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THE ARCHITECTS' JOURNAL

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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, DECEMBER 7, 1939. NUMBER 2342 : VOLUME 90

PRINCIPAL CONTENTS

MODERNISTIC

A drawing illustrating recent interior design from "Homes, Sweet Homes."

"The foundation was provided by that Jazz style that enjoyed a mercifully brief period of popularity in the immediate post-Versailles period . . . Gramophones masquerade as cocktail cabinets, cocktail cabinets as book-cases, radios lurk in tea-caddies—nothing is what it seems."

"Homes, Sweet Homes" is reviewed by Astragal on p. 674.

CURZON ST. BAROQUE

Another drawing from "Homes, Sweet Homes" by Osbert Lancaster, illustrating one of the less known post-war styles of interior design.

". . . Innumerable pieces of hand-painted furniture from Venice and a surprisingly abundant supply of suspicious Canalettos. At the same time a markedly ecclesiastical note is struck by forests of twisted baroque candlesticks . . "

"Homes, Sweet Homes" is reviewed by Astragal on p. 674.

RESERVED FOR WHAT?

UNITED ACTION—AND A COMPLETE SCHEME

WHEN the first unavoidable confusion cleared away after the outbreak of war two facts became more and more plain to architects. First, that beyond an idea that architects would be needed after towns had been bombed to bits, the Government had no idea how to use the profession in war time. Second, that a great many Government Departments thought that all the activities of the building industry could be turned off like a tap, leaving Service Departments to pick and choose for their own jobs among the materials thus freed.

To the country in general the second attitude of the Government was the important one. It was a correct attitude. The building industry CAN be turned off like a tap. But whether it can also be turned ON like a tap in a year's time—either to deal with the results of serious air raids, or with a much larger programme of war building—is quite another matter. It obviously cannot. And this the various Departments (none of which is responsible for the building industry) did not spot.

Architects have now joined with the industry in drawing this matter to the attention of Authority. Together they can show the distress caused to an industry of two million people, the economic effects of the stoppage of work, and the danger of a dislocated industry when serious air raids start.

But if present methods are to be changed and the independence of Departmental building activities modified, the industry must have a better scheme, and a complete scheme, to advocate instead—and not rest content with a soft answer to a catalogue of grievances.

In the article below the JOURNAL lists the points which must be thought of in preparing this complete scheme.

IT has been argued in the last two issues of the JOURNAL that there is only one way for any appreciable number of architects to obtain the war work they would do best. And that way is *not* to look where architects can be fitted in, *not* to suggest buildings which would be well worth continuing (hundreds though there are), but to help to reconcile the quick execution of all buildings for war purposes with the smallest dislocation of the present organization of the building industry.

The important words in this first aim are " the present organization." It is unavoidable that laymen, in allocating war contracts, should tend to imagine a twentieth part of the building industry supplied with *all* materials, working in three shifts and turning out endless streams of aerodromes all built of the easiest materials.

The fault in this picture is that the other nineteen-twentieths of the industry must continue to live ; and at least half of them must continue to build—if serious air raids in a year's time are not to mean complete defeat.

Because of this necessity, present war contracts must be spread through as many building firms, and as many materials, as can be made compatible with the required speed.

Architects, just now, may agree with this necessity, but feel hopeless of doing anything about it. It can easily be maintained, with lazy loyalty, that the Government must decide such large matters—that, at times like this, statisticians, economists and so on may make calculations, but that the whole question is too complex, the need too urgent, to allow theories to be tried out. Such an attitude among one or other sections of the industry is the only serious obstacle to obtaining a proper allocation of war work—and it is an entirely wrong attitude. The building industry is large and complex, but that does not mean that well-distributed war-time building is massively complex. In all main points it is, on the contrary, child's-play.

Consider for a moment the chief obstacle to this good distribution outside the industry. He is loyal, zealous and just now working very hard. He is charged, let us say, with building ten aerodromes, each with barracks and all subsidiary buildings, at £500,000 apiece.

Before the war he used to get tenders for brick, concrete and steel buildings from a few big builders. Now he has only one duty—to get those ten schemes built. He does not care a straw what happens to Admiralty buildings, A.R.P. shelters in Liverpool or the building industry in general. He hears materials are controlled ; and has every incentive to exaggerate, and none to understate, the urgency of his own schemes. His technical advisors tell him that timber, asbestos-cement and a little steel are the quickest materials. His instructions to them are to get those materials at all costs, to give a well-known contractor old plans and get ahead.

By doing these correct actions he has also torpedoed those sections of the industry engaged on less important work. For by his using 70 per cent. timber in his schemes (and by others like him doing the same) the usual 20 per cent. timber is not available for the buildings of the rest of the industry. But that means nothing to him.

His buildings, of course, may indeed be vitally urgent. But no one is charged with deciding *how* vitally

RESERVED FOR WHAT?

(*Continued from previous page*)

urgent, compared with a dock here and an arsenal there.

The building industry, and architects, realize that a first scramble was inevitable. But this war is to be planned for a duration of at least three years, in which many buildings will be needed. If someone looks ahead and prepares a programme for the next year, all important materials can be used, and a large proportion of builders and allied professions can execute the works on time, without interfering with the necessary organization — and believe us the organization *is* necessary—against air attack. If no one looks ahead *now*, the hand-to-mouth scramble will continue ; a tenth of the industry will in a year be bursting with work in whatever materials are handy ; and nine-tenths will be starved out of existence.

In previous articles* we outlined some first steps to stop the present scramble that might be taken by the whole industry. And for some time the industry has been preparing for united action through the Building Industries National Council.

Let us consider the stages of this united action :

The industry, united, will certainly command attention. Its size and economic importance will ensure that. But it must command sustained attention: for, however convincing evidence of distress and muddle may be, that alone may not be enough to convince the Government that a Service Department should not be the judge of how urgent its own contracts are.

The industry must put forward a scheme which, in outline at least, is complete and convincing. The first two points of any such scheme must be the preparation of an approximate programme of all war works for 1940; and the arrangement of these works in an order of urgency which will be adhered to. But these two do not ensure any change in the present scramble, nor do they insure that war works will be better distributed through both building firms and materials.

To achieve this better distribution—the whole object of united action — the industry's scheme must also contain four other points, and describe how they could be carried out.

It must provide for an examination of all materials, or combinations of materials, which could be used for war buildings of varying degrees of urgency. It must provide for a comparison of these materials with the proportions in which they are now produced or imported; and with the proportions in which they could be produced after periods of, say, 6, 12 and 18 months.

It must provide for a study of how many units of war building schemes are repetitive or multi-purpose, and the extent to which units like huts or hangars can be standardized in different materials and used according to the urgency of particular schemes.

It must provide for a distribution of contracts so that firms of good standing in the neighbourhood of the various sites should have first preference; with the object that as soon as possible at least ten firms in each county should have enough work to keep their plant and employees in good order.

Lastly, the industry's scheme should provide for a continuous review of the state of all sections of the industry, together with their plant and stores, in each area—so that if lack of work threatens the ability of the industry to repair serious air-raid damage, a minimum number of public works contracts can be placed to keep it going.

The preparation of a scheme which would provide for these things may take the industry longer than a memorandum of present distress and present muddle. But, by preparing it, the building industry would make sure that one convincing remedy for building distress had been prepared by builders. The Government could accept it or not, but would at least not be left with a catalogue of mistakes for which, while sadly overworked, it had to try to find remedies by itself.

* Summarized on page 673.

RESERVED FOR WHAT?

THE PRESENT POSITION

THE JOURNAL reprints below, in shortened form, the outline of the present position of the building industry which appeared in its issues for November 23 and 30.

ARCHITECTS

It is probable that 10,000 architects and assistants want work now and that about 15,000 will need work badly within six months.

It is unlikely that more than 1,500 architects and students will be absorbed in the Services during the next year. At present it seems probable that 50 special, and 250 junior, jobs will be all that will be obtained through the National Register in the next year—if not the next two years.

THE BUILDING INDUSTRY

The gross value of all works executed by the building industry in the year ending September 3, 1939, was about £600,000,000. The value of work on buildings (including repair and maintenance) was about £400,000,000.

The number of insured persons in the building industry in July, 1938, was : 1,424,870.

Adding to this figure the persons employed in wholly dependent industries, and one-third of those in partly dependent industries, the total becomes : 2,372,880.

Since this figure does not include the allied professions or anyone in the building industry earning more than £5 a week, it is probable that the total number employed in, or dependent on, the industry is TWO AND A HALF MILLIONS.

There are 48,000 building and contracting firms which employ more than 10 persons. There are about 2,000 which employ more than 100.

It is important, from the viewpoint of the country's economic strength, that so big an industry should be kept reasonably well employed.

It is vital for the industry's present organization to be kept up to a minimum strength in order to be ready for the unknown consequences of heavy air raids.

To retain this strength the industry needs work. And since peace-time volumes of work are unavoidably and greatly reduced in war-time, it is doubly important that all building work which does go on in war-time should be carefully and widely spread through building firms and manufacturers of common materials.

So far this has not been done, and unless the industry itself moves in the matter it is not likely to be done.

So far—no Government department is responsible for the welfare of the whole industry, and the Government does not appear to realize the economic results of grave distress in an industry of two millions. Service departments are scrambling for preference in building works by secretive methods. No attempt seems to have been made to lay down an order of urgency for present, or a programme of future, works. Timber and other easy materials are being strictly controlled, with little thought of the dislocation caused thereby to the general organization of the industry and with no attention given to using materials in the proportions in which they are now produced.

The first duty of architects, in these circumstances, is to join with the rest of the industry in persuading the Government to make a BALANCED USE of the industry as it now exists.

To achieve such a balanced use the following steps seem unavoidable :

1. The setting up of a small Committee which has power to act on behalf of the whole industry and its allied professions.*

2. The issue by this Committee of a statement showing the volume of work now held up and the need for keeping the industry at adequate strength.

3. A request by the Committee to the Government that an order of urgency should be established for all building works ; and an approximate programme prepared for the next year.

4. A request that the possibilities of standardization of *some* building types in all common materials should be examined.

5. A request that the allocation of all war building works, control of materials, and responsibility both for their completion and for the welfare of the whole industry should be vested in a Committee of the industry, which would be responsible to and work with a Minister possessing absolute authority to decide the relative urgency of building requirements.

* Through representation on the Building Industries National Council of all sections of the industry, this Committee is already in being.

WHAT ARCHITECTS HAVE DONE SO FAR

THE JOURNAL has tried to state the case for architects preparing an answer to Reserved for What ? *in close collaboration with the rest of the building industry. But since the outbreak of war the profession has, of course, made attempts to find a partial answer for architects alone. Both individual architects and the R.I.B.A. have tried, as was right, to encourage the employment of architects direct ; and a review of R.I.B.A. action both before and after the outbreak of war is contained in the "R.I.B.A. Journal" for November 20.*

Below we list the best-known appeals and representations which have been made since September 3 :

★ A letter in *The Times* by Mr. Murray Easton calling attention to the A.A. groups of architects formed to carry out work of any kind.

★ A letter in *The Times* by Sir Herbert Baker asking for continued employment of architects on cultural grounds.

★ A letter in *The Times* by Professor C. H. Reilly urging the employment of architects on war works in order to save money and secure greater efficiency.

★ A letter in *The Manchester Guardian* and other papers by the President, R.I.B.A., pointing out the necessity of record plans of buildings in case of air raid damage.

★ A letter to the Press from the Birmingham Society of Architects urging the continuance of proper maintenance and repair work in war-time.

★ Representations by the R.I.B.A. in order to secure a proper share of air raid damage valuation work for architects.

★ Various actions by the R.I.B.A. to increase the use, by local authorities and others, of the architectural sections of Regional Advisory Committees.

★ Representations and letters by the R.I.B.A. to Government Departments and individuals.

★ A letter by the R.I.B.A. to Mr. Herbert Morrison offering collaboration in rescue and demolition services.

These actions have not produced any considerable result. Chiefly, in the JOURNAL's *belief, because those in authority quite honestly do not see that architects can contribute anything to the efficient execution of building for war purposes.*

•

But the R.I.B.A. is also collaborating with Building Industries National Council in preparing to put the case of the whole industry before the Government. It will greatly strengthen the evidence for this case if all architects send in at once to B.I.N.C. the details of Stopped Work which are asked for on page 675.

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

NOTES & TOPICS

MR. YERBURY'S ATELIER

IN a letter to the architectural press, published on October 12, Mr. Yerbury suggested the formation of a war-time atelier, in which architects with time to spare could work together either on war building problems or research of other kinds.

*

The idea has received enough support to enable the atelier to open on December 11. Space has been provided at the Building Centre. A number of groups have been formed to study particular subjects. Any architect can take part in the work of an existing group, or organize an additional group.

*

The excellence of the atelier for those without enough work is unquestionable.

*

The question which is bound to crop up is whether there is any particular problem which—in present circumstances—ought to receive special attention at the atelier.

*

I think there is. I have mentioned it before in connection with this atelier: and the fact that, judging from the group programmes of which I have heard, no one seems to agree with me, is a very good reason for saying it again.

*

If there is anything probable about the future it is that present Government contracts for war buildings will increase in number. And it would obviously benefit the building industry if all principal building materials were used for these buildings instead of only a few of them.

*

Why then should not the Building Centre Atelier take up this question? The proportion of urgent building works that can be divided into standard types; the proportions in which suitable building materials are now produced; and the preparation of designs for repetitive units in *different* materials—these are things which must be discovered or prepared by someone, soon. It seems difficult to think of an organization better equipped for doing them than one of architects working at a Building Centre.

A.A.S.T.A. ON "ARCHITECTS AND THE WAR"

The A.A.S.T.A. issued last Monday what can only be called a vigorous manifesto, which criticizes severely the handling of the war-and-architects question by the R.I.B.A.

*

The indictment has three main heads: (1) That by complete subservience to the Government in pre-war days the Institute neither increased the profession's prestige nor even succeeded in doing anything for architects; (2) that the suspension of R.I.B.A. Committees, etc., is quite unjustified; (3) that when the R.I.B.A. emerged from a war retirement, its chief efforts were on behalf of the private practitioner.

*

The A.A.S.T.A. obtains from its average member about forty times the amount of hard work which has ever been obtained from an average member of the R.I.B.A. For that reason alone everything it says is given careful attention.

*

But at this precise moment it seems supremely necessary for architects—*all* architects—to concentrate their energies on the questions by which all stand or fall. A crisis is not a time for remedying all discoverable faults in a complex organization. It is not even a good time for ventilating them—as long as they don't stand in the way of doing what must be done first.

*

We are learning quickly that partisan claims for architects alone, as opposed to claims on behalf of the whole building industry, are useless just now. The A.A.S.T.A. manifesto puts forward claims for a subsection of a section of the industry—for assistants and official architects as against the private practitioner.

*

The grievances may have substantial foundation. But No. 1 job for architects is to get war contracts fairly and widely distributed through the building industry. No. 2 job is to decide and secure the position of architects in the war-time industry. Only No. 3 is the question of *which* architects and which assistants will be employed.

