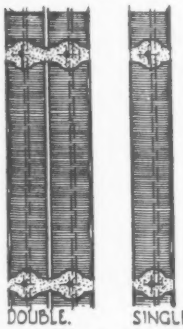
DAYLIGHT WITH SAFETY

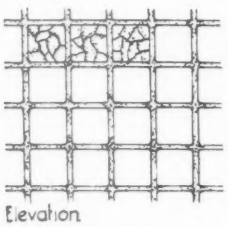
GLAS-CRETE

PROTECTION AGAINST

BLAST, SPLINTERS AND INCENDIARY BOMBS

SOLID GLASS BRICK PARTITIONS



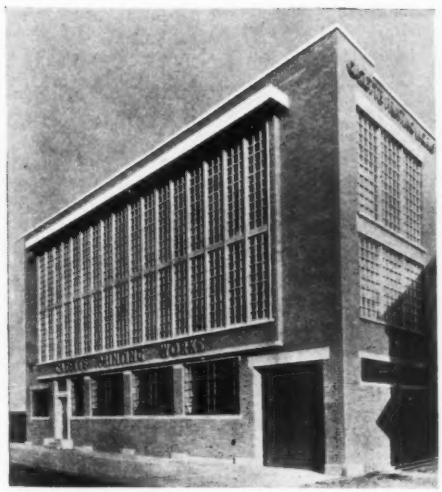


Elevation

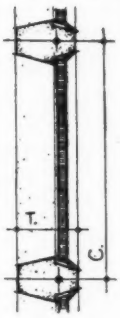
Size of lens . 8"x 8"
Joint at face : 5/8" or more
Thickness of wall : 11½".

Section. Scale : 1" 0" to 2"

SOLID GLASS BRICK CONSTRUCTION (Type 88) : Blast and Splinter resisting. A panel of single untoughened lenses will withstand blast of 500 lb. bomb at 50 ft. Even greater protection is given by toughened lenses or a double construction composed of two lenses sealed together with a transparent celluloid layer. The lenses, 8 in. by 8 in., plain on one side and Flemish pattern on the other, form a decorative construction equally suitable for external or internal work. The sides of the lenses are rebated to provide horizontal and vertical keyed channels in which concrete and reinforcing rods are used to form structural members. This construction is patented and can be executed only by the Company's specialist staff.



GLASCRETE WINDOWS OR PARTITIONS

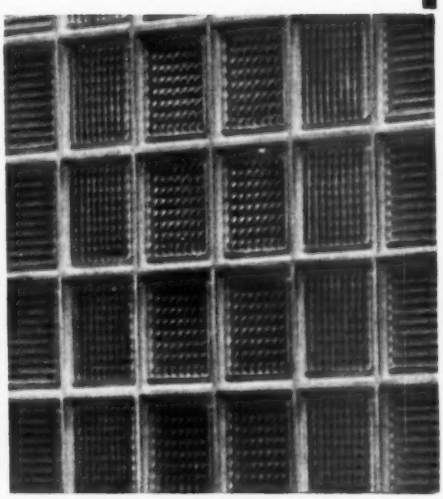


Elevation

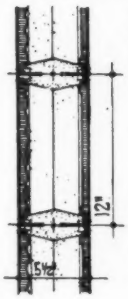
Type No	c. to c. of ribs · C ·	Thickness · T ·	Glass size
600	Both ways 12"	2 1/4" & 3"	10 1/8" x 10 1/8"
601	H = 18" W = 12"	2 1/4"	16 1/8" x 10 1/8"
602	H = 32" W = 16"	3 1/4"	29 1/2" x 13 1/2"
603	Both ways 24"	3 1/4"	21 1/2" x 21 1/2"

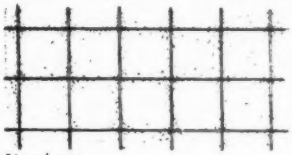
GRID WINDOW CONSTRUCTION (Types 600) : Blast resisting.

This construction consists of a series of vertical and horizontal exposed reinforced concrete ribs with glazing. Suitable for replacing large areas of glass in Hospitals, Sanatoria, Factories, etc. Areas of any size can be built up in a number of units, the size and strength of the joints between units being designed to suit the span and load required. Copper glazing clips cast in ribs. No painting is required. Glazing may be carried out in plate glass but in order to obtain the maximum advantage of this construction wired glass or armoured plate should be used. Opening lights or ventilators can be introduced where required. Precast 9 in. by 9 in. R.C. and glass units can be supplied where it is required to substitute glazing for brickwork.



DOUBLE GLASS & LOAD BEARING CONSTRUCTION





Elevation

LENSES: Special 12"x12" lenses having ribbed pattern on inside face
FIXING : Glass is set in mastic & fixed by means of metal ties through the framing

Section. Scale. 1'-0" to 1"

DOUBLE GLASS AND LOAD-BEARING CONCRETE CONSTRUCTION (Type 1212) : Pat. No. 512899. Blast resisting.

A construction comprising a reinforced concrete grid formed either *in situ* or in precast panels. To both sides of this grid, glass plates are fixed by means of metal fittings. The joints between the glass plates are filled with special mastic. The construction therefore has a flush glass surface on both sides, has sealed air pockets between opposing glasses, can be constructed to an indefinite height and a considerable width and will normally carry the weight of its own thickness of brickwork above. This construction is patented and can be executed only by the Company's specialist staff.

THE ARCHITECTS' JOURNAL

THE ARCHITECTS' JOURNAL WITH WHICH IS INCORPORATED THE BUILDERS' JOURNAL AND THE ARCHITECTURAL ENGINEER IS PUBLISHED EVERY THURSDAY BY THE ARCHITECTURAL PRESS (PUBLISHERS OF THE ARCHITECTS' JOURNAL, THE ARCHITECTURAL REVIEW, SPECIFICATION, AND WHO'S WHO IN ARCHITECTURE) FROM 45 THE AVENUE, CHEAM, SURREY.

*

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The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, APRIL 25, 1940. NUMBER 2362 : VOLUME 91

PRINCIPAL CONTENTS

DAM UNDER CONSTRUCTION

What is probably the busiest concrete-mixing plant in the world is on the east side of Grand Coulee Dam. Four-fifths, 8,000,000 cubic yards, of the concrete to go into this dam has now been placed, with part of the central section and some height across the whole dam yet to go. The Bureau of Reclamation is building Grand Coulee dam on the Columbia River, Eastern Washington, for irrigation and power.

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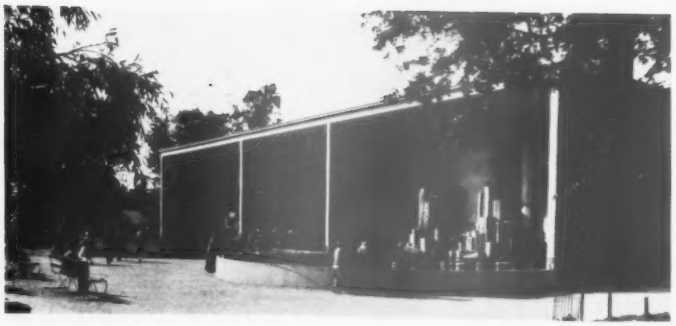
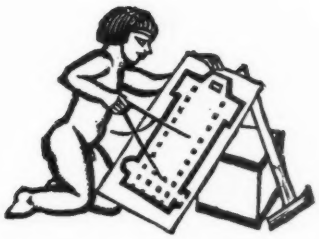


MONKEYS IN COPENHAGEN

Two views of the monkey house at the Copenhagen Zoo From the exhibition of photographs of architecture of Norway and Denmark, now being held at the Building Centre.



THE *NEW STATESMAN* AND BYRON

FOR some years something has been going on between Mr. Robert Byron and the Old Guard of architectural criticism. At first, it seemed possible that Mr. Byron only borrowed weapons in order to be the more provocative and amusing : but latterly, there has been every sign that the Old Guard and Mr. Byron have pledged each other support in a regular campaign.

So far as the outside world can reconstruct events, this campaign began a few years ago, when Mr. Byron, distinguished traveller and writer, came into contact for the first time with the slogans of Functionalism. Mr. Byron, it seems certain, was pleased to find that these slogans could be expanded into grounds for objection to developments in architecture with which he had no personal sympathy.

When first he used them to this end, Mr. Byron was assured that he was misrepresenting the aims of modern architects. It made no difference. Having once read the slogan " *The house is a machine for living in,*" Mr. Byron thereafter could not, or would not, alter his belief that he had modern architecture where he wanted it for all time.

To everyone acquainted with modern architecture it is unnecessary to explain that that brilliant slogan was intended only to emphasize the great and complicated range of needs, conditions and technical methods which are the *raw materials* which architects have to resolve into an architectural æsthetic.

That slogan was a selling point : and, like all the best selling points, it had only room for half the truth. It announced a much-needed return to an architectural discipline after a century of license—some of it charming license. It emphasized the need for beginning again from the beginning with each problem ; of thinking what does a house, a hospital, a school, really *need*.

These things are plain to architects. They do not deny that in giving full consideration to factors which were for long ignored, they may often have failed æsthetically. They admit this the more readily from their knowledge that to all architects the æsthetic quality of design is the final test of all good design ; and that there is therefore no danger of this quality's being placed finally any lower than is its due.

Mr. Byron's perceptions may be unfortunately limited, or he may deliberately, in the pursuit of some higher end, seek to discredit contemporary architecture. In either event, he has continued to insist that the outlook of modern architects is just what he has been told it is not.

Having got hold of the idea that modern architects believe that so much money, land, accommodation and technical possibilities had only to be synthesized to result in a beautiful building, he will not let it go. He has continued to make the most of this quite personal assumption in a prominent article in the *New Statesman* for March 30.* And that this article has been preceded in that journal by others expounding the same fallacy suggests that Mr. Byron, the Old Guard and their joint campaign are thought by the *New Statesman* to represent all that need be said about modern architecture.

Now the *New Statesman and Nation* is a progressive weekly review of great influence. And it no doubt came to the conclusion some time ago that attention must be paid to the astonishing phenomenon of modern architecture.

The bone which architects have to pick with the *New Statesman* is that they have had nothing but Mr. Byron and his fellow campaigners ever since. That journal has continued to encourage Mr. Byron to brandish *Functionalism is not enough* in the faces of those who had never said it was, and had taken pains to make clear that it wasn't. The only reasonable explanation of a policy so one-sided is that the *New Statesman* is grateful to Mr. Byron for making up its mind for it on an awkward subject in which it took no interest.

This is really not good enough. Architects realize that they cannot expect a great deal of attention to be paid to their aims in papers largely devoted to the literary arts ; and they will readily admit that opinions on those aims differ. But it does seem reasonable to expect that, from time to time, the achievements and objectives of what is called modern architecture should be examined in the pages of the *New Statesman* by someone who does understand what modern architects are trying to do.

* A review of Mr. J. M. Richards's " An Introduction to Modern Architecture." Pelican Books. Price 6d.—Referred to in last week's leading article.

The Architects' Journal
45 The Avenue, Cheam, Surrey
Telephone: Vigilant 0087-9.

NOTES & TOPICS

ARCHITECTS AND RESERVATION

A FORTNIGHT ago the JOURNAL, the Information Centre and I spent some time in establishing that architects employed by local authorities are reserved from the age of 25. It now appears that the fruits of our labour may be short-lived. For I was told last week, on unquestionable authority, that the position in regard to reservation of architects employed by local authorities may be altered very shortly.

*

I know no more. But since the whole question of reservation and local government staffs is known to be now under review, everyone is free to put his own construction on my words.

*

Reservation and the architect has been a peculiar affair. In pre-war days our being reserved did not prevent four of my architect acquaintances joining the Anti-Aircraft, the R.E.'s, the Auxiliary Air Force and the A.F.S.; a stricter application of the law after war started gave to other callings the first pick of jobs which architects could have done well and some architects wanted; and now official architects are not sure where they stand.

*

And all the time it remains probable that the first major military conflict will be followed by such changes in the Schedule that its own compilers would hardly know it.

IDEAL HOME

The *Ideal Homes Annual** has now appeared with Cupid on the cover, Mrs. Neville Chamberlain on the title-page, and many other delights on later glossy pages. Most interesting of these is the Wartime House designed by the Exhibition architects and illustrated in the JOURNAL a fortnight ago.

*

It is a pleasant, practical little house well in advance of the usual Olympia home, though perhaps some of its virtue lies in the fact that you do not have to queue up to enter it and it is not cluttered up with the usual horrible high-gloss furniture.

*

There are many familiar subjects and personalities to be found. There is a Garden Supplement called *A Portfolio of Peace*, Mrs. Darcy Braddell is still in the Kitchen, Mr. Yerbury in the Modern Furnishings, and "Knights of Armour" firedogs are still obtainable.

*

There is an excellent article on the work of the Building Research Station, and visits of Royalty are pictorially recalled, including those of a Personage always called the King-in-Exile. The gadgets and domestic devices seem less gimcrack and useless in illustration than when displayed in glittering actuality against a backcloth of blondes. And the hints on cottage conversion and attic transformation seem less cosy and more bearable than usual.

*

It is wonderful value for a shilling—to all the new wartime wives as well as those of longer standing.

FINLAND AND BOMBING

Below is another letter from Mr. Rodney Tatchell, who is at present serving in Finland with a crew of the London Fire Service:

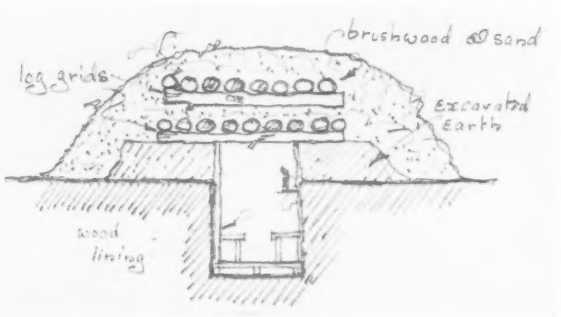
So far as high explosive bombs are concerned, the effect on timber buildings is interesting. Any such building which is either directly hit or is within a few yards of the explosion naturally suffers considerably, but where, say, 100-kilo bombs had been dropped within about 30-40 yards of wooden houses the damage at first sight appeared to be negligible, save of course for shattered windows. On closer examination it was clear that the elasticity of this form of construction had prevented the *collapse* of the structure, although the roof had usually been lifted and set down again, and very often the walls had been flexed in and out by the blast.

*

Such buildings, although obviously not safe for occupation, had still not collapsed and no lives had been lost. In many cases, even where the hit had been more or less direct, no lives were lost, owing presumably to the lightness of the superstructure and the resulting absence of the complete disintegration usually found in masonry buildings. The most severe casualties occurred in buildings constructed on—for want of a better expression—"L.B.A." lines, i.e. brick or stone walls with timber or concrete floors. And these mostly took place in the early raids, before civilians had become used to leaving their homes for dug-outs as soon as the sirens sounded.

*

In Helsinki very little damage has been suffered, and that only in the first few days of the war. The Polytechnic and one or two buildings used as flats or offices seemed to be the only buildings much affected. The completely disintegrating effect of H.E. at close quarters was here very apparent—concrete blown away altogether, leaving simply the twisted reinforcing rods exposed.



* *Daily Mail.* Price 1s.

The Finns have evolved a most effective and (to them) cheap form of shelter which is universal outside Helsinki. This consists of a trench about 5-6 feet deep, over which are laid several, i.e. more than I have indicated in sketch, alternate layers of logs (in grid form) and a mixture of sand and brushwood. The inside is boarded, and plank seats are provided on log supports. All shelters are connected by telephone with the local A.R.P. headquarters.

*

Incidentally, the efficiency of the V.S.S. (A.R.P. to us) system is remarkable, and is still being maintained in skeleton form for the time being. The Finns have adopted in Helsinki, and have found very efficient, the principle of observers on towers or high buildings whose duty is to note the outbreak of fires, and to take a compass bearing of the position, which is then telephoned to the V.S.S. headquarters. Each fire is thus located on a large map by several compass bearings.

