Head of the Glasgow School of Architecture. The Chair will become vacant on 1st September, 1959. The salary is on a scale £2,400 × £100—£2,700. Further particulars of the appointment may be obtained from the Secretary, Royal College of Science and Technology, Glasgow, C.1. 2014

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTURAL ASSISTANTS, starting salary up to £860. Full and interesting programmes 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.E.1. (2168.) 1949

KENT COUNTY COUNCIL invites applications for the superannuable appointment of PRINCIPAL DIVISIONAL PLANNING OFFICER within the salary scale £1,405—£1,735 a year, commencing salary according to qualifications and experience. The successful candidate will rank third in the PLANNING DEPARTMENT and will be in charge of the staff responsible to the County Planning Officer for all matters involving civic and landscape design, including the redevelopment of central urban areas.

Candidates must be corporate members of the Town Planning Institute and of either the Royal Institute of British Architects or the Institute of Landscape Architects. Extensive experience of civic or landscape design, particularly with a local planning authority or a new town corporation, will be an advantage. Some administrative ability is called for.

Applications together with the names of two referees must reach the County Planning Officer, County Hall, Maidstone, not later than 15th December, 1958. 2013

UNIVERSITY COLLEGE OF NORTH STAFFORDSHIRE

Applications are invited for two posts of SENIOR ASSISTANT ARCHITECT on staff of Architect & Buildings Officer. Applicants should have particular experience in design, be school trained with at least 5 years' practical experience and possess requisite qualifications. Posts are included in College Superannuation scheme. Scale £1,025 × £50—£1,175 p.a. Duties will include work on Students' residential halls and give scope for imaginative and contemporary design. Further particulars may be obtained from Architects & Buildings Officer. The College, Keele, Staffs, to whom 3 copies of application giving details of age, qualifications, experience, etc., and names of 3 referees, should be sent within 10 days of publication of this advertisement. 2016

CITY OF BIRMINGHAM PUBLIC WORKS DEPARTMENT

Applications are invited for the post of CHIEF ASSISTANT, Redevelopment Section.

Candidates must be Corporate Members of the Town Planning Institute and a second appropriate qualification would be an advantage. They should preferably have experience in comprehensive development.

Salary grade A.P.T. V (£1,175—£1,325 per annum).

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 December 13, 1958.

Canvassing disqualifies.

HERBERT J. MANZONI,
City Engineer and Surveyor.

Civic Centre,
Birmingham, 1. 2015

KUMASI COLLEGE OF TECHNOLOGY
SCHOOL OF ARCHITECTURE
TOWN PLANNING AND BUILDING
(*Principal:* W. E. DUNCANSON, Ph.D., D.Sc., F.Inst.P., A.M.I.E.E.)

Applications are invited for the post of LECTURER/STUDIO MASTER in ARCHITECTURE.

Applicants will be required to teach Architectural subjects for the R.I.B.A. examinations and in particular interior decoration including the use of colour and model making.

Applicants should be Associates of the Royal Institute of British Architects, but consideration will also be given to applicants with an A.R.C.A. or A.T.D. or other similar graduate qualifications.

Appointment may be accepted on contract for five years or on pension or arrangements to continue policies initiated under the F.S.S.U. Scheme might be made by the College.

The contract salary scale attached to the post is £1,230 × £60—£1,950 per annum (for an A.R.I.B.A. qualification) or £1,017 10s. × £55—£1,787 10s per annum (for other graduate qualification), plus a gratuity payable at the end of the contract at the rate of £12 10s. for each month of satisfactory service.

The pensionable and F.S.S.U. salary scale for any graduate qualification is £925 × £50—£1,625 per annum.

Point of entry to the salary scale is related to previous experience.

Children's allowances are paid up to a maximum of three at the rate of £50 per annum per child up to the age of 10 years and £100 per annum per child over 10 years of age in full time education up to a maximum of 21 years.

Conditions of service include annual leave with free return first class passages for the member of staff and, conditional on a minimum stay in West Africa, for his wife and up to three children under 17 years. Bungalows with basic furniture at low rental are provided. Income tax is low.

Applications (6 copies) should be submitted to the Council for Overseas Colleges, 12 Lincoln's Inn Fields, London, W.C.2, giving age, education, qualifications, experience and names of three referees. Closing date 11th December, 1958.

