The Architects' JOURNAL for August 14, 1958

ARCHITEC RN



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contents

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BOT

BRS BSA

BSI BTE

CABAS

CAS

CCA

CCP

CIAM COID

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ICA

ICE

TES

IGE

BCIRA BDA BEDA

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

and COMMENT VEWS

stragal's Notes and Topics

etters Vews.

Diary riticism

SECTION. ECHNICAL

nformation Sheets nformation Centre

urrent Technique Working Details

Duestions and Answers Prices

The Industry

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Major Buildings described:

Details of Planning, Construction,

inishes and Costs

Buildings in the News

Building Costs Analysed

Architectural Appointments

Wanted and Vacant

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

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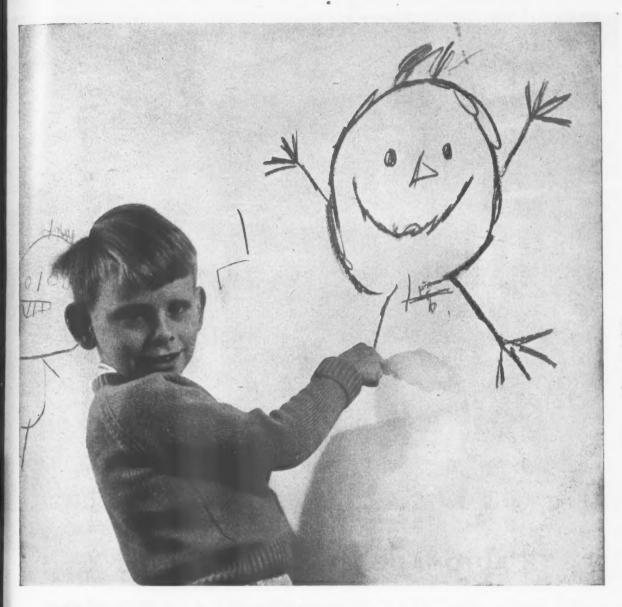
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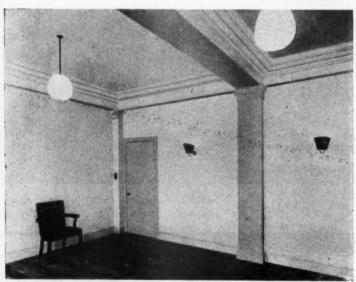
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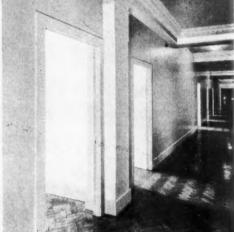
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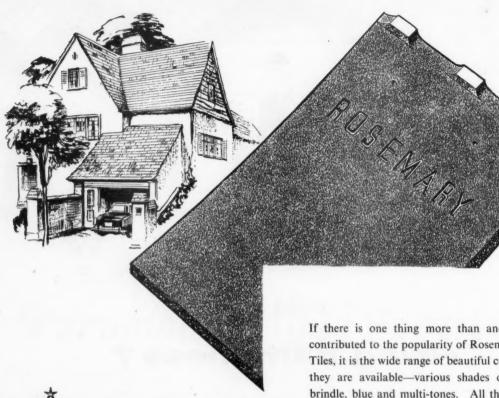
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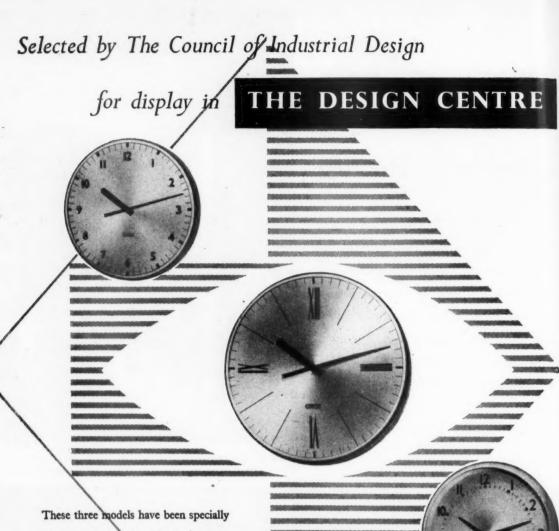
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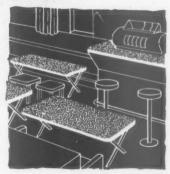


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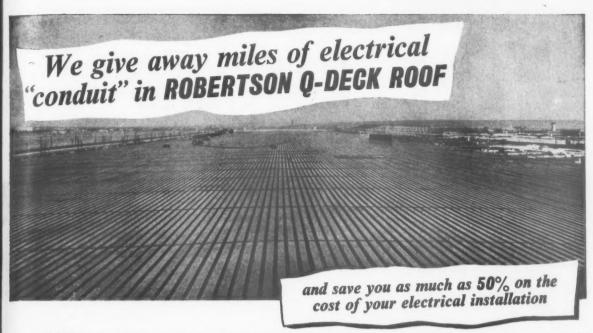
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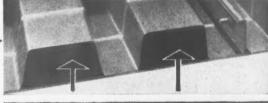
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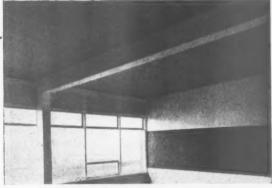
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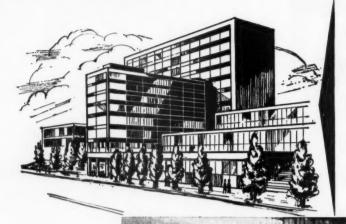
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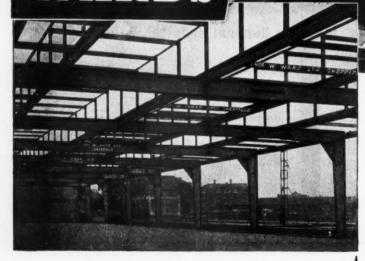
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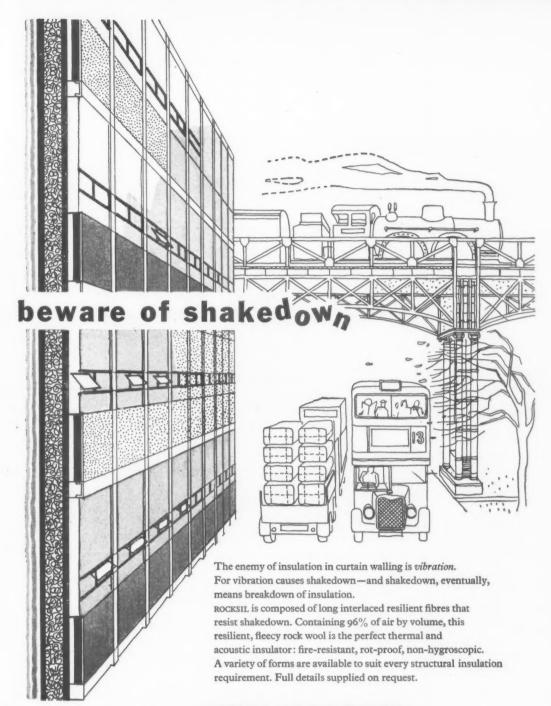


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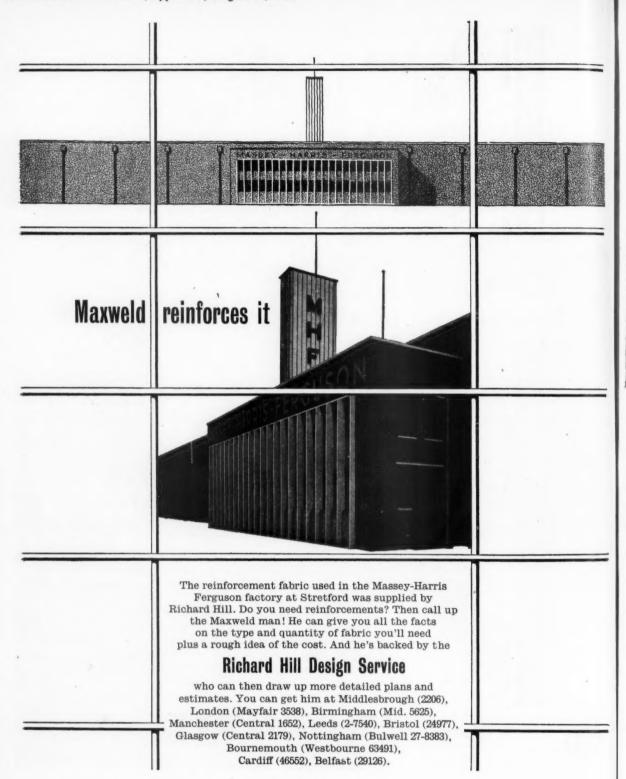
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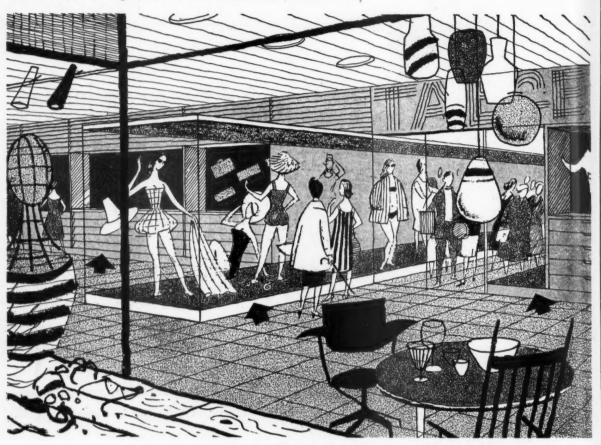
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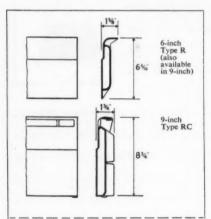


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WHEREVER maximum space is a functional necessity—and there are many instances, such as shops, libraries and exhibition rooms—the problem arises of how to make provision for a heating system that gives the proper requirements of evenly distributed warmth, functions economically, and neither takes up useful wall space nor offends aesthetically by spoiling a clean-looking line.

There is one system which architects are now coming to look upon as the best answer to this problem. It has been evolved by Crane Ltd. (already well known for other types of heating equipment) and employs heating panels in place of the usual skirting boards. It is clear that this system gives the designers considerable flexibility of arrangement. The heating panels are quite unobtrusive and, being capable of encircling the entire room if necessary, eliminate 'hot spots' and distribute the warmth evenly where it is wanted. In the illustration the position of Skirting Heating panels is indicated by arrows. It will be readily appreciated how well this system answers the condensation problem here.

There are two types of panel. Type R—purely radiant—in 9-inch panels to match Type RC, and in 6-inch panels for use where less heat is required: and Type RC (radiant-convector) 9-inches high. The panels used in the example illustrated are 6-inch Type R. All panels are in 2-ft and 1-ft lengths and are made of cast iron, which gives them considerable resistance to accidental damage. The operations of calculating heat requirements and designing the pipework are in principle no different from those for conventional radiator heating systems.

Wherever the architect needs greater freedom of expression than conventional heating systems allow him, and at the same time has to pay due consideration to costs, the answer is, undoubtedly,

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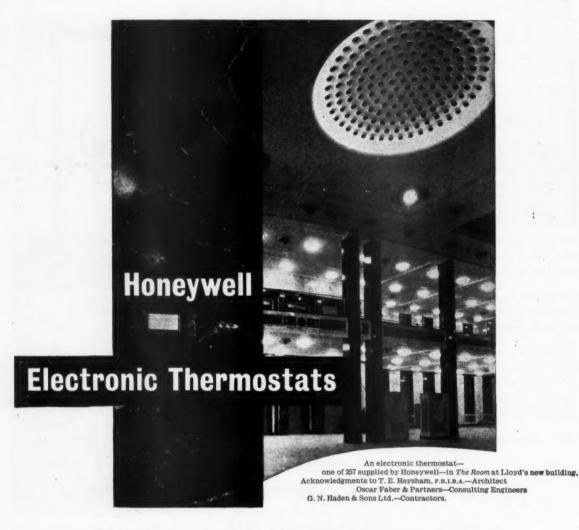


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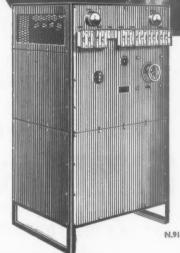
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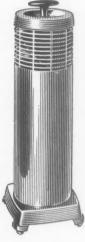
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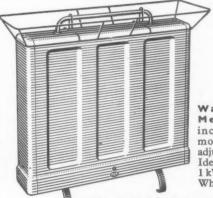
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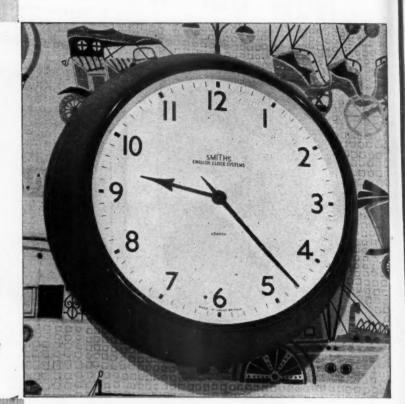
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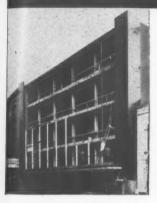
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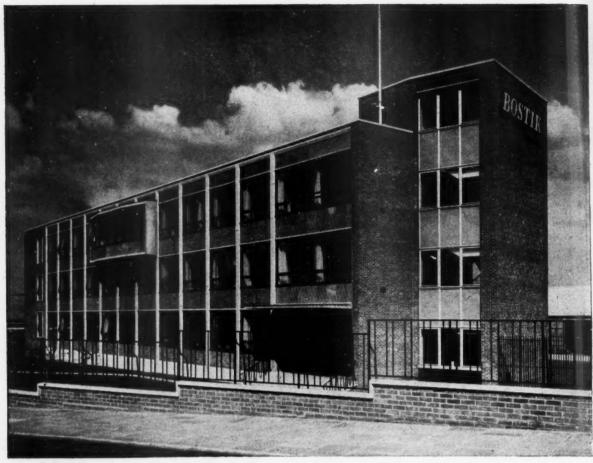
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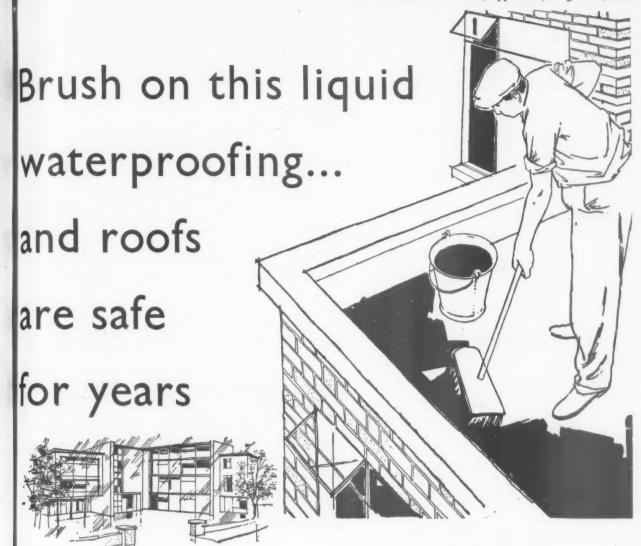
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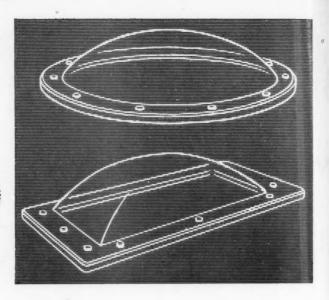
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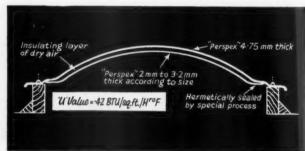
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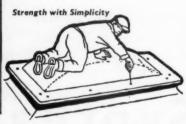


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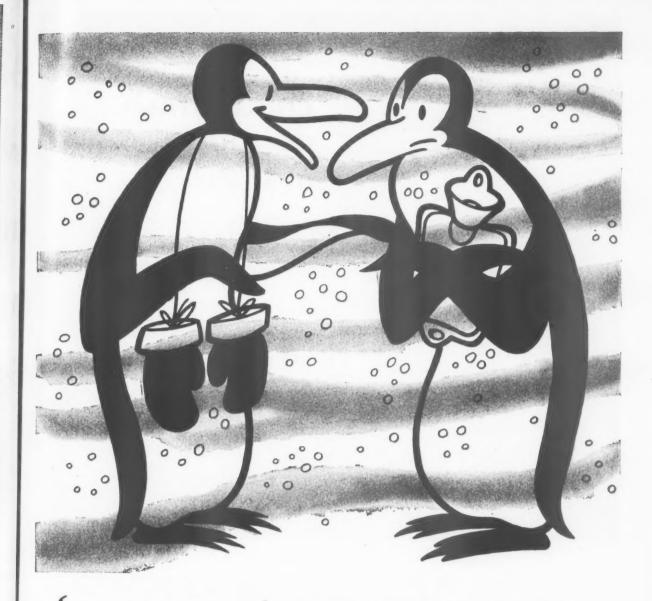
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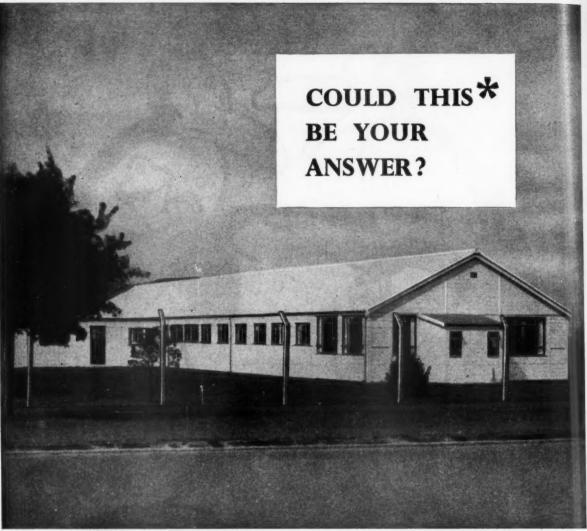


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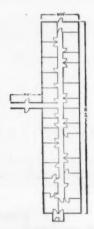


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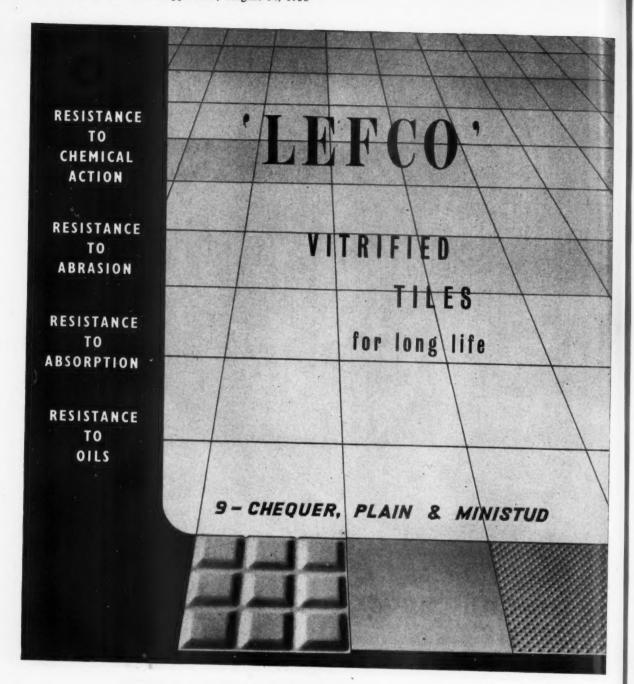
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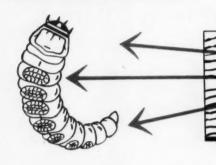


