

THE ARCHITECTS' JOURNAL



Information for the architect:

From October the AJ will be changed and enlarged to include the special features listed below. Architects and students are recommended to make sure that they get their personal copies of the AJ, if they do not already, in order to be able to create their own individual sfb-classified library (see AJ reply paid order form at the end of the Journal.)

Elemental Design Guide

Each week in addition to its usual features the AJ will publish a supplement giving a design guide for one of the functional elements in Table 1 of the sfb system of classification.

Technical references

Accompanying this elemental design guide will be a list of technical references telling architects where to obtain the factual data needed in all stages of the design process.

Technical studies

These technical references will be accompanied by a special article, additional to the normal AJ technical article, which will deal with some aspect of the functional element in question.

Information sheets

Supporting these supplements will be a special series of Information Sheets. These have been designed as an enlargement of the present series to provide a complete and concise coverage of all materials and trade products.

Informative advertisements

The co-operation of advertisers and advertising agents is being sought in producing preclassified advertisements giving basic information on their products for inclusion in each sfb element file.

THE AJ LIBRARY

New products and new publications

The AJ's weekly feature, The Industry, by Brian Grant, is being redesigned so that each note is contained on A6-sized paper and carries an sfb classification number so filing enthusiasts can keep each item for future reference. Information Centre will also appear in a different form.

As usual

The AJ will continue to publish technical articles, cost analyses of buildings, Working Details and prices of measured work, all of which readers may wish to file in personal, as well as office, libraries.

SfB classification

All articles, features and reviews will be classified with the sfb number and the UDC number where appropriate in a coding box in the top right-hand corner.

Filing

The introduction of a special method of binding has enabled the AJ to be opened out flat and to make all pages, and not just Information Sheets and Working Details, to precisely the A4 size, the officially recommended size for technical publications. An inch margin and centring marks for punching at the standard $3\frac{1}{8}$ " spaces allow the AJ's pages to be filed in most types of folder or binder. All articles will be arranged so that they can be easily extracted as a whole, without including other editorial matter. The removal of pages or groups of pages from the glue backing is facilitated if the Journal is opened out and the join rubbed flat on both sides of the page or pages being extracted.

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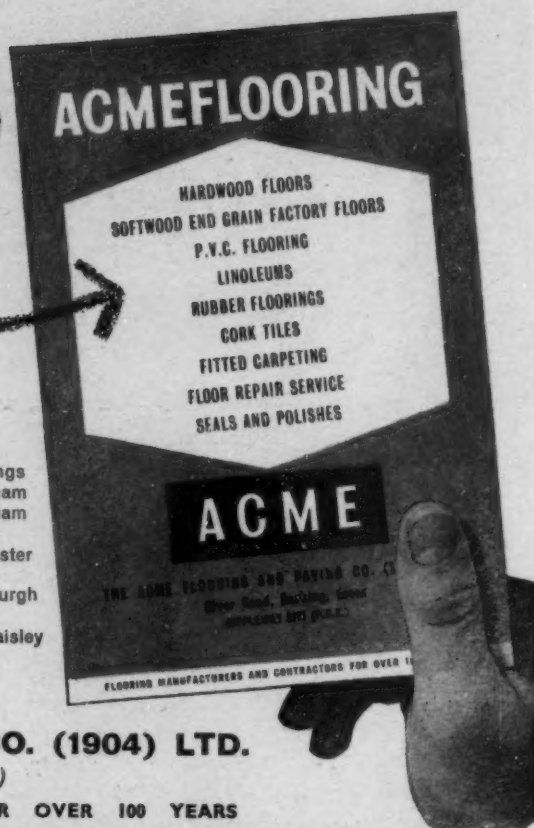
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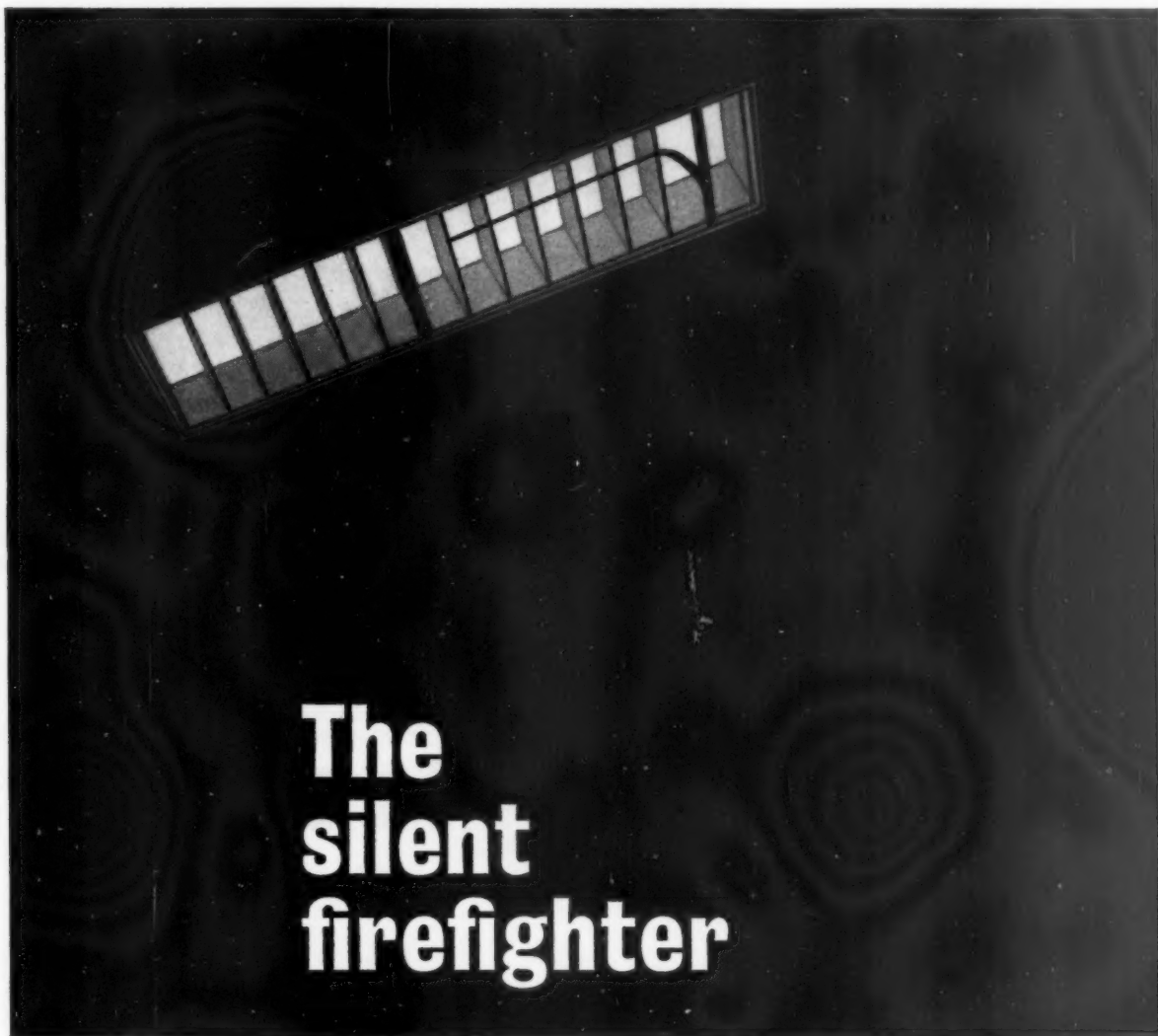
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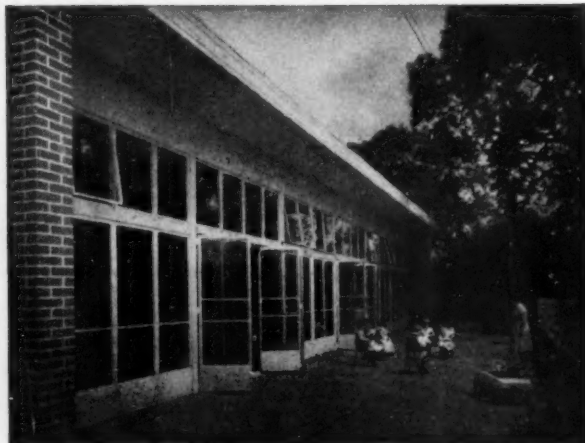
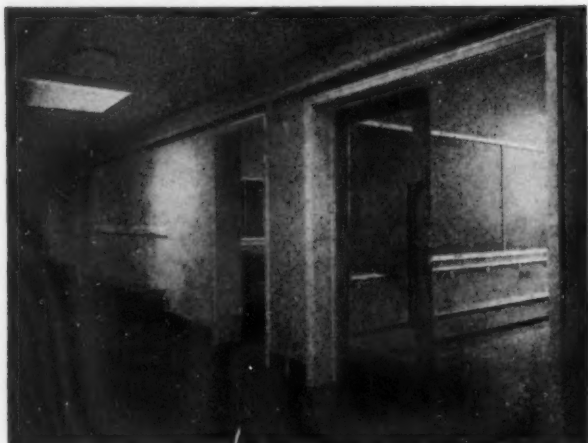
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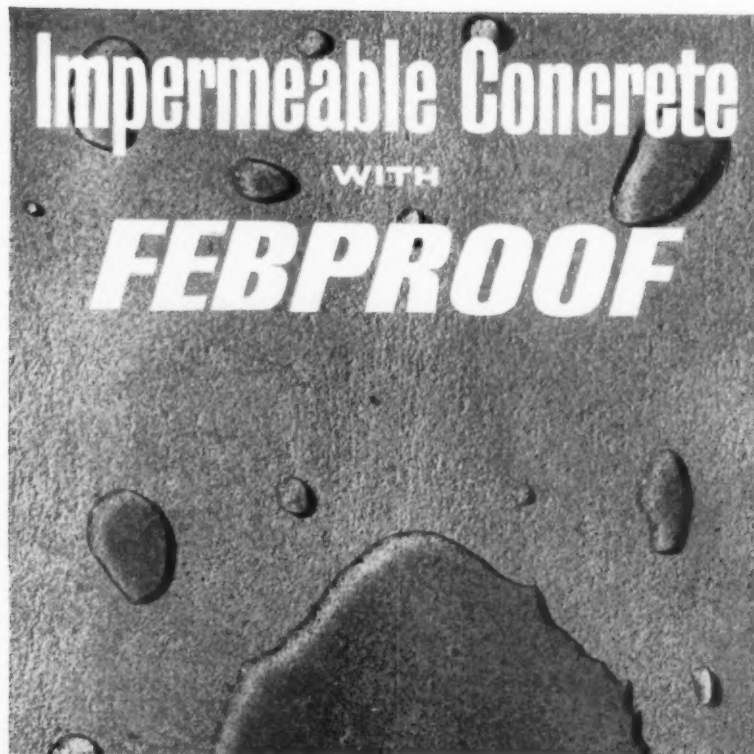
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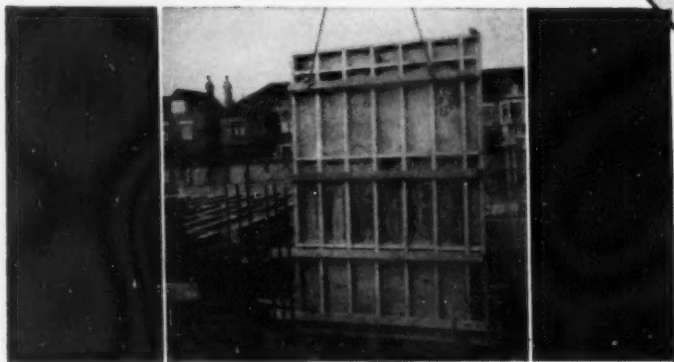
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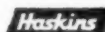
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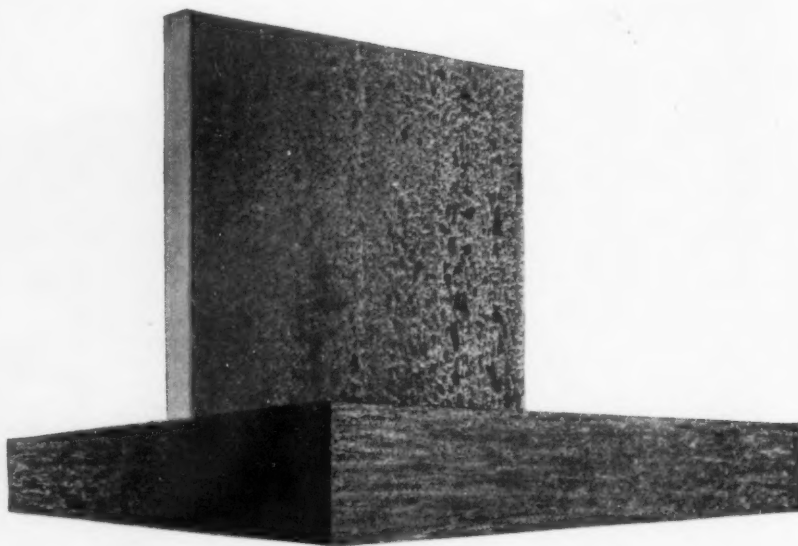
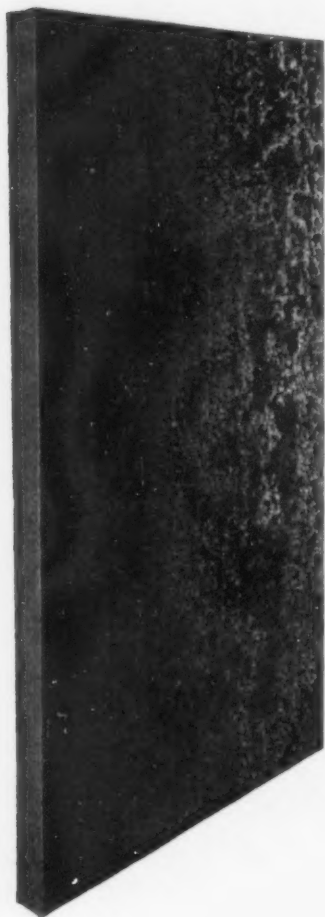
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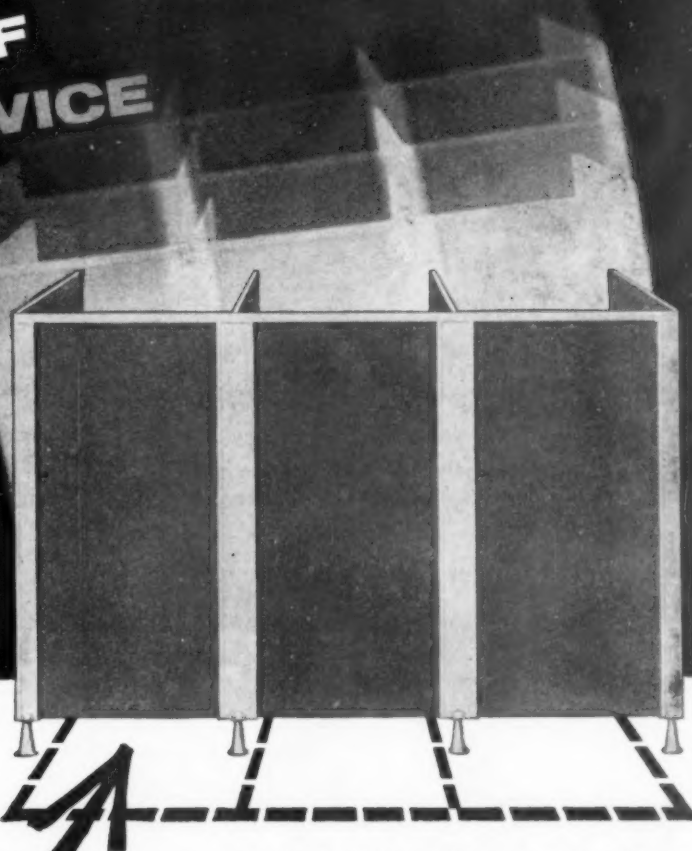
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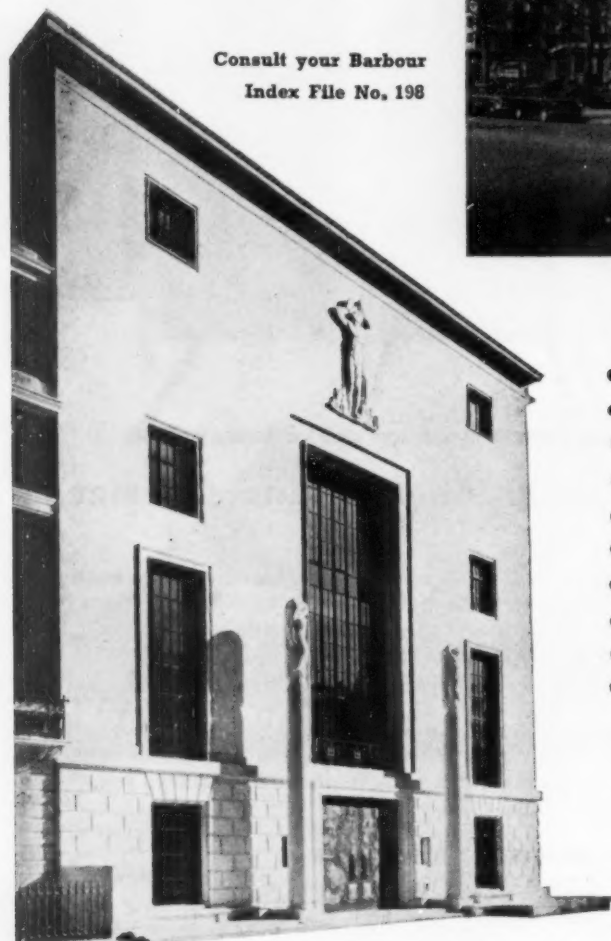


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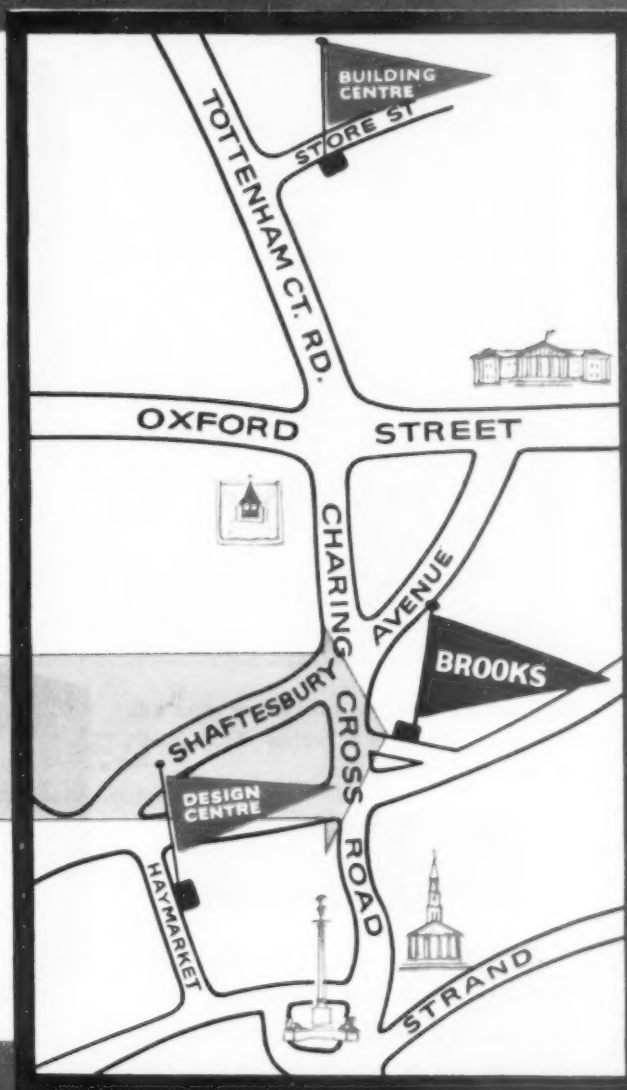
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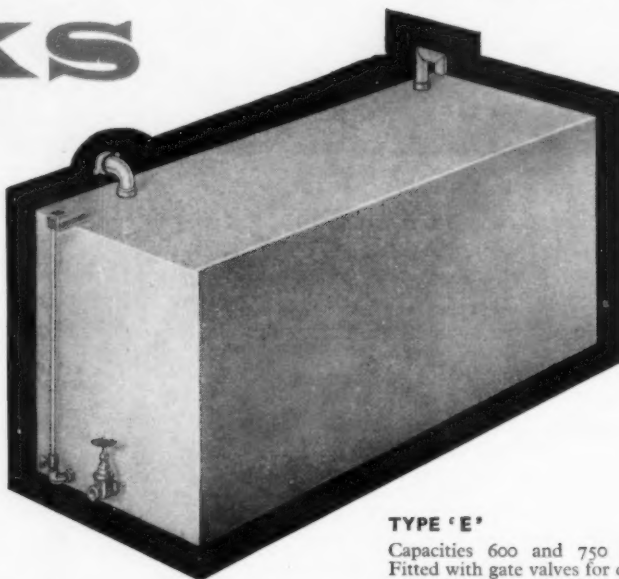
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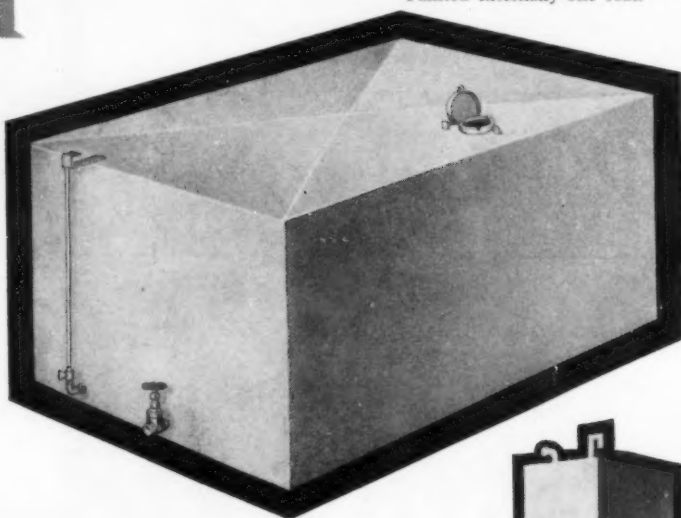
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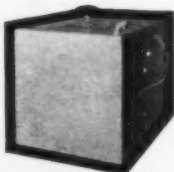
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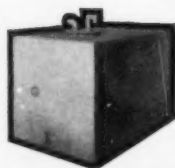
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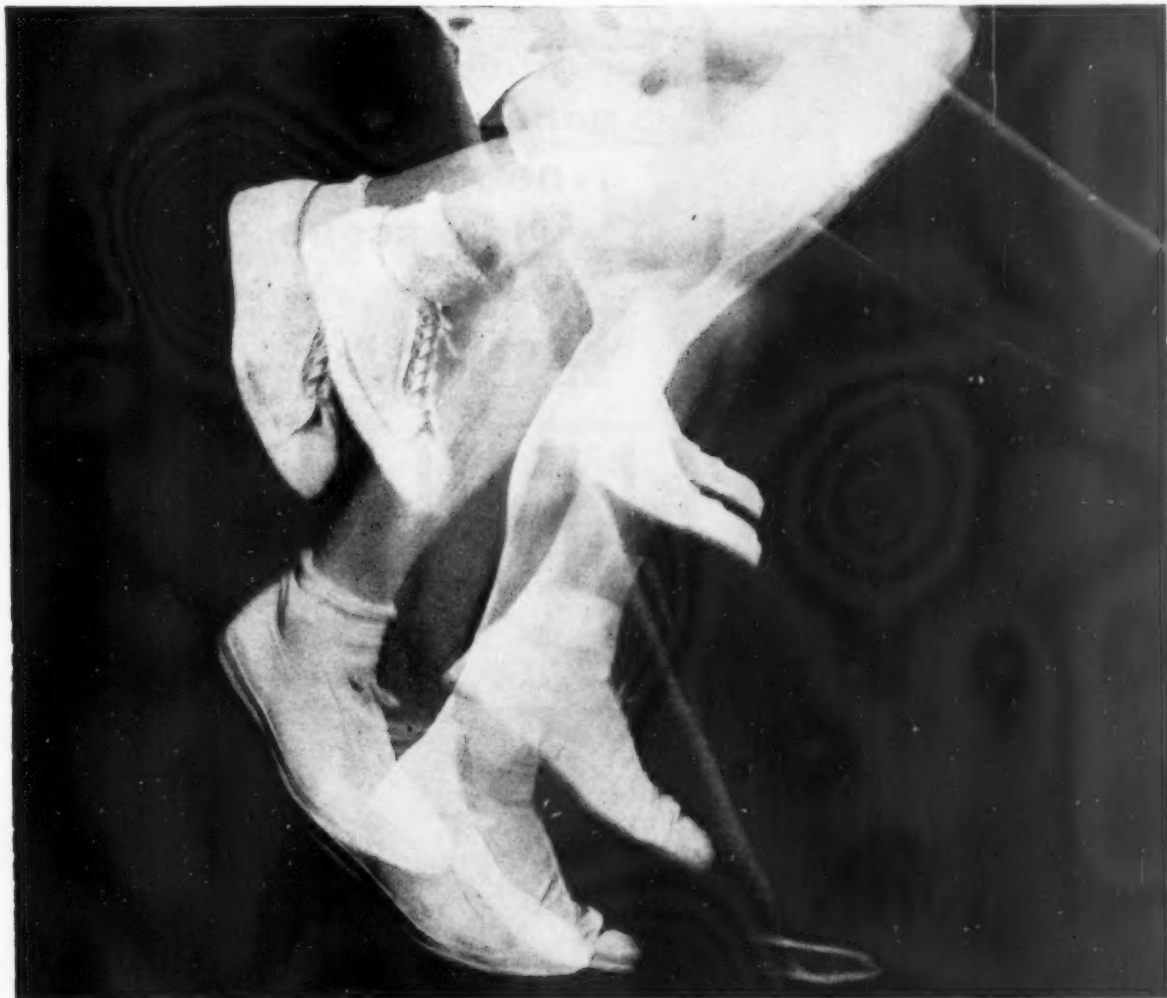


