

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhamstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ArchSA	Architectural Students' Association. 34/36, Bedford Square, W.C.1.	
ARCUK	Architects' Registration Council. 68, Portland Place, W.1	Langham 8738
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Reliance 7611, Ext. 1706
BCC	British Colour Council. 13, Portman Square, W.1.	Museum 5400
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Welbeck 4185
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Ealing 9621
BDA	British Door Association. 10, The Boltons, S.W.10.	Redditch 716
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Fremantle 8494
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Temple Bar 9434
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Euston 5385
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Chancery 7772
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Langham 2785
BRDB	British Rubber Development Board. Market Buildings, Mark Lane, E.C.3.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Mansion House 9383
BSA	Building Societies Association. 14, Park Street, W.1.	Garston 2246
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 0515
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Mayfair 9000
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Holborn 8146/7
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Newport 5491
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Chichester 3001
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Sloane 5255
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Reliance 7611
CIAM	Congrès Internationaux d'Architecture Moderne. Doldental, 7, Zurich, Switzerland.	Radlett 5616
COID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Abbey 7080
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Reliance 7611
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Whitehall 0540
EJMA	English Joinery Manufacturers' Association (Incorporated), Sackville House, 40, Piccadilly, W.1.	Trafalgar 8855
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	Regent 4448
FAS	Faculty of Architects and Surveyors. 67, Oxford Street, W.1.	Gerrard 0021
FASS	Federation of Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organisation, Ltd., Melbourne House, Aldwych, W.C.2.	Temple Bar 4561
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.	
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Chancery 7583
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Whitehall 3902
FS (Eng.)	Faculty of Surveyors of England. 67, Oxford Street, W.1.	Langham 4041
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Gerrard 0021
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 4554
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Sloane 2844
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Whitehall 2881
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Sloane 5615
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Grosvenor 6186
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Whitehall 4577
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Temple Bar 7676
		Abbey 5215

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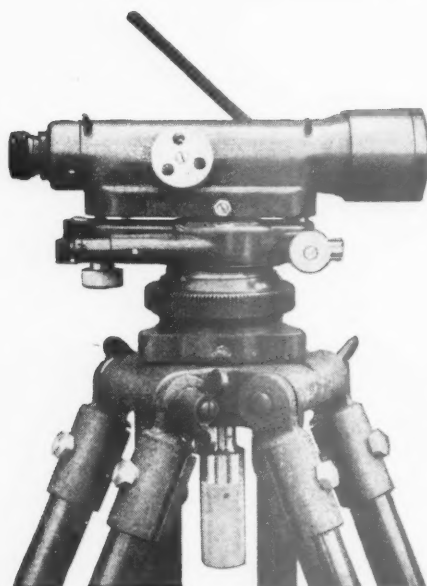
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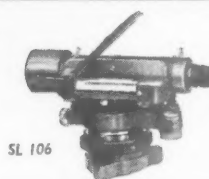
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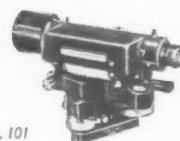
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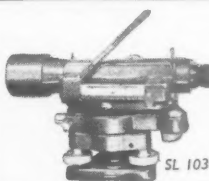
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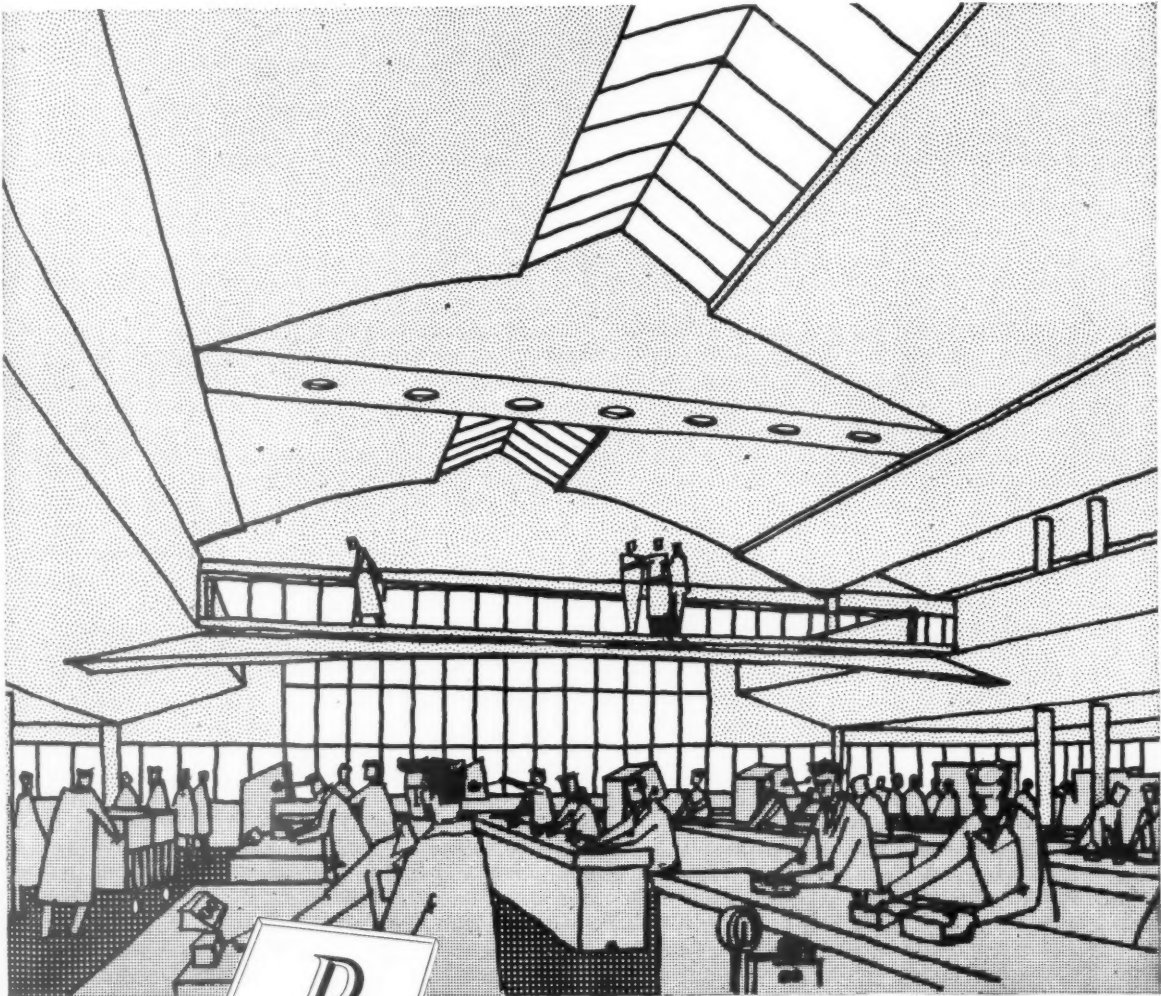
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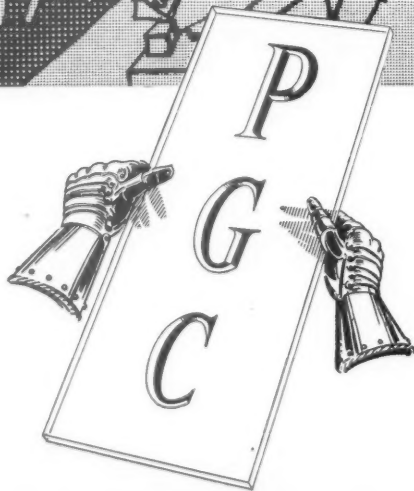
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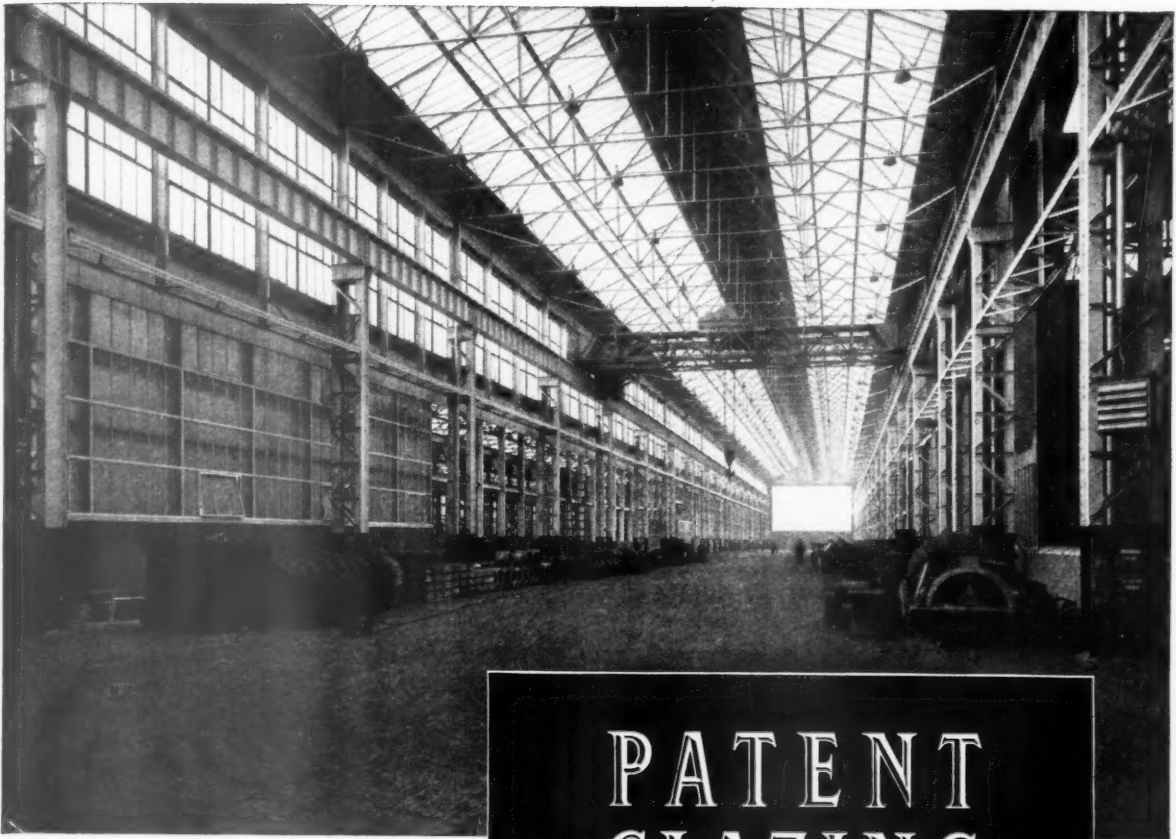
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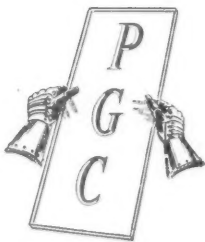
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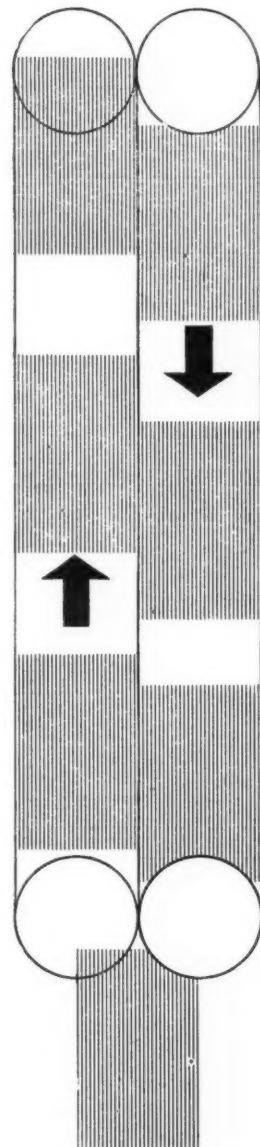
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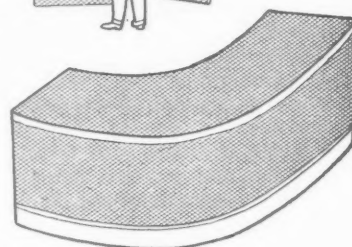
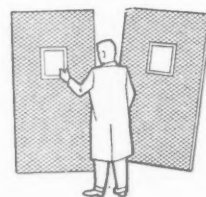
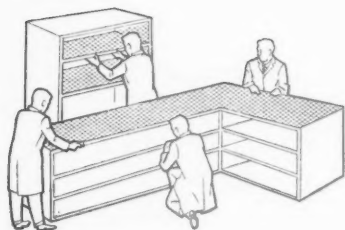
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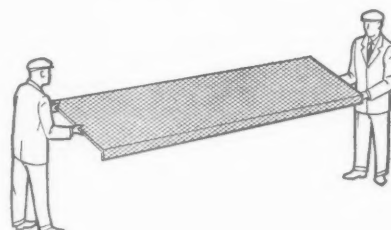
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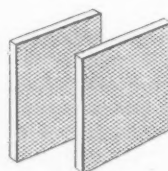
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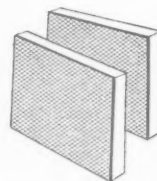
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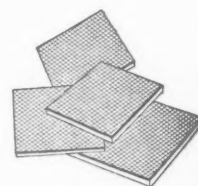
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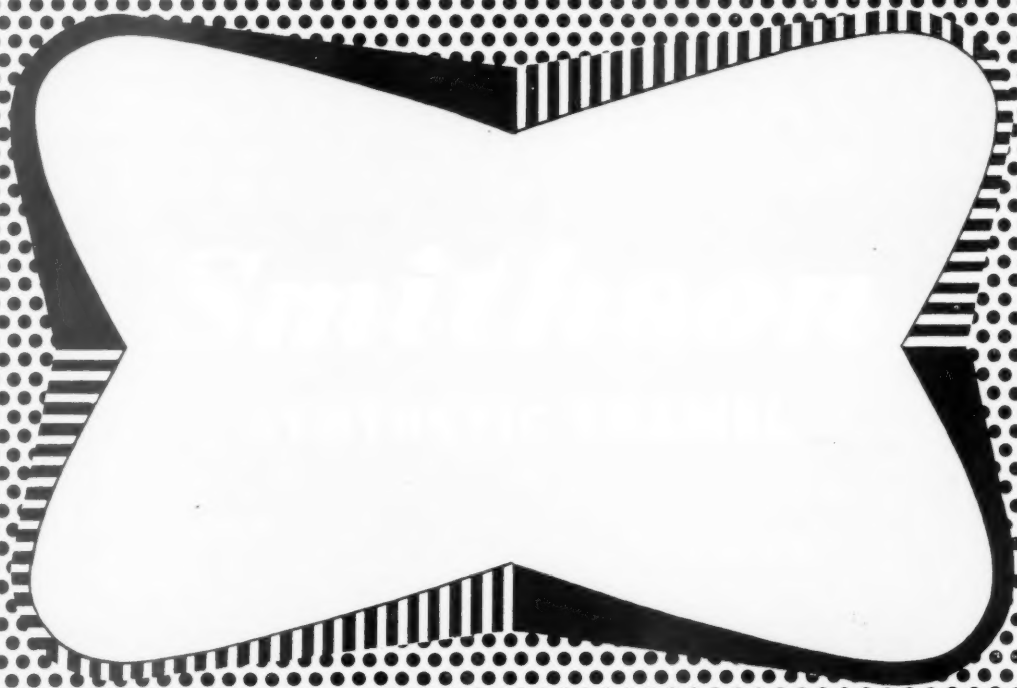
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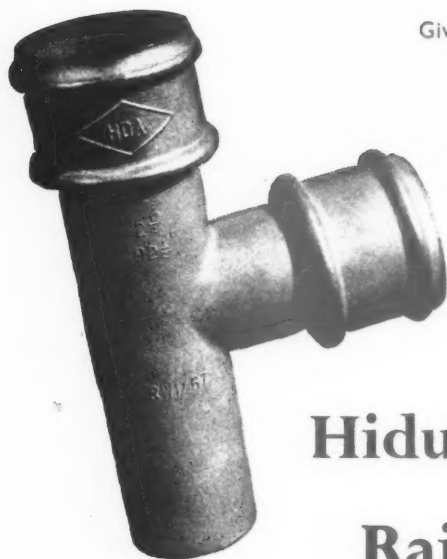
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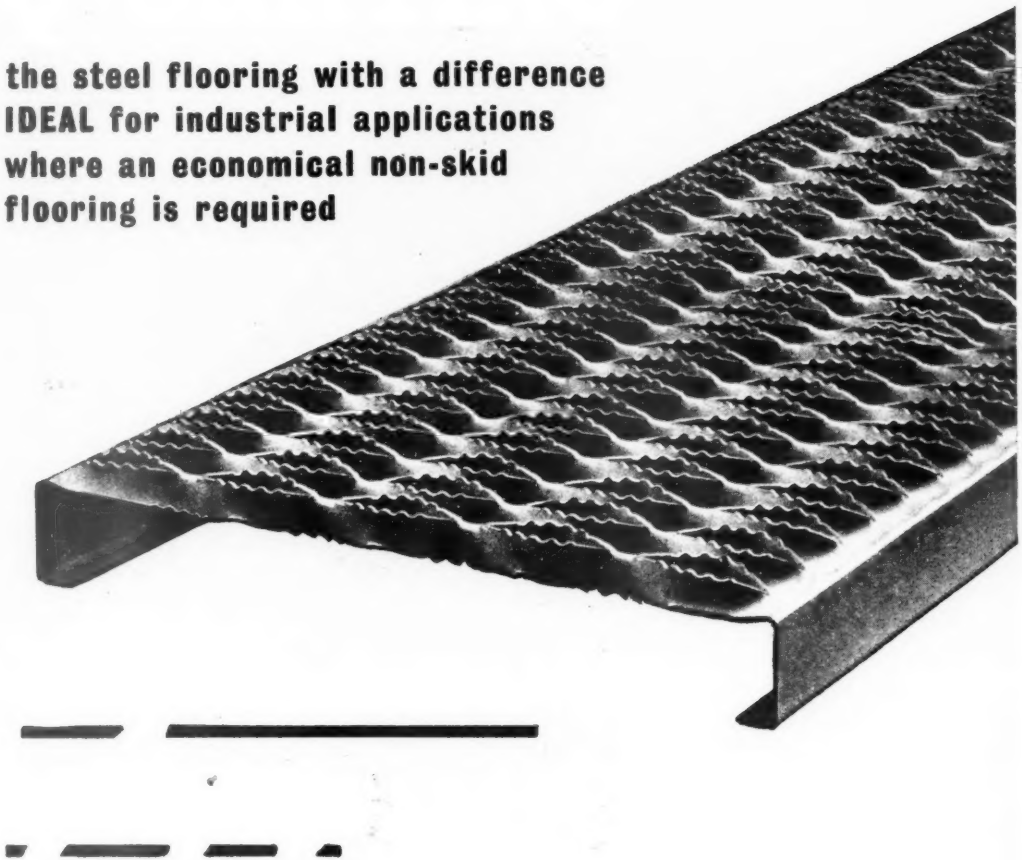
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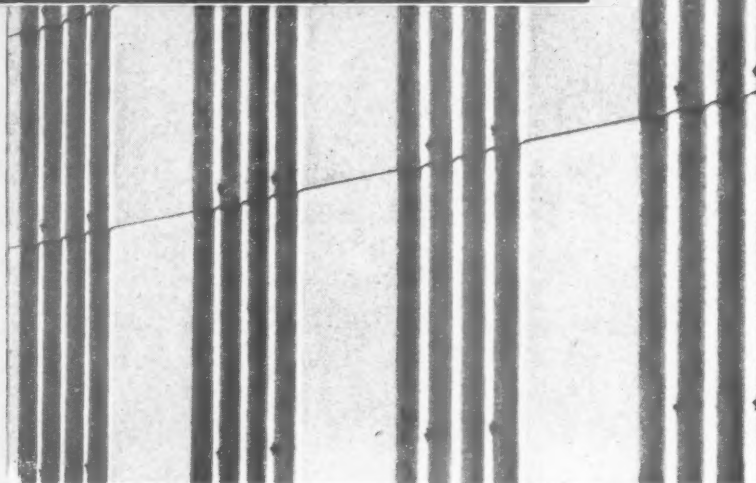
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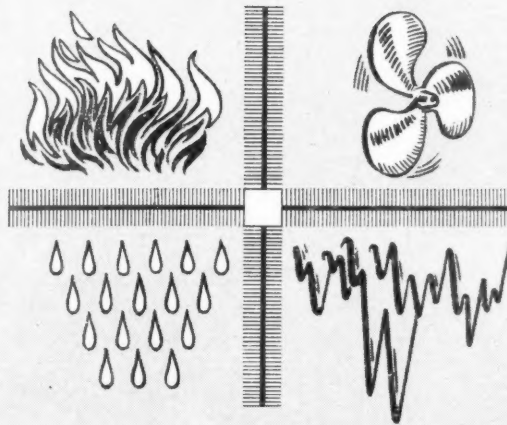
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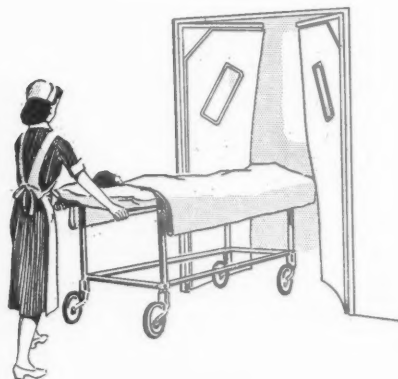
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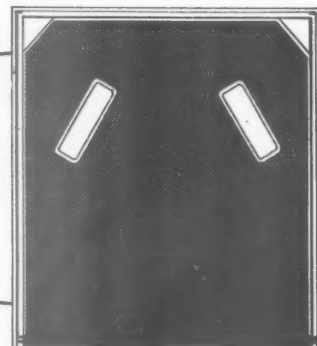


Demonstration Doors have been installed at The Building Centre, 26, Store Street, London, W.C.1.

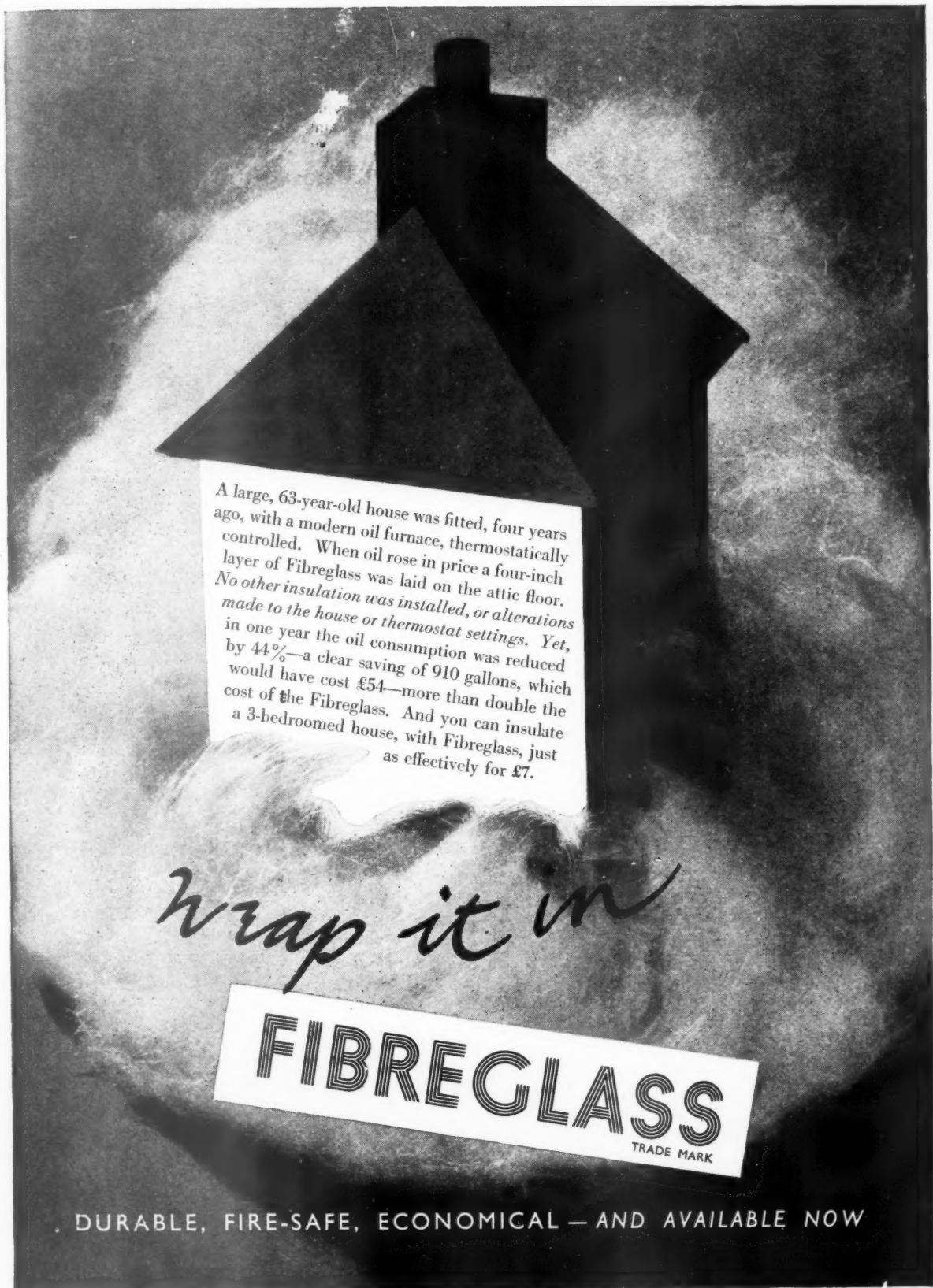


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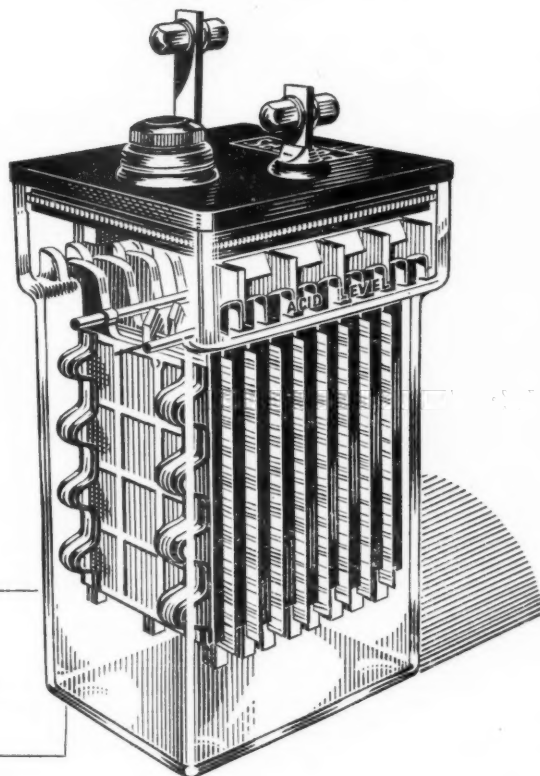
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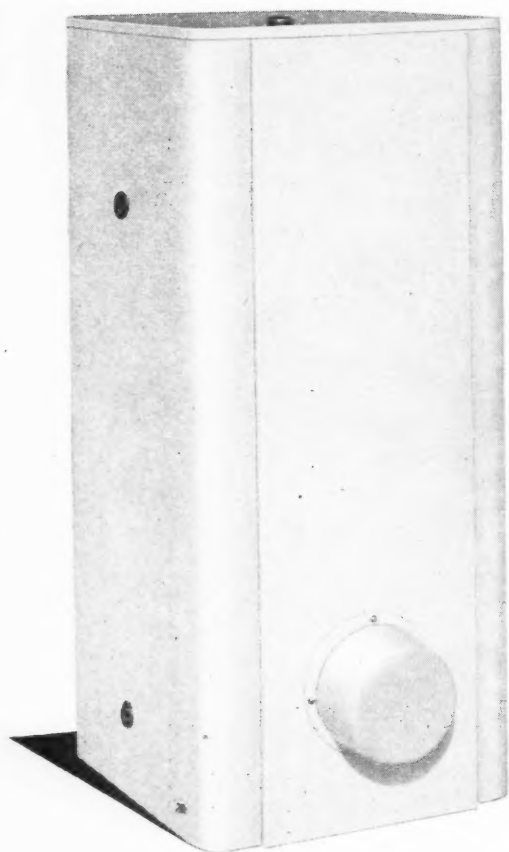
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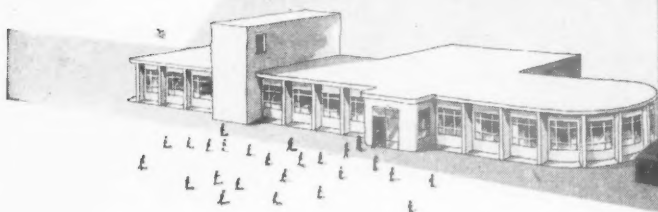
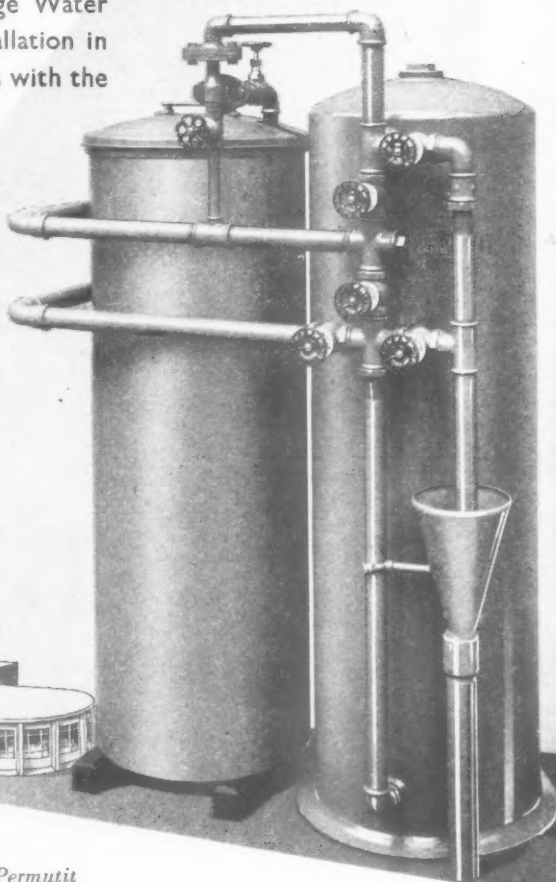
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ELECTRIC COOKING

DOMESTIC ELECTRIC COOKERS

Electric cookers are obtainable in a wide range of sizes and capacities to meet all reasonable domestic requirements. All are characteristically clean and highly efficient; their performance is not affected by external circumstances such as draughts, and they can be placed exactly where required. All boiling plates are interchangeable, whether of the enclosed ("black" or "solid") or radiant ("red coil") type; they can be obtained with simmering control so that any degree of heat required can be obtained, from a fast boil to a gentle simmer. Pans with ground bases are necessary for good results on enclosed, but not on radiant plates. Except on the small table cookers, ovens are thermostatically controlled, and splash plates are provided.

Many models are made 1 ft. 9 in. wide, 1 ft. 9 in. deep, and 3 ft. high, to fit in with kitchen cupboard units as part of the working counter. Kitchen cabinets can be built up to their flush sides, but care should be taken to see that the cooker can, without difficulty, be pulled forward for service if required.

Tables 1, 2, 3 and 4 classify electric cookers into four broad divisions according to their capacity. The dimensions given will enable the requisite space to be allowed in the early stages of planning. Measurements should of course be taken from the actual cooker chosen when preparing details for building in, which must take account of the raising of the hob for cleaning and access to boiling plates and grill boiler.

The Cooker Control Unit.

With the exception of the table type, which is connected to the mains by an ordinary 13 amp. or 15 amp. switched socket outlet, all cookers are connected to, and switched on or off at, a special cooker control unit, which is itself directly connected to the mains by its own 30 amp. circuit. In addition to serving the cooker, this control unit usually has a 13 amp. or 15 amp. switched socket outlet for an electric kettle or other small appliance. It must be fixed on the wall by the side of the cooker away from the sink, and from 4 ft. to 4 ft. 6 in. above the floor, so that it can easily be reached without risk of upsetting pans on the hob. It should not be possible for the flexible cord of any appliance plugged in to the cooker control unit to get wetted, neither should it trail across the boiling plates. Like switches and socket-outlets, cooker control units are made in flush-fitting or surface types.

Planning Requirements.

A cooker should not be placed in a corner as access to the oven may be badly cramped, especially in cases where the plan is "handed" as in semi-detached houses. All cooker oven doors, with the exception of those that drop down, are hinged on the left, in contrast to refrigerator doors which are usually hinged on the right-hand side. All corner positions restrict the use of the hob and result in the return wall being soiled. The most inconvenient place for a cooker is close up to a door; a serious accident can easily occur when pan handles overhang the hob and the door is opened suddenly; nor is there any space to put pans and dishes for dishing up or service. A position which necessitates the cook standing in her own light when working at the cooker should be avoided: under a

TABLE 1 TABLE COOKERS

	Grill Boiler	Boiling Plate	Oven	Loading kW	Height in.	Width in.	Depth in.
Smallest	1	1	1	2.3	18½	11½	19
Widest	1	1	1	3.2	18½	21	19
Deepest	1	1	1	3.2	20	13½	19

Other models are available with a maximum load of 3 kW or a switch interlock to limit the load in any figure. Plate warming compartments are provided on some models.

TABLE 2 VERTICAL COOKERS
SMALL SIZE

	Grill Boiler	Boiling Plate	Oven	Loading kW	Height in.	Width in.	Depth in.
Smallest	1	1	1	3.95	36	19	15½
Widest	1	1	1	5.00	36	23½	16
Deepest	1	1	1	5.00	36	21	19½

Some models are available with drop down oven door; storage drawer with or without warming; timer glass door to oven. The height given is from hob to floor; splash plate additional.

