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 the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IQS	Institute of Quantity Surveyors, 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, 6, Fitzroy Square, W.1.	Euston 7171
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1.	Abbey5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 15, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5051
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988

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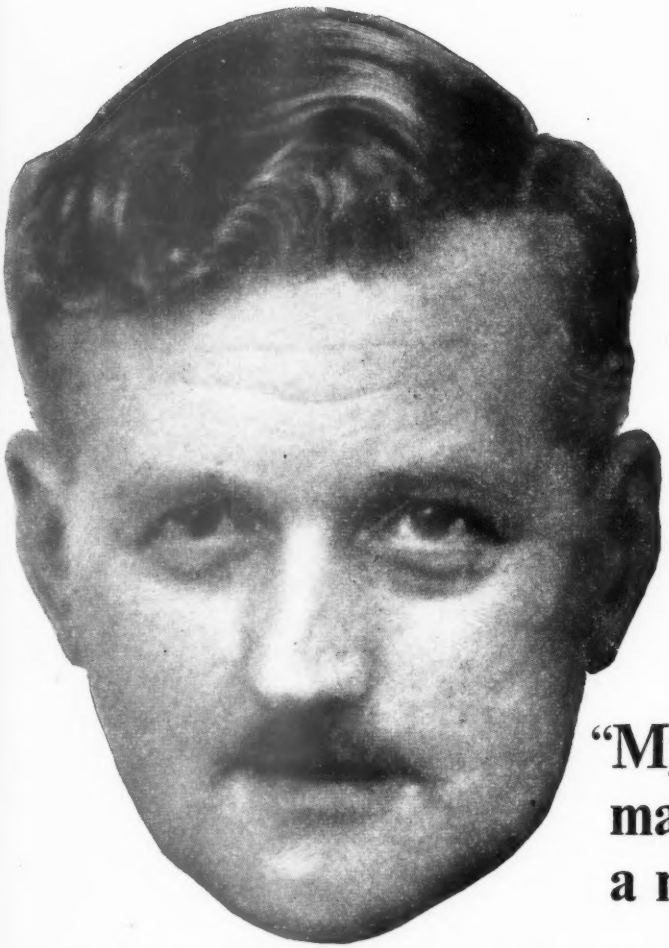

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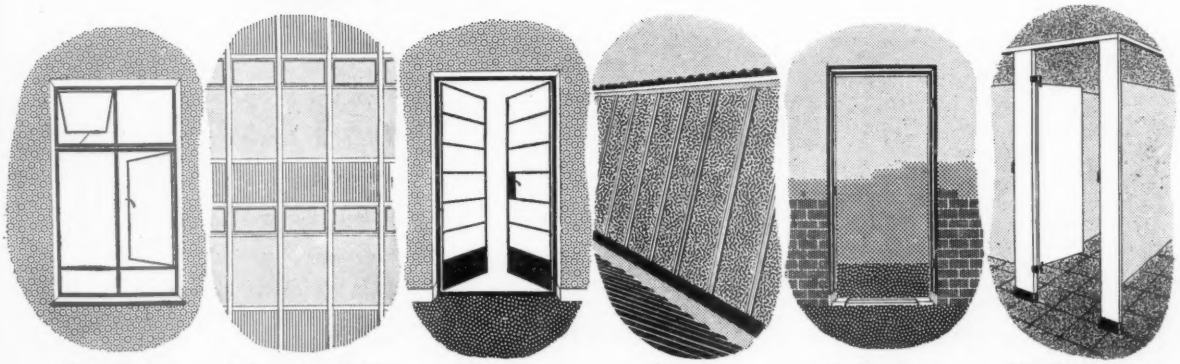

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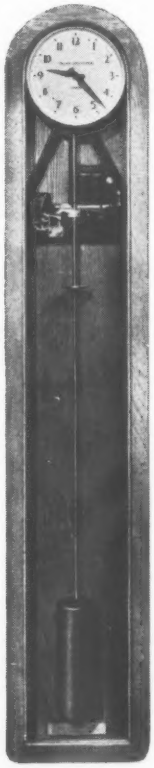

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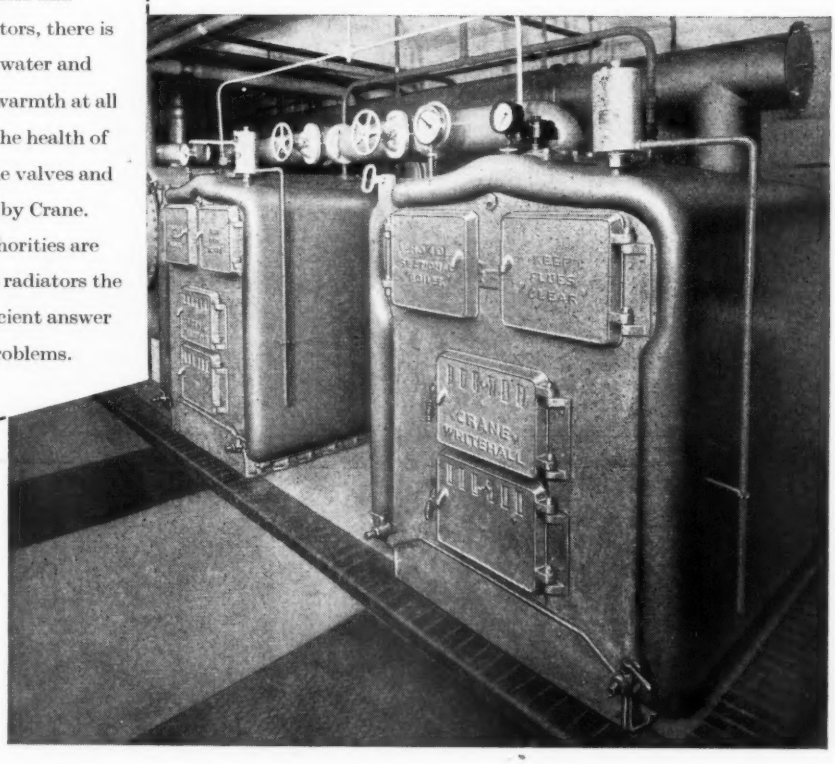

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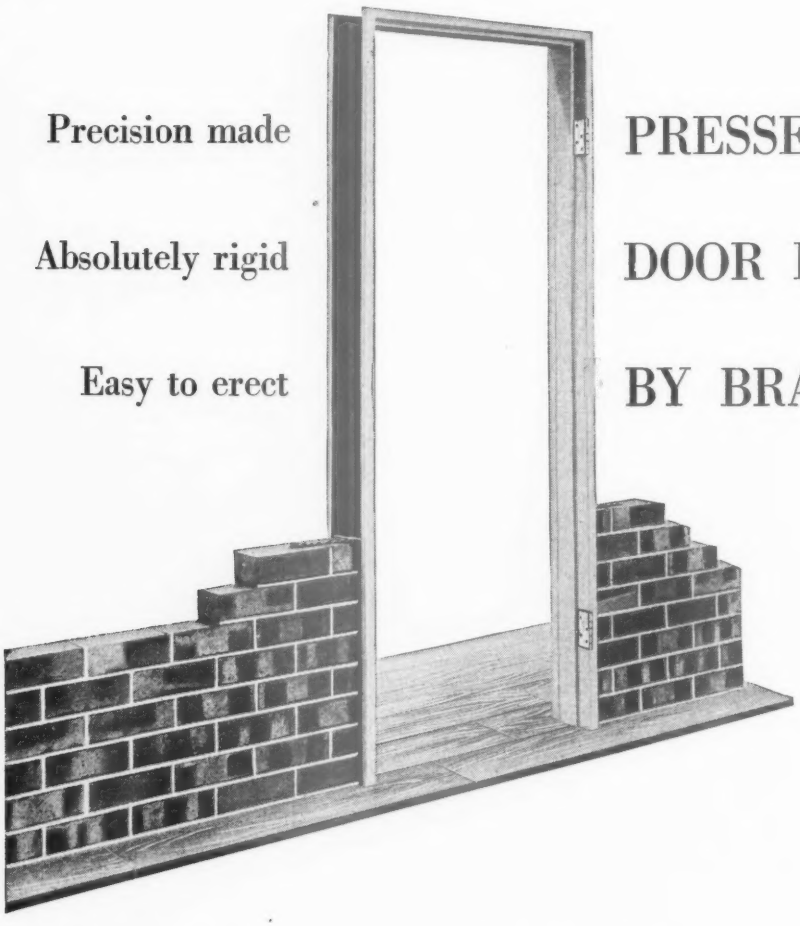

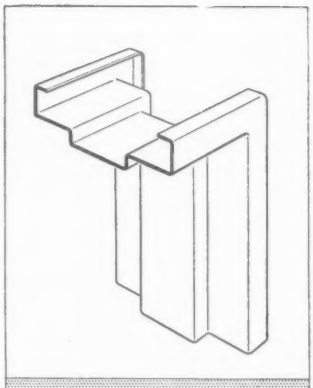

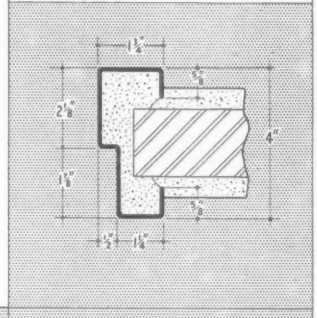

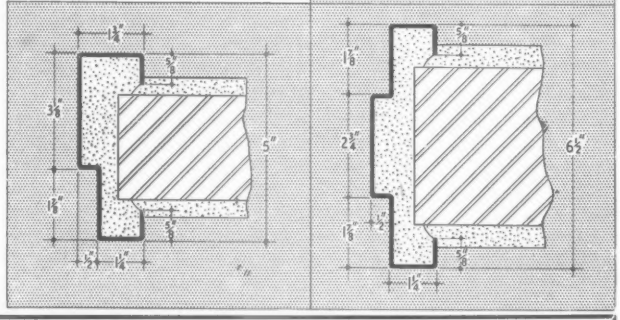

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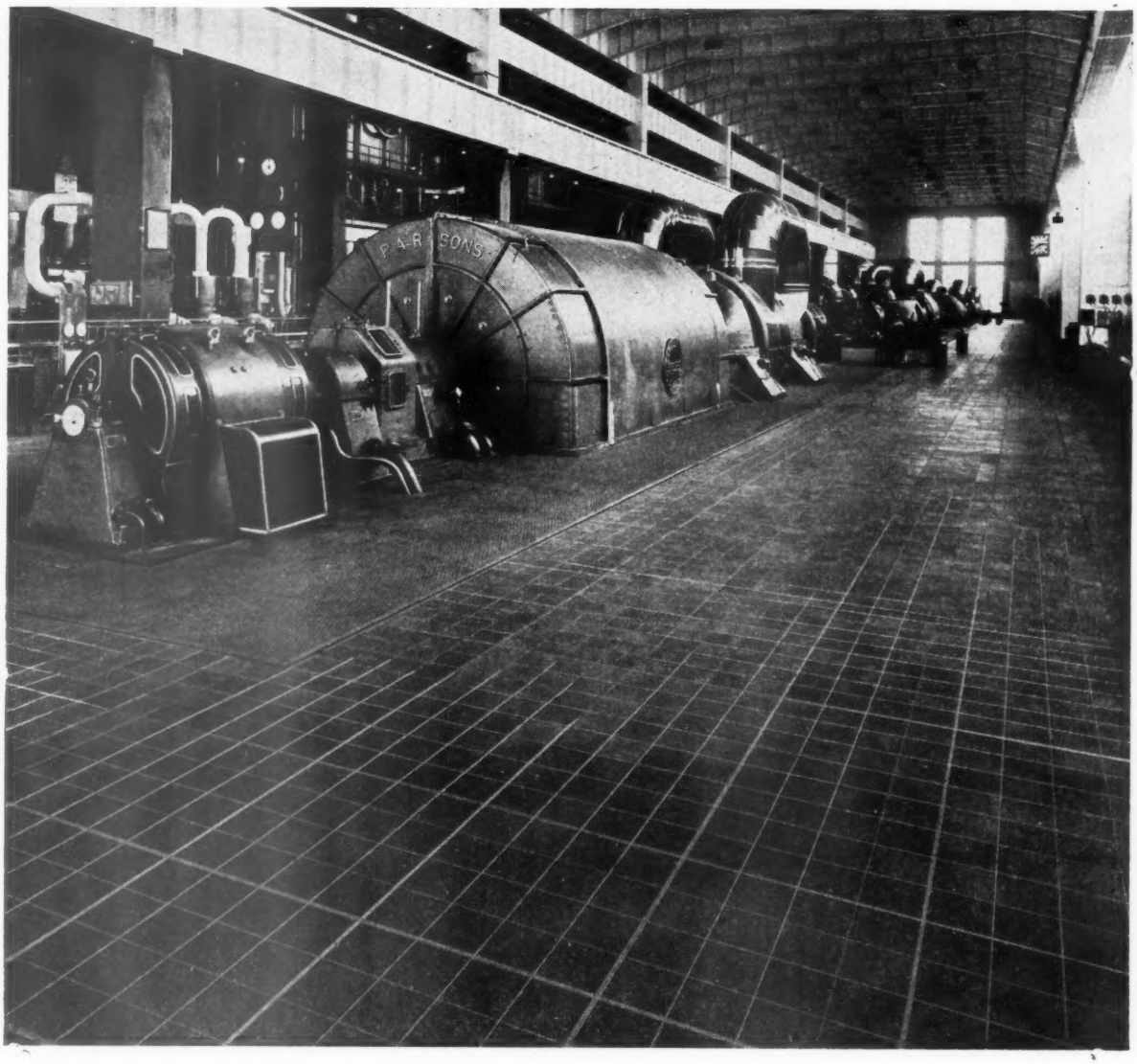

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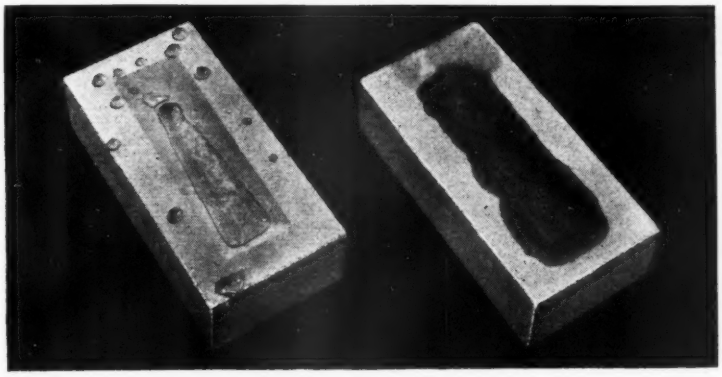

The left-hand brick has been treated with I.C.I. Silicone Resin R.220. Notice that no water has penetrated the brick. The same amount of water that is lying on top of the treated brick is inside *the right-hand untreated brick.*

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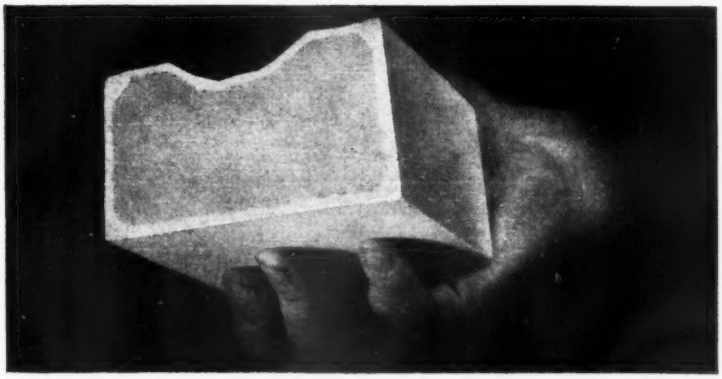

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NS. 20

ELECTRIC LAUNDRIES

THE ELECTRIC HOME LAUNDRY

In the great majority of homes throughout the country laundry work of some kind is undertaken regularly, the number and types of articles washed, dried and ironed depending on the individual requirements of each home. It is not surprising, therefore, to find that a wide range of electrical equipment is available, capable of handling anything from a few light articles to the heavy weekly wash of a large family. The type of appliance used and the space needed to accommodate it has not received the attention it deserves in the planning of houses and flats, and so these notes have been written to indicate briefly what is involved.

Laundry or Utility Room

Much depends on the bulk and frequency of the laundry work undertaken. If there are small children or babies in the family, washing will have to be done frequently, though not necessarily in large quantities : the heaviest washes are undertaken in large families where the bed linen is regularly washed at home as well as personal articles. In both cases normal kitchen work would be seriously interfered with if all this laundering had to be done there : it is far better to arrange the laundry equipment in a separate room adjacent to the kitchen. The space required is not great—an enlarged back porch as shown in Fig. 1 can be quite satisfactory.

If more space is available, the laundry equipment may be placed in a utility room which can also be used for the many odd jobs that require doing but should not be done in the kitchen. Alternatively, the utility or laundry room can be made large enough to take a chair and large steady table for sewing and mending, with accommodation for a sewing machine and ironer, and space for airing and sorting linen. All this work has to be done in one way or another in every household, yet it is often completely overlooked at the planning stage.

Laundry Appliances in the Kitchen

When circumstances determine that the household laundry work must take place in the kitchen, the appliances must be properly integrated in the layout so as to be capable of proper use without disrupting the working sequence of the kitchen proper. This has been made much easier by the introduction of the fully-automatic washing machine, which does its work without mess, steam or labour, and the modern electric drying cabinet or cupboard; both appliances are perfectly suitable for use in a working kitchen. Fig. 2 shows how they may be incorporated in a layout that is efficient as a kitchen as well as a laundry.

Other types of washing machine can of course be used in the kitchen for the weekly wash: if they are of the standard size (see Table 1) they may be kept at one end of the working area and brought forward to the sink for use as shown in Fig. 3. Smaller machines can be stood under a draining board or working counter when not in use.

Electric Washing Machines

There are three main types of electric washing machine. First, the small ones which take up to 5 lb. dry weight of clothes and wash them electrically, but have a hand wringer fitted. Second, the so-called standard type, which is larger, can take 6-10 lb. dry weight of clothes at a time and has a power wringer. Many small and standard size machines have a built-in pump and hose for emptying; some models are also fitted with electric heaters for boiling the clothes if required. The standard type of machine (with a few

TABLE 1 WASHING MACHINES

		Small type	Standard type	Automatic
Height without wringer	in.	28—36	32½—36	38
Height with wringer	in.	35—46	42½—47½	—
Width	in.	16—23	21—24	26
Depth	in.	15½—21	21—24	22½

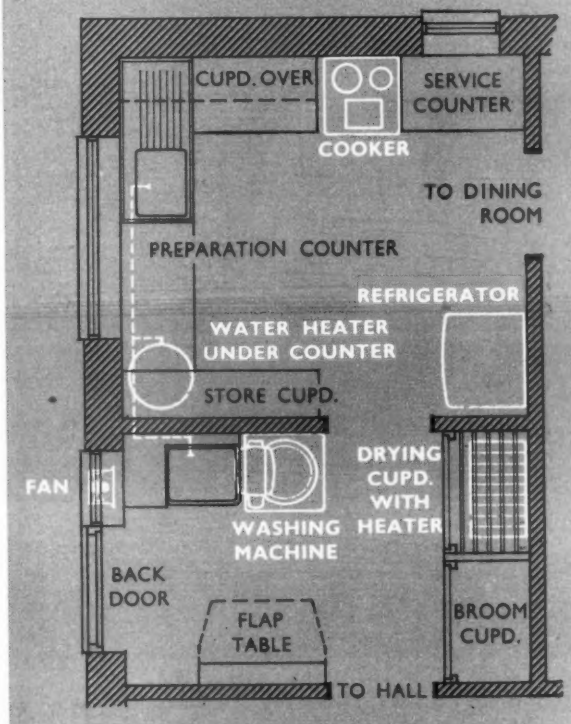

Fig. 1 Laundry room and kitchen

SCALE : 4 FEET EQUALS 1 INCH

TABLE 2 CLOTHES DRYERS

	Height	Width	Depth
Small cabinets	3'—4'6"	1'6"—1'10"	1'1"—1'10"
Standard cabinets	6'	1'8"—4'0"	1'2"—2'1"
Tumbler dryers	3'	2'2"	2'0"

EL.1

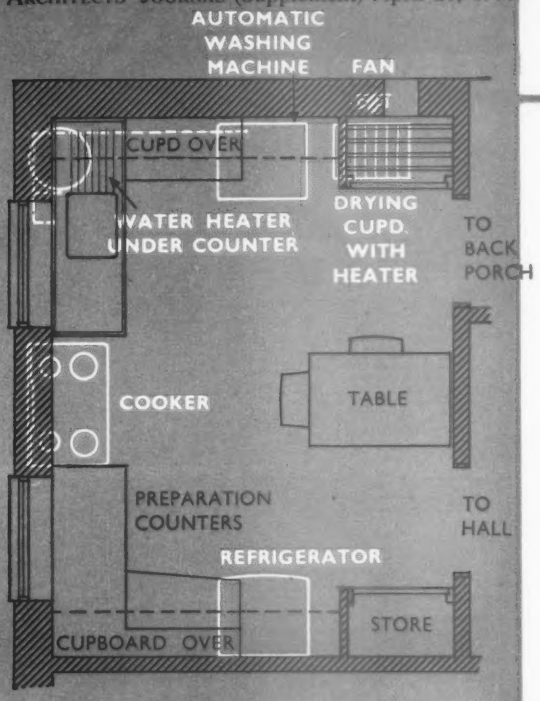

Fig. 2 Laundry kitchen
with automatic washing machine

SCALE: 4 FEET EQUALS 1 INCH

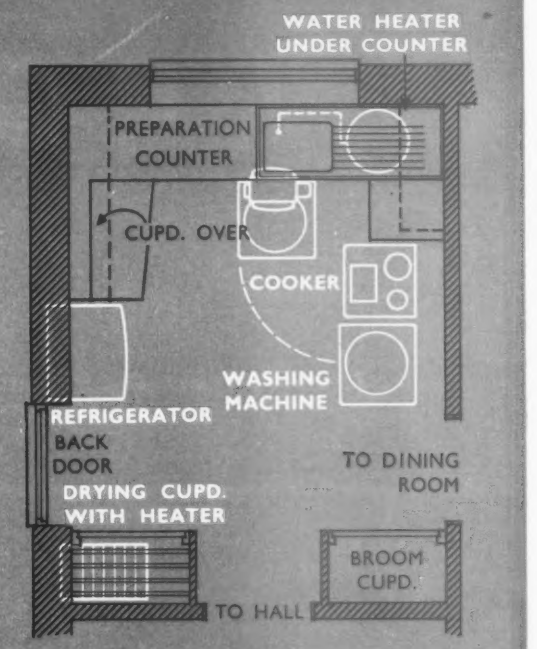

Fig. 3 Working kitchen
showing standard type washing machine in use

SCALE: 4 FEET EQUALS 1 INCH

exceptions) is too large to stand under a draining board. Its electrically driven wringer is detachable, and a rotary ironer can be fitted in its place. The third type is fully automatic, takes 8 or 9 lb. dry weight of clothes at each filling, and washes them, rinses them, and spins them in a container until they are as dry as if they had come through a wringer. The clothes are not touched after they have been put in, until they are taken out damp-dry after the machine has switched itself off. The automatic machines require permanent connection to hot and cold water supplies, and discharge direct into a gulley. In all cases an ample and efficient supply of hot water is essential, but there is no difficulty in providing this with electricity (see WH.1,2,3,4).

Clothes Drying

A week's wash can be dried independently of the weather to the correct degree for ironing, in an electrically-heated drying cabinet or cupboard, in a few hours. The same appliance can be used for drying off wet outer clothing, and is essential if home laundry is to be undertaken in a flat.

Drying cabinets use an electric heater controlled by a three-heat switch, enabling different materials to be dried at the proper rate. The heater is in the base and is screened by a wire-mesh guard, air being drawn in at the bottom, and discharged at the top of the cabinet. When a cupboard is built for clothes drying, as shown in Figs. 1, 2 and 3, it should be lined internally with hard plaster (painted), glazed sheet asbestos, or a similar non-absorbent material. The floor area should be not less than 4 square feet, and gaps for the entry and exit of air should be provided below and above the door which should be faced internally with a non-absorbent material. An electric heating unit made for the purpose is fixed in the bottom of the cupboard, switched and guarded as in a drying cabinet. A small extract fan may be fitted with advantage in the drying cupboard when the latter forms part of a kitchen (Figs. 2 and 3) or otherwise in the laundry room itself (Fig. 1).

Tumbler drying is the newest method of drying clothes at home. The compact machines with automatic timers are about table height and will take a load of clothes from a standard washing machine. The clothes are tumbled in hot air until they are dry enough for ironing or completely dried, when the machine switches itself off.

Irons and Ironing

Ironing is a very important process in every home, a considerable time being spent on it each week, often under very unsuitable conditions. If the regular wash includes sheets, pillow cases, etc., as well as the usual personal articles, an electric rotary ironer (of the independent table type or fitted in place of the wringer on a washing machine), or press type ironer, will probably be required. These appliances can be operated sitting down, and sheets, towels, pillow cases, etc., run through with speed and efficiency: they can also be used for many other articles.

For hand ironing, a rigid portable ironing board is essential—together with the space necessary to store and use it; there are many articles for which it is not so convenient. A strong firm table should be provided in the laundry room for ironing and pressing, and for the use of a portable sewing machine: it should be 2′ 6″ high with an adjacent socket-outlet, fixed at 4 feet from the floor, for an electric hand iron, ironer or sewing machine. Good lighting, both natural and artificial, must also be provided.

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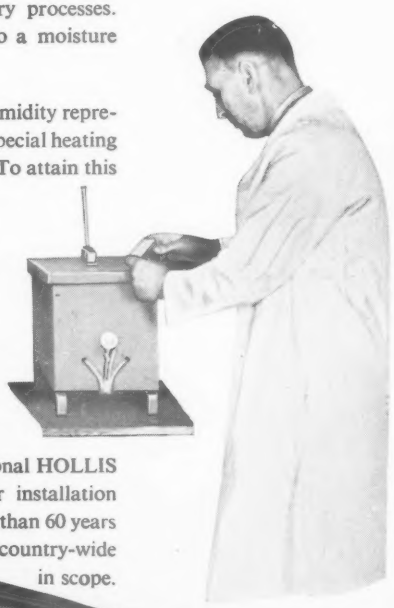
WOOD BLOCK · HARDWOOD STRIP · PARQUET FLOORS

SEASONING 2

—*the key to stability in timber*

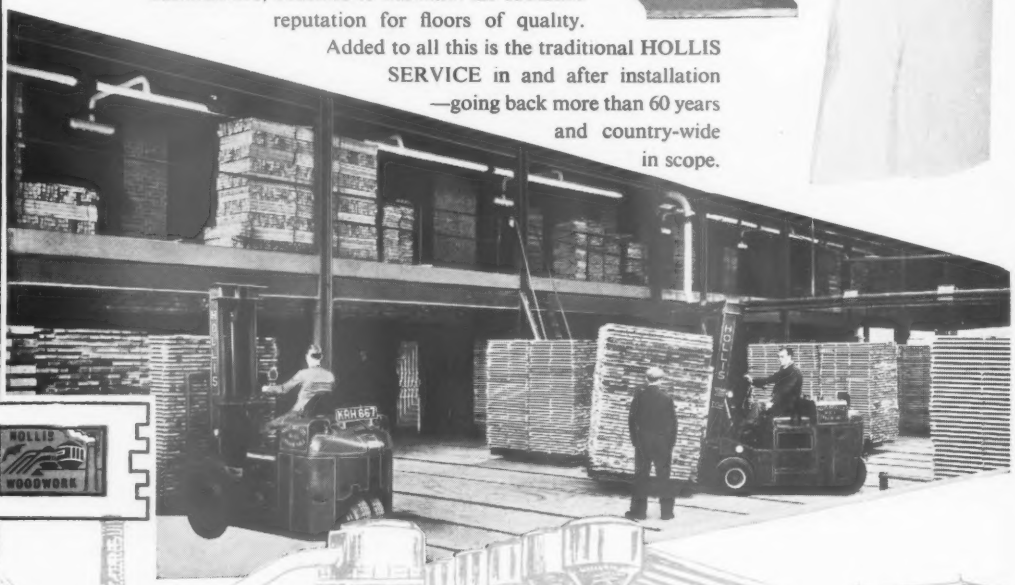
Air-seasoning and Kiln-seasoning are complementary processes. By itself, the former is not capable of reducing timber to a moisture content low enough to ensure stability.

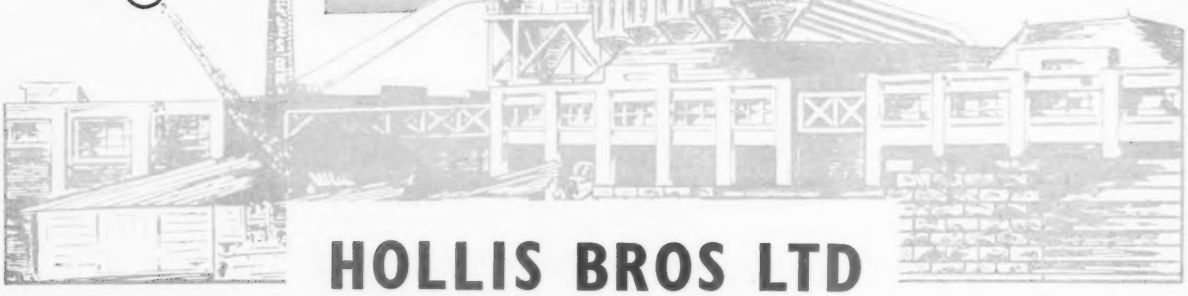
Floors, in use, remain in conditions of temperature and humidity representing between 9% and 12% moisture content, whilst for special heating conditions it may be necessary to dry even lower than this. To attain this standard, the timber for HOLLIS floors is dried in kilns, in which the conditions of temperature, humidity and air-circulation are regulated to predetermined schedule. By this means the correct moisture content is attained and even drying assured.



First-class timber, meticulous care and constant testing during seasoning, together with precisional standards in manufacture, combine to maintain the HOLLIS reputation for floors of quality.

Added to all this is the traditional HOLLIS SERVICE in and after installation —going back more than 60 years and country-wide in scope.





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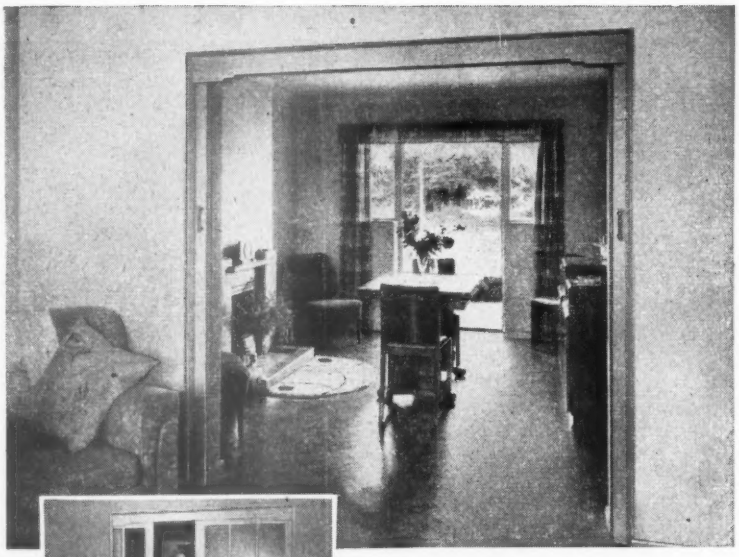

ELLARD

ESTATE SLIDING DOOR GEAR

The illustrations above and on left show yet another example of the use of ELLARD "Estate" Sliding Door Gear in the modern dwelling house. See how simple it is to convert a spacious room to one of a cosy intimate atmosphere. The fingertip smoothness of door action offers immediate reduction of living space when desired with the additional advantage of fuel economy. Elegant appearance, ease of operation and long service are the main selling features of this attractive ELLARD Door Gear. Excellent design, moderate cost and maximum use of floor space make ELLARD Door Gear the obvious choice for both council estates and private houses.

SEE OUR EXHIBITS AT THE BUILDING CENTRES, 26 STORE STREET, LONDON, W.C.1, AND 425-427 SAUCHIEHALL STREET, GLASGOW, C.2

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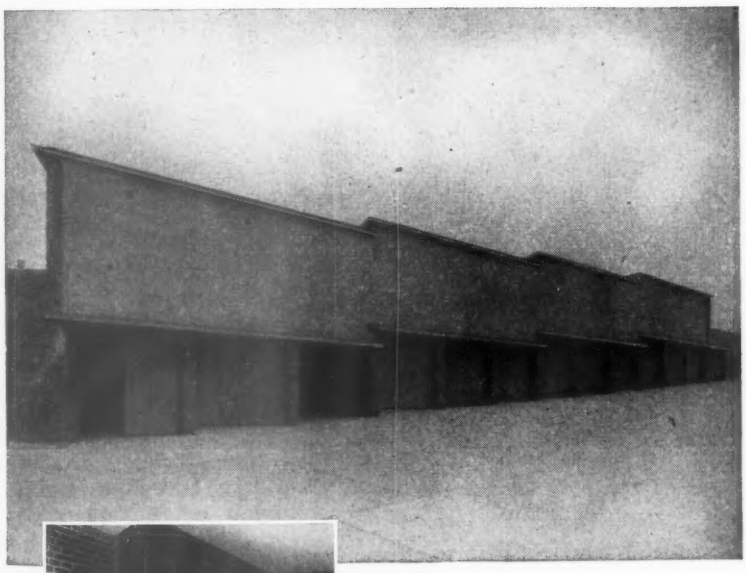

ELLARD

RADIAL SLIDING DOOR GEAR

The illustrations above and on left are two examples of ELLARD "Radial" Door Gear fitted to garages on a housing estate. The lower picture shows part of a range of thirty-six garages built in rows one above the other on what was once a hillside. This group of garages adjoins a council housing estate, and provides convenient and moderately priced garage accommodation for tenants. This scheme admirably suits smaller dwelling house estates and offers a profitable return as investment. Specify ELLARD "Radial" Sliding Door Gear for all round excellence of design, moderate cost and prompt delivery.

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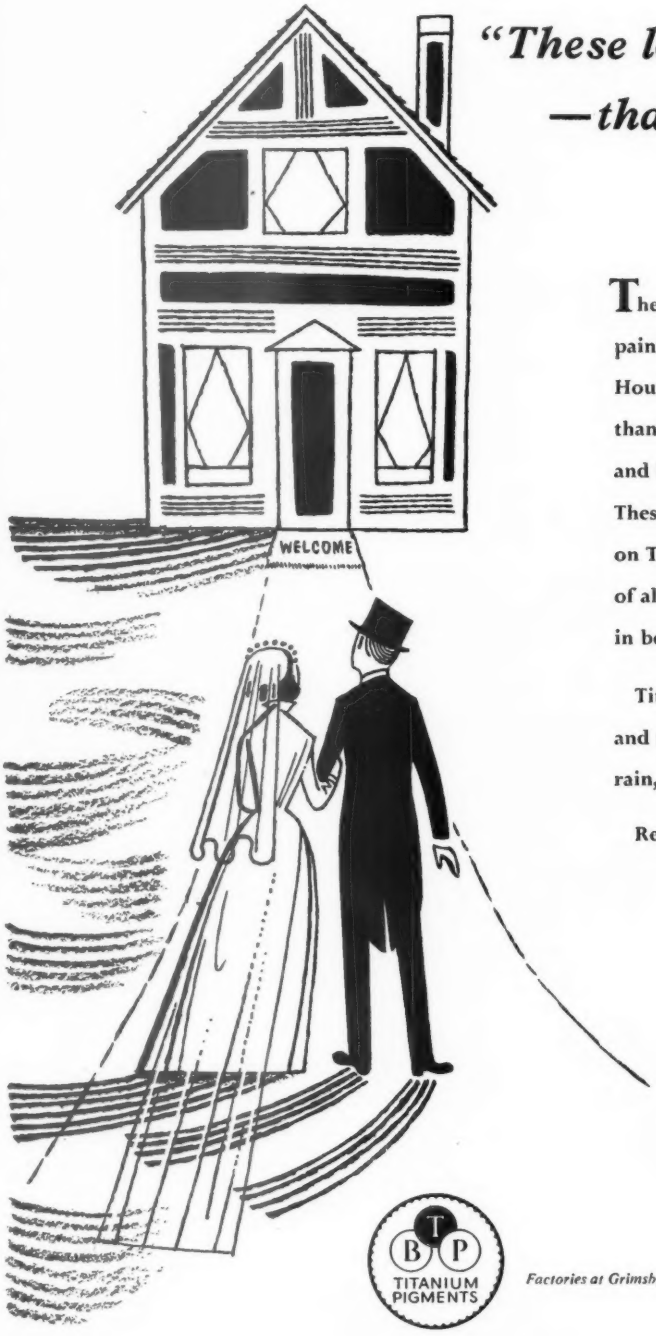

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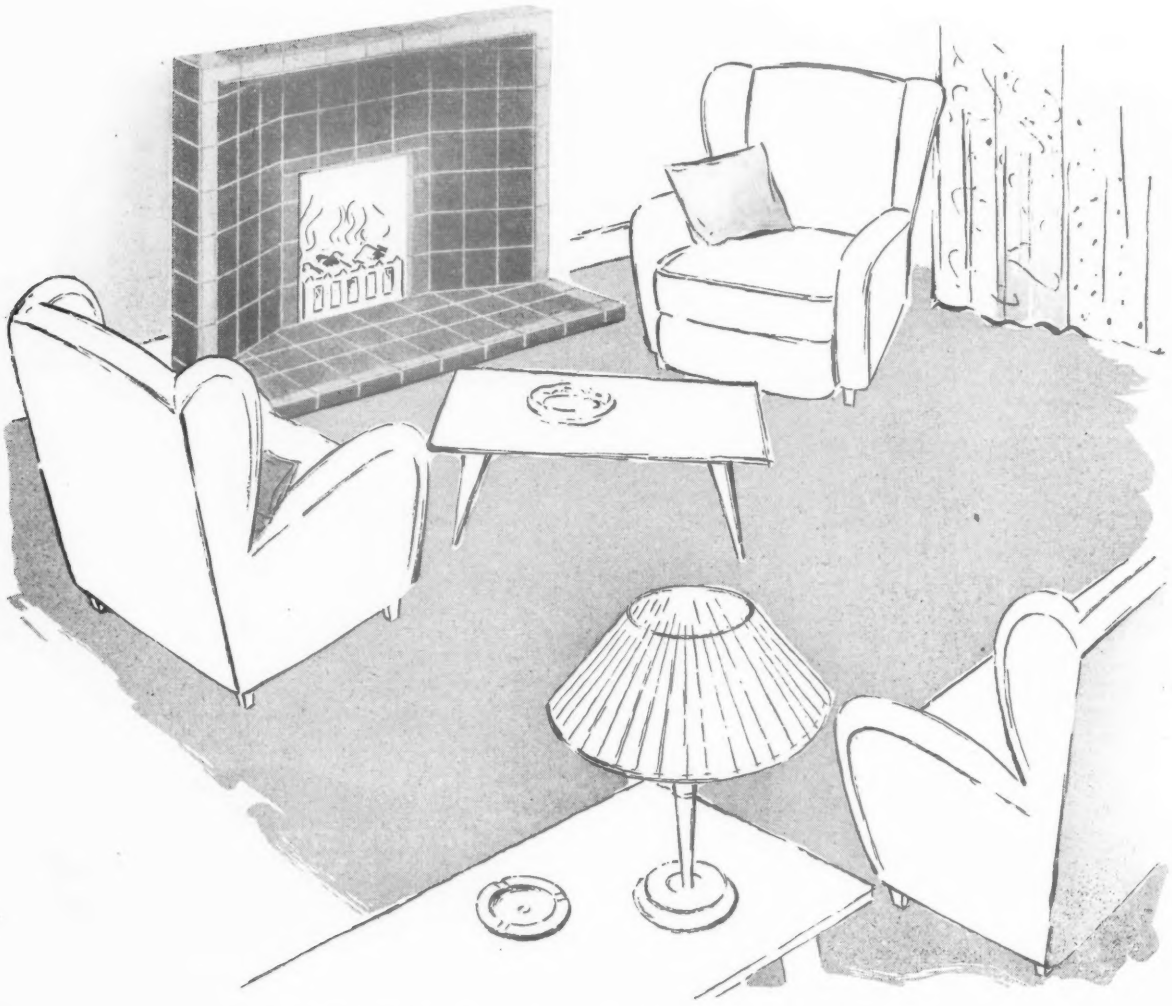
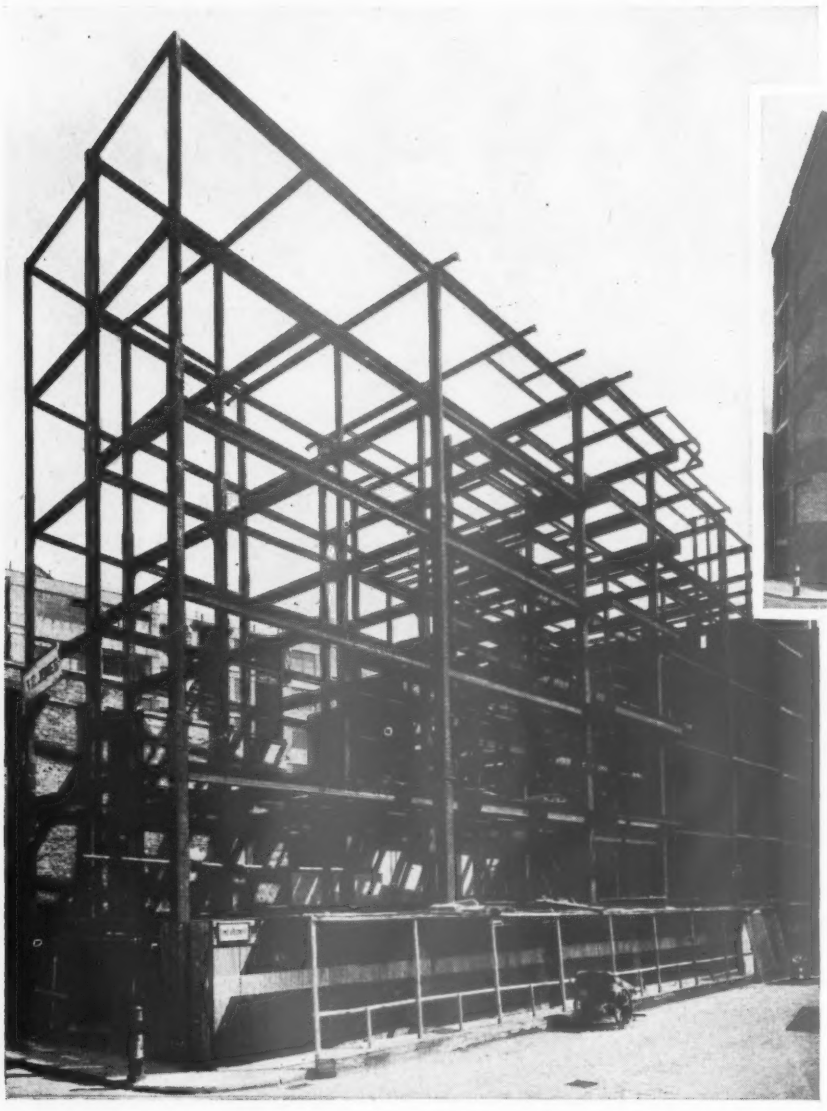
Contemporary furnishings and modern decor in no way alter the established position occupied by tile fireplaces. Traditional as "the open fire" itself, Glazed Tile Fireplaces need not be traditional in their design. Their versatility of application complies equally well with modern or orthodox interiors. Long life and easy-to-clean characteristics make them the popular choice.

