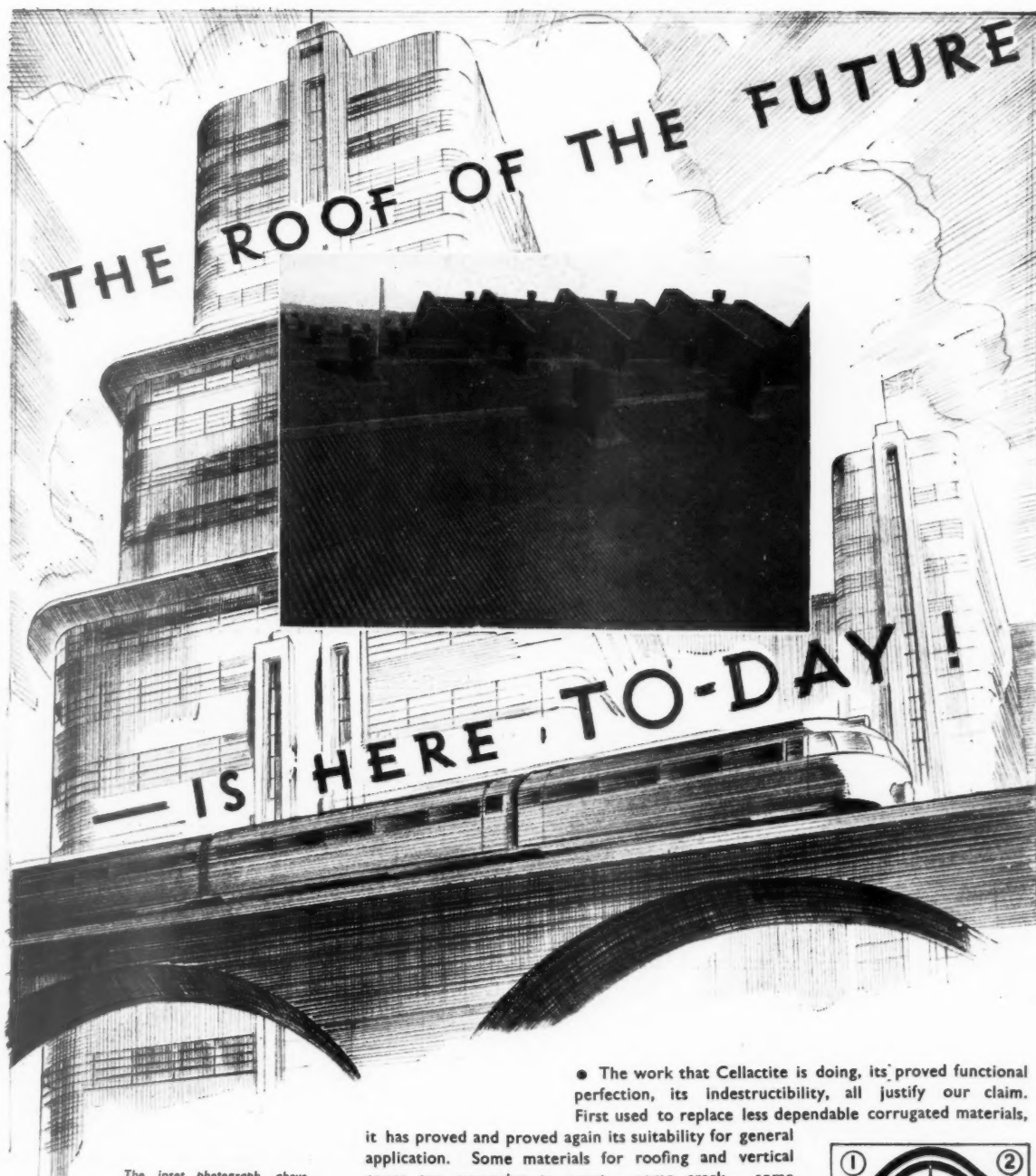




The inset photograph above shows an installation of Cellactite Roofing and Ventilators for a large factory in the Provinces.

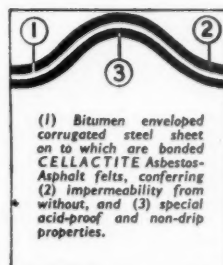
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JOURNAL

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JOURNAL AND THE ARCHITECTURAL ENGINEER
IS PUBLISHED EVERY THURSDAY BY THE ARCHI-
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The Editor will be glad to receive MS. articles
and also illustrations of current architecture in this
country and abroad with a view to publication.
Though every care will be taken, the Editor cannot
hold himself responsible for material sent him.

THURSDAY, OCTOBER 31, 1940.

NUMBER 2389 : VOLUME 92

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

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

U . S . A . H O U S I N G S C H E M E

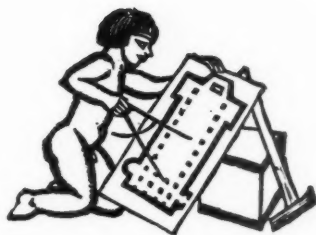


Above is a drawing, by Chester B. Price, of East River Houses, a United States Housing Administration scheme, now being erected by the New York Housing Authority. The scheme was designed by a group of associated architects, comprising: Voorheese, Walker, Foley and Smith, A. E. Poor, and C. W. Schlusing, with P. C. Smith as chief architect.



Z Ü R I C H

*Houses in the working-class quarter
— the Old Town — of Zürich.*



SHELTERS AND TECTON

IN two recent articles on this page the JOURNAL reviewed the changes in shelter policy which continued night bombing had made necessary and considered ways in which those changes could most easily be carried out in vulnerable areas.

This week the JOURNAL publishes a letter* from Messrs. Tecton which contests both the validity of the JOURNAL's conclusion and two of the premises on which it was based. Messrs. Tecton have studied the structural aspect of shelter types in great detail and have carried out a survey of all the factors affecting the provision of shelters in a typical crowded urban area (a survey of the kind which should have been the compulsory preliminary to the provision of shelters in all urban areas), and therefore their views deserve particular attention at the present moment.

These views contest the JOURNAL's survey of the present position on three points.

First, Tecton's letter maintains that the use of the phrase "deep shelter" is untechnical and confusing. The JOURNAL admits that the phrase is inexact and may confuse laymen: but it does not consider that it confuses architects. All architects are aware that strong shelters can be constructed above ground, sunk level with the ground, or at a depth below the ground, and that the last two forms are desirable only by their reduction, or elimination, of the "armour belt" otherwise necessary for walls and roof. All architects are aware that this constructed "armour belt" is very costly and that therefore the most practicable types of strong shelters are usually the "semi-sunk, multi-floor" (or Tecton) shelter or the "wholly sunk" (or Tunnel) shelter—both of which might justifiably be called deep shelters.

Tecton's second criticism concerns the endlessly debated factor of the warning period. The JOURNAL considered this question only as regards day raids, and still holds to its view (which has been strengthened since mass day raids have been defeated) that small, lightly-protected dispersed shelters have in daytime many advantages over a few strong shelters. Tecton's contention that, if a warning lasts an hour, strong shelters would only involve a loss of working time of 66 minutes against dispersed shelters' loss of 62, seems to the JOURNAL wholly inadmissible. First, the JOURNAL believes that the true figures of time loss in the case stated would be 75 and 65 minutes. Second, London may easily have to put up with three 20-minute warnings and three 40-minute warnings in a day—causing time losses

from movement to and from shelters of $1\frac{1}{2}$ hours and $\frac{1}{2}$ hour respectively. Third, if people know there is a light shelter near at hand (and most workplaces have one very near) they will go on working with far greater willingness to take a chance than if a strong shelter was five minutes' walk away with nothing nearer. Fourth, the consequential disturbance to work of moving through streets to a large shelter must be out of all proportion greater than that of moving to a nearer shelter with a few neighbours or the rest of an office staff. In the JOURNAL's view a shelter theory which does not rate *minimum interruption of work* as high as *maximum practicable protection* is quite unreal.

Tecton's third criticism is backed by special knowledge. In concluding its review of shelter policy the JOURNAL suggested that fairly strong night shelter accommodation could be provided most rapidly by adaptation of the basements of steel-framed and reinforced concrete buildings. Tecton state that in their survey of Finsbury they found that such buildings were few in number, that the basements of those that did exist were often obstructed by heating and other plant, and that service pipes in adjoining streets made others dangerous.

These are disappointing and very relevant facts: but by themselves they do not damn the JOURNAL's suggestion. Night shelters which are stronger than light surface shelters or strutted basements and equipped with heating and sanitary facilities are needed in large numbers. There is no need for these shelters to be very near the homes of those who will use them, but there is every need that their provision should make the minimum possible demand on building resources. Thus, whether the difficulties found in Finsbury are general and insuperable objections to the adaptation of framed basements can only be decided for London after a survey of all such basements in or near London's closely populated areas and the later study of all relevant factors—degree of risk from service pipes, the cost of the adaptation and equipment of framed basement shelters, their standard of safety and the cost of specially built strong shelters.

And the JOURNAL must emphasize that it uses the word "cost" to mean the amount of labour, plant, materials and equipment which will be needed, and the length of time for which they will be needed. Cost in pounds sterling is an almost trivial factor of shelter policy today: the fundamental factor is that construction of shelters should require the least possible diversion of labour and materials from other purposes for the least possible time.

* Printed on page 359.—Ed., A. J.



The Architects' Journal

45 The Avenue, Cheam, Surrey

Telephone: Vigilant 0087-9.

NOTES & TOPICS

THE MINISTRY OF BUILDING

WHEN one remembers the difficulty of any change in Departmental responsibility in wartime, and the dislike which any Department feels for losing any kind of power at any time, the powers conferred on the new Ministry of Building seem to entitle the Government to great praise.

*

For a little while, the caution of "seem to entitle" is necessary and not over-suspicious. Mr. Attlee's statement last Thursday outlined the large transfers of authority which were going to take place, but it left one or two points obscure—and the proof of the pudding is always in the eating. One can hope that the debate on the Ministry's duties which is to take place soon in the Commons will at least clear up the obscure points.

*

Mr. Attlee's statement appeared to show that Lord Reith's Ministry will be staffed by those now in the Office of Works and in some sections of the Ministry of Supply, and that its duties will comprise the following:

*

(1) Responsibility for the execution of all new *civil* buildings and other building works required by all other Government Departments.

(2) All work now done by the Office of Works (which one can assume is—(a) Maintenance of Government buildings; (b) air-raid repairs to such buildings; (c) design of ordnance factories and other war works; (d) organization of certain emergency stocks of building materials and equipment) and by those sections of the Ministry of Supply which deal with new buildings for war purposes and extensions to existing buildings.

(3) The licensing of private building works.

(4) Determining the priority of air-raid repair works.

(5) Obtaining information from all Departments which retain control of their own building works.

(6) The control of all materials now rationed and those which may be rationed in future.

(7) Determining the priority of *all* building works under the direction of the Production Council and subject to appeal.

(8) Research into substitute materials and standardization and power to enforce use of results by other Departments.

(9) General forethought about, and preparation for, reconstruction.

*

These are very great powers. They fall into three main divisions—supervision of the production of materials and the allocation of materials, plant and labour; the execution of certain building works; and research.

*

The obscure points, with one exception, are not important.* But that exception is very important. The new Ministry is to *allocate* materials and has power to "call for information" from other Departments. But it is not stated that one of its main duties will be to call for information that will enable it to estimate the materials, plant and labour that will be needed a year ahead and to take steps to see that these are ready in time. Presumably it will do this: its powers enable it to do so. But it seems odd—considering what a fuss there has been about this need—that Mr. Attlee did not say that it would.

THE HOMELESS

By now the average intelligent citizen has been able to obtain a reasonably clear idea of the problems confronting Mr. Willink, London's Commissioner for the homeless. That it should have taken so long is not very flattering to our much-boasted newspapers—far too many of which (even those that should know better) filled their air-raid columns for several weeks after September 7 with nothing but facile heroics.

*

Fortunately the *New Statesman* published almost at once a brilliant commentary on East End conditions. Written without the least rancour, this showed plainly that arrangements to help the uninjured homeless broke down completely under the strain of the first few days.

*

In following weeks, correspondents of daily newspapers and other reports enabled one to understand what remedial measures were most needed. The first was the establishment of combined first-line Rest Centres and Information Bureaux in sufficient numbers.

*

This is not an easy job. The Centres have to be prepared to receive, calm, wash, feed and rest anything up to 500 people in a few hours. They need people in constant attendance who are skilled at finding out, at once, whether a distraught woman's child really has been left in the debris, or has been taken to hospital, another Centre, or was never in the house at all. And next morning they must be able to give advice on a multitude of points. What is more, such Centres must be in the district they serve and therefore the hard problems of feeding and sleeping cannot often be solved by commandeering a hotel. And it is obvious that such Centres should have good air-raid shelters.

*

The second necessity is the establishment of second-line Rest Centres in which people can stay for a week or more until they have had time to arrange for other accommodation or evacuation, or until an unexploded bomb is dealt with. There seems good reason for holding that taking over hotels is by far the easiest way of providing such Centres.

* For instance, the Ministry is to carry out *all* civil building works for other Departments. But it only "might" erect new aircraft factories and extend old ones for the Ministry of Aircraft Production. There may, however, be good reason for an exception.

The hotels need not be in the district they serve: an Information Bureau at the hotel can be linked with one in the damaged district and a bus can ferry residents backwards and forwards.

*

A badly-needed ancillary to these second-line Rest Centres is storage space. One of the great obstacles to persuading the homeless to evacuate or go to another district is their inability to find storage for such personal possessions as they have rescued—and no one who has tried to move house in the last two months will fail to appreciate their predicament. This problem, at least, has no psychological or "family-break up" complications and could be easily solved.

*

Beneath First and Second-line Rest Centres one comes to the core of Mr. Willink's problem—What is to be done with the homeless for the rest of the war?

*

This question must be answered by sociologists and strategists before the architect can help. But any architect who has knowledge of slum clearance work knows how difficult it will be to find the right answer in crowded areas; what is more, he knows that any solution involving a large programme of building will be next door to impossible to carry out.

*

It seems possible that the worst terrors of evacuation might be got rid of by the mass-production of "community units," each of three huts—one for cooking and eating, one for laundry, medical inspection and administration, and one for recreation.

*

If school children were evacuated under their teachers and were based on such a unit, the greatest anxieties of receiving families and parents would be avoided. If mothers and babies (all from one area) were based on another such unit they would be able to get away from their hosts and avoid friction over the wash-tub, the cooking and the rations. And "single" working men and women left behind in evacuation areas could be based on similar units—which in this case would be usually in adapted existing buildings.

*

I am not fanatically wedded to this scheme. It involves quite a lot of building and raises nasty questions of water, sanitation, materials and internal equipment. Its virtues seem to be that it is applicable to almost any policy which the Government adopts for the homeless and it deprives evacuation of some of its worst drawbacks—above all it might prevent many of the homeless departing from Rest Centres, in fear of evacuation, to a "permanent home" in some large local shelter. Two East End doctors have pointed out in *The Times* that this practice is quite common; and what it will mean in mid-winter can be easily imagined.

