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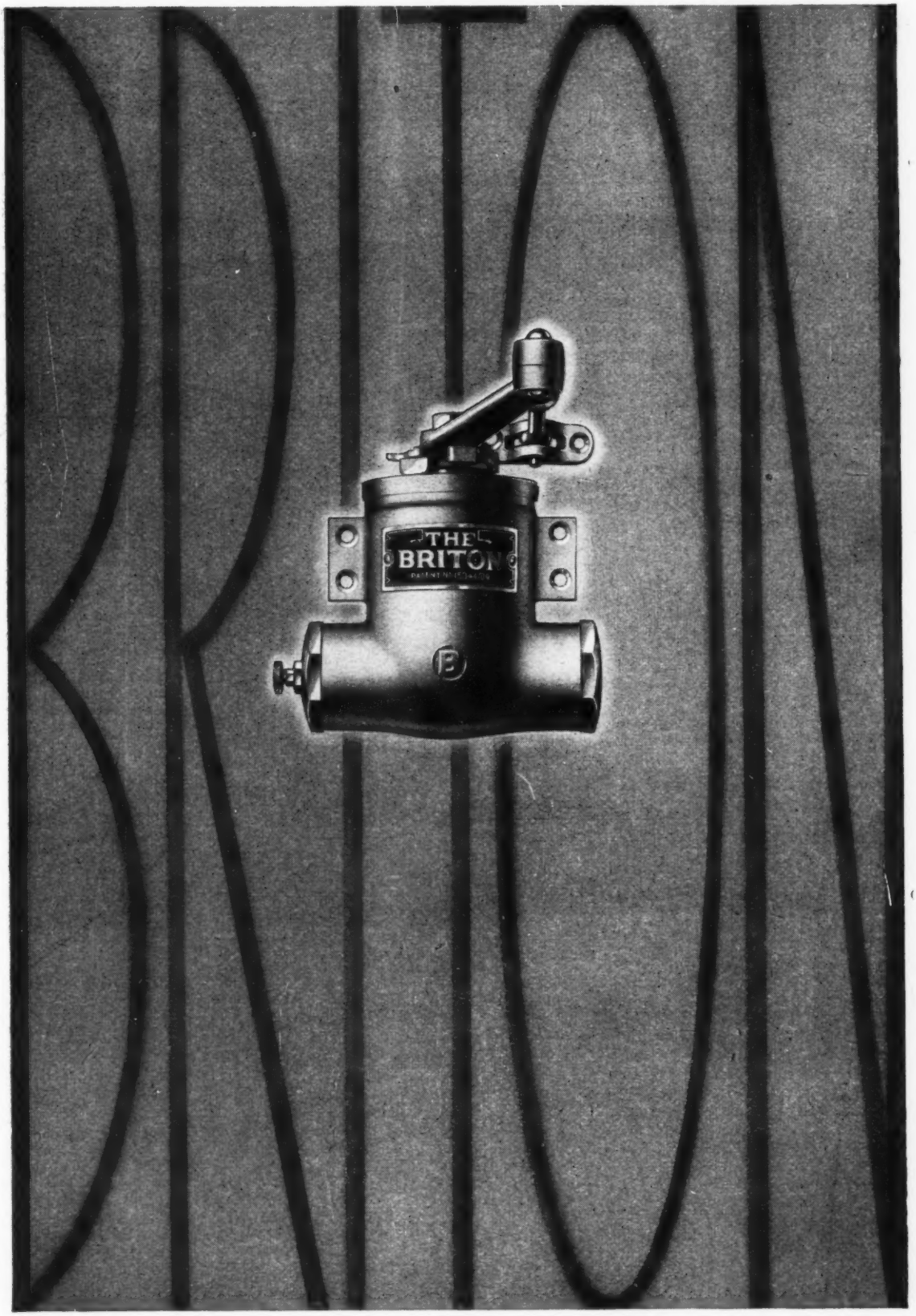
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit 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 A. Guy Chant, F.R.I.B.A., Salop County Council, 5, Belmont, Shrewsbury.	Shrewsbury 3031
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAD	Central Institute of Art and Design. 41, 42, Dover Street, W.1.	Regent 3074
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7. Zurich, Switzerland.	
CID	Council of Industrial Design. Tilbury House, Petty France, S.W.1.	Whitehall 6322
CPC	Codes of Practice Committee. MOW, 42, Onslow Gardens, S.W.7.	Kensington 8161
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
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 1761
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
FB 1951	Festival of Britain 1951. 2, Savoy Court, Strand, W.C.2.	Waterloo 1951
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
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
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.	Abbey5215



Wm. Newman & Sons, Ltd., of Hospital Street, Birmingham, invite Architects to inspect their display of Door Springs, Floor Springs, etc., recently placed on view in the Building Centre, 9 Conduit Street, London, W.1.

ALUMINEX: a modern revolution in patent glazing methods

Although there remain forms of patent glazing today that differ very little from the pioneer specifications of a hundred years ago, the coming of the Aluminex patent glazing system signified a revolution in this field. It was not until aluminium alloys became available and the extrusion process was introduced that Aluminex became a possibility.

The employment of aluminium alloy and the extrusion process have combined to make Aluminex not simply a superior form of patent glazing, but a *method of cladding* in its own right. Modern examples in which Aluminex has been treated by the Architect as an integral part of the design — the north sidewall window of the Brabazon hangar 1052 ft. x 50 ft. comes immediately to memory — serve to show how wide is the gulf that separates the old "dry glazing" and the new Aluminex method of construction.

Basic "dry glazing" problems

Yet the early inventors saw the three basic problems of patent glazing—or "dry glazing" as it was then called — quite clearly. Their limitations lay in the materials and manufacturing processes available. The three problems are: (1) How to make weather-tight fixing for the glass without putty, (2) How to drain away water that escapes the main rain seal or which is formed by condensation, (3) How to prevent corrosion of the framework.

To solve these problems a galvanised steel tee bar was at first evolved. It had a large water channel on each side of the stalk of the tee and a bearing upon which the glass could rest. The weight of the glass, together with the pressure of copper spring clips, provided the main seal against the rain flow.

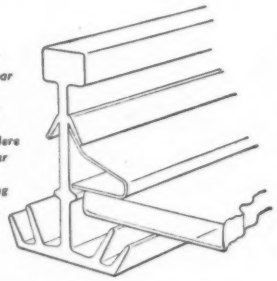
Early types of glazing

Galvanised iron was replaced in the late nineteenth century by the lead-covered steel bar system.

In this system the steel bar is galvanised after all work on it has been carried out and then further treated with a mordant solution and painted with a bitumastic paint before finally receiving its shroud of lead. Despite all precautions, however, the risk of corrosion remains the special drawback of this method.

The form of all bars of this type has followed a broadly similar design over the past fifty years. Then, however, came the developments in extrusion and the expansion of aluminium production. This entirely revolutionised Patent Glazing. It was soon possible to extrude in true mass production any section that an achitect chose to draw.

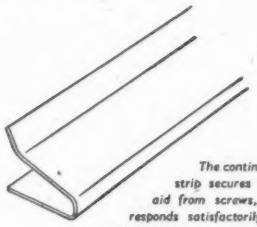
Extruded bronze or aluminium offered a much more nearly perfect answer to the Roof Glazing problem. For example, the Scottish Industrial Estates took several hundred tons of dead-weight from the roofs of their factory buildings by the simple change from lead-covered steel to aluminium.



The Aluminex patent glazing bar is of special aluminium alloy extruded to a patent design. Here one glazing cover strip is seen in position, securing a pane of glass.

New aluminium glazing bar

In particular the way was open to the designer to provide a simple and comprehensive answer to the three basic patent glazing problems — puttyless fixing, water drainage and the prevention of corrosion. The designers of the Aluminex patent glazing system invented an extruded glazing bar which was not pierced at any point and therefore retained its maximum strength throughout its length. The section is in the form of a tee with a series of ribs and flanges which provide large drainage gutters in addition to true condensation channels. This means that the pitch of a roof glazed by Aluminex may be as low as 10 degrees.



The continuous glazing cover strip secures the glass without aid from screws, or flashings. It responds satisfactorily to all vibration and thermal movements.

The glass is held flexibly by continuous aluminium glazing cover strips which absorb all thermal movements and vibrations. In this way, a neat, efficient system was designed entirely of aluminium alloy. Moreover, after much research an alloy of aluminium, silicon and magnesium was arrived at which possessed the highest resistance to corrosion.

Great advance in ventilation

The outstanding advantage of using a system of the same corrosion-resistant material throughout is redoubled when opening lights are required in a range of Patent Glazing.

Here the inventors of one hundred years ago stopped short. The problem seemed to baffle them and to remain unsolved throughout the nineteenth century. Aluminex ventilators in Roof Glazing are now provided which exhibit the same refinement of detail and complete uniformity in material as do the bronze casements of our greatest architects.

Sidewall opening lights

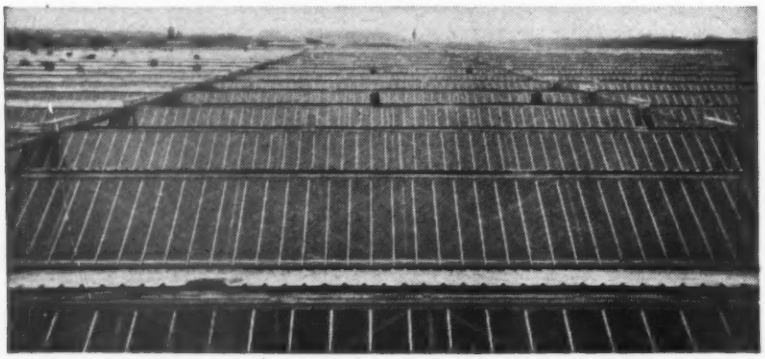
From this point it was a short step towards continuous ventilation in which the whole range of glass opens in lengths up to 100 feet for manual operation and 200 feet for electrical operation with heights up to six feet. This achievement stimulated the development of suitable gearing and in turn the developments in gearing have accelerated the development in glazing technique.

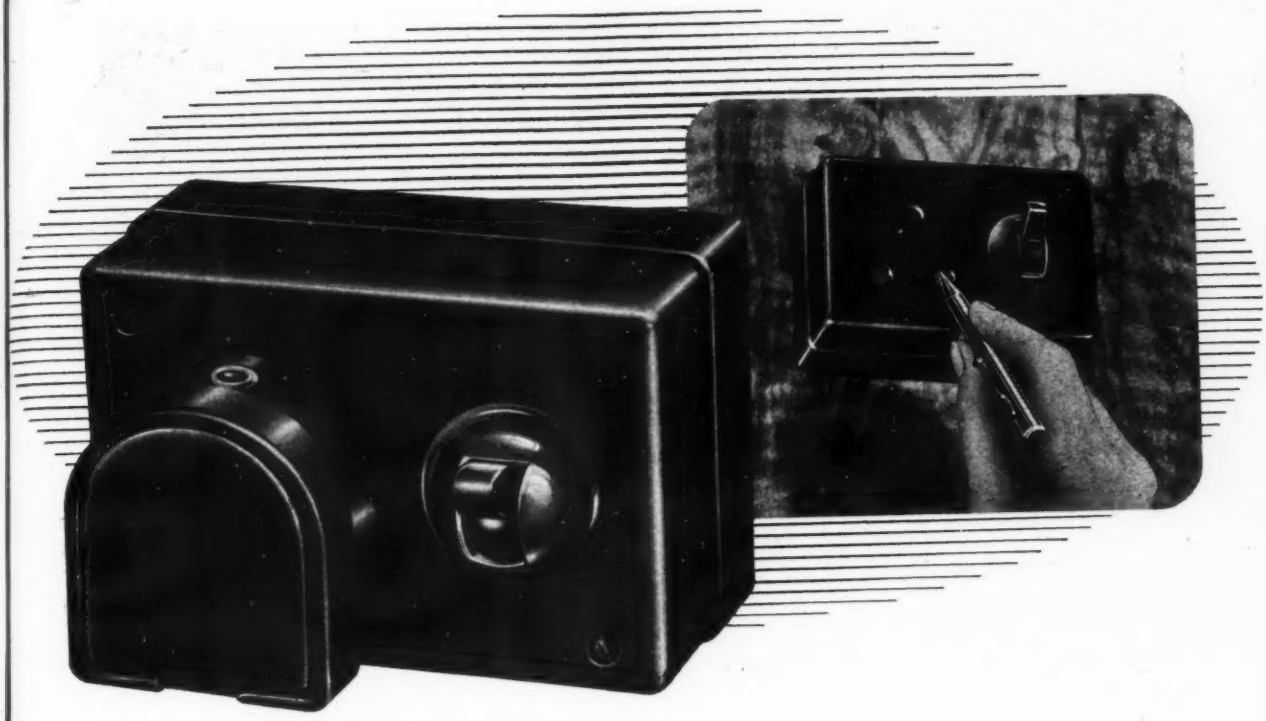
With the continuous ventilator came the question "if for roofs why not for sidewalls?" The answer was an emphatic affirmative. Aluminex sidewall glazing with continuous ventilation has been developed until today it offers wide scope in the treatment of sidewall lights in industrial and public buildings. Aluminex Double Glazing provides still more possibilities in the field of light cladding. Aluminex today is a versatile form of construction and architects and engineers who turn to Aluminex for their factory design quickly appreciate its great potentialities.

In this connection it may be stated that the manufacturers particularly welcome communications from architects and engineers concerning the use of Aluminex in current or proposed projects.

Aluminex Patent Glazing *is manufactured solely in the Aluminex Division of Williams & Williams Ltd., Chester, England. Telephone: Chester 24624 (10 lines). Telegrams: Reliance, Chester.*

The Scottish Industrial Estates took several hundred tons of dead-weight from the roofs of their factory buildings by the simple change from lead-covered steel roof glazing to Aluminex. A view of one of the factories.





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★ **to operate the TEMCO shutter, the plug must be properly inserted.**

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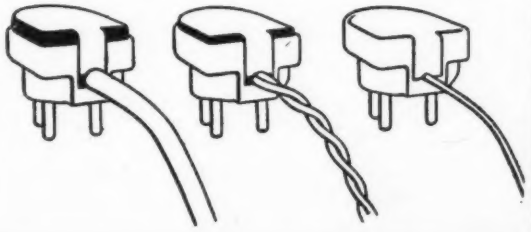

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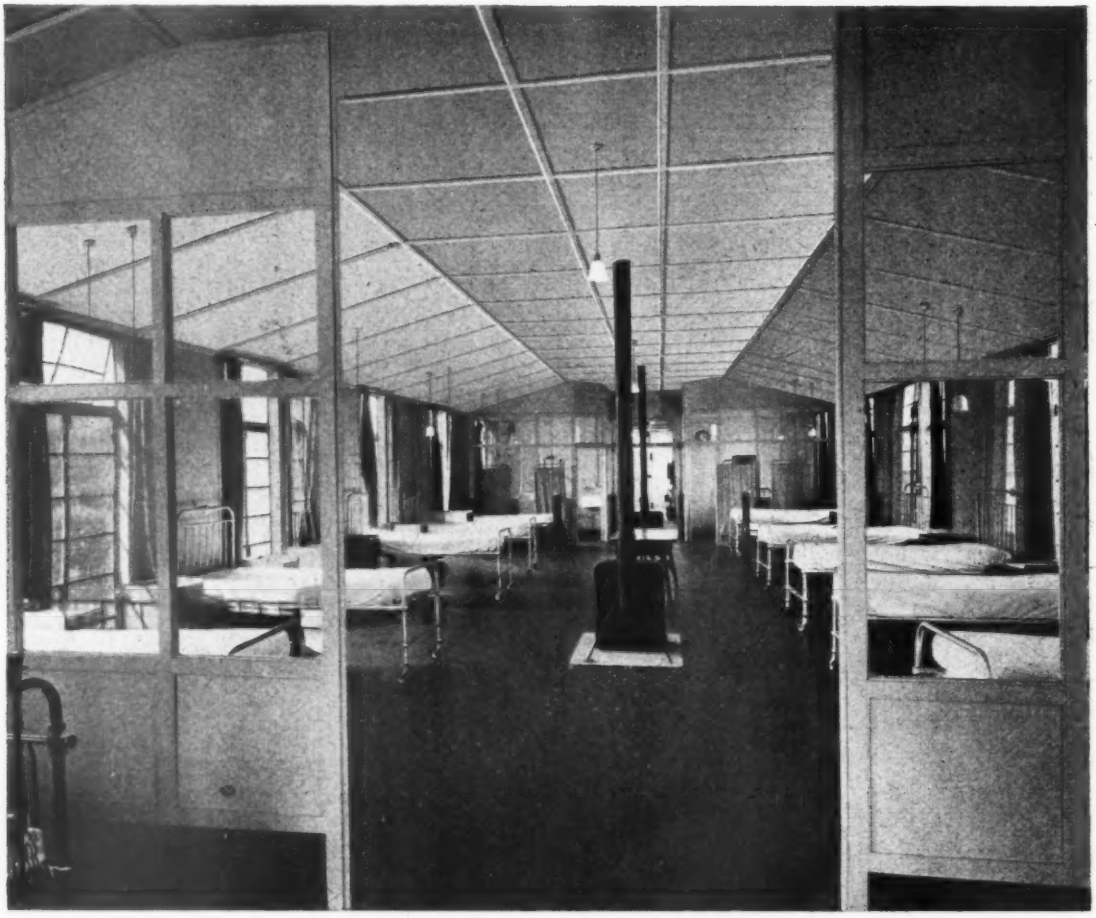

Partitions and Isolation Cubicles constructed from ¾" PLIMBERITE and glazing in a ward at Wellhouse Hospital, to the designs and under the supervision of Mr. H. A. Sheward, Superintendant of Works, Barnet Group Hospital Management Committee.

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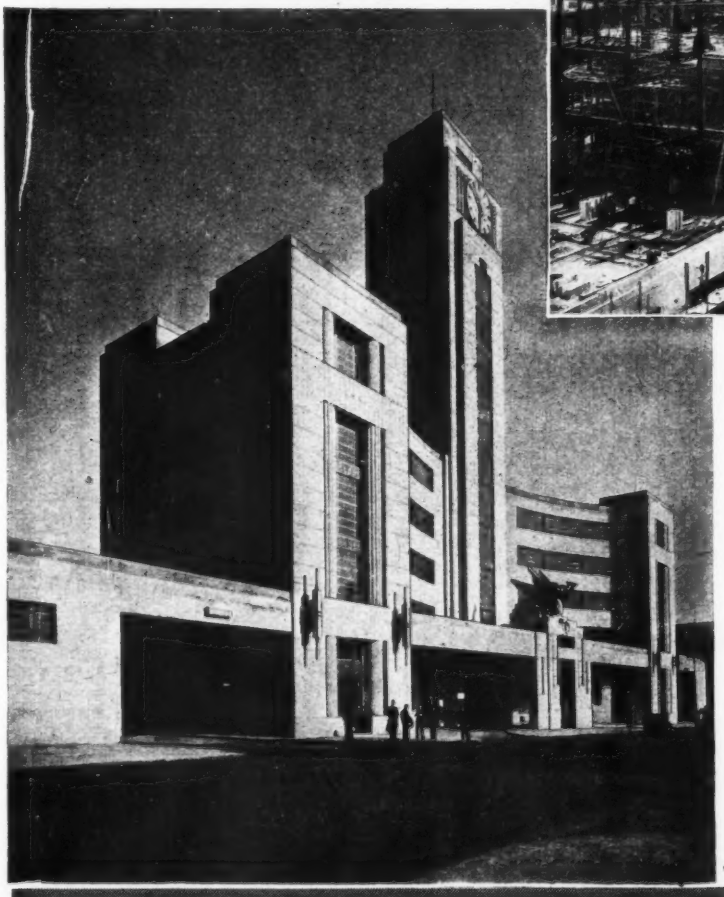

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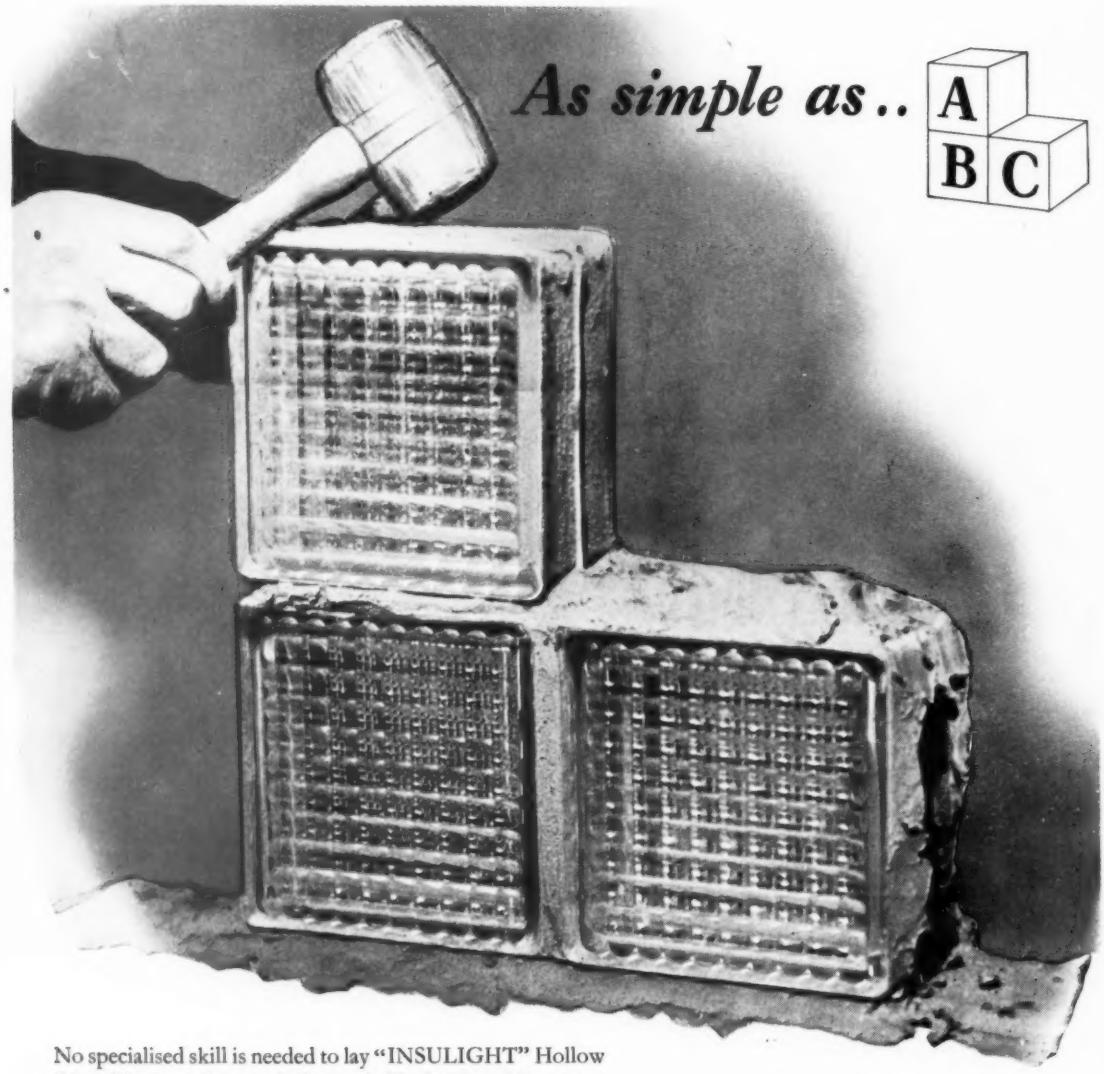

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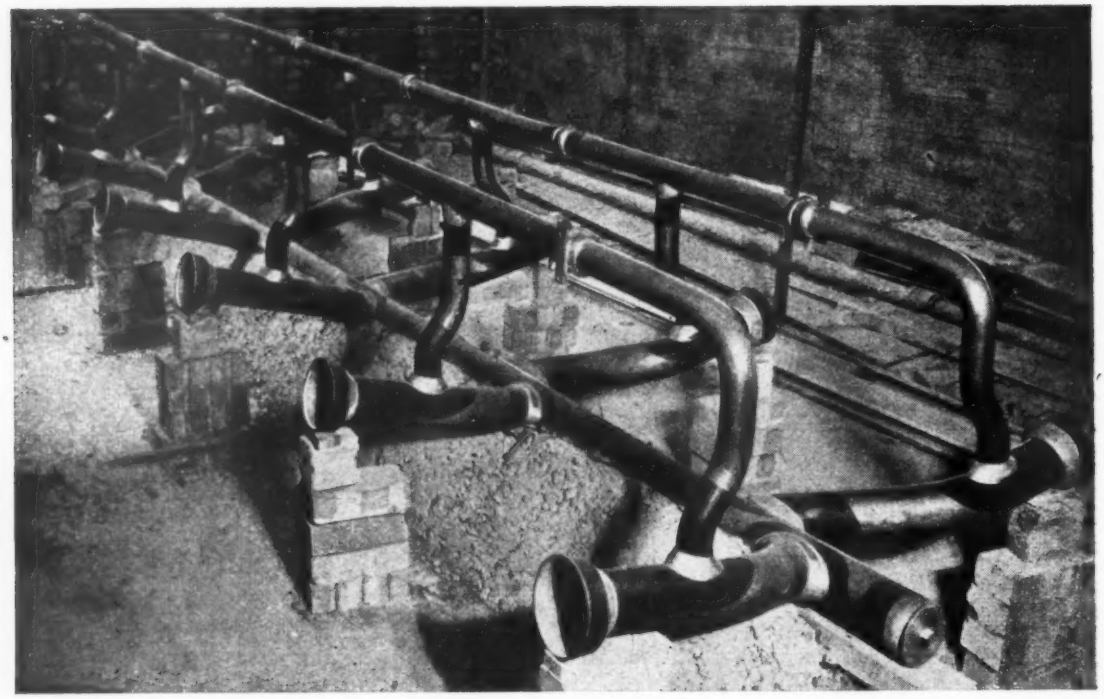
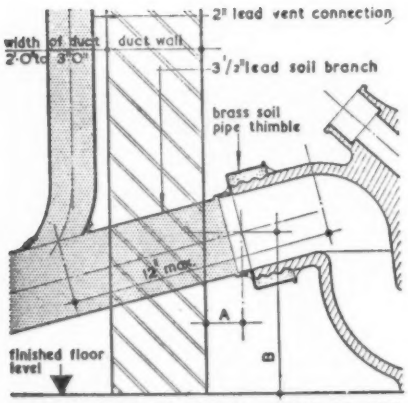


PLUMBING to W.C.'s

in schools, hospitals, factories



ARRANGEMENT OF DISPOSAL PIPING TO "P" TRAP FITMENT ON INTERNAL DUCT WALL

Arrangement of two ranges of W.C.'s set back to back with a separating duct 2' to 3' wide to contain soil and vent pipes, soil stack and other pipe runs if required.