You can specify Ceramic Tiles, confident that your client will be completely satisfied.



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

C

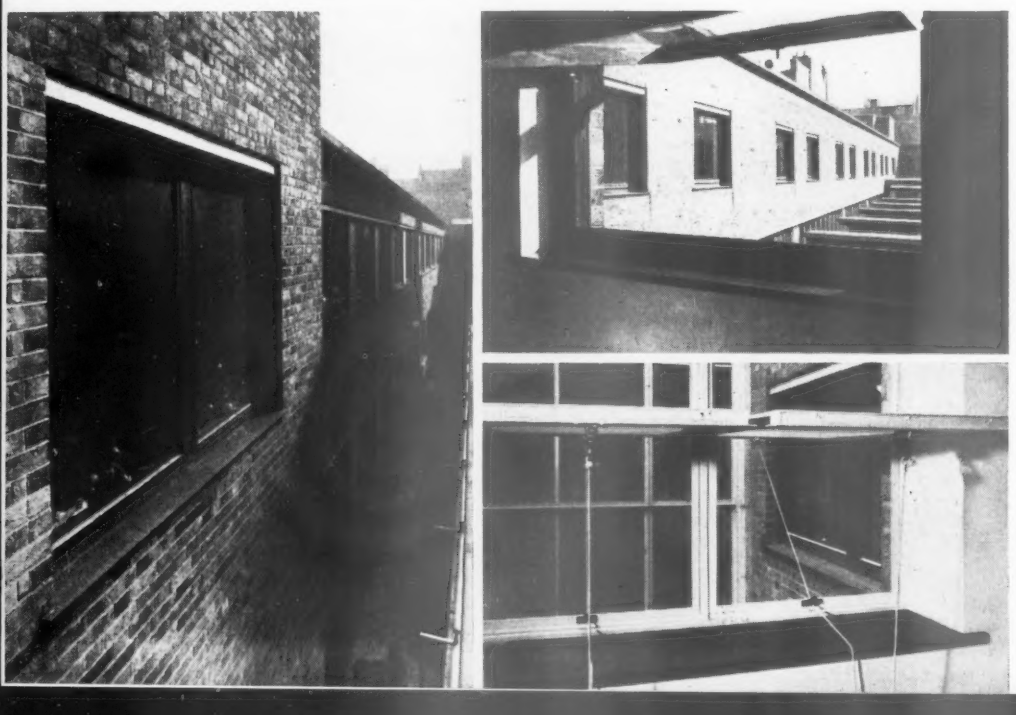


Rebuilding after bomb damage of Benbow Wharf, Bankside, London, S.E.1 for Messrs Beck & Pollitzer Ltd.

Architect: J. Raworth Hill, Esq. F.R.I.B.A.
Contractor: Beck & Pollitzer Contracts Ltd.

WINCILATE

WINCILATE slate cills at the new extension to the Children's Hospital, Gt Ormond St W.C. Easton & Robertson F/P.



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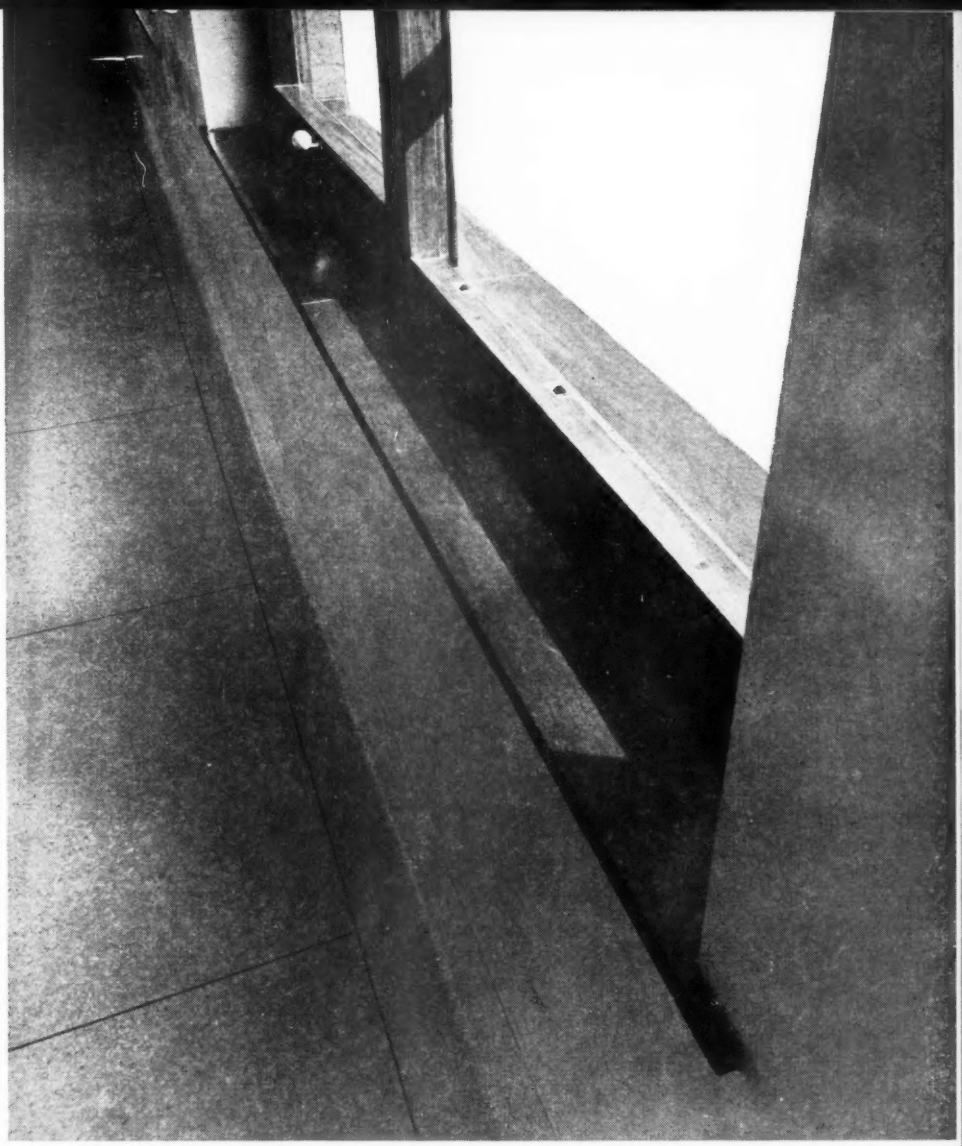

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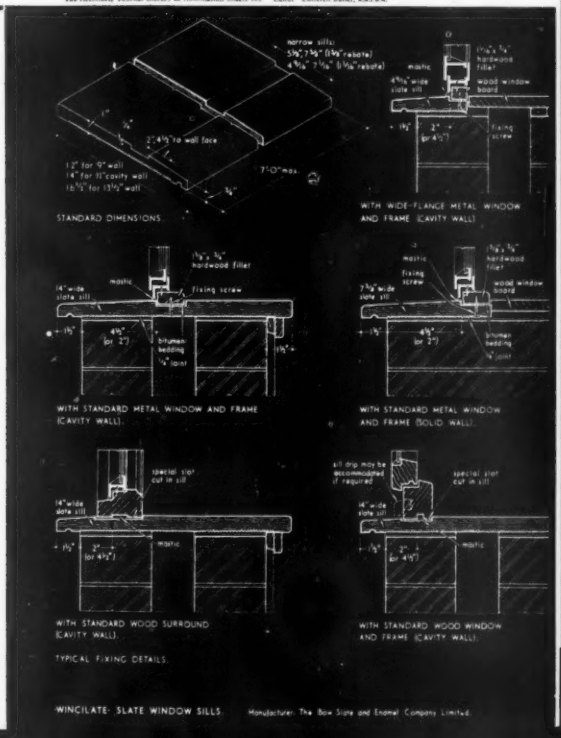

INSIDE STORY

IF THREE MEN . . .

Rather like an arithmetical problem set to torment small boys, we recently gave three tins of paint to three painters and told them to paint three long panels with a view to finding out how far they got within a specific time. The man painting the left hand panel was given a gloss paint. The man on the right was given a flat oil paint. The man in the centre was using KINSHEEN Plastic Emulsion Paint. This perfectly authentic picture speaks for itself. The wonderful covering power and ease of application are just two of the more notable advantages of KINSHEEN, and if you care to write for literature we should be pleased to acquaint you with the very many others.

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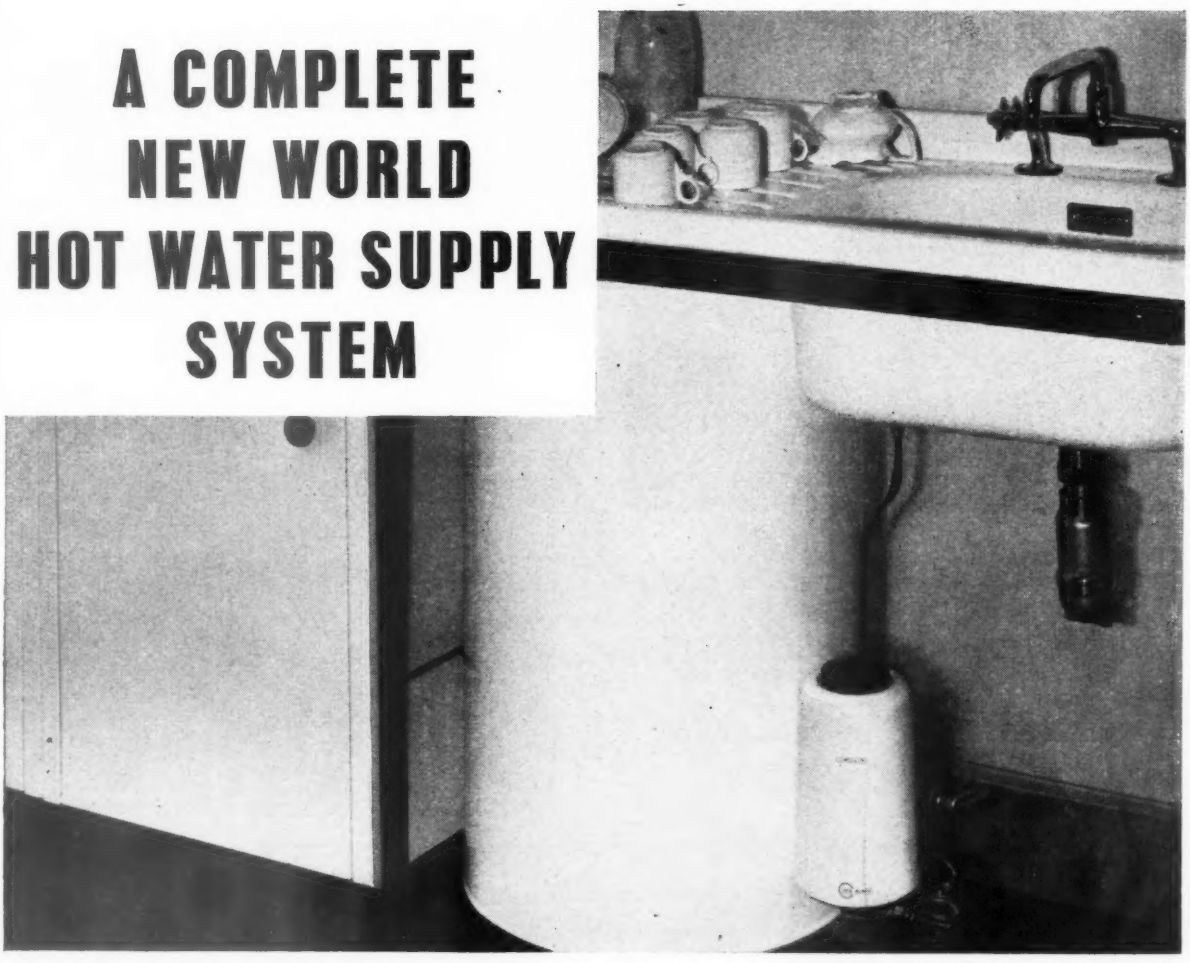

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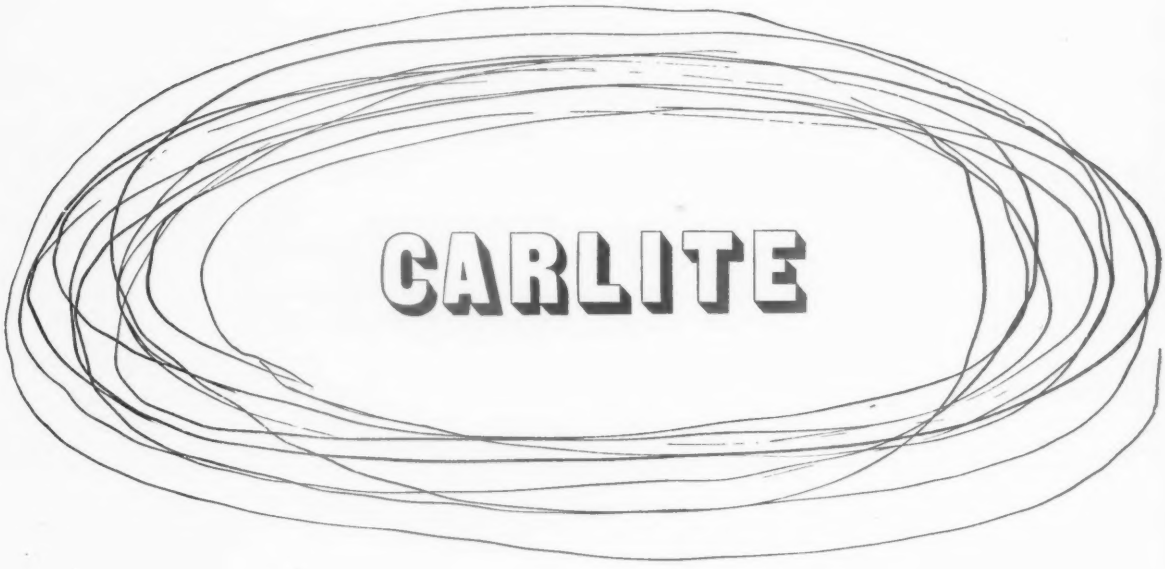

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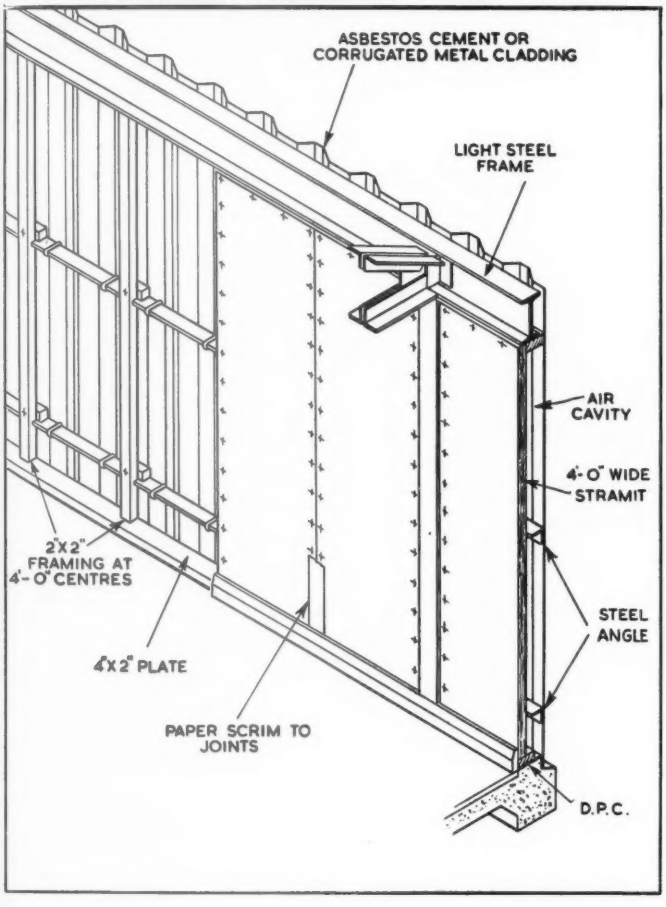

STRAMIT
2" BUILDING SLABS
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—the measure of heat-loss through a construction, in B.Th.U's. per hour over one square foot of its area, when the temperature-difference between its two sides is 1°F.

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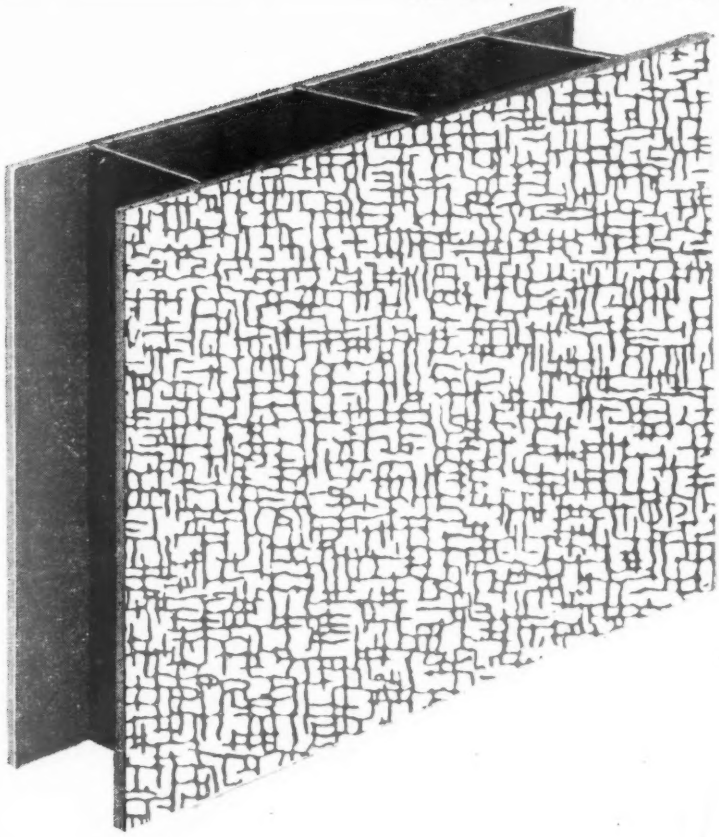

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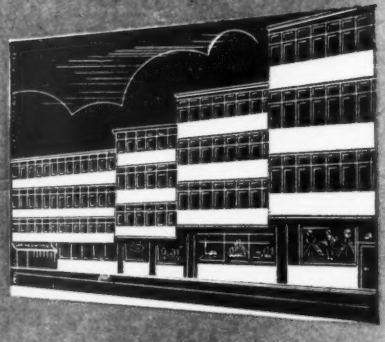

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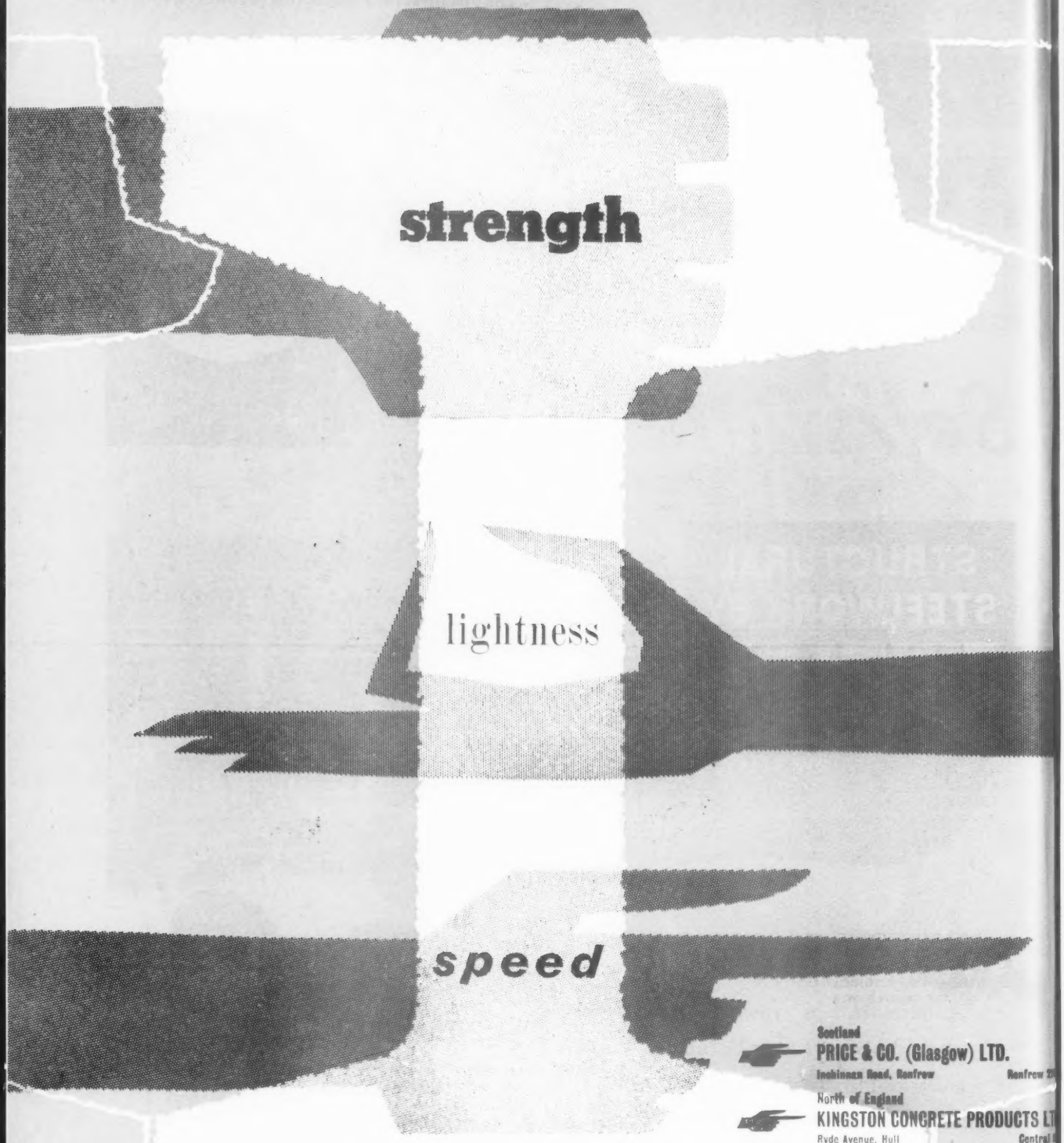

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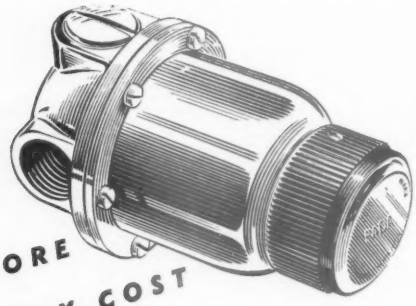

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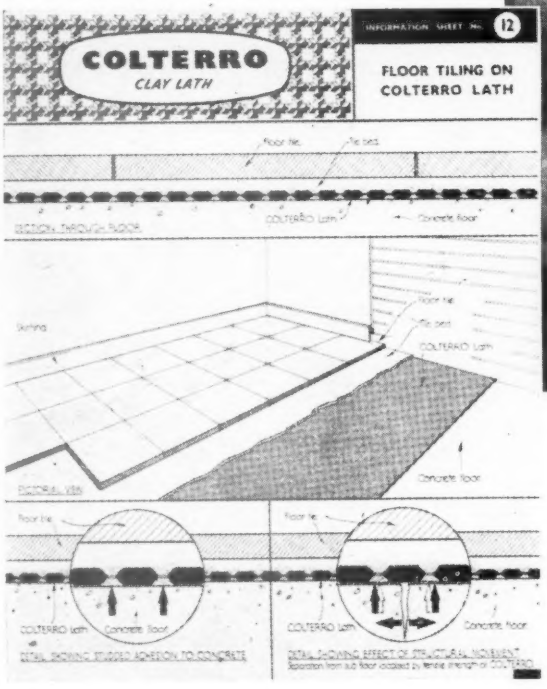

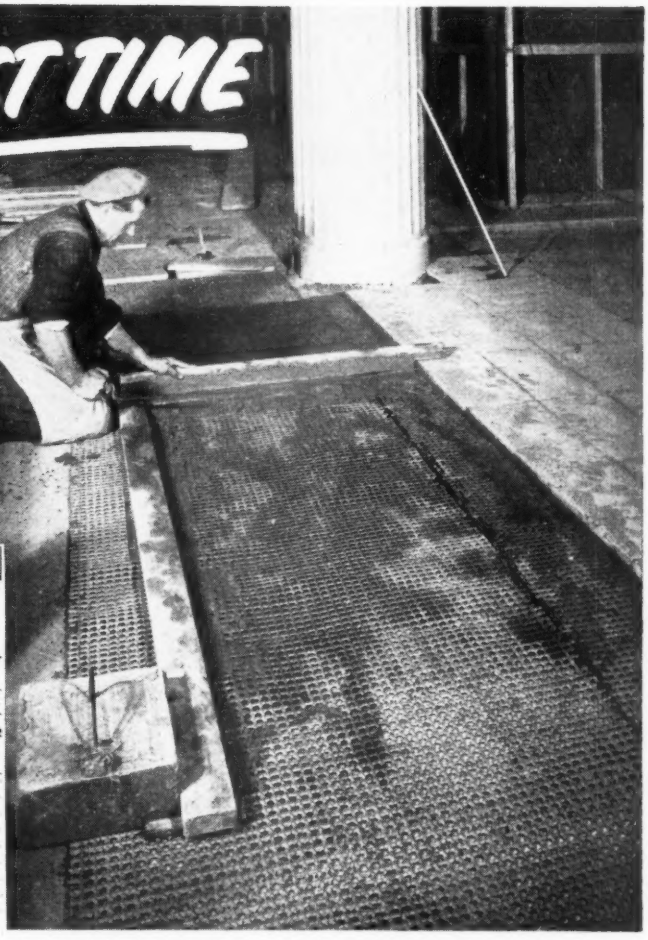

QUIL-LATH Flooring being laid at Messrs. Lewis's, Ranelagh St., Liverpool

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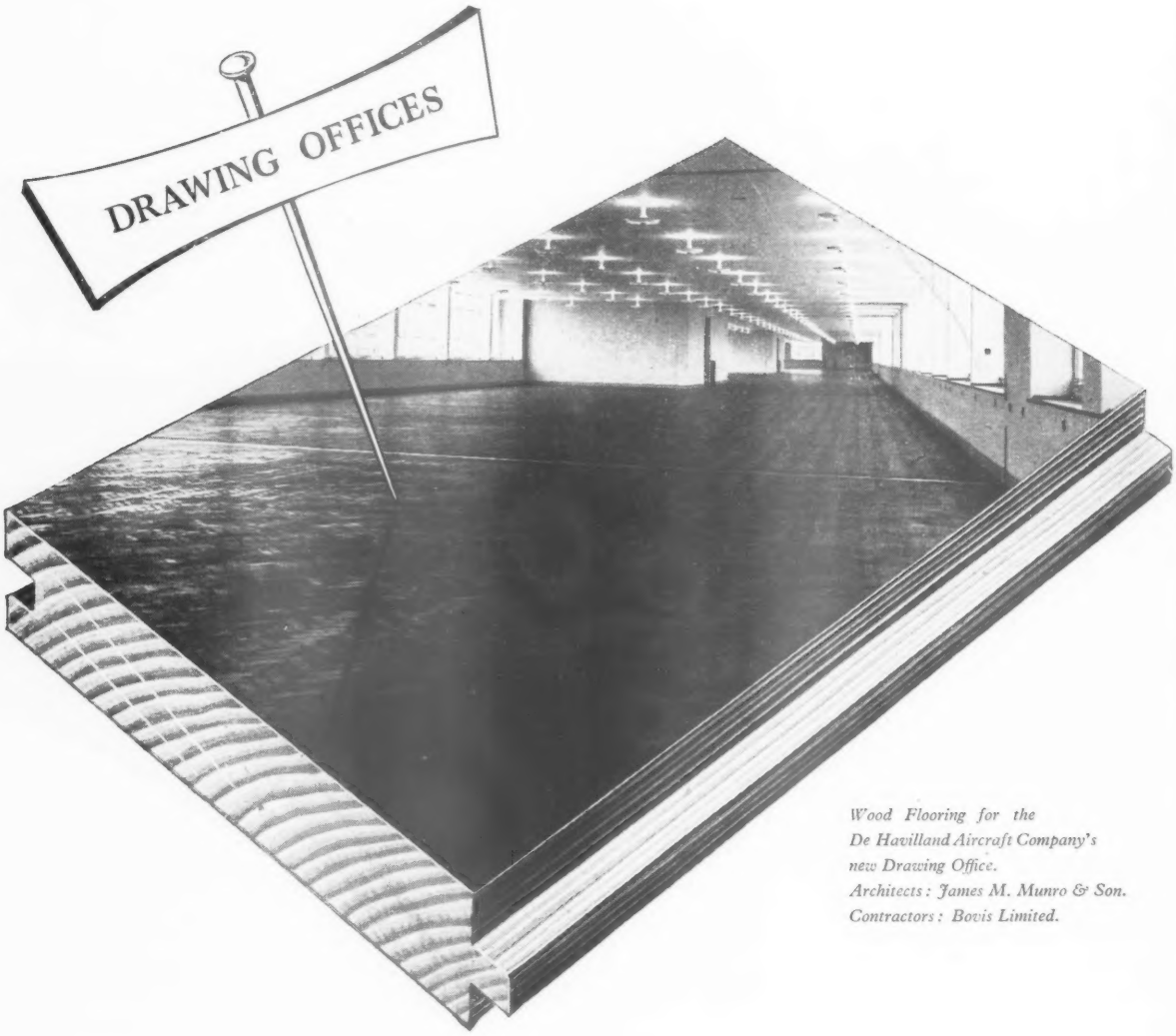

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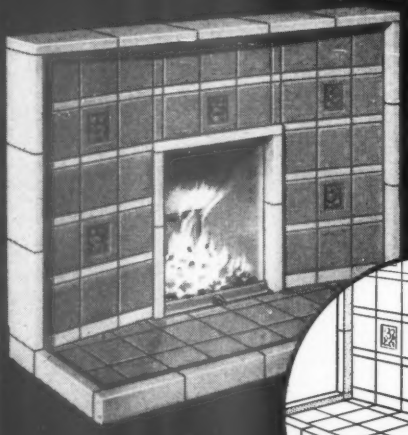

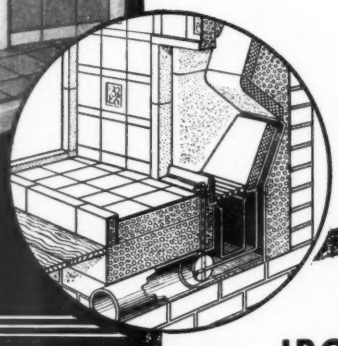

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The Summit looks just like any ordinary sunk fire—*but with a difference!* It incorporates a completely new and clever idea which is designed to convert waste flue gases into useful room heat.

Air is drawn through a pipe under the floor, brought up behind the fire where it is heated and finally emitted through the horizontal slot at the back of the fire (see sectional diagram). This heated air ignites the waste gases thereby giving another source of heat in addition to the fire itself. This arrangement also minimises room draughts.

It is comparatively simple to install, and all the necessary instructions and fittings are provided. The Summit Fire is also nationally advertised and free electros and stereos are available on request.

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THE DAVIS HOUSE at the IDEAL HOME EXHIBITION used GYPROC COVE throughout . . .

