# THE ARCHITECTS' JOURNAL

*standard contents*

*every issue does not necessarily contain all these contents, but they are the regular features which continually recur.*



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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

| | | |
|---|---|---|
| AA | Architectural Association, 34/6, Bedford Square, W.C.1. | Museum 0974 |
| AAI | Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts. | |
| ABS | Architects' Benevolent Society. 66, Portland Place, W.1. | Langham 5721 |
| ABT | Association of Building Technicians. 5, Ashley Place, S.W.1. | Victoria 0447-8 |
| ACGB | Arts Council of Great Britain. 4, St. James' Square, S.W.1. | Whitehall 9737 |
| ADA | Aluminium Development Association. 33, Grosvenor Street, W.1. | Mayfair 7501/8 |
| APRR | Association for Planning and Regional Reconstruction. 34, Gordon Square, W.C.1. | Euston 2158-9 |
| ArchSA | Architectural Students' Association. 34/36, Bedford Square, W.C.1. | |
| ARCUK | Architects' Registration Council. 68, Portland Place, W.1. | Langham 8738 |
| ASB | Architectural Science Board of the Royal Institute of British Architects. 66, Portland Place, W.1. | Langham 5721 |
| AScW | Association of Scientific Workers. 15, Half Moon Street, Piccadilly, W.1. | Grosvenor 4761 |
| BAE | Board of Architectural Education. 66, Portland Place, W.1. | Langham 5721 |
| BATC | Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1. | Reliance 7611, Ext. 1706 |
| BC | Building Centre. 26, Store Street, Tottenham Court Road, W.C.1. | Museum 5400 |
| BCC | British Colour Council. 13, Portman Square, W.1. | Welbeck 4185 |
| BCCF | British Cast Concrete Federation. 17, Amherst Road, Ealing, W.13. | Perivale 6869 |
| BCIRA | British Cast Iron Research Association. Alvechurch, Birmingham. | Redditch 716 |
| BDA | British Door Association. 10, The Boltons, S.W.10. | Flaxman 7766 |
| BEDA | British Electrical Development Association. 2, Savoy Hill, W.C.2. | Temple Bar 9434 |
| BIA | British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2. | Glasgow Central 2891 |
| BIAE | British Institute of Adult Education. 29, Tavistock Square, W.C.1. | Euston 5385 |
| BID | Building Industries Distributors. 52, High Holborn, W.C.1. | Chancery 7772 |
| BINC | Building Industries National Council. 11, Weymouth Street, W.1. | Langham 2785 |
| BOT | Board of Trade. Millbank, S.W.1. | Whitehall 5140 |
| BRS | Building Research Station. Bucknalls Lane, Watford. | Garston 2246 |
| BSA | Building Societies Association. 14, Park Street, W.1. | Mayfair 0515 |
| BSI | British Standards Institution. 28, Victoria Street, S.W.1. | Abbey 3333 |
| BTE | Building Trades Exhibition. 4, Vernon Place, W.C.1. | Holborn 8146/7 |
| CABAS | City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Borough Architect, Town Hall, Newport, Mon. | Newport 3111 |
| CAS | County Architects Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester. | Chichester 3001 |
| CCA | Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1. | Sloane 5255 |
| CCP | Council for Codes of Practice. Lambeth Bridge House, S.E.1. | Reliance 7611 |
| CDA | Copper Development Association. Kendals Hall, Radlett, Herts. | Radlett 5616 |
| CIAM | Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland. | |
| COID | Council of Industrial Design. Tilbury House, Petty France, S.W.1. | Whitehall 6322 |
| CPRE | Council for the Preservation of Rural England. 4, Hobart Place, S.W. | Sloane 4280 |
| CUJC | Coal Utilization Joint Council. 3, Upper Belgrave Street, London, S.W.1. | Sloane 9116 |
| CVE | Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1. | Reading 72255 |
| DGW | Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1. | Reliance 7611 |
| DIA | Design and Industries Association. 13, Suffolk Street, S.W.1. | Whitehall 0540 |
| DOT | Department of Overseas Trade. 35, Old Queen Street, S.W.1. | Victoria 9040 |
| EJMA | English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1. | Regent 4448 |
| EPNS | English Place-Name Society. 7, Selwyn Gardens, Cambridge. | |
| FAS | Faculty of Architects and Surveyors. 8, Buckingham Palace Gdns., S.W.1. | Sloane 2837 |
| FASSC | Federation of Association of Specialists and Sub-Contractors, 5, Arundel Street, Strand. | Temple Bar 6633 |
| FBI | Federation of British Industries. 21, Tothill Street, S.W.1. | Whitehall 6711 |
| FC | Forestry Commission. 25, Savile Row, W.1. | |
| FCMI | Federation of Coated Macadam Industries. 37, Chester Square, S.W.1 | Sloane 1002 |
| FDMA | The Flush Door Manufacturers Association Ltd. Trowell, Nottingham. | Ilkeston 623 |
| FLD | Friends of the Lake District. Pennington House, nr. Ulverston, Lancs. | Ulverston 201 |
| FMB | Federation of Master Builders. 26, Great Ormond Street, Holborn, W.C.1. | Chancery 7583 |
| FPC | The Federation of Painting Contractors, St. Stephen's House, S.W.1. | Whitehall 3902 |
| FRHB | Federation of Registered House Builders. 82, New Cavendish Street, W.1. | Langham 4041 |
| FS (Eng.) | Faculty of Surveyors of England. Buckingham Palace Gdns., S.W.1. | Sloane 2837 |
| GC | Gas Council. 1, Grosvenor Place, S.W.1. | Sloane 4554 |
| GG | Georgian Group. 27, Grosvenor Place, S.W.1. | Sloane 2844 |
| HC | Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1. | Whitehall 2881 |
| IAAS | Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1. | Sloane 5615 |
| ICA | Institute of Contemporary Arts. 17-18 Dover Street, Piccadilly, W.1. | Grosvenor 6186 |
| ICE | Institution of Civil Engineers. Great George Street, S.W.1. | Whitehall 4577 |
| IEE | Institution of Electrical Engineers. Savoy Place, W.C.2. | Temple Bar 7676 |
| IES | Illuminating Engineering Society. 32, Victoria Street, S.W.1. | Abbey 5215 |

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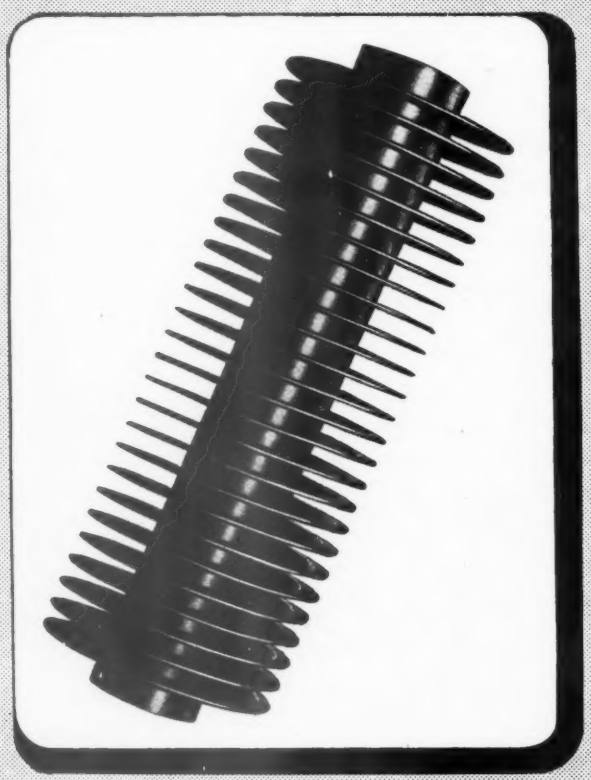

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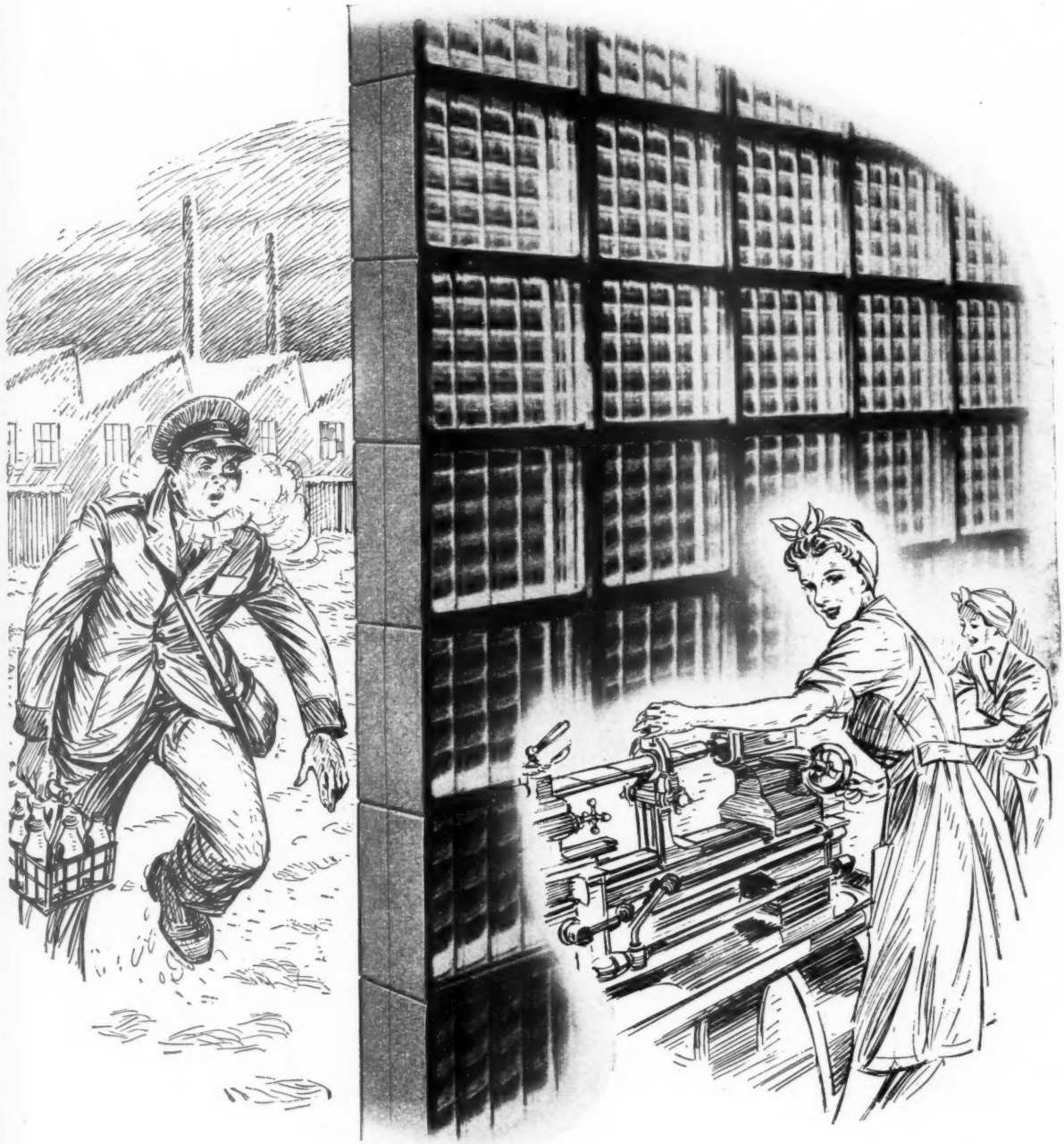

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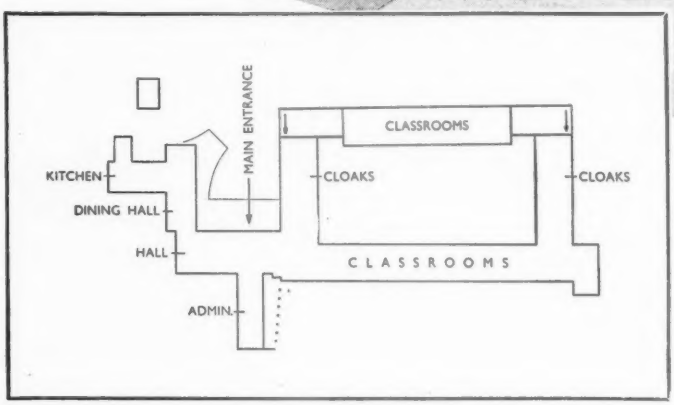


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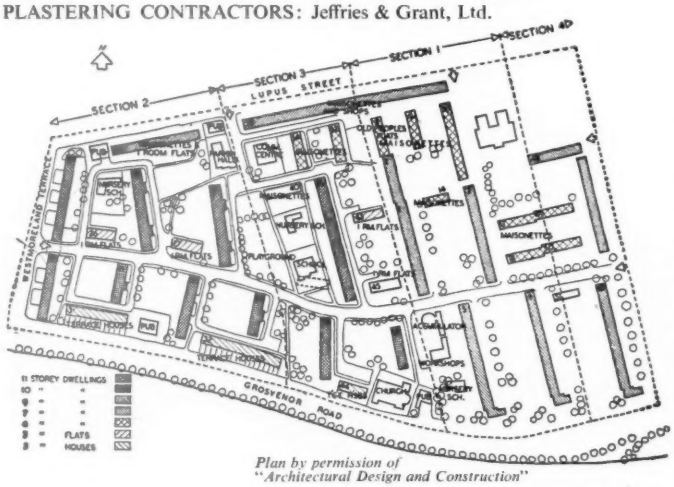


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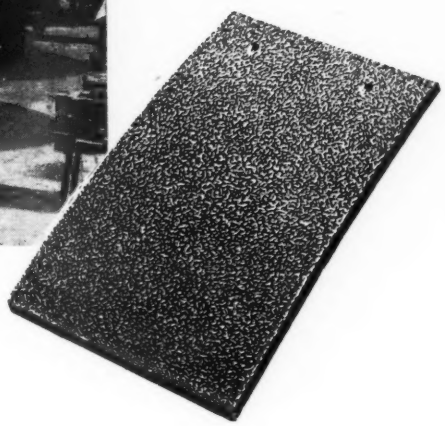

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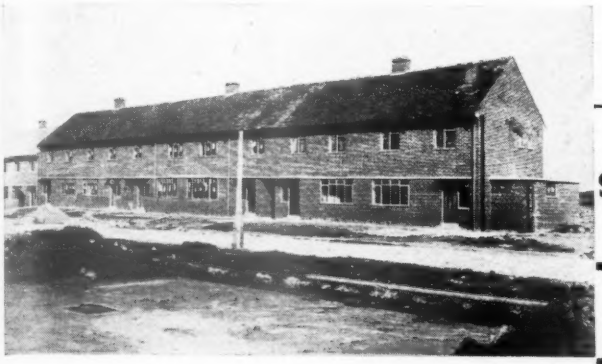

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Contractors: Amalgamated Building Contractors, Ltd.

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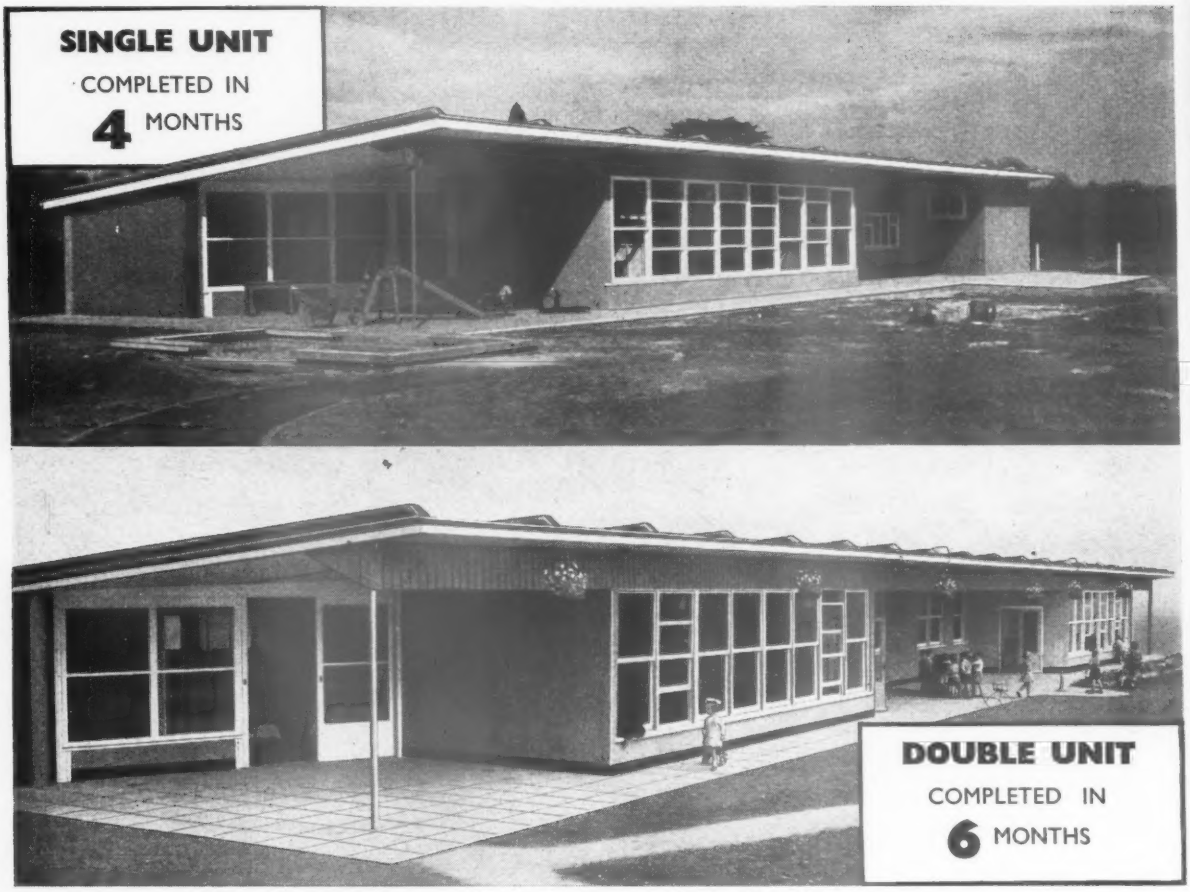


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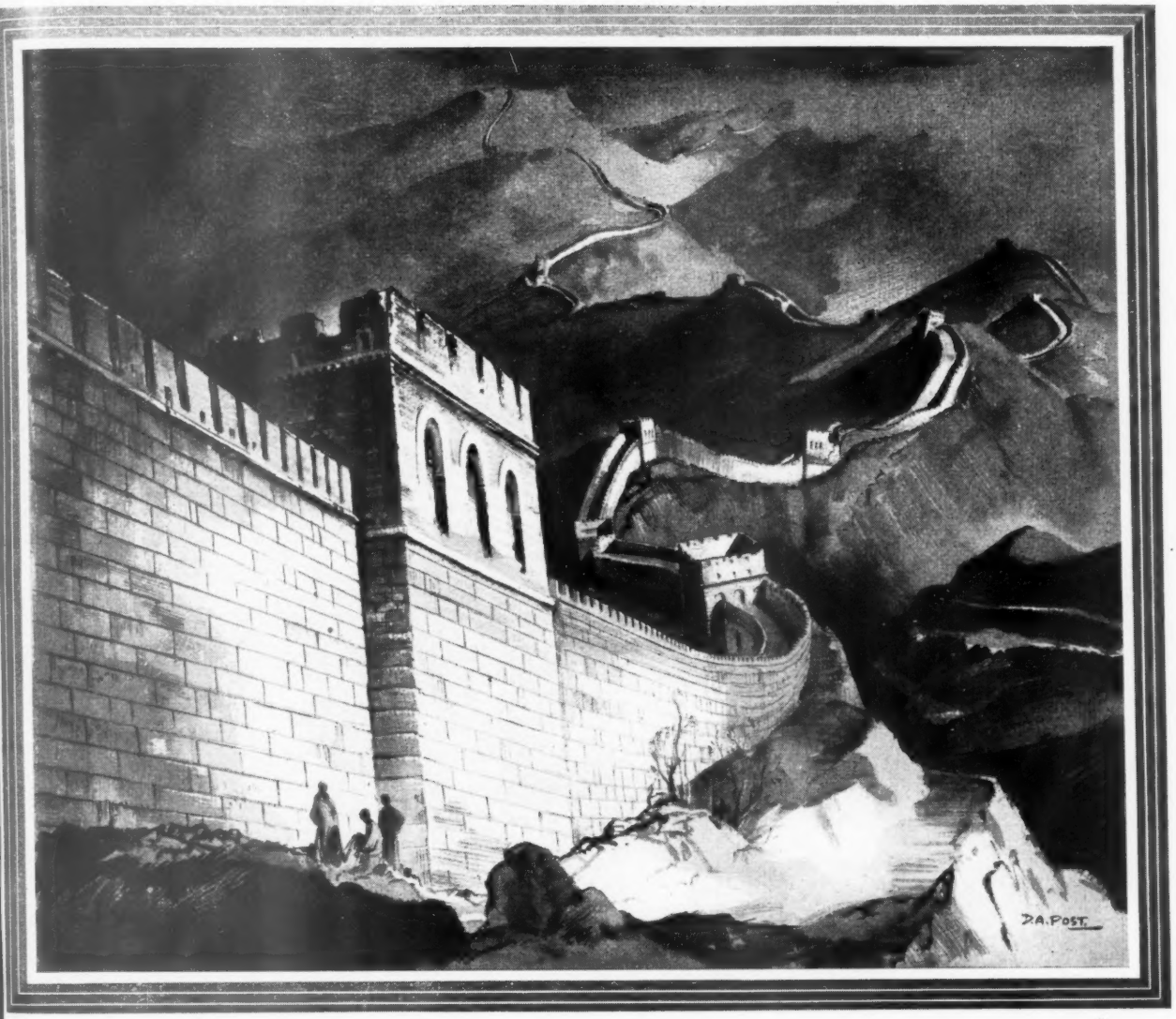


# *Walls – Old and New*

The Great Wall of China, built over 2,000 years ago, winds in an unbroken line for 1,500 miles across mountain country. It is twenty feet high, and has a thirteen feet roadway on top, with a tower every hundred yards. Brick and granite were used as facing materials, but the wall is filled with earth.

The great architects of the past have left enduring monuments to their skilful choice of materials to meet the demands of those days.....

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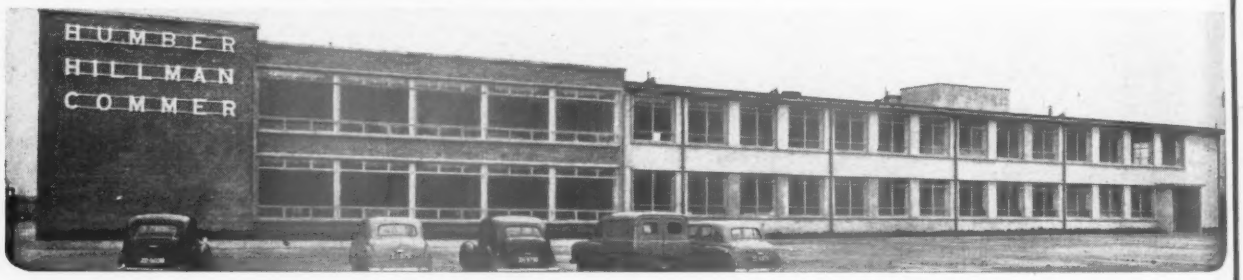


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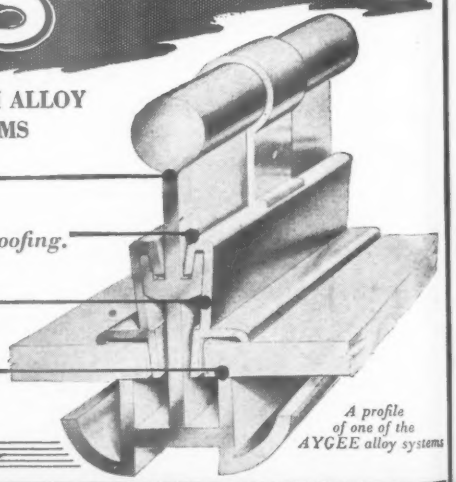

*A profile of one of the AYGEE alloy systems*

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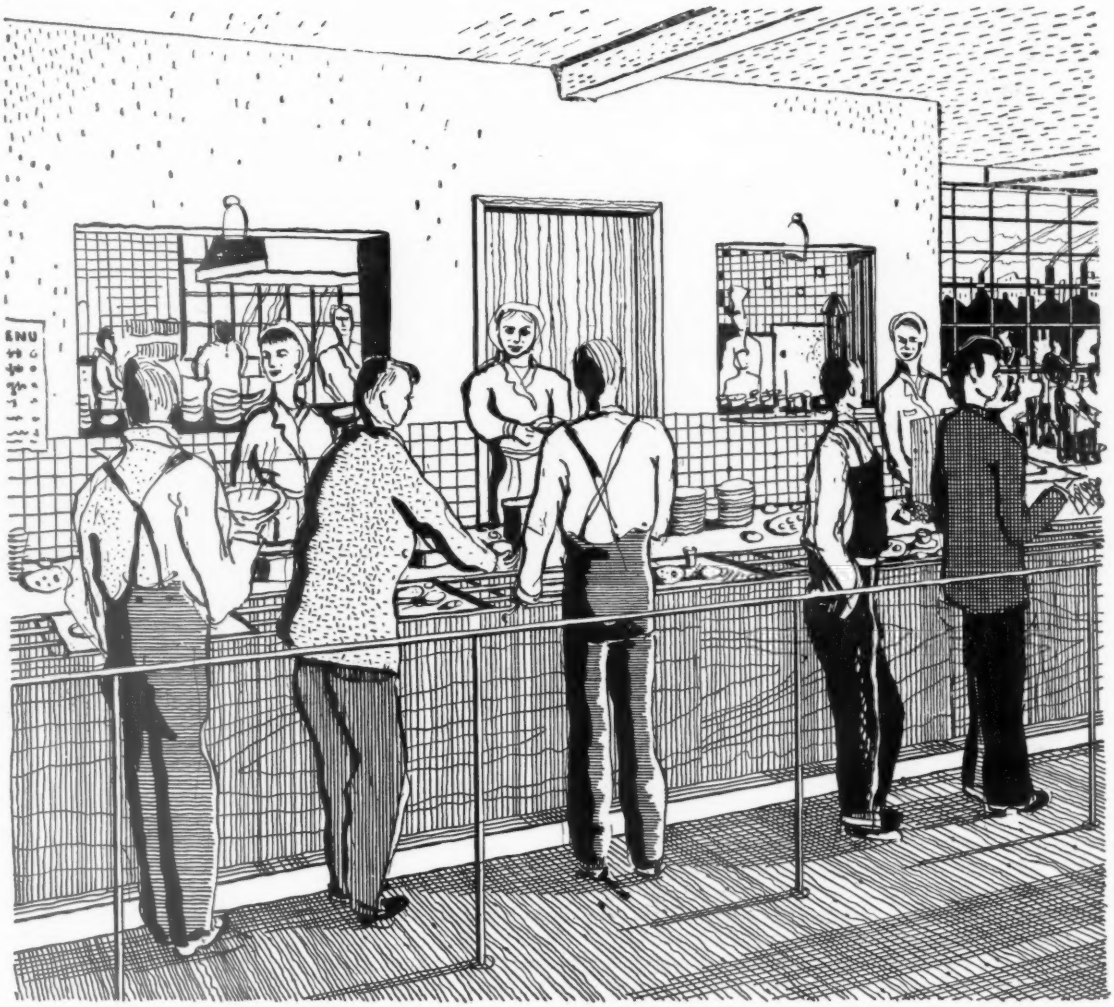

# The contribution of GAS to canteen service

You might imagine that the interest of local Gas Undertakings in factory canteens and tea bars would be confined to supplying the gas for cooking, water heating, and refrigeration. In fact, their interest goes much deeper. They provide a great deal of information for the provision of catering services. They are often consulted about such things as basic layout, the size and form of storage space, provision for the preparation of food, and the problems involved in providing efficient service at counter or table. In short, they do everything in their power to ensure that where gas is used, it is used to the best advantage and, in the Nation's interest, economically and wisely.