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The Technical Information Bureau of the Lead Industries Development Council exists to give assistance on problems relating to the use of lead sheet and pipe on building work. Details of its application are given in a series of Information Sheets. These sheets are available to architects, surveyors, builders, plumbers and other technicians interested upon application to the Council. "Students" applications should be endorsed by an instructor or master of a technical school

The illustrations above are taken from Bulletin No. 116 "Plumbing for Schools," copy of which can be obtained on application to the Council.

LEAD INDUSTRIES DEVELOPMENT COUNCIL, EAGLE HOUSE, JERMYN STREET, LONDON, S.W.1

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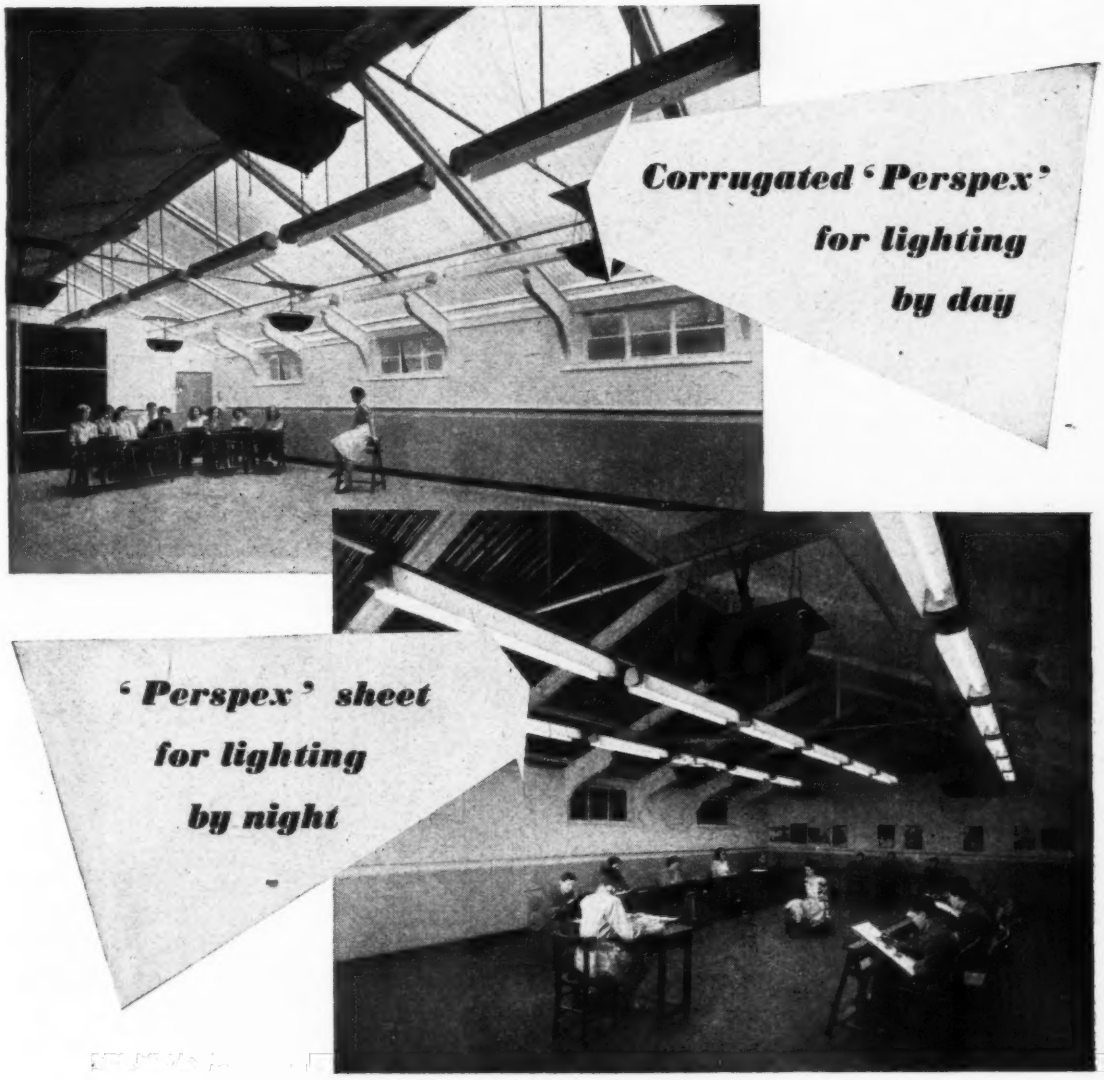
– [151/2/50



Versatile 'Perspex' acrylic sheet

To make the most of the daylight, more than fifty sheets of corrugated 'Perspex' have been installed on the north side of Manchester Art School's temporary building. At night, Atlas lighting fittings, with 'Perspex' reflectors made by Thorn Electrical Industries Ltd., London, provide efficient, evenly diffused lighting. These two examples of the use of 'Perspex' in the field of lighting are typical of thousands of others found for this versatile material throughout the world.

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'Perspex' is the registered trade mark of the acrylic sheet manufactured by I.C.I.

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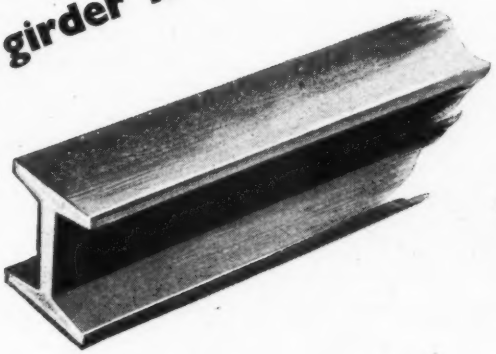
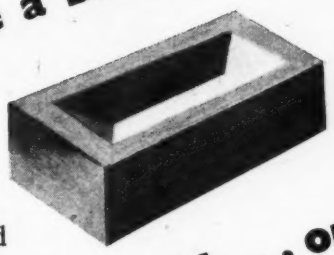
ICI

P.4018

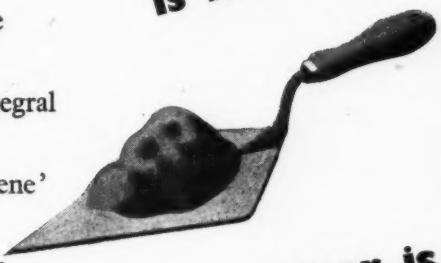
Before a girder is fixed . . .



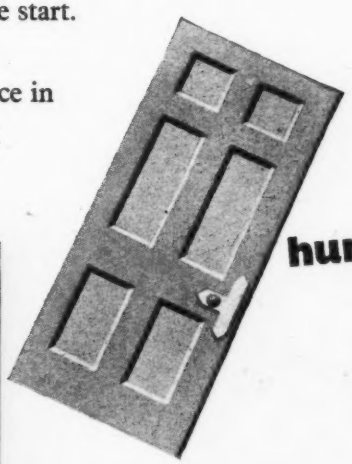
Before a brick



is laid . . . or

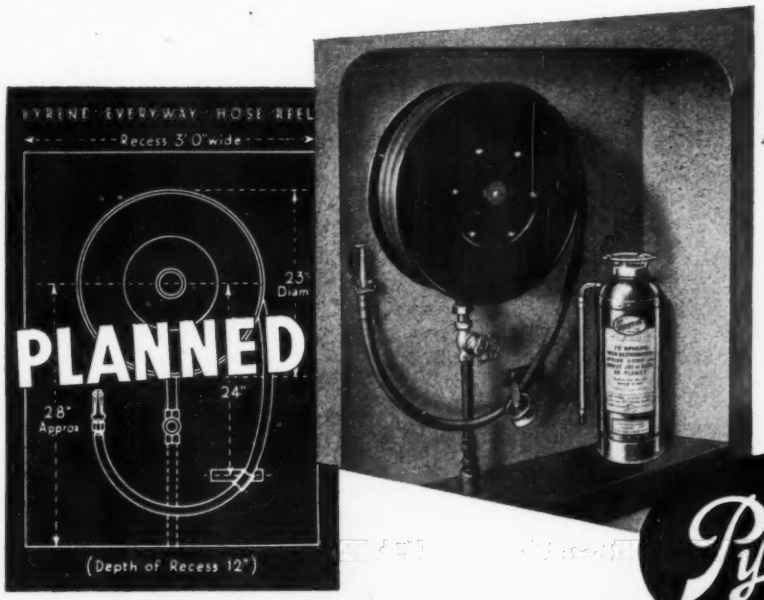


a door is



hung . . .

It is at the drawing board stage that proper protection against fire should be planned. The wise architect has the right perspective on the fire danger and plans to incorporate Fire-Fighting Equipment as an integral part of the structure. A typical example (shown below) is the 'Pyrene' Everyway Hose Reel and 'Conquest' Soda-Acid Fire Extinguisher set in a recessed panel in a modern building. Plan *right* from the start. We are in a position to offer architects nearly 40 years' experience in Fire Safety Research.



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MARLITH

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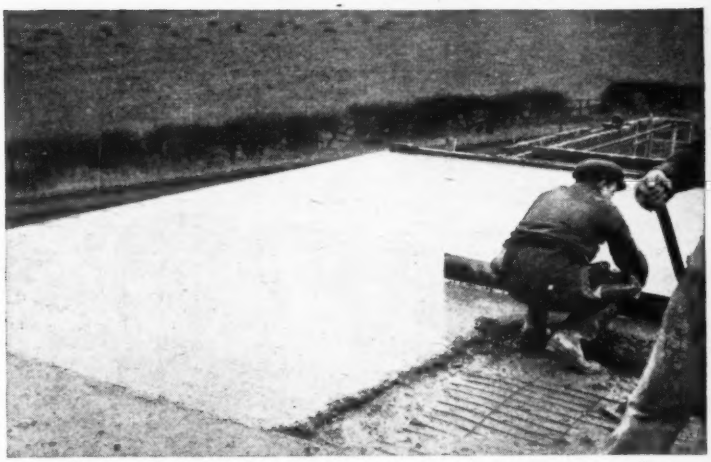
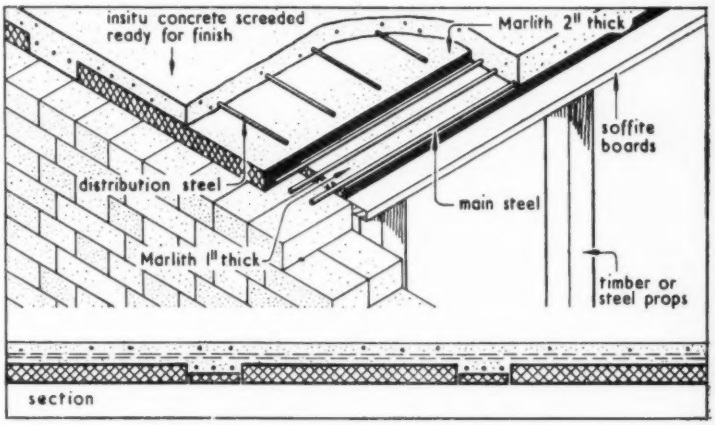


THE SHUTTERING for this flat in-situ reinforced concrete roof consisted of 2-inch MARLITH laid in temporary 2″ x 2″ x 3/16″ steel tees supported by tubular steel scaffolding. The concrete was poured and the reinforcement applied in the normal way. When the concrete was set, the temporary steel tees and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

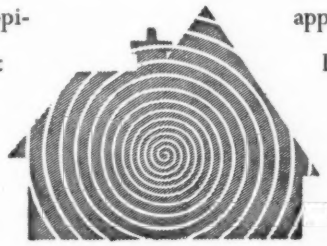
The Marley Tile Company Limited · Sevenoaks · Kent

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

STANMORE EXPERIMENT A COMPLETE SUCCESS

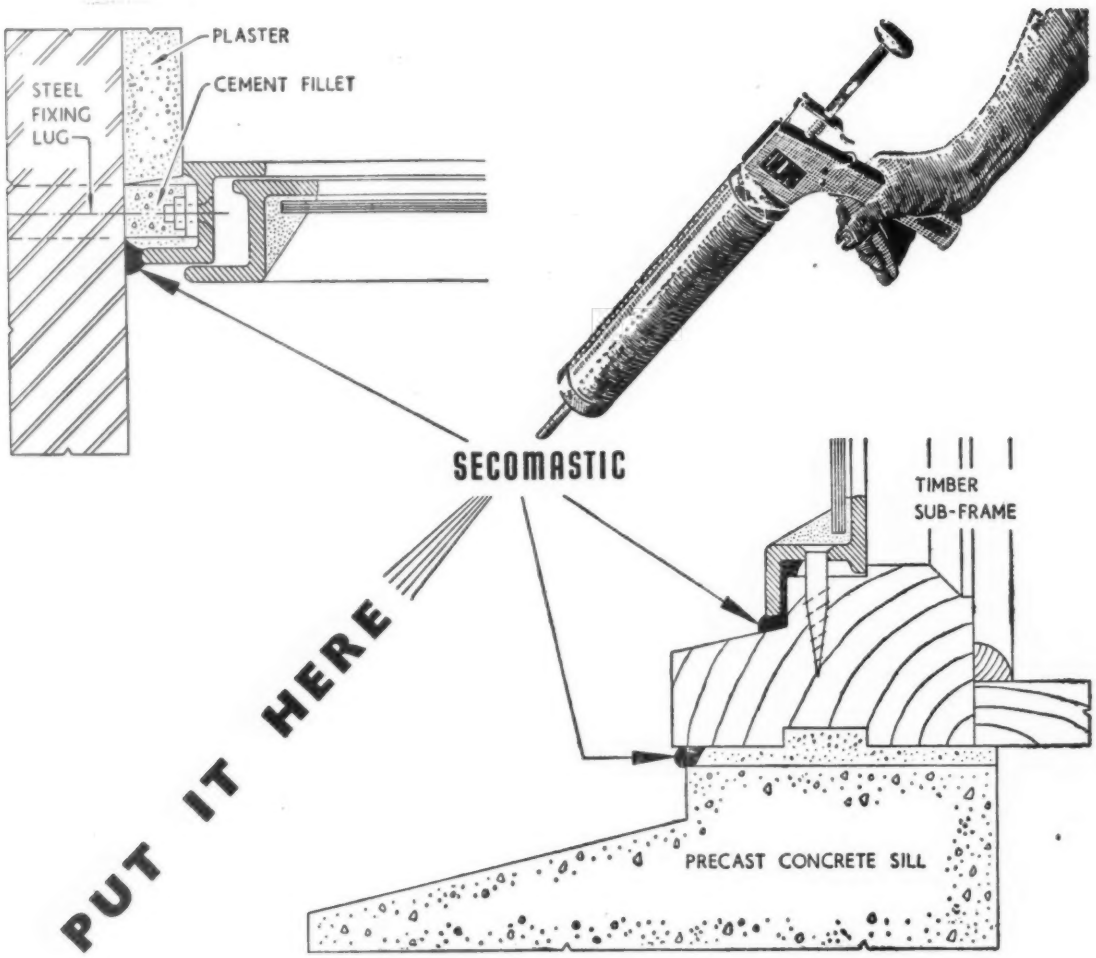
Fire without smoke

Smokeless zones are now being planned and, in Radiation whole house warming by ducted air, architects will find a ready answer to the problem of providing whole house warming virtually without smoke. This system, perfected by Radiation Ltd. in their Stanmore experimental houses, warms by ducted air and burns fuel on the down-draught principle, whereby the smoke itself is consumed by the fire. The greatest thermal value is extracted from the fuel and all the time that the furnace is in operation it is keeping a copious supply of domestic hot water at a high temperature and circulating a supply of ducted air, warming and ventilating, and while it warms it is constantly circulating a clean and refreshed atmosphere throughout the house. Details of the Stanmore experiment have been published and will be gladly sent to enquirers. Meanwhile we cordially invite architects, housing authorities and others — especially those concerned with appliances suitable for smokeless zones — to visit Stanmore houses. But please apply first for an appointment to Radiation Group Sales Limited, Lancelot Works, Wembley, Middlesex. Phone: Wembley 6221.



Whole-house warming by Radiation ducted air

Issued by Radiation Ltd. Aston, Birmingham 6 and Stratford Place, London, W.1.



The use of SECOMASTIC for the bedding and pointing of metal window frames is part of the code of good practice which is gradually being built up for the use of mastics in building construction.

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THE ARCHITECTS' JOURNAL

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THE BEGINNING AND THE END

I arrived at Southampton on Monday with my heart in my mouth. I was about to experience a part of that thrill that every person feels on arrival in a new country: the excitement that starts with the first sight of the coast shrouded in mist and climaxes as ropes coil gracefully through the air from ship to shore. In fact, I was about to see the Ocean Terminal, the new building that from now on (it was opened on Monday by the Prime Minister) will be the first building many visitors enter on their arrival in Britain.

*

But I confess that from the first sight of the building my heart sank. The designer, C. B. Dromgoole, working under the restraining hand of the docks engineer, admittedly had a difficult task. But surely the final result could have looked so much better. The British Railways' handout (emblazoned with the hamburger emblem in dark green) stated "... the great length of the building (1,270 feet) compared with its height (two storeys) made architectural treatment a difficult problem." And perhaps in that statement lies the clue to my dissatisfaction. The building, it appears, was not regarded as a piece of architecture but as a structure on to which treatment was to be applied, presumably as a concession to the number of people passing through it. "... advantage was taken of the fact that the first view of the building (the south elevation) gained by passengers on incoming ships ... was to be emphasized by the incorporation of a semi-circular feature." I could see no such delight in store for anyone approaching the other end of the building by car.

*

I'm afraid my taste in interior decoration just did not run to surrounds to architectural features in sapelli, bands of marbled green linoleum and walls panelled with diamonds of eau-de-nil full-grain leather. ...

*

Another opportunity wasted, I am afraid, of showing visitors the best of English architecture when they first come to this country. And another case, which the RIBA might surely take up, of an engineer (in this case the docks engineer of British Railways, Southern Section) being given charge of an important architectural undertaking. That he has qualified architectural assistants under him is not enough.

OMNIBUS DISPLAY FOR THE LITTLE MAN

I wonder whose idea it was to demonstrate the British way of life to Western Europe in three London buses. As the reader probably knows, these buses, together with a fourth containing exhibition staff, left the country last week on a 4,000 mile tour to publicize the Festival of Britain. I've no doubt that these double-deckers will attract a great deal of attention abroad, for in all the countries to be visited, apart from Denmark, only single-decker vehicles are used. And no doubt when the buses pull up in a town and coyly wave their two little flags, to the accompaniment of amplified traditional British music, they will draw quite a crowd.

*

But what then? Obviously an omnibus is designed for a single flow of people, while an exhibition requires a continuous flow. One doesn't have to use much imagination to visualize what will happen when visitors on a lower deck want to change places with those on an upper deck. And as this is literally an exhibition for the little man, with only five-foot nine-inches head room on the upper decks, it is

The south elevation of Ocean Terminal, Southampton. *(See note on this page.)*

C

obvious that the six-footer, bending his neck to study village cricket will crick it. My colleague, who inspected the buses at a Press viewing on Horse Guards Parade (see illustration) tells me that for people who, unlike himself, did not make their tour on hands and knees the captions were badly placed, though easily readable from floor-level.

*

Of course, the designer, Arthur C. Braven, had great limitations imposed on him. And in view of this fact he has done very well: his reception room on a lower deck is particularly well designed. Nevertheless, he has made one mistake that could have been avoided: his structural work in the Arts Festival section has created a bottleneck at the entrance which will add to circulation difficulties.

*

However, nobody will have a chance of staying inside these buses for long—unless they are trapped by a crush around the entrance. So perhaps it doesn't matter that although it is shown that in the field of modern music Britten can make it, and Frederick Gibberd and T. S. Eliot are given their rightful places in the arts of architecture and literature, no contemporary painter is represented. The only painting on view, which bears the naive label "reproduction" is of Flatford Mill. No doubt this will confirm the foreigner's conviction that our English Constables are wonderful.

STRING IS HERE AGAIN

Incidentally, some readers may have noticed that one of the features of the early London bus is returning. I refer to that length of string which, when pulled, brings the vehicle to a halt. How much more useful this must be to a harassed conductor on a crowded bus than the small red bell-push. And doesn't it remind us how much the public has lost since mid-century streamlining began to hide the function of the machine? Admittedly nobody knows quite what happens beyond the little hole through which the string passes to the driver's cabin. Perhaps it yanks out a vital piece of mechanism when pulled. Or it may even bring a weight down smartly upon the driver's knee-cap. But whatever it does it has the reassuring appearance of something that will work in an emergency. And it is as pleasingly functional in appearance as anything designed by the late Heath Robinson.

The Festival of Britain exhibition buses, which are to show Western Europe something of the British way of life, on view on Horse Guards Parade last week. (*See note.*)

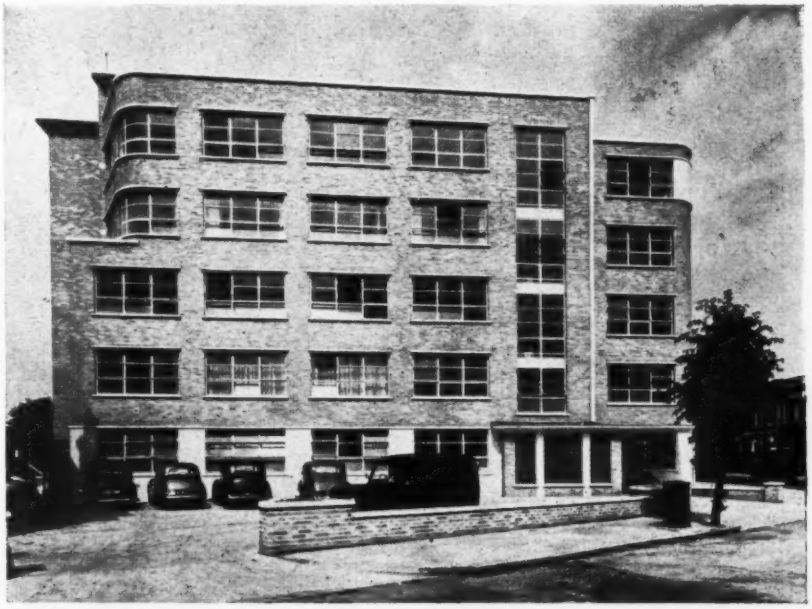
MORE ABOUT THE LESSOR SCHEME

Credit where credit is due. I have had some pretty strong things to say recently about the design of the office blocks put up for Government occupation under the Ministry of Works' Lessor Scheme. So when I come across one that is much less clumsy than most of them, and is at least without pretentious classical trimmings, I feel it is only fair to draw attention to it. The decent, workmanlike building I illustrate is called Woodgrange House and has recently been completed near Ealing Common station. The architect was Peter Caspari.

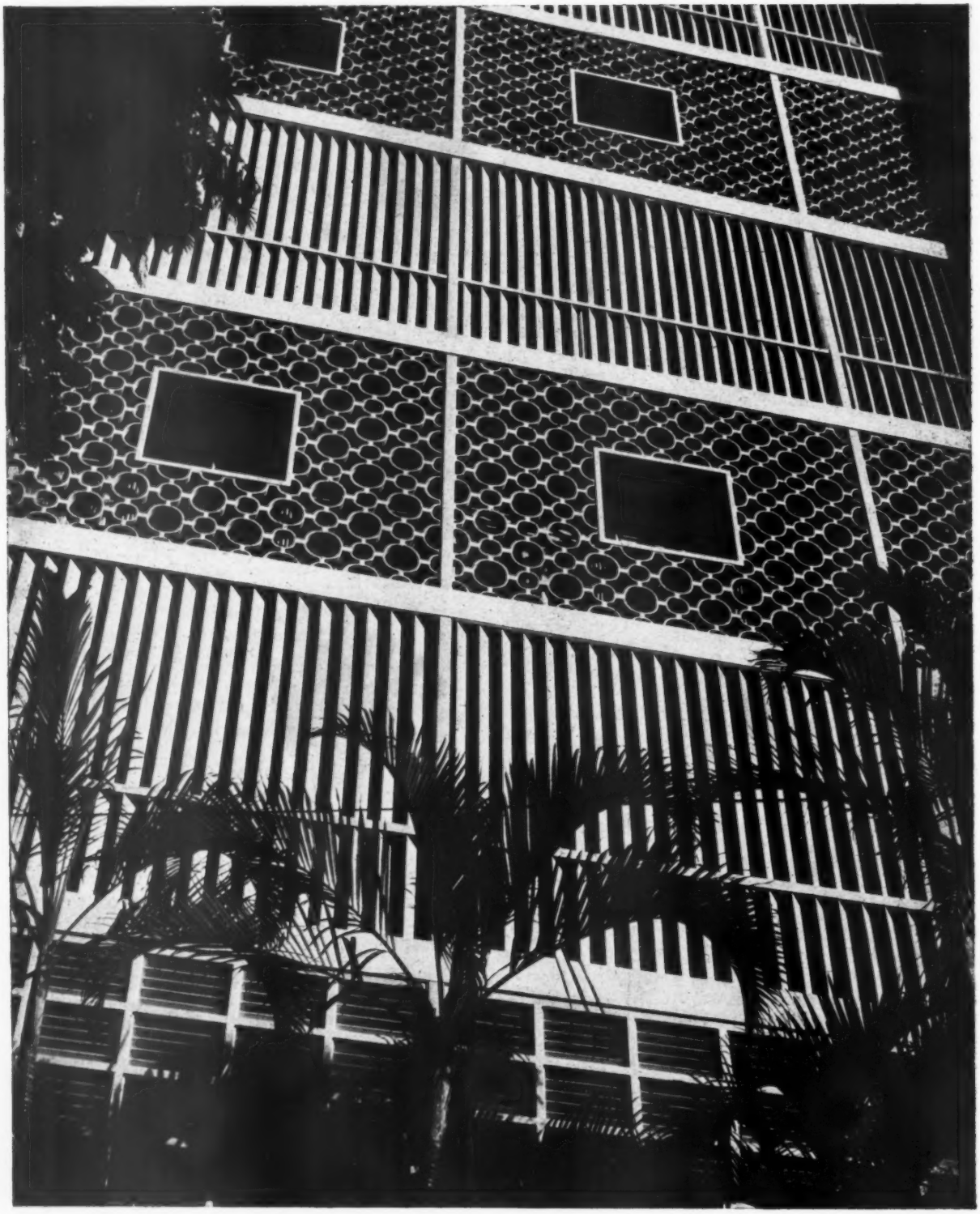
It must not be forgotten, however, that the criticism of the Lessor Scheme buildings was based on many things besides their æsthetic shortcomings. I don't know enough about local conditions to be able to say whether the Ealing building is well sited from the town-planning point of view. But assuming that it is, and granted a very respectable design, my strictures on the whole handling of the Lessor Scheme and the lost opportunity of planning comprehensively the required new Government office accommodation are still in no way affected.