*

This seems to be by far the most effective method of rapidly locating outbreaks, and one which might well be adopted in London.*

*

In passing, it may be of interest to mention that the effectiveness of adhesive paper strips over windows has proved in Finland to be fallacious—not that anyone, I imagine, has ever had very much confidence in them, anyway.

*

On Easter Sunday we were under the necessity of catching a train at 6 a.m. from a station which was about a couple of miles away. The Chief of the local Fire Brigade was kind enough to call for us at 5.30 at our billets (the Lunatic Asylum) in his fire engine.

*

It was an experience which surpassed one's wildest dreams —racketing along the frozen road through the forest at breakneck speed in the icy and still dark morning. I hadn't been so stirred since the good old days of pirate buses.

ONE MORE PANEL FAILS

At the annual meeting of the Worcestershire Branch of the C.P.R.E., the Advisory Panel presented a report on the difficulties of improving the standard of design in the plans which came before it.

*

The Panel stated that it was only allowed to criticize the elevations which faced the road, and since bad plans were the main cause of bad elevations, the Panel was powerless to bring about any general improvement. The Panel added that plans were prepared by railway porters, engineering draughtsmen, local officials, builders, and so on.

*

This is an old story, which emphasizes once again that Panels can no more improve the design of buildings than varying the colour of the last coat on the coachwork can improve the design of a motor car.

*

Any measurable improvement must depend on— 1 : The possession of minimum qualifications by all persons calling themselves architects ; and, 2 : A general belief among the public that a house designed by an architect is in every way better value than one which is not—whether it is small or large, cheap or costly.

THE BRITISH FILM INSTITUTE

In a recent note on the collection of historic films which is being assembled by the New York Museum of Modern Art, I said that I had not heard of any equivalent collection in London.

*

A correspondent has now told me that one of the functions of the British Film Institute in Great Russell Street is to maintain and increase such a collection.

*

At present the B.F.I. is short of representative films of the early 'twenties. But early experimental films are well covered and so are educational films—while the Chaplin section is almost complete.

*

In these sober times it is consoling to know that future students of the custard-pie school may study their art straight from the Master.

NATIONAL GALLERY

I strongly recommend a visit to the exhibition of British painting now being held at the National Gallery. It is a real and rare pleasure to see contemporary pictures in airy spacious surroundings, and away from the crowded carpeted atmosphere of precious little galleries.

*

The pictures are beautifully hung—for the most part in a single row at eye level—and before their liveliness the rather forbidding and educational air of the National Gallery is completely dispelled. You will feel no trace of museum feet.

*

As to the works themselves, there is something to please everybody, from " The Enigma " by Sir William Orchardson to " The Hills " of Graham Sutherland. There are many old favourites, rather too many drawings by Augustus John and nothing by Ben Nicholson, but on the whole it is a well selected and finely balanced show, which was well worth organizing.

ASTRAGAL

* This method of locating fires, in a more rudimentary form, was used in London for some years after the formation of a central Fire Brigade. It was abandoned because, in London's atmosphere, it did not enable fires to be reported until they had obtained quite a large hold—a fatal drawback to any fire alarm system. But under air-raid conditions, when a large proportion of incendiary bombs are likely to lodge in roofs, Mr. Tatchell's suggestion may be worth serious consideration. Particularly as it would provide Control with a simple and quick means of checking up which fires are serious and which small.—ASTRAGAL.

PAPER CONTROL

Owing to the paper shortage, caused by the German invasion of Scandinavia, the JOURNAL, in common with all other papers, will, after this issue, be supplied to newsagents only on a " firm order " basis. This means that newsagents will in future be unable to supply the JOURNAL except to a client's definite order.

To obtain your copy of the JOURNAL you must therefore either place a definite order with your newsagent or send a subscription order to the Publishers.

An order-form is printed on page viii.

NEWS

TIMBER CONTROL

Following notices have been issued by the Ministry of Supply :

On and after May 1, 1940, Timber Control Areas 13 (Edinburgh), 14 (Dundee), 15 (Aberdeen) and 16 (Inverness) will be amalgamated into one area, to be known as Area 13, with Mr. George Dobson as Area Officer. As from May 1 all communications concerning timber control matters within the territory covered by amalgamated area should be addressed to : The Area Officer, Timber Control Area 13, Ministry of Supply, York Buildings, Queen Street, Edinburgh, 2. Telephone No. Edinburgh 21146 (4 lines). Telegrams "Timbrarea" Edinburgh.

Attention is drawn to the fact that the maximum prices for home-grown timber which are scheduled to the Timber Control Orders are "free on rail."

In cases where the supplier agrees to pay delivery charges, the cost of delivery may be charged as an extra and, in such cases, the delivery charges should be shown as a separate item when quoting and invoicing. Where the selling price of the material including the cost of delivery exceeds the maximum price laid down in the Timber Control Orders, it is essential that the cost of delivery should be shown separately.

Arrangements have now been made to display, from time to time, in each area office throughout the country, particulars of requirements of Government Departments and consumers generally in home-grown timber, together with a list of the merchants in the area. It is hoped that this arrangement will be of advantage to members of the timber trade and to consumers generally.

TECHNICAL PROBLEMS

Special arrangements have been made by the Government for dealing with the technical problems of building created by the war. Supplies of certain building materials need to be conserved. The problems thus presented and others that may be brought about in the changing circumstances of war have been under attention by the Works and Building Priority Sub-Committee. The Building Research Station of the Department of Scientific and Industrial Research had already been studying such problems ; and the Sub-Committee has asked the Department to arrange that the Station should also take as a special task during the war the solution of any such problems that may be referred to it by the Sub-Committee. The Department, acting in consultation with its Building Research Board, has made appropriate arrangements, and the Station now has the work actively in hand. On the recommendation of the Building Research Board, the following Committee has been appointed to advise on it :

Messrs. G. M. Burt, F.I.O.B. (Chairman); T. P. Bennett, F.R.I.B.A.; W. T. Halcrow, M.INST.C.E., M.I.MECH.E., M.INST.W.E.; E. C. Harris, F.S.I.; B. L. Hurst, M.INST.C.E., M.I.MECH.E., M.I.STRUCT.E.; J. W. Laing; G. B. Sharples, O.B.E., M.SC., M.INST.C.E.; Sydney Tatchell, F.R.I.B.A.; R. T. James, M.INST.C.E.; with Assessors from the Admiralty, War Office, Air Ministry, Ministry of Home Security (A.R.P. Department), H.M. Office of Works, Ministry of Health, Department of Health for Scotland, Department of Agriculture for Scotland.

FABRICS

An exhibition of the latest furnishing fabrics is now being held at the Building Centre, 158 New Bond Street, W.1. Exhibition will run until May 3.

LANGHAM SKETCHING CLUB

The Artists' Society and the Langham Sketching Club are able this year, through the courtesy of the A.A., to hold their annual show of members' works in the exhibition room at the Association's premises at 36 Bedford Square, W.C.1.

Both clubs have a distinguished and ancient history. The Langham was founded in the year 1838 and incorporated with the Artists' Society which came into being for the study of figure drawing eight years earlier. It is probably the oldest of all sketching clubs throughout the world. For 102 years the Friday evening meetings have continued without a solitary interruption—an amazing record of the enthusiasm and loyalty of four generations of members.

STRUCTURAL ENGINEERS

Following publications have been issued by the Institution of Structural Engineers :

Report on Reinforced Concrete for Buildings and Structures, Part III, Materials and Workmanship. (Published by the Institution, price 1s.)

A Revised Code of Practice for the Use of Structural Steel in Buildings. (Prepared and published by a Joint Committee of the Institution of Civil Engineers and the Institution of Structural Engineers, price 6d.)

DIARY

Thursday, April 25.—School of Planning and Research for National Development Conference.—At the Building Centre, 158 New Bond Street, W.1. "The Building Industry in Relation to Evacuation." Representatives of the following have been invited to speak : Builders, materials manufacturers, architects, operatives, local authorities and small traders. 5.30 p.m.

Tuesday, April 30.—Housing Centre, 13 Suffolk Street, S.W.1. "Facing the Facts : What is Wrong with Our Social Services." By J. Q. Henriques. 1 p.m.—Building Centre, "Cement and Concrete Products." By R. A. B. Smith. 6 p.m.

Thursday, May 2.—Building Centre. "Clay Products." By Col. C. W. D. Rowe. 6 p.m.

Monday, May 6.—Architects' Benevolent Society. Annual General Meeting. At the R.I.B.A., 66 Portland Place, W.1. 5 p.m.

R.I.B.A.

ANNUAL REPORT

Annual report of the Council of the R.I.B.A. indicates the continued growth of the Institute and its federation of societies throughout the world.

In spite of the war, which has, of course, to some extent hampered development, the total number of architects and architectural students covered by the R.I.B.A. and its allied and associated societies has increased in the last twelve months from 21,012 to 21,424.

PRIZES AND STUDENTSHIPS

Grissell Gold Medal and £50 for 1940 has been awarded to Mr. R. Fraser Reekie, A.R.I.B.A., of the Leeds School of Architecture, The College of Art, Leeds. Certificate of Honourable Mention has been awarded to Mr. James Conner, A.R.I.B.A., of the Aberdeen School of Architecture, Robert Gordon's Technical College, Aberdeen. Subject set for the competition was "An Underground Garage."

Banister Fletcher Silver Medal and £26 5s. for 1940 has been awarded to Miss Mary V. Morgan (Probationer R.I.B.A.) of the Welsh School of Architecture, The Technical College, Cardiff. Certificates of Honourable Mention have been awarded to Mr. T. Philip Allen (Student R.I.B.A.) of the School of Architecture, The Polytechnic, Regent Street, London, and Mr. W. J. Phillips (Probationer R.I.B.A.) of the Welsh School of Architecture, The Technical College, Cardiff. Subject set for the competition was "A Roman goes to the Baths."

ELECTION OF MEMBERS

As Fellows (6) : Jenkinson, D. B. (Rotherham); Lewin, H. A. (London); Pilditch, P. H., F.S.I. (London); Lobb, H. L. V. (Brentford, Middlesex); and Loukes, D. H. (Cambridge). (*Overseas*) Blomfield, F. B. (New Delhi, India).

As Associates (68) : Acland (Lady), A. S. (London); Angior (Miss), M. K. (Wigan, Lancs); Arschavir, A. L. (Manchester); Arthur, P. R. (Birmingham); Barker, W. (Chester); Beresford (Miss), B. M. (Wolverhampton); Bruce, J. N. G. (London); Chaikin, I. (London); Chamberlaine, D. (Whitstable, Kent); Christie, R. J. B. (Tipton, Staffs); Cox, J. H. (Aylesbury, Bucks); Craggs, J. B. (Newcastle-upon-Tyne); Crickmay, A. H. (Benenden, Kent); Cruickshank, S. (London); Davie, E. H. (Harrow, Middlesex); Dean, R. A. (Belfast); Deas, J. H. (Thorpe-next-Norwich, Norfolk); Delson, E. (London); Ford, J. I. (Liskeard, Cornwall); Foy, J. D. (Manchester); Griffiths, N. (Crewe, Cheshire); Hammett, R. D. (London); Hammond, L. H. (Harrow, Middlesex); Hetherington, H. R. (Hexham, Northumberland); Hirst, J. S. (London); Howells, R. A. (Penygraig, Glam); Huckle, H. G. (London); Jones, H. M. (Shrewsbury); Jones, R. N. (Birkenhead); Jury, A. G. (Taunton); Lee (Mrs.), A. (Bexleyheath, Kent); Lowdon, T. F. (Stocksfield-on-Tyne); Lyon, T. F. (Ayr); McMaster, H. (Northallerton, Yorkshire); Milburn, F. T. (Birtley, Co. Durham); Monk, F. G. (Manchester); Oxley, T. D. (London); Payne, D. G. (London); Penn, C. D. C. (Mumbles, Glam); Pooley, F. B. (London); Preston, E. K. (Cheam, Surrey); Ralph, W. H. (Harpenden, Herts); Rhatigan, B. F. (Dublin); Robb, G. C. (Oxford); Roff, W. C. (Bingley, Yorkshire); Ryder, W. W. (Welwyn Garden City, Herts); Saddler, R. (Edinburgh); Sandbrook, K. J. (Epsom, Surrey); Scarth, H. A. (Chalfont St. Giles, Bucks); Seabrooke, D. H. (Sevenoaks, Kent); Seaton, R. A. (Guildford, Surrey); Seldon, J. W. (London); Shaw, C. G. (Chorley, Lancs); Sidebottom, P. B. (Mildenhall, Suffolk); Smithson, G. H. (London); Steel, J. (Renfrew, Scotland); Thornley, H. (Banstead, Surrey); Tingay, J. P. (Eastcote, Middlesex); Watkin, I. W. (Wembley, Middlesex); Watson, H. (Bengeo, Herts); Weir, R. W. (Middlesbrough); Wells, C. B. (London); Wharfe, H. (Sheffield); Williams, E. H. H., (London); Wolf, A. P. (Potters Bar, Middlesex); and Wood, H. M. D. (London). (*Overseas*) Hopkins, R. E. (Melbourne, Australia); Osler, G. C. (Cape Province).

As Licentiates (14) : Alner, R. F. (Surbiton); Brown, W. G. (Aylesbury); Coates, J. W. (Leeds); Cooke, L. (Morley, Yorks); Demuth, R. P. (London); Gomersall, J. (Manchester); Oldridge, A. (Cardiff); Rust, W. (Cheltenham); Speak, L. (Manchester); Thomson, T. F. (Witney, Oxon); Tufft, T. H. (Stafford); Warren, E. A. (London); Wiggins B. T. R. (London); and Wood, E. J. (London).

LETTERS

Politics and Architecture

SIR,—Isn't Mr. Birkin Haward's logic based on wishful thinking? Surely if a professional organization wishes to avoid politics, the only way it can do so is to accept the Government in office and its leaders who have been democratically elected by the nation.

R. S. WILSHERE
Belfast. Education Architect.

Timber in War

SIR,—At the annual meeting of the English Joinery Manufacturers Association, held on April 17, attention was drawn to your article, "Timber in War," in your issue for April 4.

In your article you refer to the extreme need of saving cargo space of imported timber. With this we fully agree, but we cannot accept your suggestion that fabrication abroad of buildings needed for war purposes would achieve this object. Still less can we agree with the amazing statement on which you base your argument, namely, that "in peacetime, the timber used by the building industry is almost wholly converted in this country." This statement is entirely incorrect—indeed, the reverse is the case.

Practically all the timber used by the building industry in peace time is in the form of foreign sawn deals, battens and boards, and these deals, battens and boards take up considerably less cargo space than would any foreign fabricated buildings.

You refer in your article to the fact that fabrication of timber abroad would deal a great blow to certain industries in this country. Our own industry most certainly comes into that category.

In normal times our main activity is joinery for housing, and, as house building has virtually ceased, we are naturally now dependent on Government war time requirements, of which wooden hutments form a large part. We should be particularly grateful, therefore, if, in fairness to our members, you would be good enough to publish this letter.

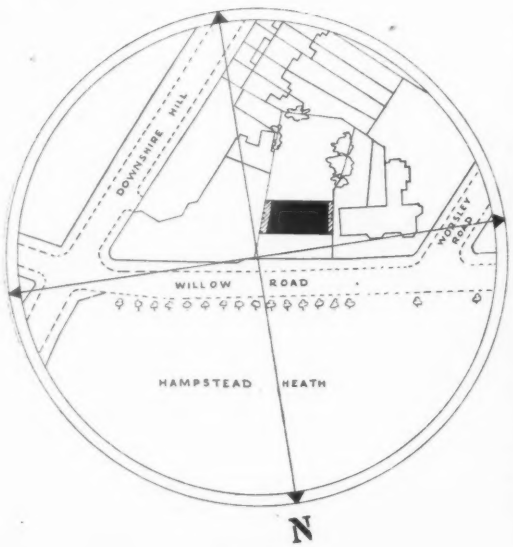
HENRY N. NEWSUM
President, E.J.M.A.
Westminster, S.W.1

[*We regret that we have given publicity to a statement which is incorrect.*—Ed., A.J.]