Applicants resident outside Europe should apply direct to Kumasi College of Technology, Kumasi, Ghana, in which case the closing date will be three weeks later than that given above. 2019

COUNTY BOROUGH OF NORTHAMPTON
ARCHITECTURAL ASSISTANT
A.P.T. I (£575—£725)
Applications are invited for this post. Full details and application form, returnable by 1st December, from Borough Architect, Guildhall, Northampton.
C. E. VIVIAN ROWE,
Town Clerk.
2030

BIRMINGHAM REGIONAL HOSPITAL BOARD
(*a*) ARCHITECTURAL ASSISTANT required, £525 × £20 (4) × £30 (1) × £25 (5)—£730. Point of entry according to experience. Intermediate R.I.B.A. essential. Superannuable.
(*b*) TEMPORARY ARCHITECTURAL ASSISTANT required (approximately 18 months). Conditions as in (*a*).
Apply naming two referees to Secretary, Regional Hospital Board, 10, Augustus Road, Edgbaston, Birmingham, 15, by 8th December.
2029

GOVERNMENT OF NORTHERN IRELAND
ASSISTANT QUANTITY SURVEYOR
Applications invited from Associates of the Royal Institution of Chartered Surveyors (Quantities) for pensionable post in the Chief Quantity Surveyor's Branch, Ministry of Finance. Experience in "taking off" for large building works essential. Salary scale £780 (age 25)—£1,055 (age 34 or over)—£1,215. Preference for ex-Servicemen. Application forms, obtainable from Secretary, Civil Service Commission, Stormont, Belfast, to be completed and returned by 16th December, 1958.
2026

MIDLANDS ELECTRICITY BOARD
ARCHITECTURAL DRAUGHTSMAN required on the Chief Engineer's staff at Board Headquarters.
Duties will involve (under supervision) site surveys, preparation of site layouts, sketch plans, detail and working drawings for office blocks, stores, workshops, garages, substations and Service Centre buildings. Intermediate R.I.B.A. an advantage.
Salary £760—£860 per annum (N.J.B. Schedule "D" Grade 5). Superannuable.
Apply, by letter, within fourteen days, stating age, experience, present salary and position, to The Secretary (Ref. FWC), Midlands Electricity Board, Mucklow Hill, Halesowen, Nr. Birmingham.
A. STEPHENS,
Secretary.
2028

COUNTY BOROUGH OF DONCASTER
Applications are invited for a post of TEMPORARY ASSISTANT ARCHITECT in the Borough Architect's Department. Salary in accordance with the Special Grade (£750—£1,030 by £40 increments).
Applicants must be Associates of the R.I.B.A. and have had good experience in design and working drawings.
The appointment will be subject to one month's notice on either side and to the terms of the Local Government Superannuation Acts 1937 to 1953. The successful applicant will be required to pass a medical examination.
Application forms may be obtained from the Borough Architect, L. J. Tucker, Esq., A.R.I.B.A., F.I.Hsg., 15 South Parade, Doncaster, to whom they must be returned by 10 a.m. on Monday, 1st December, 1958.
H. R. WORMALD,
Town Clerk.
1, Priory Place,
Doncaster.
10th November, 1958.
2018

METROPOLITAN BOROUGH OF FULHAM
ASSISTANT ARCHITECT
Borough Architect's and Housing Department: A.P.T.II £725/£845 plus London weighting £20/£30 p.a. according to age. R.I.B.A. Intermediate. The work is primarily concerned with schemes of multi-storey dwellings. Application forms from Town Clerk, Town Hall, S.W.6. Closing date 25th November.
2069

COUNTY COUNCIL OF ESSEX
ARCHITECTS INTERESTED IN DESIGN and building of Colleges, Schools, Health Centres and other public buildings are needed in the offices of the Architect, Essex County Council. Opportunities for recent graduates or those now completing fifth year who would like varied work of public importance 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 5th December, 1958.
2064

CHISLEHURST & SIDCUP URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT
Architectural Assistant required in Engineer & Surveyor's Department. Salary grade A.P.T. II (£725—£845 per annum) plus London weighting. Preference to candidates with R.I.B.A. (Inter) examination.
Applications, giving age, training, qualifications and experience, and names of two referees, to the Clerk, Council Offices, Sidcup Place, Sidcup, by 5th December.
2070

