

# THE ARCHITECTS' JOURNAL



## standard contents

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

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## CURRENT BUILDINGS

## HOUSING STATISTICS

Architectural Appointments  
Wanted and Vacant

No. 2995]

[Vol. 116

THE ARCHITECTURAL PRESS

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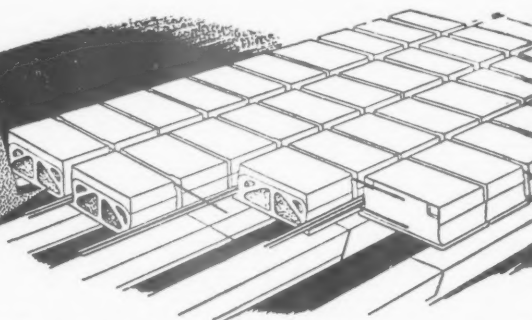
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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to I one week, I to Z the next. In all cases where the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

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 75, Eaton Place, S.W.1.	Sloane 3158/1601
IIBD	Incorporated Institute of British Decorators. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb.	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
IWA	Inland Waterways Association. 11, Gower Street, W.C.1.	Museum 9200
LIDC	Lead Industries Development Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Gontran Goulden, Building Centre, 26, Store Street, W.C.1.	Museum 5400
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Saville Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service, 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 37, Onslow Gardens, S.W.7.	Kensington 8161
NCBMP	National Council of Building Material Producers, 10, Princes Street, S.W.1.	Abbey 5111
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. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 14, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Whitehall 9936
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Edinburgh 20396
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House, 3921
SIA	Structural Insulation Association. 14, Moorgate, London, E.C.2.	Central 4444
SIA	Society of Industrial Artists. 7, Woburn Square, W.C.1.	Langham 1984
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen	Holborn 2646
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Temple Bar 5006
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	City 4771
TDA	Timber Development Association. 21, College Hill, E.C.4.	Victoria 8815
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	City 4444
TTF	Timber Trades Federation. 69, Cannon Street, E.C.4.	Mayfair 8866
WDC	War Damage Commission. Devonshire House, Mayfair Place, Piccadilly, W.1.	Victoria 5783
WEDA	Welfare Equipment Development Association. 74, Victoria St., S.W.1.	Oxford 47988
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	

# fireproof FLOORS

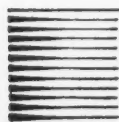


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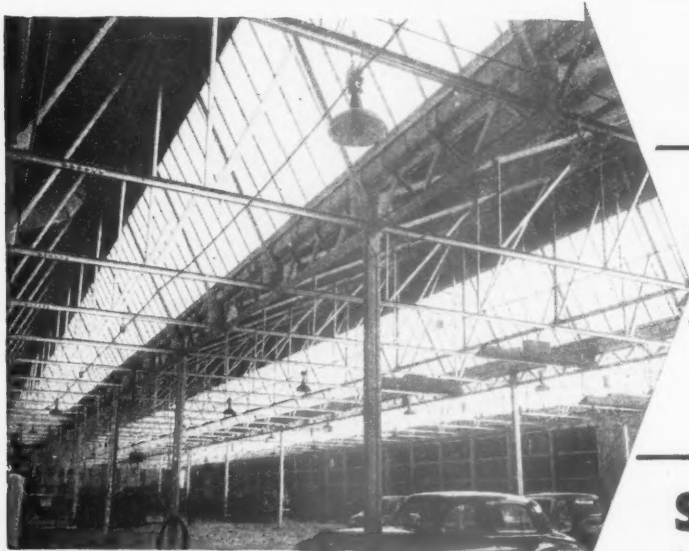


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Phone: Emberbook 3300

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Road, Netherton. 'Phone: Dudley 4315

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New Assembly Plant Buckley Motors Ltd. (Rootes Group) Vehicles Dublin

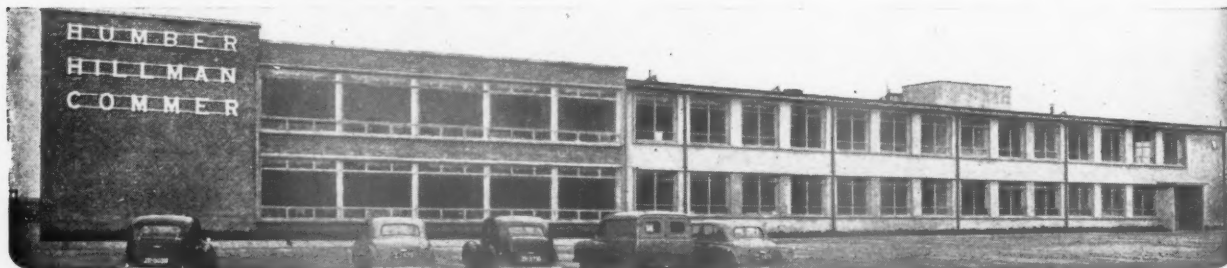
**Building in Ireland**

**structural steelwork**

**steel windows**

**Smith & Pearson**

Smith & Pearson Ltd., Newcomen Works, Dublin





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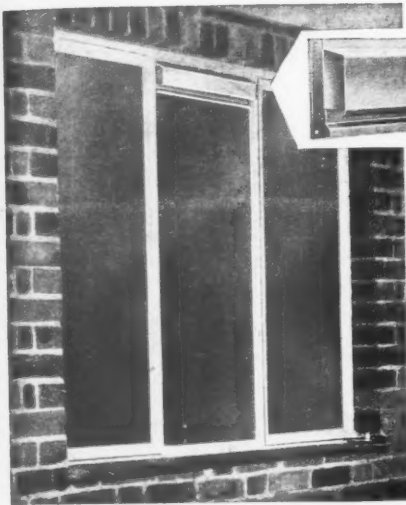
on  
Dublin







# Permanent ventilation with locked window security!

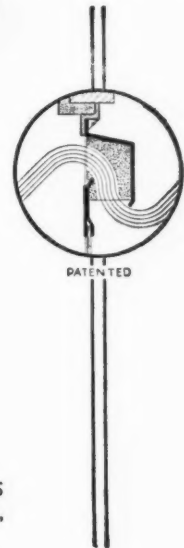


## THE GREENWOOD-AIRVAC "PERMAVENT"

### HORIZONTAL WINDOW VENTILATOR OFFERS THESE UNIQUE FEATURES

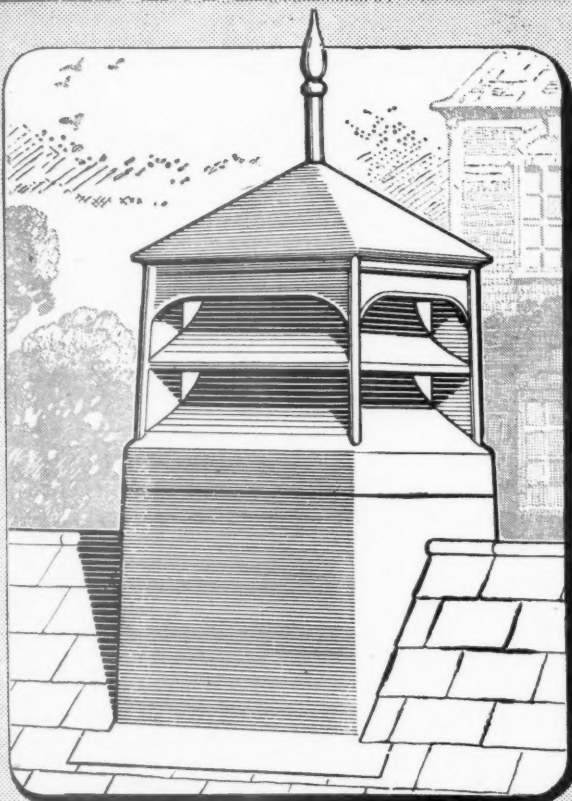
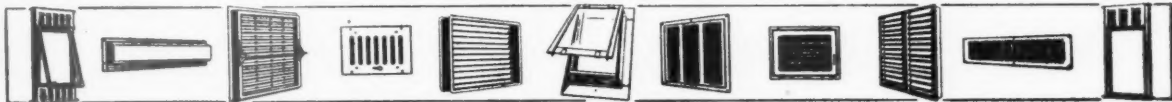
- \* COMPLETELY WEATHERPROOF
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- \* MADE TO FIT ANY SIZE OR TYPE OF WINDOW
- \* CAN BE FITTED TO WOOD OR METAL FRAMES
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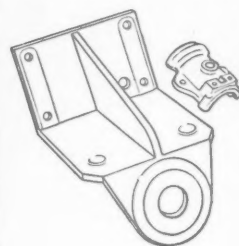
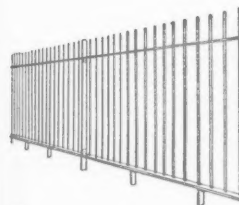
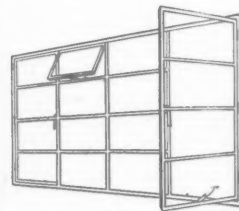
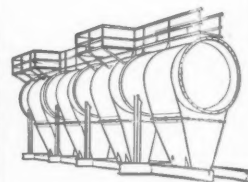
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can be delivered  
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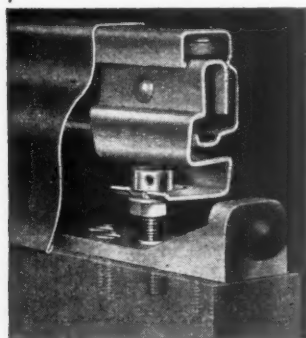
LEAD TECHNICAL INFORMATION BUREAU, 90 EBURY STREET, LONDON, S.W.1

TELEPHONE: SLOANE 0474

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## FOR INTERNAL DOORS

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An exclusive "snap-on" pelmet conceals all fittings and will harmonize with picture rail or panelled effect. ESTATE gear is approved by the L.C.C. and is stocked by hardware firms throughout the British Isles and in many countries overseas.

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ESTATE and RADIAL Sliding Door Gears have recently been supplied to the following: London County Council Flats and Housing Schemes; Peterborough, Sedgfield R.D.C., Rushden U.D.C., Easington R.D.C., Eston U.D.C., Mexborough U.D.C., Corporation Housing Schemes; Canterbury, Sawbridgeworth, Castletown, I.O.M., Housing Estates, Garston-Watford, Kyles Settlement Estate.

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## FLATS

OAKFORD ROAD,  
KENTISH TOWN, LONDON, N.W.5.

for St. Pancras Borough Council.

architects: HUGH ROBERTS and DAVIES, F/A.R.I.B.A.

contractors: HARRY NEAL LTD.



This three storey block of flats takes the place of four terrace houses which were destroyed by enemy action. The walls are of load bearing 13½ and 9-inch cavity brickwork, faced externally with Phorpres Tuscan Facings. Balconies on the west elevation are faced with fluted concrete backed by reinforced brickwork. Access balconies on the east elevation are faced with brick. Internally, brickwork surrounding the staircases has been left fair faced with flush jointing. In addition to 57,500 Phorpres Tuscan Facings, 88,000 'Phorpres' Commons were used on the job.



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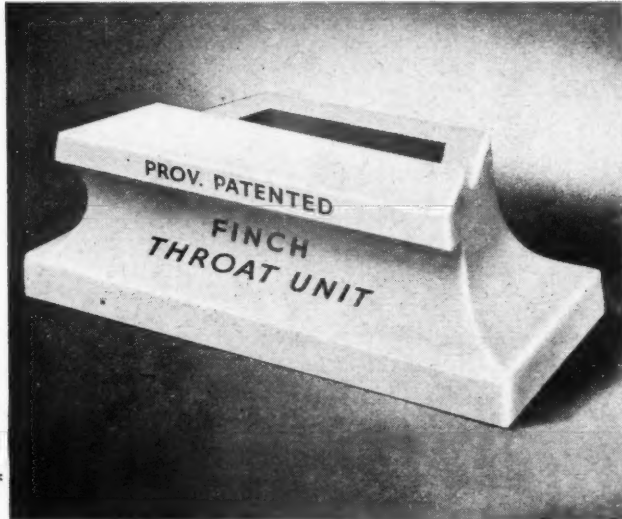


**LONDON BRICK COMPANY LIMITED** Head Office: AFRICA HOUSE, KINGSWAY, LONDON, W.C.2. Telephone: Holborn 8282. Midland District Office: Prudential Buildings, St. Phillip's Place, Birmingham, 3. Telephone: Colmore 4141. South Western District Office: 11 Orchard Street, Bristol, 1. Telephone: Bristol 23004/5. Northern District Office: Gascoigne Street, Boar Lane, Leeds, 1. Telephone: Leeds 20771.

LBC 14

# 17% more room heat retained

by  
**The Finch Throat Unit**



***The principles embodied in the Unit are approved in the Ministry of Works Housing Manual***

Considerable advances have been made in the development of continuous burning fires to maintain room heat with minimum fuel consumption. Parallel with this work the Finch Organisation have made important progress in heat saving by developing their Throat Units. Recent practical tests with the Finch Throat Unit show

a room heat conservation figure of 17% plus, regardless of the type of fire fitted.

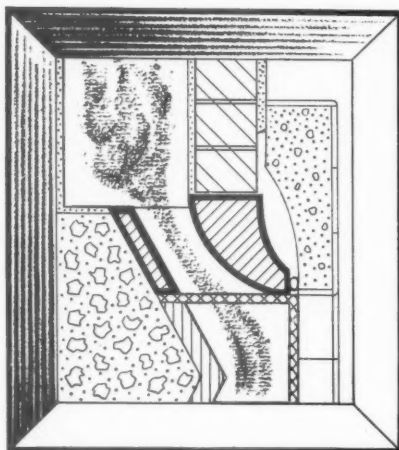
### ***Built-in Fuel Saving***

The Finch Throat Unit is preformed. It can be built into the normal flue without necessitating any special adaptation. It obviates the use of a lintel block and in those cases where continuous burning fires are to be fitted the damage to surrounds due to excessive heat is eliminated.

### ***Versatile Application***

The Finch Throat Unit can be used not only in conjunction with normal open fireplaces, but for a large range of back boiler installations. No adapting is necessary. An important problem confronting many architects and builders today is the one of down-draught. This, invariably, is caused by faults in both throating and flue construction.

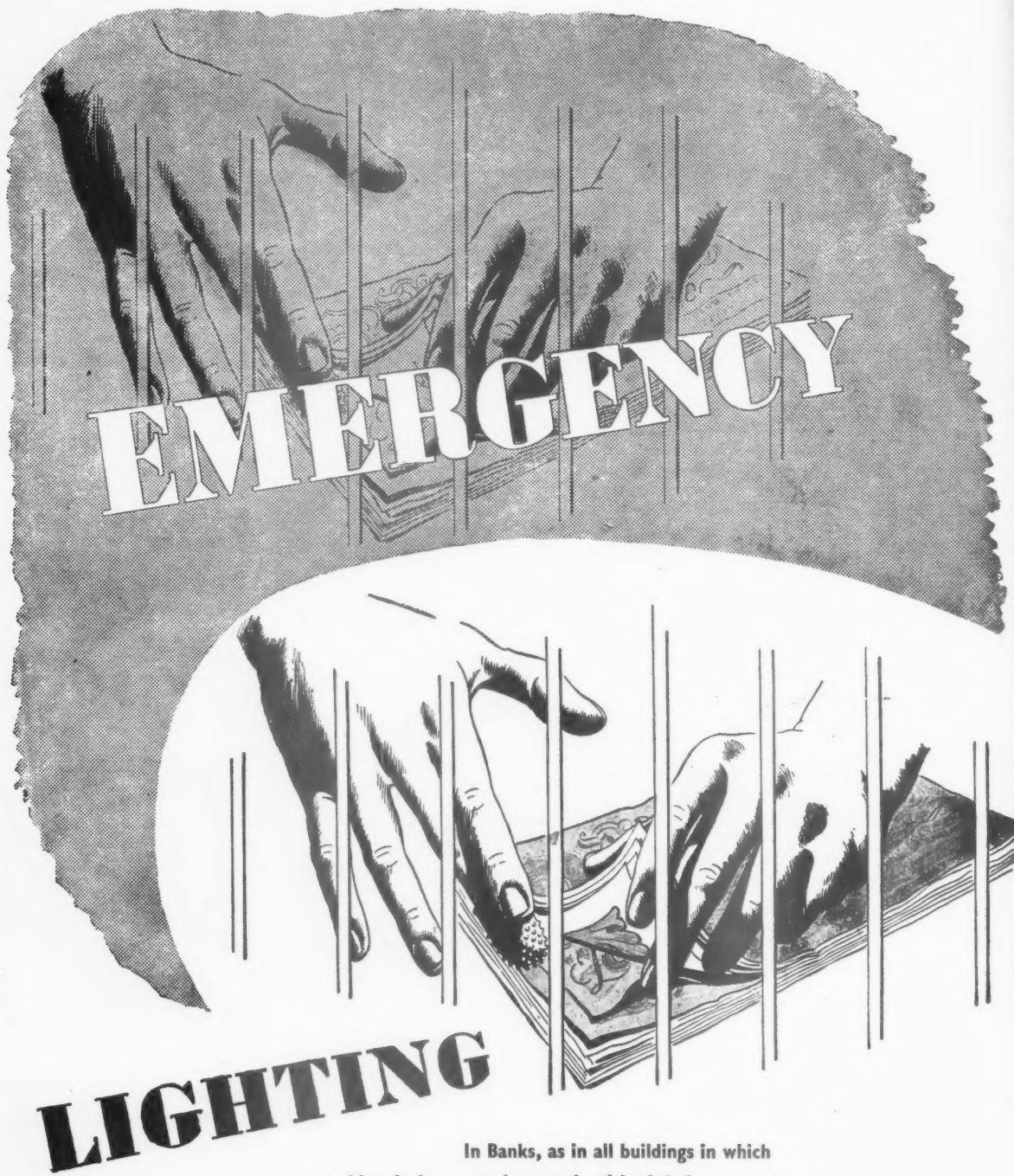
Here the Finch Organisation not only provide the unit, which in itself is a contribution to the solving of the problem, but advise generally on flue design.



### ***New Facts and Findings***

Finch's recently built a number of experimental flues to test the Finch Throat Unit under all conditions. The results of these experiments have enabled them to produce a comprehensive work on flue design, entitled "The Finch Chimney Throat Unit." Copies available, free, on request. B. Finch & Co. Ltd., Belvedere Works, Barkingside, Essex. Telephone: Valentine 8888 (30 lines).





# LIGHTING

In Banks, as in all buildings in which sudden darkness can impose the risk of theft, emergency lighting is a necessary precaution. In bank buildings of the future the installation of the standby system will be planned, as the main lighting is planned, by the architect. Chloride Batteries Ltd., makers of Keepalite, the automatic emergency lighting system, offer the advisory services of their engineers to architects in any part of Great Britain.



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resend Westcourt County Primary (Infants) School. Architects: Pite, Son & Fairweather,  
collaboration with S. H. Loweth, F.S.A., F.R.I.B.A., M.I. Struct. E., County Architect.  
General Contractors: F. Parham, Ltd., Gillingham, Kent. Roofing Contractors: Permanite Ltd.

THE ARCHITECTS' JOURNAL for July 24, 1952



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**INSULATING STRUCTURAL ROOF DECK**

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*A new pamphlet giving full details  
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will be sent on request.*

**High strength to weight ratio**

A roof deck formed of 2" Marlith Units, supported on pressed steel tees, with  $\frac{1}{2}$ " cement sand screed and 2 ply built-up roofing will carry a load of 80 lb. sq. ft. with .05" residual deflection. Weight of deck is 12 lb. sq. ft.

**Thermal Insulation**

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No sub-ceiling required. The soffit of the Marlith Units can be decorated with plastic emulsion coating, paint or distemper to give a pleasing textured appearance. The soffit gives a sound absorption co-efficient of 60% over the middle range of frequencies; also excellent resistance to formation of condensation.

**Easy and Speedy Fixing**

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Marlith Units are non-inflammable and are effectively fire resistant. Dampness will not damage the Units.

**Fungus and Vermin Resistance**

Marlith Units are highly resistant to attack by fungi or dry rot. They do not attract vermin.



Every year the damage caused to buildings by rot and wood destroying insects runs into millions of pounds. Good ventilation, the elimination of damp and the use of well seasoned timber go a long way towards preventing decay, but to be certain of immunity from all forms of attack by insect fungi, specify treatment with Penta.



## *'Penta' for the preservation of building timbers*

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Penta treated wood is clean, unstained, odourless and can be painted or puttied. It requires no special drying. Its natural properties are unchanged.

Penta is the short name of the chemical Pentachlorophenol, Monsanto's Santophen 20.

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**PERMASAN \*** Monsanto's own oil solution of Pentachlorophenol, ready for application.

**SANTOPHEN 20\*** Pentachlorophenol (technical) for solution with oil; chemically stable, involatile, virtually insoluble in water — the cheapest,

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**SANTOBRITE \*** Sodium salt of Pentachlorophenol, water soluble. For sapstain control in newly-converted timber and the treatment of mould growth on walls before re-decoration.

If you would like further information about how to specify Penta for wood for a given use; where to obtain Penta treating solutions; how to treat wood with Penta; write Special Products Department, Monsanto Chemicals Limited.

\*Registered Trade Mark.



Penta is easy to apply.

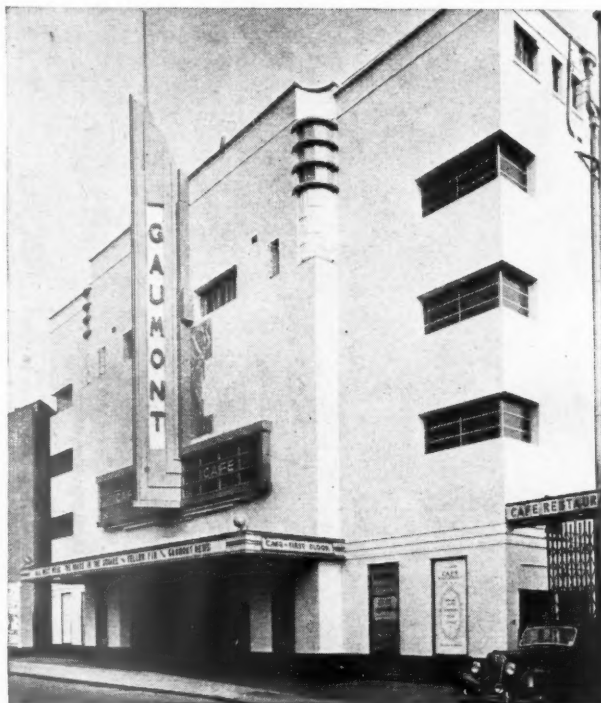
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THE  
GAUMONT CINEMA  
CHELTENHAM

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*What a difference the Roof makes*



*And what a difference when they're*

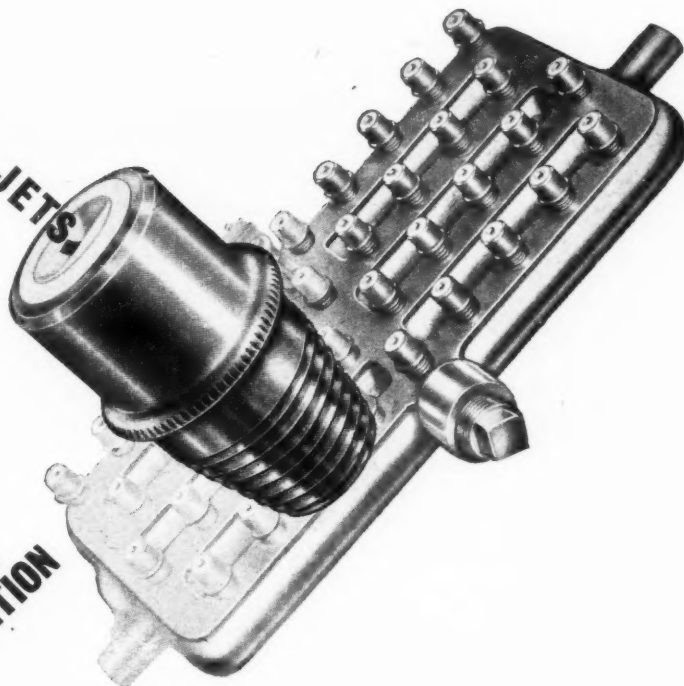
**Clay** ROOFING TILES

"The Clay Tile Bulletin", published quarterly, post free on request.  
■ Issued by The National Federation of Clay Industries, Drayton House, W.C.1

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SELF-CLEARING JETS.

BURNER REQUIRES  
NEXT-TO-NO-ATTENTION



**T**HE cost of maintaining instantaneous Gas Water Heaters is **SUBSTANTIALLY REDUCED** and the User assured of a better hot water service by installing EWART water heaters for the following reasons :—

- **GOVERNOR** A volume governor is provided as an integral part of **ALL MULTIPOINT AND SINK WATER HEATERS**.
- **STEATITE JET BURNERS** The solid cast burner is fitted with Steatite non-corrosive jets.
- **HEAT EXCHANGER** The heating unit has widely spaced flue ways and large water ways, built to withstand full mains pressure.
- **HORIZONTAL PILOT** Reduces blockage and ensures smooth ignition.

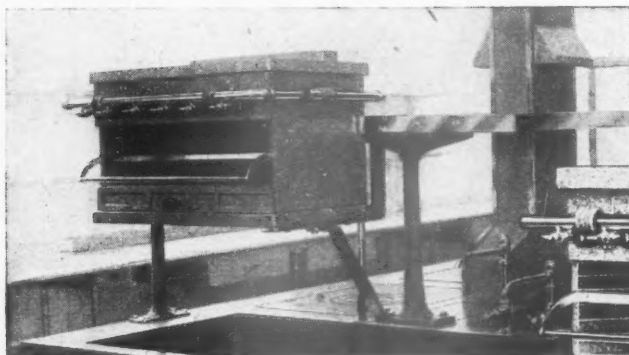
These special features prevent excess gas consumption. They effectively reduce wear of the heating unit and formation of corrosion on the burner and flue ways thereby achieving a substantial saving in maintenance costs and reduction in necessary service calls.

