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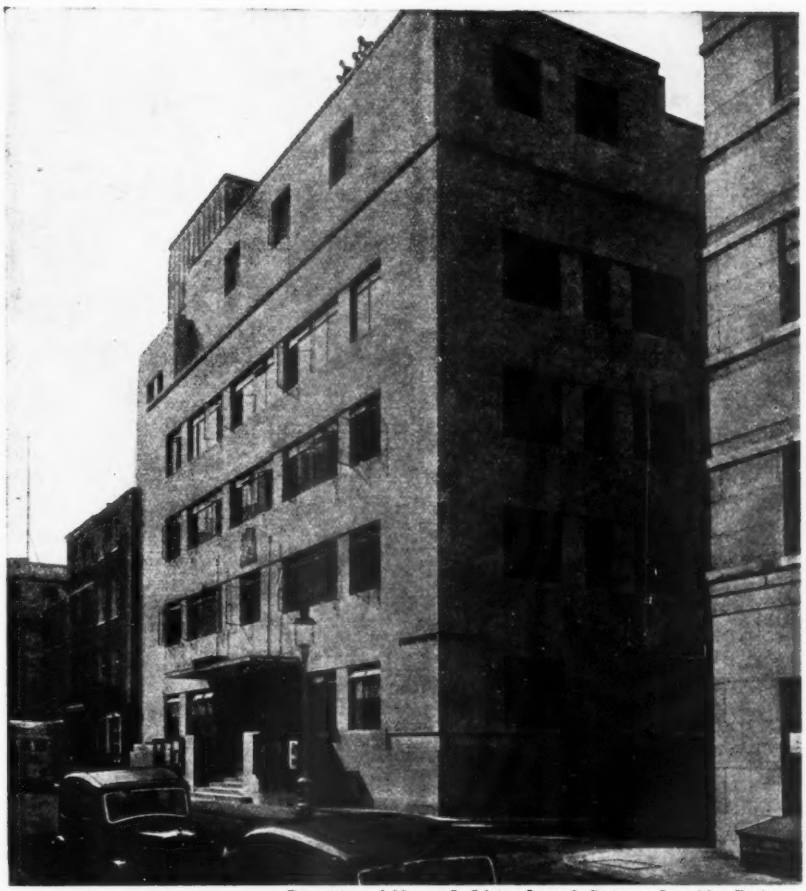

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*

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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, OCTOBER 3, 1940. NUMBER 2385 : VOLUME 92

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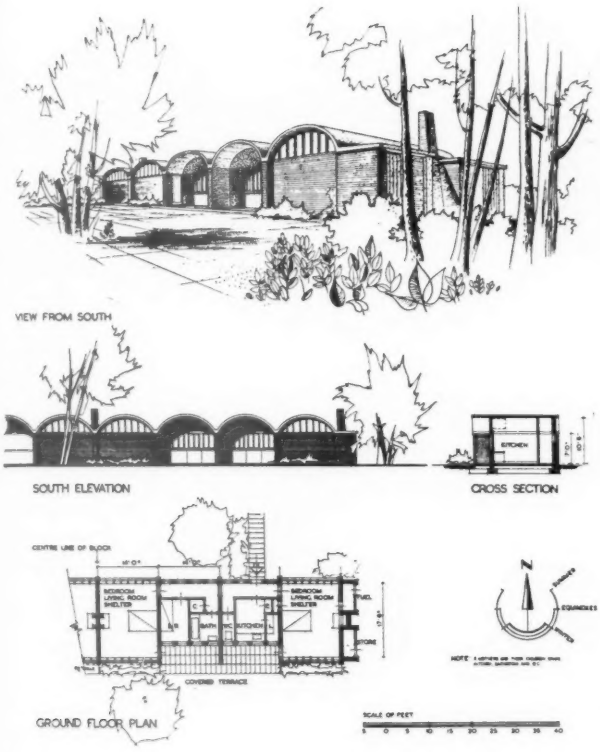
Owing to the paper shortage the JOURNAL, *in common with all other papers, is now only supplied to newsagents on a "firm order" basis. This means that newsagents are now unable to supply the* JOURNAL *except to a client's definite order.*

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.*

EVACUATION : THE UNDER FIVES



1

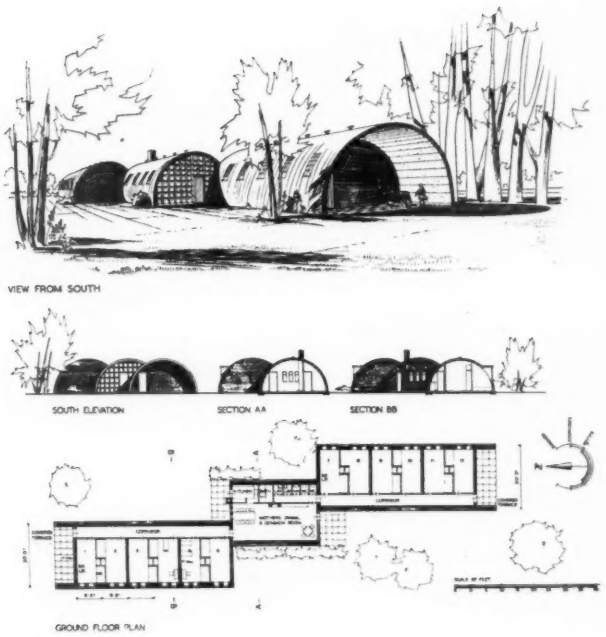
The new Report just issued by the Evacuation Committee of the A.A.S.T.A. puts forward a new evacuation scheme for children under five and mothers able to accompany them. Three schemes from the Report are reproduced on this page.

1 : *Family cottages, designed by Justin Blanco White and Birkin Haward. Accommodation : 2 mothers with children, possibly some children over five. Rooms : 2 bed-sitting rooms, 150 sq. ft. min. ; 1 spare bedroom, 60 sq. ft. min. ; kitchen and larder, 50 sq. ft. min. ; bathroom and linen ; w.c. ; fuel store ; tool store.*

2 : *Mothers and Babies' Hostel, designed by Ernö Goldfinger and Mary Crowley. Accommodation : 10 mothers and children under two. Rooms : 10 bed-sitting rooms with store cupboards, 150 sq. ft. min. ; 2 bathrooms ; 2 w.c.s ; linen airing cupboard ; common room, 200 sq. ft. min. ; kitchen, 100 sq. ft. min., with larder, stores, heating, tanks.*

3 : *Day Crèche, designed by Birkin Haward. Accommodation : 20 children (10, 0–1 ; 10, 1–2) ; 20 mothers and 1 trained staff matron. Rooms : Dormitory, 0–1 (10), 300 sq. ft. ; playroom and dormitory, 1–2 (10), 300 sq. ft. ; covered play and sleeping, 300 sq. ft. ; observation room ; kitchen and stores ; laundry ; pot washing ; staff room, storage, heating and fuel.*

Details of the schemes are given on page 278.



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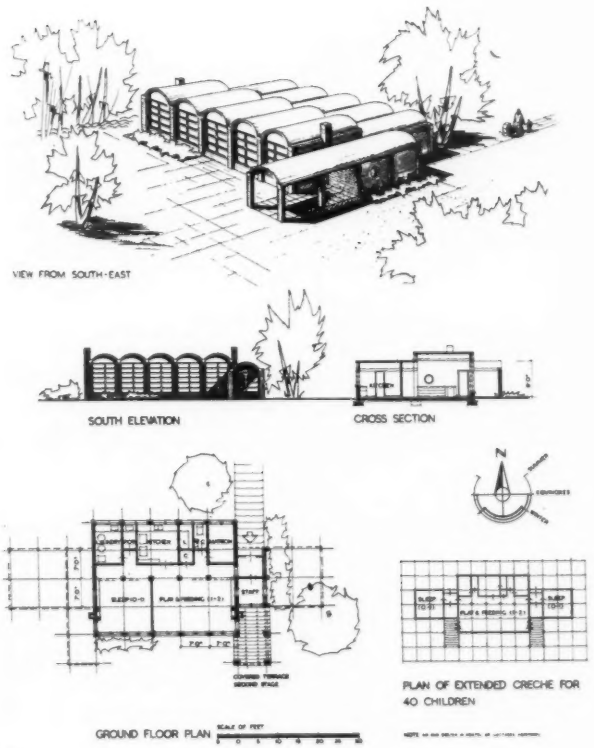

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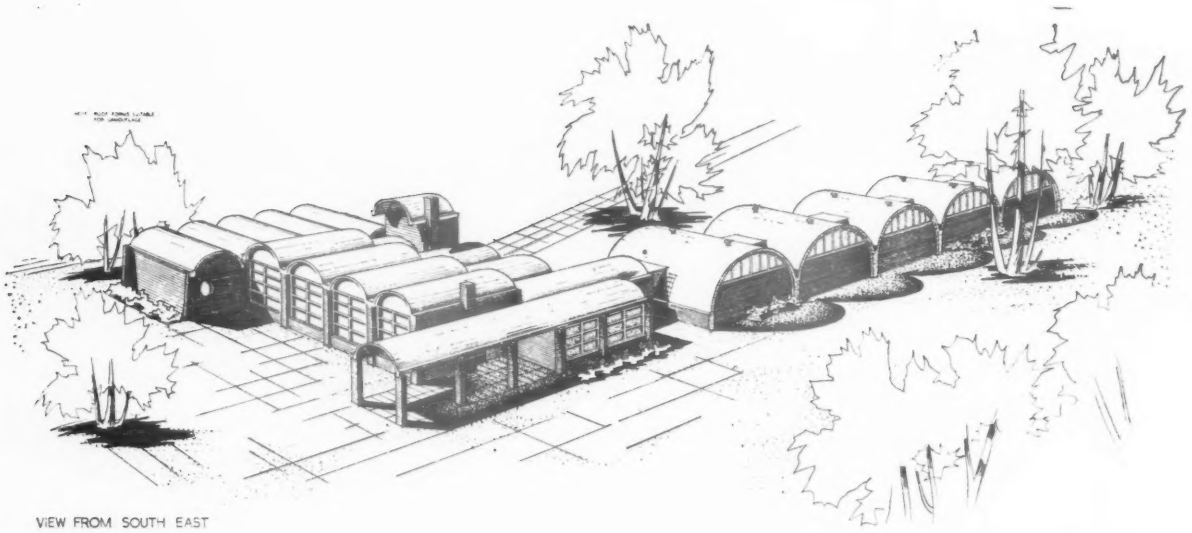
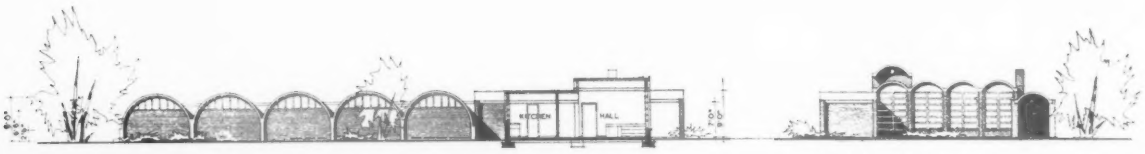
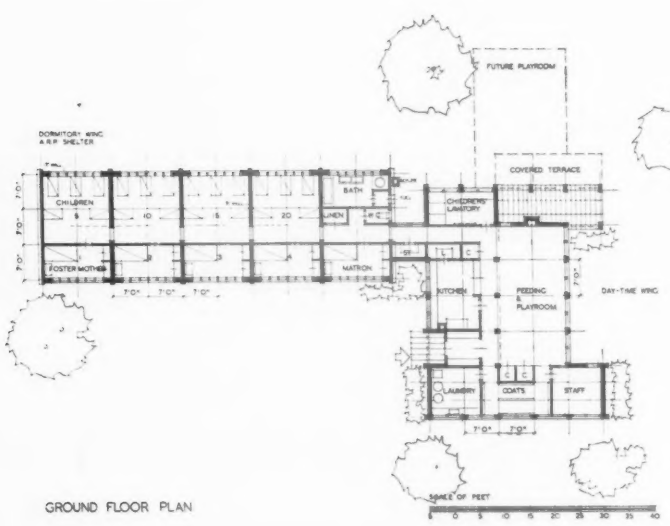


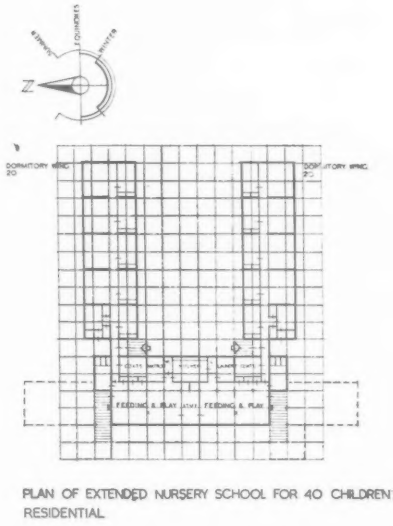
VIEW FROM SOUTH EAST



WEST ELEVATION CROSS SECTION SOUTH ELEVATION



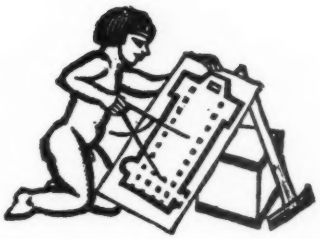
GROUND FLOOR PLAN



PLAN OF EXTENDED NURSERY SCHOOL FOR 40 CHILDREN RESIDENTIAL

PROPOSED RESIDENTIAL NURSERY SCHOOL

Scheme for a Residential Nursery School, designed by Birkin Haward, from the A.A.S.T.A. Report, "Evacuation: the Under Fives." Accommodation: 40 children (2 separate 20 groups); 1 matron; 2 assistant teachers; 8 foster-mothers (5 children each); 1 cook. Rooms: 2 playrooms (20); covered play-space; central hall (built later) (dining, alternative play-space, etc.); 2 sets of lavatories; cloakrooms; isolation room and bath observation room; matron's room; staff room; kitchen and service with stores; laundry; heating, fuel and tanks, etc.; 4 dormitories (5 children); 4 foster-mothers' bed-sitting rooms; bath and w.c. unit; linen store; foster-mothers' common room. *(See page 278.)*



SHELTER POLICY—2

LAST week the JOURNAL examined the two chief pre-war theories of air-raid protection in the light of the raids on London since September 7. In its view these two theories or policies—the deep shelter policy and the policy of small, dispersed blast-proof shelters—had each been shown by these raids to possess serious weaknesses.

It has proved impossible to guarantee a ten-minute warning period of all raids, and every London borough has had at least ten false alarms for every warning which has been followed by bombs being dropped in that borough. These factors would have proved a disastrous drawback—as far as day raids are concerned—to a deep shelter policy had it been carried out.

On the other hand, the Government's policy of small dispersed shelters possesses grave drawbacks under conditions of continuous 6- or 8-hour night raids, and has failed to take sufficient account of the special circums ances of densely populated districts. And it is the two problems in conjunction—night raids on closely populated areas—which, in the JOURNAL's view, demands immediate action. For there is no reason to suppose that night raids will diminish in intensity in the next few months.

There appears good ground for holding that this action should take the form of providing for crowded areas a different type of shelter rather than merely grouping blast-proof shelters more closely. Densely populated areas, as the JOURNAL stated last week, are not only most vulnerable and most likely to be hit, but any unfortunate incident occurring in them—such as a direct hit on a shelter—obtains a publicity far in excess of that obtained in other areas.

These special conditions can only be satisfactorily remedied by the provision of shelters which possess a fairly high degree of resistance to bombs and noise and facilities for sleeping. They cannot be remedied by ordinary surface shelters or strutted basements.

The problem therefore becomes one of how a great many night shelters possessing the required qualities can be provided at short notice, and it seems clear that this can only be achieved by the adaptation of all suitable existing accommodation. For new shelters, designed and constructed for the purpose, could not be made generally available for six months.

The basements, and in some cases the ground floors, of all large steel-framed and reinforced concrete buildings constitute by far the most important part of the suitable existing accommodation. Framed or reinforced concrete buildings exist in large numbers in or near the most closely populated areas, they are virtually proof against collapse, their basements can easily be made satisfactorily soundproof, they have a degree of resistance to direct hits much exceeding that of a surface shelter, and comparatively little labour and time would be needed to adapt them for use as air-raid shelters. In the JOURNAL's view the adaptation of most, or all, of the basements of framed buildings in London offers the easiest and quickest method of solving the night shelter problem in thickly populated districts.

