

The Architects' JOURNAL for August 22, 1957

# THE ARCHITECTS' JOURNAL



## standard contents

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

## NEWS and COMMENT

Astragal's Notes and Topics

Letters

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Diary

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## TECHNICAL SECTION

Information Sheets

Information Centre

Current Technique

Working Details

Questions and Answers

Prices

The Industry

## CURRENT BUILDING

Major Buildings described:

Details of Planning, Construction,

Finishes and Costs

Buildings in the News

Building Costs Analysed

Architectural Appointments  
Wanted and Vacant

No. 3260] [Vol. 126

THE ARCHITECTURAL PRESS

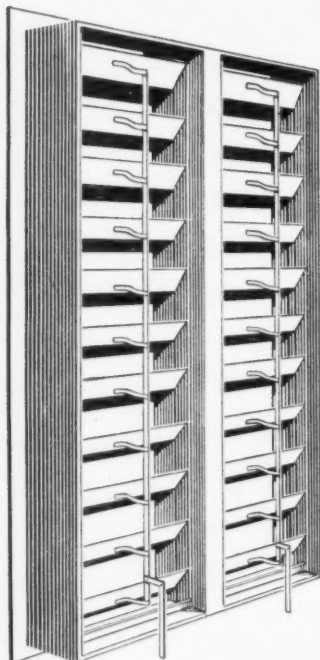
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★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ig one week, Ih to Z the next. In all cases where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

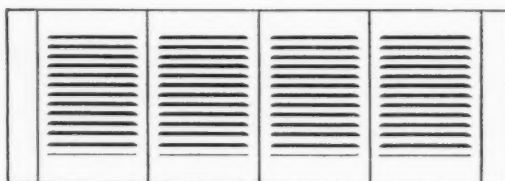
AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: W. Marlborough Whitehead, "Dyneley," Castle Hill Avenue, Berkhamstead, Herts.	
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5721
ABT	Association of Building Technicians. 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.	
BC	Building Centre. 26, Store Street, Tottenham Court Road, W.C.1.	Reliance 7611, Ext. 1706
BCC	British Colour Council. 13, Portland Square, W.1.	Museum 5400
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.5.	Welbeck 4185
BCIRA	British Cast Iron Research Association. Alvechurch, Birmingham.	Ealing 9621
BDA	British Door Association. 10, The Boltons, S.W.10.	Redditch 716
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Fremantle 8494
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C.2.	Temple Bar 9434
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	Glasgow Central 2891
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	Chancery 7772
BOT	Board of Trade. Whitehall Gardens, Horseguards' Avenue, Whitehall, S.W.1.	Langham 2785
BRS	Building Research Station. Bucknalls Lane, Watford.	Trafalgar 8855
BSA	Building Societies Association. 14, Park Street, W.1.	Garston 4040
BSI	British Standards Institution. British Standards House, 2, Park St., W.1.	Mayfair 0515
BTE	Building Trades Exhibition. 32, Millbank, S.W.1.	Mayfair 9000
CABAS	City and Borough Architects Society. C/o Johnson Blackett, F.R.I.B.A., Civic Centre, Newport, Mon. Newport 65491	Tate Gallery 8134
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.	Belgravia 6661
CCP	Copper for Codes of Practice. Lambeth Bridge House, S.E.1.	Reliance 7611 Ext. 1284
CDA	Copper Development Association. 55, South Audley Street, W.1.	Grosvenor 8811
CIAM	Congrès Internationaux d'Architecture Moderne. Dolderal, 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.	
DIA	Design and Industries Association. 13, Suffolk Street, S.W.1.	Reliance 7611
DPT	Department of Overseas Trade. Horseguards Avenue, Whitehall, S.W.1.	Whitehall 0540
EJMA	English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1. Regent 4448	Trafalgar 8855
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
GPDA	Gypsum Plasterboard Development Association, 11, Ironmonger Lane, E.C.2.	Monarch 8888
GC	Gas Council. 1, Grosvenor Place, S.W.1.	Sloane 4554
GG	Georgian Group. 2, Chester Street, S.W.1.	Belgravia 3081
HC	Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.	Whitehall 2881
IAAS	Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1.	Belgravia 3755
ICA	Institute of Contemporary Arts. 17-18, Dover Street, Piccadilly, W.1.	Grosvenor 6186
ICE	Institution of Civil Engineers. 1, Great George Street, S.W.1.	Whitehall 4577
IEE	Institution of Electrical Engineers. Savoy Place, Victoria Embankment, W.C.2.	Temple Bar 7676
IES	Illuminating Engineering Society. 32, Victoria Street, S.W.1.	Abbey 5215
IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266



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(Left) A typical double banked  
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(Right) 4 "Maxaire" 3" x 3"  
Louvres with  $\frac{3}{4}$ " flanged ends.

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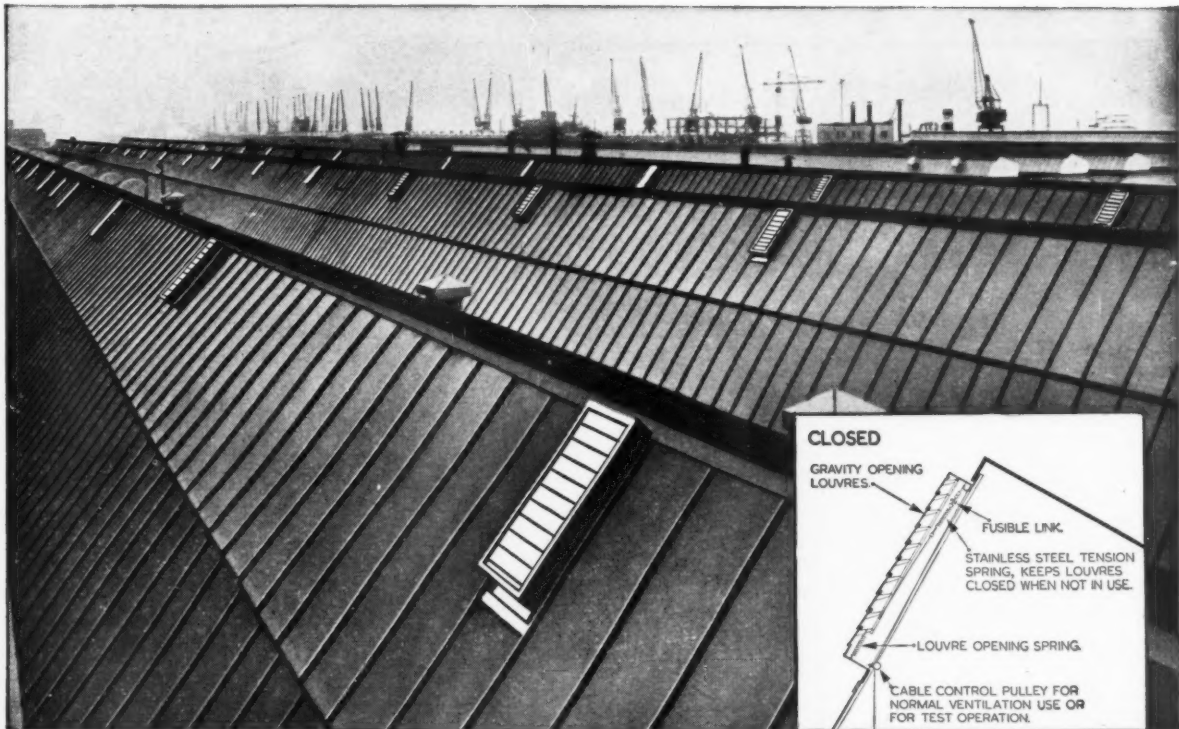
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# VENTILATION AND FIRE PROTECTION!

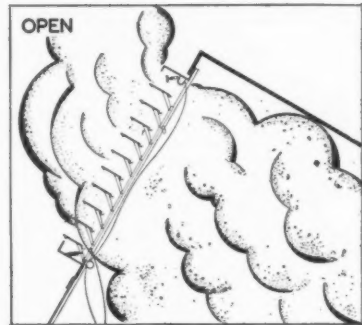


## with the COLT DUAL PURPOSE FIRE VENTILATOR

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*The insets illustrate the action of the ventilator as a Heat and Smoke Exhaust. In the event of fire, the fusible link fuses, providing Automatic Escape for Super-Heated Air and Smoke.*

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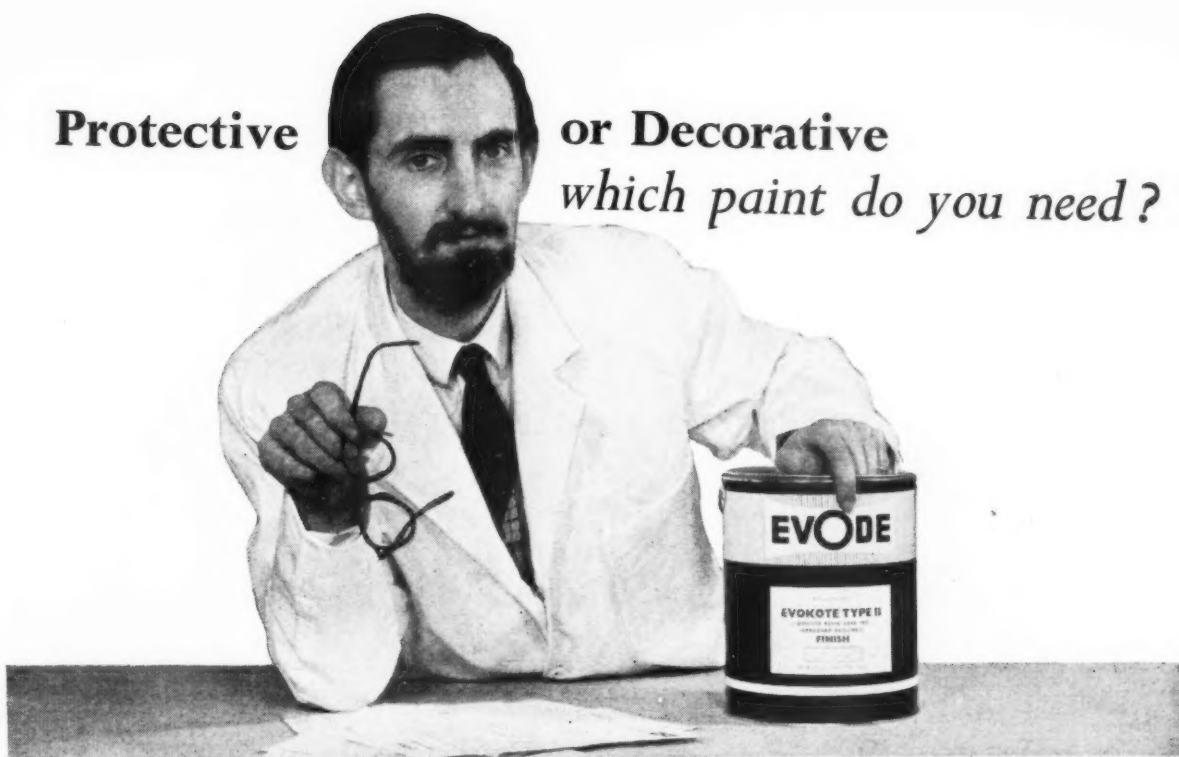


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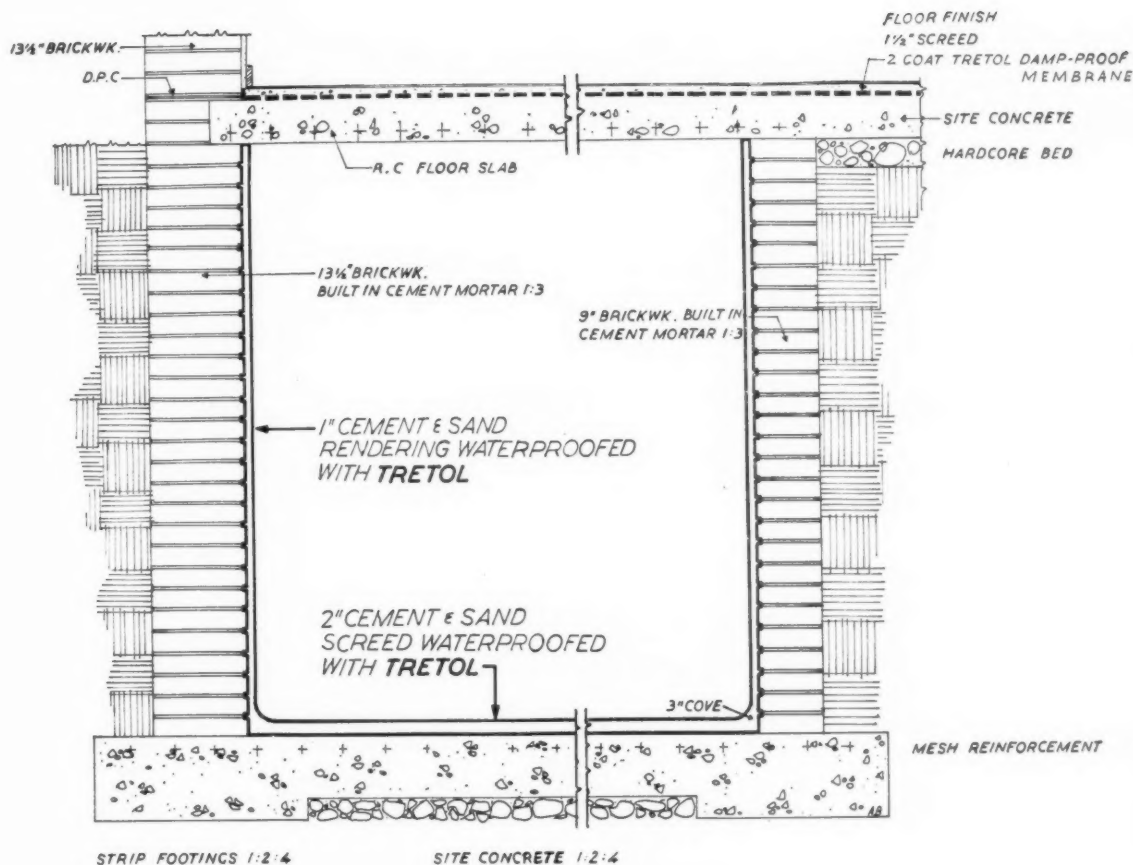
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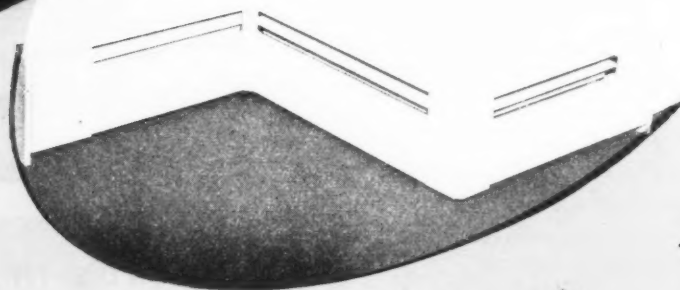
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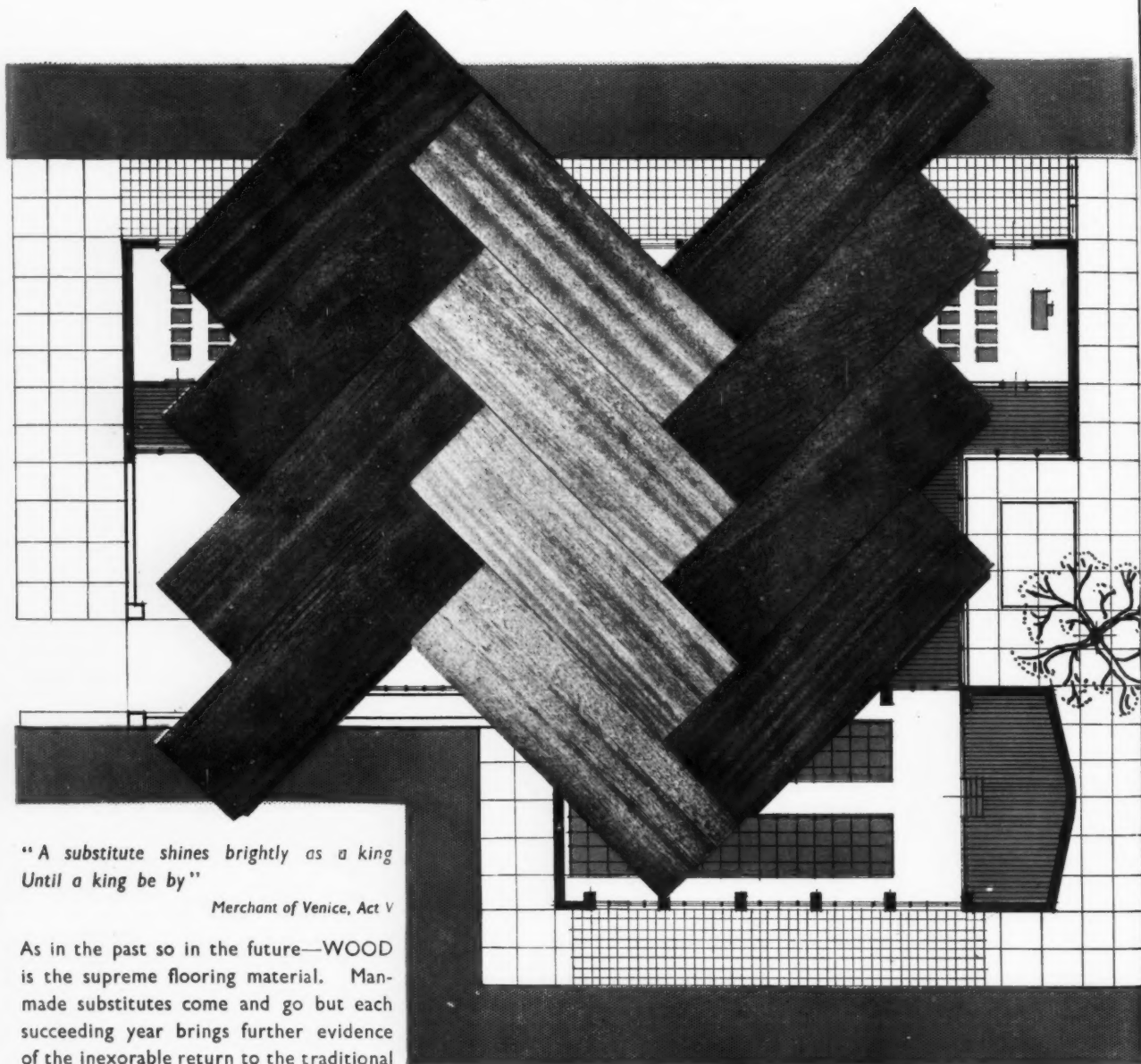
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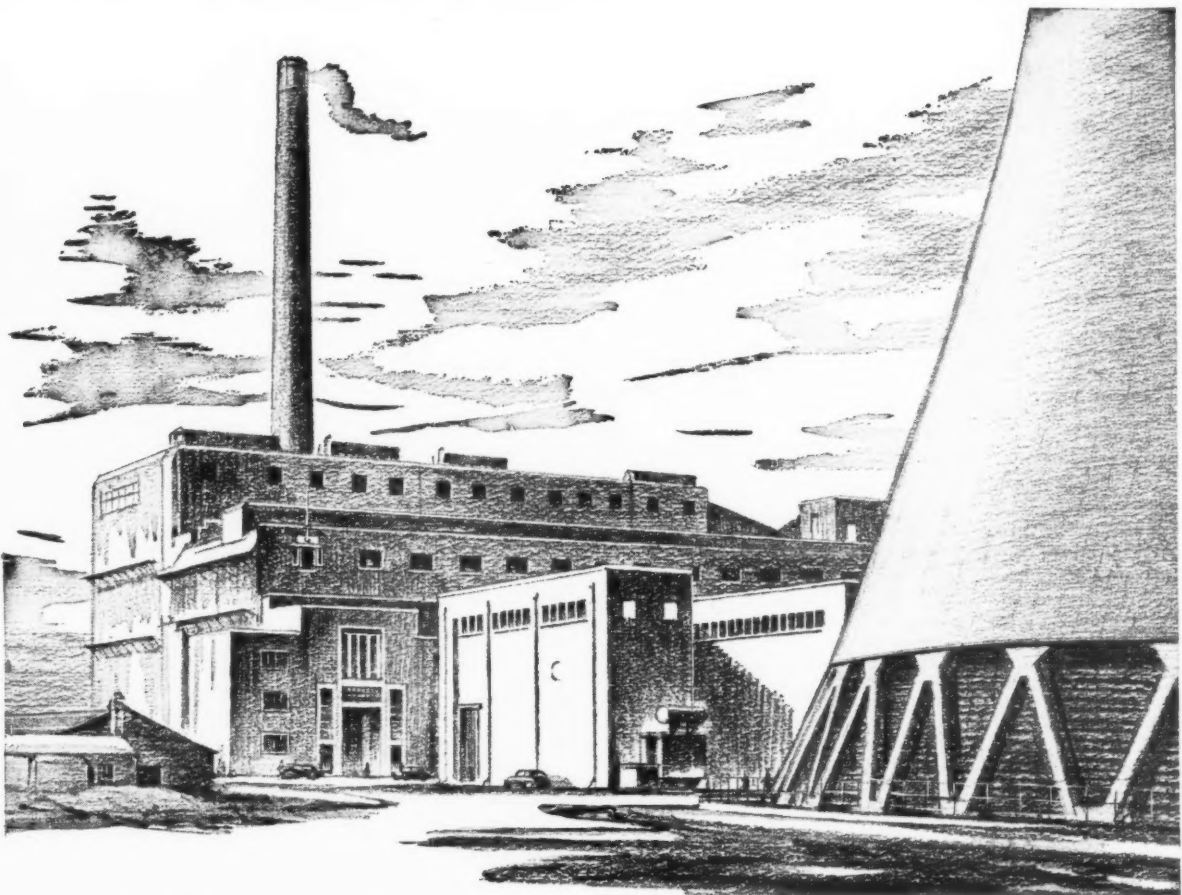
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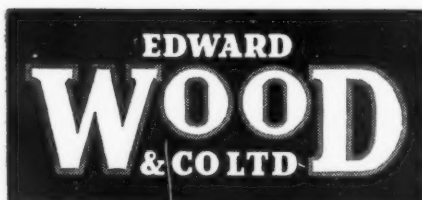
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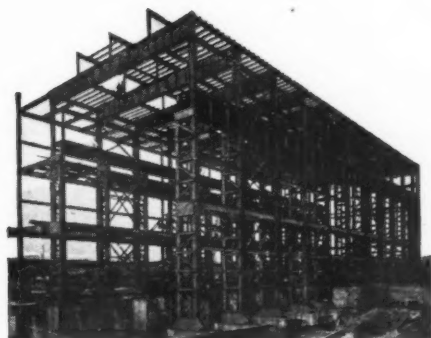
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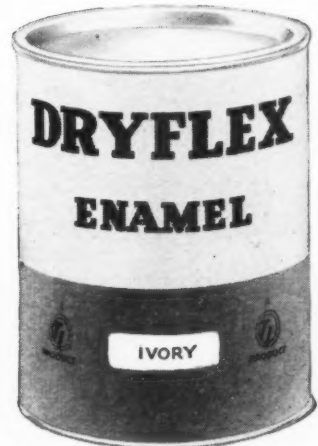
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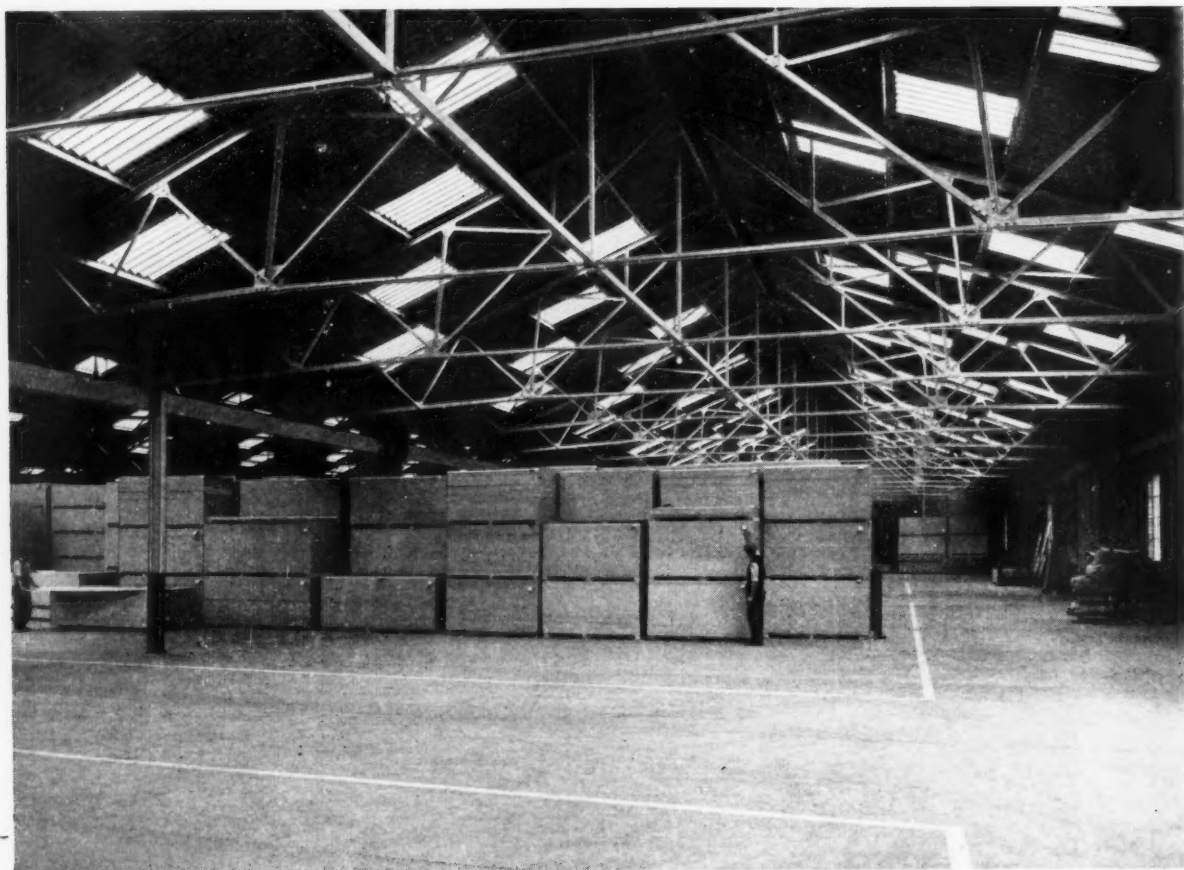
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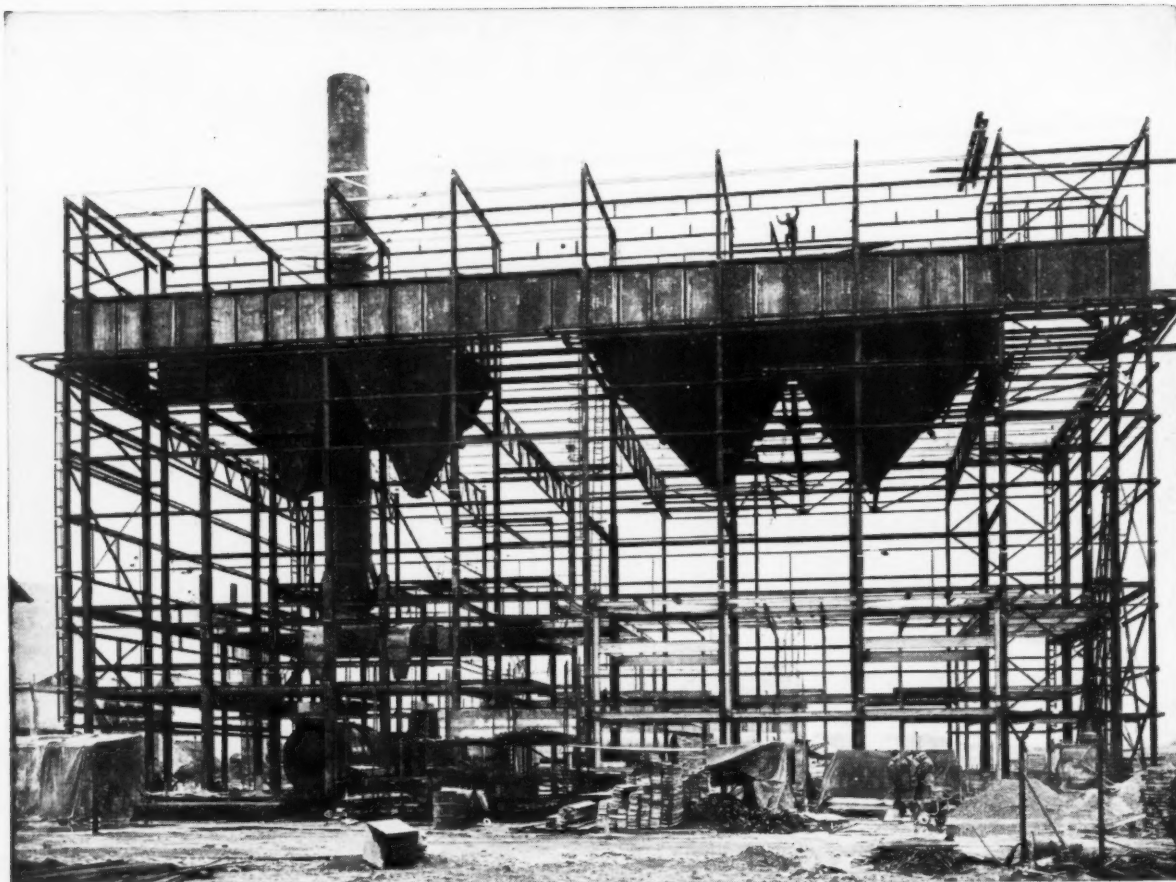
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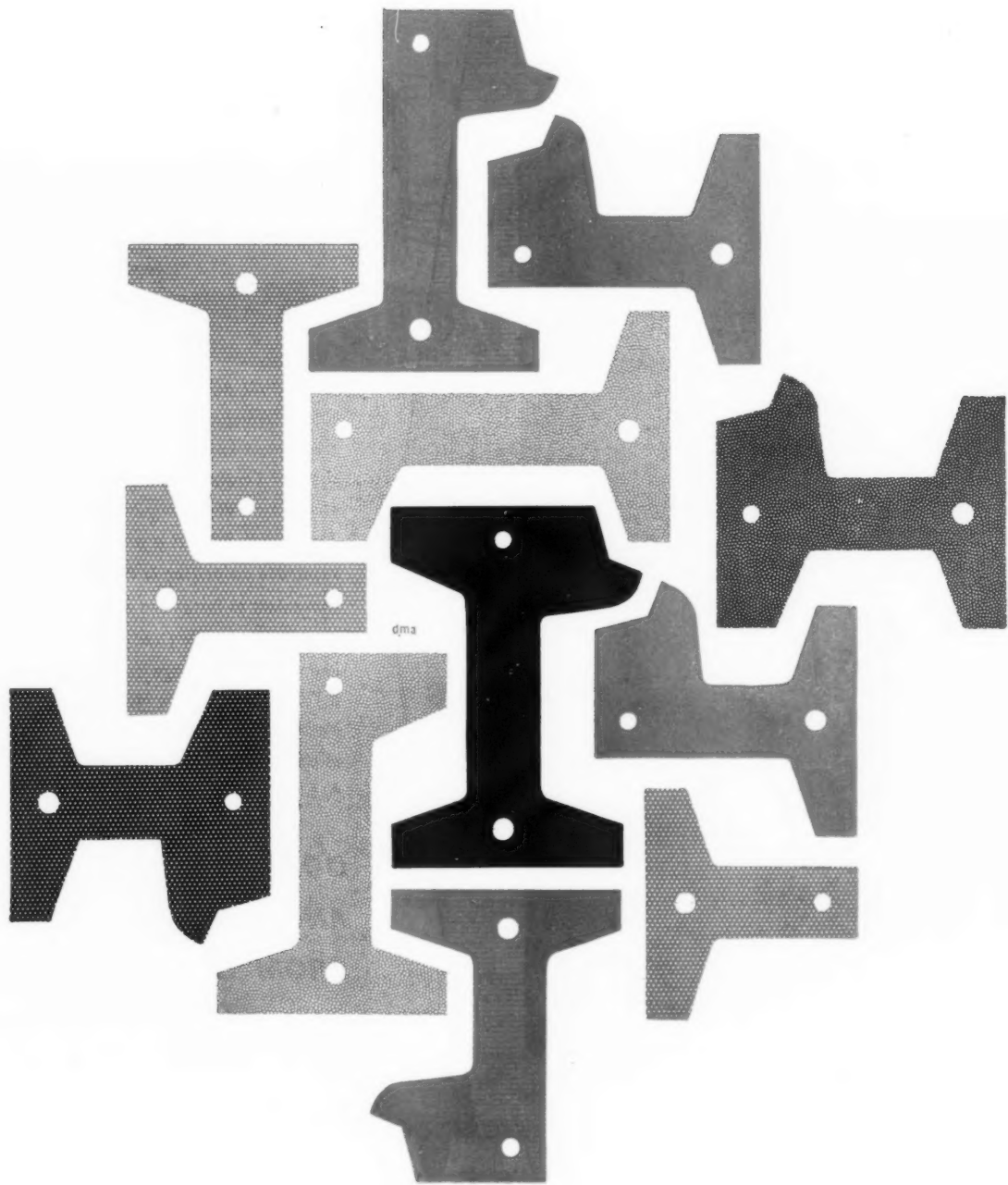
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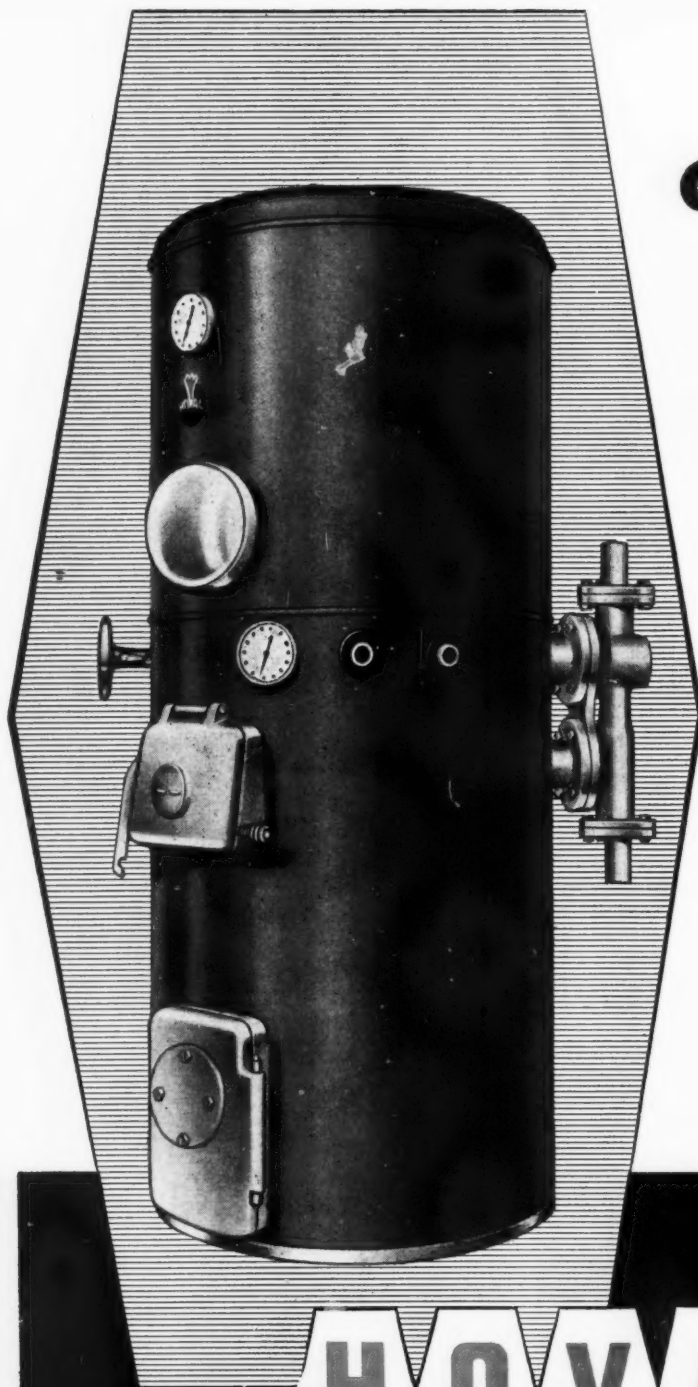
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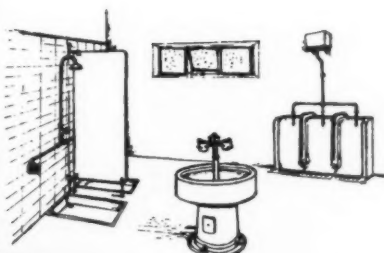
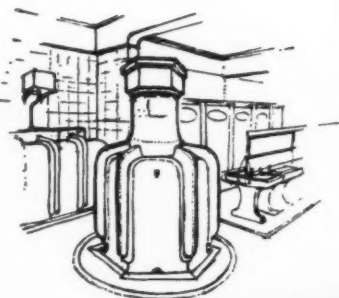
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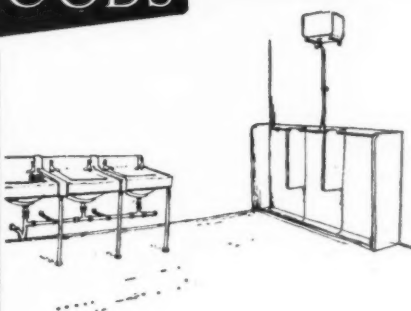
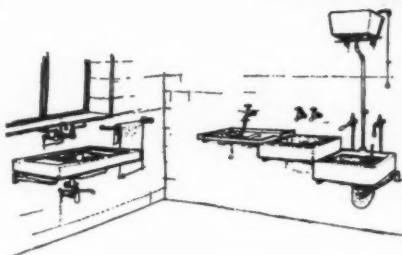
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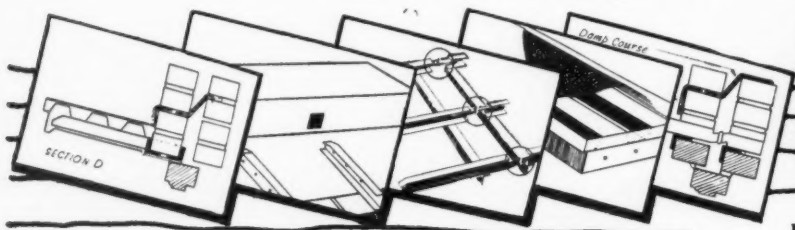
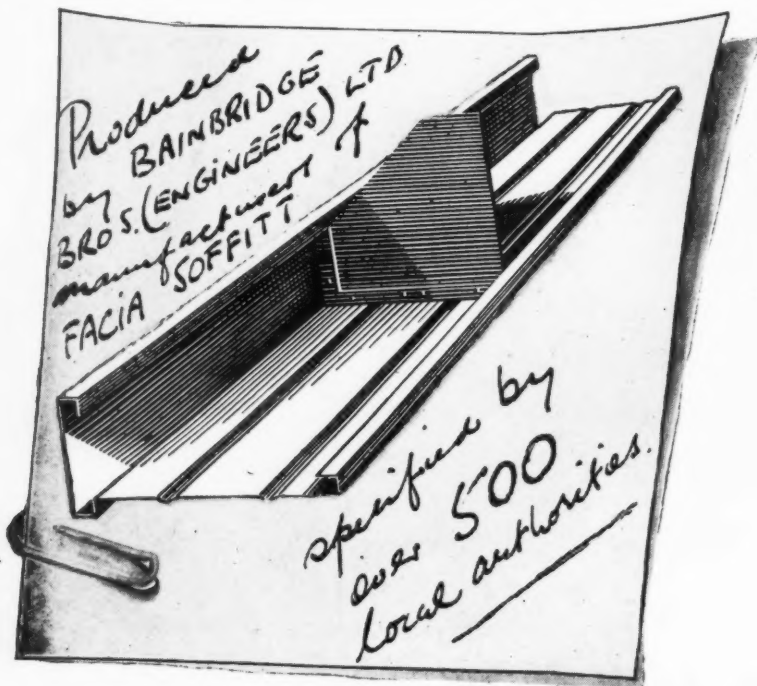
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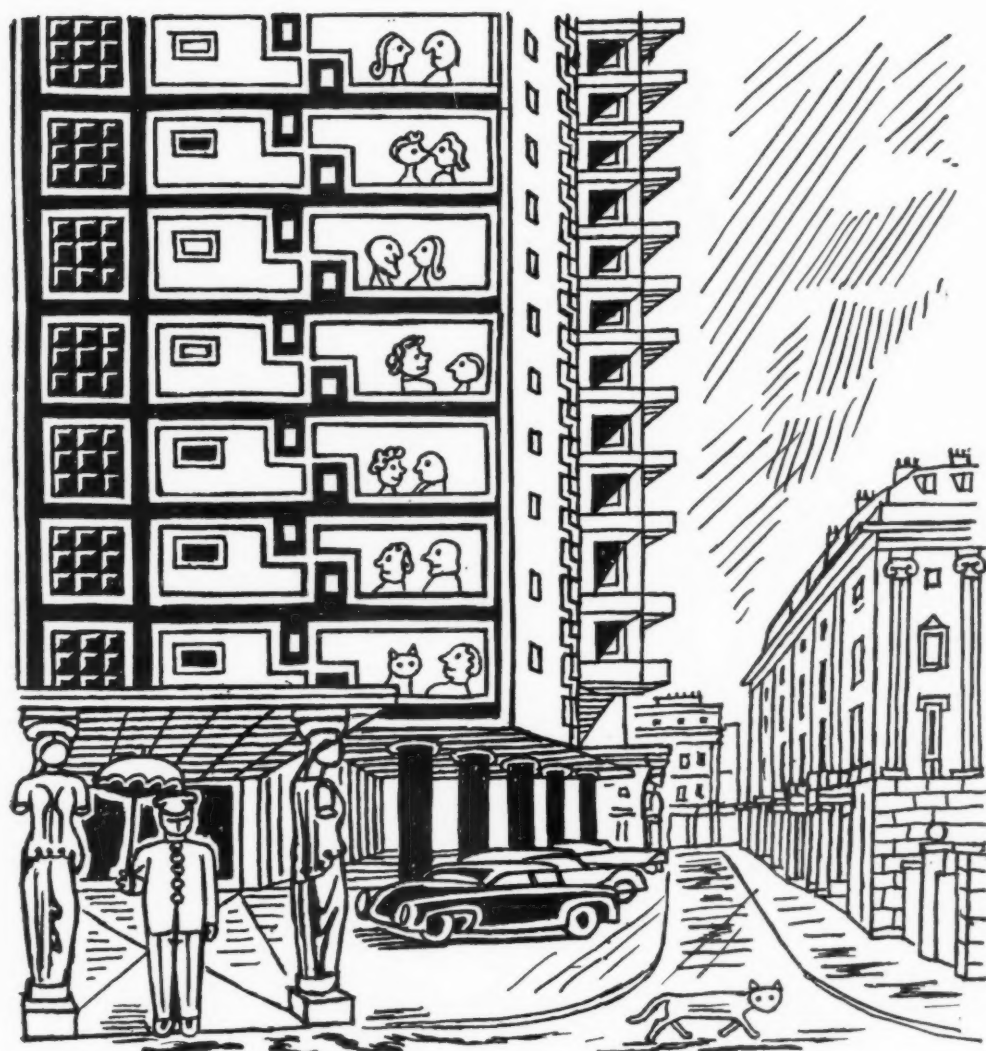