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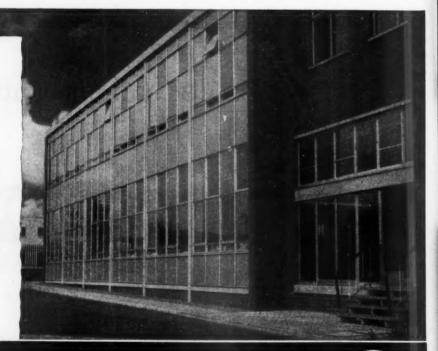
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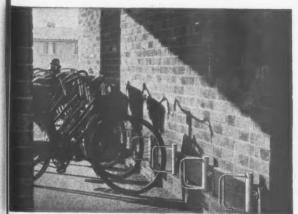
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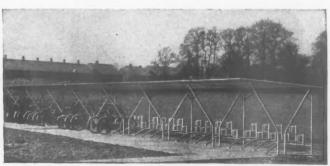
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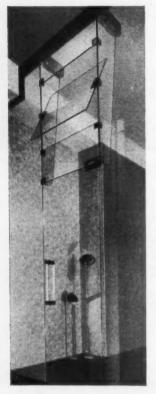
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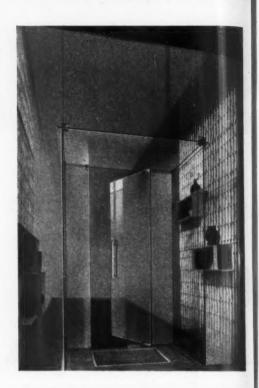
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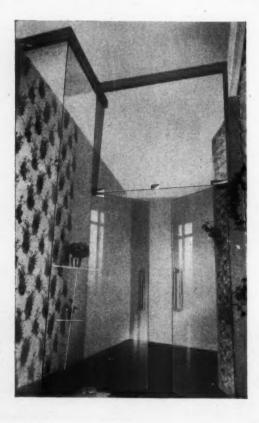
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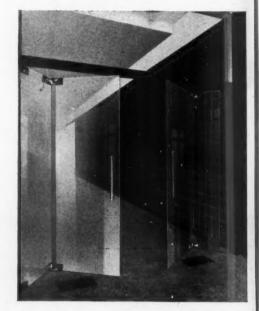
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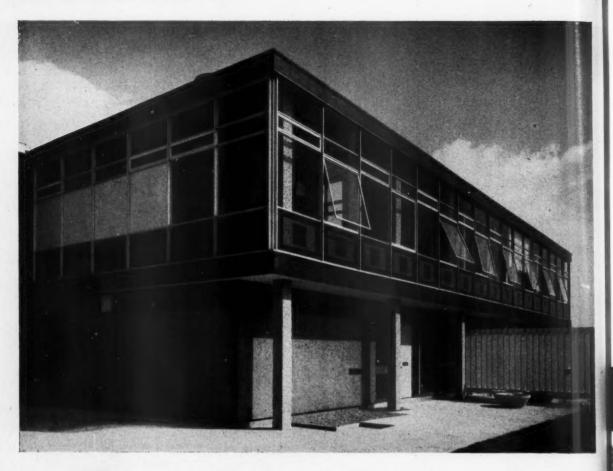
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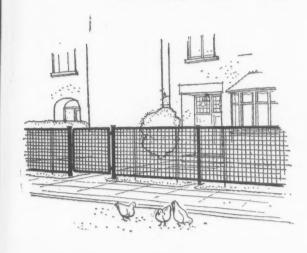
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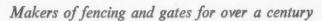
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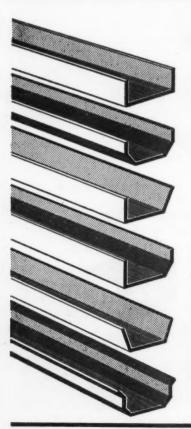
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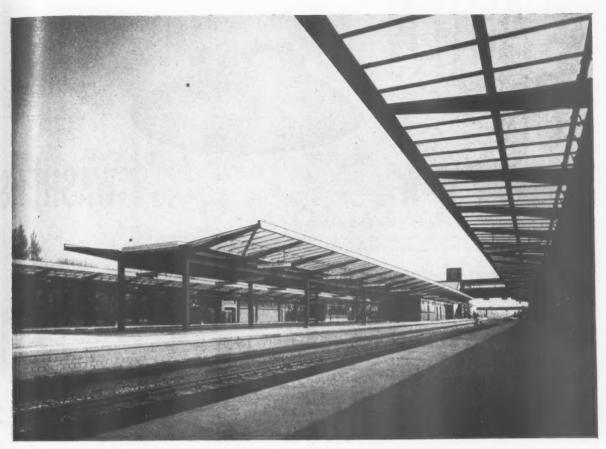
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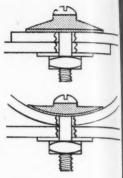
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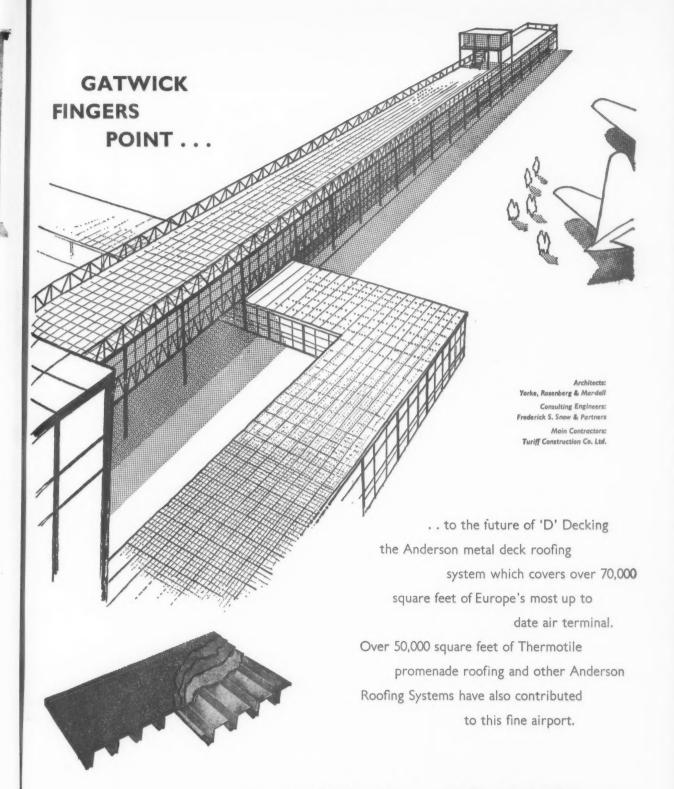
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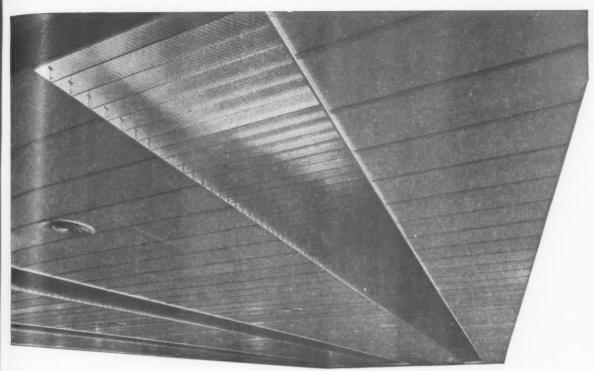


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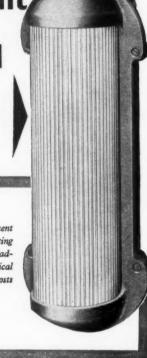
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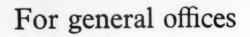
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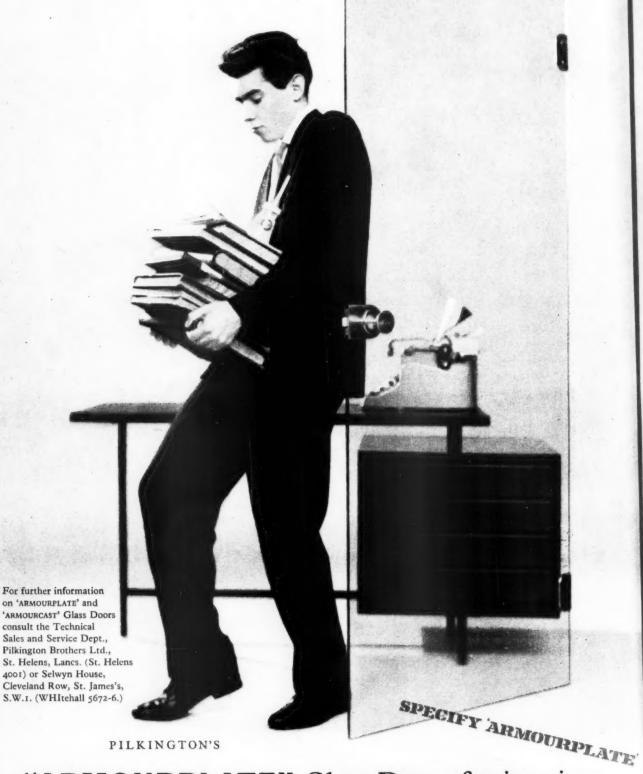
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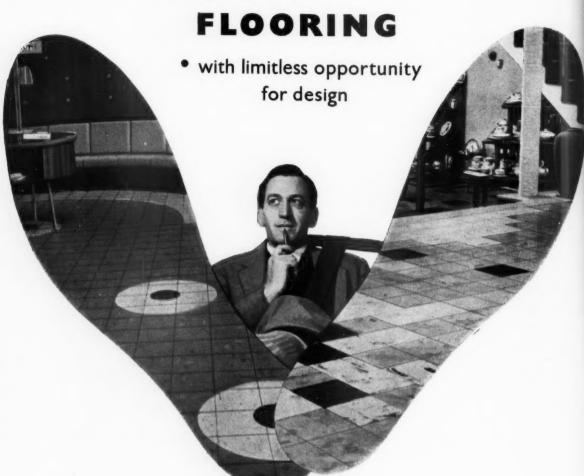


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THE ARCHITECTS' JOURNAL

No. 3311 Vol. 128 August 14, 1958

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NOT QUITE ARCHITECTURE

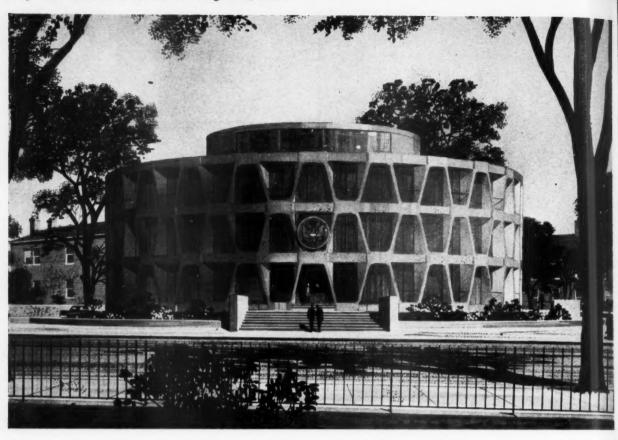
FROM RUSSIA— WITH DISTINCTIONS

With the RIBA External Examinations having, so to speak, come and gone, could any time be more apt than the present for a really nice deep-seated probe into that more succinct name) Professional Examination Taker.

The basic procedure is frighteningly simple—almost naïve, the PET takes the place of the student in the Examination Room and (presumably) invariably passes with flying colours (the student, I mean!).

By all accounts the practice is rife on the Continent (most practices are rife on the Continent) but the nagging question remains—does it or can it happen here? Is there, in fact, a world-wide organization with headquarters in one of the furtive lands perilously near the fringe of the Iron Curtain? (and, of course, Ian Fleming's typewriter).

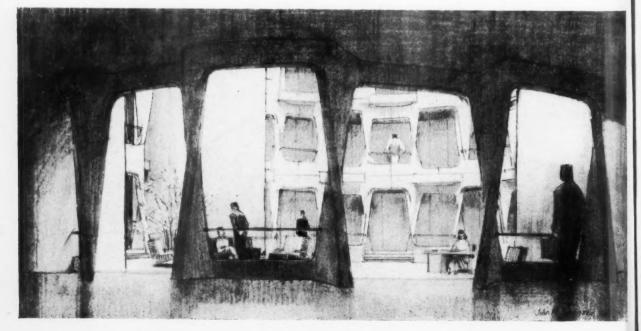
Mise en scène: An oppressively plush suite of offices in Kensington. The nervous student takes the proffered glass of Vodka laced with Slivovitz, puzzled awhile at the hint of snow on the Executive's boots (the thermometer registers 80): "My name is Legerdemaine, I do not wish to know yours, I know it already: but from now on you will be known as '504'—your PET? yes, you've guessed it—'505,' remember these figures, do not write them down. You must tell 505 everything, your hopes, your dreams, your desires, especially your



Embassy with a New Twist

John M. Johansen of New Canaan, Conn., is the architect for the proposed US Embassy office building in Dublin, above. He is reported as having chosen a circular shape because it is difficult to align a building on its triangular site at the junction of the Elgin and Pembroke Roads at Ballsbridge, with the facades of the neighbouring buildings, because of the number of possible approaches, because a circular building "faces in all directions, is friendly and

inoffensive," and because the circular form is a well-known Celtic-Christian motive." The building is to be surrounded by a sunken garden of native holly, yew and flowering shrubs. Bridges cross the garden to the entrances, and ramps lead to garages at basement level. In the centre is a rotunda, four storeys high, shown below, and the floors span from the facade to the rotunda walls. The construction is of precast concrete units with a reconstructed limestone finish.



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desires! Gradually, but in time he will become YOU! We take no money, some time in the future we may call upon you to render us a service. The Testimony of Study Library is next door—take your pick, and I suppose you will wish to try for the Ashburton Shield?"

Or perhaps a seedy pub in the East End. The foxy-eyed barman peers over the student's shoulder—"Didn't bring anybody with you, did you son?" He parts some bead curtains. "Hey, Professor, wake up, another young toff to see you. (To the student): "The professor will see you right—cost you all of 20 nicker, though."

The somewhat odd sensation of success in a vacuum that must be experienced by the student can surely amount to nothing, when compared to the mental plight of the PET—just how frustrated can they get? After all, to have qualified in something 25 times over, and yet (purely through a fault of one's own) to be unable to call oneself that something—not even once, is a truth that the most committed or the most fey PET must find pretty hard to live with.

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A rigorous tightening up of pre-examination procedure is indicated. Entrance Halls should be seething with skilled Agent Provocateurs and bristling with the British equivalent of the FBI—" Place your right hand on this book and repeat after me—I swear I am a bona fide entrant and not member of PET. Now your finger-prints and then pass along to the lie detector."

It would be useless for the Professor (conducting his own defence with considerable panache) to intone C. C. Coulton's classic plea for anguished youth—Examinations are formidable even to the best prepared, for the greatest fool may ask more than the wisest man can answer. The cell gates close—he sinks back into the Koestleresque trance—all these empty years ahead, he should have had that wood (or potting) shed exorcized years ago.

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* To preserve freedom of criticism these editors, as leaders in their respective fields, remain anonymous.

The Editors

MECHANICAL QUANTITY SURVEYING

NOULD machine billing of quantities ever become common practice? Our recent article* suggests interesting possibilities. Clearly, once unit quantities have been taken off and translated into punched cards, their assembly into bills by machine saves time which the quantity surveyor could spend on more creative work. He could give more time to cost guidance to his architects—a service which the machine's ability to yield almost any kind of analysis demanded of it, would aid considerably. The system seems worth developing. But it will only work well where the detailed construction is very thoroughly standardized, where even minor variations from the coded unit quantities can be avoided and where the volume of work is enough to make a costly machine earn its keep. It might be bought by a local authority and hired out to local surveyors. But their jobs would, for the most part, be "one off's "-quite unamenable to the system.

The significance of the CLASP experiment is less therefore, in the extent to which it can be applied, and more in the questioning atmosphere it could bring to time honoured methods and customs of taking off, abstracting and billing. For example, many surveyors still do their arithmetic "longhand" instead of using calculators. Should there be a really vigorous pruning of the Standard Method? In some cases its finicky detail bears no relationship to the distribution of costs, in others, like excavation, it does not make sufficient distinction between different kinds of operation, and builders complain that the breakdown of quantities does not aid accurate pricing or programming of operations. The Standard Method still reflects the days of its early youth when every job was a purpose made one off, when economy of labour was less important than economy of material and when building methods and operational procedures were not specially "designed"—as they are now by the progressive builders. The primary purpose of a bill is to get fair comparative estimates, but it takes so long and costs so much to prepare that its adaptation to other uses seems an increasingly vital need.

^{*} The Electronic QS and Unit Quantities by J. E. Cooke, A.R.I.C.S.—a system developed for the Consortium of Local Authorities School Programme. (AJ, July 31)



PIROUETTING PROHIBITED

When lovely woman stamps her pretty foot she gives us more to think about than we had thought. Did you know that a 120 lb. deb. setting her foot on the ground can apply a pressure of 1,440 lb. sq. in., and that a 200 lb. society hostess can apply 2,400 lb. per sq. in.? This can be quite alarming if either is wearing a stiletto heel, which may have a contact area on the ground of rather less than one-twelfth of a sq. in.

This fascinating information was published in an article in *The Times* on the problems of aircraft designers, who find that highly-heeled women who lurch about the plane during bumpy weather double the intensity of their attacks and leave trails of neat puncture holes behind them. A sobering thought—and fairly sobering for the architect, even if his floors don't heave about. There is clearly a case here for armour-plated floors in cocktail bars.

DAMNED CLEVER, THESE PEASANTS

"A scene of confusion and change, where women carrying concrete by hand may be seen working alongside the most advanced types of mechanical plant." That was how Cleeve Barr described Russian building in Radio Newsreel the other night. Mr.

Barr, who visited Russia for the IUA Congress, said the Russians were very interested in Scandinavian architecture and were "fascinated" by Coventry Cathedral and the rich vein in contemporary work it represented. He told his interviewer that he thought we had something to learn from the Russians in the way they organized labour and used plant, and in the way they used land in some of their town planning schemes.

The interviewer allowed himself to be fairly impressed, but seized upon the business of women labourers with a one-upman's triumph. "Almost medieval," he said; "wouldn't you say almost medieval?" Mr. Barr said he would say almost medieval, and we all felt much happier.

On the same evening, however, we had a really non-medieval brush with the USSR, when Richard Dimbleby visited their pavilion at the Brussels Fair. There was nothing very primitive about this picture of the Russians at work and play. In fact Mr. (Why is it so hard not to write Sir Richard?) Dimbleby had quite a bit of trouble keeping his substantial end up. "Fabulous, magnificent . . . " he said, as he was shown a model train made by children, and added hastily that " of course we have things like that at home, though not (sotto voce) made by children." Then he was shown a model mechanical crane. "Enormous, superb . . . but of course we have things like that at home, though not (even more sotto voce) quite as large." The great triumph for British prestige came later when Mr. Dimbleby was faced with a model of Moscow "Very big," he said, University. groping for superlatives that were rapidly running out . . . and it says something for the architectural profession that he couldn't think of anything similar ("only not as large") at home.

. . . 34, 35, 36, TINKLE, BANG

Before we leave Russia, how's this for a slice of American wistful thinking? The editors of Forum, referring to the USA exhibit at the Moscow Congress, write: "How much such an exhibit can do to advance the cause of real peace remains to be seen." Incidentally has anyone noticed that

the Russians have made an alarm clock called Peace? It goes for 36 hours. . . .

IT'S THAT "WHICH" AGAIN

You may remember that Michael Young was one of the AJ's "Men of







Some of the new stamps issued recently by the Post Office. Above, new issues for Wales, Scotland, Northern Ireland and Guernsey. Below, three stamps to commemorate the Empire Games in Cardiff. See Astragal's comment on page 221.







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the Year" in January, because he had launched the Association for Consumer Research and its journal, Which. Last week he gave a Press conference to announce his retirement (he is going to study in the US for a year) and to report the Association's amazing success in its first nine months. Having acquired 77,000 subscribers, it has now set its sights for the quarter million mark.

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AGAL'S

ASTRAGAL, whose staircarpet and outside paintwork never seems to last long, is delighted to hear that Which may soon test paints and carpets. Apparently nobody has thought of testing carpets properly before, and it may take some time to devise tests for them, as no carpet-testing machinery exists. Paints are tested furtively by such bodies as the LCC architect's department, but the fear of libel keeps the results on a secret list.

Michael Young claims that ACR has found the law of libel to be less stringent than had been thought. Good. What is to stop the publication of honest, factual reports on the performance of the innumerable proprietary products in the building world?

PRESERVING ANCIENT PILES

It was at the public inquiry into the proposed power station at Trawsfynydd in Snowdonia National Park that the grim truth about these enormous structures emerged. Technical evidence was that the reactor buildings would only have a working life of 20 to 30 years. After this they become too radioactive either to be used or demolished. Consequently, if the electrical generating plant is to remain in use, new reactors have to be built alongside the old ones every 20 to 30 years. The Manchester Guardian, which has been almost alone among the national newspapers to take a stand in defence of the national parks, has argued that if the reactors were built underground, the old reactors could be sealed off unobtrusively. "The alternative," it writes, "is to commit our grandchildren to the prospect of a grotesque slum of intensely dangerous radio-active masonry, left to crumble in what was once one of the lovelier stretches fo Snowdonia."