There are, of course, difficulties to be overcome. The basements are in most cases in use as showrooms, stockrooms and warehouses, and the inhabitants of one area may object to shelters in their neighbourhood being put at the disposal of strangers. These objections lose much of their force in present circumstances: there are few stores whose show-space and stockroom requirements have not been reduced by the war; there are few warehouses of whose contents a proportion would not, in the national interest, be better stored outside London; and there are many areas, plentifully supplied with suitable basements, whose night-time population is only a minute fraction of that during the day.

The problem is urgent. The Government has recognized its urgency by obtaining within a week a medical report on conditions in the Tube stations at night, by announcing that millions of bunks and ear-plugs will be supplied. But the reports that the provision of surface and ordinary basement shelters is to be speeded up in the vulnerable areas implies that the psychological urgency of the situation—and its structural implications—is not yet recognized. It is imperative that it should be recognized.

People in the areas which have suffered most will not go to surface shelters if they can avoid doing so—and they will go to great lengths to avoid doing so. They cannot sleep in surface shelters because of the noise, and they have seen, or heard exaggerated stories about, the results of direct hits on them. They go to tubes or shelters, safe or unsafe, under large buildings.

The Government and local authorities must make up their minds now whether to accept and act on this preference or run counter to it. The probability of continuous 12-hour night raids during the winter makes acceptance the wiser and better course on every important ground. There is no difficulty about proper warning of night raids, the bombing is never intense, and large shelters can be far more easily controlled, heated, ventilated, and equipped than small shelters.

But time is short. If the change is to be made, local authorities in crowded areas should cease to plan new surface shelters at once and begin instead a survey of all framed buildings suitable for the new shelters.

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

NOTES & TOPICS

CONTROL OF BUILDING

IT was announced last week that from October 7, no private building work costing more than £500 is to be begun or continued without a Licence from the Commissioners of Works acting through regional licensing officers.

*

In these stirring times such a cautious move towards the more efficient use of building resources is not calculated to set the building industry in an uproar. The average architect or builder's first thought about the new development will probably be that it should have taken place long ago ; his second, that it will not make much difference —for the increasingly stringent control of all the chief materials during the last six months has been tantamount to a fairly strict control of building operations.

*

It has not been tantamount, of course, to efficient control —to the central supervision of all operations, resources, and future production of materials which the building industry asked for last November. But the new Order takes us little further towards that goal. The building works of Government Departments, and works wholly or partly paid for by them, are exempt from the Order. So are those of local authorities save that new works must be authorized by the appropriate Department. So—very properly—are urgent works of repair.

*

In fact, the advantages of the new system seem to boil down to two. It will give the Government notice of a small portion of future building works when they are first proposed and not merely when various materials are needed for them—thus preventing some waste of time. And it will enable the labour and materials which are not needed for Departmental, local authorities' or repair works to be allotted to the private schemes which are most important nationally.

*

As far as they go these things are good. But the building industry will not be able to help noticing that they don't go very far. The Big Chaps have decided that the Little Chaps need strict regulation, but have forgotten that reformers who exempt themselves from their own disciplinary measures are always a little suspect.

*

The building industry suggested eight months ago that the building resources of this country could only be used in wartime with maximum efficiency if a single *building* authority was empowered to do four things : (1) Obtain a complete record of all building resources and materials, and how they were being used, at a certain date ; (2) Decide all priorities ; (3) Demand, and receive, an approximate list of proposed works for a year ahead from all who intended to build ; (4) Take steps to see that both materials and labour were ready for each of those works as they came along.

*

The Works and Building Priority Committee may be doing the second of these jobs for the Big Chaps on pull-Devil-pull-Baker lines. But the new Order brings us no nearer the accomplishment of Nos. 1, 3 and 4.

SHELTERS

Some of the former supporters of a deep shelter policy seem to me to be saying, " We told you so " with a self-satisfaction which is not justified.

*

It is true that a system of deep shelters in London at the moment would be extremely useful—but not for the reasons which deep-shelter enthusiasts put forward two years ago. And those who turn out to be right for the wrong reasons cannot expect their opponents to recant in sackcloth and tears.

*

Two years ago we heard nothing of night raids. Earl Baldwin's solitary epigram, " The bomber will always get through," was then in everyone's mind as meaning the day bomber. Mass raids or small raids by day, every hour or every twelve hours, was the form of attack which was expected : and it was to meet this type of attack that deep shelters were advocated within seven minutes' walking distance of every house or workplace in thickly populated areas.

*

It seems obvious that had these deep shelters been provided, blast-proof shelters would not have been provided as well, and thus the whole population would have had no option but to go to their appropriate deep shelter during the whole period of warnings or stay at work without any protection whatever.

*

Leaving out of account that it has not always proved possible to give any warning before bombs were dropped —let alone ten minutes' warning—such a system would have emerged very badly from the test of daylight raids on London. The R.A.F. has proved that a " Rotterdam " could only be perpetrated in a district of London at staggering cost to the Luftwaffe : but because the dropping of some bombs in the daytime is inevitable warnings are still sounded. If a deep shelter system had been in operation, London would by now have had to chose between the crushing burden of a six-times-daily suspension of all activities or the psychological effects of unheralded bombs.

*

There thus seems little doubt that for day raids in the form to which the R.A.F. has restricted them widely scattered light shelters are the best protection which London's working life can tolerate.

But night raids have changed the problem radically. People must sleep. To sleep they must have quiet and the feeling of being better protected than is necessary when they are dressed and alert in daytime. These things —together with the other necessities of bunks, warmth, ventilation and sanitary facilities—can most easily be provided in units of large size.

*

How can they be provided quickly? In an article on another page of this issue the JOURNAL suggests that they can most easily be provided by commandeering the basements of all framed buildings.

*

I think the JOURNAL is right. Such basements are usually already warmed and ventilated and have sanitary facilities nearby. I have yet to see a framed building which has collapsed after being hit by a bomb. The remaining danger is a direct hit from a delayed action bomb which either strikes a side wall near the ground or penetrates all floors to the basement. The risk of this can be decreased by strengthening ground-floor walls and its results by subdividing the basement.

SQUARE PEGS AND THE ROUND HOLE

An architect for whom current events made it desirable to find an unfurnished room which could be used as both bedroom and writing room or study, was very pleased last week to be offered one measuring 13 feet by 10 just where he wanted it.

*

This architect was of progressive, but not extremist, taste in furniture, and over a period of several years he had designed and had made for himself several convenient pieces of furniture—including bookcases, desk, hanging cupboards and a chest of drawers—which possessed the pleasing quality of being apparently fitted but in reality detachable.

*

The offer of the room was made on the 'phone, and my friend went off happily with a steel rule and sketch pad to decide which pieces of his furniture should accompany him to his new lodging when the rest went into store. I met him the same evening in absolute dejection and ready to tell a sad story.

*

The room to which his acquaintances were ready to welcome him was indeed 13 feet by 10, but every corner of it and most of the wall space was obstructed with effortless ingenuity. (It had been designed of course, by a famous architect.) One corner contained the door; a second, a 2-foot door into a storage cupboard to which occasional access was needed; a third was splayed off for four feet to contain the fireplace; and the fourth was similarly splayed for a hanging cupboard.

*

Nor was this all. The window cill was low and projected a good two inches into the room over a length of five feet, and two after-thoughts of heating-pipes, stoutly boxed in, snaked down the longest remaining wall three feet from one end.

*

The architect produced a plan of the room on squared paper and cut-out plans of his most treasured possessions. For the space of two air raids we did our very best, but at the end all we had accommodated was the bed, one bookcase, the desk, and a chair—and none of them was large. In designing his space-saving units of furniture so that they could be removed and rearranged to fit any house, the architect had clearly overlooked just the possibility which now confronted him—that there might not be a wall to put them against.

*

STOP PRESS: I have just heard again from this architect that the front wall of his proposed *pied-à-terre* is now no more, and the fireplace is in the hanging-cupboard.

NATURE NOTES

Last week I rowed up and down the Thames between Wallingford and Sandford, full of gratitude for the people who made the landscape—planted the poplars, built the locks—but with some questionings about the people who now inhabit it.

*

I passed: a very large mansion and its park, unoccupied and unused; various defence works, some apparently abandoned; some horrible rows of pink council houses, and a surprising number of vast, smug motor launches with no obvious lack of fuel. Also: a swimming snake, a heron, and a bull that had got itself a green garland of leaves. Hailed across the dark waters by the River Patrol, I slept with the sense of guardian angels; and woke to the pattering of small birds' feet and their shadows walking on the canvas over the boat. Recommended.

THE ACID TEST

In a renewed A.R.P. drive some months ago, a town in the North Midlands built a number of public shelters, both surface and semi-sunk. A large nicely-treed grassy space in the centre of the town was scheduled to receive two semi-sunks, and the precast units for these were accordingly delivered to the site and dumped. Dumped they stayed.

*

Developments were rapid. A heap of A.R.P. sand decanted on the same spot some time previously had been appropriated, very sensibly, by the local Young Idea as a pleasure beach. The trench units were therefore naturally regarded as pre-cast manna from heaven.

*

It was a case of "Boys! Man-size play-blocks!" and if mere girls wanted to play silly seesaw on them sturdier elements had no time for such futilities. With these purpose-made revetments the Battle of Britain was waged many times daily.

*

The trench shelter pieces were soon not what they were Any unit less than 2 in. thick is now several rather smaller irregular units, strewn around the ground. Odd ends of $\frac{3}{16}\phi''$ bars stick out in all directions like so many twisted hairpins, and although stouter members have stood up to the test, high spirits have done their best with them. At least they have no arrises.

*

We all know many building products which are advertised as having been twisted, stood on and jumped on in diabolical ways. It seems significant, however, that no manufacturer has yet had the courage to hand his product over for test to a squad of juvenile self-expressionists.

*

The Building Research Station might note this.

ASTRAGAL

NEWS

BUILDING CONTROL

On October 7 a Private Enterprise Building Control Order will come into force. At a press conference last week Mr. R. Assheton, M.P., Parliamentary Secretary to the Ministry of Labour and National Service, introduced the Order. He said :

It is obvious that the purpose of all controls imposed in wartime is to direct national resources in labour and material into purposes connected with the war effort and the well-being of the civil population and away from unnecessary sideshows.

From the very beginning of the war some control of building has been exercised. The Timber Control and the Iron and Steel Control were established under the Ministry of Supply on the outbreak of war a year ago.

The most recent control to be established is a rationing system applied to cement in August, 1940, which has been made necessary by the very heavy increase in demand for defence works, aerodromes, munition factories and every other part of the Government building programme.

During the autumn and winter it was felt that the control over materials gave a sufficient control over civil building. But as you all know we have had one of the best summers in living memory and this has coincided with the launching of very large building schemes of all sorts connected with the war. We have therefore seen an enormously increased demand for all the main building materials. By means of the rationing system operated by the Works and Building Priority Committee of which I am Chairman, supplies of timber, steel, and, recently, cement, have been made available for the more urgent Government work and denied to the less urgent private work.

In the same way, the Minister of Labour and National Service has exercised his new powers to direct the stream of labour towards Government work and away from private work. These methods have worked reasonably well, but they have two very serious disadvantages. They do not give the Government any exact information as to the amount of civil building which is in contemplation and a potential competitor for labour and materials; they leave the civil building owner and his contractor and professional advisers in a state of continual uncertainty as to whether their work will be allowed to proceed or not.

By stages, therefore, the Government has reached the point at which the decision has been taken to proceed from the control over materials to a direct control over building and civil engineering works, by a licensing system, as from October 7.

The actual terms of the legislation are contained in an additional Clause 56A which has been introduced into the Defence (General) Regulations. The effect is to establish the Commissioners of Works as the body which will operate the licensing system on behalf of the Works and Building Priority Committee. The Office of Works has already appointed licensing offices in each of the 12 Regional areas.

I would now like you to examine the Regulation with me. In form it prohibits any building or constructional operation that has not been authorized or licensed, and then proceeds to define the exceptions which need neither authorization nor licence.

The exceptions are :—

(1) Operations undertaken by a Government Department.
(2) Operations paid for in whole or in part by Government.
(3) Operations costing less than £500.
(4) Works of maintenance, running repairs or decoration.

Local authorities are in a special position and they will in no case require to get a licence for any operation. They will, however, be required to get an authorization for new works from the appropriate Department.

I should like to make it clear that the Regulations will not be interpreted in any narrow or obstructive way and that it is not to be supposed for a moment that a railway company which has a piece of line knocked out by a bomb need apply for an authorization from the Ministry of Transport before it starts the necessary repairs. This point is covered by 56A Clause 5 of the Defence (General) Regulations.

Anyone who is now carrying out a piece of building or civil engineering work which is not covered by the exceptions I have mentioned will need to get a licence in order to continue.

As I have said, the new Regulation comes into force on October 7, but in order to give plenty of time, it is proposed that work may be continued, provided that an application is made for a licence before October 21, until the application has been disposed of.

Anyone who is proposing to start a new operation (not being one of the exceptions) will have to get a licence before he can begin work. He should apply to the Office of Works Licensing Officer.

Hitherto controlled materials required for civil building had to be obtained through the appropriate Government Department. In order that the system of administration may be kept as simple as possible the machinery is to be changed and the appropriate Department for applications for materials, whether the job for which they are required costs more or less than £500, will in future be the Department to which application for a licence or authorization to build will have been made.

This system will also apply to materials required for running repairs and maintenance except in the case of timber, where application should continue to be made to the Area Officers of the Timber Control.

There is another matter which has become of great importance in recent weeks about which you will expect me to say something—I mean repairs to buildings damaged by air raids. Where a building has not been demolished, first-aid repairs to keep out wind and weather and ensure the safety of the structure must be undertaken at once. A certain number of essential buildings must be permanently repaired or even rebuilt.

The machinery which has been set up by the Government to deal with first-aid repairs covers every type of building. Public Utility Companies have already been assisted to build up stocks of materials and, if further help is required, should turn to the Government Department concerned. War Industry Factories should turn to the Chairmen of Local Reconstruction Panels, panels which have already been established in at least 85 districts by the Ministry of Aircraft Production, the Admiralty and the Ministry of Supply. All other buildings are the concern of local authorities.

First, every owner or occupier of a building should immediately take whatever steps are necessary to make his building weatherproof and structurally stable, without waiting for outside assistance. In cases where the necessary materials or labour cannot be obtained, or in the case of dwelling houses where an individual cannot bear the cost, application should be made to the local authority (except in the case of Public Utility Companies and War Industry Factories). Special arrangements have been made to ensure the immediate release of controlled materials for this work.

It will be understood that when a building is demolished or damaged its reconstruction or repair (apart from first-aid repairs) are matters which involve the same sort of considerations, from the point of view of the demand they make on materials, as the construction of a new building and under the new licensing system they will be considered as such.

Finally, let me say that it is in all our minds that after the war we may use the lessons given in organization, the lessons in technique of building which the war has taught, to rebuild houses, hospitals, factories and every other sort of building. When the time comes, may we be wiser and carry out a gigantic work of reconstruction planned so as to give space, sunlight and really efficient movement between areas.

An explanatory Memorandum has been prepared, obtainable from the Licensing Officer, H.M. Office of Works, Abell House, John Islip Street, London, S.W.1. For the purpose of granting licences, twelve regions have been established, each with a Licensing Officer. The Order makes clear, however, that application for controlled materials is still necessary, even though consent (by licence or authorization) has been obtained. The Order applies to Scotland. Northern Ireland will be the subject of separate instructions.

NEW PRESIDENT

At a recent meeting of the Essex, Cambridge and Hertfordshire Society of Architects, Mr. H. Kenchington, F.R.I.B.A., of Oxhey, Watford, was elected President of the Society in the place of the late Major Maule.

R.I.B.A. EXAMINATIONS

The questions set at the Intermediate, Final and Special Final Examinations held in May and July, 1940, have been published, and are on sale at the Royal Institute, price 1s. 3d., inclusive of postage.

CHANGES OF ADDRESS

Mr. Julian Leathart has moved his office to The Cottage, Jenkins Hill, Bagshot Surrey. Telephone No. : Bagshot 281.

Mr. Ernö Goldfinger, D.P.L.G., and Miss Mary Crowley, A.R.I.B.A., have moved their office from 7 Bedford Square, W.C.1, to 2 Willow Road, Hampstead, N.W.3 (Telephone Hampstead 6166), for the duration.

