THE ARCHITECTS' JOURNAL

standard contents

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

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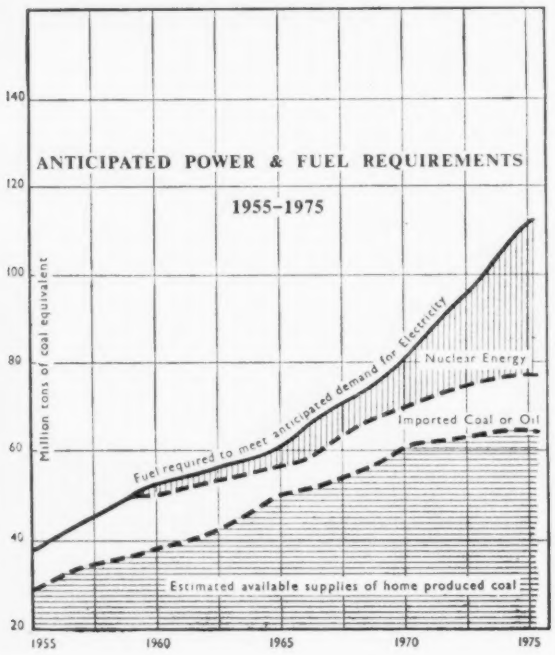
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ig one week, Ih to Z the next. In all cases where the town is not mentioned the word LONDON is implicit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

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhampstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447–8
ACGB	Arts Council of Great Britain. 4, St. James' Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 78, Wimpole Street, W.1.	Welbeck 2915
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BATC	Building Apprenticeship and Training Council. Lambeth Bridge House, S.E.1.	Reliance 7611, Ext. 1706
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Museum 5400
BCC	British Colour Council. 13, Portman Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 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, C2.	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 2246
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 Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon.	Newport 65491
CAS	County Architects' Society. C/o F. R. Steele, F.R.I.B.A., County Hall, Chichester.	Chichester 3001
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255
CCP	Council for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. Kendals Hall, Radlett, Herts.	Radlett 5616
CIAM	Congrès Internationaux d'Architecture Moderne. Doldertal, 7, Zurich, Switzerland.	
COID	Council of Industrial Design. 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
DGW	Directorate General of Works, Ministry of Works, Lambeth Bridge House, S.E.1.	Reliance 7611
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Whitehall 0540
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Trafalgar 8855
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 Association of Specialists and Sub-Contractors, Artillery House, Artillery Row, S.W.1.	Abbey 7232
FBBDO	Fibre Building Board Development Organization, Ltd. (Fidor), 47, Princes Gate, Kensington, S.W.7.	Kensington 4577
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. 26, Great Ormond Street, Holborn, W.C.1.	Chancery 7583
FPC	The Federation of Painting Contractors, St. Stephen's House, S.W.1.	Whitehall 3902
FRHB	Federation of Registered House Builders. 82, New Cavendish Street, W.1.	Langham 4341
GBPA	Gypsum Building Products 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



Electricity from Nuclear Energy

A 20-year development programme

Britain's nuclear power station construction programme will go far to offset the growing shortage of coal in the next two or three decades.

The First Ten Years

Work will start on the first two nuclear power stations in 1957. These will each have two gas-cooled reactors and the stations will be in operation by 1960/61. Two further gas-cooled reactor stations — each housing two reactors of improved type — to be begun in 1958/9 will come into service by 1963. The output of these four stations will be between 400,000-800,000 kilowatts.

The construction of two groups of four stations each will begin in 1960 and 1961/2 and they will be supplying electricity to the Grid by 1963/4 and 1965 respectively. The first group of stations will probably have one gas-cooled reactor each. The second will probably utilise liquid-cooled reactors — one high-rated reactor each. These stations will add well over 1,000,000 kilowatts to the nation's power resources.

The Second Ten Years

By 1975, it is anticipated that nuclear reactor power stations in Britain will have an aggregate installed capacity of between 10,000,000 and 15,000,000 kilowatts. Since these stations will be operated as base load stations working at full output for twenty-four hours a day they will be responsible for possibly half the units generated in the country.

In ten years' time—1,500,000 to 2,000,000 kilowatts of nuclear power. In twenty years' time – 10,000,000 to 15,000,000 kilowatts of nuclear power, equivalent to 40-50,000,000 tons of coal a year.

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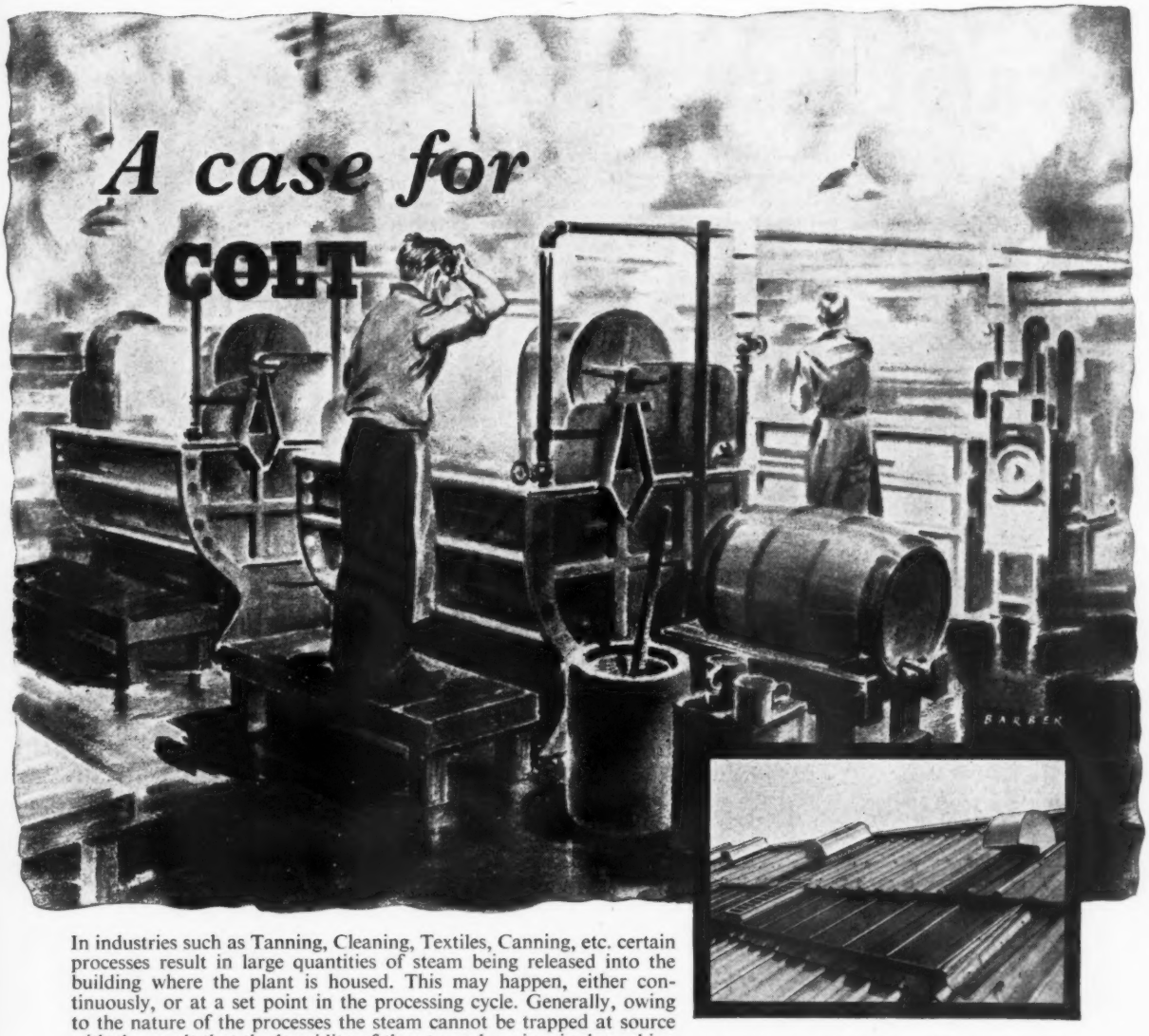
Problem No. 4 Heavy condensation through super-saturated air



In industries such as Tanning, Cleaning, Textiles, Canning, etc. certain processes result in large quantities of steam being released into the building where the plant is housed. This may happen, either continuously, or at a set point in the processing cycle. Generally, owing to the nature of the processes the steam cannot be trapped at source with the result that the humidity of the atmosphere is raised, working conditions become unpleasant, output is reduced, and the number of accidents and mistakes tends to rise. Also the steam condenses on the structure, corroding and destroying paintwork. In winter this condition is still further intensified. This is a common problem that Colt have often met and overcome in their work for over 9,000 major industrial and commercial organisations.

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A combination of Colt SR and CO ventilators and mechanical inflow units (with heater batteries) were recommended when G. H. Norton consulted Colt prior to the reconstruction of their Dye-house. Now, despite the fact that open dye vessels are used, the internal temperature is maintained at 20° F above the outside temperature and the relative humidity at 70/80 %. Even more important, the new system completely clears the atmosphere within three minutes of the close of the dyeing cycle.

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G 200

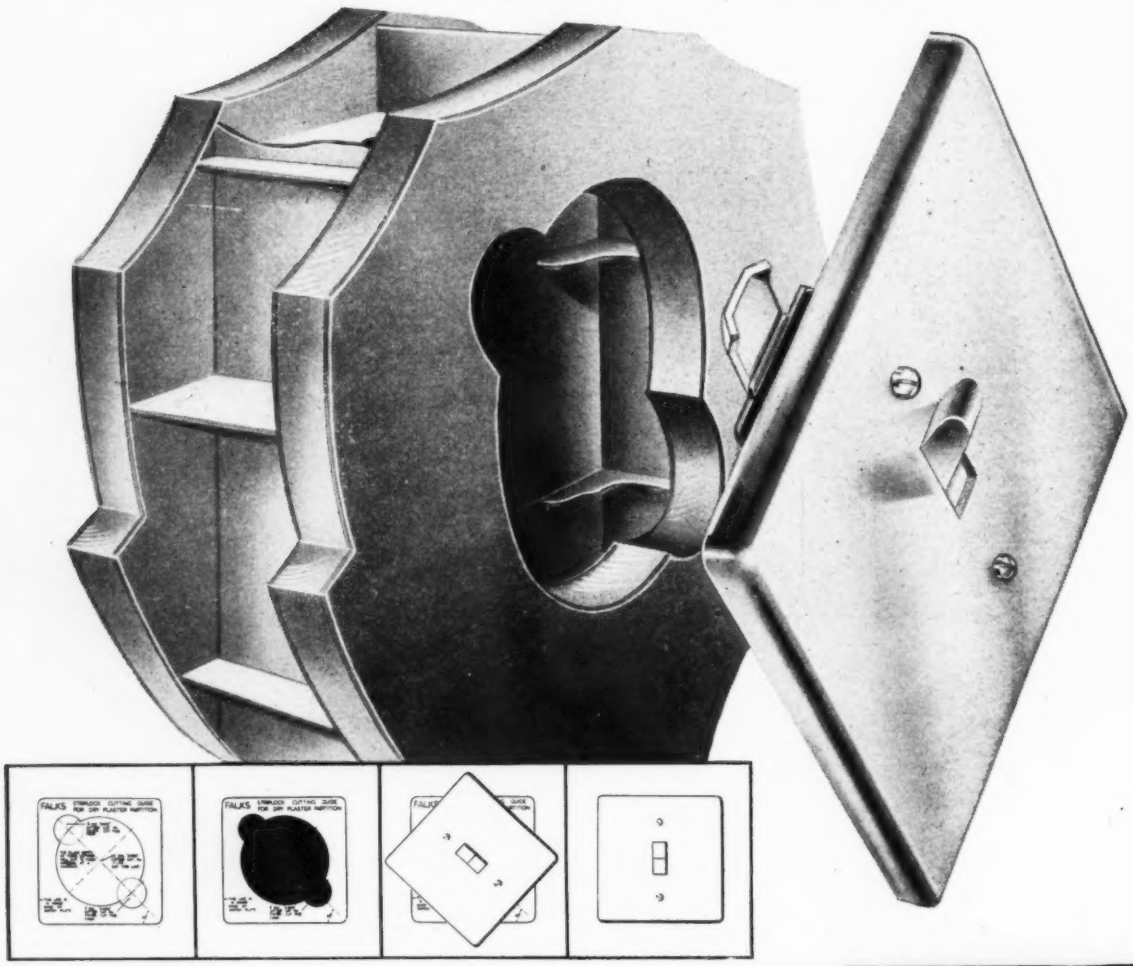
FALKS

"STRIPLOCK" SOLVES A PROBLEM

Dry Plaster partition, thanks to its remarkable fire resisting qualities and ease of erection, is in great demand in new constructions, conversion work and for office partitions.

Until recently, this material presented a complication when the electrical installation called for wall switches and, although a fixing had been devised which gave satisfaction, it was costly in labour.

Our diagram clearly shows how the " Striplock " overcomes all the disadvantages and offers a procedure which enables a switch to be fixed from start to finish in under five minutes.



Define switch position by sticking gummed cutting guide in position. Cut two holes ¾in. dias. on outer points and a hole 2½in. at centre. Cut with ENOX or similar cutter fitted with deep blade. Loosen off "Striplock" with screws through switch plate, wire up. Place switch unit through hole and turn clockwise. Square up switch plate with edges of cutting guide and tighten screws to lock into position.

(This switch can be used on a block with an especially shaped aperture for surface mounting on any type of wall)

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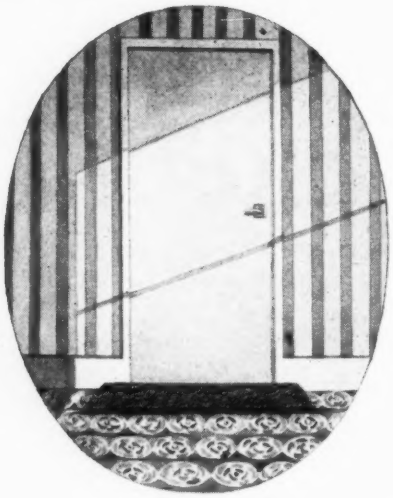

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consideration — this important little room is entitled to the same careful planning and specification as the rest of the rooms in the building. In keeping with today's trend towards functional efficiency, the Lawley plastic cistern is the perfect fitting for the modern toilet. Pleasantly modern in appearance, hygienic and easy to clean, a touch of the hand is all that's required for smooth, silent action — first time and *every* time. And every Lawley cistern is backed by seventy-five years' specialised experience — every Lawley cistern is as good as it looks!

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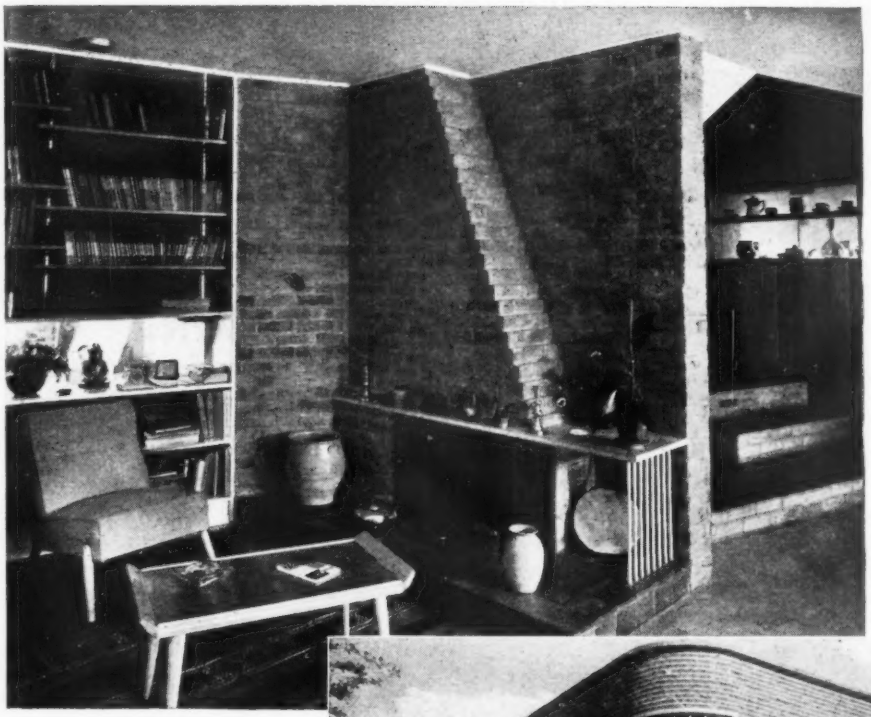

HOUSE AT
WELWYN GARDEN CITY

In this fireplace wall, built in brickwork, the flue is shown expressed. Note also the brick risers to the steps on the right.

Architects:
Architects' Co-Partnership.

(*Photos: "Architects' Journal"*)

HOUSE AT
STANMORE, MIDDLESEX

Horizontal emphasis is achieved by colouring the vertical pointing to match the bricks, which are golden buff facings.

Clyde Young & Bernard Engle, Chartered Architects.

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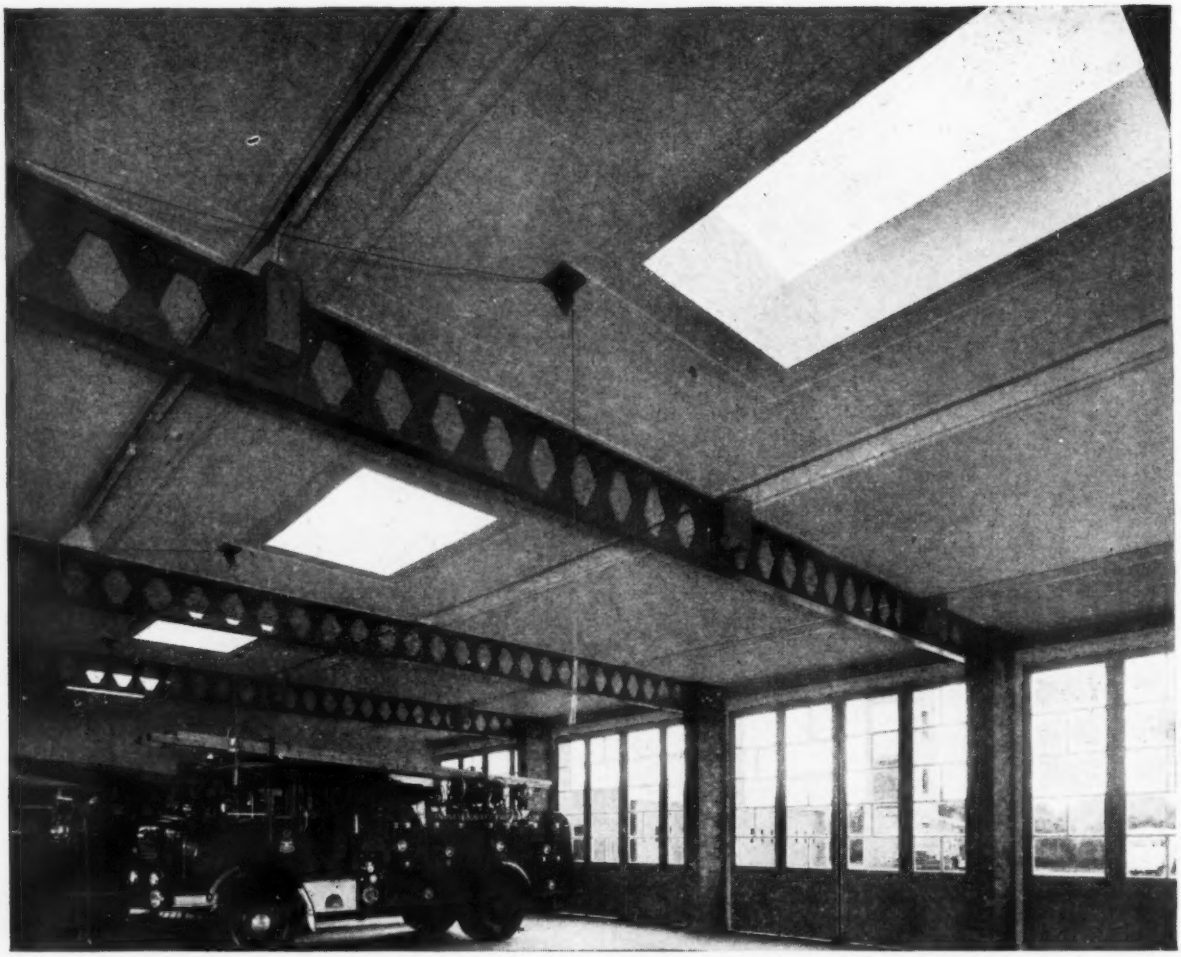
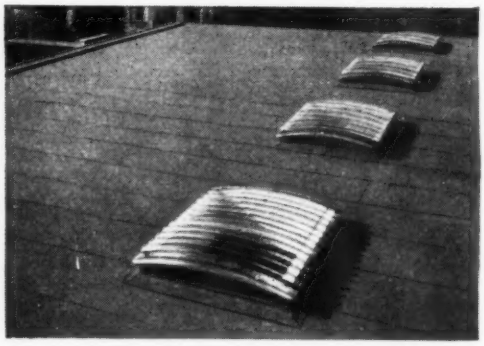


Interior of Lindsey County Council Fire Brigade and Ambulance Station at Gainsborough, Lincs. Roof windows are in Corrugated 'Perspex'.

Modern Fire Station fitted with Corrugated 'PERSPEX' roof lights



View of the roof from above. Corrugated 'Perspex' transmits a very high proportion of daylight.

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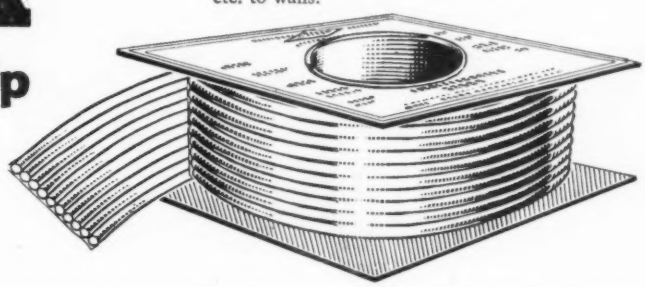

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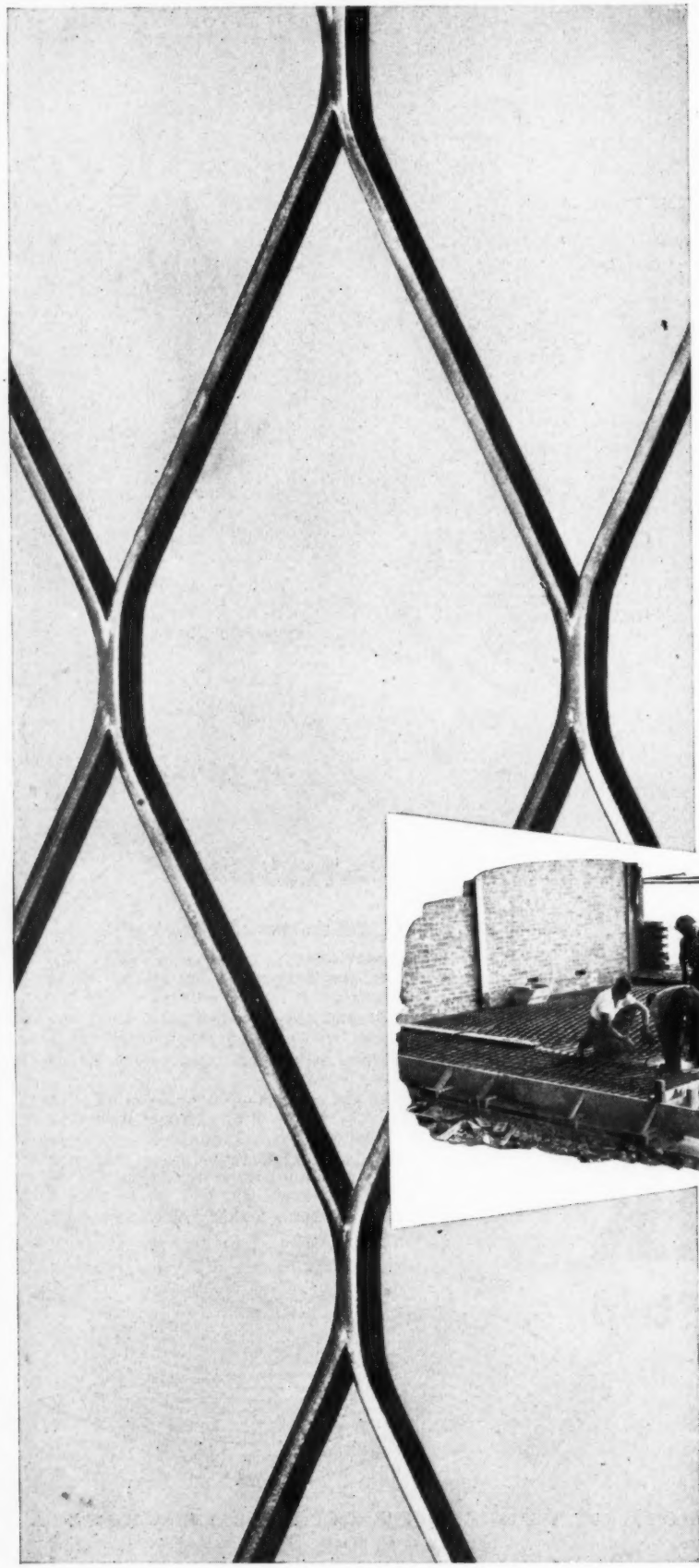

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The large range of " Expamet " Reinforcements provides a wide choice to suit all types of concrete construction. There are more than 100 standard variations and weights in " Expamet " Reinforcements from under 2 lb. to over 30 lb. per square yard.

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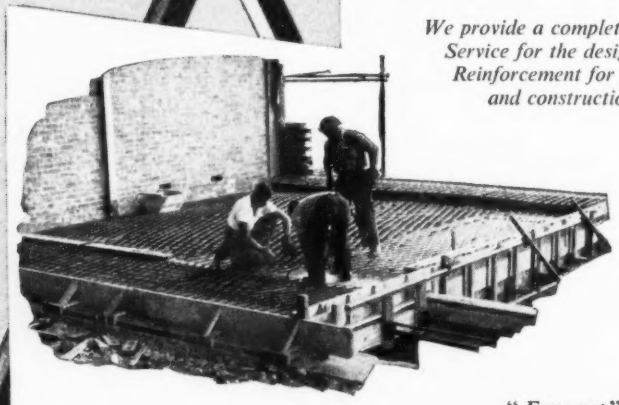

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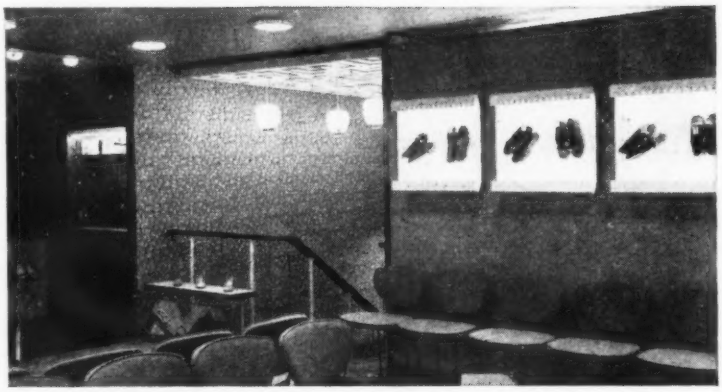


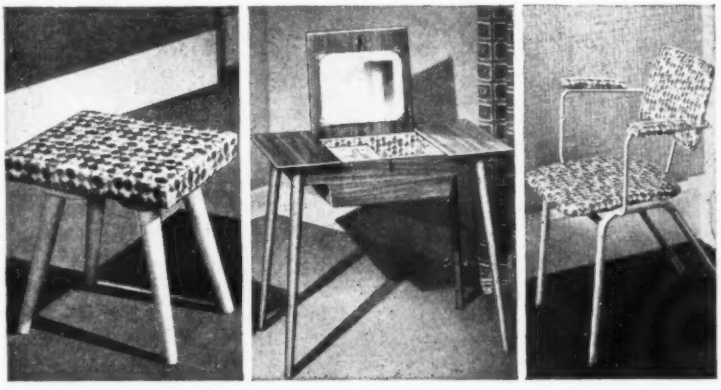
For seating, for wall covering, or as a decoration for modern furniture, RYDURA is increasingly the choice of contemporary tastes. RYDURA is now in extensive use in a wide variety of applications for home furnishing, hospitals, schools, restaurants, shops, ships, etc. Important features of RYDURA include: exclusive 'PROFILM' finish; choice of attractive contemporary designs; wide range of colours; can be cleaned with a damp cloth; durable; virtually unstainable; economical prices.

RYDURA AS A WALL DECORATION

RYDURA "Romanic" design has been successfully incorporated into the decor of the main staircase of the new Dolcis Branch at Charing Cross Road, London. Photograph by courtesy of Dolcis Ltd.

RYDURA AS A COUNTER DECORATION

In the new cafeteria restaurant of the Potteries Motor Traction Co. Ltd. at Newcastle-under-Lyme, RYDURA Pebble design has been used round all counters and on staircase sides, with particularly attractive results. (Designed by W. E. Gott, Esq. (Architect). Constructed and fitted by Gaskell & Chambers Ltd. of Birmingham, Britain's Biggest Barfitting Organisation).



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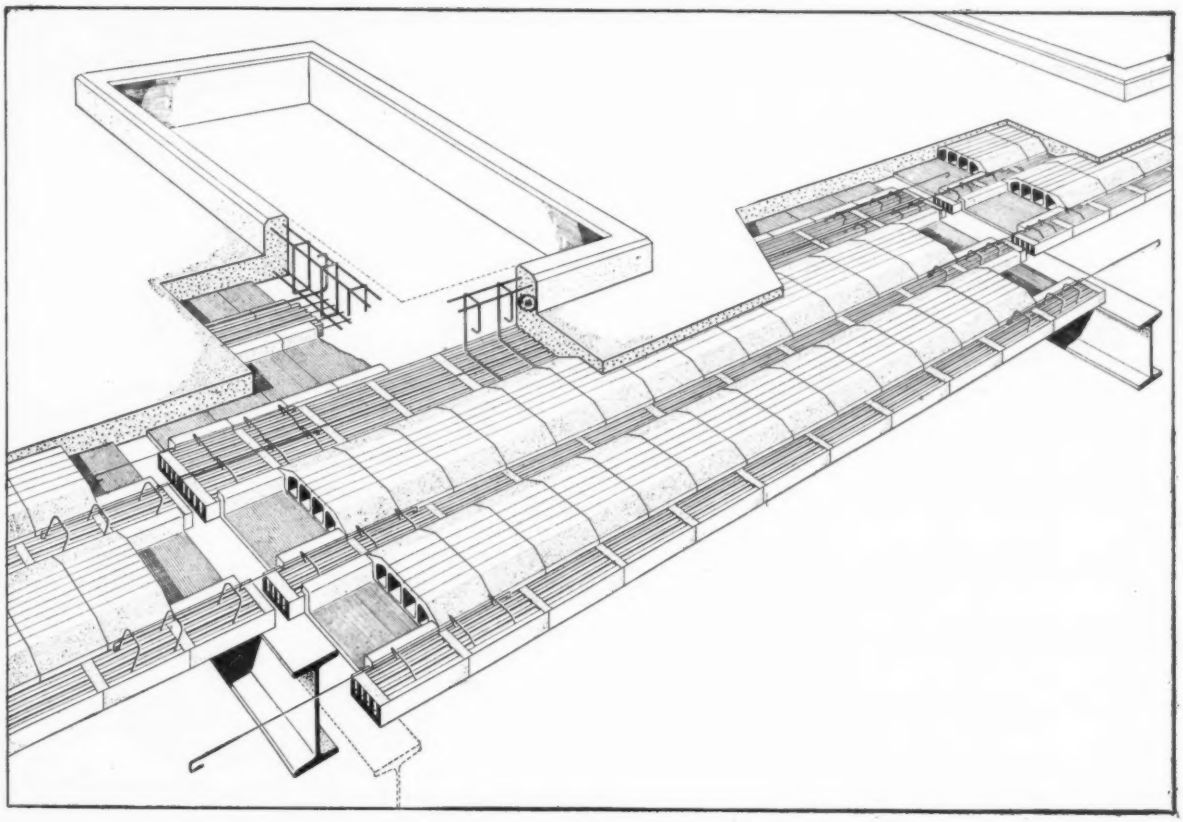

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Scotland & Northern Counties. Costain Concrete Company Ltd., Coltness Factory, Newmains, Lanarkshire. Telephone: Wishaw 880

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AP260-46

Stained glass triumph

No house in Boxley Wood is like any other house. Box Wood House is typically different.

Seclusion (the nearest neighbour is almost forty feet away, behind a yew hedge) and an italianate picturesqueness have endeared it successively to two company directors, a best-selling authoress and a civil engineer.

The timid lady author, although aware of the dangers of such isolation, lived in the comparatively crime-free thirties, and died unburgled and unmolested.

The civil engineer has been less fortunate. In a recent wave of burglaries, he lost eight silver-plated golf trophies, a pair of diamond cuff links and his six-figure log tables. By the time he called in Chubb, his civility was wearing thin.

The Man from Chubb was as courteous as ever. Door locks, he explained, even by Chubb were not enough in such a quiet neighbourhood, if windows were left unfastened. For a few shillings each, simple but well-nigh impregnable Chubb window catches could be fitted.

"To any sort of window?" asked the mollified engineer, pointing to the round-headed stained-glass landing window. "Even that ridiculous item?"

"Even that," said the Man from Chubb.

If you haven't got a Chubb catalogue (or can't find it), why not ask for the latest one? It makes an excellent door stop or paperweight, and you never know when you'll have a client who wants the best security there is. Write or telephone Chubb & Son's Lock and Safe Co. Ltd., 175-176 Tottenham Court Road, London, W.1 (MUSeum 5822).

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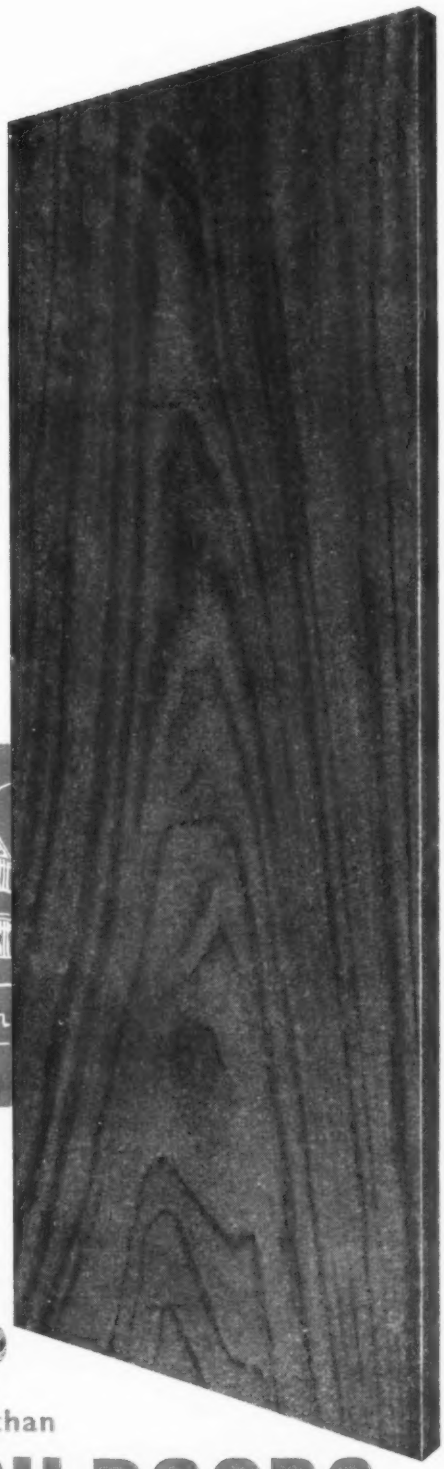

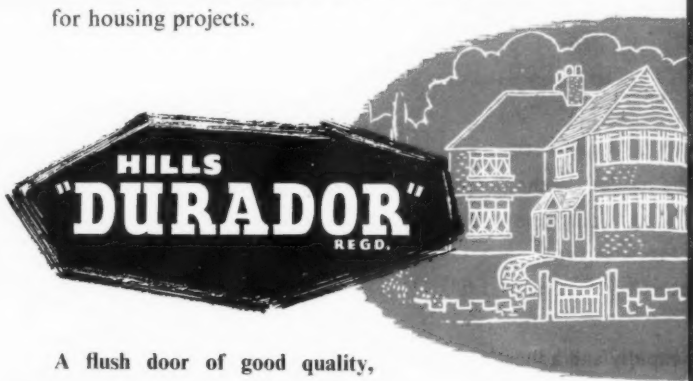

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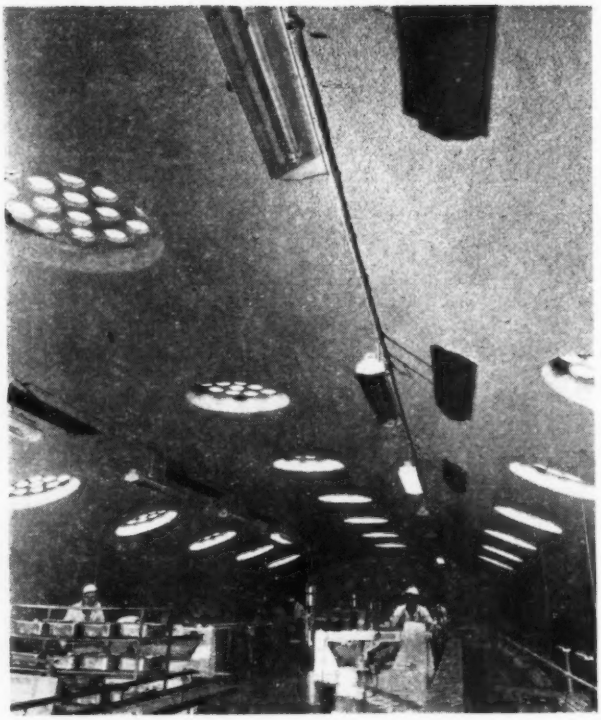

Pyrok was applied to the ceilings for anti-condensation and insulation purposes in the New Meat Products Factory, Godley, Hyde, Cheshire, for Messrs. T. Wall & Sons Ltd.
Architects: Messrs. J. Stanley, Beard, Bennett & Wilkins.