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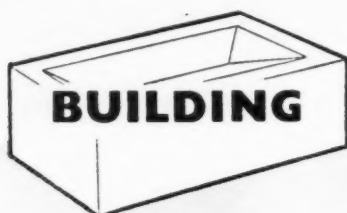
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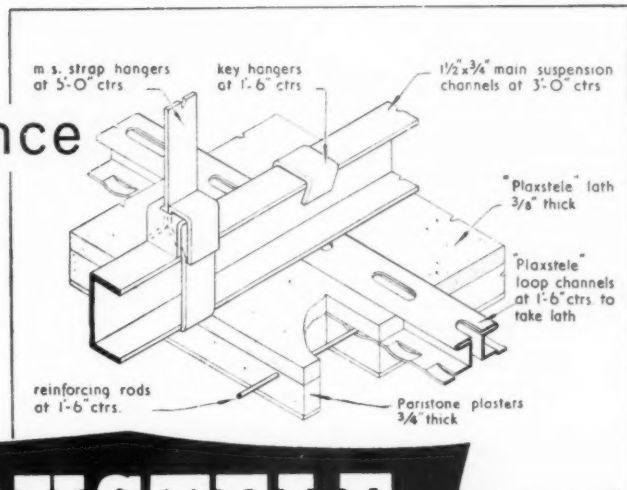
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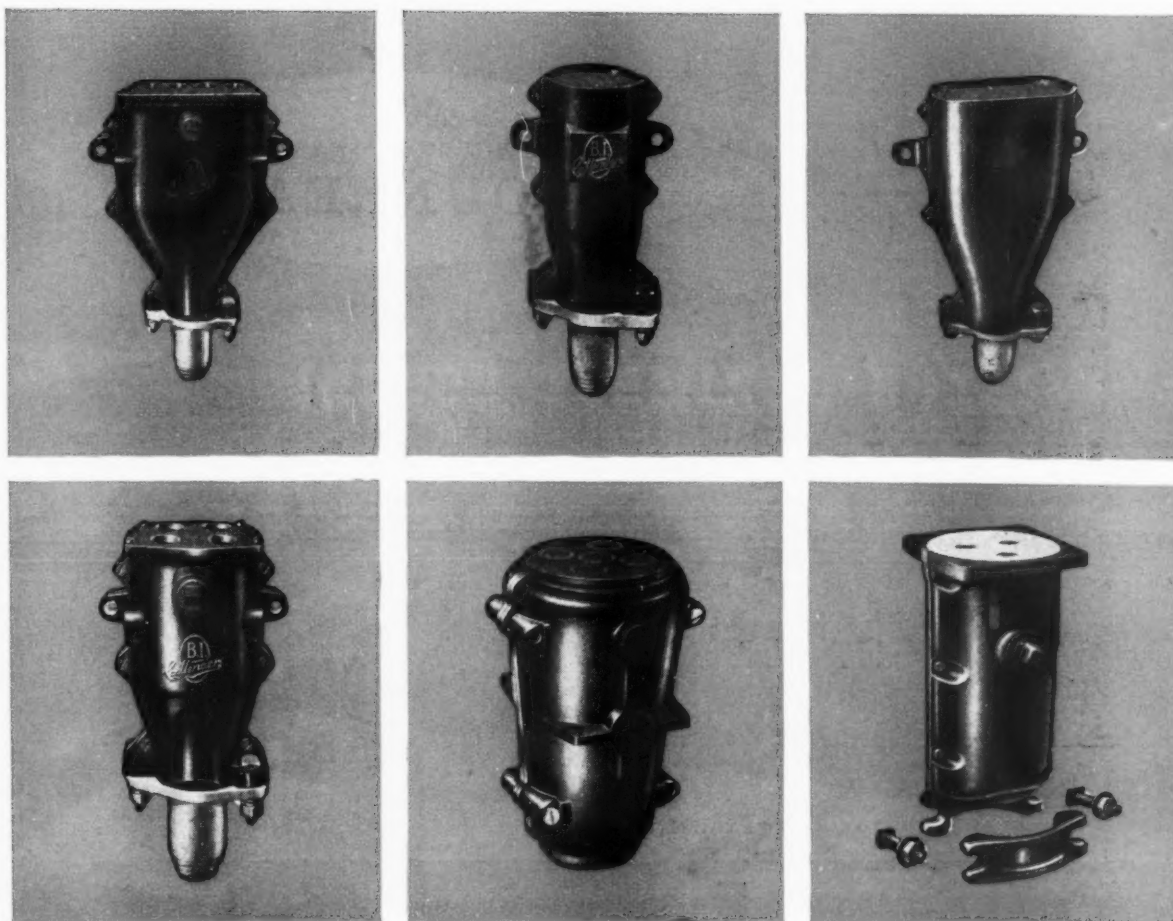
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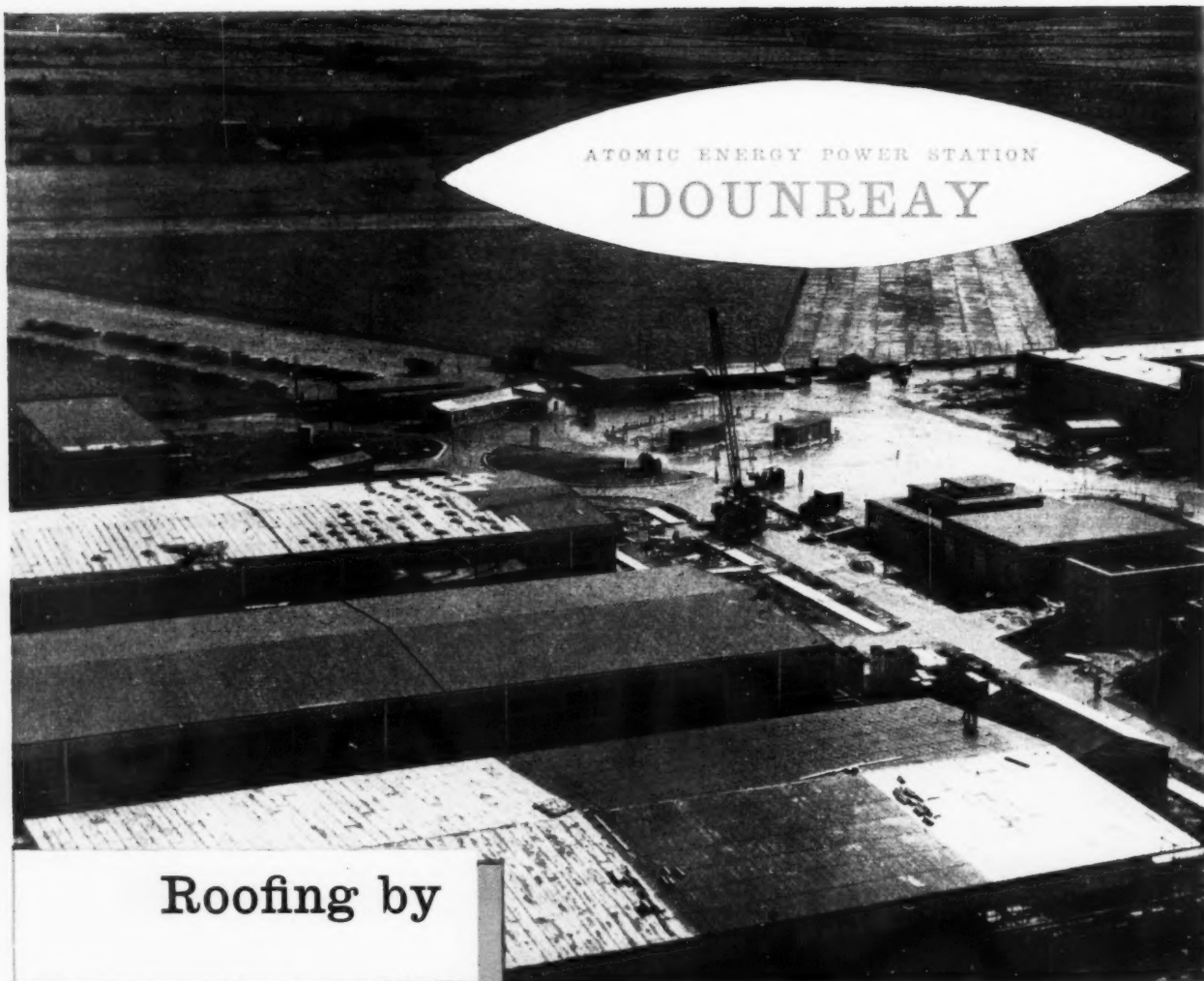
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OR OTHER  
HAVE ANY  
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OPEN

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GEAR

WHERE SIMPLE OR COMPLICATED  
SCHEMES OF VENTILATION ARE  
INSTALLED, AND THE OPERATION  
IS REQUIRED BY REMOTE CONTROL  
OR OTHERWISE, AND THE WINDOWS  
HAVE ANY OF THE FOLLOWING  
CHARACTERISTICS:—

OPENING OUTWARDS

OPENING INWARDS

TOP HUNG

HORIZONTAL CENTRE HUNG

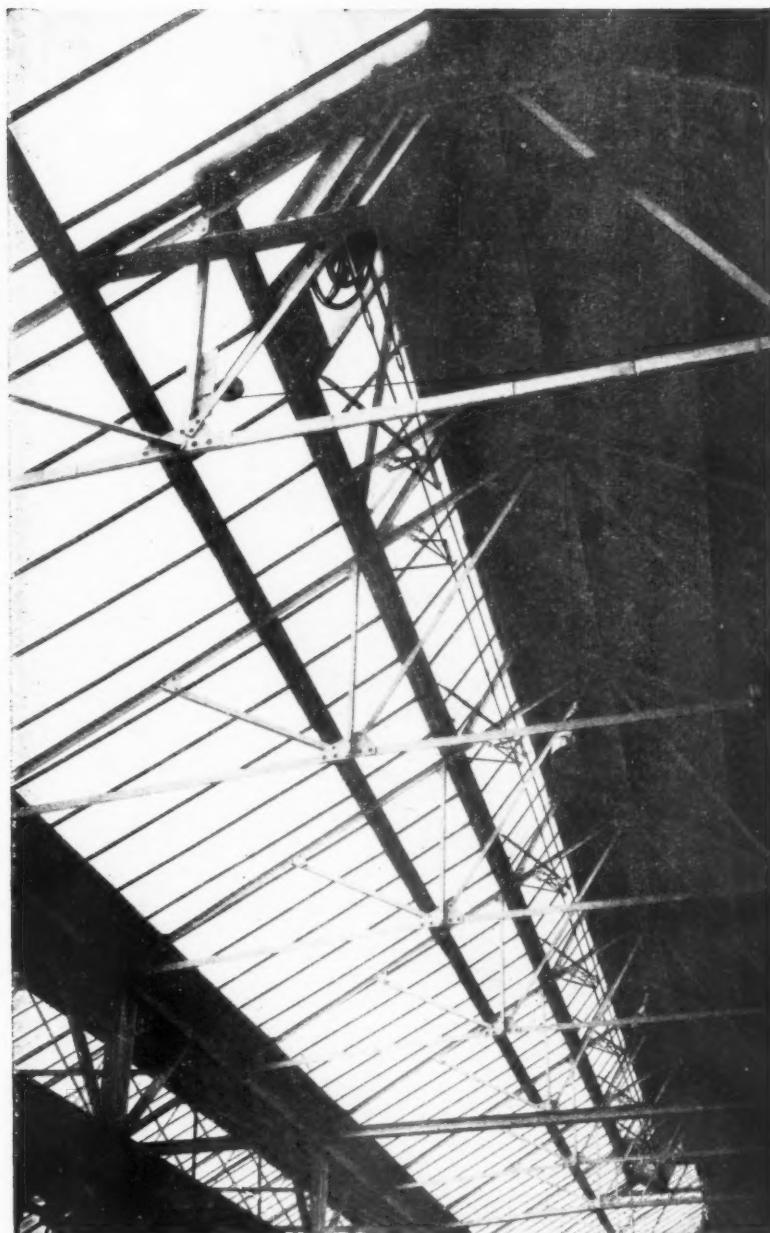
BOTTOM HUNG

VERTICAL PIVOT HUNG

SIDE HUNG

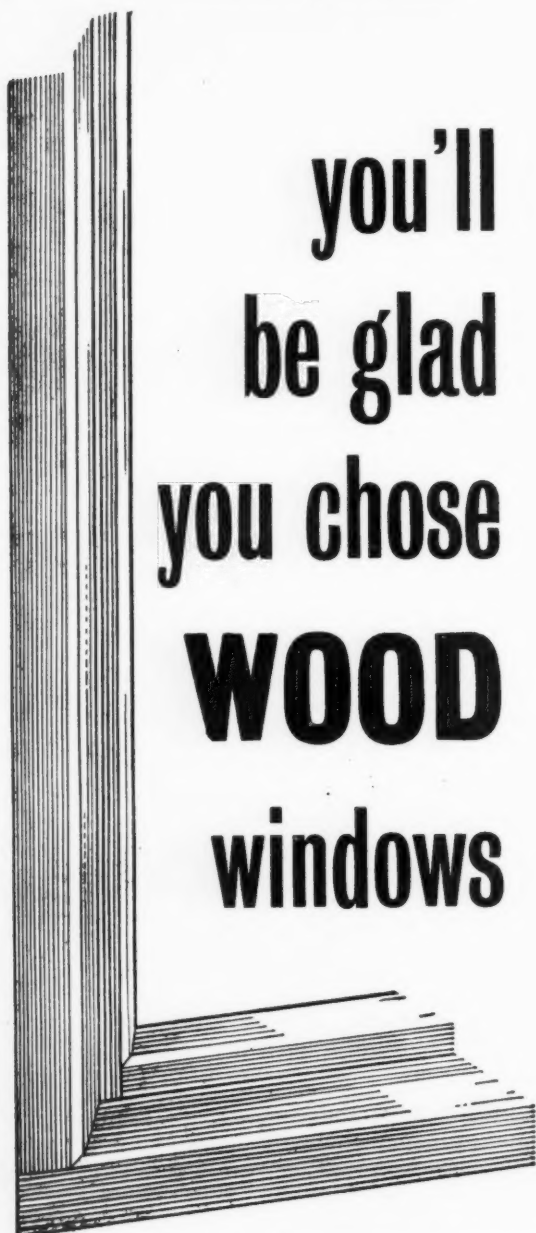
HORIZONTAL SLIDING

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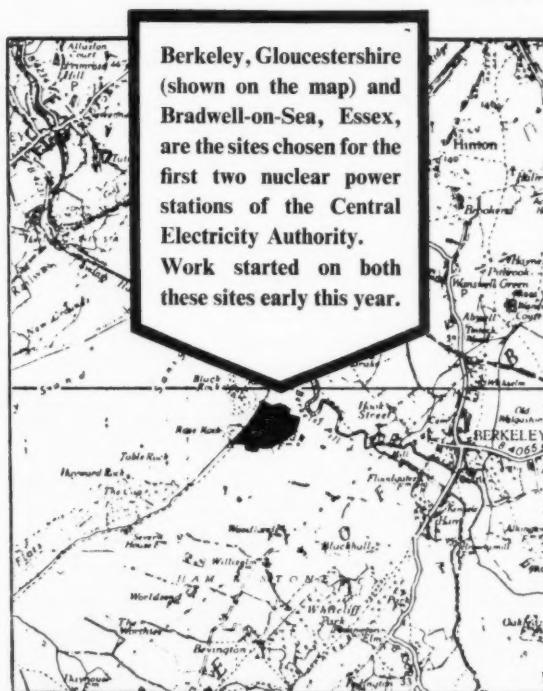
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## Electricity from Nuclear Energy



Berkeley, Gloucestershire (shown on the map) and Bradwell-on-Sea, Essex, are the sites chosen for the first two nuclear power stations of the Central Electricity Authority. Work started on both these sites early this year.

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### The growing need for power

As Britain's industrial efficiency increases, so does the need for power. The demand for power doubles every ten years; supplies of home-produced coal do not keep pace with these developments. Nuclear energy and oil will make up the discrepancy between the demands for electric power and the available coal supplies.

Central Electricity Authority has placed contracts for two nuclear power stations, sited at Berkeley in Gloucestershire, and Bradwell in Essex. A third station—the largest yet projected—is to be erected at Hinkley Point near Bridgwater in Somerset. These three stations will have an aggregate capacity of some 850,000 kilowatts.

The Government's revised nuclear power station programme provides for 19 nuclear power stations to be completed by 1965. They will develop from 5,000 to 6,000 megawatts of capacity and add to the national power resources the equivalent of some 18 million tons of coal a year.

As the demand for power grows, nuclear energy will become more and more important as a source of electric power, upon which the economic future of the country so largely depends.





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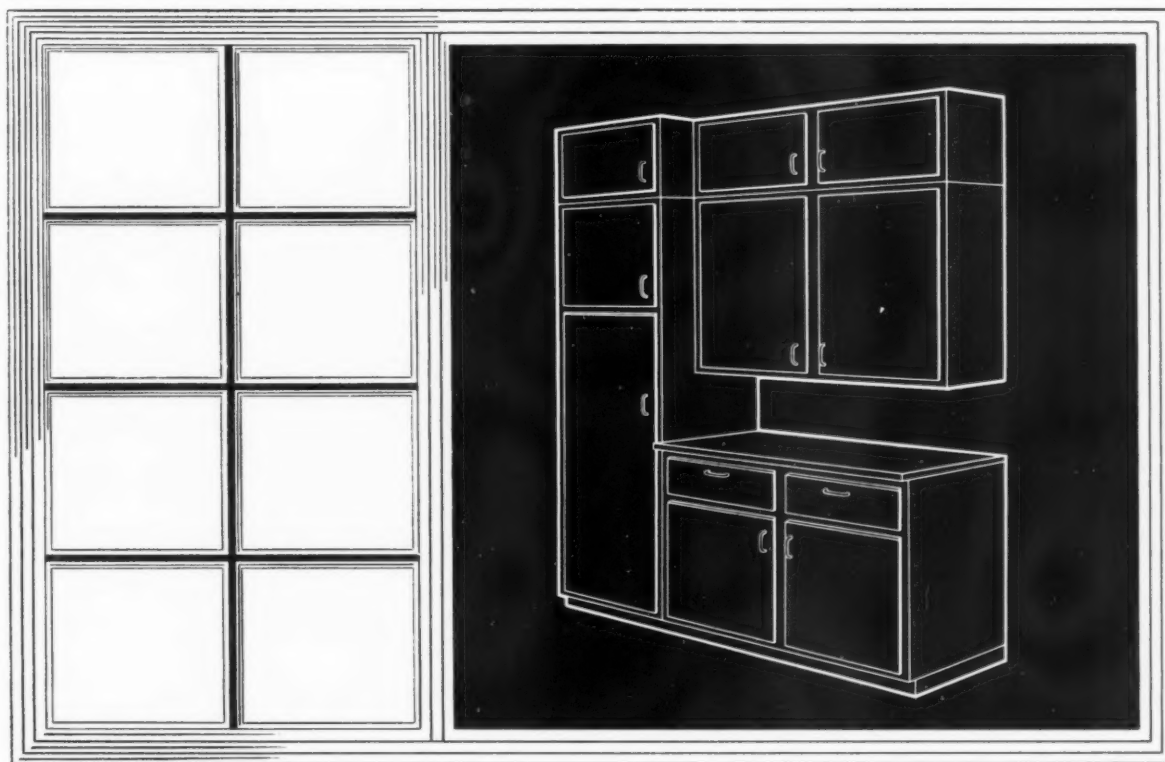
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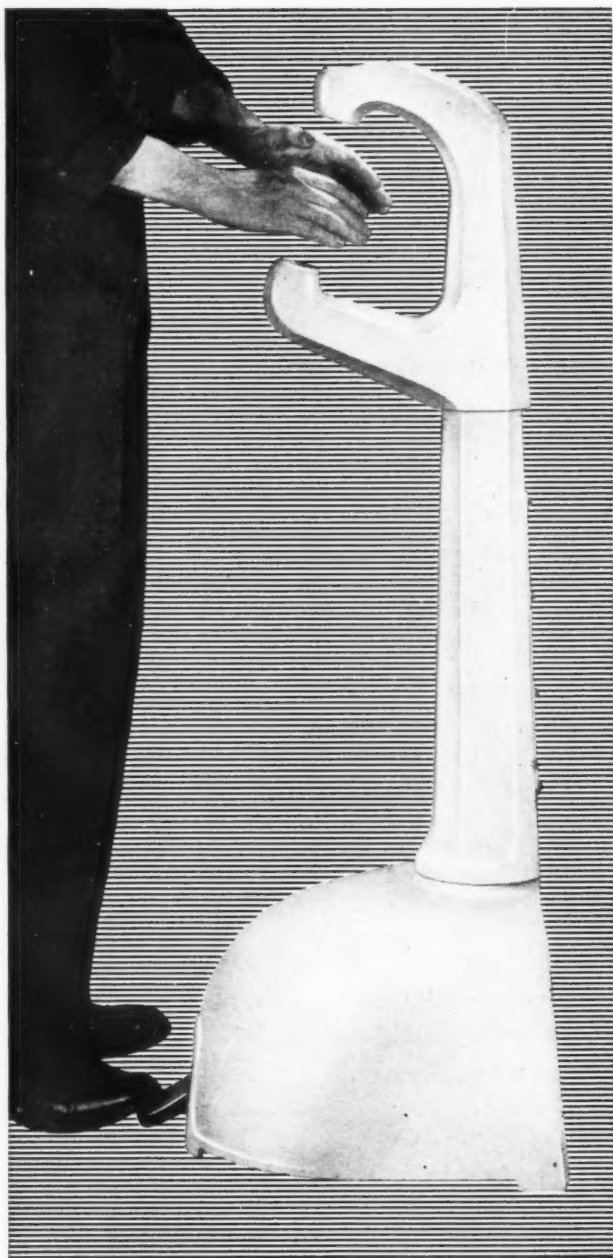
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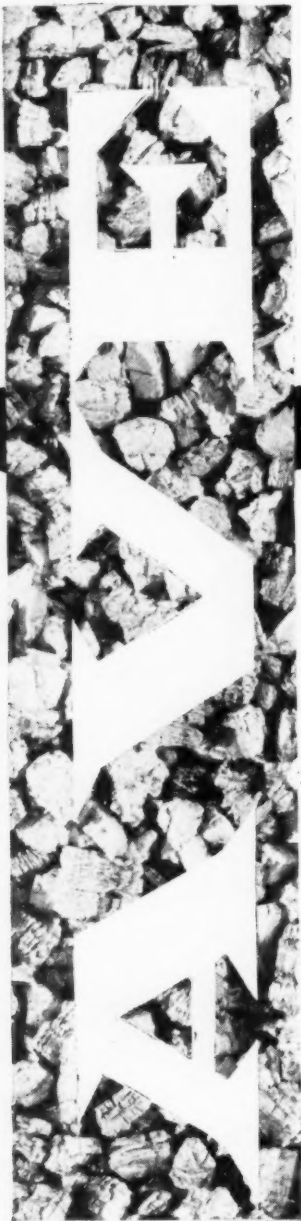
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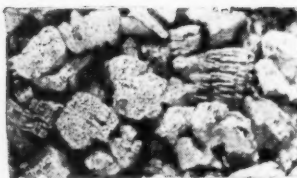
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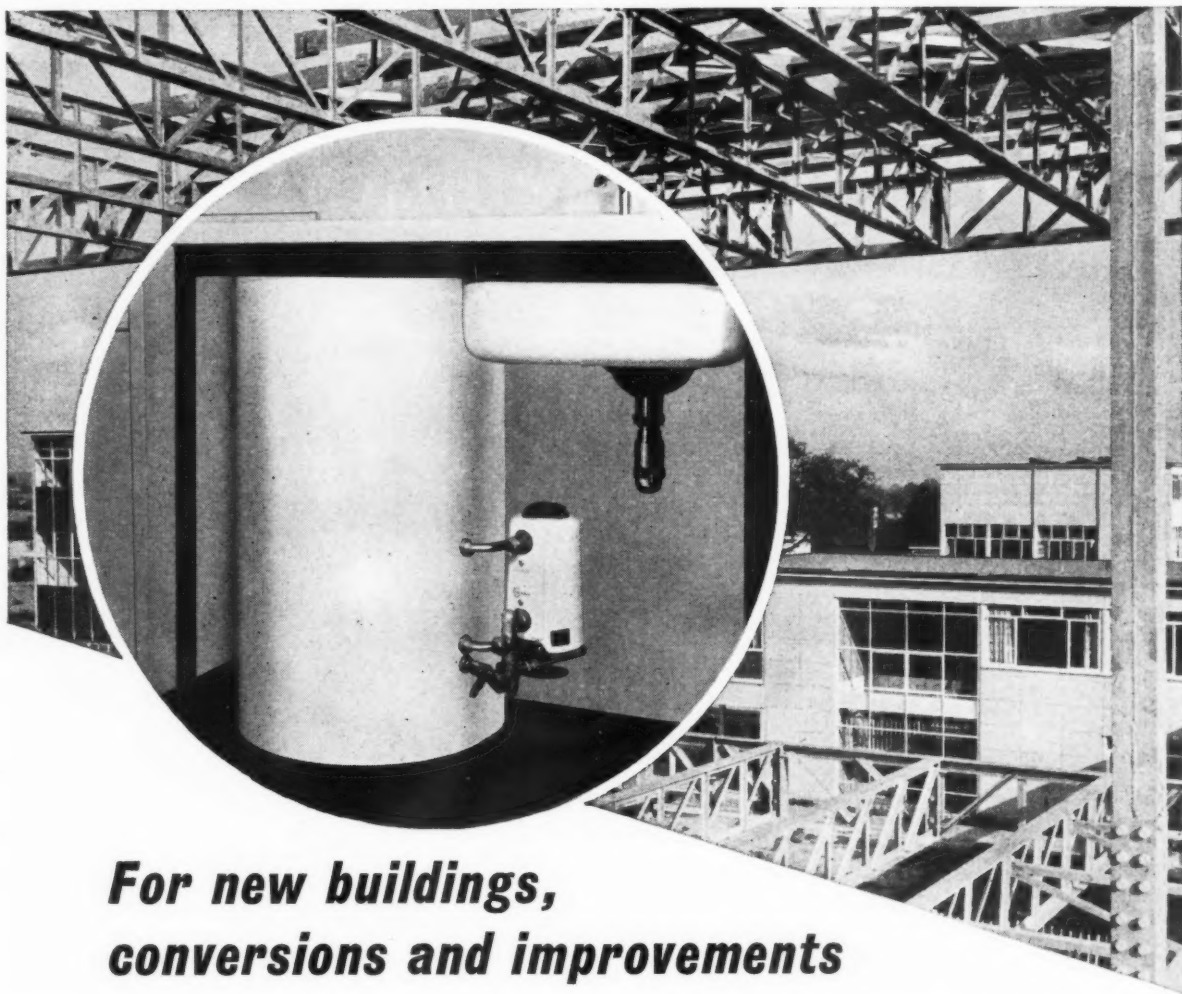
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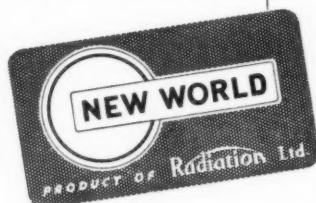
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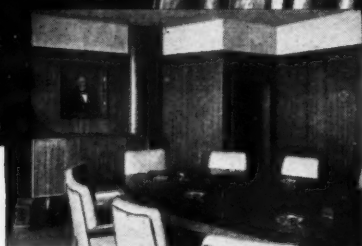
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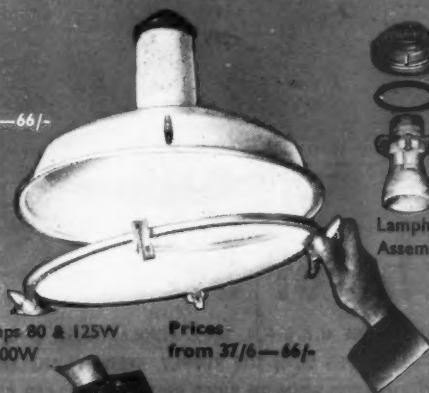
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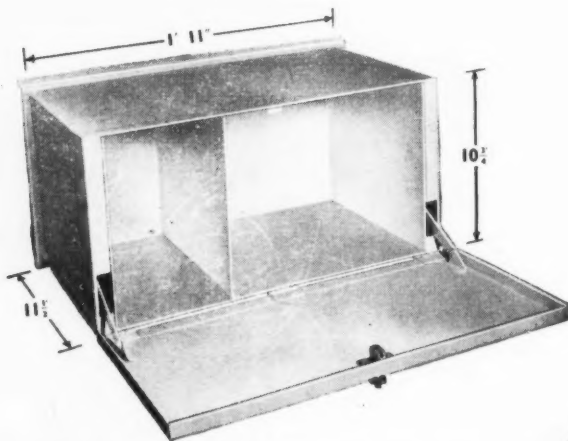
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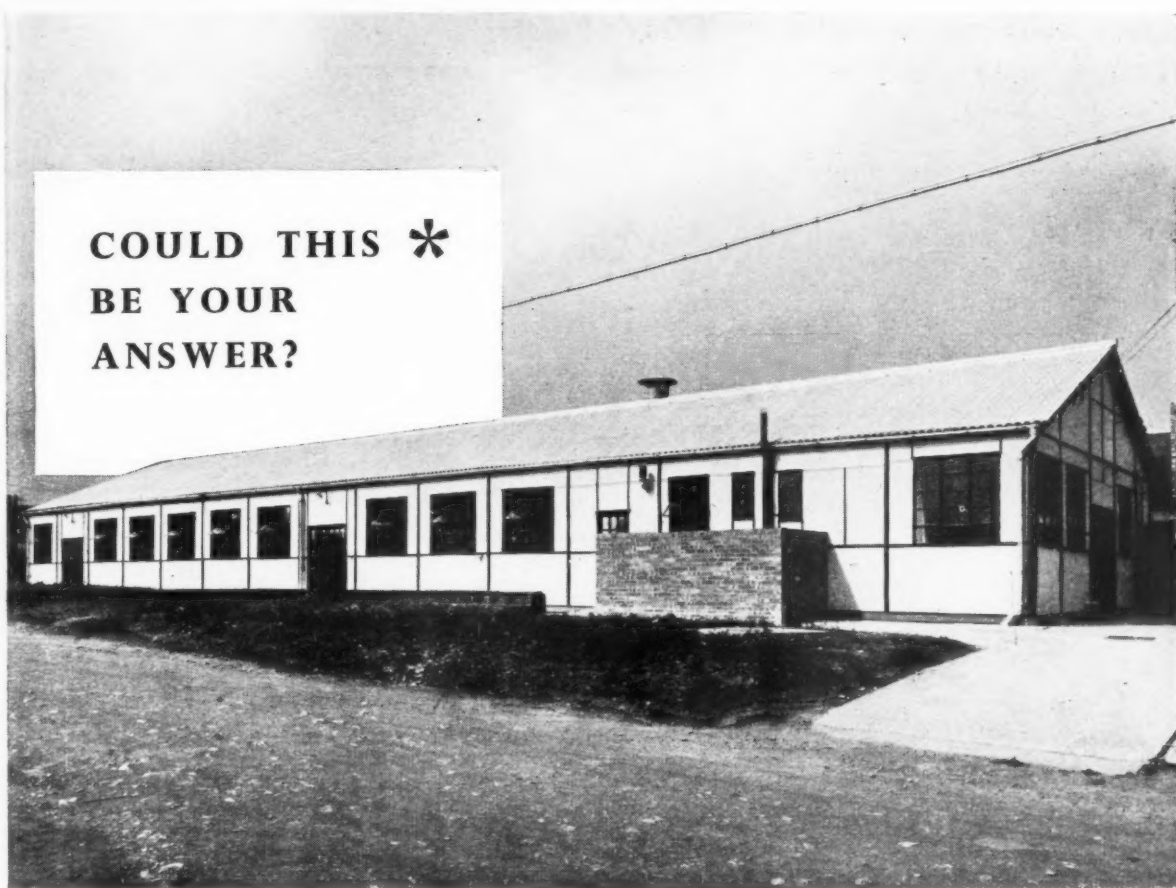
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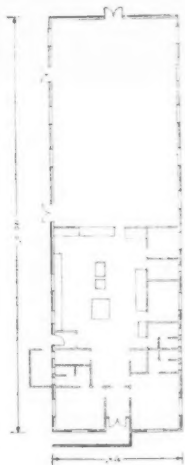


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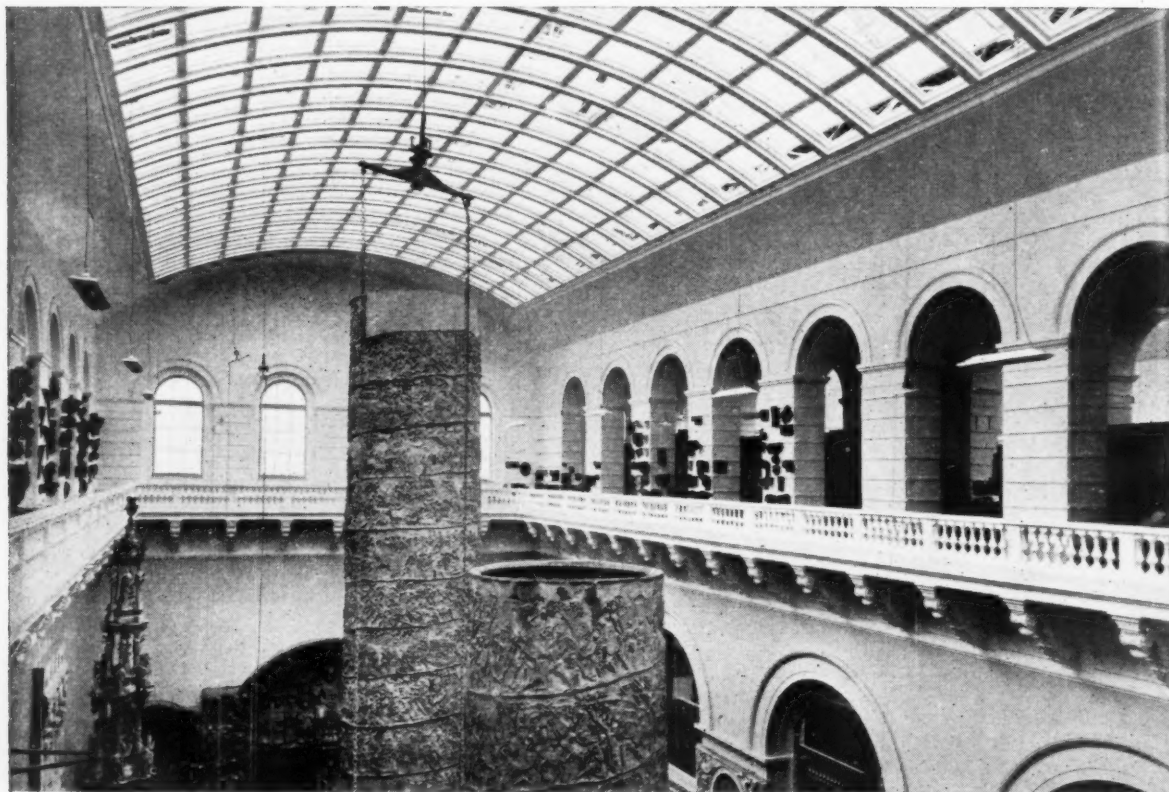
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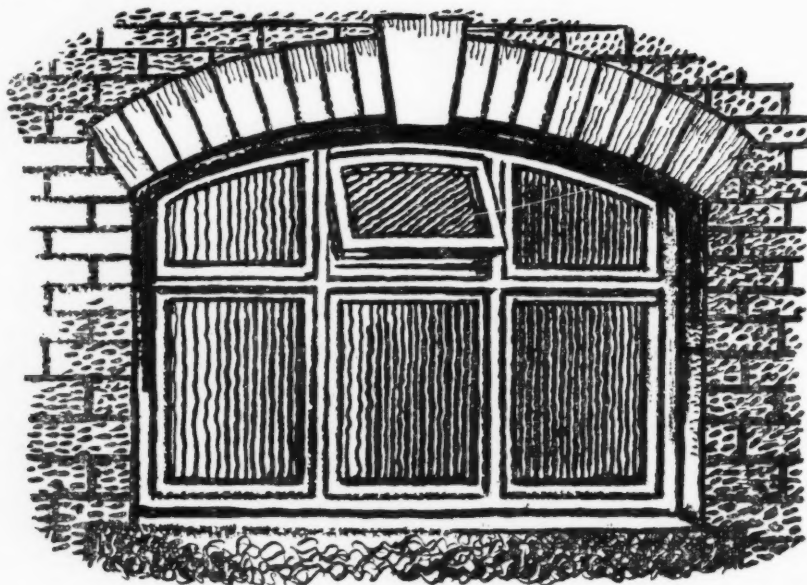
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*Architect : C. H. Aslin, C.B.E.,  
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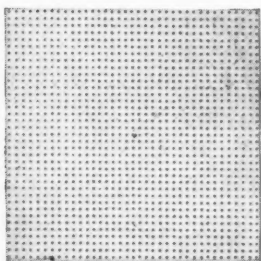
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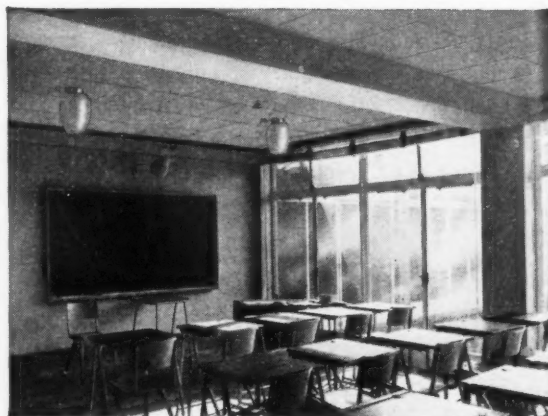
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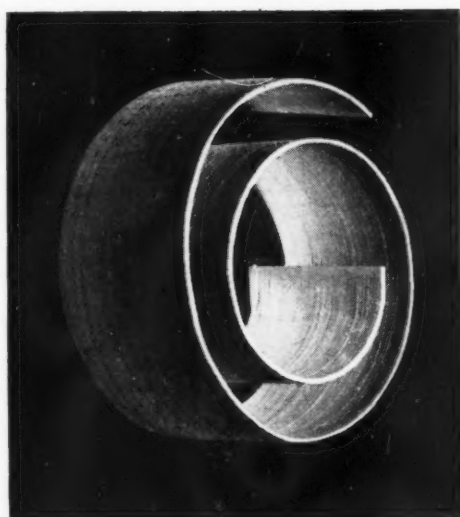
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THE ARCHITECTS' JOURNAL

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NOT QUITE ARCHITECTURE

## A CHAIR IS A CHAIR, IS A CHAIR

Hypochondriacs apart, few architects are probably obsessed with the medical aspect of a chair, yet from the many books on the subject, one gathers that *not* to take the well-being of the sacred vertebrae to heart promulgates some sort of serious mental block.

\*

Ignoring completely for the moment that the perfect position for relaxation is to lie horizontal on the floor, the enormous range of shapes and sizes in chairs baffles one, can they *all* be good for the lumbar region? According to "the books," very few are. By the dexterous use of human skeletons they illustrate the shattering effect of a bad chair, almost to the point where the more comfortable and relaxed you are the more you've got to worry about. Let it be said that the skeletons make good models, they have the requisite tortured look for the bad chair, but with the good chair success eludes them, after all it's pretty difficult to look relaxed and tortured at one and the same time.

\*

Brushing aside the medical aspect with a Hippocratic oath a new development awaits us, the porcelain enamelled pedestal chair, its designer the redoubtable Eero Saarinen. Following the success of his Womb Chair (whimsically not medically named because a woman can curl up in it) Saarinen fell to thinking that although buildings had been simplified externally and internally, there was one area where confusion still existed—*e.g.*,—below the knees. Even the most modern room was a "slum of legs," and a few weeks ago he produced his own slum clearance scheme—the pedestal chair, table, etc. The idea—let's face it, is not particularly new, but in the past the pedestal base was so weighted to avoid overturning



## *A Social Lie at Haverton New Town?*

Are high flats at Haverton New Town "a social lie"? That is what one of its residents called them, and he hurled the abusive word "Vanbrugh" at the architect who wanted to build them. Another resident followed smartly with the cry, "Kruschev!" This scene took place inside the town's pub, "The Painted Lady." And if you think "The Painted Lady" is really at Harlow you are right. Haverton is Harlow; it is also Hemel Hempstead, or, in fact, any other New Town. It is the New Town of Leonard Cottrell's play-cum-documentary, "The Invader," which was shown on BBC Television last week.

The Invaders of the title are a gaggle of ardent young architects, fresh from the Forces and burning to get back to building instead of bombing. When their pioneering spirit brings them to Haverton New Town—recognizable, quite often, as Harlow—they come up against class war, raw, rude, but beautifully balanced—as class war on the BBC always has to be. It is a matey sort of class war, for all the Haverton class warriors meet in the same pub. The Labour mayor and the farm workers who want the old town brightened up use the public bar; and the defenders of the Old Order use the saloon, where the young heroes of the Town Planning Department also spend their evenings propping up the bar. Here is the grand old retired General who had commanded Cockneys in the First World War and found them "splendid chaps"; the vicar's daughter with memories of lousy evacuees, and a prussian-blue property owner who boasts of having brought forth her shotgun and threatened to pepper some town planners "in their backsides" if they didn't get off her land in thirty seconds. Here, too, is an architect red in tooth and claw,

who wants to "shoot all these hunting, shooting, fishing people." "Come off it, Corbusiear," says someone amiably. Our heroes' reactions to reds are British and impeccable in spite of their peppered backsides. But the class war has a happy ending. While coachloads of happy Londoners with prams are moving in and getting elected for Labour to the local council, the General watches the bulldozers approaching the end of his rose garden and decides, with a sigh, to stay on and "help give the New Town a tradition." And when the lady with the shotgun sweeps up to the bar demanding "a house in your bloody new town," we know it is Peace at last. It is not a bad idea for the BBC to tackle subjects of this kind. The New Towns were born with heartburn and hostility and they have established themselves with success, and it is good to say so. But the trouble with all such documentary scripts is that the characters are really points-of-view, not people, and so are always in danger of being either ludicrously oversimplified or strictly-average bores. On the other hand, the trouble with every unscripted documentary is that the moment a man with a mike approaches a promising-looking, typical inhabitant of anywhere and starts asking questions, the typical inhabitant's face and mind go blank and he can only mutter, "Not too bad." "The Invaders" was a good deal more lively and explicit than that. One thing, however, this programme notably failed to achieve, and that was any real picture of the charm and interest to be found in our New Towns. It may be pleasant for architects to see their works playing second fiddle to themselves for once, but that Harlow should provide such a drab background to these absorbing human problems seemed a little sad.

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that the whole thing became immovable. By careful calculation of the stem and base Saarinen has avoided this—which is a good thing. The chair has a pristine, organic beauty of its own, and it's comfortable (even a skeleton would like it). But how, at times, one envies the virtual immunity of the Japanese in these matters, sitting on the floor may play hell with the thoracic, but they would certainly prefer that to being doomed to an era of plasto-domesticity.

A Japanese architect in Canton recently developed a rather odd fixation for seeing every furniture show in town. He dis-



Saarinen and his "all one thing" furniture. The lower part of each piece is cast aluminum, the upper part plastic. (Photo: Ben Martin.)

missed the house pieces lightly, but waxed lyrical over the garden furniture—light, ingenious in design, collapsible and good to look at.

If one can avoid being baffled, the merit of a wide range is, of course, that one can pick and choose, furniture theory has never been so intense as it is today—practically everybody, in fact, has a theory—here is Saarinen's "All the great furniture of the past, from Tutankhamen's chair to Thomas Chippendale's has always been a structural total. I wanted to make the chair all one thing again."

EDWARD PASSMORE

## DIARY

*An Exhibit.* At the ICA, 17-18, Dover Street, W.1. "A game, an artwork, an environment; pre-planned, individuated and verbalized by Richard Hamilton, Victor Pasmore and Lawrence Alloway; to be played, viewed and populated." Monday to Friday, 10 a.m. to 6 p.m., Saturday 10 a.m. to 1 p.m.

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SEPTEMBER 20-24

## The Editors

### SURVEY OF RESEARCH

THE annual report of the Department of Scientific and Industrial Research (HMSO, 9s. 6d.) provides an opportunity, necessarily superficial, to assess the breadth of the research work currently being carried out by over forty different associations and organizations, in addition to the fifteen research establishments of the Department itself.

Many of the subjects studied are of secondary interest to architects, but are worth briefly recording. Architect-planners will be impressed by the results of a survey of restricted-access urban motorways in the USA, which showed that the number of fatal accidents is as low as two per hundred million miles travelled. The equivalent figures for main roads leading out of London range from ten to forty fatalities per hundred million miles.

The Road Research Laboratory has been making studies, in co-operation with the Ministry of Housing and Local Government, of the relation between the rate of rain-fall and the rate of run-off for a number of drainage areas with a view to making economies in the cost of constructing sewers for surface-water drainage. For urban areas it has been found that the high rates of run-off occur mainly during short intense summer rainstorms, such as we have been enduring recently, and that on these occasions unpaved areas contribute a negligible proportion of the run-off. As a result of studies, smaller pipes than have been customary have been found satisfactory, and in a sewer system constructed in a new town a saving of £50,000 has been made on an estimated total cost of £300,000. Much of the work of the Building Research Station referred to in the report will be familiar to architects: the fact that the use of spray taps, supplying blended hot and cold water can result in a welcome saving of 50 per cent. in both water and fuel; that the protective actions to be taken in the design of buildings against outside noise can now be accurately estimated; and that a study of the cost of a number of multi-storey flats showed that prices could be reduced by as much as £450 per flat by combining the economic features of the different designs. In the design of structures, however, architects may not yet be universally aware that, as a result of tests, it has been possible to recommend a relaxation of the restriction in the design of slender reinforced concrete beams as contained in the last Code of Practice; and tests on concrete walls have shown that, for a particular height and thickness, the ultimate load that can be supported per foot length of wall *increases* with the length of the wall.

Finally, in view of the lack of authoritative data on the most suitable and economic forms of factory design and construction, the BRS is supporting a "detailed examination of the various factors, organizational, structural, environmental and economic, which confront the factory designer." This is a most welcome extension of the Station's activities into the architectural design field which all our profession will commend.





## POLLUTIONERS

For some weeks now *The Times* has been doing admirable work by drawing attention to, and building up public prejudice against, the disgraceful pollution of our rivers, and the sea, by the discharge of untreated sewage. No one has so far been able to trace any direct connection between the current polio epidemic and the discharge of untreated sewage into rivers or the sea, apparently, though it must strike the layman as odd that Coventry, Gosport, Maidstone and Lincoln are all suffering from polio epidemics and all have polluted rivers flowing through them. But quite apart from the risk of disease, surely a country which professes to civilized standards should not still be allowing rivers to stink with sewage and factory effluent? Quite apart from the unpleasantness, ASTRAGAL believes firmly that the policy is short-sighted, as most effluents, properly treated, have value as fertilizers and so forth.

\*

Readers will be surprised that that blue-eyed child of the architectural world, Coventry, is a sewage offender. The city has now agreed to spend £400,000 a year for five years extending its sewage works. This will, no doubt, give some work to the Coventry engineering department, which in recent years seems to have spent much

of its energy interfering with the work of the architects, to nobody's advantage save their own feeling of self-importance. A few years putting their sewage works straight will be salutary for them.

## DON'T KNOCK THE BAROQUE

A large pat on the back for London Transport, whose new poster campaign urges Londoners to seek out the works of Sir Christopher Wren, and backs it with a booklet giving the location of even the out-of-town ones and dubious attributions. Admittedly, the intention behind all this is not quite a disinterested love of fine architecture, but at sixpence a whack the little booklet is good value to anyone interested in finding Wren, particularly if they are only passing through town and have only a limited amount of time to do it in.

