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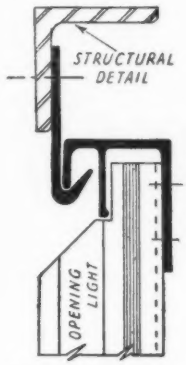
★ **A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy. : W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 5, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
APRR	Association for Planning and Regional Reconstruction. 34, Gordon Square, W.C.1.	Euston 2158-9
ArchSA	Architectural Students' Association. Department of Architecture, School of Building, Ferndale Road, Brixton, S.W.4.	Brixton 7048
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Welbeck 9738
ASB	Architectural Science Board of the Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
AScW	Association of Scientific Workers. 15, Half Moon Street, Piccadilly, W.1.	Grosvenor 4761
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 9, Conduit Street, W.1.	Mayfair 8641/6
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13.	Perivale 6869
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Flaxman 7766
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BGF	British Gas Federation. 1, Grosvenor Place, S.W.1.	Sloane 8266
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BIAE	British Institute of Adult Education. 29, Tavistock Square, W.C.1.	Euston 5385
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Millbank, S.W.1.	Whitehall 5140
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 2246
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333
BTE	Building Trades Exhibition. 4, Vernon Place, W.C.1.	Holborn 8146/7
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Borough Architect, Town Hall, Newport, Mon.	Newport 3111
CAS	County Architects Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7.Zurich, Switzerland.	
CID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Whitehall 6322
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.	Sloane 4280
CUJC	Coal Utilization Joint Council. 13, Grosvenor Gardens, London, S.W.1.	Victoria 1534
CVE	Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1.	Reading 72255
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DOT	Department of Overseas Trade. 35, Old Queen Street, S.W.1.	Victoria 9040
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 8, Buckingham Palace Gdns., S.W.1.	Sloane 2837
FASSC	Federation of Association of Specialists and Sub-Contractors. 21, Tothill Street, S.W.1.	Whitehall 9696
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FOB 1951	Festival of Britain 1951. 2, Savoy Court, Strand, W.C.2.	Waterloo 1951
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4041
FS (Eng.)	Faculty of Surveyors of England. 8 Buckingham Palace Gdns., S.W.1.	Sloane 2837
GG	Georgian Group. 27, Grosvenor Place, S.W.1.	Sloane 2844
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 5615
ICA	Institute of Contemporary Arts, 17-18, Dover Street, Piccadilly, W.1	Grosvenor 6186
ICE	Institution of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215

Two revolutionary inventions affecting opening lights in ALUMINEX patent glazing

It has been said that one test of a good invention is whether the laymen will say—after it has been invented—that it is obvious. Here is a brief account of two such deceptively simple inventions that put Aluminex Patent Glazing opening lights in a class on their own for operational efficiency.

An opening light in Aluminex Patent Glazing is hung on a single hinge : a continuous hook hinge that extends the whole length of the window. The hinge is shown in the accompanying sketch. It will be seen from its simple shape that it cannot bind as ordinary knuckle hinges often do, nor does it suffer from other limitations of the ordinary hinge. The Aluminex hook hinge, being continuous, gives uniform support to the frame along its entire length. This means that the framework of the lights hung on these hinges may be constructed throughout of much lighter than normal metal sections.



This drawing shows the design of the continuous hinge used on the Aluminex opening lights. The head weathering makes flashings unnecessary.

It will immediately be seen how materially the invention of this hinge affected the progress of patent glazing. The hinge formed a natural addition to the other Aluminex components because these elements — the glazing bar, the continuous glazing cover strip, the zed weathering detail and the shoe — were all of similarly simple and functional design. (They were indeed the results of a basic re-thinking of patent glazing.)

Three advantages of the continuous hinge

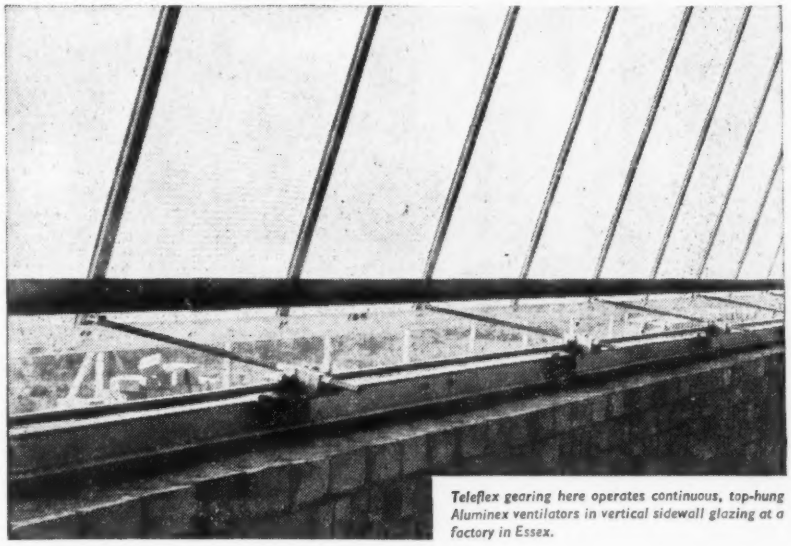
The exact form in which the continuous hinge was incorporated in the Aluminex system (again, as the diagram shows) brought three additional advantages. First, the hinge solved the problem of mounting long and continuous lights without hingers or hinge pins. Second, in the form adopted it provided an integral and draughtproof head weathering which made flashings unnecessary. Third, the hinge also provided, by reason of its open and simple form, a means of accommodating without strain or loss of alignment, the small structural variations which occur in practice, but which always tend to impair the free action of ordinary hinges.

part of the Aluminex opening light hung on the continuous hook hinge.

The general character of the Aluminex patent glazing system of which these two inventions now form part, may be summarised as follows :

It consists of extruded aluminium alloy glazing bars of great strength and resistance to corrosion. Glass panes are clipped to these bars by means of continuous rolled glazing cover strips, also made of aluminium alloy. The other specially designed fitments are the zed weathering detail and the glass shoe.

Great areas may be glazed by this method. The north windows of the Brabazon hangar at Filton measure 1,052 ft. by 50 ft. Aluminex may be double-glazed to provide a cladding which has high insulating properties. The appearance of the glazing is neat and light, according well with contemporary styles of industrial architecture.



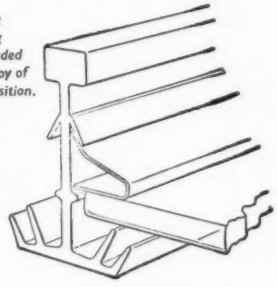
Teleflex gearing here operates continuous, top-hung Aluminex ventilators in vertical sidewall glazing at a factory in Essex.

The continuous hinge allowed Aluminex engineers to build opening lights of 200 ft. length as a matter of course, and even greater lengths where circumstances demanded it, or where the opening gear could be power-operated.

New operating gear

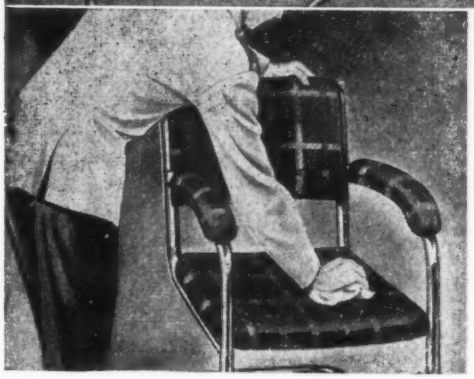
At this point we must take into account operating gear. And it is precisely in this field that Aluminex was again fortunate in adding to itself a product of new thinking similar to itself in intelligent simplicity. This was the Teleflex opening gear. It first came into its own in the late war. At one time it was performing such diverse tasks as moving the tail fins of R.A.F. aircraft and swinging the control turrets of naval guns. Today its essential characteristics are the same as those which won acceptance for it during the war, although since then, it has been refined and improved in most particulars. Teleflex is a threaded cable which operates through small, well-designed gear boxes and is capable of transmitting movement over great distances by almost any route. It can be mounted on lighter metal sections than is the case with tension rod gearing and its mechanical efficiency is such that opening lights 200 ft. in length may be operated with very little effort. In addition, the costs of manufacture and erection are lower than with tension rod gearing. As a whole, therefore, the Teleflex opening light operating gear is a natural counter-

This Aluminex patent glazing bar is of extruded aluminium alloy of special composition. Here is seen one glazing cover strip holding a pane of glass in position on the bar.



The Architect who turns to Aluminex Patent Glazing has at his service a method of architectural cladding capable of versatile applications. It is an accepted system yet remains susceptible to imaginative development. The Company extends its fullest co-operation to all Architects who wish to discuss new applications of Aluminex.

For further information please communicate with the **Aluminex Division** *of Williams & Williams Limited, Reliance Works, Chester. Telephone: Chester 24624 (10 lines). Telegrams: Reliance, Chester. And at Victoria House, Southampton Row, London, W.C.1. Telephone: HOLborn 9861.*



Tygan was chosen by Mr. Brian O'Rorke, F.R.I.B.A., *for the upholstery of the chairs in the Tourist "B" Class Café on the Orient Line S.S. Orcades.*

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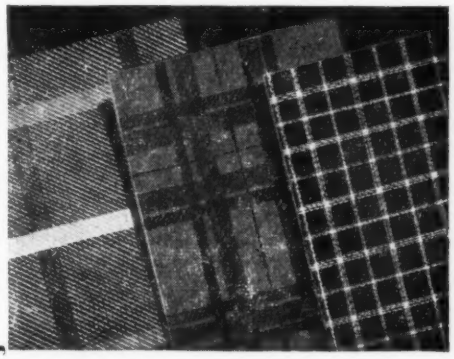

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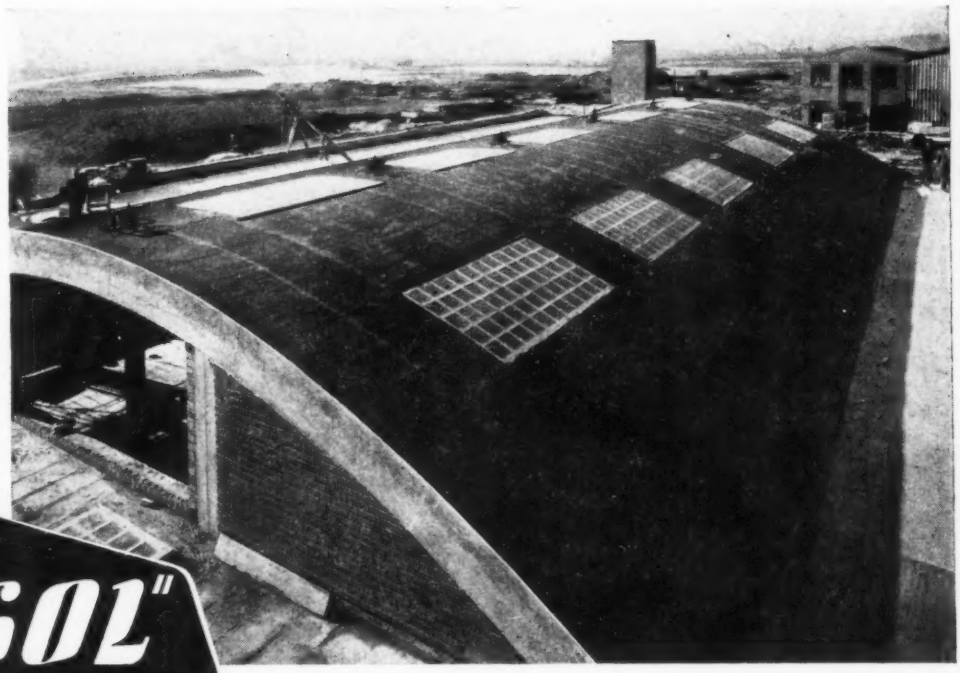

Yorkshire Copper Works, Stourton, near Leeds (*Radiant Heating in Soffit*).

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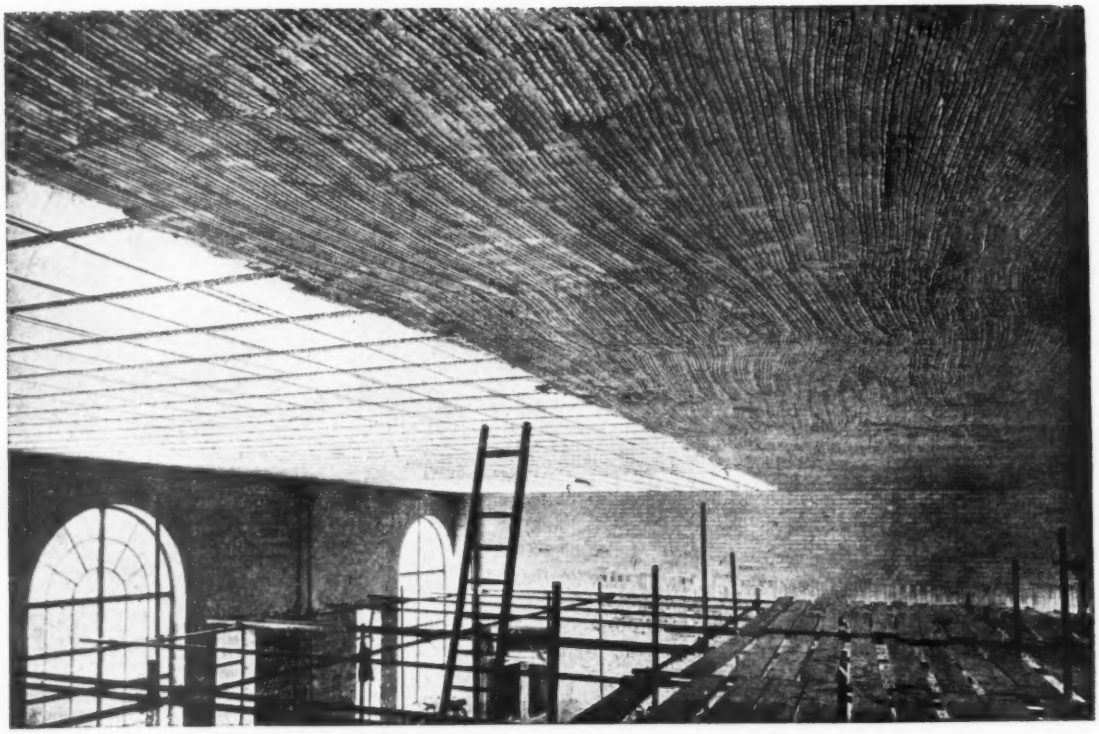
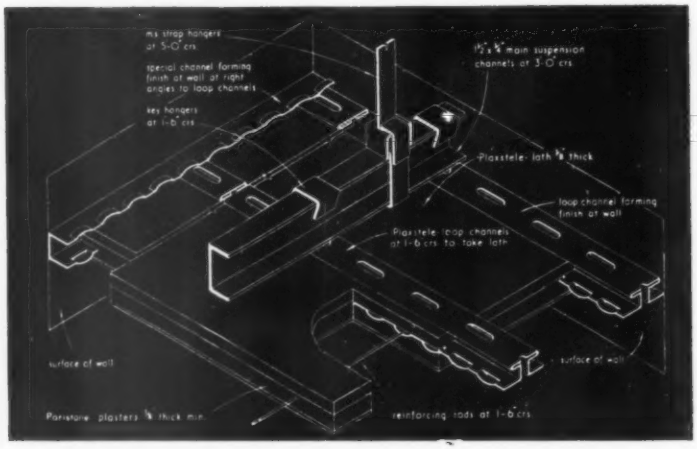


Part of a large area *of* **PLAXSTELE** *ceiling*

Registered Trade Mark

The PLAXSTELE system combines the use of PLAXSTELE lath, specially designed for plastering with PARISTONE plaster, with metal patented suspension and jointing members which hold the lath rigid and at the same time anchor metal reinforcing rods in the plaster finish.



It provides a suspended ceiling with a substantial plaster finish having high fire-resisting properties. It is adaptable to any type of building construction and can be suspended horizontally at any level below the main roof structure.

Advantages of this system include simplification of plastering work, saving of time, superior strength, high fire resistance, elimination of timber framing, improved thermal insulation.

The photograph above shows part of a large area of PLAXSTELE ceiling to which the first undercoat of PARISTONE plaster is being applied. The isometric sketch on left shows the general assembly of the component parts.

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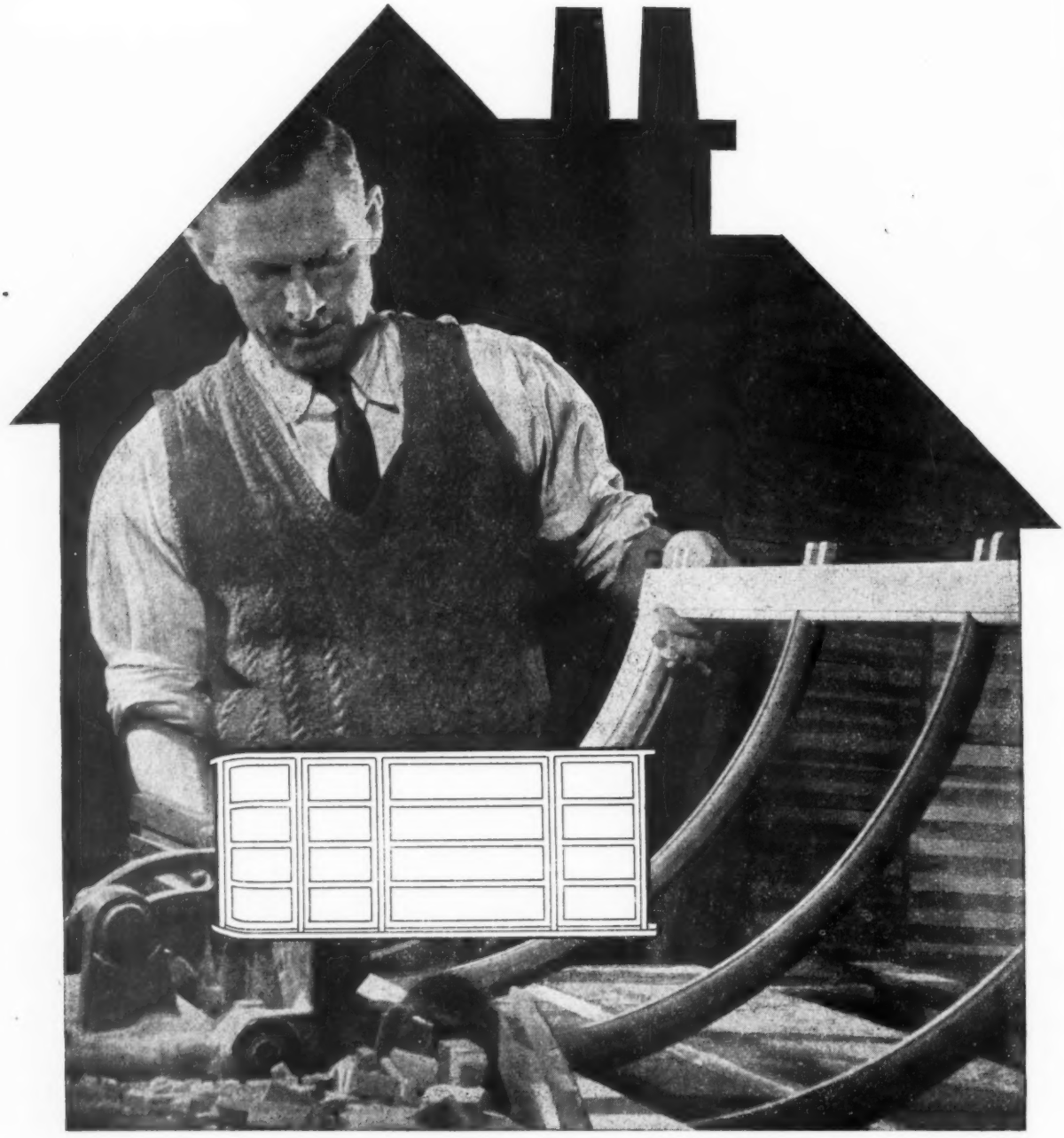
GLASGOW OFFICE: Gyproc Wharf, Shieldhall, Glasgow, S.W. 1. Telephone: Govan 2141-3. 'Grams: Gyproc, Glasgow
LONDON OFFICE: Morris House, 1-5 Jermyn Street, London, S.W.1 Telephone: Whitehall 8073-4

G.P.3



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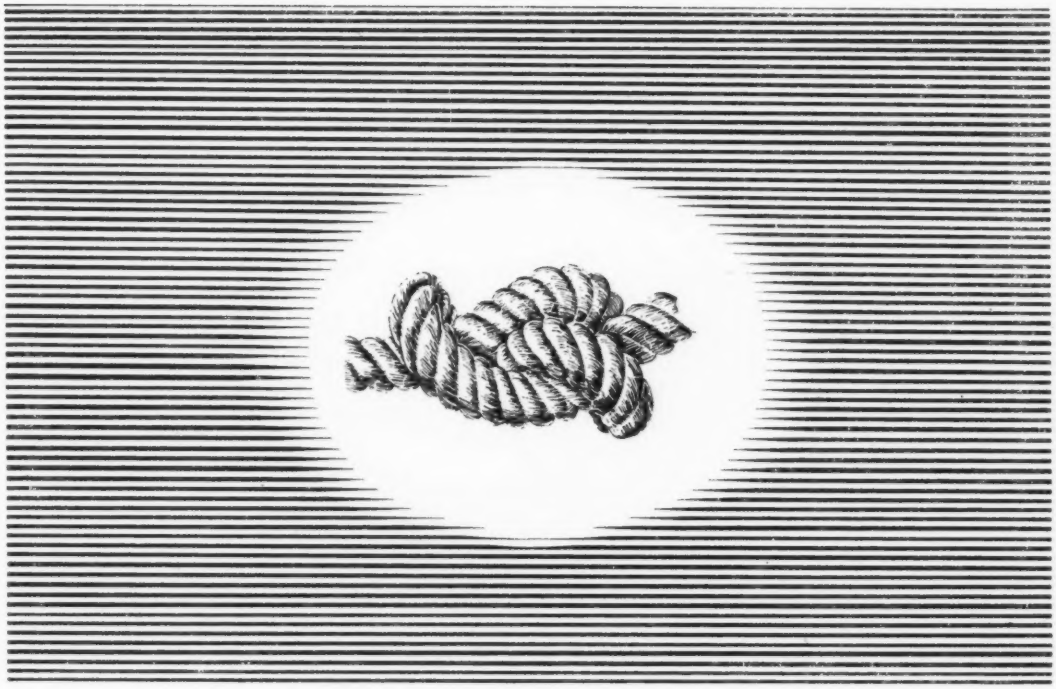

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Interior of the Norman Chapel, Tower of London.

SUCH examples of Norman building as remain to-day all suggest a grim and solid pattern of architecture. This is, perhaps, because the Norman era gave little to domestic construction. Its most typical work relied largely upon heavy masonry which was quite unsuitable for dwelling houses, except of the largest kind and even these were integral with some military strongpoint.

The Normans, in this country at least, were invaders with a sullen native population to keep subdued and so were more interested in erecting headquarters for their armed forces than mere domestic building. The only alternatives which attracted them were churches, and in this direction they produced some outstanding examples.

Norman building practice derived from the Romanesque and Teutonic, which account for its strength and solidity. It is characterised by the thick walls and massive pillars essential to support heavy roofs; the round arches; the narrow windows, flush outside and splayed within; and the lack of superfluous ornamentation. This simple, durable form of architecture is the reason why so much of the best Norman work survives to-day.

The inevitable change that comes to all times and manners gradually led away from the sombre Norman style with its harsh, bare interiors and began developing into the more elaborate Gothic period.

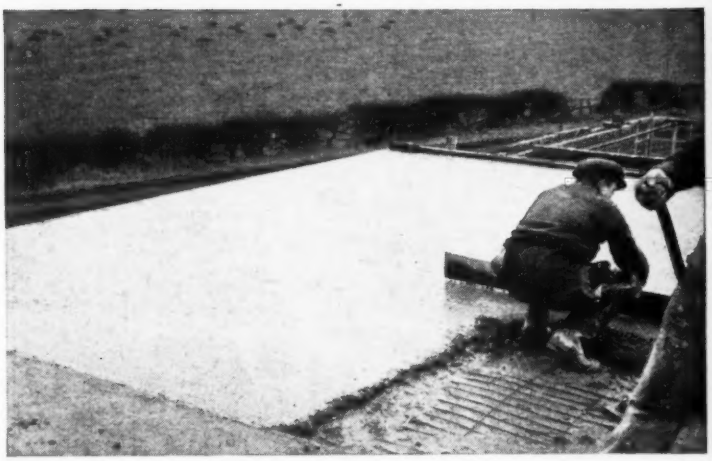
MARLITH

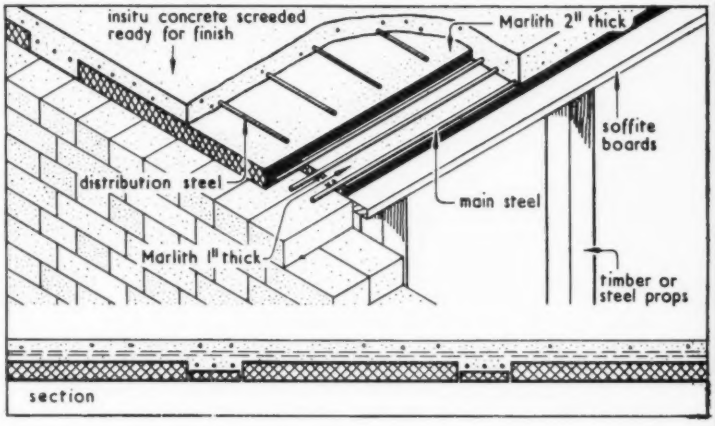
used as permanent shuttering speeds up construction, reduces costs, and provides excellent thermal insulation

THE SHUTTERING for this flat in-situ reinforced concrete roof consisted of 2-inch MARLITH laid in temporary 2″ x 2″ x 3/16″ steel tees supported by tubular steel scaffolding. The concrete was poured and the reinforcement applied in the normal way. When the concrete was set, the temporary steel tees and scaffolding were removed, leaving the underside of the MARLITH ready for plastering.

The drawing on right shows a similar construction in which timber props were used in place of tubular scaffolding, in conjunction with soffite boards and 1″ thick MARLITH filling pieces.

The use of MARLITH in this way speeds up construction and reduces costs by eliminating the need for erecting and dismantling steel or timber shuttering and the application of insulation as a separate operation. It reduces the thermal transmittance "U" value of a 4½″ flat concrete roof from 0·61 to 0·20, and the increased thermal insulation will maintain the temperature of the interior surface of the roof, thus minimising or preventing the formation of condensation.





MARLITH

Wood Wool Building Slabs

The Marley Tile Company Limited · Sevenoaks · Kent

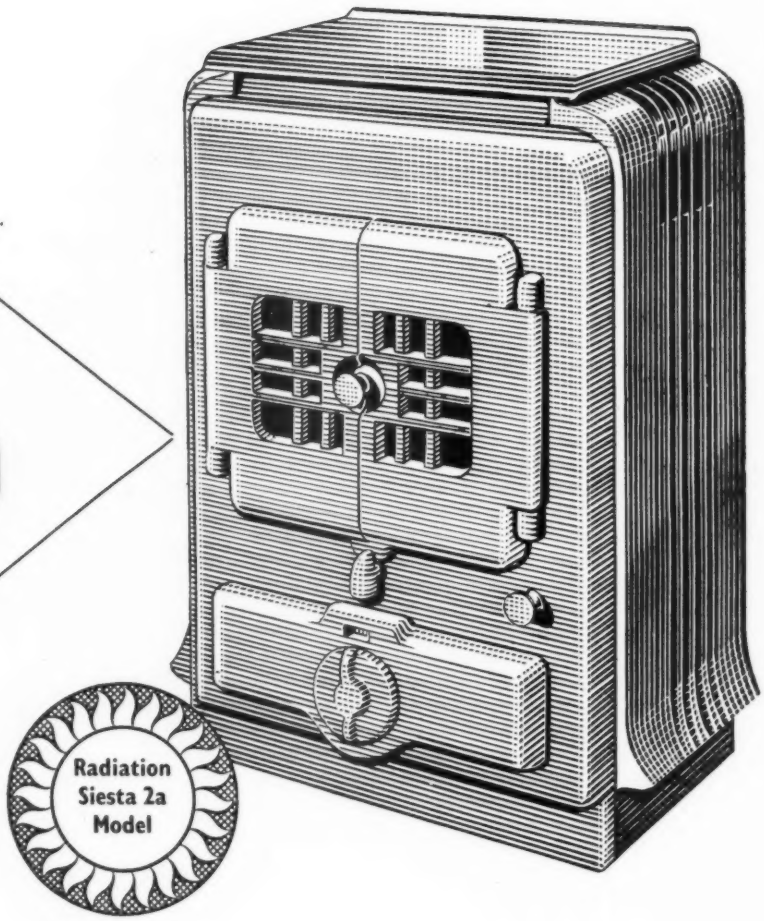
THE PHOTOGRAPHS were taken at Whitby Junior and Infants School, and show: *below*, MARLITH slabs being placed in position in the temporary steel tees; *above*, concrete being levelled.

ARCHITECTS: John Keppie & Henderson & J. L. Gleave, Chartered Architects, 196 West Regent Street, Glasgow C2

CONTRACTORS: Messrs. Jaram & Son, 20A Gladstone Street, Scarborough.

AUTHORITY: North Riding Education Committee, Northallerton

in over 200,000 homes

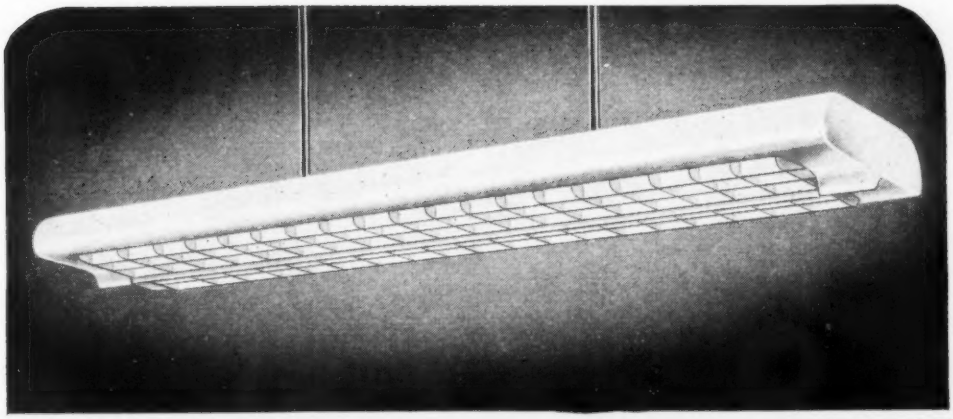


With the pressing national call for fuel economy, it was hardly surprising that Radiation 'Siesta' Model Stoves, providing the most economical form of space and water heating yet devised, should have been widely used in Government sponsored housing schemes. Economy is not, however, the only advantage of this remarkable stove; it has won genuine popularity for its cleanliness, good appearance, ease of operation and reliability. Technical details and fixing instructions will gladly be supplied. Please address enquiries to the Solid Fuel Division of Radiation Group Sales Ltd., Leeds 12.