Mr. C. Birdwood Willcocks, F.R.I.B.A., has changed his address to 47 St. Peter's Avenue, Caversham Heights, Reading, Berks. (Telephone Reading 72255.)

The Copper Development Association has removed its offices, formerly in Thames House, to Grand Buildings, Trafalgar Square, London, W.C.2. Telephone, Abbey 2677.

HOUSES DAMAGED BY AIR RAIDS

It is possible to carry out first-aid repairs to damaged houses within twenty-four hours of an air raid. All town and county councils in Scotland are recommended by Mr. Ernest Brown, M.P., Secretary of State for Scotland, to review their repair organizations to ensure that first-aid repairs where appropriate can be put in hand within an hour or two of damage having occurred.

In a circular which he has sent to Scottish local authorities Mr. Brown points out that speedy action by council repair squads results in a saving to the owner by the immediate protection of his property, makes it unnecessary for tenants to leave their homes, and has an excellent general effect on public morale. Following Mr. Brown's letter, a memorandum containing hints on repair work has been issued by the Department of Health for Scotland to the officers of local authorities responsible for the repair of war damage. Although the advice given has special reference to housing it is applicable to other buildings as well.

If damage is extensive, the shortest and quickest method should be adopted to clear debris, render the services safe, and cover roofs and windows. Where time will not permit of re-slating roofs, holes should be covered with tarpaulins, roofing felt, waterproof building paper, etc.

New timber and plywood should not be used for blocking up windows, and fibre board should also be avoided if possible. Where mere blocking up is being carried out substitute materials should be used such as plaster board felt, or even old linoleum, of which most householders have a few pieces. Where special protection is necessary, slab cuttings from home-grown timber or imported logs obviously useless for other purposes may be used.

In nearly all buildings there are "essential" rooms, such as a kitchen or living-room in a house or hospital ward where the continued admission of daylight is desirable and every endeavour should be made to supply this need immediately. Where glass is not immediately obtainable, however, or where there is likelihood of further damage, the use of one of the various fabric glass substitutes now on the market is recommended. The upper halves of windows admit most light and should have first call upon supplies of transparent or semi-transparent materials.

Where practicable, repairs should be carried out with scrap materials or materials salvaged from other damaged buildings. In the latter case the local authority can credit or make an immediate payment to the person entitled to dispose of the material.

H.M. Office of Works hold for the Government four reserve stocks of materials for the repair of war damage. These are to be regarded as "iron rations," for use only after local stocks and stocks from normal trade sources are exhausted.

Special arrangements have been made for the speedy release of timber for urgent repairs. Private persons may carry out their own repairs at their own expense if they choose, loans from Government sources being available in the case of essential buildings and plant within the meaning of the Essential Buildings and Plant (Repair of War Damage) Act, 1939, but not in the case of houses or other buildings. Private persons and their contractors unable to obtain materials from their usual suppliers and wishing to purchase controlled materials should make application through the responsible officer of the local authority for repair of war damage. The type, number and address of the buildings to be repaired should be stated.

ANNOUNCEMENTS

Mr. Charles M. C. Armstrong, F.R.I.B.A., and Mr. Alfred H. Gardner, A.R.I.B.A., of Warwick and Coventry, have dissolved partnership by mutual consent. Mr. Armstrong is retiring from practice, and Mr. Gardner hopes to resume work in Coventry after the war. Meanwhile, any enquiries should be addressed to 39 High Street, Warwick.

Messrs. Henry Tanner have asked us to state that their West End office has been closed, and their business is now being conducted from their City office, 134 Fenchurch Street, E.C.3.

WARTIME BUILDING

The effects of the war on the building industry are effectively illustrated in an exhibition which was opened by Mr. T. Forbes Maclennan, President of the R.I.A.S., in the Scottish Building Centre, Glasgow, on Tuesday last. The purpose of the exhibition is to show how concrete can be made and used as an alternative to timber and metal, especially in house construction. The exhibition will remain open until Thursday, October 31.

OBITUARY

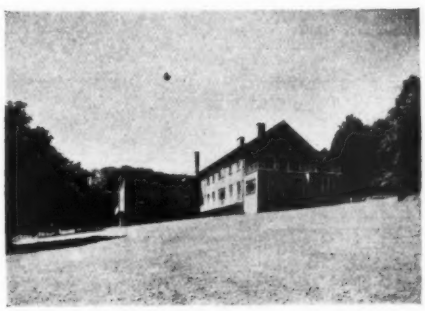
We regret to record the death of Mr. Francis Graham Moon Chancellor, F.R.I.B.A., at the age of seventy. Mr. Chancellor, who was assistant to, and afterwards partner of, the late Frank Matcham, specialized in theatre and cinema design, and executed many such buildings in London and the provinces.

ACCRINGTON SCHOOL

In the list of sub-contractors for the Girls' School at Accrington we inadvertently omitted the name of the Accrington Brick and Tile Co., who supplied the Accrington Nori facing bricks.

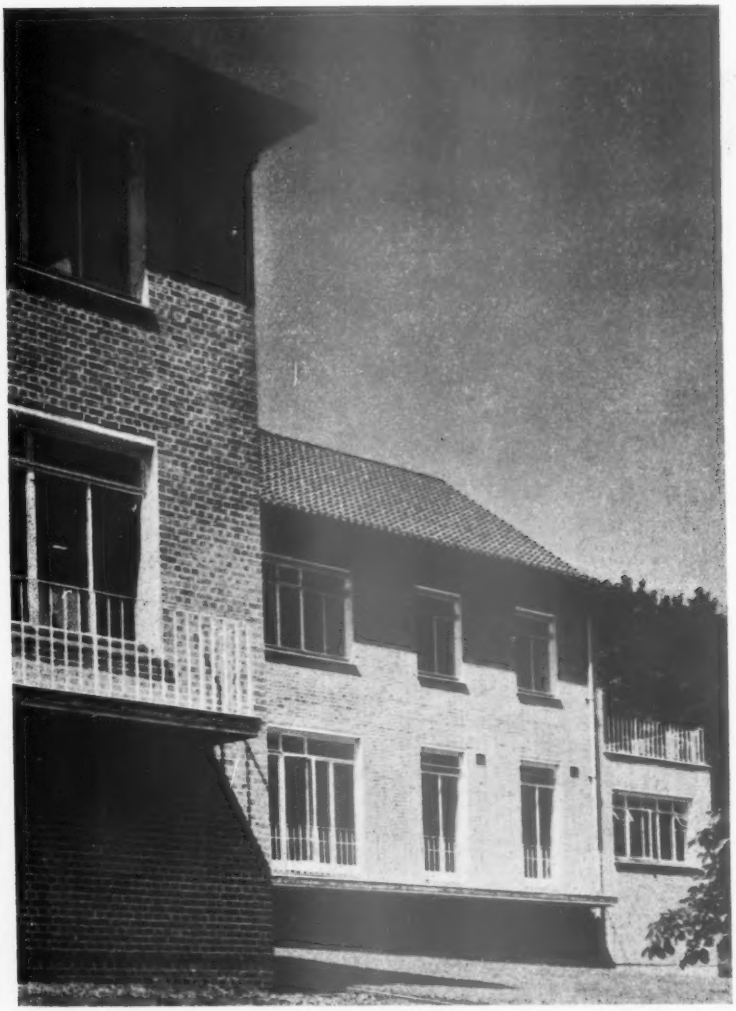
WYCOMBE ABBEY SCHOOL SANATORIUM

BY PITE, SON AND FAIRWEATHER



Above, detail of south front

Right, view from the east



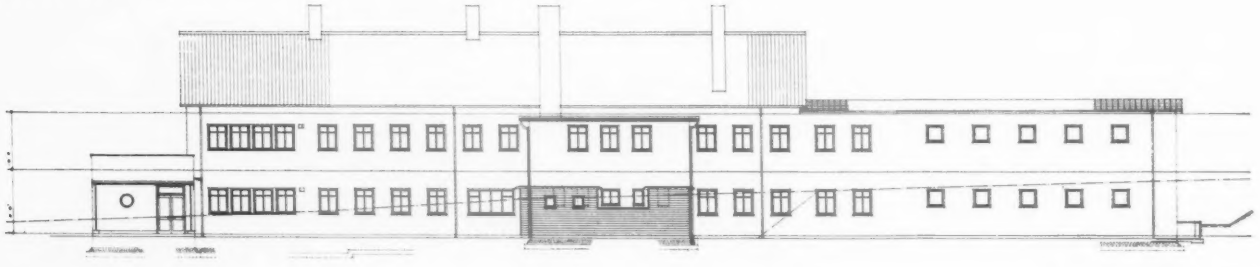
Part of south front

PLAN—The main consideration in the planning was that it should be sub-divided into self-contained and isolated units in order to deal effectively with infectious epidemics. This requirement, together with the orientation and slope of the ground, led to a cross form of plan with the main kitchen centrally placed on the ground floor in the north wing. Owing to reasons of economy the building of the west wing has had to be postponed, but full provision has been made for it.

CONSTRUCTION AND EXTERNAL FINISHES—Brick, faced with light-brown bricks. Roofing to the main east-west wing is of bright red sand-faced pantiles ; flat roofs are of insulating tile laid on 3-ply bituminous felt. Suspended floors and roofs are of hollow tile construction. Windows, metal, in wood frames with buff quarry tile external cills and reveals rendered cream colour. The brickwork over openings is carried on a concrete nib of the lintol, and is also rendered. Wrot iron balustrades to balconies and to small flat at east end ; all metal and wood window frames are painted cream.

Another view of the south front

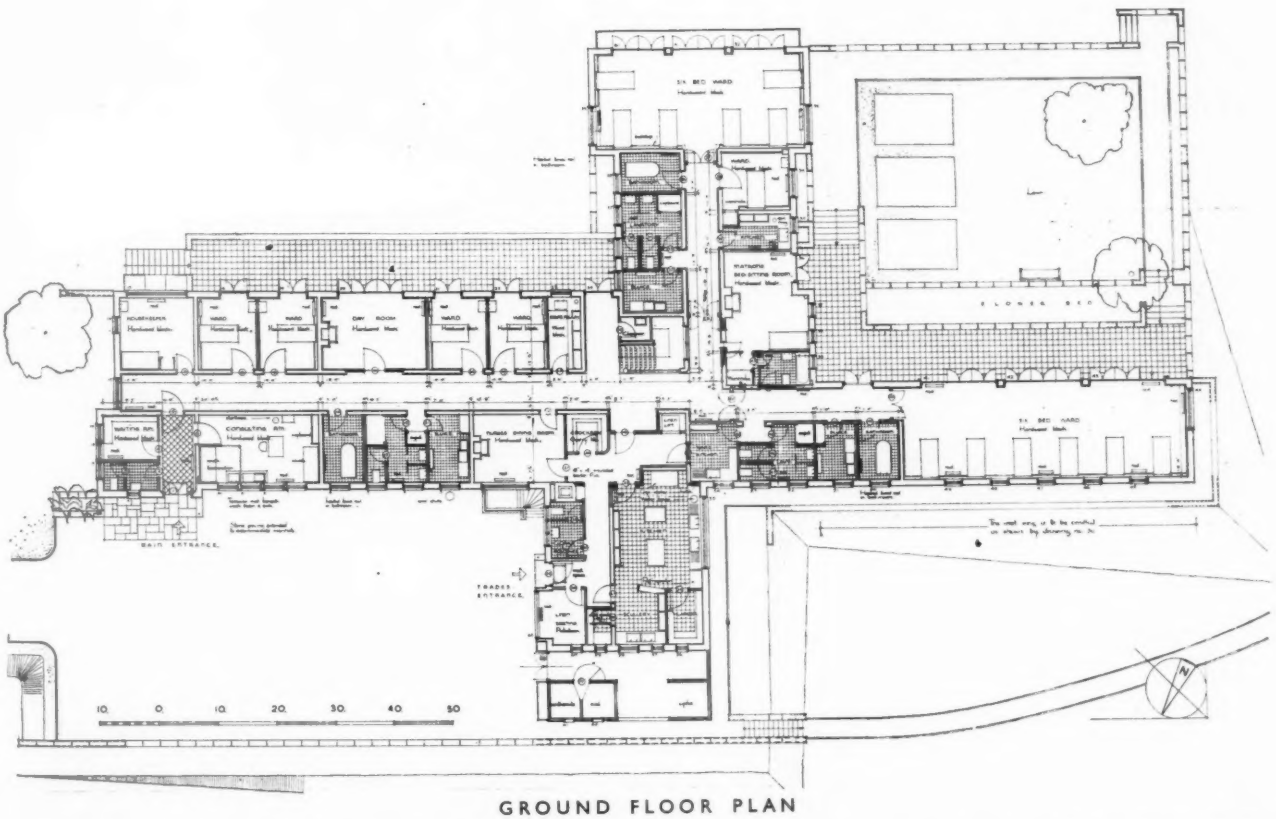
SOUTH ELEVATION



NORTH ELEVATION

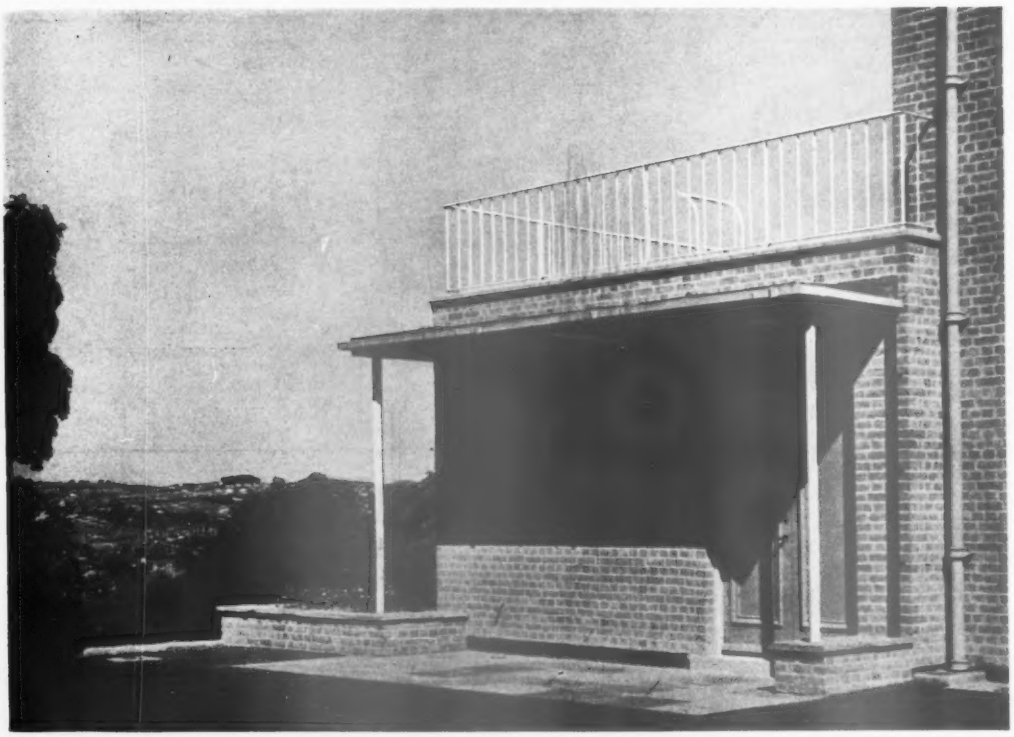
WYCOMBE ABBEY SCHOOL SANATORIUM

FIRST FLOOR PLAN



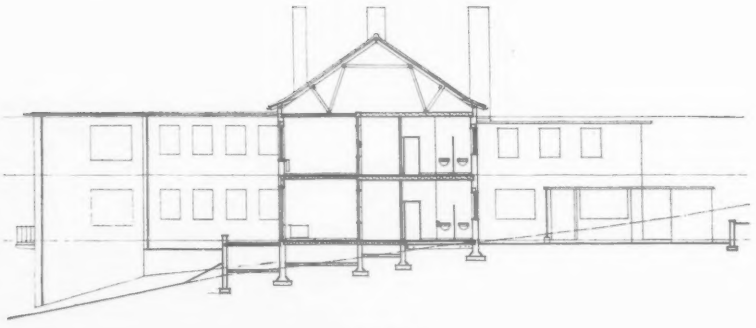
GROUND FLOOR PLAN

DESIGNED BY PITE, SON AND FAIRWEATHER



Main entrance

View from south



SECTION

INTERNAL FINISHES—Walls : All principal rooms are finished in plaster and enamel, other rooms being distempered. Ceilings : All distempered except sanitary rooms and ward kitchens which are enamelled. Floors : All wards, housekeeper's and matron's bedrooms, dispensary, waiting room and nurses' dining room, day and consulting rooms, have hardwood block floors in either teak, oak, maple or Jarrah, with either teak or oak skirtings. Nurses', maids' and assistant matron's bedrooms have cork carpet with oak skirting. Corridors have rubber floors with terrazzo coved skirtings and margins. Staircases are finished in terrazzo with non-slip tile nosings. The main kitchen and sanitary rooms have buff quarry tile floors and coved skirtings.