*Helpful information on the many aspects of providing efficient services for cooking, hot water, space heating, and refrigeration, for all types of buildings, may be obtained from local Gas Undertakings.*

**GAS**

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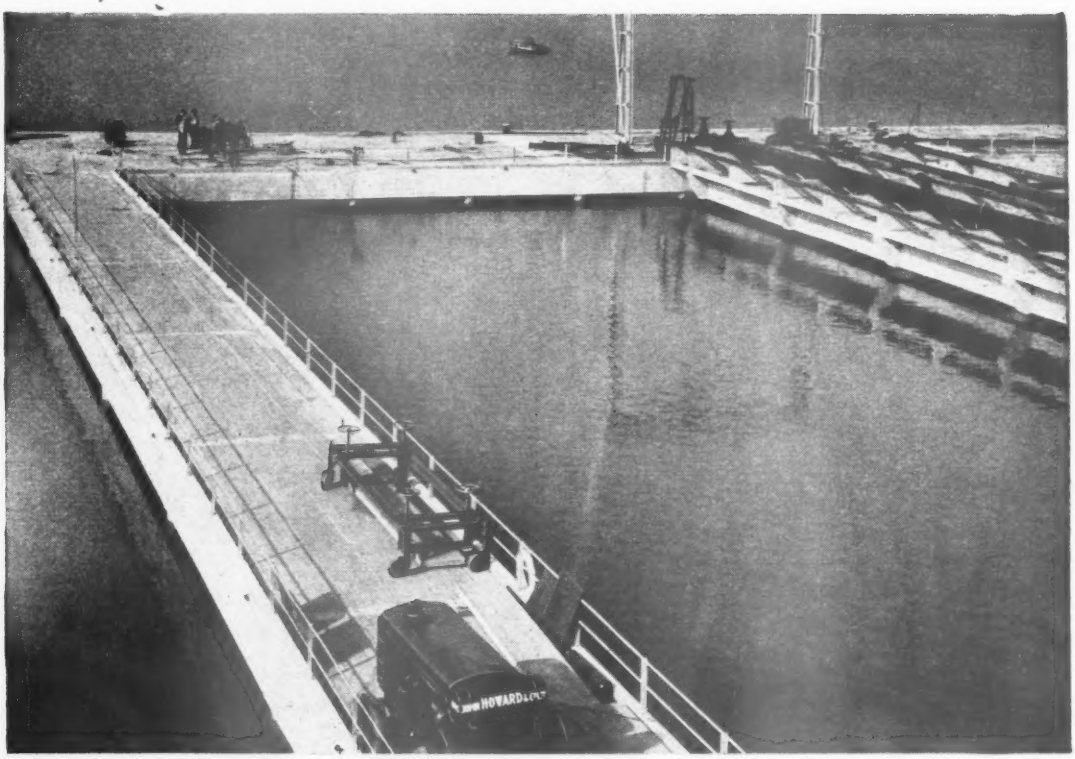
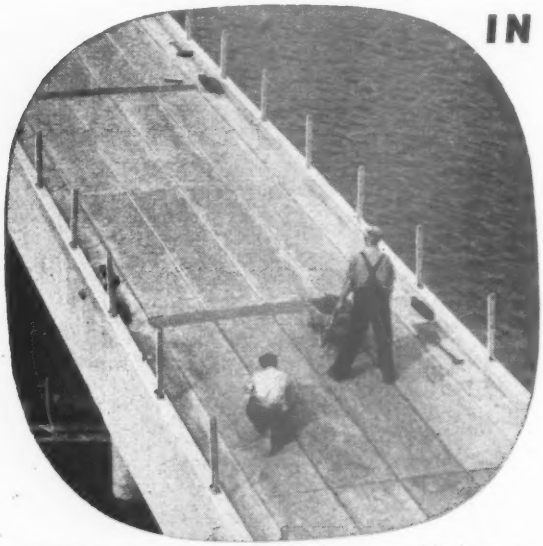


# Prestressed Concrete

## IN DOCK & HARBOUR DEVELOPMENT



Dow-Mac prestressed concrete decking slabs were used in the reconstruction of this jetty at Queen's Dock, Swansea, for Anglo-Iranian Oil Co. Ltd. (Messrs. Rendel, Palmer & Tritton—Consulting Engineers. John Howard & Co. Ltd.,—Contractors).
Photographs by courtesy of National Oil Refineries Ltd.

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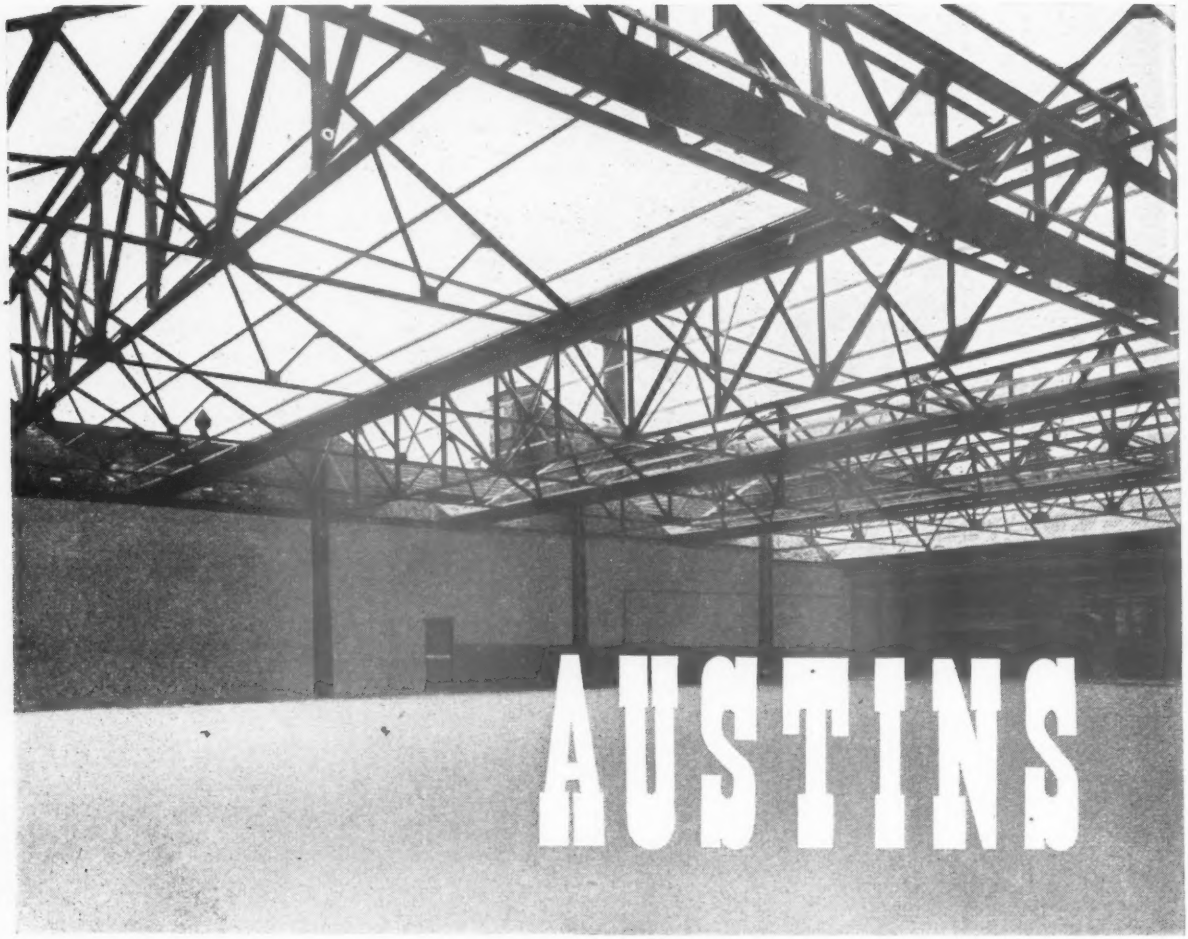


*Bus Garage extension for Hebble Motor Services Ltd., Halifax*

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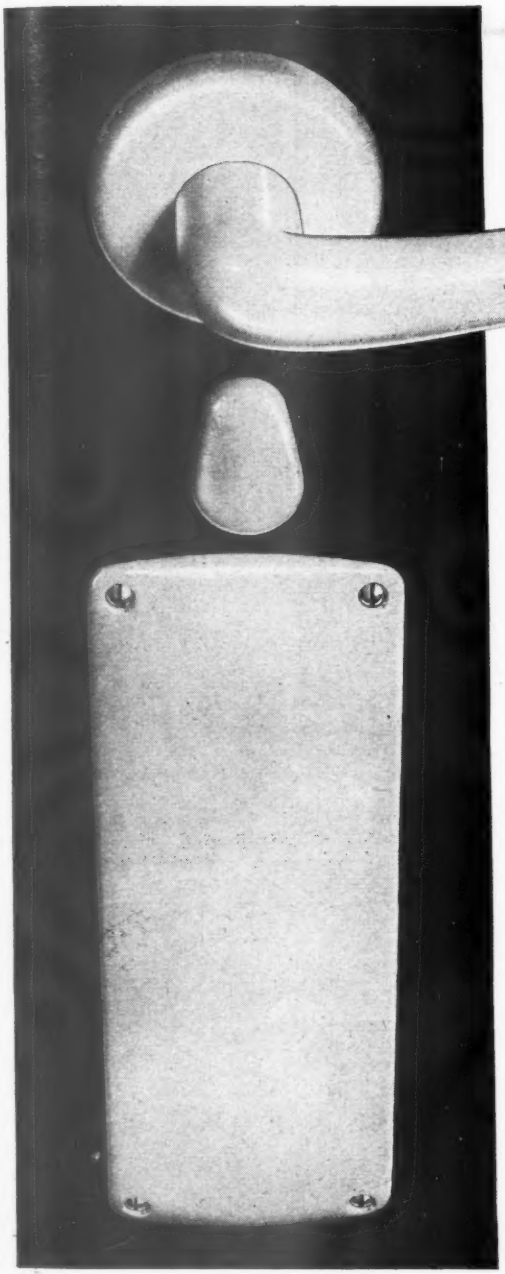
Roof of Ronaldsway Airport, I.O.M. screeded with "KISOL" Vermiculite.

"KISOL" Vermiculite Concrete is esteemed by architects and builders because its absence of joints and low temperature-movement make it an ideal base for final waterproofing.

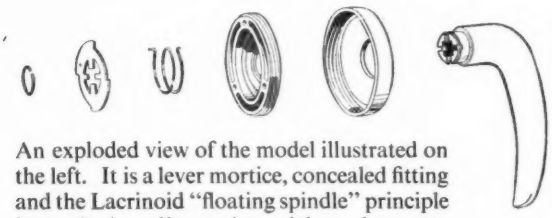
**WILLIAM KENYON & SONS LIMITED**

DUKINFIELD — INSULATION ENGINEERS — CHESHIRE



# *Function and beauty*

Lacrinoid door furniture is made primarily to do it's job. At the same time it is pleasant to the hand and a delight to the eye. Shapes are simple and the beauty of the restrained curves is enhanced by reflected light.



An exploded view of the model illustrated on the left. It is a lever mortice, concealed fitting and the Lacrinoid "floating spindle" principle is used, thus dispensing with grub screws (No. 280).

The back view of the finger plate illustrated on the left showing the reinforcement. Being mass produced these plates are cheap as well as sound. Supplied in two sizes (No. 1064/3).

*Colours*
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IVORY


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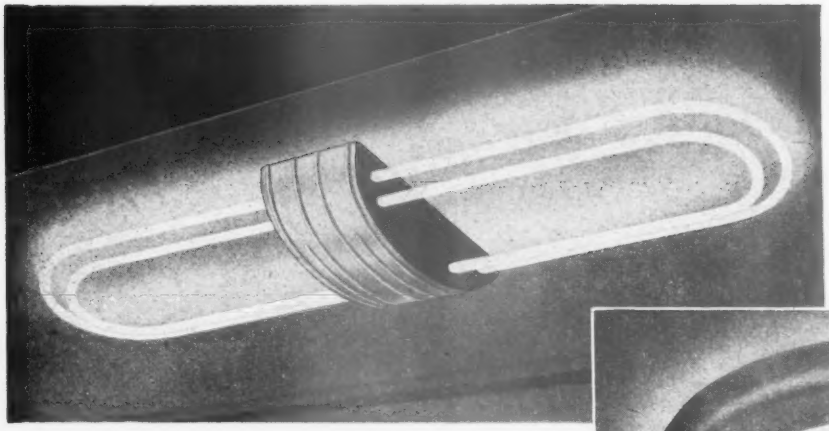
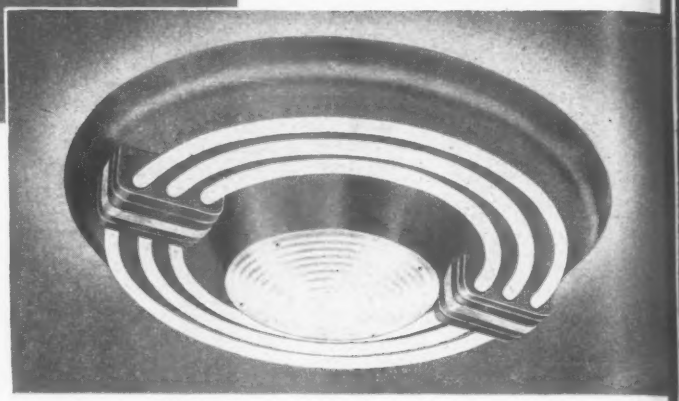
LACRINOID PRODUCTS LTD · GIDEA PARK · ESSEX · *Hornchurch 2981*



# MEICO *Cold Cathode* LIGHTING



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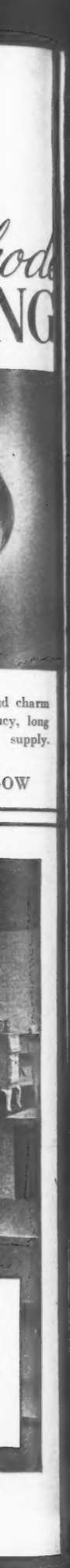

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*The illustrations are of a recent conversion at Abbey House, Victoria, London, S.W.1. Architects: Boreham Son & Wallace, London, W.C.1 Contractors: Lewis Bros. (Kings Cross) Ltd. London, N.W.1*

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AJ

THE ARCHITECTS' JOURNAL

No. 2969 24 JANUARY, 1952 VOL 115



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NO TRIBUNAL

I referred recently to Anthony Chitty's letter to the Press in which he raised the hopes of some of the senior ex-service students in the recognized schools. The RIBA, although not prepared to reconsider its new regulation regarding twelve-months post-graduate office training, prior to the granting of the Associateship, would at least—wrote Mr. Chitty—consider the possibility of a tribunal to deal with cases of hardship. In many offices the salary difference between a man with ARIBA after his name and another man without the magic letters, is considerable.

*

However, the RIBA's answer is a dusty one. No tribunal! I revert to the subject mainly because so many people—intentionally or unintentionally—fog the argument every time by upholding the intrinsic merit of the new regulation. But that has never been in doubt; it is the manner of introducing it that is questionable. Students still in the schools were told—when they decided to become architects—that five years training lead to the associateship, and many no doubt calculated their commitments very carefully. Now they feel let down.

*

One does not like to talk about "broken promises" where the RIBA is concerned, but it seems to me that the Institute is in a tricky position and that the issue is moral, not educational. It would have been so easy to bring in the new regulation progressively for new students only. Now, as always, retrospective legislation will cause injustice and bitterness. In some centres the students are, I understand, seeking counsel's opinion.

BIRMINGHAM . . .

One of the most wide awake student groups in the country is in Birmingham. In one way or another it is always bobbing up. (The group recently took over from the AA that highly seditious and intelligent journal, *Plan*.) And now the Birmingham boys write to tell me they don't like the new development scheme for their home city. I have only had a glimpse of it—it will no doubt be dealt with more fully in the JOURNAL in due course—and my sympathies are with them. Three of them, Messrs. Bailey, Winteringham and Lee, produced a much better one themselves; it was published in *The Architectural Review* last February.

*

Admittedly, Birmingham is a tough nut for the planner. The contours lie diagonally across the centre, and there is an exceptional quantity of bad "civic monumental" littered around in a pretty permanent way. The plan published in the *Review* exploited the possibilities inherent in the great canal basins. Hansom also struck a sound note when he placed his "Temple of Jupiter Stator" on the plateau—a plateau that ought to have become an acropolis, but never did. The visual results of a century of Chamberlainism are gloomy: a city of lost opportunities and considerable architectural complacency.

. . . AND COVENTRY

If the Birmingham students are slightly ubiquitous, the same may be said of their principal, Douglas Jones. The first of Peter de Francia's TV shows, which I mentioned a few weeks ago, went on the air this week, with Douglas Jones, Donald Gibson and Coventry officials discussing a film and a model of the new Coventry. If this is the beginning of a serious approach to architecture on television it is, at any rate, a good beginning.

*

It would, however, be interesting to know how many viewers switched off when the programme was announced. A good number, I suspect. That doesn't matter; if the Alexandra Palace boys want to entertain all the people, all the time, they might as well commit suicide. Only a ruthlessly Reithian policy can save TV now. A good sign is that the possession of a TV set is something which—in defiance of all known sociological and anthropological laws—is creeping up the social strata. The only other things that ever did that, were, I think, darts and beer—and they were more in the nature of whimsy revivals. Inciden-

tally, I still haven't got a TV set myself—a snob ploy I shall still be using when it belongs to the past.

*

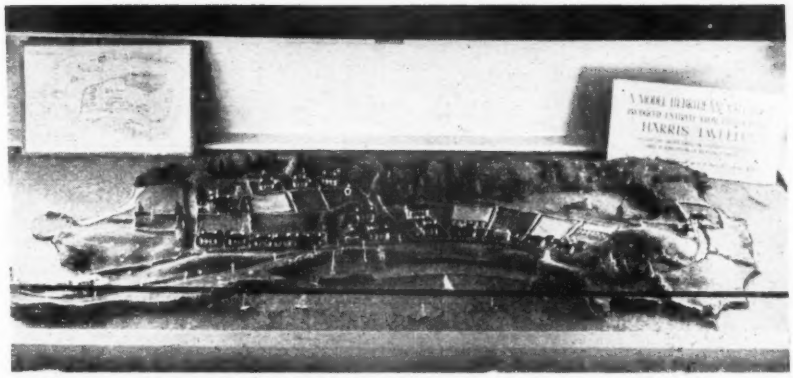
Before I get too far away from the subject of Coventry: Basil Spence tells me that the latest modifications to his design for Coventry Cathedral will be the subject of even more study. I saw him in London on his return from France: he had been discussing with Graham Sutherland the design for the great tapestry which, you may remember, forms the background to the altar. Spence, looking—as the news reels used to say of the Prince of Wales—bronzed and well, found Sutherland as interested and excited as himself in the project, and if you know Spence you will know what *that* can mean. Presumably the Reconstruction Committee will, in due course, have to approve the tapestry designs before they are accepted, but I think most people will agree that no better choice of artist could be made.

STANDARD HANDICAP

The bogy of standardization dictating the final design has been with us for years, and the RIBA has now formulated a policy which seems to make the best of both worlds. *No* objection to fittings and components which don't dictate the design of the final competition. Doubt over the larger units such as windows, thought the Institute will help to standardize details which will allow "the greatest possible variety of combination." For those who feel cramped by BSS it is always worth remembering that one never *has* to use one, though it's sometimes a bit difficult not to. The next thing we want, is a standardized system of bye-laws.

WHERE IS OUR TARGET?

In all the special New Year numbers which come out round about now there are always very careful reviews of the past year's designs or books or social events, but hardly anything about the building industry as a whole. Surely it is most important for us all to know whether our clients are getting value for their money. If productivity in the building industry has gone down is it *our* fault for being slow with drawings or allowing too many alterations, or is the building operative working less hard—or can we blame material shortages?



*At Harrods can be seen this model Hebridean village, incorporating "a modern planning conception" and made entirely from snippets of Harris tweed. Unsophisticated Art? Perhaps; certainly more forgivable than the village shown on page 117.*

The operatives, I see, have just got another 1½d. an hour under the sliding scale agreement, and the employers are still thinking about the demand for an extra 6d. all round. What will happen I don't know, and anyway it's really the employers' job to step up output. But is there anything we can do ourselves? First of all, we must be quicker with drawings even if this resolution is far easier to make than it is to keep; we could also make it clear to our contractors that we would be pleased, not resentful, with suggestions for helping the job along, and we might all try to be a little tougher with clients, who always want to see excavations starting the day after the contract is signed. If only I could sell the idea to a client I would *forbid* the contractor to start until after a six-week pause for thinking ahead.

TWENTIETH CENTURY BATTY LANGLEY

You'll find reprinted in this issue (pages 118-124) Frederick Gibberd's recent talk at the RIBA on *Expression in Modern Architecture*. I am glad to learn that it is in full, partly because unfortunately I was unable to stay until the end of the talk (owing to the RIBA's trick of combining two major events on one evening—an address, and the announcement of RIBA prizes and studentships), but mainly because I am told that Gibberd had to cut his address owing to shortage of time.

*

"After the initial process of pure invention," said Mr. Gibberd, "the task in design is the less spectacular one of refining the accepted solutions and assembling them in new ways . . . That is the position today." These are fighting words. Are there, I wonder, any militant functionalists left in the profession to dispute them? They also make sad news for those architectural escapists who, given a chance, retreat into the wordy mists of "first principles" to find excuses for never making up their minds.

*

But what is Gibberd really doing? He is, to my mind, preparing the way for the contemporary equivalent of the eighteenth-century pattern book. Are you aghast at the idea? Think again. Is not the constant search for startling originality in design by ordinary chaps like you and me often a waste of time and energy? Won't the ordinary architect (and particularly the architectural assistant and the student) profit from having a guide which will help him to avoid "the superficialities of modern architecture being applied to a building in a crude and often barbarous manner"?

*

Of course there will always be an *avant garde*. They are the pioneers forming the elements which will provide the material for the pattern book. They will not themselves make use of it, and here, perhaps, is the rub. With the speed of technical developments today architectural pattern books will be needed every few years—too quickly, perhaps, to be absorbed by the general run of architects.

*

And for those who laugh all this to scorn, please note that a kind of pattern book has already been devised, in an elastic, elementary form, and is being *used* every day without embarrassment by really quite well-thought-of architects on the Hertfordshire schools. So watch out, you determined individualist. You are being attacked from two sides.

# *Guest Editors for 1952*

As announced on the facing page, the JOURNAL is continuing its policy of inviting annually a new member to the editorial board as a guest editor for one year. For this year the subject which the JOURNAL has chosen for study is the problem of public architecture. Contrary to previous practice, there will not be just one guest editor but a group of four. The group of guest editors, photographed above in the private pub of *The Architectural Press*, are, from left to right, Robert Matthew, architect to the London County Council; Donald Gibson, city architect and planning officer of Coventry; Stirrat Johnson-Marshall, chief architect to the Ministry of Education; and Robert Gardner-Medwin, chief architect and planning officer to the Department of Health for Scotland. For brief biographies see page 118 and 119.

CASTS OFF

I was distressed to find that the plaster cast section of the Victoria and Albert has closed down. That is to say, the actual making of casts has already stopped; the remaining stock is being sold off and will not be replaced.

*

Who's to blame? Not so much Herbert Read and his free-expressionist boys and girls, I fancy, as our rulers, who ridiculously levy 100 per cent. purchase tax on casts, although the educational institutions which buy most of them have to do so out of their grants from the State. No trade based on highly skilled craftsmanship can be expected to survive difficult conditions so ingeniously aggravated.

*

Whatever your views, dear reader, on education through, in or in spite of art, you will, I'm sure, spare a thought for Mr. Murphy, casts foreman at the V & A, and his assistants, whose occupation has gone. But of course the thing comes nearer home than that—right into the sitting room in fact—for casts, as many of us know, have a decorative as well as an educational value. The only plaster cast service now, to my knowledge, is the British Museum's. Don't tear off Bloomsburywards before everyone else gets to hear of it, though: they won't accept your order for five months.

FESTIVAL POSTSCRIPT

Of all the bouquets that have been flying around in the last few weeks—most of them aimed at Festival Figures of one kind or another—not one, I think, has yet landed in the laps of Harrison & Seel, the supervising architects of the Festival Pleasure Gardens. This is, perhaps, understandable, because so much of their visible work was of necessity unglamorous—lavatories and drains, and roads and offices—and what is not visible, *i.e.*, site organization, progress meetings and contracts, is always taken for granted.

*

But understandable or not, it is certainly unjust that these architects—to whose ingenuity and patience many artists and designers owe, if nothing else, the stability of their fantasies—should be overlooked. ASTRAGAL has pleasure in sending a warm, if belated, posy in their direction.