TABLE 3 VERTICAL COOKERS
MEDIUM SIZE

	Grill Boiler	Boiling Plate	Oven	Loading kW	Height in.	Width in.	Depth in.
Smallest	1	2	1	7.9	36	21	19½
Widest	1	2	1	8.95	37	23½	23
Deepest	1	2	1	7.9	36	23	24

Special features available on some models include: timer glass door to oven; oven lighting; wheels; drop down oven door; 3 amp. socket outlet; kettle-holder; towel rail; automatic control with timer, ring and pilot lights; hob light; storage or plate warming drawer. The height given is from hob to floor; splash plate additional.

TABLE 4 LARGE COOKERS

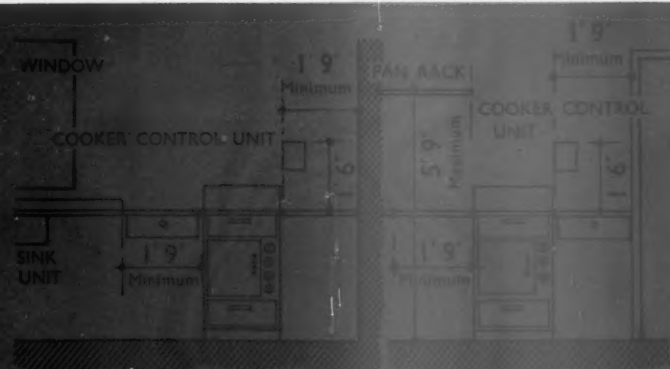
	Grill Boiler	Boiling Plate	Oven	Loading kW	Height in.	Width in.	Depth in.
Smallest	1	3	1	11.6	36	25	25½
Widest	1	3	1	10.9	36	29½	25½
Deepest	1	3	2	9.7	36	40	16
	1	3	1	11.05	36	36	21
	1	4	1	11.55	36	36	25½

Special features available on some models include: automatic oven time switch; drop down oven door; hob light; horizontal switch panel; built-in cupboard; timing clock; oven lighting; storage or plate warming drawer. The height given is from hob to floor; splash plate additional.

C.I



Fig. 1 Cooker incorrectly placed



Elevation showing position of cooker in relation to cooker control unit, door, sink unit, pan rack, etc., correcting the arrangements shown in Fig. 1 above.

Fig. 2 Correct placing of Cooker

window is a satisfactory place for an electric cooker, provided enough light is reflected from walls and ceiling to enable her to see into the oven. That insufficient thought is given to this matter in many cases, may be inferred from the provision of an internal oven light or light-coloured oven interiors in some recent models.

Counter Space.

Counter space is essential on both sides of the cooker, level with the hob and the sink draining board; the minimum area each side being 2 sq. ft. The space beneath these counters can be used for pans and cooking utensils in frequent use, unless a high-level pan shelf is preferred. Such a shelf should not be higher than 5 ft. 9 in. from the floor or extend over the cooker hob and should not be used for heavy or awkward utensils which are better kept below counter level. See Figs. 1 and 2.

Utensils.

Accommodation must also be provided as near the cooker as possible for the small articles which are used daily, such as cooking knives, forks, spoons, ladles, slicers and other gadgets: drawers under the counter tops on either side are suitable. Apart from ovenware there are cloths, strainers and condiments which are needed close by: most cooks will have no difficulty in adding to this list, and it is important to bear in mind that the absence or misplacement of such articles will spoil an otherwise well-planned kitchen in the eyes of the user.

Service Arrangements.

Whether service to the dining room is through a door or a hatch, part of the working counter should be immediately adjacent for assembling the plates, food, etc., previous to a meal and for dishing up from the cooker. Counter area for this purpose is essential even in a dining kitchen, when it can include the areas specified in the preceding paragraph. A trolley can be used with advantage in such a situation. Trays if used should be kept nearby, and socket outlets provided in the wall 1 ft. to 1 ft. 6 in. above counter level, for plugging in small electrical appliances such as a coffee percolator or a toaster.

Ventilation.

It is not necessary to construct a hood or duct above an electric cooker in an attempt to remove cooking smells: equally good results are obtained by installing an electric extract fan in the outer wall, provided it is so placed that air and smells removed from the kitchen are not blown back into the house through a nearby open window. Care should be taken to see that the fan is provided with efficient external baffles which close when the fan is not in use, and open when it is running. The fan switch position is important: it must be conveniently placed and sufficiently conspicuous to make it unlikely to be forgotten.

The cleanliness, efficiency and neatness of the modern electric cooker make it eminently suitable for use in the more open types of modern plan and in kitchen-dining rooms.

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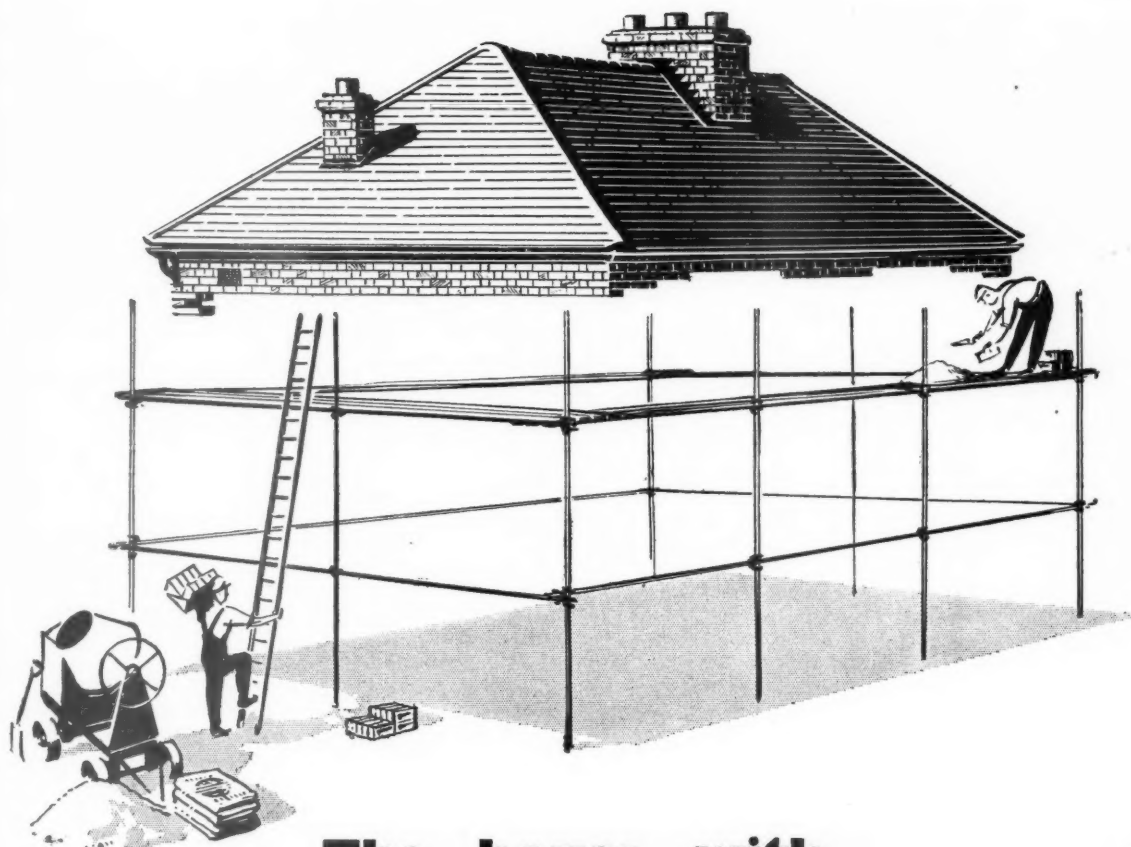
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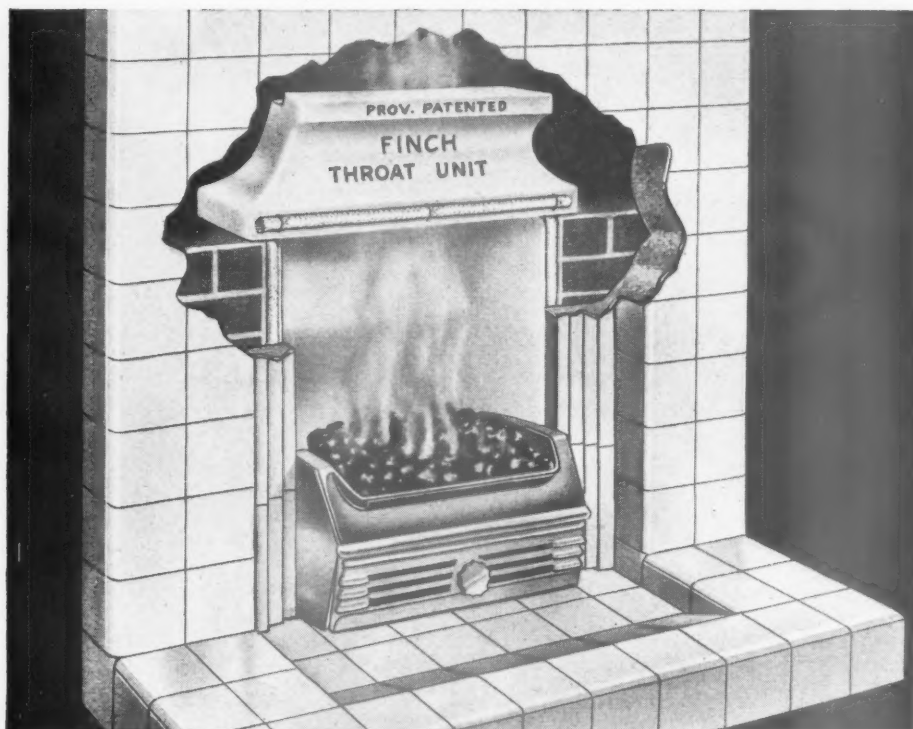
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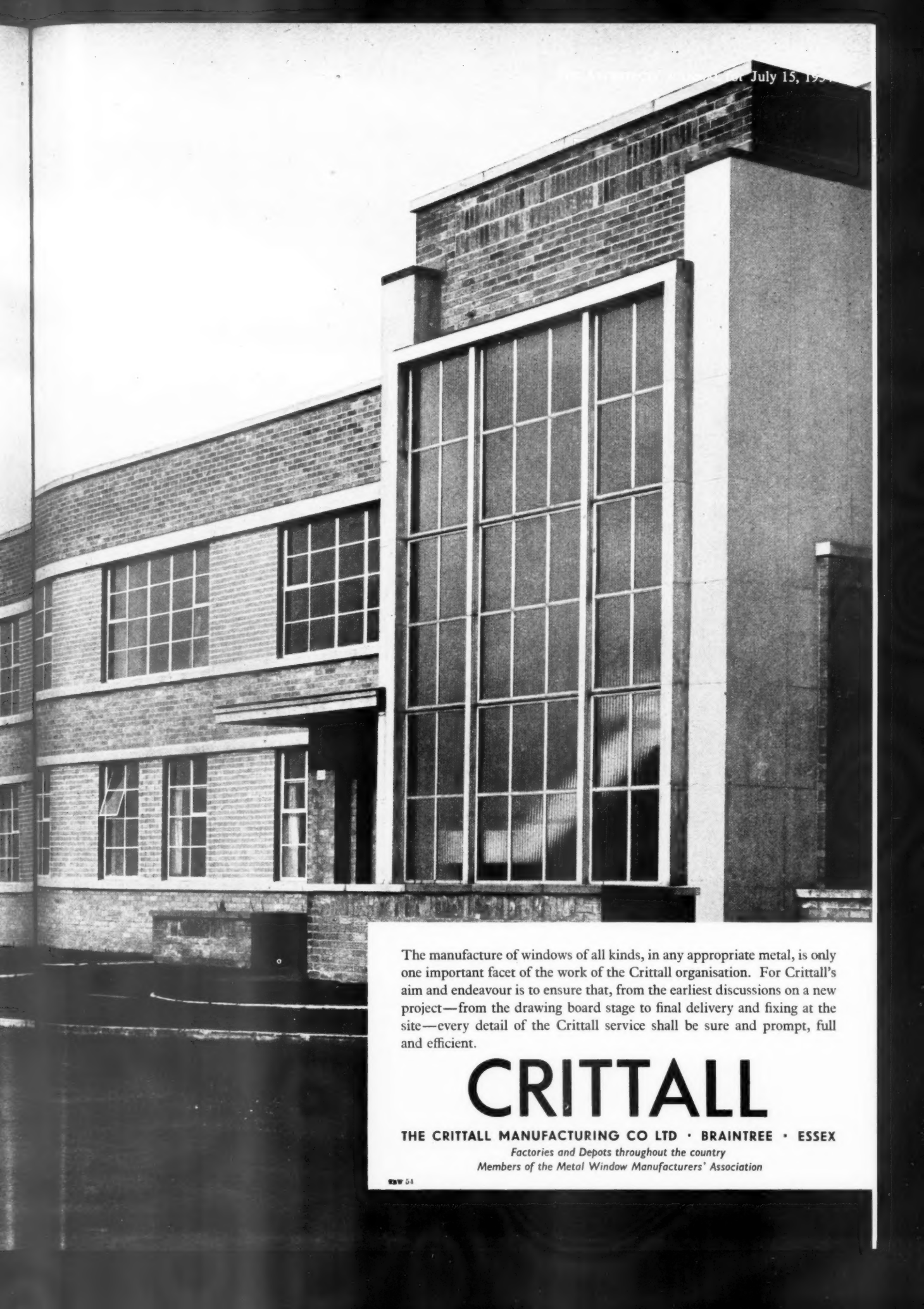
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xxix

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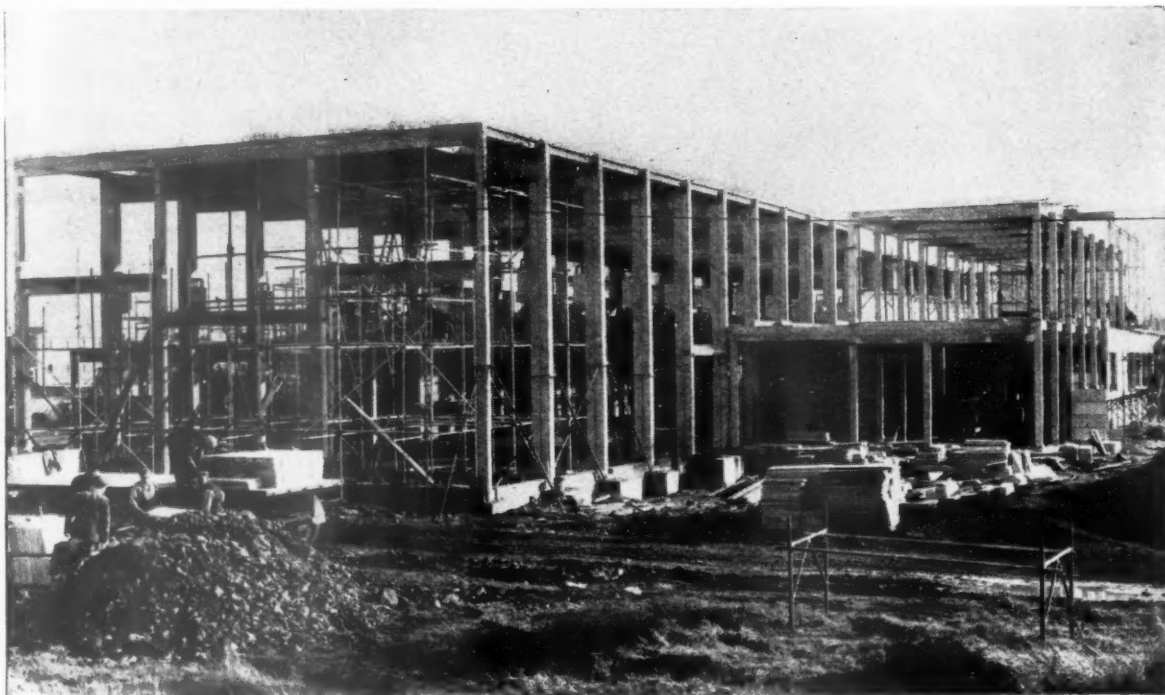
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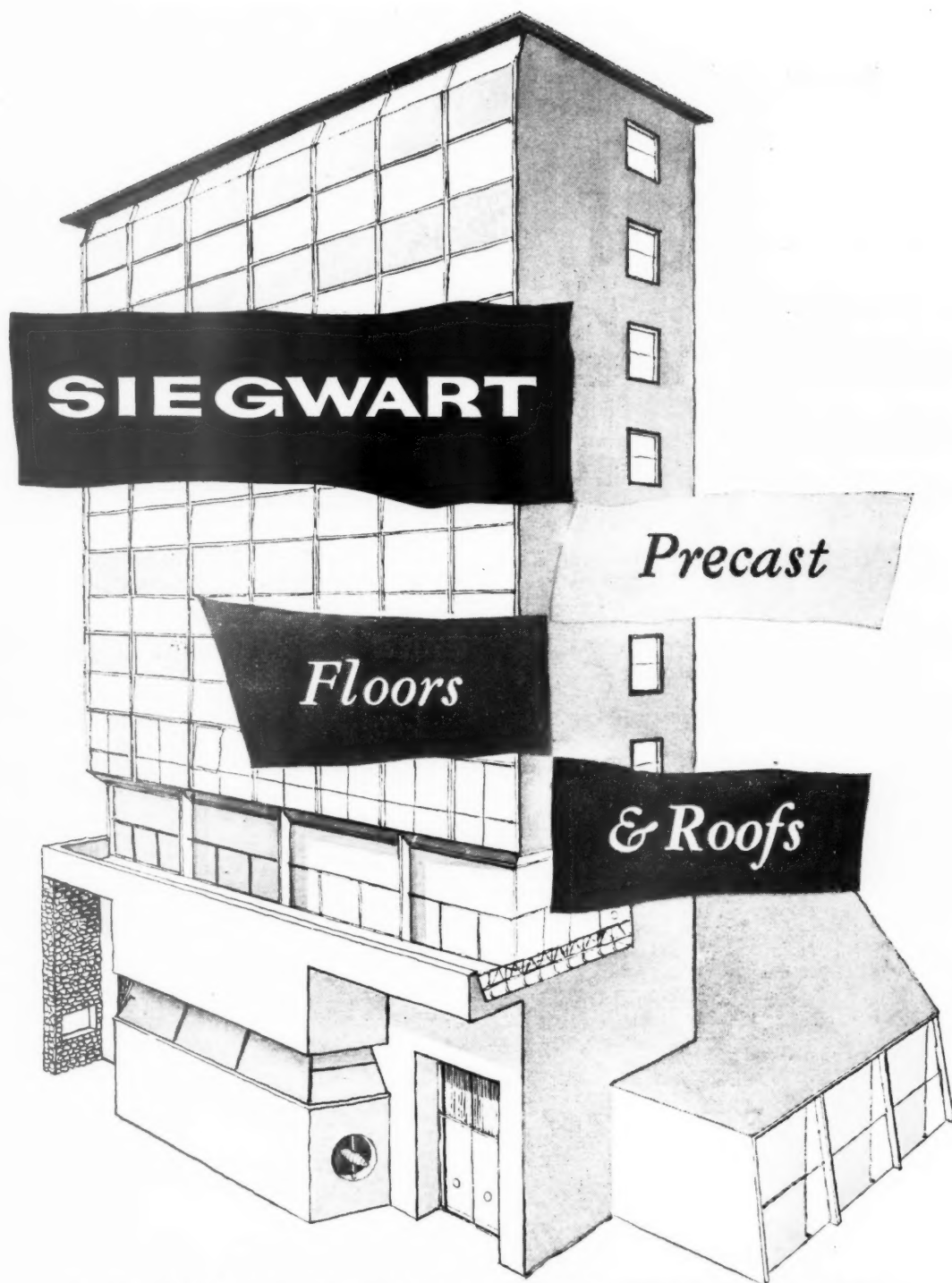
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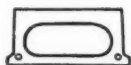
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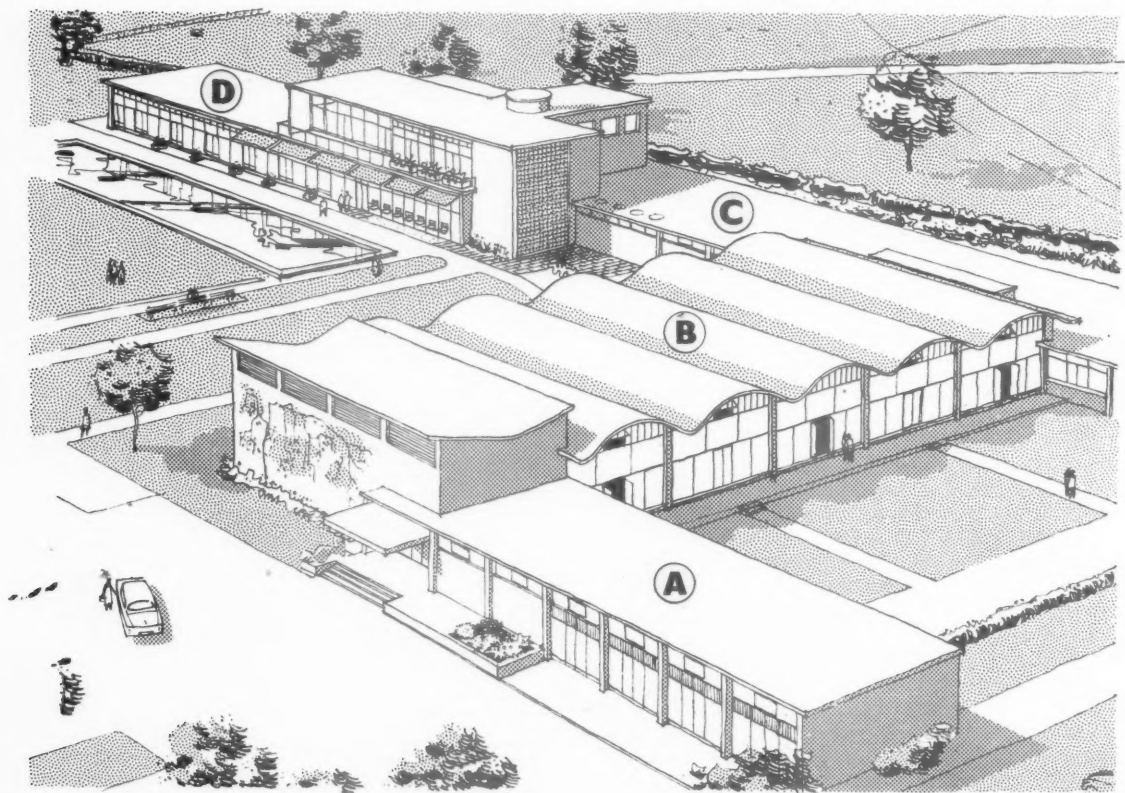
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Designed by Edward D. Mills, F.R.I.B.A.



A Administration block

B Employees' canteen

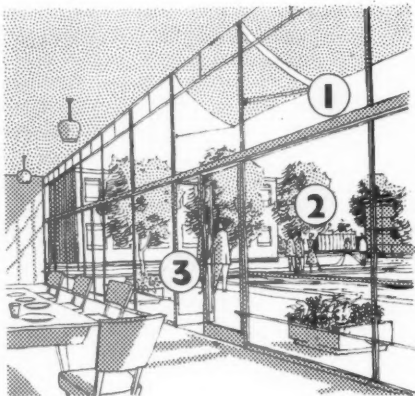
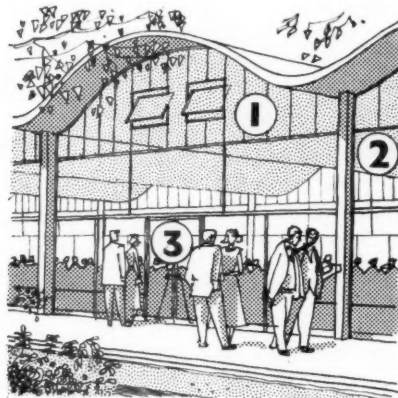
C Kitchen

D Managerial staff cafeteria

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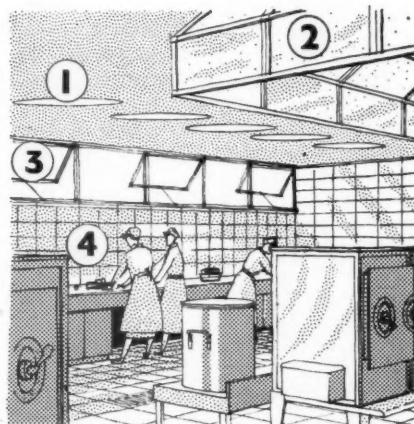


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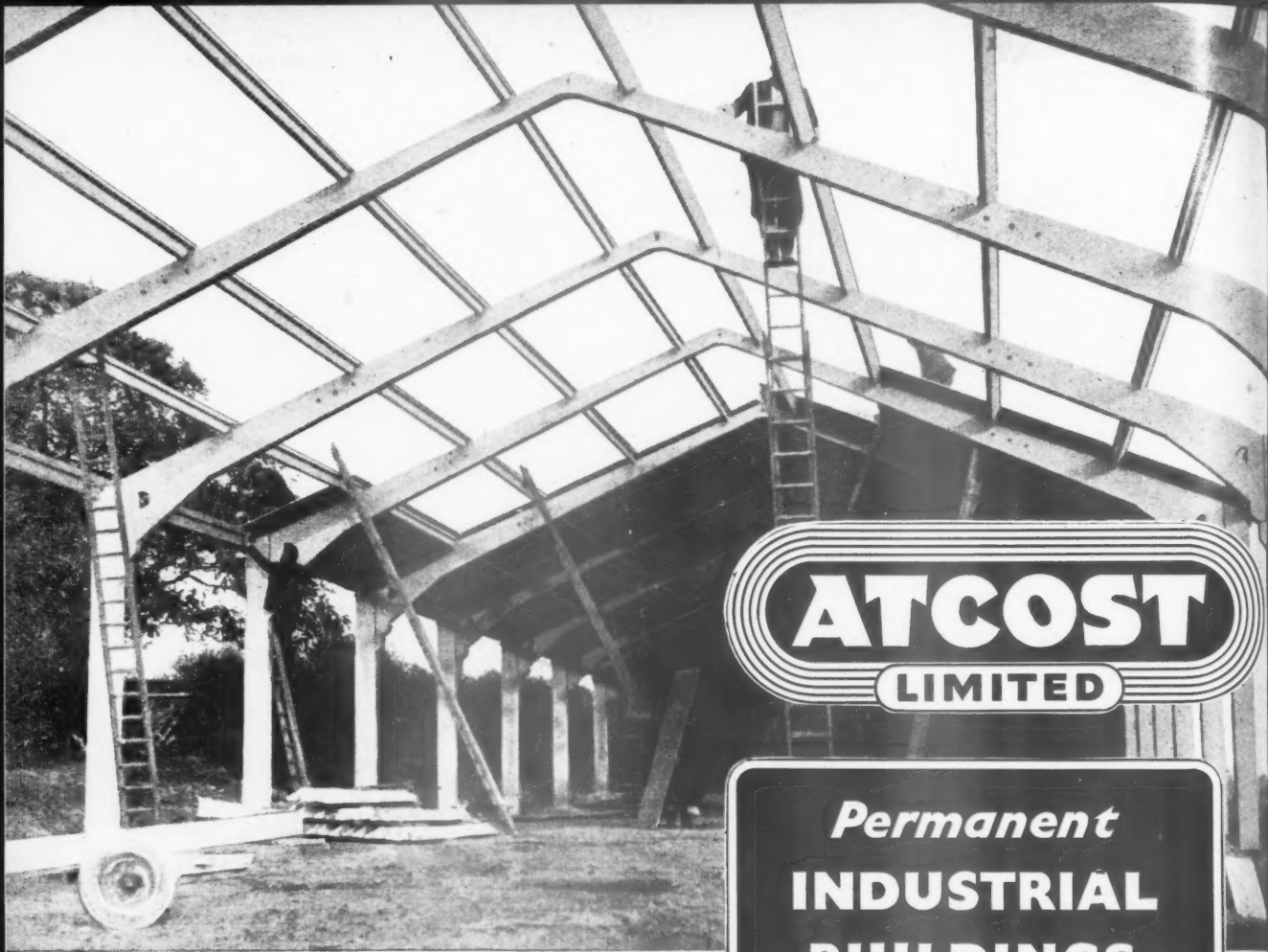


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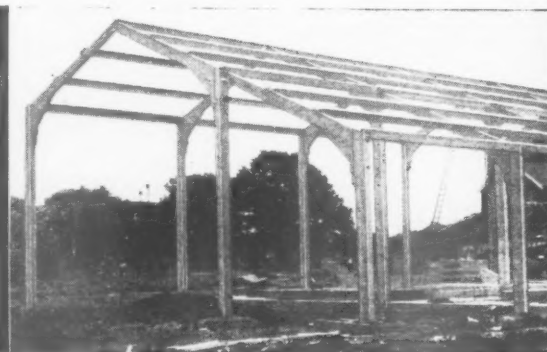
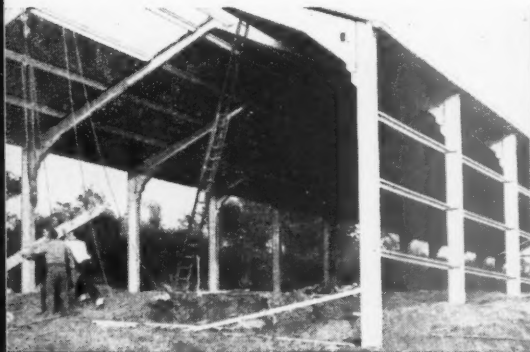
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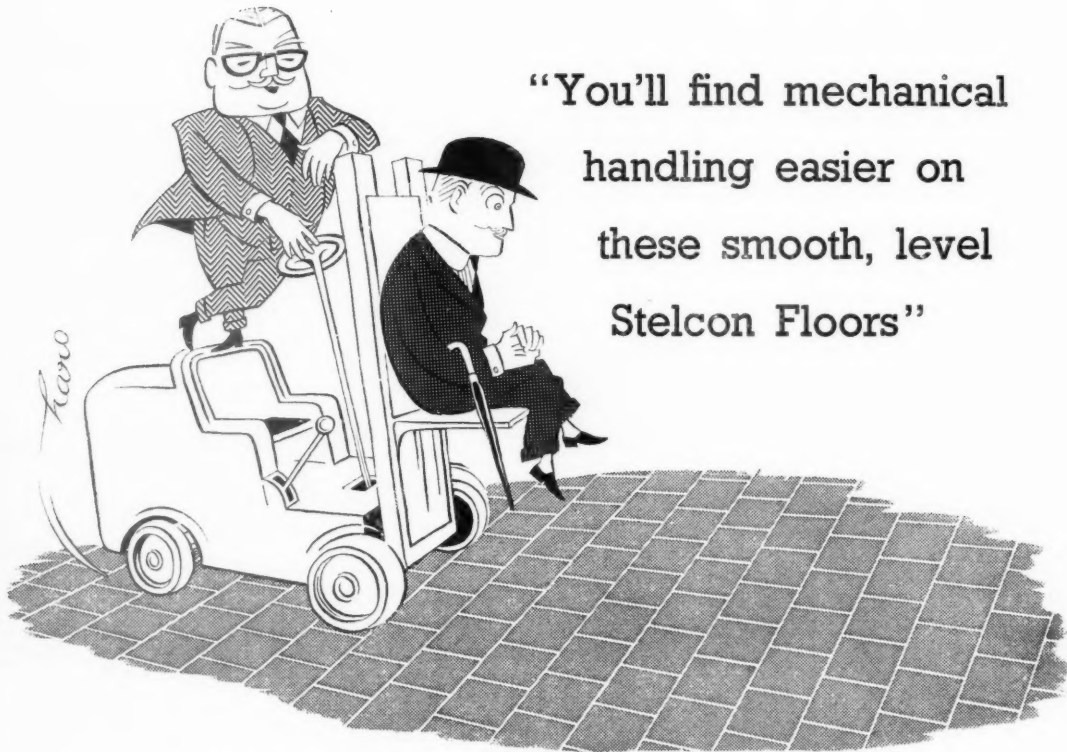
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TO BUILDING

OUR NEE
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Modern mechanical handling works best
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maximum loads without mishap. That's why more
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they like things to run smoothly all the time.

Stelcon Anchor Steel Plates and Steel Clad Flags also
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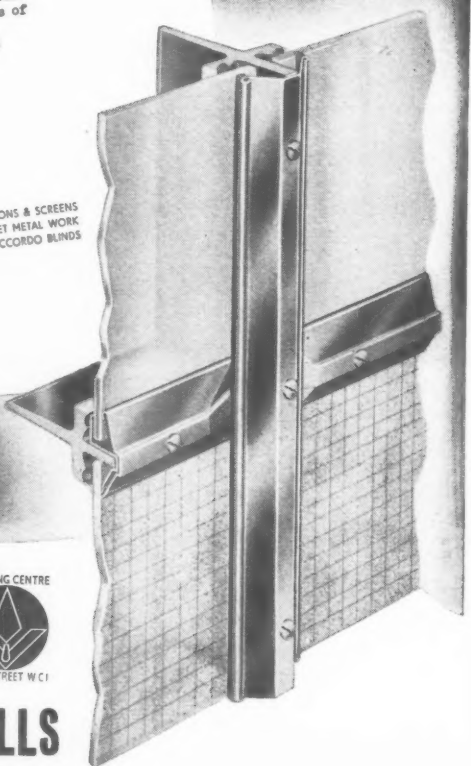
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Illustrated at the top is the Strand Comprehensive School at Tulse Hill. Architect to the London County Council: Dr. J. L. Martin, M.A., Ph.D., F.R.I.B.A. Schools Architect: Sidney Howard, L.R.I.B.A. Architect in charge: J. M. Kidall, A.R.I.B.A.