Right, main staircase and a typical kitchen.

WYCOMBE ABBEY SCHOOL SANATORIUM

DESIGNED BY PITE, SON AND FAIRWEATHER

ST. DIONIS HALL, E.C.

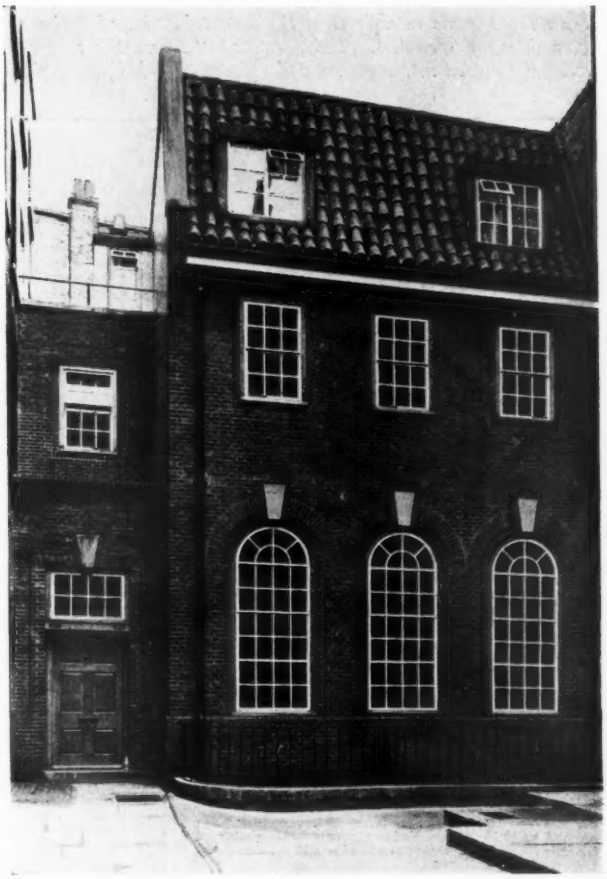
DESIGNED BY

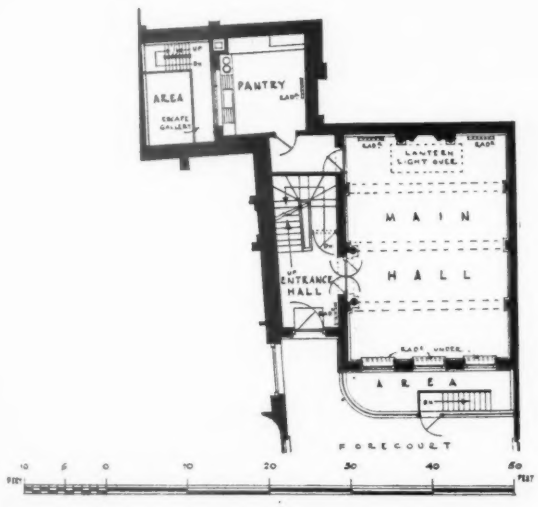
TATCHELL AND WILSON

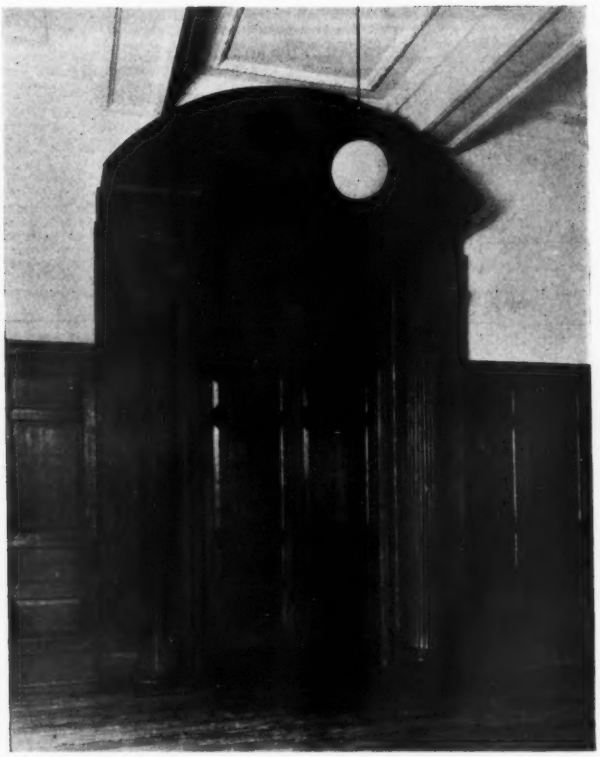
This new hall for the Church of St. Edmund the King, Lombard Street, E.C., has been built on the site of the former Vestry Hall. The old hall contained in its principal room panelling, mantelpiece and a doorway from the Church of St. Dionis Back-church, designed by Wren in 1870 ; these have been repaired and incorporated in the principal room of the new hall. The fireplace has been completed by the insertion of some original Dutch tiles and a basket grate of contemporary design. Above the main hall is a reading room, and on the top floor are the caretaker's quarters. Cloakrooms are provided in the basement. External walls are faced with sand-faced hand-made bricks.

General contractors were Ashby and Horner ; for list of sub-contractors and suppliers, see page xvi.

Right, courtyard façade : below, two views of the main hall.







A.A.S.T.A. REPORT

EVACUATION: THE UNDER FIVES

On this page are extracts from the Report just issued (price sixpence) by the Evacuation Committee of the A.A.S.T.A., entitled "Evacuation: the Under Fives." Proposed schemes included in the Report and referred to below, are reproduced on pages 267–268 of this issue.

ORGANIZATION AND ACCOMMODATION REQUIRED

Dangerous Areas

Successful evacuation depends in the first instance on mothers and children being organized in the dangerous areas prior to the actual move. For school children such an organization already exists, but less than 5 per cent. of the under-fives attend schools or creches. Local authorities are being encouraged to provide day nurseries for the children of mothers employed in industry, but in some cases the charge to the parents is prohibitively high.

Temporary day nurseries must be set up to cover all children under five in the dangerous areas as an organizational basis for evacuation. This basis is also necessary to give the parents and children confidence in the scheme.

Local authorities must take the lead, together with voluntary associations, in selecting and requisitioning whatever suitable buildings are available in their district. It is the maternity and child welfare committees of local authorities that must take this action. The Government must provide the full initial cost, since many local authorities cannot otherwise proceed. The nurseries must be available free to evacuating children.

When the mother goes with her children, welfare centres and young people's hostels must be provided for members of the family who have been left behind. Notice boards "To Let" and closed shutters all over London are evidence that plenty of buildings are available.

As we mentioned in discussing the first Government scheme, the local authorities in the evacuation areas must be empowered to act equally with those in the reception areas in initiating evacuation arrangements.

Reception Areas

The second essential for successful evacuation is proper accommodation in the reception areas. We maintain that this can be provided in the following way:—

Mothers and Children 0–2.—Mothers and foster mothers with children under two should be housed either in groups in country mansions, or in new family cottages or hostels attached to a daytime creche. Each family cottage provides independent living accommodation for two mothers (see Design No. 1, page 267). These are intended to be used by mothers with several children, possibly including some of school age. Hostels provide the minimum living conditions for mothers with one or two children (see Design No. 2, page 267). The daytime creche (Design No. 3) is needed particularly for the children living in hostels, since these provide a lower living standard than the family cottages.

Children 2–5.—Children accompanied by their mothers will be housed in group billets in large houses, or in family cottages. Children of these ages without their mothers will be organized in groups of five children under the care of a foster mother. They will live in a nursery school in an adapted large country house, or in a new building (see Design No. 4). The residential nursery school provides rooms for sleeping, feeding and play. Each dormitory wing holds four rooms sleeping five children in each. The units of 20 children are entirely separated for sleeping, feeding and playing.

Foster Mothers and Staff.—Foster mothers sleep near to their charges in the dormitory wings of the Residential Nursery Schools. They also feed at the school. Other staff will at first be billeted individually and later would share new cottages. In some circumstances staff could sleep in hostels.

Expectant Mothers.—Before childbirth expectant mothers may be billeted individually or may live with the mothers and foster mothers in group billets, hostels, or family cottages. Preferably they should help in the day creche, so as to gain experience with the care of very young babies.

The present maternity homes and hospitals in rural areas are inadequate for even the local population. Therefore existing maternity facilities in the reception areas must be augmented to deal with the increased mother population.

Peacetime Uses.—It is not necessary to justify an evacuation scheme by the uses to which the new buildings could be put in peacetime. These buildings could be an important beginning to schemes of urban and rural reconstruction. We do not deal with this subject here, but set out our suggestions for particular uses of buildings in the third column of the Schedule of Accommodation.

Summary of Proposals

(*a*) There are relatively safe areas and we must take advantage of them by an evacuation scheme to protect our children; to do nothing invites disaster. This scheme must be based on a thorough re-zoning of the British Isles by competent military and civil authorities.

(*b*) This Report puts forward a new evacuation scheme for children under five and mothers able to accompany them. The faults of the first Government scheme are remedied, yet the new scheme is capable of being applied immediately.

(*c*) An evacuation allowance must be available for mothers of babies under two or of several children under five. Visiting husbands must be allowed reduced fares.

(*d*) Temporary day nurseries must be set up for all children under five in the dangerous areas, as an organisational basis for evacuation and to give parents confidence in it. Welfare centres and young people's hostels must be provided for members of the family who are left behind.

(*e*) Local authorities in the dangerous areas must be empowered to act equally with those of the reception areas in initiating evacuation arrangements.

(*f*) The large country houses in safe areas must immediately be requisitioned and three-quarters of a million mothers and children under five must be put into them.

(*g*) A building programme is essential. This must be carried out in stages:—

(1) To make all suitable existing buildings usable; (2) to provide sleeping and feeding accommodation; (3) to provide day creches, playrooms and staff accommodation.

(*h*) Our programme avoids, to a great extent, using materials which are imported or urgently wanted for war purposes, and skilled site labour. An adequate quota of materials and labour must be made available by the Government.

(*i*) We estimate the whole cost of our 3-stage scheme at £100–£140 million. This is small in proportion to the main war expenditure, and arrangements for financing the scheme must be made by the Government.

MATERIALS AND CONSTRUCTION

Materials available.

The fundamental question for the preparation of a wartime building programme is: What materials are available? It must be realized that building for evacuees will have no priority either of materials or of labour, any difficulties there are regarding shortage of materials will apply most acutely for our programme.

Exact information on the supply of materials is difficult to get, especially concerning the stocks of materials held by the Government and large manufacturers. But from a long-term point of view and for buildings without priority a study of the sources of raw materials gives a fairly reliable guide.

(*a*) *Important Building Materials which are completely unavailable for our Programme:* Aluminium, chromium, copper, asphalt, cork, rubber, turpentine and linseed oil. (This list is subject only to present stocks not being exhausted, or to special "financial influence" in the Government promoting unexpectedly large importation.)

(*b*) *Materials, new supplies of which are limited, or the use of which is strictly regulated by a priority system:* Iron and steel, lead, tin, zinc, jute, cotton, flax, asbestos (pressur pipes) and timber.

(*c*) *Materials available in quantities adequate for our Building Programme:* Cement, concrete, asbestos cement, bricks and all burnt clay products, slates and natural building stone, gypsum and lime plasters, glass, bitumen and coal by-products, fairly adequate supplies of paints, an important range of natural plant fibres.

At the present time a part even of this third list of materials is not immediately available for an evacuation building programme, yet we consider that these difficulties are temporary.

Further comment is needed only about the group of fibres, since the other materials are quite familiar to the building trade. We suggest using these fibres as reinforcement to gypsum plaster. Timber and jute fibres have been used for centuries in this way, but the shortage of standard timber and the fact that all our jute comes from India may make the use of other and less familiar fibres necessary. Tremendous amounts of sticks, twigs and small timber from the English hedgerows are both available and satisfactory for this purpose, and fibres of many common plants such as straw, reeds, stinging nettles or heather can be used as alternatives.

Thus, apart from the fibres, which are not normally suitable as reinforcement for concrete, the structural materials available to us are of the heavy, non-tensile type used in traditional building. Our programme must be put into practice immediately, so that we are not suggesting the use of materials which are not yet in production. We are relying only on simple and economical applications of well-known materials which will GET THE JOB DONE.

Methods of Construction

(a) *Standardization.*—Both for economy, ease of organization and speed of erection, a considerable degree of standardization is necessary in a national building programme. We consider that the basis of standardization must be a *structural unit* and not a whole building type, or even a number of planning room units. This opinion is based on two main considerations: (1) The materials we are using will only permit a partial system of pre-fabrication. (2) The variation in planning, accommodation and expression between buildings in different localities must be considerable if the best solution is to be achieved in each case.

We therefore recommend that a "Structural Plan Unit," which is a common factor of the planning requirements and the structural method used, should be adopted for each building type. This principle is illustrated in our designs.

The planning requirements and structural methods limit our buildings to one storey.

(b) *Methods.*—We do not propose to set out here all the points which we have considered in comparing structural methods. We describe here only those methods which seem to us, for an accumulation of reasons, to be the most suitable. The main considerations have been: Materials available, shortage of skilled site labour, standard of protection provided against air attack, speed of building, economy in transport, general economy.

(c) *Floors and walls.*—The construction of floors and walls does not present much difficulty. The normal materials such as bricks and burnt-clay blocks, concrete (*in situ* or precast block form), natural stones, asbestos-cement sheets, partition blocks and plaster units are all available. The question of transport may well be a deciding factor between these. Local materials should be used for preference.

(d) *The Roof.*—The chief structural problem under war conditions is to span the roof. There are, of course, normally innumerable ways of doing this, but the exclusion of the normal tensile materials greatly limits the field. Since the restricted supply of steel, timber and other tensile materials applies to the whole of war building any substitute material, such as asbestos pressure pipes, will cease to be available for our purpose as soon as its value is realized. If production of such materials can be sufficiently expanded, it will be an easy matter to use them in place of arch construction.

In order to avoid the use of tensile materials we have adopted an arch construction over restricted spans. We put forward two main methods:—

Type 1. Self-centering block arch.—In this method the arches span between continuous solid cross walls along the springing of each pair of arches. The planning restrictions of such a system are clearly considerable, so that its range of use is limited mainly to domestic types. An example is Design No. 1 for the family cottage unit. Alternatively, cross walls can be cut out at a sacrifice of normal window arrangements if a barrel vault runs continuously along the length of the building. An example is Design No. 2 for a Mothers' and Babies' Hostel. The vault in these designs is formed of precast standard concrete or plaster UNITS. These must have a special shape such that when one complete arch line has been placed, supported, say, on an end wall, the successive arches can be placed in position by building up on the projection forward of the previously placed arch.

In this way *no centering of any kind or reinforcement of steel or timber is needed.*

The method depends entirely on the shape and accuracy of the precast blocks and we believe it would be workable for spans up to 20 ft. maximum. The design for "a block arch hut" recently developed by the Building Research Station* is an illustration of this method. Our designs for the Mothers' Hostel, the family cottages and the dormitory of the Nursery School show the possible applications of this excellent construction.

If these types of construction are executed in concrete blocks, some protection is given against blast and splinters. The constructions shown for the Mothers' Hostel and the dormitory of the Nursery School provide better A.R.P. than that shown for the family cottages, since in the latter if a bomb breaks one arch the neighbouring ones may fall in towards it.