Radiation "Siesta" 2a Model can be supplied either free-standing or built in. With or without water-heating boiler. Night and day burning on any of the usual domestic solid fuels. Capable of heating a room of up to 2,000 cu. ft. with boiler, or 3,000 cu. ft. without boiler.

The Solid Fuel Division co-ordinates the sales organisation of the three factories controlled by Radiation Ltd. producing solid fuel appliances. They are Wilsons & Mathiesons Ltd., Leeds, 12.
The Eagle Range and Grate Co., Ltd., Aston, Birmingham 6
The Park Foundry (Belper) Ltd., Belper, Derbyshire.

SOLID FUEL Radiation STOVES



F.41021
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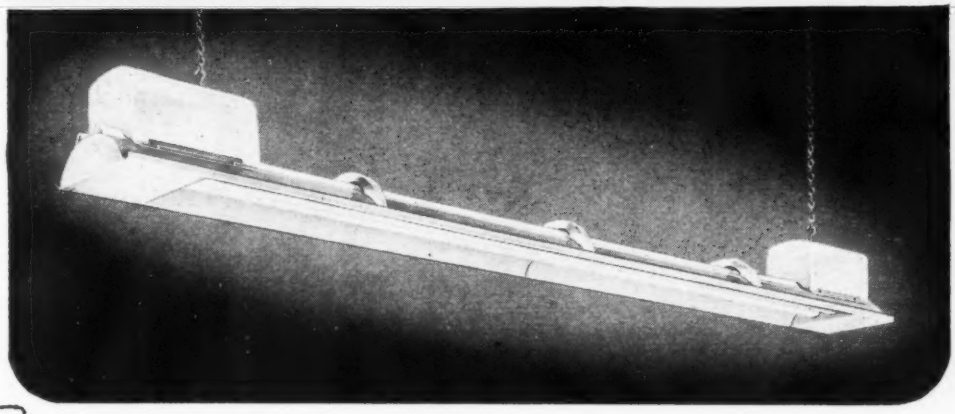

F.62040
Trough Reflector for 2—8 ft. 125 watt. Osram lamps.

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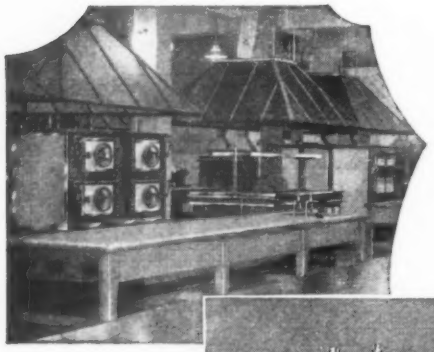
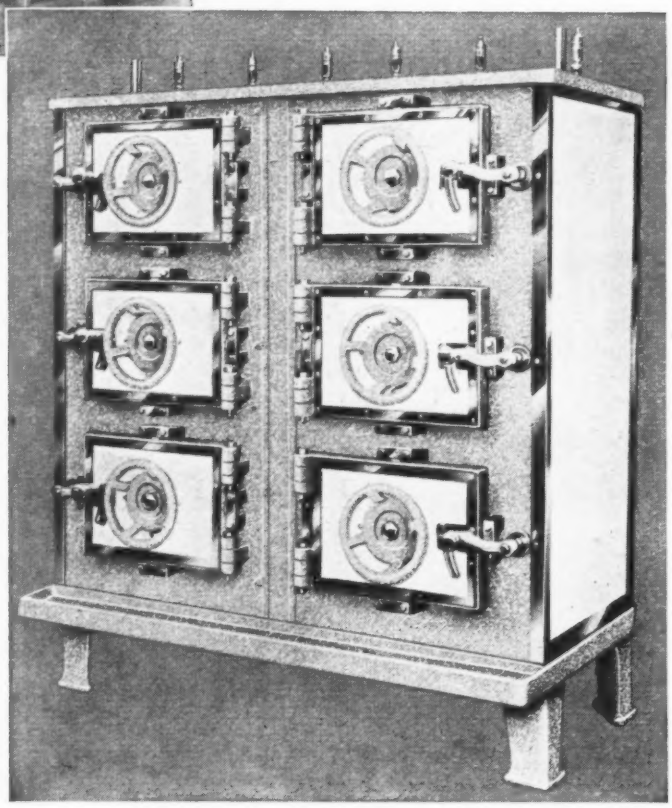


In well-designed kitchens



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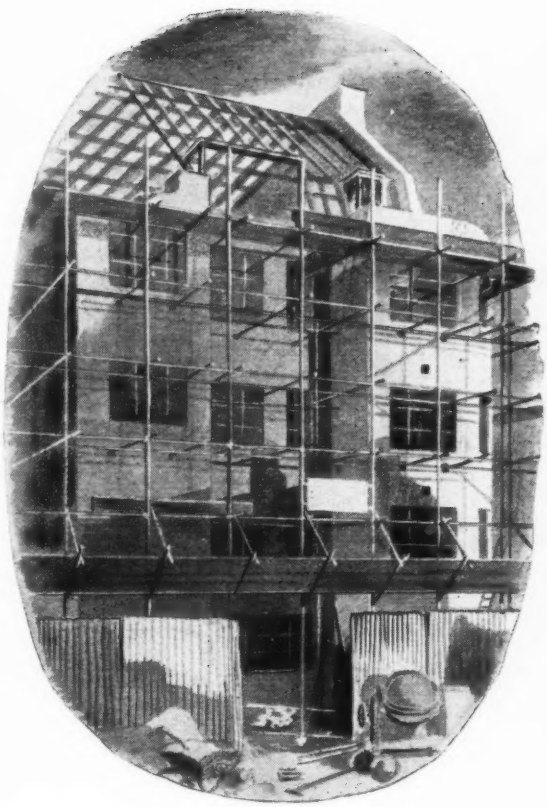

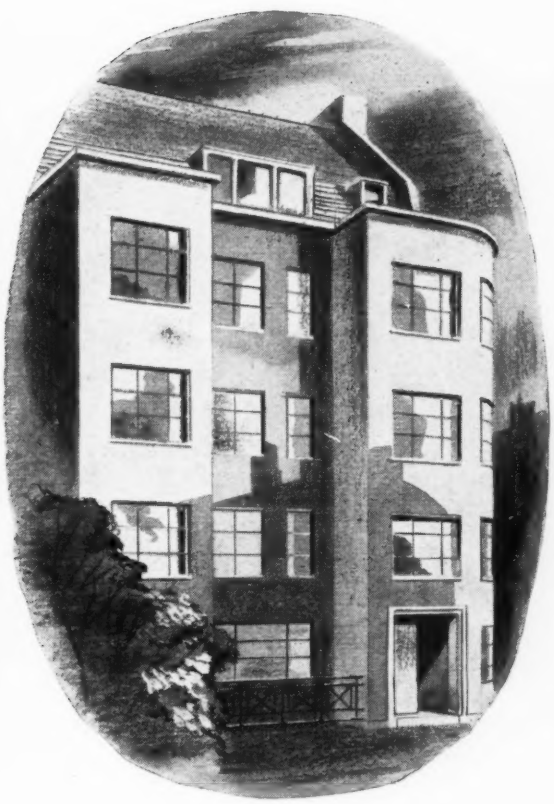

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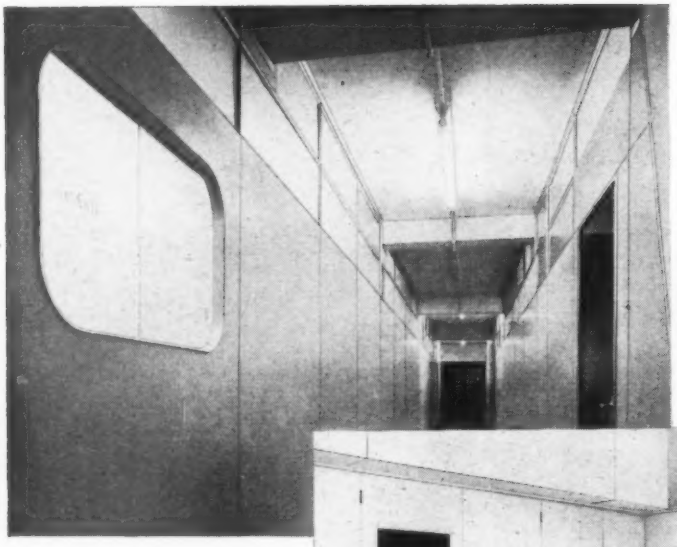

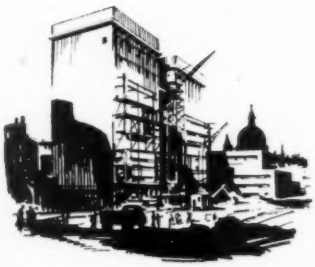

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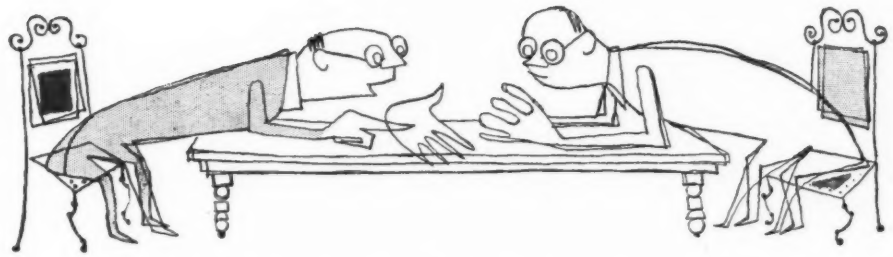

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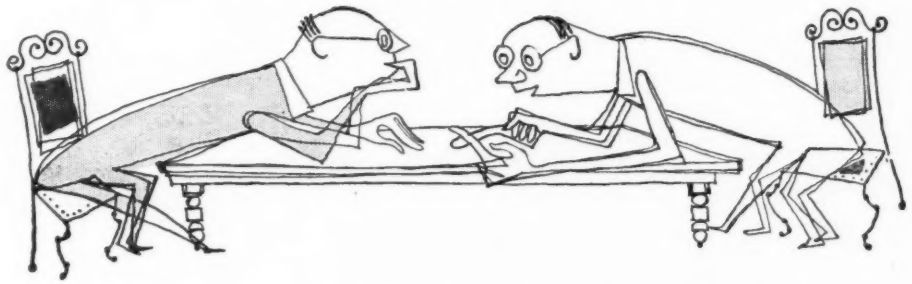

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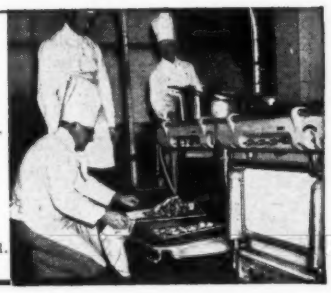

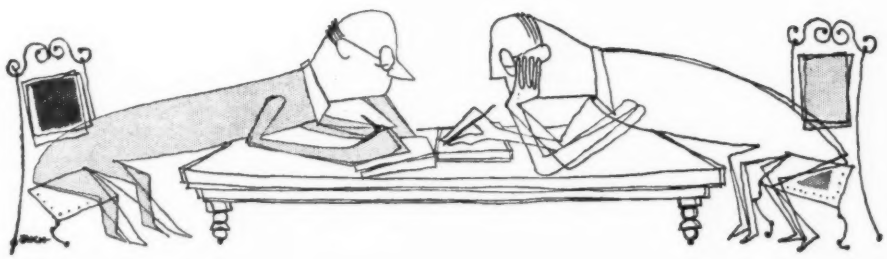

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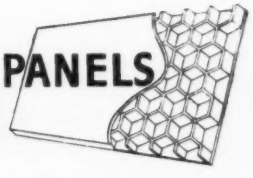

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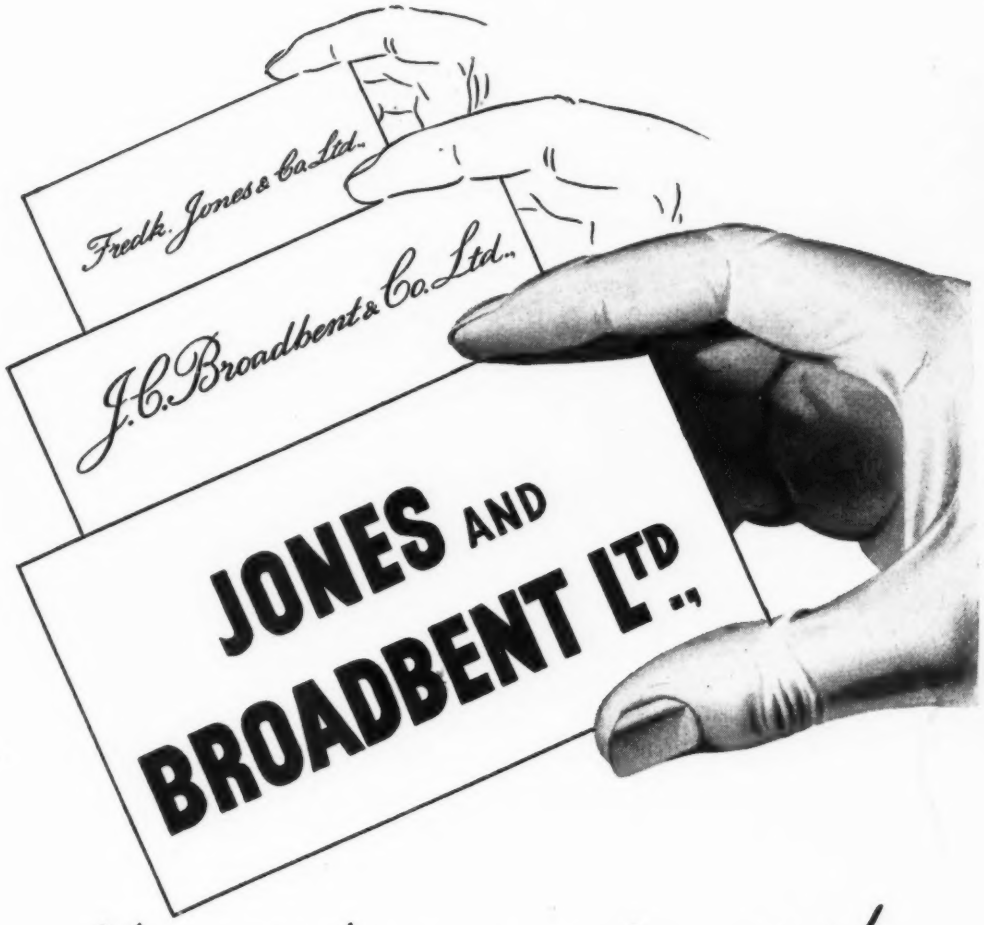

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AJ

THE ARCHITECTS' JOURNAL

No 2915 11 JANUARY 1951 VOL 113

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NO ZINC OR COPPER

The fact that we can no longer use zinc or copper for a large number of building purposes is going to make work very much more difficult. The full list is rather formidable but for most of the prohibitions there are fairly well established alternatives. But what am I to do now that I can no longer use galvanized ties? No reasonable alternative seems to be possible and I should like some help about this from the MOW.

NOT WELLINGTONS

Among the list of articles not to be galvanized I find some things called Waterloos; with considerable difficulty I have managed to track these down *via* the Board of Trade, who, after some hesitation, told me that they are a peculiar kind of coal hod which nobody uses nowadays anyway.

NEW YEAR HONOURS

The New Year Honour's List I find interesting and rather encouraging. That Adrian Gilbert Scott, Oscar Faber and L. G. Pargiter (senior architect, MOW) should be decorated for their work on the rebuilding of the House of Commons was perhaps to be expected, but I feel that D. E. E. Gibson's well deserved CBE marks an official realization of the considerable amount of original work now being done by architects working for local authorities, quite apart from the fact that he is architect and town planner to the only city (Coventry) doing any real re-building. My congratulations to Eric Bird, editor of the RIBA Journal, who becomes an MBE, the first architectural journalist (so far as I know) to receive an honour. Not much likelihood, I suspect, of ASTRAGAL'S anonymity being similarly revealed.

HALF A HUNDRED BRIDGES

In 1937, Marlow Suspension Bridge was threatened with demolition, but it was saved, not by the protective affection of the local people, but the initiative of some steel makers. Not very long ago it was in the news again when it was temporarily closed to traffic. One of the rods had snapped. According to report, the break-down was happily not serious.

*

Marlow bridge is one of the many fine examples spanning the Thames above Teddington. Swinford Bridge above Oxford is my favourite, and after that, Robert Taylor's Maidenhead Bridge. But these, like all others except Marlow, are conventional in having been designed to be seen from the sides. The approach views give nothing but a hump in the road between balustrades. Marlow Bridge is different, for it attained economically and on a relatively large scale an effect that had been sought by constructors for a long time—the monumental approach. With its two heavy stone pylons pierced by triumphal classic arches which contrast powerfully with the delicate, white-painted ironwork, it is a little beauty—a fine example of that brief period when architecture and engineering enjoyed a happy marriage. Moreover it forms a perfect foil to the neighbouring Gothic revival church spire, so that the approach by river to the town, especially part of the long curve of the tumbling weir, gives you one of the most delightful landscape pictures of the Thames.

*

The bridge has an interesting history. It was started in 1829 by John Millington, but he went off to America and the work was completed by William Tierney Clark, to his own design in 1832. Clark is less well known than he deserves to be, for, apart from his feat at Marlow, he designed the first Hammersmith Suspension Bridge (replaced in 1885) and also the famous bridge which still links Buda with Pest.

*

Now it is generally agreed, even by Marlow people, that Marlow Bridge must on no account be pulled down, in spite of its five ton limit, but to make its preservation certain, it should surely be scheduled as an Ancient Monument.

AND TWO MORE

Bickering on about bridges, my large illustration over the page shows a new footbridge which was recently completed at Oxford. It spans a tributary of the Cherwell and, apart from some slight fussiness of detail in the handrail

and a slight coarseness of curve at the stemming of the arch it appears quite an attractive design, if without quite the lightness and charm of the footbridge over the Cherwell in University Parks, reproduced below.

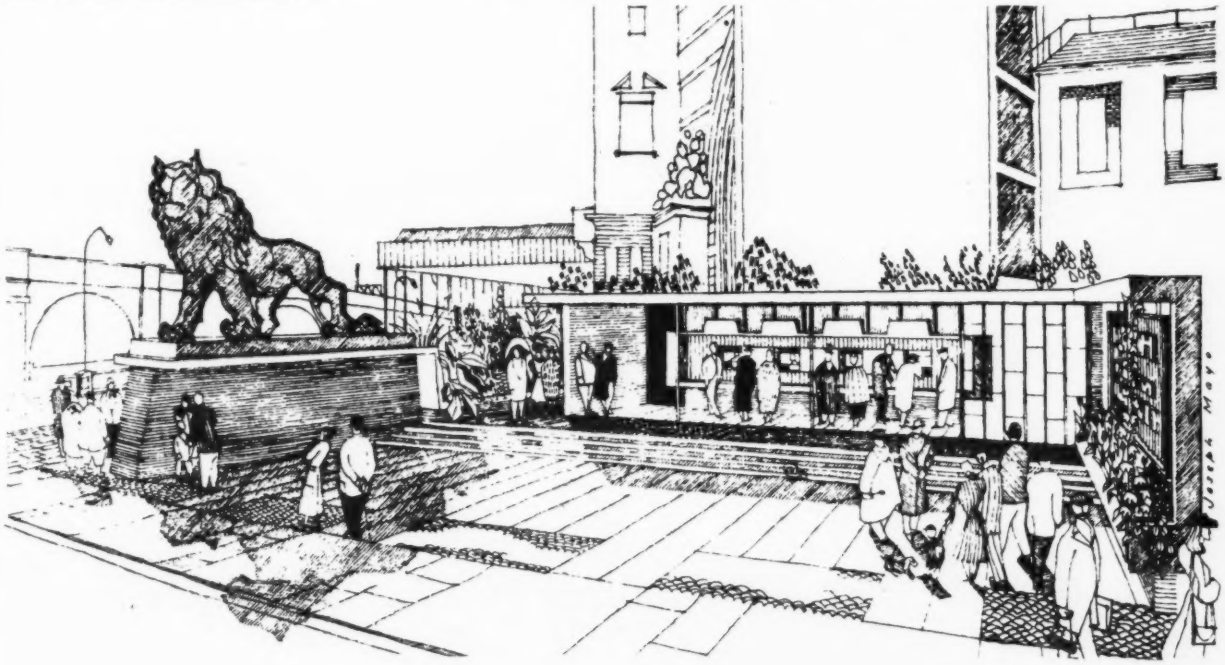
This bridge, with another, Free Ferry Bridge, were described by Thomas Sharp in his book *Oxford Replanned**, as two of the few really elegant and handsome things that have been built in Oxford for nearly a hundred years. With this third bridge a standard appears to have been maintained, for a change.

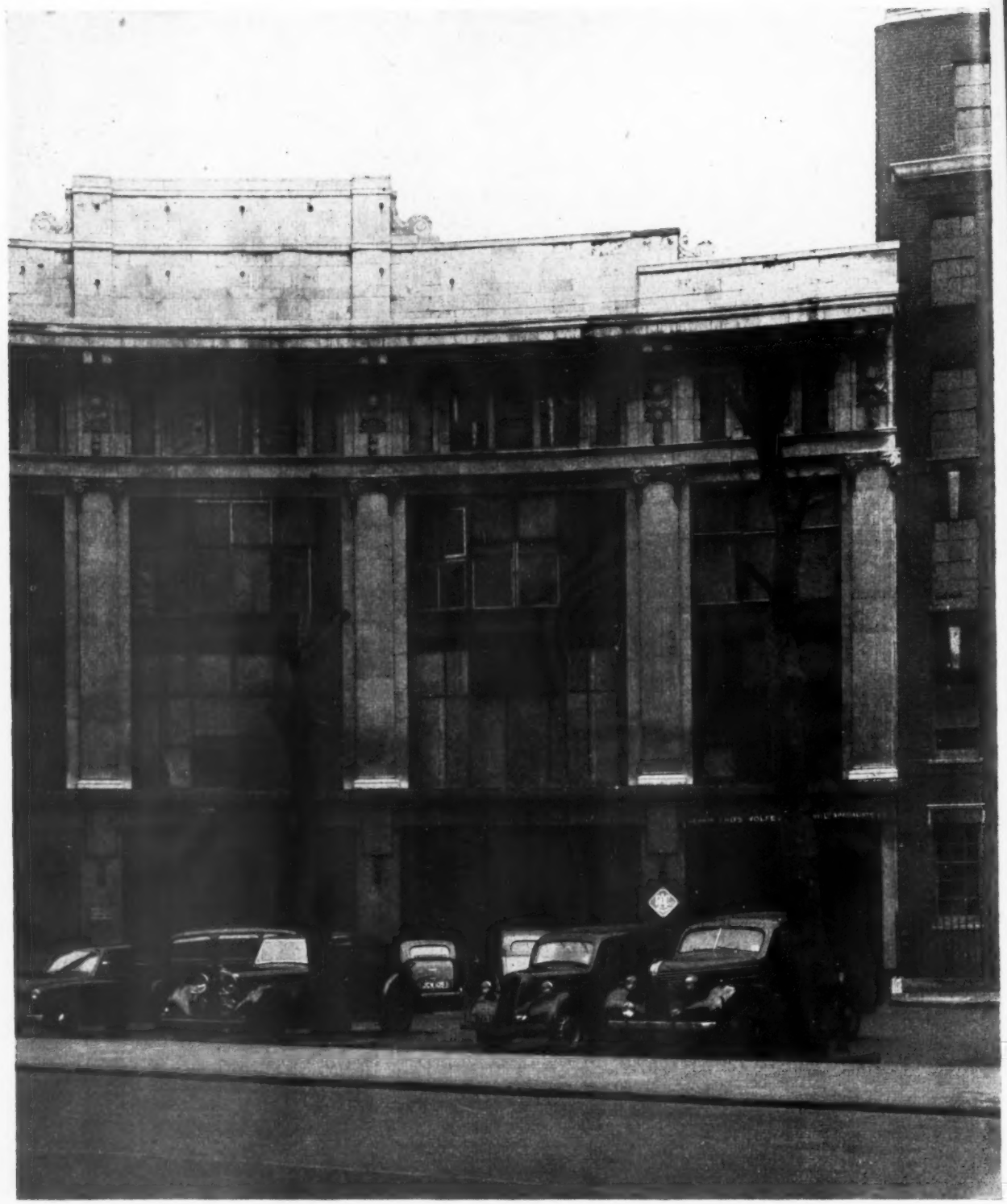
*

The design was selected by a University committee. Let us hope that the same discriminating taste will be brought to bear on the problem of recovering the potential beauties of the waters these bridges span. The Universities' brick boat-houses, resembling, as Thomas Sharp says, " small factories on the Great West Road " are a case in point.

**Oxford Replanned. The Architectural Press*, 15*s*.

This prestressed concrete footbridge crosses a tributary of the Cherwell as it flows through University Parks, Oxford. Below, a design by Sergei Kadleigh for a temporary booking office for the Royal Festival Hall at the corner of York Road and Waterloo Station approach. The lion is one of the two that used to adorn the Lion Brewery, now demolished to make room for the concert hall.





A New Home for the Building Centre

For some time it has been apparent that the Building Centre's present premises in Conduit Street were too small to allow for the further development of the Centre on the lines which have always been considered desirable, and which have earned the Centre its international reputation. The Building Centre Council have therefore acquired a building, shown above, in Store Street, off Tottenham Court Road, Bloomsbury. Designed by Taperell and Haase at the beginning of the century it is one of the earliest concrete frame structures in London. Alterations, and the repair of war damage have already started, and are being carried out by G. I. Goulden, the Centre's technical officer and deputy director. The new premises have three times the floor area of the old, and as well as allowing a very great increase in the space available for exhibits, make it possible to provide a theatre for lectures and film demonstrations. All those interested in the promotion of good building will look forward to the opening of the new premises in the autumn.

UNPLEASANT TYPE

Presumably all my readers at some time during their student days have had to copy and design lettering. And presumably they wrestled with the task of rendering the shadows accurately on representations of the incised lettering which adorns Trajan's column. They will have no difficulty, therefore, in spotting the irritating inconsistencies in this example:

THE FESTIVAL OF BRITAIN 1951

Quite apart from this elementary mistake, this specimen of a special display type designed for Festival publications and advertisements is extremely undistinguished. The numerals, in particular, are extraordinarily coarse and unpleasant in form.

*

Not long ago I reproduced samples of a really good typeface which was specially designed by the Typography Panel of the FOB and published in a booklet for distribution to all architects and designers for the Festival. This was done to secure an affinity of character between all the lettering used on Festival buildings and exhibition stands. It is surprising that the same panel should not be given the task of designing this special alphabet for the Festival's printed matter. It is even more surprising to be told that, in fact, the Typography Panel was not even consulted.

EXHIBITION STRIKES

I have complained about the way in which exhibitions suffer from last-minute strike hold-ups and it is therefore very encouraging to see that agreement has at last been reached between the various unions and employer's organizations concerned. The main point of the agreement seems to be that there is now a single compounded payment to cover all the normal extras usually paid under National Working Rule 3 (height money, dirt money, etc.). This should put a stop to those semi-blackmailing strikes which seem to happen because a plasterer has a painter working two feet away and therefore wants spray money as well. Quite a number of Festival designers must be heaving sighs of relief.

ASTRAGAL

The Editors

PUBLIC RELATIONS : I

SOON after the war a new post was created at the RIBA—that of Public Relations Officer, an appointment in the trend of all representative bodies to employ officers who would form a needed liaison between themselves and the public. Latterly PROs in general have come in for a good deal of abuse ; partly because they are suspected of acting as biased publicity agents rather than distributors of objective information ; partly because they tend to act as barriers between the Press and those responsible individuals whom the Press, on behalf of the public, wishes to interview. Yet the PRO has come to stay, He is an essential figure in our complex society and he can be a very useful one.

Perhaps it is because the term PRO is not sufficiently respected that the RIBA, since losing the services of Mr. Marfell, has decided that the next PRO at the Institute shall not be so designated but shall have the more dignified title of Assistant Secretary. But there may be a better reason. One of the chief PR functions at the Institute has been the organizing of exhibitions, but it is not generally realized how much more than this has been done in a quiet way. Important jobs, to take but a few examples, have been the assisting of film companies in the making of educational, documentary and other productions, the organizing of large conferences, the arranging of lectures for other bodies, the answering of innumerable questions and so on.

We are hoping that the powers-that-be at 66, Portland Place realize that there is now even more to be done and that this is why the new PRO will be given the added prestige implied by the new title. It is possible, also, that the scope of the work of the new Assistant Secretary will be wider than that of public relations *per se*—for instance, the helping and entertaining of foreign architects and visitors.

The work of the new Assistant Secretary with a broader assignment, and perhaps bearing greater authority and influence than is suggested by the term PRO, could become of the greatest value not only to the profession but to our whole national culture. The job must be regarded as creative rather than as one of routine and, since creation can stem only from the individual, it is to be hoped that whoever is nominated will be allowed the scope and freedom to give all that he is capable of giving.

To find the right man (or woman) will not be easy. He (or she) must have all the virtues—intelligence, some technical knowledge, wide culture and sensibility, energy, enthusiasm, initiative, optimism, a broad enough vision to be able to regard architecture as a means rather than as an end, and, above all, tact and a sense of humour. If the right candidate does not at once appear, it would be a mistake to make do with the second rate and the Institute should be prepared to wait some time if necessary in order to find the ideal personality.

We shall return to this subject in an attempt to define the

work with which the new Assistant Secretary will be faced and to show why his job could become of the very greatest importance.

NO 4 : TECHNICAL EDITOR

PROHIBITED ARTICLES

Readers who saw their morning paper on December 29 may well have been somewhat alarmed at the list of articles, made of non-ferrous metals whose manufacture is now banned. We are informed, however, on reliable authority, that the articles listed are those for which practical substitutes exist, and the intention behind the prohibition is to conserve these " precious metals " for the uses for which they are virtually indispensable. Thus, a sheet copper or zinc damp-proof course is a very convenient device, but there are few cases where, under the pressure of stark necessity, we cannot make a bituminous damp-proof course serve equally well. The zinc will be needed for the zinc protection of metal windows. Similarly, a brass door knob can be replaced by one of a plastic material.

