THE ARCHITECTS' JOURNAL

standard contents

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

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THE ARCHITECTURAL PRESS

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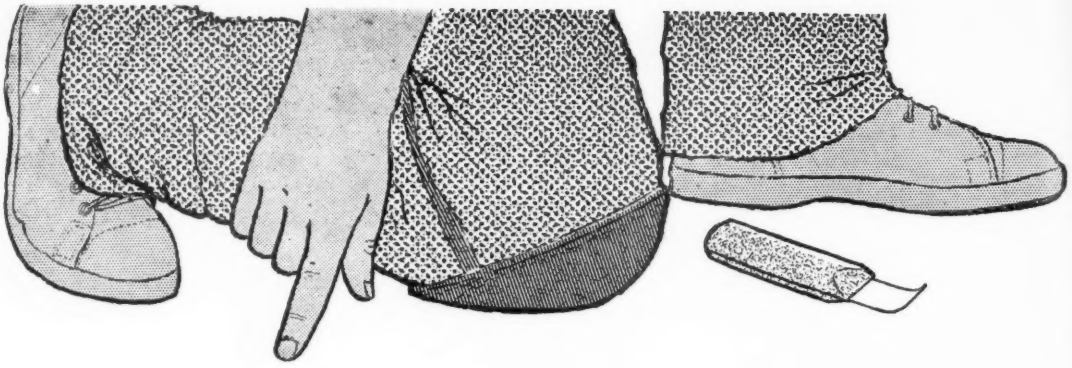
Registered as a Newspaper.

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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. L. Stevenson, College of Art, Hope Street, Liverpool 1.	Royal 1826
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB]	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Ealing 9621
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Redditch 716
BDA	British Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Glasgow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Chancery 7772
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Langham 2785
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford.	Garston 4040
BSA	Building Societies Association. 14, Park Street, W.1.	Mayfair 0515
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 9000
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Tate Gallery 8134
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.B.A., Borough Architect and Director of Housing, Town Hall, High Holborn, W.C.1.	Holborn 3411
CAS	County Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford.	Bedford 67444
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Belgravia 6661
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
COID	Council of Industrial Design. 28, Haymarket, S.W.1.	Trafalgar 8000
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280
CUC	Coal Utilization Council. 3, Upper Belgrave Street, S.W.1.	Sloane 9116
CVE	Council for Visual Education. 13 Suffolk Street, Haymarket, S.W.1.	Reading 72255
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1.	Regent 4448
EPNS	English Place-Name Society. 7, Selwyn Gardens, Cambridge.	
FAS	Faculty of Architects and Surveyors. 68, Gloucester Place, W.1.	Welbeck 9966
FASS	Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street, W.1.	Welbeck 1781
FBBDO	Fibre Building Board Development Organization Ltd. (Fidor), Stafford House, Norfolk Street, W.C.2.	Covent Garden 3008
FBI	Federation of British Industries. 21, Tothill Street, S.W.1.	Whitehall 6711
FC	Forestry Commission. 25, Savile Row, W.1.	Regent 0221
FCMI	Federation of Coated Macadam Industries. 37, Chester Square, S.W.1.	Sloane 1002
FDMA	The Flush Door Manufacturers Association Ltd. Trowell, Nottingham.	Ilkeston 623
FLD	Friends of the Lake District. Pennington House, nr. Ulverston, Lancs.	Ulverston 201
FMB	Federation of Master Builders. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)	
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GPDA	Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2, Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1.	Mayfair 7086



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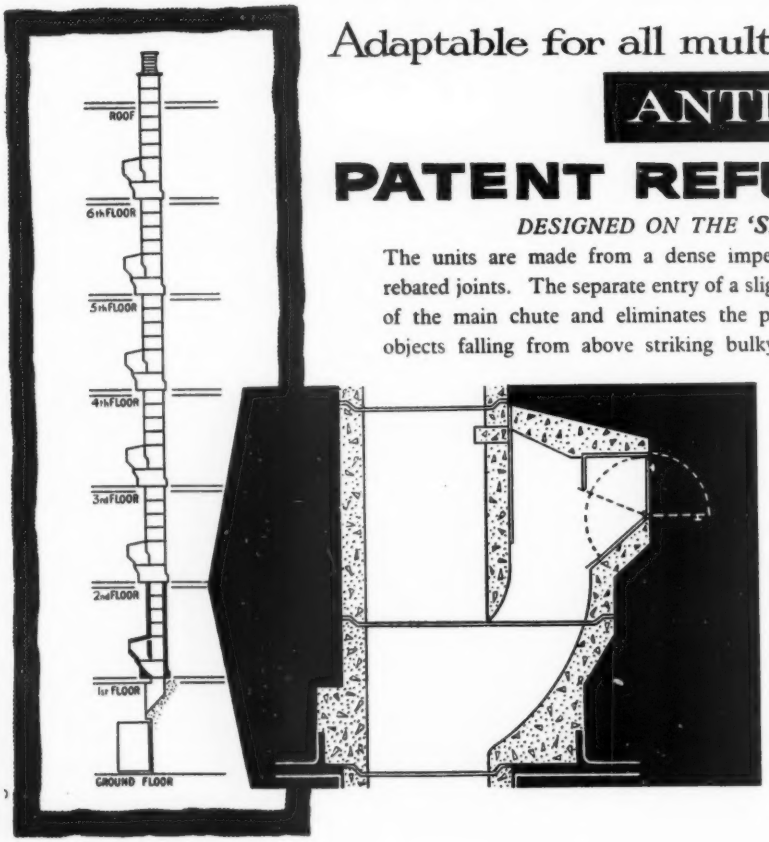

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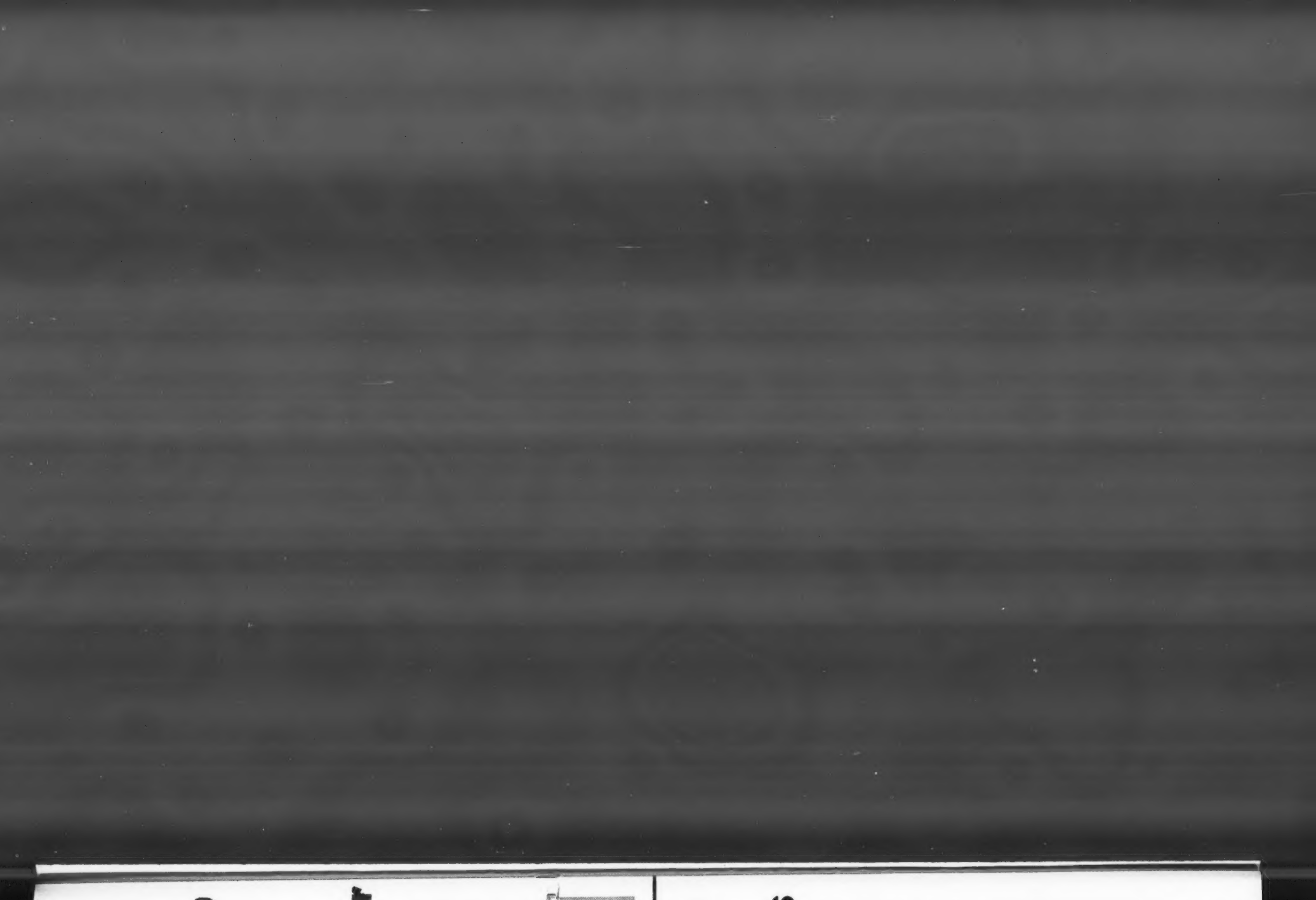

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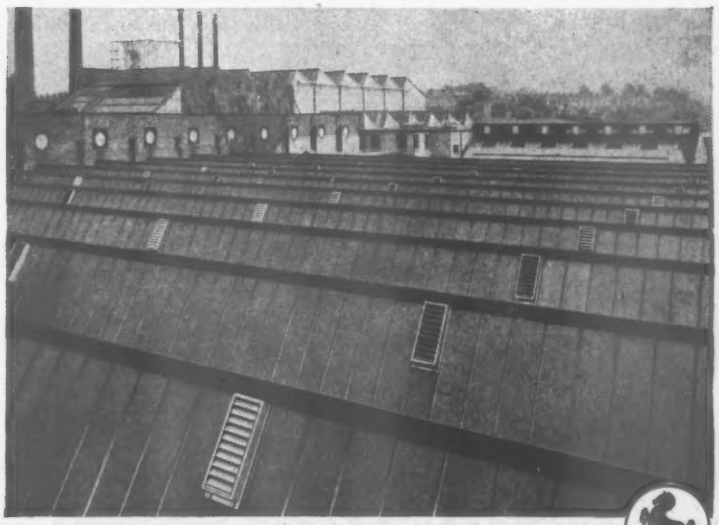
6 contracts: *Smith-Clayton Forge Ltd.*
29 contracts: *National Coal Board*
23 contracts: *Lever Bros. Port Sunlight Ltd.*
16 contracts: *General Motors Ltd.*



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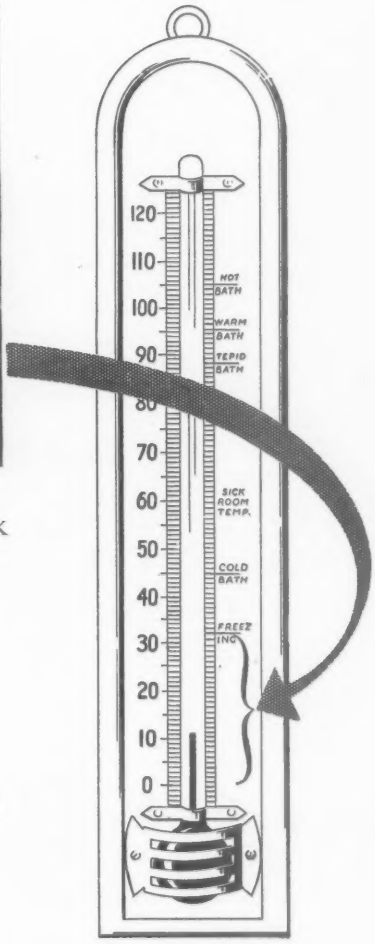

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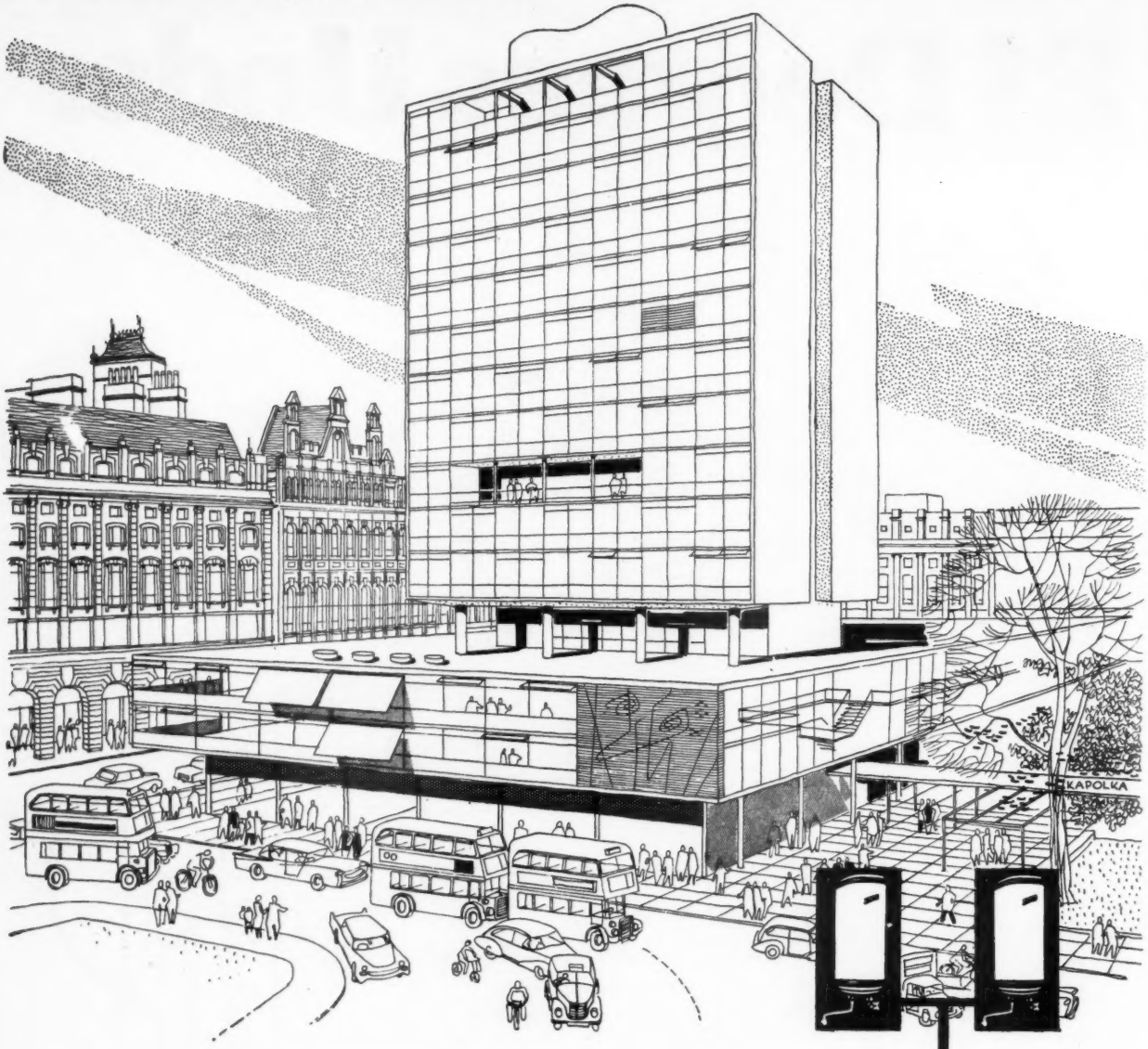

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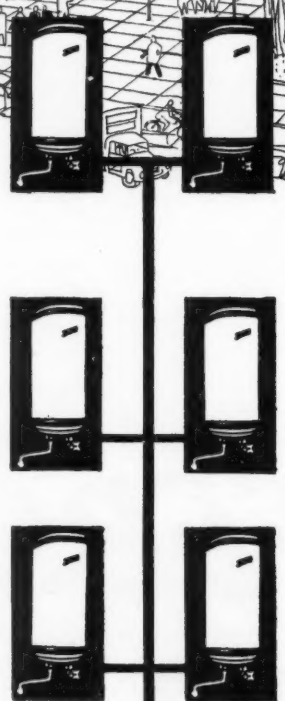

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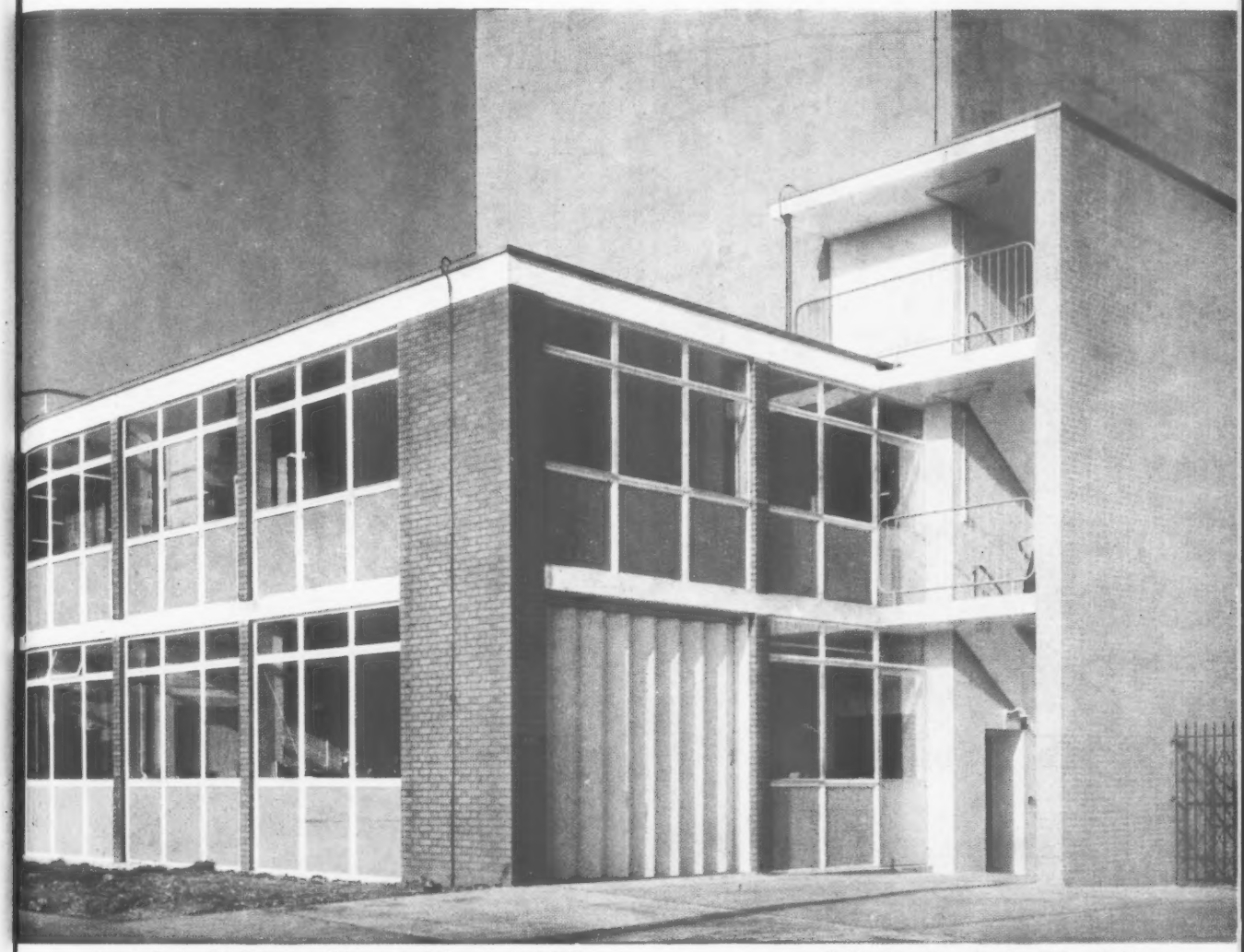

Atomic Energy Establishment, Aldermaston. Laboratory and Offices. Designed by the Chief Architect's Division, Ministry of Works, London. Senior Architect: K. H. Choate, A.R.I.B.A. 'MUROGLASS'.

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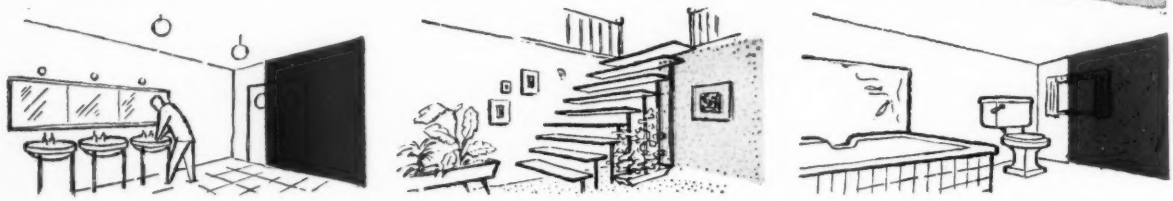

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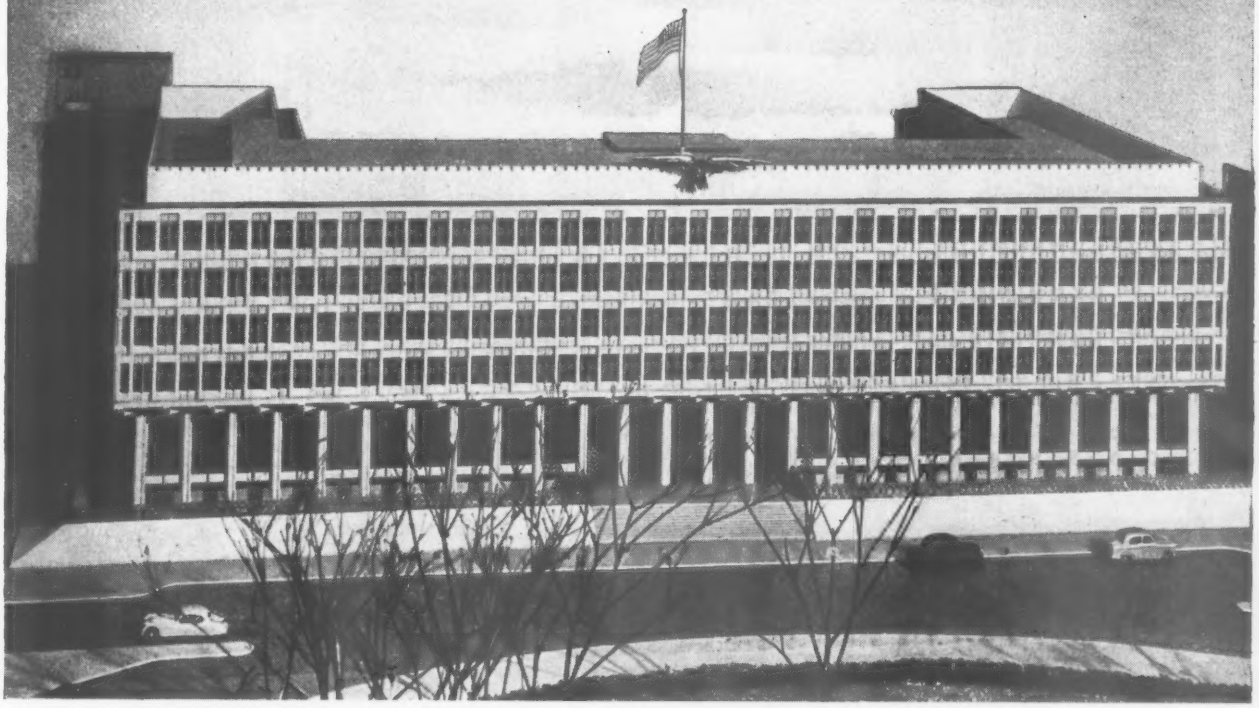

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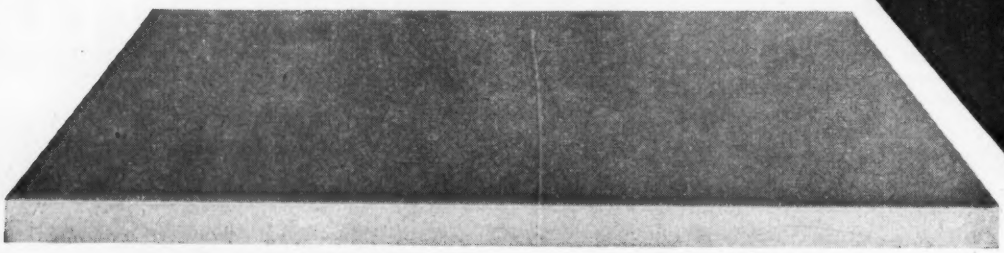

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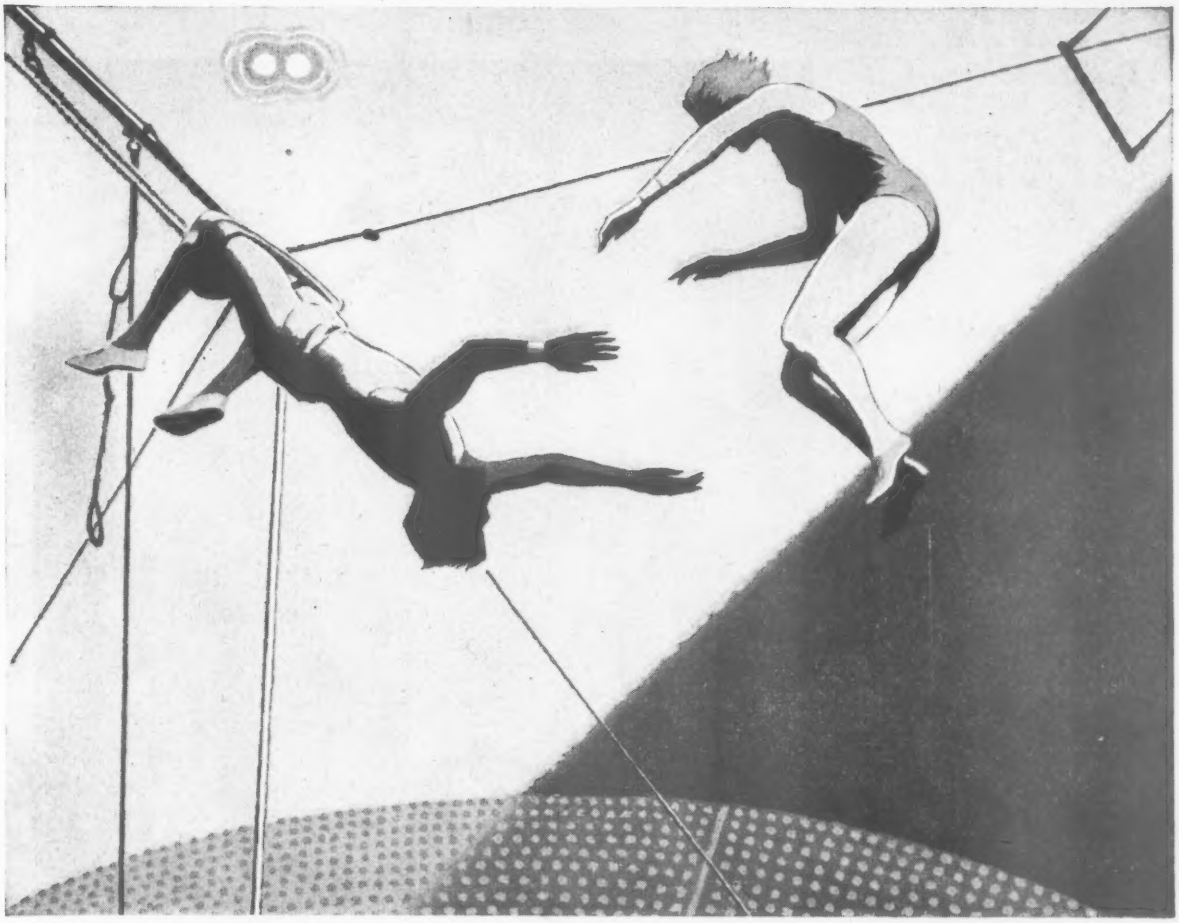

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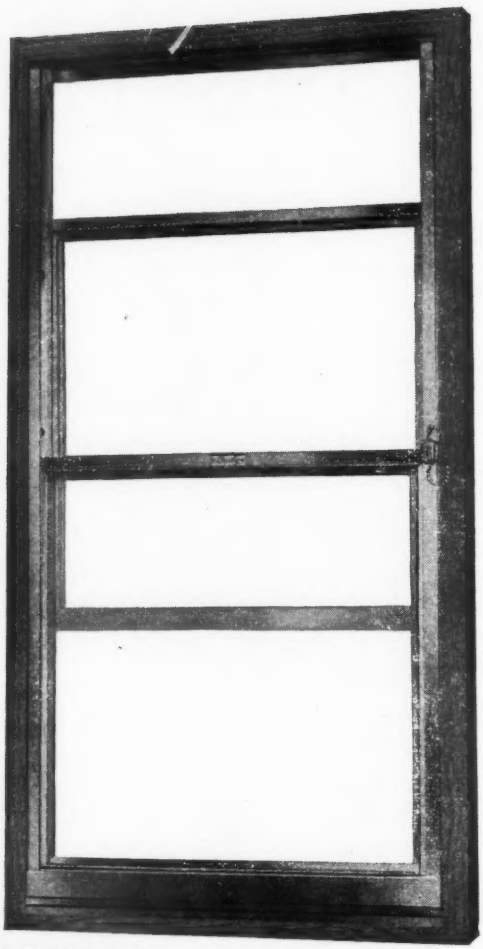

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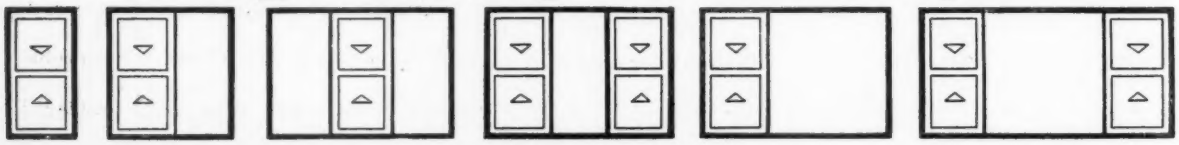

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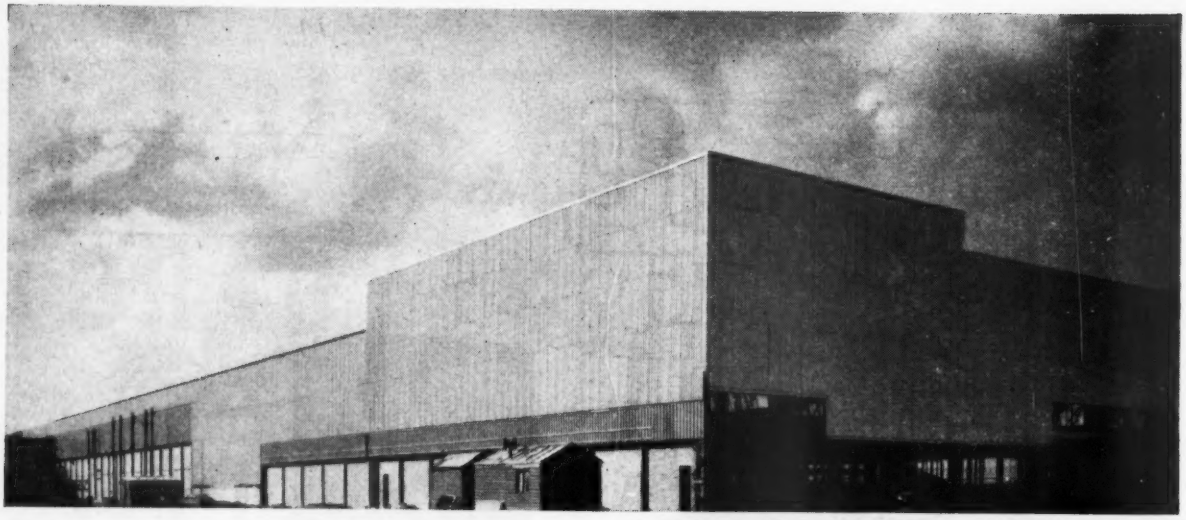

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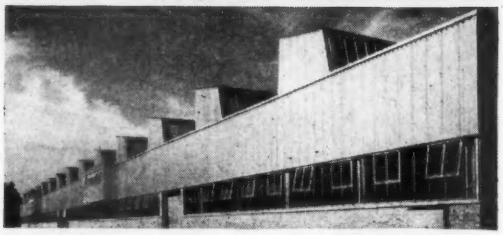

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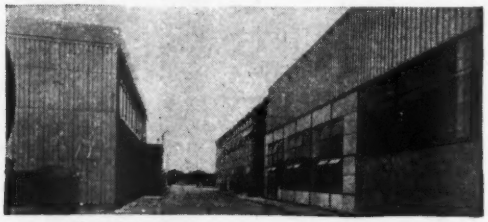

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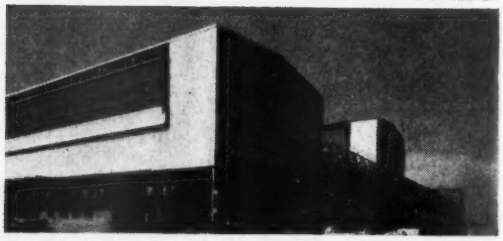

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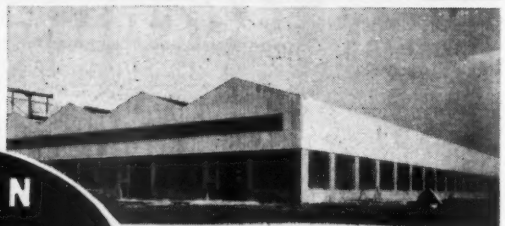

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Illustrations :

Top : Robertson Q-Panel, Type QSG, being erected at the Caterpillar Tractor Company, Tannochside. Architects : Wilson, Hamilton and Wilson, Glasgow.

2 : Robertson Q-Panel, Type QF, at the Rover Company, Solihull. Consulting Engineer : Thomas Bedford, A.M.I.C.E. Architects : Hasker and Hall, London.

3 : Robertson Q-Panel at the new Spare Parts Depot for The Ford Motor Company Limited at Aveley, Essex. Architects : E. R. Collister & Associates General Contractors : James Crosby & Sons Ltd.

4 : Robertson Q-Panel, Type QF, at the British Thomson-Houston Works at Larne, Northern Ireland. Contractors : Holland & Hannen and Cubitts, Ltd.

5 : Robertson Q-Panel, Type QF, at Metropolitan-Vickers Electrical Company, Manchester. Design by Metropolitan-Vickers Architects Department.