*

There is one aspect of the scheme which has not, I think, been sufficiently stressed: the wastefulness, to say



An office block built in Ealing under the Lessor Scheme. (*See note.*)



New Flats at Rio

Brazilian architects seem to be able to produce a never-ending flow of new motifs and effects, especially those derived from elaboration of the *brise-soleil*. This photograph shows the pattern formed by vertical *brise-soleil* and open ceramic grilles on alternate floors of a new block of flats at Rio de Janeiro. It is one of three blocks designed by Lucio Costa, and forms part of a scheme comprising six. The remaining three blocks are to be designed by Oscar Niemeyer. The scheme was commissioned by the heirs of Eduardo Guinle, who decided that the elegant park their ancestor had completed in 1916, and to which he gave his name, should be used as the site for a residential quarter in which modern principles of architecture and town planning could be put into practice. The scheme is described and illustrated in the August issue of *The Architectural Review*.

nothing of the senselessness, of merely agreeing to lease so many square feet of office space in different parts of London without specifying, until after each building has been designed, which Government Department is going to occupy it. This not only means considerable shifting round of partitions at an inconveniently late stage when the particular occupants are at last allocated, but it makes it much less likely that the occupants will get a building suited to their special needs.

*

A case in point is the British Council, who have just moved into one of the Lessor Scheme buildings that the JOURNAL criticized earlier—St. Anselm's House, Davies Street, just off Oxford Street. Now one of the chief functions of the British Council is to depict Britain in a favourable light to foreigners. Surely of all Government institutions they should be housed with the greatest care so that their building constitutes a splendid advertisement, to the many distinguished foreigners who visit them, of what Britain can do in the way of architecture.

*

The British Council headquarters should be designed to suggest that Britain is a progressive, artistically alert nation. What will visitors now think as they walk in at the monumental stone doorway of the Davies Street building, with its clumsy classical entablature and Georgian-style superstructure: that British culture consists of a harking back to a travesty of the eighteenth century?

*

I am sure that the British Council themselves would have welcomed something very different. But as far as I can learn they were neither given any say in the appointment of the architect for their building nor any opportunity of consulting with the architect appointed to design it before he started work. Is this what the Government means by planning?

WITHOUT COMMENT

"BARGAIN.—BUILDING PLOT, unique estate, South Downs, sea view; no development charge; plans passed; all services; £595, or best offer, including architect's plans and fencing."—From an advertisement in *The Times*.

ASTRAGAL

The Editors

THE CARE OF OLD BUILDINGS

THE recently published report of the Gowers Committee on Houses of Outstanding Historic or Architectural Interest pointed out that there is a scarcity of architects qualified to give advice on the care of old buildings. Without such architects, the suggested Historic Buildings Council would not be able to fulfil its purpose, so the question arises : where could they best be obtained ? The MOW has trained some architects through the practical work of its Ancient Monuments Department. But this method is not likely to produce the number of experts which may be required in the future.

It is clearly the main function of the ordinary schools of architecture to help their students to develop an understanding of the formal and functional needs of a contemporary architecture, and for this purpose elaborate historical and antiquarian studies—especially on the technical side—are not only unnecessary, but may even constitute an embarrassment. There is, however, one school that seems eminently suited to the task of training what, for lack of a better term, might be called antiquarian architects—the Royal Academy School of Architecture. The Academy, as its name suggests, has the right air of scholarly interest in our architectural traditions. It has so far failed to attract the post-graduate students for which it is intended. Would not a greater interest be shown in the school if it no longer claimed to be part of the educational scheme for contemporary architecture ? Professor Richardson would surely enjoy training students who were willing to immerse themselves in his favourite period without glancing enviously at those who were concentrating on problems of today.

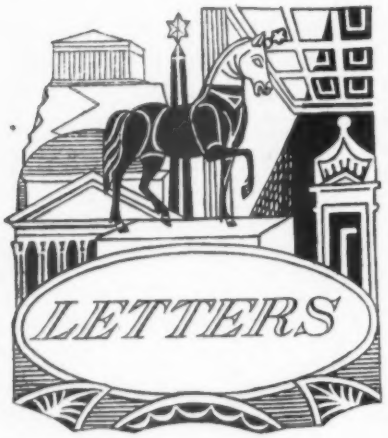
A two-year course at the Royal Academy after, possibly, three years at an ordinary school of architecture to obtain the basic technical knowledge, would prepare the student for the specialised training needed, which the Gowers Committee suggested might be arranged in conjunction with the RIBA.

Technical Editor

INTERMITTENT HEATING

In our issue of July 27 we published an article on whole-house heating, and called attention, in our editorial, to the possible effects of this new method of heating on the way of living of the occupants of the house. This week we present another aspect of the complex problem of house-heating in the form of an article by S. F. Newcombe. This sets out certain factors bearing on heating comfort and heating economy which have not yet been fully explored. So far as the structural requirements of housing are concerned, the emphasis from the point of view of heating has been placed on thermal insulation (U value) and working standards have been recommended in official publications. S. F. Newcombe points out that where heating is intermittent, as is usually the case in the British house, the rate at which the surfaces warm up is at least as important as structural requirements. This factor of

the heating problem was investigated by Dufton at BRS before the war and we must wait with impatience for the final assessment based on method of use, method of heating, heating insulation of the structure, and readiness of warming up of the structure.



G. V. Yates
"Northerner"
C. P. Andren
A. C. Powell
S. E. Hall

Architects' Salaries

SIR,—I am not surprised at the tone of "Country Architect's" letter (July 20), as it is typical of those architects who moan about the loss to the profession of the fees from jobs submitted by "unqualified" persons.

Why is it always assumed that "bad buildings" must result?

Often these people have far more knowledge and aptitude in assessing what local authorities and clients require in the way of domestic building, both new and alterations and extension jobs, than these architects who until recently have looked down their nose at this class of work.

I do not agree with the solutions put forward by "Country Architect" and offer the following:—

1. Permit the architect to advertise (perhaps only in local newspapers). The average person requiring, say, a small house is often not aware that there is such a thing as an architect.

2. The person requiring a bungalow of about 1,000 ft. floor area considers that £50 to £75 is far too much to pay for the architect's service. So there should be a revised scale of fees for the "small" type of domestic work, with, say, a set fee based on the floor area.

3. A panel of architects willing to cater for this work should be submitted to local authorities to assist would-be clients, who often seek advice from local officials.

These proposals will not meet with general approval, but it is of little use bewailing the loss of these "bread and butter guineas" if nothing is done to attract them.

G. V. YATES.

Bucks.

Housing and the Municipal Engineers

SIR,—I think all intelligent people will agree with Leonard C. Howitt's letter in your issue of July 20 under the above heading, and will deplore the fact that there are still far too many cities and boroughs in this country where the architectural work remains the responsibility of an unqualified official.

I have recently visited a number of municipal housing estates and found it abundantly evident that the schemes undertaken by qualified architects are in every way superior to the efforts of engineers and surveyors, even with the help of qualified assistance in some cases. Many of the attempts of engineers might prove to be of some use if they were illustrated as examples of how *not* to design housing. Their inability adequately to interpret the suggestions and guidance offered in the Housing Manual, published by the Ministry of Health, is proof of the paucity of their understanding of the subject. It is really pitiful to see so many cases where great opportunities have been lost or wasted through inexperience, inefficiency and incompetence.

NORTHERNER.

London's Traffic Problem

SIR,—Those of your readers who are familiar with the late R. B. Hounsfield's work on the engineering aspects of the transport problem of London will have noted with interest the resemblance between his tentative suggestions for new roads in the central area and Bertram Carter's proposals put forward in your issue of July 13.

Mr. Hounsfield believed that there is some confusion of thought over the degree of necessity for road improvements in London. Some think that only minor improvements are needed; others that the demand for improvements is so enormous that it can never be met and that the only possible solution is to allow the present congestion to cripple the growth of more traffic. He maintained that the truth lies between these two extremes, that minor street improvements alone would be totally inadequate, but major new work would not have to be on an unlimited scale to solve the worst of the traffic problem. Mr. Hounsfield believed that there is a foreseeable and reasonably finite demand for road transport in London and put forward a method of measuring it.

The network which he advocated for the central area did not evolve from any preconceived road pattern, but sprang from the engineer's notion of assessing the loads to be carried and inserting a framework calculated to bear them in safety.

The fact that the general shape of this frame and its position on the map of London has so many points in common with Mr. Carter's plan is all the more remarkable when one remembers the two very dissimilar methods of approach to the problem. Mr. Hounsfield's network is intended to have outlets to the existing road system at frequent intervals (about ¼ mile apart in the central area). This would enable each section completed to play its part in alleviating congestion in its own neighbourhood; even though construction of the whole might have to be spread over a very long period for economic reasons. Thus a comparatively small yearly expenditure would bring immediate benefit to the community and make proposals for new toll roads, as advocated in your editorial, unnecessary.

C. P. ANDREN.

London.

Successful Insulation

SIR,—In your issue of July 20 Astragal, commenting on the Powell and Moya Chichester houses, in one of which I live, is justified in saying that during last winter we were "quite snug." He asks whether the houses will be too hot in summer. Looking back on a series of days last May with temperatures of over 80 degrees, I can answer that question: we were exceptionally cool. All seasons prove the insulation to be first-class.

A. C. POWELL.

Chichester.

Foreign Architects as Teachers

SIR,—My attention has been drawn to Astragal's note on the AA School of Architecture's "enterprise" in employing foreign architects as teaching staff.

It may be of interest that the Department of Architecture in this school has at present on its teaching staff both a Swiss and Canadian architect, and it is intended to invite another continental architect to join the staff next session.

S. E. HALL,
Registrar, Kingston School of Art.

The EDITORS reserve the right to shorten letters from readers. Whenever possible, however, they are published in full.

MOW

Review of Building Industry Reports

Since the Reports of the Working Party on the Building Industry and of the Anglo-American Productivity Team were published, the Minister of Works has held a series of discussions with his National Consultative Council with a view to deciding what steps should be taken to give effect to the recommendations. The Council have now completed their review of the Reports and action has been initiated on a number of recommendations. The position reached following the meeting of the Council on July 21 is as follows:—

Controls: Control has been removed from the allocation of structural steel. Relaxations of the Town and Country Planning controls have been announced by the Minister of Town and Country Planning. In

order to assist in pre-planning and allow more time for the preparation of drawings, the building licensing control has been modified so that the period within which licensed work must be started is not now limited to two months from the date of the licence.

Departmental responsibility for building programme: It has been decided that in present circumstances there is nothing to be gained by alteration of the programming arrangements. *Building research*: With the transfer of responsibility for sociological and economic research in building to the DSIR, almost all aspects of building research are now concentrated in DSIR. The arrangements for securing the association of the building industry with research have been examined and established on what it is believed will prove a satisfactory basis.

Technical advice on building to Government Departments: It has been agreed in principle that the MOW should be responsible for pooling technical information on building between Government Departments, in addition to disseminating technical information and the results of building research and development to the industry and professions. *Building Byelaws*: Discussions have begun between the industry, the professions, the MOH and the MOW about the standardization of byelaws and of their operation.

Standard forms of contract: The Departments which have not adopted uniform practice carry out building work of a minor nature and negligible volume, but they are being approached with a view to their adopting a standard form of contract. *Registration in plumbing and electrical trades*: Proposals put forward by the plumbing trade about the future form of registration in the trade are being discussed with them by the MOW. Similar discussions are being arranged for electrical contracting.

Costing; programming and progressing: The NFBTE is preparing for general publication a booklet on costing systems, and has appointed a firm of accountants to act as advisers on costing systems to the Federation. The MOW has prepared a booklet on programming and progressing, and popular leaflets both on costing and on programming and progressing, in agreement with the professions and the industry. All these documents are going forward for printing and publication, if possible, in September.

Mechanical aids: The Contractors' Plant Association has drawn the attention of its members to the recommendations of the Working Party (and the Productivity Team) about the increased use of mechanical aids by builders and to the part which plant hirers can play in this field. The MOW continues to urge the extended use of mechanical aids by publicity measures; the largest plant demonstration of its kind yet arranged was held in June at Warwick, and resulted in the placing of substantial orders for mechanical equipment. A similar event will take place in September as part of the Leeds Building Week. The MOW is negotiating with the BEA about making electric power more easily available on building sites.

Higher training for management; Indenturing of Apprentices; Increased flexibility of craft training: The BATC has already devoted a great deal of attention to these subjects. On higher training for management it is examining the possibility of establishing further degree courses at Universities as well as "graduate apprenticeships," and has suggested that the larger firms might give a lead to enable graduates and holders of the higher national diplomas to receive practical training for management. The Council is also looking into the question of the wider employment of holders of the higher national certificate in supervisory posts. The Council has made a fresh approach to the industry with a view to a higher degree of indenturing of apprentices and increased flexibility of craft training. *Professional training; Pre-planning*: The RIBA is making a special study of the means by which architectural students may secure practical training, especially on sites, and is considering the extension of practical training from one to two years. Measures for encouraging pre-planning are being examined. *Management of building operations*: The RIBA is discussing with the NFBTE ways of securing more effective management of building operations. *Professional status of Quantity Surveyors*: The RICS is discussing with the NFBTE the suggestion that the Institution's rules should be modified so as to enable Surveyors employed by contracting firms to achieve or maintain professional status. *Incentives; Joint Production Committees*: Meetings on these subjects have taken place between employers' and operatives' organisations in the building industry, and the negotiations are being pressed forward as rapidly as possible. The organisations are keeping the Minister of Works informed of the progress of the negotiations. *Supplies of Building Materials*: The Government has given careful consideration to the observations in both reports on the need for maintaining a steady flow of building materials. Many of the post-war shortages of building materials have been overcome. It is the intention of the Government to see that a steady supply of building materials is provided to meet the needs of the building programme. The future position with regard to timber is improving and the Government is trying to ensure that during the whole of the coming year stocks will be kept higher than in recent months. Cement is being distributed at the rate of 170,000 tons a week which is much above the 1949 figure, and with new plant coming into production the shortages felt should disappear. With the housing programme fixed at 200,000 houses a year for three years and with a steady general building programme, sufficient assurance is given to brickworks to provide greater supplies to meet this programme.

RIBA

Rome Scholarship in Architecture

The Faculty of Architecture of the British School at Rome have awarded the Rome Scholarship in Architecture for 1950 to Edward Carter (student, RIBA) of the School of Architecture, King's College, Newcastle-upon-Tyne (University of Durham).

Mr. Carter, who is 25 years of age, served for three years in the RAF and has just completed his architectural course at Newcastle.

Vice-President Elected

At the meeting of the RIBA Council held on July 25 Frederick Gibberd was elected a vice-president of the RIBA.

OBITUARY

George P. Sheridan

We regret to announce the death of George P. Sheridan in Dublin at the age of 87. He was one of the best known architects in Ireland. For several years he worked in London, and in 1895 he started a practice in Dublin. He was elected a Fellow of the Royal Institute of Architects, Ireland, in 1906, and from 1923 to 1925 was president of the Institute.

LMBA

Opportunities for Builders in Canada

Ian Murray Leslie, Editor of *The Builder*, who has returned from a tour of investigation into building opportunities in Canada, told members of the LMBA, at their half-yearly meeting, held in London recently, that there were great chances for builders in Canada, especially for those who were young enough to adapt themselves to Canadian customs.

Canada, he said, was a land of opportunity with a tremendous future. It stood largely where the United States stood at the turn of the century, with its natural resources hardly tapped. At present there was a great lack of experienced foremen and agents in that country. Many of the great industrial developments were being backed and organized by American interests, and for obvious reasons there could hardly be openings in these fields for United Kingdom contractors. But in normal contract building there were opportunities. One builder had $14,000,000 worth of contracts in hand, and this in a city of 140,000.

Referring to housing, Mr. Leslie said that the advantages of large-scale estate development did not seem to be fully appreciated. The demand was there, and costs could be cut. From a national point of view, the advantages of development by United Kingdom builders who knew the qualities of United Kingdom materials could be invaluable, though due attention to technique was necessary in a country in which temperatures ranged between 90 degrees in summer to 40 below zero in winter.

MOH

Housing Medal Awards

The awards of medals and diplomas offered by the Minister of Health for the best-designed local authority urban and rural housing estates, in England and Wales, submitted up to December 31, 1949, have now been completed on the recommendations of Regional Awards Committees. The scheme, which has had the support of the RIBA, has been introduced with the idea of encouraging a high standard of house design and estate planning among local authorities, and offering recognition to outstanding examples.

The awards—outside London for urban and rural schemes, and in the London Region for schemes of new development and reconstruction—are given below. The name of the housing scheme is preceded by the name of the local authority and followed by that of the architect.

Northern: Whitby UDC, Ropery and Green Lane, Edward Berks Norris, of Peacock and Bewlay, Birmingham; Brandon and Byshottles UDC, Esh Winning, Fred Hedley, Architect to the Council; Alnwick RDC, Hipsburn, Lesbury, Reavell and Cahill, Lloyds Bank Chambers, Alnwick; Bellingham RDC, Bellingham, Dixon & Son, Newcastle-on-Tyne.

East and West Riding: Leeds County BC, Ireland Wood Estate, Cookridge, Richard Alfred Hardwick Livett, City Architect, Leeds; Ripon and Pateley Bridge RDC, Bishop Monckton, Charles William Cashmore Needham, 6, High Petergate, York.

North Midland: Shardlow RDC, Breadsall Hill Top, Thorpe and Partners, 23, St. James' Street, Derby; Billesdon RDC, Hungarton, Cyril Keay, 6, Millstone Lane, Leicester; Northampton CBC, Dallington Fields, John Lewis Womersley, Borough Architect, Northampton; Melton Mowbray UDC, Asfordby Road and Nottingham Road, Clifford Ewart Culpin, 3, Southampton Place, W.C.1.

Eastern: Luton RDC, Houghton Regis, Peter Browning Dunham, 42-44, Hastings Street, Luton; Loddon RDC, Windmill Green, Ditchingham, Tayler and Green, 10, North Parade, Lowestoft; Ipswich CBC, Rushmere Hall Farm, John Bolam Storey, Borough Engineer and Surveyor, Ipswich; Downham Market UDC, Retreat, Peter

ERNST MAY VISITS LONDON

Ernst May, who was one of the leading German architects of pre-Nazi days and who now practises in East Africa, visited London last week with the intention of inspecting buildings erected since he was last in this country. He is seen above looking at the Powell and Moya flats at Pimlico, where he was taken by a JOURNAL *representative. He was impressed by this example of British post-war housing, in spite of his aversion to one of the colours used—grass green. But it was not only the post-war buildings that he looked at, for he had not been in Britain since* 1926, *and was particularly interested in such well-established schemes as Wells Coates's flats in Palace Gate, Sir Owen Williams's health centre at Peckham and Tecton's flats at Highpoint. He spoke with great enthusiasm about his own work in East Africa, where he has five English assistants. Among the schemes on which he is working is a town plan for Ginja, on the Nile. This town should provide employment for* 100,000 *people when the hydro-electric power station in the area has been completed. Ernst May is also working on the extension plan of Kampala, capital of Uganda, and, on a more domestic scale, on nine blocks of four-storey flats* (180 *in all) at Nairobi, which are to be raised from the ground as a means of preventing large quantities of dust from entering the buildings. During his visit, which terminated at the beginning of this week, when he left for his native Frankfurt-am-Main, Ernst May gave a talk at the AA arranged by the Mars Group.*

Bicknell, of Hughes & Bicknell, 1, Tunwells Court, Cambridge.

London: Banstead UDC, Horsecroft Meadow, Arthur William Kenyon, 15, Adeline Place, W.C.1; Hampstead Metropolitan BC, The Wells House, Well Walk, Charles Holloway James, 5, Bloomsbury Street, W.C.1; St. Pancras MBC, St. Pancras Way, Graham Richards Dawbarn, 5, Gower Street, W.C.1.

Southern: Abingdon BC, Fitzharris Farm, Frank Russell Cox, Blanket Hall, Witney; Beaconsfield UDC, Orchard Road, Charles Herbert Watson and Harry Desmond Hall, Lloyds Bank Chambers, Beaconsfield; Witney RDC, Asthall, Peter Browning Dunham, 42-44, Hastings Street, Luton.

South Western: Minehead UDC, Quarry Close, Edwin Gunn, Delabole Cottage, The Ball, Minehead; Westbury UDC, Oldfield Park, George Blair Imrie, Teffont Magna, Salisbury; Warminster and Westbury RDC, Stockton, George Blair Imrie, Teffont Magna, Salisbury.

Midland: Coventry County BC, Monks Park, Donald Evelyn Edward Gibson, City Architect, Coventry; Pershore RDC, Great Comberton, Thomas Robert Bateman, of Pemberton & Bateman, 21, Vine Street, Evesham.

North Western: Birkenhead County BC, Woodchurch Estate, Herbert James Rowse, Martins Bank Building, Liverpool, 2; Disley RDC, Bentside, William Cecil Young, 195, Oxford Road, Manchester; Bollington UDC, Bollington Cross, William Dobson Chapman and Bernard Taylor, Jordangate, Macclesfield (*joint award*); Blackburn RDC, Billington Gardens, The Grenfell Baines Group, 12-24, Guildhall Street, Preston.

South Eastern: Lydd BC, The Green, Clifford Edward Culpin, 3, Southampton Place, W.C.1; Worthing BC, Barrington Road, Charles Cowles-Voysey, 2, Bunkers Hill, N.W.11; Hollingbourn RDC, Forge Meadow Headcorn, Albert Lawrence Farman, 258, Upper Richmond Road, S.W.14; Chichester RDC, Chidham, Jacob Kane Lawson, Surveyor to Council.

Wales: Llanrwst UDC, Caer Felin, Sidney Colwyn Foulkes, Merton Place, Colwyn Bay; Wrexham RDC, Dee Park Holt, David Edward Edwards, Engineer & Surveyor to Council, Wrexham.

All post-war schemes completed by the end of 1949 were eligible and over 450 entries were submitted to Regional Awards Committees, which consisted of nominees of the RIBA, local architectural societies, the local authorities associations and the MOH. The Minister of Health will present the medals and diplomas at the RIBA in September.

DIARY

Exhibition of Competition Designs for Rome Scholarship of Architecture. At RIBA, 66, Portland Place, W.1 Daily 10 a.m. to 5.30 p.m., excluding Saturday and Sunday.

UNTIL AUGUST 5

Exhibitions of Handpainted Tapestries and Small Sculpture. Colour, Design and Style Centre, 19, York Street, Manchester 2. (Sponsor, The Cotton Board).

UNTIL AUG. 19

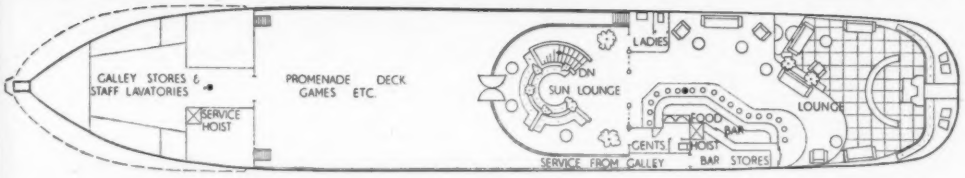
Metropolitan Boroughs' Housing Schemes. Layouts, plans and photographs of recently completed housing schemes built for some of the Metropolitan Borough Councils. At 13, Suffolk Street, S.W.1. Daily 10 a.m.-5.30 p.m.; Saturdays, 10 a.m.-12 noon.

UNTIL SEPT. 15

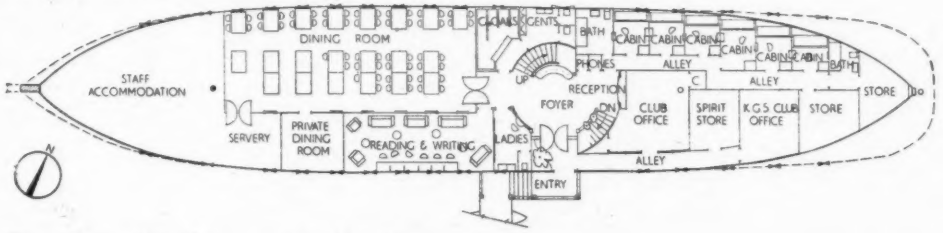
TDA Instructors Course. Cambridge.

AUG. 19-26

THE "CARRICK": AN RNVR CLUB ON THE RIVER CLYDE, GLASGOW



The upper deck plan



The entrance deck plan [Scale: $\frac{1}{8}$"=1'0"]

The "Carrick," which has been converted for use as a RNVR Club by W. A. Gladstone, was one of the first ships to be built of timber and steel. The ship was the gift of the Admiralty and various firms contributed to the expense of conversion. Above left, the lounge; above centre, the bar; above right, the entrance hall. A list of contractors appears on page 126.

This feature covers aspects of legislation, parliamentary news or statutory rules and regulations which are of special significance to the architectural profession.

ERNEST WATKINS

The Architect and Current Affairs

The case of *Cunliffe* v. *Goodman*, decided last month, should be of considerable interest to architects, for two reasons. It illustrates the complexity of the Landlord and Tenant Act, 1927, and it is also a reminder of the way in which an architect, in the course of his own negotiations on behalf of a client, may himself influence the rights and liabilities of his client.

Under Section 18 of the Landlord and Tenant Act, 1927, a landlord may not recover damages under a covenant to leave premises in repair at the end of a lease if it is shown that the premises would be pulled down at the termination of the lease or shortly afterwards. In ordinary English, that sounds a straightforward proposition. In fact, it is not. True, if the premises are in fact pulled down, the position is clear enough. But, if they should be standing a month or so after the end of the lease, how can the former lessee "show" that the landlord intends to demolish them? If the landlord is hoping to recover the cost of repairs under the lease, he is hardly likely to assist the former lessee by any display of intention to demolish. In any case it is never easy to prove in a court of law what is the state of a person's intentions at any given moment: it is hard enough, sometimes, for the man concerned to remember what they were. In the case in question, the evidence on which the court reached its conclusions consisted almost entirely of all the correspondence in the case, including the correspondence which had passed between the landlord and her architect.

The tenancy of the premises concerned had come to an end in November, 1945. In the previous June, the landlord had consulted an architect and requested him to prepare a scheme for the redevelopment of the land by erecting a block of flats or maisonettes. This the architect did and in the following August (before the end of the tenancy) his scheme, for the erection of a block of six flats, was in sufficient detail for submission to the London County Council as planning authority. From there the scheme ran into the kind of difficulties that everyone knows so well. The LCC required modifications. The Hammersmith borough council came into the picture as the authority issuing building licences. There were difficulties over finance and, by the following May, the landlord had become nervous about the whole project and finally withdrew the instructions from the architect. In that particular case, on that set of facts, the Court of Appeal decided that there had been no firm intention on the landlord's part to demolish the existing building.