WHERE WE ALL ARE

Mr. Osbert Lancaster has chosen to pursue us into our homes just when defending them, and sitting in them, takes up more of our time than ever before.

*

Pillar to Post catalogued the exteriors of Englishmen's homes in an uncomfortable way; *Homes, Sweet Homes**

* *Homes, Sweet Homes.* By Osbert Lancaster. John Murray. Price 6s.

makes a tour of the insides which is lethal. Only a man of the most robust constitution can look at it in his own living-room without glancing shiftily about him, many times.

*

Homes, Sweet Homes shows the interiors of houses from "Norman" to "Still More Functional." But the first part—Norman to Regency—is really a straightforward tour of periods when local ability, or an accepted mode, controlled the appearance of all rooms worth recording. In this section Mr. Lancaster's greatest power—portraying the choices which we, or our immediate ancestors, made from a thousand possible choices—comes a little to grief. A savage with a wooden spear has, after all, done all he can do towards finding the suitable.

*

It is from *Le Style Rothschild* onwards that Mr. Lancaster becomes deadly. Nearly every memory of our youth can be fitted from *Homes, Sweet Homes* with a perfect setting; and in it are the surroundings in which the present generation find themselves—through wedding presents, indifference, love of expense, susceptibility to antique maps—or just choice.

*

The sitters for any caricaturist are there of course—*Aldwych Farcical, Functional, Stockbrokers' Tudor.* Mr. Lancaster touches the heights by pinning down the subtle ones as well. I commend *Anglican, Greenery Yallery, Diamond Jubilee*, and *Curzon St. Baroque.*

*

Christmas is less than three weeks away.

"... SUCH QUANTITIES OF SAND"

A photograph that appeared in these columns last week showed normal building materials being used for protection in place of the more common sandbag, a proceeding which seems to be as sensible as it is rare.

*

No one who violently reminded himself of the presence of muscles he'd forgotten he possessed, during the initial frenzy of sandbag filling, can view the condition of much of his labours now with anything other than horror.

*

If this war is to run even an appreciable part of its predicted three years, there is no doubt that the major portion of the present sandbaggery will have to be replaced by something more durable—if less martial-looking. When this takes place—to the joy of the building industry—it is at least to be hoped that timely services rendered in an emergency will not be forgotten, and that Hampstead Heath and Hyde Park will be put back where they belong.

RESERVED—FOR WHAT?

No. This is not a further reference to the plight of the Architectural Profession. It is the title of a full-page article in last Thursday's *Evening Standard* on the position of the British Film Industry and a general appeal to the Public to give their help in creating a sensible solution.

*

Commonsense policies are somewhat in demand just now, and one sympathises deeply with the sentiments expressed in the article. There is, however, a certain amount of consolatory satisfaction in knowing that, like Garbo, we are not alone.

ASTRAGAL

WAR and the PROFESSION

NOTICE ISSUED BY THE R.I.B.A.

• The Building Industries National Council, which represents all sections of the building industry, is preparing to bring the strongest possible pressure to bear on the Government to enable building to be resumed on a substantial scale, and it is preparing a case based on statistics of building actually stopped by the war, combined with statistics of materials and labour available for the resumption of building.

• In the meantime, it is of the utmost importance that the architectural profession should be in a position to show the actual facts of the situation as they affect the architect in private practice.

• It is essential when approaching the Government to give precise information as to how the practice of the majority of architects has actually stopped.

• It is proposed to remind the Treasury and other Government Departments that the work of architects and quantity surveyors preparatory to the resumption of building work takes many months.

• It is, therefore, important to know of all cases where working drawings as well as building operations have been stopped, so that Treasury sanction may be obtained to the preparation of drawings in advance of the resumption of work. In this connection the President of the R.I.B.A. has addressed a letter to the Presidents of the Allied Societies asking whether they would at once undertake the task of getting information in their provinces and sending it on to the R.I.B.A.

• It would also be helpful to have the experience of London members, and it is hoped, therefore, that London members will assist by sending in, as soon as possible, particulars as set forth in the following questionnaire.

1. *To what extent has your practice been reduced as a result of the war? (An approximate percentage should be given)* .. ..

2. *To what extent have you been compelled to reduce your staff?* .....

3. *For how long do you anticipate that you will be able to keep your present staff employed?* .. ..

4. *If the position does not improve—*
(a) *In the next six months,*
(b) *In the next year,*
will you be compelled to contemplate closing your office? .....

5. *Will you insert on a separate sheet short particulars as* pro forma *under?*

Nature of job	Whether public or private	Estimated cost	Amount spent	Whether working drawings made	Cause of stoppage	Remarks

Civil Defence is with us from now on. The technician's work won't be finished when basement strutting is complete and trenches are dug. In future every client will demand of his architect technical guidance on fire-fighting appliances, escapes, the equipment and construction of shelters, and planning for A.R.P. Thus not only emergency legislation but defence measures in general have become the permanent concern of the architect who is faced today with the problem of digesting a whole new official literature and solving a whole new series of problems. The INFORMATION CENTRE exists to simplify this task by providing expert opinion for any reader who cares to use the Service. Any question connected with building will be dealt with by the Centre.

ARCHITECTS' JOURNAL

EMERGENCY

INFORMATION CENTRE

If you have a problem which demands an expert answer send it to:—

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

or ring:

THE A.J. INFORMATION CENTRE
FLAXMAN 5322

The Information Centre itself is working from London, but enquiries sent direct to the JOURNAL *will be passed on without delay.*

These are typical of the questions we have already answered:

What are the relative costs of sandbagging and brickwork?

How is a gas-lock formed?

How is a factory protected from incendiary bombs?

Are footings necessary to walls sub-dividing basement shelters?

How is wood protected against liquid gases?

How are ventilated black-out window screens formed?

How is sandbagging rotproofed?

How much safer is a 20-ft. deep shelter than a semi-surface type?

How is a light-lock formed?

How should screen walls be arranged?

How is a basement shelter protected from bursting water mains?

What is the definition of a light-proof material?

What publications are there on farm buildings?

What would be the maximum spread of debris if an h.e. bomb hit a 330-ft. stack?

What publications are there on camouflage?

What protection is needed for light shafts?

What is adequate provision for a first aid and decontamination centre?

Is a 1938 contract binding?

Who is responsible for making good air-raid damage to unfixed materials?

What is the cost per head of gas filtration?

Under what obligation is a building owner to provide shelter for the occupants?

How is a leaking shelter waterproofed?

How will the grant be paid?

Are cinemas to be provided with shelters?

Can blast-proof doors be used for naturally ventilated shelters?

Q105 PERIVALE.—*I propose using a proprietary asphalt roofing on a domestic air raid shelter, but have been told this is not advisable as ASPHALT ABSORBS MUSTARD GAS. Is this so, and what do you advise me to do?*

Mustard gas and Lewisite are of an oily nature, and are readily absorbed by asphalt, the result being a tacky mass very difficult to decontaminate. You may do one of two things: either leave the concrete exposed, which is recommended in the Home Office publication "Directions for the Erection of Domestic Surface Shelters," or use a form of asphalt claimed by the manufacturers to be gas-proof, such as the Limmer and Trinidad Lake Asphalt Co.'s Anti-gasphalt.

Q106 STOKE POGES.—*I was interested in your reply to Q. 43 because, having had to close my offices owing to the war and to my partners and others of my staff leaving to join the forces, I wrote to the Town Rating Officer and asked if the Authority would consider reducing the rates payable upon my offices (which I own) in preference to my warehousing my furniture. I quote the reply I received: "... With regard to your covering letter, the appropriate Committee of this Council has considered the question of LIABILITY FOR RATES in cases similar to your own, and, whilst statutory beneficial occupation exists, rates are payable. The storing of furniture or the retention of premises for future use is beneficial occupation." I shall be obliged if you can inform me for the benefit of myself and, I expect, many of your subscribers, if this states the position correctly, and if you can tell me under what Statute this definition of "beneficial occupation" is to be found.*

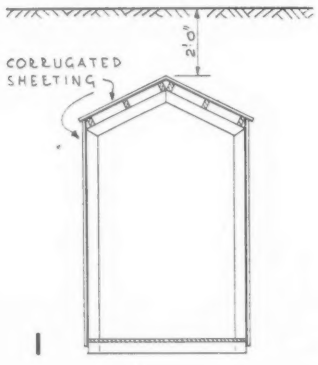
The liability for the payment of rates is based upon what is known as rateable occupation. There is no statutory definition of this, but there has been a number of judicial decisions as to what elements are necessary to establish rateable occupation. In order to constitute rateable occupation there must be a user and enjoyment of the property, which is capable of being beneficial to the ratepayer. "Beneficial occupation," of which there is no statutory or other definition, is therefore a test as to the liability for the payment of rates. We believe that certain rating authorities are claiming that there is "beneficial occupation" even if a ratepayer removes furniture, etc., from his house, so long as there is an intention to occupy or to return to occupation, and that consequently rates are payable where a property may have been evacuated and is not

Q107

" to let " or " for sale." We consider that too great a reliance should not be placed on this view, so that if a ratepayer removes all furniture and effects from his house " beneficial occupation " is not enjoyed and rates are not payable. In the past it is probably true to say that where a house was left unoccupied the rating authorities assumed that there was no " beneficial occupation," but in view of the changed circumstances they are now wishing to deal with the matter on strictly legal grounds.

Q107 SUTTON.—*I have been called in to inspect a TRENCH SHELTER (Fig. 1) where 4 in. by 2 in. timbers are used for lining frames. The roof has 4 × 2s at 3 ft. centres. The trench is 4 ft. wide. Wall lining and roof are 26 gauge galvanized corrugated steel sheeting. What depth of earth can safely be placed on the top?*

The 4 in. by 2 in. roof timbers can probably withstand a quite considerable load of earth provided they are raked; the corrugated steel is the weak point. 26 gauge corrugated steel is absolutely useless for shelter



1

purposes, because its static qualities are poor and because it corrodes very quickly. There should be at least 1 in. of concrete above, to protect the sheeting from moisture, but even then its carrying capacity is insufficient, and it cannot be assumed that the corrugated sheeting acts in conjunction with the concrete, as, for instance, dovetail sheeting would. The best solution would be to remove the corrugated sheeting and arrange 3 in. thick timber boarding above the frames. The boarding should be bitumen painted or creosoted, and should then be covered by 2 ft. of earth. Bitumen paper can be used instead of bitumen paint.

Q108 HAYWARDS HEATH. — *A very large number of families in suburban areas are discussing, somewhat unscientifically, the real value of a TRENCH SHELTER AS AGAINST A BARRICADED INNER COMPARTMENT in a house. If you can answer the following four questions you will help greatly to put these important discussions on a scientific basis.*

1. *At what distance from the explosion of a 500-kilo bomb can a well-built house in a reasonably open suburban area be considered safe from general structural collapse.*

2. *In a house of this type, at what distance can it be assumed that a 500-kilo bomb would burst without seriously affecting occupants taking shelter in a ground-floor inner compartment (i.e. surrounded on all sides by other rooms) and protected from direct blast by the equivalent of 9-in. surrounding walls?*

3. *How does the HOUSE protection described in Question 2 compare with an Anderson or typical pre-cast concrete TRENCH shelter 6 ft. below ground and covered with 18 in. of earth:*

(a) *as regards splinter protection;*
(b) *as regards concussion due to blast.*

(*Comparison on a basis of safe distance from explosion.*)

4. *Taking into account the possibility of a 500-kilo bomb exploding below ground, at what distance from the explosion could the occupants of a typical trench (Question 3) be considered safe from either concussion or collapse of structure due to earth shock?*

The answer to these questions must be vague, for two reasons:

A. While there may be such a thing as a typical suburban house, a typical 500-kilo bomb does not exist.

B. The explosion and effect of even two equal 500-kilo bombs can differ to such an extent that the term " reasonably safe " cannot mean 100 per cent. safe.

The difference in bombs lies mainly in the following items:

(*a*) The amount of explosive charge.
(*b*) The type of ignition.
(*c*) The shape and penetrative effect of the bomb.

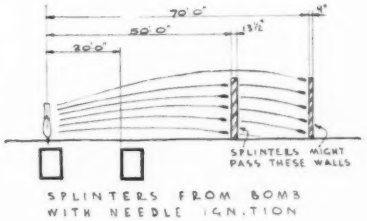
Of course, the explosive effects increase in proportion to the charge. In a 500-kilo bomb this may vary from 200 lbs. to 700 lbs.

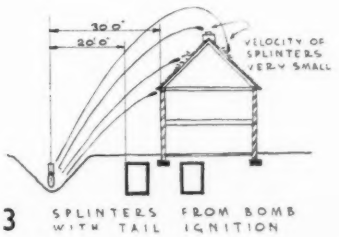
Bombs may be ignited in three different ways:

(i) By means of a needle, so that they explode before or when they come into contact with an obstacle.
(ii) By front ignition, so that they explode as soon as possible after contact with an obstacle.
(iii) By delayed action (tail) ignition, so that they explode a certain time after contact which would allow them to penetrate.

As bombs with a maximum charge have a smaller penetrative capacity, they will be ignited, generally, by the first or second method (instantaneous action), while those with a small charge would be used where deep penetration is required, and thus would be equipped with delayed ignition, but there may be exceptions. The first type of bomb will, in general, be the more dangerous for people and houses above ground. The second type will affect people in trenches more than in buildings. The third type is dangerous only within a circle of a very small radius, as far as buildings are concerned, but will be more destructive than either of the first two types where shelters are deep in the ground. It is very unlikely that bombs with ignition of the third type will be used against suburban areas as they are very expensive and, as a whole, less effective, so that probably they will only be used against military objectives. The following answers are based on the assumption that either of the first two types of ignition would be used, and that a maximum charge should be expected.

(1) A well-built, detached house of not more than two storeys, standing absolutely free, in an open field, will usually be safe against collapse if it is more than 200 ft. away from an explosion, although windows would be shattered and a certain amount of damage (falling roof tiles, gutters, chimney pots, etc.) would occur. (The actual radius of damage is proportional to the cube root of the weight of the charge.) Any shrubbery, trees or other buildings will reduce the area outside which the





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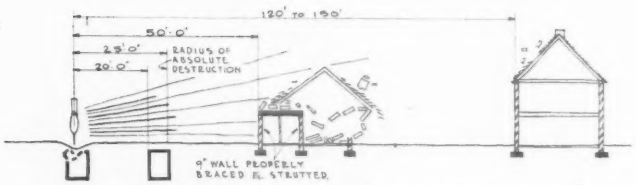
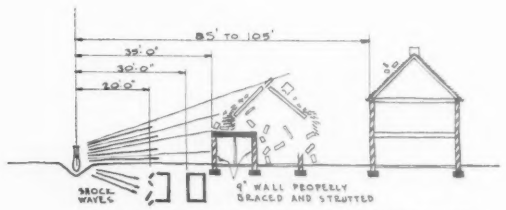
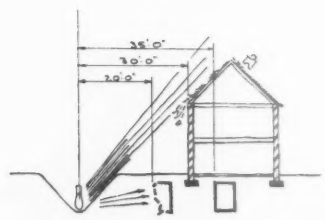


BLAST FROM BOMB WITH NEEDLE IGNITION 4



BLAST FROM BOMB WITH FRONT IGNITION 5



BLAST FROM BOMB WITH TAIL IGNITION 6

house can be considered safe, and in an average suburban area a radius of 120 ft. to 150 ft. might be considered as dangerous. The effect of an explosion on a semi-detached house is less if it does not occur opposite the front or back of the house. Terrace houses also will be more affected if an explosion takes place opposite the front or back, as the long front and back walls provide a particularly good resistance to bombs, in the direction of the terrace. These figures refer to well-built houses with at least 9-in. walls and properly anchored timber floors and roofs. The fact must be faced, however, that the majority of houses are not properly built, and there is nothing that will reveal the faults of a house more than a sudden shock. It is quite possible that badly built houses will be seriously damaged at a distance of even 400 ft. from an explosion, and, of course, no standard can be given as there is no standard of bad workmanship.