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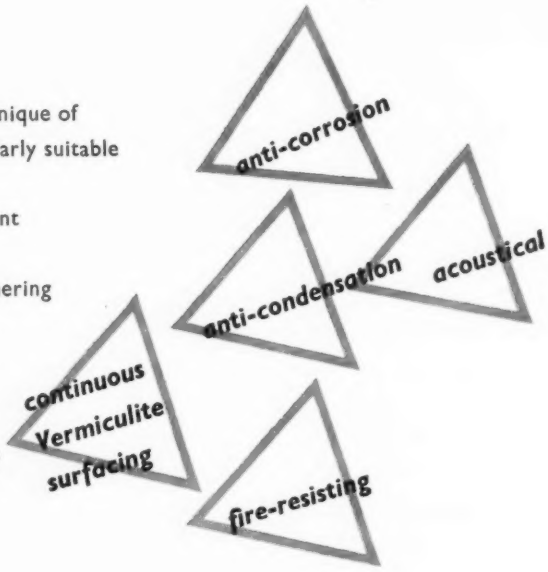

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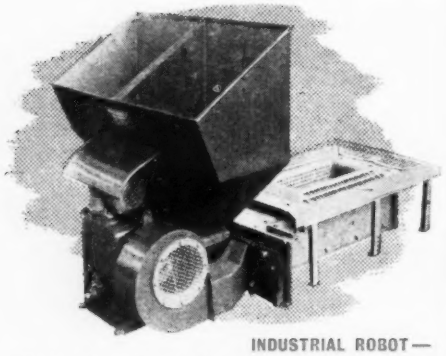

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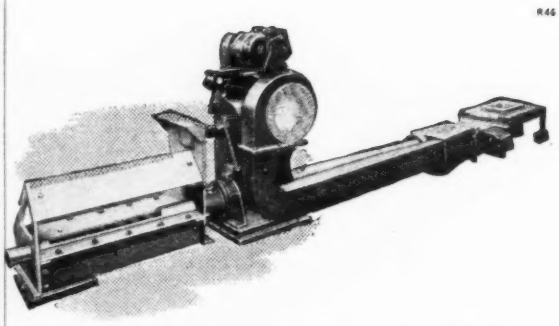

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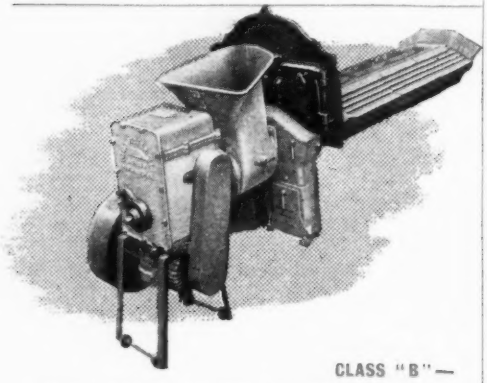

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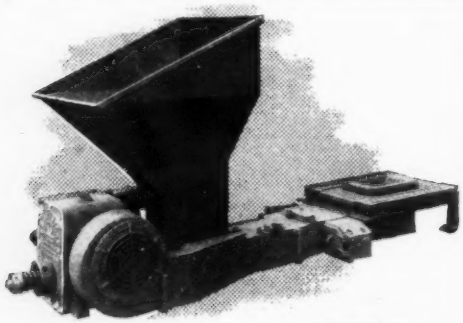

RILEY ROBOT—

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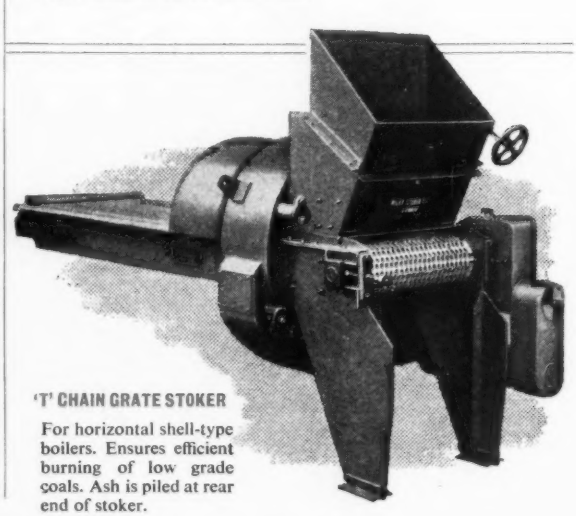

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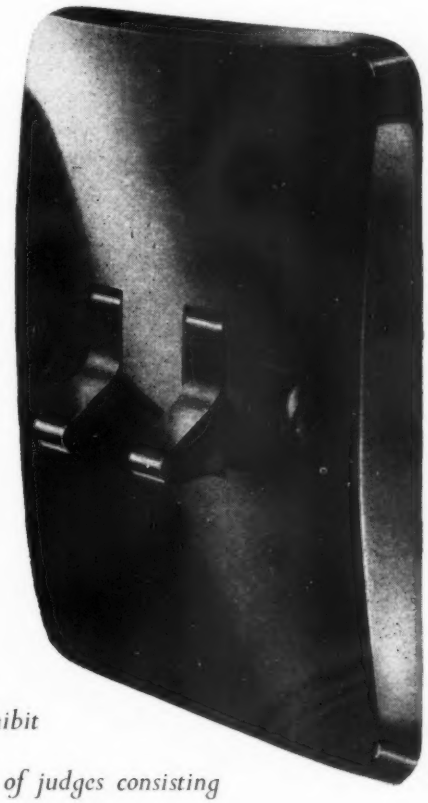

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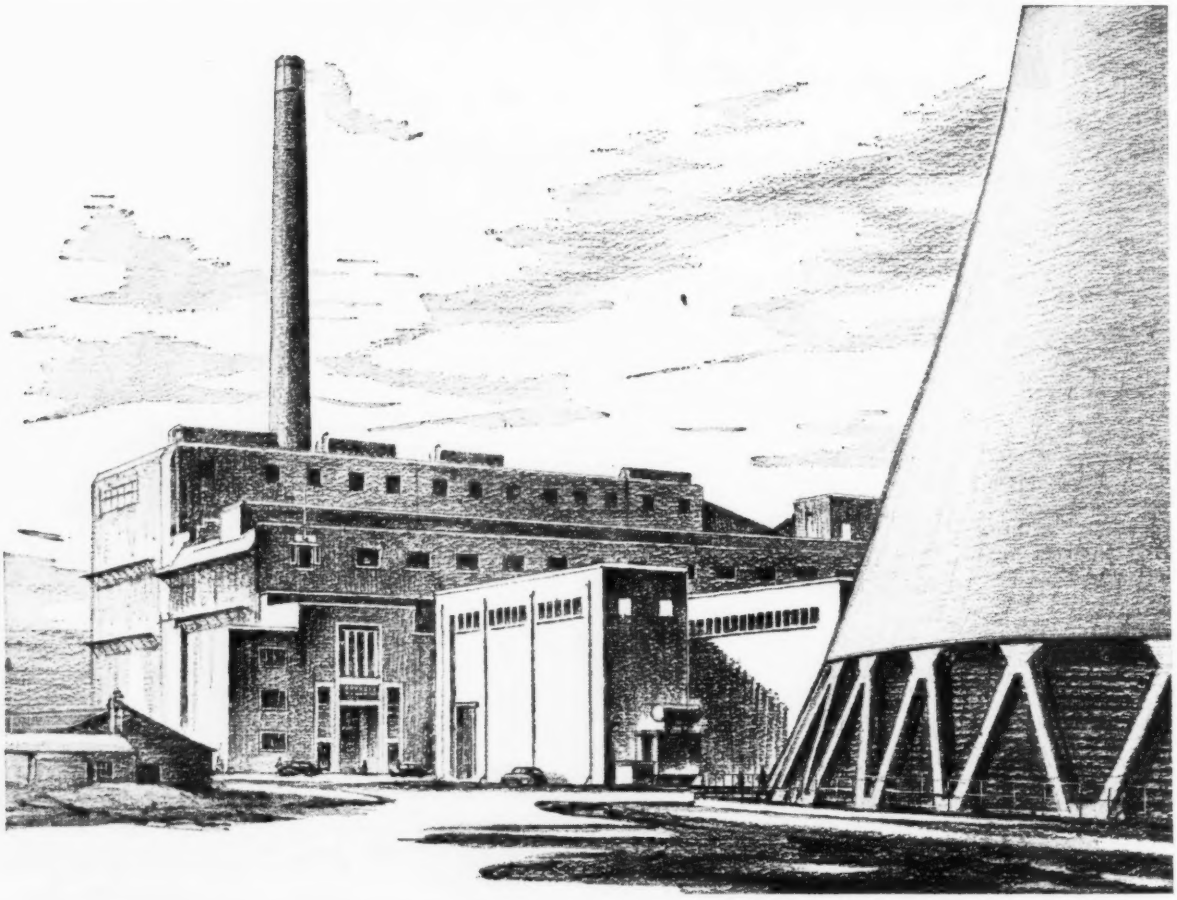

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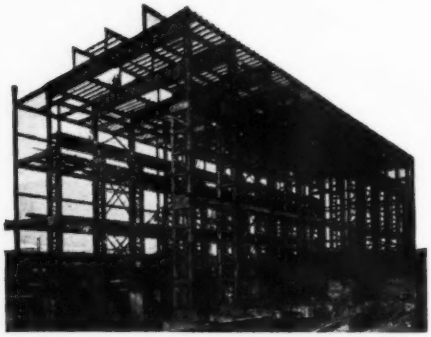

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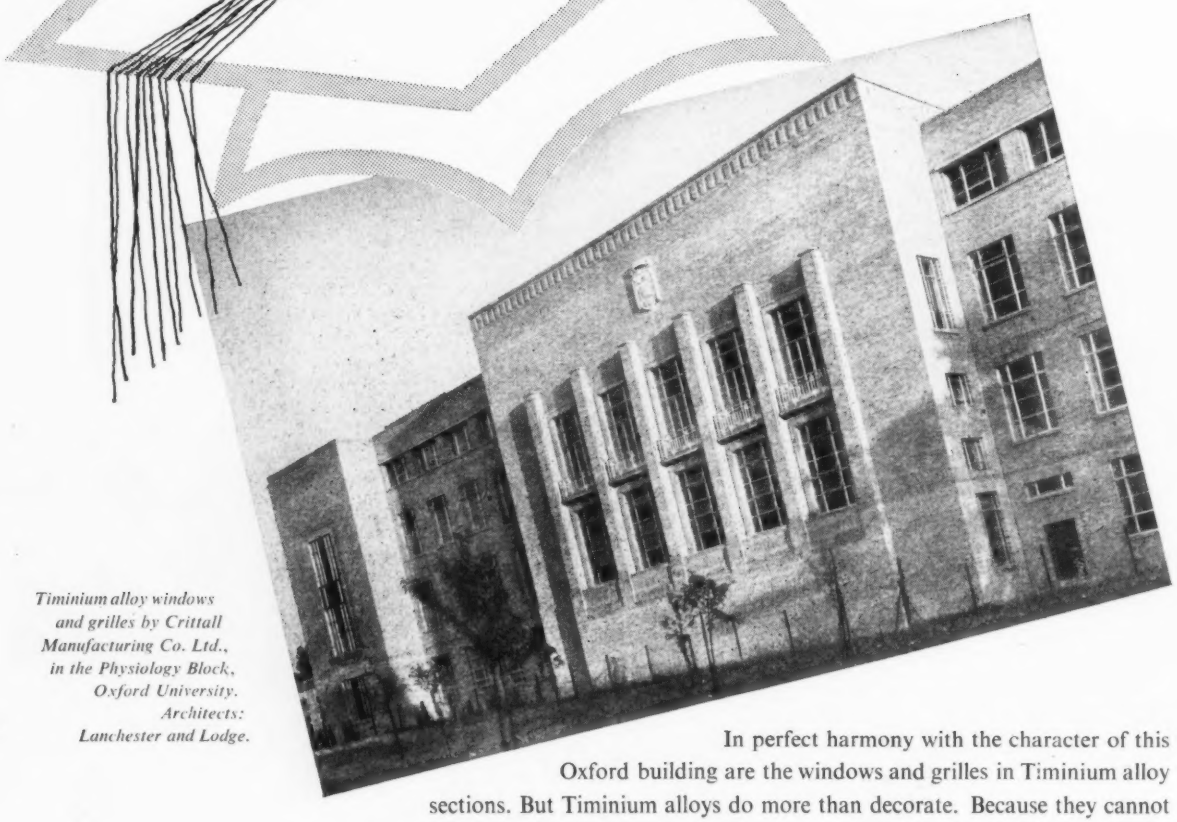
Timinium
right in the front



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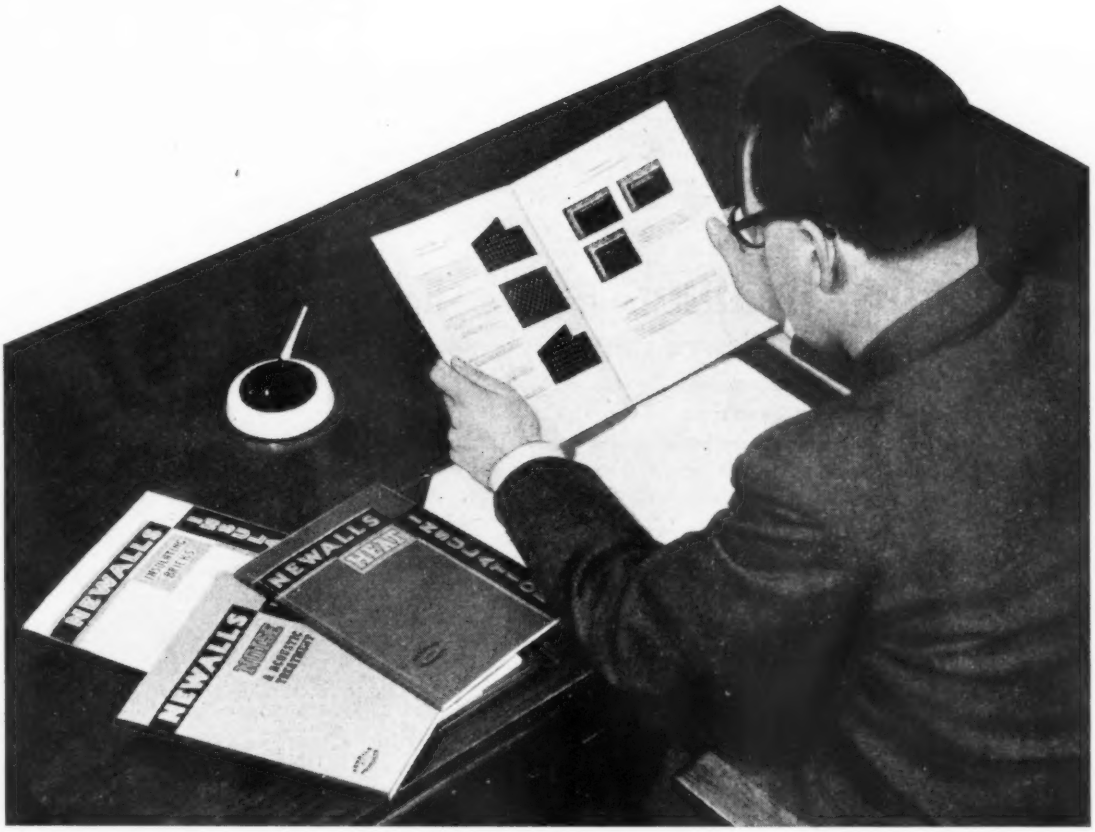

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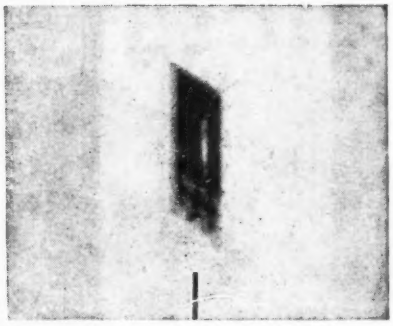

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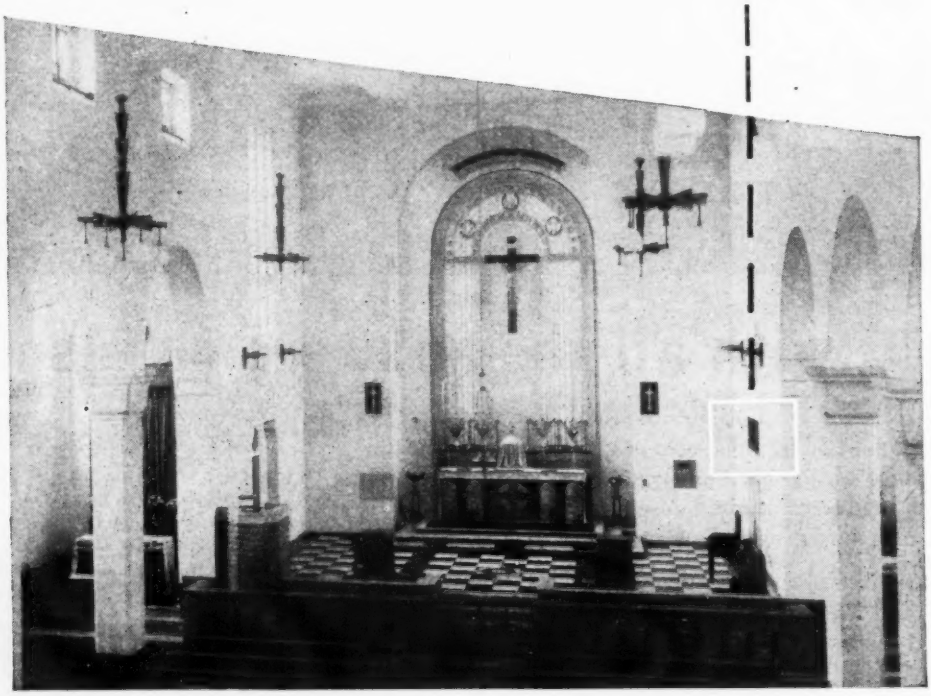

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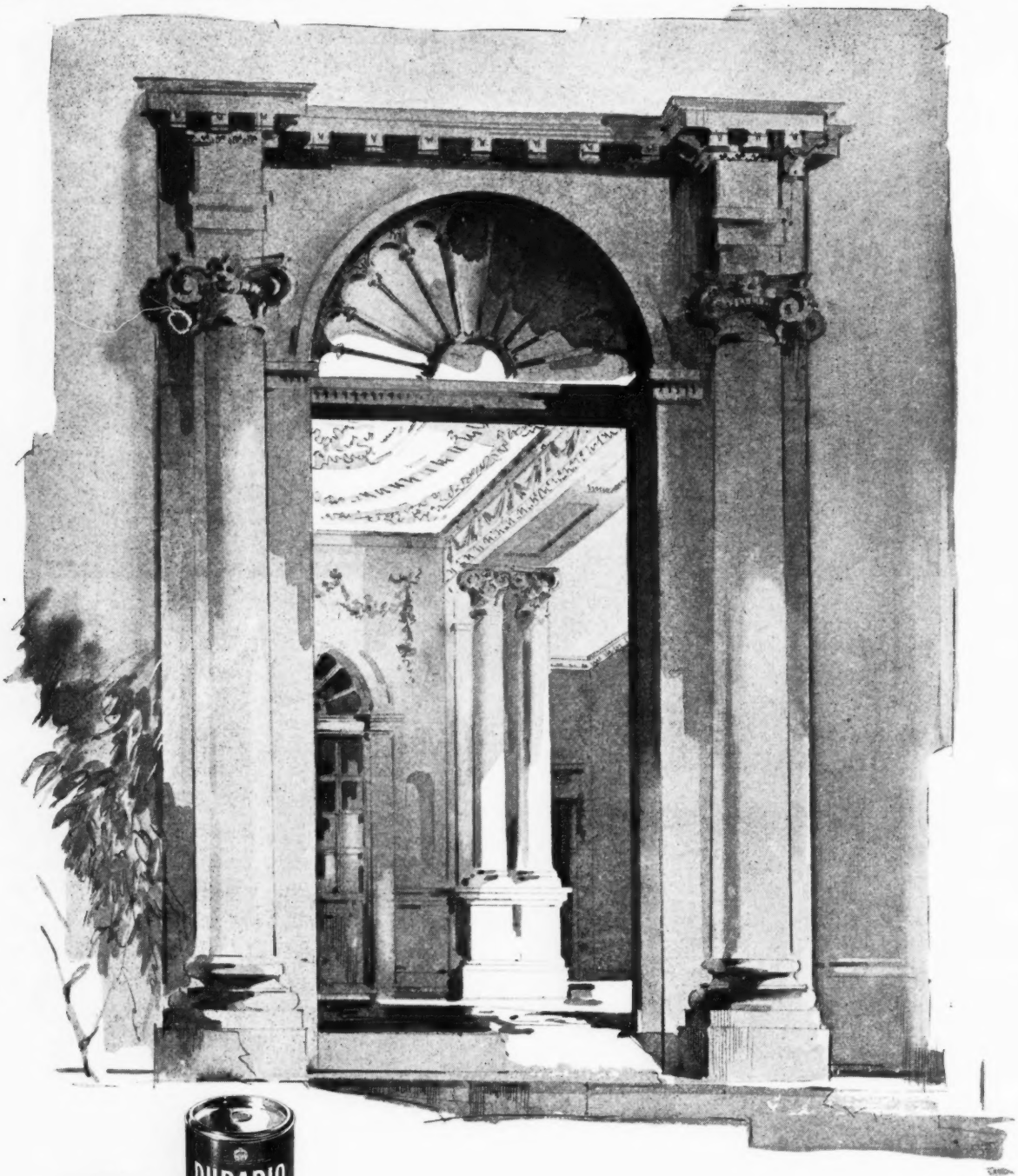

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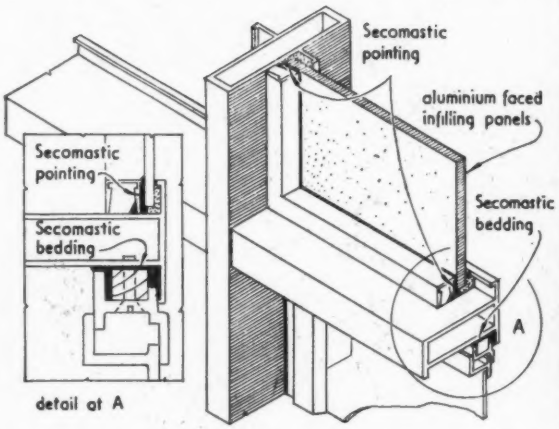
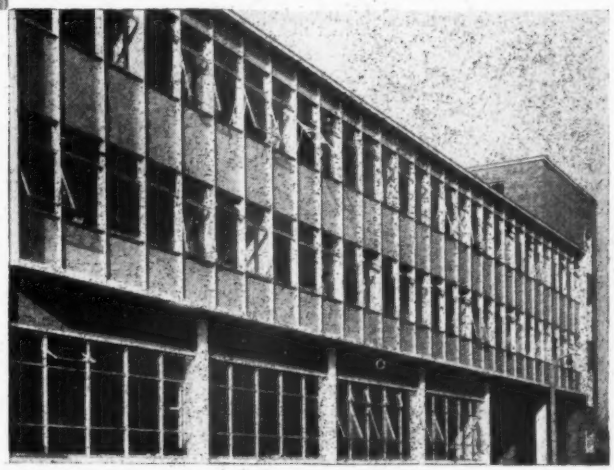
BOTTOM : T. Wall & Sons Ltd., London
Architects : J. Stanley Beard, Bennet & Wilkins.





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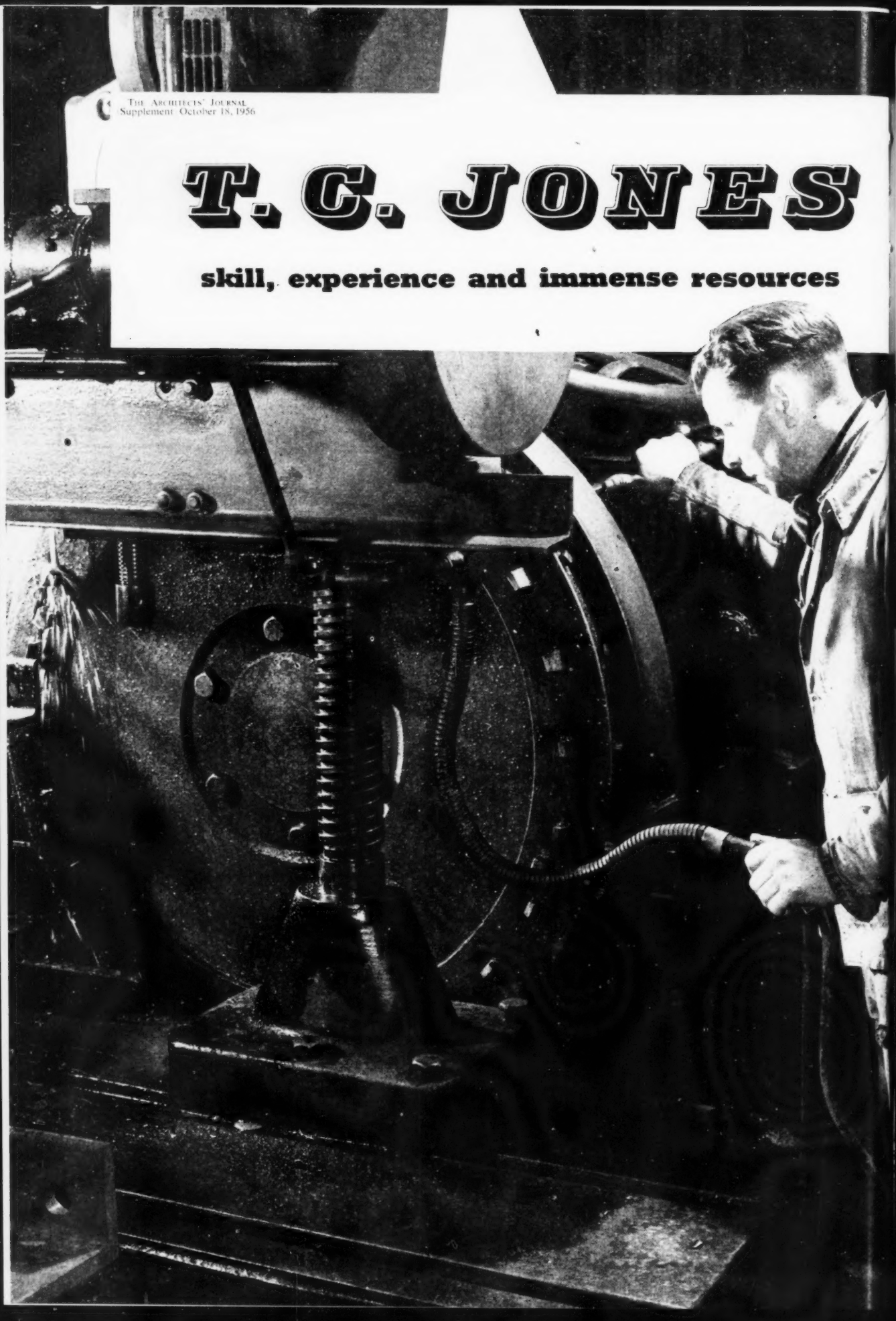

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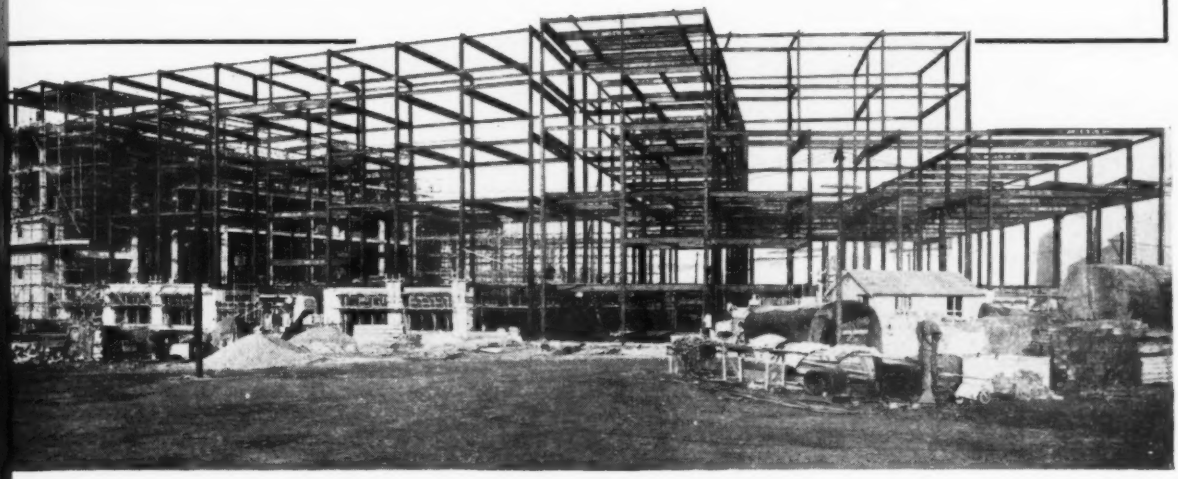
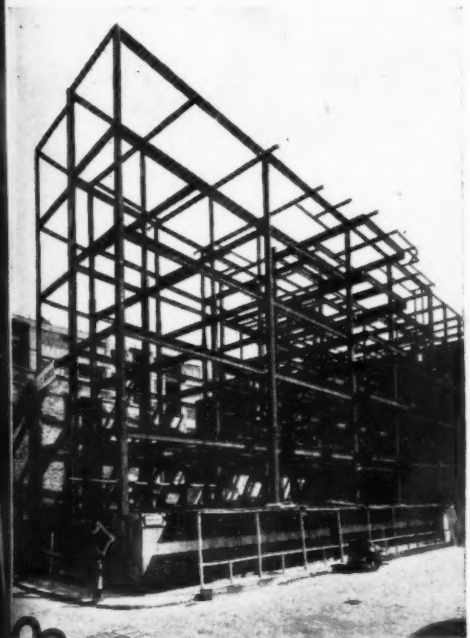
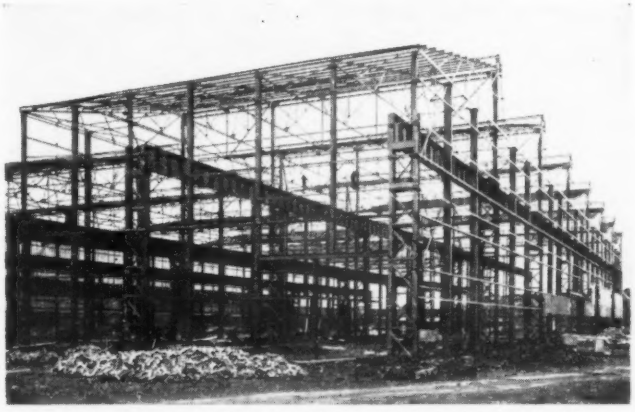


Steelwork for B.B.C. Television Centre at White City, first stage development. Development of this new Television Centre is being carried out under the direction of Graham Dawbarn, Esq., C.B.E., M.A., F.R.I.B.A., Norman & Dawbarn, Architects & Consulting Engineers, in association with M. T. Tudsbery, Esq., C.B.E., F.C.G.I., M.I.C.E., Consulting Civil Engineer, British Broadcasting Corporation. General Contractors for First Stage Development: Messrs. Higgs & Hill Ltd.



Steelwork for rebuilding after bomb damage of Benbow Wharf, Bankside, London, S.E.1, for Messrs. Beck & Pollitzer, Ltd., Architect: J. Raworth Hill Esq., F.R.I.B.A., Contractor: Beck & Pollitzer Contracts Ltd.



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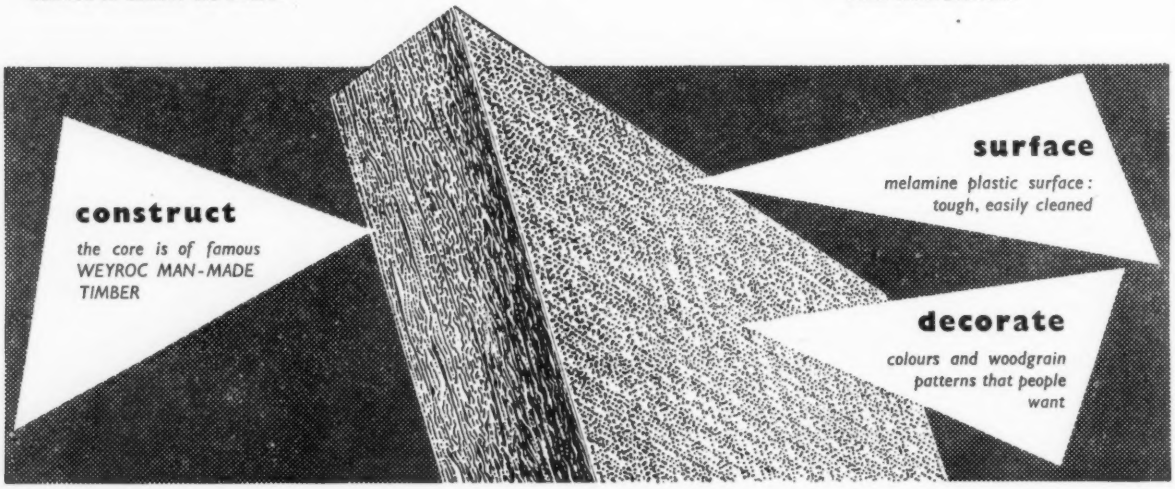

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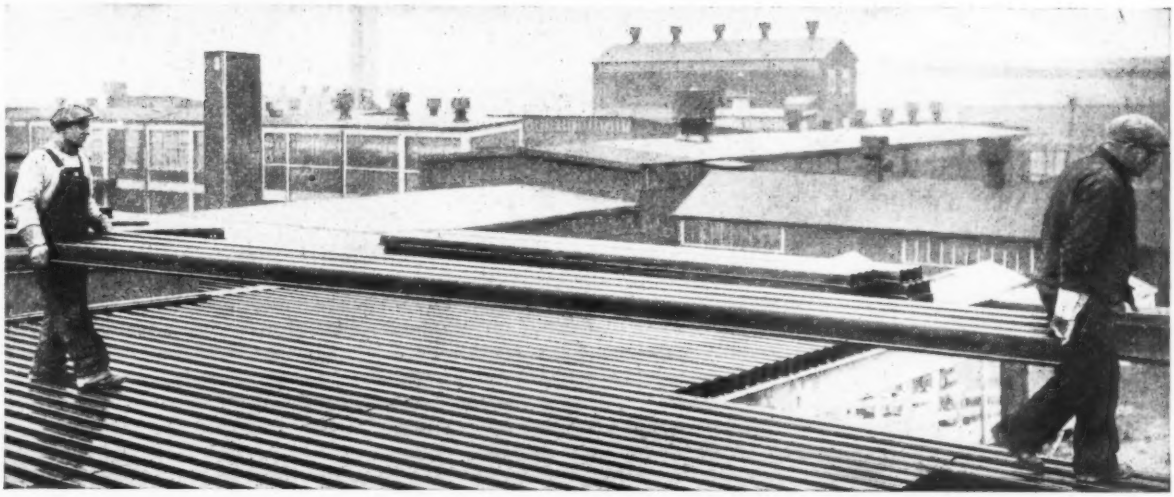

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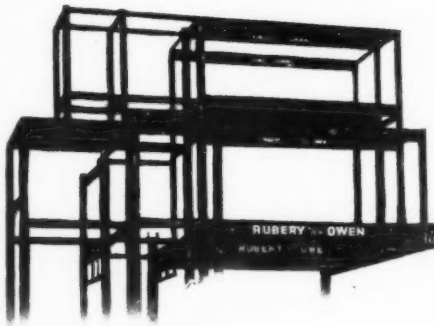

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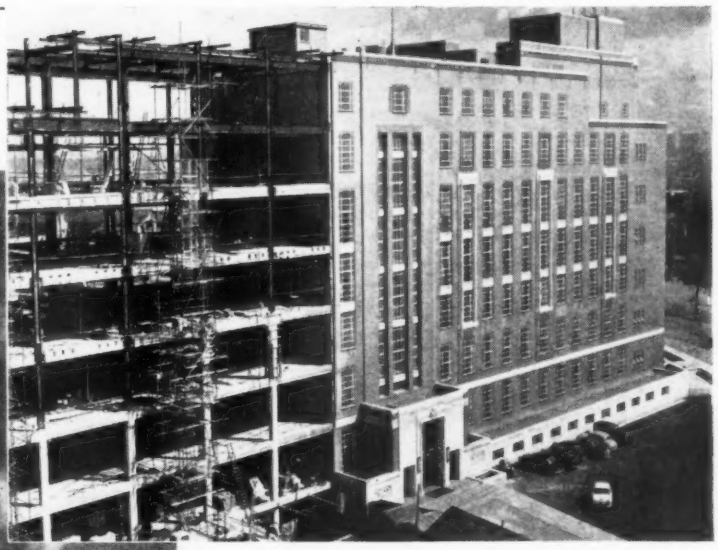

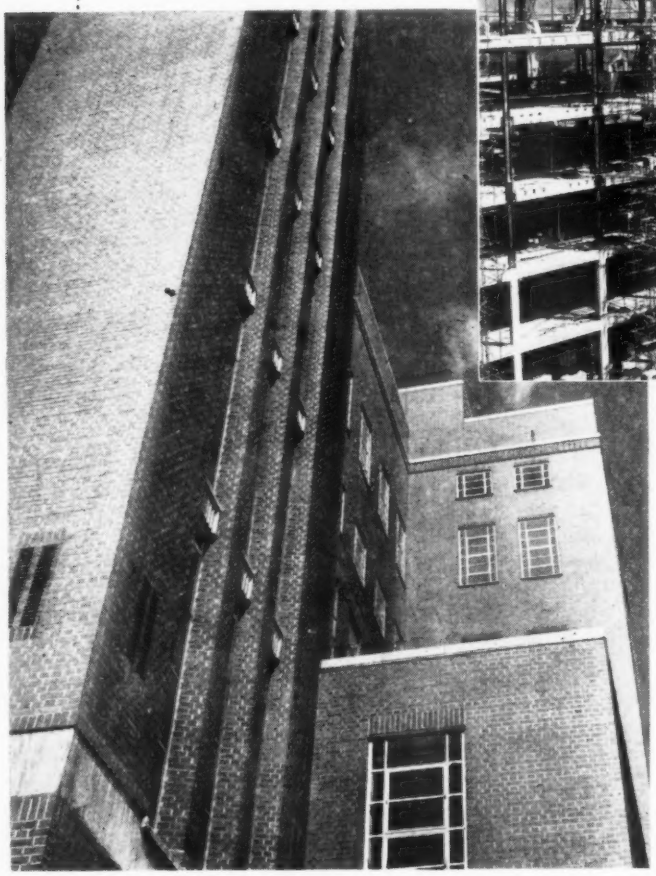

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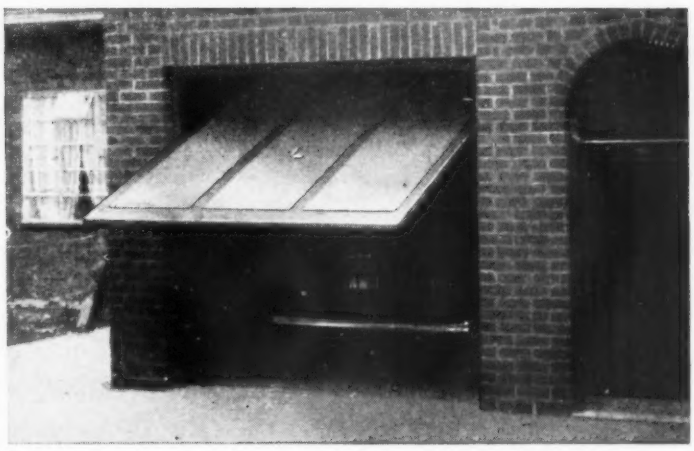

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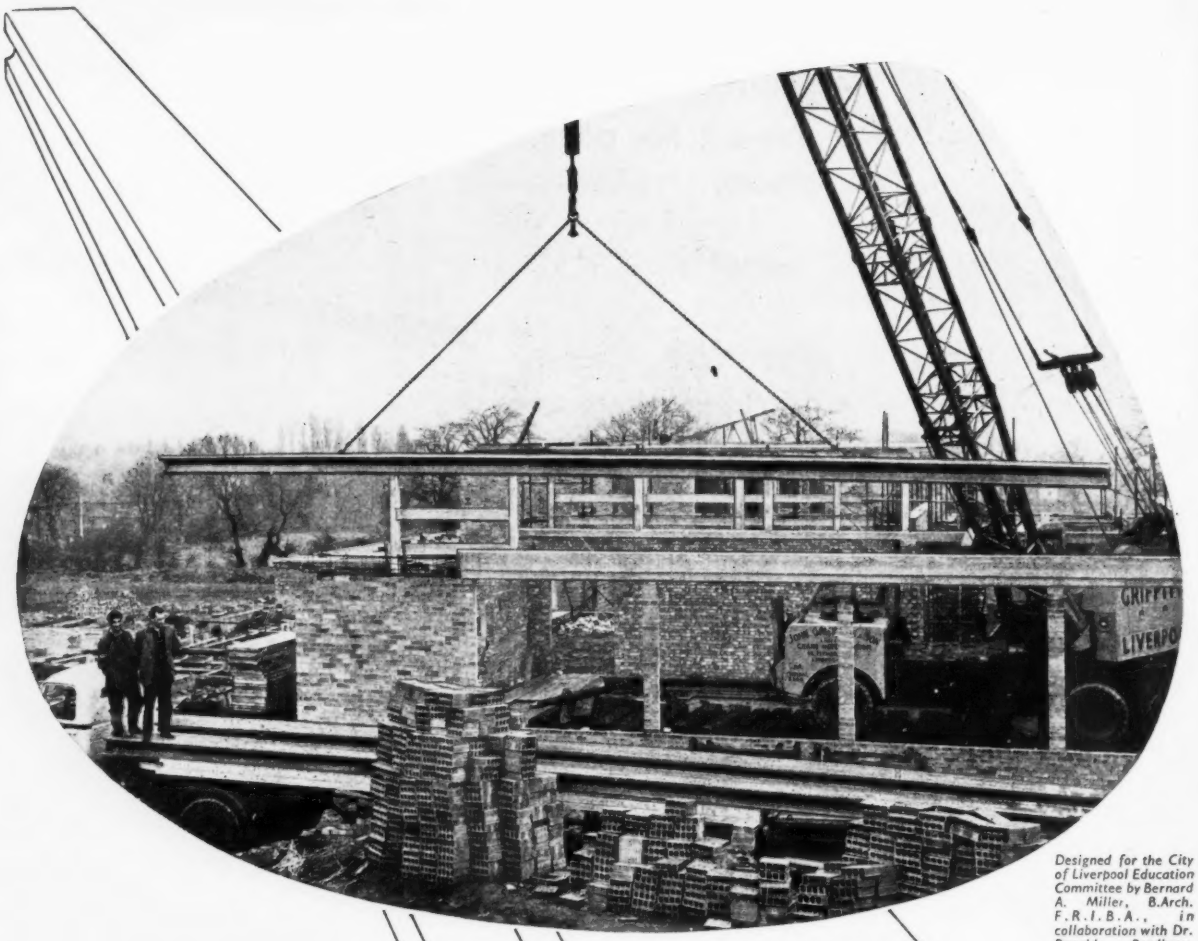

Designed for the City of Liverpool Education Committee by Bernard A. Miller, B.Arch. F.R.I.B.A., in collaboration with Dr. Ronald Bradbury, B.A. (Hon. Arch.), M.Sc., Ph.D., F.R.I.B.A., A.M.T.P.I., City Architect and Director of Housing.