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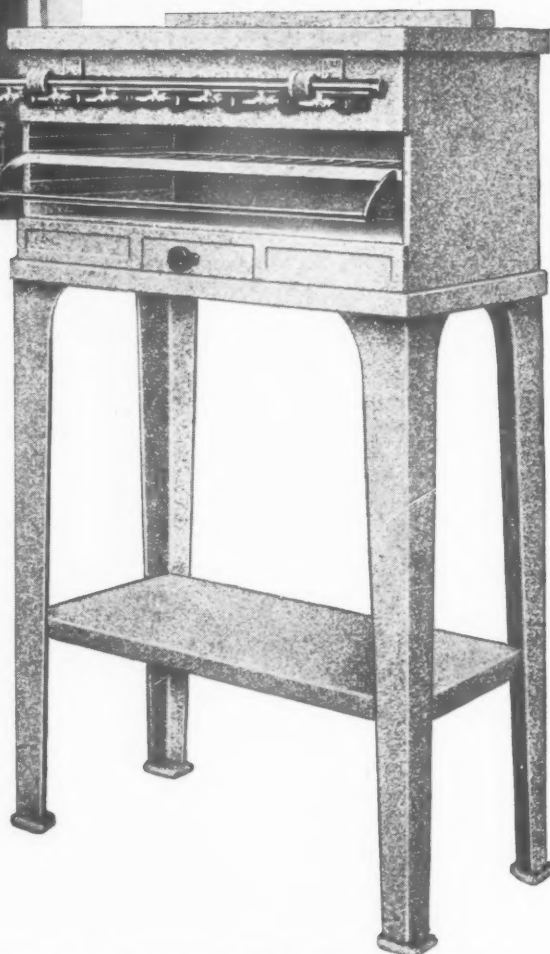
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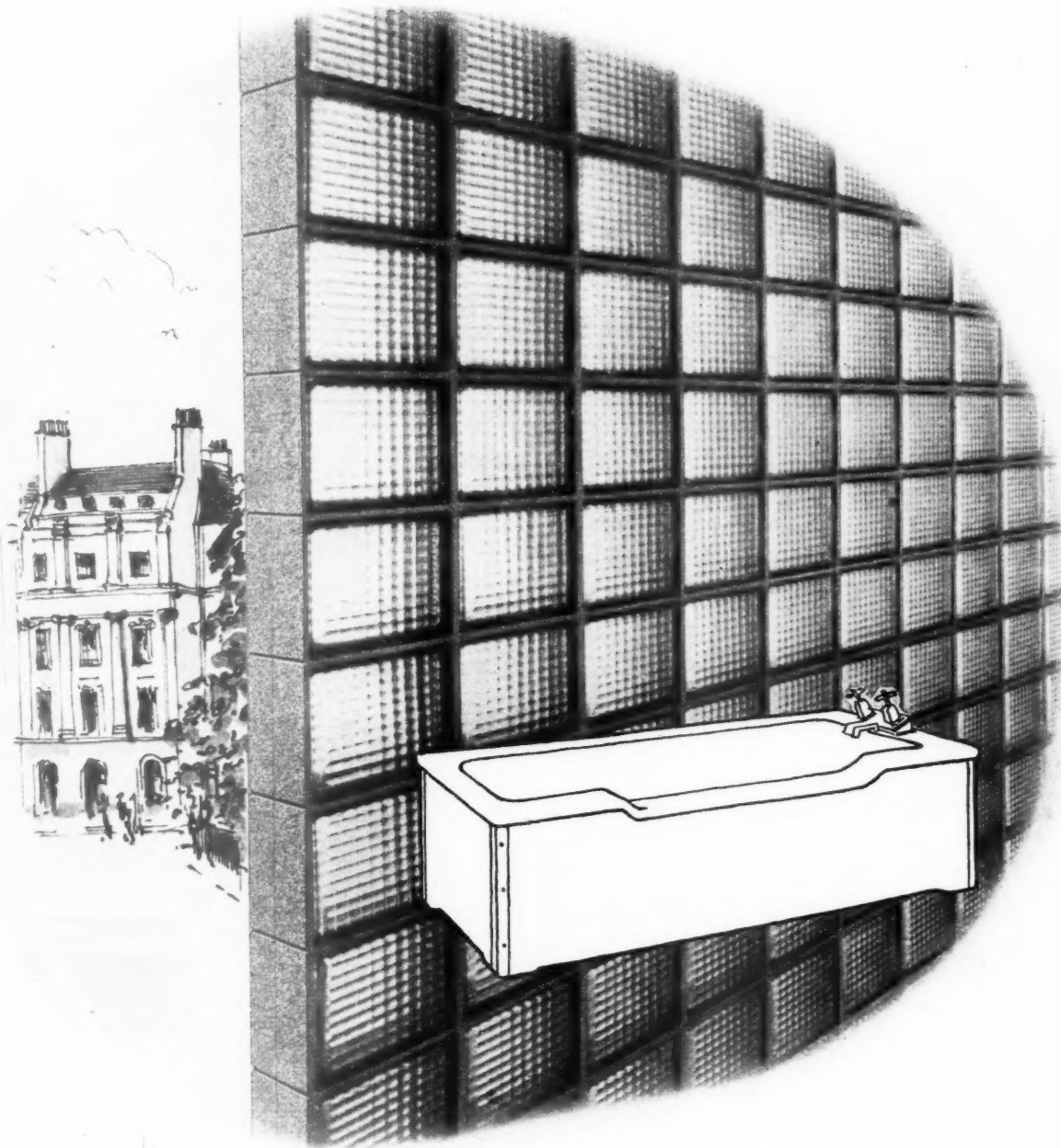
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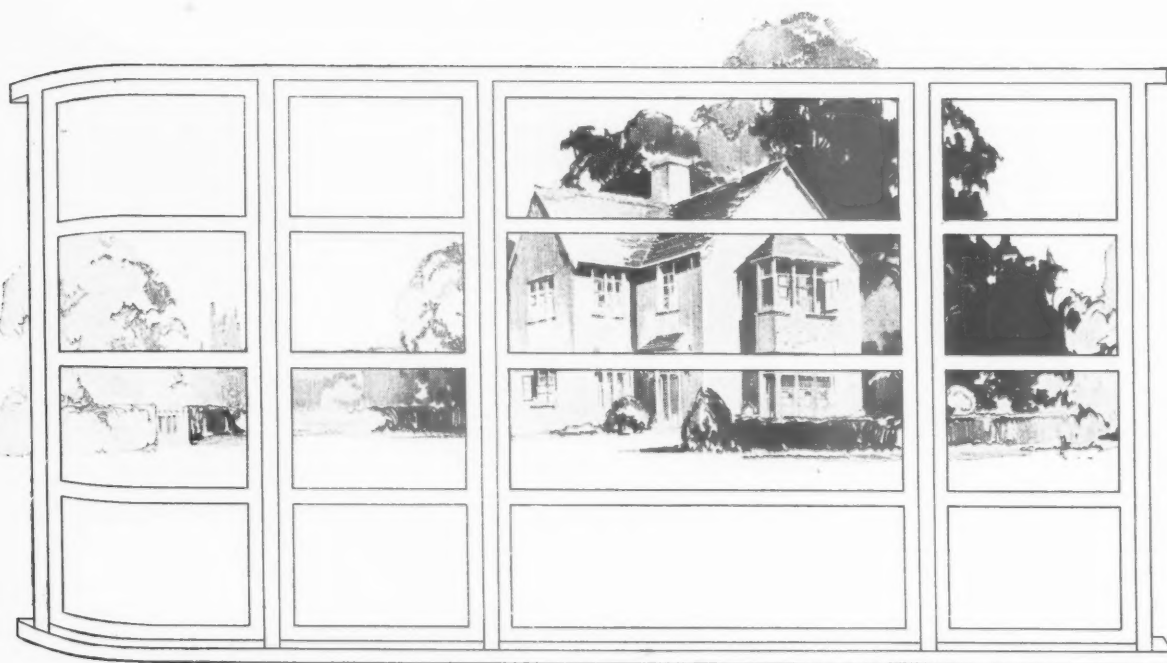
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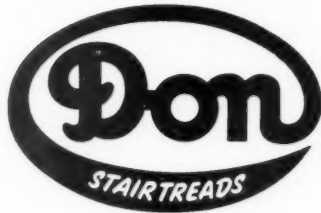
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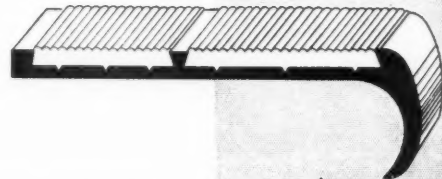
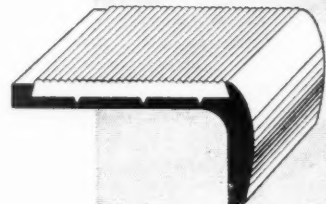
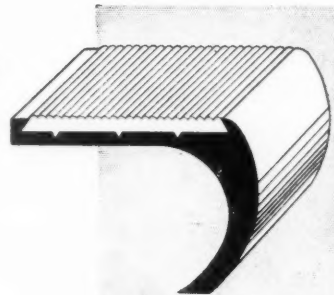
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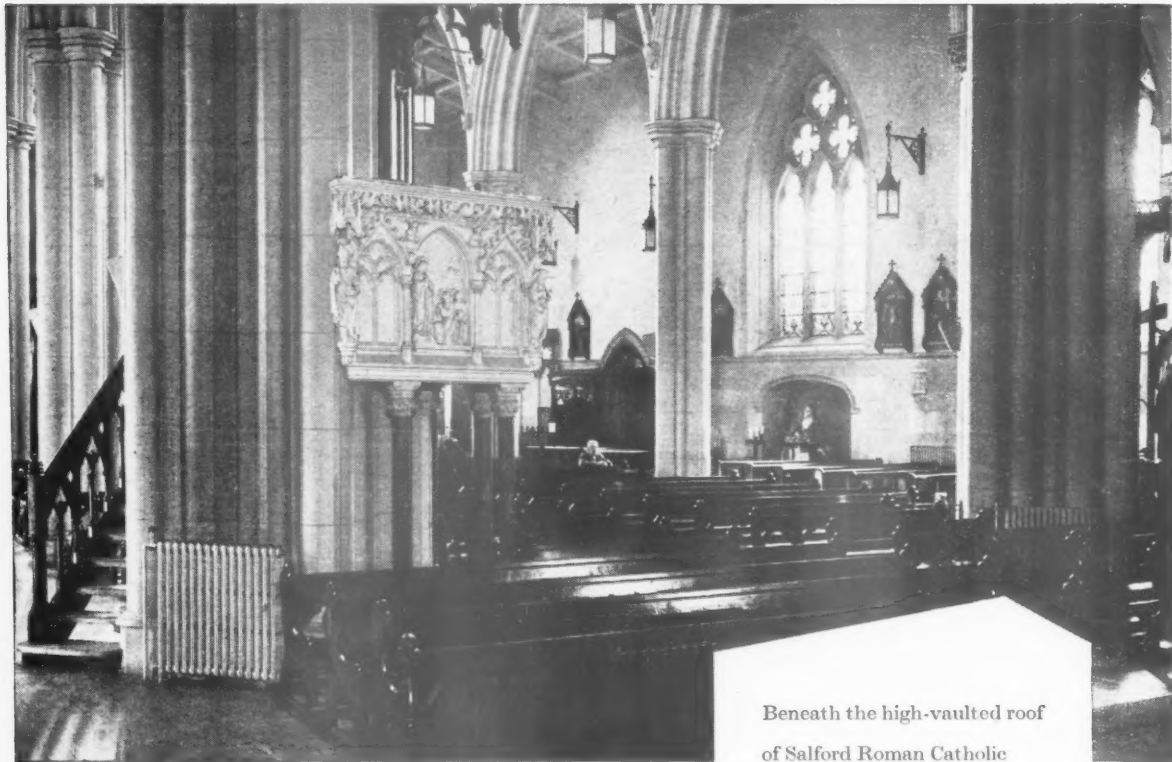
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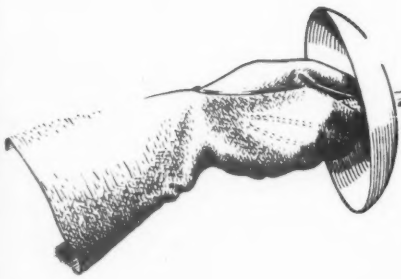
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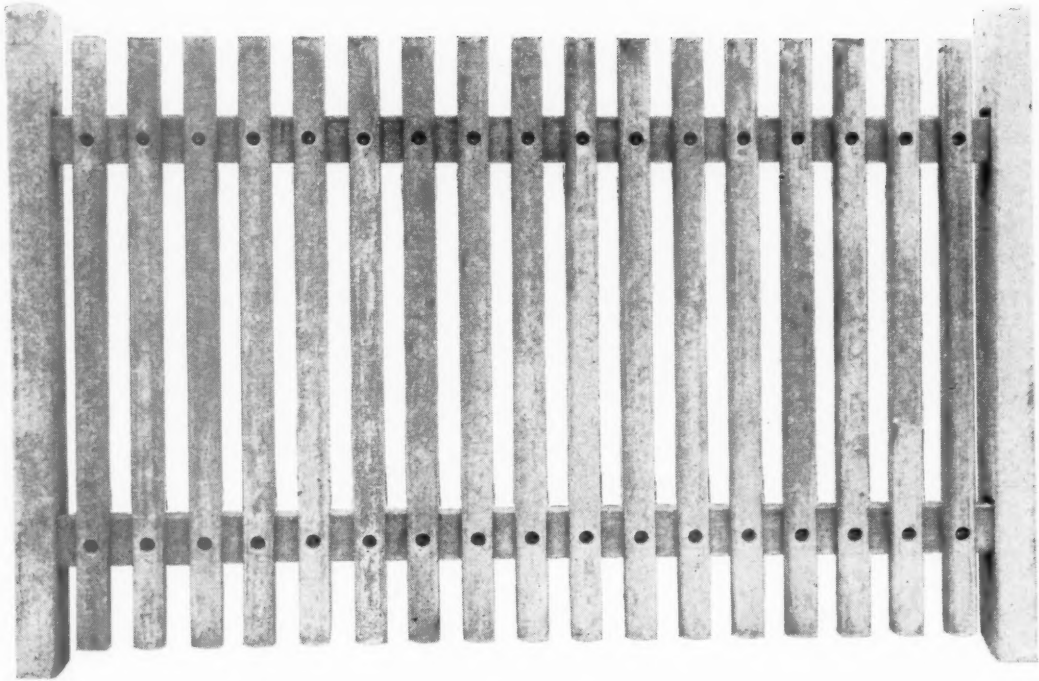
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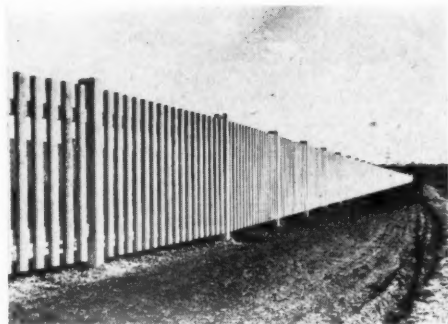
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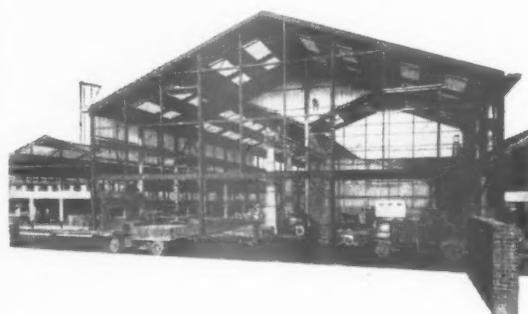
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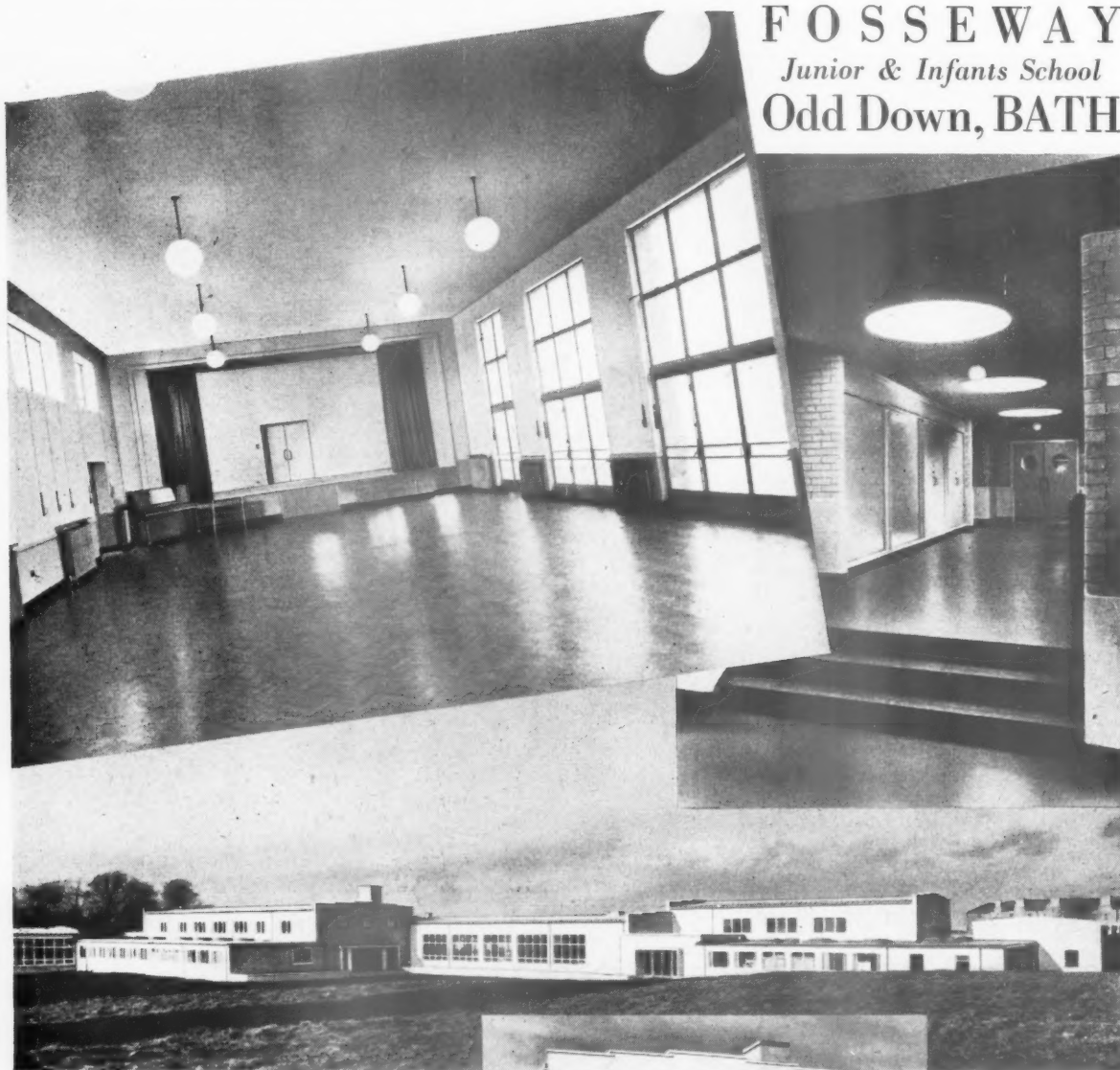
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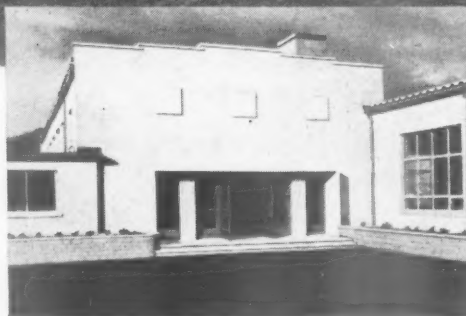
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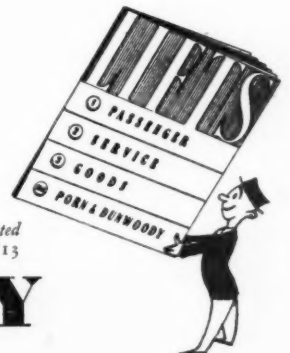




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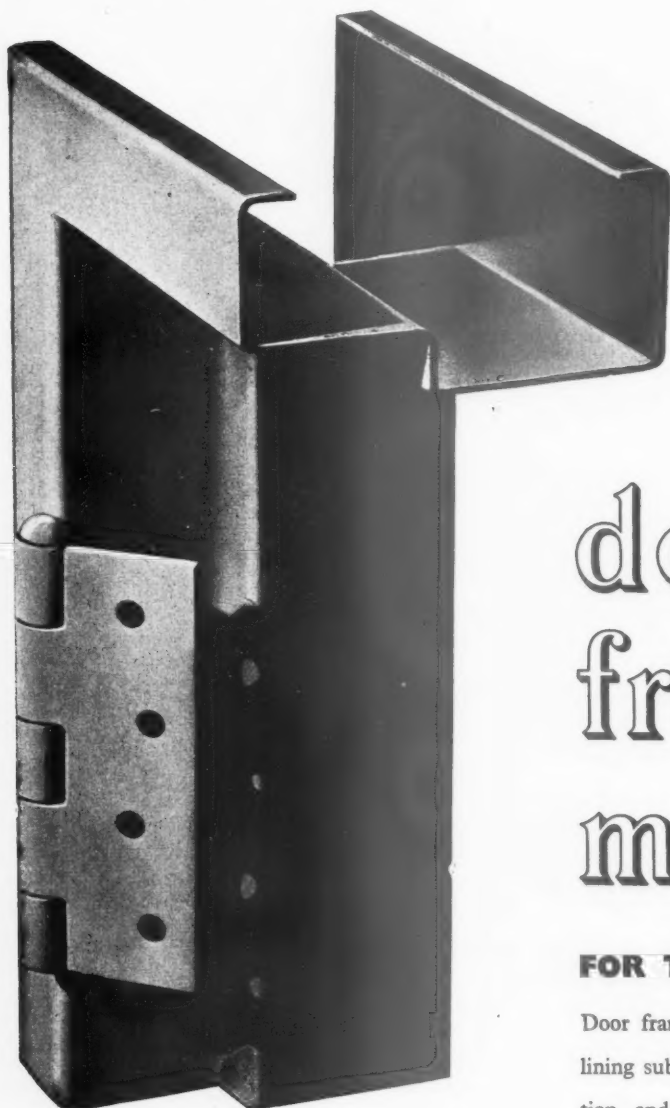


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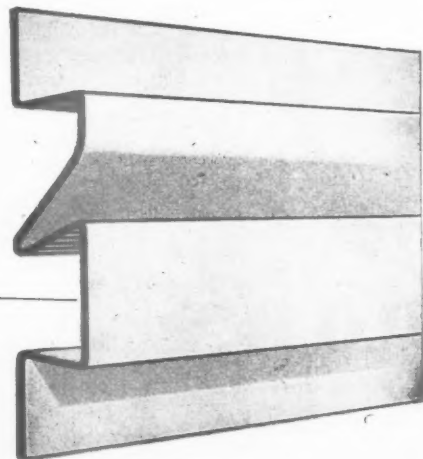
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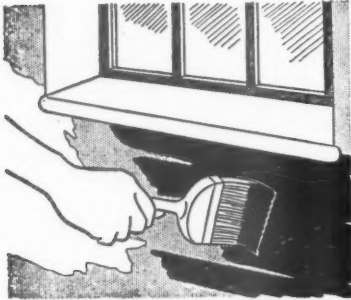
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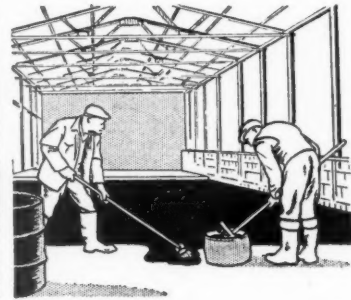
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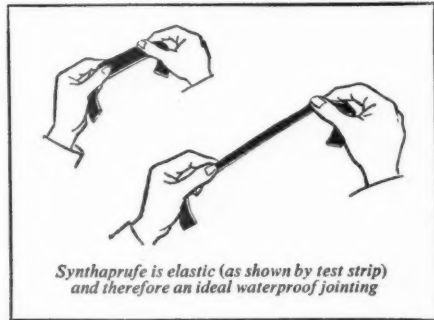


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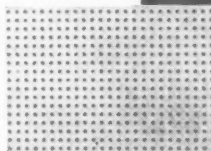
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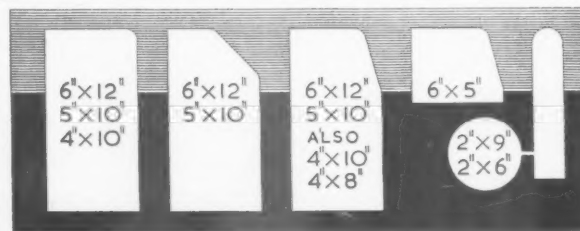
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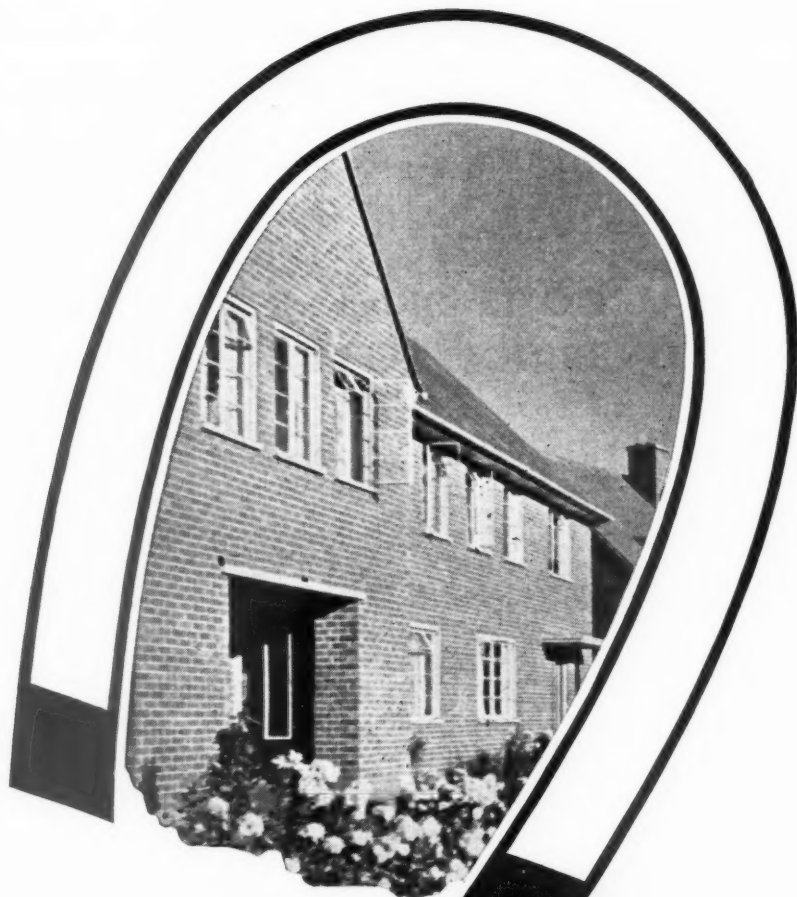
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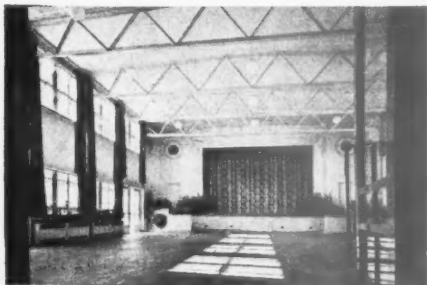
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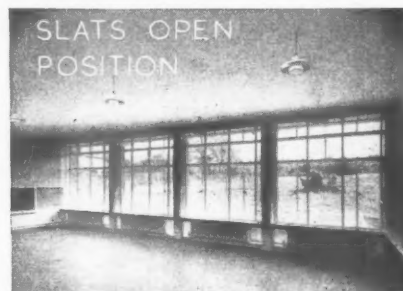
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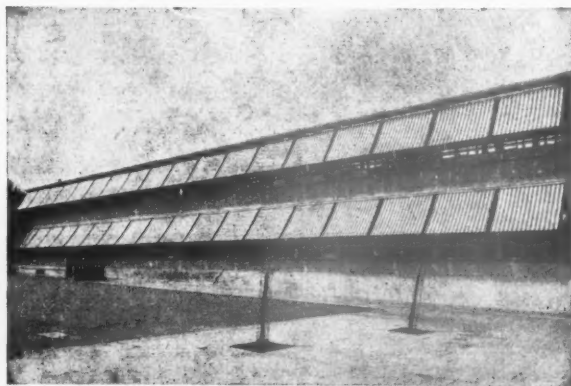
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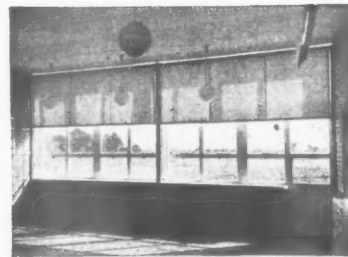
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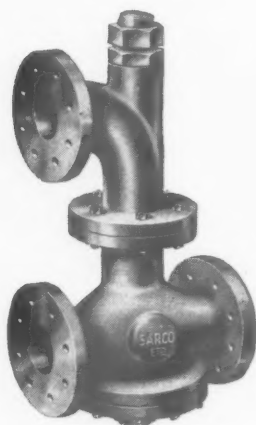
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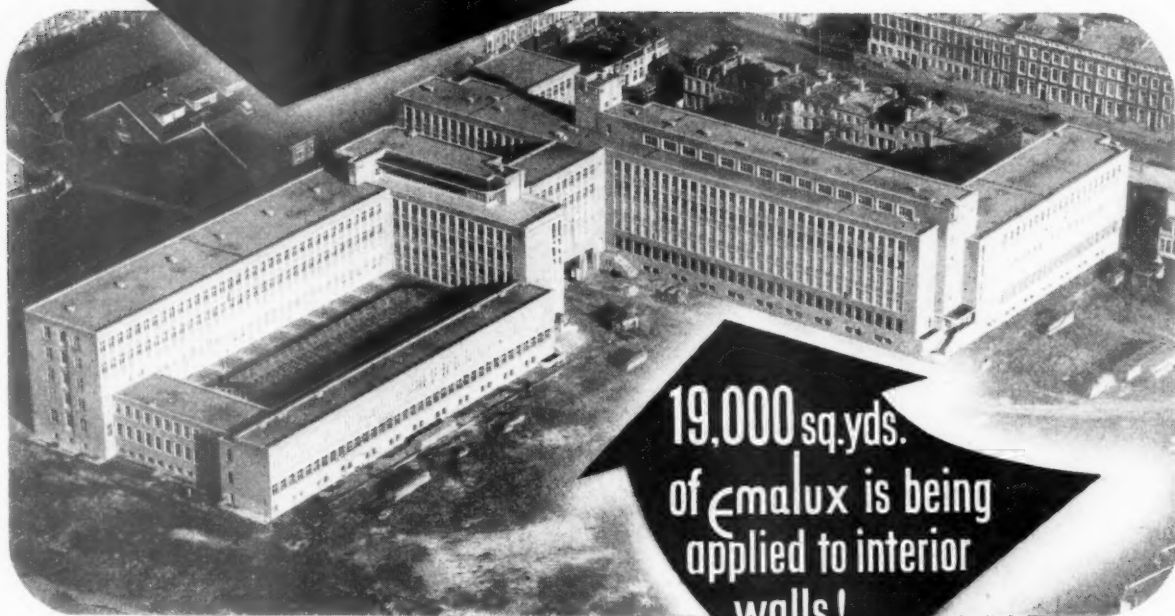
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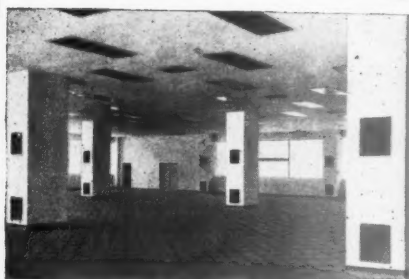
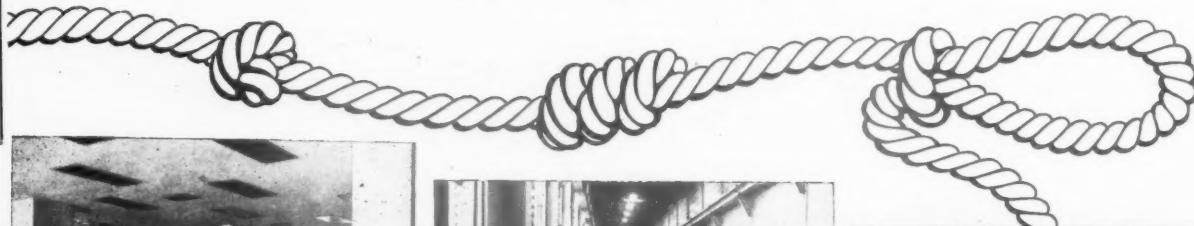
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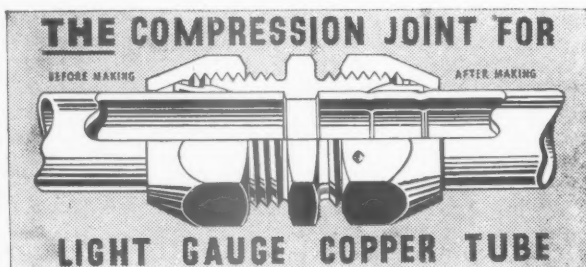
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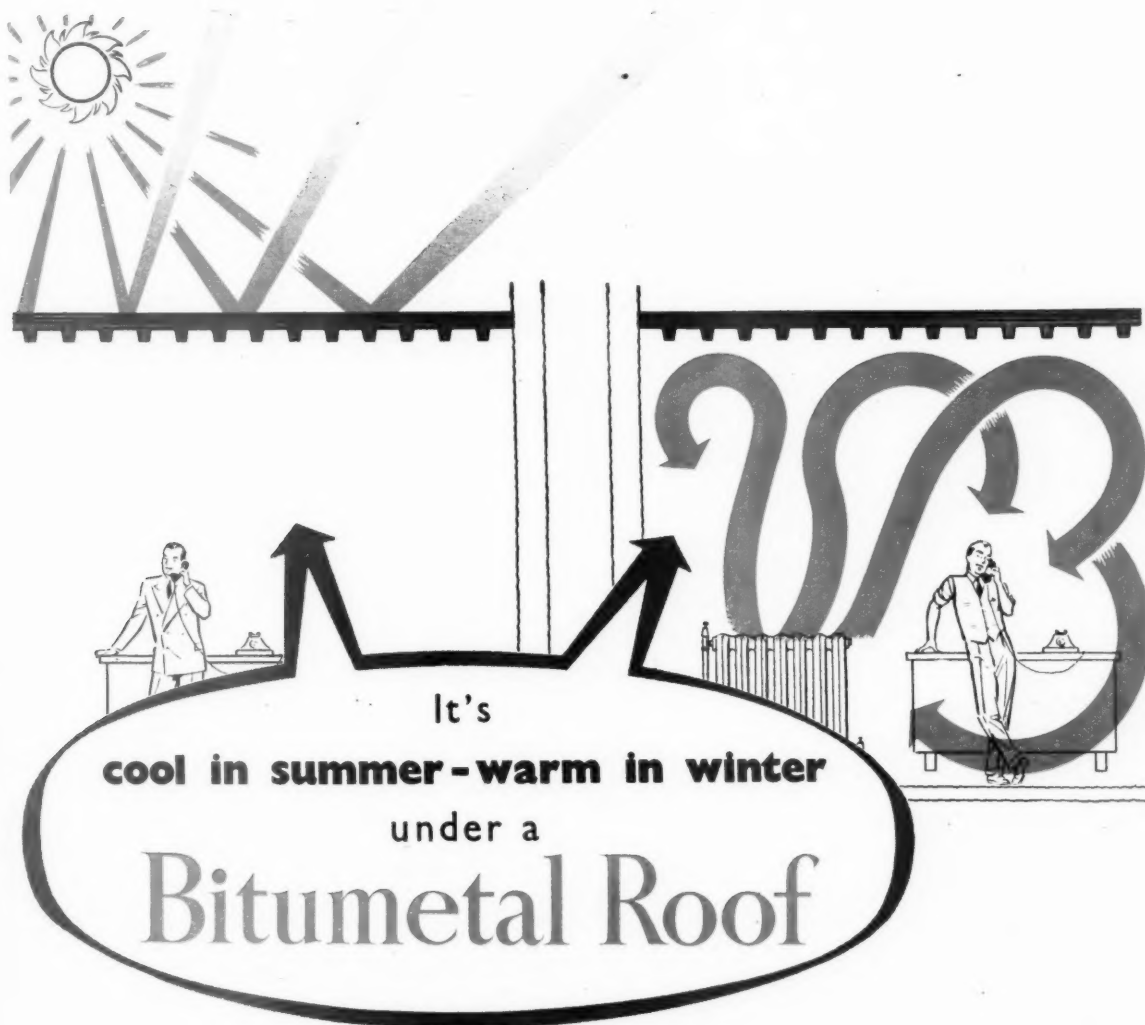
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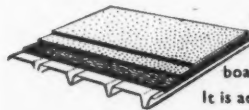
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#### Bitumetal is a roof plus ceiling