NEWCASTLE REGIONAL HOSPITAL BOARD
REGIONAL ARCHITECT'S DEPARTMENT
Applications are invited for the following permanent (superannuable) posts on the staff of the Regional Architect.
In addition to its normal building programme the Department is concerned with the planning and execution of a number of major hospital projects and the posts offer ample opportunity for gaining all-round general as well as hospital experience, and for doing good-class work in an expanding department.
(i) ASSISTANT ARCHITECT.
Salary—£700 × £25(3) × £30(1) × £35(6)—£1,015.
Applicants for this post should be registered architects and should have had practical experience of the planning and construction of public buildings. In this case the commencing salary will be fixed within the Grade by reference to relevant experience and to age.
(ii) SURVEYING ASSISTANT (Lands and Buildings). Salary—£525 (at age 21 or over) × £20(4) × £25(5)—£730
Applicants for this post should have passed the Intermediate Examination of the Royal Institution of Chartered Surveyors, or an examination recognised by the Institution as equivalent, and should be experienced in surveying sites and buildings. The successful applicant will be required to assist with the making of a survey of all hospital sites and buildings in the Region and the preparing of record plans.
The commencing salary within the grade will depend upon the applicant's age and the amount of practical experience.
Applications, stating age, qualification, past and present appointments, present salary and details of experience and training, together with the names of three referees (of whom at least two should be architects) should be forwarded to the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6, not later than 4th December, 1958.
2066

LEEDS REGIONAL HOSPITAL BOARD
Applications are invited for the following appointments:—
(*a*) ASSISTANT ARCHITECTS (3 posts). Salary scale £700/£1,015 per annum. Commencing salary dependent upon relevant practical experience, but the additional increments granted will not be more than the number of years by which the officer's age exceeds 23.
Applicants must be Associate Members of the R.I.B.A. The above appointments offer excellent opportunities to young Architects to gain experience of a wide range of new buildings such as:—Nurses' Homes, Houses, Flats, Kitchens, Laundries and Boiler Houses.
The Service is an expanding one and many new Hospital Projects are to be built in the future.
(*b*) ARCHITECTURAL ASSISTANT. Salary Scale £525/£730 per annum.
Applicants must have passed the Intermediate Examination of the R.I.B.A., and have had a sound architectural training and some practical experience in a practising architect's office is essential.
Applications, giving age, experience and the names of two referees, to the Secretary, Park Parade, Harrogate, by not later than 6th December, 1958.
2065

CITY AND ROYAL BURGH OF DUNFERMLINE
DEPARTMENT OF BURGH ARCHITECT AND TOWN PLANNING OFFICER
Applications are invited for the post of ARCHITECTURAL ASSISTANT Grade A.P. IV-V (£700—£830) with placing according to experience. Applicants should be Intermediate R.I.B.A. or equal and should have had experience in Local Authority work.
Applications stating age, experience, qualifications and present appointment, together with copies of two recent testimonials should be lodged with Leonard Howarth, Burgh Architect and Town Planning Officer, 6, Abbot Street, Dunfermline, within ten days of this advertisement.
Applicants must disclose in writing whether to their knowledge they are related to any member or senior officer of the Town Council, and canvassing either directly or indirectly will be a disqualification.
J. DOUGLAS,
Town Clerk.
City Chambers,
Dunfermline.
2061

SURREY COUNTY COUNCIL
Applications invited for appointment of ASSISTANT ARCHITECT Special Grade, £750—£1,030 p.a. plus £30 p.a. London Allowance. Must be A.R.I.B.A.
Full details, present salary and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible.
2044

THE CORPORATION OF GLASGOW
ARCHITECTURAL AND PLANNING DEPARTMENT
ASSISTANT ARCHITECTS
Vacancies for young architects capable of developing schemes of comprehensive redevelopment. These positions will provide interesting opportunities for the use of modern techniques in relation to multi-storey housing and associated developments. Salary scale £820—£1,240 per annum with placing according to age, qualifications and experience. Form of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.
A. G. JURY,
City Architect and Planning Officer.
2048

HORNCHURCH URBAN DISTRICT COUNCIL
CLERK OF WORKS (BUILDING)
Applications are invited from suitably qualified persons for the above temporary appointment. Applicants must have had considerable experience in the supervision of housing construction, have a sound knowledge of all the trades in connection therewith, including the setting out and measurement of all works on the site, and the keeping of the necessary records.
The salary to be paid is within the range of the Miscellaneous Division Grade VI, £685—£745, and in addition, an amount equivalent to London weighting will be paid.
The post is subject to the appropriate N.J.C. Conditions of Service, the normal hours worked in the Building Trade, a medical examination and termination of one month's notice on either side.
Applications, on the forms provided by the undersigned, stating age, qualifications, experience and the names of two referees, to be returned not later than Saturday, 29th November, 1958.
P. L. COX,
Clerk of the Council.
Council Offices,
Billet Lane,
Hornchurch.
2043

