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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 14, 1939. NUMBER 2343 : VOLUME 90

PRINCIPAL CONTENTS

BIOLOGICAL INSTITUTE, STOCKHOLM

This new institute, designed by Professor E. G. Asplund, is on the outskirts of Stockholm and consists of a large main block, a laboratory block, stables and exercising sheds. The large central block contains the doctors' rooms, library and offices, which are grouped around a large hall which goes up through all the floors with galleries to each. This hall can be used for a special lecture hall. All the buildings are faced with a pleasant yellow brick somewhat similar to the London stock.
Above is a general view of the scheme with the main block in the centre and the row of stables on the extreme right.

LIVERPOOL: BEFORE AND AFTER

Top, the junction of Prescot Road and St. Oswald Street, Liverpool, as it appeared a year ago ; bottom, a recent view showing the new flats and municipally owned crescent of shops which have taken the place of the old buildings.

RESERVED FOR WHAT?

THE DANGER AWAITING THE DEPUTATION

IN the next week or so, the Building Industries National Council will approach the Government on behalf of the whole industry. They will ask that contracts for war buildings should be spread as widely as possible through all building firms and building materials.

They will be heard with attention—as the representatives of an industry of two millions must be heard. But it is doing no injustice to the hard-worked persons they will interview, to warn the delegates to be on their guard against one kind of encouraging answer.

The Government representative may express his very genuine concern at the distress from which a great industry is suffering. But he may then add that the delegates cannot of course expect pre-war building volumes to be maintained. The delegates, in common honesty, must agree.

The Government official may then say that he has requested all Service departments to spread their contracts more widely through building firms and to use a wider range of materials whenever possible. And he may conclude by saying that volumes of war building works will certainly increase as the war continues and thus employ a greater proportion of a vital industry.

The delegates may then retire.

It is essential that the industry's delegates should express dissatisfaction with an answer of this kind: for it merely takes credit for the inexorable march of events. By June next year competition between Service departments will have compelled an increase in the number of building firms executing war contracts; it will have compelled a slightly wider use of materials. But it will have done nothing to prevent dislocation of the industry in general.

The building industry is not entitled to ask for more building than the Government thinks wise. But it has every right to demand that the building which the Government does sanction should be distributed so as to give the best possible results for the industry.

Those good results can only be obtained by planning ahead—by preparing a programme of works for 1940, by arranging them in order of urgency and by taking the other steps which are re-stated below. Planning ahead will have to come *sometime*. Departments will have to arrange all their contracts in an order of urgency, *sometime*. At the price of a little unpleasantness, the building industry may as well decide to have them at once.

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, and December 7.

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.

Architects, however, cannot act for themselves alone in this situation. They are a part of—in some senses, the central part of—an industry of two million workers and it is their first business to see that this industry, as a whole, is properly used in war time.

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.

RESERVED FOR WHAT?

(Continued from previous page)

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 will have power to act for the whole building industry.

2. The preparation, for submission to the Government by this committee, of a statement in TWO PARTS, containing :

FIRST PART : A statement showing the volume of building works now held up and the distress thereby caused to the industry ; the need for the industry to be kept at adequate strength to deal with the results of severe air raids ; the consequent need for war building contracts to be spread as widely as possible through building firms and materials ; and the dislocation caused by the use hitherto of large quantities of the easiest materials.

SECOND PART : An outline scheme for enabling war building contracts to be allocated with the greatest benefit to the whole building industry. To be successful, this scheme must stress the necessity of the following actions and make suggestions as to how they can best be carried out :

(1) The preparation of an approximate programme of all war works which will be needed in 1940.

(2) The arrangement of these works in an order of urgency which will be adhered to.

(3) A study of all materials, or combinations of materials, which could be used for war buildings of varying degrees of urgency. 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.

(4) 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.

(5) 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.

(6) 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, enough public works contracts can be placed to restore that ability.

LETTERS

The JOURNAL *prints below three of the letters it has received which deal with the present position of architects and the building industry.*

From GEORGE HICKS, M.P.

General Secretary, Amalgamated Union of Building Trade Workers

SIR,—I am whole-heartedly in favour of united action by all sections of the building industry—employers and operatives, architects and specialists, building materials manufacturers, and so on—to safeguard the interests and welfare of the building industry during the present period of strife and stress, change and upheaval.

I am confident we can do that while recognising the prior claims of the Government on the resources and services of the building industry in the successful prosecution of the war.

Further, I assert we *must* do that on behalf of the nation if we are to emerge from this fateful struggle in a position to play our part in the world which is to follow.

The building industry is one of our great basic industries. As has been often stated, more than two million persons are engaged either directly or indirectly in the industry. It would be true to say that the livelihoods of more than 5,000,000 men, women and children are dependent on the building industry. Our industry constitutes one of the main pillars of the industrial fabric of Britain.

We may win the war, but, most assuredly, we shall lose the peace unless, with skill and foresight, we can manage to preserve intact the immense reservoir of knowledge, organizing capacity, constructive ability and craftsmanship which the building industry embodies. No other industry will be so needed for reconstruction after the war.

It will be remembered that during the four years of the last Great War building work ceased. There was no building work for the duration. And it will also be remembered how acute were the housing and other building problems which beset the country after that war. That was a time of incredible mess and muddle and enormous difficulty, causing great social discontent and embarrassment to succeeding Governments.

It seems as though normal building work will be brought to a standstill for the duration of this present war. The building industry has been diverted from its normal functions and purposes to war and civil defence work. This work can, at best, but partially absorb the services of the industry. During the last war, civil defence did not loom so large or occasion the structural demands that this war is doing. Even so, this work provides no adequate substitute —even temporary—for the normal work of the industry.

Interested, as I am, in the operatives' position in the matter, I am thoroughly aware of this. Certain categories of the younger and more mobile craftsmen, such as bricklayers, may find employment. But the older craftsmen, those more rooted to their towns and neighbourhoods, whose domestic and other ties make it more difficult and render them reluctant to go in pursuit of Government contracts in remote places ; and those categories of workers for whom Government work offers little or no scope —plasterers, masons, painters to a large extent, etc.—are being beset by unemployment with all its impoverishment. A formidable unemployment problem is developing in the building industry which is not, in my opinion, receiving the attention it deserves. Such can only be a drag on the nation during the war, entailing quite needless hardship and suffering, and lay up a store of troubles for the time of peace.

I see no reason why a goodly amount of usual building work should not be carried on. The building services of many men not required, and not likely to be required, for war work are available for this purpose. The supply of building materials presents a serious problem. Nevertheless, I think this can be overcome. For its work the Government only requires certain kinds of the softer timbers, for instance. The hard woods can be released for ordinary building. It is absolutely essential that building repair and maintenance work should be carried on. It is important that housing should not fall into great arrears, or school building, etc. And it is vital that the building industry, while undergoing the mutations and curtailments of war necessity, should survive with all its power unimpaired.

RESERVED FOR WHAT?

From C. DUDLEY HARBRON
F.R.I.B.A. (Hull)

SIR,—The *R.I.B.A. Journal* for November 20 is cloudy reading.

It appears that nobody loves us.

For :—The Secretary of the Board of Inland Revenue " gave little hope of the Board favouring a change."

The Air Ministry " definitely turned down the idea of outside help."

The Office of Works " state that their staff is adequate." What remains ?

The Minister of Supply. He is reported " talking in his wide-windowed room in the Adelphi, overlooking the Thames." " In a remarkably short time we are able to go to the Treasury with a complete scheme for a factory to make so many X-pounder shells, to be built on a site available in Blankshire, with every item of cost set out." Further, " We have reached a stage now which last time we did not reach until the end of 1917."

There is, however, one rift in the clouds. THE ADMIRALTY HAS EMPLOYED ONE OUTSIDE ARCHITECT.

And so it is complained in Parliament that the number of unemployed have increased. Hansard, for November 22, 1939, reports the following statements in the House of Commons.

Mr. David Adams : " The building trade has become a stagnant industry."

Mr. Griffith: " 140,000 unemployed in the building trade."

Minister of Labour : " 117,000 unemployed in the building trade."

Mr. Loftus : " I get almost pitiable letters from builders, stating that the building trade is completely dead."

Mr. Owen : " 2,000 unemployed slate workers."

Mr. Macdonald : " 1,500 unemployed roads and bridges labourers."

Mr. Butcher : " Hard-hit building industry."

Mr. Stephen : " Glasgow builders unemployed."

Mr. Viant : " Private builders will shut down, there is no arguing that. Speculative building is bound to shut down."

The most generally suggested solution in the House of Commons is that the available work should be distributed locally.

In reply, the Minister of Labour said : " We shall come to a period of full employment (page 1282). . . The House will see that the building outlook is not wholly of an unpleasant character."

From the above, I assume that the initial methods of approach to the authorities have failed ;

That Parliament is sympathetically disposed toward the building industry, of which we form a part ;

That the man to call to account is the Minister of Labour, who can be left to influence his colleagues ;

That if the principle of the widest distribution of employment is accepted we can show them how to implement it.

From WALLACE J. GREGORY
F R.I.B.A. (Westminster)

SIR,—At the recent informal meeting of the R.I.B.A. to discuss the effect of the war upon the architectural profession, after two hours of pessimistic speeches, the hopelessness of the situation was summed up by, almost, the last speaker saying, in effect, there is no work for architects, and those who have no other means of livelihood should seek one quickly.

That certainly summed up the hopeless tone of the meeting ; but it was a dreadful admission. It meant that, in a land of plenty, so to say, running with bricks and mortar, not to mention huts and temporary buildings, there is no work for architects.

During the meeting it was stated and confirmed that the previous week various millions of pounds' worth of work was given to builders without architects. Within a week of war being declared twenty-one million pounds' worth of work was distributed to sixteen contractors, without architects. Those facts are common knowledge. How many other millions have been given out under similar conditions ? We are talking in millions. Enough work has been given out since the war started by Government departments to keep every architect in the country employed for at least a year, and yet those departments have the same reply, " we are not employing outside architects."

What are they doing ? They are trying to cope with this amount of work in their own architectural departments, swollen to bursting point with our assistants and office managers. In other words, the Official Architect has completely monopolized the Government output of building work and has taken on our staffs to do it.

Has anything been gained by the spending of millions of pounds on building works up and down the country without proper specifications, bills of quantities, contracts or drawings as the ordinary architect knows them ?

Nothing has been gained in speed. Every architect and builder knows that speed in building cannot be obtained without co-operation and perfect definition. Imperfect drawings, imperfect specifications, sketchy quantities, if any, mean delay and confusion ; and delay and confusion there has been. There is not a district where there is not the same tale. Everything is blamed but the one thing.

If an example is wanted, take the Anderson shelters, costing millions and issued in millions, now mostly waterlogged and useless, with the Home Office contemplating spending more millions to make them fit for use.

Every architect's office in this country is a piece of efficient organization for producing buildings. It must not be forgotten that the important building work in this country has always been done by the private architect. He has been brought up to get work done to time ; to get over difficulties ; to save money and to satisfy clients. If buildings were wanted in a hurry we were ready and eager to work day and night to get the drawings and specifications ready. We have done it before and can do it again. If the Government departments consider that the figures in which they deal would mean too great a responsibility for individual architects, we can easily form our own groups and make community affairs of them.

With all due respect to the R.I.B.A., an odd interview by a representative with an official, and an occasional letter to a department, is not sufficient. If nothing more serious is undertaken, the war will be over before any results will be obtained, and then it will be too late. It is interesting to know that the R.I.B.A. is represented upon different committees. In so far as honour has been done to an individual and, by the contacts that he will make, personal advancement given to him, that is meritorious, but it does not put one penny into the pockets of the profession. Had architects not been invited to sit upon these committees the R.I.B.A. would certainly have been " sent contumeliously away."

Architects do not want to make fortunes out of the war, but they want to do their bit and they want to live.

It is only by persistent attack that wrongs are righted. The hotel owners were badly treated, but they acted quickly and vigorously and, with the help of the *Daily Telegraph*, forced the Minister concerned to receive a deputation and consider their case.

I cannot imagine that if the Secretaries of State knew of the disgraceful neglect of architects they would not take action. They are the people to approach. And let the approach be, not by an individual, but by a small fighting delegation. The Government building programme has not been completed yet by many millions. What remains should be put into the hands of those best qualified to look after it, the private architects.

The Architects' Journal
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NOTES & TOPICS

BOMB-BLASTED GLASS . . .

ARCHITECTS, in company with almost everyone else in the last few months, have naturally been devoting attention to the protection of their homes and other buildings against aerial attack.

* *

For results to be anything like successful it is, of course, necessary to study this annoyance from the viewpoint of the bomb sender as well as the recipient; and in this connection, and for the more earthbound generally, the current issue of *Aeronautics* provides some interesting reading.*

*

At the moment bombing has not achieved the same accuracy as shelling, but there seems little compensation to be gained from this knowledge unless one regards oneself as a potential target—and it is quite possible to feel that way the instant the syrens give vent to their wailings. But whatever the score—bulls, inners, magpies or outers—there is always blast, and here two things are worth noting.

*

First, the Warsaw Reich Commissioner's report that 50 acres of glass would be necessary to repair that city's windows; and, secondly, that the windows through which the motion picture hero leaps unscathed are toffee—literally and in thin sheets—and any bather who has ever stepped on a broken bottle knows the difference between toffee and glass.

*

The blast from a 2 ft. 7 in. 220 lb. bomb may be effective up to 200 ft., and any windows in this area would automatically tend to become so many flying multi-edged razors. Larger bombs give larger blast.

*

These facts seem to indicate that the substitution of close mesh wire-netting for paper strips would be a good thing.

. . . AND SHOPS

Meanwhile, protective measures for shop windows are getting gayer and gayer. A few weeks ago I mentioned the fine decorative protection of the Ford showrooms in Regent Street. Now Morny's in Regent Street have decorated their window shutterings with all the little fancy French frills and furbelows that one associates with perfumes and cosmetics. Bond Street, too, is going a bit gay in decorative protection: particularly Boots' branch on the corner of Clifford Street, which is in a soft shade of green—very tasty.

UNSULLIED BY-PASS

I have been sent a poster, consisting of a pleasantly coloured layout plan and some particularly good lettering, advertising the Peterhouse, Cambridge, building estate at Woodbridge.

*

The Suffolk Panel of architects, after several years of effort, have succeeded in persuading Peterhouse to employ a competent architect, and to so plan the estate that the by-pass road, which borders it, remains a true by-pass with green planted strips. The East Suffolk County Council, it is reported, now proudly claims that this is the only unspoilt by-pass in England.

*

The same Suffolk panel is now getting worried about another large and beautiful estate which has been bought by Oxford University Nuffield Trust. Some innocents might think this is a sufficient guarantee that it will be developed with intelligence and good taste. Unfortunately, there is no such guarantee.

*

It is lamentable that the Oxford and Cambridge colleges, probably in the aggregate the biggest landowners in the country, are not more fully aware of their responsibilities. In many instances (fortunately there are some exceptions) they appear to be ignorant of the fact that the development of an estate involves a certain technical and planning skill, as well as a trained sense of landscape, not to mention a modicum of elementary good taste.

*

If these learned bodies are unable to exhibit a civilized sense of responsibility, what can we expect from commercial developers?

EQUESTRIAN STATUES

There are very few equestrian statues in the world: I believe there are considerably under 1,000. But somebody

* Several of the illustrations are from *Planned A.R.P.*, by Tecton.

took a census of them once and found a large proportion of them were in England. There is one in Petersfield, in the Market Square.

*

This statue is of William III, clad, conventionally, in Roman armour. His contemporary, Louis XIV, it will be remembered, added to Roman armour a full-bottomed Ramillies wig.

*

If only contemporary sculptors would subscribe to this sensible convention, we could have tremendous fun with our present-day statesmen. Only one member of the Cabinet would look well in a toga, and that is Mr. Winston Churchill. A stimulating note could be added by giving him a cigar and one of his special hats.

IT PAYS TO ADVERTISE

A correspondent writes :

Like every other architect whose work has disappeared during the last few months I am very interested in the JOURNAL's summary " Reserved for What ? "

In the last paragraph but one of the second and third articles in the summary you list the best-known appeals and representations that architects have made so far and follow it with your own comment in small type :

" *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.*"

This is so surely the crux of the whole matter that it should be headlined and driven home to architects again and again and again.

Those who spend at least all their working hours in the practice of architecture naturally know what an architect is and everything his employment implies, and therefore probably commit the common mistake of thinking that those outside the profession automatically know all about it too.

The majority of laymen have no idea whatsoever that an architect is concerned with anything more than making buildings look more " artistic " than a builder could do without him. Until this truth *is* driven home to architects—and for keeps—there would appear to be no hope that the architectural profession will be able to improve standards of living or carry out any of the other reforms we talk so much about, war or no war.

*

The root of our wartime trouble seems to be that architects have for years been referring to their profession as the Mistress Art. *Art* you notice. How many people gave an astonished " Good Heavens ! Why ? " when you told them architecture was a reserved occupation ? It is up to the profession itself to let it be known what exactly an architect does, and it is no use members merely telling each other. The shopkeeper makes his sales by convincing his customers that they need the goods—not by convincing himself—and with architects the principle is the same even if you dislike the analogy.

HOUSING

Speaking about housing progress last week in the House of Commons, Mr. Elliot, the Minister of Health, said that many things had to be done. It was true that the building of houses by private enterprise had fallen away, but at present local authorities in England and Wales were engaged on the completion of more than 30,000 houses. That had only been made possible by close daily co-operation between the Departments concerned with building, the local authorities, and the trade unions. He hoped they would be able to assist the local authorities to secure the materials necessary to enable them to complete at least the bulk of the houses which they had begun when war broke out.