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LONDON: 125, HIGH HOLBORN, W.C.1. Tel: HOLborn 8005/6 Branches at Birmingham, Bristol, Leeds, Manchester, Newcastle-on-Tyne, Glasgow and Belfast

Mazda

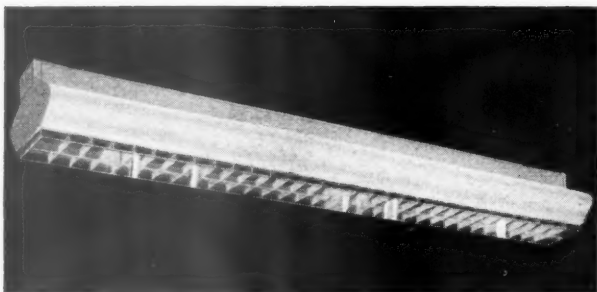
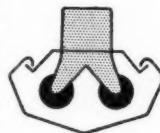
Fluorescent Diffuser Fittings



SERIES F.1234

- Single or twin 5 ft. lamp.
- 'Either hand, either end' lamping.
- Smooth shaped 'Perspex' diffuser.
- Leaflet DL.9630-4 gives full details.

Both these fittings employ this simple method of diffuser attachment. When the diffuser is released on one side only it hangs clear of the lamps, thus facilitating maintenance.



SERIES F.1235

- Single or twin 5 ft. lamp.
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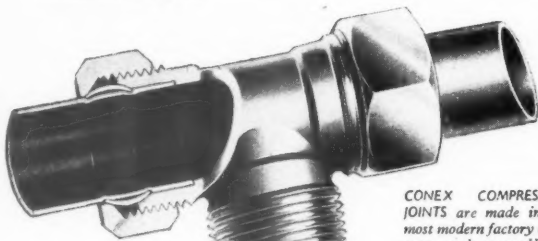
AQUASEAL ROOFING SERVICE

BERRY WIGGINS & CO. LTD., BREAMS BUILDINGS



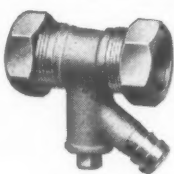
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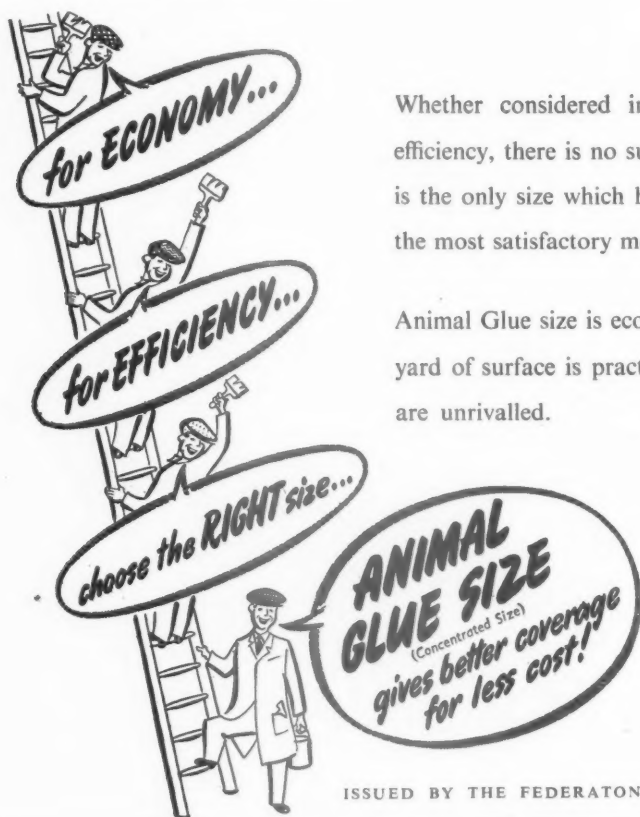
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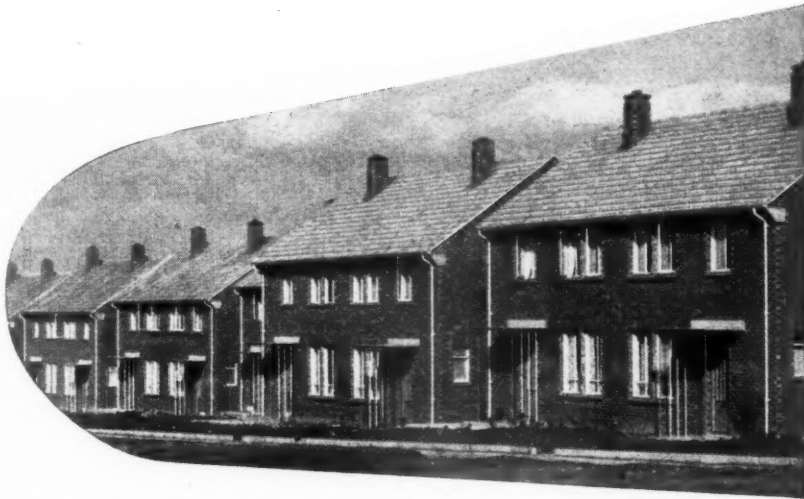
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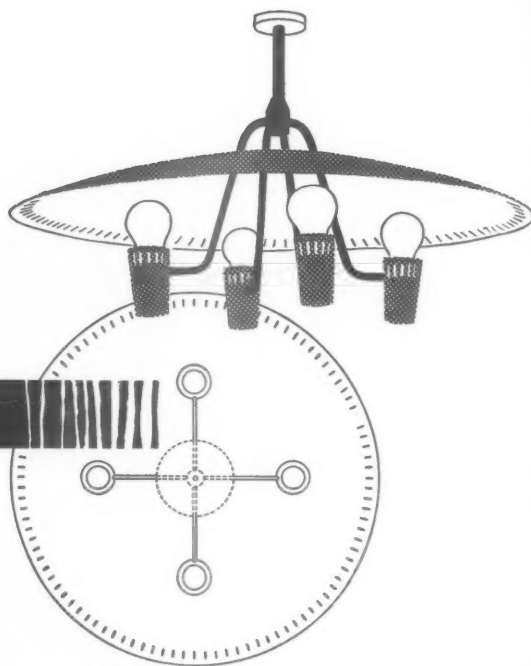
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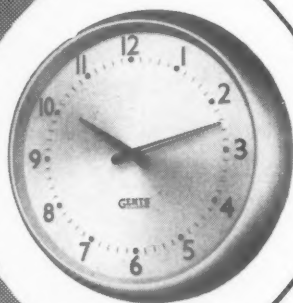
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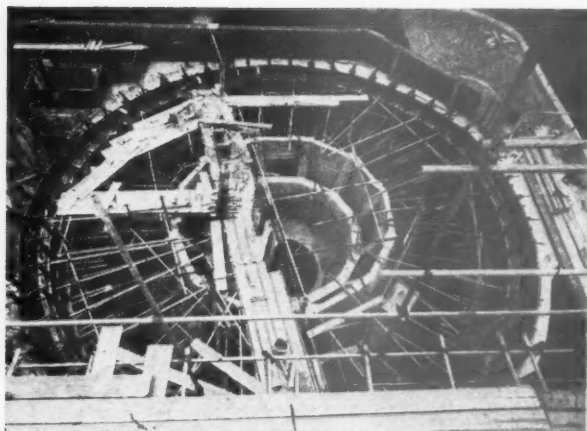
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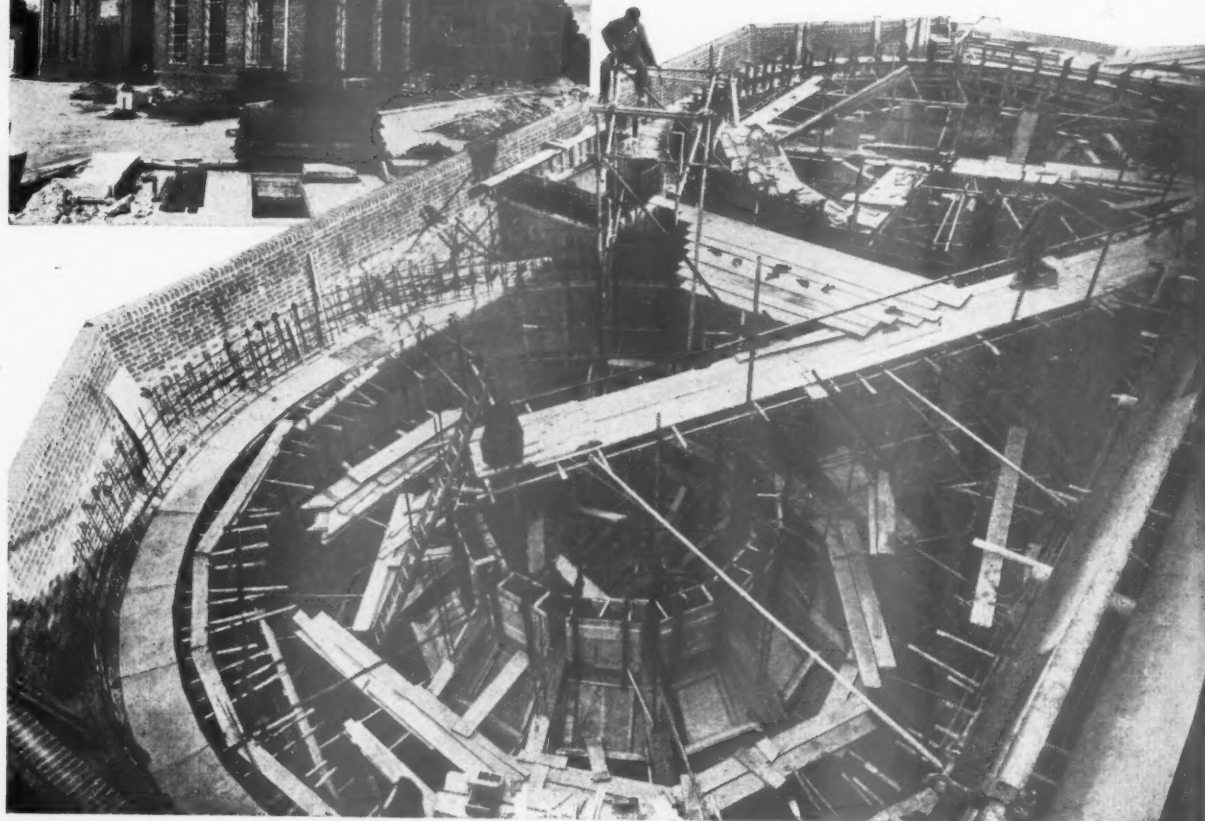
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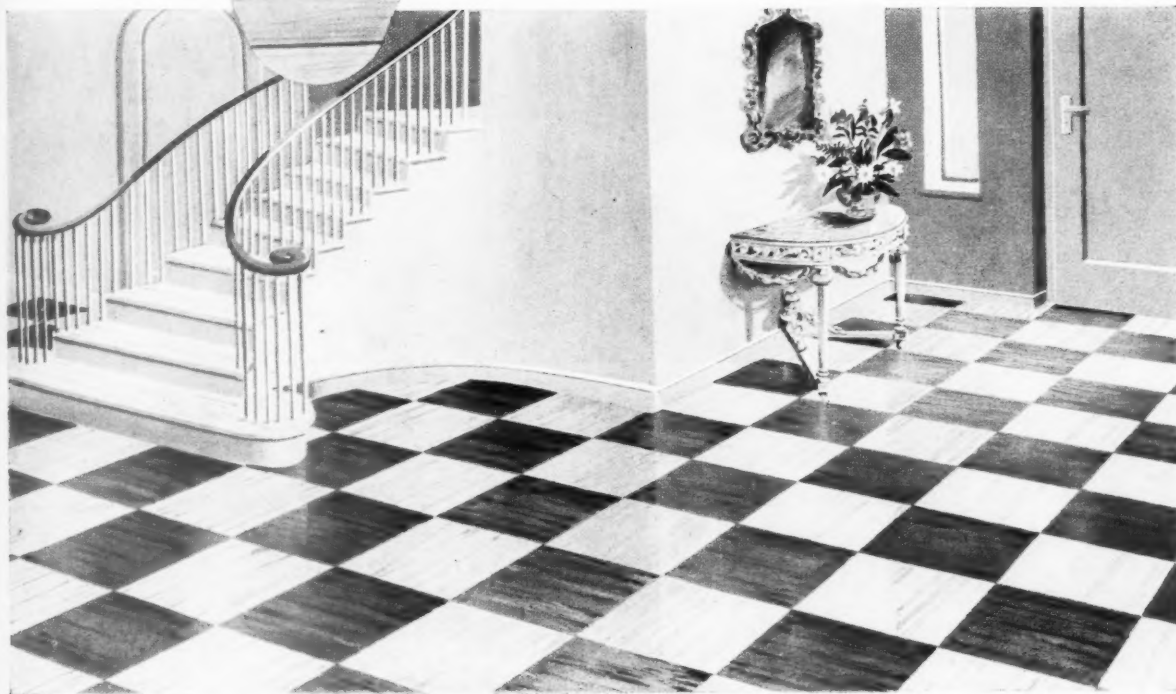


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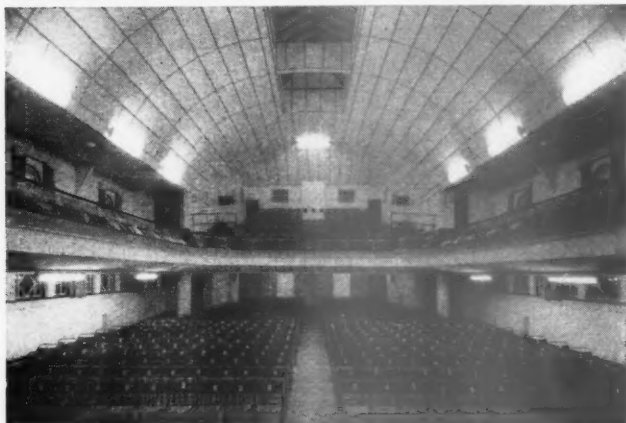
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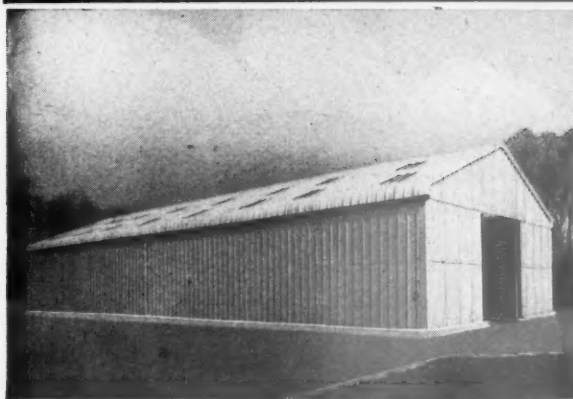
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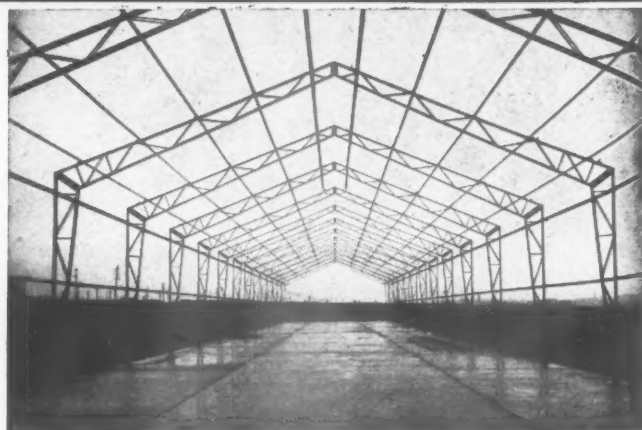
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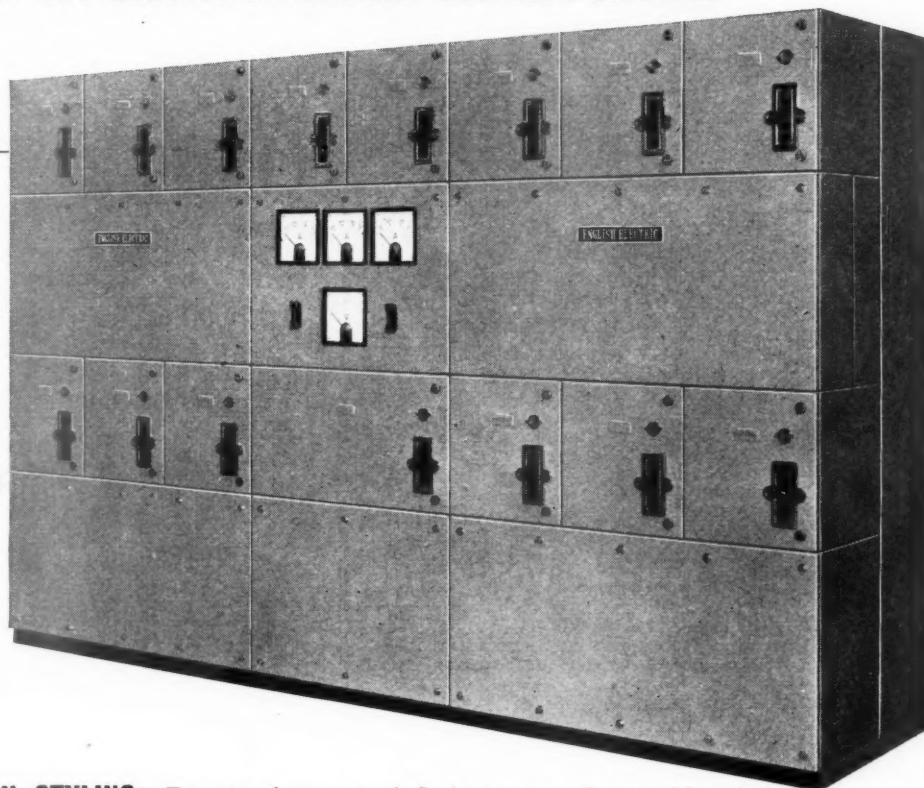
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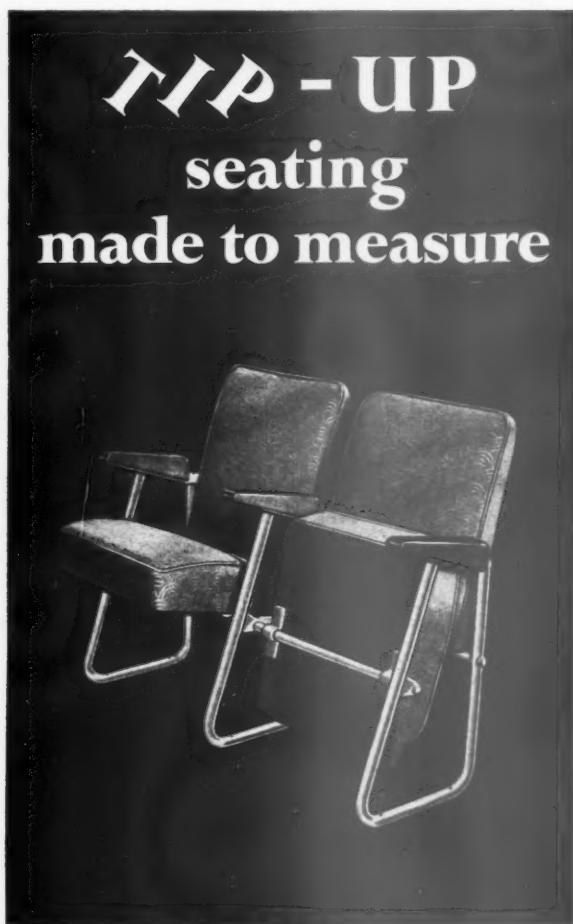
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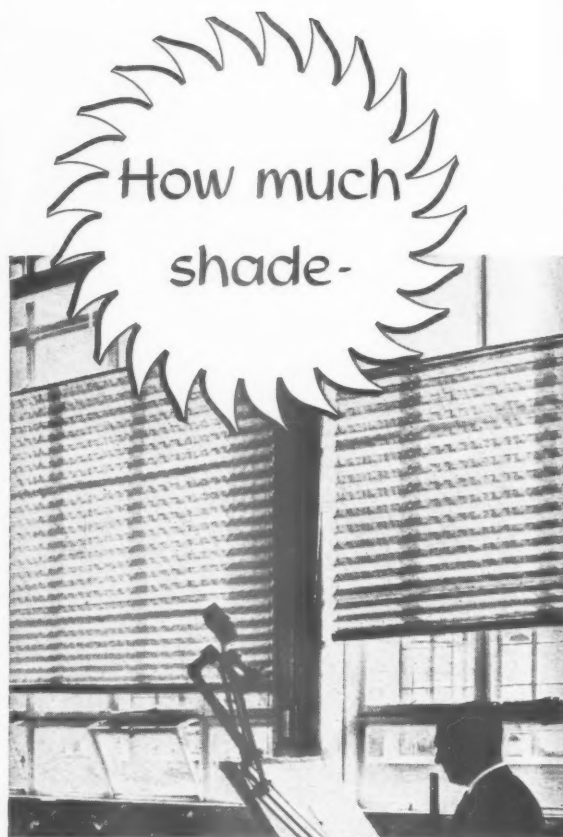
Main Auditorium of
The Royal Festival Hall, London
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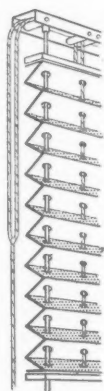
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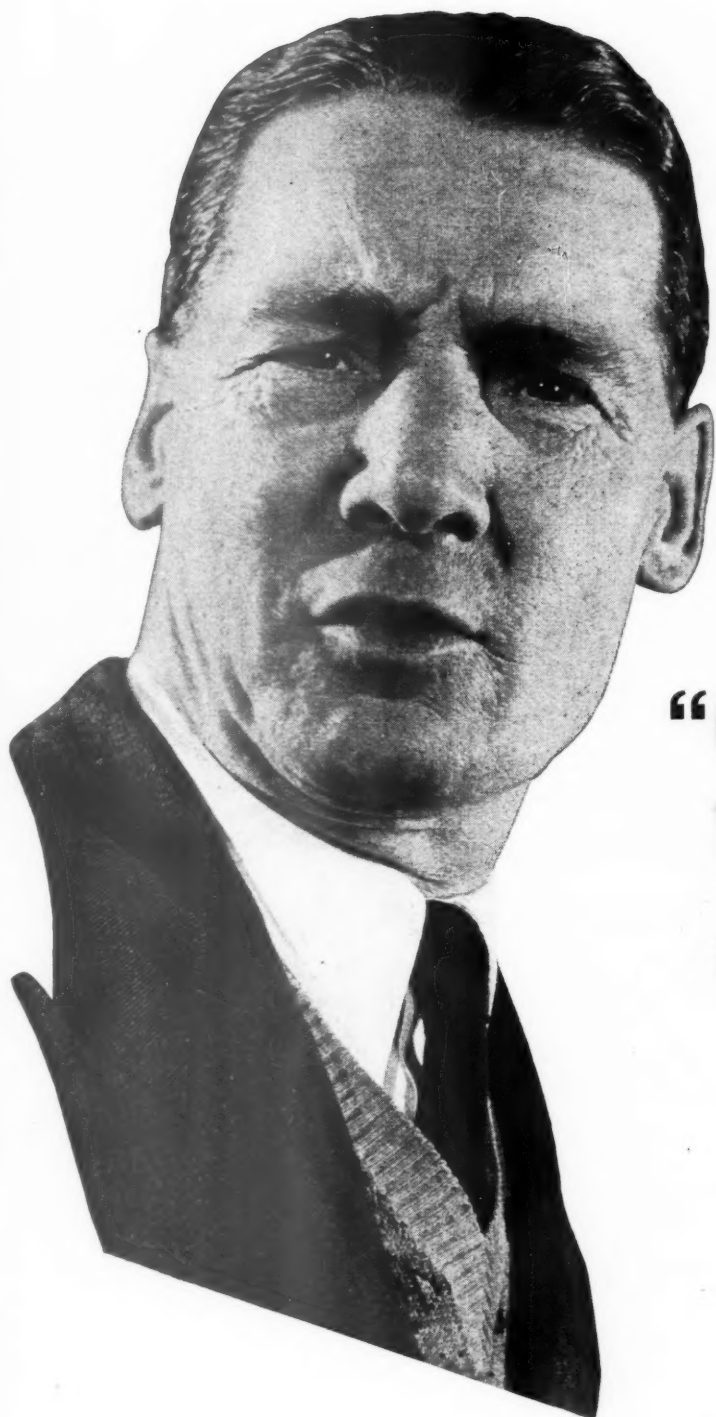
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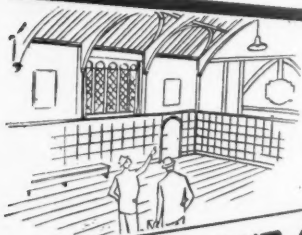
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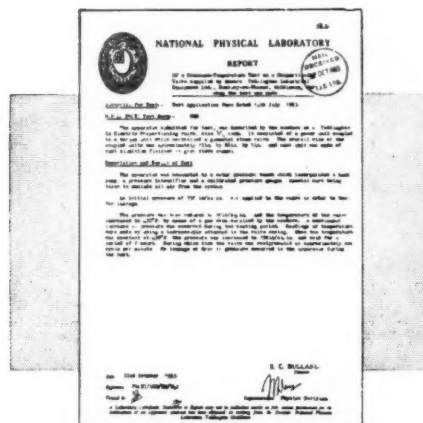
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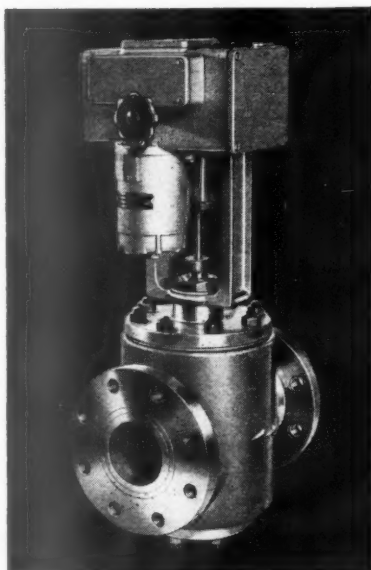
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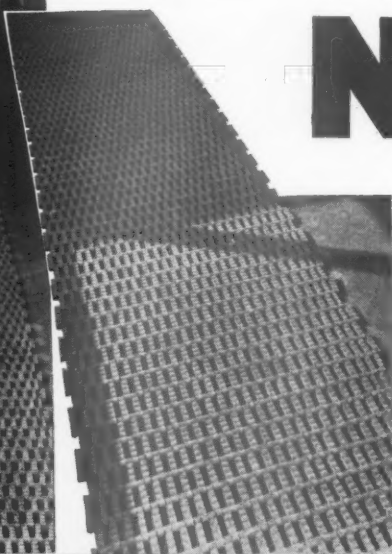
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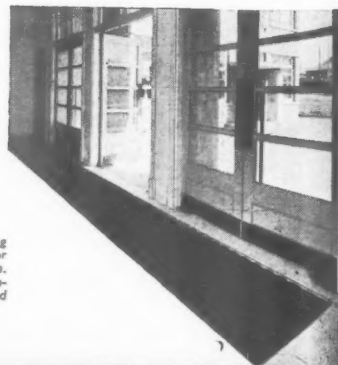
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Left: NUWAY matting protecting the highly polished parquet floor at Bridlemore School, Redditch, Worcestershire Education Committee. Architects: Richard Sheppard & Partners, London.

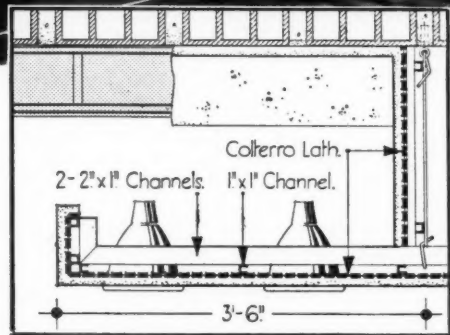


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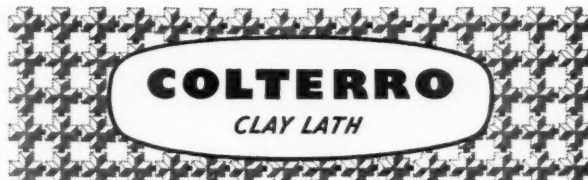


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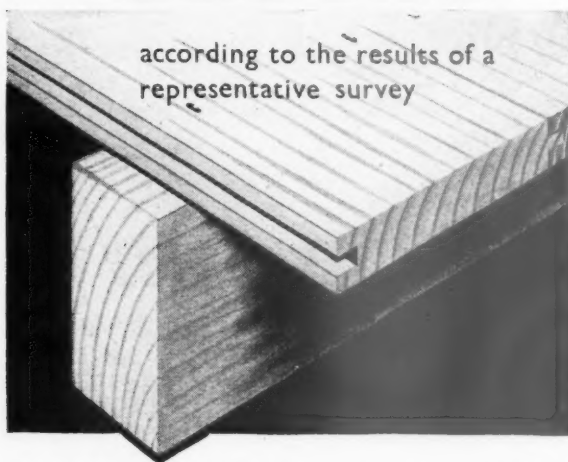
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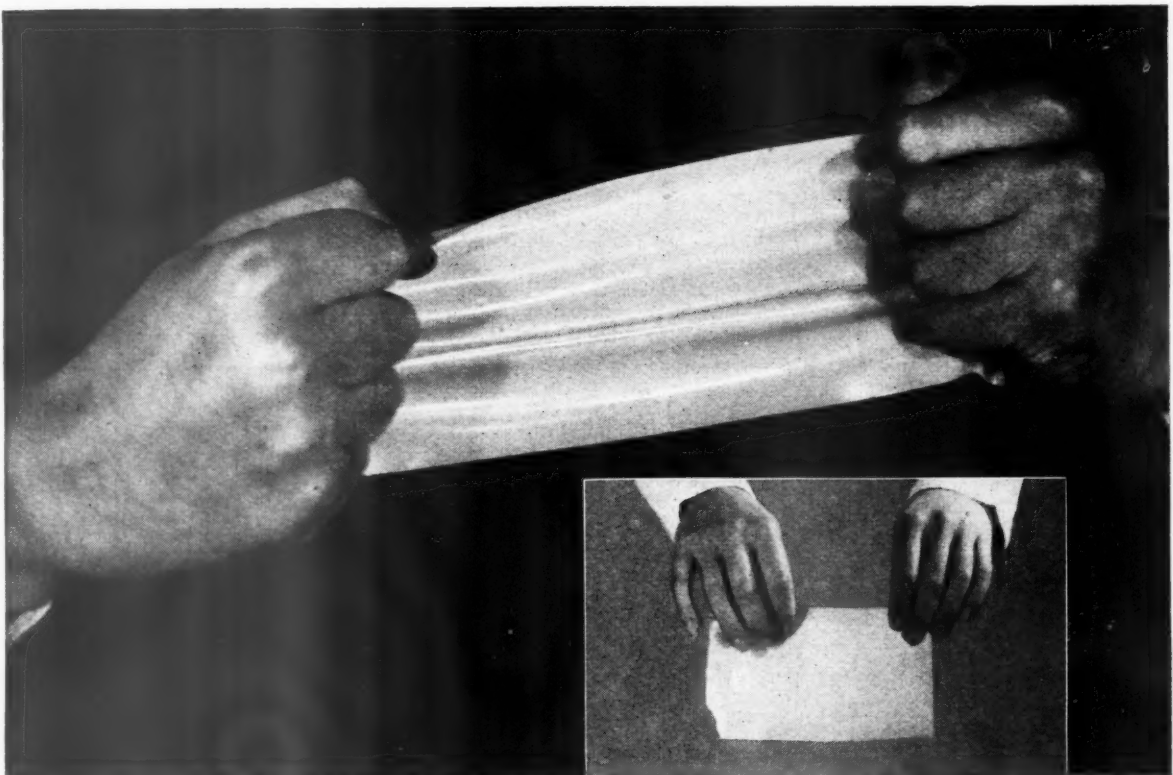
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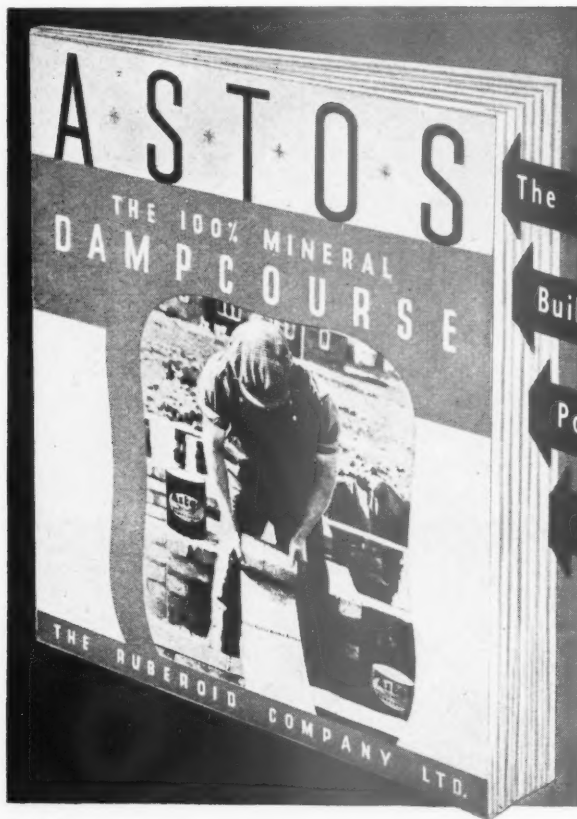
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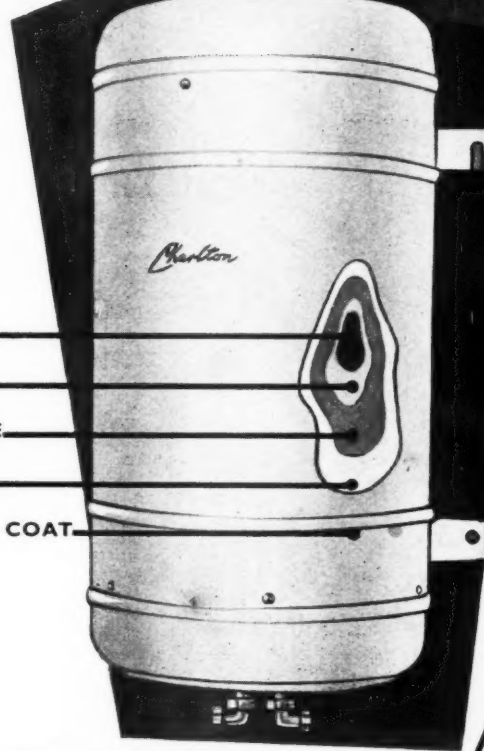


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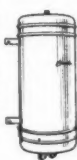
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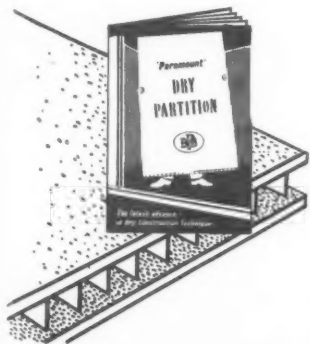
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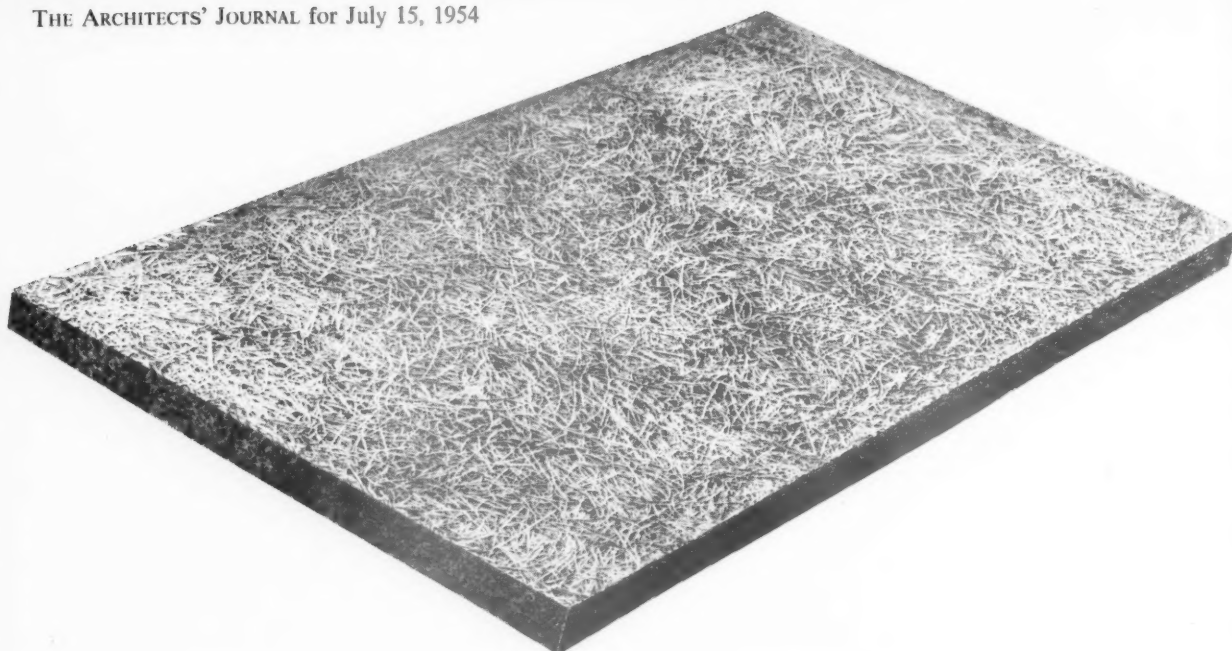
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No. 3098 July 15, 1954 VOL. 120

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BOUGHS NOT SPARED

The borough of Wandsworth is beginning a programme of replacement and new planting of trees. This is, in principle, a policy that might well be copied in other areas of London. But the words of Wandsworth borough engineer who offers "the highest possible amenity at reasonable cost" may give you a suspicion of what is really happening. Many of the quiet side roads are to lose their closely-planted sycamores, limes and planes, and are to be replaced by smaller trees, many of them of the flowering type, at greater distances apart. It is claimed that the present trees, planted at 25 ft. to 30 ft. intervals, have "little or no æsthetic value"—small wonder when brutal

pruning has reduced them to pear-shaped blobs. We are told that householders complain of darkened rooms, that pavements are made slippery by fallen leaves and that street lighting is reduced in efficiency. In addition the borough engineer's department complains of lopping and pruning costs and the difficulty of lighting maintenance. The borough has tried to think up every possible excuse for its proposed action, but it remains a very fell deed indeed.