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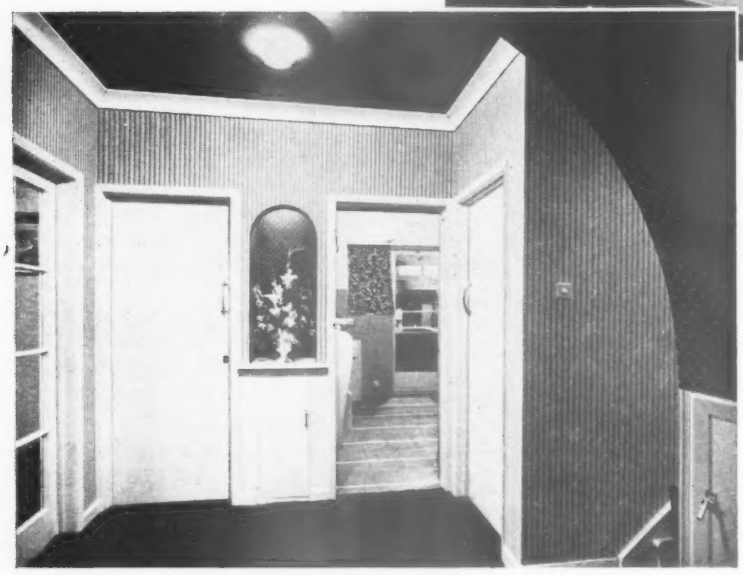

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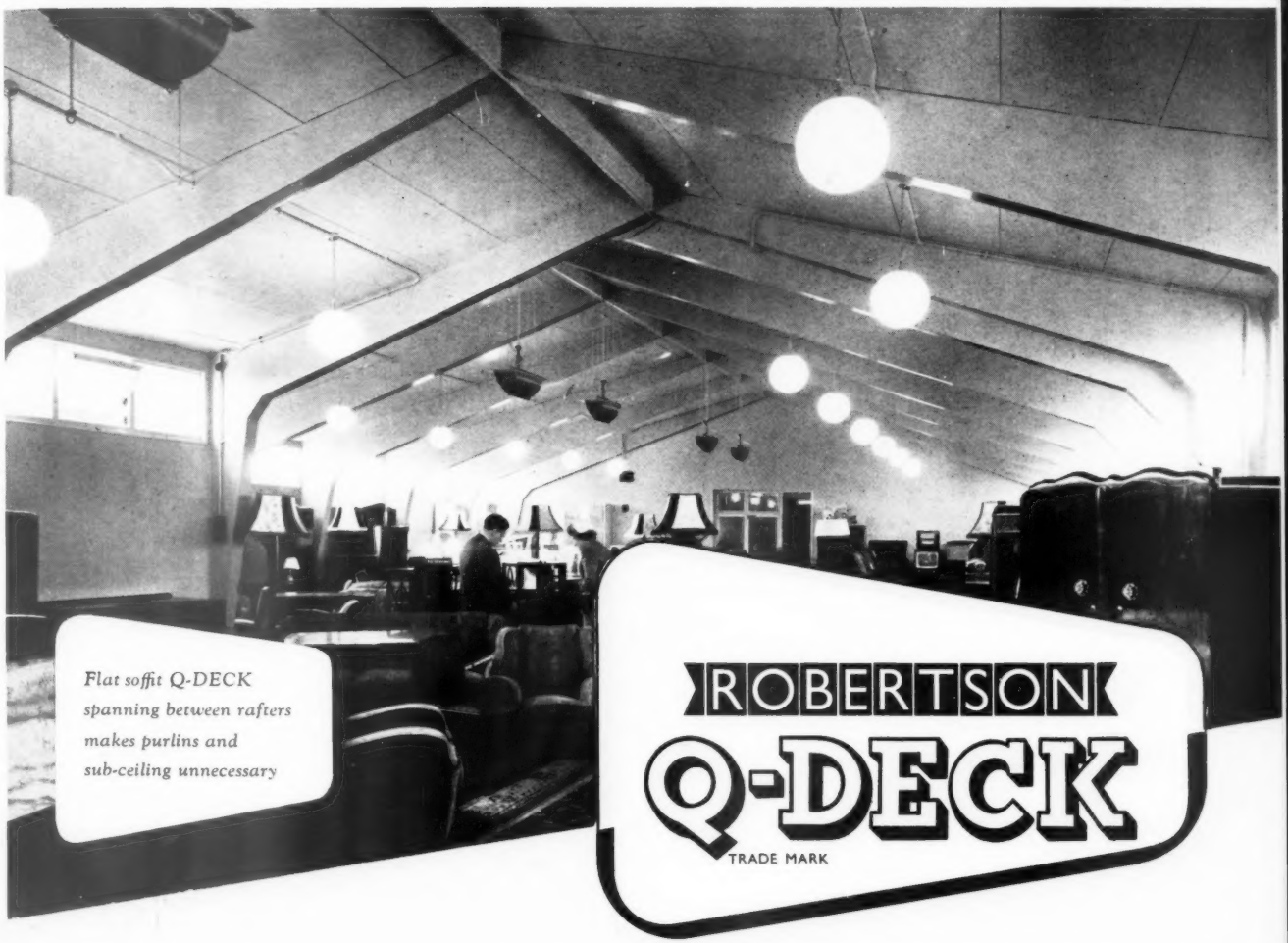

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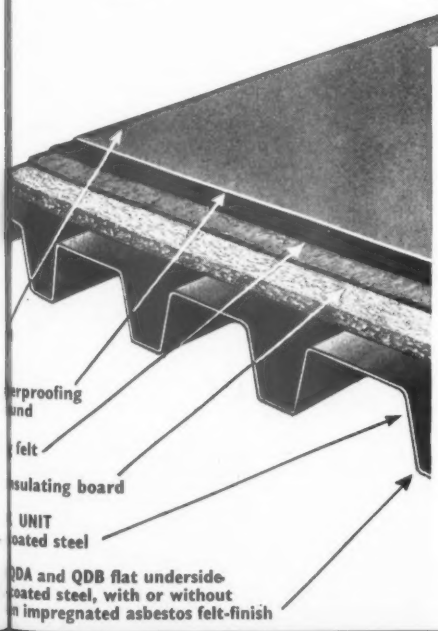

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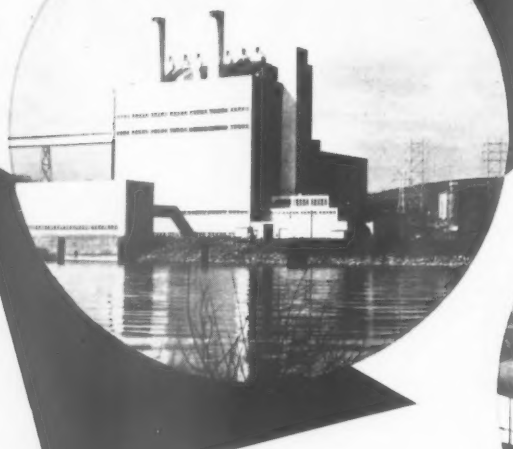

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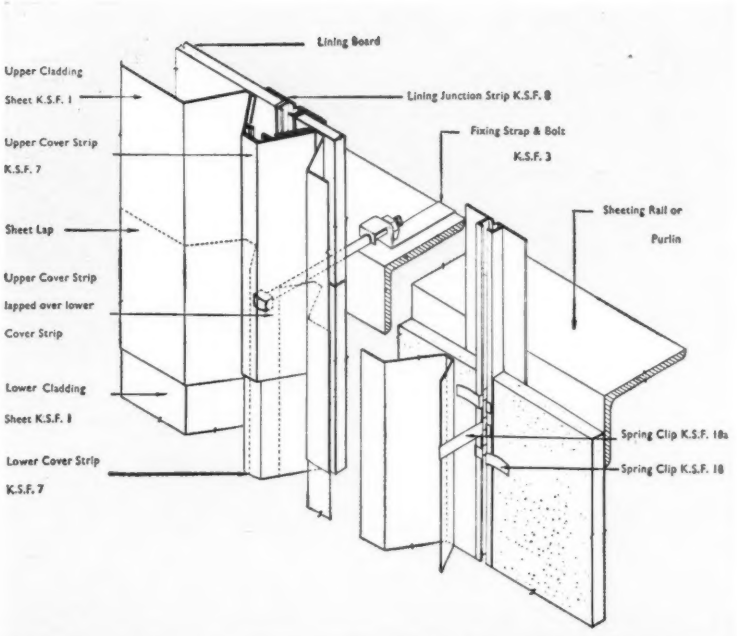

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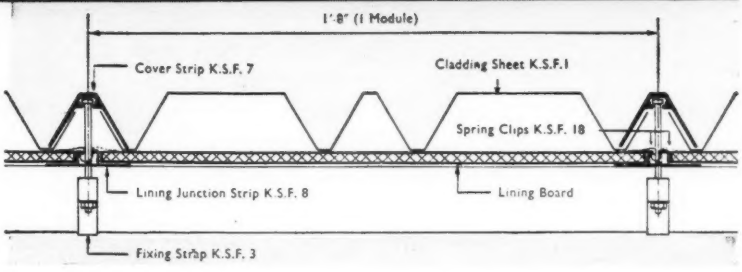

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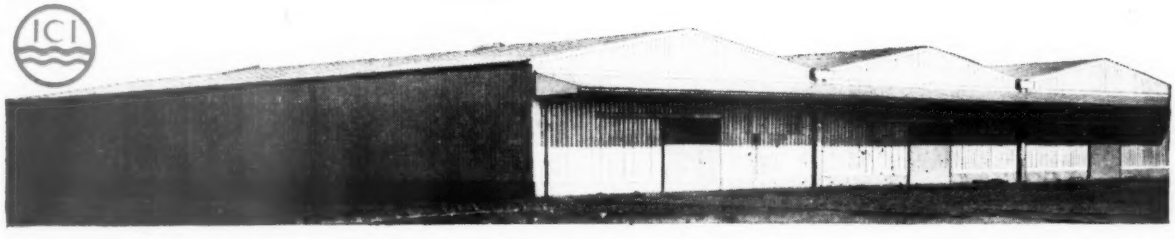

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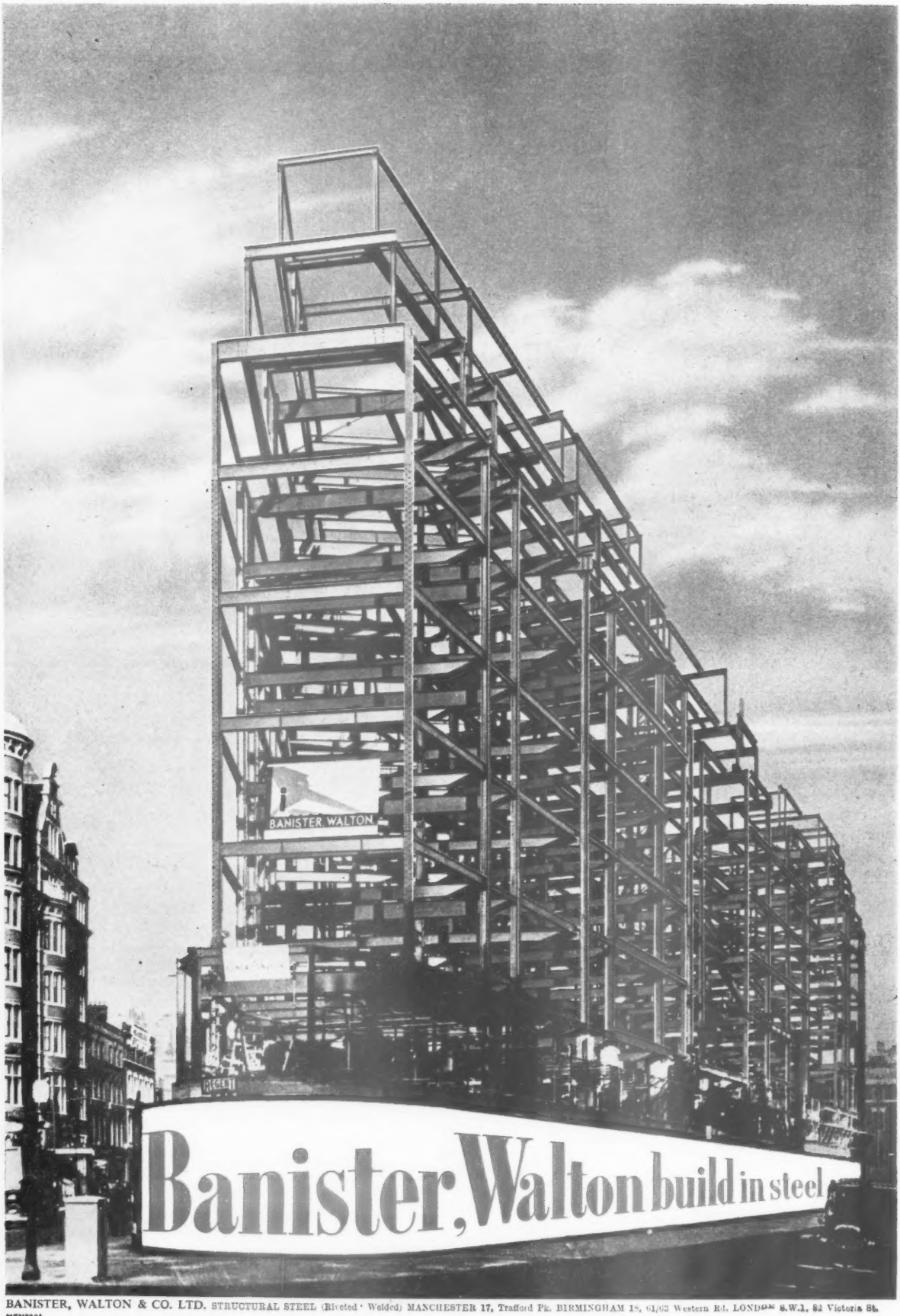

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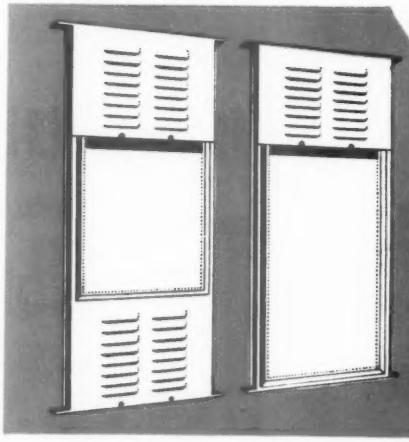

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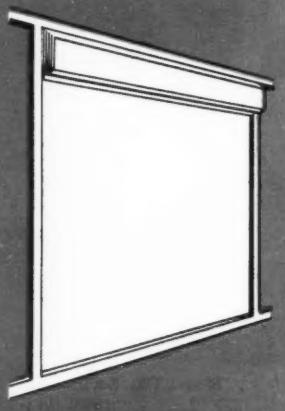

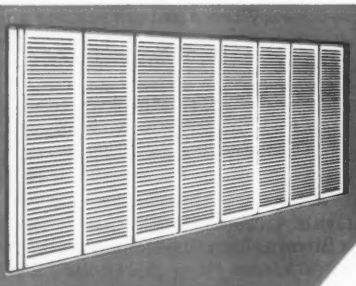

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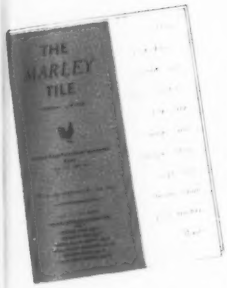


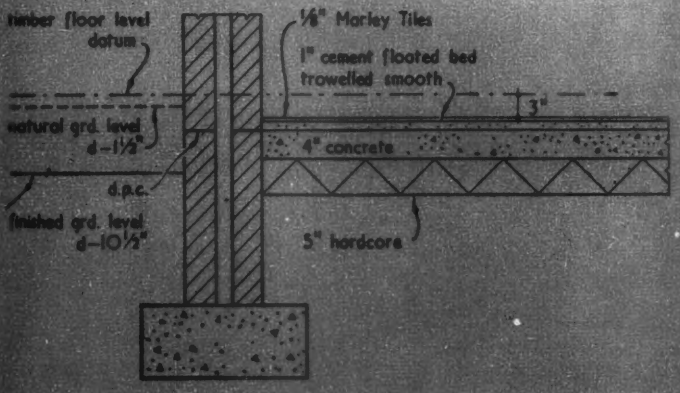
The illustrations on the right summarise the detailed information on two of the fourteen examples of flooring costs given in the Marley publication FF.2.

In Scotland the comparative costs vary in certain details and a special booklet FF.3 is available for Scottish Builders.

EXAMPLE A For Normal Type of Site

38 yds. sup. Excavate, remove and deposit @ 1/1d.		2	1	2	5 ft. run Form pipe chase @ 1/-	5	0
4 yds. cube Excavate to reduce to levels @ 4/9d.		19	0		31 yds. sup. 1" screed @ 4/10d.	7	9 10
4 yds. cube Remove and spread surplus @ 5/- ...	1	0	0		31 yds. sup. ⅛" Marley Floor Tiles @ 11/3½d. ...	17	10 1
31 yds. sup. Hardcore and blinding @ 3/10d.... ...	5	18	10		6 ft. run Galvanised steel bar as step @ 1/10½d. ...		11 3
31 yds. sup. Concrete bed 4" thick @ 5/10d.	9	0	10				

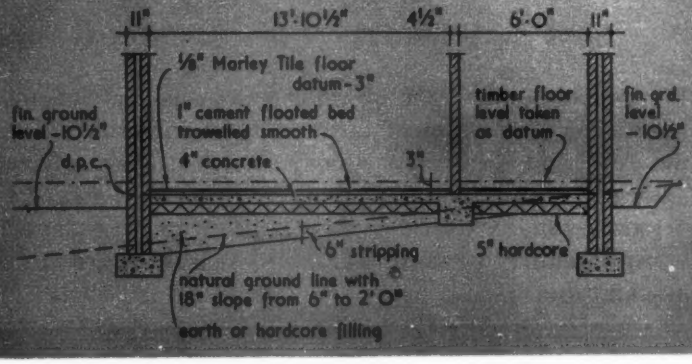
Total for Example A £44 16 0



EXAMPLE C2 For Sloping Site (18" crossfall from front to rear)

38 yds. sup. Excavate, remove and deposit @ 1/1d.		2	1	2	31 yds. sup. 1" screed @ 4/10d.	7	9 10
9½ yds. cube Filling to make up level @ 4/9d....		2	3	11	31 yds. sup. ⅛" Marley Floor Tiles @ 11/3½d. ...	17	10 1
31 yds. sup. Hardcore and blinding @ 3/10d....		5	18	10	6 ft. run Galvanised steel bar as step @ 1/10½d. ...		11 3
31 yds. sup. Concrete bed 4" thick @ 5/10d.		9	0	10	DEDUCT 9½ yds. cube Remove surplus @ 5/-	45	0 11
5 ft. run Form pipe chase @ 1/-			5	0		2	6 3

Total for Example C2 £42 14 8



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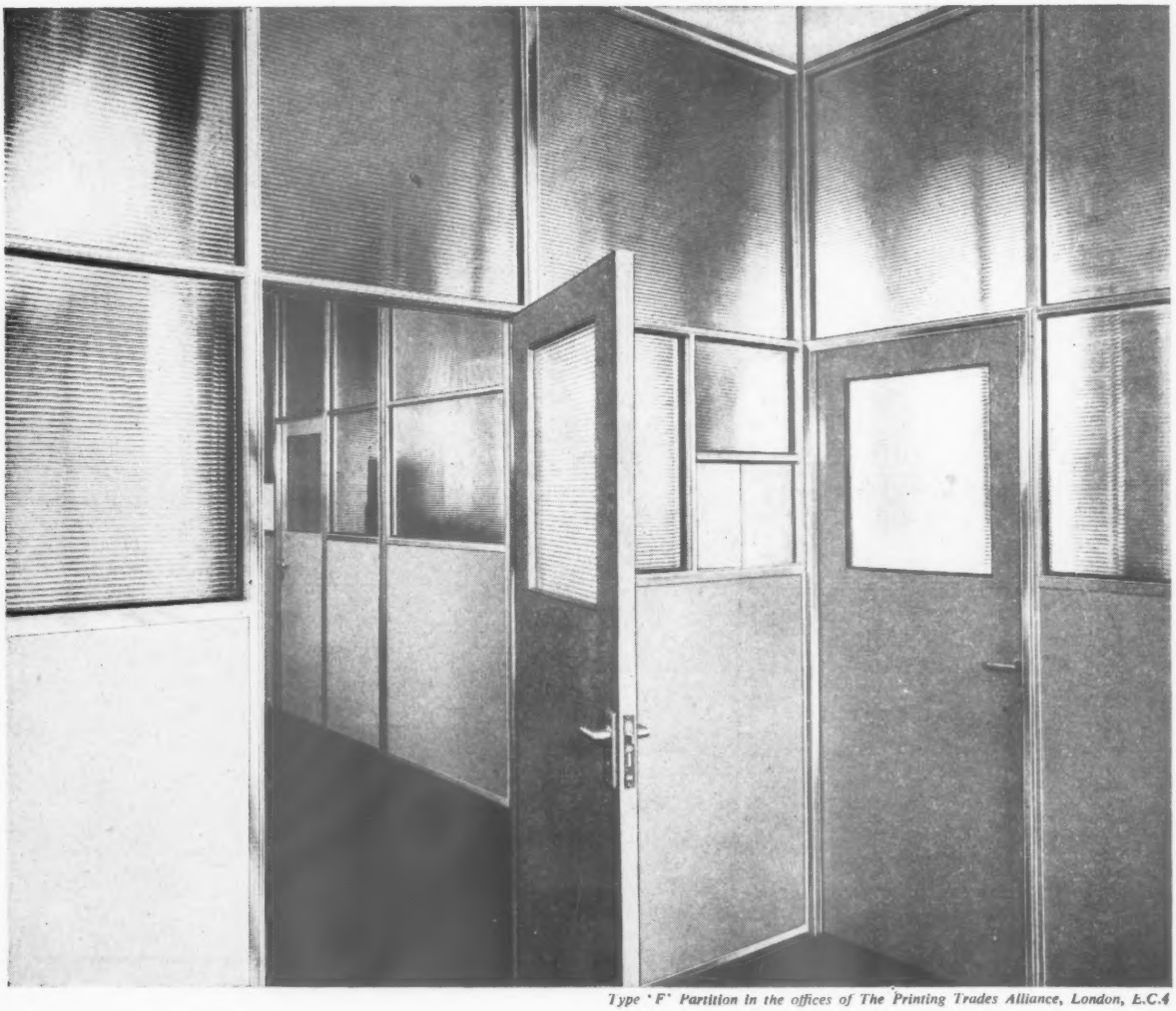

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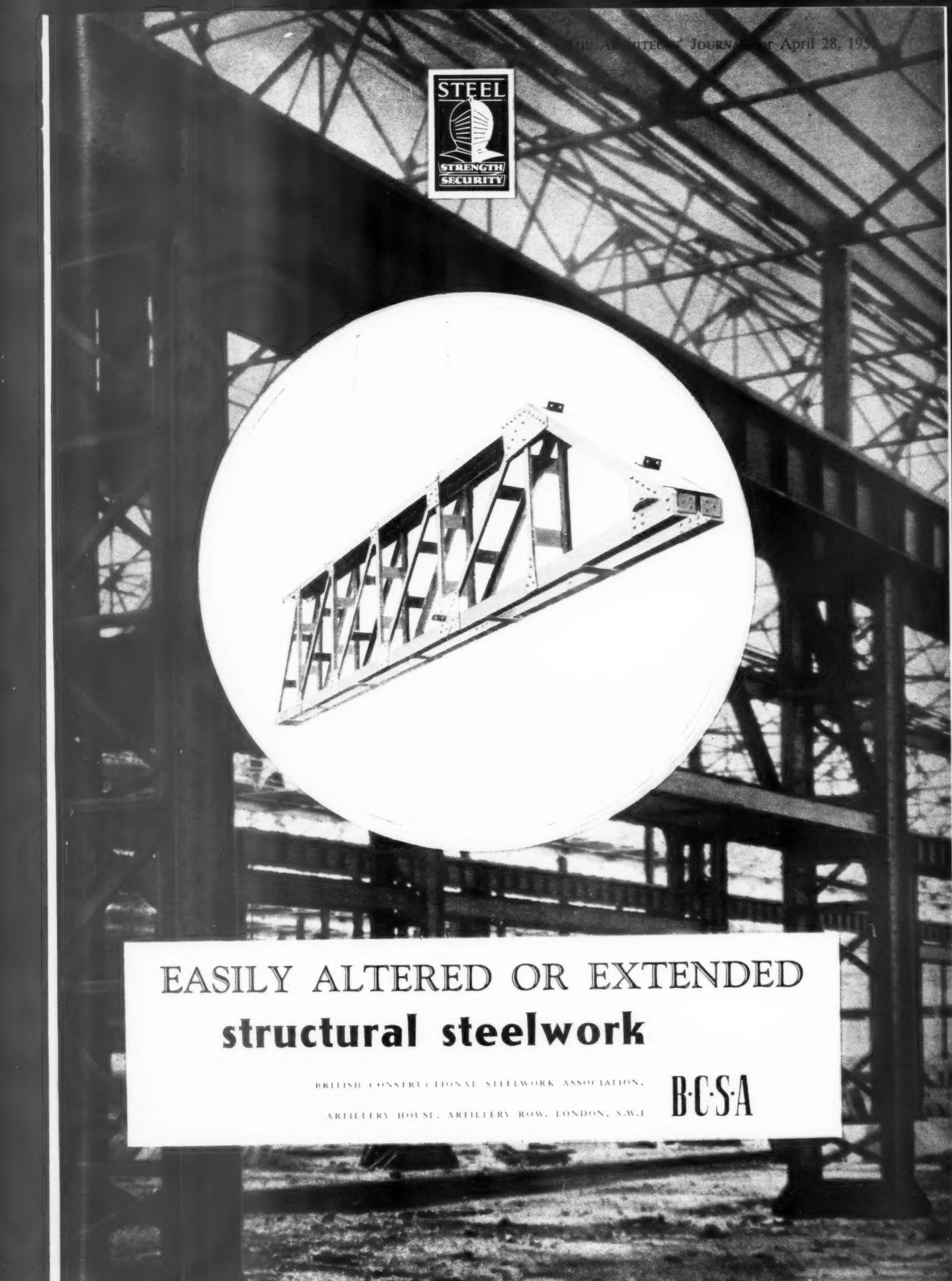

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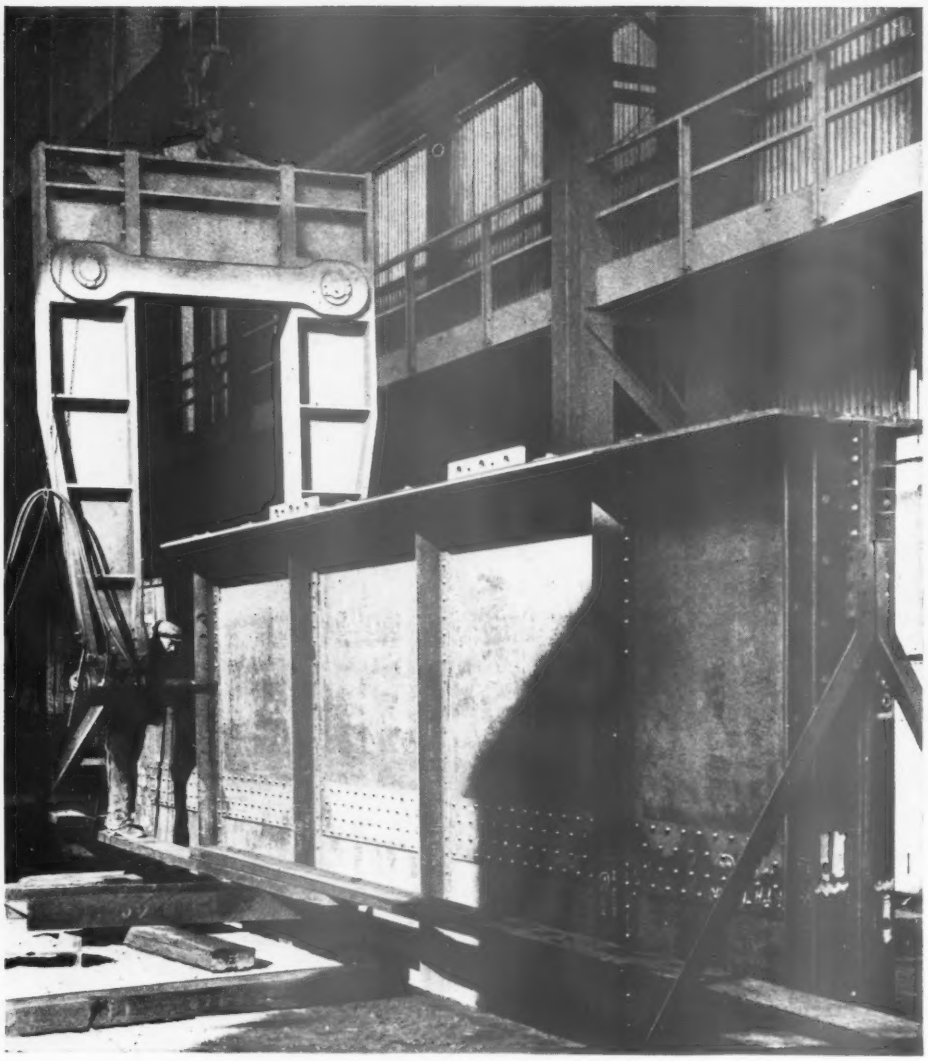

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THE ARCHITECTS' JOURNAL

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MEXICAN ARCHITECTURE

ASTRAGAL, who is always complaining about the dullness of endless exhibitions of photographs of buildings, is pleased to say that he can't grumble about the Mexican Architecture exhibition at RIBA.

*

True, it's an exhibition of photographs again. True, they are mounted on the same old screens. But there is a quality about the architecture itself that breaks through the monochrome convention and practically bulges out into the hall. Just what that quality is it would be difficult to say—something between self-confidence and the best kind of vulgarity, as if our own Victorian forebears had built in the modern idiom. The joy in sheer bulk, the pleasure in adornment, the inventiveness, the sense of drama which one sees in buildings like those on the new University Campus at Pedregal, or the Ministry of Public Works, will really give you a lift, even if they are not buildings you would do yourself.

*

Half of the exhibition deals with the architecture of the past, back through nineteenth-century eclecticism, the Baroque, the Spanish export styles of the Conquistadores, to those fantastic pyramids and platforms of the Aztecs, and those who relish art-historical sport can amuse themselves by trying to trace back themes and devices from the contemporary to Chichen Itza and beyond.

*

Don't forget that this exhibition is to have a short and shifty career—if you miss it at the RIBA you might still catch it at the Building Centre, but if you hurry to see it at Portland Place you might be in time to thread your way through to Little Tichfield Street afterwards and see a vest-pocket show of drawings and photographs of work by Richard Neutra which is being put on by students at the Regent Street Polytechnic.

THREE ON THE THIRD

My colleague, Colin Boyne, will not object, I am sure, if I congratulate him on his adroitness in sitting tightly and rightly on the fence in his third programme talk (last Monday: repeat tomorrow 11.10 p.m.) on the three proposals for the City's Barbican site. (See the JOURNAL for April 7). Instead of coming down in favour of the LCC's high-low scheme, or the City's high and medium-high suggestion, or Kadleigh and Co's super-block, he said he was not convinced that anyone knew anything about central area development, and he asked—quite rightly, in ASTRAGAL'S opinion—for a more scientific study of the problem.

*

It is doubtful, however, whether anyone is prepared to allow the City any more time for research. Nearly ten years have gone by, the essential studies are incomplete, but the empty site is costing the City, it is said, £300,000 a year. The private developers are ready and waiting, so building must start. The most we can hope for is a scheme which hangs together as a visual whole. And if it does not function very well, the City boys will be too used to inefficiency to notice, and the aesthetes so surprised by the flowering of the mistress—if sometimes brutal-art that no one, save JOURNAL editors, will realize that another opportunity has been missed.

*

To which of the three Barbican bodies does ASTRAGAL proffer the planner's apple? Oh, well, every time to the LCC, of course. The balance of power, when they can organize their troops correctly, lies with them, and ASTRAGAL is always treading on the heels of the big battalions.

ARCON'S DEVELOPMENT

Last week, after twelve year's collaboration, the members of the Arcon Development Group celebrated their hundredth monthly meeting (yes, yes, the arithmetic *is* odd; they must have long holidays). To mark the occasion gentlemen of the Press were invited to

see the work being undertaken by the Group's consultants, architects Gear and Thomas. Most of their work up to now has been on prefabricated buildings for export, and the emphasis has been on the complete structure. Now, however, the architects are turning to the designing of interchangeable building components: a much more tricky problem, but a much more worth while one.

*

The Arcon Group are pioneers in the field of architect-manufacturer-builder collaboration, and their achievements demonstrate fairly the advantages to be gained from it. It will be interesting to see how they handle the intricacies of building component production—quite the hardest nut to crack—and how their structural systems will fare in this country, now that both home and export markets are open to them.

ESSEX TREASURES

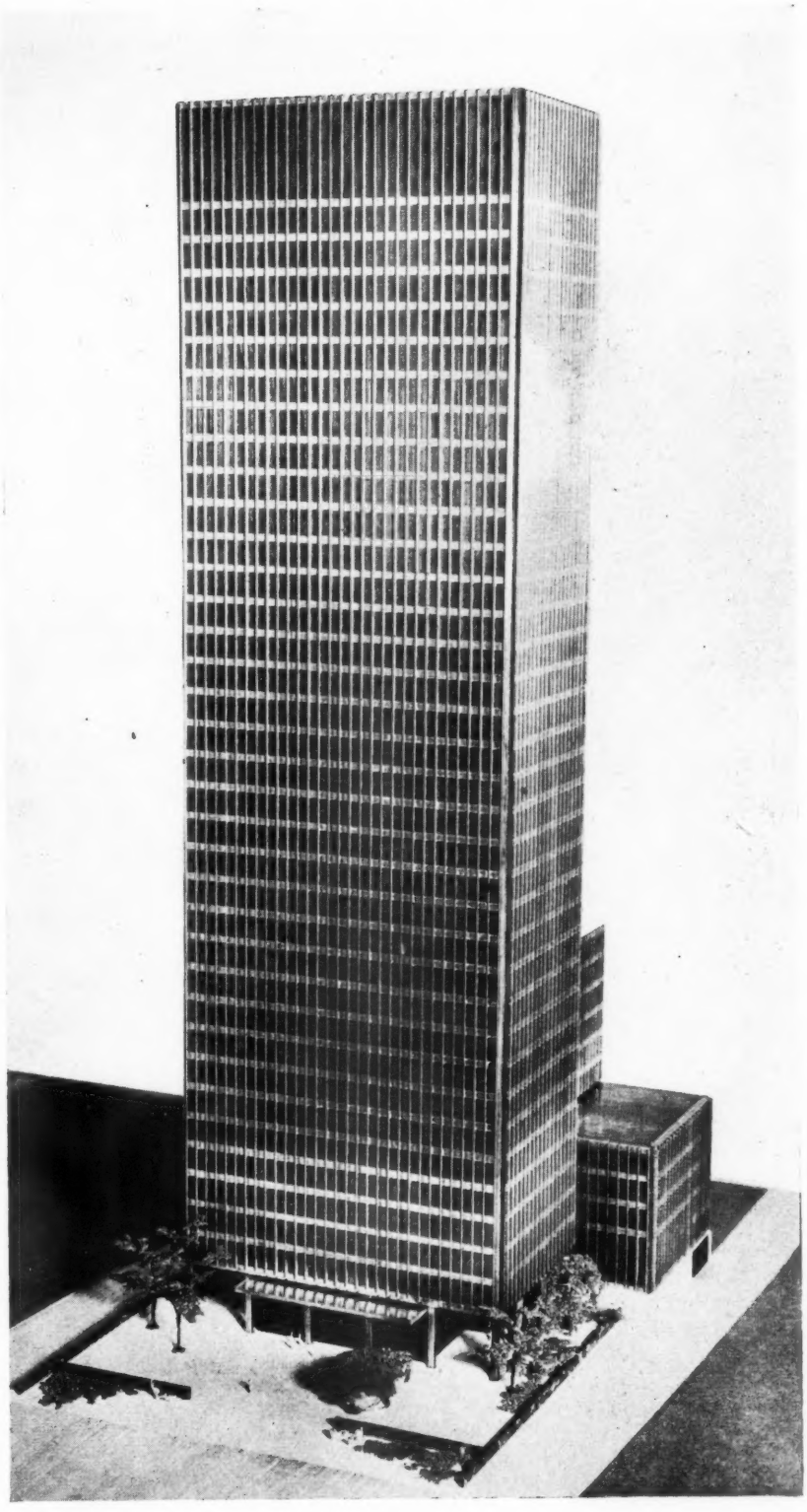
Readers who are in the neighbourhood of Chelmsford between May 2 and 7 shouldn't miss an exhibition that is being held in the Chapter House of the cathedral there in aid of the national "Save the Churches" campaign. Organized by the Friends of Essex Churches, it consist of a collection of art treasures borrowed from churches in Essex, and those whom that description does not sufficiently excite should note that the following are among the objects it is hoped to include.

*

A silver crucifix by Benvenuto Cellini (the only one in England); a Chelsea china *pietà* of 1750, inspired by the Michaelangelo (also unique); a Madonna and Child by della Robbia; the Newport altar-chest (thirteenth century), never before shown complete; its lid only, bearing what is thought to be the earliest known oil painting, was shown at Burlington House in 1923; also any amount of church plate and furniture.

*

It is proverbial that people who travel hundreds of miles to visit foreign museums often know nothing of what is on their own doorstep. Admittedly, to know all these treasures at first hand would normally involve an exhausting tour of Essex. The more reason to take this opportunity of seeing them in one visit to Chelmsford, and at the same time to be reminded how valuable are our parish churches as the storehouses of our history and civilization.



A model of a thirty-eight storey office building for Joseph E. Seagram and Sons, Park Avenue, New York, which will be completed in 1957. The architects for the building which will have floor-to-ceiling glass and projecting mullions of metal are Mies Van Der Rohe and Philip Johnson (associates: Cahn and Jacobs).

New Mexico on View

The new architecture of Mexico, now on view at the RIBA, may easily prove too strong for English tastes, but before we decline the feast as being too highly spiced, we should reflect that while critics and colleges still haggle over the rebuilding of Cambridge, and New Town Corporations board up inoffensive tile murals, the new University at Pedregal has put up a whole campus of buildings like the Medical School (architect: Espinoza) above—all un-embarrassedly modern, and many of them un-ashamedly decorated. Neither the buildings nor the decorations may be suitable for imitation in Britain, but they remind us once more of the lesson that we—with our traditions of genteel taste and gentlemanly compromise—are all too apt to forget: that boldness is the guts of modern architecture. (See also page 582).

LUBETKIN-EYE VIEW

ASTRAGAL'S Scholarly Spy reports a disappointingly thin attendance at SCR's discussion on the new line in Soviet architecture. This, he says, is a pity, because those who did turn up were favoured with a Lubetkin-eye view of the whole development of Soviet architecture since the Revolution, with a full account of the work of hard and soft Constructivists, the Dis-Urbanizers, and goodness knows who else. And they heard about the Congress of 1935 at which the present architectural set-up was established, and of the various things that went wrong with that meeting's pious hopes and finally precipitated Comrade Kruschev's celebrated intervention and the laying down of the new line.

*

A certain amount of new material seems to have come to light in Mr. Lubetkin's discourse. Apparently the architects themselves had already begun to put their house in order at the briefing meetings they held before the Congress last December; and it seems that they feel pretty hard done-by as a result of the wigging they have received, because they had had no option but to follow the line laid down at the 1935 congress and subsequently reinforced by the activities of the Academy in insisting on the continuing relevance of the architecture of the past.

*

We shall probably know how complete the reversed policy may prove to be when an article by Architect Gradov is translated and made available over here. In this article, the Kruschev line is expanded to give not only an increased emphasis on prefabrication and site organization, but also a pretty positive anathema on superfluity of decoration because "Soviet man has a strong sense of Contemporaneity" and "The beauty of Soviet Architecture will lie, not in excess of decoration, but in its proportions, its volumes, the use of textures, and the expression of the walls and structure."

*

ASTRAGAL is just going to slip out and see what Corb's *Three Reminders to Architects* were—something about Volume, Surface, Plan . . . ?

ASTRAGAL

POINTS FROM THIS ISSUE

The Editors

DEMOCRACY IN ACTION

THERE are some signs that sparks will be flying at the AGM of the RIBA which takes place next Tuesday. Every democratic organization provides its members with an opportunity to hear an annual report of its elected governing body and to satisfy themselves by verbal question and answer, that the society is being capably and honestly administered. The vehicle for such a check-up, as far as architects are concerned is, of course, the annual general meeting. There are a number of points on which some members may feel the need for assurance. Here are a few:

First, of course, the problem of the representation, as regards salaries and status, of architects and students in salaried employment. There are about 6,000 members—the majority of those who answered a questionnaire—who are in favour of a trade union "composed wholly or mainly of architects and approved by the RIBA." They may want to know what positive action the RIBA is taking to safeguard their interests following the council's letter to members rejecting, in effect, a trade union. The letter printed on page 566 shows the way the wind is blowing.

Second: education. The McMorran committee has laboured, and the resulting innocuous, faint report may not have convinced everyone that the recruits to the profession are being adequately trained by present technological standards.

Third: as mentioned in the JOURNAL two weeks ago, architects in private practice are feeling compelled to form societies to protect their interests. They are not convinced, it would appear, that the RIBA and the allied societies, as at present constituted, are adequately safeguarding them. This is in part emphasized by the re-emergence of non-architect designed spec. house building and by the fact that a large amount of building work is still being done without the aid of architects.

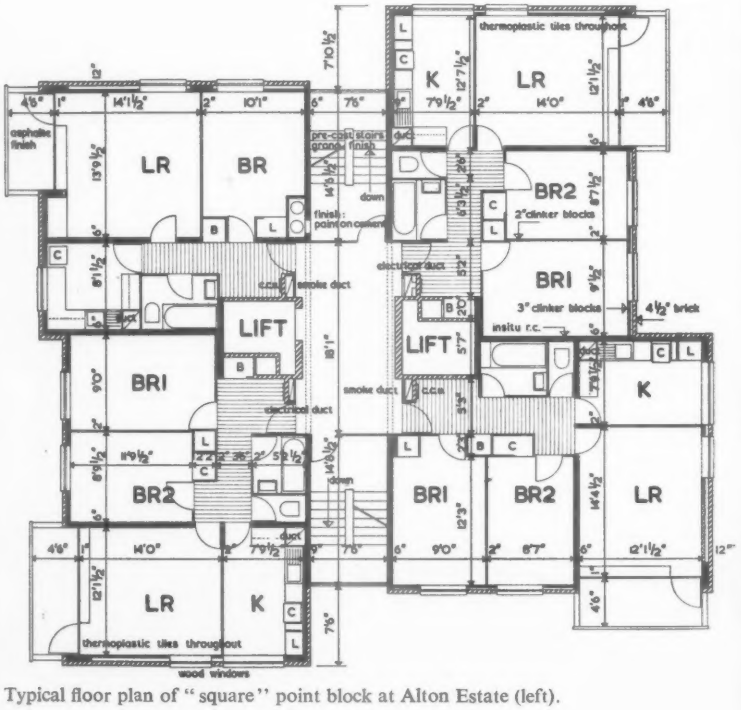
Fourth: discontent has been expressed by some architects about the representation of Fellows, Associates and Licentiates, as principals and assistants on the RIBA council, and the report of the appropriate committee on this issue will be eagerly listened to. There are other matters, of course, but the significant feature is that at a time when the profession is enjoying the fruits of a building boom, a large proportion of architects are dissatisfied with their lot. It is to be hoped that the opportunity to air views frankly will be taken at the AGM and that they will not be left unexpressed through soured apathy. It depends, in the end, on the quality and probity of the dissatisfied members.

As information supplementary to the series of articles by the Guest Editors (Costs), we publish analyses of the cost of two blocks of LCC flats (Architect to the Council: J. L. Martin). It is not possible to give actual cost figures, the cost distribution is thus shown in terms of proportion. One of the more puzzling of cost problems is the price difference between two-storey houses and multi-storey flats—a difference found, allegedly, only in this country. The figures given here do not of course solve the puzzle, but they provide information of a kind not normally available to the architect seeking cost guidance.