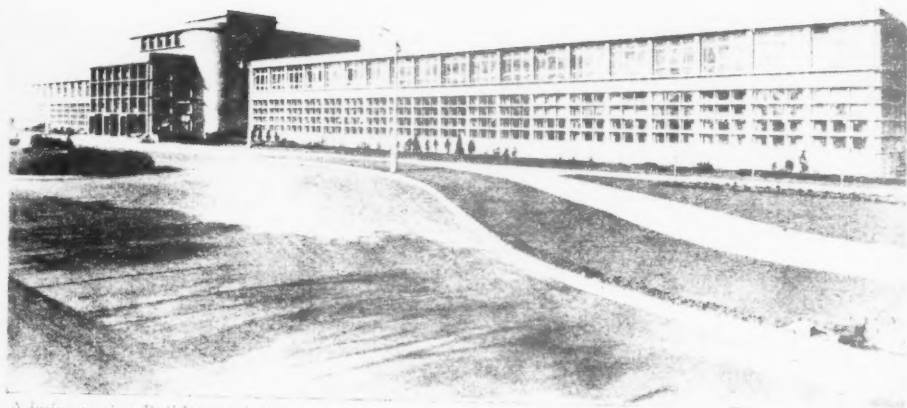


built up from aluminium decking, insulation board, and bitumen roofing. It is adaptable for flat, pitched, curved, or vertical construction.

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"Radley" is used  
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or tungsten lamps.



Administration Building and, below, interior of the  
Yarn Warehouse of 33-acre factory for Patons & Baldwins.  
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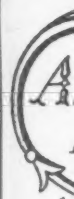






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THE ARCHITECTS' JOURNAL

No. 2995 July 24, 1952 VOL 116

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#### PETROL FOR THE BONFIRE

The One per Cent. Sample\* of the 1951 Census is not likely to make the housing problem any more simple. The new questions on domestic sanitation show that 37 per cent. of households have no bath, 8 per cent. no water closet, and 6 per cent. no piped water. Additional percentages had these things, but shared them with another household. About 14 per cent. of households share a house.

The need for more SMALL dwellings, so often stated since the war with so little result, is confirmed only too forcefully. The number of one-person households has more than doubled since 1931, those of two to four people

has increased by 40 per cent., and larger households have fallen by 30 per cent. to 50 per cent. If one sets these things against the ageing of the population (also amply confirmed), the fact that old houses are dropping to pieces almost as fast as new ones are built, the rising subsidies or rents of new houses, and the refusal of most local authorities to build more than a very small proportion of small dwellings... then, indeed, the mere technician's mind may be excused a boggle.

It is surely likely that, if we go on as we are now, by 1981 we shall have seven or eight million post-1931 dwellings, nearly all of four or five rooms, and largely inhabited by old age pensioners living alone or in couples. Pre-1931 houses will have shrunk to six or seven millions, and nearly all will be dangerous structures.

#### THE COST OF BUILDING

As is usual at this time of annual conferences, the operatives have thought up a new wage demand—6d. an hour more.

It is, perhaps, not for architects to say whether or not these demands are reasonable, but all of us in the industry are in the same boat, and the more costs rise the less buildings go up and the less designing is done. House building is already becoming too expensive for many people who have, at last, got licences, and what with self-build groups and home decorators, there may be quite a lot of unemployment if the industry goes on pricing itself out of the market. It will be interesting to see whether the speculative builders really do build more cheaply for themselves than for local

authorities. ASTRAGAL suspects that they will, but he is more concerned with saving costs on any small house he may have to do.

#### LONDON'S NEW MUSEUM

Apsley House, now the Wellington Museum, opened on Saturday and will henceforward be one of the London shows no-one ought to miss. It is easy to be superior about the artistic quality of the exhibits: to say that never has there been such a display of ornate tastelessness as the tables loaded with presentation plate; and never have so many second-rate pictures been hung to such advantage. But that's not the way to look at it. Taken as a whole it's a wonderful picture of the splendour that properly surrounds so heroic a figure as the Iron Duke. And splendour is a quality we don't have enough of in these days.

The Victoria and Albert and the MOW have done a splendid job of restoration, bringing both the original Adam, and the later Wyatt, decorations back to their pristine richness with the aid of plenty of gold leaf. Surprising (to this visitor at least) was the number of really large rooms on the main (first) floor; from the outside the house doesn't look as though it could contain anything like so much space. Another delightful surprise: the Versailles-like vista down the length of Rotten Row from the centre windows of the Waterloo Gallery—a favourite view, apparently, of the old Duke's.

Two tips for visitors. First, don't omit to buy a copy of the *Guide* (1s. 6d.) which is a model of its kind and contains, in the very intelligently done section called "Miscellaneous Notes," a fascinating collection of

\* Census, 1951. Great Britain, One per cent. Sample Tables, Part 1. (HMSO 17s. 6d.)

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items of information about the Duke. You can learn what the Wellington hat (less famous than the boot) was like, who designed the funeral car, where the most important portraits and statues of the Duke are to be found, how many times he met Lord Nelson and how many London streets are named after him.

Secondly, try to persuade one of the attendants to close some of the shutters in the Waterloo Gallery for you. These are the iron shutters put up in 1831 after the mob had broken the windows in anger at the Duke's opposition to the Reform Bill. He made a virtue (as always throughout his life) of necessity and had the inside of the shutters faced with mirrors, enhancing the splendour of the room in spectacular fashion—a rare case of living in a glass house, despite the throwing of stones.

#### TRAFFIC SIGNS

It is reported that the Ministry of Transport is at odds with Westminster City Council over a NO ENTRY traffic sign. Westminster want to put up a sign of the type designed by Sir G. G. Scott, "for use in areas," said *The Times*, "where the installation of unattractive signs might detract from the amenities." This, as Gordon Russell pointed out in an admirable letter to *The Times*, indicates (1) that there is some reason why standard street furniture should normally be ugly, and (2) that there are districts where this does not matter—both wholly untenable beliefs. The Ministry of Transport is asking Westminster—rightly in ASTRAGAL's opinion—to stick to the standard sign.

Traffic signs may save or cost lives and should be standardized throughout the country. This does not mean that architects should not design them. On the contrary. But they must work within a most rigidly limited field. A sign that is to be used throughout the country should represent perfection in conspicuousness, clarity, simplicity and economy in first cost and in maintenance. By these tests the Ministry's sign must be preferred to that of Sir Giles.

And by the same tests other signs leave a lot for the Ministry to do. For example, the acorn, torch or what not which surmounts traffic light standards in London and some other towns might be one of reform's first victims.



Above and on pages 94 and 98 is seen the dead hand of the LCC Parks Department at work. Compare the new furniture on the terrace of the Thames-side Restaurant (above) with the furniture used there (right) last year. Not only are these chairs crudely designed but, as can be seen, the design of their legs is unsuited to the surface on which they stand—or nearly stand. Note also the one feature without which a parks department work would be less distinctive—the wire netting between balcony rails, doubtless a protection against passing swans.

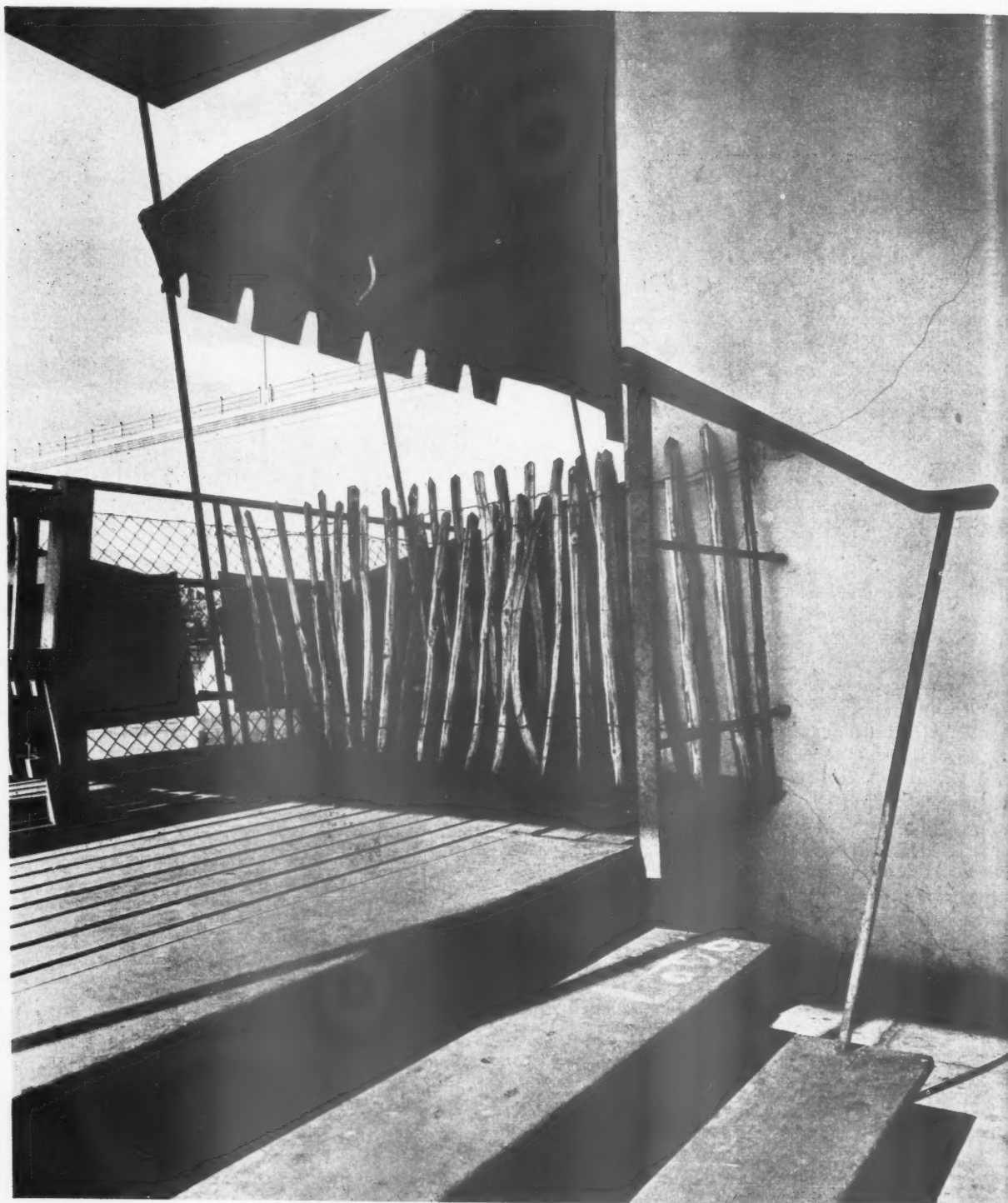


#### RED TURNING GREEN OVER BLUE

A year or so ago there was, in *The Times*, some correspondence argument about the merits (or otherwise) of green paint. This nearly finished, as ASTRAGAL remembers, in the foundation of a society to prevent its further use. Pendulums, however, swing—in the correspondence columns of *The Times* as well as in Fifth Year Studios—and last week there appeared a letter protesting this time against the use of red.

"Must omnibuses," wailed the writer, "be red?" No answer followed—not surprisingly because the question, besides being in itself fatuous, is most easily answered by a simple No.

From Cambridge, however, comes evidence of action. There, it seems, the City (or County) fathers have painted their central fire station and some fire engines—I beg your pardon, fire appliances—blue. Frankly this



## Thames-side Buttoning-Up

It can happen here, on the South Bank—the home of enlightened design. To offset the excellent plan of future temporary development on the South Bank, shown on page 99, we are printing several pictures in this issue to show what curious things have been allowed to happen in the meantime. The above example of what the *Architectural Review* would call “buttoning-up”—a combined invitation (by steps) and rebuff (by chestnut palings)—may not be typical of what is going to happen on the site. But the fact that this sort of thing—and worse (see pages 93

and 98)—can happen should act as a timely warning to us. One of the most welcome pieces of news about the South Bank's future was the announcement that the charming Thames-side Restaurant, part of whose terrace is seen here, was re-opening. But the LCC Parks Department has sanctioned unnecessary maltreatment of this building to satisfy the caterers occupying it. It is hoped that this is not the thin end of the wedge. It would be a miserable anti-climax if we followed our achievements of Festival Year with many examples of such despoliation.

## POINTS FROM THIS ISSUE

Census figures show need for small dwellings	..	pages 91 and 95
Readers design small houses	.. .. .	pages 96 and 97
South Bank's development	: illustrations	pages 93, 95, 98 and 99
MOHLG plans criticised	: plumbing "extravagant"	.. page 111

## The Editors

## SENSE AND THE CENSUS

THE number of Britain's occupied "structurally separate dwellings" has increased since 1931 by 3,041,000.

But in the same twenty years, the number of separate households has increased by 3,076,000. (These figures appear in the analysis of a one-per-cent. sample of the 1951 census, just published\*). In two decades of active housebuilding we have run hard and—like the Red Queen—have managed to stay in the same position.

What do the census figures tell us about housing needs? No information is directly given, of course, but some useful deductions can be made. It is clear that if housing needs are to be satisfied, at least 10 years' intensive house building is required. But if these needs are to be satisfied in the shortest possible time, for the smallest possible expenditure, attention should be given to *the provision of dwelling units suited to various sizes of family*.

It is clear that we are now building too great a proportion of three-bedroom houses and flats. Consider these figures. Sixty per cent. of the structurally separate dwellings in Great Britain has four or five rooms. Yet more than half of our households consist of only two or three people. Since the 1931 census was taken, the proportion of four- and five-room dwellings in England and Wales has increased from fifty-three to sixty-four per cent. of the total, while the number of large households has grown smaller. The number of people living alone has been doubled; it now represents nearly eleven per cent. of the country's households. And three-quarters of the people who live alone occupy a whole dwelling. Yet we are building a very small proportion of one-room apartments in our municipal housing schemes.

How can we plan our way out of a curious state of affairs in which our average density is only 0.76 persons per room, eleven per cent. of the population has an average of three rooms per person, while a large percentage is living in overcrowded accommodation? How can we allow for the size of families to grow and diminish? This can be done only if people can be persuaded to move, or if the size of dwellings can be increased or diminished by inexpensive structural alterations. Families will move voluntarily only if the move is made attractive to them. For instance, an old couple, whose children have grown up, would probably leave their over-large house on two conditions: firstly, that more suitable accommodation was available (possibly in the same

seems a silly idea. Fire stations are red (and ambulances white) for the same good practical reasons that they are given bells (or sirens) and not ordinary motor-horns.

## ARE YOU A MAN OR A MIES?

For the past month it seems that ASTRAGAL—for whom most fêtes are worse than death—has been attendant upon prize givings. At kindergartens and universities, at technical schools and art colleges the faithful pattern has been repeated—the uneasy shifting upon the hired gilt chair as the head recounts the year's achievements, the clapping, at first enthusiastic, then courteous and, lastly, as the queue diminishes, no more than perfunctory; the Few Words by the Distinguished Guest; the cucumber sandwiches, hot waitresses and chilly tea.

Finally the drag round the exhibition of school work, among the proud white-straw-hatted mothers, the silent, secretive sisters, impressed but determined not to show it; the tie-fingering, office-distracted fathers. Of the work upon the screens, only one impression remains—that Mies Van der Rohe has eased le Corbusier off the throne, and that Mondrian marches unchallenged across the elevations, plans and even titles of every student's project in the land. For church or garage, rubber factory or ballet school, house for a sculptor or lean-to for logs, the grid, the oblong, the primary coloured square isolated by the thin (or thick) black line, go through their elegant mechanical drill upon page after page. ASTRAGAL raises no protest—merely an eyebrow of suspicion—that, alluring and, indeed, exciting as these drawings are, they carry with them the seeds of self-deception. Three lines meet elegantly enough in a point on a drawing. On the site they rarely do so. Damp-courses, expansion joints, gutters and welding scars, drips and linings and cover-moulds—yes, even ASTRAGAL—are inclined to show up at the last minute and turn a point into something from which there is no return because there are too many reveals.

No great moral here—except the old one—when you bait a trap with cheese, be sure you leave room for the mouse (or Mies).

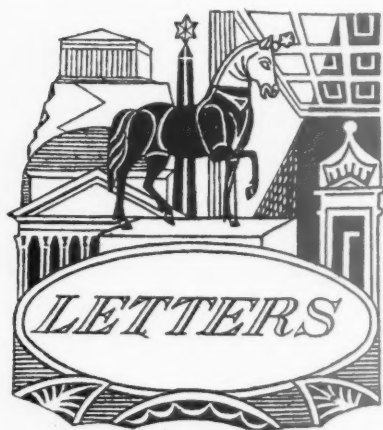
ASTRAGAL

\*Census, 1951, Great Britain, One per cent. Sample Tables, Part I. (HMSO 17s. 6d.)



neighbourhood) and, secondly, that its cost in rent and maintenance was low.

The sample census, which will be discussed in the JOURNAL next week by Professor Ian Bowen, does not, of course, provide an answer to the question it raises. But it does ram home that question—one which surely will not be ignored. The housing problem, we are reminded, cannot be solved most quickly by indiscriminate building of dwellings, irrespective of the size of the families which will live in them. By building more *units* of accommodation, so that all sizes of household were adequately accommodated, we might manage to meet housing needs reasonably quickly without cutting housing standards.



*S. Spielrein*

*Denis Serjeant*

*W. John Holdham*

"Contestant"

## The Linear House

SIR,—The linear house designed by Mr. de Wolfe (AJ, July 3) pleases with its new approach but confuses the issue by sacrificing much to gain a long vista.

Whether the feeling of spaciousness would be achieved is doubtful as the living area would be a corridor 9 ft. wide and 8 ft. high, with a very uneven distribution of light. To achieve this, independent circulation, dining space with a movable table, cosiness, prevention of smells from the kitchen, standards of heating and ventilation are all sacrificed. Further, a relatively small house has one seventh of its total floor area given away to circulation.

Your editorial (July 3) in drawing attention to the article by Mr. de Wolfe mentions that the architect has reached the limits of economy in plan and design of a small house. This, I fear, is a rather sweeping remark.

I enclose drawings of a small two-bedroom terrace house of a total floor area of 666 sq. ft. employing the linear principle, but to different ends—namely to simplify con-

struction and, whilst providing independent circulation, to reduce its area to a minimum; further, giving the bedrooms and living space areas which compare well with the minimum as set out in the Dudley Report.

By addition of another room over the second bedroom a third bedroom or a study-workroom can be provided.

The house could be easily built for less than £1,000.

S. SPIELREIN.

Ilford.

[See plans below.—Ed.]

SIR,—I recently decided to try a sketch to see if the present Ministry sizes could be arranged to improve the relation between house and garden. The subsequent publication of your article on the "linear house" was enough of a coincidence to make me write this letter.

As you can see I had no desire to introduce a new architectural conception in space relationships. I merely wanted to provide a private garden. A rough model shows that the sun angles are quite satisfactory.

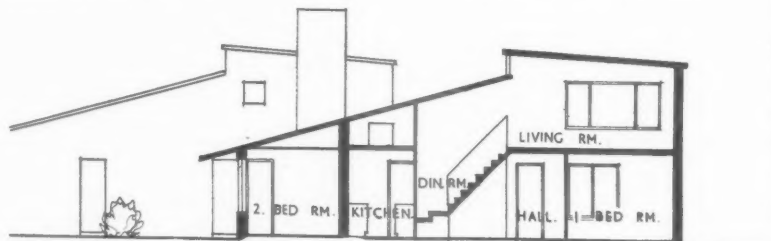
While I make no claim for this design in detail (the result of an evening's scribbles) I am convinced by it that there are possible ways of building the miniature house of to-day, without a great increase of cost, which could satisfy the social and architectural needs of people far more than the average house.

I wish to express my joy at discovering a publication of similar views about our present housing and hope that you will continue until some of the many alternatives have been tried.

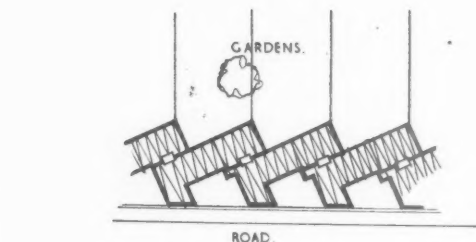
DENIS SERJEANT.

Oxford.

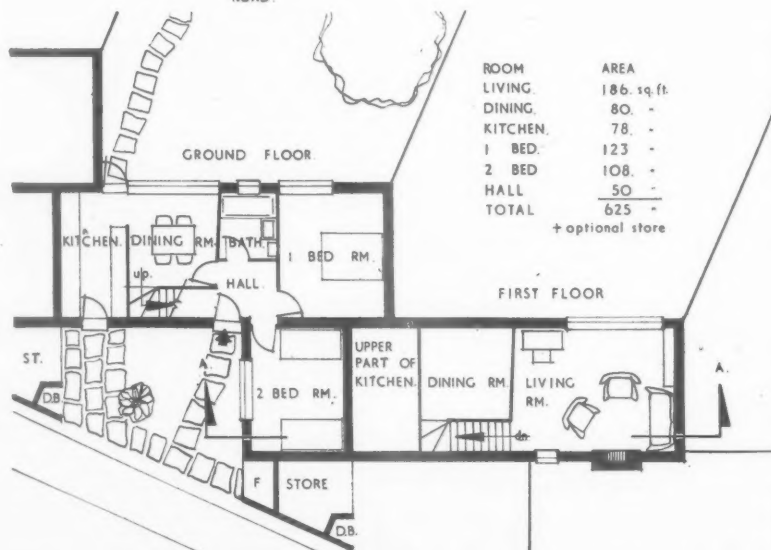
[See plans opposite.—Ed.]



SECTION A-A.

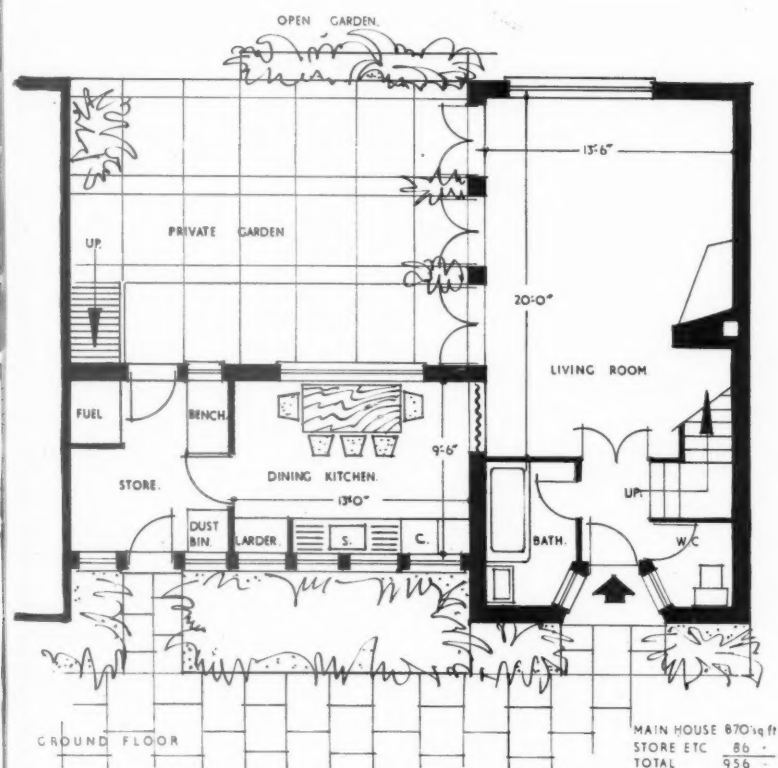
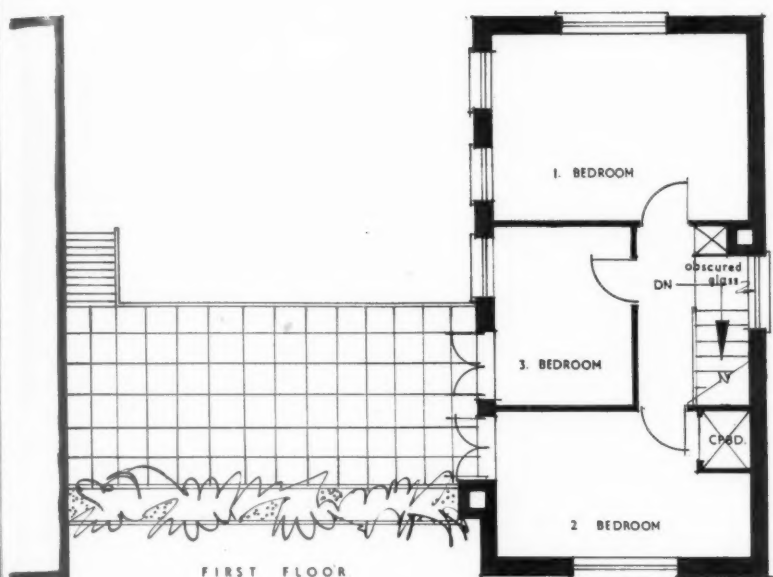


ROAD.