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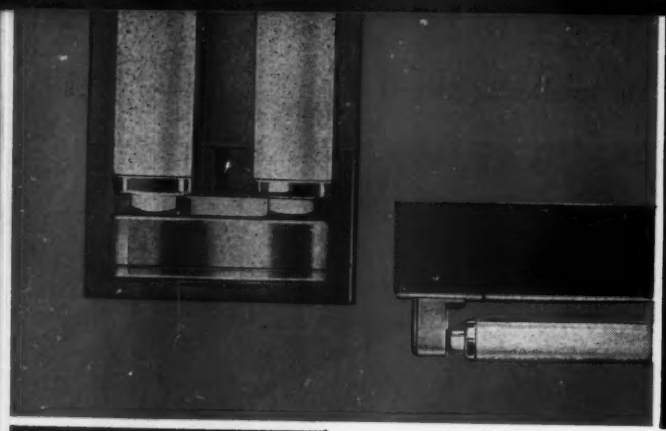

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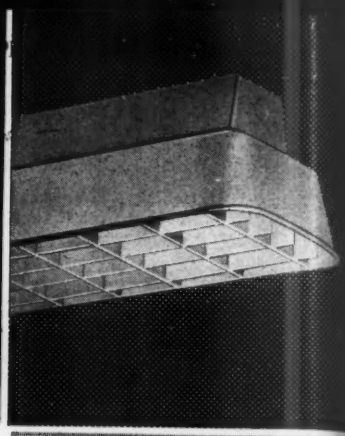

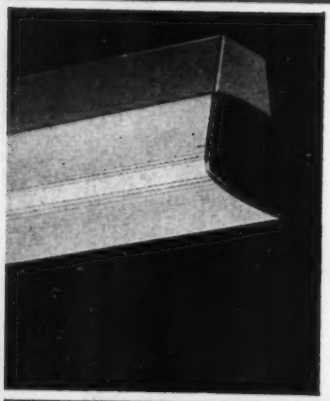

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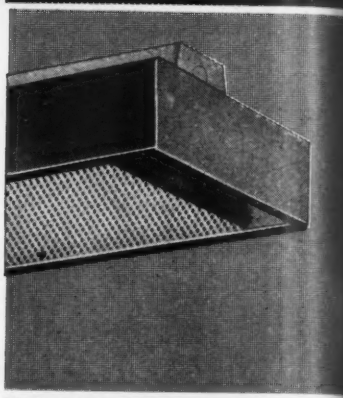

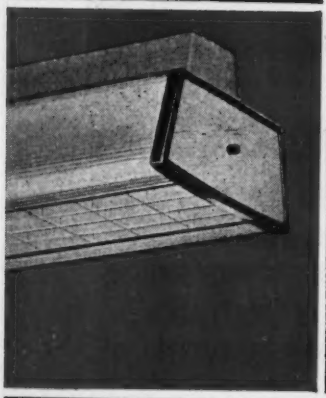

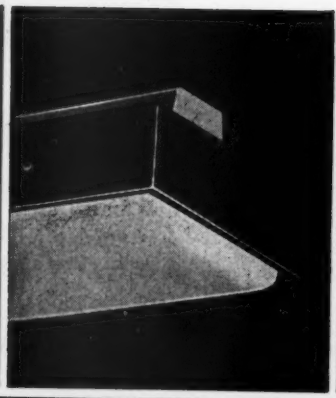

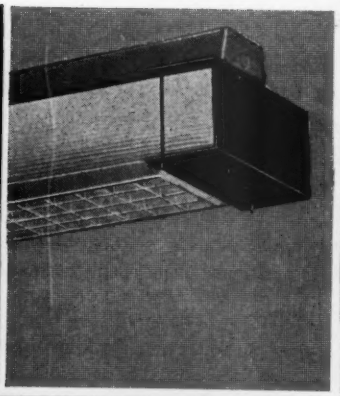

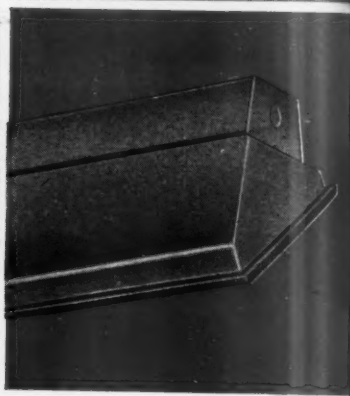

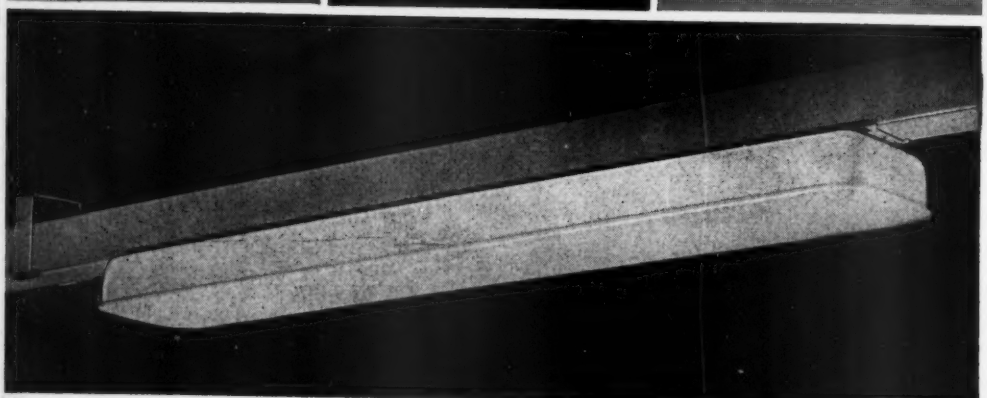

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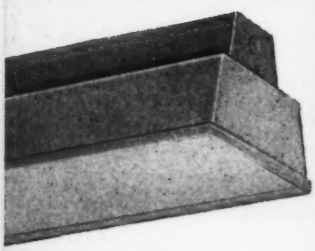

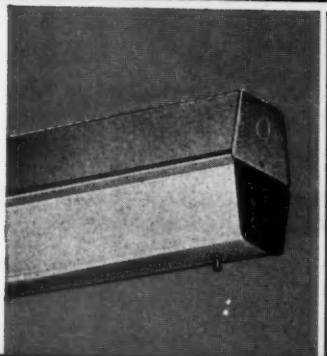

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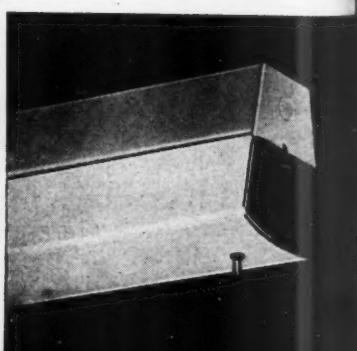

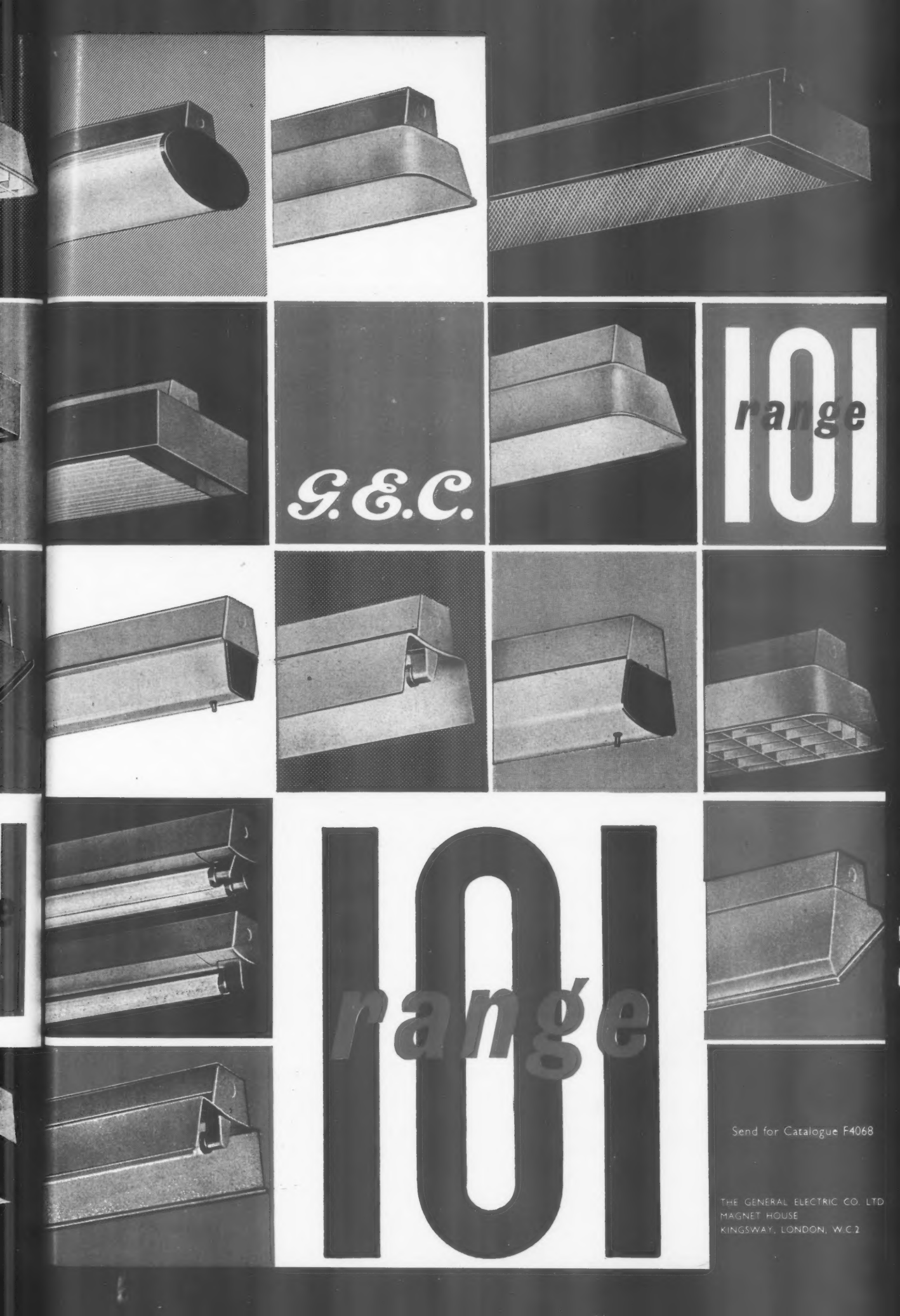

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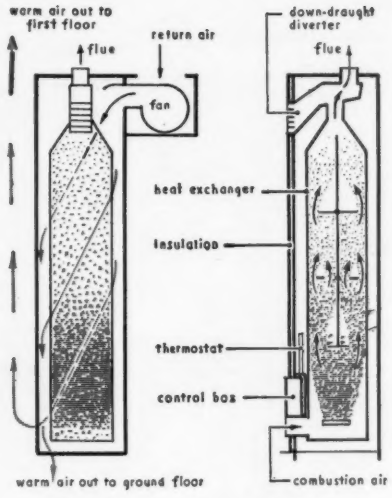

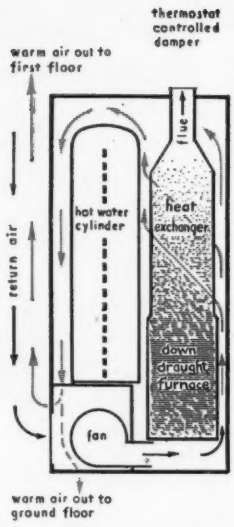

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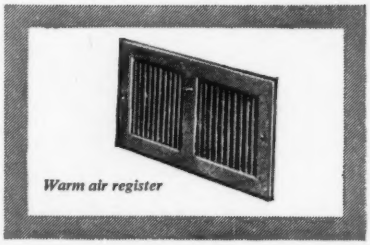
Warm air register

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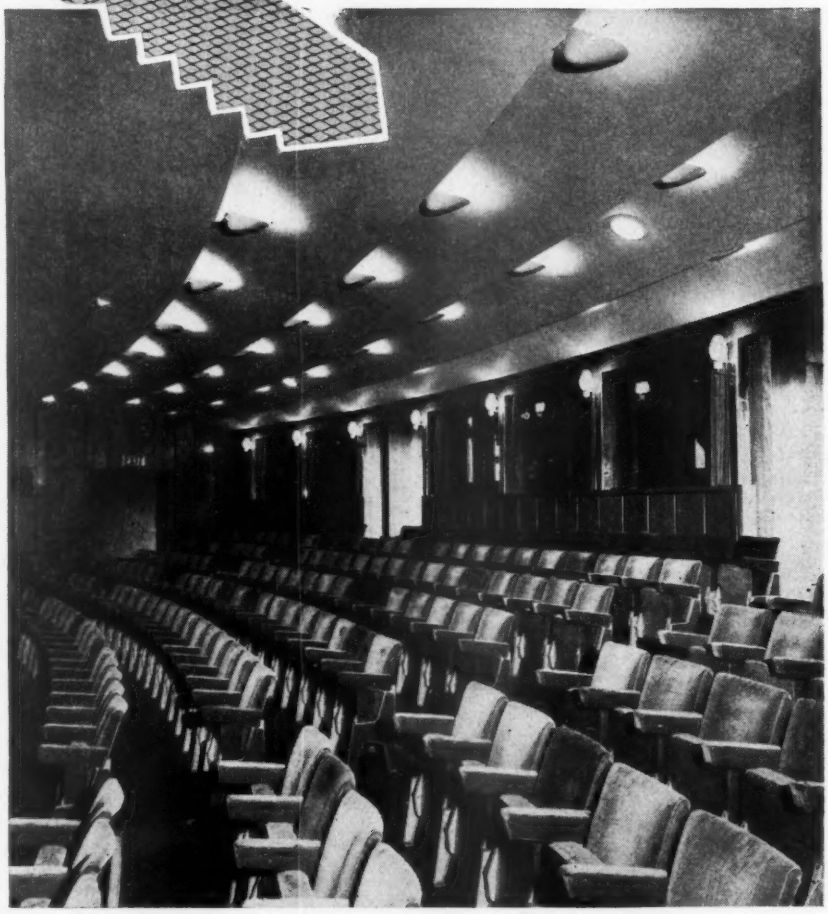

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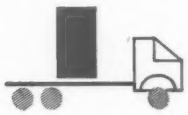

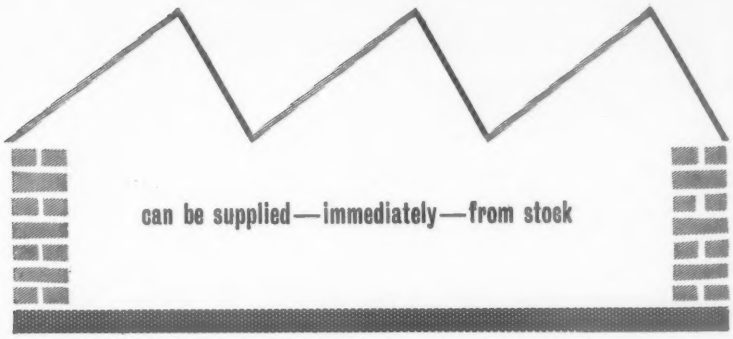

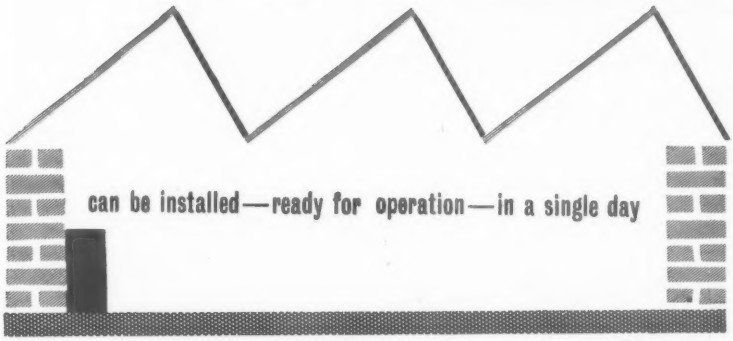

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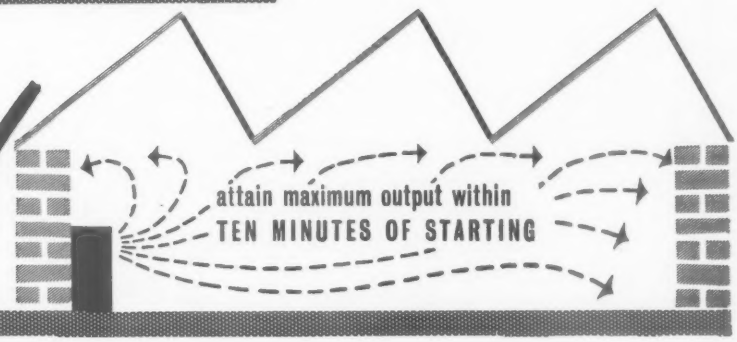

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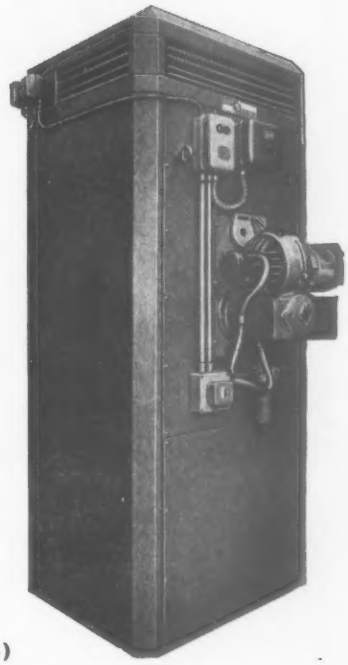

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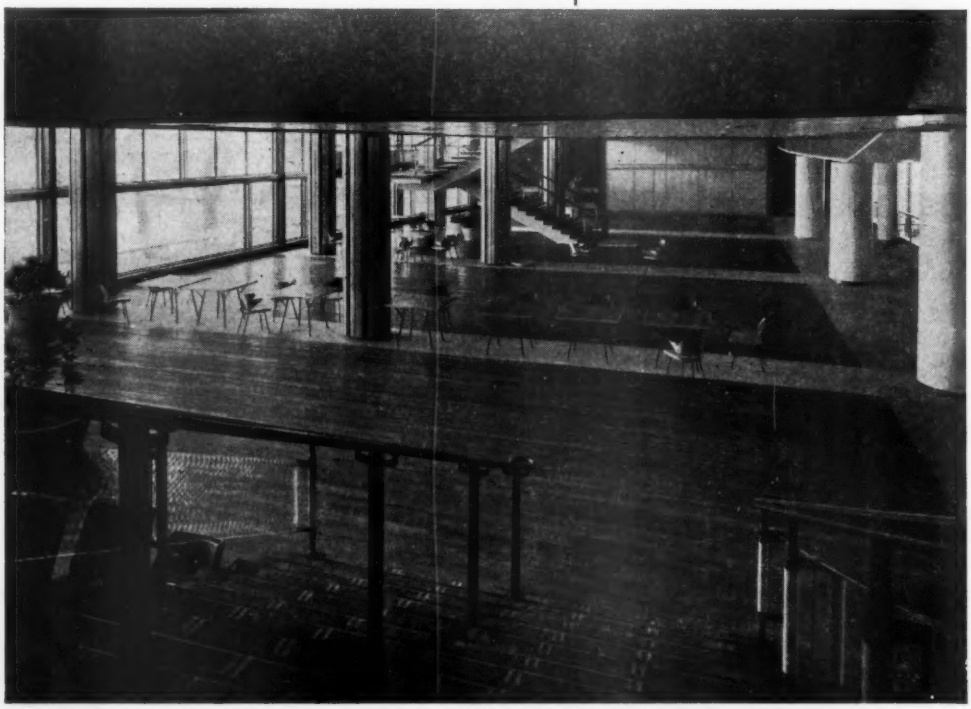

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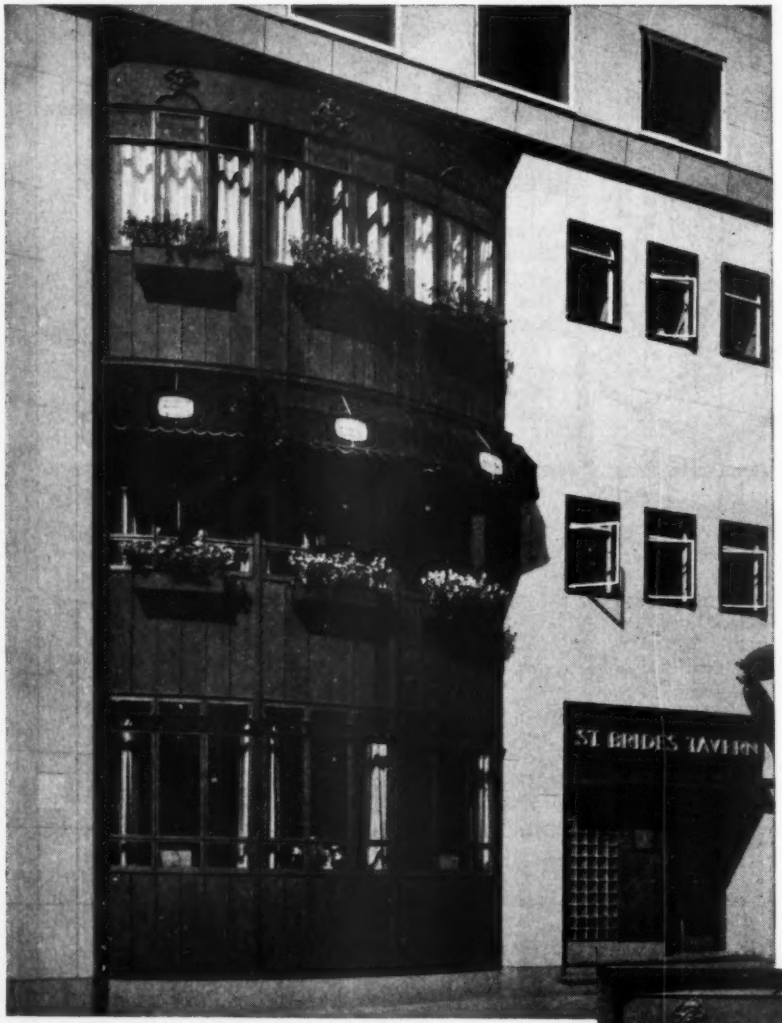

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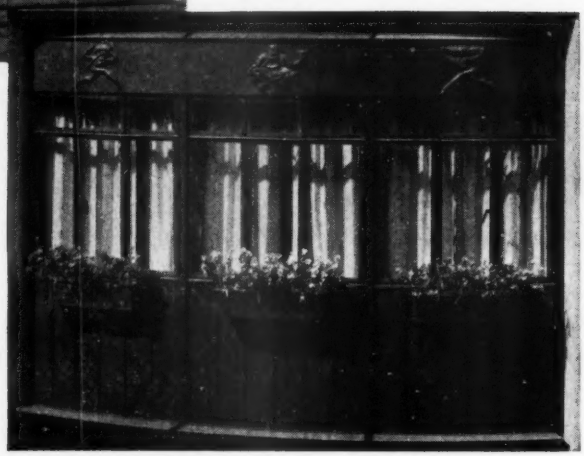

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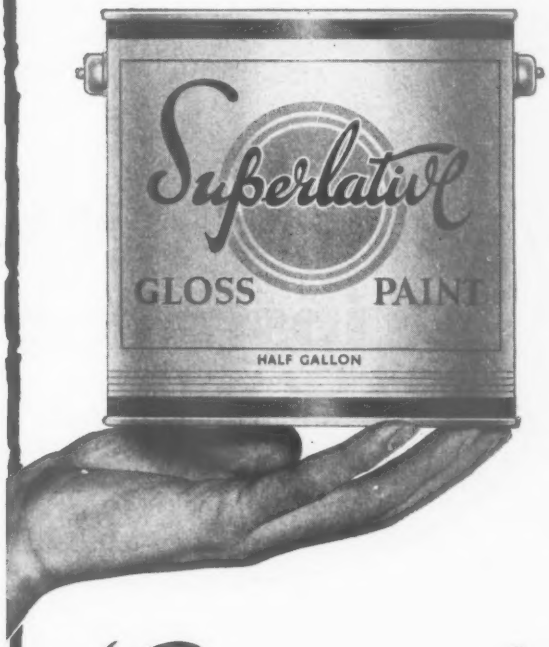

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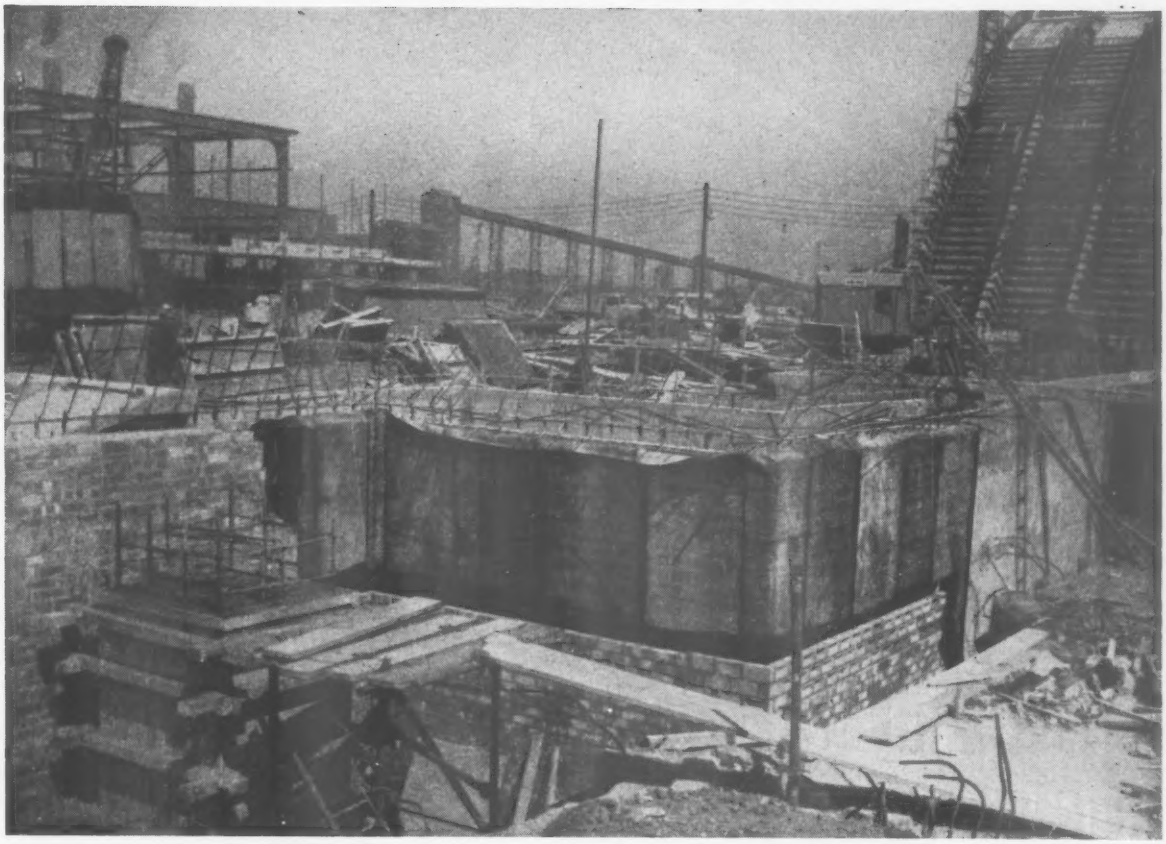

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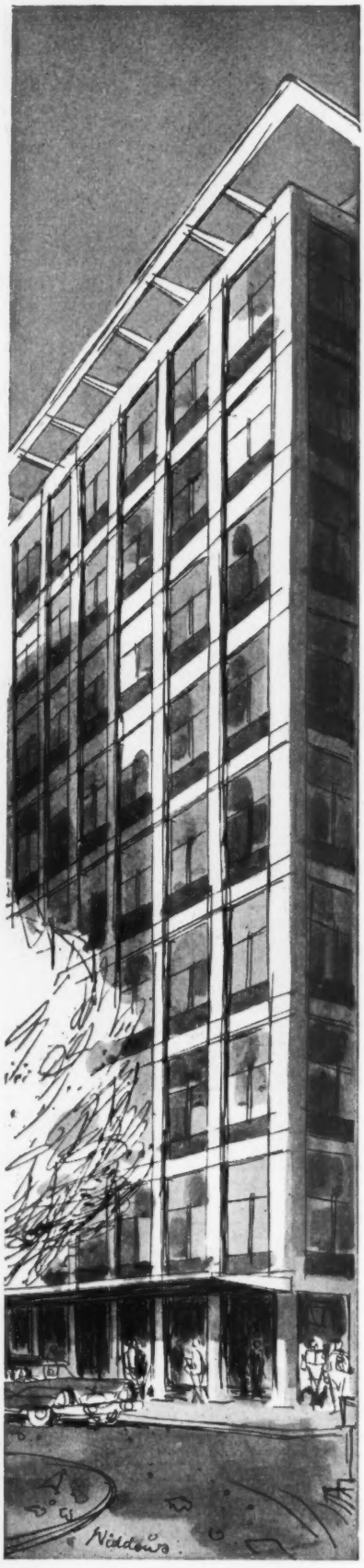

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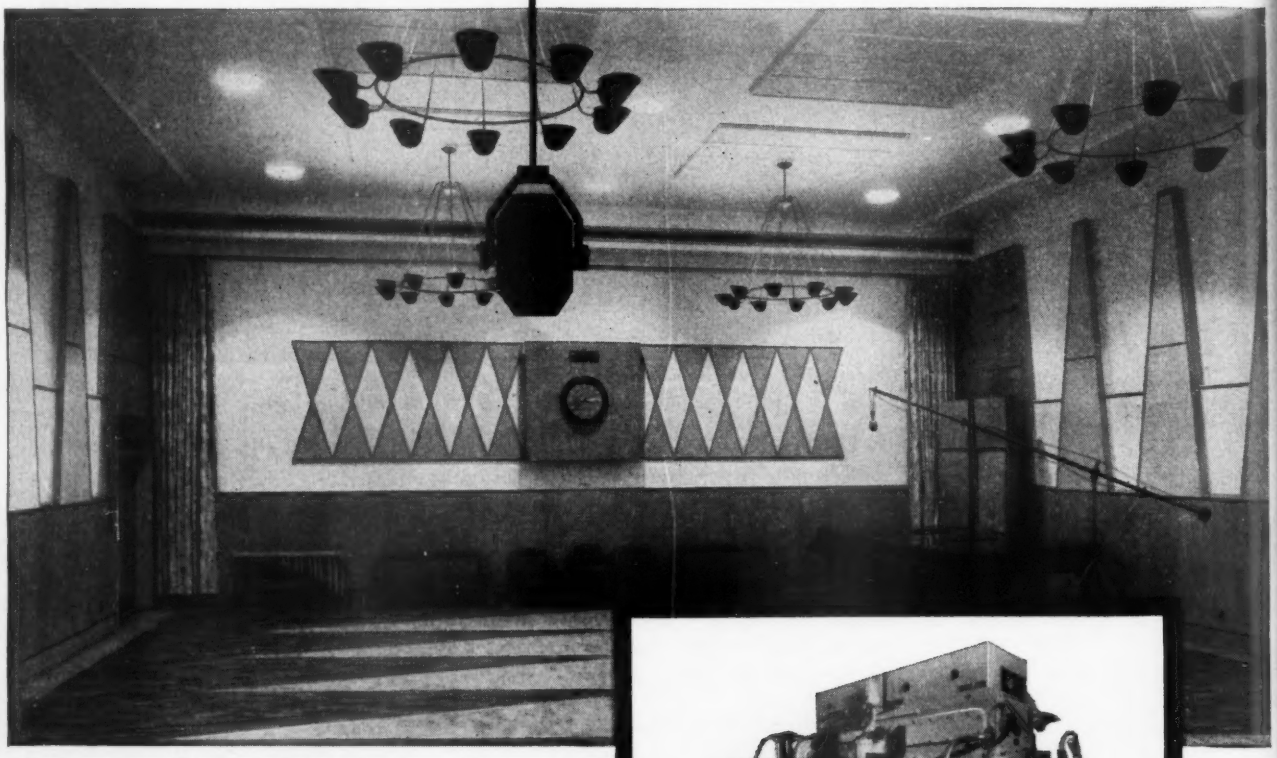

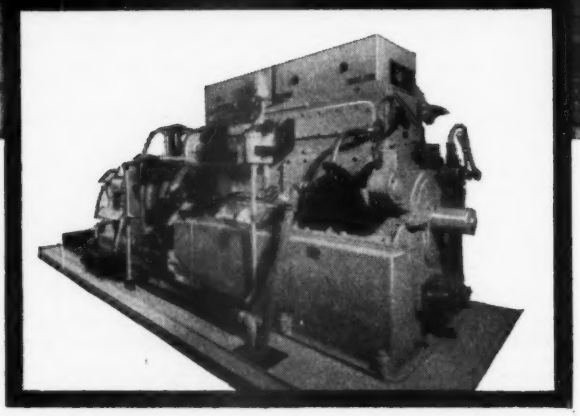

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By Diana Rowntree

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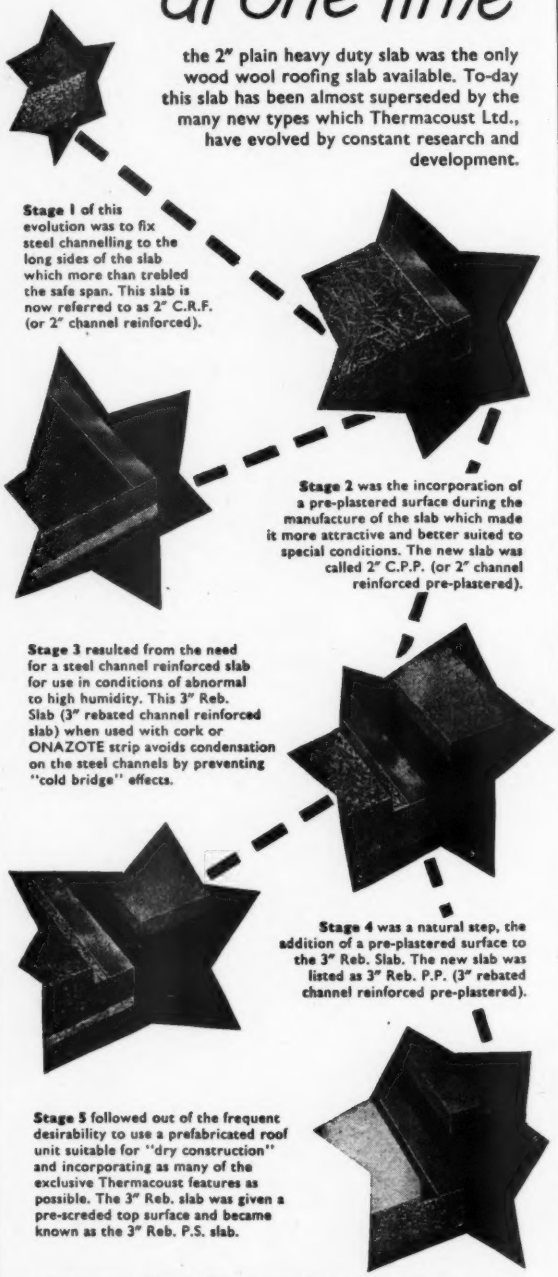

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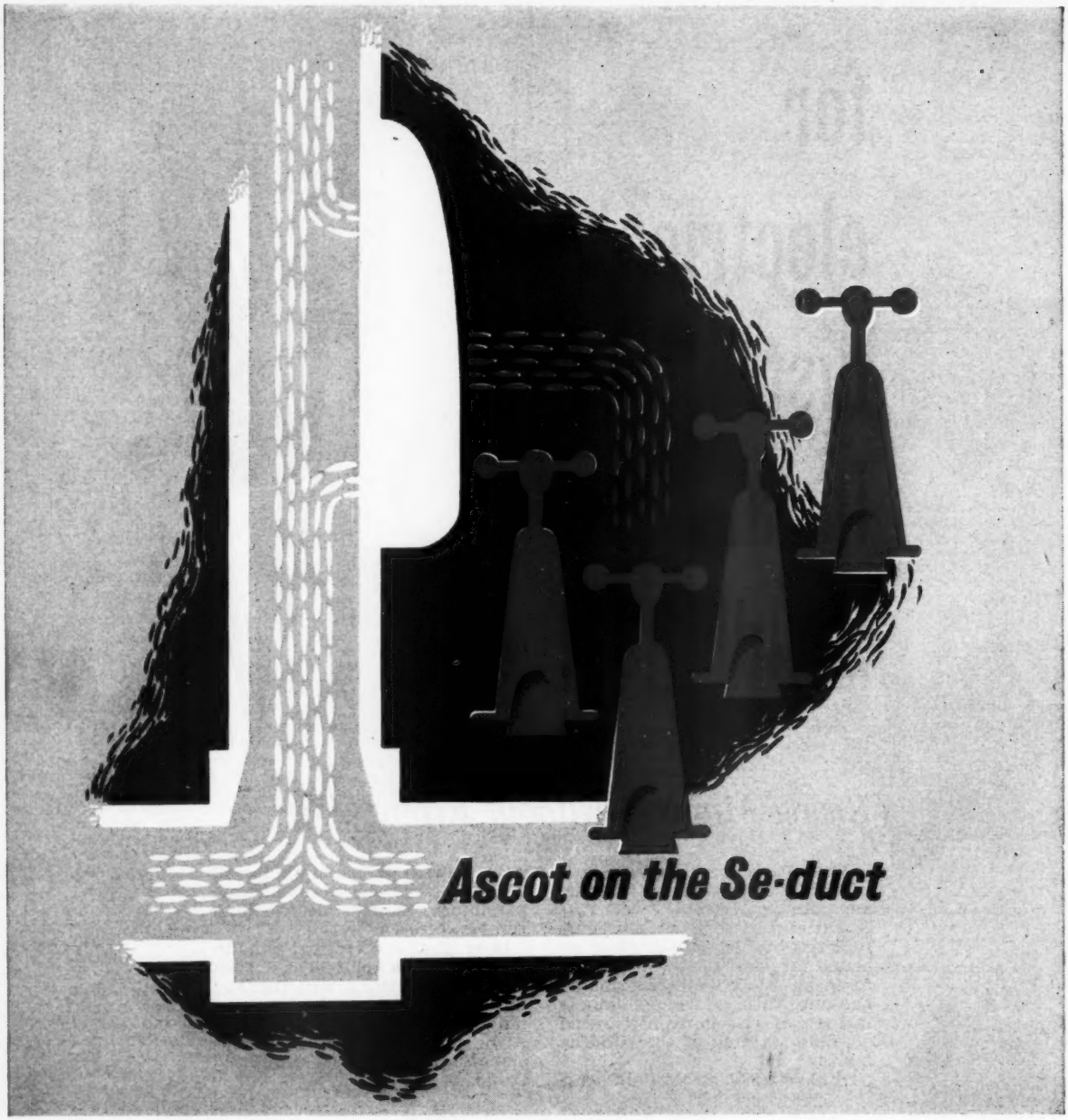

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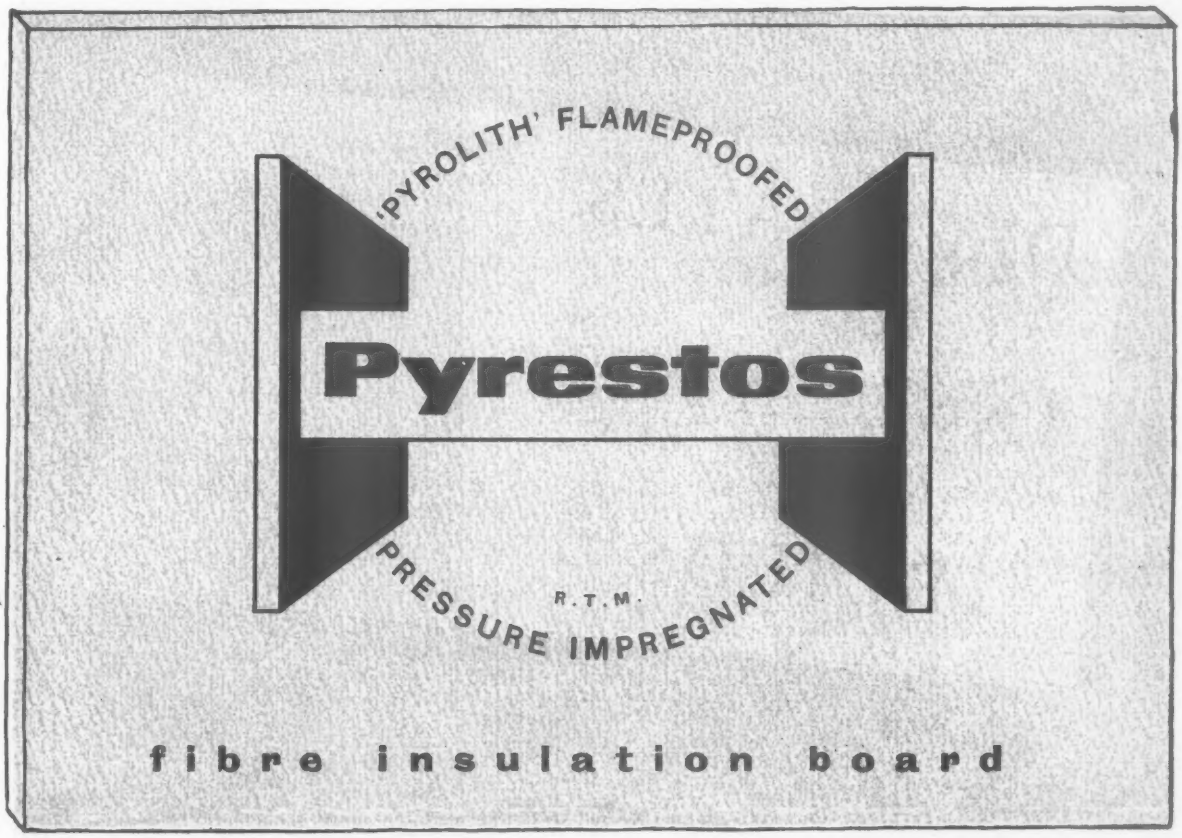

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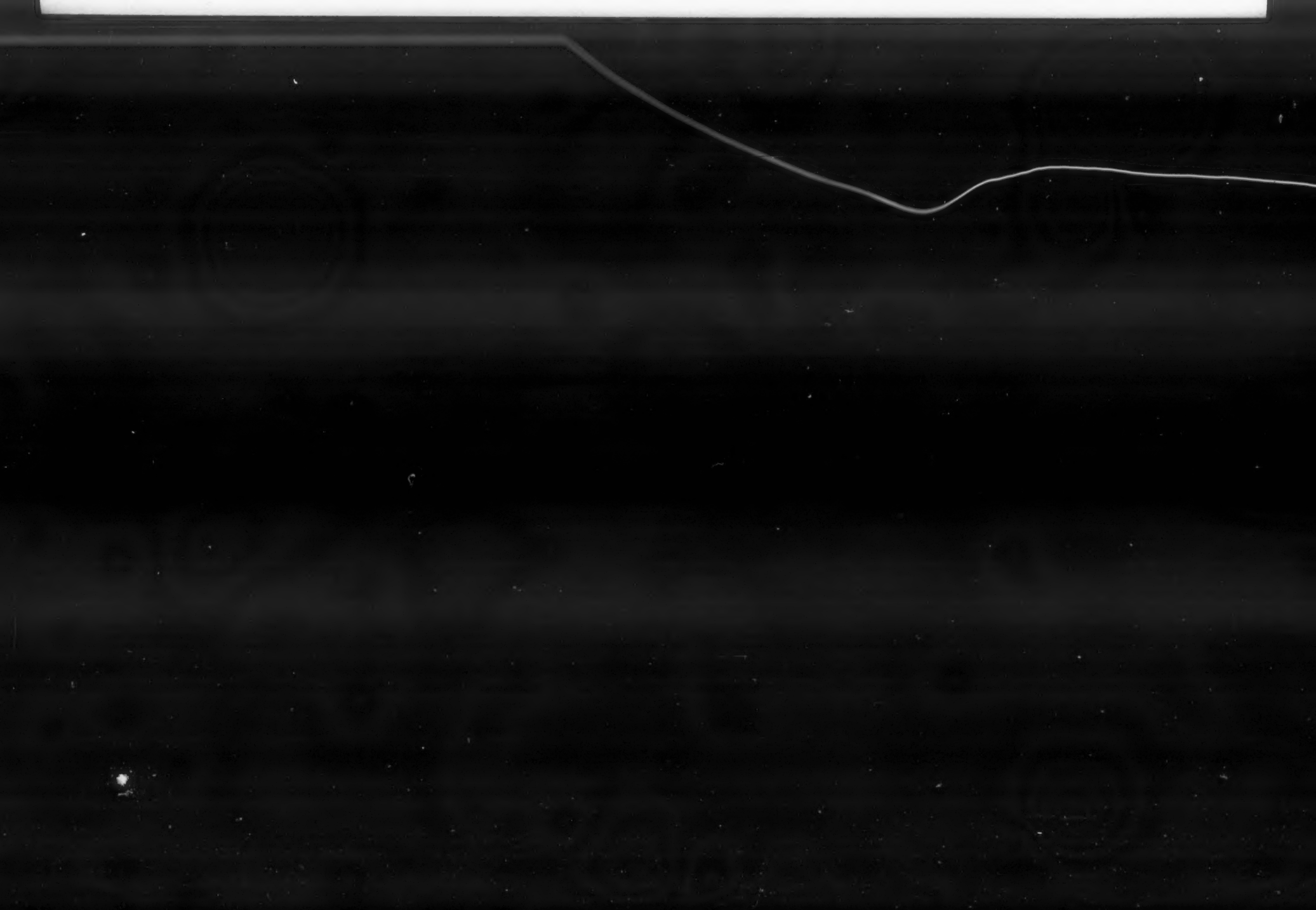