THE ARTIST IN THE WITNESS BOX

The B.B.C. is once again in the news (*our* news). An important new series of talks began last week. The series is called " The Artist in the Witness Box," edited and arranged by Eric Newton.

*

There are to be ten talks. Last week's was an interview with intelligent layman Herbert Hodge. The next three are discussions by Eric Newton on the artist and his subject, the artist and his period, the artist and his race. After the new year (if there is one) will follow debates between famous contemporaries on : the Royal Academy, the Centre Party v. the Left Wing, artist and dealer, artist and architect (represented by Mr. Goodhart-Rendel), art as propaganda (with Low), and, lastly, the function of the art gallery — a discussion with Sir Kenneth Clark, who gave that excellent " Art for the People " talk I mentioned three weeks ago.

*

The B.B.C. has created a precedent by producing an admirable pamphlet, partly in colour, of significant paintings to support and reinforce the series of talks—paintings which range from palæolithic cave man to Salvador Dali.* Says Eric Newton in the introduction : " The Fine Arts are up for trial. The charge against them is that they are useless, or, at least, unnecessary : and that of recent years they have become divorced from life. It is a serious charge and it must be taken seriously. . . . If art is communication, the difficulty of today's layman is to discover just what it is that the artist is trying to communicate."

*

Like Thurber's bearded little art critic in *The New Yorker*, maybe the man in the street will soon be saying, " I know all about art, but I don't know what I like."

SLIGHT ACTIVITY IS REPORTED . . .

Despite the stalemate on the Building Front, a rich crop of Press cuttings suggests that all is not absolutely quiet.

*

From Dublin comes a cry for a " living tradition . . fundamental agreement between architects, builders, and the ordinary people " ; in Cricklewood, two architects, Mr. Cohen and Mr. Schultz, have been awarded damages for fees not paid ; a fire tragedy in some decaying cottages has roused the indignation of the people of Blandford, Dorset, and has started a demand for new Council houses immediately ; in Hetton, County Durham, 87 new Council houses cannot be occupied because somebody has forgotten to order a pump ; and somebody writing in *Homes and Gardens* has bought a country cottage, and wants to know whether he will get sweating on the inside if he cement-renders the walls.

ASTRAGAL

* " The Artist in the Witness Box," published by the B.B.C., price 1s.

The Information Centre owed its inception to the difficulties that arose when architects were faced with the problems of A.R.P. and other emergency work that followed the outbreak of war. The specialized questioning goes on, but it is clear that an information centre is needed for general building problems too. This Centre exists primarily to simplify the task of the architect in these days when emergency legislation and defence measures have become his immediate concern, but it does not confine itself to this work alone. The Centre will provide an expert opinion on any question connected with building.

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?

Q112 URMSTON.—*Do you know a maker of GAS-TIGHT CURTAINS for air raid shelters? I have seen them at certain barracks but could not discover who are the makers. The cloth appears to be of stout, proofed material, secured to battens at intervals with studs and eyelets. The cloth when not in use can be rolled up and tied above the doorway.*

A standard cloth is produced by a number of manufacturers.* The difficulty at the moment is to get immediate supply of the material, as the bulk is being used for war work.

Q113 BIRMINGHAM.—*Can you give me an opinion on the better course to pursue in the erection of a nurses' home now fairly well advanced to roof level? To which department of the M.O.H. should application be made for a PRIORITY CERTIFICATE for such a building, and does this entail submission of all plans, specifications, etc.? Does such a certificate assist in helping sub-contractors in any way to obtain their materials more readily?*

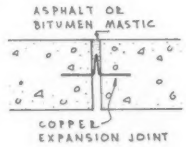
It is not possible to get a priority certificate covering a whole building, as many materials are not under any kind of Government control. The following are controlled: Timber, iron and steel, copper, zinc and tin. Permits are usually obtained by the contractor from the departments controlling the various materials, but in your case, as this is hospital work, we suggest you write direct to Priority Officer, Ministry of Health, Whitehall, S.W.1, giving full particulars of the building, the controlled materials needed for completion, and the contractors or sub-contractors with whom you propose to deal.

Q114 WEST BROMWICH.—*We have under consideration an air raid shelter to hold 1,200 persons. It is in the form of a series of cellars divided by 13½-in. walls. We propose to form a 4-in. reinforced concrete roof, upon which at some future time a factory floor will be constructed. For the present, however, the 4-in. slab will be exposed to the weather. The area of the slab will be approximately 100 ft. by 120 ft., and it occurs to us EXPANSION JOINTS should be provided. We have, of course, used the normal type of joint on ground floors, but never before on a suspended concrete slab. It will be imperative to make the joints waterproof, and we should be glad of any information you can offer on this subject.*

A suitable form of expansion joint for a concrete flat roof slab such as

* *Shaw Brothers, Ltd., Larchfield Mills, Huddersfield. W. Wade & Sons, Ltd., Portobello Mills, Wakefield. Maurice Dixon, Canal Mills, Armley, Leeds.*

you describe is a bent copper strip,* which is embedded into the slab as shown in the accompanying sketch (Fig. 1). The space above the strip should be filled with asphalt or bitumen mastic. The spacing of the expansion joints will be dependent on



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the position of the inner division walls, but need not be closer than every 20 ft. The joints should, of course, be placed directly over the supporting walls wherever possible.

Q115 GLOUCESTER.—*We should appreciate if you would send us all particulars relating to ROT-PROOF SANDBAG REVETMENTS, also particulars of methods for protecting existing sandbagging. Have not the Home Office recently issued a circular on the subject?*

The Ministry of Home Security have recently issued their A.R.P. Department Circular No. 279/1939, Preservation of Sandbags, and Appendix, Treatment for Rot-proofing Sandbag Revetments. Copies have been issued to all Local Authorities and Chief Constables. You can obtain one from the Ministry of Home Security, Air Raid Precautions Dept., Horseferry House, Thorney Street, London, S.W.1. The Appendix was reprinted on page 603 of THE ARCHITECTS' JOURNAL for November 16. The circular says :—

1. Damp is the main condition leading to deterioration, and with a view to minimizing its effects action is recommended on the following lines :

(*a*) The provision of a waterproof cover, e.g. bituminous felt under the top layer of bags.

(*b*) The provision of drainage at the base of the pile and ensuring that it does not stand in water. Where the conditions at the base of a pile are bad, it may well be necessary to remove the bags, and repile them after drainage has been provided.

(*c*) The application to the exposed face of the pile of a rot-proofing treatment of the kind set out in the Appendix (A.J., November 16, page 603).

2. It is most important that attention should be paid to the proper maintenance and inspection of sandbag revetments. Accidental injury may start holes from which the filling will run out, and once this happens the whole face deteriorates rapidly and is liable to collapse. This can be overcome by sewing on a strip of hessian wherever holes are observed. The provision of a kerb at the base of the stack will help to prevent damage by passing pedestrians.

3. It is noted that many revetments have been incorrectly erected and are excessively high ; in some cases they are in danger of collapse with a risk of injury to the public. Such revetments should be taken down and repiled, observing the following precautions :

(*a*) Since the fabric of the bags shrinks on being wetted, bags should not be more than three-quarters filled and seams should be placed inwards as far as possible.

(*b*) Bags should be laid in alternate courses of headers and stretchers, each course having an inclination inwards.

(*c*) The revetments should be built with a batter not steeper than one in four for all exposed faces.

(*d*) As a general rule, sandbag revetments should not exceed 6–8 ft. in height and never more than 10 ft.

4. The method of using a cement wash (to which reference was made in Circulars 11/1939 and 175/1939) is not now recommended in view of the possible chemical and physical damage to the fibre of the bags.

5. The immediate replacement of sandbags cannot be guaranteed and local authorities are therefore requested to take action on the lines indicated above as soon as opportunity offers. Reasonable expenditure so incurred in respect of sandbags used for approved A.R.P. purposes will rank for grant.

* *Copper expansion joint of the type suggested is obtainable from I.C.I. Metals, Imperial Chemical House, Millbank, S.W.1, or from Thomas Bolton and Sons, 168 Regent Street, W.1.*

Q116 KILBURN.—*The Code does not make it quite clear what kind of SUPERIMPOSED LOAD is to be taken, apart from debris load, when the strutting for an air-raid shelter is calculated.*

1. *Is the superimposed load of all upper floors to be added or only that of the floor which is strutted?*

2. *Are we allowed to assume that existing dead and superimposed loads are carried by the existing construction, and that only debris load is to be taken by the new strutting? This seems to be indicated by tables given in Memorandum No. 10.*

3. *Are only beams and columns to be calculated for debris load, which seems to be all that the Code requires, or have slabs to be designed for the same or even heavier loads?*

4. *Is it correct to assume that existing walls, piers and foundations will not be loaded to a greater extent than they are at present so that it becomes unnecessary to check their stresses?*

I should appreciate an answer to these questions, which seem to trouble not only me, but also many of my friends.

[We have received several questions to this effect and, as we cannot publish all, we have selected the most comprehensive for answer here.—*Ed.*]

Although the wording of the Code, with regard to debris load is somewhat complicated, there can be no doubt as to the meaning. It is stated that the floor load is to be taken in addition to the debris load, and this floor load is defined as the combined dead and superimposed floor load, calculated in accordance with the Ministry of Health's Model Bylaws, Series 4, "Buildings," 1939. This can only mean that the dead and superimposed load of the floor which is strutted should be taken into consideration, while the dead and superimposed loads of the upper floors will be accounted for in the debris load.

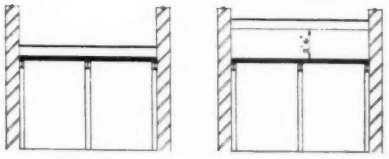

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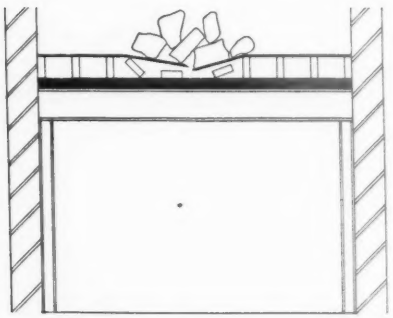
Fig. 2 shows an apparent contradiction. If a new floor is arranged immediately under an existing one, the superimposed load for which this floor is calculated would have to be considered. If, however, the new shelter ceiling is 2 ft. 6 in. below the floor, it would seem that no superimposed load need be taken into account. But although this is in accordance with the wording of the Code, it cannot be taken as representing the meaning, which is poorly expressed ; and even if the new ceiling is 2 ft. 6 in. below the existing floor, the super load of the existing floor must be included. It is also suggested that if the lowest floor has a smaller super load than those above, a greater load than the actual one be taken. It is quite clear that the Code cannot provide for any extraordinary case, and it is up to the designer to deal with each on its own merits.

2. It is a pity the tables in Memorandum No. 10 were ever published, as they do not comply with the regulations of the Code. Distinction can be made between two types of construction : (*a*) Where the existing slab provides sufficient overhead

protection, and the span is shortened in order to carry the debris load, in which case only beams and struts need be provided ; (*b*) Where the existing slab does not afford sufficient overhead protection, so that a new slab must be formed, as well as struts and columns.

(*a*) As the same slab, with reduced span, is to carry the load, it will, of course, carry the old load, i.e. dead and superimposed load, as well as the debris load. As this slab, no doubt, transmits its load directly to beams and struts, they also must carry the full load, independent of the existing construction.

(*b*) In this case it might be argued that as the old construction still exists, and was capable of transmitting normal loads down to the foundations, this construction might well do so in future, so that only the debris load is to be carried by the new slab and strutting. On the other hand, it is too much to expect falling debris to select which part of the structure it will stress, and where the existing construction (Fig. 3) is not strong enough



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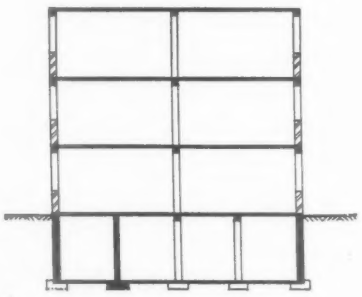
to withstand debris load, it will probably be destroyed to such an extent by falling debris that it cannot afterwards carry any load, and so the new construction would have to take the full debris load. It might also be mentioned that the Code does not permit the distribution of the load to existing and new constructions, as the tables in Memorandum No. 10 would suggest.

3. The Code does not stipulate that only beams and columns are to be strengthened to withstand debris load. It refers to buildings as such and, therefore, the slabs must be strengthened to withstand debris load as well as beams and columns. In fact, slabs will probably be stressed locally to a much greater extent than beams and columns, as it can be assumed that debris load will not be evenly distributed. For this reason certain continental regulations recommend that slabs be calculated for a heavy concentrated load. Such a recommendation is not contained in the Code, possibly because the destruction of a slab would only have a local effect



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and has not been taken seriously. It would, no doubt, be an advantage if such slabs were calculated for a heavier load.

4. The generalization seems wrong. It is quite correct that a large number of foundations, columns, etc., will carry the same load as at present, when debris load is included, as it can be argued that the total load of the upper floors and the debris load cannot act at the same time. This applies particularly if a column, wall, pier, etc., goes through the whole building from top to bottom. However, if, for instance, the pier or wall goes only up to the ground floor (Fig. 4), this pier or wall will be heavily overloaded by falling debris if intermediate struts are not arranged, i.e. if a new beam is inserted transmitting the additional load to such piers. Where this is the case, the column, pier or wall must be strengthened and as the foundations may be affected they should be strengthened too. Where foundations which are over-stressed cannot be strengthened, the whole arrangement of strutting must be altered.

This article, the sixth of a series of wartime articles on current problems, ends for the present the series on shelters and protection of property. Next week there will be published an article on sandbag preservation and substitutes for sandbags.

RESEARCH

SHELTERS: 6

(PROTECTION OF PROPERTY)

[BY FELIX J. SAMUELY]

PRIVATE SHELTERS

PRIVATE shelters are not subject to any regulations, and while the standards set out in the Code should be considered as adequate, it is up to the occupants for whom the shelter is built to decide whether these standards are high enough. Where buildings with more than one tenant are concerned, *it is to be regretted that the regulations of the Civil Defence Act, which enable 50 per cent. of tenants to compel their landlord to erect a shelter, are almost unknown.* As it is the landlord who is responsible for the erection of the shelter, only being repaid by his tenants in 40 quarterly instalments, the extra financial outlay for tenants is so minute that there can be no doubt that there would be a boom in this branch of the building trade if only the regulations were more widely known.

It is quite possible that many tenants, once they realized the power invested in them, would insist on a higher standard of protection than that visualized by the Code.

Where private shelters are erected in accordance with the standards given in the Code, they can be constructed as already described under Shelters for Employees.

PROTECTION OF PROPERTY

If a town is bombarded with high-explosive bombs, the damage affects both people and property. In the first instance, measures must be taken to safeguard the lives of people, but the protection of property is also important, particularly if it can be regarded as national property.

Property, whether it actually belongs to the State or not, is of national importance, and is to be considered as national property in either of the two following cases :—

(1) If such property is essential to the life of the nation, e.g. power stations, railways, etc.

(2) If any property might be affected to such an extent that public life would be disorganized. Warehouses containing valuable materials, e.g. foodstuffs, petrol

etc., could be classed as national property, and houses would be of national importance if there was a danger of large numbers of them being destroyed.

Fortunately, an attack by means of high-explosive bombs, which actually threatens to destroy our buildings to such an extent that it would be a national calamity, is very unlikely, and the protection of assets against blast and splinters can, therefore, be restricted to buildings which in themselves are of national importance (1st group).

In general, however, houses and buildings built with inflammable material are threatened mainly by incendiary bombs. People are not much endangered by these missiles, unless a person is actually trapped in a burning building. The likelihood of anyone being hit by such a bomb is very remote. Damage to property by these bombs, however, can be far in excess of that by high-explosive bombs, simply because :

(*a*) So many more incendiary bombs can be carried by one aeroplane ; and

(*b*) Each bomb which hits an inflammable object *can* do as much damage as a high-explosive bomb a thousand times heavier.

Thus the policy for the protection of property can be subdivided into two parts :

(i) Protection of important industries against blast and splinters.

(ii) Protection of all property against fire, particularly houses which are not safe owing to the type of construction.

I. *Protection of important industries.*

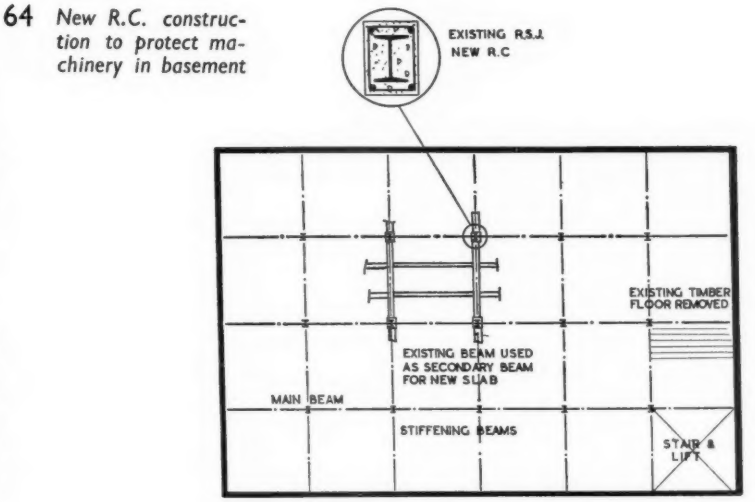
The Civil Defence Act, Section V, provides for the first type, and grants are given which are considerably in excess of those set out for the protection of employees. Such grants will refer to all public utility undertakings, and especially to railways, docks, harbours and power stations.