Type 2. Pre-fabricated plaster arch and beam construction. One of the most efficient methods of covering space which uses a minimum of tensile material is a combination

OUR RECOMMENDATIONS FOR EXISTING AND NEW ACCOMMODATION ARE SUMMARIZED IN THE FOLLOWING SCHEDULE

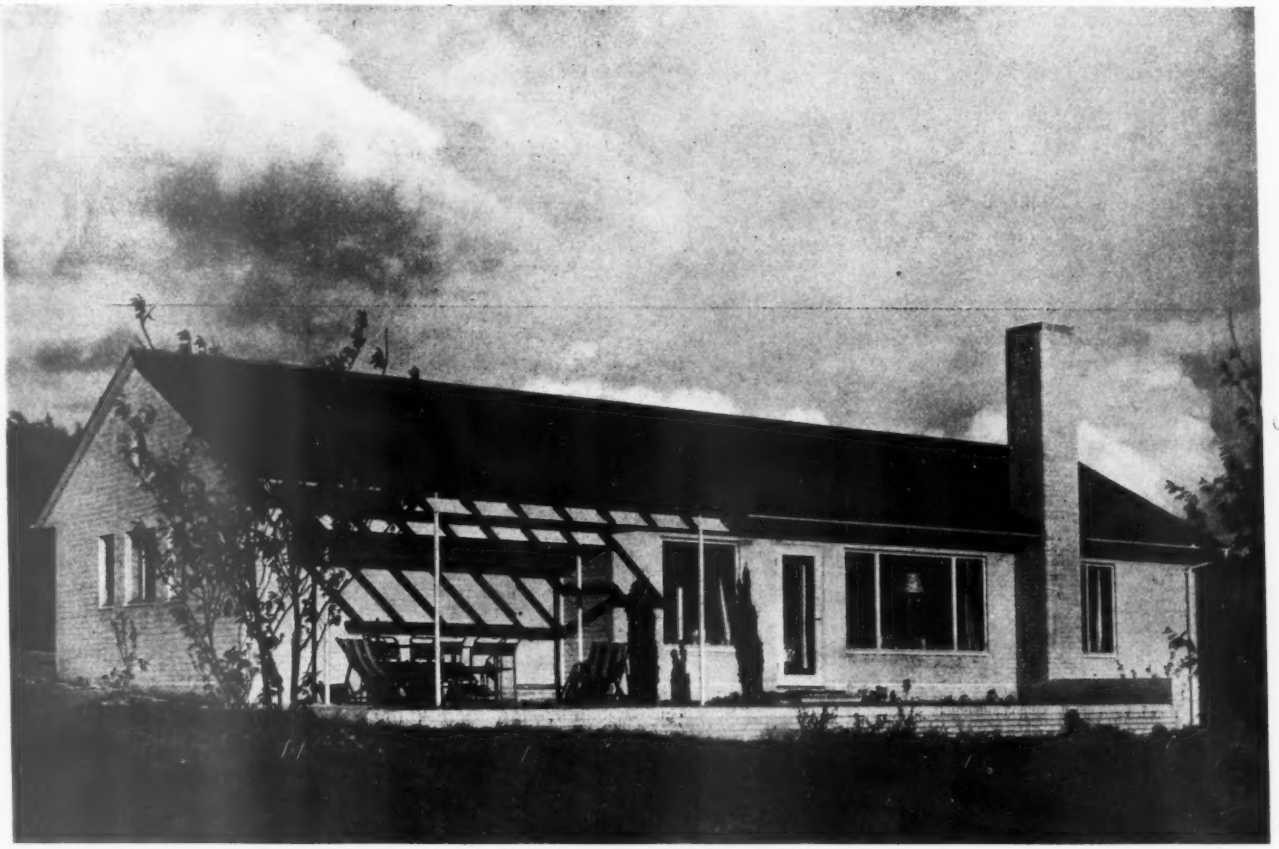
	WARTIME USE	PEACETIME USE
I. Mothers	... (*a*) Group billeting in country houses.	—
	or (*b*) Family cottage	One-family housing, holiday bungalows, etc.
	or (*c*) Hostel:	
	(i) Separate	Terrace housing.
	(ii) Attached to creche	Old people's homes, holiday housing, etc.
II. Children (0–2) ...	... *(*a*) Existing building fitted as a creche ...	—
	or *(*b*) Day creche (sleeping with mothers in family cottage units or hostels, etc.).	To serve rural children.
III. Children (2–5) ...	... *(*a*) Day nursery school (sleeping (i) group billeting in large houses with foster mothers; (ii) Family units or hostels with mothers).	New standards for rural population.
	or (*b*) Residential nursery school	Part rural use and town children homes.
	or (*c*) Group billeting in large premises with necessary structural alterations to form school and dormitory.	
IV. Foster Mothers and Staff ...	(*a*) Billeting or group billeting	—
	(*b*) In family cottage	Rural housing.
	(*c*) Hostel (as for mothers)	Rural housing.
	(*d*) Foster mothers in nursery school dormitory wing.	
V. Expectant Mothers ...	... (*a*) Group billeting in existing houses ...	—
	or (*b*) New hostels	Holiday hostels, etc.
	(*c*) Maternity home (existing facilities augmented).	Improved standard for rural population.

* Denotes the later stage building.

* Described in the Building Research Station Wartime Bulletin No. 6, H.M. Stationery Office.

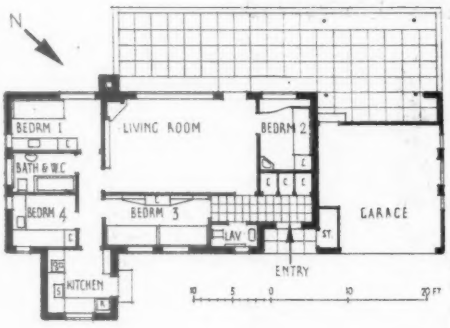
(*Continued at foot of page* 286).

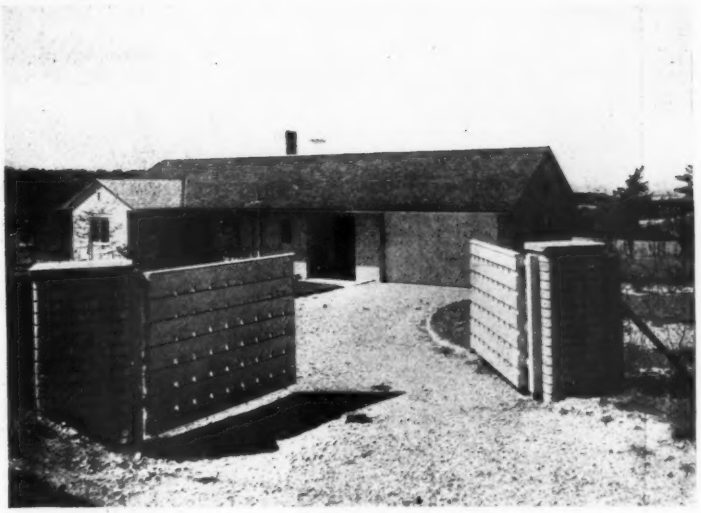
HOUSE AT NUFFIELD, BERKSHIRE



DESIGNED BY

A. L. OSBORNE





SITE—At Nuffield, on the Berkshire Downs near Wallingford. The garden layout has been designed by the architect.
CONSTRUCTION AND EXTERNAL FINISHES—Walls are of sand-lime bricks; 11-in. cavity outer walls and 4½-in. partition walls, bonded together so that the partition walls serve as cross-bracing to the structure. Partitions rest on cork pads on the concrete sub-floor, which is in turn isolated by cork pads from the external walls. Ceiling joists bear on cork pads, the ceilings are of insulating tiles distempered, and a slag wool blanket is laid above the ceilings over the whole house. External walls are faced with yellow sand-lime bricks with all external angles bull-nosed. Window frames and external doors are painted primrose yellow, except the front door, which is teak. The eaves soffit has the rafters and battens painted white, leaving the underside of the shingles showing through. Roof is of cedar shingles.

Above, view from the west, showing the loggia with projecting pergola of cedar rafters on painted steel supports. Right, the north side, looking through the entrance gates.

INTERNAL FINISHES AND EQUIPMENT—Internally the walls are of fair-faced brickwork for two walls of each room, the other two being rough-plastered or having fitted furniture. Floors are mainly of cork tiles, with travertine in the hall. Internal doors are either flush or glazed with one sheet of wired glass. The principal bedroom has a slate dressing-table continuous with the inner cill. The large window in the living-room is a specially designed metal one with inside reveals lined with white tiles. Specially shaped tiles form the angles, and there is a trough at the head for curtain rails.

SERVICES—Most rooms have built-in electric heaters. Hot water is provided by electric immersion heaters serving several fittings.

COST—1s. 5½d. per ft. cube, including the built-in furniture and the electrical installations, but not including garden work.

The general contractor was Ernest Callis; for list of sub-contractors and suppliers, see page xvi.

Below, the living-room and the door to one of the bedrooms which leads directly from it. Left, and centre, the kitchen. Right, some of the built-in bedroom furniture ; between the two top drawers can be seen the heating switch, which in each case has a warning pilot light on the same panel.

HOUSE AT NUFFIELD • BY A. L. OSBORNE

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

DIAGRAMS ILLUSTRATING VARIOUS ARRANGEMENTS OF ROOF CONSTRUCTION : (b), special requirements :

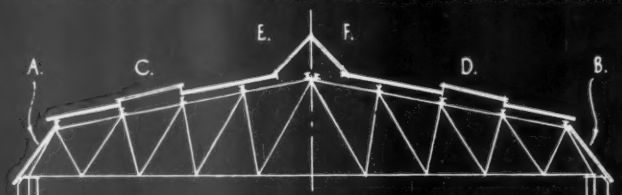


FIGURE 1 : longitudinal lights in parabolic trussed roof.

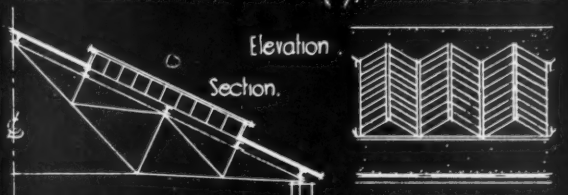
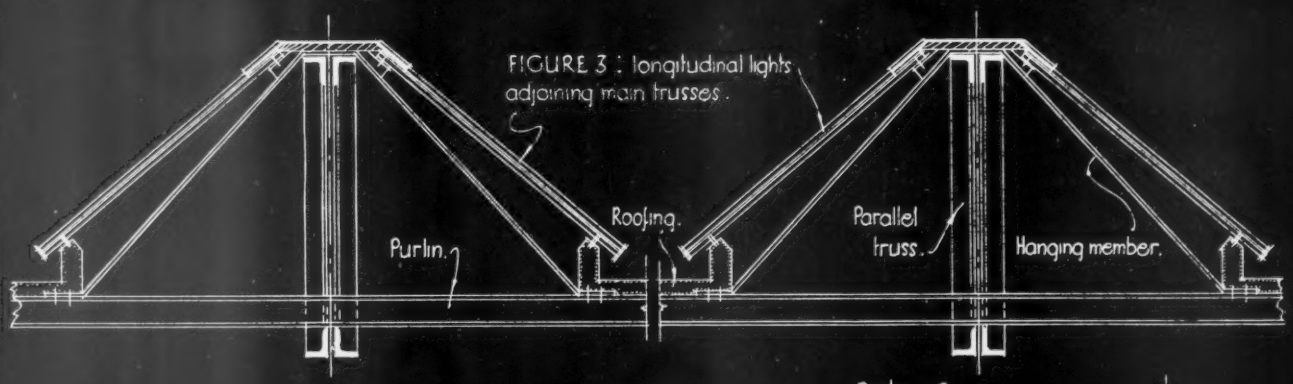


FIGURE 2 : caterpillar lights in triangular trussed roof.



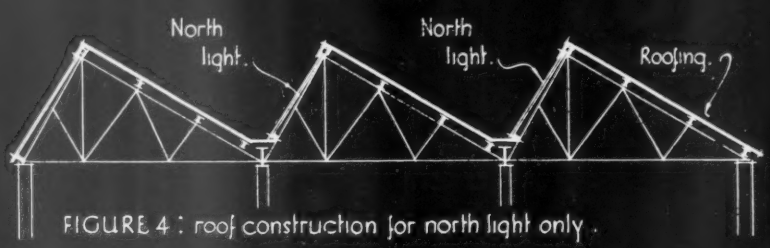


FIGURE 4 : roof construction for north light only.

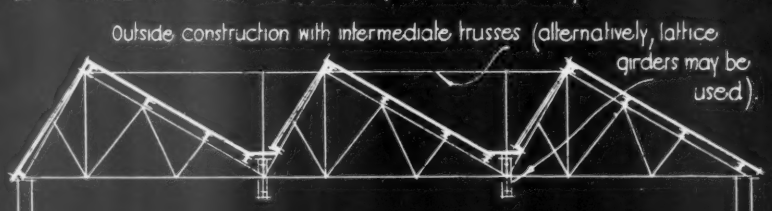


FIGURE 5 : north light roof construction for wide column spacing.

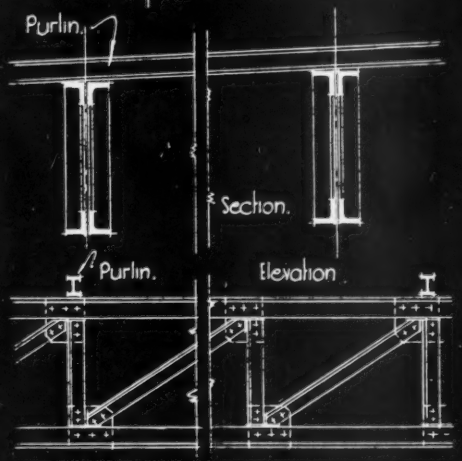


FIGURE 6 : parallel lattice girder for flat roof construction.

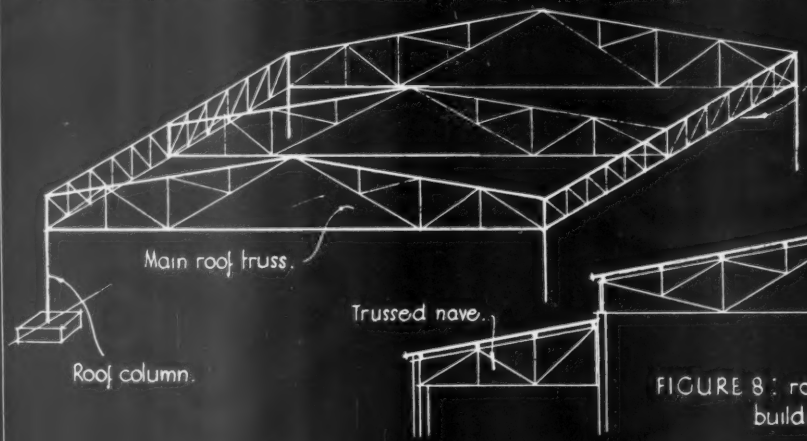


FIGURE 7 : parallel lattice girder truss to carry main roof trusses, where the spacing of these does not coincide with that of the roof columns.

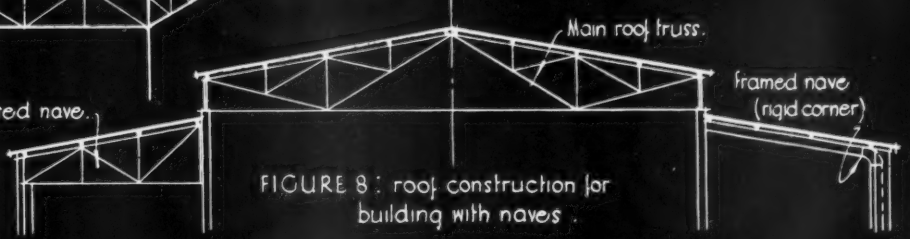


FIGURE 8 : roof construction for building with naves.

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INFORMATION SHEET : STEEL FRAME CONSTRUCTION : No. 34.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

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INFORMATION SHEET

• 806 •

STRUCTURAL STEELWORK

Subject : Steelwork for Roof Construction, 2 : Arrangements of Roof Construction ; (*b*) Special Requirements.

General :

This series of Sheets on steel construction is not intended to cover the whole field of engineering design in steel, but to deal with those general principles governing economical design which effect or are affected by the general planning of the building. It also deals with a number of details of steel construction which have an important effect upon the design of the steelwork.

Both principles and details are considered in relation to the surrounding masonry or concrete construction, and are intended to serve in the preliminary design of a building so that a maximum economy may be obtained in the design of the steel framing.

This Sheet is the thirty-fourth of the series, and deals with various arrangements of steel roof construction for special requirements. The previous Sheet illustrated the types of construction most suitable for normal roofs, but there are a number of requirements which frequently occur and which make special constructions necessary. Such requirements are, for instance, lighting, flat roofs and multiple nave construction.