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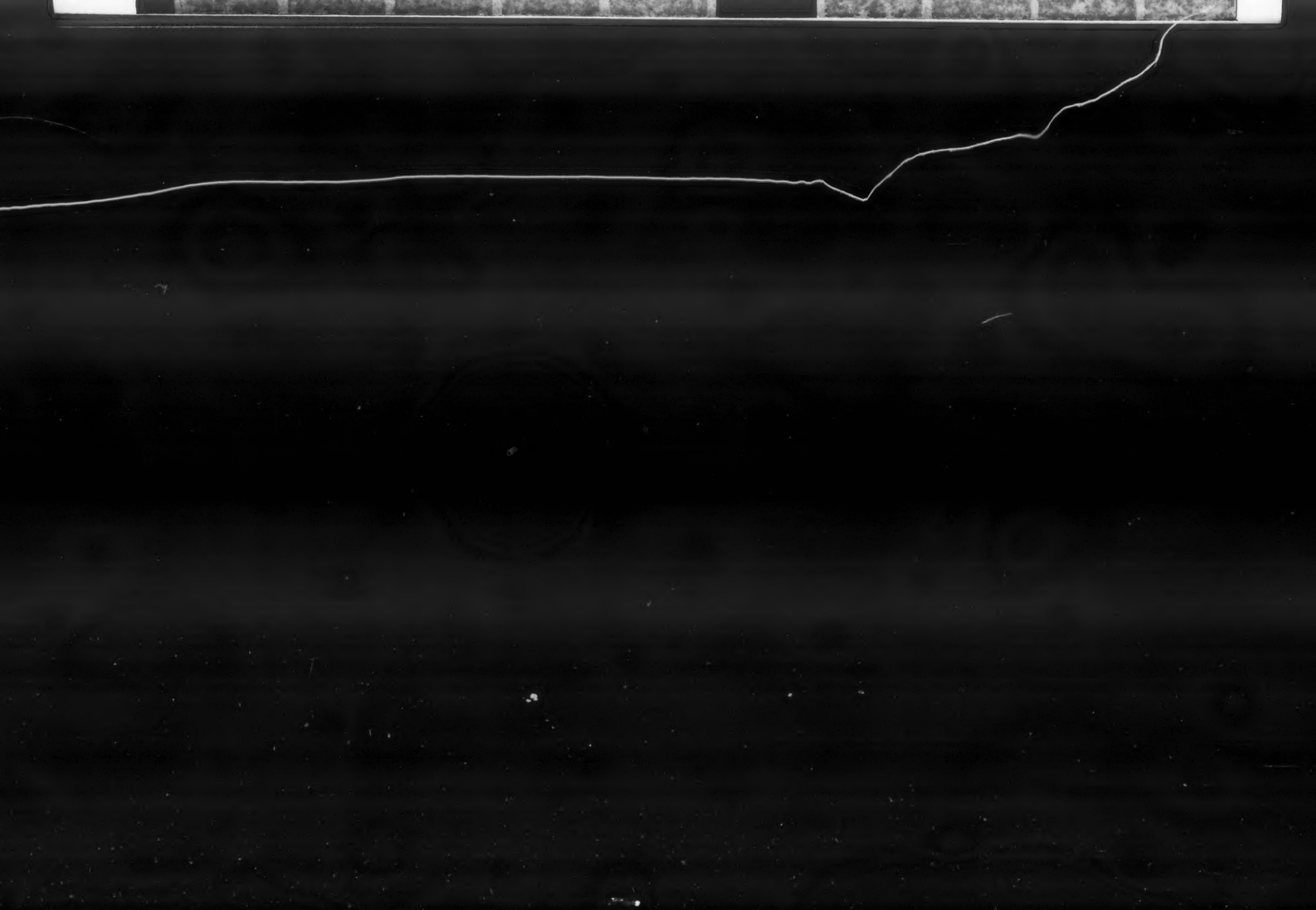

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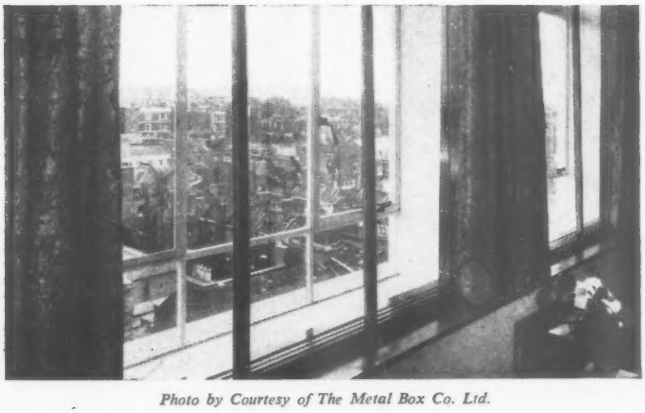

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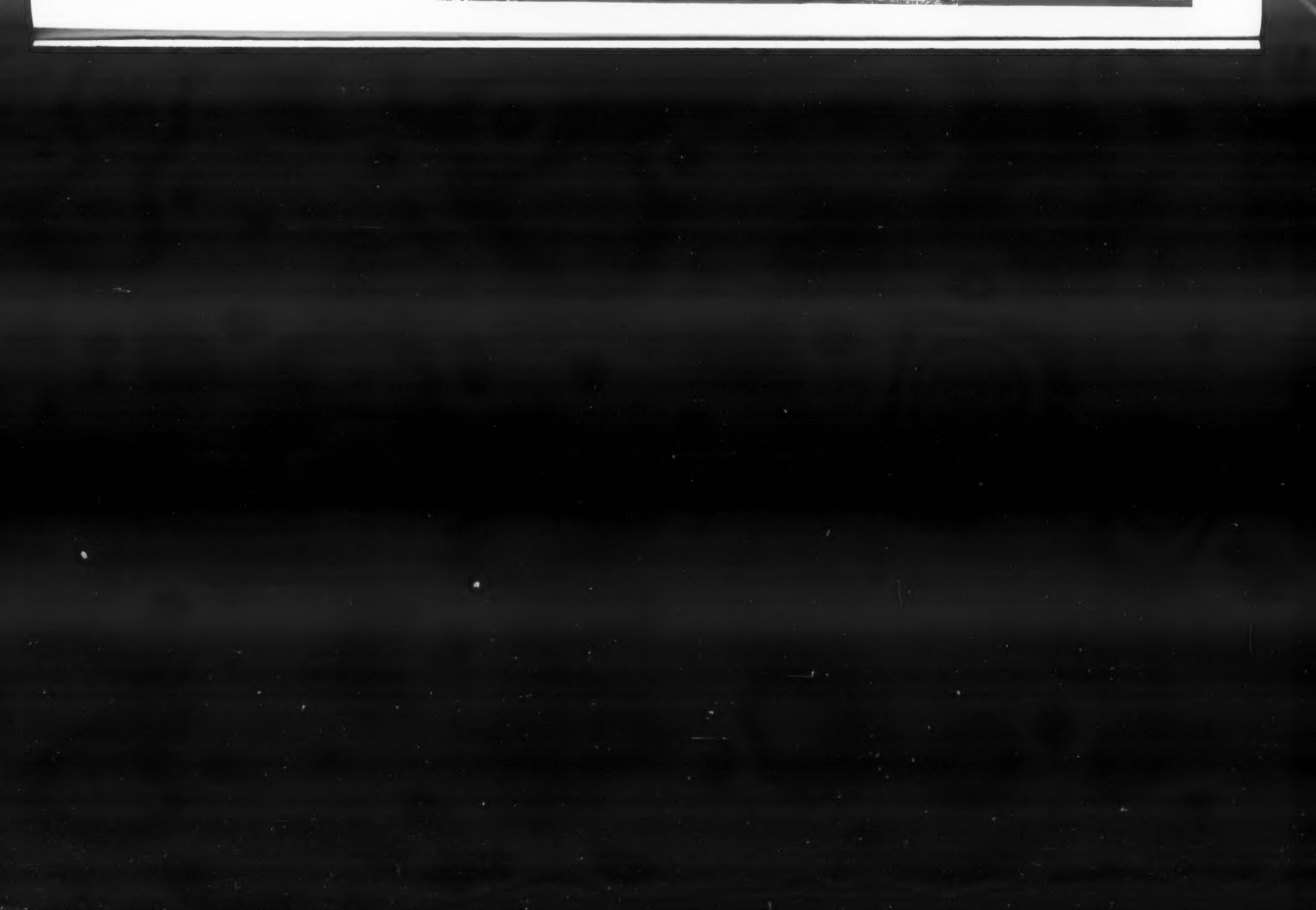

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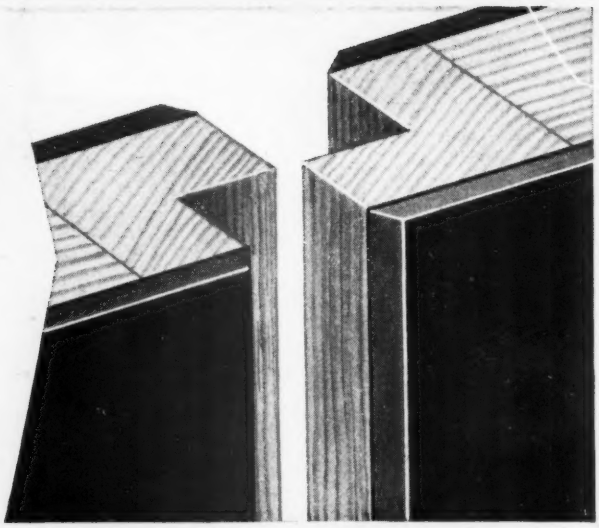

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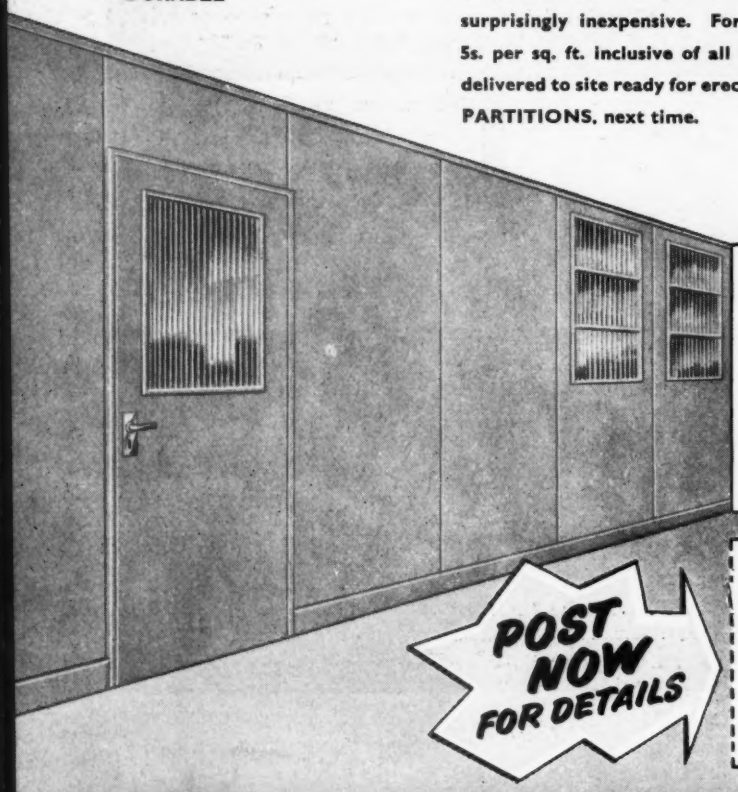

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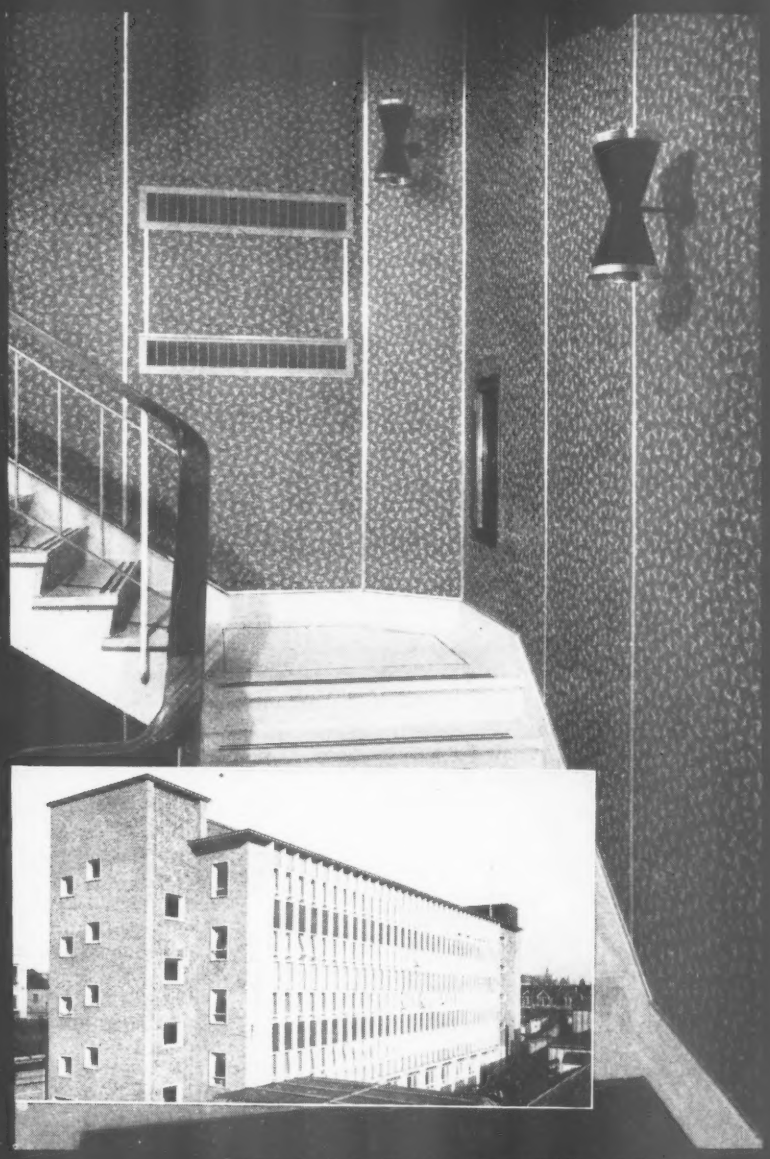

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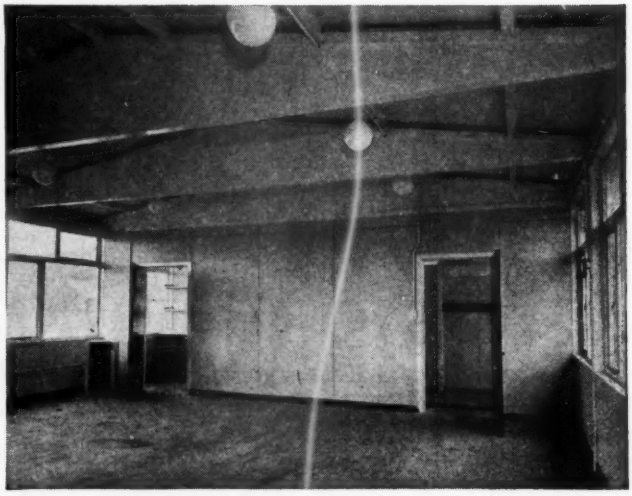

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Photograph shows part of the New Comprehensive High School for Girls, Parliament Hill Fields. Architect: L.C.C. Architect's Department.

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THE ARCHITECTS' JOURNAL

No. 3318 Vol. 128 October 2, 1958

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NOT QUITE ARCHITECTURE

BEGONIAS OR BERGENIAS?

That is the question raised by two quite different, both in their way admirable, gardening books published this month. In a word, what sort of garden best expresses the life and taste of today and will go down to history—if we are to have a history—as "the mid-twentieth century garden?" Will it be the garden of neatly shaved lawns and brilliant bedding plants, or one where leaves and paving and if possible water are brought together to create an extension to the house and a green retreat?

*

Today the Begonia school is undoubtedly in the ascendant. "A blaze of colour" is what every gardener is taught to want by every flower show and almost every gardening book, and in *Gardening for Display* (Collingridge, 35s.), J. R. B. Evison, who is superintendent of Brighton's parks and gardens, accepts this aim almost without question and explains how to achieve it as attractively as possible. Here is practical advice on keeping flower beds healthy and full of colour, the skilful illumination of public gardens at night, and the technique of designing such popular fancies as floral clocks and beds such as the one shown on p. 479. One would have liked to know the dimensions of this bed, by the way, and the flowers employed: I visualize the kiwi in lobelia outlined with alyssum.

*

It would be sad, it seems to me, if our public gardens contained no such outbursts of pop-art, which Mr. Evison frankly recognizes as "the ultimate in artificiality." But to Sylvia Crowe such things are certainly vulgar without being funny. Her *Garden Design* (Country Life, 52s. 6d.) is a magnificent propaganda work against flowers as the main object of gardening, and for the garden which achieves character and peace from the unity of its design and choice of plants, and excitement from a sudden change of view instead of from a bed of tulips blazing away like a machine gun.

Three of the gardens which convincingly make Sylvia Crowe's points for her in her new book, Garden Design: *far left, an Italian garden, steep and exciting, by Pietro Porcinai; above, a Scandinavian garden, by Eywin Langkilde, leafy plants that go well together beside a brick path; left, a small English garden, by George Boye, makes tree trunks, foliage and a seat a focal point.*

She backs her case with a history of gardens, from the oases and seraglios of the Moslem world to the geometry-turned-to-poetry of the French and the idealized landscapes of the great days of the English garden. What a come-down the public gardens of lawns and flower beds ("bastard parks" Miss Crowe brusquely calls them) of today are, the stockbroker's herbaceous borders, the villa rock gardens torn from any context. No wonder Miss Crowe resents the influx and trade in new plants of the last century, which has almost obliterated concern with garden design and turned many gardeners into a muddy sort of stamp collectors.

*

Yet when she comes to laying down principles of garden design, many gardeners will begin to want to argue, not because her

Celebrating a Test Match . . . .

general propositions are not wise and fruitful, but because her interpretation of them is sometimes quite blightingly purist. For instance, many gardeners may prefer the yellow species of *Azalea pontica* to the flame coloured hybrids, not just because of the colour but because it has more perfume and its flowers have a honeysuckle grace the hybrids lack. But how many can agree that "in the case of some varieties with the cruellest colours one could wish they would never flower but be content to form the entrancingly shaped mounds of bronze green which compose with the shape of rocks more perfectly than any other plant?" Few gardeners apart from Miss Crowe will wish their flowers wouldn't flower. I found her recommended "Plant material," with its reiterated approval of *fatsias, hostas* ("funkia" to most of us) and *bergenias* almost enough to bring on an acute attack of begoniaism. *Bergenias,* by the way, have changed their name and risen to fame like some backroom scientist suddenly spotlit in an Honours List: they used to be known as "that dreary saxafrage" with large cabbagy leaves, tolerated in dark corners because they were tolerant themselves. I refuse to be converted to *bergenias.*

*

Obviously this is a splendid book: how often does a gardening book make one look at one's own garden with a fresh eye, giving it marks and taking them off again, for the features which would or would not, one thinks, win the approval of the writer? This one has this effect, and combined with its admirable practical discussion of the landscaping of public parks and factory gardens it should influence not only the backgardens of the intelligentsia but the open spaces in our towns as well.

SHEILA LYND

The Editors

A MORE RADICAL SOLUTION WANTED

THE shrill cries of the political propagandists who have joined battle over the Labour Party's plan to municipalize some 5 million houses that were rent-controlled in January, 1956, may make it difficult for the voice of reason to be heard. The maintenance, improvement and replacement of old house property is, however, largely a technical problem for which the best solution should be found. Nobody disputes the basic facts: that 2¼ million controlled houses are 100 years old or more, and 2½ million 65 years old at least. One million are slums, nearly 7 million households were shown by the 1951 census to have no bath, and three million shared a w.c. or had none at all. The bulk of these houses should be replaced, in a planned programme of urban renewal spread over many years. A proportion of the newer and higher-rented controlled houses are in good repair, particularly where they have been owned by large property companies. But the bulk of the controlled houses are obsolescent and in poor repair. The individual landlord, unlike the property company or the local authority, is strongly tempted not to set aside a sufficient repairs fund, and it is probably true to say that he hardly ever sets aside a sinking fund for the ultimate replacement of the building. Admittedly rent control has, in recent years, made this difficult and in some cases impossible; but it is improbable that increased rents and improvement grants will solve this problem.

Local authorities are not without their faults, but they do keep their properties in fair repair, and are bound to amortize the capital cost. The experience of Birmingham, which purchased many thousands of sub-standard houses after the war, has shown that the administrative problems of rent collection and repair are far from insuperable. Local authorities can maintain works departments that are more efficient for repairs than the average jobbing builder. Many of the fears being expressed are probably exaggerated: "confiscation," in practice, seems highly improbable. But there are some real difficulties to which answers would have to be found. The first is the administrative problem of transferring some five million houses from individual to public ownership, sorting out the complexities of mortgages and so forth. The second is that the net is cast so wide that it takes in a certain amount

of property which is reasonably well-managed already. The third is that the wide exceptions envisaged (*e.g.*, all owner-occupied houses) will result in many areas in every second or third house being taken over. This not only complicates the work of repair or conversion, but results in a pattern of ownership that is irrelevant to the major task of renewal, which is—in the long run—far more important than patching old houses. The fourth is that, unless there is a firm allocation of resources between new building and repairs, the pressure of tenants on local authorities may result in so much expenditure on repairs and modernization that far too little is spent on new building. Indeed, the most serious weakness in the Labour Party's proposal is that it does not look beyond slum clearance to the replacement of the entire stock of obsolete property bequeathed to us by the industrial revolution. For this slum clearance legislation and programmes are hopelessly inadequate; it is astonishing that the Labour Party, which attached so much importance at one time to planning and pioneered the new towns, has nothing to say about the need for urban renewal, and the way to achieve it.

THE BRAINS OF MESSRS. " F " AND " P "

" A vocation and a pleasant sort of life, but not the career for anybody who wants to make a lot of money a few years after qualifying." The quotation comes from the latest *Sunday Times*, the career referred to is, of course, architecture and the architect quoted is " Mr. F ". In his interview " Mr. F " shows how at the age of 38 a private architect may be able to earn £1,400 a year and have good prospects of earning more. But he hints so broadly at the snags overcome with the help of his partner that many readers of the newspaper will rightly suppose that not every architect has similar success.

*

This is all very honest. But I can't help wishing that the interviewer had managed to set down something of the excitement that Messrs. " F " and " P " find in their work and translate into their designs. Incidentally the article has a title with pleasant overtones, " The Brains Behind the Builder." How many spec. boys will writhe at that? Or will they, perhaps, simply think of themselves as the Builders Ahead of the Brains?

HEALTHY COMPETITION

The Minister of Health, who doesn't seem to share the Minister of Works' distrust of architectural competitions, has said that a competition will be held (by the Board of Governors) for the Cardiff Teaching Hospital and Welsh School of Medicine. There are arguments against putting such a specialised type of building out to competition, but it is good that newcomers are to have a chance of seeing what they can do. At least, I hope they will have a chance. We don't yet know if this is to be a limited competition for selected well-known architects. Let's hope it will be a two-stage affair, and thus cut down on wasted time and effort. Anyway, it will certainly be the most important post-war competition to be held in this country—so important that ASTRAGAL sympathizes with a wag who suggested there should be a limited competition, judged by a panel appointed in competition, to find the assessor.

THAMESIDE GUINEA-PIG

Unlike other structures of its kind, the Modular Assembly building on the Albert Embankment isn't meant to be beautiful, useful or even cheap. This two-storey guinea-pig is a combined operation by 35 manufacturer members of the Modular Society who simply want to see if the components designed to the Society's rules really fit together. Mark Hartland Thomas, the architect for the building (whoever heard of an architect having to contend with 35 clients who are also nominated suppliers?) has provided as many awkward junctions as possible. " If everything fitted perfectly," he says, " we should know something was wrong." It doesn't, and it is. The faults which show up are not very terrible, but they indicate one important thing: we haven't yet found a way of combining components made to engineering tolerances with the rough and tumble of site assembly. There is something disturbing about the poor junctions between the smooth surfaces and sharp edges of factory products and the work of the brickie and joiner. The Modular Assembly shows that some tolerances are not enough. It also shows that joints between surfaces that are made to different degrees of precision or are subject to differential movement must not only be cheap and easy to make, but must also satisfy the eye.

*

Congratulations to the Modular Society for providing in a few days an architects' guide to a lifetime of sleepless nights. The Society's willingness to wash its smalls in public differs refreshingly from English commercial practice.

INCREASING MUTUAL TRUSSED

Last week the Trussed Concrete Steel Company gave a stimulating dinner party for the architects and structural engineers (six of each) who had been awarded the Company's annual travelling scholarships in the last six years. In the discussion that took place be-

tween these guests and the scholarship's adjudicators (architects C. S. White and George Grenfell Baines) everyone enthused about the company's yearly policy of sending one of its engineer members abroad with an architect to look at new buildings and examples of concrete work. They agreed that the scheme—which should certainly be copied by other firms—was much more valuable than a single travelling scholarship, because it gave men from two professions the chance of learning about new buildings through each other's eyes. The dinner party guests were unanimous in their views that the two professions should be more closely linked, not only in practice but also in education.

LE MUR THE MERRIER

With a title so obviously translated from the French, the ICA's exhibition, "Language of the Wall," will doubtless, to coin a translation, gain a success of esteem. Ordinary customers like ourselves will be left pretty cold by this display of Brassai's photographs, blown up and trimmed down until they can't be judged as photographs. They are pictures of things scratched on walls in Paris, but you will be surprised to hear that the whole display is so innocent as to be almost dull, and so repetitive as to be completely dull.

*

Writing on walls ought to be a matter of lively interest to architects, who rarely make decent provision for it in their designs. Although the tar-washed walls around the lower parts of Max Fry's Kensal Green flats once had the most varied, multi-lingual, sgraffiti in London these were not, apparently part of the architect's plan. A pity. Why can't we help towards the democratization of art by making action painting possible for the Masses?

INSIDE STORY

Last week this column released a groan about the gradual disappearance of architects and architectural departments from schools of design. It is therefore a pleasure to report that the High Wycombe College of Further Education is about to advertise for an architect-lecturer on Interior Design. As the *Architectural Review* pointed out a little while ago, architecture and interior design are two entirely *different* mental disciplines that must never be allowed to become entirely *separate* mental disciplines. The best way to ensure that they don't become separate is to arrange a decent overlap during the students' training period. (High Wycombe is planning some "live projects"—a very welcome move away from the trend towards paper fantasies).

*

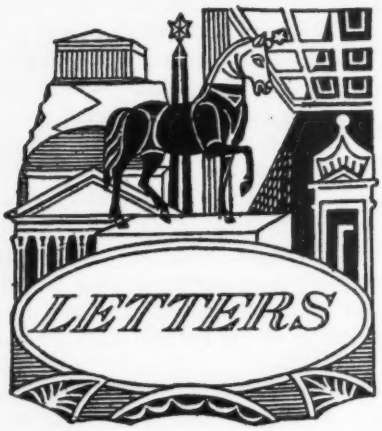
There is another good reason to be pleased about this appointment. The intrusion of an architect into a school so strategically placed *vis-a-vis* the trade may do something about the introverted quality that makes the products of High Wycombe factories look either stodgily traditional or morbidly parochial.

ANDRÉ SIVE

André Sive, one of the pioneers of modern architecture in France, died last week at the age of 57. Architects who have attended the CIAM Congresses will remember the plump figure and energetic conversation of this Hungarian who spent most of his professional life in France. He was one of Auguste Perret's brightest young assistants in the twenties, and had the distinction of being a pupil of another grand old man of modern architecture —Peter Behrens, in Berlin. Readers may remember that in the post-war rush of planning reports one of the best was Sive's on the Saar territory, then occupied by the French. He came into the news last year when he was asked by the Brazilians to be one of the two non-Brazilian members (Holford was the other) of the jury for the Brasilia competition. But his chief work was housing design, and he was responsible for some of the best post-war developments in France. These included schemes at Medon, Aubervilliers (outside Paris) and at Boulogne, as well as the new town of Firminy which is now being built in central France.

ASTRAGAL

Progress photograph of the Modular Assembly which is being erected on the Albert Embankment by the Modular Society. (*See note on opposite page.*)



H. Bagenal, F.R.I.B.A.

Bruce Martin, A.R.I.B.A.
Head of Modular Co-ordination Studies, BSI

Ernest Rennie, F.R.I.C.S.

Colin A. Samuels
Managing Director, CAS (Industrial Development Ltd.)

Michael Darracott, A.R.I.B.A.

Kenneth King and Douglas Beaton, A.R.I.B.A.

John Holness

Penny Wise

SIR,—I wish to support all that you say in your excellent leader "Penny wise" (AJ, September 18) in defence of the Building Research Station and the moderate financial returns it collects from the building industry. These moderate returns are in fact a measure of its usefulness to the hard pressed (and hard taxed) architects, engineers, surveyors, country builders, whose enquiries it answers and who have been taught for a generation now that the Station exists to give us, not sell us, impartial information on our difficult confused problems.

In this it is more valuable than ever today when the professional man is besieged by high powered advertisement and by experts in *salesmanship for its own sake*. As a consultant architect I want BRS to be less dependant. It often happens that useful information is obtained by means of the various "special investigations" undertaken by BRS for firms who have paid for them. It is not then available directly by the Station for free publication, nor available for answers to enquirers; the enquirer is referred to the firm in question who may withhold the information. More generally useful is the investigation undertaken free on an experimental basis. Then the return to the public purse consists in full and impartial technical information available to all; and also gradually collected and sifted over the years; and built into a true corpus of technical knowledge.

H. BAGENAL.

Hertingfordbury.

The Modulor

SIR,—In his review of Le Corbusier's *Modulor 2* (AJ, September 18), John Voelcker concludes with the claim that the Modulor "provides at least a series of dimensions no less suited than any other to the dimensional co-ordination of modern building." The point is, surely, not whether it is no less suited but whether it is "more suited" than any other. However, the claim itself is in any case open to serious question:

Assuming the dimensions are to be used for the nominal sizes of components (the whole objective of the system recommended in the EPA project with which Mr. Voelcker compared Le Corbusier's) as well as for the dimensions of the building as a whole, the Modulor series has definite limitations as compared with an arithmetic series. For example, take the Modulor series in inches, 4, 6½, 8, 10½, 13, 17, 21, 27½, 34, 44½, 55, 72 and 89, and compare it with the arithmetic inch series, 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96 and 108. Now consider a building block 8 in. deep. With both series the blocks will, in construction, course at 16, 24, 32, 40, 48 in. etc.; but whereas it will be seen that in the arithmetic series these course heights add up to other modulor sizes on the range (which can be used for other components such as windows), in the Modulor series they add to sizes which are not included in the Modulor range. Again, panels 32 in. wide, for example, will meet reference positions at 32, 64, 96, etc.—that is, at other modulor sizes; but panels 34 in. wide (*i.e.*, from the Modulor) will meet reference positions 68, 102 and 136—that is, at sizes which are not other Modulor sizes.

However complicated the mathematics of number may be, a process of building is essentially one of addition; and as shown above the Modulor series does not provide the requisite additivity of sizes for components.

It must also be remarked that there is no virtue at all in complexity for its own sake: a simple additive system, provided that it has scope enough to allow of the admitted complexities of building (which the EPA modular system has), is always easier to apply in practice. For this reason, the case for a range of modular sizes is overwhelming.

BRUCE MARTIN.

London.

John Voelcker replies: Once a Modulor fan, since disenchanted, and now trying to review it objectively I think that for some architects the Modulor may be "more suited" than other dimensional series:

1. Because no building is simply an addition of parts, it is a hierachy of dissimilar elements which normally contain repeated parts. Hence a dimensional system while permitting additivity may also provide a means for evaluating the elements with respect to one another. The Modulor series does both.

2. The Modulor does not exclude additivity, viz:

inches 4
6½—13—19½—26
2—4—6—8
10½
13
17
21

Why shouldn't one have subsidiary scales if one wants to? So long as one recognizes the relationship of the dimensions to the basic scale, in other words their relative value when used to size parts.

3. In, for example, *L'Unité*, le Corbusier was concerned to identify the façade of each dwelling as the most significant element so he used dimensions from the basic scales. It matters neither formally nor technically that the length of the whole block is not a basic Modulor dimension.

This is too condensed to make much sense but, to split a hair, the Modulor contributes to a method of designing, while a simple additive series is only a technique.

Bills of Quantities

SIR,—Cecil C. Handisyde's example of the error arising from use of "squares" and "yards" (AJ, September 18) recalls cases in one's own experience.

Though "squares" were not originally used by my firm we adopted them (but never, *never*, "rods") for a while and errors did occur as a result. Furthermore from the number of priced schedules in which the Contractor had changed in manuscript our bill item areas from so many "squares" to so many "yards," it seemed that in this part of the country "squares" were not popular with the trade.

Therefore, we as a firm have discarded the term.

Concerning the larger problem of "yards" and "feet" it is my experience that in about every tenth priced Bill some error arises, *i.e.*, "yard" items at "feet" prices and vice versa, despite the vigilance of those alert to the danger.

So that we have on the one hand this risk, and on the other, such considerations as: (*a*) what would be the psychological and in this context the money effect of pricing for example concrete or hardcore beds at per square foot (more sensible I suppose than doors at per square yard) and, (*b*) how to pick out small portions in certain super items.

Faced with sheet lead in cwts., qrs., lbs., at shillings, pence and fractions, or yards super steel fabric at lbs. and decimals, shillings, pence and ha'pennies all in one item, not to mention the rod pole or perch of allied fields, one sighs indeed for reform of national weights and measures, but this is not to be—yet.

In our own sphere, however, we are not precluded from action, and every move towards scrutiny of SMM with simplification as aim is to be encouraged.

Nevertheless my guess is that "yards" and "feet" are here for years to come.

ERNEST RENNIE.

Manchester.

The Developer

SIR,—May I refer to your article in the ARCHITECTS' JOURNAL of September 11, headed "The Developer"?

The point I would like so strongly to emphasize is that we are talking about industrial development where functional efficiency must always be the first consideration. But by our rigid policy of employing consultants who are in private practice (rather than employing "house" architects), we do feel the architect has the same, if not more, opportunity for expression working with the developer than he might have with a private client, especially where the developer, so to speak, holds the purse strings.

While functional efficiency must obviously be the key note of any industrial development, there is absolutely no reason whatsoever why the finished product should not comply with any traditionalists' "concept of architecture"—in fact, one very eminent architect who has made a name for himself in town and country planning stated of one of our buildings that it was "the most functionally efficient and aesthetically satisfying building in the country."

It has been stated that we seek to supplant the architect of his traditional role within the industry. At the planning stages, the architect working within the team, is executively in charge of design and planning. When the building work starts, he must assume the functional responsibility of assuring that the building goes up in accordance with his drawings and specification.

It is, of course, quite true that this involves a departure from the traditional role of the architect, but the simple fact remains that some of the greatest indus-

trialists of our time have claimed that the end product is the most efficient of its type extant, while aesthetically—we leave the buildings we have designed and built to tell their own story.

COLIN A. SAMUELS.

London.

A Suspect Reference

SIR,—1846 is the date given for Robert Kerr's *Newleafe Discourses* in the V & A library catalogue. The date is printed in the book at the end of the Preface. Chapter X is entitled "The Royal Institute of British Architects."

MICHAEL DARRACOTT.

London.

The Belgrade Theatre

SIR,—From his comments it seems evident that Mr. Jay has not visited the Belgrade Theatre, for he says that "the forestage should have been shallower and perhaps have consisted simply of a cover over the orchestra pit." This is exactly what has been provided. If, however, Mr. Jay has visited the theatre and failed to notice this his criticism is quite irresponsible. Furthermore, two productions out of the first twelve using an ochestra seems ample justification for the existence of an orchestra pit.

KENNETH KING
DOUGLAS BEATON.

Coventry.

"Rum Island"

SIR,—As a Jamaican I would like to assure the subscribers to the JOURNAL and the general architectural public that no serious damage has been done by Mr. Manser's article, in your issue of September 4, describing the brashness and vulgarity of new building and the slum problem in Jamaica.

In the first place, architecture, like literature, can only be achieved by a people itself. It is not only incongruous, therefore, that architects practising in Jamaica should be discussing their work as Jamaican architecture, but embarassing also to realize that as architects they are unaware of the true function of the activities implicit in the noun "architecture."

Mr. Oakley's "enlightened" confirmation that the rapid fragmentation of Jamaican society, which has been taking place since the war, can be visually appreciated now in the separate arts of painting and sculpture, can only enthuse those who build on behalf of international capitalism and for the misguided *nouveau riche*. I hope Mr. Oakley will not expect Jamaicans to genuflect with reverence on learning also that Jamaican missionaries preaching the gospel according to the RIBA will soon be ordained. The wholesale transplantation of ready-made institutions is the one anti-historical act that never fails to destroy or distort seeds of indigenous culture. At this moment, Presence Africaine is trying to correct these distortions. The ultimate result of the arrogance of this kind of nationalism which is indifferent to anything but English results finally in the kind of hooliganism and fascism of Notting Hill and Nottingham.

I would like to suggest to those engaged in the reconstruction of Nelson's Quarterdeck to seriously reconsider their approach to history. If they are seriously bent on monumental construction, my advice to them is to erect in a public place a statue to the "Unknown Slave" or, if they are aware of the urgent planning needs, to re-channel money and effort in slum clearance.

JOHN HOLNESS.

London.

New offices in Miller Street, Manchester, for the Co-operative Insurance Society and the Co-operative Wholesale Society, have been designed by G. S. Hay, CWS architect, Manchester, in association with Sir John Burnet, Tait and Partners. The CIS offices are contained in the five-storey podium structure and the 25-storey, 315-ft. tower on the left; the CWS offices are in the 14-storey block on the right, at the rear of which is a meeting hall for 1,500 people. The buildings will be steel-framed with curtain walling and double-glazing, and air-conditioned. Staff circulation between ground and fifth floors in the CIS block will be by twin reversible escalators, both operating in the same direction during peak periods. The sixth to twenty-fourth floors are to be served by eight lifts each carrying 23 people at 800 ft. per minute.

RIBA

Overseas Representatives

The full list of the members of the RIBA Council 1958-9 shows that the following members represent the overseas allied societies in the United Kingdom; Thomas E. Scott, the Royal Architectural Institute of Canada; Kenneth M. B. Cross, the Royal Australian Institute of Architects; R. H. Uren, the New Zealand Institute of Architects; Sir William Holford, the Institute of South African Architects; Stuart Bentley, the Indian Institute of Architects.