\*

One can't help wishing, though, since this is a booklet that many will take away as a memento of London's finest architect, that whoever prepared the text couldn't have put himself *au courant* with up-to-date Wren scholarship and at least added cautionary notes to some of the wilder attributions. The Monument is now known to be the work of Hooke; no known document links Wren with Temple Bar; Morden College has no documentary links either, and—as various people have pointed out—runs counter to Wren's recorded opinions on what parts of a building should stand forward, which set back. And surely any layman sufficiently interested in architecture to need a guide to Wren would know that he is being taken for a ride when St. Paul's is described as "Gothic structure and Classical Renaissance presentation . . . clothed in the décor of pure Baroque." Flying buttresses don't make a structure Gothic, but I should have thought saucer-domes did make it positively un-Gothic. Why not take the straight line right through and say this is the most thoroughly baroque building in London? In these post-Pevsner days being baroque is not a subject for shame.

## HARDSHIP HALL

Devonshire's Hardwick Hall and eight major works of Art are to come to the Nation as settlement of death duties on

the Devonshire estate. This is welcome news indeed, and while we may regret the breaking-up of such an estate, there can be little doubt that Hardwick will be as well looked after by the National Trust as it has been, and will lose little of that atmosphere of being-lived-in—which is the one real regret one has about such houses—since it has hardly been lived in for many years. However, the moving of the Chatsworth treasures, which include a fifth-century head of Apollo, the Memline Donne Triptych, a Holbein cartoon, Rembrandt's Philosopher and Claude's *Liber Veritatis*, raises a question of principle. Treasures of such quality truly belong to the public domain, a fact accepted in England and in other countries by the ordinances which prevent them being sold at will. And perhaps in this case it was impossible to leave them at Chatsworth since that remains the private property of the Duke. Yet ASTRAGAL wonders if it is proper that they should all be brought to London museums and not left in the north.

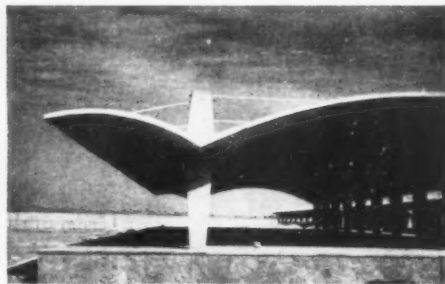
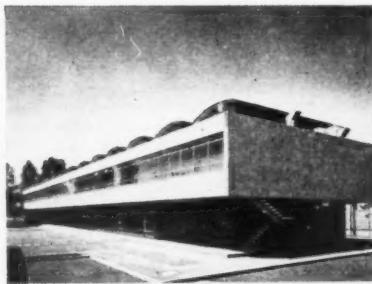
\*

No other major country has such disparity in its museums. While the National ones in London are equal to the best in the world the provincial ones are, for the most part, of low grade by international standards. There is little enough attraction as it is to go to the provinces, and the gradual concentration of all the National treasures in the capital reduces their attraction year by year. That sturdy north country paper, the *Manchester Guardian*, has already taken up the cudgel in defence of retaining the Chatsworth treasures in the north and ASTRAGAL, though by habit a Londoner, is fully sympathetic with this view. No doubt the Art Historian boys will say it makes the treasures more accessible to scholars (but why should they be?). Here would seem to be a chance to enhance museums elsewhere, and why for that matter couldn't they be installed at Hardwick at a fraction of the cost at which the Nation has valued them.

\*

It is not as if the National museums are really accessible. They close early and are under-staffed. How different things are, for example, in Paris or Rome where the Louvre and the Borghese are open on certain nights,





Some of Felix Candela's work, which is discussed in the current issue of *Concrete Quarterly* (see note below). Above (left): folded plate umbrella roofs form a covered way to the CIBA laboratories (centre); on the right the new customs shed in Mexico City. Left: the Chapel of Our Lady of Solitude in Coyoacan, a suburb of Mexico City.

beautifully lit for those who feel inclined to spend a pleasant, leisured evening. If we have to press-gang all the National treasures into these central depositories, at least let us have the grace to show them properly.

#### FOLDED SLABS AND WARPED PLANES

*Concrete Quarterly*\*, in its current issue (No. 33) is devoted mostly to recent work in Mexico and once the big and unavoidable things like the University City have been got out of the way, it settles down to an extended treatment of (how did you guess?) Felix Candela. ASTRAGAL, who has followed the career of this master of the folded slab and warped plane with interest ever since the *Architectural Review*'s pioneer article on him in 1953, finds this a useful survey of the various types of buildings that Candela specializes in, though it is not what we shall shortly need, an historical study of the development of his methods and ideas. Perhaps the Cement and Concrete Association would like to sponsor such a study fairly soon, before the market is blocked by one of those square, arty and excessively expensive publications from Switzerland or Argentina.

\*Published by the CCA, 52, Grosvenor Gardens, S.W.1.

Nevertheless, some of the inevitable stories of Candela's iconoclastic attitude to the Stone Age rituals of engineering have got into the *Quarterly*. One, new to ASTRAGAL, is that the fantastic church of the Virgen Milagrosa was "designed in an afternoon, drawn up in a week, and calculated in the process of construction." A Candela story that hasn't got in, is that his much-admired cosmic-ray pavilion for Mexico University, with its vault no thicker than this copy of the JOURNAL, is unusable—not for the usual transatlantic reasons that it has cracked or someone has refused to consecrate it (or whatever the academic equivalent is) but simply that after five years it is still waiting for the equipment to go in it.

#### BARREL VAULTING

The following letter was written by a bricklayer in Barbados to the firm he worked for. It is reprinted from the *Master Builders' Journal*, where it was reprinted from the *Bulletin* of the Federation of Civil Engineering Contractors.

Respected Sir,

When I got to the building, I found that the hurricane had knocked some bricks off the top. So I rigged up a beam with a pulley

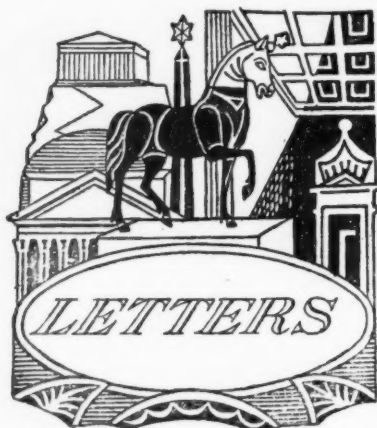
at the top of the building and hoisted up a couple of barrels full of bricks. When I had fixed the building, there was a lot of bricks left over. I hoisted the barrel back up again and secured the line at the bottom, and then went up and filled the barrel with extra bricks. Then I went to the bottom and cast off the line. Unfortunately, the barrel of bricks was heavier than I was, and before I knew what was happening the barrel started down, jerking me off the ground. I decided to hang on and half-way up I met the barrel coming down and received a severe blow on the shoulder. I then continued to the top, banging my head against the beam and getting my fingers jammed in the pulley. When the barrel hit the ground it burst its bottom, allowing all the bricks to spill out. I was now heavier than the barrel and so started down again at high speed. Half-way down, I met the barrel coming up and received severe injuries to my shins. When I hit the ground I landed on the bricks, getting several painful cuts from the sharp edges.

At this point I must have lost my presence of mind, because I let go the line. The barrel then came down giving me another heavy blow on the head and putting me in hospital. I respectfully request sick leave.

\*

It was, perhaps, rather callous of the *Master Builders' Journal* to give the letter the title of "Yo-Yo."

ASTRAGAL



Percy Johnson-Marshall  
A.R.I.B.A.

T. R. Knight,  
Edwards High Vacuum Ltd.

J. H. Foster

## Planning Control

SIR.—In reporting the ICA meeting on Planning Control in your issue of August 1, your contributor referred to my arguments having been "weakened by their flippant presentation," and summarized them almost out of existence. I am sorry if what was intended to lighten the weighty pronouncements of no less than six speakers and a chairman in one evening should have given the effect of flippancy, as I am only too well aware that the problem is both serious and complicated.

May I state briefly, therefore, some of the arguments I attempted to put forward. I began by making two deliberate misquotations. The first was to the effect that many a mickle can still make a mickle; by this I meant that individual buildings can either contribute to the creation of a greater work of art in the form of a city or a town as a whole, or they can add up to no more than an agglomeration of existing buildings. The second was that no building is an island, and by this I meant that any building designed in an urban environment inevitably creates some kind of relationship with the other buildings. These two facts alone are primary reasons for the conscious act of design in town planning, and hence for urban design "co-ordination" (which is a better and more appropriate word than "control").

I then stated that there were two vital design problems concerned, closely and delicately inter-related, and constantly influencing each other. One was the design of individual buildings, which was primarily a problem of internal and external space, and the other was the design of the city or town, which was concerned both with external space and with time. Cities and towns are as capable of bad design as are the buildings of which they are made, only the problem is more complicated and less well understood.

Successful town planning involves not only an intelligent and sympathetic understanding between architects and planners, but also includes the public. It should be remembered that architects are not normally creating buildings for themselves, but for the public to live and work in, to look at, and to enjoy. The public expresses its interest in planning through Planning Committees; if they are muddled and wrong-headed, and if this is expressed in Committee decisions, it is too often a reflection

of muddled thinking in the architectural profession. For the experts, however, perhaps the most important procedural reform required is, as Bill Howell said at the meeting, and as already being practised by intelligent planners, for careful briefing and discussion with architects at the pre-design stage.

Town planning is, in fact, a vital creative job which requires many more first-rate architects working on it both as planners and as architects working as collaborators with them.

PERCY JOHNSON-MARSHALL.

London.

## Vacuum Pumps

SIR.—We wish to draw attention to certain statements concerning vacuum pumps made in the article entitled "User requirements for laboratories. 2—The specialized services," published in your issue of June 6. These are: (1) The fine vacuum system which you mention (page 861) as giving pressures of between 1.5 millimetres is typical of the type of vacuum pipeline unit which we supply, but although they are used for a variety of laboratory applications, they would not, except in very special cases, be used to back oil and mercury vapour pumps. The critical backing pressures of the latter type of pump are normally in the region of 0.5 mm. or under and only in the case of special models could such a vacuum as given by a pipeline unit be successfully used. The user would, in most cases, employ a separate bench pump mounted directly with his diffusion pump.

(2) The price of £1,000 seems excessively high for a moderate installation. Obviously much depends on the work which has to be done prior to installing the pumping unit, i.e., where walls have to be drilled, the length of pipeline, etc. We have made a number of installations in recent years and the cost of some of these has been as low as £250.

(3) As specialists in vacuum equipment we have devoted a considerable amount of time to the development of suitable fittings and with the correct type of vacuum unions and vacuum valves, maintenance troubles such as air leaks, etc., are reduced to a very minimum.

(4) We also manufacture a number of electrical devices for the protection of the vacuum systems, such as the instances to which you refer in your editorial. These are designed for complete protection of the pump which is obviously the most expensive part of the system and comprise magnetic valves, vacuum switches which operate if the power is shut off accidentally.

(5) Finally, on the question of corrosion in vacuum pumps, a great deal of progress has been made in this direction by the use of condensers and other trapping arrangements which ensure that these harmful vapours are never sucked into the pump. The latest high vacuum pumps employ a device known as air ballasting and this again is a big step forward.

T. R. KNIGHT.

Crawley.

## Pardon Us, While We Rearticulate

SIR.—In your leader of August 1 mention is made of a "need" in connection with a complex problem. Would you very kindly consider articulating the problem and the "need" again? I believe that a response to the "need" might then be evoked, in the form of a service meriting due reward, compatible with your aims and of immediate practical help to architects.

The statements in your leader significant to me, and no doubt to many others, are: 1. "the common technical-cultural language we so badly need." 2. "the managerial... competence of Architects." 3. "the Architect as leader of the building team." 4. "the establishment."

As I understand your meaning, in principle, (1) is the greatest problem, and includes (2) and (3), thus the architect's greatest problem is one of communication.

Am I then correct in principle, in articulating the problem in relation to that aspect of the "cultural" of which you are, as architects, the acknowledged leaders, namely "form"? My point being that I must start, in principle, from what you undoubtedly know.

If you agree, then the problem is:

"Form"  
"Scientific Method"  
"Managerial Principles"  
"The Establishment" } The relationship = the "need"

Also your "doctrine" includes, as I understand it, that "form" or "design" is related to survival.

Would you very kindly consider whether I have understood your meaning as you wish it to be understood? If not, could you conveniently articulate the problem again in the light of my attempt to understand you?

Surrey.

J. H. FOSTER.

Mr. Foster's letter is something of a challenge. Perhaps the best way to meet it is paragraph by paragraph:

Para. 1. The "need" is for a better co-ordination between all those who contribute to the putting up of buildings. The problem is how to effect this co-ordination. In our view, the "response to the need" (in other words, the solution to the problem) could not be of "immediate practical help to architects" for it would involve a considerable change in the way we (builders, engineers and specialists, as well as architects) think of our work, a change that would (will?) take more than one generation to accomplish.

Para. 2. Yes. We agree that (1) does include (2) and (3) and that the architect's greatest problem is one of communication—but communication implies movement in both directions (at least).

Para. 3. This is where we reach for our copy of Wittgenstein. Mr. Foster articulates the problem in so condensed and economical—not to say diagrammatic—a way, that his view could easily be misconstrued. However, before re-articulating his equation in our own (journalists') terms to get it straight, we must point out that two of his terms don't belong. "The establishment" in our leader of August 1 simply meant the College of Advanced Technology and was a quotation from the report. "Managerial principles" can also be eliminated for these are contained in the parent term—"scientific method" (are you with us so far?).

Now to re-articulate: "Form" is the tangible product of our efforts to exploit natural resources to provide for our (society's) material and spiritual needs. We use scientific knowledge in both formulating the needs and conducting the exploitation, but not in the best way. For, since the dissociation of sensibility of the mid 17th century (vide: T. S. Eliot, J. H. Newman, Descartes and others) scientific knowledge has been regarded as a kind of servant to form, ignored by society's "formal experts." (We even catch ourselves out by referring to material and spiritual needs as if they were quite separate things!)

Hence, much of our architecture appears as direct visual evidence of a dissociation, not only of sensibility, but of the "separate sectional interests"—to use a phrase from the report in a wider sense—which compose society. The need then (to return to our first point) is simply to mend this dissociation; and the problem is how to mend it. The College of Advanced Technology offers a solution, but only if the various schools in it merge their otherwise separate identities—at all levels.—THE EDITORS.



## ATOMIC POWER

### *Strange Anomaly*

The extraordinary anomaly that the Electricity Boards are not bound by law to observe the same safety precautions in their atomic power stations that regulate the Atomic Energy Authority has been brought to light by Sheriff H. Leslie, Q.C., who conducted the public inquiry into the proposed atomic power station at Hunterston, Ayrshire. He also drew attention to the failure of the South of Scotland Electricity Board to consult either its own Amenity Committee, or the Royal Fine Art Commission for Scotland, or to consider the siting of the power station from a strictly planning point of view. The Secretary of State of Scotland has approved the scheme, subject to undertakings by the Board in respect of safety and amenity.

Sheriff Leslie, in his report, said that if the station had been built by the Atomic Energy Authority an absolute obligation would have rested on it to take every possible safety precaution against harmful discharge of any kind.

"Upon this vital aspect," he says, "the board's empowering statutes are silent. Their incursion into the sphere of nuclear energy is in advance of their enactments. This must be fully appreciated; yet the board are the builders, operators, and occupiers of the site, and most important, the users of this process of nuclear fission with all its potentialities. But, as yet, they are free of the peremptory safeguards in the public interest imposed upon the A.E.A. It would seem to be obviously essential that this dangerous vacuum be filled by statute."

Judged by the relevant evidence of the one witness upon the topic it might be reiterated that "No danger was to be apprehended," but, adds Sheriff Leslie: "It is very strongly recommended that not only should the board's first undertaking as to 'nuclear safety' in their Memorandum of Undertakings be regarded as essential and a condition precedent of consent, but it should be expressly accepted by the board as equally essential that the undertaking be carefully checked in practice by independent access to the whole station and independent meticulous measurements at all vital points."

There had been criticism that although the board had an Amenity Committee, and could obtain the services of the Royal Fine Art Commission for Scotland, they were not, in fact, consulted before Hunterston was finally decided as the most appropriate site for the project. In future projects, the choice of a site must include a

planning approach as against the purely constructional or strictly architectural aspects. The mass and proportion of the buildings were greater than anything we had experienced in the United Kingdom, and although the experts were anxious that they should not destroy the beauty of the landscape, the result of the evidence was that if the whole complex could be moved a little the siting at Hunterston could probably be acceptable.

It seemed to be an inescapable inference that if the board's expert advisers on this aspect had had the opportunity to consider the matter fully beforehand they would have urged that this move be most seriously considered and, if practicable, be effected. They had thought the mass would not "cut the skyline," but by an inspection of the sites and by viewing them from various directions it had been found that the buildings would obtrude into the skyline and would partly obliterate the magnificent view across the Firth of Clyde to Arran. Sheriff Leslie recommends that there should be discussions with the Amenity Committee of the Board and with the Royal Fine Art Commission for Scotland on the precise siting of the station.

The station will not have cooling towers, railway sidings, smoke stacks, water towers or coal dumps. Many parts of the building will be made of translucent glass, which, says the report, is contemplated to give the mass "a lightness and a quality which make it appear as though the building floats away."

## ABS POLICY

### *Disability Insurance*

Attractive terms are offered to architects taking out a Continuous Disability Insurance policy with the A.B.S. Insurance Society. This policy secures the policyholder against prolonged ill health or disability until the agreed expiry date, which is usually 65. The income secured by the policy is payable so long as disablement continues up to the expiry date, and there are cases, including poliomyelitis, tuberculosis and mental disorder, in which incomes have been paid for more than 20 years without a break. In this respect the Continuous Disability Policy offers protection that the normal disability policy, with its limit of 104 weeks' benefit, cannot give. Enquiries should be made to the ABS Insurance Agency, 78, Wimpole Street, London, W.1.

## EXHIBITION . . .

### *. . . By Landscape Architects*

An exceptionally interesting exhibition by the International Federation of Landscape Architects opens in Birmingham on August 31. It will come to London's Festival Hall during the first fortnight of October, and will probably be seen thereafter in Scotland. It has already been shown in Lisbon and Cologne. It constitutes by far the most remarkable exhibition of landscape the world has yet produced. Not only is the standard of each country particularly high and each panel beautifully arranged, with a full description of the work involved, but in extent alone the panels would (if joined together) be about a quarter of a mile in length. Information can be obtained from the offices of the Civic Trust, 79, Buckingham Palace Road, London, S.W.1. (Tel.: TATE Gallery

0891.) A travelling exhibition on "The Career of Landscape Architecture" is to be shown at the Building Centre, Store Street, London, W.C.1, from October 3 to 17. The purpose of the exhibition, which illustrates the subject and shows the work of students, is to interest more people in a profession in which there is a shortage of trained people. The exhibition may be booked from the Secretary, ILA, 2, Guilford Place, London, W.C.1.

## WC

### *Wanted, from BC Onwards*

Interesting, historic or entertaining items are wanted, on loan or hire, by the organizers of "Clean and Decent." This will be an exhibition feature at the Building Exhibition, Olympia, from November 13 to 27, on "the history of the British Bathroom and WC, together with sundry illustrations of the habits, fashions and accessories of the toilet." Items wanted include bathrooms, complete and ready for demolition, baths and their accessories, steam baths, folding baths, showers, bathroom accessories, gas geysers, lavatories, washbasins, dressing stands with basins, washstands complete with accessories, bedroom chinaware of merit, water closets, night commodes, decorative chamber pots, old prints of relevance, old catalogues, designs or advertisements. No material should be sent without prior arrangement, but those who are able to help are asked to write, if possible before August 31, 1957, to The Building Exhibition, 32, Millbank, London, S.W.1. This feature is being organized by Lawrence Wright.

## SALTIRE SOCIETY

### *Housing Award*

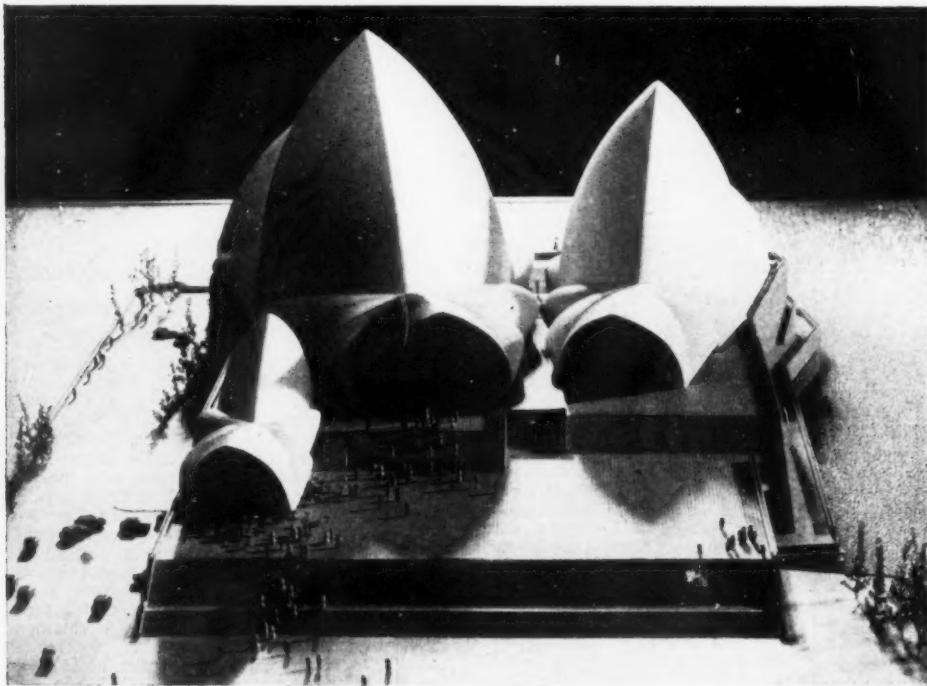
This year the Saltire Society, Edinburgh, has made its award only for houses, as none of the eligible schemes of flats was considered to come up to the necessary standard. The award for houses is given to the Bowery scheme built by the Burgh of Leslie, Fife. "This scheme," says the Society, "has many merits, not least the lead it gives towards reviving the virtually waste land at the back of the long, narrow plots which make up the centres of many old Scottish burghs. It is to the credit of the town council that they appointed an architect with town planning knowledge, H. Anthony Wheeler, of Messrs. Wheeler and Sproson, Kirkcaldy, to prepare a development plan for the burgh, and also commissioned him to design the houses."

"A consequential merit of the scheme which may have significance for the future is its closely built-up urban character and high net density of 21.5 houses per acre. The quiet street, enclosed at one end and almost enclosed at the other, is cosy, sheltered and neighbourly. The materials are harmonious—pantiles, harling with some colour variety, wrought iron and stone in parts of the houses and the enclosing screen walls. The ground treatment has also been given affectionate care, with cobbled patterns, paving set flush with the grass, low kerbs, no fences, and a single line of small and unobtrusive lamp posts."

The panel was also impressed by two other schemes, and felt that they merited honourable mention. They are the schemes, including houses for old people, built at Kirkcaldy by the County Council at Wigtown to the design of the County Architect, R. M. Clive; and at Ladywell, Corstorphine, Edinburgh, by Edinburgh Corporation to the design of Messrs. Williamson and Hubbard of Kirkcaldy.

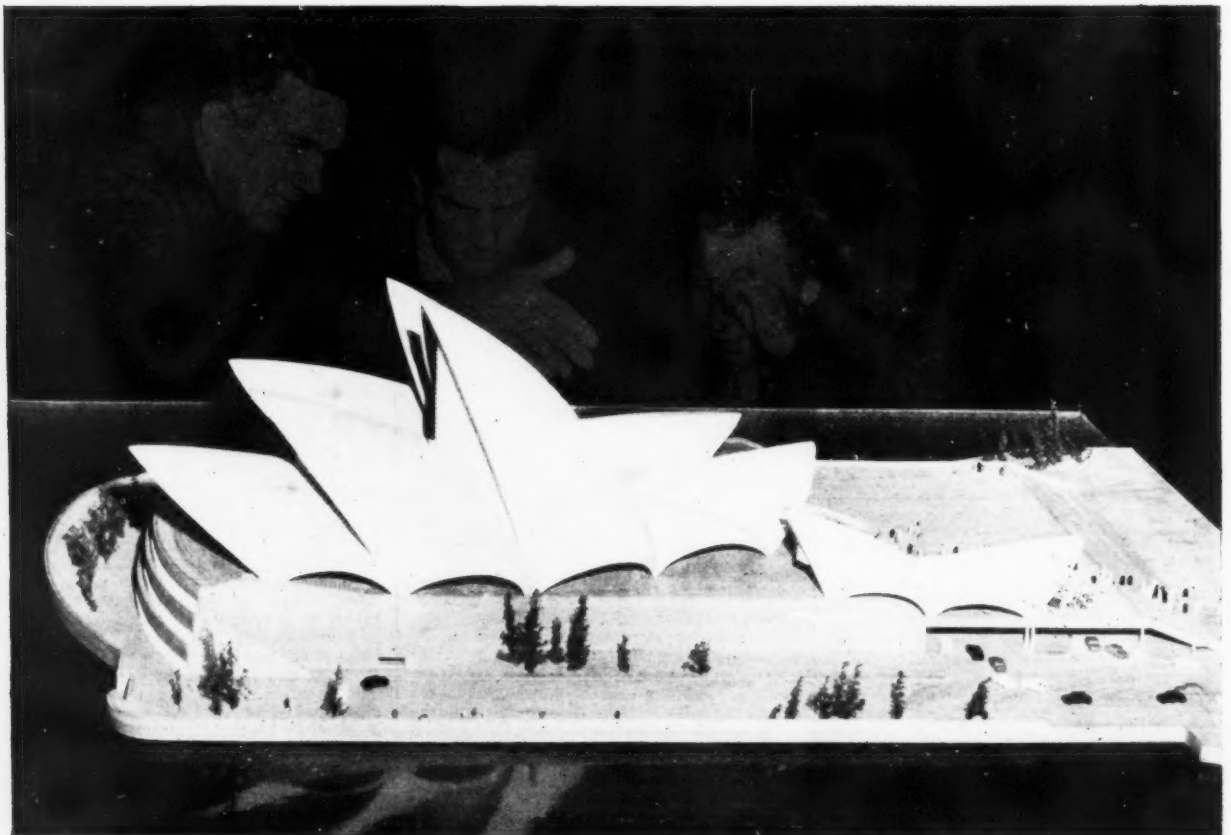


# A MODEL OF THE SYDNEY OPERA HOUSE



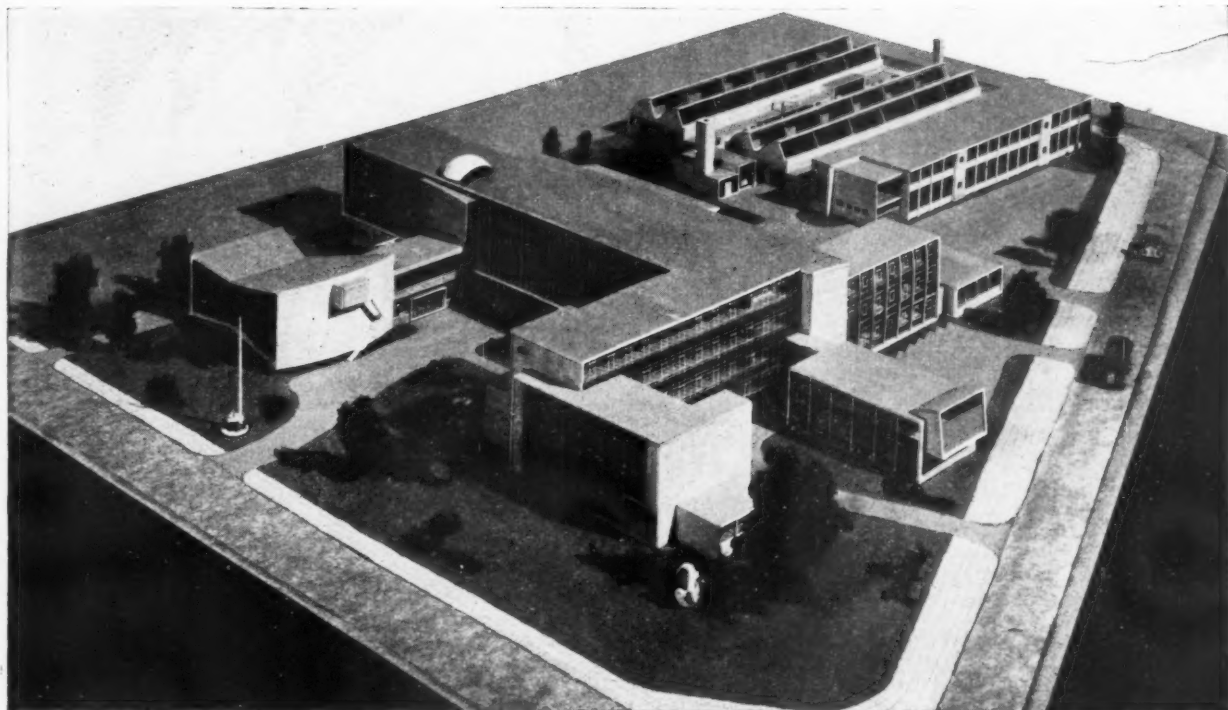
*In February this year Jørn Utzon, the Danish architect, won the Sydney Opera House competition. A model of the building now on view in Sydney, is shown here. The top picture shows people approaching the main entrance, on the south side (and*

*land side) of the hall. Below is the west elevation (Background, left to right: Utzon, colleague Erik Anderson and Robert Quenton, General Manager of the Elizabethan Trust Opera Co.). Above right, sketch from one of Utzon's correspondence cards.*





## BUILDINGS IN THE NEWS



### Widnes College of Further Education

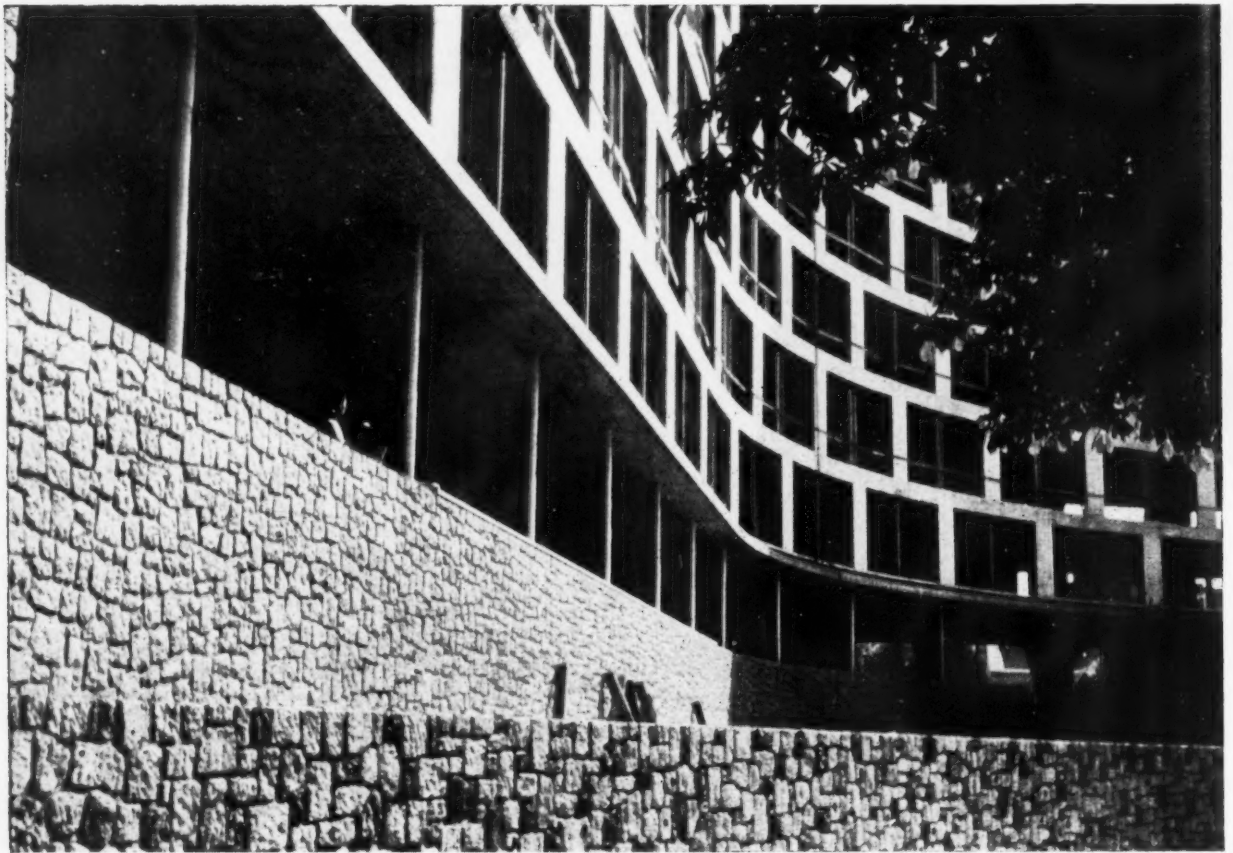
The Ministry of Education has approved Phase 2 of the Widnes College of Further Education, designed by H. Neville Player, borough architect, with D. W. Miles, assistant architect. Phase 1 consisting of a laboratory and workshop block, seen at the rear in the model above, was completed in January, 1955. Work on the second phase, comprising the bulk of the remainder, is due to begin this year. The estimated cost is £345,000.

### Officers' Club, Ruislip

Heal's Contracts Ltd. have recently reconstructed and refurnished a building at Ruislip, Middlesex, for the USAF Officers' Club. Below is a general view of the lounge area and main thoroughfare leading past the bar area to the raised dining room in the rear. The carpet is two-tone green texture in square design: occasional chairs in red, kingfisher blue and black fabric. The designers are Edwin Meayers and Clive Hunt of Heal's Design Unit.



# UNESCO BUILDING IN PARIS : NOW READY FOR RUBBER-

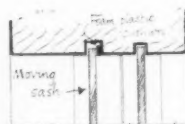
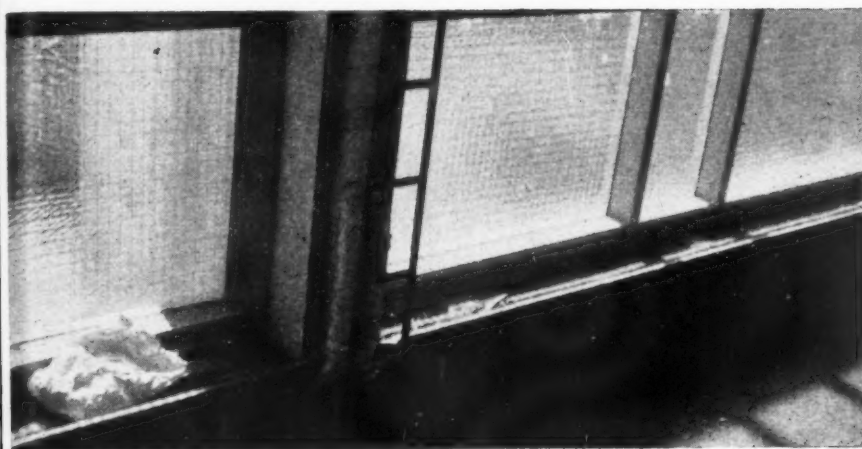


The new Paris headquarters of UNESCO, for which Breuer, Zehruss and Nervi are the architects, is due for completion in 1958. It is already sufficiently advanced to be worth a visit, and rubbernecking architects are not rebuffed. (Nearest Metro—Segur, or Champ-de-Mars; or No. 49 bus.) The building consists of two main architectural elements—a Y-shaped office block eight storeys high for the permanent officials, and a single-storey assembly unit containing conference halls and committee rooms for visiting delegations. The view above shows the two arms of the Y which sweep round the curve of the Place Fontenoy on the north side of the office block. Apart from the painted timber window frames there are four main facing materials used externally: two kinds of random stone—brown sandstone for boundary walls and grey Brittany granite for the plinth, travertine on the façades and raw concrete for the structural members. Left is a detail of the fenestration used on the other two sides of the Y block, those facing south-east and south-west respectively. Here brise-soleils are used to elaborate what might otherwise be rather lifeless elevations. They

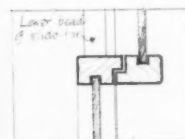
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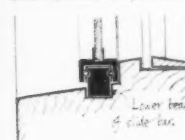
## NECKING ARCHITECTS



Head



Plan at meeting rails



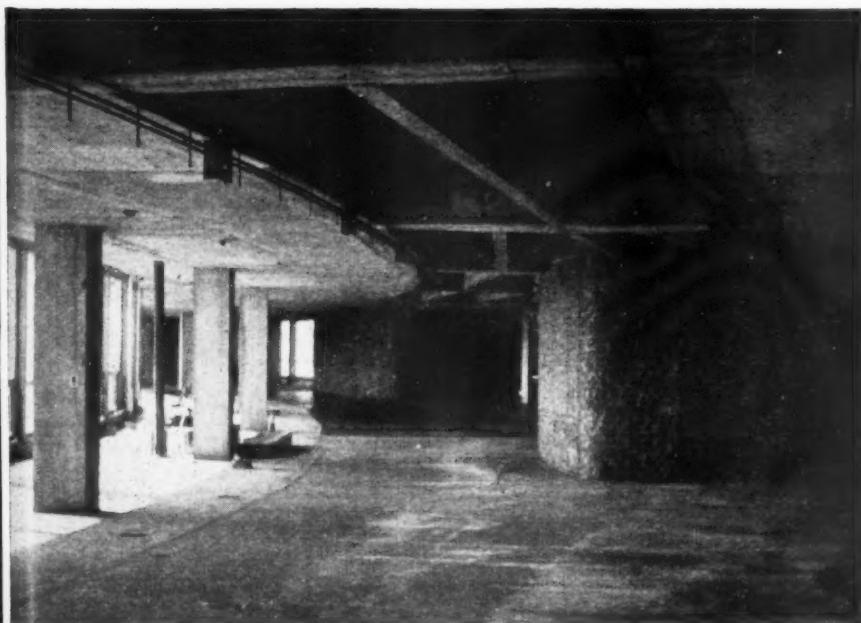
Sill

Sketch of window panel (not to scale)

will serve to reduce glare as much as to break the sun; but a minimum office 10 feet wide gets a brise-soleil at only one side of its window and has a comparatively thin mullion at the other. The vertical members are reinforced concrete sandwiched between two slices of travertine. They rest on concrete brackets cantilevered out from the structural floor which also supports the slatted horizontal units. Considering how far one can get with a venetian blind this arrangement—functionally-speaking—seems rather a sledge-hammer to crack a nut. Behind and between the vertical sun-breaks are thin concrete mullions (seen above left) bounding room-height window panels. The mullion is cased with a timber lining which incorporates a metal ladder. The whole forms a vertical duct for heating pipes and electrical services. The heating pipes branch off to feed finned-aluminium radiators which run under the window for the

full length of the bay. The window panel (above right) fills the whole space between both floors and mullions. Above the transome (which is about 3 ft. 6 in. above floor level) are two lights, one fixed and the other sliding past it. The design of this sliding panel is particularly interesting, as it recognises that a window sash derives more strength from the glass than from the frame; and in this case there is no sash frame in the normal sense. A large sheet of plate glass 80 in. high and 50 in. wide is treated almost like a sliding bookcase front. Its bottom edge is provided with a neat differential roller (a standard French product), the vertical edges with the lightest of hardwood meeting stiles, and the top edge simply sits into a cushioned groove in the panel head. The columns are set well back from the face of the building where they will not interfere with the façade and where, if they occur in the larger offices, people

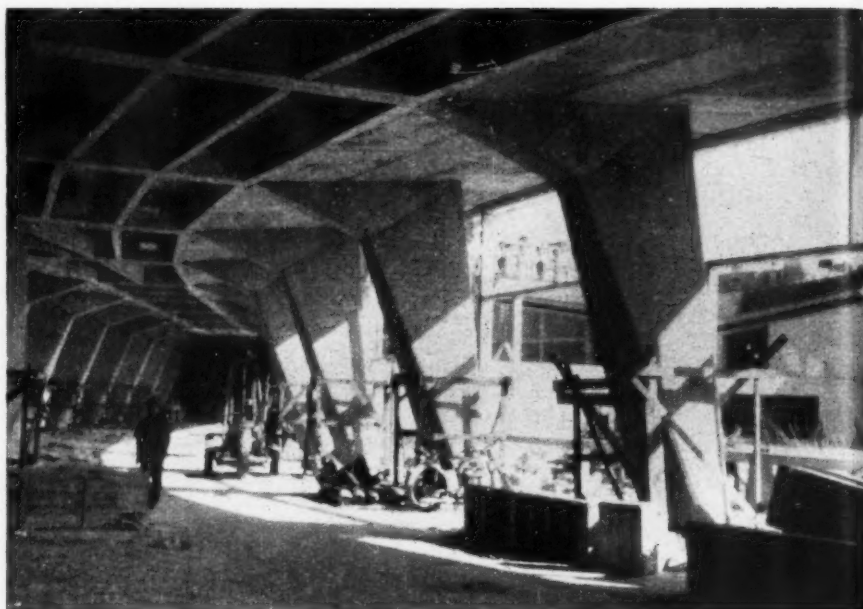
can easily move round them. This view, left, shows one of the upper floors looking towards the vertical circulation core. The columns are taken down to massive pilotis (overleaf, top right). The structural floors are a network of concrete beams connected by a very thin floor membrane and will be finished below with a suspended ceiling of rock wool slab. The pilotis are finished in concrete "brut." The overtones of roughness so often read into this expression are, however, inapplicable here, as the formwork was most carefully made by ships' carpenters from narrow



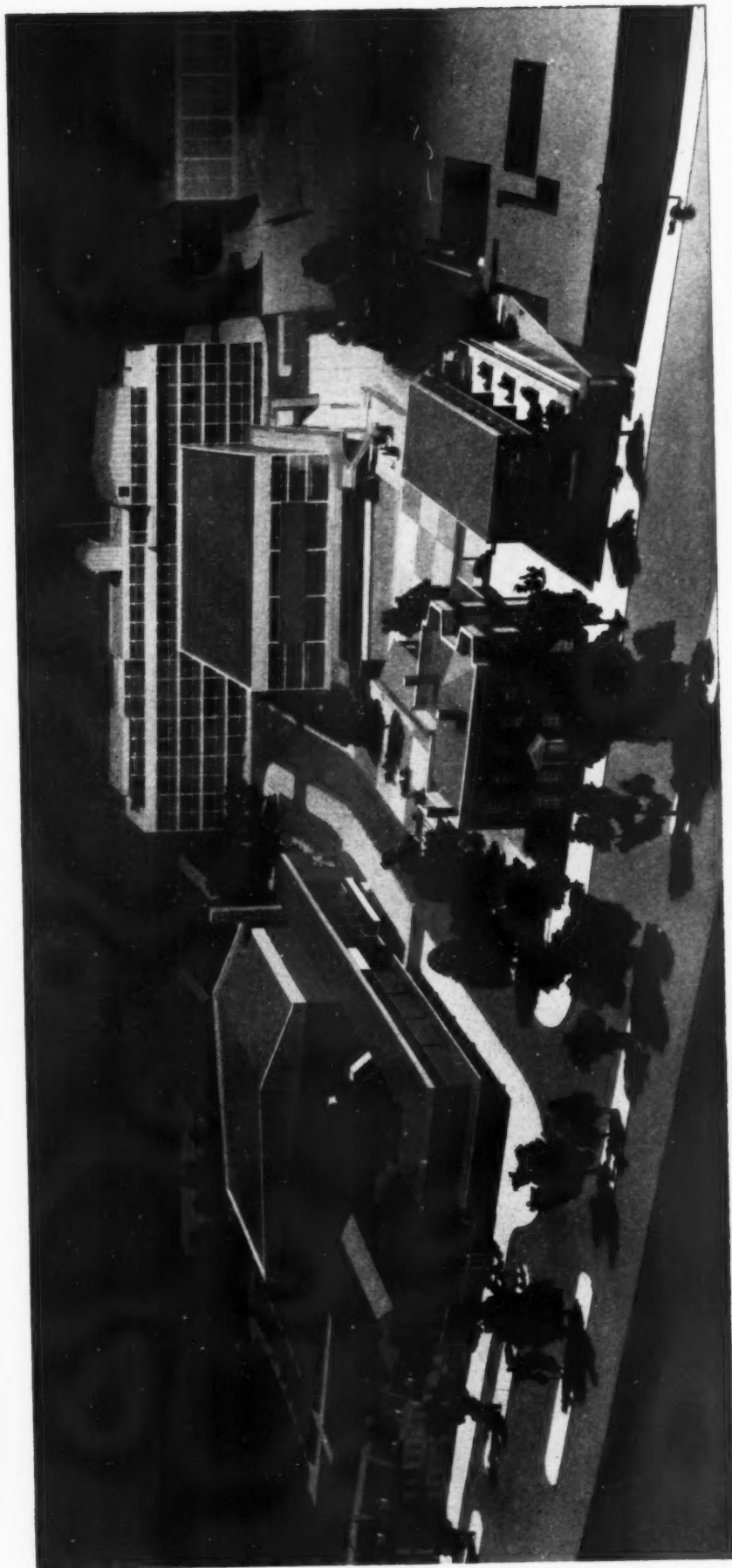


# UNESCO BUILDING IN PARIS : continued

wood strip (this seems to be a feature of quite a lot of current French construction) and has left a finish whose most pronounced quality is—of all things—delicacy. Below, looking down on to the assembly unit—a vast envelope of concrete spanning 120 ft. from “valley” to “eaves.” The concrete pleats are left raw internally as well as externally but again the finish and scale are superb. The side walls are faced in travertine over panels of hollow clay pots framed in reinforced concrete. The greater part of the assembly unit has no natural light.