Roof Lighting :

In many instances the lighting is arranged in the plane of the roof, see Figure 1, in the position *A* and *B* or *C* and *D*, or lifted slightly over the roof as in positions *E* and *F*. These roof lights do not influence the construction. The lights can also be constructed in caterpillar form, see Figure 2, and although it is generally acknowledged that longitudinal light is better than cross light, neither is of great importance with regard to the design of trusses and purlins.

Alternatively, this lighting can be arranged parallel to and adjoining the main trusses, and while this does not greatly affect the construction, it allows smaller sections of purlins which would be held by splayed hangers from the upper chords of the roof. See Figure 3.

It is sometimes necessary to have north light only. In this case the construction shown in Figure 4 would result.

For this construction, it is necessary to have the columns close together in the direction across the windows, or to arrange heavy, intermediate trusses. It can generally be said that this is more expensive than any other roof construction. It should, therefore, be applied only when such north light is essential and not through force of habit.

A north light roof with intermediate trusses is shown in Figure 5, the column distance being three times the base of the north light trusses.

The upper chord is largely outside the roof, and special arrangements are required to make the roof watertight where the steel pierces the roof covering. Alternatively, lattice girders (see Figure 6) can be used.

Flat Roofs :

In cases like the one just mentioned, as well as where flat roofs are concerned or roofs with gentle slopes, parallel lattice girders become essential. They are shown in Figure 6 and are usually more expensive than the types of construction shown on Sheet No. 33 of this series. They should, therefore, be applied only if local conditions make it necessary.

Space Requirements :

Another application of such parallel trusses is the case in which the roof columns are arranged further apart than the roof trusses, e.g. for ease of interior transport. Such a case is shown in Figure 7.

Lean-to or Nave Construction :

It is sometimes necessary to have the fall of a roof to one side only, and this is particularly so with buildings of two or three naves. See Figure 8. The purlins over the naves are arranged in the same way as with ordinary roofs, while the main construction is adapted to the form of the roof : it might consist of a truss, as shown on the left of Figure 8, or of a framed construction, as that shown on the right of Figure 8. Either a frame or a truss acting with an outside column is commonly used to stiffen a building against horizontal wind forces.

Spans :

The economic and utility factors affecting roof construction in relation to span are discussed on Sheet No. 33 of this series.

In addition to the more obvious special requirements mentioned on this Sheet, it should be noted that roof arrangements may be affected also by considerations of building use, headroom, heating, height of apex and the type and weight of the roof covering.

Previous Sheets :

Previous Sheets of this series dealing with structural steelwork are Nos. 729, 733, 736, 737, 741, 745, 751, 755, 759, 763, 765, 769, 770, 772, 773, 774, 775, 776, 777, 780, 783, 785, 789, 790, 793, 796, 798, 799, 800, 801, 802, 804 and 805.

Issued by : Braithwaite and Co., Engineers, Ltd.

Address : Horseferry House, Horseferry Road, Westminster, London, S.W.1

Telephone : Victoria 8571

PRICES

THIRD QUARTERLY WARTIME LIST

EXPLANATORY NOTE

In the last quarterly issue it was stated that it might be possible to improve the Schedule in the future. For obvious reasons it has not been possible to carry out this improvement this month. It is hoped to do so before the next List is issued.

Bricks, slates and tiles constitute the main items which have advanced in price.

Rates of wages up to September 30 remain the same, i.e. 1s. 10½d. for Craftsmen and 1s. 5¼d. for Labourers, in the Central London Area. A change is expected, however, in the next few days, and if information is available before going to press, the revised rates will be given immediately below this note*.

F.S.I.

* NO CHANGE.—The Rates of Wages for Craftsmen and Labourers remain unchanged.

CURRENT MARKET PRICES OF MATERIALS

BY DAVIS AND BELFIELD, Chartered Quantity Surveyors

Prices vary according to quality and the quantity ordered. Those given below are average market prices and include delivery in the London area, except where otherwise stated, but do not include overhead charges and profit for the General Contractor.

CONCRETOR

Cements

† All delivered in paper bags (20 to the ton) free and non-returnable.
* Paper bags charged at 5/– extra per ton non-returnable; jute sacks charged at 1/9 each and credited on return at 1/6.

		4 Tons and over	In 80-ton freights F.A.S. Safe Wharf in River Thames, London Area.
*Portland	per ton	44/6	42/–
*Rapid hardening	per ton	50/6	48/–
*Water repellent	per ton	74/6	—
Atlas White (1 barrel 376 lbs.)			per barrel 48/6
			1 ton upwards
*Colorcrete rapid hardening, buff and red		per ton	74/6
*Colorcrete rapid hardening khaki		per ton	74/6
†Colorcrete rapid hardening dark		per ton	129/–
†Colorcrete non rapid hardening		per ton from 145/– to 329/–	
†Snowcrete		per ton	185/–

		1–9 cwts.	10–19 cwts.	1 ton and upwards
* ●Ciment Fondu, delivered Central London area	per cwt.	12/–	11/6	9/7

Aggregate and Sands (Full Loads)

●2″ Unscreened ballast	per yard cube	7/6
●¾″(Down) Washed, crushed and graded shingle	per yard cube	7/9
●⅜″ (Down) Ditto	per yard cube	8/9
●2″ Broken brick	per yard cube	16/2
●¾″ Ditto	per yard cube	17/8
●Washed pan breeze	per yard cube	8/5
Coke breeze 1″ to dust	per yard cube	—
●1/16″ Sharp washed sand	per yard cube	9/6
White Silver Sand for white cement (one ton lots)	per ton	30/–

(For Sands for Bricklaying and Plastering *see* respective trades)

Pavings

Brick hardcore	per yard cube	—
Concrete ditto	per yard cube	—
●Clean furnace clinker and boiler ashes	per yard cube	4/2
●Coarse gravel for paths	per yard cube	9/11
●Fine ditto	per yard cube	13/6
●Clean granite chippings	per ton	26/–

CONCRETOR—(*continued*)

Pavings—continued

Red quarry tiles,	6″ × 6″ × 7/16″	per yard super	6/6
Ditto	6″ × 6″ × 5/8″	per yard super	5/6
Buff ditto,	6″ × 6″ × 7/16″	per yard super	7/–
Ditto	6″ × 6″ × 5/8″	per yard super	6/–
Hard red paving bricks,	2″	per 1,000	150/–
Ditto	1½″	per 1,000	142/6

Reinforcement

●Home trade maximum basis price for mild steel rods, ⅝″ diameter and upwards, ex mills delivered to station or siding	per ton £14 16 0
Extras for :—	
9/16″ and ½″ diameter	per ton 10/–
7/16″ diameter	per ton 15/–
⅜″ diameter	per ton 20/–
5/16″ diameter	per ton 30/–
¼″ diameter	per ton 40/–
3/16″ diameter	per ton 60/–
Lengths of 40 ft. to 45 ft.	per ton 10/–
Lengths of 45 ft. to 50 ft.	per ton 15/–

Sundries

Retarding liquid, in 5-gallon drums (for exposing aggregate)	per gallon 21/–	Ex Warehouse, Southwark Bridge. Drums chargeable and credited, if returned.
Ditto (for obtaining a bond)	per gallon 13/1½	

BRICKLAYER

Common Bricks

●Rough stocks	per 1,000 69/6
●Third stocks	per 1,000 67/–
●Mild stocks	per 1,000 74/6
●Sand limes	per 1,000 60/–
‡ ●Phorpres pressed Flettons	per 1,000 51/–
‡ ●Phorpres keyed Flettons	per 1,000 53/–
●Blue Staffordshire wirecuts	per 1,000 179/6
●Lingfield engineering wirecuts	per 1,000 100/–
●Firebricks, best Stourbridge 2½″	per 1,000 178/6
●Firebricks, best Stourbridge 3″	per 1,000 214/6

Facing and Engineering Bricks

●Sand Limes, No. 1	per 1,000 95/–
●Sand Limes, No. 2	per 1,000 80/–
‡ ●Phorpres rustic Flettons	per 1,000 71/–

●‡ At King's Cross. For delivery in W.C. district add 6/– per 1,000.

● Items marked thus have risen since July 4

BRICKLAYER—(*continued*)

Facing and Engineering Bricks—(continued)

Midhurst Whites	per 1,000	85/–
●Hard stocks, firsts	per 1,000	100/–
●Hard stocks, seconds	per 1,000	93/–
Sand-faced, hand-made reds	per 1,000 from	115/–
Sand-faced, machine-made reds	per 1,000 from	110/–
Red rubbers (9¾-in.)	per 1,000	300/–
●Uxbridge Flints (white)	per 1,000	80/–
●Uxbridge Flints (creams, light greys, etc.) per 1,000	from	110/–
●Dunbricks (concrete), multi reds, ex works	per 1,000	76/6
●Dunbricks (concrete), multi lavender, buffs and golden brown, ex works	per 1,000	80/–
●Southwater engineering No. 1 (first quality red pressed)	per 1,000	150/–
●Southwater engineering No. 2 (second quality red pressed)	per 1,000	130/–
●Blue pressed	per 1,000	202/–

Limes and Sand

		1-ton lots	6-ton lots
Lime, greystone	per ton	50/–	—
Lime, chalk	per ton	50/–	—
●Lime, blue Lias (including paper bags)	per ton	60/–	—
Lime, hydrated (including paper bags)	per ton	55/–	—
●Washed pit sand	per yard cube	9/3	

(For cements, *see* "Concretor.")

Hire of jute sacks charged at 1/6 and credited at 1/6. If left, charged at 1/9.

Sundries

●Wall ties, self coloured	per cwt. 24/3
●Wall ties, galvanized	per cwt. 29/–
●D.P.C. slates, size 18″ × 9″	per 1,000 180/–
●D.P.C. slates, size 14″ × 9″	per 1,000 145/–
●D.P.C. slates, size 14″ × 4½″	per 1,000 75/–
‡Ledkore D.P.C. Grade A	per foot super 5½d.
‡Ledkore D.P.C. Grade B	per foot super 7½d.
‡Ledkore D.P.C. Grade C	per foot super 9d.

‡ Trade discount 5 per cent. and cash discount 5 per cent. Prices include delivery on minimum of £4 orders.

	9″×3″	9″×6″	9″×9″	12″×9″	14″×9″
Earthenware airbricks : Red, blue, vitrified and buff terra cotta each	7/8	1/4	2/4	4/–	6/8
	9″×3″	9″×6″	9″×9″	12″×6″	12″×9″
●Black cast iron, School Board pattern airbricks per doz.	3/3	6/6	13/3	13/3	24/–
●Galvanized ditto per doz.	6/6	13/–	26/6	26/6	49/6
●Black hit and miss cast iron ventilators per doz.	15/–	24/–	33/–	33/–	45/–
●Galvanized ditto per doz.	30/–	48/–	66/–	66/–	90/–
	1′ 0″	1′ 6″	2′ 0″	2′ 6″	3′ 6″	5′ 0″
Buff terra cotta chimney pots each	2/9	3/4	4/9	6/4	14/6	24/9
Fireclay per ton	55/–					

Wall reinforcement supplied in standard rolls containing 25 yards lin.

* ●2″ wide black japanned	per roll 2/2¾	Greater widths pro rata 2½″ price carriage paid on orders of £5. Discounts for quantities.
* ●2″ wide galvanized	per roll 3/3	
* ●2½″ wide black japanned	per roll 2/9¼	
* ●2½″ wide galvanized	per roll 4/0½	

* Prices subject to 5% advance.

Partitions

		2″	2½″	3″	4″
Breeze	per yard super	1/10	2/2	2/9	3/2
Clay tiles	per yard super	2/6	2/9	3/–	3/4
Pumice	per yard super	3/4	3/8	4/–	5/–
Plaster	per yard super	2/9	3/6	4/3	4/6

Gas Flue Blocks

		Single Flues	Double Flues
Straight blocks	each	1/3	2/2
Building in set	per set of 3	2/11	5/4
Cover blocks	each	1/7	3/4
Raking blocks 45°	each	3/–	4/3
Raking blocks 60°	each	2/2	3/1
Offset blocks	each	3/8	5/4
Closer blocks	each	1/3	2/2
Closer flashing blocks	each	1/1	1/10
Straight flashing blocks	each	1/1	1/10
Terminal and cap	per set	7/5	12/8
Middle terminal and cap	per set	6/11	11/10
End terminal and cap	per set	7/2	12/5
Corbel block	each	5/4	3/6
Gathering block	each	—	10/8

DRAINLAYER

Agricultural Pipes

		2″	3″	4″	6″
Pipes in 12″ lengths	per 1,000	67/6	95/–	125/–	215/–

(Delivered in full loads Central London Area.)

Salt Glazed Stoneware Pipes and Fittings

		4″	6″	9″
Pipes (2′ lengths)	each	1/8	2/6	4/6
Bends, ordinary	each	2/6	3/9	6/9
Single Junction, 2′ long	each	3/4	5/–	9/–
Yard Gulley, without grating	each	6/3	6/10½	11/3
Ordinary round or square Grating, painted	each	–/7½	1/3	2/6
Ordinary round or square Grating, galvanized	each	1/0½	2/1	4/4½
Extra for Inlets, horizontal	each	1/6	1/6	1/6
Extra for Inlets, vertical	each	2/3	2/3	2/3
Intercepting Trap with Stanford Stopper	each	17/6	22/6	37/6
Grease and mud interceptor with bucket for removing silt and grease for 6″, 9″ and 12″ drains, with iron grating, painted	each	20/–		
Ditto, with iron grating galvanized	each	21/10½		

The above prices to be varied by the following percentages for the different qualities given. All subject to 2½ per cent. cash discount.

	British Standard	British Standard Tested
Orders for 2 tons and over	Less 12½%	Plus 12½%
Orders under 2 tons, 100 pieces upwards	Plus 5%	Plus 30%
Orders under 2 tons, less than 100 pieces	Plus 15%	Plus 40%

	Best	Seconds
Orders for 2 tons and over	Less 20%	Subject to 15% off the price of best quality for all sizes
Orders under 2 tons, 100 pieces upwards	Less 2½%	
Orders under 2 tons, less than 100 pieces	Plus 7½%	

Cast Iron Drain Pipes and Fittings

Socket and Spigot Pipes :—

Weight (per 9 ft.)	Size	9 fts.	6 fts.	4 fts. each	3 fts. each
●1 . 1 . 8	4″ per yard	7/5	8/3	12/10	9/9
●1 . 1 . 20	4″ per yard	7/9	8/5	13/1	10/1
●2 . 0 . 6	6″ per yard	11/2	13/2	21/–	16/10
●4 . 0 . 2	9″ per yard	20/6	26/3	44/9	34/4
		2 fts.	18 ins.	12 ins.	9 ins.
●1 . 1 . 8	4″ each	8/–	6/8	5/11	5/5
●1 . 1 . 20	4″ each	8/1	—	—	—
●2 . 0 . 6	6″ each	12/7	—	—	—
4 . 0 . 2	9″ each	—	—	—	—

Tonnage Allowances :—

Orders up to 2 tons nett.
Orders 2 to 4 tons less 2½%
Orders 4 tons or over less 5%

		4″	6″	9″
●Bends	each	6/11	14/5	44/5
●Single junctions	each	12/3	25/–	76/7
●Intercepting traps	each	33/4	55/6	136/6
●Gulleys ordinary trapped	each	16/1	—	—
●Extra for inlet 4″	each	4/2	—	—
●Grease Gulley trap	each	126/1	—	—
●H.M.O.W. large socket gulley trap with 9″ gulley top and heavy grating and one back inlet	each	29/2	51/5	—

Channels in Brown Glazed Ware

		4″	6″	9″
Half round straight channels 24″ long	each	1/3	1/10½	3/4½
Half round straight channels 30″ long	each	—	—	4/2¾
Ditto, short lengths	each	1/3	1/10½	—
Half round ordinary channel bends	each	1/10½	2/9¾	5/0¾
Ditto, short	each	1/10½	2/9¾	—
Ditto, long	each	3/9	5/7½	10/1½
Three-quarter round branch bends	each	5/–	7/6	—

		6″×4″	9″×6″
Half round taper channels 24″ long	each	3/9	6/9
Half round taper channel bends	each	4/8½	8/5½

The above prices are subject to the same discounts as those given for "Best" quality salt glazed stoneware pipes.