RCA SHOP WINDOW

Last week Sir David Eccles opened the annual show of RCA students' work, modishly mounted in a setting of white bandages, taut wires and black space frames—an exhibition that reached its expected standard of quality and skill. Brooding among the exquisite jewellery, the foaming silks and slender polished mahogany ASTRAGAL was discourteous enough to wonder whether perhaps the RCA could not by now afford to throw caution to the winds and exhibit—not just the chosen best—but a real cross-section of executed work? The casual visitor never really knows how much of what he sees is exceptional, if it be exceptional. What was the standard of this also-ran, the near-miss, the total reject?

*

Perhaps it is unfair to ask any organization not to put its best into its shop-window—after all it is what every school of architecture is doing round about this time of year—but it inculcates in the minds of wandering spies like me cynical misgivings and memories of visits from Inspecting Generals. Remember the clean snow carted miles one winter to

spread over the yellowing footprinted slush outside the guardroom door? . . .

THE NEW BETJEMAN

It is something like four years since the last collection of John Betjeman poems appeared—and for ASTRAGAL, at least, it has been far too long. The latest volume covers familiar ground—tennis courts and Minton tiles, tramlines and chancel steps—and its title, "A few late Chrysanthemums,"* catches aptly the sad autumnal note which runs faint but persistent through every poem—even those in the group labelled "Light." As always, Mr. Betjeman succeeds in twisting the heart in every line and ASTRAGAL, now like the poet "old and bald and green," spent a poignant evening picking over the crisp and yellowing petals of this bouquet. The trouble is, of course, that Mr. Betjeman writes for a period, for an age-group, and for a social class which is ASTRAGAL's and which is doomed. Who tomorrow—or even today—suffers from Aldershot angst? What will the names Warwick Deeping or Morris Cowley mean in ten years time? Already the trolley-bus—symbol to the poet of 20th century society—is, we read, destined for extinction. Not only Edwardian Essex but prewar Middlesex also has gone. No wonder Mr. Betjeman becomes progressively sadder, more and more obsessed with mortality, with twisted sheets and hospital screens, with staring sockets and sooty stones. Even golden tennis girls . . . "the strongest legs in Pontefract" . . . must come to dust—"Oh Plung my tautened strings would call" . . . and "Plung" echo the tautened nerves of ASTRAGAL.

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HOMES AND CASTLES

An Englishman's home really isn't his castle, nor vice versa nowadays, with all these busybodies insisting that if it happens to be old, or beautiful, or both, then one can't pull it down when one gets tired of it or wants to sell it to defray expenses. Still, if one is lucky enough to own a house built after 1750 and one lives in Scotland then the going is good, and the owner of Tulliechewan Castle was recently able to have it blown up without interference because it was not built until the seventeenth-nineties. (See illustration.)

*

In England one does not enjoy this priceless gift of liberty. The Georgian Group have recently raised their voices to point out that Eton RDC and HM Government between them are allowing Iver Grove House at Iver in Bucks, an old-fashioned affair by that fuddy-duddy of a Nicholas Hawksmoor, to fall down—as if dilapidation wasn't one of the essential privileges of ownership.

A PLEA TO ANDOVER

The Guildhall at Andover may not be a front-rank architectural masterpiece, but it is typical of the decent early nineteenth-century civic buildings that give dignity to the centres of many English towns. It stands (see photograph below) at the head of the wide sloping market-place, and is listed by the Ministry as a building of architectural merit—quite rightly, because to alter its pleasantly proportioned classical façade would be



Above: left and right, Tulliechewan Castle, which was recently blown up by its owner. Left, Iver Grove House, which is being allowed to fall into disrepair. See ASTRAGAL's note on left.



from the *Andover Advertiser* and *Northern Hants Gazette*, doesn't appear to fulfil either of these conditions. It is described as the work of the architectural assistant to the borough surveyor and is part of a proposal to enlarge the building into the market-place.

*

to alter the whole character of Andover.

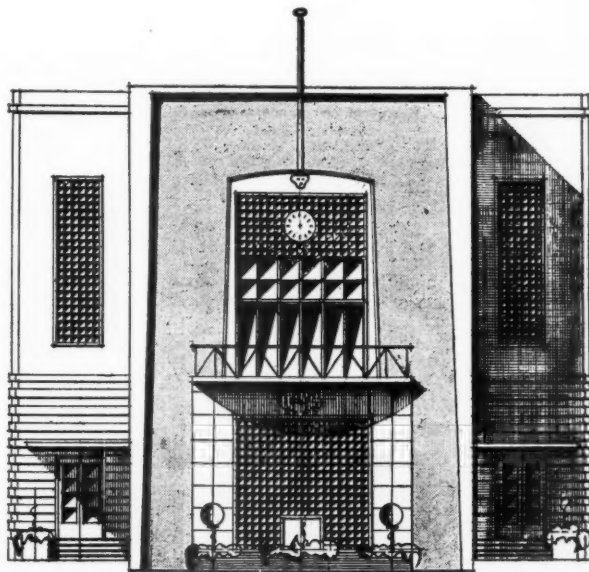
*

Sometimes alterations, even to established town centres, are unavoidable; but when this is so it is important to make sure that the new is at least as good of its kind as the old, and is suited to its setting as regards scale and character. The design for a new façade to Andover's Guildhall, reproduced below

It is to be hoped that second thoughts will produce a better design than this—which is altogether too naive and inappropriate. The proposals have not yet received planning consent and it is on occasions like this that one is thankful for the safeguards the Town and Country Planning Act provides. It is admittedly a difficult problem that Andover is faced with, the Guildhall



Above, the Guildhall, Andover, which ASTRAGAL hopes will not be converted—as the borough council wants it to be—in the manner shown on the right. See note above.





Spec. Housing in America and Britain

Bay windows, leaded lights and dwarf walls are with us again. Why? Spec. builders say that the customer demands something that will show his superiority to the council-house owner. And we know that few building societies are prepared to take a risk on houses that are not as "safe" in appearance as the one in the bottom picture. But would the public really reject good architect-designed houses if they were the only ones on the market? Isn't it, perhaps, the spec. builder and the building societies—not the customers—who are setting the standard for post-war housing estates? Certainly the American home-buyers are

accepting the higher standard of spec. building which builders and loan societies are making available. (See example in top picture). And obviously American builders are finding that the architect is an economical investment—or they wouldn't use him. How can we persuade our own builders to take an enlightened attitude to architects before the country is completely swamped with badly-designed and badly-planned housing? There is only one way—brute force. It is up to Harold Macmillan, the Minister of Housing, to see that legislation is introduced, compelling builders to make use of architects.

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POINTS FROM THIS ISSUE

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The Kirkcaldy Competition : designs that failed page 70

The Editors

TRAINING FOR THE TROPICS

TEN years after Napoleon's defeat at Waterloo, there was organized at Chatham a course for military architect-engineers about to be posted to the British Colonies. It was the first course of training in Britain for architects working in the tropics. Nothing like it has been done since. But now the AA School—always a pioneer—is to open a Department of Tropical Architecture. Maxwell Fry, recently back from Chandigarh, will be in charge of it.*

At first glance it would seem somewhat quixotic that the year which sees the Gold Coast grow close to Commonwealth status should see a new centre for tropical studies established in London. Yet there is no real paradox. As G. Anthony Atkinson, housing adviser to the Colonial Office, pointed out at an AA general meeting some fifteen months ago, top place in the architectural programme is now being occupied by building "for the development of tropical countries and the welfare of their people—not sculptural monuments of British sovereignty." It is, therefore, very natural that the new Asian countries of the Commonwealth—Ceylon, India and Pakistan—and other countries with strong historical ties with Britain, like Burma and Iraq, should turn to "welfare state" Britain. In the next ten or twenty years, there is likely to be much coming and going in the world of architecture between Britain and the tropics: students from Asia, Africa and the West Indies will come here to learn their profession, trained architects and town planners will come to study our new towns, schools, hospitals and the like; British architects will be going overseas to work (in government service or as consultants), advise or teach. Centres like that now being set up at Bedford Square can do much to facilitate such an interchange of ideas and experience.

Two questions at once come to mind: Is there any need for a special course in tropical architecture, or is a good general training all that is needed? If special training is required, would it not be better for it to be given in the tropics? Both questions are valid. No form of specialist training can replace a sound grounding in the general principles of architecture. This the AA recognizes. Its new department does not set out to teach students from overseas to be architects, but rather to enable the trained architectural student (whether from Britain or overseas) to study the special problems of the

being on an island site, but if the extra accommodation that is required cannot be found elsewhere, and the present building *must* be enlarged (thereby, incidentally, reducing the size of Andover's only central open space) would it not be best to re-erect the old façade in the new position?

Andover is a town of considerable charm, and the town council would be the first to regret it if they found, too late, that a building project of their own had been responsible for spoiling it.

BUILDINGS OF ESSEX

The vice of excellence is that it cloy the palate rather quicker than other departures from the norm, and ASTRAGAL has always felt deeply for the debutante who wailed "Not quails in aspic *again!*" There is a tendency to respond in a similar way to a new volume of Professor Pevsner's *Buildings of England* as it bumps down on the desk, bulging with erudition, information, illustration and opinion. New volumes, like the one on Essex* which is just out, will go on appearing at the rate of four a year, which is too often for every volume to get from reviewers the attention it deserves as a major addition to architectural scholarship. But perhaps it will be better when we begin to see the series as a whole, and accept the totality instead of trying to cope with the individual volumes—just as one discusses the *T-m-s* or the *G-a-d-an* as institutions rather than as a number of separate daily issues.

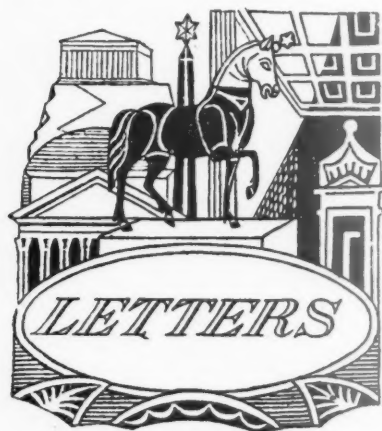
You will therefore excuse ASTRAGAL if he makes no attempt at a scholarly appraisal, and limits himself to one personal grouse—the omission from the record of Mr. Gerry, builder, at Chipping Ongar, the only place where signed and dated works by this well-known architect are to be found—and one general observation on a peculiarity of this volume which will be of other than merely historical interest—the presence of a New Town. Admittedly there was one in the Durham volume, but with all due respects to Peterlee, Harlow is a different matter, since such great architectural hopes were pinned on it. Professor Pevsner's observations on its architectural qualities temper justice with mercy.

ASTRAGAL

* Penguin Books 5s.

* See page 68.

tropics—climatic, sociological and economic. Undoubtedly, such studies would gain from being held in a tropical country, but architectural education overseas is still in its infancy. In India it still leaves much to be desired; elsewhere facilities are available only in Hong Kong and, very recently, Nigeria. It will be some years before these centres—and new ones like that at the Royal Technical College, Nairobi—will be able to give specialist training. Even then the rather special location of Britain may well mean that a centre such as the one the AA is creating will continue to act as a clearing house for the ideas and experience of the Americas and the Caribbean, Africa and the Middle East, Asia and the Pacific. The new Department of Tropical Architecture, therefore, looks like meeting a long-felt need—one that will grow rather than lessen as the countries of the tropics develop and prosper; the names of the staff and lecturers, headed by Maxwell Fry, should be a guarantee of its success.



Open Letter to Architects

The editor has received the following letter which has been addressed to an imaginary architect by an incorporated quantity surveyor. The writer wishes to be anonymous.

O wad some Pow'r the giftie gie us
To see oursel's as others see us!
It wad frae mony a blunder free us.

Burns

SIR,—You were good enough to ask me if I would tell you frankly from my angle where you fail, and what you can do to make your building contracts run more smoothly. I will do my best to answer.

First, as to specifications—yours are always sketchy. I know time is short, I know you have many things on your hands, but how can I measure and include what you want, if you don't tell me? You have seen how often my bad guesses have resulted in variations and extra cost. Perhaps this is partly because you don't feel yourself on safe ground in matters of construction. I am afraid this is a common fault with architects which can be traced back to the schools, who let design (vital though that is) overshadow specification and construction, without which designs cannot materialize. If I can help, do ask me: I am always ready to try, and if I don't know I will find out. Don't fish for knowledge behind a smoke screen of pretence that you know. I can see

through it! When you want to try a new material, let us discuss it together. Your mind, I know, is largely on the effect you will produce: the price of the material, its method of fixing and the bearing of fixing on cost are all important. You will remember that job where you decided to have slabs of granite and found, rather late, that the construction would not carry the weight!

Then, about drawings; I know you can prepare a splendid set, because I have seen them. However, for that shop at A, for which I prepared the bill last year, you gave me nothing but $\frac{1}{8}$ -in. scales. I know it was straightforward, and that the shop front was a specialist's job, but you did eventually prepare some good $\frac{1}{8}$ -in. and full-size details. You forget that I have to build on paper what the contractor must afterwards build in the solid. I am sure you realized, when you saw the mistakes I pointed out in the drawings of that village hall job, how I do have to go into detail, and I know you were very grateful for the corrections. Inconsistencies in drawings prepared by several draughtsmen are almost inevitable, and it is very easy to overlook an omission when checking drawings on the board. The quantity surveyor, going through all the processes of erection in his mind, has the opportunity to put these errors right. He, too, makes mistakes (though his are unfortunately not discovered until after the contract is signed), so, if you find a mistake in his work, remember your own!

There was, of course, that hospital job for which you did provide me with some very fully thought out details. They were so fully thought out that they arrived in a trickle, very much disorganizing my work. You, quite naturally, take one wing at a time—administration, ward blocks, theatres, etc.—in preparing your details, but the quantity surveyor must dissect the building differently—foundations, brickwork, floor and wall finishes, windows, doors, fittings, etc.—taking the whole building together. As your $\frac{1}{8}$ -in. sections were so slow in coming, I had to measure in part from the $\frac{1}{4}$ -in. scales. As each detail came, I had to go back and make alterations. You are bound, every time you make a $\frac{1}{8}$ -in. detail, to show something not on the $\frac{1}{8}$ -in. scale, or to find some improvement on what was shown—otherwise there would be no need for the $\frac{1}{8}$ -in. I could only guess in anticipation, and, like most quantity surveyors, I usually guessed wrong. But delay was not only over the structural details; schedules and fittings details were so slow that in the end I had to shelve the job until your drawings were finished.

Specialists' estimates are a constant trouble. I go on and on *and on* about the cash discounts which you must ask these firms to include in their quotations to be in line with the contract, but you still send me estimates with the wrong discount. Tenderers must know what discount they will receive on accounts against provisional sums. I had a row the other day with an auditor, because I adjusted an incorrect discount in the final account. Do see, too, that you get an extra copy for me of the estimate and any drawing when you invite tenders from specialists. It is not enough, as you did the other day, to ring up and say "Put in a provision of £2,500 for lifts." I can only get at the services the specialist requires of the builder, and the work to be done for him, from the estimate and specialist's drawing and, possibly, a discussion of their needs with the firm concerned. Do you look at the small print on the back of estimates? Your acceptance of an estimate accepts all that too. Another reason why it helps if I have copies of estimates is that, otherwise, I should have to ask you for them at each certificate valuation: I cannot assess the amounts to be included for nominated sub-contractors without them. Incidentally, don't forget to advise me of acceptances: the other day I included a figure for one firm on the basis of the lower of two estimates, and found out afterwards that you had accepted the higher!

Whilst on the subject of specialists' estimates, I think you could make more use of the quantity surveyor in obtaining competitive tenders. If you send your drawings to three firms for, say, felt roofing, they are fairly certain to put different interpretations on something. They will naturally put the cheapest interpretation on the point, knowing that you will probably be mainly interested in the total and that their estimate is subject to remeasurement on completion. It is only where your enquiry includes design that the quantity surveyor cannot measure for competitive tenders. Anything you can detail completely and specify he can measure.

Do be prompt in issuing your variation orders, and don't say to me at the end of the job "Didn't you notice that wall was altered from 18 in. to 14 in.?" I do try to keep an eye open for omissions for which the contractor may not have asked for an order, but you know best what changes you make and the responsibility to define them is yours.

You kept worrying me the other day to know what the final figure for the hospital was likely to be, because, if there was a saving, you wanted to spend the margin on something. You said it would be a pity if the total amount came out under the contract sum! Is that doing your best for your clients, particularly in this case when they are a charitable organization? Even the business man making good profits may have a better use for a few hundred pounds: the taxpayer or ratepayer certainly would have. It is, surely, for the client to decide whether he wants to spend the extra sum. Even the contingency sum is not there for you to spend at will: it is for unforeseen contingencies (including, perhaps, your mistakes and mine), and not for purposes outside the contract.

I did think you were a little hard in dealing with that claim for disorganization by delay outside the contractor's control. I know the client represents "big business," but I think that in any case you should have put the claim to him, and not decided against the contractor on your own responsibility. Your quasi-judicial position is even more important than saving your client's pocket, and the contractor relies on your fairness.

You ask me how I liked your design for the bus station. There I must ask to be excused. I may have my ideas, but it is not my place to criticize. When it comes to doing that house for me that I mentioned, I shall tell you what I want and what I

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don't want, and shall expect you to follow my instructions and not try to persuade me that I want something else! But then I shall be speaking as a client, not a quantity surveyor.

I need hardly add that I shall welcome your equally frank comments on my work, and will do my best to satisfy your complaints.

Yours very sincerely (*repeat sincerely*),

Q. S. (INC.).

NEWS

MOW

Competition for the Design of Screens

The Minister of Works, Sir David Eccles, speaking at the Convocation of the Royal College of Art, held in the Royal College of Music, South Kensington, last Friday, invited artists to submit designs for six-fold screens to be used in British Embassies.

Designs may be classical or modern, and some preference will be given to those which represent an aspect of the crown, for example, royal palaces or residences, royal arms or the emblems of the armed services, or historic occasions in British history at home or overseas. But the Minister does not limit artists in the choice of subject.

The Minister will pay, from his Fund for Works of Art, £75 for the execution of each successful design.

Artists wishing to submit designs should apply as soon as possible for further details to the Minister's Private Secretary, Lambeth Bridge House, S.E.1.

It will be remembered that the Minister of Works announced in the House on April 22, 1952, the setting up of a Fund for the purchase of pictures and works of art to be placed in Government buildings abroad and at home. He then said: "My Ministry has made the best of very slender resources, but these are quite insufficient to do justice to British art in such buildings as Embassies, Consulates, High Commissioners' houses and Governors' residences."

MOHLG

Housing in May

The MOHLG has announced that 31,371 houses were completed in Great Britain during May, compared with 26,013 in May last year.

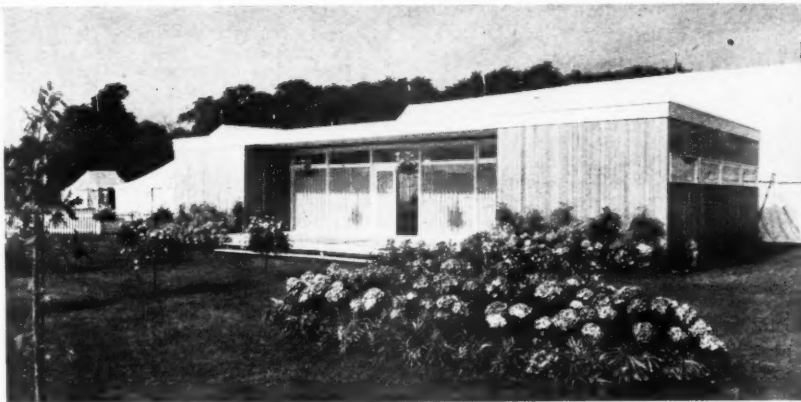
In the first five months of this year, 136,722 houses were completed, compared with 118,706 in the same period last year.

NEWS FILM

Pre-stressed Concrete

At a meeting held recently by Messrs. Concrete Ltd. at the Royal Empire Society, Northumberland Avenue, a film was used to demonstrate the differences between pre-tensioned and normal reinforced concrete. The elementary facts about stress distribution were made clear by the use of cartoons, and the factory processes of floor-unit making were shown.

Wires are stressed along a casting bed, the steel side shutters are placed and the soffit concrete is then poured. Pneumatic cores



The Royal Pavilion at the Royal Norfolk Show, recently held at Norwich, was designed by H. T. Cadbury-Brown.

are then placed and inflated and the side and top concrete of the hollow units is poured. To mark off the total run into marketed lengths, metal shims—with the wires passing through them—are pushed into position before stressing.

The film also gives shots of erection on the site and of deflection tests. It is 16 mm., runs for 25 mins. and may be borrowed free (with projector and operator) from Sound Services Ltd., 269, Kingston Road, S.W.19, or from Concrete Ltd., 16, Northumberland Avenue, W.C.2.

EXHIBITIONS

Institution of Production Engineers

The Production Exhibition, organized jointly by the Institution of Production Engineers and Andry Montgomery Ltd., opened at the National Hall, Olympia, on Wednesday, July 7. This exhibition, which is devoted to the technique rather than the end products of production, is only of slight interest to the architect, though a visit will help him to realize the relative backwardness of the branch of industry he is concerned with. The stand which has the most direct bearing on building is that of the British Standards Institution, which features, among other

exhibits, the new British Standard for Engineering Drawing Office Practice (BS308: 1953).

COMPETITION

Old People's Home

The Architects' Benevolent Society is to hold a competition for the design of an old people's home for a site in Surrey. Details of the competition, which is being held to mark the Society's centenary, will be announced later.

RIBA

A Warning

A local authority recently advertised for a private architect to act as their architect "for all purposes". He would have to do the work in his own office, and however much he had to do he would receive a fixed annual payment.

The RIBA has pointed out that an architect who took on such a job might "render himself liable to disciplinary action for failing to uphold the Scale of Professional Charges". He should make sure, says the Institute, that for a job of this kind he would be given a fixed annual consultant's retaining fee, plus the appropriate scale fees for any work he did.

AA

Department of Tropical Architecture

The AA school is to have, from next October, a Department of Tropical Architecture. Following are details which the AA has issued.

The course is based on the assumption that the student has had a thorough grounding in modern design and construction, theory and practice. It concentrates, therefore, on those aspects of architecture where problems are different under tropical conditions. It does not attempt to provide a detailed knowledge of building practice in all tropical regions, but tries to make the student understand the basic effect on design problems of climatic, sociological, economic and other environmental factors. It is the aim of the course to prepare the student for a professional life under conditions which are different from those under which he has been brought up.

Students who join the course from tropical countries will be given a programme of study appropriate to their particular need. The aim of the course will be first to expand their outlook on the fundamental principles of architecture, and secondly to help them increase their knowledge of recent development in the techniques of building. In this respect the lecture courses in the main School of Architecture are most valuable.

For the first part of the course students will be required to undertake short studio tasks in which their design is related to a particular climatic condition. They will also have to take into account the limited range of materials available in tropical regions, and other specific features of tropical living.

The latter part of the course will be given over to a thesis subject, selected by the student in consultation with the staff. This may either take the form of a written work, or an architectural or town-planning study, related to a tropical country.

LECTURES

The following is a synopsis of lectures:—
Types of tropical climate. The six main climatic groups—temperature, humidity, rainfall, wind, sky, ground coverage, vegetation, etc. The importance of micro-climatological factors, rocks, thermal winds, dust storms, etc., the problem of season in the tropics.

Measurement of climatic factors, study of indoor climate and its effect on comfort and efficiency. Instruments to measure temperature, humidity, air movement and radiation, measurement of insolation (the Heliodon), the concept of effective temperature, comfort zones, theories on effect of climate on civilization, etc.

Problems of lighting and acoustics in the tropics.

Tropical community traditions and their effects on planning problems. (a) History of tropical settlements. The Middle East, Arabia and Persia, India, Malaya, Indonesia, Africa, West Indies and Latin America. (b) Traditional group patterns, multiple households, joint families, kinships and other village communities, plural societies.

Other factors affecting planning. (a) Climate: shade, ventilation, open space, etc. (b) Services: water, drainage, sewage and refuse disposal.

(c) Community needs and amenities: bazaars, schools, hospitals, etc.

Tropical living habits and their effect on the design of houses and public buildings. Outdoor life, religion, position of women, cooking and eating, the floor, bathing, etc.

Standards and bye-laws. Density and space standards, structural standards, planning powers and building bye-laws, etc.

The effect of climate on design and construction. (a) Hot/dry regions. Prevention of heat gains in outside walls; the heat transfer through walls, conduction, convection and radiation, insulation and heat capacity, time lag methods, evaporative cooling, air conditioning, etc.

(b) Warm/humid regions. Different nature of problems in warm humid air, ventilation, condensation, low spread air currents, the Texas experiments, design of windows, etc.

(c) Problem of monsoon climates. Seasonal changes, day and night rooms, utilisation of a ground temperature, upland climates, etc.

(d) Special problems. Building in maritime climates, building in typhoon and hurricane areas, earthquake-proof buildings, etc.

Disease prevention in tropical building. Malaria control, water-borne diseases, floor and wall parasites and pests.

Building materials (a) Mud and earth building techniques. Survey of traditional methods, stabilizing methods, mud roofing, etc.

(b) Brick and block and stone building. Methods of quarrying and brick manufacture, concrete blocks and their problems, lightweight concrete and other insulating materials, etc.

(c) Organic materials. Timber and timber pests, bamboo, thatch, fibre boards, built-up panels, etc.

(d) Roofs and roofing materials.

(e) Prefabrication methods. Survey of export houses with special reference to tropical requirements.

Economic problems, estimating and self-help methods. Professional and administrative set-up in the tropics—with special reference to the Commonwealth. Private architects, public works departments, improvement trusts, etc.

Special types of tropical building. (a) Schools. (b) Hostels. (c) Hospitals. (d) History and examples of colonial architecture. (e) Examples of contemporary architecture.

General extension lectures. (a) Population and productivity problems of tropical countries.

(b) Geology and resources of tropical regions.

(c) The economics and culture of individual tropical countries. (Lectures to be given by representatives of the country.)

(d) Painting and sculpture in tropical countries.

QUALIFICATION FOR ENTRY TO THE COURSE

The course is primarily intended for English post-graduate students of architecture, who wish to gain knowledge of tropical building, but it will also provide facilities for qualified architects from tropical areas who are anxious to bring up to date their knowledge of building techniques. The full-time day course is also open to students of architecture who are in their final year of training. In all cases, acceptance of candidates will rest with the Principal and the Head of the Department. Normally deferment from National Service is granted to bona fide students.

Application for entry should be made in writing to the Principal, stating age, qualifications, training, etc.

MEMBERSHIP OF THE ARCHITECTURAL ASSOCIATION

All students accepted for the Department are required to become members of the AA (subscription £3 3s. 0d. annually) and are entitled to the full benefits of membership (see "The Architectural Association," which can be had on application to the Secretary). Students who are not qualified as architects are entitled to apply for probationary membership of the Association at a reduced subscription.

Students are required to provide their own drawing boards and instruments. All drawing materials can be purchased at the AA materials bureau.

All students taking the course in the post-graduate Department will have to conform to the rules and regulations in force in the main School.

Full-time day study will cost £40 a term—for two terms. The entrance fee is £2 2s. For those who reside and/or work fifty miles from London the annual subscription is £1 11s. 6d., and in the case of Fellows, Licentiates or Associates of the RIBA no entrance fee is charged.

The Council may, from time to time, make variations or additions to the above fees.

For those who wish to attend the lectures only, the fee will be £5. Attendance at lectures only is not open to architects or architectural students.

Attendance at the course does not qualify students for the AA Diploma, which is only available for those doing the full course of architecture, as recognized for exemption by the RIBA. Those students who complete satisfactorily the course in the Tropical Department will receive a Certificate of Study.

The course is of six months' duration, starting each year on the first Monday in October. There will be a short holiday of fourteen days at Christmas.

Students admitted to the Department are entitled to attend any of the lectures, discussions or criticisms in the main School course.

DEPARTMENT STAFF AND LECTURERS

E. Maxwell Fry will be in charge of the course. Lecturers and critics will include T. W. Atkinson, G. A. Atkinson, H. Bagenal, T. Bedford, of the *Environmental Hygiene Research Unit, London School of Hygiene and Tropical Medicine*; G. P. Crowden, of the *Department of Applied Physiology, London School of Hygiene and Tropical Medicine*; D. Forde, *Professor of Anthropology, University College, London*; A. M. Foyle, *Lecturer, Bartlett School of Architecture*; Alfred Harries, O. Koenigsberger, of the *London School of Hygiene and Tropical Medicine*; L. de Syllas.

The principal's administrative assistant will be John Dennys. The librarian will be Enid Caldicott. Majorie Morrison will be the slide librarian. H. L. Bromley will be the registrar and the principal's secretary will be Mrs. E. Howe.

An editorial about the new department appears on page 65.