The linear house designed by S. Spielrein. [Scale:  $\frac{1}{8}$ " = 1' 0"] (See letter on left.)





The house designed by Denis Serjeant. (See letter opposite.)

## An Unsound Act

SIR.—May I suggest that your contributor, Mr. Watkins, is mistaken in his views of Miss Hanily's position, as set out in his article in your issue of July 3.

I must assume that Miss Hanily made a claim on the "global fund" in respect of the loss of development right in the land. In view of the publicity given to this matter, no other conclusion can be made.

The correct view of the transaction may be illustrated by the following calculations:—

(1) *Miss Hanily's position*.—"Existing use" value of land, £50; unrestricted value, £2,100;

restricted value, £450; loss of development right, £1,650; estimated payment from global fund, 80 per cent. of £1,650, £1,320. Total, £1,770.

(2) *Prospective Purchaser's Position*.—"Existing use value, £450; consent value, £2,100; refusal value, £450. £2,100 - £450 = £1,650. Total, £2,100.

From these figures it will be seen that the purchaser pays altogether £2,100, the fair market value, and the vendor receives £1,770, £20 in excess of the figure she was prepared to accept from the third party, and not one quarter as Mr. Watkins suggests.

If one looks at the transactions as pro-

posed by Miss Hanily a very different picture appears.

(1) *Miss Hanily's position*.—Offer received from 3rd party, £1,750; payment from global fund, £1,320. Total, £3,070.

(2) *Third Party's Position*.—Purchase price, £1,750; development charge, £1,650. Total, £3,400.

Here it is apparent that, but for the intervention of the Central Land Board, Miss Hanily would have received a sum over 50 per cent. in excess of the market value; whilst the purchaser would have paid a price nearly 75 per cent. above that figure.

Miss Hanily's case is only "one in a thousand." I suggest because purchasers and their professional advisers, among whom Mr. Watkins must be numbered, do not yet fully appreciate the provisions of the Town & Country Planning Act 1947.

I suggest that the law, in this respect, does not pick and choose. The powers of the Central Land Board to acquire land compulsorily are there for all to use. And if more purchasers of land ask the Board to exercise those powers then the basic principle that land should readily change hands at its existing use value will be more generally observed.

W. JOHN HOLDHAM.

Purley.

SIR.—It is interesting to note, in the report of Ernest Watkins (AJ: July 3) on the Hanily v. Minister of Local Government case regarding Compulsory Purchase Orders, under the Town and Country Planning Act, that the summary of the court was to the effect that "the Board was performing its proper function of seeing that sales of land took place at their existing use value—no more."

In an issue which is at the moment being discussed with the Ministry, the Board and a local district valuer, the official implication, which discreetly runs through all correspondence and discussions, is to the effect that where other land is available in the vicinity at an economic price the Board will not consider making a Compulsory Purchase Order against a person or body asking more than basic use value for land in the area.

Thus exists the paradoxical situation that if one person or body in an area is endeavouring to comply with the principles of the Act by selling land at its existing use value, then the more unscrupulous members of the same community in that area are free—in fact they are almost officially permitted—to indulge in such high priced selling as the pockets of the general public will allow.

All of this comes under the "discretion of the Minister" as to what is "in the public interest." The official implication in the present issue is that under Compulsory Purchase the proper function of the Board is to make land available to the public at an economic price in specific localities, which is not quite the same as "seeing that sales of land take place at their existing use values—no more."

Briefly, then, what is the "proper function" of the Board? In the Hanily case it was a disciplinary action to compel an owner to sell at existing use value as required to ensure the satisfactory working of the Act. In the present issue it is officially implied that the same "proper function" is nothing more than dictatorial action to compel prospective purchasers to buy only certain land in specific localities—at existing use value.

When it is further noted that Compulsory Purchase Orders on behalf of individual purchasers are only averaging five per year it will be immediately apparent as to what the "proper functions" of the Board are and why nine hundred and ninety nine land sales out of one thousand go through in defiance of the Act without any intervention on the part of the Board.

"CONTESTANT."

Chester.

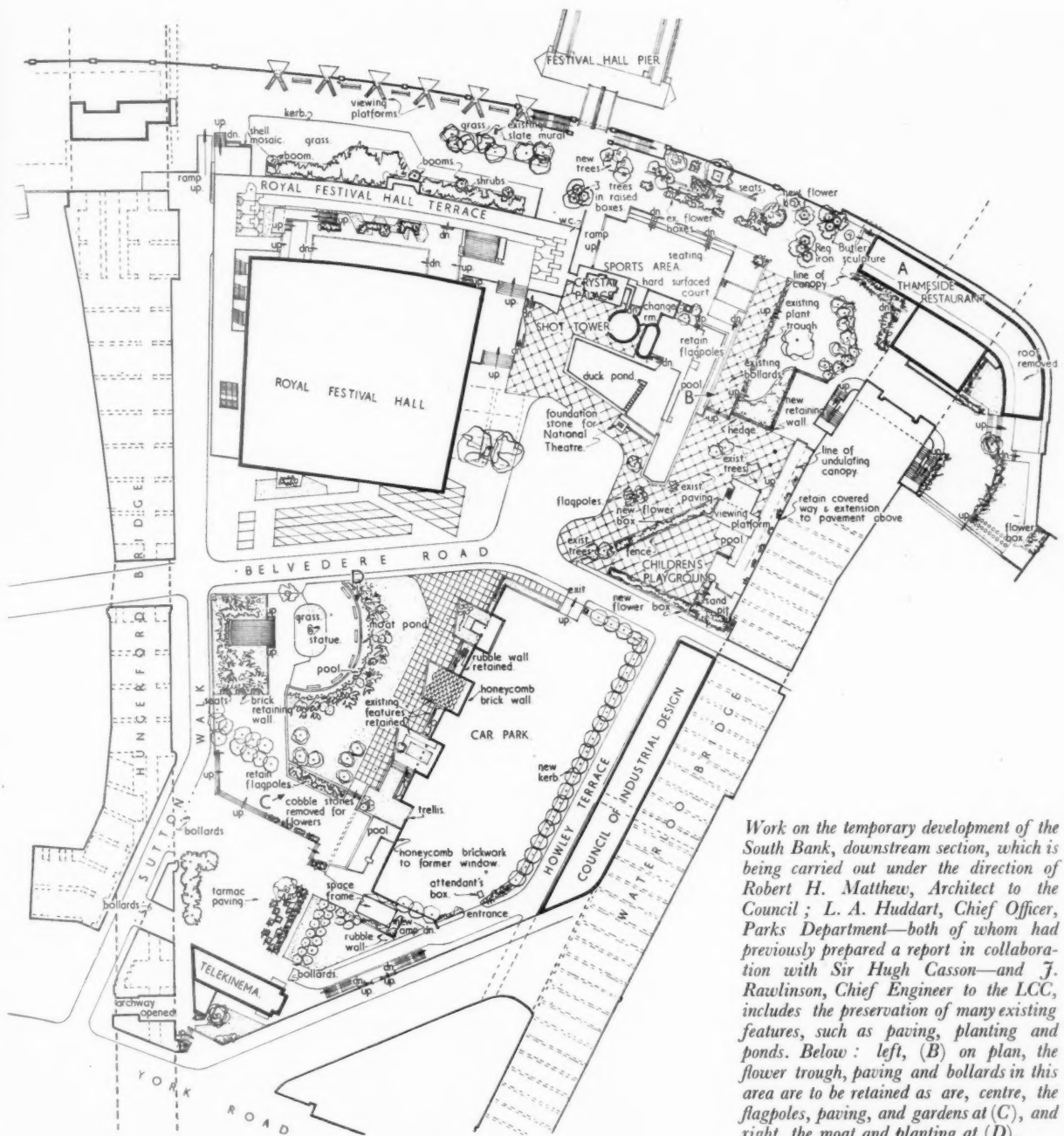
## THE SOUTH BANK EXHIBITION SITE: GOOD AND BAD EX



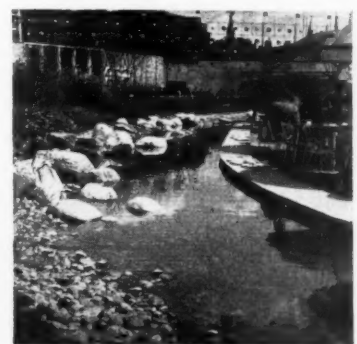
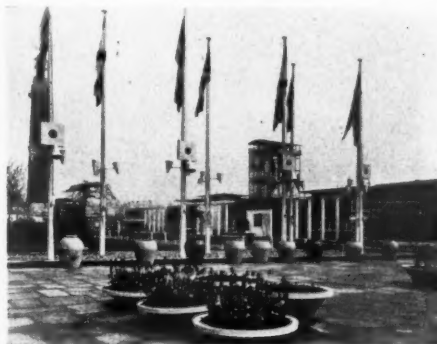
The plan opposite shows how part of the South Bank exhibition site will be laid out when work now in progress is completed. The re-designed river walk, on which the projecting viewing platforms have been retained, has been laid out with grass, trees and flowers, and was illustrated in the JOURNAL on June 5. Work here has almost been completed, but permanent lamp standards are now being designed and will be installed later. They will also be placed on the riverside walk on the upstream section of the site which is now accessible, although work there has not been finished. (A plan for the temporary development of the whole of the upstream section of the site will be published later.) It is to be hoped that this excellent plan is not spoiled by matters of detail as exemplified in the photographs of the Thames-side

Restaurant (A on the plan) on this page and on pages 93 and 94. The photo above shows how the restaurant is being "adapted" to lower maintenance costs. The roof east of Waterloo Bridge has been removed, leaving an open area for serving of refreshments. Left: the restaurant interior as it is now and above it, as it was last year. Note the crude furniture and the ruthless stripping of screens from the front of the cafeteria. The last move was sanctioned by the Parks Department at the request of the caterers.

## EXAMPLES OF POST-FESTIVAL ADAPTATION



Work on the temporary development of the South Bank, downstream section, which is being carried out under the direction of Robert H. Matthew, Architect to the Council; L. A. Huddart, Chief Officer, Parks Department—both of whom had previously prepared a report in collaboration with Sir Hugh Casson—and J. Rawlinson, Chief Engineer to the LCC, includes the preservation of many existing features, such as paving, planting and ponds. Below: left, (B) on plan, the flower trough, paving and bollards in this area are to be retained as are, centre, the flagpoles, paving, and gardens at (C), and right, the moat and planting at (D).

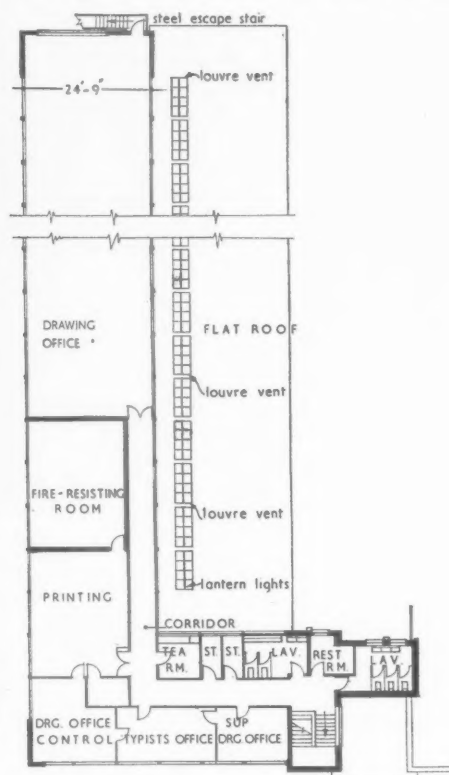
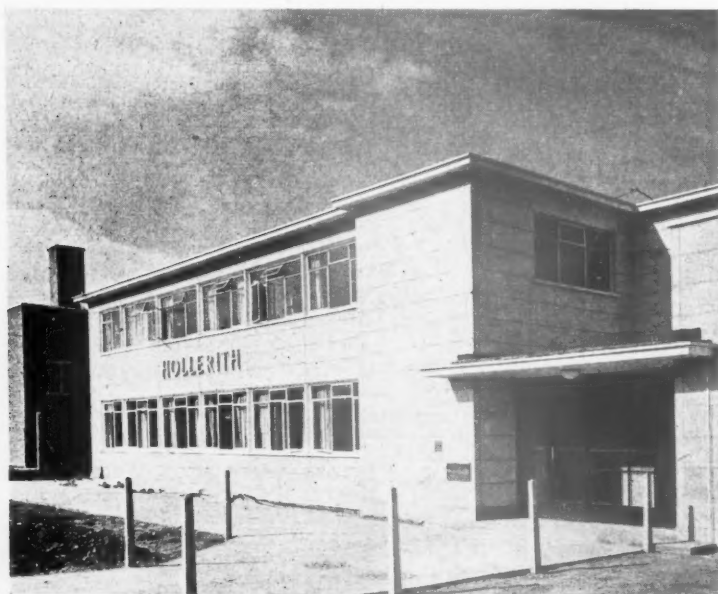




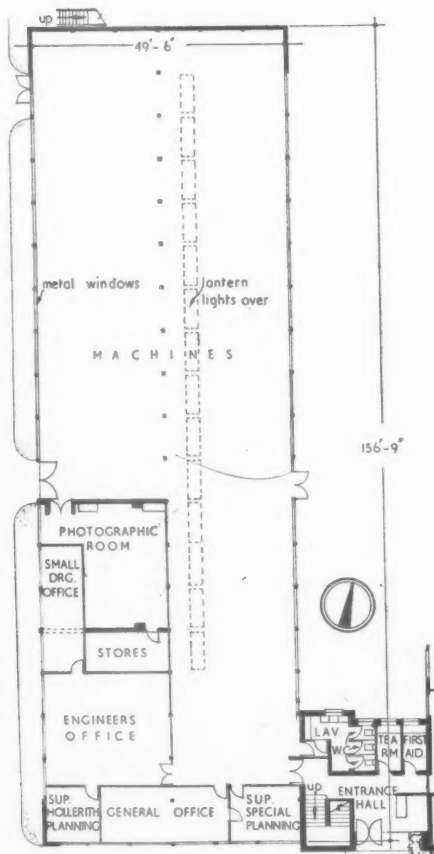
## TWO FACTORY EXTENSIONS AT LETCHWORTH GARDEN



Two extensions to existing factories in Icknield Way, Letchworth, have been built for the British Tabulating Machine Co., Ltd. They were designed by Hugh Roberts and Davies. The south facade of factory 9 is seen above, looking across Icknield Way. Below is a view looking north-west with the main entrance on the right. On the opposite page are two views of the west facade of factory 3, with the main entrance on the left in the bottom photograph. One of the extensions accommodates an experimental department of high precision engineering and the other a development of the same process. The planning was governed to a large extent by the need to cater for future extensions to each



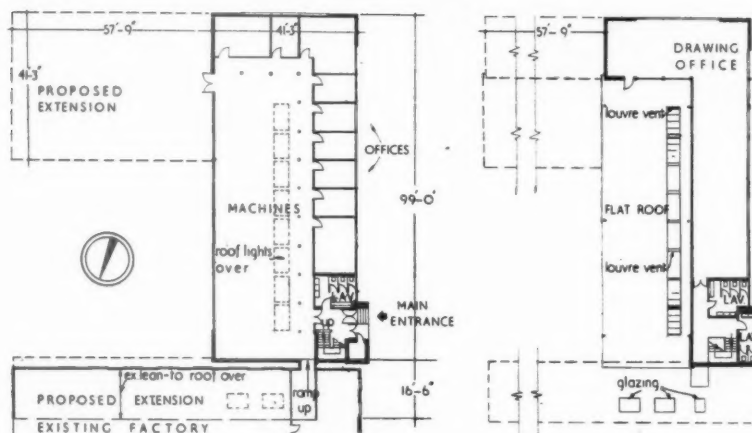
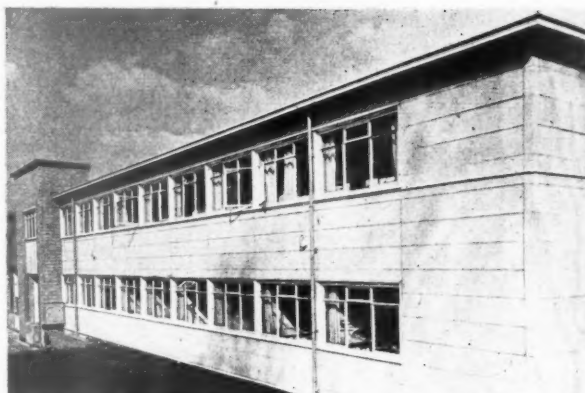
First floor plan

Ground floor plan Factory 9 [Scale:  $\frac{1}{8}$ " = 1' 0"]



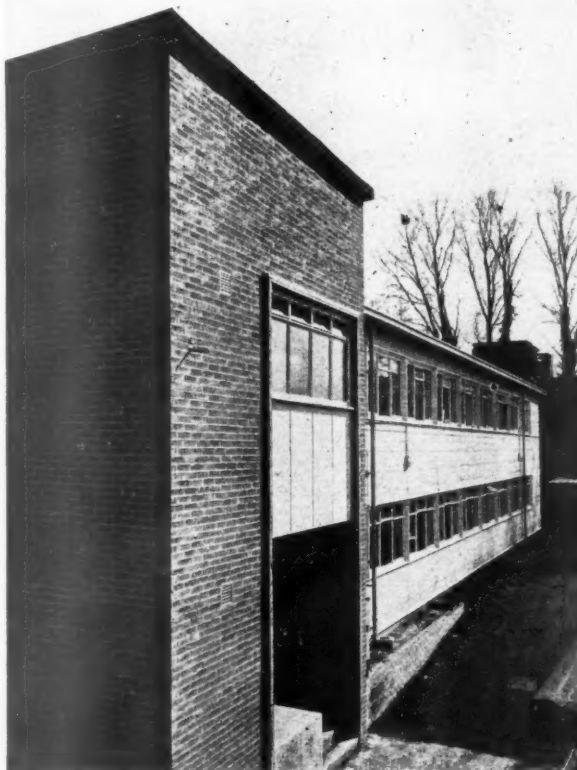
## CITY, HERTFORDSHIRE

building and excellent daylight factors were of great importance. Both buildings have a light steel frame and precast external cladding with a Derby spar finish. Floors are of precast concrete



Ground and first floor plans Factory 3 [Scale:  $\frac{1}{4}$ " = 1' 0"]

units covered with jointless composition flooring over cement screed. Similar units are used for roofs, which are covered with bituminous felt. Heating is by hot water radiators fed from existing boiler plants and domestic hot water is by electric storage heaters. The general contractors were F. G. Minter (Decorations), Ltd. For sub-contractors see page 120.



## BUILDERS' WAGES

*Delegates Unanimous Over 6d. Increase*

A resolution expressing dissatisfaction with the February wage award and urging the executive of the Amalgamated Union of Building Trade Workers to seek a further increase in the wages of building workers of not less than 6d. an hour was passed unanimously at the union's annual conference held at Whitley Bay last week.

A resolution demanding that the  $\frac{1}{4}$ d. per point cost-of-living bonus be increased to 1d. per hour was also passed, as were other resolutions asking the executive council to oppose the calling up for national service of young building trades craftsmen; calling for compulsion on local authorities to run direct labour schemes; and for the insertion in the national rules governing working conditions of a clause providing for tea breaks in the industry.

H. J. O. Weaver of London was elected president for the coming year.

## NFBTE

*President Condemns Operatives' Resolution*

J. Ian Robertson, president of the NFBTE, last week condemned as a "ridiculous demand" the resolution passed by the annual conference of the Amalgamated Union of Building Trade Workers asking "that direct labour schemes be made obligatory on local authorities."

Speaking at the half-yearly meeting of the Midland FBTE, held at Stoke-on-Trent last week, Mr. Robertson said, "A building firm is organized to take risks, whereas . . . local authorities ought not to take chances with the ratepayers' money. The most that can be saved by employing direct labour is the profit of the builder, which is more than offset by the efficient management a good and experienced builder can bring to bear on his work."

## MOW

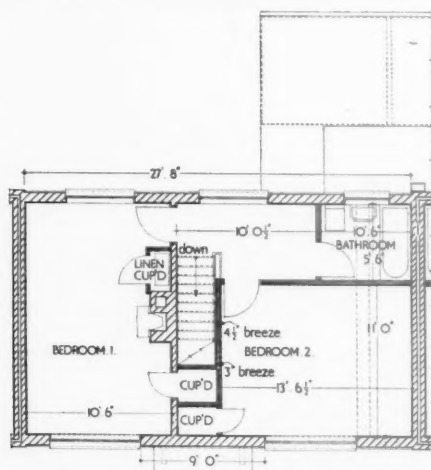
*Plant Hire Charges to be Freed*

The Minister of Works, David Eccles, has announced to Parliament that he has decided to remove the controls on the

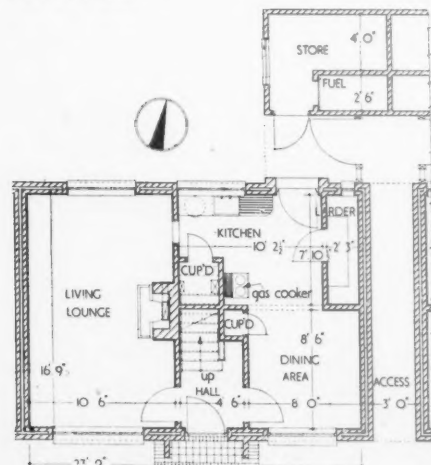
## TERRACE HOUSES AT CHELMSFORD



The eight terrace houses illustrated above and below were designed by Stanley Bragg for the Borough of Chelmsford and have been built on the Chignal Estate. On the ground floor the plan allows for food to be prepared and cooked and served direct to the dining room, leaving the living room free of meals, except for an occasional tea



First floor plan

Typical ground floor plan [Scale:  $\frac{1}{32}'' = 1' 0''$ ]

or supper, which can be served from the hatch in the kitchen. Variety has been gained on the main elevation by the use of plaster panels on the first floor of alternate houses. The general contractors were Ringer Bros., Ltd. For sub-contractors, see page 120.



rates of hire for building and civil engineering plant. He will shortly be making an Order, which will come into effect on August 1 this year.

In reply to a question by I. M. Horabin (M.P. for Oldham, E.), he stated: "The trade association concerned has given me an assurance that it will recommend its members not to charge rates in excess of amended figures incorporating only certain actual increased costs and to maintain those rates during 1952 unless there are further increases in costs."

## USA

*Architects Less Busy than Last Year*

Forty-five per cent. of American Architects state that they have less work than they had in 1951. Rody Patterson, a Pittsburgh architect, has just reported to the National Defence Committee of the American Institute of Architects the results of his survey of 19,000 registered architects in the USA, half of whom are members of the architects' national professional society.

Large firms, who are engaged on big defence jobs, are taking on more draughtsmen, specification writers and other employees, but smaller firms are curtailing their staffs. The National Defence Committee has made no comment, but recommends that the AIA should undertake similar surveys periodically.

## UNESCO

*International Artists Conference*

A special section of the International Conference of Artists, to be held in Venice from September 22-28, will be devoted to architecture, and the following topics for discussion at section meetings have been provisionally arranged:

- (a) Trade union and professional problems (copyright, regulations for international competitions, etc.);
- (b) International exhibitions of architecture;
- (c) Movement of architects (facilities for travel, accommodation, cultural exchanges, etc.);
- (d) Encouragement of a wider public understanding of architecture and town planning.

The conference is being organized under the auspices of UNESCO and it has been agreed that the working languages shall be French and English, but that speeches may also be made in Italian.

The organizing committee has agreed that participants should be, first, artists designated by Member States; second, artists designated by the appropriate international organizations; and third, independent artists in the capacity of observers, to be invited by the UNESCO Secretariat.

## POLYTECHNIC

*Changing Educational Methods*

At this time of the year the architectural schools hold exhibitions of their students' work and, although the JOURNAL cannot give space to all the schemes of merit, its editors are always glad to report changing educational methods, and their results, at particular schools.

There is, of course, nothing new in the idea of training students in a more practical, less academic, manner. But a JOURNAL representative who visited the recent two-day exhibi-

## CHILDREN'S HOUSES, SUTTON COLDFIELD

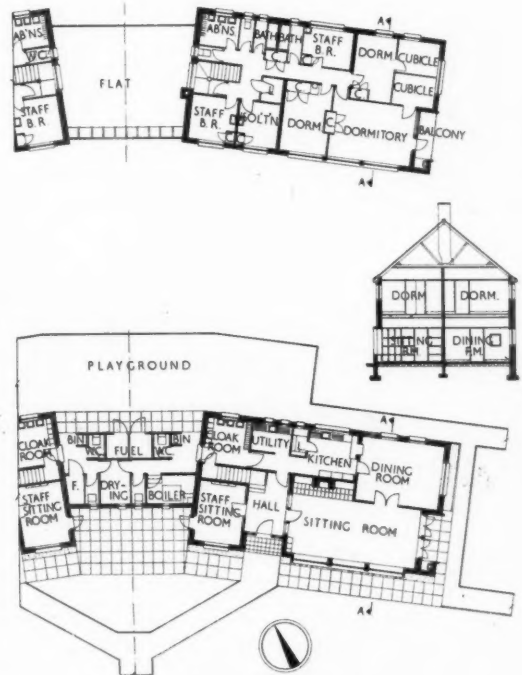


A pair of children's houses at the Princess Alice School, Chester Road, Sutton Coldfield, have been erected for the National Children's Home and Orphanage and are designed by George H. Herring. Accommodation is provided for small families of eight children modelled on normal home life.

Sitting rooms are divided from halls by a glass partition and double doors to dining rooms permit one large room to be formed for children's parties. The photograph above

is a view from the south: on the right is a sitting room. The contract price was £9,247.

General contractors were John Bowen & Sons, Ltd. Sub-contractors on page 120.



Ground and first floor plans and Section A-A [Scale: 1/4" = 1'0"]



tion of architectural students' work at the Regent Street Polytechnic was impressed by the evidence he found of the success of new methods of teaching employed in the school.

The success of these methods was most apparent in the work of first-year students. It is true that the exercises done by students who are getting to know their tools are still to be seen. But these have been freed from the often stultifying boredom of their purely academic aspects and have been brought into closer relationship with the problems that the student will encounter when he goes into practice. Students no longer copy the plaster casts, but go to life classes and out into the environment in which, as architects, they will subsequently work. "All this," writes our correspondent, "is admirable." "But why," he asks, "is it called 'Visual Research'? Is 'sketching' too prosaic a word?"

## TDA

## Certificate Examination Results

This year's winner of the TDA Prize is P. J. Moore, of E. Sherry, Ltd., (Walthamstow). The second prize of the TDA Certificate Examination (The Richard Baxter Vick Prize) has been awarded to L. Nelson, of Denny, Mott & Dickson, Ltd. (Newcastle-on-Tyne) and the third prize (the Locks Latham Prize) to E. J. Isaac, of Miller & Sons (Exeter).

The TDA Certificate Examination in Timber Technology was held on August 28 and 29, and consisted of a three-hour theory paper, and a three-hour practical test. Of the 305 entrants, 179 have been awarded certificates. 111 of the Timber Technology students also entered for the optional paper on Timber Trade subjects, which was held on April 30, together with 13 students who had already obtained the certificate. Of these 124 students, 90 passed.

## SCOTLAND

## New Shuttering System

A new type of patented wall shuttering has been brought on to the market by a Glasgow firm of contractors after exhaustive testing on their own contract work. The system employs an interlocking action of the tongue and groove type. The interlocking of the shuttering reduces considerably the loss of "fat" and keeps adjacent panels on a true plane. The system gives concrete a good surface so that a minimum of finishing is required. Very little skilled labour is required to erect and strike the shuttering.

The firm has also developed a system of using the same shuttering for suspended slab construction, and has carried out several contracts using this system.

## DIARY

**For Bill and Betty—Or Setting Up Home.** At the Whitechapel Art Gallery, High Street, E.1. (Sponsors: Oxford House in Bethnal Green and the Whitechapel Art Gallery.) Weekdays (excluding Mondays) 11 a.m. to 6 p.m.; Sundays 2 p.m. to 6 p.m.

UNTIL JULY 24

**Building Research and Housing Exhibition.** At the Building Centre, Store Street, Tottenham Court Road, W.C.1. (Sponsor: MOW.) 9.30 a.m. to 5 p.m. daily; Saturdays 9.30 a.m. to 1 p.m.