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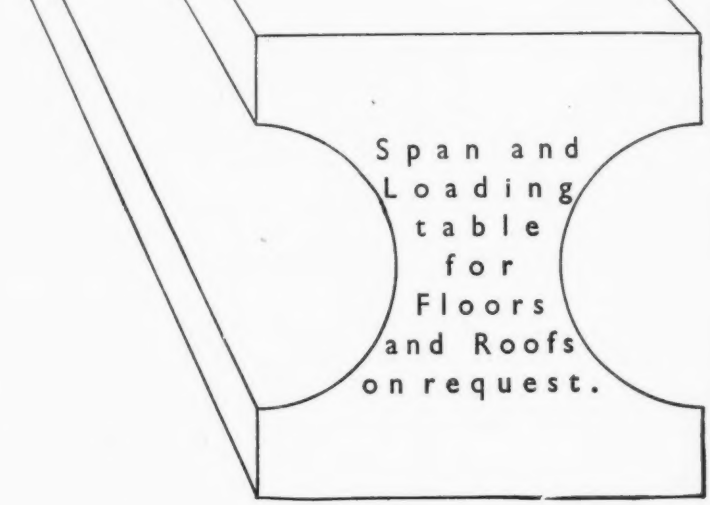

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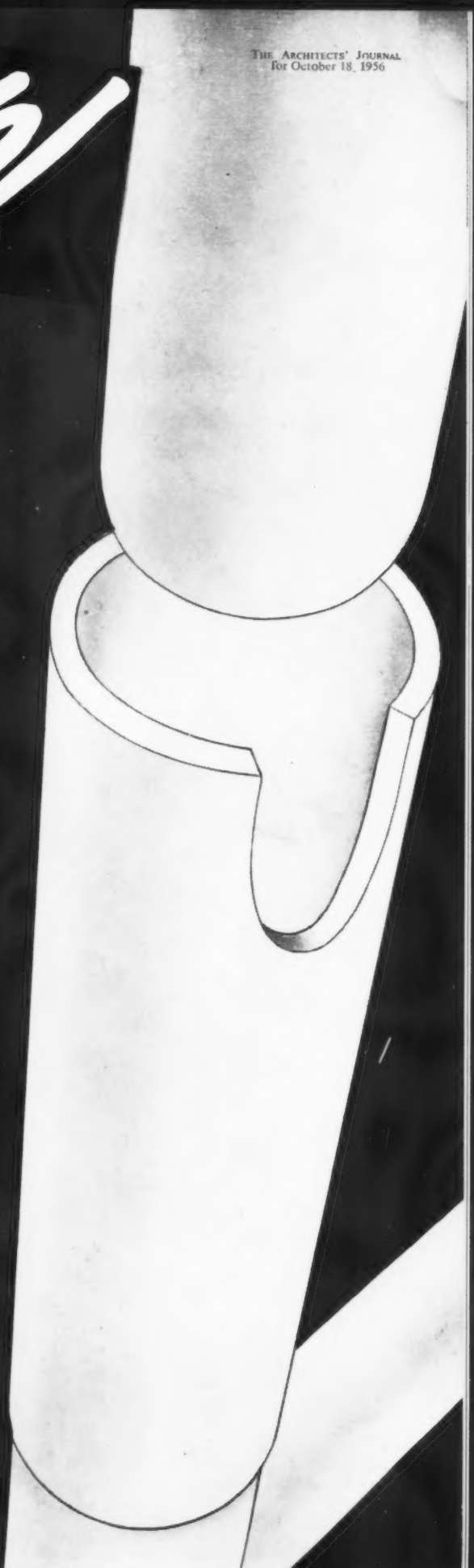

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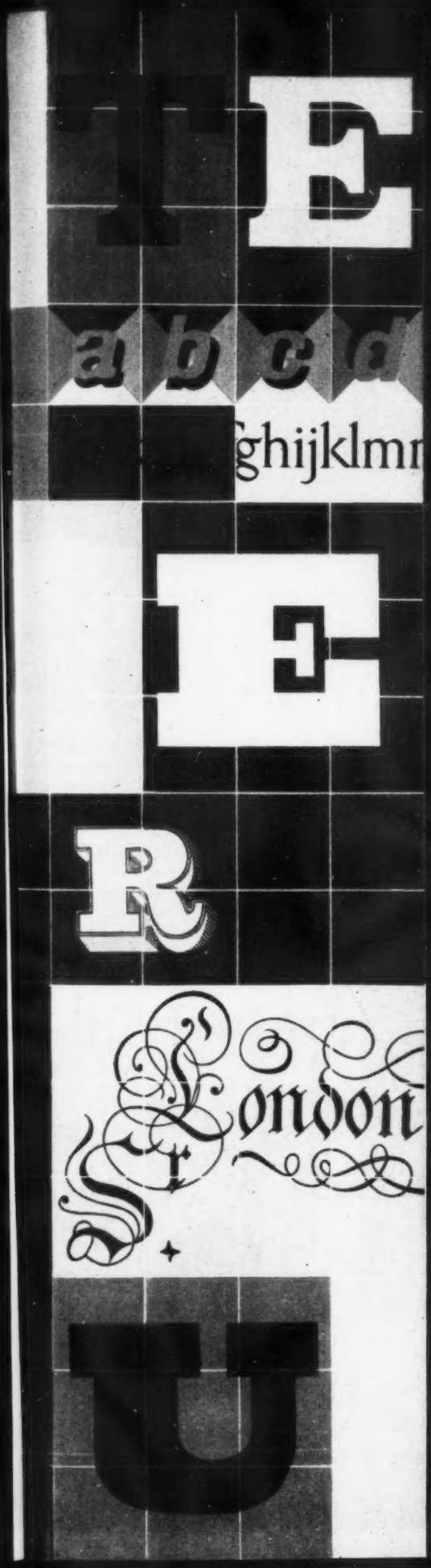

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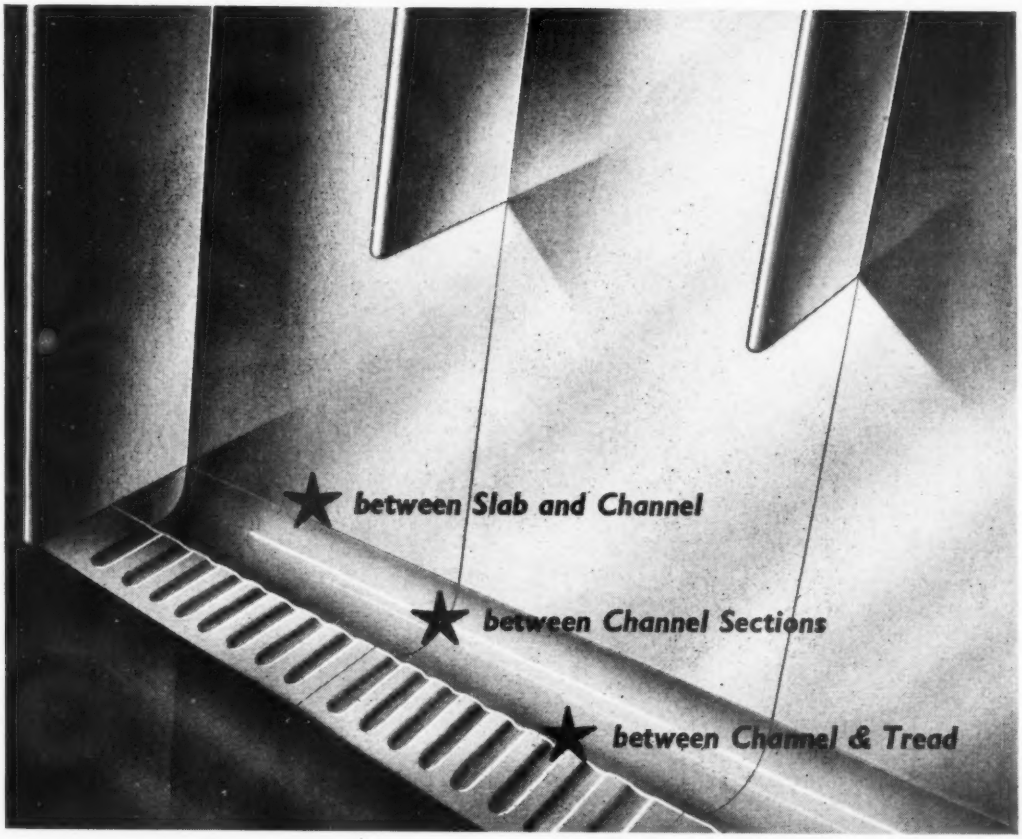

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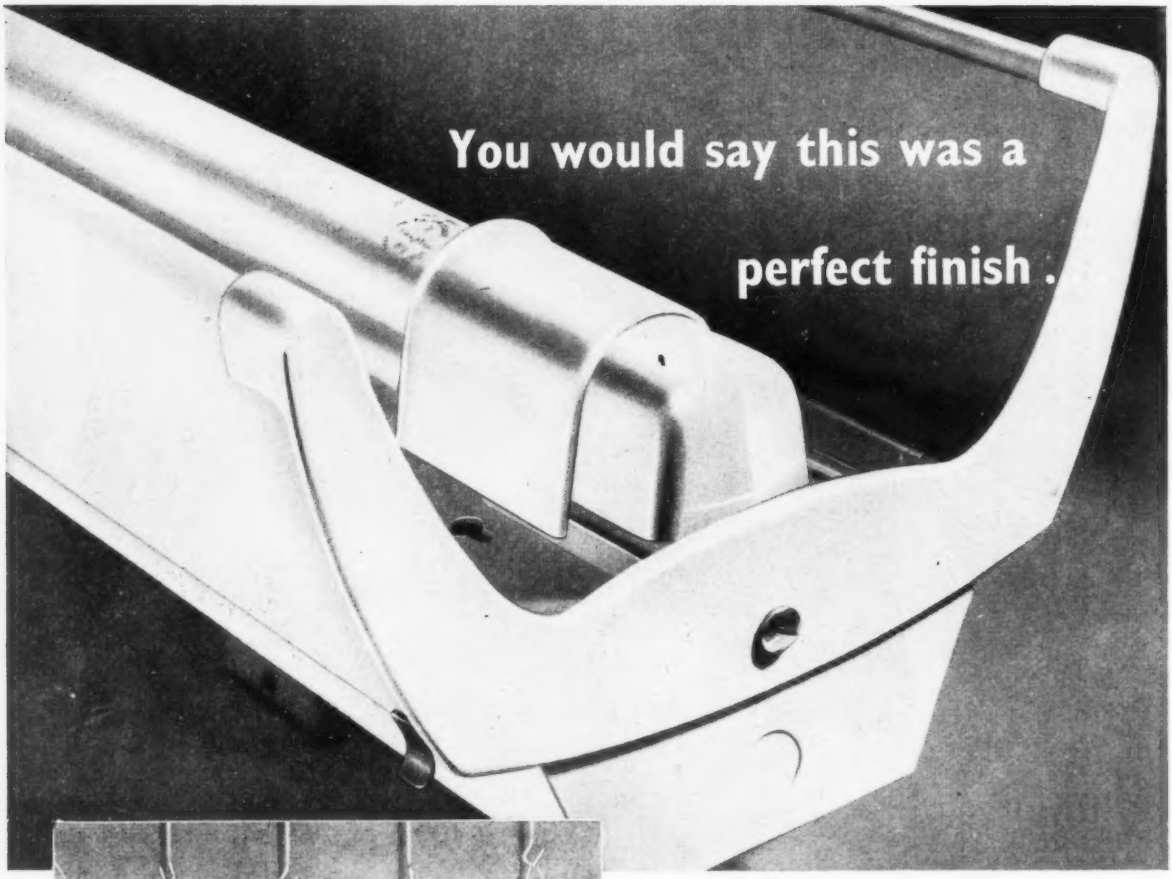

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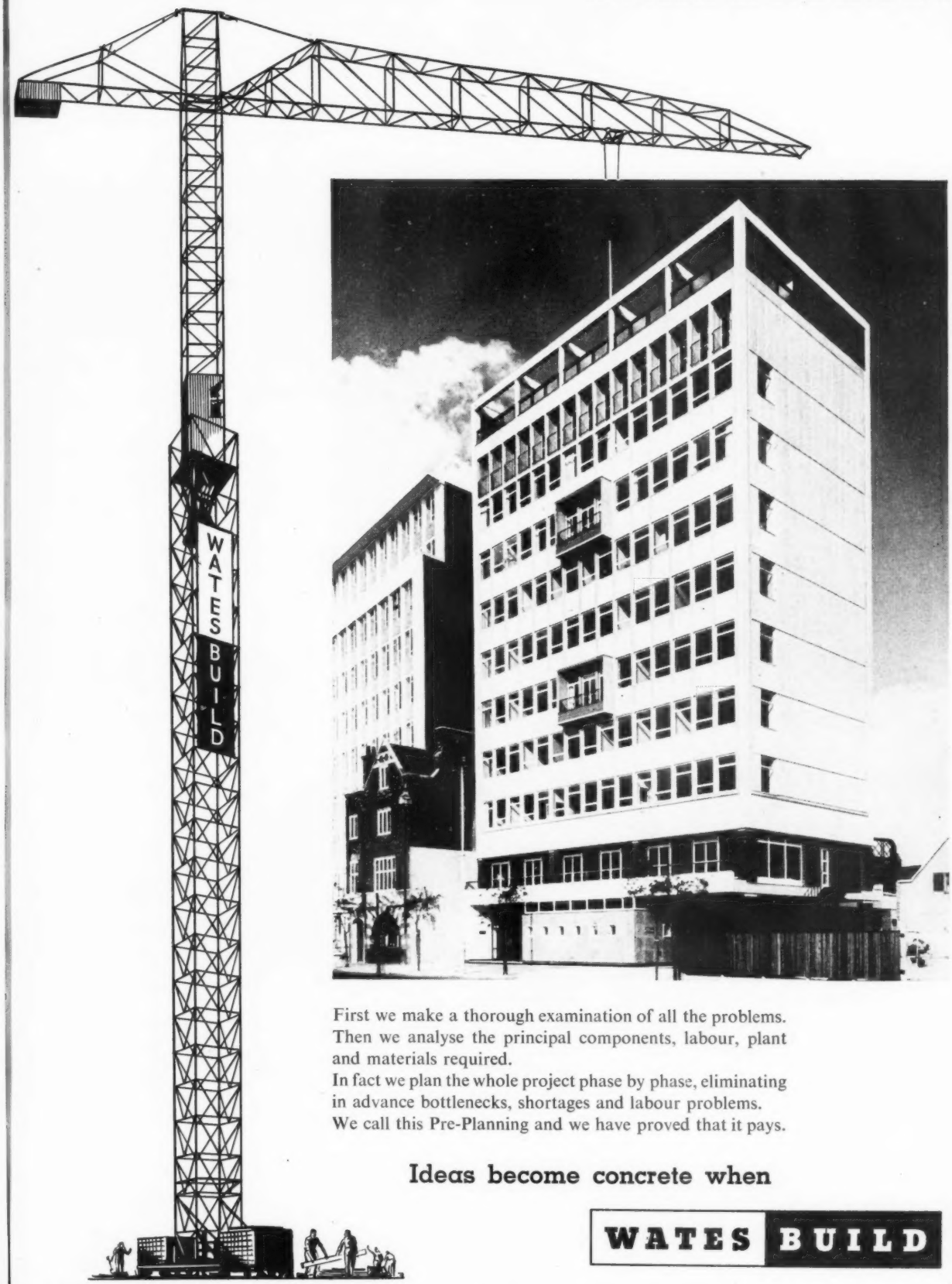

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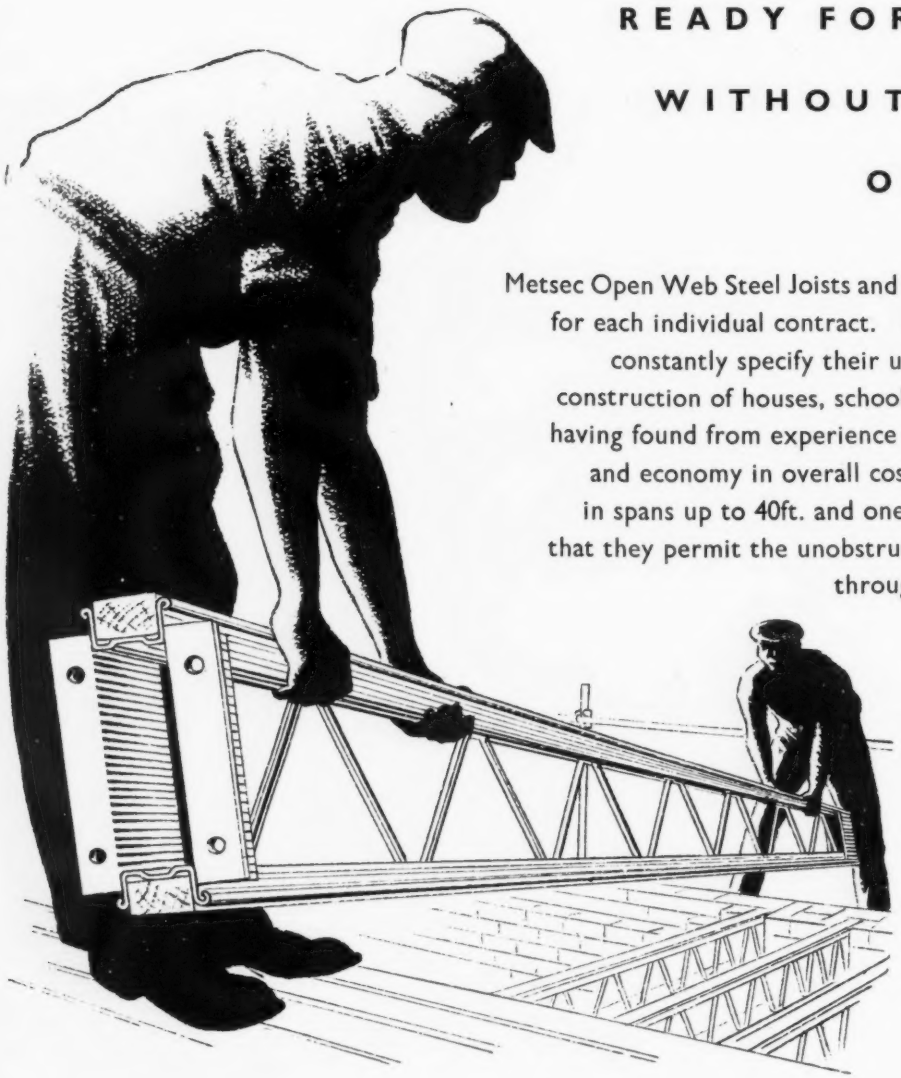

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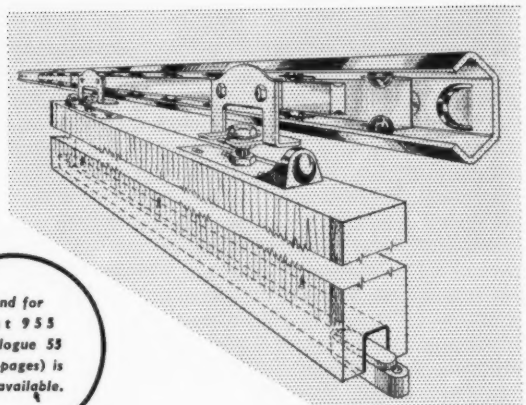

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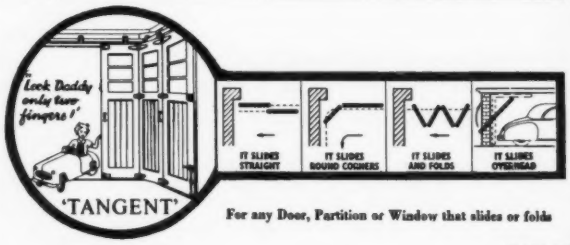

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THE ARCHITECTS' JOURNAL

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NOT QUITE ARCHITECTURE *

PROTOCOL CRICKET

Self's XI v. *Arthur Phebey's* XI *at Newdigate, Dorking*

In the brick-supported body of an old railway carriage twenty-four cricketers are changing. Some are very good cricketers, others not such good cricketers. All are guests of the AJ, including Self's opposing skipper, Kent's opening batsman, Arthur Phebey. It is raining. The rain slants in through the windows of the carriage. Everywhere it is October. In the carriage mud-soled cricket boots smell of football.

Arthur and I walk out to look at the wicket and to toss. Arthur stoops to press the wicket with his fingertips and grins

"All my chaps'll have a bowl," he says. "Bring them into the game."

"A beer-match?"

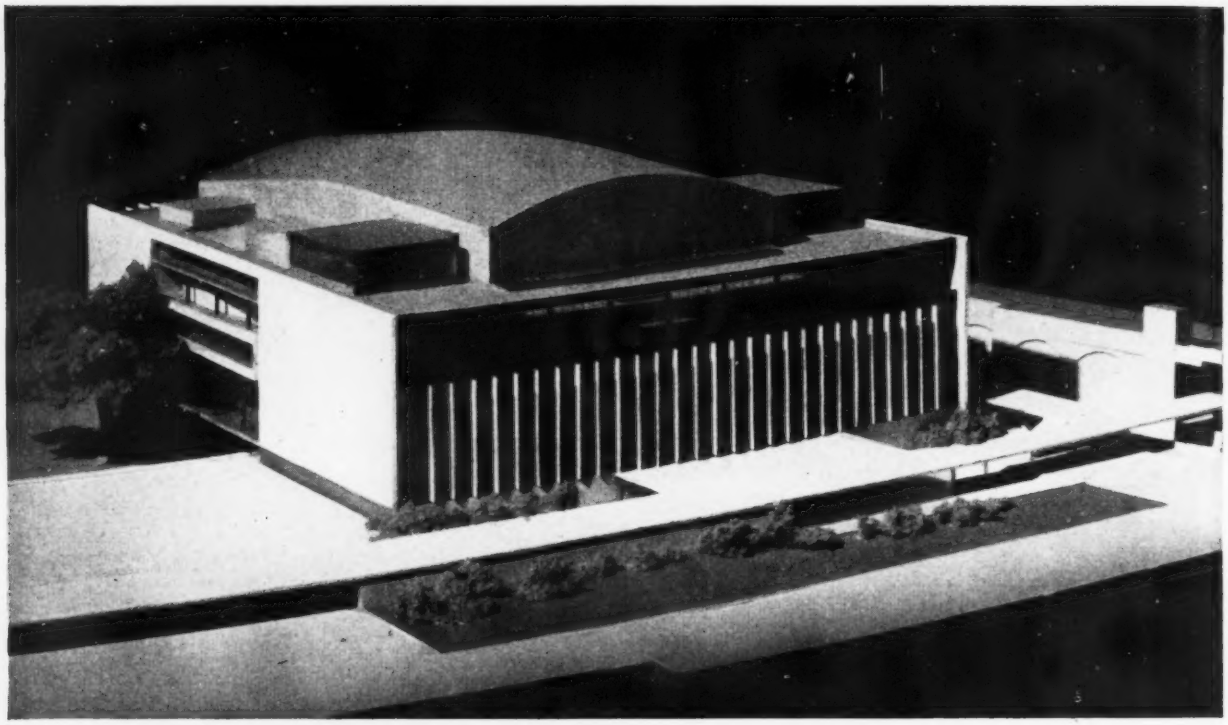
"No, all right. Let's agree to bowl tight from one end."

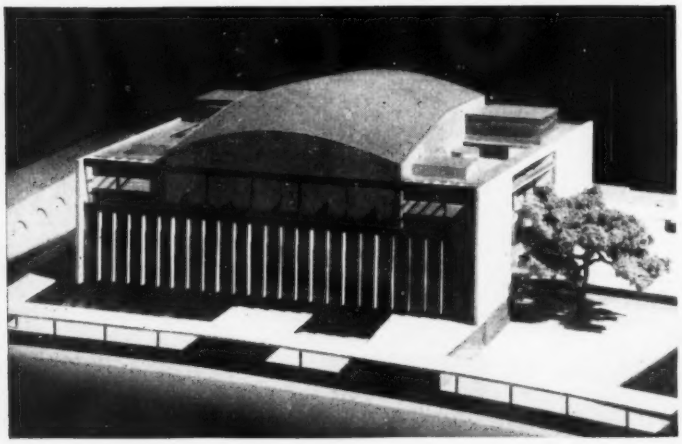
Protocol.

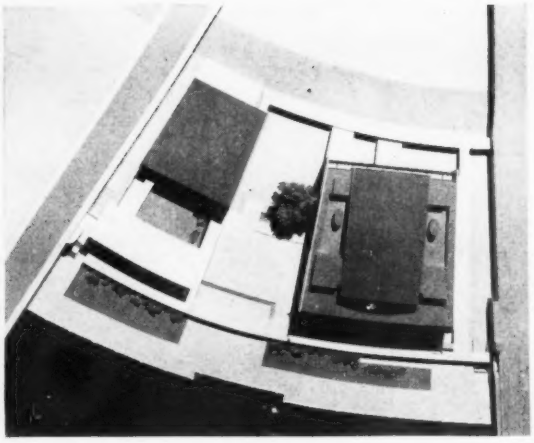
I lose the toss. I give the new ball to a builder and to a TV-advertising script-writer. The sun comes out. A slate cill manufacturer slips fielding in plimsolls and falls over. Suddenly the TV-A S-W strikes his first good length since July and, lest protocol be violated, has to be hastily removed. I try a student of architecture and Chinamen, who at once makes his spinners bite just out of smothering reach, so off comes the wicket-nagging builder. None of these manœuvres wins a wicket even by accident. Arthur's openers are a second student of architecture and a GEC research technician. They put the 50 up. On comes Self and off again quickly, having, much to everyone's surprise, yorked the student of architecture.

The GEC RT chucks it away, a film executive soon goes and as a flat-roofing tycoon walks in it is agreed that he shall be umpired out first ball whatever

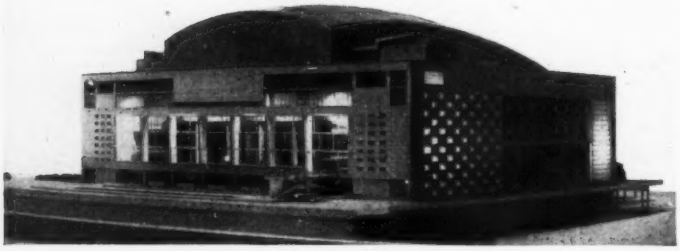
* and very nearly not quite cricket







Alterations To The Royal Festival Hall



The numerous critics of the Royal Festival Hall's river-side facade will doubtless be disappointed to hear that it is only a coincidence that this much-attacked facade has been remodelled by the LCC's architects' department. Although the existing elevation, shown at the bottom of the page, will give way to the one shown in the top picture, it will do so only to provide more floor space—not to silence criticism. The building is to be extended by 20 ft. on this side so that the restaurants can be increased in size. The other end of the hall will be extended by 30 ft.; this new space will be used as shown in the plans on pages 549-551. It will house a new entrance foyer, and will have a finished appearance as shown in the picture below. The small concert hall, which was to have been built on to the main hall at this end, will be built on the site originally intended for the National Theatre, and will be linked to the main hall by covered pedestrian ways (plan above). The architects responsible for the replanning of the hall were: J. L. Martin (former architect to the Council; F. G. West, deputy architect; D. C. H. Jenkin, senior architect; K. J. Campbell, assistant senior architect; N. W. Engleback, architect in charge; M. J. Attenborough, assistant architect.

happens. He middles it safely. Hearing vociferous appeals he is dumbfounded. He gapes at the umpire's raised finger. Finally he ejaculates. "Don't be blooming silly!" Thoroughly disarranged he spoons up a dolly catch second ball. Hardly protocol. 65 for 4. Now, at last, in comes Arthur.

Bit serious, is he? Concentrating? We try him with the third student of architecture playing in this match and Arthur hits his third ball smartly into the road. Protocol. Festival cricket. Now as Arthur warms up half the batting side go out of the ground to cover the road and various thickets and coppices. But with 30-odd in 15 minutes he is satisfied, holing out to the advertising agent who controls the Ferranti account, and soon afterwards, at 113 for 6, declares.

Spam tea.

When the builder and the third student of architecture walk out to open the innings their strict instructions are to go for the runs only off the loose end. They begin quietly. The bowling is tight at both ends, no doubt a mistake soon to be rectified. Time passes. They trickle along to 7. The student falls. In goes an actor. He sticks but then falls. In goes a butcher with a warning not to run the builder out and a warning for the builder not to run the butcher out. Instead they both run themselves out. 36 for 4. We're in trouble.

"It's like a Test match out there," the builder comes back and tells us. "Arthur's out for a win, you know. I don't think he can help it." Total cricket. Needle stuff from both ends. A Carmody field. Four short legs. No bowling changes. The light beginning to go.

Fresh instructions go out. "Sit on the bowling, boys. Sit on it tight." But disasters still accrue. The first student of architecture carefully watches the ball onto his wicket and the TV-A S-W chops his own wicket down. Up to the tail now. In goes Self.

Can we play these leg-breaks that drop on a length to strike across our pads like poisonous snakes? Can we keep the F-R T's splenetic match-winners out of our stumps? Somehow or other we survive and in the last quarter-hour Arthur, true man of Kent, just as the chiroptera (bats is ambiguous) begin to grace the dusk above our heads, brings on the promised tripe. 61 for 8. Match drawn.

"Made for a better game," he grinned afterwards. "Besides, I wanted to win a game for a change."

Firkin.

And the season closes.
What do we write about now?

ROBIN MUDIE

The players: Self (AJ), A. Phebey (Specifile), H. Raymond, G. Lloyd, K. Skelton, J. Thompson, T. Tatham, B. Nichols, M. Frankling, B. Beeby, R. Hart, R. Hirst, B. Hoskings, L. Gurdlestone, F. Bernard, D. Bailey, J. Bailey, R. Hill, D. Boswell, B. Knott, I. Fraser, J. Dalton, K. Jackson, and E. Chamberlain.

The Editors

YOU CAN'T GET AWAY FROM IT

ARCHITECTURE is the only art which has a practical function to perform and from which society cannot escape. Robert Furneaux Jordan, in an excellent recent BBC talk on the criticism of architecture, pointed out that whereas a Munnings or a Braque "may end its days in the cellar of the Tate, the Shell-Mex building is always with us." It is the inescapable presence of a building and its behaviour-moulding influence for those who live near it, or live and work in it, which makes it so important that we get the best buildings we can. Good architects are not enough. Intelligent, informed clients are essential. The task of the critic is to create such clients.

Unfortunately, criticism today is largely confined to aesthetic criticism. Criticism of the performance of a building is not given, and this is due to two things. First, it is believed that the present laws of libel discourage it. Second, aesthetic criticism, which, we admit, has an important enough part to play, is considered an infinitely superior, cultured pursuit to mere technical criticism. It is this rift between art and science which J. Bronowski so vigorously condemned in last week's *Observer*. Modern architecture, if it means anything, is the fusion of art and science. But the majority of architectural critics play only lip service to the science and the technique of good building. For reasons of plain, old-fashioned, intellectual snobbery, or fear of libel, criticism, in the main, is still confined to the visual appearance of buildings, and not to their true content. The idea of originality at all costs, and the frenzied creation of individual masterpieces by not very eminent individualists, constantly hampers the steady development of modern architecture as a social force. For the encouragement of this, and for the rift between art and science, many so-called leaders of the modern movement, many critics, and not least, many architectural periodicals, must carry a portion of the blame.

FILE THIS WEEK

LIGHTS IN THE DARKNESS

Now that Coventry and Herts are generally recognized as the sources of much of the best in post-war British architecture, it is encouraging to learn that some of the younger architects in those offices who did so much of the early, slogging, work are getting senior positions themselves. ASTRAGAL has just learnt that John Barker, one of the section heads at Coventry, has become deputy at Buckinghamshire, under Frederick Pooley. And Kenneth Evans, a senior architect under C. H. Aslin in Herts, has been made county architect of the Isle of Ely. Slowly, but surely, the influence of the disciples of the true modern movement is spreading.

*

Incidentally, there is an advertisement somewhere in this JOURNAL for a successor to Hugh Wilson at Canterbury. Whoever gets this job will have largely to be satisfied with honour and prestige alone. Apparently the new population-based salary scales ensure that the architect and planner of this historic, if small, City will earn a maximum of £1,500. This seems to be the situation when the RIBA's new Secretary of Professional Relations might well offer advice to a local authority. Unfortunately, however, he is in America.

BUSYBODIES OR HELPING HANDS?

Is the lack of privacy in village life a factor which encourages moral behaviour and social awareness and responsibilities on the part of the inhabitants? Or is the absence of privacy an intolerable loss of freedom? The questions were raised, but not answered, by sociologist Peter Collison at the Housing Centre last week, when he discussed "The Neighbourhood Idea." After describing the pros and cons of neighbourhood units, Mr. Collison decided that on the whole they were worthwhile because there is no obvious alternative method of laying out a town. (He dismissed the possibility of a large block of flats being a neighbourhood unit.) The whole subject, as posed by the speaker and members of the audience, made little sense to ASTRAGAL because no one defined a neighbourhood unit. It can, apparently, be anything from a street of two hundred people to a small town of fifteen thousand. How many neighbours have *you* got?

JAP LECTURE

London's winter season of intellectual activities began with a lantern lecture on contemporary Japanese painting. This was given to the ICA's mysterious Independent Group by Dr. Ryosaku Murata. My scholarly spy reports general disappointment with the paintings themselves, in spite of the excellent colour transparencies. Most of them, he says, were cast in rather antique European modes (Expressionism, and all that) and showed that, far from leaning toward the tidy—the Miesian and the Mondriaanesque—Japanese painters tend to treat oil paint as a welcome excuse for making a glorious technicolour mess on the canvas.

*

It also appeared that there is little Institutional support for Western-style painting in Japan, anyhow—apart from the Kamakura Museum, of which Dr. Murata is head. ASTRAGAL remembers this museum as a rather beautiful little square building, planned around a sculpture court, designed by Junzo Sakakura, that pupil of Corb's who also designed the delicate Japanese Pavilion at the Paris 1937 exhibition.

THE OLDEST HAT OF THE YEAR

The current *Architects' Year Book** is of the baffling pattern set in previous years. The reader is expected to wade through large quantities of high-flown and over-blown æsthetics before he is allowed to get to anything as interesting as an actual building. The back end of the book—the technical articles and the survey of current architecture in Britain—is quite good. But most of the articles in the front have already appeared elsewhere—sometimes more than once. Sir Hubert Read writes on "The Architect as Universal Man," which he has done in *Casabella* and *Arts and Architecture*. Basil Taylor shakes a worried head over the menace of art-historians, just as he did for the BBC and the RIBA. Erno Goldfinger deals with Auguste Perret—*again!* Then there is a revamped version of Gordon Graham's prize-winning essay on Brazil, and a reprinted piece on the British Trade Fair in Copenhagen from a Danish Magazine. There is also the news that has got out of date, like an old Pathé Gazette, *e.g.*, "CIAM is among the positive forces acting today," which, coming from the pen of two of the chief undertakers at CIAM's funeral, the Smithsons, makes very confusing reading.

*

However, there are two new pieces whose acquaintance ASTRAGAL was pleased to make—a sensible, thoughtful essay on *Architecture and the Visual Arts* by Julius Posener (and may ASTRAGAL take this opportunity to wish him success in his new teaching post at Kuala Lumpur) and a performance by Gordon Rattray Taylor (written with tongue-in-cheek?) called *Psychology, the Architect and Patron*. This is all about Patrists and Matrists—who prove, on closer inspection, to be Functionalists and Expressionists, or Rationalists and Organics. Such invention of new labels for old-time categories seems to ASTRAGAL to be the height, or depth, of æsthetic lifemanship.

DUTCH REPLANNING

J. M. Richards's second recent broadcast on what he saw when he was in Holland earlier in the summer made one want to know more about the strictly architectural side of his story. He spoke of the farmlands that are being created by reclaiming the Zuider Zee, and there was so much to say about the topographical, social and engineering aspects of this remarkable enterprise that the speaker had no time to do more than mention the

* Paul Elek, 42s.

This month Hubert Bennett, the former County Architect of the West Riding, took up his post as architect to the LCC. He is seen on the left in both these photographs, at a party held to welcome him to London in the Architectural Press's pub in Queen Anne's Gate. On the left he is talking to James Nisbet, the senior quantity surveyor at the MOE, and Cleeve Barr, Assistant Housing Architect to the LCC, who were two of the JOURNAL's *Guest Editors in* 1955. *In the background is Robert H. Matthew, Professor of Architecture, Edinburgh University, who was architect to the LCC from* 1946 *to* 1953 *and is now in private practice. Above, Hubert Bennett with Percy Johnson-Marshall, an LCC group planning officer, and F. G. West, the Deputy Architect at County Hall.*

new town that is being built in the centre of the North-East Polder—the first of the new territories to be completed—and the ten new villages that surround it.

*

Apparently one of these villages is being designed by the CIAM group of young Dutch architects, a job they were given after they had criticised the conventional style and layout of the first villages to be built. This is an enterprising way of answering criticism, and one hopes something exciting will come of it. This particular village is still in its early stages but the layout for it was exhibited at the recent CIAM congress at Dubrovnik, and aroused a lot of interest. It looks as though the North-East Polder, the new town at Emmen (which Richards talked about in an earlier broadcast) and the newest housing at the Hague may make Holland in a few years' time a place for architects to visit as it has not been since the 1930's.

ADVICE ON GLAM HOUSES

If a Welshman wants advice on building a house he can now buy a half-a-crown booklet, containing 18 good examples and 17 bad examples, from Glamorgan County Hall, Cardiff. The booklet is of the kind usually described as "lavishly produced," and is designed to be studied by the simpler mind. One point is made on every double-spread, and each is accompanied by a whimsical drawing to ram the point home (*e.g.*, living in town is symbolized by bowler, brief case and umbrella; living in the country, by a hayseed and a cow). ASTRAGAL likes the simple approach as much as the next moron, but he cannot help wondering if the lay mind is going to learn much from this book.

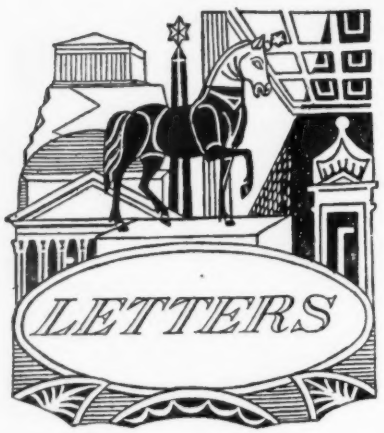
*

Imagine that *you* were a bit of a clod (it's difficult I know, but just try), and that you were making a real attempt to find out what the Glam boys wanted you to build. Turn to the first piece of advice: "Your house *must* fit its surroundings." Opposite this is a photograph of a truly-rural council estate. What are you supposed to do? Are you expected to change your mind and rent a house off the peg? Take another example. "The best value for your money is the house with a simple plan with ornamentation kept to the minimum." Opposite this advice is a picture of a semi-detached pair of (spec-builder's?) houses. Well, what *are* you supposed to do? Let us assume that no one is trying to bully you out of your original plan to build your own house, and turn to the heading *The Street As A Whole*. "Houses," you will read, "need not be of the same shape, height or to the same building line, but they must be in harmonious relationship one to another and restful to the eye." If you were to wonder at this stage what on earth you could do about controlling your street's planning, who could blame you? And who could blame you for wondering why wrought iron, olde lanterns, random rubble walls and chain link fencing peep through among the good examples in the book?

*

Other local councils please copy, but please avoid Glamorgan's mistakes. And please produce something that can be sold for less than 2s. 6d. If you wish to preach to the unconverted, you cannot expect them to pay you much for your sermon.