(2) If an inner compartment is properly strutted so that the collapse of the house would not affect the occupants of this compartment; if it has a ceiling in accordance with the standard of overhead protection given in the Code; and if it is protected on all sides by the uninterrupted equivalent* of 9-in. brick walls, it will in general be safe against the blast of a 500-kilo bomb bursting about 70 ft. away. A certain percentage of the fragments of such a bomb, however, may well be able to penetrate a 9-in. wall. It does not make a great difference whether the room is an inner compartment or not provided it is enclosed by a 9-in. wall. If it is, in fact, an inner compartment, and thus is surrounded by two lines of walling, which together are equivalent to at least 13½ in., the occupants would be immune against blast and splinters from a bomb bursting 40 to 50 ft. away. The official Government standard refers to 500-lb. bombs, equal to about 220 kilos; but while the standards given claim safety against blast and splinters at a distance of 50 ft., it can be assumed that they will also give safety, in the majority of cases, from an explosion at a distance of 30 ft. It must be remembered, however, that the danger to the occupants is increased if any of the above conditions are not fulfilled or if openings occur in the walls. (Timber sheeting for windows or doors is absolutely useless.)

(3) There is not the slightest doubt that a trench shelter, whether the Anderson, precast concrete or cast *in situ* type, is superior to shelters in ground floors. A bomb of type (i) (needle ignition) will not in general damage a shelter wholly underground, even if the bomb explodes as near as 20 ft. (figs. 2 and 4). With a bomb of type (ii) (front ignition), persons in underground trench shelters will be safe at a distance of 25 to 30 ft. from the explosion, while a house might collapse at this distance, and 9-in. walls give way to blast, apart from being pierced by splinters (fig. 5). A bomb of type (iii) (tail ignition) would not affect houses unless they were within a radius of 30 ft. (figs. 3 and 6). This type of bomb will rarely be used except for military objectives. As far as splinters are concerned, a shelter which is properly covered with earth can be considered safe if outside the confines of the crater.

(4) The effects of shock waves, due to a bomb bursting below ground, depend, to a large extent, on the nature of the ground. These effects will be much greater in chalk than in clay, and soft sand will offer the greatest resistance. On the other hand, the type of shelter lining is also important. Steel and concrete are both excellent materials for withstanding shock waves, but the thickness in which they are usually applied for shelter linings is not encouraging. It might be assumed, however, that 35 ft. will prove a safe radius, even under unfavourable conditions. By providing trench linings of greater thickness, this radius can be considerably diminished. For instance, if 15 in. thick r.c.† walls are used, the radius of danger areas will be approximately halved.

* *The brickwork has two functions: (1) to withstand immediate blast; (2) to stiffen the whole compartment. Materials replacing brickwork have to be equivalent in both respects. Large walls of sandbags, for instance, would fail in the second function.*

† *The degree of safety depends largely on the quality of concrete. The above figure is based on concrete of a crushing strength of 3,200 lb./in.² after four weeks with about 1 per cent. of reinforcement.*

INFORMATION CENTRE

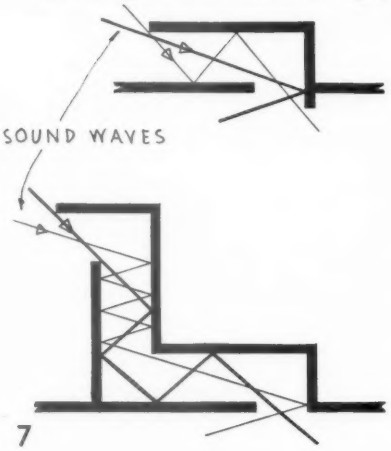
Q 109 S.W.19.—*Could you advise me as to the best means of BLACKING OUT a large skylight which provides practically the only daylight in a small factory. Blinds are impracticable owing to the height of the building. Is it possible to paint over the glass with a green paint or other suitable medium, thus allowing some filtration of daylight? Lights in the building are obscured with black shades.*

It will probably be best for you to paint the glass with blue varnish, so that you can then use amber lighting in the factory. Most paint manufacturers are able to advise on a suitable medium for the "blacking" out. The amber lighting should be screened so that it does not shine directly on the glass.

Q 110 OLDBURY.—*Are there regulations for keeping the NOISE OF ATTACK from people in shelters? I believe that*

noise was a great ordeal in the Spanish War.

There are no regulations, and the question of noise has not been properly considered. You are right in assuming that noise—anti-aircraft guns, bombs and the engines of aeroplanes—will, together, constitute an attack on the nerves of the people. This problem has been overlooked to such an extent that some shelters have been provided with special openings so that the "all-clear" signal shall not be missed. An architect who makes arrangements to decrease the noise will help the public to get through air raids in relative comfort. Noise can enter a shelter, to a certain extent, through the walls and ceiling, but the main transmission will be through the air itself. All properly constructed shelters will have either blast-proof doors or screen walls in front of openings. Both reduce the thunder of attack to some extent. In fact, if there is an overhead slab connecting them with the outer wall of the shelter, screen walls are more effective than doors. These arrangements cannot, however, be regarded as sufficient. Noise is reflected by the walls to such an extent that it enters the shelter with considerable volume. The arrangement as shown in Fig. 7



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would help considerably. Unfortunately, in this respect, walls and ceilings must not be insulated against noise, because any sound-insulating material also provides insulation against heat, and would increase ventilation problems. An air space in the walls and ceiling would be effective but expensive.

Q111 DUDLEY.—*In your issue of* THE ARCHITECTS' JOURNAL *for October 12, there appeared an article entitled "RESERVATION: WHAT IT REALLY MEANS." As an architect of over 30 and consequently reserved, I was interested to see that holding a commission in the Royal Engineers is deemed being employed professionally. I wonder if you can let me know where to obtain particulars of such commissions before an actual application is made? I shall be most grateful for any assistance you can give me in the matter.*

You should write to the Under-Secretary of State, The War Office, A.G.12, Whitehall, S.W.1, asking for a form of application for the Officers' Emergency Reserve, when you will receive an explanatory booklet as well as the form.

This is the fifth of a series of wartime articles which will deal with the problems that most closely concern architects at the time of publication.

RESEARCH

SHELTERS: 5

[BY FELIX J. SAMUELY]

(2) SHELTERS FOR EMPLOYEES—*(continued)*

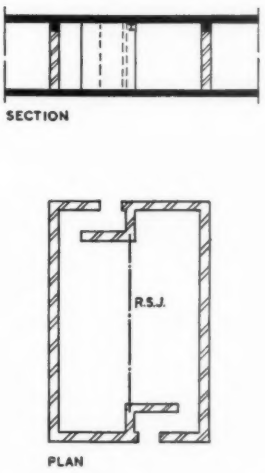
IT has already been mentioned that it is best to place external and division walls where they can be used for strutting slabs immediately without introducing beams. For instance, where existing slabs have a number of equal spans carried on joists and columns, and where the new total load (including debris load) is not more than twice the original one, it is a simple matter to introduce walls so that the provision of new beams and struts is avoided. Where such simple planning is impossible, it is still of advantage to have, as far as possible, joists directly supported by such walls, thus reducing the number of struts and piers to a minimum. Such walls, if new, are usually 13½-in. brick walls (heavier if division walls) which can carry a fairly substantial load, if this is well distributed. This load depends on the quality of the brickwork and the height of the wall.

In accordance with the Code, all brickwork is to be erected in cement mortar 1 : 3, or in cement lime mortar 2 : 1 : 9. This would be an unusually high percentage of cement for cement lime mortar (the usual mix being 1 : 2 : 9 for civil buildings); and as there is no particular advantage in using such a mix, the majority of builders prefer a pure cement mortar to a combination.

Mortar from hydrated lime, without cement, is not considered appropriate in the Code.

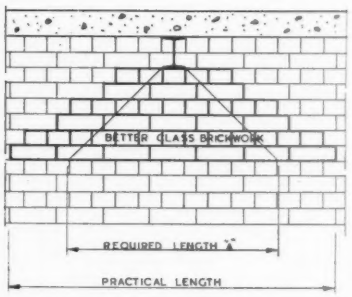
Where the sole function of a wall is to separate, cheap bricks will be sufficient; but where a load is to be carried, the strength of the wall must be calculated, and it is suggested that by using better class bricks than those actually required, the stability of the building can be increased with a small extra expenditure.

Entrances must often be arranged in a wall protected by screen walls, and it is frequently possible to effect savings in the construction by arranging these screen walls so that they also form a support for a strutting beam (*see* Fig. 41),



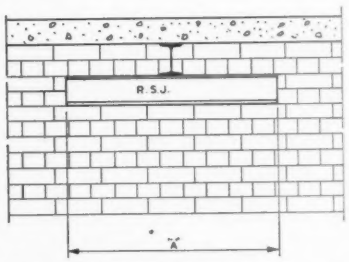
41 *Support of joist by screen wall.*

Every beam at its support conveys a concentrated load, and in many cases it will be found that the otherwise sufficient strength of a wall is too low at this point, and either a certain amount of better class brickwork, spread out so that lines drawn at an angle of 45 deg. (*see* Fig. 42) are nowhere interrupted by inferior brickwork, or distribution beams on top of the wall must be provided (Fig. 43).



42 *Better-class brickwork under beam.*

It would be a mistake to carry walls, serving as external or division walls, to the underside only of any cross beams. Such walls are to be carried right up to the floor considered to be the overhead protection. The proper fixing of the wall at the top sometimes causes difficulties, particularly if new sheeting is provided to carry the load (*see* THE ARCHITECTS' JOURNAL for November 30, page 652), which in itself is not overhead protection (*see* Fig. 44). In some cases



43 *R.S.J. as distribution beam in wall.*

it is also necessary to build a distribution beam into a brick wall and carry the several layers of bricks on top of it (Fig 43).

It is not only to safeguard occupants directly against blast and splinters that walls have to be carried up to the ceiling, as the parts more than 6 feet above the floor are not required in this respect; but a wall which is not held firmly at both top and bottom is more likely to collapse due to blast action than a properly secured wall. This does not exclude holes or openings being made in such walls (except where they form the outer boundary of a shelter), particularly where pipes pass through, and it is sometimes possible to reduce the thickness locally from 13½-in. to 9-in. (*see* Fig. 45).

Exterior walls should be free of any opening, the existence of which might not be realized if, at a later date, the shelter is designated as gas-proof.

Desirable as it may be, it is not always possible to dispense with struts altogether. Such struts may be from steel, timber, precast, cast in situ, or reinforced concrete or brickwork. Steel is preferable where space is important, and timber struts will generally be used in connection with timber beams, but sometimes the erection of a brick pier will lead to an economical construction, and usually allows greater stiffness of connection to the beam. Reinforced concrete struts are applicable where an entirely new ceiling and beams are both cast from reinforced concrete, so that one process embraces overhead construction as well as struts.

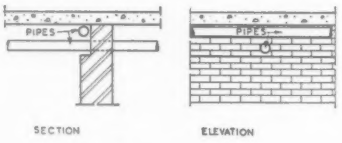
It is clearly stated in the Code that the construction of shelters should be in accordance with the byelaws of the Ministry of Health or the London County Council, and this obviously means that the standard of such constructions should, in every respect, be similar to the standard of ordinary everyday work, and that no constructions will be permitted which would not, in the ordinary way, be passed by local authorities. This is reasonable when it is considered that the ceiling of a shelter is meant to withstand considerable dynamic force if the building collapses, forces which are not visualized in normal buildings.

Where timber struts are used, it is imperative that they should be connected with the beams by means of haunches to form frame constructions. Wherever possible, struts should also be connected between themselves by cross diagonals, but this may often mean a reduction of space. Groups of double struts connected by diagonals, which can be so placed that they will not interfere with the use of the room, often constitute quite a reasonable construction. Fig. 46 shows a shelter compartment 14 ft. by 25 ft., where the struts have been so arranged that the diagonals form no obstructions, the seats being arranged accordingly.

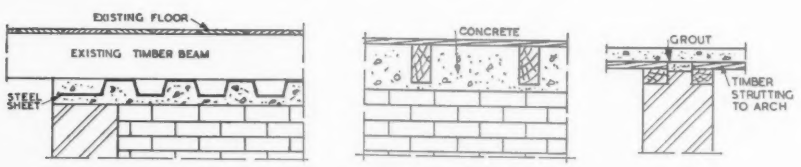
It is usual, in ordinary steel construction, to have a connection with a certain stiffness between the beams and struts. For this reason, a construction in accordance with Fig. 47 is preferable to that shown in Fig. 48, although the first type involves considerably more labour. No doubt the more complicated construction is required where the connection between beam and column is the only safeguard against side movement, especially where no basement is available and the shelter is planned in the ground floor of a building.

In basements with solid floors over, which in themselves provide a considerable horizontal stiffness, it is not so necessary to connect beams and column rigidly.