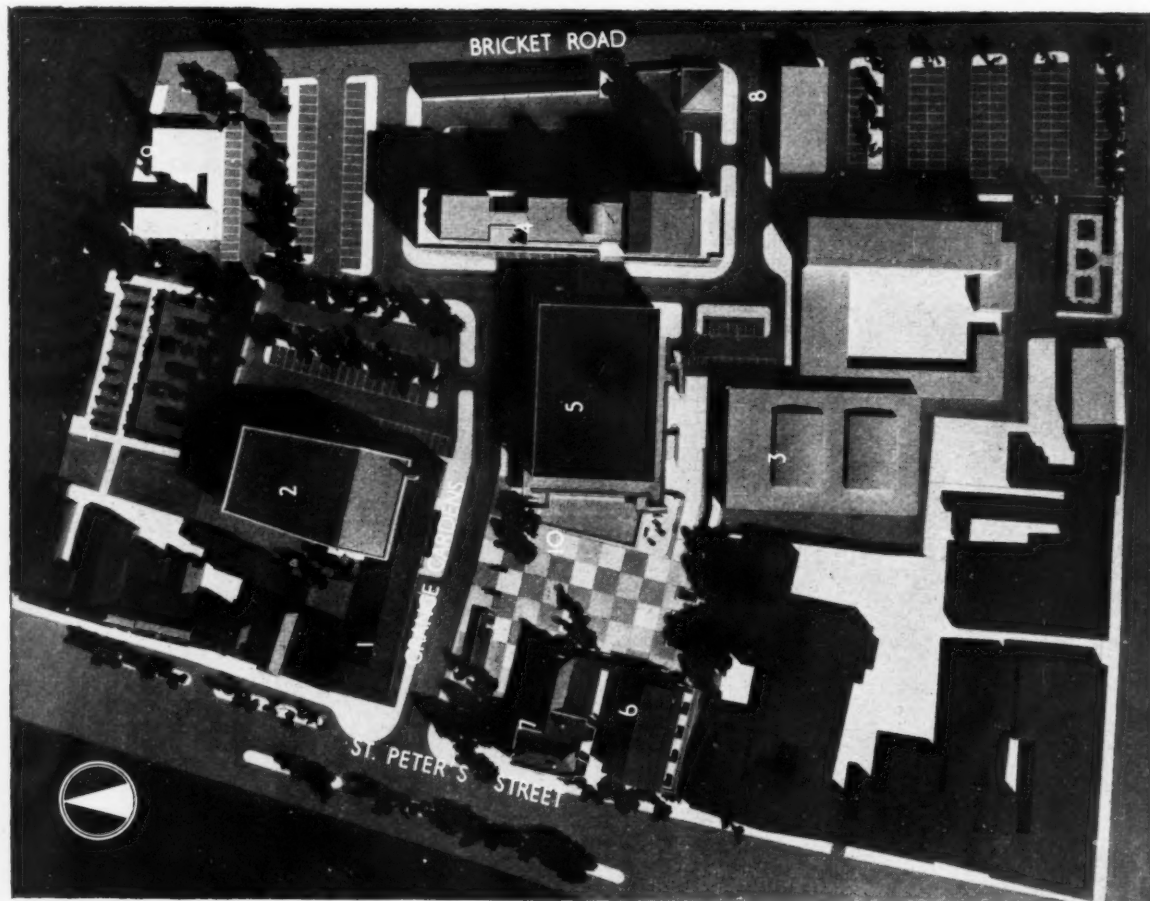


This scheme, designed by Frederick Gibberd, for a new city centre for St. Albans has been approved by the city council, and drawings for the first shopping precinct are being prepared. The main elements of the scheme are a new civic square; various smaller spaces such as a shopping precinct; and large buildings, the most important of which are a town hall and municipal offices, divisional police headquarters and courthouse and a cinema. The site, lying as it does alongside the main shopping street and market of the city, has the great advantage that it is possible to relate shopping and business generally to civic and entertainment life. It so often happened between the wars that municipal buildings were erected on the fringe of town centres to become

administrative areas, aloof from the life of the town. At St. Albans the main civic square will be immediately adjacent to the main shopping street; there will be no strict zoning into different "building uses." The civic spaces will form an extension of the shopping spaces and vice versa. The Georgian houses on the western boundary of the site are retained, access to the square being made through existing gaps. The main entrances are made on either side of a Georgian house which is retained as offices. On one side, the north, an existing cul-de-sac (Grange Gardens), enters the site and a new shopping parade is returned along its frontage and terminated by a cinema to form the north side of the civic square. Another shopping terrace is related by a colonnade

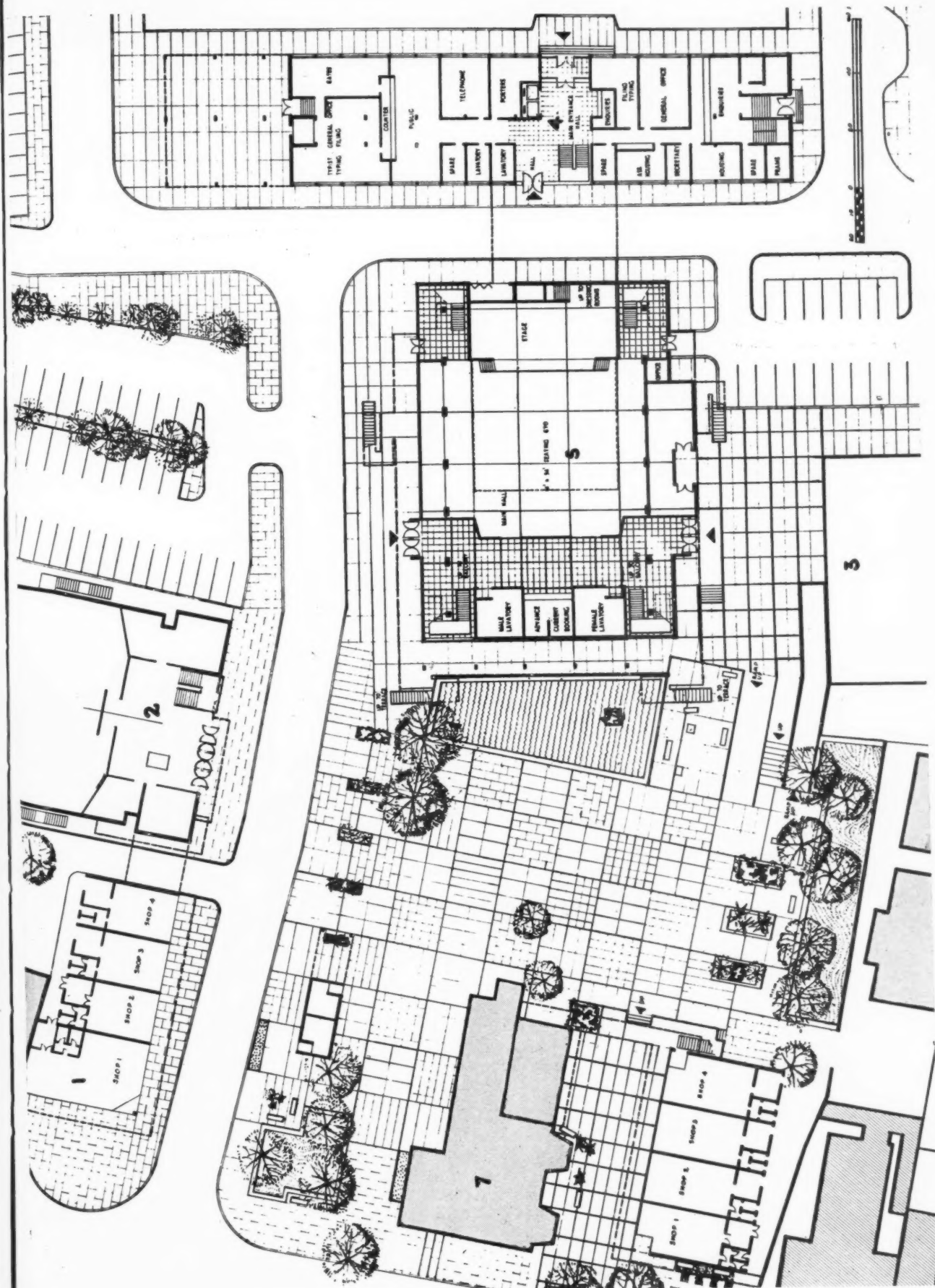
## EXPANSION OF A HISTORICAL CITY CENTRE: continued

to the south façade of the house to form a small intimate entrance piazza to the main square. These two new shopping parades lead the main flow of shoppers along St. Peter's Street into the civic square. On the eastern boundary there is a cul-de-sac (Bricket Road), which is used as the main vehicular approach to the buildings and to the car parking system. On the north are pleasant public gardens and almshouses which are linked to the centre by a pedestrian way which also extends to the Hatfield Road beyond. Similar pedestrian ways give access to Victoria Street on the southern boundary. The hall is placed in front of the municipal offices, because, being used for concerts, dances and other entertainment, it will bring more life and movement into the square. The council chamber, "an important symbol of civic life," is placed on the roof of the municipal buildings so that it is clearly seen from St. Peter's Street. The assembly hall and municipal offices form two complete buildings in themselves but they can function as one building. A bridge and a tunnel between the two allow civic dignitaries access both to the stage and to the outside terrace overlooking the civic square. It is thus possible for the city to have civic ceremonies and public meetings either indoors or out. The police station and magistrates' courts have been designed by the county architect and are sited on the south east corner of the site. The police station is set back behind the face of the courthouse to form, with the hall and the municipal buildings, a rectangular forecourt. County offices extend from the police station to the road at the rear and help to define a forecourt to the municipal buildings on the main access road—Bricket Road. Large car parks and service roads are associated with each building group, allowing the main spaces to be free for the pedestrian. The pedestrian areas are completely paved and advantage is taken of the fall in the land towards the south east corner to change levels between piazzas by ramps and stairs, thus giving them greater definition and interest. Landscaping is restricted to the existing large forest trees and urban features such as a fountain and sculpture.



Key to model (left) and detail plan of civic square (opposite)

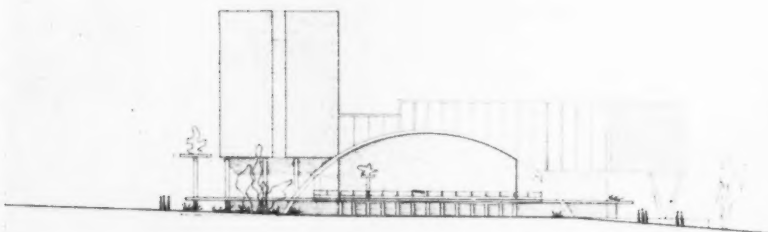
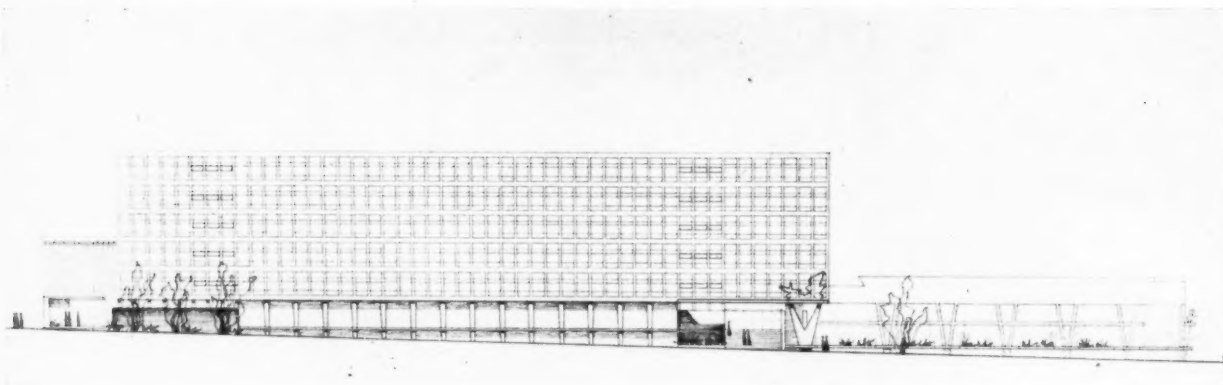
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|----------------------|--------------------------|
| 1. Shops             | 6. Shops and maisonettes |
| 2. Cinema            | 7. Georgian house        |
| 3. Law courts        | 8. County offices        |
| 4. Municipal offices | 9. Health centre         |
| 5. Town hall         | 10. Civic square         |



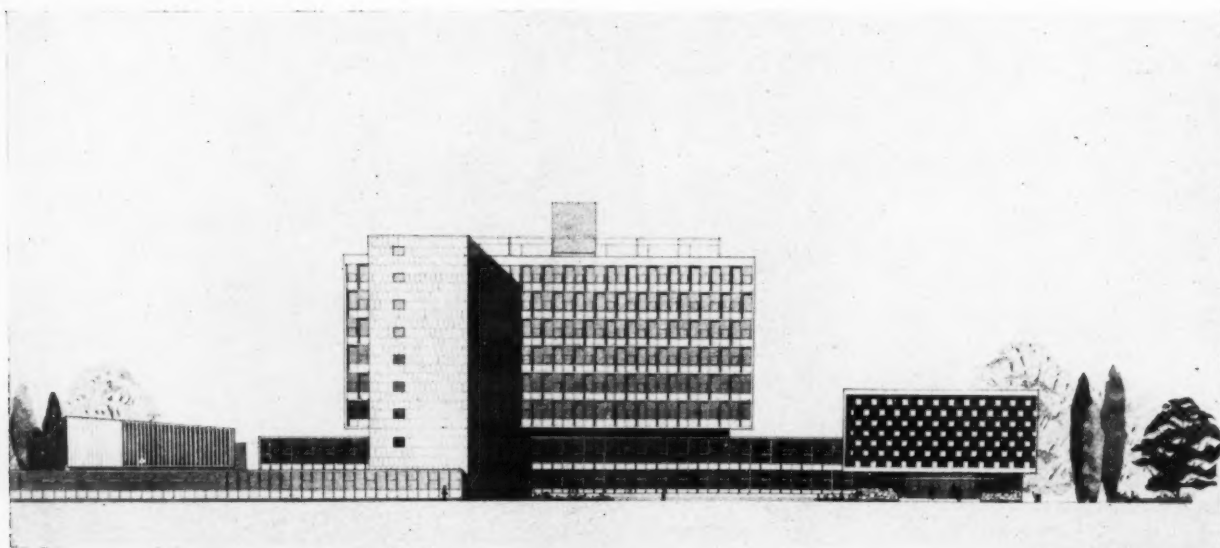
# PRIZE-WINNING ENTRIES IN CARLISLE'S COMPETITION FOR

There were 194 competitors in the first stage of the corporation-sponsored competition for an assembly hall and municipal offices in Carlisle. Six were chosen to take part in the final stage, and the winners were Charles B. Pearson and Son, whose design was published in last week's

JOURNAL (an elevation is shown again above). Each of the remaining five competitors was awarded £300. The elevations of their schemes are reproduced here. The assessor was Professor W. B. Edwards.

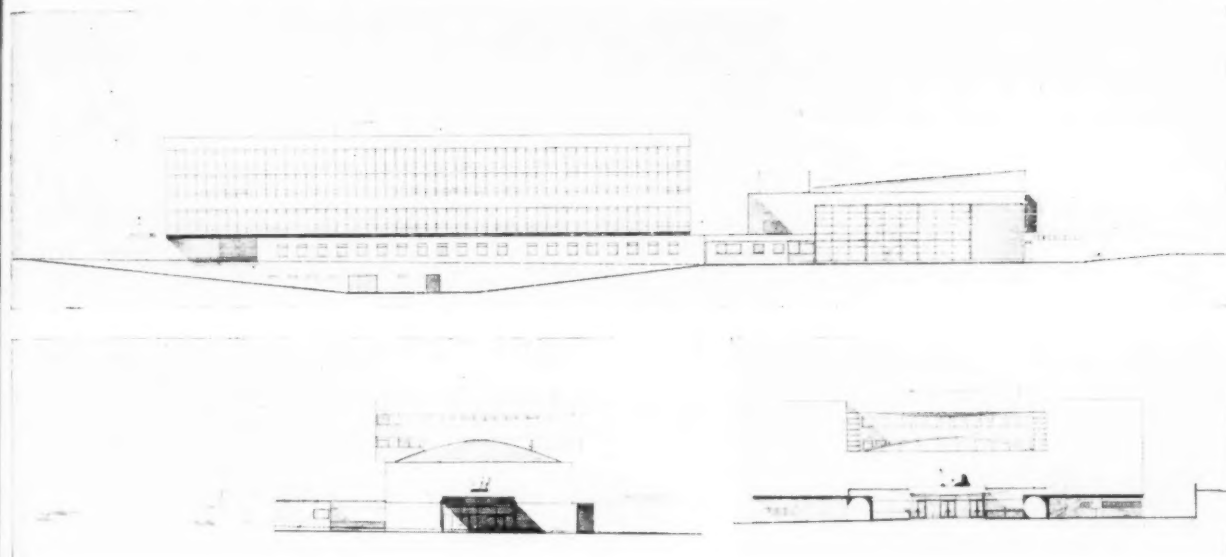


Above and left: the east and the north elevations of the scheme by George Marsh, of London. Below: the east elevation of the design by G. P. Hutchinson, K. H. Murta and J. B. Hall, of Sunderland.

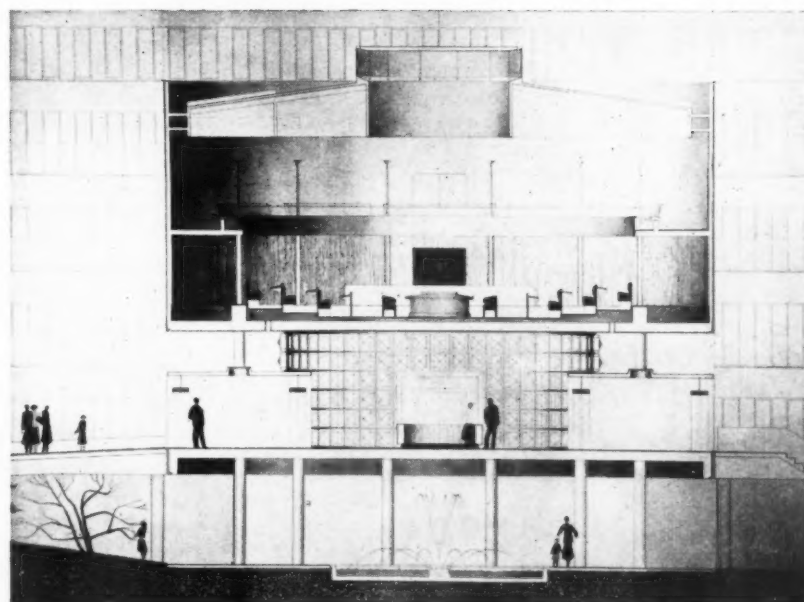
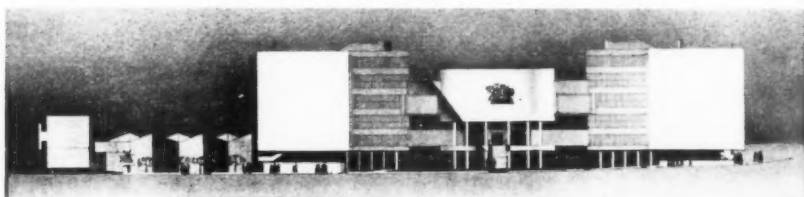
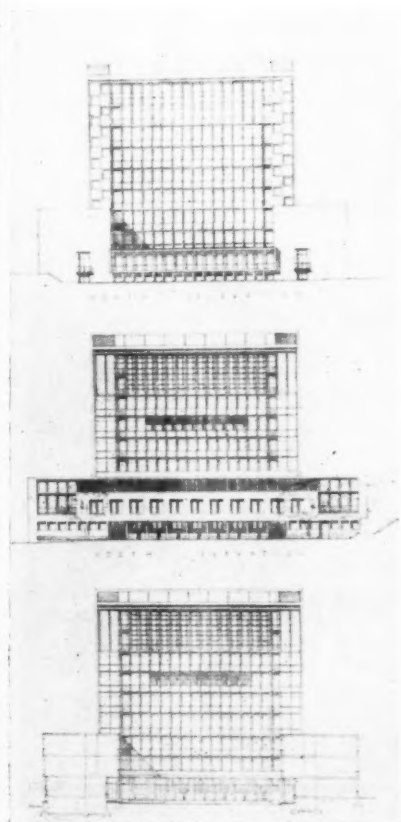




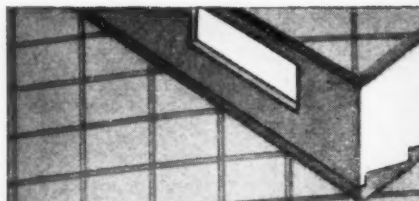
# FOR AN ASSEMBLY HALL AND MUNICIPAL OFFICES



Above: Russell, Cole and Bender, of London, were the designers of this scheme. Top: the east elevation; above left: the north elevation, above right: the south elevation. Below left: elevations and section of the scheme by F. A. C. Maunders, of Bucks. The scheme below (the section shows the council chamber) was designed by Ryder and Yates, of Newcastle-on-Tyne.



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## THE INDUSTRY

*From the industry this week Brian Grant reviews plastic furnishing fabric, a new window opening-gear, an arm-chair, samples of plastic veneers and boards, a convector gas fire, and a mould for precast concrete.*

**Furnishing Fabrics in Plastics**

Arlington Plastics have just announced a new type of furnishing fabric known as Breathable Texturide which is permeable to air and at the same time moisture repellent. It is as easy to work as a soft material, but retains its shape and does not sag, while it also has the hard wearing qualities of vinyl coated fabrics. This result has been achieved by applying the coating in two thicknesses, giving a striped effect. The thick coating forms wide ribs and is designed to take the heavy wear, while the light coating between the ribs is thick enough to

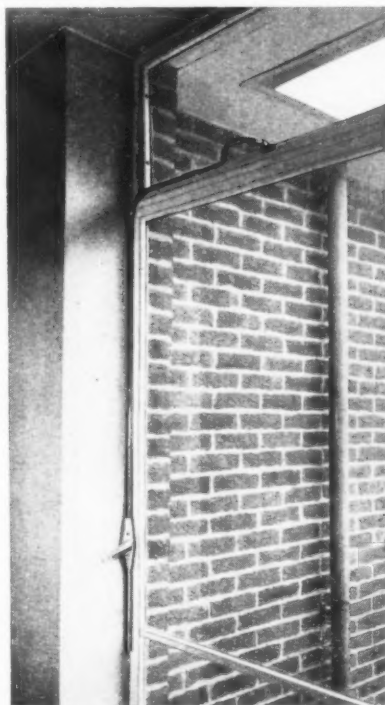


*Arlington Plastic's "Breathable Texturide" furnishing fabric.*

allow the surface to be wiped clean with a damp cloth, yet is sufficiently thin to allow completely normal air circulation. This latter property can be tested, as it is possible to blow cigarette smoke through the fabric without any particular difficulty. There are five standard colours. (Arlington Plastics Development Ltd., Arlinside Works, Eastern Industrial Estate, Harlow, Essex.)

**Remote Control of Windows**

The illustration on the right shows a new type of window control known as Neategear. This gear makes use of a  $\frac{1}{4}$ -in. diameter transmission cable and is intended mainly for top hung or horizontal centre hung windows. Square conduit is used for the cable, so that it is possible to provide a very neat installation, and there are two standard handles, one cranked and with a shaped back half for corner mounting (see illustration), and the other with a flat back and a straight handle. Junction units are available so that two pushing points can be controlled from a single handle, and a combined slip over connector and securing clip provides an almost invisible method of joining lengths of conduit. (Teleflex Products Ltd., Basildon, Essex.)



*The "Neategear" remote-control window gear.*

**New Parker-Knoll Chair**

The photograph below shows the new Parker-Knoll Menton chair, which has legs and supports in yew, and is upholstered in a smooth, tweedy material known as Pipewell. The various standard upholstery shades have been chosen to harmonise with the pinky tones of the yew, and there are the usual Parker-Knoll springs in the seat and the back of the chair. Price is £34 15s. (Parker-Knoll Ltd., The Courtyard, High Wycombe.)

**Information on Plastics**

Some time ago there was issued a useful loose leaf binder showing the various patterns of Waverite veneers and panel boards. The various samples are shown in reasonable areas so that it is possible to obtain an adequate idea of the complete pattern, and there has also been a recent issue of a further set of sheets, including various "architectural" patterns. While the standard designs will no doubt satisfy a wide variety of tastes, it is interesting to see that the manufacturers have now evolved a printing technique which enables relatively short runs of special designs to be made economically, so there will now be no excuse for architects to complain that they are limited by what the manufacturer thinks they ought to like. It might be interesting to find out just how many designers will accept a challenge of this kind. (Bakelite Ltd., 12-18 Grosvenor Gardens, London, S.W.1.)



*The Parker-Knoll "Menton" chair.*

# A floor a week with

## **BISON WIDE SLAB**



*Wimpey's 8 storey flats, Kirkcaldy  
Contractors: George Wimpey & Co. Ltd., Edinburgh*

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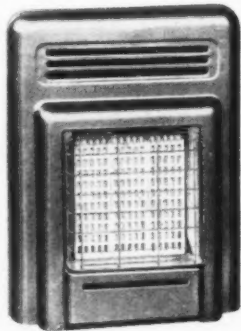
CON 88



## technical section

**Convactor Gas Fire**

A new convactor gas fire known as the Flamborough is being produced this month by Bratt Colbran. Cold air is drawn in at the foot in the usual way, but particular attention has been paid to rapid air circulation and the makers claim that rooms warm up very quickly. Gas consumption is 36 cub. ft. per hour and dimensions are 26 in. high

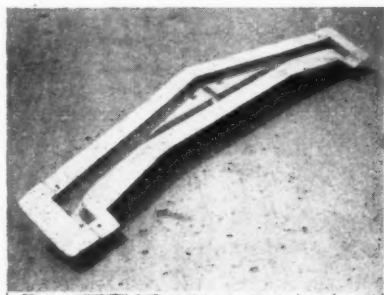


The "Flamborough" convactor fire.

by 19 in. wide. Several different colour finishes in stove enamel are available, and the fire guard is chromium-plated. Price is £9 16s. plus £4 10s. 2d. purchase tax. (Bratt Colbran Ltd., 10 Mortimer Street, London, W.1.)

**Moulds for Precast Concrete**

Glass reinforced polyester resins are now being used for so many purposes that one ceases to be surprised at new developments. The latest news is that at least one firm is using this material for making moulds for precast concrete units, the advantages being that the moulds are light and easy to carry,



A mould for a concrete truss made of glass-reinforced polyester resin.

that release of the concrete from the mould is easier, while at the same time the surface finish is claimed to be better than with steel or wooden moulds. It is also possible to make quite complicated moulds without any particular difficulty, as can be seen from the illustration of a mould for a short span concrete truss. (Concrete Utilities Ltd., Great Amwell, Herts.)

**CLASSIFICATION FOR TECHNICAL ARTICLES AND INFORMATION CENTRE**

1 Sociology. 2 Planning: General. 3 Planning: Regional & National. 4 Planning: Urban & Rural. 5 Planning: Public Utilities. 6 Planning: Social & Recreational. 7 Practice. 8 Surveying & Specification. 9 Design: General. 10 Design: Building Types. 11 Materials: General. 12 Materials: Metal. 13 Materials: Timber. 14 Materials: Concrete. 15 Materials: Applied Finishes & Treatments. 16 Materials: Miscellaneous. 17 Construction: General. 18 Construction, Theory. 19 Construction: Details. 20 Construction: Complete Structures. 21 Construction: Miscellaneous. 22 Sound Insulation & Acoustics. 23 Heating & Ventilation. 24 Lighting. 25 Water Supply & Sanitation. 26 Services & Equipment: Miscellaneous. 27 Furniture & Fittings. 28 Miscellaneous.

**INFORMATION CENTRE**

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

**19.209 construction: details****CURTAIN WALLS**

*Light Cladding, Parts I and II.* BRS Digests 98 and 99, May and June, 1957. (HMSO. 3d. each.)

In considering these two long-awaited Digests it is important to realize the limitations which the authors deliberately set themselves. Their point of departure was the well observed fact that there is in this country a construction called a curtain wall and, granted this fact, they set out to record certain rules to be followed and certain facts to be used in order to make a curtain wall structurally acceptable. In other words, though they attempt to assist the man who has made up his mind to use a curtain wall, they have little to say to the man who has not yet so made up his mind. Though other matters are touched upon, the main emphasis throughout these Digests is on the problem of how to keep out the weather in a form of construction which is inherently subject to thermal and moisture movement. This is indeed useful; but we cannot quite suppress the thought that after all these years we have the right to expect more information on the functional performance of curtain walls and on their ability to provide the kind of climatic control which we need in this country.

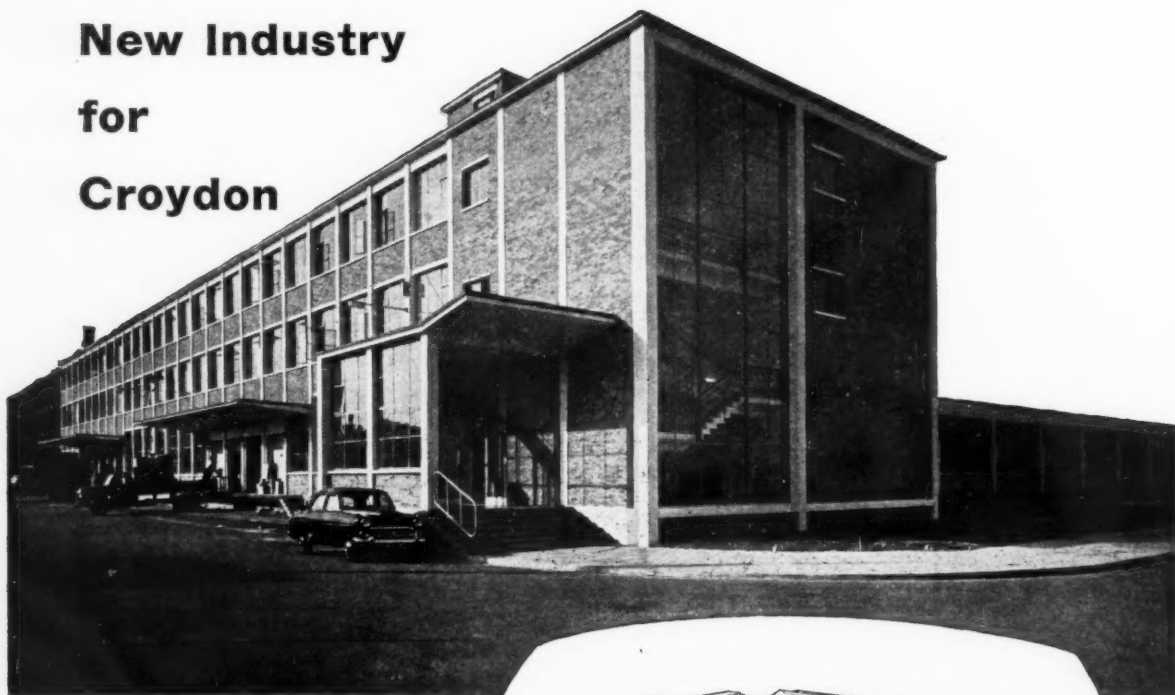
The first Digest begins with a rehearsal of the strength requirements as laid down in BS.449 (*The Use of Structural Steel in Building*) and BS.CP.3, Chapter 5, on "Loading." This disposed of, it passes to the main concern of weather resistance and to the well worn subject of the ability of mastics and sealing strips to take continuous

thermal movement. The conclusion reached on this (and on several other scores) is that the right type of construction is one which employs a mechanical outer barrier in the manner of patent glazing with some form of internal airtight seal.

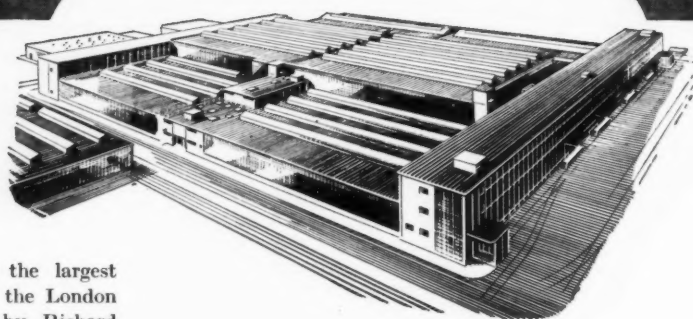
The questions of heat and sound insulation are not treated in a very illuminating way, perhaps because to have done otherwise would have led to unflattering allusions to existing proprietary curtains. The significance of the "cold bridge" in nullifying the heat insulating qualities of the panels is clearly brought home; but little is said about actual heat losses and gains through the glass itself and the question of heat gain from solar radiation is only seriously canvassed in the context of unwanted heat in summer. In fact, however, other authorities suggest that solar heat gains in winter may well be sufficiently substantial in buildings of daytime use to upset our traditional notion of glass as a prime source of heat loss. In any case, this is evidently a crucial matter which affects the ultimate acceptability of the curtain wall and it is a pity that no information is given here. The discussion on sound insulation is implemented with a useful table which gives the decibel reduction to be expected with four different types of panel, with single glazing with opening and fixed lights, with double glazing, and in which the glazing represents five different percentages of the outside wall area. No specification, apart from a glass spacing dimension of 4 to 8 inches, is given for the double glazing, but the insulation value quoted (44 db) is certainly unrealistic for any normal type of construction. Although an insulation of this value can be obtained in a laboratory with fully sealed glazings, the normal need to make some of at least the inner windows openable (for cleaning) and other factors, reduce the practical overall insulation which can be obtained to at least 10 db less than this. No information is given as to the required degree of insulation (apart from the vague statement that 20-30 db is a tolerable minimum), nor is there any comment on the fact that the major difficulty is to obtain insulation with some form of ventilation; the overall insulation can be reduced to as little as 5 db the moment one light is opened, however good the wall may be when all windows are closed.

The second Digest is mainly concerned with the materials used in curtain walls. These are divided into three categories according to use and are presented in tabular form. This approach has the great advantage (from the point of view of BRS) that it enables the data to be presented in a manner which is at once systematic, precise and impartial; but it has the great disadvantage that it throws all the burden of interpretation on the unfortunate reader and loads him with a great burden of unnecessary erudition. One has the impression that this Digest attempts to make up for its silence on the really important issues by giving a superfluity of information on what matters less.

## New Industry for Croydon



*Philips Croydon Works Limited*



THIS EXTENSIVE BUILDING—one of the largest industrial structures to be erected in the London area was constructed in 2½ years by Richard Costain Limited and recently handed over to Philips Croydon Works Limited. The contract for the main building, which measures 630 ft. by 565 ft. and covers an area of more than 8 acres, was awarded on the result of the first six months' work when 150,000 square feet of floor space was handed over. In all, the building provides more than 600,000 square feet of warehousing, administrative and production space.

A particular study was made of day lighting,

using the principle of roof monitors to give a northern aspect in the main with a percentage of south light, so that an overall standard of fifty lumens at bench level is attained in manufacturing areas.

The contract also included the construction of roads and ancillary buildings.

The architects: Wallis Gilbert and Partners, F/R.I.B.A.; and the Quantity Surveyors are Thornton-Firkin and Partners.

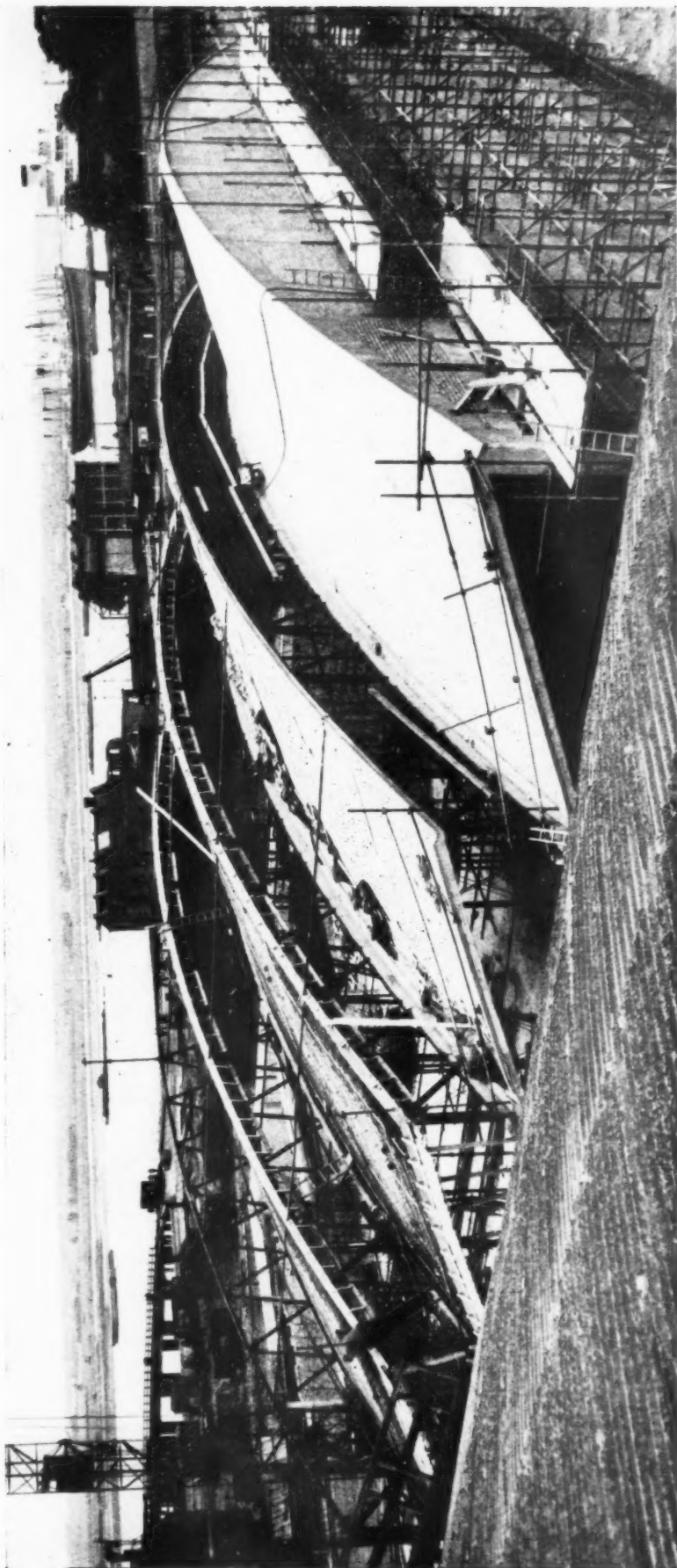


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## A NEW NORTH-LIGHT SHELL ROOF SYSTEM



A Bristol firm, A. T. A. Industrial Co., Ltd., have recently acquired a licence for the production in this country and throughout the Commonwealth of a long-span roof system designed by the German engineer, W. J. Silberkuhl. The first "A.T.A.-Silberkuhl" roof is now being built for Thames Board Mills Ltd., at Purfleet, Essex. The roof is a north-light structure consisting of concrete shells spanning between latticed steel arches. The arches are normally at 20 ft. to 5 ft. centres, and are glazed direct to form the north-light. The concrete shells, which are approximately 3 in. thick, span from the top chord of one arch to the bottom chord of the next.

The chords are incorporated as part of the reinforcement of the shells, and the arches and shells, form an integrated structure which is post-stressed by means of a series of high tensile tie-rods attached to the springing of the arches. It is claimed that the economy of the system is derived from the fact that it uses the two materials in their most efficient states—concrete in compression and steel in tension—and also from a simple erection procedure which obviates the need for scaffolding. The shuttering of the shells is supported from the arches. The photograph above shows two completed spans, a third already cast but with shuttering in position, and a fourth





MILLPOOL HILL ESTATE FLATS, BIRMINGHAM

*A. G. Sheppard Fidler, M.A., B.Arch., F.R.I.B.A., A.M.T.P.I., City Architect*

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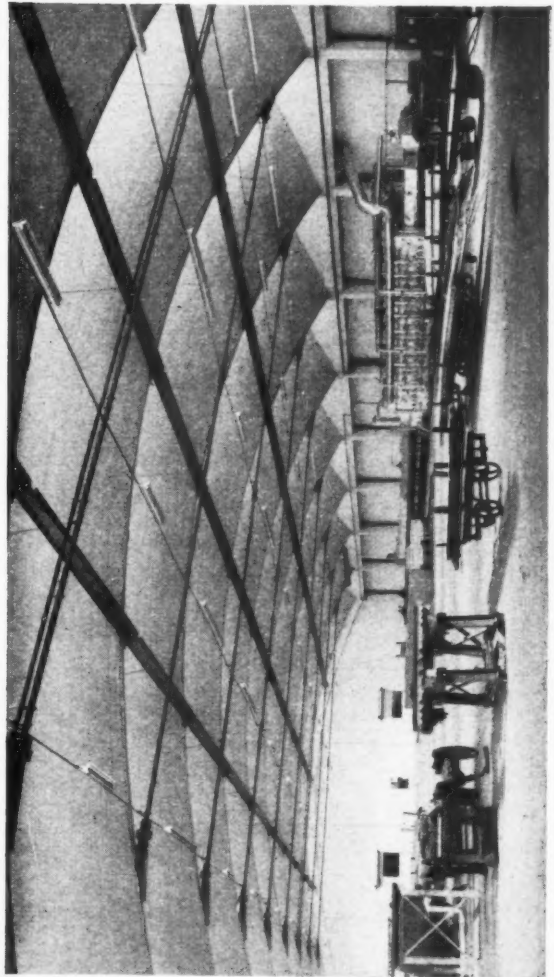
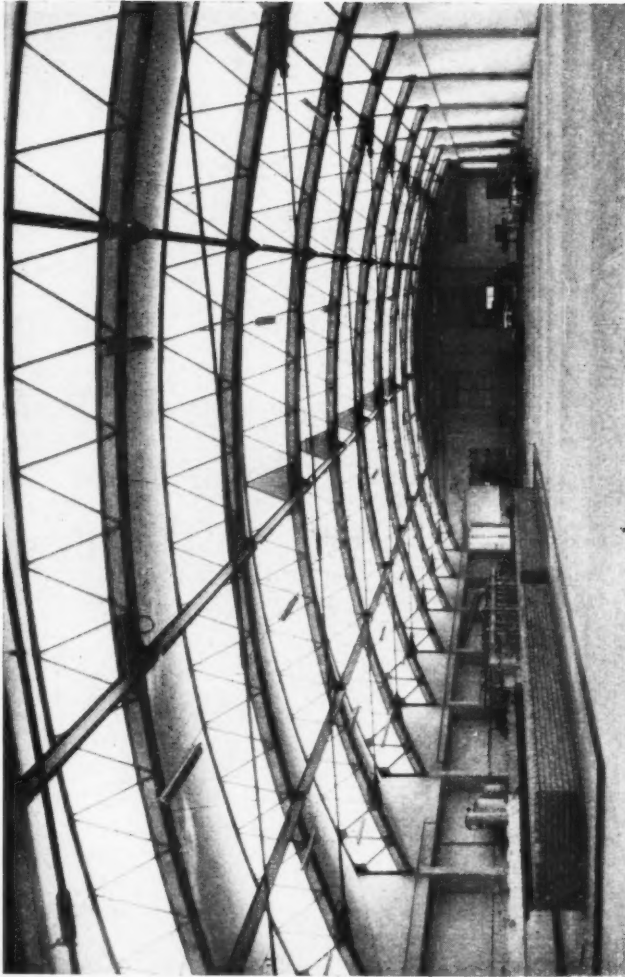
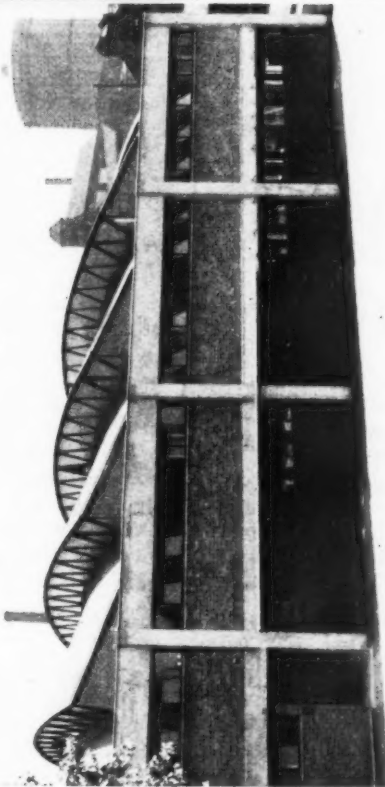


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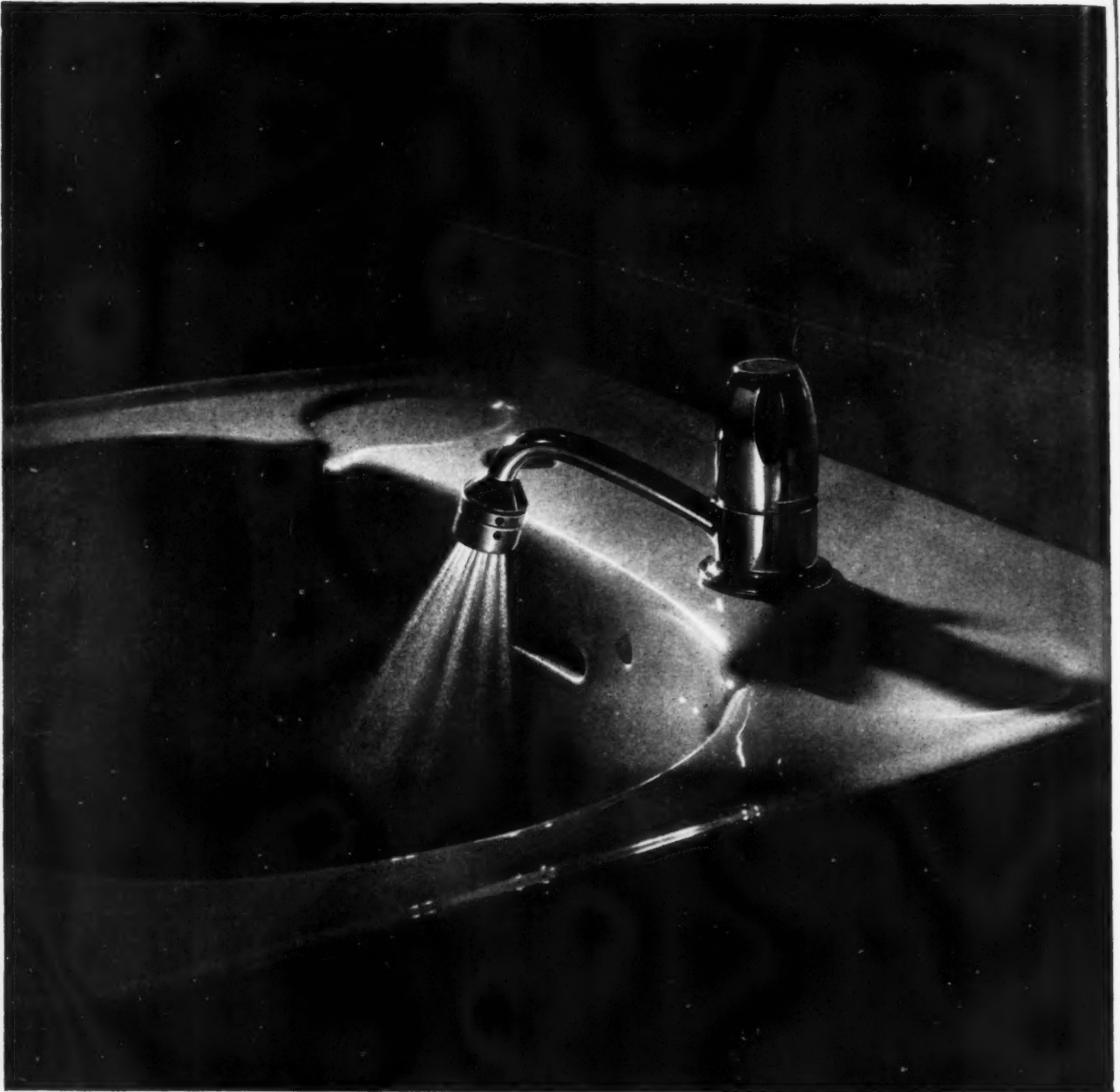
A NEW NORTH-LIGHT SHELL ROOF SYSTEM:

continued

arch and shuttering being erected. The range of spans is from 80 ft. to 210 ft., and the roof is designed to carry an underslung load of up to 10 tons at any point. Crane



tracks can therefore be suspended from the roof itself, reducing the spans of gantries. The shells tend to act as light reflectors, giving a high and uniform light factor inside the building. The tie-rods are the only part of the essential structure which are not in the planes of the outside surfaces, which accounts for the exceptionally "clean" appearance of the roof. This also has the advantage of cutting down maintenance costs. The photographs on this page show a structure of this type completed in Germany.