ASTRAGAL

## POINTS FROM THIS ISSUE



## The Editors

### GUEST EDITORS: 1952

MANY crucial problems have arisen from the tendency, characteristic of our time, for an increasing proportion of building work to become the responsibility of public architectural offices and for an increasing proportion of the profession to be engaged in public architecture. These problems have been chosen by the JOURNAL for special study during 1952.

At the beginning of 1950 and 1951 the JOURNAL undertook, during the course of the ensuing year, to pay systematic attention to some controversial topic, and appointed a specially qualified guest editor to its editorial board in order to give advice, experience and ideas. The first guest editor was Raglan Squire, who conducted in the JOURNAL's columns a vigorous discussion of the problems of private practice—especially group practice—as they face the younger architect in today's circumstances. The second was Frank Russon, a building contractor of some standing in the Midlands, who, during the past year has put at the JOURNAL's disposal his experience of co-operating with architects and his ideas as to how building organization could be improved in the interest of better architecture.

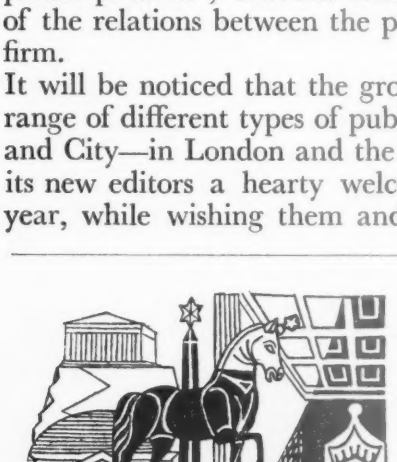
The even more ambitious subject of public architecture is not easily dealt with by a single guest editor, because public offices are of many kinds and few men have experience in more than one or two; also because those best qualified to discuss the subject themselves occupy official positions and might find it difficult to speak their minds freely without embarrassing those that employ them. Their position becomes less invidious, however, and the difficulties therefore less, if the guest editor is a group, not an individual, since the members of a group can pool their experience and put forward ideas and opinions collectively.

The JOURNAL has therefore invited a small group of official architects to act as its guest editors for 1952, and has had the good fortune to obtain the services of several of the most distinguished men in the country in this branch of the profession. Its editorial board is temporarily to be enriched by the presence of Robert Matthew, architect to the London County

Council, Robert Gardner-Medwin, chief architect and planning officer to the Department of Health for Scotland, S. Johnson-Marshall, chief architect to the Ministry of Education, and Donald Gibson, city architect and planning officer of Coventry.

That so eminent and hard-worked a body of men is willing to give time and energy to guiding and inspiring the JOURNAL's discussions about public architecture is a measure of the subject's importance today. With their help, and based on their experience, a series of discussions in the coming year will deal (in the realistic terms the guest editors' long experience of official practice will make possible) with many aspects of the subject, ranging from questions of organization, such as the allocation of individual responsibility for particular jobs within public offices, to questions of education, such as the need for changes in the training and experience a young architect should be given in view of the new emphasis on public practice ; and not omitting the always vexed question of the relations between the public authority and the private firm.

It will be noticed that the group named above covers a wide range of different types of public office—Government, County and City—in London and the provinces. The JOURNAL gives its new editors a hearty welcome, and promises them a busy year, while wishing them and its readers a profitable one.




*G. Stuart Alderson, A.R.I.B.A.*

*John McNicol, A.R.I.B.A., M.T.P.I., A.R.I.C.S.*

*J. M. Aitken, A.R.I.B.A., A.M.T.P.I.*

## Housing Subsidies in Northern Ireland

SIR,—As an official architect who does not engage in private practice, may I reply to Mr. Singer's allegations against those of my colleagues who devote part time to official duties and part time to private work.

The cases of professional conduct quoted, though ultimately qualified as being infrequent, nevertheless involve both Northern Ireland and England and thus cast indiscriminate suspicion on many members of the profession. I feel that to use such terms as "lip-service" and "collusion" and to infer that some council architects are being bribed to pass inferior work is, to say the least, offensive. The allegations are, in any case, pointless with regard to subsidy houses as the Ministry of Health & Local Government would not accept the plans in the circumstances outlined.

I must, in all charity, assume that Mr. Singer has at least one fully authenticated case to support his allegations and if this is so I would respectively suggest that on a point of professional etiquette it would have been better to deal with the specific case through recognized channels rather than infer a more widespread corruption.

G. STUART ALDERSON.

Portadown.

SIR,—I refer to a statement in a letter addressed to you by J. M. Aitken of the Ministry of Health and Local Government in Northern Ireland on the above subject, and printed in your correspondence column in your issue of December 13.

The statement to which I refer reads as follows: "I do not agree with Mr. Cole's allegation about planning weaknesses in Northern Ireland. Planning authorities have adequate powers to control the layout and architectural character of building, powers which they use extensively."

It is evident from his letter that Mr. Aitken appreciates the importance of facts, and the facts with respect to planning in Northern Ireland are entirely at variance with the statement from his letter above quoted.

The principal Planning Act in Northern Ireland, whilst preserving, in its outward form, a semblance to the coeval and parallel Acts in Great Britain, differs from these precisely in lacking the features which would enable it to be operated as an efficient instrument of planning for the general good of the community. For example, the Ministry has not seen fit yet to produce model clauses for the guidance of the public and local authorities in the preparation of Planning Schemes under the Northern Ireland Planning Acts, and the schedule of matters which would *prima facie* be free from the payment of compensation includes only a fraction of the matters which were so dealt with under the contemporary Acts in Great Britain.

As a result, frustration in planning is complete in Northern Ireland, and I am prepared to demonstrate this to Mr. Aitken on a public platform in this city, in unrehearsed debate, and I throw out this challenge, not in my official but in my private professional capacity, in which I also write this letter.

JOHN MCNICOL.

Belfast.

## Mr. Aitken Replies

Without a single model clause
Our planners feel frustrated;
But we believe in simple lause
Coeval, uninflated.

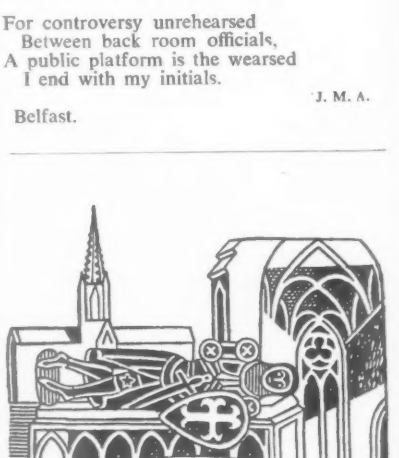
Control of user and design
Is done *sans* compensation.
To pass this reasonable lign
Is sheer expropriation.

From Antrim's green and pleasant coast.
Where planning is McNicols.
The lour uncompensated hoast
Lodge their appeals in trichols.

For controversy unrehearsed
Between back room officials,
A public platform is the wearsed
I end with my initials.

J. M. A.

Belfast.




## MOHLG

### *House Plans Published*

The Minister of Housing and Local Government, Harold Macmillan, has sent to all local authorities in England and Wales a copy of "Houses, 1952," which is published by

HMSO (price 1s., by post 1s. 2d.). This new supplement to the "Housing Manual, 1949," contains plans of the type of house which the Minister would like local authorities to build in 1952 in order to get more houses from a limited supply of materials, labour and capital, and to reduce capital costs and rents. The plans were published in the JOURNAL, with a critical analysis, on December 20, 1951.

## RIBA

## *Prizes and Studentships*

The results of the various RIBA competitions for 1951, which have not already been announced, are as follow:—

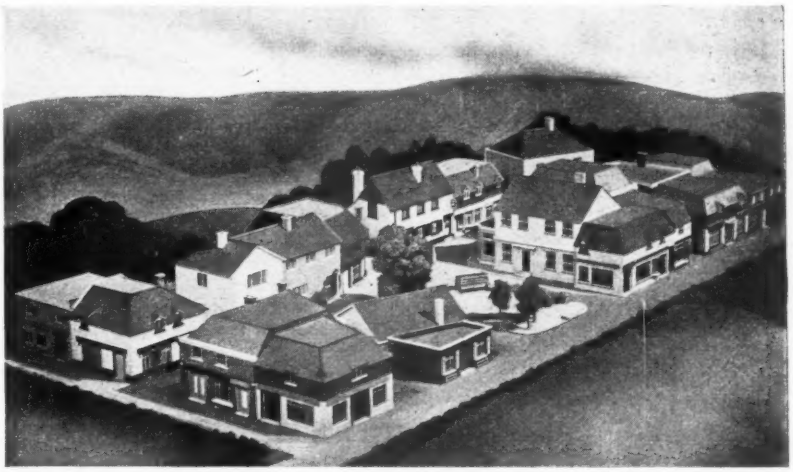
*The Tite Prize, a Certificate and £100 for the Study of Italian Architecture.*—Subject, "A Chapel of Ease for a Roman Catholic Community." Award to "Dionysius," D. M. McDonnell, probationer, Cambridge University School of Architecture. *The Owen Jones Studentship: A Certificate and £100, for the improvement and cultivation of knowledge of the successful application of colour as a means of architectural expression.* Award to "Zodiac," D. Radford, student RIBA, Birmingham School of Architecture. *The Andrew N. Prentice Bequest: A Certificate and £150 for the Study of Spanish Architecture.* Award to G. E. Michell, A.R.I.B.A., Architectural Association School of Architecture.

*The Royal Institute Silver Medal and £50 for an Essay.* Subject, an essay entitled "The Architect and His Profession in Byzantium." Award to "Angelo," H. A. Meek, B.A.(ARCH.) (MANCHESTER), A.R.I.B.A., Manchester University School of Architecture. Certificate of Honourable Mention awarded to "Ragbolt," E. H. Jamilly, DIP.ARCH (The Polytechnic), A.R.I.B.A., School of Architecture, The Polytechnic, Regent Street, London, for an essay entitled "The Life and Work of George Basevi, 1794-1845." *The Banister Fletcher Silver Medal and £26 5s. for the Study of History of Architecture."* Subject, "The Maritime Architecture of the 18th Century." Award to "Columba," J. B. Lehrman, probationer, Department of Architecture, The Northern Polytechnic, London. *The Ashpitel Prize,* 1951. Name to be announced later. *The Rome Scholarship in Architecture,* 1951. Offered by the RIBA and awarded by the Faculty of Architecture of the British School at Rome. Not awarded. *The RIBA Silver Medal and £10 in Books for Students of Schools of Architecture Recognized for Exemption from the Final Examination,* 1951. Award to J. S. Bonnington, student RIBA, School of Architecture, King's College, Newcastle-upon-Tyne.

*The RIBA Bronze Medal and £10 in Books for Students of Schools of Architecture Recognized for Exemption from the Intermediate Examination,* 1951. Award to D. H. Herd, probationer, School of Architecture, Edinburgh College of Art. *The Archibald Dawnay Scholarships,* 1951: *Three Scholarships of the Value of £60 each for the Advanced Study of Construction.* Scholarships awarded to I. R. Langlands, student RIBA, Department of Architecture, The Northern Polytechnic, London; B. G. Jones, student RIBA, School of Architecture, Nottingham College of Arts and Crafts; H. B. P. Watson, student RIBA, Robert Gordon's Technical College, Grays School of Art, Aberdeen.

*The RIBA Henry Jarvis Studentship at the School of Architecture. The Architectural Association,* 1951: £50. Award to G. J. Briggs, student RIBA, Warwickshire; and A. K. Allen, student RIBA, London.

*The RIBA Howard Colls Travelling Studentship at the Architectural Association,* 1951: £15 15s. Award to D. B. Duck, Surrey. *The RIBA Donaldson Medal at the Bartlett School of Architecture, University of London,* 1951. Award to R. J. Fisher, student RIBA, Sussex. *The RIBA Prize for Art Schools and Technical Institutions with Facilities for the Instruction of Intending Architects (£10 in Books),* 1951. Award to P. W. Honer, probationer, Surrey. *The RIBA Prizes for Public and Secondary Schools.* These prizes are of a total value of £10 10s. They are offered for an essay of not more than 1,000 words or for sketches or scale drawings of a building or part of a building. (*a*) Essays. No entries. (*b*) Sketches. (1) A prize of £7 7s. to Ian C. Thornton, The Grammar School, Manchester, for his drawing of Baguley Hall, Lancashire; (2) a prize of £3 3s. to J. Hendry, the Grammar School, Northampton, for his drawings of Kingsthorpe Church, Northants.



*The* Daily Mail *"Ideal Home Exhibition" which, as readers will be aware, has helped to direct public taste in matters of rustic nurserymanship and ornamental misnomers, has this year turned its attention to housing layout. The model shows the village which will take all the space in the National Hall, Olympia, at this year's exhibition (March 4-29). This village, which was described to a* JOURNAL *representative at a Press view as a compromise between the olde-world and the modern, was designed by architects, Trevor Smith and Norah Glover. Apart from two houses and an old people's home (facing each other on the left of the village green), which were designed by the MOHLG, the houses and shops were designed by private enterprise builders. The public house (distinguishable by its sign) is the work of architect S. H. Fisher, who designed it for the Brewers Society. And the detached house in the far corner of the model was designed by W. M. Carter.*

*Part of the new showrooms for Block and Anderson, Ltd.'s office machinery, in Kensington Church Street, W. 8, designed by Chesterton and Sons (designer in charge, D. W. Willoughby). Woodwork is sapele mahogany; parquet flooring is Eastern Sicipura; walls are green rexine. Lighting is by concealed cold cathode. Radiators are concealed in counters (used for storage) on which the machines displayed harmonize in colour with the grey and green of the showroom.*

## THE JOURNAL'S GUEST EDITORS FOR 1952:

### S. A. W. JOHNSON-MARSHALL

*S. A. W. Johnson-Marshall, born in 1912, was trained at the Liverpool School of Architecture from 1930 until 1935. On leaving he worked as an assistant architect for the Borough of Willesden for three years. In 1938 he went as Chief Assistant Architect under Donald Gibson, the Deputy County Architect, to the Isle of Ely County Council. In 1938, when Donald Gibson became City Architect of Coventry, Mr. Johnson-Marshall became Deputy County Architect. In 1939 he joined the Territorial Army, and during the war worked in the Royal Engineers on the development of equipment concerned with camouflage and deception. This work allowed considerable freedom for design and for the supervision of manufacture; such experience was to prove of value when, after the war he became Deputy County Architect of Hertfordshire, and, under C. H. Aslin, worked on the County's School building programme. In 1948 he was appointed Chief Architect of the Ministry of Education.*

### DONALD GIBSON

*Donald Gibson, born in 1908, was trained in architecture at Manchester University. He worked for six months, after qualifying in 1932, in an architectural office in Boston, USA, and was an architectural assistant in a private practice in Lincoln. For a time he was a lecturer at the Liverpool University School of Architecture, where he received a certificate in Civic Design. Then followed a period with the Building Research Station, Watford, before his appointment as Deputy County Architect to the Isle of Ely County Council. In 1938 he was appointed City Architect to the City and County Borough of Coventry. During this period of office at Coventry he was first appointed Joint Planning Officer with the City Engineer. Finally, he became Planning Officer as well as City Architect.*

## COMPETITIONS

### *Additional Announcement*

In submitting the announcement for the service station competition published in the JOURNAL on January 10, the organizers, Shell-Mex and BP Ltd., omitted to state that a deposit of £1 1s. is needed from competitors.

### *Essays for the RSI*

The council of the RSI has announced particulars of the prize essay open competitions for 1952. Three prizes are being offered as follows: *The Henry Saxon Snell Prize* of 50 guineas for an essay on "The Selection, Utilization and Hygienic Operation of Equipment for Cleansing Utensils, Crockery, etc., in Hotels, Restaurants and Canteens." *The John Edward Worth Prize* of £40 for an essay on "The Design, Construction and Fitting of Pre-fabricated Units for Cold and Hot Water Supplies and Waste Disposal in Housing Schemes." *The John S. Owens Prize* of £15 for an essay on "The Ventilation of Buildings used for Industrial Processes giving rise to Noxious or Unpleasant Dusts and Fumes, and the Prevention of Atmospheric Pollution by such Dusts and Fumes."

Entries must reach the RSI, 90, Buckingham Palace Road, S.W.1, by December 31.

## DIARY

*Pubs and People.* J. S. Eagles. At 28, King Street, W.C.2. (Sponsor: TCPA, Students' Planning Group.) 6.30 p.m. JANUARY 24

*Exposure, Durability and Maintenance in Modern Design.* Hope Bagenal. At 34, Bedford Square, W.C.1. (Sponsor: AA.) 8 p.m. JANUARY 30

*Sunday Times South Bank Competition Designs.* Exhibition at Kemsley House, W.C.1. Mondays to Fridays, 10 a.m. to 5 p.m. UNTIL FEBRUARY 1

15 *Young Sculptors.* Exhibition at 17-18, Dover Street, W.1. (Sponsor, ICA.) Daily, 10 a.m.-6 p.m. Sundays, 2 p.m.-6 p.m. Admission 1s. 6d. UNTIL FEBRUARY 3

*Water-colours, Etchings and Drawings.* An exhibition of the work of W. H. Ansell. At 66 Portland Place, W.1. (Sponsor: RIBA.) Mondays to Fridays, 10 a.m.-7 p.m. Saturdays, 10 a.m.-5 p.m. UNTIL FEBRUARY 9

*In the talk, published here, which he gave at the RIBA on January 8, Frederick Gibberd examined "contemporary cliches to see whether they have, in fact, their roots in the expression of function and construction; whether they are being applied in their right context, and whether they are as sensitive in form as possible."*

## F. GIBBERD

## Expression in Modern Architecture

Let us take, to start with, a very elementary problem like placing a window in a load bearing brick wall. How may we express the functional problem of supporting the brick over the opening?

The traditional solution is, of course, a

## REPRESENTATIVES OF PUBLIC ARCHITECTURE

### ROBERT H. MATTHEW

*Robert H. Matthew, born in* 1906, *the eldest son of Edinburgh architect John F. Matthew, trained at the Edinburgh College of Art and won the Pugin studentship, the Arthur Cates prize, was Soane Medallist in* 1932 *and Alfred Bossom Gold Medallist in* 1936, *the year he joined the Department of Health for Scotland. In* 1943 *he was appointed deputy chief architect in charge of planning with the task of building up a nucleus of post-war planning staff. Became chief architect and planning officer in* 1945 *and was appointed architect to the LCC in* 1946. *He was deputy consultant, under Sir Patrick Abercrombie, to the Clyde Valley Regional Planning Committee, visited America as member of the Building Industry Working Party in* 1949, *appointed member of RIBA Council and of the MOW Advisory Council on Building and Civil Engineering Research and Development in* 1950. *He is also member of the RIBA Salaried and Official Architects' Committee.*

### ROBERT GARDNER-MEDWIN

*Robert Gardner-Medwin, born in* 1907, *trained at the Liverpool School of architecture, obtaining, in* 1933-35, *a Commonwealth Fellowship in City and Regional Planning at Harvard University. From* 1937 *to* 1939 *was in private practice, also teaching at the AA School of Architecture and elsewhere.* 1941-44 *was with Royal Engineers, in charge of construction of American base camps and hospital units. In* 1944 *was Town Planning and Housing Adviser to the Comptroller for Development and Welfare in the British West Indies. In* 1947 *he was appointed Chief Architect and Planning Officer to the Department of Health for Scotland.* 1950-51 *was member and rapporteur of United Nations mission making a tour of India, Pakistan, Malaya and Thailand to advise on possibilities of technical aid for S. Asia in housing, planning, etc.*

brick arch—a simple structural solution that has from Wren onwards been given a most extraordinary diversity of æsthetic expressions for so simple a device Fig. 1, (A).

With the prewar small house or cottage the room changed in proportion through social changes, and the window changed with it to become wider than its height. The brick arch changed to a row of bricks on edge partially supported by the window mullions Fig. 1, (B). The contemporary metal or wood window is not designed to carry any load; if we see a row of bricks on edge over it we know they are not a lintel, but must in fact be themselves supported. What was once a decorative expression of construction is now only a decoration that makes construction more difficult. If we want the effect of a hole in a plain expanse of brickwork then we can get it quite simply by running the courses straight over the opening and supporting them on a steel angle iron Fig. 1, (C).

This now accepted convention has a weakness when seen close to, because the bottom flange makes rather an indeterminate plane between a brick face and the window frame. It is too slight to have much visual significance in itself. Do you assume it is part of the window?—when it puts the other window members out of balance; or do you try in some way to make it look as if it belongs to the wall?

A recent house by Davis and Moro carried the angle right round the opening to form a most attractive frame with a thin edge; but this is expensive, and moreover, steel is subject to rust. The obvious solution is to cover the angle by a wood subframe or lining, which may be carried right round the opening to underline its shape—a decorative expression evolved from a functional form Fig. 1, (D).

The common method of bridging an opening today is of course by the reinforced concrete lintel. The purely functional engineer's solution Fig. 1, (E) looks very clumsy and heavy, and there is generally too great a contrast in colour and texture with the brickwork. Some architects use it when the building is colour washed, but they usually cast a pattern on the surface to get the texture more in scale with that of brickwork.

The new form which has developed out of the problem of refining the concrete lintel is the boot lintel Fig. 1, (F). This amounts to using the rear of the lintel to support the wall, and cutting back the front to a narrow band to support the facing bricks. Fig. 1 (G) illustrates the first stage in its refinement to cut it back at the ends and put it behind the wall face to make it look more like a supporting "toe," which is what it is, and less like a lintel, which is what it is not. But Fig. 1 (G) also shows two common faults: the "toe" is so deep that it both looks clumsy and conflicts with the brick courses; and the window is set back so far that the "boot" has a rather heavy square section. Perhaps this is very obvious, but I can show you it featured in a large new block of flats not half a mile from Portland Place.

Fig. 1 (H) corrects the faults by making the lintel coincide with the brick course, and bringing the window forward so that the lintel is only a narrow band.

I don't like the boot lintel, because it seems to conflict with the rectangular pattern of the opening. I prefer to use it with concrete or stone slips down the sides to complete the pattern, as in Fig. 1 (J). This often has an additional advantage with steel windows in that the shape of the opening can be underlined—almost an impossibility with the modern narrow section steel windows.

There are many instances where the boot

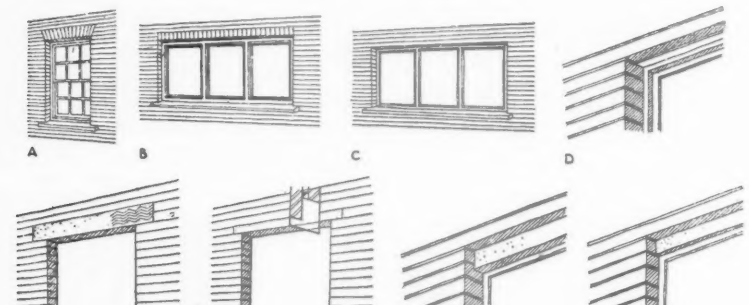



*Figure* 1.

is projected in front of the wall space to give the effect of a little hood over the window, Fig. 1 (K). This introduces a new æsthetic problem, that of weathering. It is necessary that the top edge of projecting surfaces should be flashed to prevent soot and rain forming a streaky profile. One of the greatest disservices architects have done to the modern movement is to be careless about the effect of the weather.

So many of our forms today are precise because they are made with the assistance of machinery, and it is absolutely essential that this precision should be retained for the life of the building. The flashings to projecting surfaces (like hoods, canopies, and overhanging concrete roofs) need to be tight sections that throw the water clear and do not conflict with the surfaces they are protecting. (The Zinc Development Association have some publications on this subject worth examination.)

A square end to the lintel tends to look rather clumsy, and most people curve it back, as on the right hand side of the diagram; what looks to me perfectly horrid is just to carry it on past the window and stop it in an arbitrary way, Fig. 1 (L). Here is the point of departure from modern to modernistic design. As with the recessed boot, the lintel often looks best when it is returned round the complete opening as in Fig. 1 (M).

Do not mistake me about this; we are considering a hole in the wall. If, for functional reasons, the window was a long continuous slit there might not be the same need to frame the opening.

The projecting frame can make the window a very dominant object in the wall, and it is usual to reserve it for points of emphasis or punctuation; for example, in a block of flats it might be used for the living room windows, the other rooms having recessed windows. You will notice the window is set back roughly to the centre of the surround. This seems to me to make the projection a bit pointless, and my inclination is to place the window on the front face so that one has a good deep cill inside the frame, Fig. 1 (N). This gives the equivalent of the bay window; a place to set a pot of flowers or objects of art such as young ladies with greyhounds straining at the leash. It is moreover, far more economical than the bay because it doesn't waste floor space and requires no foundations. I tried this out on the BISF house at Northolt, where the section was formed in pressed steel, the window consisting of steel cottage sections combined together to form a 6-ft. square bay. It was hotly opposed at the time, but has since become an accepted cliché.

When the projection is large it is necessary to taper the section so that the front edge will not look heavy and clumsy. There is a special case in which the window might be set at the back of the surround, and this is where the cill is used to support the flower box, as in Fig. 1 (O). Apart from this, such setting back can only be justified when it is desired to emphasize the thickness of the wall, or draw special attention to the window. It is a commonplace that the further the window is set in the wall the more massive the building will appear; more of the wall thickness is revealed and deeper shadows are cast into the opening.

It was a characteristic of many early buildings of the modern movement that the window was placed on the wall face; this, by making the wall and window read as one plane, eliminated the effect of mass and expressed the wall as a skin. This is perfectly legitimate when the wall is an envelope, but when it isn't we expect the wall thickness to be expressed.

The usual 2½ in. set back is perfectly adequate for the usual cavity wall; when the wall is thicker it may sometimes be worth pushing the window further back. Concrete linings are often used to set windows deep, but they tend to exaggerate the opening too much for normal circumstances; the 18th century trick of rendering and painting the reveal is the obvious solution, or alternatively, a thin material might be used; they do it perfectly in Italy, where marble is cheap.

In any event I always reduce the width of the projection, as in Fig. 1 (P), as apart from making the surround less clumsy it enables a recession to be made between the brick face and the concrete projection—a more subtle arrangement than just projecting straight out from the brick face.

Supposing now the brick wall is rendered, then the obvious way of treating the opening is to carry the rendering over the lintel to form one continuous wall plane. The traditional detail, which I have tried to show in Fig. 1 (Q) has the plaster slightly brought out over the window head to form a drip. This is a craftsman's job and is seldom done today.