ASTRAGAL



M. Bond

F. E. Shrosbree, General Secretary, ABT

John Warren, General Secretary, NALGO

R. E. Enthoven, Chairman of the Board of Architectural Education

N. Keith Scott, A.R.I.B.A.

I. Wolfson, Dipl. Ing. Arch.

Slums?

SIR,—Rigby Childs and Jack Whittle may have to wait a long time for the removal of the Peabody Buildings which they seem to regard as slums (AJ, September 20). In the County of London Development Plan the LCC have not programmed them for redevelopment for many years. Home Office criticism in 1875 to which the authors refer is difficult to understand since the site was only acquired and developed by the Trust in the 'eighties. In any case, the layout is different from the original. Incidentally the blocks are not in Holborn as stated.

M. BOND.

London.

"The Key to The Problem"

SIR,—Congratulations on your leader (October 4), entitled "The Key to the Problem," in which you pin-point the crux of this question of salaries, *viz.*, that the APT or any other grading structure means nothing unless it clearly defines the appropriate grades for the various levels of responsibility.

This adds to the difficulties of a trade union and can lead to serious complications. Particularly would this be so in a predominantly clerical union if one sought to obtain higher gradings for technical staffs than those for clerical and administrative staffs.

The ABT fortunately gets involved in no such complications and is constantly fighting on this question of grading. As an example, we have a case at the moment of a member who is the senior qualified architect working under a borough engineer. He is graded not as the authority's chief architect but as a chief assistant on a par with the chief engineering assistant, chief assistant in the borough treasurer's department and the chief clerk in the town clerk's department.

We believe that the authority in question should be honest and pay this man as what he is, *i.e.*, their borough architect. That, unfortunately, must be a long term aim but in the meantime we contend that this officer, as the senior qualified architect, has a quite different professional standing from that of the chief engineering assistant or the chief assistant to the borough treasurer, etc. We therefore seek a higher grading for him.

This case would not normally get publicity, but this is the real problem which faces any trade union trying to negotiate for technical people and it is a task which must be undertaken.

F. E. SHROSBREE.

London.

SIR,—I have read with interest—and some concern—the comments on the statement made by me "that NALGO was not concerned with matters of establishment which were the exclusive responsibility of the individual employing authorities."

It is generally recognized to be the sole right of the employing authority to determine how many officers it shall employ, or in other words that the employing authority has the sole right to determine its establishment. The extent of the service to be given to the public is a matter of policy for the employing authority to decide, and consequently it is proper in regard thereto that NALGO should not be concerned with matters of establishment.

But once the employer has decided to establish a post NALGO is rightly concerned with the rate of pay to be attached to it, and in considering that matter clearly regard must be had to the duties and responsibilities to be undertaken and the professional skill and ability required to discharge them. There is evidence to support this in the special scales introduced for architectural assistants and others as from January 1, 1953. These scales, whilst representing less than some would have wished to see, did nevertheless give increases in excess of the improvements secured generally for the APT grades.

JOHN WARREN.

London.

Answer To A Young Slave

SIR,—"Articled Pupil" (AJ, September 27) feels frustrated and discouraged, and so lets out at all and sundry, including, of course, the RIBA. He would, however, be well advised to make more certain of his facts.

For nearly half a century now the Royal Institute, in all its literature and the letters it sends out, has advised that the most satisfactory way of training for the profession is by attendance at a School of Architecture, either full-time or combined with office employment as a composite course. To help those who show promise but are handicapped financially, a large number of substantial grants in aid are available through the County Educational authorities and through the RIBA and the ARCUK towards fees and maintenance.

"Articled Pupil" has, however, gone his own way by private arrangement, presumably agreed through solicitors on either side, adopting a method of training which is open to abuse and only survives in a few remote places. He then complains because his employer does not pay him more than he is actually worth, and urges that a scheme should be devised by which all beginners should be subsidized, by the profession or the State. The fact that this may not be considered practical does not reflect, as "Articled Pupil" thinks, any lack of interest and endeavour on the part of the RIBA in dealing with the problem of education.

R. E. ENTHOVEN.

London.

[While agreeing with, and appreciating this letter from the Chairman of the Board of Architectural Education, we would query his assumption that articled pupillage "only survives in a few remote places." We believe that it is still a common occurrence in the provinces. We would like to receive further information from readers on this point.—The EDS.]

Egg-heads Exposed?

SIR,—So there we are! Final proof positive that the glossy veneer of "egg-headery" is scraped thinly indeed about the wig of Mr. Reyner Banham.

At long last we get two letters in the AJ of the kind hundreds of us have meant to write to one magazine or another in the last twelve months, and lo! the prince of ploy-boys (First Magnitude) himself is sufficiently incensed to retort.

Of the two letters (AJ: September 27) Mr. Tasker's is a blustery, slaphappy dig, while Mr. Turner's is a more thoughtful shaft aimed at the heart of the arrant nonsense currently being written about New Brutalism. Mr. Banham chooses the easy way out: he yelps at the vulnerable dig, ducks the shaft—and with usual long-windedness gives an obtuse and quite irrelevant lecture on hair-do's for Brutalists. Or was it non-Brutalists?

The inadequacy, even puerility, of his inappropriate reply makes one despair for the souls of gullible disciples, and get back to the drawing board smugly delighted to have received confirmation of long-held suspicions.

N. KEITH SCOTT.

Preston.

Reyner Banham replies:—

I'm not sure if Mr. Scott is an angry old, or an angry young, man—but like all angry men, his aim is wild. I replied to Mr. Tasker's letter because it was addressed to me; I did not reply to Mr. Turner's because it was addressed to the Smithsons and it would have been presumptuous for me to intervene. I am still at a loss to know why I should be held responsible for opinions clearly signed "A. & P. Smithson" simply because I once wrote an article about them. Let me say this again, and have done with it: I am neither a founder, nor a member, of New Brutalism, but a working journalist who was asked by his editors to report back on the Brutalist Phenomenon, and I hope that my article was a reasonably responsible fulfilment of that commission. And I hope that I have dealt with Mr. Scott in a reasonably responsible manner as well.

How Does A Door Swing?

SIR,—What is a right hand—what is a left hand door?

There has never been any doubt for me which is which. If I raise my right hand to the lever or knob and push the door open with the right hand, it is a right hand door, and vice versa. It is as simple as that.

I do not think there could be any mistake.

I. WOLFSON.

London.

DIARY

Should the Quantity Surveyor lead the Building Team in lieu of the Architect? Discussion at the IAAS, 29, Belgrave Square, S.W.1. 7 p.m. OCTOBER 25

AA Annual General Meeting. Address by the President, Gontran Goulden. At the AA, 34, Bedford Square, W.C.1. Dinner 7 p.m. Meeting 9 p.m. OCTOBER 31

Sanitary Fittings Building Centre Forum. Denis Clarke Hall, architect, and Alan Adams, manufacturer, Chairman, Gontran Goulden. At the BC, 26, Store Street, W.C.1. 6 p.m. NOVEMBER 1

Further Developments in High Flats. Talk by H. J. Whitfield Lewis, Principal Housing Architect, LCC. At the HC, 13, Suffolk Street, S.W.1. 6 p.m. NOVEMBER 6

NEWS IN BRIEF

Architectural schools may submit schemes, in competition for exhibition at the Fourth Biennial of the Sao Paulo Museum of Modern Art. The first prize will be Cr$100 000; there will be two other prizes, each of Cr$50 000. The subject of the competition, for which entries must be received by June 30, 1957, is an industrial neighbourhood unit. You can put it wherever you like in the county you live in, but the organisers warn you that "its localisation shall be fully justified." Entry forms must be sent, by December 31, to the Secretariat du Bienal do Museu de Aube Moderna de Sao Paula, Rua 7 de Abril, 230, Sao Paulo, Brazil. Details can be obtained from the same address.

Prizes will be given to some of the architects who submit work for exhibition at the Biennal referred to above. Details may be had from the same address. The work to be submitted, before December 31, must be in the form of photographs of buildings completed, or now being built. Prizes to the total of Cr$50·000 will be given for different categories of building, such as private houses, flats, offices, factories, public buildings, etc. Assessors have yet to be chosen.

Fourpence an hour more is wanted by more than one million workers in the building industry. Executives of the seventeen unions in the industry decided last week to press a pay claim for an extra fourpence on basic rates.

A public relations officer has been appointed by the Eastern Chapter of the Hants and Isle of Wight Architectural Association. He is A. C. Townsend, of 49, Commercial Road, Portsmouth, and the School of Architecture, Spring Gardens, Portsmouth. Mr. Townsend will deal with any queries from the Press about architectural matters in this area of the chapter.

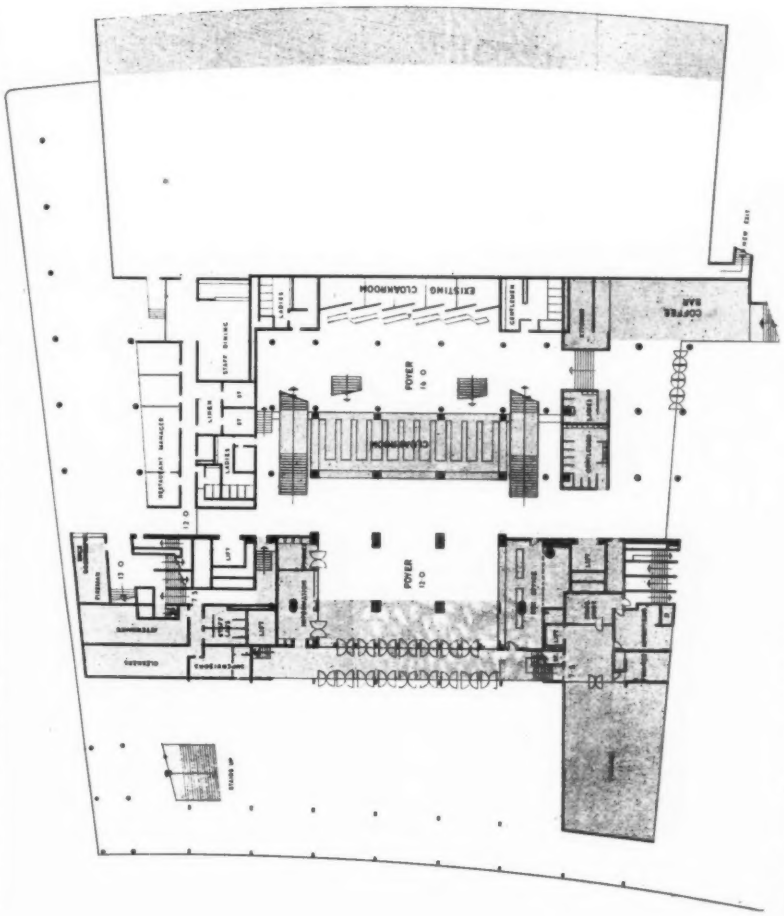
What you musn't do. That heading has not appeared in the JOURNAL for some time, but ARCUK, which is always watching your interests, has thought up some more amendments to the Code of Conduct, and here they are.

Principle III, Example (iii) to be redrafted as follows:—"An architect may advertise for salaried employment. Such an advertisement in the lay press must be anonymous, but in the architectural professional press or the technical press the name of the architect may be disclosed. Advertisements may be inserted in the press by architects requiring assistants and the name of the advertiser may be disclosed."

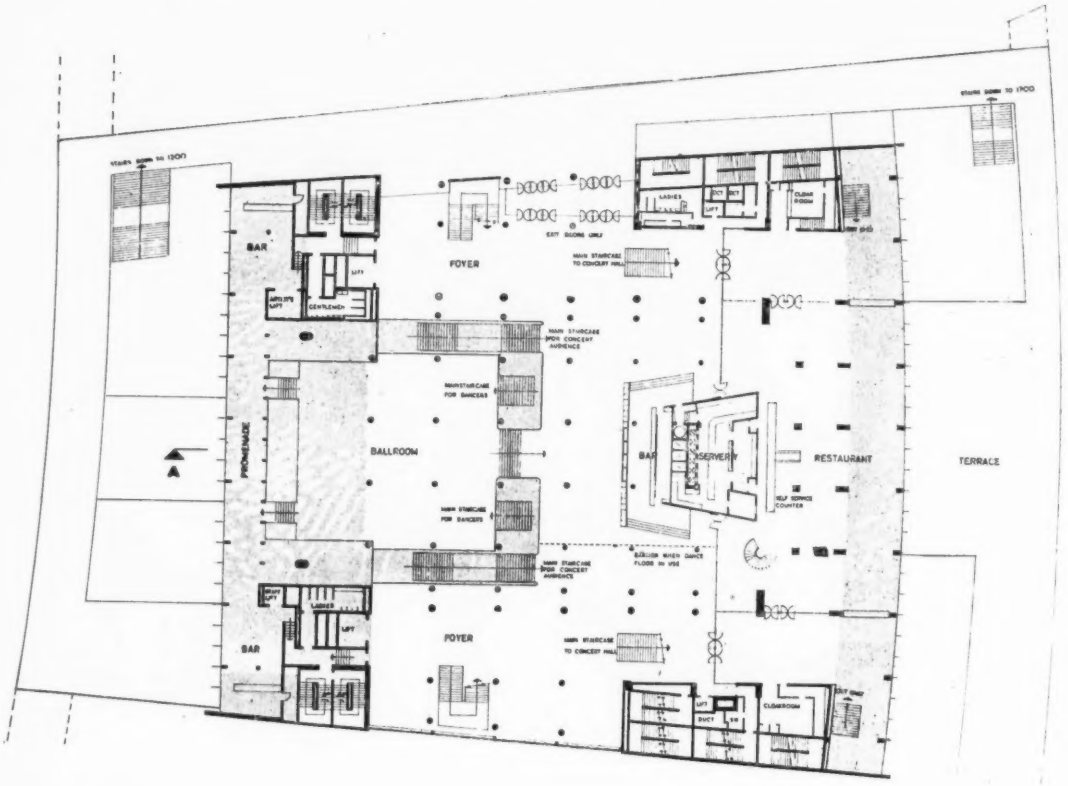
Principle III, Example (vi) to be amended by the addition of the words underlined shown below: "The title 'architect' must not be displayed on facia boards or on shop windows, nor may it be displayed ostentatiously on the office premises. The architect's name and affixes and his professional title may be shown at the entrance to his office premises in letters not exceeding 2 inches in height, but otherwise is not permissible except on one window only on each face of the building where it must not be ostentatiously displayed. He may allow his name to appear on buildings in the course of construction, alteration or extension; it is desirable that an architect should sign his buildings; either or both of the foregoing must be done in an unostentatious manner."

NEW INTERNAL PLANNING FOR THE ROYAL FESTIVAL HALL

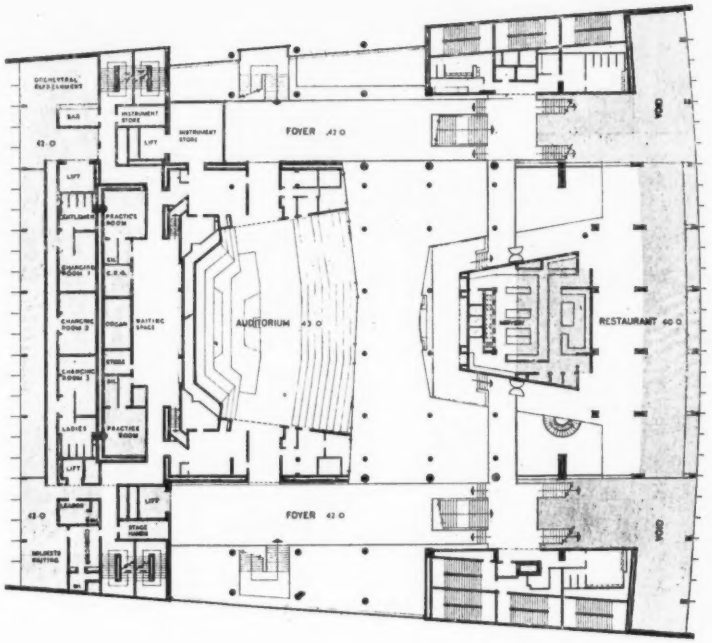
As you will have seen from this week's frontispiece the Royal Festival Hall is to have a new front and a new back. The riverside elevation, which has often been heavily criticised, is being altered not to satisfy critics, but to double the capacity of the restaurant. The elevation facing Belvedere Road is getting a new look because it is to house the new main entrance—"a unified point of entry, with increased box office facilities and information centre." The shading on the plans reproduced here shows where additions and alterations are to be made. On the left of the new foyer, shown in the plan on this page, are an information bureau and a new lift. (Original lift accommodation was found to be inadequate.) To the right of the foyer (as you go in) is the new box office. At the bottom left corner of the plan is a projecting two-storey wing which contains all the office accommodation "centralised into one unit," with a small 10-passenger lift. Projecting from the bottom of the plan is a coffee bar which replaces the original box office. The plan overleaf (level 28) shows what happens at the ballroom level of the replanned Festival Hall. Two slots are cut in the dance floor and new flights of stairs through these enable the public to by-pass the ballroom. This means that the ballroom can be used independently when concerts are in progress. To the left of the plan is a promenade, adjoining the ballroom and overlooking the entrance.



Plan at level 12 [Scale: $\frac{1}{16}$" = 1' 0"]



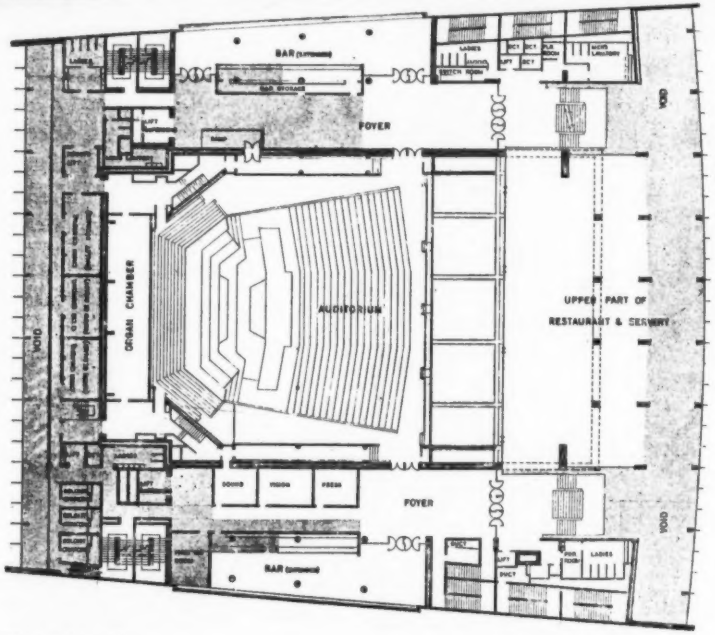
Plan at level 28



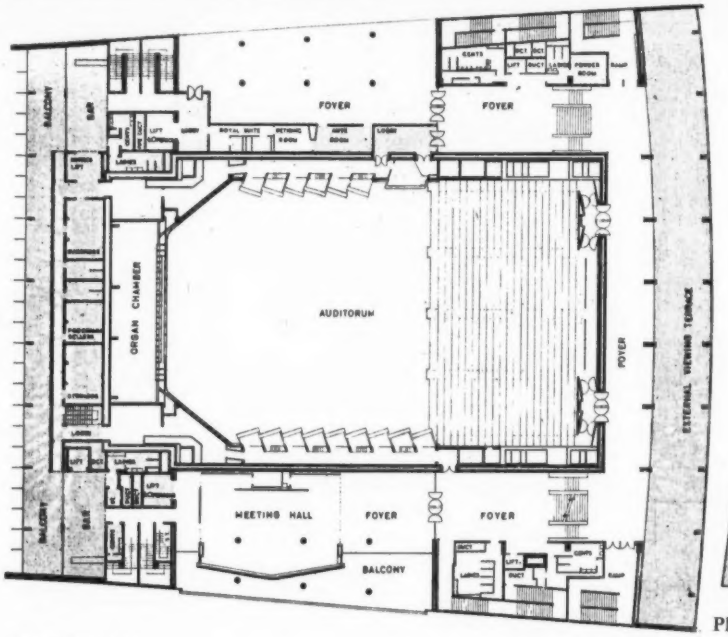
Plan at level 40

This promenade contains two new bars. On the left of the plan above right (level 40) is a row of new changing rooms and cloakrooms for members of the orchestra. There is also a private suite for conductors, and a bar. The restaurant is enlarged at this level, as it is at level 28. The plan below left (level 53) contains changing rooms for choirs or ballet performers (on the extreme left), and bars in the side foyers are extended. Centre right is a plan (level 64) which shows (on the extreme right) an open viewing terrace, overlooking the river. On one side of the foyer is a new meeting hall, with its own bar and lavatory accommodation, and on the opposite side the ceremonial suite is enlarged by the removal of temporary changing rooms. Below right are two part plans which show improvements made at the top level of the office extension, and at a basement level. The existing terrace on the river front is modified and extended to connect with the new small concert hall, which is sited at the point where the National Theatre's foundation stone is laid. A low-level covered way will link the two buildings. At their meeting

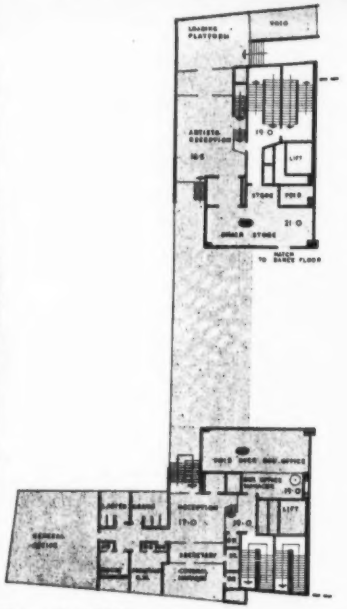
left), and bars in the side foyers are extended. Centre right is a plan (level 64) which shows (on the extreme right) an open viewing terrace, overlooking the river. On one side of the foyer to connect with the new small concert hall, which is sited at the point where the National Theatre's foundation stone is laid. A low-level covered way will link the two buildings. At their meeting



Plan at level 53

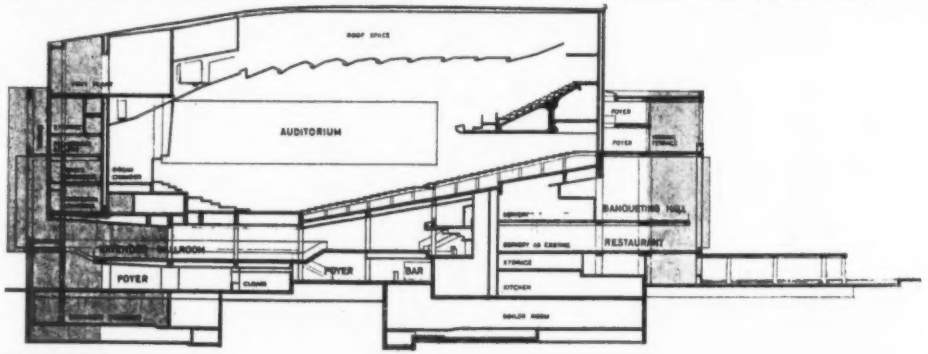


Plan at level 64



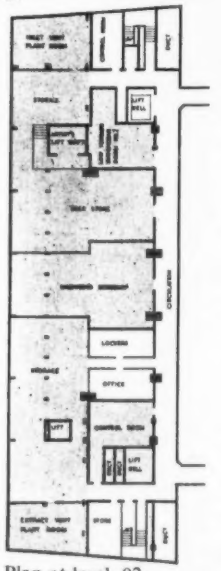
Plan at level 17

last week the LCC approved this scheme for the completion of the Festival Hall, for which an estimate of £35,000 for preliminary expenses was recommended by the General Purposes Committee for approval. The Committee want further study of the design and cost of the proposed new small hall.



Long section

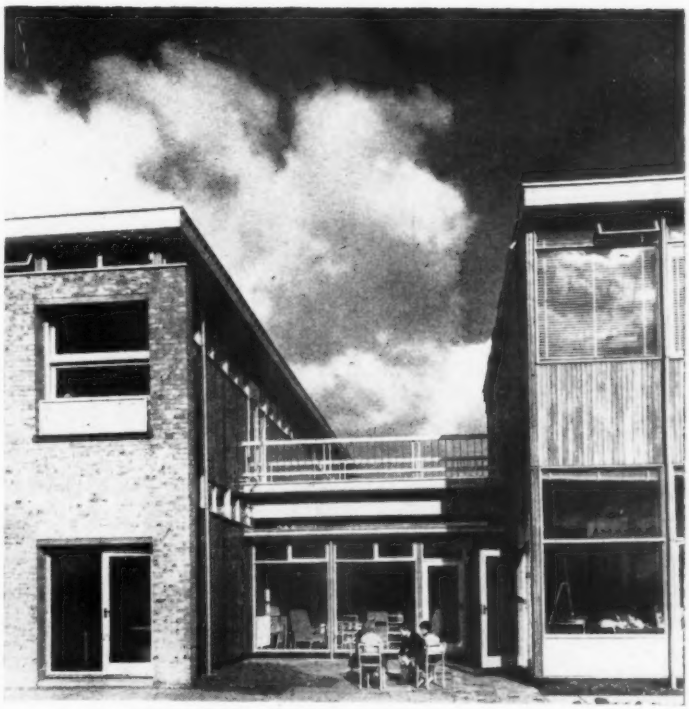
At present prices the inclusive cost of completing the proposed alterations (excluding the cost of adapting the terrace and of the outside works that will eventually be necessary between the present building and the small concert hall) is estimated as follows: Completion of Belvedere Road end, £615,700; extension of restaurant, £175,600; Furnishing and equipment, £54,450; total, £845,750. *(See page 542).*

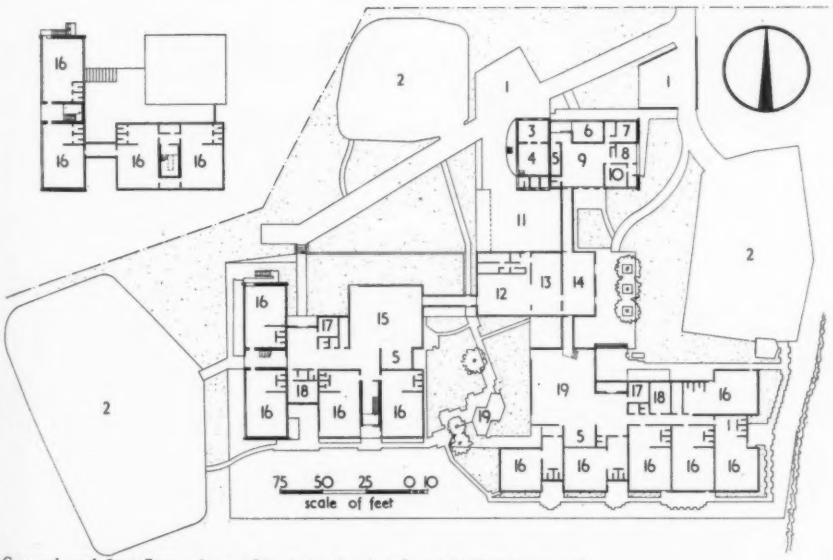


Plan at level -02

PRIMARY SCHOOL AT STEVENAGE, HERTFORDSHIRE

This junior and infants' school and health clinic at Stevenage, designed by Samuel Morrison and Partners in collaboration with C. H. Aslin, County Architect, consists of a 2-form entry junior school with eight classrooms, a 2-form entry infants' school with six classrooms, a dining unit and a health clinic, covering an area of approximately 25,500 sq. ft. in all. Right, the 2-storey junior school from the south. Bottom right, the junior school from the south-west. On page 551, top, the infants' dining room left, and health clinic, right; and centre, the infants' school and clinic from the south-east. The units are linked by glazed corridors. The





KEY:
1. Parking
2. Playcourts
3. Fuel
4. Boilers
5. Store
6. Prams
7. Dentist
8. Doctors
9. Waiting
10. Health visitor
11. Service yard
12. Junior dining
13. Kitchen
14. Infant dining
15. Assembly hall
16. Classrooms
17. Head
18. Staff room
19. Paddling pond

Ground and first floor plans of junior school, left, and infants' school.

superstructure is mainly in the Derwent system, except for the staircases in the junior school, which are of 13½-in. yellow stock brickwork. Lightly-reinforced 6-in. concrete slabs are used throughout as bracing for the timber structure. The tender date was March, 1954. The general contractors were Ekins & Co. Ltd. Sub-contractors, page 576.

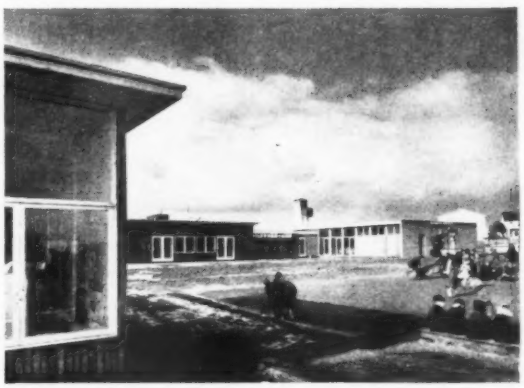
PRIMARY SCHOOL AT STEVENAGE, HERTS. continued

RATIOS

Enclosing walls / Floor area	=	0·743 / 1
Solid wall / Floor area	=	0·39 / 1
Windows / Floor area	=	0·317 / 1
Roof / Floor area	=	0·909 / 1

COST ANALYSIS

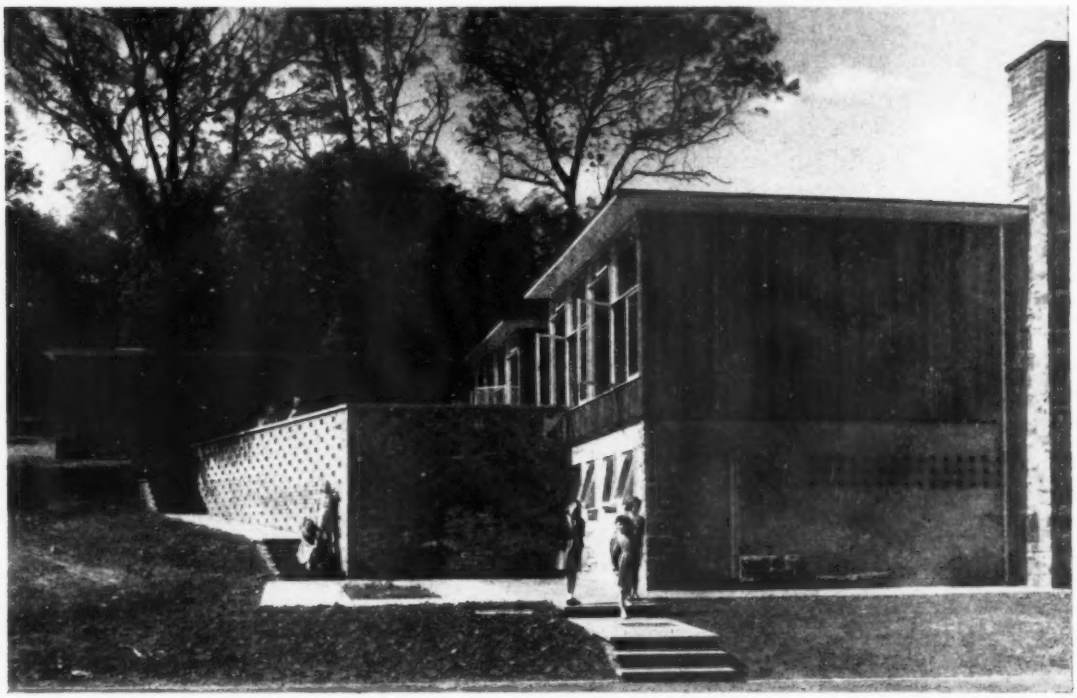
Number of form entries	2		
Number of places	570		
Floor area, square feet	25,560		
Number of square feet per place	45·40		
	£	s.	d.
Net cost	77,707	8	4
Net cost per place	136	6	7
External works	4,156	11	2
Gross cost	81,863	19	6
Gross cost per place	143	12	5



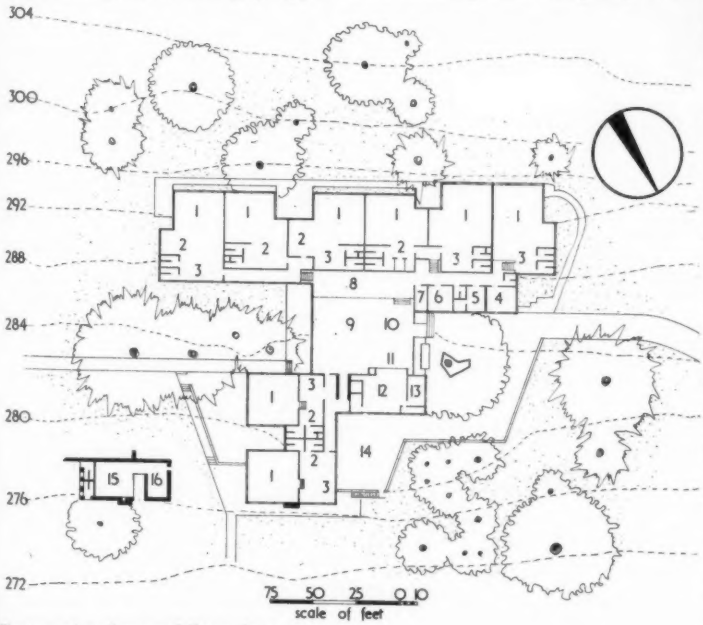
Element	*Cost* £	s.	d.	*Cost per sq. ft.* s.	d.
1. Preliminaries and insurance	3,802	4	4	2	11¾
2. Contingencies	2,000	0	0	1	6¼
3. Work below ground floor level	4,655	7	2	3	7¼
4. Superstructure complete including: External walls and facings, Internal load bearing walls, Internal partitions, Frame, Upper floor construction and staircase, Roof, Roof lights, Ceiling finishes, Windows and doors (external), Doors (internal), W.C. doors and partitions, Cloakroom fittings, Wall finishes, Built in fittings, Ironmongery, Glazing	39,343	18	4	30	9¼
5. Floor finishes	5,291	6	1	4	1¾
6. Fittings	1,735	15	3	1	4¼
7. Plumbing (external)	147	16	10		1¼
8. Plumbing (internal)	824	8	2		7¾
9. Sanitary fittings	1,100	1	8		10¼
10. Gas installation	222	5	10		2
11. Electric installation	3,275	0	0	2	6¼
12. Heating and hot water installation	7,589	19	8	5	11¼
13. Drainage	1,909	13	11	1	6
14. Decorations	2,351	12	9	1	10
15. Playgrounds	2,418	17	0	1	10¾
16. Paved areas	1,039	1	4		9¾
Total net cost	77,707	8	4	60	9¾
17. Additional costs	4,156	11	2	3	3
Total gross cost	81,863	19	6	64	0¾

Comments on the cost of this school and of the school illustrated on pages 552-553 appear on page 553.

PRIMARY SCHOOL, HACKENTHORPE, DERBYSHIRE



This school designed by Samuel Morrison and Partners in collaboration with F. Hamer Crossley, County Architect, is seen from the north-east, above, and from the south, right. The photographs on page 553 show, top, the assembly hall and below, typical classroom, with cloakroom and general area in the background. The school is a 2-form entry junior and infants' school, to accommodate children from the suburbs of southern Sheffield. There are eight classrooms, and an entrance hall and assembly hall forming the hub of the school. The layout makes the fullest possible use of the steeply sloping site, and as many as possible of the fine trees which existed on the site have been preserved. The sub-structure is mainly of 13½-in. brick retaining walls brought up to the various levels to carry the 6-in. r.c. slabs. The superstructure is constructed in prefabricated timber units, as described in the JOURNAL *for June 18, 1953. The external cladding is sapele mahogany boarding and the windows have painted softwood frames. Internal finishes include plasterboard on the timber wall panels and insulation board on the roof deck panels. Cost analysis and cost comments on page 553. Tender date, March, 1953; contract completed, December, 1953. General contractors, Vic Hallam (Contractors) Ltd. Sub-contractors,* *page 576*



Basement and ground floor plans

KEY
1. Classrooms
2. General area
3. Cloaks
4. Staff room
5. Medical room
6. Head
7. Store
8. Stage
9. Assembly hall
10. Entrance hall
11. Dining hall
12. Kitchen
13. Larder
14. Service yard
15. Boilers
16. Fuel

A Client's house at Sheen

IN IBSTOCK DARK BUFF-MULTI RUSTICS

It is gratifying when a customer and factor for many millions of Ibstock facing bricks turns to the Ibstock Works for the bricks to build a house of his own. The choice of Ibstock Dark Buff-Multi rustics for this charming house at Sheen is, without question, a most successful one.

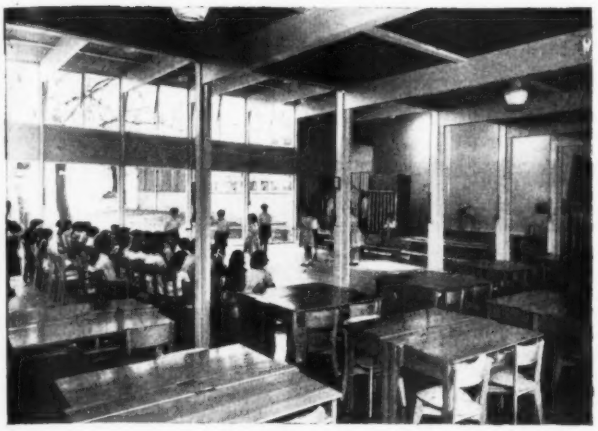
House for L. G. E. Nicholls, Esq., director, Finnis Ruault & Nicholls Ltd., Specialist Brick Factors.
Architect: F. G. Broadbent, F.R.I.B.A., Goodhart-Rendel, Broadbent & Curtis.
Builder: G. Dunkley.

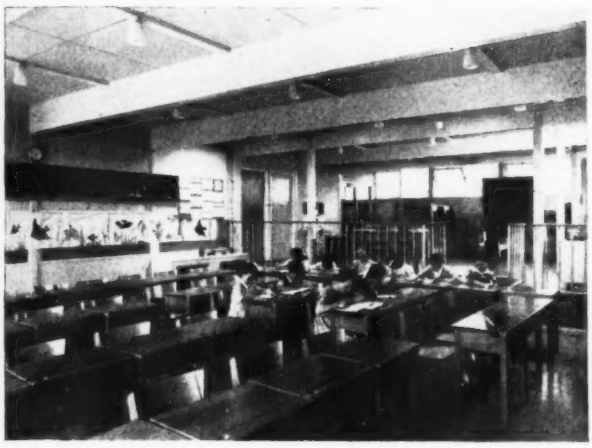
Ibstock
FACING BRICKS

Owing to present demand, supplies of facings of most types are booked for a long time ahead, and reservations for 1957 are now being made.

IBSTOCK BRICK & TILE CO. LIMITED, Near Leicester . . . . . *Phone: Ibstock 591 (2 lines)*
London: L.M.R. Goods Depot, Wright's Lane, Kensington, W.8 . . . . . *Phone: Western 1281 (2 lines)*

PRIMARY SCHOOL AT HACKENTHORPE, continued





RATIOS

Solid wall / Floor area	=	0·33 / 1
Wall area / Floor area	=	0·59 / 1
Window area / Floor area	=	0·26 / 1
Roof area / Floor area	=	1·04 / 1

COST ANALYSIS

Number of form entries	2		
Number of places	320		
Floor area, square feet	15,119		
Number of square feet per place	47·2		
	£	s.	d.
Net cost	43,928	7	8
Net cost per place	137	5	6½
External works	7,364	0	11
Gross cost	51,292	8	7
Gross cost per place	160	5	7½

Element	*Cost* £	s.	d.	*Cost per sq. ft.* s.	d.
1. Preliminaries and insurance	1,650	0	0	2	2½
2. Contingencies	1,250	0	0	1	7½
3. Work below ground floor level	5,323	18	4	7	0½
4. Superstructure complete, including: External walls and facings; Internal load bearing walls; Internal partitions; Frame; Upper floor construction and staircase; Roof; Roof lights; Ceiling finishes; Windows and doors (external); Doors (internal); W.C. doors and partitions; Cloakroom fittings; Wall finishes; Built-in fittings; Ironmongery; Glazing	19,862	5	9	26	3½
5. Floor finishes	1,873	19	3	2	5½
6. Fittings	434	15	0		7
7. Plumbing (external)	245	0	8		4
8. Plumbing (internal)	1,184	8	9	1	6½
9. Sanitary fittings	849	8	4	1	1½
10. Gas installation	210	0	0		3½
11. Electric installation	1,610	0	0	2	1½
12. Heating and hot water installation	4,650	0	0	6	1½
13. Drainage	1,466	8	5	1	11½
14. Decorations	1,165	7	4	1	6½
15. Playgrounds	1,270	0	6	1	8½
16. Paved areas	882	15	4	1	2
Total net cost	43,928	7	8	58	1½
17. Additional costs	7,364	0	11	9	9
Total gross cost	51,292	8	7	67	10½

COST COMMENTS

Peartree Springs Junior and Infant School (pages 550-551)	*Hackenthorpe Junior School*
Planning A combination of single and two-storey blocks has given a lower area per place. With same MOE target cost it is therefore possible to afford a greater cost per foot super	Single-storey construction with open planning, taking advantage of site contours which fall 20 ft. from the south-west to the north-east
Preliminaries Higher cost probably due to plant necessary for two-storey work and difficulty of obtaining local labour in a New Town Area resulting in high imported labour costs	
Foundations	Single-storey work more expensive than two-storey; also included are steps in site concrete and retaining walls at changes of levels, tanking, etc.