THREE HOUSES, HAMPSTEAD

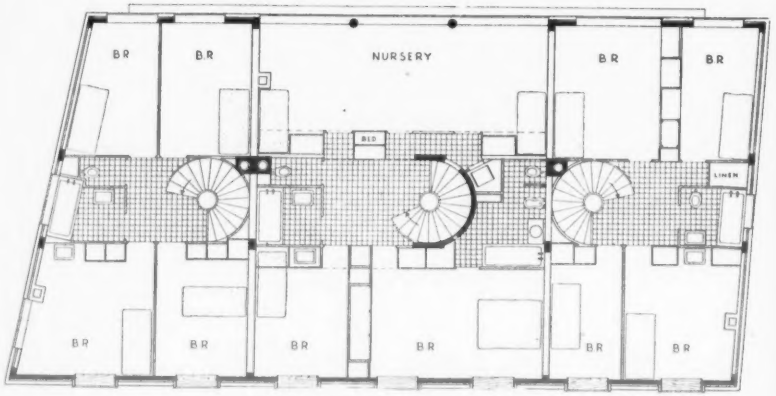
DESIGNED BY ERNÖ GOLDFINGER

GENERAL AND SITE—These three houses are situated in Willow Road, Hampstead, overlooking Hampstead Heath. Originally the plans were rejected by the Hampstead B.C. after objections had been raised by the Hampstead Heath and Old Hampstead Protection Society on the grounds that the elevation was out of keeping with the Heath and the neighbouring Regency and eighteenth century houses in Downshire Hill and South End Road. The Council's decision was subsequently overruled by the L.C.C. The interior of the centre house, designed by the architect for his own occupation, is illustrated on the following three pages.

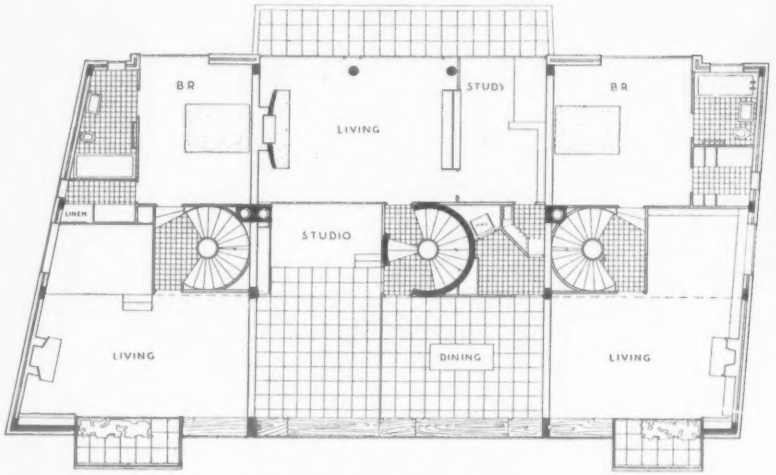


SITE PLAN

Two views of the main front facing Hampstead Heath.



SECOND FLOOR PLAN

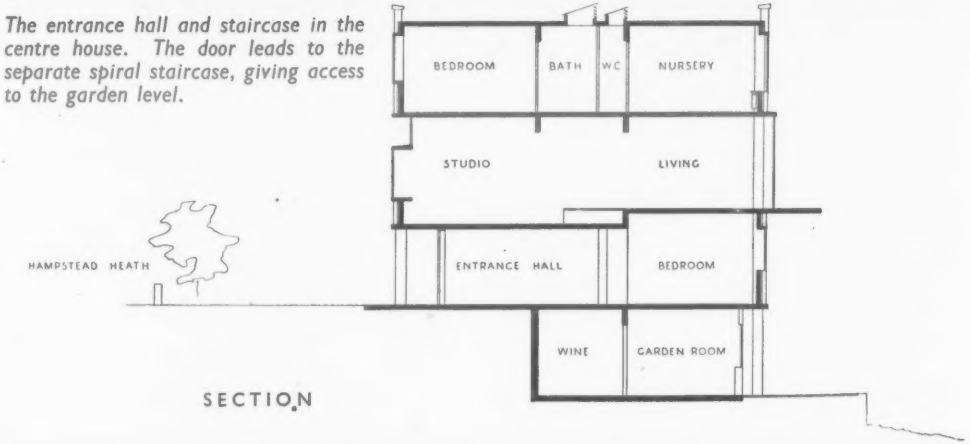


FIRST FLOOR PLAN

PLAN—Planning of the three houses has not been standardized. In the centre house the sloping site allows for a room at garden level below the ground floor, reached by a separate spiral staircase. Living-rooms are planned at first floor level with bedrooms above and garages and service quarters on the ground floor. Partitions on the first floor can be folded back to throw all rooms (except the small study) into one.

CONSTRUCTION AND EXTERNAL FINISHES—R.C. throughout with a red brick facing to the elevations. Floors are carried on R.C. columns and on the cylindrical drum from which the spiral staircase is cantilevered.

The entrance hall and staircase in the centre house. The door leads to the separate spiral staircase, giving access to the garden level.

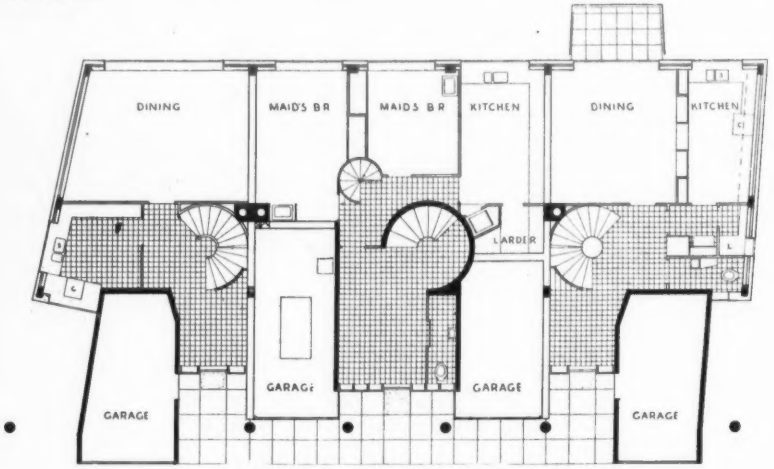


SECTION

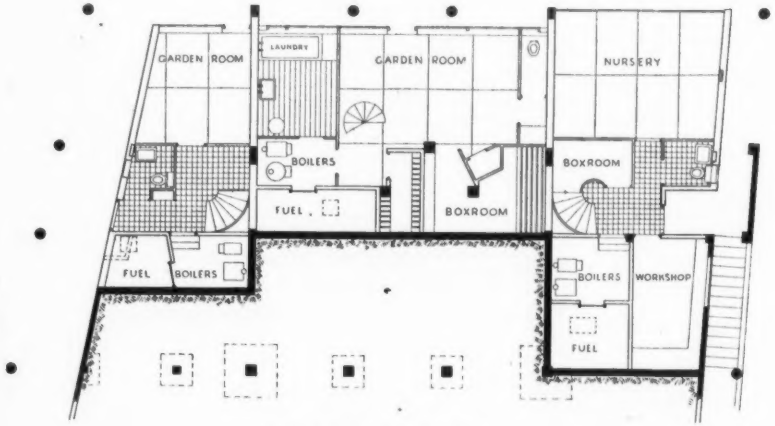
on the cylindrical drum from which the spiral staircase is cantilevered.

Columns are left free-standing in the rooms on the south side, forming a natural subdivision in the space of the rooms on the first and second floors. Similarly, in the street elevation the entrance is set back and the cylindrical columns act as a foil to the square shuttering of the garage entrances.

Right, the dining-room seen from the studio with the partition folded back to the wall. Extreme right : Living-room seen from the studio. Below, living-room. Painting on the right is by Max Ernst, and the drawing on the left by Ursula Blackwell.



GROUND FLOOR PLAN



BASEMENT PLAN

Top, the nurseries on the second floor, showing the folding partitions thrown back. Above, looking across the raised portion of the studio into the living room. Right, the kitchen.

INTERNAL FINISHES AND EQUIPMENT—Lobby : floor is of red ochre tiles, walls are painted in white and slate blue, and the curved circular staircase in beige. Dining room : floor is olive green throughout, and the partition is painted white. Living room has folding and sliding glazed doors opening on to a balcony on the whole of one side. Opposite wall is panelled in waxed oak, continued in the folding partition which separates the studio and living room. The end wall is also panelled in waxed oak. Fireplace is raised from floor level and recessed in a curved screen finished in plaster, behind which lighting fittings are placed. Built-in bookshelves in the study are backed on the living room side by a rectangular frame for the display of objects and paintings. The floor of the raised portion of the studio is a continuation of the oak parquet in the living room ; this section may be isolated from the living room by folding screens faced in gaboon mahogany on the studio side and oak on the living room side. On the south side two nurseries are grouped on either side of a nurse's room. Folding partitions between these rooms can be thrown back to make one room.

SERVICES—Central heating. Cooking is by gas. Hand-power lifts link the kitchen and every floor.

General contractors were Leslie Bilsby, Ltd. For list of sub-contractors see page xx.

THREE HOUSES, HAMPSTEAD

DESIGNED BY ERNÖ GOLDFINGER

THE NEXT YEARS

By

Howard Robertson

M. C., S. A. D. G.

[*VICE-PRESIDENT of the ROYAL INSTITUTE OF BRITISH ARCHITECTS*]

S Y N O P S I S

THE present war is a fight for civilization. Civilization has been well defined as a state of well-being. A preliminary to well-being is order—now in danger throughout the world. Against increasing disorder certain groups within the community are bound to fight.

One of the national groups most closely bound up with good order is the building industry. When building achievement is at its highest so is the well-being of the community. But if building is to make its own contribution to order, the organizations which produce building must themselves be in order.

The first great problem affects the function of the architect, whose job has in the past years become more and more inclusive, and thus more and more nebulous. He is forced today to supply in building many of the functions which ought in fact to be carried out by other specialists—to the detriment of his own particular contribution.

That particular contribution is design. Our realization of this is obscured by differences over how that power to design should be used. New constructional possibilities, allied with influences from abroad, have led to a school of design in which simplicity of form may be succeeded by sterility. The reduction in range of materials and design forms may also reduce range and elasticity in power to design.

To preserve his power to design, the architect must be relieved of supervision, and this needs a closer collaboration between builder and architect. Bad workmanship should no more exist in building than in a new motor-car model. To achieve such collaboration and understanding the young architect and the young builder should receive some of their training in common.

And it is equally important for architectural students to have contact with painters and sculptors, so that through architecture these arts will have a place, as a matter of course, in all buildings.

6

IF we attempt to analyse the forces and influences which brought architecture in this country and abroad up to the state in which we found it at the beginning of the war of 1939, we have at least the advantage of a considerable volume of reference, from which it emerges that the forward movement has had its origins in a wide variety of causes which were becoming defined in the period prior to the beginning of the last war.

Dissatisfaction vaguely felt crystallizes in the mind of the creative artist, who himself has his own yearnings to invent and perfect. A handful of people, thinking the same thoughts in different countries and in different languages, set up a current which gathers strength and becomes the broad river which is a movement. That river meets obstructions; it may be blocked, or pass through locks which cause it to pause while still flowing; or it may end by being completely dammed, or diverted by more powerful streams. But whatever happens it has flowed a certain distance and produced effects which no subsequent event can completely nullify.

The development in the art of building today cannot, however, be said to constitute a closely defined movement. In the technical sense the flow is even, and the methods and products which have been evolved are being utilized on a broad front. But the expression given to building as architecture varies very greatly, and no formula, international or otherwise, has been adopted to the total exclusion of others, no style has become a universal language. What has happened rather is that certain basic influences have been at work, and these have permeated all schools of design, so that the traditionalism of today is not that of yesterday, nor is the modernism quite that of Loos or Gropius or Frank Lloyd Wright. Something has been evolved which has been eagerly or unwillingly digested; but digested it is, and architecture will in consequence never return to where it was a quarter of a century ago.

The attempt to divide this evolution into schools or styles may be convenient from the standpoint of classification, but is unfortunate in its actual repercussions on the contemporary movement itself. It tends to bring about a segregation, with inevitable doubts as

to who or what should be included in each particular category. In the exhibition held some years ago at the Museum of Modern Art in New York, entitled "International Architecture," the delicate point arose as to whether Raymond Hood, and even Frank Lloyd Wright, should be included. Their work did not qualify in the matter of superficial resemblance to that of the recognized "International style" leaders; it was too personal, some thought it already out of date. Yet it could scarcely be excluded when the claims of contributors to the modern spirit in design were judged. So into the Exhibition this work went, with faint traces of apologia and dissent in the forewords to the catalogue.

This sort of discrimination does no good. It extends from the exhibition room to the printed word, to the technical press and to the newspaper; and violence of feeling over precise shades of expression are apt to lead to an overshadowing of the main point, which is that designers are working to the same end but are not—and should not be—tied either to the same methods of approach or to the same ultimate expression. Finally, a too sharp definition leads to cleavages and sectarianism within the ranks of architects—to the detriment of their unity—and to the bewilderment of the public.

It would be more difficult, but perhaps more profitable, if the outward style and manner of building, which of course is what is most visible, could be considered as less important than the theme which has caused that style to appear as it does. One would then argue less as to whether any architect was or was not "modern"; what would be more important would be to ascertain whether he was working in any special theme, or whether he was evolving a theme of his own based on his interpretation of the conditions governing his own particular building problem. All good architects have something to say; but why should they say it in the manner of any school, or in the materials associated with any "ism," and why should they not develop their own lines of thought and maintain their own integrity, even if the result be considered incongruous or unfashionable at the moment?

The recognition of the theme requires a much deeper knowledge of the architect's problem than is within the reach of the average critic of architecture, still less of the casual critic of art in general, who so often today writes clever and devastating reviews of architecture, praising and condemning with a self-confidence which astounds and abashes the architect whose work happens to be included in the subject-matter. But the establishment of more fundamental canons, eliminating the personal reflex of like and dislike, would lead to the creation of a truer scale of values and at the least to an appreciation of the extreme intricacy of architecture as a practised art.

To illustrate this theory, let us refer again to one of the most important and disturbing pioneers of modern architecture, Frank Lloyd Wright, and try to suggest his influence and justify our adjectives, at the same time attempting to isolate the theme or themes which he has followed and which others may develop, not by any means necessarily in the Lloyd Wright manner. The important thing is not to imitate Lloyd Wright, perpetuate his characterization and personal mannerisms, or try to defeat him in argument over the precise meaning in words of what he believes in and preaches. It is what he does, and has done, that matters, because of the reasons which lie behind the doing.

Frank Lloyd Wright appears as an architect of enormous versatility, ready to approach any problem with a fresh, unprejudiced mind, and to attempt to solve it in accordance with ideals which have crystallized in his own mind and which have in part been formulated in words sometimes involved and often sonorous; but it is to be remembered how hard it is to pack sensations in a name and whittle subtleties to a granite word.

Wright is ready to equip the world with architecture, to tackle anything from a tent to a skyscraper, taking in the minimum dwelling or the four-family house *en route*. He is singularly un-hidebound, and resourceful in his accumulated experience yet willingness to start afresh. He is not a man of set formulæ, in spite of his fame as the creator of the "Prairie style" or the architect of the hotel which withstood the Tokio earthquake.