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
A few vacancies exist for unqualified ARCHITECTURAL ASSISTANTS with office experience to help in new building Divisions (Schools, General and Housing). Preference to candidates proposing to qualify by evening study. Full programme offers valuable experience and opportunities for merit promotion. Starting salaries according to age and experience.
Form and particulars from Hubert Bennett, F.R.I.B.A., Architect to Council (EK/55/58), County Hall, S.E.1, returnable by 29 November. (2240)
2046

COUNTY BOROUGH OF WEST HAM
BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT
Applications invited for permanent post of ARCHITECTURAL ASSISTANT (A.P.T. Grade I —£575 × £30—£725 p.a. and London Allowance).
Applicants should have passed the R.I.B.A. Intermediate Examination.
Starting point in Grade according to qualification and experience.
Application form and details from Borough Architect & Planning Officer, 70, West Ham Lane, Stratford, E.15, returnable by 9th December, 1958.
2055

WEST HAM GROUP HOSPITAL MANAGEMENT COMMITTEE
STRATFORD, E.15
BUILDING SUPERVISOR to be responsible for Building and Maintenance work by direct labour and contract at the various units in the Group. Candidates should be capable of estimating and preparing specifications and schedules on which tenders can be invited. They must have served a full apprenticeship followed by experience as a craftsman in an appropriate trade and have had some years experience as a general foreman in carrying out building contracts. They should have a knowledge of quantities and specifications and must be used to controlling staff, supervising work and certifying accounts. Ordinary National Certificate in Building, or comparable qualification is desirable. Salary scale £720 × £25 (4) × £30 (1) to £859 plus London weighting, subject to Superannuation deductions. Apply with full particulars and names of two referees to the Group Secretary by 25th November, 1958.
2045

DEVON COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT
Applications are invited from suitably qualified persons for the post of:—
ASSISTANT COUNTY PLANNING OFFICER, Grade "B" (£1,330 × £55—£1,440).
In approved cases loans for house purchase and removal expenses are available, also lodging allowance of 50s. per week for married officers whilst seeking accommodation.
Further details and application forms returnable by 25th November, 1958, from: County Planning Officer, "Bellair," Topsham Road, Exeter.
2042

DERBYSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
QUANTITY SURVEYORS. Vacancies exist for:
(*a*) SENIOR ASSISTANT QUANTITY SURVEYORS, £1,075 to £1,175 per annum.
(*b*) ASSISTANT QUANTITY SURVEYORS, £950 to £1,025 per annum.
All applicants must be fully qualified, preferably being Associates of the Royal Institution of Chartered Surveyors.
National Joint Council Conditions of Service. Pensionable posts. Canvassing disqualifies. Application forms (state clearly for which post) from the County Architect, County Offices, Matlock, to whom they should be returned by Monday, 15th December, 1958.
2041

CITY OF NOTTINGHAM
CITY ENGINEER'S DEPARTMENT
ASSISTANT ARCHITECTS, GRADE A.P.T. IV (£1,025—£1,175)
Applications are invited for the above positions in the City Engineer's Department, Nottingham.
Applicants should be Associate Members of the R.I.B.A., capable of taking charge of the design and construction of individual projects and should have had at least five years' office experience.
Commencing salary will depend upon qualifications and experience. Forms of application are to be obtained from R. M. Finch, Esq., O.B.E., M.I.C.E., City Engineer and Surveyor, Guildhall, Nottingham, and are to be returned not later than 10th December, 1958.
2040

BOROUGH OF LEYTON
BOROUGH ENGINEER'S DEPARTMENT
ARCHITECTURAL SECTION

ASSISTANT ARCHITECT. Salary within Special Grade £780—£1,060 per annum inclusive of London Weighting.

ARCHITECTURAL ASSISTANTS. Salary within Grade A.P.T. I, £575—£725 per annum plus London weighting.

Housing accommodation available.

BUILDING INSPECTION SECTION

ASSISTANT BUILDING INSPECTOR. Salary within Grade A.P.T. II, £725—£845 per annum plus London weighting.

Applications to Borough Engineer, Town Hall, Leyton, E.10, stating appointment and names of two referees, not later than 8th December, 1958.

D. J. OSBORNE,
Town Clerk.

Town Hall,
Leyton, E.10. 2039

COUNTY BOROUGH OF BARROW-IN-FURNESS
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
ARCHITECTS

Applications are invited from qualified Architects with suitable experience for the posts of:—

(*a*) CHIEF ASSISTANT ARCHITECT, Grade 5, £1,175—£1,325 p.a.

(*b*) SENIOR ARCHITECT, Grade 4, £1,025—£1,175 p.a.