In the early days of the modern movement many architects rendered the brickwork to make it look like the r.c. wall. It never quite came off because one usually saw a deep reveal through the window; nevertheless, a plain rendered brick building does remind one of reinforced concrete, and for that reason I am never quite happy about it. It is a curious case of a traditional use being spoilt by a convention now becoming associated with a quite different modern technique.

Sketch Fig. 1 (R) shows one traditional method of treating the opening which is quite clearly a rendering technique, and not a reinforced concrete one. It amounts to forming a smooth cement band round the window and painting it a different colour from the wall.

I have only scratched the surface of the problem of the expression of a hole in a wall; but sufficient, I hope, to show what interesting expressions it is capable of. If you think of all the other aspects of detail design—copings, fascias, eaves, balconies, porches, and a host of others—you will agree what a wide field there is for refining the accepted conventions.

### *EXPRESSING THE LOAD BEARING WALL*

When we come to arrange the openings in a load bearing wall we do so as a balanced pattern that doesn't confuse the idea of the weight being carried down to the foundations by the wall masses.

In a terrace of small houses with load bearing external walls, there is little difference between the contemporary expression and the traditional ones. The living room windows may be larger, but modern clichés like the corner window or pronounced horizontal or vertical treatments will generally be discarded as being foreign to the structural system.

If, however, we construct the houses by a series of load bearing cross walls then we arrive at a different expression. In this, the parallel cross wall system, we express the load bearing function of the cross walls (by emphasizing the edges, and leaving the end façade as blank as possible) and treat the front elevation as an infilling.

The windows can stretch between the cross walls and the wall under them can be designed as a framed panel spanning between the walls. Or the blank panels may alternate between the windows. Both are examples of a typical contemporary expression—a façade with a horizontal direction held and restrained between blank walls: an expression which in this instance makes sense, but is quite meaningless when applied, as it so often is, out of its context.

There are many instances where we may combine the expression of the parallel wall with that of the load bearing external wall.

### *EXPRESSING THE WALL AS A FLAT PLANE*

One of the characteristics of modern architecture is the juxtaposition of wall and window for the complete height of a room, and with it the idea of the wall as a flat vertical plane. The complete expression of the wall as a plane is, of course, bound up with the contemporary open plan. That is, a

plan in which there is an interpenetration of space—a flow between the internal spaces of the building and those outside it. This means, of course, a loss of privacy between the inside and outside. The most numerous and the most complete examples of spatial interpenetration with dwellings occur with the detached bungalow, for the simple reason that all its rooms are on the ground floor, and all may be in contact with the garden spaces. And it is with this type we find the most characteristic uses of the wall as a flat plane.

Fig. 2 illustrates some simple points on the use of the wall as a flat plane.

Fig. 2 (A) shows the traditional box-like room: a self-contained space body with apertures for light and view.

Fig. 2 (B) shows the modernistic room: the ceiling has become lower and the proportions have become more horizontal. Through the desire for greater contact between house and garden, the doors and windows are brought together as a wide opening, which is reflected in the terrace. The r.c. lintel makes such an opening possible.

Fig. 2 (C) illustrates the room surrounded by flat planes: the window is brought into juxtaposition with the wall; it extends to the ceiling; and the wall itself stretches out into the garden. The wall is no longer one side of a cube, as in the two previous examples, but a flat vertical plane: a plane which slides the internal space into the external and a plane with space round three edges. We have almost the sense of being able to see both sides of the wall.

The effect is most pronounced when the wall has the same finish inside as out, and since internal materials can seldom be used outside, the tendency is to bring external weathering materials into the rooms themselves. The random stone wall extending into the sitting room, a fireplace wall of facing bricks, are details no first year student can dispense with—and which are fast disappearing from the drawing boards of those in the fifth year.

In the next sketch Fig. 2 (D) another window is juxtaposed with the front wall so that the wall becomes a plane with space around all its faces. And we might assume that the internal walls of such a house would be designed as flat planes or screens of different colours and materials. When the wall planes are of different materials the idea of a room being a mere sub-division of a larger space finds its most complete expression. Instead of being surrounded by continuous walls at right angles to each other, and knit together by the lines of the skirting and cornice, we have a series of planes each complete in itself, but held in space by the roof and floor planes.

If you do isolate walls in this way, it is important that you do the job properly. For example, if a lintel is necessary to support the roof as in the next sketch Fig. 2 (E), it disturbs the flat roof plane; it breaks into the rectangular pattern of the wall; and it spoils the tensions between the two walls.

So important is it that there should not be a connection between the two wall planes that even a pelmet board may ruin the effect Fig. 2 (F). In America it is possible to buy a curtain track which can be built into the plaster, and which has a slide fitting which holds the curtain tightly against the ceiling Fig. 2 (G)—an example of mechanical device being invented to solve an æsthetic problem.

I am not, of course, condemning pelmets or lintels across openings, but simply their use with this particular idiom.

In this problem of eliminating the lintel, we need to watch that we do not force the structural system into an expression foreign to it. I have seen sketch designs for small houses with isolated load bearing walls and flat roof planes that could not be built.

You will nearly always find that when the space is sub-divided by a whole series of floating wall planes, columns are used as the supporting elements. The columns are usually very slight, like round steel, as this causes the least disturbance to the space. Some of you may have seen published recently details of an American house supported by tubes. Angle irons were welded to the top of the tubes and the floor joists notched on to the angle irons so that the ceiling could be one flat even plane.

If external walls are held apart in space in a horizontal direction, why should not the roof be parted from the wall, so that it, too, floats as a plane, as in Fig. 2 (H). There is no reason whatsoever, providing always that the wall really is independent of the roof. The floating roof needs supporting columns. To build piers in different coloured bricks, as in Fig. 2 (J), is a decadent decorative device. Few of us object to decoration as such, but we never feel really satisfied with it when it is associated with an alien structural method.

### *EXPRESSING THE MULTI-FLOOR FRAMED STRUCTURE*

I should now, by way of comparison, like to switch to the expression of the function, and of the construction, of multi-storey framed buildings. Since there are so many kinds, we will narrow down our enquiry to a simple office block.

In its simplest possible terms, the functional requirement is a well lit and adequately warmed space, of rectangular shape and free from obstruction. This is usually provided by a long floor space, with windows on one long side and a corridor on the other; which floor space can be sub-divided by partitions into rooms of standard depth but varying width. The heights of the rooms and windows are identical on all floors. The depth is seldom more than 24 ft. as at this dimension the light at the rear of the room is generally poor. The width of the building is restricted by the natural lighting and cannot be more than the depth of two offices plus the central corridor Fig. 3 (A).

The external elements (shown in Fig. 3, B) are: the floor slab; the window, which stretches from column to column so that the lighting is as even as possible; a panel under the windows to hide the legs of the typists (this panel is also sometimes used as a mounting for radiators, and is required in London as a fire barrier); and finally the structural frame holding these elements in space. The resultant building is a tall, wide, but narrow structure, like a book on edge. The long façades will be a geometric grid of windows and panels, and the end façades (since no light is needed through them) will be a blank wall Fig. 3 (C).

It is not necessary for functional reasons for the upper floors to be set back; and it is not only unnecessary for structural reasons, it is bad practice to set them back. The resultant form is absolutely different from the so-called traditional expression of the office building—and, for that matter, many so-called modern ones.

The old form—an expression of mass—is shown in Fig. 3 (D). The composition builds up from a broad base by a series of set backs into a pyramidal form. It is an expression neither of a constant office depth nor of a steel frame—imagine building the corners in steel. This building up into an appearance

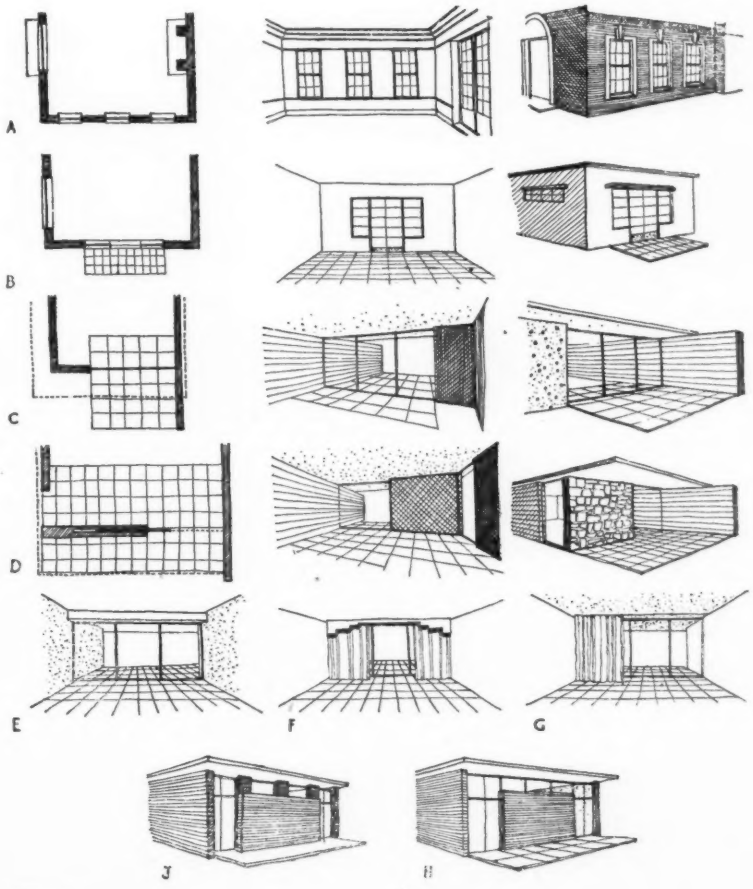



*Figure 2.*

of mass was the main pursuit of many distinguished architects between the wars. Much as one admires Lutyens' skill and ingenuity with set backs, he was in this respect in a blind alley.

We cannot afford the Renaissance box of tricks these days, although I must confess I have seen some surprising things at the Royal Fine Art Commission. But the desire to produce a pyramidal mass-like form is still an obsession with many architects. Fig. 3 (E) shows one of the typical forms this produces; although wings project out to get light into the offices, the total effect is still of a solid carved block—a sculpturesque rather than a spatial approach to design.

Now most office buildings require some large, deep meeting rooms, which may be placed on the ground floor in horizontal form, in contrast to the vertical office accommodation. Apart from the splendid opportunities this assembly gives for architectural composition it is of great significance in town design, as it enables two types of spatial composition to be achieved: the building standing in space, as a plastic composition; and the enclosed urban space, formed by grouping buildings together—a piazza or "space body" as opposed to the plastic body of a building. Fig. 3 (F) illustrates the principle: the main office blocks stand in space as towers or slabs, but the lower floors are brought forward and related to each other to form enclosing walls to a civic square.

As architects we have so long had to struggle with the tyranny of the corridor street that we almost take for granted distorted building forms like the flat iron, and the general public have accepted them as a normal expression. But they are not. The logical expression of an office group is an assembly of narrow buildings standing in space with possibly spatial definition at ground level. Such an expression may be made possible by the development plan, plus a general understanding of daylighting codes and the floor space index.

When the site is developed in depth it may be possible to assemble the accommodation as a series of slabs as in Fig. 3 (G) (based on a technical college I am building). However, many buildings will need to be developed with wings, such as the L, the Y, and the cruciform plan types Fig. 3, (H).

The danger with these assemblies is that unless the office-like character of the wings is preserved they may easily indicate a deep or a massive building. For example, if the building is of an L shape and the façade pattern is carried straight round the external angle as in Fig. 3 (J), the effect is often of a building with great depth. It is like looking at the corner of a box. But if the individual wings are expressed, say, by making a blank wall for the depth of one wing as in Fig. 3 (K), or by keeping the wings apart as in Fig. 3 (L), then the way the building works is made quite clear.

It is surprising the varieties of abuse of form that take place with the junctions of the wings. I have seen one block just placed across the end of another, as in Fig. 3 (M), giving the impression that it will slide away any moment; or one block charging into another, as in Fig. 3 (N); or, again, a long façade broken by violent vertical features, as in Fig. 3 (O).

It is nearly always necessary to introduce a negative form between the wings to prevent the façade patterns coming into conflict. There are all kinds of solutions; Figs. 3 (P) and (Q) are obvious.

I have not time to consider the expression of the stairs—the most abused element in contemporary building. One would imagine, looking at some of them that they express a shrine for some fearful god, not the vertical circulation of office workers.

Neither can I deal with the housings of lift motors and tanks, save only to remark that they do need designing; and that it is

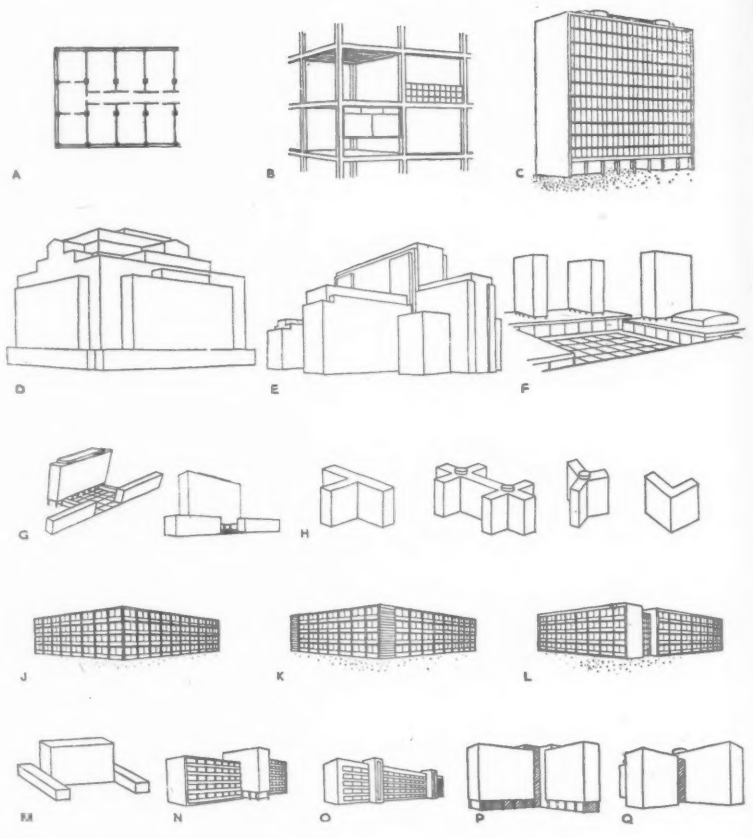



*Figure* 3.

generally unwise to let their forms break up the rectangular form of the office grid. Obviously, when freely designed on the roof, they give tremendous opportunities for producing an interesting silhouette. How disappointing the United Nations Building is in this respect!

## *EXPRESSING THE FRAMED FACADE*

We will now consider some of the more typical elevations that have been evolved for the framed office building. The members are very few: the floor slab, the column and beam, the window and the panel. Which of these elements do we express?

The "Classic" revival disguise Fig. 4, (A) is now out of fashion, but the "shorn Classic" Fig. 4, (B) or the "Classic-modernistic" Fig. 4, (C) are still favoured when a dignified effect is sought.

Fig. 4 (B) gets some more floor space by adding a mansard, but sheds the classic trappings. It does however retain the proportions of the classic order, which neither expresses the proportions of the rooms behind the façade nor the structural frame.

Fig. 4 (C) is an improvement, as the windows indicate the even floor height, but they are a "hole in the wall" rather than a frame expression. The ground and top floors carry on the tradition of the classic rusticated base and attic, but in a modern idiom—the continuous horizontal window pattern and the projecting flat-roof plane. Both are horribly macabre in such a context. You may remember, by the way, that there was quite a run on this particular combination for Town Hall competitions before the war.

Since the office bay is generally wider than it is high, and since we need wide as well as high windows for lighting, it is more logical for the openings to have a horizontal rather than a vertical direction. A single pattern of wide rectangular windows as in Fig. 4 (D) is a better expression than the previous examples.

The windows may be joined together vertically by panels, of say, cast iron between them as in Fig. 4 (E). This is a favourite expression for telephone exchanges—I have not the least idea why. The building looks to me no more as if it holds telephone equipment than office workers.

Fig. 4 (F) joins the windows horizontally by continuing the lintel and the cill and using a different coloured brick between them—the very popular ham sandwich style. It gives some idea of the horizontal floor space, but otherwise expresses only the commonplace.

All are, I think, unimaginative and feeble. The linking together of the windows seems quite arbitrary and there is no conclusive indication of either the function or the construction of the building. Whether we expose the column or not, I feel we should be made aware of it. And I feel too that the wide window should not be sacrificed for æsthetic effect.

There were many buildings erected before the war that gave recognition to the column and the wide almost continuous window. The majority of them seemed of two distinct types of expression; one based on horizontal emphasis, the other on vertical emphasis.

In the horizontal type the windows pass in front of the column, or are clipped to its face, and the walls are treated as continuous panels supported by the beams. We thus have alternating horizontal ribbons of wall and window, as in Fig. 4 (G). With the vertical type Fig. 4, (H), the columns are exposed on three sides and run straight up for the full height of the building; the windows are combined with the panels under them to make

a series of vertical elements between the columns.

The horizontal type tended to be used for long low buildings like factory office blocks, the vertical for tall ones like skyscrapers, but there have been cases where the horizontal has been applied to tall buildings and *vice versa*.

It is quite easy to produce arguments that will justify either pattern as being honest expressions of an office block and of a framed structure. Neither is in itself satisfactory as it does not produce a composition which is resolved. Modern architecture is no different from Greek, Roman or Renaissance in its fundamental principles, and one of these principles is that a building needs to be a complete and harmonious whole. For it to be a complete whole its parts need to be balanced. By all means set up a strong horizontal direction, or a strong vertical one, if you like them; but don't do so without setting up movements in the opposite direction to prevent the eye running out of the picture.

The usual method of balancing the vertical or the horizontal is to juxtapose a strong element in the other direction—I have already referred to violent and abrupt changes of form. Their impact on each other is often vulgar, always disturbing. Why, anyway, set up a strong movement only to have to break it down again? After all, the pattern of the steel frame is a simple, balanced, rectangular grid. Why shouldn't its fenestration be so balanced?

A functional expression of the framed office is shown in my next sketch Fig. 4, (J). It is what Mr. J. M. Richards has called a diagrammatic façade, a façade which may be a suitable background to an urban scene. It is not, of course, a complete expression of structure—you will remember Mies van de Rohe in his Chicago flats expressed the diminishing thickness of the columns—and, all told, it is not subtle or interesting enough to sustain our interest.

Fig. 4 (K) shows some refinements. First the grid of the façade is contrasted by a blank end wall—a point I have already made. Then the brick panel wall is carried on a nib hung from the floor beam (the boot lintel again). This makes the columns slightly more emphatic in their verticality, and sets up an even rhythm across the façade. The proportion of the panel counteracts the upward thrust of the columns, and there is a regular vertical rhythm between panel and window. The floor is expressed by the horizontal lines of the boot lintel or, of course, the ceiling seen through the windows.

To what extent you express the column, the floor or the panel doesn't, I suppose, matter a scrap, provided that the pattern is reasonably balanced. In Fig. 4 (L), the floor slab is brought forward; it has the disadvantage that it provides long ledges for the dust to rest on, and calls for flashing. And in Fig. 4 (M), the panel passes in front of the column, but its horizontality is counteracted by the joint lines on the column centres.

In the next sketch Fig. 4, (N) the blank end wall is brought to the front façade, and a window placed on the end—as when a staircase is placed in the corner. This is a combination of the wall as a flat plane with the framed façade—a combination which needs very careful handling. For instance, the edge of the flat roof may be in proportion to the main façade, but when carried over the wall it takes on the appearance of a coping and may look too heavy.

This is counteracted when the wall is carried up and returned as a parapet with its own coping, as in Fig. 4 (O). The parapet has its counterpart in a brick base, the complete building thus being framed. This is one of the most typical clichés of contemporary design—a geometric grid of window, column and panel, framed in a blank wall.

As has been said many times, the wall of a framed structure is only a skin to afford protection against weather. It carries no weight and an honest expression would make it clear that it does not do so. Because of their excellent weathering qualities, many frames are clad in brick or stone. While it is generally quite clear that these materials do not support the weight of the building, they are by tradition associated with this function. Apart from the density of the surface, it is the interlocking pattern of the joints that makes the wall look load bearing.

As Fig. 4 (P) tries to show, the staggered perpends appear to carry the weight down to the ground; or conversely, there is a pyramidal building up of mass—a reflection of the pyramidal form of the large load bearing building I illustrated a few moments ago. The purist designing a brick panel wall is likely therefore to use a bond which avoids a pyramidal pattern, such as a herringbone or brick on end, like Fig. 4 (Q).

Although stone is bonded into a brick backing in many framed buildings, this is obviously less economical than applying it in slab form. With the stone reduced in thickness to a slab, it may be larger in area, and this, together with the greater freedom in assembling the slabs, makes it quite easy to devise a skin-like pattern. Most designers use a plain rectangular pattern for panel walls, as shown in Fig. 4 (R), as this is furthest removed from solid block patterns, but in the large blank end façades all kinds of patterns have been devised. A favourite system is to break down the area into a series of panels, reflecting the frame, and therefore the front façade.

The very fact that a building is veneered with slabs is a suggestion that it is framed, as few people would apply an expensive veneer to our load bearing material, brick. The Ideal Boilers and Radiators building in Great Marlborough Street might be of solid construction, but its black marble facing indicates that it is not.

The use of a pre-cast concrete slab faced with a material that will weather, like broken brick, avoids building the panel wall in two operations; and as the concrete can be both reinforced and lifted by cranes, it is possible to have large units spanning between the structural members.

Fig. 4 (S) shows vertical units on an end wall. An actual example is Anthony Chitty's flats for Holborn and St. Pancras. And F. R. S. Yorke in his schools has worked out a series of designs with the slabs laid horizontally.

As a general principle, one may say that, all things being equal, the more the surface looks like a skin or veneer, the more the design will express the idea of a framed building.

### *THE FACADE AS A SUB-FRAME*

The most complete expression of the skin takes place when the window plane is identified with the wall plane—when the two surfaces merge together as one overall pattern : for example, when the whole façade is treated as an overall lattice in which are inserted glass or wall panels as necessary Fig. 4, (D). The all-glass façade is the extreme example, however, although our urban scenes are so chaotic that one might welcome the intrusion of some straightforward diagrammatic façades. Glass is too cold and unsympathetic a material to form the major background to our city centres. I know the arguments about the façade reflecting sky and trees, but that does not compensate one for the loss of natural surfaces like brick, stone, wood and marble.

The æsthetic significance of many all-glass façades rests not in the glass so much as in the fact that the wall and the window merge together to form one continuous plane, independent of the main structural frame. We can substitute opaque or textured materials for the glass panels under

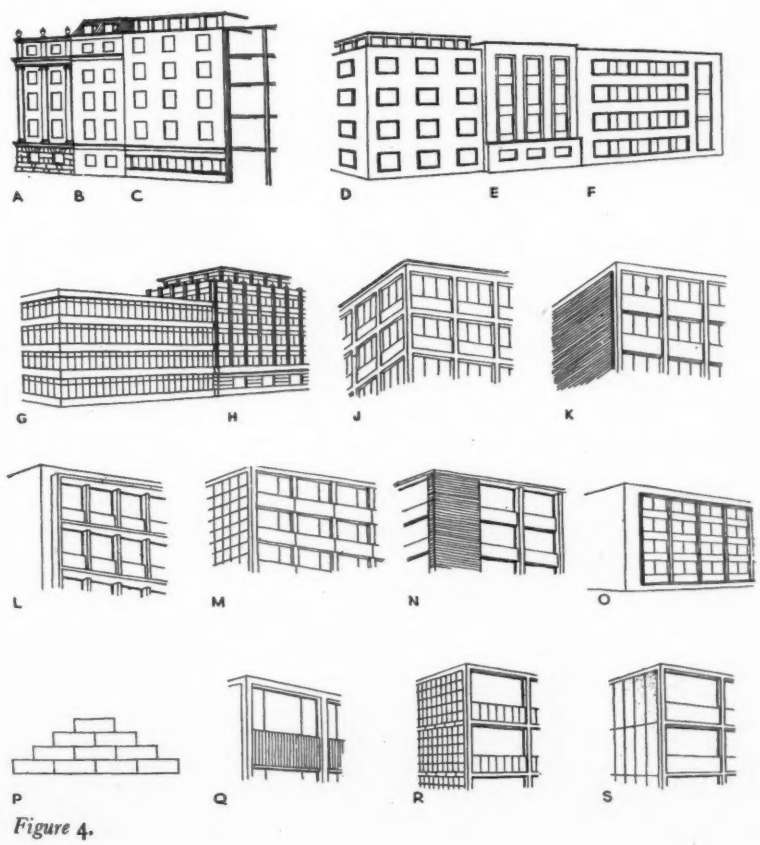



*Figure* 4.

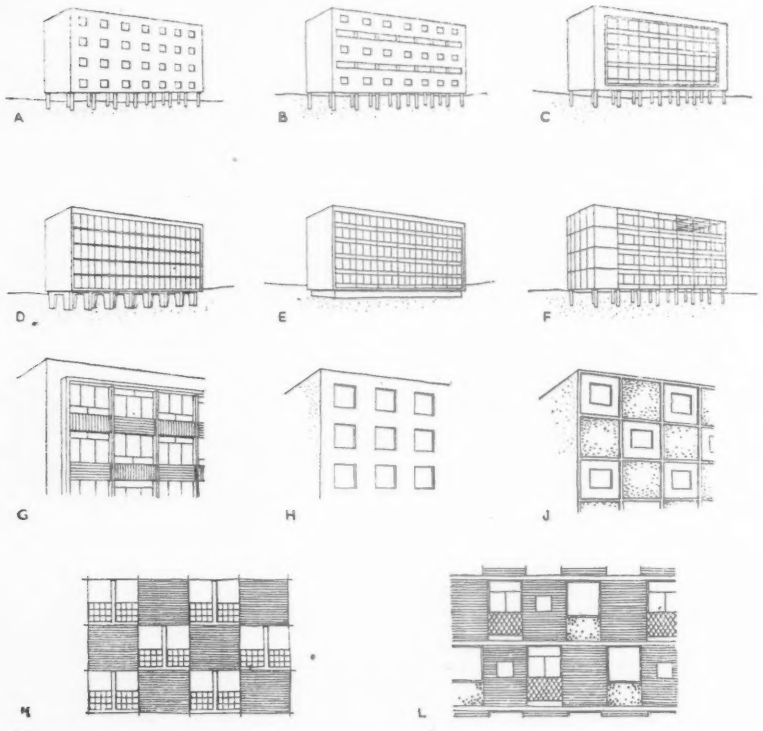



*Figure 5.*

the windows proper, and have the maximum impression of the skin-like character of the wall. A wall or curtain of this nature may be mounted in front of the structural frame to become a sub-frame, and provided it reflects the structure behind, it is a quite legitimate system of design. Moreover, it is one that is capable of being much more elegant than a design which utilizes the main carcase.