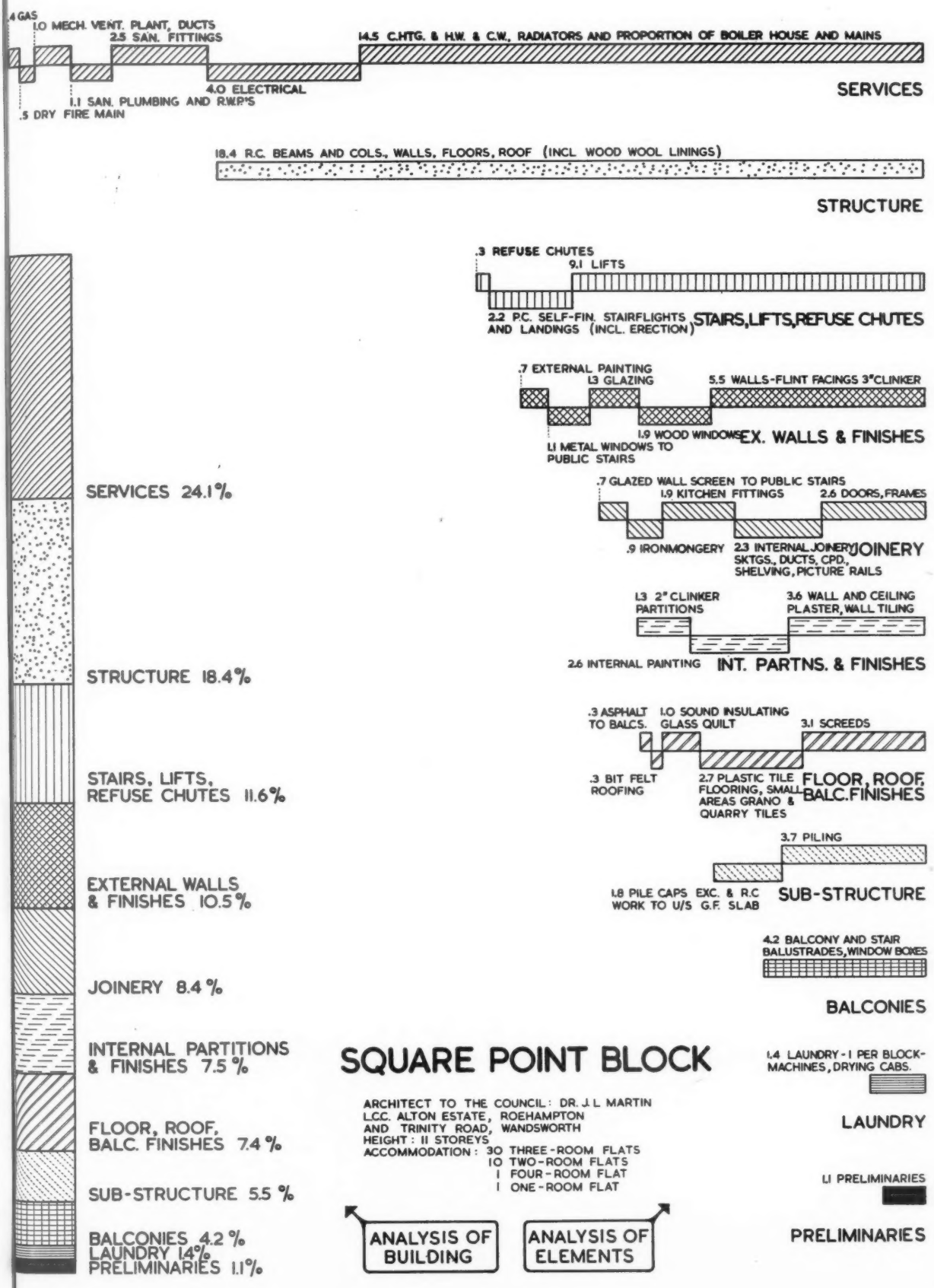
COST ANALYSIS: FLATS

We publish here analyses of two point blocks built by the LCC (Architect to the Council: J. L. Martin) showing the breakdown of each type of block into component parts and the proportion of cost borne by each of these parts. We are unable at present to give the figures in terms of pounds, shillings and pence, but we believe that even in the form of proportions of total cost the figures will be of interest to architects. To become " cost conscious " at the design stage an architect needs to have, first of all, a shrewd idea of the relative cost magnitudes of the elements of the building he is designing. Our diagrams give just this information—*and no more*. They are of value only to indicate to architects, who have not thought about the elements of a building before in terms of cost, just what the relative magnitudes are. This in itself shows, from the point of view of cost reduction, which are the elements representing large components of cost, *e.g.*, structure, stairs, lifts, etc., and which are very small, *e.g.*, ironmongery, painter, kitchen fittings, etc. The architect, who for a variety of good reasons may be trying to introduce a proportion of tall flats into a scheme of mixed development, can at least see which are the main elements of cost that it will pay him to attack.

" Square " point block: *Eleven storeys high, with 42 flats per block. Each typical floor has three 3-room flats and one 2-room flat. The ground floor contains one 4-room flat, one 1-room flat, tenants' stores and laundry. The structure consists of reinforced concrete load-bearing walls and floors, with column and beam peripheral walls. Cladding consists of brick-cavity-clinker panel walls, carried on edge beams. Heating and hot water are supplied by a coal-fired central boiler-house, with medium pressure mains serving a number of blocks. The bathroom and w.c.s occupy the centre part of the block and are ventilated by mechanical extract fans, situated on the roof, which draw air from small grilles at ceiling level in the flats, through small branch ducts into two main vertical ducts, each of which serves two flats per floor. See analysis opposite.*



Typical floor plan of " square " point block at Alton Estate (left).

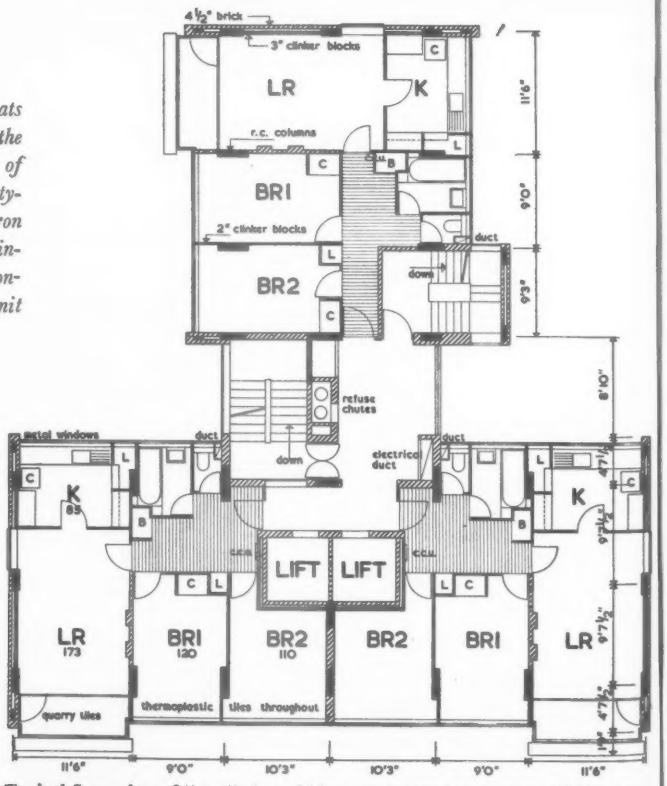


The vertical column on the left, representing the total cost, shows the proportion of that total taken by each element. Each element is shown on the right in a more detailed breakdown.

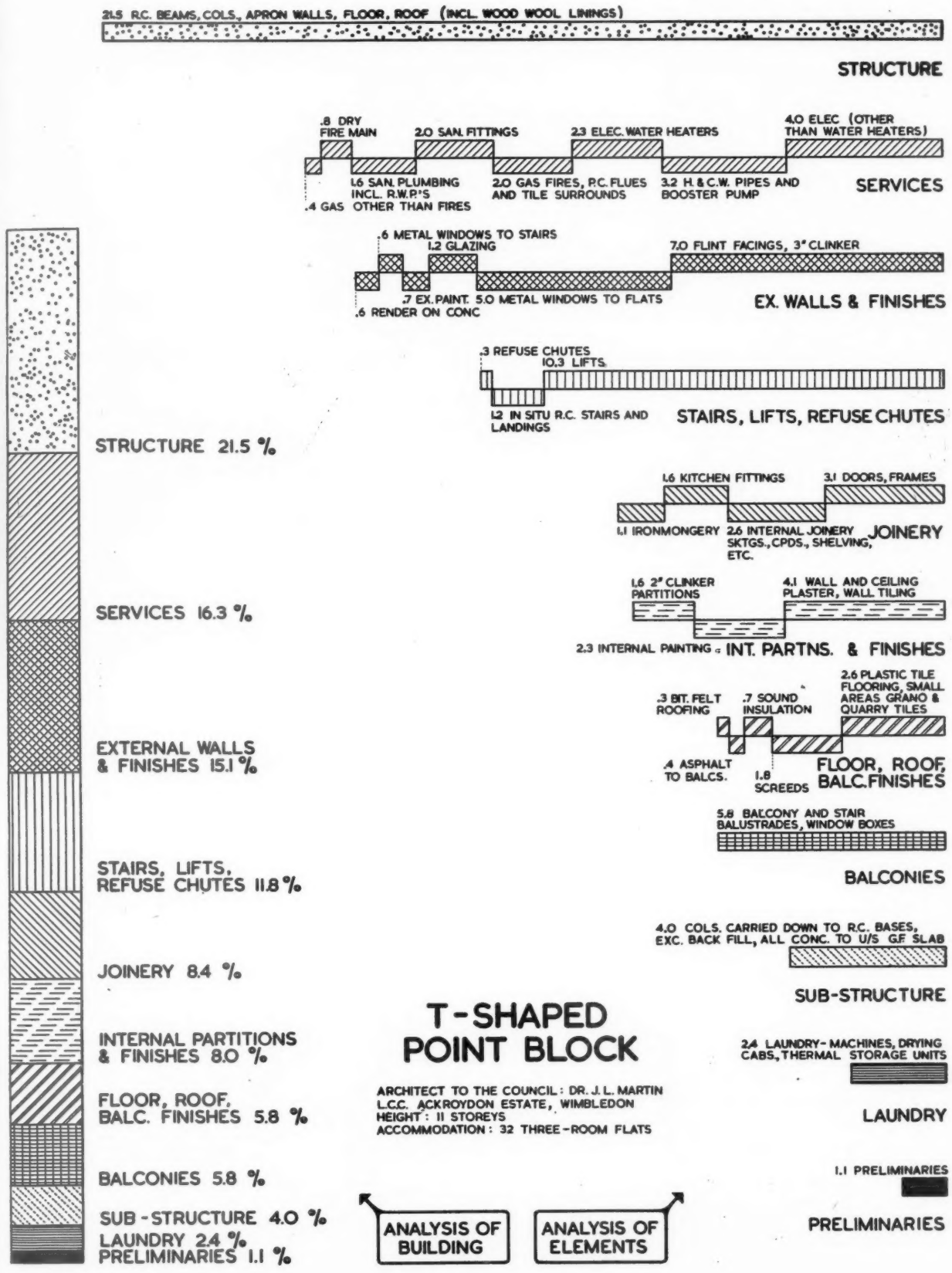
The two diagrams also show the limitations in any attempt to make comparisons on the basis of percentages. In the square block the "services" component is exceptionally large because of central heating and, conversely, in the tee-shaped block it is unusually small because the flats have only individual gas fires and flues for space heating. The high percentage represented by the "services" in the square block, however, "compresses" the percentages of cost represented by the remaining items which, therefore, appear to some degree smaller than they should compared with similar elements in the other block. In other words, one should be wary of attempting to make direct comparisons on this basis between elements of buildings which are to any marked degree dissimilar in design. Again, if the number of flats per block were doubled, one would expect the proportion of costs represented by static elements—say, public stairs or lifts—to be greatly reduced (if only two stairs and two lifts were still provided). In the two instances given the "lift" component is, as one would expect, proportionately greater in the block with only 32 flats than that in the block with 42 flats. On the other hand the public stairs in the former are, surprisingly, proportionately less than those in the larger block, perhaps because they are smaller and of *in-situ* concrete (those in the square block are pre-cast).

A point worth noting, even after making allowances for the differences just mentioned, is the considerable reduction in relative cost of "external walls and finishes" in the square blocks as compared with the tee-shaped block. This reduction was intentionally designed for by the architect, and more than offsets the adding back of "mechanical extract ventilation" for the internal bathrooms and w.c.s in the square block.

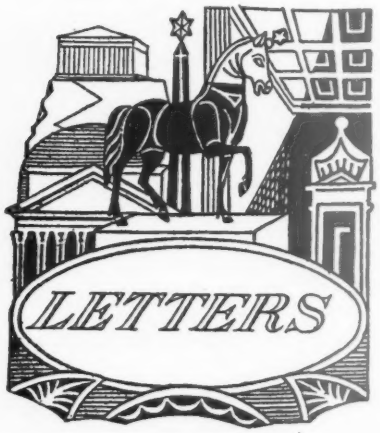
"Tee"-shaped point block: *Eleven storeys high, with 32 flats per block. Each typical floor contains three 3-room flats. On the ground floor are two flats, plus a laundry. The structure consists of a reinforced concrete column and beam frame, with brick-cavity-clinker "gable end" walls and a 4-in. reinforced concrete apron wall, lined with 3-in. wood wool, under the continuous metal windows to the longer elevations. Space-heating is by individual convector-type gas radiators, water heating by individual electric unit heaters. Bathrooms and w.c.s are naturally lit and ventilated.*



Typical floor plan of "tee"-shaped block at Ackroydon Estate, Wimbledon (photo above).



The vertical column on the left representing the total cost, shows the proportion of that total taken by each element. Each element is shown on the right in a more detailed breakdown.



Stephen Gardiner, A.R.I.B.A.

Denys B. Coombe, A.R.I.B.A.

T. M. Williams and

C. G. L. Shankland, A./A.R.I.B.A.

Open Competitions ?

SIR,—What has happened to open competitions?

I think I am right when I say that in the last year there has not been one important competition held. (There may have been a crematorium, I'm not sure.) In the last two years there may have been a couple (one was most certainly abroad). Since the war I should say there have been about eight important ones in all; while before the war there were, I understand, as many as 30 a year. In Switzerland, today, there are about that number and the same is true, I believe, of Denmark and Sweden.

It is for this reason, I imagine, that the standard of architecture is, on the whole, higher in those countries than it is over here, since the purpose of a competition is to find a really good solution to a particular, and important, current problem—to find a really good building. And what do we notice about these eight competitions held since the war? Two of them—the Crystal Palace and Dover—were, admittedly, wash-outs. A third was won by an established firm of architects. Of the other five, however, four identified four new firms of architects and one gave us what was, undeniably, the most exciting exhibit in the Festival of Britain—the Vertical Feature.

Of these four new firms, three have produced, or will produce, five buildings—I refer to the authors of Pimlico, Hunstanton, Golden Lane—which, had not competitions been held, we should probably have been without. And that is not all: we should also have been without those other fine buildings they are bound to produce and that vital influence these will have on architects who have been in practice far longer. Here, surely, is the most valuable *raison d'être* for competitions. For while it is true that many jobs seldom go to the best architects (the method of judging the best architects being absent) and all opportunities for some (who have no "contacts" or "connections") are completely removed (a deplorable thing), it is equally true to say that without competitions all the life in architecture will be, as a general rule, quietly and efficiently smothered.

London. STEPHEN GARDINER.

BBC Forgets The Architects

SIR,—I wonder how many architects listened to a programme, broadcast by the BBC at 7.45 p.m. in the Home Service on Friday, April 15, entitled "Buying a Home."

The programme (much of which was excellent) lasted for 45 minutes and we were given advice by the President of the RICS, an estate agent, a solicitor, a representative of the building societies, a plumber, and a spec. builder on all aspects of buying or building a house. During the whole of the programme the word "architect" was not mentioned once. This raises two questions:—

1. Was the RIBA given prior notice of this programme and if so why did not a representative take part in it?

And 2. If the RIBA was not informed, what steps (if any) does it intend to take to ensure that in future programmes the architect receives at least the same publicity as the spec. builder?

This is no isolated case of the architect being overlooked. Time and time again one reads reports in the Press of new buildings being opened by notabilities but how often is the architect's name mentioned? Just recently the BBC reported that the new buildings at London Airport were coming into use but Frederick Gibberd's name was omitted. We are not allowed to advertise ourselves individually so surely we are entitled to look to the RIBA to ensure that our profession has a proper place in the mind of the public and to take every opportunity of keeping it there.

DENYS B. COOMBE.

Middlesex.

RIBA To Be Asked To Think Again

SIR,—In its letter to members on January 4, the RIBA Council indicated that it could not support either the views of its Salaried and Official Architect's Committee or those expressed in the replies to the questionnaire on the representation of members in salaried employment.

There is no doubt of the disappointment that this has caused, for it clearly failed to express the views of a large body of members. It is our opinion that if the Institute is to represent a united profession these decisions must be reconsidered.

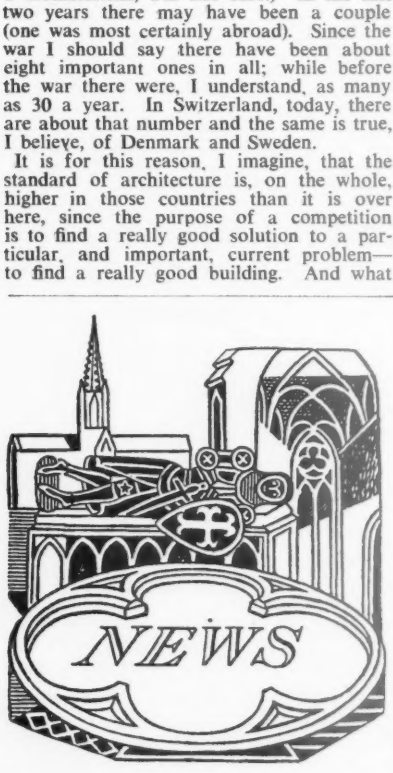
The ordinary member can still decide whether this is to be so or not. At the Annual General Meeting on May 3 it is our intention to move the motion given below. We hope that by this means not only will the Council learn of the feelings of the members, but that the members themselves will be able to participate in the formulation of a policy vital to the interests of the whole profession.

The motion is that:—"This Annual General Meeting of the RIBA does not support the Council's decisions concerning the representation of members and students in salaried employment as set out in their letter of January 4. It instructs the Council to reconsider these decisions and bring forward fresh and definite proposals in line with the majority opinion of those who replied to the questionnaire."

T. M. WILLIAMS, C. G. L. SHANKLAND.

London.

[See leader: page 561.—ED.]



EXHIBITION

Lighting and the Architect

The British Thomson-Houston Co. Ltd. have arranged a small exhibition at Crown House, Aldwych, W.C.2, on "Lighting and the Architect." It shows lighting systems which have been designed to fit in with different types of construction, including the new "Module" recessed lighting for suspended ceilings, "Invertrunking," a luminous ceiling and a fitting designed for insertion in a shell concrete roof.

The exhibition will remain open until the end of August from 9 a.m. to 5.30 p.m., Monday to Friday.

AA

Leverhulme Scholarship

The Leverhulme Scholarship, tenable at the AA School of Architecture, London, value £2,000 (including payment of fees and maintenance for five years) has been awarded this year to Andrew W. Anderson (City of Norwich Grammar School).

ITALY

International Competition

The Italian town of Cantu is sponsoring a large international furniture competition, with a panel of judges which includes Geo Ponti, Alvar Aalto, Finn Juhl, Romano Barocchi, and Carlo de Carli.

Competitors are asked to submit room plans and designs of furniture to scale, with life-sized details, for one or more of eight categories.

Three prizes of varying amounts are offered in each section, ranging from L 1,500,000 to L 200,000. (The present rate of exchange is L 1,700 to the £.)

Entry forms must be submitted to the organisers by May 10, and plans must be consigned by May 25. Further details may be obtained from Prima Mostra Selettiva e Concorso Internazionale del Mobile, Cantú, Italy.

DIARY

Building for the City. By Colin Boyne, Executive Editor of THE ARCHITECTS' JOURNAL. BBC Third Programme. 11.10 p.m. APRIL 29

Photographs and Drawings by Richard Neutra. Exhibition arranged by the Society of Student Architects. At the Polytechnic, Little Tichfield Street, W.1. Monday to Friday 10 a.m.-5 p.m. UNTIL APRIL 29

Mexican Architecture. Exhibition at the RIBA, 66, Portland Place, W.1. Monday to Friday 10 a.m.-7 p.m. Saturday 10 a.m.-5 p.m. UNTIL MAY 2

Annual General Meeting. At the RIBA, 66, Portland Place, W.1. 6 p.m. MAY 3

Prendergast and Woodbury Down Schools. Informal illustrated talk by G. F. Horsfall (Assistant Schools Architect, LCC) in connection with the visits to the schools on May 7 and May 14. At the AA, 34, Bedford Square, W.C.1. 6.15 p.m. MAY 4

TECHNICAL COLLEGE

in MISKIN ROAD, DARTFORD, KENT

E. T. ASHLEY SMITH, County Architect, in succession to S. H. LOWETH

S. H. GARNHAM WRIGHT, Group Leader, G. G. GRYLLS and W. A. SHIRBON, assistant architects

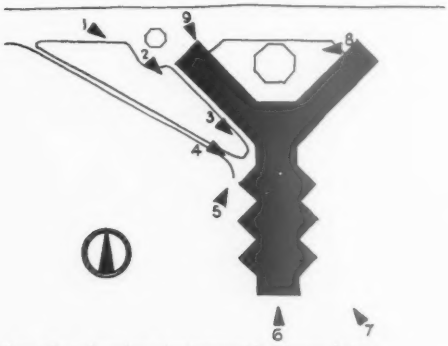
consulting engineers, structural, MALCOLM GLOVER and PARTNERS

mechanical and electrical services, J. STINTON JONES and PARTNERS

quantity surveyors, J. LEANING and SONS

Phase I of the North-West Kent College of Technology, at Dartford, is now complete. It comprises laboratories, lecture theatres, classrooms, library and ancillary rooms. Parts of the building were discussed in the JOURNAL for October 7 last year. It is interesting to note how a part-use of a module has affected the appearance of the building. A certain amount of prefabrication was necessary when the building was constructed because of a labour shortage in the district, but the architect did not design for a complete use of the module and, consequently, both the acceptance of the module and the denial of it are expressed on the building.

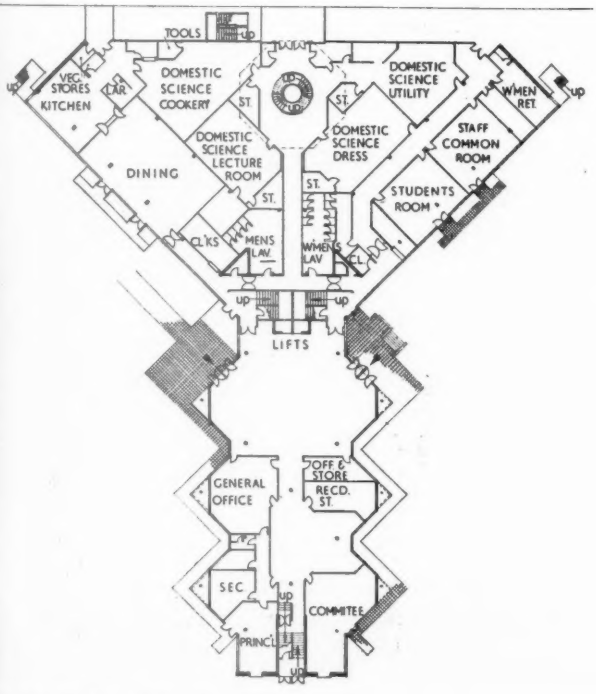
Phase 1 of the college from the north-west. Viewpoint 1 on key plan overleaf.



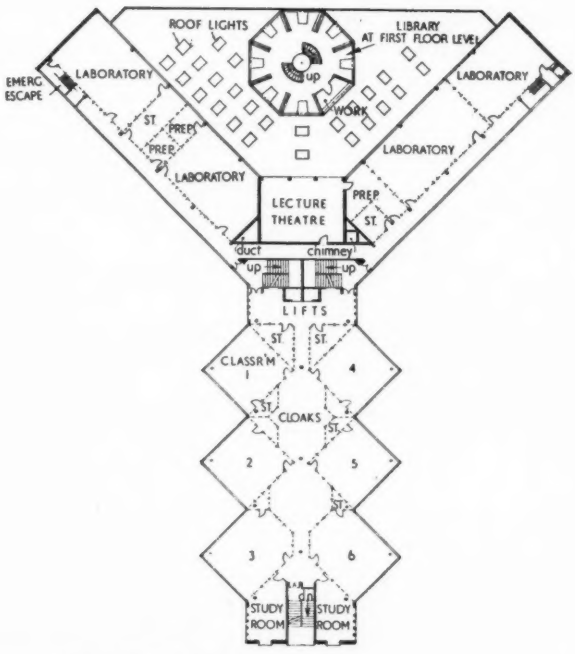
Key plan showing photographic viewpoints

Because there was an acute labour shortage in the Dartford area when this school was built, the architects decided to make use of the module. But they used it only in parts of the building. In the photograph on the left (viewpoint 2 on key plan) the wall nearest the camera is the non-modular end wall to a laboratory wing. (There are two laboratory wings: see plans opposite.) The laboratories, which are contained in the 25-ft. structural span, are oriented north. Access corridors, cantilevered from the main structure, face south. Borrowed light between corridors and laboratories raises the daylight factor to the client's requirements. Below (from viewpoint 3): one of the junctions between classroom wings and laboratory wings. At each junction there is a main entrance (seen here). This photograph shows clearly the neatness of the 50-in. prefabricated cladding components, composed of aluminium-alloy frames, with glass and laminated cellular self-coloured plastic infillings. These arrived on the site complete and were quickly placed in position by two operatives. The link between the two wings is a non-modular in-situ concrete screen. Its purpose is solely to emphasize the division between the two wings.

This canopy (viewpoint 4) is hung from a castellated RSJ of the same section as those used in the floor construction and is supported on columns made up of non-modular concrete cladding blocks, laid horizontally. The lower panels of the non-modular concrete link are filled with concrete screens, pierced to required shapes and filled with coloured glass.



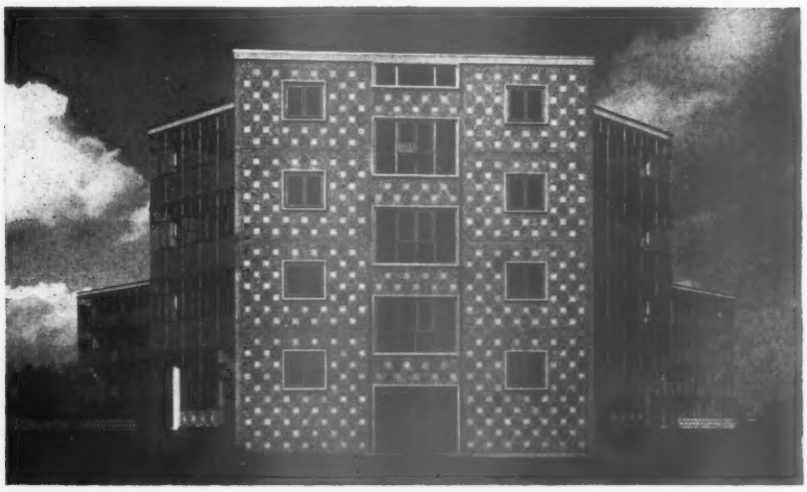
Ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]



Typical upper floor plan

Right (viewpoint 5). This photograph shows the west laboratory wing and part of the entrance canopy seen in the previous photograph. On the ground floor vertical dimensions are non-modular and concrete cladding panels are again used. Behind the centrally placed floor to ceiling glass cladding on the laboratory wing is the dining room, which is served by a kitchen at the northern end of the wing and also by a servery hatch from the present domestic science department.

Below (viewpoint 6), the elevation, du e south, of the non-modular end wall to the classroom block with the two laboratories on either side in the background. Behind this elevation are, on the ground floor, administration rooms and on other floors private study rooms. The centre windows, with alloy opening lights, teak subframes and concrete surrounds, light the in-situ concrete staircase.



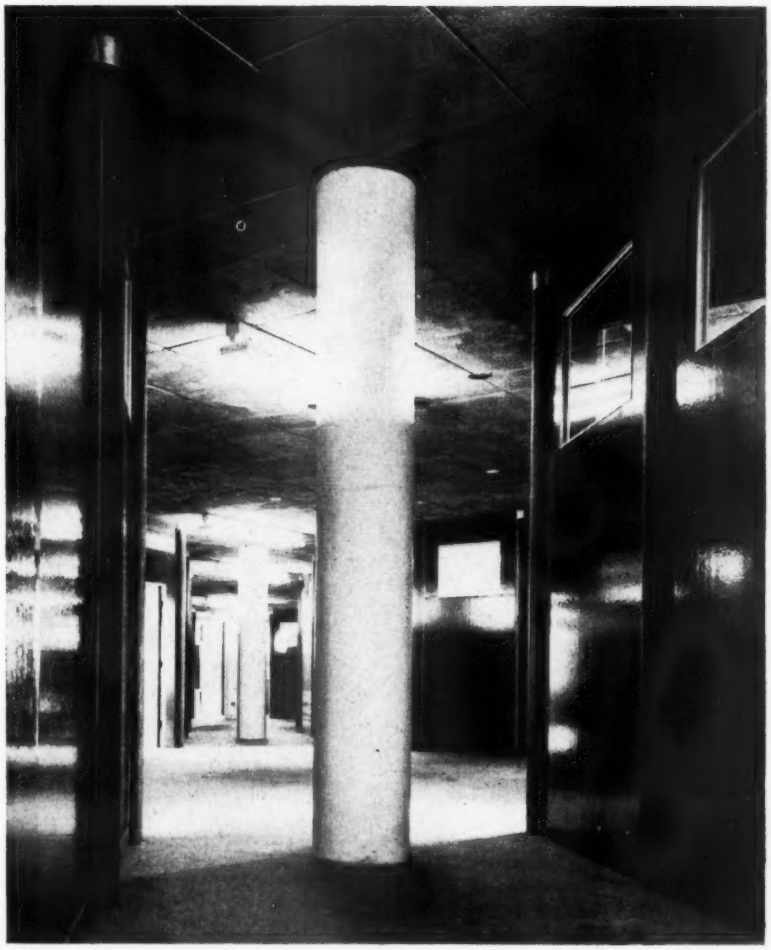
Below, (from viewpoint 7), the classroom block on the left and one of the laboratory blocks on the right. One of the planning considerations has been the need for vertical extensions to be built in a later phase, the structure has therefore been designed accordingly. Its slenderness, and consequent saving in material, is apparent in this photograph and is due to the lightness of the internal and external cladding. The temporary roof is of bituminous felt in layers, laid on compressed straw paper covered decking without falls.

The structural plan of the classroom block, based on the 50-in. module gives a 25-ft. square grid of concrete clad steel columns. The cladding, also 25 ft. square, oversails the structural grid asymmetrically, to give internal corridor space either side of the shared central structural column. This gives an added advantage in that no internal cladding need come in contact with a stanchion. Floors are constructed with castellated steel beams at 8 ft. 4 in. centres, pre-stressed pre-cast concrete joists at 2-ft. centres and pre-cast concrete floor slabs. All services can be accommodated in either direction in the cavities inherent in this construction.

Right (viewpoint 8): In this photograph can be seen the single-storey domestic science rooms roof, the library octagon and one of the laboratory wings. Lecture theatres are housed behind the facade on the left. The library roof is constructed with eight castellated RSJ's welded to castellated stanchions and supporting concentric tee section ribs, carrying woodwool slabs upon which is laid the bituminous felt. The ribs do not meet in a central boss, but are stopped before the central dome-light and supported on circular steel columns. These are carried by a circular 9-in. hollow brick drum.

Below (viewpoint 9): looking east, from the drive-in, at the ground floor domestic science rooms and the library octagon. On the roof above the lecture theatres and central ducts is the tank room, which houses two MS sectional tanks, each holding 1,600 gallons. Because of the planning provision for vertical extension, the tank room is a temporary structure clad with self-coloured, brown, corrugated, plastic sheeting. In the centre of the photograph is the entrance to the basement boiler room; the flue to the boilers rises in one of the ducts at the side of the lecture theatres.

Right: the second floor cloak and circulation space in the classroom wing. The cladding grid, 25 ft. square, asymmetrically oversails the 25-ft. square structural grid by the minimum corridor widths on either side of the column in this photograph. Cellular, laminated-plastic panels are secured to the floor and ceiling by spring-loaded jacks, located behind the removable metal strips at the top and bottom of each panel. These prefabricated assemblies can form a straight wall, being joined at 48-in. centres by a small aluminium extrusion. At any change in direction or at the junction of three or more panels a 5-in. diameter spun-asbestos-cement pipe, also secured by spring-loaded jacks, separates the panels, the joint being completed by a rubber channel secured to a timber strip in the panel. Damage to floors and ceilings by the jacks is avoided by the use of large rubber washers, which also complete the joint. It can be seen, that the vermiculite concrete ceiling panels, which are secured to pre-cast, pre-stressed concrete joists by galvanized steel " Z " straps, have been slightly deranged by the jacking process. Glossy, dark, plastic panels, dark floors and ceilings and small bright areas of clerestory lighting give a low daylight factor and bad glare conditions.



Below: each suite of laboratories is served by a lecture theatre and a group of classrooms—one is shown below—on the same floor. Each classroom has two external glass walls and two plastic partition walls, giving a square room, connected point to point with the next classroom. A store (the door of one can be seen in this photograph) provides a sound barrier between rooms. The two glass walls were required to give the requisite 2 per cent. daylight factor with a 9-ft. floor-to-ceiling height. This means that either class or teacher must be facing a daylight surface, no matter how the rooms are organized, and this is hardly an ideal condition. Theoretically the plastic panel partitions can be erected anywhere—and face in any direction—in the classroom wing. There are, however, factors which must be taken into consideration in any re-organization of planning which will considerably limit the theoretical flexibility.

Below: smoke-check doors between a laboratory wing corridor and one of the main staircases. Stiles are in softwood covered with teak-faced plywood; rails are in teak and glazing bars are sycamore. The cupboard to the left, in Limba hardwood, houses the hose reel and fire extinguishers, whose red colour can be seen through the symbolic triangle cut in the door.

Below right: laboratory wing corridor, cantilevered from the main structure. There is a duct space above the vermiculite plaster ceiling, along which run the heating pipes to the externally-slung fan-convector heaters: the grilles of these can be seen in the plastic panel below the windows. Heating units, normally accommodated between columns on an external wall, would have necessitated greater circulation-space floor area had they been placed internally. The door at the end leads to the fire-emergency stairs.

Below: the casing to a typical fan convector in one of the classrooms. A damper control permits a flow of external air, if required, through a grille in the external cladding behind the heater. Unheated air can be circulated in the summer. These heaters, which concentrate the service in one unit, were used in preference to numerous smaller appliances which require a greater overall floor area. Because the classroom walls are entirely glass or plastic it was necessary to fix the clock to the column casing, this being the only available surface to which anything can be attached.

Below: Close-up of the emergency fire door, showing the junction of the *in-situ* ceiling with the prefabricated, cellular, laminated-plastic partition. A decision to use certain wet processes in a predominantly prefabricated project must involve very careful consideration of detailing at the junction of the two processes for two different sets of techniques are involved.

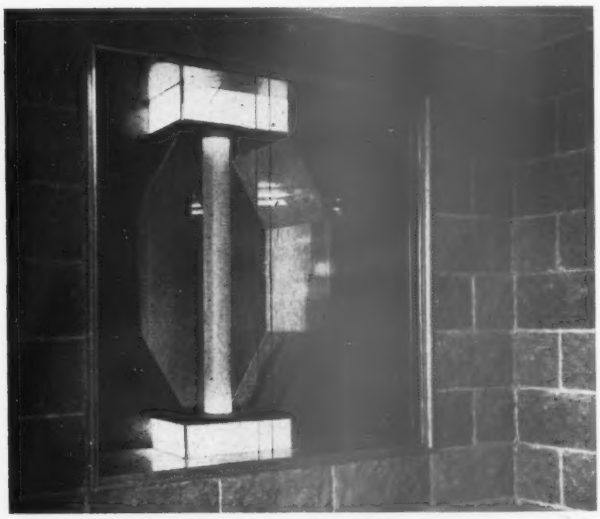
Top right: part of a third-floor chemistry laboratory. The fittings, all made to the architect's design, are constructed of Limba hardwood, Limba-faced plywood and Iroko for the bench tops. Drawer pulls are of African walnut. The sets of drawers and cupboards under the benches can be removed and are interchangeable with similar fittings elsewhere in the college. Fume cupboard extracts are taken through the roof, but when further floors are added, in a later phase, extracts will be carried in trunking through the false ceilings in the corridors to external window ventilators. Bench troughs are *in-situ* welded, white PVC.

Above: in the third floor research chemistry laboratory, benches were required to be movable and yet to carry complete services of gas, water, electricity, and wastes. Special units, with flexible service-pipes attached, were designed for this laboratory, and services have been laid to various points in the floor and covered with removable plates. The three taps under the reagent shelf are water-supply, with a PVC trough below, covered with removable Iroko plates.

Left: The demonstration bench of a typical lecture theatre. To the left of the door is a double-opening fume cupboard to the preparation room behind; to the right is space for the screen of a back-projecting epidiascope. The bench top is in Iroko, the bench front is of Limba, and seating of Limba-faced plywood. The handles at the back of the seats are used to lift writing surfaces which pull up and over and rest on the knees. The structure is painted in Archrome N.8 (approximately pale grey). The rear wall of the theatre is faced with fibre board on battens for acoustical reasons.

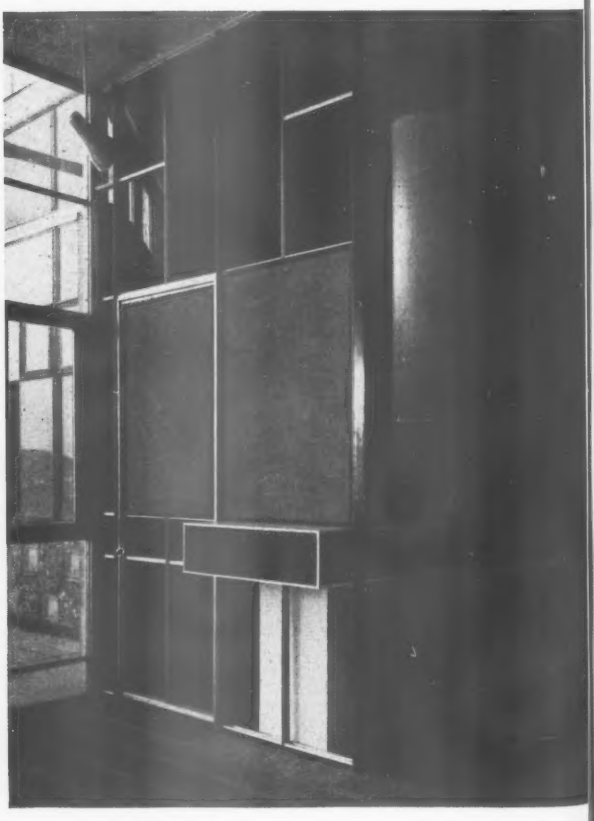
There are two showcases, such as the one seen below, on every floor, in the wall between the stair well and the circulation areas in front of the lifts. These walls are of cement-sawdust blocks, with a fair-faced rock finish and mortar joints. Passing through the show cases are 4-in. translucent polythene pipes, sweated on to the CI pipes above and below, and carrying rainwater. The frame round the pipes is of Limba hardwood, the internal side linings in Limba faced plywood and the infilling around the frame is hardboard.

Bottom: looking up to the library from the single-storey section circulation area. The r.c. treads are cantilevered from the 9-in. brick drum which contains a small library store at ground floor level and the librarian's control point above. The drum is plastered and painted. It is intended, during a later phase, to work a scraffito mural on the plaster of the drum.



The photograph above shows a cookery room in the domestic science section, located in the single-storey structure between the laboratory wings. The layout is temporary, as this area will provide sanitary and cloaks accommodation when the school of domestic science is built in phase III. The 4½-in. in-situ concrete slab roof is vermiculite-plastered internally to increase thermal insulation and to absorb cooking condensation. The walls are self-coloured, dark olive green plastic, with ceilings and columns Archrome N.9 (approx. off white). Toplights are non-ventilated, corrugated, curved clear acrylic sheet on concrete upstands.