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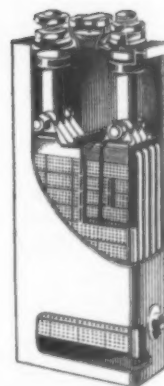
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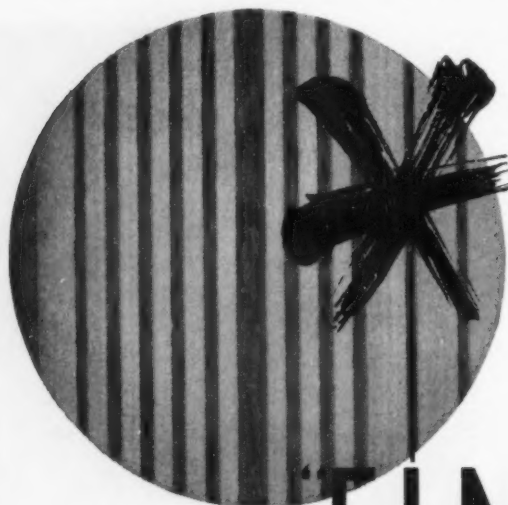
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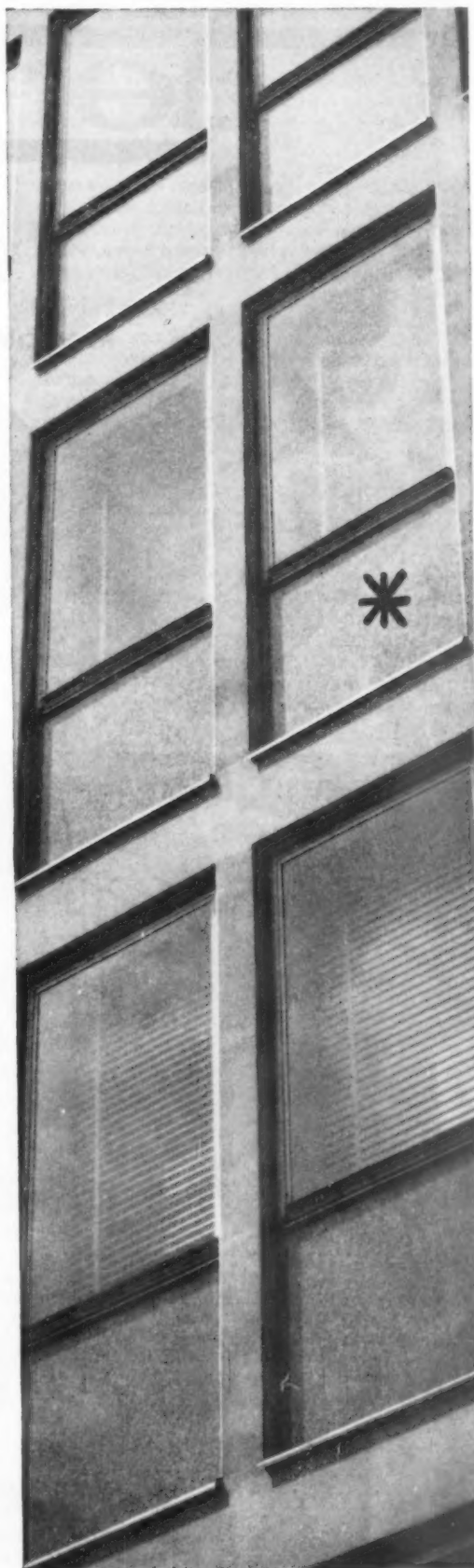
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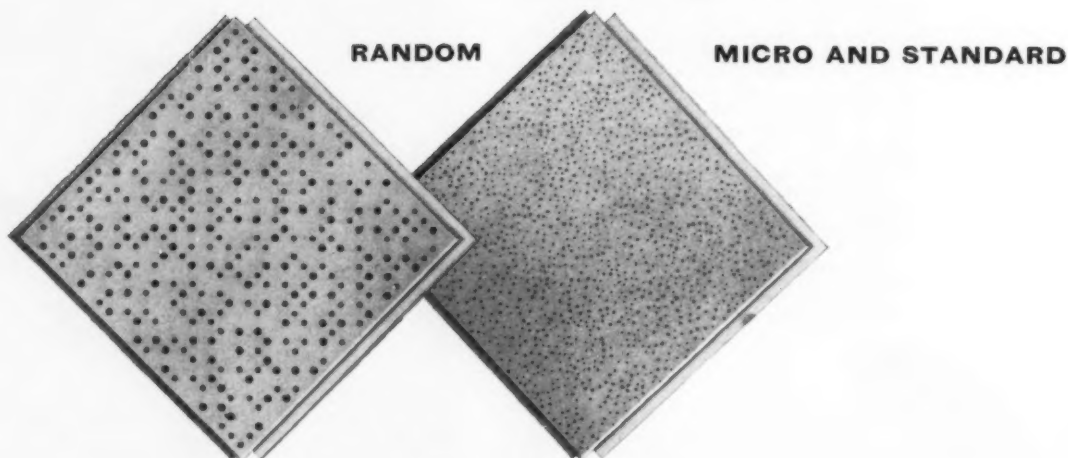


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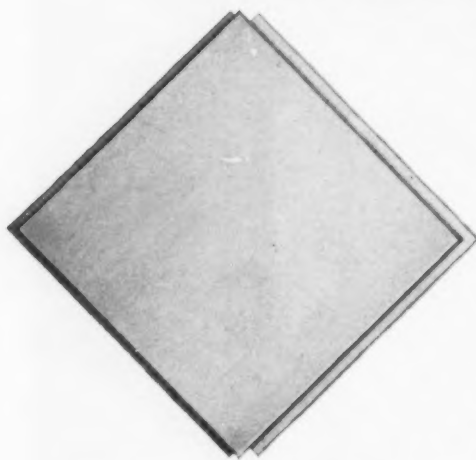


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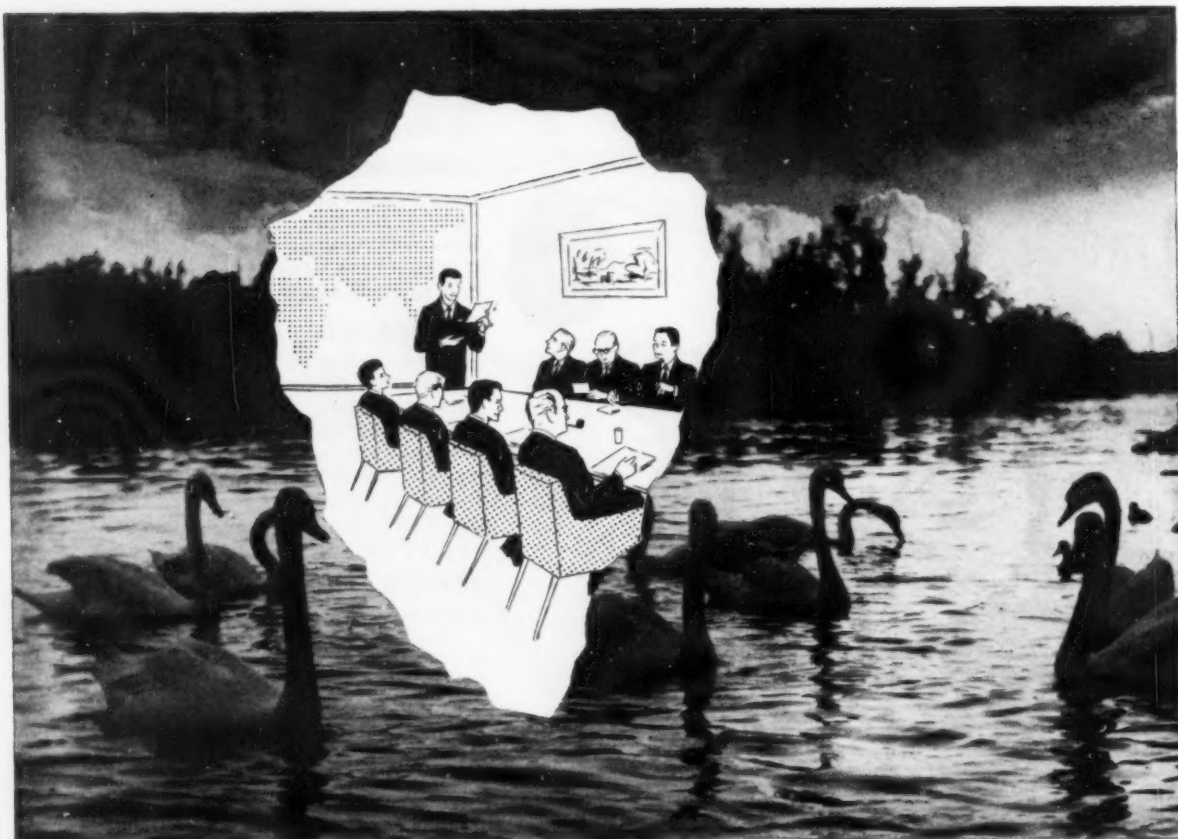
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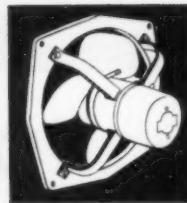
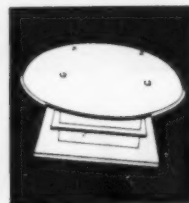
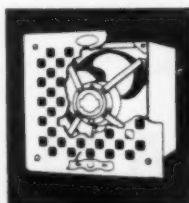
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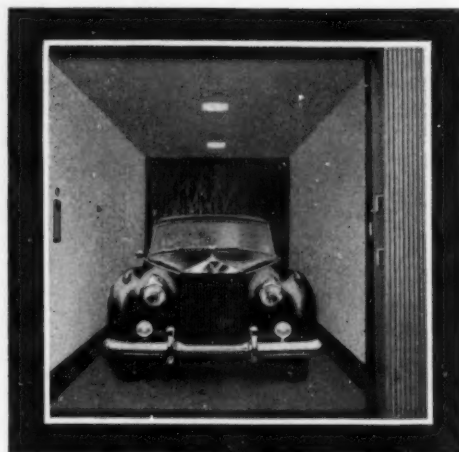
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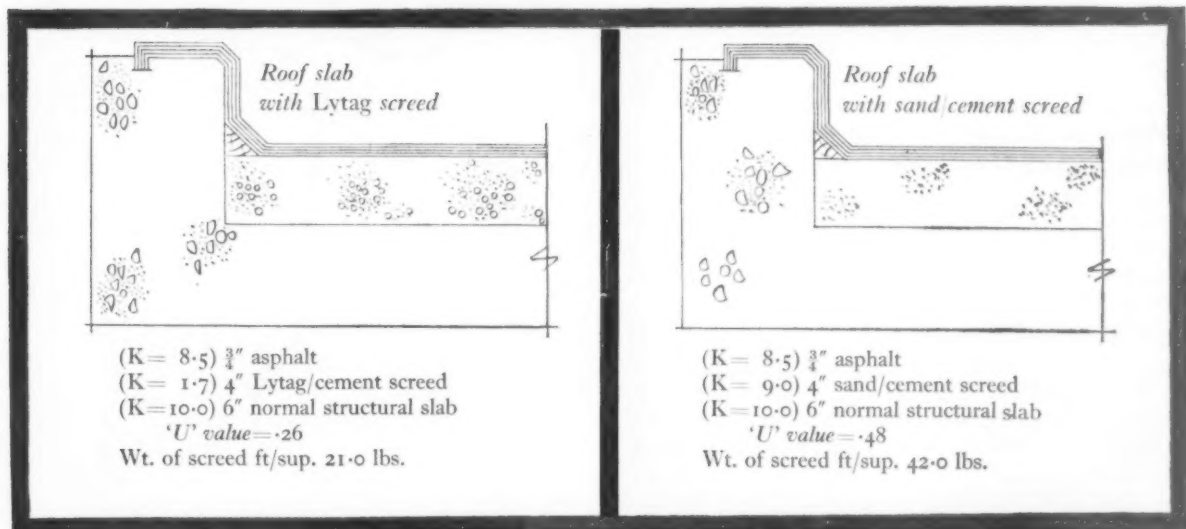
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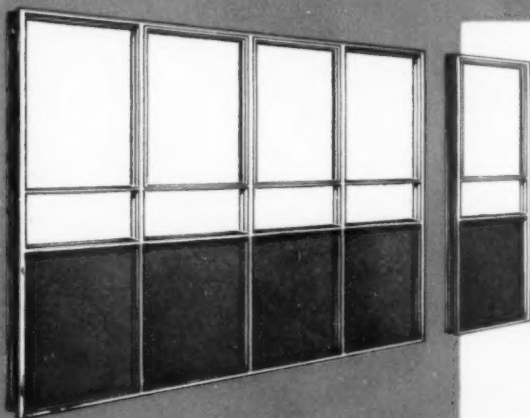
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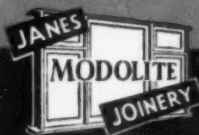
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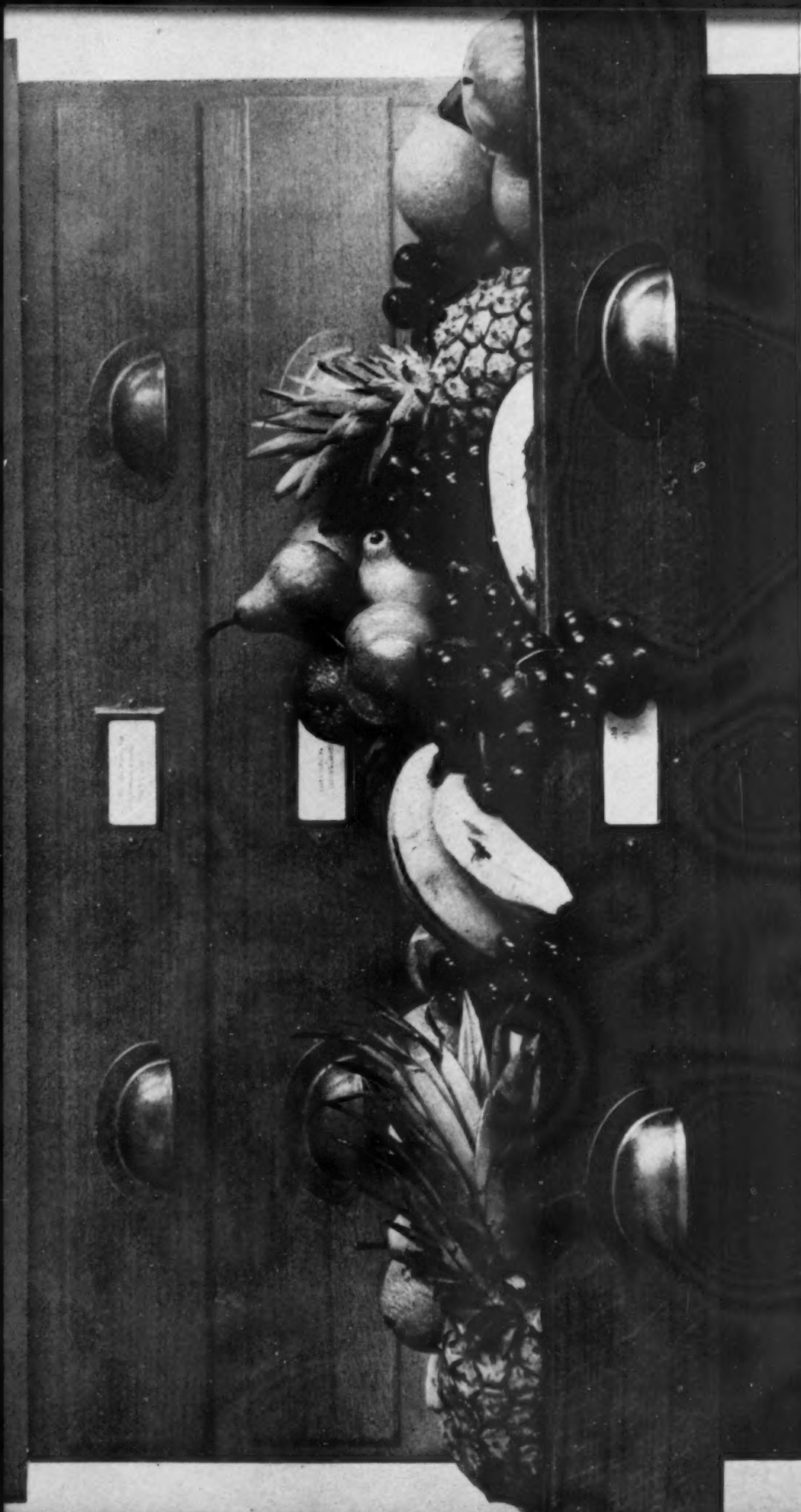
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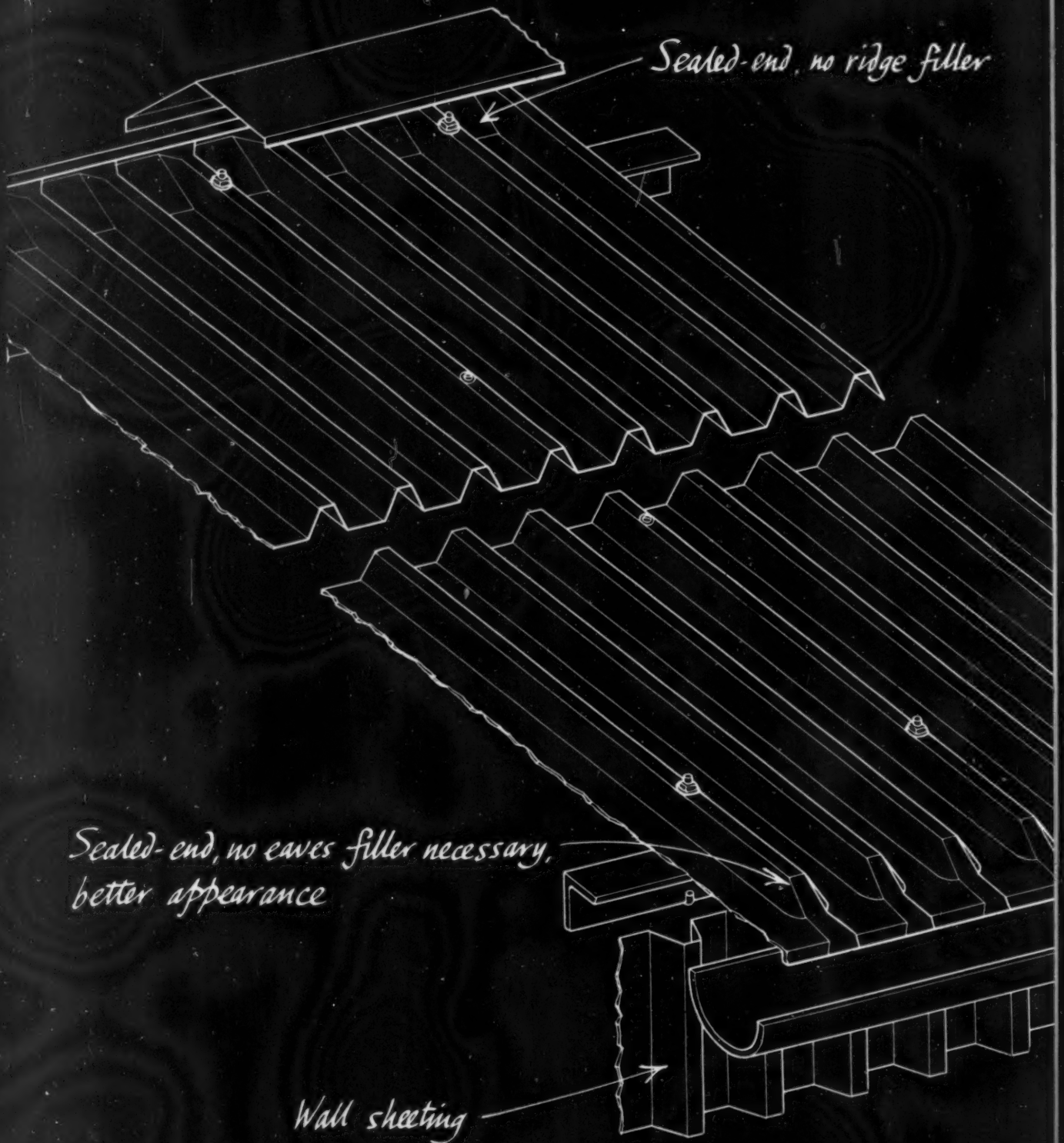
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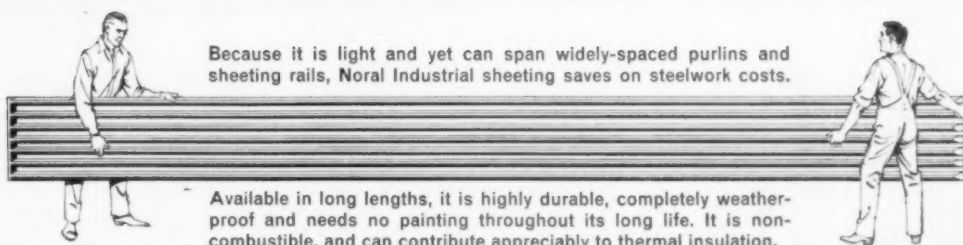
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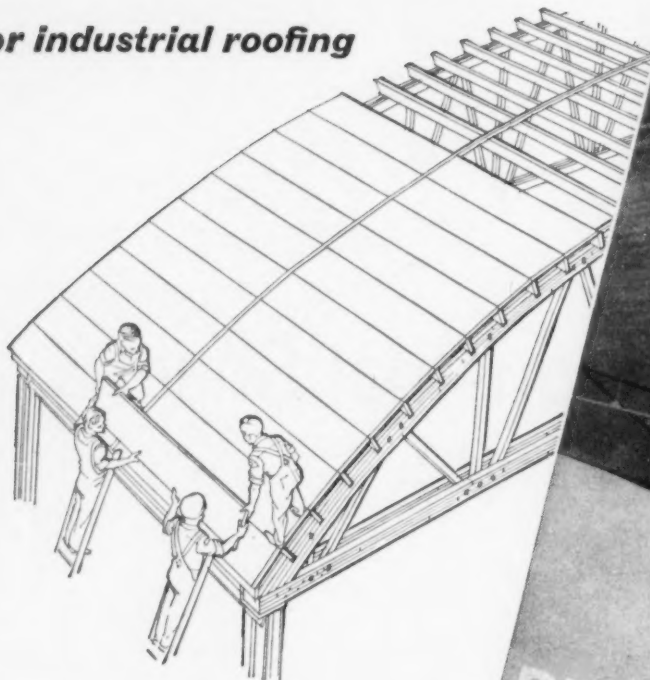
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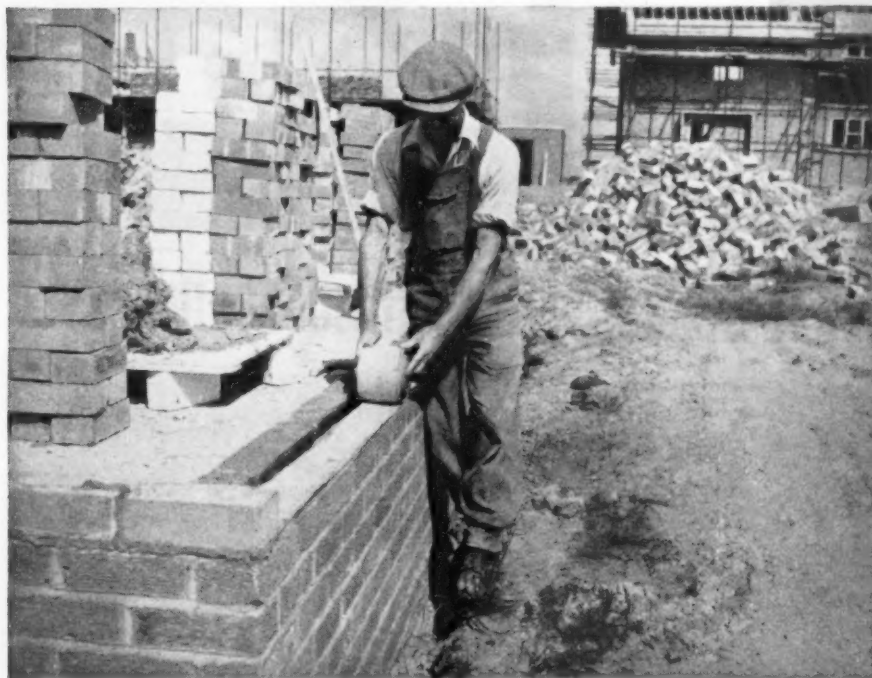
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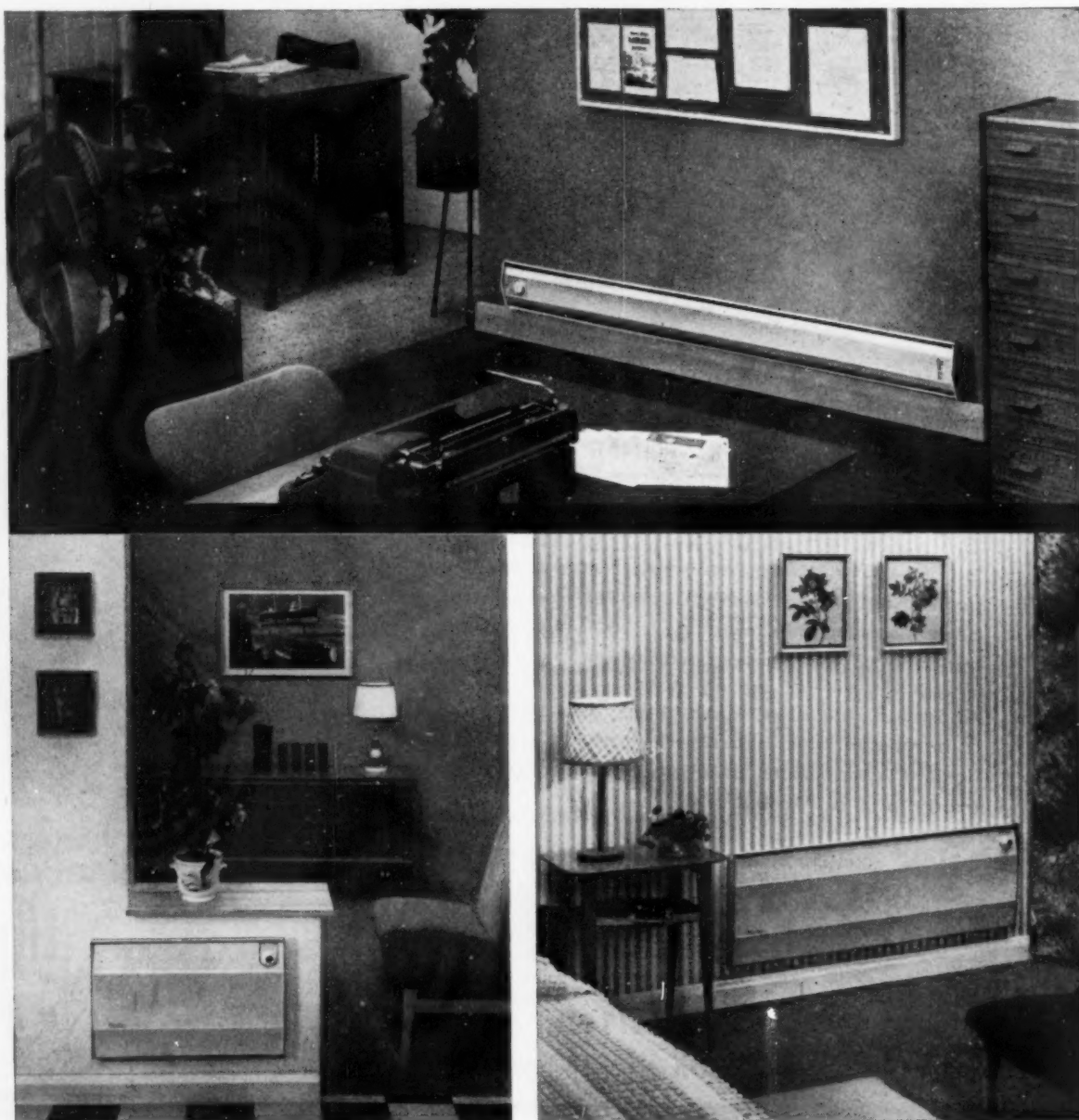
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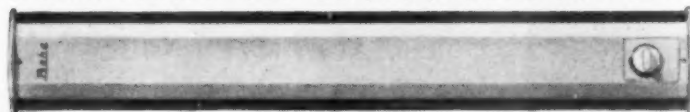