Columns and beams in a steel or reinforced concrete frame are large members to reconcile with those of the windows, but the members of the sub-frame only have to support light materials and then only for the height of a single floor. Furthermore, the complete sub-frame can be manufactured off the site, and so the precision in its forms and the tolerances in assembly can be altogether finer.

The façade can become a light and elegant structure—but alas, how expensive it can be, and how few materials we have to make it from! There is a fortune waiting for someone who can invent a lightweight panel with interesting colour, texture and weathering qualities at a reasonable price.

Most curtain walls remain on the drawing board, and then to a very small scale. Perhaps it is just as well, as few of them could be built. Could I suggest that no small-scale elevation is produced without being accompanied by detail designs of a typical bay, complete with specification?

A framed structure gives the maximum opportunity for letting the external space penetrate the building. A section of the envelope is omitted and the outside air flows into the building around the exposed frame. This happens most frequently at the ground floor level. This is left open, or only lightly enclosed by screens, so that the building appears to stand on columns.

All kinds of arguments have been put forward for standing a building on stilts—to get it clear of ground mists is one of the most ingenious—but most of the arguments are simply excuses for æsthetic effect. What a reflection on our civilization that we have to produce a practical reason for doing something which gives pleasure to look at! Fortunately, building science has given us a jargon incomprehensible to the layman which can be used as a cloak for æsthetic effects.

The only functional justifications I can think of are when the ground floor rooms are of a difficult or free shape; or when it is desirable to have spatial extension with the surroundings. If the ground floor is dissociated from the rest of the building there is far greater freedom in arranging the entrance halls and waiting rooms, and far greater freedom in linking the floor with the surrounding floors.

Whether we have a practical justification or not for raising the building on columns, there is no doubt that the device can give extraordinary grace to the building through floating it in space, and no doubt that it alone can be made to express the structural system. Consider, for example, (A). This is meant to represent the corridor side of a framed building; the wall with its tiny openings expresses a load bearing function, but the open ground floor and exposed columns, by cutting the wall off from the foundations, makes it clear that the building must be a rigid frame.

The same effect has been obtained on the upper floors, where a long gallery or window cuts across the building, revealing the columns for a floor height. The gallery in a block of maisonettes is sometimes handled in this same way Fig. 4 (B).

If the upper floors are designed as a balanced geometric pattern, conflicts may be set up with that of the ground floor. This is generally avoided by stressing the first floor slab: making it, in effect, the plinth of the building. This floor slab may be linked to the end walls, which again may be linked to the roof slab, so that the complete upper structure appears to be contained within a frame of flat slabs. I am not sufficiently a historian to know the antecedents of the *Pavillon Suisse;* but I have always felt that Corbusier hit off in a flash of inspiration an æsthetic expression which might have taken years to develop.

Fig. 5 (D) shows a common variation in which there is even greater dissociation between the superstructure and the grid. The façade is freed from the columns by being placed in front of them (its pattern nevertheless reflects the steel grid), and the load bearing function of the columns is dramatized in design. Le Corbusier in his Marseilles scheme used a quite different system for the ground structure.

Fig. 5 (E), to bring you back to a previous example, lowers the building quite close to the ground, and although the spatial interpenetration is lost, the façade is still cut off from the ground, and the walls tend to float; which gives far more significance to the pattern than when they just run straight into the ground.

Fig. 5 (F) shows part of the top floor exposed, as in the case of a board room which opens on to a roof garden. The exposed structural frame gives a sense of enclosure to the roof by throwing an optical barrier round it, and the space is knitted into the regular rhythms of the façade.

When the framed façade has a pattern based on a rectangular grid, there is generally an even horizontal progression across the façade between the columns, or mullions and an even vertical progression between the windows and panels. If, within the confines of this frame, these two patterns cancel each other out, the total pattern is a balanced one. But in such a balanced pattern the eye also tends to move diagonally across the façade from corner to corner and, speaking very generally, the more the rhythms set up across the façade the more balanced will the pattern be.

You are all acquainted with the South American use of the brise-soleil, and the fascinating and lively patterns that have been made with concrete fins and ceramic tiles. We have no problems of keeping out a blinding sun from office buildings that cannot be adequately dealt with by some simple device like a venetian blind. There are, of course, some problems on dazzle, which I have not time to consider, but I would refer you to a most interesting article by Dex Harrison in the August, 1950, issue of *The Architectural Review*.

It would be absurd to try to reproduce the brise-soleil patterns in this country, but nevertheless the basic idea of setting up rhythms by contrasting adjacent units within the façade is being pursued, as in (G). With the office block, the functional requirement of the continuous window restricts alternating contrasts in a horizontal direction. But in a building type that does not need very wide windows and one where room types are repeated (say a block of flats), there are all kinds of possibilities. With a load bearing wall the windows are placed above each other so that the loads are concentrated on to piers between them Fig. 5 (H), but if the load is taken by a frame the windows can alternate and solid can be placed over void Fig. 5 (J).

Lutyens hit on this simple trick in his Westminster flats (I said Lutyens, not Powell and Moya !), where he alternates sash windows with rendered panels in a chessboard pattern.

Tecton, in their Paddington scheme, alternate windows framed with the columns Fig. 5 (K), and in some flats under construction in St. Pancras I alternate bedroom and living room windows and set up a minor pattern by small windows set in the brick panels Fig. 5 (L). This constitutes a combination of the framed expression with the hole in the wall expression.

By such contrasts of texture and pattern we move away from the purely functional diagrammatic façade to an æsthetic expression as pictorially interesting as those obtained by dressing up the frame in the trappings of revivalism and far more satisfying, because they have been evolved from the expression of construction and the expression of function.

# FLATS

in ST. PANCRAS WAY, LONDON, N.W.1

for the Borough of St. Pancras, housing manager A. W. DAVEY

designed by NORMAN and DAWBARN

associate-in-charge WHITFIELD LEWIS, assistant architect C. A. RICHARDS

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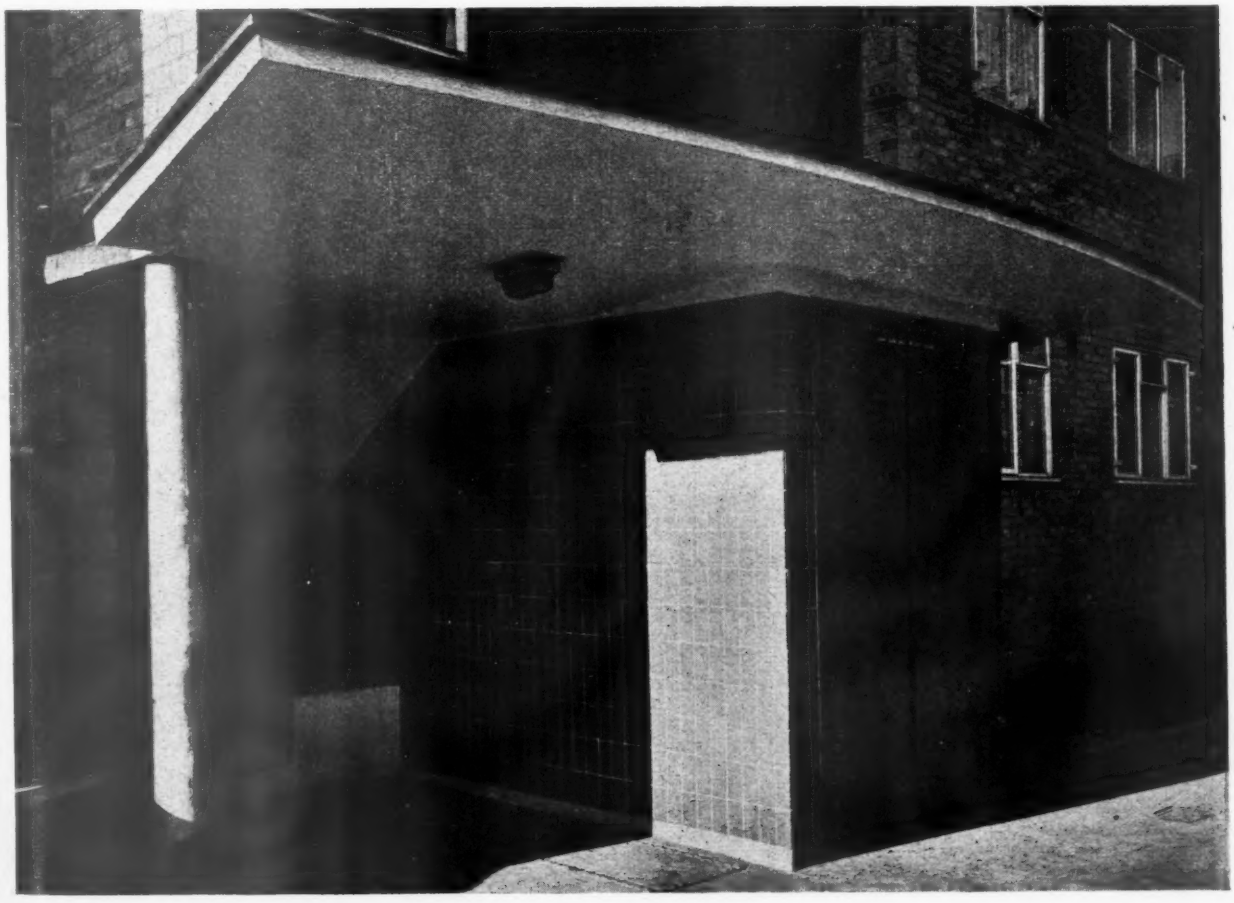
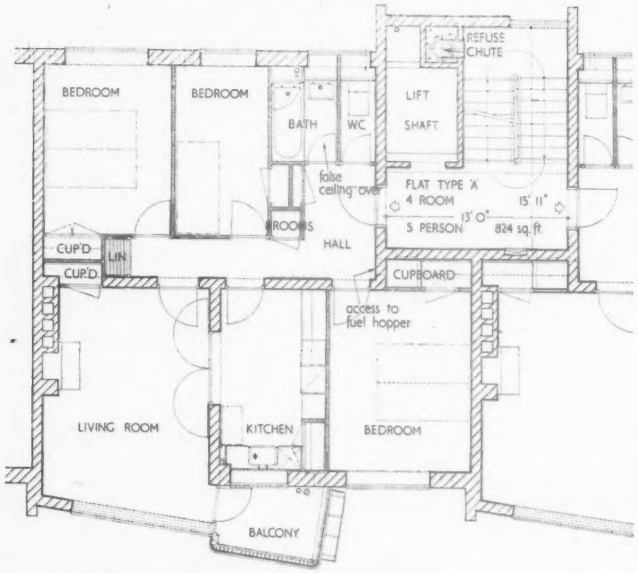
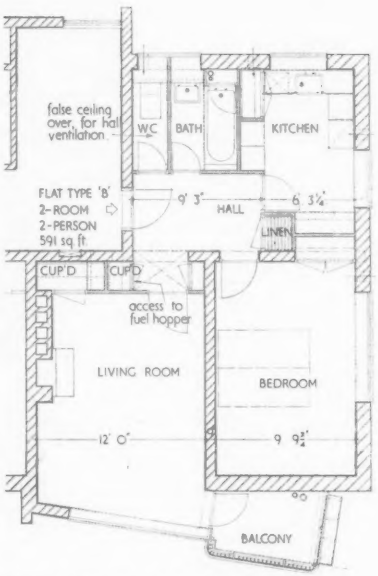
The first part of a scheme for 105 flats for the Borough of St. Pancras consists of 40 flats bordering St. Pancras Way, on the north side of the island site. The completed block A has been designed with staircase access in contrast to the earlier scheme designed by the same architects on the opposite side of Camden Road, where the flats have balcony access.

*Typical entrance on the north-east facade.*

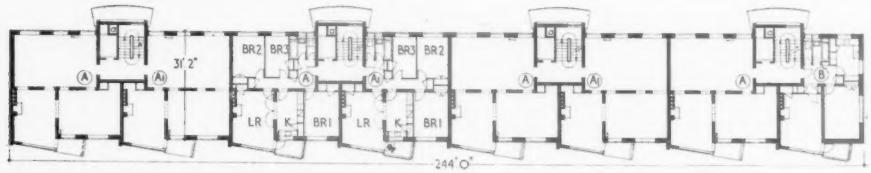




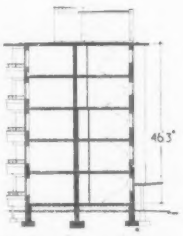

Type " A " flat, typical plan [Scale : $\frac{1}{12}$" = 1' 0"]




Type " B " plan, 3rd and 4th floors




Typical floor plan, block " A " [Scale : $\frac{1}{16}$" = 1' 0"]



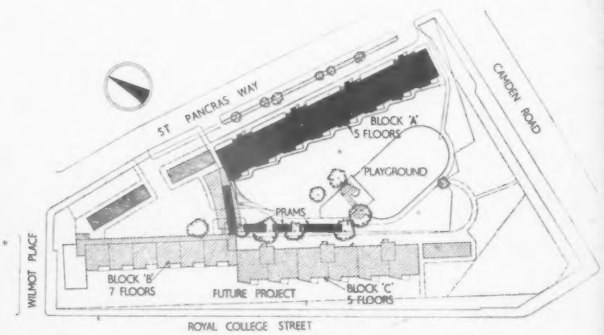

Typical cross section

## FLATS

in ST. PANCRAS WAY, LONDON, N.W
designed by NORMAN and DAWBARN

*Entrance facade seen across St. Pancras Way.*

SITE.—The whole site, after allowing for road widening, has a gross area of 2·81 acres, of which 1·14 acres were available for the first block. A row of existing war-damaged houses was demolished and " made-up " ground was excavated to form a fairly




Site plan

level site. A paved playground, with a small shelter, has been constructed under the present contract between block A and C. A row of existing trees on the north-east side of block A has been retained to screen the flats from noise and dust. Blocks B and C will have a service road entered on

| TYPE | DESCRIPTION | nominal thickness inches (uncompressed) | STOCK SIZES OR QUANTITIES | nominal density lb./cu. ft. | thermal conductivity B.Th.U./sq. ft./hr./1°F/1" | APPLICATIONS |
|---|---|---|---|---|---|---|
| quilt, light | glass wool mat stitched between layers of treated kraft paper | ¾ | rolls: 15 yd. long x 1 yd. wide | 5 | 0·25 | for heat and sound insulation of floors, walls, partitions and ceilings (for houses) |
| medium | as for quilt, light | 1 | rolls: 15 yd. long x 1 yd. wide | 5 | 0·25 | as for quilt, light (for hotels, schools, institutes etc.) |
| heavy | as for quilt, light | 1¼ | rolls: 10 yd. long x 1 yd. wide | 5 | 0·25 | as for quilt, light (for hospitals and places where a high degree of sound insulation is necessary) |
| house insulation | mat of felted glass wool fibres | 4 | rolls: 18 yd. long x 12 in., 14 in., 16 in., 18 in. wide | 1½ | 0·30 | for heat insulation of roof spaces and attics: material laid between joists |
| loose wool | glass fibres in loose form | — | bags: 14 lb., 28 lb.<br>bales: about 36 lb. | 3 | 0·26 | for cavity packing |
| bitumen-bonded mat | glass wool mat lightly bonded with bitumen | 1 | rolls: 10 yd. long x 33 in., 36 in., 42 in., 48 in. wide or cut to suit joist spacing | 3 | 0·25 | for heat insulation of walls, ceilings and floors in both prefabricated and traditional constructions |
| bitumen quilt | glass wool mat, bonded with bitumen, stitched between layers of treated kraft paper | ¾ | rolls: 10 yd. long x 1 yd. wide | 3 | 0·25 | for heat insulation of roof spaces and attics: material laid over joists |
| resin-bonded semi-rigid mat | glass wool mat lightly bonded with resin | 1<br>1½<br>2 | sizes within the limits 72 in. x 42 in. | 3 | 0·25 | for sound absorption |

**·FIBREGLASS· INSULATING MATERIALS.** Manufacturer: Fibreglass Limited.

# 8.E1 'FIBREGLASS' INSULATING MATERIALS

This Sheet supersedes Sheet 8.E1 published 17.5.51. It describes the general properties of Fibreglass insulating material. The table on the face summarises the primary characteristics of the various forms in which the material is available.

### Material

Fibreglass consists of glass drawn into flexible fibres, possessing high tensile strength. The material is entirely inorganic, non-hygroscopic, unaffected by moisture and will not rot or cause corrosion of any surface with which it may come in contact. It offers no sustenance to vermin and is non-inflammable.

### Thermal Conductivity

National Physical Laboratory tests have been carried out on this material (under the earlier trade name of Glass Fibres). The thermal conductivity figures quoted on the face of the Sheet are based on these tests. Copies of the actual reports may be obtained from the manufacturer.

### Applications

Detailed applications of this material will be dealt with on subsequent Sheets.

### Trade Name

The word 'Fibreglass' is a trade mark.

*Compiled from information supplied by :*

**Fibreglass Ltd.**
**Head Office :** Ravenhead, St. Helens, Lancs.
**Telephone :** St. Helens 4224.
**Telegrams :** Fibreglass St. Helens.
**London Office :** 63-65, Piccadilly, W.1.
**Telephone :** Regent 2115-6.
**Telegrams :** Fibreglass Piccy London.
**Glasgow Office :** 136, Renfield Street, Glasgow, C.2.
**Telephone :** Douglas 2687.
**Telegrams :** Fibreglass Glasgow.
**Newcastle Office :** 16, Dean Street.
**Manchester Office :** 11, Piccadilly, Manchester, 1.
**Telephone :** Blackfriars 8863.

## ALUMINIUM AND ALLOYS: APPLICATIONS 1.

Alloy designations are according to British Standards for General Engineering Purposes 1470 to 1477 and 1490.

| Application | Required Characteristics of Metal | Recommended Aluminium or Aluminium Alloy and Manufactured Form | Surface Treatment or Finish— General Remarks |
|---|---|---|---|
| Structural : roof trusses, joists and columns. | High strength, light weight, durability, incombustibility. Available in a wide range of shapes, lengths and sizes. | Extruded sections, pressed or formed strip, forgings and castings. H10 H15 suitable where high strength is required. N6 H10 suitable for use where corrosion resistance is of primary importance. LM4 LM5 LM6 LM7 LM10 suitable for cast components and fittings. | H15 should be painted. N6 H10 may be left unpainted except under severe conditions. LM4 LM5 LM6 LM7 normally left untreated except under severe conditions of service. |
| Roof coverings : fully-supported and self-supporting, *e.g.*, tiles, corrugated and flat sheets. | Fully-supported sheets : ease of working and shaping. Self-supporting sheets : medium strength and ease of working. Roofing tiles : easy casting or working properties. In all cases : light weight, durability, incombustibility, satisfactory appearance. | Fully-supported sheets : 1C-O (and higher purities), N3-O N4-O. Self-supporting sheets : N3 ¾-hard, N4 ½-hard. Tiles : wrought 1C ½-hard, N3 ¼-hard, N4-O ; cast LM5 LM6. | Normally left untreated, except when in contact with other building materials. May also be chemically treated. |
| Flashings, soakers, aprons, etc. | Good ductility and softness for easy working on site. durability. | Strip and sheet, pressed, rolled or hand-formed. Machine-pressed or rolled : 1C ½-hard (and higher purities), N3-O N4-O H10. For hand-working : 1C-O N3-O N4-O 1A (and higher purities) where complicated working is involved. | Normally left untreated, except when in contact with cement, lime mortars and other building materials. |
| Wall cladding and external panelling. | Medium strength, light weight, ease of working, durability, incombustibility, satisfactory appearance. | Strip and sheet, pressed or rolled : 1C N3 ¾-hard, N4 ½-hard, H10. | Normally left untreated except when in contact with other building materials. May also be chemically treated. |
| Glazing bars for roof lights and canopies. | Medium strength, ease of extrusion to complex shape, durability. | Extruded sections : H9 H10. | Normally left untreated but may be painted or anodised, depending on environment and also the finish required. |
| Door and window subframes. | Medium strength, ease of casting, extrusion or strip-forming, durability, satisfactory appearance. | Strip, pressed or rolled : 1C ½-hard, N3 ¾-hard, N4 ½-hard, H9 H10. Cast : LM2 LM4 LM6 | Normally left untreated, but may be painted, anodised or chemically treated depending on environment and also the finish required. |
| Casement and sliding sash windows. | Medium strength, light weight, ease of casting, extrusion or strip-forming, durability, satisfactory appearance. | Extruded sections : N5 H9 H10. Cast : LM2 LM4 LM6. | May be anodised or chemically treated depending on environment and also the finish required. |

# 10.B1 ALUMINIUM AND ALLOYS: APPLICATIONS 1.

**This Sheet** supersedes Sheet 10.B1 published 16.9.48 and is the first of two summarising the applications of aluminium and aluminium alloys. It also describes the characteristics of the material. A continuation of the summary of applications is given on Sheet 10.B2, together with a description of the forms in which the material is available, surface finishes and a list of manufacturers who are members of The Aluminium Development Association and who supply aluminium and aluminium alloys in their many forms.

A selection of alloys for each special purpose has been given as a guide but the suppliers should be consulted regarding final choice of material.

## Characteristics of Aluminium and Its Alloys

*Lightness* : The weight of aluminium and its alloys is approximately one-third that of steel, and a smaller fraction still of the weight of copper and its alloys. This is a major advantage in all cases where handling, transport and erection are important factors in an undertaking.

*Ductility* : Pure annealed aluminium is soft, of low strength and very ductile ; it is therefore used for items such as fitted roofs, flashings and welting. The simple alloys combine ductility with increased strength; the range of useful applications is thus widened.

*Strength* : By alloying with elements such as copper, manganese, magnesium and silicon, medium and high-strength materials have been evolved for use as structural components which combine a high strength/weight ratio with good durability. The alloys are strengthened by cold-working or by heat-treatment, according to their composition.

*Modulus of elasticity* : Aluminium and aluminium alloys have a low modulus of elasticity in comparison with steel and this important difference offers special advantages by promoting increased resilience and an ability to absorb impact shock. Where stiffness is essential, it is obtained by increasing the moment of inertia of a section as compared with steel.

*Durability* : Immunity to the action of the weather is a basic characteristic of these materials. Special treatments such as anodising have been developed to enhance this high resistance and to ensure permanence in all environments, including marine and industrial atmospheres. Maintenance problems and costs are therefore much reduced. It is important that permanent fittings should not be in contact with copper or copper alloys where moisture is present. An insulating medium such as an approved paint coating, or fibre, should be interposed and will eliminate the possibility of galvanic corrosion. Good practice for material in contact with concrete mixtures is the coating of the surface with bitumen before fitting.

*Weathering* : The pleasant natural colour of the metal is retained for long periods and it may be maintained indefinitely by periodic washing and cleaning. In industrial atmospheres the accumulation of a black surface deposit may be prevented by the same regular maintenance. In some instances, particularly in marine atmospheres, a white deposit may form, often spotted in appearance: this is a superficial attack and tends to decrease in the course of time.

*Paint treatment* : Painting of light alloy structures may be specified for decoration and at the same time for added protection. In order to ensure permanent adhesion of the paint the metal surface should in all cases be free from grease: there are recognised pre-treatments which increase adhesion. Anodised surfaces are excellent for painting. Most normal priming paints are suitable but the fullest protection results from using a primer containing a proportion of zinc chromate. Lead-based paints are not recommended as primers. Finishing coats of all descriptions may be used, provided they are compatible with the priming coat.

## Further Information

The Aluminium Development Association maintains a Technical Advisory Service and Information Bureau which is available to answer questions and advise on technical problems: Information Bulletins on fabrication, welding, riveting, surface finishing, etc., are also available on request.

**This Series** of Sheets on aluminium and aluminium alloys gives general data on the properties of the materials and their use in various building applications.

*Compiled from information supplied by :*
**The Aluminium Development Association.**
**Address:** 33, Grosvenor Street, London, W.1.
**Telephone :** Mayfair 7501-8.

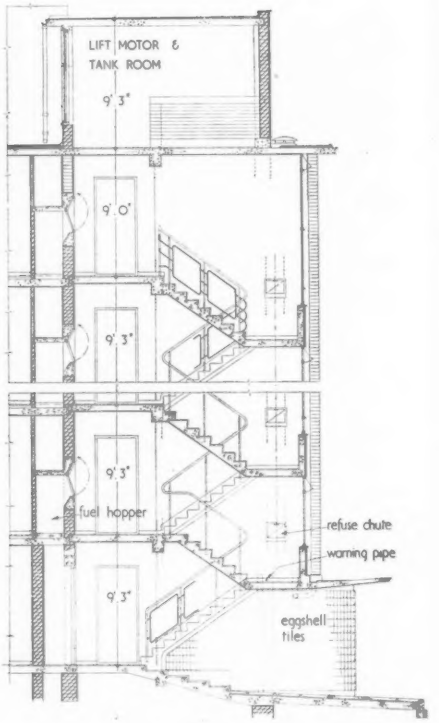
*The south west facade: block A*

the north-east side of the site from St. Pancras Way. It is ultimately intended to rebuild an existing public house which borders Wilmot Place.

PLAN.—The blocks are placed with their ends towards the main traffic route, Camden Road, to reduce noise disturbance. As block A is only five storeys high, it has been possible to keep the cills of top floor windows within 42 ft. of the ground and single escape only is necessary. Each staircase serves two flats on each floor and each unit of 10 flats is complete with its own lift and refuse chute. As the living room, kitchen and balcony in each flat form a single unit overlooking the gardens, the housewife can easily keep an eye on children playing, while she works in the kitchen.