A simple method of protection, which however can rarely be applied, would consist of the transference of important machinery into the basement of a building, which would be strutted in a similar manner to a basement shelter. Long strutting beams will generally be required in these cases as vertical struts will be inconvenient.

From the point of view of safety, division walls will not be as necessary as in shelters, and if, in accordance with regulations, one shelter compartment is designed to accommodate 50 people, these people, together with the machinery they attend, will usually need a much larger compartment than the average shelter compartment. On the other hand, if the same number of people occupy a room, the danger of blast and splinters is increased the larger the room. Therefore, where circumstances permit, the erection of internal screen walls will be of advantage.

In many cases it will be found that new struts are undesirable, except in the immediate neighbourhood of existing columns, and any construction is to be arranged so that the intervening space is bridged.

64 *New R.C. construction to protect machinery in basement*

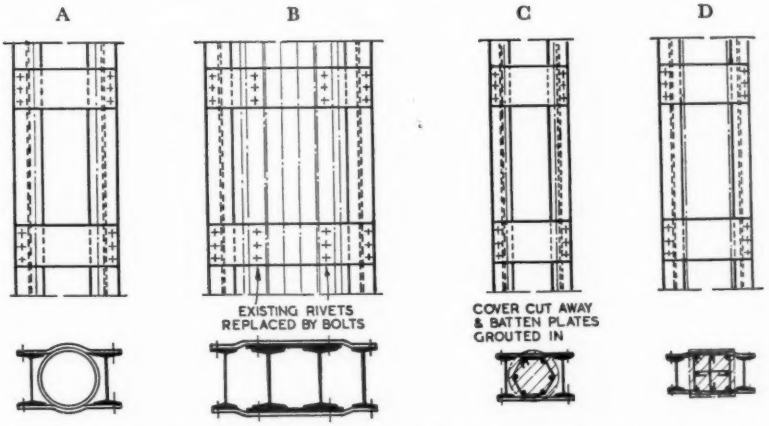


65 *Shoring of existing basement ceiling without reducing available floor space. Two R.S.J.s on either side of existing column stiffened by batten plates.*

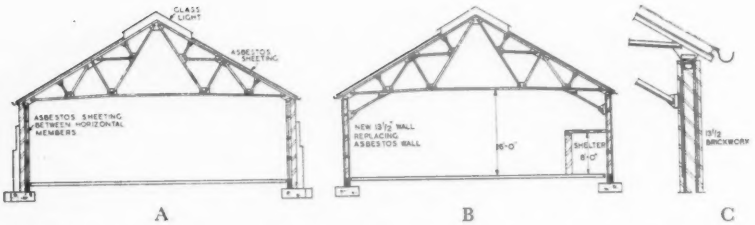
An entirely new floor, with beams resting on the new casing to existing columns, as shown in Fig. 64, would be an ideal solution. Where the disturbance caused by the removal of the old floor is too great, beams must be arranged under the existing floor, as shown in Fig. 65. Where it is difficult to get long beams into the existing basement, they might have to be spliced on the site, as shown at point A in Fig. 65.

In order to reduce the buckling length of new columns and to make them more efficient, batten plates, fixed by bolts, can be arranged in the manner shown in detail in Fig. 66, for several prevailing sections of existing columns.

It will not always be possible to concentrate the important machinery in the



66 *Several combinations of existing and new columns.*



67 *Making existing workshop blast-proof—(a) by means of piers ; (b) by means of haunches ; (c) detail of haunch.*

basement, and it then becomes necessary to make the whole of an existing building strong enough to withstand blast and splinters.

As far as splinters are concerned, the solution is to provide a skin of such materials as are considered to be sufficient protection, i.e. the same thickness set out for lateral and overhead protection for shelters. (*See* Tables I and II, ARCHITECTS' JOURNAL, November 9, 1939, pp. 572-3.) It is evident, however, that such a skin in itself cannot be relied upon to withstand the effects of blast unless held in position by a proper skeleton. (For ordinary one-storey shelters, this consideration has not been deemed sufficiently important to be emphasized, for if such shelters, particularly those underground, are subdivided as visualized in the Code, they would be of adequate stiffness.)

Such a skeleton may consist of floors and walls or of rigid frames. Very few industrial buildings will permit of new walls or floors being erected, so that special constructions will often be required.

Before deciding on the steps to be taken, the whole structure must be examined to ascertain whether it will provide the necessary rigidity. If it will not, either the existing construction is to be made rigid or a new frame is to be introduced.

The existing walls of industrial buildings are usually much thinner than those required for lateral protection. In particular, where it is not necessary to maintain an even temperature, brick walls 4½ in. thick, or even corrugated asbestos, have been used, and in these cases, in order to make a building blast- and splinter-proof, a new skin is essential, in which rigid constructions may be incorporated.

In Fig. 67 an example is shown of a one-storey factory built with steel construction, consisting of trusses supported by columns. The height from the floor to the soffit of the truss is 16 ft.

This example might also be taken for other buildings of this type, e.g. railway stations, bus garages, engine sheds, hangars, etc.

There are two ways of making this building effectively blast-proof :

(1) By increasing the thickness of the wall to 13½ in. and building buttress piers on good foundations, which are to be calculated for stresses due to blast, but which should not be less than 27 in. thick at the bottom (Fig. 67, A).

(2) By also thickening the wall to 13½ in., but leaning this wall against the existing steel construction. This is possible only if such steel construction is rigid enough to withstand the forces of blast. If the existing construction is not rigid in itself, it can be improved by introducing haunches in the manner shown in Fig. 67, B. If the calculation demands it, the columns might have to be strengthened by flange plates.

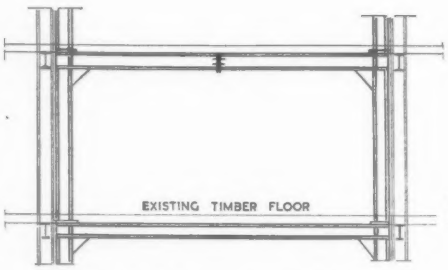
It is more difficult to protect such buildings against splinters from overhead, as this generally involves the strengthening of the existing construction.

The only material which would provide sufficient overhead protection, and which generally is not too heavy, is ¼ in. steel plate (10 lb. per sq. ft.), but it would be rather expensive to cover a large area with such material.

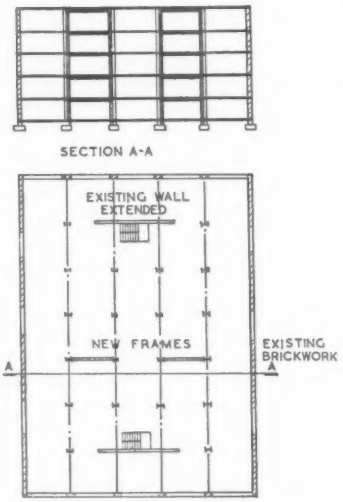
If the personnel of the building would not remain at work during an attack, splinters might not be considered as dangerous, as they have only a local effect on machinery, and in this case the overhead protection can be disregarded and the walls may be reduced to 9 in. or not thickened at all. This would limit the alterations to the stiffening of the building.

Alternatively, a new ceiling may be constructed over a part of the building, as shown in Fig. 67, B to protect either particularly vulnerable machinery or the personnel.

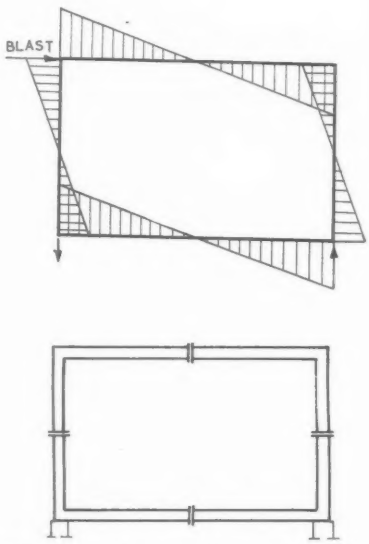
Where such a workshop is of properly constructed reinforced concrete or has a rigid steel frame with panel walls, it can generally be assumed to be strong enough to withstand the effects of blast, without necessitating structural alterations.



69 *Detail of frames inserted in Fig. 68.*



68 *Making multi-storey building rigid against collapse due to blast.*



70 *Points of contraflexure due to blast.*

Multi-storey industrial buildings without cross walls, unless built rigidly, are more difficult to stiffen. This might be done, however, by introducing new cross walls or if these would form obstructions, steel frames (Figs. 68 and 69). It might be pointed out that a rigid frame stressed by a horizontal load on top (Fig. 70) would have points of contraflexure in the centre of the vertical and horizontal members.

Such a frame, therefore, could suitably be carried out in four parts, each of which could be finished in the workshop and be assembled at the site with small labour, as the stresses at the joints are small.

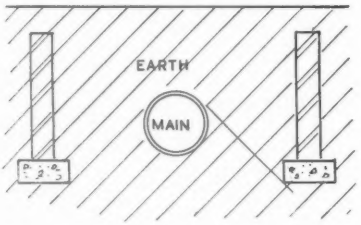
Many important constructions are outside buildings, and thus are more

difficult to protect, e.g. road surfaces, permanent ways, etc., which can hardly be safeguarded against the secondary effects of bombardment, although in their case the danger is also less.

Mains and sewers, on the other hand, are both in danger and difficult to protect. Shock waves in the ground are apt to produce high stresses wherever the density suddenly changes, and this will be the case where they meet with underground pipework. Unfortunately, a leakage at one point may put the whole branch of a main out of action, and if fires are to be dealt with, the mains are of particular importance. Leaks in sewers, although disagreeable, would not have such far-reaching effects.

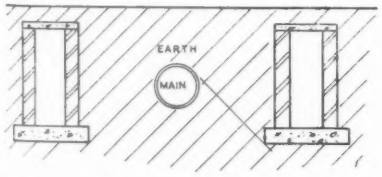
There are several methods of protecting pipework, but although they would decrease the danger considerably the protection afforded would never be 100 per cent.

Skirting walls at distances of 5 to 10 ft. from pipes and of 9 in. to 12 in. concrete or brickwork could be used. These walls should stand on footings, 3 or 4 ft. under the soffit of the pipes (Fig. 71). Such protection can be increased if a



71 *Shock-absorbing walls for the protection of pipe line or cable.*

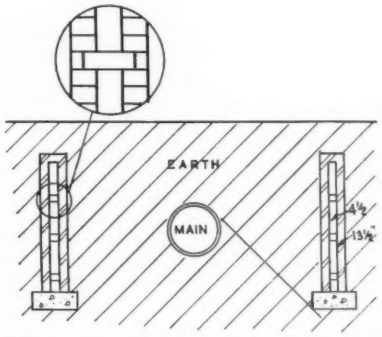
cavity is left, a provision which generally would mean two walls (Fig. 72). Even if such a cavity is frequently interrupted



72 *Shock-absorbing cavity for protection of pipe line or cable.*

by binders, as would be necessary if 4½ in. shells were used, the shock wave energy transmitted through this wall is much smaller than through an ordinary brick wall. Such a construction is shown in Fig. 73, and consists of two 4½ in. walls connected by binders, 27 in. apart horizontally, in every 5th course staggered.

A still better, although more expensive, method would be to have pipes lying loose in a case. This will be more practicable where many mains are together and may be accommodated in one channel (*see* Fig. 74). It is

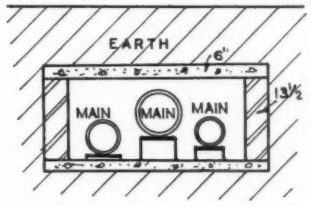


73 *Shock-absorbing cavity walls for protection of pipe line or cable.*

important that the pipes should not be continuously supported, but at intervals on concrete pads with felt covering.

II. *Protection of Inflammable Property against Fire (Incendiary Bombs)*

The danger of incendiary bombs was thoroughly discussed in THE ARCHITECTS' JOURNAL of June 8, page 1002,* and in



74 *Casing channel for pipes.*

the Information Centre of THE ARCHITECTS' JOURNAL for November 2.

While it is understandable that a large part of the population should shirk the expense, particularly as the Civil Defence Act neither compels nor recommends the protection of housing against fire, such expenses might be considered as insurance against what might be a personal as well as a national loss. If, during the present slump in the building trade, the owners or occupiers of houses can be persuaded to do something about this protection, it would help the defence of the country materially.

There are two methods of defence against incendiary bombs:

(1) Giving almost full protection, but being more expensive;

(2) Giving only a certain degree of protection, but necessitating a much smaller outlay.

The first method consists of providing a new concrete roof either on top of the existing roof or (cheaper) on top of the attic beams. The second method consists of merely protecting the attic beams against fire spreading downwards, caused by a bomb coming to rest in the attic.

Both these arrangements were described in the above-mentioned articles, where figures were also given, and they need not be repeated here.

* Civil Defence. By Samuely and Hamann. Architectural Press. Price 8s. 6d.

Correspondence

SIR,—I am sorry that you were unable to find space in your current issue to print the A.A.S.T.A.'s statement on the above subject, for it would have enabled your subscribers to form their own opinion about Astragal's comments, every one of which is answered by a careful reading of the statement itself.

Astragal believes that our first job must be to get work for the whole building industry, the second, to establish the position of architects, and "only No. 3 is the question of which architects and which assistants will be employed." He says further, that the A.A.S.T.A. puts forward "claims for a subsection of a section of the industry—for assistants and official architects as against the private practitioner." In fact, it is precisely because the R.I.B.A. Executive is putting No. 3 job first that the A.A.S.T.A. says: "This sectionalism is now becoming harmful to the whole profession" and calls for collaboration "with the building trade, local authorities, and lay organisations" on behalf of the whole industry.

To suggest that the A.A.S.T.A. is splitting the profession is therefore as true as to suggest that it is not already split by its so-called leaders, who have proved themselves incapable of caring for the welfare of the profession as a whole.

Astragal says: "A crisis is not the time for remedying all discoverable faults in a complex organization," but it is deliberately naive to suggest that the faults in the R.I.B.A. leadership would require long research to "discover" them. In the view of the A.A.S.T.A. the faults are plain, and our plight is so serious that they must be removed now. After their removal, both the Institute and the profession will have a chance to prosper.

COLIN PENN,
Chairman (A.A.S.T.A.)

[*Following is the A.A.S.T.A. statement mentioned in the above letter.*]

The architectural profession faces a major crisis. The outbreak of war has produced a situation in the building world similar to the slump of 1931, but far more serious. Private building has all but stopped; so has the civil building of local authorities and Government departments. The resulting unemployment threatens to become universal. What is being done about this by the body which claims to represent the profession, the R.I.B.A.?

After a period of retirement—during vital weeks—under cover of an "Emergency Committee," the Institute has awakened to champion not the interests of the whole profession, nor even of the greater part of it, but those only of one small section—the architects in private practice. To their interest was devoted the main part of the business at the first war informal general meeting; in their interest the President has conferred with the Board of Inland Revenue on the question of war damage valuation; in their interest the Institute's representatives have been active on the Government Advisory Committees; in their interest the President is seeking information on the stoppage of building work. Indeed, the Chairman of the Practice Committee has made public a plea, in effect, that official departments should put work into the hands of private architects rather than engage (or should we say retain?) salaried assistants.

For the assistant the Institute has done practically nothing, nothing except obtain employment for a few through its own or the Central Register. It has failed even to secure the appointment of an assistant on any of the committees of the Central Register. The Salaried Members' Committee of the R.I.B.A. has not met since the war began.

This sectionalism has now become harmful to the entire profession. We believe the refusal of the R.I.B.A. to act for the profession as a whole or to adopt an independent policy, even on purely technical grounds, with regard to fundamental problems, such as A.R.P., evacuation, town planning, and the like, and its general aloofness from social building needs are the direct causes of our present troubles and justification for the contempt in which we are held by Government and public.

And now, without consulting the membership, those in office at Portland Place have taken the very grave step of supporting a Parliamentary Bill allowing them to suspend the Council elections and thus keep in their seats the very men who have brought the profession to its present position.

The A.A.S.T.A. publishes this statement with the conviction that the needs of the public and the interests of the profession urgently require us to put aside sectional interests, to awake from our æsthetic dreams, to forget our professional snobberies, and to attack at once the problems that face us. We—that is, the profession—must formulate an independent policy, publicise it, and press for its adoption by the Government.

The past has shown only too clearly that in their anxiety to avoid putting forward any proposal which might be at variance with Government policy, even on technical

problems, such as A.R.P., the R.I.B.A. has forfeited its independence and has, in fact, become subservient to official policy even when that policy was technically incorrect. This is leading us to professional suicide.

The A.A.S.T.A., which to the limit of its resources has already attempted to frame professional policy on shelters and evacuation, puts forward as a first step the following demands :—

(1) The resignation from Council and committees of all who are unable to attend regular meetings. The nomination of assistants in their place, with a proper system of representation for provincial members.

(2) The resumption of regular meetings of Council and all committees. The calling of monthly general meetings with power to pass resolutions. The continuance of yearly elections to the Council.

(3) Replacement of all R.I.B.A. representatives on Government committees by men with a definite mandate from the profession, agreed on after discussion at a general meeting. Such representatives to make regular reports, which shall be subject to criticism at general meetings.