UNTIL JULY 26

**Annual Students' Exhibition.** At AA, 36, Bedford Square, W.C.1. 10 a.m. to 6 p.m. Until 2 p.m. Saturdays. UNTIL JULY 31



## UNIVERSITY EXTENSION

for the COUNCIL of the DURHAM COLLEGES  
in SOUTH ROAD, DURHAM

designed by Professor J. S. ALLEN

chief assistant architect, WILLIAM WHITFIELD

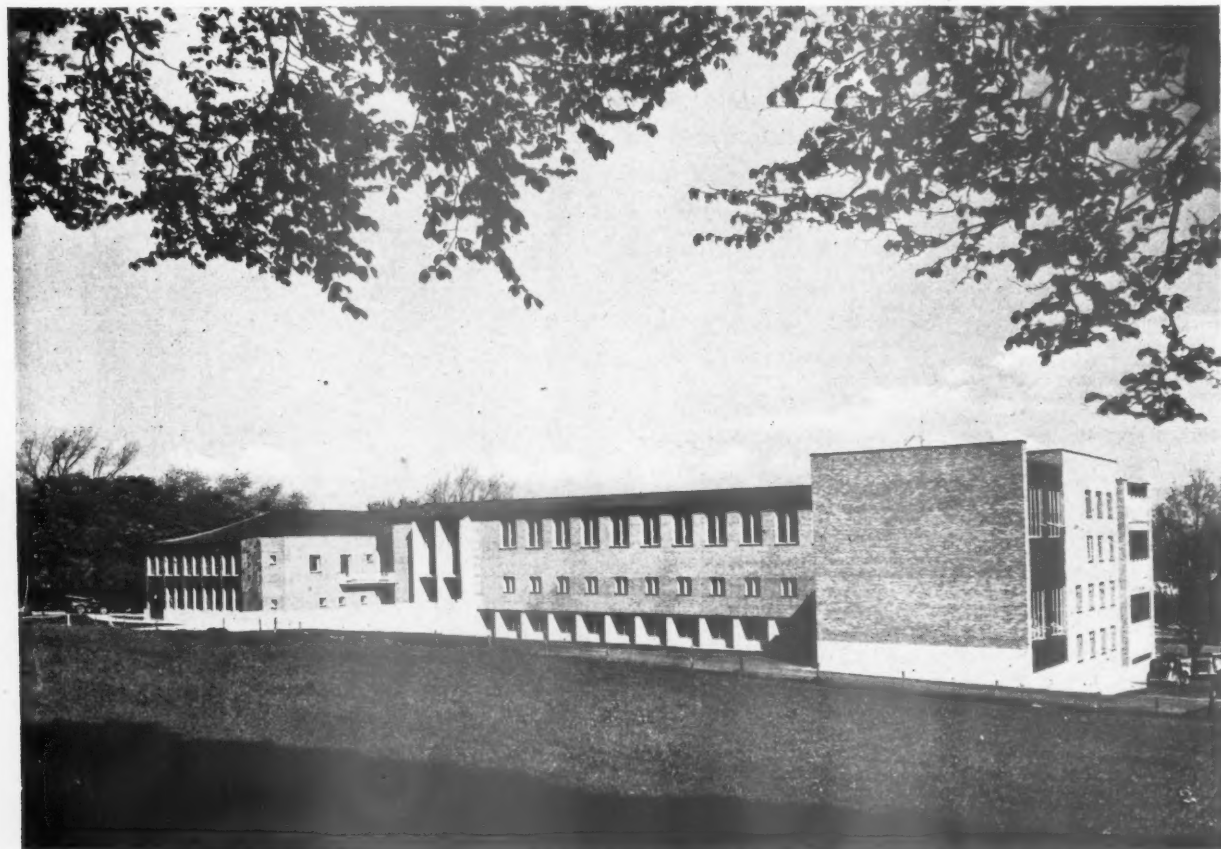
consulting engineers, OSCAR FABER and PARTNERS



*Looking towards Durham Cathedral.*

In 1947 a development plan for the Durham Colleges to be carried out during the next twenty years was prepared by Professor Allen. The plan is very open in character and leaves much open space and woodland between the various buildings. The most urgent need was accommodation for the departments of mathematics and geography, together with a suite of lecture rooms available to the science departments in the adjacent buildings.

*General view of the west building looking north-west.*





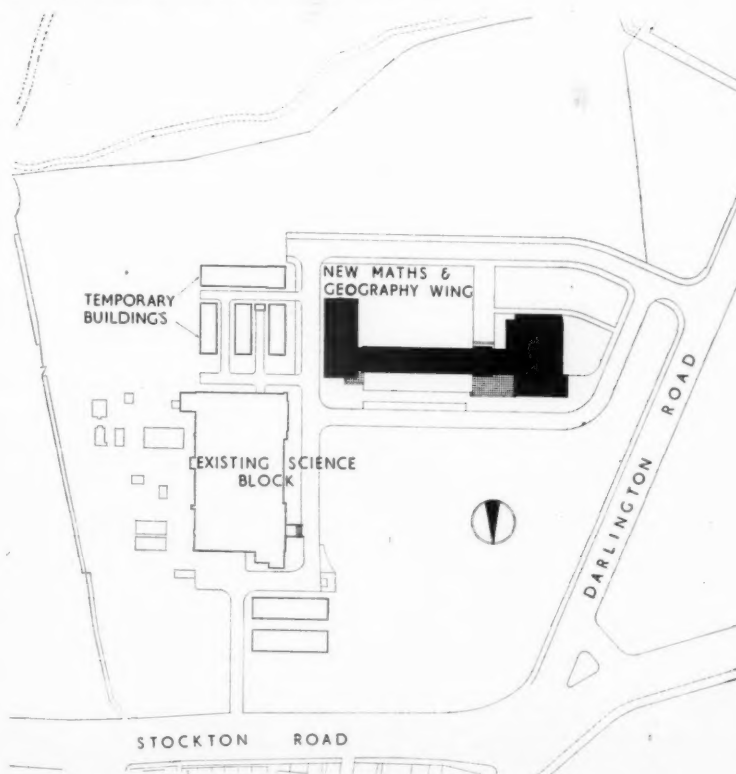


*Looking south-east with the Applebey auditorium on the right.*

**PLAN.**—In addition to the lecture rooms and laboratories, an auditorium to seat 250 people and a stack room for upwards of 20,000 books is provided. The mixed accommodation required was difficult to resolve into a single building which could express the different functions. This caused the architect to give emphatic architectural expression to the various space-uses in the building. The internal disposition of rooms has been made to fall into two distinct patterns, firstly those which are formed like the cells in a honeycomb and which form only incidental uses within single architectural envelopes, and secondly, those rooms which, because of their use and size, in themselves form whole envelopes. The teaching rooms fall naturally into the first category and the auditorium and library into the second. An attempt has been made to give proportionate significance to the various rooms and corridors by very careful fenestration. On the three floors corridors have been placed on alternate sides of the building, thereby utilizing the blank walls of the horizontal ducts over three corridors to add to the extent of brickwork on the two main elevations. The vertical module of floor to floor height is 14 ft. in the centre block and at the east end heights have been varied between 9 ft. 4 in., 14 ft. and 18 ft. 8 in. By interlocking rooms of various heights a considerable saving in cube has been made and satisfactory proportions ensured even for the smallest rooms. The

lecture theatre is designed for public lectures of a scientific nature, but may also be used for plays not requiring an elaborate stage and equipment, and for cinema projection.

**CONSTRUCTION.**—With the exception of the



Site plan

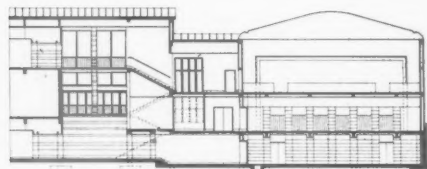


*Above, entrance on the south facade. Left, entrance hall door leading south, right.*

auditorium roof, the whole building has a reinforced concrete frame and concrete roofs at 15 deg. pitch cast *in situ*. The lower part of the east wing is carried on a R.C. raft. All floors are of R.C. cast *in situ*. The auditorium roof has main trusses and cross braces of steel supporting 5 in. by 2 in. timbers, which carry double diagonal boarding.

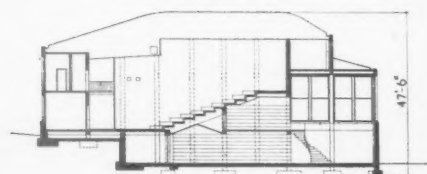
FINISHES.—Apart from a small area of flat roof over the east wing, which is used for experimental

Section A-A



Section B-B

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





enforced  
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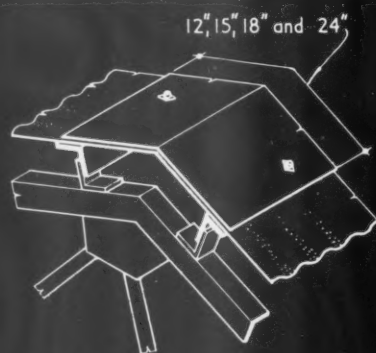




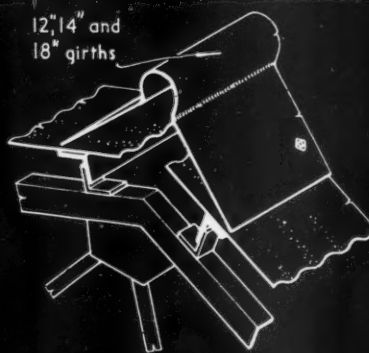
# ROOF SHEETING ALUMINIUM APPLICATIONS

16.C1  
16.C1

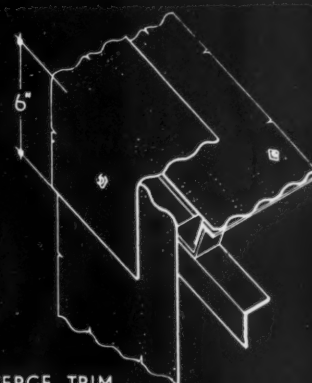
The Architects' Journal Library of Information Sheets 373 Editor: Cotterell Butler, A.R.I.B.A.



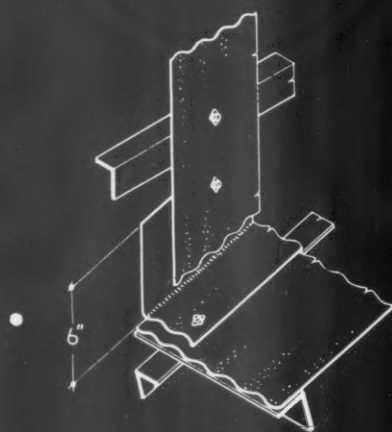
PLAIN RIDGING.



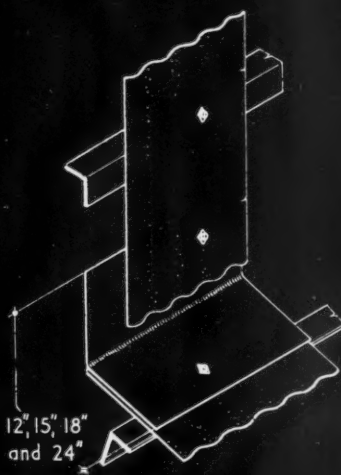
ROLL TOP RIDGING.



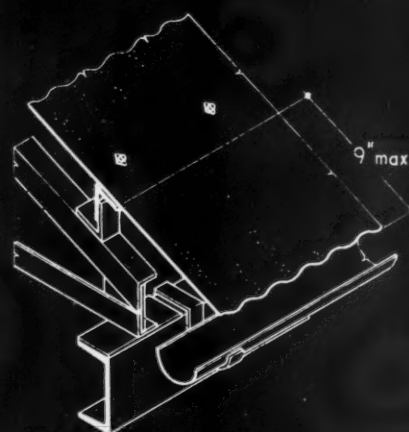
VERGE TRIM.



CORRUGATED SIDE WALL FLASHING.



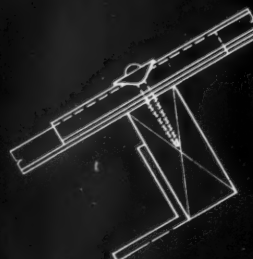
PLAIN SIDE WALL FLASHING.



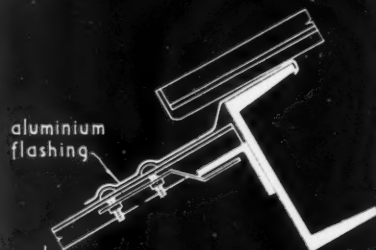
EAVES.



hook bolt fastening to steel angle

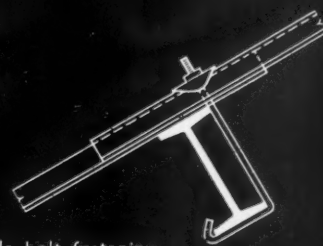


drive screw fastening to timber purlin



sheet clip fastening to shelf angle under glazing

METHODS OF FIXING.



angle bolt fastening to r.s.j.

## CORRUGATED ALUMINIUM ROOF SHEETING: DETAILS.

Compiled from information supplied by The Aluminium Development Association.

## 16.C1 CORRUGATED ALUMINIUM ROOF SHEETING : DETAILS

**This Sheet**, the second on corrugated aluminium roof sheeting, illustrates a number of specially shaped sheets which are available for ridging, flashing, etc., and shows methods of fixing the sheeting to various supports. The general properties and laying requirements of corrugated aluminium sheeting are given on Sheet 16.B1.

### Ridging

Two types are available, as follows :—

**Plain ridging** : Generally supplied in 6-ft. and 8-ft. lengths in 20 s.w.g. and 22 s.w.g. and in girths of 12 in., 15 in., 18 in., and 24 in.

**Roll-top ridging** : Generally supplied in 6-ft. and 8-ft. lengths in 20 s.w.g. and 22 s.w.g. and in girths of 12 in., 14 in., and 18 in.

### Eaves

The ends of the bottom sheets project over the gutter and the distance from the end to the last point of support should not exceed 9 in.

### Flashing

Verge trim and side wall flashing are supplied as shown. Straight-bent, flat-winged flashing is supplied bent to the angle required and special flashings can be supplied to order. All flashing is made in lengths of 8 ft. and gauges of 20 s.w.g. and 22 s.w.g.

### Fixing

Aluminium sheeting is best fixed with aluminium-alloy fittings to obviate the occurrence of galvanic action. In addition, aluminium-alloy fittings have the same durability as the sheeting. Galvanised fittings, however, are quite suitable except in severely

corrosive atmospheres. Copper, or copper alloy fittings, i.e. brass etc., must not be used. A wide range of standard fastenings and accessories in aluminium alloy is available and special fittings can be obtained. When fixing the sheeting to timber supports it is advisable to paint the woodwork first ; aluminium paint is very suitable for this purpose owing to its highly protective properties. Fixing to timber is by means of drive screws and washers and to steel by hook bolts, nuts and washers or joggle clips where hook bolts are impracticable. Sheet bolts secure side laps between purlins at 12 in. to 15 in. centres. Holes should be drilled or punched with a sharp pointed tool. Four typical methods of fixing are shown on the face of this Sheet.

### Further Information

The Aluminium Development Association maintains a Technical Advisory Service and Information Bureau, and its architectural department is available to answer questions on the properties and uses of aluminium and its alloys in all forms and to advise on technical problems, suppliers, etc.

**This Series of Sheets** on aluminium and aluminium alloys gives general data on the properties of the materials and their use in various building applications.

*Compiled from information supplied by :*

**The Aluminium Development Association.**

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Telephone : Mayfair 7501-8.

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## THERMAL INSULATION | ROOFS AND CEILINGS

28.E2

The Architects' Journal Library of Information Sheets 374. Editor: Cotterell Butler, A.R.I.B.A.

## • KISOL • VERMICULITE

This Sheet deals with Kisol vermiculite, describes its characteristics and gives specification notes for its use as a lightweight screed for roofs and floors, plasters for walls and ceilings and fire-resisting concrete.

## Material

Kisol vermiculite is prepared from a high-grade deposit, of a mineral of mica-like appearance, mined in South Africa. This has the property, when subjected to temperatures exceeding 1000° F., of exfoliating and expanding which reduces the bulk density and results in a lightweight, chemically inert and fireproof material with good heat insulating and sound absorbing properties. The thermal conductivity ( $k$ ) of the material is 0.38 to 0.50 B.Th.U./sq. ft./hr./° F./inch thickness.

Kisol is available in the following aggregate sizes :—

No.	Grade	Density (lb./cu. ft.)	Weight per bag (lb.)
6	— $\frac{1}{4}$ in. + $\frac{1}{4}$ in.	3 $\frac{1}{2}$	15
5	— $\frac{1}{4}$ in. + $\frac{1}{8}$ in.	5	15
3	— $\frac{1}{8}$ in. + 10 mesh	6	20
2	— 10 + 20 mesh	7 $\frac{1}{2}$	24
1	— 20 mesh to dust	9	35

## Roof and Floor Screeds

The following table giving the thermal conductivity values for various vermiculite concrete mixes is an extract from a report by the National Bureau of Standards (U.S.A.) published in the Journal of the American Concrete Institute for May, 1949.

Cement-aggregate ratio by volume	Weight of concrete lb./cu. ft. (av. of 3 spec.)			Thermal conductivity ( $k$ ) B.Th.U./sq. ft./hr./° F./in.
	Fresh	Room dry	Oven dry	
1 : 5.3	54	34	29	1.02
1 : 3.9	59	42	36	1.41
1 : 2.9	63	49	42	1.60

By extending the graph, which may be plotted using the figures in the table above, the  $k$  value for a 1 : 6 mix of room-dry density 28 lb./cu. ft. is 0.85 B.Th.U./sq. ft./hr./° F./in.

**Roof screed—specification notes :** Kisol exfoliated vermiculite grade 5 to be mixed dry with Ferrocrete in the ratio of 5 bags of vermiculite to 2 bags of cement (mix by volume = 6 vermiculite to 1 cement). Mixing can be carried out either on a board or in a conventional barrel-type concrete mixer. 28 gallons of clean gauging water are then added to the dry mix. Wet mixing should be carried out for as short a period as possible to avoid excessive consolidation and

should not exceed 3 minutes. The mix can then be poured and screeded to the required thickness directly over precast concrete beams, hollow pots or shuttered concrete roofs. After slight tamping, a cement slurry finish should be trowelled into the surface when laid. Covering capacity: 220 sq. yd./ton vermiculite/2 in. thickness.

**Ready-mixed roofing screeds:** Ready-mixed roofing screeds are available which, when mixed with water, give a vermiculite concrete of approximately 28 lb./cu. ft. density with a thermal conductance of 0.40 B.Th.U./sq.ft./hr./° F. for a thickness of 2 in.

**Floor screed—specification notes :** 4 bags of Kisol exfoliated vermiculite, grade 3, minus  $\frac{1}{4}$  in. plus 10 mesh to be mixed dry with 2 $\frac{1}{2}$  bags of Ferrocrete or Portland cement in a conventional barrel-type concrete mixer (mix by volume = 4.3 vermiculite to 1 cement); mixing time should be as short as possible. 27 gallons of gauging water to be added and wet mixing carried out for no longer than 3 minutes. There should be no tendency to ball up in the mix—this usually suggests too dry a mix. The mix can then be poured and screeded to the requisite thickness over timber, pre-cast concrete beams, or monolithic floors. When laid, the screed should be lightly worked up with a steel float to take the final floor finish of tiles, wood blocks, etc. Working-up with a steel float should not be necessary when a sand/cement screed is to be laid as a wearing surface.

Covering capacity: 180 sq. yd./ton vermiculite/2 in. thickness.

## Plaster

Kisol plaster aggregate is a special grade of fine-mesh exfoliated vermiculite, which when mixed with fibred gypsum in the ratio of 3 cu. ft. of vermiculite per cwt. of gypsum, results in a lightweight plaster of pleasant appearance, with good acoustic and thermal insulating properties, capable of withstanding impact without cracking.

It can be worked and trowelled in the conventional manner and, as with vermiculite concrete, can be cut with a hand saw. Nails can be driven into the plaster without fear of its cracking.

The following table gives the transmission loss through  $\frac{5}{8}$  in. of vermiculite plaster trowelled over plaster lath.

Frequency (cycles per second)	Transmission loss (db)
128	31.8
256	34.8
512	36.1
1024	37.2
2048	38.7
Average . . . . .	35.7

**Specification notes :** The grade of vermiculite recommended for the usual two-coat application is grade 2, known as Kisol vermiculite plaster aggregate. The

## 28.E2 • KISOL • VERMICULITE

specification varies slightly over different grounds, e.g. over masonry, brickwork or vermiculite blocks. The rendering coat should consist of one part Browning gypsum plaster to  $2\frac{1}{2}$  parts Kisol vermiculite plaster aggregate. An alternative rendering coat is 5 parts Kisol vermiculite plaster aggregate to 1 part cement and 1 part hydrated lime. Finish to be equal parts of Hardwall gypsum plaster and Kisol vermiculite plaster aggregate (all parts on a volumetric basis). For ceilings, the proportion of vermiculite in the finishing coat can be slightly increased to improve acoustic properties, especially as hardness is not all-important. Over metal lathing for false walls and ceilings, scored concrete and plaster-board, the rendering coat should consist of one part gypsum plaster with hair and  $1\frac{1}{2}$  parts Kisol vermiculite plaster aggregate. Finishing coat as before. The recommended mesh of metal lath is  $\frac{1}{4}$  in. It should be supported at intervals of 12 in. to prevent flexing and cracking. For conventional two-coat plaster work to a usual thickness of  $\frac{5}{8}$  in. approximately 2 lb. of vermiculite will be required per yd. to 9 lb. gypsum plaster and  $1\frac{1}{4}$  gallons of water (mix by volume =  $2\frac{1}{2}$  vermiculite to 1 gypsum). A cement mix is recommended particularly up to dado height in locations where severe mechanical damage is liable to be encountered.

### Kencrete Fire-Resisting Concrete

Kencrete is supplied ready mixed (density 38 lb./cu. ft.) to be prepared on site in a barrel concrete

mixer with approximately equal quantity of water by weight. It is found that on chemical plants, etc., where structures are complex and of relatively small dimensions, it is simpler to apply by trowel than to fix expensive shuttering. If applied by trowel it should be rendered in two or three equal layers on metal lath to form a key.

**Fire test:** In an F.O.C. test a structural steel column protected with a 2 in. thick insulation of Kencrete fireproof cement on metal lath, having the voids filled with slag wool and an extra reinforcement of wire mesh  $\frac{1}{8}$  in. below surface, satisfied all the requirements of B.S. 476: 1932 for Grade B (4 hours) fire resistance.

### Further Information

The manufacturer maintains a technical department which is prepared to advise on problems dealing with this subject generally. Skilled supervisors are available on request to visit sites and give guidance on the mixing and application of the materials.

*Compiled from information supplied by:*

**Wm. Kenyon and Sons Ltd.**

**Head Office:** Dukinfield, Cheshire.

**Telephone:** Ashton-under-Lyne 1614-7.

**London Office:** 50, Bloomsbury Street, W.C.1.

**Telephone:** Museum 6363.

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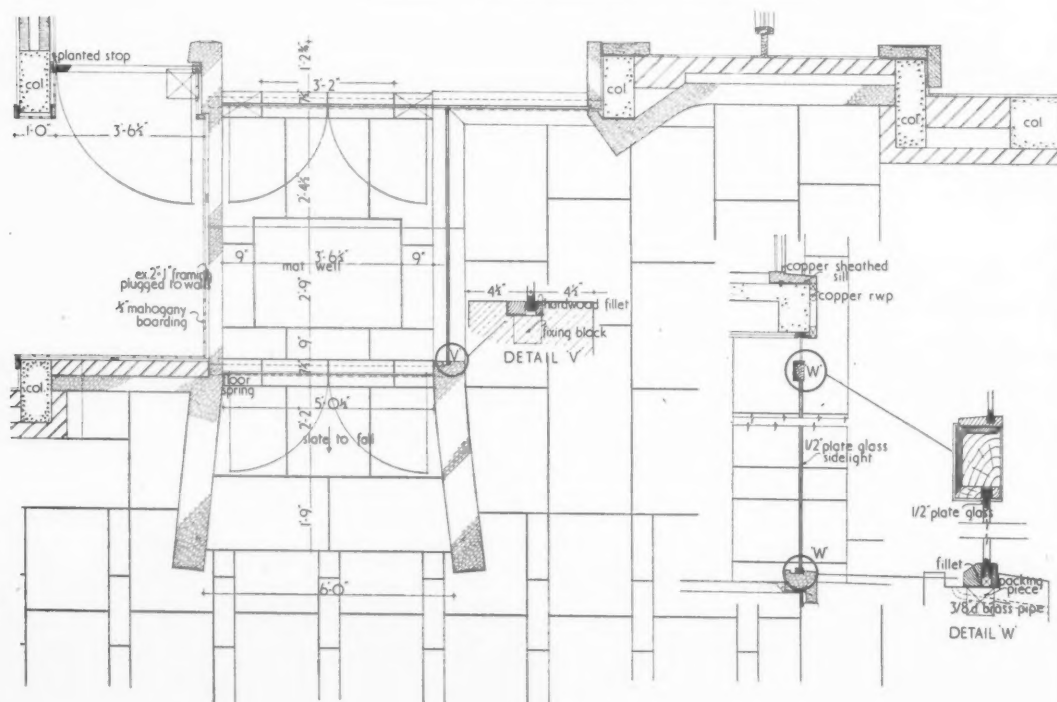
## UNIVERSITY EXTENSION

in SOUTH ROAD, DURHAM

designed by PROFESSOR J. S. ALLEN

purposes by the geography department, all roofs are covered with 24 gauge copper. Great care was taken in the design of the seams and welts in the main auditorium roof so that its sweeping shape would not be broken into sections. Vertical copper sheathing is used, externally, on the auditorium

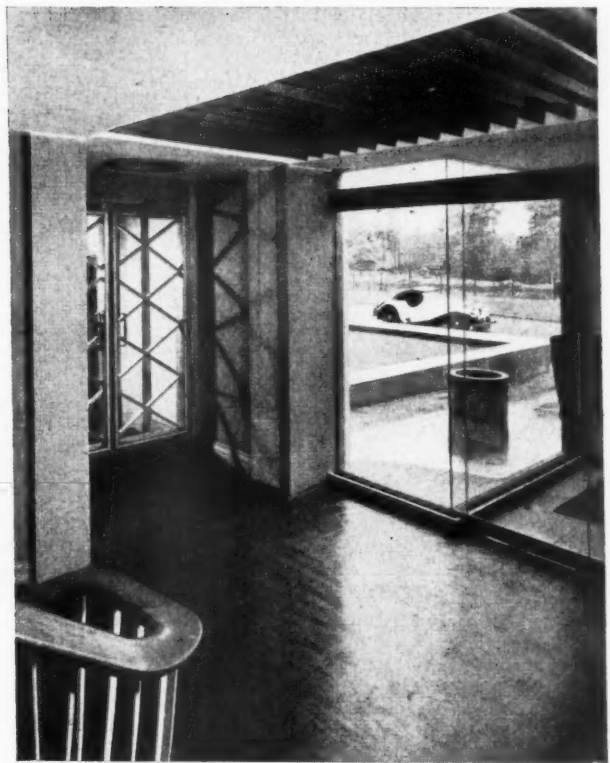
North facade; subsidiary entrance left, lecture theatre right.