DIARY

Exhibition of Students' Work. At the AA, 34, Bedford Square, W.C.1. Monday to Friday: 10 a.m. to 6 p.m. Saturday: 10 a.m. to 2 p.m. JULY 17 TO 29
AUGUST 4 TO 14

BRS Exhibition. The exhibition prepared by the BRS for the British Architects' Conference, Torquay. At the RIBA, 66, Portland Place, W.1. UNTIL JULY 17

Exhibition of Industrial Design: Students' Work. At the Royal College of Art, Western Galleries, Imperial Institute Road, S.W.7. Daily 10 a.m. to 5.30 p.m. (closed Sundays). UNTIL JULY 24

New Life for Older Houses. Conversion of early nineteenth century houses to modern flats by the MOHLG. At Holles Street, off Oxford Street, W.1. UNTIL END OF AUGUST

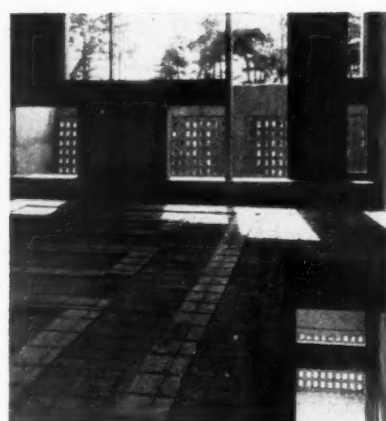
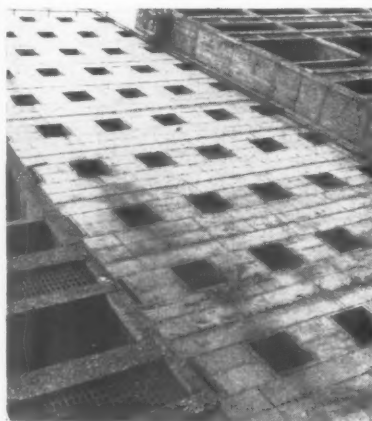
LCC Open-Air Sculpture Exhibition. Holland Park. Daily, including Sundays. 10 a.m. until dusk. UNTIL SEPTEMBER

UNITÉ NO. 2 : FIRST PHOTOGRAPHS

Le Corbusier's Unité d'Habitation at Nantes, now well advanced and due to be finished by the end of the year, contains approximately the same accommodation (300 units) as his similar building at Marseilles, but is expected to cost considerably less. It is hoped that the inclusive cost will work out at £2,000 per maisonette. Construction, which began last October, has proceeded so far three times as fast as at Marseilles. There is less



prefabrication and more in-situ work. The building has floor-panel heating instead of air-conditioning as the climate at Nantes is considerably cooler than at Marseilles. These pictures, taken last month, show :

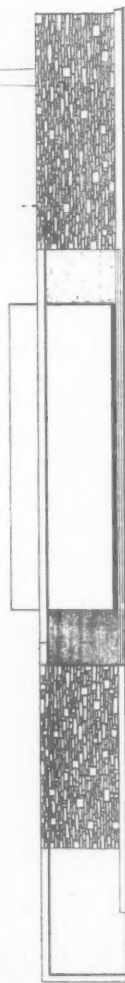


above right : the concrete structure reaching up to the seventeenth floor ; above : exterior of centre section ; centre : the pilotis on which the building rests, noticeably different in form from those at Marseilles (which are rounded) and staggered in-

stead of being planned in pairs ; above, right : inside one of the partly completed maisonettes, showing the stair well, the openings on to the balcony and the floor-panel heating. The drawing shows the whole building as sketched by Le Corbusier.

THE KIRKCALDY CREMATORIUM COMPETITION: DESIGNS THAT FAILED

In his conditions for this competition (winning designs were published on June 10) Ronald Bradbury, the assessor, wrote: "The promoters hope that the crematorium will constitute a positive step forward in the design of this type of building. They therefore suggest that the scheme should not necessarily follow typical ecclesiastical precedents but rather that competitors should attempt to provide a dignified contemporary design fulfilling both the functional and the architectural requirements of the programme." Nevertheless, the winning designs were extremely conservative. We therefore asked our Scottish correspondent to visit the exhibition of the entries and select some of the designs by those who were evidently expecting a more progressive attitude on the part of the assessor in the interpretation of the phrase "contemporary design." Some of them are illustrated here. Our correspondent's report is published on page 72.

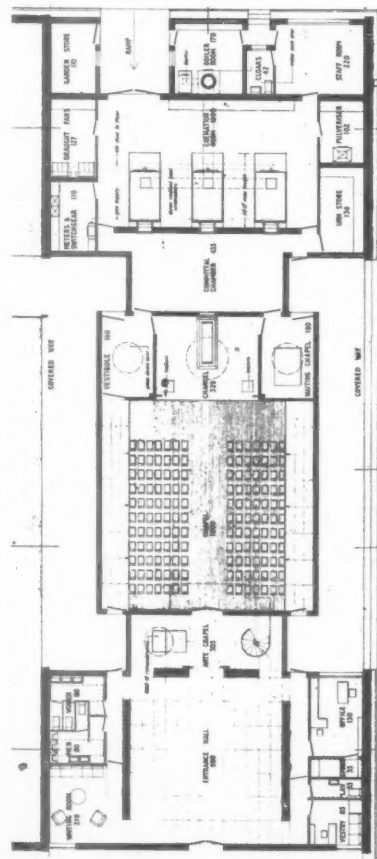


South elevation

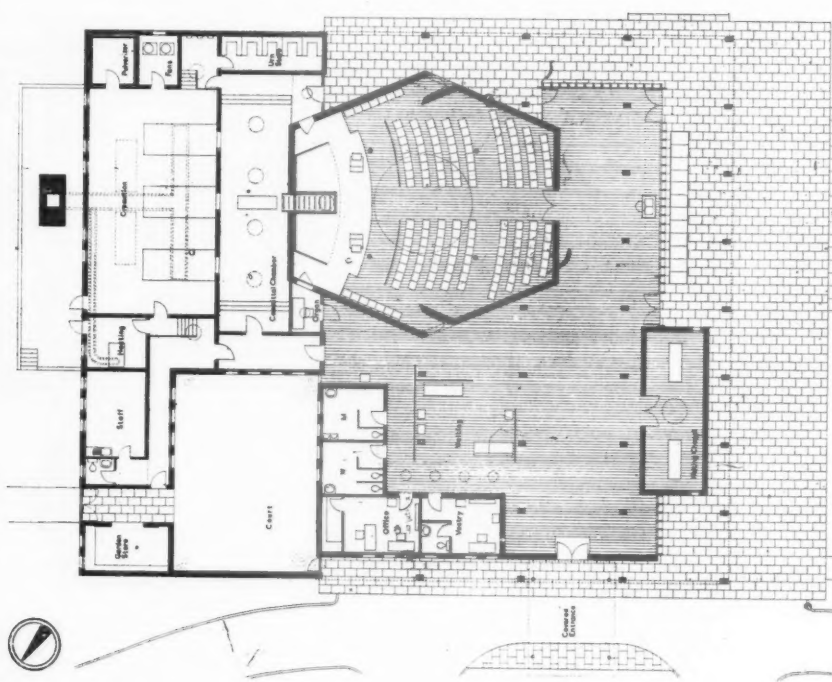


West elevation

DESIGN BY JOHN STILLMAN AND JOHN EASTWICK-FIELD
(in association with RALPH SMOREZEWSKI)

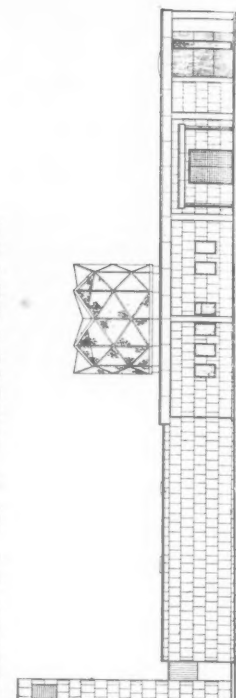


Plan

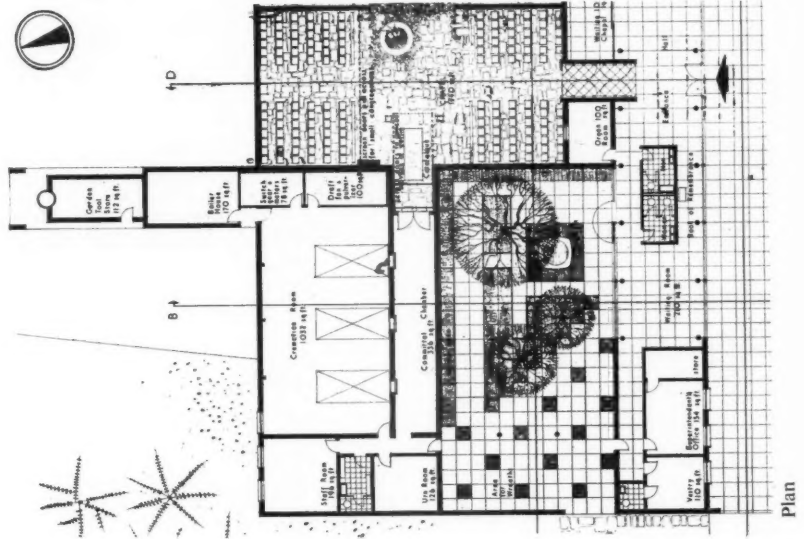


Plan

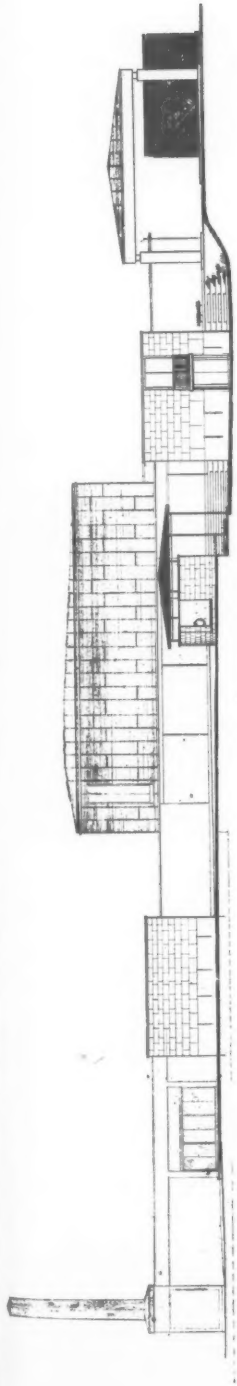
DESIGN BY H. T. CADBURY-BROWN



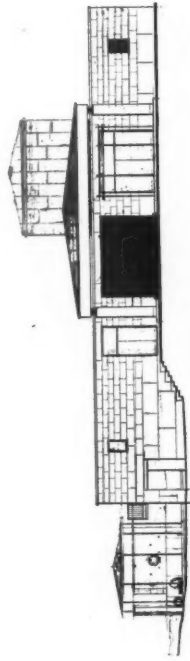
North-west elevation



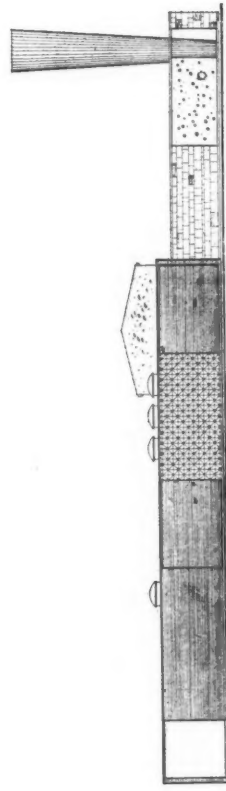
Plan



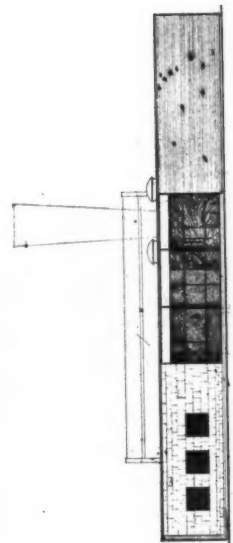
North elevation



West elevation



East elevation



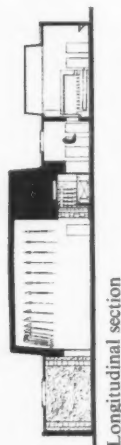
South elevation

DESIGN BY
NEVILLE CONDER

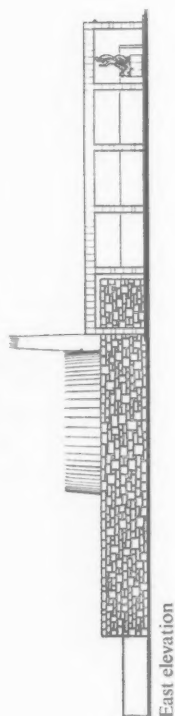
DESIGN BY
F. DARNTON HOLISTER

THE KIRKCALDY CREMATORIUM COMPETITION: DESIGNS THAT FAILED (continued)

DESIGN BY G. H. FLETCHER
AND R. T. MILLER

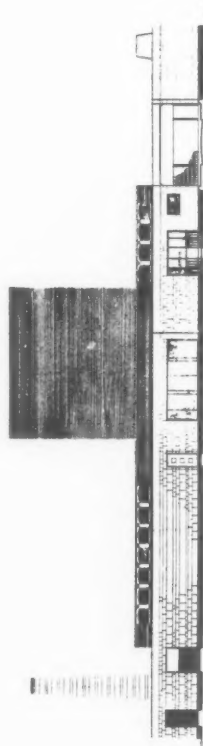


Longitudinal section

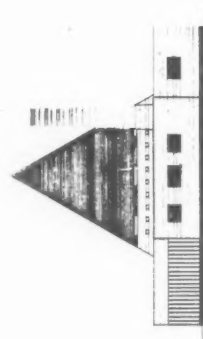


East elevation

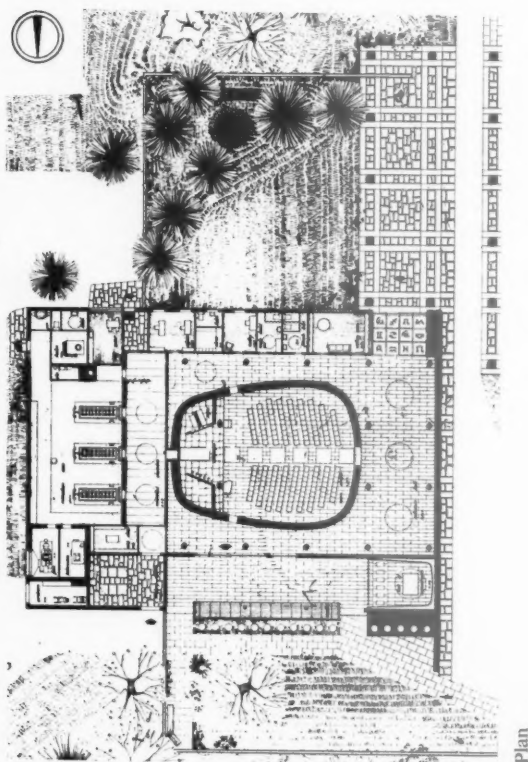
DESIGN BY I. G. DORWARD
AND T. H. HADDOW



North elevation



East elevation



Plan

Yet another controversial competition result has been added to the recent list, writes our Scottish correspondent. The designs for the Kirkcaldy Crematorium were on view for two days only, and, as in the Sighthill Church Competition, the prize-winning and commended designs proved disappointing compared with some of the others. In this case however, as in the Dover Competition, the others remain unmentioned by the assessor, in spite of the fact that their designers show far more clearly than the prize-winners that they are as interested in the relationship of masses and spaces as in the production of a straightforward workable scheme.

Without considerably longer study of the conditions and of the designs than was possible for an onlooker the comparative merits of different designs cannot be assessed. It is simple however to estimate the architectural quality of the designs generally. Out of at least twelve good "also-rans" three were particularly pleasing. These were—a delightful and sensitive design by Neville Conder—a powerful design of great, almost stark, simplicity by Stillman and Eastwick-Field, in association with Ralph Smorczewski—and a charming, rather Swedish-looking one by G. H. Fletcher and R. T. Miller (Middlesbrough). Among

other notable schemes were those by Darnton Holister (Coventry); Dorward & Hadow (Edinburgh); H. T. Cadbury-Brown (London); Mill, Koramink & Partners (London), and Geoffrey G. Wimpenny (Glasgow). All of these, and others, succeeded in expressing the required solemnity and dignity without resorting to any kind of trickery.

Mr. Bradbury, in his report as assessor, indicated his lack of complete satisfaction with the designs of his choice, admitting that the design he placed first would require amendment, and that some of the others would exceed the cost. He finds some of the designs submitted to be "more suitable for an open site in an urban area rather than for the rural and heavily wooded one selected . . . where there would be very few view-points from which a design relying for its appeal primarily on the general effect of its whole massing could be appreciated." Apparently the assessor finds the effects of massing only appreciable from the outside of a building, and given a workable plan, finds the surface treatment of masses more important than their form and disposition. If this is so his selection of the prize-winners becomes more understandable. Should any unplaced competitors have doubts about the value of the winning design they may comfort themselves by reflecting that it will be decently shrouded by trees.

Cavendish
a bomb
within
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horizon

FLATS

in CARDIGAN ROAD, RICHMOND, SURREY

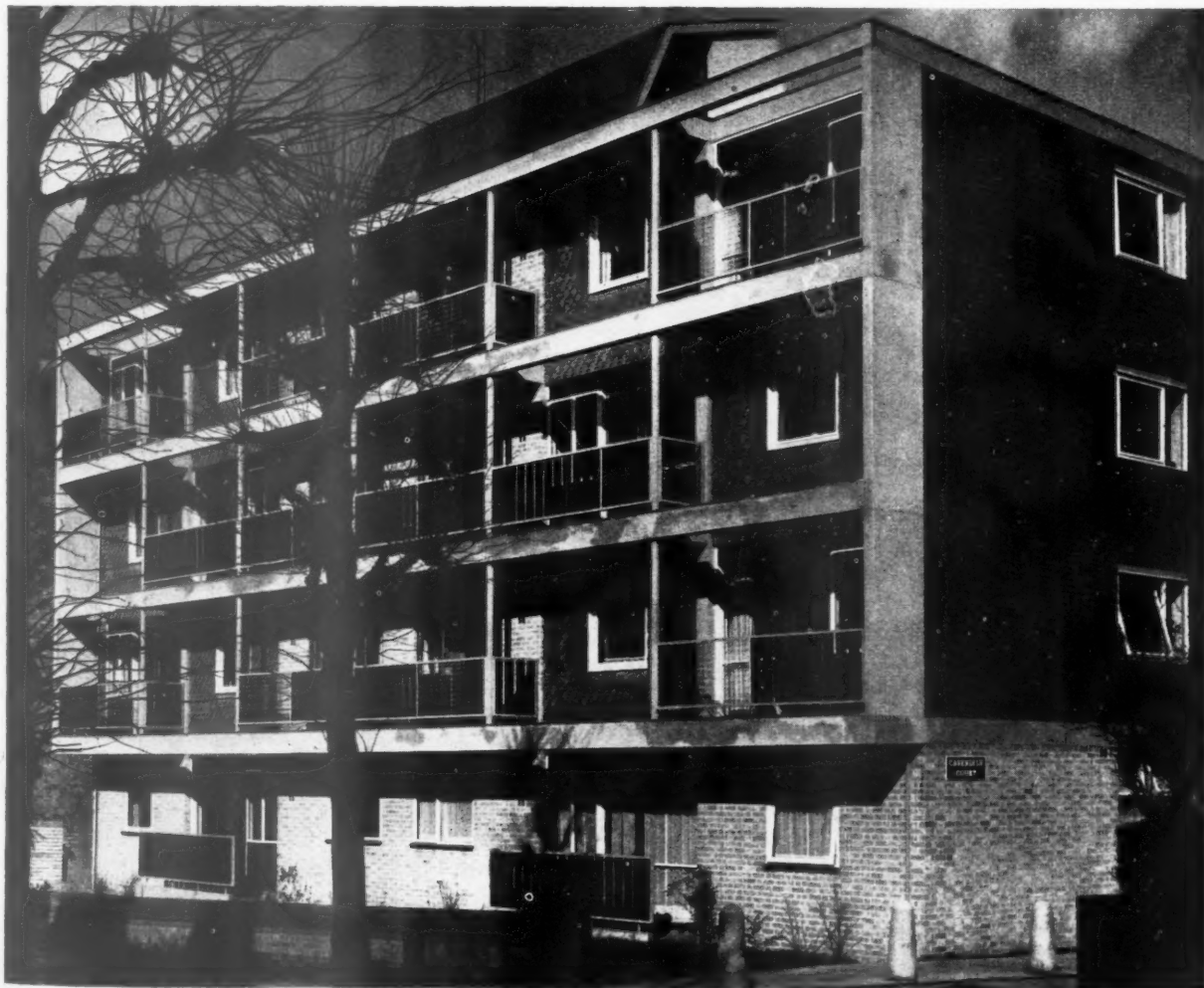
designed by ERIC LYONS

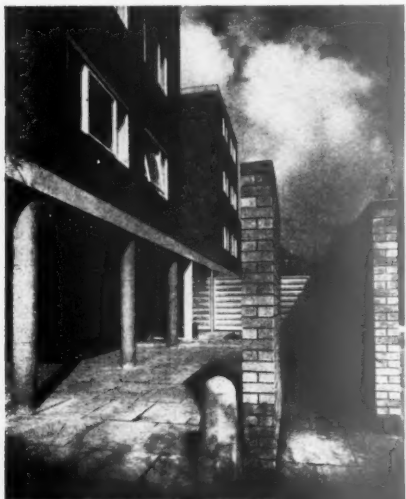
assistant GEOFFREY SCOBLE

consulting engineer, Z. PICK

Cavendish Court, Richmond, which is a block of eight flats for middle-income-group tenants, occupies a bombed site on which once stood two pairs of three-storey Victorian houses. To keep the building within the height limitation required and to avoid the need for a structural frame, the flats were kept to four storeys. On the street elevation the concrete floor slabs are cantilevered as balcony floors, joined by horizontal concrete ties. Reinforced concrete stanchions divide each bay.

The south-west facade seen from Cardigan Road.

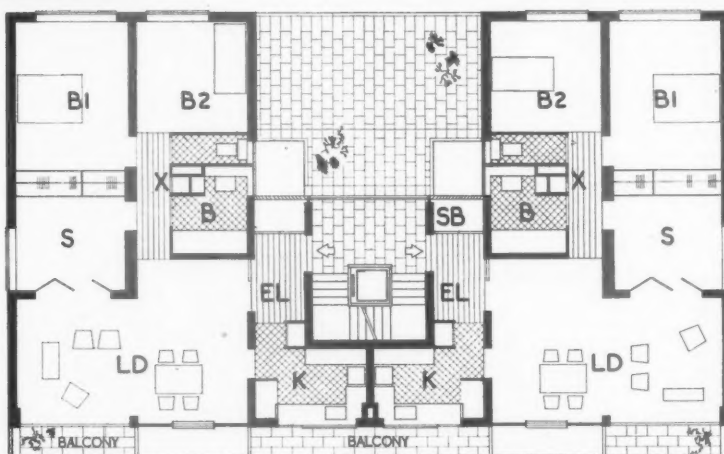




Left, the entrance court on the north-east side of the flats, seen from the drive leading to the garages.

FLATS

at RICHMOND, SURREY
designed by ERIC LYONS



Typical upper floor plan

KEY

- B1, B2. Bedrooms.
- B. Bathroom.
- E. Main entrance hall.
- EL. Flat entrance lobby.
- K. Kitchen.
- LD. Lounge and dining area.
- S. Study or extra bedroom.
- SB. Service balcony.
- X. Warm ducted air heating unit.



Ground floor plan [Scale : $\frac{1}{4}$ " = 1' 0"]

SITE.—The site of 11,000 sq. ft. contains a large entrance court to the south-east of the block, approached by a drive and footpath from the road, and there is a tradesmen's entrance from the north. The pool is designed as a setting for a piece of sculpture, which is not yet in position, and is flanked on the north side by a screen of wood louvres, painted lemon yellow and white. The paving is of precast concrete slabs. In the south-east corner of the site there are nine garages.

PLAN.—All flats are 1,010 sq. ft. in area, with the exception of the ground floor flat in the south wing, which is smaller. As well as a large living-dining area each flat has two bedrooms and a study which can be used as a third bedroom if required.



Detail of the street elevation. Construction is generally of load-bearing brick but concrete floor slabs are cantilevered as staggered balcony floors and are joined by horizontal concrete ties. The vertical end members are rendered clay conduit blocks with steel reinforcement.



FLATS

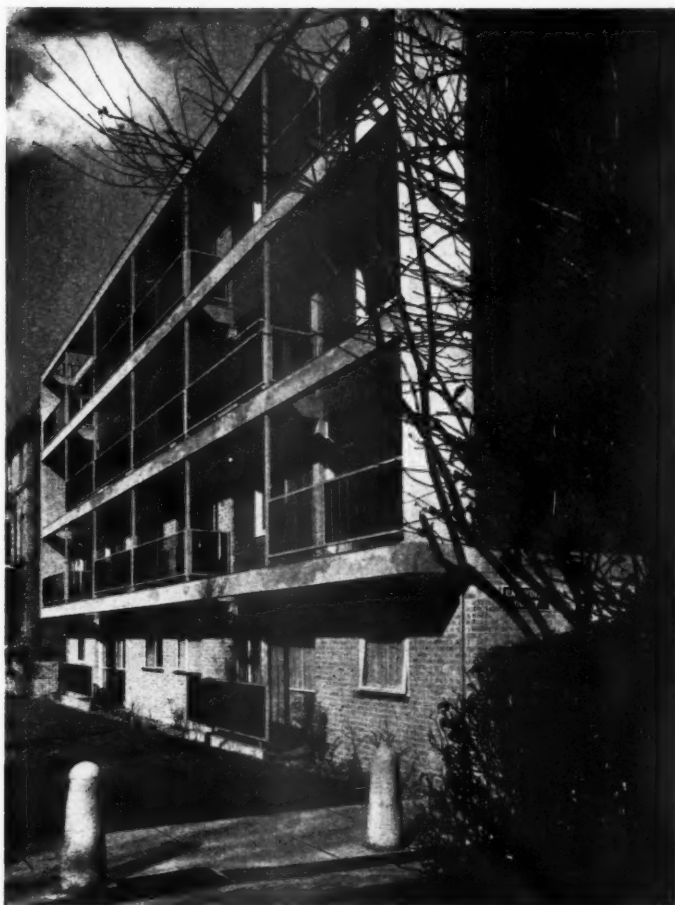
at RICHMOND, SURREY
designed by ERIC LYONS

From the east. The pool is designed for a piece of sculpture which is not yet in place.

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CONSTRUCTION.—The general construction is of calculated load-bearing walls of various qualities of brick for the various loadings. The walls at ground floor level are of 13½-in. brick and the concrete first floor and roof slabs are carried out to the external wall face to form a structural frame for the 11-in. cavity brick walls to the upper storeys. The south-west facade has concrete stanchions to allow the use of large glazed screens to the living rooms and the floor slabs are cantilevered as vertically staggered balcony floors. The staggering is to ensure good natural light in the rooms. The vertical end members consist of clay conduit blocks with steel reinforcement. The penthouse containing tanks and lift motor has a timber frame and strawboard panels covered with 3-ply roofing felt with green mineral finish and garden walls.

Right, the street elevation showing staggered balconies. Below, rear elevation showing tradesmen's entrance hall.



FINISHES.—Externally ground floor walls are faced with pale buff-coloured facing bricks and dark red-brown bricks for the upper floors. Panel walls to living rooms are faced with moulded pattern clay tiles. These tile-hung panels were illustrated as a Working Detail in the JOURNAL for May 6, 1954. All exposed concrete is finished with a pale grey cement rendering. The balcony balustrading consists of steel angles with channel stanchions and the panels filled alternately with yellow and dark blue transparent plastic sheeting, corrugated horizontally and timber vertical slats, stained black. The entrance hall floor is finished with black, white and green marble and is carried out externally to the edge of the pool. The wallpaper used in the hall is a pattern called Zambesi, designed by Walter Krauer. Internally flats have plastered walls, and tenants have chosen their own wall paper or distemper finish. Paintwork is generally white. Stairs have a pale grey terrazzo finish and landings are in black and white terrazzo. Walls to the communal parts of the building are painted in grey and white emulsion paint with panels of wallpaper. The concrete roofs have a finish of 3-ply felt on foamed slag.



FLATS

at RICHMOND, SURREY
designed by ERIC LYONS

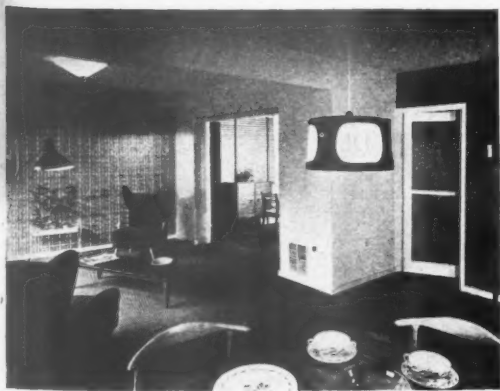
The main entrance hall; the floor panel is of black, white and green marble pieces; the wallpaper motif (Zambesi, by Walter Krauer) is in brown and off-white. The timber-louvered screen is painted lemon-yellow and white.

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SERVICES.—Each flat is heated separately by a warm-air gas unit and hot water is provided by electric storage heaters. This whole-house warming can be installed either with a smokeless gas-burning chimney furnace or with a smoke-consuming down-draught furnace, which burns any household solid fuel. In Cavendish Court the former method has been used and the compact plan of a flat is particularly suited to this type of heating and under-floor ducts, for one flat can be packed side by side with the ceiling ducts of the flat below. This system requires careful consideration in the early stages of planning. The furnace is rated at 40,000 B.Th.U. per hour and is claimed to have an overall operating efficiency of 75 per cent. Under byelaws in operation at the time when these flats were built it was necessary to provide wall vents in every room in lieu of flues. This resulted in an extravagant rate of air change, although at Cavendish Court the running costs have not proved excessively high. Room temperatures are controlled by thermostats. The lift door on the ground floor in Cavendish Court was illustrated as a Working Detail in the JOURNAL for April 22, 1954.

The general contractors were Eden Residential Construction Co. For sub-contractors, see page 90.

Above right, typical upper floor flat in the north wing, showing view from the dining area through the entrance lobby. Right, the living area looking towards the private balcony. Below, view from the dining area with the study in the background.

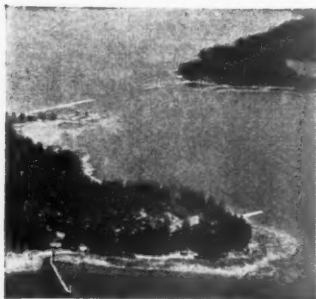


HOLIDAY RESORT

at OTANIEMI, HELSINKI, FINLAND

designed by AARNE ERVI

assistant architect OLOF HANSSON



Aerial view of the site.

This holiday resort is situated about five miles from Helsinki where its owner, Kansallis-Osake-Pankki, a large Finnish banking concern with over 200 branches, is situated. The bank, which has many branches in the heart of the country, allows the use of the resort free to its employees. The head office wished to preserve their contacts with a rural environment when they created this holiday camp in the peaceful surroundings of Otaniemi.

Looking into the dining area from the club-house sitting-room.



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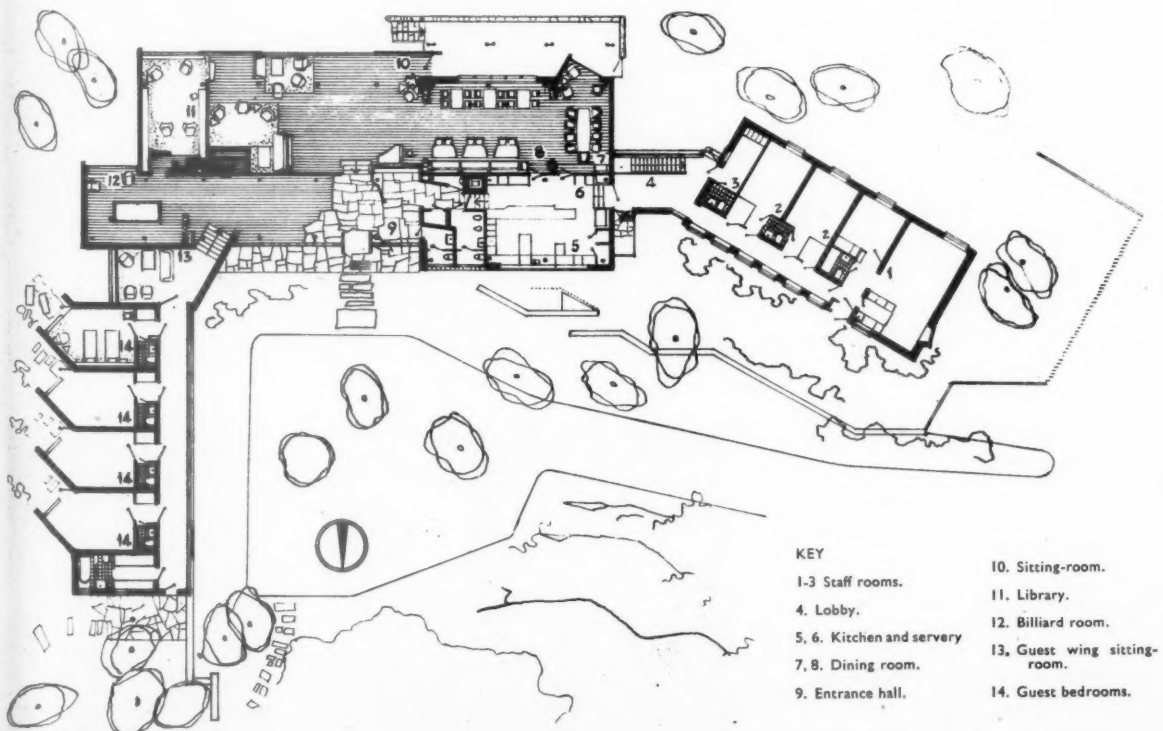


Ground



Right, the club-house from the north. Below left, the guest wing from the south-east. Below right, terrace on the south side of the main dining room.