COMING COLDS

Early enough to allow plenty of time for action before the frosts come, a brochure called "Minimizing the Risks of Frozen Pipes,"* has recently appeared. I, who suffered from last year's frosts, found it depressing reading—because it is so sensible.

*

It makes clear, in its first paragraph, that pipes can only be properly protected from frost at the time they are installed,

* Issued by the Lead Industries Development Council, 38 King William Street, E.C.4.

and that careful selection of runs and good grouping can do more to prevent trouble than any amount of lagging afterwards. The brochure does, of course, describe very carefully what can be done afterwards, and the nightly process of draining off which can be indulged in by those who refuse to do anything until the frost is upon them. It would be little use if it did not—since I imagine that 99 per cent. of all houses in this country have plumbing which has been installed without heed to frost.

*

But one can't avoid a feeling that this particular annual or triennial nuisance will never be eliminated in the ordinary British house. Severe frost is rare, and therefore builders will not take the trouble to run pipes properly, nor householders to demand that they should. So it looks as though we were condemned in perpetuity to annual outbursts of lagging (usually leaving untouched the most vulnerable elbows) or to involved attempts to drain down a system which lack of stopcocks or droops in pipes has made proof even against this remedy.

FREEDOM'S CHOICE

In a recent issue of a weekly illustrated paper, the personal affairs of a typical munitions worker were analysed for the reader. We were told where he lived, what he earned, what he wore and ate, what he thought of Hitler, and how he liked his tea made. Such intimate details never fail to fascinate, but perhaps the most interesting revelation was the account of how, when earning a wage three times greater than in peace-time, he spent his money.

*

He lived apparently in the same four-roomed house, though it was now equipped with an electric cooker, iron and refrigerator. His wife spent more on food and clothes for the family. There were apparently no coals in the bath nor permanently mute piano in the parlour. So far so good, but a large proportion of the worker's savings, £63 in fact, had been spent on an oak bedroom suite.

*

At the risk of incurring fierce protests from the furniture trade, I must say I find it impossible to believe that a suite small enough to pack into a 12 ft. by 10 ft. bedroom could also be large enough to cost so much, especially when it is remembered (in these days of wood shortage) what the oak suite may well conceal behind its succulent moulds and staining. For £63 it should be possible to furnish several rooms with good strong furniture, hand-built of seasoned materials, possibly less glamorous to the eye, but of lasting worth. It is doubtful, judging by current sale-room prices, if this £63 suite will fetch as many shillings in a few years' time.

*

However, what the public wants and what they should want have always been two very different things, and advice has always been regarded, not unjustly, as impertinence. At least we should remember that most of us show an equal lack of discrimination, and are done in the eye equally often. If the supposedly more ignorant classes seek blindly the spurious sophistication of glossy veneers and chromium-plated ash-trays, their wealthier fellows search with equally ignorant enthusiasm for the misshapen peasant pot, handcraft fire-irons and Stockbrokers' Tudor *décor*. The only person who seems to win all round is the furniture dealer. Whether he is in the modern or antique line the supply of suckers never fails him.

NEWS

R.I.B.A.

The War Executive Committee of the Council has decided, on the recommendation of the officers of the Board of Architectural Education, that in future candidates at the final examination who obtain at least 85 marks for their theses should be given a Mark of Distinction, irrespective of whether they have taken the examination in two parts or are relegated in other subjects. This new regulation will become operative at the forthcoming final examination to be held from November 27 to December 5, 1940.

BUILDING MATERIALS

The Minister of Works and Buildings has appointed Mr. Hugh Beaver, M.INST.C.E., M.I.CHEM.E., to be Priority Officer and Controller of Building Materials. In addition to assisting the Minister in applying the general directions of the Production Council on priorities in the Government building programme, Mr. Beaver will examine and co-ordinate the various departments' programmes of works and exercise such control over building materials as may be necessary.

It is intended immediately to apply control to cement and bricks, and these sections will be directed, respectively, under the Controller, by Lord Wolmer, M.P., for cement, and Mr. T. P. Bennett, F.R.I.B.A., for bricks.

THE CHADWICK TRUST

The Chadwick Trustees are offering two Prizes, one of £100 and the second of £50, for the best two essays on the construction and management of air-raid shelters with special reference to ventilation, heating, sanitation and the provision of sleeping accommodation.

Information in regard to the prizes and conditions of the award can be obtained by sending a stamped addressed envelope to the Clerk to the Chadwick Trustees, 204 Abbey House, Westminster, S.W.1.

LEEDS COLLEGE OF ART

Mr. Desmond Heap, lecturer in Town Planning Law in the Department of Town and Country Planning at the Leeds School of Architecture, Leeds College of Art, has been appointed Deputy Town Clerk of the City of Leeds.

Mr. Heap holds the degree of LL.M. of the University of Manchester and has been a member of the staff of the Town Clerk's Department since 1933. He has been a member of the staff of the Department of Town and Country Planning since 1935 and is the author of "Planning Law for Town and Country" and numerous papers on this subject which have been read before town planning and other societies. Mr. Heap is thirty-three years of age.

NEW YORK WORLD FAIR

The New York World Fair, which has been running for two years, closed on Sunday last and was seen by no fewer than

45 million people. When work of demolition is finished the grounds will be transformed into a large park.

A.A.S.T.A.

Following notices have been received from the Association of Architects, Surveyors and Technical Assistants :—

Annual General Meeting to be held on November 9 at 2.30 p.m. at 113 High Holborn, W.C.1. Proceedings will include an address by the retiring President, Mr. V. L. Nash, A.R.I.B.A., entitled "The Protection of the People and the Responsibility of the A.A.S.T.A.": discussion: and the election of Officers and Council for the coming session.

The Executive Committee of the A.A.S.T.A., in consultation with the Federation of the Residents' and Tenants' Association, has decided to take over and reorganize, on a wider basis, the existing panel of technical advisers who have given their assistance to various Tenants' Associations. The reorganization and extension of the panel, which will now serve such bodies as Trade Union branches, Trades Councils, etc., and the existing Federation, has become necessary on account of the ever increasing requests for advice.

Much of the work at the moment consists of visiting shelters, in flats, schools and offices, speaking at meetings on air-raid protection and advising on shelter campaigns. The circularization of the A.R.P. Committee's new shelter exhibition will further increase public interest in the question of air-raid protection, and this will create even more work for members of the panel. The importance of answering all queries as quickly as possible is quite obvious, and to keep pace with this valuable work the Association hopes that members and non-members who are not already on the panel, but would like to assist in this work, will write to head office. It hardly need be pointed out that the services of the new panel will not be given in the case of work normally carried out by public and private offices.

SOCIETY OF ANTIQUARIES

The Society has decided as an experiment to hold two afternoon meetings of the Society before Christmas. The first of these will be held on Thursday, October 31, at 2.30 p.m. at Burlington House, W.1, when Sir Cyril Fox will read a paper on "Sutton 268: A Bronze Age Barrow in Glamorgan."

EXHIBITIONS

The A.A. annual exhibition of members' holiday sketches is now being held at 36 Bedford Square, W.C.1. It will remain open until November 15.

An exhibition, arranged by the Institute of British Photographers, of professional photography is now being held at 49 Gordon Square, W.C.1. It will remain open until November 15 between the hours of 10 a.m. and 5 p.m.

MANCHESTER REJECTS DEEP SHELTERS

The Manchester City Council, at a recent meeting, rejected a proposal to provide

deep bomb-proof shelters in the densely populated districts of the city, but urged the rapid completion of the full shelter programme and the speeding-up of the waterproofing of Anderson shelters.

APPOINTMENT

Mr. Stanley C. Ramsey, F.R.I.B.A., has been appointed chairman of the National Building Society in place of the late Mr. W. F. Foster.

CHANGES OF ADDRESS

Messrs. Farmer and Dark have removed their office to 37 Sydney Street, Chelsea, S.W.3. Telephone No.: Flaxman 8824.

Mr. Richard Nickson, M.A., F.R.I.B.A., has transferred his office to Wellington Buildings, The Strand, Liverpool, 2. Telephone No.: Bank 3966.

Mr. R. Mountford Pigott, M.C., F.R.I.B.A., has removed to 14 Cromwell Place, Kensington, S.W.7.

The London office of Southern, Ltd., has been transferred to 18 Northwick Circle, Kenton, W. Telephone No.: Wordsworth 1501.

NORTHERN POLYTECHNIC SCHOOL OF ARCHITECTURE

The Day School of Architecture is open and a normal programme of instruction is provided over the whole of the five years' course.

In the Evening School of Architecture a somewhat condensed course of instruction is available for all students preparing for the R.I.B.A. examinations. Classes meet as late as possible in the afternoon but terminate early enough for students to be able to reach their homes before air raids commence.

Studio classes are held on Saturday afternoons from 2-5, and if there is sufficient demand a course of lectures may be arranged on Saturday mornings.

If circumstances permit, a normal programme of lectures will be resumed immediately after Easter, 1941, including lectures in hygiene, professional practice, theory of structures, etc., for candidates taking the R.I.B.A. Final Examination in July, 1941.

All students who wish to avail themselves of the present or future arrangements are invited to apply to the Head of Department, Mr. T. E. Scott, F.R.I.B.A., Holloway Road, N.7.

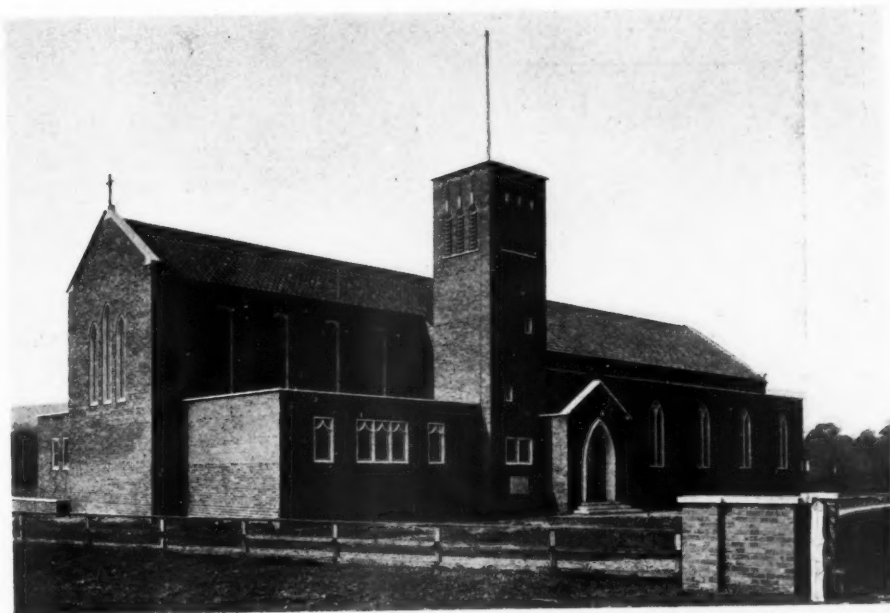
FACTORIES

New draft regulations under the Factories Act (dealing with interior lighting of factories) have just been published by the Minister of Labour and National Service. Copies are obtainable from H.M. Stationery Office, price 1d.

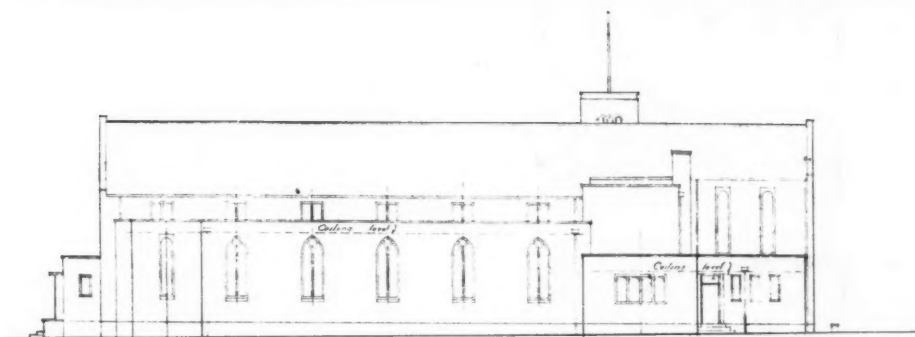
OBITUARY

We regret to record the death of Mr. William Thomas Clarke, A.R.I.B.A., A.M.T.P.I., of Burton. He was educated at Liverpool College and studied at Liverpool University, gaining degrees in architecture. Mr. Clarke was a member of the Neston Council and advisory architect of the Ellesmere Port Council.

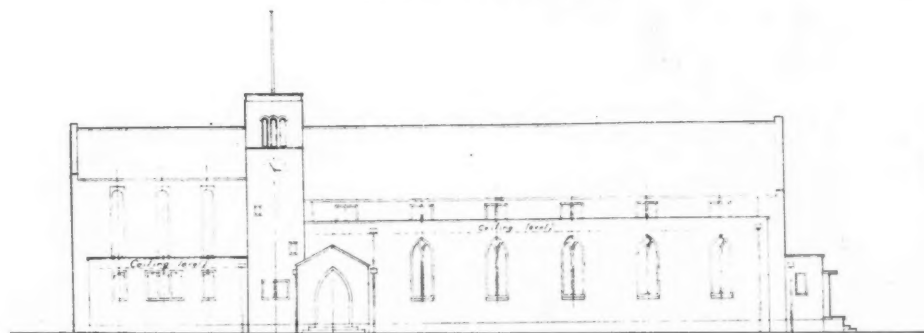
We deeply regret to record the sudden death on Sunday last of Mr. Henry J. Budd, Manager of the Architectural Press for the past 35 years.



View from the north-east



SOUTH ELEVATION



NORTH ELEVATION

CHURCH, GATESHEAD-ON-TYNE

DESIGNED BY CORDINGLEY AND MCINTYRE

The Church of All Saints is on a hillside in a very open position, overlooking Ravensworth Park, and the plan allows for a future vicarage and hall. The surrounding land is to be developed as a housing estate, but for the present the church stands alone, some distance from two recent housing estates. The site is roughly triangular, and occurs on what will ultimately be a bend in the new road. It is almost level, but falls steeply into a small valley at the back boundary.