CONSTRUCTION.—There are load-bearing external brick walls with certain highly stressed portions in the lower storeys built in engineering

*Above, looking east towards the Camden Road.*




Section through staircase and entrance [Scale : $\frac{3}{16}$" = 1' 0"]

# FLATS

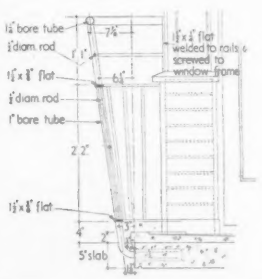
in ST. PANCRAS WAY, LONDON, N.W.1

designed by NORMAN and DAWBARN

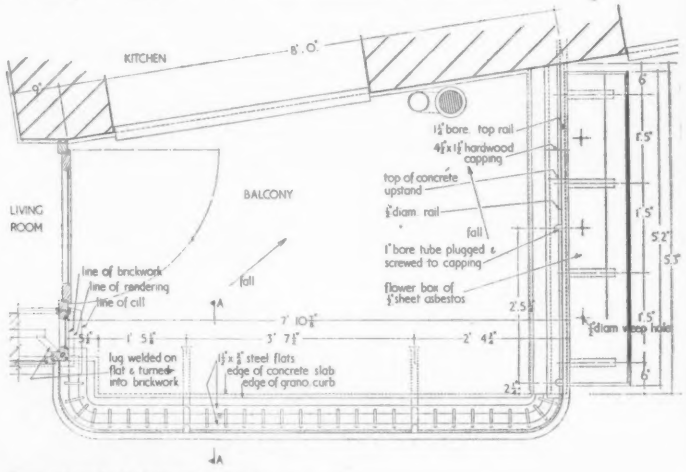
bricks to avoid increasing the thickness above 13½ in. The spine wall is 13½ in. thick up to third floor level and 9 in. above, party walls are 9-in. brickwork, and partitions are of 2-in. cellular breeze blocks. Cavity walls to living room bays have a 4½-in. brick outer skin, 2½-in. cavity, and 2-in. breeze block inner skin. Floors and roof are of reinforced concrete hollow tile construction. The staircases, ground floor and cantilevered balconies: solid RC.

FINISHES.—Brickwork is of yellow stocks; staircases towers and walls of living room bays, venetian red cement rendering; the roof slab is screeded to fall with aerated concrete, average 3 in. thick, and gutters are formed in the screed; roof is covered with three-layer felt laid in hot bitumen and finished with fine shingle; windows are standard EJMA casements painted broken white. Floor finishes are asphalt tiles or 1-in. deal t. and g. boarding on 1-in. glass silk blanket as insulation against impact noise.

SERVICES.—Hot water is provided by a multi-point gas heater of the balanced-flue type placed in the plumbing duct in bathrooms. Living rooms have gas ignited open fires designed for smokeless fuel and main bedrooms, electric panel fires. The general contractors were Perry's (Ealing), Ltd. For sub-contractors, see page 140.




Section A-A



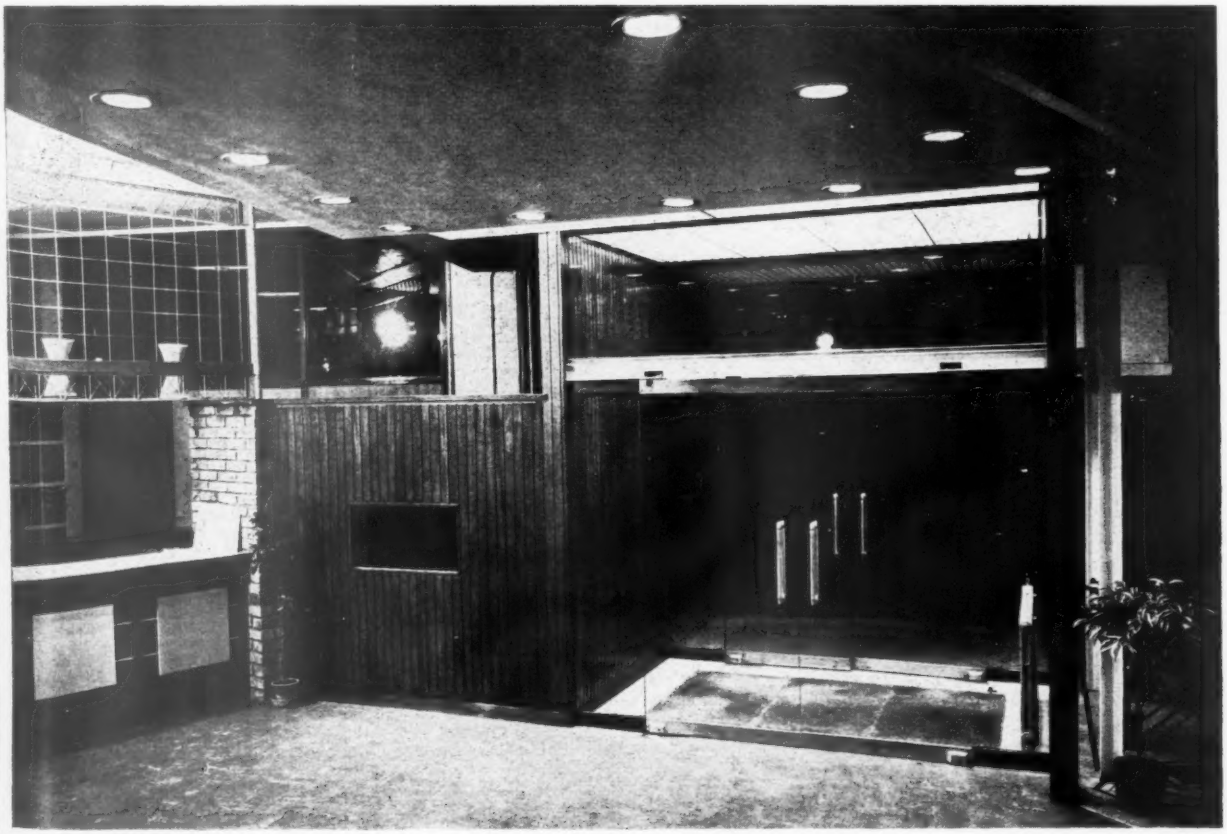

Plan of typical balcony [Scale : $\frac{3}{8}$" = 1' 0"]

# BUILDING CENTRE

in STORE STREET, TOTTENHAM COURT ROAD, LONDON, W.C.1
designed by GONTRAN GOULDEN; assistant architect, ROBIN DUNN
assistants for exhibition layout, JEAN CONDER and MARTIN CAVELL
consulting engineers, R. T. JAMES and PARTNERS

The building which houses the new premises of the Building Centre at 26, Store Street is believed to be one of the first reinforced concrete buildings in London. It was designed by Taperell and Haase in 1913. For many years it was a car showroom, garage and workshop and it was designed for a superimposed floor load of 200 lb. per sq. ft. Although it was damaged by blast several times during the war, there was no serious structural damage.

*The main entrance : information bureau on the left.*



PLAN.—The type of construction originally used made the structural alterations difficult to carry out and power tools had to be used throughout for cutting away old concrete, particularly in the demolition of a large public air raid shelter in the basement which had reinforced brick walls 3 ft. thick. The old motor car lift was removed and the space used for a new staircase and passenger lift. There are exhibits on every floor and, in addition, the basement contains a boiler house, electrical sub-station and lavatories; on the ground floor are offices; on the first floor, gas and electrical industries exhibits; on the second floor, the board room and administrative offices. There is a lecture room to seat 100 on the third floor. The layout of many of the exhibits was complicated by the exhibitors wishing to transfer them unaltered from the Conduit Street premises, even though they may have been designed to fit awkward spaces originally.

CONSTRUCTION.—The bottom flight of the new staircase has (for demonstration purposes) prestressed reinforced concrete treads 1¼ in. thick. A projecting part of the second floor had to be removed in order to achieve a flat window surface. On the rear elevation 2 in. of concrete face had to be removed due to pitting by splinters. The whole elevation has been sprayed on light reinforcement. Some of the blast walls of the original basement shelter have been retained so that an air raid shelter adequate for the building could be easily re-formed. A new flue for the heating plant has been constructed.

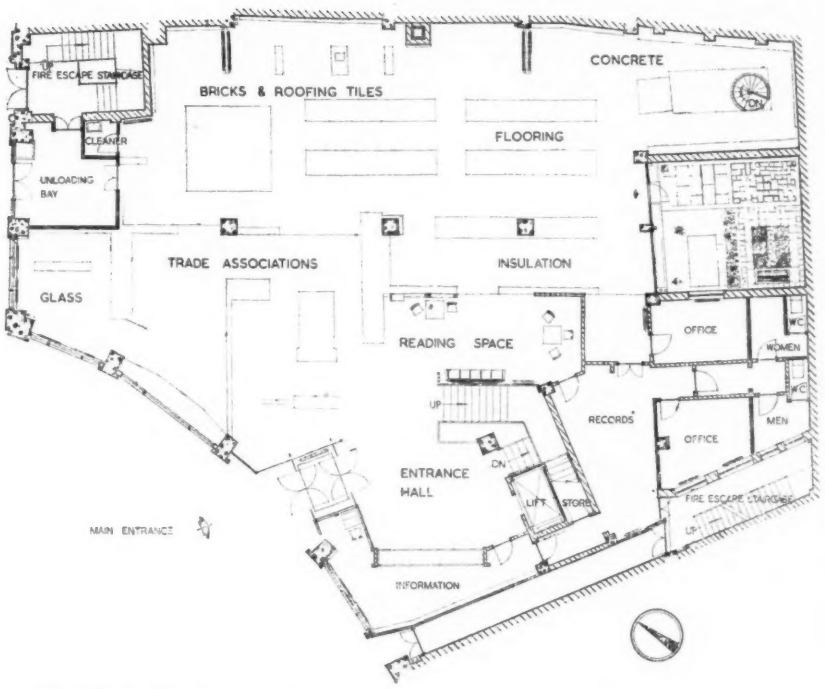
FINISHES.—Stonework on the front elevation ha

## BUILDING CENTRE

in STORE STREET, LONDON, W.C.1

designed by GONTRAN GOULDEN

*Above, new main staircase, seen from the ground floor. Right, the board room on the second floor designed by Grace Lovat-Fraser.*



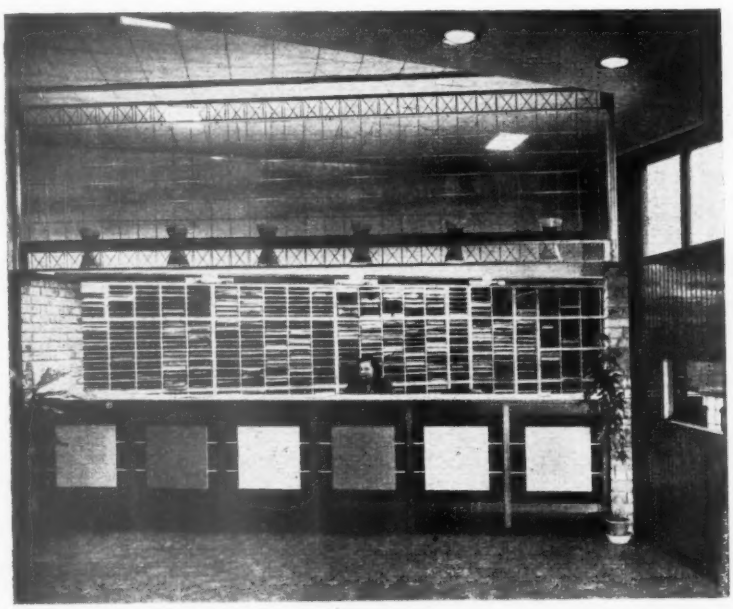

Ground floor plan [Scale : $\frac{1}{16}$" = 1' 0"]

been restored and cleaned and a permanent travelling cradle rail has been built into the underside of the top cornice. To facilitate plastering on lime-washed, fair-faced brickwork, walls were mechanically drilled on an 18-in. by 9-in. grid and $\frac{3}{8}$-in. plasterboard fixed direct to the brickwork without battens. Each sheet of plasterboard is held with a minimum number of screws and galvanised washers are used to prevent screw heads pulling through. New plaster work is distempered and lime white applied to unplastered walls and ceilings. The main floor areas are covered with a variety of finishes and a special flooring section contains over 50 different types. Apart from the prestressed RC stairtreads other examples of materials used as permanent exhibits include a built-up aluminium beam supporting a roof light at the rear of the ground floor, light section welded steel floor joists used as guard rails across window openings and a lean-to formed of two sheets of cathedral glass with glass wool between for thermal insulation.

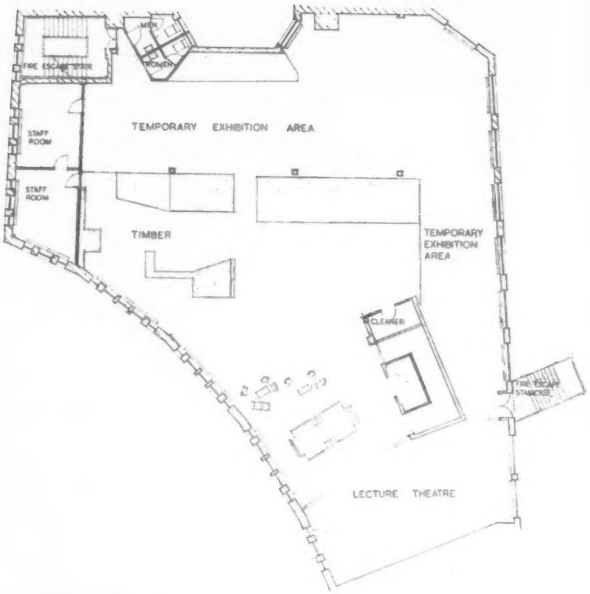
SERVICES.—The central heating consists of two fully automatic gas-fired boilers. The position of the boiler room would have caused difficulties of fuel transport and ash disposal had solid fuel been chosen. The electric transformer chamber was also designed to allow a view inside.

The work has been carried out under the same system of contracting as for the department store illustrated in our issue for December 13. The general contractors, who were also responsible for the first Building Centre premises in Bond Street, opened in 1932, were Bovis, Ltd. Sub-contractors, page 140.

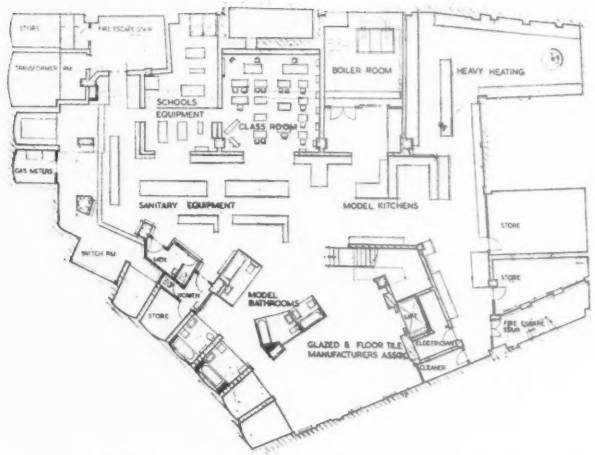
*Below, the ground floor information bureau to the right of the main entrance. Below, right, the Store Street facade at night.*



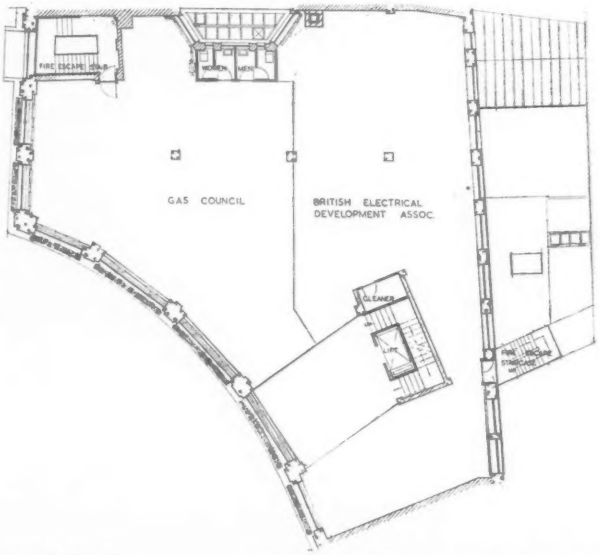

Second floor plan




Third floor plan




Basement plan



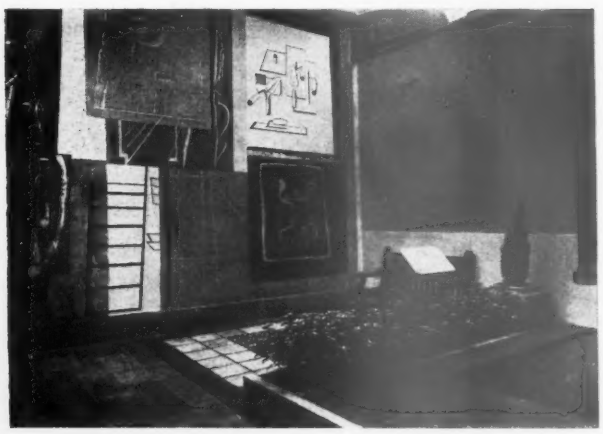

First floor plan

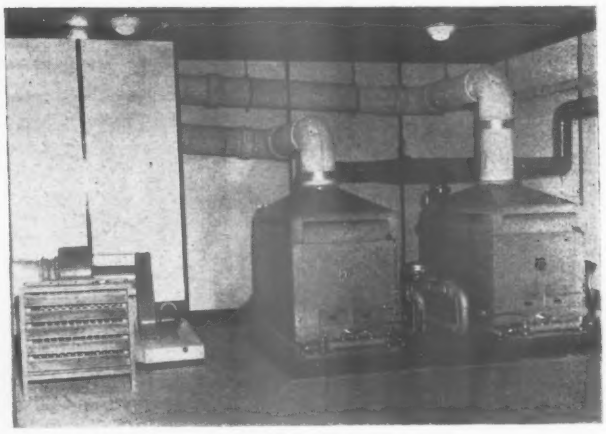
## BUILDING CENTRE

n STORE STREET, LONDON, W.C.1

designed by GONTRAN GOULDEN

*Below, left, garden courtyard at rear of ground floor. Murals are by Augustus Lunn. Below, the gas-fired boilers in the basement which form a permanent exhibition. They can be seen through glazed doors and a large window.*





# TECHNICAL SECTION

## A NEW TECHNICAL SECTION

Starting this week, the Technical Section has a " face lift." We hope our readers like its new appearance, but we hasten to add that the changes are more than skin deep. The core of the new Technical Section will be a series of " surveys," which will appear in every third or fourth issue. Each survey will have for its subject one of the subject headings of the Information Centre and appended to it will be a list of recently published and relevant Information Centre items.

It is the editors' intention that in this way each of these subjects will be dealt with at least once every two years (although some subjects will, of course, be dealt with more frequently) and the reader will thus be brought up-to-date on each subject.

The Information Centre will continue as before, although, in general, items will be kept shorter so that, perhaps, architects may find time to read more of them. Special articles also will continue to appear regularly. They will be printed in a larger type and should, therefore, be easier to read.

The Technical Section will commence each week with a short leader, commenting on events in the building industry or drawing attention to any important item in that week's Technical Section, and we are introducing one other new feature. It is felt that many architectural subjects can be dealt with more effectively by drawings and photographs than by lengthy description, so the new feature will be a pictorial one, with text cut down to the barest minimum. The first of these features appears on page 136.

R. FITZMAURICE

**This week's special survey**

## 23 HEATING
### recent developments



*Reviewing recent developments in heating, Specialist Editor No. 15 mentions, in particular, preformed panels for radiant heating, points raised at the Building Research Congress and heat pumps. This survey will be supplemented by a special article on domestic floor heating in next week's Technical Section.*

The use of nuclear fission as a source of heat and power is still the subject of research. Laboratories and other buildings at the research station at Harwell are already heated by this means, but the time is still fairly remote when domestic or even industrial heat will be obtained on any large scale from this source. Of more immediate interest are the experiments taking place in the underground gasification of coal—a means by which narrow seams can be exploited, without the agricultural and æsthetic disaster of open-cast mining. Gas so produced lends itself particularly to power production by means of the gas turbine, on which intensive development work is also being carried out. A further, allied, source of heat is the use of the methane or fire-damp in ventilation upcasts of " gassy " mines. It has been found possible, by using sufficient compression, to burn this gas when it is at

a concentration of no more than 1 per cent.

### THE HEAT PUMP

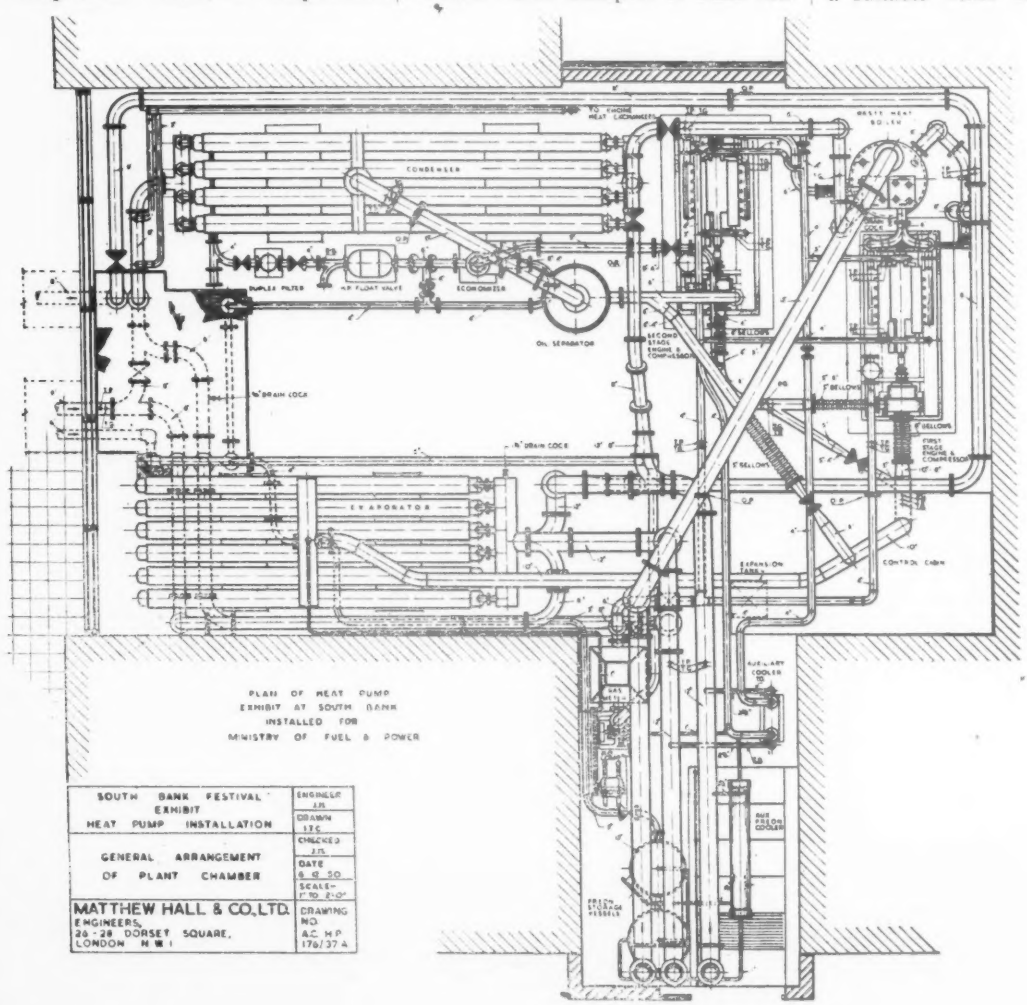
The use of natural heat, by means of a heat pump, has long interested scientists and heating engineers. Some convincing results have been achieved in other countries, but no large scale machine, except the one at Norwich, existed in this country until the construction last year of the South Bank heat pump. This is a remarkable machine. Firstly, it is by far the largest pump yet built in this country. With an output of 9,000,000 B.Th.U's per hour (the pump at Norwich has an output of only 800,000) it exceeds in size the largest Swiss pumps. Secondly, its motive power is town gas; it is the first to use this source of power. Thirdly, it makes use of existing machinery; the engines are Rolls-Royce "Merlin" aircraft engines, and the compressors are their own superchargers, modified as refrigeration compressors. This, now famous, heat pump abstracts heat from the River Thames, by lowering the temperature of large quantites of water through some 5° F., and transfers this heat, in "compressed" form, at temperature high enough to be useful, to the much smaller volume of water used for heating purposes.

The machine is both of experimental and practical use. Its heat output helps the boiler plant of the Festival Hall to provide winter warmth, and, by reversing the cycle, in summer, it can provide cooling. Thus, it fulfils the stipulation made by a number of prominent American heat pump experts, that to be an economic proposition, a heat pump must be designed to operate in both summer and winter.

Two engines are used each with an output of 1,800 b.h.p. when using petrol. They are modified to burn gas, and normally aspirated, they give about 350 b.h.p. Running at this rate their life should be very long. They are equipped with centrifugal superchargers, which have been modified extensively, so that the pressure they produce may reach about 300 lb. per sq. in. The refrigerant used is Freon 12, which, under this pressure, can produce 165° F. in the condenser.

Elsewhere, heat pumps have also been receiving attention. Their low consumption in proportion to the heat they give out makes them particularly suitable where transport or other considerations make fuel difficult to obtain or unduly expensive; the saving may well offset the high initial cost of the equipment. For this reason, a pump devised by the University of Toronto on behalf of the Defence Research Board of Canada is of particular interest. It is intended for use in remote posts in those parts of the Northern Territories, where, although constantly low temperatures render the air and the earth unsuitable as heat sources, water is generally available, deep below the ice in lakes. This water is too cold for use in the ordinary way; if heat were taken from it in the evaporator it would immediately freeze. Instead, the water is frozen in a modified commercial ice-making machine, thus abstracting the latent heat of fusion. The ice is then pulverized and blown to waste. The motive power is a diesel engine, from which all heat is recovered. The pump is a self-contained unit, and provides about 2½ times the amount of heat from a given quantity of fuel oil than would be obtained if the oil were burnt in a conventional heater.