The Minister of Power, with the backing of the Minister of Housing and



The germinating boxes at the new, all-mechanized malting plant of Associated British Maltsters Ltd., which opened recently at Knapton, East Yorkshire. (1) The plant, designed by architects Gelder and Kitchen, is the largest of its kind in Europe. The "corkscrew" paddles, which are the mechanical equivalent of the traditional malting hand tools, turn the grain gently as the carriage on which they are mounted is moved along the length of the box by an electric motor. (2) In the foreground the tipping sections of the box floor, through which the grain is discharged, are seen opened. Behind the turning machine, they are closed. (3) ASTRAGAL's mid-summer relaxation: testing his readers' alertness. If you turned the picture the right way up before you read as far as the figure (1), you are an alert, intelligent individual who is 100 per cent. architect and on the ball. If you turned before (2) you pass muster as being competent. If you have to read to (3) before getting worried, ASTRAGAL reckons that you were working late last night.

Local Government (who is supposed to protect the national parks) has now approved the scheme. The fantastic thing is that no serious effort has been made to obtain an estimate of the cost of underground construction, or to give any real weight to the necessity to preserve the few remaining wild and beautiful areas of countryside left to us. ASTRAGAL wonders whether the architects for the nuclear stations were told that the reactors would have such a short life. None of the published plans has indicated the subsequent multiplication of reactors. Yet this, one would have thought, was a cardinal consideration in designing the layout. There seems to have been a nasty conspiracy of silence.

MUST WE STICK THESE STAMPS?

The reforming zeal of Ernest Marples, the energetic Postmaster-General, has not reached the people who commission or design new stamps. ASTRAGAL agrees with critics who frequently ask the Post Office to abandon the tradition that the Queen's head must be the most prominent feature of every stamp, and to issue special stamps on a great many more occasions. But let's have a well-designed Queen's head stamp first. The new issues for Scotland, Wales, Northern Ireland and the Channel Isles, opposite, seem to have been composed by sticking a photograph of the Queen in the centre and surrounding her with various heraldic emblems. The designers of the stamps for the Empire Games had more scope -the stamps were larger and the Queen's head less prominent. But they were poor things indeed. In fact last week's Spectator asked casually if they were meant to be funny.

ASTRAGAL

Derek Senior

Sydney Dent

Managing Director, Century Wallboards Ltd.

A. J. Harris, B.Sc.(Eng.), M.I.C.E.

Eric de Maré, A.R.I.B.A.

Training and Education

SIR,—A conference report by my good friend George Grenfell Baines (AJ, July 31), contains the following passage

Mr. Elliott quoted a recent article by Derek Senior in the Manchester Guardian stating that "In the last 50 years there had been little or no change in building methods," whereas techniques in engineering had been almost revolutionized.

No such preposterous statement as that 'quoted," or anything remotely resembling it, appeared in my article (of which I en-close a copy). On the contrary, the whole burden of that article was that in the past thirty years there had been little or no change in building education, whereas techniques in building had been almost revolutionized

Manchester. DEREK SENIOR.

[George Grenfell Baines writes: "It appears that I owe apologies to Mr. Senior and to Mr. Elliott."]

Wood Wool

SIR,—Whilst welcoming in general the article on page 939 of your JOURNAL for June 19, which has just come to my hands, I feel that I must take immediate exception to a statement made by its authors on page 939 under Section 8, where they state that wood wool is "possibly susceptible to fungal attack in humid conditions.

My company has been manufacturing wood wool slabs for over eleven years now and at no time have we come across any evidence of fungal attack on any of our slabs. It may be stated that in my garden eleven years ago a gardener used several 6-ft. x 2-ft. x 2-in. slabs and buried them in the 2-11. x 2-1n. stabs and buried them in the earth up to a depth of 12 in. leaving the other 12 in. exposed on the outer side and having earth banked up against it on the other side as a retaining wall. There is no evidence, either in the part which has been exposed to all the elements for eleven years or in the part that has been buried for the same period, of any fungal growth, and accordingly I should be glad if you would mention this in an early issue of your JOURNAL. If the writers of the article would like to have a piece of one of these slabs for a critical examination I should be very pleased to forward the same upon request. SYDNEY DENT.

Stockport.

Standard Factory Competition

SIR,-The triangulated prestressed concrete beam, such as is incorporated in the first prize-winning design in the Reinforced Concrete Factory competition, is a wellproved and economical structural element. Its calculation and dimensioning are straightforward with the exception of one matter of considerable delicacy, the intersections of the members. The above design shows an intersection detail whose soundness is highly dubious.

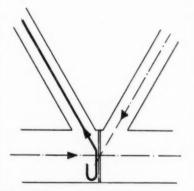
The point may be illustrated by reference to the sketches.

The designer has divided his beams into triangular elements, each formed of two diagonals and a length of the bottom boom, by joints through the bottom boom passing through the intersection points. This can only mean that the reinforcement in the tension diagonal stops short of this inter-section (sketch A); this reinforcement cannot therefore intersect the line of the thrust from the adjoining diagonal, and the only shear strength of the beam at this joint is that conferred by the prestress of the bottom boom. This may perhaps be adequate under working conditions, but as soon as this joint tends to open under excess load, no shear strength whatever remains and the beam will collapse.

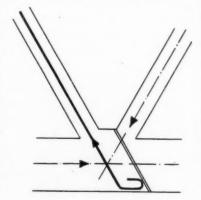
It is in general necessary to provide for the effective anchorage of the reinforce-ment of the tensioned diagonals beyond, and for preference well beyond, their intersection with the compressed diagonal. The sketch B

These remarks in no way diminish those qualities of the design which lead the assessors to award it first prize; a modification of the detail in question need change nothing else in the scheme. Since, however, the publication of this design will rightly provoke emulation it seemed proper to call attention to a minor but critical defect.

A. J. HARRIS.



The two drawings referred to in the letter from A. J. Harris. Above, A; below, B.



New Ways Of Building

SIR,-Your reviewer (July 31), otherwise most kind and complimentary, criticized the new edition of New Ways of Building for two omissions—site equipment Building for two omissions—and the relative economy on different methods of construction. I do not think methods of construction. I do not think that this criticism is justified because: (a) those subjects lie outside the intended scope of the book, except where equipment and use of a material are inextricably related: (b) site equipment is a vast subject in itself and of more direct concern to the contractor than to the architect (the book is mainly for architects and architectural students); (c) costing is a vast subject too, and very complex; a chapter on the subject in the book could be of little practical value. Probably even a whole book devoted to the subject would be useless because conditions and prices are so variable and unstable; by the time the work was published it would be unreliable.

These are my opinions as editor of New Ways of Building, but one, at least, among the team of experts who wrote the different chapters tells me that he agrees with them, ERIC DE MARE.

London.



£2,250 DAMAGES

Architect's Obligation to Report Structural Defects

Mr. Justice Barry, in the Queen's Bench Division, has awarded £2,250 damages against an architect who, he held, had failed to carry out his obligation to report struc-tural defects and deficiencies in the services of a property which a client intended to purchase.

The action was by Stanley Moss, farmer and former estate agent, of Flamstead Farm, Ashley Green, Chesham, Bucks., who claimed damages for breach of contract against Frank Heckingbottom, chartered architect, now employed at Loughborough College and formerly in private practice at Berkhamsted, Mr. Heckingbottom denied the alleged breach and counterclaimed fees for work done for plaintiff.

work done for plaintiff.

Giving judgment, his lordship said that in 1952 Mr. Moss bought Flamstead Farm for £31,500. Mr. Moss's case was that before he contracted to buy, he instructed Mr. Heckingbottom to make a survey of the dwelling house, stabling, garages and other buildings. He said Mr. Heckingbottom made a survey but failed to discover or bring to his notice defects affecting the value

of the property.

Mr. Heckingbottom denied that he was ever asked or agreed to make a structural survey of the premises, stating that his only

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posed attentions to the contract on July 8, 1952, and that without such a report such a report such a report such as report such structural defects or defi-

to report such structural defects or defito report such structural defects or defi-dencies in services as a competent and care-ful architect would normally draw to the attention of his client. With the exception of the drains he had failed to carry out these obligations. The defects found after Mr. Moss went to live at the house included de-crease in the roofs dwinear automical servi-

obligations. The defects from after Mr. Moss went to live at the house included defects in the roofs, drainage system, electrical wiring, stucco and brickwork, windows and doors, and furniture beetle in roof timbers, floorboards and joists.

Mr. Moss was entitled to recover £2,000 as the difference between the market value of the property in good structural repair and the value it would have had if it were known that it suffered from the structural defects which Mr. Heckingbottom ought to have reported. To this he added £250 as compensation for Mr. Moss's inconvenience. From this award he deducted £668 3s. due to Mr. Heckingbottom for professional fees for other work carried out at the farm.

Accordingly, judgment was entered for Mr. Moss for £1.581 17s., and the costs of the action, less £35.

action, less £35.

THERMAL INSULATION

Regulations Published

The Ministry of Power has now published the regulations under the Thermal Insulation (Industrial Buildings) Act, 1957. The regulations follow the original proposals very closely (writes a correspondent). The standards of insulation are the same, and are therefore graded according to the temperature conditions to be maintained in the building. This means that while the highest standard of insulation called for is a U value of 0·3, in practice most industrial buildings of 0.3, in practice most industrial buildings would probably only have to be insulated to a U value of 0.4. This is a low figure but possibly reasonable as a beginning, though it is to be hoped than when the Act has been in operation for some little time it will prove to be so valuable that every-one would accept an alteration to a higher standard. Regulations on the restriction of use of insulating materials which would add a fire risk are still not very clear, and seem likely to lead to some rather strenuous arguments with certain types of local authority surveyors, although the Explana-tory Memorandum which is now available does give some useful examples on this

There are some sensible examples of buildings which would be exempt from the regu-lations because to insist upon insulation would not achieve the objective of saving would not achieve the objective of saving fuel. These include such buildings as open-sided sheds and those which are heated entirely by process heat. The very long time which has elapsed between the passing of the Act and the issue of the final regulations may mean difficulty in getting approvals for all buildings on which erection is commenced after January 1, 1959. From the Explanatory Memorandum it would appear Explanatory Memorandum it would appear that if plans have been passed for a building by the local authority in the normal manner before January 1, 1959, the build-



The Syngalowski Memorial Centre Technical High School, Tel Aviv: architects Do Carmi, Zvi Melzer and Ram Carmi.

ings would not have to conform to the prescribed standards.

Anyone concerned with the designing of industrial buildings should undoubtedly obtain a copy of the Thermal Insulation (Industrial Buildings) Act, 1957, Explanatory Memorandum (HMSO, 1s.).

THE SHELDONIAN

Restoration to Begin

Restoration to Begin

The Oxford Historic Buildings Appeal has been successful in raising £2 million (only a relatively small part of which has come from Oxford graduates). One of the first results of this success will be the restoration of the stonework of the Sheldonian theatre, probably the first important architectural work of Sir Christopher Wren. Work is to start immediately on the restoration of the south elevation, which involves almost completely refacing the upper part in Clipsham stone, and renewing the carving, which is elaborate, but vigorous and rather crude. The architect for the restoration is W. Godfrey Allen, in association with A. Llewellyn Smith. E. S. Frith will carve the large cartouche over the southern entrance. entrance

HOUSING

Another Decline

The Housing Progress Reports for June 1958 show that the number of permanent houses completed in Great Britain during June was 23,063 compared with 25,251 in June 1957. In the first six months of 1958, 133,561 permanent houses were completed with 152,405 in the permanent houses were completed compared with 152,405 in the same period of 1957. Of these, 74,733 were completed by public authorities and 58,828 by private builders. The total number of houses built since the war is now 2,975,526.

STIRLINGSHIRE

Proposed New Town

The Secretary of State for Scotland has directed the holding of a public inquiry into an application by a group of building and

civil engineering contractors to Stirlingshire County Council for planning approval of a proposal to build a new town by private enterprise at Finnich Toll, West Stirlingshire, near Loch Lomond. The town would have a population of 30,000 to 35,000.

MOLNS

Lifting Appliances
The Minister of Labour and National Service
has published a draft of the Building (Safety,
Health and Welfare) Regulations, 1958. They Health and Welfare) Regulations, 1958. They are amendments to existing regulations, and are designed to secure improved standards of safety in the operation of lifting appliances. Representations on the draft (obtainable from the HMSO 6d., post free or through any bookseller) must be received by the Minister not later than August 22, 1958.

PROCEDURE NOTE

Issue of Bills of Quantity

The Joint Consultative Committee of Archi-The Joint Consultative Committee of Architects, Quantity Surveyors and Builders feel that their Procedure Note issued in February, 1958, may not have stressed sufficiently the opinion of the Committee that the complete bill of quantities should, save in exceptional circumstances, be issued to tenderers a sufficient length of time before the date for the submission of tenders to enable the contractor to prepare his tender.

for the submission of tenders to enable the contractor to prepare his tender.

With the object of preventing any misunderstanding, the following Procedure Note is issued in place of the earlier one:

"It has been brought to the notice of the Joint Consultative Committee of Architects, Quantity Surveyors and Builders that there is an increase in the practice of the surveyors. is an increase in the practice of issuing bills of quantities in sections during the period prior to the date for submission of tenders. The Committee recommend that, save in exshould be allowed, after the issue of all relevant documents, for the contractor to give proper consideration to them before sub-mitting his tender; if necessary, the date for submission of tenders should be postponed."

The Specialist Editor (Legal) considers the effect of amendments made last year to the RIBA Contract, the effect of which is to reinforce the finality of the Final Certificate where no prior notice of dispute has been given.

THE RIBA CONTRACT

Importance of the Final Certificate

"The (RIBA) contract is not one which has been drafted as a whole and fully formed at one given moment; it is a contract which has been built up from time to time by clauses being added. It is plain enough from the authorities which have been cited to me that in earlier days Clause 27 was much

that in earlier days Clause 27 was much wider than it is now..."

Clause 27, which Mr. Justice Devlin refers to in this judgment in 1954 in the case of Windsor Rural District Council v. Otterway & Try Limited, is the familiar Arbitration Clause in the Standard RIBA Form of Contract. It is usually No. 26 but in the Form as used by local authorities it becomes No. 27. Briefly, it has provided that if there be a dispute between the parties to a building contract notice of this shall be served and an arbitrator shall then be appointed who, "without prejudice to the generality of his powers," may open up and review the architect's Final Certificate.

In the above case the architect had issued a Final Certificate and the owners had then made their last payment to the contractor. As a result of a remeasurement some months later the owners and architect found that £1,000 too much had been paid by mistake. The contractor opposed the claim to recover this sum and submitted that an arbitrator should by now have no power to go behind the Final Certificate. Clause 24 of the RIBA Contract was referred to. The terms of this well known Clause stated that (except in cases of fraud, dishonesty, etc., and as regards defects, which presently described to the contract of the cases of the case of the cases of the case of the cases of the cases of the cases of the cases of the case of the cases of gards defects which a reasonable examination would not have disclosed) the architect's Final Certificate is conclusive evidence of the sufficiency of the works and materials. Confronted with this argument the arbitrator requested that the point of law be decided by the High Court.

Mr. Justice Devlin held that Clause 24 Mr. Justice Devlin held that Clause 24 must be read subject to Clause 27 and that the arbitrator could—though no notice of a dispute had preceded the issue of the Final Certificate—still overrule this Certificate. "The arbitrator's powers," he declared, "under Clause 27 are as wide as they could possibly be Any sort of dispute and any care. possibly be. Any sort of dispute and any cer-tificate may be referred to him and he has power to deal with the whole matter as if

no certificate had been given."

These words commemorate in English law a high-water mark of the arbitrator's powers to review building contracts for, in November last, Clause 24 and Clause 26 of the RIBA Form were amended and the effect of these amendments is to re-establish the importance of the architect's Final Certificate. The amended Clause 24 states that unless a notice in writing of a dispute be given in accordance with Clause 26 before the Final accordance with Clause 26 before the Final Certificate has been issued, the Certificate (subject to the exceptions referred to above) is to be conclusive. In Clause 26 the words "without prejudice to the generality of his powers, the arbitrator shall have power" are entirely deleted and it reads instead "subject to the provisions of Clause 24 (g) of the Conditions, the arbitrator shall, without prejudice to the generality of his powers, have power, etc...."
Thus, where no notice of a dispute has been

Thus, where no notice of a dispute has been given, the importance of the Final Certificate has been enhanced. Unless it be proved that a sum involved is erroneous owing to one of the exceptions (fraud, etc.), the Final Certificate becomes conclusive evidence in arbitration proceedings or in the courts that the works have been properly carried out and valued. There is no right of appeal and there is not, as in the case of an arbitrator, even a right to require the architect to state a case on a point of law.

a case on a point of law.

Formerly, in a dispute with the contractor, the employer could go to arbitration and allege defects. Now, in cases where a notice did not precede the Final Certificate, he cannot do this. Again, if the contractor disputes the architect's pricing of variations and fails to give written notice of dispute he cannot go to arbitration or to a court and claim extra payment. The effect of the amendments therefore is to make it vital that employer and contractor know of their obligation not only to serve this written notice but to do so in time.

The decision in the Windsor case no doubt influenced the recent amendments for, as well as the changes which have increased the importance of a Final Certificate, it is provided now that among the exceptions which always the there a notice of dispute or not) keep the door open to the arbitrator there shall be the class of facts which came to light in that case, i.e., a slip or a mistake caused by a complete failure by the architect or the quantity surveyor acting for him to apply his mind to the matter in question.

A standard form of building contract came into use in this country towards the end of the nineteenth century and successive ver-sions of the RIBA Form have been issued in 1909, 1931, and 1939. The 1939 version has been revised a number of times. The result of such revision meant, in effect, that result of such revision meant, in effect, that any of the architect's decisions in his Final Certificate could be reopened. The recent amendments reverse this and will probably diminish the number of building disputes which go to arbitration or come to be tried before the courts.

Paul Brenikov contributes this report of the conference and exhibition held by the Town and Country Planning Association to promote interest in the movement of offices from the congested centre of London to suburbs, outlying boroughs, new towns and expanded towns.

MOVING OFFICES OUT OF CENTRAL LONDON

The Advantages and the Difficulties

The congestion in Central London of people, vehicles and buildings has grown steadily worse since the end of the war in spite of all efforts to stop it. One of the main single causes of this congestion appears to be the over-concentration of large offices at or near the very heart of the urban area. Here, within a very restricted zone, half a million people come. the urban area. Here, within a very restricted zone, half a million people come to work each day, making long journeys from all parts of the London region. The fact that all of them wish to travel at nearly the same time, and as many as can afford it do so by private car, makes matters worse. All this has been known for some time, yet so far the main efforts have been concentrated on the decentralization of records and manufacturing industry rather. concentrated on the decentralization of people and manufacturing industry rather than office employment. Now, however, serious attempts are being made at a number of levels to stimulate offices to move away from London, and the national champions of decentralization, the Town and Country Planning Association, have staged an exhibition and a one-day conference in the Festival Hall to promote ence in the Festival Hall to promote interest in the idea. The Association had decided—very wisely—to concentrate its attention on persuading the customers rather than the planners, and many of the delegates were representatives of organizations with large London offices.

The Conference itself was opened by Dame Evelyn Sharp, who gave the Ministry's official support to the idea of

Ministry's official support to the idea of office decentralization, pointed out that the government had given a lead by re-locating a number of government offices away from central London, and hoped that all private firms who could help towards relieving congestion in this way would follow suit. The Ministry, it seems, wants to give all the assistance it can to firms and local authorities to make decentralization possible. ties to make decentralization possible.

Dame Evelyn was followed by Sir George

Pepler, who gave a review of the problem

from the planner's point of view. He described the comments made and the soludescribed the comments made and the solu-tions proposed by various planning bodies from the 1940 Report of the Barlow Com-mission to the LCC's Plan to combat con-gestion in Central London, published last year. This last promises to be the first attempt to do something towards reducing the amount of office space that will be built in central London in future by restricting the permitted plot ratio for offices, while offering a bonus of $1\frac{1}{2}$ to 1 in central areas offering a bonus of 1½ to 1 in central areas where residential accommodation is included in mixed development. In the remainder of his paper, Sir George examined the size of the present problem (612,000 office workers in the central area of whom 500,000 travel in each day), the very rapid growth of office employment in central London since the war and the increasing strain both on the workers themselves and on the transport system that this selves and on the transport system that this over-concentration produces.

His conclusion was that, wherever possible,

offices, particularly the sections dealing with repetitive and routine operations, should be moved away from the centre to peripheral sites beyond the green belt, or to the New Towns. Although some key sections, he realized, would have to remain permanently at the centre, in most cases these could be relatively small and provided they could rely on fast (probably electronic) methods of communication with their peripheral centres, would certainly operate more efficiently.