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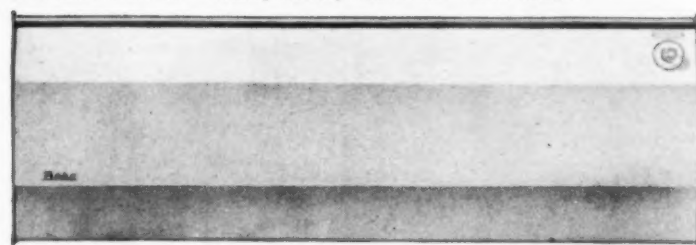
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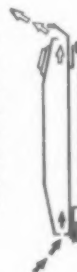
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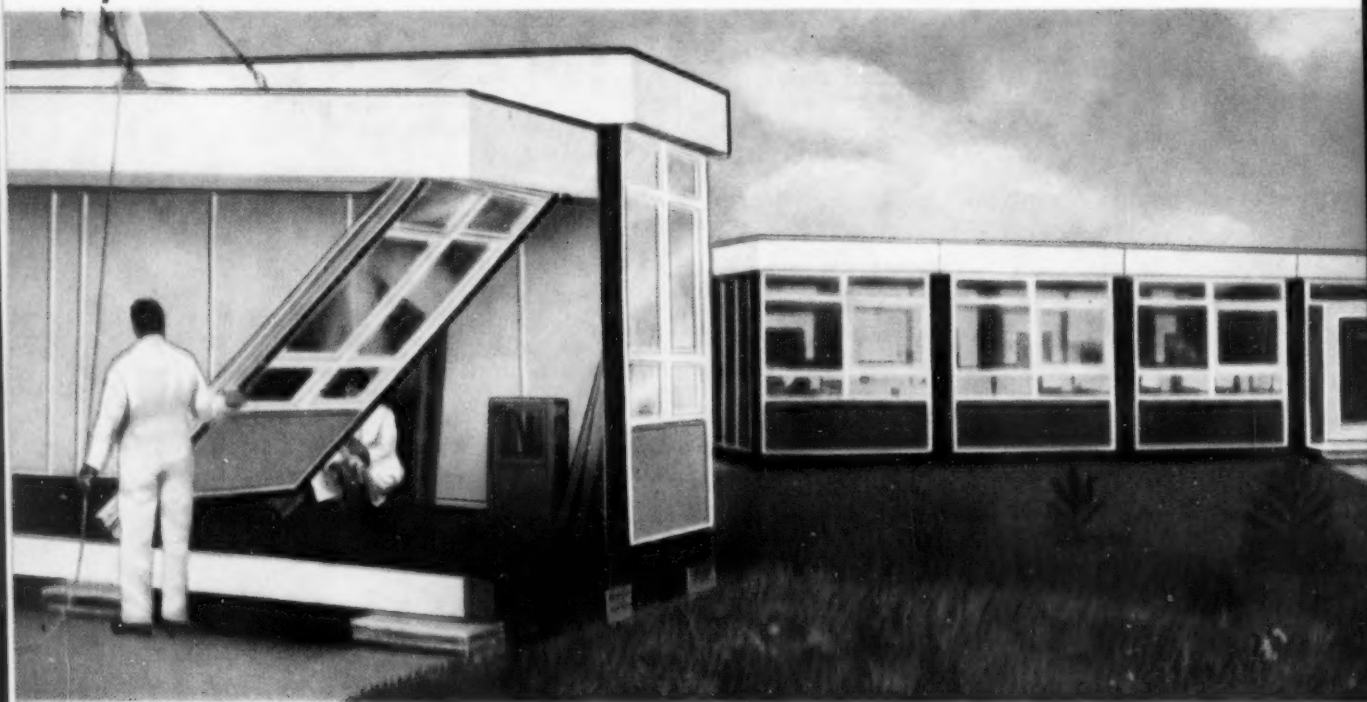
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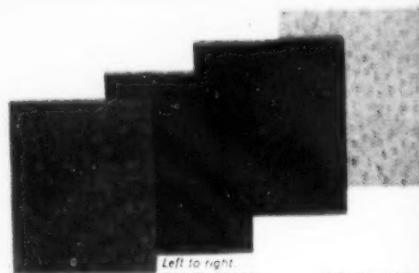


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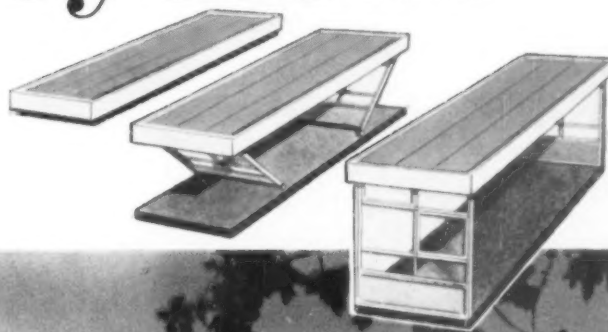
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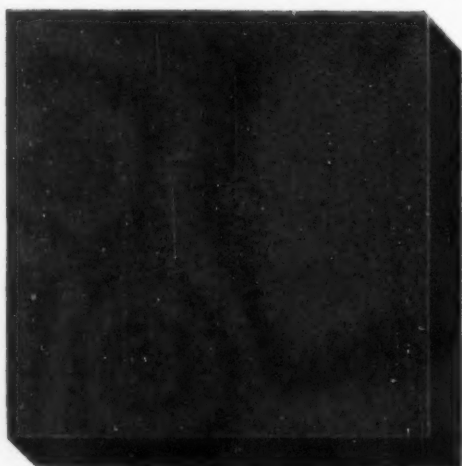
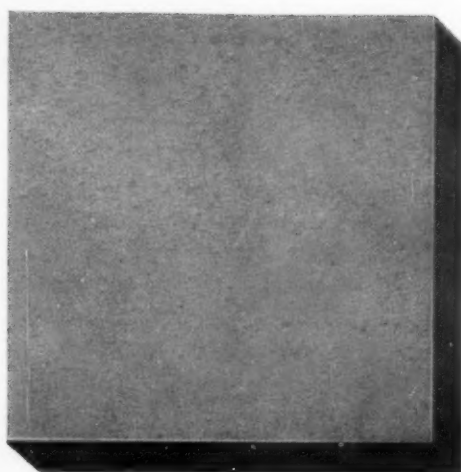
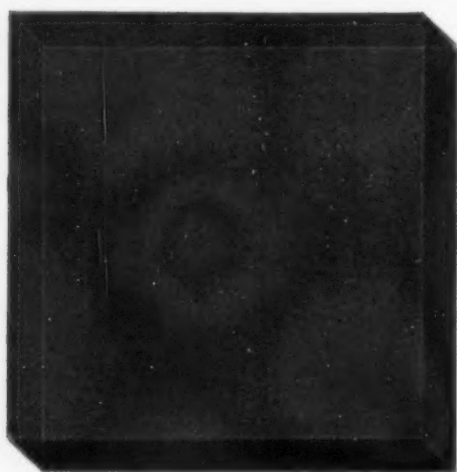
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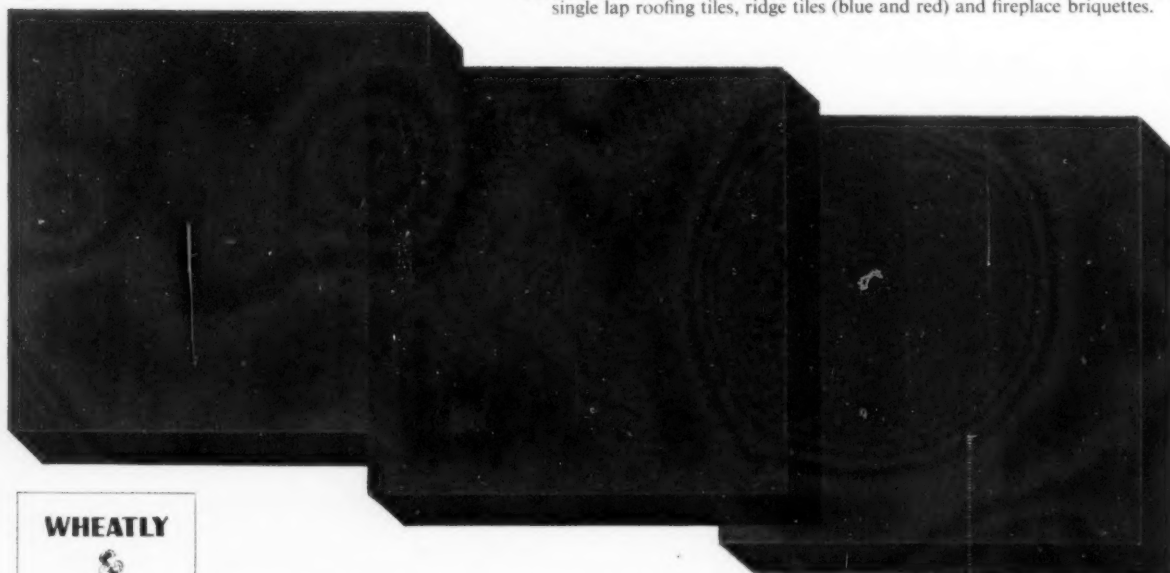
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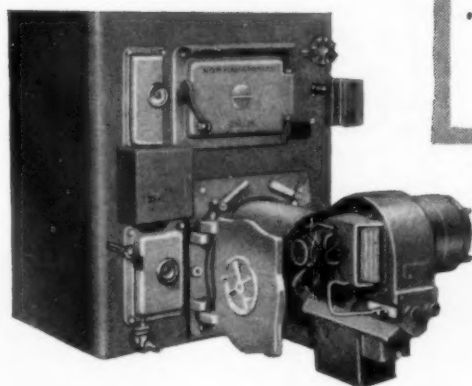


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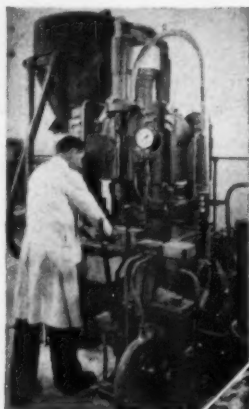
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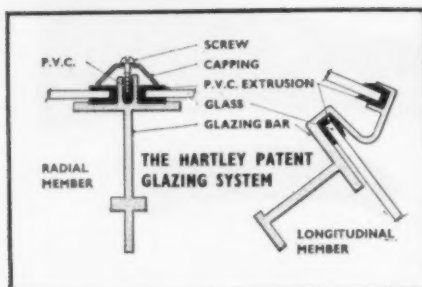
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Floral Conservatory, for the Rhyl Urban District Council.
212 ft. long x 43 ft. wide x 25 ft. high.

The **HARTLEY** Glasshouse range covers all needs

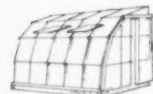
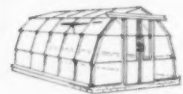
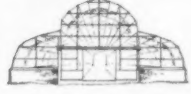
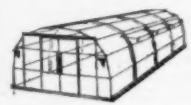
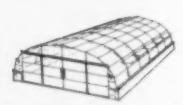
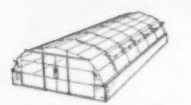
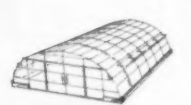
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Fleet Building for the Post Office.
Architect: W. S. Frost, Esq. A.R.I.B.A. A.M.P.T.I.
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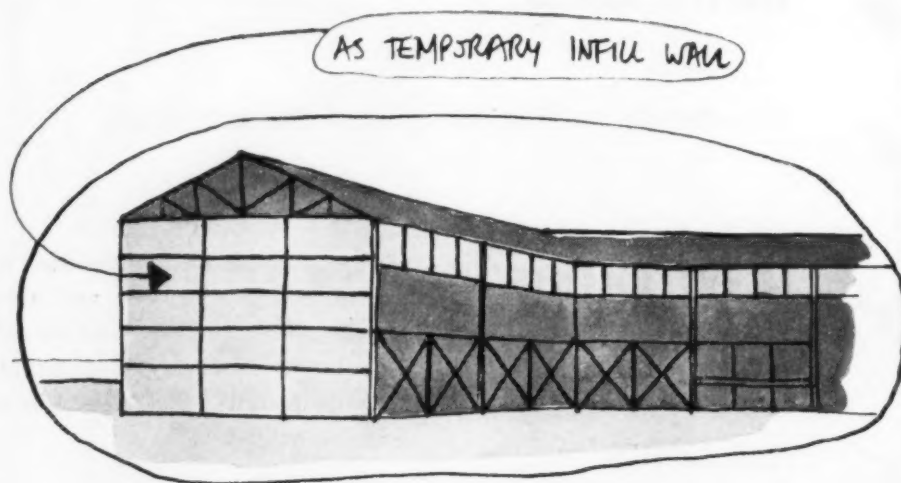
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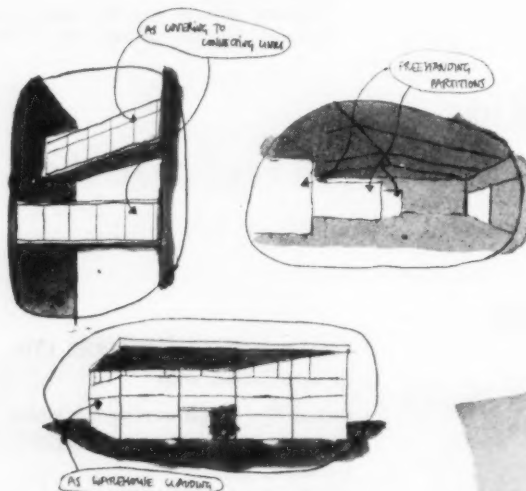
Pages from an Architect's Notebook