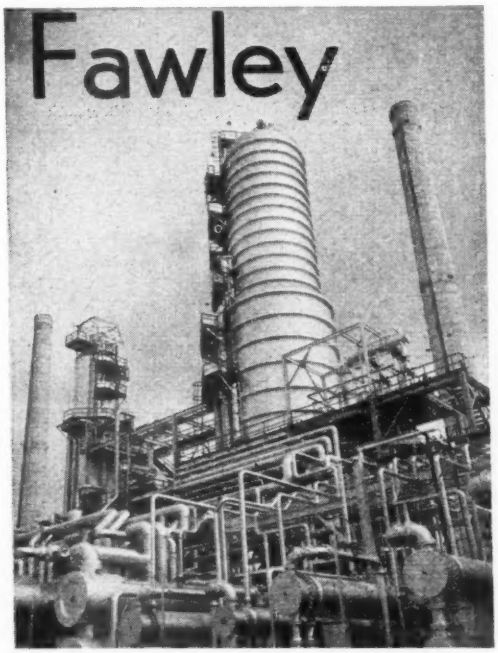
If heat pumps are to be used widely, the earth must be the heat source, for a suitable water supply is not often




*Part of one of Matthew Hall's working drawings for the South Bank heat pump.*

# Refinements at Fawley

## HOW A PROBLEM OF MATERIALS WAS SOLVED AT EUROPE'S BIGGEST OIL PLANT



THE FAWLEY REFINERY *represents one of the greatest feats of industrial enterprise since the war. Its huge Administration Building (Architects: Messrs. Lanchester & Lodge) was floored almost exclusively with Accotile.*

*On the left is shown a typical Accotile floor, in the lecture and conference room. A great variety of designs may be achieved with Accotile.*

THE SPEED with which the Esso Company's new refinery at Fawley was completed has in itself been a notable feature of this great enterprise. But it has involved some "tall orders" for architects and builders; for instance, in order to meet their deadline, Messrs. Lanchester and Lodge, the architects, were faced with the task of completing the entire Administration Building, from start to finish, *within a year*.

This meant that only readily available materials could be specified; at the same time, the assignment was far too important to allow any compromise where quality was concerned.

### Choosing a Floor

One problem of great importance was, of course, flooring. A material had to be found which would come up to exacting requirements of design and durability and yet be readily available.

The material chosen was Accotile, the asphalt tile flooring made by the Armstrong Cork Company. Practically the whole of the Administration Building has been floored with Accotile, as well as the canteen, medical block, and laboratory administration offices. In all, rather over seven thousand square yards of Accotile were laid — chiefly by Armstrong's own Contracts Department. Accotile was the only asphalt tile used.

### Qualities of Accotile

Accotile provides an extremely durable floor (floors laid in this country in 1938 and 1939 are still giving excellent service) which has a strong resistance to alkaline moisture. Hence it can be laid without the necessity of a damp-course, although it is not a damp-course itself.

There are almost unlimited possibilities of design for Accotile and it can be laid to harmonize with existing decorations. Inconvenience is cut down to a minimum, since Accotile can be used as soon as it is laid.

Standard Accotile is easily cleaned by washing with water, and is resistant to stains and most dilute acids. Where conditions make it advisable, a special Grease Resisting Accotile is recommended.

Accotile is available in two sizes of tile (12″ x 12″ and 9″ x 9″); in two thicknesses ($\frac{1}{8}$″ and $\frac{3}{16}$″); and in 19 different colours. In addition, Accotile Coved Skirting, supplied in 36″ lengths, prevents dust collecting in corners and obviates the need for timber.

**FOR FURTHER INFORMATION**

*about Accotile, architects and builders are invited to write or telephone to*

ARMSTRONG CORK COMPANY LIMITED

**London Office:** Flooring Department, Bush House, Aldwych, W.C.2. *Tel.: Chancery 6281*

**Birmingham Office:** Westminster Chambers, 93a Corporation Street. *Tel.: Central 1271*

**Glasgow Office:** 5 Oswald Street, C.1. *Tel.: Central 5703*

**Dublin Office:** 54 Middle Abbey Street. *Tel.: Dublin 54901*

*In addition to Armstrong's own service, forty-two approved contractors with branches all over the country handle Accotile.*

# ACCOTILE*

"The low-cost floor with the luxury look"

*British Registered Trade Mark 563095. Armstrong Cork Company Ltd., Registered Users.

available, and in this country, at least, the high moisture content of the air makes it difficult to use. Both in Canada and in the USA work on heat transfer from the earth continues, in this country, it is the subject of special study at the Electrical Research Association's laboratories, and in Sweden a machine which heats a farmhouse by abstracting heat from the byre is being developed.

### PRE-FORMED HEATING PANELS

Originally a British idea, much of the recent work on low temperature radiant panel systems has been done in the USA, where, we are told, there are no less than 200,000 installations. Apparently it is the fashion there to consider no house complete without one.

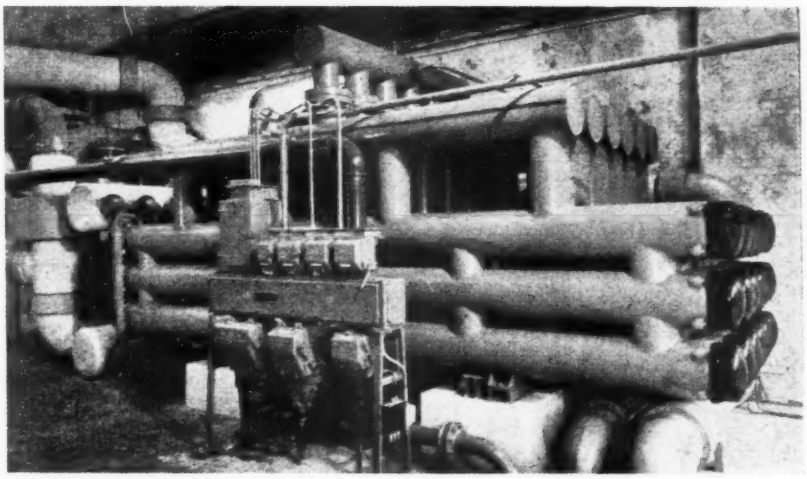
In this country, a number of new installations were made last year, mostly of the floor panel type, using small bore, soft copper tube*. An interesting development of this type of heating, suitable for installation on walls or ceilings, is the preformed plaster heating panel, which consists of thick plaster-board with $\frac{3}{8}$-in. copper tube and heat-distributing and reinforcing mesh embedded in it. These panels are very easily installed, and can be used conveniently for ceilings under precast concrete floors, where the fixing of a convenient pipe system is difficult. They have low thermal capacity, and are, therefore, suitable for intermittent heating, or for places (such as schools) where large and sudden changes in occupancy and solar gains through extensive south-facing windows make the high thermal capacity of many systems less suitable.

Although much knowledge on radiant panel heating is being derived from existing installations, specialized research is taking place, with a view to making calculations of heat emission easier and more accurate. In particular, the American Society of Heating and Ventilating Engineers has a programme in hand, whilst here, the Electrical Research Association is experimenting with electrically heated floors.

### THERMAL CAPACITY

Thermal capacity of buildings was the subject of several papers and discussions at the International Building Research Congress. Experiments are being carried out at BRS with a view to determining what savings might be achieved by intermittent heating if wall linings of very low thermal capacity were used; such linings warm up rapidly when the heat source is turned on, whereas high thermal capacity leads to a very slow build up of temperature and a correspondingly slow decay of temperature when the heat is turned off. In practice, the varying efficiencies of heating equipment at different loads tend to minimize the gain, but it is thought that where the heating period is less than an hour it is worthwhile using low thermal capacity linings; if the period is longer it is doubtful whether there is any gain at all.

*These will be described in next week's JOURNAL.



*The evaporator, showing river water connections on the left.*

### FULL-SCALE EXPERIMENTS

A survey has been undertaken in order to find out whether the temperatures normally reached in ordinary council houses of varying construction resemble those recorded at Abbot's Langley, where, it will be remembered, the results reached during the occupied and unoccupied phases of the full-scale tests, were in close agreement. In the majority of cases the figures agree, which is most satisfactory confirmation of the results of these experiments. The efforts of the Heating and Ventilating Section of the BRS are now being directed to the heating of schools and factories.

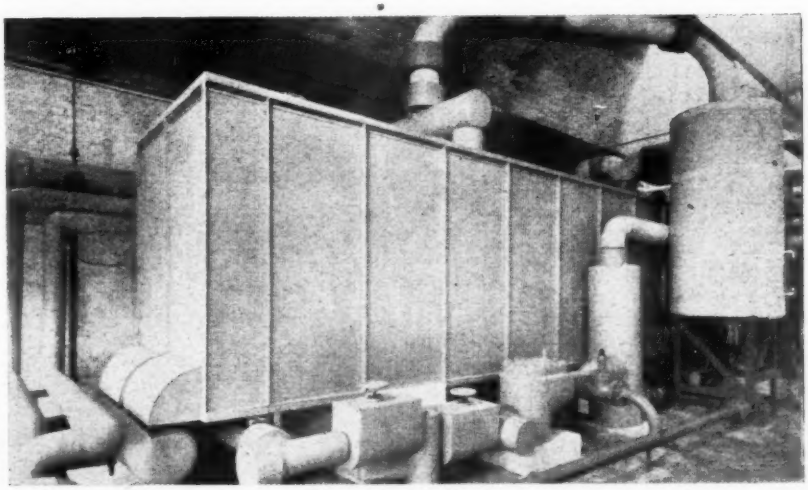
### INSULATION

Much attention was given to insulation at the Building Research Congress. Materials, with ample load-bearing strength, which can be used for the inner skin of a cavity wall instead of brickwork at no greater cost but with improved insulating value, are as important as improved heating appliances. "Thermalite," a material introduced to the industry during the last year, fulfils these requirements and should find a permanent place amongst other materials of this type.

The photographs and drawing illustrating this survey are reproduced by kind permission of Matthew Hall & Co., Ltd. who installed the South Bank heat pump. [The project was sponsored by the Scientific Division of he Ministry of Fuel and Power.] They appeared previously in the *Heating and Air Treatment Engineer* for August, 1951.

### RECENT INFORMATION CENTRE ITEMS

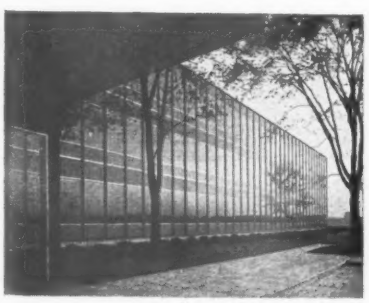
| | |
|---|---|
| 24.1.52 : 23.156 | Skirting heating. |
| 24.1.52 : 23.155 | Industrial exhaust ventilation. |
| 20.12.51 : 23.154 | Heat loss from dwellings: BRS digest. |
| 20.12.51 : 26.96 | Gas-fired boilers: BS C of P. |
| 13.12.51 : 23.153 | Domestic heating: use of off-peak electricity. |
| 6.12.51 : 23.152 | Natural ventilation: BRS digest. |
| 15.10.51 : 26.92 | Mild-steel cisterns, tanks and cylinders: BS. |
| 25.10.51 : 23.151 | Solid fuel storage. |

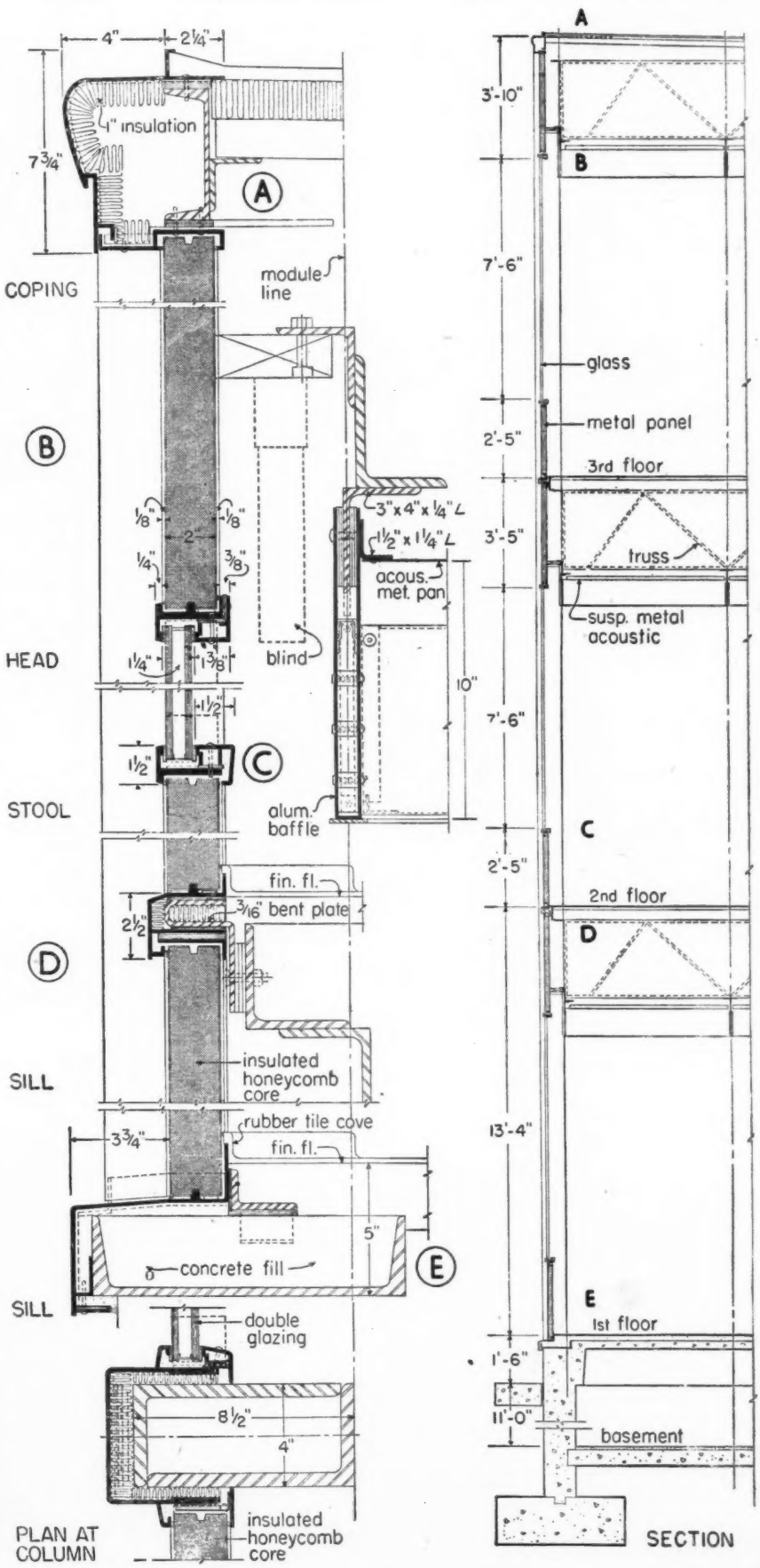


*The condenser, with filter, expansion valve, economiser and oil separator.*

# THE WALL : A NEW CONCEPTION BY SAARINEN

*In designing the new General Motors Technical Centre at Detroit, the architects, Saarinen, Saarinen and Associates, developed a new conception of the wall, as different from "11-in. cavity" as an air-conditioning plant is different from an open coal grate. The buildings, which cover over 2¼ acres of ground, are air-conditioned throughout, so that no windows need open and, in fact, they are all air-tight. Double glazing has been used, consisting of heat-absorbing ¼-in. plate on the outside, ½-in. air space and ¼-in. clear plate on the inside. Spandrels consist of 2-in. panels developed by Saarinen and a manufacturer who has now put them on the market as a standard product. They consist of two skins of porcelain-enamelled steel, bonded to a honeycomb core of heavy Kraft paper, filled with granular insulation. Similar panels 5 ft. wide and 8 ft. high are used for internal partitioning. The supporting structure consists of 4-in. by 8½-in. hollow steel columns, at 5 ft. 2 in. centres, which are situated in the plane of the exterior wall and also act as window mullions. The dimension of 5 ft. 2 in. was used throughout as a planning module, e.g., for determining the position of partitions and even for air-conditioning outlets and sprinkler heads. The section and details on the right are, we trust, self-explanatory; the photograph below shows the facade of the office block, seen from the large cantilevered canopy over the entrance.*





# INFORMATION CENTRE

*A digest of current information prepared by independent specialists; printed so that readers may cut out items for filing and paste them up in classified order.*

13.81 materials: timber
**FLOORING**

*Resistance to Wear of Kokrodua as Flooring.* F. H. Armstrong. (Wood. Nov., 1951.)

Ninth in series of reports on flooring. Rift sawn showed moderate resistance to wear but flat sawn was comparatively poor. Concludes that it is suited for light to moderate wear conditions in domestic buildings and a substitute for teak for decking.

15.93 materials: applied finishes and treatments
**FLOORING**

*Coloured Pitch Mastic Flooring incorporating Lake Asphalt and Bitumen.* BS 1783: 1951. (British Standards Institution. 2s. 6d.)

This specification has been developed from experience of floors covered by materials in accordance with BS 1375, because the inclusion of bitumen has been found to render mastic less liable to cracking. Particular emphasis is given to temperature limits, as overheating damages the material, as well as causing unpleasant fumes during laying.

16.79 materials: miscellaneous
**ASHLAR WALLS**

*Masonry Walls Ashlared with Natural Stone or with Cast Stone.* BS C of P 121,201 (1951). (British Standards Institution. 6s.)

A general document, of use to students and the inexperienced, with possibly a few points of value to others.

19.138 construction: details
**FOOTINGS**

*Failure of Footings.* Tasker, Russell & Hodgson. (Commonwealth Experimental Building Station, Sydney. 1950. 3s.)

199-page report on failures of houses in Adelaide due to moisture movement of soil. While chiefly of local interest, the description of fairly extensive investigation and the conclusions drawn therefrom are of some general interest, especially in view of somewhat similar troubles encountered on clay soils in parts of England.

21.41 construction: miscellaneous
**SCAFFOLDING**

*Metal Scaffolding.* BS 1139:1951. (British Standards Institution. 5s.)

Covers quality, etc., of tubular scaffolding and fittings, including steel and aluminium. Of more direct interest to builders than to architects.

23.155 heating and ventilation
**EXHAUST VENTILATION**

*The Practical Aspect of Industrial Exhaust Ventilation.* A. C. Mann. (Journal of the Institution of Heating and Ventilating Engineers. July, 1951.)

Informative paper with useful tables.

Hoods should be as small as possible, as near as possible to the source of material to be extracted, designed so as to receive the material in the direction in which it is given off, and adaptable. Examples are given in the paper.

Velocities depend on the materials to be conveyed, but should be kept as low as possible, consistent with practical results, in order to keep down running costs. A table is given of suitable velocities and figures are given for permissible concentrations of noxious fumes and dusts.

Provision must be made for replacement (and warming in winter) of air extracted. If it is replaced through accidental openings, draughts will result.

For ducting solids, galvanized or black steel sheet can be used, but if acid fumes are present other materials must be used. The paper contains a list of materials resistant to each acid, but as these are mostly more expensive than steel, one must consider whether the longer life justifies the increased expense, for ducting has no second-hand value.

Several types of separators are described. It is noted that gravity separators are suitable for large particles, but are bulky and costly. Electrostatic precipitators, used for very fine particles, are not described.

Centrifugal fans are usually used. Axial-flow fans may be used for fumes and light dusts, but they tend to be noisy when high pressures are used. Supports for fans must be secure; isolators or cork-slab insulators are desirable. They should be mounted at floor level whenever possible and never attached to a weak structure liable to vibrate.

Mr. Mann gives one special warning: many materials, not normally explosive, may become so when in the form of fine dust, and special precautions should be taken whenever these materials are to be extracted.

23.156 heating and ventilation
**SKIRTING HEATING**

*House-Heating Trials on Skirting-Heating Installations.* A. W. Pratt and I. W. L. Hendry. (The Heating and Ventilating Engineer, Nov., 1951. 2s.)

Observations by BRS members on performance of skirting-heating installations at Ipswich.

The houses are of normal construction except for the first floor ceilings which were insulated to a value of U = 0·16. Two houses have skirting heaters supplied from a sectional hand-fired boiler. One house has the same boiler but ordinary radiators, and a fourth has radiators fed from a stove. Although the skirting heating systems were intended only to give background heating, "topping up" by open fires in the living rooms was found necessary only in very severe weather.

Two types of skirting heater were used: one intended mainly as a radiant heater ("skirting panel"); the other, with provision also for convection heating ("skirting convector"). The length of heated skirting is made up of cast-iron sections, 2 ft. long, assembled by means of push nipple joints. All connecting pipes are concealed behind a wood skirting. The skirting panel can be obtained either 6 in. or 9 in. high, depending upon the rating required, while the skirting convector is 9 in. high, including the opening at the bottom which admits the cold air. Skirting heaters of this latter type are used only in the living room of one house, where one is beneath the bay window.

In Pratt and Hendry's paper, calculations of heat losses are given, together with a description of the instruments used and the experimental procedure. The results achieved were somewhat prejudiced by excessive variations in "tenant behaviour," but certain points are clear:

(*i*) Room temperatures, with skirting convectors, are strictly comparable with those with normal radiation; those with radiant skirtings were somewhat less.

(*ii*) Temperature gradients in living rooms with skirting heaters were commendably low; (radiant heaters, 1·3° F.; convective, 4·2° F.). A normal figure for a radiator system would be 7° F.

(*iii*) Fuel consumption figures for the skirting systems were lower than those for the radiator systems.

The tests show skirting heating to be fully effective; its neat appearance must, therefore, commend it to architects, provided it can be installed at a price comparable with other systems. This will depend on the demand.

# QUESTIONS & ANSWERS

*This feature answers any question connected with building confidentially and free of charge. Questions to the Technical Editor.*

**3052 CRACKING OF FLOOR FINISHES**

Q *We are designing a school sanatorium and shall be glad to have your opinion as to the design of the covers to the under-floor ducts.*

*It is proposed that the covers shall be of pre-cast reinforced concrete, butt jointed, in 1-ft. or 2-ft. lengths, and that the floor screed and floor surfacing shall be continued over the covers. Access to valves, etc., will be provided where necessary.*

*Our consulting engineers consider this arrangement satisfactory, but we wonder if there is a risk that, in spite of the heating pipes being lagged, movement will take place in the cover slabs and cause cracking in the screed and floor surfacing.*

*We shall be glad to have your opinion on this point and, if you consider that there is any risk, perhaps you could advise us as to a method of avoiding the cracking.*

A It seems doubtful whether it will be possible to avoid a certain amount of cracking in the screed and the concrete finish over the ducts. But what must be counteracted is the effect of a rise in temperature over the ducts greater than that over the main area of the floor. The main area of the floor, being on solid fill, will have an under-floor temperature which will remain fairly steady at about 55° F. The temperature over the ducts, however well the heating services are lagged, will probably, during the heating season, be higher.

In order to distribute shrinkage as uniformly as possible, the screeding should be reinforced, and contraction joints over the ducting should be at more frequent intervals than elsewhere. The areas between the joints should be roughly half as great as they are over the main area of the floor.

# THE INDUSTRY

*From the industry this week Brian Grant reports on a new set of information sheets on "Race" furniture, in an ingenious cover, and a gadget for measuring the depth of reinforcement in concrete, exhibited recently by CCA.*

## MEASURING REINFORCEMENT COVER

Although it is normally assumed that concrete reinforcement has the 2 in. of cover which is generally specified, one really has no guarantee that this amount of cover is, in fact, provided. In the past there has been no non-destructive means of discovering whether rods were properly protected or not, or of discovering the position of reinforcement when alterations were to be carried out. The Cement and Concrete Association exhibited at last November's Building Exhibition an instrument called the "Covermeter," in which a search coil, on the end of an electrical lead, is used to locate rods. Depth of cover, up to a distance of 2 in., can be read directly from a meter. The instrument is easily portable and can be used either with AC mains or with a 6-volt accumulator. It is used in much the same way as one of the wartime mine detectors—you "sweep" the concrete surface with the search head until the meter reacts. By twisting the search head it is possible to determine the direction in which the rods are running. No indication of size can be obtained, however, although it should be possible, with rough calculations, to determine approximately what the size ought to be.

It is not suggested that an instrument of this kind should form one of the architect's normal battery of weapons, but it is useful to know that such a thing exists. (*B. & P. Radios Ltd., 5a, Langham Parade, London, N.*15.)

## RACE FURNITURE

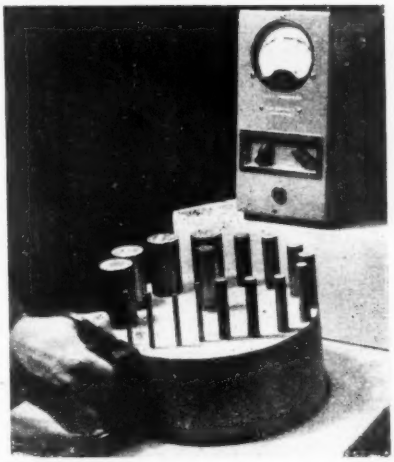
In the comparatively short time since the end of the war, Ernest Race Ltd. has made an excellent name for itself by producing the sort of furniture that most architects like; and like for themselves as well as for their clients. The firm has just issued a new reference catalogue, in the form of loose-leaf information sheets, which illustrates each design in photographs and dimensioned drawings and shows the construction. This is an admirable publication, but whether many people will be prepared to pay 2s. 6d. for it remains to be seen, although, at a guess, it must have cost very much more per copy to produce. The method of binding the individual sheets is interesting and quite new to me: the left-hand edge of each sheet has two wide dovetails cut in it and when the sheets are in the stout card cover a pair of rubber bands holds the assembly together so that individual sheets can be removed quickly and replaced without damage.

The price list shows what a lot is added by purchase tax to nearly everything but the utility ranges. (*Ernest Race Ltd., 22, Union Road, Clapham, London, S.W.*4.)

## RUBBER FLOORS

The British Rubber Development Board has recently published a booklet on rubber floors. It consists mainly of illustrations of work carried out in public buildings and ships, with a couple of pages of basic data about rubber floors in general. Details cover the uses and the normal sizes of tiles, and there is a brief note on "inlaid tiles," which consist of separate rubber tiles vulcanized together on a sheet-rubber backing. The tiles may be of contrasting colours, or of marbled effects laid in opposite directions, and they are joined together by a special rubber strip, which may also be of contrasting colour. The material is supplied in rolls 75 ft. long, 6 ft. wide and $\frac{1}{32}$ in. thick. Where a tiled pattern is required, this form of floor has the advantage of eliminating numerous joints and it is simple to lay.

Some readers may not realize that rubber possesses a high degree of resistance to abrasion—better than marble and linoleum



*The "Covermeter"—an instrument for measuring the depth below the surface of reinforcement in concrete.*

—while its resistance to indentation is also good.

The illustrations in the booklet give a very good idea of the complexity of pattern which is possible, but it would, I think, have been helpful if some notes on the various colours could have been included.