The idea of moving a large part of central

area offices out to the suburbs-where most area offices out to the suburbs—where most of the employees live anyway—seems a simple and obvious one. But P. R. Cahill, the Assistant General Manager of the Legal and General Assurance Society, which has actually made a move of this kind, did not seem convinced by Sir George's argument. From his paper on "Office Dispersal in Practice" it seemed that the difficulties were severe enough to rule out the possibility of

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any voluntary movement by firms unless they had a real incentive to go. Where such an incentive did exist—such as the lack of space for expansion—and the firm was large enough to make sub-division possible, migration from the centre was a practical solution. Under these conditions the advantages derived from lower capital costs—\$1000 per place in the suburbs as comadvantages derived from lower capital costs

-£1,000 per place in the suburbs as compared with up to £2,500 in central London

-and cheaper rates, could be very great. In many cases these savings would offset the dislocation and loss of staff which might amount to one half of the present

Mr. Cahill did not seem to favour new towns, whose present age/sex structure he towns, whose present age/sex structure he considered was too youthful to be suited to the needs of office employers. Peri-pheral suburban sites within an easy single day journey of central London were, he

day journey of central London were, ne believed, much more attractive. The speakers in the discussion seemed to be more favourably inclined to the idea of decentralization than Mr. Cahill. Repre-sentatives of small as well as large office concerns described successful moves or gave notice of their intention of moving. Representatives of new towns, local authorities and planning authorities gave a formal welcome to office developers and catalogued the advantages of the locations they had available. (Some of them are indicated

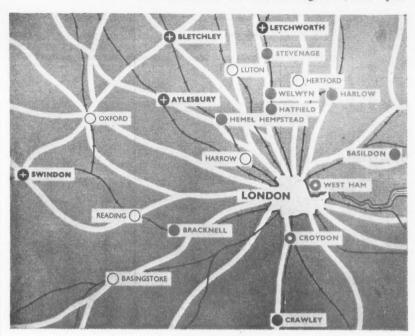
had available. (Some of them are indicated in the accompanying map.)

When the speeches were over the delegates were invited to inspect the exhibition composed largely of material provided by the LCC. This illustrated some of the arguments for decentralization and included photographs of the new office blocks put up by successful "movers" (nearly all of them insurance companies or large contractors) mans showing sites

nearly all of them insurance companies or large contractors), maps showing sites available for office development and the distribution of major offices that have moved out of London since the war. Schedules describing sites available for office decentralization were distributed. From the planner's point of view it is at least encouraging to see a real effort being made to counteract some of the pull of central London, where office employment has grown very rapidly since the war and shows no sign of falling away. This growth is certainly one of the major causes of the present congestion and under these circumpresent congestion and under these circumignored. The long-term solution is to restrict future growth. The LCC has recognized this and its proposed plot ratio controls will be most valuable, particularly as they have to expenses a residence, it has they hope to encourage residence in the central area, provided they are fully supported by the Minister on appeal. They ported by the Minister on appeal. They will certainly need to be, for there are signs of strong resistance from the developers

In addition to the long-term plan, there is every reason to encourage as much decentralization of the existing office employment in central London as is practicable. It is hard to believe that all of the half-It is hard to believe that all of the half-million who go to the centre each day are really needed there; and still harder, when the waste and chaos that their journeys involve is taken into acount, to justify their being left undisturbed. It should be quite possible to cut down the daily influx of workers to far more manageable propor-tions by weeding out all those who are not really needed and relocate their place of really needed and relocate their place of work nearer their own homes.

Although it seems evident that there could be clear gains all round from such a policy—not least to employers and London policy—not least to employers and London itself—a great deal of vested interest in the status quo will have to be broken down before the employers can be persuaded that only the really top people need a snob address in central London while the rest can be accommodated better and more cheaply in a readily accessible suburb, or better still in a New Town, where the housing problem is largely solved.

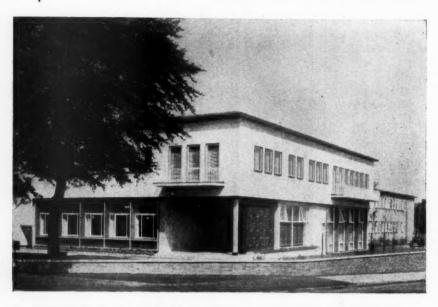


This map shows some of the towns that are ready to accommodate offices near London: the solid circles indicate new towns, thick circles county boroughs in greater London, crosses expanded towns, and light circles indicate other reception areas.

This conference is only a first step, but an important one. If, as a result, the planning authorities in the "reception areas" ning authorities in the "reception areas" are stimulated to provide a good range of sites for office use now instead of at some indefinite time in the future, and employers are made to consider seriously the very real advantages that could result from moving part of their office away from the centre altogether, and the Minister convinced that the LCC's restrictions on office building should be upheld even against the strongest pressure, then the TCPA can fairly claim to have succeeded. It is to be hoped that they do succeed, for without a good deal of office decentralization the present problems of central London seem insoluble.

The exhibition, below, was largely provided by the LCC.





ENGINEERING & ALLIED EMPLOYERS' ASSOCIATION, BIRMINGHAM John H. D. Madin, Dip. Arch. (Birm.), A.R.I.B.A.

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THE INDUSTRY

Brian Grant describes a new letter plate and knocker, a catalogue of sliding door gear, a curtain track with concealed runners and an automatic boiler with an adjustable convector unit.

Letter plates

Designed by John and Sylvia Reid, the Postmaster combined letter plate and knocker conforms to BS 2911, and has an opening 8 in. by 13 in. Made of cast iron, it has a dark vitreous enamel finish, and the gravity closing flap also acts as a knocker. Fixing is with countersunk screws from the inside so that there are no projections to catch on clothes, and the vitreous finish is also a sensible idea, as even the most careful polishing of metal finishes always leaves smears on the surrounding paintwork. One cannot blame the manufacturers for following the BS, but the 8 in. dimension seems rather misguided when BSI itself has already fixed 8½ in. as the horizontal dimension for all manufacturers leaflets: another half inch on the standard width would have made only a fractional difference to the cost, which is 25s. (Izons & Co. Ltd., Albion Works, West Bromwich.)

Sliding door gear

A new list of Coburn sliding door gear is very well set out and is divided into a number of self-contained sections, each of which deals with one particular type of gear and includes individual components with recommendations for fixing. Gear types covered are straight sliding, round the corner, sliding and folding (end and centre pivoted) and over-the-top gear, while the final section deals with door furniture of all kinds. The over-the-top gear is new and does not obstruct the floor area or the side wall in any way. (Coburn Engineers Ltd., Coburn Works, Peasmarsh, Guildford, Surrey.)

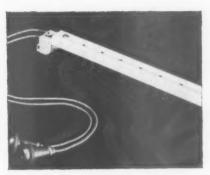
Curtain track

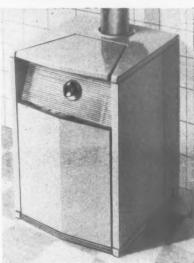
A type of curtain track which does away with the need for pelmets or valances is French's new Double Track, in which the runners are concealed. The track itself is an inverted channel in pressed steel and contains nylon gliders from which are suspended eyes to carry the curtain hooks. Control of the curtains is by endless cord which runs over nylon pulleys, and the fact that the track is double allows curtains of different widths to be controlled by the same cord, while the whole assembly is very silent thanks to the nylon runners. (Thomas French & Sons Ltd., Chester Road, Manchester, 15.)

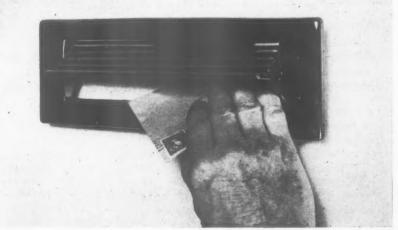
New automatic boiler

Having a maximum output of 28,000 B.Th.U's per hour, the Sofono automatic boiler has the usual thermostatic control and will burn for up to 15 hours without attention. The boiler has an adjustable convector unit so that the heat provided for the kitchen can be controlled, and is available in a number of different coloured finishes. Prices are from £38 15s. (Federated Foundries Ltd., 4, Stratford Place, London, W.1)

Top right, French's Double Track curtain track with concealed runners. Right, the Sofono automatic boiler by Federated Foundries Ltd. Below, the Postmaster letter plate designed by John and Sylvia Reid.







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INFORMATION CENTRE

8.59 surveying: and specification 0.S. TEXTBOOK

Quantities and Estimating for Building Technicians: Carpentry Joinery and Ironmongery. John F. L. D'Este. (E. and F. N. Spon Ltd. 15s.)

This book is the third in a series on estimating, the first two of which were on brickwork and plastering. It begins with a section on measuring, calculation and taking off; showing illustrated examples of floors, roofs, windows, cupboards and staircases.

The second section explains estimating— "approximate" and "analytical." The later describes step by step how to take account of all the factors that contribute, market conditions and other "front of the bill" items. Labour constants are tabulated and worked-out examples given.

The book is written by a building teacher for students to pass examinations-and with its clarity and simplicity of description it no doubt succeeds admirably in this purpose. The only error-a misleading explanation of cube and super prices—is unlikely to cause bother to carpentry and joinery students. One's criticism is, however, that the book looks backwards and not forwards. For example, modern methods of woodworking do not appear in its pages, presumably because they are almost wholly the preserve of the specialist sub-contractor or supplier. Yet by the time students who use this book now, reach settled positions in industry it seems likely that the measurement and pricing of woodwork will have changed even more.

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Reinforced Concrete in Architecture. Aly Ahmed Raafat. (Chapman & Hall Ltd. for Reinhold Publishing Corporation. 120s.) This is a book written by a very industrious young Egyptian architect who spent a study leave at Columbia University working under Professor Mario Salvadori. Though it is confined to concrete, the general intention s similar to that of Leonard Michael's Contemporary Structure in Architecture, in that, though attention is paid to the historic development and to the technical data of the material, the main object is to stir the imagination. This is done with a great many photographs (not all of which carry attributions to their respective architects) and those clear but unconvincing free-hand sketches which American architectural publishers unwisely permit. It contains useful historical references, but the price seems exorbitant.

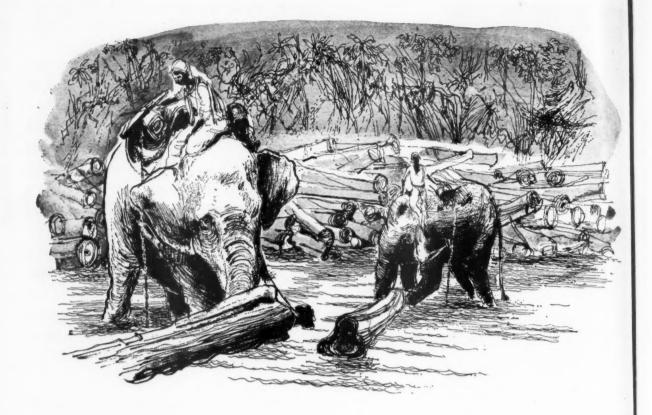
7 PRACTICE

housing in Stevenage

The trials of architects and quantity surveyors in getting housing schemes past all the financial and administrative hurdles—especially those of the Ministry—are well known. This week we present an article by L. G. Vincent, chief architect, Stevenage Development Corporation, who describes a new approach to these and other problems of building economy successfully tried by his department. This is followed by a detailed account of actual methods by Miss Cynthia Wood, architect in charge of the pioneer scheme. The chief quantity surveyor to the Development Corporation is E. R. Dorman.

Since the war the housing programme has been one of the largest tasks undertaken by the building industry and its allied professions. It has been looked upon by the nation as essential to its well-being as the health service. Although the problem of providing sufficient dwellings in the time required has been a major one, undoubtedly the greatest anxiety has been caused by the steadily rising cost of house building over the past 10 years. Official publications from the Ministry of Housing and Local Government, i.e., the Housing Manual and its supplements, have made recommendations for reducing the cost of dwelling. partly by reduction in space standards and partly by the elimination of uneconomic planning. The Girdwood Committee on the Cost of Houses went very thoroughly into the question of rising costs, but, apart from useful statistical and other information on what happened from 1939 to 1952, has done little to affect the general situation.

The architect has played a great part by ingenious planning and skilful construction, but a situation now obtains in which space standards and specification have reached a level below which any further reduction could result in sub-standard housing. Is it right in this time of rising national standards of living and a hope that the atomic age will bring many benefits to mankind that minimum-standard houses should continue to be built? The aim should not only be to stabilize costs, but reduce them, at the same time to maintain and, if possible, increase standards. The writer feels that past recommendations, though useful, are mainly palliatives, and the problem of economical house building on a large scale has not



-won from the forest by huge endeavour

In the mountainous forests of Burma and Siam, men work with elephants to extract the prized Tectona grandis, and send it on the long, slow journey down-river to the world's markets. Machines are useless; the terrain is too wild, the trees marked for felling often too far apart. Creeks run dry between monsoons, and elephants are strong but slow. The journey lasts for years.

Such arduous effort is justified only for a wood of quite exceptional quality, and teak is such a wood. Teak can be used for every kind of joinery. And, though it costs more than most other woods, teak is always an economy in the long run. It lasts for centuries and needs no painting; its shrinkage is less than that of any other commercial timber; and it is highly resistant to moisture, fluctuating temperatures, acids, insect attacks and fungi.

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been completely investigated. Pilot schemes of a dozen or so dwellings built under special conditions have little in common with a major scheme of hundreds of dwellings.

It seemed, therefore, that further detailed research was required into the organization and methods used today to produce housing, with a view to eliminating every process which is not economical or an efficient use of time and materials. This investigation by the Stevenage New Town architects department looked into building and site organization methods, into accepted customs for bills of quantities and drawings to see what improvements could be made.

It was found that costs could be reduced by acknowledging prevailing site and labour conditions and designing with these in mind. There was no need to reduce costs by reduction in space standards or specification. More speed in construction could be obtained by taking into account, when designing, the operations a tradesman has to perform when carrying out the work, and thus the need to eliminate unnecessary labours and bonusing difficulties. There should be standardization of components, with complete interchangeability. The latter is more important than the former. Off-site labour is cheaper than on-site labour.

Further research showed that there would be considerable advantages in arranging both drawings and bills of quantities by elements—with cross referencing between them. The elements were:

- 1. Sub-structure.
- 2. Ground-floor construction and finish.
- 3. External walls.
- 4. Chimney breasts, stacks, etc.
- 5. Internal walls and finishes.
- 6. First-floor construction and finish.
- 7. Roof construction and covering.
- 8. Staircase.
- 9. Fittings.
- 10. Plumbing.
- 11. Electrician and gas-fitter.
- Porches, special finishes, etc., added after erection of main structure.

The quantity surveyor throughout the investigation has worked with the architect and builder. He kept his eye on methods of reducing labours and the simplification of work, in order that the bills of quantities would reflect the streamlining process.

The first contract prepared on this basis was for 268 houses of different types, with ancillary works and engineering services. The estimated cost of the project, based on considerable experience with normal housing contracts in the area, was approximately £470,000. The aim by cost-planning was to reduce the cost by 10 per cent., thus giving a target estimate of £423,000. In fact, the lowest tender accepted for the work was £410,020, i.e., 12.7 per cent. lower than normal costs.

The second scheme was for a contract of over 400 houses of various types (i.e., two, three, four and five bedrooms), but different from the first scheme and of a much higher standard of finish and equipment. The

normal estimated cost of the project was £752,850; the accepted tender was £651,874, i.e., a reduction of 13.3 per cent. Four major housing contracts have now been prepared on this basis, totalling some 2,000 dwellings of varying accommodation, including flats. The value of the work is approximately £3,100,000, and it is estimated that the approximate saving in capital costs is of the order of £290,000, plus an additional saving of about £40,000 on architect's, quantity surveyor's fees and administration costs. Contractors have found that because the work is so much simpler, bonus costs can be lowered, and the work generally speeded up, showing considerable savings on preliminaries, etc. It should be borne in mind that in none of these schemes has the space standard for a three-bedroom, five-person house been lower than 950 sq. ft., with pro rata increase or decrease for greater or smaller accommodation.

Practical experience has further revealed that simplification and curtailment of the work of preparation of the contract drawings, etc., allows more time for architectural design—this, of course, is one of the prime functions of the architect. Better and cheaper schemes can be produced by the architect, quantity surveyor and builder working together on a project from its beginning (i.e., pre-planning) than in so-called competitive tendering. British Standards Specifications in relation to building leave a lot to be desired, and there is a great need for modular co-ordination in conjunction with standard specifications.

Conclusions

The foregoing cannot, of course, show more than very broadly the nature of the research carried out. The detail is dealt with in a following article.

From experience gained so far, it appears that the method reduces costs all round and speeds up contracts. The contractor gains in productivity because fewer men can work more quickly. The architect's time in preparation is reduced considerably. Less architects are needed than in an orthodox approach. Similarly, quantity surveyor's time in preparing bills is greatly reduced and the work is simplified. As the technique is developed, more savings in time and costs can be made.

The future

A further step remains to be taken, i.e., cost planning in conjunction with modular co-ordination. A large contract is now being prepared in co-operation with the Building Research Station on these lines, which may lay the foundation for a major advance in house building technique.

The method is now being extended to multi-storey flats and industrial projects, with very encouraging results. From the Stevenage experiment there appears to be no doubt that if the building industry adopted a similar approach to all projects, there would be a 10 per cent. to 12 per cent. reduction in total building costs.

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technical section

Miss Cynthia Wood, architect-in-charge, describes the aims and methods of the scheme.

The programme of industrial expansion which is essential to the development of a new town is completely dependent upon the provision of living accommodation for the incoming working population. It was therefore serious when, by September, 1956, it appeared to be almost impossible to get in a tender for a housing contract which could be approved by the Ministry. The reasons, apart from the credit squeeze, were: General rises in the prices of labour and materials and in the costs of importation of labour. Allowance by the contractors for delays and disputes and the gradual rise in stail lards in an attempt to meet the wishes of tenants.

Tenders being received had to be reduced by an average of about £150 per house. Meanwhile approvals, and the letting of contracts, were delayed by negotiation.



Fig. 1 (below). A typical north to south terrace of houses in the Bandley Hill Scheme. Fig 2 (right). The 16½-acre site laid out at a density of 16 houses per acre.



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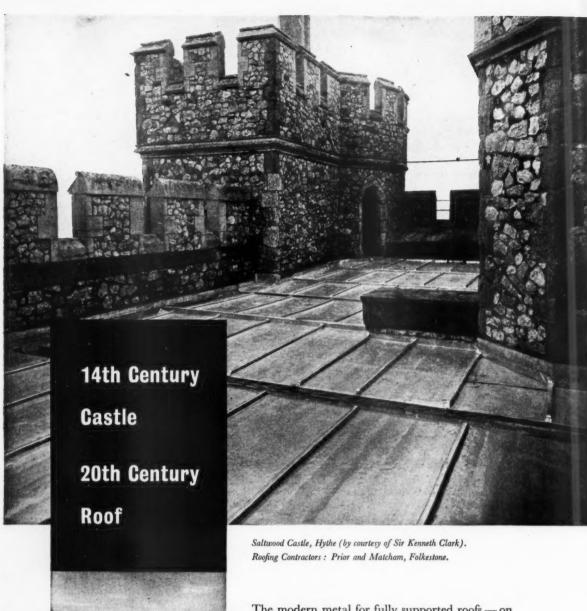
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technical section

Savings effected were partly offset by increases during the negotiation.

Cuts made at this stage can usually only be made in standards of finish and by the omission of built-in furniture and superficial items easily noticed by the tenant, or much time is lost in redesigning and redrawing in the architect's office.

Contractors, well aware that reductions may have to be made, tend to price their rates low and the preliminaries high as these can rarely be reduced by negotiation. A cut of £150 per house may be the equivalent of making a present of £15-£20 a house to the contractor.

The situation was reflected in the figures of houses started:

	1st quarter	2nd quarter	3rd quarter	4th quarter	Total
1954	576	590	356	343	1,865
1955	21	253	245	241	860
1956	37	48	49		-

At this stage a scheme was required for a site of $16\frac{1}{2}$ acres on which roads had already been built for a layout at a density of 12 houses to the acre. The delay in the housing programme had resulted in the site not being built up immediately upon completion of the roads. The architect was required to prepare a scheme increasing the density to 16 per acre and to design the houses in such a way that a contract could be let without delay. Clearly a new approach to the whole problem was required.

The architect first enlisted the co-operation of the quantity surveyor who made comparative estimates for details of parts of the building and various constructional methods and materials. Basic decisions were then taken as to the number of house types, shape, type of construction for main components and a sketch scheme to 4-in. scale was prepared from which the quantity surveyor prepared estimates in three sections: (a) house, (b) site works, (c) additional architectural finishes. The number of house types was reduced from an average of eight or nine on previous contracts to four (one four-person, three-bedroomed type; two five-person, three-bedroomed types for varying aspects, and one six-person, four-bedroomed type). These four houses were then planned so that there was the maximum amount of standardization of component parts and a minimum variation in plan type: the quantity surveyor then checked the original estimate, and prepared a statement of this figure against that which the Ministry could be expected to sanction. The difference between the two figures was allocated by the architect between:

- 1. The provision of a back boiler and hot water system instead of gas heaters.
- 2. Facing bricks.
- 3. Kitchen shelving and worktop.
- 4. Fencing around front gardens.
- 5. Concrete paving outside the back door.
- 6. Thermoplastic tile in place of pitchmastic flooring.
- 7. Porch.
- 8. Panelling round the bath.