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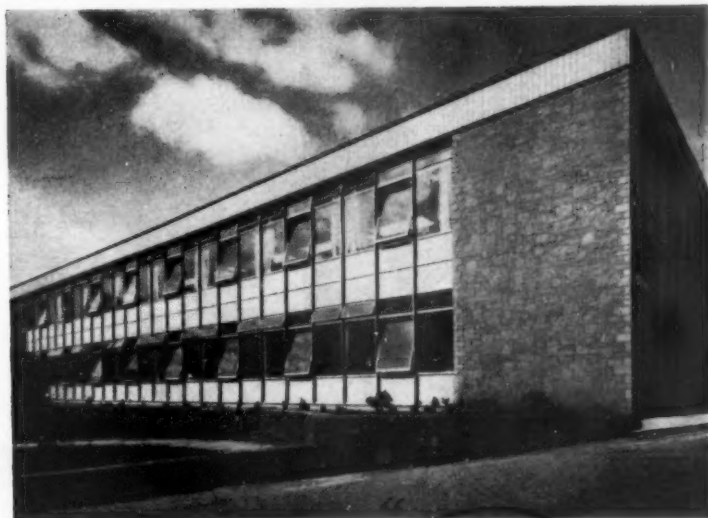
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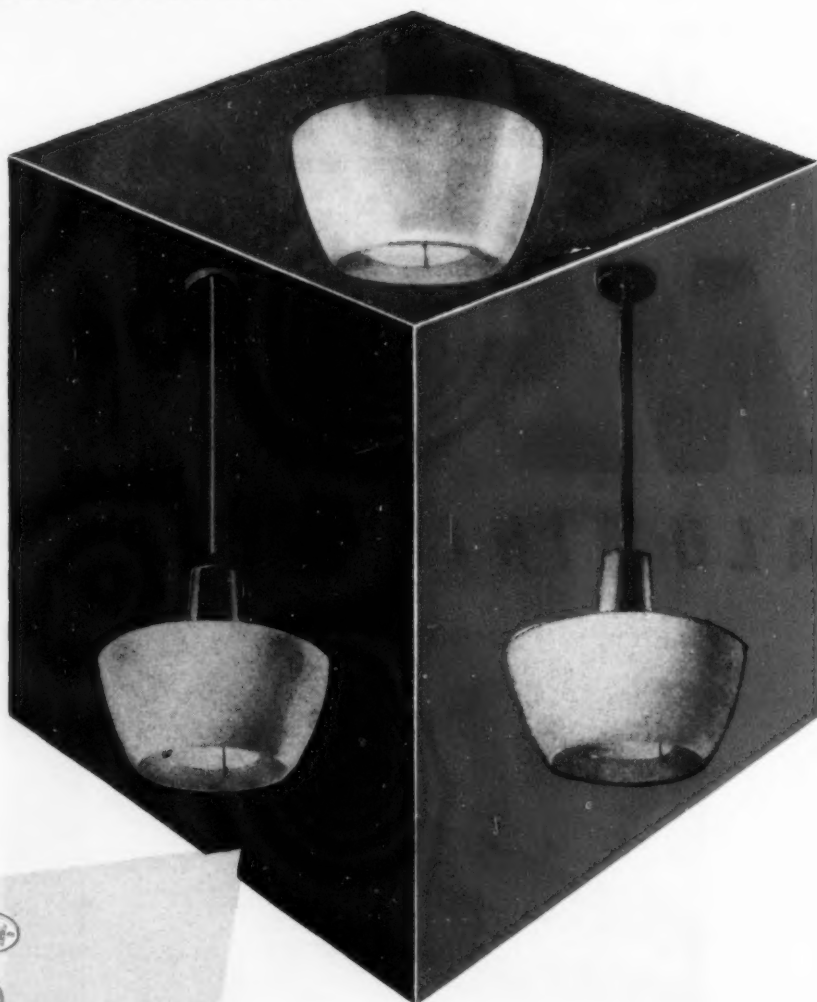


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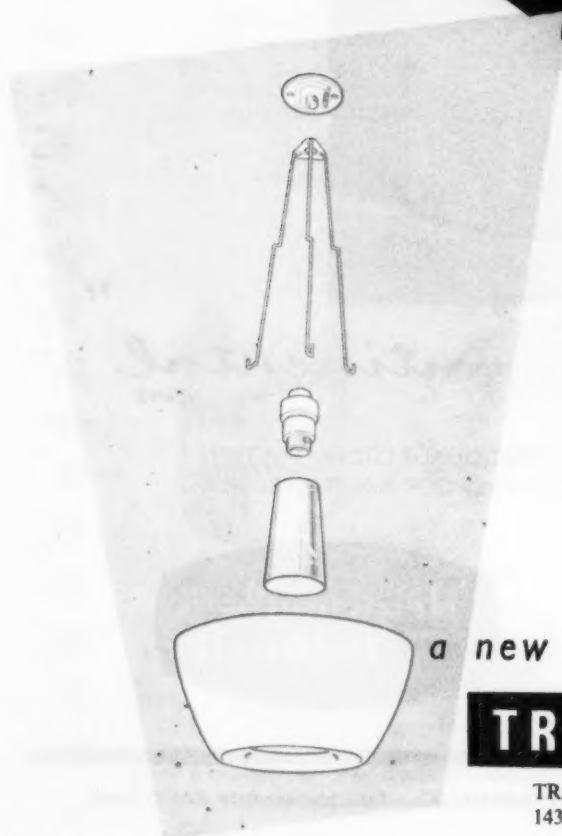
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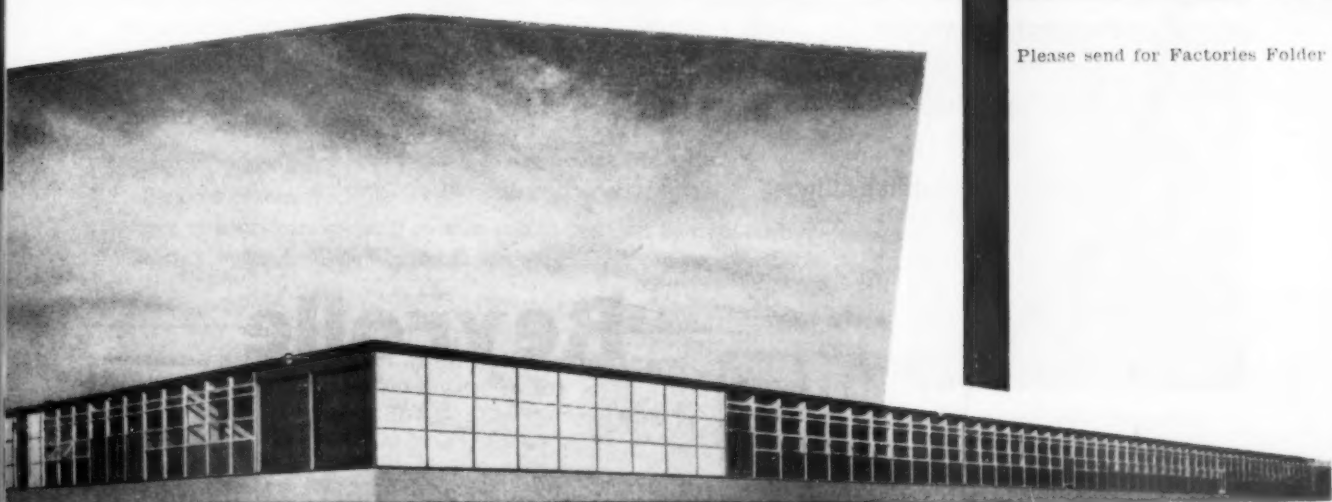
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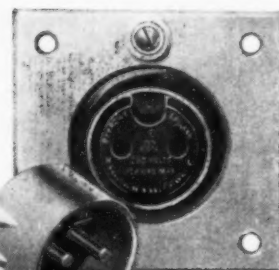


Factory at Mansfield —
Foister, Clay and Ward Ltd.
Architect — D. A. Matthews,
Dip. Arch., A.R.I.B.A., Leicester.
General Contractor —
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bungalow...



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More heat
at less cost
— and
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The neat boiler, fitted in the kitchen, with the pump (normally covered by a removable casing.)

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Recess Swinging Type FIRE HOSE REEL

Now—an even better NORSEN recessed reel. The new "Type T" illustrated, has a cranked arm (see diagram) which permits a full 180° swing out of a recess with architraves up to $\frac{7}{8}$ " thick.

Because the reel is completely recessed a door can easily be fitted. This may be either of the "push-on" type, hinged, or fitted in-to slides. The illustration shows a practical method consisting of a perspex sheet sliding vertically in the architrave.

The reel illustrated is also fitted with an automatic switch wired to operate a booster pump if water pressure is inadequate or only a static supply is available.

NOTE POSITION OF REEL WHEN OUT OF RECESS

The method by which the reel swings through a full 180° is covered by patents.

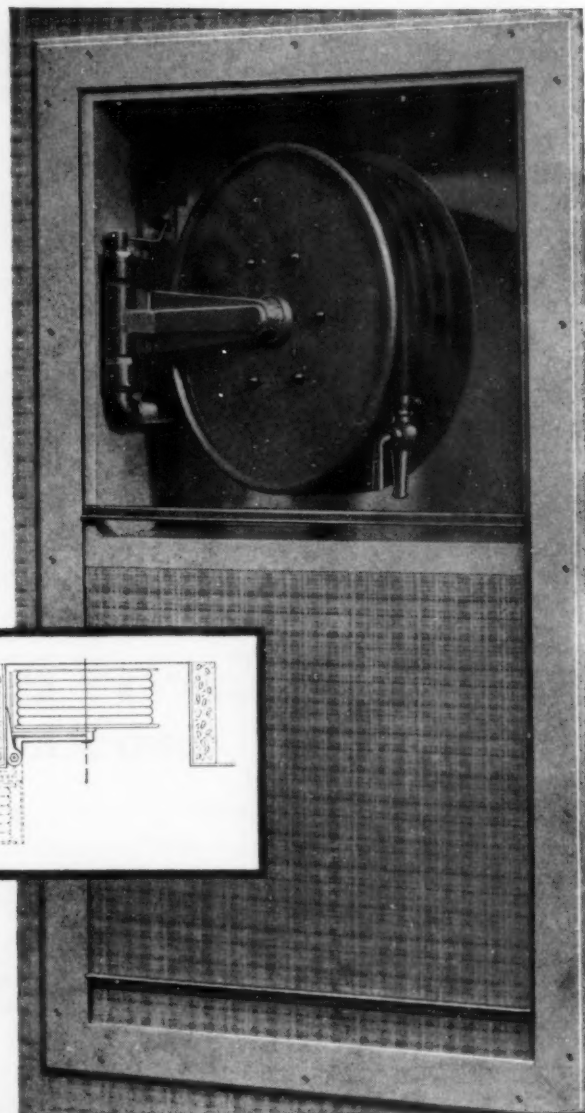
SIZE OF RECESS:

60 Ft. REEL: 27" Sq. x 12½" DEEP
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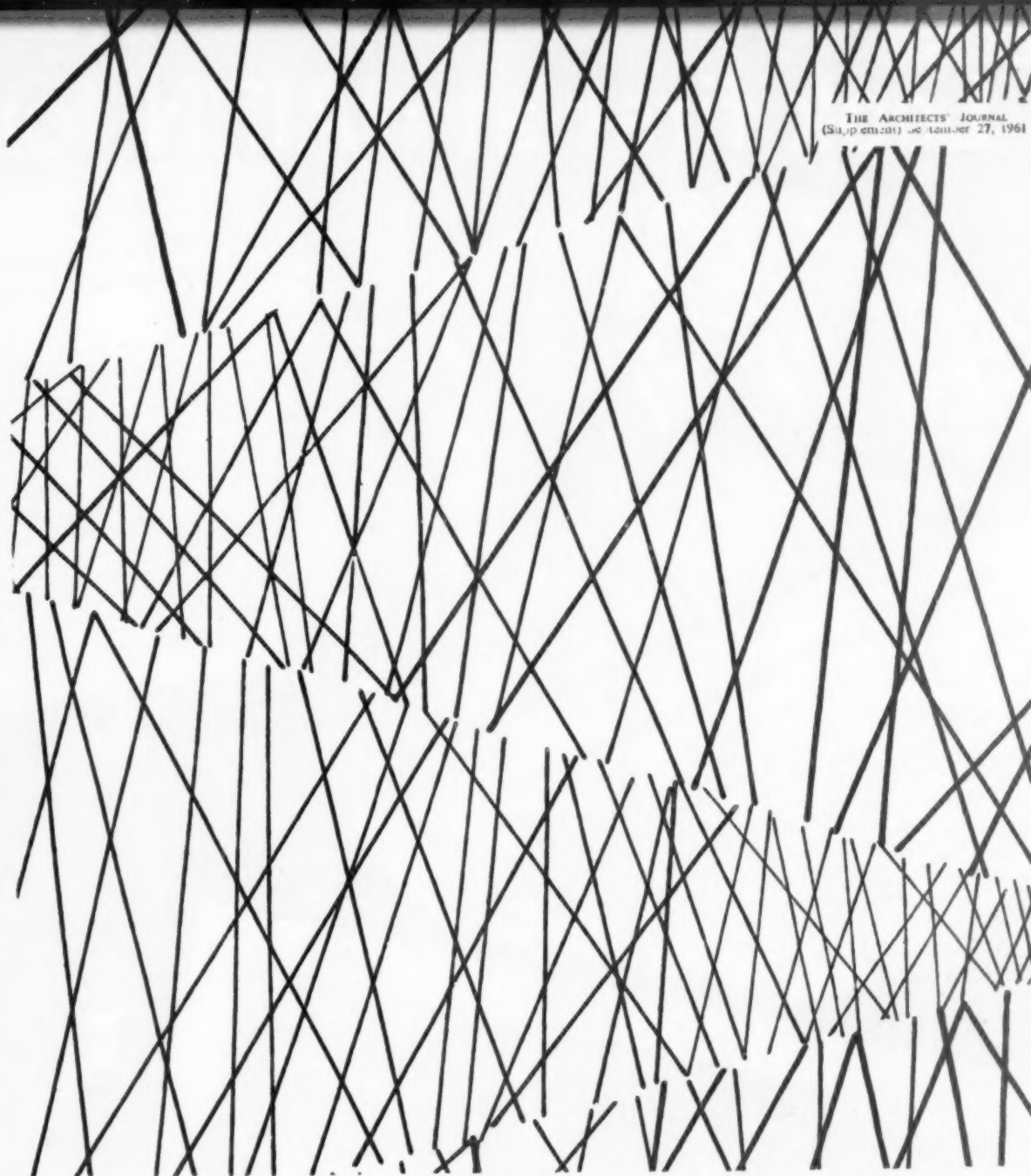
All Fire Protection activities of JOHN TAYLOR, DUNFORD & CO. LTD., including the manufacture and marketing of Norsen Automatic Fire Hose Reels, are now handled by a subsidiary company DUNFORD FIRE PROTECTION SERVICES LTD., recently formed to give undivided specialist attention to the problems of fire prevention.

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'Focus' designed by Frank Designs. M1046 shown to scale.

A new collection of machine printed wallpapers has just been compiled by the London Office of The Wall Paper Manufacturers Limited 19/21 Mortimer Street, W.1. and is now available through wallpaper suppliers. Many prominent designers are associated with this collection among them Lucienne Day, Jacqueline Groag, Terence Conran, Joyce Storey and William Gear.

Modus wallpapers, because machine printed, are moderate in price, and in order to increase their usefulness to Architects and Interior Designers all these papers have been treated with a special protective coating.



MODUS

19/21 MORTIMER STREET LONDON W1
THE WALL PAPER MANUFACTURERS LIMITED

Look first at NAIRN for

SHOPPING'S A WALKOVER AT INTERNATIONAL STORES

SHOP: International Stores, Croydon.

PROBLEM: Streamlined routes result in concentrated traffic—and concentrated wear.

ANSWER: Nairn linoleum in Royal Red and Blondwood, contractor-cut to make this vivid directional chequerboard. International Stores use 4.5 mm Nairn linoleum in many of their shops, and find it very hardwearing, despite the stab of female footwear.

COMMENT: In value for money, you can't beat Nairn linoleum.
ARCHITECT: W. J. LEE, LRI&A, ARCS
FLOORING CONTRACTOR: LEWIS BROS (KING'S CROSS) LTD

BROADMEAD'S 'OPERATION LIGHTNING SHOPFITTING'

SHOP: Broadmead Ltd, Edgware Road.
PROBLEM: How to install a tough new floor with a 'house-style'—at top speed.

ANSWER: Marbled white linoleum, faced with black feature strips, gives a terrazzo 'house-style' effect to the entrance arcade, so that the open shop appears to extend right to the pavement's edge. Even here, completely exposed, Nairn linoleum stands up to the weather very well.

COMMENT: A blend of imagination and common sense. Broadmead can—and do—lay a shop floor like this in 48 hours.
FLOORING CONTRACTOR: THE LINO TILE CO

SMITH'S FLOOR SHOWS THE WAY

SHOP: W. H. Smith, Ealing. **PROBLEM:** To give the floor of this large shop a feeling of life and movement.

ANSWER: Introduce red and black arrowheads, formed from Nairn lino tiles, to a floor of grey tiles—thus achieving a bold directional effect.

COMMENT: Keeping it simple is half the battle.
ARCHITECT: H. F. BAILEY, RIBA **FLOORING CONTRACTOR:** THE LINO TILE CO

NOTE: When this advertisement appeared previously, part of the floor of W. H. Smith's shop shown was inadvertently attributed to Nairn; in fact the flooring was by Bulgomme-Silence. We apologise for this error.

shop flooring—

Four shops, four problems, four solutions— with Nairn linoleum

You see here four widely different shops: a fast-moving, hard-selling, electrical goods shop; a quiet and dignified wallpaper showroom; the browse-worthy record bar of a bookstore; and a streamlined supermarket. In each case, the floor poses a different problem—and in each case Nairn linoleum provides the solution.

A LONG LIFE—AND A CLEAN ONE

You'll see the detailed hows and wheres of these solutions beside each picture. The two big reasons why so many architects specify Nairn linoleum for shop floors are its long life and its ease of maintenance. Nairn linoleum is extraordinarily hardwearing: one store laid Nairn lino tiles at the head and foot of its escalators four years ago, and today—forty million hard-walking customers later—the floor is still in good condition. When it comes to maintenance costs, Nairn linoleum can save you up to one third as against thermoplastic floors.

WHAT YOU GET

You get a lot for your money when you specify Nairn linoleum. You get good looks with long life; you get economy with versatility; you get colour with strength. That's why it pays to look first at Nairn linoleum for shop flooring . . . or, indeed, any other.

NOW NAIRN HELPS THE ARCHITECT

You can quickly get skilled advice and information on any floorcovering—not only linoleum—from your nearest Nairn technical representative. Phone, call or write.

WAITS—WHERE FOREGROUND IS BACKGROUND

SHOP: Waits, New Malden, Surrey. Wallpaper showroom.

PROBLEM: Floor must be attractive yet calm and quiet, act as foil to many different wallpaper patterns.

ANSWER: Lavender grey lino tiles by Nairn give unobtrusive background, help mood of reflection, blend with any and every design.

COMMENT: This floor contributes a lot without saying a word.

ARCHITECT: GEORGE WATT AND PARTNERS AARIBA
FLOORING CONTRACTOR: LINO-INSTALLATIONS LTD


NAIRN linoleum


LONDON • BIRMINGHAM • MANCHESTER
GLASGOW • KIRKCALDY

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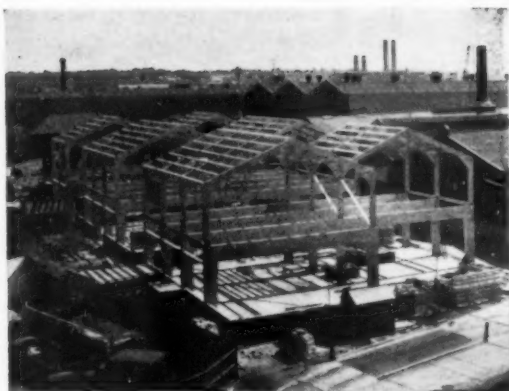
For full technical data on

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WALL INSULATION

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Precast RC framework in process of erection



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Sulzer are now showing Klima Convector, Dual-duct mixing units designed for HIGH VELOCITY air conditioning systems for multi-storey buildings, etc.

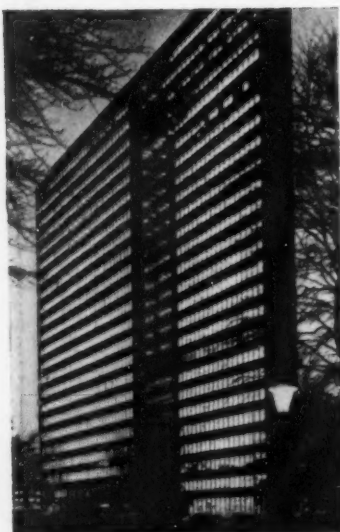
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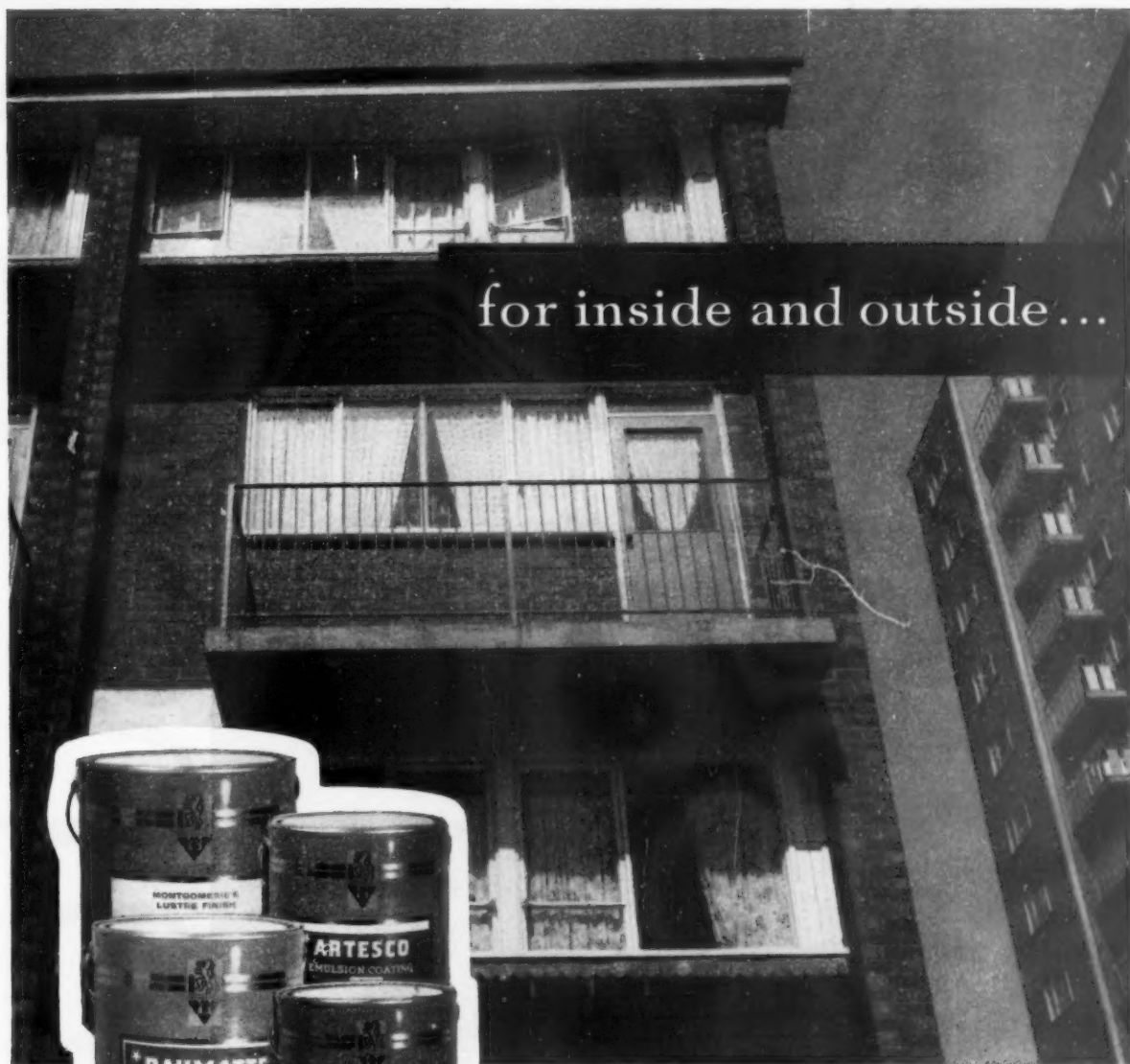