COMPETITION

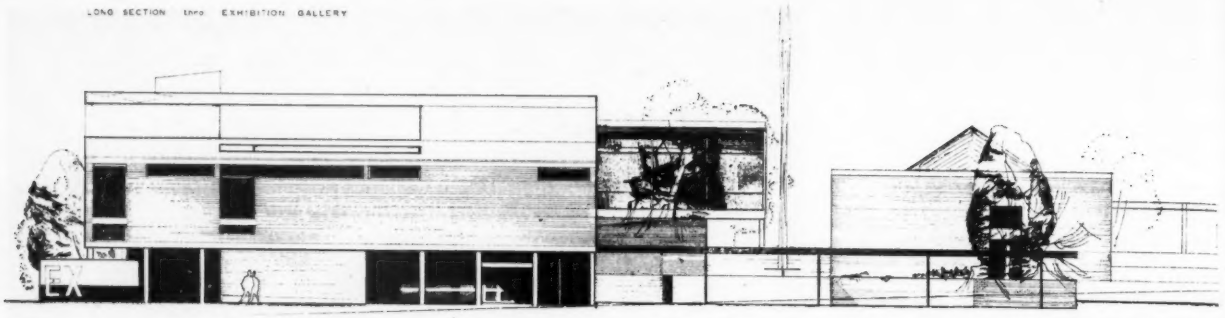
Carter's Stand

Carter and Co. Ltd. have now announced the conditions for the competition for their stand at the Building Exhibition. Copies are obtainable as from September 30 from the company at Poole, Dorset. Designs must be submitted by 12 noon on February 10, 1959. The stand will be erected on an island site 24 ft. by 20 ft., and is estimated to cost £1,500, excluding the promoters' materials and services. The prizes, as previously announced, are £100 (first) and £75 (second) and a further £75 will be awarded at the discretion of the assessors, who are Howard V. Lobb, Denys Lasdun and C. C. Carter, chairman of Carter and Co. Ltd.

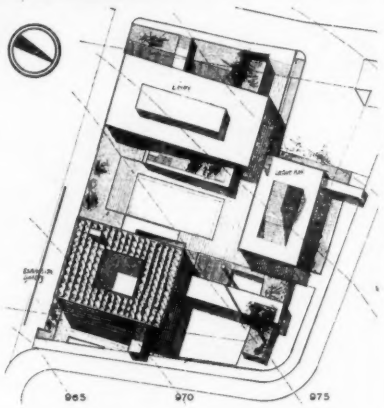
MODULAR SOCIETY

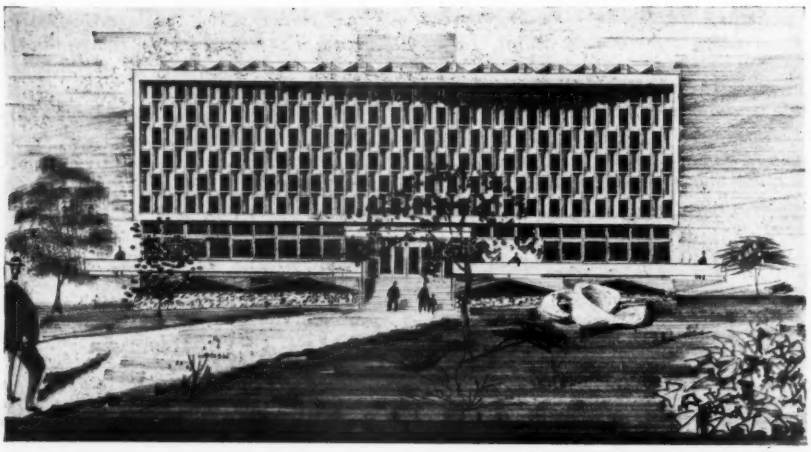
Forum on Modular Assembly

On September 24 the Modular Society held a Forum at the Building Centre to discuss the "Modular Assembly." This is a small two-storey building (see photograph on page 481), which has been erected at 27/28, Albert Embankment to test the effectiveness of the



The subject of this year's open architectural competition at the Welsh National Eisteddfod was a public library, lecture hall and exhibition gallery for an industrial town. The first prize (£75) was awarded to D. T. S. Evans, London. Above, the east elevation of his design, and right, the site plan. Below, the main elevation of the design by W. H. Roberts, Kidwelly, who won the second prize (£35).





principles laid down by the Society for the sizing and jointing of modular components. Representatives of the 35 firms who took part in this exercise were present at the forum and they, the contractors (Howard Farrow Limited) and the co-ordinating architect (Mark Hartland Thomas) were questioned by Peter Trench, the Joint Managing Director of Bovis. Unfortunately, though the meeting was very well attended, little of great interest was elicited. This may have been due partly to the fact that the survey of the finished building has not yet been made, partly also to an unwillingness on the part of those present to question any one manufacturer too closely.

A large proportion of the questions and answers turned on the difficulty of carrying engineering tolerances on to the building site. This affects both the tolerances of separate parts (¼ in. was found to be not enough in the timber curtain wall) and also the placing of the parts in their precise positions. As the contractors (Howard Farrow Limited) pointed out, it is an easy matter for an engineer with a theodolite to set up the grid lines, but it is more difficult to place some of the large elements in a correct relationship to them. Apart from this there was evidence that the use of the 4-inch module made site work easier by generating dimensions which are easily memorized. Questioned on whether modular co-ordination was likely to lead to a lowering of the cost of components, Peter Gardiner drew attention to the fact that the change over to standardized dimensions implied the holding by the manufacturer of large stocks and that this was an added expense which could only be offset when builders have ensured a reasonable flow of goods by ordering well in advance.

P. A. Dennison of Cape Building Products placed the onus of furthering the acceptance of modular co-ordination firmly on the manufacturer, pointing out that the architect cannot be expected to specify modular products unless they are cheaper than the alternatives. The only objection to the actual modular dimensions came from Mr. Bagnall of Concrete Limited who made the point that when it came to structural parts, it was difficult to conform to modular dimensions while at the same time obtaining the maximum economy in material and handling. On concrete products in general, John Brunton called for the establishment of a series of standard tolerances for the different sizes of component.

There was an interesting discussion on brickwork. Two kinds of brick were used in the Modular Assembly: an 8-in. × 4-in. × 4½-in. modular brick being block-bonded with a conventional brick. G. Lawrence, speaking for the manufacturers of the modular bricks (which were perforated wirecuts) regretted that these were insufficiently perforated and did not, therefore, give the full saving in weight which might have been expected. Questioned on whether it would be expensive for the brick industry to change over to 4-in. bricks, he said that there was relatively little expense involved in changing the size of wirecuts, but that these represented only 2 per cent of the present output. consultation with the RIBA."

EDUCATION

Architectural Training Unsatisfactory

The training for the architectural profession is not altogether satisfactory, states the University Grants Committee in its report to the Treasury for the years 1952-57. They are making no special provision for architecture in the plans for technological development, and they state that there are a number of problems which will require consideration before they can reach any conclusion on the question whether further provision for architectural training at universities is required. The committee is "examining the position in consultation with the RIBA.

DIARY

The RIBA Form of Contract. Talk by Michael Chavasse. IQS meeting at Caxton Hall, S.W.1. 6.30 p.m. OCTOBER 3

Motorways, their landscaping, design and appearance. Rees Jeffreys Triennial Lecture by G. A. Jellicoe. At the ICI, 1, Great George Street, S.W.1. 5.30 p.m. OCTOBER 9

The Architectural Expression of Structural Concrete. Talk by W. A. Gibbon. At the RCA, 94, Petty France, S.W.1. 6 p.m. OCTOBER 15

Architecture in Jamaica. Talk by David Oakley. At the AA, 34, Bedford Square, W.C.1. 6.15 p.m. OCTOBER 15

Architects' Christian Union. Informal reception at the RIBA, 66, Portland Place, W.1. Guest speaker: the Rt. Rev. Hugh R. Gough, Bishop of Barking. 6.30 p.m. OCTOBER 16

Building Contracts Today. A course of six weekly lectures by Donald Keating, B.A. Organized by the Brixton School of Building in collaboration with the Building Centre. At the BC, 26, Store Street, W.C.1. 6 p.m. Fee for the course, £1. Applications to the Secretary, Brixton School of Building, Ferndale Road, S.W.4. FIRST LECTURE OCTOBER 29

With the increasing use of timber in this country, Canada has much to teach us in the handling of its traditional material. Kenneth B. Wood, who visited Canada in the summer with a group of architects, describes in this report Canadian design and construction techniques. He concludes that in this country timber should be used more scientifically, taking full advantage of pre-surfaced timber, factory prefabrication, and powered tools, and emphasizes the need for more firms to acquire a specialized knowledge of glue lamination and other engineering techniques.

TIMBER CONSTRUCTION IN CANADA

The track to New York, Chicago, Taliesin and the other more obvious centres of architectural development in the United States is well worn and well documented. Indeed, most of those of us who recently visited Canada in connection with the timber-frame housing competition organized by the British Columbia Lumber Manufacturers' Association and the Foreign Trade Service of the Canadian Government were unable to resist the lure of personally seeing as much in the USA as time permitted. To come so far and not cross the border into one of the power houses of modern architectural development would seem illogical, and with a wealth of references one knew in advance where to look for what.

But in Canada the story was very different. Apart from the odd house, the new building of the Ontario Association of Architects and a church or two, little has been published in this country. And yet Canada

The photographs below illustrate two Canadian characteristics. Fig. 1 (left), the use of timber in the courtyard of a Canadian architect's private house at Vancouver in post and beam construction (by Davison and Porter), and Fig. 2 (right), the new Vancouver rising from the old in what the author calls a honky-tonk town atmosphere.

is a country developing at a fantastic rate and throwing up buildings at a speed to match other progress. One sets out, knowing little of what to expect, and arrives by air out of the long Arctic night slightly bewildered, already impressed by the vast spaces and obviously untapped resources and appalled by the mushrooming bungalow towns of the mid West. To come in over the spine of the Rockies to one of the most beautiful natural harbours in the world, where the mountains close in on the city of Vancouver, is an experience to be remembered.

With the different sense of distance that applies on a continent where one drives 50 miles for an evening meal or 150 miles for an afternoon "run," it is not really surprising that the cities appear to lack any centre, any core, and that the ubiquitous brightly coloured roofs of the bungaloid estates should sprawl out haphazardly over the plains as at Edmonton and climb up the mountainsides as at Vancouver. It is not surprising—but all the same it is just as deplorable, because the profligate and pioneering attitude of the Canadians appears to make it likely to be a pattern for the future. Town planning is embryonic and the primitive policy of "squander and move" is still a potent force in North American life, colouring their attitude to space, towns, homes and, cars.

The city of Vancouver especially exhibits this lack of concern with what is apparently considered expendable, and the most modern multi-storey blocks of curtain-walled offices rise from amongst the debris of once elegant, elaborately finished three- and four-storey timber homes, now rooming houses, untrimmed verges, neon "coke" signs, car parks and the wire-scape of a honky-tonk boom town atmosphere (Fig. 2). Meanwhile the rash of commuter-owned bungalows races up the slopes of mountains which were virgin ground ten years ago, the home of bear and other wild life, and are now as suburbanized as Petts Wood or Gerrards Cross.

This pressure for expansion is forcing up land values at a colossal rate, especially for waterside lots, but the appetite of the populace permits no check and the solution for many is the "rush" estates of the speculative builder, or the self-erected home of the one-off (often imaginatively designed by student architects at a cut fee).

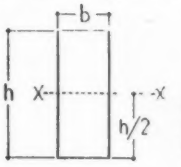
Both types are usually timber-framed and an easy familiarity with the material makes for both speed and an unselfconscious acceptance of the new patterns of buildings that are evolving. Brick is an imported luxury material and is little used on domestic work although keeping above the Joneses drives some developers to the stratagems of brick-patterned felt or rendering as the outside cladding of their houses. In the main, however, external timber finishes are the general rule, seldom left natural but usually painted, creosoted, or matt pigment stained in a range of colours from silver greys to bright pinks. Several factors, apart from the obvious ready supply of the material, come into the use of timber for the structure and finishings of these houses:

1. Use of pre-surfaced timber.
2. Speed of erection and use of portable power tools.
3. Acceptance of new patterns of building.

The use of presurfaced timber, that is timber which has been planed at the mill and is therefore dead to size, is almost universal. Apart from the easy, safe handling, use of this material permits an accuracy, even at speed, which it would be impossible to achieve with rough sawn timber as used here. The properties of this material and its relation to nominal sizes is shown in the table below.

Certain properties of Pacific coast hemlock timber surfaced to Canadian lumber standards (CLS)

Nominal size in inches b h	*Standard CLS size in inches* b h	*Area of section* $A = bh$ *sq. in.*	*Moment of inertia* $I = bh3$ — 12	*Section modulus* $S = bh2$ — 6
1 × 2	¾ × 1½	1·27	0·26	0·32
1 × 3	¾ × 2½	2·05	1·18	0·90
1 × 4	¾ × 3½	2·83	3·10	1·71
1 × 6	¾ × 5½	4·13	10·40	3·78
1 × 8	¾ × 7½	5·86	27·47	7·32
1 × 10	¾ × 9½	7·42	55·82	11·75
1 × 12	¾ × 11½	8·98	99·02	17·22
2 × 2	1½ × 1½	2·64	0·58	0·72
2 × 3	1½ × 2½	4·27	2·45	1·87
2 × 4	1½ × 3½	5 89	6·45	3·56
2 × 6	1½ × 5½	8·91	22·50	8·19
2 × 8	1½ × 7½	12·19	57·13	15·23
2 × 10	1½ × 9½	15·44	116·10	24·44
2 × 12	1½ × 11½	18·69	205·95	35·82
3 × 4	2½ × 3½	9·52	10·42	5·75
3 × 6	2½ × 5½	14·41	36·40	13·21
3 × 8	2½ × 7½	19·69	92·29	24·61
3 × 10	2½ × 9½	24·94	187·55	39·48
3 × 12	2½ × 11½	30·19	332·69	57·86
4 × 4	3½ × 3½	13·14	14·39	7·94
4 × 6	3½ × 5½	19·91	50·25	18·29
4 × 8	3½ × 7½	27·19	127·44	33·98
4 × 10	3½ × 9½	34·44	259·00	54·53
4 × 12	3½ × 11½	41·69	459·43	79·90



Moment of Inertia and Section Modulus are given with respect to X—X axis with dimensions b and h as shown on sketch.

With the high labour rates of the North American continent and the relatively low cost of the material, the economics of frame construction are closely tied with the speed that this surfaced timber gives to site carpentry and the short time taken to erect private houses reflects this.

The contractor who, two days after the casting of his ground floor slab of a 1,500 sq. ft. house, had the main structural framework up and ready for roofing in, with the results seen in Fig. 3, is no exception to the general rule. With such a house, using almost entirely dry techniques throughout, occupation is possible in about six weeks.

This example, which is typical of post and beam techniques, shows clearly the large overhang so general to North American houses and which contains the gutter.

The procedure is to "gun" the floorplate to the slab (ragbolting would be considered slow and inefficient), raise the main structural posts which are dowelled to the plate at the foot, and to run through the header, with any lengthening joints occurring over the post. The main beams are then metal dowelled or coach bolted to the head of the post, the structure mean-

Fig. 3. A post and beam construction house of 1,500 sq. ft. two days after casting the slab, showing the typical large eaves overhang.

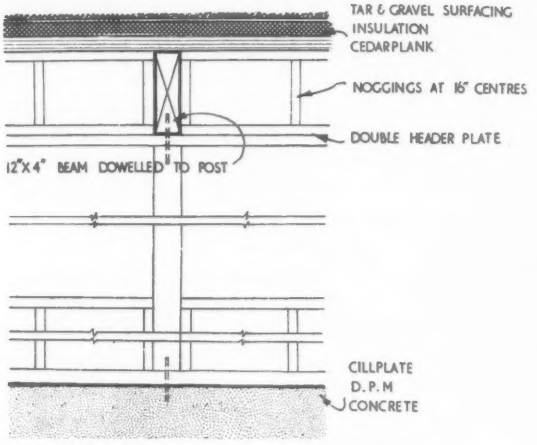
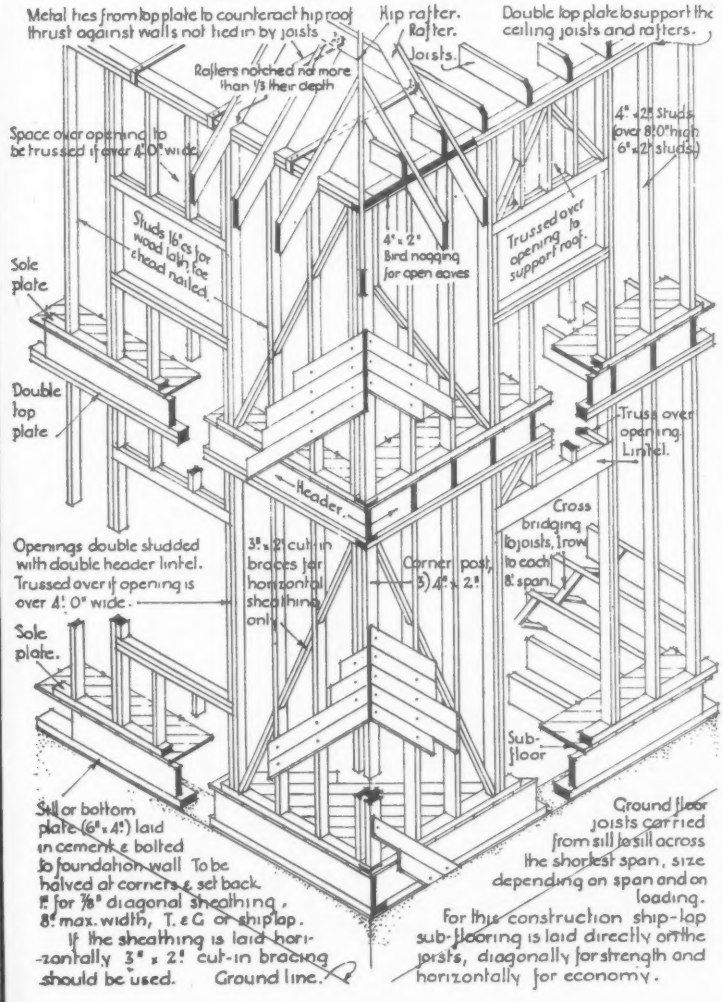


Fig. 4. Sketch of post and beam construction.



while being temporarily braced as shown in Figure 4. Studding, at the usual 16-in. centres now forms the infill panels beneath windows and above the header, which is now doubled up, and the dry claddings are applied internally and externally. Externally these may be WBP Douglas Fir plywood or cedar boarding over a building paper or felt moisture barrier stapled on, or alternatively stucco on expanded metal lath.

The alternative method of construction which is in general use is platform framing in which the main studs are discontinuous between floors and capped with double plates. The reason for doubling the upper

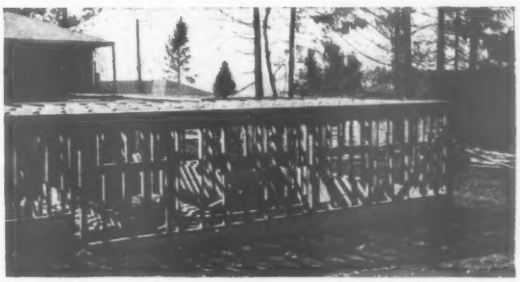


Fig. 5 (left). Isometric sketch of platform frame construction, and above (Fig. 6) a small house when the frame has reached first floor level.

plates is to allow for adequate lapping at the corners and points where partitions join the main walls. Stud partitions are framed in the same way except that 2-in. noggings should be inserted at 4-ft. centres. The framing when assembled is raised into position and held with timber bracing until the partitions, or other side framing, is *in situ*. The outer side of the studding is covered with inch nominal diagonal boardings. A stout building paper is placed over this boarding and a final weather boarding, vertical siding or shingling is applied. Corners can be overlapped, mitred or butted to cover strips.

This type of construction is shown in the isometric sketch (Fig. 5) and in the photograph (Fig. 6) taken of a typical small house when framing had reached first floor level. The section of typical wall shows a common arrangement where suspended timber floors are employed, but the use of a solid floor construction is equally general. Finishes are usually similar to those already described. Low pitched roofs are more general than the flat or monopitch roof and are usually finished with the ubiquitous coloured felt tile roofing (Edmonton from the air appears as a patchwork quilt of bright red, green, blue and brown squares, with occasional greys interspersed) which, being cheap, is looked upon as expendable and renewable, a commendable attitude that might with profit be adopted here. These and their alternatives the cedar shingle or "shake" as it is locally known (tiles and slates being negligible as roofing materials) are laid with a precision and finish seldom seen in this country and such neat and satisfactory results that the material has none of the stigma common here.

The quality of workmanship and detailing on many of these timber houses leaves much to be desired (the term "wood butcher" is in current use), but is

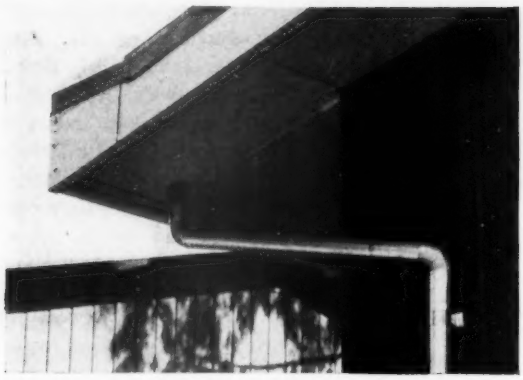


Fig. 7. Eaves view of speculative housing. "The quality of workmanship and detailing leaves much to be desired."

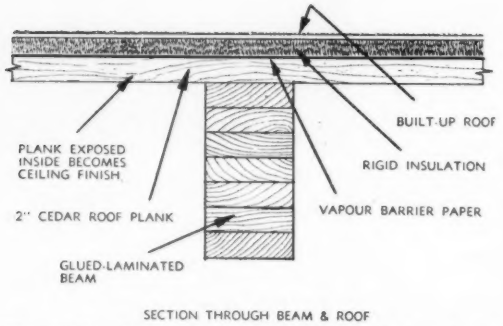
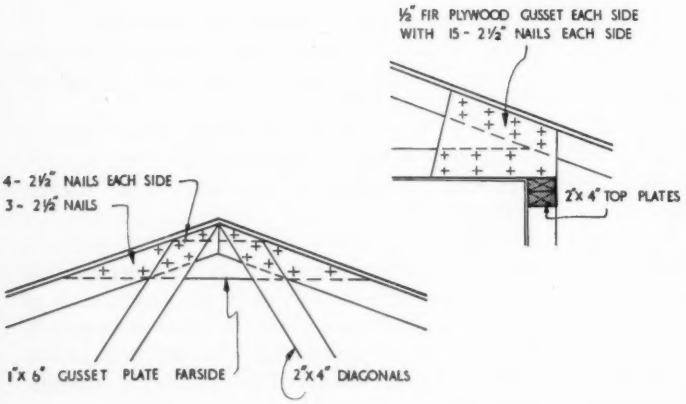


Fig. 8. Detail showing use of solid plank deck roofing and ceiling.



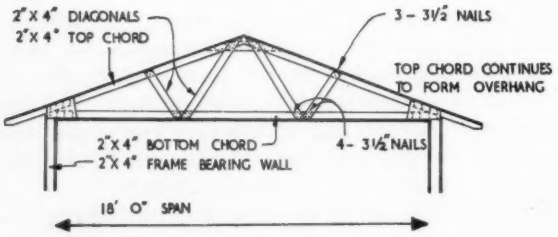


Fig. 9. Details of light wood truss.

largely compensated for by the quantity of material used, and by making the most of the advantages afforded by the use of presurfaced timber (Fig. 7). The problems of wall stud alignment, with its important effect on dry walling technique, and the variations in depth of unwrot floor and roof joists, with consequent firrings, packings or planing, do not arise where accuracy of size can be relied upon.

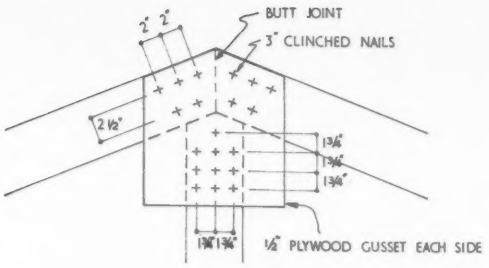
There is, relatively speaking, surprisingly little factory prefabrication of timber units, but site mechanization, especially in the form of light portable power tools, such as the circular sawbench with a pivoting head for cross and angle cutting, the electric drill and the cartridge "gun" for fired fixings, together with the use of presurfaced timber and the packaged delivery of trim, like skirtings and linings, cuts the labour and time element to a minimum.

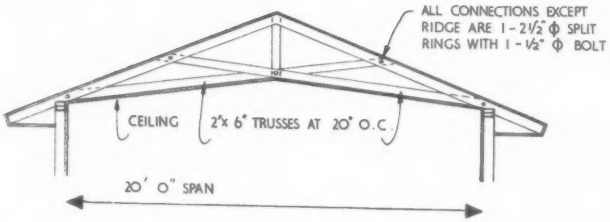
In addition, the Canadian building industry has developed a technique of conveyor-belt site organisation where each house is "flooded" by a trade in turn, the trade teams moving from house to house with a dovetailed programme dependent only on the efficiency of the organisation behind it. There is a ruthlessness in this approach which comes out in one of the first operations—site clearance—where the bulldozer approach, mentally and practically, results in whole areas of mountainside being stripped of all standing timber and vegetation before development commences, with frightening results.

Although there is a lack of the crippling traditions found in this country, and nowhere did we see any log cabin coziness equivalent to our Tudorbethan complex, there is nevertheless a continuing tradition in timber construction in Canada and most of the economy and imagination is tied up with the labour content rather than materials. For example, the contractor who completed his houses in six weeks formed his partitions of solid 2-in. cedar planks, tongued and grooved, and cut out his door openings afterwards with an electric saw, fitting battens, hinges and cover fillets to the section removed to form the door. Similarly, with the use of solid plank for forming the first-floor flooring and ground-floor ceiling of a house, the economy is mainly one of labour, and leads to a cover strip technique in concealing services and electricity cables.

Internally a greater range of finishes is possible, but veneered ply panels textured, pattern pressed or left natural, striplap boarding or foil insulated plasterboard are common. There is much use of cedar planking, butt jointed or t & g to serve as both roof decking and ceiling finish; the large firm knots resulting from the grade of timber employed for this purpose giving a natural ceiling of great character (Fig. 8).

The rigid insulation laid on this decking is normally a foamed polystyrene, two examples of which have recently appeared on the British market. This material, being practically immune to all forms of decay and being light, chemically inert and of high insulation value, is very suitable for this position and to receive the surfacing layers of tar and gravel roofing. It is interesting to note that these roofs are graded by anticipated maintenance free life rather than the number of layers, *e.g.*, 20 yr., roof.





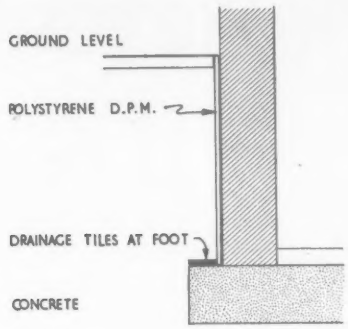
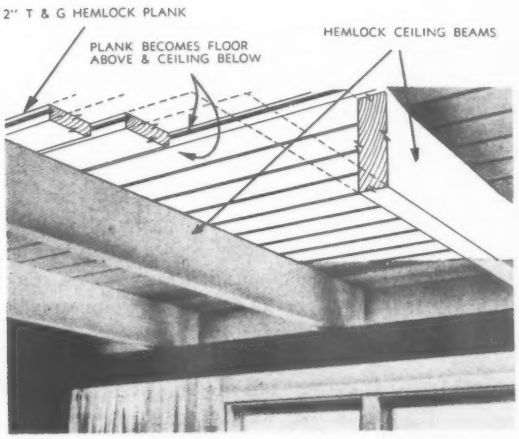


Fig. 10 (left), scissor truss details (architects, Fleury, Arthur and Barclay). General detail below, and ridge detail, top. Fig. 11 (above), sketch of basement damp-proofing. Fig. 12 (below), cantilevered balcony detail.



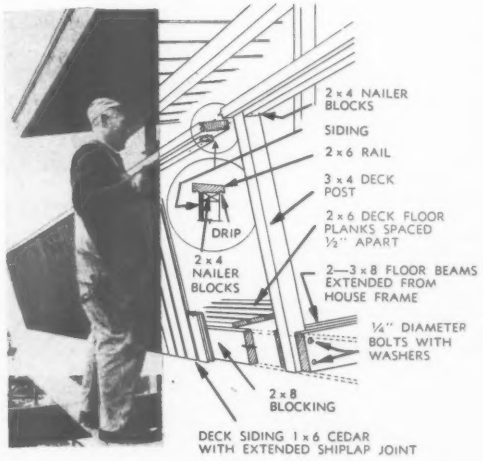


Fig. 13 (left), glued laminated beam in domestic construction. Fig. 14 (below, left), carport canopy detail, and Fig. 15 (below), interior of the post and beam construction house of John Porter, architect, winner of the Massey Award, 1952.

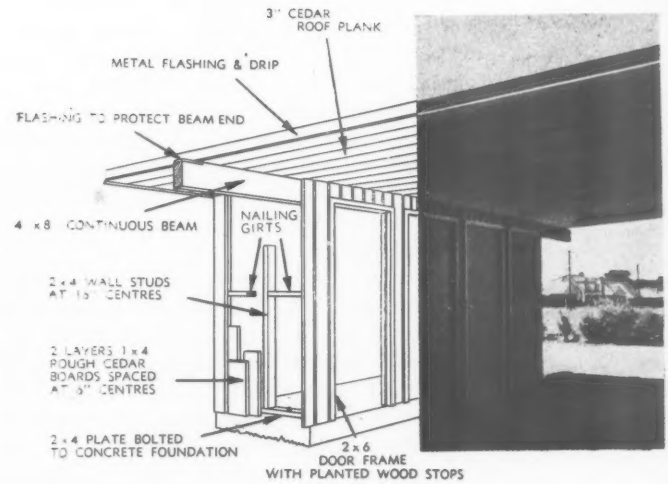


Fig. 16. Forest Products Research Building, Vancouver, by Thompson, Berwick and Pratt.

Fig. 17. School in West Vancouver by Davison and Porter.

Fig. 18. Interior of Church at Agassiz, BC, by Gardiner and Thornton, showing scissor truss.

Fig. 19. Glued laminated roof in warehouse of Powell River Ltd.

The use of plank roofs for housing is supplemented by light wood truss construction (Fig. 9) and by scissor trusses, Fig. 10 (architects: Fleury, Arthur & Barclay) often left exposed with the ceiling following the line of the roof pitch.

Although the climate in, for example, Vancouver is similar to Britain, the standard of heating and insulation is much higher. Most houses are built with an efficient heating installation, often of the ducted warm air type, and accommodated in the basement laundries which are popular and hold no Victorian dreads for their owners. These basements are often formed in concrete with the foundations and rely either on the natural grade to avoid flooding or have a simply polystyrene vertical damp-proof membrane externally with a drainage tile at the foot (Fig. 11). With an abundance of natural gas and cheap electricity, these two fuels dominate the position and solid fuel fired installations are almost unknown, oil being used for some industrial concerns. The larder has been largely superseded by a king-size refrigerator. Comfort standards are automatically considerably higher than for the average house of cavity walled brick construction, as the framework, vapour barrier, closed airspace and timber finishings combine to give a thermal insulation far above the pathetic minimum of the Model Bylaws here. Along with a gadget complex, the average Canadian home, as in the USA, is a warmer, more attractive and more efficient place than the average British home, and outside the refreshing absence of hedges and front fences redeems much of the effect of sprawl resulting from the low densities. For this, one even begins to forgive the weedy crop of television and radio aerials that sprout from the roofs of the ribbon development homes and the cheerful dusty tracks that pass for roads.

In buildings other than houses, the techniques of post and beam construction appears again in such eminently successful buildings as the Forest Products Research Building in the University area of Vancouver (architects: Thompson, Berwick & Pratt—partner in charge, Roy Jessiman) where timber is used imaginatively throughout for structure and finishes (Fig. 16) and a school in West Vancouver, BC (architects: Davison & Porter), shown in Fig. 17. The scissor truss reappears in a church at Agassiz (architects: Gardiner & Thornton) and shown in Fig. 18, where the doubled members neatly accommodate the lighting elements and create a complex pattern that contrasts and gives point to the simple pine furniture and cedar wall finishes. What is interesting about all these examples is that most of the external timbers, and certain internal timbers, are in a lower grade material and that a much rougher, whiskery finish results than is evident in the photographs.

The advent of glued laminated timbers, especially those using phenol and resorcinal formaldehyde resin glues, which have a very high strength properties and are resistant to weather, temperature, acids and micro-organisms, has made possible spans that were only possible before with complex trussed constructions. By this technique straight beams, arches, portals and curved members are economically possible in timber

Fig. 20. Glued laminated arches in the University Hill School gymnasium by Thompson, Berwick and Pratt.

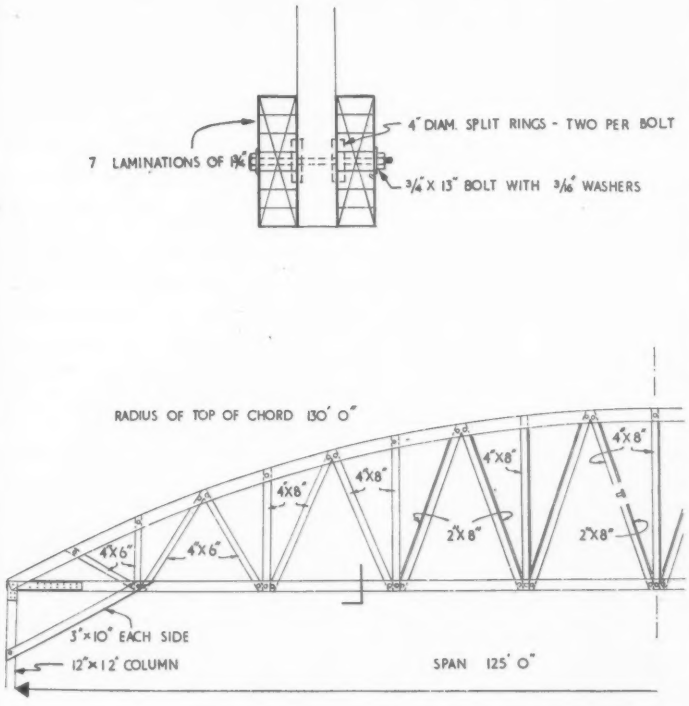


Fig. 21. 125-ft. bowstring trusses at a plywood plant, with, above, detail of bottom chord connection (Engineer : R. Guertin.)

constructions and the fabrication is cheapened by the use of much smaller pieces of timber than would otherwise be possible. The finished product has a greater strength than the raw material and the glue-lines should be almost unbreakable.

Examples of these applications are the simple Douglas Fir glued laminated beams of the Powell River Ltd.'s warehouse roof (Fig. 19) supporting t & g cedar decking butt jointed at the ends, the laminated arches of St. Anselm's Church, University Area, B.C. (architects: Semmens & Simpson) which are expressed internally, and the glued laminated curved arches of a 40 ft. × 300-ft. warehouse are on a similar principle, where the arches are made up in the shop in stepped sections and cut to the correct curve after the bonding process (utilizing electro thermocouples to check the temperature changes) has been completed. These and the striking gluelam arches of B.C.'s University Hill School Gymnasium (architects: Thompson, Berwick & Pratt) and shown in Fig. 20 are an interesting comparison with the more complex built-up construction adopted by the same architects at the Capilano Winter Club and the 125-ft. bowstring truss of MacMillan & Bloedel's Plywood Plant (engineer: R. Guertin) using bolted joints with split ring connectors. (Fig. 21). These trusses are at 20-ft. centres, with a loading of 50 lb./sq. ft. and were site fabricated and erected by semi-skilled labour only. Finally, there are the examples of the use of pressure-treated timber in the composite decking of a bridge where the timber underdeck acts as permanent formwork for the reinforced concrete surfacing, such construction being widely used for bridges, wharves, ramps, etc., and in the construction of bridge designs of various spans, wholly in timber except for asphalt wearing surfaces. An indication of the widespread use of this form of construction are the figures of between 2,000 and 6,000 timber-built bridges in each of the major provinces of Canada.

The problem of suitable finishes for timber surfaces, internally and especially externally, is one that has been met by the Canadians. For outside finishes in general, creosote-base or oil-base stains, or good quality exterior paints are used. Clear finishes such as linseed oil or varnish can be used satisfactorily, but, depending on exposure, will have a limited life and require more frequent renewal. Apart from cedar, other timbers exposed to wet conditions are usually pressure impregnated. Creosote stains and oil stains are two-coat jobs. The stains must be stirred continually, brushed in thoroughly, for a long-term finish. A clear wood surface can be achieved by selecting a pigmented-stain that blends with the natural colour of the wood and these stains are now available on the British market in a range of tones and colours. There are also improved external quality sealers, which are an improvement on the old varnishes. Outside house paint is at least three-coat work and often four coat.

Internally, untreated beams and ceilings are attractive, but most untreated woods darken slightly in time. To prevent this darkening, thin white paint diluted with clear sealer is rubbed in to the grain. Coloured

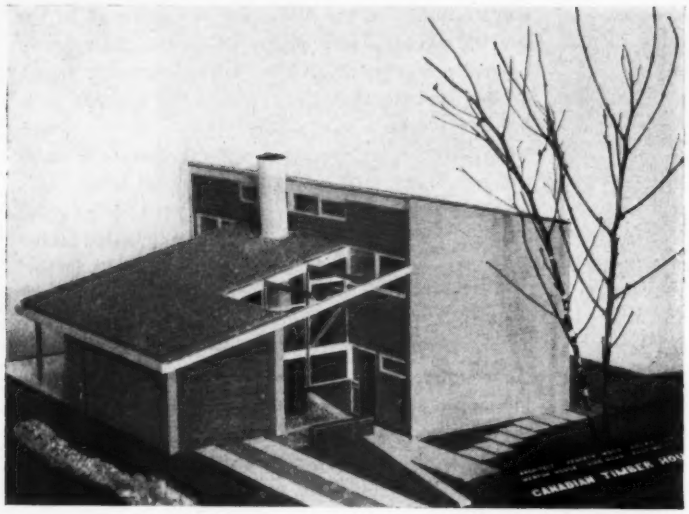
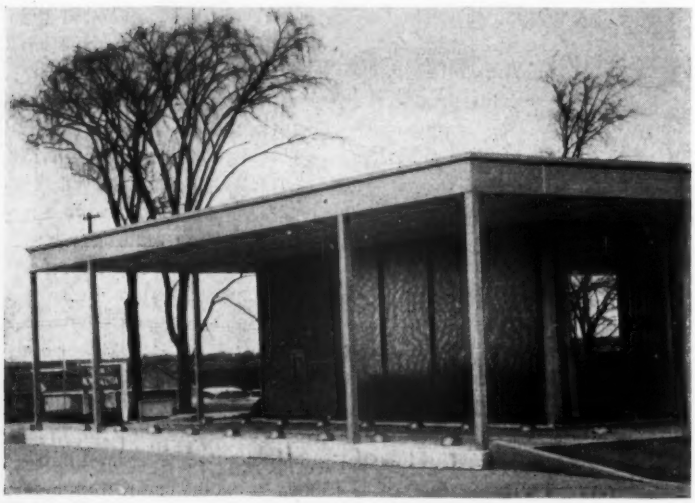


Fig. 22. Model of a timber frame house applying Canadian timbers and techniques to this country. (Architect : Kenneth B. Wood.)