The danger would appear to be that, unless the already far from satisfactory tempo of building is to be further reduced, an unprecedented strain will be placed on the supply of materials which can be used as substitutes. The position of these (and, for that matter, of most) materials is already precarious and it cannot be assumed that manufacturers will be able to cope with a new and greatly increased demand. For example : can the asbestos-cement industry increase its output adequately if galvanized corrugated iron sheeting is prohibited? If the results of the order will be a further reduction in the building programme, many will question the Government's conception of priorities.

Meanwhile, what is the architect to do? Must he cease, forthwith, to specify prohibited components, or should he take a chance on obtaining them from existing stocks and risk the serious delays which might occur if, at the crucial moment, stocks become exhausted? Perhaps the art of specification writing must now include special clauses, permitting the contractor to substitute alternative materials whenever necessary.

In the use of substitutes, there lies a further danger. Many materials, which are perfectly satisfactory in their own field, may prove to be less so when used for other purposes, especially if experience of such uses is limited. Already " plastics " have had a minor boom on the stock exchange, and, although manufacturers with foresight would not prejudice the reputation of their products by recommending them for purposes to which they are unsuited, others, less scrupulous, will doubtless attempt to make the most out of this unhappy situation.

A gloomy start for the New Year, but if this is to be the pattern of things to come, it is as well that architects should be well prepared to cope with a new addition to their ever increasing problems.

RIBA

Prizes and Studentships 1951

At a General Meeting of the Royal Institute of British Architects held on January 9 the Council's Deed of Award giving the results of the competitions for the Annual Prizes and Studentships awarded by the RIBA was read.

There were in all 683 competitors. The total value of the Prizes and Scholarships offered by the RIBA is over £3,000 a year.

The results of the various competitions are as follows:—

The Tite Prize: A Certificate and £100 for the Study of Italian Architecture.

The subject: "An Arts Centre." Awarded to: " Mouse," Ronald Leslie Marshall, Student R.I.B.A., Department of Architecture and Building, Southend-on-Sea Municipal College.

The Victory Scholarship and £120 for the Advancement of Architectural Education.

The subject: "A Repertory Theatre." Awarded to: " Dante," Thomas Frederick Alston Manning, B.A.(ARCH.)(LOND.), A.R.I.B.A., Bartlett School of Architecture, University of London.

The RIBA Silver Medal for Measured Drawings and £75. Awarded to: " Figaro," Robert Stanley-Morgan, A.R.I.B.A., Birmingham School of Architecture. A Certificate of Honourable Mention was awarded to " Pterichthys," Peter Edward Buttenshaw, DIP. ARCH. (BIRM.), A.R.I.B.A., Birmingham School of Architecture.

The Royal Institute Silver Medal and £50 for an Essay. NOT AWARDED.

The Owen Jones Studentship: A Certificate and £100. For the improvement and cultivation of knowledge of the successful application of colour as a means of Architectural Expression. Awarded to: " Mallard," Maurice William Lee, Student R.I.B.A., Birmingham School of Architecture.

The Banister Fletcher Silver Medal and £26 5s. for the Study of History of Architecture. The subject: " The Development of the Mediæval Market Square and its Characteristic Buildings." Awarded to: David Plaistow Crease, Probationer R.I.B.A., School of Architecture, University of Cambridge.

The Alfred Bossom Research Fellowships for Post-Graduate Research. The Fellowships were awarded as follows: (1) A Fellowship of £175 awarded to Leslie Vivian Mitchell, DIP.ARCH., A.M.T.P.I., A.R.I.B.A., School of Architecture, The Polytechnic, Regent Street; (2) A Fellowship of £75 awarded to John Buckley Bickerdike, DIP.ARCH.(MANCHESTER), A.R.I.B.A., School of Architecture, University of Manchester.

The Athens Bursary: £125 for Study at the British School at Athens. Awarded to: Jack Ransom Tolson, DIP.ARCH., DIP.T.P.(LEEDS), A.R.I.B.A., School of Architecture, Schools of Technology, Art & Commerce, Oxford.

Frank Russon, who, as announced last week, is the JOURNAL'S *guest editor for 1951, has established himself as an authority on incentive schemes, with his recent book :* Bonusing for Builders. *In his article below, Mr. Russon indicates a part architects could play in incentive schemes as a first step to reducing costs and increasing productivity.*

FRANK RUSSON

Incentives and the Architect

Architects often have the mistaken impression that the subject of incentives is not their concern. If they are prepared to take a keener interest in the subject, they will be able to assist the building industry as a whole to a considerable extent. Those who are prejudiced against incentives should realise that by the word incentives is meant a system of payment for a measured output only, together with a guaranteed basic wage. It does not mean the payment of wages in excess of the nationally agreed standard and which are in no way linked with the output of the operatives. This practice still continues in some firms, and it is unfortunate that in the recent agreement on incentives by the National Joint Council of the building industry no mention is made of this vexed question. It is a practice which readily becomes a vicious spiral of mounting pay packets and must inevitably tend to increase the cost of building.

It is obstructive for architects to condemn incentives from the point of view that the standard of craftsmanship will deteriorate. In their report the Girdwood Committee stated that inferior work does not necessarily result. If shoddy work is produced, the fault lies with insufficient or inefficient site supervision, or because the rules of the incentive scheme do not contain satisfactory safeguards to protect the interest of client and builder.

What objections could there be to architects taking sufficient interest in the subject of incentives to ensure that, before inviting builders to tender for a contract each firm was operating an efficient incentive scheme? It is common knowledge that the output of the building trade worker is only about 75 per cent. of what it was before the last world war. Since the introduction of incentives in 1947, productivity has considerably improved and so, in turn, has the efficiency of organization on building sites. Further, it must be accepted as a fact, confirmed by the Girdwood Reports, that the application of incentives has proved particularly advantageous on all housing sites where properly devised schemes have been introduced

Nevertheless, incentive schemes now being permitted throughout the industry has meant that, as builders could introduce their own schemes on their respective jobs, there is a multitude of different incentive schemes in existence.

However, in building work of a similar type, as, for instance, all classes of housing, there would appear to be no reason why a national yardstick with a uniform system should not be adopted by all.

On general contract work, on the other hand, the application of incentives is still in the experimental stages with persevering and enterprising contractors. For that courageous few, productivity has increased and information on the "know how" of this subject should be widely publicized.

On most contract jobs, however, there are, inevitably, variations in the design, and in many cases these have to be measured on a daywork basis. Here the architect can play an important part by joint agreement with the builder that if it is possible to set a target to cover the variation on either a daywork or measured basis, then this procedure should be taken. Here is a suggested method: a target could be set for each variation, the men to receive 50 per cent. of any saving, and the builder to receive 25 per cent. to cover the services of his surveyor and administrative costs. The client, through the architect, would receive the remaining 25 per cent. of the saving. The final daywork costs to be paid to the contractor should be the cost of wages and materials, plus the agreed percentages, plus the 50 per cent. bonus paid to the employees, plus the 25 per cent. which covers his administration costs. This procedure would undoubtedly have the effect of speeding up such incidental work, reducing costs and satisfying workmen who have to be taken off regularly bonused jobs.

It is worth remembering that it is officially recognized that the initiative for starting incentive schemes is not now only in the hands of the building contractor. This can be seen from the recent agreement of the National Joint Council on the application of incentives, which does not in any way vitiate the original settlement of October, 1947, and includes the following three important additional points: Firstly, if the workmen are aggrieved because the contractor is not willing to apply an incentive scheme on any job, the employee has the right to appeal to his District Trade Union Organizer. Secondly, he, in turn, can place the facts before a Joint Regional Incentives Panel which is to be set up in all the regions of the NFBTE to give guidance and advice to employer and employed. Thirdly, only *bona fide* sub-contractors are to be employed in sub-contracting for labour only or for labour and materials.

If some of you are still not convinced that incentive schemes are necessary or really the architect's concern, let me end by quoting Michael Waterhouse, your President of last year, and one of the Anglo-American Productivity Team, who recently stated: " that the building industry was rapidly pricing itself out of existence."

If labour costs are to be kept within the present high margins, especially in an industry that is short of manpower, and in a country pledged to full employment, then incentive schemes must be persevered with. They provide the only alternative method of payment to that of giving the workers an hour's standard pay and trusting to Providence and their varying diligence on how much work will be performed during that period.

DIARY

A Comparison of the Bearing Power of Footings on Dry and Inundated Sand. Dr. W. Eastwood. (Sponsor, ISE.) 6.30 p.m. JAN. 11

The Plastics Industry. J. C. Swallow. (Three Cantor Lectures.) At RSA, John Adam Street, Adelphi, W.C.2. 6 p.m. JAN. 15 AND 22

Housing and the New Towns. Sir Patrick Abercrombie, President of the Housing Centre. At 13, Suffolk Street, S.W.1. (Sponsor, HC.) 6 p.m. JAN. 16

The Early Years of Illuminating Engineering in Great Britain. Dr. J. W. T. Walsh. At the Royal Institution, Albemarle Street, W.1. (Sponsor, IES.) 6 p.m. JAN. 17

Dry-rot in Timber. W. P. K. Findlay, of Forest Products Research Laboratory. At RSA, John Adam Street, W.C.2. 2.30 p.m. JAN. 24

Housing and Planning Problems in Slough. P. W. Macfarlane. At 13, Suffolk Street, S.W.1. (Sponsor, HC.) 6 p.m. JAN. 30

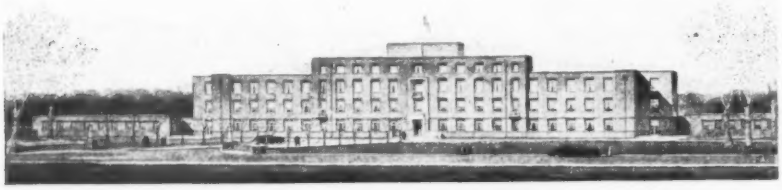
Thoughts on Architecture Today. Michael Waterhouse. At the University of London: Senate House. A course of two lectures. 5.30 p.m. FEB. 8 AND 15

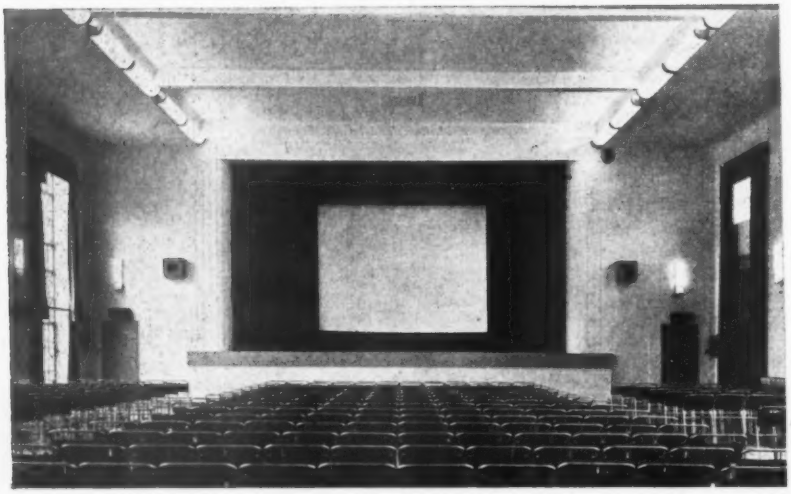
Five Years Housing in a Country District. Mrs. Spurgin. At 13, Suffolk Street, S.W.1. (Sponsor, HC.) 1.15 p.m. FEB. 13

The Architecture of Transport. Exhibition at the RIBA, 66, Portland Place, W.1, showing projects in this country and a selection of material from abroad. Weekdays 10 a.m. to 7 p.m. Saturdays 10 a.m. to 5 p.m. FEB. 22 TO MAR. 22

OIL REFINERY AT FAWLEY, SOUTHAMPTON

Above is the completed maintenance building of the Esso oil refinery—one of the largest in the world—now under construction at Fawley, Southampton. The administrative building and social centre for the refinery have been designed by Lanchester and Lodge. Below, from top to bottom: the administrative building; the social centre, which incorporates a cinema; the interior of the cinema. About four thousand men are at present engaged on the project. The Anglo-American Oil Co., Ltd., which is responsible for the work, states that "a very important aspect of the construction of the refinery is to ensure that it is in itself not unsightly and that the natural amenities of the countryside and of Southampton Water are preserved. All the buildings will be set within lawns and a wide belt of trees and flowering shrubs will screen the refinery from the road on the landward side." Work should be finished here by the beginning of 1952.





The Rome Scholarship in Architecture, 1950. £375 per annum for two or three year's study and research at the British School at Rome. Awarded to: Edward Carter, Student R.I.B.A. School of Architecture, King's College, Newcastle-upon-Tyne.

The Ashpitel Prize, 1950. This is a prize of books, value £20, awarded to the candidate who, taking the Final Examination to qualify as an Associate, shall most highly distinguish himself among the candidates in the Final Examinations of the year. Award to be announced later.

The RIBA Silver Medal and £10 in Books for Students of Schools of Architecture recognized for Exemption from the Final Examination. Awarded to: Frank Shaw, DIP.ARCH.(LEEDS), A.R.I.B.A., Leeds School of Architecture.

The RIBA Bronze Medal and £10 in Books for students of Schools of Architecture recognized for Exemption from the Intermediate Examination. Awarded to: Frederick Anthony Sargeant, Student R.I.B.A., Department of Architecture, The Northern Polytechnic, London. A Certificate of Honourable Mention was awarded to Lionel Lowden Ferguson, Student R.I.B.A., School of Architecture, Dundee College of Art.

The Archibald Dawnay Scholarships, 1950. Three Scholarships of £60 each for the Advanced Study of Construction. Awarded to: Kevin Francis Craig-McFeely, Student R.I.B.A., Liverpool School of Architecture, University of Liverpool; John Burton Crowther, Student R.I.B.A., Welsh School of Architecture; William Gilbey Reed, Student R.I.B.A., Liverpool School of Architecture, University of Liverpool.

The RIBA Henry Jarvis Studentship at the School of Architecture, the Architectural Association, 1950: £50. Awarded to: Denys James Hinton, Student R.I.B.A.

The RIBA Howard Colls Travelling Studentship at the Architectural Association, 1950: £15 15s. Awarded to: Robin Paul Younger.

The RIBA Donaldson Medal at the Bartlett School of Architecture, University of London: 1950. Awarded to: Michael James Peto, Student R.I.B.A.

The RIBA Prize for Art Schools and Technical Institutions with Facilities for the Instruction of Intending Architects (£10 in Books), 1950. Awarded to: Charles Edgar Mason, Student R.I.B.A., Wolverhampton School of Art and Crafts.

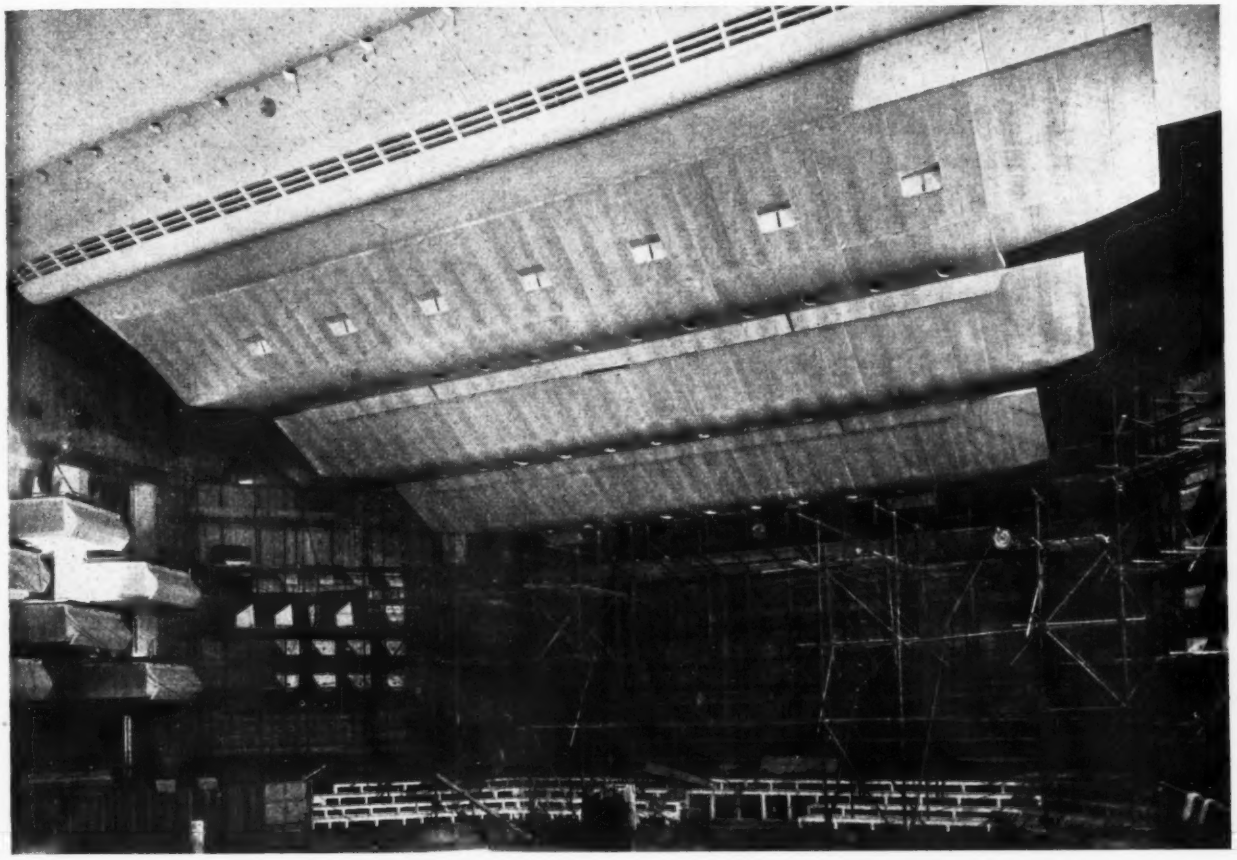
The RIBA Prizes for Public and Secondary Schools. These prizes are of a total value of £10 10s. They are offered for an essay of not more than 1,000 words or for sketches or scale drawings of a building or part of a building. The prizes were awarded as follows:—(*a*) *Essays:* £2 2s. to David Mackay of Douai School, Woolhampton, for his essay on the Parish Church of Grouville, Jersey; £2 2s. to Ian C. Thornton of Manchester Grammar School for his essay on the Rochdale Town Hall.

(*b*) *Sketches:* £2 2s. to E. F. Hull of Northampton Grammar School, for drawings of All Saints Church, Brixworth, Northants; £2 2s. to Brian W. Riley of The Grammar School, Batley, for drawings of Shibden Hall, Halifax; £2 2s. to M. J. Tysoe of Northampton Grammar School, for drawings of All Saints Church, Brixworth, Northants.

The competition drawings (with the exception of those submitted in competition for The Alfred Bossom Research Fellowships, The Rome Scholarship in Architecture, The RIBA Bronze and Silver Medals for students of Schools of Architecture recognized for exemption from the RIBA Examinations, The RIBA Prize for Art Schools and Technical Institutions, and the Archibald Dawnay Scholarships) will be on exhibition at the RIBA, 66, Portland Place, London, W.1, between the hours of 10 a.m. and 7 p.m., Saturdays 10 a.m. and 5 p.m. (Sundays excluded), until February 6.

The President, A. Graham Henderson,

ORCHESTRA CANOPY ERECTED IN ROYAL FESTIVAL HALL

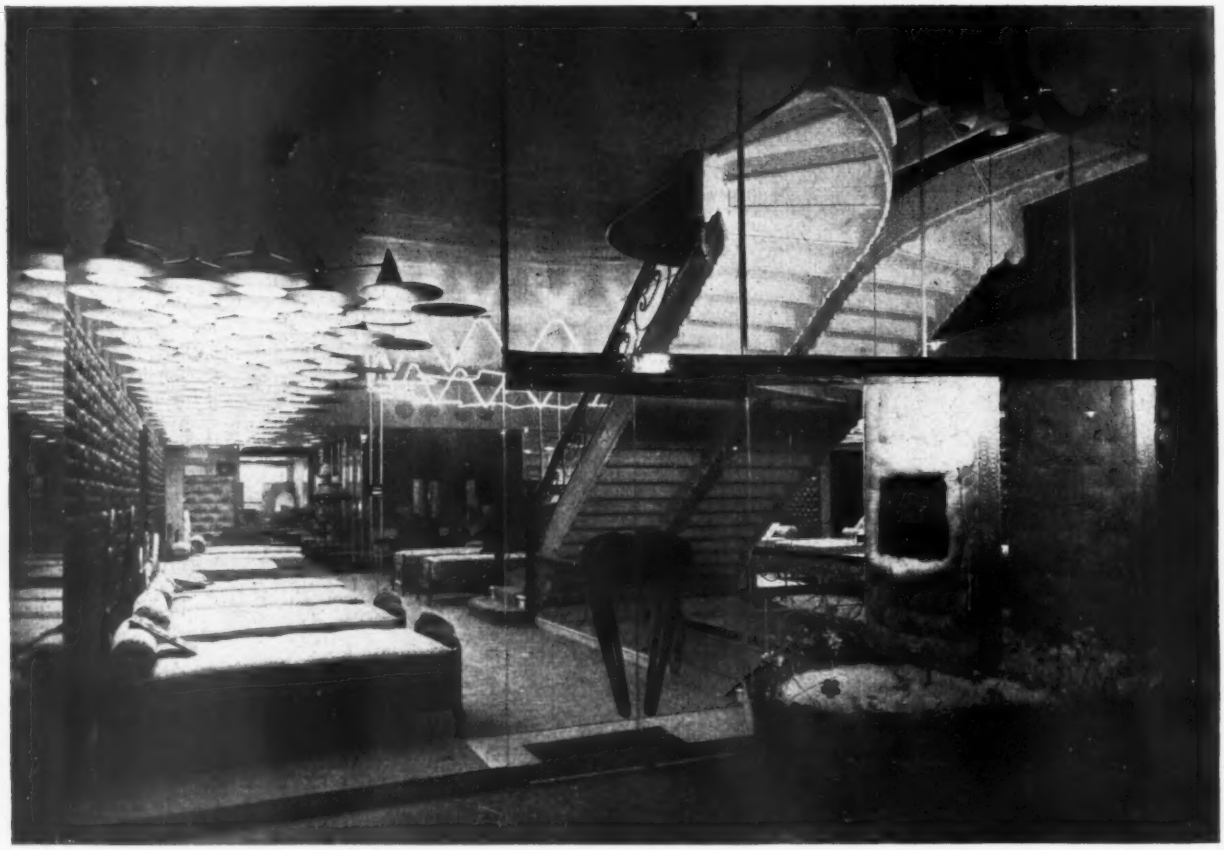


This timber acoustic canopy, just erected in the auditorium of the Royal Festival Hall is believed to be the largest in existence, measuring 90 ft. by 40 ft. The 2-in. thick plywood panels, veneered in sycamore, are in three separate tiers suspended independently from a plywood box beam framework above. This feature will shortly be fully described in the JOURNAL'S *series of progress reports on the concert hall by John Eastwick-Field and John Stillman.*

MEDAL AWARDED TO BEST LONDON SCULPTURE EXHIBITED IN 1950

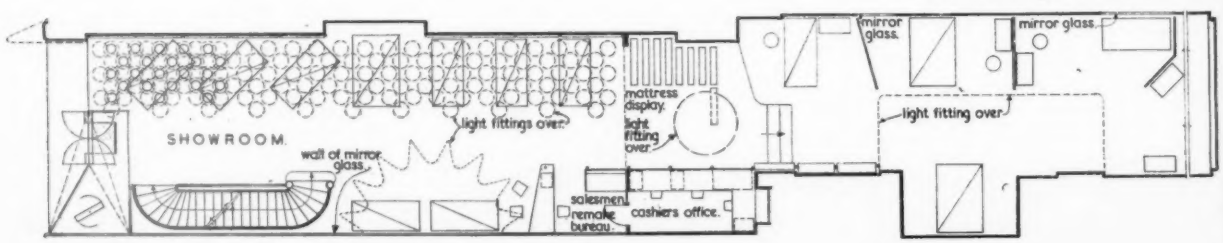
The gold medal of the Royal Society of British Sculptors for the best work of the year 1950, *by a British sculptor, which has been exhibited in any way to the public in London, has been awarded to William McMillan, for his fountain group in bronze erected under the auspices of the Constance Fund in the spring of* 1950 *in the Queen Mary Garden, Regent's Park. The Medal was founded in* 1925 *by Sir Otto Beit.*

BEDDING SHOWROOM IN BROMPTON ROAD,

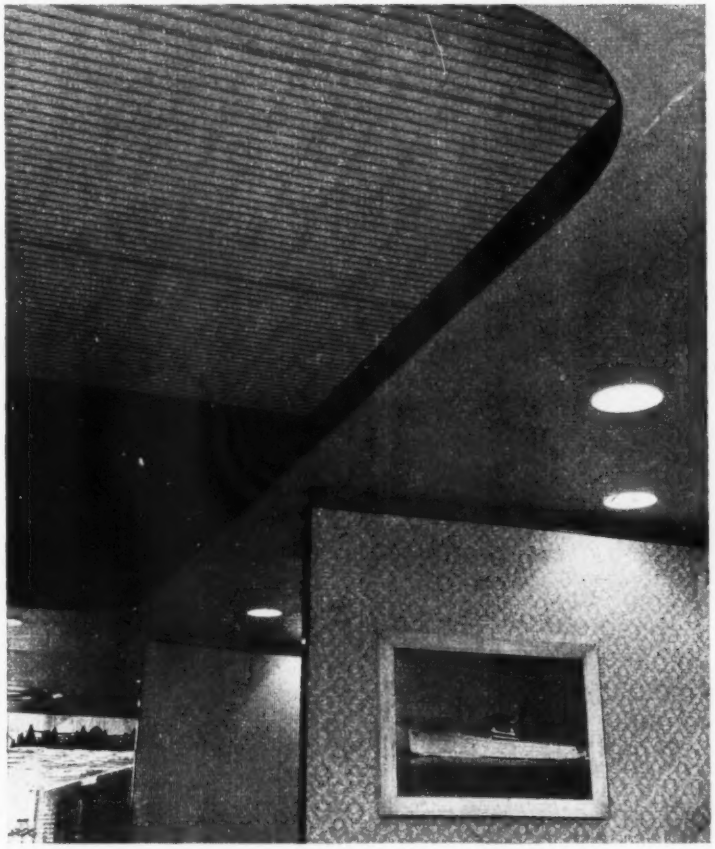


The new showroom designed by Eric Brown and Peter Chamberlin for Messrs. John Perring for the display and retail sale of bedding, has been converted from a former Slater's restaurant near the north end of Sloane Street. The long and narrow site consisting of basement, ground and first floors has a frontage of only 18 ft. width. The client wanted part of the showroom laid out as specimen rooms, as seen above on the opposite page, but no major structural alterations were permitted. Due to the narrow site and the large scale of the goods to be exhibited, it was decided to dispense with the traditional shop window area and use the whole of the front ground floor area for display. The restricted width was made less apparent by completely lining one wall seen on the right above and below opposite, from floor to ceiling with butt-jointed mirrors. The new ground floor shop window is virtually one sheet of glass let directly into the frame formed by walls, floor and ceiling. Externally, one return wall and the fascia are faced with dove grey marble. The frameless glass doors, with large wooden handles, seen on the left, are pivoted between a terrazzo floor and the suspended polished bronze arrow-shaped canopy.

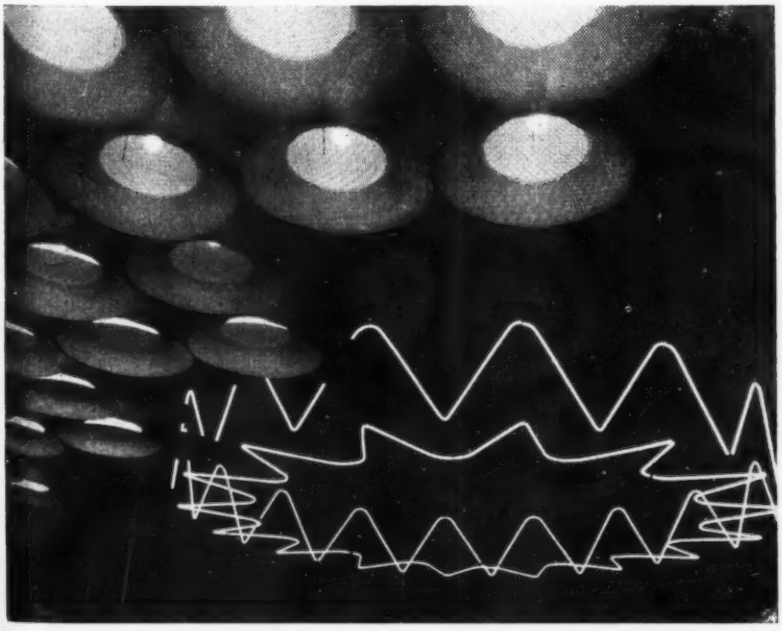
Ground floor plan [Scale: $\frac{1}{8}$" = 1'0"]



KNIGHTSBRIDGE, LONDON S.W.3



To link the front and rear display areas on the ground floor there are a series of vertical aluminium posts, which support a light aluminium frame for the partition to the sales office and shelves for samples of blankets and sheets. The staircase from the original premises has been retained. The general contractors were Messrs. Hobson and Wise. For sub-contractors see page 60.



A.R.S.A., will present the Medals and Prizes for 1951 and will deliver an address to students, at a General Meeting to be held at the RIBA, on Tuesday, February 6, 1951, at 6 p.m. and a criticism will be given by Mr. R. E. Enthoven, F.R.I.B.A., of the work submitted.

WRENCOTE

Proposed Debate by Croydon Council

The eighteenth-century town house known as Wrencote, in South Croydon, referred to by ASTRAGAL in the JOURNAL of December 7 as a house worthy of preservation, is to be the subject for debate by Croydon Council at its next meeting on January 15. A local society has been formed, called "The Friends of Wrencote," who are collecting signatures from local inhabitants and from cultural organizations to support a petition to the Mayor of Croydon, in which they ask that the house should be acquired by the Croydon Council, properly restored and put to some suitable public use.