Plan of subsidiary entrance and section through glass screen beside inner arm-our plate doors  
[Scale:  $\frac{1}{4}''$  and  $1'' = 1'0''$ ]

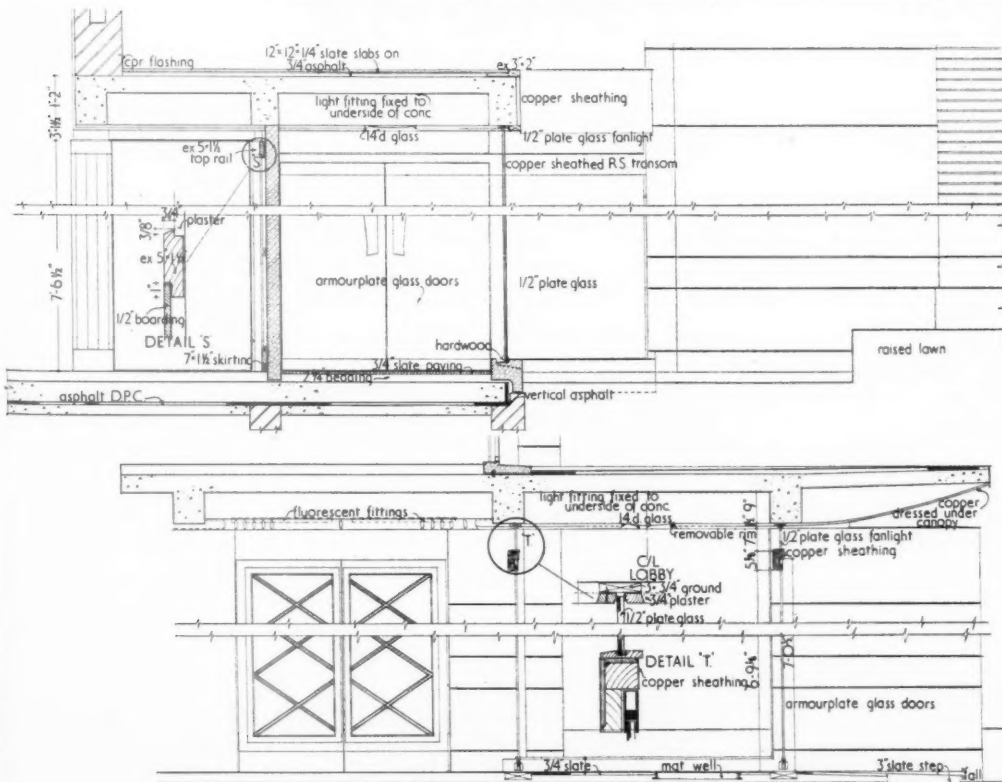


Above, the library, showing patterned wallpaper ceiling and two brass chandeliers originally in Glamis Castle. Above right, doors to subsidiary entrance on north facade.



walls, on lecture room walls, and on the link between the auditorium and centre block. A foam concrete understructure is used with dovetail timber battens cast in situ at 22 in. centres. Over this a layer of felt is laid, butt jointed and secured with copper nails. The next step was to fix 2 in. wide copper

cleats to the battens at 18 in. centres. Internally the background colour to most walls is mid-grey and doors and window frames are white. The following colours are used on panel walls, doors and certain ceilings: mustard, lime, plum red, scarlet, smoke grey, indigo and olive green. The

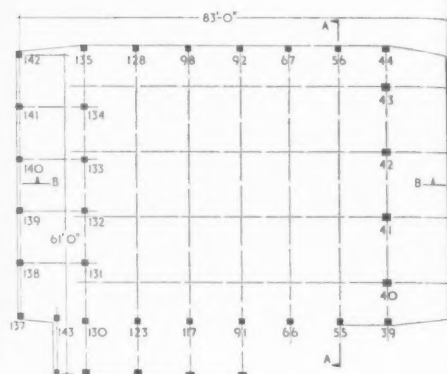


Cross section through projecting porch looking towards the building

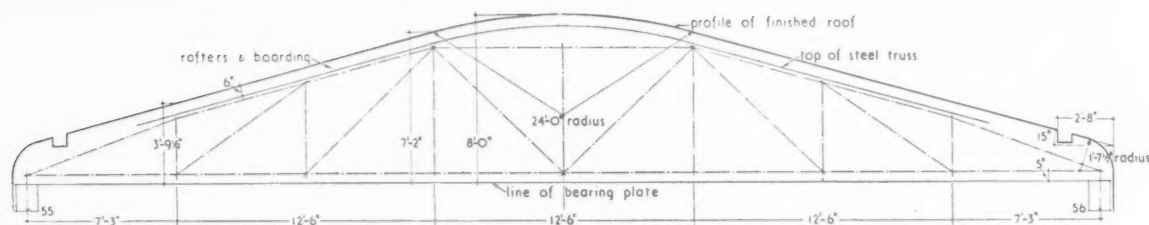
Longitudinal section through centre of armor plate doors  
[Scale: 1/4" and 1" = 1' 0"]



The Applebey lecture theatre. Left, looking towards dais and screen. Below left, looking towards the auditorium. Below right, the south and east facades.

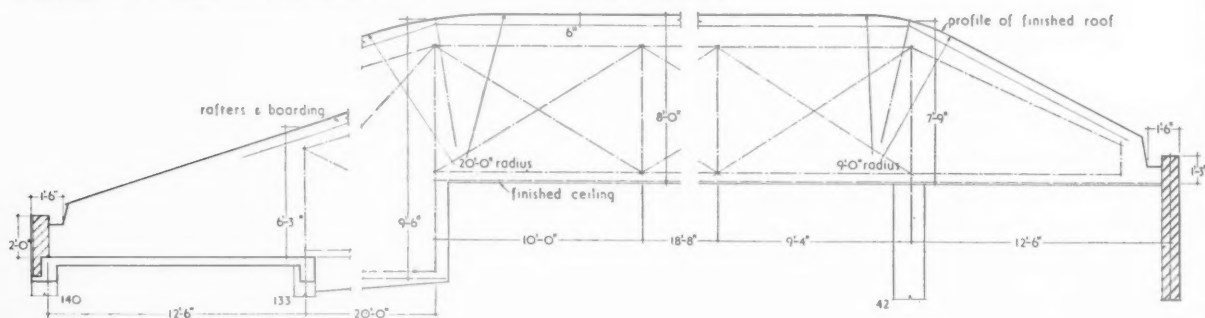


Plan of auditorium [Scale: 1/32" = 1' 0"]



Section A-A through auditorium roof [Scale: 1/8" = 1' 0"]

Below, section B-B

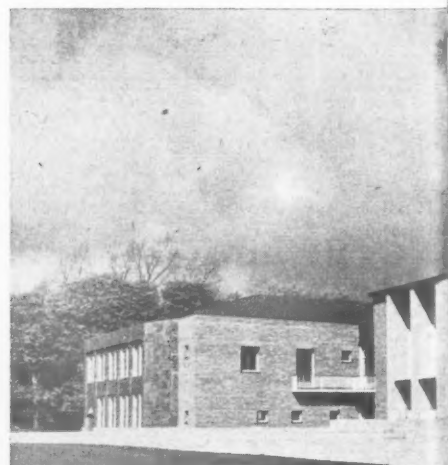


## UNIVERSITY EXTENSION

in SOUTH ROAD, DURHAM

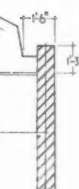
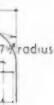
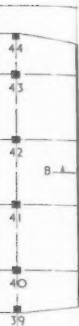
designed by PROFESSOR J. S. ALLEN

contract price was £135,000. The general contractors were Leslie & Co., Ltd. For sub-contractors, see page 120.





re. Left  
en. Below  
auditorium  
st facade



contractors  
tractors, see



## TECHNICAL SECTION

The startling statistics concerning the absence of sanitary appliances in British households contained in the one-per-cent. sample tables of the 1951 Census, published last week, serve to draw attention to plumbing and sanitation—the subject of this week's survey by F. L. Barrow.

These statistics reveal that  $37\frac{1}{2}$  per cent. of our households are without a fixed bath, 8 per cent. without a w.c. and 6 per cent. without even piped water. When so many people are without these amenities it seems very unfortunate that in our new houses plumbing and drainage should often be provided in an extravagant and wasteful fashion. Mr. Barrow makes a justifiable plea for the more careful consideration of plumbing arrangements when houses and housing layouts are being designed and condemns, in particular, house plans in *Houses, 1952* (the MOHLG supplement to the Housing Manual). For some of these, says Mr. Barrow, "the plumbing and drainage is about as complex as it could be."

This week's  
survey

### 25 WATER SUPPLY & SANITATION progress in plumbing

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

*In his survey of recent plumbing progress, F. L. Barrow, civil engineer and sanitary engineer, comments on the application of one-pipe plumbing to houses and criticizes the MOHLG plans as requiring extravagant plumbing. He points out the danger to health of back-syphonage of dirty water into water supply and mentions a number of new materials now being used for plumbing pipes and fittings.*

Progress in plumbing consists not of revising traditional craft techniques, but mainly of extending the standardization of plumbing and drainage components, improving their design and introducing into their manufacture new materials. Already few materials or components used in the plumbing trade are not covered by British Standards. The latest list of these includes no less than 60 relating to plumbing and drainage.

Much economy has been effected by reducing the number of varieties of fix-

tures and fittings, and the publication of these Standards has played an important part in bringing about a wider application of modern ideas of sanitation.

#### ONE-PIPE SYSTEMS

Much research is being carried out at BRS and elsewhere to discover when it is necessary to fit branch ventilating pipes to waste traps in one-pipe systems and when they may be omitted and reliance placed simply on "stack venting," i.e., the use of the soil and vent

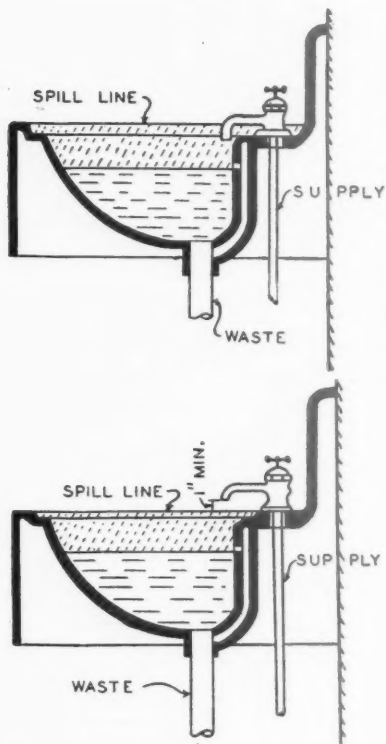


Fig. 2. Top, lavatory basin with tap in position that will permit back syphonage. Above, basin designed to prevent this.

stack itself as a means of equalizing air pressure in the piping system and retaining the trap seals. A great deal of work on this problem has been and is being carried out in the USA. The results of this work are interesting but not applicable in this country, as soil pipes in the USA receive heavier discharges from w.c.'s and the form of some American fittings is different from ours.

The cost of branch ventilating pipes is an important factor if one-pipe systems (now generally agreed to be more hygienic than two-pipe systems) are to be used for 2- and 3-storey housing. Only if some of the anti-syphonage pipes can be safely omitted

does one-pipe plumbing become sufficiently economical for this type of work.

The results, so far, of research on trap ventilation indicate that special ventilation pipes may be omitted from top floor appliances, provided certain rules are followed concerning the slope and length of branch pipes, the bends in pipe runs and the exact shape (internally) of the junction fitting between branch and stack. There is not yet sufficient evidence to warrant the omission of anti-syphonage branch pipes on other floors, but as research proceeds it may be possible to introduce further economies.

#### GROUPING FITTINGS

In the USA plumbing designers can rely more on standardized and favourable grouping of fixtures around the stack. If and when buildings in this country are designed with more regard to the plumbing, one-pipe systems may become more widely used. At present, architects tend to pay far too little attention to this aspect of design. For example, of the thirty plans of houses and flats reproduced in the Housing Manual, 1949, only 85 per cent. are suitable for the application of one-pipe plumbing and of these less than a third are suitable for a complete one-pipe design, i.e., one in which all the wastes go into the soil stack; in the others the sink waste cannot economically be linked to the common stack and must be dealt with separately on a two-pipe basis, using a trapped gully. Incidentally, of these 85 per cent. only about half could have the soil stack within the building—mainly because no room has been allowed for it in the plan.

Even in the house plans put forward by MOHLG in their *Houses, 1952* (Second Supplement to the Housing Manual, 1949) the same obstacles to economical one-pipe plumbing are to be found. A bad example is the plan shown in Fig. 1—the sink waste cannot reasonably be connected to the same stack as the bathroom appliances but must be taken separately to a

trapped gully. Moreover, this gully will be at the back of the house while the bathroom appliances must be drained to the front, thus complicating and increasing the cost of the drainage. The w.c. in this house would have a branch at right angles to it, linking it with a soil stack, descending, presumably, at the point "A" on the first-floor plan. The bath and lavatory basin waste traps would be, therefore, 9 ft. and 6 ft. respectively from the stack. Such lengths are never really satisfactory, but if used in one-pipe work they certainly necessitate anti-syphonage pipes, if the lessons of recent research are to be observed. The alternative would be a separate waste stack for the bath and basin discharges, which would involve extra drainage below ground level. Altogether, the plumbing and drainage is about as complex as it could be for a simple house plan.

In other house plans in *Houses, 1952*, similar difficulties arise. No doubt this situation has developed because other aspects of planning have been given priority over simplicity of plumbing. Other amenities of houses should not be reduced in order to simplify plumbing or to make possible the use of a one-pipe system, but the extra cost of inefficient plumbing should not be forgotten.

It is now generally accepted that plumbing appliances should be grouped together on each floor and superimposed over those of the floor below (e.g., bathroom over kitchen), but this is not enough. Close grouping is good, but how much it really aids the plumbing designer depends on the manner of grouping the appliances. For example, when bath, lavatory basin and w.c. are grouped together in a bathroom, it is most important that the lavatory basin should be between the bath and the w.c., not the w.c. between the bath and the basin. Lavatory basins should not be placed away from external walls even if they are near other appliances. In blocks of flats sinks are frequently placed adjacent to bathroom appliances, but whether or not this simplifies the plumbing depends on exactly how it is done. Even placing bathrooms over kitchens only makes the plumbing more economical if the stack pipe, placed close to the group of appliances in the bathroom, can run straight down to ground level and pick up the sink with a short branch.

#### BUILDING DRAINAGE

In a MOW report issued last year\* attention was drawn to the wide differences between local authorities' drainage requirements. There is no uniformity concerning the provision of manholes or the number of houses

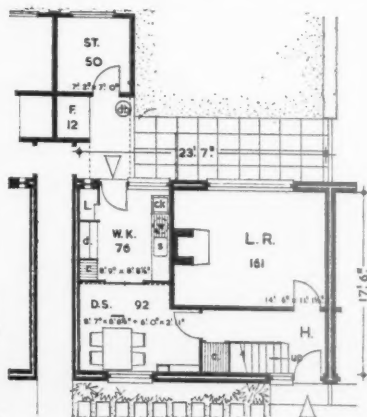
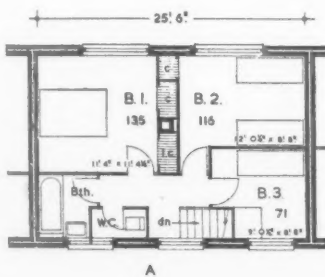


Fig. 1. MOHLG plan for terrace house for five persons. (Reproduced from Fig. 3 in "Houses, 1952" Second Supplement to the Housing Manual 1949, HMSO.)



\* Modern Developments in Plumbing. MOW. March, 1951.

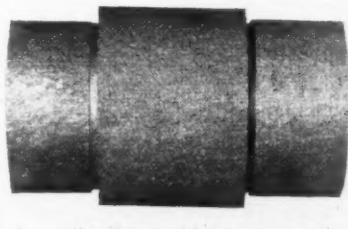
whose drains may be linked together by a branch drainage system underground before discharging into the public sewer. It was stated in the report that to satisfy one local authority the drainage for a group of 18 houses would cost only £29 per house while to satisfy another an expenditure of £72 per house would be required. If these examples indicate the general position, either some authorities are permitting drainage systems which will cause trouble and require a great deal of maintenance or some are causing a lot of money to be wasted on extravagant drains. According to the knowledge at present at our disposal the latter seems the more likely. A survey initiated by BRS two years ago, and now being conducted in co-operation with the Institution of Sanitary Engineers and other organizations, should, when completed, provide important information on the incidence of drainage troubles for different drainage systems. If more expensive designs do not produce corresponding savings in maintenance costs, there is a good case for the more rational design of building drainage.

Before any major modifications can be made to present practice, we must know: Under what circumstances and to what extent may drains from houses be combined before reaching the public sewer? What maximum length of eaves gutter on houses can be allowed for each downpipe? (This affects economy in underground surface water drainage much more than in above-ground rainwater goods.) Under what circumstances may manholes near houses be shared? When branch drains are short can they be connected to a private sewer without a manhole? What are reasonable minimum gradients for 4-in. and 6-in. pipes? What is the minimum permissible earth cover over drain collars? (The answers to the last two questions may have a considerable effect on the general depth of drains, and, as is well known, the cost of drainage goes up rapidly as their depth increases.)

#### DRAINAGE ECONOMY

Economy in building drainage is affected appreciably by the extent to which information about the housing layout and the house plans is available to the designer of the drainage system at the time when he has to prepare his scheme. Obviously, it is better that the soil pipes and the waste gullies should be on the same side of the building as the foul water private sewer to which they must be connected. If the building drainage plan has to be made before the precise positions of the plumbing outlets are known, the branch drains may have to be laid round the house from one side to the other in order to be connected to the private sewer, thereby necessitating two addi-

Fig. 3. A compression joint for pitch-fibre plumbing pipes. Right, the two cut ends of pipe and a connecting collar. Below, the joint when made.



tional (and expensive) manholes. Additional time spent at the drawing board, considering the design of building drainage and trying various alternatives, may be amply repaid by money saved on the job.

#### WATER SUPPLY POLLUTION

In the USA, in recent years, cases of pollution of water supplies due to back-syphonage have aroused sufficient alarm to lead to the laying down of Standards for "air gaps" at water supply points to plumbing fixtures. This is a matter, not of economy or of efficiency, but of hygiene, which is, of course, even more important. In Britain, recently, there have been lively exchanges of opinion on this subject between MOH, water engineers, the manufacturers of sanitary fixtures and fittings, BSI, BRS and others.

In water supply pipelines there is created from time to time a condition of negative pressure, i.e., below atmospheric pressure. When the supply is shut off (or even partially shut off) and water is being drawn off from a tap, or taps, in the lower part of the system (either intentionally or through leaking taps) negative pressure is produced. When this happens, not only can no water be drawn from other taps, but, if a tap is not completely air-tight, air may pass into the tap to follow the falling column of water in the supply pipe. (It is not an uncommon experience to open a tap and find that water does not run out and that, instead, air is sucked into the tap.) If the outlet of the tap is below the flood level, or "spill line," of the fixture (see upper diagram in Fig. 2, which is reproduced from the October, 1951, version of the Minnesota Plumbing Code), and the fixture is full of water to that level, dirty water will be syphoned into the supply.

#### THE SOLUTION

The solution is to stipulate that there should be an air gap, as shown in the



lower diagram of Fig. 2, to prevent back-syphonage. This gap should be sufficient to prevent water from leaping up from the surface and into the tap (and hence into the supply system). The American view, based on experiments, is that the gap should be not less than twice the diameter of the discharge orifice. (The Americans ignore the overflow opening in the fixture, since it may be stopped up, and only recognize for air gap purpose the level in the fixture at which unrestricted flooding over the edge could take place.)

If adequate air gaps were provided throughout all our water supply systems there would be no fear of back-syphonage pollution. Whether the risk is serious enough to call for air gap precaution depends upon the circumstances of each particular case. There are instances where all would agree that the precaution is desirable, particularly in hospitals, hotels, etc.; there are other circumstances where the need is still a matter of dispute, but the safest plan would be to work towards the provision of air gaps as general practice. This is what is being done in America, but the main difficulty is the cost of introducing the necessary modifications into the design of our fittings and fixtures, many of which, even when made to comply with recently-prepared British Standards, either do not have an air gap at tap outlets or do not have a gap of the minimum dimension mentioned above.

#### DIFFICULTIES WITH W.C.S.

Certain appliances, w.c.'s for example, cannot incorporate air gaps between the supply inlet and the flood level. The w.c. pan has to have a flushing inlet and distributor below its top edge in order to cleanse itself properly. Since there can therefore be no air gap at the pan it is necessary to arrange for an air-break against back-syphonage further back in the supply system. This can be done by serving the flush pipe from a flushing cistern or, if a flushing valve is used, from a storage cistern. In both cases there is interposed into the supply a vessel, open to atmospheric pressure, which prevents negative pressure from reaching the flushing inlet on the pan. It is important to ensure that the piping between the cistern and the pan is not elaborated into a new system of supply pipes



serving other appliances at which water could be drawn for drinking and at which, under certain circumstances, back-syphonage pollution from a flooded w.c. pan could occur.

#### ALTERNATIVE MATERIALS FOR PIPES

The principal new material being used for plumbing is polythene. A BS for polythene cold water pipes is being prepared and should be out soon. This will help to stabilize the composition of these pipes—a most essential step, as water engineers are naturally a little dubious about using a material the properties of which vary from one product to another. The publication of a BS will not settle the question of whether there is any risk of taste being given to the water by the material, or decide the most suitable method of jointing (two questions which have been the subject of heated discussions) but it may take polythene past its present largely - experimental stage, although it is already used considerably for water supply for agricultural purposes.

The development of polyvinyl chloride for plumbing pipes is not so advanced in this country as the use of polythene but rigid p.v.c. has been used a good deal in Holland and some development work is taking place here, using certain fillers to give p.v.c. a rigidity comparable to that of polythene.

Since pipes for plumbing must have

a number of sometimes conflicting properties it seems logical that they should be built from two or more materials, each satisfying one requirement. An example of such a "composite" material is pitch fibre. Pipes made of fibre impregnated with pitch can be used for drains; the fibre provides some rigidity and forms the shape of the pipe, and the pitch adds to the rigidity and provides the watertightness and the resistance to corrosion. Fig. 3 shows two cut ends of pitch fibre pipe with a connecting collar. The joint is made by driving the tapered spigots on the pipe into the tapered sockets in the collar. Pitch fibre pipes are used extensively in the USA and Canada and may soon be manufactured in this country. It is claimed that they are economical and that both the pipes and the joints will remain intact even if there is a certain amount of settlement in the ground in which they are laid.

Rubber pipes (with a canvas wrapping to add strength) are also under consideration, but, as with plastic pipes, there are difficulties with regard to consistency of properties, taste and jointing. In a paper presented recently to the Institution of Water Engineers\* reinforced lead pipe was mentioned. This was described as "a thin-walled lead tube, strengthened by an outside wrapping of steel or bronze tape, with

\* Some Problems Concerning Distribution of Water. The Journal of the Institution of Water Engineers. Vol. VI. 1952.

a layer of paper between the lead and the tape, and an outer coating of bituminous paper or other protective material," and many advantages were claimed for it.

The only purpose to which aluminium plumbing pipes have been used so far is to convey rainwater—there are two British Standards for aluminium rainwater goods (1430:1947 and 1543:1949). Other purposes for which it is now recommended that aluminium might be used include: fresh-air inlets, stop cock boxes, brackets for various plumbing fixtures, flushing cisterns, sinks, waste traps and balloon guards. Under development are aluminium baths, lavatory basins, cold water storage cisterns, taps and stop cocks, soil pipes, waste pipes, ball valves, ferrules, unions and flush pipes.

#### RECENT INFORMATION CENTRE ITEMS ON PLUMBING

Stack pipes, capacity of, USA	25.83 : 24.7.52
Drain pipes and fittings, salt-glazed and enamelled	25.82 : 24.7.52
Drain laying	25.81 : 6.3.52
Galvanized mild steel cisterns, tanks and cylinders	26.92 : 25.10.51
Copper and copper alloy traps and wastes	25.80 : 11.10.51
Drainage and sanitation: text book	25.79 : 14.6.51

See also article on One-Pipe Plumbing: AJ, April 17, 1952.

## 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.*

#### 15.101 materials: applied finishes and treatments ZINC-RICH PAINT

*The Use of Zinc-Rich Paints* (The Builder. May 30, 1952.)

Good general and critical two page article on zinc-rich paints, sometimes described as "cold galvanising." The recent development has some useful applications to building but also some important limitations.

The term "zinc-rich paint" is being heard more and more and the material is likely to have very considerable advantages for certain building applications. The author of this

article gives a most useful and balanced picture of the advantages and limitations. He deprecates the alternative description of "cold-galvanising" as being misleading. The characteristic of these paints is that because of their very high zinc content they provide an anodic protection and are most useful for anti-rust treatment. Their effectiveness is, however, very strictly controlled by their zinc content which must be 92/95 per cent. by weight of the dry paint.

The article describes the paint and how it works, some results of tests and some of the more promising applications.

#### 15.102 materials: applied finishes and treatments LINOLEUM

*Felt Backed Linoleum.* BS 1863:1952. (British Standards Institution. 2s.)

Quality and testing of felt backed linoleum. (Hessian backed linoleum covered by BS 810.) Two thicknesses. Tests for weathering, indentation and bending.

#### 15.103 materials: applied finishes and treatments BITUMINOUS SURFACES

*Coloured Treatments for Bituminous Surfaces.* BRS Digest No. 43. (HMSO. June, 1952. 3d.)

The difficulty of applying finishes over bituminous materials without damage either to the finish or the bituminous material. Discussion of limewash, grit and sand finishes, bitumen paints, aluminium paints and polyvinyl acetate emulsions.

#### 18.101 construction: theory PRESTRESSED CONCRETE

*Prestressed Concrete.* J. D. Harris & P. B. Morice. (Cement and Concrete Association, Jan., 1952.)

Well written and interesting survey.

The Cement and Concrete Association have provided some very valuable information in the past from elementary instructions to site foremen to translations of most involved foreign papers on design, but their recent publication "Prestressed Concrete" should prove to be a "best-seller." Here is a complete review of the subject from 1886 to present day in 64 pages and with 107 illustrations. After a description of early developments, materials and design theory are discussed. This is followed by a brief survey of the three main methods of prestressing: Freyssinet, Magnel and Lee-McCall. The bulk of the booklet is then devoted to applications of these methods, including railway sleepers, beams and slabs for buildings and bridges, units for use in composite floors, water tanks, transmission towers, shells, pipes, tunnels and dams. The final chapter considers the safety of prestressed concrete.

#### 22.54 sound insulation and acoustics INSULATION AND ACOUSTICS

*Sound Insulation and Room Acoustics.* V. Brüel. (Chapman and Hall. 1951. 35s.)

A textbook on the subject translated from the author's Danish, this book contains a good selection of familiar data, set out in



## CHANCE BUILDING GLASSES

We make a range of building glasses second to none: glasses differing widely in pattern, application and obscuring power. The Flemish glass shown here is one of them: one much used for partitioning where absolute privacy is not essential. It is available in two pattern sizes and is effective in large panels: its bright lustrous surface is easy to keep clean. Other glasses include:—

**Cathedral** (in five textures of differing obscuration) Double Rolled; No. 2 Hammered; Glasgow Hammered; Mottled; Rough.

**Figured Rolled** Dewdrop; Festival; Flemish; Glistre; Montene; Stippolyte; Wavene, etc.

**Flashed Opal White** (the best diffusing medium).

**Reeded** (a family of glasses designed to harmonize with contemporary architecture: in three widths of fluting). Narrow, Broad, Major and Cross Reeded, Narrow and Broad Reedyte (which gives greater obscuration than Reeded).

**Rolled Plate**  $\frac{1}{8}$  in. Plain,  $\frac{1}{4}$  in. Rough Cast,  $\frac{1}{4}$  in. Wired Cast.

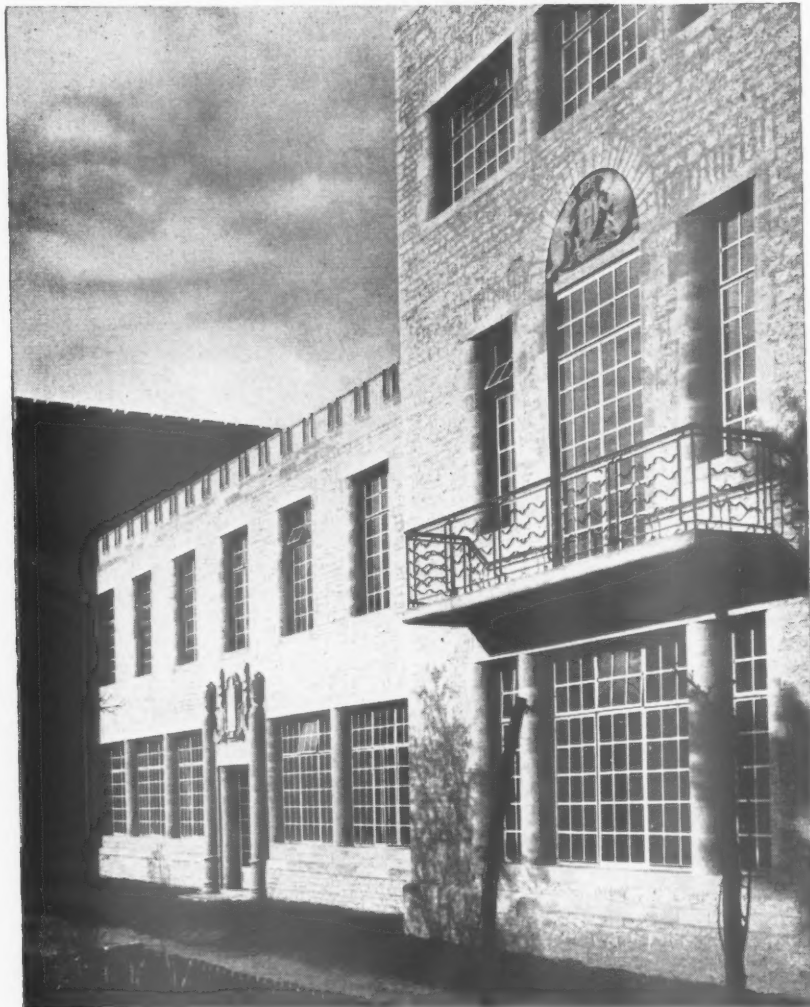
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*Architects : Sir Giles Gilbert Scott & Son  
Builder : Benfield & Loxley (Oxford) Ltd.*

## HARTLAND HOUSE OXFORD

Like many other beautiful buildings erected in the past twelve months, Hartland House, built for the St. Anne's Society, started life with the proved advantages of Bison Prestressed concrete floors.

Bison units are constructionally complete. They reduce the number of beams and stanchions and effect a substantial saving in steel and site labour.

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Specialists in Precast Floors since 1919

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new ways, and some useful material not formerly available in English.