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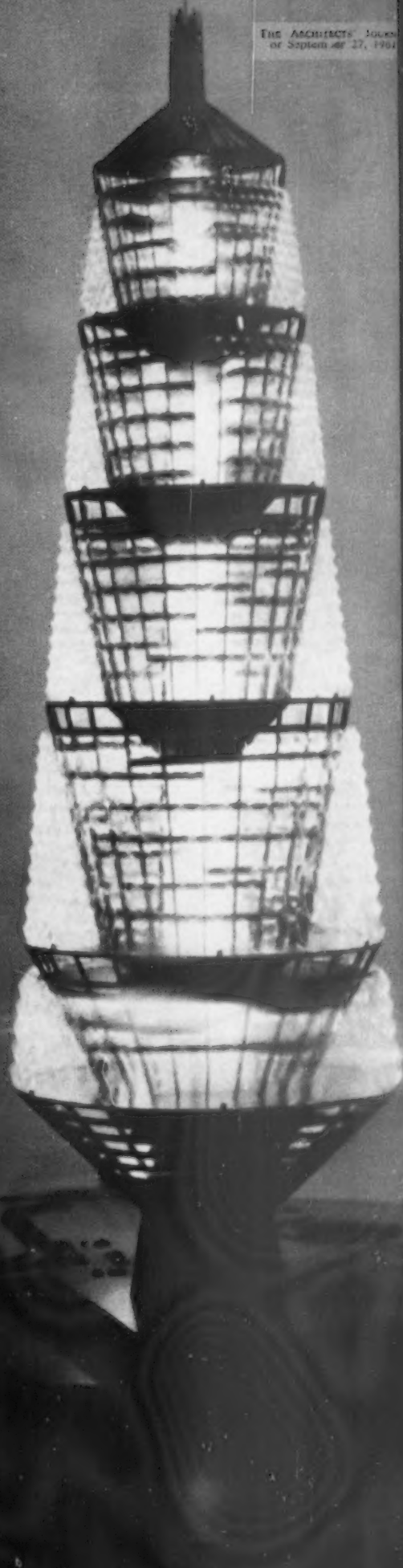
Crystal 61

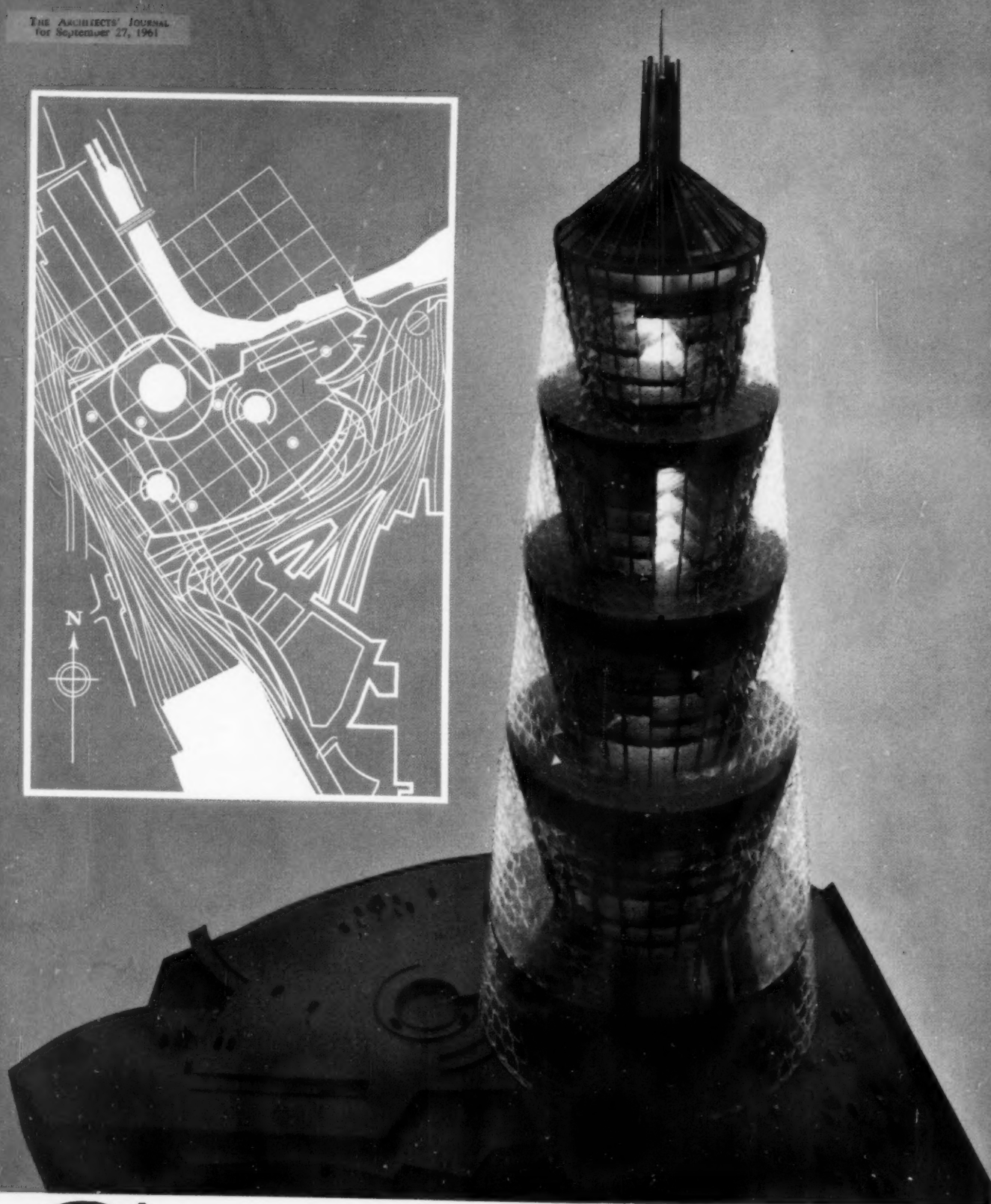
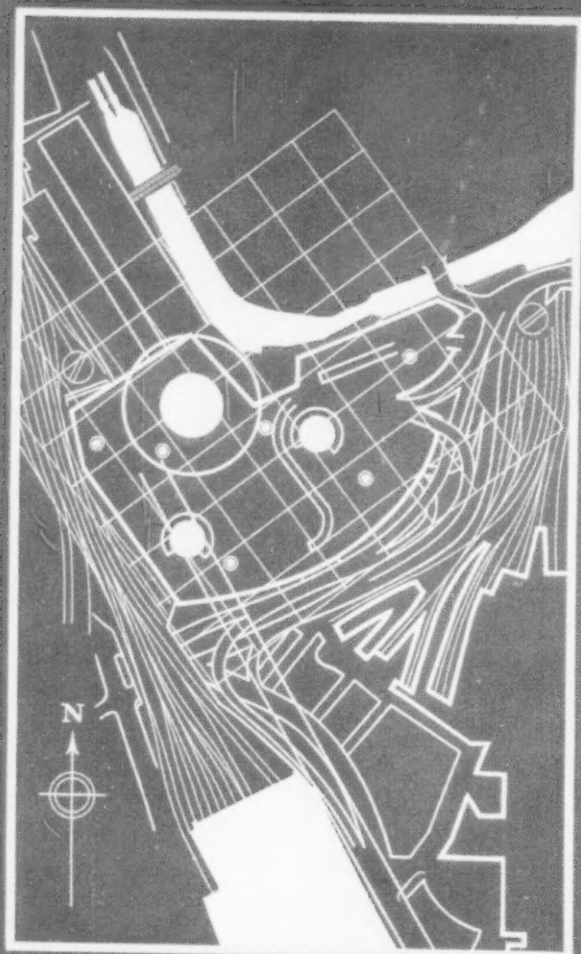
Crystal 61 is the Glass Age Development Committee's design for an exhibition centre—a building which would provide all the facilities needed for large-scale, international and national, industrial and trade exhibitions of all kinds, in its 550,000 square feet (net) of display space. It would be capable of accommodating 100,000 visitors in one day.

By soaring 1,000 feet out of its surroundings, it would provide its own advertisement, with an emotional impact equalling the Eiffel Tower. Its outer skin would be faceted glazing, which would glitter and sparkle as it caught the light.

The materials and, in principle, the technique used in the construction of Crystal 61 all exist today, making it a perfectly feasible proposition. It could be sited wherever ground of a reasonable bearing capacity can be found and the necessary transport and services facilities exist. Only a relatively small site would be required. In this exercise the design has been related to a site which is just north of St. Pancras Railway Station, London.

THE ARCHITECTS' JOURNAL
of September 27, 1961



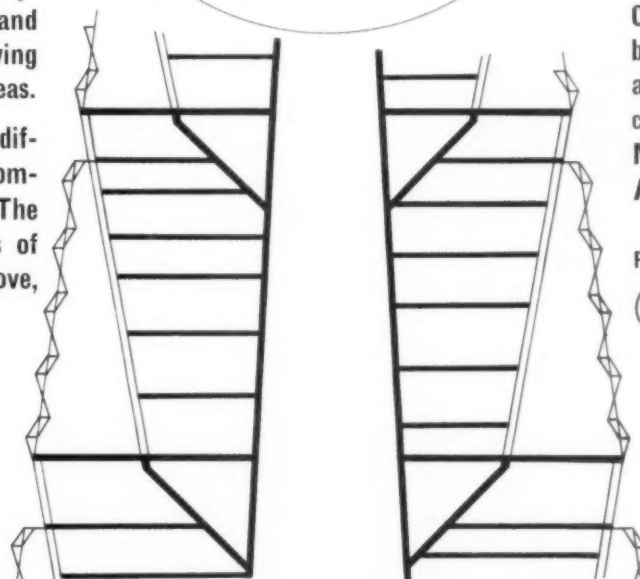
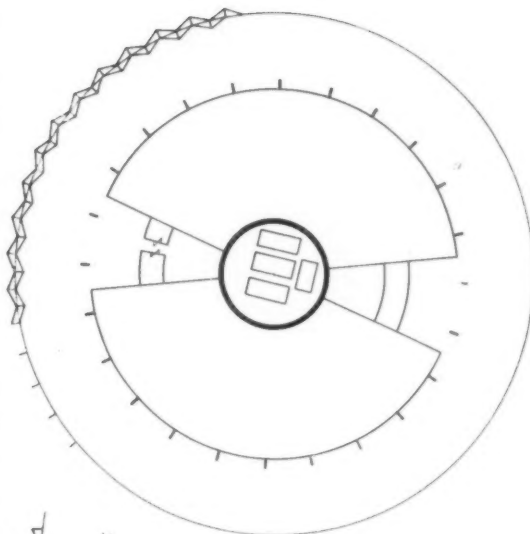


Crystal 61

CRYSTAL 61 is seen here on the St. Pancras site, which demonstrates clearly the essential requirements for an exhibition building, of a central position well served by transport. It is linked directly with three main-line termini, four Underground lines, and many bus routes; and is adjacent to the Inner Ring Road and the Grand Union Canal which could be used for transport also. The podium of the building provides parking space for about 4,500 cars on four levels.

The building is divided into five exhibition halls, each with its own recreational facilities, and usable together or separately. A central core supports and supplies the building, leaving large unobstructed floor areas.

The segmental floors are of different sizes in each hall, becoming larger in the lower halls. The lowest floor of each hall is of greater width than those above,



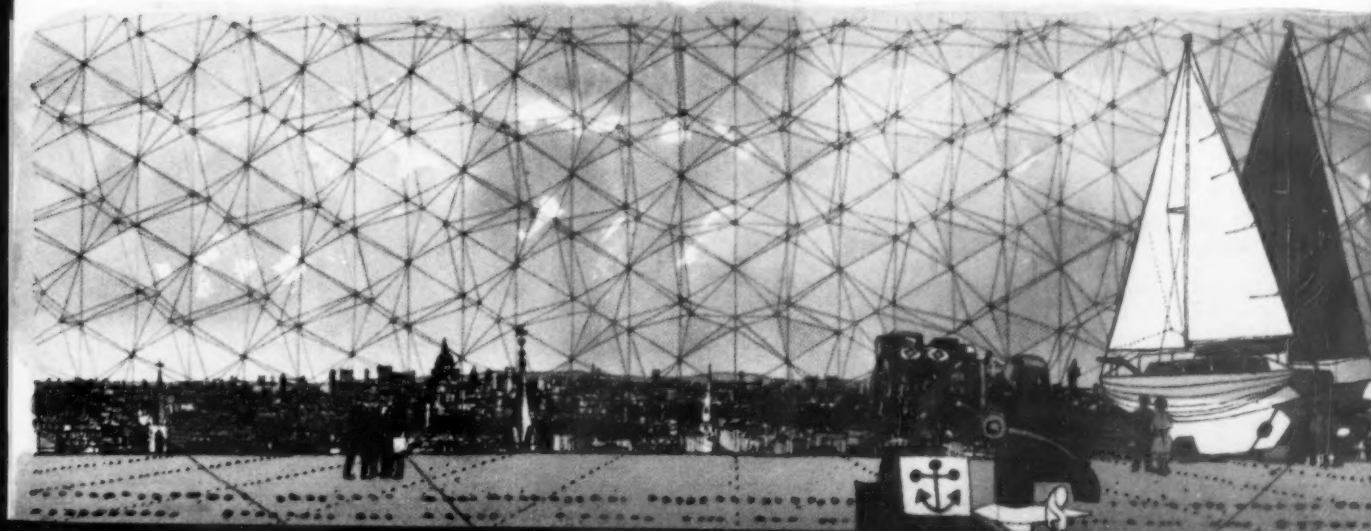
and is a complete circle: it provides a large area with headroom up to the full height of each hall (91'-176'). Above each hall is a floor entirely devoted to recreational facilities. The top of the building contains conference rooms, lecture theatres, banqueting rooms, discussion rooms and bars, with a high-quality restaurant in the apex.

Crystal 61 was conceived by Mr. Ove Arup and Mr. G. A. Jellicoe, with John Martin of Ove Arup and Partners, Civil Engineers, and Hal Moggridge of Jellicoe, Ballantyne and Coleridge, F.A.R.I.B.A., under the auspices of the Glass Age Development Committee, which is convened by Pilkington Brothers Limited and consists of Mr. G. A. Jellicoe, C.B.E., F.R.I.B.A., Mr. Edward D. Mills, C.B.E., F.R.I.B.A., and Mr. Ove Arup, C.B.E., M.I.C.E.

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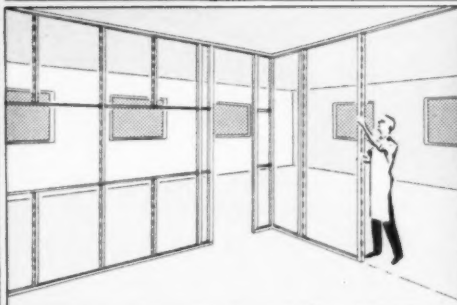
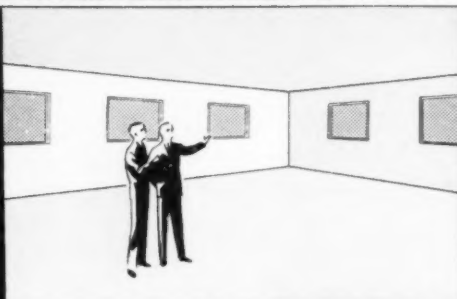
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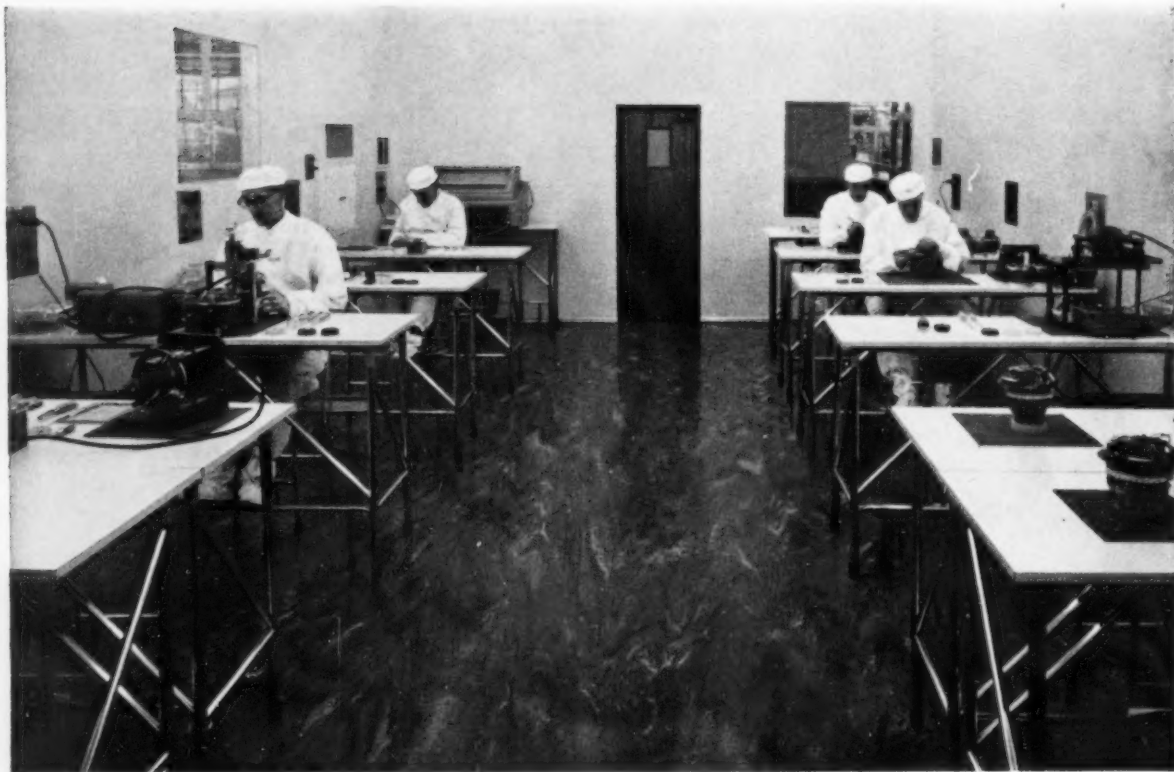
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Williamson Crestaline vinyl flooring was chosen by the Sperry Gyroscope Company for this Super Clean Area in one of their Brentwood factories where Rotorace Gyros for military and civil aircraft are assembled. Crestaline is the ideal flooring for this 'special duty' application because it neither powders nor creates dust when walked on, and it can be butt welded at the joints to form a continuous surface with no cracks to harbour harmful dust particles.

Photograph by courtesy of the Sperry Gyroscope Company Limited



Q37

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With Crestaline sheet and Crestalux tiles you have a range of vinyls for all flooring purposes . . . not just ordinary vinyls but the pick of the vinyls, unequalled in their price range for their **brilliantly creative colours, distinguished marbled effects, degree of flexibility and smooth, impervious finish.** You also get these added advantages with Crestaline and Crestalux:—

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Luxurious tread: Massive vinyl/plasticiser content also gives Crestaline and Crestalux high recovery from indentation, ensures quietness and resilience underfoot.

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faction basis, Crestaline and Crestalux have no equal.

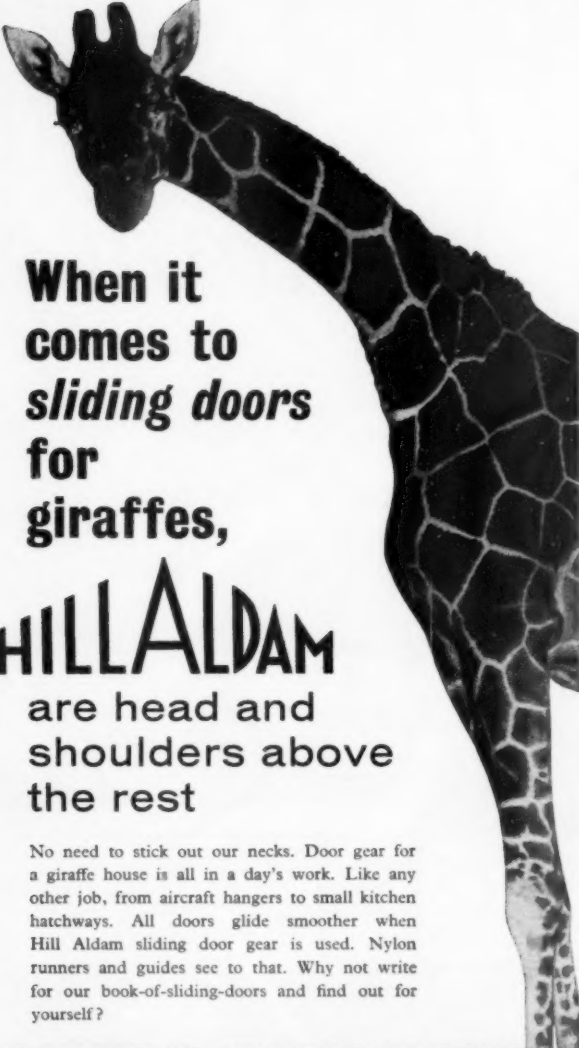
Remember, Crestaline and Crestalux give you all the luxury appeal of superb finish, resilient tread, comfort and quietness underfoot plus ease of installation and long, hard wearing life at a cost per square foot per year of service life that is unequalled by any other flooring of comparable quality!