AA

Entrance Examination

The Architectural Association School's entrance examination for the session 1951-52 will be held on March 19, 1951. The closing date for applications (forms are obtainable from the Principal), March 1. The following scholarships are offered by the Council of the Architectural Association: The Leverhulme Scholarship, value £200 p.a.; the Minter Open Entrance Scholarship, value £100 p.a.; the Sir Walter Lawrence Open Entrance Scholarship, value £100 p.a.; the Metal Window Scholarship, value £75 p.a. (presented by the British Window Manufacturers' Association Ltd.); the Natural Asphalte Council Scholarship, value £50 p.a. (presented by the Natural Asphalte Mine-Owners and Manufacturers' Council).

IES

Annual Award made

The Illuminating Engineering Society announce that this year the Council of the Society has awarded the Leon Gaster Memorial premium to Dr. R. G. Hopkinson and P. Petherbridge for their paper entitled "Discomfort Glare in Relation to the Lighting of Buildings." Dr. Hopkinson and Mr. Petherbridge are both with the Building Research Station. The premium, consisting of ten guineas and a certificate recording the award, is awarded annually by the IES for the best contribution submitted to and published by the Society during the year.

MOW

Control of plant hire rates

The Minister of Works has made a new order (The Control of Rates of Hire of Plant Order [1950] [SI 1950, No. 2060], HMSO, 2d.), with effect from January 1, 1951, which replaces the previous order of 1949.

Under this order the control is confined mainly to earth-moving plant, with revised maximum rates of hire and certain modifications in the capacity ratings. Items controlled include mobile road cranes, crawler excavators, crawler tractors, scrapers and mechanical trenchers.

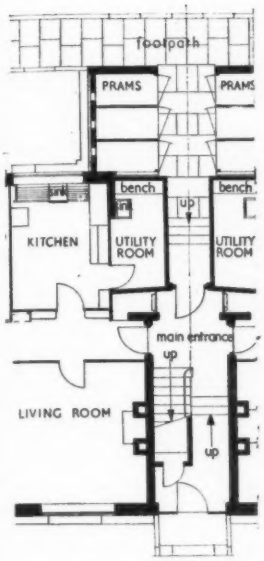
FLATS

in NORTH KENSINGTON, LONDON W.11

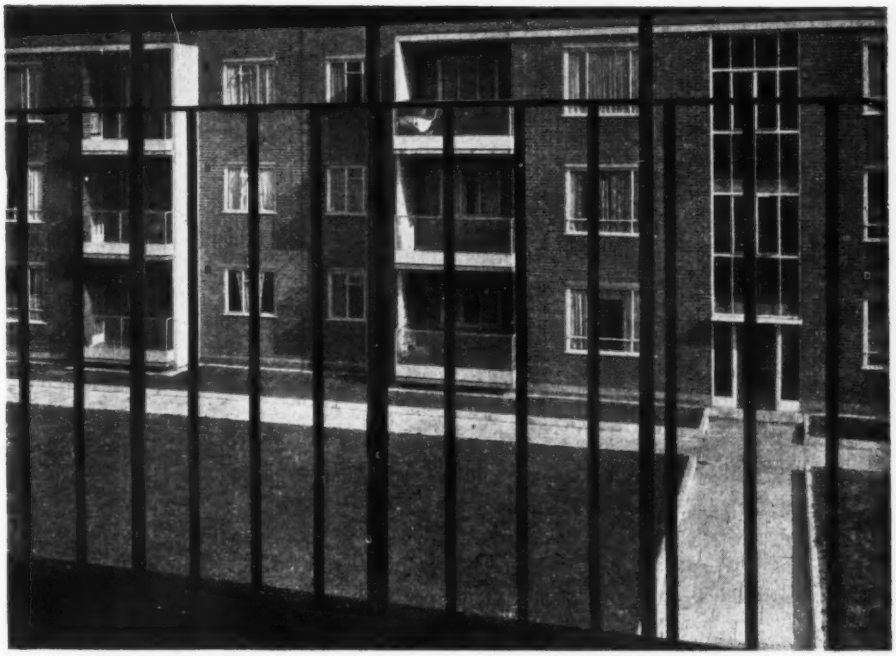
designed by EDWARD ARMSTRONG and BRIAN O'RORKE

Henry Dickens Court is a housing scheme which, when complete, will comprise 300 dwellings and ancillary buildings for a population of some 1,300 persons. This gives a density of 32 dwellings and 136 persons per acre. A wide diversity of accommodation is being provided for families from two to eight persons, and also for single and old people. A model of one of the ten-storey blocks to house families of two to four persons is illustrated on page 46.

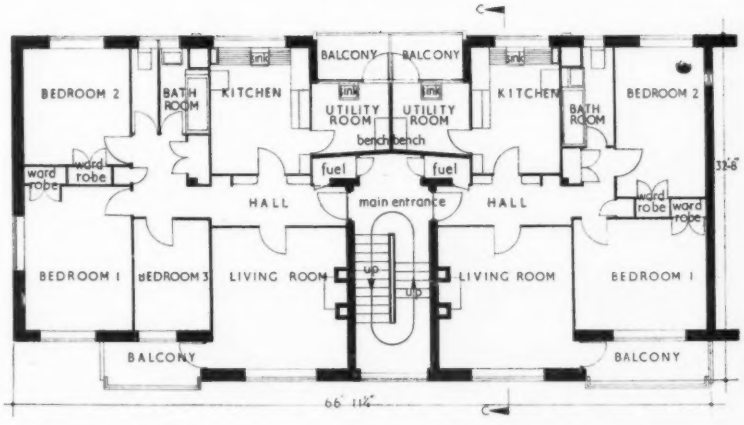
West facade of typical three-storey flats.



Part plan ground floor entrance

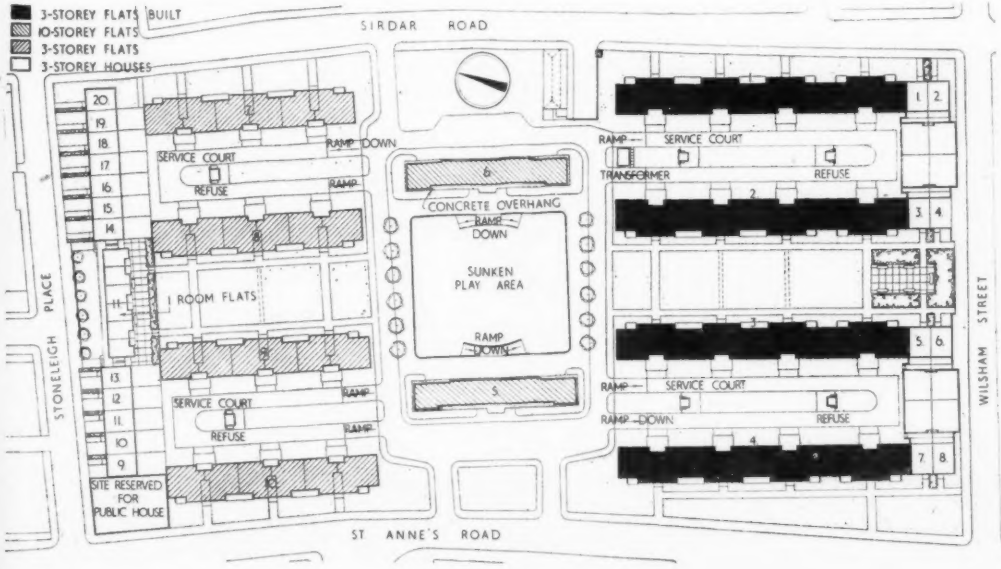


SITE.—The site of 9½ acres has a main frontage on Queen Anne's Road. The area was originally congested and of a rather grim and cheerless aspect; therefore an open type of planning and a sharp contrast in the height of buildings seemed particularly suitable. The main groups of three-storey flats and terrace houses flank a central space, from which the two ten-storey blocks will rise. The three-storey flats are arranged in pairs about a series of service courtyards, each pair being separated by an open grassed area. This arrangement allows the development to present a similar front to the major roads on the east and west plan, from which the buildings are separated by wide forecourts. By



Plan 4 room flat for 5 persons

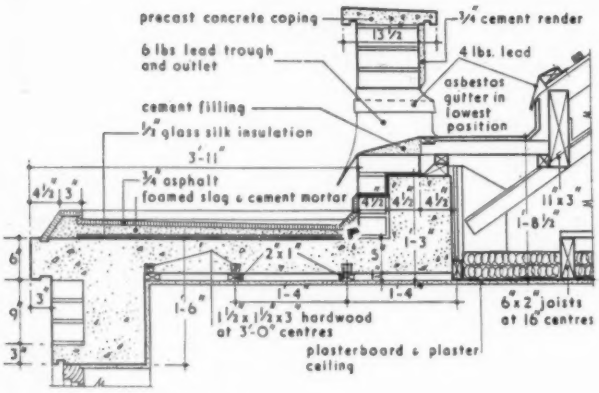
Plan 3 room flat for 4 persons [Scale ⅛" = 1'0"]



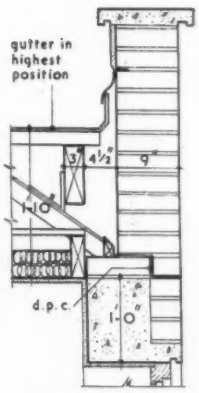
Site Plan

grouping the service facilities between pairs of blocks in this way, there is no need to restrict the normal activities of the tenants in order to preserve a tidy outward appearance to the estate. Trees will be planted on the site.

PLAN.—The flats illustrated are for families of four to six persons, with internal staircase approach. Families of seven to eight will occupy three-storey terrace houses, each with its private garden. Accommodation for single persons is in Block 11, with one-room flats intended for older people on the ground and first floors and the more active on the second floor. The two-room flats on the first and second floors of the ten-storey block will also be reserved for older people. In blocks 1 to 4, each common staircase has a front entrance from the



Detail at A [Scale: 1/2"=1'0"]



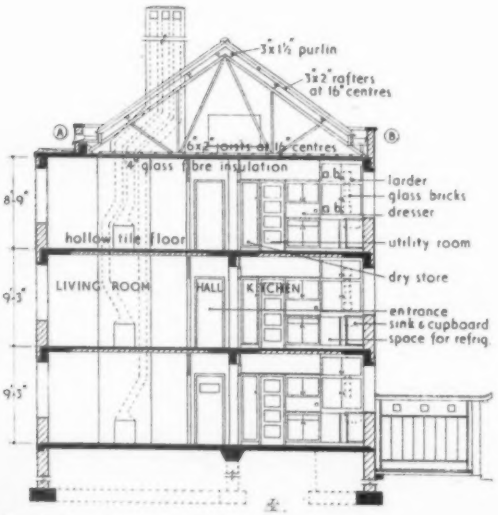
Detail at B

Above, entrance to pram stores on rear facade. Below, entrance doors on front facade.

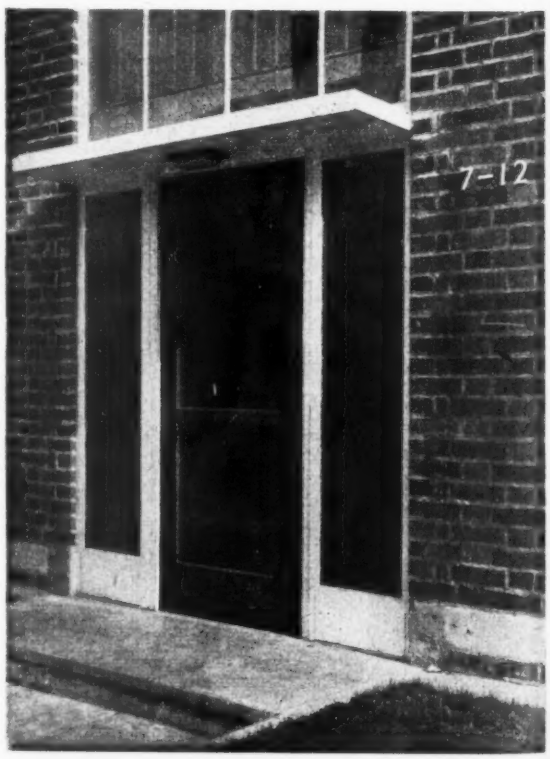
FLATS

in NORTH KENSINGTON, LONDON, W.11

designed by EDWARD ARMSTRONG and BRIAN O'RORKE



Section C-C [Scale: 1/2"=1'0"]



Above, west facade of three-storey flats, looking north.

garden and a back entrance from the service courtyard, each provided with glazed self-closing doors to exclude draughts. The planning of the flats is, in certain respects, a departure from the normal and has been devised to meet the needs of families with children and to reduce housework. A segregation between night and day use zones is obtained by arranging bedrooms in a group furthest from the staircase. The entrance lobby leads directly to the living room and kitchen. The kitchen is planned for meals and in order to allow proper seating for all the family the area varies according to the number of bedrooms. Each flat is provided with a utility room with clothes washing equipment, which is proving very popular with tenants. This room opens from the kitchen and leads to a recessed back balcony overlooking the service courtyard. This is in addition to the private balcony leading off the living room on the opposite facade. In fine weather one of the balconies will always be in direct sunshine.

CONSTRUCTION.—Exterior walls are or 13½-in. load-bearing brickwork with reinforced concrete spine beams and hollow tile floors. Roofs are of light steel trusses and partitions are of concrete breeze blocks.

FINISHES.—Facing bricks are brown Sussex and the roofs are finished with double Roman Bridgwater tiles. Balconies and trim are in fair-faced

Model of ten-storey block. Left, east facade. Below, west facade.

FLATS

in NORTH KENSINGTON, LONDON, W.11
designed by EDWARD ARMSTRONG and FREDERICK MACMANUS.

concrete, painted. Stair walls are rendered and painted with hard-wearing blue-grey cement paint. Staircase balustrading and entrance doors painted deep blue. Windows and frames are off-white. Floors are plastic laid *in situ*.

SERVICES.—Hot water by gas water heaters. Solid fuel fires in living rooms, gas fires in principal bedrooms. Relay wireless installations are fitted.

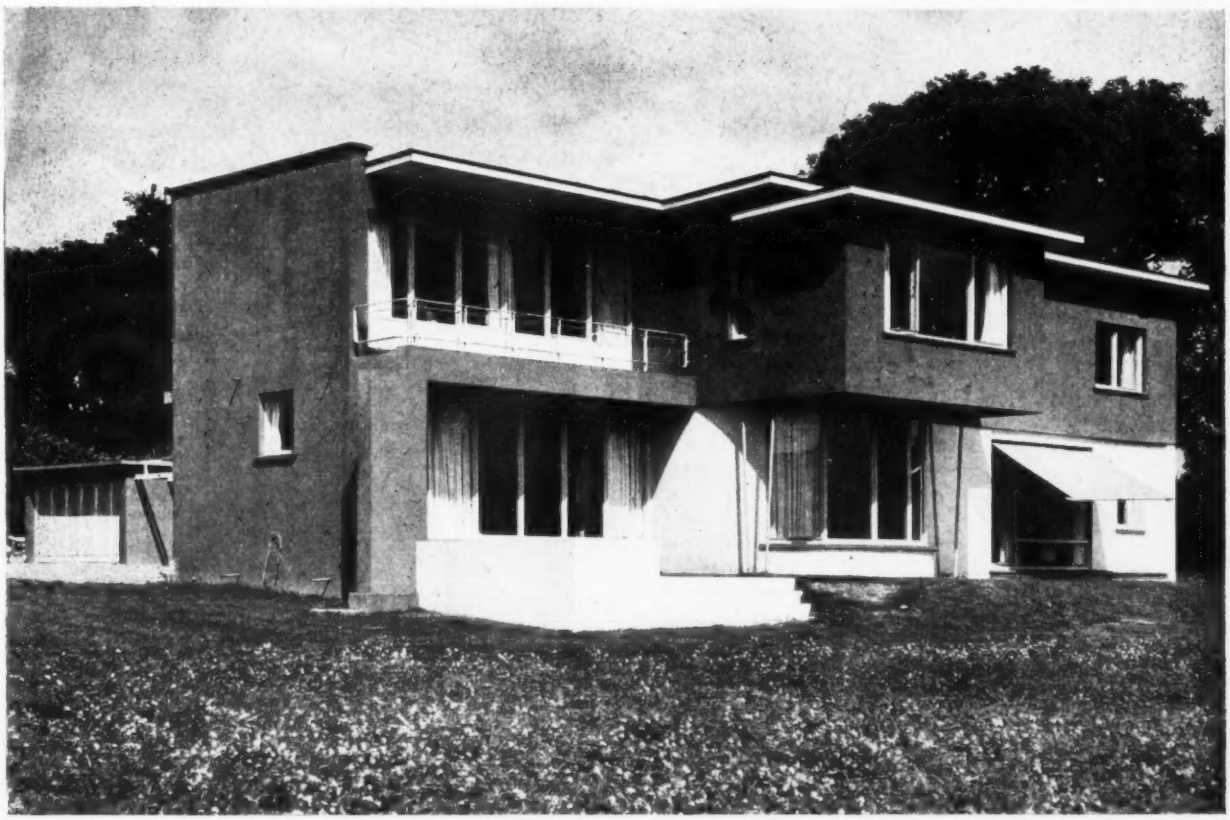
The ten-storey blocks will be similarly finished and equipped, but with reinforced concrete frame construction. Each block has electric passenger lifts. The general contractors are Holloway Brothers (London), Ltd. For list of sub-contractors, see page 60.

HOUSE

at CARRICKMINES, COUNTY DUBLIN, IRELAND
designed by BRENDAN O'CONNOR

The house stands on approximately 2½ acres of land which slopes towards the south. The principal rooms and bedrooms overlook the Dublin Hills to the south and south west. The approach, turning space and gardens have been laid out by the architect.

The house from the south-west.

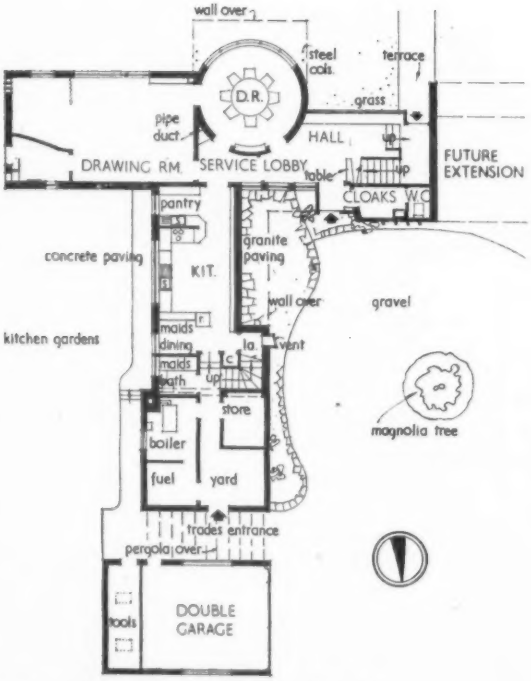


HOUSE

at CARRICKMINES, COUNTY DUBLIN
IRELAND
designed by BRENDAN O'CONNOR

The living room. When the extension has been built this will become the children's playroom.

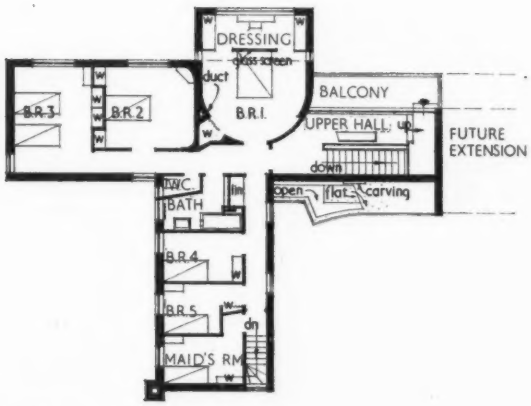
The principal bedroom.



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

PLAN.—A building licence was granted subject to the omission of the extension to the west side of the house. (The restriction limiting the size of a private house to 1,250 sq. ft. did not come into force until later.) The extension, when built, will consist of a drawing room at ground floor level, and a study and roof deck on the first floor. The drawing room will then become the children's playroom. The narrow portion of the room at the east end can be curtained off for the production of children's plays. The windows of the circular dining room are shaded by the overhang of the dressing room. The kitchen faces east. The maids' bathroom is on the ground floor next to the kitchen.

CONSTRUCTION.—Foundations and rising walls, mass concrete. Main walls; two skins of 4½-in. concrete blocks, 2-in. cavity, inner skin lined insulating board on battens. Internal walls: ground floor, concrete blocks; first floor, cavity type blocks of concrete and wood shavings. Floors: ground floor, 5-in. concrete, layer of asphalt, 3-in. concrete; first floor, reinforced concrete hollow tiles. Beams and cantilevers to dressing room and balcony, reinforced concrete. Roof: timber joists, insulating quilt, 1-in. T. and G. boarding, layer of felt, copper



First floor plan [Scale $\frac{1}{8}$"=1'0"]

Right, the kitchen which faces east. Below right, the hall.

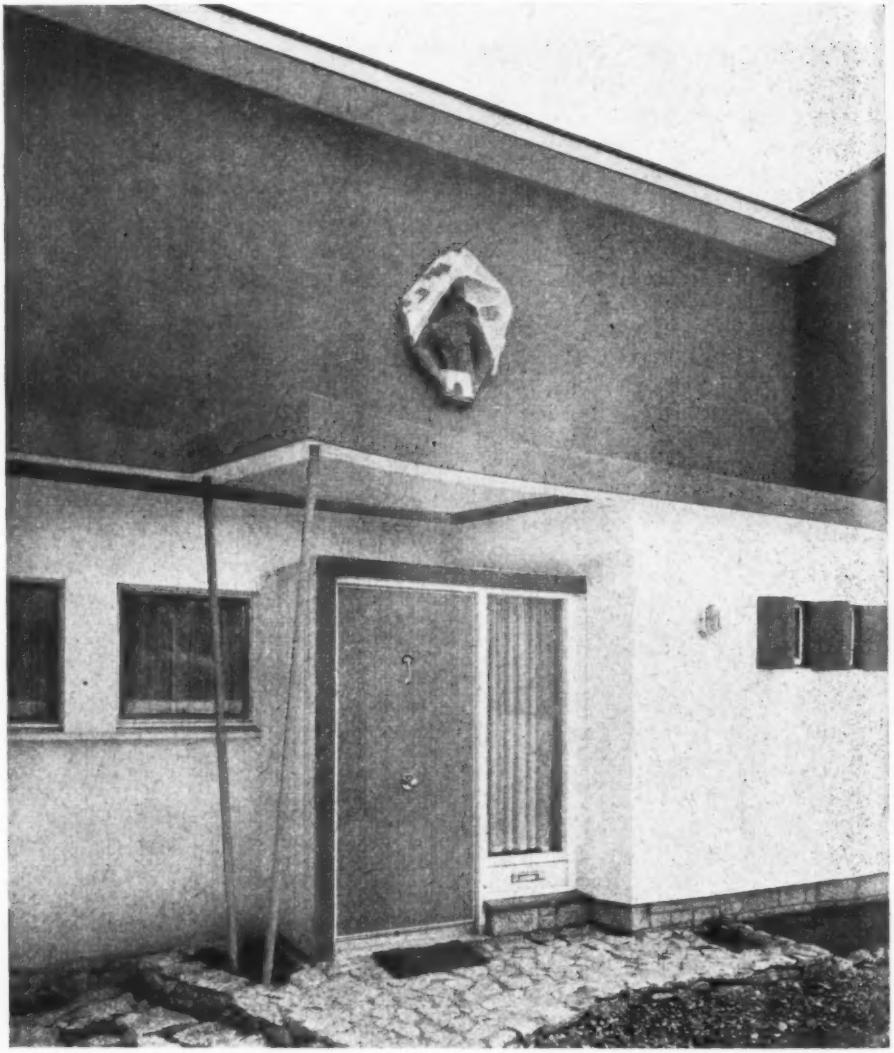
sheeting; to cloakroom, boiler house and garage, reinforced concrete. Windows, purpose-made steel in reinforced concrete frames. Doors, framed, panelled with plywood. Main staircase; reinforced concrete strings, reinforced concrete open treads covered with wood blocks with sinkings to take carpet, mahogany handrail, wrought iron balusters.

FINISHES.—External walls; rendered nap finish, oil bound distemper, deep terra cotta and white. Fascia and timber window frames, ivory. Steel sashes, balcony railing, pale blue.

SERVICES.—There are no open fireplaces. All rooms, halls and passages are heated by floor panels consisting of copper pipes bedded approximately $1\frac{1}{2}$ in. below the finished surface. Low pressure hot water is supplied by a coke burning boiler. Domestic hot water is supplied by a calorifier, which is fitted with an immersion heater for summer use. Central heating and hot water services are independent but can be used in conjunction. The heating system has been designed to serve the future extension; the mains to these rooms have been temporarily closed off.

HOUSE

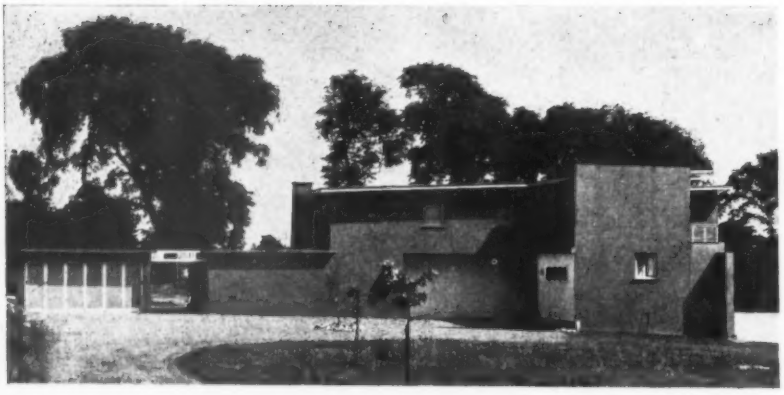
at CARRICKMINES, COUNTY DUBLIN, IRELAND
designed by BRENDAN O'CONNOR



The entrance.

COST.—Including the central heating installation and plant, electrical work and kitchen fittings, the cost per foot cube was 5s. 3d.

The general contractors were J. & P. Ives. A list of sub-contractors appears on page 60.



The house from the north-west. The two windows in the side wall at first floor level admit light to the corridor. The openings below the windows are provided for kitchen ventilation. A drawing room and study will later be added to the right-hand side of the house.

INFORMATION CENTRE · INFORMATION SHEET
QUESTIONS AND ANSWERS · CURRENT TECHNIQUE
THE INDUSTRY · PRICES · TECHNICAL ARTICLES

TECHNICAL SECTION

The first prototype of the "Unitroy" system of construction was erected within 6 months of the end of the war (See AJ, April 28, 1946). Nearly 5 years of intensive development has now produced the two-storey house, described below. Following its acceptance by the Interdepartmental Examination Panel of the MOW, this "semi-prefabricated" house has now been passed by the Department of Health for Scotland.

THE "UNITROY" SYSTEM OF HOUSE CONSTRUCTION

Since the publication, in 1941, of the first report on housing by the Interdepartmental Committee of the MOW, several thousands of non-traditional systems of building have been submitted for examination. Few have survived the tests of the panel of experts, still less provide economical solutions which take into account contemporary materials shortages. Whilst the "Unitroy" house is one of several successful solutions, it was commended for the particularly thorough degree to which it has been developed and, in the words of the report, "the recommended standards are adequately met in respect of strength and stability, heat insulation, maintenance and durability, and risk of infection by vermin."

This house construction system is, primarily, a combination of prefabricated and monolithic techniques and is intended to combine the advantages of both. H. A. Moscona, who developed it, aims at producing houses economically, both in materials and labour—*i.e.* requiring a minimum of materials in short supply (without using expensive substitutes) and a minimum of skilled labour (without using a degree of prefabrication which would unduly restrict the architect's freedom of planning and design). The timber requirement is only 0·71 standards per house.

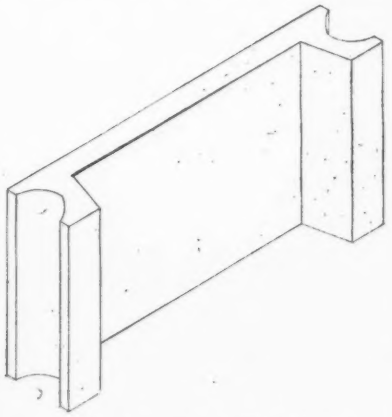
The two principal new components are: (1) A block of precast light-weight concrete, used to construct the exterior shell, and so shaped as to provide, during erection, permanent concrete shuttering into which a reinforced concrete structural frame is poured.

(2) A wall panel, made of vermiculite concrete "laced" with Norfolk reeds, sandwiched between sheets of wallboard. This panel is employed for linings and partitions and forms the interior shell of the concrete structure.

THE EXTERNAL BLOCKS

The concrete blocks are 2 ft. 10 in. × 1 ft. 6 in. and of 2½-in. nominal thickness. They are manufactured either under British Patent No. 587556, or made in a standard mix of foamed slag aggregate (BSS 877/39) or other acceptable light-weight aggregates. They carry their own weight as an external wall, but are not intended to be load-bearing. The ends are so shaped that, when raised side by side, they form permanent vertical casings into which concrete (1 : 1½ : 3 nominal mix) is poured *in situ*, permanent preformed reinforcement being introduced wherever necessary. The poured columns can be spaced at centres which vary according to the design of the building, and they carry, or connect with, the first floor lintols and the eaves blocks. These are formed from special precast U-shaped concrete troughs, in which prefabricated "cages" of steel rod reinforcement are placed. Concrete poured into these troughs forms 2 peripheral reinforced concrete beams, which, linked with the vertical columns, completes with frame, so that the columns, the beams, and the cladding all become integral parts of the structure.

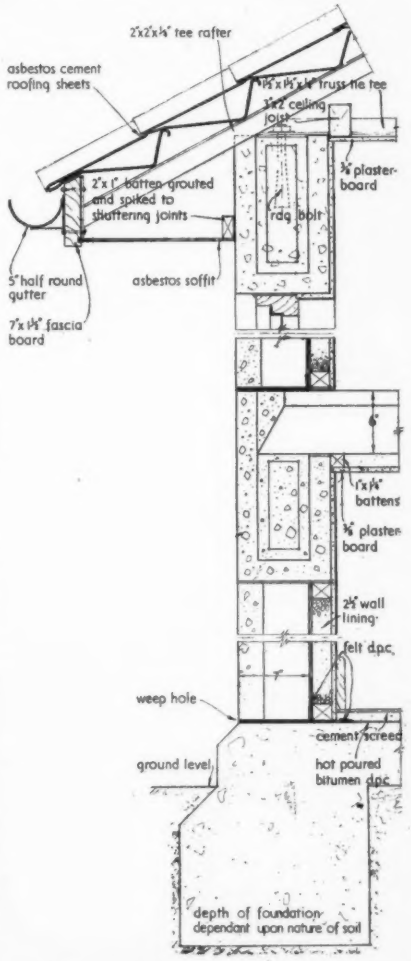
Whilst the horizontal dimension of the blocks (2 ft. 10 in.) becomes a planning module, the method of construction generally allows flexibility in planning.