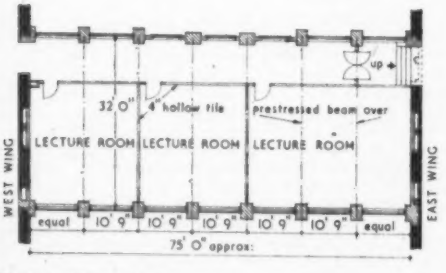
The case emphasizes these two general points: first, it is very difficult for a tenant, particularly today, to prove that his former landlord has an intention to pull down a building, for the landlord's intentions are bound to be conditioned by uncertainties over the grant of the various permissions that will be required. That may be an argument for the amending of the 1927 Act. The second point is that it may well be that the actions of the landlord's architect, in these circumstances, become part of the evidence of his client's intentions as to the future of the building. It is clearly the duty of the architect to find out exactly what his client's intentions are and to see that all his negotiations and all his correspondence conform exactly to those intentions. An architect is agent for an owner and he might be held liable in damages if, by his disregard of the instructions given, he jeopardized his client's legal position under the Act.

Another case of professional interest came before the Court of Criminal Appeal recently. An architect had been prosecuted and fined for a breach of the building regulations. It was alleged that he had allowed work to be done on a site in excess of that allowed by the licence. In fact, the architect was building his own house and had been working on the site at week-ends; that, he said, accounted for the additional work done. It was also admitted that the Ministry's circular (104/48), confirming that such work was not to be taken into account, had not been brought to the notice of the Court that imposed the fine. The Court of Criminal Appeal discharged the fine and gave the architect an absolute discharge.

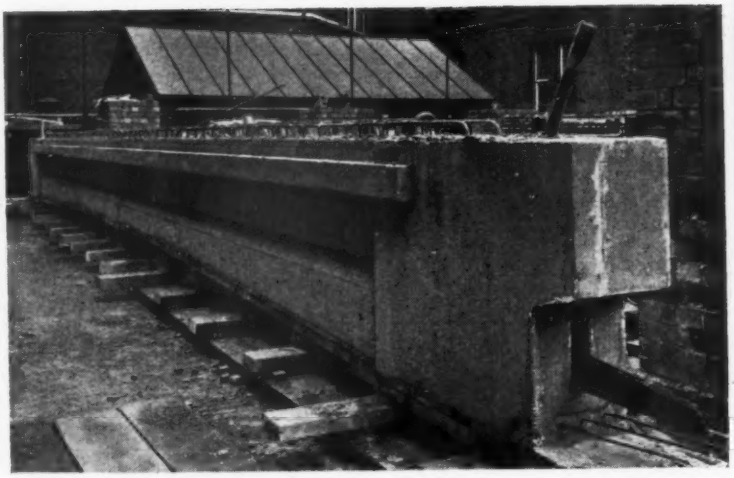
It is surely intolerable when one authority prosecutes a person for acts which another authority has said are not offences at all. Can any Ministry believe that any aspect of building control, let alone of justice, is helped by this kind of red-taped watertightness?

EXTENSION TO QUEEN MARY COLLEGE, LONDON

This extension, designed by dward Playne, consists of a four-storey block with basement, and connects the east and west wings of the main building which is situated in Mile End Road, E.1. It is the first building in the London area to use prestressed concrete for main structural members. The span was not great enough to enable prestressing to substantially lower the cost, but there was a 60% saving in steel and a further 15% has been saved by the use of brick load-bearing piers upon which the main beams are simply supported. The floors are designed to carry a superimposed load of 100 lb./sq. ft., exclusive of partitions and finishes. The main beams, each weighing 4½ tons, span 33 ft. 6 in. and are prestressed by the Magnel/Blaton system of post-tensioning. They were cast on the site, on the floor below their final position, the mix being 1 : 1½ : 3. The "cable" consists of forty-eight 0·2 in. dia. high tensile drawn steel wires. The tension of 120,000 lb. applied to the wires is maintained by a special wedging device and transferred to the beams by means of distributing plates at each end, exerting a compressive stress on the concrete of 2,000 lb./sq. in. The floors and roof consist of precast, prestressed concrete ribs at 1 ft. 1½ in. centres, spanning the 10 ft. 6 in. between the main beams and supporting hollow blocks of lightweight concrete. The ribs are 5¾ in. deep, I-shaped in section and prestressed with nine 12-gauge wires. All the prestressed members have been designed on the "combined" principle, i.e., they depend on the adjacent in situ concrete to assist in taking the compressive stress, and are therefore propped until the in situ concrete has hardened. The edge beams between the piers are in traditional reinforced concrete. The general contractors are Dove Brothers Ltd. Sub-contractors; page 126.



Typical floor plan.

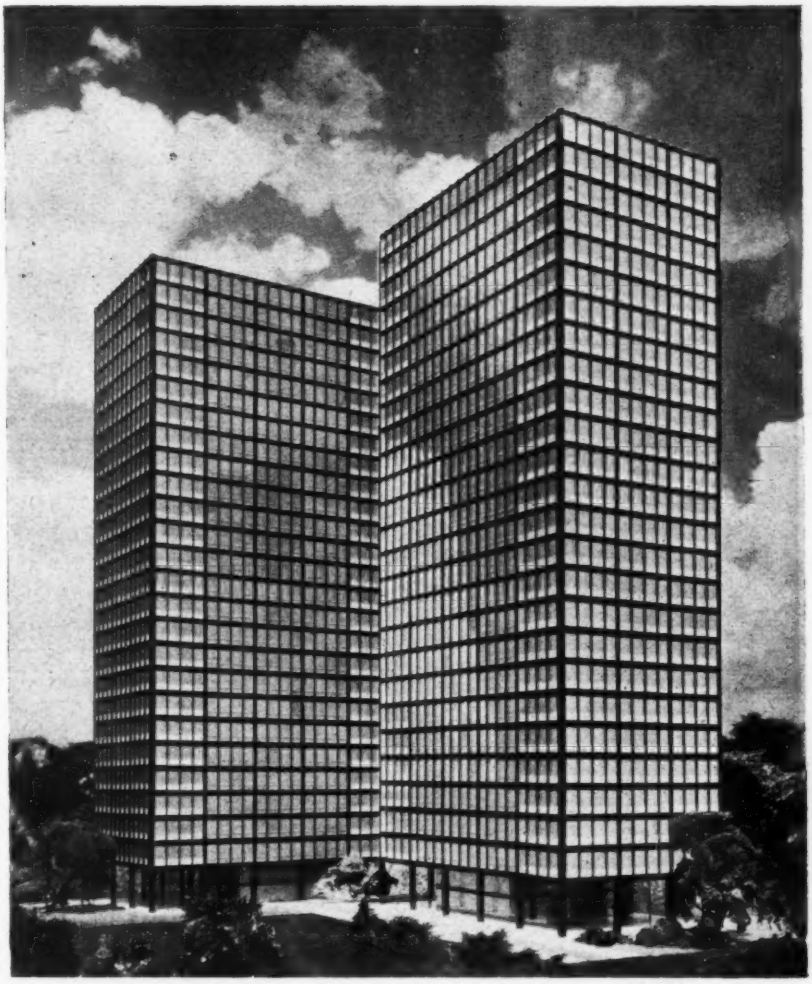


Typical main beam prior to prestressing.

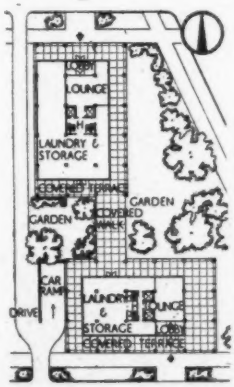
Laying precast ribs and hollow block floor.

Completed floor, before removal of props.

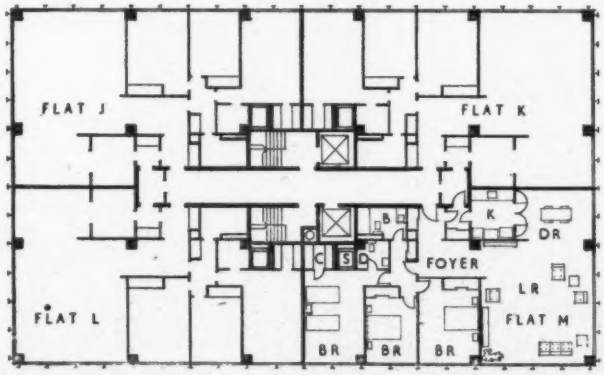
FLATS BY MIES VAN ROHE IN CHICAGO, USA



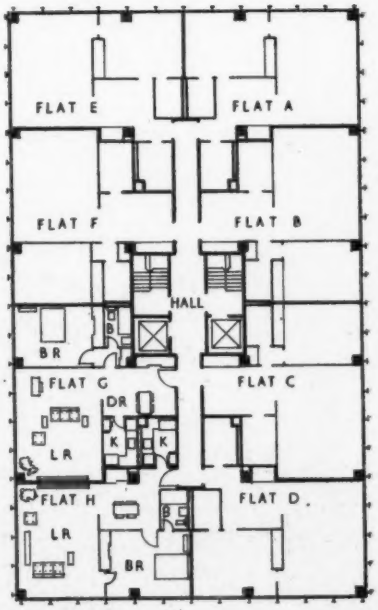
These flats, which are being built in Chicago, were designed by Ludwig Mies van der Rohe (above). The model, right, has recently been on view at the Museum of Modern Art in New York. When completed the two blocks will each be 25 storeys high. The frame of each building is of steel. Exterior walls are of glass from floor to ceiling level. Window frames are of aluminium. Each window is divided into two halves, the lower half opening like a hopper and the upper half opening on a central horizontal pivot and rotating completely. Lifts and staircases are in the centre of each block, giving access to four or eight flats on each floor. Provision has been made to park 100 cars below ground. Electric laundries and frozen food lockers are on the ground floor. Radiant heaters are built into ceilings and are thermostatically controlled. All kitchen equipment is run by electricity. A forced air exhaust provides automatic ventilation for the kitchen and bathroom. Steel cupboards are provided in the kitchen and built-in wardrobes in the bedrooms. Above is a view of the model of the two blocks from the north-east.



Site plan



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



South block

LABORATORIES

at HÖGANÄS, SWEDEN
designed by AHRBOM and ZIMDAHL

The research carried out by the parent company of the Höganäs industries in their new laboratories near Hälsingborg is based on the coal from the coalfields in Scania, which is stratified with clays of different types. The products of the subsidiary firms include floor and wall tiles, refractory and acid-proof bricks, glazed earthenware, sponge iron, grinding wheels, etc.

The south-east facade.

GENERAL.—The laboratory work of Höganäs was formerly carried on in an old and out-of-date building. Plans for the present structure were finalised in 1944. The management co-operated with scientists and a firm of architects which had a special knowledge of laboratory work. It was decided to divide the laboratory into the following departments: (*a*) the research department; (*b*) analysis and control laboratory; (*c*) administration rooms and library; (*d*) pilot plant for experimental production on a small scale. The ceramic research department investigates fireproof and acid-proof materials and geological prospecting; the metallurgical research department is responsible for the development of sponge iron and iron powder; the abrasives research department deals with the problems of grinding, abrasive paper and cloth and fine ceramics; the chemical research department is concerned with the improvement of synthetic tanning agents and wood preservatives.

PLAN.—As far as possible the physical laboratories, particularly those used for routine testing, have been located on the ground floor. The chemical laboratories are on the first floor. Sensitive physical instruments are therefore placed where they will be least affected by vibration, and it has been possible to arrange ventilation economically with the use of short vertical ducts.

CONSTRUCTION.—The outer bearing walls are of brick with a 2½-in. cavity. The main partition wall, which is centrally placed, is made up of two walls, each one brick in thickness. A cavity of 23½ in. forms a shaft for vertical pipes. Groundplates and foundation walls are of concrete. The basement ceiling has a continuous concrete plate resting on visible concrete beams with a permissible load varying from 50 to 100 lb. per sq. ft., excluding partition walls. The beams over the ground floor are massive concrete plates with trenches for pipes and cables. The roof is constructed of light 4-in. concrete plates and is intended for open-air experimental work. The main circular staircase is supported by cantilevers welded to iron stanchions outside the staircase well. The pilot plant has a concrete frame with a floor of vibrated concrete over a 20-in. layer of ash-concrete laid direct on to the earth.

FINISHES.—Certain bricks on the face of the building are set back 0·39 in. from the face. Their ends have been dipped in asphalt; thus a pattern is formed. Alternate bricks have smooth and rough sides facing outwards. This gives variety to the appearance. The laboratory windows are centrally pivotted at the sides and double glazed,

The upper hall and main staircase.

The pilot plant hall.

LABORATORIES

at HÖGANÄS, SWEDEN

designed by AHRBOM and ZIMDAHL

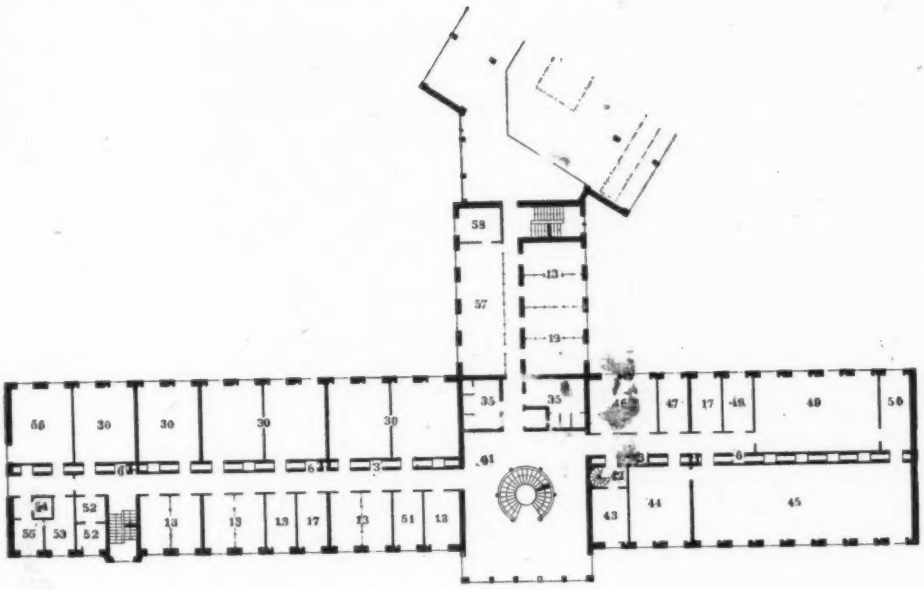
Above, the reference library on the second floor. Right, the main entrance in the centre of the south-east facade. Below, the conference room on the second floor.

with venetian blinds between the two sheets of glass. Floors: offices, library, research laboratories and living quarters—oak; hall, corridors and staircase—brown wet-pressed tiles; testing laboratories, medical department and cloakrooms—yellow dry-pressed tiles; pilot plant—concrete. The walls and ceilings are generally grouted. The walls of the hall are stippled. In the pilot plant they are of specially made yellow bricks. The ceiling here is of whitewashed concrete. The office walls are distempered buff. The woodwork of the glass partitions and exposed ironwork is painted blue.

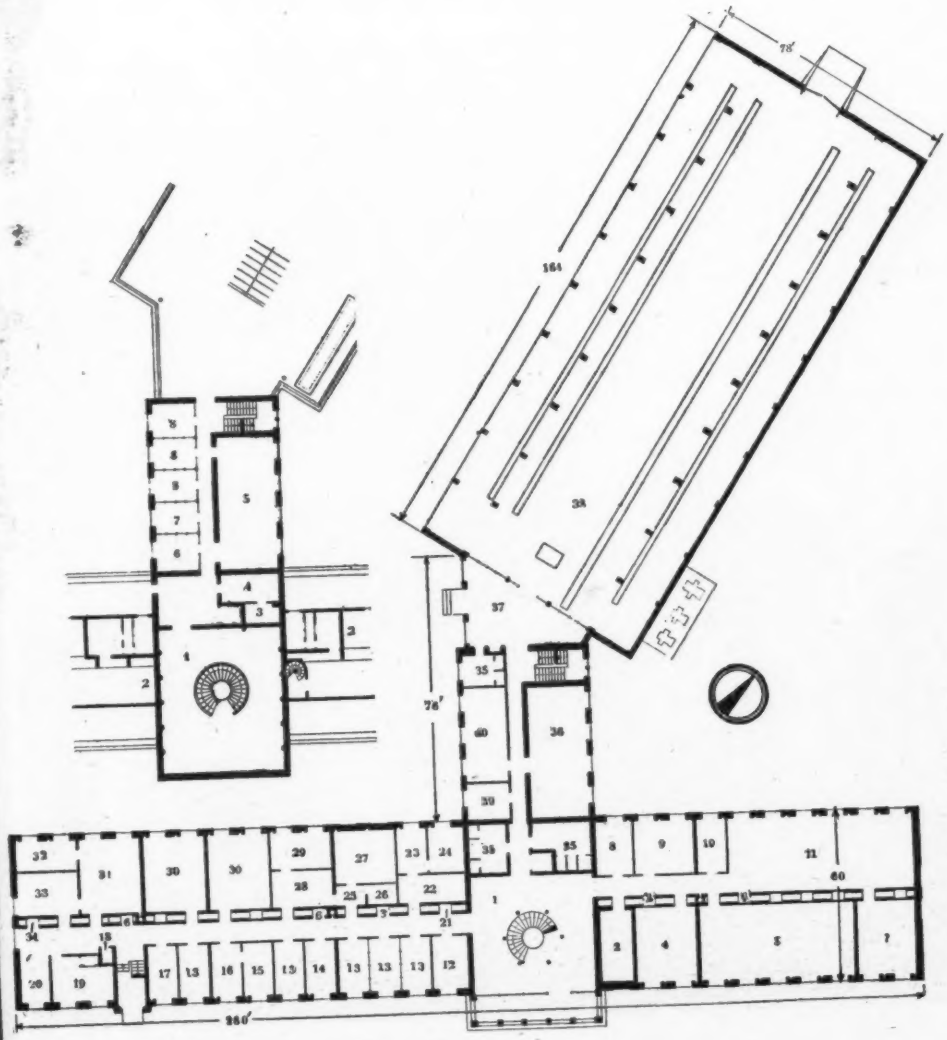
SERVICES.—Heating in the pilot plant is by radiators placed under the windows. In other rooms heating is provided by means of pipes embedded in the ceilings. Where there is no basement beneath the ground floor, heating elements run over the floor insulation. Both systems are connected to the hot water supply from the works with circulating pumps in the basement. The temperature is regulated automatically according to the weather. Ventilation is obtained by fresh air intakes in the

attic. Air, which is filtered and heated to room temperature and removed by extract fans, enters rooms from the corridors through sound proof grilles over the doors. The number of air changes per hour vary from 6 to 23 according to the nature of the work in different rooms. Compressed air is distributed through underground pipes from a central compressor and gas is obtained from a store on the ground floor, where a mixture of propane and butane is kept as liquid and distributed as gas through wrought iron pipes.

The following consultants were connected with the work:—Einar Loven (design), Goran Lindblad (consulting engineer), Carin Bryggman (furniture and light fittings), Rolf Bergh (decoration). Robert Nilsons designed low relief in the south-east façade.



First floor plan



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

KEY

GROUND AND FIRST FLOOR

1 Lower Hall
2 Cold Room
3 Distilled Water
4 Strength of Materials Laboratory
5 Electric Furnace Room
6 Electric Switch Board
7 Instrument Calibration Room
8 Calorimeter Room
9 Routine Physical Testing Room
10 Glass Blowing Room
11 Machine Shop
12 Instrument Store
13 Office
14 Micro-Hardness Room
15 Electron Microscope Room
16 Specimen Preparing Room
17 Balance Room
18 Lavatory
19 Medical X-ray Room
20 Waiting Room
21 Fire Alarm Box
22 Specimen Preparing Laboratory
23 X-ray Laboratory
24 X-ray Room
25 Light Seal
26 Developing Tank Room
27 Dark Room
28 Spectrograph Room
29 Photometer Room
30 Research Laboratory
31 Therapy Room
32 Physiological Laboratory
33 Medical Consulting Room
34 Storage
35 Cloak Room
36 Samples Preparation, Dirty Operations
37 Samples Delivery
38 Pilot Plant Hall
39 Unoccupied Laboratory
40 Samples Preparation, Clean Operations
41 Upper Hall
42 Staircase
43 Chemical and Glassware Store
44 Ultimate Analysis Room
45 Inorganic Analytical Laboratory
46 Chemical Washing and Drying
47 Calculating Room
48 Constant Temperature and Humidity Room
49 Organic Laboratory
50 Fume Room
51 Microscopy Room
52 Medical Store
53 Kitchen
54 Bathroom
55 Bedroom
56 Rest Room
57 Clerical Staff
58 Records

SECOND FLOOR

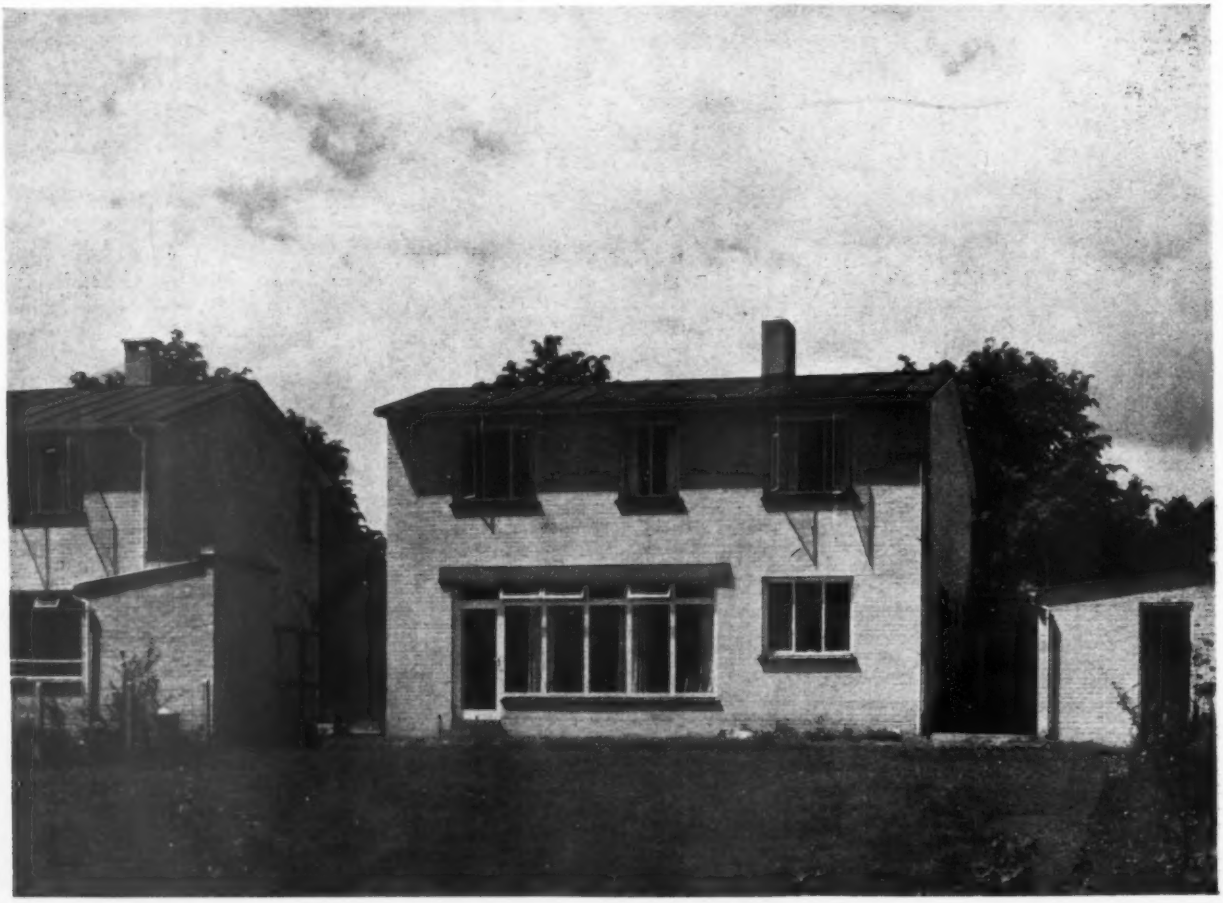
1 Reference Library
2 Fan Gallery and Chemical Store
3 Photostatic Room
4 Book Store
5 Conference Room
6 Librarian
7 Librarian's Clerk
8 Reading Room

TWO HOUSES

at HERTFORD
designed by KENNETH HICKLIN

Two private houses have been built on the outskirts of Hertford to the requirements of clients owning adjoining properties. The site slopes down to the south-east with a view over open country. The houses are set back 60 ft. to allow for a septic tank near the road to be connected to a sewer when this becomes available.

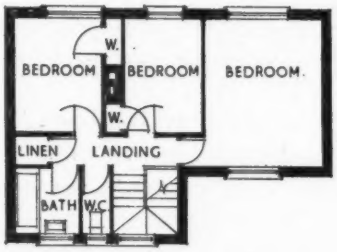
The two houses from the south-east.



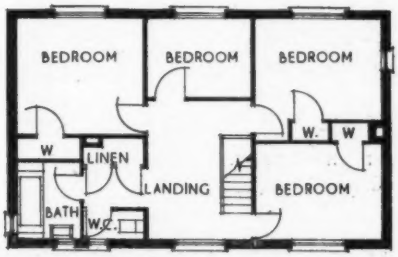
House 1 from west.

PLAN.—House 1 has a lounge-dining room, living kitchen and three bedrooms (1,030 ft. super) and a garage. House 2 has a separate lounge and dining room and four bedrooms (1,500 ft. super.)