A valuable part of this work refers to the design of different types of absorbent treatment employing perforated or slotted facings which are a familiar feature of much Scandinavian acoustical architecture. Though much practical information can be gleaned from this section the mathematics are still rather too involved for easy handling by the less technical designer. The final chapter contains some up-to-date information on the design of broadcasting studios, cinemas and details of some of the recent successful Scandinavian concert halls. A serious drawback to this book as a reference work is the use of metric dimensions throughout. Although this may have advantages for the technician, it is a deterrent to building designers familiar only with English units.

## 23.160 heating and ventilation FLUE PIPES

*The Heating of Panels by Flue Pipes.* Fire Research Special Report No. 1. (HMSO. 1952. 2s. 6d.)

Investigation of temperature rise in panels near to flue pipes.

There have been a considerable number of fires in post-war houses caused by flue pipes being placed too close to wall panels. This special report covers a most careful investigation and shows how the temperature rise of a panel depends upon temperatures in the flue pipe, the dimensions of the pipe and its distance from the panel. All the facts necessary to give the architect the information he needs have been obtained, but there are no simple rules given as to how close to various types and sizes of flues various panel materials can safely be placed. It may be that as this is a Special Report, the practical everyday information is to be given elsewhere—by ministry circular or bye-law control or some such means, but it might have been wise even so to include the information in simple form in the present publication. Failure to do so suggests that criticisms of scientists being unaware of the needs of the outside world may be justified.

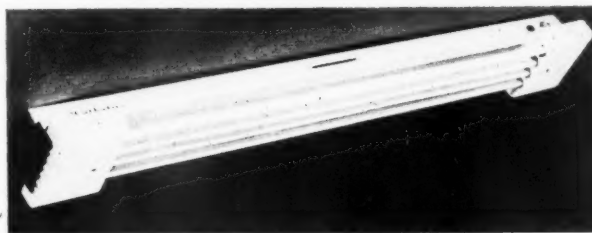
## 24.155 lighting: VISUAL COMFORT

*The Evaluation of Visual Comfort Data.* H. L. Logan & A. W. Lange. (Illuminating Engineering [USA] April, 1952.)

Brightness ratios and visual comfort of lighting systems. Highly technical.

An attempt to reach a workable procedure for evaluating visual comfort in lighting

*This cold-cathode lighting fitting, one of the "MEICO" range manufactured by Micramatic Ltd., of Bourne-mouth, is only 5 ft. long. It contains two 10 ft., 75 W. cold cathode lamps bent to "U" shape and can be mounted flush to the ceiling or suspended. Micramatic Ltd. point out that cold-cathode lamps are instantaneous and positive starting, and that the starting voltage for the lamps used in their fittings is only 750 volts—not 1,200-1,500 as stated in the Technical Section survey published in the JOURNAL for July 3.*



systems. Too complex for architects and of doubtful value to practising lighting engineers. It reveals that research is alive to the importance of reaching practical conclusions. Three factors are related; source brightness, the adaptation level of the eyes, and the source area, that is the percentage of the visual field it occupies.

For a given adaptation level—influenced by surround and source brightness—it is shown that the comfort of one system of certain source brightness and area may equal another of lesser source brightness but greater source area. Sets of contours of equal comfort are given for different adaptation levels (by plotting brightness against area); the area below each curve is the region of comfortable response and above discomfort.

It is emphasized that the present tendency to stipulate brightness ratios like 3:1 or 10:1 for any situation or illumination level is arbitrary and that in fact there is a multitude of brightness limits of comfort depending on individual circumstances.

## 25.82 water supply and sanitation DRAIN PIPES

*Salt-glazed Ware Pipes.* BS 65:1952. 3s. *Dimensions of Drain Fittings, Salt-glazed Ware and Glass (Vitreous) Enamelled Salt-glazed Fireclay Pipes.* BS 539: Part 1: 1951. 5s. *Glass (Vitreous) Enamelled Salt-glazed Fireclay Pipes.* BS 540:1952. 3s. (British Standards Institution.)

Three of series of four Standards on drain pipes and fittings. Two cover quality and dimensions, one covers dimensions only. The fourth of the series will deal with Fittings, Scottish Type.

It is not always easy to specify adequately the drainage of a building without reference to actual types of fittings. A "6-in. trapped gulley" is not an adequate answer to all gulley requirements. Standard 539

is therefore a most useful reference. Certain fittings, such as taper pipes, radius bends, etc., which are subject to tests similar to pipes, are now included in BS 540. This may be a logical arrangement, but it would in many ways be even more useful to have all the information in one publication—especially if this would reduce the total price.

## 25.83 water supply and sanitation STACK PIPES

*Capacities of Plumbing Stacks in Buildings.* R. S. Wyly and H. N. Eaton. (Building Materials & Structures Report 132, US Dept. of Commerce, 1952. 20 cents.)

Considerable uncertainty exists about the correct size for soil and waste stack pipes. The problem is extremely complicated in large, tall buildings and therefore of greater importance in USA than in this country, but any logical design approach would be of use in our major buildings. The present paper gives the results of a careful study of the problem and should be of interest to those specialists who, in this country, are working on similar problems. It does not appear to have reached sufficiently clear cut answers free from involved mathematics to be attractive to architects.

## 26.101 services and equipment: miscellaneous BELLS

*Bell and Call Systems.* BS C of P 327.401. (British Standards Institution. 1952. 3s.)

Bells and indicator call-systems, time bells, burglar alarms and watchmen's supervisory services. Recommendations on design, wiring, power supply, inspection, testing and maintenance.

## 8 ESTIMATING materials prices

Current prices for measured work will appear next week.

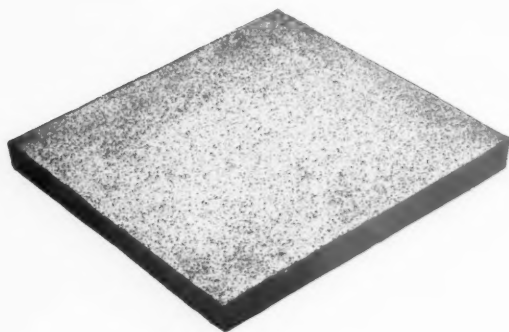
Prices of materials and measured work last appeared in the JOURNAL on May 1 and May 15, respectively.

*Current rates of wages and market prices of materials prepared by Davis Belfield and Everest, Chartered Quantity Surveyors.*

Rates of Wages last rose on February 4, 1952, and are now as follows:—

LONDON DISTRICT		Craftsmen.		Labourers.	
Within 12 miles radius	.. ..	3s. 6d.		3s. 0½d.	
From 12-15 "	.. ..	3s. 5½d.		3s. 0d.	
LIVERPOOL and DISTRICT		.. ..	3s. 6d.	3s. 0½d.	
GRADE CLASSIFICATIONS					
	A	A <sup>1</sup>	A <sup>2</sup>	A <sup>3</sup>	
Craftsmen	.. 3s. 4½d.	3s. 4d.	3s. 3½d.	3s. 3d.	
Labourers	.. 2s. 11d.	2s. 10½d.	2s. 10d.	2s. 9½d.	

# ALTRO PRESTILE for floors and stairs eliminate wear and danger of slipping



These hydraulically pressed tiles containing quartz aggregate, "Altro" (aluminium oxide grain) and Colemanoid are:—

## Non-Slip (wet or dry)

Aluminium oxide (Altro) abrasive grain is jewel hard and incorporated through the top  $\frac{1}{4}$ ".

## Impervious

The addition of Colemanoid waterproofing and hardening liquid not only increases the compressive and tensile strength of the tile but proofs the body of the tile. A special acid resisting tile is also available.

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The bottom of the tile is left porous to ensure a perfect bond with the cement mortar or suitable bituminous adhesive.

## Hardwearing

Quartz is hard and "Altro" grain even harder. These tiles will stand up indefinitely under very severe traffic.

## Decorative

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Prices vary according to quality and the quantity ordered.

Those given below are average market prices and include delivery in the London area, except where otherwise stated, but do not include overhead charges and profit for the General Contractor.

## CONCRETOR

## Cements

	6 tons and over.
Portland to B.S. 12	per ton 96/9
Rapid hardening to B.S. 12	per ton 104/9
Aquacrete water repellent	per ton 129/3
Above prices include for delivery to Charing Cross in non-returnable paper bags or cotton sacks.	
Snowcrete (minimum 1-ton lots), per ton, 257/3 (including bags).	

## Aggregate and Sands, etc. (Full Loads)

3" (Down) Washed, crushed and graded shingle to B.S. 882, Table 2	per yard cube	18/3
1 1/2" Ditto	per yard cube	17/3
3/4" Sharp washed sand to B.S. 882, Table 3	per yard cube	20/10
Brick hardcore	per yard cube	9/-

(For Sands for Bricklaying and Plastering, see respective trades)

## Floor Blocks

	4"	6"	7"
Floor blocks, 12" x 12"	per 1,000 673/-	909/-	1050/-

## Reinforcement

Home trade maximum basis price for mild steel rods to B.S. 785, 3/8" diameter and upwards, ex mills delivered to station or siding			
	per ton		£31 19 0
Extras for:—			
Under 3/8" to 7/8" diameter	per ton	£1 7 0	
Ditto 7/8" and over 3/8" diameter	per ton	£1 14 6	
3/8" and over 7/8" diameter	per ton	£2 2 0	
7/8" and over 3/8" diameter	per ton	£2 9 6	
3/8" and over 7/8" diameter	per ton	£2 17 0	
7/8" and over 3/8" diameter	per ton	£3 4 6	
3/8" diameter	per ton	£3 12 0	
Under 1/2" to 3/8" diameter	per ton	£5 2 0	

## Fabric Reinforcement

	16.35 lb.	9.32 lb.	4.71 lb.	1.83 lb.
Steel wire mesh fabric to B.S. 1221, Part A per yd. super.	7/8	4/5	2/3	1/5

## BRICKLAYER

## Common Bricks

Third stocks	per 1,000	118/10
Rough stocks	per 1,000	150/4
Mild stocks	per 1,000	202/4
Sand limes	per 1,000	106/-
Phorpres pressed Flettons	per 1,000	108/-

## Facing Bricks

Hand-selected sand limes	per 1,000	135/3
Phorpres rustic Flettons	per 1,000	133/-
Stocks, first hard	per 1,000	237/4
Stocks, second hard	per 1,000	227/4
Southwater pressed sandfaced reds	per 1,000	277/-
Dorking pressed sandfaced multicoloured facings	per 1,000	231/6

## Engineering Bricks

Lingfield engineering wirecuts. Grade 'B'	per 1,000	211/-
Southwater engineering No. 2 (second quality red pressed)	per 1,000	274/6
* Blue pressed bricks to B.S. 1301	per 1,000	362/-
* Haulage extra		

## Glazed Bricks

	Best quality	Seconds
	£ s. d.	£ s. d.
White, Ivory or Brown, 9" x 2 1/2" x 4 1/2"		
Headers	per 1,000 39 10 0	37 10 0
Stretchers	per 1,000 40 0 0	38 0 0
Prices for glazed bricks + 55% seconds.		
+ 60% bests.		
Plus delivery charge in London area of 30/- per 1,000		

## BRICKLAYER (continued)

## Limes and Sands

† Lime, greystone, to B.S. 890	per ton	106/6
† Lime, chalk, ditto	per ton	106/6
* Lime, hydrated, ditto	per ton	127/6
Washed pit sand to B.S. 1200	per yard cube	20/10
* Including paper bags.		
† Hire of jute sacks charged at 1/6 and credited at 1/6. If left, charged at 1/9.		

## Sundries

10 s.w. gauge galvanized butterfly type wall ties to B.S. 1243	per 1,000	116/-
Wall ties, galvanized, 8" x 1/2" x 1/2", to B.S. 1243	per cwt.	111/9
Damp proof course slates:		
Size 14" x 9"	per 100	43/6
" 14" x 4 1/2"	per 100	21/-
Hessian base bitumen damp course to B.S. 743	per yard super	5/9
	9" x 3" 9" x 6" 9" x 9"	
Terra-cotta airbricks	each	1/3 2/6 6/-
Galvanized cast-iron airbricks	each	3/8 6/1 9/6
Galvanized cast-iron hit-and-miss ventilators	each	3/7 6/10 8/11
Wall reinforcement supplied in standard rolls containing 25 yards lineal		
† 2" wide black japanned	per roll	3/4
† 2 1/2" wide black japanned	per roll	4/2
† Greater widths pro rata 2 1/2" price, carriage paid on orders of £7.		
Discount for quantities.		

## Partitions, etc.

Breeze to B.S. 492	per yard super	2" 2 1/2" 3" 4 1/2"
Hollow clay to B.S.		3/10 4/5 4/11 6/5
1190 (keyed)	per yard super	4/2 4/5 4/11
Moler (keyed)	per yard super	10/- 12/7 14/- 15/8 (4 1/2)
Building blocks:—		4 1/2"
3 cavity	per yard super	6/5
6 cavity	per yard super	7/1

## PAVIOR

2" coarse gravel for paths	per yard cube	20/3
3/4" fine ditto	per yard cube	21/9
Clean granite chippings to B.S. 1201, Table 4 (in 5-ton loads)	per ton	43/9
Red quarry tiles, 6" x 6" x 3/8", to B.S. 1286	per yard super	12/9
Ditto 6" x 6" x 3/8", to B.S. 1286	per yard super	10/9
Buff quarry tiles, 6" x 6" x 3/8", to B.S. 1286	per yard super	15/3
Ditto 6" x 6" x 3/8", to B.S. 1286	per yard super	13/-
Hard red paving bricks, 2"	per 1,000	429/-
Ditto 1 1/2"	per 1,000	404/6

## DRAINLAYER

## Clay Land Drain Pipes to B.S. 1196

	3"	4"	6"
Pipes in 12" lengths	per 1,000 195/-	255/6	529/-

## Salt Glazed Stoneware Pipes and Fittings

The following percentages to be added to the Standard List prices.

	Orders for 2 tons and over	Orders under 2 tons 100 pieces upwards	Orders under 2 tons less than 100 pieces
Seconds Quality	67 1/2% less 15%	87 1/2% less 15%	97 1/2% less 15%
Best Quality	67 1/2%	87 1/2%	97 1/2%
British Standard Quality	67 1/2% + 10%	87 1/2% + 10%	97 1/2% + 10%
Tested Quality	67 1/2% + 37 1/2%	87 1/2% + 37 1/2%	97 1/2% + 37 1/2%
British Standard Tested	67 1/2% + 47 1/2%	87 1/2% + 47 1/2%	97 1/2% + 47 1/2%

## Cast Iron Drain Pipes and Fittings

Socket and spigot pipes to B.S. 437:—					
Weight per 9 ft	Size	9 fts.	6 fts.	4 fts.	3 fts.
		each	each	each	each
1	1 1/2"	17 4"	56/6	41/4	32/7
2	2"	0 1 6"	84/3	65/4	51/9
3	3"	21 9"	153/6	130/4	110/6
					84/8

# IROKO

(AFRICAN TEAK)

Morris have good stocks of this trusty but seldom abundant Teak-type hardwood. It is available in joinery sizes from 1" to 4" thick, also specially large widths in 1" and 1½" for drainers and bench tops. Solid logs of big diameter can also be supplied sawn to users' particular requirements. The price is still about 40% below Teak on average, and Iroko is, of course, free of licence. Send us your cutting list or specification for a prompt quotation.

## M·A·MORRIS·LTD



There's nothing like  
**WOOD**

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

DRAI  
To  
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•Gullie  
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497,  
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9" x  
2" x  
thro  
3" x  
5" x  
6" x  
SLAT  
16" x  
20" x

## DRAINLAYER (continued)

Tonnage Allowances:—

Orders up to 2 tons nett.

	4"	6"	9"
*Bends (short radius) as Fig. No. 4 each	6/3	13/-	40/-
*Single junctions as Fig. No. 18 each	11/-	22/6	69/-
*Intercepting traps as Fig. No. 33 each	30/-	50/-	123/-
*Gullies ordinary trapped "P" each	14/6		
*Extra for 4" vertical back inlet each	4/3		
*Grease gully trap each	121/-		

\* These prices are subject to 108½% plusage.

Channels in Brown Glazed Ware.

Standard list + same discounts as "Best" quality salt-glazed Stone-ware pipes.

White Glazed Channels

Orders under 20 pieces. Standard list + 10%

Manhole covers and frames

	Size of load	Unit price
C.I. coated double triangular manhole cover and frame, 22" dia. clear opening to B.S. 497, Grade A each	35 tons	154/-
C.I. coated circular manhole cover and frame, 22" dia. clear opening to B.S. 497, Grade B. ....	each	84/-
	Size of load	Single seal Flat type Double seal Flat type
Coated manhole cover and frame to B.S. 497, Grade C, 24" × 18" each	1 ton	39/10 66/5
Galvanised ditto, 24" × 18" each	1 ton	70/4 100/6
Coated manhole cover and frame, to B.S. 497, Grade C, 24" × 24" each	1 ton	56/9 86/4
Galvanised ditto, 24" × 24" each	1 ton	103/10 150/-

## MASON

Yorkstone

Building quality Robin Hood and Woodkirk Blue Stone.

Blocks scrapped, random sizes	per foot cube	11/4
Add for blocks to dimension sizes	per foot cube	1/4 (each dimension)

Templates with sawn beds, edges rough (up to 4 ft. super and not over 2' 6" long)	per foot cube	12/8
Templates with sawn beds, sawn one edge, per foot cube		14/8
Price f.o.r. Yorkshire, railway rate to London Station per ton. (Minimum 4-ton loads)		54/5

Bath Stone in random blocks

Monk's Park	per foot cube	6/7
St. Aldhelm Box Ground	per foot cube	7/7
Delivered on rail at South Lambeth station.		

Portland Stone in random blocks, average 20 feet

Whitbed	per foot cube	7/4
Delivered on rail at Nine Elms Station.		

Artificial Stone to B.S. 1217

4½" × 4" Sill, sunk, weathered, throated and grooved	per foot run	3/6
9" × 3" Ditto	per foot run	4/9
2" × 12" Coping, weathered and twice throated	per foot run	4/3
3" × 12" Ditto	per foot run	6/3
5" × 12" Saddleback coping, twice throated	per foot run	9/6
6" × 12" Ditto	per foot run	11/9

## SLATER, TILER AND ROOFER

Slates

	£	s.	d.
16" × 10" Best Bangor Slates to B.S. 680	per 1,000 actual	49	14 6
20" × 10" Ditto	per 1,000 actual	74	0 6

## SLATER, TILER AND ROOFER (continued)

Tiles

Hand-made sandfaced 10½" × 6½" red roofing tiles	per 1,000	325/9
Machine-made sandfaced best red tiles with continuous ribs, 10½" × 6½"	per 1,000	294/6
Berkshire hand-made red Pantiles, 14½" × 10"	per 100	119/9
Bridgwater hand made red sandfaced pantiles, in 6 ton loads	per 1,000	799/6
Bridgwater hand made red sandfaced Double Roman tiles, in 6 ton loads	per 1,000	1075/5
Concrete plain tiles, 10½" × 6½"	per 1,000	160/9
Ditto interlocking tiles, 15" × 9"	per 1,000	490/-
Ditto Double Roman tiles	per 1,000	800/-

Asbestos-cement

*6" corrugated sheets, grey	per yard super	5/11
-----------------------------	----------------	------

\*Prices are for minimum two-ton loads, and are subject to 2½% discount.

Felt

Reinforced roofing felt to B.S. 747	per yard sup.	2/-
Roofing felt (1-ply bitumen) to B.S. 747, Part I	per yard sup.	1/6
Bituminous hair felt to B.S. 747, Part II	per yard sup.	3/-

## CARPENTER AND JOINER

Wall boards

½" Imported Fibre board (per 100 sq. ft.)	5,000 to 15,000 sq. ft.	41/-
½" Imported Hardboard (per 100 sq. ft.)		42/-
¾" Imported Hardboard (per 100 sq. ft.)		60/-
* ½" Semi compressed asbestos cement flat building sheets, grey	per yard super	2/6
* ¾" Ditto	per yard super	3/6

\* Prices are for orders of 2 tons and over. Subject to 5% trade discount.

Sundries

"Sisalkraft" standard grade	per yard sup.	-/11½
"Sisalkraft" subsoil grade	per yard sup.	-/7½
"Sisalation" single sided	per yard sup.	2/1½
"Sisalation" double sided	per yard sup.	3/1
* Fibre glass Bitumen bonded,	per yard sup.	1/11½

\* Price is for orders value £5 and over.

Timber

Softwood for Carpentry (average price)	per std.	£95
Softwood for Joinery (ditto)	per std.	£105
Tongued and Grooved Softwood Flooring (ditto)	per std.	£105
First Quality European Oak (ditto)	per ft. cube	26/-
Teak (ditto)	per ft. cube	59/-

Standard Panelled and Glazed Wood Doors to B.S. 459, Pt. 1

Type 4	size 2' 6" × 6' 6" × 1½"	each	36/9
Type 2 × G	size 2' 6" × 6' 6" × 2"	each	47/9
Type 4 × G	size 2' 6" × 6' 6" × 2"	each	54/9

In lots of from 1 to 11 inclusive.

Wood Windows

N 26 V	size 1' 5½" × 2' 6½"	each	32/8
2 26 V	size 4' 0½" × 2' 6½"	each	65/8
N 40 V	size 1' 5½" × 4' 0½"	each	37/8
3 40 V	size 5' 11½" × 4' 0½"	each	113/-
4 40 V	size 7' 10½" × 4' 0½"	each	146/5

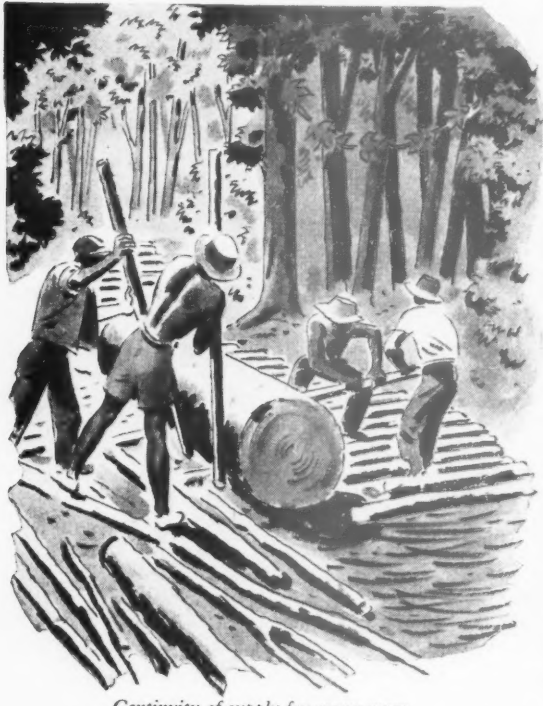
In lots of from 1 to 20 inclusive.

Kitchen Units

No. 1	size 3' 6" × 2' 8" × 1' 7"	each	194/7
No. 2	size 3' 6" × 2' 8" × 1' 7"	each	137/-
No. 4	size 2' 8" × 1' 9" × 1' 7"	each	119/4
No. 5	size 3' 10" × 1' 9" × 1' 7"	each	100/2
No. 7	size 6' 6" × 1' 9" × 1' 7"	each	155/4

Prices include for tops and plinths

In lots of from 1 to 15 inclusive.



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Please ask manufacturers to send further particulars to:—

NAME .....

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ADDRESS .....

AJ 24.7.52

## Buildings Illustrated

Factories 3 and 9 for the British Tabulating Machine Co. Ltd., at Icknield Way, Letchworth, Hertfordshire (Pages 100-101). Architects: Hugh Roberts & Davies, F.R.I.B.A. Quantity surveyors: C. E. Ball & Partners, General contractors: F. G. Minter (Decorations) Ltd. Clerk of works: J. Baldwin. General foreman: J. Appleton. Sub-contractors: structural steel, glass, casements and window furniture, Hills (West Bromwich) Ltd.; patent flooring, Semtex

Ltd. and Alan Milne Ltd.; central heating and boilers, J. H. Nicholson & Co. Ltd.; electric wiring, Eastern Electricity Board; sanitary fittings, Metal Agencies Co. Ltd.; door furniture, Mountford Bros. Ltd.; iron staircases, The Borough Engineering Works Ltd.; sliding door gear, P. C. Henderson Ltd.

Terrace Housing for the Borough of Chelmsford on the Chignall Estate, Chelmsford, Essex. (Page 102.) Architect: Stanley Bragg, A.R.I.B.A. General contractor: Ringer Bros. Ltd. Sub-contractors: dampcourses, The Ruberoid Co. Ltd.; asphalt floors, Ragusa Asphalte Co. Ltd.; reinforced concrete (hoods), Withams Precast Concrete Co.; bricks, Marston Valley Brick Co. Ltd.; tiles, Roberts Adlard & Co. Ltd.; electric wiring, Essex Electric Installations Ltd.; sanitary fittings, E. L. Hunt Ltd.; door furniture, Young & Marten Ltd.; metal windows and casements, Henry Hope & Sons Ltd.

Pair of Children's Houses at the Princess Alice School, Chester Road North, Sutton Coldfield, Warwick, for the National Children's Home and Orphanage. (Page 103.) Architect: G. H. Herring, F.R.I.B.A. General contractors: John Bowen & Sons Ltd. General foreman: J. H. Llewellyn. Sub-contractors: asphalt, John Hadfield & Sons Ltd.; reinforced concrete, Stuarts Granolithic Co. Ltd.; bricks, Aldridge Brick & Tile Co. Ltd. (facings), Marston Valley Brick Co. Ltd. (commons); structural steel, John Bowen & Sons Ltd.; tiles, Charnwood Forest Brick & Tile Co.; roofing felt, D. Anderson & Sons Ltd.; glass, The Boyce Glass Co. (Birmingham) Ltd.; patent flooring, Semtex Ltd.; central heating boilers, Couzens & Akers Ltd.; grates, door furniture, Parker, Winder & Achurch Ltd.; electric wiring, H. Powell; plumbing, Arthur Howell Ltd.; sanitary fittings, H. Binks & Co.; casements, Crittall Manufacturing Co. Ltd.; plaster, J. R. Brookes; metalwork, Bigwood Bros.; joinery, Midland Joinery Co.

Ltd.; tiling, Godsell & Goodman (Roofing) Ltd.

The Applebey Lecture Theatre and West Building for the Council of the Durham Colleges, South Road, Durham. (Pages 104-110.) Architect: Professor J. S. Allen, F.R.I.B.A. Quantity surveyor, J. P. Allen & Hill. Consulting engineer: Oscar Faber & Partners. General contractors: Leslie & Co. Ltd. Sub-contractors: excavation, reinforced concrete, foundations, Leslie & Co. Ltd.; asphalt, Val de Travers Asphalte Paving Co. Ltd., Ragusa Asphalte Paving Co.; facing bricks, The High Brooms Brick & Tile Co. Ltd.; artificial stone, Northern Cast Stone Co.; structural steel, Redpath Brown & Co. Ltd.; slates, Burlington Slate Co.; special roofings, gasfitting and plumbing, Spors Ltd.; lavatory cubicles, Crittall Manufacturing Co. Ltd.; glass, Maxwells; woodblock flooring (oak), Frederick Thompson, Harrison & Sons; patent flooring, The Granwood Flooring Co. Ltd., Cork Insulation & Asbestos Co.; central heating and ventilation, Brightside Foundry & Engineering Co. Ltd.; electric wiring, Dove & Co. Ltd.; electric light fixtures, Falk Stadelmann & Co. Ltd., Troughton & Young Ltd.; sanitary fittings, Shanks & Co. Ltd.; stair treads (teak), Cork Insulation & Asbestos Co.; door furniture and cloakroom fittings, Parker Winder & Achurch Ltd.; casements and window furniture, Williams & Williams Ltd.; iron staircases and metalwork, Potter Rax Ltd.; sunblinds, J. Avery & Co.; plaster, W. A. Telling Ltd.; joinery, Heal's Contracts Ltd., John Porter Ltd.; wallpapers, Coles Ltd., John Line & Sons Ltd.; lifts, Pickering's Ltd.; clocks, Gent & Co. Ltd.

## Correction

The Plandex advertisement, July 17, contained an error in the cost of filing drawings. This read 4d. instead of 1s. 4d.