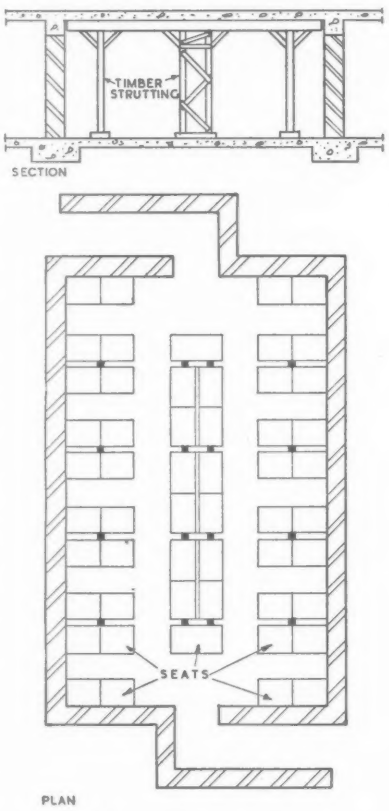
The base of a column, also, should be in accordance with usual requirements. There is no reason why steel columns should not be of round tubular section, but the connections of such struts which are used for temporary scaffolding



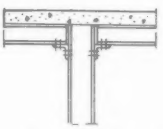
45 *Recess for pipes.*



44 *Finish of wall under timber boarding.*

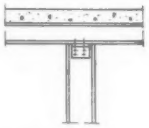


46 *Timber strutting.*



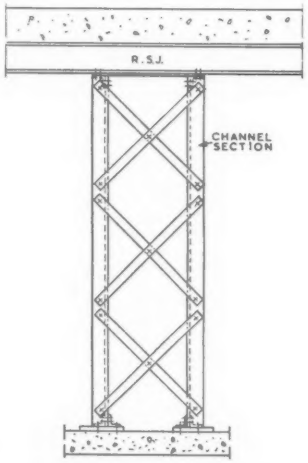
47 *Column head giving rigidity.*

should not be allowed in permanent strutting. Fig. 49 shows steel columns



48 *Pinned column head.*

connected by diagonals. Such columns arranged in a similar manner to the timber construction shown in Fig. 46



49 *Double steel column.*

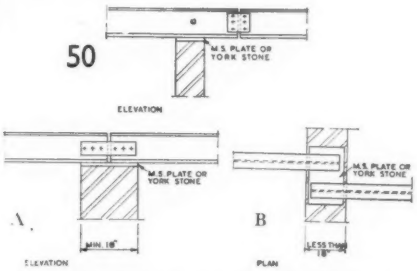
are recommended where stiffness is of particular importance: for instance, in basements partly over the ground and covered by timber floors which, in themselves, do not provide rigidity.

Brick piers can be 9 in. by 9 in. in basements that are not higher than 9 ft., otherwise they have to be 13½ in. by 13½ in., but their dimensions must, of course, depend on the load for which they are designed. Where space is not limited, 13½ in. by 13½ in. piers are recommended, even where smaller piers would statically be sufficient in order to allow joists to be properly embedded into the brickwork so that a certain amount of rigidity can be relied upon. The brickwork for such piers is governed by the same regulations as that for walls, and it will usually be convenient to use the same type of bricks throughout.

The problem which frequently arises with brick piers is that of properly placing the joists so that the load will really be central.

Where such a joist is continuous over a pier, the line of joist should be centrally arranged (Fig. 50). In other cases (Fig. 51, A) two joists will rest on a pier, and these joists should not butt against each other unless the pier is at least 18½ in. thick in one direction, thus allowing 9 in. of support for each of the joists, but be side by side (Fig. 51, B) at equal distances from the centre line. Thus a practically central arrangement is provided and labour is reduced.

One of the great advantages of using brick piers is that the joists need not be handled in any workshop in order to be cut to exact lengths, and this allows them to be delivered much quicker than if preparations were made for a proper steel construction. Reinforced concrete columns will be used only where an entirely new construction of ceiling, piers and columns is to be carried out. In



51 *Various types of support for joists on piers.*

such cases, the size of the columns will usually not be larger than 8 in. by 8 in., and will be determined in the ordinary way.

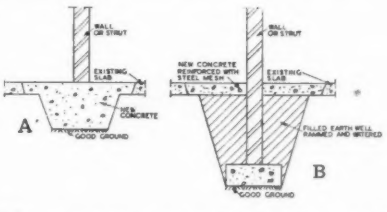
Foundations for new walls, piers and struts are often treated lightly, but it is just as important for a load-bearing pier, etc., to be properly supported as it is for a beam to rest on a pier.

Frequently, particularly in basements, the existing ground covering slab rests on sufficiently good ground to allow the strutting members to rest on it, but this can by no means be taken for granted. In fact, where ground floors are concerned it is extremely unlikely that the quality of the ground is sufficient and very often the good ground will be much deeper than even the basement floor.

Unless precise drawings and reports regarding the construction of the building are available, there is only one way of ascertaining the nature of the ground and that is to make trial holes in the floor. This will not present difficulties unless the basement is tanked and water pressure exerted at the bottom so that the cutting of the hole would endanger the basement.

In all other cases, two types of foundations are possible :—

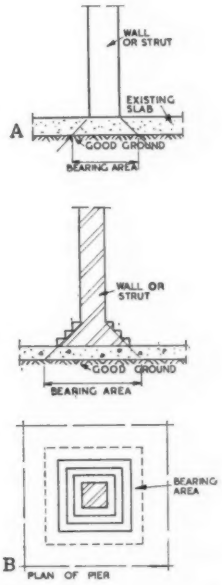
(1) A new footing (*see* Fig. 52), particularly where good ground is found



52 *Foundation at various depths under ground slab.*

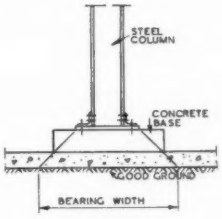
to be at a deeper level than the floor or where this floor proves to be suspended.

(2) To use the floor, if reasonably good ground is found immediately below and if the existing floor is not laid on hard core, which cannot be considered suitable for the distribution of stresses. In this case either a wall, pier or strut may rest directly on the floor (Fig. 53A) or a distribution footing may be arranged on top of the floor. (Fig. 53, A and B.)



53 *Wall resting on ground flat.*

Which of these two possibilities is to be employed will depend on the load and the stress capacity of the ground. The load may be distributed over an area which is found by drawing a line at 45° to the horizontal through the edge of the pier base, and it is evident that this area can be increased

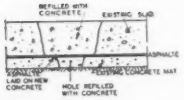


54 *Column pier or wall with footing on ground flat.*

by adopting the method shown in Fig. 54 compared with that in Fig. 53.

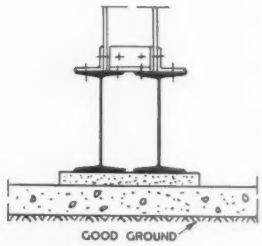
Where, by chance, an existing floor slab is suitably reinforced, the load may be distributed over a much larger area, but this will not happen very often.

Where a basement is found to be tanked while there is no immediate danger of water when the construction of the shelter is carried out, a hole can be made



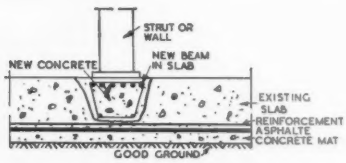
55 *Trial hole in tank basement slab.*

in the floor as shown in Fig. 55 which would allow for the repairing of the tanking after the ground has been examined. This procedure is impossible, of course, if there is danger of water coming through the hole. In such instances the designer must use his own judgment to determine the value of the existing floor slab. Tanked floors are frequently of reinforced concrete, and in the majority of cases they will be



56 *Column on distribution joist.*

found to be sufficient to distribute the loads. Where this is not the case, it is possible to provide a beam on top of the slab (Fig. 56), or sunk into the slab

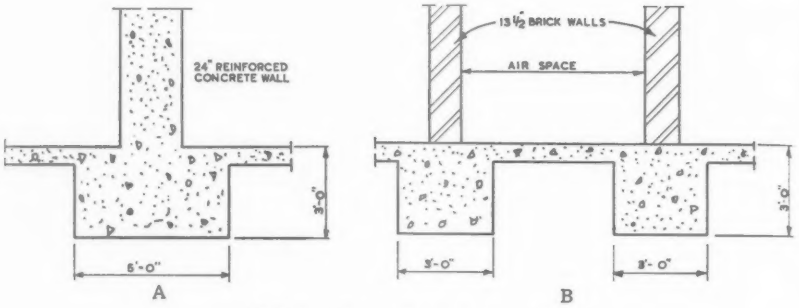


57 *Distribution beam hidden in existing slab.*

(Fig. 57) which would bring any new loads to the existing foundations.

For walls which merely serve as external boundaries to shelters, the above requirements may be waived, as even on bad ground floor slabs will usually be able to carry the weight of one-storey walls.

Special attention, however, must be given to division walls. The function of such walls is to localize the effects of bombs which might hit one compartment of a shelter. A bomb which explodes in a shelter, or which penetrates into the floor under the shelter before exploding, will cause shock waves in the ground which will communicate themselves to the adjoining compartments and, unless a division wall has a substantial foundation, its whole effect will be cancelled. It is suggested that such a foundation be not less than 3 ft. deep and 5 ft. wide (Fig. 58), and this will usually be effective, but an increase in the depth of foundations, where possible, will greatly add to the safety of the occupants.



58 *Foundation for division walls.*

Entrances and Exits

The remarks made on pages 596 to 598 of THE ARCHITECTS' JOURNAL for November 16, on entrances for public shelters are applicable for shelters for employees, where there is the possibility of applying them. It will often be necessary, however, to modify these applications.

If the shelter is in the building where the people work, it is imperative that a direct entrance be provided so that people need not leave the building to reach the shelter. Where shelters are outside, for instance in trenches, or where people find their shelter in a different building, it will be a definite advantage if they do not have to come into the open in order to reach it, particularly as the alarm might be given only when aeroplanes are already in the neighbourhood or when anti-aircraft guns have begun to fire. Where feasible, underground connections to the shelter should be provided.

As the question of gas-proofing might have to be considered later, such direct connections will have other advantages, too. If people who work inside the building can reach their shelter without going into the open, it might be reasonable to assume that precautions such as air locks, decontamination rooms, etc., are not necessary, and if the majority of people seek shelter under these conditions, the provision of decontamination will be made only for the few people who may come in from the open. On the other hand, no shelter without an air-lock or decontamination will be workable, if gas attacks take place, for the people who are exposed before entering the shelter.

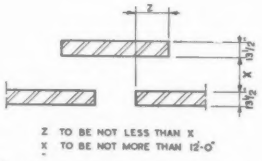
The question of doors is important and causes confusion in many minds. There are three types to be considered:

(1) Ordinary doors.

(2) Gas-proof doors.

(3) Blast-proof doors, which will usually also be gas-proof.

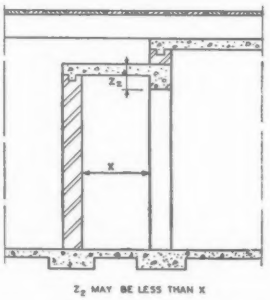
(1) *Ordinary doors* will be sufficient where the opening is protected by a screen wall of suitable dimensions and where there are no requirements to be observed for gas proofing, that is, for instance, between a compartment of a shelter and a corridor or between two compartments. A suitable screen wall is defined in the Code as one projecting over an opening in every direction for not less than the distance between the screen wall and the opening (*see* Fig. 59),



59 *Dimensions of screen wall.*

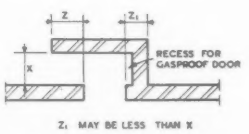
and this distance is to be not more than 12 ft. The designer will add to the safety of the occupants if he reduces this distance as much as possible. In Fig. 59 the space between opening and screen wall is just sufficient, but if the screen wall can be made longer than required it will certainly be of advantage.

It is clear, of course, that where there is a slab over, as in Fig. 60, or where an



60 *Area between screen and main wall covered by R.C. slab.*

end wall on one side joins a screen wall, as in Fig. 61, the screen wall can be correspondingly shorter on this side.



61 *One sided entrance.*

For an economical construction, as many existing walls as possible should be used for screening purposes. A corridor connecting several compartments has several advantages, one of which is that it furnishes a continuous screen wall (Fig. 62).

62 *Corridor forming screen wall.*

Where an opening is thus protected against blast and splinters, it might still be convenient to arrange a door to prevent people from entering unnecessarily, or to avoid draughts, etc. This type of door can be of ordinary construction and need not conform to any special requirements. Where a shelter relies upon natural ventilation the door is to be kept open during a prolonged stay.

Where a gas-proof door might be required at some later date, an ordinary door can be provided in the meantime capable of being converted whenever necessary.

(2) *Gas-proof doors.* There are no special constructional requirements for gas-proof doors except that—

(*a*) The frame must be constructed so that the door fits tightly, and

(*b*) The door must consist of a material that is not affected by changes of temperature or humidity, so that leakages cannot become possible.

Gas-proof doors can, therefore, be of timber as well as of steel, but where there is the possibility of persistent gas liquid reaching the outside of the door, a lining of steel is recommended. A number of materials have been suggested for purposes of tightening the fitting, but rubber seems to be the only one that will not deteriorate in time if there are persistent attacks with mustard gas.

(3) *Blast and splinter-proof doors.* It is just as well to realize that such doors are non-existent, and that nearly all so-called "blast- and splinter-proof" doors fall short of the protection required by the Code. It is stated there that 1½ in. of steel are required for lateral protection. A door 2 ft. 6 in. wide, 6 ft. high of 1½ in. steel would weigh 900 lb. without armature and frame, and this apart from the cost is the reason why a smaller thickness is chosen. Experiment has shown that plates of even 1½-in. steel are not quite equivalent to 13½-in. brick walls with regard to splinter proofing, and so-called "blast proof" doors, a name often given to doors $\frac{3}{16}$-in. thick, i.e. $\frac{1}{8}$th of the required thickness, are always the Achilles heel of a shelter.

For this reason, where possible, the arrangement of screen walls is preferable to blast-proof doors. Shelters frequently rely on natural ventilation through their entrances, and in such cases, of course, the arrangement of blast-proof doors is quite out of the question, as the door would have to be kept open and would, therefore, be useless. For similar reasons, the Code suggests that any openings between compartments which are not required for the normal passage of occupants, should be kept as small as possible, leaving just sufficient space for people to crawl through. Where such openings are properly sheltered by screen walls, these requirements would probably be waived.

Emergency Exits

For large shelters, the same policy as set out for public shelters should be adopted. A more lenient point of view might be taken, however, in shelters for a small number of employees. One point, however, must always be kept in mind. Namely, if when a building collapses a shelter remains intact but all entrances and emergency exits are buried under the debris, they have failed in their purpose. The author has seen more than one shelter construction with excellent emergency exits into the open, which on further examination have shown the connection from the shelter to the emergency exit to be absolutely inadequate. Fig. 63 shows such a case, and a designer cannot be warned too strongly against such an arrangement.

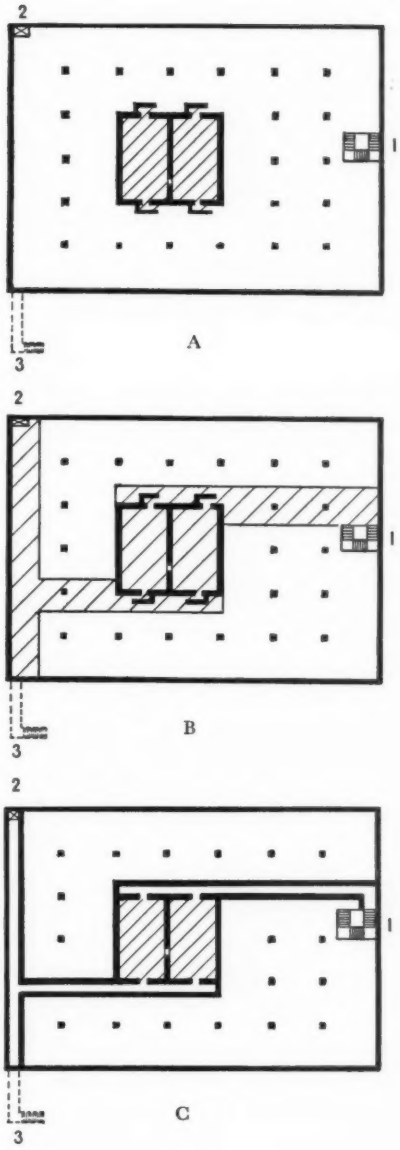
Where, as in Fig. 63, A, a shelter is in the centre of a basement and the emergency exits are at the edge, a corridor connection is necessary, and even if this connection is not protected against blast and splinters, it must be so strutted that debris, due to the collapse of the building, cannot block the passage (*see* Fig. 63, B).