Below: one of the two entrance-hall enquiry desks. The unglazed screen for notice boards is constructed of the aluminium alloy extrusions used for the external cladding assemblies. The desk is constructed of softwood carcassing, covered with sheet plastic with aluminium cover strips at joints. The textured panels below are non-modular concrete external cladding blocks, faced with local flint.



CLIENT'S BRIEF: his stated requirements

A new regional Technical College at Dartford for full-time day, part-time day, and evening students, to be planned according to a schedule of accommodation presented by the Kent County Council Education Committee, and with provision for future development and extension. The school playing fields, which provided the site, were to be preserved as far as possible. The phasing of the building was an MOE requirement.

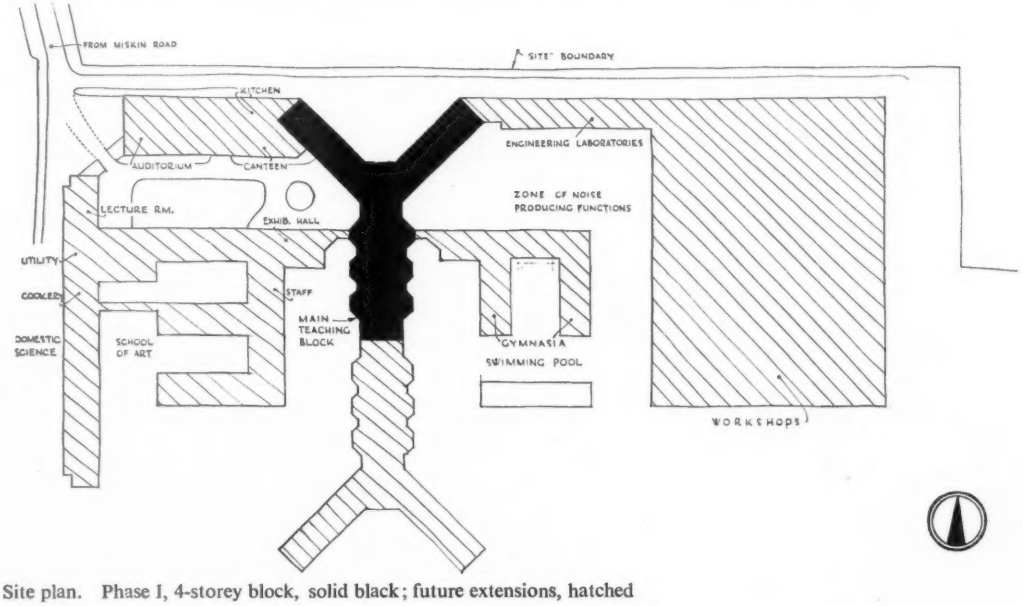
An analysis of the user requirements was made, based upon research which was carried out by the Group responsible for the College. The enquiry was conducted in two main categories: *a*. An investigation of the work of existing technical schools in the County and in Technical Colleges and Universities elsewhere, and *b*. An investigation of existing specialist accommodation in industry, such as laboratories for large industrial concerns, and recently built factories and workshops.

The influence of this research resulted in the adoption of several basic planning standards, *i.e.*, university type layout, internal flexibility, layout of laboratories and workshops, all of which were discussed at length with the future principal and his staff.

SITE: topography, surroundings, access and planting

The college is built on high, open ground—existing school playing fields which are reasonably level in the N.W. corner and slope east towards the eastern boundary, while at the south boundary there is an abrupt fall to the road below. The college is required to serve the town and was therefore required to be as near as possible. The only site large enough to take the project was the playing fields and the architects were restricted to a strip on the northern boundary 250 ft. by 800 ft.

To the east there is an existing County Modern School, to the north low density housing and to the south uninterrupted and extensive views. The sub-soil is chalk and ballast, of good load-bearing properties, offering no difficulties to foundations or drainage. Access was required from two directions of equal importance. 1. In the north-west corner from high level Miskin Road; a pleasant approach through wide streets off main roads. 2. In the north-east corner through narrow streets at low level; nearest the town centre, bus station, railway, etc. New planting will be restricted to shrubbery and turfing about the buildings and in the quadrangles. There is an existing orchard at the eastern end of the site.



Site plan. Phase I, 4-storey block, solid black; future extensions, hatched

PLAN: general appreciation

The analysis of requirements pointed to two distinct types of accommodation. 1. Repetitive units with heavy service requirements, leading to multi-storey construction which was compatible with site restrictions. 2. Non-repetitive accommodation with heavy floor loading which pointed to single-storey construction. The latter group was divided into two sections, a noise-producing group and a quiet group.

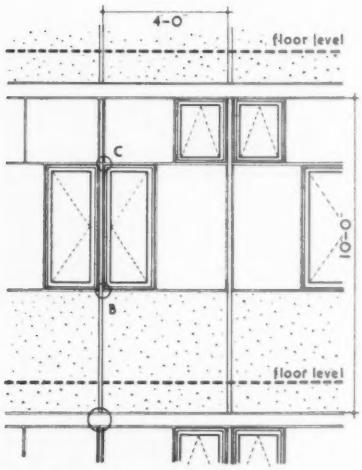
The multi-storey block is oriented north-south, dividing the site into two halves, a noise-producing zone containing engineering laboratories, workshops and gymnasia and a quiet zone containing assembly hall, art school, domestic science and exhibition hall. The two main entrances are in the multi-storey block and are approached through the low storey accommodation which is planned to give enclosures of varying character, use and size on the lines of the traditional English university quadrangles.

The main building is planned with laboratories in northern wings, obtaining mainly N. light, planned round a central lecture theatre on each floor—this theatre being sound-proofed by its position in the structure and close to main stairs for public access for public lectures. Classrooms are planned in S. wing related to the laboratories on each floor. S. wing contains only *quiet* rooms and virtually no services. On each floor there is a suite of labs. a lecture theatre and classrooms, all serving one subject. Internal planning is arranged to give maximum flexibility. The whole college is planned to accommodate considerable extension southward while the basic relationships are retained.

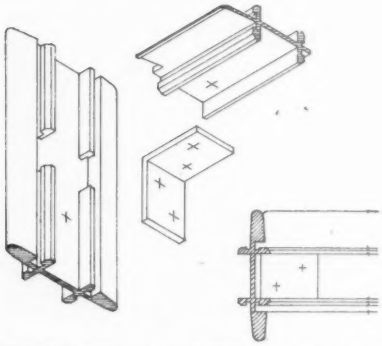
The lecture theatres are planned in the central position adjacent to the main stairs in order that the walls and floors may be constructed on site with methods employed for the stairs. This will permit "solid" floors and cavity wall construction to give appropriate sound insulation. Also, the main vertical riser ducts for the services, serving each laboratory wing, can be located on each side of the theatres, thereby increasing the acoustic isolation of the rooms.

MAIN CONSTRUCTION

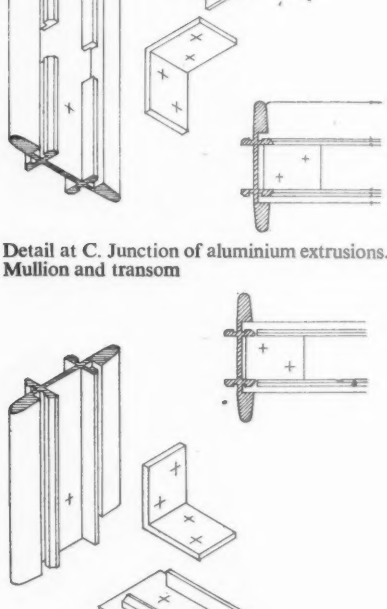
No consent to commence building could be obtained from the licensing authority unless it could be shown that the demand on local labour would be kept to a minimum. It was considered impossible to undertake so large a project in this area at a time of acute shortages affecting conventional labour and materials and therefore it was necessary to choose materials and techniques of construction to ensure small



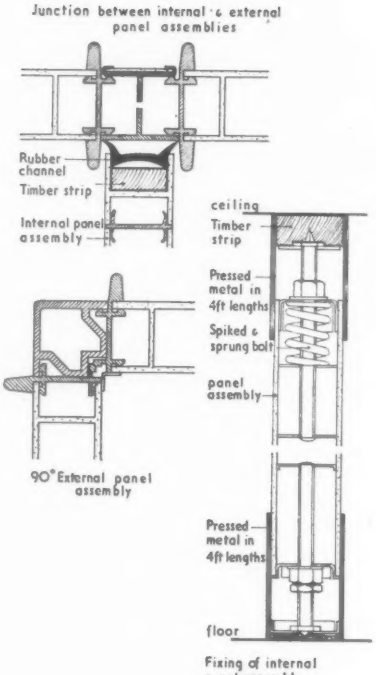
Elevation of outer wall construction
[Scale : $\frac{1}{4}$" = 1' 0"]

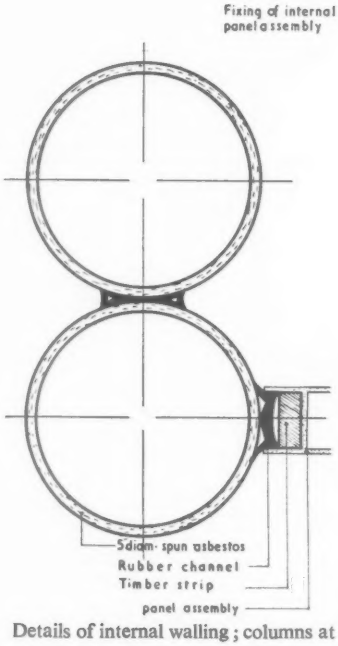


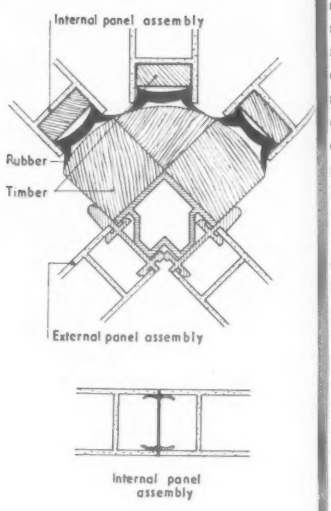
Detail at C. Junction of aluminium extrusions. Mullion and transom

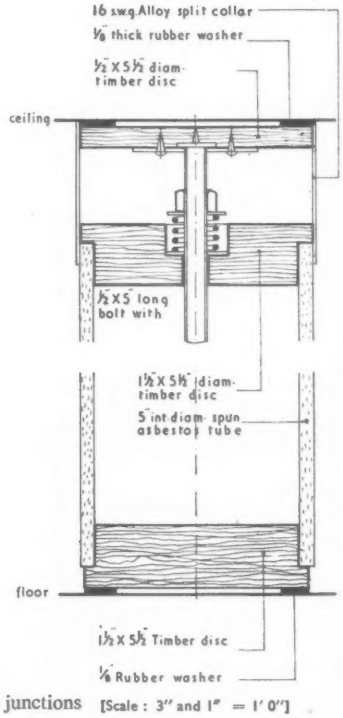


Detail at B. Junction of aluminium extrusions. Sill [Scale : 3" = 1' 0"]









Details of internal walling ; columns at partition junctions [Scale : 3" and 1" = 1' 0"]

Man-handling on external cladding unit.

site labour forces—prefabrication was adopted as a main principle.

LOAD BEARING ELEMENT: Standard steel stanchions; RSJ edge beams; carrying castellated RSJs. *Location:* Throughout building, except for *in-situ* concrete construction at the junction of the classroom and laboratory wings. *Beam Spans:* Classroom block 25 ft. 0 in. in two directions. Laboratories 16 ft. 8 in. and 25 ft. 0 in. *Column Grid:* Classroom block 25 ft. 0 in. square grid asymmetrical with the 25 ft. 0 in. cladding grid. Laboratories 16 ft. 8 in. by 25 ft. 0 in. *Reasons:* Steelwork, a conventional form of prefabrication, was a convenient choice. It presents no difficulty in the way of vertical structural extension and also gives the possibility of obtaining duct space in two directions because theoretically the webs could be reduced to a minimum of material in such a way as to form spaces within the structural depth, *i.e.* castellated beams.

FOUNDATION TYPES: RC bases. 6-in. RC ground floor slab and RC ground beams. RC slab to boiler basement. *Location:* General. *Sub Soil:* Chalk and ballast of 3 to 4 tons per square ft. load bearing capacity. *Depth:* Approx. 7 ft. 0 in. to underside of the bases from ground floor finished level. Approx. 4 ft. 6 in. from existing ground level.

OUTER WALL TYPE : *a.* Non load-bearing curtain walls. *b.* Panel infilling between stanchions

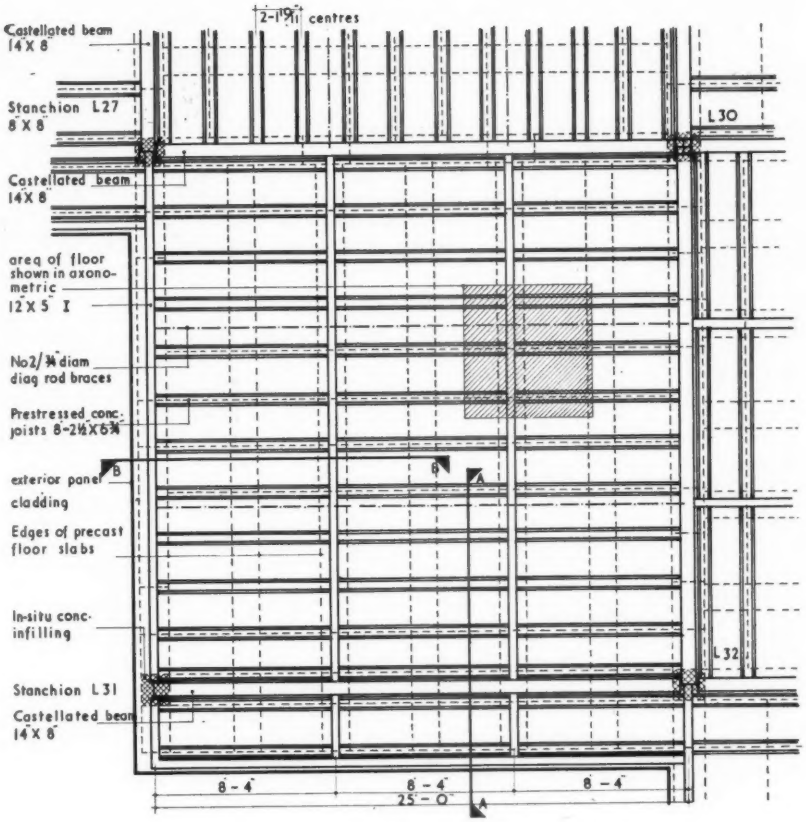
and beams. *c. In-situ* concrete screen between stanchions. *Location: a.* General. *b.* Non-modular end walls and vertical spaces. *c.* Vertical circulation stem. *Materials: a.* Prefabricated assemblies of aluminium alloy frames, glass and cellular laminated plastic infillings. *b.* Pre-cast concrete blocks. *c. In-situ* concrete screen, part glazed, part plastic panel infilling. *Finishes: a.* Plastic self-finished, internally and externally, in various colours and textures. *b.* Local flint and Kentish Rag aggregates, exposed and patterned. *c.* Fair-faced concrete. *Reasons: a.* To promote rapid erection on site with small gangs, involving dry processes only, these lightweight, highly-efficient materials reduce the total weight of the superstructure compared with traditional methods and show a consequent saving in structural steel. *b, c.* To make appropriate use of local materials and to keep some sections of the work in the hands of the general contractor.

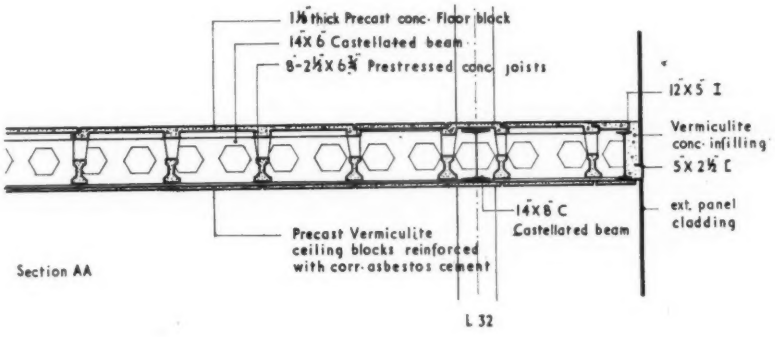
ROOF TYPE: Flat. *Location:* General. *Materials:* Bituminous felt in layers, without fall on woodwool decking, and normal floor structure. *Reasons:* A temporary roof only was required to Phase I; additional floors will be required in a later Phase.

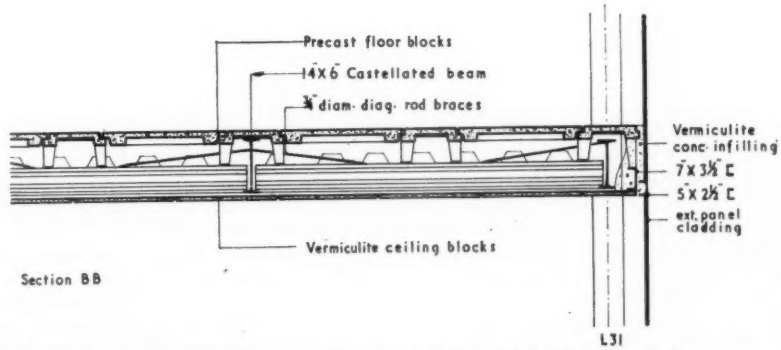
FLOOR STRUCTURE TYPE: Pre-cast structural units on steel floor beams. *Location:* All floors except lecture theatres. *Material:* Pre-cast r.c. floor slabs, jointed in ciment-fondu to 8 ft. 2½ in. by 6¾-in. pre-cast, pre-stressed concrete joists which are bedded dry on the flanges of the castellated beams. *Finish: a.* Generally, on all floors, pliable plastic finish laid on ⅛-in. rubber latex screen. *b.* Studded rubber tiling on ground floor circulation areas, laid on 1-in. cement/sand screed. *c.* Plastic cork flooring on 1-in. screed, in lecture theatres, domestic science and ground floor administration rooms. *Reasons:* To combine maximum duct space for flexibility of services in either direction, with minimum floor depth. (Economy in cube is important in a multi-storey building). Once the steelwork was in position all units were of a size and weight which facilitated easy handling by small labour gangs. Floor finishes were chosen for their sound insulation properties.

INTERNAL WALL TYPE: *a.* Demountable partitions. *b.* Cavity walls in pre-cast blocks. *Location: a.* Generally, on all floors except ground floor. *b.* Lecture theatres, staircases and ground floor partition walls. *Materials: a.* Cellular, laminated plastic and glass in aluminium alloy frames. *b.* Sawdust/cement blocks. *Finishes: a.* Self-finished, identical to the external plastic cladding, some natural colour, some factory applied colour. *b.* Rock faced and smooth faced with a mortar joint. The blocks are unpainted and left fair-faced. *Reasons: a.* Internal flexibility was a research requirement which necessitated demountability. Entirely factory produced, easily erected, and having low maintenance costs due to the self colour and hygenic surface. *b.* The different floor to ceiling heights on the ground floor would have necessitated a different set of prefabricated panels for an area where spacial flexibility is not so important. The cavity walls also gave some traditional *in-situ* work to the general contractor. Around the lecture theatres they were desirable for their sound insulating properties.

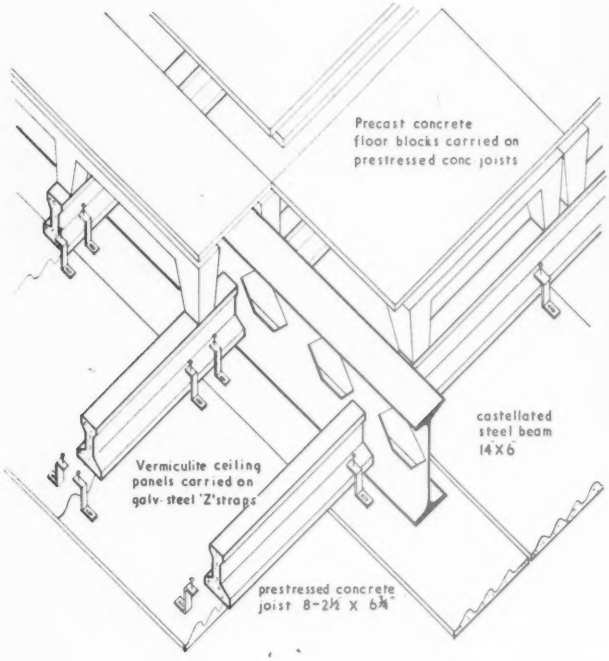
CEILING TYPES: *a.* Prefabricated. *b. In-situ.*

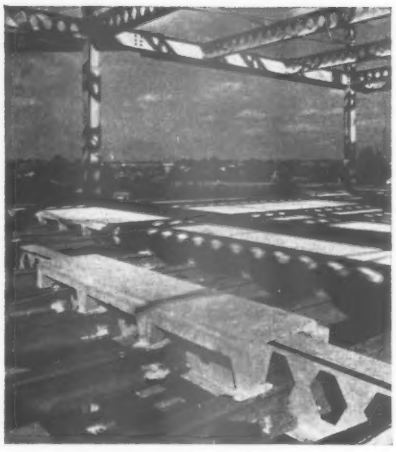






Plan and sections of classroom wing upper floor construction [Scale: ¼" and ½" = 1'0"]
The shaded portion of the plan (top) is enlarged in a detail overleaf





Above: typical floor under construction. In the foreground precast floor units are seen riding over a castellated beam and bedded on prestressed concrete joists.

Left: isometric sketch of classroom wing upper floor construction (see shaded portion of plan on previous page) [Scale: ½" = 1' 0"]

Location: a. General. *b.* Ceilings to cantilevered corridors in laboratory wings and on the ground floor in the south wing. *Materials: a.* Pre-cast vermiculite concrete panels, reinforced with corrugated asbestos cement and carried on galvanized steel "Z" straps. *b. In-situ* vermiculite plaster. *Finish: a.* Natural. *b.* Emulsion paint. *Reasons: a.* This material seemed the best available to fulfil the many tasks required of it; fire resistant protection for the structural floor steel; quick assembly by minimum labour; uninterrupted ceiling surface to allow for changes in the internal partition arrangement; overall accessibility to duct space for repair or rearrangement of services in the event of re-planning of room or equipment; good sound insulation properties. *b.* Placed over areas too complicated in plan shape for economical prefabrications.

ARTIFICIAL LIGHTING

SOURCE AND FITTING TYPE: *a.* Tubular fluorescent batten fittings with white PVC louvres. *b.* Tungsten lamps in opal glass fittings. *Location: a.* Laboratories, classrooms and offices. *b.* Dining room, common rooms and stores. *Illumination Level:* In accordance with statutory requirements. *Quality:* Daylight. *Comments:* Fluorescent fittings arranged with adjustable fixing for interchangeability and flexibility of plan. All louvres designed to give 40° cut off. *b.* More informal type of lighting required in these rooms.

WIRING AND SWITCHING TYPE: VIR cables in conduit and trunking. *a.* Pull-cord-operated switches to individual fittings. *b.* Ceiling switches. *c.* Wall switches. *Location: a.* Laboratories and classrooms. *b.* Domestic science rooms. *c.* Common rooms and stores, offices and cloakrooms. *Comments: a.* and *b.* Demountability of partitions makes wall switches impracticable and undesirable. Economy is made possible in laboratories and practical rooms where fittings are switched on only above benches in use. *c.* Room positions are fixed, therefore wall switches can be used.

POWER SUPPLY TYPE: 415/240 volt 3 phase, 50 cycle AC supply, DC supplies from batteries and rectifiers. *How distributed:* MICC cables and VRI cables in trunking to sub-main and final sub-circuit fuse boards. Final sub-circuit wiring with VRI cables in conduit and trunking. Fire alarm system with break-glass contacts and under-dome bells wired with VRI cables in conduit and lead from battery and trickle charges. Internal telephone system wired with PVC cables from C.25 line automatic exchange.

NATURAL LIGHTING

WALL GLAZING: *a.* Glass fitted direct into aluminium alloy frames of curtain wall panels with opening lights in teak frames. *b.* Double glazing direct to alloy frame. *Location: a.* General. *b.* Classroom walls facing north. *Reasons: a.* Simplifies prefabrication, in that only one extrusion is needed for the panel frame and the window frame. Glass can be fitted before or after erection. Teak opening lights add rigidity to the cladding panels. *b.* To increase the thermal insulation of rooms with two adjacent walls exposed.

ROOF GLAZING TYPE: *a.* Corrugated curved acrylic sheet lights on concrete upstands in *in-situ* concrete roof. *b.* 6-ft. diameter glass dome. *Location: a.* Single-storey domestic science section between laboratory wings. *b.* Library. *Reasons and Comments: a.* To obtain 2 per cent. DF overall in the single-storey structure. Top glazing also allows for future re-planning of this area as sanitary accommodation when the School of Domestic Science is completed in Phase III. The top-light was chosen for its simplicity of fixing. *b.* To provide light for the central library control point.

THERMAL INSULATION

TYPE: *a.* Cellular laminated plastic panels, pyrok filled. *b.* Cavity wall concrete block and lignacite lining. *c.* Double glazing. *d.* Wood wool boards, air space, vermiculite concrete slabs. *e.* Vermiculite screed on top of 4½-in. r.c. slab, vermiculite plaster internally. *f.* Woodwool boards only with internal painted finish. *Location: a.* General. *b.* Non-modular end walls. *c.* North facing classroom walls. *d.* Main roof. *e.* Domestic science (single storey) roof. *f.* Library roof. "*U*" *Value: a.* Approx. 0·25. *b.* Approx. 0·23. *c.* Approx. 0·50. *d.* Approx. 0·10. *e.* Approx. 0·20.

HEATING AND VENTILATION

HEAT EXCHANGER TYPE: *a.* Mechanical convector heaters (recirculating air, except in classrooms where damper control permits flow of external air, if required). *b.* Radiators. *Location: a.* All above ground floor. *b.* Ground floor and library. *Criteria temp: a.* 62° F. *b.* 62° F. *Air-change rate: a.* 2. *b.* 2. *Reasons: a.* Economy of space (*i.e.* wall space is not taken up by numerous heating units); to permit flexibility for demountable partitions. In the summer external air can be circulated in the classrooms without heat. *b.* In small rooms contained by permanently fixed partitions. The whole system is thermostatically controlled.

BOILER TYPE AND CAPACITY : Two Beeston 11-KLR CI sectional. *Heat load:* 1,658,000 B.Th.U. per hour each. *Fuel type:* Either 200 seconds fuel oil or CTF 50 oil. *Stoking method:* Oil firing medium air pressure. *Reason for choice:* Temporary boilers for Phase 1 of building only.

WATER HEATER TYPE : One Binns and Speight mild steel boiler, 9 kV, 765,000 B.Th.U. per hour. *Location:* In calorifier chamber. *Fuel type:* Either 200 seconds fuel oil or CTF 50 oil. *Stoking method:* Oil firing medium air pressure. *Reason for choice:* Temporary boiler for Phase 1 of building only.

HOT WATER STORAGE TYPE : Calorifier. *Location:* In calorifier chamber. *Material:* $\frac{5}{16}$ in. thick galvanized MS plate. *Capacity:* 750 gallons. *Comments:* Heating elements, solid drawn copper tube.

PIPES AND JOINTING TYPES : Heating pipe MS class "C." Hot water service MS galvanized class "C" CWS and CWM. MS galvanized class "C." *Location:* General. *Installation method:* Heating and gas pipes gas welded in floor voids.

COLD WATER STORAGE : Two galvanized MS sectional. *Location:* In tank room, above vertical ducts on roof. *Materials:* Galvanized MS $\frac{1}{16}$ in. thick. *Capacity:* 1,600 gallons each tank.

VACUUM SERVICES

By pressure-water-tank unit, giving HP water supply for operating water-blast vacuum-units fixed to laboratory taps. Compressed air by automatic compressor giving a distribution at 20 lb. per sq. in. Ventilation of lavatories and battery room by propeller aerofoil fans and trunking in floor ducts to external wall.

REFUSE METHOD : Bins. *Type of refuse:* Food waste.

SPECIAL ACOUSTICAL TREATMENT

SOUND ABSORPTION MATERIAL : *a.* Pre-cast vermiculite concrete slabs. *b.* Vermiculite plaster. *c.* Fibre-board on battens. *Location: a.* Ceilings generally. *b.* Laboratory wing and corridor ceilings, lecture theatre ceilings, domestic science ceilings, ground floor administration rooms and circulation space. *c.* Rear wall to lecture theatres. *Comments: a.* Good acoustical properties were only one of the many requirements which were considered necessary of the ceiling material used on suspended floors over teaching and practical rooms. *b.* Vermiculite plaster was used where pre-cast treatment was unnecessary or impracticable.

SOUND INSULATION : *a.* Plastic flooring. *b.* Studded rubber flooring. *c.* Cavity walls of 3-in. lignacite blocks with double glazed lights lined with fibre-board. *d.* Cellular laminated plastic panels filled with sawdust. *Location: a.* All suspended prefabricated floors. *b.* Ground floor circulation. *c.* Lecture theatres. *d.* Internal partitions generally. *Insulation standard: a, b.* Against impact sound. Generally 35 decibel reduction, except for lecture theatres, where greater reduction is demanded. *Comments:* The classrom wing planning was devised to obtain the best possible sound insulation between teaching rooms, having regard to the fact that light-weight demountable partitions would be used. Their position is organized to minimize shared walls between teaching rooms. The rooms are point to point with stores and cloak spaces forming sound barriers in between. Clerestory lighting was required between lecture theatres and access corridors to provide natural lighting for the latter and permanent ventilation for the former. The lights are double-glazed (top-opening in the theatre, bottom-opening in the corridor), the interior of the frame being entirely covered with sound-absorbing fibre-board. The lights maintain the standard of insulation afforded by the partition cavity walls in which they are placed. The suspended floors have been surfaced with a very pliable plastic floor finish, on a rubber latex screed, to prevent structure-borne impact noises, and to allow for possible movements in the prefabricated floor structure.

SOIL WASTE

TYPE OF SYSTEM : Separate. *Materials:* CI 1st quality SGSW, Polythene pipes and fittings. *Method and comments:* CI under roads and buildings PVC for laboratory drainage.

DRAIN TYPES: Acid collection to laboratory wastes. *Location:* Laboratory wings. *Materials:* Polythene pipes and fittings. *Methods and comments:* Central PVC bench troughs, prefabricated, assembled on site with PVC welds. Dilution sinks with standing wastes.

RAINWATER DISPOSAL TYPE : Roof sumps. *Location:* Heads of all RWP's. *Materials:* 1st quality SGSW. CI were cast in column casings. Extruded aluminium pipes externally. *Comments:* Most RWP's are located in internal ducts. In the classroom block external aluminium pipes are free standing, one module (50-in.) in either direction from the classroom walls, joined horizontally, at the eaves, to the roof sump. Rainwater pipes on each floor pass through show cases, recessed into ducts, in sections of translucent alkathene tubing.

LIFTS TYPE : No. 2 electrically-operated lifts with fully automatic door control and self-operation. *Capacity speed:* 6 persons each. *Relation to traffic circulation:* The lifts open off the public entrance hall adjacent to the main central stairs, situated at the junction of the classrooms and laboratory wings. *Motor room position:* In basement (to facilitate additional floors in future vertical extension).

FIRE

STRUCTURAL PRECAUTIONS : Vermiculite plaster protection to all stanchions except those in the end walls which are cased with *in-situ* concrete. Structural floors are protected by the pre-cast vermiculite concrete slabs forming the ceilings and the pre-cast concrete floor slabs. Kimolo bricks and Kimolo concrete in duct containing main flue. Main staircases are built in *in-situ* materials. *Grade of protection:* One hour. *Apparatus, sprinklers, etc.:* Fire warning bells; hose reel system. Dry riser connections for future additional floors. Local precautions and hydrants as per regulations.

PLANNING PRECAUTIONS, ACCESS FOR FIGHTING: Hard paved road to building. Special smoke resisting doors to all staircases. *Means of escape:* Alternative means of escape provided for all rooms. Special fire escape staircases (for use in emergency only) are housed in the ends of the laboratory wing corridors.

COLOUR

PAINT TYPES : *a.* Emulsion. *b.* Oil paint (gloss). *c.* Cement glaze (hard gloss). *d.* Clear cellulose varnish. *e.* Clear French polish. *f.* Chlorinated rubber paint. *Where used: a.* All plastered surfaces (*i.e.* main staircases and laboratory wing corridor ceiling). *b.* Exposed metalwork; softwood joinery and flush doors. *c.* In lavatories, applied direct to walling blocks in lieu of glazed tiles. *d.* Built-in. furniture and

equipment (all hardwood). *e.* Special smoke doors and lift entry surround. *f.* Circular asbestos cement junction posts in demountable partitions.

COLOUR TREATMENTS: The amount of applied finish in the form of paintwork has been kept to a minimum. The choice of self-finished materials for all parts of the building was a deliberate policy, the colour being one of the considerations taken into account when the materials were selected. All external walls and internal demountable partitions are self-finished, coloured plastic; red for north facing walls; light brown for southward facing walls; dark olive-green for walls facing east or west and for the single-storey domestic science rooms. Internal linings to end walls, walls enclosing staircases, lecture theatres and ground floor rooms generally are in lignacite blocks, some smooth, some "rock" faced, yellow-grey in colour and left as made. Where it was necessary to use vermiculite plaster a painted finish was applied, and in staircases and adjacent circulation spaces, where hard wear and dirt marks are likely, the surfaces have been hard plastered and painted. The paint is applied with a key colour for each floor to improve identification of location. Colours were selected from the Archrome (Munsell) range, while certain additional colours were made up to requirements by the paint manufacturer to give identical reflectance values to certain Munsell colours but of a Hue and Chroma not classified in the system. Strong colours are used in circulation areas with reflectance factors related to the natural lighting condition on each surface:

3rd floor circulation area	7.5 R 4/16
2nd ,, ,, ,,	2.5 P B 4/10
1st ,, ,, ,,	5.0 G Y 4/6
Grd. ,, ,, ,,	2.5 Y 8/12

TIME SCHEDULE

Drawings: Approx. 8,500 man hours. *Contract signed:* November, 1951. *Work commenced:* November, 1951. *Work completed:* March, 1955. *Type of contract:* Bill of Quantities. *Comments:* The time given for the drawings includes all drawings for special laboratory fittings and all furniture, built-in and loose, together with all specially-designed light fittings, street lamps and so on. The contract commenced at a time when building labour in the area was limited and the shortage of structural steelwork was acute. As most of the below-ground structure was to be *in-situ* concrete and brickwork, requiring conventional labour, it was agreed with the contractor that steel delivery should be in July, 1952—nine months after commencement. This would give ample time on construction of the foundations and boiler room below ground, with a limited labour force. Deliveries of steel were affected by the shortage and were delayed so that the structural steel framework was not completed until March, 1953.

EQUIPMENT AND FURNITURE

All built-in and loose furniture was made to the architect's designs. For all fixed and movable cupboards and benches etc., materials and, as far as possible, designs were standardized. Various types of cupboard and/or drawer units fit into all kinds of laboratory benching and can be removed and replaced to suit requirements. Larger movable cupboards for staff and administration rooms are designed to combine horizontally and vertically and to be interchangeable. Materials were chosen for their natural finish—Limba hardwood, for exposed carcassing; Limba faced ply panels; African Walnut drawer fronts and cupboard door pulling strips; Iroko bench tops; Teak faced ply doors with sycamore beads etc. all finished with clear varnish or clear French polish to preserve the natural colour.

Above, these stacking students' chairs were specially designed by the architects for this college and are made by the county supplies department.

ADDITIONAL INFORMATION

The college is the first technical college of its kind to be built by the county. The system of construction was developed by the group responsible for the building with the aim of using the greatest practical degree of prefabrication and with a view to using the same components on future projects of a similar nature. The system, in consequence, was devised to permit the maximum freedom of choice for future planning.

DETAILED PLANNING OF SELECTED AREAS

The classroom wing is planned so that:

1. The exposure of two adjacent walls in each room permits the requisite DF with a room height of 9 ft. 0 in.
2. Cloak spaces for evening class students are adjacent to teaching rooms and equipped with portable coat peg fitments.
3. Classrooms are isolated acoustically from each other.
4. Future re-organization of room shape and size is possible.

SURFACE FINISHES FOR ALUMINIUM AND ALUMINIUM ALLOYS

Mechanical Finishes

Type	Process and Description	Applications
Scratch-brushed	This matt finish is obtained by the use of wire brushes; the finish depends upon diameter of wires and speed of the brush. Normally, the material is brushed only in one direction but cross-brushing at right angles through a metal stencil can be used to produce a pattern effect. Brass wire brushes should not be used.	Should preferably be protected by lacquer, chemical oxidisation or anodising. Particularly suitable for sheet and sections.
Emery-brushed	A finish similar to that obtained by scratch-brushing; abrasive normally applied by hand to a finished article.	Particularly suitable for matt-finishing of castings; also used on finished articles such as spinnings or pressings.
Barrel-polished	Components of suitable shape (e.g. some castings and forgings) are rotated in a barrel with abrasive and lubricant. A good finish can be obtained at low cost.	Used on small components to give a good finish cheaply. May be followed by other finishes, e.g. stove-enamelling, anodising, etc.
Shot-blasted	A method for producing a matt finish on relatively small surface areas. The degree of roughness depends upon the size of grit used and the air pressure. Steel shot should not be used—a non-metallic abrasive (e.g. Blastite) is preferable.	Frequently used as a method for matt-finishing of castings; also as a means of giving a pattern on sheets by use of masks or stencils.
Pattern-rolled	Applied to either one or both sides of sheets. A wide variety of all-over symmetrical patterns can be obtained.	Particularly suitable where either large plain surfaces are undesirable, or to minimise effects on appearance of damage to surface by scratching.

Chemical Treatments

Type	Process and Description	Applications
Proprietary washes : e.g. Deoxidine 125 Jenolite AKS2 Preperite Non-proprietary: M.B.V. paste	Consist essentially of phosphoric acid and/or phosphate; may also contain chromate. Give a slightly matt phosphate film on the surface of the aluminium.	Mainly for site pretreatments of aluminium for painting. Gives good key for the paint.
Chemical baths: e.g. M.B.V. Pylumin Walterisation "L" process DTD.915A Alocrom 100 and 1200 Jenolite AKS1 Aloclene Bonderite 170 and 710	These processes produce from pale to dark grey films on the surface with the following exceptions: Alocrom 100 which gives a film with a very slight iridiscent green tint (although a decolorised solution is available); Alocrom 1200 and Bonderite 710 which produce a golden yellow to straw-coloured film.	Primarily intended as pretreatments (for painting) carried out in the factory, but may be done on the site if a suitable tank is available. Can be used for protecting mechanical finishes or reducing glare from roofing sheet.
Matt-etching	Carried out either by immersion in warm dilute alkaline baths or sometimes with acid mixtures such as sulphuric acid-sodium fluoride. Produces a matt surface which readily finger-marks and should therefore be protected by anodising or a chemical film such as M.B.V.	For matt-finishing of material, particularly large areas of sheet and sections.

Anodising Treatments

Type	Process and Description	Applications
Self-colour anodising	Appearance of anodised surface depends upon the process used. With sulphuric-acid anodising, which is normally employed, a clear film is produced; a matt finish can be obtained by etching the metal before anodising. A minimum thickness of film of 0·0002 in. should be specified for interior work, and 0·0006 in. for exterior work in accordance with B.S. 1615 Table 1. Chromic-acid anodising is mainly used for protection in external conditions although a thin film may be used as a base for painting. It produces a light grey opaque film.	For general building applications, e.g. windows, door furniture, wall panels, etc. Important to use correct film thickness to suit exposure conditions and to ensure that surface is regularly cleaned with water.
Anodising and dyeing ..	By immersing the anodised article in a suitable dye bath before the film is sealed, a coloured film can be produced. *Light fastness:* A minimum performance, in accordance with B.S. 1615, of 3 for interior work and 7 for exterior work should be specified. Dyed chromic-acid anodised films are not recommended for external use.	Suitable for general building work. The range of colours suitable for external work is restricted owing to light fastness requirements.