Superstructure
No direct comparison can be made since the individual elements occur in differing proportions, but the following general assumptions can be noted:

The element " frame " will be more expensive with two-storey blocks, where staircases and upper floor construction are needed.	Roof will be more expensive, especially with the flashings necessary at changes of level. Changes of ground-floor level will introduce such items as handrails and balusters.
Floor finishes The more expensive finishes can be afforded partly through savings on other elements and partly through the increased total cost per sq. ft. due to compactness of plan. Finishes include, thermoplastic tiles in classrooms, wood block, assembly, entrance and dining halls, Ruabon tiles in corridors, cork tiles, first floor classrooms.	Finishes include thermoplastic tiles in classrooms, wood block, staff rooms, birch strip, assembly hall, wood composition, corridors.

Fittings
The apparent discrepancy is probably due to the greater proportion of fittings built-in to Hertfordshire schools in contrast to fittings which may be supplied direct by the Education Authority.

Plumbing and sanitary fittings	Other than a change of specification the higher cost is probably due to more open lay-out.
Drainage	Higher cost due to site conditions.
Paved areas	Higher cost due to site conditions.

technical section

THE INDUSTRY

This week Brian Grant reports on prefabricated flooring panels, a new expansion-joint filler, plastic blindcloth, a new list of contemporary furniture, the use of open web joists as roof trusses, electric fire alarms, a bathroom heater and information on lifts.

WOODEN FLOORING

Alufloor prefabricated flooring panels have been used quite considerably since they were first introduced in this country at last year's Building Exhibition. The timber strips, which have a finished thickness of $\frac{1}{8}$ in., are mounted in panels 18 in. square on a backing of perforated aluminium foil. The panels are laid on concrete or timber subfloors with a special adhesive which is unaffected by liquid cleaners and can also be used with floor heating panels: perforations in the aluminium backing foil help to provide a key between the wood strip and the sub-floor and also between the strip and the foil itself.

Price, including laying and polishing, varies from 28s. to 36s. per sq. yd., depending on the timber required and the area to be covered. Timbers available from stock include oak, birch, maple, teak, abura, sapele and African mahogany, but any other timber can be supplied if required. The floor can be laid either by the manufacturers or by various approved floor-laying contractors. (*Calders Ltd., Plough Way, Rotherhithe, London, S.E.*16.)

NEW EXPANSION JOINT FILLER

The new expansion joint filler known as X.1004 for use with all types of concrete construction has just been announced by the Expanded Rubber Co. The filler is available in strips cut to the required length, or it can be cut on the site quite easily. It has excellent recovery properties after compression and is particularly suitable for concrete road and railway construction. (*The Expanded Rubber Co. Ltd., Mitcham Road, Croydon, Surrey.*)

BLINDCLOTH IN PLASTICS

Tygan cloth which was introduced several years ago as an upholstering material is now being specially woven for use in roller blinds. It is not intended for rigid fixing in windows or frames, because its weave, although far from solid, is closer than that of Tygan screening and thus limits ventilation. The close weave however makes it a most efficient protection against glare and in very sunny climates a fairly dark colour such as the standard green is advisable because it will reduce internal brightness. The blindcloth will keep out insects but has the advantage that it allows some ventilation as well: it is also excellent for use behind glass in air-conditioned rooms.

The material used in all Tygan fabrics is p.v.c. monofilament and the blindcloth needs very little cleaning other than with a damp cloth. Although roller blinds are likely to be indoors, Tygan can also be used in external shutters and sunshades, owing to its high resistance to every kind of weather. Standard blindcloth is available in green and in a width of 35-36 in., but other colours and widths up to 56 in. can be produced in minimum quantities of 500 yds. (*Fothergill & Harvey (Sales) Ltd., Harvester House, Peter Street, Manchester,* 2.)

CONTEMPORARY FURNITURE

A new list from Conran Furniture shows quite a large range of pleasantly designed stools, chairs, sideboards, settees, filing cabinets and other furniture at prices which, by present day standards, are quite reasonable. The list is very clearly set out with photographs and scale line drawings of all models and contains all the information the architect might want to have. Would that all manufacturers were equally sensible. (*Conran Furniture, 6, Cadogan Lane, London. S.W.*1.)

OPEN WEB JOISTS

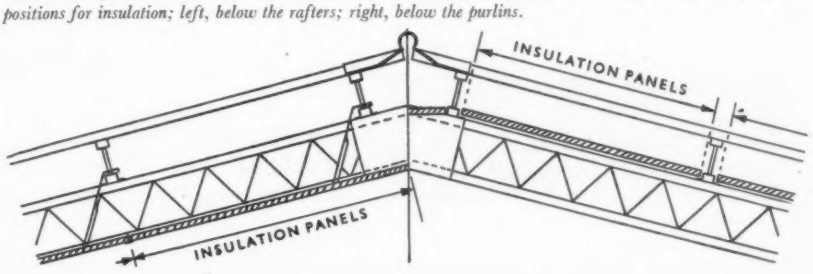
Metal Sections have just issued a new booklet on open web joists, the second half of which deals with the use of these joists as roof trusses. The latter is a new development, and various connections are illustrated showing the method of construction, which is suitable for spans up to 40 ft. The standard joists are bolted together at the ridge with angle connectors, and there are two forms of angled end seatings, depending on whether or not an eaves overhang is required. The feet of the truss are tied together with rods which are supported by strip steel hangers from the joists. Various types of purlin are produced, and suspended or insulating ceilings can be fixed either at tie bar level or under the rafters or the purlins. The whole system seems to have been worked out in considerable detail, and from the drawings it would seem that site assembly ought to be quite straightforward. (*Metal Sections Ltd., Oldbury Birmingham.*)

FIRE ALARM SYSTEMS

It seems likely that fire regulations will be tightened up, and it is rumoured that already factory inspectors, and the fire protection officers of local Fire Brigades, are insisting that the B S I's Code of Practice on Electrical Fire Alarms shall be followed. While many factories have sprinkler systems, something more specific than the Factory Acts' "effective provision for giving audible warning" is desirable, and the Code recommends manual call points "so located that no person need walk more than 100 ft. from any position within the premises."

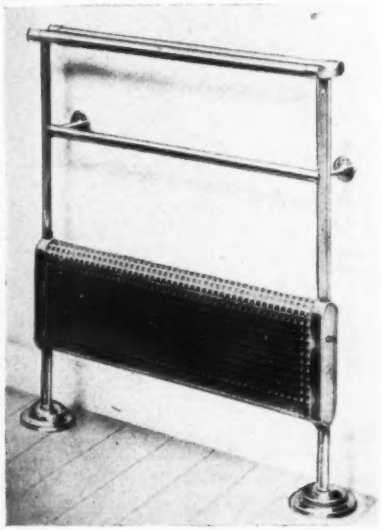
The required number of alarm points, and the necessary bells or buzzers are easily arranged, but Gent & Company have recently issued a booklet of recommendations, not only for compliance with the Factory

Section at ridge of Metal Sections open web joists used as roof trusses. The drawing shows two alternative positions for insulation; left, below the rafters; right, below the purlins.



technical section

Act, but also giving details of their types of installation. The firm makes automatic fire detectors, and also has a method of linking the alarm system with the local fire station: the system is quite positive, and cannot give false alarms, as if a short circuit should occur in the connecting lines, or a break, the fault condition is indicated on a warning lamp at the station. (*Gent & Co., Ltd., Faraday Works, Leicester.*)



The Heatrae bathroom heater and towel rail.

BATHROOM HEATING

The photograph above shows Heatrae's new bathroom heater and towel rail, which has a loading of 500 watts. The heating unit is contained in a perforated casing so that no part of the heater becomes too hot to touch. Width and height are both 36 in. with a projection from the wall of 5 inches: the photograph also shows wall stays for use where an extra rigid fixing is required. There is also another model arranged for wall mounting, it should perhaps be added that these heaters should never be installed without an effective earth. (*Heatrae Ltd., Norwich.*)

DATA ON LIFTS

Marryatt & Scott have just revised their lift planning rule, which is a useful weapon for obtaining basic information when lift planning is in the preliminary stages. Information is given about passenger, hospital, goods and service lifts and when the slide of the rule is moved, information about lift speeds, number of passengers, lift shaft and car sizes and other information appears in the appropriate windows of the outer half of the rule. Most of the essential facts for planning purposes are obtainable, but it is, of course, still necessary to obtain expert advice in the later stages. (*Marryatt & Scott Ltd., Wellington Works, Hounslow, Middlesex.*)

17 Construction: details. The size of a modular component

17 CONSTRUCTION: DETAILS

the size of modular components

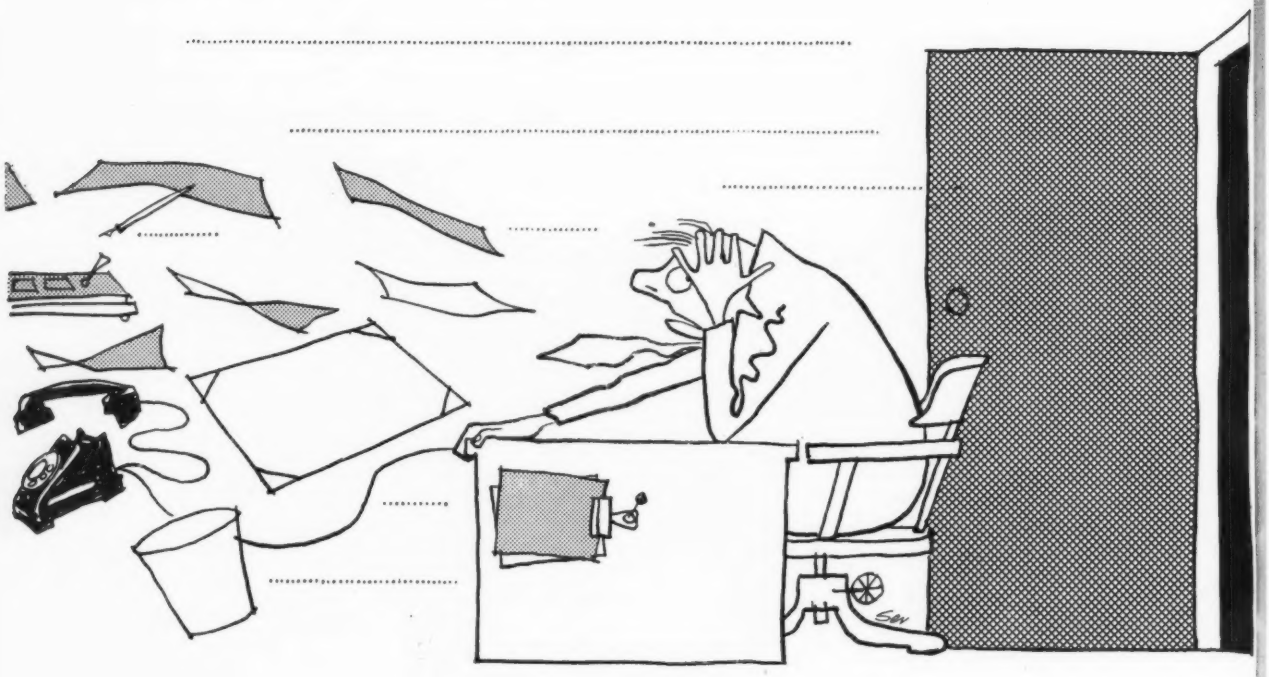
Last week saw the publication of the long-awaited report, *Modular Co-ordination in Building** by the working party set up by the European Productivity Agency of which Bruce Martin of BSI and William Allen of BRS are the English members. This week we publish the text of a talk given on Monday last by Bruce Martin to the Modular Society, drawing attention to certain of the conclusions in the Report. Though the working party agrees to examine the possibility of using the 10 cm./4 in. module, the value of their report lies in their decisions concerning a proposed system of tolerances. This is less controversial than the choice of a module, even though it would mean some adjustment in the size of practically every building component. It is something which could be acted upon relatively quickly and would carry us a long way towards the solution of our dimensional problems.

* HMSO 9s.

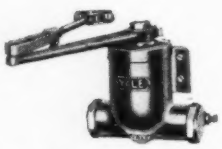
Modular Components are the necessary basis for any system of modular co-ordination. But before we can effectively consider what we mean by a *modular* component, we must first define most precisely the nature of components and their relation to building; and this can only be achieved if all the parts of a building are satisfactorily analyzed and then classified into their respective groups.

In the talk which I gave to this Society in January, 1955, on the classification of modern building material, I suggested that all parts of a building could be classified, in order of the building process, into the following divisions: (*i*) Materials, (*ii*) Sections, Units and Assemblies which are collectively called *Components*, and (*iii*) Functional Elements and Building Systems. These divisions form three main groups; the Materials which go to make the industrial products, the industrial products themselves, and those parts which result from an assembly of industrial products. *Materials*, as for example, cement, sand, aggregate, paints and adhesives, either possess no significant dimensions in themselves or are absorbed into the production of industrial products, that is, into *sections*, *units* and *assemblies* which are turned out of the factories as

Rough draught!



Whee . . . put a sock in it! A draught as rough as this one is no good to anyone. The answer, of course, is to install a Yale Door Closer which is the complete answer to the person born in a barn. Politely but firmly it returns the door to its rightful place —in the hole! The result is more comfort, less interruption for the occupant of the room, and lower fuel bills for the boss.



A YALE CLOSER FOR EVERY DOOR

Standard Door Closers — 61 series.

For doors opening outwards — PA 61 series.

Closers with 'hold open' device — 1161 series.

With 'hold open' device for doors opening outwards — PA 1161 series.

Ask for complete specifications.

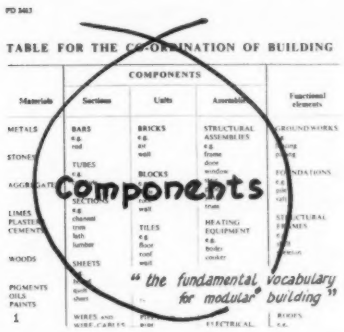
Where there's a door there's a need for

YALE
REGISTERED TRADE MARK

DOOR CLOSERS
MASTER-KEYED SUITES
DOOR FURNITURE
LOCKS

The Yale & Towne Manufacturing Company, British Lock and Hardware Division, Willenhall, Staffs., England.

technical section



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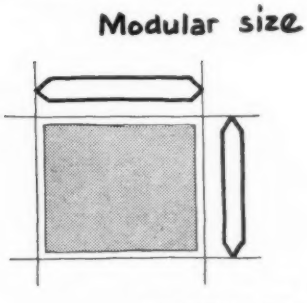
complete independent products. And since the dimensions of *Functional Elements* and *Building Systems* derive solely from an assembly of these industrial parts, Components are distinguished from all the other parts of a building in that they are the only products which are complete in themselves and are mostly factory-made. For this reason then it is these parts, or Components, which constitute the fundamental vocabulary of modular building, and it is only their dimensions therefore which require to be modulated, that is to say, given sizes which are co-ordinated on the basis of a modular frame of reference.

Definition of modular size

In the EPA report, a modular *dimension* is defined as a dimension which is a multiple of the module and it follows from this that a *modular size* is also a multiple of a module. The modular size describes the distance or space (*i.e. modular space*) between any two modular reference lines on the modular reference grid which are always by definition a module, or a multiple of a module, apart. This is, however, a purely analytical definition of a modular size; for it tells us nothing of its nature. There are a number of existing terms and concepts which are included in the idea of a modular size.



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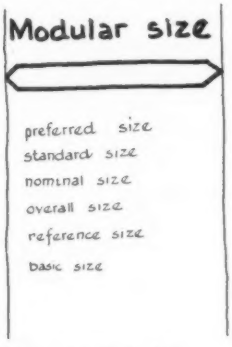
The modular size is, by definition, one of a range of inter-related sizes. It is also a *preferred or standard size*, since it is one of a number of sizes especially chosen to bring about simplification.

Furthermore, the modular size may be regarded as the *nominal size* for both the component and for the space allotted to that component in the design or reference grid of the building providing that the term "nominal size" is understood here to refer to the *overall* size of the part including its joint. This is, of course, not a customary use of the term in the building industry today, where the term "nominal size" often refers to the required size, an average size, or even an approximate size.

The modular size is also a *reference size*, to which all references are made, and in this way it is also a *basic size*, since it is the basis or agreed starting point for the determination of the actual size of a component. Above all, therefore, the modular size must be recognized as a *theoretic size* for it is defined as *absolute*. It may then be treated as the agreed unalterable base from which the actual component size and its tolerances are derived.



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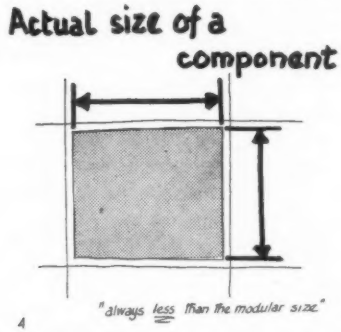
Definition of actual size

What then is the actual size of a component? The actual size is the measured size of the component and is dependent upon the manufacturing processes in a production run, the properties of the material used, the wear of moulds, jigs and gauges, the accuracy of the measuring instruments employed, the unavoidable inaccuracies arising out of the manufacturing process, and thermal expansion. Furthermore, in deriving the actual size from its modular size account must be taken of the joint between one component and another.



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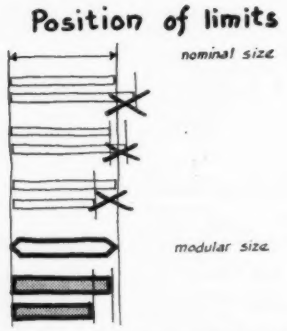
In a production run, therefore, the actual size differs from one component to the next and differs from the modular size by an amount which must allow for both a joint and manufacturing tolerance. This latter is termed work tolerance in the EPA report. In order then for a component to become a modular component, the actual size must always be smaller than its modular size.

Diversity of the present methods of locating tolerances

In the building industry there has been until now no standard method of determining the permissible varia-

technical section

tions of the size of a component. It is true that in standard specifications tolerances are often given, but the method of assessing and stating these tolerances varies as between one component and another, and from trade to trade. Sometimes, tolerances are based on the overall size of the component and sometimes on a nominal size. Moreover, in either of these cases the tolerances may be specified in one of three ways: (*i*) the actual size shall not be more than a fixed amount above or below the required size. (*ii*) The actual size shall not exceed the required size. (*iii*) The actual size shall not be less than the required size. These different methods are derived from traditional practice in their respective fields and are not related to each other through any general theory. In other words, there is no agreed system of calculating tolerances. A study of the use of components on new buildings under construction shows that the actual sizes of a large number of them exceed their nominal sizes; for example, when laid, nominal 4 in. tiles may



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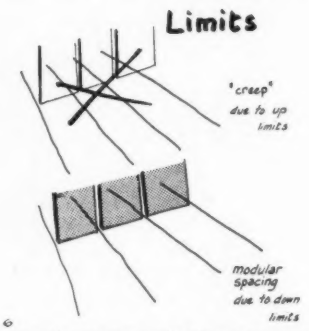
in fact measure $4\frac{1}{8}$ in. and be $4\frac{1}{4}$ in centre to centre. The work tolerance and the joint thickness together produce dimensions which as measured on the job differ from those required. Furthermore, since the amount by which the actual size exceeds the nominal size varies from component to component, it is these variations which are the cause of much of the cutting and rearrangement of components at present necessitated on the site, to the detriment of the finished result.

Need for a universal system of tolerances

It is obvious that this inchoate situation must not be allowed to continue in a modern building industry where the new and evolving methods of assembly demand that components of different kinds are sized so that they can be fitted together easily, without further cutting or adjustment, on the site. At the present time, a component is said to be made to the correct size when its actual size lies between the assigned limits. In future, not only must the actual size be between assigned limits, but the limits themselves must be located within a frame of reference.

In the system of modular co-ordination, then, a component may be defined as being of the correct size when its actual size is properly related to its own appropriate modular size; and this will necessitate the use of a general system of tolerances applicable through the whole of the building industry.

Modular co-ordination then provides the necessary framework of reference for the determination of the modular size of each component; and the system of tolerances is the means of achieving the limits for the actual size. The modular size is one of a range of inter-related modular sizes for components and it is the size of the allotted space in the building which must not be exceeded by the component. And if the actual sizes are to be correctly related to their modular



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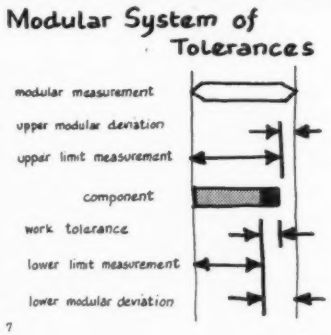
sizes, the system of tolerances may be said to be essential for the application of modular co-ordination to building. For should the actual size exceed the modular space, then a series of components will be found in practice to "creep" so that there will not be sufficient space in the building for the next series of components. Complete assemblies and machine-made parts must therefore be made to known dimensions within definite limits properly located.

The system of tolerances, then, is not concerned with the choice of a modular size for a particular component, as for example with a length of x in., but with locating the limits for the actual size of a component which is nominally x in. long. For this reason, in effecting a system of co-ordination, it will be necessary to standardize, not only the modular size, but also the limits for the actual size.

The theory of tolerances for modular co-ordination which I will now outline, is described in detail in the EPA report; it lays down that the actual size of every component must be made so that its size lies between two limits. Now in engineering it has long been the usual practice to determine these limits by referring them to one basic measurement according to the engineering theories of limits and fits. With the building industry, on the other hand, although a part may be made between certain limits the position of the limits themselves is left undefined and fortuitous because



7

technical section

there is no agreed method of determining their position. In a system of modular co-ordination, however, which is organized round a definite framework of reference, the position of the limits is easily determined by the condition that the component must not exceed the space allotted to it between the reference lines of the grid. The distance between two given lines thus becomes the modular dimension and the limits are then related to this reference dimension according to the particular characteristics of the component concerned.

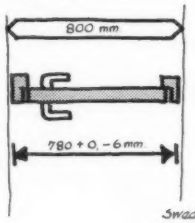
The *Upper Modular Deviation* is the distance between the component and the Modular Plane. It is equal to the necessary minimum of joint thickness. The *Upper Limit Measurement* for the component is the Modular Measurement minus the Upper Modular Deviation.

The *Work Tolerance* is determined as the distance between the limits within which the part can be manufactured.

The *Lower Limit Measurement* is then the Upper Limit Measurement minus the Work Tolerance. The *Lower Modular Deviation* is the distance of the Lower Limit from the Modular Plane and must not exceed the maximum joint thickness.

An example from the international report will serve to illustrate the application of this theory in a particular case. This is the Swedish recommendation for a modular door frame and door assembly in which the modular width is given as 800 mm. The Upper

Application of modular system of tolerances



Swedish door and doorframe assembly

8

Modular Deviation has been established as 20 mm. and for purposes of manufacture there is to be a work tolerance of 6 mm. so that the Upper Limit Measurement becomes 780 mm. with limits of + 0 − 6 mm. The door frame is made to fit the modular opening and the door to fit the frame. The door size, while being dependent on the door frame size, is not itself modular in this instance.

To sum up the theory of tolerances: we have seen that it is not practicable to produce a component to an exact size, that the actual measurement is dependent upon a variety of technical factors and that even in the production line of one type of component, the actual size of an individual component will differ from that of the next. Yet, as a finished product, a component cannot economically be cut or altered on the site. Therefore, if it is to be assembled on the site without modification, a method is needed whereby its actual size will fall between agreed limits determined beforehand, and this is only possible within a framework of dimensional co-ordination. To achieve modular co-ordination we must accept the rule whereby the actual size of any component plus its joint must never exceed its modular size.

Method for selection of modular sizes

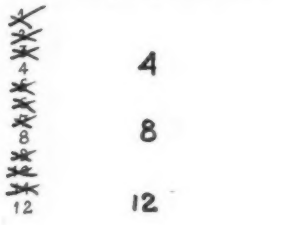
Since modular sizes for building components are also the reference sizes for the calculations of limits, I will here briefly outline the conclusions described in the international report on methods and criteria for their selection. For the purposes of selection, the modular size is represented as number and proposals are for alternative ranges of related numbers; the application of a module to any one of these ranges will give a range of modular sizes for components.

Criteria for selection of modular sizes

Bearing in mind that the modular range must cover the sizes between 0-120 in., since the vast majority of the existing sizes of components extend over this range, there are two main criteria for the selection of the modular sizes to be included. These are *Simplification*, an essential contribution to economic industrial production, and *Additivity*, a requirement of the building process.

Simplification is the reduction in the number of products in an industrial range to a workable minimum to assist production, distribution and control. Addi-

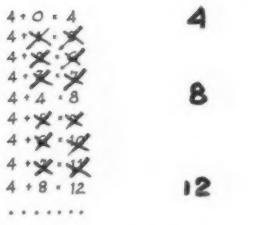
Simplification



"for economic industrial production"

9

Additivity



"a requirement of the building process"

10

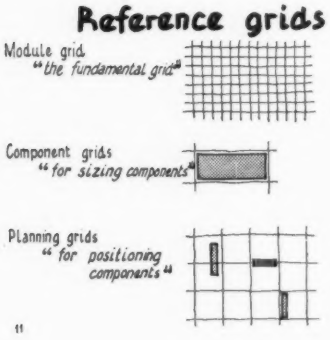
tivity is the necessary condition that when any one size in the modular range is added to any other modular size, the resulting dimension must also be a size included in the modular range. Complete additivity, however, can only be achieved

technical section

if *all* the multiples of a given size are included in the range, this size being the common factor or module. The use of a module as a common factor to a range of modular sizes is thus a means of ensuring both additivity and a degree of simplification. The degree of simplification depends therefore upon the size chosen for the module, and for the purposes of the experimental constructions in Phase II of the EPA Project, the Working Group have reached the conclusion that a module of 10 cm. will best satisfy the combined conditions of additivity and simplification, and also produce an adequate correspondence between the resulting modular sizes and the existing nominal sizes of components. There is considerable discussion on which range of sizes is most suitable for components, but much of this will be settled as the result of the practical and theoretical work included in the programme for the coming two years.

The modular reference framework

Throughout this talk I have continually referred to the modular reference framework as a basis for the sizing and positioning of modular components. A reference framework is, indeed, essential to the working of the whole theory of modular co-ordination, since, by means of its systems of reference lines, it is possible to define both the sizes of individual components and their positions in relation to particular buildings. Although the use of reference grids is not



common in architectural practice, I would like to outline here the reference system which has been developed by the EPA countries.

The fundamental reference grid used is the *module grid* in which the lines are all one module apart. Since, however, this spacing is too close for purposes of drawing at some scales and for setting out on the site, use is made of a *modular grid*, the lines of which may be any number of modules apart. But the module grid remains the basic and universal grid to which all references must be made. In practice, however, modular grids are usually used and are of two kinds: *component grids* and *planning* (or *assembly*) *grids*. The lines of a component grid bound the component and so determine its modular size and the size of its modular space. The planning grid, on the other hand, is for positioning the components in a particular design; as a reference framework it enables each modular component to be located, and its position identified and described in relation to the other components.

In designing a modular building, the planning grid is fundamental. Components are related to this grid since they are all modular, but the distances between them need not necessarily be modular. For example, where floor panels are carried on load-bearing walls or partitions, the face of the wall may be displaced from the planning grid by a submodular distance.

Summary

Modular co-ordination, then, directly implies the introduction into the building industry of a rational method of determining the limits for the actual size of each component. Each component is no longer sized solely on its individual merits or in relation to certain other components or to a particular building system; each is given a standard modular size, since each is related to the common constant of all modular buildings, the module reference grid.

The problems arising out of the present lack of dimensional order in component sizes can, it is felt by the EPA countries, be largely overcome by the acceptance and adoption by the building industry as a whole of a standard system of tolerances. The adoption of such a system, however, will mean that in effect the existing sizes of almost every building component will require some slight adjustment. These alterations are necessary to the economic development of our industry, and will involve the careful investigation for each and every component of both the work tolerances and the modular deviations required to locate actual sizes within fixed limits.

The maximum permissible size of a component will be its modular size, less its minimum necessary joint thickness; that is to say, the maximum permissible size will *deviate* from the modular size by this joint thickness—hence the term "modular deviation." And it follows from this that any limits for manufacture must always be *down limits* on this maximum permissible component size. Further investigation will be concerned with the exact determination of modular deviations and work tolerances. We of the EPA Project are going, during the coming two years, to study the modular deviations of components and this will form a substantial part of the work of Phase II. But, independently of this work, it should be possible, and I certainly believe it would be of immeasurable help, for you who are members of this Society and in particular those of you who are manufacturers to give your attention to the work tolerance or down limits required on what we will now call the maximum permissible size of each building component. I would like to end this talk by asking you to consider the system of tolerances I have outlined tonight and to see how it applies to your particular products.

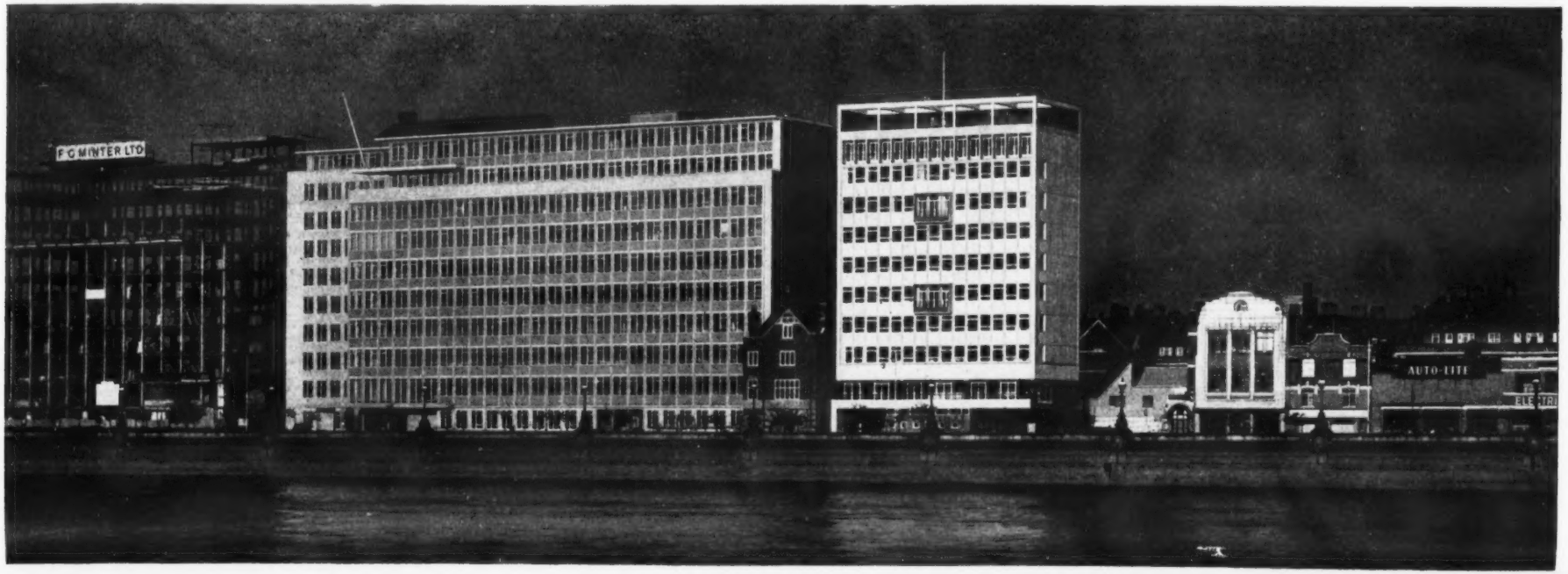
building illustrated

OFFICES

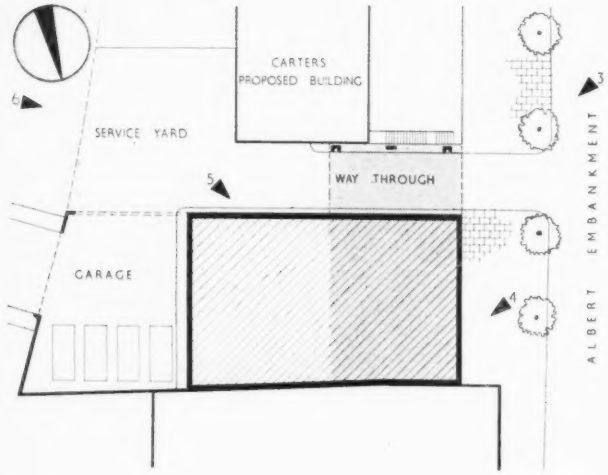
on ALBERT EMBANKMENT, LONDON, S.E.1 ; designed by FREDERICK GIBBERD ; partner in charge, A. E. KELSEY
associate architect, F. DARNELL ; assistant architects, MAUREEN GEE, GRAHAM SMITH, EMMA PEARSON, PETER MELVIN
consultants (structural) F. J. SAMUELY ; quantity surveyors, OSWALD PARRATT

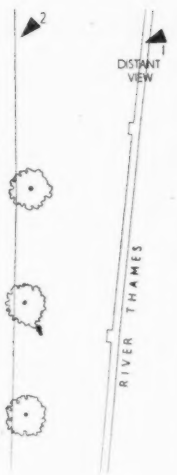
The new headquarters of the National Dock Labour Board on the Albert Embankment is the first office block for a single occupier in the London area to be analysed in the JOURNAL. The requirements were, therefore, very different from those of the usual lettable office building, such as Sentinel House, illustrated in the JOURNAL for October 4, 1956, and 24 Chiswell Street, illustrated on June 21, 1956. This is not a building for which large open floor areas were designed mainly for an unspecified use, and divided up later by moveable partitions. The requirements were known precisely, and the officers of the Board played a considerable part in the development of the plan.

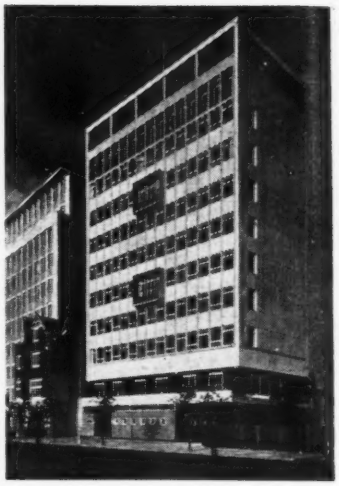
Viewpoint 1: new office blocks seen from across the Thames.



building illustrated







Key plan showing photographic viewpoints

OFFICES

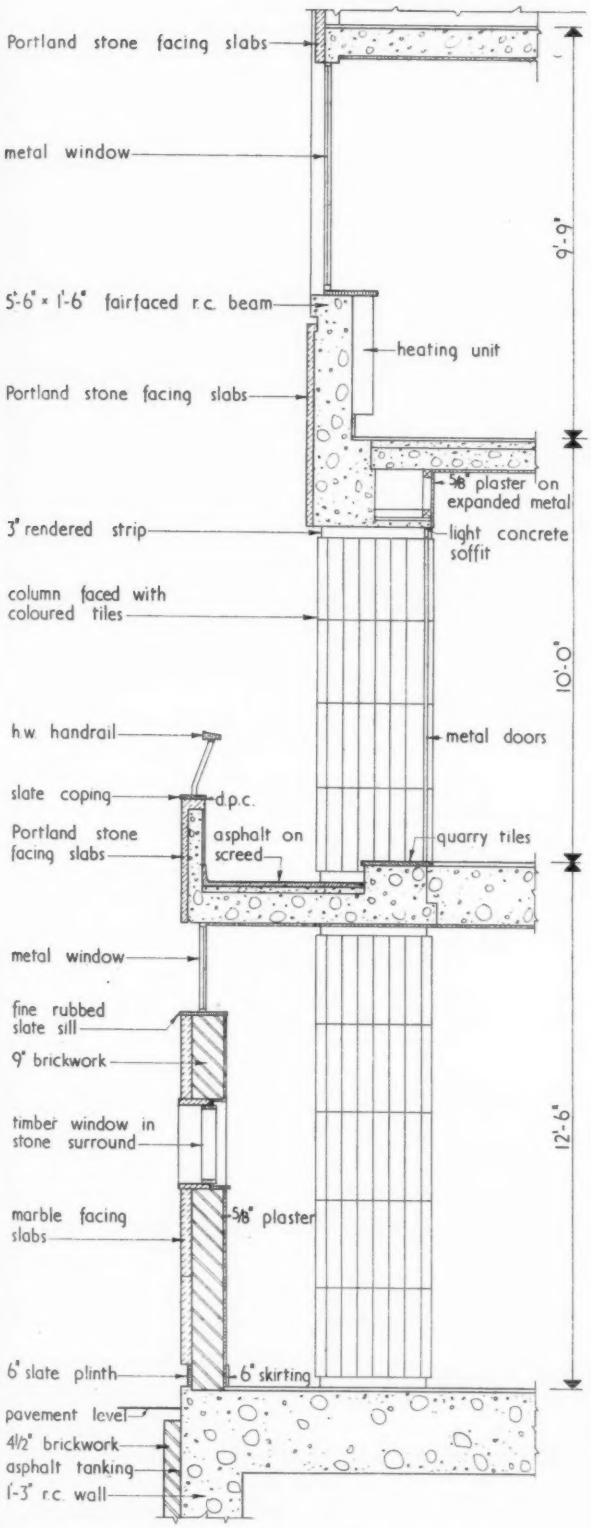
on ALBERT EMBANKMENT, S.E.1

designed by FREDDERICK GIBBERD

Viewpoint 2 (above): The wide spans up to 2nd floor level, necessitated by the main entrance, by the drive-in to the service yard and by easy access to the first floor terrace are achieved by heavy *in situ* beams and columns at 22 ft. centres. From 2nd floor to lower roof, all floor loads are taken by window mullions at 4 ft. 5 in. c/c. On the top floor, full height windows to the canteen are recessed to allow them to open outwards, providing a neat elevational coda terminated by a roof pergola echoing the scale at entrance level. Those who find the 4th and 7th floor balconies somewhat arbitrary may care to imagine how bald the cliff face would seem without them.