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AND TABLE TOPS  
CUBICLE UNITS  
REFRIGERATORS**

*Metal  
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USING this system of Guttering shows a tremendous saving in cost, material and maintenance charges. Finlock Gutters are made with a fine waterproof concrete—simple in design, easy

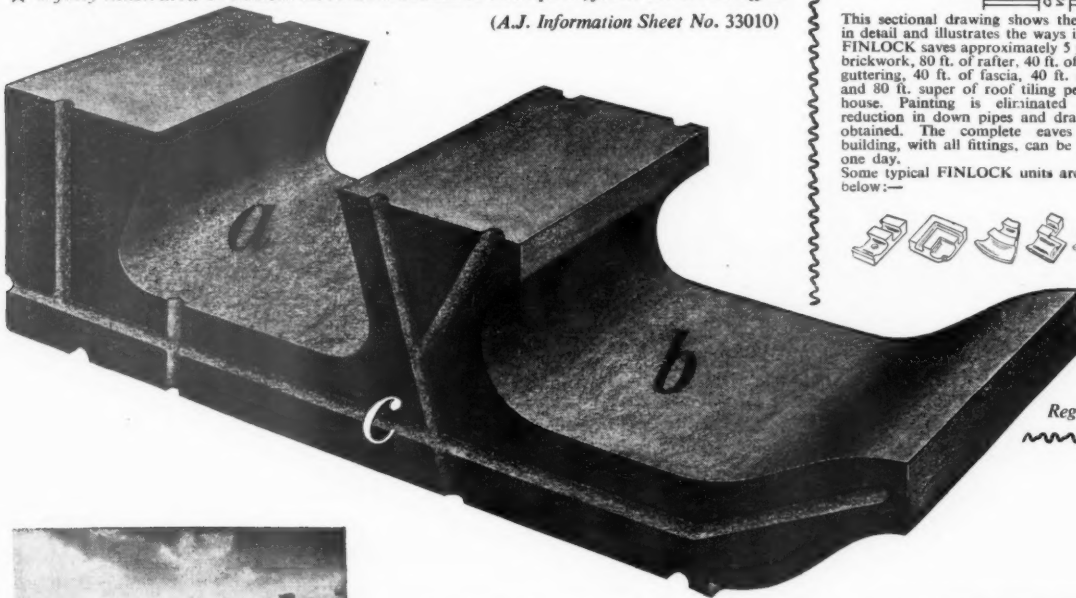
## Finlock forms the eaves and gutters (says Mr. Fin)

... and saves £15 per house! (says Mr. Lock)

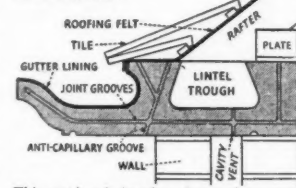


shows the large sectioned gutter channel which permits laying without fall. Strong enough to walk in and to withstand all building stresses. Completed by a bituminous lining after laying. "c" indicates the jointing grooves.

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### HOW FINLOCK SAVES MONEY and TIME!



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Over 200 local authorities are now using Finlock.

† The buildings shown are in accordance with the winning design in the £1,000 low cost housing competition organised by "THE BUILDER". By courtesy of J. L. Womersley, Esq., A.R.I.B.A., A.M.T.P.I., Borough Architect for Northampton.

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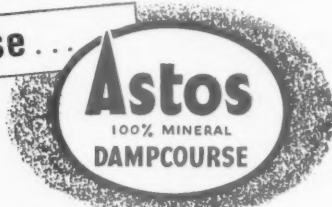
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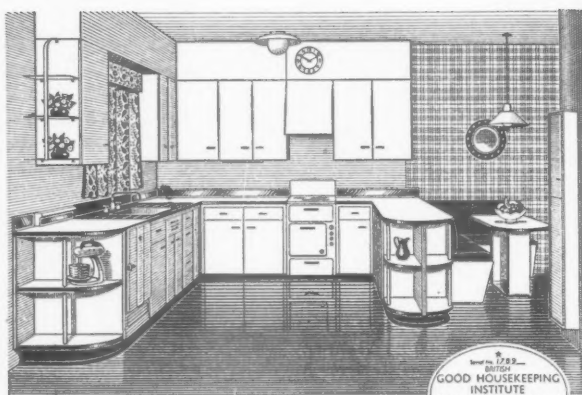
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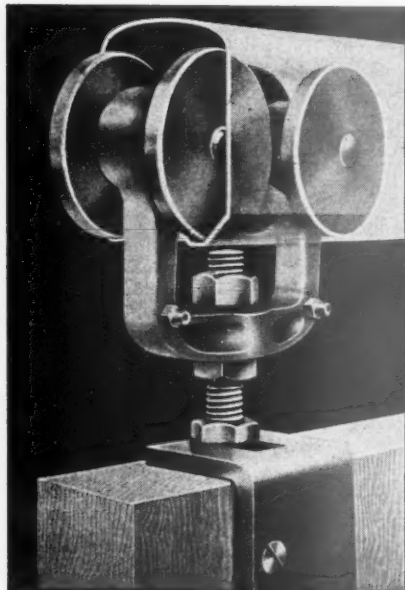
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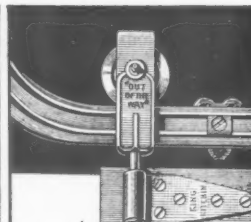
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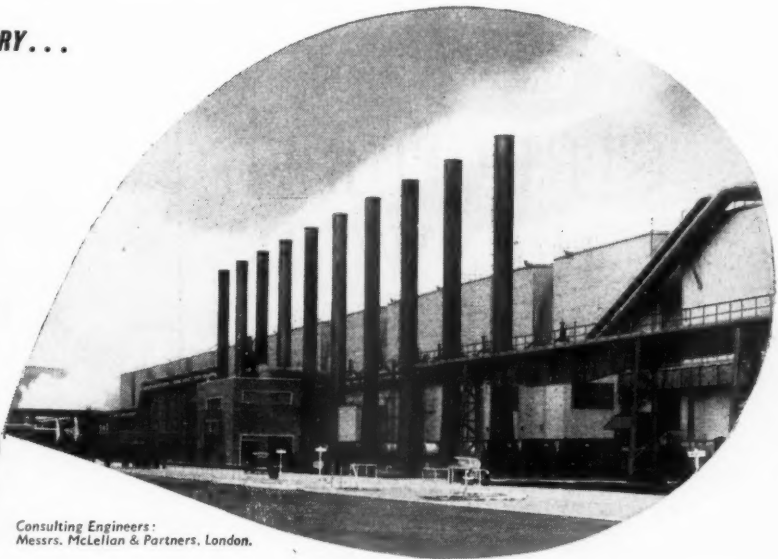


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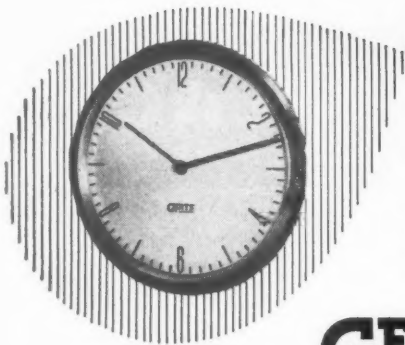
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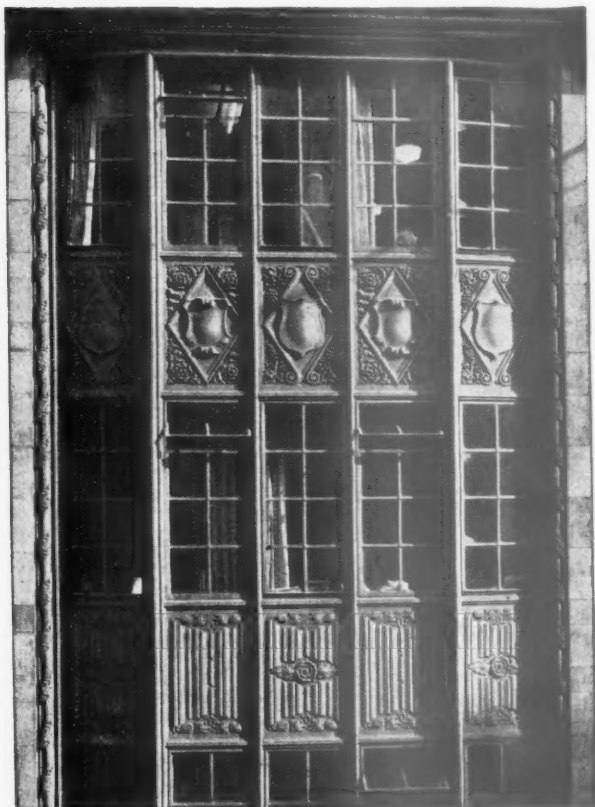
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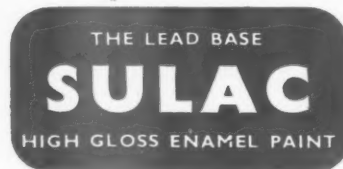
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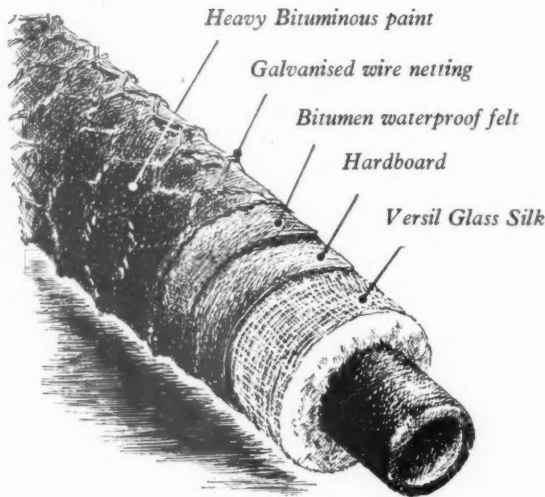
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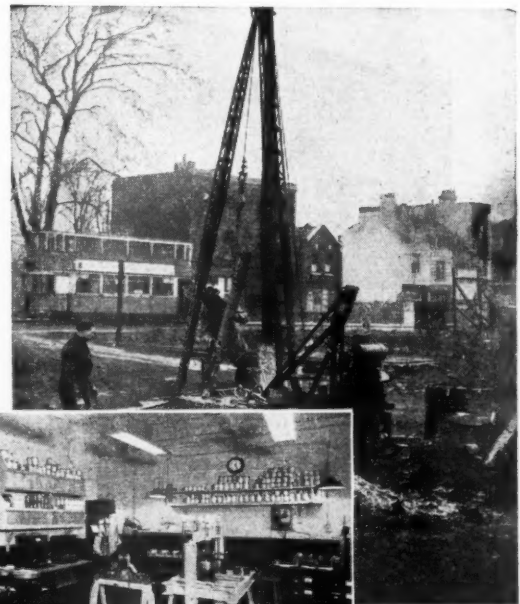
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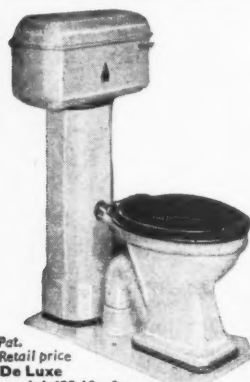
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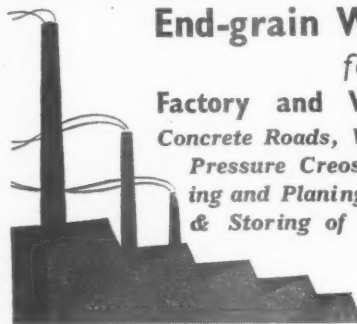
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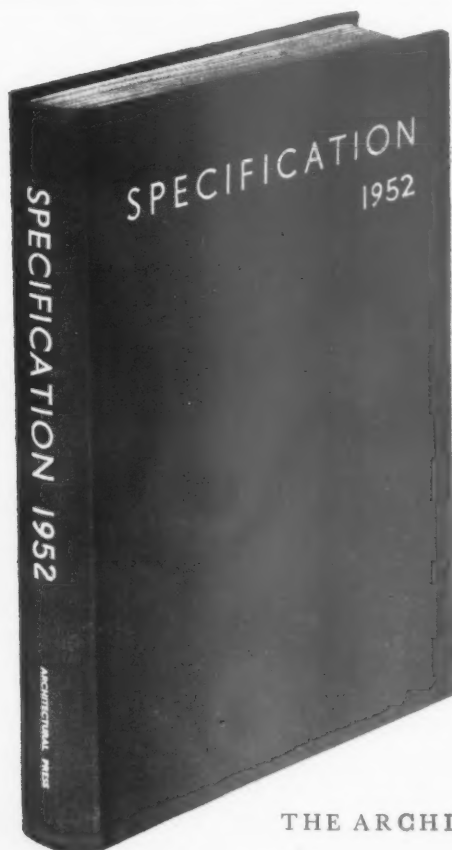
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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

## Public and Official Announcements

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

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

LONDON COUNTY COUNCIL  
ARCHITECT'S DEPARTMENT

ARCHITECTS, A.R.I.B.A., required for constructional divisions (Schools, Housing General). Starting salaries up to £397 10s. Application forms from Architect, (quote EK/HSG/2), County Hall, S.E.1. (769) 7101

## LONDON COUNTY COUNCIL

QUALIFYING EXAMINATION FOR THE  
OFFICE OF DISTRICT SURVEYOR

An examination for certificates of proficiency to perform the duties of District Surveyor will be conducted in London in the week commencing 20th October, 1952. Minimum age for candidates 25.

Possession of this certificate necessary for appointment as District Surveyor (£1,190 to £2,100 a year) or as Assistant District Surveyor (£1,002 to £1,143).

Subsequent examinations will be held annually. Apply to The Architect to the Council, County Hall, Westminster Bridge, S.E.1, for application forms and further particulars. (450) 6839

COUNTY BOROUGH OF DONCASTER  
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments in accordance with the National Scale of Salaries:—

(a) TWO ASSISTANT ARCHITECTS (Temporary Staff) Grade A.P.T. VI £465 by £20 to £25—£470. Applicants must be Associates R.I.B.A. and have had good experience in the preparation of sketch schemes and working drawings for school development.

(b) ARCHITECTURAL ASSISTANT (Permanent Staff) Grade A.P.T. V £570 by £15 to £15 by £20—£620. Applicants must be Associates R.I.B.A. and have had experience in the preparation of schemes and working drawings for Local Authority housing developments.

(c) ARCHITECTURAL ASSISTANT (Permanent Staff) Grade A.P.T. IV £530 by £15 to £15 by £15—£575. Applicants must be of at least Intermediate R.I.B.A. examination standard and have had experience in school development.

(d) SENIOR QUANTITY SURVEYING ASSISTANT (Permanent Staff) Grade A.P.T. VII £685 by £25 to £25 by £25—£760. Applicants must be Corporate Members of the R.I.C.S. (Quantities Sub-Division) and will be engaged in the preparation of Bills of Quantities in connection with schools, housing and other architectural work of the Corporation. Sound experience in taking-off for large and varied projects is essential.

(e) JUNIOR QUANTITY SURVEYING ASSISTANT (Permanent Staff) Grade A.P.T. III £500 by £15 to £15 by £15—£545. Applicants should be of R.I.C.S. Intermediate Examination standard and be fully experienced in abstracting and billing, measuring on site, preparation of final accounts and taking-off quantities for small works.

The appointments will be subject to one month's notice in writing on either side and to the terms of the National Joint Council's Scheme of Local Government Superannuation Act, 1937, and the successful applicants will be required to pass a medical examination.

Forms of application may be obtained from the Borough Architect, L. J. Tucker, A.R.I.B.A., F.I.Hgg., 15, South Parade, Doncaster, and must be returned not later than Monday, the 11th August, 1952, to the undersigned.

Canvassing directly or indirectly will be a disqualification.

H. R. WORMALD,  
Town Clerk.

1, Priory Place, Doncaster. 7133

## CITY OF LINCOLN

## CHIEF ASSISTANT ARCHITECT

Applications are invited for the above appointment in the City Architect's Department. Salary within Grade A.P.T. VII (£685—£760) according to experience. The post is superannuable.

Candidates should have experience in schools, housing and general architectural work. Applications, stating age, qualifications and experience, together with the names of two persons to whom reference may be made, should be received by R. R. Alexander, A.R.I.B.A., M.T.P.I., City Architect, Stamp End, Lincoln, not later than 11th August, 1952.

Canvassing will disqualify.

J. HARPER SMITH,  
Town Clerk.

Town Clerk's Office, Lincoln. 7134

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

Applications are invited for the appointment of Architectural Assistant at a salary in accordance with A.P.T. Grades III—IV, £500—£575 per annum.

Applicants should have had a thorough Architectural training, be good draughtsmen and have had experience in the design of public buildings and/or Municipal housing schemes.

The Council have a large programme of housing and public buildings in hand and the position offers wide scope to persons with initiative.

If necessary, housing accommodation may be offered to the successful candidate.

The appointment will be subject to the Scheme of Conditions of Service for A.P.T.C. Services, to the General Conditions of Service within the Corporation as varied from time to time and to the provisions of the Local Government Superannuation Act, 1937.

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

Applications, stating age, present and previous appointments, experience and qualifications, etc., should be addressed to the Borough Engineer, Town Hall, Barnsley, to reach him not later than the 6th August, 1952.

Canvassing will disqualify and applicants should disclose whether or not they are related to any Member or Senior Officer of the Council.

A. E. GILLILLAN,  
Town Clerk.

Town Hall, Barnsley.

July, 1952.

7135

CANNOCK URBAN DISTRICT COUNCIL  
APPOINTMENT OF ARCHITECTURAL  
ASSISTANT

Applications are invited for the above named appointment in the Architect's Department at a salary within Grades A.P.T. III to V of the National Scale according to qualifications and experience.

Favourable consideration will be given to the provision of housing accommodation for the successful applicant, if required.

Further particulars and forms of application are obtainable from the undersigned.

Closing date 11th August, 1952.

W. C. SPEEDY,  
Clerk of the Council.

Council House, The Green,  
Cannock, Staffs.

14th July, 1952.

7139

## CITY OF DURBAN,

## SOUTH AFRICA.

## VACANCIES FOR TECHNICAL STAFF.

Applications are invited from suitably qualified persons for the following posts on four-year contracts:—

(a) ONE CIVIL ENGINEER (Sewage Disposal).  
(b) ONE ASSISTANT TOWN PLANNING OFFICER.

(c) ONE ASSISTANT TOWN PLANNING OFFICER.

(d) FOUR TOWN PLANNING ASSISTANTS.

The basic salaries for the above-mentioned positions, together with relative cost-of-living allowances at present rates, are as follows:—

(a) and (b) £1,400 per annum; cost-of-living allowance (approx.), £240 per annum.

(c) £1,300 per annum; cost-of-living allowance (approx.), £244 per annum.

(d) scale £550 to £750; cost-of-living allowance (approx.), £197 per annum on £550, reducing to £183 per annum on £750.

Applicants selected for interview may be required to travel to a central City and will be paid reasonable travelling and subsistence expenses.

Successful applicants will be granted travelling expenses up to an amount of £250 each towards the cost of proceeding to Durban.

Full particulars must be obtained in the first instance from the Council's London Agents, Messrs. Webster, Steel & Co., 3, St. Helen's Place, Bishopsgate, London, E.C.3, to whom all applications must be delivered not later than the 5th September, 1952.

W. L. HOWES,

Town Clerk.

Durban, South Africa.

7142

HEMEL HEMPSTEAD DEVELOPMENT  
CORPORATION.

Applications invited for the Appointment of PLANNING ASSISTANT. Salary scale £460 by £25—£585.

Applicants should have had experience in a planning/drawing office and preference will be given to those who are student members of either the Town Planning Institute or the R.I.B.A.

Conditions of appointment broadly similar to Local Government Charter, with superannuation scheme, or opportunity of continuing in Local Government Superannuation Fund.

Applications endorsed "Vacancy No. 2" giving details of age, qualifications and experience, together with names of two persons to whom reference can be made, to reach undersigned by 14th August, 1952.

W. O. HART,

General Manager.

Westbrook Hay,

Hemel Hempstead, Herts.

7150

## AIR MINISTRY, WORKS DEPARTMENT

ARCHITECTURAL DESIGNER/DRAUGHTSMEN required in Design Branch by Air Ministry Works Department. Applicants should have had several years experience in the preparation of working drawings, details and layouts for permanent and semi-permanent buildings. The appointments will normally be in London but there are a few in the provinces and opportunities exist for overseas service for which allowances are payable. Salaries are on the range of £423 to £433 per annum, with starting pay dependent upon age, qualifications and experience. Extra duty allowance payable in accordance with standing regulations.

Applications quoting Code No. AN. and stating age, qualifications and previous appointments (with dates) should be sent to the nearest local Employment Exchange marked Order No. Borough 686. 7146

COUNTY BOROUGH OF BOURNEMOUTH  
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following appointments:—

ASSISTANT QUANTITY SURVEYOR — Unestablished Post-Salary Grade A.P.T. VI, £465—£470 per annum.

Applicants must be members of the R.I.C.S. and be experienced in adjustment and settlement of contractor's final accounts.

ARCHITECTURAL ASSISTANT II — Established Post-Salary Grade A.P.T. III, £500—£545 per annum.

Applicants must have had one year's experience after passing R.I.B.A. Intermediate Examination.

The successful candidates will be appointed at their present salaries if such salaries are within the incremental scales of the respective advertised posts.

The above appointments will be terminable by one month's notice, in writing, on either side and subject to the provisions of the Local Government Superannuation Act, 1937, also to the conditions of service in accordance with the National Scheme.

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

No assistance can be offered regarding housing accommodation.

Applications, on forms to be obtained from the Borough Architect, Town Hall, Bournemouth, accompanied by copies of three recent testimonials, to be returned to the undersigned in envelopes endorsed "Staff Architectural" not later than 10 a.m., Saturday, 16th August, 1952.

A. LINDSAY CLEGG,

Town Clerk.

7147

COUNTY COUNCIL OF NORTHUMBERLAND  
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for post of ASSISTANT ARCHITECT, A.P.T., Grade VI, on the permanent staff of the Department.

Candidates should preferably have had experience of housing.

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

Application, stating age, qualifications and previous experience, accompanied by recent testimonials, should be forwarded to the County Architect, County Hall, Newcastle-upon-Tyne, within ten days of the date of this advertisement.

7145

COUNTY BOROUGH OF TYNEMOUTH  
BOROUGH SURVEYOR'S DEPARTMENT

Appointments of:—

(1) ASSISTANT ARCHITECT,

(2) ASSISTANT ENGINEER,

(3) BUILDING INSPECTOR.

Applications are invited for the above appointments, with salaries on the following grades of the National Salary Scales:—

(1) Grade V (£570—£620).

(2) Grade III (£500—£545).

(3) Misc. Grade V (£455—£515).

The appointments are superannuable. Applicants for (1) should be Registered Architects, and experience in the design of schools would be an advantage. Provision of housing would be considered for this post only.

Application Forms and Conditions of Appointment may be obtained from Mr. D. M. O'Hearlihy, B.Sc.(Eng.), M.I.C.E., Borough Surveyor, 16, Northumberland Square, North Shields, to whom they should be returned by Monday, the 1st September, 1952.

Dated this 18th day of July, 1952.

(Sgd.) FRED. G. EGNER,

Town Clerk.

Northumberland Square,

North Shields.

7153

URBAN DISTRICT COUNCIL OF TYLDESLEY  
HOUSING AND BUILDING DEPARTMENT

There is a vacancy for a fully qualified and experienced BUILDING INSPECTOR. Salary Grade III of the A.P.T. Division (£500—£15—£545). The person appointed will be required to pass a Medical Examination and contribute to the Superannuation Scheme.

Forms of Application can be obtained from the undersigned and must be returned not later than 11th August, 1952.

Dated this 18th day of July, 1952.

RICHARD F. WILSON,

Clerk of the Council.

Town Hall, Tyldesley, Lancs.

7151

**CITY ARCHITECT'S DEPARTMENT,  
MANCHESTER**

Applications are invited from suitably qualified persons for the following permanent positions at salaries in accordance with the National Scheme of Service Conditions: (a) TWO SENIOR ASSISTANT QUANTITY SURVEYORS (fully qualified) salary A.P.T. Grade VII, £685-£760 per annum. (b) TWO ASSISTANT QUANTITY SURVEYORS, salary, one A.P.T. Grade V, £570-£620 per annum, and one A.P.T. Grade IV, £530-£575 per annum.

Further particulars and forms of application may be obtained from the City Architect, Town Hall, Manchester 2, the forms to be returned to the same address by 11th August, 1952. Canvassing is prohibited. 7152

**Architectural Appointments Vacant**

4 lines or under, 7s. 6d.; each additional line, 2s. The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

**ARCHITECTURAL ASSISTANTS** required in Westminster office of Consulting Engineers for detailing designs of Power Stations, Administrative Office Blocks, etc. Apply, stating age, experience, qualifications and commencing salary required. Box 7076.

**IMPERIAL CHEMICAL INDUSTRIES, LTD., NOBEL DIVISION**, requires ARCHITECTURAL DRAUGHTSMEN for work in Glasgow. Applicants should be between the ages of 25 and 35, should hold Higher National Certificate or equivalent qualification, and should have at least two years' industrial experience. Salary according to qualifications and experience. Applications should be made to the Staff Manager, Nobel House, 25, Bothwell Street, Glasgow, C.2. 7116

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**SENIOR ASSISTANT**, about 40 years of age, required for private practice at Dar Es Salaam. Wide experience and designing ability required. Single man or married man without family desirable. Salary about £1,200 per annum, with prospects. Apply R. S. Cobb, F.R.I.B.A., St. Ebbas, Shotover Hill, Oxford. 7145

**ARCHITECTURAL ASSISTANT** required in Structural Engineer's office, engaged on design and construction of Industrial and Public Buildings, Housing, etc., in Precast Reinforced Concrete. Applicant should be capable of preparing schemes, co-operating with Architects and checking up on site. A permanent, interesting and remunerative position to a keen and capable man. Apply, stating age, general experience and salary required, to Ferro-Concrete & Stone (North Notts) Ltd., Lound, Nr. Retford, Notts. 7129

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**Architectural Appointments Wanted**

**ASSISTANT** (34), student R.I.B.A., seeks position in London. 2 years' technical, 18 months' recognised school training, 6 months' post-war office. Small knowledge of acoustics, surveying. Studying for Final. Salary £375. Box 496.

**EDINBURGH**. Post required by Architectural Assistant (35) R.I.B.A. final standard. 14 years' varied experience in private and public offices. Box 493.

**ARCHITECTURAL ASSISTANT** requires immediate appointment, London. Box 504.

**ARCHITECTURAL DRAUGHTSMAN**, experienced working drawings, seeks position in London office. Box 505.

**TUTOR** (40) for R.I.B.A. Finals, school-trained, accustomed to entire responsibility in an office, seeks full- or part-time employment by respectable London architects (gentlemen preferred). Perspectives done quickly. Public school. Box 503.

**ASSISTANT** inter R.I.B.A. standard. 6 years' varied office experience, desires permanent position in office on coast or near. All replies carefully considered. Box 506.

**ARCHITECTURAL ASSISTANT**, 4 years' university training, 3 years' office experience, seeks a position in London office. Box 507.

**ARCHITECT**, Qualified and Registered, requires a senior, responsible position with private firm or as Company Architect, experienced Licenced Houses, Hotels, Hospitals, Industrial Work, Housing, etc., working drawings, details, specifications, bills of quantities, office administration and general supervision, control of staff. Box 502.

**Other Appointments Vacant**

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

**ARTICLED PUPIL or JUNIOR** required by Quantity Surveyors, no premium. Age 15-18, good education, must be keen, accurate at figures. Excellent prospects to learn profession. Reply in writing, stating age, education, etc., George Lewis & Son, 49, Sheepcote Road, Harrow, Middlesex. 7102

**LEADING Firm** in Shopfitting Industry now has position open for well-educated, possibly public school type, Man, aged about 30 years, with Architectural knowledge. Would be expected to study intensively contemporary developments with aim of becoming specialist-executive within few months. Good salary, commission, and excellent future prospects. Apply confidentially, giving adequate information to justify interview, to Box 7144.

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**ARCHITECT'S SECRETARY**, seven years' experience, requires situation in London area. Highest references. Box 7155.

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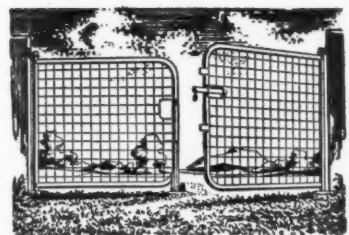
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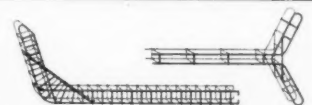
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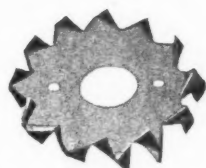


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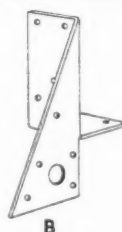
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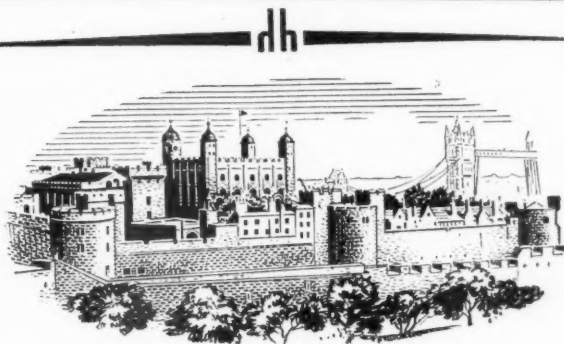
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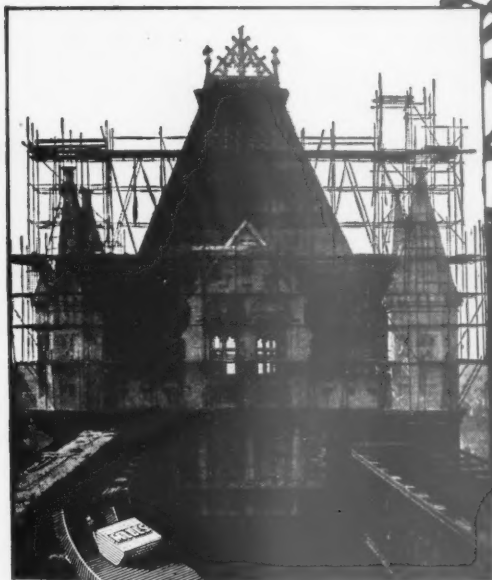
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