41.B1 SURFACE FINISHES FOR ALUMINIUM AND ALUMINIUM ALLOYS

Anodising Treatments (*continued*)

Type	Process and Description	Applications
Electro-brightening ..	Increases reflectivity of surface where metal is at least 99·5% pure. Gives greater depth of colour when surface is subsequently dyed and anodised.	Mainly for lighting reflectors but may be used to improve appearance of dyed and anodised work.
Chemical brightening (or polishing)	Similar effect to that produced by electro-brightening, but no electric current used. These processes also give quite good results on aluminium of commercial purity and alloys such as N4 and H9. Improves lustre and depth of colour when surface is anodised and dyed.	Mainly for interior work where brightness or depth of colour is desirable.

Other Finishes

Type	Process and Description	Applications
Electroplating	Aluminium can be plated with nickel, chromium, silver and other metals (the number of electroplaters having experience in plating aluminium is limited).	For general decorative components where resistance to corrosion is not the main consideration. Plating should not be used on articles exposed to damp conditions, such as kitchens, bathrooms, etc.
Paint and lacquer ..	Aluminium can be painted or lacquered in the usual range of glossy or matt finishes. Either a chemical pretreatment or an etching primer should be applied before painting to ensure good adhesion. Lead-pigmented paints or paints containing graphite should not be used for protection in exposed and contaminated environments.	For decoration and protection of large surfaces.
Vitreous enamels ..	Vitreous enamels based on lead silicates have been developed for use on aluminium in America. These enamels are not at present available in this country. A finish similar to vitreous enamel in appearance can be obtained by chromic acid anodising (or modifications of it) followed by dyeing and sealing.	Used on aluminium wall panels and similar articles.

This Sheet describes the mechanical finishes and surface treatments that can be used on aluminium and aluminium alloys. For recommended alloys for different applications and the surface finishes required see Sheets 10.B1 and 10.B2.

General

Although the finishes listed in the above table can be used on most aluminium alloys, the result in any particular case depends to a large extent upon the alloy used and its method of manufacture.

Mechanical finishes, such as "satin" wire-brushing, can be produced on all alloys.

Chemical treatments vary in appearance with the alloy used; whereas with those commonly used in sheet form for architectural applications (S1C, NS3 and NS4) a clear film is produced, those alloys containing more than about 4% copper or silicon acquire a rather mottled appearance, especially when they are in the form of castings.

Anodising treatments can also be carried out on all aluminium alloys but where the highest standard of finish is required anodising quality materials 1A or 1B should be specified, especially where a brightening treatment is to be used in conjunction with anodising. Extruded sections of alloys E1C, NE4, HE9 or HE10 give satisfactory results when anodised. Where castings are to be anodised LM5M alloy gives good results. Satisfactory finishes can also be obtained on LM7M, but LM4M is only suitable when a dyed anodised finish in a dark shade is required.

Electro-plating can be satisfactorily carried out on wrought 1C, H14 and H15 alloys and cast alloys containing copper, such as LM4M and LM7M. Alloys with a high silicon or magnesium content are not easy to electroplate satisfactorily.

British Standards

BS. 1615 *Anodic oxidation finishes for aluminium and aluminium alloys.*

BS. 1224 *Electro-plated coatings of nickel and chromium on steel and brass.*

Further Information

The Aluminium Development Association maintains a Technical Advisory Service and Information Bureau which is available to answer questions and advise on technical problems. Lists of specialists in mechanical and chemical finishes, anodising and plating are available on request.

Compiled from information supplied by:
The Aluminium Development Association.
Address : 33, Grosvenor Street, London, W.1.
Telephone : Mayfair 7501-8.

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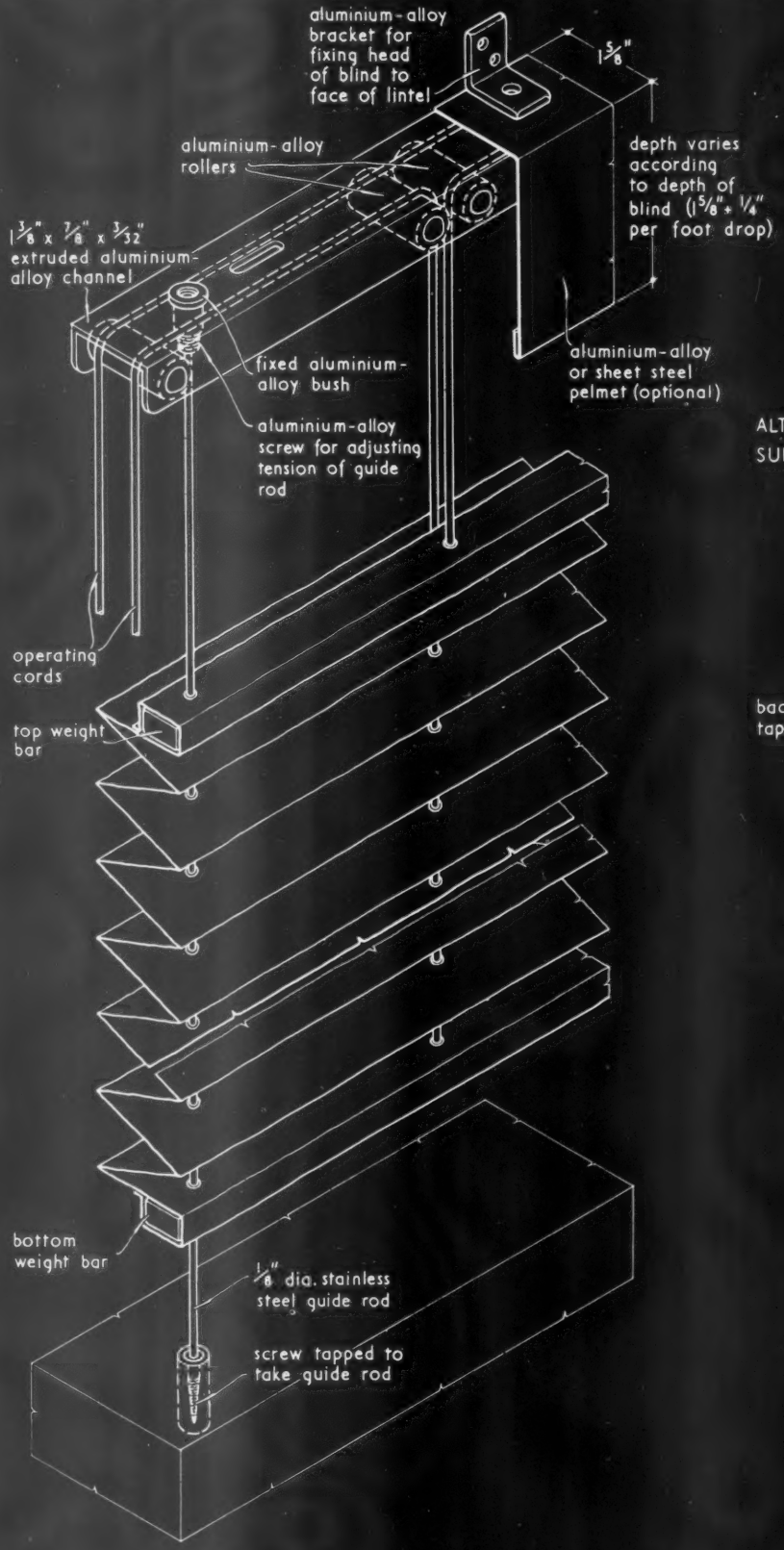
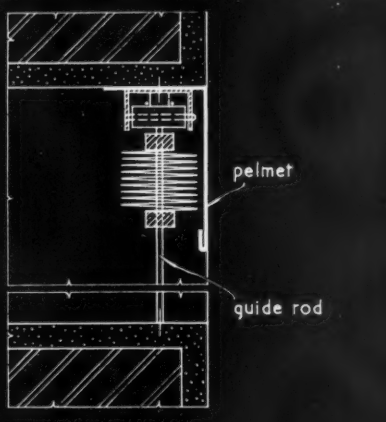
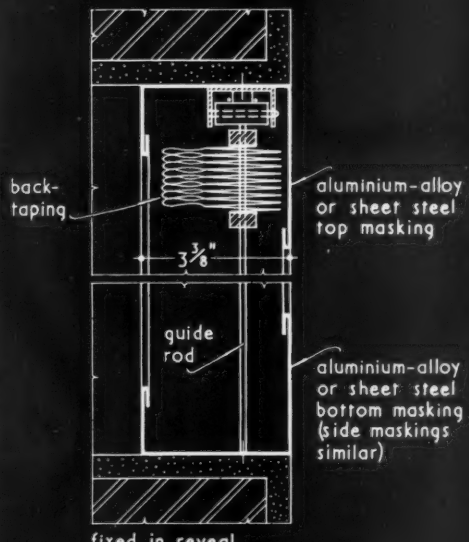


ISOMETRIC VIEW OF PORTION OF TYPICAL SUNBLIND.



ALTERNATIVE FIXING FOR SUNBLIND.



SECTIONS SHOWING ALTERNATIVE FIXINGS FOR DARK BLINDS.

·ACCORDO· PLEATED BLINDS. Manufacturer: Accordo Blinds Ltd.

42.K2 'ACCORDO' PLEATED BLINDS

This Sheet describes Accordo pleated sun and dark blinds, which are available in types to suit horizontal lay-lights and sloping roof-lights, as well as ordinary windows. They may be of translucent or opaque fabric, the latter being designed for use in operating theatres, lecture halls, laboratories, etc. These blinds have the advantage of being able to be lowered in their entirety from the top of the window in addition to being raised from the bottom in the normal way, so that any part of the window may be screened without interfering with the circulation of air from opening portions.

Construction

The blinds consist of pleated high-grade cotton fabric which can, if required, be made impervious by impregnation to insect attack or tropical deterioration. The top and bottom weight bars are $\frac{5}{8}$ in. by $\frac{3}{8}$ in. m.s. flats covered with fabric and operate the gravity action of the blind which dispenses with the necessity for springs or other mechanism. The operating cords are traced over aluminium-alloy rollers to the required point as shown in the drawing on the face of the Sheet. These rollers are housed in a $1\frac{3}{8}$ in. by $\frac{7}{8}$ in. by $\frac{3}{32}$ in. aluminium-alloy channel which forms the continuous head of the blind. A vertical guide rod of $\frac{1}{8}$ in. dia. stainless steel runs through the fabric at either end of the blind: it is fixed at the sill by means of a special screw and at the head by means of a tension-adjusting screw in a fixed bush in the channel. The guide rod prevents the edges of the blind from moving in the draught from open windows. The depth of a blind when stacked at the top of the window is notably small and may be calculated as follows :

$\frac{7}{8}$ in. (depth of channel) + $\frac{3}{4}$ in. (depth of top and bottom weight bars) + $\frac{1}{4}$ in. (stacked fabric) per foot drop of blind.

Sunblinds: An aluminium-alloy or sheet steel pelmet may be supplied if required to conceal the top mechanism. The front of the section is varied to suit the size of the stacked blind. The minimum overall depth required for fixing sunblinds is $1\frac{5}{8}$ in.

Dark blinds: Back-taping, $2\frac{1}{2}$ in. wide, is provided behind the cords on dark blinds to mask the holes where the cords pass through the fabric. Aluminium-alloy or sheet steel maskings are also provided at head, sill and jambs to prevent the penetration of light round the edges of the blind. The minimum overall depth required for fixing dark blinds is $3\frac{3}{8}$ in.

Fixing

The blinds may be fixed in the reveal of the window or on the face of the wall. The type of bracket used to fix the sunblind to the face of the wall is shown in the isometric drawing on the face of the Sheet. The top section shows the sunblind fixed under the lintel. The lower sections show the alternative fixings for the dark blind.

Colours

The sunblinds are available in a wide range of colours. The dark blinds may be obtained black both sides or black on the outside and blue, peach or cream on the inside.

Finish

The sheet steel pelmets and maskings for dark blinds may be galvanised, stove-enamelled or painted in any desired colour.

Further Information

The manufacturer maintains a technical advisory department which is available to answer questions and advise on technical problems relating to this subject generally.

Compiled from information supplied by:

Accordo Blinds Limited.

Address : 845, London Road, Thornton Heath, Surrey.

Telephone : Thornton Heath 6242-4.

SITE AND PLAN ANALYSIS

SITE ACCOMMODATION	Area in acres	Per cent. of total
Playing fields (total site area)	21·6	
Site area allocated for new college	6·25	100·0
Phase I buildings	0·475	7·6
Phase II buildings	0·118	1·9
Engineering labs. Workshops	0·415	6·65
Gymnasia and changing, staff accommodation	0·298	4·8
Assembly hall and dining accommodation	0·206	3·5
School of Domestic Science	0·121	1·9
School of Art and Exhibition Hall	0·415	6·65
Quadrangles	0·900	14·4
Planting	2·637	42·0
Roads	0·665	10·6
TOTAL	6·25	100·0

PLAN ACCOMMODATION	Area in sq. ft.	Per cent. of total
Hall	N.A.	
Stage	N.A.	
Gymnasium	N.A.	
Library	1,312	1·8
General and Prac. Rooms, including classrooms	31,625	43·5
Dining including kitchen	2,475	3·4
Pupils storage, teaching and general storage	6,338	8·8
Sanitary accommodation including cloakrooms	4,487	6·2
Staff rooms, including admin.	7,570	10·4
Service	4,833	6·7
Circulation	14,000	19·2
TOTAL	72,640	100·0

COST ANALYSIS

NOTE: gross cost = net cost plus external works. External works include: (*a*) drainage works beyond m.h.'s adjacent to building. (*b*) roads, paths and fencing. (*c*) site layout planting. (*d*) caretaker, Heads houses. (*e*) playing fields.

No. of form entries	Not applicable
No. of places	Not applicable
Floor area (sq. ft.)	72,640
No. of sq. ft. per place	Not applicable
Net cost	£227,445
,, ,, per sq. ft.	£3·12
External works	
Gross cost	£234,454
,, ,, per sq. ft.	£3·22
Tender date	Oct. 1951

ELEMENT*	Cost per sq. ft. s. d.
Preliminaries and insurance	1 2¾
Contingencies	1 5½
Work below ground floor level	4 9
External walls and facings	8 7½
Internal load-bearing walls	—
Internal partitions	8 5¾
Frame	7 9½
Upper floor const. and staircase	4 7¾
Roof	1 4¾
Rooflights	2¼
Floor finishes	1 7¾
Ceiling ,,	4 6½
Windows and doors (ext.)	included
Doors (int.) (exc. cellular laminated plastic†)	3¾
W.c. doors and partitions	2¾
Cloakroom fittings	1¾

ELEMENT	cost per sq. ft. s. d.
Wall finishes	2
Built in fittings	
Fittings	
Ironmongery† (excl. cellular laminated plastic)	1 11
Plumbing (external)	1¾
,, (internal)	8½
Sanitary fittings	3
Gas installation	4½
Electric ,,	3 10½
Heating ,,	9 3¾
Ventilation	included
Drainage	1 1
Glazing (excl. cellular laminated plastic)†	¾
Decorations	6
Paved areas	8½

* These figures are based on total areas which exclude staircases

† Included in external walls and internal partitions

COST ANALYSIS: comments

The headings which have been chosen as the basis of the cost analyses in these articles may not be appropriate for "direct" comparison of all forms of construction encountered, particularly in the case of the use of self-finished materials, such as those used at Dartford; *i.e.* cellular laminated plastic panels, vitreous enamelled panels, ready glazed screens etc. Here, a minor re-grouping and sub-division of a few of the sections is required, particularly those of wall finishes, glazing and decorations.

By taking the structural sections as used for previous comparisons (External walls and facings, Internal partitions, Frame, Upper floors and stairs, Roof, Rooflights and Window and doors) the total cost is 35s. 11d. (Board of Trade Index 131.4) compared with 32s. for Ravenscroft SM School (AJ, February 24) and 32s. 11d. for the Sheffield SM School (AJ, March 24). If these figures are now adjusted by adding to the latter two totals, the share of cost equivalent to the cost of the self finishes of the Dartford College construction, one might add a further:

s.	d.	
1	6	for wall finishes
0	6	,, glazing
2	0	,, decorations
4	0	Total.

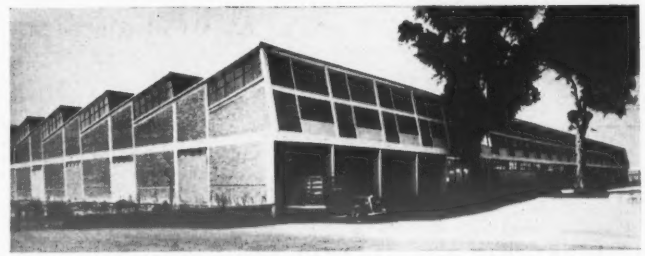
The revised totals are now comparable at (*a*) 35s. 11d. (*b*) 36s. 0d. and (*c*) 36s. 11d. respectively.

Attention is drawn to the figure of 8s. 6d. for this College for internal partitions, which are largely demountable and self finished. This is well over double the cost per foot super of floor area of the internal partitions encountered in previous schools, even allowing for differences in the ratio of internal partitions to floor area, and the cost of decorations and some glazing. On 72,600 sq. ft. this may well represent some £15,000 capital outlay to allow for flexibility in possible internal replanning in the future.

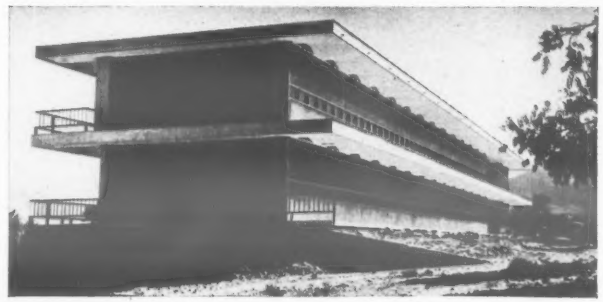
Another group of figures which draw attention to themselves are Roof, Upper floor construction and stairs, and Ceiling finishes where approximately half the total cost is in the ceiling, against the usual quarter. The natural finished vermiculite concrete suspended ceiling in this case is largely removable for access to services has good fire resistance and acoustic qualities.

The architect replies: It is difficult to assess with certainty when any additional cost is attributable to the pre-fabricated internal partition walls. The decision to use lightweight movable walls of not more than 2 in. thickness was made at the outset of the planning. The consequent saving in weight was assimilated into the structural design and general planning. The saving effected, which should be set against the cost of the partitions has never been accurately assessed, but in the early calculation of cost it seemed to be likely to be more than the extras. Similar factors apply to the ceiling structure, the primary function of which is to give fire protection to the whole work. If other methods had been used, the floor deck arrangement would have been heavier, and the extra weight and space in a multi-storey building would have added considerably to the cost.

PHOTOGRAPHS FROM THE RIBA'S MEXICAN ARCHITECTURE EXHIBITION



These are some of the photographs which are displayed at the Mexican Architecture Exhibition at the RIBA, 66, Portland Place, W.1. Left: National Auditorium, Mexico City. Architects, Pedro Ramirez Vazquez, Fernando Belivan, Fernando Pena and Ramiro Gonzalez Delsordo. Bottom left: Communications and Public Works Secretariat, Colonia Navarte, Mexico City. Architects, Carlos Lazo, Raul Cacho and Augusto Perrez Palacios. Above, Sherwin William paint factory, Mexico. Architects, Ricardo de Robina and Jaime Ortiz Monasterio. Below left: secondary school at Lomas de Chapputepec. Architects, Raul Fernandez and Luis Guillermo Rivadeneyra. Below right: private house in Mexico City. Architects, Ricardo de Robina and Jaime Ortiz Monasterio. Bottom left: flats in Mexico City. Architect, Santiago Greenham. Bottom centre: office block in Mexico City. Architects, Ricardo de Robina and Jaime Ortiz Monasterio. Bottom right: the same block.



TECHNICAL SECTION

The draft of the revision to BS 449, " The use of structural steel in building," recently circulated for comment, shows no alteration in the recommended live loads. Thus the live load for office buildings is still given as 50 p.s.f. True, this is a minimum live load and the designer is advised to use a heavier loading where applicable; but in practice he can never be sure of the future allocation of space within his building. The growing use of mechanical devices in offices caused the American Standards Association in 1945 to raise the live load for office buildings from 50 p.s.f. to 80 p.s.f. for slabs, though this recommendation is accompanied by a formula which allows for a reduction in the live load on beams as the area supported by the beam increases. Is the minimum of 50 p.s.f. good enough? Or is there not a risk that the building owner will want to put some heavy equipment in some unexpected spot and will be aggrieved when he finds that his building is not strong enough to receive it? Remembering that the cost of this extra strength is proportionately very small, there seems to be an overwhelming case for putting client, architect and engineer out of all doubt by raising the minimum imposed load to 80 p.s.f. for office buildings.

This week's special article

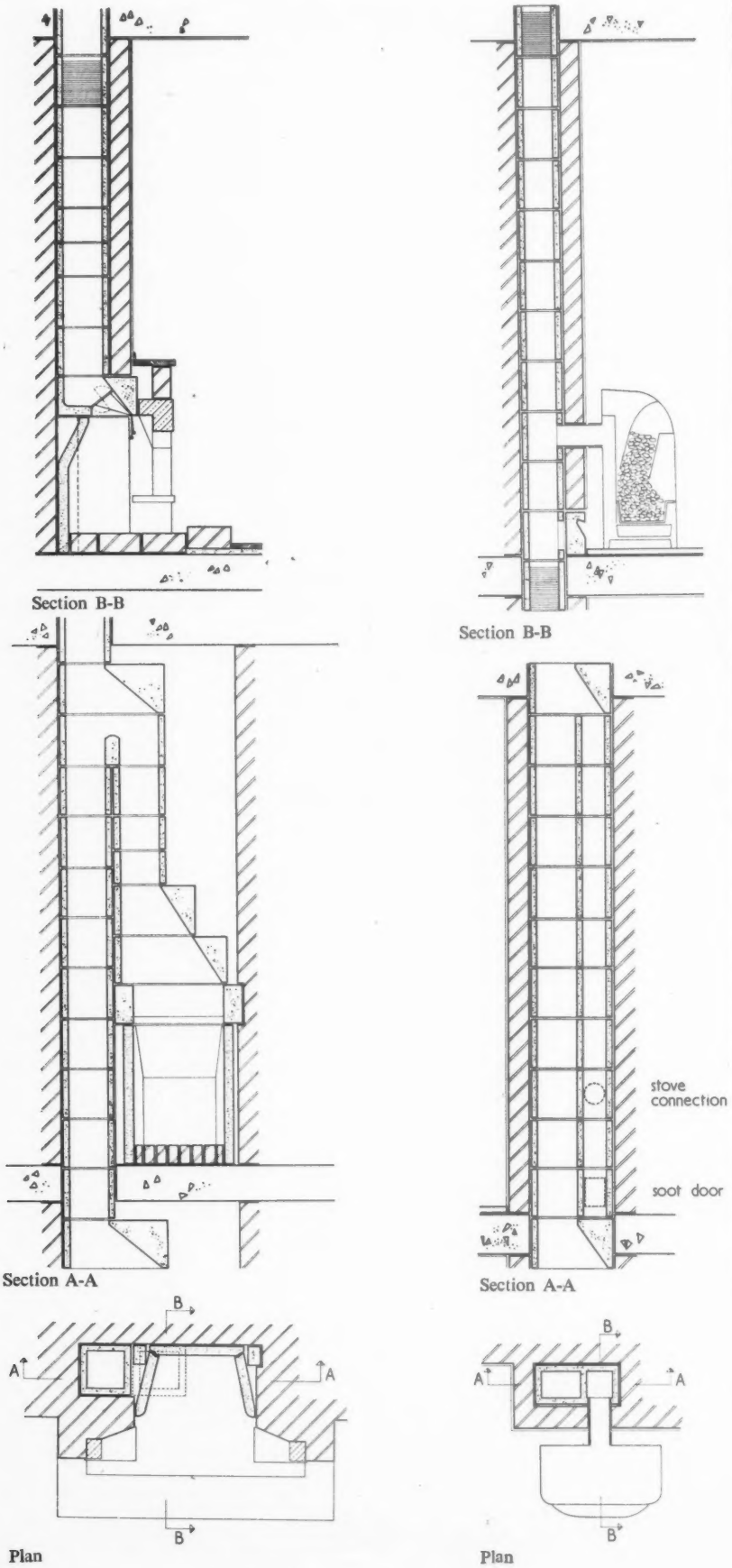
26 SERVICES AND EQUIPMENT
branched flues

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.

At the recent " Symposium on High Flats " held at the RIBA on February 15, Cleeve Barr, speaking as Senior Architect (Development) of the LCC Housing Division, stated that the LCC were carrying out experiments in the use of " shunt flues," and that if these were successful, substantial savings in cost could be made by the substitution of these flues for individual flues, particularly in tall buildings. The results of the LCC experiment, in which the BRS are co-operating, will not be known probably till next year, but in the meantime Cleeve Barr has described, in the following article, the principles of branched flues and gives an account of the rapid development of the " shunt " system on the Continent. In this article he is, of course, writing in a personal capacity, and any conclusions or opinions expressed are entirely his own and not necessarily those of the LCC.

The " Shunt " or branched system of flues is simply one in which every appliance has an individual flue for the height of one storey or more, this individual flue then " shunting " or branching into a common flue which continues through the entire height of the building (Figs. 1 and 2). The principle is not new; in fact the branching of one flue into another is frequently met with in old buildings in this country, but hitherto—at least since the days of Rumford, in the early part of the last century—this has generally been regarded as bad practice. The successful development of the " Shunt "* system on the continent, particularly over the last ten years, is sufficient justification for a critical re-examination of the position in Britain. It is encouraging evidence of the progressive attitude of certain local authorities that both the LCC and the

* International patents are claimed for the use of the word " shunt " by the Shunt organisation which has headquarters in Belgium and licensees in many European countries. To describe the system in general terms, therefore, it has seemed appropriate to the author to use the word " branched."



Coventry Corporation have recently decided to initiate experiments in the use of branched flues. The brave but unsuccessful experiment initiated by the Leeds Corporation in 1939, is referred to below.

The incentives to use such flues are: (*a*) Economy—the cost-saving in a tall block of flats would be of the order of £30 per flat, as against individual flues with liners, or of the order of £15 per flat as against normal individual parged flues in a five-storey brick block of flats. In addition there would be savings in floor space of from 5 to 10 sq. ft. (*b*) Planning simplicity—the avoidance of huge areas of stacks on plan, with their restrictions on door openings and use of wall space. (*c*) Structural simplicity—less weight and less interruption of load-bearing walls or column and beam frames. (*d*) Efficiency—it is claimed abroad that in tall buildings they avoid twists and turns in flues, avoid excessive draughts to the lower floors and give more even draughts to all flats. They also economise in chimney sweeping.

On the continent, in France, Belgium and Holland alone, there are now over 40,000 flats —most of them built by private developers— which are equipped with branched flues and which (so far as the author could ascertain in a short study tour of these countries) are working satisfactorily. An additional stimulus to the use of these flues on the continent has been the general practice of planning w.c's. and bathrooms (or shower-bath cubicles) internally, away from an outside wall, and naturally ventilating them only by extract ducts rising directly to terminals or cowls (of all shapes and sizes) on the roof. The architect or engineer concerned with the design of a tall block of flats has therefore, in the past, had to contend not only with individual flues but with a mass of individual ventilation ducts as well. This has caused both flues and natural ventilation ducts to be treated as a common problem (Fig. 3). Judging by the sky-lines of Paris or Brussels, architects and engineers on the continent seem to have paid no more scientific attention than their British counterparts in the past—if as much—to the functional design of flues, chimney stacks and cowls (Fig. 4). Systems of branched flue design have therefore been developed equally applicable to either chimney flues or natural ventilation ducts— " les conduits de fumée et de ventilation," or " rookkanalen " and " ventilatiekanalen."

BELGIUM

In 1936, Monsieur Alfred Nyst, a Belgian engineer and founder of the " Shunt " organisation, built his first experimental installations using branched flues in Belgium. There were many teething troubles, and in a number of instances pre-war installations were unsuccessful and had to be remedied. Brussels is a city incredibly free from building regulations of almost any kind, and there is little doubt that the " Shunt " organisation in the early days developed along the path of trial and error. A number of other organisations have also

Fig. 1. Diagram showing typical continental arrangements of branched flues in one-storey height with, extreme left, open fire, and left, closed stove (each in plan, section and elevation).

Courtesy: Scottish Industries Exhibition.

Ceiling and Lighting combine to form the *new* LUMENATED CEILING

Courtesy: Dolcis Ltd.

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The Lumenated Ceiling offers the following advantages:

- *Ideal for showrooms, shops, offices, foyers and similar applications*
- *An excellent method of modernising old, high ceilinged premises*
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Our Advisory Service is available at all times to produce recommendations for every type of installation.

Full technical data and specifications are available on request to our London office.

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L.6

produced systems of branched ducts "for smoke and for ventilation"—but the "Shunt" firm appears at present to enjoy almost a monopoly.

Obviously the principle itself can hardly be the monopoly of one firm—for small branched flues and ducts could equally well be built in brick or in-situ concrete as in precast units, though possibly not so economically. The "Shunt" organisation and its licensees, however, specialise in a range of standard precast concrete building units which are built up one on top of the other to form chimney flues or ventilation ducts as required. These units (see Figs. 5, 6, 7 and 8) are of high grade, vibrated concrete—refractory concrete for flues—cast in aluminium moulds. In Holland the blocks are made from diatomaceous earth; in France from volcanic pozzolane from the Central Massif. The flue-stacks so formed are non load-bearing and are subsequently encased in brickwork, usually brick-on-edge. Horizontal joints are rebated, and blocks are bedded in cement mortar.

All units are 25 cm. (10 in.) high, and 26 cm. (10·4 in.) wide, with a wall thickness of 3 cm. (1¼ in.). The length of each unit varies according to its type, that is, as to whether it contains one branch and one common flue, or the junction between branch and common flue, or a single flue only, or any other arrangement. A large part of the reason for the firm's success lies probably not only in the quality of the concrete units, which can be produced by any competent precasting firm, but also in the design service provided. It is a condition of sale of these blocks that the "Shunt" firm shall vet the design of the installation. Particular attention is given to the height of chimneys, the verticality of flues, the numbers to be branched into one main stack and the design of terminals.

In Belgium there appears to be virtually no government or municipal control of flues, and the "Shunt" firm has established its own standards. Up to May, 1954, there were some 17,000 installations in Belgium. In Holland and France there have been government investigations and experiments which are of considerable interest.

HOLLAND

Branched flues have been used in Holland since 1947 and there are now several thousand in flats in occupation, probably all with closed stoves—the typical continental closed stove burning hard coal (see Fig. 11). Local authorities have been reluctant to permit the development of the system and (at least until last year) Amsterdam, Rotterdam and The Hague had not yet approved the system—although Vlaardingen, Nijmegen, Breda, Groningen and Hilversum had done so.

In 1949 the TNO (Dutch government sponsored equivalent of the BRS) in a block of experimental flats built by TNO at Rotterdam, carried out certain comparative experiments with a branched flue and normal flues, including several severe tests to examine the risk of fire. An official report on the subject was published. Given normal building construction and 2½ in. covering of brickwork around the precast flue units, it was considered as a result of the tests that the fire risks were negligible. The branched flue was found also to have a steadier draught in variable wind conditions than individual flues. It was recommended, as a result of the

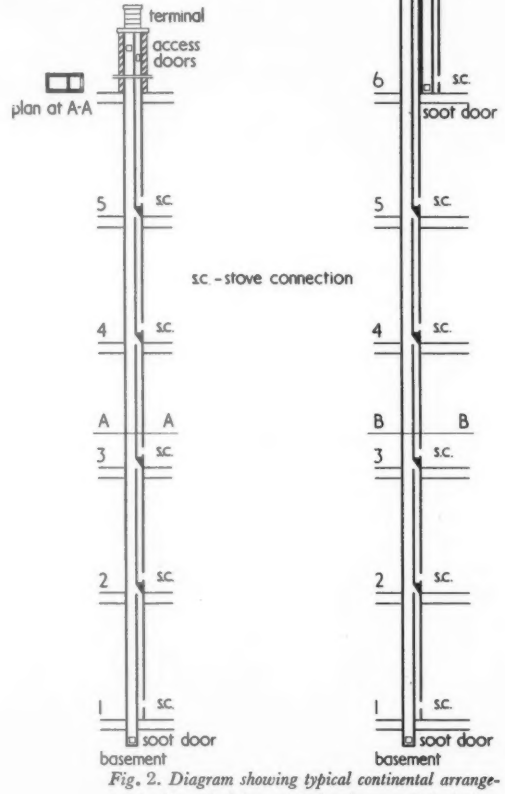


Fig. 2. Diagram showing typical continental arrangement of branched flues with closed stoves; left, in five-storey block; right, in 10-storey block.

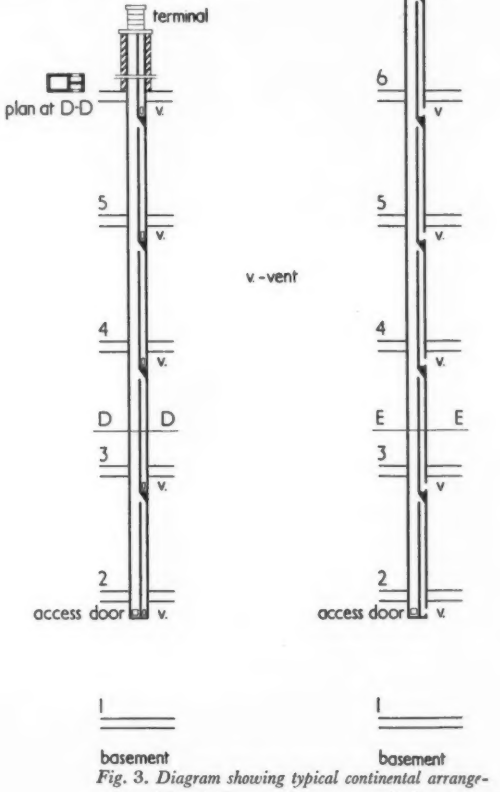
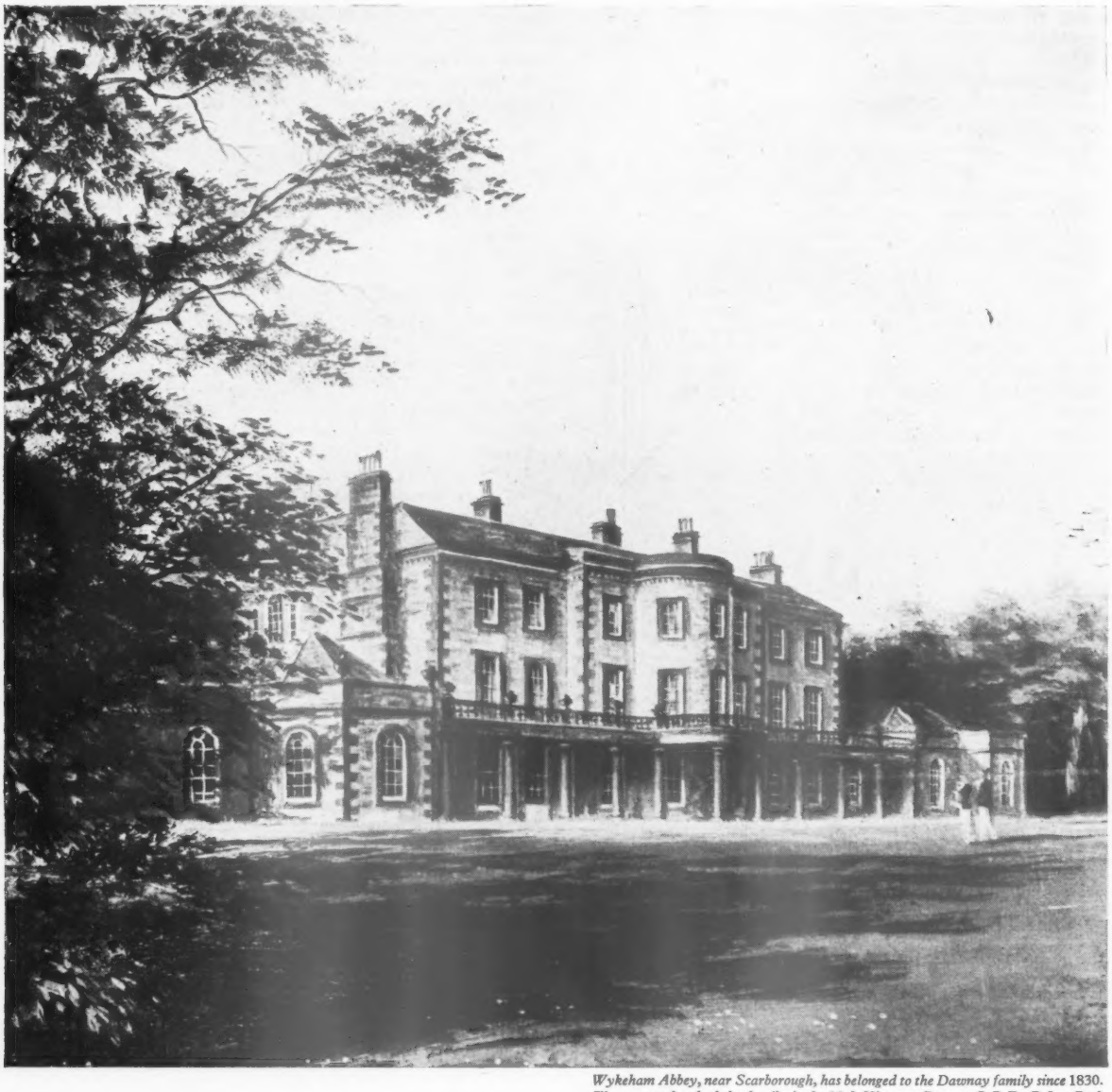


Fig. 3. Diagram showing typical continental arrangement of branched natural extract ventilation ducts; left, in five-storey block; right, in 12-storey block.

Wykeham Abbey, from a painting by Felix Kelly



Wykeham Abbey, near Scarborough, has belonged to the Dawnay family since 1830. *The present head of the family is the* 10*th Viscount Downe, O.B.E., D.L. Both the space- and water-heating systems of this* 70*-room building are oil-fired.*

SEVENTY ROOMS ON THREE FLOORS TO KEEP WARM

Only oil fuel could do it so easily and so cleanly

YOU MIGHT THINK that Wykeham Abbey, with seventy rooms in a main building of three stories and a staff wing of two stories, was a difficult building to heat—especially as the East coast of Yorkshire is a rather bleak part of the country.

In fact, however, the oil-fired space-heating system heats the whole building most effectively, at exactly the temperature chosen, and it keeps the temperature constant indefinitely.

The day-to-day attendance required on the plant is almost non-existent. There is no stoking, no ash to clear out, and any necessary regulation is controlled by a push-button. Such servicing of the equipment as is required is carried out four times a year involving only an hour or so's work during the whole year.

Lord Downe tells us that his records over a number of years, both before and after conversion to oil fuel, show that he has achieved a 15 per cent. reduction in costs compared with solid fuel without taking labour-saving into account. Not unnaturally, he has also installed a similar oil-fired system to provide a constant supply of piping hot water.

If you would like to know whether oil fuel could be used to advantage in any building which you are designing or altering—be it larger or much smaller than Wykeham Abbey—please write to Shell-Mex and B.P. Ltd., Fuel Oil Department 2F, Shell-Mex House, Strand, London, W.C.2. A representative will be glad to give you any detailed information you require without, of course, placing you under any obligation.