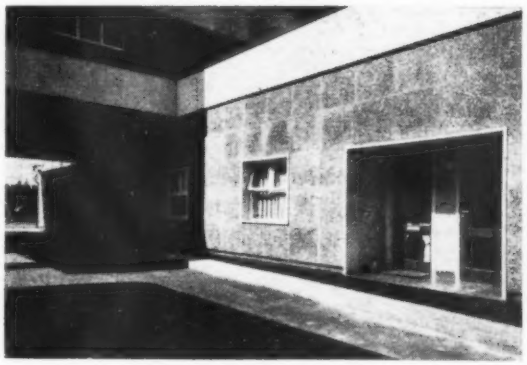
Viewpoint 3 (left): detail of Embankment elevation. At ground floor level the main entrance is seen on the left and the access road to the service yard behind on the right. Beyond lie the porter's lodge, telephone exchange and punch card machine room. The whole element is faced with green terrazzo pre-cast slabs. The building generally is faced with reconstructed Portland stone, but the structural mullions remain natural concrete, and the heavy stanchions from second floor downwards are faced in royal blue tiles. The window frames are painted white. A projecting metal flashing at each ceiling level on the end elevation serves the same practical and aesthetic function as a string course.

building illustrated

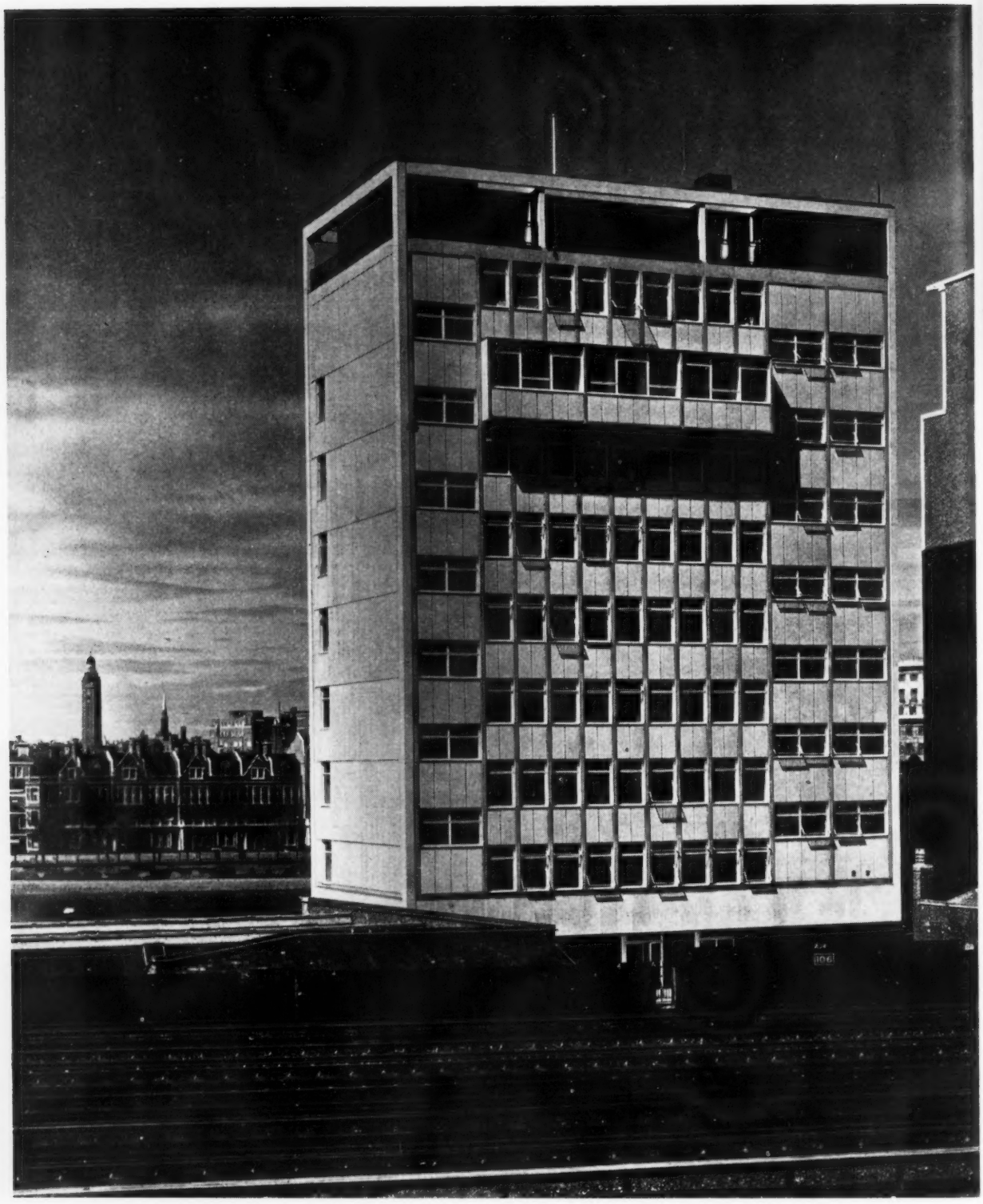


Section through ground, first and second floors, west facade
[Scale: ¼" = 1' 0"]

Viewpoint 4: the main entrance. The metal door and frame is painted black. The pre-cast terrazzo and reconstructed stone slabs are cramped back to *in situ* concrete or brickwork behind. The asphalt tanking of the basement is brought a few inches above ground level to form a plinth on the face of the building.



Viewpoint 5: the green terrazzo facing is also on the caretaker's flat; its entrance is coupled with the basement escape exit, and the garage (not shown in the photograph) The small windows and clerestory, under the multi-storey arch, light the punch-card room



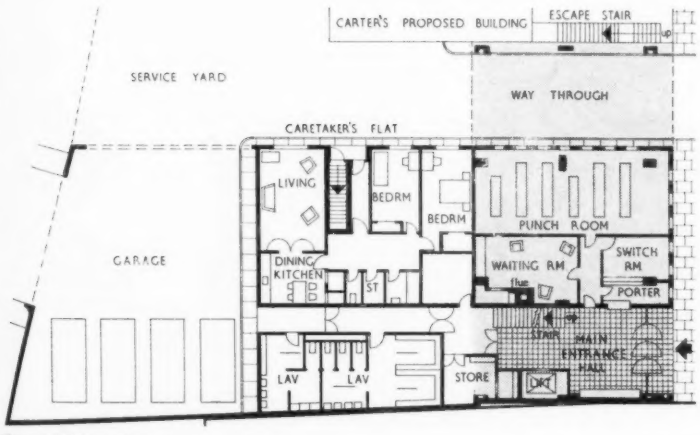
Viewpoint 6: east elevation seen across the railway. Variation in the pattern of the mullion wall is provided by stair walls to left and right and by lavatories leading off the half-landing of the latter. At the eighth floor level, a projection adds interest. The architects felt that sufficient "movement" was provided by these elements to allow all window transomes to run through at one level instead of being alternated as on the west elevation. On this facade, as elsewhere, all glazing opens so that it can be cleaned from the inside. The close proximity of the railway lines means that ventilation can only be obtained at the expense of a high noise level. Panel walls at roof level are faced with maroon tiles.

building illustrated

The roof terrace. Columns and beams are cast *in situ*, using pre-cast terrazzo as permanent shuttering. It will be noted that this permanent shuttering also serves to carry conduit to lighting points, and that zinc flashing has been carried round the top of the beams as protection. The terrace is sheltered by a flank wall and tank and lift housings on the north and east sides.

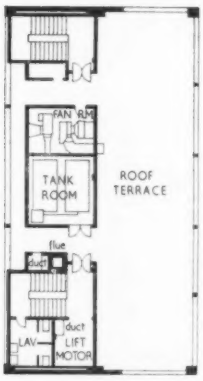
OFFICES

on ALBERT EMBANKMENT, S.E.1
designed by FREDERICK GIBBERD

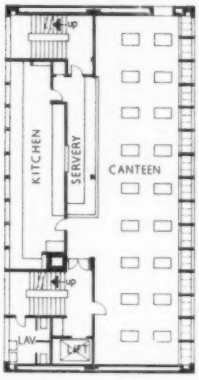


Ground floor plan

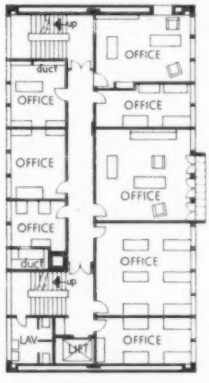
Basement plan [Scale: $\frac{1}{16}$" = 1' 0"]



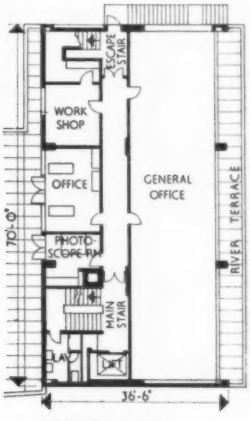
Lower roof plan



Ninth floor plan



Fourth floor plan



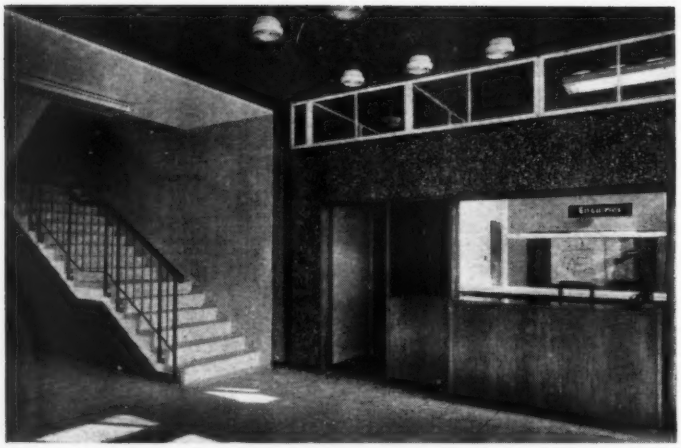
First floor plan

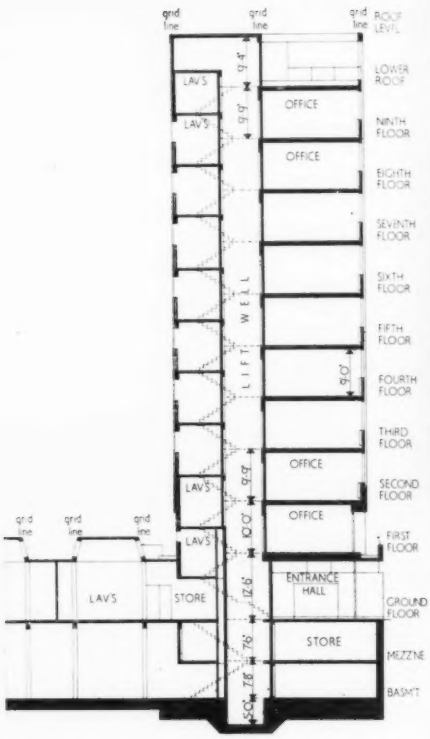
building illustrated

OFFICES

on ALBERT EMBANKMENT, S.E.1

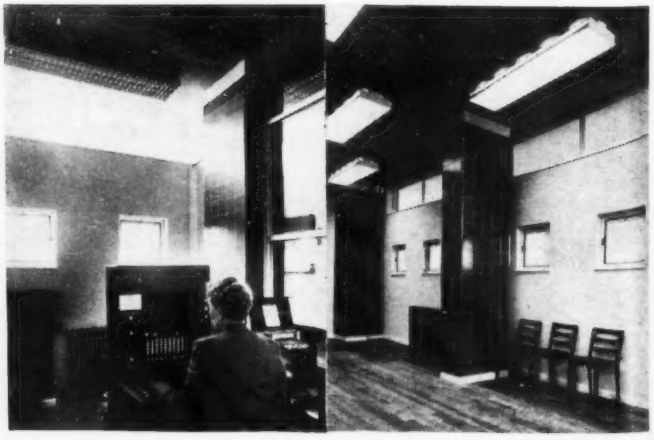
designed by FREDERICK GIBBERD





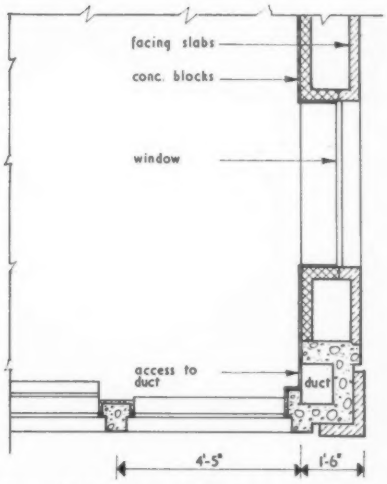
Cross section through entrance hall
[Scale: $\frac{1}{32}$" = 1' 0"]

The green terrazzo of the lodge, telephone exchange, etc., is carried through into entrance hall (above and below left). Separating this from the stair well (faced with light blue tiles) can be seen the beam and columns of the structural spine, the soffit of which is lime green and the face dark grey. The spandrel of the stair is also grey and the terrazzo steps yellow. The floor is grey terrazzo. The staircase ceiling is white and the entrance hall ceiling is lime green. The disparate size of rooms enclosed by the green terrazzo walls introduces a severe elevational problem, as will be seen from the view of the telephone exchange (below centre). The internal sill height of the small windows (16½ in. × 18 in.) is 55 in. Radiators and ceiling colour: lime green, 2GY 7/8; walls stone colour, 5OY 8/2. Thermoplastic tile floor. Below right: the punched-card room. No light from the fluorescent lamps goes upwards to illuminate the ceiling, which, in any case, has only a medium reflection coefficient. Colour lime green (2GY 7/8). The space between the largest column and the wall is 9 in. The floor is opepe (a golden hardwood). Only the small windows open.

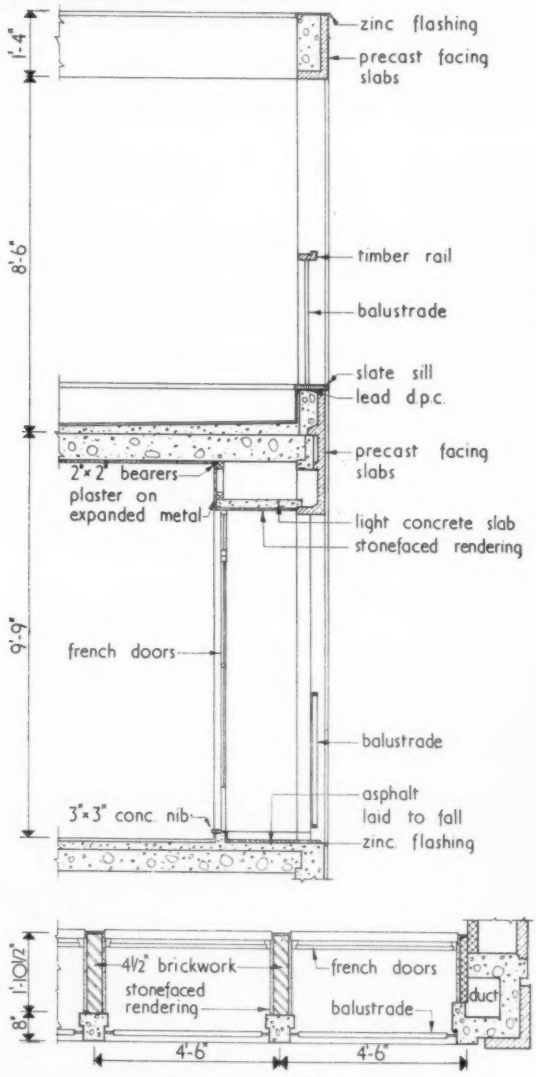


building illustrated

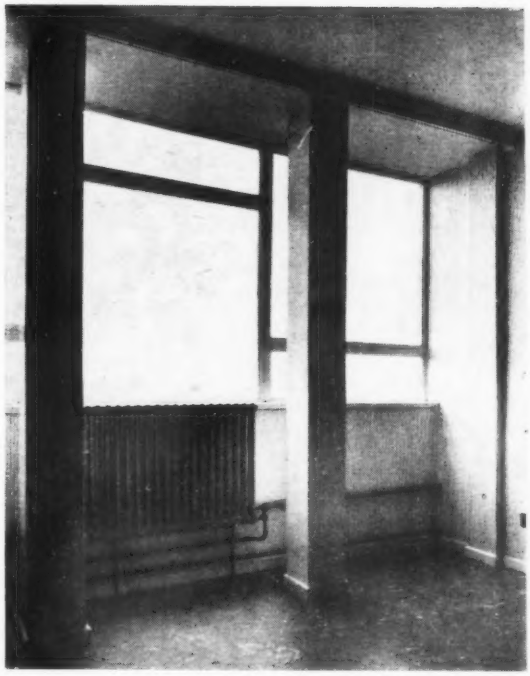
A typical office, in marked contrast to the utility-type rooms on the ground floor. The quality of natural lighting provided by the mullion-wall is excellent.



Plan of S.W. corner, 6th floor [Scale: ½" = 1' 0"]



Plan and section through west-wall, 9th floor [Scale: ½" = 1' 0"]

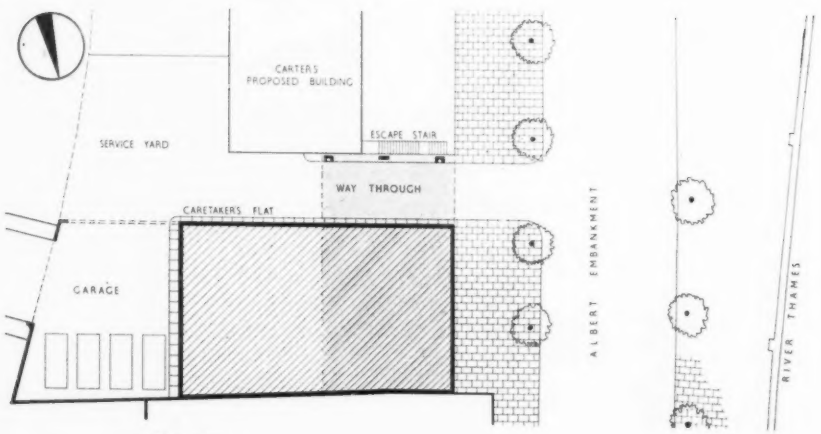


The projection on the east side of the eighth floor was intended to provide extra space in small dining rooms and an adjoining servery. Here, however, the mullion wall proves rather restrictive, since the mullions are at such close centres. However, a curtain track has been provided inside the mullion line, and when the curtains are drawn this disadvantage is concealed.

building illustrated

Left : the most effective variation that can be made on the mullion wall is to recess the window line. This has been done so as to provide a most pleasantly diffused light in the staff canteen. At the same time the device allows the full-length windows to open outwards on to small individual balconies. The pleasant intimacy of scale is emphasized by the low ceiling (7 ft.) over the servery, which contains the plenum duct. The large " Cardinals' hats " on the ceiling near the windows are the extract outlets. The perforated fibrous plaster ceiling itself is backed by a glass fibre quilt to provide sound absorption. All surfaces in the room are acoustically highly reflective. The end wall is green (B.S. 5.062). This colour is repeated on the ceiling and on the large round column at the far end of the servery, which is, in fact, a ventilation duct. The floor is finished in thermo-plastic tiles in an alternating pattern of black, grey and yellow-grey. The average number of meals is at present 45 a day, but it is expected that this will eventually rise to 70. Below left and below: two views of the chairman's office. The more important offices such as this and the general manager's room are distinguished by high-quality finishes. In this case the walls are panelled in laurel and the cupboard doors are faced in sycamore veneer, outlined in black and white frames. The floor is hardwood (opepe) and the ceiling plaster. There is a lack of artificial lighting directed upwards to the ceiling, as all fittings are of the downward-reflector type. The french windows open inwards and give access on to a balcony 2 ft. deep, a third bay of which is shared by the adjoining board room.

analysis



Site plan

OFFICES

on ALBERT EMBANKMENT, S. E. 1
designed by FREDERICK GIBBERD

CLIENT'S BRIEF: his stated requirements

A building to accommodate the Board and Head Offices of the National Dock Labour Board. The function of the building made the requirements very different from an ordinary office building. Instead of large floor spaces, generally for an unspecified use, the requirements were exactly known and they varied very considerably in size and character. In consequence, the officers of the Board took a considerable part in the development of the plan of the building and

analysis

such features as the continuous window treatment to the canteen on the top floor and the closely spaced mullions to the windows were an expression of these requirements.

SITE

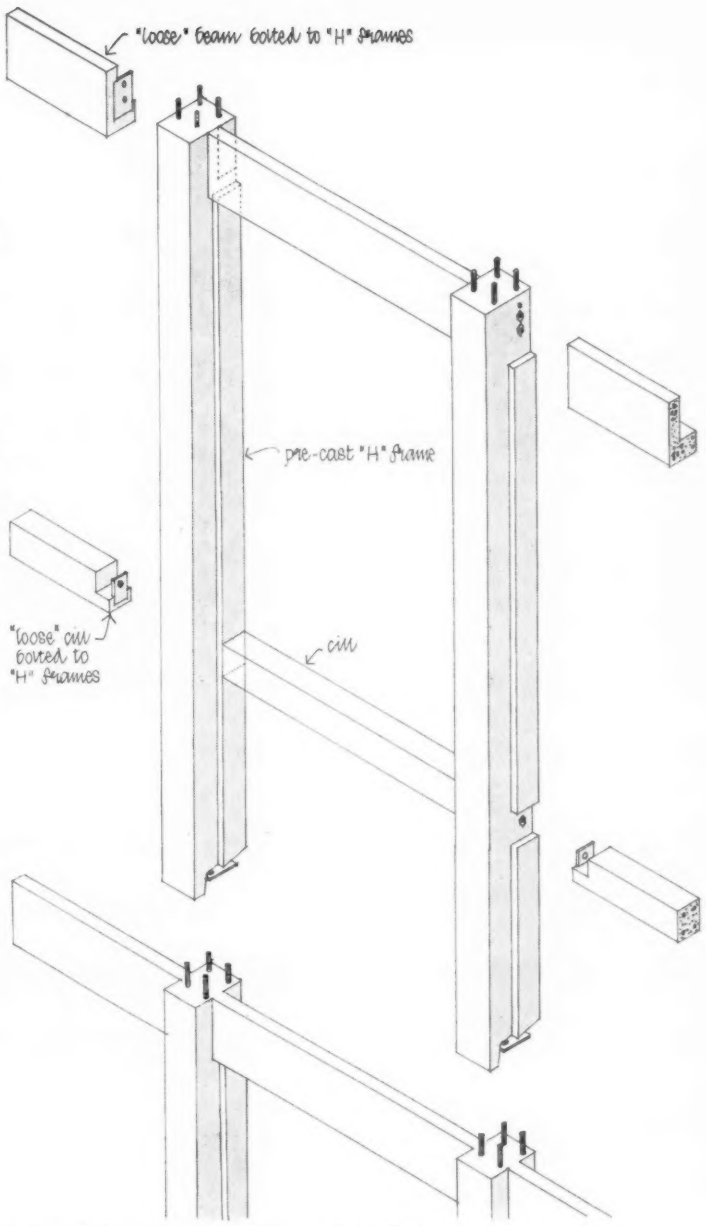
A flat site overlooking the River Thames and backing on to the main railway lines to Waterloo Station. The site is narrow (approximately 70 ft. wide). Main access, vehicles, etc., on to the Albert Embankment, secondary pedestrian access through railway arch. Site was completely devoid of any planting.

PLAN: general appreciation and relation of units

Because of the relatively small site and the amount of accommodation required, a narrow vertical office block was planned with a way through to the garage on the ground floor. The whole of the site on the ground floor was developed to provide male and female cloakrooms, caretaker's flat and entrance hall, etc., in addition to the garage accommodation. The whole building is interconnected with two staircases and a passenger lift. Because of the excellent views, the more important offices are planned overlooking the river with Board dining rooms on the 8th floor and the staff canteen on the 9th floor.

MAIN CONSTRUCTION: general appreciation

In situ reinforced concrete to 1st floor. Precast prestressed concrete, structural unit framework above with in situ spine beams and columns. Floors: 6-in. inverted T beams precast, prestressed with 2-in. structural screed.



Above, sketch section of precast core, " H " frame

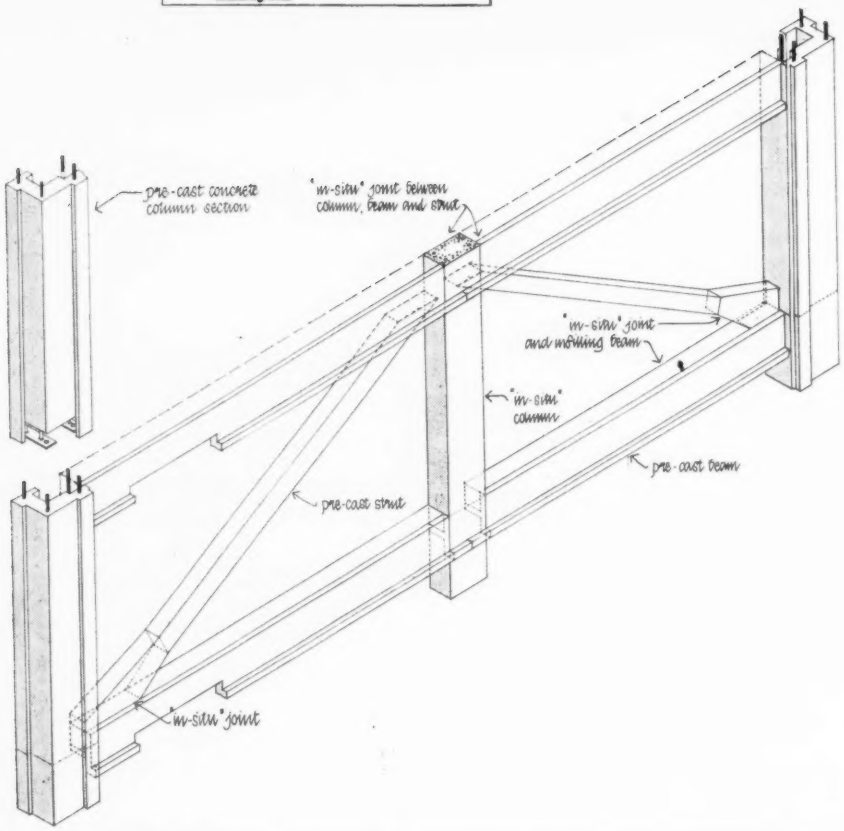
cost per sq. ft.	s	d
preliminaries and insurance	6	6
contingencies	3	3

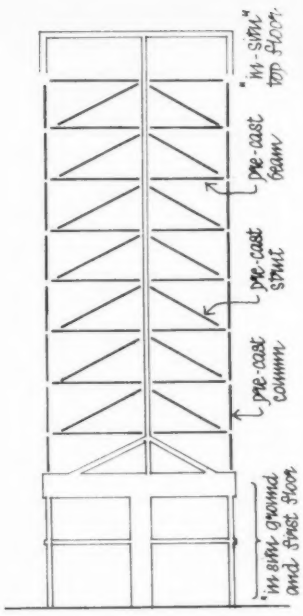
STRUCTURAL ELEMENTS

Work below ground floor level foundation type, basement	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Reinforced concrete raft foundations Load bearing walls		Reinforced concrete	Fairfaced concrete walls, tyrolean finish walls. Granolithic and lino on *in situ* concrete floors	To provide adequate foundations for a ten-storey building		
				work below ground floor level	**5**	**6**

External walls and facings	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Cavity wall 3-in. hollow clay block 2-in. air space 3½-in. precast exposed aggregate concrete slab	All elevations			Speed of erection		
				external walls and facings	**9**	**3**

analysis





Above: elevation of precast wind frames. Left: sketch section of precast wind frames

Frame or load bearing element	*Location*	*Materials*	*Beam spans*	*Column grid*	*Reasons and comments*	s	d
Concrete beams, slab floors and a series of external frames on each floor	Throughout	*In situ* concrete to first floor Second floor practically all precast units, precast prestressed concrete beams on all floors	19 ft. 16 ft. This being the span from spine beam to external mullion wall on either side of building	Structural mullion grid throughout is 4 ft. 5 in.	Speed and ease of erection, also to provide an economic form of construction. Precast floors erected at speed of one floor a week		

Upper floor construction	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Precast units	Throughout except below ground floor	6-in. inverted prestressed tee beams	Upper part: 2-in. structural screed and 1-in. screed and floor finish Lower part: expanded metal and plaster, some battens and fibrous plaster	Ease and speed of erection. Ability to build from floor to floor with practically full dry construction		
				frame and upper floor construction	**26**	**9**

Staircases	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Main staircase	End of building	Precast concrete	Terrazzo *in situ*	Ease and speed of erection		
Secondary staircase	End of building	Precast concrete	Terrazzo *in situ*	Ease and speed of erection		
height: floor to floor = 9 ft. 9 in. width between landings = 6 ft. 8 in.						
				staircases	**3**	**3**

Roof construction	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Prestressed concrete	Top floor	Concrete	Asphalt and concrete tiles	Top floor is used as a roof terrace		
In-situ concrete	1st floor extension	Concrete	Asphalt			
				roof construction	**1**	**11**

Roof lights	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Upper roof	Glass	Dome lights	To provide light to lift motor room		
	Lower roof	Glass	Dome lights	To provide light and ventilation to cloakrooms and caretaker's bath and kitchen		
				roof lights		**4**

analysis

					s	d
Windows	*Location*	*Materials*	*Finish*	*Reasons and comments*		
External	Throughout	Steel	Galvanized and painted			
				windows	2	4
External doors	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Throughout except escape doors and entrance to caretaker's flat	Steel	Galvanized and painted			
		Softwood	Painted			
				external doors		9
Glazing	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Opening lights 3 ft. 9 in. × 4 ft., and 3 ft. 9 in. × 1 ft. 3 in.	Throughout	32 oz. ordinary quality				
Fixed lights 3 ft. 9 in. × 1 ft. × 3 in.						
				glazing		9

PARTITIONING

Internal partitions	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Fixed	Between offices	3-in. hollow clay pot	Plaster both sides	Sound insulation and London Building Act		
		4½-in. brick	Plaster both sides			
				internal partitions	1	1
Screens	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Glazed screens	Ground floor	Hardwood	Wax polished	Observation from Porter's lodge		
				screens		4
W.C. doors and partitions	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Partitions	Throughout	Terrazzo (precast)	Polished	Easy maintenance and speed of erection		
Doors	Throughout	1⅜-in. hollow core ply face flush	Painted			
				w.c. doors and partitions		4
Internal doors	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Throughout	Skeleton and solid core flush with various veneers	Varnished	Appearance and maintenance		
				internal doors	1	8
Ironmongery to internal doors	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Generally	Aluminium and silver bronze lever handles	Natural			
				ironmongery to internal doors	1	4

FINISHINGS

Floor finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Basement	Lino—granolithic	Natural	Hardwearing		
	Ground floor	Terrazzo	Polished	Hardwearing		
	First to 9th general	Mastic tile	Polished	Economical		
	Special rooms	Opepe wood block	Polished	Necessary for aesthetic reasons		
				floor finishes	2	11
Wall finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Partitions	Plaster	Oil bound distemper or painted eggshell	Economical		
	Stair walls	Tiles				
	Special rooms various parts	⅛ in. and 1 in. grounds and ⅜-in. and 4½-in. veneered ply	Wax polished	Necessary for decoration schemes		
		Wall paper				
				wall finishes	2	2
Ceiling finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Generally	Plaster	Oil bound distemper	Sound absorption		
	Special rooms	Fibrous plaster	Oil bound distemper			
	Basement	Concrete	Natural cement, tone No. 9			
				ceiling finishes		10

analysis

					s	d
Decorations	*Location*	*Paint types*	*Munsell or other reference*	*Colour scheme and comments*		
Ceilings	Generally	Oil bound distemper	White and various	Colour schemes were designed with client and are individual to rooms, function and location		
Walls	Special rooms	Walnut, mahogany, sycamore panels				
	Generally	Oil bound distemper	Various	Large range of colours used		
	Staircase	Tiled	Blue			
				decorations	1	3

FITTINGS

Cloak rooms	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Ground floor	Wood cupboards, ¼-in. ply and softwood framing	Painted	Cupboards have electric heaters		
				cloakrooms		3
Kitchen equipment	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Main kitchen and servery	8th and 9th floors	All electric equipment	Enamelled white	Kitchens and serveries fully equipped with all necessary items		
				kitchen equipment	2	6

SERVICES

Rain water disposal	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Internal	Duct in corner of building	4-in. c.i.		All r.w.p.'s within building		
Plumbing, internal: waste disposal	*Location*	*Materials*	*Finish*	*Reasons and comments*		
One-pipe system	Throughout	C.I. main pipes, copper branches	Where exposed painted			
Hot water storage	*Location*	*Materials*	*Capacity*	*Reasons and comments*		
	Basement	Galvanized sheet iron	350 gallons			
Cold water storage	*Location*	*Materials*	*Capacity*	*Reasons and comments*		
Large tanks	Roof	Galvanized sheet iron	3,500 gallons			
Plumbing: sanitary fittings	*Location*	*Materials*	*Finish*	*Reasons and comments*		
	Lavatories	High level w.c. suites, slab urinals, lavatory basins, incinerators	Glazed	Standard fittings used		
				plumbing internal, hot and cold water storage, sanitary fittings	4	8
Heating installation: heat exchanger type	*Location*	*Criteria temperature*	*Air change rate*	*Reasons and comments*		
Low pressure hot water	Radiators	70° offices	6			
		65° corridors	24 in kitchen			
Boiler type and capacity	*Location*	*Heat load and fuel type*	*Stoking method*	*Reasons and comments*		
Two cast iron sectional boilers	Basement	811,000 B.T.U. per hour. Oil 220 secs. viscosity	Fully automatic	Economy		
Water heat type	*Location*	*Fuel type*	*Stoking method*	*Reasons and comments*		
Cast iron sectional	Basement	325,000 B.T.U. per hour	Fully automatic			
				heating installation, boiler type and capacity water heater type	3	11
Drainage: type of system	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Combined	Throughout	Cast iron				
				drainage		11
Kitchen ventilation	*Location*	*Materials*	*Finish*	*Reasons and comments*		
Main kitchen	9th floor	Galvanised sheet ducts	Plywood painted	All equipment giving off steam covered by hoods		
Servery	8th floor	Galvanised sheet ducts	Plywood painted			
				kitchen ventilation		3

analysis

Electrical installation: source and fitting type	*Location*	*Illumination level*	*Quality*	*Reasons and comments*
Tungsten generally	In smaller offices and boardroom	15-20 f.c.		
	In larger offices			

Wiring and switching types	*Location*	*Materials*	*Reasons and comments*
V.I.R. in heavy gauge screwed conduits			

Power supply type	*Location*	*How distributed*	*Reasons and comments*
230 a.c., 3 phase			

electrical installation, wiring and switching types, power supply type s 6 d 6

Lifts	*Location*	*Capacity and speed*	*Reasons and comments*
Passenger lift	Basement—9th floor	12 persons. 200 ft. per second	Motor room position on roof. Convenience and necessity of serving meals on 8th floor
Service lift	8th—9th floor		

lifts 5 1

Paved areas	*Location*	*Materials*	*Reasons and comments*
Public footpath only	To main elevation	Concrete	

paved areas 9

THERMAL INSULATION

Type	*Location*	*U-value*	*Reasons and comments*
Cavity wall construction		About ·35	

SPECIAL ACOUSTICAL TREATMENT

Sound absorption material	*Location*	*Absorption coefficient*	*Reasons and comments*
Slotted fibrous plaster	Ceilings of staff dining rooms, board room and board dining rooms	Not measured	Treatment in accordance with requirement

FIRE

Structural precautions	*Grade of protection apparatus*	*Sprinklers*	*Reasons and comments*
All reinforcement covered	Office grade	Dry rising mains	LCC fire requirements were complied with throughout
Fire check doors as required	Fusible link shutters to garage		

Planning precautions	*Access for fighting*	*Means of escape*	*Reasons and comments*
Normal access	Normal	Two staircases and one lift	

REFUSE DISPOSAL

Method	*Type of refuse*	*Waste recovery*	*Materials and installation*	*Reasons and comments*
Dustbin	Swill and paper	Collected by local council		

TIME SCHEDULE

Drawings	*Tender date*	*Work commenced*	*Work completed*	*Type of contract*
November, 1952	June, 1954	November, 1954	July, 1956	RIBA

RATIOS

Area of enclosing walls / Total floor area	= 0·85 / 1	Area of windows (including external doors) / Total floor area	= 0·2 / 1
Area of solid wall / Total floor area	= 0·65 / 1	Total roof area / Total floor area	= 0·2 / 1

COST ANALYSIS

Tender date	June, 1954	External works	£900
Tender cost of superstructure, installations and finishings	£153,508	Tender cost per ft. super of floor area including basement	£4 16s. 7d.
Tender cost of foundations and basement	£8,200	Tender cost per ft. cube including basement	7s. 10d.

building illustrated

COST COMMENTS

R. O. Whittington's article "More About Flat Costs" (AJ, July 26) ends with thoughts on the question: "what happens over six storeys?" This analysis gives a further indication of the distribution of costs at such heights and shown below are comparisons with two previously published buildings, 2-storey office block at Poole (AJ, March 10, 1955) and an 8-storey office block in Chiswell Street (AJ, June 21, 1956).

	Poole 2-*Storey*	*Chiswell Street* 8-*Storey*	*Dock Labour Board* 10-*Storey*
Cost per sq. ft. of floor area	48s. 7d.	77s. 11d.	96s. 7d.
	s. d.	s. d.	s. d.
Preliminaries	1 3½	4 3	6 6
Contingencies	2 6	4 0	3 3
Foundations	2 0¾	6 0	5 6
	5s. 10¼d.	14s. 3d.	15s. 3d.
STRUCTURE			
External walls	10 5¾	4 8	9 3
External windows and doors	inc.	5 6	3 1
Frame	10 5	9 1	26 9
Upper floor construction	inc.	7 11	inc.
Roof	1 2¾	1 8	1 11
Rooflights	1 5	—	4
Stairs	—	1 8	3 3
Glazing	inc.	1 3	9
Internal partitions	3 7	6 4	4 9
	27s. 1½d.	38s. 1d.	50s. 1d.
FINISHES			
Floor finishes	4 0	1 9	2 11
Wall finishes	inc.	1 8	2 2
Ceiling finishes	1 3½	11	10
Decorations	10	2 3	1 3
	6s. 1½d.	6s. 7d.	7s. 2d.
FITTINGS			
Built-in fittings	8½	—	3
Kitchen equipment	—	—	2 6
	8½d.		2s. 9d.
SERVICES			
Plumbing: external	1	4	4 8
Plumbing: internal	1 2	1 3	inc.
Sanitary fittings	4½	inc.	inc.
Heating	5 0	6 7	6 6
Kitchen ventilation	—	—	3
Electrical	1 4	3 11	6 6
Gas	—	2	—
Lifts	—	—	—
	7s. 11½d.	18s. 2d.	20s. 5d.
Drainage	10d.	10d.	11d.
	48s. 7d.	77s. 11d.	96s. 7d.

The elements "frame" and "upper floor construction" were unpriced in the analysis, but as the total of the priced elements amounts to 69s. 10d. it can only be assumed that these unpriced elements amount to the balance of 26s. 9d. as shown on page 570.

Preliminaries: The expected increase with storey height is due to such factors as heavier plant (including a tower crane) and equipment, increased insurances, etc. The 10-storey block was also on a very cramped site.

Foundations: The multi-storey blocks compare well when it is remembered that the foundations at Chiswell Street were cantilevered because of site restrictions.

External walls, windows and doors: Without unit rates it is not immediately apparent that the cost of these elements on the 10-storey block are cheaper than in the 8-storey. With a higher perimeter to floor area ratio dictated by site conditions (0.9 as compared with 0.6) this specification if applied to the 8-storey block would amount to (9s. 3d. + 3s. 1d.) $\times \frac{0.6}{0.9} =$ 8s. 3d. per sq. ft. as against the actual cost of 10s. 2d. per sq. ft.

Frame and upper floor construction: On a confined site with the plant having to operate with such little elbow room, any type of frame would have proved expensive and the cost per sq. ft. cannot be taken as a true guide in relation to storey height.

Stairs: Note that the 8-storey block has one flight of stairs, the 10-storey has two flights.

Internal partitions: Although the respective ratios are not given it is obvious that the demountable partitions used at Chiswell Street are more expensive than the solid partitions used in the Dock Labour Office.

Kitchen equipment: In comparing the overall costs per sq. ft. it should be noted that the Labour Board's kitchen equipment is an extra not covered in the other buildings.

Plumbing and sanitary fittings: Comparisons between the 8-storey block's two pipe and the 10-storey's one-pipe system are not possible with further cost breakdowns. In the 10-storey block there are the additional supplies and waste plumbing to the 9th floor kitchen, and a dry fire main.

Heating and electrical: For the 8-storey block costs include an additional boiler to serve the existing building. The electrical cost of the 10-storey block includes additional staircase lighting and wiring to the kitchen equipment.

Lifts: The greater numbers of floors served is reflected in the lower cost per sq. ft.

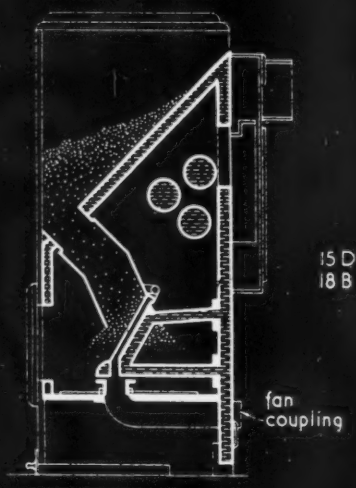
Generally: Both multi-storied blocks have been built on confined sites which has added to the upward trend of the element costs. Had lower target figures been called for, the distribution of costs shown in the tables above give a fair indication where economies might be made.