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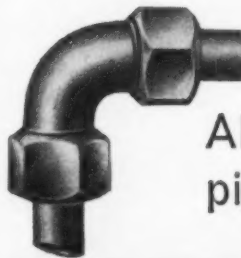
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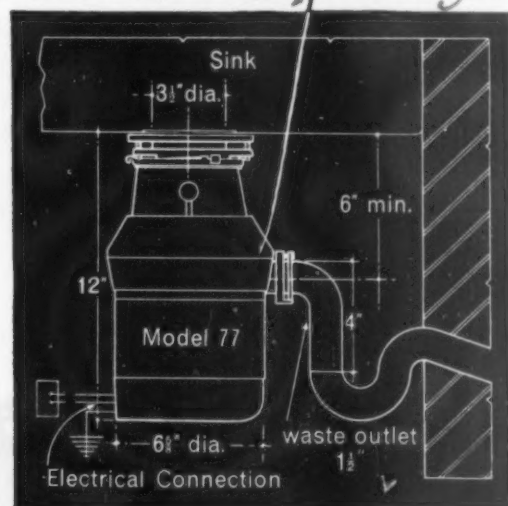
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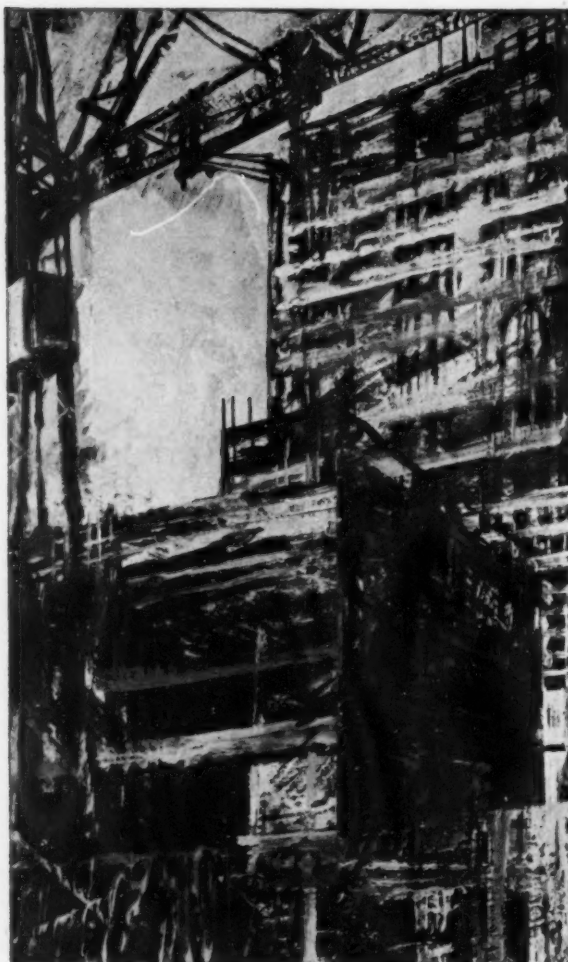
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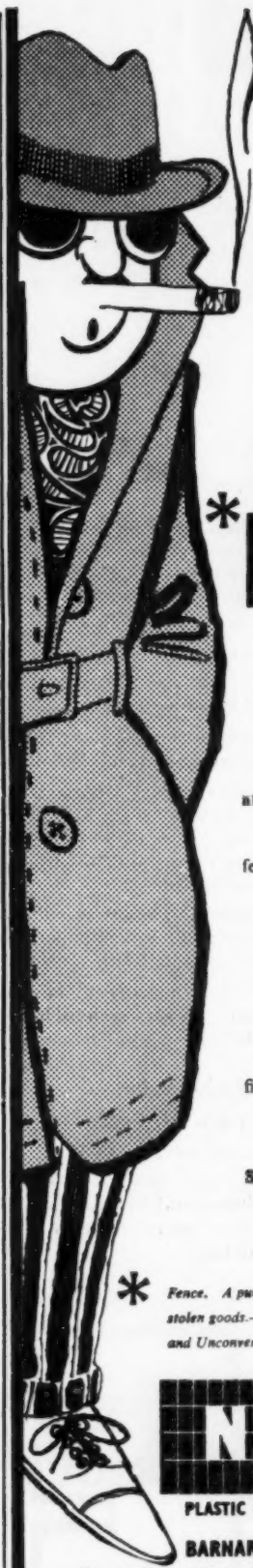


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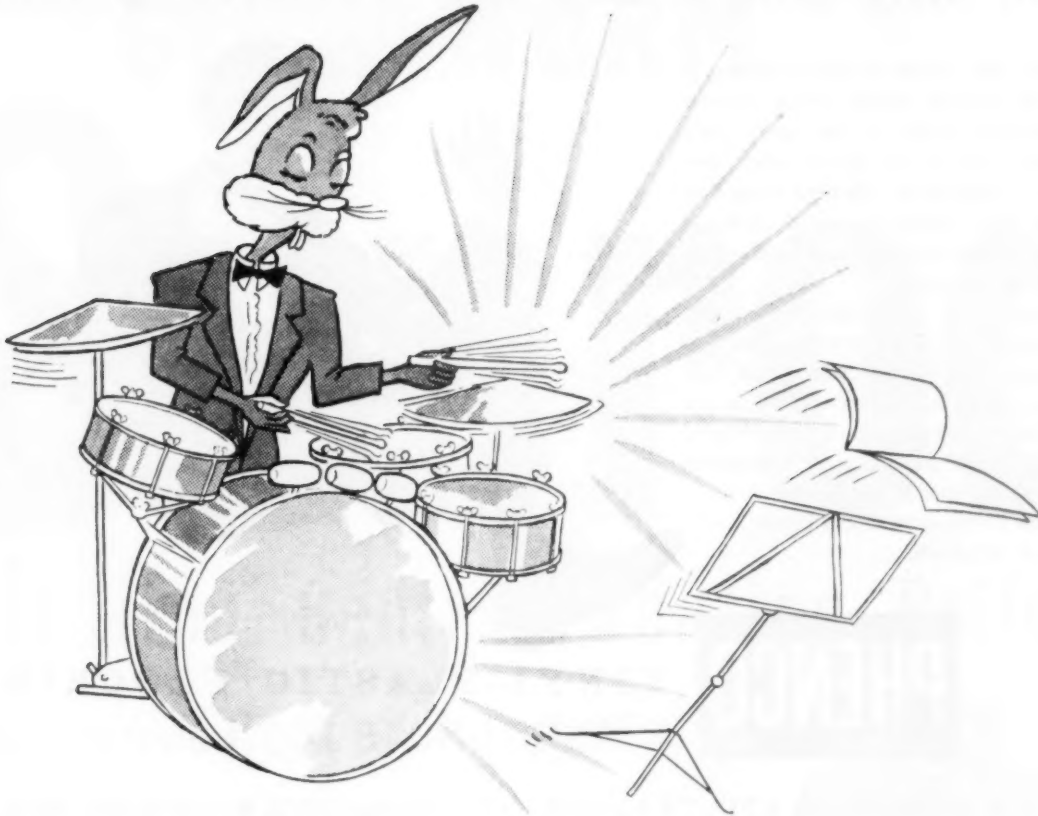


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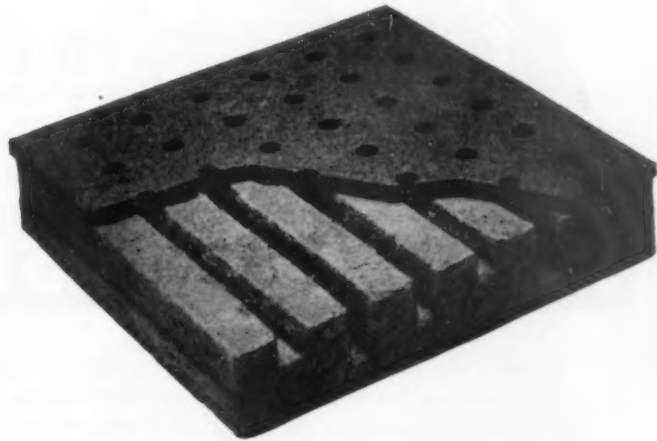
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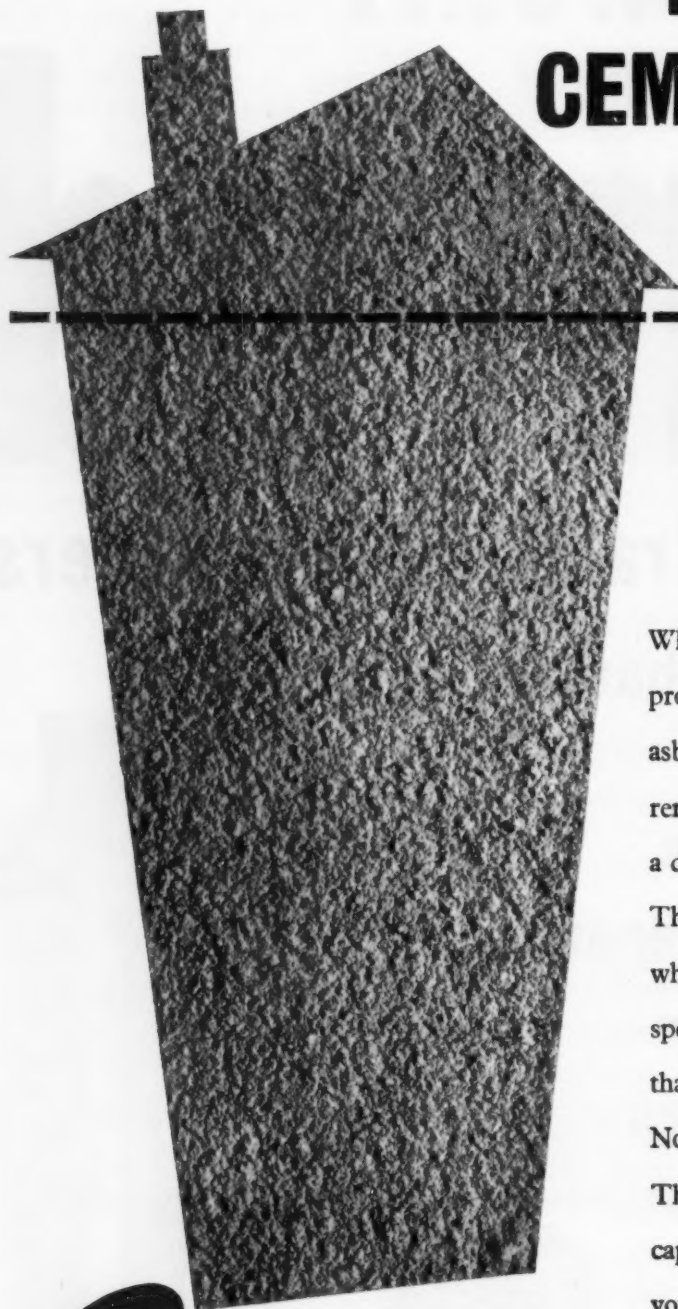
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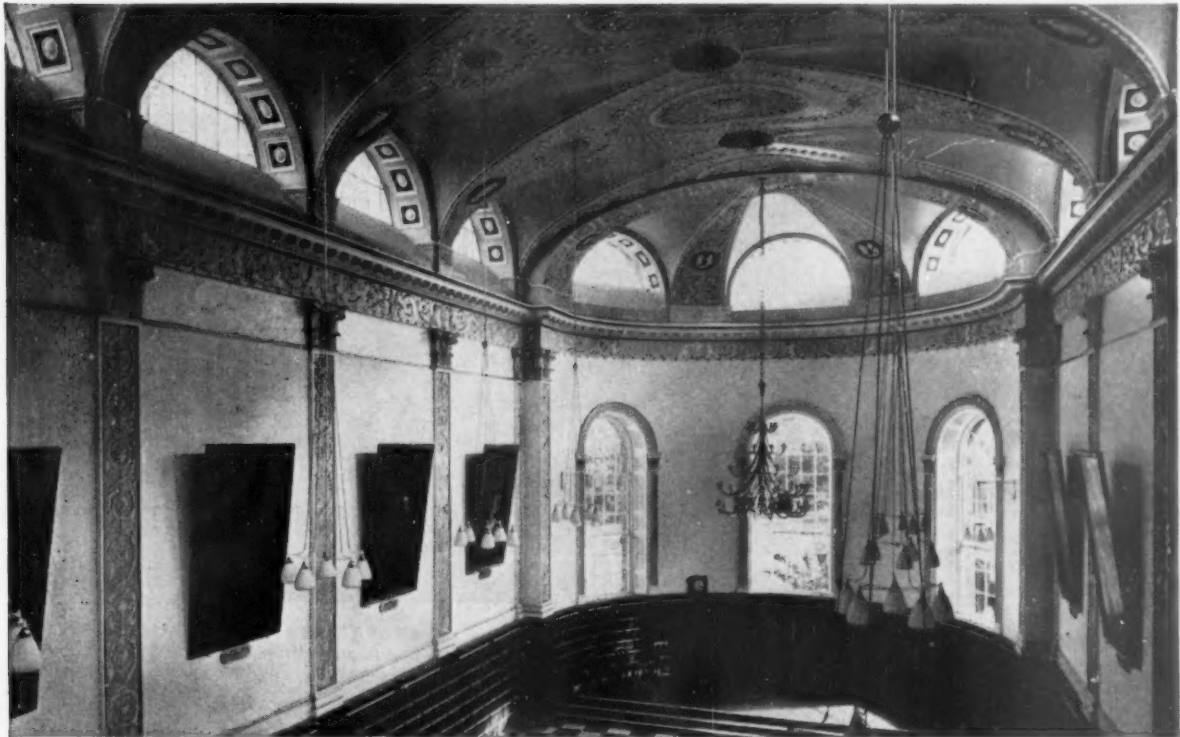
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*View from gallery of the Examination Hall, Trinity College, Dublin, showing the new matt white textural Travertone wall panels
Architects: McDonnell & Dixon Acoustic Contractors: Alex Malcolm & Co. Ltd.*



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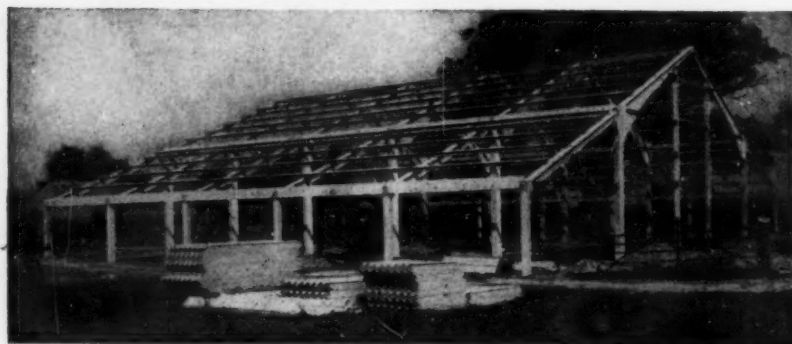
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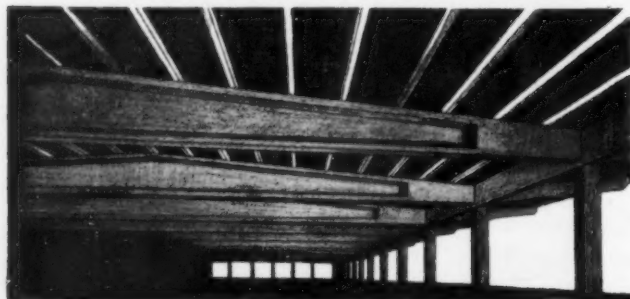


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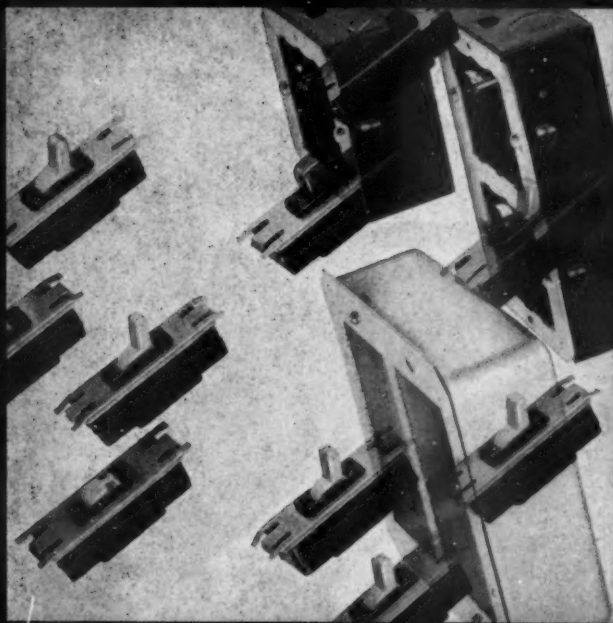
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- 5 amp 2 way secret
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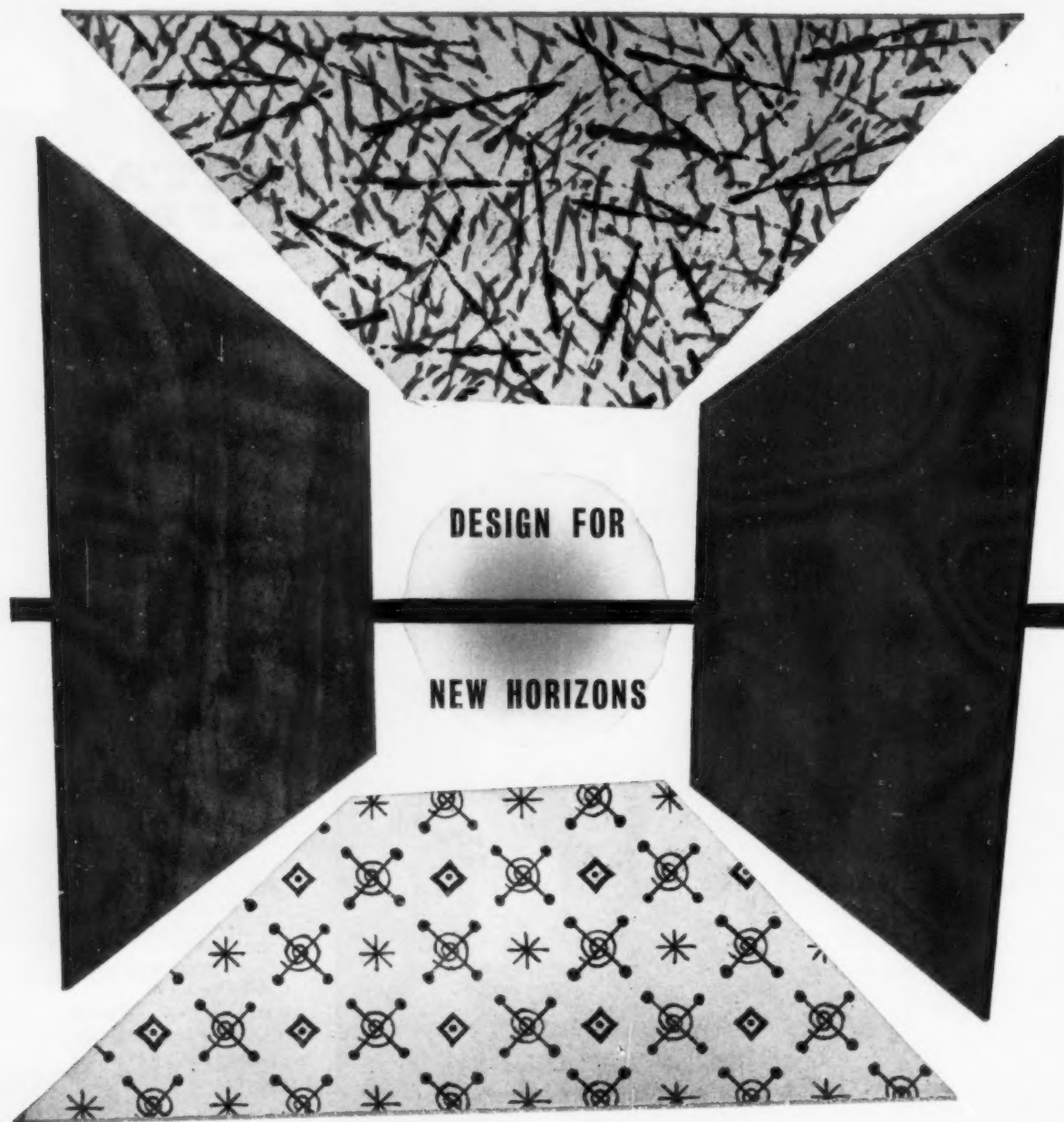
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HEATING ENGINEERS Young, Austen & Young
HEATING SYSTEM

Copperad Sill-line

METHOD OF OPERATION High Temperature Hot Water
AMOUNT USED 2½ miles

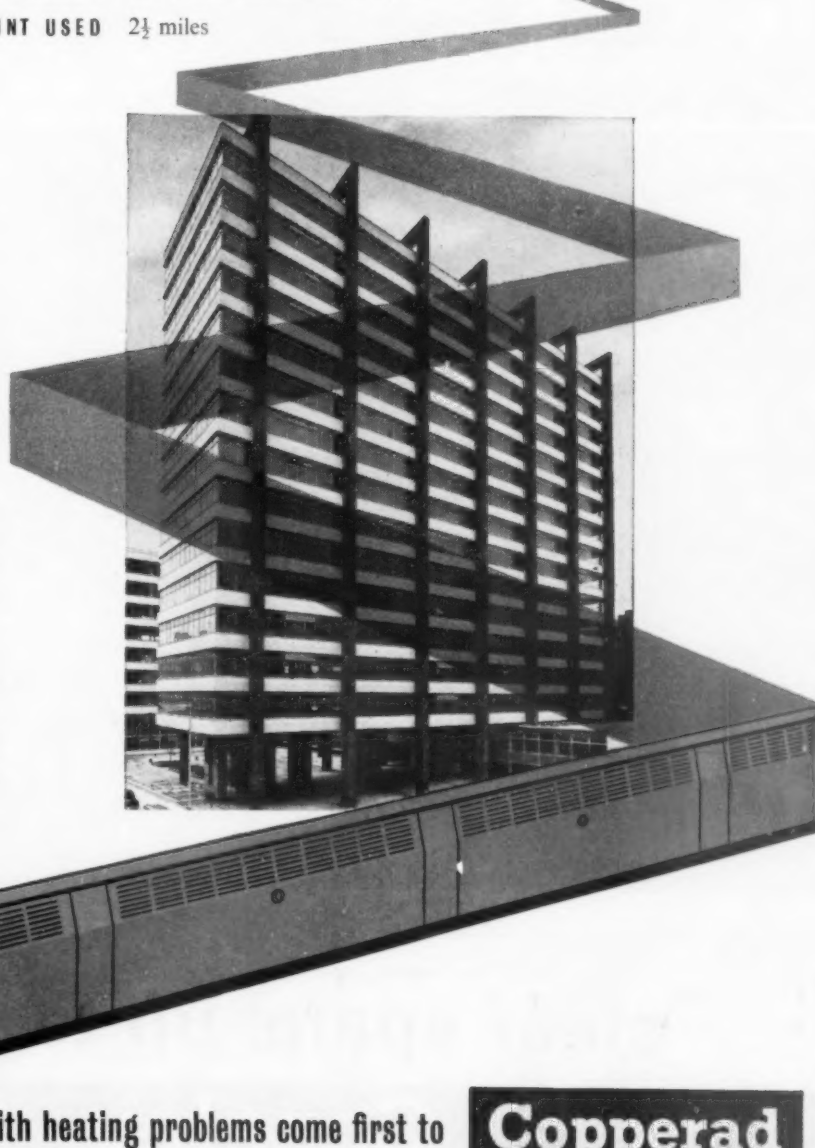
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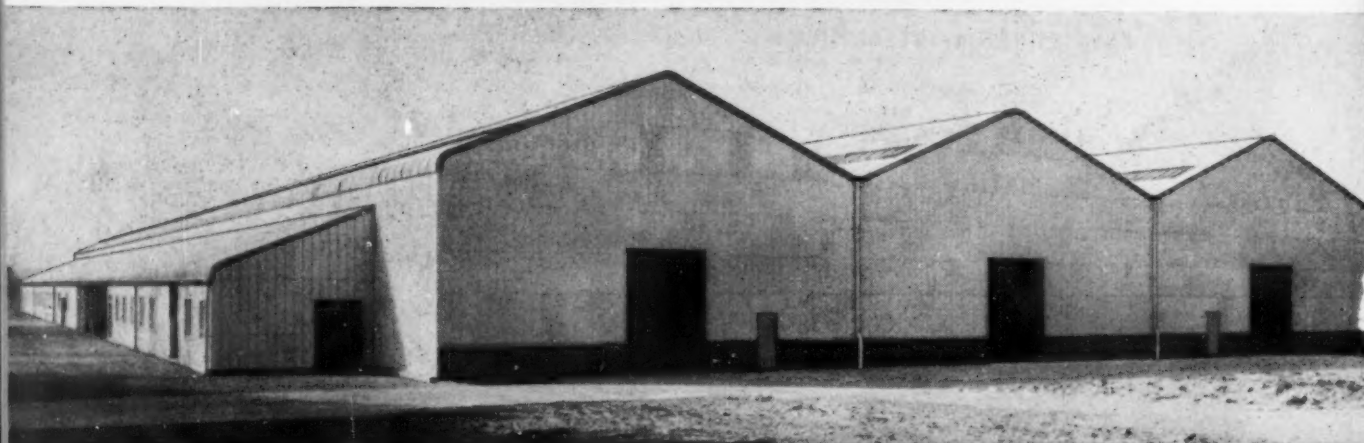
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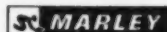