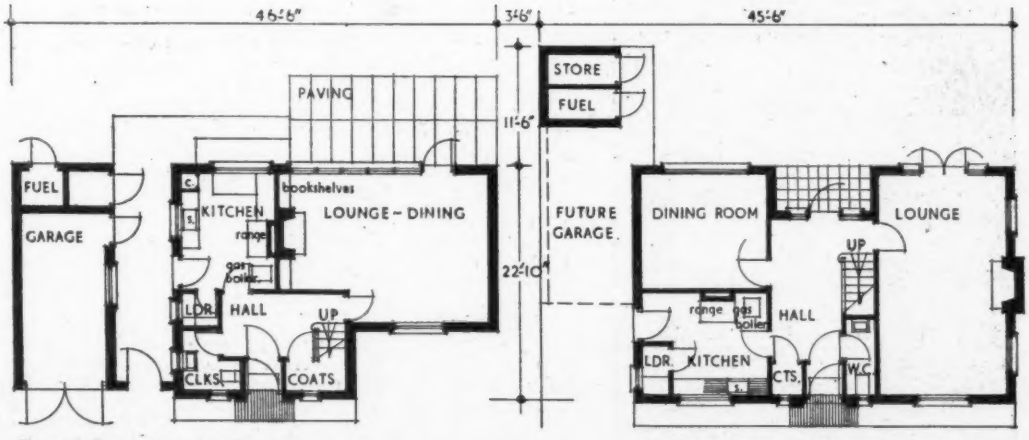
GENERAL.—Both houses have 11-in. cavity walls, faced with Uxbridge flint bricks, on concrete foundations. Ground floors are concrete and first floors are timber joists and boards. The



First floor plan



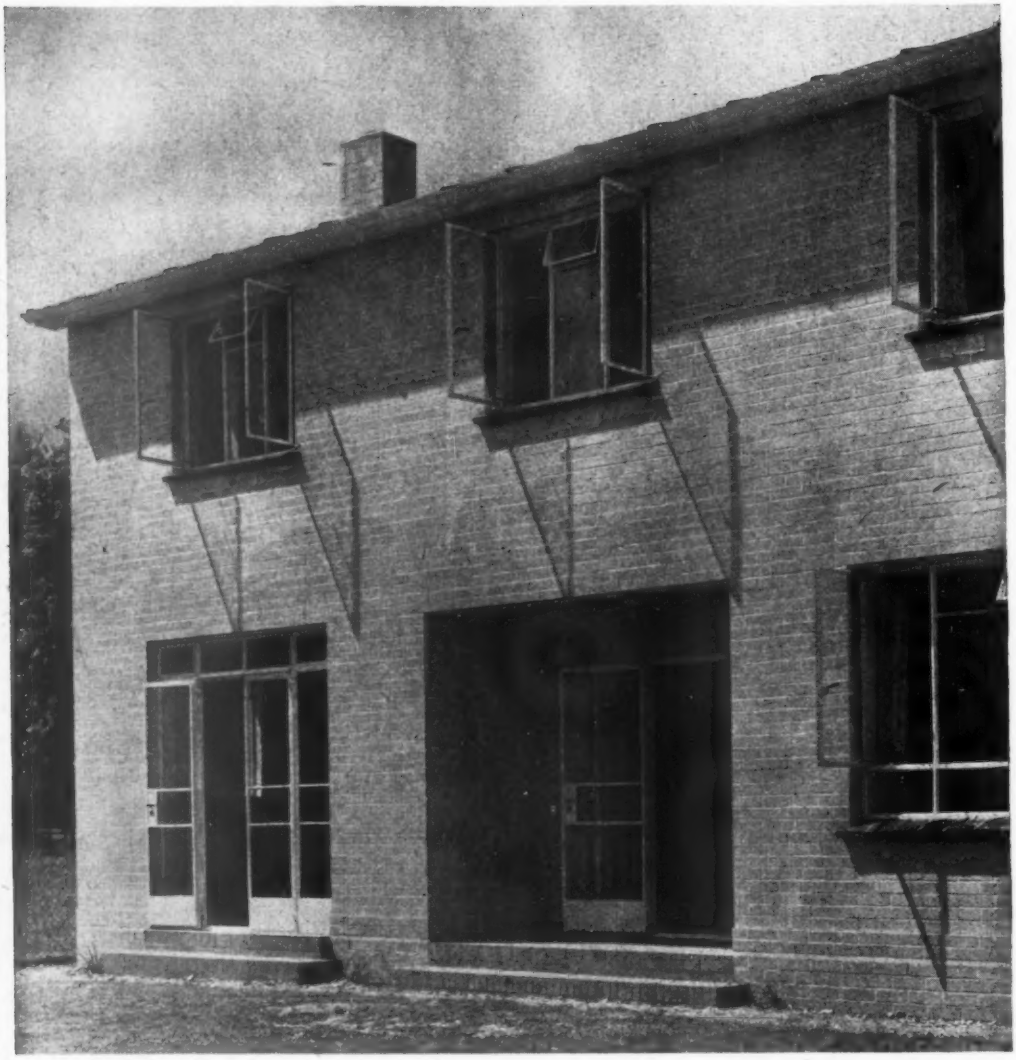
First floor plan



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

Ground floor plan of house 2

D



Left, the garden facade of house 2. Below left, the kitchen and hall of house 1 showing solid fuel cooker and inner glazed front door beyond.

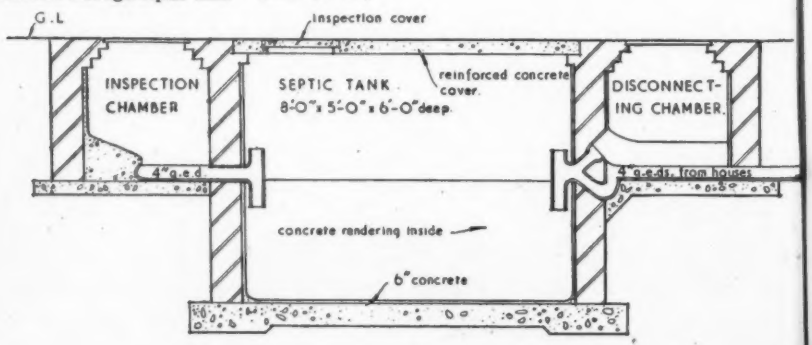
TWO HOUSES

at HERTFORD
designed by KENNETH HICKLIN

roofs are timber. House 1 has a 17-degree pitched roof and that of house 2 has a 20-degree pitch. This difference is due to economy in the size of timbers. Windows, interior paint work and distemper is cream and front doors and garage doors are maroon.

The general contractors were Messrs. Crook Bros. For list of sub-contractors see page 126.

Section through septic tank [Scale: ¼"=1'0"]



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

TECHNICAL SECTION

Following last week's paper on heating below is a controversial contribution by S. F. Newcombe.*

INTERMITTENT HEATING

By S. F. Newcombe

Extensive tests are being carried out on methods of maintaining a constant temperature in our homes. This is common practice in the USA, and constant temperatures have to be maintained in cold stores, but whether it is economical, necessary or even desirable to do so in the small houses occupied by 70 to 80 per cent of our population is highly debatable.

No domestic boiler is yet available which, with unskilled stoking, burns less than ¾ lb. of coke or coal per hour (1 lb. per hour= 4 tons per annum), and until heat pumps or atomic energy become practical, the combined cost of heating appliances and fuel is so high that, as social surveys show, few people can afford to keep fires alight continuously, even if they have low-combustion appliances. In any case continuous heating is wasteful in that fuel is used for heating rooms, or even the whole house, when not in use. [Diagram I (by R. Eve, RIBA JOURNAL, Jan., 1950) shows the temperatures which are normally produced in a living room in excess of those actually required.] The need for continuous heating for background purposes is much exaggerated, and its value is, in any case, diminished by the rapid temperature changes which occur in this country. The temperature in an occupied house rarely falls below 45° F., providing the house is well insulated and damp-proof. This temperature is maintained by the release of heat stored in the building from waste BThU's of cooking, and water and space heating; and the emission of 400 BThU's/hr. from each person in the building. Much heat can be wasted in evaporating water from walls which should be damp-proof; whereas temporary condensation which occurs, harmlessly and unavoidably, on cold surfaces, mainly in kitchens and bathrooms, gives up valuable latent heat.

* See AJ July 27, 1950, P.93.

It is well known that people feel 10° or 20° warmer on going into the sun, even in winter. Similarly, in our homes, high temperature radiation and a relatively low air temperature would produce a high degree of comfort, coupled with a really healthy environment. Although a great deal of data is required, it seems obvious that to heat up and insulate a vast factory is very wasteful when the few people in it could be kept comfortably warm by means of individual high-temperature radiation units, aided by reflecting screens of aluminium foil. Certainly such methods of heating should be developed, tested and compared with continuous heating.

After all, we are quite accustomed to turn the light on and off as and when we require it, and careful people place their lights where they need them for reading, cooking or eating; by the correct design of our houses and siting of heating appliances there is no reason why we should not be able to turn "the heat" on and off in a similar manner to provide economically the desired comfort conditions where and when required.

Heat loss, and therefore fuel consumption, can be vastly reduced by the use of thermal insulation and by regulating ventilation to reduce air changes to the 1½ or 2 per hour required for healthy conditions. The value of insulation has been pointed out frequently in England and USA for over 20 years, and Dufton's tests prove that the heat input of 10,000 BThU's normally required to warm a room of 1,600 cu. ft. (850 sq. ft. surface area), assuming a 15 F.° temperature difference, can be halved by good insulation. But to maintain the temperature in this room with 1½ air changes per hour, once the walls have been warmed, requires only 1,275 BThU's/hr. Equally important is the position of the insulation, if heat-insulating materials are placed away from the inner surface of the walls of a room, any units of heat poured into the room when the outside temperature is, say, 45° F. will be absorbed by the inner lining—thereby delaying the rise of the room temperature to the desired 60° F.—and similarly, when the heat is turned off, convection will carry away these wasted BThU's from the large surface area of the walls. This effect does not matter where a constant inner temperature is maintained, and it is then quite sound to use U values for judging the suitability of various materials and for

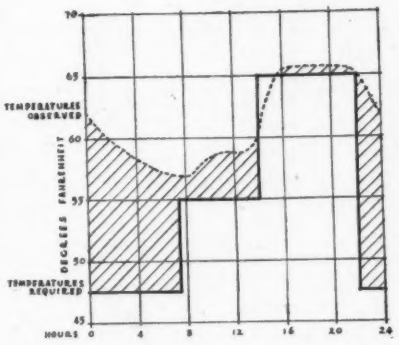


Diagram I

calculating heat requirements, but U values cannot be applied to intermittent (or radiant) heating. The conclusions of Table I (calculated from Dufton's approximate formula in "The Warming of Walls," IHVE JOURNAL, 1934, Vol. 2, show that the length of time, and therefore the amount of heat, required to raise the temperature of inner surfaces is not dependent solely on U values. (For example, it takes six times as long to heat up a room lined with 9-in. brickwork as a room lined with 2-in. pine, although the U values do not differ widely.) Perhaps the best wall from this point of view would consist of a lining of hardboard with foil on one face; an air space; then 4 in. concrete, brick or any other suitable outer material, as shown by the BRS at a Building Science Exhibition in 1948. The flywheel effect of heat storage should be taken advantage of by retaining waste heat from appliances in the middle of the building (in hot water cylinders, flues, etc.) not in the external walls.

A good deal of this has now been proved by the reports on the tests at Abbots Langley, but these reports are based on U values only and assume needlessly high background and topping temperatures which few can afford—an arbitrary 50° F. and 65° F. respectively, which ignores the high cost of fuel and the fact that the demand for heat is varied and intermittent.

It may be that reports on the eight houses at Bucknalls Close (due in the summer of 1951) will bridge many of the gaps in our data because the occupants there pay for their own fuel and are free to use it as and when they need, and four of these houses have inner linings of low heat capacity. It is the greatest comfort at the least cost, including capitalized cost of fuel, that matters, and as Dr. Winslow and Dr. Bedford point out, in their recent books, there is a great deal of simple work yet to be done on the physiology of human comfort; this should precede experiments on extravagant methods of heating.

Table I

N.B.—Some of these surfaces may not be practical, but a combination of materials may be available with equivalent *k* and *c* values : hence figures below would still apply.—N.B. Figures are approximate.

	Glass wool	Cork board	Wood fibre board	Wood wool	Pine	Foam slag	Plaster	Concrete 1 : 2 : 4	Brick flettons
1 Thickness	2 in.	2 in	2 in.	2 in.	2 in.	4 in.	4 in.	9 in.	9 in.
2 Conductivity per 1 in. *k*	0·22	0·29	0·38	0·65	1·0	1·8	5·4	12·0	6·5
3 Heat capacity per ft. cube, *c*	1·0	3·7	7·0	9·0	15	15	24	35	20
4 U value for given thickness ..	0·10	0·125	0·16	0·25	0·33	0·5	0·6	0·6	0·4
5 BThUs per hr. to maintain 15 F.° difference between inner and outer surfaces	1,275	1,600	2,000	3,200	4,250	3,800	7,650	7,650	5,000
6 Time taken to raise temp. of inner surfaces by 15 F.° (minutes)	1·5	6	15	28	48	90	200	840	276

TIMBER SUPPLIES

By Ian Bowen

Mr. Masterman's recently published study of timber substitutes in houses* showed a number of possible ways in which the amount of timber used in a traditional house could be reduced by modifications in design. In particular, he discussed the introduction of flat roofs. The use of flat instead of pitched roofs has been under discussion since at least 1943, and this change would save enough timber to increase substantially the number of houses that could be built with the present limited supply. But this proposal has always been met with the opposition of architects, local authorities and builders for a variety of different reasons, some of which might be the result of prudence, while others are probably due to prejudice. Whatever the reasons, the opposition is certainly strong. It will require very compelling arguments for timber economy to overcome the resistance to changes in traditional design that affect both the customer (the local authority) and the producer (the builder). Therefore the question is: will timber supplies continue to be so scarce that the adoption of the flat roof and similar changes in design ought now to be seriously considered?

Mr. Masterman pointed out that of the official allowance of a maximum per house of 1·6 standards of softwood per thousand sq. ft. of floor area, about two-thirds goes into the first floor and roof. Any substantial saving thus depends upon the adoption of the flat roof and/or modifications in the constructional design of the first floor. On the grounds of prudence it is suggested that not enough builders are familiar with the proposed methods and that some special training of the workers might be required at first. The prejudice against flat roofs is mainly on æsthetic grounds. They are found objectionable, partly because in the past they have been poorly designed, partly because the average Englishman's conception of a house includes a pitched roof, and partly because there is usually a strong representation of local building interests on local councils.

TIMBER SUPPLIES SINCE 1946

Table I shows the main changes that have taken place in the United Kingdom's sources of imported timber. Before the war this country received monthly an average of 186,000 standards (approx. 2¼ millions annually), but in 1949 only about half of this quantity was received. Supplies from Russia and the Baltic States had fallen most steeply, and the next most severe loss from a major source of supply was the cut in Finnish imports. Supplies from Sweden and Canada had also declined, though less severely.

Low as these figures were they were above the totals for 1946. As the table shows, there was a very substantial increase in imported softwoods in 1947, particularly from Canada, the United States and Germany; but Germany is not a "natural" exporter of timber, and there is resistance in that country to a policy which might, if pursued too long, adversely affect soil erosion. As for Canada and the USA, the dollar shortage was the main cause of the cuts from 1947 onwards.

TABLE I.—SOFTWOOD TIMBER: UK IMPORTS AND PRODUCTION
(Unit = 1,000 standards)

Imports by Country of Origin	Monthly Average				1949 as % of 1935-8
	1935-8	1946	1947	1949	
Canada ..	33·5	29·3	41·6	18·1	*54·2*
USA ..	3·8	3·1	13·5	2·3	*60·2*
USSR and Baltic States..	46·2	1·0	0·6	7·6	*16·4*
Finland ..	47·1	9·1	16·2	19·1	*40·6*
Sweden ..	35·2	18·3	17·3	19·7	*55·9*
Norway ..	2·6	Negligible	0·3	0·1	*3·8*
Poland ..	14·8	—	—	5·8	*39·0*
Germany ..	0·1	5·1	24·2	7·4	*7,400*
Other countries	3·0	0·7	2·0	12·2	*412*
Total imports	186·3	66·6	115·6	92·3	*49·5*

* AJ July 13, 1950, P.41.

The United Kingdom's post-war timber shortage arose from two quite separate causes—the dollar shortage and the problem of East-West trade. Both these problems were made especially difficult in connection with timber supplies because of the high demand for housing in the USA, the USSR, and many other countries besides Britain.

The timber import figures shown in Table I include, it must be remembered, all qualities and dimensions of timber, as timber to be used in building is not separately classified at the ports. Softwood timber is used in shipbuilding and ship-repairing, the construction and repair of goods vehicles, furniture manufacture, packing-cases and in almost all industries for one purpose or another. An allocation system is still in force, and the supply for building depends not only upon the total available imported and home grown (another 5 or 6 per cent), but also on the share that is officially allotted for building purposes (about 50 per cent of total supplies). In the present situation, however, a substantial increase for building must depend upon an increase in total imports.

The dollar shortage, the East/West trading difficulties, and the difficulty of reviving Scandinavian supplies have to be overcome if the position is to improve. (These reasons for the British timber famine differ from those operating during the war, when the main difficulty was simply the scarcity of shipping space.) Is there now any reason to hope for a substantial improvement in any or all of these three directions? Or is the outlook so grave that some of Mr. Masterman's suggestions should become the basis of building policy?

TIMBER STOCKS

The big increase in timber imports in 1947, and the fact that building programmes were delayed during that year by the shortages of other materials, enabled stocks to be increased from 214 thousand standards to 615 thousand standards during the year ending December, 1947. The following two years saw a fall in stocks, as the rate of consumption persistently exceeded supplies: by the end of 1949 stocks were down to 415 thousand standards, and by the end of February, 1950, they had fallen to 338 thousand. Since timber imports are governed by the logging seasons and the dates of thawing of the St. Lawrence and the Baltic, they are not, of course, regular throughout the year, and, in fact, they are mainly concentrated in the third and fourth quarters. Stocks are already too low for satisfactory working, and even making an optimistic forecast of imports for the rest of this year, stock-building will take up most of any likely increase.

THE IMMEDIATE OUTLOOK

It is evident that the Timber Control can now do little to alleviate the immediate shortage. The present contract position is not disclosed publicly, but it is most unlikely that there will be an increase in the amount of timber permits issued against the building allocation. The Minister of Works has recently stated, in the House of Commons, that no schemes which could be carried out within the framework of the capital investment programme had been refused licences because of lack of timber. But that leaves two further questions; is the capital investment programme itself limited by the known timber shortage? And are schemes being delayed, even after they have been licensed?

The Minister of Works has stated that insistence on economy in the use of softwoods is official policy. But to win the battle for flat roofs and the other substantial changes mooted by Mr. Masterman would require something more than "insistence" from Whitehall, meritorious as that pressure may be.

For example, the local authorities would need some *quid pro quo* (and so, indeed, would the public) to shake them from their traditional preferences. If these substantial changes in design are advocated in order to increase the house building programme, then we must see more houses actually produced. If a local authority were allowed to build more houses if it undertook to make all (or a substantial proportion) of its houses with flat roofs, there would be a definite inducement for them to agree to the new designs.

But timber, of course, is not the only factor, and the Government is tied and committed rather deeply to its 200,000 houses per year programme. However, there should be enough flexibility in this programme to offer the inducement to councils suggested above, even if it ultimately involved a slight increase in the programme.

THE LONG-TERM OUTLOOK

Many observers are not entirely convinced that the dollar shortage is so acute as to justify the very severe reduction in our purchases of Canadian timber.

The value of timber imports in general (including hardwoods) is shown in Table II; the annual figure is about £100 millions. This table, even more than Table I, shows how rapidly our sources of supply have changed, even in the last few years. France and Yugoslavia, for example, have become important suppliers, and the USA has been removed from second to ninth position. The point at issue is, can this £100 millions be increased, and particularly, can the increase come from the dollar area? More particularly, can we double our £21 million supplies from Canada? For taking the long view, this would be the most practical solution, since supplies from the Baltic would be less reliable in an emergency, and, in any case, are less elastic. Imports from Russia, on the other hand, might also be increased fairly rapidly, if the political conditions became more favourable.

TABLE II.—VALUE OF WOOD AND TIMBER IMPORTS BY PRINCIPAL COUNTRIES OF ORIGIN

	1947	1949
	£ millions	
Canada	41·4	21·9
Finland	15·7	14·5
Sweden	13·4	15·7
Yugoslavia	0·6	9·8
Germany	12·4	5·5
USSR	0·7	4·9
France	1·5	4·2
Br. West Africa	2·5	4·1
USA	18·1	3·9
Poland	—	3·5
Rest of the world	7·3	12·1
Total	113·6	100·1

Any guesses on the future of this trade are necessarily very speculative, but the information given here does suggest that, while still further major changes in the sources of supply may occur, an increase of 50 per cent, or even of 33 per cent, in our total imports can only be attained by a considerable expenditure of foreign currency, much of it dollars. The long-term outlook, therefore, does not justify any relaxation in the drive for timber economy.

The conclusion would appear to be that the stage has now been reached when further research should be carried out, but, even more important, the results of research already completed should be exploited both by vigorous administrative action, and by the voluntary action of local authorities and architects.

This feature covers both the production and marketing of new materials and designs of equipment, as well as the general trend of developments within the Building Industry.

THE INDUSTRY

By Brian Grant

ALUMINIUM WINDOWS

Northern Aluminium have just issued an informative booklet on aluminium windows and their behaviour under different kinds of exposure. Windows were not, in fact, made of this material until as recently as 1931, when some Swiss extrusions were imported and a pair of anodized windows were installed in the bathrooms of a house in a residential suburb of Birmingham. Since that date they have been once painted outside but have not been painted inside at all, and the light grey corrosion deposit was easily removed by light rubbing with steel wool. Salt laden atmospheres near the sea are more corrosive, but an example quoted from the Cornish coast was restored with ordinary metal polish after 13 years exposure. Other examples such as the Cambridge University Library are later in date, but appear to be perfectly satisfactory in practice. Corrosion of the alloys normally used in the building industry is, in fact, remarkably slow: in the absence of regular cleaning, atmospheric deposits will, over a period of years, produce a slight pitting, but the rate of penetration is about 0·00012 inches per year, a negligible amount in relation to the average section thickness.

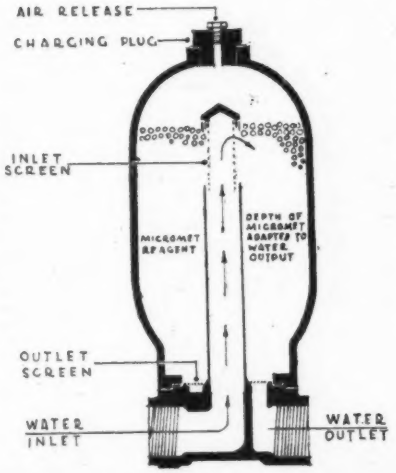
The aluminium industry as a whole now seems to have almost given up shouting about the corrosion bogey, and does not suggest that aluminium windows demand any particular care in installation. Surfaces which will be in contact with brick, masonry or steelwork should be given a coat of bituminous paint—one of the jointing compounds containing zinc chromate, and any fixing screws or clips should be of aluminium or galvanized, sherardized or cadmium plated steel, both zinc and cadmium being electro-positive to aluminium so that if any corrosion takes place it will be in the fixings and not in the window. The only other point to note is that drainage over some metals, particularly copper, may damage or disfigure the aluminium, although its own corrosion products are colourless.

So far as anodizing is concerned almost any shade from a dark grey to almost white can be obtained, but many of the other colours used for internal work are not resistent to sunlight, and the available range is therefore limited. Cleaning of windows is best done by ordinary soap and water or with one of the non-abrasive household cleaners. Caustic soda should be avoided at all costs. If steel wool has to be used, care should be taken not to remove the comparatively thin anodic coating. (*Northern Aluminium Co. Ltd., Banbury, Oxon.*)

WATER SOFTENING

Mention was made in these notes some time ago of the small water softening or scale reducing units made by Radiation Ltd., for attachment to gas or electric water heaters or small boilers, but it may perhaps not be known that larger units are made for scale prevention and corrosion control of the complete hot water system, not only in private houses, but in larger buildings, such as flats, hotels and hospitals. For very large buildings the problems of scale and corrosion can be overcome by the use of low concentrations of sodium metaphosphate, sold under the trade name of Calgon, but in smaller systems another form is available known as Micromet, which dissolves very slowly in water at a rate of about a quarter to a third of its own weight per month. About 3 to 5 parts per million are necessary to prevent scale formation, greater amounts when the main problem is corrosion. The most convenient way of adding the Micromet is *via* a small gunmetal

Micromet "dispenser"



"dispenser" which is fitted in the cold supply so that all the incoming water passes through it: two sizes are produced, the larger capable of treating water up to 2,000 gallons a day. Installation is simple, and once installed the dispenser needs recharging with Micromet about once a month, the amount needed naturally varying with the water consumption, but being about 6 oz. a month with a water consumption of 250 gallons a day. There is a small filling plug at the top of the dispenser and the process should be much simpler than the usual filling with salt and flushing through, necessary with the more common base exchange water softener.

An alternative method is to suspend the Micromet in a perforated container in the supply tank immediately beneath the ball valve so that the incoming water passes through it, but this method is advisable only if the supply tank is reasonably accessible because of the necessary re-charging. (*Albright & Wilson Ltd., 49, Park Lane, London, W.*1.)

A NEW HEAVY TRACTOR

Vickers Ltd., are in process of developing a new heavy track type tractor for earth-moving and heavy agricultural work: it will weigh between 14 and 15 tons and is to have a Rolls Royce diesel engine of about 180 horse power. Vickers, it will be remembered, have already produced a number of tractors for the Ground Nuts scheme which were modified from Sherman tanks. The new model is an entirely new design and will be available not only here but for export, so that it should earn foreign currency as well as saving the dollars now usually spent on large American tractors.

So far three years have been spent on development and prototypes have been under test for the last year or more. Further trials are to be carried out next year by contractors and production will start in January, 1952, to be worked up to an annual output of 500 machines.

Sole distributors for the new tractor are Jack Olding & Co. who have given up their agency for the American Caterpillar tractor. (*Jack Olding & Co. Ltd., Hatfield, Herts.*)

FIXING DOOR FRAMES

The Big Ben steel door-frame brace makes possible the erection of perfectly accurate door-frames in a maximum time of 15 minutes—less than half the time necessary for erecting a frame by traditional methods.

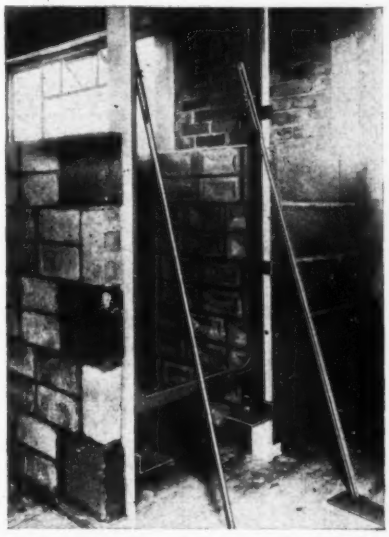
The brace is secured *all round* to the inside of the frame, screws being used for wood frames, cramps for metal ones. This is in effect a jig, dead accurate for the door which it is intended to use, thus ensuring that the door will fit straight into the frame without the necessity of shooting-in.

The jambs and head are held rigid and square, so there is no possibility of distortion and subsequent rectification by the carpenter is unnecessary.

Plumbing up is simplified by a spirit-level built into the brace. Rapidly adjustable supporting stays, attached to the brace, hold the frame in position so firmly that bricks can be built right up to the outside of the jambs without the possibility of the frame bulging anywhere.