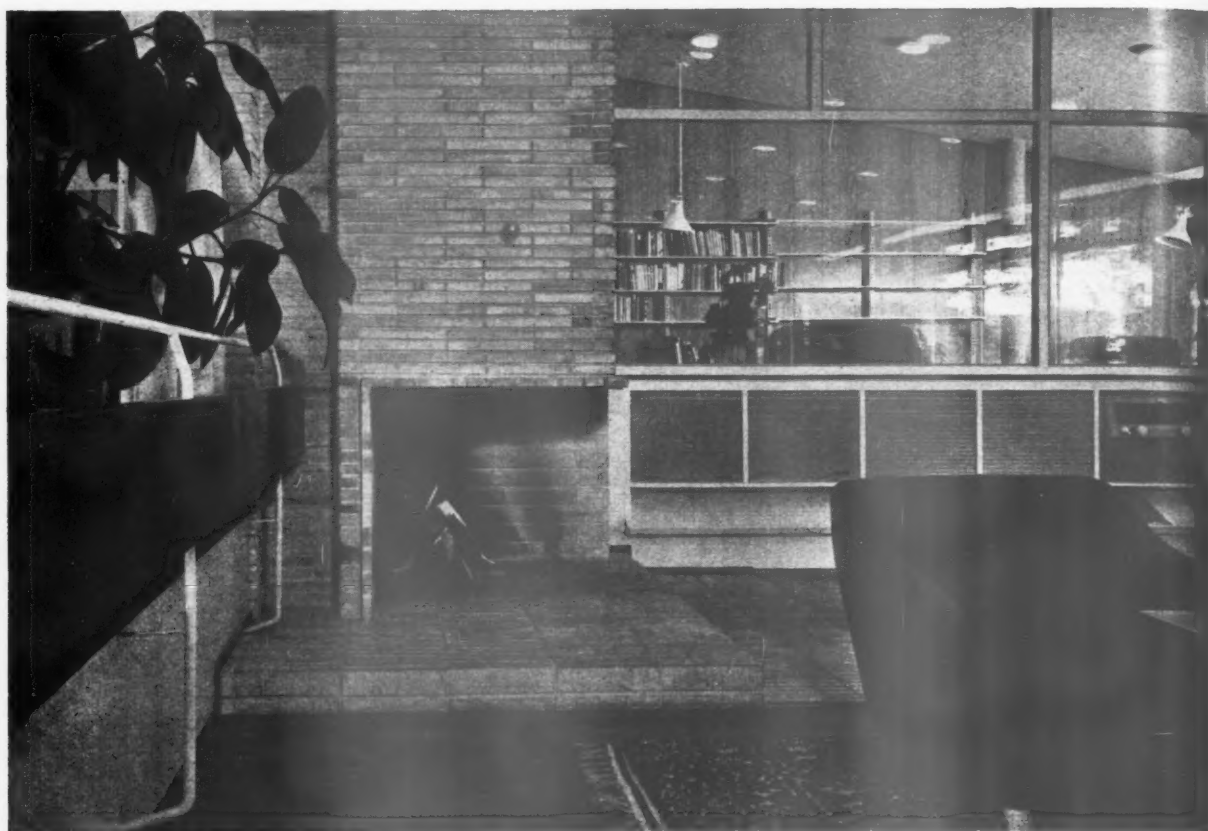
GENERAL.—The club-house, situated only about five miles from the head office of the bank, is planned as a place of recreation for small groups of employees and as a centre for larger gatherings. Apart from the club-house itself, there are 50 small cottages and two "sauna" bath-houses. The club-house is planned so that the various rooms can be divided up (by sliding-folding doors and curtains) for different activities or left open for festive occasions. The dining-room, hall, billiard room, library and small guest-wing sitting-room can be



KEY

- 1-3 Staff rooms.
- 4. Lobby.
- 5, 6. Kitchen and servery
- 7, 8. Dining room.
- 9. Entrance hall.
- 10. Sitting-room.
- 11. Library.
- 12. Billiard room.
- 13. Guest wing sitting-room.
- 14. Guest bedrooms.

Ground floor plan of club-house



HOLIDAY RESORT

at HELSINKI, FINLAND

designed by AARNE ERVI

connected into one large open hall when necessary. There is a guest wing to the north-east of the main block. A west wing contains staff rooms. The holiday cottages on the site are each assigned to five or six employees, who retain the use of their cottage from season to season. The bank has its own bus to bring employees from Helsinki to the resort; the use of the club-house, cottages and transport are all free. The club-house is steel-framed to allow the use of large areas of glass, so that the beautiful scenery can be appreciated to the full. Walls are of wood or grey sand-lime bricks and roofs are tiled. Heating is by radiant panels in floors and ceilings.



Top, looking from the sitting-room through a glazed screen into the library. Centre, view looking into the billiard room. Right, a corner of the dining room. Extreme right, looking into the club-house from the guest wing sitting-room.

TECHNICAL SECTION

The attitude of the architect towards trade associations varies between suspicion and dependence : his interests *may* coincide with theirs, but again they may not. But, as can be inferred from the initials on the front cover of the JOURNAL, the trade association as an institution is increasingly popular, and for this reason the pattern of behaviour which it presents is increasingly the concern of technical people. A relative newcomer to the field is FIDOR, the shortened name for the Fibre Building Board Development Organisation, Ltd., which recently celebrated its first anniversary by holding a conference in Copenhagen. At this conference the chairman of FIDOR, E. P. Lawrence, described the first year's workings, and among other points mentioned an approach which had been made to the Architects' Department of MOE with a view to the ultimate publication by MOE of a bulletin on the use of fibre board in schools. This was a wise move, for fibre board suffered perhaps more than any other material from uncritical use when it was first marketed in this country. In all fairness it must be pointed out that this was in part because climatic conditions in the countries of its first exploitation are so different from ours : standard hardboards, to quote one instance, serve very well when used externally in Sweden, but have been known to give trouble when used the same way over here. But fibre board is too good a material to suffer a perpetual eclipse on this account, and it is in the architect's interest that it should be reinstated exactly in its right place. FIDOR is alive to this, and doubtless alive also to the architect's maxim that the public value of a trade association can most easily be measured by the scrupulousness with which it makes known the limitations of its commodity.

This week's
special article

14 MATERIALS : CONCRETE concrete control for the architect

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.

Last May the Cement and Concrete Association held a Symposium in London on Mix Design and Quality Control of Concrete. This week our Specialist Editor No. 13 discusses the practical value of this Symposium to architects and puts forward his own views on what steps the architect should take to ensure adequate control on "the small job."

The recent symposium on mix design and quality control of concrete organised by the Cement and Concrete Association proved to be an outstanding success. About 1,300 people, representing every technical aspect of concrete materials and workmanship, registered for the symposium; and while

much of the discussion and many of the papers read repeated much that has been discussed in past years, it is obvious that interest in the problem of controlling concrete quality has never been higher. From the architect's point of view there was, however, an omission from the discussion, namely how to

achieve control on the small site. Certainly a paper was given having almost that title and several references were made to "small sites" but the definition of a "small" site in the symposium was still a large site when compared with the average job dealt with directly by architects in this country. The small job cannot be overlooked when the Byelaws or the Code of Practice applies and the same strength of concrete is required; and, taken over the whole country, more concrete is produced on small sites in portable mixers than in the large mechanical batching plants.

A NEW CERTIFICATE

Probably the greatest service to the architect and to concrete control generally, provided by this surge of enthusiasm, has been the agreement of City and Guilds to institute a certificate of Concrete Practice for the lower supervisory grades which may well lead to a new series of craftsmen in this country. Too many contractors' general foremen have risen from the status of foreman carpenter without any real knowledge of what went into the formwork and too many clerks of works have been trained only in the finer points of brickwork and the finishing trades. In this new body of craftsmen lies the real hope for adequate control of concrete quality on the small site.

SUPERVISING PERSONNEL

The circumstances of supervision vary according to the size of the job. On the large site a concrete engineer would be provided with a site laboratory; on the medium sized site dealing with, say, 30 to 40 cubic yards of concrete per day, junior representatives of the contractor and engineer are provided with a small hut, while the small site would probably only boast the part time services of the concrete foreman with the office of the clerk of works doubling as a laboratory. The work in all cases would follow similar lines of inspection of sources of supply of aggregates, inspection of aggregates as delivered, testing same, and ensuring satisfactory stock piling arrangements. Cement storage, accuracy of plant for proportioning materials, checking, mixing times, etc., would all be carried out in the small job though not necessarily with the precision or accuracy of the large job. All this action can be demanded in the specification which can be conveniently subdivided into materials, mixing and placing of concrete. We will now consider these three subdivisions and indicate points which should be brought out in the specification.

SPECIFICATION OF MATERIALS

Cement

The most used cements are Ordinary Portland and Rapid Hardening Portland. Their rate of development of strength is variable, but usually the

strength is 150-190 per cent. greater than that required in British Standard BS12. Rate of hardening is quicker in the Rapid Hardening variety owing to finer grinding or addition of calcium chloride but both are accelerated by warmth and retarded by heat. Generally resistance to acid attack and sulphates is low. This problem is overcome by the use of High Alumina Cement or Sulphate Resisting Portland Cement. A more uniform strength will be obtained if the cement can be delivered from only one mill. In the specification it is only necessary to state that the Portland cements shall comply with BS 12 and the High Alumina with BS 915 and to ensure that the cement is stored correctly on site. This can be achieved by storing in, but away from the walls of, a dry and watertight shed preferably with a raised floor. On a small site it is usual to accept the maker's certificate as a guarantee of the quality of the cement as cement testing is expensive and only justified when there is obvious doubt.

Aggregates

The coarse aggregates most commonly used are flint gravels, crushed hard limestone and crushed granite. These give no trouble from wetting and drying movements and withstand frost attack fairly well. Soft limestone and the higher open-pored porosity types are very prone to frost destruction and should be avoided. BS 882 defines the quality and gives grading limits for all-in aggregates of various maximum sizes and for single sized aggregates. In the specification it is necessary to indicate the nominal maximum size of coarse aggregate required to satisfy the design conditions, e.g., reinforced concrete members with distances of 1 in. between bars or the diameter of the bar (if larger) would require $\frac{3}{4}$ in. maximum size aggregate. For full control of the grading the coarse aggregate should be obtained in several single sizes and recombined to the correct proportions for the mix. The fine aggregate may be crushed rock, river or pit sand, the grading and quality being again covered by BS 882. In some parts of the country sands are experienced in which most of the particles fall into one sieve size, and it may then be necessary to mix two sands to provide the specified grading.

The specification then will state that the aggregates shall comply in every way with BS 882. The contractor is required to submit samples of aggregates he proposes to use and, apart from a visual examination for shape of the particles, tests can be carried out for silt and organic impurity content and sieve tests to check the grading. On approval of the samples, permission can be given for preliminary test cubes to be made to ensure that the mix specified will achieve the design strength. The samples should be re-

tained to compare with the aggregates later supplied. It should be stated in the specification that the source of supply shall not be altered without permission of the architect and, if it is altered, that further tests should first be made. Similar tests will have to be carried out on site so the contractor should be called upon to provide the necessary equipment, including the complete range of sieves, a pair of scales weighing up to about 14 lb., and two 200 ml. measuring cylinders. In the smaller jobs this equipment need not necessarily be kept on the site, otherwise the contractor would have to purchase sets for every small job, but it should be made available at the request of the clerk of works.

The only other point requiring reference in the specification is the method of storage of the aggregates. The aggregates should not be stored in direct contact with the ground and should have a physical separation between the coarse and the fine. The stock piles should be as large as possible and flat topped to allow the upper part of the pile to drain. The area around the stock piles should be kept as clean as possible.

Having determined the correct aggregates it is then up to the site representatives to ensure that the standard is continued. The supplier's pits should be visited and the supply discussed with the people responsible for sending the material to the site. One snag which can occur is that the pile when tipped from the lorry has two distinct layers of aggregate in it of different sizes, though the whole pile when mixed gives the desired grading. This depends on the methods employed in the pit and should be referred to the supplier. Segregation can occur in the large stock pile itself, and remixing must be employed whenever this occurs. Routine tests should be made for grading silt and organic impurities content as described in BS 882.

Water

There is no entirely satisfactory clause for specifying water in the concrete mix. Generally speaking, if you can drink it you can safely make concrete with it, but in the specification it should be stated that the water shall contain no deleterious matter that significantly affects the strength of the concrete or has any effect on the appearance of the hardened concrete.

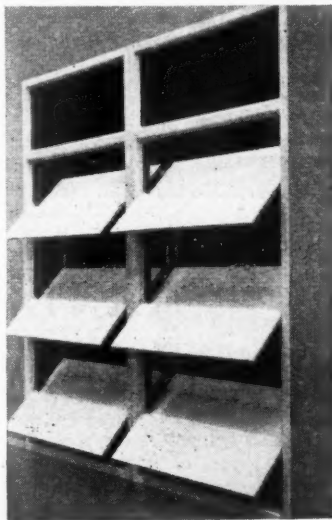
MIX DESIGN

For many years concrete quality and mix proportions were regarded as synonymous and experience had shown that a 1:2:4 mix by volume of cement, sand, and gravel was satisfactory for most types of work. In course of time it was found that the quality of such concrete assessed in terms of compressive strength was far

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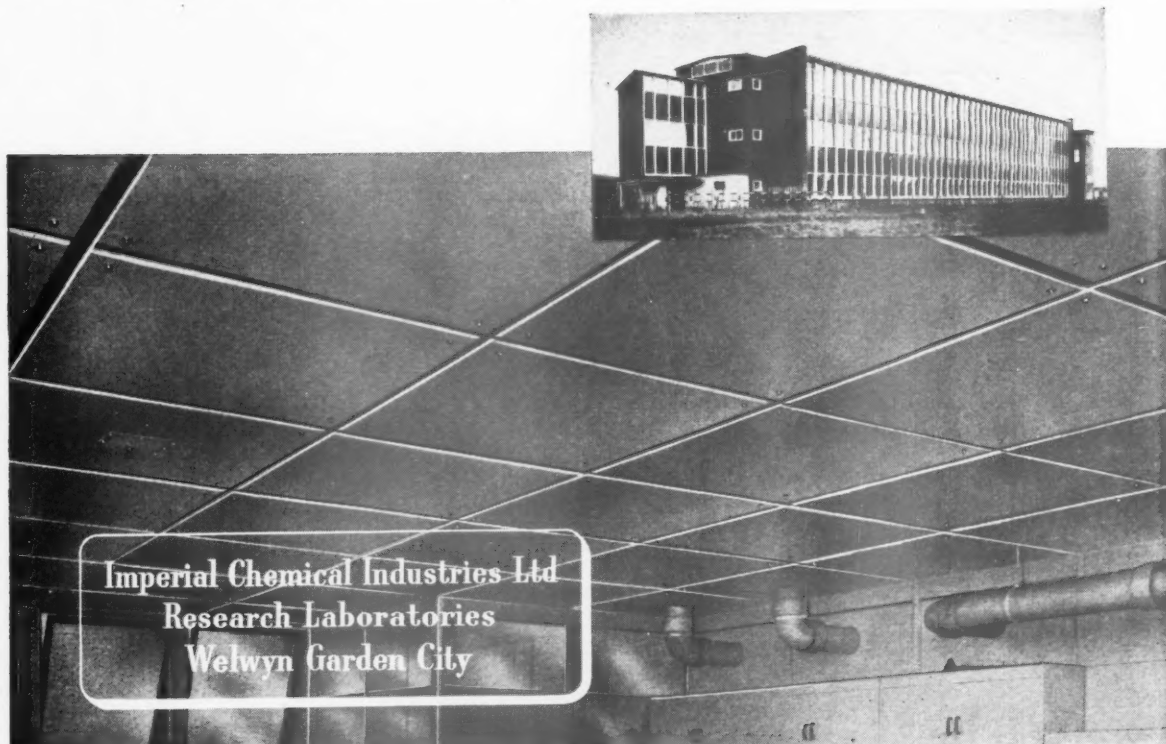
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from being constant, so the specification was altered to include compliance with strength figures indicated by cube test results. This has been developed in the various Codes and Byelaws, and the present day regulations provide a series of mixes by volume with respective works strength results which must be attained at 28 days. Preliminary tests are required by the Code at about 16 per cent. higher than this figure, and if the figure cannot be attained the design stresses are reduced accordingly.

This method of specification obviously cannot be economical for a particular site when it caters for the entire country; and for bigger works, mainly road and airfield pavings, there is now a tendency to specify only the required strength result. The design of the mix is then the responsibility of the contractor who is free to make the best use of the available materials, his own plant and his skill. This is most desirable from the point of view of both architect and contractor and should lead to economy. One careful investigation on a site using full control and turning out 20 cu. yd. of concrete per day revealed a saving of 12 per cent. over ordinary volume batched moderately controlled work. The larger the organization, the larger the saving would have been, up to about 20 per cent.

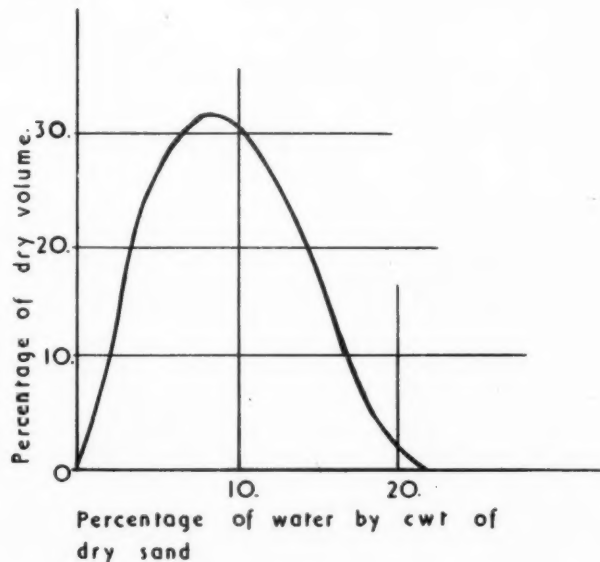
However, this latter method cannot really be considered for the small job involving structural concrete or work which cannot be cut out without some added qualification. It seems reasonable to assume that for this type of work a compromise between the two methods might be used in which the method of batching, mixing and placing are specified in such a way as to ensure no strengths falling to a dangerous level rather than demanding a definite minimum strength below which the strengths must not fall. The contractor would be required to produce experimental evidence obtained from trial mixes using the materials proposed for the work which would show the proportions necessary to meet a specified target strength with some small allowance for variation. These mix proportions would then be agreed between architect and contractor and varied as 7 day cube strengths indicated a trend towards a change.

Four factors in the mix govern the quality of concrete.

1. *Water/cement ratio*—which affects the strength, durability and workability. In the range of normal mixes the strength at a given age and made with a particular cement is almost entirely dependent on the water/cement ratio.

2. *Cement/aggregate ratio*—which affects workability. For a given volume of cement paste only a certain amount of combined aggregate can be

Fig. 1. Curve showing the relation between the volume of sand and its water content.



added without making the mixture too stiff to compact.

3. *Maximum size of aggregate*—which affects workability. The smaller the particles comprising a given volume, the larger is their combined surface area, and therefore a larger amount of cement paste is required for their lubrication.

4. *Grading of the aggregate*—which affects workability and the tendency to segregate. Workability can be defined partly as internal friction when the particles jostle against each other in the mixing and partly as external friction when they jostle against the reinforcement and formwork. Grading and shape of aggregate can be so chosen as to reduce this friction to a minimum.

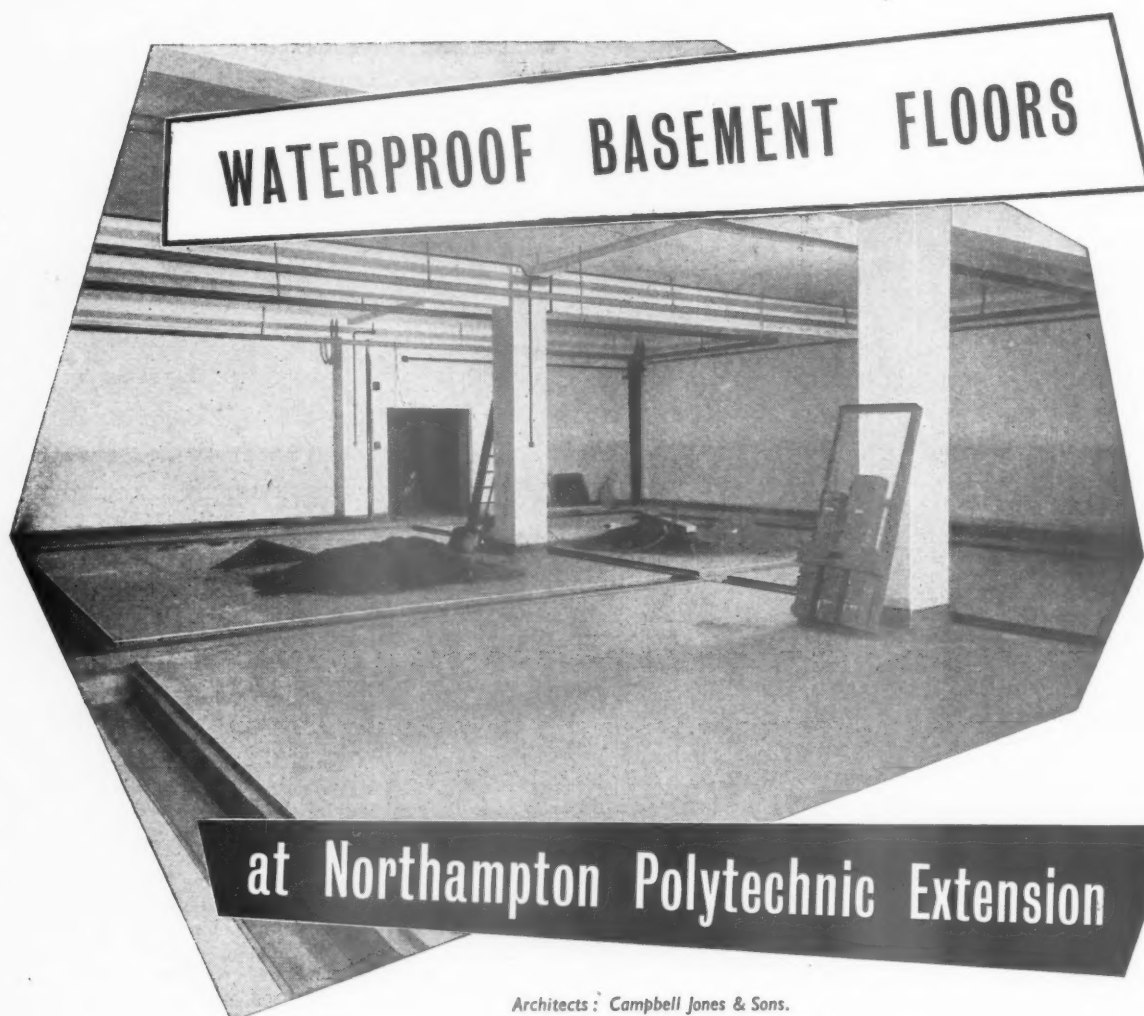
The economic desideratum is then the lowest water/cement ratio, with the lowest cement/aggregate ratio, with an aggregate having the largest size permissible and being well shaped and well graded from highest to lowest particle size, the whole being sufficiently workable to allow full compaction with the means available. It is not proposed to develop this further in this article as it is well described in Road Research Note No. 4, 1953, HMSO. Instead we will consider the variants in the mix once the design has been decided.

Batching.—Wherever possible this should be by weight and the quantities so worked out that a whole bag of cement or a number of bags are always used. Volume batching can be controlled quite well provided deep gauge boxes are used and the account of the bulking of the sand is taken, but even so there is greater variation between successive batches. A specified volume mix can always be converted to a weight mix by ascertaining the bulk density of the materials.

Bulking of the Sand.—In Fig. 1 a

typical curve is shown for the relation of the volume of sand to its moisture content and it will be noted that whether dry or fully saturated the sand has the same volume. The stockpile will always be at some intermediate moisture content and unless more sand is added the correct volume will not be batched. On the other hand, by due allowance for the weight of water, the correct weight of sand can always be batched. Bulking can be measured quite simply on the site with the aid of a measuring cylinder. First put a sample of sand into the cylinder and measure the top level. Then empty out the sand and part fill the cylinder with water. Return the sand into the water, rodding it carefully, and when all the sand is under the water level it may be considered saturated and back to its normal dry volume. The comparison of the two sand levels is a measure of the bulking of the moist sand.

Water/cement ratio.—The water/cement ratio must be kept constant if the strength and workability are to be maintained. The moisture content of the aggregates must be determined and due allowance made in the batching. There are several ways of determining the moisture content, but only two can be used with any success without the help of laboratory equipment. A direct and simple method consists of measuring the volume of a fixed weight of aggregate by noting the change in level of a known volume of water in a graduated glass measuring cylinder when the sample is submerged. The method is quick and requires only scales and a measuring jar. A proprietary measuring cylinder is available which has a number of graduated scales. Dry sand is first used in the cylinder and the scale which denotes zero moisture content is that to be used for the particular



Architects: Campbell Jones & Sons.
Contractors: Patman & Fotheringham Ltd.

In constructing the new extension to the Northampton Polytechnic, St. John Street, London, E.C.1, the whole of the basement floor was made waterproof by the inclusion of 'PUDLO' Brand Cement Waterproofing throughout the thickness of the concrete. The illustration above shows the Hydraulics Laboratory which occupies a small section of the new basement.



Descriptive booklet sent on request

CEMENT WATERPROOFING POWDER

The most reliable fire cement is 'FEUSOL'. Have you tried it?

The word 'PUDLO' is the registered Trade Brand of Kerner-Greenwood & Co. Ltd. by whom all articles bearing that Brand are manufactured. Sole Proprietors and Manufacturers:
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sand throughout its tests. The disadvantage is the vulnerability of the special measuring jar. The third method recommended is the syphon can method developed by the Cement & Concrete Association, but this again requires proprietary apparatus to be purchased.

SUPERVISION OF MIXING

The mix is specified by volume or by weight proportions with the target strength at 7 and 28 days as described previously. It is usual to state that the measuring of the materials shall be by equipment to the approval of the architect. In the case of weigh batching the machine must be the type likely to prove most satisfactory under the anticipated site conditions, and it must be calibrated at least once per week. If volume batching is employed, gauge boxes with a small cross-sectional area compared with depth should be employed and every effort made to see that they are used. If the aggregate has been dumped away from the mixer there will probably be a request to gauge it by the barrowful or spadeful and this means *no control*. Measurement of the cement must always be specified by weight. The mixer to be used must also be approved by the architect. The supply of water must be via a measuring tank so that the predetermined quantity of water can be guaranteed for each mix. The amount of water may be specified in two ways, one by giving the water/cement ratio, the other by demanding the minimum amount of water required to produce a workable mix, amounts to trial and error with the first two batches. The dry materials should be mixed for a short time before the water is added and mixing should continue until the concrete is uniform in colour and consistence, generally about 1½ to 2 minutes in a 10/7 or 14/10 mixer. If mixing on a time basis, the correct number of revolutions should be maintained and the water feed checked regularly for blocking. It should be noted that the first batch from a mixer is never a good one, as the drum and blades require coating with cement paste and either extra cement should be added to allow the mix to be used in the job or the mix should be used elsewhere in drain surrounds, etc. On cessation of work, including short stoppages, the mixer and all handling plant should be washed out thoroughly with clean water.

The supervisory staff will be responsible for checking all the points mentioned above and for carrying out routine tests on the moisture content and bulking of the aggregate. For the small site the method of ensuring consistent workability will be by the slump-cone. To specify the concrete as requiring a particular slump for a

particular part of the work is useless as the slump test is not sufficiently accurate, but with the same operator and a consistent mix it should give consistent slumps. The apparatus and its use is described in both the Code of Practice and BS 1881.

Cubes should be taken frequently at the beginning of the work to establish confidence in the control procedure and quality of the concrete. Later they could be cut down to one or two sets of four per week. Particular attention should be paid to the method of making the cubes as described in BS 1881, and after making they should be kept under damp sacking for 24 hours in a place where they will not be shaken or jolted. After 24 hours the cubes should be taken from the moulds and given a reference number and date, then placed in water at a temperature of between 50°-70° F. The cost of transporting to the laboratory and testing may be anything from 12s. to 20s. per cube, depending on the distance to the laboratory, and consequently when the job is well under control it may be found convenient to test two of a batch of four cubes at 7 days and not test the remaining two if the others are up to standard. Cubes as previously described are a measure of the consistent quality of the work. If the cubes are required to actually represent the work for purposes of striking formwork on the basis of an early cube strength, then the concrete should be taken from the actual member concerned, compacted and cured in the manner used in the job.

TRANSPORTING AND PLACING

The production of good concrete at the mixer is not in itself a guarantee of a good concrete structure, as the strength of the finished concrete drops very rapidly with a slight fall in the percentage consolidation. The concrete should be handled from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of the ingredients. It should be deposited as near as possible to its final position to avoid rehandling or flowing, but in the case of thin members it is preferable to dump on to a spot-board and accept the rehandling. Bumping of barrows, dumpers and lorries causes both segregation and consolidation. Where the haul is lengthy adequate protection should be given against rain, sunshine, or a drying wind. Where crane skips are used the concrete should be released carefully as dropping the concrete from a height causes segregation. When using chutes which have a tendency to cause segregation it is preferable to discharge from the chute into a storage hopper. The concrete should be in place not more than 30 min. after mixing.

The internal surfaces of the shutter-

ing should be thoroughly cleaned and inspected by clerk of works before any concrete is placed. The concrete should be thoroughly compacted during the operation of placing, and thoroughly worked around the reinforcing bars, etc., in the forms. The concrete should not be dropped from a height of more than 6 ft. unless special means are employed, such as a tremie, which would prevent segregation. Excessive tamping or vibration should be avoided, the concrete being worked against the forms so that the face of the concrete will be smooth and free from cavities and other imperfections. In hand tamping the tamp rod should not be removed from the concrete at each thrust, but only partly removed to produce the oscillatory wave effect around the rod. In vibration (internal vibrators are preferable), the sound of the vibration changes when compaction has been achieved and the air bubbles cease to come to the surface. Air-bubble holes show on the finished surface, more so with steel than timber forms, but at the moment this cannot be completely eliminated.

CONSTRUCTION JOINTS

Construction joints require particular attention as they lead to both unsightly and vulnerable details if badly executed. The type of construction joint will probably be indicated on the working drawing but a thin batten should always be provided along the edge of the joint on the face which will be visible afterwards so that a neat rebated edge will result on striking the formwork. Before casting the next lift of concrete, the old concrete should be roughened, thoroughly cleaned and damped. The contact surface should then be given a thin coat of a rich grout and the new concrete tamped well into it.

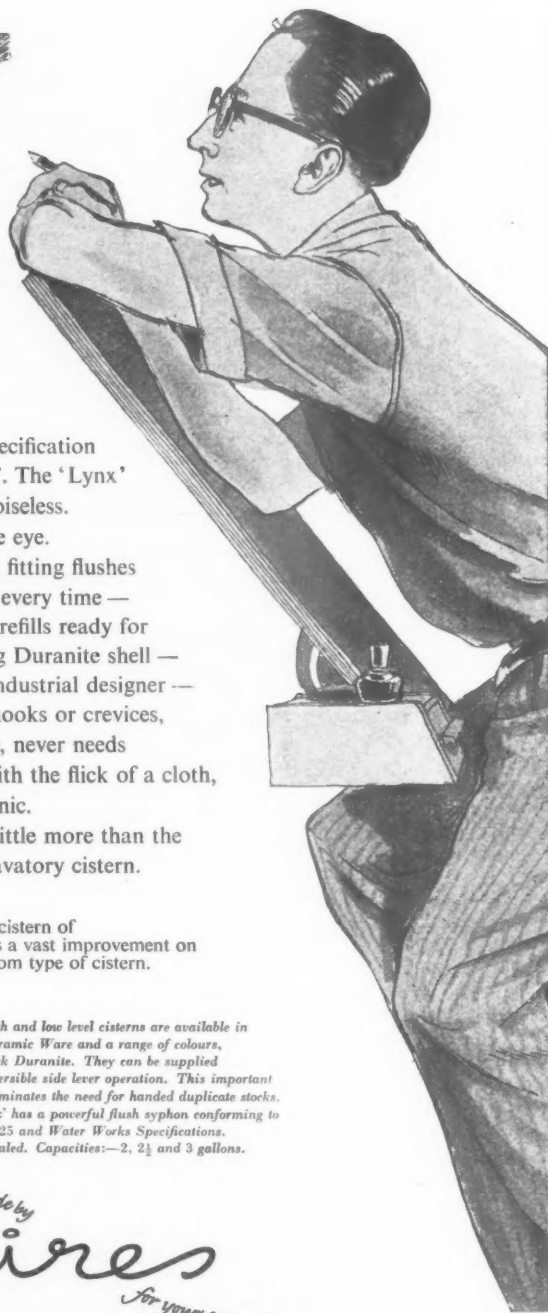
CURING

Wet concrete should be protected during heavy rainstorms and intense heat. In cold weather unless special precautions, such as steam heating are used, the concrete should not be placed when the temperature is below 38 deg. F. Freshly placed concrete placed at this temperature should be protected by straw, sacking or braziers. During a period of frost the concrete will probably not harden and this period should be added to the time quoted in the Specification for the stripping of formwork. Particular care must be taken in the curing of the concrete and protection must be afforded against too rapid drying. During the first week after deposition the concrete should be kept thoroughly damp by means of wet sacking or other materials and by watering daily.