(4) The R.I.B.A. to take active steps, in collaboration with the A.A.S.T.A., the building trade, local authorities and lay organizations, to urge on the Government the necessity for a resumption of civil buildings on a scale which will save our biggest internal industry from collapse and protect the welfare of the community.

(5) The A.R.P. Committee to undertake a technical study of the standards of existing air-raid protection with a view to putting forward a policy to end the present chaos.

(6) The appointment of a committee to study the problems raised by evacuation and to put forward a programme to end the present conditions in the reception areas.

(7) The Council of the R.I.B.A. to repudiate the policy of advising Government departments and local authorities to place work in the hands of private architects, and to urge actively on these authorities the need for retaining their salaried staffs.

(8) A campaign against overtime, in whatever form, and whether paid or unpaid, as long as there is unemployment in the profession.

We believe that these demands are in the interests of the profession as a whole, and that they will be supported by all who have its interests at heart, and that they will enable the R.I.B.A. to regain that position of authority which it once held.

Architectural Front

LONDON SOCIETY

Monthly publication of the Society's *Journal* ceased with the December issue. Society states: "We hope to carry it on every three months, in that way reverting to its original form. The *Journal* was a quarterly publication (in larger form, of course, than the monthly issue) until January, 1920. In March of next year we hope to print the Annual Report as usual, with any additional matters of interest that may arise before then. It is Lord Crawford's expressed wish that the *Journal* should continue in some form or other, even if only a single page."

Building Front

CRITTALL MANUFACTURING CO. Designs, with explanatory notes, for the obscuration of factory lighting by external steel shuttering are contained in a brochure just issued by this firm.

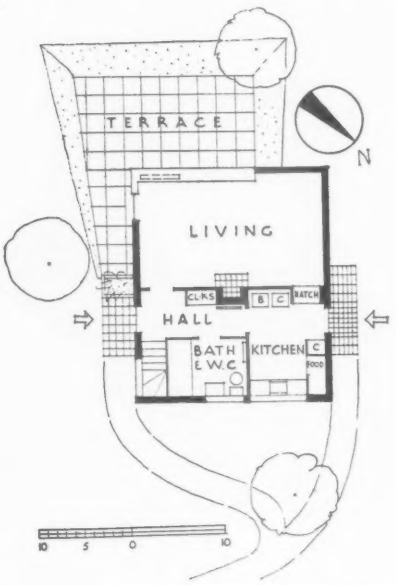
LIVERSEDGE REINFORCED CONCRETE ENGINEERING CO. Maintaining a London technical and designing office at the Field House, Chancery Lane, London, E.C.4 (Holborn, 3718) and London works at 26 Canal Bank, Camberwell (Rodney 4766), for urgent deliveries of stock, Liversedge steel fabrics and bars for A.R.P. shelters and priority work. Specially large A.R.P. and Government orders should be placed with firm at least four weeks ahead of commencing deliveries. Big demand for Liversedge standard 50-person shelters and domestic shelters (8–10 people).

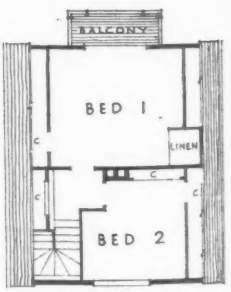
INFORMATION CENTRE

HOUSE AT

DESIGNED BY ELIE MAYORCAS

Above, north-east front





GROUND AND FIRST FLOOR PLANS

SITE—The actual site is 10 to 12 ft. below the approach road level, and falls sharply to the south-west. Planning was largely dictated by the existence of many fine large trees.

PLAN—The plan was so arranged in order to give the large living-room and bedroom-study over the maximum amount of sunlight and view. The house being small, as much as possible in the way

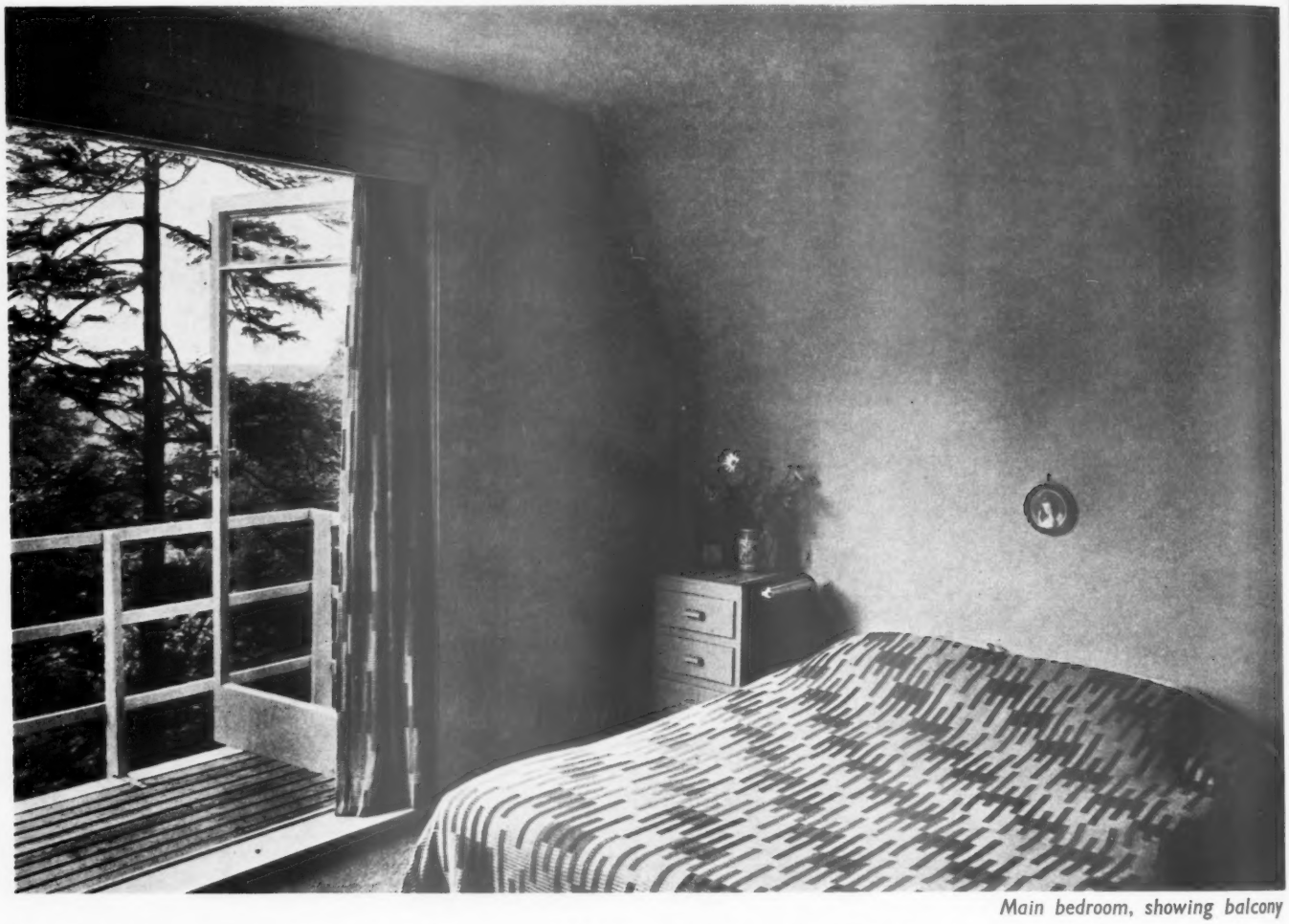
T O L D C O U L S D O N , S U R R E Y

The south-west front.

of cupboard fitments, book shelves, etc., were designed as part of the whole scheme.

CONSTRUCTION AND EXTERNAL FINISHES—Brick construction, 11-in. cavity walling being employed with the upper portion entirely timber framed. Roof is covered with plain sandfaced tiles. Boarded floors throughout, except entrance hall, which is tiled. The study bedroom has a cantilevered balcony. The elevational treatment in general was mainly governed by the client's wishes. Brick facing is a rustic fletton, colour washed.

INTERNAL FINISHES—Walls generally are plastered and distempered except in kitchen and bathroom, where Keene's cement and paint has been used. Floors generally are in deal boarding.



Main bedroom, showing balcony

HOUSE AT OLD COULSDON, SURREY

DESIGNED BY ELIE MAYORCAS

SERVICES—A coke-fired boiler provides the hot water, from which is also worked, on an independent circuit, the central heating in the hall and living-room, the latter having a coal fire in addition. The house is completely wired for electric heating if required.

COST—£702, including boundary fencing, entrance gate, brick paths, terrace in pre-cast concrete blocks, etc. Price per foot cube, 11¾d.

The general contractor was H. M. Gifford. For list of sub-contractors, see page 713.

LETTERS

Housing Centre

SIR,—A recent decision taken by the Executive Committee of the Housing Centre will be of interest to members of the architectural and town planning profession and other professional persons whose work is in some way connected with housing.

In order to ensure that accommodation at the Centre's premises which is at present vacant may be usefully occupied, and to assist friends of the housing movement at a time when their specialized knowledge appears to be in less demand, we are prepared to offer a limited number of such persons the part use of an office and office services at purely nominal charges. In this way we hope to preserve our building as a Centre for those interested in housing and its related problems, and at the same time assist our friends who would otherwise find it difficult to maintain a London address where they can keep in touch with their work and interests. They will find that the Centre itself is carrying on its normal activities in its own part of the building and is modifying them only so far as is necessary to suit war-time conditions. The library and information service and weekly discussion lunches are all being continued, and a special *ad hoc* committee is working on a programme for the collection of data and the promotion of research on the many problems which are urgent now and will also be involved in any peace-time reconstruction. It is hoped that this programme may be put into effect by an autonomous Council representing all the interested organizations.

PATRICK ABERCROMBIE,
Chairman, Housing Centre.

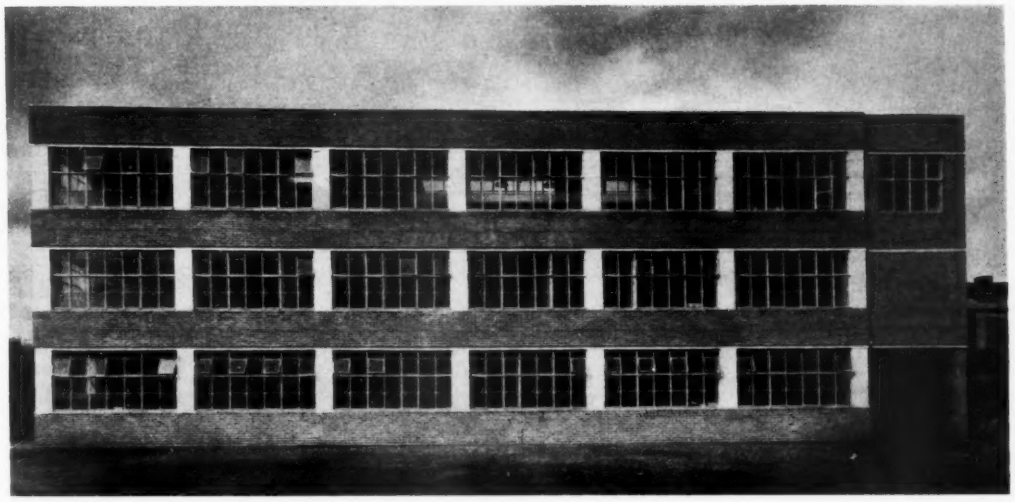
BUILDING INDUSTRY

Following is the recommendation of the Joint Contracts Tribunal in regard to the contractual problems confronting the building industry as the result of the war.

At a meeting of the Joint Contracts Tribunal held on October 10, 1939, the representatives of the R.I.B.A. and the National Federation of Building Trades Employers discussed and reviewed the contractual problems confronting the building industry as the result of the war.

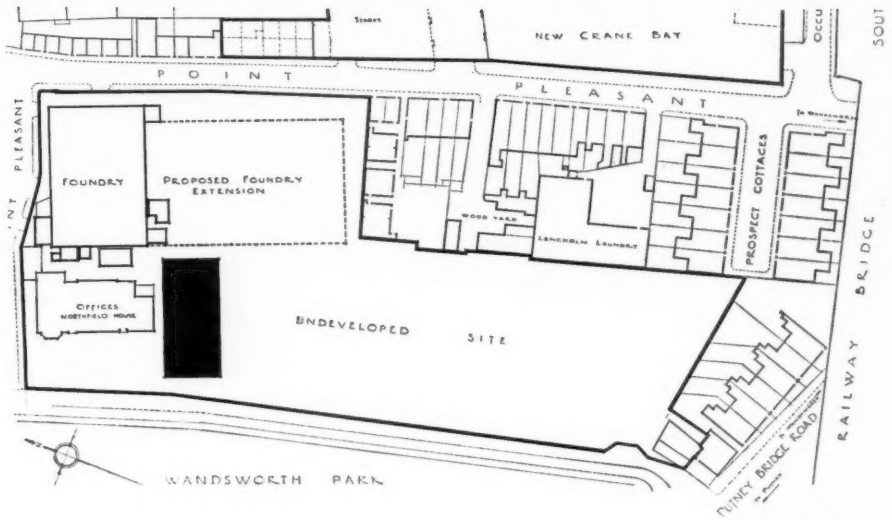
OFFICE BUILDING, WANDSWORTH

DESIGNED BY ADIE BUTTON AND PARTNERS



GENERAL—A block of offices for the Aluminium Plant and Vessel Co., Ltd. This block is on a level site and sufficiently close to the existing offices to allow of a short corridor connection at first-floor level. It is the intention of the Company to demolish the old offices and extend the new ones at a later date, and the building has been planned so that the main staircase will then be in a central position for the entire building.

Above, south elevation



SITE PLAN

In so far as such problems are due in whole or in part either to the inability to obtain adequate supplies or to the increase in the prices of materials or to the uncertainty created in the minds of the parties through the lack of any provisions in the contract in regard to war risks, the Tribunal, as authors of the R.I.B.A. 1931 Standard Form of Building Contract, and of the revised edition of that Form issued in 1939, considered it desirable that some authoritative recommendation should be issued for the purpose of giving such guidance as might prove of general assistance towards the equitable solution of these problems as they may affect any particular contract.

In considering the general principles upon which any recommendation of the Tribunal should be based, they have not thought it within their province to express any views upon the strictly legal aspects of such problems as may arise. They appreciate that these will depend upon the specific terms of each contract and that such legal questions as may be involved will result from the particular circumstances of each case. They have, however, approached the matter not only with the knowledge that in a number of instances building work has been held up because of uncertainty, but also upon the assumption that it would not be the desire of either party to insist upon the strict letter of his contractual rights to the detriment of the other, but rather to arrive at an equitable arrangement for the completion of the works or the termination of the contract as the parties may desire.

The Tribunal therefore recommend that where the prices of materials and goods to be used in the building works have been increased owing to the war or where wages have risen, the net cost actually and necessarily paid by the contractor due to such increases in the prices of materials and goods or rises in wages after the outbreak of war should be reimbursed by the building owner, but that no profit should be allowed to the contractor upon such extra cost. Any delay that may be caused by difficulty in obtaining material or labour or otherwise due to the emergency and unforeseen conditions that have arisen should be met in any case by an extension of time.

The question of loss or damage caused by hostile action to buildings in course of erection has also received the attention of the Tribunal. In so far as it would appear that any compensation for war damage to buildings which might be paid under any scheme which might be drawn up by the Government would be paid to the building owner as owner of the land upon which the buildings were being erected, the Tribunal considered it equitable that the building owner should assume liability for such damage in respect of the works upon his land, which of course as attached to his land are in his ownership, but that the responsibility for any loss or damage to plant, equipment or tools, being in the ownership of the contractor, should remain with him. Further, the Tribunal desire to recommend that in the event of the contract works being destroyed or damaged by hostile action the employer would have the right thereupon to determine the contract upon the terms that the contractor be paid the proper value of all works executed and all materials delivered prior to the happening of such event, including the works or materials so damaged or destroyed. The compensation to the owner would be such as the scheme of the Government may prescribe.

The Tribunal put forward the above recommendations as providing a basis upon which an agreeable settlement of present war-time contractual difficulties in respect of pre-war contracts may be reached in a manner fair to both parties.

The Tribunal recognize the need for carrying on the normal business of the country so far as compatible with the public interest and it is hoped that the application of the general principles set forth in this recommendation may have the effect of not only continuing works already contracted for, but also of encouraging the undertaking of such new building works as may be possible having regard to the conditions created by the present emergency.

The Tribunal also desire to record their view that the general principles enunciated above should be applicable not only to private contracts, but also to cases where a local authority or other public body is the building owner and instructions have accordingly been given that the terms of this recommendation be brought to the notice of those responsible for public building works.

C. D. SPRAGG,
NORMAN H. WALLS,
Joint Secretaries, Joint Contracts Tribunal.

LAW REPORT

ARCHITECTS' SUCCESSFUL CLAIM

Cohen and another v. *Bluston.—King's Bench Division. Before Mr. Justice Hallett.*

THIS was an action by Mr. Jacob Louis Cohen, of Shoot-up Hill, Cricklewood, an architect, and Mr. Israel Schultz,

Main entrance

CONSTRUCTION AND EXTERNAL FINISHES — R.C. frame with patent hollow tile floors cast *in situ*. Concrete framing is faced externally with Portland stone between the windows, with facing bricks in the panels under the windows pointed to match the stone. The Portland stone and window bars have all been designed in square units. Roof is patent hollow tiles, finished with special insulating surface tiles. Partitions surrounding the staircases and lavatories are 9-in. brickwork, the remainder of the partitions are in wood, glazed above cill height. Partitions are all designed in units and can be taken down and re-erected with the minimum of labour. Cork floor covering is continuous under all glazed partitions. Hollow tile floors are covered with cork tiles.

