THE ARCHITECTS' JOURNAL

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

*

THE ANNUAL SUBSCRIPTION RATES ARE AS FOLLOWS :
BY POST IN THE UNITED KINGDOM.... £1 3 10
BY POST TO CANADA £1 3 10
BY POST ELSEWHERE ABROAD..... £1 8 6
SPECIAL COMBINED RATE FOR SUBSCRIBERS TAKING BOTH THE ARCHITECTURAL REVIEW AND THE ARCHITECTS' JOURNAL : INLAND £2 6s. ; ABROAD £2 10s.
SUBSCRIPTIONS MAY BE BOOKED AT ALL NEWSAGENTS

*

SINGLE COPIES, SIXPENCE ; POST FREE, EIGHTPENCE. SPECIAL NUMBERS ARE INCLUDED IN SUBSCRIPTION ; SINGLE COPIES, ONE SHILLING ; POST FREE, 1S. 3D. BACK NUMBERS MORE THAN TWELVE MONTHS OLD (WHEN AVAILABLE), DOUBLE PRICE.

*

SUBSCRIBERS CAN HAVE THEIR VOLUMES BOUND COMPLETE WITH INDEX, IN CLOTH CASES, AT A COST OF 10S. EACH. CARRIAGE 1S. EXTRA.

*

45 The Avenue, Cheam, Surrey
TELEPHONE : VIGILANT 0087-9 (3 LINES)

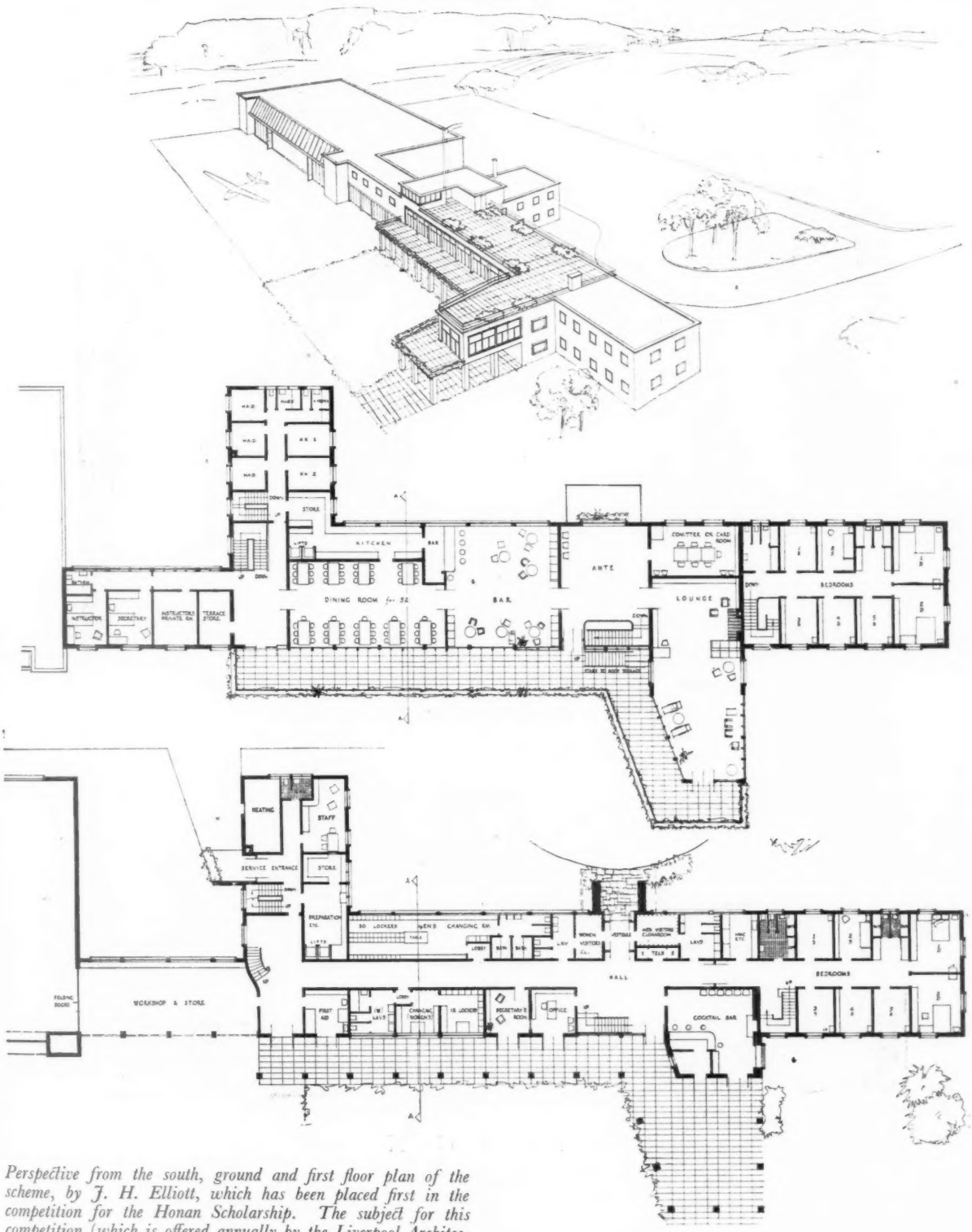
The Editor will be glad to receive MS. articles and also illustrations of current architecture in this country and abroad with a view to publication. Though every care will be taken, the Editor cannot hold himself responsible for material sent him.

THURSDAY, MAY 30, 1940. NUMBER 2367 : VOLUME 91

PRINCIPAL CONTENTS

HONAN SCHOLARSHIP: WINNING DESIGN

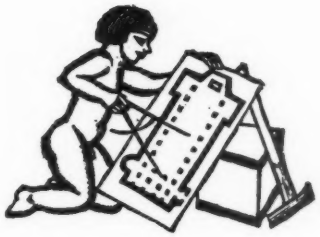
SUBJECT: CLUB HOUSE AND HANGAR FOR A PRIVATE GLIDING CLUB



Perspective from the south, ground and first floor plan of the scheme, by J. H. Elliott, which has been placed first in the competition for the Honan Scholarship. The subject for this competition (which is offered annually by the Liverpool Architectural Society) was a club house and hangar for a private gliding club.

L I S B O N

Detail of the new Church of Our Lady of Fátima, Lisbon.



THE EXCEPTIONAL FAILURE

THERE was published recently in this country the autobiography of an American who failed in architecture. It is called *The Secret Springs*,* by Claude Bragdon, who is described on the dust cover as having lived five lives.

What makes this claim of interest to British architects is that Mr. Bragdon probably would not have lived the last three of his lives (theatrical, literary and occult) if he had found in American architecture what he wanted to find. He wanted to find it a medium for expressing Americanism—the achievements, vitality, rapid expansion and attitude of mind of the U.S.A. from 1890 to the 1920's. He failed to do so, and his story of why he failed does a great deal to answer the question which has so long interested European architects : the question why American architecture should have produced so very few buildings of merit during a period of forty years of vigorous development in which a great American contribution to architectural expression was such a reasonable expectation.

" Buildings of merit " is a loose phrase. Many buildings in every country have little architectural merit ; and only a few in every country are meritorious in the sense of being in advance of their time and of making an original contribution to architectural expression which establishes a precedent.

In stating that America produced few buildings of merit from 1890-1930 we mean that, compared with the countries of Western Europe, she produced few buildings which were plainly the outcome of strong personal feeling, of personal conviction—whether the forms in which that feeling was expressed were traditional or original, new or old.

Mr. Claude Bragdon was born in 1866, rapidly became an expert draughtsman, won many architectural prizes, built up a prosperous practice, and then gradually became more and more unsure of himself, more and more oppressed by the failure of all American architects, save a few unprosperous men like Sullivan and Wright, to produce significant architecture from boundless opportunity.

Things happened too quickly for the architects of the times. A country wholly absorbed with the practical aspects of high-speed development asked of architecture only that it should be sufficiently imposing and delivered on the nail. American architects had no time to think. Caught up in the game of get on or get out, they took the line of least resistance and reproduced or adapted every known European style.

In this game Claude Bragdon, friend and admirer of Sullivan and Wright, took part with an increasing sense of frustration. His feeling of being damned by his virtuosity as draughtsman and paper designer appears in what he writes of his design for the New York Central Station at Rochester :—

> I repeated over and over to myself : " This is a railway station ! " I went down beside the tracks and watched the great locomotives . . . until I *felt* them.
>
> . . . But I went wrong again in trying to compose a façade out of admired architectural forms and features.

And, again, he writes :—

> Always a good draughtsman, I became in time, and with experience, a good architect, but I came late—too late—to the realization that eclecticism in architecture was a vicious circle leading nowhere . . . when I did realize it . . . my career as an architect came to an end.

From architecture Mr. Bragdon moved on in his attempt to express himself and Americanism to the theatre, films and a special kind of open-air music. And his summary of the attitude of the film companies towards one of his experimental films perfectly describes the architecture from which he had escaped :—

> They told me frankly that the only thing that they would invest money in was something which could be sold to exhibitors in advance. Though I failed to sell my idea I was glad I got this glimpse into the inside workings of that gigantic escape-mechanism for the million. I found there no vision, no imagination, no idealism, but only a beaver-like competence to do some familiar thing *well*.

That competence and that limitation remained predominant in American architectural expression until the economic blizzard of 1929—unlike American building construction, in which originality and resourcefulness were only rivalled by ever higher powers of performance.

But during and after that slump America ceased to be so singleminded. She had time to think. And at once American architecture benefited. In the projects which followed the slump—housing, town planning, park schemes and greater undertakings like the Tennessee Valley Authority and the C.C.C.—the U.S.A. has cut out the junk and is developing an architecture of her own.

It is too early to judge the effects of the new developments, and these days do not encourage prophecy. Yet even by now it is certain that young Claude Bragdons who are now entering American architecture will never find themselves in the circumstances which defeated their predecessor.

* *The Secret Springs*. By Claude Bragdon. Andrew Dakers. Price 12s. 6d.

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

NOTES & TOPICS

BUILDING AND THE NEW WAR

DURING the first eight months of war B.I.N.C. tried repeatedly to induce the Government to make a better use of the building industry for war purposes. The three main suggestions which it made—the establishment of a single distributing centre for all contracts; the preparation of a programme in consultation with the industry; and the far wider distribution of the work—are now familiar to every member of the industry.

*

B.I.N.C.'s failure to secure the acceptance of these suggestions was caused by its failure to produce that overwhelming evidence of the ill-effects of the Service Departments' own methods which alone could bring about changes of Government procedure in the pre-Total War period.

*

B.I.N.C. knew that the evidence existed, but those who could provide it in largest quantities, had the greatest interest in seeing that it was not forthcoming.

*

Reports of the Select Committee on War Expenditure have now brought the facts to light—some of them are quoted in a footnote to Mr. George L. Greaves' letter on a later page of this issue.

*

There is every hope, therefore, that if B.I.N.C. tries again it will be listened to more attentively, and will obtain public support of the kind that gets things done.

*

For instance, *The Times* (making the most of almost the only point on which it has been on the side of the angels in the last four years) says in a leader :—

> This (waste) is particularly inexcusable because there had long been a widely supported demand for the building of camps irrespective of any danger of war or of re-armament. It was repeatedly pointed out in these columns that if camps were built on a large scale they would be useful both in peace and in war; but months elapsed before a tiny and tardy response was given by an Act of Parliament authorizing the construction of fifty small camps to house fewer than 20,000 people.

*

> The haste with which a vast number of military camps had subsequently to be constructed led to many errors—neglect of local building resources, delays in supplying contractors with necessary details, specification of materials without proper regard to their availability, and the placing of contracts on a basis which, in one category of camps, proved to be quite unworkable. Some of these mistakes cannot now be remedied; but it seems optimistic to suppose that the War Office is yet "in sight of their requirements," and similar mistakes can be avoided in the future.

NOISE ABATEMENT

The Building Research Station has just published a book which even in these exciting days should be given some of the praise it deserves: for it is a model for all of its kind. The book is called *Sound Transmission in Buildings*,* by R. Fitzmaurice and William Allen, and in contents, format and illustrations could not be improved. I commend it as escapist reading of the best kind for the next month.

*

The authors' aim is to give practical guidance to architects and builders concerning the reduction of noise transmission. In the first section, after some clear definitions, they emphasize two principles of special importance: (1) that up to a point the weight of a structure determines its resistance to *air-borne noise* and that this resistance is increased by discontinuity; and (2) that resistance to *impact noise* is only obtainable by discontinuity of structure.

*

They then, very gently, pour cold water on some common ideas about noise insulation. Hanging absorbent materials in a cavity between two partitions, applying absorbents direct to wall surfaces, draping felt under floor boarding and thereafter nailing boards through the felt to joists or fillets, are blacklisted with delicacy.

*

Thereafter the brass tack is reached—the flat in a steel-framed building. Other building types are dealt with, but it is the flat which is studied in the most minute detail, for the good reason that if satisfactory quiet can be obtained in a flat it can be obtained by the same methods in any other building.

*

First, the absolute necessity of a "quiet" plan is made clear. The authors divide the spaces of a flat block into two kinds: quiet spaces (living- and bed-rooms) in which noise must be avoided; and noisy spaces (stairs, lifts, kitchens, bathrooms, w.c.s) in which noise is either generated or into which its penetration is of little consequence. Quiet spaces must be grouped with quiet spaces and noisy with noisy.

*

The authors advocate that the floors and partitions of noisy spaces should be constructed as part of the main structural shell and that quiet spaces should then be, as it were, inserted as completely self-contained and "floating" boxes. The design and construction of these boxes is dealt with in detail and illustrated by excellent drawings.

*

I reproduce a drawing showing the floating floor to Quiet Spaces and two details of the "box" construction.

---

* H.M. Stationery Office. Price 4s.

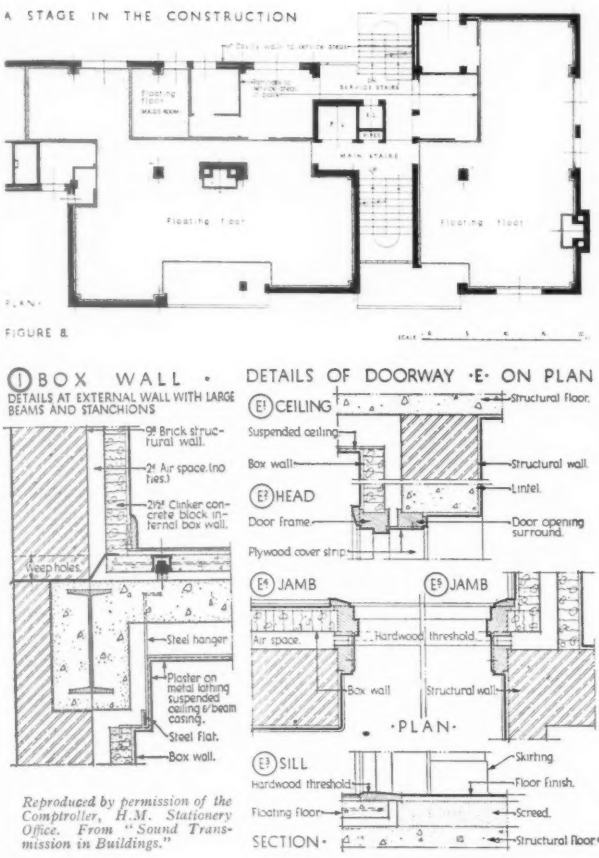


FIGURE 8.

Reproduced by permission of the Comptroller, H.M. Stationery Office. From "Sound Transmission in Buildings."

My first reading of *Sound Transmission* has disclosed only one unsolved problem. Sound travels by the path of least resistance : Britons, even if they live in flat blocks, *will* keep their windows open : Messrs. Fitzmaurice and Allen (after discussing double-glazing and so on) lay it down firmly that *no known method of window treatment that allows of natural ventilation will serve to quieten street noises to the extent desirable for bedrooms . . . or rooms used for reading or study.*

*

What price the loud speaker in the next flat during these summer evenings ?

SHELTERS MADE USELESS

Component parts of Anderson shelters are now being rounded up in back gardens and assembled on a considerable scale. It would therefore seem desirable, to put it mildly, that the " A.R.P. Hints " broadcasts should include, and repeat several times, a description of how they should be built and *how they should be covered.*

*

I know a great many people are aware that the shelters ought to be sunk in the ground and covered with earth or sandbags. But I know also, from the evidence of my own eyes, that a much larger number either do not know this or are paying no heed to it.