If on striking the formwork honey-combed concrete is exposed, it may be necessary for the defective area to be cut out and replaced by good concrete.

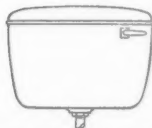


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The 'Lynx' — a flat bottom cistern of up-to-the-minute design — is a vast improvement on the old-fashioned, well-bottom type of cistern.



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Blemish	Possible Cause of Trouble	Possible remedy
A. Concrete alignment unsatisfactory	<ol style="list-style-type: none"> 1. Unsatisfactory formwork design. 2. Faulty erection of formwork. 3. Placing of concrete at too fast a rate for design of formwork. 4. Dropping of concrete from a height into formwork. 5. Use of vibration in formwork not designed and erected with vibration in mind. 	<ol style="list-style-type: none"> 1. Remedy design. 2. Tighten bolts, see that wedges are in correctly, bracings tightly fixed, etc. 3. Alter formwork design or adjust rate of production of concrete. 4. Improve plant arrangement and placing technique. 5. Improve design of formwork or erection technique.
B. Construction joints in random positions	<ol style="list-style-type: none"> 1. No attention to formwork design 2. Concreting stopped for a period during lift. 	<ol style="list-style-type: none"> 1. Show joint positions on formwork detail. 2. (a) Improve concreting gang technique to avoid breaks. (b) Adjust quantity of concrete between joints to plant output. (c) Eliminate plant break-downs by regular maintenance.
C. Construction joints badly made, including honeycombing just above joint.	<ol style="list-style-type: none"> 1. Failure to remove laitance from previously placed concrete. 2. Failure to clean up. 3. Formwork not tight or gives under pressure, allowing loss of cement-sand grout. 4. Mix too harsh. 5. Concrete allowed to flow along formwork. 	<ol style="list-style-type: none"> 1. Remove laitance by scabbling, wet sand blasting, etc. 2. Clean up thoroughly by air or air-water jets. 3. Remedy design or erection technique of formwork. 4. (a) Revise concrete mix design. (b) Check proportioning of materials at the mixer. 5. (a) Instruct concreting gang to place evenly round formwork. (b) Improve transport method to simplify even placing.
D. Honeycombed patches.	<ol style="list-style-type: none"> 1. Loss of cement grout through formwork. 2. Shortage of sand in some batches. 3. Change in grading of aggregate. 4. Segregation of mixed concrete. 5. Segregation during placing. 6. Lack of consolidation. 	<ol style="list-style-type: none"> 1. Check formwork. 2. (a) Use more care in proportioning. (b) Mix more thoroughly. 3. Check grading of coarse and fine aggregates. 4. (a) Change plant used for transport. (b) Alter mix design to decrease tendency to segregate. 5. (a) Improve placing technique. (b) Improve plant used in placing (if any). 6. Improve compacting technique.

Fig. 2. Some major causes of blemishes on concrete structures and possible remedies. Table prepared by Dr. L. J. Murdock.

If the honeycombing is only superficial then it should be made good by using mortar from a similar mix, for any other method will leave a most unsightly plastered appearance.

CONCLUSIONS

Throughout this article discussion has been confined to the quality of the concrete, but clearly craftsmanship on the formwork is equally important. In Fig. 2 we print an interesting summary of our knowledge of concrete blemishes, prepared by Dr. Murdock, which shows

the dependence of the finished product on everyone concerned.

In conclusion we must return to the theme of the education of the supervisory staff. There is no greater danger to the site than the foreman or clerk of works who does not bother to read the Specification because "he read one once before" or "was making concrete while the architect was still at school." There is much to be taught and once a few disciples have been passed through the colleges the gospel may even be brought to the site tea break.

THE INDUSTRY

From the Industry this week Brian Grant reports on a soap pump, a new walling system, sink units and solid fuel appliances.

LIQUID SOAP DISPENSERS

It seems likely that the many people who have been irritated at finding no soap in railway trains will have less cause for complaint in future, for British Railways are said to have ordered 40,000 liquid soap dispensers; moreover, they are to be fixed in such a way that it will be virtually impossible to remove them. The new soap pump, known as the W.D., is about 7 inches high, and holds enough soap for 200 to 220 washes. It is a chromium plated die casting with a plunger at the bottom. Fixing is by a bracket attached to the wall, the back of the container sliding over this and being fixed by a taper pin which cannot be removed except by a specially designed punch. Refilling is simple (any kind of liquid soap

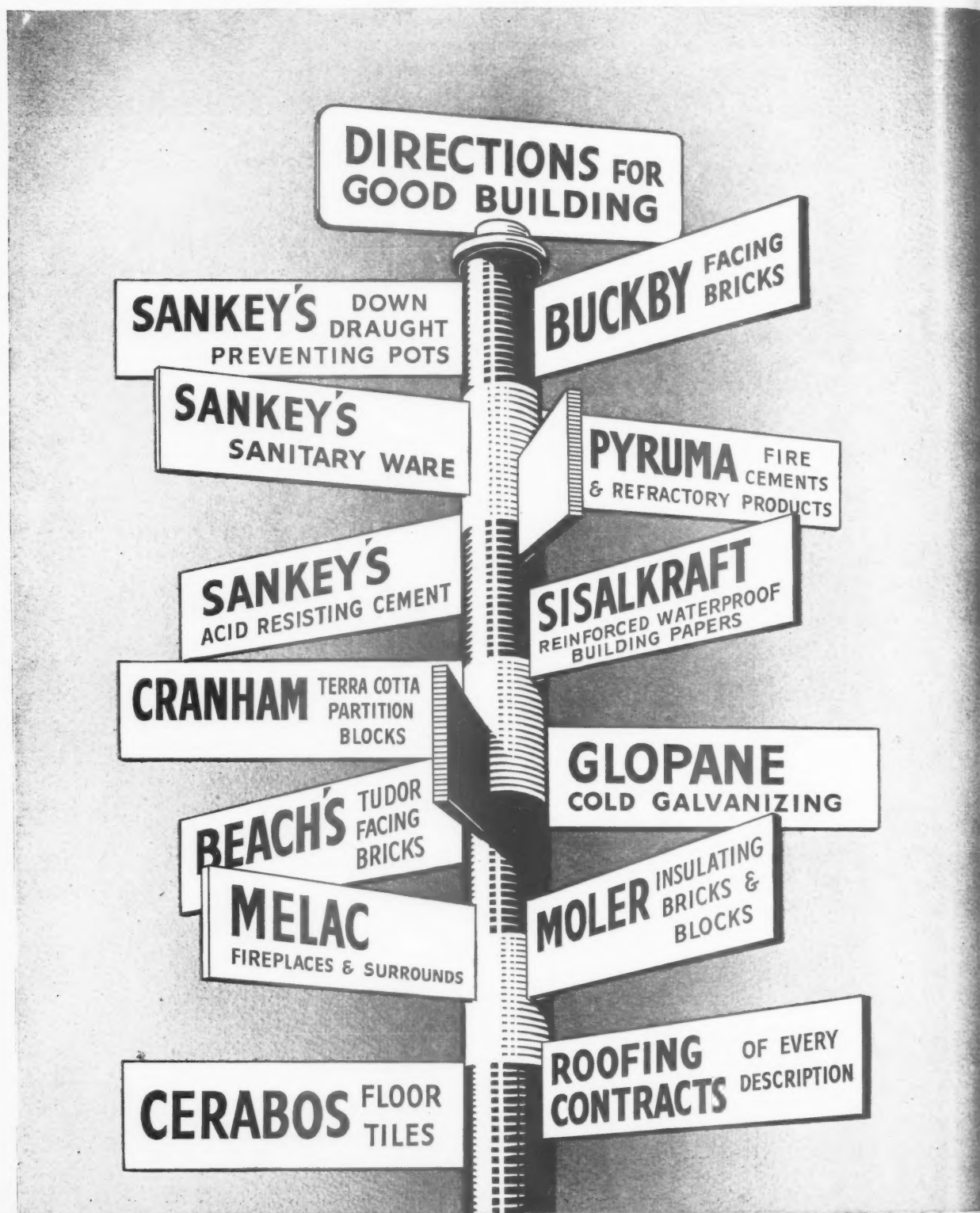


The W.D. liquid soap dispenser.

can be used) and, since the soap is pushed out through an annular space round the plunger, there are no small holes to become stopped up. (Waddington & Duval Ltd., 35 West Hill, London, S.W.18.)

"SECOCLIP" WALLING SYSTEM

This is a series of panels, 8 ft. high and 2 ft. or 3 ft. wide with separate galvanised metal clips to form junctions between them. The 1½ in. panels have a wood-wool core contained within a grooved wood frame along all edges, and are faced both sides with flat asbestos sheet. The panels sit on a galvanised sole plate which may be fixed to either a concrete or a wood base and are finished at the top with a similar metal capping. The capping has an internal flange (not shown in illustration) for the support of a fibreboard ceiling on metal tee-sections. The system is not marketed as complete buildings (although the makers can do this) but as a set of parts for the customer to erect



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EXTREME

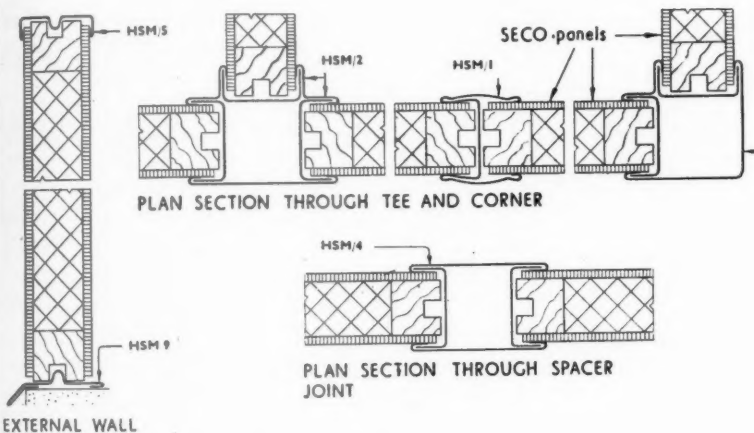
SINKS

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Right: A component sink and clothes washing unit, with the l.h. drainer removed for washing and (extreme right) replaced for washing-up.

Below: Seco-clip panel details showing the various types of clip junction.



both models are 42 in. wide by 24½ in. deep, with a height of 36 in. plus a further 4 in. for the splash back. The makers (Ezee Kitchens Ltd., 341A Sauchiehall Street, Glasgow, C.2) produce a number of kitchen cupboard designs and other equipment such as cookers and refrigerators, all arranged for building in, and have recently opened a new showroom at 46 Davies Street, London, W.1.

NEW SOLID FUEL APPLIANCES

Allied Ironfounders have just announced some new solid fuel appliances, including a version of the Otto stove which includes a boiler. This is known as the Otto 45 and costs from £24 4s. 0d. to £27 9s. 0d. according to the colour of the vitreous enamel finish. While the No. 4 Otto will provide adequate heat for rooms up to 3,750 cubic feet, the boiler version is limited to 2,000 cubic feet, plus 40 square feet of radiating surface or a 30 gallon hot water cylinder. Fuel consumption should be about 1½ to 1½ cwt. per week in winter. The boiler may be wrought iron, welded, or copper and the flow and return connections are 1 inch, either at the right or left. Dimensions are 18½ in. wide and 13½ in. deep with a height of 30½ in.

A new open fire is the Polkadot, made as a 16 inch model and adjustable to suit non-standard firebrick backs by removing lugs as necessary from the side or back of the grate. The fire is merely set in the opening, and no fixing or sealing is necessary. Any normal domestic fuel can be burnt, and the air control is by a large diameter spin-wheel on the front. Various vitreous enamel finishes are standardized and the fire will heat rooms up to 1,500 cubic feet. (Allied Ironfounders Ltd., 28 Brook Street, London, W.1.)

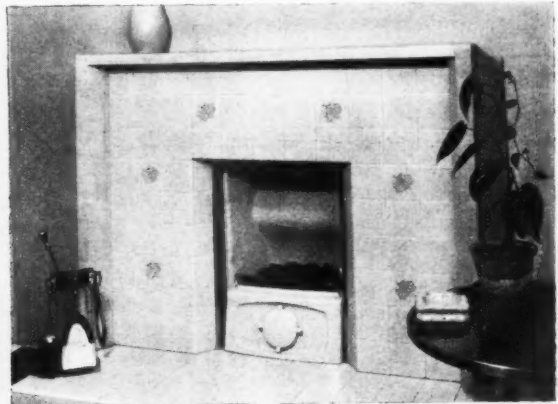
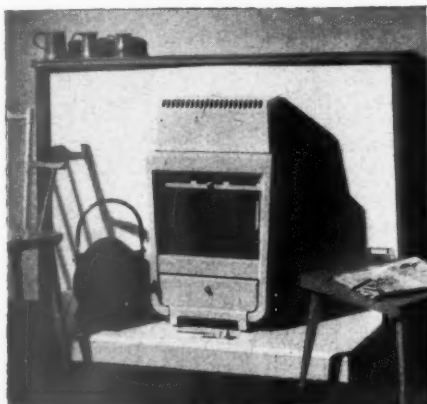
himself. Thus Messrs. Seco Ltd. do not make a standard roof component, since room sizes and thence roof spans will vary. Panels with windows and doors are obtainable, all panels are a one man lift, and the buildings can be erected at astonishing speed. U value is 0.29, sound reduction is 31 decibels and the panel has passed the half-hour fire test of Fire Research Station. A 3 ft. panel costs (ex-works) £3 1s. 6d., an 8 ft. clip 10s. 8d. (Seco Ltd., 11, Upper Brook Street, London, W.1.)

SINKS WITH WASHING MACHINES

The two illustrations above show a sink unit with a Hoover Mark II washing machine built into the cupboard under the

draining board. When the sink is in normal use the wringer unit of the washer stows away in the cupboard. When the washing machine is to be used the separate draining board lifts off and the tub of the washer is filled from the sink tap with a length of hose, afterwards draining into the sink. This model costs £97 10s. 0d. plus £7 19s. 6d. purchase tax, and the makers also produce a similar unit in which a Perfect washer is fitted in the same way. The latter has a power driven wringer with the usual safety devices and an electric heating unit with which the washing water can be kept up to temperature, or boiled if necessary. This model is £129 16s. 0d. plus £17 8s. 1d. purchase tax. Dimensions of

Right: The new "Otto" stove for space and water heating. Extreme right: the "Polkadot" open fire suitable for non-standard firebacks.



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

ENQUIRY FORM

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

Please ask manufacturers to send further particulars to:—

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15.7.54

Buildings Illustrated

Flats, Cavendish Court, Cardigan Road, Richmond, Surrey. (Pages 73-79.) Architect: Eric Lyons, F.R.I.B.A., M.S.I.A. Assistant: Geoffrey Scoble, Consulting Engineer: Z. Pick, A.M.I.C.E., A.M.I.STRUCT.E., M.S.O.C.C.E. General Contractor: Eden Residential Construction Co. Sub-contractors: tile-hanging, William Sandfield; damp-courses ("Astos"), The Ruberoid Co. Ltd.; asphalt, Highways Construction Ltd.; roofing felt, The Neuchatel Asphalte Co. Ltd.; spun concrete column-casings, Mono Concrete Co. Ltd.; glass, Frank Mayle & Sons Ltd., C. Clifford Ltd., and Clement Brothers; bricks, Candy & Co. Ltd. ("National" Red Facings, Buff Ripple Facings and paving bricks); cork flooring, G. Stephenson & Co. Ltd.; heating ducted warm air system in flats, Radiation Ltd.; gas convectors, William Sugg & Co. Ltd.; door furniture, Stedall & Co. Ltd.; kitchen furniture, Alfred G. Roberts Ltd.; kitchen fittings, casements and landing screens, Rippers Ltd.; electric light fixtures, Hiscock Appleby & Co.; and Bernard Schottlander; plumbing, Pinsent Bros.; sanitary fittings, James W. Sergeant; external render and plasters, Plastering Ltd.; external balustrades, Light Steelwork (1925) Ltd.; lift enclosure and handrail, F. W. Clifford Ltd.; entry screen, Clement Bros.; louvre screens and lift doors, F. W. Clifford Ltd.; entry door, Leslie Bilsby Ltd.; terrazzo and marble, Marriott & Price Ltd.; tiling, Surrey Tile Co. Ltd.; lifts, Bennie Lifts Ltd.; wallpaper, John Line & Sons Ltd.; and Arthur Sanderson & Sons Ltd.; furniture sunblinds, H. G. Dunn & Sons; signs, The Lettering Centre.

Correction

It was R. A. Simons who lectured recently at the RIBA, not A. J. Symons as stated by ASTRAGAL on July 1.

Announcements

ARCHARD, WORROW & HARDY AMENDED NOTICE

Messrs. Archard, Worrow & Hardy of 20, Lowndes Street, Knightsbridge, S.W.1, announce that the practice hitherto carried on by A. Hodsdon Archard, F.R.I.B.A., John P. Worrow, A.R.I.B.A., A.A. DIPL., and Ronald Hardy, M.B.E., B.A.R.C.H., A.R.I.B.A., has been dissolved by mutual agreement. Mr. Archard and Mr. Hardy will continue to practice under the style of Archard & Hardy at the same address, and they will retain all the papers and books of the practice except those relating exclusively to the personal clients of Mr. Worrow. Mr. Worrow will carry on practice under the style of John Worrow & Partners at 2, Grays Inn Square, Grays Inn, London, W.C.1; tel. number, Chancery 5957.

Mr. Denis Clarke Hall, F.R.I.B.A., has taken into partnership H. S. Scorer, A.R.I.B.A., for the purpose of opening a branch office in Lincoln under the name of Clarke Hall & Scorer, F./A.R.I.B.A., 200, High Street, Lincoln (Tel.: Lincoln 10734), where he will be pleased to receive trade catalogues, etc.

Ernest Smith, A.I.O.B., has been elected to the Boards of Rawlings Bros. Ltd., and Styles (Contractors) Ltd., and has been appointed managing director of the latter company.

Montague Evans & Son of 21, Brunswick Square, W.C.1, announce that their branch office at Redhill has moved to larger premises at 7a, London Road, Redhill (Tel.: Redhill 4029).

On June 17 the English Joinery Manufacturers' Association celebrated their Fiftieth Anniversary by holding a luncheon at Claridges, at which the Minister of Housing and Local Government, the Rt. Hon. Harold Macmillan, M.P., was the guest of honour. Mr. William E. Adams, J.P., the President of the Association, was in the chair.

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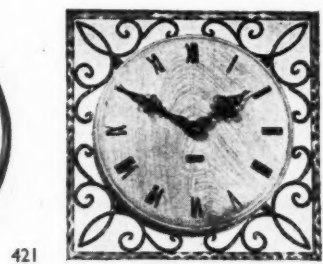
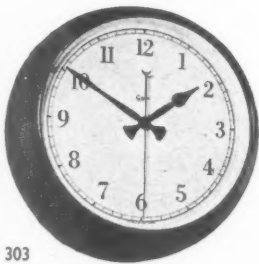
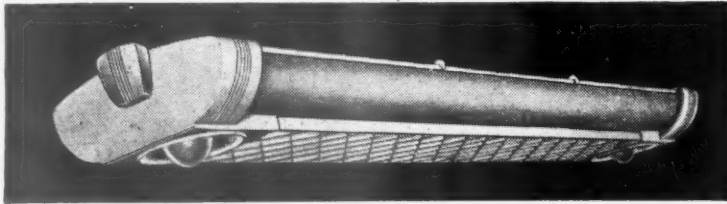
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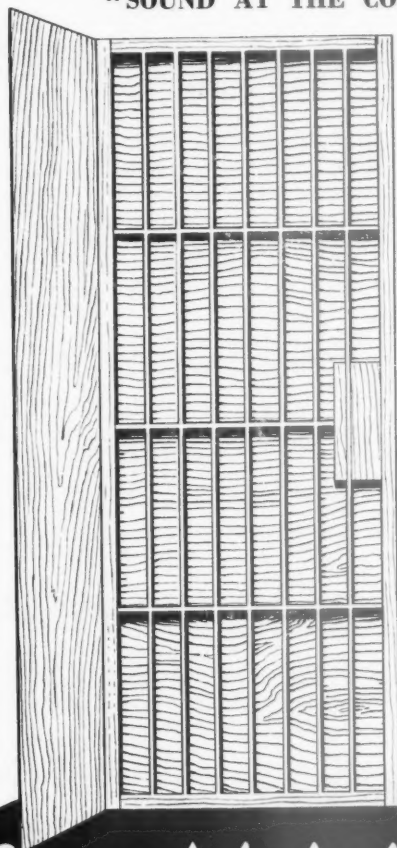


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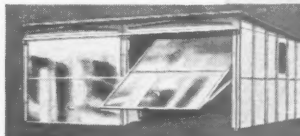
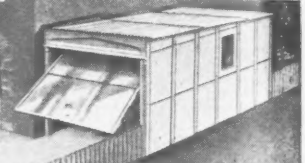
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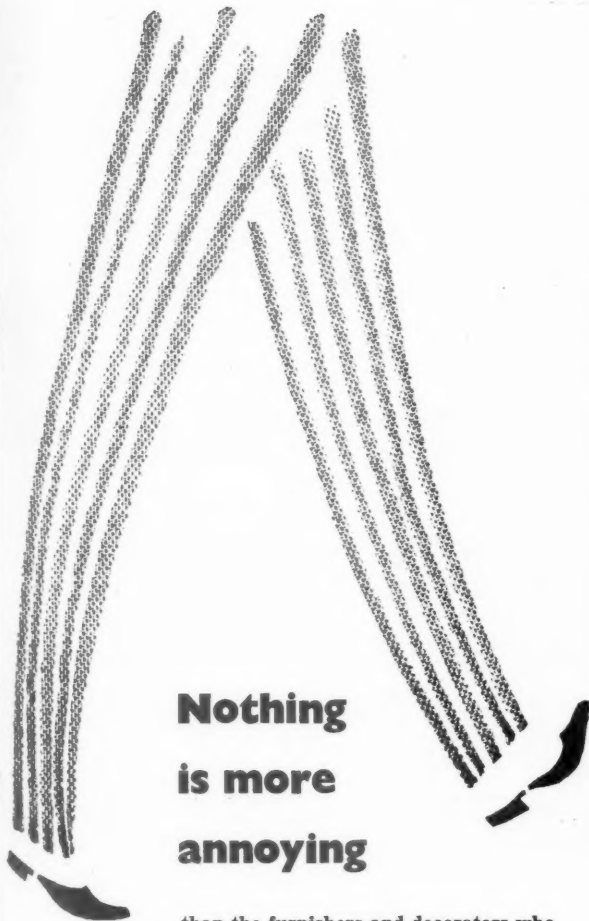
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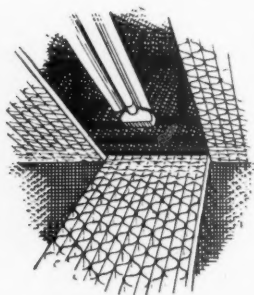
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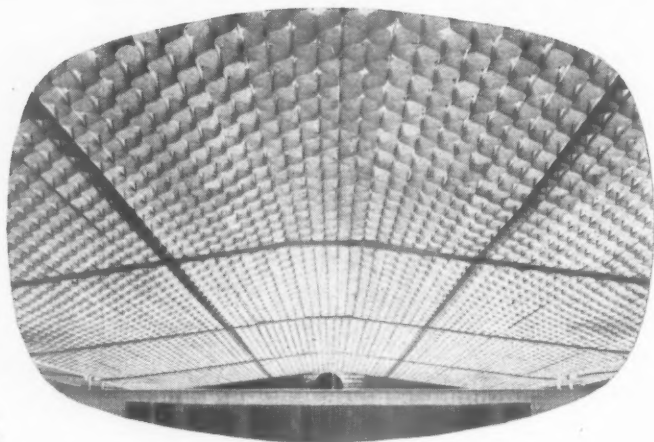
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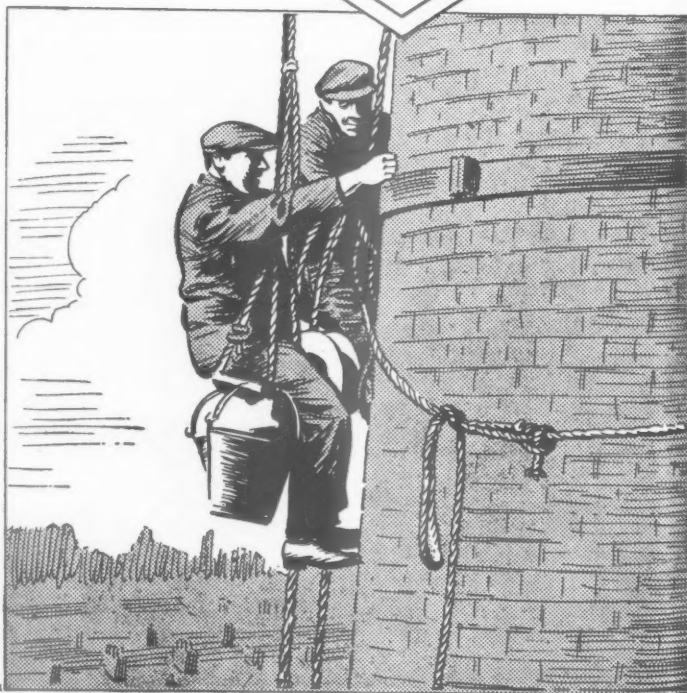
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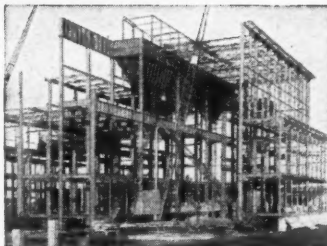
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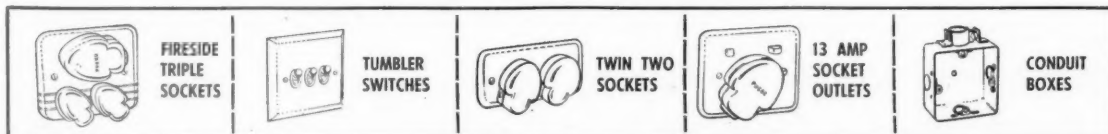
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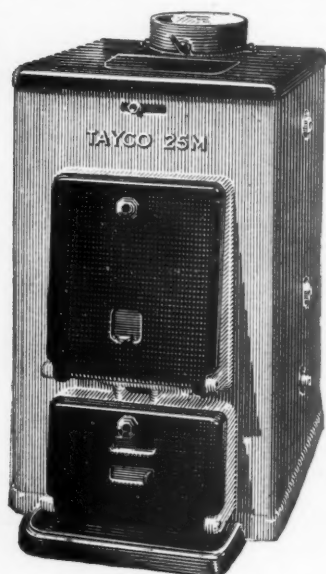
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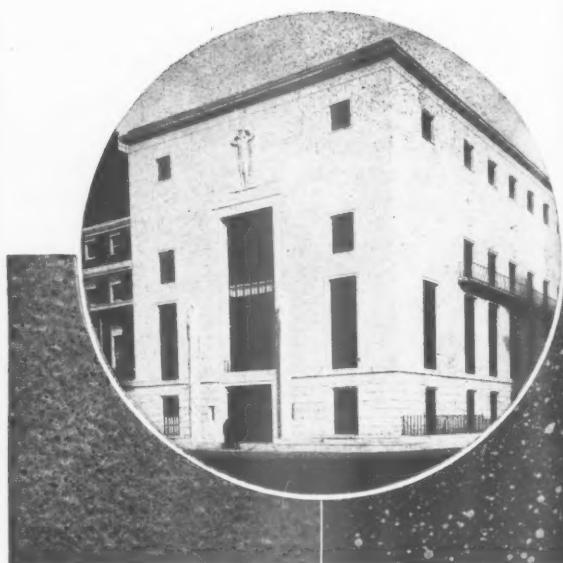
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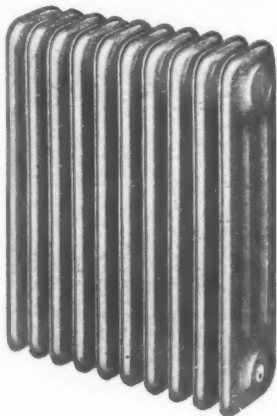
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CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

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

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

LONDON COUNTY COUNCIL.
ARCHITECTS' DEPARTMENT.
Vacancies for ARCHITECTS in Schools and Housing Divisions. Salary to £721.
Particulars and application forms, from Architect (AR/EX/A/2), County Hall, S.E.1, (374.) 2205

BOROUGH OF ANDOVER.
ARCHITECTURAL ASSISTANTS.
Applications are invited for the appointment of Two Architectural Assistants in the Borough Surveyor's Department, graded in A.P.T. IV or V, according to qualifications and experience. One Assistant will be engaged primarily on housing, and the other appointment will be temporary only, but for a period of at least two years, primarily for the design, etc., of extensions and alterations to the Council's Guildhall and associated projects.
Applications, giving the names of two referees, to be sent to me by noon on 20th July, 1954.
J. F. GARNER,
Town Clerk.

"Beech Hurst," Weyhill Road,
Andover, Hants. 3211

CITY OF WINCHESTER.
Applications are invited for the post of ARCHITECTURAL ASSISTANT in the City Engineer's office. It is essential that the applicant should be a neat and accurate draughtsman, and should have had previous experience in an Architect's office. Salary and terms of appointment will be in accordance with Grade A.P.T. III, of the National Scales, and will be subject to the Local Government Superannuation Act, 1937.

Applications, stating age and details of experience, together with names and addresses of two referees, should be addressed to the undersigned and reach this office not later than Monday, 19th July, 1954. Canvassing, either directly or indirectly, will disqualify.

R. H. McCALL,
Town Clerk.
Guildhall, Winchester.
28th June, 1954. 3155

BOROUGH OF LUTON.
APPOINTMENT OF VALUATION ASSISTANT.
Applications are invited for the above appointment. Salary: A.P.T. VIII-IX, £785-£960.
Candidates should be Chartered Surveyors, and have considerable experience in all branches of work. Experience in quantity surveying an advantage. Housing accommodation can be made available, if required.

Applications, stating age, qualifications and experience, and names of two referees, to be sent to Borough Engineer, Town Hall, Luton, by 3rd August, 1954.

A. D. HARVEY,
Town Clerk.
Town Hall, Luton.
2nd July, 1954. 3219

CITY OF CAMBRIDGE.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.
Applications are invited for an experienced Architect for schools and general architectural work. Salary grade: VII (£735-£810).
The appointment will be subject to the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination. The post will be terminable by one month's notice on either side.
Forms of application may be obtained from T. V. Burrows, City Surveyor, Guildhall, Cambridge, and should be returned to him by Monday, 26th July, 1954.

ALAN H. I. SWIFT,
Town Clerk.
The Guildhall, Cambridge.
2nd July, 1954. 3257

THE WEST OF SCOTLAND AGRICULTURAL COLLEGE.

The Governors invite applications for the post of JUNIOR ASSISTANT IN THE FARM BUILDINGS ADVISORY SERVICE of the College. Applications are invited from candidates with either Architectural, Quantity Surveying, or good general Building Trade training, and with experience in preparing drawings.

Salary scale: Grade B (Intermediate), £245. Rising to £340, plus pay addition £24 12s., rising to £52 6s. (with entry according to age up to 25).

Conditions of appointment and application forms are obtainable from the Secretary, 6, Blythswood Square, Glasgow, C.2, with whom applications should be lodged not later than 12th August, 1954.

COUNTY BOROUGH OF SOUTHEAST-ON-SEA. BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following established posts:—

CHIEF ASSISTANT ARCHITECT, Grade X (salary: £920×£440 (2)×£50 to £1,050).
SENIOR ASSISTANT ARCHITECT, Grade VII (salary: £735×£25 (3) to £810).

ASSISTANT ARCHITECT, Grade V (salary: £620×£15 (2)×£20 to £670).

(Applicants should be Associate Members of the Royal Institute of British Architects.)

ASSISTANT QUANTITY SURVEYORS:
Grade V. Salary: £620×£15 (2)×£20 to £670.

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Grade VII. Salary: £735×£25 (3) to £810.

(Applicants should be Associate Members of the Royal Institute of Chartered Surveyors.)

The appointments will be subject to the provisions of the Local Government Superannuation Act, 1937, and the N.J.C. Scheme of Conditions of Service. The successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and experience, with the names of two persons to whom reference can be made, should be submitted to the Borough Architect, 30, Alexandra Street, Southend-on-Sea, not later than the 30th July, 1954.

ARCHIBALD GLEN,
Town Clerk.
3240

LONDON COUNTY COUNCIL. ARCHITECTS' DEPARTMENT.

ARCHITECT (Grade II) required for Historic Buildings Section, with knowledge of the history of Architecture in England, and interested in preservation of buildings of architectural and historic significance. Salary up to £1,071. Application forms and particulars returnable by 20th August from The Architect (AR/EX/HB/3), County Hall, S.E.1. (317) 3252

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Application forms from Chief Officer, Parks Dept., Spring Gardens, S.W.1. (906) 3253

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SENIOR DRAUGHTSMAN (Building and Civil Engineering) required in the Architectural and Construction Section of the Engineer's Department of the Birmingham and District Sub-Area.

Applicants should have had a thorough technical training and practical experience in the design of new buildings and alterations to existing buildings, and be capable of preparing complete working drawings for a variety of various types of large and small buildings. Appropriate qualifications desirable. Salary £41-£780 per annum (N.J.B. Schedule "D." Grade 4), according to qualifications and experience. Superannuable.

Apply, in writing, within 14 days, stating age, qualifications, experience, present position and salary, endorsed "Building and Civil Engineering Draughtsman," to Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.