CONTRACTORS

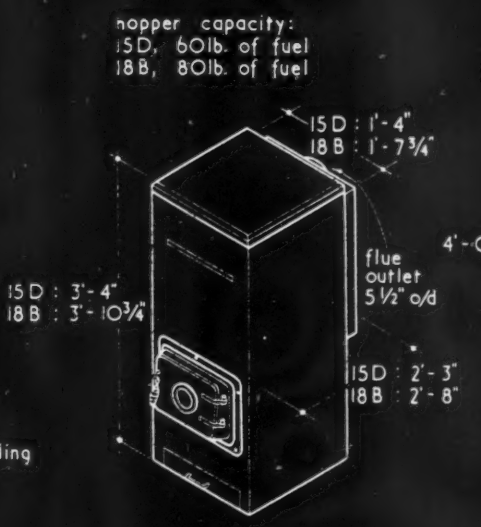
Clerk of Works: E. Colman. *General contractors:* Wates Ltd. *Sub-contractors: Automatic telephone alarm:* Burgot Rentals Ltd. *Lightning conductor:* R. C. Cutting & Co. Ltd. *Ventilation and heating:* Earley & Noon Heating Co. Ltd. *Plumbing:* W. H. Earley Ltd. *Partitions:* Esavian Ltd. *Rolling shutters:* Haskins Rolling Shutters. *White glazed tiling:* A. H. Herbert & Co. Ltd. *Lettering:* Lettering Centre. *Electrical installation and alarm:* London Electricity Board. *Balustrading (external) and staircase balustrade:* Light Steelwork (1925) Ltd. *Bronze tablet and plaque:* H. H. Martyn & Co. Ltd. *Lifts:* Marryat & Scott Ltd. *Terrazzo paving:* Standard Pavements Co. Ltd. *Canteen equipment:* Summerling & Co. Ltd. *Metal windows:* Williams & Williams Ltd. *Industrial steel shelving:* Acrow (Engineers) Ltd. *Grilles:* F. H. Biddle Ltd. *Prestressed units:* Costain Concrete Co. Ltd. *Sanitary fittings:* Dent & Hellyer Ltd. *Safe door:* Milners Safe Co. Ltd. *Painting:* J. W. Alder & Son Ltd. *Doors, screens and panels:* D. Burkle & Son Ltd. "*Colterro*" *lath suspended ceilings:* W. H. Colt (London) Ltd. *Asphalt, tanking, etc.:* Excel Asphalte Co. Ltd. *Glazing:* Faulkner Greene & Co. Ltd. *Flat roofing:* Frazzi Ltd. *Hardwood handrail:* E. H. Higginson & Co. Ltd. *Tiling to floors:* Marley Tile Co. Ltd. *Hardwood flooring:* Philip Flooring Co. Ltd. *Granolithic plastering, etc.:* W. A. Telling Ltd. *Veronese:* Fibrous Plaster. *Main entrance doors:* C. E. Welstead Ltd. *Joinery:* Humphreys Ltd. *Doors:* Gliksten Ltd.

SPACE HEATING | SOLID FUEL BOILERS

The Architects' Journal Library of Information Sheets 589. Editor: Cotterell Butler, A.R.I.B.A.

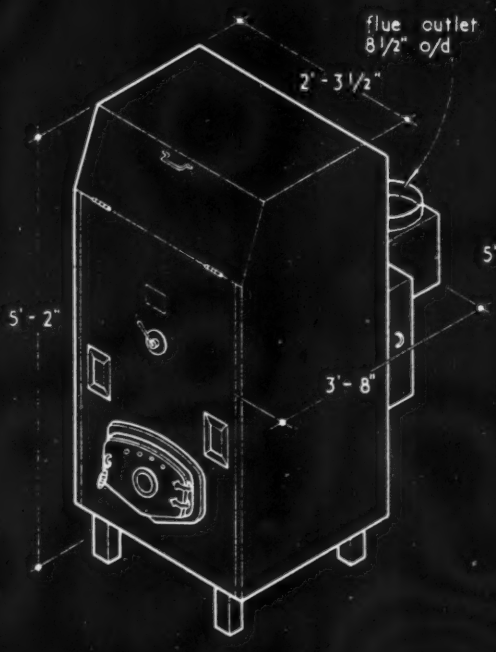


SECTION THRO' TYPICAL BOILER.

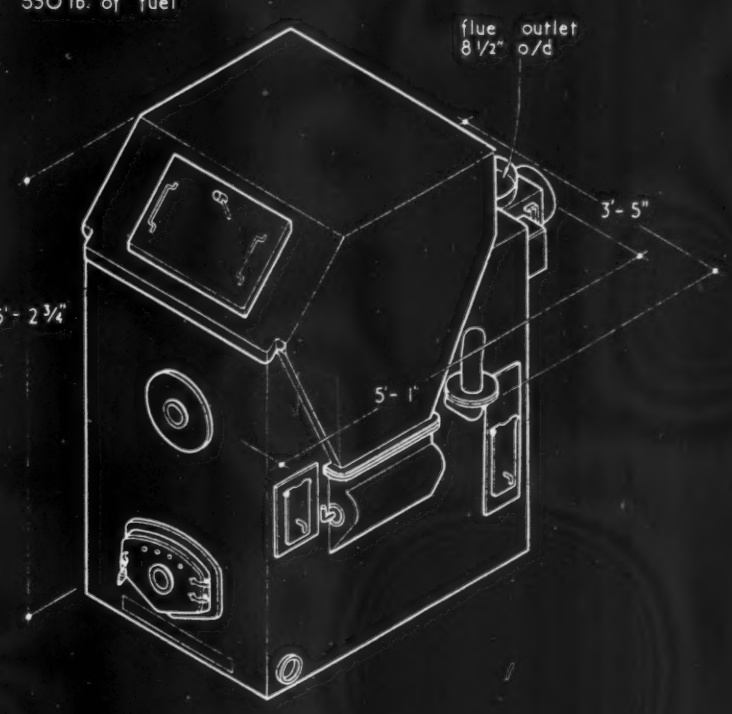


TYPES 15D, 18B.

TYPE 21A.



TYPE 24A.



TYPE 275A.

WATTS AUTOMATIC BOILERS : SOLID FUEL FIRED.

Manufacturer: Watts Automatic Boilers.

29.H4 WATTS AUTOMATIC BOILERS: SOLID FUEL FIRED

This Sheet describes Watts automatic gravity-feed boilers for central heating and domestic hot water supply.

Design and Construction

The fire-box, containing patented burner, is situated beneath the fuel hopper and is supplied by gravity through a feed tube. There is a cut-off device to stop the feed during declinkering. Waterways form the back, both sides, front and top of the fire-box, which also contains three cross tubes: some models also have a water-cooled base. The water-cooled burner is connected to the waterways. The drawing on the top left of the face of the Sheet shows a section through a typical boiler.

Control: The boiler temperature is controlled by a thermostat connected to a small electric motor fan. A drop in the water temperature causes the fan to be switched on and air is supplied to the fire. When the temperature rises the fan is switched off and natural draught enters between the stationary blades.

Connections: The flow and return connections are sockets of the following sizes:

Type No.	Size of Socket (B.S.P.)	Number of Flow Sockets	Number of Return Sockets
15D	1½ in.	2	2
18B	2 in.	2	2
21A	2½ in.	2	2
24A	3 in.	2	2
275A	4 in. (flow) 3 in. (return)	1	2

Outer casing: The hopper and fire-box are surrounded by a sheet steel casing in the front of which is the fire door. The rear of the boiler, where connections for flue, fan and flow and return pipes are situated, is not cased.

Types and Sizes

A selection from the range is illustrated on the face of the Sheet, giving the overall height and width of each with the overall depth to the flue outlet. Hopper capacities and flue outlet sizes are also given.

Rating

The following table gives the ratings of the types of boiler illustrated:

Type No.	Rating (B.t.u./hr.)
15D	60,000
18B	80,000
21A	125,000
24A	170,000
275A	275,000

Fuel Recommended

Anthracite grains passing $\frac{3}{16}$ in. to $\frac{3}{8}$ in. mesh are recommended, with volatile content under 11 per cent and as low an ash content as possible. Model 275A is also suitable for operation on anthracite peas.

Installation

The boilers should be installed by experienced engineers. When planning, however, care must be taken to ensure the correct positioning of the appliance to enable maintenance to be carried out. A space of at least 1 ft. 0 in. should be left on one side of the boiler, or alternatively an access panel must be provided in the wall behind the boiler. With Type 275A a space of at least 1 ft. 6 in. must be allowed on either side for removal of flue dust from the cleaning doors. There should be a drain cock at the lowest point in a return pipe and a safety valve in the flow pipe on the boiler side of any valve. The thermostat, preferably of the immersion type, should be fitted in a convenient position with connections to the electric supply and fan.

Applications

The boilers are designed for central heating or domestic hot water systems and, with the necessary controls, they can be utilized for combined circuits. For large installations the boilers are suitable for coupling together in battery form.

Finish

The boiler casing is stove-enamelled in white, cream, pastel blue, green, eau-de-nil, turquoise, smoke grey or maroon.

Further Information

The manufacturer maintains a technical advisory service available to answer questions dealing with this subject and also arranges courses of instruction in the installation of the boilers.

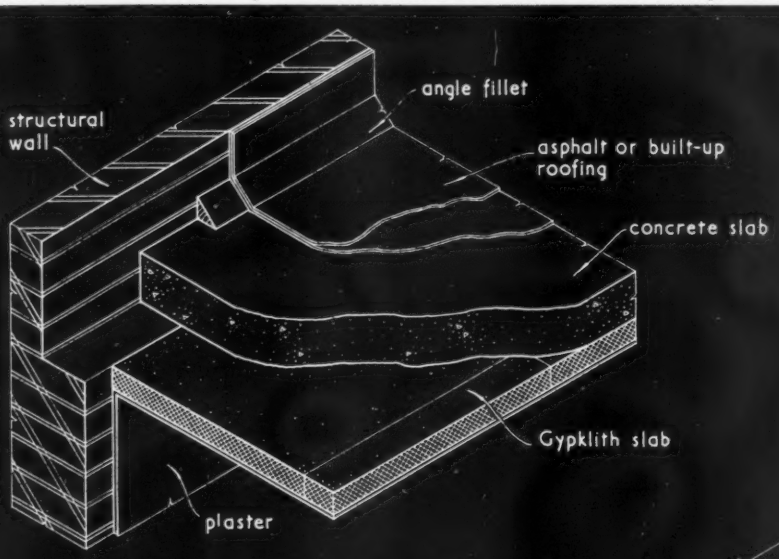
Compiled from information supplied by:

Watts Automatic Boilers

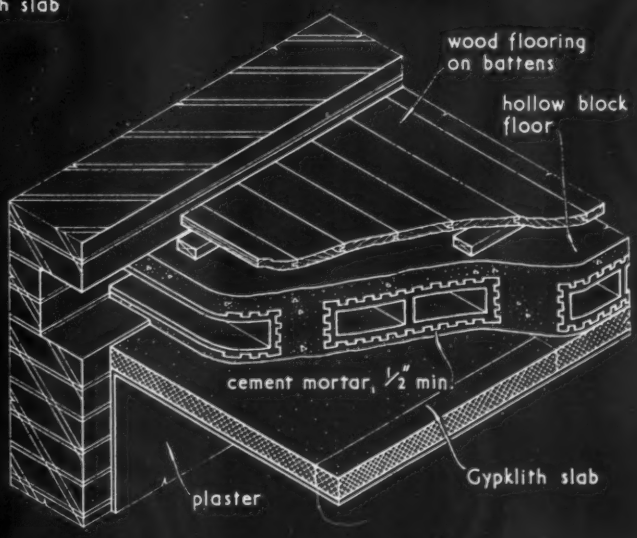
Address: High Street, Lydney, Gloucestershire.
Telephone: Lydney 392-5.

Architects' Journal 18.10.56

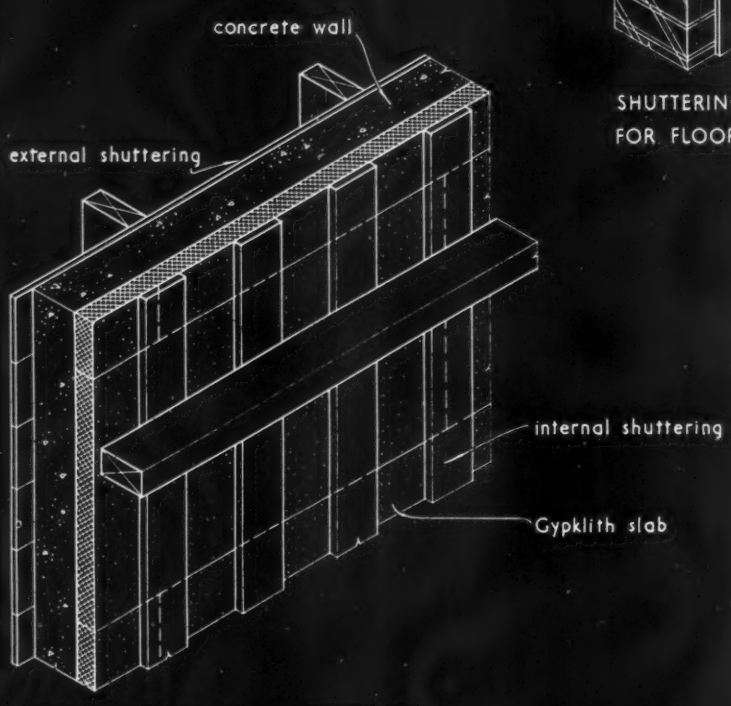
The Architects' Journal Library of Information Sheets 590. Editor: Cotterell Butler, A.R.I.B.A.



SHUTTERING TO IN-SITU CONCRETE SLAB FOR FLOOR OR ROOF.



SHUTTERING TO HOLLOW BLOCK SLAB FOR FLOOR OR ROOF.



INTERNAL LINING TO CONCRETE WALL.

·GYPKLITH· WOOD-WOOL SLABS: PERMANENT SHUTTERING TO FLOORS, ROOFS AND WALLS.
Manufacturer: Gyproc Products Ltd.

14.L13. ·GYPKLITH· WOOD-WOOL SLABS: PERMANENT SHUTTERING TO FLOORS, ROOFS AND WALLS

This Sheet is one of a series on Gypklith wood-wool slabs and describes their use for permanent shuttering to floors, roofs and walls. General data on the characteristics and properties of the material and the sizes in which it is available are given on Sheet 14.K1.

Floors and Roofs

Thicknesses: Normal quality Gypklith slabs, 1, 1½, 2, 2½ or 3 in. thick are suitable for permanent shuttering for floors and roofs, the thickness depending on the degree of thermal insulation required.

Fixing: Temporary close-boarded shuttering should be erected, allowance being made for the thickness of the Gypklith. The slabs are laid over the shuttering with all edges butted tightly together and end joints staggered. Where the slabs are to be plastered, 22 gauge galvanised wire netting of 2-in. maximum mesh should be laid between the temporary shuttering and the Gypklith before the concrete is poured. It may be secured by lengths of galvanised wire looped through the mesh and drawn through the joints between slabs, the ends of the wire being bent above the slabs to hold it in position: it may be necessary to fix the netting more securely by stapling after the temporary shuttering is removed. Where hollow tiles are used in the floor construction they should be bedded in cement mortar laid on the Gypklith slabs to a thickness of ½ in. minimum.
With an in-situ slab, reinforced or otherwise, the concrete should be well bonded to the Gypklith by tamping.

Plastering: For plastering Gypklith, reference should be made to Sheet 14.K1.

Walls

Thicknesses: Normal quality Gypklith slabs 1, 1½, 2, 2½ or 3 in. thick are suitable for permanent shuttering for concrete walls, depending on the degree of thermal insulation required.

Fixing: The concrete wall must incorporate a damp-proof course sufficiently wide to protect the Gypklith also. Temporary shuttering should be erected allowing for the thickness of the Gypklith. This shuttering must be close-boarded where the thickness of concrete is to exceed 6 in. and the Gypklith lining is less than 2 in. Where the thickness of concrete is to be less than 6 in. and the Gypklith 2 in. or over, the slabs may be supported as shown in the drawing on the face of the Sheet, care being taken that all vertical joints in the slabs will be covered by the shuttering members. Slabs are laid in courses with all horizontal joints bedded in mortar. They should be tightly butted with vertical joints dry and staggered in adjacent courses.

Plastering: For plastering Gypklith reference should be made to Sheet 14.K1.

Further Information

The manufacturer maintains a technical advisory department which is available to give advice on all aspects of this subject.

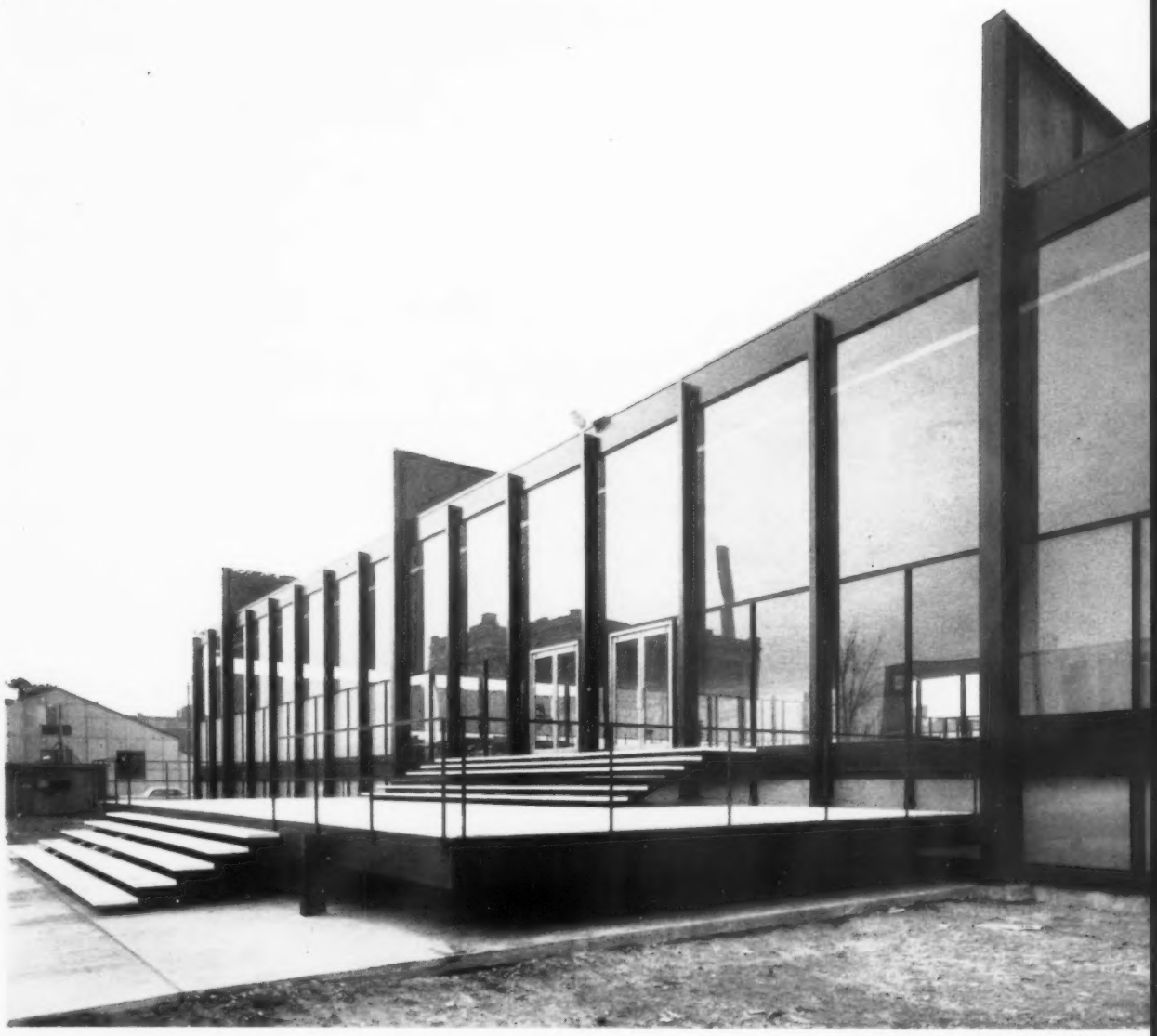
Compiled from information supplied by :

Gyproc Products Ltd.
Head Office : Singlewell Road, Gravesend, Kent
Telephone : Gravesend 4251-4
Telegrams : Gyproc, Gravesend
Glasgow Office : Gyproc Wharf, Shieldhall, Glasgow, S.W.1
Telephone : Govan 2141-3
Telegrams : Gyproc, Glasgow
Midland District
Sales Office : East Leake, Loughborough, Leics.
Telephone : East Leake 231
London Office : Bath House, Piccadilly, London, W.1
Telephone : Grosvenor 4617

working detail

GLAZED WALL: TECHNOLOGICAL INSTITUTE IN CHICAGO

Mies van der Rohe, architect



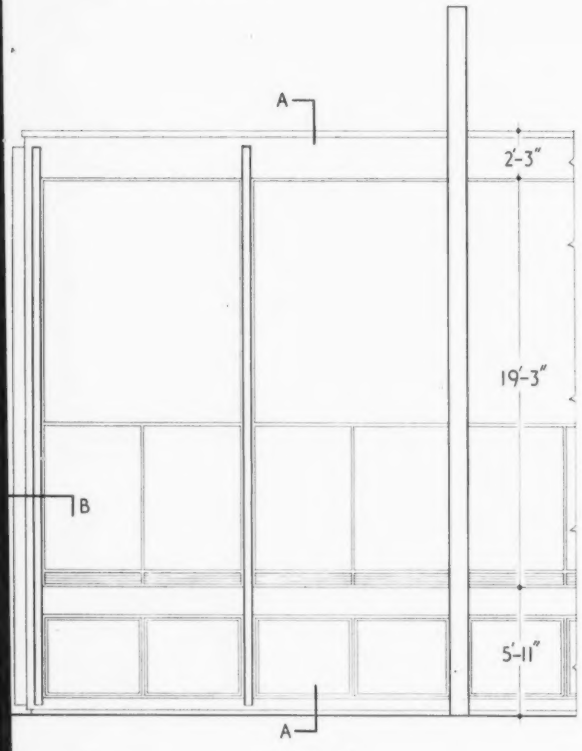
Photograph: Bill Engdahl, Hedrich-Blessing

An interesting example of an all-steel curtain wall with supporting columns in front of the window line. All framing (including the beads) is in solid m.s. rectangular sections screwed together. All ventilation is through the narrow louvre band immediately above the main floor level. The joints between all main structural members and the window framing are sealed with mastic tape.

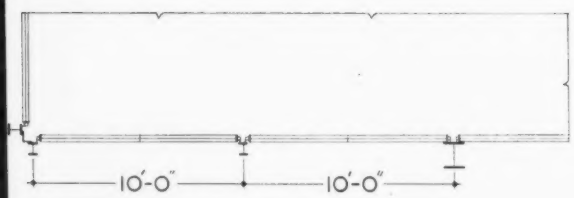
working detail

GLAZED WALL: TECHNOLOGICAL INSTITUTE IN CHICAGO

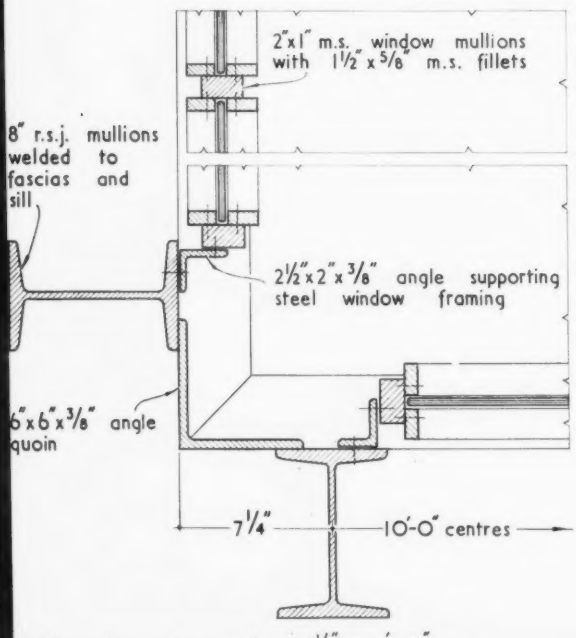
Mies van der Rohe, architect



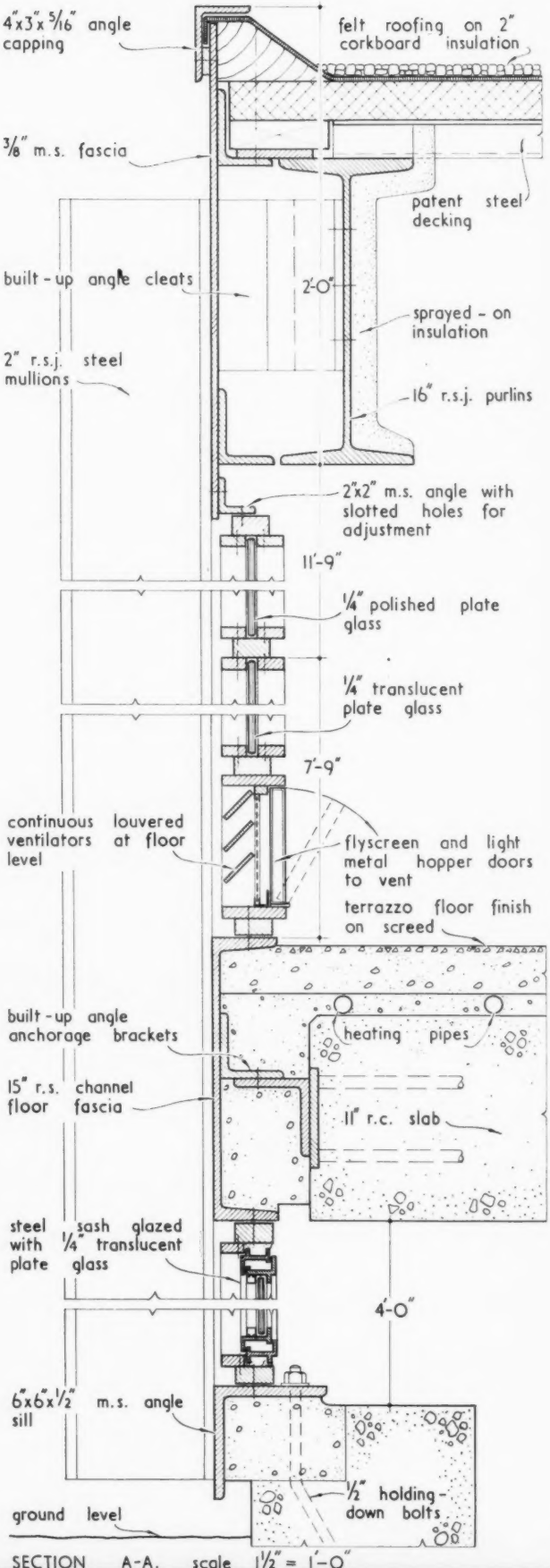
ELEVATION. scale 1/8" = 1'-0"



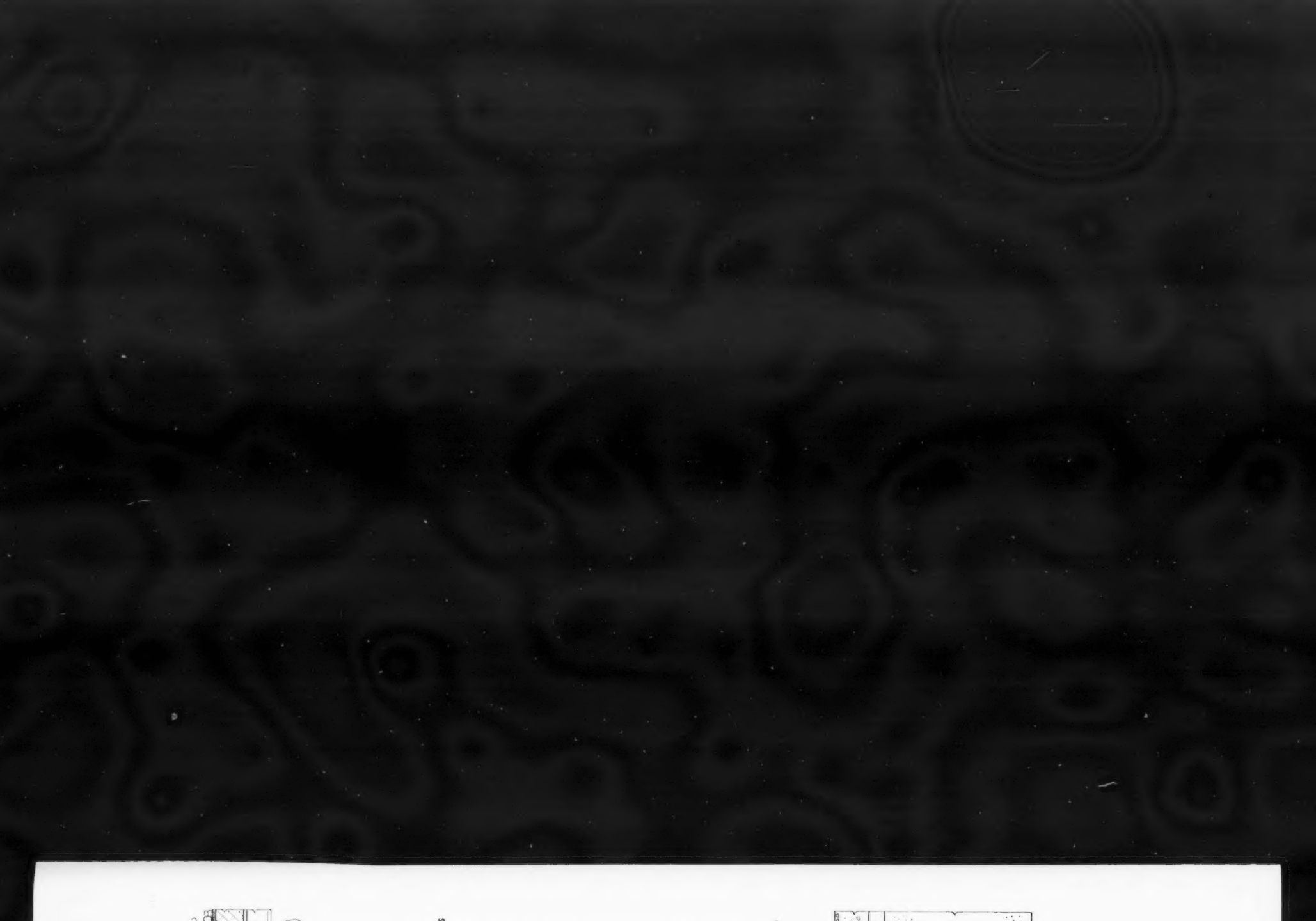
PLAN. scale 1/8" = 1'-0"



PLAN AT B. scale 1½" = 1'-0"



SECTION A-A. scale 1½" = 1'-0"



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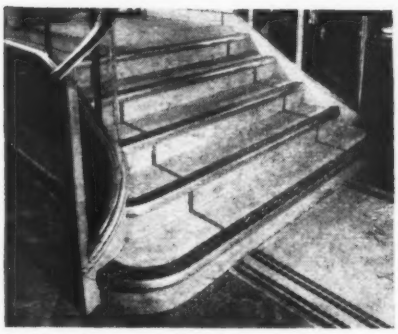
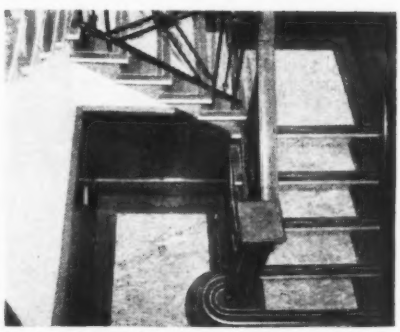
- Supplied in any length, cut to fit each stair. Curved or straight as required.
- Simply and easily fixed to any basic material—wood, stone, concrete, etc.—by concealable screws through ready drilled holes.



Smart Bros. Ltd., Deansgate Manchester.



Pershke Price Services, London.

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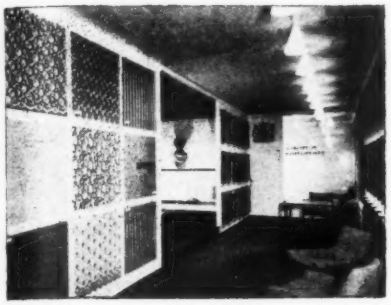
FOR YOUR REFERENCE FILES Illustrated Catalogue in full colour will be sent on request to Stairtreads Dept., Ferodo Limited, Chapel-en-le-Frith, Derbyshire.

FERODO LIMITED · Chapel-en-le-Frith · Derbyshire * *A Member of the Turner and Newall Organisation*

BRITISH PAVILION AT FRANKFURT



Dr. Heinrich Konig, of Mannheim, has the following to say about this pavilion at the Frankfurt autumn fair—the first British pavilion to be built at the fair since the war. " The display was so outstanding," Dr. König writes, " that in the German view the British pavilion was among the best things to be seen. The idea of showing textiles was a particularly happy one. The method of display deserves high praise; it is new to Germany, although familiar to visitors to the South Bank Exhibition of 1951. German visitors could not fail to be impressed by the meticulous care which had clearly been devoted to every detail of the exhibition stand The approach to the exhibits was by a light tubular steel footway, raised above a brilliantly lit stretch of grey gravel. This served as a background for the display of n rich variety of materials, some shown draped, some flat as in the small and excellent display of textiles in the Design Review section of the South Bank Exhibition. Small patterns of the more distantly-displayed materials were to be found on trays attached to the footway, so that visitors could examine and handle them. The pavilion was an excellent example of the ability of the British to design exhibition stands which are unobtrusive, light, gay and very attractive."

Contractors

Primary School, Hackenthorpe, Derbyshire, for the Derbyshire County Council. (Pages 550-551.) *Architects:* Samuel Morrison & Partners, in collaboration with F. Hamer Crossley, DIP. ARCH., F.R.I.B.A., County Architect. *Quantity Surveyors:* Gleeds; *General contractors*: Vic Hallam (Contractors) Ltd. *Sub-contractors*: *Superstructure*: Vic Hallam Ltd. *Heating*: Weatherfoil Heating System Ltd. *Electrical installations*: N. R. Kirk & Co. Ltd. *Plastic floors*: Neuchatel Asphalt Co. Ltd. *Granwood:* Granwood Floors. *Cork flooring*: Hewetson & Co. Ltd. *Wood strip and wood block flooring*: A. M. Macdougall & Co. Ltd. *Metal balustrading:* Lewis & Grundy.

Primary School and Health Clinic, Peartree Springs, Stevenage, Herts. For the Hertfordshire County Council. (Pages 552-553.) *Architects*: Samuel Morrison & Partners, in collaboration with C. H. Aslin, C.B.E., P.F.R.I.B.A., County Architect. *General contractors*, Ekins & Co. Ltd. *Sub-contractors*: *Superstructure*: Vic Hallam Ltd. *Heating system*: Weatherfoil Heating System Ltd. *Electrical installations*: Hartley Installations Ltd. *Plastic floors*: Fitchett & Woollacott. *Wood block floors*: Hollis Brothers. *Cork flooring*: Isolatt Cork Flooring. *Gas boiler and calorifier*: Foster & Pearson. *Metal balustrading*: Lewis & Grundy. *Sanitary fittings*: Buxton Dawson Ltd. *Furniture, classroom cupboards, etc.*, E. C. Hodge & Allen Fairhead.

Announcements

PROFESSIONAL

J. F. Davies, A.R.I.B.A., Dipl. Arch. (Hons.) and H. G. Clinch, A.R.I.B.A., Dipl. Arch., T.P., have entered into Partnership and are practising at 30, Percy Street, W.1., telephone: Musuem 1377.

Colin Rowntree, F.R.I.B.A., and G. L. Thompson, F.R.I.B.A., have, by mutual consent, dissolved their partnership carried on under the name of Rowntree & Thompson, Chartered Architects. Colin Rowntree will continue to practise under his own name at 120, The Mount, York, and G. L. Thompson under his own name at 22, Park Street, Selby, as previously.

P. P. J. Lawson, A.R.I.B.A., of The Distillers Co. Ltd., Engineering Division, Southern Office, Devonshire House, Piccadilly, London, W.1, will be pleased to receive trade literature, etc.

The office of Alister MacDonald, F.R.I.B.A., at 10, D'Arbley Street, W.1, telephone: Gerrard 9351, will close on October 20 when the work of the staff under E. H. Jamilly A.R.I.B.A., will be transferred to Aldine House, 10-13, Bedford Street, Strand, W.C.2, telephone: Temple Bar 0794/5 and 8169.

Thomas Mitchell & Partners, 20, Bedford Square, W.C.1., have taken into partnership Robert Stille, M.C., A.R.I.B.A., A.A.DIPL. (Hons.), who has been a member of their staff for several years. The name and address of the firm remain unchanged.

H. G. Eisner, B.A. (Hons. Arch.), A.R.I.B.A., has been appointed Senior Assistant Architect to the Borough of Watford. His new private address is now: 263, Sheepcot Lane, Woodside, Watford, Herts.

Maunsell, Posford & Pavry, Consulting Engineers, are now practising under the name of Posford, Pavry & Partners at Abbey House, Victoria Street, Westminster, S.W.1., telephone Abbey 2115.

Following the death of P. E. Palmer, A.R.I.B.A., F.R.S.A., Chartered Architect, Colletts Alley, Middle Street, telephone: Horsham 3029, the practice is being continued at the same address by his son Oliver E. Palmer, A.A./DIPL., A.R.I.B.A. F.R.S.A., Chartered Architect.

The Incorporated Association of Architects & Surveyors announce that the London and Home Counties Branch are holding their October luncheon at Grosvenor House, Park Lane, on Wednesday October 31. Tickets are available on application to the Secretary, price 32s. 6d. each; closing date October 26. The Chair will be taken by F. J. Meekins, Vice-President.

TRADE

The U.A.M. Group, which includes The Universal Asbestos Manufacturing Company Ltd., and Union Fibre Pipes (Great Britain) Ltd., of Tolpits, Watford, Herts., announces the following appointments within its sales force. Bedfordshire, Hertfordshire and Northamptonshire: J. A. Ratcliffe. Berkshire, Buckinghamshire and Oxfordshire: V. Pearce. Both Mr. Ratcliffe and Mr. Pearce will be based at the U.A.M. Group London office at 8, Upper Grosvenor Street. W.1. Telephone: Grosvenor 5411.

Holophane Ltd. announce the following changes in their area sales engineering organization: W. H. Dodgson, who has been lighting sales engineer in Nottingham since 1954, now moves to London where he will represent the Company's interests operating from Westminster. E. J. Mara has been appointed Holophane sales lighting engineer for the Nottingham area.

The Neuchatel Asphalte Company Ltd., announce that owing to expansion they have moved to larger premises and their new address is: Neuchatel House, Palace Street, Westminster, S.W.1. Telephone: Victoria 9982. This change of address for their head office does not involve any alteration in their branch organization.

PLASTERING PROBLEMS SMOOTHED AWAY

Introduced many years ago, 'Sirapite' Plaster rapidly established itself as a first-class product. Consistently developed and improved, it is now generally recognised as the ideal finishing plaster. The following supplementary 'Sirapite' products are manufactured to the same high standard:

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(Retarded Hemi-hydrate) Class B, type 'a'.
The quick-setting undercoat plaster.
Specially produced to enable surfaces to be rendered and set in one day. High covering capacity.
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THE GYPSUM MINES LTD

MOUNTFIELD · ROBERTSBRIDGE · SUSSEX

Phone: Robertsbridge 80. *And at Kingston-on-Soar, Nottingham*

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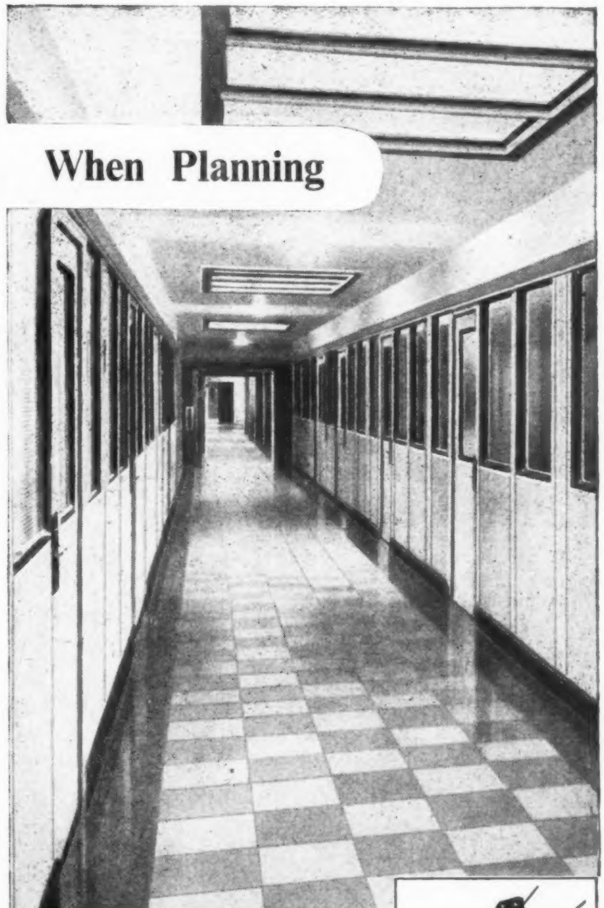

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The people to see are SANKEY-SHELDON, of course!