INTERNAL FINISHES—Walls, plastered and distempered ; all woodwork, except the entrance hall, painted. Teak doors and architraves to the entrance hall, wax polished; staircase handrail polished to match. Main staircase finished with cork treads and risers, polished ; secondary staircase finished in granolithic with a cork inset in each tread.

SERVICES—Heating is from radiators run by low-pressure hot water ; radiators have been divided into small units to allow greater flexibility in re-dividing the offices if necessary. New boilers have been placed in the existing boiler room to the old building. Hot water supply is taken from a calorifier in the new building on the heating system. Plumbing and cistern to the w.c.s have been concealed in pipe ducts with insulated access panels.

For list of general and sub-contractors, see page 713.

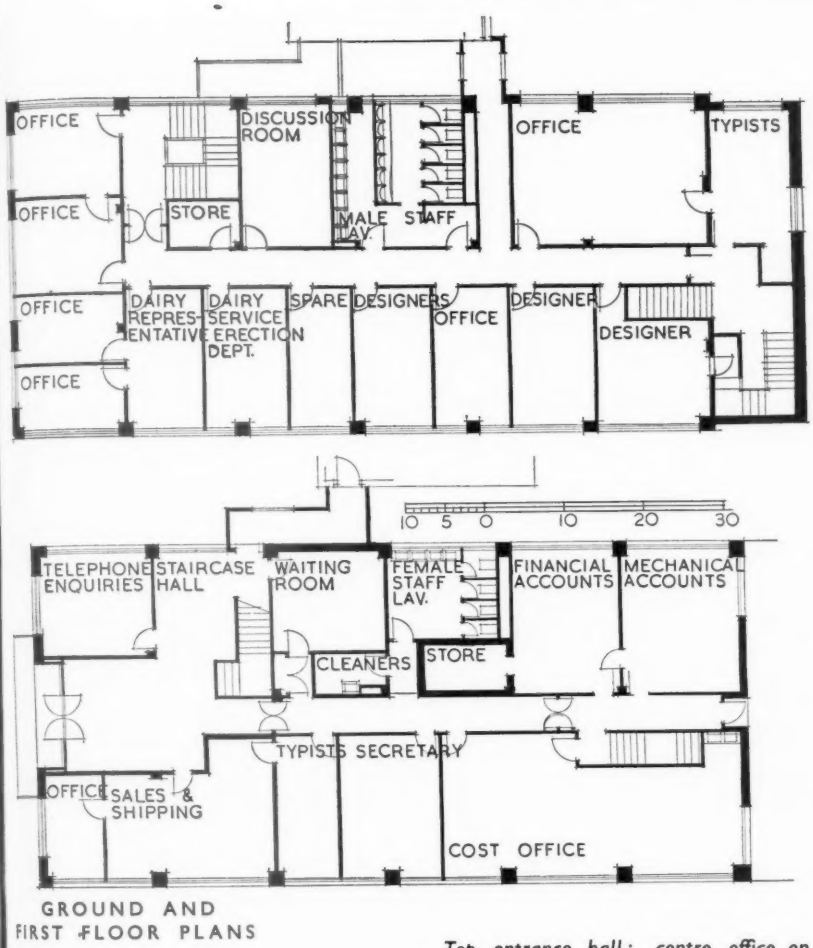
OFFICE BUILDING,

architect, of Alexandra Road, St. John's Wood, to recover from the defendant, Mr. Charles Bluston, of Teignmouth Road, Brondesbury, £350 fees in connection with the erection of a block of flats and a number of garages, at the corner of Donnington Road and Harlesden Road, Willesden, for the defendant.

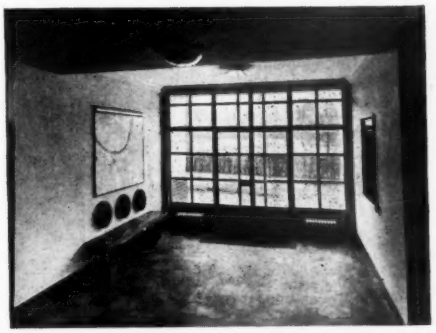
The plaintiffs' case was that they were entitled to recover from the defendant the £350, alleging that he had committed a breach of the agreement by having failed to proceed with the building scheme for the erection of the block of flats after arranging to employ the plaintiffs jointly as the architects at a fee of £350.

It was stated by counsel for the plaintiffs that they, having prepared the plans for one scheme for the defendant, agreed later to substitute another scheme for it, and they prepared all the necessary plans in connection with the second scheme, which were submitted for the approval of the Willesden Borough Council. In March, 1938, the Council gave permission for the work of erecting the flats and garages to proceed. The defendant, however, did not go on with the project.

The defendant, in his defence to the claim, pleaded that the plaintiffs had failed to comply with certain terms of the agreement and had failed to carry out all their obligations under it. A term of the agreement which the defendant maintained had not been fulfilled by the plaintiffs was that in the event of there being any revision of the original scheme for the erection of the proposed buildings the revised scheme was



GROUND AND FIRST FLOOR PLANS



Top, entrance hall; centre, office on first floor; bottom, large office on second floor.

WANDSWORTH • ADIE BUTTON AND PARTNERS

to be submitted to the defendant before it was put before the local authority.

After hearing the evidence, his lordship, in giving judgment, said that in his view there had never been a rag of defence and the plaintiffs were entitled to succeed.

The question he had to determine was the proper amount to compensate the plaintiffs for the damage they had sustained by being precluded from earning the fee which they would have got if they had been allowed to go on with the contract. He thought the appropriate figure was £245, and he entered judgment for plaintiffs for that amount with costs.

Mr. Bluston, who had appeared in person to defend the case, asked for a stay of execution pending an appeal by him from the judgment. He said, "Through the war I have not got a bob. That's why I have been fighting this case off my own bat. The war has crippled me."

His lordship refused the application for a stay.

Counsel for the plaintiffs asked for leave to enforce the judgment, but that matter his lordship referred to a Master.

•

CHADWICK PUBLIC LECTURES

In September last it was decided, in consequence of the war, to postpone the Chadwick Public Lectures. The trustees have now resolved to resume the lectures, subject to national conditions permitting. The lectures for the Spring programme, 1940, will deal generally with public health matters and the war, and will be announced in due course.

CHANGE OF ADDRESS

The Department of Overseas Trade has removed from 35 Old Queen Street, S.W.1, to the New Public Offices, Great George Street, S.W.1, to which all enquiries should now be addressed. Telephone number as before, Whitehall 9040.

THE BUILDINGS ILLUSTRATED

HOUSE AT COULSDON, SURREY (pages 708-710). Architect: E. Mayorcas. General contractor, G. M. Gifford. Sub-contractors and suppliers included: G. M. Callender & Co., Ltd., Callender's Ledkore dampcourses; London Brick Co., bricks; Thomas Lawrence and Sons (Bracknell), Ltd., tiles; D. Anderson and Sons, roofing felt; Chance Bros., obscured glass; Ideal Boilers and Radiators Co., Ltd., boilers; County of London Electric Supply Co., Ltd., electric wiring; Oswald Hollmann, electric light fixtures; Rownson, Drew and Clydesdale, sanitary fittings; Dryad Metal Works, door furniture; Martin Bachtold, agent for Kiefer Window Co., Zürich.

ALUMINIUM PLANT & VESSEL CO., LTD.'S NEW OFFICE BUILDING (pages 711-713). Architects: Adie Button and Partners. General contractors were William Lacey (Hounslow),

Ltd., who were also responsible for the Portland stone and other stonework. Sub-contractors and suppliers included: Trussed Concrete Steel Co., Ltd., reinforcing steel; H. W. Dutton & Co., Ltd., heating and hot water; A. Grant and Sons, cast-iron drainage and plumbing; Leeds Fireclay Co., Ltd., sanitary fittings and mirrors; C. E. Welstead, Ltd., metal windows and doors; E. J. Elgood, Ltd., granolithic paving; Carter & Co. (London), Ltd., white glazed tiles; Frazzi, Ltd., Paropa flat roofing; Hills Patent Glazing Co., lantern lights; Cork Insulation Co., Ltd., cork flooring, etc.; Armstrong Cork, Ltd., Accotile paving and cills; Walter Cassey, Ltd., ironmongery and door furniture; John Lightfoot, electrical installation; Frederick Tibbenham, Ltd., doors, teak architraves, door linings, etc.; George Wright (London), Ltd., back staircase; Commercial Structures, Ltd., hat and coat racks; Siemens Bros. & Co., Ltd., internal telephones; Benjamin Electric, Ltd., electrical fittings.

R.I.B.A. FINAL EXAMINATION

ALTERNATIVE PROBLEMS IN DESIGN

Instructions to Candidates

CANDIDATES should acquaint themselves with the general regulations governing the Testimonies of Study printed in the official form of application, which may be obtained on application to the Secretary, R.I.B.A.

The drawings, which should preferably be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, R.I.B.A., 66 Portland Place, London, W.1, on or immediately before the dates specified below.

The Problems in Design may be submitted in a cardboard roll or in a portfolio. When they are sent to the R.I.B.A. by post or by carrier the roll or portfolio in which they are sent should be strong enough adequately to protect the drawings against damage during transit.

Each set of drawings must be signed in ink by the author and must bear his full name and address and the name of the school, if any, in which the drawings have been prepared.

All designs, whether done in a school or not, must be accompanied by a declaration from the student that the design is his own work, and that the drawings have been wholly executed by him. In the preparation of the design the student may profit by advice.

Drawings for subjects (*a*) are to have the shadows projected at an angle of 45 deg. in line, monochrome, or colour. Drawings for subjects (*b*) are to be finished as working drawings. Lettering on all drawings must be of a clear, scholarly and unaffected character. Prints of drawings are not submissible.

After a design has been approved it may be re-submitted together with the specified working drawings on one of the two published dates for the receipt of drawings immediately following the date on which the design was submitted. All candidates taking the Final Examination will be required to include in the four Testimonies of Study for which they must secure approval before being admitted to the Examination, at least one constructional subject (working drawings of an approved design), and one problem involving an acoustical treatment. In addition, considerations of common-sense acoustics as they apply in ordinary modern design must not be ignored in any Final Examination Testimony of Study. Where a reverberation table is asked for it should be as complete as possible and the reverberation formula should be quoted. Acoustic diagrams showing the reflection of sound beams should be to a scale of one-eighth of an inch to a foot. The two subjects set for 1940 which may be treated acoustically are Problems Nos. 38 and 41. The two subjects which may be treated acoustically may be submitted *on any of the published dates* for receiving Problems in Design in any particular year, *provided that they are treated acoustically.* Candidates treating a Problem in Design acoustically must submit the acoustical calculations, etc., when they first submit the design. A list of articles and books on the subject of Acoustics to guide candidates in obtaining the necessary information may be obtained free on application to the Secretary, R.I.B.A. Design subjects taken from one year's list may not be submitted in any subsequent year.

Drawings which have been submitted by candidates and rejected by the examiners may not be revised and re-submitted.

A set of approved Final Examination Testimonies of Study has been deposited in the R.I.B.A. Reference Library for the information and guidance of students.

DATES FOR THE SUBMISSION OF DESIGNS IN 1940

Subject No. 37	February 29.
Subject No. 38	April 30.
Subject No. 39	June 28.
Subject No. 40	August 30.
Subject No. 41	October 31.
Subject No. 42	December 31.

No. 37

(*a*) "*A Country House.*"—The site, which may be assumed to be in a locality known to the candidate, is situated at the foot of a range of hills. It is bounded on the north by a road, on the south by a small river and on the west by a beech plantation, which extends, also, along the road frontage. The hills rise sharply on the north side of the road and there are extensive views, across open country, to the south (*see* Fig. 1).

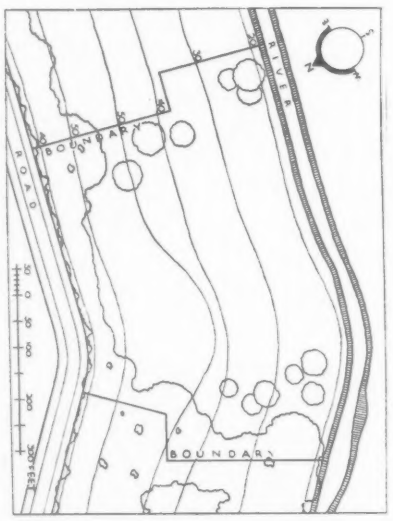


Figure 1

Water and electricity are the only services available.

ACCOMMODATION. (The sizes given are for guidance only, and they need not be strictly adhered to.)

SECTION ONE. The House

(a) *Living Rooms and Kitchen:*
Hall, cloakroom and stair-hall.
Study ... ... 200 ft. super.
Living room ... ... 550 „ „
Writing room ... ... 350 „ „
Loggia, for open-air meals ... 200 „ „
Dining room ... ... 350 „ „
Kitchen, pantry, larder, stores and staff w.c.

(b) *Owner's and Guests' Bedrooms:*
Owner's bedroom ... ... 300 ft. super. with dressing room and bathroom adjoining.
Three guests' bedrooms, each ... 250 „ „
Two bathrooms, two w.c.s, linen room and housemaids' closet.

(c) *Nursery:*
Day nursery ... ... 270 „ „
Night nursery ... ... 270 „ „
Bathroom.

(d) *Garage and General Services:*
Garage for four cars.
Laundry.
Heating chamber and fuel stores.

(e) *Staff Accommodation:*
NOTE.—The staff to be accommodated in the house will consist of a married couple, working as chauffeur-handyman and cook, a parlourmaid, two housemaids, a kitchen maid and a children's nurse.
Staff living room ... ... 220 ft. super.
Five bedrooms ... ... each 80 „ „
Bathroom and w.c.
Flat for the married couple, consisting of one living room, one bedroom, a small kitchen and a bathroom.

SECTION TWO. Other Accommodation on the Site

Swimming pool.
Two tennis courts.
Two glasshouses.
Potting shed and gardeners' store.

Drawings required.—(1) Site plan, showing the complete development of the site, drawn to $\frac{1}{32}$-in. scale. (2) Plans, sections and elevations of the house (Section One of "Accommodation") and its immediate surroundings, drawn to $\frac{1}{8}$-in. scale.

(b) *Working Drawings for a Country House.*—The design for a country house may, after it has been approved, be re-submitted with the addition of:—

(1) A block plan, showing the system of drainage, drawn to $\frac{1}{32}$-in. scale.

(2) Complete working drawings of the House, drawn to $\frac{1}{8}$-in. scale.

(3) Inch scale and full-size details of the main stair.

No. 38

In accordance with "Instructions to Candidates," this problem may be treated acoustically.

(a) *A Community Centre.*—A site has been reserved for this building at the intersection of three roads in the centre of the layout of a new housing scheme. The purpose of the building is to provide a non-political and non-sectarian centre of social activities, recreational and educational, for the new community (*see* Fig. 2).

It may be assumed that the usual public services, sewers and storm-water drains, etc., are available in the roads, which adjoin the site.

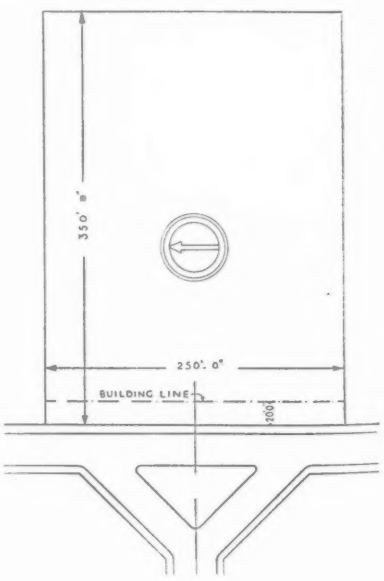


Figure 2

The site is level and the building line is set back 20 ft. from the road boundaries of the site.

The accommodation required is set forth in the

following schedule : minor variations from the areas indicated will be permitted.

Entrance hall.	
Warden's office	200 sq. ft.
Lounge, with serving hatch to kitchen ...	700 ,, ,,
Kitchen, for supplying light refreshments only, to be planned next lounge and with convenient access to hall	300 ,, ,,
Billiards room for three tables, with seats along walls and small kiosk for sale of cigarettes, etc.	
Reading room	700 ,, ,,
General games room	700 ,, ,,
Two committee rooms for small meetings each	600 ,, ,,
Four club rooms for club headquarters and discussion groups ... ... each	300 ,, ,,
Lavatories and cloak rooms for both sexes.	
Skittle alley, with bench along one wall and space for spectators.	
Gymnasium	2,000 ,, ,,
Changing rooms for both sexes, with lavatories and eight shower baths to each, adjoining gymnasium.	
Gymnasium store	150 ,, ,,
Hall to seat 400, with stage, two retiring rooms and lavatories, property store and chair store. A cinematograph projection room and re-winding room should be provided. Separate public lavatories and cloak rooms must be provided for hall.	
Heating chamber.	
Caretaker's quarters :—	
Sitting room	250 ,, ,,
1 bedroom	200 ,, ,,
1 bedroom	150 ,, ,,
1 bedroom	120 ,, ,,
Kitchen, larder, fuel store, bathroom and w.c.	

The hall will be used for amateur dramatic performances, concerts and lectures, etc. It will be let out separately from the remainder of the premises and it must therefore be defended against noise from other rooms. It is desirable that the hall should be so planned that it can be approached from a separate entrance as well as from the main buildings.