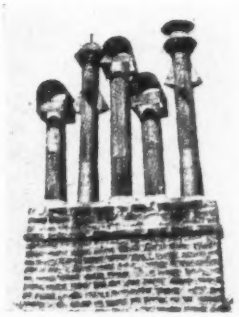
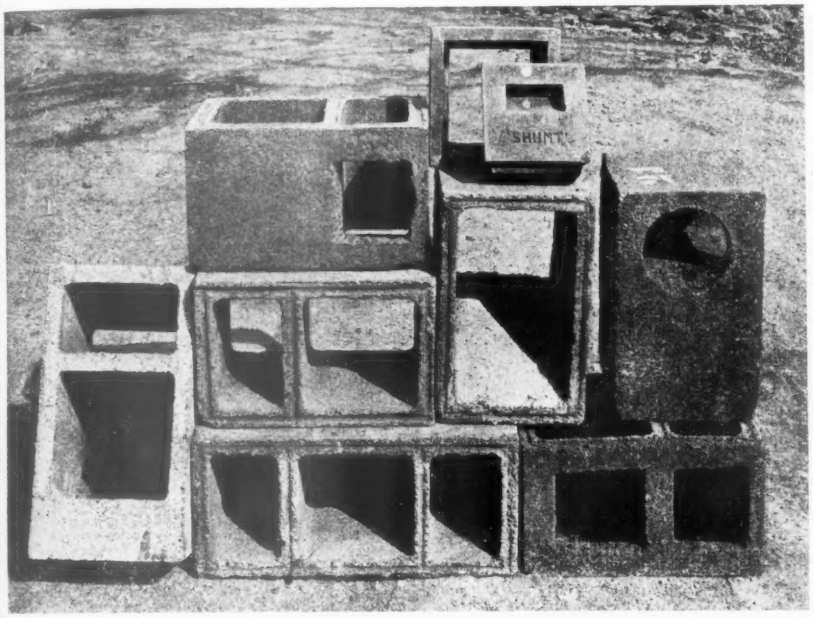
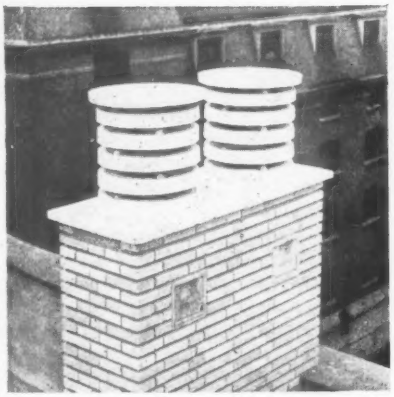
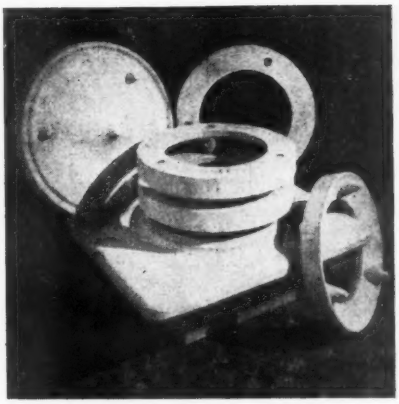
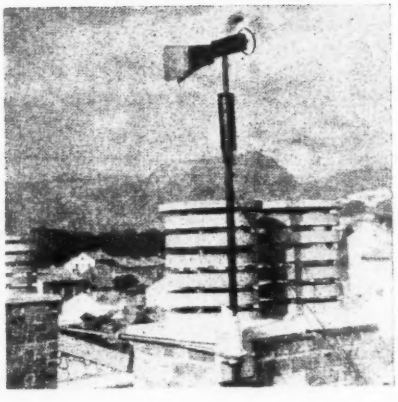


Fig. 4 (right). Terminals to natural ventilation extract ducts: a typical roof scene in Brussels. Fig. 5 (below). Typical "Shunt" system building blocks. Holes for flue-pipe connections, or vent grilles, or cleaning doors are made in-situ by the bricklayer on the job. Fig. 6 (below centre, left). "Shunt" terminals: one taking chimney flues, the other natural ventilation extract ducts. Note the access doors for cleaning. Fig. 7 (below centre-right). The separate components of the "Shunt" chimney or ventilation duct terminal. No mortar is used in bedding the heavy concrete rings. Each terminal covers both the main flue and the branch flue (or duct) from the top floor. Fig. 8 (bottom left). Access door for chimney cleaning. Precast in fine concrete, it is designed to close by its own weight. Fig. 9 (bottom right). Anenometer in position above one of the flues tested by the French authorities at Toulon.









experiments, that there should be only one entry per storey, that the top flat should have a separate flue going out independently, that the construction and jointing of the units should be improved and that branch flues should be taken up two storeys before entering the main flue. In an interview with the author in May, 1954, M. Basart, a Dutch architect and joint author of the TNO Report, said that as a result of subsequent experience he had modified his views on this and considered that even with open fires the system should work satisfactorily if the branch flue is taken up the height of one storey only before entering the main flue.

FRANCE

The first branched flues in France were built in 1951 in a 4-storey block of flats for workers of the SNCF, the French State Railways, at Toulon. These were the subject of extensive experiments by the Centre Scientifique et Technique du Batiment, the French BRS, using various kinds of stoves and gas appliances. Toulon was considered particularly useful as a test place because of the mildness of its climate, and the great variability of the winds. The main purpose of the experiments was to test for down-draughts. Even in the most unfavourable weather conditions—the report on these experiments states—"it was extremely difficult to detect any downward movement of the products of combustion from one flat to another"—this even when a gas fire was burning on an upper floor with no fire alight in the flat below.

As a result of these experiments and of further study of actual installations, the French Government has now approved the use of "conduits de fumée unitaire" generally for five-storey blocks and above, subject to the following regulations (issued in April, 1954) which are the most definitive yet imposed. They revise the standard regulations of the Conseil Superieur d'Hygiène Publique de France, which since 1947 prohibited the inter-connection of flues:

1. The common flue shall have no bends in the whole of its length. The area of the flue shall be appropriate to the number of fireplaces served, with, in any case, a minimum of 62 sq. in. (400 cm.²).
2. Only one appliance shall be connected to the common flue in each storey height, and all these appliances shall be in rooms having windows on the same side of the building.
3. Each fireplace shall be linked to the common flue by a branch flue raised at least to storey height and at most to 11 ft. 6 in. (3½ metres), with the proviso that there shall be a minimum distance of 23 ft. (7 m.) of draught between the fireplace and the opening at the top of the common flue. If there is less distance above the fire than this the appliance shall have an individual flue.
4. All appliances using gas or liquid fuels, and certain kinds of industrial appliances are not permitted to be connected to common flues.
5. Common flues should not be permitted within areas of "air currents or of pressure causing downdraughts" and this "presupposes" a knowledge of all obstructions, natural or constructed, existing or likely to be built, within a radius of 50 metres. The stack shall rise a least 40 cm. (16 in.) above the roof, or above any obstruction within a radius of 8 metres, and at least 2 metres above any particularly unfavourable flat roof. It is recommended that a horizontal distance of at least 5 ft. (1½ metres) be kept between adjacent flues.

In a report issued earlier by the Centre Scientifique et Technique du Batiment it was recommended that the number of fireplaces to be connected to a single flue should be limited to five for closed stoves, and three for open fires. The kind of "aspirateur," an anti-down-draught terminal, made by the "Shunt" company is also strongly recommended by the

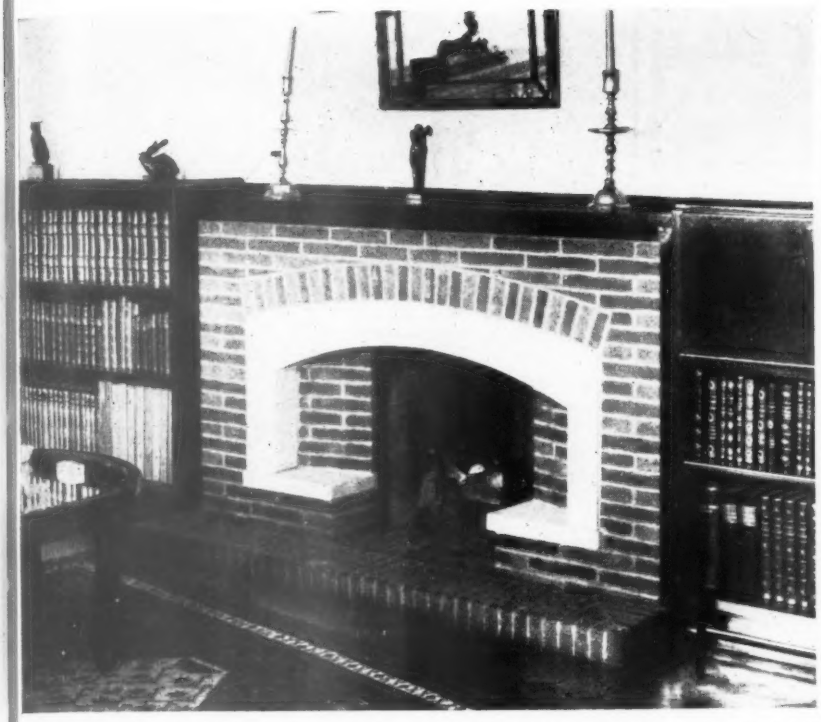


Fig. 10. Open fire, "English type," in centrally-heated luxury flats in Brussels. These fires have branched flues with precast throat-units containing metal baffles which can be closed completely when the fire is not in use. See Fig. 1 for typical section.

CSTB and is considered to have played a major part in the success of the Toulon experiment (Fig. 9).

By October 1954, according to the manufacturers of the precast units, there were over 20,000 flats in France, occupied or in construction, equipped with branched flues. As in Holland and Belgium, most of these use closed stoves, but there are many with open fires, including a number with open fires without central heating.

A fact which has encouraged the introduction of the branched flue in Paris has been a regulation which requires every apartment to be provided with a flue—whether it is centrally heated or not. This, of course, gives any occupier the right to install his own stove if he wishes, and continentals carry their closed stoves around with them in the same way as we English do our gas or electric cookers. If the flue is not used the opening is simply sealed off by a removable cover. Obviously, in fully centrally heated flats, the considerable capital economy and convenience in planning which a branched flue system offers can all the more readily be grasped if the flues are not to be used.

The use of open fires in multi-storey centrally heated luxury blocks of flats in Paris and Brussels is another curious continental phenomenon (Fig. 10). These streamlined flats in blocks up to ten or twelve storeys, which in the last few years have been going up at a great pace in the wealthy suburbs of Brussels and the St. Cloud district of Paris, are almost invariably for sale as individual apartments, at quite fantastic prices. The "English" open type fire is obviously a good selling point. Usually it has a dog-grate for wood burning only with a throat restrictor and damper which can be sealed completely by pulling on a chain when the fire is not in use (Fig. 1, section B-B). The "Shunt" system is widely used with such open fires.

The sweeping of branched flues generally is from the top down in the case of the common flue—for which purpose a small cleaning door is provided in the stack above roof level—and from the bottom up for the branch flues. It is obviously a matter of convenience (and for notification to tenants) if all branch flues can be swept at the same time as the common flue, but this does not appear to be essential.

BRITAIN

The only recent example of the use of branched flues in this country was the experimental installation of several stacks in a four-storey block of flats, originally designed to be seven storeys high, built by R. A. H. Livett, City Architect for Leeds. The construction of these flats was interrupted by the war, and they were finished off as a four-storey block and occupied in 1946. The precast blocks were imported from Belgium in 1939 and the design of the flues was on the lines of the earliest prototypes made by M. Nyst which were proved to be overlarge in area and to contain too great pockets of cold air, particularly in the voids left above the throats and at the base of the common flues. The situation of the flats was also in a bad area from the point of view of draught, being surrounded by industrial works and chimneys which overshadow the four-storey flat roof. The flues were connected to back-to-back grates serving a fire in the living room and an oven in the kitchen. The experiment was not successful and the flues have since been replaced by individual ones.

Byelaws in this country prohibit the use of branched flues in general. If, as a result of the experiments now being undertaken, branched flues are to be introduced, modifications to existing byelaws will be required.

The Model Byelaws (1953) provide as follows:

"*Byelaw* 67—A flue which communicates with a room intended for human habitation shall not communicate with any other room—provided that nothing in this byelaw shall prohibit the use of a common flue in connection with a back-to-back grate."

The London Building Byelaws (1952) are equally emphatic:

"*Byelaw* 10.02(1)—A flue shall not be used for more than one fire unless (*a*) the fires are in the same room or enclosed space, or (*b*) it is impracticable, in connection with any new work to comply with this requirement and the district surveyor approves of the existing flue being used for more than one fire."

The Scottish Model Building Byelaws 1954 make similar provision:

"*Byelaw* 64— . . . in every house every appliance burning solid, liquid or gas fuel, other than any appliance designed for safe use without a flue, shall be connected to a separate flue . . ." excepting again back-to-back grates and certain appliances with auxiliary burners. The "deemed to satisfy" performance clause in these byelaws, a most admirable basis for regulations, refers also only to BS Code of Practice CP 131.101 which deals with requirements for individual flues.

HAZARDS OF BRANCHED FLUE AND DUCTS

The hazards, or dangers, of branched flues—and equally of branched ventilation systems—which have commonly been anticipated on the continent as well as here, but which at least over there seem to have been overcome, are briefly: (*a*) that smoke or fumes may pass from one flat to another; (*b*) that there may be down-draughts causing "smoky" fires or stoves; (*c*) that there may be a danger of fire passing from one dwelling to another; (*d*) that sound will pass easily from one flat to another.

To consider these points in reverse order, the Dutch TNO have done a certain amount of work on sound transmission and have not found that transmission through the flue itself is seriously worse than through the normal party wall. Transmission through similar systems of branched natural ventilation ducts is rather more serious and the writer feels that a good deal more field surveys and experimentation needs to be done on this particular problem. Obviously, in ventilation ducts sound can be baffled by linings of acoustic felt, by increasing length or the number of bends or by other means, but all these tend to be expensive or inconvenient, and if such systems are likely to be widely adopted more research needs to be done to establish acceptable criteria.

Given normal byelaw standards for the surrounding of flues with 4-in. of incombustible material, there appears to be no reason why the fire risk should be greater than with ordinary flues. The TNO tried deliberately to cause an explosion in a "Shunt" flue—in order to satisfy the Rotterdam byelaw authorities—by bringing together all the hazards likely to cause fire in a flue, but no explosion occurred. So far as the writer can ascertain there have so

Fig. 11. Examples of typical continental closed stoves.

far been no recorded cases of fires being caused or spread as a result of the use of the system.

"Smoky" chimneys and the passing of smoke or fumes (or smells in the case of ventilation ducts) from one dwelling to another are undoubtedly the most likely hazards—and these were the main point of investigation of the tests at Toulon. It would seem that the French authorities feel quite satisfied on this point—given the conditions for installation set out in the regulations quoted above. One of the features of the "Shunt" system which may be largely responsible for its success is the thin wall or tongue, only 1½ in. thick, between the branch flue and the common flue. This permits the heat from the branch flue to provide a certain amount of pre-heating in the main flue, which counters a tendency for down-draughts to occur at the junction of the two flues.

OPEN FIRES OR CLOSED STOVES?

So far as branched flues with closed stoves of the continental type (Fig. 11) are concerned, the writer can see no reason why the French regulations should not be equally acceptable as a guide to practice in this country. The case of open fires, and even of openable closed stoves, given British living habits, raises other issues, however, and it would be foolish at present to approach the use of branched flues with such appliances other than experimentally.

In spite of the reference in the French regulations to open fires (three connections permitted per "conduit unitaire") and Dutch and Belgian practice in the same context (four connections per "Shunt" flue), there is no doubt that the bulk of installations on the continent are with closed stoves, and the majority of those with open fires are in flats already warmed by central heating, although there are some without it. The uncertainties in the way of accepting branched flues in Britain (other than those imposed by present regulations) may briefly be summarized as follows: (*a*) characteristics of the open fire; (*b*) intermittent heating; (*c*) window-opening habits; (*d*) vagaries of the climate.

To consider these in detail in reverse order, it is doubtful if vagaries of the climate are a major adverse factor. The Low Countries certainly have more constant and stronger winds than Southern England, but the variations of climatic conditions over France are very wide indeed—as was stressed in the Toulon experiments. The effect of nearby forest trees, or tall buildings, factory chimneys or hillsides, will be as bad for branched flues (worse, considering the numbers of connections involved) as for individual flues and it would be unwise to consider their use in unsuitable local conditions.

"Conventionally" we British are alleged to be a Spartan type of people, who feel uncomfortable in a fully centrally heated house. We—or many of us—go to bed in ice-cold bedrooms with windows wide open, and for many years we have endured with great moral uplift permanent ventilation and cross ventilation as prescribed by the byelaws. Clearly, the letting out of fires at night and the window-opening habit are adverse factors so far as ensuring a steady flow of air up any flue is concerned. One wonders, however, whether the "conventional" and somewhat over-caricatured habits of the typical British family are not really changing before our very eyes. Since the war there has been a great increase in public appreciation of the value of "insulation," of "whole house" heating, of "overnight solid fuel-burning appliances," of "draught-stripping," of "underfloor ducts" to convey air direct to fires to avoid taking warmed air out of the room, and so on. One often meets amateurs who have put these things, or some of them, in their own houses. To a large extent the effect of British living habits on branched flues is therefore unpredictable. Theoretically, in certain atmospheric conditions, if a flat on an upper floor has a window open on the windward side and its fire alight, and a flat on a lower floor has a window open on the leeward side and its fire out, smoke or fumes could travel up the branch flue from the upper fireplace, down the main flue and down the lower branch flue into the lower flat. Obviously, this possibility is affected by a great number of variables. Only a number of "field" trials under actual conditions can ultimately establish the likelihood of such a hazard becoming a serious danger.

To deal lastly with the characteristics of the open fire, the main hazard is that there is so much more resistance in the flue than with a closed stove, with its much higher initial flue temperature and air velocity, that the fire may not draw well and may smoke, especially on lighting. A further point is perhaps the use of soft coal—a factor which might in itself make it advisable to use slightly larger flue diameters, at least for the branch flues, in this country than abroad. This in itself, however, is not a fundamental problem since, if the flue functions at all, the avoidance of smoke is mainly a question of having the chimney swept sufficiently often. It is certainly less dangerous if down-draughts should occur than fumes from coke or other smokeless fuels. The performance of British open fires and "openable" stoves with branched flues can really only be decided by tests. So much progress has been made, however, in the last ten years in the design of these appliances that there is a reasonable hope for success. This progress has been directed towards a better design of throat, both as regards restriction and smoothness of flow, a better control of fuel consumption and the use of radiating surfaces and convection for increasing efficiency of output. All these factors tend to bring the performance of fires and "openable" stoves nearer that of the closed stove but there is still a long way to go. Given continued progress in the design of these appliances and wise application of the extensive continental experience now available in the use of branched flues, the time for the making of regulations for the use of such flues in Britain may not be far off.

VENTILATION

I have referred only in passing to branched natural ventilation systems (Fig. 3) because on the continent the introduction of branched flues has been developed simultaneously, and based on the production of identical precast units. The whole idea of the use of internal rooms (bathrooms and w.c.'s, that is, not on external walls) with natural non-mechanical "ducted" ventilation is, however, a subject in itself. The BRS have just published an extremely interesting paper which covers a whole variety of ways of providing internal rooms with natural ventilation by means of individual ducts horizontally or vertically to the open air. The general conclusion is reached that there is no reason to doubt that such means can provide adequate ventilation for bathrooms and w.c.'s fully up to the conventional standards provided by normal windows in external walls. "Shunt" ventilation is a development of this idea by means of which vents from individual rooms are branched into a common stack, up to ten connections being made into one main duct. The subject is, however, complex in itself, and deserves separate study, together with all the other alternative methods of providing adequate ducted ventilation to inner rooms.

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Announcements

PROFESSIONAL

Mr. Graham Pound, O.B.E., B.SC., M.I.C.E., M.T.P.I., has recently retired from the position of Senior Planning Officer in the Ministry of Housing and Local Government and has commenced practising as a planning consultant at Compton House, 28c, Devonshire Street, W.1. Telephone, WELbeck 5039.

Mr. Edward D. Mills, F.R.I.B.A., Design Consultant, has moved both his Carlisle Street and Greek Street offices to 15, Carlisle Street. Telephone, GERrard 8305/6, 4923.

Messrs. J. Douglass Mathews & Partners (E. D. Jefferiss Mathews, O.B.E., F.R.I.B.A., A.R.I.C.S., Oswald D. Pearce, F.R.I.B.A., and A. G. Nisbet, B.A.(ARCH.), F.R.I.B.A.) announce that the following members of their staff have been appointed Associate Partners: Mr. Ralph S. Poole, A.R.I.B.A., Mr. J. A. Fisher, A.R.I.B.A., A.R.A.I.A., and Mr. Michael Ryan, A.A.DIPL. (HONS.), A.R.I.B.A.

Mr. A. Stern, A.R.I.C.S. and Mr. J. Albers, A.R.I.C.S., have commenced in private practice as Chartered Quantity Surveyors under the title of Messrs. Stern & Albers, at 66, Victoria Street, S.W.1, telephone VICtoria 8003, where they will be pleased to receive trade catalogues.

Mr. G. Rosenberg, A.R.I.B.A., A.M.T.P.I., A.M.I.B.A.E., is now the Senior Lecturer at the School of Architecture, Auckland University College, Auckland, New Zealand, and would be glad to receive catalogues.

Messrs. E. R. Collister and Associates (Mr. E. R. Collister, A.A.DIPL., A.R.I.B.A.) have moved from Gloucester House, 19, Charing Cross Road, W.C.2, to 70, Victoria Street, S.W.1. Telephone: VICtoria 4957.

TRADE

The Birmingham office of Messrs. Honeywell-Brown Ltd. has moved to Sutton New Road, Erdington, irmingham, 23, under the management of Mr. P. R. Prior.

Buildings Illustrated

North-West Kent College of Technology, Miskin Road, Dartford, Kent, for the Kent Education Committee. (Pages 567-581.) Architects: E. T. Ashley Smith, F.R.I.B.A., County Architect, in succession to S. H. Loweth, F.S.A., F.R.I.B.A., J. H. Garnham Wright, Dipl. Arch., A.R.I.B.A., Group Leader G. G. Grylls, A.R.I.B.A., and W. A. Shirbon, A.R.I.B.A., assistant architects; Consulting engineers: Malcolm Glover and Partners (Structural), J. Stinton Jones and Partners (Mechanical and electrical services); Quantity Surveyors: J. Leaning & Sons; Clerk of Works: F. J. Rudd General Contractors: William F. Blay, Ltd.; Mechanical Engineering Contractors, G. N. Haden & Sons, Ltd.; Electrical Engineering Contractors: C. W. Gosling, Ltd.; Sub-contractors: structural steelwork, United Steel Structural Co. Ltd.; concrete glazing frames, Lenscrete Ltd.; fireproof ceiling blocks and stanchion cladding, Meta Mica Ltd.; external and internal screen wall units, Holoplast Ltd.; electric passenger lifts, Evans Lifts Ltd.; prestressed precast concrete beams and precast concrete floor slabs, Ferroconcrete (Lancashire) Ltd.; felt roofing, McCartney Ltd.; Roflex flooring, L. Fishburn; Suppliers: precast walling blocks, precast concrete window surrounds and paving slabs, Atlas Stone Co. Ltd.; standard dome lights, Pilkington Bros Ltd.; sanitary fittings, Teuten-Davis Bennett, Ltd.; W.C. cubicle partitions, F. Bradford & Co. Ltd.; W.C. cubicle doors, S. Brand & Co.; plasticork flooring, Whitney-Fairchild Ltd.; rubber flooring, Veitchi Co. Ltd.; paint, Screeton Paintmake; special light fittings (to architects' design) New Era Industries Ltd.; standard light fittings, Troughton & Young Ltd.

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Appointment of (*a*) ONE ASSISTANT ARCHITECT, and (*b*) ONE ARCHITECTURAL DRAUGHTSMAN.

Applications are invited for the following permanent (superannuable) appointments on the Headquarters Staff of the Regional Architect, Philip H. Knighton, M.B.E., A.R.I.B.A.

(*a*) ONE ASSISTANT ARCHITECT. Applicants must be Registered Architects and experience of the design and construction of public buildings will be an advantage. Commencing salary within Grade £625 to £890 according to length of practical experience since becoming a Registered Architect.

(*b*) ONE ARCHITECTURAL DRAUGHTSMAN. Commencing salary £380 at age 21 or over (subtract £20 for each year below 21) × £20(3) × £25(2) × £20(4)—£570. Applicants should have had previous experience in an architect's drawing office and be neat and expeditious draughtsmen.

The posts offer opportunity for gaining all-round general as well as hospital experience and for doing good-class work in a department which is to have a considerable share in the recently-announced national expansion of the hospitals-building programme. Evening study facilities are available at King's College of Durham University in Newcastle.

Applicants should state training, experience, whether married, present post and salary, war service (if any) date available and names of three referees of whom at least two should be architects.

Applications are to be forwarded to the Secretary by 6th May, 1955.

"Dunira," Osborne Road,
Newcastle-upon-Tyne, 2. 9490

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD.

Vacancies for:—

(*a*) ASSISTANT ARCHITECT—Salary rising from at least £645;

(*b*) SURVEYOR'S CLERK (Quantity Surveying section)—Salary, according to age, rising from approximately £400.

Applications by 16th May, 1955. Details from Regional Architect, 10, Hallam Street, W.1. 9572

BOROUGH OF RAMSGATE.
APPOINTMENT OF ARCHITECTURAL ASSISTANTS.

(*a*) One ARCHITECTURAL ASSISTANT (Permanent). Grade A.P.T. III (£600—£725).

(*b*) One ARCHITECTURAL ASSISTANT (Temporary). Grade A.P.T. III (£600—£725).

Applications are invited for the above-mentioned appointments.

Applicants should have the qualification of A.R.I.B.A. and be experienced in all types of Local Authority work, including preparation of working details, &c.

Housing accommodation can be made available.

Applications endorsed either "Architectural Assistant (Permanent)" or "Architectural Assistant (Temporary)," stating age, qualifications and experience, and giving the names of two persons to whom reference may be made, must be received by the Town Clerk, Municipal Buildings, Ramsgate, by not later than Friday, 13th May, 1955. Canvassing will disqualify. 9580

BOROUGH OF BASINGSTOKE.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT, A.P.T., Grade II (£560—£640).

Applicants must have reached the standard of the Intermediate Examination of the R.I.B.A. and have had good experience in Housing of Contemporary Design.

The appointment will be subject to the provisions of the Local Government Superannuation Acts 1937 to 1953 and to the National Conditions of Service and the successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and giving details of education and experience, together with copies of two recent testimonials, are to be submitted to the Borough Architect (Eric Almond, Dipl. Arch., A.R.I.B.A.) Municipal Buildings, Basingstoke, not later than the 5th May, 1955.

Candidates must state if housing accommodation is required.

MEIRION O. JONES,
Town Clerk.
Municipal Buildings,
Basingstoke.

LONDON COUNTY COUNCIL.

Grade III ENGINEERS (salary up to £892 10s.) and SURVEYING ASSISTANTS (up to £739 10s.) required in District Surveyor's Service. Qualifications A.R.I.B.A., A.M.I.Str.E., or A.R.I.C.S.; structural knowledge essential. Particulars and application forms from Architect (AR/EK/DS/2), County Hall, S.E.1. (1025). 3511

LONDON COUNTY COUNCIL.

Architects and surveyors required for safety regulations of theatres and special buildings, and for general building regulation work. Salaries up to £892 10s., according to experience. A.R.I.B.A. or A.R.I.C.S. essential. Particulars and application form from Architect (AR/EK/TBR/3), The County Hall, S.E.1. (848) 3487

Birmingham Regional Hospital Board require ASSISTANT ENGINEER for Architect's Department. Salary £625—£890 according to age and experience. Applicants should have A.M.I.H. and V.E. Superannuable. Write naming three referees to Secretary, 10 Augustus Road, Birmingham, 15, by 3rd June, 1955. 9608

NORTHAMPTON.
BOROUGH ARCHITECT'S DEPARTMENT.
ARCHITECTURAL ASSISTANT, A.P.T. II
(£560—£640).

Particulars of the above appointment (temporary for two years) and form of application, to be returned by 11th May, may be obtained from the Borough Architect, Guildhall, Northampton.

C. E. VIVIAN ROWE,
Town Clerk.
Guildhall, Northampton. 9686

BOROUGH OF WORTHING.
ASSISTANT ARCHITECTS.

Applications are invited for the appointment of two ASSISTANT ARCHITECTS in the Architectural Section of the Borough Engineer's Department at a salary in accordance with the special scale for architectural staff, *i.e.*, £650 × £25 to £775 per annum. Candidates must have passed the Final Examination of the R.I.B.A. or its equivalent at a recognised school of architecture and must have had at least five years' experience, including the period spent on theoretical training. Experience in design and in the preparation of working drawings for work carried out by Local Authorities, including school buildings, will be an advantage.

The Council will assist in finding housing accommodation for the successful applicants, if required.

The appointments will be subject to the National Scheme of Conditions of Service of Local Government Officers, to the provisions of the Local Government Superannuation Acts, and to the successful candidates passing satisfactorily a medical examination. The appointments will be terminable by one month's notice on either side.

Applications, endorsed "Assistant Architect," stating age, qualifications, experience, present and past appointments, with dates, and accompanied by copies of two recent testimonials should be sent to the Borough Engineer and Surveyor, Town Hall, Worthing, not later than Tuesday, 10th May, 1955.

ERNEST G. TOWNSEND,
Town Clerk.
Town Hall,
Worthing.
18th April, 1955. 9687

SKIPTON URBAN DISTRICT COUNCIL.

(*a*) ENGINEERING ASSISTANT.
(*b*) BUILDING AND QUANTITY SURVEYING ASSISTANT.

Salaries £650—£775 (Grading of Special Classes of Officers). N.J.C. Service Conditions.

House available, if required.

Applicants for (*a*) should have good, general municipal engineering experience; knowledge of housing estate development desirable.

For (*b*) duties mainly supervision of housing and other contracts (Clerk of Works employed); measurement of work, settlement of final accounts, and preparation of Bills of Quantities.

Apply, giving age, qualifications, all experience and names of three referees to the Engineer and Surveyor (Mr. K. B. Robinson, B.Sc. (Eng.), A.M.Inst.C.E.), Town Hall, Skipton, by 9th May, 1955.

L. E. SMITH,
Clerk to the Council.
9556

BOROUGH OF TAUNTON.
ARCHITECT'S DEPARTMENT.

Applications are invited for the undermentioned appointments in the Borough Housing Architect's Department.

(*a*) ARCHITECTURAL ASSISTANT, Salary (A.P.T. Grade II), £560—£640.

(*b*) TECHNICAL ASSISTANT, Salary (A.P.T. Grade I), £500—£580.

In considering applications for appointment (*a*) preference will be given to applicants who have passed the Intermediate Examination of the Royal Institute of British Architects, while for appointment (*b*) applicants must have had experience in the construction of Municipal Housing Estates, including roads and sewers, and preference will be given to those capable of undertaking architectural work. The duties applicable to appointment (*b*) will include the examination of applications for Improvement Grants and Loans under the Housing Acts.

The appointments will be subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Acts. The successful candidates will be required to pass a medical examination.

Consideration may be given to housing accommodation if required.

Applications, together with the names of two referees, should be submitted to C. Bacon, F.R.I.B.A., Borough Housing Architect, Flook House, Station Road, Taunton, not later than Monday, 9th May, 1955.

L. ATWELL,
Town Clerk.
Municipal Buildings,
Taunton. 9663

LEICESTER CATHOLIC COUNCIL.

Applications are invited from suitable experienced persons for the position of a CLERK OF THE WORKS to supervise the erection of a proposed two-form mixed Secondary School, Gwendolen Road, Leicester. It is expected that the work will commence about June and will take about 18 months to complete.

Salary will be in the region of £12—£14 per week, according to experience.

Apply giving age, qualifications and experience with names of referees to Bryan & Harding, A.R.I.B.A., Chartered Architects, 8, New Street, Leicester, by the 12th May, 1955. 9666

CITY OF CARDIFF.
APPOINTMENT OF ARCHITECTURAL ASSISTANT (HOUSING).

Applications are invited for the following appointment in the City Surveyor's Department:—
ARCHITECTURAL ASSISTANT (HOUSING) A.P.T. Grade IV (£675—£825 per annum).

Candidates should possess the minimum qualifications and experience prescribed by the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services for posts in the above mentioned Grade.

General Conditions of Appointment may be obtained from the undersigned.

The Council will assist in providing housing accommodation for a period for the successful applicant.

Applications, accompanied by the names and addresses of three referees and endorsed "Architectural Assistant (Housing) A.P.T. Grade IV" must be delivered to me not later than the 11th May, 1955.

S. TAPPER-JONES,
Town Clerk.

City Hall,
Cardiff.
April, 1955. 9668

COUNTY BOROUGH OF BOURNEMOUTH.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of DEPUTY BOROUGH ARCHITECT at a salary of £1,202 10s., rising by annual increments to £1,412 10s. per annum.

Candidates must be qualified members of the R.I.B.A., with experience in all sections of the work of a Local Authority. Successful candidates will be appointed at present salary if within the incremental scale.

Application Forms and further particulars from Borough Architect, Town Hall, Bournemouth. Completed applications to reach me by 10 a.m., 14th May, 1955.

A. LINDSAY CLEGG,
Town Clerk.
9671

COUNTY BOROUGH OF HALIFAX.
APPOINTMENT OF QUANTITY SURVEYOR.

Applications are invited for the above appointment at a salary in accordance with Grade A.P.T. V/VI (£750—£1,000). The commencing salary will be fixed within this range after regard has been had to the qualifications and experience of the successful applicant.

Housing accommodation for the successful candidate will be provided if necessary.

The successful candidate will take charge of the Quantity Surveying section of the Borough Engineer's Department and will be responsible for the whole of the Quantity Surveying work entailed on architectural work, including new schools, housing, etc.

Applications stating age, qualifications, present position, salary and experience accompanied by copies of three recent testimonials should be appropriately endorsed and delivered to the undersigned not later than Saturday, 21st May, 1955.

RICHARD DE Z. HALL,
Town Clerk.

Town Hall,
Halifax. 9670

CITY OF BIRMINGHAM.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment as TECHNICAL ASSISTANT (HOUSING)—Grade A.P.T. IV (£675—£825 per annum)—at a commencing salary according to experience.

The successful candidate will be responsible for the investigation, layout and design of dwellings for numerous small sites in the City, and applicants should possess an appropriate professional qualification.

The post is superannuable, subject to a medical examination, and to one month's notice on either side.

Applications, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned not later than 14th May, 1955.

Canvassing disqualifies.

A. G. SHEPPARD FIDLER,
City Architect.

Civic Centre, Birmingham, 1. 9674

COUNTY BOROUGH OF PRESTON.
APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the above appointment in the Borough Engineer and Surveyor's Department at a salary of £650 × £25—£775.

Applicants must be Registered Architects, also Associate R.I.B.A., and have had experience in the design and control of contracts for Housing and Public and Educational Buildings.

Forms of application obtainable with conditions of service from my Department should be completed and returned to the undersigned not later than 7th May, 1955.

W. E. E. LOCKLEY,
Town Clerk.

Municipal Building,
Preston. 9625

LANCASHIRE COUNTY COUNCIL.

PLANNING ASSISTANTS—Special Scale (£650—£775) required at Liverpool. Candidates should possess a qualification in architecture, surveying or engineering; planning experience desirable but not essential. Applications giving age, qualifications, present appointment, experience, etc., and two referees to County Planning Officer, East Cliff County Offices, Preston, by 11th May, 1955. 9636

LANCASHIRE COUNTY COUNCIL.

LANDSCAPE ARCHITECTS, A.P.T. Grade III (£600—£725) and Grade IV (£675—£825), required at Preston. Applicants should possess A.I.L.A. or equivalent. Salary according to qualifications and experience. Duties include the preparation of landscape proposals for land reclamation schemes, mineral workings, tips and new development. Applications, stating post applied for, giving age, qualifications, experience, present appointment, etc., and two referees to County Planning Officer, East Cliff County Offices, Preston, by 11th May, 1955. 9593

ARCHITECTURAL DRAUGHTSMAN required. Applicants must have had suitable training, including three years' technical experience in architectural drawing. Salary £380 (age 21 and over) × £20 (3) × £25 (2) × £20 (4)—£570 plus London Weighting £20—£30. Commencing salary at minimum of scale. Apply giving age, qualifications and experience with names of two referees to Secretary, North West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, by 7th May. 9605

BASILDON DEVELOPMENT CORPORATION.
ESTATES DEPARTMENT.

Applications are invited for the post of TECHNICAL ASSISTANT from those who have passed the Final or Intermediate Examination (Building Sub-Division) of the R.I.C.S. or hold an equivalent qualification. They must be capable of preparing specifications, schedules of dilapidations, and of supervising the maintenance and repair of buildings, particularly during the Contractor's maintenance period. Experience in taking over new buildings from Contractors will be an advantage. Salary within the range £520—£580 per annum, according to qualifications and experience. Housing available in approved cases.

Applications stating age, education, qualifications, present and previous appointments, with salaries, experience in precise terms, and giving the names of two referees, should reach the General Manager, Gifford House, Basildon, Essex, by Monday, 9th May, 1955. 9591

CITY OF LEICESTER.
EDUCATION COMMITTEE.

Applications are invited from men for the post of TECHNICAL ASSISTANT in the Committee's Surveyor's Department. Salary in accordance with A.P.T. Grade I (£500/580) or Grade II (£560/£640) according to experience.

Candidates should have pasesd the R.I.B.A. Intermediate examination and have had experience in an Architect's office. The duties will include preparation of sketch plans and working drawings for schemes of minor works. The appointment will be subject to the provisions of the Local Government Superannuation Act and to a satisfactory medical examination.

Applications in writing, containing full particulars, together with the names of two referees, should reach the undersigned not later than 7th May.

ELFED THOMAS,
Director of Education.

Education Department,
Newarke Street,
Leicester. 9598

LONDON COUNTY COUNCIL.
QUALIFYING EXAMINATION FOR THE OFFICE OF DISTRICT SURVEYOR.

An examination for certificates of proficiency to perform the duties of district surveyor will be conducted in London in the week commencing 17th October, 1955. The minimum age limit for candidates is 25.

Possession of this certificate is necessary for appointment to positions as District Surveyor (Salary scales £1,400 to £2,900 a year) or as Assistant District Surveyor (salary scale £1,071 to £1,224 a year).

Subsequent examinations will be held annually.

Apply to The Architect to the Council (AR/ED/CTB), County Hall, Westminster Bridge, S.E.1, for application forms and further particulars. (526) 9606

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

ASSISTANT ARCHITECT required. Applicants must be associate members of R.I.B.A. and be experienced in design and construction, preferably in new hospitals and associated buildings. Salary scale: £625 × £25 (7) × £30 (3)—£890 plus London Weighting £20—£40. Commencing salary above minimum may be paid, subject to certain conditions.

Apply giving age, qualifications (with dates) and experience with names of two referees to Secretary, North West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, by 12th May. 9607

COUNTY BOROUGH OF HASTINGS.
SENIOR ARCHITECTURAL ASSISTANT
(A.P.T.IV—£675—£825).

Applications are invited for the appointment of SENIOR ARCHITECTURAL ASSISTANT in Grade A.P.T. IV. The appointment will be subject to the National Scale of Conditions of Service, the passing of a medical examination and to one month's notice in writing on either side.

Applications stating age, qualifications (which must include A.R.I.B.A. or equivalent), present and previous appointments and salary, accompanied by copies of not more than three testimonials, should be forwarded to the Borough Engineer, 37, Wellington Square, Hastings, not later than 12th May, 1955. Canvassing will be a disqualification.

N. P. LESTER,
Town Clerk.

Hastings. 9601

SOUTHERN ELECTRICITY BOARD.
SENIOR DRAUGHTSMAN.

No. 3 (Portsmouth) Sub-Area. Salary N.J.B. Schedule D, Grade 5 (£640—£740 per annum), N.J.B. Conditions of Service.

The successful applicant will be responsible to the Sub-Area Civil Engineer for design work, preparation of drawings and making calculations; candidates should have knowledge of building construction, steel work and reinforced concrete structures. Experience in an Architect's office would be an advantage.

The successful candidate for the above appointment will be required to contribute to the C.E.A. & Area Boards' Superannuation Scheme, if eligible.