## **Fast falls the water table . . .**

In this well watered isle of ours there is already a water scarcity and likely to be a famine. The Building Research Station has found that, in an office block, a staff of one thousand uses sixteen thousand gallons of hot and six thousand gallons of cold water every week for washing their hands. A startling amount. To save half of this there has been designed a new tap, a mixing tap, that will give either

hot or cold at a turn. Add a spray nozzle and you wash in running water using only four pints instead of a gallon or more. "Unatap" was designed by our technical staff in collaboration with the Building Research Station and is presently in production.

You will be hearing more about this as it gets into the news but if you want to know now write for Pamphlet U/2,

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## technical section

**26 SERVICES AND EQUIPMENT:  
MISCELLANEOUS****small electrical installations. 4  
quality and cost**

Our authors, Peter Jay and Clive Wooster, break off their description of an electrical installation in a small house\* to take up a number of general points relating to quality and cost. They draw attention to the need for enforceable standards of workmanship and practice, they discuss pricing methods in the contracting industry and propose a breakdown of the specification which will enable the architect to obtain competitive tenders; and they give advice on how to negotiate with Electricity Boards to obtain a supply on out-lying sites.

Architects who send electrical work out to tender independently of the general contractor normally find that there is little consistency either between the tenders of different firms for the same job, or between tenders by one firm for two apparently similar jobs. Further, while it has been widely publicized that the cost per 13 amp. socket on a ring circuit falls progressively as the number of sockets is increased, actual tender figures do not appear to bear out the prediction.

Where this random nature of electrical tenders is not simply due to an attempt to recoup losses on other work, to a desire to keep men in work at all costs during a slack period, or an indication that the contractor does not wish to undertake the work anyway, it will be due to one of the following reasons:

1. Differing standards of workmanship and practice as between one firm and another.
2. Differing methods of working out a tender price.
3. Differing pricing procedures.

**Workmanship and practice**

It must be remembered that the IEE Regulations are not intended to specify a desirable standard of practice, but simply constitute the minimum standards for safety. Further, they are non-statutory, and their enforcement is entirely up to the Area Board Inspectors, who vary very widely in the attention they pay to detail, provided that the insulation and earthing tests are satisfactory.

The IEE Regulations cannot by themselves ensure an

adequate installation, any more than building bye-laws can ensure a well-designed structure. The BS Codes of Practice are intended to fulfil this function, but even they do not, in our opinion, go far enough, and in particular, they do not list the many things which should *not* be done, although these often are done by contractors who specialize in private house wiring. The situation at present is little short of chaotic. We have, in the course of these articles, criticized many practices which are extremely common, and the use of many components which are still manufactured in large quantities. Our account is based upon the IEE Regulations supplemented and extended in certain particulars, but many Area Boards may not enforce these Regulations, and allow the use of components which we have deprecated. Where the use of these components is, or is thought to be, cheaper, or often merely from habit, contractors will continue to use them until they are stopped. This is quite understandable, and some legal enforcement either of the IEE Regulations or some corresponding code drawn up for the purpose is urgently required.

No matter how necessary it may appear to be to keep costs to the minimum, there is an absolute lower limit to the quality of an electrical installation, in that if this minimum quality is not maintained, there is a definite risk to life through fire and/or shock. This means that more care should be used in planning the electrical installation than is necessary for the other technical services. There are probably more fatalities each year directly attributable to gas than to electricity, but accidents with gas are rarely due to faulty methods of installation, if only because the Gas Boards themselves carry out so much of the installation work.

It must also be remembered that, however poor the workmanship may be, the electrical installation will still function for a time in the sense that lights will come on when the switch is pressed, the refrigerator will continue to freeze, and the cooker to cook.

In view of these facts, it is a very great pity that architects do not know more of the technique of electrical wiring, and any architect who feels that he is learning something from these articles may possibly reflect that he has known all the corresponding facts about plumbing from his early years as a student.

It is hoped that we have here given some indication of the difference between good and bad practice, which may enable an architect to limit his tenders to those firms which maintain a high standard. Further, there is the National Inspection Council for Electrical Installation Contracting (13, Victoria Street, London, S.W.1), whose function is to protect the consumer against faulty work, and which operates by issuing list of approved contractors who have satisfied the requirements of the Council with respect to workmanship, practice, supervision, the maintenance of proper stores, etc. It would be an excellent thing if architects asked for tenders only from those firms which appear on the National Inspection Council's list.

\* Previous articles in this series appeared on July 25, August 8 and August 15, 1957.



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# technical section

We must here distinguish between workmanship and practice. By practice we mean the technique and methods employed, by workmanship the care and skill with which that technique is carried out. It is possible to specify the standard of practice, and it is hoped shortly to publish a specification which defines the standard necessary for private house work in T.R.S. cables. Workmanship cannot, of course, be specified, and a high standard can be assured only by limiting tenders to those firms known to maintain a high standard in this respect.

The above account refers mainly to private house and other small jobs, in which the possible variants of layout and distribution are limited. When it comes to a larger job, incorporating a number of fuseboards, rising mains, etc., there is more scope for disagreement; and whereas some firms, as a matter of course, allow liberal room for extension and alteration, others work to the minimum needs at the time. This is neither a matter of practice nor workmanship, and falls outside the scope of these first articles.

## Differing ways of working out a tender price

It is very likely that a high proportion of contractors who specialize in the smaller jobs tender on a "cost per point" basis, so that any economies the architect may make in arranging for easy routing of cables, etc., do no more than increase the contractor's profit. This, of course, is unsatisfactory, but it must be pointed out that the wiring of a house for, say £70, will not carry the overheads involved in working out the quantities in detail. Further, it is very doubtful whether such a calculation would ensure any closer tendering than the present system, since  $\frac{1}{4}$ -in. scale drawings rarely show enough detail to enable cable routes to be worked out accurately. Even larger drawings may be of as little help, since some apparently trivial alteration to a wall plate, door frame, etc., may necessitate a major change in the electrical layout. Architects often have great difficulty in appreciating this and in the preceding sections we have endeavoured to explain the type of difficulties which may crop up, and why methods which appear to be easy and obvious often lead to trouble.

If it is accepted that some basis is needed for comparing the tenders for different jobs, or from different contractors, and that quantities are not practicable for small jobs, then some other way of breaking down the total sum into comparable components must be devised.

The only parts of a small installation that can be estimated accurately without meticulously measured quantities are the intake gear and outlet accessories. The cable and cable accessories must be guessed. It is suggested that the estimate be broken down into the following parts:

1. (a) Labour and materials in the intake and consumer's unit.
1. (b) Labour and materials in cable and cable accessories, plus overheads for the whole installation.
2. Labour and materials in socket outlets, per point.

This item should cover only the cost of the accessories and the labour in fixing and connecting them. Cable should come in item 1 (b).

3. Labour and materials in lighting points, including switches, per point. Here again, this item should include only the accessories and labour in fixing and connecting them. The same cost per point should apply to the garage in most cases.

4. Labour and materials in installing and connecting fixed apparatus such as the cooker and water heater.

5. Labour and materials in running a main to the garage, if separated from the house.

The only part of the cost on which direct comparison is impossible is item 1 (b); and the remainder should be entirely dependent on the specification and the number of outlets, and so should be comparable between different jobs and different firms. Item 1 (b) would probably be found to vary little among houses of similar size and situation, for a similar quality of workmanship and practice.

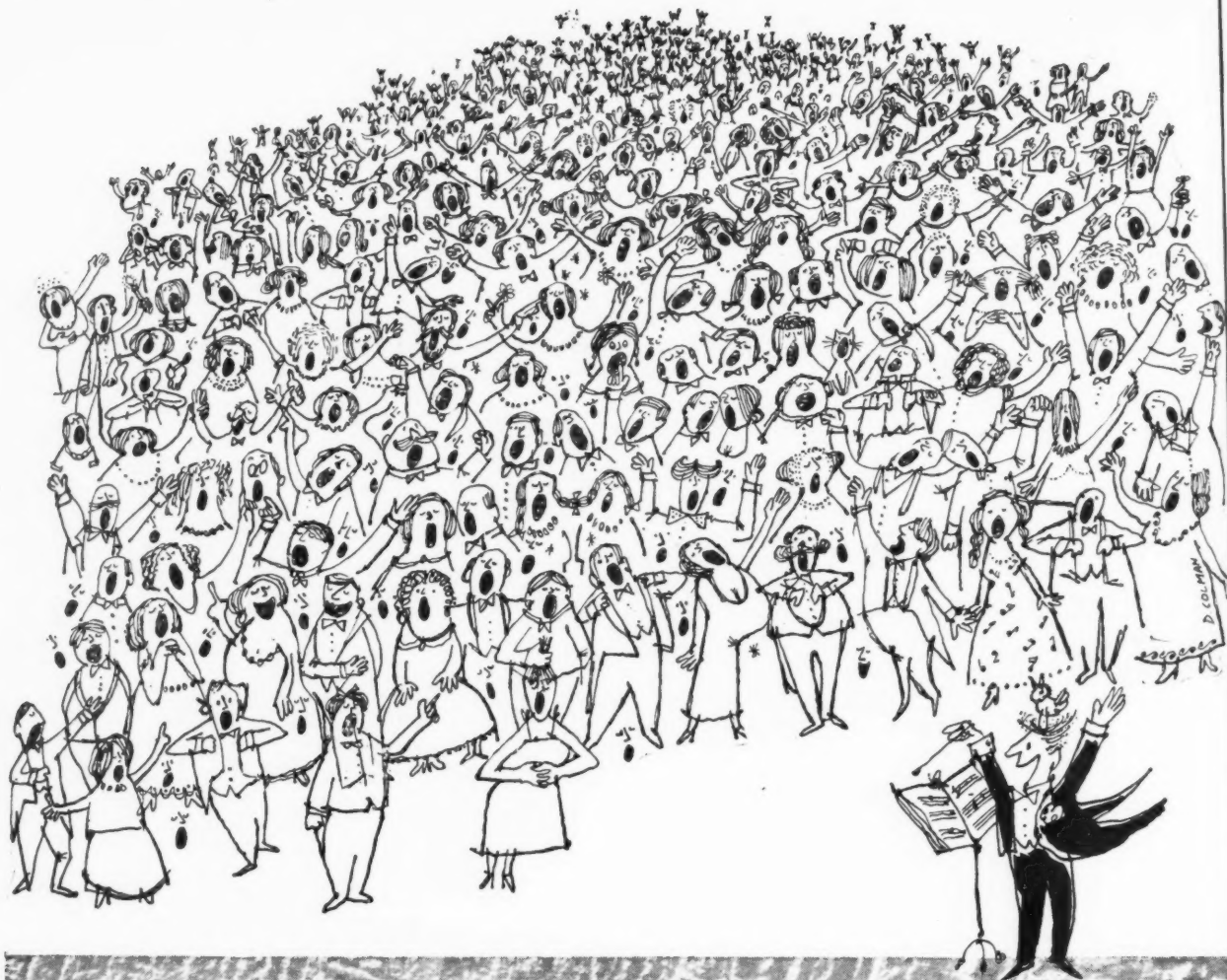
It is suggested that when inviting tenders, the contractor should be asked to tender in this form, except that items 1 (a) and 1 (b) need not be separated. The number of points should not be stated precisely because it would permit the estimate to be made as a lump sum tender per point, which might be broken down only arbitrarily to suit the form of tender. If, on the other hand, it is stated that there will be between 10 and 20 lighting points, or whatever it may be, and between 15 and 25 sockets, it will indicate roughly the extent of the wiring, but will not allow the estimator to wander too far from the truth about the cost of each point, without running the risk of loss if his guess as to the number of points should be out.

It is desirable to suggest an upper limit to the number of points appreciably higher than that expected, and a lower limit correspondingly lower, otherwise the tender may be invalidated.

A further refinement would be to state the number of points operated together by one switch in any special cases, and the number of points two-way switched, but it is probably sufficient to suggest that one point two-way switched be counted as one and a half points, except that where the switches are on different floors, it should be counted as two points. In normal housing work, it is as well to offer the contractor the choice either of a separate quotation per point for this case, or of the basis of computation suggested here.

The contractor should be provided with the full specification for electrical work and  $\frac{1}{4}$ -in. scale drawings of the house showing the intake position, but not the positions or number of points, for the reasons already given above.

As regards the minor savings which the architect may himself try to make in the planning, by specifying a make of switch that is slightly cheaper, or by so arranging matters that a few feet of cable may be saved, it is rather doubtful if these are worth striving for in the individual house where, as we have seen, the total cost involved is too small to allow a formal calculation of quantities. They are, on the other hand,



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The Carlisle Plaster & Cement Co., Cocklakes, Nr. Carlisle.  
Thomas McGhie & Sons Ltd., Kirkby Thore, Westmorland.*

### technical section

extremely important on repetitive work, as when dealing with an entire estate in which a saving of £1 per house may aggregate a considerable sum, and where it may be assumed that the quantities will be worked out properly.

As a further aid, the contractor or contractors might be consulted at this stage, where no consultant has been appointed.

#### Pricing procedures

In theory, the Electrical Contractors' Association recommends terms for various types of work and the minima are, for labour, cost plus 33½ per cent. and for material, cost plus 20 per cent. It is very doubtful whether many of the smaller firms, even of those which are members of the ECA, keep to this minimum, although, so far as we know, the installation departments of the Area Boards have to tender on cost plus a fixed percentage which cannot be varied from job to job.

It is obvious that a one- or two-man firm can allow a very much lower figure for office overheads than the larger firms; but, on the other hand, the percentage overheads for stores falls as the size of the firm increases, and it may well be that a large firm can obtain material more cheaply than a small one.

Further, firms fortunate enough to be able to obtain boys under 21 as mates, can allow a much lower figure for labour than those whose mates are over 21, and are paid, in consequence, nearly as much as a mechanic. This will vary from place to place, and towns in which there is ample and highly-paid factory work for boys are relatively worse off in this respect.

Again, whereas some firms write down the actual figure paid to the men as the hourly rate for labour, and carry insurance and holiday money in the general overheads, others include allowance for these items in the hourly cost of labour, and, possibly, work on a lower figure for general overheads. It is impossible to generalize about matters of this kind, and it is the function of competitive tendering to find the firm whose pricing structure is most favourable in a particular case and which has, perhaps, a type of labour most suited to one kind of work.

So long as contractors tender on a flat rate per point, these differences are distorted, but it is hoped that the procedure suggested above will afford a way of making a more realistic choice between one firm and another.

#### Bringing in the supply

When an electrical supply is first brought into a house, the owner or occupier may be required to pay for the necessary cables and gear needed to bring the supply for any distance in excess of 60 ft. The tendency is for this charge to be nominal and it may be waived altogether in towns and in new housing estates if the electrical installation provides a fair number of socket outlets and provision for electric cooking and water heating.

However, there may be considerable cost and complication in obtaining a supply for a house not forming

part of an estate and lying at some distance from the nearest distribution main. The Electricity Board should be consulted as soon as an outlying site comes up for consideration, to enable them to plan the most economical distribution system, and make provision for the new building in any other development plans there may be for the area. Before discussing the matter further, it will be necessary to give some account of the special difficulties facing the supply industry at the present time.

As compared with other industries, the ratio of capital investment to turnover for electrical supply is extremely high, being about four to one. Representative figures for other industries are two and even one to one. Revenue from future investment in extension of the supply network is likely to be even lower than it has been in the past, when development was chiefly in the towns. By now a majority of urban properties either have a supply or lie within a few yards of the distribution main and an increasing share of future investment will therefore be used in rural electrification, where the yield is very much lower.

To give an example, £100,000 invested in electrifying a small town may bring a supply to, say, 1,500 consumers, whereas the same sum invested in electrifying a rural area, where property is very much less concentrated, may serve to bring a supply to only half as many consumers, none of whom is likely to use much more electricity than those in the towns.

In some cases, the Area Electricity Board may call for a contribution towards the capital cost of taking a supply to a house on the outskirts of a town or in the country. There are, however, those who think that a supply should be made available to all domestic consumers at a standard tariff and without a capital contribution, independently of the situation of the property. As most urban consumers feel strongly disinclined to subsidize anyone else's supply, the protagonists of this viewpoint are mostly themselves country-dwellers. However, domestic tariffs have now been standardized within the area of each Electricity Board, although capital contributions may be called for at discretion.

When an architect is negotiating with the Area Board for a supply to a property lying outside the main distribution area, he should, therefore, understand that, from the point of view of the Board, the ratio between capital investment and revenue in bringing the supply to such a consumer is very much higher than that for a typical urban consumer. Such understanding should lead to a more helpful approach than the combination of bullying and blandishment to which the consumer or his representative so often resorts.

In the past, it has sometimes happened that where a group of farms or houses lie near each other but at some distance from the supply, one owner with more capital or enterprise than the remainder has paid to bring an electrical supply to his own property. When the other owners, having carefully waited a year or two, in their turn applied for a connection they were



# technical section

charged only the small cost of extending the cables from the first property to be connected. When this happens, the owner of the first property has no redress, and finds that he has subsidized his neighbours, often to the extent of some hundreds of pounds. We think that this practice is deplorable, and understand that the Area Boards are doing what they can to prevent it happening in the future. Even so, where all efforts to make other potential consumers bear their share of the capital cost at the time the supply is first brought in have failed, we think that there should be some mechanism for giving the first consumer a rebate out of the connection charges of later consumers when they in their turn apply for a supply.

In providing a connection to an outlying property, the abnormal ratio between capital investment and revenue can be corrected either by reducing the Board's own investment, by passing a proportion of it on to the consumer, or by increasing the revenue, by requiring that the potential consumer shall buy, or at least, pay for, a given minimum quantity of units each year for the first few years of connection.

The latter arrangement is obviously preferable from the point of view of both parties. The vast majority of householders would rather find £30 per year, say, for five years, than £150 cash down, and if they have to pay for this quantity of units, it is only reasonable to use them, and instal electric cooking, water heating, etc. The Electricity Boards are anxious to promote the use of electricity for these purposes, and even where they do not themselves suggest such an arrangement, it is always worth putting up to them as an alternative. Such a guaranteed minimum consumption will normally correspond to that of an "all-electric" house, and electric space heating is therefore desirable. For this purpose electric floor heating is especially suitable, and also serves to get over an objection people

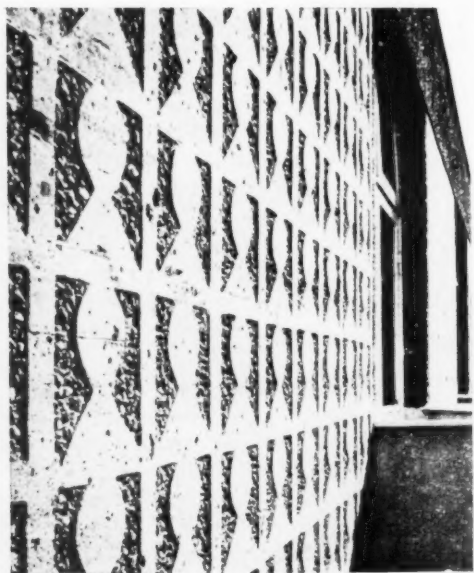
sometimes have to an entire dependence on electricity, on the grounds that it is liable to break down without warning. These fears are very much exaggerated, but it is of little comfort to be told, when shivering over a paraffin stove, that the breakdown from which one is then suffering happens to very few people, and then only very rarely. Embedded floor heating, with its extremely long time lag (12 hours or more) is practically entirely unaffected by a supply failure lasting only a few hours.

It is also worth pointing out that breakdowns are becoming increasingly rare as worn-out plant is renewed, improved methods of distribution developed, etc., while power cuts, which are due not to technical failure, but to an insufficiency of plant to meet the required load, are dependent on the installed capacity of power stations, and the enormous development programme for these stations has received so much publicity recently to need no further emphasis here.

On farms, of course, there is a very much wider range of possible uses for electricity which can bring the consumption up to a level at which it is well worth the Board's while to provide a supply for little or no connection charge, but farms fall outside this article.

It is obvious that it will be very much easier to obtain a supply on favourable terms on the outskirts of an expanding town than in a genuinely rural area, but beyond this it is very hard to generalize. There are 14 separate Area Electricity Boards in Great Britain which in general terms follow a common policy. This policy is, and is designed to be, readily adaptable to the conditions obtaining in each individual area, and the way in which problems of this kind are dealt with may vary quite widely from one part of the country to another. It is recommended in the strongest possible terms that the Area Board be approached as soon as an outlying site comes up for consideration.

## "INJECTED CONCRETE" ON AN OFFICE BLOCK IN OSLO



*We illustrate on the left the finished result of a new technique of concreting which has been evolved by a Norwegian architect, Mnal E. Viksjo, and used by him on a 17-storey office block in Oslo. The aggregate, comprising washed pebbles of  $\frac{1}{2}$  in. to  $1\frac{1}{2}$  in. dia. is packed into the shuttering and the voids are filled with liquid mortar pumped in through a series of 1 in. dia. pipes placed vertically at 2 ft. 6 in. centres. This mortar is mixed in batches made up as follows: 500 lb. cement, 94 lb. sand,  $12\frac{1}{2}$  lb. of a patent admixture to prevent water separation, 6 lb. chalk filler,  $8\frac{1}{2}$  gal. water. The injection pipes are withdrawn as the formwork is filled, the maximum height of each lift being 10 ft. In summer weather the formwork is struck after 6-8 hours and the surface is immediately sand-blasted, the surface pattern being formed by the use of rubber masks. The technique effects a considerable saving in weight, the resulting concrete giving a strength of 6,000 lb./in.<sup>2</sup> at 28 days; the finish conceals all lift joints, creep (it is claimed) is eliminated, and the technique has proved highly competitive with traditional construction.*



**building illustrated**

## PITHEAD BATH

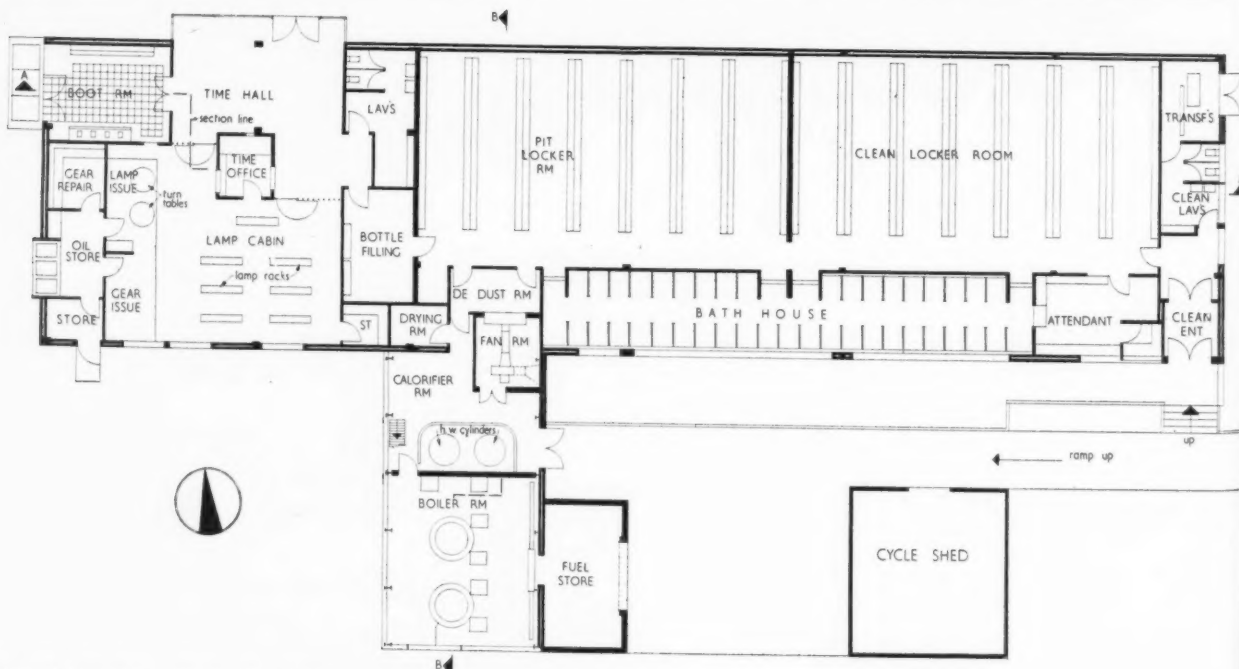
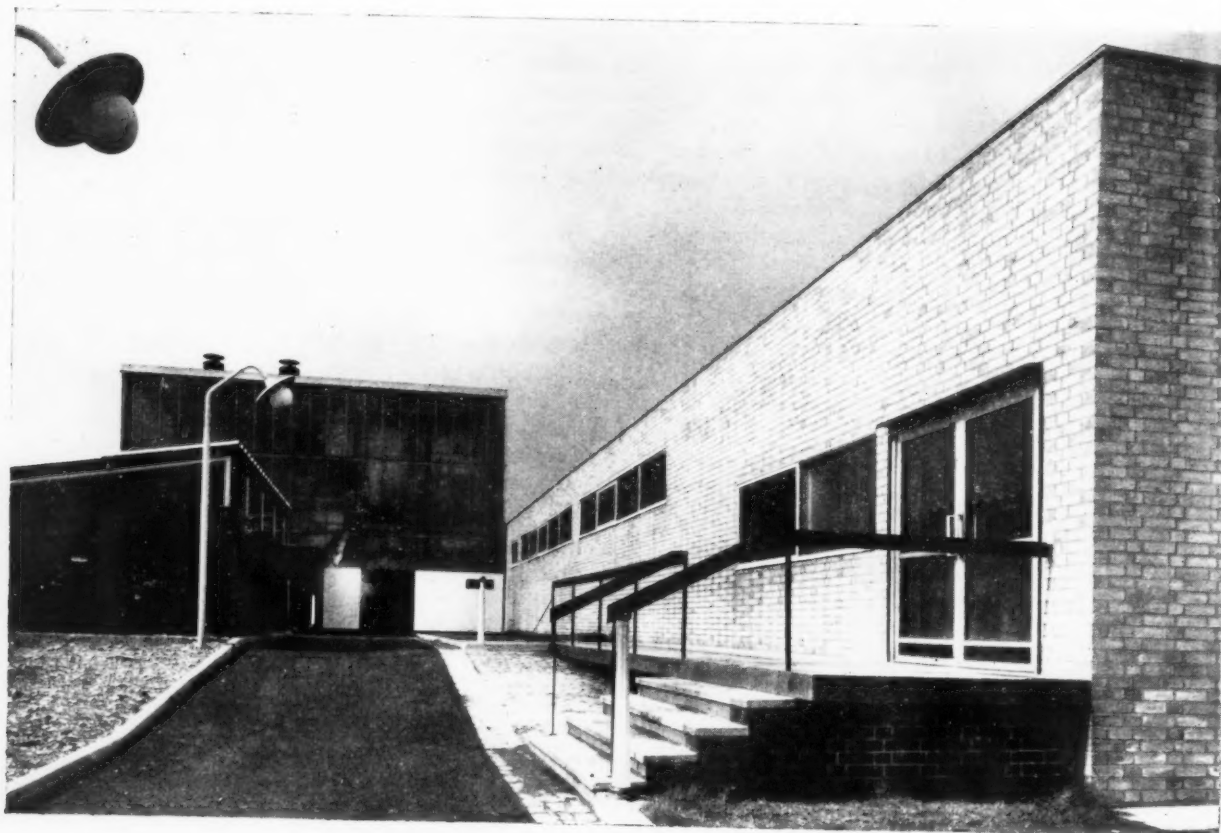
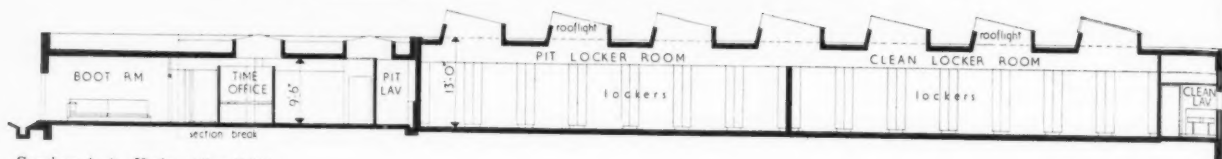
at DUDLEY COLLIERY, DUDLEY, NORTHUMBERLAND; designed by RICHARD SHEPPARD and PARTNERS in collaboration with J. C. SPOONER, northern divisional architect, National Coal Board; architect-in-charge KENNETH STROWLGER; assistant ANTONIA VANDEN BOS; consultants (structural) TWISTEEL REINFORCEMENT LTD. and DURHAM STEELWORKS LTD; (electrical) CAIRNS and BYLES; quantity surveyor R. H. DUNS

The clients for this building at Dudley—the National Coal Board—wanted a pithead bath with additional accommodation in connection with the coal mine. Apart from the bath house, locker rooms, attendants' offices, lavatories and boiler house, there is a lamp cabin, time hall and office and lamp and gear issue and repair rooms. The architects have designed a building that is distinguished for its precise detailing and interesting siting on an area of waste ground. This is the first pithead bath to be analysed in the JOURNAL.

*Viewpoint 1: left to right, the glass boiler house, the brick locker and shower building and "clean" entrance.*



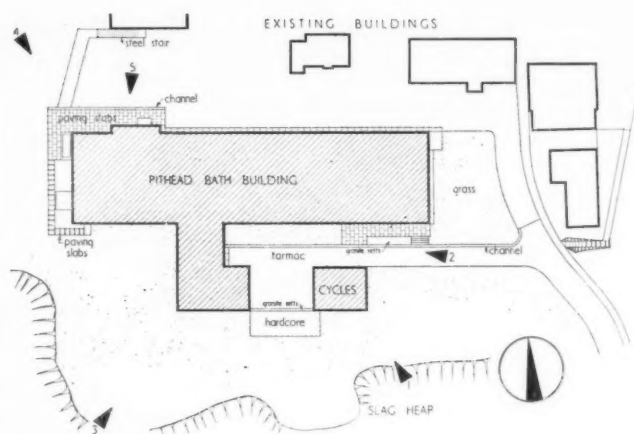
building illustrated



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Site plan showing photographic viewpoints

*Viewpoint 2 (opposite): the "clean" entrance to the locker room and showers and the boiler house terminating the inclined road surface. The red, white and black plant of the boiler house can be seen through the enclosing cage of semi-obscure glass. Other interesting points are the neat eaves detail of aluminium angle; the lightly-constructed galvanised metal windows and aluminium doors; the split headers in the external leaf of the brick cavity wall and the simply-constructed metal handrail. The Victorian-type cast-iron posts to protect the building are interesting and effective. The light fittings, which have a "dead flower" look were said to be the best available at the price: these and the cycle shed, with its comparatively heavy detailing, are not up to the standard of the rest of the job. The glazed entrance doors were illustrated in a Working Detail in the JOURNAL for August 1, 1957.*



First floor and part roof plan

## analysis

s d

## CLIENT'S BRIEF: his stated requirements

To provide new pithead baths with a certain amount of additional accommodation relating to the coal mine. The baths were designed with the following accommodation: locker room for clean clothes, with 672 lockers, a separate locker room for dirty or pit clothes, bath house with 40 shower cubicles, bath attendants' room, de-dust clothes extract room, miners' water bottle filling room, lavatories and boiler house. The additional accommodation consists of lamp cabin, time hall and office, lamp issue and repair rooms.

## SITE: topography, surrounding, access planting

The building is on made-up ground on waste from mine workings. On the south side there is an old slag heap approximately 30 ft. high. Ancillary and miscellaneous mine buildings are grouped around the pit shaft. An access road to the mine is to the north. There are no trees but grass has been sown on the east side of the new building.

## PLAN: general appreciation and relation of units

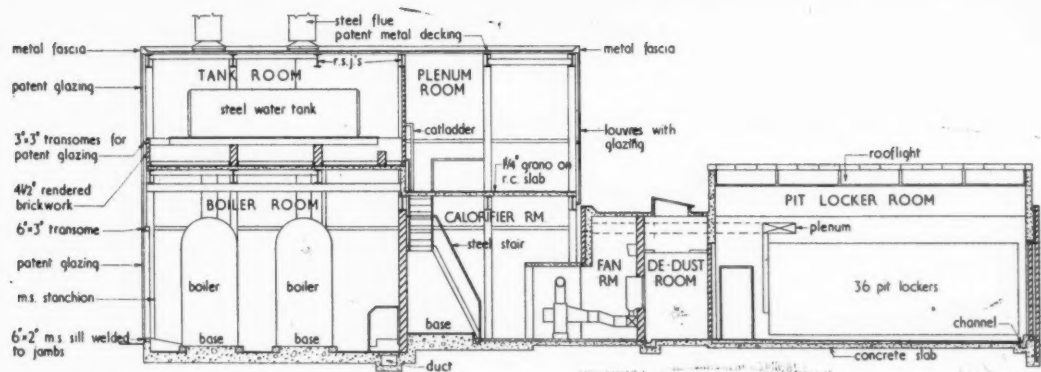
The requirements of accommodation, use and type of structure, divided themselves into two quite different building units, the boiler house and the rest. The rest was again sub-divided from a planning point of view, firstly bathing, carried out in the men's own time and secondly, lamp filling, gear issue, etc., carried out in working time. The latter functions are timed and therefore govern walking distances between one room or function and another. Points of entry and exit were dictated by the access road and by the position of the mine shaft. The design of heating equipment, calorifiers, plenum system and water storage tanks in the boiler house were basically to a standard N.C.B. unit layout. There had to be one floor level throughout the main building.

The locker rooms were planned to use steel clothes locker units which are served by the plenum system. These units were made up into banks placed back to back and two units high which were connected at high level to the main plenum trunking at the end of each bank. By making these banks of maximum length the number of connections and therefore the total length of trunking is reduced to the minimum. The locker rooms and bath house were naturally planned to be adjacent to the boiler house to reduce heat losses, and length of plenum trunking.

## MAIN CONSTRUCTION: general appreciation

Due to the site having been used previously as a tip for waste slag from the mine workings, no good load bearing strata was found until a depth of approx. 13 ft. Therefore in these circumstances it was necessary to adopt the use of piles or piers down to this level. From the economical point of view these were constructed in mass concrete and spaced as wide apart as possible, with r.c. downstand beams at floor level spanning from pier to pier to carry the floor slab. From the design point of view it seemed logical to adopt a framed construction for the superstructure, as 30-ft. spans were required over the locker rooms and lamp cabin (i.e. most of the floor area of the single-storey block); in addition the roof construction had to be resistant to corrosion from excess steam and moisture. It therefore seemed logical that the simplest and most economical structure would result if the roof beam spans and the floor beam spans were identical with the superstructure, with columns centred above the mass concrete piers. We made the roof beams of the upstand variety to form a simple system of troughed roof lights, spaced to give good even daylighting to all lockers and lamp racks.

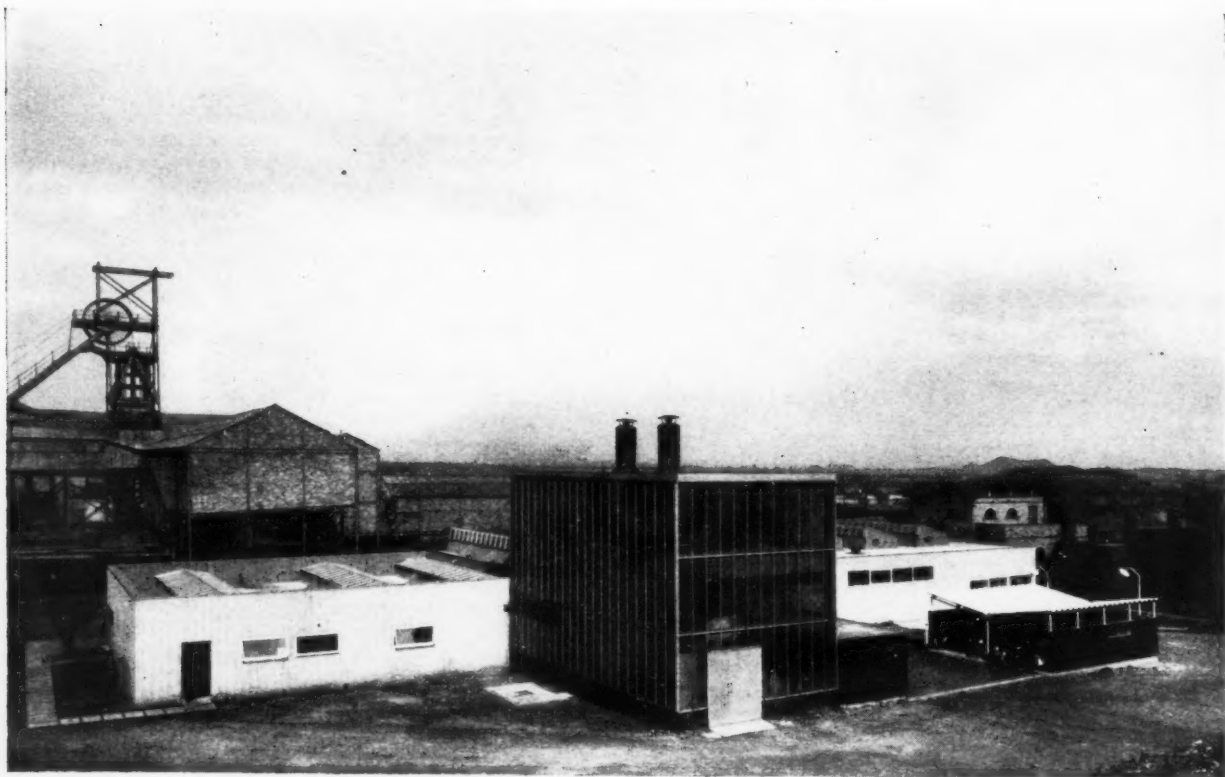
building illustrated



Section B-B [Scale:  $\frac{1}{16}'' = 1' 0''$ ]

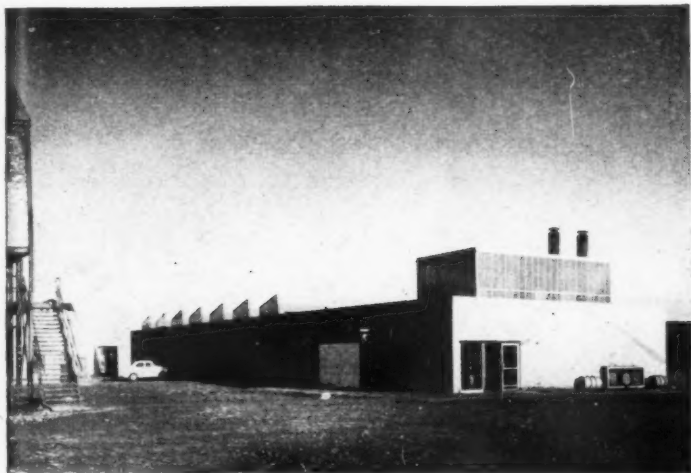
Viewpoint 3: from the high ground south-west of the building. On the left of the boiler house, in the brick-enclosed structure, is the lamp room and time office. The base of the glass box is seated on a plinth of rough concrete. The texture has been obtained by the

use of a retarder painted on the shuttering and by brushing the concrete to expose the aggregate. A Working Detail showing the glass wall in the boiler house was illustrated in the JOURNAL for August 8, 1957.

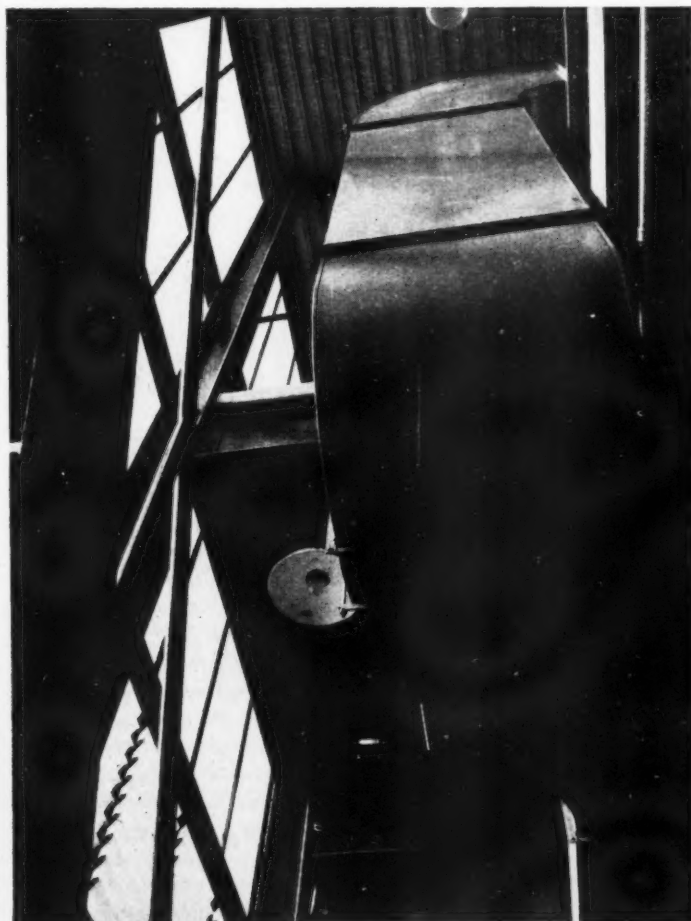


Viewpoint  
set in the  
drums and  
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Viewpoint 4, from the west. The lively pattern of the roof lights and the oil drums set in their concrete frame contrast with the severe outline of the buildings. The oil drums are used for the refuelling of the miners' lamps, and the roof lights provide illumination to the locker rooms. The ends of the roof lights are in concrete, painted light blue. The steel-framed porch giving access to the time hall is shown in detail in viewpoint 5. A typical roof light will be illustrated as a Working Detail in a future issue of the JOURNAL. Below: the interior of the boiler house, showing the main plenum duct from the ground floor to the first floor plenum room. On the left is the string of the iron staircase, which has a polished steel handrail. In the background is the underside of the aluminium deck roof. Bottom left is a panel of fixed glass louvres in the patent glazing.



## analysis

	cost per sq. ft.	s	d
preliminaries and insurances	2	8½	
contingencies	2	10½	

## STRUCTURAL ELEMENTS

## Work below ground floor level 10 2½

Generally: mass concrete piers at approximately 30-ft. c/c's and 14 ft. deep. Reason: nature of soil.

## External walls and facings 4 5½

Main building: cavity brickwork in buff rustics, full height with simple openings for windows. Reason: no maintenance. Would look well with large deposit of coal dust from siding. Pleasant colour and texture. Local brick, produced by the NCB.

Boiler house: vertical patent glazing generally above 3 ft., aluminium and Georgian wired glass finish.

Common brickwork in fuel store and cycle store, black chlorinated rubber paint. Reason: no maintenance, easily cleaned and displays machinery; black paint will not show dirt.

$$\text{Ratio: } \frac{\text{solid wall}}{\text{floor area}} = \frac{0.565}{1}$$

## Frame or load-bearing element 6 11½

Columns and beams: reinforced concrete in main building, 30-ft. span at 30 ft. 4½ in. cts. Reason: frame structure because of long clear spans and widely-spaced foundation piers. Reinforced concrete was used in preference to other materials and because it is less subject to corrosion by steam.

Boiler house: structural steel work for columns and beams, 21-ft. 11-in. span at 8 ft. 2 in. c'.