The buildings will be used for very varied activities and the rooms must be so planned that, as far as is possible, noisy recreation does not interfere with more serious occupation. The Warden's Office should be placed so that he can exercise supervision of the premises and of persons entering and leaving the building.

The remainder of the site is to be laid out as a garden and recreation grounds.

Drawings required :—

Block plan of site to 1/500th scale. Plans, sections and elevations to $\frac{1}{8}$-in. scale to illustrate the whole scheme. Half-inch scale detail of an important feature.

Acoustics.

Candidates who desire to treat this subject as their specific acoustic subject must submit calculations and a reverberation table for the hall. They must also indicate in a short report the steps they propose to take to guard against noise transmission and to correct the reverberation.

(b) *Working Drawings for a Community Centre.*—The design for a community centre may, after it has been approved, be re-submitted with the addition of :—

1/500th scale site plan showing drainage.

$\frac{1}{8}$-in. scale plans, sections and elevations.

One sheet of $\frac{1}{2}$-in. scale details of main block.

No. 39

(a) *A Sports and Athletic Centre.*—The senate of a university propose to acquire a site on the outskirts of the city in order to centralize the sports and athletic activities of the various colleges.

The proposed site adjoins the north bank of a river and is approached by an arterial road which follows the north boundary, and a secondary road running from north to south along the west boundary, crossing the river by bridge at the south-west angle of the site. The site is roughly a rectangle measuring 1,200 ft. from east to west and 2,000 ft. from north to south, and is level at 5 ft. above the normal water line, with the exception of the river bank, which has a fall of 1 in 3. A minimum of 10 ft. clearance is required under the bridge for river traffic, necessitating the elevation of the bridge approaches. A suburban railway station is situated about 500 yds. distant to the north of the arterial road.

The requirements of the various clubs are as follow, and the Senate desire a scheme for the layout of the centre, detailed drawings of the main pavilion and spectators' stand.

Available ground not occupied by pitches, circulations or buildings should be suitably planted to enhance the amenity of the site, having due regard to the purpose of the scheme.

The following site requirements are given, based upon the needs of the various clubs :—

Athletics.—440 yds. running track, incorporating 100 yds. straight. (As a guide an oval of 76 yds. straight and 45 yds. 2 ft. 6 in. radius at each end, inside measurements, will provide a track of 440 yds. or four laps to the mile.) Provision for long and high jump, etc., within the oval. *Football.*—Five pitches, including one for first team which should be provided within the oval. *Rugby.*—Three pitches. *Hockey.*—Three pitches. *Lacrosse.*—One pitch. *Cricket.*—Three pitches, one to be directly opposite the pavilion. *Netball.*—Three pitches. *Tennis.*—Eight hard and 16 grass courts. *Rowing.*—Men's club of eight crews and ladies' club of three crews. There will be ladies' teams for cricket.

The following buildings are suggested by the Senate, but they would be glad to receive suggestions (incorporated in the lay-out plan) for their grouping in order to modify the number of independent structures distributed over the site : Main pavilion and spectators' stand incorporated with the football first team pitch and running track; ladies' pavilion (in addition to special accommodation to be provided in main pavilion); cricket pavilion; tennis pavilion; premises for the rowing clubs; head groundsman's lodge; implement and field kit stores.

Detailed Requirements of Main Pavilion.—This should be situated within easy access from the arterial road. It may be assumed that certain athletic meetings will be attended by the public, necessitating controlled entrances, turnstiles and parking space for approximately 200 cars. Public seating accommodation with overhead cover for 600 spectators. Provision for 1,000 field spectators on open terracing or banks. Refreshment room to accommodate 300 at one time. This should be so arranged that it may also be used by competitors between events or during practice. Suitable kitchen and service quarters. Field buffet, approximately 1,500 ft. super. This may be detached from the main building, but must be conveniently situated for the 1,000 field spectators.

Players or Competitors.—Players' or competitors' entrance. Stewards' room with safe. Dressing accommodation—locker room or rooms containing a total of 250 lockers and proportionate seating. Spray room, containing plunge bath of 300 cub. ft. capacity with overhead showers if thought desirable, and 20 individual bracket showers. Toilet and w.c.s in proportion. Massage and first-aid room. Committee room. Cleaners' room, kit store, heating chamber, etc.

In addition to the above, the following accommodation, reserved for lady competitors, is required : Lady competitors' entrance. Attendants' room with safe. Locker rooms with adequate seating for 50. Showers, toilet and w.c.s in proportion. Cleaners' room, kit store, etc.

Drawings required :—

Plan of layout to scale of 2 in. = 100 ft.

$\frac{1}{8}$-in. scale plans, sections and elevations of main pavilion and spectators' stand, necessary fully to explain the design.

(b) *Working Drawings for a Sports and Athletic Centre.*—The design for a sports and athletic centre may, after it has been approved, be re-submitted with the addition of $\frac{1}{4}$-in. scale working drawings of the main pavilion and spectators' stand, and one sheet of $\frac{1}{2}$-in. scale constructional details.

No. 40

(a) *A Cottage Hospital.*—A design is required for a cottage hospital to be built on the outskirts of a country town. The site is as shown on Fig. 3 : drainage and all services may be assumed in the road. The accommodation required is as follows :—

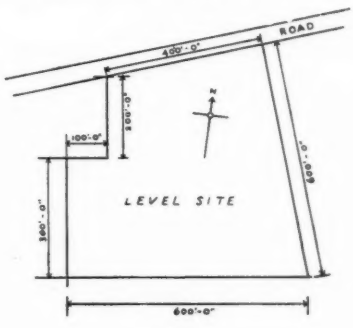


Figure 3

(1) *Wards and Ward Services.*—Men's ward of 12 beds. Women's ward of 12 beds. Children's ward for 10 cots. (Each to have terrace or balcony.) Two two-bed and four single-bed wards, each with lavatory basin. One single-bed observation ward. Men's and women's wards each to have adjacent sink-room, bathroom, two w.c.s, two lavatory basins, store for patients' clothes, linen store and ward kitchen (which would also be used as sisters' 'duty room) with small larder. The double and single-bed wards would also use these service rooms. Children's ward to have bathroom, sink-room, linen store and kitchen.

(2) *Operating Theatre Unit.*—Operating theatre—250 ft. super. Wash-up. Sterilizing room. Anæsthetising room. Surgeons' lavatory and w.c. Sisters' lavatory and w.c. Store for blankets, etc.

(3) *Out-Patients' and Casualty Department.*—Entrance for out-patients and casualties separate from main entrance to hospital. Waiting room—150 ft. super. Casualty treatment room—200 ft. super, with adequate lighting and arrangements for small emergency operations. Examination room—120 ft. super (to have lavatory and w.c. adjoining). Recovery room—120 ft. super. X-Ray room—400 ft. super. Dark room and store. Radiologists' office. Dispensary (which should be readily accessible to the hospital staff as well as to out-patients).

(4) *Kitchen and Stores.*—Main kitchen—300 ft. super. Service space (this should be so arranged as to allow of the parking of food trolleys when not in use). Scullery. Cold store. Larder. Dry store. Staff lavatory and w.c. Staff dining-room. Service entrance.

(5) *Administration.*—Entrance hall. Secretary's office. Committee room—180 ft. super. Matron's office.

(6) *Nurses' and Maids' Accommodation.*—Nurses' dining-room—180 ft. super—to be in the hospital. The rest of the accommodation for nurses and maids would be in a separate building on a site adjacent to the east side of the hospital site. This site and building do not form part of the programme and are not to be shown.

(7) *Various.*—The following accommodation to be provided where convenient in the hospital : One w.c. and lavatory for doctors. Nurses' w.c. and lavatory. Ample general linen store. Store for splints, crutches, stretchers, etc. Heating chamber and fuel store and destructor in basement (to be approached from outside the hospital). Mortuary (to be a detached building) consisting of post-mortem room, surgeons' lavatory and w.c., and viewing chapel. Garage for one ambulance and one car. Adequate provision should be made for the parking of doctors' and visitors' cars. The portions of the site not built over should be laid out in a simple and attractive manner.

Drawings required :—

Sufficient plans, sections and elevations to explain the scheme	$\frac{1}{8}$-in. scale.
Site plan showing buildings in block form, and all roads, paths, layout, etc.	$\frac{1}{32}$-in. scale.

(b) *Working Drawings for a Cottage Hospital.*—The design for the cottage hospital may, after it has been approved, be re-submitted with the addition of a complete set of $\frac{1}{4}$-in. scale working drawings, including drainage and one sheet of $\frac{1}{2}$-in. scale constructional details consisting of one 12-bed ward in plan and section, together with the service rooms adjacent to it.

No. 41

In accordance with "Instructions to Candidates," this problem may be treated acoustically.

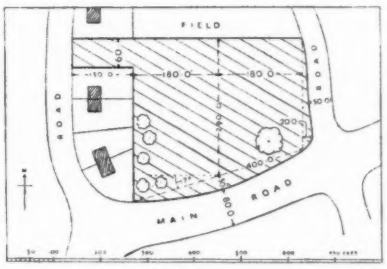


Figure 4

(a) *A Parish Church and Church Hall.*—An Anglican parish church and church hall, with vicarage flat, or maisonette, are to be built in a new residential area. The site is shown in Fig. 4. The main road is noisy and buildings must be planned with this in mind. The church need not be orientated east and west if a good reason for variation can be shown on plan.

The mission element, or need for teaching, is held to be a requirement parallel with that of altar and of church music and it is asked that the church be designed in such a way that nave shall have acoustic conditions good for hearing both lessons and sermon, but that the chancel be suitable for sung eucharist by a choir of twelve.

Therefore, a simple hall type of nave, not lofty, is appropriate, and without deep transepts. This nave must hold 400 on the floor, with accommodation for a further 100 in a "west" gallery with proper access staircase. In addition, a chapel for private prayer seating 30 is asked for. There must be a vestry 300 ft. super, with cupboards; a choir vestry 400 ft. super, with cupboards and with adjoining lavatory (one w.c. and two urinals). Organ chamber must be at least 100 ft. super; it must open into chancel with a wide opening and, if possible, also into nave in order to help congregational singing; there must also be a blower chamber about 40 ft. super and a small heating chamber. The choir and organ are not to go on the "west" gallery because the gallery is intended for the expansion of the congregation in the future.

(Continued on page xxii).

Copies of the loose supplement containing the labour rates for the principal towns and districts throughout the country can be obtained from the JOURNAL, price 2d. to cover postage.

PRICES

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

1. Current Market Prices of Materials, Part I. (published last week)
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.

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

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.

PART 2

Prices vary according to quality and 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.

CURRENT MARKET PRICES OF MATERIALS

BY DAVIS AND BELFIELD

JOINER

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, for orders of not less than £15 in value of any one size and quality.

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 the 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.

	2nd Per Standard £ s. d.	3rd & U/S Per Standard £ s. d.
4 × 11 Scantling	42 7 6	32 12 6
3/2½/2 × 11	41 5 0	31 10 0
4 × 10/9	39 17 6	29 2 6
3/2½/2 × 10/9	38 15 0	28 0 0
4 × 8	31 15 0	25 2 6
3/2½/2 × 8	30 12 6	24 12 6
4 × 7	30 17 6	24 17 6
3/2½/2 × 7	29 15 0	24 10 0
4 × 6	—	24 10 0
3/2½/2 × 6/6½	—	23 17 6
2 in. and up × 5/5½	—	22 7 6
2/3 × 3/4½	—	23 7 6
Boards		
1 in. and up × 11	45 17 6	37 0 0
1 in. and up × 10/9	42 15 0	32 12 6
1 in. and up × 8	33 10 0	27 7 6
1 in. and up × 7	33 0 0	26 17 6
1 in. and up × 6½/6	—	25 7 6
1 in. and up × 5½/5	—	24 17 6
1 in. and up × 4½/3	—	24 15 0

JOINER—(*continued*)

Extras for thin boards :—	2nd Per Standard £ s. d.	3rd & U/S Per Standard £ s. d.
⅞ in./⅞ in.	0 5 0	0 5 0
⅝ in.	0 10 0	0 10 0
½ in./⅝ in.	0 15 0	0 15 0

Floorings

All Russian, Swedish Gefle and northwards u/s quality.

Nominal sizes—	Per Standard £ s. d.
11 in.	34 7 6
9/10 in.	30 7 6
7 in.	24 17 6
6½/6 in.	24 12 6
5½ in.	24 7 6
5 in.	24 2 6
4½/4 in.	23 12 6

Douglas Fir.—Floorings and matchings, weatherboard, etc. No. 2 Clear and Better (including 15% No. 3 Clear).

	Per Standard £ s. d.
4″ wide random grain, kiln dried	21 7 6
6″ " " " " "	22 17 6
4″ " edge " " "	26 17 6
6″ " " " " "	30 7 6

Asbestos-Cement :—

5/32″ Semi-compressed flat building sheets, grey	per yard super	1/5½
3/16″ Ditto	per yard super	1/6
¼″ Ditto	per yard super	2/1¾

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

Wall Boards :—

¼″ Asbestos wallboard (in sheets 8′ 0″ × 4′ 0″, 10′ 0″ × 4′ 0″ and 12′ 0″ × 4′ 0″) under 5,000 feet super	per foot super	–/3½
5/16″ Ditto	per foot super	–/3

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

Asbestos-cement stipple glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″)	per yard super	6/6

CURRENT PRICES

JOINER AND STEEL AND IRONWORKER

BY DAVIS AND BELFIELD

JOINER—(*continued*)

Asbestos-cement, plain white glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″)	per yard super			8/6
Marble glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″) ..	per yard super			7/–
¼″ Fibre board	per yard super			2/5½
		25-75 yards	150–300 yards	Over 600 yards
⅜″ Fireproof plaster board	per yard super	2/2	1/10	1/6
½″ Ditto	per yard super	2/–	1/8	1/4
Joint tape (approx. 250 feet run)	per roll	..	..	1/6
Joint filler	..per lb.	..	..	–/4

Plywoods :—

Prices are maximum prices to consumers and are for not less than £15 in value of any one size and quality in one delivery. For purchases less than £15 in value add 20 per cent.

Prices are ex docks or warehouse in the United Kingdom free on lorry or rail if available without extra cost.

	4 mm.	5 mm.	6 mm.	9 mm.	12mm.
Dry cemented birch and alder (A) per square	23/11	28/3	33/1	46/9	59/5
Gaboon mahogany (A) per square	19/6	23/9	29/–	50/–	65/6
		3/16″	¼″	5/16″	⅜″
Oregon and Canadian pine (A) per square (96″ × 36/48″)..	—	24/9	25/10	29/9	32/11
Luaun (standard size 72″ × 24/48″ and 84″ × 24/48″) 1st, per square	13/3	15/–	19/9	—	—
Japanese oak plain 1st quality standard sizes up to 72″ × 36″, per square	22/6	26/–	28/–	—	42/6
Ditto figured ditto, per square	32/6	36/–	40/–	—	65/–

Blockboards :—

Alder :— Thickness		Boards 60″×116″	Boards 72″×116″
½″	per square	55/–	56/6
⅝″	per square	62/–	63/6
¾″	per square	71/–	73/–
⅞″	per square	75/–	77/–
1″	per square	84/–	86/–
1¼″	per square	108/–	111/–
1½″	per square	128/–	131/–
2″	per square	155/–	158/–

Birch :— Thickness		Boards 60″×84″ & 54″×72″	Boards 60″×140″
½″	per square	52/6	55/–
⅝″	per square	55/1½	57/9
¾″	per square	60/4½	63/3
⅞″	per square	65/7½	68/9
1″	per square	73/6	77/–

Prices are for complete bundles.

Hardwoods

Prices are maximum prices to consumers and are for not less than £15 in value of any one size and quality in one delivery. For purchases less than £15 in value add 20 per cent. Prices are free on lorry (or rail if available without extra cost) ex Dock or Yard in the United Kingdom of Great Britain and Northern Ireland.

The prices are for fair average specification and for standard grades as imported and the items mentioned are subject to a reasonable addition for selection.