Yet Wright makes some statements which may give a clue to the theme. From his Autobiography comes the following quotation: "Taking shape in the noble realm of ideas as architecture today to make machine-age increment, that is to say, to make our machine power and our millions democratically beneficent, is one great new Integrity—a sense of the within as reality—and four limitless new resources: The first new resource is a super-material—Glass. The second new resource is a new standard means—Tenuity. The third new resource is a new sense of the Nature of Materials. The fourth new resource is Pattern as Natural. All five together create new grasp on building and are demanding new significance as architecture in this twentieth century. All five resources are not only bases for modern architecture in this century, but are altogether, no less, a lesson to be learned by Modern Life itself."

Here then is a theme expressing the frame in which modern architecture can exist. It is a broad theme: man and nature are both a background for Wright, and in them he seeks inspiration; but the critic who wants a quick return from his investigation of Wright as an influence will demand themes more concrete.

Let us take "the sense of the within as a reality." Here we have something definite; and it is possible to assert without much fear of contradiction that Wright has brought fresh light to bear on the conception of room space in the individual house of moderate size, and has seen in it an instrument for expanding the old and solidified conception of the way to inhabit the house. It was Wright who broke away from the convention of the house as a series of cells contained within an envelope. The rooms in his houses flowed into each other and interlocked, through the elimination of the partition as a wall suggesting definite limitation and isolation of space. His divisions became piers or screens, with a significance of emphatic form of their own; they have a sculpturesque quality which the partition lacks. At the same time came the grouping of windows, with a sense of their value in the plastic scheme, and a suggestion of the possibilities of design which uses daylight as an element.

Second and third themes with Wright, if one may so attempt to catalogue them, are preoccupation with surface, including fenestration, and with construction integrated with the basic form and treated less as isolated systems of support. A study of his work reveals the extent of his bold thinking and practical experimentation, ranging from an early project for an office building (1894) showing a remarkably able scheme for patterned fenestration and wall surface, domestic work with continuously grouped windows, later houses in California with windows and wall surfaces related in a design dominated by the texture of the concrete blocks, and a house in Oklahoma remarkable for its vertical alternations of solid and void. Under the third heading of construction we have the cantilevered Tokio Hotel, the massive piers of the Oklahoma houses, his radical skyscraper design in glass and copper, and his scheme for an apartment house for St. Mark's-in-the-Bouwerie which ten years ago carried cantilevering to a daring extreme.

Finally, if one may propose a fourth theme running through the work of Wright, it is the freedom of the individual to act as an individual, to do his own thinking, work out his own aesthetic, and in that sense to be a rebel, and a romantic one at that.

Behind Wright was the influence of Louis Sullivan, but Wright's later work in particular has little obvious connection with that of Sullivan. Nevertheless, those whom Wright himself has

influenced are many in number. The test of their work is not their success in adapting the forms of Wright, but of developing the themes which Wright has isolated and so, as it were, set free. And in advancing a step further in their chosen field while others pursue ideas which, today appearing as no more than parallel, are certainly converging. As time and work proceed, the distance between opposing influences lessens.

Working on many architectural themes—the all-glass skyscraper, for instance—has been the German architect, Miës van der Rohe, one of the most sensitive of artists among contemporary designers. Miës van der Rohe has in particular extended one of the ideas which has intrigued Frank Lloyd Wright, that of room-space, but he has gone further, and made his room-space extend beyond the arbitrary solid or glass walls of his houses out into the garden space beyond. His aesthetic is most interesting : with him, as with Lloyd Wright, space interlocks, and his divisions are slabs of wall which are planes linking rooms together by extension from one space into another. But he also indicates special value and emphasis by extending his walls beyond the internal confines of the plan, and by so doing realizes a pictorial and physical relationship between house and garden. Miës van der Rohe has made other contributions to architecture, in the purity of his line, and the polished simplicity of form which he couples with a luxurious sense of fine material. He guides the modern designer out of the maze which is formed of modern conceptions based on second-rate materials and execution. He emphasizes in his design the truth that the simpler the design, the finer must be its execution. He demonstrates, in his very quiet way, the ideal of quality as something worth seeking in itself, and though he has built little, he has built with his heart and soul.

Miës van der Rohe, Frank Lloyd Wright, and le Corbusier are a trio of architects who have enunciated themes likely to influence the architecture of the next quarter century. They pioneer, each one, in a direction which may prove fruitful. Wright has a highly developed plastic sense ; his work has form, pattern, definition of plan, and a sculpturesque quality based on his conception of plan. Le Corbusier has the plastic and pictorial sense ; he has also a feeling for movement, and the contained energy which resides in the forms of building which are based on tenuity of structure, and action and reaction expressed without attempt at concealment. His design points the way to freedom of movement ; in it the classical and romantic traditions meet, and in it also the sculptor and painter come together in the spirit if not in the letter of their respective arts. Impracticable he may be, but he remains as a great "*animateur*" and a theorist who stimulates in the most fascinating way, by appeal through the mind to the senses.

With Miës we have the utmost purity realized as a result of conceiving the plans and envelopes of buildings in forms arising directly from the demands of the present-day spirit, a spirit visualized by the architect rather than by the client. Here is a case of architecture which imposes ideals on the client, rather than responding to requirements. But this reversal of the rôles is justified in a case where the quality is of such a pure water.

7

IN artistic progress there exists a sort of hierarchy, or perhaps it would be fairer to say that the march of progress is made possible through the joint effort of people who make, each in their way, a contribution towards the common objective. There are men who throw out ideas or themes. But there are also less spectacular contributors whose feet are very much on the earth, and who act, in their way, as middlemen between the theorist who points a way, and the member of the public who eventually walks down the path which these practical men have cleared and prepared for his progress.

The middleman in architecture is the conscientious designer who chooses—selects and rejects—and who perfects what he has chosen. In his hands lies the ultimate fate of ideas enunciated as themes but not yet worked out as realities. This man is very important to architectural advancement, for with the ideas of dreamers as his inspiration he can bring to design the satisfaction of material demands which is, if we face the truth, in large part the justification for the existence of the architect.

It was Dean Inge who remarked, in one of his newspaper articles, that the Middle Ages were a period in which thrived asceticism and dirt, while today the drive is all for comfort. That is true, and so much so that it may provide a clue to the future of a modern architectural movement.

In spite of the aesthetic appeal of modern work, its apparent functionalism, its appearance of lean muscularity, "without an ounce of fat," a vast bulk of it is not functional at all. The structure of the most modern-seeming buildings is often defective ; the comfort which exists in them is at a lower level than in many structures of an aesthetic which is definitely out of date.

Lest this statement appear arbitrary, we may quote examples. The modern building structure moves, expanding and contracting, thus causing cracks which are repaired only to reappear in another season. It is a transmitter of noise ; the lift, the radio, the banging of doors, even the clicking of switches, resound from floor to floor. The materials used may be cheap, comparatively, but they are often expensive in upkeep. To maintain the charm of a yacht-like structure is required the upkeep of a yacht ; the new clothing of form may be chic, but it is not as yet hard-wearing. The new building, like the old one, is apt to be fundamentally uncomfortable. Houses and flats are underheated. They have windows which let in draughts and cold—only since the use of blackout curtains has this been fully appreciated—whereas the double window familiar on the Continent obviates all this and noise as well. Private houses are built low on the ground, without cellars. And it were better to have a warm, dry cellar than a streamlined elevation. Plumbing pipes, cisterns and heating systems still freeze in the homes of rich and poor alike ; and it is impossible in England to buy a ready-made fitted kitchen which is really a machine to cook in. We have living rooms which, with their flow of bookcase and electric fire, and their efficient cork floors, look ever so business-like. But when it comes to a metal-fitted kitchen, on American lines, with service and ash gadgets, it has to be imported. Further we have room doors without rebates or thresholds, which are always draughty ; we have electric switches which announce themselves with a loud clicking and we have not discovered the Swiss trick of putting muslin into the plaster so that it does not crack. Glass bricks we have, and plate glass windows which slide. But that is only a gesture towards functionalism. Functionalism is something which works, and very well at that if the "ism" is to be justified. It is more important to eliminate draughts than to have a door architrave which looks as if it were not there, with built-in electric light switches at the "innards" of which you cannot get. These things look efficient, like those motor-cars which are all of a piece, but which, once things go wrong, have to go back to their makers. The degree of importance is in the ratio of comfort first, and beauty second, at least for the average consumer. The architect's job is to combine both ; and then —and then only—is real functionalism achieved.

One way of overcoming the age-old failings of our traditional design would be to appoint a "Common Defects in Design" Committee. Its members would list these running sores, which it is nobody's specific business to dress, and they would finally be cured by elimination of the root troubles. A joint panel of architects and builders might eventually achieve this goal, and the results of their work would represent

hours exceedingly well spent. Incidentally, some of the stock gibes of the building owner would disappear for ever.

It seems likely, too, that attention will again be turned to an extension of that standardization which, in a great many varieties of ways, has already been of such service to the architect and his client.

There are still a number of items in equipment which would stand improvement in design and choice of materials. In the domestic field, for instance, we have already mentioned that we have not yet reached the point where a standardized kitchen can be included as a prime cost item, based on designs in metal of the type popular in America. If such designs were available, really well worked out, their existence would encourage the architect to build to their layout and dimensions, instead of adapting standard fitments to walls and openings already conceived. There is no original thought behind this suggestion, nor in the possibilities of the stamped all-metal bathroom unit, factory made and delivered all ready for connecting up, along the lines of the designs worked out by Buckminster Fuller in America. These items, if produced in quantity, might be of great importance in schemes for post-war housing. Their existence on the market would eliminate one item of personal design in which infinite variations are hardly necessary, and would leave the architect more free to concentrate on other items, quite apart from their possibilities in cost reduction.

The production of completely standardized houses may be necessary, for economic reasons, but a too drastic reduction in type variations has obvious dangers which scarcely apply to the standardization of items of utilitarian equipment, with its possibilities of improved design and ease of replacement, much in the same way that the motor-car industry presents variations in models while employing certain standard elements which have proved their worth.

Such reflections as these bring us to the fringe of the question as to what our post-war architecture will be like. Prophecy is notoriously dangerous; yet a certain number of guesses may be hazarded, based on logical development from the present, modified by our experience of what periods of unrest may demand in the formulation of the future building programme.

It appears extremely unlikely that the aesthetic stimulus will disappear. The more restricted we become, the more utilitarian our basic conditions, the greater is likely to be the desire for some avenue of "escapism." This may well take the form, as has been already suggested, of a revived interest in painting and sculpture, and an appreciation of what—if ways and means are properly organized—they can bring to architecture in the form of heightened expression. Already such a desire for expression is in being. People build large and small houses. They attempt to give them individuality by the choice of wallpapers, mantelpieces, bird-baths for the garden. These things are so often pitiable in design. They may cost, say, £50; and for a like sum the house might be enriched by one or two really good things. A vogue is necessary to achieve such a result; but it can easily be created by a joint attempt to reach the public on grounds with which it is very ready to be in sympathy. The success of ballet, of good music, of entertainments such as the popular wartime concerts at the National Gallery, the interest shown in exhibitions of painting and sculpture, are all proof that the public is not blind. What is required is that art should be presented to it as something good in itself and serving a purpose. The problem is not insoluble.

Based on present experience, and not unconnected with a closer collaboration between architects and artists, are possible solutions to the sort of building which is individually or otherwise necessary, but which does not fit into the countryside or urban surroundings. Such buildings are today frequently well designed, but their form and materials are assertive; considered as interesting in themselves, whereas a better aesthetic for such buildings would be their blending, to the point of effacement, with their surroundings. At this stage enters the art of camouflage, originated for war purposes, but capable of interesting extension into the peacetime field. The effects of camouflage can be extremely attractive; a harsh silhouette, be it of building or motor lorry, can be softened and made intrinsically interesting by camouflage. Why not apply this principle, and attempt by so doing to serve a double purpose of concealment and beautification of otherwise ugly structures, such as pylons, railway works, and certain features of highway rationalization which the demands of traffic will create. The idea at first sounds horrible and grotesque, but a little reflection shows that there is more than a little sense behind it. And an interesting fact is that members of the public have already noticed the attractions of camouflage. The technique may be crude today, and it is not suggested that it should be one of universal application. Nothing in architecture is a solution for every case; all the more reason for keeping an open mind. The polychromy of some of the moderns is, in its effect, not far removed from camouflage, which may perhaps serve both to beautify in peace and conceal in wartime.

[To be continued]

SOCIETIES AND INSTITUTIONS

SOUTH WALES ARCHITECTS

At the annual meeting of the South Wales Institute of Architects, following officials were appointed for the year 1940–41:

President: Mr. C. F. Bates, F.R.I.B.A., Newport; vice-presidents: Mr. O. S. Portsmouth, F.R.I.B.A., Swansea, and Mr. C. F. Jones, A.R.I.B.A., Cardiff; hon. treasurer: Mr. H. Teather, F.R.I.B.A., Cardiff; hon. auditor: Mr. E. E. Morgan, F.R.I.B.A., Swansea: hon. librarian: Mr. Lewis John, M.A., A.R.I.B.A., Cardiff; hon. secretary: Mr. Ivor P. Jones, A.R.I.B.A., Cardiff.

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SOUTHEND CHAPTER OF ARCHITECTS

At the annual meeting of the Southend and District Chapter of the Essex, Cambridge and Hertfordshire Society of Architects, Mr. D. N. Martin-Kaye, F.R.I.B.A., was re-elected chairman for a further year, and the following officers and committee were elected:

Vice-chairman, Mr. L. J. Selby; hon. treasurer, Mr. Norman Evans, L.R.I.B.A.; hon. secretary, Mr. F. L. Buckley, L.R.I.B.A.; hon. librarian, Mr. O. H. Cockrill, A.R.I.B.A.; hon. auditor, Mr. P. Brockbank; hon. assistant treasurer, Mr. J. Saunders, A.R.I.B.A.; hon. assistant secretary, Mr. W. H. Saunders; hon. solicitor, Mr. J. G. Drysdale, M.A.; executive committee: Messrs. H. Ayshford, L.R.I.B.A., Mr. A. S. Belcham, F.R.I.B.A., P. R. Fincher, F.R.I.B.A., P. G. Hayward, F.R.I.B.A., and F. W. Smith, A.R.I.B.A. The chapter was asked to nominate a new president of the society, but it was decided to ask Mr. H. P. G. Maule, F.R.I.B.A., of Hertfordshire, to continue in office for another year.

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DEVON AND CORNWALL ARCHITECTURAL SOCIETY

Mr. R. F. Wheatly, in his address as retiring president at the annual meeting of the Devon and Cornwall Architectural Society, said:

The two main factors which were stopping private building from going on were finance and control of building material, which grew more and more drastic as time went on. A builder could now only obtain £5 worth of timber a month, and this only for work of national importance or urgent necessity, and no steel could now be obtained without a licence. Without those two materials few buildings could go on.

The local builder was badly hit. He could not do what little work there was to be done, as besides the difficulty of getting material, his men had been drawn away to the Government undertakings at his door, carried out by contractors probably brought from the other end of England, who paid extravagant rates of wages, far higher than the men had ever received in their lives.

The small local building firms would soon disappear, and it surely could not be good for the country to be denuded of builders when, if ever, air raids came, or when, after the war, reconstruction started.