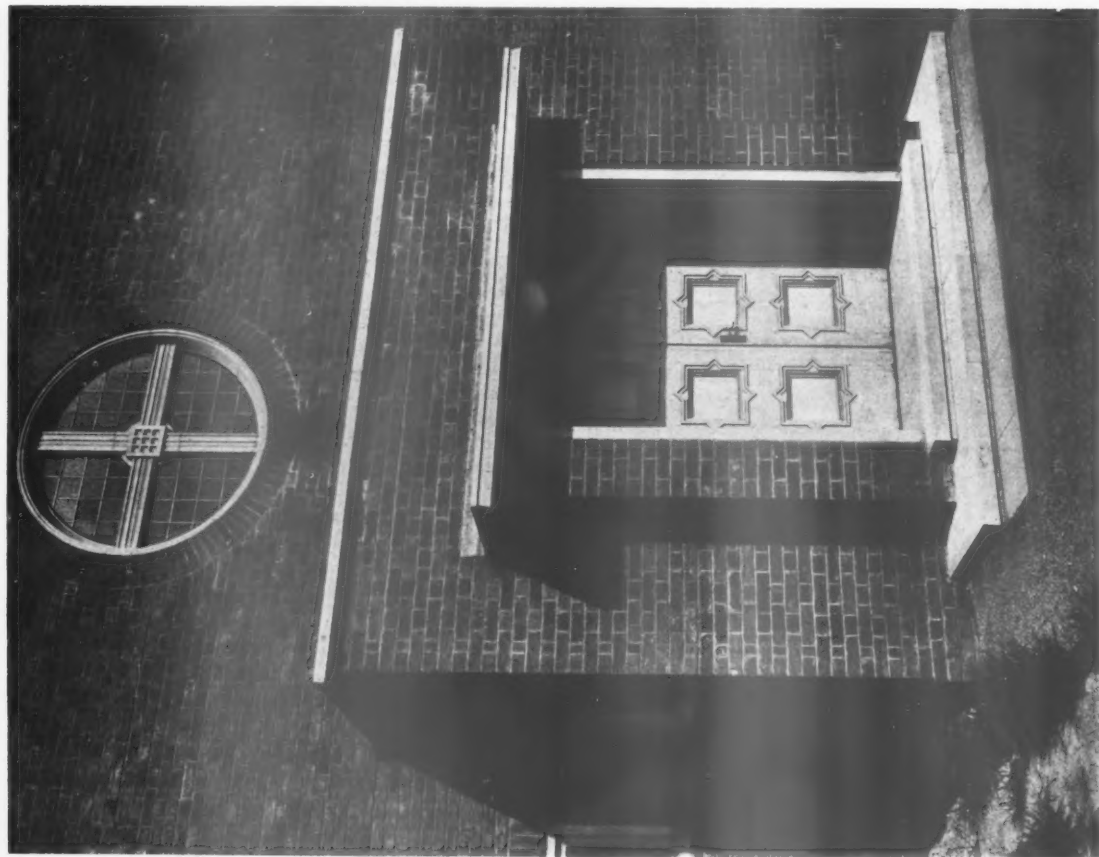
CHURCH OF ALL SAINTS, LOBLEY HILL, GATESHEAD-ON-TYNE



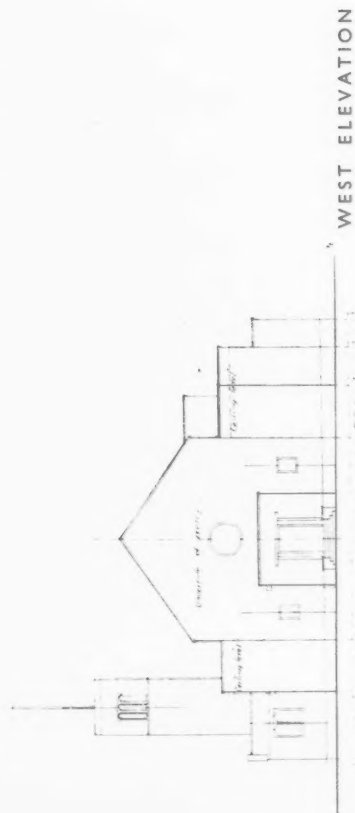
From south-west



From south-east



West entrance



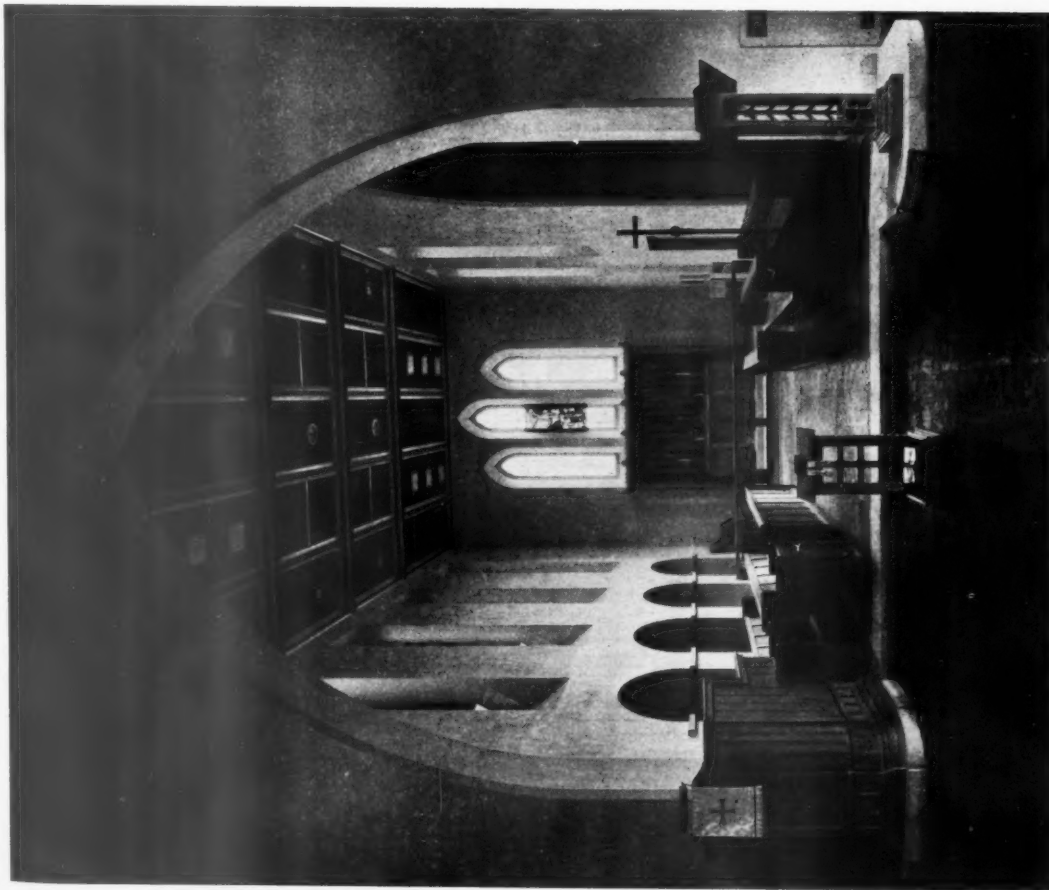
WEST ELEVATION

PLAN—The plan is arranged with a wide nave (28 feet) and high aisles of sufficient width to allow seating against the outer walls. The accommodation is for a total of 450 people.

CONSTRUCTION—External walls are all weight-bearing and solid, of a minimum thickness of 14 ins. They were treated before plastering with damp-resisting composition and plaster bond.

EXTERNAL FINISHES—The client desired that the church should be on traditional lines. The exterior is faced with 2½-in. hand-made sand-faced multi-coloured bricks with flush perpends and rubbed horizontal joints. Artificial stone was used throughout. The roof is tiled.

INTERNAL FINISHES—Internally the building is plastered, the walls of the nave being in acoustic plaster, other plaster being stippled to a similar texture. Flooring in the nave, chancel and chapel is of fibre blocks, linoleum in vestries. The chancel steps, pavings and margins are cast stone.



The chancel

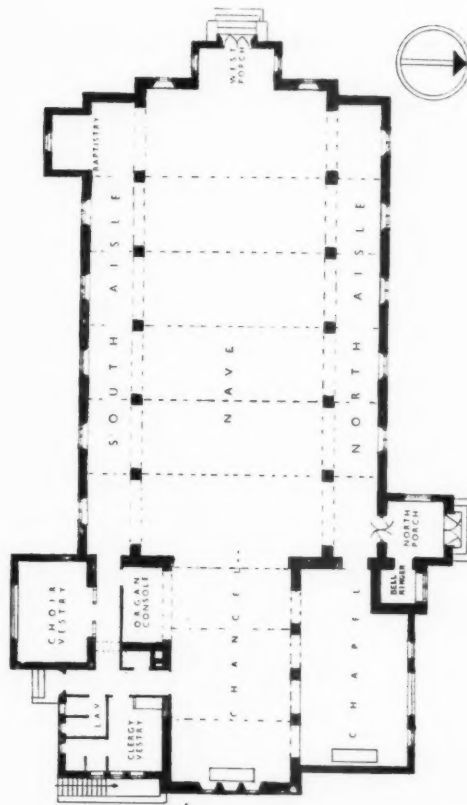
INTERNAL FINISHES (continued)—The nave has an open wood roof with hand-made decorative wrought iron straps, treated with light brown preserving liquid. The choir roof is also of wood with a panelled ceiling and paterae of wood. The panels are filled with "V" jointed boards and together with the main beams are treated with green, orange and black preserving liquid. Panel moulds and paterae are painted cream and picked out in colour. The walls are an almost white stone colour. The screen to the west end vestibule is of English oak, bleached and lightly wax polished. The pulpit,



Nave looking west



Nave looking east



DESIGNED BY
GORDING AND MCINTYRE

lectern, choir seating, altars and all other furniture are of oak with a similar finish. The metal windows, in cast stone surrounds, are leaded and glazed with plain cathedral glass. SERVICES—Heating is by means of low pressure hot water with recessed cabinet radiators in the nave and chancel, and two unit heaters are also arranged in the oak screen at the west end and may be used in severe weather to boost the temperature before a service. General contractors were J. & W. Lowry; for list of sub-contractors and suppliers see page xii.