	1″	1¼″	1½″	2″	2½″	3″
American oak (plain) per foot cube	7/–	7/6	7/6	8/6	10/6	11/–
American oak (quartered) per foot cube	9/–	9/6	9/9	10/6	—	—
Japanese oak (plain) per foot cube	9/–	9/6	10/–	11/–	11/6	12/6
Japanese oak (quartered) per foot cube	10/–	10/6	11/–	11/6	12/6	13/–
Walnut, European per foot cube	16/–	16/6	17/–	18/–	19/–	20/–
Teak, Burma.. .. „ „	11/6	11/6	11/6	11/6	11/6	11/6
Iroko .. .. „ „	9/–	9/–	9/–	10/–	10/–	10/–

JOINER—(*continued*)

	1″	1¼″	1½″	2″	2½″	3″
Mahogany, Honduras per foot cube	11/6	11/9	12/3	13/6	14/–	15/–
Mahogany, Cuban per foot cube	10/6	10/9	11/6	12/–	12/–	13/–
Birch .. .. „ „	5/–	5/3	5/6	6/–	7/–	7/3
European oak (plain) per foot cube	7/–	7/6	7/6	8/6	9/6	10/–
European oak (S.E. quartered) .. per foot cube	10/–	11/–	11/6	12/6	12/6	13/–

Sundries

Slaters or sarking felt	per yard run		–/6
Roofing felt	per yard run		–/8
Bituminous hair felt	per roll		33/–
All rolls 25 yards long by 32″ wide.			
Cork slabs, 1″ thick (3′ 0″ × 1′ 0″)	per foot super		–/4½
„ 2″ thick (3′ 0″ × 1′ 0″)	per foot super		–/8
Slagwool	per cwt. (approx.)		12/–
Black waterproof paper 5′ 0″ wide ..	per yard run		–/6½
Building paper in rolls of 100 yards, 1-ply, 60″ wide (B.I.120)	per yard run		1/1
" Cabots " Quilt :—(Ex Works Twenty roll lots delivered carr. free.			
Double ply per roll 45/6	per half roll		25/9
All rolls 28 yards long by 36″ wide. Special terms for quantities.			
Cut steel clasp nails, 1″ per cwt. 29/9	4″	per cwt.	20/9
„ „ floor brads, 2″ „ 20/–	3″	per cwt.	19/6
Bright oval wire nails 1″ „ 29/3	4″	per cwt.	21/3
Galvanized wire staples with slice cut points	1″×12 gauge	per cwt.	31/–
Scotch glue		per cwt.	65/–

Floor Clips :—

		£	s.	d.
One leg floor clip	per 1,000	7	10	0
2″ short leg floor clip	per 1,000	7	10	0
2″ Regular floor clip	per 1,000	7	15	0
3″ „ „	per 1,000	8	8	0
2″ Regular ceiling clip	per 1,000	7	15	0
Single leg ceiling clip (7½″)..	per 1,000	10	10	0

Special terms for quantities.

STEEL AND IRONWORKER

Steelwork

		£	s.	d.
• Basis price for rolled steel joists sections 5″×3″ to 16″×6″, in 10 ft. to 50 ft. lengths	per ton	12	17	6
Extras on above for :—				
9″ × 7″ Section	per ton	0	5	0
4″×3″, 5″×2½″, 10″×8″, 12″×8″, 14″×8″ and 16″×8″ to 20″×7½″ sections inclusive	per ton	0	10	0
3″×1½″, 3″×3″, 4″×1½″, 4½″×1½″ and 24″ × 7½″ sections	per ton	1	0	0
• Channels, angles and tees	per ton	14	10	0
• Mild steel plates	per ton	14	10	0
• Screw bolts	per ton	32	0	0

Fabricated Steelwork

		£	s.	d.
• Joists cut and fitted	per ton	17	15	0
• Stanchions, ordinary sections with riveted caps and bases	per ton	21	5	0
• Stanchions, compound	per ton	24	5	0
• Plate girders	per ton	25	15	0
• Framed roof trusses, 25′ 0″ span ..	per ton	26	5	0
• „ „ „ 60′ 0″ span ..	per ton	24	5	0

These prices are *ex mills*. For material *ex stock*, definite quotations should be obtained.

Prime Galvanized Corrugated Iron Sheets

		£	s.	d.
24 gauge, *ex mills delivered station or siding*	per ton	17	5	0
Galvanized roofing nails 2½″	per cwt.	1	17	6
Galvanized roofing washers..	„ „	2	5	0

• Items marked thus have risen since November 9.

CURRENT PRICES

BY DAVIS AND BELFIELD

PLASTERER, PLUMBER AND INTERNAL PLUMBER

PLASTERER

Plaster and Cement

		1-ton loads	5-ton loads	
Sirapite (coarse)	per ton	70/–	64/–	
„ (fine)	per ton	78/–	—	
Victorite No. 1	per ton	85/–	78/6	6-ton loads
„ No. 2 or non sweat	per ton	80/–	73/6	
Thistle (browning, haired and pink finish)	per ton	70/–	64/–	
Thistle (fine)	per ton	78/–	—	
Pink plaster	per ton	66/–	—	
White plaster	per ton	78/–	—	
Keene's pink	per ton	112/6	—	
Keene's white	per ton	117/6	—	
Super Carbo	per ton	—	47/6	4-ton loads
Carbo-setting	per ton	—	57/6	

1 ton upwards

	£ s. d.
Cullamix No. 2 cream (rendering mixture) per ton	5 10 0
„ No. 3 cream „ „ per ton	5 10 0
Snowcrete mixture „ „ per ton	5 5 0

Sundries

Sharp washed sand	per yard cube	8/9
Cow hair	per cwt.	40/–
Goat's hair	per cwt.	55/–
⅜″ laths	per bundle	2/–
½″ laths	per bundle	2/4½
Expanded metal lathing, 9′ 0″ × 2′ 0″ ⅜″ mesh × 26 gauge	per yard super	–/11½
Lath nails (galvanized) 1½″ × 14 gauge	per cwt.	48/6
„ (bright wire) „ „	per cwt.	27/–

	Less than 150 yds.	Less than 300 yds.	Over 300 yds.
• ⅜″ Plaster board per yard super	1/2	1/1	1/–
1½″ Galvanized nails per lb.	–/5		
Scrim cloth in 100-yard rolls per roll	2/3		

Wall Tiles

Commercial quality.

Ivory, white, etc., glazed 6″ × 6″ × ⅜″ per yard super	11/2
Angle beads (1½″ wide) per yard run	1/4½
„ „ (1″ „) per yard run	–/11
Rounded edge tiles per yard run	2/9¾
Coloured enamelled bright glazed, 6″ × 6″ × ⅜″ per yard super	15/9
Angle beads (1½″ wide) per yard run	1/6½
„ „ (1″ „) per yard run	1/0½
Rounded edge tiles per yard run	2/10¼
Eggshell gloss enamelled, 6″ × 6″ × ⅜″ per yard super	16/6
Angle beads (1½″ wide) per yard run	1/9½
„ „ (1″ „) per yard run	1/2¼
Rounded edge tiles per yard run	3/–

PLUMBER

Lead

3½ lbs. and upwards milled sheet lead in quantities of 5 cwts. and upwards per cwt.	27/–
Add if cut to sizes per cwt.	3/–
Lead ternary alloy, No. 2 quality extra over sheet lead per cwt.	7/–
• Allowance for old lead delivered to merchant per cwt.	15/–

Cast Iron Rainwater Goods (Painted or Unpainted)

The following prices for rainwater pipes and gutters are subject to 20 per cent. trade discount, and the prices of the fittings are subject to 5 per cent. and 20 per cent. trade discount.

Rainwater Pipes

	2″	2½″	3″	3½″	4″	4½″	5″	6″
Round pipes per yard	2/8½	2/9¼	3/7¾	4/0¾	4/9½	6/1¾	7/2½	9/2
Shorts, 2′ 0″, 3′ 0″ and 4′ 0″ extra per yard	–/3¾	–/3¾	–/3¾	–/3¾	–/3¾	–/5	–/5	–/5
Bends each	1/9	2/–	2/6	3/–	3/7	5/–	6/6	8/5
Offsets, 4½″ and 6″ projection each	2/2	2/8	3/–	3/5	4/4	6/3	7/6	9/10
Offsets, 9″ projection each	2/10	3/2	3/9	4/8	5/7	7/6	8/10	11/2
Branches, single each	2/7	3/1	3/9	4/4	5/3	7/6	8/5	13/1
Shoes each	1/6	1/9	2/–	2/8	3/–	4/4	5/5	7/6

• Items marked thus have risen since November 9.

PLUMBER—(*continued*)

Square and rectangular pipes.

3″ × 3″ per yard	6/9½
3½″ × 3½″ per yard	8/4
4″ × 2″ or 2½″ per yard	7/4¾
4″ × 3″ per yard	7/4¾
4″ × 4″ per yard	9/0¾
4½″ × 3″ per yard	8/5¼
5″ × 3″ or 3½″ per yard	9/7

Gutters

	3″	3½″	4″	4½″	5″	6″
Half round gutters per yard	1/9¼	2/1	2/1	2/2¼	2/4¾	3/7¾
Shorts 2′ 0″, 3′ 0″ and 4′ 0″ extra per yard	–/2½	–/2½	–/2½	–/2½	–/3¾	–/3¾
Angles and nozzle pieces each	1/5	1/7	1/9	2/–	2/2	3/1
Stop ends each	–/5	–/5	–/7½	–/9	–/10½	1/–
Ogee gutters per yard	2/1	2/3½	2/4¾	2/6	2/9¾	3/10½
Straight back and shorts 2′ 0″, 3′ 0″ and 4′ 0″ extra per yard	–/2½	–/2½	–/2½	–/2½	–/3¾	–/3¾
Angles and nozzle pieces each	1/11	1/11	2/–	2/4	2/8	3/3
Stop ends each	–/6	–/7½	–/9	–/10½	1/–	1/3

Mild Steel Rainwater Goods

The following prices are subject to 5 per cent. trade discount.

24 Gauge rainwater slip jointed pipes.

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

18 Gauge Gutters.

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

Asbestos-Cement Rainwater Goods

The following prices are subject to 12½ per cent. trade discount.

Orders over £30 are subject to 17½ per cent. trade discount.

Rainwater pipes.

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

Round pipes.

2″ per yard run	1/10
2½″ per yard run	2/0½
3″ per yard run	2/5½
3½″ per yard run	2/11½
4″ per yard run	3/4½
4½″ per yard run	4/10½
5″ per yard run	5/9½
6″ per yard run	7/1½

Gutters.

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

	3″	4″	4½″	5″	6″	8″
Half round gutters per yard run	1/3¾	1/6¾	1/7¾	1/11	2/8	3/3½
Ogee gutters per yard run	—	1/11	2/0¾	2/5¾	3/0¼	3/11¼

INTERNAL PLUMBER

* Lead pipe in coils, 5 cwts. and upwards per cwt.	26/6
* Lead soil pipe per cwt.	29/6
Add if ribbon marked per cwt.	–/3
Lead ternary alloy, No. 2 quality extra over lead pipe per cwt.	7/–
Plumber's solder per cwt.	114/–
Tinman's solder per cwt.	168/–

Drawn lead traps with brass screw eye, 6 lbs.

	1″	1¼″	1½″	2″
S. trap each	1/8	2/–	2/6	3/7
P. trap each	1/6	1/8	2/–	2/11
Extra for 3″ deep seal each	–/6	–/6	–/6	–/6

* Items marked thus have fallen since November 9.

CURRENT PRICES

INTERNAL PLUMBER

BY DAVIS AND BELFIELD

INTERNAL PLUMBER—(*continued*)

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

Tubes.		½″	¾″	1″	1¼″	1½″	2″
Tubes 2 ft. long and over	per ft.	–/5½	–/6¾	–/9¼	1/1	1/4½	1/10
Pieces 12″ to 23½″ long	each	1/1	1/5	1/11	2/8	3/4	4/9
Bends	each	–/11	1/2	1/7½	2/7½	3/2	5/2
Fittings.							
Elbows, square ..	each	1/1	1/3	1/6	2/2	2/7	4/3
Elbows, round ..	each	1/2	1/5	1/8	2/4	2/10	4/8
Tees	each	1/3	1/7	1/10	2/6	3/1	5/1
Crosses	each	2/9	3/3	4/1	5/6	6/7	10/6
Sockets, plain ..	each	–/4	–/5	–/6	–/8	–/10½	1/3
Sockets, diminished	each	–/6	–/7	–/9	1/–	1/4	2/–
Flanges	each	1/–	1/2	1/4	1/9	2/–	2/9
Caps	each	–/5	–/6	–/8	1/–	1/3	2/–
Plugs	each	–/4	–/5	–/6	–/8	–/10	1/3

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

	Tubes	Fittings	Flanges
Gas	*61¼%	●54¼%	●58¼%
Water	*57¼%	●50¼%	●53¼%
Steam	*54¼%	●47%	●48¼%
Galvanized gas	*52½%	●47%	●48¼%
,, water ..	*47¼%	●43¼%	●43¼%
,, steam ..	*42%	●39½%	●38¼%

Brasswork. Best Quality

		½″	¾″	1″
Brass screw-down bibcocks, with crutch top, screwed for iron ..	per dozen	36/–	56/–	99/–
Ditto, with screw ferrule ..	per dozen	42/–	62/6	109/–
Chromium plated easy clean screw-down bibcocks, with capstan head lettered, screwed for iron ..	per dozen	59/–	86/–	168/–
Ditto, with screw ferrule ..	per dozen	67/–	97/–	182/–

		Brass Screwdown Stop Cocks with Unions both Ends	Brass Screwdown Stop Cocks with Screwed Ends	Brass Screwdown Stop Cocks with Male Screwed End and Iron Unions
½″	per dozen	48/6	36/–	45/–
¾″	per dozen	71/6	56/–	55/–
1″	per dozen	109/–	91/–	102/–

		½″	¾″	1″
Portsmouth pattern ball valve for low pressure, screwed for iron ..	each	5/–	7/–	14/3
Ditto, with flynut and union ..	each	5/9	8/–	16/–
High pressure ditto, screwed for iron	each	5/–	7/–	14/3
Ditto, with flynut and union ..	each	5/9	8/–	16/–

		2″	2½″	3″	4″
Socket thimble sloping shoulder	per dozen	11/–	14/9	17/9	24/6

		1½″	2″	2½″	3″
Flanged ferrule thimble ..	per dozen	8/9	11/–	—	15/6

		½″	¾″	1″	1½″	1½″	2″
Union joints for lead and iron ..	per dozen	19/–	23/–	35/–	47/–	61/–	82/–
Single nut short boiler screws ..	per dozen	6/9	10/–	16/6	23/–	36/–	66/–
Double nut boiler screws	per dozen	10/–	11/–	17/6	25/6	48/–	76/–
Belfast sink wastes stamped brass with brass plug diameter of outlet 2″	per dozen						20/–

Galvanized Mild Steel Open Top Cisterns riveted with internal angle iron at top and corner plates

The following prices are subject to 15% and 20% trade discount :—

		14-gauge £ s. d.	12-gauge £ s. d.	¼″ plate £ s. d.	⅜″ plate £ s. d.
50 gallon capacity	each	2 5 11	2 14 5	3 1 7	7 0 8
100 ,,	each	3 8 9	4 2 11	4 16 9	9 10 8
200 ,,	each	6 6 9	6 19 5	7 18 3	13 1 0
500 ,,	each	12 6 0	13 16 1	15 16 3	22 6 9
1,000 ,,	each	—	21 9 4	24 19 5	34 15 4

● Items marked thus have risen since November 9.

INTERNAL PLUMBER—(*continued*)

Galvanized Hot Water Tanks, fitted with handhole cover.

The following prices are subject to 15% and 20% trade discount :—

Capacity		16-gauge tested to a pressure of 1 lb. per sq. inch = 1⅓ ft. head of water £ s. d.	14-gauge tested to a pressure of 3 lbs. per sq. inch = 4½ ft. head of water £ s. d.	12-gauge tested to a pressure of 7½ lbs. per sq. inch = 10 ft. head of water £ s. d.	¼″ plate tested to a pressure of 10 lbs. per sq. inch = 15 ft. head of water £ s. d.
20 gallons	each	2 0 3	2 3 11	2 7 8	2 12 9
40 ,,	each		3 1 7	3 9 0	3 16 8

Capacity		Tested to a pressure of 5 lbs. per sq. inch = 7½ ft. head of water £ s. d.	Tested to a pressure of 7½ lbs. per sq. inch = 10 ft. head of water £ s. d.
60 ,,	each	4 19 3	5 5 5
80 ,,	each		7 5 7
100 ,,	each		8 4 5

Screwed flanges or bosses

½″	¾″	1″	1¼″	1½″	1¾″	2″	2¼″	
1/8	2/–	2/4	2/11	3/4	3/9	4/8	6/9	Extra per flange or boss.

2½″	3″	3½″	4″	4½″	5″	6″
8/4	14/3	16/9	19/3	26/11	30/1	45/1

Galvanized Hot Water Cylinders, Mild Steel Riveted throughout, without Manhole, with usual number of flanges

The following prices are subject to 15% and 20% trade discount :—

Capacity		16-gauge tested to 5 lbs. pressure = 10 ft. head of water £ s. d.	14-gauge tested to 15 lbs. pressure = 30 ft. head of water £ s. d.	12-gauge tested to 20 lbs. pressure = 40 ft. head of water £ s. d.	¼″ plate tested to 25 lbs. pressure = 50 ft. head of water £ s. d.
20 gallons	each	1 18 7	2 2 8	2 8 4	2 15 4
40 ,,	each	2 10 11	2 16 8	3 6 1	3 15 0
65 ,,	each		4 8 7	5 1 8	5 16 1
75 ,,	each		5 1 7	5 15 0	6 11 4
85 ,,	each			6 10 8	7 11 9
100 ,,	each				8 2 5

Cast Iron Soil Pipes and Connections, L.C.C. 5/16″ metal.

The following prices for soil pipes are subject to 20% trade discount, and the prices of the fittings are subject to 20% and 5% trade discount.