Fig. 23. A shopping centre and below (Fig. 24) the Bank of Nova Scotia, both in Don Mills, a residential suburb of Toronto, and both designed by John B. Parkin, Associates. It is typical of work by more progressive Canadian firms.



wood surfaces are obtained with dilute coloured pigment in clear sealer, the colour strength varied by rubbing the pigment off with a cloth moistened in sealer, and is known as the "wipe-off" finish. For natural surfaces that are to be cleaned often, two coats of varnish and one of wax (or alternatively shellac and wax) are applied over the natural or stained wood. Tinted wax stains are also used to give softer wearing surfaces, suitable for wall panelling. Paint or enamel is three-coat work. Primer-sealer first, then base colour coat, then surface coat. Latex-base paints are satisfactory over a primer-sealer. Fir, hemlock or cedar boarding and siding, together with veneered ply panels, are all suitable for these various finishes and are in general use.

With timber representing 40 per cent. of the revenue of British Columbia, it is not surprising that the various timber interests combine to give a mass of information relating to the species, grading rules, uses and techniques of construction. This is equally available to designers in this country from such sources as the Timber Development Association, the Foreign Trade Service of the Canadian Government here and from the British Columbia Lumber Manufacturer's Association, Forest Products Research Laboratory, (University of BC) and the plywood manufacturing concerns in Vancouver. The BCLMA has been responsible for commissioning architectural designs utilizing Canadian timber, which have been made available to the Canadian public, and they have also recently held a competition in which British architects produced designs suitable for this country and which have been published in brochure form and models put on view to the general public. The BCLMA insist, however, that wherever possible clients should engage an architect direct and in this respect have proved enlightened in their approach to standardized design.

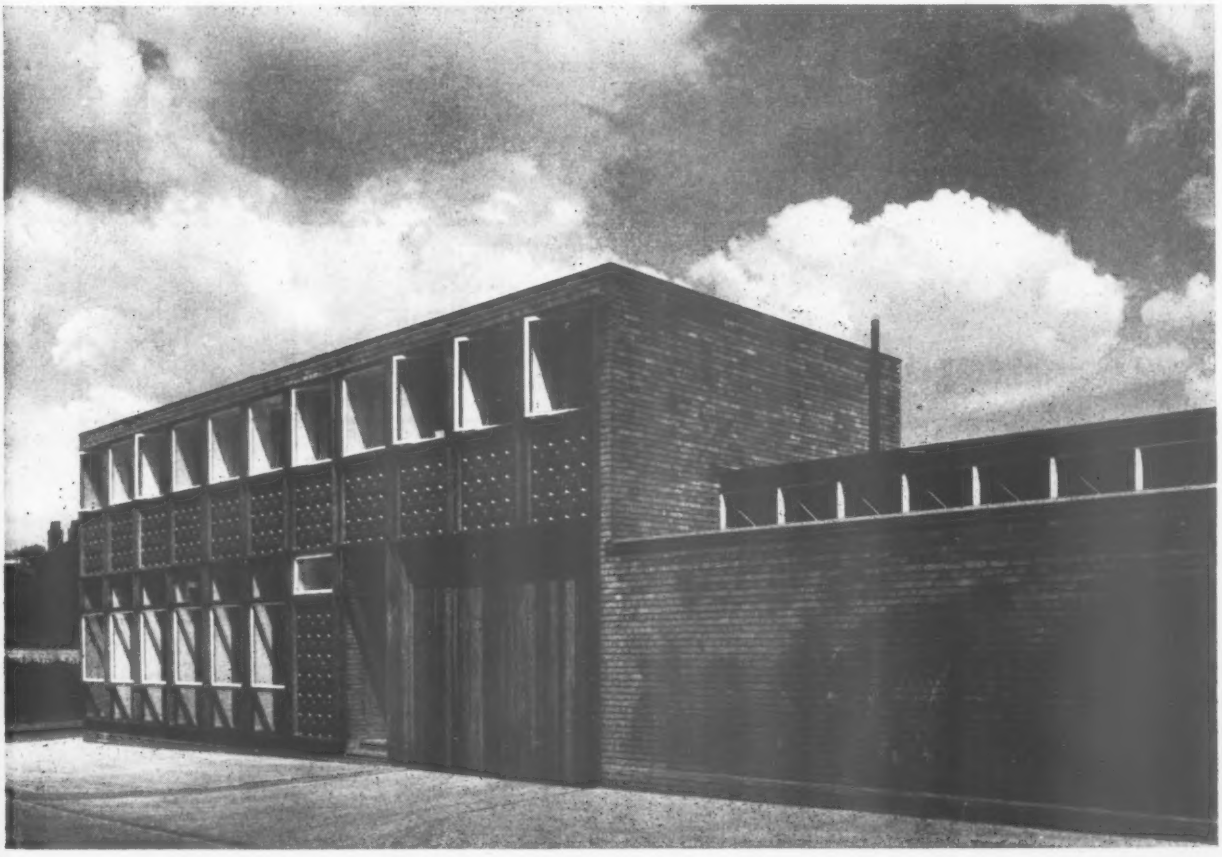
But in assessing to what extent timber frame construction has applications in this country, one has to reckon with a building industry well versed in a traditional brick construction and prejudiced against alternatives. If the material is to become fully economic and competitive with other forms of construction, one or two prerequisites are essential. Firstly, and more so than in Canada where timber is so readily and cheaply available, it should be used more scientifically and less empirically; secondly, that the full advantages of presurfaced timber should be realised and that the timber trade should try to educate the building contractor, along with the local authorities, to take the trouble to acquaint themselves with the facts; thirdly, that the use of power tools on the site should become more general and electricity be laid on as quickly as the water supply; and finally, that every advantage be taken of factory prefabrication of frames, trusses, panels, beams and assemblies. The number of firms conversant with glue lamination and the other engineering techniques of processed timber are still too few and only with their increased knowledge and numbers will the costs relate as favourably to other forms of building as they already do in Canada.

FACTORY and WAREHOUSE

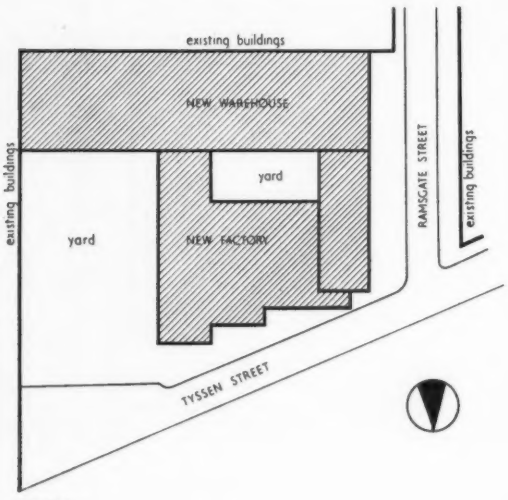
in RAMSGATE STREET, LONDON E.8; designed by WALTER SEGAL
quantity surveyors GODFREY and BURGESS

This small factory, with service block and separate warehouse, is for the manufacture of preserves. The scheme was divided into two parts because of planning restrictions; a manufacturing and office block of 3,200 sq. ft. and a warehouse block of 5,000 sq. ft. The clients required the strictest economy in overall cost and in utilisation of space. The design shows how, with very simple construction, sensitive detailing and eschewing any "special effects," a satisfying and coherent form can be achieved, and at a very low cost.

View from the south-west showing the two-storey service block on the Ramsgate Street frontage, the works entrance (centre), and the warehouse (right).

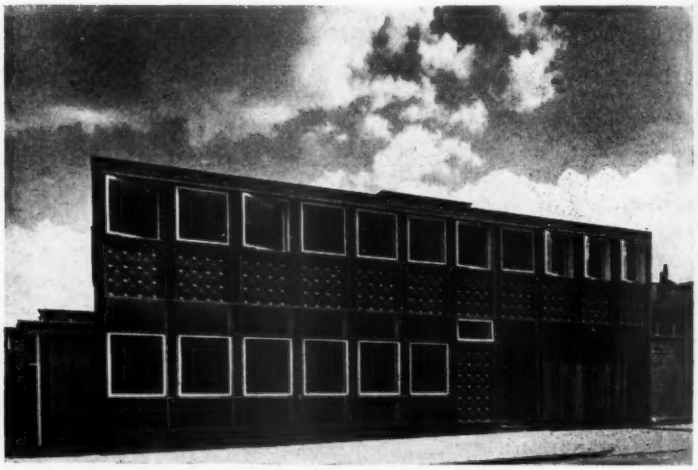


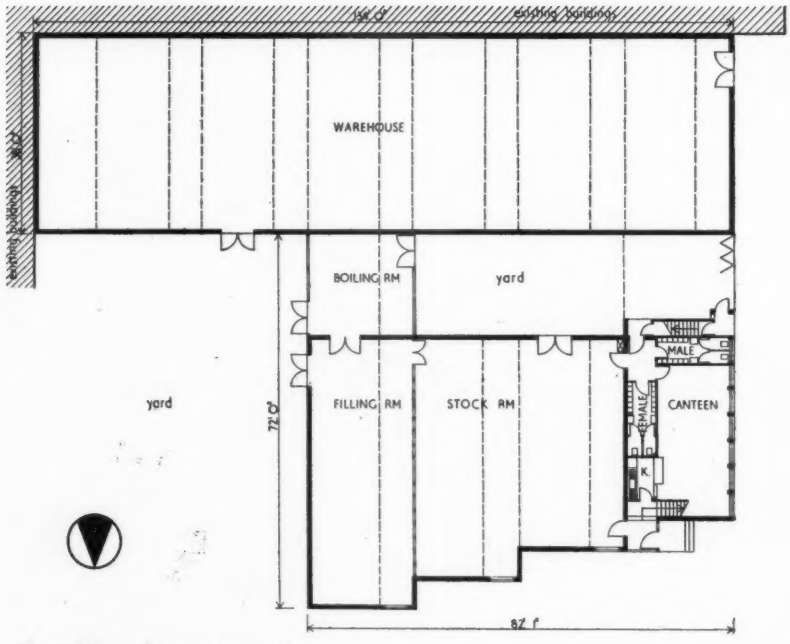
building illustrated



Site plan

The site, which fronts onto two streets, was originally divided into two parcels by a defunct third street which had been destroyed during the war; eventually it was closed with the consent of the adjoining owners This enabled the warehouse block to the south to abut the manufacturing area to the north, with a small service yard extending some distance between the two. Planning restrictions, however, necessitated the division of the two blocks by a doorless party wall. There is room for expansion towards the north-east. The two-storey service block (below) containing a canteen, offices, and caretaker's flat, is on the Ramsgate Street frontage and at one end straddles the single entrance to the service yard and provides cover to the works entrance. The windows are of softwood in gurjun frames which are carried over the solid portions of the wall. The office entrance can be seen on the extreme left of the photograph; a working detail of this was published in the AJ *for July* 31, 1958.

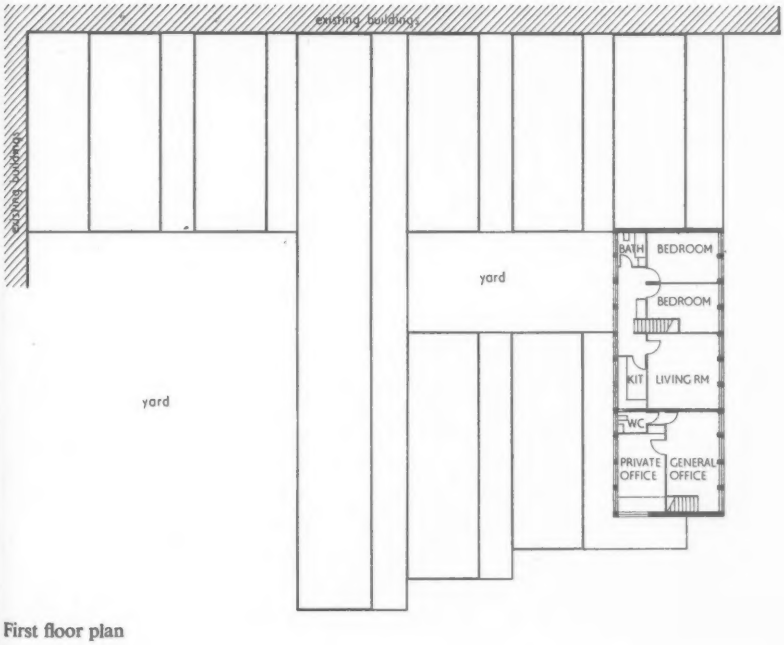




Ground floor plan [Scale: $\frac{1}{16}$" = 1' 0"]

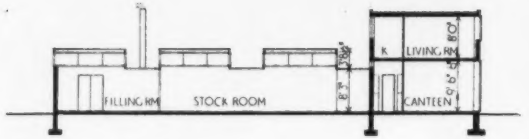
building illustrated

The works entrance, looking into the service yard at the end of which is the boiling room. The warehouse is on the right and the stock room on the left. The monitor lights are glazed on all four sides with clear sheet glass in softwood frames, which are fixed to the lattice girders. The very strong texture of the brickwork derives from the joints being deeply raked out.



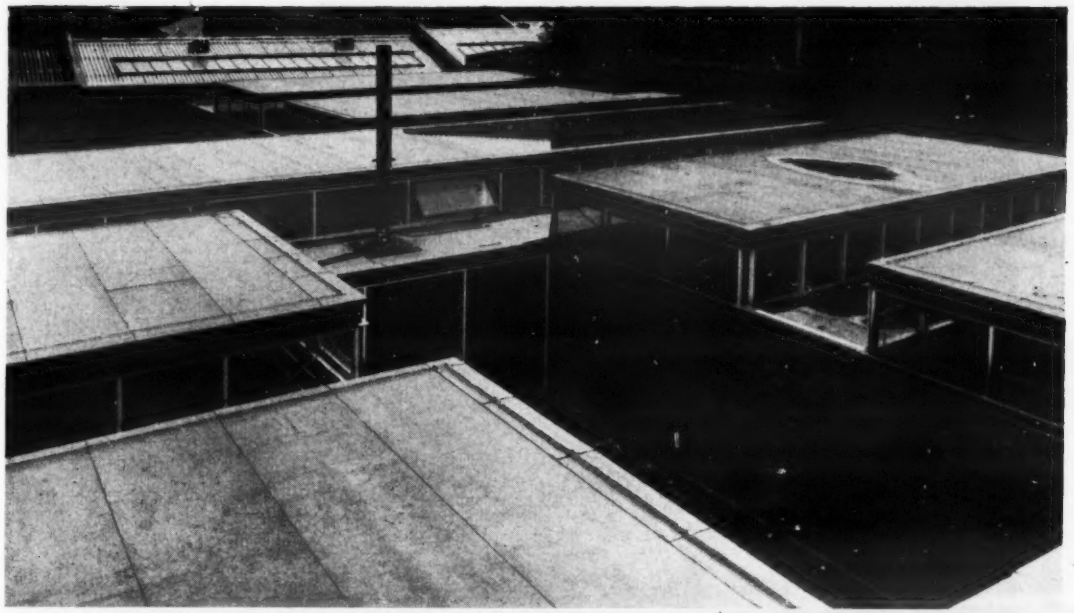
First floor plan

Above, looking back along the service yard towards the rear of the two-storey block.



Cross section [Scale: $\frac{1}{32}$" = 1' 0"]

Below, the factory and warehouse roof from the first floor of the service block. Note that the opening lights occur (except in the clerestory of the boiling room) in the ends of the monitor lights, i.e. in the strip of glazing connecting the ends of the lattice girders. The roofs are almost flat and rainwater from the higher levels has to find its way through short downpipes on to the lower levels which are drained only at one end with an outlet from each bay into a horizontal run of rainwater pipe. (For details of the construction of the roof see the working detail in the AJ *for July* 31, 1958.)



Opposite, the manufacturing block on the Tyssen Street frontage, with the pavilion-like appearance of the carefully detailed monitor lights arranged in simple repetitive form.

analysis

CLIENT'S REQUIREMENTS

The clients manufacture preserves (pickles, sauces, etc.), which required a fairly large amount of storage space and no complicated plant. A separate warehouse was required. Since the factory would employ about 70 people, a small canteen was necessary in addition to the 350 sq. ft. of office space and a caretaker's flat.

A clear headroom of only 8 ft. was required with good natural light over all the storage and manufacturing areas, and reasonably unobstructed floor space. The construction was to be such that the arrangement of space was reasonably flexible, so that partitions or screens could be introduced without great difficulty or expense.

PLANNING AIMS

The site was divided into two parcels of 8,300 and 5,000 sq. ft. by a defunct street which had been destroyed during the war but maintained a vigorous existence on paper. How vigorous the legal existence of a paper street can be both architect and clients were to experience during the course of the several years that were required to bring the scheme to a practical start: all authorities that were concerned in any way raised their hands in horror when the ghost of this street appeared: it is now so difficult to get a dead street closed. Eventually the architect, having obtained town planning consent, persuaded his clients to start building and then at last the official mind decided to act: after a further to-and-fro the defunct street was closed with the consent of the landowners whose sites were affected, *i.e.*, the clients and an adjoining owner.

As strict economy had to be observed the architect avoided normal methods and particularly heavy constructions. He aimed at a very light structure on a repetitive system both for the factory and the warehouse and this proved to be of particular advantage as the District Surveyor imposed a load limit of a quarter of a ton per sq. ft. on the ground.

A module was set by the size of reinforced woodwool slabs used throughout for roofing. These span between simple lattice girders which form monitor roofs with all-round glazing: this is the basic concept. The monitors rest on walls of engineering brick to withstand, particularly in the warehouse, very hard use. The processing of the raw materials takes place mainly in the small boiling room, which because of the amount of steam given off has no direct access to the warehouse or the rest of the factory. Adjacent to the boiling room is the filling room where the bottling takes place. The finished product is then stored in cartons in the stock room ready for despatch.

SUMMARY

Ground floor area of warehouse	5,000 sq. ft.
Ground floor area of factory	3,200 sq. ft.
Ground floor area of service block	750 sq. ft.
First floor area of service block	1,050 sq. ft.
Total floor area	10,000 sq. ft.

Type of contract: RIBA contract with quantities.
Tender date: April 10, 1957
Work began: May 27, 1957
Work finished: April 13, 1958
Tender price of foundations, superstructure installations and finishes: £19,280
Tender price of external works: £718
Total: £19,998

building illustrated

Above, a view of the filling room where the bottling is done by an automatic machine. This space is heated by overhead gas heaters. The three walls are entirely covered with white glazed tiles and the ceilings plastered; together these effectively reduce the degree of glare which is elsewhere noticeable due to the low height of the light source and the undecorated walls and ceilings. Below, this view of the interior of the stock room shows the neat construction of the lattice beams with tensile diagonals reduced to a minimum and the hardwood glazed screen which separates this space from the filling room.

analysis

	cost per sq. ft.	s	d
Preliminaries and insurances		5	2¾
Contingencies		1	0
Work below ground floor level		6	4½
Concrete strip foundation to take rising brickwork in secondhand bricks.			
Unreinforced concrete slab to floor.			

STRUCTURAL ELEMENTS

Load-bearing element	2	1½
Factory and warehouse: 9-in. brick walls partly of engineering brick supporting light welded steel lattice girders with spans from 38-52 ft. Service block: 9-in. × 9-in. brick piers in calculated construction supporting a first floor of prestressed concrete planks with *in situ* concrete topping to an overall thickness of 6 in. for two spans totalling 19 ft. 11½ in. with 4½-in. brick partition wall as an intermediate support at 5 ft. 1 in. from one wall. The roof is a similar concrete slab but in one span of 19 ft. 11½ in.		
External walls	1	5
Factory and warehouse: 9-in. brickwork with purple sandlime brick facings, with joints deeply raked out. Service block: The spandrel walls between the brick piers are of 2½-in. cavity and 2-in. lightweight concrete inner leaf. The front elevation has decorated glazed tile facings to these spandrels the whole front having an applied timber trellis work arrangement of 3½-in. × 2½-in. verticals and horizontals in gurjun, fixed back to the structure. Ratio : $\frac{\text{solid wall}}{\text{floor area}} = \frac{0{\cdot}7}{1}$		
Windows	2	10
Factory and warehouse, pivoted softwood sashes in gurjun frames as isolated openings in the walls. Service block, as for factory and warehouse but in continuous openings between brick piers and on the front elevation forming part of the applied timber trellis work. Ratio: $\frac{\text{windows}}{\text{external walls}} = \frac{0{\cdot}35}{1}$		
External doors		10¼
T. & g. gurjun doors in hardwood frames. Ratio: $\frac{\text{doors}}{\text{floor area}} = \frac{0{\cdot}057}{1}$		
Upper floors		7¾
Span of each type: 19 ft. 11½ in. with support at quarter point; described under load-bearing element. All for 1st floor office block. 19 ft. 11½ in. without support for roof; described under load-bearing element. All for office block. Area of each type: 1,050 sq. ft. Super loads: 40 lb. per sq. ft. for 1st floor; 30 lb. per sq. ft. for roof.		
Staircases		4½
There are two staircases, one to the offices and one to the caretaker's flat. Both constructed in Lagos mahogany, the one to the offices having an inverted cut string with plate glass infilling between the top of the outer string and the ceiling. Total rise: 10 ft. Widths: 3 ft. and 2 ft. 9 in.		
Roof construction	5	10
Factory and warehouse: 2-in. reinforced wood wool slabs supported either on the bottom booms of every pair of steel lattice girders, or at the higher level on r.s.j. purlins spanning between the top booms of every other pair of girders. The wood wool slabs are covered with a ¼-in. screed on which is laid 3-ply felt roofing. Service block: 2-in. wood wool slabs are laid on the concrete slab covered with a 1-in. screed on which is laid 3-ply felt roofing. Areas: factory, 2,900 sq. ft.; warehouse, 5,000 sq. ft.; service block, 1,050 sq. ft. All four sides of each monitor are glazed with clear sheet glass in softwood frames which are fixed to the steel lattice girders. The timber frames are painted.		
Glazing		8¼
All pivoted windows are glazed with ¼-in. plate glass.		
Total of structural elements	14s	9½d

PARTITIONS & FITTINGS

Internal partitions		2¾
On the ground floor of the service block are 4½-in. brick load-bearing partitions. On the floor above are 2-in. clinker block.		
Screens		2¾
In the factory, between the filling room and the stock room is a timber partition fully glazed with ¼-in. wired cast glass. The fixings are such that the screen is easily removable for a possible future expansion of the filling room. Between the two offices on the first floor of the service block is a timber screen glazed with obscured glass. The office staircase is screened from the canteen with one sheet of ⅜-in. plate glass.		
Internal doors		2¾
In factory: double glazed doors in screen between stock room and filling room. In service block: standard flush doors in standard steel door frames.		
Ironmongery		4
Anodised aluminium lever handles of German design.		
Fittings		
No fittings were provided for in the contract.		
Total of partitions		11¾d

analysis

FINISHES

Floor finishes — 1 6

Location	*Area in sq. ft.*	*Price per sq. yd.* s.	d.
Warehouse and stock-room, 1½-in. grano	6,750	9	9
Boiling and filling rooms, acid-resisting asphalt	1,450	25	0
Service block, thermo-plastic tiles	1,800	16	9

Wall finishes — 1 4¾

In factory and warehouse fair-faced brickwork throughout, except in filling room where white glazed tiles are applied to the full height of the three walls (the fourth wall is a glazed screen).
In service block all walls are plastered with ½-in. thick gypsum plaster.

Ceiling finishes — 2

In factory and warehouse the woodwool slabs are left untreated, except in the filling room where they are plastered.
In the service block all ceilings are plastered.

Roof finishes — 1 9½

All roofs are finished with 3-ply built-up bituminous felt with green mineral finish.

Decorations — 1 4¾

There are no decorations in the factory.
In service block, walls and ceilings have 3 coats of distemper. All softwood and steel is painted white and hardwood is given several coats of boiled linseed oil.

Total of finishes — 6s 2¾d

SERVICES

External plumbing — 11

All copings and flashings in zinc. Rainwater pipes in cast iron and fixed to internal walls. Water storage tank in insulated casing on top of service block.

Hot and cold water installation — 1 0

In factory, solid fuel installation in boiling room.
In service block, electric storage heaters. Copper piping throughout.

Sanitary fittings — 4

Type of fitting	*No. of each type*
W.c's	6
Lavatory basins	5
Bath	1
Kitchen sink, stainless steel	1

Heating and ventilation — ¼

Overhead gas heaters in filling room only.
Gas points for cooking in service block.

Electrical installation — 1 9½

Fluorescent lighting in factory, warehouse, canteen and offices.

Location	*Type of point*	*No. of each type*
Warehouse	Light points	12
	Socket outlets	1
Factory	Light points, fluorescent	13
	ordinary	3
	Socket outlets	4
Service block	Light points, fluorescent	3
	ordinary	23
	Socket outlets	16

Total of services — 4s 0¾d

Drainage — 1 5½

Salt glazed stoneware and cast iron. Connection into existing sewer in street which has been closed.

Other external works
None.

Total per sq. ft. of floor area : $\frac{£19,280}{10,000}$ = 38 6¾

(excluding drainage)

COST COMMENTS

An unusually economical scheme giving some extremely low costs in certain elements but in assessing the scheme as a whole the following points should be noted:
1. The finishes and decorations are at an absolute minimum, warehouse area at 50 per cent. of the total using undecorated fair-faced brickwork, wood-wool ceilings and granolithic flooring.
2. The total of services at 4s 0¾d per sq. ft. are worthy of considerable attention as rarely would any scheme be as utilitarian as this one. The warehouse area is unheated and the installation of overhead gas heaters is low in capital outlay but possibly expensive in running costs.
3. The roof construction together with rooflights is the key to the whole of the structural costs and the highest costing section of the work, although this particular form of construction must have reached the optimum between a non-framed and framed structure. Careful detailing and absence of complicated construction must have contributed to keeping costs down.
4. Fittings are completely excluded, presumably being supplied outside the contract.

CONTRACTORS

General contractors: Ford & Walton. *Sub-contractors: Floor tiles:* The Marley Tile Co. Ltd. *Exterior glazed tiling:* Carter & Co. London Ltd. *Interior glazed tiling:* J. H. Sankey & Son Ltd. *Plastering:* Walter & Sullivan Ltd. *Plumbing:* Geo. Simpson (London) Ltd. *Glazing:* Faulkner, Green & Co. Ltd. *Asphalt:* Pilkington's Asphalte Co. Ltd. *Granolithic pavings:* F. Bradford & Co. Ltd. *Steelwork:* A. W. Parrish & Son.

technical section

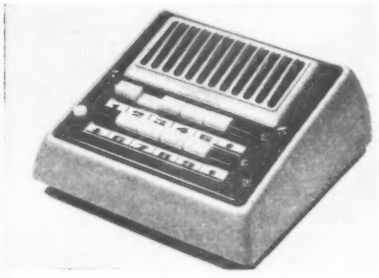
THE INDUSTRY

Deferred payments for heating systems

While it is taken for granted that any number of people buy cookers and other items of household equipment on hire purchase, nobody ever seems to have thought of applying this method more widely. But you can now get, from Sigmund Pumps, a small bore heating system which is paid for over two years. Arrangements are made through heating engineers or experienced plumbers, and there is complete freedom of choice of types of boiler and radiator or heating panel, the only stipulation being that one of Sigmund's range of Thermopak circulating pumps must be used. Since Messrs. Sigmund supply the money for the entire installation, including labour costs, this seems a not unreasonable condition. Advice is available on installation layouts and the pipe and radiator sizes can also be checked if necessary. The whole scheme seems to me an excellent idea, and I would not be surprised if it were to be extended to other types of installation, particularly since the bank rate has come down again. (*Sigmund Pumps Ltd., Team Valley, Gateshead.*)

Internal telephones

A full range of the Centrum intercommunication telephones made by Gylling & Co. of Stockholm is now being marketed in this country by Centrum Electronics Ltd. The equipment is produced in sets of all sizes, and makes use of transistors, so that dry batteries can be used instead of mains supplies. Each desk unit incorporates a loud speaker and transmitter, and it is possible to



One of the Swedish Centrum desk unit telephones.

carry on a conversation from almost any point in the average office, and as the calls are made by push button both speakers can have their hands completely free. The push button models are made in sizes up to 22 stations, and for larger installations a modified system is used. There is also a further version for use in ships, wharves, or factories where a dust and water proof system may be essential. (*Centrum Electronics Ltd., 37, South Road, Southall, Middlesex.*)

BRIAN GRANT

8 ESTIMATING

current wage rates, market prices and measured rates

In the last prices issue (June 26) we drew attention to the sharp drop in builders' tenders—which at that date averaged about 15 per cent., and showed in " front of the bill " pricing rather than in rates. The alarm among builders at the decrease in work that caused this, seems now to have abated and building prices are recovering a little. Materials prices remain fairly steady and the 1d. an hour wage increase of June 23 has so far had small effect. The Prices feature is prepared by Davis Belfield and Everest, chartered quantity surveyors.

Wage rates

Rates of wages rose on June 23, 1958, and are now as follows :

	Craftsmen	*Labourers*
London District	s d	s d
Within 12 miles radius	4 9½	4 3
From 12 to 15 miles radius	4 9	4 2½
Liverpool and District	4 9½	4 3
Grade classifications		
A	4 8	4 1½
A1	4 7½	4 1

Market prices

Prices are given for the major items in each trade, they are intended as average prices and include delivery in the outer London area. They do not include overhead charges and profit.

Measured rates

Prices are for work carried out in the Outer London area and include 10% to cover overhead charges and profit except in the case of work which would be carried out by specialists when 5% has been allowed.
The prices given in italic represent the total value of the materials included in the measured rates, including an allowance for waste and 10% for overhead charges and profit. The cost of labour included in the measured rates (including its proportion of overhead charges and profit) can be ascertained by subtracting the prices in italics from the prices in heavier type.

Abbreviations

Inches: in. Feet: ft. Yards: Y. Yards cube: YC. Yards super YS. Feet cube: FC. Feet super: FS. Ton: T. Feet run: FR. Thousand: M. Square: Sq. Number: No. Hundredweight: C. Pound: lb. Gallon: Gal.

Preliminaries

To all estimates based on prices for measured rates add, if required, for Preliminaries, water, insurances, etc., depending on the nature of the job.

Price changes

* Shows changes in market prices and measured rates since the last issue (June 26, 1958).

F

technical section

EXCAVATOR

		s	d
Market prices			
Carting away, up to 8 miles	YC		
Hand loaded		*7	0
Machine loaded		*6	0
Hardcore	YC	10	0
Ashes	YC	*11	6
Measured rates			
Hand excavation and disposal			
NB: the following are applicable to excavation in heavy soil.			
Excavating over site to remove top soil and vegetable matter, 6 in. deep	YS	*1	3½
As above, 12 in. deep	YS	*2	6½
Excavating over site to reduce levels and getting out	YC	*10	2
Excavating for basement and getting out	YC		
Depth up to 5 ft.		*11	5
Depth between 5 & 10 ft.		*16	6
Depth between 10 & 15 ft.		*21	7
Excavating surface trenches and ditto	YC		
Depth up to 5 ft.		*14	0
Depth between 5 & 10 ft.		*19	1
Depth between 10 & 15 ft.		*24	2
Excavating basement trenches and ditto	YC		
Commencing 5 ft. below existing ground level		*19	1
Commencing 10 ft. below existing ground level		*24	2
Commencing 15 ft. below existing ground level		*29	3
Wheeling surplus excavated material not exceeding 100 yards and depositing	YC	*5	1
Add to last for:			
Roughly spreading and levelling	YC	*1	6½
Spreading, levelling and consolidating to make up levels	YC	*3	3½
Returning, filling-in and well ramming excavated material around foundations	YC	*4	6
Loading surplus material into lorries and carting to tip, not exceeding 8 miles	YC	*14	9
Excavating from spoil heaps selected top soil, wheeling not exceeding 100 yards, and spreading, levelling and consolidating, not exceeding 6 in. to receive turf	YS	*2	3
Mechanical excavation and disposal			
Excavating for shallow surface excavation and loading into lorries or dumpers (using ⅜ yd. cube excavator)	YC	3	0
Excavating for surface excavation and removing, spreading and levelling not exceeding 200 yds. (using 6 yd. cube scraper)	YC	*2	11
Removing excavated material and depositing, not exceeding 200 yds. (using 3 yd. cube dumper)	YC	*2	2
Planking and strutting			
Planking and strutting to sides of surface or basement excavation	FS		
Depth up to 5 ft.			8
Depth up to 10 ft.			10
Depth up to 15 ft.		1	0
Planking and strutting to sides of surface and basement trenches	FS		
Depth up to 5 ft.			2
Depth up to 10 ft.			3½
Depth up to 15 ft.			4
Hardcore, etc.			
Hardcore filled-in in layers, each layer well rammed	YC	*20	6
		13	*9*
Bed of ditto, 4-in. thick	YS	3	5
		1	*6½*
Ash filled-in in layers, each layer well rammed	YC	*21	4
		15	*10*

CONCRETOR

		s	d
Market prices			
Portland cement, 6 tons and over	T	113	6
Rapid hardening, 6 tons and over	T	124	0
¾-in. down, washed, crushed and graded shingle	YC	*17	0
1½-in. ditto	YC	*16	0
Sharp sand	YC	*20	6
⅝-in. diam. mild steel rods to BS 785 delivered station	T	859	0
⅜-in. ditto	T	921	6
Measured rates			
Portland cement mass concrete in foundations etc.	YC		
1 : 12, 1½-in. "all-in" aggregate		*58	8
		37	*9*
1 : 3 : 6, 1½-in. aggregate		*67	9
		46	*9*
1 : 2 : 4, ¾-in. aggregate		*75	4
		54	*5*
1 : 1½ : 3, ½-in. aggregate		*77	1
		56	*2*
Add for:			
Working around rod or mesh reinforcement	YC	*5	1
Walls not over 6-in. thick	YC	*25	5
Walls 6-in. to 12-in. thick	YC	*17	10
Walls over 12-in. thick	YC	*12	9
Columns not over 72 sq. inches	YC	*48	3
Columns 72 to 144 sq. inches	YC	*38	2
Columns over 144 sq. inches	YC	*30	6
Suspended floors and roofs not over 4½-in. thick	YC	*20	4
Suspended floors over 4½-in to 6-in. thick	YC	*17	10
Suspended floors over 6-in. to 12-in. thick	YC	*15	3
Beds not over 4½-in. thick	YC	*10	2
Beds 4½-in. to 6-in. thick	YC	*7	7
Beds 6-in. to 12-in. thick	YC	*2	6½
Hollow tile floor of clay tiles 4-in. thick at 15-in. centres laid on formwork (measured separately), nibs filled in with concrete (1 : 2 : 4) and finishing top of tiles with bed of concrete 1½-in. thick including tamping around reinforcement (measured separately)	YS	*17	7
		10	*3*
Ditto, but tiles 8-in. thick	YS	*27	1
		17	*10*
Sundries			
Finishing concrete with trowelled face to receive linoleum	YS	*1	3½
Applying horizontal damp-proof membrane of Synthaprufe in three coats to surface of concrete and blinding with sand to form key	YS	5	9
		4	*1*
Supplying floor clips (p.c. 6d. each) and fixing	No.	1	1
Formwork			
Formwork including strutting easing and striking:			
Vertical faces of foundation	YS	*18	8
		9	*8*
Vertical faces of wall	YS	*19	2
		7	*0*
Soffite of floors not over 12-ft. high	YS	*19	1
		8	*8*
Sloping soffite of stairs	YS	*23	0
		9	*5*
Sides of columns	FS	*2	5½
			10½
Sides and soffites of lintols and beams	FS	2	7½
		1	*0*
Add to the above for wrot formwork including rubbing down concrete	YS	*2	6½
Reinforcement			
⅝-in. diameter mild steel rods, hooked, bent and tied and fixing	C	*68	7
		52	*2*
½-in.	C	*73	11
		54	*1*
⅜-in.	C	*80	6
		55	*10*

This attractive house, which is the property of Mr. & Mrs. Douglas Dawn, Ballywilliam, Donaghadee, Co. Down, N. Ireland, is of concrete brick and has been treated with a two coat application of 'PUDLO' Waterproof Cement Paint.

This pleasing and modern design was drawn up by the Diocesan Architect for the Church of Ireland for Down and Connor.

The problem of satisfactory maintenance and protection was carefully considered so as to enhance the attractive appearance and yet preserve the structure. 'PUDLO' Waterproof Cement Paint was specified for the work as it contains the famous 'PUDLO' Cement Waterproofing Powder and guarantees the protection of outside surfaces against all climatic conditions.

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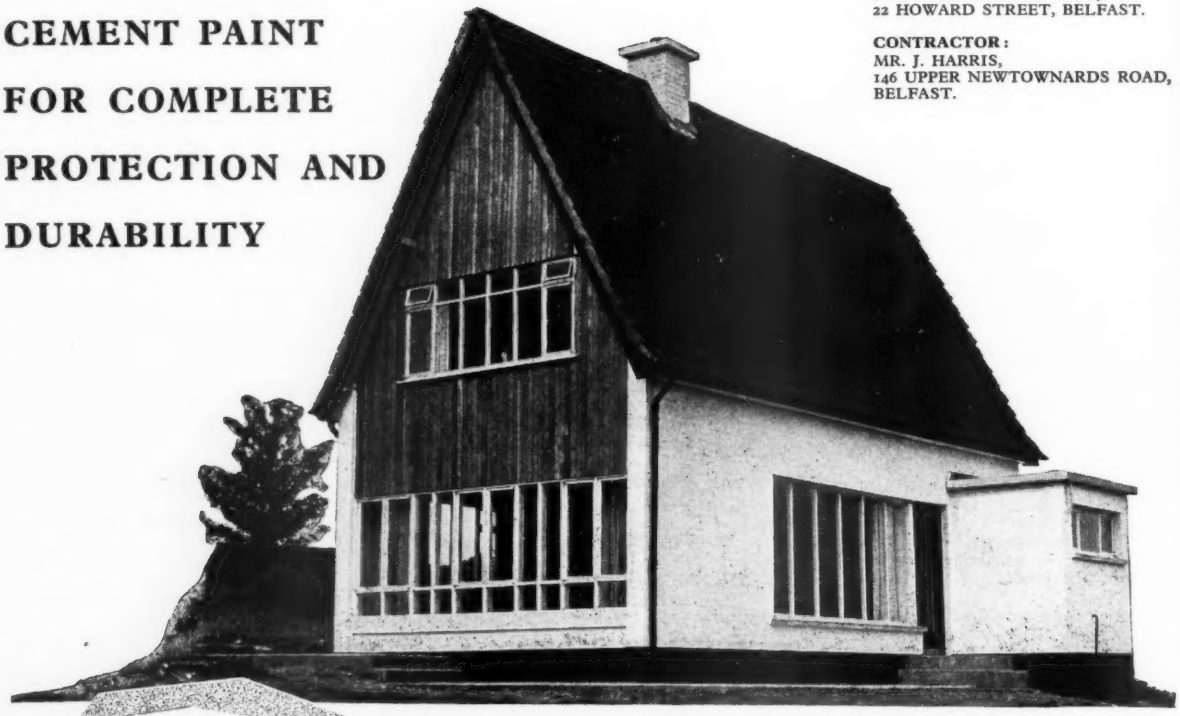
CONTRACTOR:
MR. J. HARRIS,
146 UPPER NEWTOWNARDS ROAD,
BELFAST.