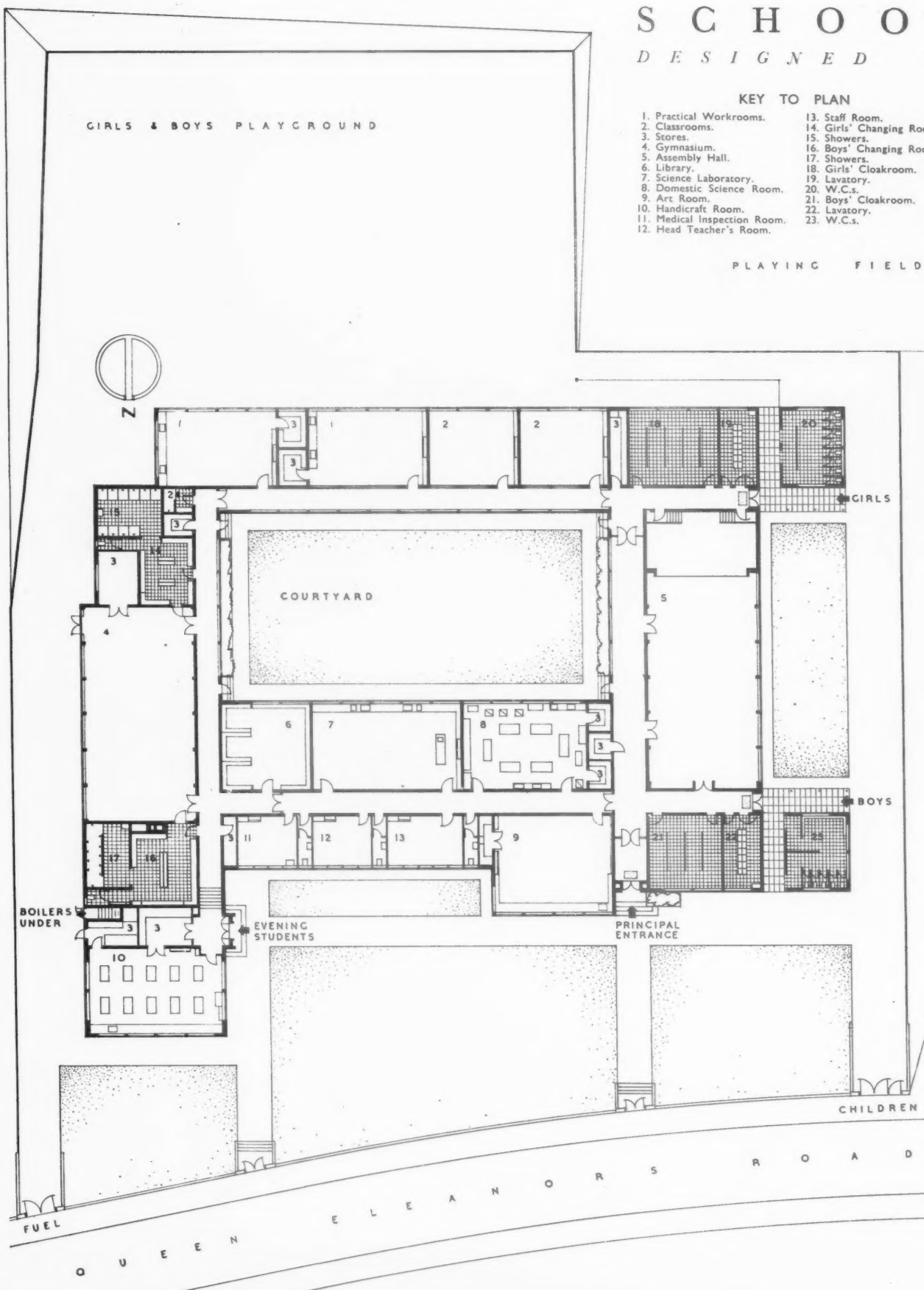
SCHOOL

DESIGNED BY

KEY TO PLAN

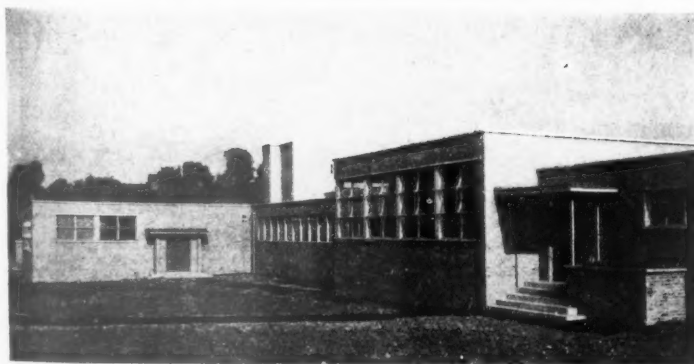
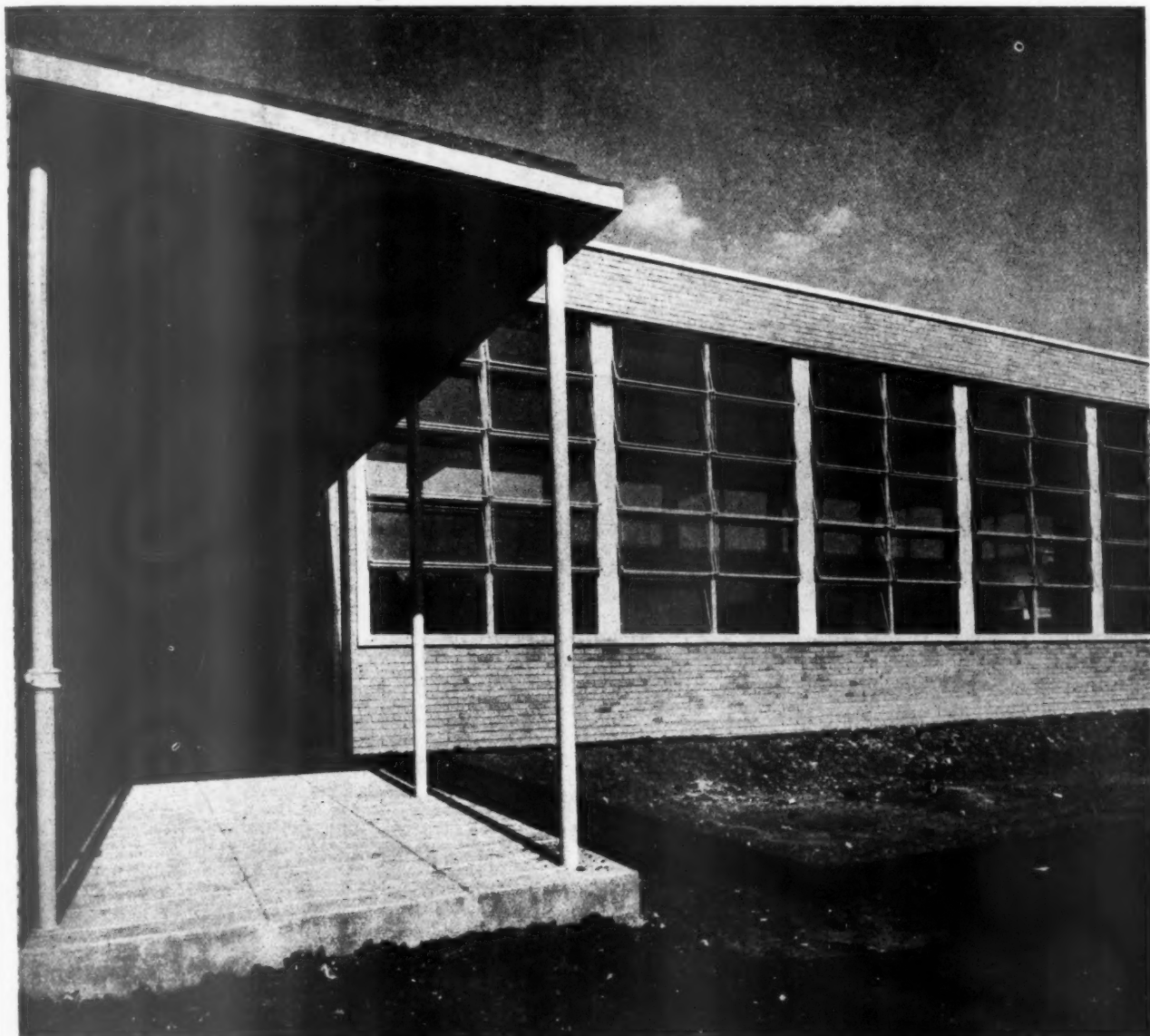
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|------------------------------|---------------------------|
| 1. Practical Workrooms. | 13. Staff Room. |
| 2. Classrooms. | 14. Girls' Changing Room. |
| 3. Stores. | 15. Showers. |
| 4. Gymnasium. | 16. Boys' Changing Room. |
| 5. Assembly Hall. | 17. Showers. |
| 6. Library. | 18. Girls' Cloakroom. |
| 7. Science Laboratory. | 19. Lavatory. |
| 8. Domestic Science Room. | 20. W.C.s. |
| 9. Art Room. | 21. Boys' Cloakroom. |
| 10. Handicraft Room. | 22. Lavatory. |
| 11. Medical Inspection Room. | 23. W.C.s. |
| 12. Head Teacher's Room. | |

PLAYING FIELDS



L A T G U I L D F O R D , S U R R E Y

BY LESLIE HISCOCK AND DUNCAN SCOTT



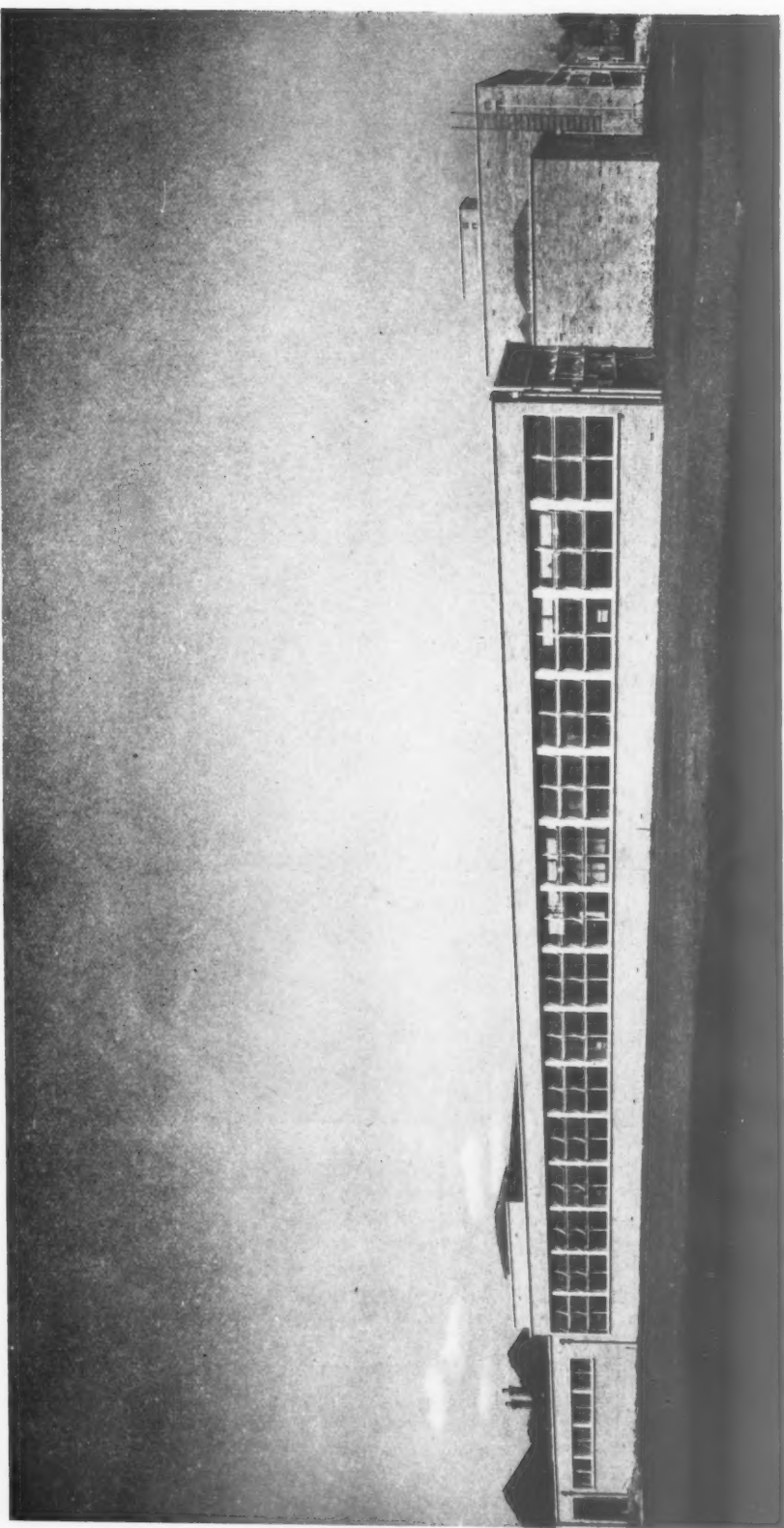
Top, assembly hall and pupils' entrance. Above, view from the road; the projecting block on the left is the handicraft room with its own entrance for evening students, in the centre is the art room with the staff rooms alongside, and on the right is the main entrance.

GENERAL—This building is part of a scheme for the re-organization of the public elementary schools in the Guildford "Town" area. It is a mixed senior school with accommodation for 280 to 320 pupils, but the County Education Authority also intend that the buildings shall be used by young people of the neighbourhood for social and recreational activities.

SITE—5½ acres, about three-quarters of a mile from the centre of the town, near the new cathedral. The site sloped towards the road on the north side but had two fairly level areas, a large one at the rear which is occupied by playing fields, and a smaller one at the front on which the building has been placed.

PLAN—All the accommodation is at one level, planned round a central courtyard.

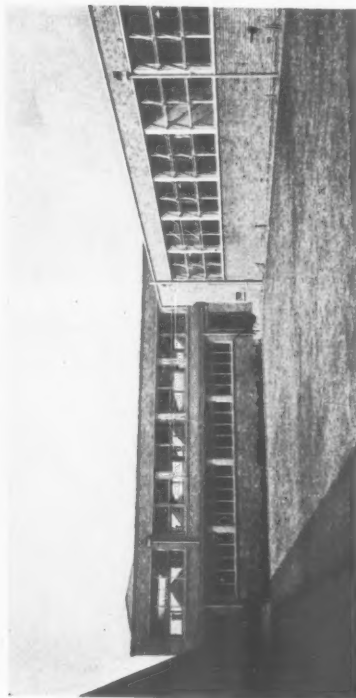
SCHOOL AT GUILDFORD, SURREY



Above, the south side of the building seen from the playground, showing the continuous range of classroom windows. Left, the courtyard, looking towards the assembly hall.

CONSTRUCTION AND EXTERNAL FINISHES—Generally, weight-bearing brick walls, with steel used to a limited extent for roofing and in the construction of the assembly hall and gymnasium. 11-in. external brick walls are faced with golden brown stocks. Roofs generally are of timber covered with boarding, cork felt underlay, and asphalt. The classrooms are divided by 9 in. structural walls which carry the steel spine joists supporting the roof. Roofs of internal corridors, covered ways, hoods, etc., are of reinforced concrete. The windows are of metal, those to the classrooms, assembly hall and gymnasium being horizontally pivoted or of the hopper type, side hung casements being used in corridors and smaller rooms. Ranges of windows are set in precast reinforced concrete frames.

INTERNAL FINISHES—Walls and ceilings are plastered and colour distempered, generally in light cream and pink shades, dadoes being of a grey shade of distemper ;

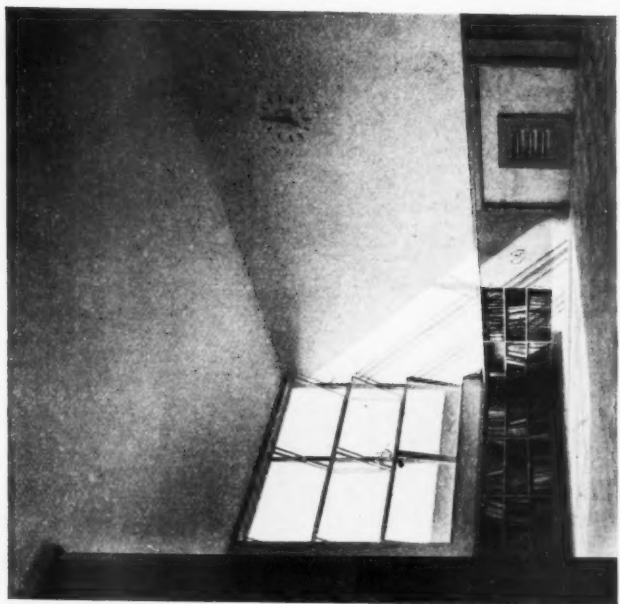
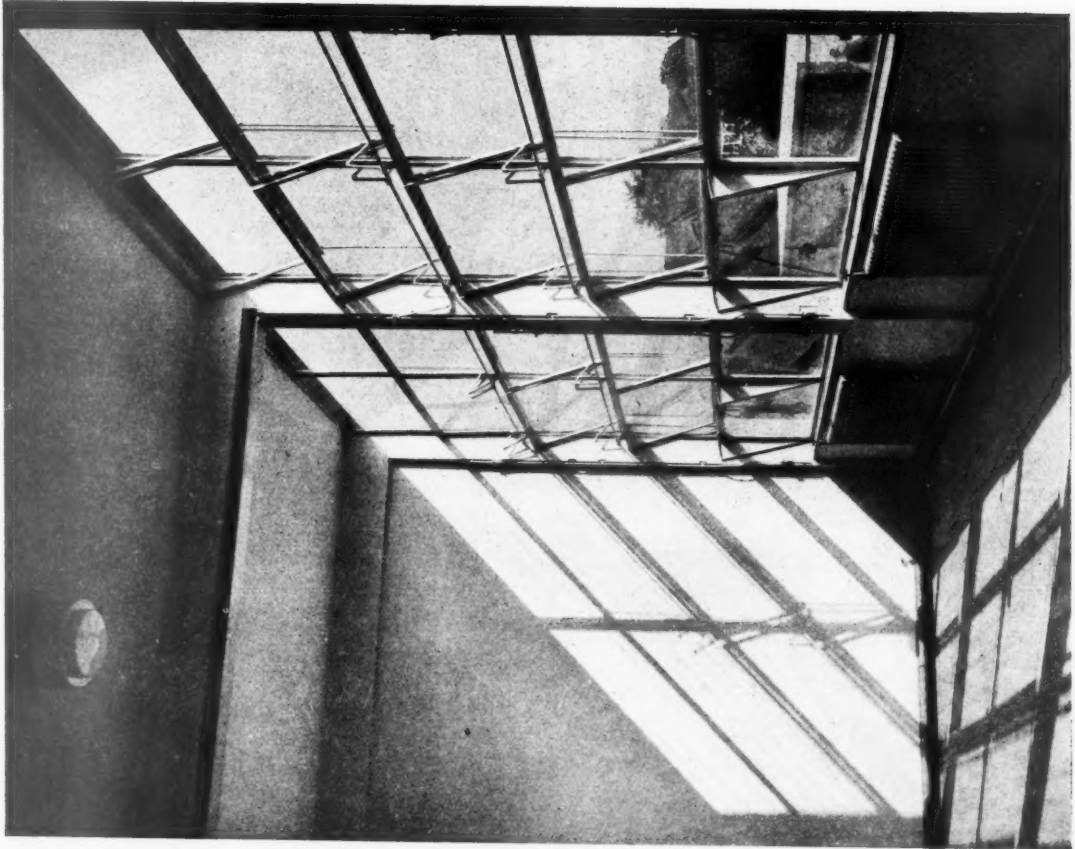


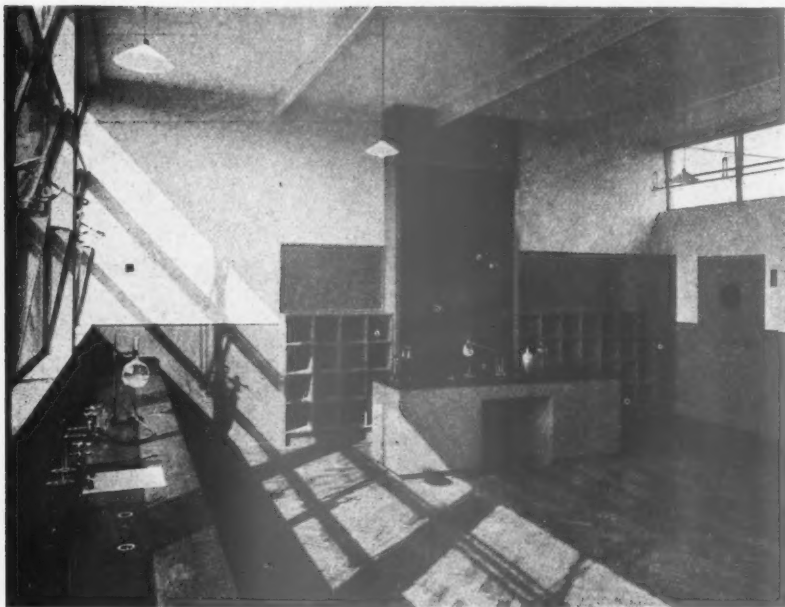
INTERNAL FINISHES—Walls and ceilings are plastered and colour distempered, generally in light cream and pink shades, dados being of a grey shade of distemper ;

at the end of the maintenance period, dados are to be painted. The flooring generally is beech block, wax polished, maple strip flooring being used on the assembly hall stage and oak strip flooring in the gymnasium. Doors generally are of flush type, with observation panels. Classroom fittings, benches, teachers' cupboards, pigeon-holes, blackboards, etc., were all specially designed and included in the main contract. The library fittings are executed in oak, wax polished.