At this point Ministry officials were consulted, who gave their blessing to the scheme, encouragement and assistance.

The second major step was to approach one of the contractors working in the area for assistance. This met with a generous response and the contractor placed at the disposal of the architect the services of his estimator and buyer, agents, surveyors and trades foremen who all discussed their own parts in the organization and difficulties which they encountered and offered suggestions to overcome them. The scheme as finally prepared embodied three kinds of economy:

Economies in the usual standards

- (a) No tiles on bathroom walls.
- (b) No ceiling in the stores and store walls undecorated.
- (c) Omission of party screen walls at the rear of houses.
- (d) No built-in bedroom cupboards, but a recess in the second bedroom to take a cupboard front.
- (e) Kitchen units left as open shelving.

Offsetting these items to some extent were:

- (a) A fuel store large enough to take the whole year's ration.
- (b) Larger floor areas than usual.
- (c) Convenient rectangular rooms.
- (d) Vitreous enamelled sink and drainer instead of Belfast sink and wooden drainer.
- (e) All living rooms separated by halls and/or stores to reduce noise transmission.

Economies by standardization

All component parts such as front and back doors, dustbin recesses, staircases, hat and coat hooks, bunker boards, trap doors and shelving in larders and linen cupboards are identical regardless of house type. This has the effect of:

- (a) Securing the maximum quantity discounts and saving time in the contractor's office by simplifying the placing of orders and the making of schedules.
- (b) Reducing delays by failure in deliveries of facings or tiles for any particular block as he can easily pass on to another using the components delivered for the houses held up.

The use of standard windows, doors, sanitary appliances and fireplaces so that no specials have to be made keeps prices low.

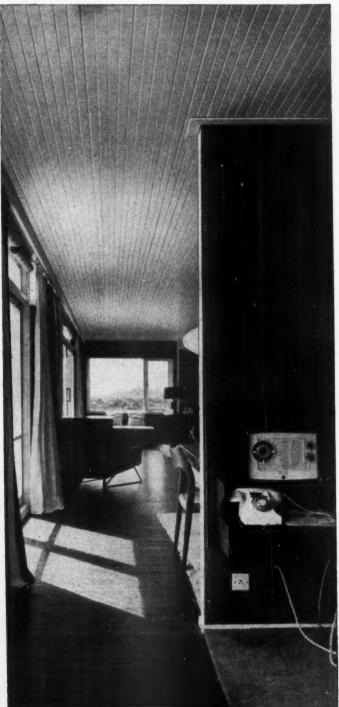
The repetition of rafter and joist sizes and lengths, fittings and shelving enables a high proportion of the work to be done off site under factory conditions and stored under better conditions than on site.

Economies by simplicity of construction

Keeping the construction simple effects economies:

- (a) By enabling building to go forward quickly thus cutting the contract period and reducing the contractor's overheads and
- (b) The men working earn good bonus targets without difficulty and the contractor should be spared the recurrent arguments about unforeseen difficulties when

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Fig. 3 (above). Plans of the four house types—a reduction from the 8 or 9 types of previous schemes. Particular economies were these: Constant depth of house and all spine walls a constant distance from party walls and fire-p'aces a constant distance from external walls and ridge—to simplify setting out. Standard front and back doors and s aircases. Window lintols limited to a length that could be lifted without special tackle. No bedroom cupboards, but provision of a recess for a future cupboard front in the second bedroom.

Fig. 4 (below). Replicas of the elevation drawings issued to the builder. Note that they give no more than the information necessary for the walls to be built. Roofs are better shown on n large scale section and windows on a schedule.

one course facings above windows top course of headers 3 course in 12co 12 co 1700 1700 20c0 27co top course of headers one course facings over windows 3 course in RWP alternate houses 0 5800 12co 27co-

14co

the targets were fixed: for example, avoiding projecting stores or outbuildings in brick, which complicate the setting of bonus targets for bricklayers.

The items mainly considered were:

- (a) Straight runs and only two widths of foundation so that digger shovels do not have to be changed too many times.
- (b) The floor slab at a uniform level for all finishes and level with the top of the brick course supporting the d.p.c. to avoid battening.
- (c) All interior walls in straight runs to facilitate slabbing and cut down plaster and skirting angles.
- (d) Openings of a size to allow all lintels to be lifted into position without special tackle.
- (e) Openings and wall lengths arranged so that bricks need not be cut.
- (f) The chimney stack is always in the same relationship to the outside wall and roof and the spine walls the same distance from party walls to save time in setting out.
- (g) The elimination of awkward corners for plasterers, plumbers and painters. Avoiding return visits by plasterers to fix tiles and make good after the plumbers' work.
- (h) Porches are added after the general carcassing is finished so that there is no delay while putting up the external brickwork.
- (i) All ironmongery specified at the outset so that all mortising for locks, etc., can be done off site.
- (j) All interior distemper for walls and ceilings is the same colour and openings standard sizes so that templates can easily be made and the whole job sprayed. All interior paintwork is the same colour throughout, which saves time in brush cleaning and reduces the excuse to have diluting agents all over the site. All

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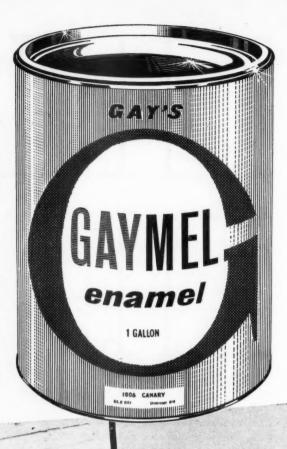
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technical section

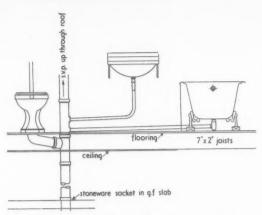


Fig. 5. Bathroom plumbing: the stack from ground floor socket to vent could be made in one piece but floor to floor tolerances make this impractical. Stack joints below and above the w.c. branch allow adjustments during installation for this and for variations in the height of the lavatory basin.

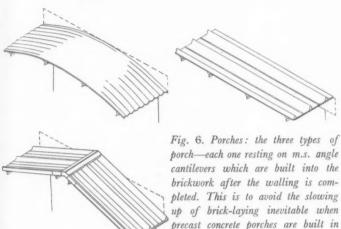
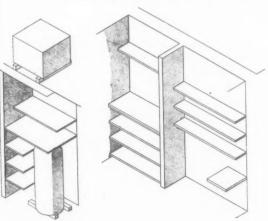


Fig. 7 (below left). Linen cupboard: standard arrangement of storage tank and h.w. cylinder—common to all house types. Fig. 8 (below right). Kitchen fittings: standard arrangement of larder and adjacent shelving in all house types. The more usual arrangement would have been a built-in dresser fitting with doors and drawers.

and shored up as the work goes up.



exterior paintwork is the same colour except doors which are bright and varied.

(k) All plumbing is easily accessible and all main runs repeat throughout the house types: the height of the bath is such that panels can be made without cutting.
(l) All chasing in breeze walls for electrical work is eliminated by using ceiling switches and power points are arranged so that conduit runs are straight.

Drawings and elemental bills

The Bills of Quantities were prepared in elements and measured on the Standard Method of Measurement in preference to the Code for Small Dwellings. The decision to use Elemental Bills was made jointly by the architect and the quantity surveyor, who both thought that there might be conveniences in their use for comparative costs over a period and for ease in running the job on site and that they were worth trying. So far they have not regretted their decision. The Standard Method of Measurement was used because any scheme with abnormally low labours will profit from having the labours measured fully and because variations can be more accurately priced. The bill came to 284 pages, compared with 531 pages for a previous contract of similar size.

Working drawings were started in October, 1956, and tenders were received in April, 1957. Relating these to the figure which the Ministry officials had indicated as acceptable, the lowest was 8 per cent. below, the next 2 per cent. below, and the remaining five were $1\frac{3}{4}$ per cent., $2\frac{2}{3}$ per cent., $3\frac{1}{4}$ per cent. and $5\frac{1}{4}$ per cent. above. The highest tender was about £100 per house over the approval line as against previous contracts where the lowest tenders were £150 above the line. It was satisfactory to have attained the objective sought, but interesting and unpremeditated side lights have been thrown on to the problem of housing contracts. Although the object in this instance was to produce cheap houses a system has been evolved whereby accurate costings taken during the design stage allow a scheme to be prepared confidently at any level and the methods of building give value for money, rather than cheapness, by reducing waste of time, labour and material. Samples of the kind of items costed comparatively were: wood or steel windows, roofs of concrete tiles, pantiles or slates, r.w. goods in aluminium, steel, cast iron or asbestos cement, foundations in strip or short bored piles.

The co-operation of architect and quantity surveyor as equal partners throughout the whole scheme from the very beginning is essential to success.

The designing of the houses as a sequence means that they must all be done by one person and there can be no question of a number of junior architects each designing and preparing working drawings for unrelated houses which get built in the same contract. In the same way only one mind can dictate the whole of the working drawings. The staff required for any one contract is therefore one architect, who must have experience and knowledge of housing contract management and one or two competent draughtsmen

technical section

Cost analysis of 2 BR terrace house of 860 sq. ft. floor area, based on quantity surveyor's estimate. April 1957

			ce per
Element	Description and quantity		ft. of or area
		jion	n area
		S	d
Preliminaries and insurances	Includes importation of labour and bonus payments	5	6
Foundations	Excavation, strip footings ducts and steps. 80 ft. run Abnormal foundations	2	14
Ground floor	Hardcore, 4-in. core, screed and thermoplastic tiles 48 sq. yd.	1	2½
External and earty walls	11-in. cavity, lintols, cills, cavity trays, plastering, external doors, metal windows glazing and decoration 115 sq. yd.		11
	Facing bricks at 175s. per M 44 sq. yd.		41/2
Chimney stack and internal walls	Brickwork, fireplace, hearth and back boiler, plastering and decoration. 64 cu. ft. 49 sq. yd. of ½-brick wall	4	9½
First floor	46 sq. yd. of 2-in. climker block Joists and strutting t. and g. flooring Plasterboard and skim coat ceiling and decoration 4 sqrs.		11
Roof	f Walls in roofspace to support timbers (excluding party wall), tiles, felt, asbestos cement eaves, ceiling joists, plasterboard, skim coat and decoration 6 sqrs. 30 sq. ft.		2
Staircase	Timber stairs, balustrade and decoration		74
Fittings	R.c. shelf for bin, kitchen fittings, hooks, dustbin and fuel boards		41
Plumbing	Gutters, r.w.p.'s, s. and v.p., c.w. tank, h.w. cylinder, sanitary fittings and carpentry supports. Copper and plastic piping. Builders work in connection and decoration.		41
Electricity and gas	30 electric outlets at 25s. 4d. 5 gas outlets at 34s.		10½ 2½
and gas	J gad Outlets at 373.	22	113
		32	112
External works	Drainage	2	21/2
	Water service		31
	Paths and steps		51
	Fencing		7
	Clothes posts		1
	Landscaping		3
Total per sq. ft. c	£1,581 10s.		

with a knowledge of building construction.

The number of drawings is greatly reduced and altered in character. Two contracts of this nature have now been prepared: the layouts are to $5\frac{1}{100}$ scale. The working drawings for the buildings are listed below as an example.

- 1. 4-in. scale foundation plans all types, 1-in. scale details of all foundations.
- 2. 4-in. ground and first floor setting out plans showing walls, partitions, components, sanitary equipment, and first floor joists 4-in. scale elevational diagrams of brickwork from d.p.c. to eaves, all types.
- 4-in. scale roof plans showing rafters, all types. 1-in. scale section through roofs, with details of all eaves,

verges, party wall crossings, chimney stacks, flashing

- 4. Staircase details 1-in. scale and FS.
- 5. Window details 1 in. and FS.
- 6. Exterior door details 1 in. and F.S.
- 7. Interior partition, door and fireplace details 1 in and FS.
- 8. Pipes runs to 4-in. scale (axonometric) and plumbing details to 1-in. scale.
- 9. Fittings, shelving, etc., 1-in. scale.
- 10. Porches, bay windows, flower boxes, garden fencing to 1-in. scale (all these are interchangeable and can be applied to any house according to the requirements of the layout).
- 11. Garages.

The reduction in printing costs is enormous and the whole of the drawings can easily be sent out to tenderers and included in the contract documents. No additional drawings have had to be issued during the running of the contract and the contractor has commented on the unusual fullness of the information supplied.

The time taken in preparation is greatly reduced. One architect spent 435 hours (11 weeks) on the preparation of the whole of the drawings for the contract, including time spent in consultation with the quantity surveyor or contractor or others whose advice was sought. The preparation of the Bill of Quantities took $7\frac{1}{2}$ weeks.

The contract has been running for eight months and time spent by the architect is just over 100 hours (excluding travelling time): the thorough planning has cut down the administrative work, no site meetings have been necessary since the initial one, and very few variations have occurred. Drawings for a second contract, value approximately £\frac{1}{4}\$ million, have now been made. One architect has prepared all the working drawings for the buildings in just nine weeks. These include five house types, a block of six one-bedroomed flats and a bed sitting room flat. Work is still going on on the layout and the preparation of bills.

The architect must be utterly efficient as every error is multiplied by every house and in a scheme which depends in part for its success on good organization by the contractor, every delay and variation will disrupt that organization more than usual.

It is probable that the best results and in the end the most economical results will be obtained by inviting tenders, not from the contractors who do nothing but house building, but from contractors who are accustomed to handling industrial building and multistorey flat schemes: they tend to have a higher standard of foremanship and of supply, and to be more ready to seize the advantages offered to save money on organization. Indeed the building of houses should be raised from its Cinderella-like status and recognized as probably one of the most complex problems in organization that any architect or contractor is likely to meet. Above all, it has become apparent that here is a field for research and study, and that the extent of possible savings is very much greater than has yet been achieved.

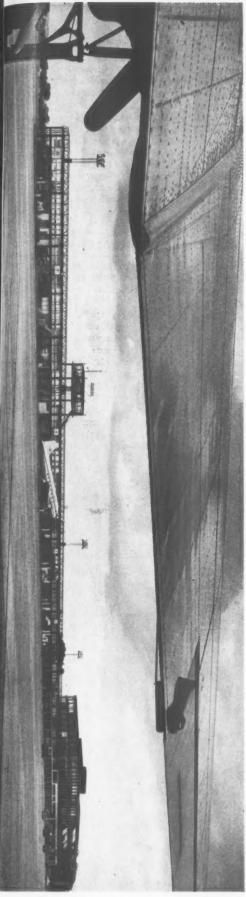
AIRPORT BUILDING

heating engineers DOLBY and WILLIAMSON architect-in-charge DAVID ALLFORD; assistant architects BRIAN HENDERSON (terminal building), BERYL HOPE (control tower and site architect LEON MORTON; consulting engineers and quantity surveyors FREDERICK S. SNOW and PARTNERS GATWICK, SUSSEX; designed by **T** R. S YORKE, E. ROSENBERG and 0 S MARDALL; associate-in-charge RANDALL EVANS ancillaries)

Gatwick airport has been developed (a) because London airport is not large enough to handle the increased volume of air traffic and (b) to provide an alternative to London airport in the event of bad weather. There was already a small private airport sited at Gatwick before the war and this has been developed in preference to other sites considered because of its good

position in relation to the recognized air routes, its good communications with London and because it is far enough away from London airport to give alternative landing in bad weather. Statistics for 1952-53 showed that 66 per cent. of all aircraft diversions from London and Northolt could have landed at Gatwick.

The airport building seen from the south-west. In the centre is the pier and on the right the terminal building



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The majority of passengers going through Gatwick will, it is hoped, travel by rail. They pass from the platform up the stairs and across the bridge direct into the concourse. Baggage can be taken up separately in lifts and direct to the baggage counters for weighing in. The station buildings provide normal waiting rooms and staff accommodation; booking hall and other offices are located off the concourse. Buildings are steel framed with blue brick under-sill infill panels. Other cladding is dark grey vitreous enamelled sheet steel.



Site plan

INTRODUCTION

The original scheme was much larger than that part which is now completed. Action by vociferous local protest groups resulted in the original £20 million scheme being slashed 16 an estimated £7 million. However, expansion of both runway and buildings has been considered all through and could be put in hand at any time. Detailed information on costs has been adamantly refused by the Ministry of Transport and Civil Aviation; the architects were prepared to supply such information although they considered it would be extremely difficult to compile at this stage. Gatwick is a first-class job in every respect and one does not therefore expect to get it for nothing, and there can be no excuse for withholding this information from the public.

THE SCHEME AS A WHOLE

The main consideration in this article will of course be given to the buildings, but to place them within their environment it is essential that the other works are briefly understood.

1. The runway: 7,000 ft. long \times 150 ft. wide \times 12 in. thick, reinforced black-pigmented concrete, laid on a polythene d.p.m. on 4-in. blinding concrete and hoggin. Along each edge of the runway are shoulders 75 ft. wide, strong enough to carry a loaded plane, and finished with red gravel chippings to accentuate the dark runway. The taxiways are all 75 ft. wide and these and the apron are of the same construction as the runway.

Block

2. Roadworks: involved in the scheme were three major road diversions: (a) 2\frac{3}{4} miles of new trunk road (A23); (b) \frac{1}{2} mile of new Class I road (A217); (c) 3 miles of new Class III road (to Charlwood). The works included the construction of three new bridges and a 450-ft. long culvert to take the Gatwick stream beneath the terminal building.

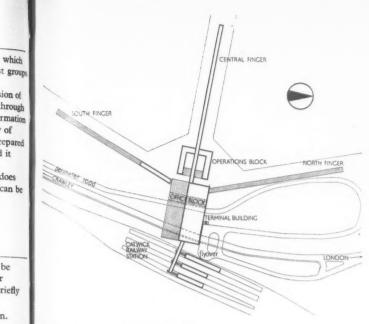
3. Drainage work: the diversion of several streams was involved, including the construction of a 1,400-ft. culvert to take the River Mole beneath the runway. Five large storage ponds have been constructed with sluice gates to control the flow of water into the River Mole. The consulting engineers responsible for all this work are Frederick S. Snow & Partners who also organized the general site layout and co-ordination.

CLIENT'S BRIEF

The terminal building: the client's original brief to the architects was very sketchy. To a very great extent this is understandable; the pattern of airport development is constantly changing and Gatwick contains planning concepts entirely new to this country.

A building was required to be capable of handling 480 persons per hour speedily, efficiently and with maximum comfort (240 in either direction). The "Orly" system of customs control was specified, wherein the passengers' baggage is collected and customed on arrival while the passengers remain outside custom control until called forward to join their aircraft. A certain proportion of passengers would be travelling on non-custom flights. The building was to house the extremely complex communications machinery, GPO equipment, and unspecified administrative accommodation.

This much was known and further requirements were thrashed out at many informal meetings and confirmed and modified at formal meetings between the client, the architect and the consulting engineer. One of the first of such decisions was the use of the "finger" or pier system of getting passengers to their planes. By Christmas 1955 the position, shape and size of the building was agreed



Block plan (later stages shown hatched)



The decision to place the buildings over the junction of the communications entailed the construction of a raised concrete roadway with ramps up from both lanes of the new dual carriageway main Brighton road. Construction is normal reinforced concrete with ramp columns at 40-ft. centres and 16-ft. apart carrying roadway 24-ft. wide.



and never basically changed afterwards. A schedule of accommodation was prepared by the architects in December 1956, but the final details of the plan, exact location and designation of offices, etc., were not finalized until the summer of 1957 when the building had been under construction for some months.

There were naturally enough some bad moments, but the final scheme presents a nicely balanced plan without evidence of panic decisions, which is much to the architects' credit when one considers, for instance, that the mezzanine floor had to be included at quite a late stage during planning.

The architects were further requested to include for future expansion and, concomitantly, internal re-arrangement. The terminal building might have to expand to double its present size and structural provision has also been made for vertical expansion in the form of a 6-storey office block above the roof.

A further complication was added by the necessity to have certain parts of the building finished early to allow the installation of special services. For instance, the telephone exchange on the ground floor of the terminal building had to be handed over in May 1957 whilst building operations continued above.

The control tower complex: for the control tower, fire station and ancillary buildings the architects had a far more precise brief and the areas originally designated were only slightly changed. The main problem is the distribution and accessibility of services, especially since electronic equipment is constantly changing. To facilitate later improvements, as well as to give easy access, the client specified two continuous duct floors, with 4 ft. 6 in. clear internal headroom, one beneath the glass control tower and one beneath the radar room.