A. STEPHENS,
Secretary.
3255

CITY OF STOKE-ON-TRENT. CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(a) ASSISTANT QUANTITY SURVEYOR. Salary: A.P.T. Div., Grade VIII (£785-£860).

(b) ASSISTANT ARCHITECTS. Salary: A.P.T. Div., Grade V (£620-£670).

Housing accommodation may be made available in approved cases.

Applications, stating date of birth, particulars of training and experience, with copies of two recent testimonials, should be received by J. R. Pigott, T.D., F.R.I.B.A., City Architect, Kingsway, Stoke-on-Trent, Staffs., endorsed with the title of the appointment, not later than 7th August, 1954.

HARRY TAYLOR,
Town Clerk.
3rd July, 1954. 3256

COUNTY BOROUGH OF HALIFAX. PRINCIPAL ARCHITECT FOR EDUCATION.

Applications are invited for the above appointment in the Borough Engineer's Department, within combined Grades A.P.T. VIII-IX (£785-£960 p.a.). Commencing salary will be fixed having regard to experience, etc. FLAT PROVIDED IF REQUIRED. The person appointed will be responsible for design and construction of new schemes and other architectural work under the control of the Education Committee, and his work will entail close co-operation with the Chief Education Officer. Appointment subject to 2 months' notice on either side.

Applications, stating age, qualifications, experience, present position and salary, accompanied by three recent testimonials, and endorsed "Principal Architect—Education," should be delivered to me by 26th July, 1954.

RICHARD DE Z. HALL,
Town Clerk.
Town Hall, Halifax. 3279

BOROUGH OF LOWESTOFT. APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.

AMENDED ADVERTISEMENT.

Applications are invited for the permanent appointment of a Senior Architectural Assistant in the Borough Engineer and Surveyor's Department. Salary: A.P.T. V (£620-£670 per annum).

Applicants for the appointment must be capable of preparing designs, working and detailed drawings and specifications for housing work and general building work executed by Contractor or Direct Labour. Preference would be given to applicants who are neat and expeditious draughtsmen, and who are in possession of a recognised technical qualification.

Housing accommodation will be made available for the successful candidate, if required.

The appointment will be subject to the passing of a medical examination for superannuation purposes, to one month's notice on either side, and to the provisions of the National Conditions of Service.

Applications, stating age, qualifications, present and past appointments and full details of experience, together with the names and addresses of two persons who are prepared to testify to the applicant's ability and experience, must be delivered in a plain sealed envelope suitably endorsed, so as to reach the Town Clerk, Town Hall, Lowestoft, not later than 12 noon on Monday, 26th July, 1954.

Candidates for the appointment shall, when making application, disclose whether they are related to any member of, or the holder of any senior office under, the Corporation.

Canvassing in any form will disqualify.

F. B. NUNNEY,
Town Clerk.
Town Hall, Lowestoft.
2nd July, 1954. 3225

HER MAJESTY'S COLONIAL OFFICE. ARCHITECTS, HOUSING AND PLANNING DEPARTMENT, BRITISH GUIANA.

In connection with a £2½ million housing programme the Government of British Guiana requires TWO ARCHITECTS for work in the Housing and Planning Department in that country under the direction of a Chief Architect and a Planning Officer.

The Architects' duties will be primarily to design and supervise low-cost housing schemes, including houses built by "self-help" groups under Government aegis and other Government projects of a general architectural and planning nature. The persons appointed will be required to travel extensively in rural areas, and will be paid travelling and subsistence allowance in accordance with the local regulations applicable to pensionable officers and others of similar status when travelling on official duty.

The posts offer considerable scope to architects with imagination, enthusiasm and drive as well as an interest in the social problems involved.

Applicants should be Associates of the Royal Institute of British Architects or hold an equivalent qualification. Engagement is on contract for two years, with the possibility of renewal for one or more years. The salary offered is £1,000 per annum plus a temporary cost-of-living allowance of £62 10s. per annum, and on the satisfactory conclusion of his period of service the officer will be paid a gratuity calculated at the rate of 22½ per cent. of his basic salary for each completed period of three months' service, including approved leave. A revision of salaries in the Public Service of the colony is to be undertaken in the immediate future. Vacation leave will be granted at the rate of 5 days for each completed month of resident service up to a maximum of six months, subject to completion of a minimum tour of service of two years. Free passages to British Guiana will be provided for the persons selected, their wives, and up to three children each, and back to the United Kingdom on the satisfactory completion of their contract. The architects are urgently required and the persons selected will be requested to take up their duties immediately.

Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience. Mention the reference number (BCD.160/30/01). 3261

CORPORATION OF DUNDEE.

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

(a) TWO ASSISTANT ARCHITECTS. A.P.T., Grade VI-VIII. Salary: £705 to £870 per annum.

(b) TWO ASSISTANT ARCHITECTS, A.P.T., Grade II-V. Salary: £520 to £680 per annum.

Applicants should be Members of the Royal Institute of British Architects, and placings in the various grades will be made according to qualifications and experience.

Appointments will be subject to the provisions of the Local Government Superannuation (Scotland) Act, 1937, and successful applicants will require to pass a medical examination.

Consideration will be given to the housing needs of applicants.

Applications, stating the particular appointment for which application is made, giving age, qualifications and experience, along with the names of three referees, should be lodged with the Town Clerk, City Chambers, Dundee, not later than Saturday, 7th August, 1954.

City Architect's Department, Dundee.
6th July, 1954. 3284

STAFFORDSHIRE COUNTY COUNCIL.
EDUCATION COMMITTEE.

Applications are invited for ELECTRICAL ENGINEERING ASSISTANTS within the salary Grade A.P.T. I to IV (£490 to £625 per annum). Applicants should have passed Part 1 of the I.E.E. Associate Membership Examination or hold equivalent qualifications.

Form of application and further particulars can be obtained from

COUNTY EDUCATION ARCHITECT,
Green Hall, Lichfield Road, Stafford,
and should be returned within 10 days of this advertisement.

T. H. EVANS.

Clerk of the County Council.

WEST ASHFORD RURAL DISTRICT COUNCIL.
(Population 10,000.)APPOINTMENT OF ARCHITECT AND
SURVEYOR TO THE COUNCIL.

Salary scale: £750 x £50—£850. Position of entry on scale to be determined by agreement. A slightly higher scale may be considered if the successful candidate is competent to prepare Bills of Quantity. Four weeks paid leave per annum. Travelling allowance. Loan for purchase of car considered. Experience in construction of housing estates essential. Knowledge of small drainage schemes and reconstruction of old houses an advantage. LOCAL GOVERNMENT EXPERIENCE NOT ESSENTIAL. House available for married man.

The district lies in a pleasant part of Kent, and the post offers a good opportunity for the successful candidate to acquire valuable experience.

Forms of application and particulars of appointment can be obtained from the Clerk of the Council, 2, Elwick Road, Ashford, Kent. Closing date for applications: 31st July, 1954.

CHADDERTON URBAN DISTRICT COUNCIL.
Applications are invited for the following appointments in the Engineer & Surveyor's Department.

(a) ARCHITECTURAL ASSISTANT—Salary in accordance with Grade A.P.T. Va (£650—£710). Applicants should be fully experienced in the design of Housing Schemes and Public Buildings.

(b) BUILDER'S COSTING CLERK—Salary in accordance with Grade A.P.T.I. (£490—£535). Applicants should possess a good knowledge of the building trades and be capable of measuring building work and quantities and dealing with building contracts and final accounts.

Applications suitably endorsed and supported by two recent testimonials should be forwarded to the undersigned not later than 21st July, 1954.

L. STOTT.

Clerk of the Council.

Town Hall,
Chadderton,
Lancs.

1st July, 1954.

3305

EDINBURGH COLLEGE OF ART.

Applications are invited for the post of ASSISTANT INSTRUCTOR in Building Construction in the School of Architecture. Salary scale: £690 x £30—£990 per annum. Commencing salary will be determined according to qualifications and experience.

Applications are also invited for the post of ASSISTANT INSTRUCTOR in the School of Architecture. Salary scale: £690 x £30—£990 per annum. Commencing salary will be determined according to qualifications and experience.

Forms of application and conditions of appointment can be obtained from the Secretary, Edinburgh College of Art, Edinburgh, 3, and should be returned to him not later than 30th July, 1954.

3283

OXFORD REGIONAL HOSPITAL BOARD.

Applications are invited from qualified persons for the post of SENIOR ASSISTANT QUANTITY SURVEYOR in the Regional Architect's Department. Commencing salary: £875 p.a., rising by annual increments of £30 to £1,025 p.a. Compulsory superannuation. A car is necessary. Applications, stating age, training, qualifications, previous experience and present salary, with the names of two referees, should be submitted to the Secretary, Oxford Regional Hospital Board, 43, Banbury Road, Oxford, by not later than 14th August, 1954.

3296

CITY OF BATH.

CITY PLANNING OFFICE AND ARCHITECTS' DEPT.

Applications are invited for appointment as ARCHITECTURAL ASSISTANT on A.P.T. Grade III (£550—£595), in the above Department. Applicants must have passed the R.I.B.A. Intermediate Examination, and have had at least two years' practical office experience in the design, construction and supervision of Municipal housing projects, be a quick and accurate draughtsman, and have a good knowledge of contemporary building techniques.

Applications, stating age, and particulars of training, qualifications, experience, present and past appointments, together with names of two persons to whom reference can be made, must reach the City Planning Officer and Architect, 7, North Parade Buildings, Bath, not later than 31st July, 1954.

(Sgd.) JARED. E. DIXON.

Town Clerk.

Guildhall, Bath.

3227

BRITISH ELECTRICITY AUTHORITY.
EAST MIDLANDS DIVISION.

Applications are invited for the following positions within the Division:—

TWO ENGINEERING DRAUGHTSMEN (CIVIL), Construction Department. (Vacancy No. 1/1/AJ.)

Candidates should have experience in the preparation of detail drawings and in the design of one or more of the following subjects:—

Reinforced concrete structures.
Piled and slab foundations for heavy components.

Cable subways, Bridges and Culverts.

The salary will be in accordance with Grade 4 (£571-£780 per annum) or Grade 5 (£567-£571 per annum) of Schedule D of the National Joint Board Agreement.

Closing date for receipt of applications: 22nd July, 1954.

TWO ENGINEERING DRAUGHTSMEN (MECHANICAL), Construction Department. (Vacancy No. 2/54/AJ.)

Candidates should have experience in one or more of the following:—

(i) Design and layout of Power Station equipment, including turbo-alternators, boiler plant, coal and ash plant, and general station auxiliaries.

(ii) H.P. and L.P. steam and feed pipework. Condensing plant and feed heating systems.

(iii) Conveyor plant, coal handling systems, and material handling of station auxiliary equipment.

The salary will be in accordance with the National Joint Board Agreement, Grade 4 (£571-£780 per annum) and Grade 5 (£567-£571 per annum) of Schedule D, according to experience.

Closing date for receipt of applications: 22nd July, 1954.

FOUR ENGINEERING DRAUGHTSMEN (ELECTRICAL), Construction Department. (Vacancy No. 3/54/AJ.)

Candidates should have experience in the preparations of layouts and diagrams for the installation of E.H.T. and L.T. switchgear, transformers, E.H.T. and L.T. cables; knowledge of protective gear systems would be an advantage.

The salary will be in accordance with the National Joint Board Agreement, Grade 4 (£571-£780 per annum) and Grade 5 (£567-£571 per annum) of Schedule D, according to experience.

Closing date for receipt of applications: 22nd July, 1954.

These appointments will be pensionable within the terms and conditions of the British Electricity Authority and Area Boards Superannuation Scheme.

Applications should be submitted on the official form AE6/ACT, which may be obtained from the Divisional Establishment Officer, British Electricity Authority, P.O. Box 25, Barker Gate, Nottingham, and should be returned to the undersigned by the date stated. Please quote Vacancy Number.

L. F. JEFFREY.

Divisional Controller.

2nd July, 1954.

3223

ARCHITECTURAL DRAUGHTSMEN and ENGINEERING DRAUGHTSMEN required by the GOVERNMENT OF TANGANYIKA P.W.D. for one tour of 2-3 years in the first instance. Gratuity at rate of £100 a year. Outfit allowance up to £45. Free passages. Liberal leave on full salary. Local Government Superannuation rights can be preserved.

ARCHITECTURAL DRAUGHTSMEN (M2B/30662/AG). Salary (including present temporary allowance of 35 per cent. of salary) in scale (male), £904, rising to £1,134 a year; (female), £723, rising to £907 a year. Candidates must have had considerable experience as a draughtsman in a large drawing office, and be able to prepare finished architectural plans, and working drawings and tracings from original designs. They must be fully conversant with normal building and architectural details, and have a knowledge of plan registrations and print manufacture. Female candidates must be single.

ENGINEERING DRAUGHTSMEN (M2B/30664/AG). Salary (including present temporary allowance of 35 per cent. of salary) in scale (male), £931, rising to £1,134 a year; (female), £745, rising to £907 a year. Candidates must have had considerable experience of detailing and drawing with firms engaged on reinforced concrete work, and should have a sound knowledge of the British Standard code for reinforced concrete. Female candidates must be single. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience, and quote the reference number of the post applied for.

3249

WORTLEY RURAL DISTRICT COUNCIL.

(Population 45,240. Rateable value £256,314.) Applications are invited for the following appointment in the Engineer and Surveyor's Department:—

ASSISTANT ARCHITECT. Salary in accordance with A.P.T. V. of the National Scales (£620-£670). Applicants should be Members by examination of the R.I.B.A., preferably with Municipal experience.

Housing accommodation is offered. Forms of application may be obtained from the undersigned, to whom applications must be delivered not later than 29th July, 1954.

ADRIAN M. KELLY.

Clerk.

Council Offices, Grenoside, Sheffield.

3241

COUNTY BOROUGH OF IPSWICH.
APPOINTMENT OF ARCHITECTURAL
ASSISTANT, GRADE A.P.T. VI.

Applications are invited for the appointment of Architectural Assistant in the Borough Engineer and Surveyor's Department.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and to the passing of a medical examination. The salary will be in accordance with Grade A.P.T. VI. of the National Scales of Salaries, i.e., £695 p.a., rising by annual increments to a maximum of £760 p.a.

Candidates must have passed the Final Examination of the R.I.B.A. (or hold a similar qualification) of the L.E.E. and the post offers a medical and a sound knowledge of design and construction.

There is no form of application, but candidates must state age, experience, and any other relevant details, and submit the names and addresses of three referees. Applications must be received by the Borough Engineer and Surveyor, 19, Tower Street, Ipswich, no later than Wednesday, the 28th July, 1954.

Canvassing will disqualify. If the applicant is to his knowledge related to any member or senior officer of the Council he must disclose that fact in writing when submitting his application.

J. C. NELSON.

Town Clerk.

Town Hall, Ipswich.

6th July, 1954.

3277

BISHOP AUCKLAND URBAN DISTRICT
COUNCIL.

ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT, to work under the direction of the Council's Architect, Surveyor and Engineer. The salary for the appointment will be in accordance with Grade V of the A.P.T. Division of the National Scales, viz., £620 x £15 x £15 x £20—£670 per annum. Applicants must be Corporate Members of the Royal Institute of British Architects. The appointment will be subject to the Local Government Superannuation Act, 1937, and also to one month's notice on either side. If required, housing accommodation will be provided within a reasonable time after the appointment is made, but this must be vacated if and when the appointment is terminated.

Applications, stating age, qualifications, experience, and giving the names of two persons to whom reference can be made, must reach the undersigned not later than Saturday, 24th July, 1954.

R. W. BLYTHE.

Clerk of the Council.

Town Hall, Bishop Auckland.

7th July, 1954.

3295

CITY OF BELFAST.

APPOINTMENT OF QUANTITY SURVEYOR.

Applications are invited from appropriately qualified persons for a position of Quantity Surveyor, Class I, in the Housing Architect's Department. Salary scale: £655 x £25—£905 (with progression to £970 for an appointee with certain qualifications). The minimum of the scale is linked to age 25, and one increment is allowed for each year above that age up to age 32.

Superannuation contributions are payable at the rate of approximately 6 per cent. of remuneration. Reciprocal arrangements have been made with other Local Authorities in Great Britain and Northern Ireland regarding transfer of superannuation rights.

The duties will be concerned with housing contracts, including multi-storey flats and road and sewer works.

Forms of application, etc., may be obtained from the Housing Architect, 94, Chichester Street, Belfast, and completed applications must reach the undersigned not later than 4 p.m. on 26th July, 1954.

JOHN DUNLOP.

Town Clerk.

City Hall, Belfast.

3231

SENIOR ASSISTANT ARCHITECT required by the EAST AFRICAN RAILWAYS AND HARBOURS for one tour of 36 to 48 months on contract terms. Consolidated salary according to age and experience up to £1,450 a year. Gratuity of 10 per cent. of total salary drawn during contract. Free passages for officer and family. Liberal leave on full salary. It may be possible to preserve Local Government Superannuation rights. Candidates must be A.R.I.B.A. or equivalent with experience of office administration, and capable of supervising work both in the design office and on site. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience, and quote M2B 30646/AG.

3233

COUNTY BOROUGH OF NORTHAMPTON.

ASSISTANT ARCHITECT (HOUSING), A.P.T. V.

(£620-£670). A vacancy exists for a suitably qualified ARCHITECT on the permanent staff of the Borough Architect (Mr. Brian Bunch, A.R.I.B.A., A.M.T.P.I.), to work on an interesting and varied housing programme, including Central Area redevelopment.

Full particulars and application form from the Borough Architect, Guildhall, Northampton, to whom applications must be returned by 26th July.

C. E. VIVIAN ROWE.

Town Clerk.

Guildhall,

7th July

COUNTY BOROUGH OF WALSALL.
PUBLIC WORKS DEPARTMENT.

Applications are invited for the following appointments:—

- (a) ASSISTANT ARCHITECT, Grade A.P.T., VII (£2/15-£210).
(b) ASSISTANT ARCHITECT, Grade A.P.T., V (£620-£670).

- (c) JUNIOR ARCHITECTURAL ASSISTANT, Grade A.P.T., II (£520-£565).

Applicants for appointments (a) and (b) should be Registered Architects, and preference will be given to those holding a recognised Architectural qualification.

Applicants for appointment (c) should have reached R.I.B.A. Intermediate standard.

The appointments will be subject to the terms of the Local Government Superannuation Acts, and the persons appointed will be required to pass a medical examination.

Applications, enclosing copies of three recent testimonials, and stating age, present position, salary and technical qualifications, together with details of experience, should be submitted by the 23rd July, 1954, to the undersigned.

M. E. HABESHION,

Borough Engineer and Surveyor.

Council House, Walsall.

3226

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

APPOINTMENT OF ARCHITECTURAL STAFF.

Applications are invited for experienced and capable ASSISTANTS, at N.J.C. salary, Grades IV to VI (within the range of £580 p.a. to £760 p.a.). Applicants should give full details of experience, qualifications, age, present salary and position, and should state salary required. Applications, together with copies of three recent testimonials, should be forwarded as soon as possible to C. M. Coombs, F.R.I.B.A., County Architect, County Buildings, Martin Street, Stafford.

T. H. EVANS,

Clerk of the County Council.

County Buildings, Stafford.

3242

SURREY COUNTY COUNCIL.

Applications are invited for the following appointments:—

- (a) ASSISTANT ARCHITECT, Grade VIII. Salary: £785 × £25 to £860 p.a., plus London allowance.

- (b) ASSISTANT ARCHITECT, Grade VI. Salary: £695 × £20 to £760 p.a., plus London allowance.

Applicants for both Grades must be Associate Members of R.I.B.A., have had good training and adequate experience in design and construction of modern buildings, and should give full details of present and previous appointments and salary attaching thereto.

Applications, accompanied by copies of three recent testimonials, to the County Architect, County Hall, Kingston-on-Thames, not later than 24th July, 1954.

3290

THE UNIVERSITY OF LIVERPOOL.

Applications are invited for the post of LECTURER AND STUDIO INSTRUCTOR in the School of Architecture. The initial salary will be within the range £550-£850, according to qualifications and experience.

Candidates will be expected to have had several years of experience in practice, and preference will be given to those with special knowledge of building science and construction, or with interest in pursuing architectural research in historical or structural fields.

Applications, stating age, qualifications and experience, together with the names of three referees, should be received not later than 31st July, 1954, by the undersigned, from whom further particulars may be obtained.

STANLEY DUMBELL,

Registrar.

3273

UNIVERSITY OF CAMBRIDGE, Department of Estate Management, require the services of a JUNIOR ARCHITECTURAL ASSISTANT.

Salary according to age and experience. Wide variety of interesting work, giving opportunity of valuable experience towards qualifications. Applicants should have completed National Service and have a sound knowledge of working drawings, details and surveys. Reply, giving full details, to Secretary, 74, Trumpington Street, Cambridge.

3269

CAERNARVONSHIRE COUNTY COUNCIL.

Applications invited for posts of ARCHITECTURAL ASSISTANT, A.P.T., III/IV (£550-£625), and DRAUGHTSMAN, A.P.T., I/II (£490-£565). Further particulars from Clerk of County Council, County Offices, Caernarvon. Closing date: 24th July.

3298

BOROUGH OF SHREWSBURY.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Architectural Assistant on the permanent staff of the Borough Surveyor. Salary will be in accordance with Grade IV (£580-£625), and the person appointed will be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names and addresses of two referees, should be sent to the Borough Surveyor, Guildhall, Shrewsbury, not later than the 24th July, 1954.

S. R. H. LOXTON,

Town Clerk.

Guildhall, Shrewsbury.

3293

ISLE OF ELY COUNTY COUNCIL.

Applications are invited for the following appointments on the staff of the County Architect:—

- (a) ENGINEERING ASSISTANT (HEATING), A.P.T., IV (£530-£625 p.a.).

- (b) ASSISTANT QUANTITY SURVEYOR, A.P.T., IV/V (£580-£670 p.a.).

Both posts are permanent and subject to National Scheme of Conditions of Service, the Local Government Superannuation Act, and to a medical examination.

Intending applicants should apply for forms stating for which post they wish to apply to the County Architect, County Hall, March, to whom they must be returned, not later than Monday, 9th August, 1954.

R. F. G. THURLOW,

Clerk of the County Council.

3297

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.

ASSISTANT, with practical experience, required immediately in small London office. Good draughtsman, with sound knowledge of construction and specifications. Apply J. N. Heath, 15, New Bridge Street, E.C.4. Telephone: Central 1651.

3218

ASSISTANT (at Intermediate stage) required for Architects' London office engaged in major works of restoration and construction of Schools and Colleges. Appointment offers excellent opportunities for supervision of works and calls for a candidate with initiative. Salary £350-£450 per annum. Box 2974.

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS and Draughtsmen or women required in busy office in the Home Counties. Some experience essential. Large varied practice. Please state experience and salary required. Box 2137.

SENIOR ARCHITECTURAL ASSISTANT required, full experience in preparation of Working Drawings, Details, and supervision of office and Industrial Buildings in the London Area. Good knowledge of construction and design essential. Apply in writing giving full particulars of qualifications, age, experience and salary required to Box 929.

ECCLESIASTICAL ARCHITECT has vacancy for an ASSISTANT of Intermediate Standard who would be interested in old and new church work. Lawrence H. Bond, 11, Elmer Street, Grantham, Lincs.

2650

RILEY & GLANFIELD require one SENIOR ASSISTANT ARCHITECT for work on Churches, Private Houses, Factories, Shops, Flats, etc. CHA. 7328.

2967

REQUIRED for Architects' office, Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 2325.

ARCHITECTS' ASSISTANTS required by a large Chain Store organisation. Commencing salary £600 to £750 per annum, according to experience. Staff canteen. Pension scheme. Write Box AJ 333, LPE, 110, St. Martin's Lane, W.C.2.

3048

WEST END office, with varied practice, requires male ARCHITECTURAL ASSISTANTS, having a contemporary outlook and some experience in office block and shop design. Salary: £550-£600 p.a. Details (age, experience, previous employment, etc.), to Box 3186.

ARCHITECTURAL ASSISTANTS required for busy Glasgow office working 5-day week. Salaries from £450 to £650, according to age and experience. Write, giving full particulars, Box 3187.

ASSISTANT for general practice in Midlands. One about to finish 3- or 5-year School course suitable. Box 2960.

ARCHITECTURAL ASSISTANT, between Inter. and Final R.I.B.A. standard, required in Reading office of Chartered Architects. Applicant must be capable of preparing working drawings, details, and specifications. Salary: £500 to £550. All details to Box 3214.

EXPERIENCED ARCHITECTURAL ASSISTANT required immediately by North London firm of Architects with busy practice. Salary: £550 to £600. Reply, stating age, qualifications and experience, to Box 3199.

ARCHITECTURAL ASSISTANTS required at Once, Senior and Inter standard, for Housing Schemes and Office Buildings. Tel. LIBerty 8181. George Watt, A.R.I.B.A., 146, Mostyn Road, S.W.19.

3278

ARCHITECTURAL ASSISTANTS required immediately, London office. Good salary and prospects. Write, with particulars of age, qualifications, experience, and salary required, to Box 611, c/o 7, Coptic Street, W.C.1.

3148

SENIOR ASSISTANT, with some years' office experience required in busy and varied practice in Reading. State experience and salary required. Box 3204.

WANTED immediately in office of A.R.I.B.A. dealing with domestic work for a London housing company, ARCHITECTURAL ASSISTANT, of above Inter. R.I.B.A. standard, able to prepare designs, working drawings and specifications. Salary up to £650 p.a., according to experience and capabilities. Pension scheme. Box 3146.

WEST END Firm of Architects require JUNIOR staff, with office experience. Capable working drawings. Salary: £350-£500 per annum. 5-day week. Box 3145.

ARCHITECTURAL ASSISTANT, between Inter. and Final R.I.B.A. standard, required in Reading office of Chartered Architects. Applicants must be capable of preparing working drawings, details, etc. Apply in writing, giving full particulars, age, and salary required, to Box 3149.

ARCHITECTURAL ASSISTANTS required immediately for housing, schools and industrial work. First-class draughtsmen, with knowledge of contemporary design and construction. Salary scale: £500 to £800 per annum, with placing according to age and experience. Pension and profit sharing schemes in operation. Apply in writing, stating age, training and experience, to The Scottish Construction Co., Ltd., Sighthill Industrial Estate, Edinburgh, 11.

3151

GOOD salary offered to keen ARCHITECTURAL ASSISTANT of Intermediate standard; small office in North London area; must be good draughtsman and have good general experience in a private office. Reply with brief details of experience, age, etc., to Box 3158.

MALE ARCHITECTURAL ASSISTANTS required urgently. All grades up to £600, 35-hour week. Write full particulars, Lanchester & Lodge, 10, Woburn Square, W.C.1.

3161

CLIFFORD TEE & GALE, F./R.I.B.A., require ARCHITECTURAL ASSISTANT, for industrial work in their office at 43, Frederick Road, Birmingham, 15. 5-day week.

3162

ARCHITECTURAL ASSISTANT, of Intermediate standard and with good experience, wanted for general practice, 10 miles from London. Work includes Schools, Housing and Hospital schemes. The successful applicant would be required to take up the appointment on 1st October, 1954. Apply by letter, giving age, full details of education and experience, and salary required, to Tooley & Foster, Chartered Architects, Midland Bank Chambers, Buckhurst Hill, Essex.

3174

ARCHITECTURAL ASSISTANT wanted, with some years' experience in provincial offices, for interesting and varied work. Salary fully up to ability. Superannuation and bonus schemes in operation. Full details to F. J. Lenton & Partners, F./A.R.I.B.A., Stamford, Lincs.

3173

EAST MIDLANDS—Chartered Architect, with varied practice, requires ASSISTANT, up to Intermediate standard. Salary according to experience. State full details. Box 3270.

SLOUGH ESTATES, LTD., require an ARCHITECTURAL ASSISTANT, with at least three years' experience, and capable of preparing working drawings of factories and other buildings, estate layouts, etc., with the minimum of supervision. The work is interesting, and carries the benefits of pension and sickness schemes. Five-day week, except for one Saturday in four. Brief particulars, please, of age, experience, and salary required, to The Architect, Slough Estates, Ltd., Trading Estate, Slough.

3276

WEST MIDLANDS Office have vacancies for SENIOR and INTERMEDIATE ASSISTANTS, prepared to accept responsibility. Ability both to design and administer an advantage. Good working conditions in congenial office, with Superannuation Scheme and 5-day week. Ability to drive staff car an advantage. Salary range commensurate with ability and responsibility. Box 3280.

QUALIFIED ARCHITECT'S ASSISTANT required for busy West End office. Able to carry through work from sketch plan stage to completion. Salary £600-£700, or by arrangement. Box 3274.

JUNIOR ARCHITECT'S ASSISTANT required for busy West End office. Intermediate standard. Salary £400-£500 per annum. Box 3275.

CHIEF ARCHITECTURAL MANAGING ASSISTANT required by well-known firm of West End Architects. Must be fully qualified, not less than 35 years of age, and able to be responsible for the complete organisation of a Drawing Office. Write, giving full details and salary required, to Box 3272.

B.C. requires ARCHITECTURAL ASSISTANT in London, with some design office experience. Must be Probationer R.I.B.A. Salary: £450 (higher if qualifications and experience exceptional), rising by five annual increments to £535 maximum. Promotion prospects. Applications to E.E.O. B.B.C., London, W.1, within week, quoting ref. E.964 A.J.

3237

ASSISTANT (at Intermediate stage) required for Architects' London office engaged in major works of restoration and construction of Schools and Colleges. Appointment offers excellent opportunities for supervision of works and calls for a candidate with initiative. Salary £600 per annum, depending on experience. Box 3268.

B.C. requires ARCHITECTURAL ASSISTANTS in London, with at least two years' design office experience. Must have passed Inter. R.I.B.A. Salary: £545 (higher if qualifications and experience exceptional), rising by five annual increments to £755 max. Promotion prospects. Applications to E.E.O., B.B.C., London, W.1, within week, quoting ref. E.963 A.J. 3238

ARCHITECT'S SENIOR ASSISTANTS required for private office in London, E.C., with widely varied experience. Must be Associate R.I.B.A., and preferably with not less than three years' practical office experience. Reply, giving age, full particulars of qualifications and experience, and stating salary required. Box 3243.

ARCHITECTURAL ASSISTANT required, Intermediate standard, with some office experience, for small busy practice. Shaw & Lloyd, F.R.I.B.A., 74, Gt. Russell Street, W.C.1. Museum 9693. 3244

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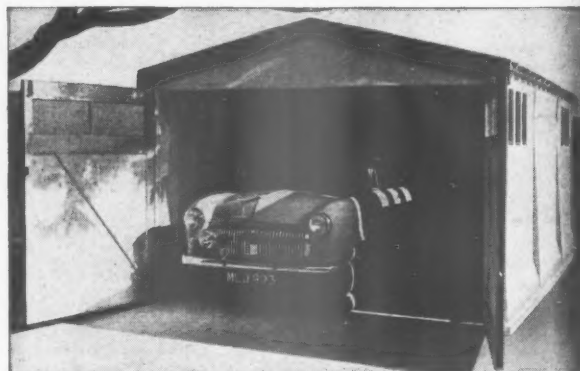


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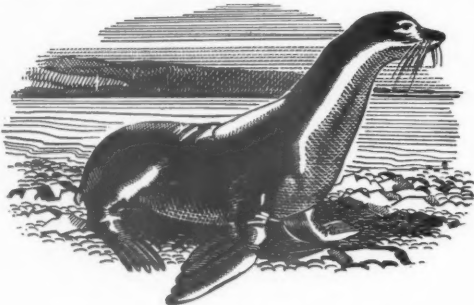
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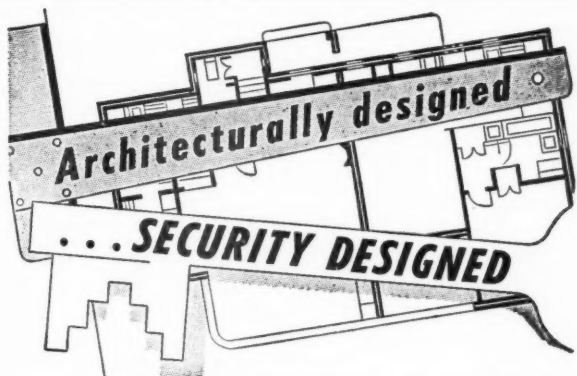
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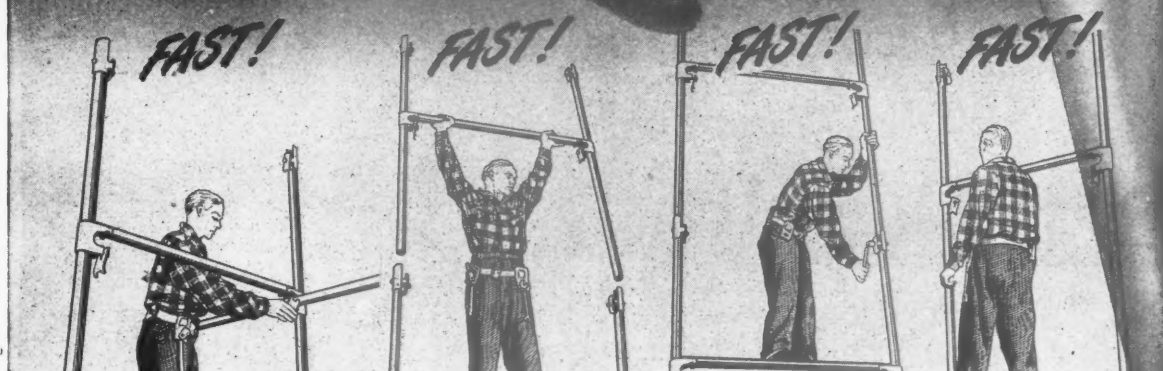
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