DESIGNED BY LESLIE HISCOCK
AND DUNCAN SCOTT

Below, the assembly hall. Bottom, the library. Right, a corner of the gymnasium.





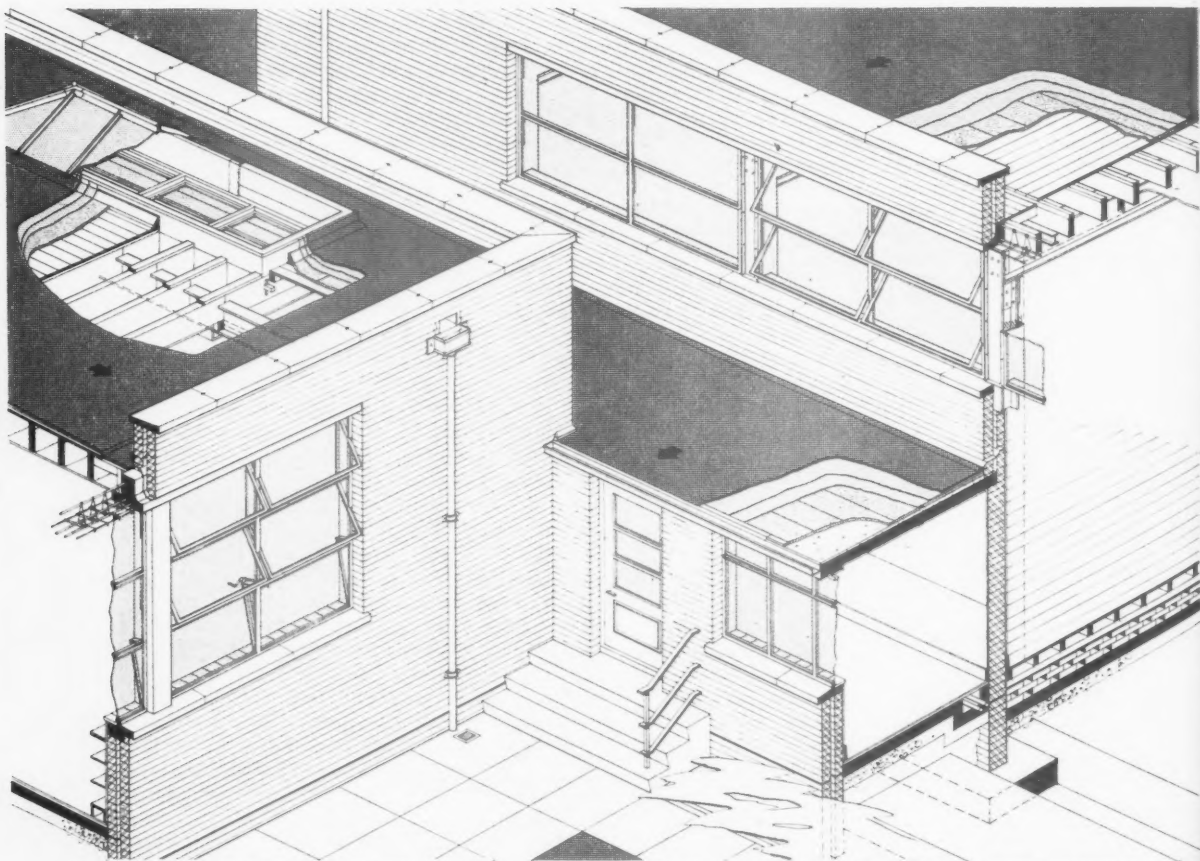
Left, typical classroom ; above, school corridor.

SERVICES—Heating is by low pressure hot water, the radiators being of the Beeston Hospital type. The library has panel heating. The heating boiler is fed by an automatic stoker.

COST—The total contract cost, including a caretaker's

house, playground and site walls, was £26,301. The cost per place for the maximum number of pupils therefore works out at £82 3s. 9d.

General contractors were R. Holford & Co., Ltd. ; for list of sub-contractors and suppliers see page xii.



DIAGRAMMATIC SECTION THROUGH LIBRARY, CORRIDOR AND GYMNASIUM SHOWING TYPICAL CONSTRUCTION

SCHOOL AT GUILDFORD, SURREY
DESIGNED BY LESLIE HISCOCK AND DUNCAN SCOTT



school

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THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

CONSTRUCTION AND ECONOMICAL ARRANGEMENT OF ROOF TRUSSES :

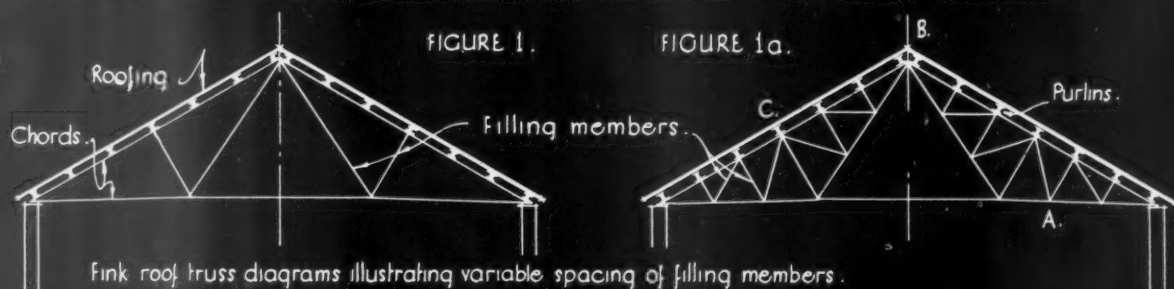
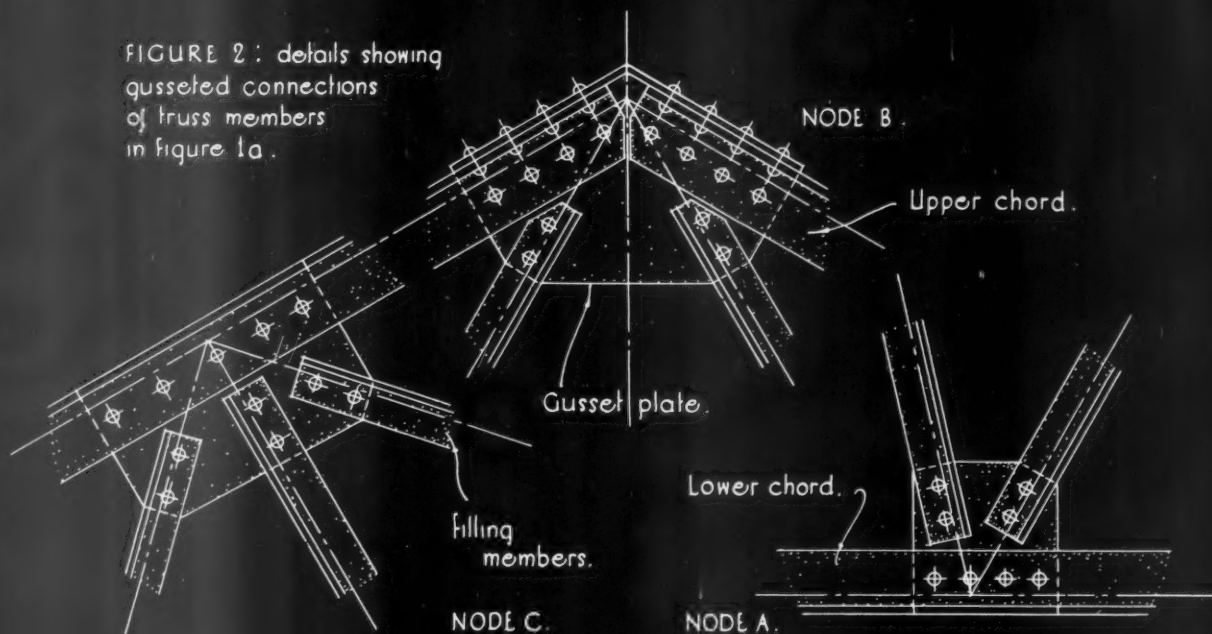
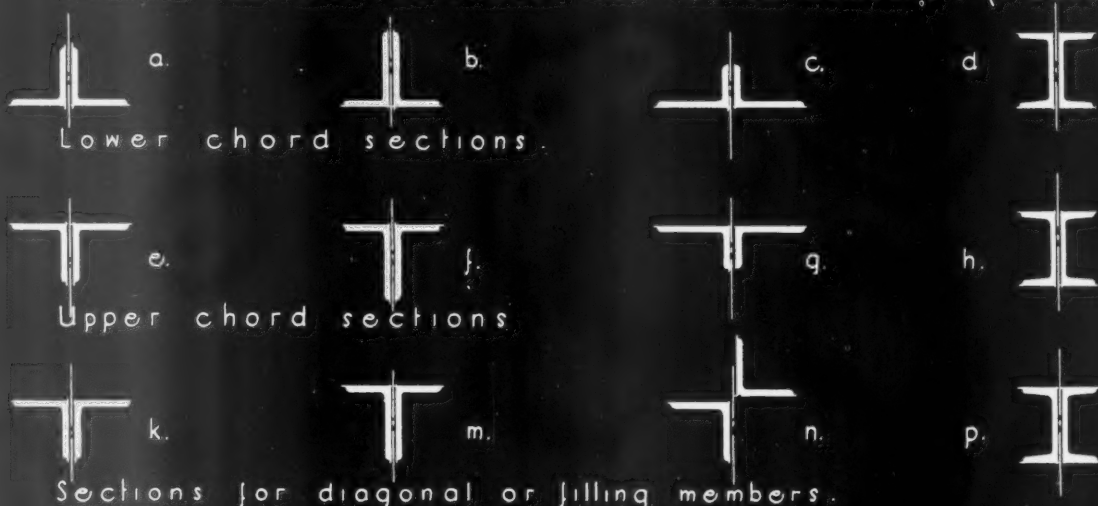


FIGURE 2: details showing gusseted connections of truss members in figure 1a.



COMMON SECTIONS FOR CHORDS AND FILLING MEMBERS : (FIGURE 3)



Issued by Braithwaite & Co., Engineers, Ltd. Compiled by C.W. Hamann, Consulting Engineer.

INFORMATION SHEET : STEEL FRAME CONSTRUCTION : No 36
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

INFORMATION SHEET

• 808 •

STRUCTURAL STEELWORK

Subject : Steelwork for Roof Construction, 4 ;
Construction and Economical Arrangement of Roof Trusses.

General :

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

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

This Sheet is the thirty-sixth of the series, and illustrates typical construction and economical arrangement of roof trusses.

Construction :

Roof trusses are composed of an upper and lower chord, and filling members. Filling members may be spaced close together or wider apart, according to choice, as indicated in Figures 1 and 1a for a Fink roof truss.

Where filling members are close together, the upper chord has smaller buckling lengths and, in addition, is not likely to be stressed by bending moments due to purlins. On the other hand such a truss involves more labour owing to the increased number of nodes and gusset plates.

In general, the advantages and disadvantages compensate each other more or less, and a decision has to be made separately in each case.

Connections :

Members are connected at the nodes by means of gusset plates, and these plates are smallest where the angles between chords and filling members are as near 90 deg. as possible, see Figure 2.

Sections :

The sections mostly used for chords, as well as filling members, are double channels, and double equal or unequal angles, see Figure 3. Only for small trusses are single sections used, as such an

asymmetrical arrangement introduces bending moments and increased extra stresses.

Tension Members (Lower Chords) :

The required section of tension members (Figure 3a, b, c, and d), is determined by the formula,

$$A_n = \frac{N}{p}$$

Where N is the force and A_n the net area of the section after the deduction of rivet holes, and p tons per sq. in. is the permitted stress. At the present time p may be taken as 8.

As the area is proportional to the weight, the shape is not of great importance, and equal angles (Figure 3a) are the most common for such tension members as they allow the greatest variation. Unequal angles (Figure 3b and c) may be used, however, quite as well.

Compression Members :

(a) Upper chords : For compression members shape and position of angles is of primary importance. For upper chords, members must necessarily be in the position given in Figures 3e, f, g, and h, and the carrying capacity of such angles and channels is referred to in Sheets Nos. 12, 16 and 17 of this series.

Two unequal angles in the positions given in Figures 2b and 3f, can be made equally stiff with respect to both their x and y axes and are, therefore, best used where the distance between the purlins is equal to the distance between the nodes.

Where the distance between the purlins is greater than that between the nodes, equal angles (Figure 3e), or unequal angles in the position given in Figure 3g, become more efficient. If the distance between the purlins is smaller than that between nodes, two channels (Figures 3d, h, and p) are effective, particularly as they have a better section modulus, and resist bending moments which occur in such a case. When necessary, the stiffness with regard to the y axis can be corrected to a certain extent by spreading the sections, but this invariably causes complications in detail.

(b) Filling Members : The same sections may be used for diagonals (filling members) in compression, but in addition, two equal angles may be used in the position shown in Figure 3n. This position gives the greatest efficiency coefficient as is shown on Sheet No. 16 of this series, but the gusset plates are generally somewhat increased due to the diagonals being wider.

Previous Sheets :

Previous Sheets of this series dealing with structural steelwork are Nos. 729, 733, 736, 737, 741, 745, 751, 755, 759, 763, 765, 769, 770, 772, 773, 774, 775, 776, 777, 780, 783, 785, 789, 790, 793, 796, 798, 799, 800, 801, 802, 804, 805, 806 and 807.