In both cases the commencing salary will be fixed within the grade.

Housing accommodation may be provided if required

The Department works a five-day week.

Full details of the posts, conditions of appointment and application forms may be obtained from the Borough Engineer and Surveyor to whom completed forms must be returned not later than Monday, 1st December, 1958.

LAWRENCE ALLEN,
Town Clerk.

Town Hall,
Barrow-in-Furness. 2036

AIR MINISTRY WORKS Design Branch requires in LONDON and PROVINCES ARCHITECTURAL ASSISTANTS experienced in planning/preparation of working drawings and details for permanent and semi-permanent buildings. Salaries in LONDON up to £1,015 for men and £925 p.a. for women. Somewhat lower in PROVINCES. Starting pay dependent on age, qualifications and experience. Long-term possibilities with promotion and pensionable prospects. Five-day week, 3 weeks 3 days leave a year. Liability for overseas service. Normally natural born British subjects. Write stating age, qualifications, employment details including type of work done to any Employment Exchange quoting Order No. Borough 100. 2033

Tenders Invited

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

METROPOLITAN BOROUGH OF STEPNEY
SIDNEY STREET HOUSING SCHEME

Tenders are invited for the erection of two 3-storey blocks (10 and 14 dwellings) and one 6-storey block (26 dwellings).

Forms of tender, with conditions, etc., obtainable from Messrs. Sydney Clough, Son & Partners, 39, Devonshire Street, W.1, upon payment of a deposit of ten guineas.

Closing date for tenders—10th December, 1958.

WILFRED REEVE.
Town Clerk.
2017

Architectural Appointments Vacant

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

FIRST CLASS SENIOR ASSISTANT required. Must have good office experience in London. Very interesting work. Five-day week. Morris de Metz, F.R.I.B.A., 2, Ludgate Hill, London, E.C.4. Telephone CITy 4086. 1656

ASSISTANT required in busy West End practice, about 25 years of age and R.I.B.A. Intermediate standard. Good opportunities for taking responsibility. Please write giving details of experience, and salary required. Box 1868.

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. 1830

ARCHITECT'S ASSISTANT required for the London Office of a firm of Architects with interests throughout the country; must be of Intermediate R.I.B.A. or R.I.C.S. standard. Superannuation scheme. Apply to: Cotton, Ballard & Blow, 5, Baker Street, London, W.1. WELbeck 3364. 1903

ARCHITECTURAL ASSISTANT at about Intermediate standard required for private practice. Good salary according to ability. Write for full particulars to Thompson & Chipperfield, 1, Woburn Street, Ampthill, Bedford. 1909

QUALIFIED Architect, aged about 30, required as CHIEF ASSISTANT for Country Practice. Reply, giving age, details of experience and salary required to Box 1933.

INTERMEDIATE ASSISTANT with office experience required London Office, varied work. Preference given to applicants actively studying for Final. Study time allowed by arrangement. Box 1825.

ASSISTANT required. Intermediate standard. Congenial work and real experience. Ivor Warner, 57, Shelton Street, Covent Garden, W.C.2. Covent Garden 1377. 1885

GOLLINS, MELVIN, WARD & PARTNERS have vacancies for JUNIOR and INTERMEDIATE STAFF. Five-day week, quarterly bonuses, pension scheme. Telephone WEL. 9991 for appointment. 1896

GOLLINS, MELVIN, WARD & PARTNERS have vacancies for school trained ASSISTANTS interested in the design of University and Hospital buildings. Five-day week, quarterly bonuses, pension scheme. Tel. WEL. 9991 for appointment. 1895

ARCHITECTURAL ASSISTANT, Intermediate A.R.I.B.A., required by a large Birmingham firm for work on interesting contemporary multi-store projects in Birmingham. Preferably capable of working with minimum supervision. Five-day week. Telephone Edgbaston 4571, or write J. Seymour Harris & Partners, 3-4, Greenfield Crescent, Five Ways, Birmingham, 15. 1876

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. 1874

SENIOR ASSISTANT ARCHITECT required for busy office in large South-Coast town. The post calls for a man in the 30/40 age group, having ability and experience necessary to take charge of a fair size drawing office and to deputize for the local Partner. Previous experience in schools and commercial work essential. Excellent prospects exist for the right man. Applications giving fullest possible particulars to Box 1964.

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have a vacancy for a JUNIOR and SENIOR ASSISTANT. Write stating age, salary and experience to the above at 3, Park Square Mews, Upper Harley Street, N.W.1. 1948

SENIOR and JUNIOR ASSISTANTS required for busy office in the North East. Ability and a sense of responsibility are the essential qualities. Good starting salaries are offered and progress will depend on performance. Pension Scheme and Bonus Scheme are both operated. Box 1962.