Other buildings: in addition to those buildings already listed the architects have designed the fire station, sub-station, boiler house, freight shed and innumerable small brick buildings housing a variety of functions and scattered about the site.

SITE

The site is situated approximately 25 miles south of London on the Surrey-Sussex border, I mile south of Horley and 2 miles north of Crawley New Town. The airport absorbs the old Gatwick airfield and part of the Gatwick racecourse.

The countryside is well-wooded agricultural land, and several thousand trees were felled to make way for the development. The ground is low-lying and subject to flooding, which has necessitated careful drainage work and generally roads are constructed on slight clay embankments to avoid any flood risk.

There were 59 houses, a hotel and a small factory sited on or near the development which have been demolished.

PLAN

The terminal building: the building consists of three parts, the dominating rectangular reception building, the operations block and the pier. The first decision made was that the building should be placed over the junction of the two lines of communication. There is only one runway at Gatwick, not a great interlaced pattern as at London Airport and the building could as well be at one end as anywhere else. As the majority of passengers will arrive, it is hoped, by rail, they can be taken without any other form of conveyance straight into the terminal.

The building was planned from the beginning to span the A 23 road diversion. This produced a unique convergence of road-rail communications.

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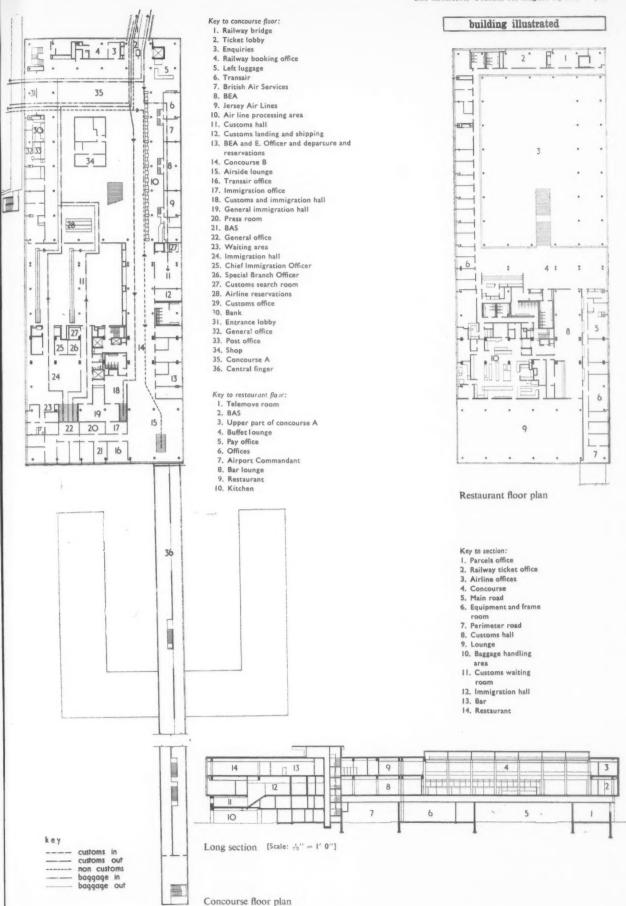
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Ground floor plan [Scale: 72" = 1' 0"]

Mezzanine floor plan



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pier was adopted. Imported from the USA, this arrangement means that instead of the planes approaching the terminal building and parking in line in front of it, thus necessitating a broad facade to the airfield as at London Airport, the passenger at Gatwick leaves the terminal building itself and walks out to the apron along the pier with planes parked on either side. This was a vital decision. Because of it, the form of the building was in no way affected by an external function (i.e. getting people in and out of planes) and could remain simple and straightforward. This is the chief impact at Gatwick: the buildings make a direct planning statement so that the stranger can comprehend their purpose without the confusion so rife at other airport buildings. As far as can be seen the planned extensions should in no way alter this clarity.

To get people over the railway tracks they must pass over the footbridge, and the height of this bridge, which continues up to the building, sets the level of the main concourse floor. Twenty-three feet below run the main Brighton and perimeter roads.

All must pass through the great hall; baggage goes into customs whilst passengers wait. The shops are all around them and up the staircase is the buffet bar with the restaurant beyond. When the plane is ready they are called forward and pass through the concourse and thence along the pier.

The operations block is a single-storey building enclosing three sides of a square, passing under the first floor of the pier. It houses the vastly complicated airport operational facilities including the first of the MOTCA semi-automatic electronic signals centres.

The control tower: this is a simple rectangular building with rooms grouped round a central staircase well. The relationship of the goods lift for equipment, the main vertical duct and the staircase was a precise requirement of the client. Complete wiring distribution ducts have been provided below the 4th floor control room and the 3rd floor radar room. The ground floor has been extended to form the telecommunication room. Here there is a grid of floor ducts decided by equipment positions which the client considered would be sufficiently "final" not to need the sort of wiring flexibility provided on other floors. Experience has shown (too late) that a false floor was really necessary.

MAIN CONSTRUCTION

Terminal building: the concourse floor level is raised 22 ft. 6 in. above ground level. It needed to span the A23 and perimeter roads—60 to 69 ft. Otherwise the r.c. column grid is 20 ft. The roads are spanned by means of prestressed beams approximately 6 ft. deep and in some cases up to 6 ft. wide. There is a top and bottom slab giving a continuous longitudinal duct space 4 ft. 9 in. deep for conveyors, services, etc. On this classic "sol artificiel" the rest of the building commences, a normal r.c. frame structure on a 20-ft. grid. Over the concourse itself the 80 ft. width is spanned by steel trusses 7 ft. deep.

Operations block and pier: the operations block is a simple

building with steel columns at 12 ft. centres supporting steel lattice trusses spanning 36 ft. The pier is also steel with 25-ft. portal frames 40 ft. apart. They carry welded tubular steel trusses acting as longitudinal ties and also carrying intermediate beams and purlins on which rests steel decking.

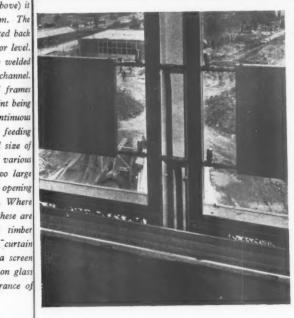
Control tower: this is of conventional r.c. frame with 12-in. × 12-in. columns on a 15-ft. grid, with in-situ beam and slab construction. External infill panels of 4½-in. brick outer skin and 4-in. concrete block inner skin. The glass-clad control room has a steel frame with a roof supported on castellated beams to allow passage for services.

terminal building



The cladding to the terminal building at Gatwick consists of a series of timber-framed panels braced by steel mullions. The building has the look and feel of a steel building and yet n truth it is built of concrete. Before Roccoco nihilism was resurrected one of the great guiding lights of the modern movement was structural honesty-a principle which has been followed with exemplary success for all the buildings of Gatwick except this, the most important. Good proportions and detailing have produced an elegant building but one which is a denial of principles accepted wholeheartedly elsewhere. Both the railway station and the pier are steel framed and obviously so. The control tower and all the other ancillary buildings are similarly committed to honest expressions of their concrete frames. Undeniably the cladding required bracing; the question is what quantity was needed and what quality aimed at? From the heaviness of the members used and from the feeling of the subsidiary details such as the porte cochere (above) it might be concluded that the steel was an affectation. The 8-in. × 5-in. r.s.j.'s are at 10-ft. centres and are bolted back to the concrete structure at roof level and concourse floor level. The r.s.j.'s project in front of the building and have welded to them at the back a continuous 6-in. × 3½-in. steel channel. The timber panels with ex. 6-in. \times 2½-in. rebated frames are bolted to the flanges of this channel, the straight joint being sealed with mastic. Internally this leaves a small continuous vertical duct which houses the flow and return pipes feeding the radiant heating panels (opposite, left). The overall size of the timber panels is 9 ft. $5\frac{1}{2}$ in. \times 30 ft. $6\frac{1}{2}$ in. with various horizontal divisions positioned where required. The two large panes are filled with 3-in. polished plate glass and the opening lights above have top hung projecting steel windows. Where external sun blinds are required, as in the concourse, these are neatly concealed with their mechanism within the timber framing. Where there is a ceiling or floor behind the curtain wall an infill panel has been used. This consists of a screen printing process of non-repetitive amoeba-like shapes on glass which at first glance from a distance has the appearance of a dark marble gone wrong (opposite, right).





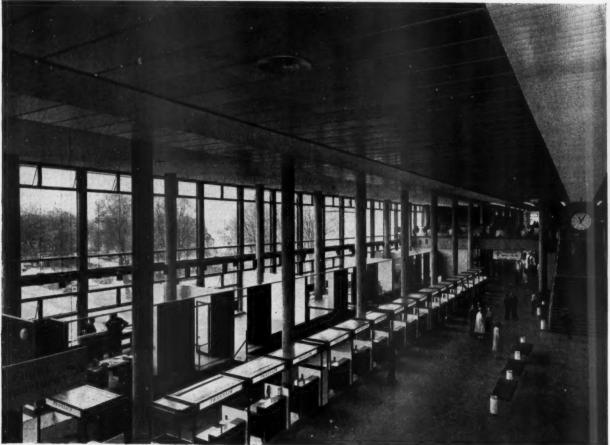


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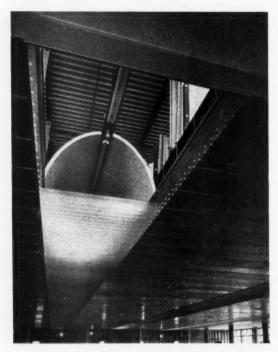




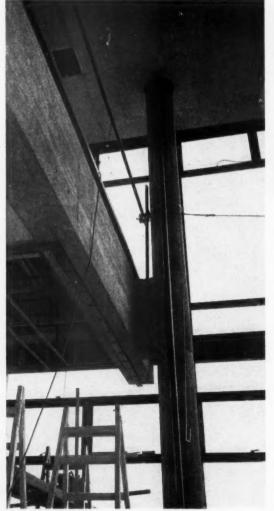
Opposite page: top, the main building seen from the southwest, with the pier on the left; bottom, the concourse inside the main building, looking towards the wide corridor which leads to the pier. The concourse is a great hall through which all passengers or spectators must pass whether coming or going. On one side are the little booths for the air transport



companies with luggage conveyors behind and elsewhere (left). Around the walls and in n island block (above) are the concession spaces; shops, car hire, theatre tickets, banks, post office, etc., etc. It will be seen that the architects were faced with a considerable problem, for the hall had to contain a great many small elements and yet retain its coherence. There are details to criticize but on the whole their solution is most successful. They have achieved this success by using the space in a big way. By keeping the ceiling clean, exposing the structure boldly and having the same dark floor finish throughout they have made sure that the building by its scale dominates the frippery it contains. Whether by conscious industry or the solidity of the finishes and furniture the building has the air of an expensive and exclusive club. (It is rumoured that the proportions of the main staircase are based closely upon those of the staircase within the Savage Club.) There is a clear statement of both structure and finishes. The load-bearing element is reinforced concrete straight from the sawn timber shuttering without any attempt at buttering up. Instead of having a specified excuse for thoroughly bad workmanship, as so often happens with this technique, the contractors have understood the architects' intention and have turned out a first class job, in good concrete, without lean patches of exposed aggregate or large gaps in the shuttering. The one exception to this is the exposed structure of the staircase where a smooth finish has been attempted with the usual unfortunate results. Perhaps a plastered finish would have been better, if it needed to be smooth at all. On the axis of the stairs, plumb centre in the ceiling, where a really good chandelier should be, is a curious creation with four oblong fittings which turn out to be loudspeakers, not lights. It does not glitter, it is too small, it provides no focus and it is on the whole quite unnecessary. Floor and stairs are finished with dark green terrazzo, and the ceiling above the booths with asbestos-based perforated tiles.



The 80-ft. width of the concourse is spanned by 7-ft. deep steel lattice trusses. These carry steel roof decking and a suspended ceiling of anodized aluminium sheets which is intersected by three continuous strip lights, one of which is shown on the left. The inverted troughs are of preformed glass fibre sheets with Georgian wired glass louvres below. The light source is fluorescent tubes. Maintenance for the whole fitting is from catwalks above the ceiling.





On the gallery at the top of the grand staircase from the concourse is a buffet bar and dining area, above. The directional emphasis is not, as one might suppose, down into the concourse, but towards the buffet bar. The obscured plate glass infill below the hand rail effectively screens the diners and one is aware of eating not in a vast space but apparently in a far pleasanter intimate area. The buffet has some of the glitter of an Edwardian gin palace. White tiles, stainless steel, red marble mosaic, green hanging lights and sharp small pinpoints of light above the liquor bottles pull one's attention in this direction away from the concourse below. The floor finish is semi-glazed ceramic mosaic and the Eames glass-fibre chairs are dark grey. Ceiling is of perforated asbestos-based tiles, undecorated.

Left, detail of the junction between one of the load-bearing columns in the concourse and the first floor.



The restaurant (above) is on the first floor and overlooks the pier and apron. The scale of the structure and the external glazing is geared to the volume of the concourse. When used in a room of comparatively small volume it appears to dominate completely, dwarfing the exquisite furniture and fittings. The problem is not helped by the considerable glare caused by the dark hardwood window frames against the light. The use of light wood woven screens, held in ceiling tracks so that they can be moved to form intimate spaces, is only partly successful on account of the nature of the screens themselves. The restaurateur is, however, aware of the problem and intends to make lavish use of plants. This should also help the decor which is rather dull; natural asbestos tile ceiling, grey carpet, grey chairs.



The club atmosphere gets near to pastiche in the lounge bar to the restaurant. The Robin Day seats are covered with black leather and are extremely comfortable. The carpet is dark grey and generally, with the heavy smell of leather, the space is rather sombre. The two light fittings, hanging low over the coffee tables, are supported from a rail secured to the ceiling and can slide along where required; a handy idea used also in the restaurant.

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From the concourse passengers walk down this broad corridor to pass through the immigration hall if on a customs flight, straight out to the pier if not. The floor is of dark green terrazzo, the wall finished with 8-in. × 5-in. light grey Belgian semi-glazed tiles, and the ceiling of perforated asbestos-based tiles. The doors to the telephone booths are of dark natural mahogany and of a standard of joinery one had considered lost for ever. The ply panels over are mounted proud of the tiled

wall and are to carry advertisers' posters. The simple but expensive finishes, used sensibly without ostentation, carry an inherent elegance and solidity which, in spite of ingenious ersatz solutions, is sadly lacking in so many good post-war buildings. The rough shuttered concrete columns plunge straight through the terrazzo—theoretically a nice detail, but unfortunately the lack of any form of skirting is resulting in staining around the base of the columns.

pier

As we have said, one of the most important innovations at Gatwick is the pier (below). Passengers walk out to join their aircraft along the first floor corridors whilst the ground floor houses crew, customs, and apron services. Eleven aircraft can park on either side and when the other two piers which will radiate from either side of the terminal building are completed there will be space for a further seven aircraft.



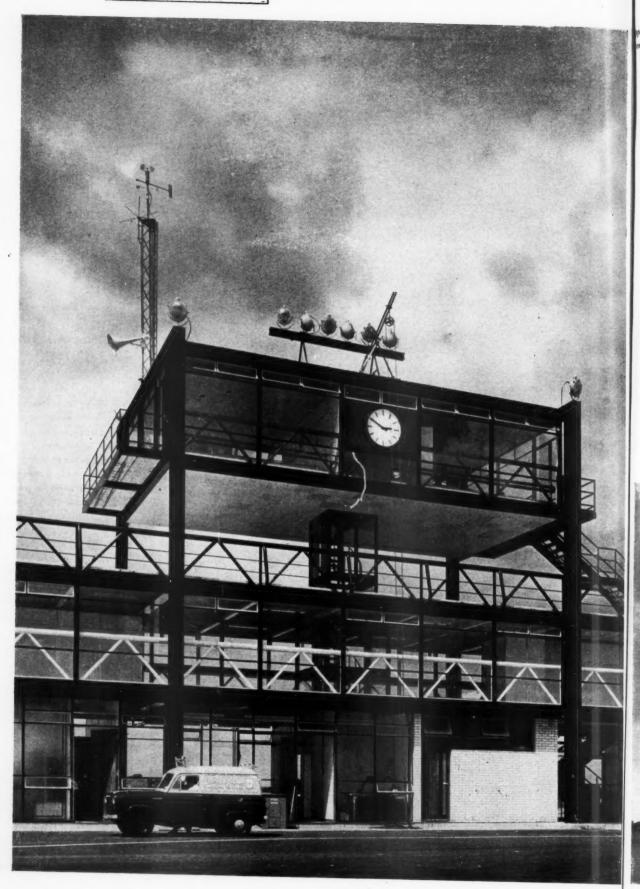


Although it might be thought that advertisers' copy-writers have already done to death the drama of air travel, this sturdy building with its simple function of getting people from A to B has a new exciting quality, partly due, no doubt, to its concept but also due to the virility of its architecture. It is a simple steel structure with Portal frames at 40-ft. centres carrying welded tubular steel trusses which also act as handrails. The steel first floor and roof decking is carried on r.s. cross-joists. Internal finishes are: floors, linoleum sheets; ceiling, fibreboard panels (undecorated); internal partitions (other than glazed screens), cellulose sprayed hardboard panels. The ground floor pier has many functions, and the simple pattern of glazing

for the first floor is replaced here by a different cladding with closer multion centres capable of greater flexibility. This gives added prominence to the first floor and helps to express the traditional pier form which the architects have evidently strived for (above). The tube forming the handrail to the roof is given lateral support by curved welded members which confuse the simple lines of the structure in perspective. The sheet lino floor finish is laid on hardboard and is beginning to move and bubble in places. It has no protection from sunlight and heat and possibly lino tiles, capable of absorbing some thermal movement in joints, might have served the purpose better.



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posite page: the apron control tower over the centra pier.

m here aircraft movements on the apron are supervised.

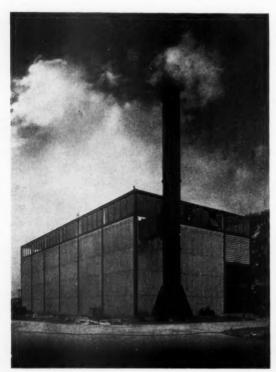
control tower and fire station



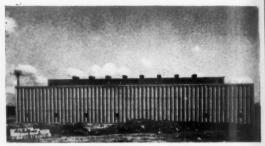
There are, as might be expected at an airport, many ancillary buildings at Gatwick. Although the architects designed the buildings they did not site them and they have been disposed about the perimeter and on the airfield as expediency dictated. Although they are handsome permanent brick buildings and not like the hideous collection of shacks surrounding London Airport, their haphazard siting tends to give some feeling of sprawl. This is, of course, not so with the most important, which form a well-ordered group; the control tower and fire station (left) are situated halfway along the runway and are not visible from the terminal building. Both the glass-fronted control room above the tower and the radar room, the next full floor under, have a continuous duct space below them giving 4 ft. 6 in. clear headroom for servicing the electronic and other services they contain. The first floor houses offices and stores and the air-conditioning plant for the rooms over. The extended ground floor (below) houses the telecommunications equipment. These honest straightforward buildings have an exposed concrete structure of high quality with infill panels of local brindled stocks. Window frames are of clear varnished hardwood.



ancillary buildings



The boiler house is an independent building, steel-framed, with steel roof trusses and clad with asbestos cement sheeting. It houses three large boilers with jet oil burners (oil storage is in a separate building) and also equipment for pressurizing the hot water serving the site mains to 150 lb. sq. in. The system is district heating in miniature, the high pressure hot water being conveyed in underground trenches to calorifiers in the various buildings where it is converted into low pressure hot water for heating and "domestic" supply. Heat-exchanger types in the main building are of three sorts: underfloor coil heating in the concourse, specially-made radiant panels below all windows and a plenum system ducted everywhere, from a central fan room. The freight-handling building nearby is clad with the same asbestos cement sheeting, and is steel-framed.