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technical section

Concretor continued

		s	d
¼-in.	C	*94	3
		60	7
Steel wire mesh fabric weighing 4·32 lb. per yd. super and laying in concrete	YS	4	1
		3	5
Ditto weighing 6·57 lb. per yd. super	YS	6	0
		5	3
Ditto weighing 9·32 lb. per yd. super	YS	*8	5
		7	4

Precast concrete

Precast concrete (1 : 2 : 4) finished fair on exposed faces and hoisting setting and jointing:			
4½-in. × 6-in. lintols reinforced with one ½-in. rod	FR	*2	9½
		2	3½
4½-in. × 9-in. ditto with two ½-in. rods	FR	*4	3
		3	5½

Piling

Reinforced pre-cast concrete piles, approximate prices for supplying, unloading, pitching and driving			
12-in. × 12-in. up to 30 ft. long	FR	*35	0
14-in. × 14-in. up to 50 ft. long	FR	*41	0
Sheet steel piling, ditto	T	*1165 to *1230	0 0

BRICKLAYER

Market prices

Soft sand	YC	*17	6
Hydrated lime	T	117	6
Plain Flettons	M	118	0
Second hard stocks	M	300	0
Lingfield Engineering wire cuts Grade B	M	*257	0

Partitions

Clinker concrete, solid	YS		
2-in.		3	11
2½-in.		4	4
3-in.		5	6
4½-in.		7	0
Thermalite-Ytong	YS		
2½-in.		7	0
3-in.		8	5
4-in.		11	0
Hollow clay	YS		
2-in.		4	5
2½-in.		4	8
3-in.		5	5
(6 cavity) 4-in.		6	10
Normal quality wood wool slabs	YS		
2-in.		8	10
2½-in.		10	2
3-in.		11	5

Measured rates

Reduced brickwork in cement lime mortar.

		s	d
Lingfields in cement mortar	YS		
Flettons		*33	5
		17	5
Second stocks		*53	0
		37	0
Lingfield Grade B		*51	4
		32	11
Half brick wall ditto	YS		
Flettons		*18	5
		8	3
Second stocks		*28	3
		18	1
Lingfield Grade B		*27	11
		15	11
11-in. hollow wall with 2-in. cavity and wall ties	YS		
Flettons		*37	11
		16	11
Second stocks		*57	6
		36	6
One brick wall built fair and pointed both sides	YS		
Flettons		*40	0
		17	5
Second stocks		*59	8
		37	0
Lingfield Grade B		*56	10
		32	11

Sundries

Extra over common brickwork for internal fair face and flush pointing	YS	*1	5
Horizontal damp proof course of two courses of slates and bedding and pointing	FS	*4	6
		2	8
Horizontal damp proof course of hessian base bitumen	FS	11	
		9	

Facings

Extra over ordinary brickwork with bricks P.C. 118s. per 1,000 for facings as described

To solid wall in Flemish bond	YS		
Facings P.C. 250s per M		*15	10
		9	7
Facings P.C. 350s per M		*23	1
		16	11
Facings P.C. 450s per M		*30	5
		24	2
To cavity wall in stretcher bond	YS		
Facings P.C. 250s per M		*13	1
		7	4
Facings P.C. 350s per M		*18	7
		12	11
Facings P.C. 450s per M		*24	2
		18	5
Half brick wall in facings built fair and pointed on one side	YS		
Facings P.C. 250s per M		*30	3
		16	0
Facings P.C. 350s per M		*35	10
		21	6
Facings P.C. 450s per M		*41	4
		27	1

Partitions

Clinker concrete solid partition blocks and setting in cement lime mortar	YS		
2-in.		*9	4
		4	10
2½-in.		*10	7
		5	5
3-in.		*12	10
		6	10
4½-in.		*15	11
		8	9
Thermalite-Ytong ditto	YS		
2½-in.		12	8
		8	6
3-in.		15	0
		10	3
4-in.		19	1
		13	4
Hollow clay ditto	YS		
2-in.		*9	11
		5	5
2½-in.		*11	0
		5	10
3-in.		*12	9
		6	10
(6 cavity) 4-in.		*15	9
		8	6
Wood wool slabs ditto	YS		
2-in.		14	1
		10	6
2½-in.		*16	4
		12	2
3-in.		*18	6
		13	9

DRAINLAYER

Market prices

Salt glazed stoneware pipes and fittings, " Best " quality:			
Ordinary pipes	FR		
4-in.		1	7½
6-in.		2	5½
9-in.		4	4½
Bends	No.		
4-in.		4	10½
6-in.		7	3½
9-in.		19	9
The above are Standard List prices less 2½%.			
Pitch fibre pipe	FR		
3-in.		1	10½
4-in.		2	6
6-in.		5	0½
Cast iron s. and s. pipe to BS 437	YR		
4-in.		28	2
6-in.		41	3
9-in.		77	3
Spun iron s. and s. pipe to BS 1211, Class B	YR		
4-in.		13	3
6-in.		21	3
9-in.		35	8

Measured rates

Trenches and beds

Excavate trenches by hand in heavy soil, including planking and strutting, part returning, filling and ramming and wheeling and spreading surplus, for pipes 4-in., 6-in. and 9 in. dia.	YR		
Average depth of trench 3-ft.		*17	0
4-ft.		*22	8
6-ft.		*39	3
9-ft.		*72	5
Excavate trench as last but by mechanical trencher	YR		
Average depth of trench 3-ft.		*12	11
4-ft.		*17	9
6-ft.		*32	3
9-ft.		*53	3

Construction in progress

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technical section

Drainlayer continued

		s	d
6-in. concrete bed and benching for 4-in. pipes	YR	*9	4
		5	7
As above, for 6-in. pipes	YR	*10	11
		6	7
6-in. concrete bed and surround for 4-in. pipes	YR	*15	2
		9	1
As above, for 6-in. pipes	YR	*18	3
		11	0

Stoneware drains

" Seconds " quality salt glazed stoneware drain pipes and laying and jointing in trench

	FR		
4-in.		2	5
		1	8
6-in.		*3	6
		2	6
9-in.		*5	9
		4	7

" Best " quality salt glazed stoneware drain pipes and laying and jointing in trench

	FR		
4-in.		2	9
		2	0
6-in.		*3	11
		2	11
9-in.		*6	6
		5	4

Extra over " Seconds " quality pipes for:

Bend	No.		
4-in.		3	9
		3	3
6-in.		5	6
		4	11
9-in.		16	0
		15	4
Single junction	No.		
4-in.		6	6
		5	0
6-in.		9	4
		7	6
9-in.		20	1
		18	0
Double junction	No.		
4-in.		*10	10
		8	4
6-in.		*15	7
		12	6
9-in.		*30	7
		27	1

Stoneware gullies

Salt glazed trapped gully with galvanized grating including setting gully on and surrounding with concrete and jointing to drain No.

6 in. × 6 in. grating 4 in. outlet	26	5
	22	3
9 in. × 9 in. grating 6 in. outlet	48	11
	43	7

Grease and mud gully 9-in. diameter with 4-in. outlet, galvanized bucket and grating and setting gully on and surrounding with concrete and jointing to drain No. 92 0

81 0

Road gully with 6-in. outlet including setting on and surrounding with concrete and jointing to drain No.

15-in. dia. 30-in. deep	108	7
	86	0
18-in. dia. 48-in. deep	216	5
	179	2

Pitch fibre drains

Pitch fibre drain pipes and laying and jointing in trench

	FR		
3-in.		2	3
		2	1½
4-in.		2	11½
		2	9½
6-in.		5	10
		5	8

Extra over pitch fibre pipe for 45° bend No

3-in.	*16	3
	15	4
4-in.	*22	8
	21	10
6-in.	*44	3
	43	3

Cast iron drains

Cast iron spigot and socket drain pipes and laying and jointing in trench FR

4-in.	13	1
	11	0
6-in.	19	1
	16	4
9-in.	36	4
	30	7

Extra over cast iron pipes for bend No.

4-in.	*30	9
	24	7
6-in.	*72	1
	62	10
9-in.	*184	5
	168	6

Spun cast iron spigot and socket drain pipes and laying and jointing in trench FR

4-in.	7	6
	5	4
6-in.	*11	6
	8	9
9-in.	*20	7
	14	9

Cast iron gullies

Cast iron gully trap with high invert and setting on and surrounding with concrete and jointing to drain No.

4-in.	*45	2
	36	7
6 in.	*110	6
	97	9
9 in.	*245	6
	228	4

ASPHALTER

Measured rates

Damp proof course and tanking

½-in. vertical damp proof course in two thicknesses on brick or concrete YS

BS1097	17	10
BS1418	24	2

½-in. horizontal damp proof course in one thickness on brick or concrete YS

BS1097	11	7
BS1418	15	9

Vertical tanking in three thicknesses YS

BS1097	26	3
BS1418	33	7

Horizontal tanking in three thicknesses YS

BS1097	19	5
BS1418	29	5

Roofing

¾-in. flat laid to falls in two thicknesses on and including felt underlay YS

BS988	13	8
BS1162	22	1

6-in. skirting with angle fillet at bottom and rounded edge at top turned into groove FR

BS988	2	4
BS1162	2	11

6-in. fascia with solid water check roll at top and undercut drip at bottom FR

BS988	4	6
BS1162	5	3

PAVIOR

Market prices

Granite chippings, ¼-in. to dust	T	*49	8
Buff quarry tiles, 6 in. × 6 in. × ¾ in.	YS	*21	11
2-in. Noelite paving	YS	13	11

Measured rates

Cement and sand floated screed to receive pavings YS

¾-in.	4	1
	2	4
1-in.	5	0
	3	0
1¼-in.	5	7
	3	6

Cement and sand paving trowelled hard and smooth YS

¾-in.	4	7
	2	4
1-in.	5	6
	3	0
1¼-in.	6	1
	3	6

Granolithic paving laid on concrete YS

1-in.	*7	5
	5	4
1½-in.	*9	6
	7	0

¼-in. red composition paving laid on prepared screed YS 16 6

⅜-in. terrazzo paving laid on prepared screed YS 38 4

⅛-in. rubber flooring and laying in rolls YS 39 5

¼-in. rubber flooring and laying in rolls YS 63 0

$\frac{3}{16}$-in. cork tile flooring, 12 in. × 12 in. and fixing with mastic and including polishing YS 45 11

⅛-in. thermoplastic tile flooring and laying-on screed YS 12 0 to 21 0

⅛-in. coloured linoleum and fixing with mastic to cement screed or boards YS *25 6

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technical section

Pavior continued		s	d
⅛-in. coloured linoleum and fixing with mastic to cement screed or boards	YS	*20	3
⅞-in. buff quarry tiles laid on prepared screed	YS	*37	2
⅞-in. blue black quarry tiles laid on prepared screed	YS	*35	4
2-in. Noelite paving laid on prepared bed, in random sizes and mixed colours	YS	*20	2
		16	*1*
12 in. × 12 in. anchor steel plates laid complete	YS	*59	6

MASON

Market prices

Stone in blocks in truckloads at stations in the London area:			
Beer	FC	8	9
Portland	FC	8	8
Woodkirk Blue building quality	FC	17	11
Broughton Moor slate in blocks at stations in the London area	FC	65	0
Marble in blocks at works: Dove	FC	70	0
Roman stone	FC	70	0

Measured rates

Stone and all labours in pilasters and quoins	FC		
Portland		*53	10
Beer		*51	3
Jambs	FC		
Portland		*56	2
Beer		*53	6
Lintols	FC		
Portland		*57	3
Beer		*54	6
Arches	FC		
Portland		*70	0
Beer		*66	9
Ashlar average 7-in. on bed with plain dressed face	FS		
Portland		*31	9
Beer		*30	3
Extra for each additional 1-in. thickness	FS		
Portland		*3	8
Beer		*3	6
4½ in. × 4 in. sill sunk, weathered, throated and grooved for water bar, set and jointed in cement mortar	FR		
Portland		*11	5
Beer		*10	10
Artificial		*4	10
4 in. × 12 in. coping, weathered and twice throated	FR		
Portland		*22	0
Beer		*21	0
Artificial		*11	9
Marble and slate			
½-in. Dove marble lining and fixing on brick backings	FS	*38	10
½-in. Roman stone lining	FS	*38	10
½-in. Broughton Moor slate lining	FS	39	11

SLATER TILER AND ROOFER

Market prices

Welsh slates, best quality	M		
16-in. × 10-in.		*1085	0
20-in. × 10-in.		*2000	3
Best hand made sand faced plain tiles, 10½-in. × 6½ in.	M	315	0
Grey corrugaged asbestos cement sheets	YS	7	0

Measured rates

16-in. × 10-in. best Welsh slates laid 3-in. lap	Sq.	310	0
20-in. × 10-in. best Welsh slates 3-in. lap	Sq.	412	0
Westmorland green slates in random sizes laid 3-in. lap	Sq.	632	9
Best hand made sand faced plain tiles, 10½in. × 6½in. laid to a 4-in. gauge	Sq.	*215	0
Best hand made sand faced plain tiles, 10½-in. × 6½-in. hung vertically to 4½-inch gauge	Sq.	*240	0
Berkshire hand made sand faced red pantiles, 14½-in. × 10-in. laid 2½-in. head and 1½-in. side lap	Sq.	*206	0
Grey corrugated asbestos cement sheets fixed to wood roofs	Sq.	*123	0
Grey corrugated asbestos cement sheets fixed vertically	Sq.	*133	0
Cedarwood shingles laid 5-in. gauge	Sq.	*280	0
Metal roof decking and fixing with hook bolts, finished with ½-in. insulation board and three layers self finish felt roofing	YS		
18 gauge for spans up to 10 ft.		*62	0
20 gauge for spans up to 8 ft. 6 in.		*54	6
Two layer one ply bitumen felt and fixing with bitumen to concrete or boarding	YS	*10	2
Three layer bitumen felt	YS	*13	8
Patent ribbed aluminium roofing and fixing to purlins	Sq.	287	6

CARPENTER

Market prices

Softwood, carcassing quality	Std.	*1800	0
Softwood, joinery quality	Std.	*2200	0
½-in. fibre board	Sq.	*46	6
⅛-in. standard hardboard	Sq.	*41	0
⅜-in. insulating gypsum wallboard	YS	3	3

Measured rates

Softwood and fixing in plates, sleeper joists and lintols	FC	*14	11
		13	*1*
In floor and ceiling joists	FC	*17	4
		13	*1*
In stud partitions, purlins and struts	FC	*19	6
		13	*1*
In hip and valley rafters	FC	*22	1
		13	*1*
Battening and boarding			
Slate or tile battens 1½ in. × ¾-in. and nailing to fixing for	Sq.		
16-in. × 10-in. slating to 6½-in. gauge		*39	3
20-in. × 10-in. slating to 8½-in. gauge		32	0
10½-in. × 6½-in. plain tiling to 4-in. gauge		*58	9
14½-in. × 10-in. pantiles to 12-in. gauge		22	0
S.E. boarding in batten widths close jointed and fixing to flat or sloping roofs	Sq.		
¾-in.		*116	3
		82	*9*
1-in.		*142	6
		109	*0*
T. & G. boarding in batten widths close jointed and fixing to flat or sloping roofs	Sq.		
¾-in.		*147	0
		105	*3*
1-in.		*180	6
		138	*9*
¾-in. wrot and cross tongued eaves soffit	FS	2	3
		1	*0*
¾-in. × 6-in. wrot and grooved eaves fascia p.o.	FS		10
			6
Wall and ceiling boards fixed to softwood	YS		
¼-in. fibre board		*6	9
		5	*0*
⅛-in. hardboard		*5	10
		4	*5*
⅜-in. insulating gypsum wallboard		*5	9
		4	*0*
3/16-in. asbestos cement flat sheeting		*8	8
		4	*11*
¼-in. asbestos cement flat sheeting		*10	5
		6	*8*
2-in. Stramit, showerproof quality fixed to joists with butt joints		*15	9
		11	*6*

JOINER

Measured rates

Floors and skirtings			
Tongued and grooved soft-wood flooring and nailing to joists	Sq.		
⅞-in.		*165	6
		126	*6*
1-in.		*183	0
		144	*0*
1-in. nominal double grooved t. and g. Swedish softwood			

technical section

Joiner continued		s	d
block flooring set in mastic and polished	YS	29	5
European beech	YS	32	7
African Muhuhu	YS	*36	9
Burma teak	YS	*42	0
Moulded skirtings, 3-in. to 6-in. sectional area planted on (per inch in sectional area)	FR		
Softwood			3½
			2½
Oak			9
			7½
Extra for grounds plugged to brickwork	FR		
Softwood			9
			2
Windows			
2-in. rebated and moulded sashes divided into squares	FR		
Softwood		*3	9
Oak		*11	3
Extra for side hanging	Each		
Softwood		*2	10
Oak		*4	3
Doors			
2-in. framed, ledged and braced doors, filled in with 1-in. T and G and V jointed boarding and hanging	FS		
Softwood		6	4
		5	7
Four panelled door square both sides and hanging	FS		
Softwood		*6	7
		5	10
Oak		*20	0
		19	0
1½-in. Standard flush door, hardboard faced size 2-ft. 6-in. × 6-ft. 6-in. and hanging	No.	*42	5
		31	1
Linings and frames			
Window and door linings, 6-in. to 12-in. sectional area (per inch sectional area)	FR		
Softwood			4
			3
Oak			9
			8
Frames wrot all round and framed (per inch sectional area)	FR		
Softwood			3½
Oak			8
Mullions, transomes and cills (per inch sectional area)	FR		
Softwood			4
Oak			9
Mouldings, architraves, etc. 4-in. to 6-in. sectional area (per inch sectional area)	FR		
Softwood			4
			3
Oak			*10½
			9½
6-in. window boards, 1-in. thick with rounded nosing tongued at back and including bearers	FR		
Softwood		*3	2
		1	9
Oak		*5	8
		3	8
Shelving and fittings			
¾-in. shelving of 2-in. slats spaced 1-in. apart on bearers (measured separately)	FS		
Softwood		2	6
		1	11
¾-in. solid shelving on bearers	FS		
Softwood		*2	4
		1	11
Oak		*4	8½
		4	1½
2-in. shelf bearers plugged to wall	FR		
Softwood			7½
			5½
Oak		*1	2½
		1	0
Staircases			
1-in. treads and ¾-in. risers tongued together on and including framed carriages	FS		
Softwood		*4	9
		3	8
Oak		*14	0
		12	5
1¼-in. × 11-in. wall string plugged to brickwork	FR		
Softwood		*4	7
		3	7
Oak		*11	11
		10	5
1¼-in. × 9-in. outer string	FR		
Softwood		*3	6
		2	11
Oak		*7	4
		6	6
Ends of treads and risers housed to strings	No.		
Softwood		1	4½
Oak		*6	6
2½-in. × 3-in. moulded handrail	FR		
Softwood		*3	2
		2	7
Oak		*6	8
		5	9
1¼-in. × 1¼-in. square balusters	FR		
Softwood			8½
			6½
Oak		1	4
		1	1
Framed ends to balusters	No.		
Softwood			*7
Oak			*9½

IRONMONGER

Market prices

As prices for ironmongery vary so greatly depending upon the type and quality required no prices are quoted here

Measured rates

The rates which follow are for fixing only and are inclusive of profit

		s	d
3-in. steel butts	Pr.		
to softwood		*4	6
to hardwood		*6	0
Double action floor springs	No.		
to softwood		*22	7
to hardwood		*30	2
6-in. barrel bolts			
to softwood		*2	1
to hardwood		*2	9
Cupboard locks			
to softwood		*4	3
to hardwood		*5	8
Cylinder night latch			
to softwood		*7	1
to hardwood		*9	5
Mortice latch			
to softwood		*5	8
to hardwood		*7	6
Mortice lock			
to softwood		*7	1
to hardwood		*9	5
Casement fastener			
to softwood		1	8
to hardwood		2	3
Casement stays			
to softwood		1	8
to hardwood		2	3

STEEL & IRONWORKER

Market prices

Structural steel joist sections, basis sizes, ex mills	T	812	6

Extras for other than basis sizes vary between 10s. and 70s. per ton

Measured rates

Rsj in steel framed structures hoisted and fixed complete	T*	1610	0
Riveted compound girders including plates and rivets	T*	1900	0
Rs stanchions including caps, bases, cleats etc.	T*	1870	0

Metal windows including cutting and pinning lugs to brickwork and bedding frames in cement mortar No.

Domestic type 4 ft. high to BS 990			
Type ND2F 3 ft. 3½ in. wide		*91	3
		75	2
Type HD2F 3 ft. 3½ in. wide		*98	7
		82	6
Type ND11F 6 ft. 6½ in. wide		*156	9
		128	4
" Z " range, 4 ft. high			
Type ZND1 2 ft. 0¾ in. wide		*62	1
		51	4
Type ZND4F 6 ft. 0¾ in. wide		*158	3
		129	10

PLASTERER

Market prices

Plastering sand	YC	*20	6

Plaster to BS 1191

I must do something about this noise!

Improved working conditions by noise reduction is regarded as an essential feature in modern construction and in their range of Acoustical Tiles Armstrongs have the answer to most sound conditioning problems.

Travertone. Combines high acoustic properties with surface beauty, complete fire safety and exceptional light reflection. Made in 12″ x 12″ and 12″ x 24″, $\frac{3}{4}$″ thick, square or bevel edged.

Corkoustic. An all cork acoustic tile with high moisture resistance, good thermal insulation and an attractive textured surface. Available in 12″ x 12″ x 1″, plain or striated finish.

Perforated Fibre Tile. An efficient acoustic tile over a wide range of sound frequencies. Pleasing decorative effects. Made in 12″ x 12″, 12″ x 24″ and 24″ x 24″ in $\frac{1}{2}$″ and $\frac{3}{4}$″ thickness. Standard and Random perforations.

Installation in existing or projected buildings is undertaken by approved acoustic tile fixers and Armstrongs Acoustic Contracts Department; the advice of their Technicians is always at your disposal.

Armstrong ACOUSTICAL CEILINGS

Armstrong Cork Company Ltd. Acoustics Department, Kingsbury, London, N.W.9. ***Colindale 7080***

AT 4

technical section

Plasterer continued

		s	d
Class B in loads of 4 tons to 5 tons 19 cwt.	T		
Browning	*165	9	
Fibred browning	*168	9	
Board finish	*165	9	
⅜ in. plaster lath, over 600 yds.	YS	2	5
⅜ in. × 6 in. × 6 in. cream glazed wall tiles	YS	27	2

Measured rates

Metal lathing

		s	d
No. 24 gauge expanded metal lathing and fixing	YS		
To softwood soffits		6	9
		4	3
To metal		7	6
		4	3

Lime plaster

		s	d
Render float and set on brick walls and partitions	YS	*7	3
		2	4
R.F. and S. on concrete including hacking	YS	*8	11
		2	4
R.F. and S. on expanded metal lathing	YS	*7	4
		2	5

Gypsum plaster

		s	d
Render in cement-lime-sand (1 : 1 : 6) and set in gypsum plaster on brick walls and partitions	YS	*5	9
		1	11
Render in gypsum fibred browning-sand (1 : 1½) and set in gypsum on concrete soffits including bonding coat	YS	*9	3
		3	6
Render and set on expanded metal lathing including pricking up coat	YS	*8	9
		3	10

Plaster board

		s	d
⅜-in. gypsum plaster lath fixed to softwood soffits finished to receive plaster	YS	*4	11
		3	0
Gypsum board finish setting coat on last	YS	*4	3
		1	1

Plain face

		s	d
½-in. Portland cement and sand (1 : 3) plain face trowelled smooth on brick walls	YS	*6	7
		1	10

Tyrolean rendering

		s	d
Render in cement, lime sand (1 : 1 : 6) and finishing with three coats patent coloured mix preparations applied with hand operated machine	YS	*10	0
		2	5

Sprayed "Limpet" asbestos

Approximate prices for sprayed "Limpet" asbestos on the following surfaces to the thickness shown for quantities of 1,000 yds. super. Normal pressed finish.

		s	d
New concrete soffits and beams	YS		
½-in.		14	5
⅝-in.		19	8
1-in.		21	9
New structural steelwork	YS		
½-in.		16	6
⅝-in.		21	9
1-in.		23	10
Extra over the above prices for coloured texture finish	YS	3	5

Wall tiling

		s	d
6 in. × 6 in. × ⅜ in. standard quality white glazed wall tiles set and jointed on prepared screed	YS	49	4
Egg shell matt or glossy glazed enamelled tiles	YS	60	11

EXTERNAL PLUMBER

Market prices

		s	d
Sheet lead, 3½ lb. and upwards, in quantities of 5 cwt. to 1 ton	C	*113	6
Copper sheeting, 23 gauge, in 1-ton lots	C	*280	0
Zinc sheeting, 14 gauge, in 1-ton lots	C	98	0
Aluminium sheeting 20 SWG	C		
Super purity		513	4
Commercial quality		326	8

Cast iron rainwater and soil goods

		s	d
Medium weight pipe to B.S. 416 and B.S. 460 in 6 ft. lengths	No.		
2½-in.		18	10
3-in.		21	0
4-in.		26	10
Half round gutter in 6 ft. lengths	No.		
3½-in.		7	11½
4-in.		10	4
6-in.		16	11

The above are Standard-List prices plus 22½%.

Measured rates

		s	d
Milled sheet lead	C		
Flat roofs		*196	0
Gutters and flashings		*196	0
24 SWG copper sheet	FS		
Flat roofs		*5	5
Gutters and flashings		*5	5
23 SWG copper sheet	FS		
Flat roofs		*6	2
Gutters and flashings		*6	2
14 gauge zinc	FS		
Flat roofs		3	3
Gutters and flashings		3	3
20 SWG super purity aluminium	FS		
Flat roofs		5	3
Gutters and flashings		5	3
20 SWG commercial quality aluminium	FS		
Flat roofs		4	0
Gutters and flashings		4	0

Rainwater gutters and pipes

		s	d
½-in. cast iron half round eaves gutter jointed and fixed to fascia with brackets	FR		
4-in.		*3	6
		2	3
6-in.		*5	2
		3	7
18 gauge pressed steel half round eaves gutter	FR		
4-in.		*3	2
		1	11
6-in.		*4	3
		2	8
Asbestos cement half round eaves gutter	FR		
4-in.		*2	11
		1	7
6-in.		*4	2
		2	7
Aluminium half round eaves gutter	FR		
4-in.		3	9
		2	6

		s	d
Cast iron medium section rain water pipes jointed and fixed to walls with pipe nails	FR		
3-in.		5	10
		4	5
4-in.		7	4
		5	7
Pressed steel	FR		
3-in.		4	5
		3	0
4-in.		6	3
		4	7
Asbestos cement	FR		
3-in.		3	9
		2	3
4-in.		*4	10
		3	1
Aluminium	FR		
3-in.		*5	2
		3	8
4-in.		*6	11
		5	2

Soil and ventilating pipes

		s	d
Lead soil, waste and ventilating pipes (15 lb. per yd. for 3-in. and 19 lb. per yd. for 4-in. diameter) fixed to walls with lead tacks	FR		
3-in.		*11	4
		8	5
4-in.		*15	3
		10	4
Cast iron soil, waste and ventilating pipes with caulked joints fixed to walls with pipe nails	FR		
3-in. heavy		7	1
		5	2
4-in. heavy		8	8
		6	5
Asbestos cement soil and ventilating pipe fixed to walls with holder bats	FR		
3-in.		3	10
		2	4
4-in.		*4	11
		3	2½

technical section

INTERNAL PLUMBER

Market prices

Lead pipe in quantities of 5 cwt. to 1 ton

	C	s	d
BS 602*	115	9	
BS 1085*	122	9	

Polythene tubing, heavy gauge, in quantities of 500 to 999 ft.

	per 100 ft.	s	d
½-in.	112	6	
¾-in.	152	0	
1-in.	193	6	

Steel tubes to B.S. 1387 medium weight galvanised

FR	s	d
¾-in.	0	9
1-in.	1	1
1¼-in.	1	5
1½-in.	1	8

The above are Standard List prices less 38½%.

Galvanised malleable fittings.

Bend No.	s	d
1-in.	2	9½
1¼-in.	4	2½
1½-in.	6	0

Tee No.	s	d
½-in.	1	0
¾-in.	1	4¾
1-in.	2	0
1¼-in.	2	9½
1½-in.	4	0

The above are Standard List prices less 23½%, less 6¼% plus 40%.

Copper tubes to B.S.659

FR	s	d
½-in.	*0	10½
¾-in.	*1	2½
1-in.	*1	10½
1¼-in.	*2	2¾

The above are calculated on a basic price of 2s. 0½d. per lb. plus C.T.A. extras.

Measured rates

Lead pipe to BS 602

Main supply and laying in trench (measured separately) at the following sizes and weights in lbs.

FR	s	d
½-in. 7	3	9
	2	10
¾-in. 11	5	7
	4	5
1-in. 16	7	11
	6	6
1¼-in. 28	13	3
	11	1
1½-in. 35	17	1
	13	11

Main supply fixed to walls and ceilings

FR	s	d
½-in. 7	4	4
	2	11
¾-in. 11	6	3
	4	6
1-in. 16	8	8
	6	7
1¼-in. 28	14	0
	11	2
1½-in. 35	18	5
	14	0

Distributing pipes fixed to walls and ceilings

FR	s	d
½-in. 4	3	2
	1	9
¾-in. 5	3	7
	2	2
1-in. 7	4	8
	3	0
1¼-in. 9	5	7
	3	11
1½-in. 12	7	3
	5	2

Flushing and warning pipes fixed to softwood

FR	s	d
¾-in. 4	3	7
	1	8
1-in. 5	4	4
	2	0
1¼-in. 6	5	6
	2	6
1½-in. 7	6	0
	2	10

Waste pipes and fixing to softwood

FR	s	d
1¼-in. 6	5	6
	2	7
1½-in. 7	6	0
	3	0

Joints to fittings

No.	s	d
½-in.	*6	3
	1	5
¾-in.	*7	1
	2	2
1-in.	*7	7
	2	11
1¼-in.	*8	4
	3	8
1½-in.	*9	1
	4	4

Extra for:

Bend No.	s	d
1¼-in.	*2	9
1½-in.	*3	10

Branch joints No.	s	d
½-in.	*7	11
	1	5
¾-in.	*9	1
	2	2
1-in.	*9	7
	2	11
1¼-in.	*11	3
	3	8
1½-in.	*12	10
	4	4

Polythene tubing to B.S. 1972

Heavy gauge as supply pipe laid in trench (measured separately)

FR	s	d
½-in.	1	8
	1	4
¾-in.	2	1
	1	9
1-in.	2	7½
	2	3

Heavy gauge as supply or distributing pipe fixed to walls

FR	s	d
½-in.	2	9
	1	7
¾-in.	3	4
	2	2
1-in.	3	11
	2	9

Galvanised steel tubing to BS 1387

Heavy weight with screwed red lead joints as supply pipe laid in trench (measured separately)

FR	s	d
½-in.	*2	9
		10
¾-in.	*3	2
	1	0
1-in.	*3	4
	1	5
1¼-in.	*3	10
	1	10
1½-in.	*5	0
	2	2

Medium weight tubing fixed to walls

FR	s	d
½-in.	*2	8
		10
¾-in.	*3	1
	1	0
1-in.	*3	3
	1	3
1¼-in.	*3	9
	1	8
1½-in.	*4	11
	2	0

Extra for malleable iron:

Bend No.	s	d
1-in.	*5	2
	3	1
1¼-in.	*7	4
	4	6
1½-in.	*9	6
	6	7

Tee No.	s	d
½-in.	*3	2
	1	1
¾-in.	*3	6
	1	6½
1-in.	*4	1
	2	2
1¼-in.	*5	7
	3	1
1½-in.	*7	0
	4	5

Copper tube

Copper tube to BS 1386 as supply pipe laid in trench (measured separately) to the following size and gauges

FR	s	d
½-in. 18	*2	0
	1	4
¾-in. 17	*2	8
	2	0
1-in. 16	*3	8
	3	0
1¼-in. 16	*4	11
	4	0
1½-in. 15	*6	3
	5	4

Copper tube to BS 659 as distributing pipe fixed to walls

FR	s	d
½-in. 19	*2	1
	1	3
¾-in. 19	*2	6
	1	8
1-in. 18	*3	4
	2	7
1¼-in. 18	*4	1
	3	1
1½-in. 18	*4	9
	3	9

Extra for brass compression fittings joining copper to copper

No.	s	d
Coupling ½-in.	5	1
	3	3
¾-in.	*6	4
	4	0
1-in.	*8	11
	5	10
1¼-in.	*11	1
	7	7
1½-in.	*15	2
	11	0
Bend ½-in.	6	4
	4	6
¾-in.	*7	11
	5	6

technical section

Internal plumber continued

	s	d
1-in.	*11	4
	8	3
1¼-in.	*14	2
	10	6
1½-in.	*23	1
	18	11
Tee ½-in.	9	3
	6	1
¾-in.	*10	9
	7	0
1-in.	*15	9
	11	4
1¼-in.	*21	5
	16	5
1½-in.	*32	0
	26	5

GLAZIER

Market prices

		s	d
Sheet glass cut to size	FS		
24 oz.			10¾
32 oz.		1	4¼
¼-in. Polished plate glass, glazing quality in plates not exceeding:	FS		
2 ft. super		4	3
5 ft. super		5	3
45 ft. super		6	3
100 ft. super		6	9
Rolled plate glass	FS		
⅛-in. rolled plate			11¾
¼-in. Georgian wired		6	0

Attention is drawn to reduction in certain glass prices offered by manufacturers for acceptance of specified minimum quantities of one size and substance delivered to one address at one time

Measured rates

Glazing to wood

		s	d
Ordinary quality sheet glass and glazing with putty in squares	FS		
24 oz. O.Q.		1	5
32 oz. O.Q.		2	0
⅛-in. rolled plate glass		1	6½
¼-in. rough cast glass		1	11
Prismatic glass		2	9
¼-in. wired glass		2	2½
¼-in. Georgian wired plate glass		8	4
¼-in. Polished plate glass (glazing quality) in plates 5 to 45 ft. super		8	7

Glazing to metal

		s	d
Add to above rates 1d. per ft. super			

Sundries

		s	d
Hacking out broken sheet glass	FS	1	3
Black ribbon velvet and bedding to edge of glass	FR		8

Double glazing
Insulight units of two skins of glass with lead spacers and glazing with mastic or beads (supplied). In panels 15 to 20 ft. super FS

	s	d
32 oz. sheet	10	1
¼-in. polished plate	21	4

Patent glazing

		s	d
Patent glazing with rolled steel lead capped bars for 8-ft. spans and glazing with ¼-in. Georgian wired cast	FS	*4	8
Aluminium alloy patent glazing	FS	*4	10½

PAINTER

Market prices

		s	d
Washable distemper	C.	120	0
Emulsion paint	Gal.	45	0
Hard gloss paint:	Gal.		
Undercoat		46	0
Finishing		*46	0

Measured rates

On walls and ceilings YS

	s	d
Twice whiten plastered ceilings	*1	5
		3
Two coats distemper on plastered walls or ceilings	*2	3
	1	1
Two coats distemper on fair-faced brick or concrete walls	2	8
	1	3
Two coats emulsion paint on walls or ceilings	2	10
	1	8
Prepare, prime and apply one coat oil colour on plastered walls	*3	10
	1	9
Add for each additional coat	*1	8
		10

On metal

		s	d
Prepare, prime and apply one coat oil colour on general surfaces	YS		
Basis price		*3	7
		1	6
Add for each additional coat		1	8
			10
On metal casements	YS		
Basis price		*5	8
		1	6
Add for each additional coat		2	6
			10
On bars, angles etc., not exceeding 6-in. girth	YR		
Basis price			11½
			3
Add for each additiona lcoat			5
			2
On small pipes	YR		
Basis price			11½
			3
Add for each additional coat			5
			2
On large pipes	YR		
Basis price		1	11
			6
Add for each additional coat			10
			3½

Prepare, prime and apply one coat heat-resisting paint on heating surfaces of radiators YS

	s	d
Basis price	*4	2
	1	4
Add for each additional coat	*1	10
		8

On wood

		s	d
Knot, prime, stop and apply one coat oil colour on general surfaces	YS		
Basis price		*4	0
		1	7½
Add for each additional coat		1	8
			10
On work not exceeding 3-in. girth	YR		
Basis price			6
			1½
Add for each additional coat			2½
			1
For each additional 3-in. girth	YR		
Basis price			5½
			1½
Add for each additional coat			2½
			1

Stain and varnish

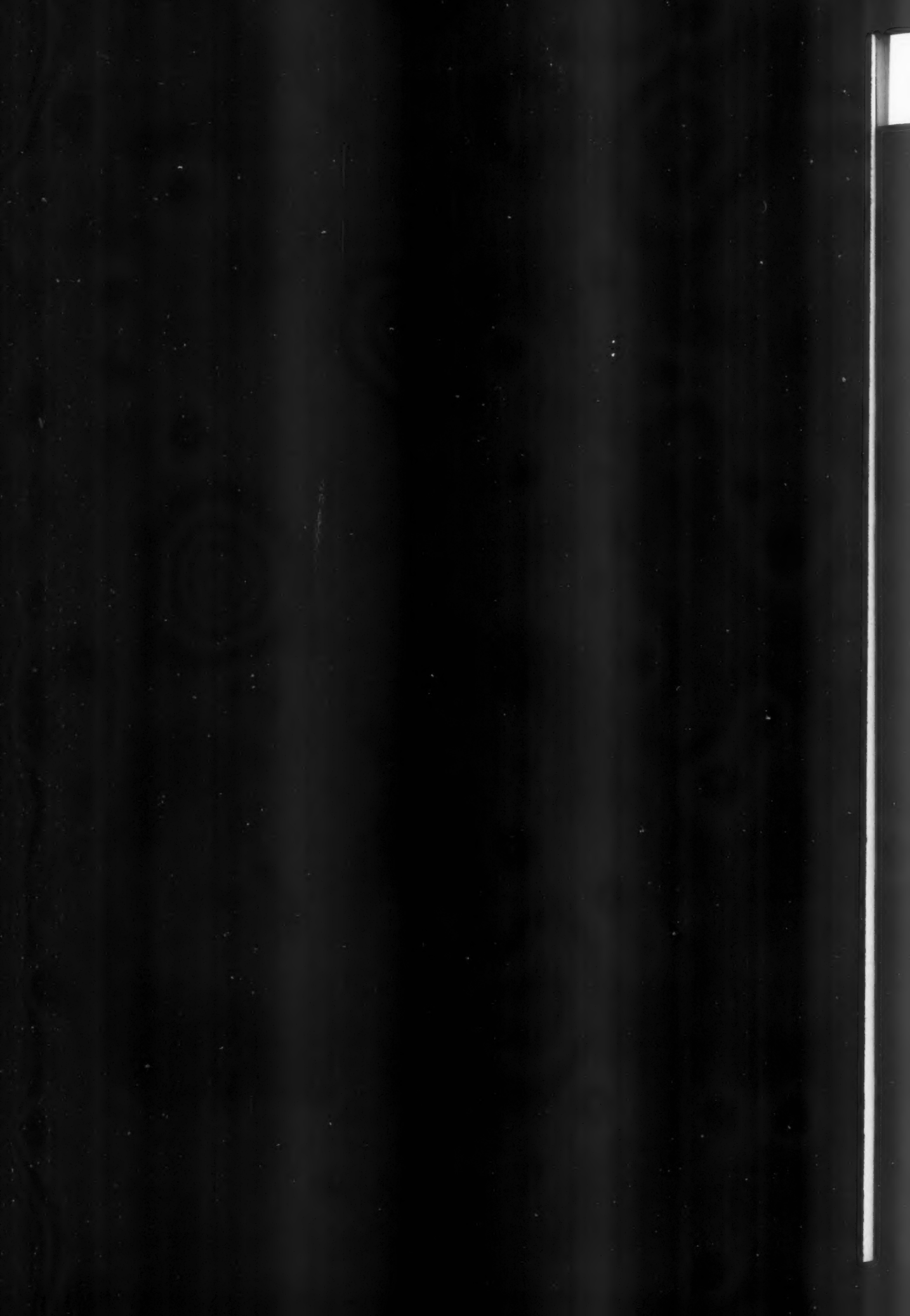
		s	d
Prepare, size, stain and twice varnish on general surfaces of woodwork	YS	*4	4
		1	8
On work not exceeding 3-in. girth	YR		7
			1½
For each additional 3-in. girth	YR		6
			1½

Oiling and polishing

		s	d
Twice oiling general surfaces of hardwood with linseed oil	YS	*2	8
		1	2
On work not exceeding 3-in. girth	YR		*3
			1
For each additional 3-in. girth	YR		*3
			1
Staining and wax polishing general surfaces of hardwood	FS	*1	1
Staining bodying-in and fully French polishing on general surfaces of hardwood	FS	*2	8

Papering

		s	d
Preparing and sizing walls and hanging plain lining paper	Piece	10	7
		3	3
Hanging wall paper, p.c. 10s. per piece	Piece	*20	8
		12	9
Hanging border p.c. 1s. per yd.	YR	1	9
		1	3



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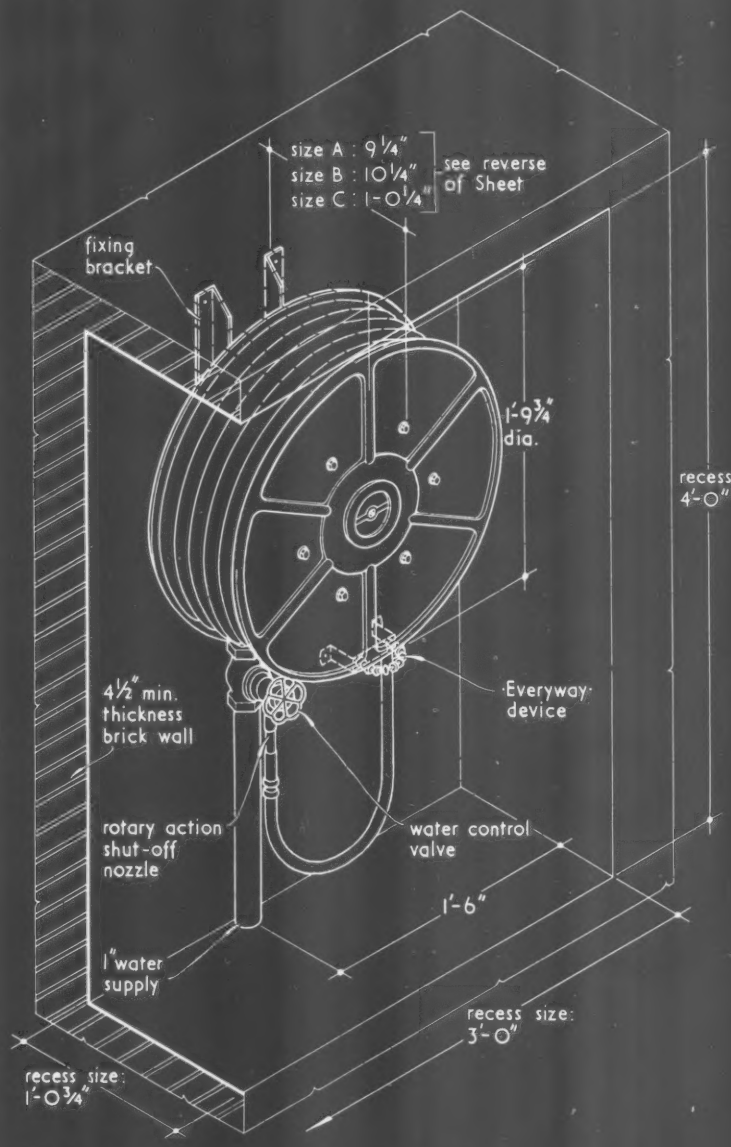
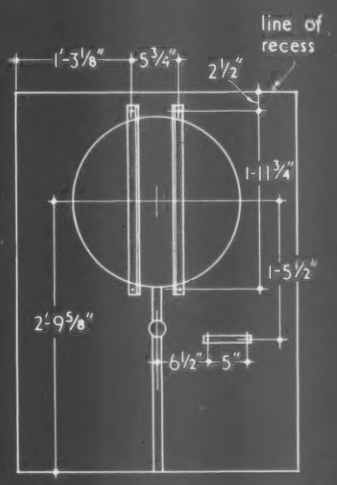
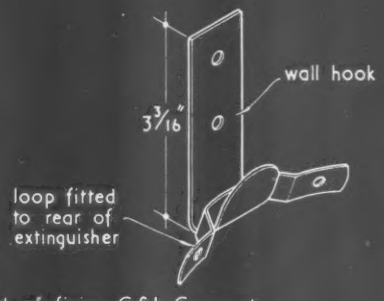


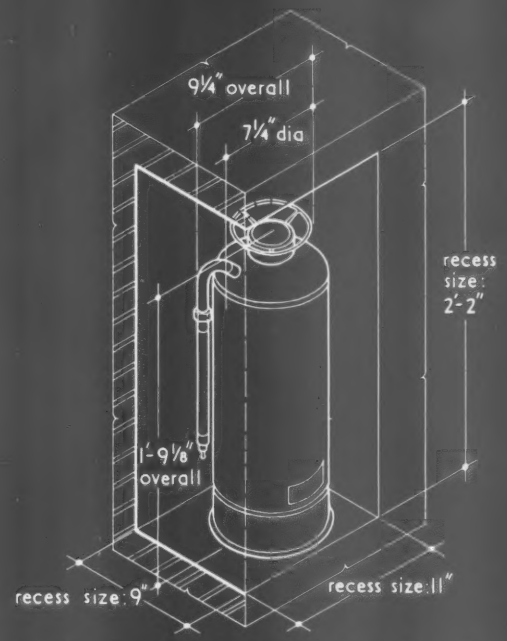
ISOMETRIC VIEW OF MODEL O HOSE-REEL.



front elevation showing critical dimensions for fixing Model O hose-reel



method of fixing C.S.I. Conquest extinguisher to wall



ISOMETRIC VIEW OF C.S.I. CONQUEST EXTINGUISHER.