Reason: not subject to excess steam, gives simple fixing for cladding, pipework and plant.

## Upper floor construction 7½

Tank room in boiler house: *in-situ* reinforced concrete, screed to fall. Reason: fire resistant and economical.

Plenum room in boiler house: *in-situ* r.c., granolithic finish.

## Staircases 5½

Boiler house: steel channel strings, painted, chequer plate treads, handrails polished.

Reason: simple and durable.

One staircase, 2 ft. 3 in. width overall, total rise 14 ft. 2 in.

## Roof construction 6 10

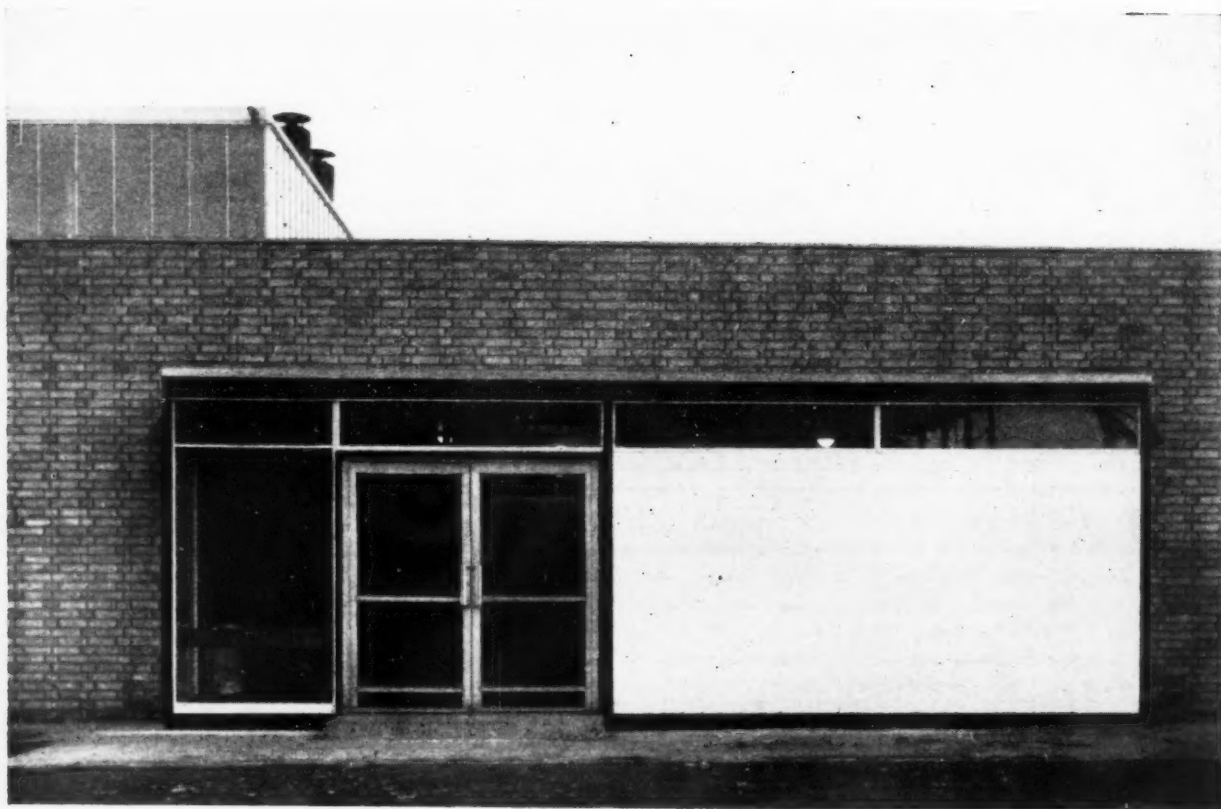
Main building: reinforced concrete *in-situ* slab between *in-situ* upstand beams which form the upstands to the continuous roof lights; 3-layer built-up felt, roofing on foam-slag screed.

Reason: screed thickness falls from 5 in. to 1 in. at r.w. heads, which are positioned on north side of building so that maximum screed thickness occurs over bath house where maximum thermal insulation in the roof structure is required; correspondingly, the thermal insulation is reduced the farther one is from the source of heat and steam.

Boiler house: patent aluminium troughed decking with insulation bonded on top. Roof finished with 3-layer felt roofing. Roof edged in formed heavy gauge aluminium fascia, left natural.

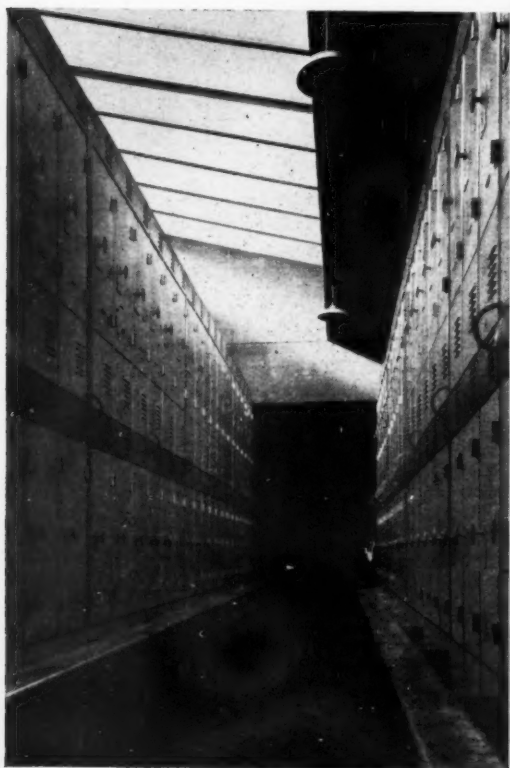
Areas: Boiler house 104 sq. yds: Main building 532 sq. yd.

building illustrated



Viewpoint 5 (above): entrance to the time hall. The main frame is constructed in standard steel sections with infilling of alu-

minium doors and steel-framed windows. A concrete panel faced with white glazed tiles contrasts with the black painted steelwork.



The steel-framed porch is a virtuoso detail that projects from the building for no apparent reason and is out of scale with its context (see viewpoint 4). Would it not have been better to have maintained a flat surface to this elevation and thus allow a stronger relationship between the lively pattern of the roof lights and the long wall? This entrance porch was illustrated as a Working Detail in the JOURNAL for August 1, 1957. Extreme left: interior of the locker room. Standard N.C.B. lockers spray-painted in red and aluminium. Granolithic floor finished with two coats of silicate of soda. Left: the showers show a change in the construction and material in the partitions. The architects were required to provide terrazzo partitions and an open communal shower area, which would have been on the right of the photograph, but when the buildings were completed the miners did not like the arrangement. Light steel partitions were introduced which did not require to be bedded in the floor. It was agreed that an anti-condensation spray should be applied to walls and ceiling after the building had been occupied for a year. This was not done earlier because there was efflorescence in the brickwork.

Rooflights

Locker room  
continuation  
Georgian  
lights to  
lockers and  
Pit lavatory  
low pitched  
perimeter  
Number

Windows

Main block  
white oil  
to boiler  
Reason: for  
structure

External

Pit entrance  
aluminium  
painted  
Boiler room  
Reason: for  
wear.  
General  
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Reason: for  
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Glazing

Bath house  
General  
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plate glass

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## analysis

	s	d
<b>Rooflights</b>	2	0
Locker room and bottle room and lamp cabin: continuous aluminium patent glazing with Georgian wired cast glass. <i>Reason:</i> continuous roof lights to provide ample and even natural light to lockers and lamp racks.		
Pit lavatory and de-dust room: small rectangular low pitch Georgian wired cast glass in aluminium perimeter frame. <i>Reason:</i> small rooms.		
Number of rooflights, 12; total area 2,626 sq. ft.		
<b>Windows</b>	3	2½
Main block: brickwork, metal galvanized with white oil gloss paint, and aluminium patent glazing to boiler house.		
<i>Reason:</i> resistant to corrosion and simplicity of structure.		
Ratio: $\frac{\text{window area}}{\text{floor area}} = \frac{0.0726}{1}$		
<b>External doors</b>		9
Pit entrance, clean entrance and time hall: glazed aluminium extruded sections, mill finish with painted glazing beads.		
Boiler room: flush aluminium with mill finish.		
<i>Reason:</i> no maintenance and looks well with hard wear.		
General store and calorifier room: flush timber core with galvanized steel faced both sides and painted.		
<i>Reason:</i> durable.		
Transformer room: louvred, agba hardwood varnished, framed with louveres full height.		
<b>Glazing</b>		7
Bath house and lavatories: windows, broad reeded		
Generally: clear sheet and plate glass.		
External and internal: Georgian wired polished plate glazed doors.		
<b>PARTITIONING</b>		
<b>Internal partitions</b>	2	7½
Generally: brickwork, finished fairface or cement sand render. 462 sq. yd.		
<b>Screens</b>		7½
Time office and attendants' room: timber framed, painted hardwood; reason: positions of screen did not dictate use of metal work for greater durability, and for economy.		
Time hall: steel framed with glazed tiled reinforced concrete panel; reason: durability.		
<b>W.c. doors and partitions</b>		2
Metal faced plywood, painted; reason: durable and economical.		
<b>Internal doors</b>	2	3
To main rooms and places with heavy traffic: heavy fluted aluminium faced, solid timber core faced doors used where likelihood of heavy wear.		
No. of single doors, 17. No. of double doors, 6.		
<b>Ironmongery to internal doors</b>		1½
Anodised aluminium, to match aluminium-faced doors. Satin chrome steel used where heavy wear is likely.		

## FINISHINGS

	cost per sq. yd.	s	d
<b>Floor finishes</b>		2	4½
Throughout: granolithic with 2 coats of silicate of soda, except in locker and tank rooms. Area, 531 sq. yd.		20	8½
Locker and tank rooms, asphalt, area 381 sq. yd.		21	0
<b>Wall finishes</b>		1	11
Bath house: up to 5 ft. high 6 in. × 6 in. glazed tiles, for durability.			
Above 5 ft., anti-condensation paint.			
Boot room: full height 6 in. × 6 in. coloured glazed tiles; two colour pattern of alternate courses of tiles.			
<i>Reason:</i> durability and because easily hosed down.			
Elsewhere: either fair face brickwork or cement sand rendering, emulsion paint finish for durability combined with economy.			
<b>Ceiling finishes</b>			5
Bath house: anti-condensation paint.			
Clean entrance and time hall entrance: softwood tongued and grooved 3 in. × ½ in. boarding on battens with varnish finish; reason: a false ceiling over two small entrance areas at relatively low cost, providing a human material which is above level of being easily damaged.			
Rest: metal pan shuttered reinforced concrete slab with 2 coat oil bound water paint.			
<b>Decorations</b>			8
External windows, white oil gloss paint to contrast with shadow of glass, external steelwork and flush doors: oil gloss, black, which does not show dirt so readily and most of the steelwork (handrails etc.) is likely to be scratched in use.			
Boiler flues: heat-resisting, black.			
Internal timber doors, timber and steel door frames, oil semi-gloss, black.			
Window frames, oil gloss, white.			
Services: plenum duct and boiler plant: heat resisting, orange-red, yellow and blue.			
Service pipes: heat resisting, B.S.S. colours for identification purposes.			
<b>FITTINGS</b>		9	1½
Locker rooms: standard N.C.B. steel lockers, enamel sprayed.			
<b>Other fittings</b>		1	10½
De-dust plant: standard N.C.B. plant, matt black oil paint.			
<b>SERVICES</b>			
<b>Rain water disposal</b>			2½
North side locker room: cast iron coated finished black gloss paint.			
<b>Plumbing internal: waste disposal</b>			2½
Bottle filling room, attendants' room and lavatories: copper above ground and cast iron below buildings, gloss painted; Basins and bottle filling trough waste pipes taken down to discharge over glazed channel.			

## analysis

<b>Cold water installation</b>	s	d
Generally: copper.	2	4½
<b>Sanitary fittings</b>	11½	
Pit and clean lavatories: high level fireclay cisterns to 4 w.c. pans.		
3 cantilever fireclay drinking fountains, 4 large fireclay lavatory basins, 2 lengths of slab urinals, 2 bottle filling troughs: 5 ft. with timber protecting pads.		
<b>Heating installation</b>	18	6½
Locker rooms: plenum system, gloss painted.		
Stores and boot room: pressed steel convector cabinet, gloss painted.		
Generally: high level circulating pipes, gloss painted.		
<b>Boiler type and capacity</b>		
Boiler room: two upright solid fuel boilers.		
<b>Ventilation system</b>	5	
Bath house and locker rooms: extract fans.		
<b>Hot water installation</b>	5	0½
Calorifier room: calorifiers.		
<b>Drainage: type of system</b>	2	9½
Combined		
Drains under building: cast iron.		
Outside area of foundations: S.G.S.W.		
<b>Electrical installation</b>	6	0½
Switch gear supplied by Colliery in attendant's room.		
Bulkhead fittings in lamp cabin, time hall, boot room, and pendant fittings generally elsewhere.		
<b>Wiring and switching types</b>		
Generally: M.I.C.C. cable on surface; reason: no danger from steam		
Lamp cabin, boot room, time hall, bottle filling and de-dust rooms: T.R.S. in conduit; cleaner, neater job.		
<b>Power supply type</b>		
Attendants' room: 415/240 v. 3 phase, 4 wire, 50 cycles, a.c. supply.		
<b>Paved areas</b>	2	0
Access road and turning space: tarmacadam.		
General around the building: B.S.S. paving slabs size 3 ft. by 2 ft. by 2 in.		
	£50,279	
Total cost per sq. ft. ————— = 102	4½	
	9,824 sq. ft.	

## TIME SCHEDULE

<i>Drawings</i>	<i>Tender date</i>
May-July, 1954	November, 1954
<i>Work commenced</i>	<i>Work completed</i>
December, 1954	September, 1956

## COST SUMMARY

<i>Total ground floor area</i>	<i>Total floor area</i>
108,9 sq. ft.	9,824 sq. ft.

<i>Tender date</i>	<i>Price of work above ground floor level</i>
November 11, 1954	£46,013 16s. 5d.
<i>Price of foundations</i>	<i>Price of ancillary buildings</i>
£2,798 18s. 8d.	£481 12s. 6d.
<i>Price of external works</i>	<i>Gross total price</i>
£984 12s. 5d.	£50,279
<i>Price per sq. ft. of floor area</i>	
£5 2s. 4½d.	
Prices are based on tender costs.	

## COST COMMENTS

The overall cost pattern of this building is rather unusual as the following grouping shows:

Structure	41s. 9½d.
Finishings	5s. 4½d.
Services and fittings	47s. 6½d.

Cost analyses are only properly intelligible when set against the problems that the designers of the building had to solve. It is evident that the two major problems here were, first, the accommodation of unusually complex and extensive services. Second, the need to provide for uncommonly tough use of the buildings in dirty and damp conditions. The second requirement produces some paradoxical cost consequences. Extra money has been spent on items such as metal-clad doors and electrical fittings for steamy conditions; but money has been saved in the use of hardened granolithic floor finishes and anti-condensation paint without plaster.

Services and fittings take what must be a record proportion of the total cost—nearly half, of which the largest single item is the extensive plenum heating system. Of the remaining half of the total cost (structure) about half again goes on foundations, frame and walls—the most significant item being the foundations, which are deep in made up ground, and therefore costly.

## SITE ORGANIZATION

*Site labour and equipment.* Labour was organized under a general foreman and gangers. Equipment used included an excavator with skimmer and back-acting excavator, 2 cu. yd. dumpers, adjustable steel props and beam centres, concrete mixers, ½-ton dumpers, platform hoist, tipping skip and receiving hopper.

*Sub-letting.* Plumbing, plastering, glazing and painting were sub-let, which is the usual practice of the general contractors.

*Job management.* Progress charts and incentives were used and the contracts manager visited the site approximately twice a week.

## CONTRACTORS

*General contractors:* Middlemiss Bros. *Sub-contractors—Asphalt:* Limmer & Trinidad Lake Asphalte Co. Ltd. *Reinforced concrete:* Twisteel Reinforcement Ltd. *Bricks:* N.C.B. Northern (N. & C.) Division. *Roofing felt:* Briggs & Sons Ltd. *Glass:* Elders Walker & Co. Ltd. *Patent glazing:* S. Warner & Son Ltd. *Structural steel:* Durham Steelwork Ltd. *Central heating, boilers:* Hopes Heating & Eng. Ltd. *Electric wiring and fixtures:* A. S. Lowrey & Son Ltd. *Plumbing:* Allinson Leake & Co. Ltd. *Plaster:* G. W. Dixon (Gateshead) Ltd. *Tiling:* Commercial Marble & Tiles Ltd. *Door furniture:* A. G. Roberts Ltd. *Casements:* James Gibbons Ltd. *Roller shutters:* Mather & Platt Ltd. *Paint:* J. Denton Ltd.



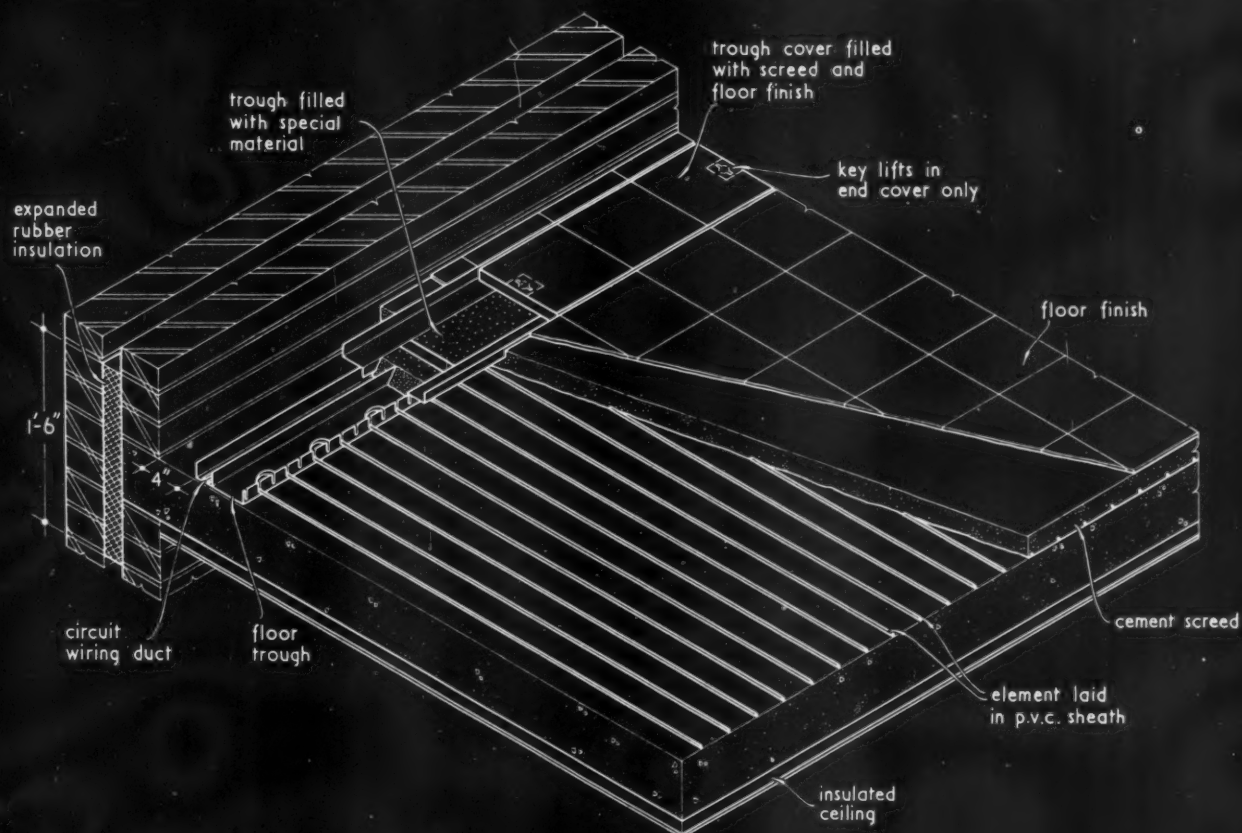




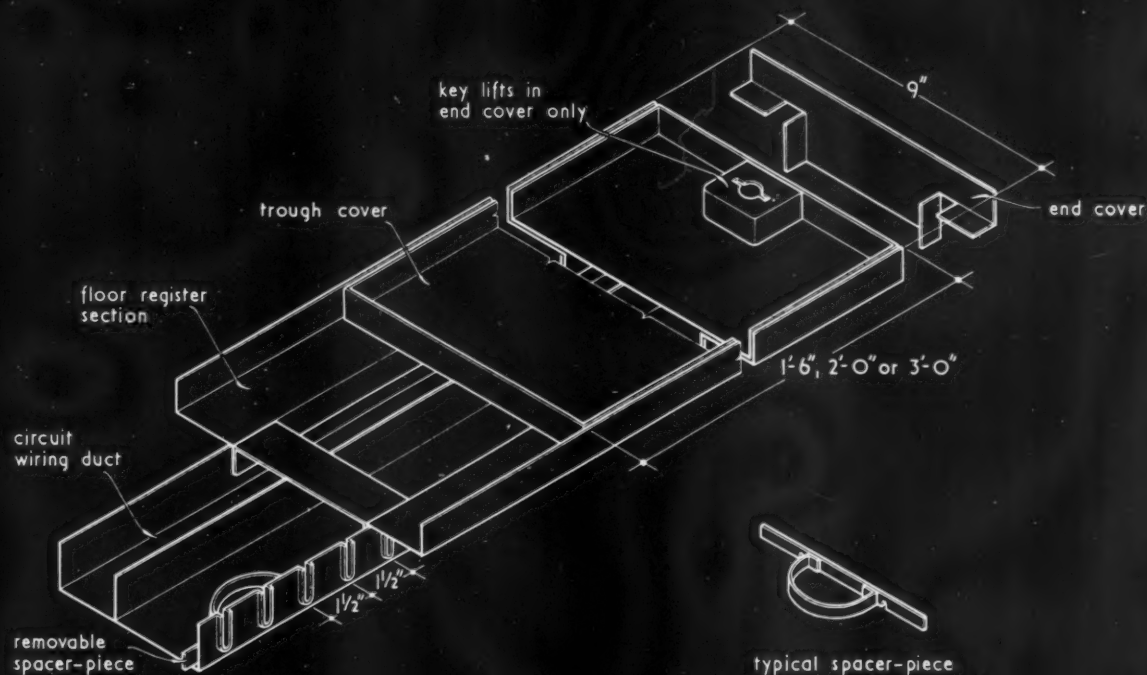
# SPACE HEATING SYSTEMS | ELECTRIC

The Architects' Journal Library of Information Sheets 633. Editor: Cotterell Butler, A.R.I.B.A.

29.G2  
29.G2



ISOMETRIC SKETCH OF TYPICAL INSTALLATION.



DETAIL OF FLOOR TROUGH.

## 29.G2 THERMODARE FLOOR HEATING SYSTEM

This Sheet describes the Thermodare system of floor heating.

### General

Heating by electricity eliminates labour and the necessity to provide fuel storage space, and this system can be effectively controlled by automatic means to take advantage of off-peak rates for current. With air heating systems, the air may become comfortable in a short while after the heating is turned on, but the fabric remains cold and contact with floors, etc., may still cause discomfort: the Thermodare system overcomes this disadvantage.

The system is contained within the limits of the normal depth of floor screed and surface finish. It may be used with any type of floor finish and, although some affect the balance of the heating better than others after the switch-on, none has any effect upon the subsequent control of heat. Installation is quick and simple, and heating elements can be readily replaced if damaged.

### Components

**Heating element:** The element is a high-tensile alloy conductor enclosed in an extruded sheath of special-grade p.v.c. The internal diameter of the sheath is over twice that of the element.

The element is available in three sizes, identified by the use of different coloured p.v.c. sheaths (black, blue or green). The diameter of the sheath is the same for each size.

**Floor troughing:** This is of 16g. sheet steel, 5 in. wide by 1½ in. deep, and is supplied in lengths of 6 ft. 0 in.; a partition is provided to protect circuit cables from direct contact with the heating element. Slots at 1½-in. centres along one side of the trough provide entries for the element at any multiple of this width.

**Removable spacer-pieces:** These are provided to maintain the correct radius of the element in the troughing and also to prevent screed from entering unused cable slots.

**Register sections:** Register sections, also in 6 ft. 0 in. lengths, fit over the troughing.

**Troughing cover-plates:** These are trays ready for filling with the required floor finish. The internal width of the trays is 9 in. to take standard tiles or blocks and they are available in lengths of 1 ft. 6 in., 2 ft. 0 in. and 3 ft. 0 in. End plates are provided with key lifts.

**End cover-plates:** These are available for closing ends of troughing.

**Cable connections:** Connections between circuit cable and heating element are compression joints, which have great mechanical strength and give perfect electrical continuity, while providing an effective barrier against loss of heat from the element to the circuit cable. The joint is covered by a p.v.c. sleeve, bonded to the heating element and circuit cable sheaths by adhesive p.v.c. tape.

### Installation

The troughing sections are fixed directly to the main floor slab or precast structure. The element is laid

between the troughing runs and tautened ready for the screed to be laid. The register sections are fixed over the troughing sections, overlapping the junctions in the latter to give rigidity to the assembly. The cover-plates should then be inserted upside down in the register sections to prevent screed from being dropped into the troughing and to maintain the correct register width until the screed is dry. The p.v.c. sheath of the heating element will stand up to the normal traffic (e.g., barrows, boots) encountered during the laying of the screed. The troughing is filled with special material to ensure that the maximum temperature in the troughing does not exceed that of the floor itself. Finally the troughing cover-plates are filled with the required floor finish. Where removable covers to the troughing are not desired for any reason, the floor troughing sections may be covered with a precast concrete slab of suitable thickness (after first filling with special material as previously described), the whole screeded and the floor finish applied. When repairs to the element are required the precast slab can be taken up and the floor finish later replaced within the area of the slab.

**Insulation:** The floor should be well insulated at the perimeter to prevent heat losses, but complete under-floor insulation is not recommended as this prevents the build-up of a heat reserve in the earth under the floor slab.

### Floor Finishes

Any type of floor finish may be used with Thermodare floor heating. Thermoplastic tiles are ideal as they have insufficient resistance to build up excessive heat. Wood blocks, especially thin ones, are good, as they increase the thermal capacity of the floor.

### Maintenance

Should the heating element become damaged, and this can only happen through structural damage to the floor, the section affected may be withdrawn by severing the loop in the troughing section at each end. A new length may then be pushed through the p.v.c. sheath and compression-jointed to the rest of the element.

### Further Information

In order to ensure completely successful installations, the Thermodare Technical Sales Service will provide a detailed specification for any heating system. For this purpose architectural drawings must be provided showing all constructional data and the voltage of the available electricity supply must be stated.

Compiled from information supplied by:

**Thermodare (Great Britain).**

Address: York Mansions, 94-98, Petty France, London, S.W.1  
Telephone: Abbey 6586-8.



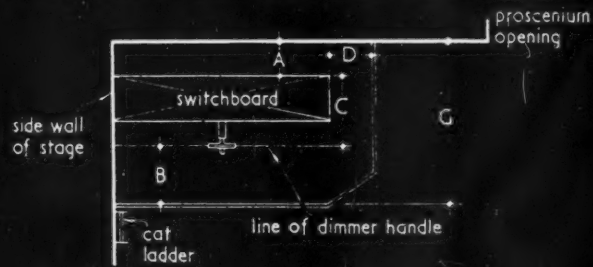




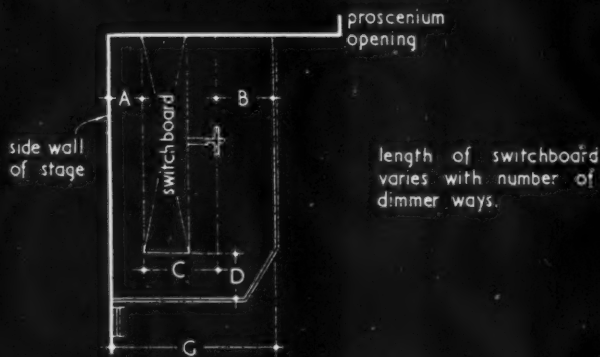
# DESIGN DATA | ENTERTAINMENT | THEATRES

4.L7

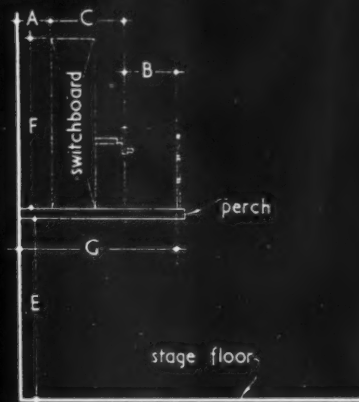
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switchboard mounted parallel to proscenium wall

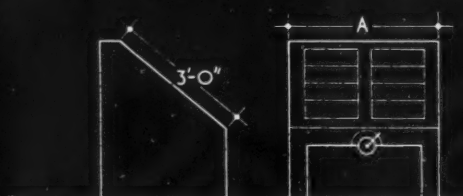


switchboard mounted at right angles to proscenium wall  
SWITCHBOARD AND DIMMER CONTROLS.



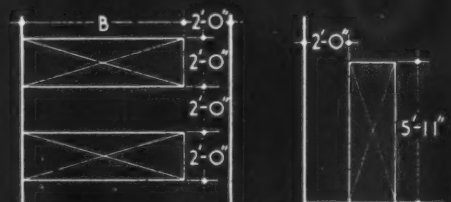
section

A	1'-6"
B	2'-6" min.
C	3'-3"
D	2'-0" min.
E	8'-0" min.
F	7'-6" average
G	7'-3"

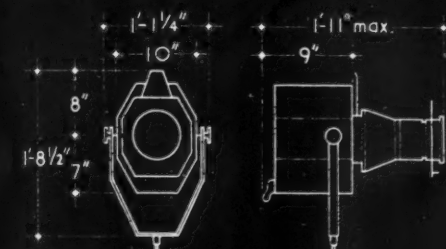


side elevation front elevation  
REMOTE CONTROL PANEL (DESK MOUNTING).

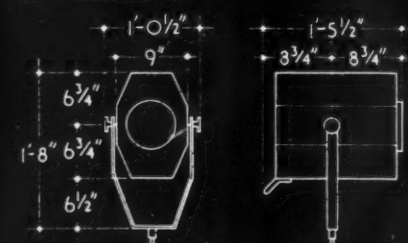
no. of ways	A	B
48	3'-0"	9'-0"
60	3'-6"	15'-0"
72	4'-2"	15'-0"
96	6'-0"	18'-0"
144	8'-4"	27'-0"



plan and section of valve racks

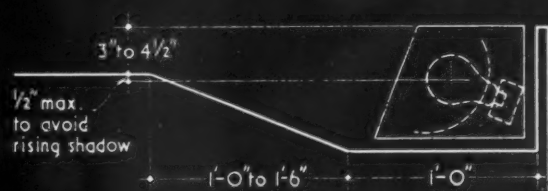


max. throw 60'-0"

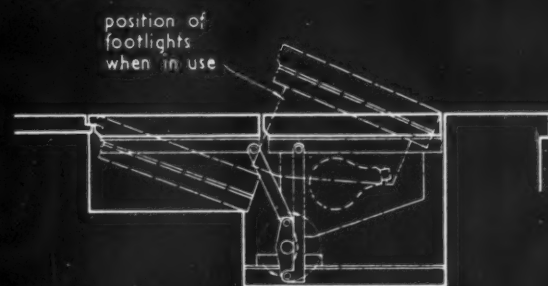


max. throw 45'-0"

TYPICAL SPOTLIGHTS.



typical footlight recess



disappearing footlights for forestage  
FOOTLIGHTS.

#### 4.L7 THEATRE PLANNING: STAGE PLANNING

**This Sheet** describes some of the standard equipment which the architect may have to provide for in planning a stage and auditorium.

##### Control Equipment

**Switchboard and dimmer controls:** The drawings on the upper face of the Sheet show the general dimensions of the usual type of switchboard and dimmer controls, which is as a rule housed directly inside the proscenium opening in the prompt corner, often above the stage director's control point. Of the alternative plans illustrated, that showing the switchboard mounted parallel to the proscenium wall is preferable, the other arrangement being used where space is limited. It may, however, be placed anywhere that gives the operator a good view of the stage as well as direct connection with the stage director.

**Remote control system:** The drawings in the centre of the face of the Sheet show an electronic valve rectifier type of remote control panel and space requirements for valve racks. This type is finding increasing favour with theatre managements. The control panels are made up to suit the space available and are usually situated in the auditorium at the back of the dress circle or other convenient position. The operator thus has a complete view of the action on the stage, but has to communicate with the stage director by intercom. It has considerable advantages, including great flexibility of operation, and is mounted quite independently of the dimmers, which may be housed in any convenient room in the theatre.

##### Lighting Equipment

The principal types of lighting equipment which concern the architect are illustrated. Footlights are normally provided, although there is a tendency in some productions to dispense with them. If a fore-stage is used, footlights are not practical and may either be made as separate removable units or arranged to disappear by mechanical means as illustrated in the example from the civic theatre at Malmo, Sweden. With this type of production quite large batteries of spotlights have to be provided in the auditorium itself, and the architect may be called upon to incorporate them in his design at the outset. As the housings for these affect the design of balcony fronts, etc., the dimensions of two typical spotlights for this type of work are given. The key points at which they are mounted are on the front of the dress circle or upper tier where such exists; in the ceiling immediately above and in front of the proscenium; in the side walls of the auditorium, about half-way up; on the ends of the balcony fronts where they approach the proscenium. These positions will, of course, vary with individual requirements.

##### Stage Machinery

Apart from the "flying" equipment and lighting equipment illustrated on this and Sheet 4.L4, there may be special apparatus required for different types

of theatre, and this is briefly described below. On the whole, the present tendency is away from over-complicated and ponderous machinery such as has been used for about the last hundred years in many continental theatres, and towards more simple types of production often using only one set. For straight plays, as opposed to opera, ballet and musical shows, the general feeling is that too many changes of scenery are distracting. Where it is decided to stage elaborate productions, however, the machinery should be chosen with a view to maximum efficiency in scenery handling in order to avoid slowing up the action of the play.

**Lifts and traps:** Lifts or "bridges" in sections or spanning the full width of the stage are often required. These can take many forms, but installation is expensive and they are not economical unless they can be locked together to take a complete set below stage as well as rise to form rostrums a full 8 ft. 0 in. above the stage floor. This, however, involves a very deep stage basement, with a 30-ft. clearance for scenery, plus the depth of the machinery itself.

Traps are removable sections of the stage floor, and are generally provided in the centre near the proscenium and at other convenient points. Sometimes the whole acting area is "trapped" to make the stage floor more plastic, but as a rule it is an easier and more adaptable scheme for the stage carpenter to erect what is required for an individual show.

**Revolving stages:** These are particularly useful where quick scene-changes are intended, especially of the box set type. They are more economically useful if they are of large diameter, from 40 ft. 0 in. to 60 ft. 0 in. They can be arranged to take lifts and traps down to a full 30-ft. basement, or may be as shallow as 9 ft. 0 in., sufficient merely to give headroom underneath.

**Trucks or wagons:** These vary from movable platforms big enough to take single pieces of built scenery too bulky to "fly," to complete stages rolling on tracks in the floor, mechanically operated and large enough to take entire scenes. Again, they can be linked with lifts and revolving stages. All three systems have been used at the State Theatre, Gothenburg, Sweden.

**Cycloramas:** These are large curved sky-cloths, either built solid and movable on overhead tracks, or according to the Schwabe-Hasseit system, which consists of canvas laced to curved overhead guides and wound from large spools on either side of the stage. The former type is cumbersome, makes scene shifting awkward, and, when curved throughout its full length, has acoustical drawbacks, but it does give the best appearance. The latter has the advantage of easy manipulation and no acoustical problems, but it always tends to wrinkle and spoil the illusion of space. In either case they have to be taken to great heights and widths in order to conceal the edges from the audience without the use of wings and borders, which would destroy the illusion.





Are

☐

C O

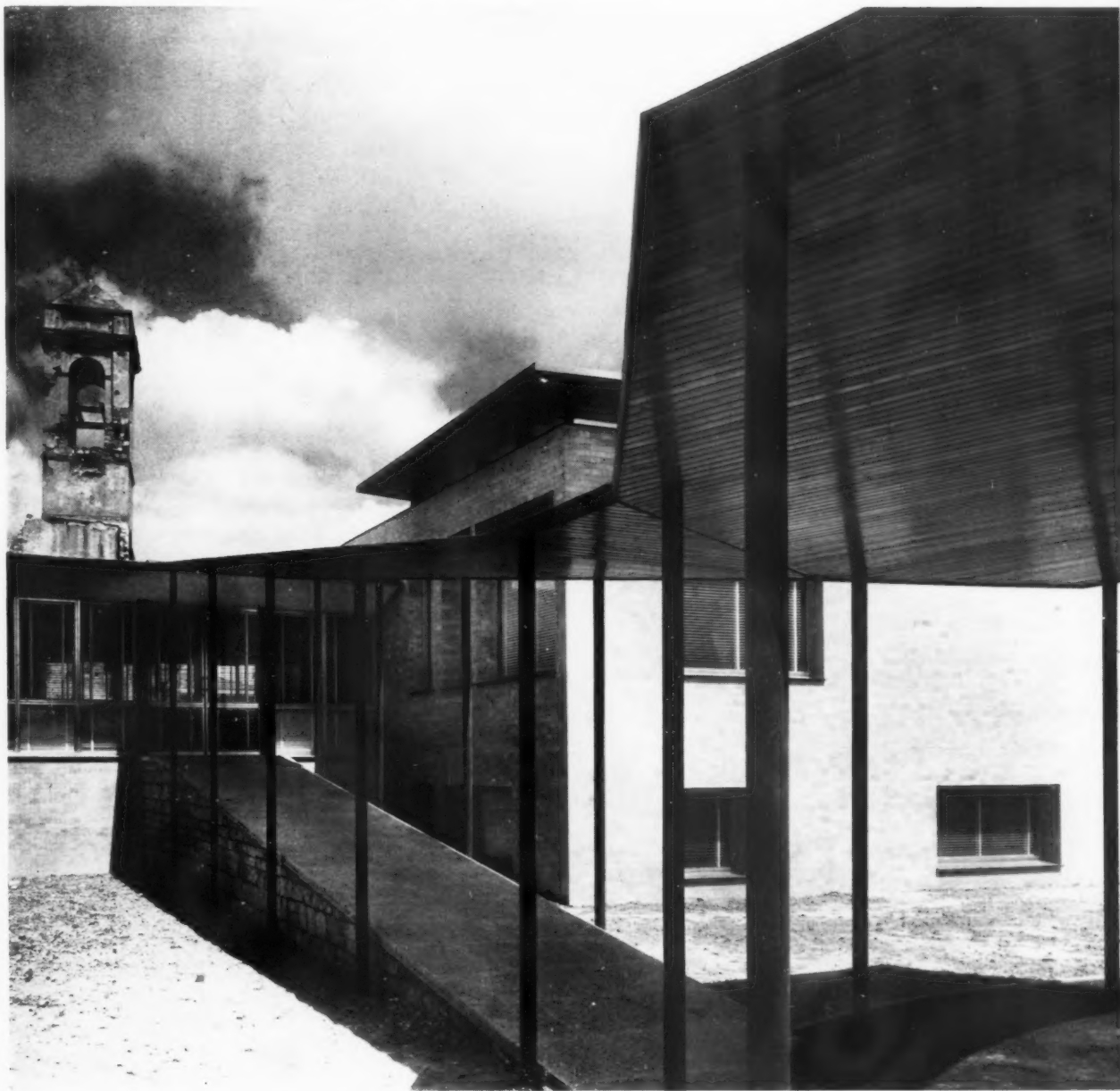
Re

working detail

COVERED WAYS AND CANOPIES: 22

COVERED WAY: CLINIC AT PISA, ITALY

Roberto Menghi, architect (material supplied by R. K. Dewhirst)



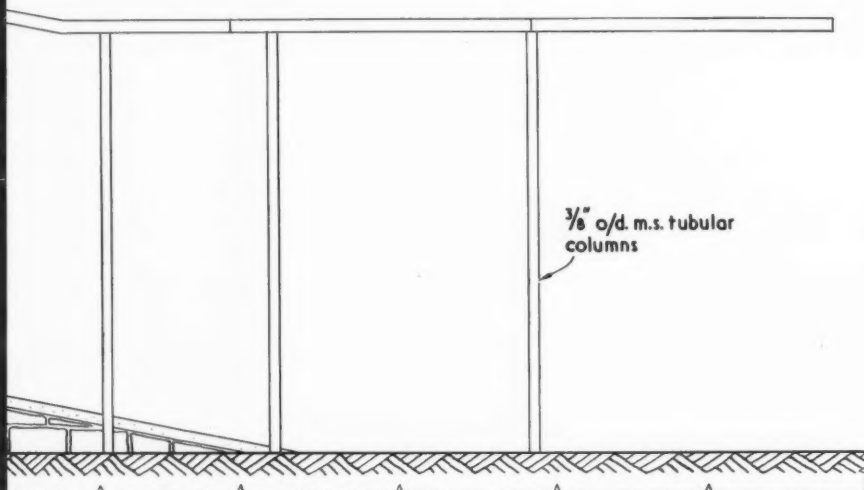
*The real interest in this detail lies in the canopy, which is formed at the end of the covered way, and which is cantilevered from such slender supports. In effect, rigidity is obtained by means of a welded mild steel framework of inverted T and channel section to which the 2½ in. by 1½ in. joists are scribed. The soffit is covered in pitch pine and the roof covering and fascias are zinc.*

working detail

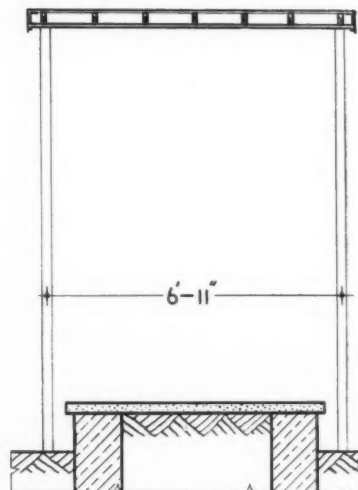
COVERED WAYS AND CANOPIES: 22

COVERED WAY: CLINIC AT PISA, ITALY

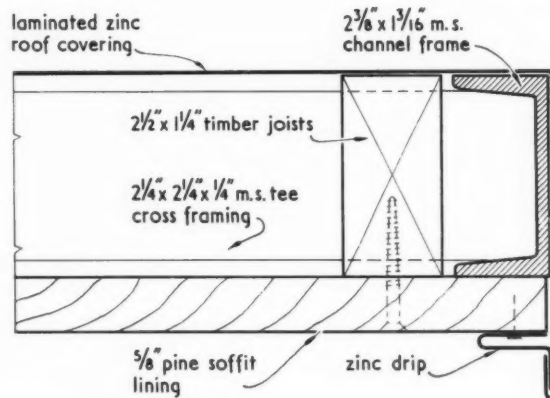
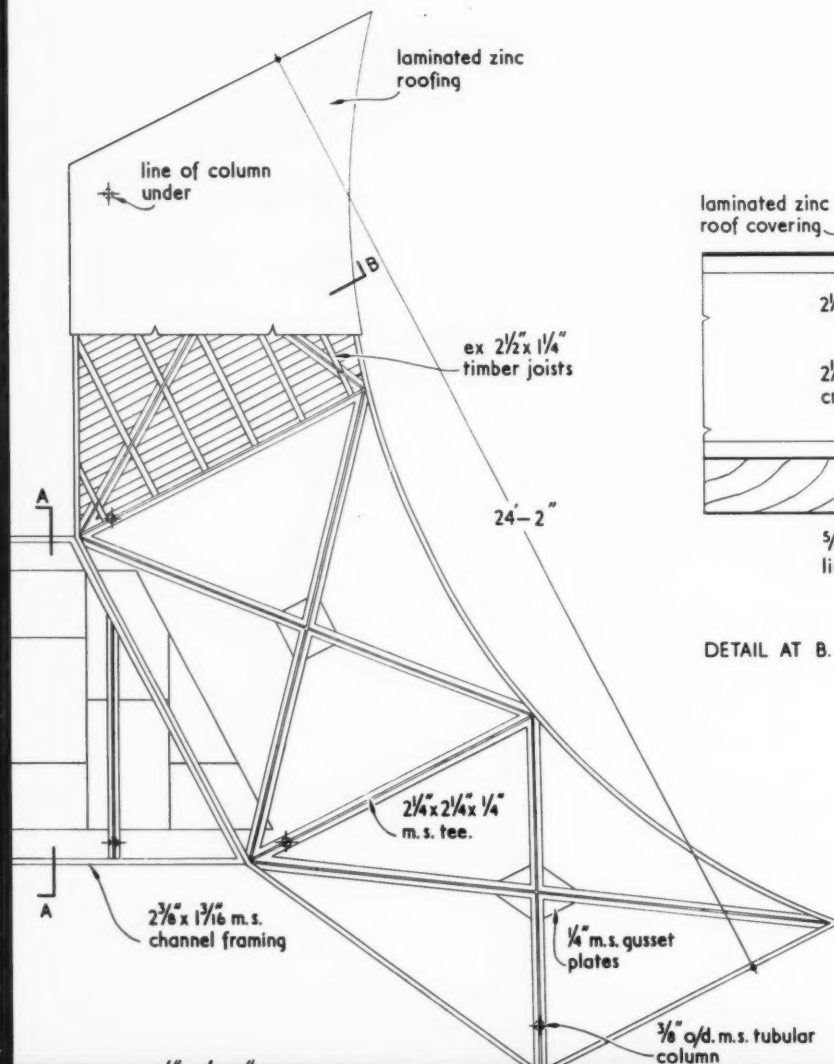
Roberto Menghi, architect (material supplied by R. K. Dewhirst)



ELEVATION. scale 1/4" = 1'-0"



SECTION A-A.