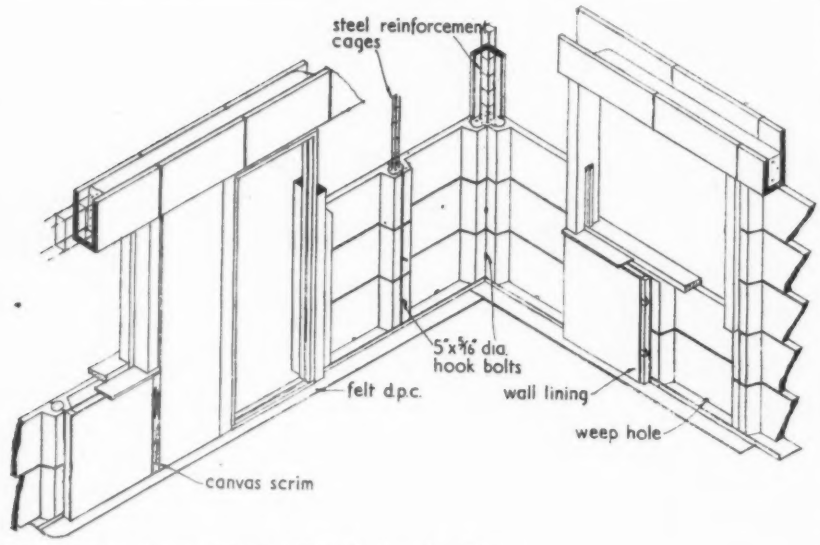
Standard external walling block.

THE INTERNAL PANELS

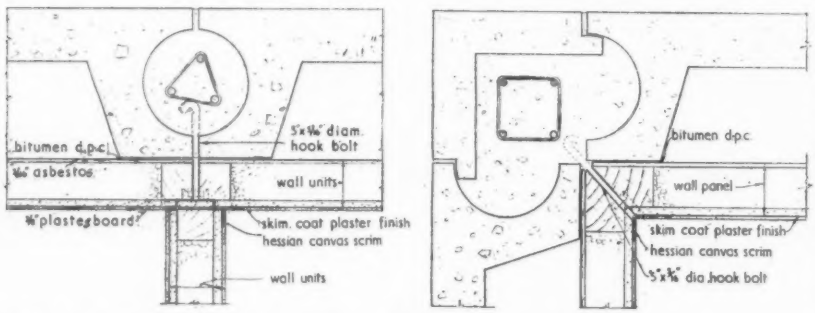
The matrix for the wall panels consists of a patented composition of Vermiculite and reeds (Patent No. 594702) or a cork compound can be used. The surfacing boards can be plasterboard, asbestos cement, plywood, wood veneers, hardboards, etc., and the height of the units depends on the available sizes of these surfacing materials. If



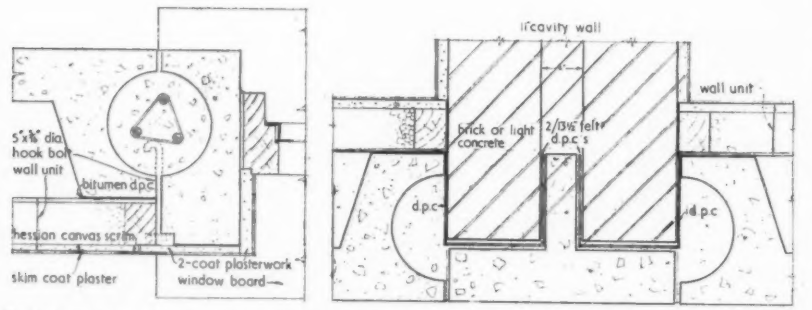
Vertical section through external wall; details at eaves, first floor and ground floor levels. (Scale ¾ in. to 1 ft.)



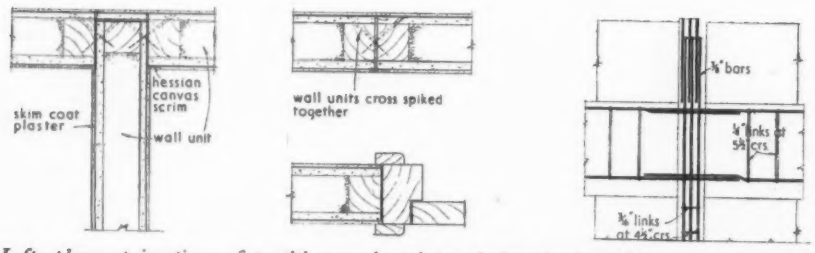
Isometric view showing typical details of external walling.



Left, plan at junction of external walling. Right, plan at corner.



Left, plan at window jamb. Right, plan at party wall junction.



Left, plans at junctions of partitions and at internal door jamb. (N.B. Scale for all above detail plans—1½ in. to 1 ft.) Right, detail of column and beam rod reinforcement. (Scale ½ in. to 1 ft.)

plasterboard is used, the units can be as large as 12 ft. high and 3 ft. wide. The standard size is determined by the weight convenient for handling; a panel 8 ft. 6 in. × 3 ft. 0 in. weighs 170 lbs., and can be handled by two operatives.

The thermal insulation value is high; using 2½-in. panels, the U value of the external walls is 0·2, as recommended by the BRS. Other insulation figures are: ground floor—U=0·15, roof and ceiling combined—U=0·13.

THE ERECTION PROCEDURE

The foundations are orthodox and consist of a surface concrete raft on hardcore with extra peripheral and centre line depth along lines of loading.

A timber jig is temporarily fixed to this raft. This gives the exact height of courses, dimensions and openings, etc., and dispenses with the constant use of spirit levels and storey rods. The wall lining panels are fixed to the exterior blocks by bolts, and the jig positions the bolts at accurate distances on the vertical columns.

After the external walling is complete (and one skilled slabber and four labourers can erect the walling for a pair of houses in approximately a week), a spinal beam, supported on the end walls and one intermediate column, is cast *in situ*. The first floor, which may be traditional, or one of a variety of proprietary types, then spans between this beam and the front and rear walls.

At eaves level, light steel trusses are fixed at 6-ft. centres, spanning the width of the building from front to rear. Purlins are also of steel and any desired roofing material can be used. Asbestos purlin tiles can be laid between the trusses thereby eliminating timber for fixing. A pitch of 28° is used.

The partitions, consisting of the wall panels described above, are set in position between the floor and ceiling joists, and adjacent units are simply skew nailed. Cover strips fixed over the joints make panelled walls, which may be decorated without plaster or, if self-finished wall boarding is used, no decorating is, of course, required. If flush walls are desired, the joints must be scrimmed and a skim coat of plaster applied.

CEILINGS

The ½-in. plasterboard ceiling to the ground floor rooms is nailed directly to timber joists, when used, or to wooden fillets, attached by clips to the underside of the precast concrete flooring units. The first floor ceiling consists of 3 in. × 2 in. joists, at 16-in. centres, notched over and screwed to the bottom tie of the roof trusses. Plasterboard sheets are then fixed to the underside of these joists and finished, as are the ground floor ceilings, with scrim and a skim coat of plaster.

SERVICES

Bathroom and kitchen units have been planned so as to make possible efficient plumbing and heating arrangements. The waste and soil disposal is incorporated in a one-pipe system and contained in an easily-accessible vertical duct in the kitchen and the bathroom above. The pipes are delivered to the site ready bent and cut for easy assembly with compression joints. Most of the plumbing, too, is pre-assembled, thus reducing site work to a minimum.

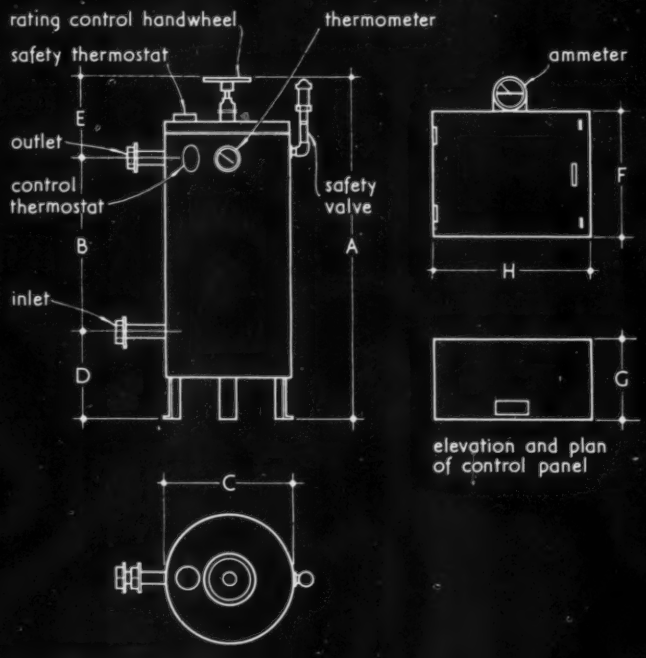
The electric wiring system incorporates the use of a central terminal box, fixed above the ceiling of each floor, which supplies all the points to that floor. With this system, all the electrical connections and the assembly of the equipment is fabricated at the factory and delivered to the site as a complete unit. Installation is thereby cut down to a few hours.

PARTY WALLS, FLUES, ETC.

For semi-detached houses, some bye-laws require the party wall construction to be in

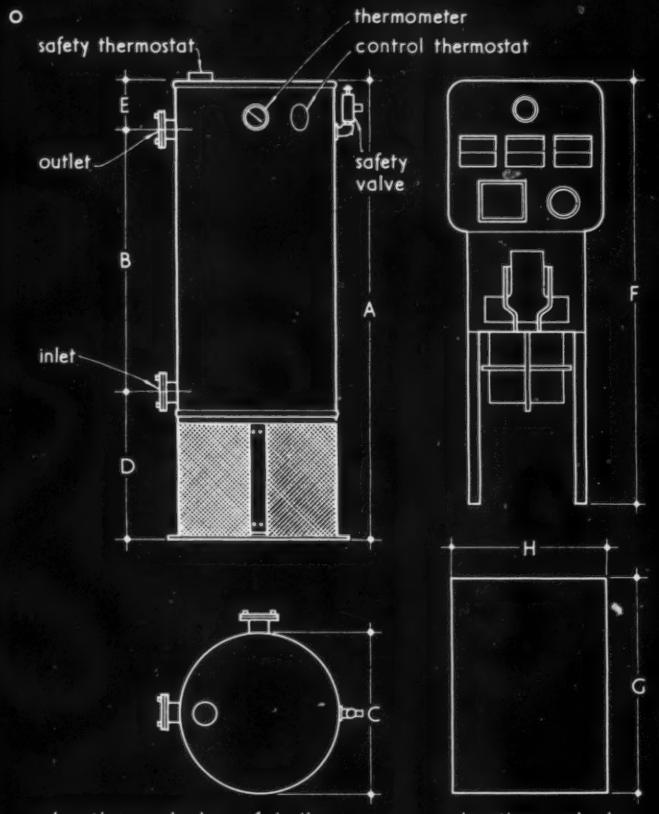
SPACE HEATING | ELECTRODE BOILERS

The Architects' Journal Library of Information Sheets 289. Editor: Cotterell Butler, A.R.I.B.A.



maximum load	400V 3ph.	30kW	60kW	100kW
dimensions in inches	A	36	52	52
	B	16	26¾	26¾
	C	15	19	19
	D	9	13⅛	13⅛
	E	11	12⅛	12⅛
	F	18	19	28
	G	11	12	13
	H	17	24	26
diameters of inlet and outlet in inches		1½	2	2

HAND OPERATED BOILERS.



maximum load■	400V 3ph	100 kW	200 kW	250 kW	300 kW	450 kW	550 kW	800 kW	1000 kW
dimensions in inches	A	54	54½	70	70	70	70	70	72
	B	21	26½	40½	40½	40½	40½	40½	41
	C	22	22	24	24	28	28	36	39
	D	26	22	22½	22½	22½	22½	22½	24
	E	7	6	7	7	7	7	7	7
	F●	64	64	64	64	64	64	64	70
	G●	21	21½	21½	33	33	33	33	36
	H●	18	18	18	24	24	24	26	26
diameters of inlet and outlet in inches		2	3	3	3	4	4	5	5

■high tension boilers: boilers rated above 1000kW are usually made for use on h.t. supplies and dimensions of these boilers depend on type and application

●dimensions of control panels subject to slight variations depending on instruments and controls required

AUTOMATIC BOILERS.

·AUTOLEC· ELECTRODE HOT WATER BOILERS. Manufacturer: G.W.B. Electric Furnaces Limited.

29.K1 · AUTOLEC · ELECTRODE HOT WATER BOILERS

This Sheet describes hand operated and automatic electrode hot water boilers. The sizes of the boilers together with their control panels are given on the face of this Sheet. The boilers and control panels can be fitted in any convenient position, no special building is needed to house them and flues are not required.

Applications

Autolec electrode hot water boilers are designed specially for space heating and can be used in any hot water heating installation. The larger sized low tension boilers and all high tension boilers are particularly suitable for use with thermal storage installations.

Principle of Operation

The current passes from electrode to counter electrode using the resistance of the water itself as the heating medium. Heat losses are consequently almost negligible and the efficiency of the boiler is extremely high. The load is varied by altering the area of electrode exposed, and this is done by the rising and falling of shrouds around the electrodes.

Capacities

The following table gives the outputs of the boilers for different loadings.

Loading kW	Output B.th.u./hr.	Loading kW	Output B.th.u./hr.
30	102,000	650	2,210,000
60	204,000	700	2,380,000
100	340,000	750	2,550,000
200	680,000	800	2,720,000
250	850,000	850	2,890,000
300	1,020,000	900	3,060,000
450	1,530,000	950	3,230,000
550	1,870,000	1000	3,400,000
600	2,040,000		

Hand Operated Boilers

Rating control: The shrouds moving over the electrodes are raised or lowered by the manual operation of a small handwheel fitted at the top of the boiler.
Temperature control: This is effected by a thermostat operating a contactor in the main supply. When the water reaches the required temperature the contactor is switched off and when the temperature drops it is switched on again. This control is automatic.

Automatic Boilers

Rating control: The shrouds moving over the electrodes rise and fall automatically. The amount of rise is governed by a master rating control which is in the form of a small variable rheostat operated by means of a knob on the front of the case. This enables the operator to pre-select the maximum rating at which it is required to run the unit.
Temperature control: This consists of a two-position thermostat fixed to the side of the boiler unit. Of these two positions one is set at 5° above the required temperature and one 5° below. When the temperature rises above the higher setting the shrouds are automatically lowered and when the temperature falls below the lower setting the shrouds are automatically raised.

Control Panels

For hand operated boilers the control panel is wall mounted and for automatic boilers the panel stands on the floor.

Materials and Construction

Boiler shell: The boiler shell is of steel and is lagged with Stillite.

Electrodes: These are made in cast iron or special corrosion-resisting material.

Shrouds: The shrouds are manufactured from high tension porcelain.

Safety Devices

It is impossible for the unit to burn itself out should the current be switched on before the boiler is filled with water or if the boiler loses its water during operation, since the water itself forms part of the circuit.

Safety thermostats: Both the automatic and hand operated units are provided with safety thermostats to prevent any excess heat in the boiler. These safety thermostats are connected in series with the no-volt release coil of the main switch and cut off the electric supply automatically in the event of excess heat within the boiler.

Safety valve: Both hand operated and automatic heaters have provision for fitting standard type safety valves.

Finish

The casings to the boiler and control panel are finished stove-enamelled cream. Fittings are chromium plated.

Maintenance

Because of their simple and solid construction, maintenance on Autolec boilers is small and owing to their compactness and accessibility is easily carried out. There is no descaling of tubes or any other heavy work usually associated with hot water boilers. Normal electrical attention is required for control equipment. Hydraulic gear and pump need occasional cleaning and gland adjustment.

Thermal Storage

As mentioned above, the boilers are particularly suitable for use in conjunction with thermal storage systems, thereby avoiding the use of electricity on peak loads and taking advantage of cheap night rates when available.

Further Information

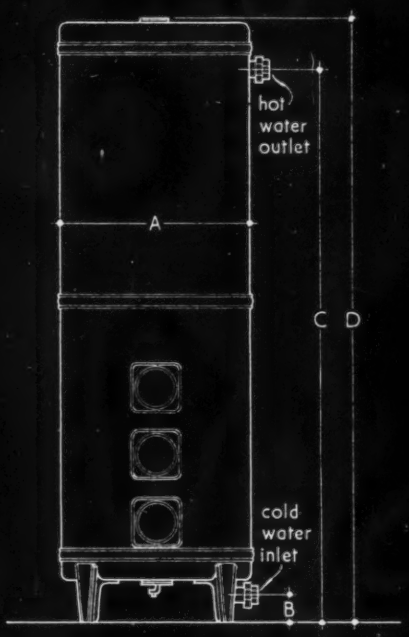
The manufacturer's technical department is available to answer questions and advise on technical problems dealing with this subject generally.

Compiled from information supplied by :

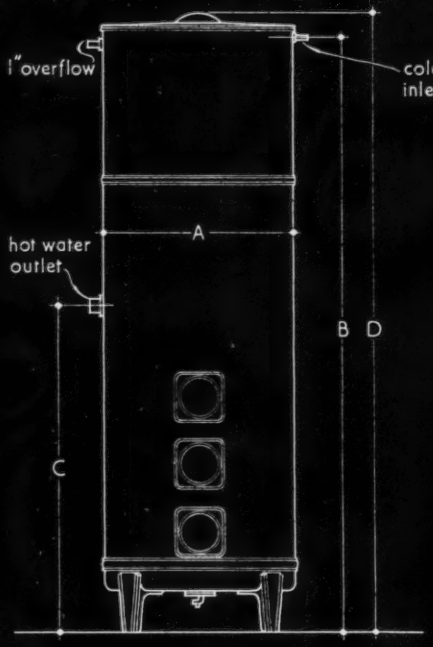
G.W.B. Electric Furnaces, Limited.
Address : Dibdale Works, Dudley, Worcs.
Telephone : Dudley 4284.
Telegrams : Gibwildbar, Dudley.

WATER HEATING | UNITS | ELECTRIC

The Architects' Journal Library of Information Sheets 290. Editor: Cotterell Butler, A.R.I.B.A.



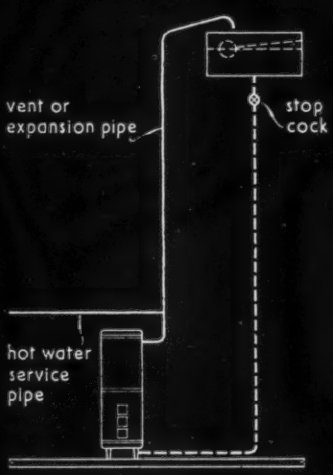
PRESSURE TYPES: I.S., J.S., K.S.



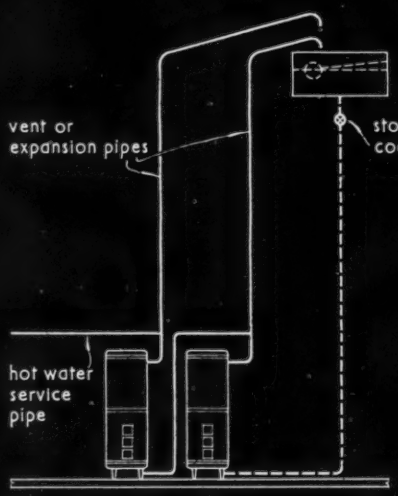
CISTERN TYPE: J.S./B.T.

type	capacity	A	B	C	D	water connections	
						inlet	outlet
I.S.	40 gallons	2'-0"	3½"	4'-1⅜"	4'-8"	1" or 1¼"	1" or 1¼"
J.S.	50 gallons	2'-0"	3½"	4'-11⅜"	5'-6"	1" or 1¼"	1" or 1¼"
K.S.	60 gallons	2'-0"	3½"	5'-9⅜"	6'-4"	1" or 1¼"	1" or 1¼"
J.S./B.T.	50 gallons	2'-0"	6'-3"	3'-5"	6'-6"	¾"	1" or 1¼"

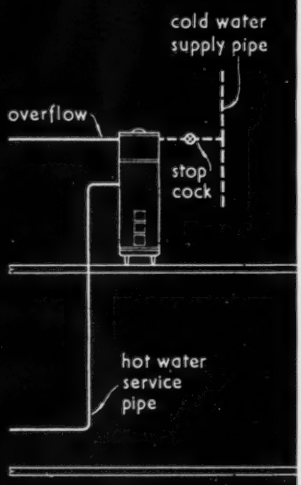
CAPACITIES AND DIMENSIONS.



1. pressure type



2. pressure types



3. cistern type

TYPICAL INSTALLATIONS.

·SADIA· AUTOMATIC ELECTRIC WATER HEATERS: FLOOR MOUNTED PRESSURE AND CISTERN TYPES.

Manufacturer: Aicas Electric Ltd.

32.D7 · SADIA · AUTOMATIC ELECTRIC WATER HEATERS : FLOOR MOUNTED PRESSURE AND CISTERN TYPES FOR INDUSTRIAL USE

This Sheet, one of a series on automatic electric water heaters, illustrates floor mounted water heaters for industrial installations such as in dairies, works' canteens and other places where large quantities of hot water are required. They are manufactured in 40, 50 and 60 gallon pressure types, and a 50 gallon cistern type.

For very large installations two or more pressure type water heaters can be connected in water series. For instance, two type JS of 50 gallons capacity might be used instead of one water heater holding 100 gallons. Such installations have the advantage of avoiding the internal mixing which otherwise occurs in very large tanks, and it is possible to draw off a greater quantity of hot water without a drop in temperature.

Design and Construction

The floor mounted water heaters are similar in design and construction to the U.D.B. type described on Sheet 32.D9 and the U.D.B. cistern type on Sheet 32.D10 except that the hot water containers are made of heavier copper and the water heaters are mounted on four feet instead of a rubber ring.

The water connections are large enough to supply hot water simultaneously at several points. The pressure types are fitted with 1-in. or 1¼-in. unions on the inlet and outlet. The cistern type has a 1-in. or 1¼-in. outlet, a 1-in. overflow and an inlet controlled by a ¾-in. ball valve. All models have a ¾-in. drain cock.

According to the hot water output required, floor mounted Sadia water heaters are supplied with one, two or three element plates, each element plate being loaded to a maximum of 3,000 watts and fitted with its own thermostat. The elements and thermostats are mounted horizontally, with access in front of the heater, and each of them can be removed without emptying the water container. Where two or more element plates are fitted, the upper thermostats only operate when large quantities of hot water are drawn off. If smaller quantities of water are used, only one heating unit is needed for re-heating and in this way the demand for electricity varies with the demand for hot water.

Application and Installation

Typical installation arrangements are shown in the illustrations.

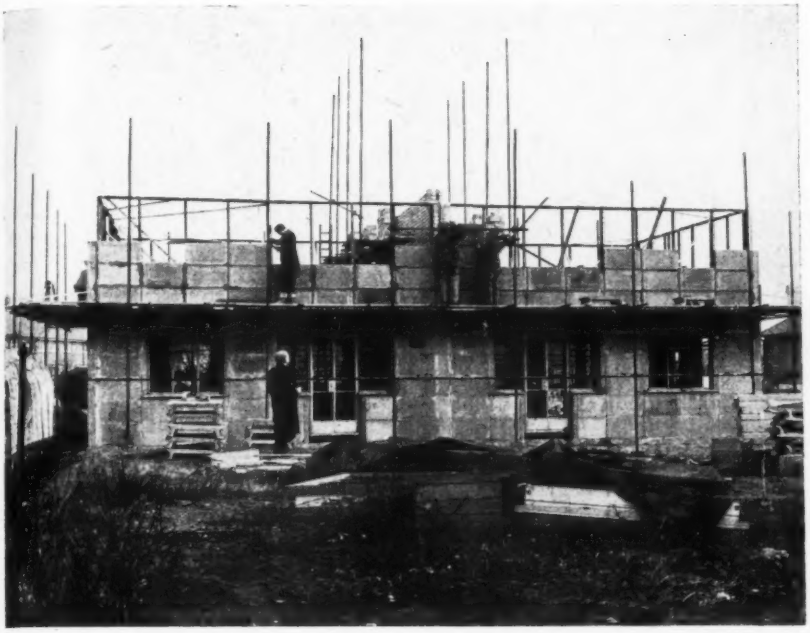
1. This shows a pressure type water heater connected as an independent hot water service. The cold water is drawn from the ball tank which must be well above the water heater. The cold water supply pipe to the water heater cannot be used to supply any other cold water taps or outlets and must be fitted with a stop cock. The vent or expansion pipe should be taken from the highest point in the hot water piping and lead to above the cold water tank.

2. This shows two pressure type water heaters connected in water series. The cold water pipe from the ball tank feeds the first water heater, the hot water outlet of the first water heater is connected to the cold water inlet of the second water heater, and all hot water is drawn through the hot water outlet of the second water heater. In this way the water remains at top temperature until the contents of both water heaters are used. It should be noted that each water heater needs a separate expansion pipe.

3. This shows a cistern type water heater which can be either connected direct to the water mains or supplied with cold water from a storage tank at a higher level. It needs no expansion pipe but must be provided with an overflow pipe. The cistern type water heater must be installed with its outlet above the level of all the hot water taps supplied from it. In order to obtain a good pressure at the taps it is recommended that the water heater should be, if possible, installed on the floor above.

Compiled from information supplied by :

Aidas Electric, Ltd.
Address : Sadia Works, Rowdell Road, Northolt, Middlesex.
Telephone : Waxlow 1607.
Telegrams : Aidaselect, Greenford, London.



Erection of the external shell, approaching eaves level. Note the timber jig visible above the level of the concrete blocks.

Left, pre-assembled reinforcement in the special U-shaped lintol blocks. Right, pouring concrete into these to form peripheral eaves beam.

Left, erecting vermiculite wall panels as lining to the external walls. Right, fixing similar panels as internal partitions.

brickwork. The introduction of brickwork into a house building system of this type naturally upsets the erection schedule. But a method of building the party wall, including the flues and chimneys, in concrete blocks has been developed for use where permitted.

COST

Although the external appearance has not come up to the expectations aroused by earlier designs, it is very interesting to note that the estimated price, in 1946, of £1,100 per house, has been exceeded by less than 10 per cent, in spite of the various increases which have taken place in the cost of materials and rates of wages since that date. These houses are being offered to local authorities, in various designs, to meet their requirements, at a price of between £1,200 and £1,280. This figure, which excludes only the cost of land, covers all the usual services and fittings, including generous provision of built-in cupboards and wardrobes.

QUESTIONS AND ANSWERS

3036 SILVERED BUILDING PAPER

Q *Recently, in a journal devoted to municipal affairs I read an article in which the insulating value of silvered waterproof building paper was mentioned as of importance in caravan construction. It was used in the cavity between the inner and outer plywood walls. Is there any information as to the exact mathematical value of such silvered building paper, for purposes of heat loss calculations?*

A This is aluminium foil applied on one or two sides of sisal fibre building paper. Its insulation value is threefold :— In the first place, the polished surface acts as a reflector, on the one hand, and as a poor emitter of heat on the other, so providing reflective insulation in the same way as the silvering of a vacuum flask. In the second place, it is airtight and so provides a suitable means of sealing off air spaces which have in themselves an insulating value. Finally, it acts as a very effective vapour barrier. The table below gives figures for bright aluminium foil insulation, which may be taken as being the same, given in the American Society of Heating and Ventilating Engineers' Guide for 1937 :—

Description	Conductivity or Conductance
Air space, faced one side with bright aluminium foil, over ¾ in. wide ..	0·46
Air space, faced both sides with bright aluminium foil, over ¾ in. wide..	0·41
Air space divided in two with single curtain of bright aluminium foil—both sides bright—each space over ¾ in. wide	0·23
Air space with multiple curtains of bright aluminium foil, bright on both sides, curtains more than ¾ in. apart, in standard construction :—	
2 curtains, forming 3 spaces ..	0·15
3 curtains, forming 4 spaces ..	0·11
4 curtains, forming 5 spaces ..	0·09

Coefficients are expressed in B.Th.U. per hour per sq. ft. for the thickness stated or used in construction, not per 1-in. thickness.

It is pointed out that the material must be used in conjunction with air spaces which should not be less than ¾-in. wide for best efficiency. It is useless as an insulator if pressed tight between materials.

Complementing last week's acoustics article, the following paper analyses up-to-date methods of controlling reverberation time, with particular reference to methods and materials used in the Royal Festival Hall.

RECENT DEVELOPMENTS IN SOUND ABSORBENTS

By H. R. Humphreys

Most commonly found sound absorbing materials are of a porous nature, and absorb sound because of their porosity. Such materials are always more efficient at the high frequency (high note) end of the musical scale than at the low frequency end. Apart from any special acoustical treatment of a building, many common articles of furnishing, such as upholstered chairs, cushions, carpets, curtains, and the clothing of the occupants, also absorb sound because of porosity and therefore the higher frequency sounds tend to be damped out to a disproportionate degree. The poorly balanced acoustical quality produced by these effects has now been realised, largely because of the modern tendency to avoid interior linings and many other forms of applied decoration and to rely on simple plain surfaces often applied directly on a solid constructional wall or ceiling. In specifying comparatively light inner linings, of such materials as fibrous plaster, plaster on lath, or wood panelling, the designers of the older concert halls and theatres were, probably unwittingly, ensuring a reasonable degree of low frequency sound absorption which contributed notably to the acoustical qualities of these buildings. The mechanism of the absorption of sound by a vibrating panel is now appreciated and it is possible to design the reverberation of a new auditorium to ensure that it will not rise to excessive values at any part of the frequency range.

PANEL ABSORBENTS

Any plate or layer of material mounted with an air space between it and a solid backing will operate to some degree as a panel absorbent. The chief factors which affect the performance of the absorbent are the weight of the panel and the thickness of the air space. Maximum sound absorption takes place at one characteristic sound frequency, the resonance point, dependent on these factors. The overall sizes of the panel do not materially affect the resonant frequency, provided they do not exceed about 5 feet, or are supported (on battens) at something less than this dimension. The resonant frequency of panels of practical weight (range 0·3 to 5·0 lb. per sq. ft.) and spacings (½- to 4-inches) falls within a frequency range of about 40 to 200 cycles per second. Above and below the resonant frequency the sound absorption efficiency falls off, but for normal types of construction, not very steeply. The steepness of the fall-off can be reduced and the efficiency increased by inserting a porous absorbent material, such as mineral wool, in the air-space. Even though the absorption frequency curve may be fairly broad it is desirable in designing panel absorbents for an auditorium not to have all the panels of exactly the same dimensions, and therefore resonant frequency, but to provide some panels of different weight or air spacing and thus to distribute the resonances over a range of frequencies. Laminated, or composition materials such as plywood or chipboard tend to give a less sharp resonance peak than completely homogeneous materials such as sheet metal, and the former types of material are therefore to be preferred as panels.