CONTRACTORS

General contractors: (terminal building) Turriff Construction Corporation Ltd.; (control tower and fire station) Gilbert-Ash. Sub-contractors-Roofing: D. Anderson & Son Ltd. Constructional steel: James Austin & Sons Ltd. Lifts: (terminal building) Bennie Lifts Ltd.; (control tower and fire station) Titan Lift Co. Ltd. Shop and bar fittings: Bath Cabinet Makers Ltd. Electrical: T. Clarke & Co. Ltd. External and venetian blinds: (terminal building) Deans Blinds (Putney) Ltd.; (control tower and fire station) Tidmarsh & Sons. Heating: Edward Dean & Beale Ltd. Asphalt tanking: Faldo Asphalt Co. Ltd. Roller shutters: Haskins. Water tanks: Horseley Bridge & Thomas Piggott. Decorative glass: T. & W. Ide Ltd. Fabric reinforcement: Tentor Bar Co. Ltd. Transmission tubes and conveyors: Lamson Engineering Co. Ltd. Suspended ceilings: (terminal building) Luxfer Ltd. and Sundeala Board Co. Ltd.; control tower and fire station) Tentest Fibreboard Co. Ltd. Terrazzo work: Malacarp Terrazzo Co. Ltd. Scaffolding: Miles Scaffold. Metal windows: (terminal building) Mellowes Ltd. and Aygee Ltd.; (control tower and fire station) Aygee Ltd. and Crittall Mfg. Co. Ltd. Special wall tiling: Maxwells (Hove) Ltd. Utile windows: Norbury Joinery Ltd. Plastering: Pollock Bros. (London) Ltd. Floor and wall tiling: W. G. Pateman Ltd. and Decorative Floors Ltd. Suspended ceilings: Sundeala Board Co. Ltd. Cold room equipment: Smith's Insulation Ltd. Plumbing: George E. Taylor & Co. (London) Ltd. Special partitions: Unilock Ltd. General glazing: Warner (Glass) Ltd. Kitchen equipment: BUK Catering Machinery Ltd., The Regional Manufacturing Co. Ltd., Radiation Ltd., Benham & Sons Ltd., Pressed Steel Co. Ltd., James Stott & Co. Ltd. Ironmongery: Alfred G. Roberts. Sanitary fittings: Stitsons Sanitary Fittings Ltd. Handrailing and balustrading: (terminal building) Hotchkiss Engineers Ltd.; (control tower and fire station) S. W. Farmer. Architectural aluminium work: Ajax Architectural Products Ltd. Public address system: Westrex Co. Ltd. Paint: Screeton Paintmaker Ltd. Pneumatic tubes: Lamson Engineering Co. Ltd. Flooring: Semtex Ltd. Sliding doors: Hill Aldam. Hose reels and drying equipment: Read & Campbell Ltd. Precast concrete sills: Girlingstone. Cement: The Cement Marketing Co. Ltd. Porous concrete, land drains: Cawood Wharton Co. Ltd. Pitch fibreducts: Key Engineering Co. Ltd. Asbestos cement goods: Turners Asbestos Cement Co. Ltd. Scaffolding: Mills Scaffolding Co. Ltd.

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working detail

STAIRCASE: FLATS IN LONDON, E.C.1

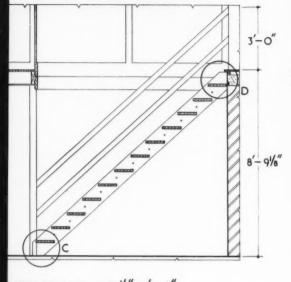
Chamberlin, Powell and Bon, architects



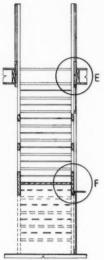
This simple open staircase has $\frac{1}{2}$ in. dia. m.s. tie rods between treads. The heads of these rods and of the screws which fix the treads are sunk and pelleted.

STAIRCASE: FLATS IN LONDON, E.C.1

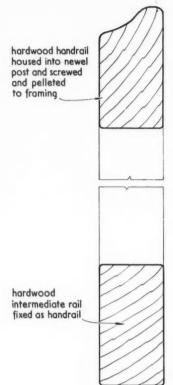
Chamberlin, Powell and Bon, architects



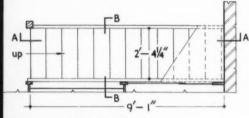
SECTION A-A scale 1/8" = 1'- 0"



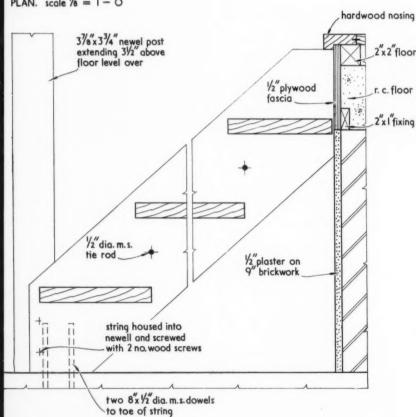
SECTION B-B.



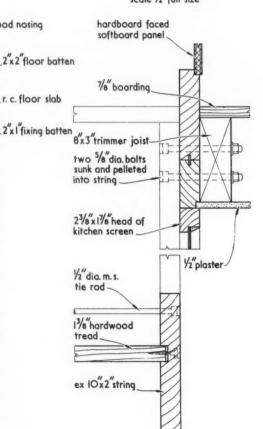
DETAIL OF HANDRAIL scale 1/2 full size



PLAN. scale 1/8" = 1'-0"



DETAILS AT C AND D. scale 1/8 full size



DETAILS AT E AND F

working detail

SINKS IN COMMUNITY CENTRE: FLATS IN LONDON, E.C.1

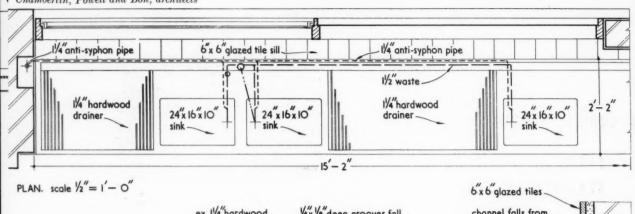
Chamberlin, Powell and Bon, architects

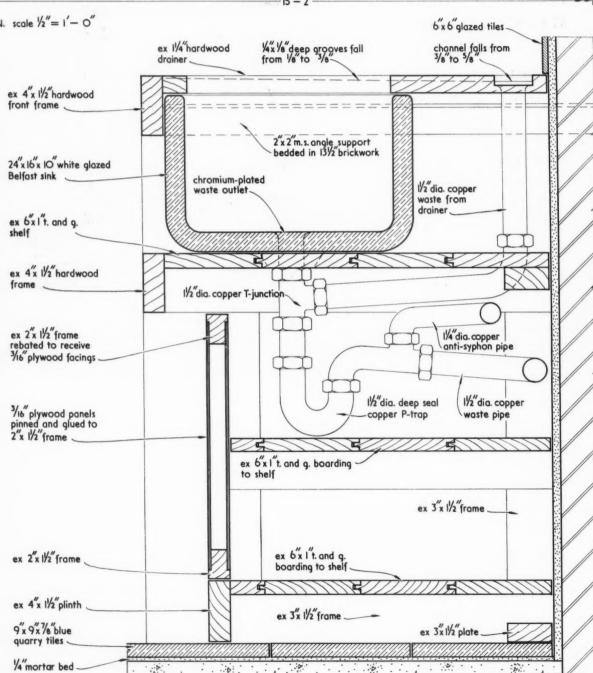


The grooves in the draining boards fall towards the back of the unit where they drain into a channel which has one outlet connected to the waste of one of the sinks.

SINKS IN COMMUNITY CENTRE: FLATS IN LONDON, E.C.1

· Chamberlin, Powell and Bon, architects









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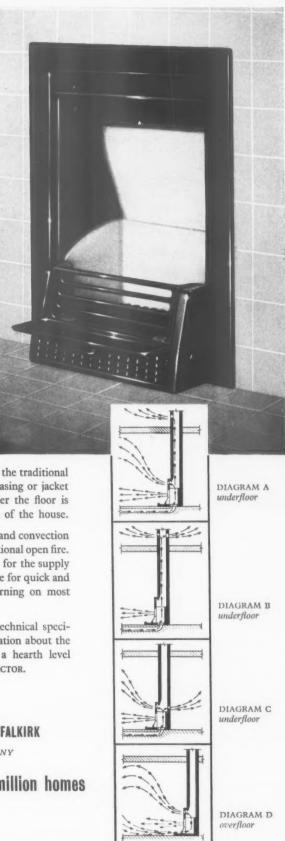
The overall efficiency of this appliance with radiant and convection heating is more than twice that obtained with the conventional open fire. This efficiency is increased when a back boiler is fitted for the supply of hot water. The unit incorporates a gas ignition tube for quick and easy kindling. The fire is suitable for continuous burning on most solid fuels.

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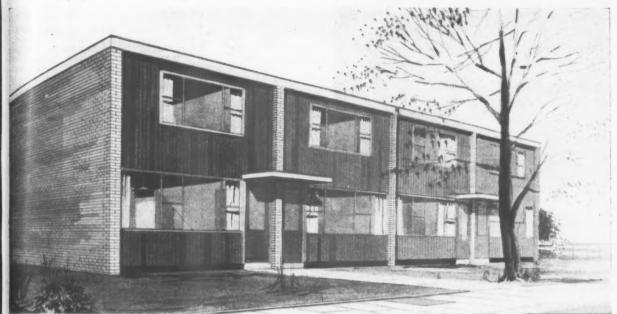
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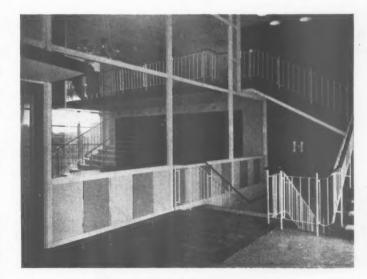
The perspective sketch above shows a short terrace of three-bedroom houses designed by James F. Munce of Munce & Kennedy for Downpatrick Rural District Council (Northern Ireland). The Council are building a first batch of 75 such houses at a cost of £950 per house. The houses are of brick cross-wall construction with front and back walls of timber-framed, shop-fabricated panels clad with Western red cedar boarding. The windows are of aluminium; foil backed insulating plasterboard and skim coat is to be used for internal wall linings.

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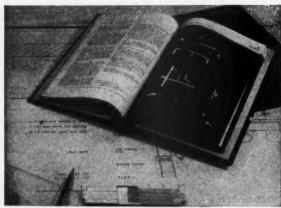


Wales Empire Pool, Cardiff. City Architect's Dept.

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Announcements

TRADI

Wolf Electric Tools Ltd. have issued a film called Building with Power Tools. Copies of this can be obtained on loan, free, from the GB Film Equipment Library, Aintere Road, Perivale, Greenford, Middlesex, or direct from Wolf Electric Tools Ltd., Pioneer Works, Hanger Lane, London, W.5.

Alar Limited has formed a combined organization with the Federation of Light Metal Smelters. The name of the new body is The Association of Light Alloy Refiners and Smelters.

R. A. Stockdale, who has been with Sissons Brothers & Co. Ltd., paint manufacturers, Hull, for 54 years, retired from the Company on July 31. H. R. Fielding, A.C.A., has replaced Mr. Stockdale as export manager.

British Paints Ltd. announce the following recent changes of address: Nelson: Water Street (Nelson 2983/3); Norwich: 128/132, Ber Street (Norwich 28081); Reading: Folk House, Church Street (Reading 53708).

The British Aluminium Company Limited have appointed P. T. Ensor, formerly General Manager of the Canadian British Aluminium Company Limited, assistant to the commercial director, G. W. Lacey.

Correction

In the feature on the factory and offices for the British Diamond Wire Die Co. Ltd. (AJ, July 31) the names of the quantity surveyors, general contractors and heating sub-contractors were incorrectly spelt. They should have read: F. C. Denley and Partners, Burt and Vick Ltd and Mumford, Bailey, and Preston, respectively.



MARLEYCEL

the low-cost insulating material of surprising lightness



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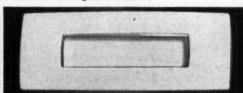
... and for very good reasons. Architects appreciate the refinement of line and finish, many local authorities specify Everite for its strength, reliability and moderate price.

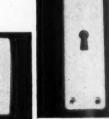
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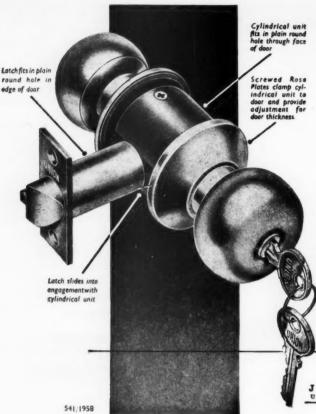
Architect: R. N. WAKELIN, F.R.I.B.A., of Campbell Jones & Sons.

ROMAN HOUSE London Wall, E.C. has been fitted with

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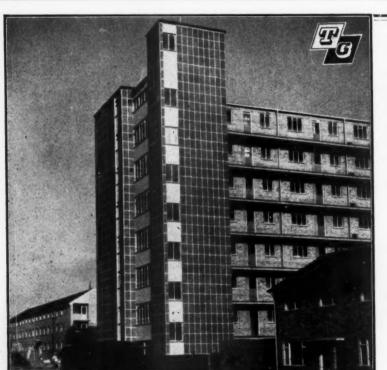
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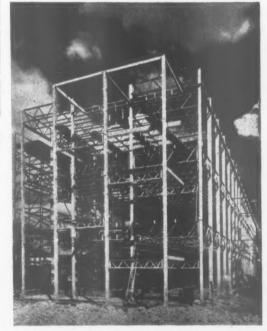


New Air Terminus buildings in Kensington for B.E.A. Phot graph taken 16 days after commencement of steel deliveries.

Main Contractors: Messrs. Richard Costain Limited.

ERECTION

The Architects for the Bowater Paper Corporation Limited's new Office Blocks at Northfleet both Mersey and required Lattice Steelwork on a 3ft. 4in. module. This allowed complete flexi-bility of internal arrangements and all service lines are easily run between floor and ceiling.



Part of a new Office Block for The Bowater Paper Corporation Limited.

Architects: Messrs. Farmer and Dark.

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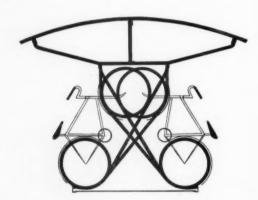


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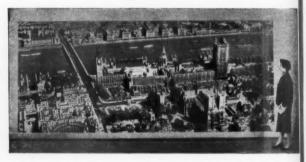
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Applications, together with the names of two
referees, must reach the City Architect & Planning
Officer, Mr. J. L. Berbiers, F.R.I.B.A., A.M.T.P.I.,
not later than Monday, 1st September, 1958.

J. BOYLE,
Town Clerk.
Municipal Buildings,

Municipal Buildings,
Canterbury.

ISLE OF ELY COUNTY COUNCIL
PLANNING DEPARTMENT
Vacancies for (a) PLANNING ASSISTANT
(salary A.P.T.I. or II or Special Grade: £575-£725;
£725-£845; £750-£1,030. Duties, assistance in preparation of Town Maps, revision of County Map, tree preservation, etc. Salary according to qualifications.

(b) DRAUGHTSMAN (salary within range £255-£560-Higher General Division). Opportunity for young person to be trained in town and country planning. National Conditions.

Application form and conditions of appointment from County Planning Officer, County Hall, March, Cambs, returnable by August 23, 1958.

R. F. G. THURLOW,
Clerk of the Country Council.

CAERNARVONSHIRE COUNTY COUNCIL
Applications invited for post of SENIOR PLANNING ASSISTANT in County Planning Department. Salary within N.J.C. Scale APT. III, commencing point according to qualifications and experience. (The scale of this post is at present
under review.)
Candidates must be corporate members of Town
Planning Institute and in addition hold a recognized qualification in architecture, engineering or
surveying and must have had extensive practical
experience in preparation of development plans,
particularly town maps, preferably including comprehensive redevelopment areas. Further particulars and application form from Clerk of County
Council, Caernarvon. Closing date 25th August.

1142

SLOUGH CORPORATION
ASSISTANT ARCHITECT needed for housing and re-development schemes and general muncipal building works. Salary within Grade for Special Classes (£750 x £40-£1,030) Must be A.R.I.B.A. Housing would be provided for married candidates

Housing would be provided by dates.
Confidential applications giving names of Treferees, age, qualifications and experience, should reach the Borough Engineer, Town Hall, Slough, Bucks, by Monday, 25th August, 1958.

Bucks, by Monday, 25th August, 1958.

OLDHAM EDUCATION COMMITTEE
Applications are invited for a post of ARCHITECTURAL ASSISTANT in the Schools Architect's Department. The salary will be in accordance with qualifications and experience and the post is permanent and pensionable, subject to medical examination.

The department is engaged in an extensive educational building programme which includes contemporary primary and secondary schools, special schools and further education establishments, and the post offers opportunities for responsible and interesting work. No housing accommodation is available.

Applications should be forwarded by letter to the Director of Education, Education Offices, Union Street West, Oldham, not later than August 28 and should give full details of age, qualifications and experience.

COUNTY BOROUGH OF SOUTHAMPTON BOROUGH ARCHITECT'S DEPARTMENT Applications are invited for the following permanent positions:—

(a) ASSISTANT PLANNING OFFICER, Special Grade (£756-£10.30).

(b) PLANNING ASSISTANT, Grade A.P.T. II (£725-£235).

Candidates should possess appropriate qualifications and should state their separations.

(£725-£845).
Candidates should possess appropriate qualifica-tions and should state their housing needs.
Application forms from the Borough Archi-tect. Civic Centre, Southampton. Closing date 29th August, 1958.

103

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE
OFFICE OF THE COUNTY ARCHITECT
Applications are invited for the appointments shown in the grades below, the salary ranges of which are:
Senior Officers—Scale "B" ... £1,285—£1,440.

£1,285—£1,440. £1,1**76—£1,325.** £1,025—£1,175. £750—£1,030. A.P.T. V
A.P.T. IV
Special Grade
A.P.T. III
A.P.T. III

A.F.T. 1

(A) ARCHITECTS.

For appointment in the Central Office at Wakefield.

(a) Special Grade
(b) A.P.T. I.
Applicants for the "Special" grade should be Registered Architects and have had good experience in the design and construction of modern buildings.

appointment in the Divisional Office at

R.I.B.A.

(B) HEATING ENGINEERS.

For appointment in the Central Office at Wakeheld.

A.P.T. IV—I vacancy.

A.P.T. IV—I vacancy.

A.P.T. IV—I vacancy.

Applicants must be Associate Members of the Institution of Heating and Ventilating Engineers, and be capable of carrying out the design and detailing of heating, hot water and ventilating installations, and preparing the necessary drawings and specifications for schools and other public buildings.

Bishopgarth, Westfield Road, Wakefield.

Westfield Road,
Wakefield.
COUNTY BOROUGH OF BOLTON
BOROUGH ARCHITECT'S DEPARTMENT
Applications invited for appointment of SUPER.
INTENDENT OF WORKS, Grade A.P.T. III
(2845-61,025). Commencing salary according to experience and qualifications.
The person appointed will be required to supervise the whole of the building works programme for new works and maintenance, and to control and co-ordinate the Clerks of Works and Maintenance Section of the Department. Successful candidate will have benefit of Casual User's car allowance in accordance with National Scheme of Conditions of Service. Appointment superannualle subject to medical examination.
Application forms, obtainable from me, should be returned by 26th August.
PHILIP S. RENNISON,
Town Hall, Bolton.

Town Hall, Bolton.

Town Hall, Bolton.

URBAN DISTRICT OF FELTHAM
ARCHITECTURAL ASSISTANT
Applications are invited for the appointment of
an Architectural Assistant on the Council's unestablished staff at a salary within Grade A.P.T.
III of the National Scales (2845-£1,025 per annum)
plus London "weighting." Applicants must be
suitably qualified.
Forms of application, obtainable from the undersigned, must be returned accompanied by copies
of two testimonials not later than 29th August,
1958. Canvassing directly or indirectly will disqualify and applicants must disclose, in writing,
whether to their knowledge they are related to
any member of or the holder of any senior office
under the Council.

M. W. COUPE,

M. W. COUPE, Clerk of the Council.

Council Offices. Feltham, Middlesex.

CITY OF LEEDS CITY ARCHITECT'S DEPARTMENT

Post

SENIOR ASSISTANT ARCHITECTS. Grade
A.P.T. IV. Commencing salary £1.025.
Applicants must be members of the
Royal Institute of British Architects and
preferably should have been specializing in
design. The successful applicants will be
engaged on some large and interesting
new developments.

new developments.
2. ASSISTANT ARCHITECTS. Grade A.P.T. III.

engaged on some large and interesting new developments.

2. ASSISTANT ARCHITECTS. Grade A.P.T. III. Commencing salary £345.

3. ARCHITECTURAL ASSISTANTS. Grade A.P.T. I. Commencing salary £575.

4. ASSISTANT QUANTITY SURVEYOR. Grade A.P.T. III. Commencing salary £345.

5. ASSISTANT QUANTITY SURVEYOR. Grade A.P.T. I. Commencing salary £375.

6. ASSISTANT SURVEYORS (LAND). A.P.T. I. Commencing salary £575.

7. CLERKS OF WORKS. Grade A.P.T. I. Commencing salary £575.

7. CLERKS OF WORKS. Grade A.P.T. I. Commencing salary £575.

Applicants are asked to clearly indicate the post for which they wish to be considered. The payment of salary increments will be subject to satisfactory service and will be granted normally with effect from the 1st April following the completion of ix months' service.