A further saving is effected because no battens are required. With wooden frames this eliminates the cost of an average 20 feet of batten per frame and the carpenter's time in fixing the battens. This is another important consideration in constructing a large block of flats or offices. In addition, the absence of a batten allows bricklayers easy access. (*Steel Scaffolding Co. Ltd., 82, Victoria Street, London, S.W.*1.)

Door frame brace



HANDBOOK ON NON-FERROUS METALS

Messrs. Charles Clifford & Son, Ltd., Non-ferrous Metal Manufacturers, Dogpool Mills, Birmingham, 30, announce the publication of the tenth edition of their Trade Handbook. This latest edition has been completely revised and enlarged, containing forty pages bound in a stiff blue cloth cover. The Handbook is divided into sections, each section being tab-indexed for convenience of reference and contains many comprehensive tables of weights relative to Non-ferrous Metals in Sheet, Strip, Rods & Bars, Wire & Drawn Strip, Tubes & Chill Cast Bars, together with tables of gauges, English-metric Conversion Tables, a useful Ready Reckoner and many pages of general information in respect of Non-ferrous Metals.

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

INFORMATION CENTRE

LEGISLATION

The Lands Tribunal: Jurisdiction, Law and Procedure. M. D. van Oss and Niall MacDermot. (Butterworth & Co. 1950. 35s.)

A textbook of the Lands Tribunals, and a survey of the subjects with which they deal. 412 pp. and index (39 pp.).

The major value of this book is that it collects in the one volume a number of related subjects where the law has recently been radically changed. The subjects are: the Lands Tribunals themselves, compensation for the compulsory acquisition of land, claims for loss of development rights under the 1947 Planning Act, the valuation of land for estate duty, the discharge and modification of restrictive covenants on land and valuation for rating. All these are subjects on the periphery of the architect's practice. He is not expected to be an expert, but he is expected to know, and to be able to discuss, their broad outlines and their effects on his clients' interests. This book is admirably designed both to give that broad outline and to supply detailed information on any point on which he may desire further instruction.

4.58 planning: urban and rural
PLANNING IN SINGAPORE

The Work of the Singapore Improvement Trust, 1948. J. M. Fraser, Manager, Improvement Trust. (Malaya Publishing House, Ltd., Singapore. 1950. $2.)

Comprehensive account of the work of the Trust during 1948 (44 pp., 14 illustrations).

The Trust contains five sections: lands and planning, architectural, estates, survey, town planning survey and research. The report gives details of staff arrangements, amount and kind of work undertaken, number and value of contracts let, and illustrations of some typical flats and tenements recently built.

The information that is given is definite and clear. More reports of this kind from official offices would be welcome.

7.27 practice
PERSPECTIVE DRAWING

The Theory and Practice of Perspective. W. Abbott. (Blackie & Son, Ltd. 1950. 12s. 6d.)

A very comprehensive and advanced study of perspective with a definitely mathematical approach. Invaluable for thorough research into perspective drawing. Includes geometric proofs of the methods used.

The introductory chapter dealing with the theoretical side of solid geometry applied to perspective drawing is followed by a chapter on parallel, oblique, three vanishing point perspective with an inclined picture plane and the drawing of circles, spheres and irregular curved shapes in perspective. The second chapter is devoted to a full description of the measuring point method of perspective, and the third to the use of graduated perspective axes. Reflection from and shadows on horizontal, vertical, oblique and curved surfaces are covered in chapters IV and V respectively, and chapter VI deals with perspective on a cylindrical picture plane. Chapter VII, entitled "Application to Pictures," is a consideration of miscellaneous points, and the concluding chapter is a historical survey with some famous paintings analysed. The appendices give a construction for an ellipse the use of the centrolinead with movable arms and calculations for graduated perspective axes.

Reading the text in conjunction with the profuse and clearly drawn diagrams becomes somewhat involved, due to the constant reference to the many lettered points on the illustrations. Full advantage of the numerical reference system to sections of the book has not been made, as these are not included in the index and frequently not used in the text.

Much emphasis is given to Euclids and Desargues theorems, and to trigonometrical proofs, to the surbordination of a simple explanation, clearly set out, of some elementary facts about perspective, such as the choice of the station point in relation to the object viewed, its height above ground level, and the position of the picture plane, etc.

An unusual approach is made by dealing first with parallel perspective in an unnecessarily complicated manner, and following this with the ordinary two vanishing point or oblique perspective; and one is eventually introduced to the use of height lines when p. 28 of the book has been reached.

The author deals with a number of interesting but at times involved methods of construction for cases of rather rare application, but should one wish to know how a reflection is obtained in a curved reflecting surface, such as a cylinder or sphere, or how to set up a perspective on a cylindrical surface such as a barrel vault or apsidal end to a building, the answer is there. For interior views, shadows from diffused light sources, such as tubular lights and windows, are dealt with in addition to the more usual shadows from the sun or artificial point sources of light.

Of interest but somewhat irrelevant are the references made, under the heading of "application to pictures," to stereoscopic vision and curvature of the earth.

Sections of the book are marked for advanced study, and the author in his preface suggests the reading of certain chapters for architects and others for artists, but this is definitely not the book for the student requiring a simple and clear approach or for the architect trying to refresh quickly his memory on perspective drawing. It is a comprehensive work dealing lucidly with all aspects of the subject.

10.76 design: building types
OFFICE AND GARAGE BUILDING

"Park at your Desk" Office Building. (Engineering News Record [USA], May 11, 1950, p. 45.)

10-storey building at Washington in course of construction. Garage space for 450 cars on all floor levels. Interesting solution of a pressing problem in city areas.

Tenants will be able to drive their cars to the floor on which they work and leave them there. Offices are arranged along the outside walls of the building which has windows on all four sides. About ¼ of the interior area of the 189 ft. by 177 ft. block is given to garages, lifts and sanitary accommodation, on all floors except basement and first floor which are rentable areas. The garages will be mechanically ventilated, but there is no heating or air conditioning, nor any finish on walls, floors and ceilings. Different column spacings were selected for the office and the garage areas. The cars will be parked on 27 different levels, either flush with the office floors or a half-storey lower. The two-way ramps are at least 21 ft. wide and sloping not more than 15 per cent. In addition, lifts are available for tenants' and visitors' cars, and attendants will take the cars for washing or lubricating. Framework and floors are of reinforced concrete. The total cost is expected to be about £2·5 million at the present rate of exchange.

15.77 materials: applied finishes and treatments
INTERNAL PLASTERING

Plaster Mixes for Inside Work. Ministry of Works Advisory Leaflet No. 9. (HMSO 1950. 2d.)

Excellent brief summary of essential facts on characteristics of various mixes, choice in relation to backing material and essential points of workmanship.

While this leaflet is not an exhaustive treatment of the subject and does not take the place of the very good series of Codes of Practice which deal with plastering in detail it does give most of the essential facts and forms an excellent reference for day to day use by architects, in addition to being useful for distribution to Foremen, Clerks of Works and Craftsmen.

It discusses briefly the properties of the different types of plaster, the importance of the backing material, the number of coats for different conditions and then tabulates the types of plaster and mixes suitable for application to various backing materials.

Another notable success in this excellent series of Leaflets.

15.78 materials: applied finishes and treatments
DISTEMPERS

Water Paints and Distempers for Interior Use. BS 1053:1950. (British Standards Institution, 2s.)

Revision of war emergency specification. Water paints washable and oil-bound. Distempers oil-free and washable and distempers of non-washable type.

This revised specification gives a higher standard for oil bound water paints than was possible in the war emergency specification though, owing to shortage of supplies, the quality is still not as high as the industry would wish for. The BS gives general requirements for quality together with methods of test. Architects would do well to ask manufacturers for a guarantee that materials will be supplied in accordance with this Standard.

1 Sociology. 2 Planning: General. 3 Planning: Regional and National. 4 Planning: Urban and Rural. 5 Planning: Public Utilities. 6 Planning: Social and Recreational. 7 Practice. 8 Surveying, Specification. 9 Design: General. 10 Design: Building Types. 11 Materials: General. 12 Materials: Metal. 13 Materials: Timber. 14 Materials: Concrete. 15 Materials: Applied Finishes, Treatments. 16 Materials: Miscellaneous 17 Construction: General. 18 Construction: Theory. 19 Construction: Details. 20 Construction: Complete Structures. 21 Construction: Miscellaneous. 22 Sound Insulation-Acoustics. 23 Heating, Ventilation. 24 Lighting. 25 Water Supply, Sanitation. 26 Services Equipment: Miscellaneous: 27 Furniture, Fittings. 28 Miscellaneous.

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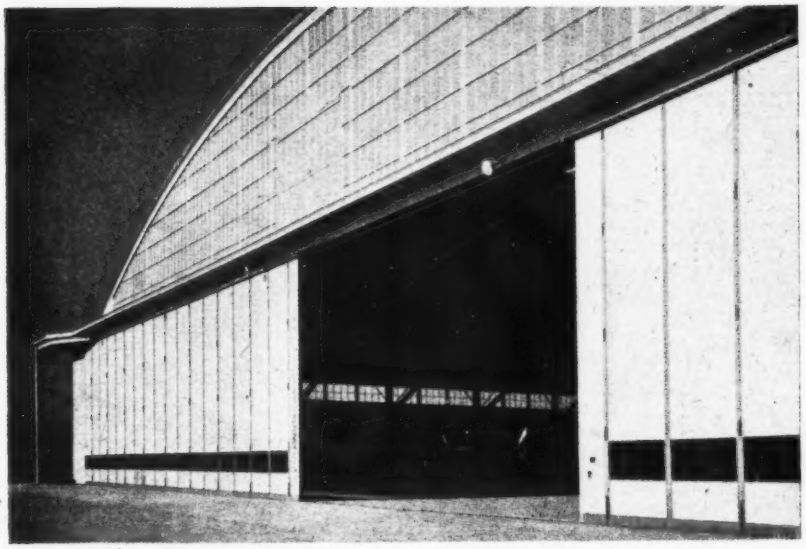

Hangar, showing large doors. See 19.97.

17.70 construction : general
MATHEMATICS

Mathematics III (Third Year Course). W. Morgan and J. R. Pickering. (Sir Isaac Pitman & Sons, Ltd, 1950, 6s. 6d.)

This little volume covers the third year mathematics for students of a 3-year course in secondary technical schools, with building as the background. Chapters on graphs, trigonometry and mensuration are included, and the principle and the use of the slide rule explained. The treatment is elementary throughout, but many of the worked examples and exercises are closely related to building and may well be useful to architects and builders for quick reference. 94 pp., 153 figures.

19.97 construction: details
HANGAR AT ZURICH

Toranlage und Aluminium Dachhaut des Hangars I in Zürich. (Folding Doors and Aluminium-Roofing of Hangar No. 1 at Zürich Airport.) (Schweizerische Bauzeitung [Switzerland], June 3, 1950.)

Unorthodox details of construction of folding doors and aluminium roofing. Pp. 296-298, 13 illustrations.

More details are now available of this 250 ft. clear span hangar, the novel design of which has been mentioned in these columns (see 20.177:23.3.50). The latticed arches (their span equals that of the new Waterloo bridge arches) are three-pinned, the third hinge however not at the apex but much lower, thus reducing the horizontal thrust on the piled foundations. The steelwork is welded in the shops and assembled by bolts. The folding doors, 34 ft. high and of 250 ft. clear width have a 3 ft. 4 in. deep horizontal band of glazing over their full width, 4 ft. above ground (see illustration). A special top door in the gable, 20 ft. wide and 16 ft. high, can be opened for the tail of the aircraft without necessitating higher folding doors. An unusual feature are the 80 ft. long 2 ft. wide strips of corrugated light alloy roofing, with 1¼ in. deep and 4½ in. wide corrugations. For some time they have been manufactured in Switzerland in unlimited lengths. 65,000 sq. ft. of roofing were placed in two weeks. These long roofing sheets made it possible to arrange the only horizontal overlapping at the steeper portions of the roof where the slope is not less than 15 per cent., thus avoiding the risk of water penetrating by capillary action. This material, which is mechanically bent to any radius, will allow the architect to cover large size roofs of minimum slope without horizontal overlapping.

19.98 construction: details
ASBESTOS CEMENT ROOFS

Asbestos-Cement Sheet Roof Coverings. Draft BS C of P. Sub-Code 143.201. (British Standards Institution. 1950. 3s.)

Corrugated sheeting and underlay sheets. General information on weather-resistance, durability, thermal insulation and fire hazard. Recommendations on materials, design and construction and maintenance. Limited information on rainwater drainage.

There is reference to various British Standards for quality of the asbestos-cement sheets and accessories. The desirability of keeping to simple roof shapes and avoiding hips and valleys is mentioned. Durability depends mainly upon degree of acid pollution of the air and in highly polluted atmospheres some protection by painting may be desirable. Suggested expectation of life is 25 years. For ordinary corrugated sheeting minimum pitch should be 25 degrees with laps at ends of not less than 6 in. for normal exposure. Side laps should be formed to protect against the prevailing wind. Gutters and rainwater pipes should not discharge over the roofing.

Thermal insulation of asbestos cement sheeting is very low unless special precautions are taken and this low insulation value may also lead to high condensation of moisture on the underside unless there is adequate ventilation.

Roofs over 150 ft. long require expansion joints in both structure and covering and these joints should be related. Information is given on purlin spacing for maximum efficiency with standard sheets and the Code gives some rather general information on fixing.

For safety it is most important that proper walkways or roof boards should be provided for workmen for access to roof-lights or other places likely to need attention.

Appendices include tables giving dimensions of straight and curved sheets and underlay sheets, laps, weights and purlin spacing for standard sheets, coefficients of heat transmittance and a number of diagrams of sheets and accessories.

26.69 services and equipment : miscellaneous
INSULATING MATERIALS FOR THE HIGHER TEMPERATURE RANGE

Thermal Insulating Materials suitable for Use within the Temperature Range 200°F. to 450°F. BS 1588:1949. (British Standards Institution, 4s.)

BS dealing with insulating materials suitable for temperatures 200°F. to 450°F.

(Insulating materials for the lower temperature range, up to 180°F. normal, and 220°F. absolute maximum, have been covered in BS 1304, "Ready fit" materials; 1334, preformed materials; and 1589, plastic, flexible and loose fill materials: all for central heating and hot and cold water supply installations.)

The BS under review covers all types of insulation in the temperature range 200°F. to 450°F., which includes most requirements of steam plant, process plant, and thermal transmission lines. It will prove valuable to all those who have to deal with such equipment.

The first part, specification, deals with types of insulation; physical characteristics necessary; thicknesses required for a given result (in combination with tables in Part II): information required by the manufacturer from the purchaser: and tests to be applied to various classes of material.

This is followed by tables giving the standard thickness of Class A. & B. insulation for pipes of different sizes, and appendices describing tests for determining conductivity; an explanation of the thickness values shown in the tables already mentioned; basic heat loss tables for both classes of insulation; methods of calculating economic thickness, heat losses and thermal efficiency of materials; heat losses from bare surfaces; and recommendations regarding practice, application and finish for thermal insulating materials.

26.70 services and equipment: miscellaneous
GENERATION OF ELECTRICITY BY WIND POWER

Large-Scale Generation of Electricity by Wind Power—Preliminary Report. (Technical Report—Reference C/T101.) E. W. Golding. (The British Electrical and Allied Industries Research Association, 1949. 1s. 6d.)

Report on experimental work carried out and projected in connection with electrical generation by wind power.

The possibilities of fuel saving by the use of the wind for large-scale electrical generation are particularly attractive in a country where solid fuel is no longer cheap and water power limited in quantity; it is satisfactory to know that attention is being directed to the problems involved.

A committee of the ERA was formed in 1948 to investigate the position. Much has been accomplished since its inception, and this report describes the work so far carried out. The main points brought out are as follows:—

Wind power has the advantage of being free and inexhaustible, but has the disadvanges of uncertainty. Since large-scale storage to overcome this is impracticable, aerogenerators must in most cases be regarded as fuel savers, to be combined with thermal or hydro stations as a source of "firm" power.

The cost of aerogeneration is based on capital charges; running costs are small. On the basis of a cost of £50 per KW. capacity, and an output of 4,000 KWH./year per KW. capacity, the charge, including cost of transmission would be about ½d. per KWH.

Research in the United States and in Denmark gave costs of aerogenerators as £92/KW. for a 25-KW. set down to £42/KW. for a 6,500-KW. set, with an average of £50/£55 per KW. for set of 1,500-2,000 KW. capacity, thought to be the most economic size. It

might be that the cost here would prove to be less. Thus careful investigation was shown to be well worth while.

Investigations have been carried out into the meteorological problems involved, and the work of American investigators, notably P. C. Putnam, studied. The latter has emphasized that by choosing a site on the summit of a hill of aerofoil shape, advantage may be taken of the increased wind velocities so produced. These velocities may be 20 per cent. or more higher than are registered when the wind is passing over flat country. As the power available is proportional to the cube of the speed, such an increase is valuable.

A wind velocity survey of the whole country is planned. Orkney was chosen for preliminary work, and stations set up at Vestra Fiold and Costa Head. At the latter it was found that the wind velocity exceeded 10 m.p.h. for 80 per cent. of the time, and with a cut-in speed of 17 m.p.h., a rated (maximum output) speed of 30 m.p.h., and a furling speed of 60 m.p.h., it was calculated that 4,600 KWH. per KW. of generator capacity could be expected from a generator at the latter, and 3,900 KWH. at the former site. Survey work has started in North Wales and Cornwall, and sites selected in South Wales.

At the same time, aerodynamic investigation into the machines themselves is being undertaken. Here, the rapid progress recently made in connection with aircraft, and especially helicopters, has been of great value. Advantage has been taken of research in other countries, notably the United States of America, where a 1,250-KW. machine was installed at Grandpa's Knob, Central Vermont, which gave good service until a blade broke and the project was abandoned; France, where over a hundred stations for wind-energy measurement have been set up, and projects produced for 1,000-KW. and larger sets; Denmark, where a considerable number of small (30-70 KW.) sets have been operated for some time; Germany, where machines of 20,000 and 14,000 KW. have been planned; and Russia, where an experimental 100-KW. machine near Yalta had run for ten years before it was destroyed during the war, and a 5,000-KW. machine is said to have been built, though no information is available. Great interest in the problem is being shown by many other countries also. In this country, 100-KW. experimental machines are to be installed in the near future.

The main conclusions, then, are as follows:—

There are probably large numbers of sites within reasonable distance of main distribution lines where an output of 4,000 KWH./KW. could be expected. This output could be expected to show a cost of 0·25d./KWH., which compares favourably to 0·4d., the average cost of steam generation. Even assuming that aerogeneration is not included in the "firm" load, this cost is low enough to justify its use as a fuel saver. It is suggested that 3,750 to 7,500 million KWH. might be so generated, with a saving of 2 to 4 million tons of coal per annum.

In conjunction with hydrogeneration, aerogenerators could be assumed to be in part at least "firm" load carriers, for by conserving water in the reservoirs the effect is that of greater rainfall or increased catchment area. Thus larger generators could be installed for a given reservoir capacity. The additional cost would be small, and some schemes, otherwise economically impracticable, might be made practical. The combination of aerogeneration and hydrogeneration seems to have large possibilities.

There are many islands round the coast of Britain which already have small isolated electric networks, or where these are planned. Diesel plant is generally used, with a cost for fuel only of ·65d. per KWH. Wind velocities are usually high in these situations, and the combination of diesel and wind power offers considerable economies.

A new and valuable industry, with large export potentialities, would be brought about by the construction of aerogenerators on any large scale.

Remarks

1. It would be a great pity if a project with such great economic possibilities achieved them by disfiguring the countryside. The fear that the machines themselves—which are bound to be noticeable—will be unsightly may in part be set to rest by the photograph of a 70-KW. set in Denmark; it is a most elegant structure and a worthy successor of the fine windmills of the past. Let us hope that ours in this country may achieve an equal standard of design and that architects may be allowed to play their part in attaining it.

2. The possibility of combining an aerogenerator and a heat pump, with thermal storage, as a heating machine seems attractive, especially for large buildings, or groups of buildings, in isolated positions, as seaside hotels or sanatoria in mountainous country. Transport costs in these cases often greatly increase the price of solid fuel. In spite of the high capital cost of the generator/heat pump combination, it might prove the more economic.

26.71 services and equipment: miscellaneous

HEATING APPLIANCES FOR DOMESTIC HOT WATER SUPPLY

An Inquiry into Domestic Hot Water Supply in Great Britain. Part I—Distribution of Water Heating Appliances and their Use in Winter. National Building Studies—Special Report No. 8. (HMSO. 1950. 1s.)

Report on distribution of water heating appliances and their use in winter.

EXTENT OF SATISFACTION WITH HOT WATER SUPPLY FOR DISH WASHING AND HOUSE CLEANING IN URBAN AND RURAL DISTRICTS AND IN THE REGIONS

—	Number of households in sample	Percentage of housewives expressing different degrees of satisfaction with hot water supply in winter for :—							
		Dish washing				House cleaning			
		Completely satisfied	Moderately satisfied	Dissatisfied	Doubtful	Completely satisfied	Moderately satisfied	Dissatisfied	Doubtful
District :—									
Urban	4,801	40	25	35	—	40	24	35	1
Rural	1,196	40	17	42	1	40	17	42	1
Total ..	5,997	40	23	37	—	40	23	36	1
Region :—									
Scotland	644	45	19	36	—	45	19	36	—
North	1,677	43	20	36	1	43	20	36	1
Midlands and Wales ..	1,308	50	22	28	—	51	21	27	1
South and East ..	1,331	29	27	43	1	29	27	43	1
London	1,037	32	29	39	—	33	28	38	1
Total ..	5,997	40	23	37	—	40	23	36	1

See 26.71

This is the report to which reference was made by Dr. Weston in his paper on "Domestic Water Heating" (THE ARCHITECTS' JOURNAL, March 2, 1950).

It contains a great deal of matter which will prove of interest to those to whom statistics of this kind are a source of value or pleasure.

From the architect's point of view, two things in particular seem to emerge: the first, the deplorably large number of people who still are without the benefit of a proper hot water supply; the second, where a hot water supply is installed, the degree of satisfaction or dissatisfaction with the various types of apparatus expressed by the housewives, most of whom seem to have taken an intelligent interest in the survey.

The dissatisfaction table is shown below.

In the case of inset fire heaters and electric and gas storage heaters, clearly the major fault is that many installations are too small for the work they have to do—a foolish type of parsimony which is still to be found. Well-insulated storage of not less than 30 gallons capacity is necessary in all dwellings other than the smallest flats.

The wide dissatisfaction with instantaneous gas water heaters may seem surprising. In many cases the cause is doubtless that the equipment is obsolescent or, in some, long since obsolete. Improper installation is the most probable cause of dissatisfaction with multi-point heaters, especially with regard to gas pipe size. Such heaters are not infrequently connected to existing carcassing and service pipe of size quite inadequate to take the load. When other apparatus is in use at the same time, and the mains' pressure is somewhat reduced and feed water cold, the resulting pressure drop inevitably causes disappointment. Properly installed and maintained, such equipment can give good and efficient service.

This feature answers any question connected with building confidentially and free of charge. Questions to the Technical Editor, The Architects' Journal, 9, 11 and 13, Queen Anne's Gate, S.W.1.

QUESTIONS AND ANSWERS

3028 PAINTING METAL TO RESIST HIGH TEMPERATURES.

Q *We have recently fixed a $\frac{3}{16}$-in. thick 15-in. diameter steel flue pipe from an oil-fired oven. Part of this flue is fixed at approximately 45° on section, in consequence of which moisture collects on upper surface and is quickly vaporized, with the subsequent rapid corrosion of metal. Can you let us know of any paint which will prevent corrosion and at the same time withstand high flue temperatures?*

A It is assumed that the corrosion occurs on the outside of the pipe at times when the oven is shut down. In the ordinary course of events most normal paints with an organic base would be destroyed at high temperatures. An exception is aluminium paint, for with this material, although the binding medium will be destroyed by the heat, it may be found that the aluminium will cement itself to the hot metal and provide a reasonable protective coating for a time. The alternative, and perhaps the most satisfactory remedy, would be to apply a metallic coating by metallic spray process.

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

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A.J. 3.8.50

Announcements

In our feature on "The Industry" on July 6 it was stated that the main arch ribs for the South Bank Dome of Discovery "are riveted and not bolted, this being, so far as is known, the first time that aluminium rivets with a diameter as large as ⅞ in. have been used." The firm of P. & W. MacLellan Ltd. have pointed out that ⅞ in. diameter aluminium rivets were used in the construction of the aluminium bridge over the Tummel at Pitlochry for the North of Scotland Hydro-Electricity Board.

Mr. T. Alwyn Lloyd, F.R.I.B.A., of Cardiff, has had the degree of Doctor of Law conferred upon him by the University of Wales at Swansea.

Messrs. Edward Armstrong and Frederick MacManus, FF.R.I.B.A., of 19, Manchester Square, W.1, announce that Mr. Reginald Pianca, A.R.I.B.A., and Mr. Peter Cooke have become associate members of the firm as from January 1, 1950. The practice will continue in the style of Edward Armstrong and Frederick MacManus.

Messrs. Westwood, Sons and Harrison (F./F.) have moved from 3, Raymond Buildings, Grays Inn, to 46, Baker Street, London, W.1 (Welbeck 0694).