	2″	2½″	3″	3½″	4″	5″ ¼″ metal	6″ ¼″ metal
Minimum weights in lbs. per 6′ 0″ length	24	30	35	41	46	78	92
Pipes coated or uncoated per yard run	3/10½	4/0½	4/5½	5/–	5/8½	11/8	14/0½
Double sockets extra each	–/11½	–/11½	–/11½	–/11½	–/11½	1/0½	1/0½
Short lengths extra 2′, 3′ and 4′ per yard run	–/3½	–/3½	–/3½	–/3½	–/3½	–/5	–/5
Single spigot branch cast on pipe .. .. each	4/8	4/5	4/7	4/9	4/11	7/6	9/8
Single socket branch cast on pipe .. .. each	10/9	11/–	11/3	11/6	11/9	16/–	19/–
Bends, standard angles each	3/1	3/5	3/9	4/8	5/3	9/4	12/9
Large radius bends each	4/–	4/4	5/–	6/–	7/–	13/–	16/9
Inspection bends raised flange door, 4 gunmetal bolts .. .. each	16/1	16/11	17/9	18/8	19/3	31/10	36/6
Swannecks 4½″ and 6″ projection .. .. each	3/9	4/4	5/11	6/10	7/11	14/11	20/1
9″ ditto .. .. each	5/–	5/7	6/10	7/11	9/4	17/1	22/10
12″ ditto .. .. each	5/11	6/10	7/11	9/8	10/7	19/1	27/1
Single branch with two sockets. T pieces. T pieces diminishing two sockets, inverted two sockets. each	3/9	4/8	5/7	6/6	7/6	15/10	21/8
Parallel branch pieces not exceeding 6″ centres. Y pieces. Anti-syphon branches with curved arm. each	4/10	5/11	6/10	7/11	8/11	—	—
Double branch pieces, three sockets .. .. each	5/11	7/–	7/11	9/–	10/3	20/3	27/3
Inspection branch pieces double oval access door, 2 gunmetal screws each	12/11	14/–	14/11	16/6	17/9	29/2	36/2
Long branch pieces each	5/–	6/–	7/3	8/6	9/9	19/–	25/–

* Items marked thus have fallen since November 9.

CURRENT PRICES

BY DAVIS AND BELFIELD

COPPERSMITH AND ZINCWORKER, GLAZIER AND PAINTER

COPPERSMITH AND ZINC WORKER

Copper

Hot rolled copper sheeting in 1 cwt. lots, all gauges to 24 wire gauge	per lb.	-/10½
Light gauge copper tube, solid drawn	per lb.	1/1½
Copper tube, solid drawn screwing sizes	per lb.	1/1
Copper wire, 10 and 12 gauge	per lb.	-/10¾
Copper nails, 1" and up cwt. lots	per lb.	-/11½

Fittings for Copper Tubes

Compression Type		¼"	⅜"	1"	1¼"	1½"	2"	2½"
Straight coupling	each	1/2½	1/6	2/2½	2/10	4/0½	6/-	14/10½
Obtuse elbow	each	2/-	2/4½	3/5¾	4/4¾	7/6½	11/1¾	—
Tees	each	2/3½	2/7½	4/3½	6/2½	9/9½	13/11½	20/6
Crosses	each	3/2½	3/7½	5/6½	6/9	11/7¼	16/2½	28/0½
Reducing coupling	each	—	1/6	2/2½	2/10½	4/0½	6/-	14/10½
Bends	each	1/8½	2/0¾	3/1½	3/11¾	7/0½	10/6¼	14/11½
Brass stop cocks	each	4/0½	6/0½	8/9¾	16/4	22/8	38/4	—

Extra for Polishing 25%; Chromium plating 50%; Nickel plating and polishing 50%.

Capillary Type

		-/8	-/11½	1/5½	1/11	2/7	3/9	6/4¾
Straight coupling	each							
45° elbow	each	1/5½	1/11	2/7½	3/6½	5/3½	7/11	11/5½
Tees	each	1/7½	1/10	3/-	4/5	6/3	9/8	14/1
Crosses	each	2/0¼	2/3½	3/9	5/3½	8/-	11/8	20/4
Reducing coupling	each	—	-/7	-/9½	1/2	1/9	3/1	4/10
Bends	each	1/9	2/1½	3/1	4/2	6/7¼	9/3	13/2
Pillar tap connection	each	1/1¼	1/7½					

Extra for Polishing 15%; Chromium plating 40%; Nickel plating 27½%.

Zinc

		Quantities of less than 3 cwts.	Quantities of more than 3 cwts.	Quantities of more than 5 cwts.
• Sheet zinc, 10 gauge and up	per cwt.	38/3	36/3	35/9

		5 sheets and under	12 sheets
• 8 gauge zinc safe hole perforated sheets, size 8′ 0″ × 3′ 0″	per sheet	5/5	4/8½
• 7 gauge ditto	per sheet	4/9½	4/2
• 6 gauge ditto	per sheet	4/3½	3/9

GLAZIER

Sheet Glass cut to size (ordinary glazing quality)

		In squares not exceeding 2 ft.	4 ft.	5 ft.	Over 6 ft.
18 oz. clear sheet	per foot super	-/2⅜	-/2⅝	-/3⅛	-/3⅜
24 oz. ditto	per foot super	-/3	-/4	-/4¼	-/4⅝
32 oz. ditto	per foot super	-/4½	-/6	-/7	-/8
Obscured sheet glass net extra		-/1½	-/1½	-/1½	-/1½
¼" figured rolled glass, white	per foot super	-/6½			
¼" ditto, normal tints	per foot super	-/9½			
Hammered, double rolled, Cathedral white	per foot super	-/6			
Ditto, normal tints	per foot super	-/8½			

Thick Drawn Sheet Glass cut to size

		In squares not exceeding 1 ft.	2 ft.	3 ft.	4 ft.	6 ft.	8 ft.
⅛" thick	per foot super	-/9	-/11	1/-	1/2	1/3	1/5½
¼" thick	per foot super	-/11	1/-	1/3	1/5	1/7	1/9½

		In squares not exceeding 12 ft.	20 ft.	45 ft.	65 ft.	90 ft.	100 ft.
⅛" thick	per foot super	1/5½	1/8	1/8	—	—	—
¼" thick	per foot super	1/9½	2/3	2/3	2/6½	2/10½	2/10½

For selected glazing quality add 10 per cent. to the above prices.

British or Foreign Polished Plate Glass cut to size

Ordinary ¼" Substance		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
In Plates not exceeding				
1 ft. super	per foot super	1/1	1/4	1/7
2 ,,	per foot super	1/5	1/7	1/10
3 ,,	per foot super	1/10	2/1	2/6
4 ,,	per foot super	2/6	2/9	3/2
6 ,,	per foot super	2/9	2/10	3/3
12 ,,	per foot super	2/11	3/2	3/8
45 ,,	per foot super	3/1	3/10	4/2
65 ,,	per foot super	3/4	4/3	4/11

GLAZIER—(*continued*)

British or Foreign Polished Plate Glass cut to size—(contd.)

Ordinary ¼" Substance		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
In Plates not exceeding				
90 ft. super	per foot super	3/7	4/8	5/1
100 ,,	per foot super	3/9	4/10	5/4

Plates exceeding 100 ft. super or 160 in. long or 104 in. wide at higher prices.

The usual thickness of polished plate glass is about ¼", but if required of special thickness for glazing purposes add to the above for :—

		Plates up to and including 4 ft. super	All plates over 4 ft. super
⅛" to 3/16"	per foot super	-/2	-/4
⅛" to 3/16" exact	per foot super	-/2	-/8
5/16"	per foot super	No extra	-/1½
¼" bare	per foot super	,,	-/1½
¼" exact	per foot super	-/2	-/2
5/16" to ⅜"	per foot super	No extra	-/4½
⅜" exact	per foot super	-/2	-/6

Special quotations should be obtained for other qualities and thicker substances.

Silvering

		Ordinary Quality on Polished Plate, Thick Drawn Sheet, Patent Sheet and Plain Sheet	On Embossed or Decorative Work
12 ft. super or 90 in. long	per ft. super	9d.	1/4
20 ft. ,, or 100 in. long	per ft. super	10d.	1/4
45 ft. super	or 110 in. long per ft. super	1/-	1/5
50 ft. ,,		1/0½	1/6
55 ft. ,,	or 120 in. long per ft. super	1/1	1/6½
60 ft. ,,		1/1½	1/7
65 ft. ,,	or 130 in. long per ft. super	1/2	1/8
70 ft. ,,		1/3	1/9½
75 ft. ,,	or 140 in. long per ft. super	1/4	1/11
80 ft. ,,		1/5	2/0½
85 ft. ,,	or 150 in. long per ft. super	1/8	2/5
90 ft. ,,		1/11	2/9½
95 ft. ,,	or 160 in. long per ft. super	2/2	3/2
100 ft. ,,		2/5	3/8

For silvering on fluted sheet, figured rolled and cathedral, add 4d. a foot to the prices set out in the first column for polished plate, etc.

Silvering bent glass, double or more, according to bend.

For plates over 100 ft. super add 3d. per ft. super for every 5 ft. or part of same.

Plates over 160 in. long at special rates.

Stripping for re-silvering, add 8d. per ft. super.

Wired Glass Cut to Sizes

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

Supplied in sizes up to 110 in. long and up to 36 in. wide.

For cutting to allow for wires in adjacent pieces to be " lined up," add 4d. per foot super.

PAINTER

White ceiling distemper	per cwt.	11/6
Washable distemper	per cwt.	60/-
Petrifying liquid	per gallon	4/6
Ready mixed white lead paint (best) 5-cwt. lots, in 14 lb. tins	per cwt.	72/-
White enamel	per gallon	25/-
Aluminium paint	per gallon	24/-
Stiff white lead, genuine English stack process, 1-ton lots, in 1-cwt. kegs	per cwt.	56/-
Driers	per cwt.	40/-
Linseed oil raw (5-gallon drums)	per gallon	3/-
,, boiled ,, ,,	per gallon	3/3
French polish	per gallon	11/6
Knotting	per gallon	18/-
Oil stain	per gallon	13/6
Varnish, oak	per gallon	10/-
,, copal	per gallon	17/6
,, flat	per gallon	21/-
Turpentine, genuine American, 5-gallon lots	per gallon	3/3
Creosote, 1-gallon lots	per gallon	1/4
Putty	per cwt.	13/-
Size	per firkin	3/6
Best English quality gold leaf, 23 carat	per book	2/9
Extra thick, ditto	per book	4/-

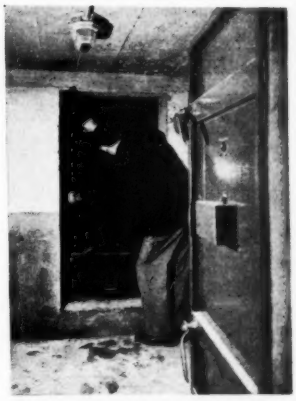
• Items marked thus have risen since November 9.

CRITTALL A·R·P PRODUCTS

GASPROOF WINDOWS. There is a range of standard sizes suitable for most normal requirements. The units may be coupled to form larger windows, and are supplied with $\frac{3}{8}$" steel beads to take laminated glass to resist blast.

GASPROOF WINDOWS

GASPROOF DOORS of $\frac{1}{8}$" pressed steel plate. The standard size provides a clear opening of 6' 3" x 2' 6".



GASPROOF DOORS

SPLINTER-RESISTING GASPROOF DOORS of $\frac{5}{8}$" solid steel plate. Clear opening of standard size is 6' 3" x 2' 6".

SHUTTERS of similar capacity and construction can be supplied for protection of window openings externally or internally.

GASPROOF MANHOLE COVER of $\frac{1}{4}$" chequered plate with outside lifting handle and two inside closing handles. Clear opening sizes 2' 0" x 1' 6" or 2' 0" x 2' 0".

(In all of the above the final gas seal is effected by means of Densyl paste applied at the time of the emergency.)

ESCAPE GRATING

GASPROOF ESCAPE GRATING of galvanised pressed steel with removable bell water-seal. Clear opening size 1' $3\frac{9}{16}$" x 1' $8\frac{1}{4}$".

Illustrated catalogue will be sent on application.

We also invite enquiries regarding problems of all kinds of **FACTORY LIGHT OBSCURATION.**

GASPROOF & SPLINTER-RESISTING DOORS

THE CRITTALL MANUFACTURING COMPANY LTD

210 HIGH HOLBORN · LONDON · WC1

(*Continued from page 715*)

It is requested that both pulpit and lectern be raised somewhat higher than is usual, for the sake of good hearing; and, for the same reason, each be designed with a rear wall. It is also asked that more significance be given to the baptistery than is usually the case in modern Anglican design, but this is left entirely to the designer. A belfry is required, but not a tower; the belfry must be arranged so that the bell can be rung from a suitable position at the "west" end of the church. A large porch is asked for with large convenient notice boards.

The church hall is intended to be the social centre. It must seat 250, excluding platform; platform must be at least 12 ft. deep and extend the full width of the hall. Two small dressing rooms are required at the platform end. In addition, there must be entrance vestibule, also lavatory with shelves for cloaks and accommodation for men, one w.c., two urinals, two wash-hand basins; and for women, two w.c.s, two wash-hand basins. Also a kitchen-scullery, with ample washing-up accommodation, and pantry is required with service convenient to the hall.

The vicarage flat or maisonette is to be planned in connection with the church hall, but must have separate entrance. It must also provide two reception rooms amounting to 300 ft. super between them, a small study, kitchen, offices, three bedrooms at least, a boxes cupboard, one bathroom and two w.c.s.

The site is to be laid out as a simple, easily kept garden, with some reference to existing trees, and must include parking space for ten cars.

It is asked that in respect of the materials and construction used in the fabric of the church, attention be paid to low maintenance cost after 30 years and to general durability

Acoustics.

All candidates taking this subject must envisage good shapes on plan and section for church and hall, from an acoustic point of view, and must locate them on a quiet part of the site. Candidates taking this as their specific acoustic subject must, in addition, indicate a good sound-absorbing treatment for the nave of the church capable of giving a reverberation by the Sabine formula of not more than 2 seconds for the whole church with 400 people present and submit a reverberation table.

Drawings required :—

One-eighth inch scale drawings to illustrate thoroughly the whole scheme. A site plan to $\frac{1}{16}$ in. showing the layout. A $\frac{1}{2}$-in. scale detail of a bay or characteristic portion of the interior of the church.

(b) *Working Drawings.*—The design for a parish church and church hall may, after it has been approved, be re-submitted with the addition of two sheets of $\frac{1}{4}$-in. scale details showing construction of the church hall and vicarage residence.

No. 42

(a) *A Housing Scheme.*—A colliery company in the Midlands proposes to build 40 cottages, with one shop and one club room, on a site near the colliery. The cottages are to be occupied by the families of selected senior workmen in the company's employment.

The site (*see* Fig. 5) of about 11 acres comprises two fields at the north side of a main road connecting the colliery and the nearest village. The surroundings are pleasantly rural. The colliery, $\frac{1}{2}$ mile from the site, is screened from

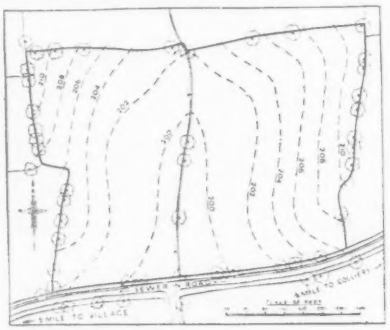


Figure 5

view by a small hill; the village, $\frac{1}{2}$ mile from the site, has a population of over 2,000 and provides all necessary school, church, cinema and general shopping facilities. The two fields, of fertile well-drained loamy soil, are separated by a hedge and drainage ditch towards which the land falls on both sides (as indicated by the contours on the plan): the hedge may be removed and the ditch piped and filled in as desired. Thorn hedges surround the site on all sides, and these and the trees—fine oaks and ashes—marked on the plan should be preserved as far as possible in the development. It is intended that the fields on the west, north and east sides of the site—all owned by the colliery company—should remain as permanent farm land and no connection from them to the site should be shown.

A piped water supply, electricity and a 12-in. sewer are available in the road; gas is not available.

All the 40 cottages are to be of parlour type, with the following accommodation: Living room, parlour, scullery, larder, coal store, bathroom, w.c. (separate), linen cupboard and three bedrooms. A fourth bedroom should be provided in from eight to ten of the cottages. The sizes of rooms should follow generally those recommended by the Ministry of Health for municipal housing schemes. The cottages should be built in pairs and/or blocks of four, and so arranged that at least one-third of the tenants are able, if they wish, to put up their own garages for small cars or motor-cycle combinations. Each cottage should have a private garden space of not less than 300 sq. yds.

The shop (a general store of about 500 sq. ft.) should be attached to one of the cottages in which the shopkeeper will live, and the club room (also about 500 sq. ft.) should be attached to another of the cottages, in which the caretaker will live.

The balance of the site not required for the buildings and gardens is to be allocated to a children's playing-green, of not less than two acres, and to allotments for the residents.

It is required that all walls should be constructed and faced with bricks and all roofs covered with plain tiles produced at a neighbouring brickworks owned by the colliery company. The facing bricks available are red-brown sand-faced rising four courses to 1 ft., and the tiles are darkish grey-brown sand-faced, with half-round ridges, swept valleys and bonnet-hips to match.

Drawings required :—

(1) Layout plan to 1/500th scale, showing the cottages, shop and club room (in block), gardens, playing-green, allotments, roads and paths.

(2) Plans, elevations and sections to $\frac{1}{8}$-in. scale of the cottages, sufficient to illustrate the scheme. (NOTE.—No repetitions need be drawn and $\frac{1}{4}$-in. scale details of the shop and club room are *not* required.)

(b) *Working Drawings for a Housing Scheme.*—The design for a housing scheme may, after it has been approved, be re-submitted with the addition of :—

(1) Complete working drawings to $\frac{1}{4}$-in. scale of the cottages (*not* the shop and club room), with $\frac{1}{2}$-in. scale details showing the construction.

(2) A drainage plan of the whole scheme to 1/500th scale, showing the direction and size of drains. Drainage is to be on the combined system, connecting to the sewer in the road, which is approximately 7 ft. below the surface of the site at its lowest point.