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LETTERS

F. SKINNER (Messrs. Teclon).
A. D. HISLOP.
G. L. PILKINGTON (Director, Pilkington Bros.).

Shelter Policy *

SIR,—We feel that we must draw your attention to certain aspects of shelter policy which were dealt with in your leading articles in the September 26 and October 3 issues.

In the first case we believe that you have made a misleading simplification of the problem by speaking of "the advocates of deep shelters" as opposed to the Government policy of "dispersed shelters," and by such statements as "the deep shelter policy . . . contains fundamental weaknesses . . ." To speak of "deep" shelters is to perpetuate untechnical language which has already caused endless confusion. It should by now be generally understood that a shelter is safe or unsafe by reason of the strength of its walls and roof and the way in which the interior is divided up. A shelter, if it has the requisite thickness of walls and roof, may be bomb-proof even if it is above ground. Of course the same results may be achieved by placing a shelter deep under ground, thus giving a cover of earth or rock equivalent to the protective value of the concrete roof and walls of an overground shelter. But to speak in these general terms of "deep" shelters is very misleading. (The fact that the original Finsbury shelters extended to a considerable distance under ground had nothing to do with the standard of protection. This was given by a thick layer of reinforced concrete above the shelter. The depth of the shelter was due to the fact that it had a number of storeys in order to take the utmost advantage of a bomb-proof roof, and was due only to the intrusion of economic considerations.) Had the shelters been designed on one floor only the standard of protection would have been much the same, although the cost per head would have been higher. Let us therefore stop talking about "deep" shelters, and if we cannot adopt the only scientific method and define the safety of a shelter in terms of a coefficient, at least let us speak of light or heavily protected shelters and define as accurately as we can the comparative degrees of safety given by each.

Your editorial suggests that whereas "deep" shelters (which we shall assume to mean larger, communal shelters) by reason of the greater distance that must be traversed to reach them, are at a disadvantage owing to the fact that "it has not proved possible to give warnings of all raids before bombs were dropped," "dispersed" shelters (which we shall assume to mean single-

family shelters or smaller communal shelters) are not at this disadvantage. (We will not enter into discussion here as to whether this is due to the impossibility of giving adequate warnings or whether it is due to some defect in the warning system, although this question is very relevant.) The argument is in any case not valid. With single-family or small communal shelters it is just as necessary to leave the place of work or residence to reach the shelter as in the case of larger and less frequent communal shelters, unless, indeed, the shelter is in the basement of the same building. (You would appear, however, to agree with us that basement shelters, except in very strongly constructed buildings, are not to be recommended.) It is, in other words, only a question of the time taken to reach the more numerous small shelters as against the time taken to reach the less numerous larger shelters, which are rather more distant but more heavily protected. To reach the first may take one or two minutes, to reach the second may take five or six minutes. The actual time lost during a raid as between one type of shelter and the other will not be important, as this is a matter of comparing the time taken to return to work or home after the "all clear," in the case of the two shelters. If the average length of a daytime warning is one hour, then the time lost in the case of the smaller shelters will be 61–62 minutes and in the case of the larger shelters will be 65–66 minutes. This difference is clearly not important. What is more important is the fact that in the second case the people are exposed to the danger of going unprotected through the streets to a shelter during a raid for a longer period than in the first case. But as this is anyway only on the few occasions when a raid warning is not sounded in time, it is likely to be more than offset by the higher standard of protection which is provided in the case of the larger communal shelters.

The whole business can be summarized in this way: *In formulating a shelter policy the advantage of the higher standard of protection and equipment which can be given in the larger communal shelters for a given cost per head must be weighed against the advantage of greater proximity to residence or place of work possessed by the smaller shelters.*

The second important point which we feel we must bring to your notice is in connection with basement shelters. You agree that basement shelters should only be provided in the case of strong buildings. But your editorial says that "Framed or reinforced concrete buildings exist in large numbers in or near the most

closely populated areas, they are virtually proof against collapse, their basements can easily be made satisfactorily sound-proof, they have a degree of resistance to direct hits much exceeding that of a surface shelter and comparatively little labour and time would be needed to adapt them for use as air-raid shelters." In our experience the italicized parts of this statement are also misleading. We conducted a survey at Finsbury (a typical crowded district) and found that the number of steel and concrete framed buildings was remarkably small (about a dozen), and most of these were not situated so as to be accessible within a stated time of seven minutes. In addition, owing to all sorts of complications, such as the existence of high-pressure water mains (there have been many deaths from drowning in basements recently), gas mains, high-tension cables, etc., and the absolute necessity in many cases of maintaining the services such as heating, water supply and lifts for the upper parts of the building where important work may be carried on, the conversion of a basement is often neither quick, cheap nor easy. It is generally true to say that separate shelters (for instance, in open spaces or on vacant sites) giving at least as high a degree of protection as basements in strong buildings can usually be built at approximately the same cost and in only slightly longer time. This was our experience in actual practice at Finsbury.

The degree of protection given by a basement or ground floor shelter compared with that given by a surface shelter, obviously depends on the standard of protection chosen for the latter. To give a degree of roof protection similar to that in a basement under a seven-storey building with 6-in. solid concrete floors (very rare—floors are usually filled with hollow blocks) it is only necessary to add 3 ft. 6 in. of reinforced concrete to the roof of the ordinary brick surface shelter; obviously quite an easy thing to do—though a silly one, because the walls, as also in the case of a basement, are still extremely vulnerable. (This comparison assumes that the bombs will drop through all the floors of the building above the basement. This hardly ever happens.)

The provision of safer and more satisfactory shelters than the present ones cannot, in our opinion, be solved on a large scale by the adaptation of basements.

We have in the above arguments accepted your premise that in siting shelters it is desirable to bear in mind the normal warning period. We believe, however, that, as a matter of fact, this is now much less important owing to the overwhelming problem of the regular night raids and the emergence of the necessity for protected sleeping quarters. Clearly the heavily protected large communal shelter has enormous

* This letter is discussed in this week's leading article.

advantages if considered from this angle. Due to the fact that the whole shelter policy has been allowed to slip into chaos and the position is so serious we agree that anyone who is now faced with the task of providing proper shelters has an unenviable job on their hands; and the longer a solution is postponed the more difficult it becomes. But a sound shelter policy can only be evolved after taking into account all the factors mentioned above and many others besides. The work is only hindered if we create artificial contrasts between "deep" and "dispersed" shelters, and fail to take full account of past experiences.

FOR TECTON: F. SKINNER
London.

Incendiary Bombs

SIR,—In "Notes and Topics," Astragal mentions the effect of small incendiary bombs. In your quarters you have experience of all descriptions of bombs, before which anything I know fades into insignificance, but I give you what I know for what it is worth.

In a recent local raid on a village, six houses were struck by incendiary bombs. In five cases they struck slated roofs with solid boarding under the slates. The boarding, presumably, was $\frac{3}{8}$ -in. thick, and the roof spars at 18-in. centres. In no case did the bombs penetrate, but in every instance fell off the roof on to the ground, doing little or no damage. In the sixth case the bomb fell on a flat roof constructed of joists, flooring and asphalt covering. The bomb penetrated the asphalt and wood, but stuck in the wood boarding and the fire was extinguished by the local fire squad before it had done more than very trifling damage to the flat roof.

In this city I examined the damage done by a small incendiary bomb in a joiner's shop. The bomb struck the roof, which was slated and boarded, but the inside entirely exposed. The bomb lay there, burning long enough for the fire squad to get fair warning. They had to break open the door in the gate to the yard and the door to the workshop, and even then they were able to prevent the bomb, which by this time had burned a hole about 15 in. by 6 in. in the roof and dropped on to a work bench, from doing more damage than charring a portion of the bench, about 1 ft. in diameter to a depth of $\frac{1}{4}$ -in., and burning a hand plane. There were no shavings on the bench.

In a nearby building, an incendiary bomb fell on a slated and boarded roof, and burned out without setting the roof on fire.

While the official pamphlets say that boarding will not save a roof from the penetration of a bomb, I imagine that it goes a great way towards it. I cannot

help thinking that the penetration of a boarded roof must depend largely on the angle at which the bomb strikes the roof. If it is at nearly right-angles to the roof slope one would expect the bomb to penetrate, but it is easy to see that if a bomb falling at an angle strikes a glancing blow on the roof, it is extremely likely to be deflected.

We should collect all the information that we can on such matters, but I think, with Astragal, that small incendiary bombs may not be very deadly.

Glasgow.

ALEX. D. HISLOP

Plate Glass

SIR,—The remarks attributed to the President of Sheffield, South Yorkshire and District Society of Architects and Surveyors, on page 312 of THE ARCHITECTS' JOURNAL for October 17, scarcely represent the true facts as regards the vulnerability of plate glass and the comparative immunity of light weight glass in small squares, unless some information is given of the sizes of the plate glass and of the small panes referred to. We imagine that in making the extracts from the President's address some contraction will inevitably have been made. It will be helpful, therefore, if you would publish certain details regarding the behaviour of light weight glasses and plate glass windows which we have extracted from the reports on the numerous tests which have been carried out by our Research and Technical Development Department.

In our early tests we included a number of squares 15 in. by 15 in. of 24 oz. sheet, which can scarcely be called a light weight glass by usual standards. These were exposed to the blast from an experimental type of bomb at distances of 50 ft., 40 ft., 30 ft., 20 ft., and 10 ft. In our later tests we exploded similar bombs at corresponding distances from a square of plate glass 84 in. by 84 in. with the following results:—

Bomb at 50 ft.—24 oz. sheet glass: 9 squares out of 15 were completely shattered; $\frac{1}{4}$ -in. plate glass: Out of six windows tested three were broken and three remained unbroken.

Bomb at 40 ft.—24 oz. sheet glass: In every test in which 24 oz. panes were included they were all broken at this distance; $\frac{1}{4}$ -in. plate glass: We have had one example of the $\frac{1}{4}$ -in. plate glass window surviving the blast from the bomb at 40 ft.

In all tests where it is intended to break the plate glass to test "anti-scatter" treatments, etc., the bomb is exploded at 30 ft., so as to make reasonably certain that the glass will be shattered.

It will be seen, therefore, that a $\frac{1}{4}$ -in. plate glass window 84 in. by 84 in. is, on average, less vulnerable than a 15 in. by 15 in. window of 24 oz. sheet glass. Sheet glass of this substance

is very considerably stronger than 18 oz. glass, which is the substance we should ordinarily describe as "light weight window glass." A window 84 in. square of $\frac{1}{4}$ -in. plate glass, would thus be very much less vulnerable than a 15 in. square of 18 oz. sheet. Perhaps we might add that 32 oz. sheet in squares 22 in. by 18 in. withstood the explosions from experimental bombs at 20 ft. This glass, therefore, can be considered as definitely less vulnerable than large sized windows in $\frac{1}{4}$ -in. plate glass, but it is scarcely to be rated as "light weight window glass."

In view of the very considerable amount of inaccurate information which has been published about the behaviour of glass under wartime conditions, we feel that any statement published in an authoritative journal should be strictly accurate and as precise as possible in its details. We should be very glad, therefore, if you could arrange to publish the facts outlined above.

FOR PILKINGTON BROTHERS, LIMITED
G. L. PILKINGTON,
DIRECTOR

BUNKS FOR SHELTERS

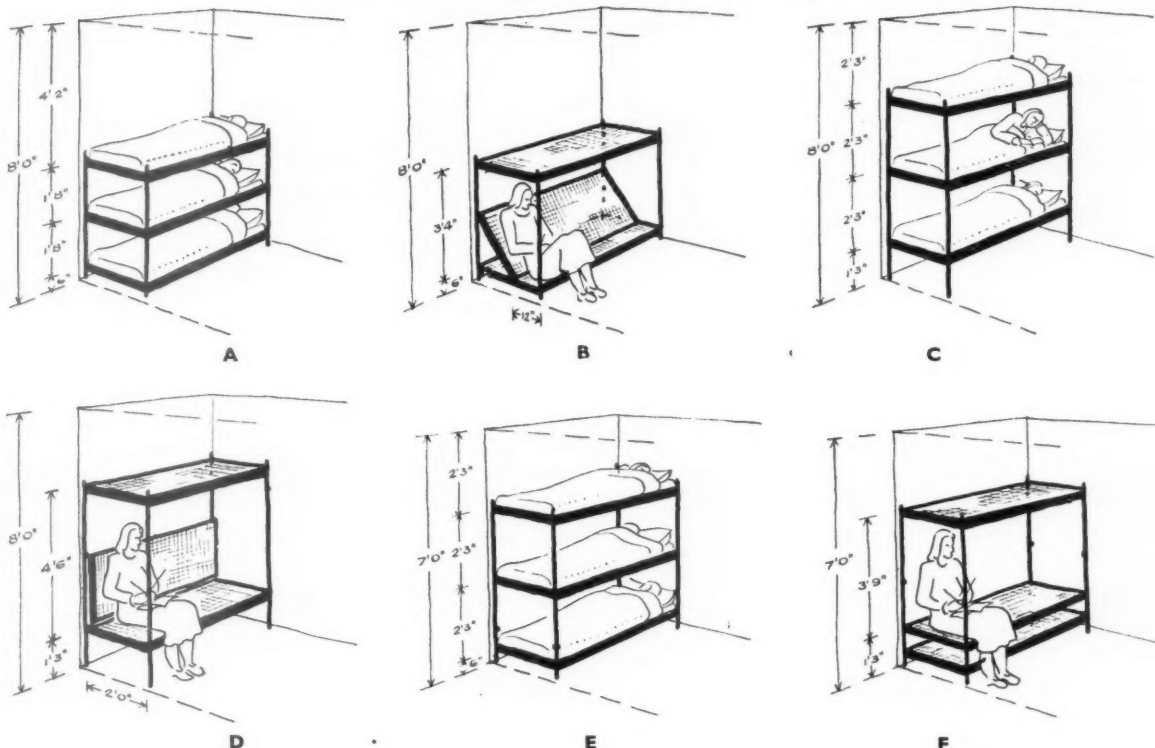
A.A.S.T.A. REPORT

Following report of the A.R.P. Committee of the Association of Architects, Surveyors and Technical Assistants has just been issued:

The decision of the Ministry of Home Security to provide one million bunks for shelters was a welcome one. But hopes that at last a new leaf had been turned over were dashed when the designs for these bunks were issued to local authorities. It became evident that the old faults—lack of intelligent planning and petty economy—were still present. As these bunks are even now in process of manufacture, and there is no time to be lost if corrections are to be made, we are venturing to draw the attention of the public to the simple facts set out below.

One million people are going to spend probably a third of their time in these bunks for some months, and perhaps for some years to come. If the designs are not altered, two-thirds of these people (those occupying the two lower bunks) are going to lie in considerable and quite unnecessary discomfort.

Fig. A shows the official design as issued to local authorities. From this it will be seen that there are three bunks placed very closely one above the other. After the thickness of the mattresses has been allowed for, it is doubtful if more than sixteen inches of space will remain between the bunks, and this may well be less in many cases. This space is so restricted that it is impossible even to turn over without difficulty, and the sensation of lying in this cramped position is very unpleasant. It is also difficult to get into and out of the lower bunks easily in the space of only seventeen inches between the boards forming the sides. At the same time it will be noticed that the person lying in the top bunk will have plenty of space above him (in the case of a shelter of the average height of eight feet there will be four feet two inches of space). There is therefore obviously a very good case for increasing the



spacing between the bunks, and by this simple means insuring the future comfort of hundreds of thousands of people.