Such passages for emergency exits must be protected against fire, and if there is any danger due to inflammable construction, stored inflammable goods or bursting of gas pipes, which might lead to a fire in a basement following the collapse of a building, such a passage would have to be protected by a fire-resisting construction (*see* Fig. 63, C).

Services Passing Shelters

It is clear that in shelters for employees, the same care cannot be observed in avoiding pipes as in public shelters where a wider choice of site is possible. However, gas pipes in particular should be avoided or separated from shelters by 13½-in. brick walls. As mentioned before, such gas pipes should be isolated if they are between the shelter and the emergency exit.

Other arrangements, as described on page 575 of THE ARCHITECTS' JOURNAL for November 9, for instance stop cocks in water pipes, will find a reasonable application.



63 *Connection of shelter with emergency exit. 1, 2 and 3 represent emergency exits; shaded area to be strutted.*

Services in Shelters

The necessary services will depend to a large extent on whether or not decontamination centres and first-aid stations are provided or visualised for a later date.

There are no regulations governing the introduction of first-aid posts, but it seems reasonable to provide one where more than 300 people are concentrated.

Where neither decontamination nor first aid is provided, and where lavatories are of the chemical type, services refer to electricity only and the drainage of urinals, this latter mostly to underground tanks, unless the sewer is deep enough to allow of direct connection.

Ample electricity should be installed so that proper lighting and initial heating

is possible. Provision is to be made for emergency lighting (storage batteries) in the event of a breakdown in the main system.

Where artificial ventilation is considered, the ventilator would usually be driven by electricity and manual and pedal drive is to be left for emergencies.

Where natural ventilation is relied upon, it should never be forgotten that artificial ventilation and air filtration would have to be installed later if gas-proofing should become necessary, and it is an advantage to make provision for connections now.

More complicated services become essential if first aid and decontamination are provided. They will be similar to those described for public shelters on page 577 of THE ARCHITECTS' JOURNAL of November 16 and in Figure 20 in the same issue.

VENTILATION

The question of ventilation for shelters is very important, but unfortunately it has become a habit to assume sufficient natural ventilation where, in fact, it does not exist. It is, therefore, essential that the designer make arrangements for adequate natural ventilation, for if this is neglected the consequences will be serious.

In THE ARCHITECTS' JOURNAL of October 26 (Information Centre), on pages 519 and 520, the problem of ventilation was clearly set out, and therefore will not be repeated here.

Architectural Front

A.A.S.T.A.

A statement on the R.I.B.A. and the War has just been issued by the Association. This statement is discussed by Astragal on page 674.

HOUSING CENTRE

Following lectures arranged by the Centre at 13 Suffolk Street, S.W.1: December 12, "Advising the Citizen." By Mrs. MacIver. December 19, "Rent Policy in This War and the Last." By Dan Rider. January 2, "Housing Research in Stepney." By Max Lock, A.R.I.B.A.

AIR RAID PROTECTION INSTITUTE

Following papers will be read at general meetings of the Institute:—December 12: "A.R.P. in Catalonia." By R. Perera, Chief A.R.P. Engineer to the Government of Catalonia during the Spanish War. January 9: "Public Basement Shelters: Practical Experience in a Metropolitan Borough." By C. F. de Steiger, F.A.R.P.I. February 13: "The Design and Installation of Services in Shelters." By Norman Forster, F.A.R.P.I.

Above meetings will be held at 8 p.m. in Lecture Hall of the Royal Society of Arts, John Street, Adelphi, London, W.C.2. Non-members will be admitted on the introduction of members.

Informal Discussions (only members admitted)

Following informal discussions will be held in the Library of the Institute, 2 Millbank House, Wood Street, S.W.1, from 6 to 8 p.m.:—December 19: "The Use of Pre-stressed Concrete for Shelters." January 23: "Glass." February 27: Subject to be announced. (This will be of an administrative nature, and owing to the rapidly changing circumstances, it is considered advisable to defer selection of the subject until nearer the date.)

Annual general meeting will be held in the Library of the Institute on Tuesday, March 5, at 4.30 p.m.

Building Front

At outbreak of hostilities local authorities erected as quickly as possible temporary *SIGNS* indicating position of public air raid shelters and other premises which are being used for A.R.P. work.

Necessity for replacing these temporary signs with something of a more permanent character is all too apparent. In order to avoid the confusion that may result from local authorities adjacent to each other adopting different signs for one and the same purpose, the B.S.I., with the approval of the Home Office, has just issued Standard Specification in the BS/ARP series standardizing the size, form and other details for these signs. The drafting of the Standard has been undertaken under the ægis of a Joint Committee of the Illuminating Engineering Society and the Home Office (A.R.P. Department).

Directional and location signs have been standardized for the following: Air raid shelter; report and control centre; cleansing depot; wardens' post; fire station; auxiliary fire station; fire alarm; hospital; first-aid post; ambulance station; A.R.P. headquarters; police station. Copies of the Standard, BS/ARP 32, price 8d. each, post free, may be obtained from the offices of the British Standards Institution, 28 Victoria Street, S.W.1.

BELLING & CO.—Folder just issued illustrates and describes electric heating and cooking apparatus for A.R.P. and emergency purposes.

FERRO-CONCRETE AND STEEL STRUCTURES, LTD.—Big demand for special gas- and splinter-proof steel doors for air raid shelters. Doors are all-welded construction, built in $\frac{3}{8}$-in. plate and $\frac{1}{4}$-in. angle frames. The door incorporates several devices patented by the firm.

SKETCHLEY DYE WORKS.—Supplying Tectal for preservation of sandbags. Cost, $\frac{3}{4}$d. per bag. Tectal is a by-product of producer gas manufactured by South Mond Gas Co., and specially designed by late Dr. Ludwig Mond, with high germicidal, insecticidal and fungicidal properties. Recent test showed that untreated bags had lost 85 per cent. of their strength and bags treated with Tectal had lost only 2.3 per cent. of their strength.

ZINC ALLOY RUST-PROOFING CO.—Process of Sherardizing is being extended to the protection of light steel sections, which are replacing heavier material; in this way the cost of steel is being kept down. Sherardizing is being adopted for the protection of obscuration sections, steel partition framework, and ironmongery of all kinds used in connection with militia huts.

[*Mr. Philip Scholberg's notes on Equipment are held over from this issue.—Ed.*, A.J.]

LETTERS

SIR,—The outbreak of war has brought a very serious situation to the Architects' Benevolent Society.

There have already been new applications for the Society's help, from those whose livelihood has vanished, and it is certain there will be many more.

On the other hand, contributions are beginning to fall off, and this may mean that assistance must be withdrawn from many who are already on the brink of starvation.

This calamitous necessity can only be averted if all those architects who feel that perhaps they have not contributed as much as they might in the past, and all who have never contributed at all, will now make up for lost time.

In a letter received recently by the A.B.S., from one who had not previously subscribed, the writer said:

"I feel that at this difficult time there must be many who are in a less fortunate position than myself, so am enclosing a cheque."

A letter like this puts new hope into those who work for the Society that it may still be possible to bring relief to all those who so sorely need it.

Who will follow this example and lend a hand to their fellow architects in need, and the widows and orphans who look to the Society for the barest necessities?

E. STANLEY HALL,
President, Architects' Benevolent Society.

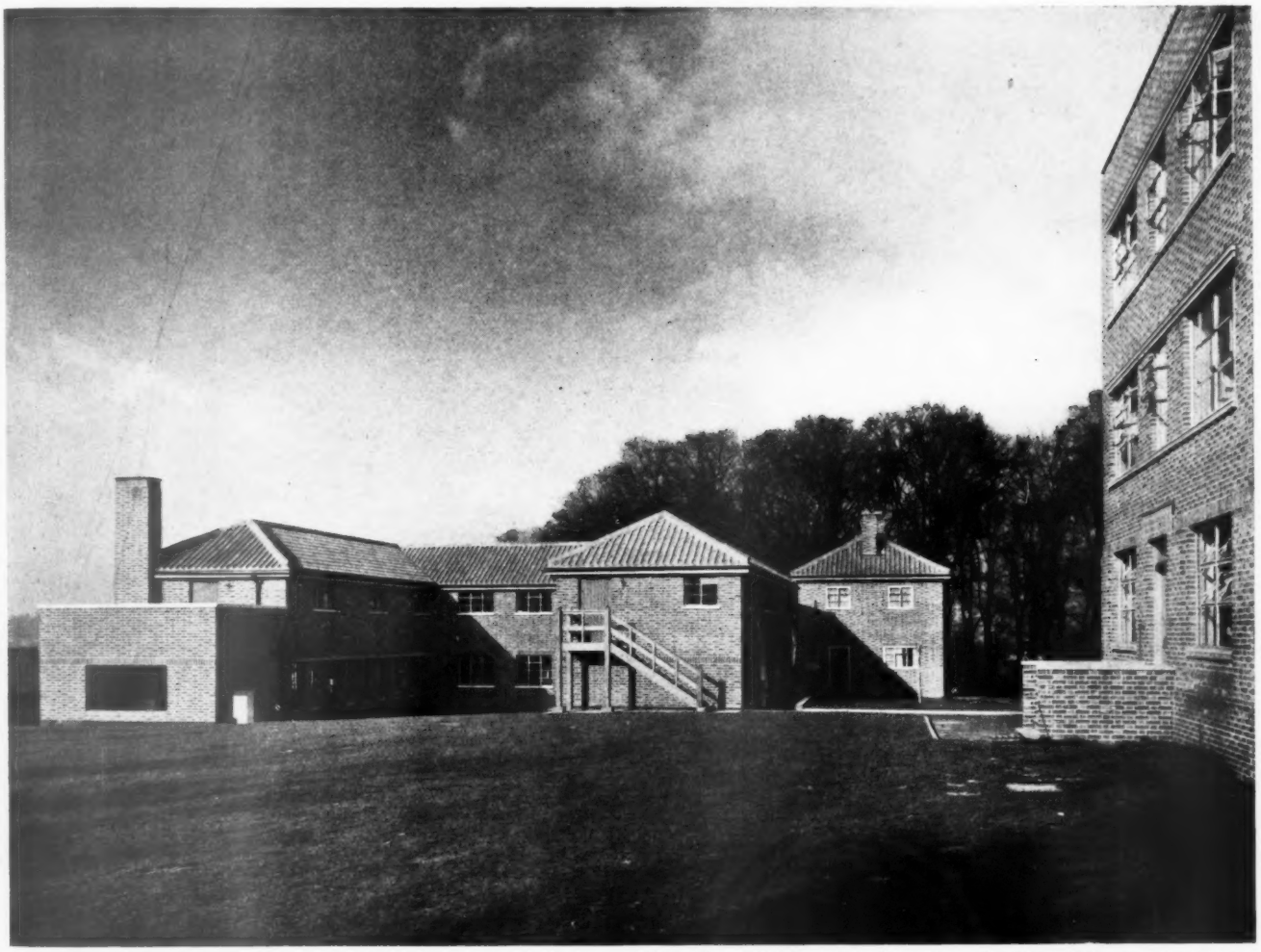
Announcement

Messrs. H. V. Ashley & Winton Newman, FF.R.I.B.A., of 14, Gray's Inn Square, London, W.C.1, inform us that the association of Mr. W. Naseby Adams with their firm has been terminated by mutual consent.

Messrs. H. V. Ashley & Winton Newman's Emergency Address is:—No. 100, Frognal, Hampstead, N.W.3. Telephone Number: Hampstead 4035.

CANCER RESEARCH STATION, MILL HILL

DESIGNED BY LANCHESTER, LODGE AND DAVIS



View from south-west looking towards Animal House and cottages

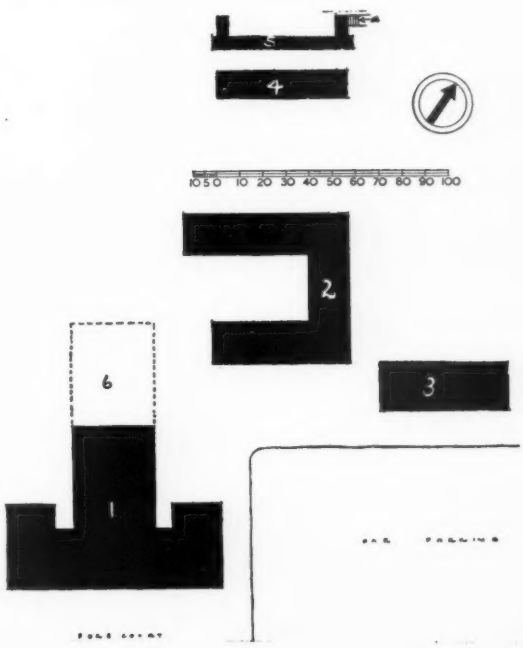
GENERAL AND SITE—This group of buildings was constructed to form the Research Laboratories of the Imperial Cancer Research Fund, which were moved from Queen Square, London. The main building consists of a boiler-house in the basement, the office, library and workshops on the ground floor, with two floors of laboratories over. One wing of the building is devoted entirely to animal rooms and ancillary offices cut off by dividing doors from the main staircase. The central block can be extended at future date. Behind the main block stands the two-storey block of animal houses, a particular feature of which is the chicken house. Adjacent to this block are two cottages for the chief laboratory and animal house attendants. Removed from the animal house are the cattle sheds, piggery and isolation rooms, and immediately beyond this is the air raid shelter to accommodate the staff. The principal restriction of the site was the sharp fall in level to the north, which governed the drainage. The scheme was not originally planned as a whole, but was developed to the expanding wishes of the clients in three separate contracts.

CONSTRUCTION AND FINISHES

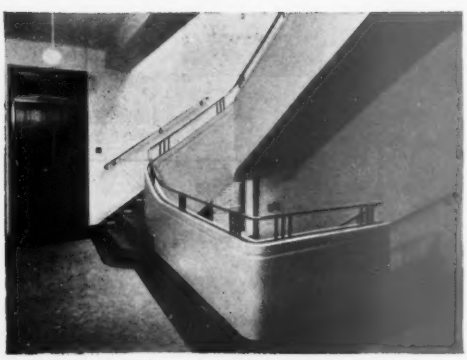
Research Block—Steel-framed, 1 ft. 1½ in. brick filling; hollow block floors and horizontal lintols to windows cast together; flat roof is cork insulated; all internal walls are 4½ in., plastered.

Animal House and Cattle Sheds—13½ in. external walls with precast concrete floors; pitched roof, covered with pantiles. All internal walls are of fairface brickwork.