ARCHITECTURAL ASSISTANT required for a progressive practice. Intermediate to Final standard. Interesting work including industrial, commercial and domestic schemes covering the West Country. Contemporary outlook essential. Kindly write, giving full details of qualifications, training, experience, etc., to Edward Narracott & Partner, F/A.R.I.B.A., 48, Torwood Street, Torquay. 1994

EXPERIENCED ARCHITECTURAL ASSISTANT required with good knowledge of office administration and working drawings. Minimum standard, Intermediate R.I.B.A. Varied work in connection with company expansion. Some travelling involved with prospects of early promotion for suitable man. Canteen, social club, pension scheme. Write, giving concise details of age, experience, education, qualification, salary required, to: Personnel Manager, Schweppes, Limited, 1/6, Connaught Place, London, W.2. 1988

DONALD ROWSWELL requires capable Intermediate ASSISTANT, with minimum seven years' office experience, for small expanding practice in Croydon. Apply stating salary required, to 5A Friends Road, Croydon, or telephone CROydon 4080. 1960

ARCHITECTURAL ASSISTANT, small West End Office, good prospects, must be experienced to at least Intermediate standard. Commencing salary £700—£750 per annum, according to experience. Apply Box 1979.

DEVELOPMENT COMPANY with Head Office in Wembley specialising in Estate Developments, Flats, Houses, and Offices, require senior and junior drawing office assistants, capable of preparing layout plans, working drawings. Experience with prospectives an advantage. Salary by agreement. Write giving full particulars Box 1977.

INTERMEDIATE and Final standard ASSISTANTS required. Minimum two years' office experience. Salary according to ability. Box 2038.

ARCHITECTURAL ASSISTANT, Final standard, required for busy and varied practice including hospital, educational and industrial work. Progressive outlook essential. Salary by arrangement. Parker & Roberts, 47, Silver Street, Lincoln. 1974

CONTEMPORARY office requires enthusiastic ASSISTANTS willing to accept responsibility. Several vacancies are open and applications are welcomed from both qualified and student members. The office is in pleasant out of town surroundings and works a five-day week. Salaries by arrangement. Apply with details to Morrison and Partners, St. Alkmunds House, 103 Belper Road, Derby. 2006

BURLES & NEWTON require ARCHITECTURAL ASSISTANTS in their London and Southend-on-Sea offices. Interesting and varied practice, including churches, schools, housing, etc. Some experience necessary. R.I.B.A. Final standard. Age about 23-30. Reply, giving details of experience and salary required, to 25, Bedford Row, W.C.1, or to Weston Road, Southend-on-Sea. 2046

ASSISTANTS required for Commercial and Industrial work, excellent working conditions, lunch facilities, salary around £1,000. Apply in writing to Alan A. Briggs, F.R.I.B.A., 10, Fleet Street, London, E.C.4. 1987

SENIOR ASSISTANT with experience in private practice required for small London Office. Details of age, experience and salary required to Box 2056.

ASSISTANT required for small office in Westminster engaged on a wide variety of work. Apply in writing to Michael Brashier, 11, Gayfere Street, S.W.1. 2022

LAGOS, NIGERIA.—ASSISTANT ARCHITECT, single, age 25-30, required early 1959, by private firm. Interest in tropical architecture and research essential. Initial contract of 18 months' tour with three months' paid leave. Write stating experience to Box 2021.

ASSISTANT (A.R.I.B.A. or Final standard) needed for work at all stages on industrial, commercial and domestic buildings. Small modern office, 9 a.m.-5 p.m. (five-day week). £600—£700. Apply Watson & Coates, 6, Gray's Inn Square, W.C.1. 2025

ARCHITECTURAL ASSISTANT, must be A.R.I.B.A., preferably 30 to 35 years of age, able to control large contract under direct supervision of Principal; competent detailing and clear, quick draughtsmanship. Salary £1,000—£1,250 per annum, according to experience. Apply Norman Jones, Sons & Rigby, 271, Lord Street, Southport. 2023

GEORGE WIMPEY & CO. LIMITED

THE Architect's Department seek SENIOR and INTERMEDIATE ASSISTANTS with experience and ability to apply their knowledge to new construction techniques covering multi-storey flats, houses, offices and industrial buildings for contracts in the U.K. and Overseas.

Permanent appointments in Head Office, Hammersmith. Five-day week.