Manhole Covers

		Black	Galvanized
●24″ × 18″ single seal for foot traffic. (Weight 0.0.3 in lots of 24)	each	14/3	28/6
●24″ × 18″ single seal for light car traffic. (Weight 2 cwt. in lots of 24)	each	40/6	81/–
24″ × 18″ Wood Block pattern. For road traffic. (Weight 3 cwts.)	each	Coated 63/–	

● Items marked thus have risen since July 4.

DRAINLAYER—(*continued*)

Manhole Covers—(continued)

	Fine Cast	Galv.
Cast iron steps, 13½″ long, 6″ wide, 9″ in wall, approximate weight 5½ lbs. each per dozen	14/9	25/6
	4″	6″
Galvanized fresh air inlets with cast brass fronts (L.C.C. pattern) .. .. each	5/6	20/3

MASON

Yorkstone

Building quality Robin Hood and Woodkirk Blue Stone.

Blocks scrappled, random sizes ..	per foot cube	5/–
Add for blocks to dimension sizes ..	per foot cube	6½d. (each dimension)
Templates with sawn beds, edges rough (up to 4 ft. super and not over 2′ 6″ long) ..	per foot cube	5/6
Templates with sawn beds, sawn one edge,	per foot cube	6/7½
Templates with sawn beds, sawn two edges,	per foot cube	7/8½
Prices f.o.r. Yorkshire, railway rate to London Station per ton. (Minimum 6-ton loads.)		20/1

Artificial Stone

6″ × 3″	Copings and sills	per foot run	1/6
6″ × 6″	Copings and sills	per foot run	2/4
9″ × 3″	Copings and sills	per foot run	2/–
9″ × 6″	Copings and sills	per foot run	3/4
12″ × 3″	Copings and sills	per foot run	2/4
12″ × 6″	Copings and sills	per foot run	3/9
Cornices according to detail, per foot cube (from)			6/9

SLATER, TILER AND ROOFER

Best Bangor Slates

	£ s. d.
●24″ × 12″ .. .. per 1,000 actual	36 17 0
●20″ × 10″ .. .. per 1,000 actual	23 19 0

Prices include for delivery to site in lots of 1,000 and upwards.

Tiles

	£ s. d.
●Hand-made sandfaced 10½″ × 6½″ red roofing tiles per 1,000	5 11 8
●Machine-made sandfaced 10½″ × 6½″ red roofing tiles per 1,000	4 14 0
●Berkshire rustic pantiles .. .. .. per 1,000	21 14 9

Asbestos-cement

†6″ corrugated sheets, grey .. .. per yard super	3/0¾
†Standard 3″ corrugated sheets, grey .. per yard super	2/9½

Slates :—

		£ s. d.
* 15¾″ × 7¾″ grey	per 1,000	£6 3 9
* 15¾″ × 15¾″ diagonal, grey	per 1,000	£11 15 0
* 15¾″ × 15¾″ diagonal, russet or brindled	per 1,000	£14 16 3

Pantiles.

* Large russet brown	per 1,000	£19 8 6

* Prices are for minimum two-ton loads, and are subject to 6¼% advance and 5% trade discount.

† Do., but 3¾% advance and 5% trade discount.

JOINER

Asbestos-cement and Asbestos Products

5/32″ Semi-compressed flat building sheets, grey per yard super	1/3½
3/16″ Ditto .. .. per yard super	1/4
¼″ Ditto .. .. per yard super	1/11

Prices are for orders of two tons and over and are subject to 5% advance and 5% trade discount.

¼″ Asbestos wallboard (in sheets 8′ 0″ × 4′ 0″, 10′ 0″ × 4′ 0″ and 12′ 0″ × 4′ 0″) .. per foot super	–/4
3/16″ Ditto .. .. per foot super	–/3⅛
3/16″ Asbestos wood (in sheets 8′ 0″ × 4′ 0″) per yard super	2/2¼

The following asbestos prices are subject to 10 per cent. trade discount :—

Asbestos-cement stipple glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″) .. per yard super	6/6
Ditto, plain white glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″) per yard super	8/6
Marble glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″) .. per yard super	7/–
½″ Fibre board per yard super	2/7

		25–75 yards	150–300 yards	Over 600 yards
⅜″ Fireproof plaster board	per yard super	2/5	2/1	1/9
¼″ Ditto	per yard super	2/3	1/11	1/7
Joint tape (approx. 250 feet run)	per roll	..	..	1/6
Joint filler	per lb.	..	..	–/4

Sundries

Slaters or sarking felt	per yard run	–/6
Roofing felt	per yard run	–/8
Bituminous hair felt	per roll	40/–

All rolls 25 yards long by 32″ wide.

JOINER—(*continued*)

Sundries—(continued)

Black waterproof paper, 5′ wide .. .. per yard run	–/6½
Building paper in rolls of 100 yards, 1-ply, 60″ wide (B.I. 120) .. .. per yard run	1/1

" Cabots " Quilt :—(Ex Works) Twenty roll lots delivered carr. free.

Double ply .. .. per roll	47/6 per half-roll 27/–

All rolls 28 yards long by 36″ wide. Special terms for quantities.

●Cut steel clasp nails	1″ per cwt.	35/3	4″ per cwt.	26/3
● „ „ floor brads,	2″ „	25/9	3″ „	24 6
●Bright oval wire nails,	1″ „	39/–	4″ „	28/3

●Galvanized wire staples with slice cut points	1″ × 12 gauge per cwt.	49/–
Scotch glue	per cwt.	67/6

STEEL AND IRONWORKER

Steelwork

	£ s. d.
●Basis price for rolled steel joists sections 5″ × 3″ to 16″ × 6″, in 10 ft. to 50 ft. lengths per ton	13 15 6

PLASTERER

Plaster and Cement

		1-ton loads	6-ton loads
Sirapite (coarse)	per ton	82/6	76/6
„ (fine)	per ton	85/6	79/6
Victorite No. 1	per ton	97/6	91/–
„ No. 2 or non sweat	per ton	92/6	86/–
Thistle (browning, haired and pink finish)	per ton	82/6	77/6
Thistle (fine)	per ton	85/6	—
Pink plaster	per ton	78/6	—
White plaster	per ton	88/–	—
Keene's pink	per ton	130/–	—
Keene's white	per ton	135/–	—
Super Carbo	per ton	—	—
Carbo-setting	per ton	—	—

	1 ton upwards £ s. d.
Cullamix No. 2 cream (rendering mixture) per ton	6 3 6
„ No. 3 cream „ „ per ton	6 3 6
Snowcrete mixture „ „ per ton	5 18 6

Sundries

●Sharp washed sand .. .. per yard cube	9/6
Cow hair .. .. per cwt.	42/–
Goat's hair .. .. per cwt.	66/–
●Expanded metal lathing, 9′ 0″ × 2′ 0″ ⅜″ mesh × 26 gauge .. .. .. per sheet	2/5
●Wire Slate nails (galvanized) 1¼″ × 15 gauge per cwt.	56/3
„ „ „ (bright wire) „ „ per cwt.	27/–

	Less than 150 yds.	Less than 300 yds.	Over 300 yds.	Over 600 yds.
⅜″ Plaster board per yard super	1/9	1/5	1/4	1/3
1¼″ Galvanized nails .. per cwt.	47/–			
Scrim cloth in 100-yard rolls per roll	2/3			

Wall Tiles

The following prices are subject to 25 per cent. addition :

Commercial quality.	
Ivory, white, etc., glazed 6″ × 6″ × ⅜″ .. per yard super	10/1
Angle beads (1½″ wide) .. .. .. per yard run	1/2⅔
„ „ (1″ „) .. .. .. per yard run	–/10
Rounded edge tiles .. .. .. per yard run	2/6½
Coloured enamelled bright glazed, 6″ × 6″ × ⅜″ .. .. .. per yard super	14/3
Angle beads (1½″ wide) .. .. .. per yard run	1/4⅔
„ „ (1″ „) .. .. .. per yard run	–/11½
Rounded edge tiles .. .. .. per yard run	2/7
Eggshell gloss enamelled, 6″ × 6″ × ⅜″ .. per yard super	15/–
Angle beads (1½″ wide) .. .. .. per yard run	1/7½
„ „ (1″ „) .. .. .. per yard run	1/0¾
Rounded edge tiles .. .. .. per yard run	2/8¼

PLUMBER

Lead

3½ lbs. and upwards milled sheet lead in quantities of 5 cwts. and upwards	per cwt.	34/6
Add if cut to sizes	per cwt.	3/–
Lead ternary alloy, No. 2 quality extra over sheet lead	per cwt.	7/–
Allowance for old lead delivered to merchant ..	per cwt.	22/3

● **Items marked thus have risen since July 4.**

PLUMBER—(*continued*)

Cast Iron Goods

	Percentage Adjustment on List No. 3100 A B, 1/2/40
Rainwater Goods (painted or unpainted) ..	*Nett*
Soil goods (coated or uncoated)	*Nett*

Mild Steel Rainwater Goods

The following prices are subject to 2½ per cent. trade discount and 12½ per cent. advance.
24 gauge rainwater slip jointed pipes.

		2″	2½″	3″	3½″	4″
●Galvanized round pipes with ears	per 6′ 0″	2/7½	3/1½	3/9	4/3	4/9
●Painted round pipes with ears	per 6′ 0″	2/4½	2/9	3/1½	3/7½	4/–
●Painted or galvanized short lengths with ears, extra	each	–/6	–/6	–/6	–/6	–/6

●18 Gauge gutters.

		3″	3½″	4″	4½″	5″	6″
●Galvanized half round gutters	per 6′ 0″	2/–	2/3	2/4½	2/9	3/–	3/7½
●Painted half round gutters ..	per 6′ 0″	1/6	1/9	2/–	2/3	2/6	3/–
●Painted or galvanized short lengths extra	each	–/3	–/3	–/3	–/3	–/3	–/3

Asbestos-Cement Rainwater Goods

The following prices are subject to 5 per cent. advance and 12½ per cent. trade discount.
Orders over £30 are subject to 17½ per cent. trade discount.

Rainwater pipes.
Prices are for 6′ 0″ lengths, and 10′ 0″ lengths in 2″, 2½″ and 3″ diameters. Short lengths up to 2′ 0″ are charged as one yard. From 2′ 0″ to 4′ 0″ charged as 1½ yards. From 4′ 0″ to 6′ 0″ charged as 2 yards. Over 6′ 0″ charged as 10′ 0″.

Round pipes.

2″	per yard run	1/10
2½″	per yard run	2/0¾
3″	per yard run	2/5¾
3½″	per yard run	2/11¼
4″	per yard run	3/4¾
4½″	per yard run	4/10¼
5″	per yard run	5/9¾
6″	per yard run	7/1¾

Gutters.
Short lengths of gutter up to 2′ 0″ charged as 1 yard; from 2′ 0″ to 4′ 0″ as 1½ yards, and over 4′ 0″ as 2 yards.

		3″	4″	4½″	5″	6″	8″
Half round gutters	per yard run	1/3¾	1/6¾	1/7¾	1/11	2/8	3/3½
Ogee gutters	per yard run	—	1/11	2/0¾	2/5¾	3/0½	3/11¼

INTERNAL PLUMBER

Lead pipe in coils, 5 cwts. and upwards	per cwt.	34/–
Lead soil pipe	per cwt.	37/–
Add if ribbon marked	per cwt.	–/3
Lead ternary alloy, No. 2 quality extra over lead pipe	per cwt.	7/–
Plumber's solder	per cwt.	116/–
Tinman's solder	per cwt.	191/–

Drawn lead traps with brass screw eye, 6 lbs.

		1″	1¼″	1½″	2″
S. trap	each	2/3	2/8	3/4	4/9
P. trap	each	2/–	2/2	2/3	3/2
Extra for 3″ deep seal	each	–/6	–/6	–/6	–/6

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc.

Tubes.

		½″	¾″	1″	1¼″	1½″	2″
●Tubes 2 ft. long and over	per ft.	–/5½	–/6¾	–/9¼	1/1	1/4½	1/10
●Pieces 12″ to 23½″ long	each	1/1	1/5	1/11	2/8	3/4	4/9
●Bends	each	–/11	1/2	1/7½	2/7½	3/2	5/2

Fittings.

●Elbows, square	each	1/1	1/3	1/6	2/2	2/7	4/3
●Elbows, round ..	each	1/2	1/5	1/8	2/4	2/10	4/8
●Tees	each	1/3	1/7	1/10	2/6	3/1	5/1
●Crosses	each	2/9	3/3	4/1	5/6	6/7	10/6
●Sockets, plain ..	each	–/4	–/5	–/6	–/8	–/10½	1/3
●Sockets, diminished	each	–/6	–/7	–/9	1/–	1/4	2/–
●Flanges	each	1/–	1/2	1/4	1/9	2/–	2/9
●Caps	each	–/5	–/6	–/8	1/–	1/3	2/–
●Plugs	each	–/4	–/5	–/6	–/8	–/10	1/3

INTERNAL PLUMBER—(*continued*)

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc.—(continued)

Fittings and flanges and tubes ordered in long random lengths are subject to the following trade discounts :—

	Tubes	Fittings	Flanges
"Light Weight"	55½%	48%	51¾%
"Heavy Weight" ..	48½%	40½%	41¾%

COPPERSMITH AND ZINC WORKER

Copper

Hot rolled copper sheeting in 1 cwt. lots, all gauges to 24 wire gauge	per lb.	-/11¼
Light gauge copper tube, solid drawn	per lb.	1/2¾
Copper tube, solid drawn screwing sizes	per lb.	1/2¼
Copper wire, 10 and 12 gauge	per lb.	1/1
Copper nails, 1″ and up	per lb.	1/1

GLAZIER

Sheet Glass cut to size (ordinary glazing quality)

		In squares not exceeding 2 ft.	4 ft.	6 ft.	Over 6 ft.
18 oz. clear sheet ..	per foot super	–/2½	–/3	–/3½	–/3½
24 oz. ditto ..	per foot super	–/3⅛	–/4⅛	–/4⅜	–/4¾
32 oz. ditto ..	per foot super	–/4½	–/6¼	–/7¼	–/8¼
Obscured sheet glass net extra ..		–/1½	–/1½	–/1½	–/1½
⅛″ figured rolled glass, white and cathedral	per foot super	–/6¾			
⅛″ ditto, normal tints	per foot super	–/9½			

British or Foreign Polished Plate Glass cut to size

Ordinary ¼″ Substance In Plates not exceeding		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
1 ft. super ..	per foot super	—	—	—
2 ,, ..	per foot super	1/8	1/11	2/3
3 ,, ..	per foot super	2/3	2/7	3/1
4 ,, ..	per foot super	—	—	—
6 ,, ..	per foot super	3/2	3/5	3/4
12 ,, ..	per foot super	—	—	—
45 ,, ..	per foot super	3/6	4/–	4/11
65 ,, ..	per foot super	—	—	—
90 ,, ..	per foot super	—	—	—
100 ,, ..	per foot super	4/2	5/7	6/–

Plates exceeding 100 ft. super or 160 in. long or 100 in. wide at higher prices.
Special quotations should be obtained for other qualities and thicker substances.

Wired Glass Cut to Sizes

¼-in. Georgian rough cast	per ft. super	10d.			
	In squares not exceeding 1 ft.	2 ft.	3 ft.	4 ft.
¼-in. Georgian polished plate	per ft. super	2/6	2/8	2/10	3/2
	8 ft.	12 ft.	20 ft.	30 ft.
¼-in. Georgian polished plate	per ft. super	3/8	3/10	4/2	4/6

Supplied in sizes up to 110 in. long and up to 36 in. wide.
For cutting to allow for wires in adjacent pieces to be "lined up," add 4d. per foot super.

PAINTER

●White ceiling distemper	per cwt.	14/–
Washable distemper	per cwt.	60/–
Petrifying liquid	per gallon	—
●Ready mixed white lead paint (best) 5-cwt. lots, in 14 lb. tins	per cwt.	83/6
●White enamel	per gallon	27/6
●Stiff white lead, genuine English stack process, 1-ton lots, in 1-cwt. kegs	per cwt.	61/9
Driers	per cwt.	42/–
Linseed oil raw (5-gallon drums)	per gallon	—
,, boiled ,, ,, ...	per gallon	—
●French polish	per gallon	12/6
Knotting	per gallon	16/–
Oil stain	per gallon	12/–
●Varnish, oak	per gallon	12/6
● ,, copal	per gallon	17/6
●Varnish, flat	per gallon	22/6
●Turpentine, genuine American, 5-gallon lots	per gallon	4/–
●Creosote, 1-gallon lots	per gallon	1/9
●Putty	per cwt.	14/9
●Size	per firkin	4/6
Best English quality gold leaf, 23 carat ..	per book	2/9
Extra thick, ditto	per book	4/–

● Items marked thus have risen since July 4.