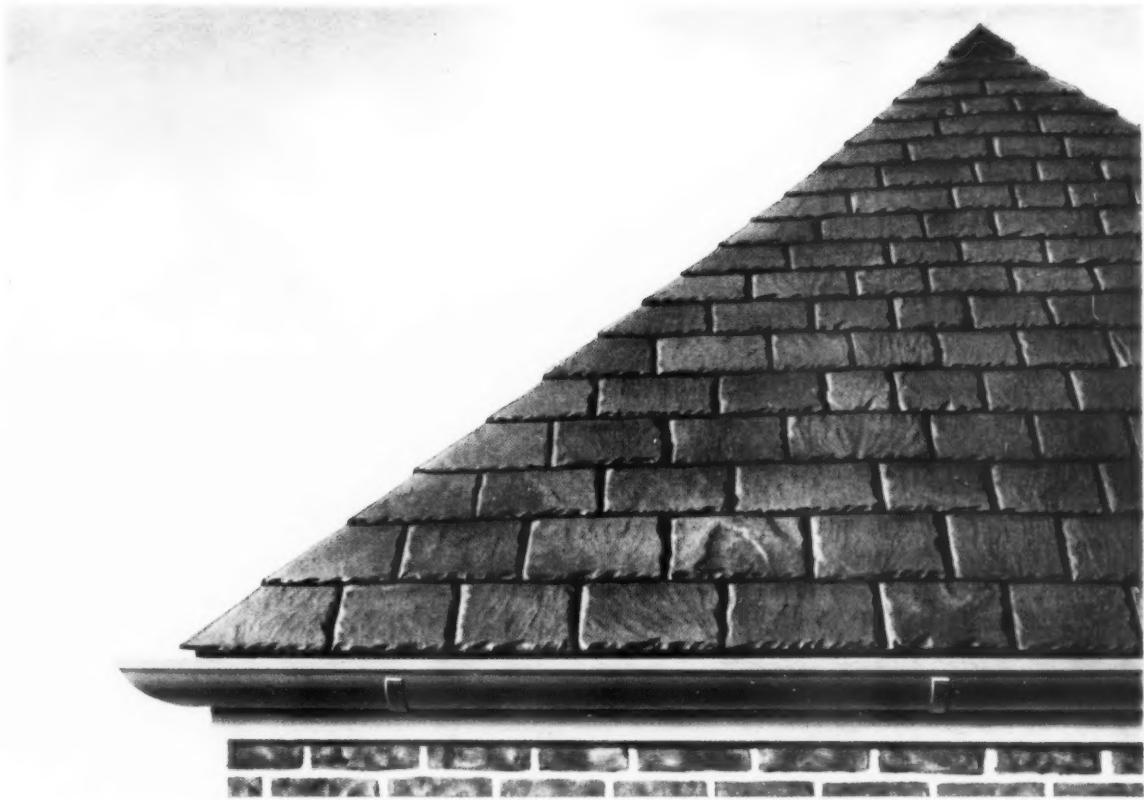


DETAIL AT B. scale 1/2 full size

note: figured dimensions in



## Broughton Moor Westmorland Green Slates



*Broughton Moor Olive Green Bests (course grained)*

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### TECHNICAL INFORMATION

Quality	Length (Random width)	Computed Cover in sq. yds. per ton (3" lap)	Approx Weight Per square (3" lap)-cwt.
Bests ... ..	from 18in. to 9in.	23 ...	9
Seconds ... ..	from 18in. to 9in.	19 ...	10½
Thirds ... ..	from 18in. to 12in.	18 ...	12
Special Peggies ...	from 15in. to 7in.	22 ...	9¾
Second Peggies ...	from 10in. to 7in.	20 ...	11

Samples and prices gladly sent

### SPECIFICATION

The roof to be covered with Broughton Moor Olive Green Best Quality (coarse grained) Westmorland Slates, to be obtained from The Broughton Moor Green Slate Quarries Ltd., Coniston, The Lake District, Lancs, in random sizes about 18in. to 9in. long, proportionate and random widths, laid to a 3in. lap in regularly diminishing courses from eaves to ridge. Each slate to be securely fixed by two stout copper nails and wide slates are to be used on the hips and verges.

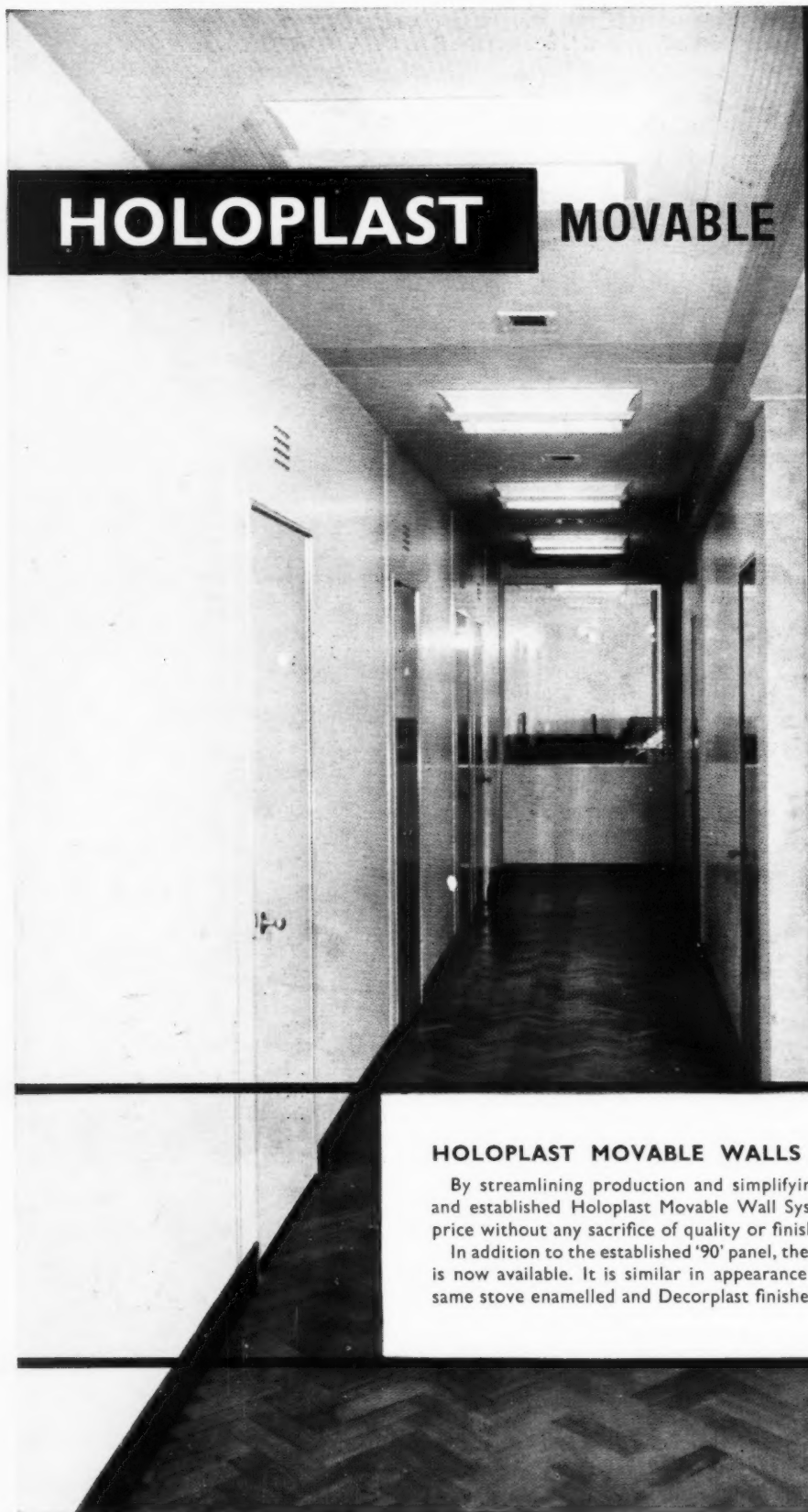
**Alternatives:** Seconds, Thirds, Special Peggies; Light Sea Green and Mixed Shades.

**Ridging:** "Bromoor" purpose-made of crushed and moulded slate from the same veins is recommended.

**The Broughton Moor Green Slate Quarries Ltd.**  
**CONISTON, THE LAKE DISTRICT, LANCASHIRE**

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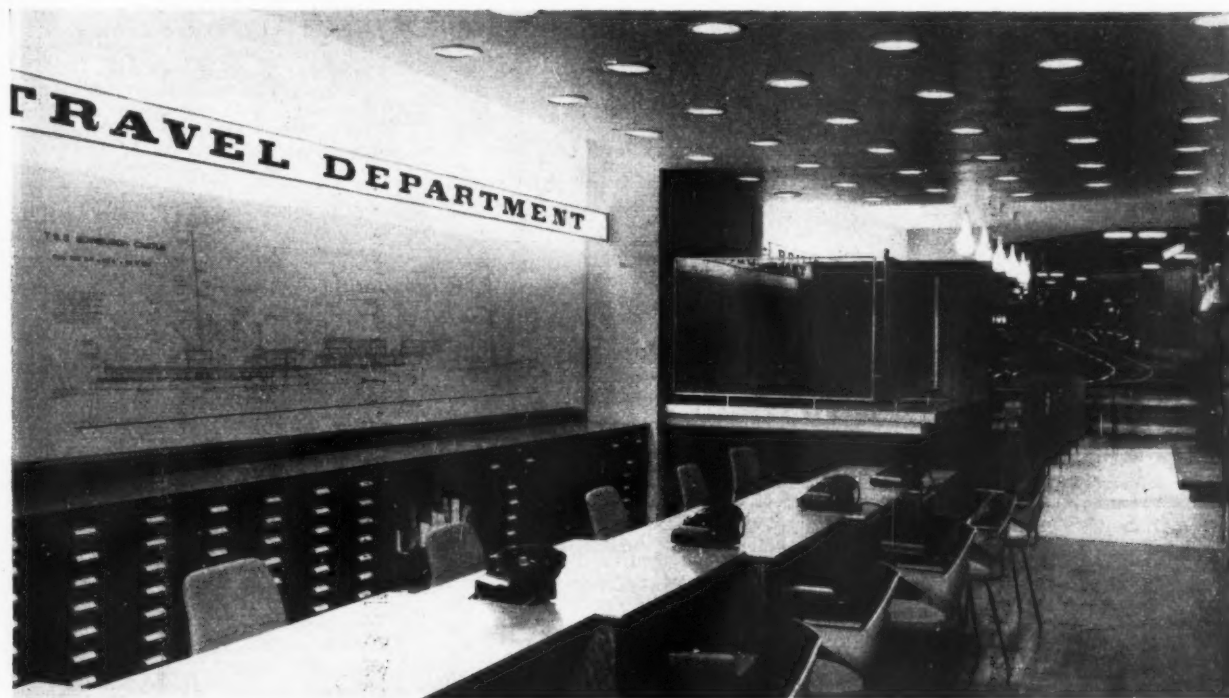
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M.W.3

# MODERNIZED TRAVEL AGENCY IN PALL MALL, S.W.1



Clive Pascall and Peter Watson have modernized the Pall Mall branch of Thos. Cook and Son. In the British Travel section on the ground floor, shown above, colours are mostly shades of grey. Mahogany and wych-elm are used for walls and fittings. The furniture in the foreground was supplied by Hille of London.

## Maximum Illumination without Glare

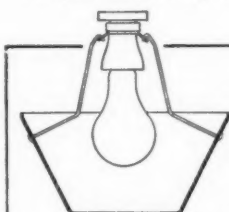
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All Information Sheets published since the new series was started in October, 1947, have been reprinted. Specially-designed binding cases to hold approximately 100 Sheets may be obtained at the price of 6s. 0d. each. (Postage 6d.)

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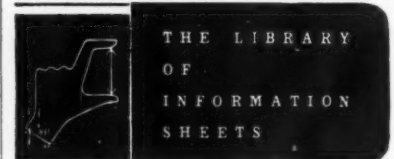
## Announcements PROFESSIONAL

Clifford Culpin and William Ryder, F/A.R.I.B.A., have dissolved their partnership carried on under the name of Clifford Culpin & Partners. Both will continue to practise under their own names, Clifford Culpin at 39, Doughty Street, W.C.1, and William Ryder at 68, Jermyn Street, St. James's, S.W.1.

C. H. Elsom, F.R.I.B.A., has taken into partnership William Pack, A.R.I.B.A., and Ernest Petter, A.R.I.B.A., and the firm will be known in future as C. H. Elsom and Partners.

## Correction

On our Working Detail Sheets for August 1 and 8 the location of the pithead baths at Dudley, Northumberland, was given as Dudley, Worcestershire.



#### 13.C11, 13.C12 REFERENCE BACK

Readers are asked to note that Information Sheet 13.C11 and 13.C12, published 8.8.57, supersede 13.C11 and 13.C12 published 5.8.48 and 2.9.48 respectively.

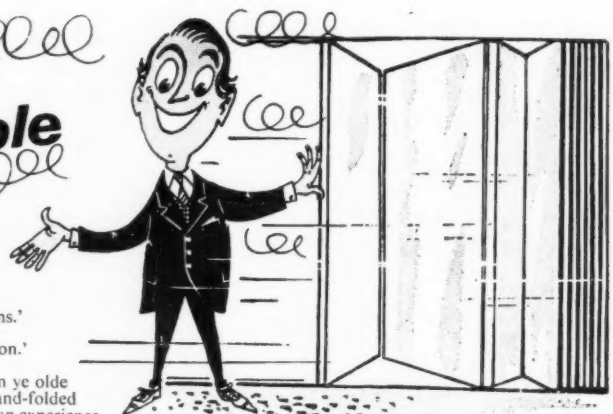
#### 24.M4 REFERENCE BACK

Readers are asked to note that the centres of glazing bars are now 2 ft. 0 $\frac{1}{8}$  in.

## A solid case for a sliding principle



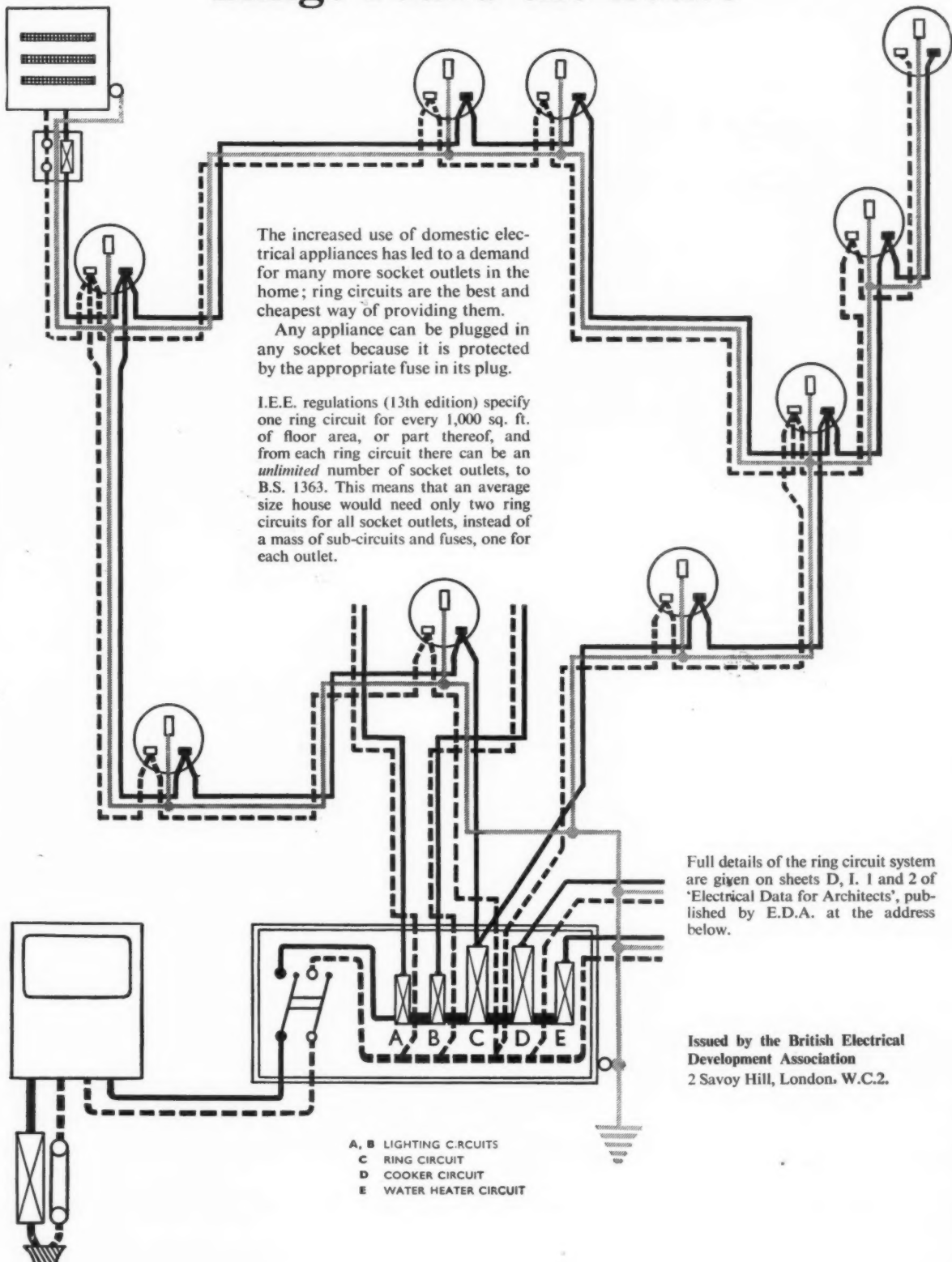
'A solid has three dimensions.'  
'Elementary.'  
'We have a solid reputation.'  
'Proof, please?'  
'Donkeys' years ago, when ye olde wooden mullions first slid-and-folded along ye brazen track, Esavian experience began. No similar reputation has such length.'  
'You're just shooting an imaginary line.'  
'From Alaska to New Zealand, from Cape Town to China, the Esavian principle has proved invaluable. There's width for you—world-width.'  
'Your reputation, if you'll forgive the pun, still looks a little "plane".'  
'When I draw your attention to our fourfold policy of exhaustive research, modern design, impeccable manufacture and painstaking service—you'll see our reputation has considerable height. Q.E.D.'  
'I am, as they say, sold. Please supply a gross of your folding and sliding portholes.'  
He had us there! But we can provide doors, windows, partitions and screens of amazing variety. Aircraft hangars, factories, garages, fire-stations, offices, private houses... most places are all the better for Esavian. Drop us a line and see if we can help you.



The **ESAVIAN** principle



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**The material  
for  
the Job!**



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$\frac{3}{16}$ ",  $\frac{1}{4}$ " &  $\frac{5}{16}$ " Concrete Formboard for your concreting jobs

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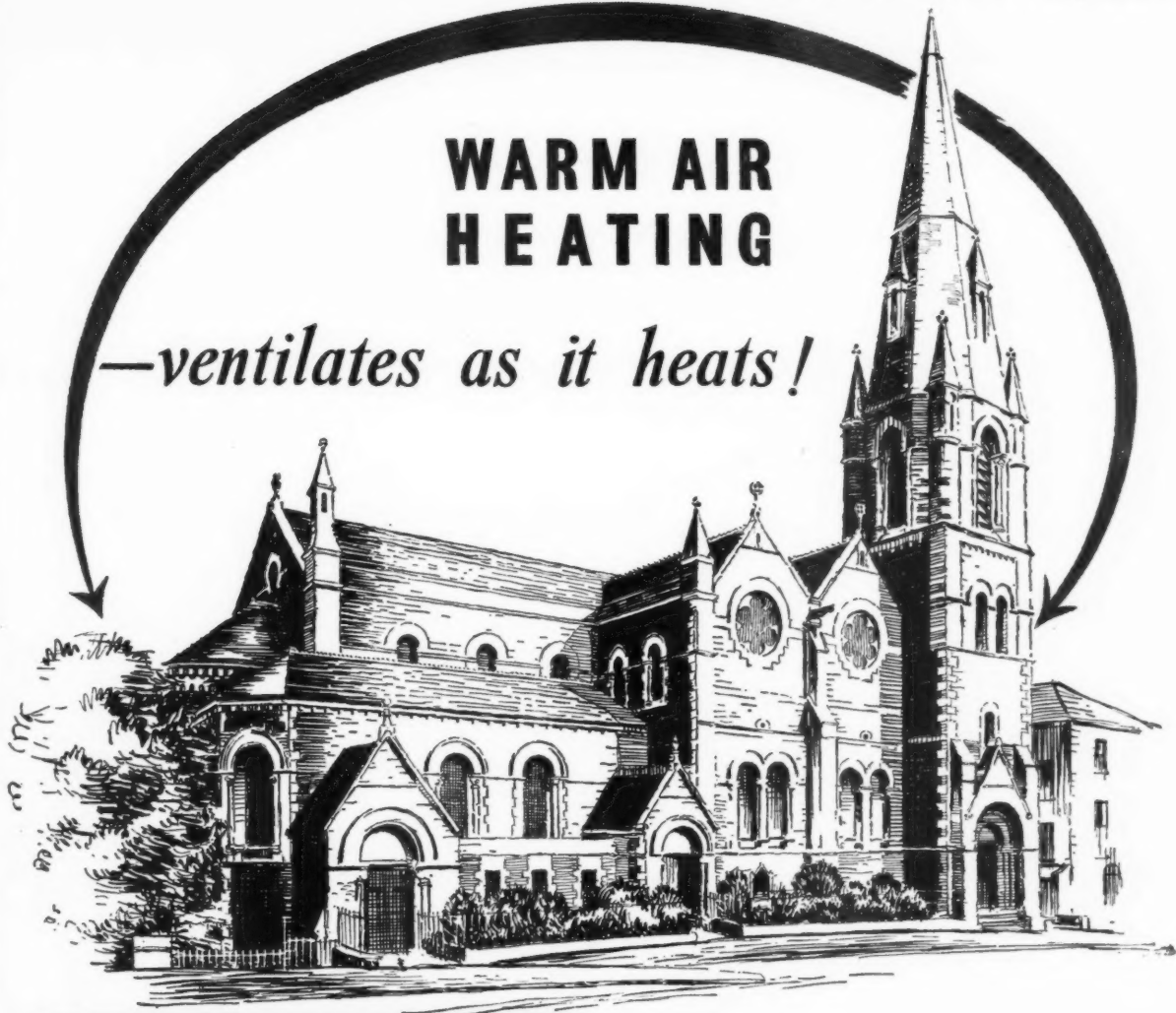
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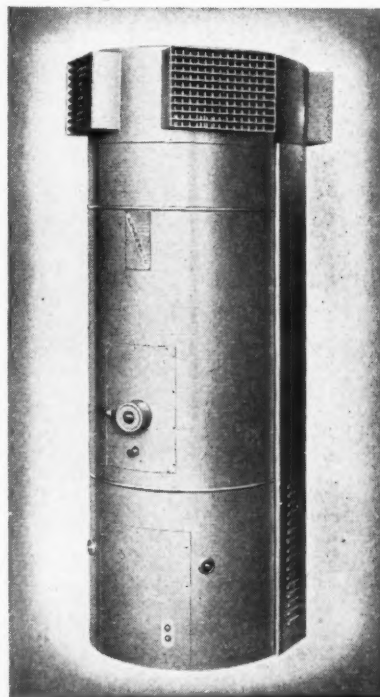
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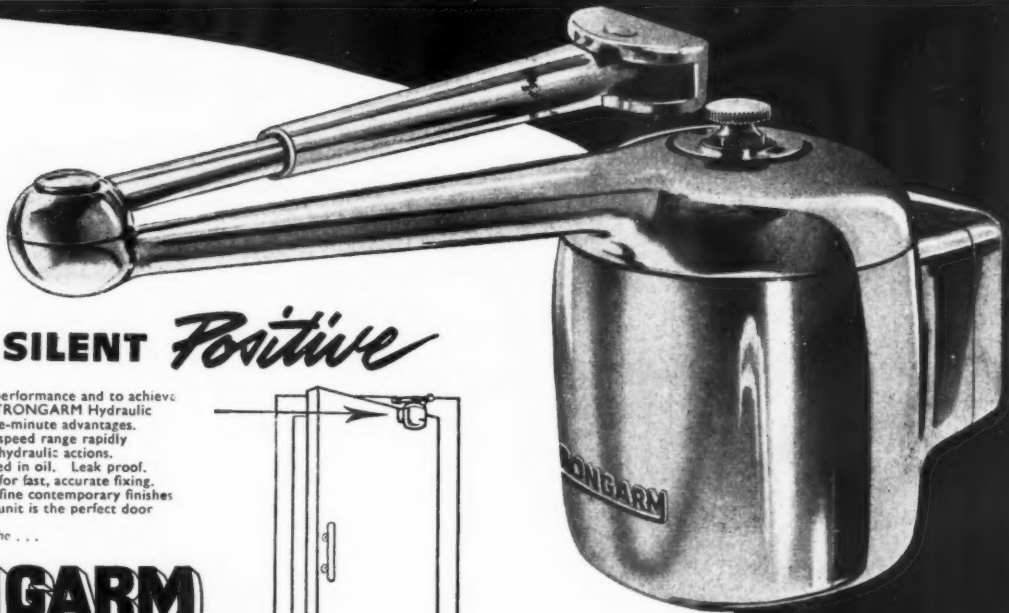
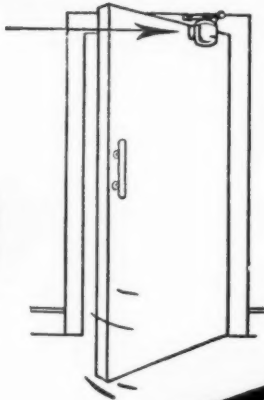
Please write for full information on the . . .

# STRONGARM

### HYDRAULIC DOOR CLOSER

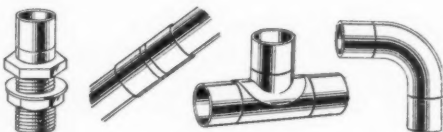
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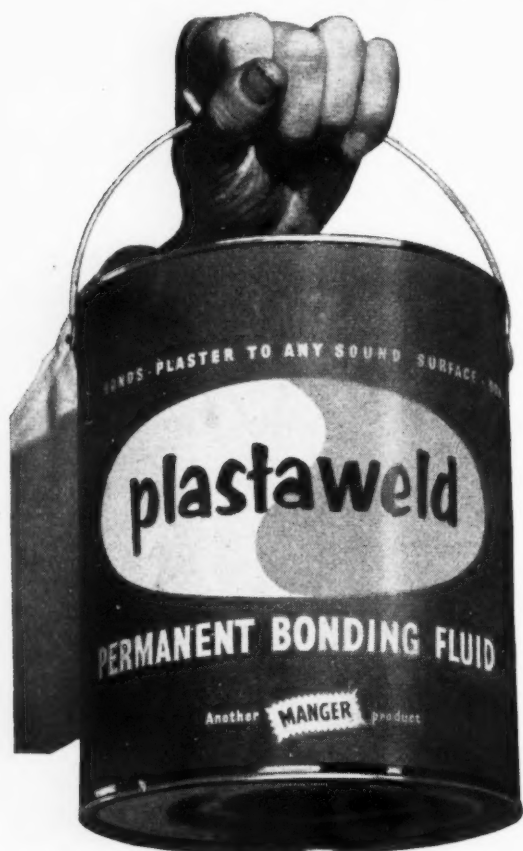
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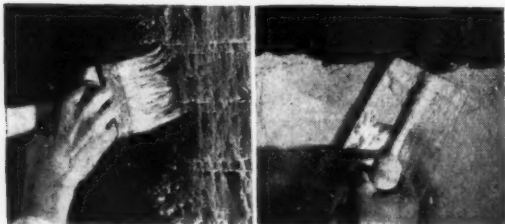
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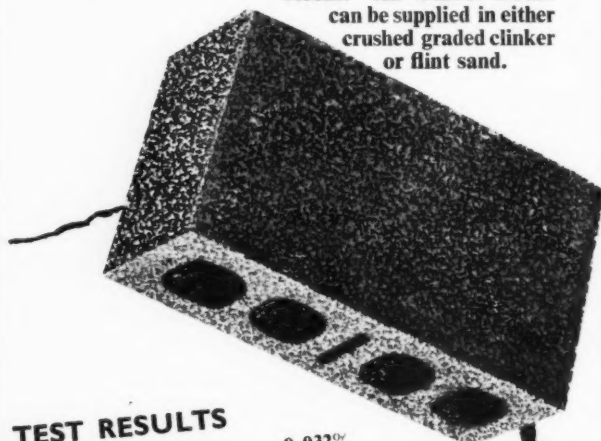
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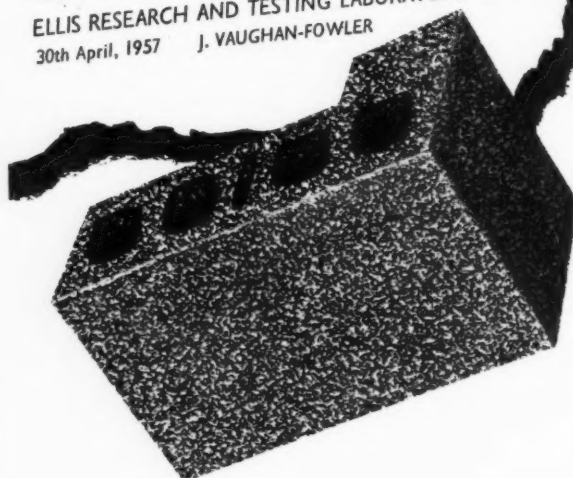
### TEST RESULTS

Average drying shrinkage	0.032%
Note: Maximum average drying shrinkage requirements for type 'B' blocks	0.06%
Average moisture movement	0.028%
Note: Maximum average moisture movement requirements for type 'B' blocks	0.05%

### CONCLUSION

The 6.18" x 9" x 4 1/2" hollow clinker blocks meet the specified requirements of B.S. 2028: 1953, as type 'B' blocks, in respect of drying shrinkage and moisture movement.

ELLIS RESEARCH AND TESTING LABORATORIES LTD.  
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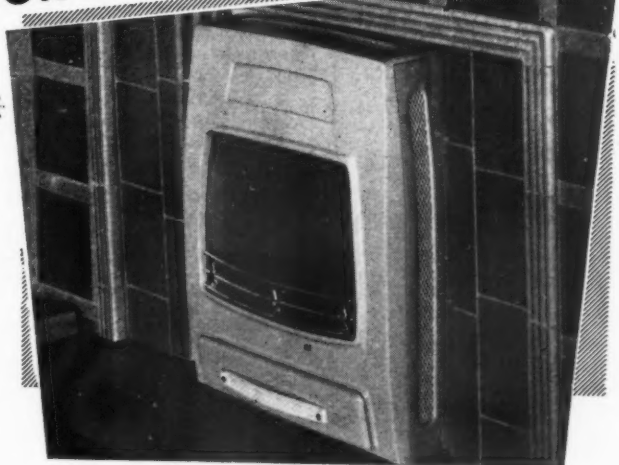
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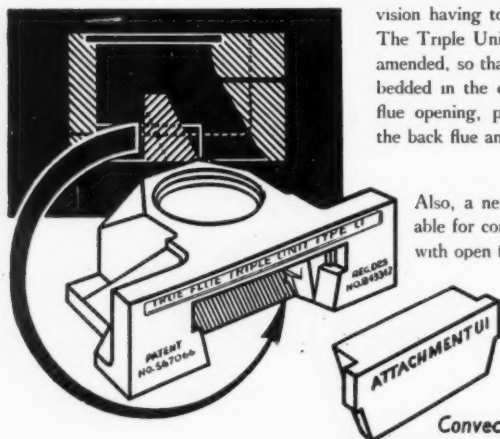
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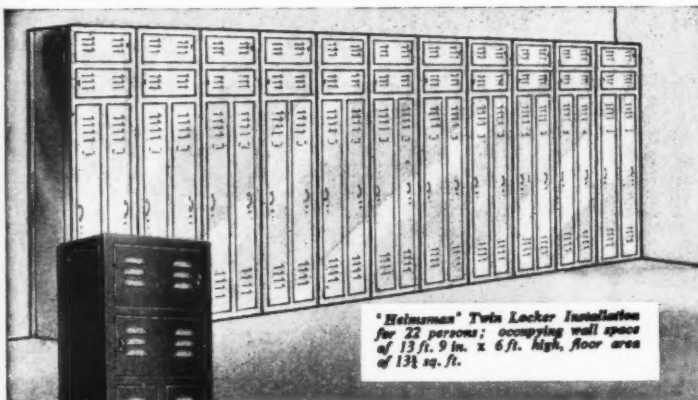
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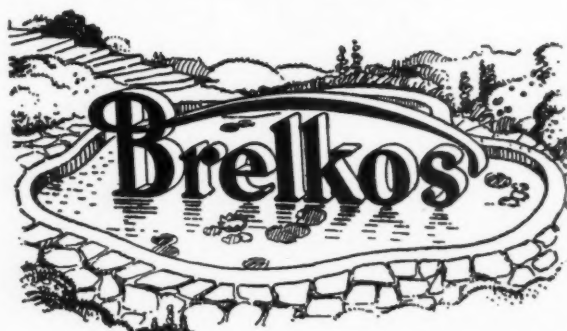
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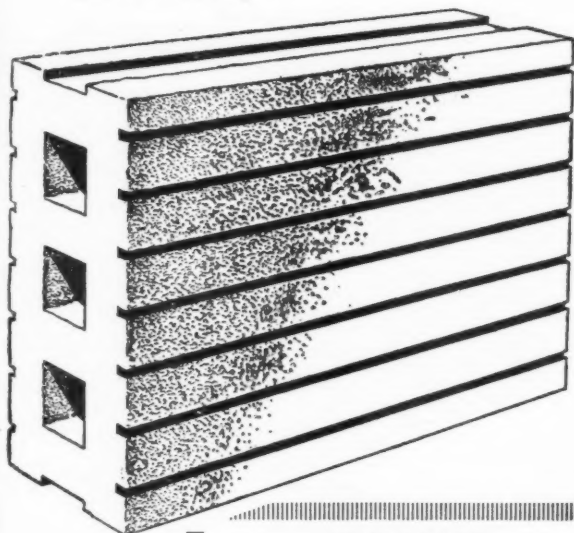
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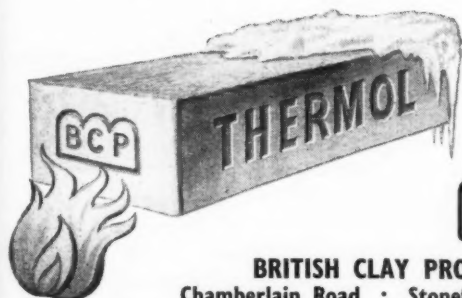
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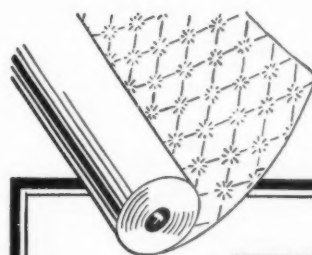
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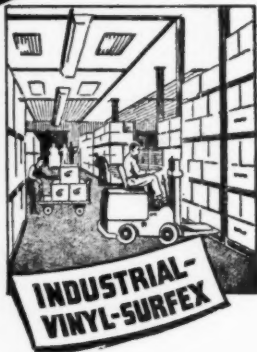
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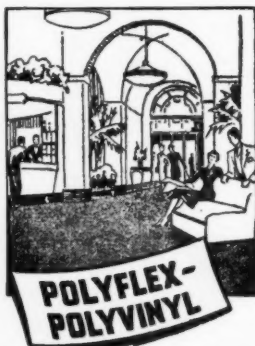
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If you have a problem of timber decay, write now for full details of Services and prices of materials incorporated in our free technical brochure "The Control of Insect and Fungal Destroyers of Timber".

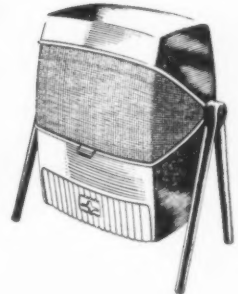
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Fitted with a fine mesh safety spark screen which can be retracted completely out of sight, the fire is always visible.

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If preferred, the fire can be supplied with a closed base or short pedestal feet in place of the tubular legs. Concealed rear bracket supports are also available.

The price (from £13.8.9) of course, is a big feature and compares very favourably with other types of heaters.

The "Caloray" Free-Standing Convector Open Fire is, in fact, the modern answer to people who declare that solid fuel heaters are old fashioned. A first prize winning model in the Royal Society of Arts Industrial Design Competition. Make sure you are first in the field with this unique heating stove.

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# **Draught-Stoppers Hotels Advertising**

## *August Architectural Review*

The year-round English draught makes *Weather-stripping* a subject of perennial interest and in the August issue of the Review, Peter Whiteley will make a study of the products available for remedial work on both doors and windows, as well as the kind of preventive design that is better than even the best of cures. Two hotels of outstanding interest will be described and illustrated; the *Malmen*, by Wallander and Varhelyi in Stockholm, and Louis Erdi's *Coachhotel*. A creative and broadminded approach to a vexed question, outdoor publicity, will be outlined in the new proposals for *Advertising in Stevenage*, and the social and architectural problems

of building new *Urban Nuclei* in rural areas will be considered in an article by Hilda Selem on recent re-settlements in Italy, and a study of Richard Llewelyn Davies' and John Weeks' rebuilding programme for *Rushbrooke*



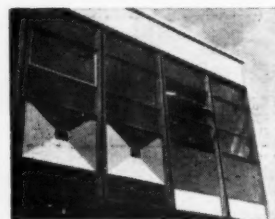
Model of a village at Rushbrooke, Suffolk, by R. Llewelyn Davies and John Weeks, to be illustrated with pilot houses.

in Suffolk. Historical features in this issue will cover the early romantic days at the Weimar *Bauhaus*, whose expressionist and religious fervours are recalled by Helmut von Erffa; a sheaf of notes on out-of-the-way aspects of Italian architecture, and a study of Bernardo Bellotto's four magnificent views of the mysterious *Wilanow Palace* outside Warsaw, now on view at the Whitechapel Gallery. In *Skill*, the *Interior of the Month* will be the new offices for the Orient Line, and in *Design Review*, John Blake will survey recent developments in wallpapers and furnishing fabrics.

## **Curtain Walls Roman and Gothic Shepton Mallet**

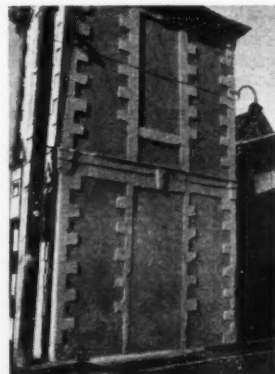
### *September Architectural Review*

A major feature of the Review's *Machine Made America* issue, and rapidly becoming a dominant topic in discussions of the economics, technics and aesthetics of building today, *Curtain Walling* will bulk large in the September number of the Review. Michael



Curtain Walling detail of the new B.E.A. terminal now under construction off Cromwell Road, Kensington.

Brawne will contribute a full scale study of the potentialities and perils, scope, materials and methods of this fully industrialised means of clothing buildings, while in *Skill* there will be a supplement on some of the products and systems that are available on the British Market. Also in *Skill* will be new Jaeger shop *Interiors* by Dennis Lennon, as well as *Design Review* and other regular departments. Aspects of the diversity of English nineteenth-century architecture are covered by Hugh Honour's account of the improbable *Roman Church at Everingham*, in Yorkshire, whose decorators were a suitably incongruous combination of Yorkshire and Rome, and a narrative of the building activities at *Strawberry Hill* of Frances Waldegrave, recounted from original sources by Osbert Wyndham Hewett, author of a recent full-dress biography of Lady Waldegrave. September *Townscape* features will deal with *Shepton Mallet*, whose multi-



House in the lower town Shepton Mallet

level town-centre will be discussed by Gordon Cullen, and *Hampstead Garden Suburb*, source of so much good and so much evil in English planning, whose status after a half-century of existence will be evaluated by Ian Nairn. And, as usual, the *Counter-Attack Bureau* will give the latest battle-bulletins on the continuing fight against Subtopian blight.

## **Universities Staircase Arcadia**

### *October Architectural Review*

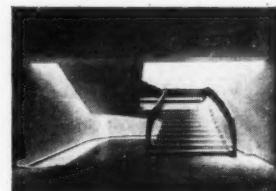
Vexed by conflicting interests and lack of comprehension of the issues at stake, the design of *Universities* has become a prob-

lem that excites passion and prejudice, rather than constructive thinking. In the October number of the Review, Professor Pevsner and the Hon. Lionel Brett will attempt to put the problem back on a realistic basis in a special feature covering both the historical growth of *universities* and their present needs, emphasising the diversity of concepts, both in organization and architecture that the term embraces. Two articles in the same issue will deal with problems of architectural lettering; Nicolette Gray



3—D. shop lettering in Dublin.

contributing a study of *Lettering in Three Dimensions* and *Skill*, surveying the design of *Fascia Boards*. Also in *Skill* will be an illustrated description of Arne Rudberger's stunning staircase for the MEA department store in Stockholm, and other recent structures to be illustrated will include a small house by Sir Hugh Casson on the South Coast, and another well-designed adjunct to a department store—G. A. Jellicoe's roof garden on top of Harvey's at Guildford. Two historical features will deal with developments in the first quarter of the present century: Ian Nairn's delayed study of *Hampstead Garden Suburb* is now expanded into a larger study of



Staircase at the MEA store, Stockholm.

*Arcadia* as a place to dwell in, and Reyner Banham will investigate the implications of recent publications on the position of *Mondriaan* both as a pioneer of modern design, and as a model to be set up for emulation by architects in the future. Robert Melville's survey of art exhibitions will continue, and *Marginalia* will maintain its running commentary on world architecture.

The annual post free subscription rate payable in advance is £2.18.0 sterling; in U.S.A. and Canada \$9

21

THE ARCHITECTURAL REVIEW  
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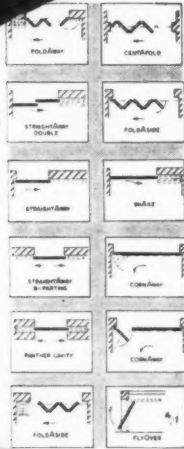
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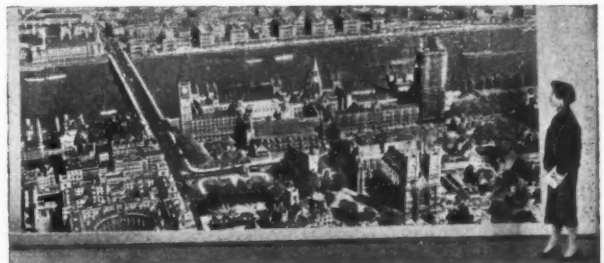
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## CLASSIFIED ADVERTISEMENTS

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

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

## Public and Official Announcements

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

## PUBLIC NOTICE

ADMINISTRATIVE COUNTY OF LONDON  
LONDON BUILDING ACTS, 1930-39  
LONDON BUILDING (CONSTRUCTIONAL)  
BY-LAWS, 1952

LONDON BUILDING (CONSTRUCTIONAL)  
AMENDING BY-LAWS, 1957

The London County Council gives notice in accordance with section 8(h) of the London Building Act (Amendment) Act, 1955, that on 28 May, 1957, it made the London Building (Constructional) By-laws, 1957, under the above-mentioned Acts, amending the London Building (Constructional) By-laws, 1952, with regard to the external and internal cladding of buildings, the protection of structural steelwork and matters incidental thereto.

The Council has fixed 1 September, 1957, as the date on which the by-laws shall come into operation.

A copy of the by-laws is deposited at the County Hall, Westminster Bridge, S.E.1, and can be inspected between the hours of 9.15 a.m. and 5.15 p.m. on Monday to Friday and between the hours of 9.15 a.m. and 12.15 p.m. on Saturday.

Copies can be obtained from the Record Keeper at the County Hall on request. Requests by post should be accompanied by a stamped and addressed envelope.

W. O. HART,

Clerk of the London County Council,

The County Hall, S.E.1.

21st August, 1957. (1570) 7275

## LONDON COUNTY COUNCIL

## ARCHITECTS' DEPARTMENT

Selections for appointment are now being made from students at architectural schools who will take their final examinations this summer. Starting salary up to £676. Vacancies also for ARCHITECTS of experience at starting salaries up to £1,036. Full programme of houses, flats, schools and many other interesting buildings.

Application forms and full particulars from the Architect (Ref. AR/EK24/572), The County Hall, S.E.1. (895) 6290

## NEW ZEALAND MINISTRY OF WORKS

## PROFESSIONAL AND TECHNICAL STAFF

The Ministry of Works, New Zealand, invites applications for the following vacancies on the Permanent Staff. Positions, qualifications desired and commencing salaries are as follows:

## ARCHITECTURAL DIVISION

## 9. ARCHITECTS Corporate Membership of the

Royal Institute of British Architects.

Commencing salaries from £895 to £1,466 per annum in accordance with experience.

## 10. ARCHITECTURAL DRAFTSMEN General Certificate of Education or Ordinary or Higher National Certificate (Building) plus five years' draughting experience.

Commencing salaries up to £1,225 per annum in accordance with qualifications and experience.

Enquiries mentioning this paper and quoting reference No. 3/74/133, also stating the type and number of position sought, should be addressed to the High Commissioner for New Zealand, 415 Strand, London, W.C.2. Full details of duties, experience desired, and general information on the conditions of employment in the New Zealand Public Service, together with application forms will then be furnished. 7110

## COUNTY BOROUGH OF WOLVERHAMPTON

## PRINCIPAL PLANNING ASSISTANT

## GRADE V

## SENIOR PLANNING ASSISTANT GRADE IV

## OR SPECIAL

Applications are invited for the above appointments in the Planning Section of the Department of the Borough Engineer & Planning Officer at salaries in accordance with the National Scales, as under:

(a) PRINCIPAL PLANNING ASSISTANT, Grade V (£814 17s. 6d.—£994 5s. 0d. per annum). Candidates for this appointment should be corporate members of the Town Planning Institute, preferably with an appropriate additional qualification, and must have had considerable experience in a Town Planning Office, including administrative experience in a responsible position. Further particulars of this post may be obtained from the Borough Engineer at the address below.