*

To give the protection for which it is designed an Anderson shelter must (1) be sunk at least 3 ft. 6 in. in the ground ; (2) must be covered, top, sides and back, with at least 18 in. of earth ; and (3) must have its entrance protected from blast by the blank wall of a house, a 2-ft. wall of sandbags or a substantial bank of earth.

*

I travel frequently by train through an Anderson shelter area, and a recent count convinced me that, of all those I saw, 10 per cent. failed on Point 1, 30 per cent. on Point 2, and 50 per cent. on Point 3.

*

This will become a serious matter if a family is killed in a shelter erected *à la* summerhouse and a rumour spreads in wartime fashion. Architects who have time on their hands and live in an Anderson shelter area might point out these facts to the Head Warden and offer their services as canvassers. But a broadcast would do more good than anything.

CANTERBURY

Some months ago there were rumours afoot that, in the service of A.R.P., Canterbury Cathedral had been transformed by its energetic engineer-dean into a mixture between a ruin and a stone quarry. Stories were told of the 6 ft. of earth said to cover the aisles, of the yawning gaps in the great windows, and even of a light railway which was reputed to rattle busily up and down the nave.

*

I was therefore interested to see, when visiting Canterbury over the week-end, that in fact there was no sign of such romantic disorder. The cathedral was as bright, tidy and gay as ever. A few sandbags round the most celebrated tombs, a false wood floor in the north choir aisle, plywood facings to some of the windows, and a rather shamefaced piano in the centre of the choir were the only indications of abnormality. There was even the usual little tuft of scaffolding on the main tower—a permanent feature of every cathedral.

*

Across the sunny green of the close, like black snooker balls across a billiards cloth, ambled the tubby-gaitered figures of canons ; liberated choirboys tossed parachutes made of handkerchiefs into the air, and behind Georgian sash windows silver heads bobbed and nodded, rubber-ended canes tapped on Turkish carpets, and blue flames burned brightly beneath silver kettles. It was a comfortingly peaceful scene, disturbed more by the wheeling rooks than by the faintly audible shuddering of the guns across the Channel.

*

Canterbury itself has such a pleasant warmth and charm that the visitor soon forgets the dreary longness of the train journey—a leisurely trundle which (including a change) lasts two hours, and ends in a station whose shabby decay is only excelled by the G.W.R. station at Oxford.

*

My own return to London, however, was enlivened by the recounted experiences of an unshaven, weary-eyed English business man, who had landed in England that morning from Antwerp. Of all the strains he had endured, none seemed to have impressed him more than the moment when he locked, for the last time, the front door of his house . . . " and the irises were just coming out in my garden, too."

ASTRAGAL

NEWS

LEICESTER COLLEGE OF ART AND CRAFTS

Applications are invited for the appointment of Head of the School of Architecture and Building, Leicester College of Art and Crafts. Applicants must be F. or A.R.I.B.A. and should have experience of organization, lecturing and teaching. The successful candidate will be required to take up duties in September next. Salary: £400-£20-£600. Further details may be had from the registrar of the college.

Applications by letter, accompanied by copies of three testimonials and the names of two referees, must reach the registrar not later than Friday, June 7, 1940.

SCRAP METAL

One of the less well recognized results of the unemployment in the building industry is that far less than the usual amount of scrap metal is being obtained from demolition. Generally speaking, the demolition of a derelict or obsolete structure in normal times only takes place when a new scheme is proposed for the site. The serious falling off in new building schemes therefore affects the supply of all scrap metal, and especially iron and steel. This country's annual production of steel is dependent to the extent of 60 per cent. on scrap metal, and in wartime it is more than ever essential to obtain as much as possible from home sources, so as to spare shipping space and economize foreign exchange.

Demolition work, besides creating employment, also helps to provide the steel, the non-ferrous metals and the timber which are required for current building, as well as leaving sites clear for future development. Before any organized scheme of demolition can be embarked upon, however, it is essential to have a systematic enquiry and the President of the R.I.B.A., in his letter published in last week's issue, drew attention to the great service which architects can perform by letting the Iron and Steel Control know of derelict property which contains enough scrap metal to make demolition possible. Here would seem to be a practical opportunity for a great many architects not only to assist the building industry, but to help to discover and make available to the country some of its vast reserve of dormant steel.

WAR MEMORIAL COMPETITION

A competition for a War Memorial Chapel for Those Lost at Sea has been arranged by *Art Notes*.

The Assessors will be: Professor L. B. Budden, M.A., F.R.I.B.A. (Principal of the Liverpool School of Architecture); H. P. Huggill, M.A., A.A.C.A., A.R.E. (Principal of the Liverpool School of Art); F. X. Velarde, B.ARCH., F.R.I.B.A.; B. A. Miller, B.ARCH., F.R.I.B.A., and J. Morris, S.P. (Editor of *Art Notes*).

The prizes, amounting to £40, are being contributed to by the Rt. Hon. Lord Leverhulme, Colonel Sir John Shute, Sir Edwin Lutyens, P.R.A., H. S. Goodhart-Rendel, F.P.R.I.B.A., and F. X. Velarde, B.ARCH., F.R.I.B.A. There are two sections, Architectural and Decorative, which are again divided into two divisions, an open division and a junior division for competitors under 18.

Full particulars are given in the Double Summer Number of *Art Notes*, available at 4 Abercromby Square, Liverpool, 7 (price 1s. 1½d., post free). The date for submitting the entries is November 15. A long period of time for preparation has been given so as to permit overseas competitors time to submit their entries. It is hoped later to hold an exhibition of the entries.

LIVERPOOL ARCHITECTURAL SOCIETY

Following is a list of officers and council for the session 1940-41 :—

President: H. A. Dod, M.A., F.R.I.B.A. Vice-presidents: B. Ashworth, F.R.I.B.A., and James Grieve, A.R.I.B.A. Representative on the Council of the R.I.B.A.: H. A. Dod, M.A., F.R.I.B.A. Past-president: B. M. Ward, F.R.I.B.A. Hon. Secretary: W. Dougill, M.A., B.ARCH., A.R.I.B.A., M.T.P.I. Hon. Treasurer: E. J. Dod, A.R.I.B.A. Hon. Librarian: E. H. Honeyburne, A.R.I.B.A. Hon. Assist. Librarian: B. A. Sumner, A.R.I.B.A. Unofficial members of the Council: Fellows—T. M. Alexander, F.R.I.B.A., F.S.I., Leonard Barnish, F.R.I.B.A., Duncan A. Campbell, F.R.I.B.A., Gilbert W. Fraser, M.C., F.R.I.B.A., E. B. Kirby, O.B.E., F.R.I.B.A., F. O. Lawrence, B.ARCH., A.R.I.B.A., and Edgar Quiggin, F.R.I.B.A. Associates—C. H. Hutton, B.ARCH., A.R.I.B.A., and Denis Winston, M.A., B.ARCH., A.R.I.B.A. Hon. Auditors: F. W. Nicholson, F.R.I.B.A., and Arthur Young, L.R.I.B.A.

RATE OF WAGES: SCOTLAND

Scottish Joint Council for the Building Industry has decided that the cost-of-living figures warrant the present rate of wages being continued for the next four months. About 100,000 tradesmen and labourers are affected.

ARCHITECTURAL ASSOCIATION

Following is a list of officers and Council for the session 1940-1941.

President: Capt. J. Hill, F.R.I.B.A., F.I.ARB., M.I.STRUCT.E. Vice-Presidents: A. W. Kenyon, F.R.I.B.A., R. E. Enthoven, F.R.I.B.A., A.A. DIPL. Hon. Secretary: D. L. Bridgwater, B.ARCH. (LIVERPOOL), A.R.I.B.A. Hon. Treasurer: A. F. B. Anderson, F.R.I.B.A., S.A.D.G. Hon. Editor: J. R. Leathart, F.R.I.B.A. Hon. Librarian: S. E. Dykes Bower, M.A. (OXON), F.R.I.B.A., A.A. DIPL. Past-president: J. Murray Easton, F.R.I.B.A. Ordinary members of Council: H. M. Robertson, M.C., F.R.I.B.A. R. F. Jordan, F.R.I.B.A., A.A. DIPL. E. B. O'Rorke, M.A. (CANTAB.), A.R.I.B.A. S. E. T. Cusdin, A.R.I.B.A., A.A. DIPL. B. C. Williams-Ellis, M.C., J.P., F.R.I.B.A. J. Grey, F.R.I.B.A., A.A. DIPL. J. N. Summerson, A.R.I.B.A. C. M. Lock, A.R.I.B.A., A.A. DIPL. V. H. Seymer, D.S.O., M.C., A.R.I.B.A., A.A. DIPL. R. S. Tubbs, A.R.I.B.A., A.A. DIPL.

IRON AND STEEL CONTROL

Following note has been issued by Ministry of Supply :—

The Minister of Supply has issued Direction No. 2 dated May 25, 1940, under the Control of Iron and Steel (No. 8) Order, 1940. The direction substitutes new schedules of sheet prices for those hitherto ruling, the effect of which is to provide a special price for thick sheets or light plates 3 mm. thick and over when these are rolled on a sheet mill. The demand for this class of material is such that it is necessary to secure production in sheet mills which do not normally roll these thicknesses.

In future, the maximum price and extras for sheets or plates 3 mm. thick and over when wholly rolled down in a sheet mill will be the same as for sheets immediately below 3 mm. Other prices, including the price of light plates made on plate mills and prices from merchant's stock for plates and sheets however made, are unaltered.

Copies of the Direction may be obtained from H.M. Stationery Office, or through any bookseller.

ANNOUNCEMENT

Mr. Edward Donati, A.R.I.B.A., of One Bancks Street, Minehead, is now a Pilot Officer, R.A.F.V.R. His practice is being carried on by his father, Mr. Adrian Donati, A.I.A.A., at the same address.

R.I.B.A.

Following notices have been received from Secretary, R.I.B.A.

GENERAL MEETING

The R.I.B.A. General Meeting for Tuesday, June 4, has been cancelled, as Sir Charles Bressey is unable to give his lecture.

AUXILIARY MILITARY PIONEER CORPS

Officers are required for the Auxiliary Military Pioneer Corps between the ages of 36 and 54.

Architects who desire to be considered for commissions in this unit should apply in writing to the Under-Secretary of State for War, A.G.12, Thames House, Millbank, S.W., mentioning that it is the Auxiliary Military Pioneer Corps in which they wish to serve.

ARCHITECTS AND THE ROYAL ENGINEERS

The War Office has been forming a number of R.E. Artisan Works Companies and R.E. Construction Companies for service in the war. For the most part, these units have brought their officers with them from the same firms or organizations by which they were recruited, but it is probable that a certain number of officers will be required, or, rather, candidates for training as officers, in the future.

There will be openings for architects as candidates for the Officer Cadet Training Units who have thorough practical constructional experience. The need is not for designers but for men who can take complete charge of the execution of works. Members of the R.I.B.A. who possess such qualifications and who wish to be considered as candidates for Officer Cadet Training Units are requested to submit their names to the Secretary, R.I.B.A., with details of their qualifications and experience. If not already serving, they would be required to enlist as volunteers in a Training Battalion, and if then selected by their Commanding Officer as being recommended for appointment to a commission in the Corps of Royal Engineers they would, in due course, be accepted and sent for training at the Cadet Training Unit.

It is emphasized, however, that applicants will not be accepted on purely academic or technical qualifications. It is essential that they should have had practical constructional experience.

OBITUARY

The deaths have occurred of the following :

Major Hugh Patrick Guarin Maule, D.S.O., M.C., F.R.I.B.A. He was 67 years of age.

Mr. Maule was born in 1873 and educated at the Bedford Modern School. He was articled to the late Sir Robert W. Edis and studied at the R.A. In 1896 he was awarded the R.I.B.A. Silver Medal for Measured Drawings. He was headmaster of the Architectural Association School of Architecture, 1902–12; Chief Architect, Ministry of Agriculture, 1919–23; and, at the time of his death, held the Presidency of the Essex, Cambridge and Herts Society. His works included: alterations and additions, Quendon Hall, Essex, and Priors Court, Berks; small holdings schemes under the Land Settlement Act at Sutton Bridge and Wainfleet; housing scheme for the Lord Wandsworth Institute, Long Sutton, Hants; Newtown Farm Buildings, Hants; Research Laboratories for the Royal Veterinary College, Camden Town; Poultry Research Station, Cambridge; and houses at Forest Hill, Wimborne, Dorset; Hillbrook Place, Iver Heath, Bucks; Beechlaw, Puttenham, Surrey; Boxmoor, Herts. He was architect to the trustees of the Douglas Haig Memorial Homes for Ex-Soldiers, and carried out schemes on their behalf at Birmingham, Newcastle, and other places. Major Maule served in the last war from 1914 to 1918, was three times mentioned in dispatches, and received the M.C. and D.S.O.

Mr. William Henry Romaine-Walker, A.R.I.B.A.

Mr. Romaine-Walker was born in 1854 and educated at Lancing College. He was articled to Mr. G. E. Street, R.A., and started practice in collaboration with Mr. W. M. Tanner, with whom he was responsible for the restoration of several parish churches. In 1900 Mr. Tanner became a district surveyor and Mr. Romaine-Walker then entered into partnership with Mr. Francis Besant, with whom he designed several houses in London and the provinces and churches at Lymington and Heatherlands. In 1911 Mr. Gilbert H. Jenkins, F.R.I.B.A., who had been his chief assistant for ten years, became his partner. Between 1911–14 the firm were responsible for Derby House, with its new banqueting and ball rooms, 34 and 46 Park Street, W.; alterations and additions at Knowsley Hall, Lancs; Holme Lacy, Hereford; Buckland, Berks. After the war the firm carried out a great deal of domestic work.

DIARY

Thursday, May 30.—BUILDING CENTRE, 158 New Bond Street, W.1. Exhibition: "Railings for Scrap." Until June 8. 10 a.m. to 6 p.m. (Saturdays, 10 a.m. to 1 p.m.).

Saturday, June 1.—Visit to Hertfordshire County Hall. Architects, Messrs. James and Bywaters and Rowland Pierce. Party will leave Bedford Square by coach at 2 p.m. Tickets obtainable from Secretary, A.A.

Tuesday, June 4. — HOUSING CENTRE. "Housing in Czecho-Slovakia." By Dr. Klein. 1 p.m.

Tuesday, June 18.—R.I.B.A. General Meeting. "Alternative Methods of Construction." By R. Fitzmaurice. 8 p.m.

BLACKOUT VENTILATION

A survey of the problems involved in and methods available for the ventilation of blacked-out rooms and workshops

" One of the many maddening things about war is that not only is it a drain upon youth, but it drives those who remain on the Home Front still lower in their level of nutrition and permanently weakens them in their power of fortitude and resistance to disease.

" The first winter of this war has demonstrated that to the full. THE CONDITIONS OF BLACKOUT AND THE CROWDING OF PEOPLE INTO ILL-VENTILATED ROOMS (ILL-VENTILATED BECAUSE OF THE BLACKOUT) HAVE TAKEN THEIR TOLL IN SICKNESS."—

V. H. MOTTRAM,
Professor of Physiology in the University of London.
The Star, April 23, 1940.

THE GENERAL PROBLEM

LACK of ventilation is bad enough in winter, but summer temperatures mean that inadequate ventilation is bound to have even more disastrous effects.

The vast majority of domestic rooms are still without any definite system of ventilation during blackout hours, beyond that provided by the fireplace flue, or perhaps by an air brick or so. Many " light-tight " devices and arrangements are possible for providing adequate ventilation, but the general principles involved are the same in almost all cases.

Obviously any forced system of ventilation is partly independent of the difficulties which arise in connection

Blacking-out in a London workshop. In order to make the blackout effective the fanlights used for daytime ventilation must be closed, and only the use of screened extract fans prevents steady deterioration of the atmosphere.

with natural ventilation, although windows are used as a means of providing either an outlet for foul air, or an inlet for fresh air, in all but complete air-conditioning systems.

In this country, air conditioning is still—unfortunately—something of a novelty, and in the vast majority of cases windows have to perform the dual purpose of providing both light and air.

In order that effective means of ventilation may be maintained during the hours in which blackout is in operation, some form of baffle ventilation arrangement must be fitted, and the following important considerations should be borne in mind in selecting or designing a suitable scheme :—

(*a*) The system of ventilation adopted should be fully effective as a light trap.

(*b*) It should either be possible to leave the ventilation fitting in position during the daytime without obscuring the natural light from the window, or the design of the arrangement should be such that it will not be exposed to damage when being fixed up or while being stored.

(*c*) It should incorporate—if possible—some system for varying its efficiency in order that various conditions of weather and temperature may be provided for.