In the Royal Festival Hall the panels used consist of ¼-in. veneered faced plywood with air spaces of 3- and 4-in., in which a 1-in. rockwool quilt has been placed. (See Fig. 1.) The absorption coefficients obtained from experimental panels in a test chamber are shown in Fig. 2.

The approximate absorption coefficients for a number of materials operating as panel resonators and for porous materials with perforated facings are given in the table on page 55. The use of these coefficients in calculating reverberation time by the Sabine formula of large rooms will give results which should not differ by more than about ±15 per cent. from the final measured values.

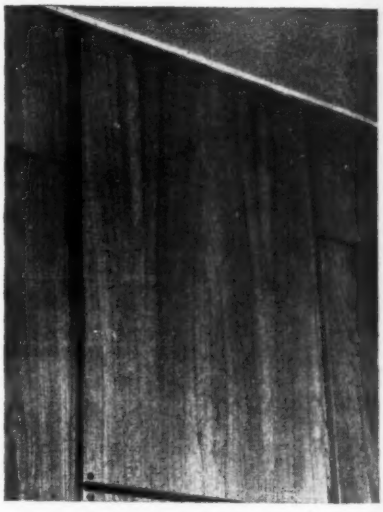
ALTERNATIVE METHODS

As an alternative to the proprietary types of acoustic treatment, usually in the form of some kind of tile, more economical treatments, which can be specified by the architect and fixed by the normal building contractor, are now becoming available. These treatments consist of a perforated or slotted hard paintable facing material, such as hardboard, plasterboard, plywood, metal or asbestos or other composition board, fixed to conceal some form of porous absorbent which is placed behind. The performance of such treatments depends mainly on two factors, namely the nature and method of fixing of the porous absorbent, and the size and arrangement of the holes in the facing material. The thicker the porous material, the further down the frequency range will high absorption coefficients be obtained. It is not usually worth while to use less than one-inch thickness of porous material. Materials of higher density, such as rock wool are slightly better absorbents than low density materials such as the lighter glass wool materials. Some mineral wools contain quite a large amount of loose material which must be prevented from falling out of the perforations in the facing material by means of a suitable retaining material, such as canvas scrim.

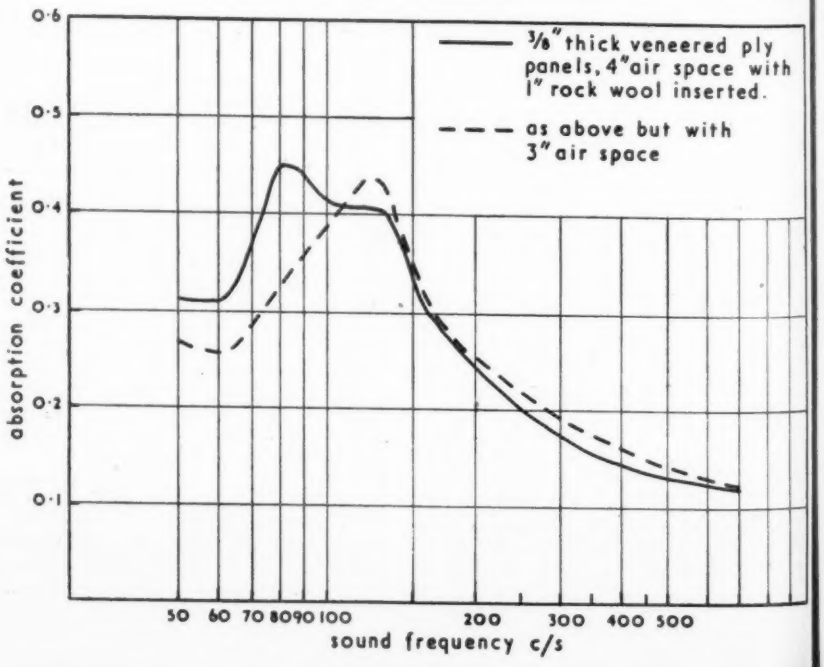
Absorption in the frequency region 100-200 c/s. will always be improved by mounting the porous material so that there is an air space between it and the solid wall or ceiling behind. Air spaces of 1-in. upwards are effective, the most efficient values being obtained with quite large distances.

THE EFFECTS OF PERFORATION

The influence of the holes in the facing material on absorption is dependent on two



Below, Fig. 2, absorption coefficients of wood panels for the Royal Festival Hall. Right, Fig. 1, finished appearance of the panels.



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effects. The holes or slots form, with the air behind, a group of "Helmhotz" resonators" which absorb sound, in a manner analogous to the familiar effect of a bottle or glass "ringing" when a certain note is sounded. With the hole dimensions and spacings employed in existing materials the effect is to increase absorption in the middle frequency region (200-1,000 c/s.).

The second effect the facing material has is to reduce the absorption due to the porous material at the higher frequencies. Although the facings are "acoustically transparent" over most frequencies, the transparency begins to fall off at high frequencies, dependent on the percentage of the area which is removed from the facing. For example: 5 per cent. perforated hardboard has an absorption coefficient curve which begins to drop at about 500 c/s. On the other hand, materials which have as much as 20 per cent. of the area removed show little fall off in absorption until about 5,000 c/s. It should also be noted that thicker facing materials reduce the high frequency coefficients slightly more than thinner materials with the same amount of perforation.

This reduction in efficiency at the higher frequencies can be used to advantage when it is required to reduce average reverberation but not to overdamp the high notes.

The overall effect on the absorption curve of the influences noted is shown graphically in Fig. 3, and the accompanying table gives some coefficients for typical examples.

As an alternative to a pierced facing it is possible to use slats of material to form a grille over porous absorbents. This may be slightly more expensive than a pierced facing but can give very pleasing architectural effects, as for example that shown in Fig. 4 of the Royal Festival Hall. In this case the slats are designed to produce a tortuous channel into the absorbent so that the porous material is not visible and cannot be tampered with. This refinement would only be necessary where the absorbent must be used within reach of the public. The open area for this type of facing can easily be up to 25 per cent.

DUAL PURPOSE TREATMENT

Many materials which can be used for sound absorption are also highly efficient heat insulators, and the possibility of combining the two requirements in one treatment is therefore interesting. A layer of ½ in. soft fibre (insulating) board is often used under a corrugated or sheeted roof. This soft fibre board will act to a certain extent as a panel absorbent, providing some absorption of the lower frequencies, but high frequency absorption will be very low, particularly after the board has been painted once or twice. A considerable improvement in the absorption at high frequencies (without reduction of heat insulation) can be obtained by making saw cuts in the exposed surface of the board about ¼ in. wide, $\frac{3}{16}$ in. deep and not more than 1-in. apart. Subsequent spray painting of the board will not materially reduce its absorption.

The use of wood wool slabs as permanent shuttering to thin concrete roof slabs, usually in light framed buildings also provides a dual role treatment, provided that the wood wool is not subsequently plastered on the underside.

The appearance of spray-painted wood wool can be quite acceptable provided that it is fixed fairly high up, otherwise the large scale of the texture may be disturbing.

A final suggestion for a dual purpose treatment, particularly suited to industrial building ceilings, consists of one or two inches of one of the cheaper mineral wools, such as bitumen bonded glass wool, supported on fine mesh expanded aluminum panels. These panels can be very simply fixed between the purlins of a sloping roof and the direction

MATERIAL AND METHOD OF FIXING	125 c/s.	500 c/s.	2,000 c/s.
Panels—			
½ in. soft fibre board over 2-in. air space ..	0·25	0·25	0·25
Boarding ("Match") about ¾ in. thick over 1-in. air space	0·3	0·1	0·1
Plaster, lime or gypsum on lath, over about 2-in. air space, including fibrous plaster and plaster board	0·3	0·1	0·04
Plywood panels mounted over air space (2-4 in.)	0·4	0·2	0·1
Porous materials with perforated facing—			
2-in. glass wool, 1½ in. air space, covered 10 per cent. perforated plaster board, ⅜ in. thick ..	0·4	0·8	0·5
1-in. glass wool, 2½ in. air space, covered 10 per cent. perforated plaster board, ⅜ in. thick ..	0·25	0·8	0·45
2-in. rock wool, covered 5 per cent. perforated hardboard, ⅛ in. thick	0·3	0·8	0·6
2-in. rock wool, covered 20 per cent. perforated hardboard, ⅛ in. thick	0·3	0·8	0·8

Table of approximate absorption coefficients for resonant panels and porous materials with perforated facings.

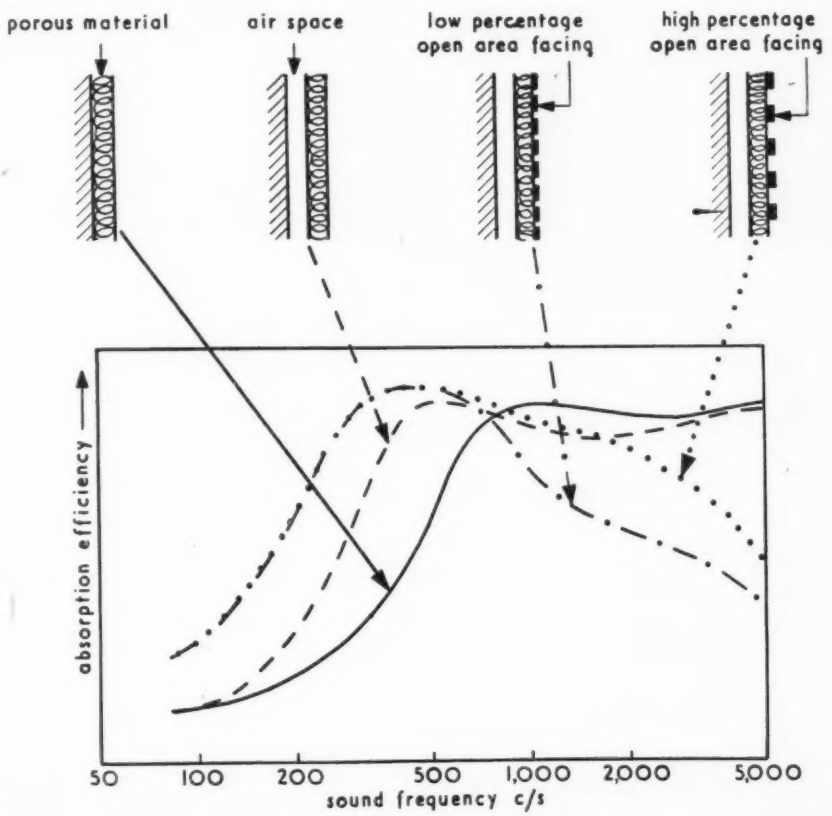

Fig. 3. Typical absorption curves for a porous material with and without air space, and with high and low percentage open area pierced facings.

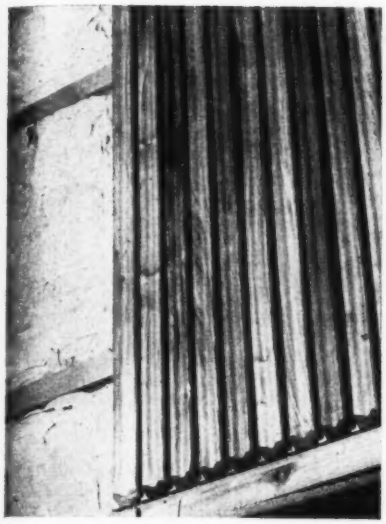

Fig. 4, wooden slat facing to a rock wool absorbent treatment in the Royal Festival Hall. The rock wool blankets not yet covered can be seen to the left and the tortuous channels into the absorbent at the bottom of the slats.

of the slope of the strands of the aluminium can be arranged so that very little, if any, of the mineral wool can be seen from below. The percentage perforation is very high, and the treatment can be decorated by spray painting without impairing the sound absorption.

In conclusion, attention is drawn to the valuable texture effects which can be obtained by the use of the different forms of sound absorbents discussed. A slotted board producing a rich texture is shown in Fig. 5. These effects can make a valuable contribution to the design of simple modern interiors and have been exploited very well in many of the best examples of Scandinavian architecture.

* The absorption coefficients of the panels for the Royal Festival Hall are published by the courtesy of the Director, B.R.S., and the photographs (Figs. 1 and 4) of these treatments by permission of the Architect to the London County Council.

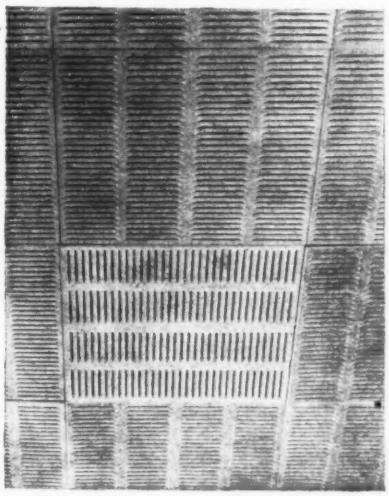

Fig. 5, a high percentage (20 per cent.) slotted hardboard facing for porous absorbents giving a rich textured effect.

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INFORMATION CENTRE

2.112 planning: general
DEVELOPMENT CHARGES

Central Land Board Practice Notes. Supplement on Development Charges in Respect of Minerals. (HMSO, 1950, 3d.)

Current practice for the assessment of development charges on the winning of minerals (which includes all extraction from the soil, save water and peat not dug for sale).

This pamphlet is important to all who are concerned with any sort of mining, quarrying or the digging of sand or gravel. Under the 1947 Act, minerals fall into two classes: near ripe (that is, those affected by an existing contract) and dormant (all others). This pamphlet applies to dormant minerals. They are subject to a development charge on extraction and the pamphlet lays down the method of assessing this, now adopted by the Central Land Board. The charge may be collected either as a lump sum or as a royalty payment. The pamphlet also describes, in detail, the accepted dividing line between the actual process of winning the minerals and the processing of them after being extracted—equally important in the assessment of the charge.

7.29 practice
ESTIMATING AND COSTING

Building and Public Works Administration; Estimating and Costing. Spence Geddes. (George Newnes Ltd., 3rd Edition, 1950, 30s.).

A book of nearly 300 pages, devoted to estimating for, and the administration and costing of, civil engineering and construction work; primarily written for civil engineering and building contractors, but also of considerable interest to surveyors and others concerned with this type of work.

This book deals, in the main, with the problem of how to assess the requirements for construction work of a civil engineering or semi-engineering character, how to estimate the cost of the necessary labour, materials and plant, and how to cost the work in due course.

It explains the process of tendering, in detail, including the allowances to be made for head office and general site charges and site administrative staff. There is an extremely useful section on the economical use of plant and another on bonus, as an incentive to higher output. Most of the sections deal with individual trades, which makes it easy to find the answer to a particular problem.

Whilst the book should be of great value to practising engineers, surveyors and contractors, it is not beyond the understanding of the young engineer or student. The section on bonusing is a new one, and the sections dealing with brickwork and excavation have also been revised and extended in this edition.

7.30 practice
PUBLIC HEALTH LAW

ABC To Public Health Law. J. F. Garner. (Sanitary Publishing Co. Ltd., 1950, 15s.).

A question-and-answer reference book to the law administered by public health departments of local authorities. 226 pages and index.

This book has the merits, and the demerits, of one which substantially consists of concrete problems and their answers. Its great value is that it co-ordinates the law as it affects a particular set of facts, its disadvantage the fact that, unless the circumstances of the problem to which the reader needs an answer exactly correspond with those set out in an example, he may be left uncertain whether his question has been answered. It is prepared by the legal editor of "Municipal Engineering" and the questions answered are practical questions which have been submitted to the paper. It should prove a most useful supplementary reference book for all whose work brings them into contact with public health regulations.

10.80 building types
SCHOOL DESIGN

School Design. By a Study Group directed by Professor Steen Rasmussen. (Published privately on behalf of the International Study Group at the Royal Academy of Fine Arts in Copenhagen. 1949-1950.)

Gymnasiums, special classrooms, daylighting; notes on American school design. Interesting. 80 pp., numerous drawings.

The report appears to be a co-operative effort between senior graduate students and staff, and in some parts makes useful contributions to architectural knowledge. Most of the examples are Danish, naturally, and this limits both the amount of source material and its application to other countries.

The study of gymnasia is a study of the planning of ancillaries, changing rooms, baths, etc., rather than of the room-type itself. Examples from the past 75 years or so are examined, and new plan-relations are suggested on a modern functional analysis. The meeting point of the shod child and the barefoot child is noted as critical; showers, gymnasium, lavatory and teacher's room open off the barefoot side and the air-lock and drying space are on the shod side.

The only major point noted about the gymnasium itself is the acoustical condition. Numerous reverberation curves are shown and correlated with subjective judgment of their quality.

A reverberation time of 1 to 2 seconds is recommended and shown to be desirable throughout the whole frequency range.

Special classrooms are increasingly demanded in Denmark, and it seems they are going through a particular stage of development in this respect. Notes on heating, lighting and acoustics are provided. School meals are served in lunch boxes, to be eaten at the desk or in corridors with cubicles and nice Danish windows. School kitchens are studied in some detail and suggestions made, as are libraries, craft and trade room, and laboratories.

Daylighting is given a long discussion, but it is largely a review of familiar material. The fact that protractor analyses disregard daylight is noted as a defect, and a method called the "half cube" method is said to overcome the deficiency. This method, unfortunately, is not described, and protractors are used for the main analyses; the other method is perhaps too cumbersome therefore. Reflected light is a troublesome theoretical problem.

The notes on American schools do less than justice to the work in that country.

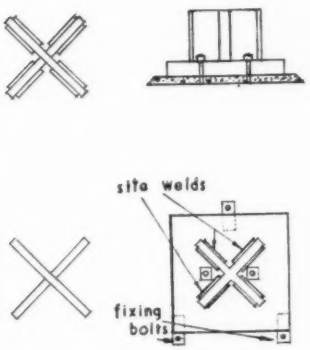
20.192 construction: complete structures
MOSCOW UNIVERSITY BUILDING

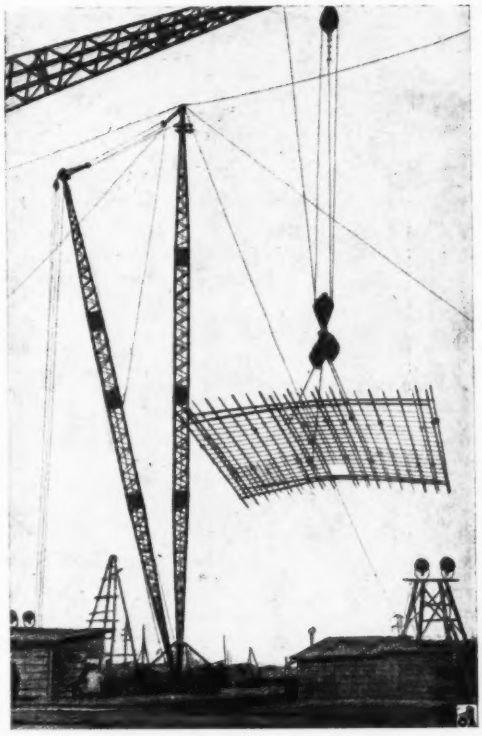
Le Nouveau Bâtiment de l'Université d'Etat à Moscou. (Ossature Métallique [Belgium], Nov., 1950.)

26-storey building for Moscow University in course of construction; 50,000 tons of steel, much of it welded. Prefabrication in far-away steelworks. 4 pp.; 8 illustrations.

News about structural engineering behind the "iron curtain" is not easy to come by, and language difficulties are not the only reason. Occasionally, however, technical periodicals in Western Europe publish such news, and this well illustrated article is a most useful source of information.

Blocks of offices of considerable height were recently erected at Moscow and we have given a few particulars in an earlier issue (*AJ*, May 25, 1950). They showed some unusual details in combining steel and concrete for economy. This new building for the state university is even less orthodox in some of its structural features. Accommodation for about 6,000 students and the academic staff has to be provided, in addition to administrative offices, libraries, museums and a swimming pool. Work began in 1949 and is expected to be completed in 1951. The dimensions may be judged by the volume of about 60 million cubic feet, of which five-eighths are represented by the centre block dominated by the 600-ft. tower. The quantity of steel, 50,000 tons, may be compared with the 46,000 tons in the construction of the new Margam steelworks in South Wales which is nearing completion. About 10 million cubic feet of brickwork are being used, and 2,500 trees will be planted. The subsoil consists of strata of different compressibility and the foundation presented certain difficulties. The solution was a huge reinforced concrete caisson of great rigidity. The steel reinforcement for the concrete foundation slabs was prefabricated by welding. Large units were handled by derrick cranes as shown in the illustration. This example gives support to recommendations recently made in these columns (see *AJ*, Nov. 9, 1950, p. 375, "Current Technique"). Another novel feature is the cruciform section of the stanchions. One plate of full width and two of half-width are joined at right angles into star shape by automatic welding. These plates are up to 2 in. thick and 5 ft. 2 in. wide. Flats up to ¼ in. thick are welded-on where required. This cross section is said to have simplified shop fabrication and also the connection of the beams. The maximum stanchion load is 3,500 tons (2½ times as much as in the other Moscow structure referred to in *AJ* of May 25, 1950). Another interesting statement refers to the prefabrication of components at works many hundreds of miles away from Moscow, *e.g.*, in the Ukraine and even in the Ural region. Mechanized production was adopted wherever possible, also in excavation and concrete work for which standard steel shuttering was used.





New Moscow University Building. Above, typical stanchion details. Right, a panel of welded reinforcement is lowered into position. (*See* 20.192).

21.37 construction: miscellaneous
STEEL STRUCTURE IN FIRE

Verhalten der Stahlkonstruktion beim Brand eines Industriebaues. R. Guyer. (Schweizerische Bauzeitung [Switzerland]. July 22, 1950. pp. 390-396.)

Factory building in Switzerland partly destroyed by fire, then rebuilt. Observations and interesting conclusions. 6 pp., 16 illustrations.

The rectangular area of the single-storey buildings is 420 ft. long and 178 ft. wide. Five bays of 48 ft. span running over the full length of the building are covered by northlight roofs in timber construction, with valley beams and crane gantries in solid web steel girders. Certain well-known facts were confirmed by observations, and among the conclusions are the following. Even a badly damaged steel construction can in parts be used again. Types of design allowing flue effects in case of fire should be avoided. On the other hand completely sealed hollow units should also be avoided, especially where timber is used. The expansion effect of condensation and evaporation, particularly if water from fire-fighting appliances has penetrated into the units, may cause disintegration. (This danger was experienced during the London blitz.) Fire resisting materials for steel members should be packed tight on the steel surface, without hollow channels. Expansion joints, e.g., in crane gantries, should allow for ample play.

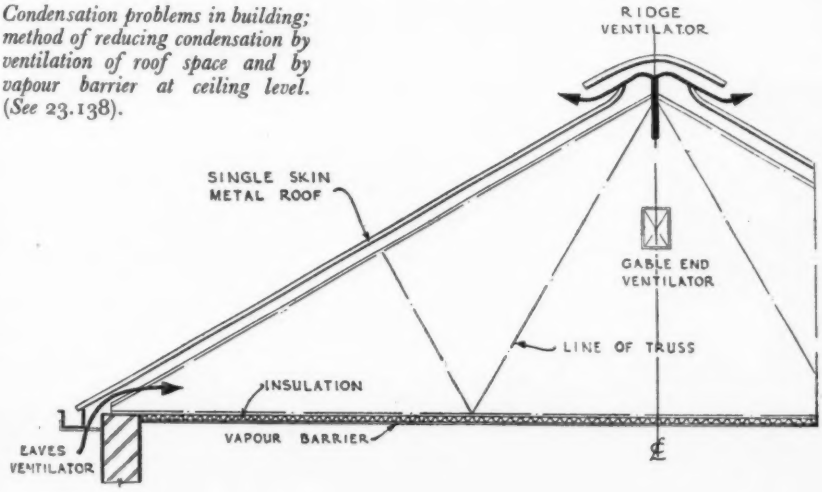
In a separate article by E. Schmidli actual cross sections for a variety of columns and floors are given in tabulated form together with particulars of protective materials used and the degree of fire resistance measured in hours. Interesting details of construction are shown in sketches and requirements laid down, warning against certain mistakes in the design of ventilating shafts, lift wells, roofs and floors.

23.138 heating and ventilation
CONDENSATION

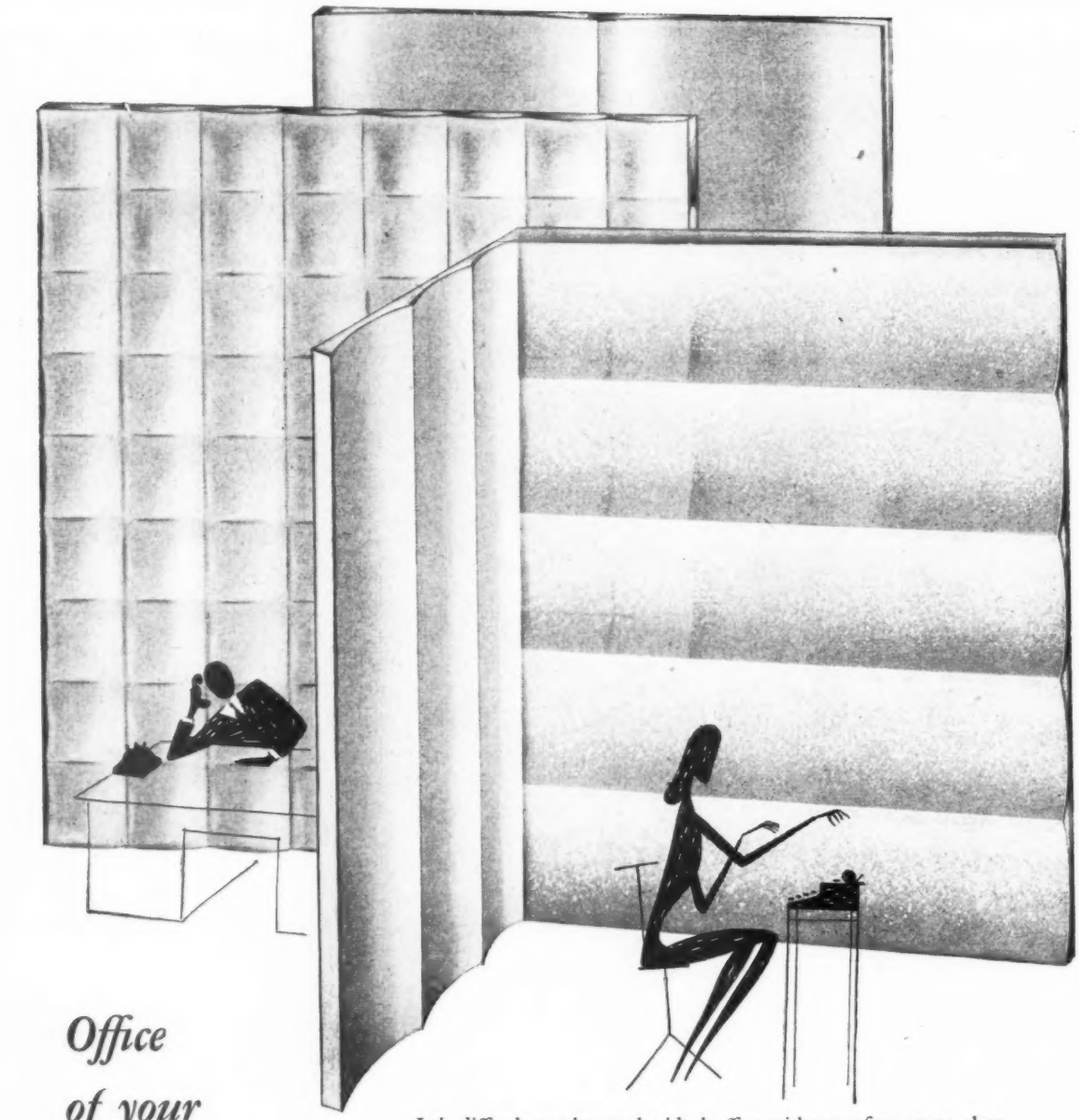
Condensation Problems in Buildings. Building Research Station Digest No. 23. (HMSO, Oct., 1950. 2d.)

Explanation of principles. Surface condensation, interstitial condensation, condensation in roofs.

There is a clear explanation of the principles involved in condensation and then a description of how and where surface condensation occurs and how to deal with it. All this is simple and straightforward and should be well known but the problems of condensation within a wall structure are more complicated and less well understood. The Digest explains how such condensation occurs but is not so clear in its description of remedies. Condensation in or on roofs is likely to be most troublesome in various types of industrial buildings. Methods of dealing with roof condensation are well described with diagrams.



Condensation problems in building; method of reducing condensation by ventilation of roof space and by vapour barrier at ceiling level. (*See* 23.138).



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23.139 heating and ventilation

CANADIAN RESEARCH IN PANEL HEATING

Synopsis of the Work on Panel Heating. National Research Laboratories, Ottawa, during the Winters 1946-1949. C. D. Niven. (Journal of the Inst. of Heating and Ventilating Engineers, Vol. 18, No. 182, Sept. 1950.)

General description of the work on panel heating carried out at the National Research Laboratories, Ottawa, with advice as to its practical application.

At the National Research Laboratories in Ottawa, special test buildings were set up to obtain definite information in connection with panel heating performance. The first point on which information was sought was: how can the heat supplied to the floor slab or ceiling pipes be accounted for in terms of heat loss? Difficulty was found in arriving at accurate results but it was demonstrated that claims for fuel saving with panel heating are unfounded. The accompanying isothermal diagram, confirmed from other sources, shows the movement of heat beneath insulated and uninsulated floor slabs. Excessive edge loss should be avoided—with ceiling heating it may lead to unduly high temperature gradients—but the sum which should be spent on insulation, in proportion to fuel savings achieved, has not been determined. If supplementary ceiling heating is employed and floor surface temperatures reduced, edge loss can be reduced by 20 per. cent. or more.