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NOT QUITE ARCHITECTURE

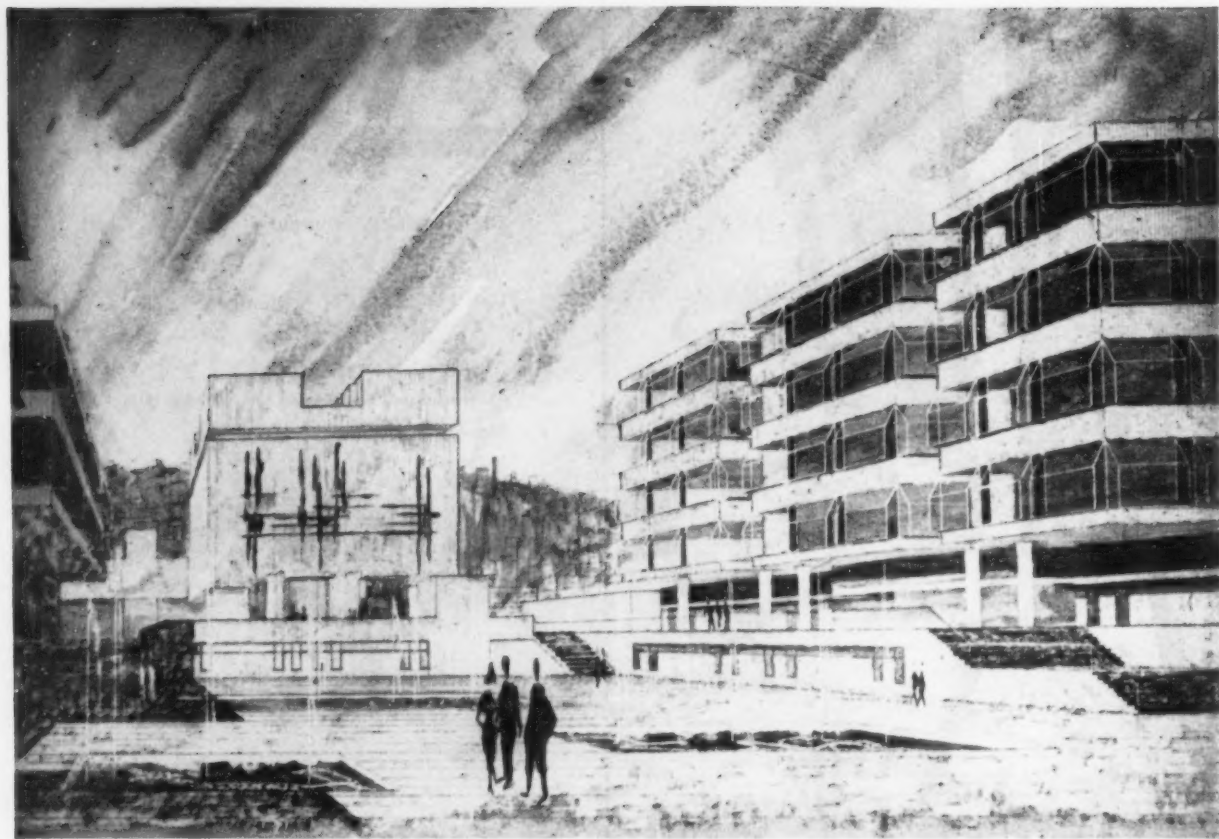
She was there . . .

The firm of architects I work for is traditionally divided into "the Establishment" downstairs and "the Latin Quarter" upstairs. So I wasn't surprised to discover that three members of the upstairs group, which is young, lively, and often bearded, were interested enough in banning the bomb to go to Trafalgar Square last Sunday. I was impressed that they, who had so much to lose, would risk arrest and imprisonment. Patiently, they explained to me. Of the downstairs group, good, solid men, wizards with drain-routes and damp-proof membranes, only one had considered the question of the nuclear threat at all, and his affirmative answer was to give up a weekend's sailing to attend a three-day conference on "building in 20 years' time."

After one or two recent jolts my own conscience was in a tender state, so, overwhelmed by the example of the Latin Quarter and irritated by the measures taken by the Government to prevent a demonstration, I decided to become more than a "sympathiser" and go along.

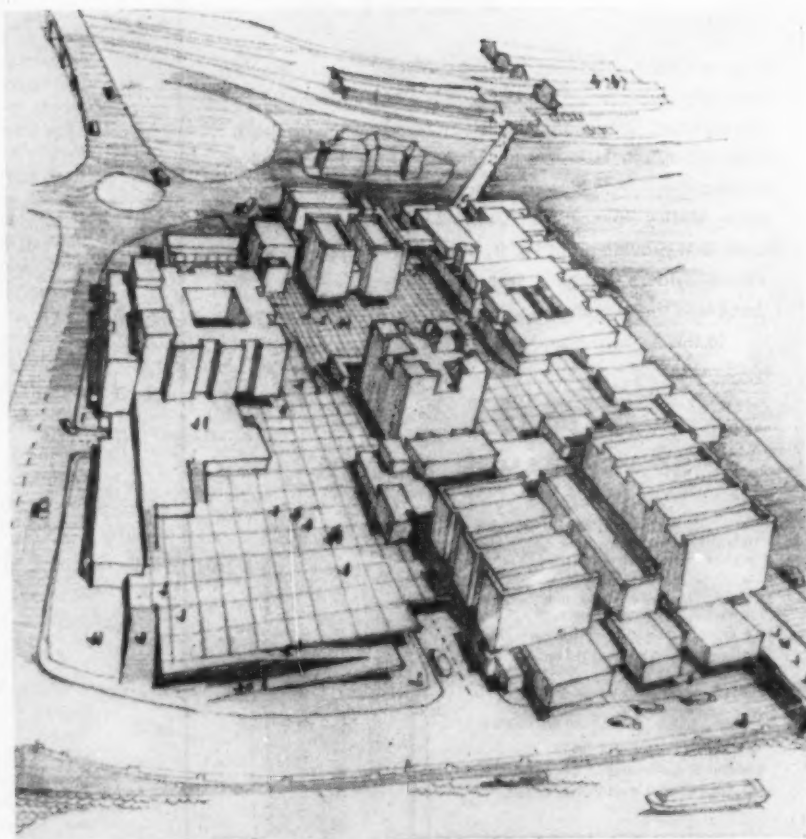
We met at 4 p.m. at Leicester Square, rather self-conscious, a little apprehensive, but each determined to be the last to back out. Drinking coffee in a back-street bar we watched policemen, like an animated frieze, bobbing past the window. We read newspapers and joked about prison.

At 4.45 p.m., directed by marshals who had somehow picked us out of the crowd of sightseers (could it have been our blue jeans?), we found ourselves in the well of the Square, milling about between the



Lincoln Civic Centre winning design

Above, perspective sketch of Eldred Evans's and Denis Gailey's prize-winning design for the Lincoln Civic Centre Competition, showing the central concourse (with Lincoln's famous hill behind) with mayoral chambers on the left and administrative offices on the right. The high-level view on the right shows the layout of the scheme, which set competitors a complex problem to which, according to the assessors' report, the winners have offered "a masterly solution, capable of producing a group of buildings which would endow the city of Lincoln with a civic centre of unusual appropriateness and distinction." The assessors were G. A. Jellicoe, Sir Leslie Martin and J. M. Richards, and their report—a full summary of which will accompany the illustration of the prize winners in next week's *AJ*—plumps for the winning design as being quite outstanding with an enthusiasm which is as heartening as it is unusual.



curious and the dedicated, and puzzled by the apparent lack of organisation. Then 5 o'clock struck, an order spread like a ripple through the crowd, and ring by widening ring, we sat. We didn't know at the time that for the next seven hours we were to continue to sit, on soggy newspapers and increasingly sore bottoms, hemmed in by the feckless, and by none-too-friendly policemen. Trips to the loo became daring sorties because once out it was difficult to get back. From hour to hour we had hoped to make a break for Whitehall and Parliament Square, but the police were too many, and eventually it was decided to out-sit the restraining order and march at midnight. Later of course, the ban was extended and staying till midnight became only a matter of principle. Thousands stayed.

I was dubious about some of the sitters, the beatnik crowd especially, until one of them got up to talk. He was no moron, no crank. I envied his lucidity and conviction. The odd Communist in the crowd was recognised and suffered, but made little impression on anyone. Group chatted with group, cigarettes and sandwiches were shared, but close attention was given to all the speakers, however inaudible. The noisy element, which booed the frequent and sometimes comical arrests, was strongly disapproved of, and bystanders were told irritably to sit down with us or go away. I was touched by the number of elderly people inviting rheumatism on damp pavements; most of us were young, but there were some mothers with children; a few whole families.

*

Doug sucked his umbrella-handle and studied the Square. It was the first time, he said, that he'd been in it since arriving in England 18 months ago. He's an Australian. An idealist, he muttered about party political tub-thumpers, who it's true were in evidence, but Mike thought they had a right to any platform. Mike is a man who believes in using to the full his democratic rights. This, he believes, is true politics. He attends any rally or demonstration whose cause touches his heart. He is a veteran CND marcher, turned sitter because marching wasn't enough. Tony had preferred to go off and get arrested.*

A little after midnight we went away quietly. A few stayed on to wait for Russell, but the police, exacerbated now, hustled them away. Going up the Strand we bought fresh papers—Monday morning's. Our efforts, it seemed, hadn't been well received. Well I'm glad I went. I'll go again.

JACQUELINE WATTS

The Editors

REVOLUTIONARY RUMBLINGS

Throughout the building industry and the architectural profession today there resounds the hum of good resolutions rising above a ground base of grizzly warnings—"do better, or else. . . ."

The building trades employers give warning to the manufacturers that unless they can offer firm prices for at least two years ahead the Common Market will get them; and at the other end of the scale, an unusually useful and interesting conference organised by the Junior Liaison Committee of architects, builders and quantity surveyors considers "Building in Twenty Years' time" (see p. 443) and comes across with a series of root and branch proposals for facing up to a period of great opportunity and difficulty and transforming the industry so that it can meet its obligations and opportunities. To do this, Donald Gibson called for an end of the fragmentation of the industry among many professional institutions and urged that architects, builders and quantity surveyors should share at least part of their training, and should become permanently associated with one another at the top of the industry. The package deal he foresaw would grow, and preplanning, progressing and standardisation. Similar views came from quantity surveyor P. W. Grafton, and from D. E. Woodbine Parish of the FBTE.

In a word, all concerned are waking up to the fact that building, and consequently architecture, is undergoing a revolution, made necessary by the growing demands of mankind in all parts of the world, and possible by technological advance. Perhaps the IUA Congress this summer, inadequate as many of its formal sessions were felt to be, did more than we credited it with at the time to drive this fact home.

Unquestionably this building revolution will upset many of those called on to carry it through, from bricklayers faced with new techniques to architects for whom words like "standardisation" spell death to the artist, to say nothing of the pangs of lost status which Donald Gibson and Woodbine Parish both foresaw. But unquestionably it will go through. The important thing is that architects recognise in good time what is happening and begin to become better educated and disciplined to shape it: it is no use crying for the past, and in any case no great work has ever been done on the basis of a past technology (where would Beethoven have been if he had persisted in writing for the harpsichord?)

Fortunately there are many signs that this fact is already recognised: the stir going on in the architectural schools reflects it, the dissatisfaction of students which led to the formation of BASA. And we are not ashamed to include the transformation taking place next week in the AJ, whereby information for the architect is to be presented week by week in a coherent and easily fileable form. All signs that our profession is preparing itself to go along with history.

* To put what is at stake in quantitative terms, for a change—if the Russian 100 megaton bomb were detonated on the piece of street where the author sat, all the work of the ICA architects' department, except out-county estates, would be in the crater, and all the SPAN developments would be destroyed by fire, even at Cambridge.—Editor, NGA.



NEW JOURNAL, SAME OLD SUBSCRIPTIONS
Some architects are taking our reference to the "new" ARCHITECTS' JOURNAL (see subscription form, back page) too literally and are asking for subscriptions to be cancelled, any balance to be refunded and another subscription to the new AJ to be taken out. Let me hasten to point out that from October 4 the AJ will be made up not only of new special supplements, but its usual features, including this column. People have told me they think that these sfb supplements will be the greatest step ever taken to provide architects with the means to improve their efficiency, as well as being an easy introduction to sfb filing. Make sure you get your new (incorporating the old) AJ and keep it.

LINCOLN COMPETITION

The result of the Lincoln civic centre competition should do the much-criticised competition system a bit of good. Here is a first-rate design, just what Lincoln needs, by a couple of very young architects. Lincoln certainly could not have acquired them by any other method. All winning schemes, together with the report of the assessors (Leslie Martin, Geoffrey Jellicoe and J. M. Richards), which Lincoln have been sensible enough to make available, will appear shortly. Let's hope that the

As usual the Caravan Exhibition at Earls Court offers plenty of mock stone wallpaper and curly wrought ironwork to carp at. There is also one much improved touring caravan—the Siddall Delta, a product of Conran Design Group. It will do nothing to improve the smallpox appearance of caravan sites, nor will it make caravan living spacious and lofty, but it does have uncluttered lines, good colours (six combinations, selected by Shirley Conran, to choose from), and seat cushions and curtains of Conran fabric. The exterior detailing is especially good: a robust band of fluted aluminium at window level, strong manoeuvring handles and simple rubber-mounted road lights. White plastic-faced hardboard and natural finish Iroco make the inside clean and simple. It sleeps five in a space 15 ft. 9 in. by 6 ft. 8 in. Cosy!



recent cut-back in capital expenditure doesn't mean too long a delay before work can begin.

WALTER GODFREY

Walter Godfrey, who died last week at 81, had been ill for two years—and had therefore given up the two tasks for which he is likely to be best remembered: his editorship of the London Survey Committee's volumes (now known as the LCC Survey of London) and his directorship of the National Buildings Record. As first director of the NBR, he built it up from scratch to one of the most useful photographic libraries we possess.

In spite of his endearingly modest manner Godfrey was one of the most scholarly and industrious architectural antiquarians this country has had—and certainly the one with the most profound knowledge of London. He was also a very skilful restorer of old buildings; witness his recently completed restoration of the bombed Temple Church.

TALKING SHOP

Those of us who live and work in the Big City, where nothing is new the day after it is built, launched or shown to the Press, are undoubtedly out of touch with the consumer-at-large. I realised

this very strongly when I talked to visitors to Footman's shop in Ipswich, where the Council of Industrial Design is putting on an excellent 500-exhibit show called "The Design Centre Comes to Ipswich." Although you, my sophisticated readers who keep in touch with everything new in design, might go round this exhibition pretty sniffily, the people of East Suffolk are swooping on it with delight. Not in vast hordes, but in discriminating trickles.

*

What happens, I wonder, when the Design Centre's visit ends in two weeks' time? Footman's is one of Debenham's "C Group" stores, and I can't imagine that they will continue to stock many of the exhibition products in their terrible jungle of clumsy-looking goods. Even if they do, the better stuff will probably be swamped by the bad, and by excruciatingly-designed notices. This seems an awful waste of a good idea. Wouldn't it be possible for Debenham's, who are collaborating with the CID in doing a series of special shows all over the country, to provide some sort of Design Centre service. If they could reserve a few hundred square feet in each store for a permanent group display of well-designed products, supervised by just one knowledgeable assistant, they might even find they were

doing themselves a good turn as well as the public. They would be certainly well supported by architects.

ANTI-ICPA

Mumford's new book, *The City in History**, is with us at last. I'll be happy to leave the reviewing of this massive tome (576 pages) to the experts, but one thing that caught my eye on a quick glance-through was the penultimate chapter entitled "The Invisible City" in which Mumford makes the case for a dispersed community based on rapid movement and mass communications, so that people need only meet for activities in which physical encounters are necessary. The only other people I've heard really plugging this line are some of the Pop/Tech/Communications maniacs around the ICA: Utopians make strange bedfellows.

*

Mumford also raised the point in his Third Programme discussion with Graeme Shankland—a discussion that never really got off the ground because Mumford was too wily to be cornered on particular issues, no matter how hard Shankland tried to corner him. One point of radical criticism of the planning of the New Towns did emerge, however, and a good one. The trouble with the new towns, according to Mum-

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ford, is not so much the rather rigid application of neighbourhood theory, nor the low residential densities, but excess green space. Too much ground devoted to green wedges separating the neighbourhoods, too many playing fields in the middle of the town, thus exploding the pedestrian scale of the town and making access to the centre

for specialised activities laborious, instead of natural. He praised Cumbernauld for having got its playing-fields out into the Green Belt, and for being prepared to cut down on garden sizes in order to increase densities to the point where the pedestrian scale became feasible.

ASTRAGAL

* Secker and Warburg, £3 10 0.



The Design Centre went to Ipswich last week—and not a moment too soon; left, above and below, the subtopian shambles which surround this newly design-conscious town; centre, above, a recently face-lifted street, below, new building for Fisons by Johns, Slater and Haward; right, visitors examine modern designs, both traditional and very.

Next week we publish the first two Functional Element Files. As we hope that this will be a signal for many of our readers to start a personal sfb information library, we publish this week a short article describing the use we are making of sfb in the files. This is necessary because, though our use of sfb is in fact orthodox, it could lead to confusion for readers doing their own classification of non-AJ literature. The corrected sfb tables start on page 464

SfB No. **Aa1**

UDC No. 025.4

Use of the SfB Classification in the Element Files

In the Element Files which we begin publishing next week (one a week for a year) we are using the sfb classification. Indeed, the elements themselves are sfb elements. Further, it is our intention that readers should use the AJ's sfb files to start off their own personal sfb technical library (if they do not already possess one).

As this is so, it is only fair to warn readers that our interpretation of what we can include within each element heading is somewhat wider than the logic of the system might seem to permit.

This is in itself reasonable (as we shall try to explain), but it could cause confusion among those who do their own filing if they were to take the contents of each element file as supplying an exact precedent for all that should find its way there in the future.

Scope of the functional elements

The chief recommendation of sfb from the architect's point of view is that it attempts to gather together into one place all the information which the architect is likely to want to refer to at one time. The chief means for obtaining this objective is the use in sfb of functional element headings. In this resides sfb's chief claim to originality.

Unfortunately this ideal of "everything you want in one place" is not completely obtainable in a system of classification, for the logic of classification demands that each item should be classifiable in one place and in one place only, which means that when an item is interesting in more than one context it must be placed not in any one context but where it is equally accessible to all.

This rule applies alike to tangible objects such as building components and to abstract topics. Thus most people wanting to refer to bricks will do so because they are designing an external wall (21); but bricks are equally used for foundation footings (18), for pavings (14) and for other elements besides. If all bricks were habitually classified under (21) Walls, then those wanting a brick for some other element would be at a disadvantage. Therefore, the compilers of sfb have created a series of construction headings (E, F, G, etc.) where components can be put which can go in more than one element; and bricks should go into F Bricks and Blocks: General.

The placing of bricks in F, however inevitable, begins to break down the usefulness of sfb to the architect, because it means that he must now look in two places instead of one when designing his wall. In fact, the case is worse than this, because an external wall can be made in a number of different constructional forms: it can be of brick, of precast concrete panels, of timber and of other materials besides; and the architect, if he wants to make a comparison between them, will find himself having to refer not only to (21) and to F, but also to G and H.

Faced with this problem we have decided that, if sfb is to help architects, the functional element headings must be made to fulfil their purpose: that is, architects referring to them must be able to get as much information as possible and ideally, enough to enable them to make their basic design decisions. There should be enough about bricks in (21) to enable the architect to decide whether he is going to use bricks at all for his external wall. Later, when he wants more detailed information, he may well have to look to F.

This concept of the functional element head as the place where the architect looks when making his basic

The tables opposite give a bird's-eye view of the whole system

SfB Table I: Functional elements

- (1) External elements: General
 (11) Ground: General
 (12) Drainage: General
 (13) Retaining structures: General
 (14) Roads and pavings: General
 (15) Garden: General
 (16) Foundations: General
 (17) Piles: General
 (18) Footings: General
 (19) Other substructures: General
- (2) Primary elements: General
 (20) Accessories: Structural fixings
 (21) Walls: General
 (22) Partitions: General
 (23) Floors, structural: Galleries: General
 (24) Stairs and ramps: General
 (25) Ceilings, suspended: General
 (26) Roofs, structural, flat: Balconies: General
 (27) Roofs, structural, pitched
 (28) Elements above roof: General
- (3) Secondary elements: General
 (30) Accessories, ironmongery: General
 (31) Windows: General
 (32) Doors: General
 (33) Doors, grilles, etc.: General
 (34) Stairs, handrails, etc.: General
 (35) Screens, louvres: General
 (36) Roofs, flat: Pavement lights, etc.: General
 (37) Roofs, lights and traps, etc.: General
 (38) Roof eaves, verges, gutters, rails, etc.: General
- (4) Finishes
 (40) Finishes, accessories
 (41) Finishes, external: General
 (42) Finishes, internal: General
 (43) Finishes, floor: General
 (44) Finishes, stair: General
 (45) Finishes, sills, skirtings, cover strips
 (46) Finishes, flat roofs
 (47) Finishes, roof: General
 (48) Finishes, roof: Flashings
- (5) Services installations: Sanitation, heating, ventilation: General
 (50) Installations, accessories: General
 (51) Installations, refuse disposal: General
 (52) Installations, drainage, sanitation: General
 (53) Installations, water, hot and cold: General
 (54) Installations, gas, compressed air, steam, refrigeration, etc.: General
 (56) Installations, heating: General
 (57) Installations, ventilation, air-conditioning: General
- (6) Services installations: Electrical and mechanical: General
 (60) Electrical accessories: General
 (63) Installations, electrical, lighting and power: General
 (64) Installations, communications, radio, TV: General
 (66) Installations, mechanical, lifts, escalators, etc.: General
 (68) Installations, special: Lightning conductors, fire-fighting, etc.: General
- (7) General spaces, fixtures and equipment
 (70) Accessories: General spaces
 (71) Entrances, fixtures and equipment: General
 (72) Rooms, fixtures and equipment: General
 (73) Kitchens, fixtures and equipment: General
 (74) Cloakrooms, bathrooms and lavatories, fixtures and equipment: General
 (75) Laundries, fixtures and equipment: General
 (76) Stores, cupboards, fixtures and equipment: General
 (77) Plant, fixtures and equipment, boiler rooms, garages: General
 (78) External, fixtures and equipment: General
- (8) Special spaces, fixtures and equipment
 This is the place for items special to one building type
- (9) Building types

SfB Table II: Construction

Exact terms used for headings and sub-divisions will differ according to the application of the tables for filing or specifications and quantities etc.