(*d*) The daily operation of "blacking-out" should be made as simple and straightforward as possible, to avoid an unnecessary waste of time.

(*e*) It should not be more cumbersome, unsightly or wasteful of material than absolutely necessary.

In order that a duct may be an effective light-trap as well as a satisfactory ventilator, certain fundamental design principles should be observed. All arrangements and devices make use of baffles or louvres, operating similarly, although they may vary considerably in form and material.

The diagram on this page indicates the general principle of a light-trap ventilator.

Light rays attempting to pass from the illuminated side through the air duct via the aperture *x.x.* are trapped by the light-absorbing surface *y.y.* If this surface were capable of absorbing 100 per cent. of the light radiation, no light whatever would pass. In practice, however, some radiation is bound to be either diffused or reflected (see typical ray *a.a.*). The extent of such reflection is not likely to be very serious if the absorbing surface is reasonably efficient, and where light intensities of a normal nature are being considered the percentage reflected is negligible.

Where extremely powerful light sources are situated near the baffle, it is desirable that the path of the reflected rays be away from the sky, otherwise a certain amount of glow is bound to be apparent.

In designing baffles, it is essential to ascertain the path of the light-ray which most nearly passes through the duct to the other side. In the diagram this is marked the "critical ray." The distance between the point of this ray where it strikes the absorbing surface to the extremity of the surface on the dark side—the safety margin—bears an important relationship to the type of ventilator and particularly the material of which it is made.

Ventilators made of strong, rigid materials may have a safety margin as small as, say, $\frac{1}{8}$th of an inch, but ventilators made of fabric, or very light paper or fibre, should have an increased margin, to allow for the distortion which may be produced by moisture, the air-flow, or careless handling during fixing.

A needlessly excessive safety margin should, however, be avoided, as not only does this mean a waste of material, but in addition increases the resistance of the ventilator to the flow of air.

Variations in the amount of air passed through a ventilator may be effected by means of simple shutters of the louvre type (these, of course, must be independent of the baffle louvres unless the system is very carefully arranged mechanically so that the safety margin of the baffle is not reduced), or a simple door or panel may be used to cover the baffle inlet.

Ventilators should always be designed to be as neat and simple as possible, consistent with effectiveness. Heavy systems with excessive safety margins are not only unnecessarily expensive, and therefore uneconomic, but if permanently fixed in position will have a most depressing effect during the day and, if made to be removable, will entail an unnecessary amount of labour every time the blackout has to be fitted up.

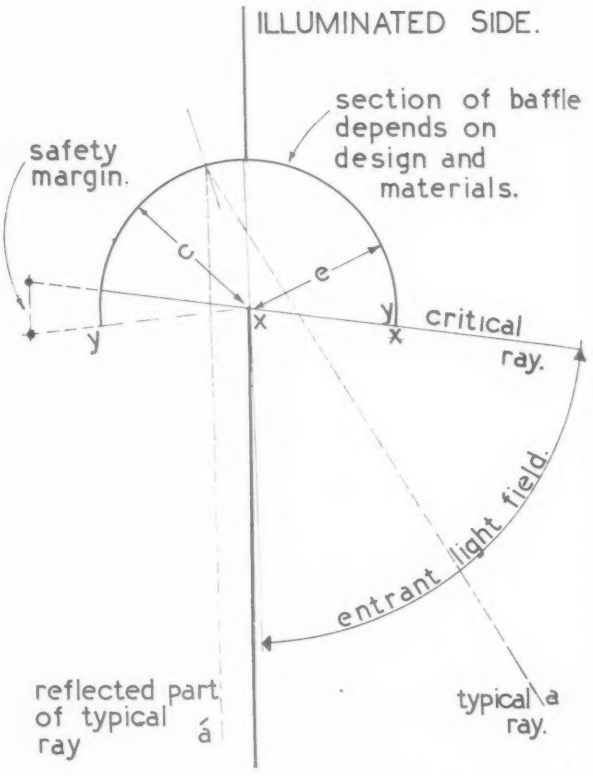


Diagram illustrating the general principles of light-trap ventilators. The points to which special attention must be given in designing these ventilators are mentioned on this page.

SIMPLE VENTILATION ARRANGEMENTS

The accompanying sketches are intended to indicate general lines upon which blackout schemes may be evolved, without the use of proprietary fitments of any kind. Although simple, they are none the less effective, and quite within the capacity of any workman used to light carpentry. Intelligently carried out, many of these schemes may be arranged in such a way that they might well have been part of the original design of the room, and the depressing effect of heavy, funereal blackouts thus entirely avoided.

In detailing any of these systems care should be taken to bear in mind the safety margin principles noted above. Where window soffits or reveals are to be used as light-absorbing surfaces, these should be suitably treated to provide the right sort of non-reflecting surface. This certainly does not mean that each and every part of the installation should be painted a dull and depressing black. The designer should discriminate carefully between those surfaces which are to function as light absorbents and those which may be finished in the same manner as the remainder of the room.

With general reference to the question of non-absorbent surfaces, it should be remembered that where light intensities in the region of the baffle are not high (this will often be the case with domestic rooms), and providing partly reflected rays are directed downwards, absorbent surfaces need not necessarily be black.

The amount of light reflected or diffused from a surface of any specific colour is directly related to the wavelength of the light falling on that surface. Without going deeply into this question, a " black " surface is one which most nearly absorbs all " colours," and " white " light is composed of the greatest number of visible wavelengths.

Therefore, if it is desired to absorb as much of any given light source as possible, without employing a " black " surface, the surface should be of a colour in which the light source is deficient. As an example, oil lamp-light and low temperature electric filaments give a " yellow " light which is deficient in blues and the violet side of the range, and blue-grey surfaces would therefore only reflect a very small amount of radiation.

Unit Ventilators

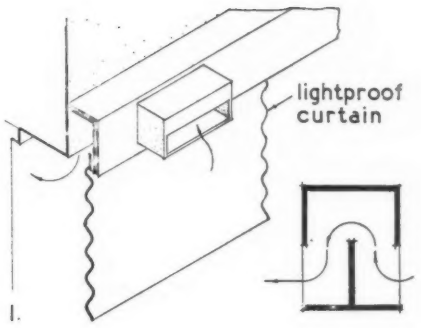
The three types illustrated here are not only extremely simple to construct, but may be used in a wide range of situations.

Unit ventilators may be fitted to curtain pelmets to form a simple installation, which need not project so far into a room as must the pelmet ventilator proper, in which the pelmet itself is used to form a baffle.

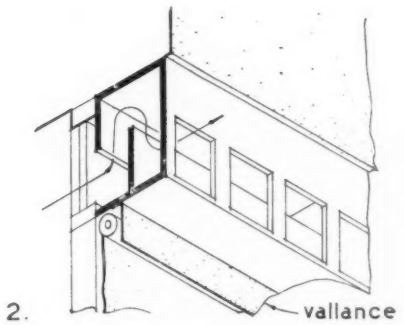
Equally satisfactorily, they may be attached to rigid screens, the complete fitment being either lifted into position when required, or permanently hinged to the walls as doors, either internally or externally.

Providing they are constructed of sufficiently light materials unit ventilators may be made with webbing attached, and by means of this sewn on to curtains. In this case they should be designed with the major axis vertical, in order that the curtains may be drawn aside without the ventilator causing too much distortion in the hang of the curtain.

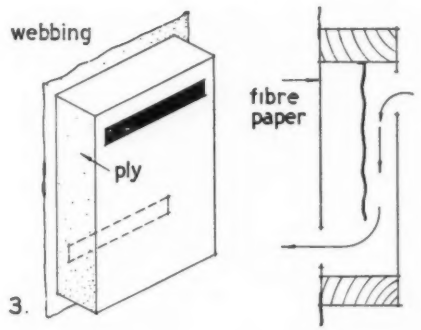
A fourth method of using the unit ventilator is to attach it to a light panel, permanently fitted to the window opening. To this panel blackout curtains or roller blinds may be fixed. In this connection it should be realized that the greater amount of light enters a room from the upper part of a window, and that if the light in a room is not to be permanently subdued the ventilator panel should be removable during the day, of very small size, or situated at the bottom of the window rather than the top. In this last instance, curtains or blinds could then be drawn down to the ventilator rather than from the panel.



1.



2.



3.

The sketches on this page show :

1 : A simple box-form ventilator fitted to a pelmet-board from which curtains are hung.

2 : Box-type fitted inside the window reveal with roller blind attached.

3 : Simple vertical type of wood and fibre-paper attached to curtains.

These devices may be of almost any shape or size, providing the general requirements of the baffle arrangement are satisfactory. Alternatively, two or even more units of small size may be used, and if these are each provided with closing panels, variations in the amount of ventilation obtained may be arranged very simply.

Curtain Pelmet Ventilators

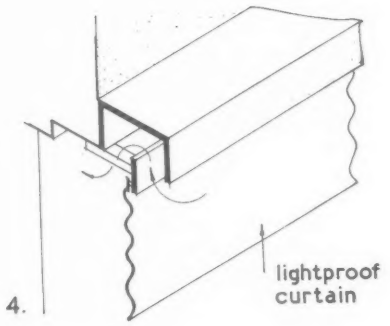
Pelmets which themselves form light-baffle ventilators must not be confused with arrangements whereby the pelmet

SIMPLE VENTILATION ARRANGEMENTS—(*contd.*)

merely forms a support for a unit ventilator, or the pelmet itself consists of a louvred panel.

In 4, a box pelmet is set above the window reveal in such a way that it allows air to pass over the curtain vallance board, and at the same time by using the inside surfaces of the pelmet and the wall surface above the window opening as light absorbent, rays of light within the room are effectively prevented from passing above the curtain.

In an installation of this type the curtains should be provided with side baffles to prevent light from leaking between the curtain and wall. If extensive ventilation is required, and the size of the fitment is not objected to, the side baffles may be of the same pattern as the pelmet, and ventilation obtained all round the window.

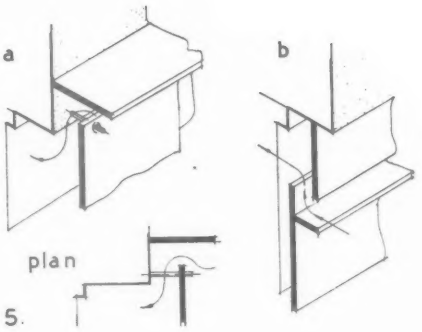


4.

Panel Baffles

In offices and, more particularly, industrial buildings curtains may be undesirable for blackout. This will, of course, always be the case where the screening must be external. In such instances ventilator panels which are themselves screens may be found effective.

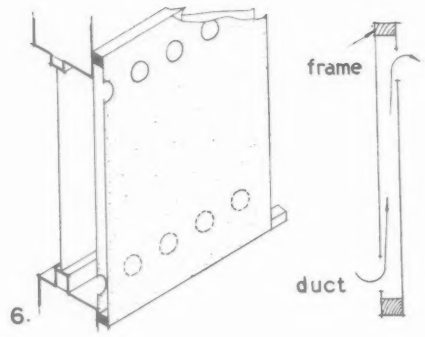
In deciding to adopt an installation of this type, the practicability of hinging the screen in such a way that it may be swung from the window without being completely removed should be investigated. If such provision cannot be made, the decision to employ a removable baffle should be made only after balancing the inherent disadvantages of having to store the screen during the day and refix in position each night against any advantages which may be present.



5.

5a and 5b illustrate what are perhaps the simplest forms of blackout ventilator system it is possible to have. In 5a the panel—which may be either a single sheet of building-board or a built-up frame with a building-paper covering—is fixed to the wall around the window by slots, flynuts, or some similar fitting at such a distance from the wall as may be required for the passage of air. At the edges of the panel, baffle-boards are fitted to the wall so as to prevent a direct light ray from being emitted. As in the case of the pelmet baffle, referred to above, the ventilation may be provided all round if desired, or may be only at the top and bottom.

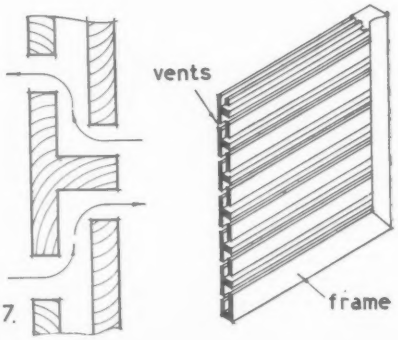
In 5b the panel is fixed direct to the window frame, ventilation space being arranged at the top, and light is prevented from passing through this by a plain pelmet board plugged to the wall as shown in the detail.



6.

6 illustrates a ventilator screen consisting of a simple light timber frame, covered on each side with either stout building-paper or some form of light building-board. On opposite sides, or at the top and bottom of the panel, slots are cut in such a way that while air may circulate between the two faces no light may pass. This is an inexpensive form of ventilator, and in many instances will be found to work satisfactorily. It has one great disadvantage, however, in that the air duct is rather long and the inlet and outlet are some distance apart, but where the highest efficiency is not required, it will prove quite satisfactory.

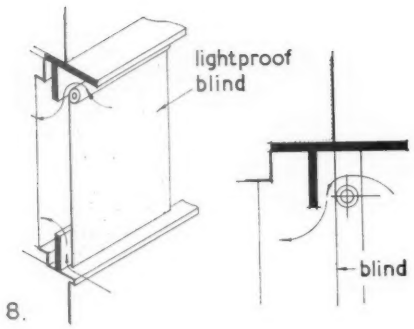
The rather more ambitious scheme illustrated in 7 consists of a built-up screen forming a number of louvres. Providing the necessary skill to make them is available admirable external shutters may be designed on this principle.



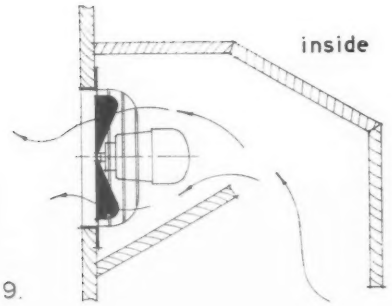
7.

Roller Blind System

The roller blind arrangement—*see* 8—provides a very effective method of providing both high and low level ventilation in connection with a blacking-out system which



8.



9.

is both foolproof and extremely quick to operate. All the fittings may be left permanently in position and are light enough not to be unsightly.

Care should be taken to ensure that the blind fits flush with the walls, otherwise it will be necessary to provide cover strips at the edges. In any case the blind should be of stout material in order to avoid its bulging at the sides and letting the light through, and for the same reason it should be securely fixed at the bottom to prevent the wind from blowing it away from the walls.

As an alternative arrangement, the blind may be fitted so that ventilation is obtained at one or both sides instead of at the top and bottom.

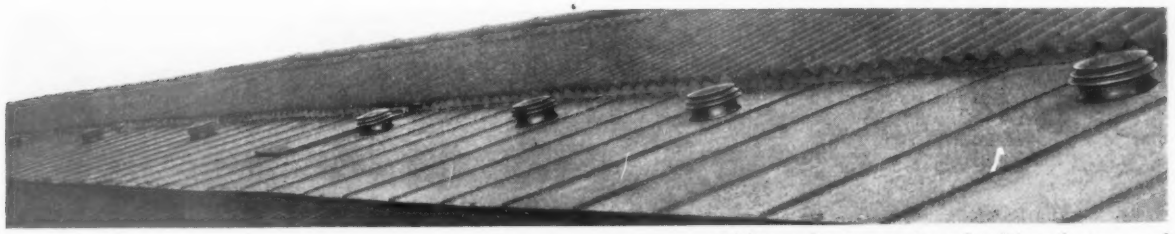
Simple Forced Ventilation

Although the question of forced ventilation belongs essentially to industrial blackout problems, and is therefore discussed later in that section, simple electric fans are often extremely valuable in such rooms as kitchens.

Little ingenuity is necessary to devise an arrangement for preventing light penetration through the unit, but it is important that the efficiency of the installation should not be reduced by the blackout arrangement adopted.

The light baffle which is to be attached to the fan, or to which the fan may be attached, should provide an air duct, the minimum cross section of which should be equal at least to the area of the ventilator inlet. The baffle plates should be designed so that a minimum resistance is presented to the air-stream from the fan, otherwise much of the efficiency of the unit will be lost and power will be wasted.

9 illustrates a form of baffle which should be suitable for most small commercial fan units.



Lightproof extractor fans fitted in a factory roof.

INDUSTRIAL INSTALLATIONS

In general, the selection of a suitable system of ventilation for industrial and other large-scale installations follows closely the considerations already discussed, although very naturally some factors will be of different relative importance.