Salaries will be commensurate with qualifications and experience, and, subject to satisfactory service, there is a Pension Scheme available.

Applicants should write, giving particulars, to Mr. E. V. Collins, A.R.I.B.A., Chief Architect, 27, Hammersmith Grove, London, W.6. 2031

WESTWOOD SONS & PARTNERS require a JUNIOR ASSISTANT of Intermediate standard, office experience preferred. Salary by arrangement. Opportunity to gain experience in contemporary work. Please apply in writing to 21, Suffolk Street, S.W.1. 2032

SENIOR, INTERMEDIATE and JUNIOR ASSISTANTS required by Guy Morgan & Partners in their London office. Phone Sloane 0624 for appointment. 2035

ARCHITECTS, busy Birmingham office near Five Ways, requires SENIOR ASSISTANT ARCHITECT. Must be experienced and good draughtsman. Interesting and varied work. Salary according to qualifications. Excellent prospects. Please write, stating full details, Box 2037.

FREDERICK GIBBERD'S London office has some interesting jobs and requires ARCHITECTURAL ASSISTANTS with office experience of both Intermediate and Final standard. Salary according to experience. Apply in writing, giving full particulars, to 8, Percy Street, London, W.1. 2009

VACANCIES for ASSISTANTS, Intermediate grade. Telephone Hening & Chitty, MUS. 8577, for appointment. 2010

J. M. AUSTIN-SMITH & PARTNERS, 28, Sackville Street, London, W.1, have a vacancy for a qualified ARCHITECTURAL ASSISTANT with office experience. Opportunities for designing and taking responsibility for running and supervising contracts. Salary according to age and experience but in the region of £850—£900. 2040

ARCHITECTS with offices in Accra, Lagos and Kaduna require QUALIFIED MEN prepared to work hard on varied projects. Single men preferred but not essential. Two years' minimum experience since qualifying desirable. Salaries commensurate with ability and responsibility. Passages paid. Two year tours. Free accommodation and transport. Salary in region of £1,000 basic plus substantial West Africa loading. Must be capable of running office single handed. Position intended to lead to participation and partnership. Interviews in U.K. Box 2047.

ASSISTANT wanted. Inter. standard. 3 or 4 years' office experience. Salary approx. £700. 'Phone Victoria 6100. 2068

ARCHITECT'S ASSISTANT of Intermediate R.I.B.A. standard required for busy Provincial Office. Apply Stevens & Partners, 49, Havelock Road, Hastings. 2052

ARCHITECTURAL ASSISTANT required in established busy office. Interesting and varied practice covering Industrial, Hospital, Domestic and Commercial work. Five-day week. Three weeks annual leave. Apply in writing, stating age, experience, salary required and any other relevant information, to E. William Palmer & Partners, Chartered Architects, 8, The Town, Enfield, Middlesex. 2053

SENIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required to work on Schools, Industrial, Commercial, Office and Church, etc., projects. Please write or telephone: Dawe, Carter & Partners, 33, Clarendon Road, Watford, Herts. Tel.: Watford 27296/7/8. 2054

ARCHITECTURAL ASSISTANT, near Final standard, required for Winchester Office. Previous practical experience essential. Write, stating particulars and salary required, to Box 2027.

ASSISTANT required, not necessarily qualified or qualifying, for varied work offering good prospects for an energetic worker. Details to Naylor, Sale & Widdows, St. Mary's Chambers, St. Mary's Gate, Derby. 2057

ARCHITECTURAL ASSISTANT of Intermediate standard required for varied and interesting work. Good draughtsmanship and design sense essential. Apply Messrs. Morrison Partners & Jefferson, 15, Northumberland Road, Sheffield, 10. 2058

ARCHITECT'S DEPARTMENT of Boots Pure Drug Co. Ltd., Nottingham, need (*a*) ASSISTANT ARCHITECTS; (*b*) ARCHITECTURAL ASSISTANTS. The work is varied and interesting, ranging from large new shops to the extension and alteration of existing ones and industrial buildings of many kinds. The posts, for which qualifications are of less importance than ability, are permanent and pensionable. Five-day week, sports, welfare and canteen facilities. All applicants should write to the Chief Architect, Boots Pure Drug Co. Ltd., Station Street, Nottingham, giving full particulars in this order—name, address, age, whether married or single, present appointment, training, details of experience and salary required. 2060

Architectural Appointments Wanted

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

APPOINTMENT wanted in Hong Kong by ARCHITECT and LANDSCAPE ARCHITECT. One-and-a-half years' full-time and 1½ years' part-time experience in U.K. and U.S.A. Philip Langley, Dip. Arch. (Birm.), M.L.A., A.R.I.B.A., c/o Beetlestone, 209 N. 36th Street, Philadelphia, U.S.A. 2008

SENIOR appointment wanted by A.R.I.B.A., 16 years' wide experience. Good design ability, knowledge of quantities and cost factors. Responsible and used to administration. Preference for commercial/industrial or development post, London area, but all replies acknowledged. Box 2062.