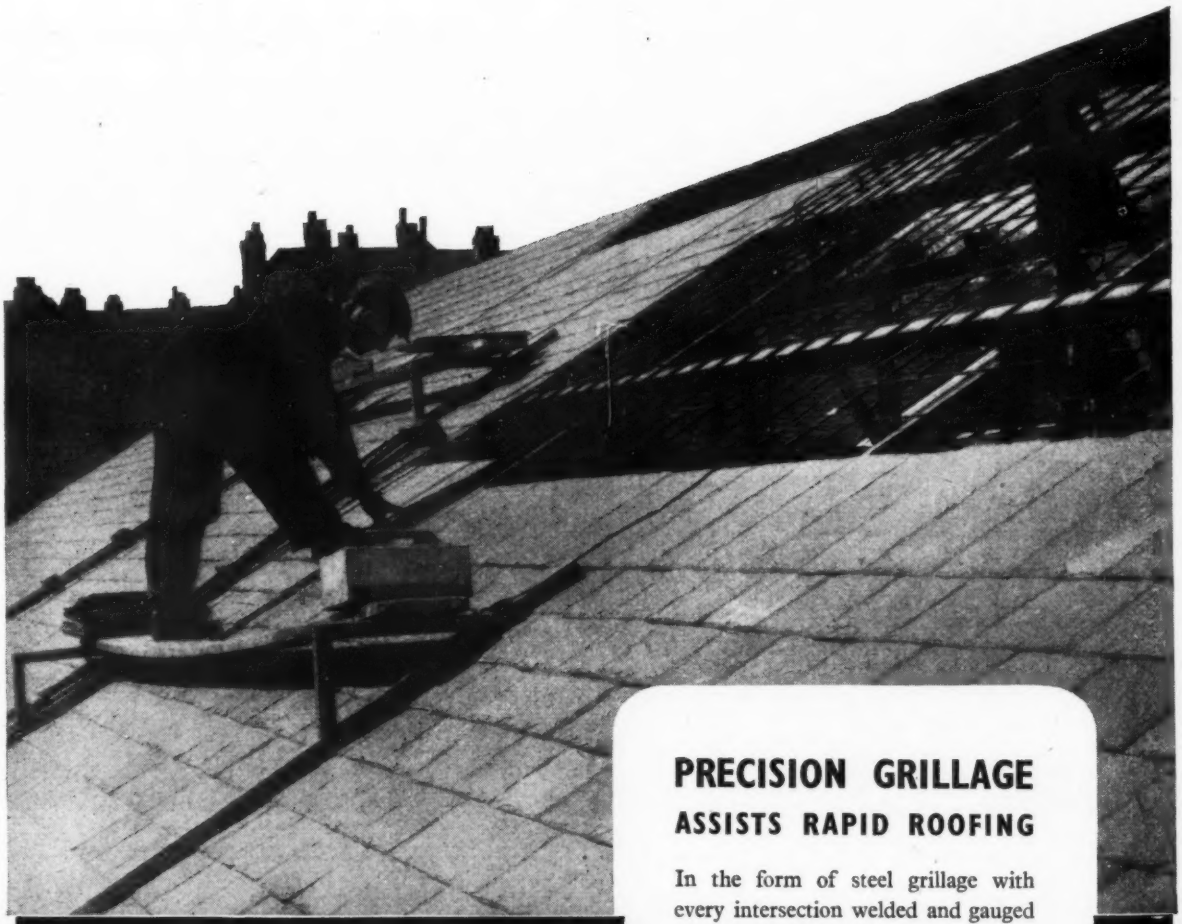
A Gibbons-Gottignies Glost Tile Kiln, built by Gibbons Bros. Ltd, of Dudley, has been installed at the works of Messrs. J. H. Barratt & Co. (1927) Ltd., who held a luncheon in connection with its installation at the North Stafford Hotel, Stoke-on-Trent, last week. It is the first kiln of its kind to be built in England, but its type has been developed on the Continent, using electricity as a heating agent and is now commonly used there for glost and bisque firing. The Barratt Company is one of the manufacturing units of the Carter Group of Companies, which has two tile factories at Poole in Dorset and owns and operates also the factory which is known as "Poole Pottery."

Buildings Illustrated

"Carrick" RNVR Club at Glasgow (*page* 109). Architect: W. A. Gladstone, A.R.I.A.S., M.INST.R.A. General Contractors: Miller Insulation Co. Ltd. Subcontractors: Berthing facilities, Harland & Wolff Ltd.; entrance hall and sun lounge, Wylie & Lochhead Ltd.; furnishings and flooring, Rowan & Boden Ltd.; furniture, H. Morris & Co.; electrical equipment and lighting, General Electric Co. Ltd.; painting and decoration, George W. Sellars & Sons; kitchen equipment, Smith & Wellstood Ltd.; sanitary fittings, William B. Morrison & Son Ltd.

Queen Mary College (*page* 110). Architects: Edward Playne, F.R.I.B.A. Subcontractors: Suspended ceilings, Anderson Construction Co. Ltd.; blinds, J. Avery & Co. Ltd.; stonework, Bath & Portland Stone Firms, Ltd.; laboratory benches & fittings, Baird & Tatlock; pre-stressed main beams, Holland & Hannen and Cubitts Ltd.; pre-stressed precast floor units, Costain Concrete Co.; partitions, Cellactite & British Uralite Ltd.; paropa roofing, Frazzi Ltd.; windows, James Gibbons, Ltd.; heating & ventilation, G. N. Haden & Sons, Ltd.; linoleum floor covering, B. Holden & Co.; guardrails, F. A. Norris & Co.; electric light, Drake & Gorham Ltd.; balustrading, Bayliss, Jones and Bayliss Ltd.

Two houses, 113 and 115, Queen's Road, Hertford (*pages* 116-118). Architect: F. Kenneth Hicklin, A.R.I.B.A. General Contractors: Messrs. Crook Bros., Ware. Subcontractors: Bricks, Uxbridge Flint Brick Co. Ltd.; special roofings, copper roof, Broderick Insulated Structures Ltd.; patent flooring, all floors except kitchen, cloaks, and lobby, Granwood Flooring Co.; stoves, "AGA" cookers in both houses with h.w. supply; door furniture, Ching (Comyn) & Co. (London) Ltd.; casements, window furniture, Williams & Williams Ltd.



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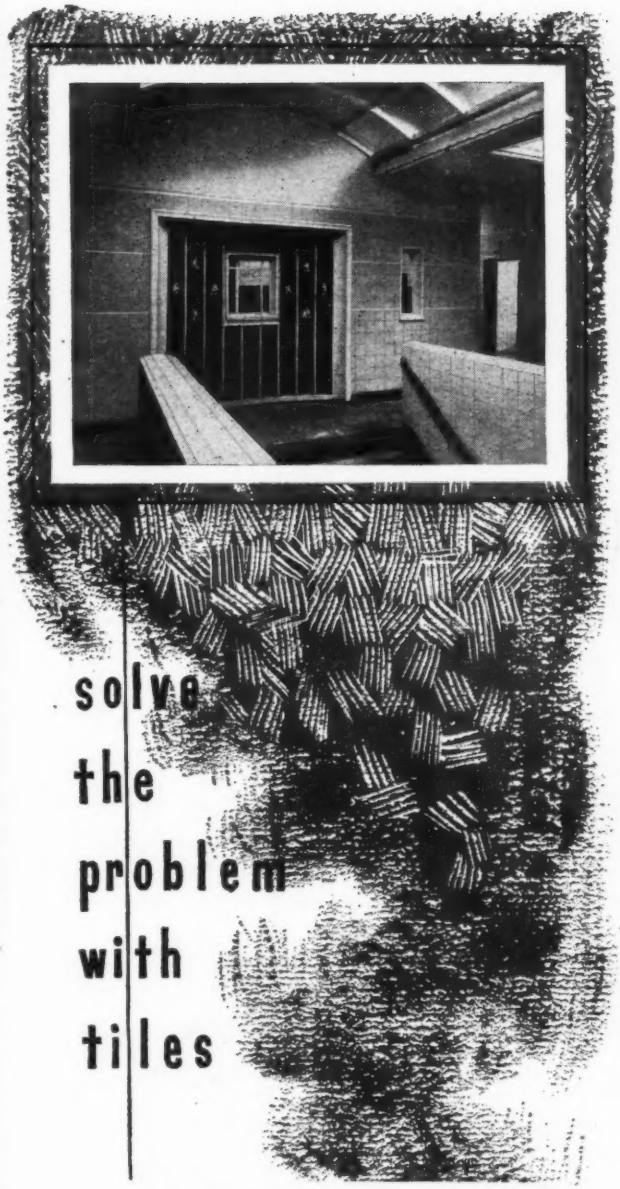

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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Public and Official Announcement

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THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. ADDRESS: EMPLOYMENT REGISTER, WREN PARK, WHYTELEAFE. Tel.: Uplands 0935. 991

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 9"87. 4341

LONDON COUNTY COUNCIL.

Applications are invited for positions of ARCHITECTURAL ASSISTANT (salaries up to £680 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. (815) 4858

COUNTY BOROUGH OF BIRKENHEAD.
APPOINTMENT OF "BOROUGH ARCHITECT."

Applications are invited for the appointment of "Borough Architect."

The commencing salary will be £1,250 per annum, and a motor car allowance of £90 per annum will be paid. No other remuneration will be payable in connection with any of the duties of the office.

The appointment will be terminable by three months' notice on either side, is subject to the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination. He will not be allowed to engage in private practice.

Forms of application and particulars of the conditions and duties of the office may be obtained from the undersigned.

Applications, in envelopes endorsed "Borough Architect," stating age, experience, and qualifications, and accompanied by copies of three recent testimonials, must reach the undersigned by not later than 10 a.m. on Friday, the 25th August, 1950.

Canvassing, directly or indirectly, will disqualify, and applicants must disclose to the undersigned in writing if they are related to any member or senior officer of the Council.

DONALD P. HEATH,
Town Clerk.

Town Hall, Birkenhead.
24th July, 1950. 4878

BOROUGH OF ACTON.
ARCHITECTURAL ASSISTANT.

Applications are invited for this permanent appointment at a salary in accordance with Grades A.P.T., V/Va of the National Scale (£520—£610 p.a.), plus London weighting. The commencing salary may be fixed within the Grades according to the qualifications and experience of the person appointed.

Applicants must be registered architects, experienced in the design, erection and maintenance of houses, flats and public buildings.

If necessary, housing accommodation will be made available to the person appointed.

An application form and a copy of the conditions of appointment may be obtained from the Borough Engineer, Town Hall, Acton, W.3, to whom applications must be delivered by 21st August, 1950.

Canvassing will disqualify.

H. C. LOCKYER,
Town Clerk.

Town Hall,
Acton, W.3. 4895

HOLLAND COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited for the appointment of PLANNING ASSISTANT, Grade II (£420-£465), in the Boston office of the Department.

Candidates should have had good general experience in a planning office and should preferably have passed the Intermediate Examination of the Town Planning Institute or some other recognised professional institution. The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination.

Applications, stating age, education, qualifications (if any) and experience, accompanied by one recent testimonial and the names of two persons to whom reference can be made, should be sent to arrive not later than 14 days after the publication of this notice. Envelopes should be addressed to the County Planning Officer, 21, Haven Bank, Boston, Lincs.

H. C. MARRIS,
Clerk of the County Council.

County Hall, Boston, Lincs.
July, 1950. 4894

BOROUGH OF ERITH.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment at a salary in accordance with the National Scale, A.P.T., II, commencing at £420 and rising by annual increments of £15 to a maximum of £465 per annum, plus London area weighting.

Applicants, who should be capable of preparing plans, specifications, estimates and Bills of Quantities for building works, should have had a good architectural training and be neat draughtsmen.

The appointment will be subject to the National Conditions of Service, to the Council's Regulations governing staff, to one month's notice in writing, and to the Local Government Superannuation Act, 1937. The successful candidate will be required to pass a medical examination.

Applications must be on the form to be obtained, together with a list of duties, from the Borough Engineer and Surveyor, Council Offices, Erith, Kent, and be delivered to him not later than Saturday, 12th August, 1950.

Canvassing, either directly or indirectly, will disqualify.

J. A. CROMPTON,
Town Clerk.

Council Offices, Erith, Kent. 4877

NATIONAL COAL BOARD.

Applications are invited for appointments as ARCHITECTURAL ASSISTANTS in the Scottish Divisional Headquarters in Edinburgh. The scope of work covers a wide field, such as Industrial, Semi-Industrial, Research, Office, and Welfare Buildings, Housing and General Planning on a large scale, affording opportunities for gaining experience. Good prospects of promotion. The appointments are superannuable and the salary scales are as follows:—

Grade I—£410×£20×£550.
Grade II—£300×£20×£440.

Applications, giving full details of age, education, experience (in chronological order), present post and salary, should be forwarded to the Establishments Officer, 1, Eglinton Crescent, Edinburgh, within 14 days. 4943

BOROUGH OF WILLESDEN.
APPOINTMENT OF CHIEF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Chief Architectural Assistant on the Permanent Staff of the Borough Engineer and Surveyor's Department.

The salary attaching to the post will be Administrative, Professional and Technical, Grade VIII, of the National Whitley Council's Scale for the London area, namely £715 to £790 per annum, rising by annual increments of £25.

Candidates must be Registered Architects and Associates of the R.I.B.A., and have had at least 10 years' previous Municipal experience in architectural design, construction and administration, subsequent to Articles or other period of training.

The person appointed will be required to devote all his time to the duties of the office, and will not be permitted to engage directly or indirectly in private practice. He will be responsible under the Deputy Architect for the control of all Drawing Office staff engaged on the design and construction of work and preparation of contracts.

It is desirable but not essential that the successful candidate should have a car for carrying out his duties. If a car is available the Council will pay a car allowance in accordance with the National Whitley Scale for essential users.

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

The appointment is 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 "Chief Architectural Assistant," not later than 10 a.m. on Thursday, 10th August, 1950.

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

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

Town Hall, Dyne Road, Kilburn, N.W.6. 4862

BOROUGH OF LUTON.
BOROUGH ENGINEER'S DEPARTMENT.
TECHNICAL STAFF.

Applications are invited for the following appointments:—

(*a*) SENIOR ARCHITECTURAL ASSISTANT (A.P.T., Grade VII, £630×£25—£710 per annum). Applicants should be A.R.I.B.A., and have extensive Municipal experience, especially in housing and school works. Housing accommodation will be made available to the successful candidate if required.

(*b*) ARCHITECTURAL ASSISTANTS, in salary grades ranging between A.P.T., I (£390-£435) and IV (£480-£525), according to qualifications and experience. For example, for Grade III, applicants must have passed Inter. R.I.B.A. or equivalent, and have at least a year's office experience; for Grade IV, applicants must have passed Inter. R.I.B.A. or equivalent and have at least two years' office experience.

The appointments will be subject to the Local Government Superannuation Act, 1937, to the National Scheme of Conditions of Service, and to the successful candidates passing a medical examination.

Applications, appropriately endorsed, giving details of age, qualifications, experience, present appointment and salary, and accompanied by names of three persons to whom reference may be made, should be sent to the Borough Engineer, Town Hall, Luton, not later than first post on Monday, 14th August, 1950. Canvassing will disqualify. Applicants must disclose whether they are related to any member or senior officer of the Council.

W. H. ROBINSON,
Town Clerk.

Town Hall, Luton.
July, 1950. 4886

MINISTRY OF WORKS.

There are vacancies in the Chief Architect's Division for ARCHITECTURAL ASSISTANTS and LEADING ARCHITECTURAL ASSISTANTS with recognised training and fair experience. Successful candidates will be employed in London and elsewhere on a wide variety of Public Buildings, including Atomic energy and other Research Establishments, Telephone Exchanges, and Housing.

Salary: Architectural Assistants, £300-£525 per annum; Leading Architectural Assistants, £500-£625 per annum. Starting pay will be assessed according to age, qualifications and experience. These rates are for London; a small deduction is made in the Provinces.

Although these are not established posts, some of them have long term possibilities, and competitions are held periodically to fill established vacancies.

Apply in writing, stating age, nationality, full details of experience, and locality preferred, to Chief Architect, W.G.10/BC, Ministry of Works, Abell House, London, S.W.1, quoting reference W.G. 10/BC. 4826

FLINTSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of a SENIOR QUANTITY SURVEYOR in the County Architect's Department at a salary in accordance with Grades A.P.T., VIII-IX (commencing at £710 per annum rising to £900 per annum). Applicants must be Fellows or Professional Associates (Quantities Sub-division) of the Royal Institute of Chartered Surveyor's, and must be thoroughly experienced in the preparation of Bills of Quantities, Specifications, and Schedules of works for large contracts carried out by Local Authorities, including measurement, adjustment and the preparation of interim and final accounts. The appointment is superannuable and subject to medical examination.

Applications will be considered from Registered disabled persons.

Applications, on a form to be obtained from the undersigned, together with the names and addresses of three persons to whom direct reference can be made, are to be submitted to me not later than the 21st August, 1950.

W. HUGH JONES,
Clerk of the County Council.

County Buildings,
Mold. 4941

LONDON TRANSPORT EXECUTIVE.

Applications are invited for a post of QUANTITY SURVEYOR in the Contracts and Statistics Section of the Department of the Chief Engineer.

The successful candidate will be required to carry out technical investigation of estimates and costs of building and civil engineering works.

Candidates should be Chartered Quantity Surveyors or have a sound experience of quantity surveying work. They should also be experienced in preparing bills of quantities and contract documents, estimating, measuring works on site and in settling final accounts.

Commencing salary according to qualifications and experience within the range of £600-£775 per annum with prospects of advancement.

The appointment is subject to a medical examination. On completion of a satisfactory probationary period, the selected applicant would, where eligible, be expected to join a Contributory Superannuation Scheme. Canvassing, directly or indirectly, will disqualify.

Applications, giving full particulars of age, training, experience and present remuneration, should be sent within fourteen days of the appearance of this advertisement, to Staff Officer (F/EV 141), London Transport Executive, 55, Broadway, Westminster, S.W.1. For acknowledgment enclose addressed envelope.

17th July, 1950. 4922

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF HEALTH AND LOCAL GOVERNMENT.
TECHNICAL STAFF—HOUSING AND PLANNING.

Applications are invited for unestablished posts of :—

(*a*) ASSISTANT ARCHITECT, Grade A (Planning)—£700—£900 per annum.

(*b*) ASSISTANT ARCHITECT, Grade B (Housing)—£500—£750 per annum.

(*c*) PLANNING ASSISTANT—£500—£750 per annum.

Commencing salary within the above ranges will be fixed according to qualifications and experience; a salary lower than £500 may be paid to a candidate under 25 years of age.

Qualifications : Candidates for (*a*) and (*b*) posts must be Registered Architects by examination. In addition, candidates for the Housing vacancy should have experience in up-to-date house design and layout.

Candidates for the Planning Assistant post must be either Registered Architects by examination, Corporate Members of the Institution of Civil Engineers or Associates of the Royal Institution of Chartered Surveyors.

In addition, applicants for Planning appointments must possess a recognised qualification in town planning or have good experience in town planning work.

Preference will be given to candidates who served with H.M. Forces during war-time, providing the Ministry is satisfied that such candidates can, or within a reasonable time, will be able to discharge the duties efficiently.

Applications, giving date of birth, full particulars of qualifications and experience, stating the post applied for, with copies of two recent testimonials, should be sent without delay, to the Director of Establishments, Ministry of Finance, Stormont, Belfast. 4935

NORTHUMBERLAND COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.

Applications are invited from persons with suitable qualifications for the following appointments :—

(*a*) ONE PLANNING ASSISTANT at a salary in accordance with Grade VI (A.P.T.) of the National Joint Council's scale of salaries (£595—£660 a year).

(*b*) ONE PLANNING ASSISTANT at a salary in accordance with Grade III (A.P.T.) of the National Joint Council's scale of salaries (£450—£495 a year).

Candidates for appointment (*a*) should be members of the Town Planning Institute or hold a professional qualification of the Royal Institute of British Architects or the Royal Institution of Chartered Surveyors.

Candidates for appointment (*b*) should have had considerable training or practical experience in planning work.

The appointments (which are whole-time ones, at offices in Newcastle-upon-Tyne), will be subject to the National Scheme of Conditions of Service, to the provisions of the Local Government Superannuation Act, 1937, and to one month's notice on either side, and the successful candidates will be required to pass a medical examination to the Council's satisfaction.

Applications, on forms to be obtained from the undersigned, must be submitted not later than the 26th August, 1950.

E. P. HARVEY,
Clerk of the County Council.

County Hall,
Newcastle-upon-Tyne, 1. 4927

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY PLANNING DEPARTMENT.
APPOINTMENT OF PLANNING STAFF.

Applications are invited for the following appointments on the established staff of the County Planning Department. Vacancies exist in the offices at Stafford and Wolverhampton.

(*a*) JUNIOR PLANNING ASSISTANTS, A.P.T., Grades I—IV.

(*b*) JUNIOR PLANNING ASSISTANTS (Draughtsmen), General Miscellaneous Grades.

Applicants for appointment (*a*) should have had training in an Architect's, Engineer's, Surveyor's or Planning Office, and preference will be given to those who have passed the Intermediate Examination of the Town Planning Institute or its equivalent.

Applicants for appointment (*b*) should be able draughtsmen, tracers and colourists. Special consideration will be given to applicants having Art School training or experience of commercial art.

The appointments will be subject to the provisions of the Local Government Superannuation Act, 1937; the National Joint Council's Scheme of Conditions of Service as adopted by the County Council; the passing of a medical examination and to one month's notice on either side.

Canvassing, directly or indirectly, will be deemed a disqualification and relationship to any Member or Senior Officer of the County Council must be disclosed.

Applications should give details of age, education, technical training, qualifications, present and previous appointments and experience, and should include copies of two recent testimonials and the names of two other persons to whom reference can be made. They should be addressed to D. W. Riley, County Planning Officer, 41a, Eastgate Street, Stafford, to be received not later than Saturday, the 12th August, 1950.

T. H. EVANS,
Clerk of the County Council.

County Buildings,
Stafford. 4926

SOUTH CAMBRIDGESHIRE RURAL DISTRICT COUNCIL.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Architectural Assistant in the department of the Council's Architect and Housing Manager (Mr. W. R. Hazlewood, A.R.I.B.A., A.M.T.P.I.). Salary A.P.T., Grade V (£520-£570).

Architectural experience in housing is necessary and candidates must be capable of surveying, levelling, and preparing detailed drawings and specifications.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, the National Conditions of Service, to a satisfactory medical examination and to one month's notice in writing on either side.

Applications, stating age, present salary, experience and qualifications, together with copies of two recent testimonials, should reach the undersigned not later than the first post on Friday, the 11th August, 1950.

Housing accommodation in the Rural District will be provided for the successful candidate in due course if necessary, and candidates should indicate in their applications if this is required.

Canvassing, directly or indirectly, will disqualify.

B. G. CRAFT,
Clerk to the Council.

County Hall,
Hobson Street, Cambridge. 4917

COUNTY BOROUGH OF GREAT YARMOUTH.
BOROUGH ENGINEER'S DEPARTMENT.
APPOINTMENT OF SENIOR ASSISTANT ARCHITECT.

Applications are invited for the appointment of a Senior Assistant Architect, Salary A.P.T., Grade VI (£595—£660). Candidates should be Associates of the Royal Institute of British Architects and need not have had previous Local Government experience. The appointment will be terminable by one month's notice on either side, and will be subject to the provisions of the Local Government Superannuation Act 1937, and to the passing of a medical examination.

Applications, stating age, qualifications, and experience, together with the names of three persons to whom reference could be made, should be enclosed in an envelope endorsed "Senior Assistant Architect," and must be received by me not later than Friday, 11th August, 1950. Canvassing will be deemed a disqualification, and candidates must disclose in writing any relationship to any member or holder of any senior office under the Council. Candidates who fail to do so will be disqualified, and if appointed, will be liable to dismissal without notice.

FARRA CONWAY,
Town Clerk.

Town Hall,
Great Yarmouth.
20th July, 1950. 4908

CITY AND COUNTY BOROUGH OF BELFAST.
HOUSING ARCHITECT'S DEPARTMENT.

Applications are invited for the posts of :—

(*a*) DEPUTY HOUSING ARCHITECT :
Salary—£800×£50—£950 plus bonus ranging from £92 to £105 per annum. The Deputy Housing Architect shall be responsible to the Housing Architect and shall undertake whatever duties the Council may from time to time assign to him, and in particular shall deputise for, and generally assist in the organisation and direction of the Department by, the Housing Architect. The post calls for experience and a good knowledge of the design and layout of new Housing Estates and Houses, Flats and Ancillary Buildings and the preparation of Plans, Specifications, Bills of Quantities and Contracts therefor.

Candidates should be Associates or Fellows of the Royal Institute of British Architects.

(*b*) CHIEF ASSISTANT ARCHITECT :
Salary—£600×£50—£750 per annum plus bonus (£90). Candidates should be fully qualified and capable of organising Drawing Office Staff and have a wide experience in design and modern constructional methods.

(*c*) SENIOR ASSISTANT ARCHITECT :
Salary—£550×£25—£650 plus bonus (£90). Candidates should be fully qualified, experienced in the design and planning of Housing Estates, particularly flats and other ancillary buildings.

The commencing salary in each case will be determined in the light of the qualifications, ability and experience of the person appointed.

Superannuation contributions at the rate of 6% of remuneration will be payable.

Candidates must not be more than forty-five years of age at 1st October, 1950.

Preference will be given to ex-Service Candidates possessing the required qualifications, provided that the Council is satisfied that such candidates can, or within a reasonable time, will be able to, fill the posts efficiently.

Applications, endorsed "Appointment of ——" should be accompanied by copies of two recent testimonials.

Canvassing in any form, oral or written, direct or indirect, will, if proved to the satisfaction of the appointing authority, disqualify a candidate for appointment.

Applications for the positions must be made on official forms (obtainable from the Housing Architect, Gas Show Rooms, Queen Street, Belfast), and must be lodged with the undersigned not later than 12 o'clock noon on SATURDAY, 12th AUGUST, 1950.

JOHN DUNLOP,
Town Clerk.

City Hall, Belfast.
July, 1950. 4918

COUNTY OF LEICESTER.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following established posts :—

(*a*) SENIOR ASSISTANT ARCHITECTS.
A.P.T., Grade VII/VIII. Salary £635—£760.
Candidates must be Registered Architects, should have good experience in the design and construction of modern buildings; be capable of carrying through projects from inception to completion; and if necessary able to take charge of a group. There are several vacancies in these grades and applications will be considered which indicate a specialised training, *e.g.*, ability to handle large projects or an aptitude for taking charge of programmes of smaller works.

(*b*) ASSISTANT ARCHITECTS.
A.P.T., Grade V. Salary £520—£570.
Candidates should be Registered Architects, and preference will be given to Associate Members of the R.I.B.A. who have had good experience in the design and construction of modern buildings.

The appointments will be subject to the National Scheme of Conditions of Service and to the provisions of the Local Government Superannuation Act, 1937, and to a satisfactory medical examination. Consideration will be given to applications from Registered Disabled Persons.

Applications must be made on the forms to be obtained from the County Architect, T. A. Collins, A.R.I.B.A., 123, London Road, Leicester, to whom they should be returned, accompanied by copies of three recent testimonials, not later than 19th August, 1950.

JOHN A. CHATTERTON,
Clerk of the County Council.

Grey Friars,
Leicester. 4913

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
BUILDING SURVEYORS.

Applications are invited for the following positions in the Architect's Department.

SURVEYOR, GRADE II—£700×£35—£840.
SURVEYOR, GRADE III—£550×£25—£700.
TECHNICAL ASSISTANT—up to £580.

Candidates should be capable of making surveys and preparing plans of factories, formulating requirements for satisfactory means of escape and negotiating with factory occupiers. The Grade II Surveyor, who should be a qualified architect or surveyor, will be in immediate charge of this work.

Commencing salaries of Grade III Surveyors and technical assistants will be assessed after interview. All positions superannuable. Application forms from the Architect (AR/EK/BR), County Hall, S.E.1, enclosing stamped addressed foolscap envelope. Canvassing disqualifies. (1002). 4897

BOROUGH OF WIDNES.
BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the undermentioned appointments :—

ONE ASSISTANT ARCHITECT. Grade A.P.T., VI (£595-£660). Applicants to be registered Architects, with Schools experience.