In many works forced ventilation of some sort or other is in operation, even if only in the form of dust extractors, and the general question of natural *versus* mechanical ventilation is likely to be somewhat differently balanced in comparison with domestic and similar problems.

The time spent in the daily rigging-up of a blackout system may not be serious when spread over a number of individual households, but where a large works has to bear the labour costs of dealing with considerable window areas every innovation which will make the operation easier is certain to be considered worth while.

In view of the need for many fittings in large installations, advantage is more likely to be taken of the excellent commercial devices already on the market, some of which are reviewed later in this article, and the designer of large-scale systems will usually make use of proprietary devices.

The purely purpose-made arrangement is therefore less likely to be encountered than in the small installation, although the ways in which commercial devices and the designer's intelligent ideas may be combined in the interests of efficiency are very considerable.

In many works manufacturing operations are carried out close up to windows, and blackout must then be either arranged outside or extremely carefully designed to avoid interference with the work carried on.

Roof lighting and roof ventilation are more frequently met with here than elsewhere, and the need for remote control and similar special requirements is bound to arise frequently.

The factors which will determine the best course to adopt in any one instance are bound to vary extensively as between one type of works and another, and even between works carrying out similar operations but differently accommodated and works similarly accommodated but carrying out different operations.

All these factors require special consideration, and generalization in detail beyond the types of installation available is impossible.

The selection of suitable appliances, suited to any specific instances, and the best system of employing them is a field with which the individual architect is best fitted to deal, and his employment for such problems is the best recommendation that can be made here.

PROPRIETARY VENTILATION DEVICES

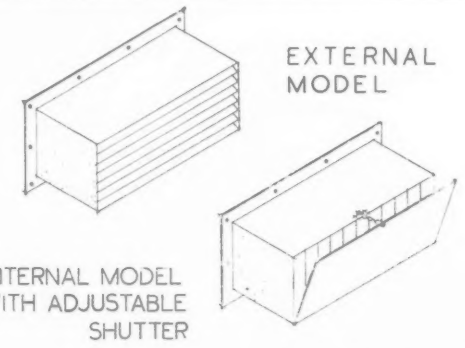
Since the beginning of the war many ingenious ventilation devices, applicable to almost every requirement that is likely to be encountered, have been designed and marketed. Their value lies primarily in the advantages which intelligent mass production can have, both economically and constructionally, over purpose-made systems, when the problem in question is one to which the general principles of mass production apply.

Again, since the ventilator unit is capable of arrangement in many ways in order to meet varying requirements, the decision to employ a mass-produced device need in no way mean restriction of scope but rather the reverse.

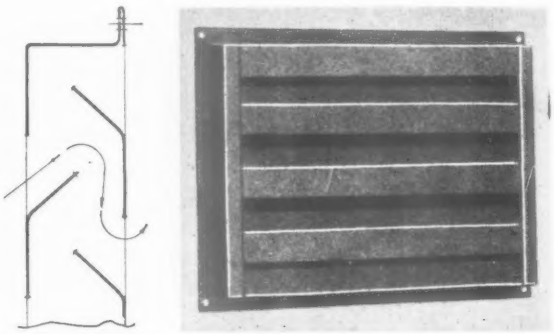
With regard to those devices—the main principles of which are illustrated below—the majority are produced by manufacturers who have based the design of the device or devices they market upon constructional techniques with which they are already familiar, and although blackout ventilators are necessarily a recent development these devices are certainly not of an experimental nature.

It is impossible to do more than indicate the general character, operating principles, and constructional design of the devices illustrated and to refer briefly to their general application. Most of them are capable of being employed in a variety of ways, and intelligent reference to the simple purpose-made arrangements illustrated in the second part of this article should indicate many ways in which the commercial device may be combined with other ideas to provide a wide range of alternative schemes.

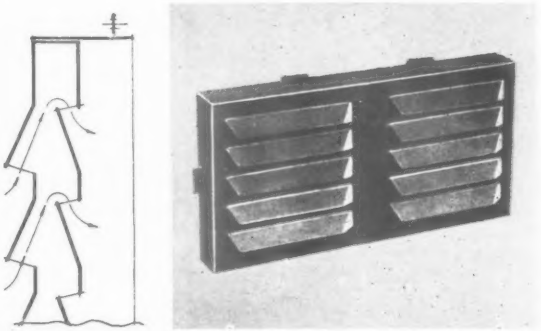
General Description : Unit ventilators.
Application : Manufactured in types suitable for internal and external use. A further type is designed to give controlled ventilation by means of a shutter.
Construction : Pressed metal with protective finish.
Fixing : By means of pins or screws through the flanges provided.
Range & Sizes : Three types : " A " for internal fitting ; " B " with protective louvres for external use; " C " as " A," with adjustable shutter.
Trade Description : The Crittall Light-proof Window Ventilator.
Manufacturers : Richard Crittall & Co., Ltd.



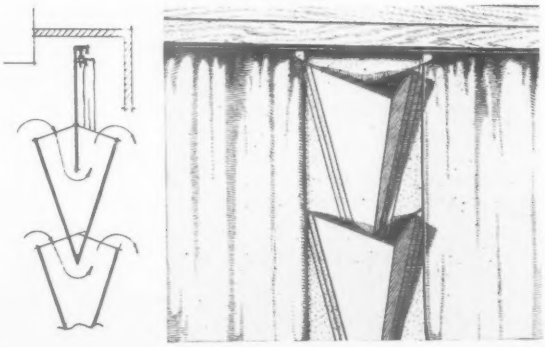
General Description : Unit ventilators in various materials.
Application : Suitable for use attached to pelmets or other screens or panels. Inserted in window openings or walls, internally or externally, and fixed in curtains.
Construction : Various types in all metal, or wood frame with metal fins, or wood frame with fibre fins.
Fixing : By means of flanges in most instances. For attaching to curtains, units are provided with a surround of black webbing.
Range & Sizes : Available in both vertical and horizontal patterns, in a wide range of sizes.
Trade Description : The Colt Blackout Ventilator.
Manufacturers : Colt Ventilation, Ltd.



General Description : Unit ventilators.
Application : Suitable for building into walls, and fitting to panels or into window openings.
Construction : Pressed metal with protective finish in colours.
Fixing : Provided with lugs for fitting into walls, and with flange when required for fitting into window opening or to panels.
Range & Sizes : Blackout ventilator units 9 in. by 6 in. to 12 in. by 9 in. Gasproof models 9 in. by 6 in. and 6 in. by 6 in. in four types each with and without airbricks.
Trade Description : " Nolite " Duplex Louvre Ventilator. " Nogas-Nolite " Ventilator.
Manufacturers : Greenwoods and Airvac Ventilating Co., Ltd.



General Description : Vertical unit-type curtain ventilators.
Application : Primarily for use in connection with curtains, but certain types may also be fitted to shutters or panels.
Construction : Sheet metal with a protective finish in a range of colours.
Fixing : Types are available for hanging from a curtain rail, and fitting direct to curtains.
Range & Sizes : Two main types in sizes of back panels : 20 in. by 5 in. and 27 in. by 7 in.
Trade Description : " Nolite " Curtain Ventilator.
Manufacturers : Greenwoods and Airvac Ventilating Co., Ltd.



General Description : Vertical type ventilators primarily for use with curtains.

Application : As unit ventilator for attachment to curtain rails to provide fixed or controlled blackout ventilation in connection with curtain blackout. It may also be used as a unit ventilator in a panel.

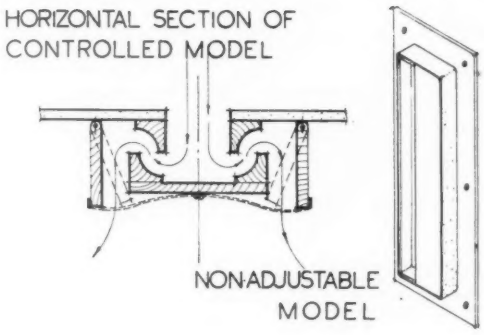
Construction : Hardwood and hardboard.

Fixing : By means of flanges to panels on baffle boards.

Range & Sizes : Two standard models are produced, one of the fixed type and the other a controlled model.

Trade Description : The Vardy Blackout Ventilator.

Manufacturers : Var-Vent (R. B. Vardy).



General Description : Pelmet ventilators.

Application : For use with blackout curtains.

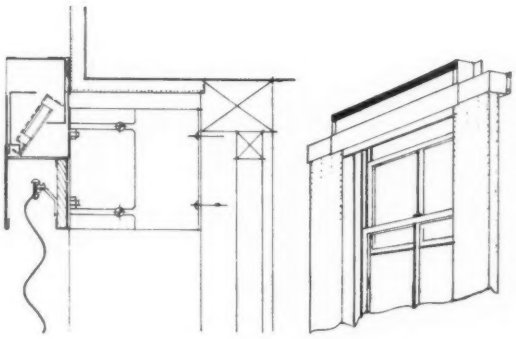
Construction : Of pressed metal with wooden pelmet backboard. Provided with movable baffle, the fitting is largely adjustable.

Fixing : To timber window frame and to reveal by means of screw through adjustable brackets.

Range & Sizes : One type in five standard sizes covering window widths between reveals from 1 ft. 1½ in. to 5 ft. 6 in.

Trade Description : The Crittall Ventilating Pelmet.

Manufacturers : The Crittall Manufacturing Co., Ltd.



General Description : Curtain pelmet ventilators for sewing direct on to curtains.

Application : Primarily for use in conjunction with curtains. It may also be attached to screens.

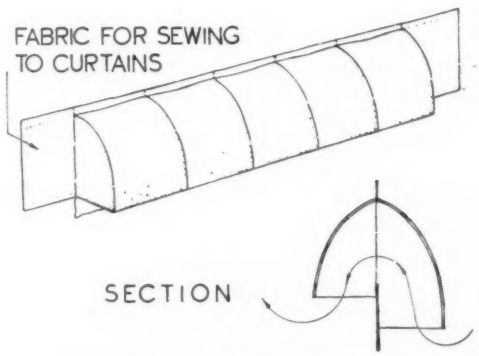
Construction : Of black lightproof fabric sewn together, wire stiffening at intervals.

Fixing : By stitching to curtains or tacking to screens.

Range & Sizes : Unit type 14 in. square. Continuous type available in any length required.

Trade Description : The " Black-out-Air-Hood."

Manufacturers : R. W. Earle, Ltd.



General Description : Louvred ventilating boards.

Application : As unit ventilators, ventilating panels for insertion in screens, and as ventilating pelmets for use with blinds or curtains.

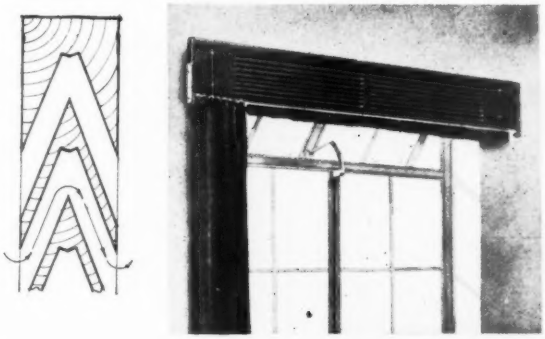
Construction : Hardwood board perforated longitudinally from each side to form series of ventilating louvres.

Fixing : As the units are of hardwood flush both sides they may be fixed in any manner to a variety of materials.

Range & Sizes : One type, 8¾ in. high, in six standard widths ranging from 2 ft. 5 in. to 9 ft. (overall dimensions in both cases). Standard unit for industrial glazing, (The T.G. Vent Pane) 18 in. by 12 in.

Trade Description : T.G. Ventboard.

Manufacturers : Fredk. Sage & Co., Ltd.



General Description : Shutter-type panel ventilators particularly suitable for external use.

Application : A ventilator shutter for blacking-out purposes, offering the additional advantage of protection against blast and splinters.

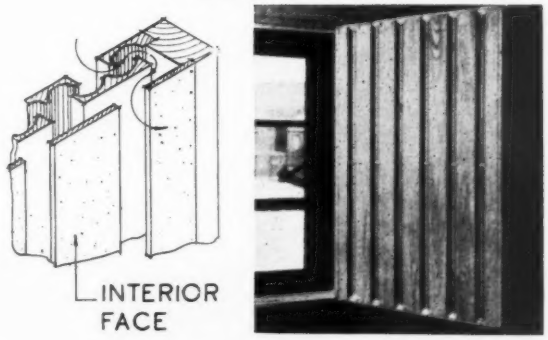
Construction : Shaped timber battens forming baffles framed up to form a panel. Lower members of the frames are provided with weep holes to allow water to escape.

Fixing : The shutter may be hinged to the frame of an opening or fixed by flynuts.

Range & Sizes : One type, manufactured in standard sizes varying between 1 ft. and 10 ft. in height and 1 ft. 0⅝ in. to 3 ft. 11 in. in width.

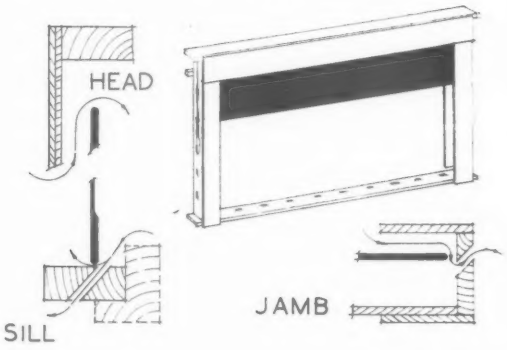
Trade Description : The Venwood A.R.P. Ventilator.

Manufacturers : Wood Surrounds, Limited.

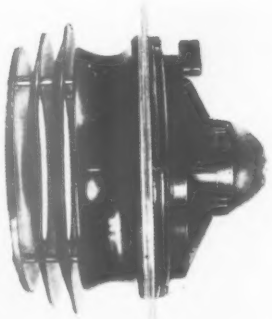


PROPRIETARY VENTILATION DEVICES—(*contd.*)

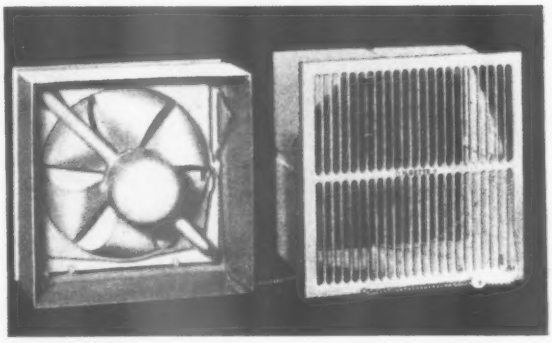
General Description : Blackout blind in louvred frame.
Application : As a light-trap ventilator to windows.
Construction : Light wooden framework in the form of a louvred light-trap. Black Italian cloth blind travelling on two wire guides.
Fixing : Frame attached direct to walls surrounding window.
Range & Sizes : Available for any size of window.
Trade Description : The " Ventilane " Patent Blackout Blind.
Manufacturers : John Sadd and Sons, Limited.



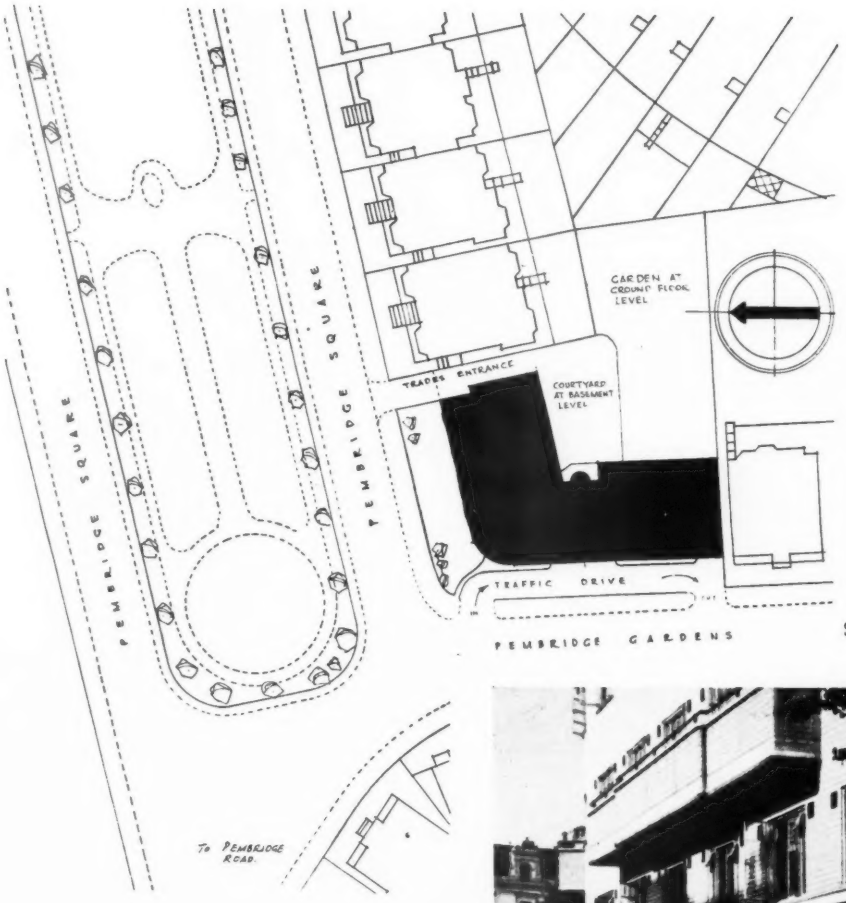
General Description : Lightproof electric extractor ventilators.
Application : Unit ventilators inset in windows, blackout screens and panels generally.
Construction : Totally enclosed motors attached to Bakelite frame and louvres.
Fixing : Secured by screwed spigot through hole in window pane or other panel.
Range & Sizes : Two models both in A.C. and D.C. types. Variable outputs ranging from 8,000 to 20,000 cu. ft. per hour.
Trade Description : Vent-Axia Silent Six.
Vent-Axia Silent Nine.
Manufacturers : Vent-Axia, Ltd.