(b) SENIOR PLANNING ASSISTANT, Grade IV (£727 15s. 0d.—£907 2s. 6d. per annum) or Special Grade (£707 5s. 0d.—£861 0s. 0d. per annum) according to qualifications and planning experience.

N.J.C. conditions of service. One month's notice on either side. Medical examination. Superannuable post. Housing accommodation will be offered in respect of both these posts.

Applications stating age, training and experience and naming two referees should be sent to the Borough Engineer & Planning Officer, Town Hall, Wolverhampton, by 4th September, 1957. 7234

## GOVERNMENT OF NORTHERN IRELAND

## ASSISTANT ARCHITECT CLASS II

Applications are invited for pensionable posts in the Chief Architect's Branch, Ministry of Finance. Candidates must be Registered Architects by examination, with at least two years' experience in an Architect's Office in the preparation of working drawings. Salary scale £744 (at age 25)—£1,002 (age 34 and over)—£1,160. Transfer of existing pension rights may, in certain circumstances, be approved. Preference will be given to ex-Servicemen. Application forms may be obtained from the Secretary, Civil Service Commission, Stormont, Belfast. 7150

## BUCKS COUNTY COUNCIL

Applications are invited for the appointment of Assistant Architects in the County Architect's Department on Architects' Special Scale, £707 5s. to £861 p.a. and A.P.T. Grade IV, £727 15s. to £907 2s. 6d.

The appointments are 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 forms provided, must be returned by 31st August, 1957.

F. B. POOLEY,

County Architect.

County Offices, Aylesbury, Bucks. 7191

## SURREY COUNTY COUNCIL

Applications invited for following appointments:—

1. ASSISTANT ARCHITECT Grade IV, £727 15s.—£907 2s. 6d. p.a. plus £30 London Allowance. Must be A.R.I.B.A.

2. ARCHITECTURAL ASSISTANT Grade II, £609 17s. 6d.—£691 17s. 6d. p.a. plus London allowance up to £30 p.a. Must be of good general training, preference given those who have passed Intermediate R.I.B.A.

3. ASSISTANT BUILDING SURVEYOR Grade III, £656—£784 2s. 6d. p.a. plus London allowance £30 p.a. Preference given those who have passed Intermediate R.I.C.S. (Bldg. Sub. Div.). Capable drafting specifications in all trades, prep. schedules of dilaps, detailed estimates for gen. maint. works and surveys of properties.

Full details, present salary and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 7186

## BRITISH EUROPEAN AIRWAYS

Applications are invited for the following permanent and pensionable posts on the staff of the B.E.A. Property Branch.

To work under the direct control of the Chief Staff Architect.

SENIOR ASSISTANT ARCHITECT. Salary £1,025 per annum rising to £1,250 per annum. Applicants must be Registered Architects with not less than five years' post qualification experience, have a keen sense of contemporary design and a thorough knowledge of all stages in the production of working drawings. The successful candidate must be capable of assuming full responsibility for large contracts.

ARCHITECTURAL ASSISTANT. Salary £832 10s. per annum rising to £970 per annum. Applicants must at least have passed the Intermediate examination of the R.I.B.A., and have had considerable experience in the rapid production of working drawings.

Initially the successful applicants will be required to work on the design of a large Air Training School and Hostel for which experience of educational projects would be an advantage.

The architectural work of the Branch is interesting and varied and ultimately may involve limited travel at home and on the continent. Working conditions are good and a vigorous and practical approach towards first class contemporary design is encouraged.

Further particulars from Personnel Officer, Head Office, British European Airways, Keyline House, Ruislip, Middlesex. 7166

## NORTHUMBERLAND COUNTY PLANNING

## DEPARTMENT

## ARCHITECTURAL ASSISTANT in the Design

Section required on A.P.T.I.—Special Scale (£543 5s. to £861). Salary according to qualifications and experience. Application forms from County Planning Officer, County Hall, Newcastle upon Tyne, 1, to be submitted by September 5, 1957. 7313

## BOROUGH OF LARNE

The Larne Borough Council invite applications for the undermentioned temporary appointment:—

ASSISTANT ARCHITECT

A.P.T. Grade V—£814 x £35 to £994 p.a. Commencing salary according to qualifications and experience.

Candidates must be A.R.I.B.A. and an additional qualification in planning would be an advantage.

The work includes housing layouts and the design of public buildings and is limited, in the first instance, to 5 years from April 1st, 1957.

The appointment will be subject to the provisions of the Local Government (Superannuation) Act (N.I.), 1950.

Applications giving date of birth, full particulars of qualifications and experience and copies of two recent testimonials should reach the undersigned by 31st August, 1957.

ROBERT LITTLE,

Town Clerk.

Gardenmore House, Larne. 7140

Co. Antrim. 7140

## COUNTY BOROUGH OF DEWSBURY

## BOROUGH ARCHITECT AND BUILDINGS

## SURVEYOR'S DEPARTMENT

Applications are invited for the following appointments in the above Department:—

(a) TWO ASSISTANT ARCHITECTS (one for Education Section and one for Housing and General Section) A.P.T. Grade IV (£727 15s.—£907 2s. 6d. p.a.). The commencing salaries will be fixed within the scope of the grade according to qualifications and experience. Applicants should be Registered Architects with good architectural experience and a knowledge of local government procedure. Housing accommodation may be made available if required.

(b) TEMPORARY CLERK OF WORKS for a period of approximately 1½ years in connection with the erection of a New Primary School—salary £13 13s. 8d. per week.

The appointments will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Acts. The successful applicants will be required to pass a medical examination.

Applications stating age, education, qualifications, full particulars of training and experience, together with copies of two recent testimonials, should be sent to the undersigned not later than Monday, 2nd September, 1957, in envelopes endorsed with the name of the appointment applied for.

A. NORMAN JAMES,

Town Clerk.

Town Hall, Dewsbury. 7163

2nd August, 1957. 7163

## CITY OF NOTTINGHAM

## ESTATES DEPARTMENT

Applications are invited for the following appointments in the Chief Architect's section:—

(a) One ASSISTANT ARCHITECT at a commencing salary within A.P.T. Grade V (£814 17s. 6d.—£994 5s.). Applicants should be Registered Architects.

(b) TWO ARCHITECTURAL ASSISTANTS at commencing salaries within A.P.T. Grade III (£656—£784 2s. 6d.). Applicants should preferably have passed the intermediate examination of the R.I.B.A.

(c) One JUNIOR ARCHITECTURAL ASSISTANT at a salary within the General Division scale (£184 10s.—£512 10s.).

The appointments will be subject to the National Joint Council's Scheme of Conditions of Service.

Applications, stating age, qualifications, experience, present appointment and salary and naming two referees, should be sent to the Estates Surveyor and Valuer, Guildhall, Nottingham, by Saturday, 31st August, 1957.

T. J. OWEN,

Town Clerk.

The Guildhall, Nottingham. 7216

## BOROUGH OF MANSFIELD

Applications are invited for the following appointments in the Architects' section of the Borough Engineer and Surveyor's Department:—

## (1) TWO GENERAL ARCHITECTURAL ASSISTANTS

TANTS.

Salary. Special Grade £705—£861.

Applicants must have passed parts I and II of the R.I.B.A. Final or Special Final or their equivalent and have had at least five years' experience (including training).

## (2) JUNIOR ARCHITECTURAL ASSISTANT

Salary (a) A.P.T. I, £543 5s.—£625 5s. or (b) A.P.T. II, £609 17s. 6d.—£691 17s. 6d.

Salary (a) will be paid to a person having attended a full-time course of architecture and having passed the R.I.B.A. Intermediate examination and having had less than one year's office experience.

Salary (b) will be paid to a person who has had the same training and qualification for (c) but with more than one year's office experience or has served articles with an architect or had three years' minimum experience in an architect's office and has passed the R.I.B.A. Intermediate examination or equivalent.

Applications giving the following particulars:—

(1) Age.

(2) Training.

(3) Qualifications.

(4) Present and past appointments with salaries.

(5) Experience in (a) housing development including 2 and 3 storey flats; (b) shops; (c) swimming baths; (d) crematorium.

(6) Names and addresses of not more than three referees should be sent to the Borough Engineer and Surveyor, Carr Bank, Mansfield, not later than Monday, 26th August, 1957.

A. C. SHEPHERD,

Town Clerk.

Carr Bank, Mansfield. 7228

## BOROUGH OF CHATHAM

## APPOINTMENT OF CHIEF ASSISTANT

## ARCHITECT

Applications are invited for the appointment of Chief Assistant Architect, within Grade VI (£902—£1,107 per annum).

Housing accommodation will be made available if required.

Conditions of appointment and form of application may be obtained from Mr. J. A. T. Richards, Borough Engineer and Surveyor, Town Hall, Chatham, to whom completed application forms should be returned not later than Saturday, 31st August, 1957.

ROWLAND NEWNES,

Town Clerk.

Town Hall, Chatham. 7168



# **BOROUGH OF ILKESTON ARCHITECTURAL ASSISTANT, A.P.T. V**

(£814 17s. 6d. to £994 5s.)  
Applications are invited for the above appointment. Applicants must be A.R.I.B.A. with appropriate experience.

Housing accommodation available. Canvassing disqualifies.

Application forms and conditions of appointment obtainable from A. O. Marshall, M.I.Mun.E., M.I.Struct.E., F.I.A.A., Borough Surveyor and Water Engineer, Town Hall, Ilkeston, to whom they are to be returned by Saturday, 31st August, 1957.

**J. YATES,**  
Town Clerk.  
7215

# **CUMBERLAND COUNTY COUNCIL COUNTY ARCHITECT'S DEPARTMENT**

Applications are invited for the following appointments to the architectural staff. N.J.C. Service Conditions. Posts pensionable. Subject to medical examination.

(a) ASSISTANT ARCHITECTS: A.P.T. Grade V/VI (£814 17s. 6d.—£1,107). Must be A.R.I.B.A. with experience of handling large contracts and supervision of staff.

(b) ASSISTANT ARCHITECTS: Special Grade (£707 5s.—£863). Must have passed Final R.I.B.A. Examination.

Applications forms and further particulars may be obtained from John H. Haughan, F.R.I.B.A., County Architect, 15, Portland Square, Carlisle, to whom completed applications should be returned not later than Friday, 6th September, 1957.

**G. N. C. SWIFT,**  
Clerk of the County Council.  
7218

# **CITY AND COUNTY OF BRISTOL APPOINTMENT OF PLANNING ASSISTANTS**

Applications invited for appointment of Planning Assistants in Grades A.P.T. V, A.P.T. IV, and Special N.J.C. Scale in City Engineering and Planning Department.

All applicants must have passed Final Examination of Town Planning or other approved Institutes; also have had following experience:—

Extensive planning experience, particularly in connection with preparation and administration of a Development Plan and preparation of layouts for redevelopment areas.

GRADE A.P.T. IV (£727 15s.—£907 2s. 6d. p.a.). Good general planning experience, particularly in connection with Control of Development.

SPECIAL N.J.C. SCALE (£707 5s.—£861 p.a.). Experience in preparation and administration of a Development Plan.

Applications, indicating post applied for and stating age, qualifications, experience, present and previous appointments, with two referees, to reach City Engineer and Planning Officer, Arno's Court, 470, Bath Road, Bristol 4, by 4th September 1957.

**BRACKNELL DEVELOPMENT CORPORATION.** Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade A.P.T. III, salary £656—£784.

Superannuation schemes. Medical examination, housing available in due course. Apply by 11th September, 1957, giving age, education and qualifications, experience and appointments held (with dates and salaries), and names of two referees to General Manager (A.A.), Bracknell Development Corporation, Farley Hall, Bracknell, Berks. 7307

**ARCHITECTS AND MAINTENANCE SURVEYORS IN GOVERNMENT DEPARTMENTS.** The Civil Service Commissioners invite applications for pensionable posts for ARCHITECTS and MAINTENANCE SURVEYORS.

Age at least 25 and under 35 on 1st July, 1957, with extension for regular Forces service and appropriate civil service. Candidates must be Registered Architects, or alternatively, for Maintenance Surveyor posts, have achieved Corporate Membership of the R.I.C.S. (Building Section) or have passed examinations necessary for attaining Corporate Membership.

London salary scale (men) £805 (at age 25) to £1,250. Starting salary up to £1,085 at age 34 or over on entry. Prospects of promotion. Salaries of next higher grades are £1,280—£1,720 and £1,780—£2,050. Somewhat lower in the provinces. Women's scales lower but being improved until equality with the men's scales is reached in 1961.

Further particulars and application forms from Civil Service Commission, Scientific Branch, 30, Old Burlington Street, London, W.1, quoting No. S.60-61/57. Application forms should be returned by 12th September, 1957.

# **ANGLESEY COUNTY COUNCIL NEW FIRE HEADQUARTERS, CLINIC AND AMBULANCE STATION, LLANGFNI**

Contractors wishing to submit a tender based on Bills of Quantities for the erection of the above building should forward their names with a deposit of £2 2s. to the County Architect, Shire Hall, Llangefni, Anglesey, on or before 2nd September, 1957.

Cheques are to be made payable to the Anglesey County Council and crossed "Midland Bank Limited."

Tenders must be forwarded in the endorsed envelope provided to reach the undersigned by 9 a.m. on Wednesday, 25th September, 1957.

The Council does not bind itself to accept the lowest or any tender nor will allowance be made for any tenders.

**WILLIAM JONES,**  
Clerk of the County Council.

Shire Hall,  
Llangefni,  
Anglesey.  
7272

# **SHEFFIELD REGIONAL HOSPITAL BOARD**

Applications are invited for the post of ASSISTANT QUANTITY SURVEYOR. Salary £700 × £25 (3) × £30 (1) × £35 (6)—£1,015. Applicants should preferably hold the R.I.C.S. qualification. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Service (Superannuation) Regulations, and to one month's notice on either side. Applications, stating age, qualifications and previous appointments together with the names of three referees, should reach the Secretary to the Board, Fulwood House, Old Fulwood Road, Sheffield, 10, by 7th September, 1957.

# **HOLLAND COUNTY COUNCIL, LINCOLNSHIRE**

**COUNTY ARCHITECT'S DEPARTMENT**  
Applications are invited for the appointment of ARCHITECTURAL ASSISTANT Grade A.P.T. II-III, i.e. £609 17s. 6d. to £784 2s. 6d. per annum. The appointment is supernumerary and subject to a medical examination.

Applications, on forms provided by the undersigned, should be returned completed to me by 9th September, 1957.

**H. A. H. WALTER,**  
Clerk of the County Council.

County Hall,  
Boston, Lincs. 7301

# **HUNTINGDONSHIRE COUNTY ARCHITECT'S DEPARTMENT**

**SENIOR ARCHITECTURAL ASSISTANT**  
Grade A.P.T. IV-V (£727—£994)

Applications are invited for the above appointment from suitably qualified persons.

Further details and application forms may be obtained from the County Architect, County Buildings, Huntingdon. Completed application forms should be returned to the undersigned by Monday, 9th September, 1957.

**A. C. AYLIWARD,**  
Clerk of the County Council.

County Buildings,  
Huntingdon. 7305

# **BOROUGH OF BARKING QUANTITY SURVEYING ASSISTANT**

Applications are invited for the above appointment on grade A.P.T. I, £543 5s. by £20 10s. to £625 5s. per annum (plus London Weighting £10—£30 per annum according to age).

Applications, on forms obtainable from the Borough Architect, Town Hall, Barking, should reach the undersigned not later than 10 a.m., 6th September, 1957.

**E. R. FARR,**  
Town Clerk.

Town Hall,  
Barking, Essex. 7304

# **METROPOLITAN BOROUGH OF LAMBETH APPOINTMENT OF SENIOR ASSISTANT ARCHITECT**

(Grade A.P.T. VI)

Applications invited from members of the Royal Institute of British Architects for a senior post in the Housing Dept. Applicants must have had extensive architectural experience and the duties will be primarily concerned with the preparation of working drawings and specifications in connection with the building of blocks of flats and the conversion of existing properties, and the survey of properties with a view to acquisition. Salary: within the scale of £902 to £1,107 p.a., plus London weighting. No housing accommodation provided.

Application form from Town Clerk, Lambeth Town Hall, S.W.2. Closing date: 7th September, 1957.

**CORPORATION OF LONDON**

require for  
**CIVIC DESIGN SECTION**

**CITY PLANNING OFFICE**

**TWO ARCHITECT PLANNERS,** salary up to £922 10s. Superannuation. Medical examination.

Duties: primarily for assistance in design, detail and modelling of redevelopment proposals for Barbican and other areas in the City of London. Ability to prepare perspectives in colour required for one post. Preference given to candidates with good architectural background and a sensitive and contemporary approach to design.

Local authority experience not essential. Point of entry on salary scale dependent on age and experience. Applications with details of training, age, experience, present salary, and the names and addresses of two referees to THE CITY PLANNING OFFICER, 55/61, Moorgate, London, E.C.2, within 14 days.

**HERTFORDSHIRE COUNTY COUNCIL**

**ARCHITECTURAL ASSISTANT (Planning).**

Qualifications A.R.I.B.A. (A.M.T.P.I. would be an advantage). Special IV (£707—£994). Experience in Architectural Design necessary with preferably some Planning training. Successful applicant will be required to prepare schemes and designs in relation to planning applications. Vacancy is at County Hall in Design and New Towns Section of the Planning Department.

Forms available from the County Planning Officer, County Hall, Hertford, to be returned by 30th August, 1957.

# **MIDDLESEX COUNTY COUNCIL**

**SENIOR PLANNING ASSISTANTS, A.P.T. IV** (Salary £727 15s. to £907 2s. 6d., plus London weighting). Should have qualifications in Town Planning or other appropriate subjects—Surveying, Architecture, Landscape Architecture. Expert forester might be considered for one appointment. Five-day week. Established pensionable, subject to medical assessment. Prescribed conditions.

Application forms from County Planning Officer, 10, Great George Street, S.W.1, returnable by 7th September (Quote V 848 J.W.). Canvassing disqualifies.

**HERTFORDSHIRE COUNTY PLANNING  
DEPARTMENT**

**PLANNING ASSISTANT, A.P.T. Special/IV** (£707—£907 p.a.) required for work upon town centre schemes. Must be A.R.I.B.A. and/or A.M.T.P.I. Experience three dimensional planning would be an advantage. Forms of application from the County Planning Officer, County Hall, Hertford, to be returned by 30th August, 1957.

**LONDON COUNTY COUNCIL  
ARCHITECT'S DEPARTMENT**

ARCHITECTURAL ASSISTANT required in the Historic Buildings Section for work on applications and notices affecting buildings listed under Section 30 of the Town and Country Planning Act, 1947. Applicants should preferably hold the Degree or Diploma of a Recognised School of Architecture and have knowledge of the history of architecture. Qualification or experience in town and country planning desirable. Salary up to £817 16s. (under review) according to experience and qualifications.

Application form and particulars, returnable by 28th August, from the Architect (AR/EK/45/57), County Hall, S.E.1. (1524)

**CITY OF BIRMINGHAM PUBLIC WORKS  
DEPARTMENT**

**REDEVELOPMENT SECTION  
VACANCY FOR PLANNING ASSISTANT**

Salary Grade A.P.T. V (£814 17s. 6d.—£994 5s. per annum) according to qualifications and experience. Applicants should be Associate Members of the Town Planning Institute and/or the Institution of Municipal Engineers.

The appointment is permanent, supernumerary, and subject to a medical examination. Applications stating qualifications, age and experience and naming two referees should reach the undersigned by the 21st September, 1957.

Canvassing disqualifies.

**HERBERT J. MANZONI,**  
City Engineer and Surveyor.  
Civic Centre, Birmingham, 1. 7274

# **HERTFORDSHIRE COUNTY PLANNING DEPARTMENT**

**PLANNING ASSISTANT, A.P.T. Special/IV** (£707—£907 p.a.) required for work upon town centre schemes. Must be A.R.I.B.A. and/or A.M.T.P.I. Experience three dimensional planning would be an advantage. Forms of application from the County Planning Officer, County Hall, Hertford, to be returned by 30th August, 1957.

# **LONDON COUNTY COUNCIL ARCHITECT'S DEPARTMENT**

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Canvassing disqualifies.

**HERBERT J. MANZONI,**  
City Engineer and Surveyor.  
Civic Centre, Birmingham, 1. 7274

# **COUNTY BOROUGH OF BURNLEY**

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

(a) PRINCIPAL ARCHITECTURAL ASSISTANT—Grade V (£814 17s. 6d.—£994 5s.).

(b) ARCHITECTURAL ASSISTANT—Grade II (£609 17s. 6d.—£691 17s. 6d.).

Applicants for appointment (a) must have had considerable experience in all types of Municipal work, and applicants for both positions must hold appropriate qualifications for the Grade.

Provision of Housing accommodation will be considered if required.

Forms of application may be obtained from the Borough Engineer, 22/24, Nicholas Street, Burnley, to whom they should be returned not later than Wednesday, 4th September, 1957.

**C. V. THORLEY,**  
Town Clerk.  
7273

# **WORKING URBAN DISTRICT COUNCIL JUNIOR ARCHITECTURAL ASSISTANT**

A.P.T. Grade I

Applications are invited for this appointment in the architectural section of the Engineer & Surveyor's Department at a salary in accordance with A.P.T. Grade I (£545 × £20—£625). Applicants should be approaching the Intermediate Examination Standard of the R.I.B.A.

The appointment is subject to the National Scheme of Conditions of Service and the provisions of the Local Government Superannuation Acts and the passing of a medical examination.

Forms of application to be obtained from and returned to Mr. H. P. Tame, A.M.I.C.E., M.T.P.I., Registered Architect, Engineer & Surveyor, Council Offices, Woking, not later than Monday, 2nd September, 1957.

**M. SHAWCROSS,**  
Clerk of the Council.

Council Offices,  
Woking.  
13th August, 1957. 7271

# **THE CORPORATION OF GLASGOW ARCHITECTURAL AND PLANNING DEPARTMENT**

**ASSISTANT ARCHITECTS  
ASSISTANT QUANTITY SURVEYORS**

Vacancies exist for a number of Assistants as above, minimum qualification Intermediate examination of the appropriate professional body. Salary scale £595—£1,180 with placing according to age, experience and qualifications.

Form of application may be obtained from the Principal Administrative Officer, 20 Tron-gate, Glasgow, C.1

**A. G. JURY,**  
City Architect and Planning Officer.  
7141

# **HUYTON-WITH-ROBY URBAN DISTRICT COUNCIL**

**ARCHITECTURAL STAFF** required for work on large building programme which will include flats, houses, shops and community centres.

Housing accommodation will be provided, if required.

Full details stating age, experience, qualifications, present salary, salary required and the names of two referees to be addressed to the Architect, "Grasscroft," Archway Road, Huyton, by the 31st August, 1957.

**F. A. EDMONDSON,**  
Acting Clerk of the Council.  
7193

**HAMPSHIRE COUNTY COUNCIL.** Applications are invited for the post of **PLANNING ASSISTANT** in the South-West Area Planning Office, Lyndhurst, on A.P.T. Grade II (£610-£692). Candidates should preferably have passed the Intermediate examination of the Town Planning Institute or of a related professional body and have had experience in the Planning Department of a Local Planning Authority. The appointment is pensionable and subject to a satisfactory medical report. In approved cases the County Council assist with removal and other expenses. Applications, stating age, education, qualifications and experience, with a copy of one testimonial and the names of two referees, should reach the County Planning Officer, Litton Lodge, Clifton Road, Winchester, by 9th September. 7276

**CORBY DEVELOPMENT CORPORATION.** APPOINTMENT OF CHIEF ARCHITECT. Salary range £1,800-£2,300. Applications are invited for the above appointment with the Corporation. The construction work is at a most interesting stage of development and many projects remain to be designed. The establishment of the Chief Architect's department is approximately 40, including outside staff, and the work should continue strongly for the next three to five years. Applicants should be well qualified and experienced in housing and commercial work. A town planning qualification would be an advantage. The post is superannuable and housing is available. The work of the Corporation is organised under the general direction of the General Manager to whom applications should be addressed, giving particulars of qualifications, present and past appointments, and experience, salaries, and the names of two referees, on or before the 16th September. R. F. BROOKS GRUNDY, General Manager. Spencer House, Corporation Street, Corby, Northants. 7277

**CITY OF PLYMOUTH.** Applications are invited for the following appointment in the City Engineer & Planning Officer's Department:—**ASSISTANT BUILDING SURVEYOR, A.P.T. VII** (£995 7s. 6d. to £1,230). The position is that of a section head and the person appointed will be responsible to the City Engineer for the examination and inspection of building operations within the City and he must be capable of organising and controlling staff. He should be suitably qualified and, apart from having wide experience in building, must be used to examining and reporting on deposited plans, keeping of records and inspection of buildings. Age limit 40, or 45 if serving with Local Authority. Position pensionable, subject to medical examination. Housing may be made available, and part of removal expenses refunded. Applications returnable within 21 days from the appearance of this advertisement on forms obtainable from me. J. PATON WATSON, C.B.E., M.I.C.E., City Engineer and Surveyor. Guildhall, Plymouth. 7278

**COUNTY BOROUGH OF SOUTH SHIELDS.** Applications are invited for the following appointments in the Borough Engineer's Department. **THREE SENIOR ARCHITECTURAL ASSISTANTS** on Grade IV to V (£727 15s.—£994 5s.). The persons appointed will be placed in these Grades according to qualifications and experience. Vacancies also exist on the Special Grade (£797 5s.—£861) for Qualified Architectural Assistants who desire to obtain practical experience in the profession. The Council would be prepared to assist with housing accommodation, if required. Application Forms obtainable from the Borough Engineer, Town Hall, South Shields, should be returned to him not later than Monday, 9th September, 1957. R. S. YOUNG, Town Clerk. Town Hall, South Shields, 6th August, 1957. 7250

**WORCESTERSHIRE COUNTY COUNCIL.** COUNTY ARCHITECT'S DEPARTMENT. Applications are invited for:—**(1) ASSISTANT ARCHITECT, Grade A.P.T. IV** (£727 15s.—£907 2s. 6d.). **(2) ASSISTANT ARCHITECT, Special Grade** (£707 5s.—£861). Particulars and forms of application should be obtained from L. C. Lomas, F.R.I.B.A., County Architect, 14, Castle Street, Worcester, not later than the 4th September. (W211) 7300

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

**NORTH AND PARTNERS.** Chartered Architects, with large and varied practice, require a capable experienced ASSISTANT for drawing office, salary by arrangement. Reply: 40, Broadway, Maidenhead, Berks. 6573

**ASSISTANT ARCHITECT** required by Doncaster architects. Salary £1,000 p.a. Reply Box No. 7244.

**CO-OPERATIVE WHOLESALE SOCIETY LTD.** ARCHITECT'S DEPARTMENT, MANCHESTER. APPLICATIONS are invited for the following appointments:—**(a) SENIOR ASSISTANT ARCHITECTS** with experience of work on commercial and industrial projects (salary range £820 to £975 per annum). **(b) ASSISTANT ARCHITECTS** capable of preparing working drawings from preliminary details (Salary range £550 to £820 per annum). There is a five-day week in operation and both appointments offer prospects of upgrading. Applications stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 1, Balloon Street, Manchester 4. 6023

**SIR ALFRED McALPINE & SON, LTD.** require a **JUNIOR ARCHITECTURAL DRAUGHTSMAN** in their Design Department. Please apply to Head Office, Hooton, Wirral, Cheshire. 7157

**ASSISTANT ARCHITECT.** Co-operative Wholesale Society Ltd. invite applications for the position of Assistant Architect. Must be capable of preparing working drawings from preliminary details. The post is superannuable, subject to medical examination. 5-day week in operation. Applications, giving details of age, experience and salary required, to—W. J. Reed, F.R.I.B.A., Chief Architect, C.W.S. Ltd., 99, Leman Street, London, E.1. 6350

**NORTH & PARTNERS.** Chartered Architects with extensive practice, seek partner's personal ASSISTANT. Position will afford excellent opportunity for capable assistant. Reply: 40, Broadway, Maidenhead. 6502

**RAMSEY, MURRAY, WHITE & WARD** require recently qualified ASSISTANTS, with two to five years' practical experience, to work on interesting industrial and office buildings. Salary by arrangement.—Apply 32, Wigmore Street, W.1. 5929

**TWO ASSISTANTS** required in City Architect's Department. Salary range £600-£800, with good prospects of advancement and secure future for suitable applicants.—Write, giving particulars of experience, age, and salary required. Box 7210.

**ARCHITECTURAL ASSISTANTS** required for work on Licensed premises, including interior decoration. Write stating age, experience and salary required to The Secretary, Bechkin's Watford Brewery Ltd., P.O. Box 105, Watford, Herts. 7123

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

APPLICATIONS are invited for the following appointments in the above Branch Office undertaking interesting and varied commercial and industrial projects:—

**(a) ASSISTANT QUANTITY SURVEYOR,** with good experience in the preparation of Bills of Quantities, measuring and adjusting variations and estimating under supervision (salary range £550 to £820 per annum).

**(b) ASSISTANT ARCHITECT,** capable of preparing working drawings from preliminary details (salary range £550 to £820 per annum). There is a 5-day week in operation, and the appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester. 7073

**ARCHITECTURAL ASSISTANT** required by large Midland food manufacturing business. Applicants must have had sound architectural training up to Intermediate standard. The work is interesting and varied, embracing as it does new work, alterations and maintenance carried out in part by its own Building, Joinery and associated shops. Applicants to give full details of qualifications, experience, etc. Commencing salary within the range of £650 to £750 per annum. Box 7122.

**LONDON** office with widely varied practice urgently requires all grades of ASSISTANTS, preferably with London experience. Five-day week. Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, London, W.C.1. Holborn 5108. 6531

**AUSTRALIA.**—Established office in Brisbane, Queensland, with varied contemporary practice, require qualified ASSISTANTS, with 2 or 3 years' experience; good salary. Partner now in London will interview applicants.—Please make written application, with copies of references, to Box 7204.

**SENIOR ARCHITECTURAL ASSISTANT** required for Winchester office. Knowledge of specification writing and previous office experience essential. Applicants should state qualifications, if any, previous experience, and salary desired. Box 7298.

**SIR ALFRED McALPINE & SON, LTD.** require an **ARCHITECTURAL ASSISTANT** in their Design Department. Applicants should be of Intermediate R.I.B.A. standard and capable of producing working drawings and details from sketch schemes.—Apply to Head Office, Hooton, Wirral, Cheshire. 7158

**ARCHITECTS.—SENIOR ARCHITECTURAL ASSISTANTS** required immediately for a wide variety of work. Salary range £800-£1,000 per annum (according to experience and qualifications). Superannuation Scheme.—Application should be made in writing to Kenneth F. Masson, A.R.I.B.A., Chief Architect, S.C.W.S., Ltd., 76, Morrison Street, Glasgow, C.5. 7179

**NOTTINGHAM.—ARCHITECTURAL ASSISTANT** required, with contemporary outlook for varied practice. Salary range £500-£700 per annum.—Michael F. H. Moss, Newcastle Chambers, Angel Row, Nottingham. 7174

**ASSISTANT ARCHITECT** required by Harry S. Fairhurst & Son. Applicants should have had experience. The scope of work is varied and interesting, and salary would be according to abilities and experience.—Apply to 55, Brown Street, Manchester, 2. 7197

**YOUNG ARCHITECTURAL ASSISTANT** (male) required in West End office. Write stating age, experience and salary required. Box 6683.

**ARCHITECTURAL ASSISTANTS** required for busy Glasgow practice. Seniors, experienced in schools, hospitals and industrial work, and capable of controlling staff. Juniors, of Intermediate standard. Excellent prospects and salaries up to £1,000, with twice yearly bonus for suitable applicants.—Box 7161.

**SENIOR and JUNIOR Staff** required for a varied contemporary practice.—Apply in writing, stating salary and experience, to H. A. Halpern, A.R.I.B.A., 193, Nelson Road, Gillingham, Kent. 7212

**ARCHITECTURAL ASSISTANTS.** Intermediate up to Final standard, required for Coventry and London offices. Excellent opportunities in varied practice covering wide area. Good salaries, closely related to capabilities and reviewed annually. Pension Scheme available. 5-day week. Travelling expenses to applicants selected for interview.—W. S. Hattrell & Partners, 1, Queens Road, Coventry 60568, and 14, Hanover Square, London, W.1, Mayfair 4992. 7209

**ARCHITECTURAL ASSISTANTS** required immediately for industrial works.—Write or telephone, E. Howard Sadler, A.R.I.B.A., A.M.I.Struct. E., 14, Hadley Road, New Barnet, Herts. BARNET 2191. 7207

**EXPERIENCED ARCHITECTURAL ASSISTANTS** required for contemporary office, salary according to experience. C. H. Elsom, 10, Lower Grosvenor Place, S.W.1. Telephone: VIC 4304. 7299

**ASSISTANTS** required in medium sized busy office. General practice, including Housing Schemes, Office Blocks, Factories, etc.—Apply in writing only, stating age, qualifications, if any, experience, and salary required to Thomas Stothorp, F.R.I.B.A., A.R.I.C.S., A.M.T.P. 10, Manchester Square, W.1. 7230

**ASSISTANT ARCHITECTS** with ability to supervise contracts required for small London office, 5-day week. Write giving details of experience and salary required to Box No. 7297.

**ROBERT MATTHEW & JOHNSON.** MR. MARSHALL requires ARCHITECTURAL STAFF in their Edinburgh office for work on redevelopment schemes, large hospital projects, and a wide variety of University, Power Station, School and Office buildings. Salaries from £600 (recently-qualified assistants) to £1,000, with placing according to ability and experience. Applications should be marked "Confidential" and addressed to 31, Regent Terrace, Edinburgh, 7. 7296

**ARCHITECT'S ASSISTANT.** Intermediate R.I.B.A. standard, urgently required in Architect's Department of Consulting Engineers. Interesting work. Superannuation Scheme. Salary by arrangement. Apply Personnel Dept., Sir Bruce White Wolfe Barry & Partners, 1, Lyon Place, Grosvenor Gardens, London, S.W.1. Tel.: SLOane 0431. 7295

**THE POLYTECHNIC, 309, REGENT STREET, W.1.**

**VACANCY** exists for a part-time teacher in **THEORY OF STRUCTURES**. Some previous teaching experience in this subject is necessary. Form of application may be obtained from the Head of the School of Architecture, Surveying and Town Planning, The Polytechnic Extension, Little Titchfield Street, W.1. 7294

**ANDREW BUCHAN'S BREWERIES, LTD.** require an **ARCHITECTURAL ASSISTANT** in their Estate Department. The appointment offers wide scope in licensed property work. Salary £750. Contributory Pension Scheme in operation; accommodation offered; car allowance. Applications, giving age, details of previous experience and qualifications if any, should be sent to Alwyn Morgan, A.R.I.B.A., Company Architect, Breweries Offices, Rhymney, Mon. 7283

**ARCHITECTURAL ASSISTANT** of Intermediate standard required. Apply in writing stating age, experience and salary required to J. Brian Cooper, F.R.I.B.A., 38, Highfield Road, Edgbaston, Birmingham, 15. 7288



**ASSISTANT**, Intermediate standard, required, busy West End office. State age, experience, and salary required.—Box 6046.

**BUCKINGHAMSHIRE** firm of Architects within thirty miles of London with a varied practice, require qualified **QUANTITY SURVEYORS**. Five-day week. Salary according to age and experience. Please write giving full particulars to Box 7282.

**ARCHITECTS** require **SENIOR ASSISTANTS** for interesting overseas work with possibility of short tour abroad. Please reply stating age and experience to Box 7281.

**ARCHITECTURAL ASSISTANT**, preferably with 2-5 years' experience with good practical knowledge, required in progressive West End office, good prospects, five-day week. Apply W. H. Robbins, A.R.I.B.A., 77, Wigmore Street, W.1. WEL 0274. 7279

**INTERESTING** opening for **JUNIOR ARCHITECTURAL ASSISTANT** in small West End Office of Chartered Architect, dealing with contemporary design of chain shops. Salary according to experience. Telephone for appointment GRO 6533 or apply Box 7285.

**ARCHITECTURAL ASSISTANTS** required in West End Architect's Office. Excellent prospects and Free Staff Pension Scheme. Canteen facilities. Please reply giving particulars of experience, age and salary required to C. J. Foster, 50/4, Beak Street, London, W.1. Phone GERard 9234. 7267

**SMALL** progressive West End Office requires an **ARCHITECTURAL ASSISTANT** of Intermediate standard with initiative and drive. Holidays will be respected, if possible. Particulars of experience and salary required to Box 7287.

**ARCHITECTURAL ASSISTANT** required, of Intermediate standard, preferably with a fair for presentation drawings. West End office, five-day week, luncheon vouchers. Salary in the region of £600 p.a. Box 7284.

**CAWOOD WHARTON & COMPANY LIMITED** who have since the war designed and supplied prefabricated timber buildings to the value of many millions of pounds, wish to appoint one or two **YOUNG ARCHITECTS** or **SKILLED DRAUGHTSMEN** to assist in expanding the range of their activities. These posts will be tenable at the Company's Headquarters at Harrogate in ideal surroundings with excellent amenities, pension scheme, etc. Applications giving details of training and experience, present situation and remuneration should be addressed to the Secretary, Cawood Wharton & Co. Ltd., Southlands, Harrogate. 7251

**ARCHITECTURAL ASSISTANTS** are required for the Architects' Departments (Chief Architect: Sydney Greenwood, A.R.I.B.A.) at Head Office, Mill Hill, and at the Research and Development Centre, Boreham Wood, Herts. Some experience is required in one or more of the following: office and industrial schemes, multi-story flats and maisonettes, private and municipal housing, and those studying for Intermediate or Final R.I.B.A. will be preferred. These vacancies offer excellent opportunities for advancement and a wide variety of work in a busy office. Pension Scheme. Five-day week. Canteen. Sports and Social Club facilities. Those interested are asked to write for an application form to: Personnel Manager (A.A.I.), John Laing and Son Limited, Page Street, London, N.W.7. 7258

**SENIOR ARCHITECTURAL ASSISTANTS** required in busy Bradford Office with varied practice. Good prospects for suitable applicants with salary up to £900 per annum. Participation in Staff Pension Scheme. Pleasant Offices and congenial working conditions. The positions are particularly suitable for men with a keen interest in their work and capable of carrying out a job from start to finish with a minimum of supervision. Apply with full particulars to: Messrs. Chippindale & Edmondson, Chartered Architects, Empire House, Piccadilly, Bradford, 1. 7269

**TRING, HERTFORDSHIRE. SENIOR ASSISTANT ARCHITECTS** required for work on Contemporary Schools, Churches and design of prefabricated forms of construction at home and overseas.

Write to Woodroffe, Buchanan & Coulter, 41, High Street, Tring, or phone Tring 2083 for an appointment. 7268

**JUNIOR ASSISTANTS** of Final standard required at once in expanding office in South Kensington. Good opportunities for general experience with interesting work. Five-day week, salary according to experience. Write Box 7266, or phone Ken. 1242-4.

**SMALL** office specialising in exhibition, interior and industrial designs, requires a young qualified **ASSISTANT**, used to working quickly. Telephone FLAman 4314 for appointment. 7286

**LEADING** Firm of Building Surveyors (City of London) require **JUNIOR ARCHITECTURAL DRAUGHTSMAN**, age 22/27. Must be well educated and keen to progress in profession. Salary from £350 according to experience. Box 7263.

**NORMAN & DAWBARN** invite applications from **ASSISTANTS** with at least three years' office experience. Write to: 7, Portland Place, W.1. 7262

**SENIOR ARCHITECTURAL ASSISTANT** required in small E. Anglian practice. Qualifications not necessary, applicant must be interested in producing sound working drawings efficiently and quickly, must be conscientious, good specification writer, reliable and loyal. Able to carry small contracts through to completion including final accounts. Good salary to right person. Five-day week. No age limit. Box 7260.

**ASSISTANT** required in West End Office for Working Drawings, details and specifications. Practical experience more important than qualifications. Five-day week. Box 7259.

**INTERMEDIATE AND JUNIOR ARCHITECTURAL ASSISTANTS** required for Cotswold Office with varied practice. State age, experience and salary required.

Fyle & Saint, Chartered Architects, Thomas Street House, Cirencester, Glos. 7257

**ARCHITECTURAL ASSISTANT** required of R.I.B.A. Intermediate standard. Five-day week. Applications giving experience, age, salary to Vallis & Bird, F./A.R.I.B.A., Frome. 7256

**ARCHITECTURAL ASSISTANT** required in West End Office. Experienced in preparation of working drawings, detail specifications for new commercial buildings and adaptation of existing premises. Salary according to experience and ability but between £500—£800 p.a. Box 7254.

**ARCHITECTS** required by the National Coal Board in Edinburgh. Salary within the scale £1,000—£1,300 p.a. Applicants must be Associate Members of the R.I.B.A. and have had considerable experience in the control of staff and handling of large-scale Contracts. Applications, stating age, education, qualifications, experience, present post and salary, to Divisional Chief Staff Officer, National Coal Board, 3, Eglinton Crescent, Edinburgh, 12. 7314

**ARCHITECTS**, A.R.I.B.A. min. three years' post-graduate experience. Progressive outlook essential. Apply Munce & Kennedy, Chartered Architects, 135, University Street, Belfast, Northern Ireland. Interviews in London during last week in August. 7315

**ASSISTANTS** required in Architects' offices in London and Manchester. Must have an appreciation of contemporary design, have had practical experience and be prepared to take responsibility in the preparation of working drawings for large contracts. Salary £750—£850.—Scherrer & Hicks, F.F.R.I.B.A., 19, Cavendish Square, London, W.1. 7317

**JUNIOR ARCHITECTURAL ASSISTANTS** required. Salary £400 to £550 according to age and experience.—S. Dodson & Son, L./A.R.I.B.A., Museum Buildings, Priestgate, Peterborough. 7316

**DEVEREUX AND DAVIES** require **ASSISTANTS** for hospital work. Please telephone MUS 9472 for appointment. 7280

## Architectural Appointments Wanted

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

**A.R.I.B.A., A.M.T.P.I.**, with wide London experience and car-owner, seeks post in London. Box 7312.

**REPRESENTATIVE** post sought by **ARCHITECTURAL ASSISTANT**, 28, residing Westminster. Nine years' Architectural, Office and Site experience. No R.C. or structural work. Box 7293.

**ASSISTANT**, nearing completion of National Service, seeks congenial post in South or South West England. Salary £560 per annum at conscription. Final standard. Box 7292.

**A.R.I.B.A.**, school-trained, seven years' office experience; Housing, Schools, Industrial and Commercial; seeks post with responsibility and opportunities to design; £1,000 p.a. Box 7291.

**WILL** anyone requiring the permanent services of an experienced young Architect, in a position offering scope for responsibility and initiative, please write to Box 7290.

**OCTOBER** appointment required by **ASSOCIATE**, 35. Able designer, accustomed full responsibility of jobs and staff. Box No. 7310.

## Other Appointments Vacant

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

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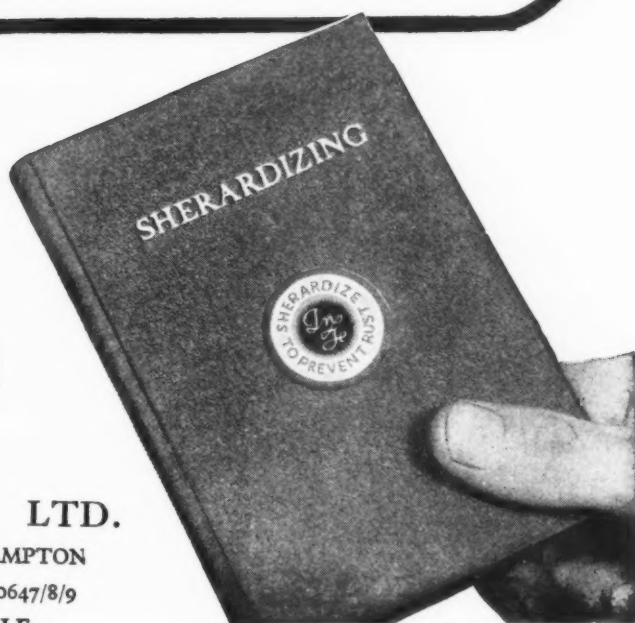
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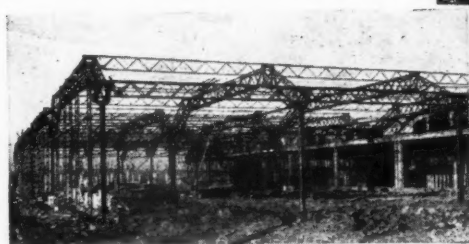
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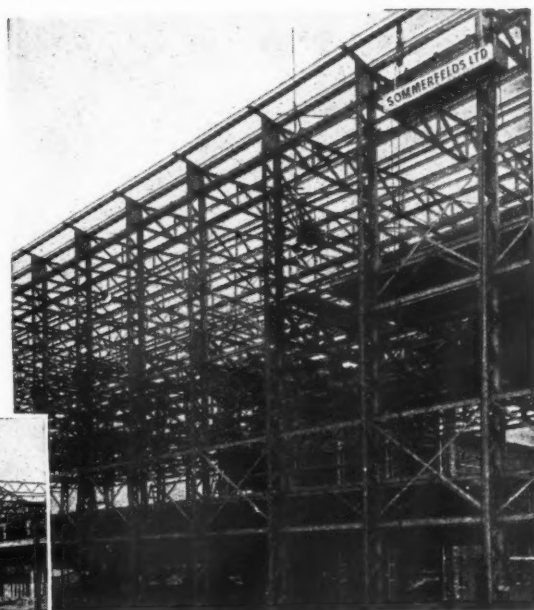
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