Applications on forms obtainable from the Sub-Area Secretary, Lower Drayton Lane, Cosham, Portsmouth, and returned to him in envelopes suitably endorsed, not later than May 4, 1955. 9619

COUNTY BOROUGH OF SOUTHPORT.

Applications are invited for the appointment of an ASSISTANT QUANTITY SURVEYOR in the Borough Architect and Town Planning Officer's Department, at a salary in accordance with A.P.T. Division Grade IV of the National Scales of Salaries (£675—£825 per annum). Candidates must be Associates R.I.C.S. (Quantities Division).

Housing accommodation is available, if required.

Application forms obtainable from the Borough Architect and Town Planning Officer, 99/105 Lord Street.

R. EDGAR PERRINS,
Town Clerk.
9624

BOROUGH OF BRENTFORD AND CHISWICK.
TEMPORARY ASSISTANT ARCHITECT.

£675—£825 per annum, plus London Weighting. Commencing salary dependent on experience and qualifications. Experience in housing design and detailing is essential. Application forms from the undersigned by whom completed applications must be received by the 9th May, 1955.

W. F. J. CHURCH,
Town Clerk.

Town Hall,
Chiswick, W.4. 9623

WARWICKSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECT, grade A.P.T. IV (salary scale £675—£825).

(*b*) ASSISTANT ARCHITECT grade A.P.T. III (salary scale £600—£725). Applicants should be Members of the Royal Institute of British Architects.

(*c*) CLERK OF WORKS (resident) to supervise the erection of new Schools within the County. Salary £14 per week.

Appointments (*a*) and (*b*) are on the established staff, all appointments are subject to the Local Government Superannuation Acts 1937-53.

Application to be made on a form which can be obtained from G. R. BARNSLEY, F.R.I.B.A., County Architect, Shire Hall, Warwick.

L. EDGAR STEPHENS,
Clerk of the Council.

Shire Hall,
Warwick.
18th April, 1955. 9633

WILTSHIRE EDUCATION COMMITTEE.
TROWBRIDGE ADCROFT SECONDARY TECHNICAL SCHOOL OF BUILDING.

Required as soon as possible in this largely residential school: Qualified assistant MASTER to teach BUILDING CONSTRUCTION, LAND SURVEYING AND GEOMETRY. Good qualifications required, preferably in Architecture. Ability to assist with games and school activities will be a recommendation. Particulars and application forms from the Director of Education, County Hall, Trowbridge, Wilts. 9603

BOROUGH OF EDMONTON.
APPOINTMENTS.

QUANTITY SURVEYING ASSISTANT (Established) for Borough Architect's Department. A.P.T. II, £560 × £20—£640, plus London weighting £10—£30 according to age. Candidates should have passed the Intermediate R.I.C.S.

Applications on forms from the Town Clerk, Town Hall, Edmonton, must be delivered by 11th May. 9639

Devon County Council require ASSISTANT PLANNING OFFICER (National Park) A.P.T. III. Should be Associate of the R.I.B.A. or I.L.A. and have had considerable experience in National Parks or other areas of High Amenity Value. Closing date 4th May, 1955. Particulars from Director of Planning, "Bellair," Topsham Road, Exeter. 9638

MINISTRY OF EDUCATION.

ASSISTANT QUANTITY SURVEYOR required in Development Group for the preparation of bills of quantities and final accounts for educational buildings in new and conventional constructions, and to assist in planning and controlling the costs of development projects.

Age 25 or above. Preference to corporate members R.I.C.S. within scale £675—£1,035 plus extra duty allowance of 8%. Starting salary according to age.

Applications with details of age, training, qualifications and experience to the Secretary, Ministry of Education, Curzon Street, W.1, not later than 14 May, 1955. 9676

Blackwell R.D.C. require ARCHITECTURAL ASSISTANT (Inter R.I.B.A.). Salary Grade A.P.T. II (£560—£640). Apply, with details of qualifications and experience, and names and addresses of two referees, by 4th May, to R. Evans, Clerk to the Council, "Dale Close," 100, Chesterfield Road South, Mansfield. 9632

NORFOLK COUNTY COUNCIL.
ASSISTANT QUANTITY SURVEYORS required on permanent staff.
(*a*) Grade I (£500—£580) good experience in working up.
(*b*) Grade III (£600—£725) good experience in taking off and working up required and Intermediate examination of R.I.C.S. or equivalent necessary. Applications state age, training and experience, present appointment and salary, and names of three referees to Mr. C. H. Thurston, L.R.I.B.A., F.R.I.C.S., County Architect, 27, Thorpe Road, Norwich, by 5th May. 9637

POPLAR BOROUGH COUNCIL.
Area: 2327.7 acres. *Population:* 71,690.
Applications are invited for the following appointments:—
(*a*) ONE ARCHITECTURAL ASSISTANT (permanent, APT.II £560—£640, plus "weighting."
(*b*) THREE ARCHITECTURAL ASSISTANTS (temporary), APT. £560—£640, plus "weighting."
Poplar contains a considerable area scheduled for comprehensive development and the successful candidates will obtain first class experience in the construction of multi-storey flats, maisonettes, shops and houses built by both contract and direct labour.
The present establishment of the architectural and planning staff is 18.
Application forms obtainable from the Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3, for return not later than first post on 16th May, 1955. 9668

COUNTY BOROUGH OF ROCHDALE.
Applications are invited for the following appointments in the Borough Surveyor's Department.
1. ASSISTANT ARCHITECT at a salary £650, rising by annual increments of £25 to £775 per annum, commencing at a salary above the minimum, according to qualifications and experience.
2. ARCHITECTURAL ASSISTANT with good knowledge of building construction and drawing at a salary between £500 and £640, according to experience.
Appointments will be subject to the provision of the Local Government Superannuation Act and to the selected candidate passing a Medical Examination. Canvassing is prohibited and candidates must disclose whether to their knowledge they are related to any member or Senior Officer of the Council.
Applications stating age, qualifications and full particulars of experience, together with the names and addresses of two persons to whom reference may be made and endorsed "*Assistant Architect*" or "*Architectural Assistant*" must be delivered to the Borough Surveyor, Town Hall, Rochdale, by 9 a.m., on Saturday, 14th May, 1955.
K. B. MOORE,
Town Clerk.
9629

COUNTY BOROUGH OF HUDDERSFIELD.
BOROUGH ARCHITECT & PLANNING OFFICER'S DEPARTMENT.
Applications are invited for the appointment of an ASSISTANT ARCHITECT Grade A.P.T. II (£560—£640). Applicants should have passed the R.I.B.A. Intermediate Examination and should be capable of handling small contracts without supervision and assisting with the preparation of working drawings for large projects.
The post is subject to the National Scheme of Conditions of Service, as adopted by the Council, and to medical examination.
Applications with the names and addresses of two referees, should reach the Borough Architect and Planning Officer, High Street Buildings, Huddersfield, not later than 9th May, 1955.
Canvassing directly or indirectly will disqualify.
HARRY BANN,
Town Clerk.
Town Hall,
Huddersfield. 9644

Borough of Twickenham—ARCHITECTURAL ASSISTANT. Applications are invited for the post of ARCHITECTURAL ASSISTANT at a salary in accordance with Grade A.P.T. 2(£560—£640) plus weighting. Applications stating age, experience, qualifications, etc., together with two recent testimonials should be received by the Borough Engineer, York House, Twickenham, by 7th May, 1955. N.J.C. Conditions will apply and superannuation is payable. Canvassing will disqualify and applicants must state whether they are related to any member of the Corporation or Senior Officer.
W. H. JONES,
Town Clerk.
Municipal Offices,
Twickenham.
April. 1955. 9652

CITY AND COUNTY OF THE CITY OF LINCOLN.
CITY ARCHITECT'S DEPARTMENT.
Applications are invited for an ASSISTANT ARCHITECT, Grade A.P.T. III (£600—£725) to work on a varied programme of new buildings.
The appointment is superannuable and a medical examination is required.
If necessary, consideration will be given to the provision of housing accommodation.
Applications, stating age, qualifications and experience, together with the name of two persons to whom reference may be made, should be delivered to R. R. Alexander, A.R.I.B.A., M.T.P.I., City Architect, Stamp End, Lincoln, not later than the 12th May, 1955.
J. HARPER SMITH.
Town Clerk.
9641

BASILDON DEVELOPMENT CORPORATION.
DEPARTMENT OF ARCHITECTURE AND PLANNING.
ASSISTANT ARCHITECTS, GRADE IVA. Applications are invited for these superannuable appointments at a salary of £715 per annum rising to £845. A professional qualification in architecture is required, and candidates must have experience of the contemporary design of houses or of medium and small factories, together with the preparation of working drawings and supervision of contracts. Experience of private practising firms will be an advantage.
Housing available in approved cases. Applications must be made on the special form (obtainable from the Chief Architect) to the General Manager, Gifford House, Basildon, Essex, by 13th May. 9675

HATFIELD RURAL DISTRICT COUNCIL.
ARCHITECT'S DEPARTMENT.
Applications are invited for the appointment of ASSISTANT ARCHITECT at a salary in accordance with Grade A.P.T.II (£560—£640). The commencing salary will be adjusted in accordance with the qualifications and experience of the successful candidate.
Forms of Application may be obtained from Mr. J. H. Parker, A.R.I.B.A., Architect to the Council, 82, Great North Road, Hatfield, and must be returned not later than Wednesday, 18th May, 1955.
EDGAR F. CULL,
Clerk to the Council.
16, St. Albans Road,
Hatfield.
19th April, 1955. 9680

COUNTY BOROUGH OF EASTBOURNE.
ASSISTANT ARCHITECT.
A.P.T. 4: £675/30/825 p.a.
Applications are invited for the above appointment; full particulars of age, present position and salary, qualifications and experience, together with the names of two referees, to be sent to the undersigned by noon on Monday the 9th May, 1955.
R. WILLIAMS, B.Sc., A.M.I.C.E.,
Borough Engineer and Surveyor.
2/4, Saffrons Road, Eastbourne. 9684

AYCLIFFE DEVELOPMENT CORPORATION.
ASSISTANT ARCHITECT: GRADE IV-V.
Applications are invited for the appointment of Assistant Architect (Grade APT IV, £675—£825 *or* Grade APT V, £750—£900 according to ability and experience).
Applicants should be associate members of the R.I.B.A., and have had at least three years' varied experience.
Appointments subject to N.J.C. Conditions, Superannuation and medical examination.
Housing accommodation if necessary.
Applications, together with names of two referees, to arrive not later than 11th May, 1955.
A. V. WILLIAMS,
General Manager.
Newton Aycliffe,
Co. Durham. 9685

City of Chester—Department of City Engineer. Applications are invited for the post of ARCHITECTURAL DRAUGHTSMAN. Salary Miscellaneous Grade IV, namely £465—£545 per annum. Candidates should be able draughtsmen with experience of building construction.
Applications with two testimonials should reach City Engineer, 43, Northgate Street, Chester, by Friday, 6th May, 1955. Canvassing directly or indirectly will disqualify and relationship with any member or officer of the Council must be disclosed. 9631

LONDON COUNTY COUNCIL,
PARKS DEPARTMENT, requires:—
(i) ARCHITECT and (ii) LANDSCAPE ARCHITECT. Recognized professional qualifications and extensive experience of preparation of working drawings and specifications and execution of work by contract. Salaries up to £892.10s. according to qualifications and experience.
(iii) ARCHITECTURAL ASSISTANTS for preparation of working drawings and specifications and supervision of work on site. Experience in landscape work and design an advantage. Salaries up to £739.10s.
(iv) LANDSCAPE ASSISTANTS. Good knowledge of preparation of working drawings, schedules and specifications for park or garden reinstatement or new layouts to be executed under contract. Salaries up to £739.10s.
An extensive programme of construction of new parks and open spaces, the laying-out of grounds to new schools and housing estates and other types of ground work is in hand and those positions provide exceptional opportunities for applicants desiring to extend their experience in this field and in architectural work in association with landscaping.
Application forms from the Chief Officer of the Parks Department (A.1), Old County Hall, Spring Gardens, S.W.1 (WHItehall 3121, Ext. 33). (531) 9690

POPLAR BOROUGH COUNCIL.
Applications are invited for the appointment of TECHNICAL ASSISTANT, APT.III (£600-£725 per annum, plus "weighting") on the established staff of the Borough Engineer and Surveyor in the Direct Labour Building Section. Applicants should have had good experience in quantity surveying and be suitably qualified.
Application forms obtainable from Borough Engineer and Surveyor, Poplar Town Hall, Bow Road, E.3, for return not later than first post on 16th May, 1955. 9689

COUNTY BOROUGH OF BARNSLEY.
BOROUGH ENGINEER AND SURVEYOR OF PLANNING OFFICER'S DEPARTMENT.
Applications are invited for the appointment of a TEMPORARY ASSISTANT ARCHITECT, at a salary in accordance with A.P.T., Grade III (£600—£725).
The post offers an excellent opportunity to an Assistant who is qualified or in process of qualifying or to a student who has completed his Diploma course to obtain practical experience on Municipal housing schemes and in handling contracts.
The appointment is for a period of at least two years, and will be subject to (*a*) the Scheme of Conditions of Service for A.P.T.C. Staff, (*b*) any other general conditions of employment operating within the Corporation from time to time, and (*c*) to one month's notice on either side.
Applications, stating age, present and previous appointments, experience, qualifications, etc., together with the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, not later than 18th May, 1955.
Canvassing will disqualify.
A. E. GILFILLAN,
Town Clerk.
Town Hall, Barnsley.
April, 1955. 9699

BURGH OF CLYDEBANK.
ARCHITECTURAL ASSISTANTS.
Applications are invited for the following posts in the Burgh Surveyor's Department:—
(*a*) CHIEF ARCHITECTURAL ASSISTANT, on salary scale A.P.T., Va-V1 (£695—£815 per annum).
(*b*) ARCHITECTURAL ASSISTANT, on salary scale A.P.T., V (£665—£715 per annum).
For post (*a*) applicants must be Qualified Registered Architects, with several years' experience in the design and construction of Municipal Housing Schemes and public buildings, including the preparation of Plans, Specifications and Bills of Quantities relating to building works.
For post (*b*) applicants should be Registered Architects with experience in the design and construction of Municipal Housing Schemes and Public Buildings. They must be neat and expeditious draughtsmen, and capable of undertaking the preparation of Plans, Specifications and Bills of Quantities relating to building works.
Both appointments will be subject to the Local Government Superannuation Acts and to one month's notice on either side.
Applications, stating age, qualifications, experience, past and present appointments, and accompanied by the names and addresses of three referees, should be sent so as to reach the undersigned not later than 13th May, 1955.
WILLIAM TURNER, Esq., B.Sc., A.M.I.C.E., M.R.San.I.,
Burgh Engineer and Master of Works.
Municipal Buildings, Clydebank. 9697

CENTRAL ELECTRICITY AUTHORITY.
EAST MIDLANDS DIVISION.
Applications are invited for the following position within the Division:—
SECTION LEADER (CIVIL), Generation (Construction) Div. H.Q. (Vacancy No. 65/55/AJ.)
Candidates should be capable of taking charge of a Civil Section in the Generation (Construction) Drawing Office, and should have experience in the design and detail of heavy reinforced concrete structures, heavy foundations, retaining walls, culverts, etc.
Preference will be given to candidates holding qualifications equivalent to Corporate Membership of the Institution of Civil Engineers.
Salary in accordance with Schedule D, Grade 3 (£860×£20—£960 per annum) of the National Joint Board Agreement.
Closing date for receipt of applications: 26th May, 1955.
This appointment will be pensionable within the terms and provisions of the Central Electricity Authority and Area Boards Superannuation Scheme.
Applications should be submitted on the official form A.E.6/ACT, which may be obtained from the Divisional Establishments 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.
9701

WIGAN AND DISTRICT MINING AND TECHNICAL COLLEGE.
Applications are invited for a post as LECTURER IN ARCHITECTURE AND GENERAL BUILDING SUBJECTS.
Candidates should be graduates or possess an equivalent qualification. Membership of a professional institution is desirable. Candidates should be able to teach some Architectural and Building subjects to A.R.I.B.A. and Higher National Certificate standard. Salary in accordance with the Burnham Scale for Assistants, Grade "A" or "B," depending on the qualifications of the successful applicant.
Further particulars and application form will be sent by the undersigned on receipt of a stamped addressed foolscap envelope. Applications not on the form provided will be disregarded. Last date for receipt of applications: Monday, 23rd May, 1955.
E. C. SMITH,
Principal.
22nd April, 1955. 9700

SURREY COUNTY COUNCIL.

Applications invited for the following appointments:—

(1) ASSISTANT MAINTENANCE SURVEYOR GRADE IV, £675 × £30 — £825 p.a. plus London Allowance. Must be Members of R.I.C.S. (Bldg. Sub. Div.).

(2) MAINTENANCE SURVEYING ASSISTANT Grade II, £560 × £20 — £640 p.a. plus L.A. Pref. given applicants who have passed Inter. R.I.C.S. (Bldg. Sub. Div.).

Applicants for both appointments must be capable of drafting specifications in all trades, prep. schedules of dilaps., detailed estimates for gen. maint. works and surveys of properties.

Full details and present salary, accompanied by 3 copy testimonials, to County Architect, County Hall, Kingston, by 7th May, 1955. 9691

BOROUGH OF BASINGSTOKE.

BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of CLERK OF WORKS. Salary: Miscellaneous, Grade V (£530—£590). Considerable experience of Housing is essential.

Applications, together with either copies of two recent testimonials or the names and addresses of two referees, must be submitted not later than Wednesday, the 11th May, to the Borough Architect (Eric Almond, Dipl. Arch., A.R.I.B.A.), Municipal Buildings, Basingstoke.

MEIRION O. JONES,
Town Clerk.
9693

GLAMORGAN COUNTY COUNCIL.

Applications are invited for SENIOR PLANNING ASSISTANTS at Headquarters, County Hall, Cardiff, in accordance with Grade A.P.T., IV. Salary £675 p.a. × £30—£825 p.a.

Candidates must be Corporate Members of the Town Planning Institute, and preference will be given to those who hold a University diploma in Town Planning.

Applications, stating age, training, qualifications, experience, and present salary, accompanied by two testimonials, should be sent to the County Planning Officer by the 14th May, 1955.

RICHARD JOHN,
Clerk of the County Council.
9704

KENT COUNTY COUNCIL.

Applications are invited for the following appointments in the Buildings Department:—

(1) ASSISTANT ARCHITECT. Salary within scale £675 to £825.

(2) ARCHITECTURAL ASSISTANT. Salary within scale £650 to £775.

Candidates must have had experience in the design and construction of modern buildings. Those for (1) must be Associates of the Royal Institute of British Architects, and for (2) have passed Parts I and II of the Final Examination of the Institute.

Particulars and forms of application from County Architect, Springfield, Maidstone. Closing date 13th May, 1955. 9698

Architectural Appointments Vacant

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

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

ARCHITECTURAL ASSISTANT: Intermediate approaching final. Commercial and industrial work; large-scale contracts. Watson, Johnson, Stokes. Victoria Square. Birmingham. 4895

URGENTLY required. ASSISTANT for responsible position in general practice with interesting work in hand over a large area. Salary directly related to ability. Accommodation available if required. Martindale and Jackson, F./A.R.I.B.A., Cathedral Chambers, Castle Street, Carlisle 9135

SALARY up to £793, according to experience for ASSISTANT in first class City Office. Box 9169.

ARCHITECTURAL ASSISTANT required, intermediate stage or above, some office experience. Write for interview. Box 8770.

ARCHITECT, OR EXPERIENCED ASSISTANT, REQUIRED BY "THE ARCHITECTS' JOURNAL." Ability to write fluently and well, and a sound knowledge of construction and contemporary building techniques essential. Will be expected to write reports on buildings, supervise the production of technical architectural drawings, commission and sub-edit technical articles and assist production. Please reply to The Editor, "The Architects' Journal," 9, Queen Anne's Gate, S.W.1. 902

REQUIRED in Chief Architect's Department at Head Office of Multiple Store in London. (*a*) JUNIOR ARCHITECTURAL DRAUGHTSMAN or ASSISTANT with good basic experience to prepare sketch plans, working drawings and give general assistance. (*b*) JUNIOR SHOPFITTING DRAUGHTSMAN for Store Fixtures and Fittings. Write, with details of experience and salary required, to Box 9194.

SENIOR and INTERMEDIATE ARCHITECTURAL ASSISTANTS required. Five-day week. Write or telephone, giving full particulars, including age and salary, to Hasker & Hall, Architects, 13, Welbeck Street, W.1 (WELbeck 0061) 9445

OPENING for QUALIFIED ARCHITECTS as Assistant Designers with an expanding firm of new traditional builders. Must have good general practical knowledge and a keen interest in new building methods. A prospect exists for working overseas. Starting salaries range between £650 and £750 according to experience, with an increase after six months' satisfactory service. Messrs. Reema Construction, Ltd., Milford Manor, Salisbury, Wilts. 9236

£500—£700 per annum salary offered for ASSISTANT to take part in large-scale development and remodelling of petrol filling stations, service stations, garages and workshops, etc. Must be capable of working independently. Should be of intermediate standard. Work will involve original design, site visits and a high standard of presentation. Five-day week, good pension and life assurance scheme, sickness benefits and free luncheon vouchers. Social Club. Write, giving full details, stating age, experience and salary required to Box 9325, quoting Ref. Y 593.

ARCHITECTURAL ASSISTANT required, experience up to Final or Intermediate standard in preparation of working drawings, details, specifications, for South West London office. Apply in writing, giving full particulars of experience, age and salary required, to Box 9098.

INTERMEDIATE standard ASSISTANT required for general practice, Central London Area. Five-day week. Telephone John A. Gosschalk, Chartered Architect, Welbeck 0893, for appointment, or write brief details to Box 9157.

ARCHITECT with varied practice requires capable ASSISTANT. Good draughtsman with knowledge of construction. Reply with details of age, experience and salary expected, to A. W. J. Mullins, L.R.I.B.A., 78, Thoro'fare, Woodbridge, Suffolk. 9393

ARCHITECTURAL ASSISTANTS required for West End office. Salary £350—£700 p.a. according to experience and ability. Scherrer and Hicks, 19, Cavendish Square, W.1. 9395

ASSISTANT SURVEYORS experienced in the preparation of detailed drawings and surveys required by Davis Estates, Ltd., 346/350, Kilburn High Road, London, N.W.6. Apply giving details of past employment and salary required. 9462

SENIOR ARCHITECTURAL ASSISTANTS required immediately to work on large City office blocks. Final standard with 5 years' office experience. Salary £650—£800. Apply, in writing, to Campbell Jones & Sons, Chartered Architects, 9, Dowgate Hill, E.C.4, or telephone CEN. 7748. 9425

THE Girls' Public Day School Trust require an ASSISTANT ARCHITECT, preferably qualified and experienced in the design of extensions and adaptations of School Buildings. Apply in writing to the Secretary, G.P.D.S.T., Broadway Court, Westminster, S.W.1. 9449

RONALD WARD & PARTNERS require several ARCHITECTURAL ASSISTANTS. Apply 29, Chesham Place, Belgrave Square, S.W.1, or telephone Belgravia 3361. 7023

ARCHITECT'S ASSISTANTS required (1 Senior and 2 Juniors) for West End Office. Write, stating full particulars and salary required, to Box 8725.

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

CLIFFORD TEE & GALE, F/F.R.I.B.A., require SENIOR and JUNIOR ASSISTANTS in their Westminster Office on Research Laboratories and other interesting projects. Please apply to 5, Buckingham Palace Gardens, S.W.1. (Sloane 2296). Five-day week 8660

ARCHITECTURAL ASSISTANT required in the West End Offices of Percy Bilton Ltd. Salary about £500—£600 according to experience. Work would entail preparation of drawings, details and specifications for wide range of buildings including houses, flats and offices. Write giving experience and other useful information to Staff Architect, Percy Bilton Ltd., 113, Park Street, W.1. 8292

ARCHITECTURAL STAFF, all grades, wanted, interesting and varied work of contemporary character; light and airy offices. Apply J. Seymour Harris & Partners, 4, Greenfield Crescent, Edgbaston, Birmingham, 15. 8786

ARCHITECTURAL ASSISTANT required in small private office. Intermediate to Final standard. Write, stating experience and salary required, to: A. F. Bennett, 35, Queen's Gate Mews, London, S.W.7. 9266

ARCHITECTURAL ASSISTANT required by Major Oil Company undergoing expansion, for its Sheffield office. Applicants should be of Intermediate standard, and must be capable of carrying out work on the design and re-modelling of service stations. Social Club, Pension and Life Assurance scheme, generous sickness benefits. Write, giving full details of experience, age and salary required, to Box 9262, quoting Ref. A.A. 588.

YOUNG ASSISTANT, up to Inter.-R.I.B.A. standard, required to assist Staff Architect in small Drawing Office of a Multiple Combine with Branches throughout Great Britain. Able to work with the minimum of supervision. Occasional travelling may be involved. Apply, stating age, previous experience, and salary required, to Box 9681.

ARCHITECTURAL ASSISTANT required for Winchester office. Geoffrey Denham & Son, 41, Jewry Street, Winchester. 9662

ARCHITECTURAL ASSISTANTS required immediately for busy Birmingham practice. A.R.I.B.A. and/or Intermediate qualifications. Salary scale £500—£750, according to experience, etc. Write, giving full particulars and when available, to Wood & Kendrick & Williams, 57, Colmore Row, Birmingham, 3. 9683

ARCHITECTURAL ASSISTANT required in small busy office in Westminster. Must be quick and neat draughtsman, with at least 3 years' experience in private practice. Salary according to capabilities. Write, with full particulars, to Michael Brashier, A.R.I.B.A., 11, Gayfere Street, S.W.1. 9682

NAIROBI.—Experienced ASSISTANT, preferably qualified for expanding practice. Must be able to work quickly, accurately, with minimum supervision. Salary up to £100 p.m. Write immediately, quoting OSS.74/2, Overseas Technical Service, 5, Welldon Crescent, Harrow, Middlesex. 9679

NORTHERN RHODESIA, for growing practice, SENIOR ASSISTANT ARCHITECT. Salary £1,000 p.a. Free passage, single accommodation available, home leave. Apply, quoting OSS.56/4, Overseas Technical Service, 5, Welldon Crescent, Harrow, Middlesex.

SENIOR ARCHITECTURAL ASSISTANT required for leading office in East Africa, probably for their Kampala, Uganda branch. Some years' experience. Salary £780—£960, according to experience and location, with free passage, bonus, and leave scheme. Apply, quoting OSS.17/8, Overseas Technical Service, 5, Welldon Crescent, Harrow, Middlesex. 9677

ASSISTANT ESTIMATOR (aged 20-30 years) required for London firm of roofing specialists. Experience essential in preparing quantities from drawings. Write, giving full particulars of experience and salary required, to Box 1542, T. & G., 167, High Holborn, London, W.C.1. 9672

ARCHITECTURAL ASSISTANTS required in busy London office; able to prepare working and detail drawings and supervise works; must be good draughtsmen. State salary and experience. 'Phone: Covent Garden 2629. 9622

ARCHITECTURAL ASSISTANT required in London office for interesting work in progress throughout the country; preferably Member of the R.I.B.A., with experience of design and supervision of complete contracts. Salary £700—£900, according to experience.

Also ARCHITECTURAL DRAUGHTSMAN, with considerable drawing office experience, quick and neat draughtsman, able to prepare all types of working drawings under supervision. Salary £500—£700, according to experience.

Applications, stating age, detailed experience, present salary, to be addressed to Box 9602.

THREE SENIOR ASSISTANTS required urgently in busy Architect's office in Central London. Please apply, stating age, qualifications and experience, to Ronald Fielding, A.R.I.B.A., Aldwych House, London, W.C.2. CHAncery 3532/3. 9604

ARCHITECTURAL ASSISTANT required, Intermediate standard. Apply Box 9600.

ARCHITECTURAL DRAUGHTSMAN required in country office in Sussex immediately. Competent, without supervision, to produce 4th scale, ¾ in. and full size drawings from sketch plans. Mainly domestic and farm buildings. Experience in site surveys and levelling an advantage. Apply, stating experience, age, and salary required, and when available, to Box 9599.

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required for commercial practice West End area. Experience in design of industrial buildings advantageous. Apply Box 9597.

ARCHITECTURAL ASSISTANT (SENIOR), fully qualified, required immediately in busy London Architect's office. Must be experienced in preparation of working drawings, details, supervision of commercial and other buildings in course of construction. Write, giving details of experience, salary required, when free. Box 9596.

ARCHITECTURAL ASSISTANTS of Intermediate standard, required to work on large office buildings. Apply in writing, stating age training and experience, to Trehearne & Norman, Preston & Partners, Windsor House, 83, Kingsway, W.C.2. 9595

WANTED, in Oxfordshire office, ARCHITECTURAL ASSISTANT, male or female, approx. Inter standard. One who has some knowledge of, and is interested in, traditional and restoration work. Good prospects and scope for the right applicant, who must be keen and conscientious. Accommodation available. Apply, stating salary required. Box 9594.

ARCHITECTURAL ASSISTANT required by Firm of Structural Engineers. Intermediate standard would be satisfactory. Apply to Raylor Brothers, P.O. Box 4, Witney. Tel.: Witney 584. 9592

ASSISTANT required for Architect's office. Commencing salary up to £600, according to age and experience. Write full particulars to H. Wakeford & Sons, 184, Clapham Road, London, S.W.9. 9609

ARCHITECTURAL DRAUGHTSMAN (young), if possible with some experience of exhibitions and interior decorations, required by leading London Exhibition Organisers. Give age and details of experience. Box 9627.

SAMUEL MORRISON & PARTNERS require the following:—

(*a*) SEVERAL ARCHITECTS, to undertake research and assume responsibility for the design and erection of contemporary schools.

(*b*) SEVERAL ARCHITECTS, to carry out similar work in the sphere of housing, shopping centres, etc.

(*c*) ASSISTANTS of Intermediate or Final standard to collaborate with the above.

(*d*) An ASSISTANT who is interested in the preparation of articles and typography, in addition to normal architectural work.

Salaries comparable to Local Authority Scales; interview expenses paid. St. Alkmunds House, 103, Belper Road, Derby. 9653

NATIONAL COAL BOARD—N.W. DIVISION. DIVISIONAL HEADQUARTERS.

JUNIOR QUANTITY SURVEYING ASSISTANT required. Must be intent on Quantity Surveying as a career, but previous experience in Quantity Surveyor's office, though desirable, is not essential. Salary scale £2 7s. 6d. to £8 per week at age 25. Applications, giving age, education, present appointment and salary, to Establishment Officer, 40, Portland Street, Manchester, 1, within 14 days. 9654

BRITISH HOME STORES, LTD., require ARCHITECT'S ASSISTANTS of various grades between 27 and 40 years of age for their Architect's Department. Salary rates from £650 to £1,000 per annum, according to experience. Applicants must have had at least 4 years' office experience. Positions give good opportunities for up-grading. Contributory pension scheme, non-contributory life assurance scheme, and subsidised staff canteen in operation. Applications in writing, giving full details of age, experience, etc., to be sent to Personnel Manager, British Home Stores, Ltd., Marylebone House, 129-137, Marylebone Road, London, N.W.1. 9642

SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS required for general and commercial practice. Apply, stating age, experience, qualifications and salary required, to Duncan Clark & Beckett, F./L.R.I.B.A., F./F.R.I.C.S., Architects and Surveyors, 7, West Stockwell Street, Colchester. 9643

BASIL SPENCE & PARTNERS have vacancies for TWO SENIOR ASSISTANTS in their London office. Write stating salary required to 48, Queen Anne Street, London, W.1. 9646

ROFF MARSH, F.R.I.B.A., M.T.P.I., requires CHIEF AND SENIOR ASSISTANT. Interesting work on flats, shops, schools, etc. Apply to 125, London Road, Chelmsford. 9647

ASSISTANT required in busy office. Up to Intermediate standard. Salary by arrangement. Frank Scarlett, B.A., F.R.I.B.A., 18, Mansfield Street, W.1. LAN. 5441. 9648

REQUIRED by West End London Architects, an ASSISTANT, about Intermediate standard, for varied practice. Write, stating age, experience, and salary required. Box 9651.

ASSISTANTS required for busy West End office. Intermediate standard. Apply Morrison, Rose & Partners, 8, Park Street, W.1. GRO. 7522. 9655

ASSISTANT R.I.B.A. (Inter.) standard, with previous office experience, required by busy general practice. Salary up to £400, according to experience. Holiday by arrangement. John Macgregor & Partners, 53, Great Ormond Street, W.C.1. 9657

ARCHITECTS' ASSISTANT required by small busy office in Essex. Varied and interesting work in Home Counties area. 5-day week. Salary by arrangement. Please write to Box 9659.

ARCHITECTURAL ASSISTANT required at or near Intermediate stage. Salary £7—£10, according to ability and experience. Winter & Pickering, L./A.R.I.B.A., 114, Holborn, E.C.1. HOLborn 2012. 9658

APPLICATIONS are invited for the following post on the permanent staff of the Regent Oil Company, Ltd.:—

ONE ARCHITECTURAL ASSISTANT. Starting salary £500—£650 per annum, according to experience and ability. Applicants should have passed the Royal Institute of British Architects' Intermediate Examination, and should have sound practical experience.

The work includes several large projects, laboratories and other technical buildings, offices, canteens, garages, and service stations throughout the country. A thorough working knowledge of construction and contemporary design is essential. The post is progressive and pensionable.

Applicants should communicate with G. R. Toogood, A.R.I.B.A., Company Architect, Regent Oil Co., Ltd., 117, Park Street, London, W.1 (Telephone: MAYfair 8474), by letter or telephone, giving full particulars, including whether they have completed their National Service. 9634

VACANCIES occur in busy London Architect's practice for Senior and Junior ASSISTANTS, salaries varying from £600 to £900, according to experience and capabilities. Reply with full particulars to Box 9223.

R. & D. HALL, F./A.R.I.B.A., Masonic Buildings, N. Wales, require ONE QUALIFIED ARCHITECTURAL ASSISTANT and ONE QUALIFIED QUANTITY SURVEYOR. Interesting work in pleasant area. Ability and energy essential, with salaries accordingly. Box 9621.

WESTWOOD, SONS & HARRISON, F./F.R.I.B.A., require SENIOR and JUNIOR ARCHITECTURAL ASSISTANTS, with office experience. Apply in writing to 46, Baker Street, W.1. 9626

ARCHITECTURAL ASSISTANTS required for Contemporary work, Glasgow office. Starting salary £600 p.a. Box 9610.

ARCHITECT'S ASSISTANT, Intermediate standard, required in the Architect's Department of a London Brewery Company. Write with full particulars to Box 9692.

QUALIFIED SENIOR ASSISTANT required for Architect's office, able to carry through work from sketch plan stage to completion without supervision. Experienced in industrial work essential. Salary by arrangement. Eric Firmin & Partners, 10, Manchester Square, London, W.1. 9613

ASSISTANT ARCHITECT, Intermediate standard, urgently required for general practice. Good salary and prospects for suitable applicant. Write, giving age and experience, to W. D. Sterland, 86, Friar Lane, Nottingham. 9612

ARCHITECTURAL ASSISTANTS required in West End office. Qualified or Intermediate standard. Varied and interesting work. 5-day week. Salary range £600-£850. 9614

ARCHITECTURAL ASSISTANTS, Senior and Junior, required for busy Birmingham practice. Apply, stating experience and salary required. Box 9615.

EAST MIDLANDS.—SENIOR ASSISTANT, Final standard, 2/3 years' office experience, for small general practice. Experience on schools and ability to drive car an advantage. Accommodation available. Box 9616.

CITY of London Architects require JUNIOR ASSISTANT and SENIOR ASSISTANT for Commercial and Industrial Practice in London and Home Counties. Write, stating age, qualifications and salary required, to Box 9617.

BRISTOL CO-OPERATIVE SOCIETY, LTD., invite applications for the following appointments in the office of the Society's Architect and Works Manager:—

(1) ARCHITECTURAL ASSISTANT. With good basic experience; able to prepare sketch plans and detailed drawings for work in connection with large and varied development programme.

(2) BUILDER'S ASSISTANT. For inspection and supervision of general building work. Good knowledge of all trades; control of labour; ability to read drawings; make approximate estimates; written reports. Car driver.

Superannuation and other benefits to suitable applicants.

Applications, endorsed "Architectural Assistant" or "Builder's Assistant," to be made in writing to Bristol Co-operative Society, Ltd., G.P.O. Box 64, Castle Green, Bristol, 1, not later than 6th May, 1955. 9618

T. H. THORPE & PARTNERS, of 41, Friar Gate, Derby, have the following vacancies on their staff for keen ASSISTANTS willing to accept responsibility.

ASSISTANT ARCHITECT, to take control of commercial and industrial contracts up to the value of £100,000. Applicants must be A.R.I.B.A., with considerable office experience. Salary £800 p.a. minimum, and according to experience.

ASSISTANT ARCHITECT, to work on hospital contracts in the Derbyshire area. Applicants should be preferably qualified A.R.I.B.A. Salary £700—£850 p.a., according to qualifications and experience.

ARCHITECTURAL ASSISTANTS, to work on hospital and housing contracts. Applicants should be Inter.-R.I.B.A. standard. Salary £500—£600 p.a., according to experience. 9620

ASSISTANT required for general practice in Woking and London. Inter. standard. Office experience essential. Particulars to A. Whitburn, 12, Broadway, Woking 810. 9588

TWO SENIOR and TWO JUNIOR ARCHITECTURAL ASSISTANTS required for London office, three for Rangoon office. Overseas appointments carry generous living allowance, free furnished accommodation, servants and medical attention, and also some transport for private purposes. Apply Raglan Squire & Partners, 3, Hobart Place, London, S.W.1. Sloane 5261. 9628

ARCHITECTURAL ASSISTANTS required to work on large projects in Architect's Department of London office and in West Middlesex Branch office. Good draughtsmanship essential. Salary £700—£800, 5-day week. Please send full particulars to Box 9645.

OLIVER LAW & PARTNERS (Chartered Architects), 36, Ebury Street, Westminster, having filled the vacancies previously advertised, and further work having developed in the meantime, require two or three additional ARCHITECTURAL ASSISTANTS (DRAUGHTSMEN). Some office experience essential. Salaries £600 to £800 per annum, according to experience. 9635

STEWART & HENDRY, FF.R.I.B.A., A.M.T.P.I., require ASSISTANT of Intermediate standard for new public house work. Apply, stating experience and salary required, to 90, Fenchurch Street, E.C.3. 9667

THE STEEL COMPANY OF WALES, LIMITED
(Steel Division),
PORT TALBOT,
invites

applications from suitably qualified Engineers for a number of vacancies created by the present large expansion of the Works.

The Steel Division is a fully integrated iron and steel works, and produces medium and light plates, hot and cold rolled sheets and hot strip for cold rolling into tinplate. These products are used in motor cars, electrical machines, refrigerators, washing machines, oil drums, and many forms of cans and boxes for food and other uses; and are in demand far beyond the present capacity of the industry.

The Works is extremely modern, has excellent working conditions, and a very high standard of plant and equipment.

MECHANICAL, ELECTRICAL and CIVIL ENGINEERS are required for a wide range of different jobs, including both general development work and the engineering services in manufacturing departments.

The majority of the vacancies to be filled immediately are Assistant Engineers within the various departments concerned. Salary range from £750 to £1,000 per annum, according to qualifications and experience. Prospects of promotion are good.

Experience in the steel industry is not essential although preferred. Age will be reckoned less important than the ability to assimilate training, which will be given to all successful candidates who need it.

The positions are permanent, and the Company has a generous superannuation scheme which is compulsory for all members of the Staff. The Works is situated on the seaboard, with agreeable residential areas nearby.

Those interested should *write for official Application Form* to the:

PERSONNEL SUPERINTENDENT,
The Steel Company of Wales, Limited
(Steel Division),
Abbey Works, Port Talbot. 9685

ARCHITECTURAL ASSISTANT required immediately by London firm of architects. Salary £600 to £700, according to experience. Reply stating age, qualifications and experience to Box 9504.

UNIVERSITY OF SHEFFIELD.

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