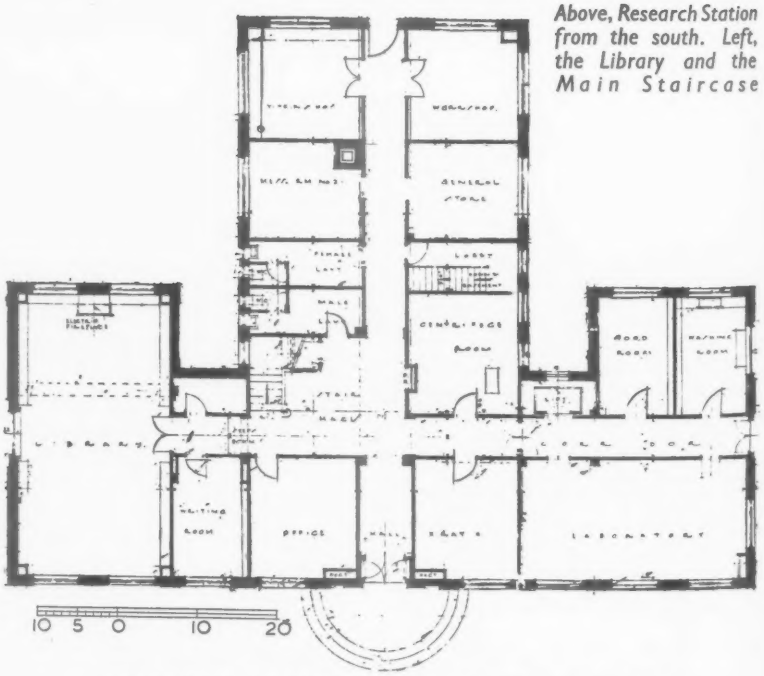
Cottages—11-in. cavity walls, wood floors and pitched roof to match animal house.



SITE PLAN : KEY
1 : Research Station.
2 : Animal House.
3 : Cottages.
4 : Animal Rooms and Cattle Sheds.
5 : Air Raid Shelter.
6 : Research Station—Future Extension.



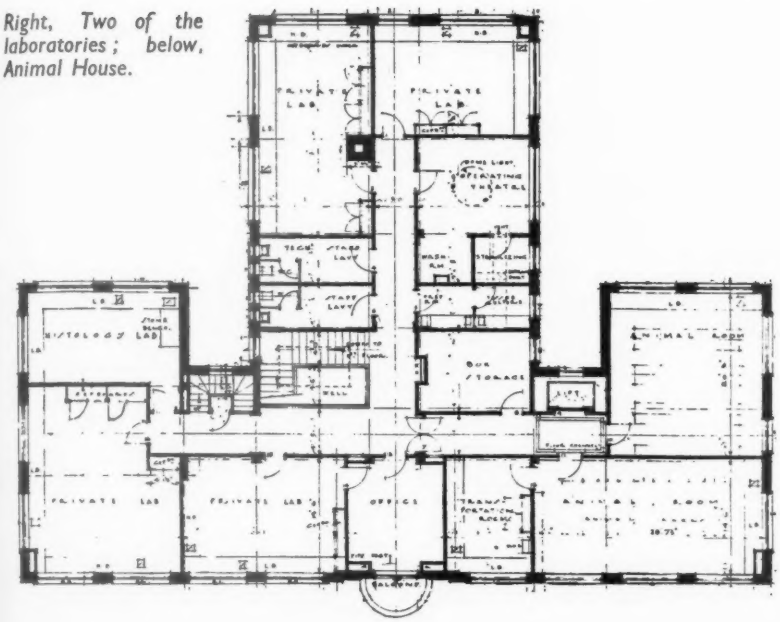
Above, Research Station from the south. Left, the Library and the Main Staircase



RESEARCH STATION: GROUND FLOOR PLAN

CANCER RESEARCH STATION, MILL

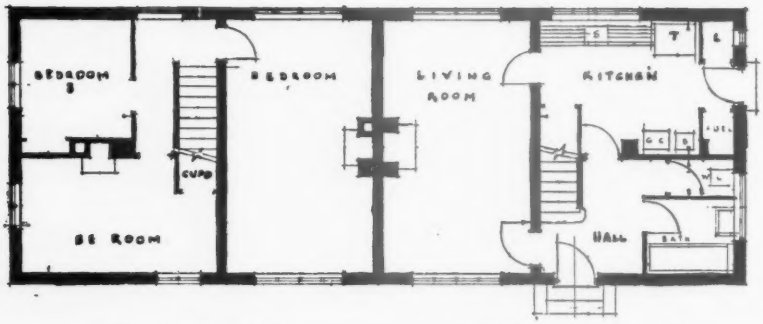
Right, Two of the laboratories; below, Animal House.



RESEARCH STATION: SECOND FLOOR PLAN

HILL • DESIGNED BY LANCHESTER, LODGE AND DAVIS

Staff cottages—view from the south.



FIRST FLOOR PLAN GROUND FLOOR PLAN

CANCER RESEARCH STATION, MILL HILL

DESIGNED BY LANCHESTER, LODGE AND DAVIS

0 5 10 20

COST—Main building, £23,000 (approx.). Animal house and cattle sheds, £4,700 (approx.). Cottages, £1,775 (approx.).

CONTRACTORS AND SUB-CONTRACTORS

The general contractors were W. H. Gaze and Sons, Ltd., who were also responsible for the excavation, foundations, dampcourses, reinforced concrete, plumbing, plaster and joinery. Sub-contractors and suppliers included : Ragusa Asphalte Paving Co., Ltd., asphalt ; H. C. Parker & Co., bricks ; Patent Victoria Stone Co., Ltd., artificial stone ; Redpath, Brown & Co., Ltd., structural steel ; Roberts, Adlard & Co., Ltd., tiles ; Hollis Bros., Ltd., woodblock flooring ; Kleine Co., Ltd., patent flooring ; Richard Crittall & Co., Ltd., central heating ; Rashleigh, Phipps & Co., Ltd., electric wiring ; Troughton and Young, electric light fixtures ; Richard Crittall & Co., Ltd., ventilation ; Shanks & Co., Ltd., sanitary fittings ; James Gibbons & Sons, Ltd., door furniture ; Crittall Manufacturing Co., Ltd., casements and window furniture ; Samuel Elliott and Sons, Ltd., fireproof doors ; Accordo Blinds, sunblinds ; Starkie Gardner, Ltd., metal work ; Carter & Co., Ltd., tiling ; Waygood Otis, Ltd., lifts ; Cashmore Art Workers, metalwork ; H. Sabey & Co., Ltd., demolition.

Architect Wanted in Fiji

An architect is required in the Public Works Department, Fiji.

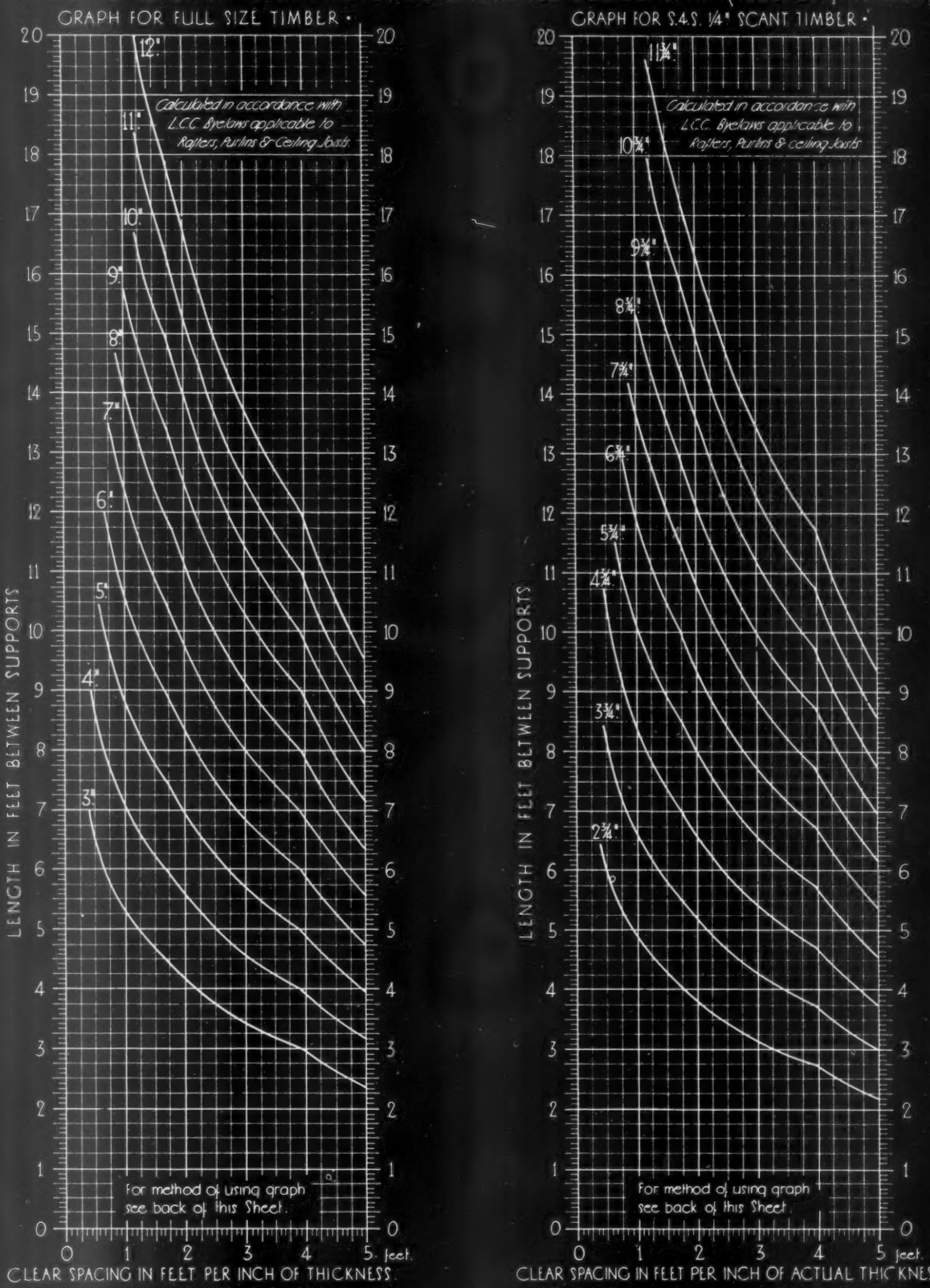
Candidates, aged 25–35, must hold an architectural degree or diploma of a recognized university and/or have passed the A.R.I.B.A. examination. He is required to design and prepare drawings, specifications, bills of quantities, estimates and contracts for buildings of all classes, including new work and the renovation and improvement of existing works, to supervise buildings being erected under contract and general drawing office routine.

Salary, £F.500 a year, rising by annual increments of £F.25 to £F.600 a year, and thence, subject to passing an efficiency bar, rising by annual increments of £F.30 to £F.720 a year (£111 Fiji = £100 sterling).

Free quarters are provided, or an allowance in lieu at the rate of £F.75 a year for a married officer if accompanied by his wife, or £F.50 a year if unmarried or not accompanied by his wife and/or family. Also free passages for the officer out and home again on the satisfactory termination of the engagement. If married, free passages also for wife and children up to a maximum equivalent of three adult passages besides the officer. Period of engagement, four years in the first instance.

Full details are obtainable from the Secretary of the R.I.B.A., 66 Portland Place, W.1.

GRAPHS SHOWING LENGTHS AND SPACING OF MERCHANTABLE DOUGLAS FIR (1200 Lb f. TIMBER):



Information from The British Columbia Timber Commissioner.
Compiled by Alfred H. Barnes, F.R.I.B.A., M.I.Struct.E.

INFORMATION SHEET: TIMBER 3: THE CALCULATION OF GRADED TIMBERS FOR { RAFTERS, PURLINS AND CEILING JOISTS

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W C 1.

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 771 •

CARPENTRY AND JOINERY

Subject : The calculation of graded timbers for rafters, purlins, and ceiling joists.

General :

This is the third of a series of Sheets dealing with the graphical calculation of timber sizes and spacing for various types of construction.

This Sheet deals with timbers for rafters, purlins and ceiling joists, the graphs being calculated in accordance with the L.C.C. by-laws.

The size of timbers depends upon four factors, any of which can be found given the other three.

These factors are :

(*a*) Length.
(*b*) Thickness or breadth.
(*c*) Depth or width.
(*d*) Spacing.

EXAMPLES :

(a) *To find the length—given thickness, depth, and spacing.*

It is proposed to construct a roof having 7¾ in. by 3¾ in. (S.4.S.¼" scant) purlins spaced 7 ft. 6 in. apart in the clear. It is required to ascertain the permissible length in order to fix the spacing of the trusses.

The spacing of the purlins is 90 in. and the thickness is 3¾ in., the spacing of the purlins per in. of thickness is therefore 24 in.

Turning to the graph for scant timbers, it is seen that the curve for 7¾ in. timbers crosses the 2 ft. spacing line at a length of 10 ft. 10 in. The clear spacing of the trusses should therefore not exceed 10 ft. 10 in.

(b) *To find the thickness—given length, depth and spacing.*

It is proposed to employ 4 in. rafters on the roof, spaced 18 in. apart in the clear. What should be their thickness ?

The clear bearing of the rafters must be equal to the spacing of the purlins, i.e. 7 ft. 6 in.

Now, turning to the graph for full size timber, it is seen that the 4 in. timbers curve crosses the 7 ft. 6 in. length line at a point giving a spacing of 10 in. per in. of thickness. 4 in. by 2 in. rafters will therefore be well on the safe side.

(c) *To find the depth—given length, thickness and spacing.*

It is proposed to construct a ceiling supported on binders spaced 7 feet apart and supported in turn by the tie beams. If the thickness of the binders be 3 in., what should be their depth ?

Their length will correspond with the spacing of the trusses, which was found to be 10 ft. 10 in.

The spacing being 7 ft., i.e. 84 in., and the thickness being 3 in., the spacing will be 28 in. per in. of thickness. The graph shows the 8 in. curve crossing the 10 ft. 10 in. length at about the 28 in. spacing. 8 in. by 3 in. will therefore just suit.

(d) *To find the spacing—given length, thickness and depth.*

It is proposed to lay 3¾ in. by 1¾ in. (scant) ceiling joists between the foregoing binders. At what distance should they be spaced ?

The graph for scant sizes shows the 3¾ in. curve to cross the 7 feet length line at a spacing of 10 in. per inch of thickness. The clear spacing will therefore be 1¾ × 10 in. = 17½ in.

Grading Rules for "Grade 1,200 lb.F." Timber :

The following Grading Rules for "grade 1,200 lb.f."* timber are quoted from the *by-laws made by the London County Council in pursuance of the London Building Act (Amendment) Act, 1935, for the use of timber in the construction and conversion of buildings*, which came into force in 1938 and to which reference should be made for the full text.

The number of annual rings per inch shall be ascertained in the following manner :—

The measurement shall be made at each end of the piece on a measuring line 3 in. long in the direction of the radius of the rings.