- Fully-Flush, Semi-Flush and Factory types available.
- Standard component assembly permits alterations and additions at minimum cost.
- Available in five standard colours. Attractive in appearance — rigid, durable, fire-resisting.
- The Planning Division can assist with layout problems, and our experienced fitters install the Partitions.
- In dealing with Sankey-Sheldon you buy direct from the manufacturers. Offices and showrooms throughout Great Britain carry stocks ensuring prompt delivery and local service.
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Architect: Thomas Mitchell, B.Sc., A.R.I.B.A.

A thousand dinners a day off CATESBYS lino

In Maidenhead's new super-market a thousand shoppers a day buy their groceries off Catesbys lino. No wonder! For this is an easy and pleasant way to shop—but one that creates special problems of flooring. This is where Catesbys come in with their unsurpassed experience of lino and lino laying—sixty years of it! Next time you think of lino think of Catesbys to do it for you.

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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.

Public and Official Announcements

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

Applications are invited for appointment to the post of ARCHITECT in the Lands and Works Department, GIBRALTAR. The post is permanent and pensionable and on probation for two years. Salary scale: £720×£24 to £840, then £960×£30 to £1,200 per annum. Entry into the scale will be in accordance with post graduate experience. Leave on full salary and return passages to U.K. for officer and wife granted once every two years.

Candidates must be A.R.I.B.A. and have good knowledge of design and construction. Duties will include design and execution of building projects. The successful candidate will work under the Commissioner of Lands and Works, and is required to assume duties early December, 1956.

Unfurnished quarters and basic furniture, if available, will be provided at rents not exceeding 10 per cent of salary and 3 per cent. of value respectively.

Applications, stating qualifications, age, previous experience, and enclosing testimonials, a birth certificate and a recent photograph, should reach the Colonial Secretary, Gibraltar, not later than 8th November, 1956. 4103

COUNTY BOROUGH OF DARLINGTON
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of ASSISTANT ARCHITECT, at a salary in accordance with Grade A.P.T. IV (£710—£885), commencing at a point within the grade, according to ability.

The department has a large programme, including Secondary and Primary Schools, Housing and Municipal Buildings. Preference will be given to candidates experienced in this class of work and who are Members of the R.I.B.A.

Consideration would be given to the question of providing housing accommodation if required.

Applications, giving age, qualifications, present appointment and salary, previous appointments with dates, and names and addresses of three referees, to be sent to the Borough Architect, Central Buildings, Darlington, not later than Monday, 22nd October, 1956. 4118

CITY OF SHEFFIELD
CITY ENGINEER AND SURVEYOR'S DEPARTMENT
SENIOR PLANNING ASSISTANT, GRADE A.P.T. V.

Applications are invited for the position of Senior Planning Assistant, Grade A.P.T. V (£795—£970), on the staff of the City Engineer and Surveyor and Town Planning Officer (H. Foster, M.I.C.E., M.I.Mun.E.).

Qualifications: A.M.T.P.I., A.R.I.B.A., or A.R.I.C.S. Preference will be given to candidates with Planning and Architectural experience.

If housing accommodation is required a flat will be made available.

Superannuable post, N.J.C. conditions of service, medical examination.

Applications, stating age, education and training, qualifications, experience, present and past appointments (with dates and salaries), and quoting the names of two referees, should be submitted to the undersigned by the 22nd October, 1956.

JOHN HEYS,
Town Clerk.

Town Hall, Sheffield, 1. 4079

LINDSEY COUNTY COUNCIL
PLANNING DEPARTMENT—AMENDED ADVERTISEMENT

Applications are invited for the following appointments:—

(*a*) SENIOR ASSISTANT (Architectural), A.P.T., Grade V (£795—£970).

(*b*) JUNIOR ASSISTANT, A.P.T., Grade I (£530—£610).

Above salaries subject to 2½ per cent. increase recently awarded to be applied as may be recommended by N.J.C.

Both appointments at Headquarters, Lincoln.

Candidates for (*a*) should be A.R.I.B.A., and have some experience in dealing with redevelopment schemes, housing layouts and architectural control. Post requires officer to provide own car for official journeys, for which an allowance will be paid at essential user's rate for car not exceeding 10 h.p. or 1,199 c.c. Candidates for (*b*) must have trained in planning, architect's or surveyor's office, and be good draughtsmen, with experience in field surveys.

Superannuation and N.J.C. conditions of service as approved by the County Council. Canvassing will disqualify. Relationship to any member or senior officer of the Council to be disclosed in writing by applicants.

Applications, with particulars of age, training, experience, and names of two referees, to County Planning Officer, The Castle, Lincoln not later than 1st November, 1956. 4198

CITY OF LONDON—PLANNING OFFICE
JUNIOR ASSISTANT (male or female), £7 18s. to £8 4s., for general duties in the drawing office; including filing, binding drawings, stencil lettering, tracing, etc.

Applications with details of experience, present position, age, and references, to City Planning Officer, 56-61, Moorgate, E.C.2, within 14 days. 4135

COUNTY BOROUGH OF ROTHERHAM
ARCHITECTURAL ASSISTANTS

Applications are invited for the following appointments:—

(*a*) ARCHITECTURAL ASSISTANTS (three vacancies), at a salary in accordance with the Special Grade (£690—£840).

(*b*) SENIOR ARCHITECTURAL ASSISTANT, at a salary in accordance with Grade A.P.T. IV (£710—£885).

Candidates for (*a*) are required to have passed Parts I and II of the R.I.B.A. Final examination, and (*b*) to be Associate Members of the R.I.B.A. with good general experience in design and construction, and the commencing salary in the grade will be according to capabilities and experience.

Applications, to be endorsed "Architectural Assistants," stating age, qualifications and details of experience, together with the names of two referees, should be received by me not later than Monday, the 5th November, 1956.

Canvassing will disqualify.

JOHN S. WALL,
Town Clerk.

Municipal Offices, Rotherham.
3rd October, 1956. 4123

BOROUGH OF LUTON
TECHNICAL STAFF
MAINTENANCE ENGINEERING ASSISTANT

required. Salary A.P.T. III/IV (£640—£885). Experienced in design of low pressure hot water, steam heating and ventilating installations. Knowledge of electrical installations an advantage. Housing accommodation available. N.J.C. Service Conditions.

Application forms from Borough Architect, Town Hall, Luton, returnable by 7th November, 1956. 4076

UNIVERSITY OF KHARTOUM

Applications are invited for appointment to the newly established

CHAIR OF ARCHITECTURE

Salary £E2,400 p.a. Cost of living allowance now approximately £E120 p.a. Outfit allowance £E50. Passages for appointee and family on appointment, termination and annual leave. Family allowances £E60 p.a. for wife, £E90 p.a. for 1st child, £E30 p.a. each for 2nd and 3rd child. Superannuation Scheme. Initial appointment 5 years with possibility of renewal. Duties to be assumed by July 1957.

Detailed applications (8 copies) naming 3 referees to be received by 20th November, 1956, by Secretary, Inter-University Council for Higher Education Overseas, 29 Woburn Square, London, W.C.1, from whom further particulars may be obtained. 4200

CITY OF CANTERBURY
APPOINTMENT OF CITY ARCHITECT AND PLANNING OFFICER

Applications are invited for the post of City Architect and Planning Officer at a salary according to the scale of £1,350 per annum rising by two annual increments of £60 and one of £55 to £1,525 per annum. A motor car allowance will be paid in accordance with the recognised Scale. The appointment is determinable by either party on giving three months' notice in writing.

The recommendation of the Joint Negotiating Committee for Chief Officers of Local Authorities will apply the salary being based on the range applicable to the present population of 29,800.

Candidates should be Members of the Royal Institute of British Architects and of the Town Planning Institute.

There is an interesting and varied programme of architectural works including general housing, slum clearance and redevelopment, schools and colleges of further education. The Council is the Local Planning Authority and the Planning Officer will be responsible for all planning work including the continuation of the Redevelopment Scheme in the Central Area.

Applications, stating age, qualifications and particulars of experience, together with copies of three recent testimonials must be delivered to the undersigned by not later than Saturday, 27th October, 1956.

Canvassing will disqualify.

J. BOYLE.
Town Clerk.

Municipal Buildings,
Canterbury. 3269

DURHAM COUNTY COUNCIL
PLANNING DEPARTMENT
RESEARCH ASSISTANT. Salary £710—£885 (A.P.T. IV). Degree in Geography from a British University and experience of research work in a planning office essential. The successful applicant will work on population and industrial problems, mineral workings, etc., and on research for the purposes of the review of the County Development Plan.

Housing available at Peterlee or Newton Aycliffe about 12 miles from Durham. Forms and particulars from County Planning Officer, 10, Church Street, Durham. Closing date 27th October, 1956. Canvassing members of the Council is prohibited.

J. K. HOPE,
Clerk of the County Council. 4177

BOROUGH OF WILLESDEN
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited from suitably qualified and experienced persons for the following permanent appointments:—

(*a*) ASSISTANT ARCHITECTS (2 posts), Grade A.P.T. V (£795—£970).

(*b*) ASSISTANT ARCHITECT, Grade A.P.T. III/IV (£640—£885).

(*c*) ASSISTANT ARCHITECTS (4 posts), Grade A.P.T. III (£640—£765).

(*d*) ASSISTANT ARCHITECT, Grade A.P.T. I (£530—£610).

Appropriate London weighting and the recent increased salary award of 2½% is payable in addition to the above salaries.

The Council is unable to assist with housing accommodation.

Forms of application and conditions of appointment may be obtained from the Borough Engineer and Surveyor, Town Hall, Dyne Road, Kilburn, N.W.6. Applications to be returned to the undersigned not later than 9 a.m. on Monday, 29th October, 1956.

When writing for application forms candidates must state for which appointment they wish to apply.

R. S. FORSTER,
Town Clerk. 4156

LONDON ELECTRICITY BOARD

Applications are invited for the following permanent and superannuable appointments:—

SENIOR DRAUGHTSMEN. These posts are graded under Schedule "D" of N.J.B. agreement, Grade 5—£735/£840 p.a. incl.

Vacancy No. 2248/A.—NORTHERN SUB-AREA (Design & Planning Branch)—based in City district.

Applicants should have had either experience in building construction, and a knowledge of steel or reinforced concrete design and calculations in order to prepare drawings for alterations to offices and depots, and conversion of premises into substations and transformer chambers OR general engineering experience, including layout of electrical plant and cabling, with some knowledge of building construction and reinforced concrete.

Vacancy No. 2244/A.—NORTH EASTERN SUB-AREA—based at Stratford, E.15.

Applicants should have a good general and technical education, preferably with some workshop training. They must be conversant with the layout of switchgear, plant and associated equipment for substations up to 11 kV. A knowledge of building and civil engineering design whilst not essential would be an advantage.

Vacancy No. 2253/A.—ST. MARYLEBONE/ST. PANCRAS DISTRICT.

Applicants should have had a good general and technical education and be experienced in building construction, engineering drawing and layout of substations up to 11 kV. In addition, applicants should be capable of supervising Engineering and/or Junior Draughtsmen, if required.

Vacancy No. 2229/A.—SOUTHERN SUB-AREA—based at Beckenham Kent.

Applicants should have a sound general and technical education to Ordinary National Certificate standard in building, and be capable of supervising draughtsmen.

ENGINEERING DRAUGHTSMEN.—These posts are graded under Schedule "D" of N.J.B. agreement, Grade 6—£588/£714 p.a. incl.

Vacancy No. 2249/A.—NORTHERN SUB-AREA (Design and Planning Branch)—based in City district.

Applicants should have had experience in mains recording with a public utility authority, preferably with an Electricity Board, and be able to obtain particulars on site and compile accurate permanent records. Some knowledge of electrical plant layout, building construction and simple reinforced concrete structures would be an additional advantage.

Vacancy No. 2247/A.—HAMPSTEAD/WILLESDEN DISTRICT.

Applicants should have had a good general and technical education in electrical engineering and building construction and experience in mains records office dealing with systems of all voltages up to 11 kV.

Vacancy No. 2165/A.—SOUTHERN SUB-AREA—based at Beckenham, Kent.

Candidates should have a good general and technical education up to Ordinary National Certificate standard, be neat and capable draughtsmen and experienced in one or more of the following subjects: drawing office routine, electrical diagrams, layout of plant in transformer chambers, mains survey and recording of mains work, or knowledge of building construction.

Application forms obtainable from Personnel Officer, 46, New Broad Street, London, E.C.2. Please quote appropriate vacancy number of post preferred. 4152

WILLENHALL URBAN DISTRICT COUNCIL

Applications are invited for the appointment of JUNIOR ARCHITECTURAL ASSISTANT, Grade A.P.T. I (£530—£610 subject to 2½% increase). Applicants must have had experience in an architect's office but not necessarily in local government. Appointment terminable by one month's notice on either side and subject to the National Scheme of Conditions of Service and Local Government Superannuation Acts.

Applications stating age, qualifications if any, experience and names and addresses of two referees should reach the Clerk of the Council, Town Hall, Willenhall, Staffs, by 30th October, 1956. 4175

CANNOCK URBAN DISTRICT COUNCIL
ARCHITECT'S DEPARTMENT—VACANCIES

Applications are invited for the undermentioned posts:—

SENIOR QUALIFIED QUANTITY SURVEYOR, Grade A.P.T. V (£795—£970 per annum plus 2½% national award).

Housing accommodation available for successful married applicant if required.

ARCHITECTURAL ASSISTANT, Grades A.P.T. I or II (£530—£610 or £595—£675 plus 2½%) according to experience.

ARCHITECTURAL PUPIL. Salary during training according to Higher General Division scale.

Further particulars and forms of application are available from the undersigned.

Closing date, 31st October, 1956.

W. C. SPEEDY,
Clerk of the Council.

Council House,
The Green,
Cannock, Staffs.
8th October, 1956. 4148

BOROUGH OF BURY ST. EDMUNDS
APPOINTMENT OF ASSISTANT ARCHITECT GRADE A.P.T. V

Applications are invited for the above superannuable post in the Department of the Borough Engineer and Surveyor at a salary within Grade A.P.T. V (£814 to £994 approximately). Duties will include the design of new houses and other buildings; the supervision of a direct Labour Organisation constructing Council Houses; and the maintenance and upkeep of other Corporate Property. Consideration will be given to the provision of housing.

Applications endorsed "Assistant Architect" and stating age, whether married, qualifications and experience, together with the names of three referees, to be delivered to the Borough Engineer and Surveyor at the address below not later than Thursday, 25th October, 1956.

RICHARD R. HILES,
Town Clerk.

Borough Offices,
Bury St. Edmunds. 4147

CITY OF PORTSMOUTH
CITY ARCHITECT'S DEPARTMENT

There are vacancies on the permanent staff in Grade II (£595—£675 plus the recent award of 2½%), for ARCHITECTURAL ASSISTANTS of Intermediate R.I.B.A. standard, commencing salary according to experience.

The Department is engaged on a programme of works comprising new Law Courts, Police Headquarters, College of Art, Schools, Flats, Houses, etc.

Applications, setting out in tabular form, name, age, qualifications, present post and salary, previous posts with dates, details of experience, with names of two referees, must be delivered to the undersigned not later than 12 noon, Monday, 29th October, 1956.

Canvassing will disqualify.

V. BLANCHARD,
Town Clerk.

City Council Chambers,
1, Clarence Parade, Portsmouth. 4146

CITY AND COUNTY OF KINGSTON UPON HULL CITY ARCHITECT'S DEPARTMENT

Applications are invited for the following posts:—

PERMANENT ESTABLISHMENT

(*a*) ASSISTANT ARCHITECT, Grade IV (£710—£885). Applicants should preferably have had experience in the design and construction of school buildings.

(*b*) ARCHITECTURAL ASSISTANTS, Special Classes, within salary range of £530—£840 according to qualifications.

(*c*) ARCHITECTURAL DRAUGHTSMAN, General or Higher General Division (£180—£500).

(*d*) ASSISTANT QUANTITY SURVEYOR, Special Classes (£690—£840).

(*e*) QUANTITY SURVEYING ASSISTANT, Grades I or II, according to qualifications (£530—£675).

(*f*) MEASURING ASSISTANT, Miscellaneous Division, Grade IV (£490—£575).

(*g*) ENGINEERING SERVICES ASSISTANT, Special Classes (£690—£840).

(*h*) SUPERVISOR OF HEATING INSTALLATIONS AND CONTROLS, Grade III (£640—£765). The successful applicant will be required to supervise heating controls in existing buildings to ensure efficient working and economy in fuel and to instruct caretakers in the proper working of the installations. Candidates should be in possession of M.O.T. or Higher National Certificate.

TEMPORARY ESTABLISHMENT

(*a*) ARCHITECTURAL ASSISTANTS, Special Classes, within salary range of £530—£840 according to qualifications.

(*b*) ASSISTANT QUANTITY SURVEYOR, Grade IV (£710—£840).

(*c*) ASSISTANT QUANTITY SURVEYOR, Special Classes (£690—£840).

(*d*) QUANTITY SURVEYING ASSISTANT, Grade II (£595—£675).

(*e*) ENGINEERING DRAUGHTSMEN, Miscellaneous Division, Grade III (£445—£510).

Application forms may be obtained from the undersigned and should be returned completed on or before Monday, 5th November, 1956.

ANDREW RANKINE, O.B.E., A.R.I.B.A.,
City Architect.

Guildhall,
Kingston upon Hull.
15th October, 1956 4143

BOROUGH OF BEBINGTON
ASSISTANT ARCHITECT

Applications are invited for the appointment of an Assistant Architect in the Department of the Borough Engineer and Surveyor at a salary ranging between £530 and £840 p.a. (*i.e.* Grade I A.P.T., Grade II A.P.T., or Special Grade) according to qualifications and experience. Minimum qualification is Inter. R.I.B.A. or equivalent. National Charter conditions apply.

The successful candidate if married and in need of housing at the time of appointment will be offered a house by the Council within a reasonable period of time.

Application forms and further particulars may be obtained from the Borough Engineer and Surveyor, "Brackenwood," Higher Bebington.

Canvassing, or an undisclosed relationship to a member or senior officer will disqualify.

Applications are to be sent to the Town Clerk, Municipal Offices, Bebington, not later than 29th October, 1956.

G. CHAPPELL,
Town Clerk.
4184

COUNTY BOROUGH OF ROCHDALE

Applications are invited for the appointment of a QUANTITY SURVEYOR in the Architects' Department, of the Borough Surveyor's Office, Grade A.P.T. IV (£710—£885).

Applications will be considered from candidates who are not fully qualified on Grade A.P.T. III (£640—£765) proceeding to Grade IV when the requisite qualification is obtained. The commencing salary will not necessarily be the minimum of the Grade and will be fixed according to ability and experience.

The appointment will be subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts, and to passing a medical examination. Canvassing is prohibited and applicants must disclose whether they are related to any member or Senior Official of the Council.

Housing accommodation will be provided by the Council in appropriate circumstances.

Applications stating age, qualifications, training and experience, together with the names and addresses of two persons to whom reference can be made, and endorsed "Quantity Surveyor," must be delivered to the Borough Surveyor, Town Hall, Rochdale, not later than 9 a.m. on Friday, 2nd November, 1956.

K. B. MOORE,
Town Clerk.
4202

COUNTY BOROUGH OF BARNSLEY
BOROUGH ENGINEER AND SURVEYOR AND PLANNING OFFICER'S DEPARTMENT

Applications are invited for the following appointments:—

(*a*) PLANNING ASSISTANT (Special Classes) APT. I (£530—£610) — II (£595—£675 — Special Grade (£690—£840), subject to 2½ per cent. increase. The commencing salary will be on the grade appropriate to the qualifications and experience of the successful candidate as provided for in the N.J.C. conditions relating to the grading of Special Classes of Officers. The point of entry within any grade may be fixed above the minimum.

(*b*) JUNIOR ARCHITECTURAL ASSISTANT (TEMPORARY), Grade APT.I (£530—£610), subject to 2½ per cent. increase. The point of entry in this grade may be fixed above the minimum.

Applicants for appointment (*a*) should have had previous experience in town planning and in the control of development.

Appointment (*b*) is suitable for a young man in his early architectural training and offers a good opportunity for gaining further experience.

Housing accommodation will be provided if necessary and 50 per cent. of removal transport expenses will be paid in approved cases.

The appointments will be subject to (i) the Scheme of Conditions of Service for A.P.T.C. Staff; (ii) any other general conditions of employment in operation within the Corporation from time to time; and (iii) to one month's notice on either side.

Appointment (*a*) will also be subject to the Local Government Superannuation Acts for which purpose the successful candidate will be required to pass 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 Wednesday, 7th November, 1956.

Canvassing will disqualify.

A. E. GILFILLAN,
Town Clerk.

Town Hall,
Barnsley.
October, 1956. 4203

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

ARCHITECTS Grade II (on scale £987 to £1,184) and ARCHITECTS Grade III (up to £987) required for the development of the CRYSTAL PALACE Scheme and the completion of the ROYAL FESTIVAL HALL. Considerable scope for good designers with practical experience. A.R.I.B.A. or R.I.B.A. Final Exam. necessary. Starting salaries in accordance with qualifications and experience. Further particulars and application form, returnable by 9th November, 1956, from Architect (AR/EK/CPFH/1), County Hall, S.E.1. (1943). 4205

BOROUGH OF ASHTON-UNDER-LYNE

Applications are invited for the following appointments in the Borough Engineer and Surveyor's Department within the respective grades according to experience.

(A) SENIOR ASSISTANT (QUANTITIES). Grade IV (£710—£885). Qualifications: A.R.I.C.S. or equivalent.

(B) SENIOR ARCHITECTURAL ASSISTANT. Special Grade (£690—£840). Qualifications: Registered Architect with good experience in the design and construction of Municipal houses, flats and public buildings.

There is a full and varied programme of building work and both positions offer opportunities for taking responsibility and supervising work in progress.

Housing accommodation will be provided if required.

Application forms may be obtained from the Borough Surveyor, Municipal Offices, Ashton-under-Lyne, and should be returned to the undersigned by 19th November, 1956.

G. A. MALONE,
Town Clerk.

Town Hall,
Ashton-under-Lyne.
10th October, 1956. 4204

UNIVERSITY OF OXFORD

Applications are invited for the following appointment:—

ARCHITECTURAL ASSISTANTS of about Intermediate standard with some knowledge of modern building construction. Salary £530—£560. Varied and interesting work. Generous leave. Apply for further particulars, stating age, experience and training, to the Surveyor to the University, 5, South Parks Road, Oxford. 4187

BERWICKSHIRE COUNTY COUNCIL

ARCHITECTURAL ASSISTANT required for County Architect's Department. Salary scale A.P.T. VI (£805—£870). Candidates must be registered architects and preferably Members of the Royal Institute of British Architects. The post is superannuable.

Applications (three copies), stating age, qualifications and experience, accompanied by a like number of copies of three recent testimonials, to be lodged with the County Clerk, County Buildings, Duns, not later than 25th October, 1956. 4185

Coventry Corporation Architectural and Planning Department. PRINCIPAL ARCHITECT (Salary within J.N.C. Grade "D," £1,405 to £1,625). Applications invited from Architects to take charge of Schools Division. The building programme includes all forms of educational projects and offers opportunities for interesting development work. A new Central College of Art and Technology is included in the building programme.

Housing accommodation may be available.

Application forms, returnable by 31st October, from City Architect and Planning Officer, Bull Yard, Coventry. 4191

MIDDLESBROUGH EDUCATION COMMITTEE
APPOINTMENT OF ARCHITECTURAL STAFF

Vacancies remain to be filled in the Establishment of the Education Architect's Office and appointments will be made within the grades as indicated subject to qualifications and experience.

(*a*) ONE SENIOR ASSISTANT ARCHITECT, A.P.T. Grade V, £795—£970.

(*b*) TWO ASSISTANT ARCHITECTS, A.P.T. Special Grade to Grade IV, £690—£840—£885.

(*c*) ONE ARCHITECTURAL DRAUGHTSMAN, Misc. II, £395—£460.

Candidates appointed under posts (*b*), who must have passed the final examinations parts I and II, will be eligible for an automatic acceleration of £75 within the grade on attaining Associate Membership of the R.I.B.A.

Housing accommodation can be made available for posts (*a*) and (*b*).

Application forms and particulars may be obtained from the Director of Education, Education Offices, Woodlands Road, Middlesbrough, to whom completed forms should be returned not later than Wednesday, 31st October, 1956. 4190

CITY OF CAPE TOWN
VACANCY FOR PRINCIPAL ARCHITECT

Applications are invited from registered Architects for the above position, which carries a salary of £1,980 × £60—£2,100 (inclusive of cost of living allowance).

The successful applicant will be in charge of the Architectural Branch of the City Engineer's Department and must therefore be competent to undertake the design and assume responsibility for the construction of all types of buildings required for public and municipal use, including Civic Centres, administrative offices, workshops, fire stations, staff quarters and dormitories, hospital and swimming baths.

He must also be competent to participate and advise from the architectural viewpoint, in the design of engineering structures such as bridges, pumping stations and reservoirs, in the evolution of town planning schemes, and in the layout and landscaping of amenities.

Applicants should possess administrative skill and experience, and ability to supervise the work of a fairly large staff of architects and architectural assistants is essential.

Applicants must have had at least ten years' experience, either in private practice or in the employ of a public authority, and should give full details of their qualifications and experience supported by examples of designs they have prepared.

Applications as above should be sent to the Council's London Agents, Davis & Soper, Ltd., 52/54, St. Mary Axe, London, E.C.3, to reach them no later than 31st October, 1956. 4189

NEWCASTLE REGIONAL HOSPITAL BOARD
CHIEF ASSISTANT ARCHITECT (PROJECTS)
(Principal Assistant Architect, Grade £1,115—£1,350 p.a.)

Applications are invited for the above appointment on the permanent Headquarters Staff of the Board's Architect in Newcastle. The appointment relates to the section of the staff concerned with practical architectural work throughout the Region (which includes the Counties of Northumberland, Durham, Cumberland and parts of Westmorland and Yorkshire).

To architects who already are or who wish to become hospital specialists the appointment offers an excellent opportunity for doing good class work full of interest and variety in a developing public service.

The successful applicant will be required to take complete charge of the Board's Architectural and Surveying Drawing Office in Newcastle (present establishment 13 assistants).

Candidates should be members of the Royal Institute of British Architects, and have had extensive and responsible experience in the design and construction of large public buildings including some experience of hospital and health-service buildings. They must be capable of supervising drawing office staff and building projects through all stages of work.

The appointment will be subject to the provisions of the National Health Service (Superannuation) Regulations, 1955. The successful candidate will be required to pass a medical examination.

Applicants should state (1) Name and full address, (2) Age and whether married, (3) Degrees and professional qualifications, (4) Past appointments and experience, (5) Present appointment and salary, (6) War Service, (7) Date available if appointed and (8) Names and addresses of three referees.

Applications are to be received not later than the 30th October, 1956 and are to be addressed to the Secretary to the Board, Benfield Road, Newcastle upon Tyne, 6. 4158

BUCKS COUNTY COUNCIL

Applications are invited for the appointment of an **ASSISTANT COUNTY ARCHITECT** in the County Architect's Department, salary J.N.C. Scale "B" £1,185—£1,405 p.a.

The appointment is superannuable and subject to medical examination.

A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.

Applications, on prescribed forms, must be returned by 6th November, 1956.

F. B. POOLEY,
County Architect.

County Offices,
Aylesbury. 4199

HAILSHAM RURAL DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT

Applications are invited for this appointment in the Engineer and Surveyor's Department.

Salary Grade A.P.T. II (£595—£675) for applicants having passed the Intermediate Examination of appropriate professional body, or alternative Special Grade (£690—£840) for those having passed the Final Examination and having had at least five years' experience. The commencing salary within either Grade will be fixed according to qualifications and experience.

The appointment is superannuable and subject to the National Scheme of Conditions of Service.

It will be an advantage if the applicant can provide a motor-car for the performance of his duties, an allowance for which will be paid on the Council's Scale.

Applications stating age, qualifications and experience, together with the names of two referees, must be received by the undersigned in envelopes marked "Architectural Assistant" not later than Friday, 26th October 1956.

Canvassing will disqualify.

A. CARR,
Clerk to the Council.

Cortlandt,
Hailsham, Sussex. 4161

CENTRAL ELECTRICITY AUTHORITY
EAST MIDLANDS DIVISION

Applications are invited for the following appointment:—

SENIOR AND ENGINEERING DRAUGHTSMAN, TRANSMISSION DEPARTMENT, DIVISIONAL HEADQUARTERS. Vacancy No. 175/56/AJ.

The work is associated with H.V. Sub-Stations and Transmission Lines and some general Electrical or Civil Engineering experience would be an advantage.

Salary, according to experience, in accordance with Grade 5 (£700—£800 per annum) or Grade 6 (£560—£680 per annum) of the National Joint Board Agreement, Schedule "D."

Closing date for receipt of applications, 29th October, 1956.

The appointment will be pensionable within the terms and conditions of the Central Electricity Authority and Area Boards (Staff) Superannuation Scheme.

Applications should be submitted on the official form AE6/ACT, which may be obtained from the Divisional Establishments Officer, Central Electricity Authority, East Midlands Division, P.O. Box 25, Barker Gate, Nottingham and returned to the undersigned. Please quote Vacancy Number.

L. F. JEFFREY,
Divisional Controller.

10th October, 1956. 4182

CITY OF BATH
CITY PLANNING AND ARCHITECTURAL DEPARTMENT

Applications are invited for the appointment of a **PLANNING ASSISTANT**, at a salary in accordance with Grades A.P.T. I/II (£530—£675) per annum, according to qualifications and experience. The post is pensionable and subject to the N.J.C. conditions.

Applications, stating age, qualifications and experience, and giving names of two referees, should be sent to the City Planning Officer and Architect, 7, North Parade Buildings, Bath, by the 31st October, 1956.

JARED E. DIXON,
Town Clerk.

Guildhall, Bath. 1989

COUNTY BOROUGH OF HALIFAX
DEPUTY PLANNING OFFICER

Applications are invited for the above appointment at a salary in accordance with A.P.T. IV (£710—£885)—commencing salary to be fixed according to experience.

The person appointed will act as Deputy Planning Officer to the Borough Engineer. Candidates should possess appropriate technical qualifications. Applications stating age, qualifications, present position, salary and experience, accompanied by the names and addresses of three referees, should be delivered to me by 31st October.

RICHARD de Z. HALL,
Town Clerk.

Town Hall,
Halifax. 4193

COUNTY COUNCIL OF MIDDLESEX

ASSISTANT ARCHITECTS, ARCHITECTURAL ASSISTANTS AND JUNIOR ARCHITECTURAL ASSISTANTS required in County Architect's Department in following grades:—A.P.T. V, £795—£970 p.a.; A.P.T. IV, £710—£885 p.a.; A.P.T. III, £640—£765 p.a. plus £35 p.a. Westminster weighting; A.P.T. II, £595—£675 p.a. plus £45 p.a. Westminster weighting; A.P.T. I, £530—£610 p.a. plus £55 p.a. Westminster weighting.

General Division within scale £250—£640 p.a.

All salaries plus London weighting of £10 if under 21 years, £20, 21—25, £30 for 26 and over. Commencing salaries according to qualifications and experience.

Prescribed conditions.

Application forms from County Architect, 1, Queen Anne's Gate Buildings, Dartmouth Street, Westminster, S.W.1 (stamped addressed foolscap envelope) returnable by 29th October. (Quote T.794 A.J.). Canvassing disqualifies. 4159

THE CORPORATION OF GLASGOW
ARCHITECTURAL AND PLANNING DEPARTMENT
ASSISTANT ARCHITECTS
PLANNING ASSISTANTS
ASSISTANT QUANTITY SURVEYORS

Vacancies exist for a number of assistants. Minimum qualification, Intermediate Examination of the appropriate professional body. Salary scale £580—£1,100 per annum, with placing according to age, experience and qualifications.

Forms of application may be obtained from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
City Architect and Planning Officer.
4164

CITY AND COUNTY OF NEWCASTLE UPON TYNE
CITY ARCHITECT'S DEPARTMENT

The City Architect will be pleased to receive applications for the following vacancies in the Quantity Surveying Section of his Department:—

(*a*) SENIOR QUANTITY SURVEYOR, A.P.T. Division, Grade V (£795—£970).
(*b*) SENIOR ASSISTANT QUANTITY SURVEYOR, A.P.T. Division, Grade IV (£710—£885).

The above are established posts, and will be subject to the provisions of the Local Government Superannuation Acts, 1937-1953, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.

Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market Newcastle upon Tyne 1.

JOHN ATKINSON,
Town Clerk.

Town Hall,
Newcastle upon Tyne, 1.
10th October, 1956. 4173

HITCHIN URBAN DISTRICT COUNCIL
SURVEYOR'S DEPARTMENT

Applications are invited for the appointment of ARCHITECTURAL ASSISTANT in the Surveyor's Department at a salary on Grade A.P.T. II (£535—£675). The commencing salary within the Grade will be fixed according to qualifications and experience.

Preference will be given to applicants holding the R.I.B.A. Intermediate Examination or its equivalent.

The appointment is superannuable and subject to the National Scheme of Conditions of Service.

The Council will be prepared, if necessary, to provide the successful applicant with housing accommodation.

Applications stating age and experience together with the names of two referees must be received by the undersigned in envelopes marked "Architectural Assistant" not later than Monday, 29th October, 1956.

Canvassing will disqualify.

W. WILSON,
Clerk of the Council.

Council Offices,
Brand Street,
Hitchin,
Herts. 4157

THE CITY ARCHITECT, NORWICH is looking for a qualified HEATING AND VENTILATING ENGINEERING ASSISTANT. Salary within Grade A.P.T. IV (£710 × £35 to £885 per annum). New permanent appointment.

Housing accommodation can be made available in certain circumstances.

Application forms, describing this post, from the City Architect, City Hall, Norwich, should be returned within 10 days after the appearance of this advertisement. 4170

Tenders Invited

6 lines or under, 12s. 6d.; each additional line, 2s.

BOROUGH OF EALING
WEST EALING BATHS

Tenders are invited for the supplying and fixing of complete Terrazzo partitions and floors to the West Ealing Baths.

Conditions of Contract and Drawings may be seen and forms of Tender, Specification and Bills of Quantities obtained from the Borough Engineer, Town Hall, Ealing, W.5, on deposit of £2 to be refunded upon receipt of a bona-fide tender.

Tenders (in plain sealed envelopes endorsed "Terrazzo, West Ealing Baths," but bearing no name or mark indicating the sender) must be delivered to my office not later than 10 a.m. on Monday, 29th October, 1956.

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

E. J. COPE-BROWN,
Town Clerk.

Town Hall,
Ealing, W.5.
6th October, 1956. 4155

Architectural Appointments Vacant

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

CROYDON.—ARCHITECTURAL ASSISTANT required immediately for interesting and varied work. Inter./Final standard; capable of running small contracts.—Write age, experience, and salary required, to George Lowe & Partner, 4, High Street, Croydon, Surrey. 1951

CO-OPERATIVE WHOLESALE SOCIETY LTD. ARCHITECT'S DEPARTMENT, MANCHESTER

SHOPFITTING DRAUGHTSMAN required, experienced in shop equipment and modernisation of interiors.

The position calls for the preparation of layouts and perspectives with a modern approach to store fitting problems.

The post is pensionable, subject to medical examination and there is a five-day week in operation.

Applications giving age, details of previous experience and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester 4. 3056

ARCHITECTURAL ASSISTANT required for interesting and remunerative work on housing and commercial contracts with established company in Manchester area. Intermediate or Final standard. Permanent position, pension fund, good working conditions. Salary £700/£780. Apply, giving details of experience, age and present salary, Box 4112.

WEST END Architects require ASSISTANT for preparation of working drawings. Some office experience essential, together with a sound knowledge of building construction. State salary required.—Box 4049.

TREHEARNE & NORMAN, PRESTON & PARTNERS have vacancies for SENIOR AND JUNIOR ASSISTANTS. Salaries according to experience and qualifications.—Apply: 83, Kingsway, W.C.2 (HOL. 4071). 3028

ARCHITECTURAL ASSISTANT, Intermediate standard, required immediately for busy general practice.—Write, stating age, experience, and salary required, to Deacon & Laing, 9, St. Paul's Square, Bedford. 4041

RONALD WARD & PARTNERS require an ARCHITECTURAL ASSISTANT, with contemporary outlook and willing to use own initiative. Salary range £500 to £800. Interesting and varied work, home and abroad. Congenial working conditions.—Apply 29, Chesham Place, Belgrave Square, S.W.1. Tel. Belgravia 3361. 4032

POST-INTERMEDIATE ASSISTANT required, in large London Office with widely varied practice. Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, London, W.C.1. Telephone HOLborn 7082. 3152

JUNIOR ARCHITECTURAL ASSISTANT required, Intermediate standard, for practice in Ilford, Essex. Good prospects.—Apply G. E. Siegerts, 1, Electric Parade, Seven Kings Road, Seven Kings, Ilford, Essex. 4031

ASSISTANT wanted for small private practice. Write brief details to T. A. Bird, 13, Welbeck Street, W.1. 4029

SOUTHAMPTON.—Intermediate or similar grade ASSISTANT required in professional office, for work on a varied programme of commercial and industrial building. Preference will be given to an applicant with experience rather than academic qualifications. Permanent and progressive post for man with initiative.—Applications, giving salary required, to Box 4180.

ASSISTANT required in small private office, to work on various types of buildings. 5-day week; Luncheon Vouchers. Tel. WELbeck 3620 for appointment. 4129

PRE-FINAL ASSISTANT required. Opportunity to gain all round experience taking charge of jobs in office and on site. Salary £600 p.a., 5-day week. Geoffrey Shires, 75, Victoria Street, S.W.1. Tel. ABBey 4909. 4120

ARCHITECTURAL ASSISTANT required in established busy office. Interesting and varied practice covering Industrial, Hospital, Domestic and Commercial work. 5-day week, 3 weeks' annual leave. Apply in writing, stating age, experience, salary required and any other relevant information to E. William Palmer & Partners, Chartered Architects, 8, The Town, Enfield, Middlesex. 4107

VINCENT BURR & PARTNERS urgently require ARCHITECTURAL ASSISTANT of approximately Intermediate standard. Great scope for future promotion. Large and varied practice. Salary according to experience. Telephone MUSeum 2201 for appointment. 4106

QUALIFIED ARCHITECT'S ASSISTANT age 22 to 30 required in progressive London office. Salary £650—£850 according to age and experience. Box 4102.

IMPERIAL CHEMICAL INDUSTRIES, LTD., Dyestuffs Division, requires an ARCHITECTURAL and BUILDING DRAUGHTSMAN of Intermediate R.I.B.A. standard, possessing a sound knowledge of building construction, together with experience in the preparation of working drawings and details for industrial and commercial buildings. Knowledge of structural framework design an advantage. Applications with brief details of experience should be sent to Staff Department, Hexagon House, Blackley, Manchester, 9. 4092

ARCHITECT'S ASSISTANT required, Intermediate standard, for work on contemporary commercial buildings. 5-day week and pension scheme.—Applications, stating age, experience, and salary required, to A. B. Smith, A.R.I.B.A., 22, South Audley Street, London, W.1. 4154

MESSRS. EASTON & ROBERTSON require ASSISTANTS in Junior and Intermediate grades.—Apply 53, Bedford Square, W.C.1. 4153

YOUNG qualified ARCHITECTURAL ASSISTANTS wanted for growing Northern Rhodesian practice. Ecclesiastical experience will be a recommendation. Salary approximately £90 per month, depending on experience.—Principal will be in London from 7th to 25th November, and applicants should apply to Box No. 4145, or Chancery 4117, to arrange an interview.

POST-INTERMEDIATE ASSISTANT required in Salisbury office, with varied practice.—Write stating age, experience, and salary required, Box 4141.

STRUCTURAL Engineers near Waterloo require GENERAL BUILDING DRAUGHTSMAN, with wide experience of all building details, including plumbing and drainage. Experience in building planning and layout, preparing specifications, and some knowledge of surveying and pricing will be advantageous. 5-day week; canteen; superannuation scheme in force.—Write with full particulars to Box AJ.798, c/o 191, Gresham House, E.C.2. 4163

ARCHITECTURAL ASSISTANT, Intermediate standard, for work in Architect's office on development and construction of factory extensions, also on proposed large new buildings in north-east of London area. 5-day week; staff pension scheme; canteen; modern welfare amenities.—Apply Personnel Superintendent, The Edison Swan Electric Co., Ltd., Cosmos Works, Brimsdown, Enfield, Middlesex. 4168

YOUNG man, with drawing office experience, required for expanding Acoustics Division of London Company, prepare layouts, estimates and specifications. Good basic salary, plus opportunities for outside work, and commission on any business introduced.—Replies will be treated in confidence, and should be addressed immediately to Box 4196.

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