Other Appointments Vacant

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

SURVEYING ASSISTANT required by Developers in Surbiton. Must be quick, accurate Draughtsman, able to prepare working drawings with a minimum of supervision. Write, stating age, experience and salary required, to Box 2034.

ASSISTANT TECHNICAL EDITOR, full time or part time, required by THE ARCHITECTS' JOURNAL. Applicants must have had at least three years' experience in architectural or engineering practice or in building. Applications, stating age, qualifications, present salary and whether full or part-time employment is sought, should reach the Secretary, THE ARCHITECTS' JOURNAL, 9-13, Queen Anne's Gate, S.W.1, by December 8th, 1958. 922

ARCHITECT, ENGINEER, or otherwise technically qualified person required by Concrete Limited to act as full-time TECHNICAL SALES REPRESENTATIVE in the London area. Requirements: ability to discuss with architects and engineers the best use of advertiser's services and products; good education and social background; willingness to work hard and use initiative. Age up to 35. Applications will be strictly confidential. Potential earnings are unusually attractive comprising excellent salary, commission, expenses, car, life insurance and pension and participation in Company's Shareholding Scheme. Applications should give detailed information of education, training, experience, war record, hobbies, etc., to Concrete Limited, 16, Northumberland Avenue, London, W.C.2. Mark envelope "E" in top left corner. 2020

ARCHITECTURAL DRAUGHTSMAN required for Miles Electronics Limited. Write, giving particulars of qualifications and salary required, to Box 2007.

DRAUGHTSMAN (ARCHITECTURAL) required by Wandsworth Borough Council. £535 rising to £775. Commencing salary according to experience. Application forms from Borough Engineer, Municipal Buildings, S.W.18, to be returned by 8th December.—R. H. Jerman, Town Clerk. 2051

HARRODS LTD. has a vacancy in the House Architect's Office for a SHOPFITTING DESIGNER/DRAUGHTSMAN of Intermediate standard. Varied and interesting work. Flair for interior design an asset. Please apply in writing, giving full particulars, to M. Kenfield, Esq., A.R.I.B.A., House Architect, Messrs. Harrods Ltd., 42, Hans Crescent, S.W.1. 2050

Other Appointments Wanted

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

YOUNG Quantity Surveyor (Intermediate) requires position in combined practice as Q.S., but is studying for R.I.B.A. and needs opportunities later to gain experience on architectural side. Box 2059.

Services Offered

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

"DON" ARCHITECTURAL MODEL MAKERS. We offer the highest grade work with speed and reliability.—Please 'Phone Erith 3843 or Hastings 1366. 1673

THE SITE SURVEY COMPANY
Blackheath, S.E.3. Tel.: LEE Green 7444-5
Fully equipped to undertake urgent Engineering and Architectural surveys in any part of the country and abroad. Specialists in ½ in. scale detailed surveys for extensive city development areas. 1890

MODELS FOR ARCHITECTS. Charles Longbotham specialises in this work and offers first class personal service to architects in the London area. Northcroft Studio, Northcroft Road, West Ealing, W.13. Phone Ealing 7349. 1436

INTERNATIONAL FIRM of consulting engineers prepared to enter into competition with developers and architects for development schemes. Box 1894.

NAMEPLATES, PLAQUES, CRESTS, etc., in bronze, brass and plastic: quotations and lay-outs submitted.—Abbey Craftsmen, Ltd., Abbey Works, 109A, Old Street, London, E.C.1. CLE. 3845. 4165

Partnership and Financial

Six lines or under, 15s.; each additional line, 2s. 6d. Box No. including forwarding replies, 2s. extra.

ASSOCIATE (34), married, public school, keen, energetic, conscientious, 5 years' experience in responsible position (2 years as senior assistant and group leader) working with little or no supervision and responsible for £¾m. of building work annually, seeks position as Chief Assistant with good prospects possibly leading to partnership in London or Home Counties. Commencing salary range £1,350—£1,500. Box 1820.

For Sale and Wanted

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

WANTED—Telescopic Levelling Staff. Feet and hundredths. Condition immaterial within reason. EALing 3769 or Box 2063.

Miscellaneous

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

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