SOME QUESTIONS ANSWERED THIS WEEK:

★ *WE have a sample of a thin coloured asphalt tile about one-eighth of an inch in thickness and used for flooring. Where are these obtained?* Q529

★ *COULD you give us the names of firms making reinforced concrete factory window frames?* - - - - - - Q531

★ *IS 13½-in. brickwork built in hydro lime permissible for A.R.P. shelter work?* - - Q532

★ *I HAVE registered for military service and have been medically examined (classed Grade 2). Can I apply for a Government job now?* - Q533

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 enquirer wants 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

REGENT 6888

Q527 WORKS ENGINEER, LOCOMOTIVE BUILDERS.—*Over our workshop large areas of roof glazing have been permanently blacked out, and the unobscured frames fitted with external removable covers. The general lighting of the shops during daytime depends largely upon daylight through these unobscured panels of roof glazing, but dirt has been allowed to accumulate over a long period of time and lessens considerably the amount of light. We have tried to clean the GLASS with the ordinary cleaning agents, but without any great measure of success. Are there any SPECIAL CLEANING AGENTS which could be used?*

Certain firms, whose names are given below,* produce special cleaning agents for this purpose. In addition, the Building Research Station authorities have carried out investigations on this problem, and from their work it would seem that when dirt is ingrained in the surface of the glass, treatment with hydrofluoric acid is successful. This substance is poisonous, and should always be applied in the minimum concentration necessary and by workmen protected by rubber

* *The Nutfield Manufacturing Co., Kings Mill Works, S. Nutfield, Surrey; Messrs. Wm. Clark (Spare Parts), Ltd., 5 Marshalsea Road, London, S.E.1 "Magnus"; Messrs. Edgar Vaughan & Co., Ltd., Legge Street, Birmingham, 4 "Houghton-clean."*

gloves. The glass and all adjacent metalwork should be thoroughly rinsed with clean water afterwards.

Q528 FLOOR LAYING FIRM, LONDON.—*Some two or three years ago we obtained supplies of aluminous cement of a light grey colour. The member of our staff who obtained these supplies is no longer with us, and from our records we are unable to trace the suppliers. Samples of ALUMINOUS CEMENT sent in by one firm at our request are almost black in colour, and are not suitable for our purpose. Can you inform us of any firm supplying the light grey variety?*

It would seem that supplies of the particular variety of aluminous cement required are not likely to be available during the war. The only forms of aluminous cements now available are those made in this country, and the names of three manufacturing firms are given below.*

Q529 EXHIBITION STANDFITTERS, LONDON.—*We have a sample of a THIN COLOURED ASPHALT TILE about one-eighth of an inch in thickness and used for flooring. Where are these obtained? We ourselves made enquiries, but the only type offered us was of much heavier construction, being ¾-in. in thickness.*

The product in question is of American manufacture, and in normal times the firms given below† imported these tiles. Certain stocks are still available in this country. No equivalent is made in this country, the nearest being the ¾-in. thickness type known as Colorpavets and Monopavets, made by the Highways Construction Co., Ltd., Iddesleigh House, Caxton Street, S.W.1.

Q530 ARCHITECTS, LONDON.—*We are doing work which comes under the jurisdiction of the Board of Education and because of the curtailed supplies of Portland cement the progress of the work is being delayed. The Board of Education suggest that we carry out the balance of the work using Portland BLAST FURNACE CEMENT. Most of the work is in reinforced concrete. We have had no previous experience of the use of this form of cement and we shall be glad to have your views as to its suitability for this purpose, also the names of manufacturing firms.*

So far as we are aware the manufacture of Portland blast furnace cement is confined to Scotland and is manufactured by The Caledonian Portland Cement Co., Ltd., 29 St. Vincent Place, Glasgow, C.1; and The Clyde Portland Cement Co., Ltd., 37 Renfield Street, Glasgow, C.2. The material is formed by grinding granulated slag, obtained as a by-product in iron production, with Portland cement clinker. The Portland blast furnace cement thus formed is the subject of British Standards Specification No. 146 (British Standards Institution, 28 Victoria Street, London, S.W.1, price 2s. net). In Scotland the material has been used for many years but its normal use is confined to building mortars. In reinforced concrete work, however, there is no danger of corrosive action on the embedded reinforcement and while the concrete formed from Portland blast furnace cement may not possess the strength of a normal Portland cement concrete at one and three days, the seven-day strength of the two concretes should be much the same. But no doubt if the engineer in charge of the work is inexperienced in the use of Portland blast furnace cement he will take every precaution before removing any shuttering and will arrange for strength tests on sample cubes of the mix.

Q531 ARCHITECTS, HERTFORDSHIRE. — *We shall be obliged if you will give us the names of firms making REINFORCED CONCRETE FACTORY WINDOW FRAMES.*

The names of a number of manufacturers are given below.*

Q532 BUILDERS, CAMBRIDGESHIRE. — *Is 13½-in. brickwork built in HYDRO LIME permissible for A.R.P. shelter work?*

A useful *précis* of the information existing on the use of lime and lime mortars was given in the August 29, 1940, issue of the ARCHITECTS' JOURNAL in reply to Question 477. It is not clear from the inquiry what is intended by the name hydro lime. If by this is meant the hydrolised hydraulic lime of the East Anglian Cement Co., Ltd., Shepreth, near Royston, Herts, then the material is suitable for use in mortar without the addition of cement. The manufacturers recommend a mix of 1 volume of lime to 2½ volumes of sand, and the brickwork of shelters built in this mortar is quite suitable for A.R.P. work. If, however, the Hydralime product of the Cement Marketing Co., Ltd., The Club House, Coombe Hill, Kingston, is intended then a further definition of type is needed. Hydralime is available both in grey and white varieties.

White Hydralime has no hydraulic strength and a cement gauging should be added if the mortar is to be used for brickwork. The proportions recommended in the series of British Standards Institution A.R.P. Specifications is 1 volume of the hydrated lime to 3 of sand, and then for 1 volume of Portland cement to be mixed with 9 volumes of the coarse stuff formed by mixing the lime and sand. Grey Hydralime is produced from the feebly hydraulic greystone lime and its use as a straight mix (i.e. lime and sand) might be permitted in A.R.P. shelter construction, but a ruling on this point could be obtainable only from the Ministry of Home Security Regional Technical Adviser. Ordinarily it would be expected that a cement gauging as before specified would be needed, but the material is used with sand as a straight mix on various normal building works, particularly small house property.

Q533 ARCHITECT, DEVON.—*I have registered for MILITARY SERVICE and have been medically examined (classed Grade 2). Can I apply for a Government job now?*

Until such time as notification is received to report for military duty there is no restriction on the changing of employment. When such a change has been made, details should be forwarded to the office of the Ministry of Labour where registration was first made.

* *The Cement Marketing Co., Ltd., The Club House, Coombe Hill, Kingston; The Tunnel Portland Cement Co., Ltd., Horseferry House, Westminster, S.W.1; The Lafarge Aluminous Cement Co., Ltd.. The Kilns, Ripley, Surrey.*

† *Messrs. Douglas R. Smart and Son, Ltd., 3 Wells Terrace, London, N.4; Messrs. Horsley Smith & Co. (Floors), Ltd., Dawley Road, Hayes, Middlesex; Messrs. Johns-Manville Co., Ltd., Horseferry House, S.W.1.*

* *Messrs. Tarmac, Ltd., Ettingshall, Wolverhampton; The Blackpool Precast Stone Co., Ltd., Collins Avenue, Bispham, Blackpool; The Brickcast Stone Commodities, Ltd., Between Street, Cobham, Surrey; Messrs. Shockcrete Products, Ltd., Stone House, Bishopsgate, London, E.C.; Girlings Ferro Concrete Co., Ltd., Great West Road, Feltham, Middlesex; Messrs. J. A. King & Co., Ltd., 181 Queen Victoria Street, London, E.C.; Messrs. Haywards, Ltd., Union Street, Borough, S.E.1; Messrs. Lenscrete, Ltd., 11 Buckingham Gate, S.W.1.*

INFORMATION CENTRE

EVACUATION: THE UNDER FIVES

continued from page 278

of arch and beam. This may be represented as a part of a cylinder, supported at four points only, which spans as an arch in one direction and as an arch and beam in the other. If a number of these are placed in series the arch thrusts will be countered and the only tensile stresses will

CONTROL OF CIVIL BUILDING AND CONSTRUCTIONAL OPERATIONS

From October 7th

BUILDING WORK

requires consent

By an Order which takes effect from October 7th, 1940, no work of building or civil engineering construction may be undertaken without consent from the appropriate authorities. The object of this Order is to conserve labour and materials urgently needed for the War Effort. The Order is subject to the following exceptions:—

1. Where the estimated cost does not exceed £500.
2. Where the work is being done on behalf of, or under contract with, a Government Department; or where a Government Department has agreed to pay all or part of the cost.
3. Where the work is being done by a local authority in discharge of its functions under the Civil Defence Acts, 1937 and 1939.
4. Where the work is in the nature of maintenance, running repairs or decoration.

HOW TO APPLY FOR CONSENT

An explanatory Memorandum has been prepared and has been circulated to local authorities, architects, builders, contractors, etc. A copy can be obtained from the Licensing Officer, H.M. Office of Works, Abell House, John Islip Street, London, S.W.1. The Memorandum explains how to apply for consent.

Consent will generally take the form of a licence issued by H.M. Office of Works. In the case of certain building or constructional operations carried out by local authorities, highway authorities, public utility companies, and of operations in connection with mining and quarrying, consent will take the form of an authorisation issued by the appropriate department.

IMPORTANCE OF EARLY APPLICATION

Anyone intending to undertake building or constructional operations for which consent is necessary under the Regulation, should apply *at the earliest possible date.* Failure to do this may involve wastage of time and labour, or postponement or alteration of plans.

WORK ALREADY IN PROGRESS

In the case of building or constructional operations already in progress on October 7th, 1940, and of which the estimated cost of completion exceeds £500, application for consent to continue must be made not later than *October 21st*, 1940. See Section 6 of the explanatory Memorandum.

NOTE: Failure to make due application for consent in cases where consent is necessary, will constitute an offence under the Defence (General) Regulations 1939.

ISSUED BY H. M. OFFICE OF WORKS

occur along the valleys between arches. Clearly this method has great advantages over Type 1 in allowing freedom of planning. For convenience of building we propose to form the arches of pre-fabricated curved units 1 ft. 9 in. or 3 ft. 6 in. wide over a 7-ft. span, resting on precast beams 14 ft. long and so forming a structural bay 14 ft. by 7 ft. The curved units are of gypsum plaster 1 in. thick with a small stiffening rib, and they and the beams are lightly reinforced with wood splines or other fibres. The beams are hollow, cast in two parts and grouted together on the site. The extreme thinness and lightness of the roof units is characteristic of plaster. We found that a heavy man could walk and move about on the top of the experimental bay which we had constructed.* In this bay the curved units and precast beams were simply grouted together on the site. The beams could have been made with an indented edge so that the curved units could be grouted into them more thoroughly, making a closer approximation to a monolithic structure. In our sample bay this was not done.

There are possibilities of waterproofing the units of this system by dipping in resin or painting so that a separate weather-proof covering would be unnecessary. The units have great fire resistance and by their form can be stacked closely so that transport is easy. At a later stage the standard of heat insulation can be improved by ceiling the rooms with fibre-boards, etc., which can be nailed direct to the plaster. All units in this structural system are light, easy to handle, quickly made from plaster formwork, quickly built, strong and cheap. The type of labour required, partially skilled but mainly unskilled plasterers, is at present available.

(e) *Windows.*—Despite present stocks of standard metal windows, for a programme such as ours alternatives to metal or wood windows would be necessary. The problem of window design is simple for fixed lights. The window type must, of course, be related to the type of walling and structural method. We suggest that the most suitable materials for window frames are precast concrete moulded plaster, or slate. These frames will be standardized to suitable overall sizes, and will be sufficiently strengthened by sub-divisions to permit pre-fabrication and easy transport to the site. Fixed glazing will be puttied in on the site. Glass bricks should be used for fixed lights in bedrooms. As much of the window space as possible should be of this kind, separate louvred ventilators being provided where necessary. Opening window lights can be formed of unframed toughened glass sheets sliding on fibre runners set into the frame. A further method of arranging opening lights with a minimum of metal or wood is by vertical or horizontal pivoted units, each fitting directly into the fixed frames.

(f) *Doors.*—A satisfactory door of peacetime standards has not yet been constructed without the use of timber or steel, but for our building programme some temporary expedients are possible. For some positions a curtain alone would do. In other positions glazed doors with a hardwood frame could be used, or else doors of fully compressed asbestos-cement sheeting with or without a backing of insulation board.

Economy in Finish and Equipment

The production of the building shell is our first consideration since it provides shelter for the children. We have discussed above ways of providing floors, walls, roof, windows and doors. In view of the urgency of the situation a great amount of work on internal finishing and equipment could be left over for a more suitable time. The main savings in this way are as follows :—

(*a*) Omission of internal wall plastering.
(*b*) Reduction of painted areas.
(*c*) Temporary floor finishes (such as grano to take lino later).
(*d*) Coal fires in main rooms pending central heating installation.

And until the third building stage :—

(*e*) Oil lamps in place of electric light.
(*f*) The use of pots for all children instead of proper w.c. equipment.
(*g*) The use of bowls and portable baths for washing instead of glazed earthenware lavatory basins and normal baths.
(*h*) Saving on plumbing and water supply due to (*f*) and (*g*).

* An experimental bay was constructed for us by Messrs. Gilbert Seale on April 9, 1940, at their workshops, 22 Lomond Grove, Camberwell, S.E.5.

BUILDING DESIGNS

The type designs reproduced on pages 267–268 of this issue illustrate the A.A.S.T.A.'s main recommendations. They have been designed by individual members of the Committee and represent their particular architectural views. While the constructional method adopted by the designers for each building type has been chosen as the most appropriate, there are obviously many alternative applications. All the designs have been drawn by Birkin Haward, A.R.I.B.A.

ANNOUNCEMENT

Mr. W. David Hartley, F.R.I.B.A., of 14 Mackenzie Street, Slough, has closed his practice for the duration of the war.

THE BUILDINGS ILLUSTRATED

ST. DIONIS HALL, E.C. (pages 273-6). Architects : Tatchell and Wilson. General contractors were Ashby and Horner Ltd. Quantity surveyors : Young and Brown. Sub-contractors and suppliers included : Jacob White & Co., Ltd., electric light and power installations ; Durbin and Sons, central and domestic heating, sanitary plumbing and drainage ; C. E. Welstead, Ltd., steel casements ; Fenning & Co., Ltd., terrazzo floor, staircase and dadoes ; Martin Van Straaten & Co., wall tiling and terrazzo floors and divisions ; Gas Light and Coke Co., Ltd., gas boilers and heaters ; Yannedis & Co., Ltd., door furniture ; Roberts Adlard & Co., Ltd., hand-made Italian tiles ; H. and C. Davis & Co., Ltd., fire escapes and staircases ; Bratt Colbran & Co., Ltd., grate and interior ; Thomas Lawrence and Sons, facing bricks ; Smith Walker, Ltd., constructional steelwork; Murray and Jones, Ltd., paint and distemper.

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HOUSE AT NUFFIELD (pages 279-280). General contractor was Ernest Callis. Sub-contractors and suppliers included Sussex Electricity Co., Ltd., electric wiring and equipment ; Shanks & Co., Ltd., sanitary fittings ; Carter & Co., Ltd., tiles to windows, etc. ; Cork Insulation Co., Ltd., flooring, insulation ; Thermacoust Products, Ltd., ceilings ; James Gibbons, Ltd., door furniture and locks ; Henry Hope and Sons, Ltd., windows ; Knap Hill Nursery, Ltd. ; garden planting and shrubs ; Edward Stanford, Ltd., maps ; Stonehenge Brick Co., Ltd., bricks ; Jones' Slagwool Blanket Co., insulation ; Art Pavements and Decorations, Ltd., travertine paving.