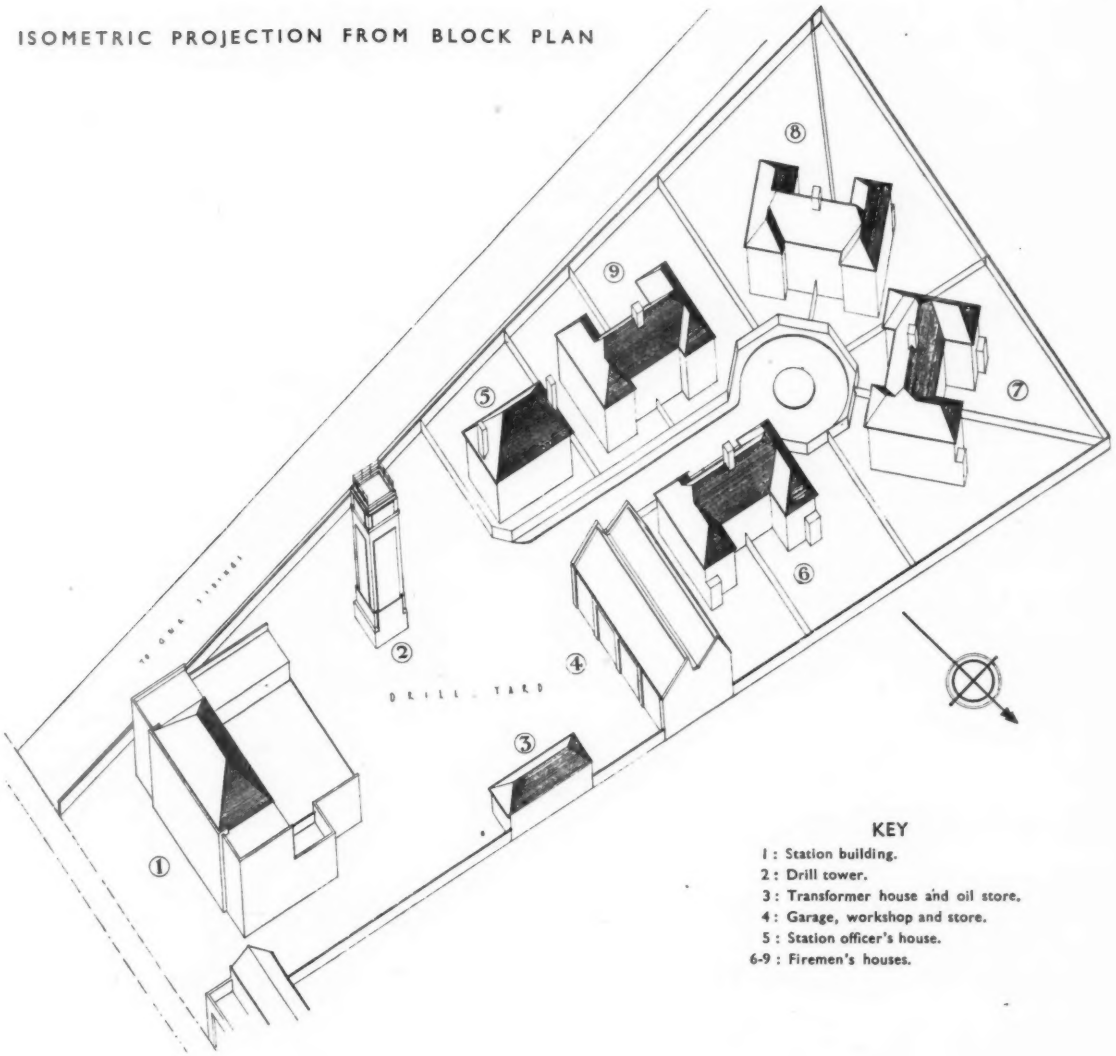
The allied societies had been criticizing the R.I.B.A. for not making sufficient effort to get the Government to make use of its members' specialized technical skill and experience. That criticism had not been altogether justified.

At the council meetings which he had attended as the Society's representative he had seen that the president and War Executive Committee of the R.I.B.A. had made every effort to get in contact with the heads of Government departments and used every endeavour to move them from their preconceived idea that anyone but a trained and experienced architect was the right man to put in control of the building operations going on all over the country.

At the annual meeting of the Exeter branch of the Devon and Cornwall Architectural Society, Mr. J. Challice, F.R.I.B.A., was elected chairman.

Mr. A. Cunes, L.R.I.B.A., was elected vice-chairman, and the following committee elected: Messrs. E. Kemys-Jenkins, F.R.I.B.A., H. V. C. Hague, F.R.I.B.A., W. J. M. Thomasson, A.R.I.B.A., E. F. Hooper, L.R.I.B.A.; associate member, Mr. A. Palfrey, P.A.S.I.; and student member, Mr. W. P. J. Grose. Other officials elected were: Hon. librarian: Mr. H. E. Nicholls, A.R.I.B.A.; hon. auditor, Mr. E. F. Hooper, L.R.I.B.A.; and hon. branch secretary and treasurer, Mr. L. A. J. Heywood.

ISOMETRIC PROJECTION FROM BLOCK PLAN

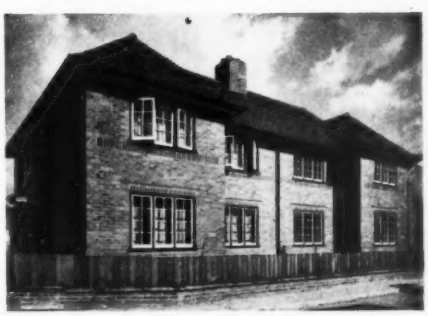


FIRE

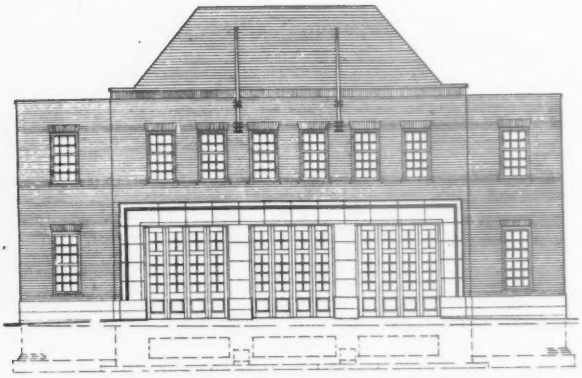
STATION, CAVERSHAM ROAD, READING

BY A. S. PARSONS, BOROUGH SURVEYOR: CHIEF ARCHITECTURAL ASSISTANT, CECIL WILLETT

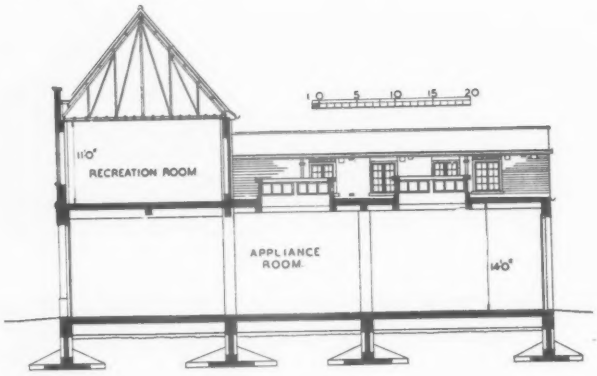
GENERAL AND SITE—Central headquarters for the fire fighting services of the borough ; these services are at present much enlarged, and several auxiliary stations are now controlled from the new station. Scheme comprises : station building, drill and hose-drying tower, garage and stores building, transformer and switchgear house, oil stores, station officer's house, eight semi-detached houses for resident firemen, and an air raid shelter. Site is approximately 1⅓ acres in extent, bounded on the south side by the G.W.R.
CONSTRUCTION—Station building: steel-framed construction with brick walls, concrete beam floors and flat roofs—except over the recreation room, where a pitched tiled roof was used. All flat roofs are covered with asphalt and pumice concrete tiles, roof lights are of concrete with heavy glass lenses. R.C. drill tower is about 52 ft. high.



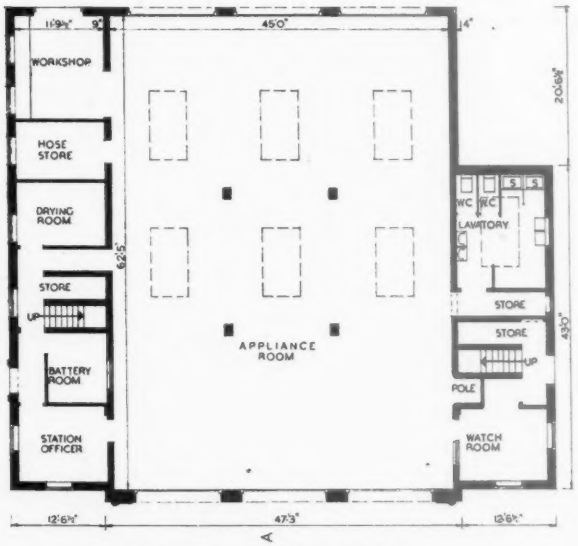
Firemen's houses



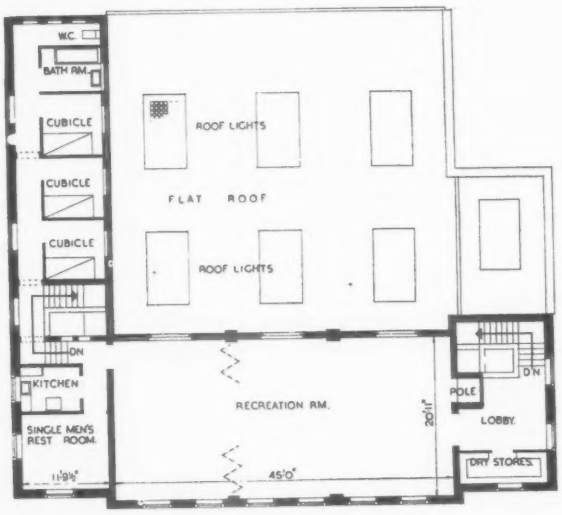
EAST ELEVATION



SECTION

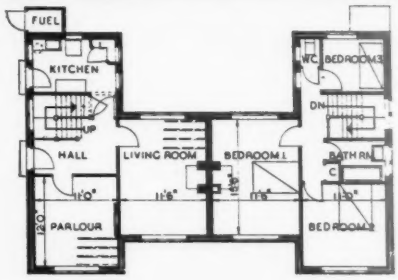


GROUND FLOOR PLAN



FIRST FLOOR PLAN

STATION BUILDING



FIREMEN'S HOUSES

GROUND AND FIRST FLOOR PLANS

OFFICER'S HOUSE

GROUND AND FIRST FLOOR PLANS

PLAN—The plan follows the general lines of modern stations in that the appliance room dominates the station house planning.
EXTERNAL FINISHES—Brick facings externally, sand-faced hand-mades for the station building, and selected wirecuts for the houses. Clipsham stone dressings were used.
INTERNAL FINISHES—Appliance room is lined with glazed

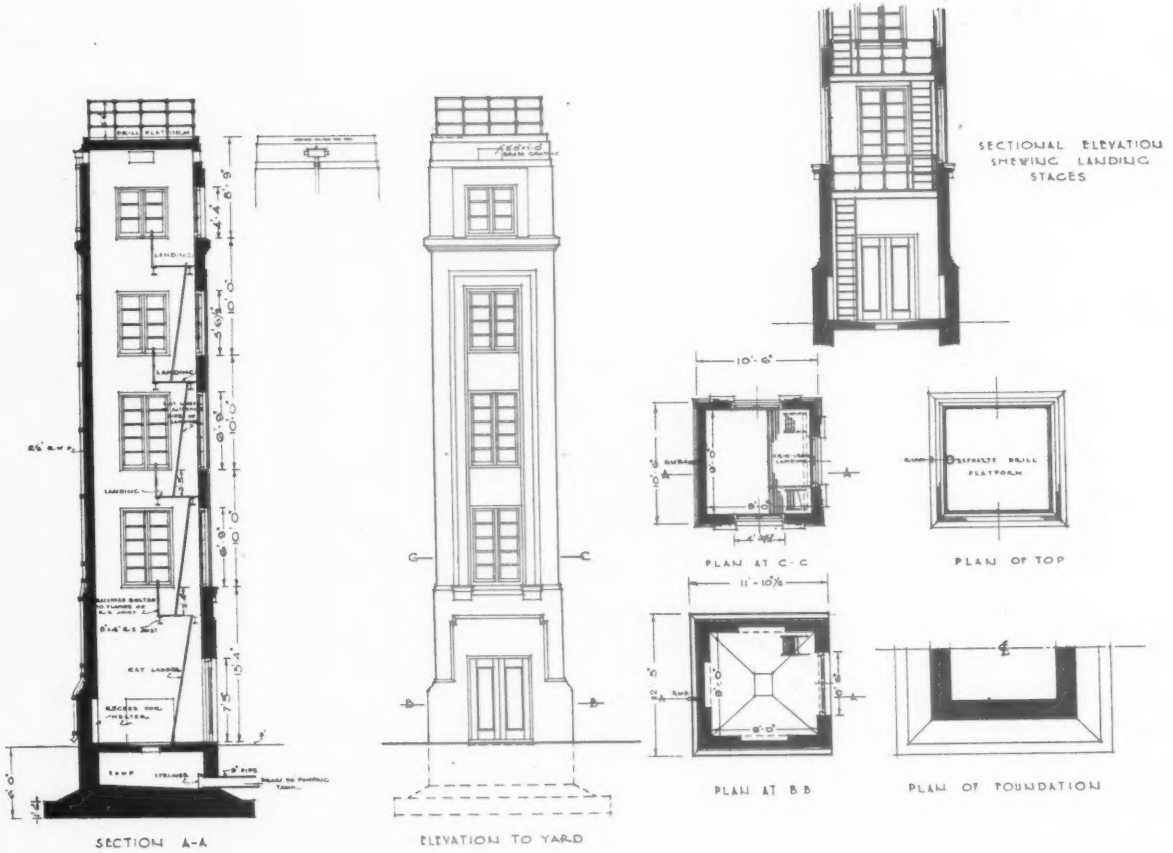
FIRE STATION, READING • BY

Two views of the firemen's houses

bricks and floored with hard shallow-grooved tiles. All other wall surfaces are plastered, except in garage, workshops and store rooms where brick facing is distempered. Teak flooring is used in the recreation room, and other wood] block floors are all of B.C. pine. Throughout, the maximum possible quantity of Empire timber was used.

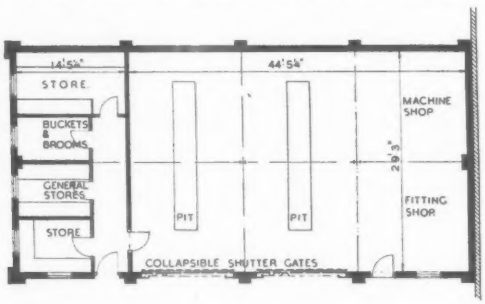
All the joinery work in the houses is of Columbian pine, including the floors. Walls of the kitchens and bathrooms are plastered and finished with a gloss paint, other rooms in the dwelling houses have wall paper of good quality. All plastered ceilings where supported by timber joists are upon expanded metal.

A. S. PARSONS: ARCHITECTURAL ASSISTANT, CECIL WILLETT



DRILL TOWER

GARAGE AND REPAIR SHOP



SERVICES—Heating is electric, operated by thermostatic controls. All cooking and lighting is by electricity as well as water heating.

COST—Contract price, £23,500. Station building cost (approximately) £9,000, garage £2,000, and the drill tower £900. Contract price included the paving of the roads and yards, fencing to the houses, boundary wall work, petrol pumping installation, water supplies, main drainage works, all electrical works excluding the machinery in the transformer house, but including the building and the special reinforced concrete foundations and floors made necessary by the made-up ground of the site.
General contractor was Mr. Alan Morris ; for list of sub-contractors, see page xx.

FIRE STATION, CAVERSHAM ROAD, READING

BY A. S. PARSONS : ARCHITECTURAL ASSISTANT, CECIL WILLETT

SOME QUESTIONS ANSWERED THIS WEEK:

★ *SOME long time ago there was an advertisement in the trade papers of a firm which produced standard precast concrete roof trusses. Are they still available?* - - - - Q270

★ *WHAT is the difference in cost between white and coloured glazed wall tiles?* - Q272

★ *IN a specification for certain works it is stated that the granolithic floors are to be polished? Is this possible?* - - - Q277

★ *WHO are the makers of the Econocrete waterproof building paper mentioned in "Specification"?* - - - - - Q279

THE ARCHITECTS' JOURNAL

INFORMATION CENTRE

THE Information Centre answers any question about architecture, building, or the professions and trades within the building industry. It does so free of charge, and its services are available to any member of the industry.