We suggest that the bottom bunk should be one foot three inches from the ground, and that there should be a minimum spacing of two feet three inches between the bunks (see Fig. C). This is still less than the spacing normally adopted in railway sleepers, but can be considered reasonable. The Ministry's reply to such a proposal is understood to be that the bunks have been standardized for mass production to fit in the lowest shelters and that the extra expense involved would be too great. In reply to this, however, we would point out, first, that the spacing is too close for health and comfort; secondly, there is no reason why several different types should not be standardized for different heights of shelter; and finally, the extra cost involved in providing bunks of the type we propose would certainly not exceed sixpence to ninepence per head. Surely this small additional expenditure is well worth while.

In the Ministry's design the middle bunk is supposed to let down to make the back of a seat, which is formed by the bottom bunk (Fig. B). But this seat is only six inches off the floor, is very narrow, and the back will slope at an awkward angle. In our proposed design (Figs. C and D) the height of the bottom bunk is at a convenient level for a seat, and there is space for the middle bunk to let down into the proper position for a back to this seat.

The revised spacing of bunks can be adopted even in shelters which are only seven feet high (see Figs. E and F). In this case the bottom bunk will be only six inches off the ground so that in order to form a seat at a convenient level the middle bunk will be made removable, and can be placed at a lower level to form a seat.

It may be necessary in the case of the revised spacing to provide one or two rungs for access to the upper bunks, but the cost of doing this would be very small, and would in our opinion be fully justified.

In some shelters the Ministry propose to install wider bunks on the lowest level to sleep two people each. We believe that in public or communal shelters and where children are

present, this will be open to very grave objections on grounds of health and morality.

IN PARLIAMENT

Full details of the functions of the new Ministry of Works and Buildings were given in the House of Commons last week by Mr. Attlee, the Lord Privy Seal. He said:—

The Ministry of Works and Buildings will be responsible for the erection of all new civil works and buildings required by any other Government Department. It will take over, to begin with, the whole organization of H.M. Office of Works, including their present responsibilities for the erection of buildings for other civil departments and for Service Departments, and the work of the Ministry of Supply, including the new buildings section of the Ordnance Factories and the approval of plans of new private factories or extensions of existing private factories, to the cost of which the Ministry of Supply is contributing.

Highly specialized work at present carried out by the Service Departments, either by direct labour or through contractors (such as the civil engineering works of the Admiralty; the construction of aerodromes or aerodrome buildings; fortification and defence works); and work overseas will remain with the Service Departments.

The responsibility for maintenance and repairs of buildings and equipment in use by the Service Departments or the Ministry of Supply will remain with those departments, except in so far as a transfer to the Ministry of Works and Buildings may be mutually agreed to be convenient.

The Ministry of Works and Buildings will be responsible for the licensing of private buildings, and for determining the priority of proposals for rebuilding buildings damaged by air raids.

The Ministry of Works and Buildings may arrange by agreement with the Service Departments or the Ministry of Aircraft Production to erect on their behalf new works and buildings not of a highly specialized character such as stores or depots or houses and buildings of an architectural nature, and for the supervision of contracts for the erection of new private factories or the extension of existing private factories required for war production.

The Production Council will lay down the general order of priority of building work. The Minister will be a member of the Production Council and responsible for the Works and Buildings Priorities Committee. He will determine the application of the directions of the Production Council to the priority of particular buildings, subject to appeal, if necessary, to the Council.

The Minister will be empowered to call on all departments retaining responsibility for the erection and maintenance of buildings and works of construction (including departments concerned with work carried out by or on behalf of local authorities or public utility undertakings) to furnish from time to time such information as he may require as to the present and prospective demands of themselves and their contractors for labour and materials and any points ancillary thereto.

The Minister will be responsible for such control or central purchase of building materials not at present controlled as may be necessary.

The Minister will take steps to institute research into such questions as the adoption of substitutes for building materials which are in short supply, or the modification of designs and specifications with a view to expedition, and to ensure that the results of past and future research are promptly communicated to all concerned. For this purpose he will make full use of the Building Research organization of D.S.I.R. He will be empowered to call on departments retaining responsibility for building to satisfy him that they are making full use of the results of research in this connection.

It is clear that the reconstruction of town and country after the war raises great problems and gives a great opportunity. The Minister of Works and Buildings has therefore been charged by the Government with the responsibility of consulting the departments and organizations concerned with a view to reporting to the Cabinet the appropriate methods and machinery for dealing with the issues involved.

Mr. Shinwell asked whether the division of functions which the right hon. gentleman had referred to in his statement would not lead to considerable overlapping. Would it not be desirable to effect rather more co-ordination in respect of planning for building purposes? Secondly, if they were to wait until the end of the war for a report by the First Commissioner of Works on the buildings required to provide for the civilian population, what was to be done now to provide the civilian accommodation required? Was there to be any planning undertaken for the civilian population during the war?

Mr. Attlee said that it was not possible to debate this subject by question and answer; but he did not understand why the hon. gentleman assumed that nothing was to be done immediately. There was no question of waiting till after the war and there was no division of functions except that certain technical officers would remain with the Service Ministries for obvious reasons.

Replying further to Mr. Shinwell, Mr. Attlee agreed that it would be highly desirable that an early opportunity should be given for a debate on this matter.

Mr. A. Hopkinson: Can the right hon. gentleman tell us the exact meaning of the term "control of buildings of an architectural nature?"

Mr. Attlee: I think it means buildings of some architectural merit; many buildings have none.

Mr. Lawson asked if the right hon. gentleman was aware that if these matters were left in the hands of the Service Departments there would still be conflicting tenders and competition for labour. This would leave the position exactly where it was.

Mr. Attlee: Hon. members would do well to study the statement. What the hon. member has said is directly contrary to the statement. There is full power given to the Minister as regards priority and control. The point he makes only affects the carrying out of certain technical functions.

Sir W. Davison asked if the right hon. gentleman would assure the House that there would be no immediate ban on the replacement of urgent buildings which had been destroyed and that the work could be put in hand at once if necessary.

Mr. Attlee: That is one of the objects of the proposals; but in view of the limited amount of materials and labour it is quite clear that there must be a decision on priorities and as to what buildings shall be replaced first.

SOME QUESTIONS ANSWERED THIS WEEK:

- ★ *I SENT a claim for War Damage upon Form V.O.W.1 to the District Valuer . . . including architect's fees. The District Valuer immediately phoned to say no fees could be included. Can you find out if he is right?* - - - Q575
- ★ *WE are having difficulty in finding french polishing firms who are ready to enter into a maintenance contract for the polishing of large areas of wood panelling. Can you give us the names of french polishers likely to be interested?* Q576
- ★ *I AM a middle-aged, well-educated woman to whom this war means making a fresh start in life. As I have always fancied myself as a woman architect could you please tell me how one sets about achieving such an ambition?* - Q577

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

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R E G E N T 6 8 8 8

Q574 ARCHITECTS, DONCASTER. — *The general contractors of a stores building which we have under construction have given us information respecting timber that we should like to have confirmed. They inform us that irrespective of the date of the order they are bound to charge the COST OF TIMBER for this job at the current price as arranged by the Timber Control at the actual time of delivery of the material. The increase, where it takes place, is collected by the general contractors and sent through to the Timber Control. Anything is possible at the present time, but we should nevertheless be glad if you will give us the address of the Ministry who could confirm this. We should also like information covering variations in timber prices since the commencement of the war.*

We would advise you to refer the matter to your Area Officer of the Timber Control, who is A. Alec Smith, Esq., Craven Street Senior School, Holderness Road, Hull. The price of timber was fixed at the outbreak of war by Timber Control Order No. 1, and this was not changed until July of this year, by Control of Timber Order No. 13. Various amendments, chiefly in regard to plywood, have since been

made, and these are now reviewed in Control of Timber Order No. 17. In addition, amendments have been made to the Timber (Charges) No. 1 Order, and have been the subject of a new Order, Timber Charges (No. 2) Order. The publications and Orders mentioned are obtainable from His Majesty's Stationery Office, whose nearest address to you is 26 York Street, Manchester 1.

The Information Centre must make clear that, while it gives general opinions on problems involving legal matters, such advice must in no case be taken as a legal opinion on the facts of a particular case. It must also be made clear that the Centre, in helping to solve inquirers' problems, can accept no responsibility for any action taken as a result of its advice.

Q575 ARCHITECT, SURREY.—*I sent a claim upon Form V.O.W.1 to the District Valuer for WAR DAMAGE to a TILE ROOF and REPLACEMENT OF WINDOW GLASS to a vicarage, giving the number of tiles required to replace the damaged ones and the number of squares of glass, with the weight and sizes, together with other minor items, estimated cost of work plus architects' fees. The District Valuer immediately phoned that no fees could be included and I must look to the vicar for payment of fees. Can you kindly find out for me if the District Valuer is right in his decision? I have other similar claims to prepare.*

From telephone enquiry of the office of the Chief Valuer, War Damage to Property, Shell Mex House, Strand, London, W.C.2, it would seem that the action of District Valuer in eliminating fees from the claim is in keeping with the principles laid down for the examination of claims. This being so, architects and surveyors engaged by clients to assess and file claims for war damage to property must look to these clients for payment of their fees. The amount of the fees cannot be included as part of the War Damage Claim for purposes of ultimate compensation.

Q576 ARCHITECTS' DEPARTMENT, UTILITY COMPANY, LONDON.—*We are having difficulty in finding FRENCH POLISHING firms who are ready to enter into a maintenance contract for the polishing of large areas of wood panelling. Of the firms we have approached, only one firm has undertaken to submit a tender. Can you give us the names of french polishers likely to be interested in a contract on this basis?*

Leading french polishing firms confirm the position you report. Loss of craftsmen to the Services and the likelihood of further depletions of staff in this war have made these firms chary of entering into future commitments or contracts which they might not be in a position to fulfil. One other line of enquiry, however,

has been more fruitful, and that is that most of the bigger joinery concerns have polishing departments, and these firms would be glad of the opportunity of retaining as many of their polishers as possible though their works production at the moment is for an entirely different industry. Approaches could be made to firms of this type, such as Messrs. J. P. White and Sons, Ltd., Pyghtle Works, Bedford; Messrs. H. H. Martyn, Ltd., Cheltenham; The Bath Cabinet Manufacturers, Bristol Road, Bath.

Q577 ENQUIRER, LONDON.—*I am a middle-aged, well-educated woman to whom this war means making a fresh start in life. As I have always fancied myself as A WOMAN ARCHITECT could you please tell me how one sets about achieving such an ambition?*

At the outset it would be advisable to study the publication of the Royal Institute of British Architects, 66 Portland Place, London, W.1, entitled "Membership of the Royal Institute of British Architects," price 1s. net, obtainable from the Secretary at the above address. In this, information is given of various examinations, of approved schools both day and evening, and of office training. In addition, there are available postal tuition courses for the examinations, and details of these are to be had from C. W. Box, Esq., F.R.I.B.A., 115 Gower Street, London, W.C.1; or L. S. Stanley, Esq., F.R.I.B.A., St. Catharine's College, Cambridge. Probationers of the Institute may borrow books from the Institute Library, and also are given other facilities.

Q578 OFFICIAL ARCHITECT.—*I would be obliged if you would give me your opinion on the following:*

A clause in the Conditions of Contract contains the following: "The contractor's profit shall be adjusted on the basis of 10 per cent. on the prime cost." The contract is for a lump sum without quantities. The prime cost items are listed in the specification without any direction concerning the inclusion of profit in the tendered sum. At the

conclusion of the contract when the prim cost sums are adjusted, the sums paid by the contractor (as evidenced by receipted bills, etc.) plus the 10 per cent. profit mentioned above are added, while the total PRIME COST sum given in the specification, plus 10 per cent. for profit, is deducted. The ARGUMENT of the contractor is that there is no instruction in any of the documents that he shall include for profit on the prime cost sums in his tender, but only that profit shall be adjusted on the sums paid, and that consequently no additional deduction of 10 per cent. of the value of the prime cost sums for assumed profit can be made. The Quantity Surveyor's argument is that the adjustment of profit is on the basis of 10 per cent. as stated, and that the customary method of treating such prime cost items is to add profit and fixing, with the result that only the prime cost sum itself is the subject of adjustment, the percentage of profit and allowance for fixing remaining constant, which is usual practice. The contractor's contention that he omitted profit in order to get the contract could not be admitted, the contract being let on the basis of the lowest tender being accepted. The question has arisen, of course, from loosely compiled documents, but the principle involved seems to be whether "custom" should govern the adjustment, or whether the absence of any specific instruction to include for profit could be held to mean that no profit should be allowed, but fixing only. It would seem that the phrase "on the basis of 10 per cent. on the prime cost" would also have some bearing.

We feel that there can be no precedent for such a problem. In inviting tenders for building work the whole essence of the Specification and Conditions of Contract is to direct the tenderer as to the basis on which the tender is to be made. Apparently the preamble to the actual Schedule of Works did not make this clear. In such a question, therefore, the interpretation of the instructions given the tenderer at the outset must be not those intended but those set out. It would appear that any defence to a claim by the contractor would be valid only if it showed that the contractor at the time of tendering has definite instruction to include for profit. On the other hand (and, from the facts stated, this point is far from clear)

if only in that part of the work listed as P.C. sums the contractor did not include for profit, but on the major part of the work did include for the supply of all materials, of labour and for overheads and profit, then his contention that he did not include for profit on work listed in the P.C. sums will be weakened.

Q579 ARCHITECT, BIRMINGHAM.—To utilize a site already purchased, I wish to build the ground floor portion only of the proposed house, to give minimum living accommodation and reasonable **AIR RAID SHELTER WITH SLEEPING QUARTERS.** I propose to utilize the original study area, 8 ft. by 8 ft., to accommodate four bunk beds. As external walls would be 11 in. cavity, if an additional 4½ in. wall were formed inside the room would this have the structural resistance of a 13½ in. wall? This would enable the inner wall to be removed eventually, thus restoring the room to its original size. Alternatively, would any useful purpose be served by filling up the cavities with sand, etc., without impairing the habitability of the room? The concrete roof would form part of the permanent first floor and the window would be suitably protected and used for an emergency exit. Also, what do you recommend as the cheapest and most satisfactory form of temporary roofing, area 34 ft. by 30 ft.?