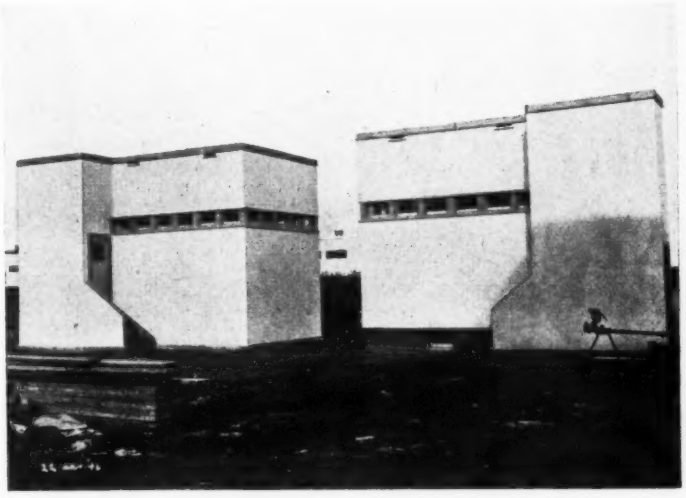
The lowering of surface temperature near outside walls with uninsulated slabs makes text-book figures for required temperatures unreliable. Figures show that in Canada floor temperatures between 73° and 76°F. were needed, agreeing roughly with other published figures. But to achieve 70°F. air temperature, in the same conditions, would need 80°F. surface temperature, which is higher than is recommended by doctors. Temperature gradient in the 3-in. to 6-ft. "living space" of a room 9-ft. high, was found to be only slightly higher than for a room with a 13-ft. ceiling, and low heated ceilings and high ceiling temperatures were both condemned. Floor losses and window losses have considerable effect on temperature gradient—with high floor losses differences of 5-6° F. were noted. Insulating windows led to even higher gradients, as heat losses at high level were thereby reduced.

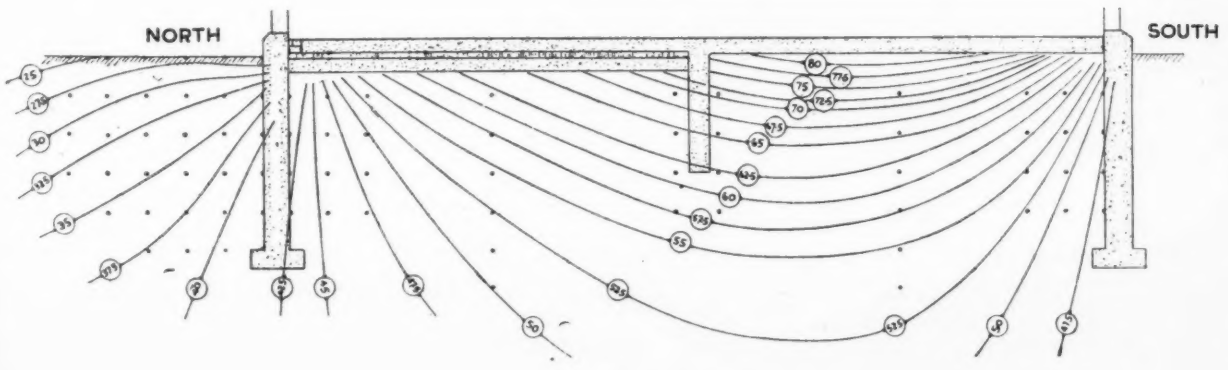
Regarding temperature control—the high thermal capacity of floor slab heating could cause overheating, especially with sudden changes of solar radiation, although this may be due, largely, to high ceiling temperatures. The tests verify that an air thermostat does not provide satisfactory temperature control for panels. Means of cooling must be provided. A perforated ceiling (air shower), through which cool air could diffuse into the room, has been found helpful, being pleasant in use, but inefficient thermally.

An experiment was made with "hot air panel heating," with a duct along an outside wall, communicating through ¼-in. slots into a wall panel. The main trouble was a tendency to bad heat distribution. The panels should be connected in parallel and the air path kept as short as possible.

Individual reactions to heating systems were noted, but the results were so variable, as between one individual and another, and the circumstances of the moment, that they were not accurate as a general guide.

The conclusions were that: concrete slabs, poured on the ground, should be insulated under the slab round the edge, and round the edge itself; in a ceiling-heated room, temperature gradients are affected by height and windows and heat loss from floor (they are not predictable at present); a globe thermometer is deceptive—a bolometer or similar instrument should be used for measurement; an air thermostat does not provide efficient control—until some better means becomes readily available, a good cooling device, e.g. the "air-shower" is recommended; air heated panels have the advantage of low thermal capacity but the disadvantage of irregular heating; to keep down floor temperatures, a combination floor-wall heating system may be desirable.





Right, test houses, National Research Laboratories Ottawa. (Photo by permission of the Journal of the Institute of Heating and Ventilating Engineers.)
Below, isotherms under heated concrete floor slab as determined by A. D. Kent. Part of slab insulated and part uninsulated; thermocouple locations indicated by dots; total length of floor surface 21 ft. (See 23.139.)

Buildings Illustrated

Bedding Showrooms, 13, Brompton Road, Knightsbridge, S.W.1. (Pages 40-41.) Architects: Eric Brown & Peter Chamberlin, L./A.R.I.B.A. General Contractors: Hobson & Wise. Sub-contractors: Shop window fitters, Charles Spreckley & Co. Ltd.; electric wiring and fitting, E. H. Hornsby; internal Neon decoration, The Strand Electric & Engineering Co. Ltd.; mirror wall, James Pearsons & Son; illuminated canopy and structural and decorative metal work, The Morfax Sheet Metal and Engineering Works; sign lettering and illuminations, Pearce Signs Ltd.

Henry Dickens Court, Kensington, London, W.11. (Pages 42-46.) Architects: Edward Armstrong, F.R.I.B.A., and Brian O'Rorke, A.R.A., F.R.I.B.A. Assistant Architect: E. Howard Godler, A.R.I.B.A. For 10-storey blocks: Edward Armstrong and Frederick MacManus, F./F.R.I.B.A. General Contractors: Holloway Brothers (London) Ltd. Sub-contractors: Electricians, Iverson Electrical Ltd.; plasterers, Jeffries & Grant Ltd.; ironwork, sanitary goods, H. & C. Davis Ltd.; painters, C. & T. Painters Ltd.; flooring, Montrose Industries Ltd.; windows, Crittall Manufacturing Co. Ltd.; glaziers, Faulkner Greene and Co. Ltd.; balustrading, H. & C. Davis Ltd.; plumbing, pram stores, Holloway Brothers (London) Ltd.; heating (solid fuel fire), Eagle Range & Grate Co. Ltd.; fencing, A. J. Binns Ltd.; asphalte, Excel Asphalte Co. Ltd.; fireplaces, B. Finch & Co. Ltd.; roof tiles, Roberts Adlard & Co. Ltd.;kitchen fitments, Built-in Fixtures Ltd.; stonework and stairs, Enfield Stone Co. Ltd.; wireless installation, British Relay Wireless Ltd.; garden work, Garden Landscapes Ltd.; structural steelwork, The Aston Construction Co. Ltd.; pressed metal door frames, Crittall Manufacturing Co. Ltd.; gas fire flues, The Marley Tile Co.; doors, Yelverton Dawbarn Ltd.; ironmongery, Nettlefold & Moser Ltd.; bricks Henfield Brick & Tile Co.; cill tiles, Langley, London, Ltd.

House at Carrickmines, County Dublin. (Pages 47-50.) Architect: Brendan O'Connor, B.ARCH., M.R.I.A.I. Consulting engineers for central heating: Varming & Partners. General Contractors: J. & P. Ivers. Sub-contractors: Central heating and plumbing, Matthew Hall & Co. Ltd.; reinforced concrete construction and "Hollow Tile" type floors, N. MacNaughton & Sons; copper roofing, Thos. Dockrell & Co.; steel windows, Onslow & Randel; "Cretesolite" partition blocks, Cretestone Ltd.; asphalt, South of Ireland Asphalt Co.; wood block floors, all sanitary goods, kitchen sinks and kitchen fittings, ruboleum and wall tiling, J. J. O'Hara & Co.; electrical installation, Vincent Brady; door furniture, locks, etc., Maas Bureau; glass, A. W. Lyons & Co.; boiler, The Beeston Boiler Co.; furniture, Barney Heron; insulating board, Tentest Fibre Board Co. Ltd.

The "Unitroy" System of House Construction. (*Pages* 51-53.) Designers and manufacturers: Unitroy Ltd. Prefabricated electric wiring system ("Octopus"), Hartley Electromotives Ltd.; plasterboard, Plaster Products (Greenhithe) Ltd.; plastic tile flooring ("Accotile"), Armstrong Cork Co. Ltd.

Announcement

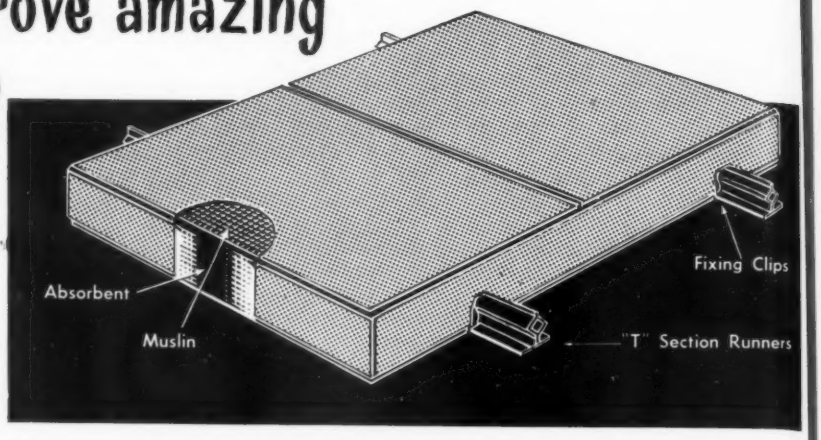
Mr. Roland P. Lay, A.I.A.S., of Lay & Partners, quantity surveyors, has taken into partnership Mr. W. C. F. King, A.R.I.C.S. The name and style of the firm will remain unchanged, and the practice continued from the offices at 8, Clarges Street, London, W.1, and 41, South King Street, Manchester 2.

Corrections

We have been asked by The Cement Marketing Company Ltd. to point out that in their advertisement in our issue of November 23, which referred to the external treatment of the Chatfield Hotel, Bournemouth, they gave as the responsible architects and contractors the names of Messrs. Jackson & Greenen and Messrs. Hayward & Sons Ltd., respectively. These architects and contractors were, in fact, only responsible for renovation work on the hotel. The architects and contractors responsible for the original design and construction of the hotel were :—*1st Contract* : architects, Messrs. Mackenzie & Phillips, Bournemouth. Contractors, Messrs. Claude Barnes Ltd., Bournemouth. *2nd Contract* : architect, Ronald A. Phillips, F.R.I.B.A., Bournemouth. Contractors, Messrs. Hawkins Bros., Bournemouth.

The authors of the Festival Hall Progress Reports regret that the information given in their Report No. 8 in the JOURNAL of December 14, 1950, p. 512, about the copper roof to the Auditorium was incorrect, and that it was implied that the Copper Development Association had made a direct recommendation. The construction is in accordance with recommendations contained in publications issued by the Copper Development Association, but the material used is "dead soft temper" copper and not "hard" copper as stated, and its gauge is 22 and not 18 S.W.G. The Copper Development Association specifically recommend *dead soft temper* copper for roofing work, and suggest that 22 S.W.G., as is in fact used, need seldom be exceeded.

N.P.L Tests prove amazing efficiency of (New) Acoustic Tiles



Soundproofing takes a new step forward! Burgess have produced—and the National Physical Laboratory have tested (Report Ref. 1015 of 12th June 1950) an Acoustic Ceiling Tile with an exceptionally high sound absorption coefficient. (see N.P.L. chart under diagram). Construction—a specially perforated metal tray, size 24in. by 12in. by 1⅜in., fitted with clips containing a non-inflammable, non-hygroscopic, sound absorbent pad. The clips make for rapid and easy attachment to the specially shaped tee bar runner. The Tiles are stove enamelled which gives this treatment an exceptionally uniform and neat appearance.

REVERBERATION ABSORPTION COEFFICIENTS TO NEAREST 0·05								
Frequency c.p.s.	125	250	500	1000	2000	4000	6000	8000
"A" 3/32in. dia. hole.	0.15	0.50	0.75	0.80	0.75	0.75	0.75	0.75
"B" 1/8in. dia. hole.	0.15	0.45	0.70	0.75	0.80	0.85	0.85	0.85

HEAD OFFICE & WORKS
HINCKLEY · LEICESTERSHIRE
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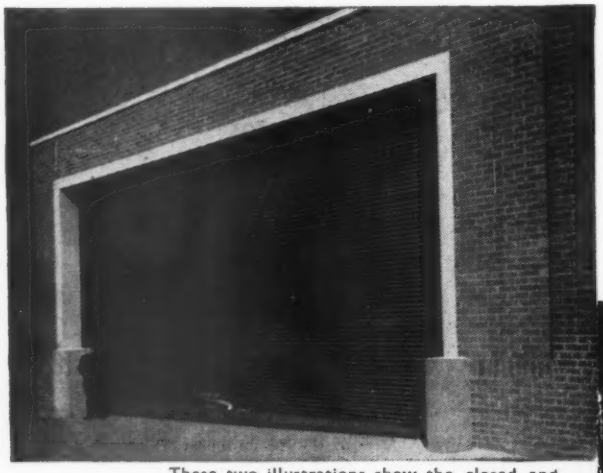
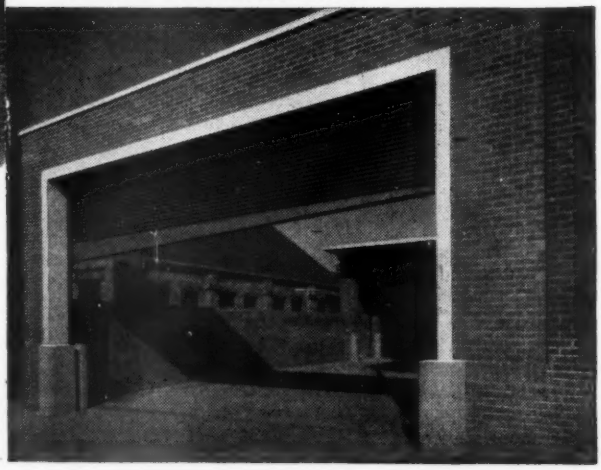
BURGESS
PRODUCTS COMPANY LIMITED



ROLLING SHUTTERS

HAND OR POWER OPERATED
IN STEEL OR ALUMINIUM
for Factories, Warehouses, Storerooms, Loading Bays, Garages—in fact any opening that must remain obstruction-free, but can be closed easily and swiftly, and give full protection from theft and weather.



These two illustrations show the closed and half-open views of a recently fitted Rolling Shutter. The size of the opening is 18 feet high by 30 feet wide. It had to be obstruction-free. Roller Shutters Ltd. provided the perfect answer, at the same time making special allowance for the rise in the road.

TO FIT ANY SHAPE OR SIZE OF OPENING

ROLLER SHUTTERS LIMITED
241-242 GREAT LISTER STREET, BIRMINGHAM, 7
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CONTROLLER FOR ACCELERATED HOT-WATER HEATING SYSTEMS

REGULATES TEMPERATURE on accelerated hot-water systems *in advance* of effect indoors of outdoor temperature changes.

Controls heat input at minimum required to balance heat losses, whatever the outside temperature conditions.

Can be designed to suit heat emission curves appropriate to type of heating surface.

After installation it can be corrected to allow for variation between design and site conditions.

Allows a boiler to operate at constant water temperature, putting less strain on boiler and reducing corrosion risks.

Entirely self-operating and quite independent of auxiliary sources of power.

Reasonable in cost; easy to install; easy on maintenance.

For details of the Sarco ETO Controller please send the request slip to
SARCO THERMOSTATS LTD.,
Cheltenham, Glos.

Sarco
ETO
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SARCO CONTROL

PLEASE SEND THIS ENQUIRY SLIP FOR DETAILS.

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ADDRESS :

AR. 151

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GUARANTEE

It is the Trade Mark of the Flush Door Manufacturers Association Ltd., it may only be used by members who are registered users of the Trade Mark, and it is stamped on all doors made to the Association's Standard Specification. It is your guarantee that the materials and construction of the core of the door are up to a minimum standard as set out in the official F.D.M.A. Standard Flush Door Specification.

The

FLUSH DOOR MANUFACTURERS' ASSOCIATION LTD.

Full details of the Association's Doors are obtainable from any of the following Members, or the Secretary at Trowell.

Durham Timber Co. Ltd., Middx.
Edmonton Panel Co. Ltd., Edmonton, N.18
Wm. Evans & Co. (Distributors) Ltd., Liverpool 3
Exau Products Ltd., Enfield, Middx.
Farquharson (Timber) Ltd., London, E.C.2.
Flush Woodwork Ltd., East Ham, E.6.
Leaderflush Ltd., Nottingham
Manor Joinery Works Ltd. Barking, Essex
Merchant Trading Co. Ltd., London, W.C.2.

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcement

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

NORTH THAMES GAS BOARD.

Applications are invited for the following appointment in the Architects' Section of the Chief Engineer's Department of Westminster: SENIOR ARCHITECTURAL ASSISTANT, minimum starting salary £650 per annum.

Applicants, who must be Registered Architects and should be studying for or have passed the Final Examination of the R.I.B.A., should be capable of preparing working and detailed drawings and specifications, and supervising and controlling the work on contracts. Experience in design and planning of industrial buildings would be an advantage.

The appointment is of a permanent nature, and pension arrangements will be discussed with short list candidates.

Applications, stating age, qualifications, and particulars of previous appointments held, must be submitted to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, London, W.8, quoting reference 9757. 4341

LONDON COUNTY COUNCIL.

Applications are invited for positions of ARCHITECTURAL ASSISTANT (salaries up to £580 a year) in the Housing and Valuation Department. Commencing salaries will be determined according to qualifications and experience. Engagement will be subject to the Local Government Superannuation Acts, and successful candidates will be eligible for consideration for appointment to the permanent staff on the occurrence of vacancies.

Successful candidates will be required to assist in the design, layout and preparation of working drawings for housing schemes (cottages and multi-storey flats), and will be employed in the Housing Architect's Division.

Forms of application may be obtained from the Director of Housing, The County Hall, Westminster Bridge, S.E.1 (stamped addressed envelope required and quote reference A.A.1). Canvassing disqualifies. (816) 4558

BOROUGH OF WILLESDEN.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

The Council invite applications for the appointment of a THIRD CLASS ARCHITECTURAL ASSISTANT, on the temporary staff of the Borough Engineer and Surveyor's Department. The salary attaching to the post will be Administrative, Professional and Technical, Grade III, namely £450 per annum, rising by £15 per annum to £495 per annum, plus London weighting.

Candidates must have served their Articles of pupilage or have worked in an architectural office for a minimum period of three years, and have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised schools of architecture.

The appointment, which will be terminable by one month's notice on either side, is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, giving age, experience, etc., accompanied by copies of not more than three testimonials, should be addressed to the undersigned, endorsed "Architectural Assistant," not later than 10 a.m. on Friday, 19th January, 1951.

It will be necessary for the successful candidate to provide his own housing accommodation as the Council is not in a position to assist.

Canvassing, directly or indirectly, will be deemed a disqualification.

(Signed) R. S. FORSTER,
Town Clerk.

Town Hall, Dyne Road, Kilburn, N.W.6.
21st December, 1950. 1536

FINSBURY BOROUGH COUNCIL.
SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Senior Architectural Assistant on the permanent staff.

Applicants should be Registered Architects and have passed the Final Examination of the Royal Institute of British Architects. They should have a sound experience of architectural work, and in particular of the design and construction of Municipal flats. The post is graded on A.P.T., VI, of the National Scales, £595 per annum, rising to £660 per annum, plus "London weighting" (£20-£30).

The successful applicant will be required to pass a medical examination and contribute to the Council's Superannuation Fund, and conform to the National Conditions of Service.

Applications, stating age, experience and qualifications, and accompanied by copies of three recent testimonials, must be received by me not later than 19th January, 1951.

JOHN E. FISHWICK,
Town Clerk.

Finsbury Town Hall,
Rosebery Avenue, E.C.1. 1545

ABERDEEN HARBOUR COMMISSIONERS.
HARBOUR ENGINEER'S DEPARTMENT.

Applications are invited for the post of ARCHITECTURAL ASSISTANT, in the Harbour Engineer's Office, Aberdeen. Applicants should be under 40 years of age, with experience in structural steelwork, reinforced concrete, and general building design and construction. Preference will be given to candidates with some experience of property procedure and the preparation of reports.

The salary £450-£570, rising by annual increments of £15.

The appointment is subject to the Commissioners' Superannuation Scheme, and the candidate selected will require to pass a medical examination before appointment.

Applications, stating age and qualifications, with full details of experience, together with copies of recent testimonials, should be lodged with the Harbour Engineer, 15, Regent Quay, Aberdeen, not later than 31st January, 1951.

Harbour Engineer's Office, Aberdeen.
30th December, 1950. 1555

BOROUGH OF SLOUGH.
BOROUGH ENGINEER'S DEPARTMENT.
APPOINTMENT OF ASSISTANT ARCHITECT.

Applications are invited for the permanent appointment of Assistant Architect on Grade A.P.T., V, of the National Scales, at a commencing salary of £520 per annum, rising on satisfactory service by two annual increments of £15 and one of £20 to a maximum of £570 per annum. Applicants must be Registered Architects.

Applicants must give details of age, marital state, qualifications, present and previous appointments, with dates, technical training and experience, whether related to any member or senior officer of the Council, and the names of two architects to whom reference can be made.

The appointment will be subject to: (i) the provisions of the Local Government Superannuation Act, 1937; (ii) the National Scheme of Conditions of Service; (iii) the satisfactory passing of a medical examination by the successful candidate, and (iv) termination by one month's notice on either side.

Applications, in sealed envelope, endorsed "Assistant Architect, Grade V," must reach the undersigned not later than noon on Monday, 22nd January, 1951.

The Borough Council is unable to assist the successful candidate with housing accommodation.

Canvassing, directly or indirectly, will disqualify.

NORMAN T. BERRY,
Town Clerk.

Town Hall, Slough.
5th January, 1951. 1544

SALOP COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
APPOINTMENT OF CHIEF ASSISTANT ARCHITECT.

Applications are invited for the appointment of CHIEF ASSISTANT ARCHITECT. The commencing salary will be not higher than the maximum of Grade A.P.T., IX (£900 per annum), but the grading is at present under review and a higher grade is likely to be fixed in the near future.

Applicants must be Members of the R.I.B.A. and have had wide experience in the design and construction of public buildings, particularly schools.

Living accommodation will, if it is desired, be available for the successful applicant.

The appointment will be subject for its termination to three months' notice in writing on either side; to the terms of the National Joint Council's Scheme of Conditions of Service, and to the provisions of the Local Government Superannuation Act, 1937.

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

Application forms may be obtained from the County Architect, A. G. Chant, F.R.I.B.A., Column House, London Road, Shrewsbury, to whom they must be returned, accompanied by copies of not more than three recent testimonials, not later than Thursday, 18th January, 1951.

G. C. GODBER,
Clerk of the County Council.

Shrewsbury.
December, 1950. 1518

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF FINANCE.
CHIEF ARCHITECT'S BRANCH.

Applications are invited for ASSISTANT ARCHITECT posts in the Ministry of Finance. Subject to a probationary period of two years, the posts are permanent and pensionable.

Remuneration: The scale is £500×£25—£750.

The entry point to this scale depends on age, *viz.*, £500 at age 26, plus £25 for each year above that age. The upper entry point is, however, subject to a limit of £650 per annum.

Qualifications: Candidates must be Registered Architects by examination. In addition, they must have had at least two years' experience in an Architect's office or department in the preparation of working drawings for new buildings.

Preference will be given to candidates who have served in H.M. Forces in war-time, provided that such candidates can, or within a reasonable time will be able to, fill the posts efficiently.

Closing date for receipt of applications: Application forms may be obtained from the Secretary, Civil Service Commission, Stormont, Belfast, to whom they must be returned with copies of two recent testimonials, so as to reach him not later than the 30th January, 1951. 1595

BOROUGH OF WEMBLEY.
APPOINTMENTS IN BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

(*a*) SENIOR ASSISTANT ARCHITECT. A.P.T., VII, £635 to £710 p.a.

(*b*) FIRST ASSISTANT ARCHITECT (TWO). A.P.T., VI, £595 to £660 p.a.

(*c*) ARCHITECTURAL ASSISTANT. A.P.T., I, II or III, according to qualifications and experience, £390 to £435, £420 to £465, or £450 to £495 p.a.

(*d*) CLERK OF WORKS. A.P.T., III, £450 to £495 p.a.

In addition London "weighting" allowance is payable in respect of each appointment.

Applications are invited for the above established appointments.

Qualifications:—Appointment (*a*): Applicants must be Associates of the R.I.B.A. or hold an equivalent qualification, and have had considerable experience in the design and construction of houses, flats and Municipal buildings.

Appointment (*b*): Applicants must be Associates of the R.I.B.A. and have had good architectural experience in the designing of public buildings, houses and flats, and be accustomed to the preparation of working drawings, estimates, specifications, and to the supervision of works in progress.

Appointment (*c*): Applicants should have attained the Intermediate standard of the R.I.B.A. or an equivalent examination, and possess a knowledge of building construction and maintenance work, including the preparation of specifications.

Appointment (*d*): Applicants must have had extensive experience in the construction and maintenance of buildings.

The appointments are subject to the National Conditions, the Council's Standing Orders, Staff Regulations, and the Local Government Superannuation Acts.

Applications, stating age, qualifications, experience, present and previous appointments, whether related to any member or senior officer of the Council, and giving the names and addresses of three referees, must reach the Borough Engineer and Surveyor by the 20th January, 1951.

Canvassing, in any form, will disqualify.

The Council will be unable to provide any of the successful applicants with housing accommodation.

KENNETH TANSLEY,
Town Clerk.

Town Hall, Wembley.
3rd January, 1951. 1590

BOROUGH OF WEMBLEY.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF CHIEF ASSISTANT BUILDING SURVEYOR.

Applications are invited for the above established appointment.

Applicants must be Associates of the R.I.C.S. or hold an equivalent qualification, possess a sound knowledge of building construction, and have had experience in maintenance work, including the preparation of specifications, the checking of accounts, and the supervision of works.

Salary: National Scales, Grade VII (£635 to £710 p.a.), plus appropriate London "weighting" allowance.

The appointment is subject to the National Conditions, to the Council's Standing Orders and Staff Regulations, and to the Local Government Superannuation Acts.

Applications, stating age, qualifications, experience, present and previous appointments, whether related to any member or senior officer of the Council, and giving the names and addresses of three referees, must reach the Borough Engineer and Surveyor by the 20th January, 1951.

Canvassing in any form will disqualify.

The Council will be unable to provide the successful applicant with housing accommodation.

KENNETH TANSLEY,
Town Clerk.

Town Hall, Wembley.
3rd January, 1951. 1589

MOUNTAIN ASH URBAN DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT.

Applications are invited for the temporary appointment of Architectural Assistant in the Architect's Department.

Conditions of employment will be in accordance with the National Scheme of Conditions of Service for Local Authorities Services, and the appointment will be remunerated in accordance with Grade II. A.P.T. Division of the Scheme (£420×£15—£465).

Candidates should have good general experience in an Architect's office, preferably on housing work, and be neat and expeditious draughtsmen.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and will be terminable by one month's notice on either side. The successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two persons to whom reference may be made, must reach the undersigned not later than Monday, 29th January, 1951.

Housing accommodation will be provided if required.

BERNARD M. MURPHY,
Clerk of the Council.

Town Hall, Mountain Ash.
4th January, 1951. 1596

ABERDEEN HARBOUR COMMISSIONERS.
HARBOUR ENGINEER'S DEPARTMENT.

Applications are invited for the post of ARCHITECTURAL ASSISTANT in the Harbour Engineer's Office, Aberdeen. Applicants should be under 40 years of age, with experience in structural steelwork, reinforced concrete, and general building design and construction. Preference will be given to candidates with some experience of property procedure and the preparation of reports.

The salary £450-£570, rising by annual increments of £15.

The appointment is subject to the Commissioners' Superannuation Scheme, and the candidate selected will require to pass a medical examination before appointment.

Applications, stating age and qualifications, with full details of experience, together with copies of recent testimonials, should be lodged with the Harbour Engineer, 15, Regent Quay, Aberdeen, not later than 31st January, 1951.

Harbour Engineer's Office, Aberdeen.
30th December, 1950. 1606

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Applications are invited for positions of ARCHITECT, Grade III (£550-£700), and TECHNICAL ASSISTANT (up to £580) for work on new housing, schools, and other public buildings. The positions are superannuable. Candidates for Grade III positions should possess professional qualifications. Application forms from the Architect (AR/P/S), The County Hall, Westminster Bridge, S.E.1, enclosing stamped addressed foolscap envelope. Canvassing disqualifies. (384) 3914

CITY AND COUNTY BOROUGH OF GLOUCESTER.
DEPUTY CITY ARCHITECT AND ESTATES MANAGER.

Applications are invited for the above appointment. Salary £750×£30—£930, and National Scheme of Conditions of Service.

Applicants must be Associate Members of the R.I.B.A.

The appointment will be subject to the successful applicant passing a medical examination, to the provisions of the L.G. Superannuation Acts, and to termination by one month's notice on either side.

Applications, stating age and dependants, training, qualifications and experience, and the names of two persons to whom reference may be made, must be received by the undersigned in an endorsed envelope not later than the 18th January, 1951.

L. O. NEED,
Town Clerk.
Guildhall, Gloucester. 1528

BURGH OF KILMARNOCK.
BURGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointment :—

SENIOR ASSISTANT ARCHITECT. Salary : Grade A.P.T., VI, £595×£20×£20×£25 to £660.

Applicants must be Registered Architects, preferably with a professional qualification and previous Municipal and housing experience.

Applicants must not exceed 45 years of age unless they are already contributory employees under the Local Government and Other Officers' Superannuation (Scotland) Act, 1937, but those who have been on war service may, if necessary, deduct the period of such service from their present age to satisfy the condition as to age limit.

The person selected for appointment will require to pass a medical examination, and on satisfying this condition will become a contributory employee under the above mentioned Act.

If housing accommodation is required this may be made available.

Applications, accompanied by copies of testimonials and giving full details of age, qualifications, experience, and previous appointments held, should be lodged with N. S. Sutherland, Burgh Architect and Town Planning Officer, 64a, Bank Street, Kilmarnock, not later than Wednesday, the 17th January, 1951.

W. L. WALKER.
Town Clerk.
Council Chambers, Kilmarnock.
1st January, 1951. 1557

HUYTON-WITH-ROBY URBAN DISTRICT COUNCIL.

Applications are invited for the appointment of CHIEF ARCHITECTURAL ASSISTANT. Salary in accordance with A.P.T. Division, Grade VI (£595×£20×£20×£25—£660 per annum).