General Description : Electric extractor ventilators.
Application : Unit ventilators inset in windows, blackout screens and panels generally, with hood to provide lightproof ventilation.
Construction : Self-cooled motors mounted in 16 s.w.g. rust-resisting panels or steel cabinets with adjustable sleeves.
Fixing : By flanges attached to units.
Range & Sizes : Two models each in both A.C. and D.C. types. Outputs ranging from 375–750 cu. ft./min.
Trade Description : I.L.G. Extractor Ventilators.
Ilgair and Ilgette Models.
Manufacturers : Air Conditioning and Engineering, Ltd.



Louvred blackout ventilating panels inserted in workshop windows.



SITE PLAN

FLATS

PEMBRIDGE SQUARE, KENSINGTON, W.

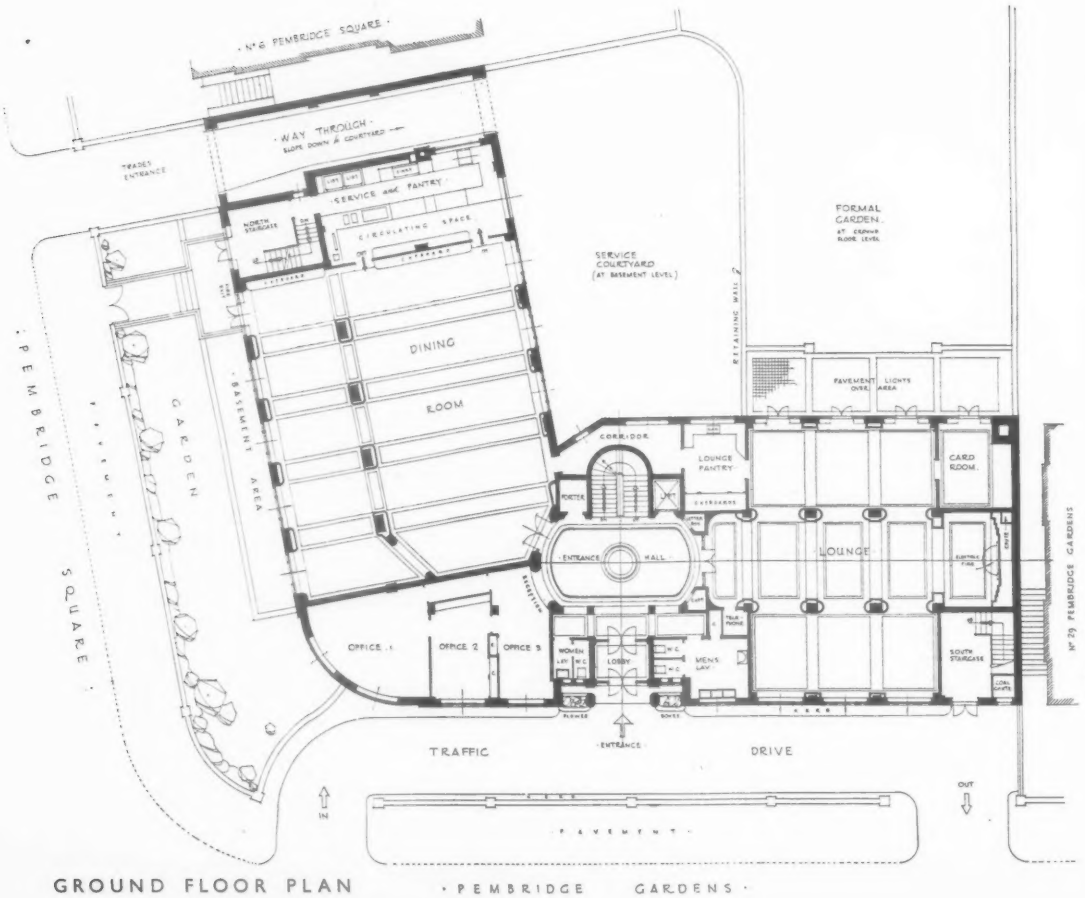
BY STEWART AND HENDRY

Main entrance, Pembridge Gardens

GENERAL AND SITE—Residential club for professional and business men and women working in London. In addition to the usual public rooms, the clients required that each resident should have a furnished suite comprising a bed-sitting room, a private bathroom and w.c., and a small entrance lobby ; also, a certain amount of built-in furniture. Building occupies a corner site with frontages to Pembridge Square and Pembridge Gardens.

CONSTRUCTION AND EXTERNAL FINISHES—R.C. frame with brick panels. Floors and roofs, R.C. hollow tile. Partitions, generally, breeze blocks ; between the bedroom suites compressed fibre blocks have been used for extra sound insulation. Roofs, asphalt, lined on the underside with compressed fibre for heat insulation. Brick treatment was desired by the clients to avoid clashing with the grey stucco and cement rendered façades of neighbouring buildings. Light cream or stone coloured facing bricks were used, with a certain amount of artificial stone for string courses and main entrance.

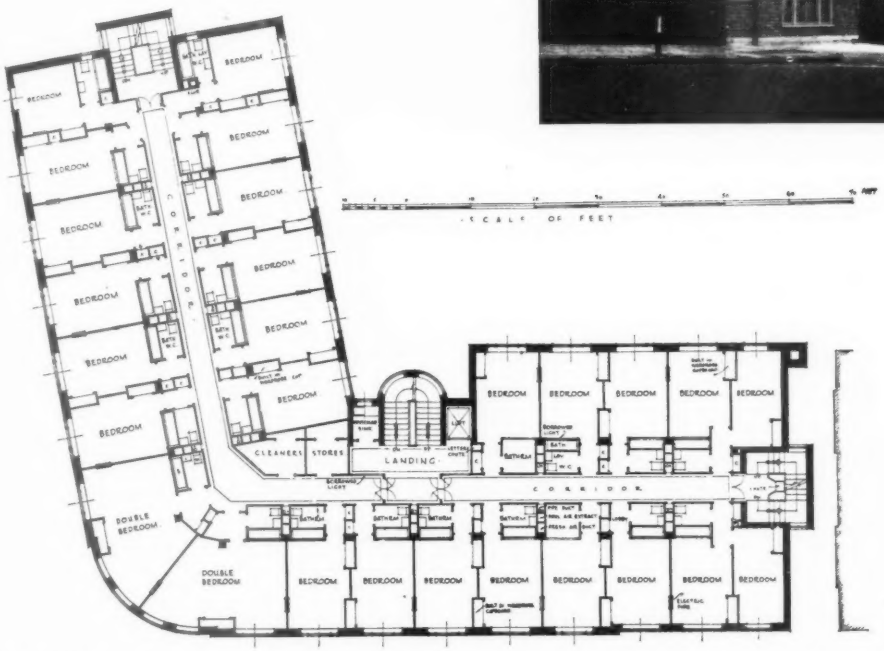
Fronts to Pembridge Square (left) and Pembridge Gardens



GROUND FLOOR PLAN · PEMBRIDGE GARDENS ·

FLATS, PEMBRIDGE SQUARE, KENSINGTON

Two views of the front to Pembridge Gardens



TYPICAL UPPER FLOOR PLAN

INTERNAL FINISHES—Entrance hall, dining-room and lounge are finished with a patent plywood. Dining-room is finished in natural oak, the entrance hall in mahogany and the lounge in poplar. Dining-room is carpeted throughout, the lounge is floored with Gurjun wood blocks, and the main staircase and corridors are finished with rubber flooring. Kitchens have tiled floors and walls and ceilings are finished in stippled glazed paint, pale yellow. Bedroom suites are distempered a light cream colour and woodwork is of unstained Oregon pine, flat varnished. Bedrooms and lobbies are carpeted throughout.

SERVICES—Heating is by low-pressure hot water from a sectional boiler serving radiators in all rooms. In addition to central heating, each bedroom is fitted with an electric panel-type fire. Food service is by twin electric lifts from kitchen to service-room on ground floor. Main passenger lift is of the electric self-operating type.

COST—£52,000 (approx.). Price per ft. cube, 1s. 9d.

DESIGNED BY STEWART AND HENDRY

HOUSE AT

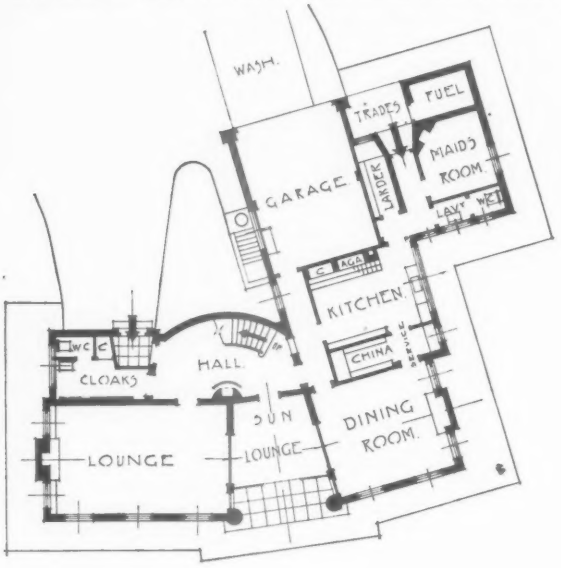
DESIGNED BY FRANCIS

GENERAL—Client desired a compact and easily worked house and a suite of rooms which might be opened up for receptions and dances. This accommodation was given by folding doors from lounge and dining-room into a central sun lounge.

SITE—A hilly wooded site off a secondary road, a clearing being made for the house and garden, and approached by a winding drive.

PLAN—House was planned to face S.S.E., and the front bowed to form sun trap. Dining-room, also to be used as breakfast-room, was required to face the early morning sun and a particularly good view in this direction; and the lounge was brought round to catch the evening sun.

CONSTRUCTION—Roofs : timber framed, covered with plain tiles; flat roofs, finished with bituminous felt. Internal walls 4½-in. brickwork or studding. Floors generally, joisted with beech strip flooring on ground floor, and Columbian pine on first floor to principal rooms. Oak block floor to maid's sitting



GROUND FLOOR PLAN

LETTERS

Building in Wartime

SIR,—I was pleased to read the extract reprinted from the Building Industries Survey in your issue of May 16, and I am writing to comment on this and to enlarge upon certain aspects of my previous letter to you, bringing the suggestions I then made up to date in the light of developments since its publication. My very first reaction to the Government's own building scheme was a sense of injustice at the arbitrary distribution of the work and an ardent desire to prove the waste and muddle which I was convinced was taking place. On reflection, I realized the extreme difficulty of obtaining absolute proof because of the risk of loss of livelihood to certain of the necessary witnesses actually engaged upon the work, but I never abandoned hope that one day the true facts would emerge.

Confirmation, in no uncertain terms, of our worst fears and suspicions has now come from the most unexpected quarter, the Government's own Select Committee on National Expenditure, and coming from such an authoritative and disinterested source can no longer, in the national interest, be overlooked. For, make no mistake about it, the vital contribution which we as an industry can make and should be making has been and for that matter still is being stultified by lack of proper direction and co-ordination. The result is excessive cost and a low degree of efficiency in the completed works. I cannot do better to prove this than to quote from the Select Committee Reports.*

It is obvious that the late Government, probably through its permanent officials, treated the building industry in a grossly unfair and even discourteous manner, especially having regard to its important position in the National Economy, and in particular the dead hand of the Treasury was very evident in killing individual initiative, even when of direct benefit to the war effort. The new Government should hearten us all and encourage us to

* *Mr. Greaves' quotations from the Reports of the Select Committee on National Expenditure are printed at the end of his letter.*

STUDLEY, WARWICKSHIRE

W. B. YORKE

room on ground floor. Buff quarries to kitchen, lavatory, etc.

EXTERNAL FINISHES—Brick, with carved date panels in brick carved by Birmingham sculptors. Windows painted white ; doors only, green ; down-pipes, etc., battleship grey. Chimney caps, stone.

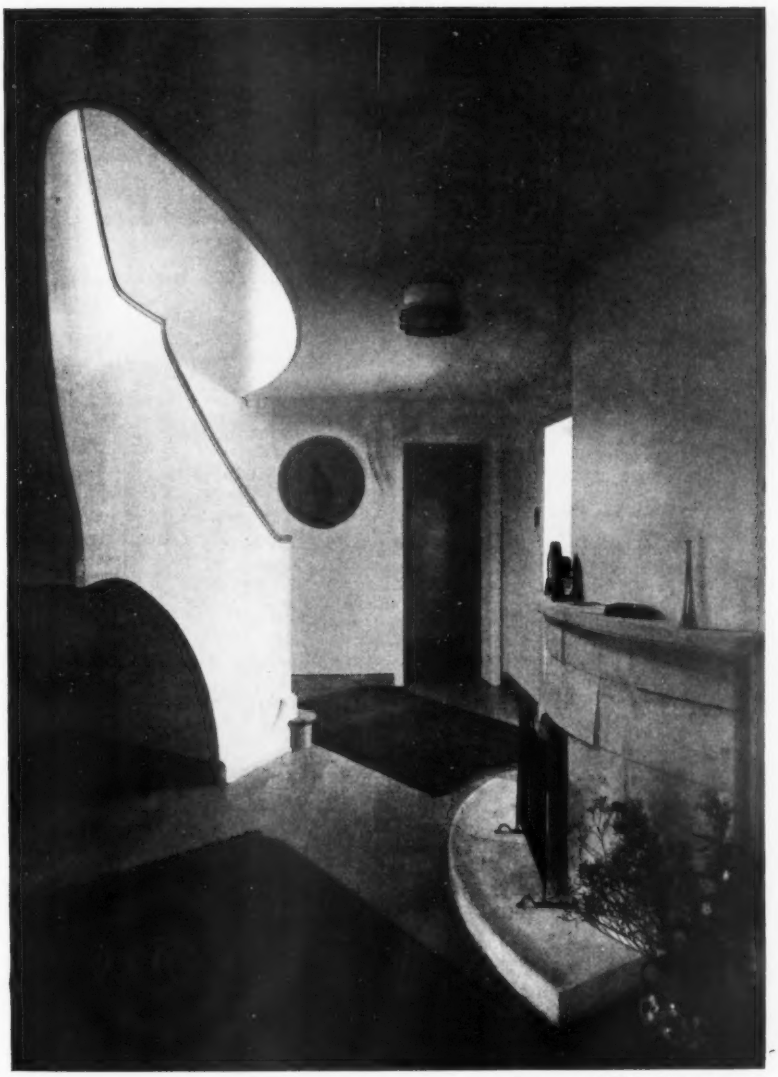
INTERNAL FINISHES—All rooms are treated with cream waterpaint. Flush doors, polished hardwood in principal rooms. Staircase has a solid plastered balustrade. Bathrooms are tiled with rubber floors.

SERVICES — Low-pressure central heating from basement heating chamber. Coal fires generally.

COST—£4,391. Drive £323. Price per ft. cube, 1s. 6d.

General contractors were H.Wilkes and Sons ; for list of sub-contractors see page xviii.