In the case of a boxed-heart piece, the measuring line shall extend over grain which is representative of a fair average of the section. When in such a piece the least dimension is 6 in. or less, the line shall begin at and extend from a point at a distance of 1 in. from the pith. Where in such a piece the least dimension exceeds 6 in., the measuring line shall begin at, and extend outwards from, a point at a distance from the pith equal to one-quarter the least dimension of the piece.

In the case of a piece without pith, the centre of the measuring line shall be at the centre of the end of the piece.

The width of a knot shall be ascertained in the following manner :—

The knot shall be measured on that face of the piece in which the area of the knot is greater.

The width shall be taken as the average of its greatest diameter and its least diameter, except that where a knot occurs on the angle of a piece, the width of such knot shall be taken as the distance of such angle (measured on the adjacent face or faces) from the most remote part of such knot.

Every piece shall be sound and free from defects except as specified in this schedule and shall be of such grain as not to have less than four annual rings to the inch and shall be free from spiral or diagonal grain having an inclination to the direction of the length exceeding one-in-ten except when such spiral or diagonal grain is so disposed as not to impair the strength of the piece.

Knots shall be sound and free from rot.

A tight knot shall not exceed in diameter one-fourth the greater transverse dimension of the piece unless so situated as not to impair the strength of the piece. In addition to the foregoing where such knot is enclosed within the thickness of the piece its width shall not exceed one-third the thickness of the piece.

A loose knot or knot-hole shall not exceed in width one-half the greatest width permitted in the case of a tight knot unless so situated as not to impair the strength of the piece. A knot cluster or a knot-hole cluster shall be measured as a single unit.

Pitch pockets shall not exceed 8 in. in length nor shall they exceed ½ in. in width.

Sapwood shall be not more than slightly discoloured.

The depth of torn grain shall not exceed $\frac{1}{16}$ in.

The length of an end split shall not exceed the width of the piece. If there be more than one split in the same end then the sum of their lengths shall not exceed the width of the piece.

Checks shall not be such as to impair materially the strength of the piece.

Wane, if on one angle of a piece not exceeding 4 in. in thickness, shall not exceed ½ in. in width by one-third the length of the piece, and if on more than one angle the total width and the total area shall not exceed that amount. Wane, if on one angle of a piece exceeding 4 in. in thickness, shall not exceed in width one-eighth of the thickness of the piece nor in length one-third of the length of the piece, and if on more than one angle, the total width shall not exceed one-eighth of the thickness of the piece and the total area shall not exceed that of one-eighth of the thickness by one-third of the length of the piece.

Previous Sheets :

The first Sheet of this series, No. 760, deals with the graphical calculation of timber sizes and spacing for domestic floor construction, and the second Sheet, No. 767, with the graphical calculation of timber sizes and spacing for corridor and landing floor construction.

Issued by : The British Columbia Timber Commissioner
Address : 1 Regent Street, London, S.W.1
Telephone : Whitehall 1814

* *DOUGLAS FIR*

Merchantable grade Douglas Fir complies with the above specification. The graph for S.4.S. timber applies to material surfaced on four sides to a size ¼ in. in each dimension less than the nominal size.

PRICES

The complete series of prices will consist of four sections, one section being published each week in the following order :—

1. Current Market Prices of Materials, Part I.
2. Current Market Prices of Materials, Part II.
3. Current Prices for Measured Work, Part I.
4. A.—Current Prices for Measured Work, Part II.
   B.—Prices for Approximate Estimates.

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.

ON the following pages appear Prices of Materials —Part I, with the prices, last published on November 2, brought up to date.

WAR NOTE.—Prices generally are subject to war clauses stated on quotations and contracts.

Attention is drawn to the prices of mild steel rods and timber, which do not include delivery. These prices are maximum prices, controlled by the Government.

Contractors are only allowed to purchase timber to the value of £20 per month except under licence. Owing to the fact that orders of less than £15 in value *of any one size and quality* are subject to an increase of 20 per cent., the majority of orders (except under licence) must be placed at the higher rate and this should be taken into consideration when using the prices below.

★ ***The previous complete Supplement is contained in the issues of the JOURNAL for Nov. 2, Nov. 9, Nov. 16, and Nov. 30.***

PART 1

CURRENT MARKET PRICES OF MATERIALS—I

BY DAVIS AND BELFIELD

CONCRETOR

Cements

All delivered in paper bags (20 to the ton) free and non-returnable.

	4 Tons and over	In 80-ton freights F.A.S. Safe Wharf in River Thames, London Area.
• Portland .. .. .. per ton	43/–	40/6
• Rapid hardening .. .. per ton	49/–	46/6
• Water repellent .. .. per ton	73/–	—
• Atlas White (1 barrel 376 lbs.)	.. per barrel	48/6
	1 ton	10 tons upwards and over
• Colorcrete rapid hardening, Buff and red per ton	74/–	—
	1 ton lots	
• Colorcrete Rapid hardening khaki per ton	95/–	75/–
• Colorcrete Rapid hardening blue per ton	118/–	108/–
• Colorcrete non rapid hardening .. per ton from	145/– to	415/–
Snowcrete .. .. per ton and upwards		175/–
	1–10 cwts.	11–19 cwts. 1 ton and upwards
• Ciment Fondu, delivered Central London area .. .. per cwt.	8/3	7/9 6/4½

Aggregate and Sands (Full Loads)

2″ Unscreened ballast .. .. .. per yard cube	6/9
¼″ (Down) Washed, crushed and graded shingle .. .. per yard cube	7/–
¼″ (Down) Ditto .. .. per yard cube	8/–
2″ Broken brick .. .. per yard cube	10/9
¼″ Ditto .. .. per yard cube	11/9
Washed pan breeze .. .. per yard cube	5/6
Coke breeze 1″ to dust .. .. .. per yard cube	12/6
⅛″ Sharp washed sand .. .. .. per yard cube	8/9
White Silver Sand for white cement (one ton lots) per ton	25/–

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

Pavings

Brick hardcore .. .. per yard cube	3/9
Concrete ditto .. .. per yard cube	3/9
Clean furnace clinker and boiler ashes .. per yard cube	3/6
Coarse gravel for paths .. .. .. per yard cube	7/9
Fine ditto .. .. per yard cube	10/9
Clean granite chippings .. .. per ton	18/6
Red quarry tiles, 6″ × 6″ × ¾″ .. .. per yard super	6/–
Ditto 6″ × 6″ × ⅝″ .. .. per yard super	5/–
Buff ditto, 6″ × 6″ × ¾″ .. .. per yard super	6/6
Ditto 6″ × 6″ × ⅝″ .. .. per yard super	5/6
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, ¼″ diameter and upwards, *ex mills delivered station or siding* .. .. per ton	£12 3 6
Extras for :—	
⅛″ and 7/32″ diameter .. .. .. per ton	10/–
7/32″ diameter .. .. per ton	15/–
⅛″ diameter .. .. per ton	20/–

CONCRETOR—(*reinforcement continued*)

7/32″ diameter .. .. per ton	30/–
⅛″ diameter .. .. per ton	40/–
5/32″ 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	20/–	Ex Warehouse, Southwark Bridge. Drums chargeable and credited, if returned.
Ditto (for obtaining a bond) per gallon	12/6	

BRICKLAYER

Common Bricks

Rough stocks .. .. per 1,000	67/6
Third stocks .. .. per 1,000	52/6
Mild stocks .. .. per 1,000	69/6
Sand limes .. .. per 1,000	50/–
* Phorpres pressed Flettons .. .. .. per 1,000	46/3
* Phorpres keyed Flettons .. .. .. per 1,000	48/3
Blue Staffordshire wirecuts .. .. .. per 1,000	165/–
Lingfield engineering wirecuts .. .. per 1,000	95/–
Breeze fixing bricks .. .. per 1,000	57/6
Firebricks, best Stourbridge 2½″ .. .. per 1,000	155/–
Firebricks, best Stourbridge 3″ .. .. per 1,000	190/–

* At King's Cross. For delivery in W.C. district add 4/3 per 1,000.

Facing and Engineering Bricks

Sand Limes, No. 1 .. .. per 1,000	85/–
Sand Limes, No. 2 .. .. per 1,000	70/–
* Phorpres rustic Flettons .. .. .. per 1,000	66/3
Midhurst Whites .. .. per 1,000	75/–
Hard stocks, firsts .. .. per 1,000	95/3
Hard stocks, seconds .. .. per 1,000	88/–
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	72 6
Uxbridge Flints (creams, light greys, etc.) per 1,000 .. .. from	90/– to 110/–
Dunbricks (concrete), multi reds, ex works per 1,000	72/–
Dunbricks (concrete), multi lavender, ex works .. .. per 1,000	75/–
Southwater engineering No. 1 (first quality red pressed) .. .. per 1,000	145/–
Southwater engineering No. 2 (second quality red pressed) .. .. per 1,000	125/–
Blue pressed .. .. per 1,000	185/–

* At King's Cross. For delivery in W.C. district add 4/3 per 1,000.
Discount if accompanied by order for pressed 2/– per 1,000.

• Items marked thus have risen since November 2.

CURRENT PRICES

BY DAVIS AND BELFIELD

BRICKLAYER AND DRAINLAYER

BRICKLAYER—(*continued*)

White, Salt and Coloured Glazed Bricks (9″ × 4½″ × 2½″)

The following prices are subject to 2½ per cent. trade discount and 2½ per cent. cash discount, and include delivery to any railway station (minimum 4-ton loads). Add 10/– per 1,000 for delivery in London area.

Prices per 1,000	White, Ivory and Salt Glazed		Buff, Cream and Bronze	Other Colours	All Colours
	Best	Seconds	Best	Best	Seconds
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Stretcher, glazed one side ..	24 0 0	22 0 0	26 0 0	29 10 0	23 0 0
Header, glazed one end	23 10 0	21 10 0	25 10 0	29 0 0	22 10 0
Double stretcher, glazed two sides	32 10 0	30 10 0	34 10 0	38 0 0	31 10 0
Double header, glazed two ends	29 10 0	27 10 0	31 10 0	35 0 0	28 10 0
Quoin, glazed one side and one end	30 10 0	28 10 0	32 10 0	36 0 0	29 10 0

Limes and Sand

		1-ton lots	6-ton lots
Lime, greystone	per ton	42/–	37/6
Lime, chalk	per ton	42/–	37/6
Lime, blue Lias (including paper bags)	per ton	47/6	42/6
Lime, hydrated (including paper bags)	per ton	47/–	42/6
Washed pit sand	per yard cube		8/6

(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.	19/–
Wall ties, galvanized	per cwt.	24/6
Hoop iron, black	per cwt.	25/–
D.P.C. slates, size 18″ × 9″	per 1,000	150/–
D.P.C. slates, size 14″ × 9″	per 1,000	117/6
D.P.C. slates, size 14″ × 4½″	per 1,000	59/–
*Ledkore D.P.C. Grade A	per foot super	5d.
*Ledkore D.P.C. Grade B	per foot super	6½d.
*Ledkore D.P.C. Grade C	per foot super	8d.

* 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	–/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/–	5/6	11/–	11/–	20/–
Galvanized ditto	per doz.	5/6	11/–	22/–	22/–	40/–
Black hit and miss cast iron ventilators	per doz.	12/–	15/–	21/–	21/–	36/–
Galvanized ditto	per doz.	24/–	30/–	42/–	42/–	72/–
		1′ 0″	1′ 6″	2′ 0″	2′ 6″	3′ 6″	5′ 0″
Buff terra cotta chimney pots	each	2/6	3/–	4/4	5/9	13/4	22/6
Fireclay	per ton	55/–					

Wall reinforcement supplied in standard rolls containing 25 yards lin.
2″ wide black japanned per roll 2/1
2″ wide galvanized .. per roll 3/2
2½″ wide black japanned per roll 2/7½
2½″ wide galvanized .. per roll 3/10½
} Greater widths pro rata 2½″ price carriage paid on orders of £5. Discounts for quantities.

Partitions

		2″	2½″	3″	4″
Breeze ..	per yard super	1/3½	1/5½	1/8	2/3
Clay tiles ..	per yard super	2/3	2/6	2/9	3/1
Pumice ..	per yard super	2/8	3/–	3/6	4/–
Plaster ..	per yard super	2/3	2/9	3/3	4/–

BRICKLAYER—(*continued*)

Shepwood Partition Bricks size 9″ × 2½″ and 2½″ on bed. Terms, as for Glazed Bricks

Prices per 1,000 except where stated per brick	White, Ivory and Salt Glazed		Buff, Cream and Bronze	Other Colours	All Colours
	Best	Seconds	Best	Best	Seconds
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Double stretcher, glazed two sides	32 10 0	30 10 0	34 10 0	38 0 0	31 10 0
Single stretcher, glazed one side	24 0 0	22 0 0	26 0 0	29 10 0	23 0 0
	Each	Each	Each	Each	Each
Round end glazed two sides and one end ..	–/10½	–/10	1/0½	1/0½	–/10½

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	92/6	120/–	210/–

(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 20%	Plus 5%
Orders under 2 tons, 100 pieces upwards	Less 2½%	Plus 22½%
Orders under 2 tons, less than 100 pieces	Plus 7½%	Plus 32½%

	Best	Seconds
Orders for 2 tons and over	Less 27½%	Subject to 15% off the price of best quality for all sizes
Orders under 2 tons, 100 pieces upwards	Less 10%	
Orders under 2 tons, less than 100 pieces	Nett	

CURRENT PRICES

BY DAVIS AND BELFIELD

DRAINLAYER AND MASON

DRAINLAYER—(*continued*)

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 ..	6/6	7/3	11/5	8/8
●1.1.20	4″ per yard ..	6/9	7/5	11/8	8/11
●2.0. 6	6″ per yard ..	9/11	11/9	18/10	15/1
●4.0. 2	9″ per yard ..	18/1	23/6	40/5	30/10

Socket and Spigot Pipes :—

Weight (per 9 ft.)	Size	2 fts.	18 ins.	12 ins.	9 ins.
1.1. 8	4″ each	●7/2	6/2	5/5	4/11
1.1.20	4″ each	●7/3	—	—	—
2.0. 6	6″ each	●11/3	—	—	—
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	6/3	13/–	40/–
● Single junctions	each	10/9	22/6	69/–
● Intercepting traps	each	30/–	50/–	123/–
● Gulleys ordinary trapped ..	each	14/6	—	—
● Extra for inlet 4″	each	3/9	—	—
* Grease Gulley trap	each	113/6	—	—
● H.M.O.W. large socket gulley trap with 9″ gulley top and heavy grating and one back inlet ..	each	19/6	46/6	—

Cast Iron Inspection Chambers

The larger figures below refer to the main pipes and the smaller figures to the branches