FIVE ARCHITECTURAL ASSISTANTS. Grade A.P.T., IV (£480-£525). Applicants to be preferably Student R.I.B.A., and have had at least two years' office experience.

The appointments will be subject to the National Scheme of Conditions of Service and the Local Government Superannuation Act of 1937, and to the candidate passing a medical examination.

Applications, stating full particulars of experience, qualifications, etc., together with the names of two referees, should be sent to T. A. Brittain, F.R.I.B.A., Borough Architect, Brendan House, Widnes Road, Widnes, not later than Saturday, 19th August, 1950.

Canvassing, directly or indirectly, will disqualify.

FRANK HOWARTH,
Town Clerk.

Town Hall, Widnes.
19th July, 1950. 4875

COUNTY BOROUGH OF DONCASTER.
ESTATES AND HOUSING DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Architectural Assistant in the Estates and Housing Department of the Council, at a salary in accordance with Grade V of the Administrative, Professional and Technical Division of the National Scale of Salaries, *i.e.*, £520 per annum, rising by annual increments of £15, £15, and £20, to £570 per annum.

Applicants should be Associates of the Royal Institute of British Architects, and have experience in housing, design and layout.

The appointment, which will be an established one, will be subject to one month's notice in writing on either side, and to the terms of the Local Government Superannuation Act, 1937. The successful candidate will be required to pass a medical examination.

Housing accommodation may be made available.

Applications, stating age, qualifications, and previous experience, together with copies of three recent testimonials, should be forwarded to the undersigned not later than Monday, the 14th August, 1950.

Canvassing, directly or indirectly, will be a disqualification.

H. S. ESSENHIGH,
Town Clerk.

1, Priory Place,
Doncaster.
24th July, 1950. 4914

HIS MAJESTY'S COLONIAL SERVICE.

A vacancy exists for a TEMPORARY ASSISTANT ARCHITECT, Public Works Department, Nyasaland. The appointment is on contract/gratuity terms at a salary of £1,050 per annum.

Candidates should be between the ages of 25 and 35, Associate or Licentiate of the Royal Institute of British Architects. Good general experience in preparing the necessary drawing for building work from start to finish and capable of taking over jobs from the preliminary sketch plan stage. Specialised knowledge of any type of building is not required, but a sound knowledge of construction and ability to adapt this to local conditions. Previous knowledge of conditions in hot climates is desirable. Single candidates preferred.

Quarters are provided, if available, at a rental of 10% of salary. Free first class passages are provided for the officer, his wife and children up to a maximum of three adults in all. Home leave on full pay at the end of each tour of two to three years at the rate of five days for each month of resident service. Income tax at local rates. Free medical attention.

Intending candidates should write immediately for further particulars and application form to the Director of Recruitment, Sanctuary Buildings, Great Smith Street, London, S.W.1, giving brief details of age, qualifications and experience, quoting reference No. 27301/36. 4912

JOINT COUNTY COUNCIL OF PERTH AND KINROSS.
PLANNING DEPARTMENT.

Applications are invited for the post of ASSISTANT PLANNING OFFICER. Candidates must be Associate Members or have passed the final examination of the Town Planning Institute and should have practical experience in planning work. The salary scale is £550 to £610 (A.P.T. Va). The appointment will be subject to the Local Government Superannuation (Scotland) Act, 1937, and the successful candidate will require to pass a medical examination. A house will be available.

Applications stating age, qualifications and experience, with copies of three recent testimonials, should be lodged with the County Clerk, County Offices, York Place, Perth, not later than 31st August, 1950. 4921

EAST SUFFOLK COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the following post in the County Architect's Department:—

ONE ASSISTANT QUANTITY SURVEYOR, A.P.T., Grade IV. Consolidated salary, £480-£525.

The commencing salary in the grade will be fixed according to the qualifications and experience of the candidate.

Applicants should preferably have passed the Intermediate examinations of the R.I.C.S. (Quantities Division), and have had some experience in a Quantity Surveyor's Office. They should have some knowledge of all stages of the work for the preparation of Bills of Quantities, including estimating, site measurement and preparation of interim certificates and the preparation and settlement of final accounts.

The successful candidate will be required to work under the direction of the Senior Quantity Surveyor.

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

Applications, stating age, qualifications and full details of previous experience, accompanied by copies of three recent testimonials, should be sent to E. J. Symcox, F.R.I.B.A., County Architect, County Hall, Ipswich, not later than 12th August, 1950.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

G. C. LIGHTFOOT,
Clerk of the Council.

County Hall,
Ipswich. 4924

STAFFORDSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
APPOINTMENT OF ARCHITECTURAL STAFF.

Vacancies exist on the permanent staff for experienced and capable ARCHITECTURAL ASSISTANTS, some with special knowledge of housing, at salaries ranging according to grading from £596 per annum to £760 per annum.

A temporary lodging allowance of £1 5s. 0d. per week is also payable for a period not exceeding six months, plus third class return fare home every two months to newly appointed married staff whose homes are outside this geographical County and who are unable to secure housing accommodation.

The appointments will be subject to the scheme and conditions of the National Joint Council and to the provisions of the Local Government Superannuation Act, 1937.

Applications, giving full details of experience, qualifications, age, etc., together with copies of three recent testimonials, should be received by the County Architect, Martin Street, Stafford, within fourteen days of the appearance of this advertisement.

Applicants must disclose whether or not they are related to any member or senior officer of the Council.

T. H. EVANS,
Clerk of the County Council.

County Buildings,
Stafford.
25th July, 1950. 4933

COUNTY OF DORSET.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of:—

(*a*) An ASSISTANT ARCHITECT with experience in alterations and additions to existing properties (A.P.T., Grade IV—Salary £480×£15—£525).

(*b*) An ASSISTANT ARCHITECT (A.P.T., Grade II—Salary £420×£15—£465).

The minimum qualification required for these appointments is the Intermediate Examination of the Royal Institute of British Architects.

(*c*) An experienced DRAUGHTSMAN for the Maintenance Section dealing with small alterations, additions and repairs. Scale General Division (Salary—Male £135—£385), according to age.

Forms of application, together with conditions of appointment, may be obtained from the Clerk of the County Council, County Hall, Dorchester, to whom applications must be returned not later than August 19th, 1950. 4906

EDINBURGH COLLEGE OF ART.
SCHOOL OF ARCHITECTURE.

Applications are invited for the following full-time appointments on the Teaching Staff of the College:—

SENIOR ASSISTANT. Salary scale £700-£800.
ASSISTANT, Grade II. Salary scale £450-£700.
ASSISTANT (JUNIOR). Salary scale £375-£610.

Commencing salary according to qualifications and experience.

Forms of application and conditions of appointment can be obtained from the Secretary, Edinburgh College of Art, Lauriston Place, Edinburgh, 3, to whom completed applications should be sent not later than 12th August, 1950. 4846

RHYMNEY URBAN DISTRICT COUNCIL.
APPOINTMENT OF ARCHITECT.

Applications are invited for the permanent appointment of an Architect to the above Council. The salary will be Grade V (£520—£570 per annum) of the A.P.T. scales.

Applicants will be expected to prepare plans, specifications, bills of quantities, etc., for the Council's housing schemes, and supervise the housing contracts. They should preferably be members of the Royal Institute of British Architects.

The appointment is subject to the passing of a medical examination and to the provisions of the Local Government Superannuation Act.

Applications, stating age, qualifications, experience, etc., with the names of three persons to whom reference may be made, should reach the undersigned not later than Monday, the 4th day of September, 1950.

(Signed) R. T. LEWIS,
Clerk and Chief Financial Officer.

Council Offices,
Rhymney, Mon.
24th July, 1950. 4915

BOROUGH OF BEXLEY.
QUANTITY SURVEYOR (TEMPORARY).

Applications are invited for this appointment within Grade A.P.T., VI (£595—£660) plus £30 per annum London "Weighting."

Forms of application, with conditions of appointment may be obtained from the Borough Engineer and Surveyor, West Lodge, Broadway, Bexleyheath, to whom completed applications must be returned by 21st August, 1950.

Canvassing, directly or indirectly, will disqualify.

W. WOODWARD,
Town Clerk.

Council Offices,
Bexleyheath. 4932

NATIONAL COAL BOARD.
NORTH EASTERN DIVISION.

Applications are invited for the following appointments in the Architect's Department at Denaby.

ARCHITECT, GRADE I. Salary scale: Male, £700×£25—£875 per annum. Female, £550×£25—£725 per annum.

ARCHITECT, GRADE II. Salary scale: Male, £450×£25—£700 per annum. Female, £425×£15—£575 per annum.

Applicants should be A.R.I.B.A. or equivalent and have considerable experience in the preparation of sketch plans, working drawings and specifications for work of magnitude. Salary will be in accordance with qualifications and experience. Application forms may be obtained from the Establishments Officer, National Coal Board, Ranmoor Hall, Sheffield, 10. Original testimonials should NOT be forwarded. Closing date, 19th August, 1950. 4928

WEST SUSSEX COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of an ASSISTANT ARCHITECT at a salary in accordance with Grade II. A.P.T. Division (£420 to £465 per annum) of the Consolidated National Scales.

Applicants should be capable of assisting in the preparation of schemes for architectural work, including surveys of sites and existing buildings, and the preparation of working and detail drawings.

Further particulars should be obtained immediately from the County Architect, County Hall, Chichester, to whom detailed applications must be submitted not later than the 17th August, 1950.

T. C. HAYWARD,
Clerk of the County Council.

County Hall,
Chichester.
25th July, 1950. 4925

CARSHALTON URBAN DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT.

Applications are invited for the appointment of Architectural Assistant in the Engineer and Surveyor's Department, at a salary in accordance with Grade A.P.T., VI of the National Scale (£595—£660) plus London "Weighting."

Applicants must hold the Final Examination Certificate of the R.I.B.A. and be Registered Architects. They must be competent in design and construction and have had sound experience in the architectural work of a Local Authority.

The appointment will be subject to (1) the provisions of the National Scheme of Conditions of Service, (2) the passing of a medical examination for superannuation purposes, and (3) one month's notice on either side.

The Council cannot provide the successful applicant with housing accommodation.

Applications on forms obtainable from the undersigned must be returned, together with the names of three referees, not later than 28th August, 1950.

Canvassing in any form will be a disqualification.

J. W. WRIGHT,
Clerk of the Council.

District Council Offices,
The Grove, Carshalton. 4949

BOROUGH OF CAERNARVON.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
APPOINTMENT OF AN ENGINEERING OR ARCHITECTURAL ASSISTANT.

Applications are invited for the post of Engineering or Architectural Assistant in the above Department, for a period of not less than 3 years at a salary in accordance with Grade A.P.T., III of the National Scheme of Conditions of Service. (£450×£15 to £495 per annum.)

Candidates should have had a thorough training and be able to prepare working drawings in connection with the layout of Housing Estates, and House-type Plans.

Preference will be given to Candidates who have passed the Intermediate Examination of the Royal Institution of British Architects or the Institution of Municipal Engineers.

Housing accommodation will be provided for the successful Candidate if such is required.

Applications stating age, qualifications and experience, together with copies of two recent testimonials, should reach the undersigned not later than first post on Friday, 18th August, 1950.

Candidates should disclose whether they are related to any Member or Senior Official of the Council, and canvassing directly or indirectly will disqualify.

W. P. DAVIES,
Town Clerk.

Briggs Chambers,
Caernarvon. 4948

COUNTY COUNCIL OF THE COUNTY OF RENFREW.

Applications are invited for the following appointments in the County Engineer's Department:—

(*a*) SENIOR ARCHITECTURAL ASSISTANT. Salary scale A.P.T., V/VI (£520—£660) p.a.

(*b*) INTERMEDIATE ARCHITECTURAL ASSISTANT. Salary scale A.P.T., I/II/III (£390—£495) p.a.

Applicants should have wide experience of Local Authority Housing and Public Buildings. Preference will be given to members of the R.I.B.A. and the R.I.A.S.

The appointments are subject to the provisions of the Local Government Superannuation (Scotland) Act, 1937. Applications, stating age, qualifications and experience, together with copies of two recent testimonials, should be lodged immediately with the County Clerk, County Buildings, Paisley.
25th July, 1950. 4923

BOROUGH OF ILFORD.
APPOINTMENT OF:—

(*a*) TWO TEMPORARY JUNIOR ENGINEERING ASSISTANTS.

(*b*) TWO TEMPORARY JUNIOR ARCHITECTURAL DRAUGHTSMEN.

Applications are invited for the following appointments on the temporary staff of the Borough Engineer.

(*a*) Junior Engineering Assistants. Candidates must have had sound training and general experience and be competent to carry out surveying and levelling, and be capable draughtsmen.

(*b*) JUNIOR ARCHITECTURAL DRAUGHTSMEN. Candidates must be capable draughtsmen and have sound drawing office experience in general architectural works, particularly in regard to working drawings.

The salaries for these appointments will not exceed A.P.T., Grade I or II, *viz.*, £390—£465 per annum plus London Weighting, the salary depending on the experience and qualifications of the persons selected.

Appointments, which are whole time ones, are subject to one month's notice on either side, to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, and medical examination.

Forms of application may be obtained from the Borough Engineer and Surveyor, Town Hall, Ilford, and should be returned to the undersigned not later than the 19th August, 1950.

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

K. F. B. NICHOLLS,
Town Clerk.

Town Hall,
Ilford.
July, 1950. 4947

KENT EDUCATION COMMITTEE.
MEDWAY COLLEGE OF ART, EASTGATE, ROCHESTER.
DEPARTMENT OF ARCHITECTURE.

STUDIO MASTER (Design and Building Construction) required to commence in September next, or as soon after as possible. Burnham Technical Scale salary with additions for degree (A.R.I.B.A.), approved training, professional and/or teaching experience. In addition, for suitable candidate, post will carry responsibility allowance up to a maximum of £100 per annum.

Apply by letter to the Principal of the College. 4907

DUNDEE COLLEGE OF ART SCHOOL OF ARCHITECTURE.

The Governors of the Dundee Institute of Art and Technology invite applications for the position of SENIOR LECTURER AND STUDIO INSTRUCTOR.

Applicants should be members of the R.I.B.A. and should preferably be holders of a degree or diploma of a recognised School of Architecture.

Salary scales :—Men, £700 by £25 to £800; Women, £560 by £20 to £640.

Applications should be lodged as soon as possible and should be on the prescribed form which, with full particulars, may be obtained from J. CAMERON FREER, Clerk and Treasurer, Bell Street, Dundee.

25th July, 1950. 4934

COUNTY OF LINCOLN—PARTS OF LINDSEY.
COUNTY ARCHITECT'S DEPARTMENT.
APPOINTMENT OF BUILDING INSPECTOR.

Applications are invited from persons having sound practical knowledge of building and able to prepare explanatory drawings and brief specifications and rough estimates for maintenance work and for small building work.

The appointment is on the permanent staff and superannuated. The salary payable is in accordance with APT., Grade IV, commencing at £480 per annum, rising, subject to satisfactory service, to £525 per annum.

It is the intention of the County Council to provide a car for the use of the person appointed and for the use of other persons, and therefore no car allowance is payable. Normal subsistence is payable.

Applications stating age, training, present and past appointments and experience, to be submitted to the undersigned, together with copies of three recent testimonials, not later than Monday, 21st August, 1950.

A. RONALD CLARK,
A.R.I.B.A., A.M.T.P.I.,
County Architect.

County Offices,
Lincoln. 4945

Partnership

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

F.R.I.B.A. practising at Sussex home, urgently requires share of London office of good address in vicinity West End, on partnership arrangement. Will give full architectural assistance and should bring about £1,000 p.a. in fees based on past 3 years records. Box 4951.

Architectural Appointments Vacant

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

YOUNG ASSISTANT, interested in Ecclesiastical work required in private East Midlands office; student considered. Full particulars to Box 4167.

ARCHITECTURAL ASSISTANT, of Intermediate standard, required immediately by firm of Architects in West End of London; salary according to experience and qualification. Box 4403.

ARCHITECTURAL ASSISTANT, experienced, required at once. Write, stating age, experience, and qualifications, etc., to Messrs. Martin & Martin & W. H. Ward, 106, Colmore Row, Birmingham, 3. 4760

THE CO-OPERATIVE WHOLESALE SOCIETY, LTD., invite applications for the following appointments on the staff of the Manchester Architect's Department :—

THREE ASSISTANT ARCHITECTS. Salary £550-£650 per annum. Applicants, who must have had practical office experience, are required to have a sound knowledge of building construction and be able to produce working drawings and details from sketch plans. Experience in the design and planning of modern industrial and commercial buildings will be considered an advantage.

The above appointments are permanent and offer prospects of up-grading to competent Assistants. Successful candidates will be required to undergo a medical examination for entry into a compulsory superannuation scheme.

Applications, stating age, experience and qualifications, to be addressed to the Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 4806

ARCHITECT'S ASSISTANT required by busy provincial Architect, town and country practice, Reading area; capable of preparing sketch plans, working drawings, specifications, supervising, checking accounts; car expenses; good salary and prospects. Write, stating experience and salary required, to Box 4810.

Sir John Burnet, Tait & Partners require ARCHITECTURAL ASSISTANTS, with sound knowledge of construction and experience in production of working drawings.

Salary £450-£650, according to experience.

Write 10, Bedford Square, W.C.1, giving particulars of age, experience and salary required. 4872

ARCHITECTURAL ASSISTANT required; able to take charge of small group; must be practical and good; draughtsman, experienced in construction, and aged not under 35 years; salary £500-£600. Write, stating age, training, qualifications and experience, to Brewill, Son & Nunn, Armitage Chambers, Victoria Street, Nottingham. 4871

ARCHITECTURAL ASSISTANT required for Industrial Company in Wembley. Write, stating age, experience, and salary required, to Box 4873.

EXPERIENCED ARCHITECTURAL ASSISTANT required by Architect to London Brewery, must be a practical draughtsman with good knowledge of construction. Apply in writing, stating age, training, experience and salary required, to Box 4942.

ASSISTANT ARCHITECT required for schools project. High standard of draughtsmanship and sound knowledge of construction essential. Write, stating experience, qualifications and salary required, to Kendrick Findlay, 35, Tavistock Square, London, W.C.1. 4937

VACANCY for ASSISTANT ARCHITECT to work on schools, etc. Office, W.C.1 area. Good draughtsmanship and sound knowledge of construction essential. Salary according to qualifications. Write Box 4938.

ARCHITECTURAL and SURVEYING ASSISTANT (25—30) required by Chartered Surveyors and Architects for General Practice and to understudy Principal. Must be good draughtsman and able to prepare Specifications, and with sound knowledge of materials. Car or motorcycle essential. Mileage allowance paid. Apply by letter, with age, experience, salary expected, etc., Sedgwick, Weall and Beck, 18/20, High Street, Watford. 4929

ARCHITECTURAL and ENGINEERING ASSISTANTS required by large company specialising in factory-made buildings for home and overseas; good prospects overseas and dominions after short initial experience at works. Reply, giving age, experience and salary required, Managing Director, A. W. Hawksley, Gloucester. 4916

BREWERY in Southern Counties requires ARCHITECTURAL ASSISTANT experienced in Surveys of premises as existing, preparation of working drawings. House available. Salary according to qualifications.—Box 4930.

LONDON HOSPITAL, Whitechapel, E.1. Applications are invited for the appointment of Architectural Assistant. Salary in accordance with A.P.T., Scale Grade VI., *i.e.*, £596 by £20 by £20 by £25 to £660 plus £30 London Weighting. Candidates with knowledge of hospital work desirable but not essential. The post is superannuable under the National Health Superannuation Regulations, 1947/49. Applications, giving age, present salary and brief statement of qualifications and experience, should be addressed to the House Governor. 4905

SENIOR ARCHITECTURAL ASSISTANT required. Hospital experience desirable but not essential. Salary £625 with annual increments. Apply in writing with full details to the Surveyor, London Hospital, Whitechapel, E.1. 4904

ARCHITECTS and ARCHITECTURAL ASSISTANTS required by Architects with considerable hospital, ecclesiastical and general practice, in North Wales office. Initiative and willingness to accept responsibility primary considerations. Apply immediately with particulars, and state starting salary required, to Box 4911.

WANTED.—JUNIOR ARCHITECT'S ASSISTANT; interested in modern construction. Edgar Hoenig, L.R.I.B.A., 79/80, Petty France, S.W.1. Tel.: WHitehall 2561/2/3. 4248

ARCHITECTS have vacancy for SENIOR ASSISTANT with good office experience. Commencing salary £550—£600 with excellent prospects. Stephenson & Gillis, 2, Saville Chambers, North Street, Newcastle-upon-Tyne. 4946

JUNIOR ARCHITECTURAL ASSISTANT required in the Architect's Department of Multiple Retailers in London. Good draughtsman with shopfitting experience required. Five-day week. Box 4950.

Architectural Appointments Wanted

ARTICLE trained Registered Architect and Chartered Surveyor (Building), over 22 years' varied experience private, local and Government offices, now Chief Assistant in private (London) office, seeks post with provided/assisted 3 b.r. accommodation. Box 551.

SENIOR ASSISTANT (registered). Experienced university and public buildings, hospitals and housing. Responsible position required. Please write Box 566.

LIVERPOOL. Post required by school-trained Architect. Two years' experience. Available for interview after mid-August.—Box 565.

A.R.I.B.A. (office trained), age 29, with 5 years' experience of managing private practice, requires position as Managing Assistant or Branch Manager. Any district considered, and living accommodation desirable but not essential. Salary, £800. Box 564

Other Appointments Vacant

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

ARCHITECTURAL Metalworkers require a DESIGNER-DRAUGHTSMAN of considerable merit; top salaried position for skilled man. Apply The Morris Singer Company, Hope House, Gt. Peter Street, Westminster, S.W.1. 3564

SETTER-OUT wanted for Architectural Metalwork; good wages and ideal working conditions. Apply: The Morris Singer Co. Ltd., Ferry Lane, Forest Road, Walthamstow, E.17. 3524

INTELLIGENT and enthusiastic young man, with some knowledge of building construction and materials, wanted for unusually interesting selling job, mainly in London (full-time). Write, with full particulars of age, training, experience, salary required, to Box 366.

BRISTOL firm of Quantity Surveyors require several young recently qualified ASSISTANTS, desirous of obtaining further experience, with opportunity of responsibility; permanent positions, pensionable. Write in confidence, stating age, experience, and salary required, to Box 4867.

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Quantity Surveyor required by well-known, established and progressive Company of Building and Civil Engineering Contractors in Birmingham. Experience is required in settlement of final accounts on contracts up to £250,000 value. Salary offered will be according to qualifications and experience, but a figure in the region of £1,500 per annum is envisaged. Assistance with housing accommodation may be provided if necessary. The appointment is intended to be permanent and subject to Superannuation Scheme after preliminary period of satisfactory service. Replies will be treated in strict confidence. Box 4902.

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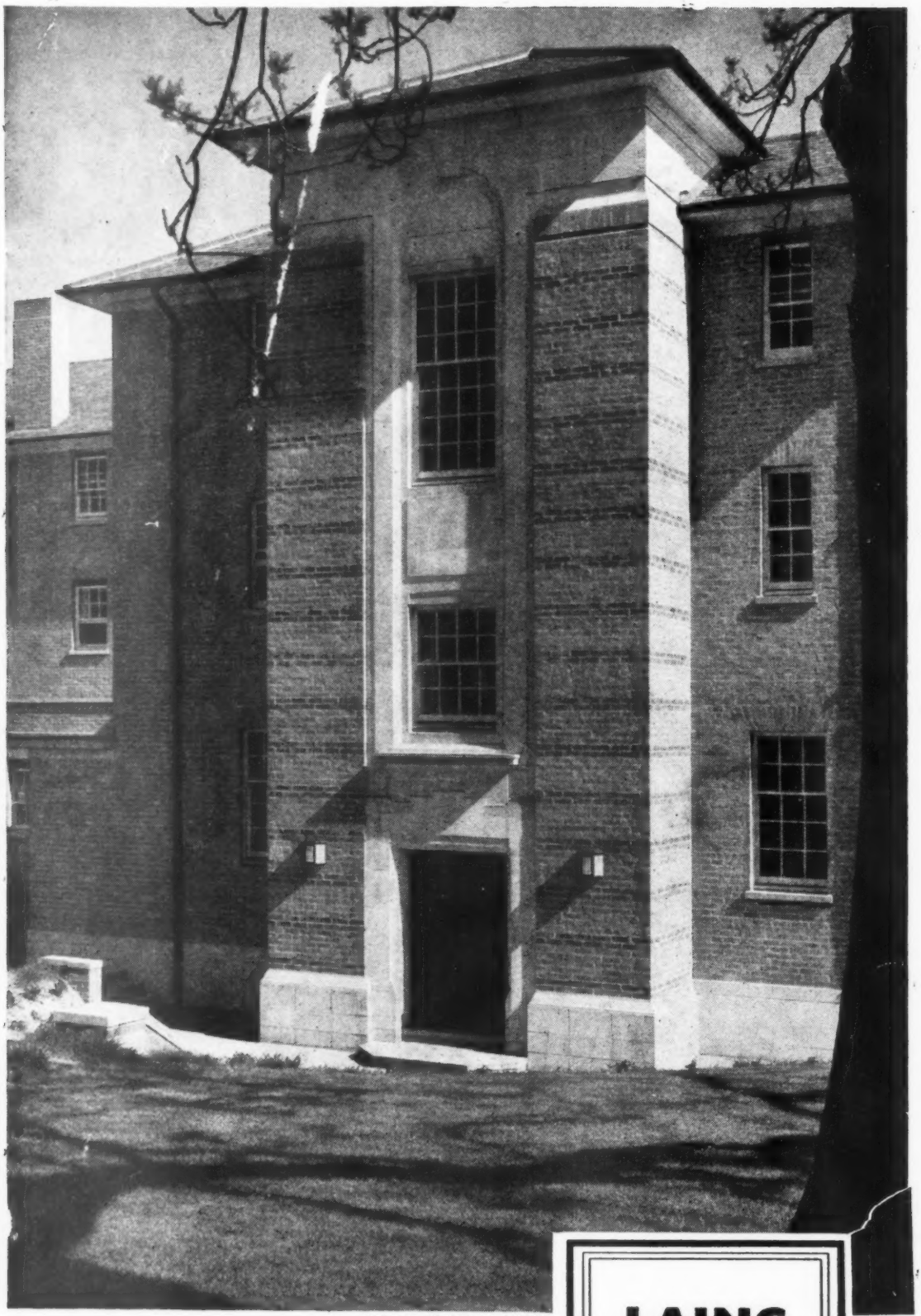

Architect : W. T. Curtis F.R.I.B.A.

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