FIRST FLOOR PLAN



Entrance hall and staircase

believe that the uninspired and harmful policy pursued since the outbreak of war in regard to our industry will at last be reviewed and consequently radically altered to the benefit of the majority at the expense of a very small minority, and to the country's ultimate good. It behoves us therefore to be ready with suggestions to lay before the new Government on the steps which we consider essential to remedy the situation. In regard to the encouragement of civil building I have already outlined my proposals, but I wrote off, perhaps rather prematurely, further Government work largely because of the difficulties of proving the suspected inefficiency referred to earlier in this letter, and partly in the belief that little more work would be forthcoming. Under new management, however, there are two possibilities, firstly, that the building programme will be extended ; and, secondly, that not having any responsibility for the inauguration of the original programme the Government may agree to a review of the works in progress with a view to avoiding such serious errors as are still avoidable and to maintaining costs at a reasonable level.

In view of these possibilities, I consider we should press strongly for four things :

Firstly, for a Government Department directly responsible for all building for other Departments and recruited from the building industry.

Secondly, for the building industry to be taken fully into the Government's confidence and consulted on the best means to carry out its policy and on the availability of men and materials.

Thirdly, for the employment of trained architects and surveyors so far largely neglected by the Government.

And, fourthly, for further Government work to be distributed through normal building channels and to be carried out as far as possible by the contractors in the localities of the various sites.

At the same time we must not neglect the preservation of the industry when Government work is ending and the necessary planning ahead that will be entailed, all of which would properly come under the control of the Government Department for building, which would be responsible for deciding the minimum building necessary to keep the industry alive, and for the encouragement of building at least up to that level in all districts.

To achieve these aims we must

organize throughout the country and with united voice force attention to our case. For the present that must be our first concern.

Hanley. GEORGE L. GREAVES

Below are the quotations from Reports of the Government's Select Committee on Expenditure which are referred to by Mr. Greaves :—

Second Report dated April 18, 1940.

"Even with a much smaller discrepancy between estimate and final cost, the excess over the sanctioned estimate would indicate such an unreliability in estimating as greatly to weaken financial control.

"In some instances sites appear to have been selected without sufficient consideration of obvious difficulties such as drainage, sewage disposal or the supply and housing of labour. There may have been difficulties in finding an alternative site, but the evidence does not make it at all clear that other possibilities have always been adequately examined. Sometimes local information which might have been of value has not been sought ; and available geological knowledge has been overlooked. In some cases contractors have been put on to sites without proper plans and instructions and before the general layout has been decided upon. Sometimes when the work has had to be completed by a given date, valuable time has been lost in the initial stages, the production of drawings has not been sufficiently expedited, and the time left for the actual work on the site has made the employment of extensive overtime essential. Sometimes supervision has been insufficient and in many instances it has not been in accord with established and approved practice, nor has full advantage been taken of available professional knowledge and skill. Many details have been neglected which have had to be put right later at an additional cost. Savings could have been effected if more practical attention had been paid to the types of fittings and the materials of which they were made. Changes, apparently quite unrelated to strategic considerations, have been introduced during the progress of the work. In short, proper foresight has not always been exercised, clear plans have not always been formulated, and available knowledge has not always been employed.

"Your committee have so far been at a loss to discover that financial considerations have played any substantial part in the actual choice of sites."

Third Report dated May 16, 1940.

"A mistake was made in not dividing the work among smaller firms. Doubtless the passing of the Military Training Act and the outbreak of war made speedy production necessary, but quick production and financial economy have not always been attained by placing large contracts at very high cost in the hands of a limited number of big contractors.

"There is an appreciable number of smaller firms with staff and plant and great experience who could help forward the work considerably without enhanced cost to the nation."

Finally, this latter report is well summed up in a leader in the *Manchester Guardian* of May 18, as follows :—

"The War Office was overwhelmed by the need for speed when the militia programme had to be turned into a war programme, and seems to have been unable to adapt itself. The report points out that when it became necessary to hurry on with the militia camps there should have been some latitude given as to form of construction and some adaptation of plans to the available supplies of labour and materials. It draws attention to the unsatisfactory contracts for the first war group of camps, which were given to large contractors who took on more work than they could effectively deal with ; the supervision of the work has not been 'efficient or satisfactory.' The report criticizes the unnecessarily expensive plumbing, the inadequate protection from fire, the use of timber regardless of the shortage of supply, and the inefficient attention to the use of local material and to local custom which would have cheapened the costs. There have been, as everyone knows, serious faults in organizing the labour supply for camp building. The building industry was not properly consulted ; there was great waste of money in bringing men long distances ; little care was taken of the physical comfort and well-being of the men on the job. On all these points the Select Committee makes recommendations. It also passes under review the shortcomings of the War Office in the requisitioning of land and proposes that in future the freedom of the Army Commands to take whatever land their eye falls on should be tempered by their having to take the advice of local representative committees."

Evacuation and Group Billeting

SIR,—It is now probable that there will be large-scale air attacks on Great Britain within two or three months. Therefore it is urgent, as never before, that the present evacuation scheme be recast. 84 per cent. of the three million women and children included in the scheme of last September are now in vulnerable areas, and only about 9 per cent. of these children have been registered by their parents for future evacuation.

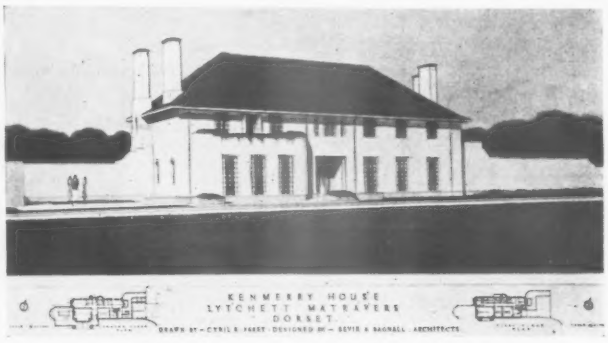
An unplanned evacuation is extremely likely, and local authorities are organizing temporary accommodation for panic evacuees, and, no doubt, billets for well over the registered numbers of schoolchildren. But what is essential is an immediate expansion of the evacuation scheme to cover all children in danger areas, and its reorganization to give confidence to the parents. For this the simplest and most immediately practicable means is to make full use of the large country houses in safe areas.

The amount of this accommodation has been estimated by my committee from the 1931 census, as follows. There are some 700,000 rooms in houses with ten or more rooms in the safe areas of Great Britain. At least half these houses could be taken over for evacuees, the rest being assumed to be needed for other wartime purposes or for justifiable private use, or to be especially difficult to repair or convert. In such houses about half the rooms could be used for dormitories, taking on an average, say, six children each ; the other rooms would allow dining and some play space, and rooms for staff. Thus some one million children could at once use these larger country houses. Smaller houses, of eight or nine rooms, are more numerous but less likely to be available, and, although we estimate that a further half million children might use them if necessary, there would be fewer advantages in such small-scale group billeting while the trouble and cost of staffing would be increased.

The value of billeting children in groups instead of individually is in relief to the local householders, in more stable and reassuring conditions for the children, and in easier supervision by teachers. Complete school units, or nursery groups, of twenty or more children could move into these large country houses together with their teachers, nurses, or parents. Local authorities can at present requisition existing buildings as hostels for senior children or for teaching ; if the senior regional officer approves of the scheme its cost is due from the Government. Group billeting is but a wholehearted extension of this programme.

This Association's Evacuation Committee had worked on these problems for twelve months when war broke out, and since then has submitted to the Government three reports based on actual surveys of reception areas, particularly one of the Wantage area in Berkshire. The deficiencies in this area were noted and an essential building programme was outlined. Group billeting is no alternative to this programme ; it is the most urgent first step towards it. Apart from new hostels and camp schools, additional buildings would be needed near these large houses for teaching, medical, and social use ; thus such houses would finally be local centres for the evacuees. The programme of new buildings should be of use in peacetime to the rural community or to townspeople on holiday, and should be designed to use the sections of the building industry now under-employed. In this way there can be an immediate planned evacuation which will lead on to a satisfactory system able to stand throughout the war.

M. J. BLANCO WHITE, A.R.I.B.A.,
Hon. Sec., Evacuation Committee,
A.A.S.T.A.



From the Royal Academy Exhibition

970. THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

BASES OF SPECIAL COLUMNS TO WITHSTAND BENDING MOMENTS:

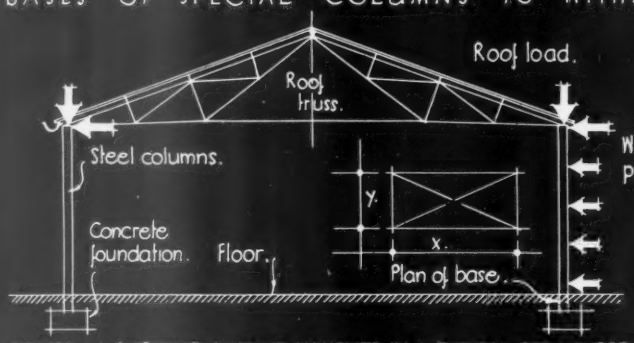
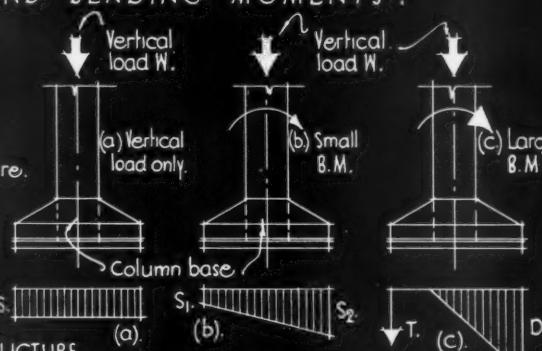
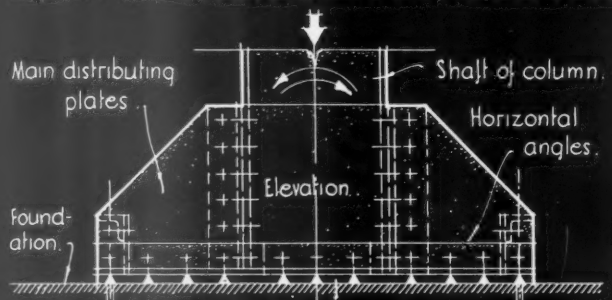


FIGURE 1: SHOWING BENDING MOMENTS IN A TYPICAL OPEN-ENDED STRUCTURE.





$$S = \frac{W}{YX} \qquad S_1 = \frac{W}{YX} - \frac{6M}{YX^2} \qquad S_2 = \frac{W}{YX} + \frac{6M}{YX^2}$$

FIGURE 2: DISTRIBUTION OF BENDING MOMENT STRESSES.

$$T = \frac{M}{0{\cdot}77X} - 0{\cdot}36\,W. \qquad D = \frac{2W}{YX} + \frac{4M}{YX^2}.$$

(These two formulae are approx. only).

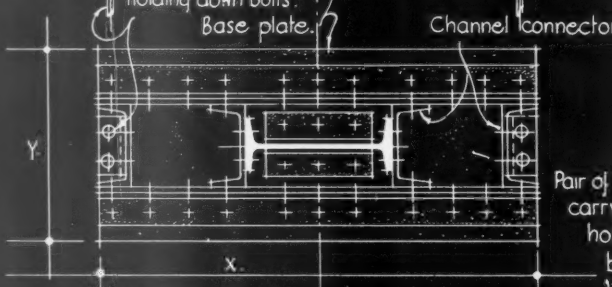


FIGURE 5: TYPICAL EXAMPLE of COLUMN BASE TO TAKE LARGE BENDING MOMENTS.

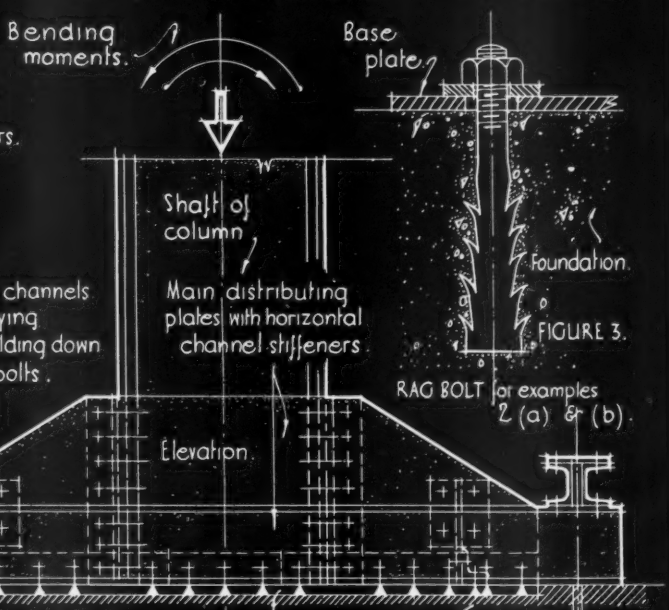


FIGURE 3.

RAG BOLT for examples 2 (a) & (b).

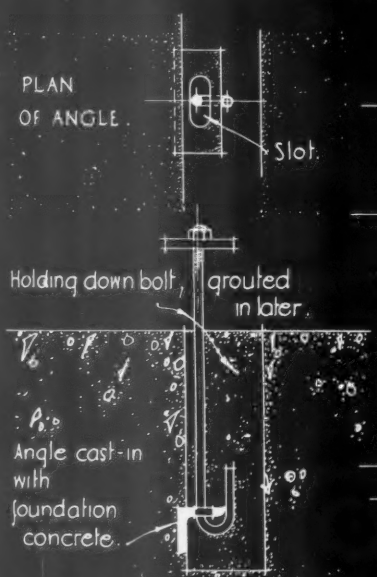


FIGURE 4: HOLDING DOWN BOLT FOR COLUMNS TAKING LARGE BENDING MOMENTS.

FIGURE 6: TYPICAL EXAMPLE OF HEAVY COLUMN BASE TO TAKE LARGE BENDING MOMENTS.

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

INFORMATION SHEET: STEEL FRAME CONSTRUCTION: No 25.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 793 •

STRUCTURAL STEELWORK

Subject : Standard Connections, Splices and Bases : 7, Bases to Special Columns which have to withstand Bending Moments.

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 adjoining 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 twenty-fifth of the series, and illustrates the methods of connecting bases to special columns which have to withstand bending moments.

Bending Moments :

In skeleton frame buildings loads are carried through to the foundations in such a way that no substantial horizontal loads are transmitted through the bases. Small horizontal loads, due to wind and bending moments, are unavoidable, but as they are usually distributed over a large number of columns, they are so minute that friction alone is sufficient to transmit them to the foundations.

There are, however, industrial buildings where bending moments must be transmitted to the foundations, and an example is given of a workshop, open at both ends, the section of which is shown in Figure 1, where the foundations are bound to take the bending moments caused by the wind.

Stress Distribution :

The base of a column which has to take bending moments must be larger than an ordinary base, and the distribution of stresses in the following three cases is indicated in Figure 2.

(*a*) For vertical loads only.

(*b*) For small bending moments $\left(\text{smaller than } \frac{Wy}{6}\right)$

(*c*) For large bending moments $\left(\text{larger than } \frac{Wy}{6}\right)$

Anchorage of Base :

Where a distribution occurs in accordance with Figures 2 (*a*) and (*b*) no arrangement need be made for anchoring, but the application of two rag bolts, as shown in Figure 3, is always recommended, particularly with long, light columns, the erection of which is simplified by the bolts.

Where stress distribution occurs in accordance with 2 (*c*), more substantial holding-down bolts are required and the usual method is to cast angles into the foundations, as shown in Figure 4, leaving a vertical hole in the foundation and a slot in the flange of the angle, through which an anchor bolt can be pushed. The hole would be filled with concrete when the column is in position and adjusted.

Examples :

Figure 5 shows the construction of a base for a joist 14 in. × 4½ in. which is able to carry the direct load of 10 tons and a bending moment of 350 t/in. in either direction. The flanges of the joist are connected to the main distributing plates by means of channels and the rivets on either side must be able to take the force, $\frac{W}{2} + \frac{M}{2d}$, where d equals the depth of the joist, and M the total bending moment. The rivets connecting the main distributing plates to the base plate have also to distribute bending moments as well as the direct load. If the number of rivets is n, the force in the outer rivets which are most heavily stressed is :—

$$F = \frac{W}{n} + \frac{M}{x_1} \frac{(n-1)^2}{(n-1)^2 + (n-3)^2 + (n-5)^2} \ldots\ldots$$

where n = number of rivets and x_1 = distance between outer rivets. There is no need to machine the base as all forces are to be taken by rivets, and it is usually simpler to fasten the base plate to the shaft before the main plates and angles are arranged.

Figure 6 shows a similar but heavier base for a joist section 18 in. × 6 in. with two plates 10 in. × ½ in. In this case the holding-down bolts are carried by two pairs of channels standing on other channels which strengthen the main plates, and the bolts are outside the actual base plate. This simplifies manipulation for erection.

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 and 790.