PYRENE EVERYWAY MODEL O HOSE-REEL AND C.S.I. CONQUEST FIRE EXTINGUISHER.

Manufacturer: The Pyrene Company Limited.

36.B1 ·PYRENE· FIRE APPLIANCES

This Sheet describes two types of fire appliance—the ·Pyrene Everyway· Model O hose-reel and the ·Conquest· portable soda-acid fire extinguisher. The drawings give the dimensions of the recesses to accommodate both types together with critical dimensions for fixing.

·Pyrene Everyway· Model O Hose-reel

Typical applications: Theatres, schools, hospitals, municipal and industrial buildings.

Principle: The reel, complete with hose, is mounted on a spindle which is fixed to a wall bracket. The water supply passes through the back centre of the reel and through the hose. The hose is controlled by an ·Everyway· device which permits it to be run out in any direction. The end of the hose is fitted with a rotary-action shut-off nozzle.

Operation: Open water control valve, releasing nozzle from retaining collars, and pull off hose as far as necessary towards the fire. Open nozzle and direct jet to base of flames. Close nozzle to save unnecessary water damage when fire has been extinguished.

When the hose-reel is not in use the main water control valve should be kept *closed*, in which position it locks the nozzle between the retaining collars.

After installation, or after use or tests, shut off the water at the nozzle, wind hose back on to reel and close main water control valve, trapping lip of nozzle in retaining collars behind hand wheel of valve.

Construction

Side discs: Pressed steel.

Brackets: Mild steel, Parkerized.

Water fittings: Gunmetal or brass.

Bolts: Mild steel, Parkerized.

Piping between valve and reel: Steel.

·Everyway· device: Nylon rollers.

Hose: Two-braid corrugated in lengths of up to 100 ft. of 1-in. bore, or up to 150 ft. of ¾-in. bore.

On the isometric drawing on the face of the Sheet, sizes A, B, C indicate overall depth of reel from rear face of support brackets to tips of dome nuts on front disc.

Size A (9¼ in.):
Accommodates up to 75 ft. of ¾-in. hose
" " " 50 ft. of 1-in. hose

Size B (10¾ in.):
Accommodates up to 100 ft. of ¾-in. hose
" " " 75 ft. of 1-in. hose

Size C (1 ft. 0¼ in.):
Accommodates up to 150 ft. of ¾-in. hose
" " " 100 ft. of 1-in. hose

Finish

The standard finish of the side discs is fire-red cellulose, but they can be supplied primed one coat ready for site painting to any desired colour. The hub plate and nozzle are chromium-plated.

C.S.1. Model ·Conquest· Soda-Acid Fire Extinguisher (2 gallons capacity)

Typical applications: Theatres, schools, hospitals, municipal and industrial buildings.

Principle: When extinguisher is inverted, chemical reaction takes place and a powerful fire-fighting jet is instantly released. With this design there is no possibility of seeping—*i.e.*, a gradual oozing out of the solution.

Operation: Lift extinguisher from wall hook and turn it upside down. The jet can be directed at any angle by means of the flexible hose provided. Unnecessary water damage may be avoided simply by turning the extinguisher the right side up again, when the fire has been extinguished.

Construction

The container is constructed from 18 s.w.g. mild steel sheet, lead-coated inside and out, with bottom dome in 16 s.w.g. and top dome in 14 s.w.g. (in accordance with B.S. 138:1948) and tested to 350 lb. pressure per sq. in. Approved by the F.O.C.

Finish

The standard finish is fire-red cellulose, with blue and gold transfer with operating instructions clearly shown in bold lettering.

Other Types of Soda-Acid Fire Extinguisher

Model C.S.12: Similar to C.S.1 model but capacity 10 pints.

Model C.S.53: Break-bottle type, cylindrical, plunger operated.

Models C.S.55 and C.S.57 water (gas-expelled) type: Operated by striking knob.

Model C.S.50: Break-bottle type, operated by a knocker on the side of the extinguisher.

F.O.C. Requirements

Portable chemical fire extinguishers having an aggregate water capacity of 2 Imperial gallons for each 250 sq. yd. or part thereof but not less than 4 Imperial gallons (*e.g.*, two 2-gallon capacity extinguishers) on each floor: the water capacity of an extinguisher to be not less than 1 Imperial gallon and not more than 3 Imperial gallons.

Note A: Chemical fire extinguishers include both the soda-acid type (*e.g.*, ·Conquest·) and the foam type (*e.g.*, ·Phomene·). The soda-acid extinguisher is advised for all ordinary fire risks, and the foam type where oil and spirits are involved.

Note B: Special liquid or dry powder extinguishers (*e.g.*, ·Pyrene· fire extinguishers) are approved by the committee as an alternative to ordinary portable chemical fire extinguishers for rooms containing electrical apparatus only and rooms in which inflammable liquids are used or stored (see F.O.C. Scale of Allowances).

Compiled from information supplied by:
The Pyrene Company, Ltd.
London Office (Sales and Service Department) : 9, Grosvenor Gardens, S.W.1.
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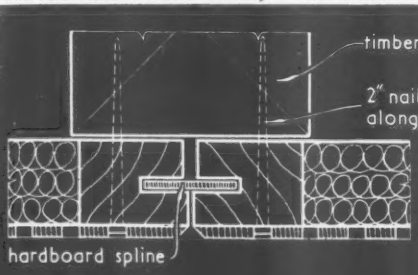
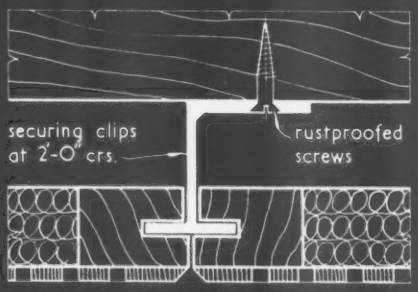
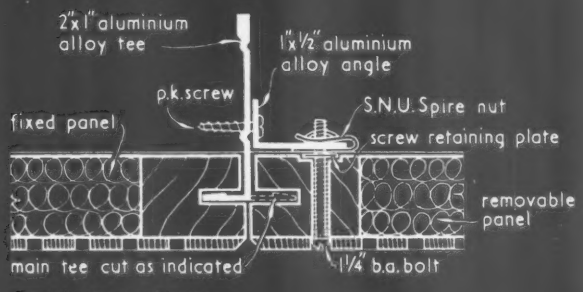
Telegrams : Pyrenextin, Sowest, London.
Works : Great West Road, Brentford, Middlesex.
Telephone : Ealing 3444 (17 lines).
Telegrams : Pyrene, Brentford.



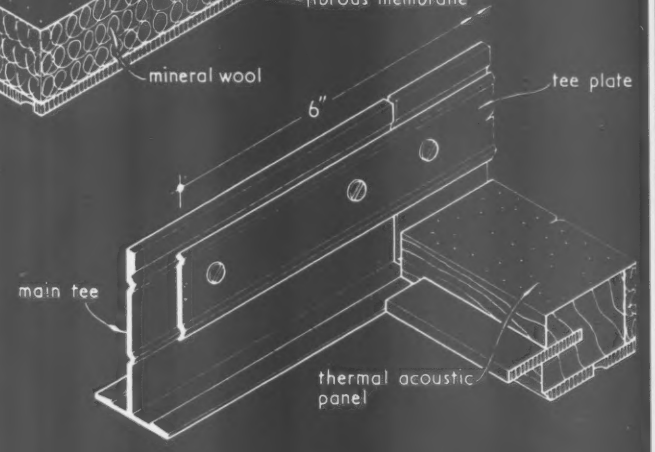


ALTERNATIVE METHODS OF FIXING.

GENERAL ASSEMBLY SHOWING
DETAILS OF PANEL AND FIXING SYSTEM.



REMOVABLE PANEL.



METHOD OF JOINTING.

BOWATER T/A (THERMAL/ACOUSTIC) PANELS. Manufacturer: Building Boards Division, Bowaters Sales Company Limited.

27.C2 ·BOWATER T/A· (THERMAL/ACOUSTIC) PANELS

This Sheet describes an acoustic panel which is designed to combine the functions of thermal and sound insulation. The isometric drawings on the face of the Sheet illustrate the construction of the panel and show the patent concealed fixing system available for suspended ceilings. The upper sections show alternative methods for fixing direct to the structure and the section at the lower left the type of removable panel which can be supplied if required.

Thermal Acoustic Panels

Each panel consists of a perfectly square, jig-made timber frame of $1\frac{1}{8}$-in. by $\frac{7}{8}$-in. seasoned softwood, with one batten centrally placed to give rigidity. All joints are glued; the complete absence of metal nails or staples makes it possible to saw the panels through at any point.

The face of the frame is covered with $\frac{1}{8}$-in. Bowater perforated hardboard with $\frac{3}{16}$-in. holes at $\frac{1}{2}$-in. centres, a plain margin $\frac{3}{4}$ in. wide all round, and chamfered edges. The core of the panel is of mineral wool, the perforations being backed with a thin fibrous membrane to prevent particles from shedding through. Mineral wool is inorganic, rot-proof and fireproof. The panel is backed with kraft paper, glued to the timber with a moisture-resisting adhesive. The outer edges of the framing are accurately slotted to take hardboard splines 1 in. wide by $\frac{1}{10}$ in. thick which, when inserted, ensure perfect alignment of the surface when the panels are fixed.

Size: The panels are 2 ft. 0 in. square and 1 in. thick overall.

Weight: One panel weighs $6\frac{1}{4}$ lb. (approximately $1\frac{1}{2}$ lb./sq. ft.).

Sound Insulation: The acoustic performance of the panels is especially efficient in the lower frequencies where most of the everyday noises occur. The following table gives the sound absorption coefficients for various frequencies.

Sound frequency (c.p.s.)	250	320	400	500	640	800	1,000	1,250
Sound absorption	0·64	0·59	0·71	0·77	0·80	0·87	0·86	0·87

Thermal insulation: The thermal properties of the panels must be expressed in terms of thermal conductance (C) which is the amount of heat passing through a combination of materials. The C value of panels is 0·22.

Fire resistance: Panels can be treated for fire resistance if required.

Patent Fixing System

The isometric drawings on the face of the Sheet show the patent fixing system available for use with Bowater thermal acoustic panels.

Tees: These are of aluminium alloy and are 1·938 in. high by 1·05 in. wide overall. They are available in lengths of 9 ft. 0 in. to 12 ft. 0 in. in 1-ft. increments and are jointed as shown by 6-in. tee plates bolted to the web of the tee. The web of the tee is slotted at 1 ft. 0 in. centres to take talon securing clips which may be necessary where very large areas are involved. No cross tees are required, the hardboard splines ensuring perfect alignment of the panels.

Strap hangers: These are of mild steel, 1 in. wide by 18 gauge. They are bolted to the tees and wrapped round the structural member, secured as shown by the buckle attachment.

Spiked talons: These are steel pressings which pass through the slots in the tees and are fixed by a simple rotary movement.

Wall finishing angle: Either aluminium-alloy angle or timber moulding is used to support the edges of boards where they abut wall faces, etc.

Alternative Methods of Fixing

The sections on the upper left of the face of the Sheet show alternative methods for fixing the panels direct to the structure. The first detail shows the panels fixed with lost-head nails or screws to timber battens. The second utilises special concealed clips which are secured by screws and give an air gap to further augment the thermal-insulating properties of the panels. All nails or screws used should be sherardised or cadmium-plated.

Finish

The faces of the panels are finished with washable plastic emulsion paint in white, or, where a sufficient quantity is ordered, in a wide choice of pastel shades. All steel components are sherardised.

Compiled from information supplied by:

Building Boards Division, Bowaters Sales Co., Ltd.

Address: Bowater House, Knightsbridge, London, S.W.1.

Telephone: Knightsbridge 7070.

working detail

VERTICAL SLIDING WINDOWS: LIBRARY IN BERLIN

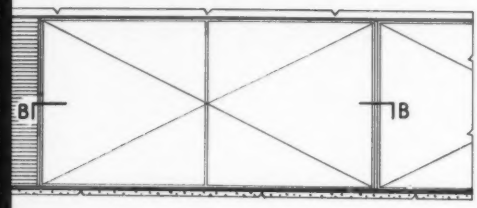
Werner Duttmann, architect

This large vertical sliding window, which is rather more than 16 feet wide and 8 feet high, is operated electrically. Note particularly the retractable weatherbar at the foot and the wide plate at the window head which becomes a threshold when the window is in the down position.

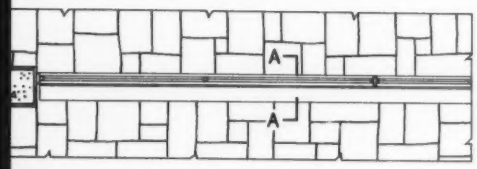
working detail

VERTICAL SLIDING WINDOWS: LIBRARY IN BERLIN

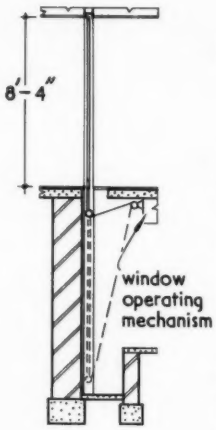
Werner Duttmann, architect



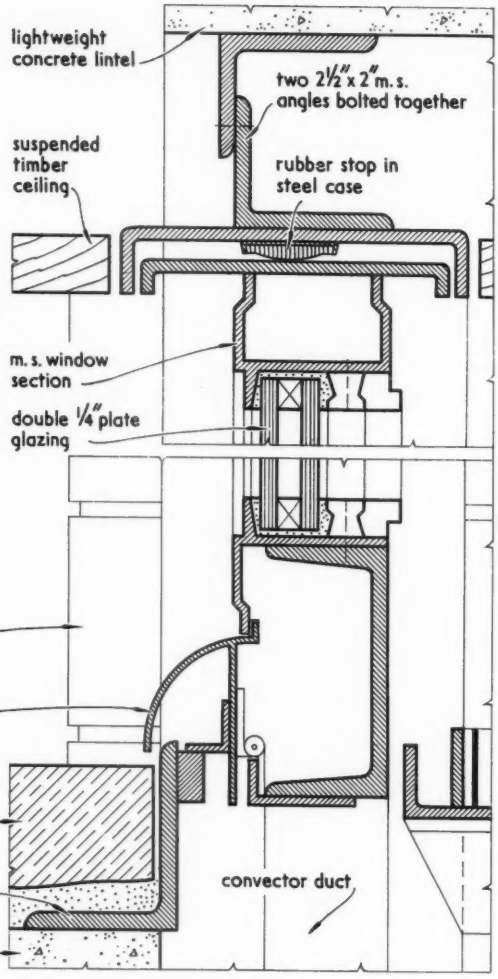
INTERNAL ELEVATION. scale 1/8" = 1'-0"



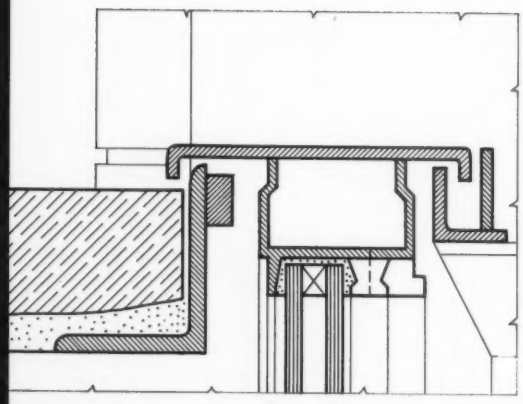
PLAN. scale 1/8" = 1'-0"



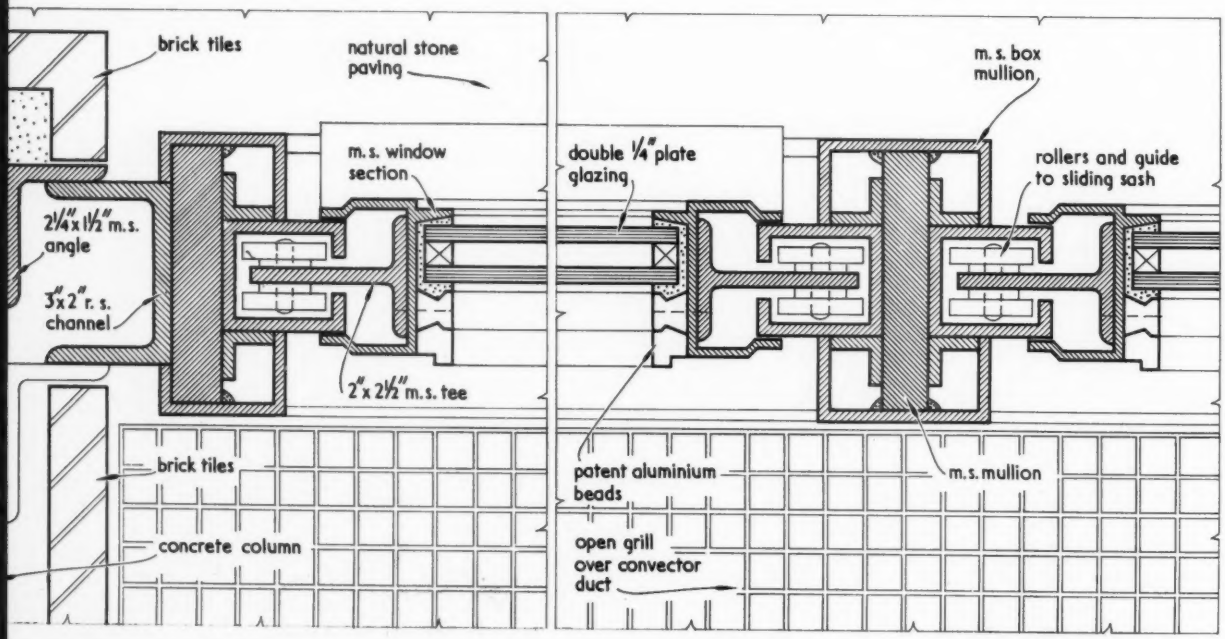
SECTION.



SECTION A—A. scale 3/8 full size



DETAIL OF WINDOW IN LOWERED POSITION.



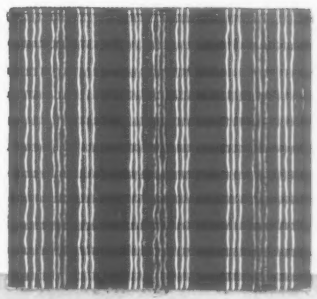
PLAN AT B—B. scale 3/8 full size

note: figured dimensions in feet and inches are approximate

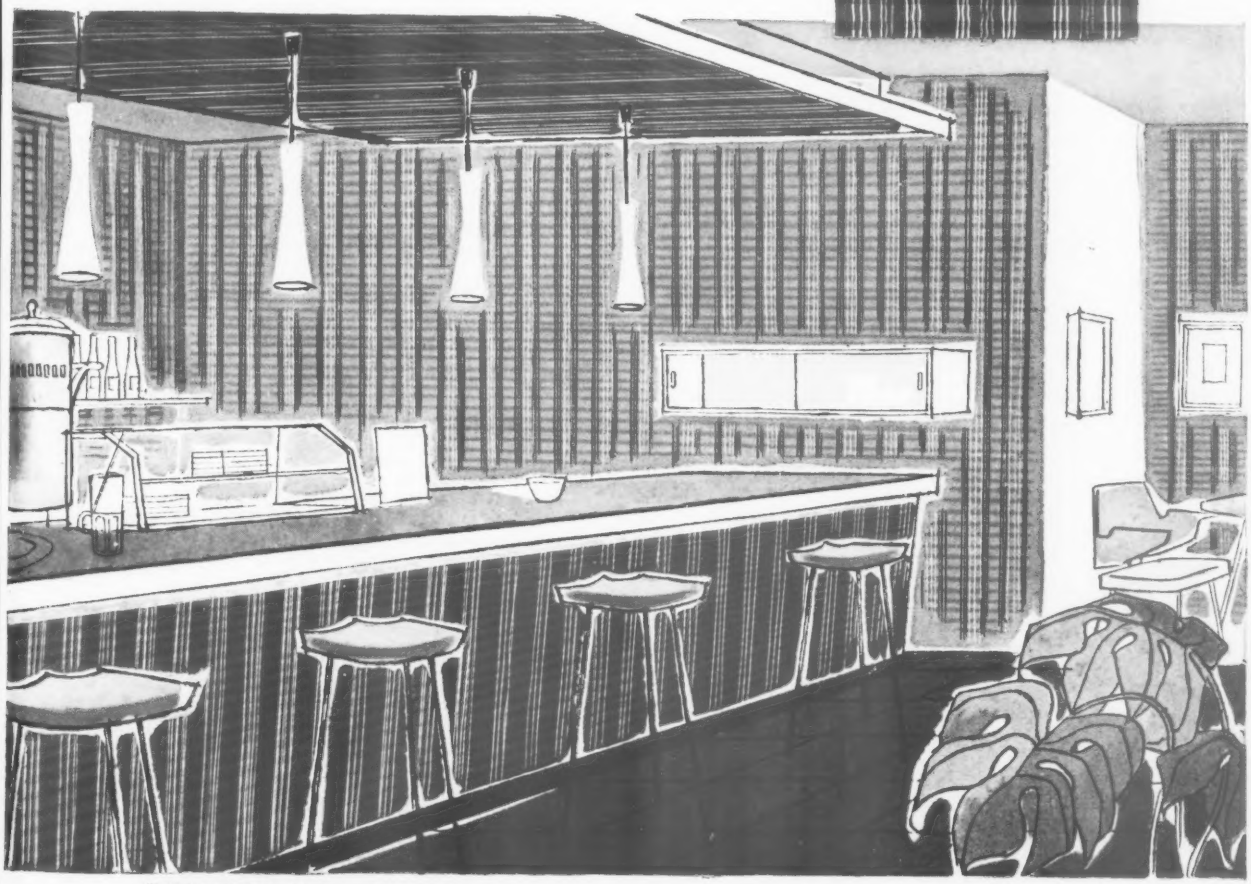
LINTEX
clean-easy wall fabric

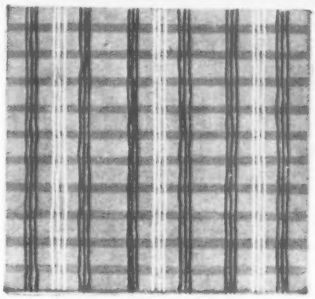
for colourful, lasting decoration

Lintex is a plastic-fortified, cotton-backed wall covering that will withstand really hard wear. It resists all stratching, rubbing, staining, grease, dirt and frequent washing and can be kept fresh and bright by occasional sponging with soap and water. Lintex is easy to apply and economical to maintain—ideal for interior decoration. Its wide range of attractive patterns makes it suitable for all kinds of settings, an obvious choice wherever a colourful, washable, practical wall covering is needed.



WX906





WX908

Send for the sample range of Lintex

Φ1

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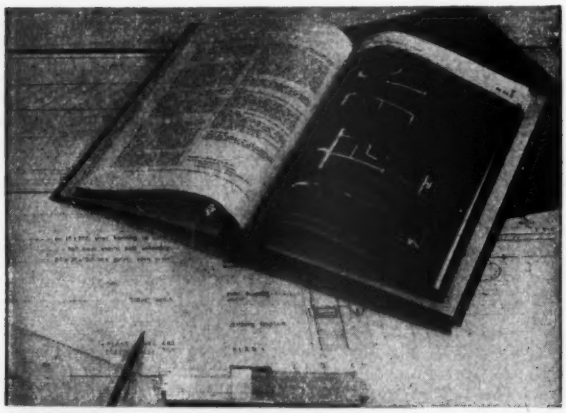
AIR INDIA OFFICES IN NEW BOND STREET

Indian materials figure largely in new premises for Air-India International, just opened at 17-18 New Bond Street, London, designed by Alexander Gibson and Philip Lucey of Design Research Unit. The ceiling of the booking hall, shown here, and of senior staff offices behind, is formed of handwoven Indian silks stretched on timber panels and hung clear of the structural ceiling, allowing radiant heat from the ceiling panels to reach the interior. The mural of an Indian village scene is by Professor Bendre of Baroda University and the booking counter, right, is of Indian silver greywood. General contractors, F. W. Clifford Ltd.



THE LIBRARY OF INFORMATION SHEETS COMPLETE TO JUNE, 1958

REPRINTS

All Information Sheets published since the new series was started in October, 1947, have been reprinted. Specially-designed binding cases to hold approximately 100 Sheets may be obtained at the price of 6s. 0d. each. (Postage 1s. 1d.)

Individual Sheets may be ordered (3d. each). Readers requiring sets or individual Sheets should fill in the form below. Sets in classified order (without binders) are available as follows:

Oct., 1947-June, 1958 ... **£5 5s. 0d.** *(Postage 2s. 9d.*

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Announcements

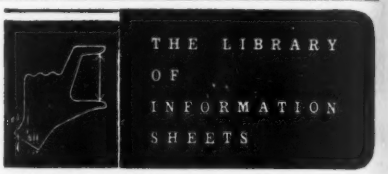
The Institute of Registered Architects has moved to 68, Gloucester Place, London, W.1 (telephone: Welbeck 9966).

J. D. Coxon, A.R.I.B.A., has commenced practice at 14, Grey Street, Newcastle-upon-Tyne, 1, where he will be pleased to receive trade literature.

R. U. Robinson, A.R.I.B.A., has been taken into partnership with D. Griffiths. The practice will continue under the name of Daydon Griffiths at 28, Gloucester Place, Portman Square, W.1.

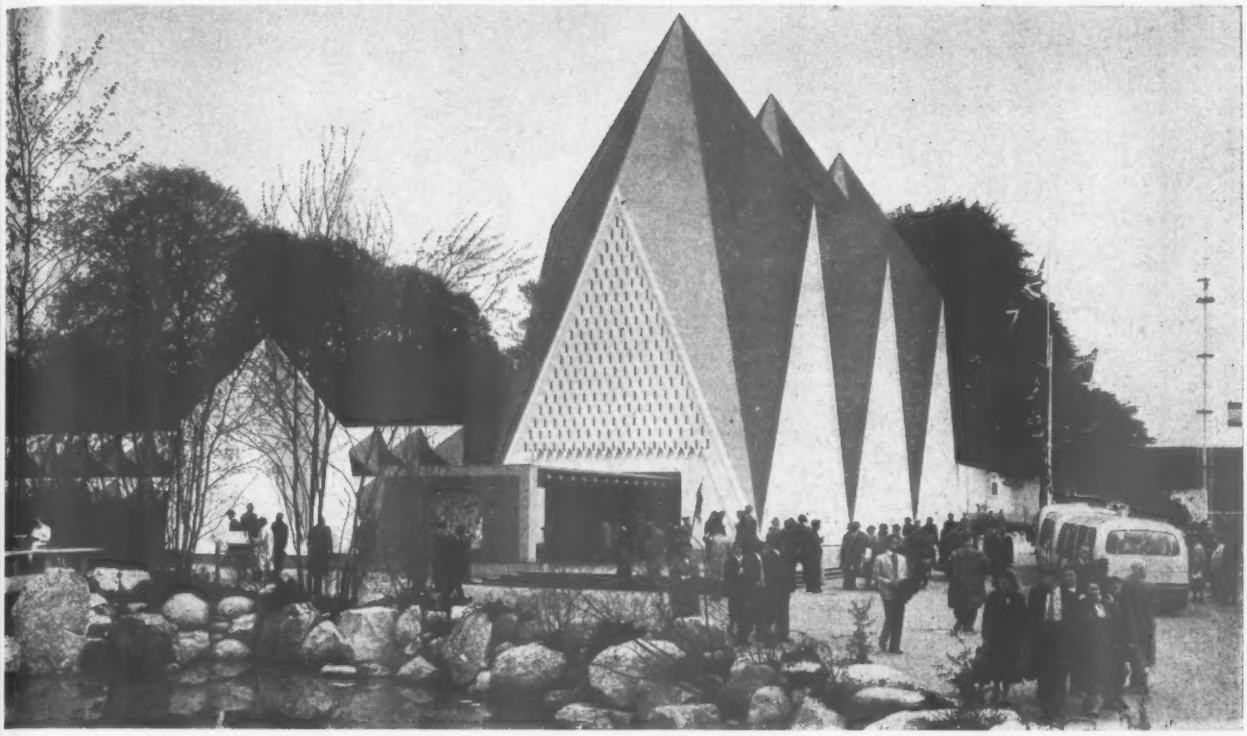
F. R. S. Yorke, E. Rosenberg, and C. S. Mardall, have taken into partnership Thomas Randall Evans, A.R.I.B.A., and David Allford, A.R.I.B.A. The firm will continue to practice under the name of Yorke, Rosenberg and Mardall, 2, Hyde Park Place, W.2.

As from October 20, 1958 the new address of the Regional Architect's division of the South-Eastern Scotland Regional Hospital Board will be: 18, Rothesay Terrace, Edinburgh, 3 (telephone: Caledonian 7652/3).



CANCELLATION

Readers are asked to note that Sheet 36.B1 *published* 7.3.57 *is cancelled and should be removed from collections: it is replaced by* 36.B1 *published in this issue.*



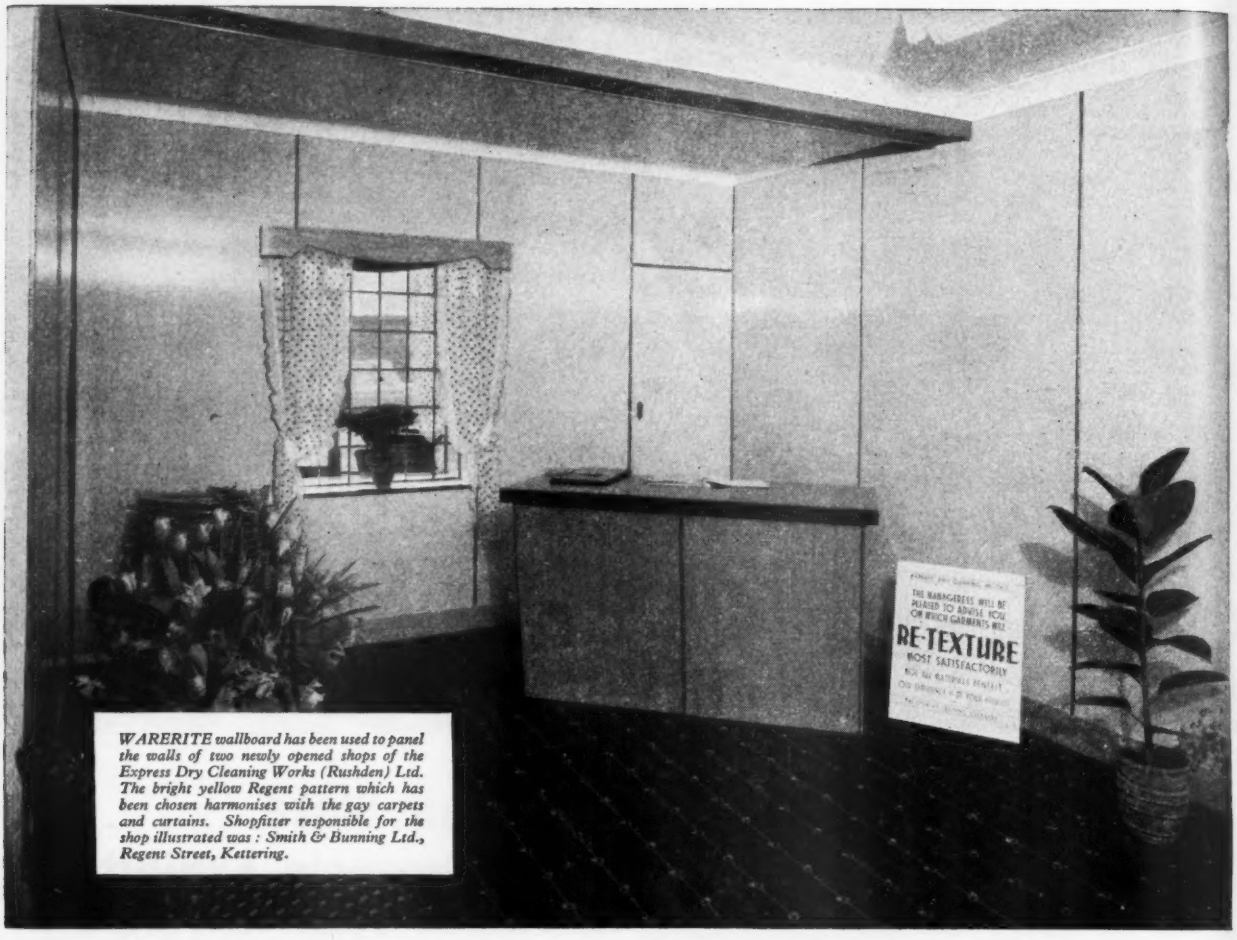
Broughton Moor Light Sea Green Slate at the Brussels Exhibition

Architects: Howard Lobb and Partners

The British Pavilion at the Brussels Exhibition bears the Royal coat-of-arms, carved in 'Perspex' with a surround of Broughton Moor Naturally Riven Light Sea Green Slate. The traditional character of this slate contrasts well with the modern styling of the coat-of-arms. The beautiful texture is illustrated in the close-up of a section of the end wall reproduced at the left.

Finely rubbed, sanded and frame sawn finishes are also supplied and technical pamphlets showing typical methods of fixing Broughton Moor stone are available as follows: 1. *Flooring;* 2. *Facings;* 3. *Coping;* 4. *Cills;* 5. *Riven Face Slabs.*

The Broughton Moor Green Slate Quarries Ltd
CONISTON, THE LAKE DISTRICT, LANCASHIRE.
Telephone: Coniston 225



WARERITE wallboard has been used to panel the walls of two newly opened shops of the Express Dry Cleaning Works (Rushden) Ltd. The bright yellow Regent pattern which has been chosen harmonises with the gay carpets and curtains. Shopfitter responsible for the shop illustrated was : Smith & Bunning Ltd., Regent Street, Kettering.

For attractive, hardwearing vertical surfaces choose *New* WARERITE REGD. wallboard

Wherever decorative vertical or ceiling surfaces must be moisture-resisting, durable and easily cleaned, new WARERITE wallboard is the obvious and economical choice. Counter fronts, partitions, cupboard fronts and flush doors are typical applications. WARERITE wallboard can be screwed or pinned, or fitted into extruded jointing sections.