With the additional 4½ in. brick lining and also with the two leaves of the 11 in. cavity wall it will be necessary to use more wall ties than usual if the composite structure is to attain the splinter and blast resisting qualities of 14 in. solid walling. A minimum of six wall ties per yard super and for each of the two leaves should be specified. Unless the innermost 4½ in. leaf was built at a distance of a foot from the outer wall there would not be much additional protection against splinters if the inner cavity was filled with sand, and doing so would require special ties and leave inadequate space for bunk beds. To fill the outer cavity with sand would destroy the weather protection of the hollow construction. The cheapest form of roof structure would be in timber and asbestos-cement or corrugated iron sheeting with a board ceiling. Also, the simplest form of roof structure would be to carry up the brick end gables and have two intermediate wood trusses and the roof sheeting fixed to purlins. All this, of course, is dependent upon supplies of these materials being available and permission being obtained firstly for the erection of the premises under the new Control of Civil Building Operations Order.

Q580 BUILDERS, WORCESTER.—A large factory has been instructed by the Ministry on whose work they are engaged, to remove the whole of the glass from the windows and patent glazing in the **NORTH LIGHT ROOFS.** The whole of the glass is covered on the exterior with Donnaconna board to act as obscuration and this is painted with an oil-bound paint as camouflage. Our clients' idea is to hack out and remove the glass and store for the duration of the war, and over the joints of the Donnaconna board to fix strong hessian lapped on to the brickwork or the adjoining surface and on to the board, the hessian to be fixed with pitch, tar or bitumen or some similar adhesive mixture. We should be glad if you would be good enough to advise us as to the quality of the hessian and the nature of the adhesive which would satisfactorily stand up to the job for the duration of the war. We would add that the Donnaconna boards are fixed inside metal angles and held in place by small wooden wedges which pass across the face of the board and into slots in the metal angles.

As part of the work it will be necessary to remove the Donnaconna board before removing the glass. In replacing the Donnaconna the boards should be reversed so that the undecorated underside is uppermost. To impose the bitumen adhesive on the oil-bound paint camouflaged surface might lead to an early breakdown in the adhesion of the fabric. It is difficult to give a specification for materials which will last for an unknown period. But there is in

existence a standard specification for the fabric bitumen-emulsion treatment of roof glazing. This is BS/ARP. 48 published by the British Standards Institute, 28 Victoria Street, London, S.W.1, price 8d. post free. Details are given in this Specification for the hessian or other suitable fabric and for the bitumen-emulsion and while the treatment is advocated essentially for glass, the materials as specified would be suitable for use over the boarding. Supplies of suitable hessian and bitumen-emulsion would be available from the firms given below.* Details of application are contained in the Specification previously mentioned and include for an emulsion coating over the boarding and a further two coatings over the fabric. Weights of fabric and thickness of emulsion coatings are also given. One important point to note is that any camouflage material applied over the bituminous coating will of itself require to be of a bituminous base. Normal oil-bound camouflage materials applied over bitumen may lead to early deterioration of the underlying bitumen and/or discoloration of the applied coatings.

* **HESSIAN.**—Messrs. C. F. Anderson and Son Ltd., 13 Essex Road, London, N.1; Messrs. Brook Bros. and Dean Ltd., 63 Rathbone Place, London, W.1; The Willenden Paper and Canvas Works, Ltd., St. Leonards Works, Hancock Road, Bromley-by-Bow, E.3.
BITUMEN EMULSION.—Messrs. D. Anderson and Son, Ltd., Roach Road Works, Old Ford, London, E.3; Messrs. William Briggs and Son, Ltd., 29a Vauxhall Grove, London, S.W.8; Messrs. G. M. Callender & Co., Ltd., 25 Victoria Street, S.W.1; Messrs. Casebourne & Co. (1926), Ltd., Imperial Chemical House, Millbank, S.W.1; The R.I.W. Protective Products Co., Ltd., 16 Devonshire Square, London, E.C.2; The Ruberoid Co., Ltd., Sentinel House, 49 Southampton Row, London, W.C.1.

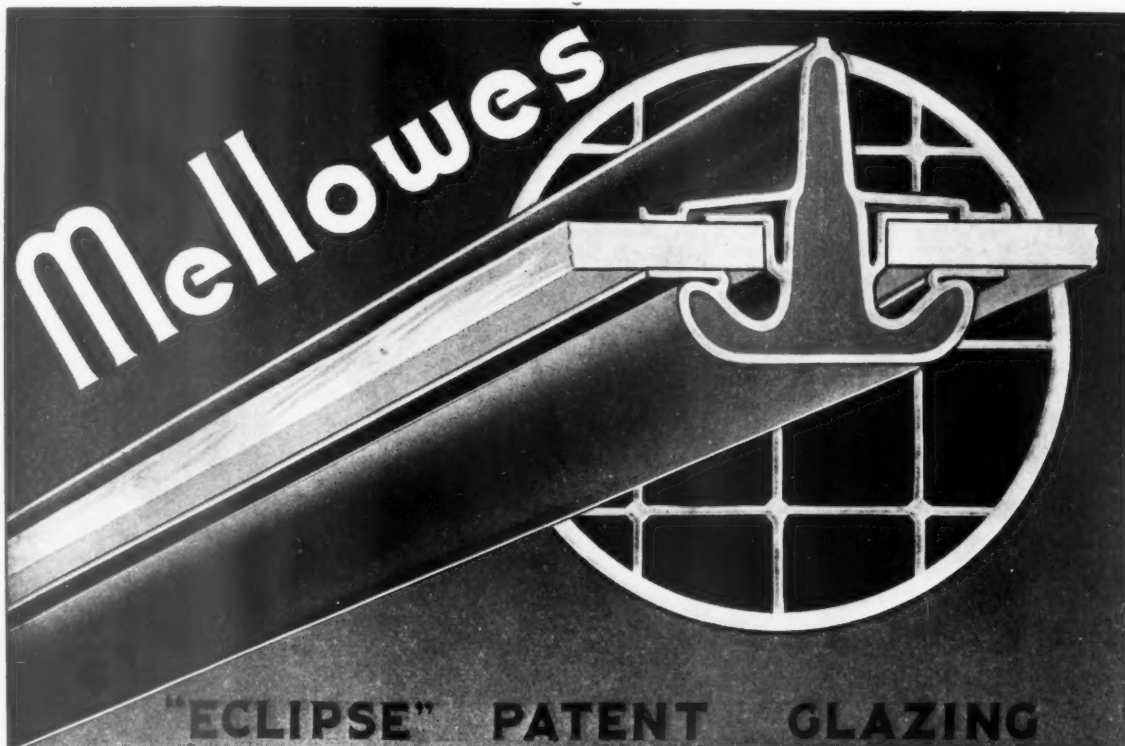
TRADE NOTES

Still More about Glass

There has inevitably been a spate of patent systems or materials placed on the market for protecting glass from breaking or, at any rate, from shattering into dangerous fragments. Some of these processes are really good, some of them completely valueless, and it has been hard to sort out the sheep from the goats. In some cases wild and absurd claims have been put forward, and it is a relief to learn that the B.R.S. and the Research and Experiments Branch of the Ministry of Home Security have together taken the matter in hand, and are keeping a list of those treatments which have been tested and approved. Firms whose products have been successful are authorized to say so; so that's how we shall know where we are. I am indebted to the Cellon people for their views which have subsequently been published generally, but I mention it again as some architects may have missed it. The "Cerrux" reinforced system has not only passed the

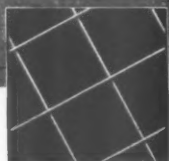
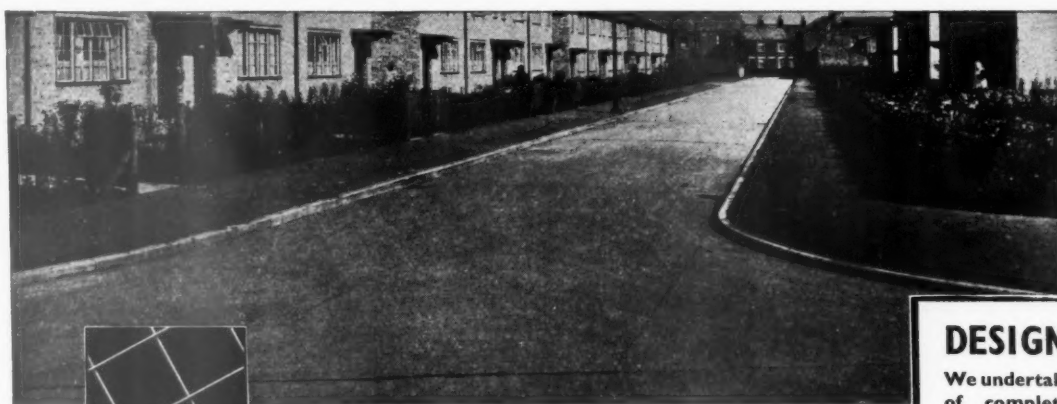
Government tests, but the more stringent ones of Nazi bombs, and has been giving a good account of itself, judging from some reports received from users who have been in the battle zone. The life of varnish coatings has been one of the most doubtful issues, the firm types losing their elasticity almost immediately. The more dubious manufacturers never mention the point at all, but the more reputable ones generally claim six to twelve months' life. Cellon tell me that in several of the cases mentioned above, the Cerrux was six months old, in one or two instances even externally applied, so that their claims at any rate are being lived up to in practice.—Cellon, Ltd., Kingston-on-Thames. H. M.

Thermolux are producing a flexible glass called Luxoid. Composed of glass tissue impregnated with synthetic resin, it has been developed under official guidance, as a glass substitute, but Thermolux express the hope that "architects will not look upon it as



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something to shove quickly into a hole because the rain is coming through, but as one of the developments hastened by war, and likely to be very useful in the subsequent peace." From the peace point of view, it is better regarded as a flexible glass which diffuses the light, prevents sun glare, and can be bent round curves. From the war angle, Luxoid is weatherproof and stiff enough in ordinary window sizes to stand up to the worst gales we are likely to come across in this country, yet it should give way under severe blast pressure, and save the window frames. It will not break or splinter but apparently tears in the manner of cloth. Fixing is easy, as one can either treat it in the same way as glass, or, if necessary, nail or tack it in position.

I have seen a laboratory sample which shows it to have a high degree of translucence and a pleasing texture, with a slight grain which should for preference I imagine be arranged to run horizontally. Maximum size at present is 60 in. by 42 in., with a standard thickness of $\frac{1}{8}$ in.—*Thermolux Glass Co., Ltd., 1 Albemarle Street, Piccadilly, W.1.* H. M.

THE BUILDINGS ILLUSTRATED

CHURCH OF ALL SAINTS, LOBLEY HILL, GATESHEAD (pages 351-353). Architects: Cordingley and McIntyre. General contractors were J. and W. Lowry. Sub-contractors and suppliers included: Ruberoid Co., Ltd., damp-courses; Chemical Building Products, Ltd., Prolapin waterproofer; Matthews and Mumby, Ltd., reinforcements; Bintley Brick Co., Ltd.,

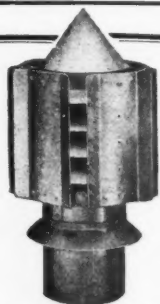
sandstocks; Northern Cast Stone Co., Ltd., artificial stone; Langley (London), Ltd., antique pantiles; D. Anderson and Son, Ltd., Macasfelt bitumen roofing and copper flashings; Pilkington Bros., Ltd., plain white cathedral glass; Luxfer, Ltd., glazing; Elders, Walker & Co., Ltd., glazier work; Terradura Flooring Co., Ltd., patent flooring; R.I.W. Protective Products Co., Ltd., waterproofing materials; J. H. Woodhall, central heating; Ideal Boilers and Radiators, Ltd., boiler; Falconar, Cross & Co., Ltd., electric wiring; R. W. Cairns (Newcastle), Ltd., plumbing; N. F. Ramsay & Co., Ltd., door furniture; Henry Hope and Sons, Ltd., steel blower-room door; British Plaster Board Co., Ltd., acoustic plaster; R. W. Smiles, plasterer; Watts & Co., Ltd., curtains to high altar reredos; James D. Bennett, Ltd., seating; E. Bowman and Sons, altar crosses and candlesticks, processional cross, font cover; R. J. Richardson, Ltd., decorations.

ONSLow SENIOR MIXED SCHOOL, GUILDFORD (pages 354-358). Architects: Leslie Hiscock and Duncan Scott. General contractors were R. Holford & Co., Ltd. Sub-contractors and suppliers included the following: Trussed Concrete Steel Co., Ltd., R.C. roofs; Hyrib Sales, R.C. waterproofed basement; Stuarts' Granolithic Co., Ltd., precast R.C. beams, mullions, jambs and cills to windows, cast stone copings, granolithic pavings; H. Young & Co., Ltd., structural steelwork; Hollis Bros. & Co., Ltd., wood flooring; Cement Marketing Co., Ltd., golden-brown stocks; Wainham, Wainham Common pressed bricks; London Brick Co., Ltd., Phorpres flettons; Southwater Brick, Tile and Terra Cotta Co., Ltd., hard machine-pressed bricks; Val de Travers Asphalt Paving Co., Ltd., asphalt; Stedall & Co., Ltd., ironmongery; Arthur Scull and Son, Ltd., plumbing, rain-water heads; R. C. Jennings, Ltd., fittings, baths, basins, w.c.; Gummers, Ltd., shower fittings; David Rowell & Co., gates and

railings; B. G. Sutters, Ltd., lighting, electrical installation; Falk Stadelmann & Co., lighting fittings; Angel, Son and Gray, Ltd., heating; Beeston Boiler Co., Ltd., hospital type radiators, boilers; William Freer, Ltd., Raypla heating panels; Guildford Glass Works, Ltd., metal windows and rooflights; H. and F. Badcock, Ltd., plaster; British Plaster Board, Ltd., Thistle plastering; Newalls Insulation Co., Ltd., acoustic tiles (paxtiles); C. and T. (Painters), Ltd., painting and decorating; Jensen and Nicholson, Ltd., paint and distemper; Stic B. Paint Sales, Ltd., external cement surfaces; Morgan Avery and Sons, window blinds; Constructors, Ltd., changing room equipment; James Gibbons, Ltd., cloak-room fittings; Wilson and Garden, Ltd., Unique blackboards; Spencer, Heath and George, Ltd., gymnasium equipment; Franks Harris Bros., Ltd., playground paths and roads; Constable, Hart & Co., Ltd., Aztec surfacing to playground and paths; George Jackman and Sons, Ltd., planting; Smiths' English Clocks, Ltd., electric clocks.

B.R.C. SPITFIRES

The Mayor of Stafford—a town with less than 40,000 population—has just sent a contribution to Lord Beaverbrook for three Spitfires, under interesting circumstances. The town's Spitfire Fund was commenced some weeks ago, and the bulk of the money had been subscribed when a local company, The British Reinforced Concrete Engineering Co., Ltd., promised the Mayor that, if the remainder of the £5,000 was subscribed within a fortnight they would contribute the money for two additional Spitfires. The balance of the fund was completed well within the fortnight and the total contribution for three Stafford Spitfires has now been sent to Lord Beaverbrook.



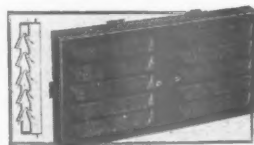
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