The appointments are subject to the Local Government Superannuation Acts. 1937-1953, and the successful applicants will be required to pass a medical examination.

Application forms may be obtained from the City Architect. Priestley House, Quarry Hill, Leeds, 9, to whom they should be returned together with copies of three recent testimonials, by 12 noon on Saturday, 2574 August, 1958.

Canvassing in any form, either directly or indirectly, will be a disqualification.

R. A. W. LIVETT.

City Architect.

Priestley House, Quarry Hill, Leeds, 9. 1st August, 1958.

1st August, 1958.

Amended Advertisement
CITY AND COUNTY OF NEWCASTLE-UPONTYNE
CITY ARCHITECT'S DEPARTMENT
Applications are invited for the post of SENIOR
STRUCTURAL ENGINEER in the City Architect's Department in Scale "B," at a salary of
£1,210 per annum rising by annual increments
to a maximum of £1,440 per annum.
Applicants should preferably be Associate Members of the Institution of Structural Engineers
or the Institution of Civil Engineers.
The officer appointed will be responsible for
the preparation of calculations and detailed
structural schemes for steel and reinforced concrete framed buildings, and experience in dealing with problems of special foundations will be
an advantage.
The above appointment will be subject to the
provisions of the Levil

ing with problems of special robusts.

The above appointment will be subject to the provisions of the Local Government Superannuation Acts, 1937-55, and to three months' notice on either side. The successful candidate will be required to pass a medical examination.

Further particulars and Forms of Application may be obtained from George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market. Newcastle-upon-Tyne, 1.

JOHN ATKINSON.

Town Clerk.

Town Hall. Newcastle-upon-Tyne, 1. 1st August, 1958.

BIRMINGHAM REGIONAL HOSPITAL BOARD

ASSISTANT ARCHITECT 2700 × £25(3) × £35(6)-£1,015 according to age and experience. Applicants must be Registered Architects having passed requisite examinations. Experience of hospital planning and construction an advantage. Sound knowledge specifications essential. Superannuable. Apply, naming two referees, to Secretary, 10, Augustus Road, Birmingham 15, by August 21.

COUNTY BOROUGH OF WEST BROMWICH
Applications are invited for the appointment
of a SENIOR ASSISTANT ARCHITECT. Salary.
Special Grade £750-£1,030. Housing accommodation will be made available. N.J.C. Conditions
of Service. Applications, naming two referees, to
Borough Surveyor, Town Hall, West Bromwich,
by August 25, 1958.

BOROUGH OF CHESTERFIELD cations are invited for the fo

Applications are invited for the following appointments:—

(a) ARCHITECTURAL ASSISTANT—Special Classes £750 × 40—£1.050.

(b) ARCHITECTURAL DRAUGHTSMAN— Miscellaneous Grade V—£625 × 20—£685.

The starting salary will be in accordance with qualifications and experience.

For post (a) applicants must be Associates of the R.I.B.A. or hold equivalent qualifications. Housing accommodation will be provided if required and a car allowance on the casnal user basis is payable.

For post (b) applicants should be neat and competent draughtsmen. Housing accommodation is not available for this post.

Applications, stating age, appointments held (with dates and salaries), and full particulars of qualifications and experience, accompanied by names and addresses of two referees, to be sent to the Borough Engineer, Town Hall, Chesterfield, by August 50, 1958. Canvassing disqualifics.

RICHARD CLEGG, Town Clerk.

METROPOLITAN BOROUGH OF FULIIAM BOROUGH ARCHITECTS AND HOUSING DEPARTMENT

(a) PRINCIPAL ASSISTANT ARCHITECTS:
N.J.C. Special Scale £750-£1,030 plus £30 per amount London weighting, commencing salary according to experience. R.I.B.A. Final or equivalent

equivalent.
(b) ASSISTANT ARCHITECTS: A.P.T. II
£725—£845 plus London weighting £20—£30 per
annum, according to age. R.I.B.A. Intermediate.
The work is primarily concerned with schemes
of multi-storey dwellings. Application forms
from Town Clerk, Town Hall, S.W.6. Closing
date 25th August, 1958.

CITY OF LEICESTER
CITY ENGINEER'S AND SURVEYOR'S
DEPARTMENT
MAINTENANCE SECTION
Applications are invited for MAINTENANCE
ASSISTANTS in Grade A.P.T.III (£845—£1.025 per

ASSISTANTS in Grade A.F.T.111 (1949—18.000 per annum).

Candidates should be Members of the R.I.B.A. R.I.C.S., or equivalent and should have a good knowledge and experience in the maintenance of Public Buildings, preparation of plans, specifications, estimating and schedules, etc.

Local Government Superannuation Acts apply, subject to medical examination.

Applications, giving details of training, qualifications and experience, with the names of two referees, to be received by Saturday, 23rd August, 1958.

referees, to be recommodation is available.

No housing accommodation is available.

JOHN L. BECKETT, M.Inst. C.E.,

City Surreyor.

Town Hall,

MANCHESTER REGIONAL HOSPITAL BOARD invite applications for the appointment of a CLERK OF WORKS to supervise on behalf of the Regional Board a major scheme of development at Cranage Hall Mental Deficiency Hospital. Holmes Chapel, Cheshire, The contract value 239,000 comprises new boiler house and extension to mains, workshops, laundry, kitchen, dining room, stores and patients' villa testimated duration of contract not less than two years). The salary payable will be up to a maximum of £15 3s. 0d. weekly less deductions in respect of superannuation contributions. Applications, accompanied by the names of three referees, should be received by the Secretary of the Board, Cheetwood Road, Manchester, 8, not later than first post on \$25th August, 1958.

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GOVERNMENT OF UGANDA
ARCHITECT, PUBLIC WORKS DEPARTMENT
For general architectural duties over a wide
range of building projects under the supervision
of the Chief Architect.
Contract appointment for one tour of 30.36
months. Salary range £1,194-£1,863 a year.
Gratuity of 13½ per cent. of aggregate emoluments
payable on satisfactory completion of contract.
Income Tax at East African rates.
Free passages provided up to three adult sea
passages. Furnished quarters, if available, are
provided at reasonable rents. Leave is granted
at the rate of five days for each month's resident
service.

service.
Candidates between 25 and 35 years of age must
be A.R.I.B.A.
Write Director of Recruitment, Colonial Office,
London, S.W.1, stating briefly, age, qualifications
and experience, quoting BCD 112/9/012. 1135

HUNTINGDONSHIRE
COUNTY ARCHITECT'S DEPARTMENT
ARCHITECTURAL ASSISTANT
Applications are invited for the above appointment on the Special Grade (£750-£10.30) or Grade
P.T. III (£845-£1,025) according to qualifica-

tions.
Further details and application forms may be obtained from the County Architect, County Buildings, Huntingdon. Completed application forms should be returned to the undersigned by Monday. 25th August, 1958.

A. C. AYLWARD, Clerk of the County Council, ounty Buildings,

BOROUGH OF BRIDGWATER
BOROUGH ARCHITECT'S DEPARTMENT
Applications are invited for the post of
ARCHITECTURAL ASSISTANT on Salvy scales
A.P.T. 1 or II (according to qualifications and

A.P.T. 1 or II (according to qualineations and experience).

Applicants should have passed the Intermediate Examination of the A.R.I.B.A., and have had experience of Local Authority housing and general works.

The appointment is subject to N.J.C. Service Conditions, medical examination, Local Government Superannuation Acts, and one month's notice on either side.

Applications to be sent to the Borough Architect, Town Hall, Bridgwater, not later than Monday, 25th August, 1958, giving full particulars of age, education and experience, etc., and the names and addresses of two referees.

H. A. CLIDERO.

Town Clerk.

CITY OF PORTSMOUTH
CITY ARCHITECT'S DEPARTMENT
(pplications are invited for the appointment of
CHITECTURAL ASSISTANTS, Grade I (£575-

Applicants must have passed the Intermediate R.I.B.A. Examination, or its equivalent at one of the recognized Schools of Architecture.
Applications, setting out in tabular form, name, age, qualifications, present post and salary, previous posts with dates, details of experience, with names and addresses of two referees, must be delivered to the City Architect, I. Western Parade, Portsmouth, not later than Monday, 1st September, 1958.

Canvassing will disqualify.

V. BLANCHARD,

Town Clerk.

The Guildhall, Portsmouth.

POTSMOUTH.

COVENTRY
ARCHITECT/PLANNER APT. IV (£1.025 × £50—£1.175). Salary within grade if appropriate. Duties concerned with civic design problems and redevelopment along proposed Inner Ring Road

redevelopment along proposed Inner King Ro and its environs.

Housing accommodation way be available. I moval expenses loan. Application forms etc. fr City Architect and Planning Officer, Bull Ya Coventry, returnable within 14 days of publi

second impression

now ready

The Home of Man

by Le Corbusier and François de Pierrefeu Translated by Clive Entwistle and Gordon Holt

Size 8 ins. × 5] ins. 156 pages, containing a large number of drawings by Le Corbusier Price 15s. net (Postage 10d.)

This is the second of the two post-war books by Le Corbusier to be published in English by The Architectural Press (Concerning Town Planning was the first). In this work Le Corbusier has collaborated with François de Pierrefeu, who has been closely associated with him for many years.

M. de Pierrefeu contributes t'he introductory text, in which he outlines t'he principles that should be followed in the design and planning of the towns and hones of the new world so that the resources of science are fully applied to providing the best environment for the ordinary man. Le Corbusier's section of the book follows the same theme. It consists of illustrations drawn in his own inimitable style, accompanied by his own commentary, and forms the principal contents of the book.

THE ARCHITECTURAL PRESS

9-13 QUEEN ANNE'S GATE, WESTMINSTER, WCI

Architectural Appointments Vacant these or under. 98, 5d.; each additional line, 28, 5d. 800 Number, including forwarding replies, 28, extra CO-OPERATIVE WHOLESALE SOCIETY LTD. ARCHITECT'S DEPARTMENT, MANCHESTER APPLICATIONS are invited for the appointment of ASSISTANT ARCHITECTS with experience of work on commercial and industrial projects, capable of preparing working drawings from preliminary details. Five-day week in operation, Applications stating age, experience, qualifications and salary required to G. S. Hay, AR.I.B.A., Chief Architect, Co-operative Wholestle Society, Ltd., 1, Balloon Street, Manchester, 4, 9565

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sile Society, Ltd., 1, Balloon Street, Manchester, 4, 9585

RONALD WARD & PARTNERS require contemporary outlook, and willing to use own nitiative. Salary range £600 to £900. Congenial working conditions. Five-day week. Apply: 39, Chesham Place, Belgrave Square, S.W.I. Telephone: Belgravia 3551.

JUNIOR ASSISTANT required in busy West End practice. Good opportunities for obtaining all round experience. Write giving age, salary required, etc., Box 1002.

JUNIOR ARCHITECTURAL ASSISTANT required in City Office. Sieve-day weeks. Salary £350 to £500. Apply Box 9995.

EXPERIENCED ARCHITECTURAL TO BOX SON SURVEY. Preference will be given to those who have passed the Intermediate examination of the R.I.B.A. Five-day week; pension schome. Apply in writing to Personnel Manager. W. S. Atkins & Partners, 156 Victoria Street, S.W.I. 1040

EPARTMENT OF HEALTH FOR SCOT-

W. S. Atkins & Partners, 158 Victoria Street, S.W.I.

DEPARTMENT OF HEALTH FOR SCOTTON CONTROL OF THE ARCHITECTURAL ASSISTANT (Intermediate Standard) for varied practice, interested in Cisy Office. Varied Practice, interested in Science 2, Field Court, Gray's Inn. London, W.C.I.

RCHITECTURAL ASSISTANT (Intermediate Science).

design. Please apply in writing to: Boissevain & Osmond, 2, Field Court, Gray's Inn, London, W.C.1.

A CHITECTURAL ASSISTANT required A immediately, Intermediate standard, for the general practice, but mostly housing. Please apply, stating age, salary required (car desirable), to E. John Evans, 66, High Street, Walton-on-Thames, Surrey.

A SSISTANT of Intermediate standard required by North Essex Branch Office engaged on architectural and engineering projects. Possibility of transfer to London Head Office at later date. Must be good draughtsman with sound knowledge of construction. Salary according to experience. Write Box 1099.

A RCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard required in Reading Office. Apply in writing, stating experience and salary required, to Box 1097.

TREHEARNE & NORMAN, PRESTON & PARTNERS, have a vacancy for a SENIOR ASSISTANT. Salary according to experience and qualifications. Apply: 33, Kingsway, W.C.2 (HOL. 4071).

RCHITECTURAL ASSISTANTS required for small busy practice, experience and detail.

ARCHITECTURAL ASSISTANTS required for small busy practice; experience and detailing of houses and flats essential. Salary £600 to £850 according to qualifications and experience. Write giving particulars of architectural education and experience. W.C.2 district. Box 1095.

SENIOR and INTERMEDIATE ASSISTANTS required immediately with experience in grivate practices for full and interesting programme in medium sized office. Full particulars and salary required to Deacon & Laing, Charlered Architects, 65, Goldington Road, Bedford.

A RCHITECTURAL ASSISTANT (near final or recently qualified standard) required in small West End Office of Chartered Architect, dealing with the design of chain shops. Must be interested in contemporary design. Salary £700-£750. Apply Box 1167.

ARCHITECTURAL ASSISTANTS, Senior and Intermediate standard, required for City office, experienced in schools and industrial work. Salaries £750-£1,000 for Seniors and £500-£700 for Intermediate, with twice yearly bonus.—Box 1147.

ANCHESTER PRACTICE requires experienced JUNIOR ASSISTANT for work on various projects, mainly contemporary. Able to take job through from sketch design stage. Excellent opportunity to gain general experience, including design details, supervision, etc. Good salary offered to suitable applicant. Please send details (in confidence) to Box 1169.

A SSISTANT required for busy Cambridge office.

Young energetic man preferably School trained—but would consider efficient man of Intermediate standard. Please send details of age, experience and salary required to Box 1165.

experience and salary required to Box 1165.

PANK OF IRELAND require the whole-time service of an ARCHITECT with University Degree in Architecture or equivalent qualification togethe: with registration in U.K. in either case. Age 35-45 years approximately. Salary beginning at £1,500-£2,000 p.a. according to age, qualifications, etc. Non-contributory pension. Office and staff provided at Head Office. Applications, which should contain details of age, qualifications and experience should reach the Secretary, Bank of Ireland, Dublin C.I, on or before 8th September, 1958.

MICHELL & ADAMS urgently require an enterprising ASSISTANT with office experience for interesting and varied work in small office. Write, giving brief details to 22, Queensdale Road, London, W.11.

SENIOR ARCHITECTURAL ASSISTANT required Bromilow While & Smeeton, Griffin House, Ludgate Hill, Birmingham 3.

RCHITECTURAL ASSISTANT, salary not less than £850, required Victoria area. Fiveday week; lunch vouchers. Full particulars to Box 1168.

may week; nunch vouchers. Full particulars to Box 1168.

EDWARD D. MILLS & PARTNERS require mediate level, for interesting contemporary work. Capable draughtsman with sound knowledge of modern construction. Write giving full details of experience, salary required, and availability to 15, Carlisle Street, Soho Square, W.1. 1171

DEPENDABLE ASSISTANT, with site and administrative experience, needed to join small London Office specialising in the care of Historic Buildings. Donald Insall, 5, Lyall Street, London, S.W.1. 1170

ASSISTANT required at once by Architect in South Kensington for varied and interesting work. Applicant should have passed Intermediate and be preparing for Finals, good Draughtsman with two/three years' practical experience. Write Box 1126 or ring Kensington 1242.

Interesting Project. Recently qualified assistants required with office experience. Telephone Welbeck 6543.

A RCHITECT urgently required take charge branch office, West Africa, aged about 35. Previous overseas experience essential. Salary by arrangement.—Write, Box 1146.

ENIOR ASSISTANT wanted, with at least five years practical experience. Write brief details to Eric Lyons, Mill House, Bridge Road, Hampton Court, Surrey.

INTERESTING WORK for a fourth or fifth year Student during the holiday period, salary by arrangement. Apply Sudell & Waters. 2, Guilford Place, W.C.1. Telephone: Chancery 7286/5687.

2, Guilford Place, W.C.1. Telephone: Chancery 7286/5867. 1144

JOHN LAING AND SON LIMITED invite applications for the following vacancies in their Architect's Department (Chief Architect: Sydney Greenwood, A.R.I.B.A.) at Head Office in N.W. London:

ARCHITECTS of Final R.I.B.A. standard and with experience in one or more of the following: office and industrial schemes, multi-storey flats and maisonettes, private and municipal housing.

ARCHITECTURAL ASSISTANTS of Internediate or Final R.I.B.A. standard and limited experience in one of the above fields.

JUNIOR ARCHITECTURAL ASSISTANTS who are studying for a recognized qualification.

These positions offer excellent opportunities for advancement and a wide variety of work in a busy office. Pension scheme after two years' service. Five-day week. Canteen, sports and social club facilities.

Applications to Personnel Manager (A.J.), John Laing and Son Limited, Building and Civil Engineering Contractors, London, N.W.7.

Architectural Appointments Wanted 4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

Box Number, including forwarding replies, 22, extract

A SSOCIATE, aged 32, educated Sherborne & A.A., 5 years' experience in London practice, in charge of handling projects, now looking for responsible post in provincial practice with view to partnership. S. or S.W. England preferred. Capital available. Box 8228.

TWO A.R.I.B.A.'s, with total of 30 years' experience in getting work done well and quickly, can handle £1 million worth of work p.a. At 6 per cent. the fees would amount to £60,000, but each A.R.I.B.A. requires only £1,500 p.a. Box 1157.

A.R.I.B.A., at present in responsible salaried post, is unable to cope with rapidly increasing private work, London, wishes to form an association with Architect in established practice with view to amalgamation or part-time employment.—Box 1149.

A RCHITECTURAL ASSISTANT seeks position in London office. Box No. 1156.

SENIOR ASSISTANT (age 35), with experience in domestic work (including flats), schools, departmental stores, and alteration work.

Box 1148.

A RCHITECTURAL ASSISTANT (26), Intermediate standard, nine years' office experience, requires position end of September. Housing accommodation essential.—Box 1124.

Other Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

Box Number, including forwarding replies, 2s. extra

THE ARCHITECTS' JOURNAL requires a first-class full-time DRAUGHTSMAN, with a keen interest in the compilation of technical data, for the preparation of Working Details and Information Sheets. Write to the Editor (Information Sheets. Write to the Editor (Information Sheets.) 9, Queen Anne's Gate, S.W.1, stating age, architectural training and experience.

PUBLICITY OFFICER required by Structural Concrete Engineers to work in association with advertising agents and printers under direction of the Company Secretary. He will be required to take over existing arrangements for producing press advertisements, handbooks, news releases, direct mail pamphlets, etc. Ability to write correct concise copy essential; architectural background an advantage. Apply to The Secretary, Truscon House, Lower Marsh, London, S.E.I.

S.E.1. 100 AND ADDRESS. LOWER MARSH, LONDON, 1125

QUANTITY SURVEYING ASSISTANT required by professional firm. General experience in civil engineering side of checking off quantities. Age range 28/40, Salary according to experience. Please indicate previous employers and nature of employment with any qualifications to Box 1158.

Other Appointments Wanted
Four lines or under, 9s. 6d. Each additional line,
2s. 6d. Box No. including forwarding replies 2s.
extra.

SHORTHAND TYPIST (age 18) requires post in Architect's office, London area. Secre-tarial training just completed. Previously one year Architectural Department. Kingston Art School.

TEMPORARY POST required for young lady studying architecture. Knows German. Very keen on drawing and design. Position preferred in building and interior design. Box 1172.

MECHANICAL SERVICES—Newly established firm of Consultants specialising in Heating, Ventilating, Air Conditioning, Process and Electrical Services, desire co-operation with Architects in London or Midlands on retainer or other agreed basis. Exclusive services of one or more teams may be arranged if required. Please write in confidence to Box 1174.

Services Offered

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

"DON" ARCHITECTURAL MODEL
WORK with speed and reliability.—Please 'Phone
Erith 3843 or Hastings 1366.

Erith 3843 or Hastings 1000.

THE SITE SURVEY COMPANY
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Fully equipped to undertake urgent Engineering
and Architectural surveys in any part of the
country and abroad. Specialists in ½ in. scale
detailed surveys for extensive city development
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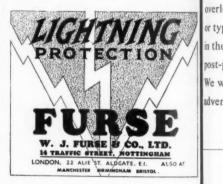
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