Questions may be sent in writing to THE ARCHITECTS' JOURNAL, 45 The Avenue, Cheam, Surrey, or telephoned direct to the Information Centre: Regent 6888.

Enquirers do not have to wait for an answer until their question is published in the JOURNAL. Answers are sent direct to enquirers by post or telephone as soon as they have been prepared.

The service is confidential; and in no case is the identity of an enquirer disclosed to a third party. Samples and descriptive literature sent to the Information Centre by manufacturers for the use of a particular enquirer are forwarded whenever the Director of the Centre considers them likely to be of use.

Finally, if an answer does not provide all the information needed, the Centre is always glad to amplify any point on which the enquirers want fuller explanation.

Any questions about building or architecture may be sent to:

THE ARCHITECTS' JOURNAL
45 THE AVENUE, CHEAM, SURREY.
Telephone: *VIGILANT 0087*

or ring the Architects' Journal Information Centre at

R E G E N T 6 8 8 8

Q269 ARCHITECT, LONDON.—*For very many years now, I have, with full confidence, specified the use of WATERPROOFING POWDERS AND LIQUIDS in cement compo and concrete in order to resist damp, and have always been at rest in doing so. I am referring, of course, to the many well-known brands on the market, recommended by many authorities and subjected to full tests. Lately, however, I do not feel so confident in doing this as heretofore, as I note that several of the latest underground entrances to Tube and Metropolitan Railways, built lately, and on which very little expense has been spared, have their interior ceilings, especially those running over the escalator shafts, completely spoilt with damp. Among those I particularly noted were the Tottenham Court Road, South Wimbledon, etc., all newly built. My query is: if there are all these good brands on the market, and I myself have seen some of the very severe tests that are applied, quite successfully, why are they not being used; and, more to the point, if they are being used, why do they not hold back the damp, as they do so well under the various tests?*

This enquiry seems to be based on an assumption which may be quite wrong. Waterproofers may not be

used nor concrete linings to Underground shafts and, if they are, subsequent discoloration may not be caused by damp. From a superficial inspection of two Underground Stations, it appears that the greater part of the discoloration in ceiling linings may be caused by the "bleeding" of bituminous substances used to secure adhesion, or for other purposes, under the plaster finish. In addition, the placing of concrete underground presents particular difficulties which may prevent the use of waterproofers. The latter part of the question assumes a failure in practice of waterproofers which show good results in tests. An obvious explanation of this is the difficulty of securing on the job the care in mixing, or other details of application, which are possible in a test. It should be remembered, however, that the intrinsic efficiency of the material itself is not the only reason why an architect specifies well-known types of waterproofers. By doing so, he draws the attention of the contractor to the danger of water penetration in a particular place and so ensures careful work—supervised by a firm with a reputation to lose.

Q270 SURVEYOR'S DEPARTMENT, BREWERY COMPANY, LONDON.—*Some long time ago there was an advertisement in the trade papers of a firm which produced STANDARD PRECAST CONCRETE ROOF TRUSSES. Are these still available?*

Yes, but so far as we are aware only one firm* produces and stocks these trusses, and, as is to be expected, it is engaged at the moment on production for Government work. It is, however, still able to meet non-priority work. The trusses themselves are delivered to the site in two sections and supplied with bolts for simple erection in position. Standard trusses are to be had for 18–19 ft. spans, and also 24 ft. and 28 ft.

Q271 PROPERTY OWNER, LONDON, W.—*On property which I own some additional plumbing was required, and on a brief specification of mine a PLUMBING firm submitted a TENDER which I accepted. The work involved the provision of additional sanitary fittings, their services and connections, and the erection of a vertical stack of anti-syphonage pipe. The plumber carried out the work, but instead of providing an anti-syphonage pipe inserted anti-syphonage traps to the individual fittings. These were accepted by the local sanitary authorities. The plumbing firm are demanding of me the full estimate figure for the work, while I maintain that there should be a reduction because of this substitution. They now threaten to sue me in Court for the amount of the contract. What are my remedies?*

The first step would seem to be to obtain expert assistance in adjusting the account; and the services of a quantity surveyor should be employed. Even if he fails to come to an arrangement with the plumbing firm, his services in court will be of advantage to you in putting forward your case. If the name of a suitable quantity surveyor is unknown to you, no doubt names of qualified men would be obtainable on application to the Chartered Surveyors Institution*.

Q272 ARCHITECT, SOUTHAMPTON.—*What is the difference in COST between WHITE AND COLOURED glazed WALL TILES?*

The following notes give some indication of the relative cost of coloured tiles as compared with ordinary white glazed tiles:

6 in. by 6 in. white glazed ..	100
6 in. by 6 in. cream glazed ..	105
6 in. by 6 in. coloured enamels ..	150
6 in. by 6 in. mottled and plain eggshell finish	175
Extra for 4 in. by 4 in. tiles over 6 in. by 6 in. tiles	7½

Q273 CONTRACTOR, ESSEX.—*I have an IDEA in which I should like TO INTEREST BUILDING or architectural CAPITAL. I believe, however, a shape is not a thing which can be patented, and that makes me wonder how I could safeguard my interests should it be as good as I think it is, and whether any firm would be interested if it was open to any other firm to copy. Could you let me know with whom and how I should proceed? I see from the Engineering Handbook that 2 cubic yards of brickwork constitutes an average day's work for two men. I take that to equal a wall say 12 ft. long, 4 ft. high, by 1½ bricks approximately. I believe I could put up a wall 12 ft. by 4 ft. by 1 ft. thick in 16 main operations with perhaps less cement mortar and giving a stronger bond and with a masonry appearance, in perhaps three hours. I ought to add also that I am not in a position to employ a solicitor to negotiate—unless, of course, success was certain.*

It is scarcely possible to suggest places or people who might be interested in the commercial exploitation of a process or product which is not fully described. Also, in the interest of the inventor or designer, it is not advisable to publish particulars of an invention before provisional patent has been applied for; or, if a design, before such a design is registered. The patenting of inventions and the registration of designs are carried out through the Patent Office*, and an individual is at liberty to carry out any necessary work of negotiation without employing the services of a solicitor or patent agent. All immediate thoughts of the inquirer should be given over to the patenting or registering as an essential step prior to any thought of commercial exploitation. But it is extremely doubtful whether the Patent Office could be of the slightest service in indicating persons or firms likely to be interested in the invention.

Q274 MANUFACTURING FIRM, STAFFORD.—*The PACKING SHOP which is used in our works for the packing of grinding wheels (which are naturally of a brittle nature) into their wooden cases prior to despatch to the railway, is at present arranged with a concrete FLOOR. We are considering the advisability of employing other types of flooring material and it occurs to us that you may have some information or experience which would be of value to us.*

There are various possibilities for such a flooring:—

WOOD BLOCKS.—Ordinary wood blocks either in hard wood or in rift sawn or edge grain Columbian pine can be laid directly on the existing concrete floor and would have the advantage of being comfortable underfoot and less likely than the present concrete floor to damage any grinding wheels dropped on the surface.

ROAD BLOCKS.—Another possibility would be the end grain impregnated or non-impregnated blocks as used on roadways, which would give a very hard-wearing floor under all conditions of wheeled traffic. This will be comfortable under foot and again not so likely as a concrete floor to cause damage to dropped goods.

WOOD PLANK FLOORS.—With a bitumen adhesive there is less likelihood of success with this form of floor

* *Stent Precast Concrete, Ltd., 2 Central Buildings, London, S.W.1.*

* *The Secretary, The Chartered Surveyors Institution, 12 Gt. George Street, London, S.W.1.*

* *The Patent Office, 25 Southampton Buildings, London, W.C.2.*

646 B.

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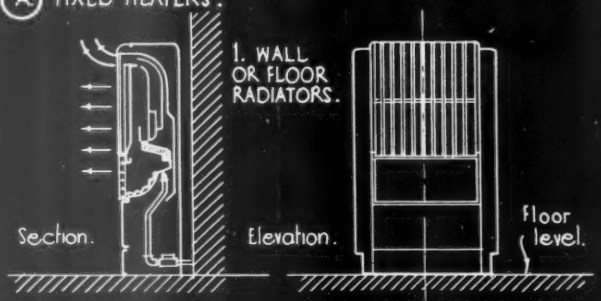
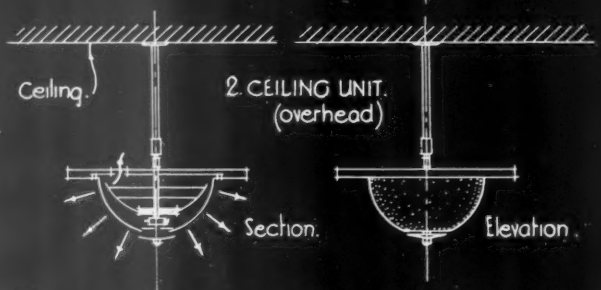
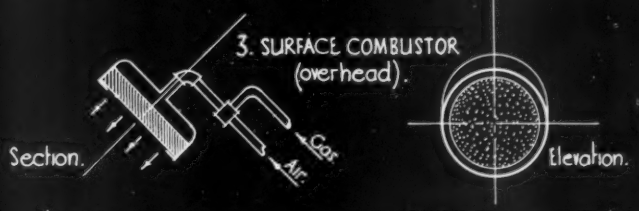
FLUELESS GAS HEATING APPLIANCES OF COMBINED CONVECTING AND RADIATING TYPE :

For flueless heaters of mainly convecting type, see Information Sheet N° 10 of this series.

(A) FIXED HEATERS :

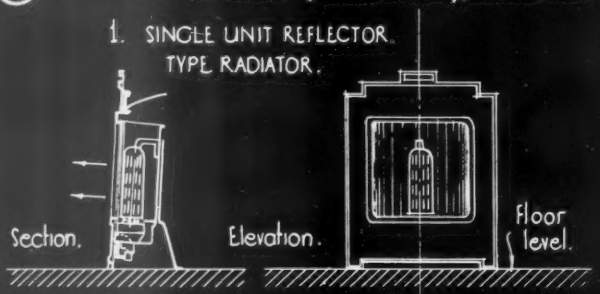


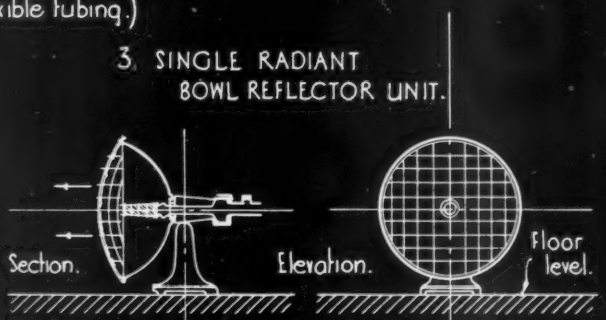




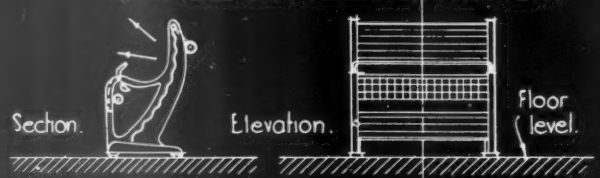
CHARACTERISTICS.	TYPICAL SITUATION.	GAS CONSUMPTION.
A.1. Reasonable proportion of radiant heat. Cheerful & attractive appearance.	Shops, restaurants, halls, etc.; general heating where appearance is important.	6 to 24 cu. ft. per hour.
2. Overhead radiation from a black surface. High radiant output of wider distribution than 3.	As for 2, but less suitable if very draughty & lofty, or for very large installations. Also suitable as for 1, if ceiling is over 13 ft.	Approx. 25 cu. ft. per hour.
3. Incandescent overhead surface, high radiant output.	Lofty shops, factories, halls, churches, etc.	25 to 100 cu.ft./hour.

(B) PORTABLE HEATERS (Used in conjunction with flexible tubing.)

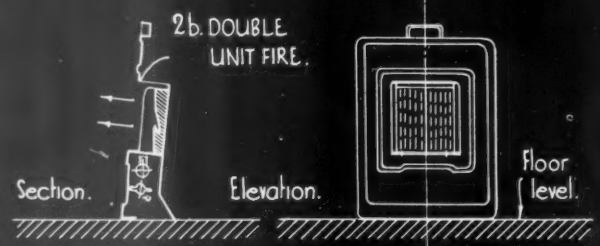




Control cock at inlet connection to flexible tubing.



Control cock at inlet connection to flexible tubing.



CHARACTERISTICS.	TYPICAL SITUATION.	GAS CONSUMPTION.
B.1. Readily portable; good beam of radiant heat.	Any domestic rooms in mild weather, small rooms in any weather; small offices, etc.	Approx. 12 cu. ft. per hour.
2a. Similar to 1, but less pronounced beam of radiant heat.	Similar to 1, but slightly less rapid in effect.	Approx. 10 cu. ft. per hour.
2b. Similar to 2, but higher output.	Alternative to solid fuel fire in mild weather, or for intermittent use.	Approx. 20 cu. ft. per hour.
3. Similar to 1, but much narrower beam of radiant heat.	Similar to 1, but for one or two people only.	Approx. 5½ cu. ft. per hour.

Information from The British Commercial Gas Association.

INFORMATION SHEET : THE EQUIPMENT OF BUILDINGS : GAS APPLIANCES, 2 : N° 9.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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INFORMATION SHEET

• 786 •

THE EQUIPMENT OF BUILDINGS

Subject : Gas Installations ; Gas Heating Appliances for Space Heating

General :

This is the ninth Sheet of the series on the installation of gas services in buildings. The Sheet is in continuation of Sheet 778 and deals with gas heaters not specifically providing ventilation to the room and of a type providing a substantial proportion of radiant heat.

The appliances are of two types :

1. Embodying visible incandescent heat sources.
2. Sources insufficiently hot to be visibly incandescent.

Description of the Types Illustrated :

Domestic. Type 1. *Visible incandescence.* The incandescent material may be of metal or of magnesia discs as in example (A) (1), or fireclay as in example (B) (3). The metal, magnesia or fireclay radiants are heated to incandescence by the gas and emit radiant heat the direction of which is further controlled by the provision of a metal reflector. A variety of types and of heating capacities is available.

Type 2. *Dark heat.* The absence of visible heat represents no sacrifice in heating capacity or efficiency, and represents only an alternative form from the decorative point of view. Various designs and heat capacities are available.

Both types are available in heavy construction to be fixed, or in lighter construction to be used in conjunction with flexible tubing and plug-in point.

Non-domestic. For schools, halls, churches, factories, etc. For reasons of inadequate unit capacity, high capital cost, or lack of suitable floor space, the domestic types and sizes may be considered unsuitable. Although heavier types of more robust construction and in larger units are available for such situations overhead heating has been found particularly convenient provided enough head room is available. A minimum ceiling height of 13 ft. is recommended unless the ceiling construction is such that discoloration does not matter or would not take place. Since the heaters throw radiant heat direct to the occupants, very little delay is entailed after lighting before comfort conditions are obtained. Thus, this type of heating is particularly economic in such situations as churches and halls where occupation may be intermittent.

As with the domestic type of heaters the radiant heat may be from visibly incandescent sources or from sources the temperature of which is below incandescence.

Issued by : The British Commercial Gas Association

Address : Gas Industry House, 1 Grosvenor Place, London, S.W.1

Telephone : Sloane 4554

compared with wood block flooring. Ordinarily, wood block flooring would be laid over bearers which in themselves are fastened to the concrete, but this under the present circumstances would entail quite an appreciable amount of work and the advantage so gained would not be greater than by the adoption of wood blocks laid direct on the concrete.

RUBBER BLOCKS.—There is a form of rubber-surfaced concrete block unit which could be laid directly on the existing concrete floor and which gives a comfortable and durable surface, and the resiliency of the rubber surface would have the added advantage when abrasive wheels were dropped.