There are no particular installation difficulties so long as the sub-floor is flat and dry. New wood sub-floors should be ventilated and should be examined for projecting nails and warping of the boards. While these faults may be temporarily remedied by punching and planning, it is sometimes necessary to cover the sub-floor with plywood or hardwood. Old wood sub-floors, which also require to be ventilated, may be treated in the same way. The rubber flooring must not be applied to a waxed surface, as, in addition to preventing adhesion, the wax may have an injurious effect on the rubber.

Concrete sub-floors should be screeded to a smooth finish and thoroughly dried before the rubber floor is laid. When the concrete rests on the ground and there is a risk of capillary dampness, a damp-proof course must be laid, but where the sub-floor has already been laid without a damp-proof course a screed of $\frac{1}{2}$-in. rock asphalt is the best safeguard against rising damp. Alternatively, a rubber latex-cement screed may be floated to a smooth finish over the sub-floor. Suspended concrete floors should be finished with a steel trowelled screed and allowed to dry thoroughly. If rubber floors are to be laid on other types of sub-floor, advice should be obtained from the manufacturers or floor layers. (*The British Rubber Development Board, Market Buildings, Mark Lane, London, E.C.*3.)

BRIAN GRANT

*A living-dining room furnished with "Race" furniture. In foreground, left to right, ladies chair, wing chair, easy chair, occasional table and settee. In background, dining table, dining chairs and dining chair with arms.*

## THE LIBRARY OF INFORMATION SHEETS

10.B3 *REFERENCE BACK*

***Readers are asked to note the following revision and to amend their copy of the Information Sheet in question: Reverse of Sheet—In table headed "Heat-Treatable Materials" delete reference to alloy H.E.9M. Under heading "Relevant British Standards" delete reference to B.S./STA7.***

# Buildings Illustrated

*Flats in St. Pancras Way, Camden Town, London, N.W.1 for Borough of St. Pancras.* (Housing Manager: A. W. Davey, A.I.A.S., A.I.Hsg. (Pages 125-128.) Architects: Norman & Dawbarn. Associate-in-charge at design stage: Whitfield Lewis, A.R.I.B.A. Assistant-in-charge, C. A. Richards, A.R.I.B.A. Quantity surveyor: Waggett & Bradford. General contractor: Perrys (Ealing) Ltd. Clerk of works: E. G. Hayler. Sub-contractors: stock bricks, Cement Marketing Co. Ltd.; engineering bricks, Uxbridge Flint Brick Co. Ltd.; gas carcassing, North Thames Gas Board; hollow tile floors and R.C. construction, Helical Bar & Engineering Co. Ltd.; lifts, Hammond & Champness Ltd.; pressed steel door frames and special metal staircase windows, Frederick Braby & Co. Ltd.; electrical installation, Hartley Electromotives Ltd.; standard E.J.M.A. windows and special windows and casement doors built-up from E.J.M.A. standard sections, Jayanbee Joinery Ltd.; gas-ignited smokeless fuel fires and glazed tile surrounds and hearths, John Knowles & Co. (London) Ltd.; refuse chute hoppers, Haywards Ltd.; glass silk insulation blanket, Fibreglass Ltd.; fuel bunker fittings, Light Steelwork (1925) Ltd.; instantaneous gas water heaters, Ascot Gas Water Heaters Ltd.; asbestos cement flower boxes, Turners Asbestos Cement Co. Ltd.; asphalte tile ("Accotile") flooring and built-up bituminous felt roofing, Neuchatel Asphalte Co. Ltd.; sanitary fittings, J. H. Sankey & Co. Ltd.; glazed wall tiling, external (frostproof) tiling, electric panel fires and tiled surrounds, A. Bleakley & Co.; balcony and staircase balustrades, refuse chamber doors, rails and wheeled stands for refuse containers, sliding shutters and ventilator cowls for refuse chutes, playground shelter roof, Universal Metal Furring & Lathing Co. Ltd.; lettering for name of block, The Lettering Centre; kitchen fittings, Peerless Built-in-Furniture Ltd.; refuse pails, Alfred Syer Ltd.; cement glaze finish to walls of staircases and entrance columns, Robbs Cement Enamel Finishes Ltd.; terrazzo paving to staircases and terrazzo "cold slab" shelves in larders, Mosaic & Terrazzo Precast Co. (Staines) Ltd.; ironmongery, Nettlefold & Moser Ltd.; electric tubular heaters in linen cupboards, Wardle Engineering Co. Ltd.; time switches for public lighting on staircases, Venner Time Switches Ltd.; garden work, Gilliam & Co. Ltd.; plumbing, J. H. Shouksmith & Sons Ltd.; demolition and excavation, W. W. Drinkwater (Willesden) Ltd.; glazing, Rayner Davies & Co., Ltd.; plastering, H. J. Jenner & Co. Ltd.; tarmacadam paving to playground, Constable Hart & Co. Ltd.; joinery, James Repaired Woodwork Ltd.; painting, A. J. Lucas & Son; paint and distemper, Imperial Chemical Industries Ltd.

*The Building Centre, alterations to 26, Store Street, Tottenham Court Road, London, W.C.1.* (Pages 129-132.) Architect: Gontran Goulden, A.R.I.B.A. Assistant architect: Robin Dunn, A.R.I.B.A. Assistant for exhibition layout: Jean Conder. Assistant: Martin Cavell. Consulting engineers: R. T. James & Partners. Quantity surveyors: Messrs. Ainsley. General contractors: Bovis, Ltd. Sub-contractors: acoustic tiles, Burgess Products Co. Ltd.; main entrance, Courtney Pope Ltd.; aluminium beams, Robert Building Inventions Ltd.; asphalt work, Ragusa Asphalt Paving Co. Ltd.; armour- plate doors, plate glass, glass bricks, Pilkington Bros. Ltd.; roof slabs ("Bison"), Concrete Ltd.; borrowed light, John Thompson (Beacon Windows) Ltd.; coat hooks, D. S. Owensmith & Partners; composition floors, The British Doloment Co (1938) Ltd.; cradle rail (permanent), Palmers Travelling Crane & Scaffold Co. Ltd.; doors, Bryce White & Co. Ltd., Jayanbee Joinery Ltd., Trudors Ltd., John Sadd & Co. Ltd.; door furniture, J. D. Beardmore & Co. Ltd., Dryad Metal Works Ltd.; electrical work, Troughton & Young Ltd.; electrical fittings, Courtney Pope (Electric) Ltd.; flooring, E. J. Ellgood Ltd.; gas installation, North Thames Gas Board; glazing, James Clark & Eaton Ltd.; "gunite" rendering, Cementation Co. Ltd.; handrails, F. J. Lewis Ltd.; heating and ventilation, Troughton & Young (Heating) Ltd.; insulating roof screeds and suspended ceiling, Meta Mica Ltd.; lift, Waygood-Otis Ltd.; metal windows, John Williams & Sons (Cardiff) Ltd., C. E. Welstead Ltd.; neon sign, Claude-General Neon Lights Ltd.; partition blocks, sanitary fittings, Broad & Co. Ltd.; patent glazing, Mellowes & Co. Ltd.; plastering, Thomas & Wilson Ltd.; plumbing, Proops & Partners Ltd.; reinforced concrete and precast concrete, F. Bradford & Co. Ltd.; repairs to steel staircase, H. & C. Davis & Co. Ltd.; repairs to pavement lights, J. A. King & Co. Ltd.; steel door frames, Henry Hope & Sons Ltd.; steel scaffolding, Mills Scaffold Co. Ltd.; steelwork, Moreland Hayne & Co. Ltd.; steel bracketting and lathing, Campbell Denis Ltd.; stone cleaning and repair, Reparations-Dreyfus Ltd.; sub-station, London Electricity Board; suspended ceilings, Anderson Construction Co. Ltd.; "timber-saving" joists, Benfix Steel Co. Ltd.; waterproofing, British Knapen Ltd.; air eliminators (automatic), Charles Winn & Co. Ltd.; air filters, Fibreglass Ltd.; boilers, Thomas De La Rue & Co. Ltd.; boiler flue piping, Universal Asbestos Manufacturing Co. Ltd.; circulating pumps, Rhodes, Brydon & Youatt Ltd.; automatic controls, control panel, The Rheostatic Co. Ltd.; ductwork, A. C. & R. Knight Ltd.; fans, The Airscrew Co. & Jicwood Ltd.; gilled tube radiators, Hunt & Moscrop Ltd.; insulation of pipework, Newalls Insulation Co. Ltd.; pipe fittings, radiators, Crane Ltd.; tanks, Lancaster & Co. (Bow) Ltd.; thermometers and gauges, Coley Thermometers Ltd.; valves, Crane Ltd.

# CLASSIFIED ADVERTISEMENTS

*Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.*

*Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.*

## Public and Official Announcements

*25s. per inch; each additional line, 2s.*

NORTH THAMES GAS BOARD.

A JUNIOR ARCHITECTURAL ASSISTANT is required in the Architectural Section, Chief Engineer's Department, Westminster.

Applicants should be studying for, or have passed the Intermediate Examination of the R.I.B.A. and have had at least three years' practical experience in an Architect's office.

Starting salary, depending on age and qualifications, will be within the range of £415-£555 per annum. The appointment is of a permanent nature and pension arrangements will be discussed with short list candidates.

Applications, giving age, qualifications and experience, should be sent to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, London, W.8, quoting reference number 666/6. 5134

AIR MINISTRY WORKS DEPT.

ARCHITECTURAL DESIGNER/DRAUGHTSMEN required in Designs Branch by Air Ministry Works Department. Applicants should have had several years' experience in the preparation of working drawings, details and layouts for permanent and semi-permanent buildings. Vacancies are mainly in London, but there are some in the provinces. Salaries are on ranges up to £675 per annum, with starting pay dependent upon age, qualifications and experience. Applications, stating age, qualifications, previous appointments (with dates), should be sent to Air Ministry (C20) Directorate-General of Works (W.9), Bush House, S.E. Wing, Strand, London, W.C.2, from which address further details may be obtained. 5162

EDINBURGH CORPORATION.

SENIOR DEPUTE CITY ARCHITECT.

The office of City Architect will become vacant in October, 1953. The Corporation invite applications for the appointment now of Senior Depute City Architect, salary approx. £1,750 p.a. Qualifications: A.R.I.B.A., administrative experience.

Six copies of applications and relevant documents (with names of at least two referees) to be lodged with the subscriber not later than 11th February, 1952.

J. STORRAR,
*Town Clerk.*

City Chambers, Edinburgh.
3rd January, 1952. 5140

NDOLA MUNICIPAL COUNCIL (NORTHERN RHODESIA).

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

Applications are invited and will be received by the undersigned up to 20th February, 1952, for appointment to the above post in the Town Engineer's Department on a salary scale of £1,000×£40—£1,200 per annum, plus a temporary cost of living allowance of 10 per cent. of basic salary, the commencing salary to be according to qualification and experience.

Applicants must be Associate Members of the Royal Institute of British Architects and have had several years municipal experience, and the possession of a Diploma of a recognised School of Architecture will be an added recommendation.

Applications must state the earliest date on which duties could be commenced and contain full particulars of the candidate's name, age, marital state, nationality and experience, and should be accompanied by copies of three recent testimonials and a medical certificate of fitness.

The appointment is subject to all terms and conditions of Council's Service Regulations which include a probationary period of six months, leave at the rate of five days per completed month of service (cumulative after the first twelve months' continuous service), a 5 per cent. Provident Fund and a Medical Aid Scheme. A Superannuation Scheme is at present under consideration.

Unfurnished accommodation will be made available as soon as possible at a monthly rental of 12½ per cent. of basic salary.

Canvassing, directly or indirectly, will disqualify the candidate.

Applicants desiring further information should apply to the undersigned.

EDWARD C. BARLOW,
*Town Clerk.*

Municipal Offices,
P.O. Box 197, Ndola. 5233

LONDON COUNTY COUNCIL.

ARCHITECT'S DEPARTMENT.

ARCHITECTS and SURVEYORS required for safety regulation of Theatres and Special Buildings. Salaries up to £767, according to experience. A.R.I.B.A. or A.R.I.C.S. essential. Application forms from Architect, The County Hall, S.E.1, quoting AR/EK/TH/3. (45) 5225

ROTHWELL URBAN DISTRICT COUNCIL (YORKS).

APPOINTMENT OF QUANTITY SURVEYOR.

Applications are invited for the appointment of Quantity Surveyor for a minimum period of two years, at a salary in accordance with Grade IV (£530×£15—£575 per annum). Candidates should be capable of undertaking all stages of work in the preparation of Bills of Quantities, preparation and settlement of final accounts, site measurements, and interim certificates.

Applications, stating age, present and previous appointments qualifications and experience, together with copies of not more than three testimonials, to reach the undersigned not later than Monday, 11th February, 1952.

ALLEN T. S. ROBERTSON,
*Clerk of the Council.*

Civic Buildings, Rothwell, Leeds. 5238

SURREY COUNTY COUNCIL.

COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment of ASSISTANT QUANTITY SURVEYOR, Grade VI, at a commencing salary of £645 per annum, rising by annual increments of £20/£25 to a maximum of £710 per annum, plus London allowance of up to £30 per annum, according to age.

Preference will be given to applicants who are Members of the Royal Institution of Chartered Surveyors (Quantities Sub-Division), and who have adequate experience in the preparation of Bills of Quantities, site measuring, and in settlement of final accounts.

The appointment will be subject to the provisions of the Local Government Act, 1937, and the successful applicant will be required to pass a medical examination.

Applications, stating age, qualifications and experience, and accompanied by copies of three recent testimonials, should be sent to The County Architect, Surrey County Council, County Hall, Kingston-upon-Thames, not later than the 8th February, 1952.

Canvassing, either directly or indirectly, will disqualify a candidate from consideration.

The Council will be unable to provide any housing accommodation, and the successful applicant will be expected to make his own arrangements in this direction.

T. W. W. GOODERIDGE,
*Clerk of the Council.*

County Hall, Kingston-upon-Thames. 5244

BRITISH ELECTRICITY AUTHORITY (EASTERN DIVISION).

Applications are invited for the following appointments in the Generation (Construction) Department at Divisional Headquarters in North London:—

SENIOR DRAUGHTSMEN (STRUCTURAL).

Salary in accordance with the N.J.B. Schedule "D," Grade IV-V, £374-£792 per annum (which includes London weighting).

The commencing salary will depend upon experience and qualifications but will be within the range above.

Applicants should have had experience in the design of structural steel work and reinforced concrete structures.

The appointments will be Superannuable in accordance with the British Electricity Authority and Area Boards Superannuation Scheme.

Applications, stating age, experience, present position and salary required, and endorsed "Senior Draughtsmen (Structural)," should be submitted to arrive not later than 8th February, 1952, to the Divisional Controller, British Electricity Authority, Eastern Division, Northmet House, Southgate, N.14.

W. N. C. CLINCH,
*Controller.*

Northmet House, Southgate, N.14. 5243

COUNTY BOROUGH OF SWANSEA.

BOROUGH ARCHITECT'S DEPARTMENT.

Applications are invited for the following established posts:—

(1) TWO SENIOR ASSISTANT QUANTITY SURVEYORS, Grade VII (£685-£760 per annum).

(2) ASSISTANT QUANTITY SURVEYOR, Grade V (£570-£620 per annum).

(3) JUNIOR ASSISTANT QUANTITY SURVEYOR, Grade III (£500-£545 per annum).

For the post of Senior Assistant Quantity Surveyor, Grade VII, and Assistant Quantity Surveyor, Grade V, Associateship of the R.I.C.S. (Quantities) is required and for the post of Junior Assistant Quantity Surveyor, Grade III, the Intermediate examination of the R.I.C.S. must have been passed.

Candidates must be under 45 years of age unless in Local Government service. The appointments will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidates will be required to pass a medical examination.

The appointment may be terminated by one month's notice on either side.

Forms of application may be obtained from the Borough Architect, Mr. H. T. Wykes, F.R.I.B.A., The Guildhall, Swansea, and are to be returned to the undersigned not later than 11th February, 1952.

Canvassing directly or indirectly will disqualify.

T. B. BOWEN,
*Town Clerk.*

The Guildhall, Swansea.
18th January, 1952. 5256

ORKNEY COUNTY COUNCIL.

Applications are invited for the post of ARCHITECTURAL ASSISTANT in the County Architect and Planning Officer's Office. Applicants should hold at least the Intermediate Certificate, A.R.I.B.A., and have had experience in an Architect's office. The salary attached to the post, which is subject to the Local Government Superannuation (Scotland) Act, 1937, is £525-£570 per annum, but may be varied according to qualifications and experience.

Applications, together with copies of three recent testimonials, should be lodged with the undersigned on or before 1st February, 1952.

DOUGLAS M. WOOD,
*County Clerk.*

County Offices, Kirkwall.
11th January, 1952. 5250

BOROUGH OF WREXHAM.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT preferably with planning experience at a salary within A.P.T., Grade V or VI (£570 to £620 or £645 to £710 per annum) according to experience and qualifications.

Applicants should possess suitable professional qualifications at least equivalent to the Intermediate Examination of the R.I.B.A. or the Town Planning Institute and to have some experience in connection with the design and development of a neighbourhood unit.

The Council is prepared to provide housing accommodation at the appropriate rent for the successful applicant, if married.

Form of application and Conditions of Service may be obtained from the Borough Engineer & Surveyor, 31, Chester Street, Wrexham.

Applications, on the prescribed form, together with the names and addresses of two persons from whom reference may be obtained, should be delivered to the undersigned endorsed "Architectural Assistant" not later than first post on Friday, 8th February, 1952.

PHILIP J. WALTERS,
*Town Clerk.*

Guildhall, Wrexham.
16th January, 1952. 5249

MIDLANDS ELECTRICITY BOARD.

BIRMINGHAM AND DISTRICT SUB-AREA.

APPOINTMENT OF SENIOR DRAUGHTSMAN (BUILDING AND CIVIL ENGINEERING).

Applications are invited for the position of Senior Draughtsman in the Architectural and Construction Section of the Engineer's Department of the Birmingham and District Sub-Area.

Applicants should have had a thorough technical training and practical experience in the design of new buildings and alterations to existing buildings, including reinforced concrete and structural steelwork, and be capable of preparing complete working drawings for Service Centres, Substations and foundations for heavy plant, etc. Appropriate qualifications will be considered an advantage.

Conditions of service will be in accordance with the N.J.B. Agreement, and the salary will be Schedule "D," Grade IV, £651-£755 per annum, or Grade V, £547-£651 per annum, according to qualifications and experience.

Applications, stating age, qualifications, experience, present position and salary, endorsed "Building and Civil Engineering Draughtsman," should be forwarded within 14 days to Emil Braathen, Sub-Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.

A. STEPHENS,
*Secretary.*

16th January, 1952. 5264

COUNTY OF LEICESTER.

ASSISTANT QUANTITY SURVEYOR (GRADE III, £500-£545).

Candidates should have passed Intermediate Examination of R.I.C.S. (Quantities Division), and be experienced in preparing specifications, Bills of Quantities, and statements regarding interim certificates and final accounts. Appointment subject to N.J.C. Service Conditions and medical examination; post pensionable. Consideration given to Registered Disabled Persons.

Applications, on forms to be obtained from the County Architect, T. A. Collins, A.R.I.B.A., 123, London Road, Leicester, must be returned, accompanied by copies of three recent testimonials, not later than 11th February. 5263

COUNTY BOROUGH OF READING.

TO BUILDERS AND CONTRACTORS.

The Corporation of Reading invite tenders for the erection of an extension to contain a Medical Inspection Unit at The Avenue School, Northumberland Avenue, Reading.

The General Conditions may be inspected at the office of the Borough Architect, Town Hall, Reading, and copies of the Drawing, Specification, Form of Tender and endorsed envelope obtained on application to him.

Tenders must be delivered to the undersigned not later than 12 noon on Monday, the 11th February, 1952.

No tender will be considered unless enclosed in the endorsed envelope provided and sealed but not bearing any name or mark indicating the sender.

The Corporation do not bind themselves to accept the lowest or any tender.

G. F. DARLOW,
*Town Clerk.*

Town Hall, Reading.
January, 1952. 5257

BOROUGH OF LUTON.
SENIOR ARCHITECTURAL ASSISTANT required in Borough Engineer's Department (A.P.T., Grade VII, £685×£25—£760 per annum). Applicants should be A.R.I.B.A., and have extensive Municipal experience, especially in housing works. N.J.C. service conditions; post pensionable; medical examination; house available. Apply, giving age, full particulars and two referees, to Borough Engineer, Town Hall, Luton, by 12th February.
W. H. ROBINSON,
*Town Clerk.*
5227

BOROUGH OF ILFORD.
APPOINTMENT OF ARCHITECTURAL ASSISTANT (GRADE VI).
Applications are invited for the position of Architectural Assistant on the permanent staff of the Borough Engineer's Department. Salary in accordance with A.P.T., Grade VI, viz., £645×£20 (2)×£25—£710 p.a., plus London weighting.
Candidates should be Associate Members of the R.I.B.A., have a thorough knowledge of architectural works, with practical experience in the design and development of public buildings of all types, flats, housing schemes, etc., the preparation of specifications, and be capable of supervising and controlling contracts.
The Council is prepared to consider, if necessary, in connection with this appointment, the question of housing accommodation, comprising a two-bedroom self-contained flat in the vicinity of the Town Hall.
The appointment is a whole-time one (private practice being prohibited), is subject to one month's notice on either side, to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, and to medical examination.
Forms of application may be obtained from the Town Clerk, Town Hall, Ilford, and should be returned by the 11th February, 1952. 5267

BURGH OF MUSSELBURGH.
ARCHITECTURAL ASSISTANT (Junior) required for Architectural Department of Burgh Surveyor's Office, Musselburgh. Salary scale, Grade A.P.T., I and II, £430 per annum, rising to £505 per annum. Applications, stating age and experience, to be lodged with the Town Clerk, Musselburgh, not later than 15th February. 5266

LONDON COUNTY COUNCIL.
Applications invited for position of SENIOR STRUCTURAL ENGINEER in Architect's Dept. Salary: £1,275×£75—£1,575. Qualifications: A.M.I.C.E. or A.M.I.Struct.E. essential. Further particulars and applications form (returnable by 29th February, 1952) from Architect, The County Hall, S.E.1, quoting AR/EK/SS/4. (67). 5265

## Architectural Appointments Vacant

*4 lines or under, 7s. 6d.; each additional line, 2s.*

ARCHITECTURAL ASSISTANT, senior position, required immediately. Please write, stating details of experience and qualifications. Martin & Martin & W. H. Ward, 106, Colmore Row, Birmingham, 3. 5258

ARCHITECTURAL ASSISTANT, up to Inter. R.I.B.A. standard, required for busy country practice. Sound knowledge of Building Construction essential. Write, stating age, training, experience and salary required, to Edwin H. Earp & Badger, L./A.R.I.B.A., Scholars Lane, Stratford-on-Avon. 5221

SENIOR ARCHITECTURAL ASSISTANT required in Northern Rhodesia; preference given to Member R.I.B.A. and T.P.I. with specialist knowledge of domestic architecture, particularly relating to small dwellings. The successful applicant will be required to design and prepare drawings, details, specifications and contract documents in Lusaka for a number of small housing contracts over the territory, and to take the lead in supervising the contract work, on behalf of a newly formed Housing Society. Commencing salary £1,500 p.a. plus travelling expenses and assistance with housing. Reply with full details, to The Manager, P.O. Box 420, Lusaka, Northern Rhodesia. 5240

MIDLAND Architect, medium sized office, requires Senior and Inter. Standard ASSISTANT ARCHITECTS, having initiative, contemporary outlook, good draughtsmen, willing to take responsibility. Bonus scheme in operation. Salary in accordance with experience and ability. Housing, School, Industrial work in progress. Full details, Box 5210.

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ARCHITECTURAL ASSISTANT required, of Intermediate R.I.B.A. standard or over, and with some previous experience in Architect's office. Salary according to ability. Write, stating age and experience, to Staff Office, Handley Page, Ltd., Cricklewood, London, N.W.2. 5231

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ARCHITECT'S ASSISTANT, of R.I.B.A. Intermediate standard, for Architect's Dept. of Industrial concern in the Midlands. Some office experience of industrial work desirable. Salary by arrangement. Pension scheme. Apply in writing, stating age and experience, to Box 5262.

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## Architectural Appointments Wanted

A. R.I.B.A. (25) seeks post with firm of Architects engaged in general practice. Preferably where there is a possibility of helping an elderly principal. Would like Buckinghamshire, Hertfordshire or London area. Owner of small car. Box 333.

A. R.I.B.A., A.A.Honours Dip., aged 38, with 15 years' wide experience in hospital, industrial, domestic and public building work, seeks position as ASSISTANT, preferably with scope for design and possibility of partnership. Home Counties, South or West England. Box 348.

PROBATIONER R.I.C.S. Sub-Division III Building, taking Final examination this March, seeks recognised position with Chartered Surveyor and Chartered Architect as Assistant Building Surveyor. Experience of site and property surveys, structural alterations and repairs, specifications, working drawings, measurement and supervision of builders' work. Please state approximate salary offered. Box 344.

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COMPETENT SHORTHAND/TYPIST seeks position as Secretary to private architects. Three years' experience in architect's office. Box 5237.

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A.R.I.B.A. (30), wide general experience, irked by regular hours, will take on any part-time or free-lance work in London area; surveys, working drawings, display, furniture, perspectives, models, etc., etc. Box 5261.

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RESPONSIBLE position in the South or West required by SENIOR ASSISTANT (aged 32). Experienced in housing and industrial work and in the running of jobs. Box 363.

FULLY trained and experienced Assistant (aged 30) seeks position as SENIOR ASSISTANT to London or Home Counties Architect. Will take full responsibility for any type of contract, and well versed in designing, detailing, specifications, etc., and job management at all stages. Excellent draughtsman and land surveyor. Energetic and studious worker, prepared to foster new clients with a view to future partnership. Married and resident in the Staines area. Box 362.

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I.A.A.S. FORTHCOMING EXAMINATIONS.
The Incorporated Association of Architects and Surveyors will hold examinations at Intermediate and Final grades in the following sections during the week beginning 19th May, 1952:—
Architecture.
Quantity Surveyors.
Building Surveyors—Municipal.
Building Surveyors—Non-Municipal.
Land Surveyors.
Fire Surveyors.
The Examinations will be held in London and at certain provincial centres. Applications from candidates for permission to sit, made on the prescribed form, must be received not later than Monday, 25th February, 1952.
Full information on application to the Examinations Secretary, I.A.A.S., 75, Eaton Place, S.W.1. 5236

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