	4″×4″ each	6″×4″ each	6″×6″ each	9″×6″ each	9″×9″ each
● Straight chambers with one branch one side ..	37/–	48/–	53/–	112/6	127/6
● Straight chambers with two branches one side..	57/–	67/–	79/–	152/6	190/–
● Straight chambers with three branches in all ..	67/–	77/–	91/6	165/–	—
● Straight chambers with four branches in all ..	77/–	87/–	104/–	177/6	—
● Straight chambers with three branches one side	71/–	87/–	101/–	—	—
● Straight chambers with four branches in all ..	81/–	97/–	113/6	—	—
● Straight chambers with five branches in all ..	91/–	107/–	126/–	—	—
● Straight chambers with six branches in all ..	101/–	117/–	138/6	—	—
● Straight chambers with four branches one side	95/–	111/6	134/6	—	—
● Straight chambers with five branches in all ..	105/–	121/6	147/–	—	—
● Straight chambers with six branches in all ..	115/–	131/6	159/6	—	—
● Straight chambers with seven branches in all ..	125/–	141/6	172/–	—	—
● Straight chambers with eight branches in all ..	135/–	151/6	184/–	—	—

The branches to the above are at 135°

		4″	6″
● Extra for branches between 135° and 180°	each	7/6	7/6
● Extra for branches between 90° and 135° other than standard angles ..	each	6/–	6/–

	4″×4″	6″×4″	6″×6″
● Curved chambers, no branch 90°–112½°	each 27/6	—	38/–
● Curved chambers, no branch 135°	each 27/6	—	38/–
● Curved chambers, one branch 135°	each 34/–	48/–	54/–
● Curved chambers, two branches 135°	each 40/–	65/–	76/–

Channels in White Glazed Ware (Unselected Quality)

		4″	6″	9″
Half round straight channels, 6″ long ..	each	2/4	3/2	5/3
Half round straight channels, 12″ long ..	each	3/3	4/5	6/11
Half round straight channels, 18″ long ..	each	4/–	5/3	8/5
Half round straight channels, 24″ long ..	each	4/8	6/4	10/6
Half round straight channels, 30″ long ..	each	5/10	7/11	13/2
Half round straight channels, 36″ long ..	each	7/–	9/6	15/9
Half round ordinary or long channel bends	each	8/5	12/11	21/–
Half round ordinary or short channel bends	each	6/–	8/5	—
Three-quarter round ordinary branch bends	each	8/1	11/8	—
Three-quarter round ordinary branch bends, midgets	each	7/3	—	—

		6″×4″	9″×6″
Half round taper channels 24″ long ..	each	7/10	11/3
Half round taper channel bends	each	10/8	17/9

These prices are subject to 20% discount.

● Items marked thus have risen since November 2.

DRAINLAYER—(*continued*)

Channels in Brown Glazed Ware

		4″	6″	9″
Half round straight channels 24″ long ..	each	1/8	1/10½	3/4½
Half round straight channels 30″ long ..	each	—	—	4/2½
Ditto, short lengths	each	1/8	1/10½	—
Half round ordinary channel bends ..	each	1/10½	2/9½	5/0½
Ditto, short	each	1/10½	2/9½	—
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 0.3.0 in lots of 24) .. .. .. each	14/6	25/9
24″ × 18″ single seal for light car traffic. (Weight 2 cwt. in lots of 24) .. .. each	38/9	65/3
24″ × 18″ Wood Block pattern. For road traffic. (Weight 3 cwts.) .. .. each	Coated 63/–	

	Fine Cast	Galv.
Cast step irons, 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

Ancaster Stone

Freestone, random blocks	per foot cube 3/6
Brown weather bed stone selected for polishing all brown blocks	per foot cube 8/–
Brown and blue weather bed stone selected for polishing	per foot cube 7/–

Prices f.o.r. Ancaster, railway rate to London Station approximately 11½d. per foot cube (minimum 6-ton loads).

White Mansfield Stone

Random blocks (yellow bed) for dressings	per foot cube 4/–
Random blocks (hard middle bed) for steps, pads, pavings and copings	per foot cube 3/6
Prices f.o.r. Mansfield, railway rate to London station, 6-ton lots	per foot cube 1/2

Bath Stone

Random blocks, delivered railway trucks, Paddington or South Lambeth	per foot cube 2/10½

Portland Stone

Whitbed, in random blocks of 20 feet cube average, delivered railway trucks Nine Elms, South Lambeth or Paddington	per foot cube 4/5
Basebed—add to the above	per foot cube –/8
For every foot over 20 ft. cube average—add	per foot cube –/1
For every foot over 30 ft. cube average—add	per foot cube –/0½

¾″ Thick Plain Marble Wall Linings

Roman Travertine	per foot super 5/–
Golden Travertine	per foot super 6/8
Roman stone	per foot super 4/6
Hopton-wood stone	per foot super 5/–
Second statuary	per foot super 4/6
Sicilian	per foot super 4/–

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

* Items marked thus have fallen since November 2.

CURRENT PRICES

BY DAVIS AND BELFIELD

MASON, SLATER, TILER AND ROOFER, AND CARPENTER

MASON—(*continued*)

Reconstructed Stone to match Natural Stone

Sills, lintols, coping, cornices, ashlar, etc., average size	per foot cube	11/6
Window sills, 9″ × 3″ section	per foot run	2/1
,, ,, 7″ × 3″ section	per foot run	2/–

Slate Slabs, cut to size and Planed

		1″	1½″	1½″
Not exceeding 4′ 6″ long or 2′ 3″ wide	per foot super	3/1	3/4	3/11
,, ,, 6′ 6″ long or 3′ 3″ wide	per foot super	3/9	4/1	4/10
Exceeding 6′ 6″ long or 3′ 3″ wide	per foot super	4/1	4/6	5/2
Rubbed faces	per foot super	–/5	–/5	–/6
,, edges	per foot run	–/4	–/4	–/5

SLATER, TILER AND ROOFER

Best Bangor Slates

		£	s.	d.
24″ × 12″	per 1,000 actual	33	10	0
22″ × 12″	per 1,000 actual	27	19	0
22″ × 11″	per 1,000 actual	25	4	9
20″ × 12″	per 1,000 actual	24	14	6
20″ × 10″	per 1,000 actual	21	15	5
18″ × 12″	per 1,000 actual	20	19	3
18″ × 10″	per 1,000 actual	17	7	6
18″ × 9″	per 1,000 actual	15	11	9
16″ × 12″	per 1,000 actual	17	14	9
16″ × 10″	per 1,000 actual	15	11	9
16″ × 9″	per 1,000 actual	18	19	6
16″ × 8″	per 1,000 actual	12	1	11

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

Old Delabole Slates (*f.o.r.*)

Standard sizes.

Prices and computed weights per 1,200.

		20″ × 10″	16″ × 10″
Grey medium gradings	per 1,200	558/–	366/–
	cwts.	38	30
Unselected greens (V.M.S.)	per 1,200	628/–	413/–
	cwts.	44	36

Random sizes.

Prices per ton and computed covering capacities in squares per ton.

		No. 1 Grading 24″/22″ to 12″/10″
Grey	per ton	128/–
Covering cap. :	per ton (3″ lap)	2·37 squares
	per ton (4″ lap)	2·19 squares

		No. 2 Grading 24″/22″ to 12″/10″
Weathering grey greens (V.M.S.)	per ton	139/–
Covering cap. :	per ton (3″ lap)	2·25 squares
	per ton (4″ lap)	2·08 squares

		No. 2 Grading 24″/22″ to 12″/10″
Weathering greens (V.M.S.)	per ton	149/–
Covering cap. :	per ton (3″ lap)	2·25 squares
	per ton (4″ lap)	2·08 squares

		No. 2 Grading 24″/22″ to 12″/10″
Rustic reds (25%) and weathering greens (V.M.S.)	per ton	174/–
Covering cap. :	per ton (3″ lap)	2·25 squares
	per ton (4″ lap)	2·08 squares

Railway rate to Nine Elms, London, minimum 4 tons, 21/9, minimum 6 tons per truck, 18/1 per ton.

Tiles

		£	s.	d.
Hand-made sandfaced 10½″ × 6½″ red roofing tiles	per 1,000	4	15	0
Machine-made sandfaced 10½″ × 6½″ red roofing tiles	per 1,000	4	0	0
Berkshire rustic pantiles	per 1,000	18	10	0

SLATER, TILER AND ROOFER—(*continued*)

Westmorland Green Slates

	Price per ton	Bests, 24″ to 12″ long. Proportionate widths Computed cover in sq. yds. per ton
Random sizes.		
No. 1 Buttermere fine light green	240/–	30
No. 2 ,, light green (coarse grained)	215/–	27–28
No. 5 ,, olive green (coarse grained)	197/–	25–27
No. 5 Medium green	197/–	25–26
No. 7 Elterwater fine light green	216/–	27–28
No. 15 Tilberthwaite fine light green	214/–	26–28
No. 16 ,, light green (coarse grained)	202/–	25–27
Broughton Moor, light sea green, olive green, silver grey green, and mixed shades	237/–	27

Prices include for delivery to any station, minimum 6-ton truck loads.

Asbestos-cement

6″ corrugated sheets, grey	per yard super	3/5½		
Standard 3″ corrugated sheets, grey	per yard super	3/1½		
Slates :—				
15½″ × 7⅞″ grey	per 1,000	£8	18	6
15½″ × 15½″ diagonal, grey	per 1,000	£13	3	3
15½″ × 15½″ diagonal, russet or brindled	per 1,000	£16	12	3
Pantiles.				
Large russet brown	per 1,000	£21	15	0

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

Cedar Wood Tiles

Canadian cedar wood shingles per square 33/– (normal quantity).

Prices include for delivery to nearest railway station in England but vary with quantity.

CARPENTER

The following timber prices are maximum prices to consumers at Port of London for White Sea Classification and include reloading on to transports at depot.

The cost of timber at ports other than Port of London may be seen in the Control of Timber Order No. 1, 1939.

20s. per standard may be added to port prices for timber bought from stock, i.e. stored in inland yards outside port areas.

20 per cent. extra may be charged on orders of less than £15 in value of any one size and quality.

10 per cent. may be charged on orders for selected lengths plus repiling charges which may be in the neighbourhood of 5s. per standard.

The cost of transport to the site (approximately 30s. per standard) must be added to all prices, and the cost of transport from port to yard in cases where timber is bought from stock must also be added.

Sawn Redwood, commonly known as Builders' yellow deal :

		Per standard £	s.	d.
4 × 11	Scantling	23	7	6
3/2½/2 × 11	,,	23	7	6
4 × 10/9	,,	24	10	0
3/2½/2 × 10/9	,,	24	10	0
4 × 8	,,	23	5	0
3/2½/2 × 8	,,	23	5	0
4 × 7	,,	23	5	0
3/2½/2 × 7	,,	23	5	0
4 × 6	,,	22	5	0
3/2½/2 × 6/6½	,,	22	5	0
2 in. and up × 5/5½	,,	22	5	0
2/3 × 3/4½	,,	22	5	0
Boards				
1 in. and up × 11		22	17	6
1 in. and up × 10/9		24	0	0
1 in. and up × 8		22	17	6
1 in. and up × 7		22	17	6
1 in. and up × 6½/6		22	12	6
1 in. and up × 5½/5		22	0	0
1 in. and up × 4½/3		21	2	6

No extra for ⅜″, ½″, ⅝″, ¾″ and ⅞″ boards.

Redwood and Whitewood slating battens (under 3″ wide)

All ⅜″, ½″, ⅝″, ¾″, ⅞″ and 1″ and thicker, Swedish U/S, second class 22 0 0

TO BE CONTINUED IN NEXT ISSUE

LAW REPORTS

AMENITIES OF A COUNTRY HOUSE BREACH OF COVENANT

Beadon v. *Clifford.—Chancery Division. Before Mr. Justice Farwell.*

THIS was an action by Lieut.-Col. H. C. Beadon, of Crossways, Lympstone, Devon, against Mr. and Mrs. Clifford, of Yonder Thatch, Lympstone, for a declaration that plaintiff was entitled to the benefit of a restrictive covenant in a conveyance of March, 1897, which prohibited the erection of any building over 8 ft. in height on the defendants' land. The plaintiff also sought a mandatory order against the defendants to pull down any part of a building which infringed that covenant.

The defendants are the owners of land adjoining the plaintiff's property, and plaintiff's case was that in breach of a covenant imposed by the common owner of the properties, the defendants had erected a bungalow over eight feet in height which interfered with his view over the Exe Valley.

Plaintiff gave evidence in support of his case, and said he was unaware of the covenant when he purchased his property in 1914. The bungalow interfered with his view from his property.

Mr. Clifford appeared in person, and said there was a bungalow on the land when he purchased the property last year. This bungalow was 12 ft. high. All he had done was to move the bungalow to another site on a lower level, and replace the corrugated iron roof and sides with cedar wood. His case was that as there had been a bungalow on the land for over 20 years without any objection by plaintiff or his predecessors, and that the plaintiff had acquiesced in the building remaining on the land. He had received the consent of the local authority for the removal of the building to another side.

His lordship, in giving judgment, said he had no doubt that the benefit of the covenant passed to the plaintiff, although the previous owner had acquiesced in the maintenance of the bungalow on its original site. Defendant misapprehended the law when he urged that plaintiff's acquiescence in allowing the old building to remain on its site disentitled him from now enforcing the covenant. Here, the defendant had deliberately committed a breach of a covenant, and he was therefore bound to give the plaintiff the relief he asked for. There would be a declaration and an injunction and a mandatory order against the defendants. Plaintiff was entitled to the costs of the action.

RIGHTS TO A PASSAGE WAY : SPUR STONES TO BE RESTORED

Hutchings, Ltd. v. *Nauman.—Chancery Division. Before Mr. Justice Simonds.*

THIS was an action by G. R. Hutchings, Ltd., coal and coke merchants, of 160 Sydenham Road, Sydenham, from an injunction restraining Mr. Martin Nauman, hairdresser, of 170 Sydenham Road, from erecting spur stones in a passage way giving access to the plaintiffs' yard and obstructing the use by their lorries and carts to the right of way.

The case for the defendant was that there was an excessive and unreasonable user of the right of way, causing damage to the passage and vibration to his premises. Defendant counter-claimed for an injunction restraining an abuse of the user of the right of way and a declaration that he was entitled to put up the spur stones.

Mr. Harold Christie, K.C., and Mr. T. K. Wigan appeared for the plaintiffs, and Mr. Maurice Healey, K.C., and Mr. Masson for the defendant.

Plaintiffs are lessees of their premises, and were coal merchants and haulage contractors. They contended that they only used the right of way for the purposes of their trade, and by virtue of the rights under their lease.

His lordship, after the evidence, said that the plaintiffs claimed that they were entitled to the extra width of the passage caused by the wearing away of the original spur stones. He held that they were not so entitled, and dismissed the action with costs.

On the counter-claim, he held that the defendant's premises had suffered danger by reason of the plaintiffs' vehicles, which were two-ton lorries, and which, even by the most skilful driving, could only be forced through the passage. He granted a declaration that the plaintiffs were not entitled to drive vehicles through the passage which would cause damage to defendant's premises, and he made a declaration that the defendant was entitled to erect new spur stones of the same size as the original ones, and ordered the plaintiffs to pay the costs of the claim and counter-claim.