WARERITE *materials are supplied from stock in cities and towns throughout the country. Write for literature, samples and the name of your nearest distributor.*

WARERITE wallboard REGD.
IS IDEAL FOR VERTICAL SURFACES AND CEILINGS

• Wipes clean instantly • Easier construction at lower cost—no maintenance • Resistant to steam and moisture • Can be fixed with screws, or panel pins; cemented to wooden battens or fitted into frames • Standard boards 8ft. x 4ft. • Melamine-resin surfaced both sides

WARERITE wallboard **with the lovelier patterns!** REGD.

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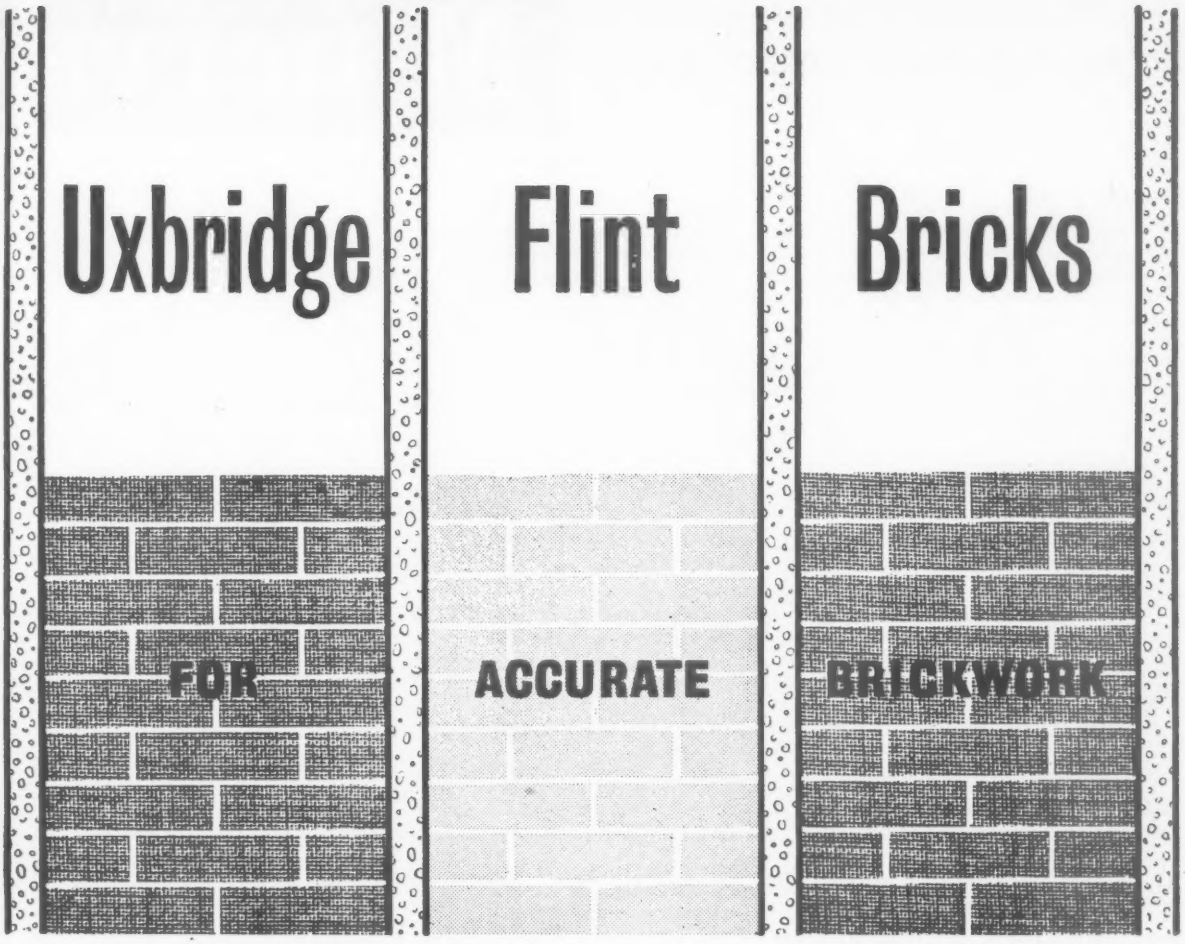
TGA WW10



Uxbridge Flint Bricks are particularly suitable for modular designed buildings. They are exceptionally accurately made and therefore can be laid to controlled dimensions. The bricks are available in many shades within the following colour range:

CREAM, BUFF, GOLDEN, BROWN, TERRACOTTA, LILAC, PURPLE, GREY, BLUE-BLACK

Standard $2\frac{5}{8}$" bricks are normally supplied, but 2" and $2\frac{7}{8}$" bricks can be quoted on request, also other special sizes and shapes to suit requirements.

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Manchester: Floor D, National Buildings, St. Mary's Parsonage, Manchester 3. Tel. Blackfriars 7757
Birmingham: 11 Waterloo Street, Birmingham 2. Tel. Midland 6565-6-7
Newcastle: 19 & 20 Exchange Buildings, Newcastle-upon-Tyne. Tel. Newcastle 20488

TA.001

TECHNICAL DATA SHEET No. 1

Minerva

FIRE PREVENTION BY NUCLEAR DETECTION

PURPOSE

The purpose of the Minerva Fire Detection System is to call attention to incipient fire by detecting the presence of smoke or of invisible products of combustion in any space protected by the system, and upon detection to sound an alarm, which may be either a fire bell, klaxon or siren mounted locally in the protected space or remotely at a convenient watch office. A light signal is also provided to indicate the portion of the protected space to which the alarm refers. A call may be transmitted to a remote fire station by means of telephone lines or a radio link. The alarm signal may also be used to bring fire extinguishing equipment into operation or to operate switches in power supply circuits.

PRINCIPAL COMPONENTS

A Minerva installation comprises four principal parts:—

(1) A suitable number of Minerva Detectors, determined by a survey of the space or equipment to be protected.

(2) A control unit and signal panel, which, besides providing stabilised voltage supplies for the Detectors, functions as a receiver and indicator for the alarm signals and as the central distribution point from which they may be transmitted.

(3) When used, a remote indicator unit.

(4) The wiring by which the Detector heads are connected together in groups and to the control unit and signal panel.

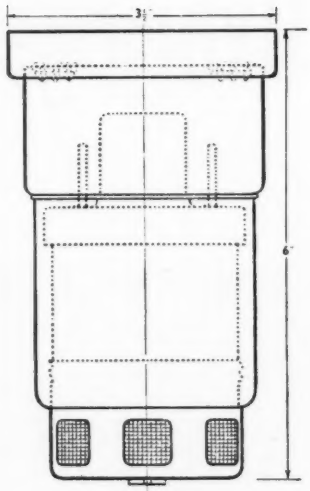

Fig. 1

THE MINERVA DETECTOR

(a) Mechanical Arrangement

The construction and dimensions of the Minerva Detector are shown in fig. 1. On a moulded base which plugs into the Detector socket is mounted a cold cathode gas filled tube to which are connected two ionisation chambers. One of these chambers is open to the air whilst the other is closed. The dimensions of the two chambers are carefully chosen to make the fullest use under widely varying conditions of temperature and pressure of the alpha particles streaming out from the radium elements accurately positioned in the assembly. A moulded plastic cover, through which the open ionisation chamber protrudes, screws into the socket and locks the Detector in position. Dust and moisture are excluded from the inner surfaces and connection terminals of the socket by the use of specially designed adaptor plates.

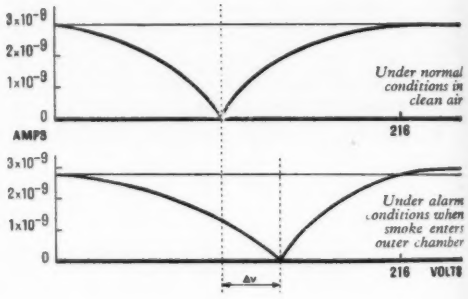

Fig. 2

(b) Method of Operation

Under the influence of the applied line voltage, and as a result of the ionisation to which the alpha particles give rise, a minute electric current (3×10^{-9} ampere) flows through the two chambers A and B in fig. 3. Smoke or other products of combustion entering the open chamber, A, modify the ionising effects of the alpha particles and therefore cause this current to decrease slightly. The voltage across the open chamber (normally 96v.) then rises sufficiently to raise the voltage on the trigger electrode, T, of the tube, C, above its critical value (125 v.) The current/voltage curves (fig. 2) illustrate how this comes about. The total voltage drop across the two chambers in series remains constant but the increase in the impedance of the open chamber which arises from the effect of smoke on the state of ionisation therein results in a larger proportion of the voltage drop occurring across this chamber. As a result, a primary discharge between the trigger electrode and the cathode takes place and entrains a discharge between the anode and cathode. The tube then passes 6mA., a current sufficient to operate the relay, R, controlling the alarm bells and signal lamps or other related equipment.

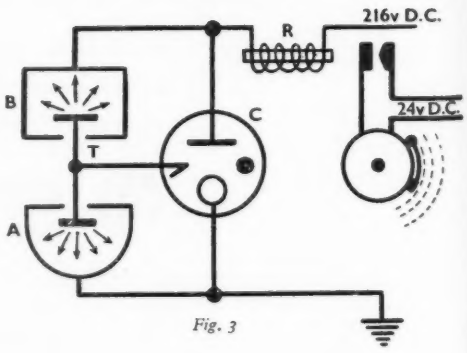

Fig. 3

This is the first of a series of technical data sheets describing the various features of the Minerva System of Fire Prevention By Nuclear Detection. The Minerva Detector Company Ltd. provides a complete Fire Prevention Service, undertaking survey, design of installations for specialised risks, commissioning and routine inspection. A Minerva engineer will be pleased to call to advise on your fire prevention problems. Write to:

TE CUSTOS URBIS

MINERVA

THE MINERVA DETECTOR COMPANY LTD., LOWER MORTLAKE RD., RICHMOND, SURREY. (Richmond 6481)

First ESCALATOR in Belfast

The Departmental Store of Anderson & McAuley Ltd. is the proud possessor of Belfast's first escalator. It was installed, of course, by J. & E. Hall. Decorative features of the balustrade casings include aluminium alloy deckings and mouldings, left natural satin finish, with the inner panels faced with Formica—Opaline Green for one escalator and Buff Linnette for the other.

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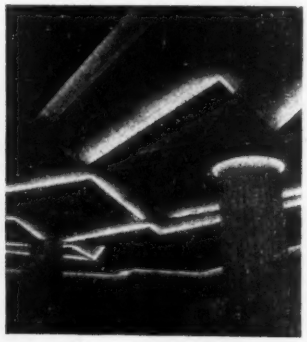
ar

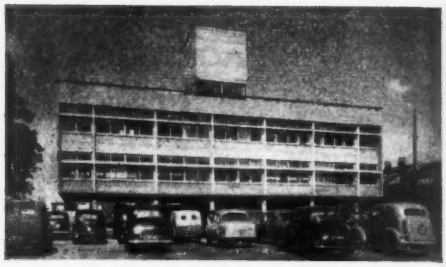
SEPTEMBER

Above: National Water Park, Lymington harbour, one of the small multi-purpose boating centres serving the Solent, whose future is discussed as a matter of urgency by Geoffrey Robson.



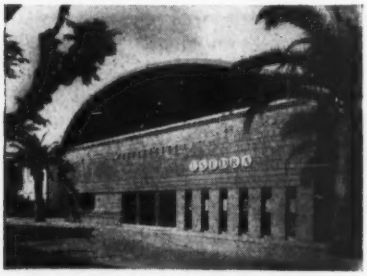
Suspended Ceilings, the conference room of an office block in Rome by Aldo della Rocca, from Michael Brawne's article on the aesthetics of suspended ceilings. (See also A. R. July and September Skill articles.)

Below: Bold Front in Birmingham, a new prestige office block added to an existing factory, by Erno Goldfinger, one of the buildings illustrated and described in this issue.



OCTOBER

Cinema in the Pineta; designed by Eugenio M. Rossi, and sited near the Roman Coast, its design involved some ingenious thinking about late-night ventilation in a close, damp climate.

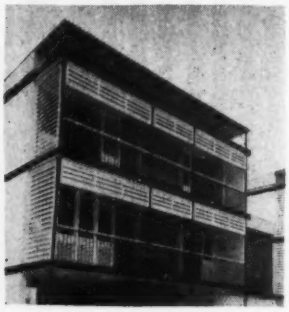


Brick and Concrete at Ham; a detail of wall, floor-slab, ventilator and gargoyle from a new flatted development at Ham Common by James Stirling and James Gowan.

Air Line Office; a tall black column in the new booking offices of Air France in Bond Street; designed by Charlotte Perriand (in collaboration with Peter Braddock), the first work in England of a designer who assisted Le Corbusier on some of his most famous interior work.

NOVEMBER

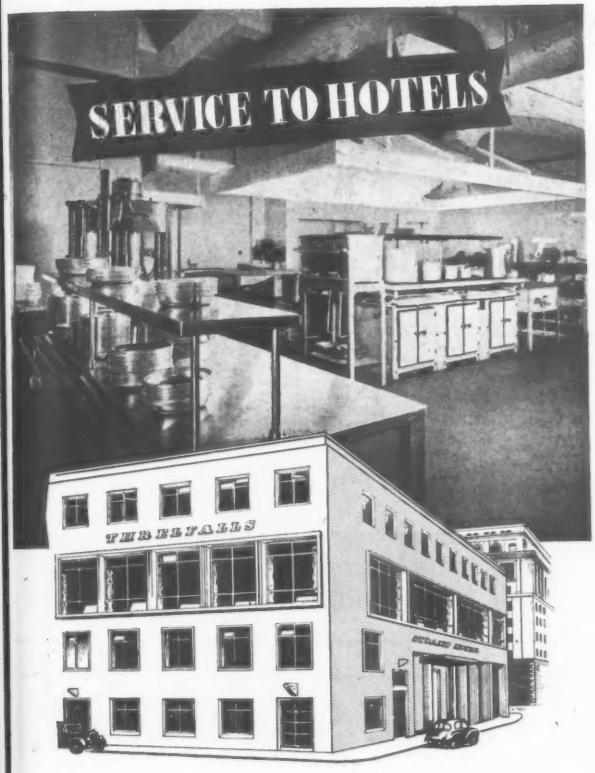
Sun-screens in Apapa; housing for the Nigerian Ports authority—this, and other recent work in West Africa by Architects' Co-Partnership will be described and illustrated in the October issue.



Seagram completed; and dwarfing even the Cadillac in foreground, the glass and bronze Seagram Building by Philip Johnson and Mies van der Rohe will be fully discussed and—tentatively—evaluated.

Engineering of Excitement; the covered market-hall in Royan by Simon and Morisseau, one of the buildings discussed by Robin Boyd in his article on the impact of new structural shapes on the architectural imagination.

SERVICE TO HOTELS



The new Strand Hotel, Liverpool, owned by Threlfalls Brewery Ltd. is one of the more recent of many hotels and catering establishments whose kitchens and serveries were planned and equipped by Stotts of Oldham.

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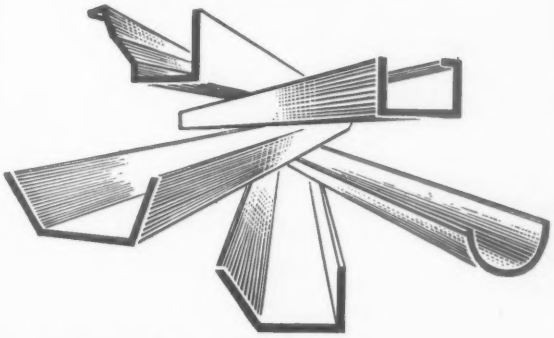

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CLASSIFIED ADVERTISEMENTS

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

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

AIR-MAIL SERVICE available on request:

In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayment should be sent by readers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

Public and Official Announcements

30s. per inch; each additional line, 2s. 6d.

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for: (1) **ARCHITECTS, Grade III,** starting salary up to £1,090 a year. (2) **ARCHITECTURAL ASSISTANTS,** starting salary up to £960.

Full and interesting programme of houses, flats, schools and general buildings.

Application form and full particulars from Hubert Bennett, F.R.I.B.A., Architect to the Council, the County Hall, S.E.1, quoting ref. AR/EK/36/58. (1428) 1074

METROPOLITAN BOROUGH OF BATTERSEA

Applications are invited for the following appointments to the permanent staff:—

(a) ASSISTANT BUILDING SURVEYOR, A.P.T. Grade III, £845—£1,025 per annum.

(b) ASSISTANT ARCHITECT, A.P.T. Grade III, £845—£1,025 per annum.

(c) ASSISTANT BUILDING SURVEYOR, A.P.T. Grade II, £725—£845 per annum.

(d) ARCHITECTURAL ASSISTANT, A.P.T. Grade I, £575 to £725 per annum.

London weighting (£30 per annum at age 26 and over) is payable in addition for each appointment.

For appointments (a) and (c) preference will be given to probationers and Associate Members of the Royal Institution of Chartered Surveyors (Building Sub-division). The successful applicants for (a) will be engaged upon the conversion and improvement of house property and (c) the maintenance of the Council's establishments

For appointment (b) applicants should be Associates of the R.I.B.A. and have had several years' office experience. The successful applicant will be engaged on a large programme of new construction and development. The work of the department includes public buildings and multi-storey flats.

Previous Local Government experience is not essential. The commencing salary in each case will be according to professional qualifications held and to experience.

The appointments are subject to the Local Government Superannuation Acts, 1937-53.

Further particulars and application forms obtainable from the Borough Engineer and Surveyor, Town Hall, S.W.11, closing date 10th October, 1958. 1507

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for: 1. **ARCHITECT/PLANNERS.** Tasks include three-dimensional planning within London's eight major comprehensive development areas (including Stepney/Poplar, the South Bank and Elephant and Castle) and other re-development areas. The work includes the preparation of comprehensive layouts for all important areas of new development throughout the County including areas to be redeveloped in connection with road improvements.

2. **TOWN PLANNING ASSISTANTS.** Duties include investigation of development proposals, surveys, report writing, preparation of data for public inquiries.

Starting salaries in each case up to £860 according to experience and qualifications. Application forms and further particulars may be obtained from Hubert Bennett, F.R.I.B.A., Architect to the Council, The County Hall, London, S.E.1, quoting Ref. AR/EK/35/58. (1397) 1034

ANTRIM COUNTY COUNCIL
PLANNING ASSISTANTS

Applications are invited from holders of a qualification in planning and/or architecture for the position of Planning Assistant in the Council's Planning Department.

Salary scale A.P.T. Grade IV (£1,025—£1,175) subject to deductions under the Local Government (Superannuation) Act (N.I.), 1950.

Applications, together with the names and addresses of two persons to whom reference may be made, must be delivered to the Secretary, County Court House, Crumlin Road, Belfast, not later than 18th October, 1958. 1592

COUNTY COUNCIL OF ESSEX
COUNTY PLANNING DEPARTMENT

Applications invited for the following posts:—

(1) ASSISTANT AREA PLANNING OFFICER, Special Grade (£750—£1,030), at Braintree. Applicants must be Corporate Members of the Town Planning Institute or other comparable professional institute and have had wide experience in development control. Applicants should also be experienced in the preparation of development plans for county towns and large villages, and be able to assume control of a small Area Office of 11 persons during the absence of the Area Officer.

(2) Three PLANNING ASSISTANTS, A.P.T. Grade I (£575—£725), at Romford and Braintree. Applicants should have had experience in connection with development control and/or development plan work or be qualified in Economics, Geography or Landscape Architecture and wishing to train and study for a qualification in Planning.

Five-day week; day release facilities; medical examination; superannuation.

Applications on forms to be obtained from County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, to whom they should be returned not later than 12th October, 1958. 1586

COUNTY BOROUGH OF WEST HAM
BOROUGH ARCHITECT & PLANNING OFFICER'S DEPARTMENT

Applications invited for permanent posts on A.P.T. Grade I (£575 × £30—£725 p.a.) (and London allowance).

(*a*) ARCHITECTURAL ASSISTANTS (2).

(*b*) PLANNING ASSISTANT.

For posts (*a*) applicants should have passed the R.I.B.A. Intermediate Examination.

For post (*b*) preference given to applicants who have passed the T.P.I. Intermediate Examination.

Starting point in Grade according to qualification and experience.

Application form and details from Borough Architect & Planning Officer, 70, West Ham Lane, Stratford, E.15, returnable by 21st October, 1958. 1587

BIRMINGHAM REGIONAL HOSPITAL BOARD
ARCHITECTURAL APPOINTMENTS

(*a*) ASSISTANT ARCHITECTS, £700 × £25 (3) × £30 (1) × £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.

(*b*) ARCHITECTURAL ASSISTANTS, £525 × £20 (4) × £30 (1) × £25 (5)—£730. Point of entry according to experience. Inter-R.I.B.A. essential.

(*c*) ASSISTANT QUANTITY SURVEYORS, £700 × £25 (3) × £30 (1) × £35 (6)—£1,015, according to age and experience. Final R.I.C.S. and experience in taking off and preparing bills of quantities and settling final accounts essential.

All appointments superannuable. Apply, naming two referees, to Secretary, R.H.B., 10, Augustus Road, Birmingham, 15, by 20th October. 1585

COUNTY BOROUGH OF BURNLEY

Applications are invited for the undermentioned appointments in the Borough Engineer and Surveyor's Department:—

(*a*) SENIOR ARCHITECTURAL ASSISTANT, Special Grade (£750—£1,030).

(*b*) ARCHITECTURAL ASSISTANTS, Special Grade (£750—£1,030).

Applicants for appointment (*a*) must hold appropriate qualifications and must have had considerable experience in Municipal work. The commencing salary for a suitable applicant would be at or near the top of the grade.

Applicants for appointment (*b*) should preferably hold appropriate qualifications but the successful candidates may be placed in the A.P.T. Grade range up to and including Special Grade according to qualifications and experience.

Provision of housing accommodation may be considered if required.

Forms of application may be obtained from the Borough Engineer, 22-24, Nicholas Street, Burnley, to whom they should be returned not later than Saturday, 18th October, 1958.

C. V. THORNLEY,
Town Clerk.
1600

BOROUGH OF CROSBY
CAPITAL WORKS PROGRAMME
ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of an Architectural Assistant in the Borough Engineer's Department at a salary in accordance with A.P.T. I.

The successful applicant will be engaged mainly upon works of a capital nature, including the construction of a new Swimming Bath, and some experience in such work will be an advantage.

Housing accommodation will be made available upon satisfactory proof of need.

Applications on forms obtainable from the Borough Engineer at the address below must be received, suitably endorsed, not later than Wednesday, 15th October, 1958.

Canvassing directly or indirectly will disqualify.

HAROLD O. ROBERTS,
Town Clerk.

Town Hall,
Waterloo,
Liverpool, 22. 1580

RENEWED ADVERTISEMENT
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 (£845—£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 14th October, 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,
Clerk of the Council.

Council Offices,
Feltham, Middlesex. 1528

COUNTY BOROUGH OF BARNSLEY
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
APPOINTMENT OF JUNIOR ARCHITECTURAL ASSISTANT

Applications are invited for the above appointment on the temporary establishment at a salary in accordance with Grade A.P.T. I (£575—£725 per annum).

The post is suitable for a young man in his early architectural training, and offers a good opportunity for gaining further experience.

The appointment will be subject to (*i*) the Scheme of Conditions of Service for A.P.T.C. Staff; (*ii*) any other general conditions of employment operating within the Corporation from time to time; (*iii*) one month's notice on either side, and (*iv*) to a medical examination.

Applications, stating age, present and previous appointments, qualifications, experience, etc., together with the names of two persons for reference, should reach the Borough Engineer, Town Hall, Barnsley, by Friday, 17th October, 1958.

Canvassing will disqualify.

A. E. GILFILLAN,
Town Clerk.

Town Hall,
Barnsley.
September, 1958. 1564

BOROUGH OF SWINDON
JUNIOR PLANNING ASSISTANT (SURVEYING AND VALUATION), A.P.T. II.

Applications are invited for the above appointment in the Town Planning Section of the Borough Engineer, Surveyor and Planning Officer's Department. Salary £725 × £30—£845.

Duties may include valuation reports in connection with Central Area redevelopment and acquisition of land and property.

Candidates must have passed the R.I.C.S. Intermediate or other appropriate examination, should have suitable valuation experience, and should be capable of carrying out site surveys and making structural reports and valuations in connection with advances under the Housing Act.

Consideration may be given to an allocation of housing accommodation.

Applications on forms obtainable from the Town Clerk, Civic Offices, Swindon, must be returned by 9th October, 1958. 1550

Applications for the appointment of **ARCHITECTURAL ASSISTANT** in A.P.T. Grade II, £725 to £845, are invited by the **NORTHWICH RURAL DISTRICT COUNCIL.**

Applicants should preferably have experience in connection with local authority housing projects.

The person appointed will be required to submit to a medical examination in connection with the Council's Superannuation Scheme, and the appointment will be terminable by one calendar month's notice in writing on either side.

The Council will be prepared to favourably consider allotting housing accommodation if this is necessary, and a travelling allowance as for an Essential User of a car not exceeding 10 h.p. will be made.

Applicants must state in their application whether to their knowledge they are related to any member or senior officer of the Council. Canvassing either directly or indirectly will disqualify any person for the appointment.

Applications, stating age, qualifications, experience and other particulars, and giving the names of two referees, must reach the Clerk of the Council at Whitehall, Hartford, Northwich, Cheshire, not later than the first post on Monday, the 13th October, 1958. 1551

BOROUGH OF WIDNES
BOROUGH ARCHITECT'S DEPARTMENT
ARCHITECTURAL ASSISTANT

Applications are invited from candidates who have passed the R.I.B.A. Intermediate Examination. Salary within the A.P.T. I Grade (£575—£725 per annum), according to ability and experience.

N.J.C. Conditions; Superannuation Scheme; medical examination.

Applications, quoting two referees, to Borough Architect, Brendan House, Widnes Road, Widnes, by Friday, 10th October, 1958. Canvassing disqualifies.

FRANK HOWARTH,
Town Clerk.

Town Hall,
Widnes.
25th September, 1958. 1594

GOVERNMENT OF NORTHERN IRELAND
Applications invited from ARCHITECTURAL ASSISTANTS with recognised training and fair experience for unestablished posts in the Chief Architect's Branch, Ministry of Finance. Salary scale £565—£875; starting pay for candidates who have passed R.I.B.A. Intermediate examination will be £705. Preference will be given to ex-servicemen. Application forms obtainable from the Director of Establishments, Ministry of Finance, Stormont, Belfast. 1571

MIDDLESEX COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
(*a*) ASSISTANT ARCHITECTS on scales within £780—£1,355 p.a. if 26 or over. Should have R.I.B.A.
(*b*) ARCHITECTURAL ASSISTANTS, A.P.T. III (£875—£1,055 p.a.) (if 26 or over).
Commencing salaries according to qualifications and experience. Established and pensionable, subject to medical assessment and prescribed conditions.
Application forms (stamped, addressed foolscap envelope) from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 27th October. Canvassing disqualifies. 1558

QUANTITY SURVEYOR required in the Regional Architect's Office of BRITISH RAILWAYS, LONDON MIDLAND REGION, at Euston Station.
Applicants should be fully experienced in the preparation of Bills of Quantities, approximate estimates, specifications, and the settlement of Final Accounts. A.R.I.C.S. desirable. Salary range £943—£985 per annum. Five-day week. Residential travel and other favourable travelling concessions available. Superannuation Scheme.
Applications should be addressed to the Chief Civil Engineer (Ref. 70), British Railways, London Midland Region, 5a, Euston Grove, London, N.W.1. 1545

NATIONAL COAL BOARD
SOUTH WESTERN DIVISION
invite applications for the post of ARCHITECT, Grade 2, in the Architect's Branch of the Divisional Production Department, Cambrian Buildings, Mount Stuart Square, Cardiff.
The successful applicant will be responsible for the preparation of sketch plans and working drawings of a variety of buildings, together with some duties of an executive nature.
Applicants must be Associates of the Royal Institute of British Architects.
Salary Scale: £815 × £30—£1,125 per annum.
Please quote Staff Vacancy No. 343/40.
Full particulars of age, qualifications, experience and positions held, together with details of present post and salary, should be sent to Divisional Chief Staff Officer, National Coal Board, Cambrian Buildings, Mount Stuart Square, Cardiff, by 11th October, 1958. 1547

BOROUGH OF DARTFORD
Applications are invited for the appointment of PLANNING ASSISTANT. Salary Grade A.P.T. III (£845—£1,025). A plusage rate of £20 or £30 per annum, according to age, is also paid.
Applicants should have passed the Final Examination of the Town Planning Institute.
Housing accommodation available.
Applications, giving age, qualifications and experience, together with the names of three referees, should be forwarded to the Borough Engineer and Surveyor, The Bridge House, Dartford, by the 18th October, 1958. 1549

CORBY DEVELOPMENT CORPORATION
LANDSCAPE ARCHITECT
Applications are invited for the appointment of a Landscape Architect in the office of the Chief Architect within the salary grade A.P.T. IV (£753—£939) of the Whitley Council scales for New Towns Staff. Commencing point within this grade will depend upon experience and qualifications. The appointment will be subject to superannuation under the Local Government Superannuation Scheme.
Candidates should be Associates or Students of the Institution of Landscape Architects, preferably with some experience in the design of housing estates.
Housing is available and assistance with removal expenses will be provided.
Applications, stating age, education, training, qualifications, experience, past and present appointments and salaries, together with the names of two referees, must reach the undersigned by Tuesday, 14th October, 1958.
R. F. BROOKS GRUNDY.
Spencer House,
Corby,
Northants. 1544

GOVERNMENT OF ADEN
ARCHITECT, PUBLIC WORKS DEPARTMENT required to design, prepare specifications, and supervise construction of Public buildings, housing and modern schools.
Contract appointment for one tour of 18-24 months.
Salary range £1,032—£1,929 per annum plus gratuity.
Free passages for officer, wife and four children below the age of 18. Education allowance for children educated outside Aden. Seven days' leave for each completed month of resident service. Furnished quarters at low rent.
Candidates must be A.R.I.B.A. with at least one year's post qualification experience.
Write Director of Recruitment, Colonial Office, London, S.W.1, stating briefly age, qualifications and experience, quoting BCD.112/2/03. 1546

CITY & COUNTY OF CANTERBURY
Applications are invited for the temporary appointments of ARCHITECTURAL ASSISTANTS, Grades A.P.T. I (£575—£725) and A.P.T. II (£725—£845).
The successful candidates will be engaged on the design and construction of housing projects including maisonettes, two-storey houses and old persons' bungalows.
The appointments offer considerable scope for initiative and experience in all aspects of housing and are likely to extend over a number of years. Opportunities occur from time to time for promotion within the Department.
Applicants for the appointments must have passed the R.I.B.A. Intermediate Examination.
The commencing salary will be fixed within the Grades according to ability and experience.
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 Thursday, 16th October, 1958.
J. BOYLE,
Town Clerk.
Municipal Buildings,
Canterbury. 1577

COVENTRY
ARCHITECTS: Special Grade (£750 × £40—£1,030). Salary within grade if appropriate.
Work proceeding includes Central Swimming Baths, Shops and Dance Hall Block, Housing, new Comprehensive Schools, and Research.
Housing accommodation may be available. Removal expenses loan.
Application forms, etc., from City Architect and Planning Officer, Bull Yard, Coventry, returnable by 9th October. 1548

COUNTY OF EAST SUFFOLK
COUNTY ARCHITECT
The appointment of County Architect will fall vacant in April, 1959, and the County Council invite applications for the post which carries a salary of £2,445 × £105 (2) × £60 (1)—£2,715 per annum, plus travelling and subsistence allowances according to scale.
Applications from members of the Royal Institute of British Architects who have had wide architectural experience with a local authority and who must possess administrative ability, must be received by 20th October, 1958.
Full particulars from G. C. Lightfoot, Clerk of the County Council, County Hall, Ipswich. 1510

BOROUGH OF EALING
PROPOSED ERECTION OF 12 FLATS FOR ELDERLY PEOPLE IN 2 BLOCKS AT ELM TREE ESTATE
Forms of Tender, Specification and Bills of Quantities obtainable from the Borough Surveyor, Town Hall, Ealing, W.5, upon payment of £5 returnable on receipt of a *bona fide* tender.
Tenders to be delivered to the Town Clerk, Town Hall, Ealing, W.5, not later than 9.30 a.m. on the 30th October, 1958.
E. J. COPE-BROWN,
Town Clerk. 1483

SURREY COUNTY COUNCIL
Applications invited for appointment of ASSISTANT ARCHITECT, Special Grade, £750—£1,030 p.a. plus £30 p.a. London Allowance. Must be A.R.I.B.A.
Full details, present salary, and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 1498

COVENTRY
ARCHITECTS required for design work and as Planning Deputies to Group Planning Officers for Comprehensive Development Areas and Development Control, A.P.T. IV (£1,025 × £50—£1,175). Salary within grade if appropriate.
Housing accommodation may be available. Removal expenses loan.
Application forms, etc., from City Architect and Planning Officer, Bull Yard, Coventry, returnable by 16th October. 1579

CITY OF LEEDS
CITY ENGINEER'S DEPARTMENT
Applications are invited for the following posts:—
(1) PLANNING ASSISTANTS—Grade Spl. A.P.T. II/III; Grade A.P.T. II; Grade A.P.T. I.
Candidates should have the requisite qualifications for the Grades and have planning experience.
(2) ASSISTANT SURVEYORS—Grade A.P.T. I.
Candidates should hold a recognised qualification of the Ordnance Survey.
Applications on the form provided (obtainable from the undersigned), to be delivered not later than October 17th, 1958, accompanied by copies of not more than three testimonials.
Canvassing in any form, either directly or indirectly, will be a disqualification.
G. CURRIE, M.I.C.E.,
City Engineer.
Civic Hall,
Leeds, 1. 1582

ARCHITECTURAL ASSISTANT required by HACKNEY BOROUGH COUNCIL. Salary Grade A.P.T. I/II (£575—£845 p.a.). London weighting allowance £30 p.a. over age 25. Commencing salary according to training, qualifications and experience. Candidates should have passed the Intermediate examination of the R.I.B.A. or its equivalent. Apply Town Clerk, Town Hall, Hackney, E.8, for application form, returnable by 9 a.m., 13th October, 1958. 1583

METROPOLITAN BOROUGH OF CAMBERWELL
ASSISTANT ARCHITECTS
(BOROUGH ARCHITECT'S DEPARTMENT)
The Council have vacancies for Assistant Architects within a salary range of £605 to £1,065 inclusive of £30 London weighting (Grades A.P.T. I or II or III of the National Scales). The work of the Department includes design and construction of public buildings, housing estates, including multi-storey construction. Application form from Town Clerk, Town Hall, S.E.5. Closing date Wednesday, 15th October, 1958. 1607

Tenders Invited

6 lines or under, 15s.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extra

CITY OF BIRMINGHAM HOUSING MANAGEMENT DEPARTMENT
REINFORCED CONCRETE FENCING POSTS
The Housing Management Committee of the Birmingham Corporation invites tenders for the supply and delivery of 5 ft. 6 in. × 4 in. × 4 in. and 2 ft. 10 in. × 5 in. × 4 in. reinforced concrete fencing posts to be supplied as required during the 12 months commencing 1st November, 1958.
Forms of tender can be obtained from the undersigned at Bush House, Broad Street, Birmingham, 1, and should be returned by the 20th October, 1958.
J. P. MACEY,
Housing Manager. 1573

Architectural Appointments Vacant

4 lines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. 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, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 9988

ARCHITECTS (City) require ASSISTANT with experience of Industrial and Commercial projects. Salary £600—£800. Box 1420.

ARCHITECTURAL ASSISTANTS, Final standard, required for private Birmingham practice to work on large and interesting developments where initiative and drive would be welcomed. Five-day week. Salary range £900 to £1,100 according to experience. Box 1462.

ARCHITECTURAL ASSISTANTS, Intermediate standard, required for private Birmingham practice to work on large and interesting developments where initiative and drive would be welcomed. Five-day week. Salary range £550 to £700 according to experience. Box 1463.

ARCHITECTURAL ASSISTANTS of Intermediate and Final standard required for busy Glasgow office with varied and interesting contemporary projects. State age, experience and salary required. Box 1524.

ASSISTANT ARCHITECTS required for Detail Work on multi-storey and large industrial buildings. Salary range £650—£850. London office. Box 1432.

ARCHITECTS' CO-PARTNERSHIP require ASSISTANTS for working drawings and detailed design. Salary according to experience. Write 44, Charlotte Street, London, W.1, or telephone Langham 5791. 1515

ARCHITECTURAL ASSISTANT required for large engineering works.
Must be capable of preparing working drawings, details and specifications. Industrial experience desirable. Five-day week. Profit sharing and pension schemes. Salary in region of £700 per annum.
Please write, giving age, qualifications and experience, to the Employment Officer, Lockheed Hydraulic Brake Co. Ltd., Tachbrook Road, Leamington Spa, Warwickshire. 1530

ARCHITECTURAL ASSISTANTS required immediately for private practice LONDON. Intermediate standard, having sound knowledge of construction and surveys, capable of handling projects from sketch plan onwards with minimum supervision. Salary by arrangement. Write giving brief particulars, present salary, etc.: Box 1493.

JUNIOR ASSISTANTS, passed Intermediate, required urgently for West End Office. Please write stating salary required to Box 1431.

ARCHITECTURAL ASSISTANTS required. Starting salary £915 per annum, Glasgow office, five-day week. Schools, offices, etc. State experience. Box 1532.

A DESIGNER with imagination and progressive ideas required. Apply Trehearne & Norman, Preston & Partners, Architects & Surveyors, 83, Kingsway, W.C.2. HOL 4071. 1537

BIRMINGHAM. James A. Roberts, Chartered Architect, Chanelle House, 86, New Street, Birmingham, 2. MID 4315/6, requires experienced ASSISTANTS to work on interesting large scale projects. 1555

MANCHESTER. Architects concentrating on good design need a Senior and an Intermediate grade ASSISTANT immediately. Hotel, hospital, school, industrial; profit sharing scheme; good opportunities as firm is expanding. Box 1554.

QUALIFIED ARCHITECTURAL ASSISTANT required with office experience, to work in small City firm on new office, shops and hotel developments. Apply Morgan & Branch, CLE 8529/2164. 1553

ARCHITECTURAL ASSISTANT required for busy West End Office. Salary according to age and experience. Apply in writing to Maurice Sanders, F.R.I.B.A., 24, Harley Street, W.1. 1552

QUALIFIED ARCHITECT urgently required by progressive firm in Newcastle on Tyne. Must be experienced in good contemporary work. Salary in accordance with practical background. Interview expenses paid. Box 1567.

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have a vacancy for an experienced ASSISTANT. Write stating age, salary and experience to the above at 3, Park Square Mews, Upper Harley Street, London, N.W.1. 1559

BRIGHTON & HOVE. Senior and Junior ASSISTANTS for small Office. Salaries up to £800 per annum. Box 1603.

ARCHITECTURAL ASSISTANT required in South West Brewery, Intermediate standard or near. Knowledge of licensed house planning and maintenance essential. Five-day week. Pension and Profit Sharing schemes operative after satisfactory probationary period. Full details and salary required to H. R. Robinson, L.R.I.B.A., Stroud Brewery Co. Ltd., Stroud, Glos. 1561

ASSISTANT ARCHITECT required for the Bristol office of a major oil company. Applicants must be A.R.I.B.A., capable of administration, supervision of staff, and controlling work through all stages of development. Must hold a current driving licence. Five-day week. Good pension and insurance scheme, sickness benefit and L.V.'s. Write to Box 1562, quoting ref. AAB 9420.A.

SENIOR and Intermediate ASSISTANTS required, interesting work, responsibility, London Architects' Office. Box 1597.

ASSISTANT ARCHITECT required by Southern Counties Contractors. Experience in Housing and Flats and knowledge of London Building Acts an advantage. Salary according to experience but not below £900 p.a. Resident in South Eastern Counties preferred. Apply Secretary, Gough Cooper & Co. Ltd., Wilmington House, Wilmington, Dartford, Kent. 1575

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