Issued by : Braithwaite and Company, Engineers, Ltd.

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

Telephone : Victoria 8571

663 B.

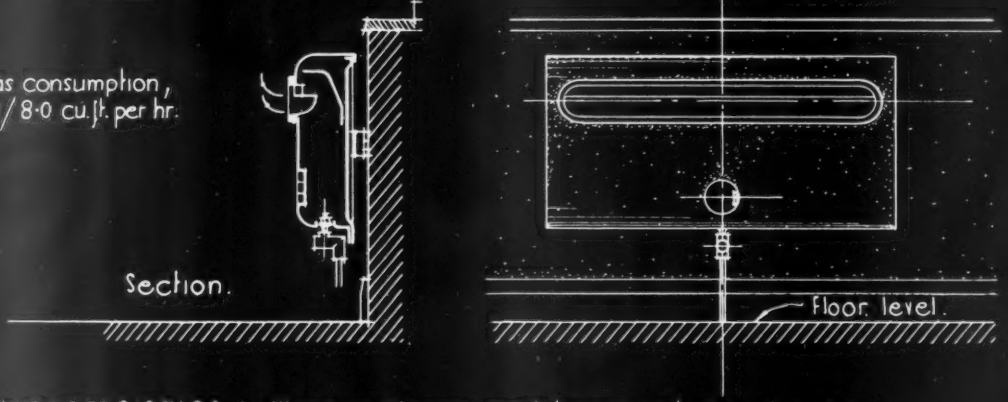
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

FLUELESS SPACE HEATING GAS APPLIANCES OF THE CONVECTOR TYPE :

For details of combined convecting and radiating heaters, see Sheet Nº 9 of this series.

(1.) FIXED BACKGROUND HEATERS.

Gas consumption, 4·0/8·0 cu. ft. per hr.

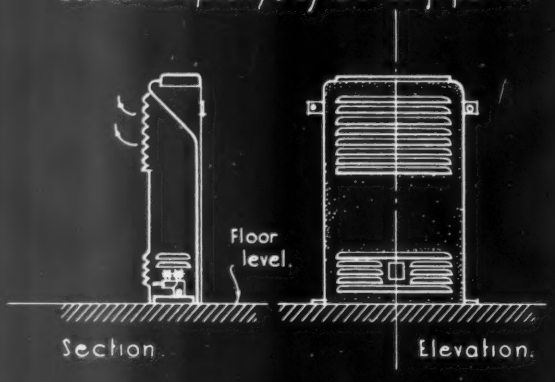


CHARACTERISTICS : Warm surfaces and large volume of warm air from outlet of heater ; rapid heating up ; suitable dimensions for fitting under a window ; central heating at very cheap installation and running costs.

TYPICAL SITUATION : Domestic lounge and dining rooms in conjunction with a radiant fire ; small halls, offices, etc.

(2) FIXED WALL PANEL CONVECTOR HEATER.

Gas consumption, 8·0/16·0 cu. ft per hr.

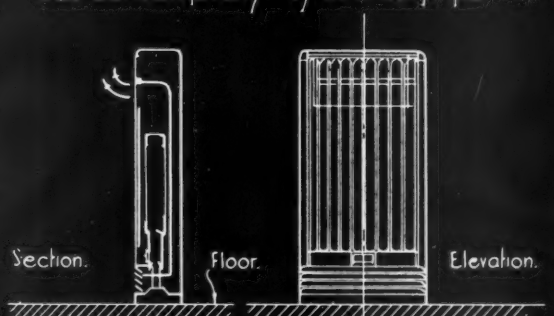


CHARACTERISTICS : Similar to (1.), but larger and much higher heat output.

TYPICAL SITUATION : Halls, factories, etc.

(3.) TYPICAL FREESTANDING RADIATOR.

Gas consumption, 4·0/24·0 cu. ft. per hr.



These heaters are available in fixed or portable types. Panel units are also made.

CHARACTERISTICS : Similar to (2), but more robust construction.

TYPICAL SITUATION : Factories, workshops, shops, etc.

Information from the British Commercial Gas Association.

INFORMATION SHEET : THE EQUIPMENT OF BUILDINGS : GAS APPLIANCES, 3 : Nº 10.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 794 •

THE EQUIPMENT OF BUILDINGS

Subject : Gas Installations ; Gas Heating Appliances for Space Heating

General :

This is the tenth Sheet of the series on the installation of gas services in buildings. This Sheet is in continuation of Sheet 786 and deals with space heating appliances of the convection type, nearly all the heat from which goes into the air of the room.

Space Heaters :

These heaters are suitable for situations where the occupants will not be concerned with warming their hands in front of the heater (for which see Sheets Nos. 8 and 9 of this series), but where the room, hall or workshop has to be maintained at comfortable temperature for prolonged periods of time. If the rooms are lofty, draughty or used intermittently, e.g. some factories, halls and churches, it will often be more effective and economical to use overhead radiant heaters—see Sheet No. 9 of this series. Any room exceeding 2,000 cu. ft. of room space necessarily has parts incapable of being directly warmed by a single source of radiant heat. Where the room is used with a dining table in the centre, persons far removed from the fire are cut off from its direct radiation. A small flueless convection heater of the type shown on this Sheet will often be found extremely beneficial in taking the chill off the air in such circumstances and maintaining a tolerable degree of comfort throughout the room. Similarly, larger size heaters used in halls give a degree of central heating throughout the whole house.

This background heating of a house or room is equivalent in effect to central heating, but capital, installation and running costs are much less.

Gas Consumption :

To avoid stuffy conditions the maximum gas rate in rooms should be 1 cu. ft. per 100 cu. ft. or in halls and passages, etc. (where ventilation is certain to be considerable) 2 cu. ft. per 100 cu. ft. of room space. If used as a background heater in conjunction with a radiant fire, the normal rating is 1 cu. ft. per 250 cu. ft. of room space.

Issued by : The British Commercial Gas Association

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

Telephone : Sloane 4554

SOME QUESTIONS ANSWERED THIS WEEK:

★ *WE are troubled with efflorescence on stippled and distempered plastered walls near air vents. Is there a method of treating such walls with solution of some kind?* - - - - Q335

★ *CAN you supply the address of the timber control for Market Drayton, Shropshire?* - Q337

★ *WE have to provide 600 feet run of rectangular duct, 6 feet by 4 feet in section. It has been found impossible to obtain this in metal. What alternative constructions can you suggest?* Q339

★ *ARE there any patent liquids on the market for removing the furring inside a boiler and pipes?* - - - - - - Q341

THE ARCHITECTS' JOURNAL

INFORMATION CENTRE

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

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

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

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

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

Any questions about building or architecture may be sent to:

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

or ring the Architects' Journal Information Centre at

REGENT 6888

Q332 ARCHITECTS, LONDON. — *In the corridors of a college addition we are at present erecting, it would seem that NOISE REVERBERATION is likely to be a nuisance. On the present specification the floor is to be of rubber, the lower walls in a cement finish and the upper walls and ceiling in hard plaster with a distemper finish. If an acoustic plaster was substituted for the present ceiling plaster would this make a material difference, and also could it be decorated to tone in with the walls?*

The provision of an acoustic plaster would considerably alleviate any likely reverberation. With the few particulars available it is not possible to give as a measure of time this lessening of the period of reverberation, but that it will be substantial will be obvious when it is considered that the sound absorption of an acoustic plaster is of the order of 30 per cent., whereas that of a hard plaster is about 2 per cent. Acoustic plasters generally are open-textured and rough in surface, and their method of decoration is usually specified in detail by the firm selling them. Considerable loss of efficiency might easily accrue from uncontrolled decoration. Spray decoration is usually specified, and thick continuous coatings are to be

avoided. But on this point the firm responsible for the plaster chosen will give detailed instructions. Acoustic plasters are available from the firms mentioned below.*

Q333 ARCHITECTS, LONDON. — *We are to construct a SHELTER in the basement of commercial premises. Does this work come under the jurisdiction of the DISTRICT SURVEYOR?*

Under the Civil Defence Act the supervision of the work comes under the jurisdiction of the local borough engineer and surveyor, particularly if the shelter is one ranking for grant under the Act. If, say, the shelter is for 50 or more employees the plans of the work intended must be submitted to the borough engineer and surveyor for approval, and the work during the construction and at completion will be inspected and approved by staff of the borough engineer's and surveyor's office. If in the new work the fabric of the existing building is to be cut away or altered in any way, copies of plans should be forwarded for information purposes to the local district building surveyor, since in the London area the structural safety of existing buildings remains within his jurisdiction.

Q334 ARCHITECT, STOCKTON. — *In connection with the air raid precautions at a public institution it is proposed to apply a rot-proof treatment consisting of CREOSOTE EMULSION to the sandbag revetments. These are in good condition, but when erected some six months ago they were washed over with a CEMENT SLURRY. I should like to know if this previous treatment will prevent the creosote emulsion from acting as a protective agent. If so, can you suggest an alternative rot-proof treatment?*

Careful perusal of the Ministry of Home Security A.R.P. Department leaflet, "Notes on the Construction, Maintenance and Replacement of Sandbag Revetments," gives no information on this point. In any case it would not be advisable to carry out further treatments with the cement wash, since cement appears to have a hardening action on the fibres and makes the bags more prone to bursting through lack of fibre elasticity. Also, since the fibres are coated over with cement it is difficult to see how an application of a creosote medium will have power to penetrate the cement coating in a way sufficient to impregnate the already coated fibre. But much will depend upon the thickness and continuity of the present cement coating; and after inspection it may be decided to try the application of the creosote medium over a small area. We can suggest no special treatment with powers of cement penetration and preservative action on underlying fibres. If it has not already been done, it would, in any case, be desirable to insert a bitumen felt under the top layer of sandbags, and in this way to prevent further water infiltration into the body of the sandbagging.

Q335 BREWERS, LANCS. — *We are troubled with EFFLORESCENCE ON stippled and distempered PLASTERED WALLS near air vents, about 9 in. above skirting. Is there a method of treating such walls with solution of some kind?*

There is a solution for the treatment of efflorescence which is available from Messrs. Cafferatta & Co., Ltd., Newark-on-Trent, but we do not see how it can be of great assistance in the present instance. Much more important would be to find the cause of the efflorescence: Rain, penetrating through ventilators, may be reaching the inner skin of the wall and the resultant moisture may be carrying salts from the bricks, brick jointing or internal rendering, and subsequently drying out on the inner face and depositing these salts as efflorescence. Or it may be that around the slate or other bridging of the cavity at the ventilators there are accumulations of mortar droppings which allow damp to pass from the outer to the inner leaf of the wall construction. No indication is given of the damp-course positions, and since the dampness is so near the floor line failure from this source should not be overlooked. To apply a liquid over the surface which shows efflorescence at the moment will not effect a cure. If such a liquid seals the present efflorescing surface, the dampness in the wall must still dry out and will do so around the treated parts of the wall and become obvious as further efflorescence.

Q336 ARCHITECT, SUSSEX. — *I am altering a cottage in this district and it is intended to collect the rainwater from the ROOFS. The roof tiles are the traditional hand-made variety and are to a large extent absorptive. Is there any PREPARATION which could be used on the surface TO REDUCE the ABSORPTION and so make them shed the water more easily? Also, could you tell me where I can procure rainwater butts?*

As a surface coating for the tiles some of the ordinary colourless waterproofers could be used, and their application would give the tile a more waterproof surface. The use to be made of the collected rainwater is not stated, but if this is to be used as part of the domestic supplies or for animals, it might be that care would have to be taken in the choice of a liquid which would not affect the water. If such a use for the water is intended this fact should be mentioned when approaching any of the firms producing these liquids. Rainwater butts can be obtained from the firms given below.* In case it is of interest it can be mentioned that there are on the market so-called rainwater separators designed so that the first waters passing through and containing the roof and gutter washings are run to waste and subsequent water only passed to the containers. These rainwater separators are available from Tuke and Bell, Ltd., 1 Lincoln's Inn Fields, London, W.C.2.

Q337 ARCHITECT, LONDON.—*Can you supply the ADDRESS of the TIMBER CONTROL for Market Drayton, Shropshire?*

West House School, 24 St. James' Road, Edgbaston, Birmingham 15.

Q338 SKATING RINK, ESSEX.—*Can you give me any information with regard to any COMPOSITION or liquid wood which would be suitable FOR FILLING worn places in a maple floor? This SKATING RINK is laid with 2 in. by 1¼ in. maple boards, but after considerable use the boards have become very grooved in places. In these difficult times for obtaining wood for necessary repairs, I thought that perhaps you might know of some such substitute that would obviate the necessity of laying a completely new FLOOR. Any ideas or particulars to help me in this matter would be greatly appreciated.*

It is extremely doubtful whether there is any material which could be

* *Messrs. Casebourne & Co. (1926), Ltd., Imperial Chemical House, London, S.W.1. Messrs. Gotham Co., Ltd., Brettenham House, Lancaster Place, London, W.C.2. Messrs. Honeywell and Stein, Ltd., 21 St. James's Square, London, S.W.1. Messrs. May Acoustics, Ltd., de Burgh Road, London, S.W.19.*

* *C. F. Anderson and Sons, Ltd., Harris Wharf, Graham Street, London, N.1. H. F. Battersby, Ltd., 57-58 Chancery Lane, London, W.C.2.*

used to fill in the worn parts of the maple floor and which would stand up to the conditions of wear. The grooving on the boards could be removed by machine resurfacing, and work of this kind is done by firms such as those given below.* Alternatively, if the wear on certain boards is really serious and not likely to respond to resurfacing treatment, an experienced firm of wood-flooring specialists could probably supply and insert odd boards of maple or might even turn the existing boards and pack up underneath. There are liquid hardeners for wood floors marketed by the firms named below.† Application could be made to these firms for their views on the probable efficiency of their surface treatments under the severe conditions of a roller skating rink.

Q339 ARCHITECT'S DEPARTMENT, LONDON. —*In some alteration work we have to provide some 600 feet run of RECTANGULAR DUCT 6 feet by 4 feet in section. It has been found impossible to obtain this in metal. What alternative constructions can you suggest?*

We are unable to suggest a construction which would avoid metal entirely. The ducting could be made up of asbestos-cement or asbestos-wood sheeting with small pressed or rolled steel angles used for edging and bracing.

Q340 ARCHITECTS, DUBLIN.—*We are at present having a choir screen and furniture made in OAK for a College Chapel AND wish to treat them with LIME to secure a silvery grey finish. A method was published in the* JOURNAL *some years ago, but we cannot lay hands on it at the moment. We believe hot lime is brushed on, left for some little time, and then brushed off, but we do not remember how long it should be left on or whether a second application is necessary. We should also like to know whether the oak should be waxed or otherwise treated when the lime is removed.*

Formerly, the liming of oak was done by the application of a lime mix of the consistency of thin whitewash. The lime used in the preparation of the wash was fresh lump white lime. This was allowed to dry on the treated work and the excess lime was later removed by rubbing over with a soft mop. The oak was then coated over with beeswax in the ordinary way. But modern joinery methods differ appreciably from those formerly used. Formerly, care would have been taken in the timber selection, solid timbers would have been used, and matching pieces would have come from the same tree. In liming, there seem to be different reactions of various trees to the solution: with some, the solution gives a pink tinge, in others a blue. It can be well imagined what might happen when a liming solution is applied over oak joinery in which the various pieces come from various trees. It would be advisable, if at all possible at this stage, to gather together off-cuts from the timbers used in the construction of the screen and furniture and experiment on these to see whether the effect desired is likely to be obtained.

* *Messrs. Hollis Bros. & Co., Ltd., Craven Hill, Hull. Messrs. Ronuk, Ltd., 16 South Molton Street, London, W.1.*

† *Messrs. Watco, Ltd., 56 Buckingham Gate, London, S.W.1. Messrs. Wachal Flooring Co., Ltd., 28 Victoria Street, London, S.W.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.