ASPHALT.—A hot-laid asphalt floor could be adopted. This would be dustless and while being not much more resilient would not be so hard as the present concrete floor.

BITUMEN CORK MIXES.—It might be possible to apply a cold-laid mix of bitumen emulsion and cork chippings. This would be comfortable underfoot. The durability under heavy traffic conditions would be a matter of investigation, but if such a floor did become rutted by traffic the ruts could be evened out by passing a roller over the surface.

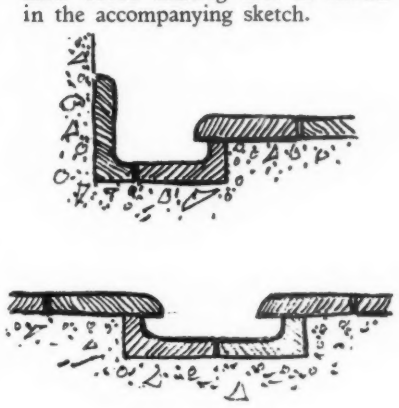
PLASTIC RUBBER.—Rubber in plastic form could be laid directly over the existing concrete and would form an inexpensive, comfortable and resilient flooring.

BITUMEN - IMPREGNATED SHEET.—There is now available a form of ½-in. wood fibre board impregnated with bitumen which could be laid in a bitumen adhesive directly on the concrete floor. This would provide a comfortable floor, with good wearing qualities, and easily replaceable if need be in main traffic ways.

In your letter no mention is made of whether the flooring must be of a non-combustible material. If this factor is important then some of the floorings mentioned above would not be suitable.

Q275 ARCHITECT, LOCAL COUNCIL.—*In SHELTERS completed by us we have received instructions to modify these for use for other purposes, and this work will entail the laying of quarry tile floorings. We wish to provide a SUNK CHANNEL RUNWAY from standard non-absorptive materials. What construction would you suggest?*

Why not use half-section glazed stoneware pipes such as are used in the bottom of ordinary drainage manholes? Or a recessed square gutter could be formed using standard coved skirting tiles as shown in the accompanying sketch.



Q276 ARCHITECT, CHELTENHAM.—*I am engaged upon the design of a factory which will be in operation by shifts for 24 hours. The normal number of employees will be 500—but at the time of the CHANGE-OVER OF the SHIFTS there will actually be 1,000 employees on the site. To comply with the regulations which number should be taken into consideration in providing SHELTERS?*

This point is mentioned specifically under Section 89 of the Civil Defence Act, appearing under Definitions and Interpretations of references to persons working and persons employed, where in Sub-Section 7 it is given that "regard shall not be had to any temporary increase occasioned by a change of shifts." The answer is therefore that provision should be made for 500 people.

Q277 ARCHITECT, LONDON.—*We are engaged upon work for one of the Ministries, and contained in the standard specification to be followed it is stated that the GRANOLITHIC FLOORS are TO BE POLISHED. Is this possible?*

It is. A few years ago when this specification was first circulated in the trade the same query was raised. The work is done by surface grinding and honing just as in terrazzo work, and, as might be expected, causes considerable wear on the rubbing blocks. The finish is considered to have particular merits under certain conditions.

Q278 ARCHITECT, LONDON.—*On the outbreak of war I evacuated my family to a small house in Reading, and I am contemplating putting in an AGA COOKER. Since the use I myself make of the place may be short, my thoughts revolve around the possibility of obtaining a used or SECOND-HAND MODEL. Have you any idea as to the probability of obtaining one?*

Application to the manufacturing firm concerned* brought the reply that they themselves had no used models for sale. It was suggested there that approaches should be made to the local agents—Messrs. Dodwell and Hinton, Ltd., Faircross House, Watford, Herts. Apart from this, it would appear that the only likelihood of obtaining your requirements would be by advertisement in papers such as the *Evening Standard, Evening News,* or in the Estate Magazine of the Country Gentlemen's Association, mentioning the particular model desired. It was said, however, that there was a fixed charge of £6 for the dismantling and reassembling of an Aga cooker, plus, of course, any travelling expenses and transport costs. This work is carried out by experienced men at the disposal of the local agents.

Q279 ARCHITECT, LONDON.—*Who are the makers of the ECONOCRETE Waterproof building paper mentioned in* Specification?

The particular paper is available from the firm given below.†

Q280 ARCHITECT, READING.—*A colleague of mine mentioned that in a recently erected factory which he had visited light PARTITIONING had been erected, which seemed to consist OF ASBESTOS OVER A perforated STEEL CORE and in large sheets. Unfortunately, the name of the material was not available, but it was said that the material was both inexpensive and fire-resisting. Do you know by any chance the name of the material? I have shown my colleague a sample of the Durasteel fire protection panel but apparently this is not the material; the material he saw was less rigid and the steel formed a core and not a surface.*

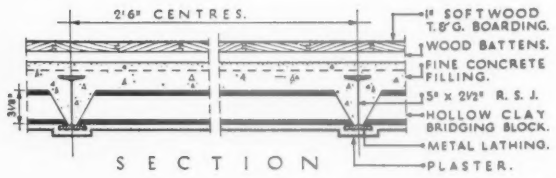
Probably the material in question was STEELBESTOS, which conforms to the general description. It is formed

* *Aga Heat, Ltd., 20 North Audley Street, London, W.1.*

† *Messrs. Smith, Stone and Knight, Ltd., 84 Colmore Row, Birmingham, 3.*

of asbestos pressed on to a perforated metal sheet and available in sizes 8 ft. by 2 ft. and 6 ft. by 2 ft. The price, subject to any very recent increase, will be about 6½d. per sq. ft. The material can be used internally and externally and will take a paint or distemper surface. It is manufactured by the firm given below*.

* *The Asbestos Development, Ltd., Grove Works, Grove Lane, Smethwick, Staffs.*



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TIMBERLESS FLOORS AND FLAT ROOFS

Following is the first part of a statement by the Information Bureau of the Building Research Station on "Timberless Floors and Flat Roofs"—a survey of continental materials and methods of construction. The second part will be published next week.*

1. INTRODUCTION

THE traditional floor and flat roof in this country is built of timber, but during the present century there has been an increasing use of a variety of types of floor and roof built of materials other than timber—steel, reinforced concrete, hollow tile—except in small domestic buildings. Immediately before the war the materials used in flooring were fairly sharply divided into two classes: timber for houses, and the other for offices, flats, public buildings and the like.

In many countries, such as Switzerland, Austria, Italy, despite in some instances fairly plentiful supplies of timber, floors of the second type, which for convenience may be termed "incombustible" floors, have long been used even in housing, though not exclusively. In fact, in Zürich regulations forbid timber floors for kitchens and bathrooms.

There are already available in this country a number of well-known and very satisfactory types of "incombustible" floors which can be used with advantage to economize timber supplies. But these by no means cover all the designs which have been proposed. Some years ago a survey of Continental methods of floor construction was made by two officers of the Station, and that brought to light a number of methods which are unknown or relatively uncommon in this country. It is felt opportune to publish an account of them. Some are olready available and the publication of details af others should serve a useful purpose either by encouraging new developments in manufacture or by stimulating extemporization by builders according to the circumstances prevailing. Details obtained from the literature of some corresponding American types of floors are also included in this note of those Continental floors.

With one exception the constructions which have been selected for description are those which involve the use of little or no shuttering, and the only timber required is for floor-boarding and ceiling laths, which, however, may be replaced by one of several familiar alternative finishes. The dead weights given in the text include the weight of the particular type of ceiling and floor finish shown in the corresponding figure.

For economy in steel, as well as in timber, the use of pretensioned wire reinforcement as an alternative to the normal type of reinforcement shown in the diagrams might be considered.

Much might be said regarding the relative advantages and disadvantages of timber and other types of floors. One advantage of the non-timber floors that may be mentioned in relation to the present time is the better protection they afford against aerial attack by incendiary bombs. The "incombustible" floors described in this note will not only provide a better insurance against the fire effects of such bombs, but also show a higher resistance to penetration of a light incendiary bomb than the plastered ceiling on joists which has been customarily used over the top floors of domestic buildings; the "incombustible" floors will, therefore, be particularly valuable in this position.

2. METHODS OF CONSTRUCTION

The methods of floor construction to be described may be classified as follows:

Type 1.—Floors* consisting of rolled steel joists (or pressed steel sections), and (*a*) hollow clay bridging blocks with or without flange covers, or (*b*) concrete slabs cast *in situ* on some form of light permanent shuttering.

Type 2.—Floors consisting of pre-cast concrete ribs and hollow clay blocks laid longitudinally.

Type 3.—Floors consisting of pre-fabricated hollow tile beams with steel-and-concrete reinforcement.

3. DETAILS OF TYPES

Type 1 (a).—Floors consisting of R.S.J.s or pressed steel sections and hollow clay bridging blocks.

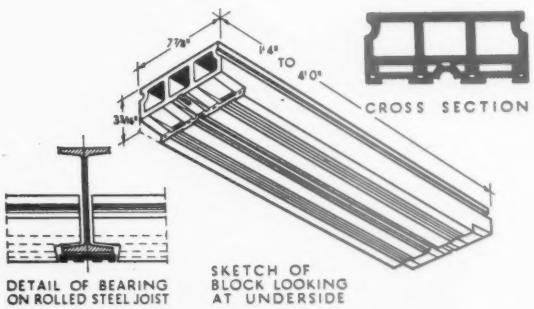
(*a*) The simplest example of this type is shown in cross-section in Fig. 1. The hollow clay bridging blocks are laid transversely between the R.S.J.s and resting on their lower flanges. They are usually chamfered at their ends to an angle of about 70° for convenience in erection. The spaces between the joists and above the tiles are filled with fine concrete. The flooring shown consists of t and g boarding on battens, but this may be replaced by other types of floor finish. A simple plaster ceiling is used. To facilitate plastering, the lower flanges of the joists are covered with expanded metal or wire netting, and in many types a number of dovetail grooves are formed on the under-surface of the tiles for the same purpose. This floor weighs about 50 lb. per sq. ft.

One disadvantage of this method of construction is that the soffit is necessarily uneven, and if a flat ceiling is required it is necessary to cut the ends of the tiles so that while resting on the lower flanges of the joists they will also be flush with their lower surface. This, however, may give rise to a pattern-stained ceiling, and to avoid this a modification to the above has been developed.

(*b*) This modification is shown in Figs. 2 and 3. The tile is made so that its soffit projects below the joist and its end is shaped in the form of a dovetail to hold a small clay tile which is inserted beneath each joist. This gives a soffit of tile throughout. This type of floor weighs about 75 lb. per sq. ft.

(*c*) A further modification very common in certain parts of the Continent is to ensure an all-tile soffit by the use of a construction in which "flange covers" are used (*see* Fig. 4). These

* The term "floor" is used throughout, in the interest of brevity, for floors, flat roofs, and top-floor ceilings; since the designs described are applicable, with suitable modifications as to finish, etc., for all these purposes.



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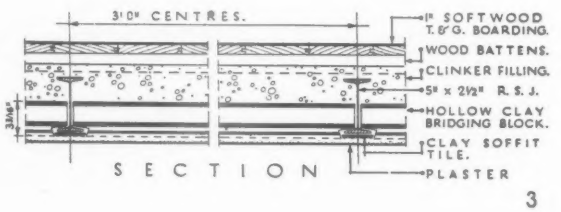

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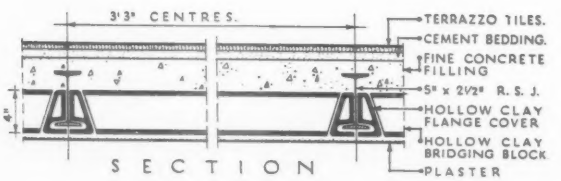

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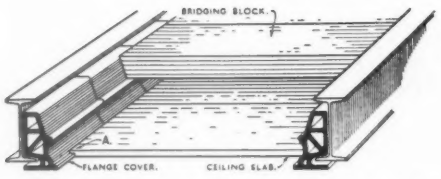

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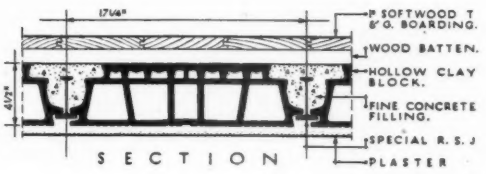

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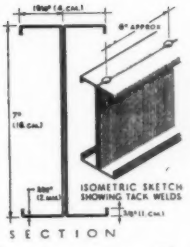

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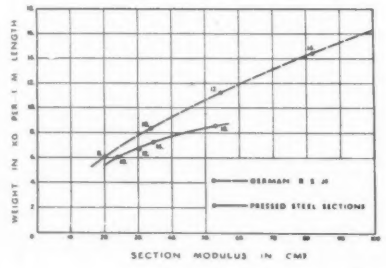

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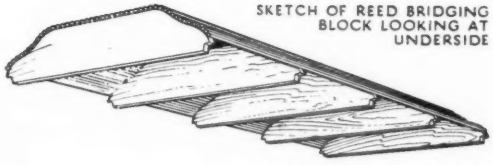

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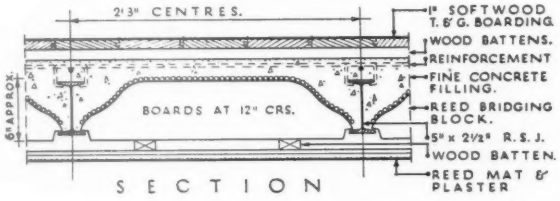

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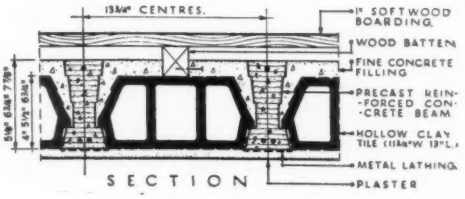

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are shaped tiles which fit over the lower flanges of the joist and transmit the load from the bridging block to the joist. They prove particularly useful in the case of deep floors where the filling material would otherwise be excessive. Fig. 5 shows a design in which the bridging blocks are supported by a ridge formed half-way up the flange-cover, and the ceiling slab consists of ribbed slabs obtained by splitting thin hollow tiles into two parts, and laying them rib downwards between the bottom flanges of the flange-covers. The ceiling is plastered direct on the underside. It will be noticed that the dimensions, parallel to the joists, of the various units forming this construction are arranged so as to reduce as far as possible the number of "straight" joints.

(*d*) A rather different style of construction is shown in Fig. 6. Here the special section R.S.J.s are designed to carry the dead load without assistance from the concrete. When the concrete filling between the hollow blocks is placed, however, and the floor finished off, the R.S.J.s provide reinforcement for the concrete and enable the floor as a whole to carry the combined live and dead loads.

The same steel section is used for all spans, but for large spans additional reinforcement in the form of steel rods may be used. To provide further strength the concrete filling may be continued over the tops of the clay blocks, forming a series of T beams.

The blocks are laid lengthwise and are of one length only, variations in the length of the area to be covered being accommodated by increasing the bearing of the end blocks upon the wall or by replacing the end blocks with thin hollow slabs of special section.

For spans greater than about 10 ft. an intermediate temporary support is necessary to prevent undue deflection of the beams before concreting. This support cannot be provided from below as this would prevent insertion of the blocks, which project below the soffit of the joists, and hence, a transverse reinforced concrete beam with top and bottom reinforcement is cast at the place where support is required. The shuttering for this is the only timber required. (This is known as the "Schild" floor.)

Remarks

On the Continent, hollow clay bridging blocks are usually of very fine quality and may be obtained in lengths varying from 16 to 48 in. The usual spacing of joists, however, is of the order of 30 in. Flange-covers are made in five sizes to cover joists ranging in depth from 3 in. to 15 in.