Applicants must have passed the Examination of the R.I.B.A. or be Registered Architects, and preference will be given to those who have experience, in a Municipal office, in housing design, construction and control of contractors.

The appointment is on the Council's established staff, and is subject to : (1) The National Scheme of Conditions of Service; (2) the provisions of the Local Government Superannuation Act, 1937; (3) the passing satisfactorily of a medical examination, and (4) one month's written notice on either side.

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

Applications, stating age, whether married or single, qualifications and experience, and accompanied by the names and addresses of two referees, must be received by me not later than 27th January, 1951. Canvassing will disqualify.

H. E. H. LAWTON,
Clerk of the Council.
Council Offices, Derby Road, Huyton. 1597

LONDON COUNTY COUNCIL.
HAMMERSMITH SCHOOL OF BUILDING AND ARTS AND CRAFTS.

Applications are invited for the following posts :—

(1) SENIOR ASSISTANT in QUANTITY SURVEYING, to be responsible to the Head of Department for the organisation of the Building and Quantity Surveying section of the school, preparing students for the examination of the R.I.C.S. In addition the successful candidate will be expected to teach quantity surveying and allied subjects. Applicants should be Corporate Members of the R.I.C.S.

(2) TWO STUDIO MASTERS in ARCHITECTURE. Candidates should be Associates of the R.I.B.A. and the Diploma of a recognised school will be an added recommendation. The school is an R.I.B.A. "Listed School."

(3) TWO LECTURERS in BUILDING CONSTRUCTION and allied subjects. Candidates, who should have suitable professional or industrial qualifications, will be required to teach Building Construction and other subjects in National Certificate and Diploma courses, in addition to some building subjects in Architectural and Surveying courses.

(4) LECTURER in LAND SURVEYING. Candidates, who should have suitable professional qualifications and experience, will be required to teach Land Surveying and allied subjects in various courses in the school.

(5) LECTURER in QUANTITY SURVEYING and allied subjects. Candidates, who should have suitable professional qualifications, will be required to teach Quantity Surveying, Estimating, etc., to students preparing for the R.I.C.S., National Certificate, and Diploma Examinations.

For all posts teaching experience would be an added recommendation. For posts 3, 4 and 5 an ability to teach sanitation Heating and Ventilating and Equipment of Buildings would be a special recommendation.

The salaries for all posts are in accordance with the Burnham Technical Scales (1948), subject to review in April, 1951, and are at present as follows :—

Senior Assistants (London—men), £700×£25—£800, plus allowances from £36 to £138, according to age, qualifications and experience.

Assistants (London—men), £300×£15—£555, according to industrial and teaching experience, plus allowances from £36 to £138, according to age and qualifications.

Forms of application, on receipt of a stamped addressed envelope, from the Secretary of the School, Lime Grove, Shepherd's Bush, W.12, to be returned not later than 27th January, 1951. (9) 1588

NATIONAL COAL BOARD—WEST MIDLANDS DIVISION.

Applications are invited for the following vacancy :—

ARCHITECTURAL ASSISTANT, Grade I.

Applicants should be able to prepare sketch plans and working drawings from rough sketches, and have a good knowledge of construction and have passed the Intermediate Examination of the R.I.B.A.

Salary scale £410-£550, and commencing point according to experience and qualifications.

Post is eligible for the Board's Superannuation Scheme.

Applications, giving age, qualifications, experience, etc., to be sent as soon as possible to the

DIVISIONAL ESTABLISHMENT OFFICER,
National Coal Board,
Himley Hall, Dudley, Worcs. 1594

COUNTY OF LINCOLN—PARTS OF LINDSEY.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following vacancies on the permanent staff :—

ASSISTANT QUANTITY SURVEYOR. Grade A.P.T., IV, salary £480 per annum, rising subject to satisfactory service to £525 per annum. Applicants should have passed the Intermediate Examination of the R.I.C.S. and have had practical experience in taking off and abstracting.

JUNIOR ARCHITECTURAL ASSISTANTS (TWO). Grade A.P.T., III, salary £450 per annum, rising subject to satisfactory service to £495 per annum, and Grade A.P.T., II, salary £420 per annum, rising subject to satisfactory service to £465 per annum. Candidates should clearly state which salary post is being applied for, and preference will be given to candidates who have passed the Intermediate Examination of the R.I.B.A. or equivalent.

HEATING ASSISTANT. Grade A.P.T., II, salary £420, rising subject to satisfactory service to £465 per annum. Applicants should have had experience in designing small heating schemes and be able to prepare specifications and rough estimates.

Applications, stating age, qualifications, experience, and accompanied by two recent testimonials, should be sent to Mr. A. Ronald Clark, A.R.I.B.A., A.M.T.P.I., County Architect, County Offices, Lincoln, not later than Friday, 26th January, 1951. Successful candidates will be required to pass a medical examination. Married men appointed who have temporarily to lodge in Lincoln while maintaining homes elsewhere may for six months obtain extra allowance of 25s. per week and 3rd class railway fare to their homes every two months. Applicants must state whether to their knowledge they are related to any member or senior officer of the County Council. Canvassing will disqualify.

H. COPLAND,
Clerk of the County Council.
County Offices, Lincoln. 1593

NEWMARKET URBAN DISTRICT COUNCIL.
APPOINTMENT OF ARCHITECT.

Applications are invited for the above appointment at a commencing salary of £700 per annum, in accordance with the recommendations of the Joint Negotiating Committee for Chief Officers of Local Authorities.

Candidates should be Associate Members of the Royal Institute of British Architects (or equivalent examination) and have had local authority experience in house design, preparation of working drawings, specifications, quantities, supervision and settlement of contractors' final accounts.

The appointment will be terminable by three months' notice on either side and is subject to the Local Government Superannuation Act, 1937, and the Scheme of Conditions of Service recommended by the Joint Negotiating Committee for Chief Officers of Local Authorities

Housing accommodation will, if necessary, be offered to the successful applicant.

Applications, stating age, present and previous appointments, qualifications and experience, with the names and addresses of three persons to whom reference can be made, should be addressed to the undersigned not later than Thursday, 25th January, 1951. Canvassing, directly or indirectly, will disqualify a candidate, and any relationship to a member or senior officer of the Council must be stated in the application.

JOHN CRABB,
Clerk of the Council.
Severals House, Newmarket.
2nd January, 1951. 1583

BOROUGH OF WEDNESBURY.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of an Architectural Assistant, in the Borough Engineer and Surveyor's Department, at a salary in accordance with A.P.T., Grade VII (£635 to £710 per annum).

Applicants must be experienced in the design, erection and maintenance of houses, flats, and public buildings. Preference will be given to applicants who are Associates of the Royal Institute of British Architects.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Provision of housing accommodation to the successful candidate will be favourably considered if required.

Applications, stating age, qualifications and experience, and enclosing copies of two recent testimonials, are to be received by the Borough Engineer and Surveyor, Mr. C. G. Morrish, not later than 1st February, 1951.

G. F. THOMPSON,
Town Clerk.
Town Hall, Wednesbury, Staffs.
10th January, 1951. 1580

SPALDING URBAN DISTRICT COUNCIL.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Architect and Surveyor's Department, in accordance with Grade V of the National Joint Council's Grading Scheme (£520-£570 per annum).

The appointment is a permanent one and will be subject to the Local Government Superannuation Act, 1937, and to termination by one month's notice on either side.

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

Preference will be given to candidates who have passed the Intermediate Examination of the R.I.B.A. or hold an equivalent qualification, and have experience in Housing and General Architectural work.

Applications, endorsed "Architectural Assistant," stating age, qualifications and experience, together with copies of three recent testimonials, must reach the undersigned not later than the 27th January, 1951.

Housing accommodation will be provided for the successful applicant if desired.

RAYMOND W. HASTINGS,
Clerk of the Council.
11, Market Place, Spalding. 1574

CITY OF BRADFORD.
CITY ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF SENIOR TOWN PLANNING ASSISTANT. POST NO. 14.

Applications are invited for the above appointment on Grade A.P.T., VII, of the National Scales, namely £635-£710.

Applicants must be A.M.T.P.I., should preferably hold an engineering degree, and must be A.M.I.C.E. or A.M.I.Mun.E. In addition to engineering and survey and research experience they should have taken a responsible part in the preparation of development plans.

The appointment is subject to the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Canvassing will disqualify.

No housing accommodation can be provided.

Applicants must apply to the City Engineer and Surveyor (quoting post No.) for form of application, which is to be returned accompanied by not more than three testimonials, to the undersigned not later than 22nd January, 1951, in an envelope endorsed "Senior Town Planning Assistant."

W. H. LEATHEM,
Town Clerk.
Town Hall, Bradford. 1579

BOROUGH OF CROSBY.
APPOINTMENT OF ENGINEERING ASSISTANT.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the undermentioned permanent appointments in the Borough Engineer and Surveyor's Department:—

(a) Class I Engineering Assistant, Grade A.P.T., V (£520-£570 p.a.). Applicants should have passed the Final Examination of a recognised professional Institution and had at least 5 years' experience in a Municipal Engineer's office.

(b) Architectural Assistant, Grade A.P.T., IV (£480-£525 p.a.). Applicants should possess an appropriate architectural qualification and have had considerable experience in general architectural work, housing, the conversion of large houses into flats, and the preparation of working drawings and specifications.

Both appointments will be subject to the National Conditions of Service, the Local Government Superannuation Act, 1947, and one month's notice on either side.

Applications, stating age, present and past appointments, qualifications and experience, must be delivered to the undersigned not later than Saturday, 27th January, 1951.

Testimonials are not required, but applicants are required to submit the names of two referees.

Candidates must state to the best of their knowledge whether or not they are related to any member or senior officer of the Council. Failure to disclose this information and canvassing, either directly or indirectly, will be a disqualification.

HAROLD O. ROBERTS,
Town Clerk.

Town Hall, Waterloo, Liverpool, 22.
19th December, 1950. 1568

COUNTY BOROUGH OF MERTHYR TYDFIL.
BOROUGH ENGINEER'S SURVEYOR AND ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments:—

(a) SENIOR ARCHITECTURAL ASSISTANT. Grade A.P.T., VI (£595-£660 p.a.).

(b) ARCHITECTURAL ASSISTANT. Grade A.P.T., IV (£480-£525 p.a.).

Candidates for (a) must have had considerable experience in the design and construction of houses, clinics, public buildings and general architectural work, in the preparation of specifications, bills of quantities and estimates in connection therewith. Applicants must be Associate Members of the Royal Institute of British Architects.

Candidates for (b) must have passed the Intermediate R.I.B.A. examination and have had at least two years' experience after attaining that qualification.

The appointments will be subject to:—

1. Scheme of Conditions of Service of the National Joint Council.
2. Provisions of the Local Government Superannuation Act, 1937.
3. The passing of a satisfactory medical examination.
4. One month's written notice on either side.

The Council will provide housing accommodation if required.

Applications, stating age, qualifications and experience, together with copies of three recent testimonials, should be delivered to the undersigned not later than Thursday, the 15th February, 1951.

Canvassing in any form will be deemed a disqualification.

T. S. EVANS,
Town Clerk.

Town Hall, Merthyr Tydfil.
3rd January, 1951. 1581

COUNTY BOROUGH OF SMETHWICK.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments at salaries in accordance with the National Scales as indicated:—

(a) PRINCIPAL ARCHITECTURAL ASSISTANT. Grade A.P.T., VII-VIII (£635-£760).

(b) TWO ARCHITECTURAL ASSISTANTS. Grade A.P.T., III (£450-£495).

(c) SENIOR ENGINEERING ASSISTANT. Grade A.P.T., VI (£595-£660).

(d) ENGINEERING ASSISTANT. Grade A.P.T., V (£520-£570).

For appointments (a) and (b) applicants should be suitably qualified and experienced in design of houses, flats, schools, and other Municipal buildings. In the case of (a) preference will be given to Members of the Royal Institute of British Architects.

For appointments (c) and (d) applicants should be suitably qualified and have had previous experience in a Municipal Engineer's office. Preference will be given to applicants who are Corporate Members of the Institution of Municipal Engineers or Institution of Civil Engineers.

The appointments are subject to the National Scheme of Conditions of Service, the provisions of the Local Government Superannuation Act, 1937, the passing by the successful candidates of medical examinations, and to termination by one month's notice on either side.

Form of Application can be obtained from the Borough Engineer and Surveyor, The Council House, Smethwick, 40, and should be returned suitably endorsed, together with copies of two recent testimonials, to reach him not later than 20th January, 1951.

E. L. TWYCROSS,
Town Clerk.
1567

THE LONDON COUNTY COUNCIL invites applications from ARCHITECTS in private practice for inclusion in a panel with a view to acting in a professional capacity for (a) reconstruction work at the Council's educational buildings, and (b) the erection of new schools. The works are urgent and will require immediate attention.

Applications should be forwarded to the Clerk of the Council (E.1), The County Hall, Westminster Bridge, S.E.1, not later than 17th February, 1951, and should be accompanied by a stamped addressed envelope and brief particulars of qualifications and experience. (1645) 1563

COUNTY BOROUGH OF SOUTHPORT.

Applications are invited for the appointment of QUANTITY SURVEYOR, in the recently formed Borough Architect and Town Planning Officer's Department, at a salary in accordance with A.P.T. Division, Grade VIII, of the National Scale of Salaries (£685-£760). The commencing salary within the Grade will be determined according to the candidate's qualifications and experience.

Candidates must be Associates of the Royal Institution of Chartered Surveyors (Quantities Division), and experienced in the preparation of Bills of Quantities, interim measurements, and settlement of Final Accounts.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937; to the passing of the necessary medical examination; and to one month's notice on either side.

Forms of application may be obtained from the Borough Architect and Town Planning Officer, Brian Bunch, A.R.I.B.A., A.M.T.P.I., Town Hall, Southport, and should be returned to the undersigned not later than 20th January, 1951.

R. EDGAR PERRINS,
Town Clerk.

Town Hall, Southport.
December, 1950. 1554

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS urgently required. Qualifications: At least three years' Architectural training and, preferably, some experience in an Architect's office. Ability to carry out under supervision working drawings of smaller works from prepared sketch plans, and elevations. Knowledge of subsidiary duties common to an Architect's office. Some testimonies already accepted and/or in a position to sit for the Intermediate Examination of the Royal Institute of British Architects.

The commencing salary at age 21 years is £283 per annum, rising to a maximum of £495 per annum. Entering salary is increased by £20 per annum for each year of age above 21 years, subject to a maximum commencing salary of £420 per annum. The posts are in Cambridge. Although these posts are not established appointments, some of them have long term possibilities, and competitions are held periodically to fill established vacancies.

Apply to Ministry of Works (R.D.I. Establishment), Block "A," Brooklands Avenue, Cambridge. 1592

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the undermentioned appointments on the permanent staff.

Conditions of service and salaries are in accordance with the National Joint Council Scheme for Local Authorities, as adopted by the County Council.

(a) ASSISTANT ARCHITECTS. Grade V, £520×£15 (2) and £20 (1) to £570 per annum.

Applicants must have had a wide general architectural experience in work of a Local Authority and, in particular, Education Buildings.

(b) ARCHITECTURAL ASSISTANTS. Grade II, £420×£15 to £465 per annum.

Applicants to have had a good architectural experience and to be first-class draughtsmen, and it is desirable that they should have attended a full time course of architecture and have passed the R.I.B.A. Intermediate Examination, or its equivalent, at one of the recognised Schools of Architecture.

(c) QUANTITY SURVEYORS. A.P.T., Grade VIII. Salary £685×£25 to £760 per annum.

Applicants must be in possession of an appropriate professional qualification, and must have had experience in the preparation of estimates, taking-off quantities for all trades, measuring up and preparation of final accounts.

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

Canvassing members of the Council, directly or indirectly, will be a disqualification for appointment.

The County Council is not in a position to assist successful applicants with housing accommodation.

Applications to be made on a form to be obtained from the undersigned, to whom it must be returned, accompanied by copies of three recent testimonials, not later than 20th January, 1951.

Envelopes and applications must be endorsed, stating clearly the vacancy for which the application is made.

F. HAMER CROSSLEY, Dipl.Arch.(L'pool), F.R.I.B.A.,
County Architect.

St. Mary's Gate, Derby.
January, 1951. 1584

NEWCASTLE-UPON-TYNE REGIONAL HOSPITAL BOARD.
SPECIAL AREA COMMITTEE FOR CUMBERLAND AND NORTH WESTMORLAND.
DIVISIONAL ARCHITECT'S OFFICE.

ARCHITECTURAL ASSISTANT (Grades A.P.T., IV or V, £480 to £525 and £520 to £570 respectively).

Applications are invited for the above permanent appointment in the office of the Divisional Architect for the Special Area (who is on the staff of the Board's Architect). The offices of the Special Area Committee are situated in Carlisle, and the successful applicant will be second assistant in a team of three which will be concerned solely with practical architectural work.

To young architects who already are or who wish to become hospital specialists the appointment offers an excellent opportunity for doing good class work full of interest and variety and in a developing service.

Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects and be studying for the Final Examination. Good general experience in design and construction are essential and a knowledge of hospital work is desirable.

The appointment will be made on the initial stage of Grades IV or V, according to qualification and experience.

The appointment will be subject to the provisions of the National Health Service (Superannuation) Regulations, 1947. Successful candidates will be required to pass a medical examination.

Applicants should state: (1) Name and full address; (2) age and whether married; (3) degrees and professional qualifications; (4) experience; (5) present appointment and salary; (6) war service; (7) date available if appointed, and (8) names and addresses of three referees.

Applications are to be received not later than the 26th January, 1951, and are to be addressed to the Clerk to the Special Area Committee, 1, Lonsdale Street, Carlisle.

W. J. BALL,
Clerk to the Special Area Committee.

1, Lonsdale Street, Carlisle.
3rd January, 1951. 1608

NEWCASTLE-UPON-TYNE REGIONAL HOSPITAL BOARD.
ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments on the permanent Headquarters Staff of the Board's Architect in Newcastle. The appointments relate to the section of the staff which is concerned with practical architectural work throughout the Region (which includes the Counties of Northumberland, Durham, Cumberland, and parts of Westmorland and Yorkshire).

To architects who already are or who wish to become hospital specialists the appointments offer an excellent opportunity for doing good class work full of interest and variety and in a developing service.

The appointments are:—

CHIEF ASSISTANT ARCHITECT (Projects). (Special Grade, £800 to £900 per annum.)

The successful applicant will be required to take complete charge of the Board's Architectural and Surveying Drawing Office in Newcastle, which has at present an establishment of nine assistants.

Candidates should be Members of the Royal Institute of British Architects, and have had extensive and responsible experience in the design and construction of large public buildings, including some experience of hospital and health-service buildings. They should be capable of carrying projects through all stages.

ARCHITECTURAL ASSISTANT (Grade A.P.T., V, £520 to £570 per annum).

Applicants should have passed the Intermediate Examination of the Royal Institute of British Architects and be studying for the Final Examination. Good general experience in design and construction are essential and a knowledge of hospital work is desirable.

Evening study facilities are available at the University of Durham, King's College, Newcastle-upon-Tyne.

GENERAL ARCHITECTURAL ASSISTANT (Grade A.P.T., III, £450 to £495 per annum).

Applicants must have served their articles of pupilage or have worked in an architectural office for a minimum period of three years, and have passed the Royal Institute of British Architects' Intermediate Examination or the equivalent at one of the recognised Schools of Architecture.

The appointments will be subject to the provisions of the National Health Service (Superannuation) Regulations, 1947. Successful candidates will be required to pass a medical examination.

Applicants should state: (1) Name and full address; (2) age and whether married; (3) degrees and professional qualifications; (4) experience; (5) present appointment and salary; (6) war service; (7) date available if appointed, and (8) names and addresses of three referees.

Applications are to be received not later than the 26th January, 1951, and are to be addressed to the Secretary to the Board, "Dunira," Osborne Road, Jesmond, Newcastle-upon-Tyne, 2.

E. B. JENKINS,
Secretary.

"Dunira," Osborne Road, Jesmond.
Newcastle-upon-Tyne, 2.
2nd January, 1951. 1607

NORTH THAMES GAS BOARD.
A TRACER, male or female, is required in the Board's Building and Property Maintenance Department, Fulham, to work on General Architectural and Building Plans. Salary according to age and experience, and there are good prospects for advancement. Hours 9 a.m. to 5 p.m. Mondays to Fridays and 9 a.m. to 12.30 p.m. Saturdays, with one Saturday morning in four granted as leave with pay. Staff canteen is available.
Candidates, preferably not more than 25 years of age, should apply to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, W.8, quoting reference 9906. 1591

Tenders for Contracts

6 lines or under, 12s. 6d.; each additional line, 2s.

BOROUGH OF SLOUGH.
PERMANENT HOUSING.
Tenders are invited for the ERECTION of 15 AGED PERSONS COTTAGES at Oldway Lane Estate, Cippenham, Slough.
Bills of Quantities and Form of Tender may be obtained on application to the Borough Engineer, Town Hall, Slough, Bucks. Drawings may be inspected at the office of the Borough Engineer during normal office hours.
Applications must be accompanied by a deposit of 2 guineas. The deposit will be refunded on receipt of a *bona fide* Tender and the return of the Contract documents.
Tenders in the prescribed form must be delivered to the undersigned in the official envelopes provided, not later than noon on Monday, the 29th January, 1951.
The Council do not bind themselves to accept the lowest or any Tender.
NORMAN T. BERRY,
Town Clerk.
Town Hall, Slough, Bucks.
5th January, 1951. 1582

Competition

6 lines or under, 12s. 6d.; each additional line, 2s.

ARCHITECTURAL COMPETITION.
A FESTIVAL HALL AT HESWALL FOR THE WIRRAL URBAN DISTRICT COUNCIL.
The Wirral Urban District Council invite Architects to submit designs in Competition for a Festival Hall to be erected at Heswall, Wirral, Cheshire.
Assessor: MR. P. GARLAND FAIRHURST, M.A., F.R.I.B.A.
Premiums: £500, £350, £250.
Last day for submitting designs: 28th April, 1951.
Last day for submitting questions: 6th February, 1951.
Conditions may be obtained on application to: WM. F. ROBERTS, Clerk of the Council, Council Offices, Heswall, Wirral, Cheshire.
Deposit £2 2s. 1564

Architectural Appointments Vacant

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

ARCHITECTURAL ASSISTANTS, qualified or intermediate, required for varied work in private Architects' London office. Box 1520.

SENIOR ARCHITECTURAL ASSISTANT required immediately in busy and varied practice in the southern area of Yorkshire. Final R.I.B.A. essential and some office experience desirable. Salary according to R.I.B.A. scales as a minimum, and to qualifications and experience. Pension scheme in operation. Apply with full particulars. Box 1532.

ARCHITECT or ASSISTANT, keen model-maker, wanted for spare-time postal advisory work at home. Near London; on phone. Write Box 1565.

JUNIOR ARCHITECTURAL ASSISTANT required immediately in busy and varied practice in the southern area of Yorkshire. Intermediate R.I.B.A. qualification desirable and a minimum of two years' office experience. Salary in accordance with R.I.B.A. scales as a minimum and to qualifications and experience. Pension Scheme in operation. Apply with full particulars. Box 1533.

EXPERIENCED SENIOR ARCHITECTURAL ASSISTANT required. Knowledge of design and construction of large scale and important work. Give full particulars. J. R. Boyd Barrett, A.R.I.B.A., F.R.I.A.I., 5, Camden Place, Cork, Eire. 1534

ARCHITECTURAL DRAUGHTSMEN, up to Inter. R.I.B.A. standard required. London area. Write, stating experience and salary, to Box 1585.

JUNIOR ARCHITECTURAL ASSISTANT required. Salary commencing £250 p.a. Varied practice. Apply Wm. Illingworth & Son, Chartered Architects, 15, Sunbridge Road, Bradford, Yorks. 1587

FULLY qualified ARCHITECTURAL ASSISTANT required for West End office. Capable of handling contracts. State qualifications, experience, and salary required. Box 1586.

ARCHITECTURAL ASSISTANT, preferably qualified, required urgently in large general practice. Experience of commercial and industrial work important. Splendid opening for man with drive. Apply, giving fullest particulars, to Box 1601.

QUALIFIED ASSISTANT ARCHITECT required. Must be good draughtsman and experienced in both working drawings and sketch plans. Apply, stating age, experience, and salary required, to T. P. Bennett & Son, 43, Bloomsbury Square, London, W.C.1. 1604

ARCHITECTURAL ASSISTANT, aged between 25 and 30, required by large Industrial Concern in Trafford Park, having an extensive building and constructing programme. Applicants must be thoroughly conversant with all sections of steel and concrete building construction. Excellent prospects, good salary and pension scheme. This is a permanent position. In reply please state age, previous experience, and qualifications. Box 1602.

NAIROBI. — Two experienced SENIOR ARCHITECTURAL ASSISTANTS, not necessarily qualified. Preferably single, over 30, with experience of traditional architecture. Salary £800-£1,000, dependent on experience and ability. U.K. interview by principal. Full particulars to Overseas Architects' Service, 5, Welldon Crescent, Harrow, Middlesex. 1599

IMPORTANT Manufacturing Firm has a vacancy in its Engineering Department for an INDUSTRIAL ARCHITECT, with some civil engineering experience. The successful applicant will be expected to accept responsibility for building maintenance, minor building extensions, and civil engineering works in connection with new plant installation. Salary £700-£800 per annum, depending upon age and experience. Apply quoting ref. A.9 to Box 1578.

ARCHITECTURAL ASSISTANT required, chiefly for housing work. Salary £250-£350. Write, giving full details, to Antony Lamb, A.R.I.B.A., A.M.T.P.I., The Town Hall, Ottery St. Mary, Devon. 1576

ARCHITECTURAL ASSISTANTS of Intermediate standard required immediately. Good salary and prospects. 5-day week. Write to Messrs. J. M. Sheppard & Partners, 38, Bedford Place, W.C.1, giving particulars of age, qualifications, experience and salary required. 1569

Architectural Appointments Wanted

A R.I.B.A., Dip.Arch.(Liv.), 5 years' experience. Returning to England after 3 years in the U.S.A. engaged on schools, houses, and stores. Desires responsible position in Liverpool area, with prospects. Contemporary outlook essential. Please state approximate salary. Box 52.

A R.I.B.A. (41) desires Senior position, with prospects. Please state salary. Box 59.

A R.I.B.A. requires Senior post in office, West London or West Suburbs. Varied experience. Please state salary offered. Box 58.

ARCHITECTURAL ASSISTANT seeks appointment in London office. 8 years' experience general work. Box 60.

STUDENT, Intermediate standard, 4 months' office experience, seeks architecture. Box 61.

Other Appointments Vacant

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

WANTED. — QUANTITY SURVEYOR'S ASSISTANT, capable of assisting in Taking Off, Abstracting, Billing, also settling final accounts. Salary according to experience. Gotch, Saunders & Surridge, Chartered Architects, Bank Chambers, Kettering. Telephone 3165/6. 1539

THE CO-OPERATIVE WHOLESALE SOCIETY, LTD., invite application for the following appointment on the staff of the Manchester Architect's Department:—
ASSISTANT QUANTITY SURVEYOR. Salary range £510-£650, according to ability. Applicants must have a sound experience in the preparation of Bills of Quantities, measuring and adjusting variations for large commercial buildings, and able to undertake work with a minimum of supervision.
The above appointment is permanent and offers prospects of upgrading to a competent Assistant. The successful candidate will be required to undergo a medical examination for entry into compulsory Superannuation Scheme.
Applications, stating age, experience, qualifications, and the commencing salary required, to be addressed to the Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 1531

BUILDING DRAUGHTSMAN required, experienced in detailing and with good knowledge of Building Construction. This post is progressive and in the London area. 5-day week and pension scheme in operation. Write, giving full details, to Box A.J.463, at 191, Gresham House, E.C.2. 1577

Services Offered

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

FULL-TIME Architectural assistance offered. Sketches, Working Drawings, Surveys, Levels. Moderate fees. Hahn & Edwards, 5, Station Parade, Elmers End, Beckenham, Kent. BEC. 1277. 1498

STUDYING for Final R.I.B.A., student with 5 years' office experience seeks post for three or four days a week. Box 1570.

B.ARCH., A.R.I.B.A., aged 38, offers other Architects full time or occasional services at his own office in London, W.C.1. Box 1571.

PART-TIME work at home required by Two ARCHITECTURAL ASSISTANTS. Working Drawings from sketches, Detailing, etc. Surveys in S. Lancs. area. Box 1572.

A R.I.B.A., 13 years' office experience, would assist Architect in the preparation of Sketch Designs, Working Drawings, etc., in his spare time. Box 1573.

WINSTON WALKER, A.A.Dipl., F.R.I.B.A., Dipl.T.P., will be pleased to execute a limited number of Perspective Drawings for submission Royal Academy, 1951. Prices from 20 gns. For a small fee advice given on size of drawings, technique, viewpoint, etc., to Architects preparing own works for submission. 107, Sloane Street, S.W.1. SLOane 1410. 1387

A. R.I.B.A. willing to undertake the preparation of Working Drawings and Specifications. Please reply to Box 1551.

R. I.B.A. Calculations of Simple Structural Members and Theory of Structures. Postal Tuition. Apply D. A. Fowler, Dip.Arch.(Abdn.), F.R.I.B.A., 22, Oakwell Mount, Leeds, 8. 1208

TYPING of Specifications, Schedules, Surveyors' and Architects' Correspondence undertaken on part-time basis. Please write to Box 1605.

For Sale or Wanted

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

PERMANENT OR TEMPORARY PARTITIONS—FREE OF LICENCE.

FOR DISPOSAL at highly competitive price. Large quantity Interlocking Partition Panels. Size: 3 ft. 5 in by 1 ft. 11 in. by 2¾ in. timber framed, faced both sides.

Easily handled, rapidly erected and dismantled. Suitable for partitions, cubicles, storage divisions, etc. Available in quantities 100 upwards. Quotation for fixing and decorating (London area only) if required.

Further details and prices of this special offer from: Flush Woodwork, Ltd., 76/78, High Street South, London, E.6. Telephone: GRA. 0123 (5 lines). 1529

TO THOSE RESTORING AN OLD HOUSE.—Genuine 16th century Open Fireplace for Sale. Particulars and photo on request. Nigel Neatby, Cullompton, Devon. 1605

Miscellaneous

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

The Race Upholstery Unit will be pleased to report on and tender for your specialised upholstery requirements and repairs. 22, Union Road, Clapham, S.W.4. 4048

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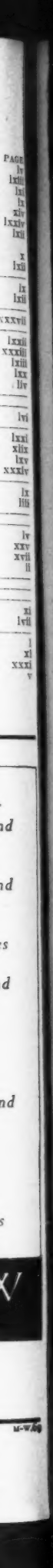

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