Q341 ARCHITECT, LONDON. — *Are there any patent liquids on the market for REMOVING the FURRING inside a boiler and pipes?*

Liquids for this purpose, which have also scale-preventing qualities. are marketed by the firms given below.*

Q342 ARCHITECTS, LONDON.—*Temporary infilling of sloping roof glazing, previously damaged by fire, was carried out in boarding covered with a bituminous felt. Owing to war conditions it has been decided to allow the boarding and felt to remain in position. Unfortunately, alongside the works there are railway tracks; and the building authorities are insisting upon a treatment, applied externally over the BITUMEN FELT, to prevent fire being caused by engine sparks. What SURFACE TREATMENT would you recommend—bearing in mind that it should be cheap as the roofing in question is only of a temporary nature?*

In the ordinary way a built-up bitumen roofing with a sanded or grit finish is considered fire resisting, and complies with the need for a fire-resisting finish as specified in normal building regulations. It is presumably because, in this particular case, the covering is very thin and the danger from fire more severe than usual, that the authorities insist on a further surface treatment. Ordinary asbestos-cement sheeting, either plain or corrugated, could be fixed over the panels. An alternative suggestion is the use of so-called fire-proofing paints. These paints, when exposed to fire, change to a film of stonelike substance, and tests have shown that coatings of these paints can prevent damage to a softwood fibreboard by a blowlamp flame. Fireproof paints of this type are available from the firms given below.*

* *Starit, Ltd., 35 Rathbone Place, London, W.1. Drake and Gorham, Ltd., 36 Grosvenor Gardens, London, S.W.1.*

Q343 BUILDERS, BERKSHIRE.—*Quite recently there was a wallplug firm advertising a special form of JOINTING FOR IRON PIPES. What was the name of the firm?*

This is probably "Philplug" jointing material—available from Messrs. Philplug Products, Ltd., Perivale, Middlesex.

REFERENCE BACK

[*This section deals with previous questions and answers.*]

Q284. *May 2, 1940.*

In the reply to this query the address of the Stronghold Co., Ltd., was given as 10 Victoria Street, London, S.W.1. The company now inform us that their head office is 134 St. Vincent Street, Glasgow, C.2, and the name is Stronghold, Ltd.

Q287. *May 2, 1940.*

In this question an architect stated that "Durasteel" doors for an A.R.P. shelter had been objected to by an

* *Joseph Freeman and Sons, Ltd., 96 Garratt Lane, Wandsworth, S.W.18. Porcella Products, Ltd., Chase Road, London, N.W.10. Blundell, Spence & Co., Ltd., 9 Upper Thames Street, London, E.C.4.*

inspector of factories and said he had heard of such doors being approved in other cases. The Centre replied that the Home Office will not approve of any door as being blast and splinter proof unless it consists of at least 1½ in. of mild steel plate.

Messrs. Durasteel Roofs, Ltd., have now notified the Centre that they manufacture a 3-in. composite blast and splinter proof door which complies with the Civil Defence Act and has been used by service departments for protection of important plant.

An appeal to the Home Office on the matter will therefore probably be upheld.

TRADE NOTES

[*By PHILIP SCHOLBERG*]

Steel for Concrete Reinforcement

Since last year there has been a spate of propaganda in favour of concrete as a material to replace timber, but so far nothing very much has been said about reinforcing materials. The reason for this, I suppose, is that much of the concrete propaganda has been done by the cement industry, who are naturally afraid of treading on the toes of firms supplying reinforcing bars. Given the compression loads to carry, I suppose, too, that the cement firms don't much care who looks after the tension. It is easy enough to understand this policy, but it is worth reminding architects that there are methods of reinforcement beyond the ordinary round bar, and for this reason I am glad to see that Isteg, Ltd., have issued a useful-sized booklet which tells the story of their particular type of reinforcement in a very fair-minded and rational way.

•

Isteg reinforcement is made by twisting together—cold—two ordinary round mild steel bars between longitudinally fixed centres. This cold working process raises the yield point by about 50 per cent., and the ultimate tensile strength is guaranteed to be not less than 28 tons per square inch. The advantages of Isteg bar, compared with plain round bars, depend both on its increased yield point and on its shape. It will be immediately realized that the two bars, twisted together, form a tight spiral which has a very high bond strength. These two factors allow Isteg to be stressed 50 per cent. higher than ordinary round bars, and also to be used without hooks and with smaller lap allowances. It is perhaps worth emphasizing that these two advantages are complementary, for without the added bond strength it would be impossible to take full advantage of the tensile strength, and in the same way the increased bond strength would be largely wasted in a bar stressed at 18,000 lb. per sq. in.

•

Actual figures for cost savings are rather difficult to determine, and depend very much on the type of job being carried out. On the question of savings due to the absence of hooks, it is obvious that the greatest reduction in weight will be achieved if the spans are comparatively short and the loads heavy. (On, say, a 12-ft. span needing a 1-in. bar a 9-in. hook is needed at each end: 1 ft. 6 in. on 12 ft. is 12½ per cent.) Analysing a typical job needing 100 tons of reinforcement, the handbook assumes that only 63·4 tons of Isteg would be needed (stressed 50 per cent. higher than round bars); at a price of £15 7s. 6d. a ton against £11 2s. for ordinary bars (pre-war figures), and allowing higher rates for bending and fixing, Isteg shows a saving of £250–£300. In terms of building cost the firm maintains that the use of their reinforcement will show a saving of from 2 to 6 per cent. of the gross value of the reinforced concrete work. Not, perhaps, a vast sum in relation to the total building cost, but not at all to be sneezed at.

•

The high bond strength has a further advantage in that it reduces cracking under load. A plain round bar elongates under stress, and its cross-sectional area is thus reduced so that the adhesion between it and the concrete is reduced, whereas with the twisted section of Isteg bar the adhesion remains very much higher. With a high bond strength cracks due to age shrinking or to temperature changes can be more or less controlled, for the total cracking is evenly distributed and is not concentrated in one or two large cracks through which the weather could reach the reinforcement. Beams tested to destruction show that this theory is clearly borne out in practice.

•

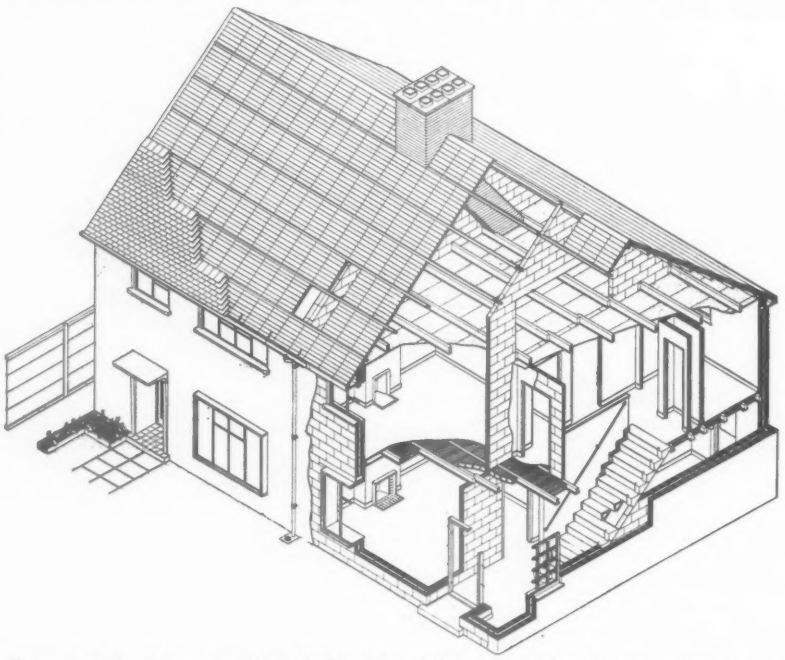
This particular type of reinforcement is not, of course, a thing to be universally applied to every job. Nor do the manufacturers seem to think so. But for many purposes it shows definite advantages both in efficiency and cost. Tables and design data are also available in booklet form.—(*Isteg Steel Products, Ltd., 19 Grosvenor Place, London, S.W.1.*)

MANUFACTURERS' ITEM

A number of local authorities have already decided to continue, or enlarge, their pre-war house building programmes, and between fifty and sixty others are considering doing so. In every case the problems created by the need to conserve timber and metal have been overcome by the utilization of concrete or cement asbestos. In view of this we publish a drawing, issued by the Cement and Concrete Association, showing how a complete house can be built in concrete and yet retain a traditional appearance.

Those items which were hitherto made of wood or cast iron are shown in the form of precast units. Two main features of construction are affected by the characteristics of these units. First, in view of the extra weight of concrete load-bearing partitions in the upper storeys, the inner leaves of the cavity walls must be designed accordingly, but the usual design for foundations is adequate in normal cases. Secondly, since precast units cannot be cut to length to suit site dimensions or adjusted to rectify errors in workmanship, the successful use of the units depends on standardization in planning and precision in construction.

Walls: The walls can be of precast blocks, and lateral



Every item in the construction of this pair of houses is either of precast concrete or cement asbestos. See note on this page.

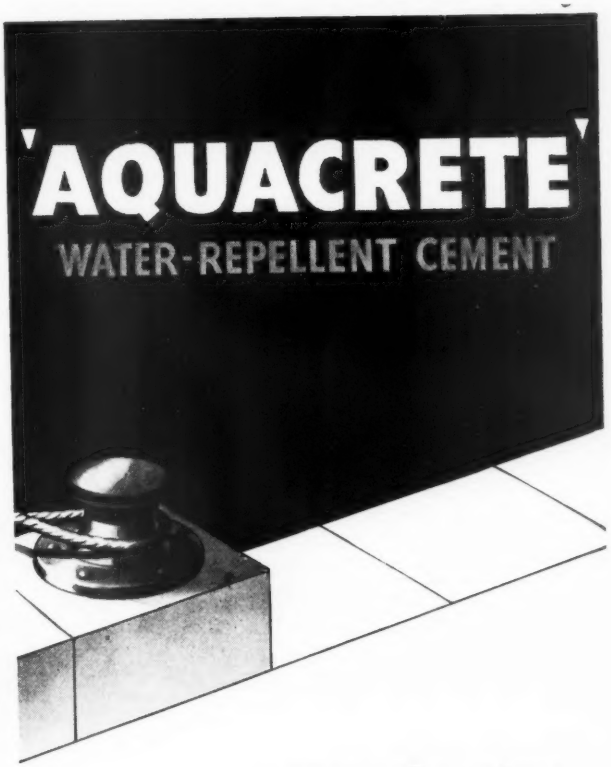
ASHDOWN HOUSE, BERKSHIRE, was built in 1660 by John Webb, sometime pupil of Inigo Jones. Conceived in the deliberately Italianate manner of the early Renaissance architects, its general style shows very clearly the evolutionary trend of the English Classic tradition. Ashdown House is a perfect example of pre-Wren Classicism with its well-proportioned windows and imposing, if rather severe, façade.

FINE BUILDINGS NEED FINE PAINT

DURESCO

THE KING OF WATER PAINTS

THE SILICATE PAINT CO. J. B. ORR AND CO. LTD. CHARLTON LONDON



. . . . saves the time and expense of mixing waterproofing compound with cement on the site.

A BLUE CIRCLE CMC PRODUCT

THE CEMENT MARKETING COMPANY LIMITED

THE CLUB HOUSE, COOMBE HILL, KINGSTON-ON-THAMES

support to them should be considered. This can be obtained by intersecting walls, chimney breasts, or by the introduction of piers. The walls should be carried up to support floors and roof and large span beams should be avoided. Openings in the supporting walls should have concrete lintols.

Floors: For floor construction, in which the main quantity of timber is generally used, several proved methods are now available using concrete units. *In situ* concrete floors can be constructed, but these need formwork. Ground floors in contact with the ground should have a damp-proof course linked with the damp-proof course in the walls. Upper floors should be built with standardized and interchangeable units for economy in manufacture and utility in practice. The spans of concrete joists should not exceed 12 to 14 ft., and the weight of the members should be as small as is reasonable for convenience in handling and setting. Concrete floors should have at least a 4-in. bearing on supporting walls.

Roofs: Flat or pitched roofs can be constructed. The methods described for floor construction can be used for flat roofs, but thermal insulation must be provided by using open-textured, light-weight concrete, or by the use of proprietary insulating boards or slabs.

Staircase: By an arrangement of straight flights set between two walls, staircase construction with precast concrete units is simplified. The walls provide direct support for any form of step and obviate the use of strings.

Partitions: Light-weight construction of partitions can be adopted as usual, but loading due to the presence of partitions should be considered and stronger floor units introduced if necessary.

Cost: The cost of construction by adopting these methods is claimed to be no greater than that entailed by building with traditional materials.

WAGES IN THE BUILDING INDUSTRY

An increase of one halfpenny per hour to all building trades operatives, craftsmen and labourers alike, as from June 1 next, was decided at a meeting of the National Joint Council for the Building Industry held on May 20.

This increase is due owing to the rise in the cost-of-living index figures during the last eight months and is in accordance with the provisions of the National Joint Council's Agreement for the Building Industry dated November 22, 1939. Resolution of the council is given below :—

"That, having reviewed the wages payments in force under the wartime emergency agreement of November 22, 1939, and finding that a variation amendment of the current standard rates is due to be made under that agreement, this council decides that on and from June 1, 1940, the current standard rate of wages shall be adjusted by an *increase* of one halfpenny per hour, and that the same *increase* of one halfpenny per hour shall also be made in labourers' rates."

Resulting from the application of this decision, the authorized grade rates payable on and from June 1 next will be as under :—

Grade Classifications	A	A1	A2	A3	B
Craftsmen... ...	1/9	1/8½	1/8	1/7½	1/7
Labourers ...	1/4½	1/3¾	1/3½	1/3	1/2¾
Grade Classifications	B1	B2	B3	C	
Craftsmen... ...	1/6½	1/6	1/5½	1/5	
Labourers ...	1/2¾	1/2	1/1½	1/1¼	

London District—

Craftsmen: Within the 12-miles radius, 1s. 10½d.; from 12-15 miles radius, 1s. 10d.

Labourers: Within the 12-miles radius, 1s. 5¼d.; from 12-15 miles radius, 1s. 5d.

THE BUILDINGS ILLUSTRATED

VINCENT HOUSE, PEMBRIDGE SQUARE, KENSINGTON, W.2 (pages 555–557). Architects: Stewart and Hendry, FF.R.I.B.A. General contractors: Haymills, Ltd. Sub-contractors and suppliers included: Lawford & Co., asphalt; Bradford & Co., Ltd., reinforced concrete; Proctor and Lavender, facing bricks; Grovebury Brick Co., sand lime bricks; Stent Precast Concrete Co., Ltd., artificial stone; Wellinlith, Ltd., "Wellinlith" slabs; Luxfer, Ltd., pavement lights; Hollis Bros. & Co., Ltd., wood-block flooring; Sealocrete Products, Ltd., waterproofing materials; H. W. Dutton & Co., Ltd., central heating, ventilation and hot water; Aga Heat Limited, Aga cookers; Gas Light and Coke Co., gas-fitting; Earleymil, Ltd., automatic stokers; F. H. Wheeler & Co., electric wiring; A. Grant and Sons, plumbing; John Bolding and Sons, Ltd., sanitary fittings; Runnymede Rubber Co., Ltd., stairtreads and rubber flooring; Taylor, Pearse & Co., door furniture; Rustproof Metal Window Co., Ltd., metal casements; G.P.O., telephones; G. A. Harvey & Co., Ltd., letter chute and dust chute; Hoyle, Robson, Barnett & Co., Ltd., Glazement cement; Clark, Hunt & Co., Ltd., wrought iron; Southerns, Ltd., flush doors; Carter & Co., Ltd., wall tiling; Flexwood Distributors, Ltd., wall-papers; Benham and Sons, Ltd., kitchen and service equipment; Aldous and Campbell, Ltd., lifts.

HOUSE AND GARAGE, STUDLEY, WARWICKSHIRE (pages 558–559). Architect: Francis W. B. Yorke, F.R.I.B.A. General contractors, Harry Wilkes and Sons, who were also responsible for excavation, dampcourses, reinforced concrete, plumbing and plaster. Contractors for drive, Constable, Hart & Co., Ltd. Sub-contractors and suppliers included: Farrers, septic tank; Val de Travers Asphalte Co., Ltd., asphalt; Coleford Brick Co., bricks; E. Hartwell, stone; Allied Guilds, artificial stone; Chas. Wade, Ltd., structural steel; Hinton, Perry and Davenhill, Dreadnought tiles; D. Anderson and Son, Ltd., special roofings and roofing felt; Jos. F. Ebner, Ltd., wood-block and hardwood flooring; Venetian Flooring Co., jointless patent flooring; Mundet Cork Products, cork flooring; J. Ward & Co., Ltd., central heating and bells; Aga Heat, Ltd., Aga cooker; Ideal Boilers and Radiators, Ltd., Ideal boilers; J. Ward & Co., Ltd., electric wiring; Griffin Foundry, Ltd., sanitary fittings; Alfred Brown & Co., door furniture; James Gibbons, casements and window furniture; Henderson's, sliding doors; Harris and Sheldon, staircase joinery; Venesta, flush doors; Ward and Croft, tiling; John Simon, garden and shrubs and trees; East Worcester Water Co., Ltd., water supply.