Modified forms of tile and flange-cover are available for use with light welded steel joists of the type shown in Fig. 7. The joists are of German origin, and made in various standard depths. The sheet thickness, flange width, etc., are the same for all depths. The two channel sections are tack-welded at 6 in. centres staggered top and bottom. The curves shown in Fig. 8 show the weights of German R.S.J.s and pressed steel sections for varying values of section modulus. It will be seen that the saving in weight increases with the depth of the section. For the methods of construction discussed here, a typical floor of 13 ft. span with joists at 2 ft. 7½ in. centres and under a live load of 40 lb. per sq. ft. would require rolled joists 4.8 in. deep (weighing 7.5 lb. per ft.) or pressed sections 7.1 in. deep (weighing 5.7 lb. per ft.). The saving in weight is thus of the order of 25 per cent., which becomes an appreciable factor when it is important to conserve supplies of steel.

Type 1 (b)—*Floors consisting of R.S.J.s or pressed steel sections and concrete slabs cast* in situ *on light permanent shuttering*

(*A*) A popular system of this type is shown in Figs. 9 and 10. The hollow clay bridging block used in the previous example is replaced by a mat of dried reeds supported in the required form by shaped wooden boards spaced at about 12 in. centres. The length of the unit varies between 3 ft. and 6 ft., depending on the length of reeds available. The floor weighs about 45 lb. per sq. ft.

Various alternatives to reeds should be possible such as brushwood, or fibre board. The only property desirable in such cases is that the material should be sufficiently durable to form a light and permanent shuttering for the concrete slab cast *in situ*.

As will be seen in Fig. 10, stirrups are welded to the upper flanges of the R.S.J.s and carry reinforcing bars which ensure that the steel and concrete work together. For a span of 12 ft. the joists are 5 in. by 2½ in. at 27 in. centres, whilst the depth of concrete above the joists is 2 in.

(*B*) Another method in which concrete slabs are cast *in situ* on permanent shuttering is found in American practice. This employs lightweight pressed steel sections (known as "metal lumber joists") similar to those previously described. These are placed 18 in. to 30 in. apart and supported transversely at intervals of not more than 6 ft. by a bracing of crossed wires or by horizontal tie rods. A ribbed-mesh type of reinforcement is used, and this is merely laid on the joists over the area to be covered and the concrete slab (2-in. minimum thickness) poured over it. The mesh of the material is sufficiently small to hold the concrete and the ribs are stiff enough to prevent excessive sagging, the whole forming a convenient combination of reinforcement and centering. There is sufficient grip between concrete and reinforcement to develop the bond stress required.

Type 2—*Floors consisting of pre-cast concrete ribs and hollow clay blocks*

In floors of this type the ribs are spaced fairly closely and the blocks are laid longitudinally and are much shorter than the usual type of bridging block. In Continental practice, the manufacturer casts the beams specially for each job, though beams of various sizes are usually carried in stock.

(*A*) The first example of this type of floor is shown in Fig. 11. The method of construction requires no explanation. Three depths of rib

are shown : these are for spans of up to 13 ft., 16 ft. 3 in. and 37 ft. 6 in. in order of increasing depth. In each case the tiles are approximately $1\frac{1}{8}$ in. shallower than the beam, and have a length of 13 in. (This is known as the "Norma" floor, and weighs 51 lb. per sq. ft.).

(*B*) Two forms of a similar type of floor are shown in Figures 12 and 13. Under test, a slab of the first form, 13 ft. 9 in. long and 6 ft. 6 in. wide, failed by steel yield at a load of 6·3 times the working load. (This is the "Schleutermann" type of construction, weighing about 58 lb. per sq. ft.).

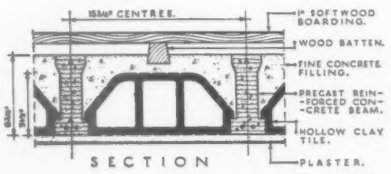
(*C*) Fig. 14 shows a third example in which transverse reinforcement is used to distribute the load. Table I shows the relationship between depths of tile, beam and floor.

TABLE I

Tile Depth In.	Beam Depth In.	Floor Depth In.
4	$5\frac{1}{8}$	$5\frac{1}{2}$
$4\frac{3}{4}$	$5\frac{7}{8}$	$6\frac{1}{4}$
$5\frac{5}{8}$	$5\frac{7}{8}$	$7\frac{3}{8}$
7	$5\frac{7}{8}$	9

Data showing the relation between span and dimensions of floor are not available, but it is known that a span of 13 ft. requires a 4-in. tile. (This "Ottiker" floor weighs about 45 lb. per sq. ft.)

[To be continued]



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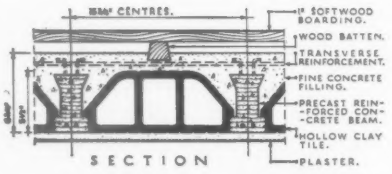

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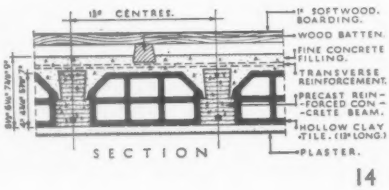

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TRADE NOTES

[*By PHILIP SCHOLBERG*]

Portable Lamps and Safety

Reference has already been made in these notes to the danger of normal lighting voltages in damp situations like shelters, but there are also various statutory requirements about the use of portable lamps or electrically driven tools. In a large factory there is always the possibility that high-voltage portable lighting may be allowed, except perhaps in the most dangerous areas, because it is expensive and complicated to run a low voltage service everywhere. Even if only small areas are involved, there will be quite a considerable voltage drop in the cable runs, and this may mean a series of transformers serving different groups of outlets.

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The English Electric Company, however, have just evolved a small portable transformer which enables a low voltage lighting supply to be obtained from a normal voltage socket anywhere. This transformer weighs only 7 lb. and steps the normal voltage down to 25, and the lead to the lamp is via a special non-standard two-pin plug, so that it is impossible to plug the low voltage lead into the normal lighting circuit. In actual use there is nothing against this device, for the lamp and transformer are carried round together without any difficulty, and there is no danger in its use.—(*The English Electric Company, Ltd., Queen's House, Kingsway, London, W.C.2.*)

A Thermostat in Every Home

Almost every pamphlet and booklet in favour of electricity stresses the ease with which electricity can be controlled, and the tremendous savings which can be effected if thermostats are used. "For then the current is only being used when it's actually *needed*." In marked distinction, of course, to the coal fire which goes on burning when the room is warm. But little is made of the fact that few private householders can afford to have thermostats in every room : on a water heater, yes, because the manufacturer very properly supplies it himself, and the householder has no option. But for other rooms the problem is not so simple, for a wall-mounted thermostat may have all sorts of furniture put in front of it, and then it cannot possibly work.

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Realizing all these snags, the British Thermostat Company have produced a small thermostat which is wired up to a series adaptor. The adaptor is plugged into the socket which supplies the heater, and the thermostat itself is hung on any convenient hook. This, therefore, is a fitting which any householder can use on his own, and can, if necessary, carry from room to room. A certain amount of thought should be given to the precise position in which the thermostat is to hang ; straight above the fire in the path of the ascending heat is obviously no good, for the fire will then hardly ever be on, and, on the same reasoning, a position too near the floor will mean that the fire is never off. Experiment therefore.

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In design this little unit is clean and sensible. Bakelite casing, in colour if necessary, and no fancy nonsense. The thermostat is adjustable over a range of about 40 to 70 degrees F., though the gradations only vary from "Cool" to "Warm." The maximum loading should not be more than $1\frac{1}{2}$ kilowatts at 230 volts, and the device is suitable for A.C. only. I suspect that the average electric fire is a shade on the small side for the room which it has to warm, and in living rooms I would hardly expect to find these thermostats very effective, but set at about 50 to 60 degrees, they would keep a bedroom or dining room nicely warmed during the day, so that a few minutes with the fire on would bring the room up to the required temperature.—(*The British Thermostat Co., Ltd., Windmill Road, Sunbury-on-Thames.*)

Manufacturers' Items

The explosion at the North London munitions factory last Saturday has focused attention on the necessity for shopkeepers to provide adequate protection for their plate-glass windows. On this occasion, a plate-glass window of a furniture store over a mile away from the factory was shattered. If this is the result of one explosion what will be the effect on the pockets of shopkeepers if bombs begin to fall? How, then, can the shopkeeper protect his window and his pocket? One answer to the problem has been given by Messrs. J. R. Bateman, Ltd., of 11 Buckingham Street, London, W.C.2, who have recently marketed the Security window-brace. This window-brace, now being adopted by many leading establishments throughout the country, is a practical solution to the problem of plate-glass protection in war-time. It is based upon a principle successfully applied in America to check the shattering of windows through vibration. The firm state : "During extensions to the New York Underground, and the laying of foundations of recent skyscrapers, dynamite charges were made to clear the space in the solid granite 100 ft. below. Powerful explosions rocked the city and shattered the windows of Broadway and Fifth Avenue. Engineers, however, evolved a device to give protection, and a window thus protected was uninjured. The Security window-brace is based on this principle. It combines efficient support and shock absorption."

The brace, two illustrations of which are here reproduced, acts as follows : Plate-glass, under the stress of pressure or suction due to "blast," will flex safely within small limits. The pressure distributors (Fig. 1) which are

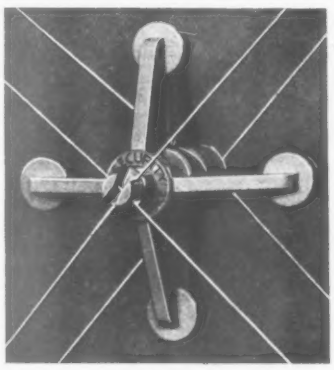

FIG. 1.

The pressure distributor, which is held on both sides of the windows, is made in three sizes.

held by tension wires centrally on each side of the window, allow the glass to flex to the safe limit. Then, correctly-distributed support is provided and the window is prevented from rebounding (Fig. 2). The window-brace, functioning as a vibration damper, makes, it is claimed, plate glass virtually impervious to the effects of earth

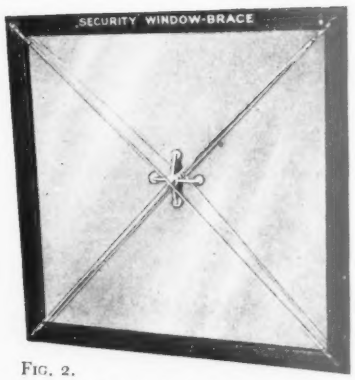

FIG. 2.

The "Security" window-brace in position on demonstration frame.

"shudder." It also provides protection against the worst effects of a direct shrapnel hit, i.e. the glass, it is stated, will not shatter and fly wildly.

Three sizes are supplied :
12 in. diameter for windows up to 80 sq., ft., 57s.
16 in. diameter for windows up to 150 sq. ft., 66s.
24 in. diameter for windows over 150 sq. ft., 75s.

THE BUILDINGS ILLUSTRATED

THREE HOUSES, WILLOW ROAD, HAMPSTEAD, N.W.3 (pages 427-430). Architect, Ernö Goldfinger. General contractors were Leslie Bilsby, Ltd. Sub-contractors and suppliers included : Bierrum and Partners, Ltd., reinforced concrete, proprietary reinforcement; Neuchatel Asphalte Co., Ltd., and Sika Francois, Ltd., reinforced concrete, waterproofing processes ; Williamson Cliff, Ltd., brickwork, facing and common ; Atlas Stone Co., Ltd., Bath and Portland Stone Firms, Ltd., and Slate Slab Products, Ltd., stone : Fenning & Co., Ltd., and Anselm Odling, Ltd., mosaic, terrazzo, marble ; Armstrong Cork Co., Ltd., roofing, insulation and Accotile flooring ; Neuchatel Asphalte Co., Ltd., roofing, covering ; D. Burkle and Sons, Ltd., decorative woodwork and furniture, plywood and veneers ; J. D. Beardmore & Co., Ltd., Matthews Bros., Ltd., and Dryad Metalworks, Ltd., door and window furniture ; Kieffer Windows, Swiss door handles ; Nye and Langston, Ltd., plumbing, sanitary ware, water supply, lead, copper, zinc ; J. Chater and Sons, Ltd., plumbing, sanitary ware, water supply, fittings, baths, basins, etc. ; Delta Metal Co., Ltd., metalwork ; Haskins, T. C. Jones, Ltd., and J. D. Beardmore & Co., Ltd., gates and railings ; Strand Electric and Engineering Co., Ltd., lighting, electrical installations ; Charles Davey, Ltd., heating and ventilating, radiators ; Ideal Boilers and Radiators, Ltd., neo-classic gas boiler ; T. and W. Ide, Ltd., and James Clark and Son, Ltd., glazing ; Henry Hope and Sons, Ltd., metal windows ; H. W. Cooper & Co., louvres ; Kieffer Windows, metal windows ; Keens, plaster ; Nobel Chemical Finishes, Ltd., Dulux paint ; Stic B. Paint Sales, Ltd., distemper ; Thomas Tapling & Co., carpets ; Modern Floorings Co., and Heal and Sons, Ltd., lino ; J. Avery & Co., Ltd., window blinds ; J. Christopher and Son, hand power lifts ; A. Johnson & Co., Ltd., kitchen equipment ; Davis Gas Stove Co., Ltd., cooking—gas ; Horsley, Smith & Co., Ltd., Joseph F. Ebner, Ltd., and Armstrong Cork Co., Ltd., floor finishes.

CENTRAL FIRE STATION, READING (pages 435–438). By A. S. Parsons, M.INST.C.E., F.R.SAN.I., Borough Surveyor. Chief architectural assistant, Mr. Cecil Willett, L.R.I.B.A. General contractor, Alan Morris. Clerk of works, W. Randall. General foreman, W. Turner. Mouchel and Partners, Ltd., were responsible for the design of the reinforcement of the concrete drill tower, and Dr. E. E. Smith designed the special reinforced concrete foundations of the station building and garage. Sub-contractors and suppliers included : Concrete, Ltd., hollow concrete beam floors and roofs ; Mellowes, Ltd., patent roof glazing ; Samuel Elliott (Reading), Ltd., appliance room doors ; Thomas Try, Ltd., appliance room quick-opening gear for doors ; Lenscrete, Ltd., reinforced concrete roof lights ; Protheroe and Nacnab, terrazzo flooring ; Bennetts (Tungit), Ltd., wood block floorings ; Venesta, Ltd., metal doors ; Dovetails, Ltd., flush doors ; W. W. Hall, Ltd., bricks (sand-faced handmade) ; Gwilliam and Son, bricks (selected wire-cut facings) ; Tilehurst Potteries, tiles ; Permanite, Ltd., flat roof coverings ; K. S. Neale, ironmongery ; Joynes, Ltd., fireplaces ; Jones and Sons, Clipsham stone ; Empire Stone Co., Ltd., artificial stone staircase ; Turners Asbestos Cement Co., special roofings ; Building and Insulating Material Co., Ltd., Bimol blocks ; Chance Bros. & Co., Ltd., glass ; Kleine Co., Ltd., patent flooring ; Watco, Ltd., waterproofing materials ; Twyfords, Ltd., and Doulton & Co., Ltd., sanitary fittings ; Adamite Co., Ltd., Alundum stairtreads ; Crittall Manufg. Co., Ltd., steel casements ; Potter Rax Gate Co., Ltd., folding gates ; Haywards, Ltd., fireproof doors ; Gotham Co., Ltd., Gothite plaster ; Samuel Elliott and Sons, Ltd., and W. H. Ryder and Son, joinery ; A. F. Jones and Sons, stonework ; Hoyle Robson, Barnett & Co., Ltd., wallpapers ; Corporation Water Supply, water. Whole of the work of laying main cables, installing transformer and switchgear, wiring installation, heating systems and fittings of every kind was carried out by the Reading Corporation Electricity Department under the direction of J. W. Arthur, M.I.E.E.