- A Used for special purposes
 B Used for special purposes
 C Used for special purposes
- D Operations
 Products
 Materials generally (aggregates, binders, mortars, bitumen, chemicals, etc.)
 Concrete mass, reinforcement
- E Concreting
 F Brickwork, masonry
 G Erection
 H Assembly
 I Pipe work
 J Wire work
 K Insulating
 L Coating (asphalting, membranes, etc.)
 M Sheet working
 N Roofing, siding, etc.
 P Plastering
 Q Acoustic treatment
 R Glazing, sheeting
 S Tiling
 T Flooring (special)
 U Facing (special)
 V Painting
 X Installation of
- Bricks and blocks
 Structural units
 Sections and bars (other than I, J and R)
 Tubes and pipes
 Wires and mesh
 Insulating products
 Foils and felts, etc.
 Thin plain sheets (sheet metal etc.)
 Tiles and sheets (overlapping), etc.
 Plasters
 Acoustic products
 Sheets (rigid) (plaster board, plywood, glass)
 Tiles (butt-jointing)
 Flooring products (other than E, H and S)
 Claddings and facings (other than N and S)
 Paints, varnishes
 Assemblies, fixtures and equipment

SfB Table III: Materials

- a Used for special purposes
 b Used for special purposes
 c Used for special purposes
 d-o Material in components, e.g. bricks, blocks, pipes, etc.
- d Metal
 d1 Cast iron
 d2 Wrought iron, steel (also galvanised, enamelled, etc.)
 d3 Steel alloy, stainless steel
 d4 Aluminium and aluminium alloy
 d5 Copper
 d6 Copper alloy, bronze, brass

- d7 Zinc
 d8 Lead
- e Stone, natural
 e1 Granite and igneous rock
 e2 Marble
 e3 Limestone
 e4 Sandstone
 e5 Slate
 e8 Asbestos
- f Concrete, artificial stone (using lime or cement in solid blocks)
 f1 Sand-lime concrete
 f2 Cement concrete
 f3 Terrazzo
 f4 Lightweight concrete
- g Clayware, ceramics
 g1 Cob, pisé, adobe
 g2 Heavy burnt clay
 g3 Terracotta, faience, earthenware
 g4 Stoneware, semi-vitreous ware
 g5 Vitreous ware, porcelain
 g6 Fire-resistant ware, refractory ware
 g7 Chemically resistant ware
- h Other mineral materials (in solid blocks and sheets)
 h1 Asbestos cement
 h2 Gypsum
 h3 Magnesia
- i Wood
 i1 Timber (including rot-protected)
 i2 Softwood
 i3 Hardwood
 i4 Laminated wood, plywood
- j Organic fibre (in boards, etc.)
 j1 Wood fibre, wood particles
 j2 Pulp
 j3 Organic fabric
 j4 Corrugated paper
- k Cork and other organic material (in solid products, slabs, sheets)
 k1 Cork
 k3 Wood wool cement
 k4 Reeds, straw
 k5 Peat
- m Felted materials, etc.
 m1 Mineral wool, including glass fibre
 m2 Seaweed
 m3 Organic wool (wadding, wool, hair)
- n Plastic, composition, linoleum, rubber
 n1 Asphalt
 n2 Impregnated fibre and felt
 n3 Bituminous fabric
 n4 Linoleum
 n5 Rubber
 n6 Plastic
 n8 "Thermoplastic" composition
- o Glass
 p-s Materials in formless products
- p Loose fill, aggregate
 p1 Stone aggregate, sand, gravel, shingle, crushed granite, shale
 p2 Crushed clay bricks, concrete, lightweight concrete, etc.
 p3 Granulated slag, clinker (lightweight aggregate)
 p4 Ash
 p5 Shavings (including seaweed, wood wool, paper wool)
 p6 Powder
 p7 Organic wool, mineral wool
 p8 Plastic
 p9 Fluid, gas
- q Mortar (with lime or cement) and mass concrete
 q1 Lime
 q2 Cement
 q4 Mortar with lime and cement, concrete mass (including coarse stuff for rendering, screeding)
 q5 Terrazzo
 q6 Lightweight concrete
- r Gypsum, plaster, magnesite
 r1 Clay, mortar, fire-resistant mortar, chemically resistant mortar
 r2 Gypsum
 r3 Magnesia
 r4 Synthetic resins
- s Bituminous material, tar, asphalt, etc.
 s1 Bitumen, pitch, tar
 s2 Bitumen solution and emulsion
 s4 Mastic asphalt
 s5 Asphalt, bitumen macadam and tar macadam
- t-w Agents, chemicals, etc.
- t Fixing material, adhesives, mastics and jointing compounds
 t1 Welding material
 t2 Soldering material
 t3 Adhesives
 t4 Putty, mastics, jointing material, etc.
- u Protective materials
 u1 Means against corrosion
 u2 Admixtures for cement and concrete, etc.
 u3 Means for rot-proofing and insect-attack prevention
 u4 Means for fire-proofing
 u5 Means for treating floors, wax, etc.
 u6 Water-repellent finish
 u8 Surface means for diffusion-proofing
- v Oils, varnishes, paints
 v1 Stopping, putty, paint fillers
 v2 Pigments, stains
 v3 Vehicle, oil
 v4 Varnishes
 v6 Paints, oil, emulsion, water, etc.
- w Chemicals
 w1 Rust removing agents
 w2 Solvents, thinners, drying agents, emulsifying agents
 w3 Water-glass
 w4 Polishing agents

decisions seems of great importance to us. So much so that we take the view that the manufacturers of components might be well advised to design special trade literature for inclusion in each element file in which their component can be used, for in this way they can be sure that their product is "present" when the architect is choosing.

This idea of special trade literature for the functional elements is still in the future. Because this is so, we are planning to give in each element file as full a coverage as possible of all the relevant products, in the form of Information Sheets.

Building science

The dilemma which occurs with products, occurs also with building science. A subject like damp-proofing affects a whole range of elements. Furthermore, it has a natural unity and it would be unrealistic and unwieldy to sub-divide it and to treat it only under the elements which it affects. sfb allocates subjects like this to the A section, sub-dividing the field by means of the Universal Decimal Classification. Thus the proper designation of damp-proofing is

Ab9

699-82

This is incontestable; but the fact remains that damp-proofing as a subject only hits the architect when he is engaged on designing an element and this is equally true of all the other subjects of building science.

For this reason, in treating the functional elements, we have included in each an article which will normally be on some aspect of building science as it affects the element.

This treatment, both of products and of building science, leads to the slightly paradoxical result that articles and information sheets are included in the functional element files which, *were they not specially prepared for the supplement*, you would expect to find in some other part of the sfb system.

Thus a study on designing windows for daylighting has been prepared for inclusion in (31) Windows: General. It is, in fact, reasonable to put it in (31) because it has been designed for the purpose; but, in general, daylighting studies would be filed in Ab7.

Need for a new literature

As we have already said, the long term success or failure of sfb for the architect seems to depend in a large measure on the existence of adequate material in the functional element headings. As things are, existing references fill these headings very sketchily, if at all. The overwhelming proportion of technical literature as it now exists falls into the constructional headings (E-X) or into the building science headings (A). Taking the AJ alone, the only regular items which would naturally find their way into sections (11) to (89) would be Working Details and the occasional Information Sheet on a component like a window or a solid fuel boiler which can be safely allocated to one element and to one only. However useful these few items may be in themselves, they are not sufficient to give the enquiring architect anything but a woefully poor start.

The AJ's Functional Element Files will therefore set out to fill the gap; but it is only a beginning. From

now on, the AJ's Technical Section will be chiefly engaged in keeping the files up to date. Every piece of information which comes in, whether in the form of a new building, a new product or a new publication, will henceforth be considered for the influence it might exert on the functional elements; and means will be found for keeping these element files up to date. It is much hoped that the producers of literature outside the AJ will bend their effort to the same end.

In conclusion it must be emphasised that the AJ is not attempting to give readers a complete sfb coverage, for the element heads only represent a small proportion of the whole. Nor is the AJ attempting to influence the way readers use sfb.

All the AJ is attempting is to fill, as usefully as possible, those headings which from the architect's point of view are the key to the success of the whole system and which would otherwise not be filled for a very long time.

The Architect's Personal Information File

What is the architect to do?

First, it must be remembered that one object of THE ARCHITECTS' JOURNAL is to encourage each architect who works at a drawing board to have his own personal information file, classified in the sfb system. Though the AJ material is equally designed for filing in an office library, it is the individual practitioner whom we really have in mind.

We visualise each architect keeping his own reference vade-mecum contained in a small number of A4 size looseleaf binders and within reach of his drawing board. The existing Information Sheet binders are a case in point, but we consider that the new crop of AJ literature should be kept in some form of binder which will open flat on the desk. One which we have found particularly satisfactory is the Agrippa binder (illustrated in a rather poor photograph in the issue of September 13), obtainable from Stuart Thompson (Stationers) Ltd., 33 Wembley Hill Road, Wembley, Middlesex, price 35s. 0d. each. Two such binders would be enough to hold all the AJ will produce for the first year. Binders should in any case be of the four-ring type, and architects will have to buy a punch to match. Having got his binder, the architect will then pull out, first, his supplement and then any other articles that are designed for filing. The supplement he will put at the front of his file, i.e., because the element headings are drawn from sfb Table 1). He will then range all the other sheets in their sfb order at the back of the file. This order runs from (1) to (98) and from A to X; but if the architect is in any doubt he should consult the tables published in the AJ this week. As all the items carry a classification number already, printed on the right hand top corner, there is no need for the architect to insert spacers in his file designating the beginning of each section, for, provided the items are put in in the right order, he will always be able to find them by merely flicking through.

LETTERS

Paul Ritter,

MCD, BArch, ARIBA, AMPTI

R. Desmond Henly

Halsall Owen,

DiplArch (Liverpool), ARIBA

James F. Munce, ARIBA

Munce and Kennedy

R. Baden Hellard,

DiplArch, ARIBA, FIARb

SfB supplements

SIR: Your proposed programme of weekly SfB supplements for advertisers is a wonderful idea. It will serve the profession well and those who try to improve methods of teaching.

The child in me hopes that colour, good design, and variety will give an easy rhythm, easy definition of the pattern of your file of information. Once the size is standard and the information given up to a certain minimum, a boring repetition of the same black and white "information sheet" does not help to locate items quickly. See sundry Gestalt-Psychological findings.

PAUL RITTER

Nottingham

We too would like to use colour, but detailed investigation shows that the cost of colour printing, and the binding complications involved in adopting coloured paper for the Supplements make it impossible—
THE EDITORS.

SIR: The introduction by THE ARCHITECTS' JOURNAL of the SfB classification for all published information is, of course, most welcome, but for the offices which have already established a system based on THE ARCHITECTS' JOURNAL Library of Information Sheets, and incidentally find it complete enough, would it not be possible to include this classification reference also, so that no one can complain of having to number his own published information before filing?

R. DESMOND HENLY

London, W1

*We will be continuing to publish the old Information Sheet classifications for one year. But we do this only to give our readers time to make up their minds to go over to SfB—*THE EDITORS.

SIR: Before THE ARCHITECTS' JOURNAL congratulates itself further on its championing of convenient formats for filing systems, etc., may I indicate that its own Information Sheet series—otherwise admirable—falls

down badly in respect of insufficient binding margin on the left-hand side of the sheets? For years I have got over this difficulty by laboriously dissecting each copy of the JOURNAL in order to abstract the Information Sheets complete with their counterfoil edges, which then gave reasonable margin when clamped in the containing cover files. Now even this solution has been made impossible by the new method of presentation, whereby there is no extension edge to the Sheets. Could not the subject matter on each Sheet be limited in width to allow extra binding space on the left-hand side?

HALSALL OWEN

Warrington

*The page size of the present series of Information Sheets is A4. The binding margin is that recommended by Dargan Bullivant, the AS Research Fellow on Information for the Architect—*THE EDITORS.

Comprehensive design group

SIR: Some months ago the architectural profession applauded the establishment of a comprehensive design group which incorporated all the specialists concerned with building design in one organisation. This was a positive contribution to the service which the profession offers to its clients and it is one which we particularly appreciate as our firm has been operating on these lines for a number of years.

However, recent announcements in your columns indicate that there is a tendency for a number of small firms to come together in a loose association. Presumably their intention is to persuade potential clients that the resultant amalgam possesses the technical ability, staff and experience to provide a comprehensive service.

We cannot but feel that this form of association, possibly devoid of a common philosophy and frequently handicapped by physical separation of its various parts falls far short of what is required to improve the service to the client. From our own experience we have learnt that it is only through the closest co-operation between all specialists in our work, co-ordinated by the architect, that good results can be achieved.

We would welcome the views of other architects on this aspect of professional service as we feel it is a matter of some concern to the profession as a whole, preoccupied as it is with providing a sound service with which to stem the erosive effect of the contractual "all-in" bid.

JAMES F. MUNCE

Belfast

Bringing in sub-contractors

SIR: I was interested to read your conclusion in the editorial of August 30, that architects should have been present when the builders and sub-contractors debated their problems at the recent Sundridge Park Management Conference, and I certainly agree with them.

By chance, I was fortunate and privileged to have attended several of the sessions, and as the only architect present, was hard put

to it to defend on several occasions, situations in which the main contractors and sub-contractors found themselves, which were purely as a result of events which had happened and decisions which had been made during the design period by the architect and consultants. More often it was a case, of course, that decisions had not been made and should have been by the profession at an early stage in the programme. The point I would make, however, is this: similar discussions have been held at Sundridge Park in earlier years, when architects, quantity surveyors and builders were together, and the missing link in the chain was found to be then, as indeed it was when the builders and sub-contractors got together, the absence of the consulting engineers from these management discussions. Unless, and until, all the professionals can get together and thrash out their own management problems, inevitably, difficulties will arise between the main contractor and sub-contractor at a later stage in the project. Let us hope that efforts being made in this direction by some architects to discuss management problems with the engineers, will soon show some results, and then a conference between the professionals speaking with one voice, and the contracting side of the industry likewise speaking with one voice, will have an early beneficial effect on overall productivity in the building industry. It is a significant fact that on the occasion of a conference such as those held at Sundridge Park and by the RIBA, etc., the parties at the end of the discussions find much more common ground than was ever thought possible before the conference began, but in most of these activities over the last four years the engineers have been conspicuous by their absence.

R. B. HELLARD

London, SE12

DIARY

Sculpture and modelling in Victorian architecture: two lectures at Victoria and Albert Museum by Charles Handley-Read, 6.15 pm.

SEPTEMBER 27 AND OCTOBER 4

The next five million houses: J. R. James, chief planner MOHLG, at the Housing Centre's AGM, Suffolk Street, 6 pm.

SEPTEMBER 28

The history of furniture design: series of 12 lectures by Francois de Mauny, Technical College, Pitfield Street, Shoreditch, London, N1. Thursdays at 6.30 pm. Fee for series, £1.

STARTING SEPTEMBER 28

Presentation of TPI gold medal to Sir William Holford, Carpenters Hall, Throgmorton Avenue, EC2, 6 pm.

OCTOBER 4

Architecture of technology: IUA Exhibition at the Manchester Building Centre.

OCTOBER 2 TO 14

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NEWS

LINCOLN COMPETITION

Win for two young architects

Two young architects, one of them only just qualified, have won the Lincoln Civic Centre competition, in spite of the number of big guns of the profession who went in for it. They are Eldred Evans, who completed her training at the AA only this summer and is now in America having won a post-graduate fellowship at Yale University, and Denis Gailey, who qualified at Edinburgh University two years ago.

Miss Evans is a daughter of Merlyn Evans, the painter. She was an outstanding student at the AA, winning several of the main prizes there, now capped by her share of the £4,000 first prize at Lincoln, and later by the actual building of the £2 million project, although the City Council do not expect to get sanction for it for several years to come.

Three competitors tie for second place, and will share the remaining £3,000 premium money: they are, Andrew Renton with Peter Howard, John Kennett and Gerald Levin; Gollins, Melvin, Ward and Partners; and James Bourne, David Button, Stephen Osgood and H. Werner Rosenthal.

The winning design and runners-up will be illustrated in next week's AJ.



Eldred Evans

of the assessors for other designs of merit. Closing date, September 4, 1962; last day for questions, January 1, 1962. Conditions available, on receipt of the £3 deposit, from: the Registrar, the University, Liverpool 3.

Berkshire county offices

The revised conditions for the open competition for the design of new county offices for the Royal County of Berkshire (previously reported, AJ 9.3.61), have now been issued: the revised estimated cost is £1,022,000.

Frederick Gibberd, CBE, FRIBA, MTPI, FILA, has been appointed assessor.

Intending competitors who have already registered their names with the Council and paid the deposit will receive the Competition documents automatically: new competitors should apply for conditions to the Clerk of the County Council, Shire Hall, Reading, sending a deposit of 2 guineas.

Closing date for the competition is June 5, 1962; closing date for questions, January 22.

LIAISON COMMITTEE

Building in 20 years' time

A hundred young architects, builders and quantity surveyors exhaustively canvassed the prospects for "Building in Twenty Years' Time" at a week-end conference organised by their Joint Liaison Committee and held in Downing College, Cambridge, from September 15 to 17.

They found the foreseeable future brimming with demands upon their services, but the way ahead strewn with institutional obstacles to the effective deployment of their skills.

The stage was set by John Wood, head of the economic section of Associated Electrical Industries, with a rosy forecast of probable trends. He predicted the investment in building of a rising proportion of a rising national income, but little change in the size of the building labour force.

This might well mean the doubling (in real terms) of the value of architects' commis-

sions within twenty years, and would call for a doubling of the productivity of building labour—which would have to come largely from improvements in techniques, management and organisation.

Donald Gibson, Director-General of Works at the War Office, thought this an understatement of the industry's potential expansion. He looked forward to a tremendous growth in opportunities for British architects, quantity surveyors and manufacturers of building components in the emergent African nations; to the adoption of a metrical module; to an increase in the proportion of the nation's investment made by public authorities (increasingly through direct labour); to a growing preference for the "package deal" in the remaining private sector; to the hiving off of maintenance work as a separate skill; to a substantial rise in the pay and status of the building operative; to the elimination of the draughtsman and the small builder; and to a rapid decline in wet processes and site work generally.

It was a tragedy, he thought, that separate professional institutions had been allowed to grow up in the building industry. Architects, builders and quantity surveyors should have at least part of their training in common, and should become permanently associated at director level in the industry.

Pre-planning and progressing would soon have to be so precise that the roof deck could be on a building within six weeks of the stripping of the turf from the site. Architects must standardise their detailing and reorganise their office procedure so that draughtsmen's work might become a matter of coded information to the builder, and so that more of their own time might be devoted to development work.

Tendering must go: it was already "ripe for pushing over." Means must be found to bring the contractor in at the start.

P. W. Grafton, representing the quantity surveyors, also took an optimistic view of the future scope for expansion. He called for the industrialisation of building, for an end to "stop-go" policies, for more appreciation by architects of comparative costs and plant capacities, and for a greater willingness to let contractors use their expert knowledge in meeting specified quality and performance standards.

Speaking for the builders, D. E. Woodbine Parish emphasised that "buildings are put up by people": increased productivity could be achieved only through changes in the attitude of mind of individuals. The industry was bedevilled by status symbols and the pursuit of sectional interests, he said; it carried a fantastic load of apathy and resistance to change. It needed more thinkers: above all, it needed leadership at all levels. Its present system of accountability was terrible, and it took no trouble to review and learn from its mistakes. Finally, its profit margin must be adequate to enable more money to be ploughed back into mechanisation and research. Detailed and protracted group discussions of every aspect of the industry's future produced scores of similar suggestions. Among those which found wide acceptance were: that architects (and possibly quantity surveyors) might in twenty years be serving as

RIBA

Rome scholarship in architecture

The RIBA announced last week that the Faculty of Architecture of the British School at Rome has awarded the 1961 Rome Scholarship to Ernest Atherden, DipArch (Manchester), and commended work submitted by Charles H. Bosel, BArch (Queensland).

The designs submitted are on exhibition until September 30 at the RIBA, from 10 am to 7 pm on weekdays and 10 am to 2 pm on Saturday.

COMPETITION

Liverpool, halls of residence

The University of Liverpool is organising an open competition for halls of residence to hold 1,100 to 1,200 students on the Carnatic site at Mossley Hill, the cost of the works to be approximately £1,500,000.

Assessors will be: Sir James Mountford, MA, DLitt, DCL, LLD, vice-chancellor of the university; Donald Gibson, CBE, MA, DCL, FRIBA, MTPI; and Professor Myles Wright, MA, FRIBA, MTPI.

Premiums will be £5,000, £3,000 and £1,000, and further premiums, not exceeding a total of £2,000, may be awarded at the discretion



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consultants to clients or as members of building organisations, rather than as independent arbiters; that builders might become professional contract managers, organising the work of sub-contractors;

that there was an urgent need for the standardised presentation of more and better information about materials, including a testing service on the lines of "Which?" and CAC, and that the best way to prepare for the opportunities ahead was to make the industry fit for its present task.

DEREK SENIOR

FBTE

Firm prices and the Common Market

Foreign manufacturers are more ready to quote firm prices for two years ahead than British firms, and if Britain joins the Common Market, "contractors will inevitably give more than a cursory glance to the terms of suppliers of the member nations, so long as our manufacturers maintain their present attitude," said the president of the Midland Federation of Building Trades Employers at a recent district meeting in Derby.

Not only does failure to price for two years mean that suppliers are not helping towards a stable economy, it means lack of confidence in themselves, he pointed out. "Manufacturers who cannot make a sound appraisal of trends in their own raw materials market and judge their other costs, are to my way of thinking incompetent. "If we as contractors can say to our clients this building will be erected in 24 months and our price is £x surely suppliers can do the same? Both contractors and architects, when nominating, should ensure that they deal with sound business men. There are in most cases alternative sources of supply and these will increase when we belong to the Common Market."

ARTHRITICS CENTRE

New kind of settlement launched

A new kind of settlement for seriously disabled arthritics, and providing homes, care and treatment within one community, has been launched by the Horder Centres for Arthritis—a charity founded and brought to launching point by one remarkable sufferer from the disease, Miss C. Bochenek, who believes that an enormous amount can be done to enable arthritics to surmount their disabilities and even to be able to work, given the right attitude and treatment. The scheme has been designed by James Crabtree and Associates (associate in charge, H. E. Senkowsky) and building will shortly start on a beautiful, sloping site at Crowborough provided by the Marchioness of Dufferin and Ava. It will provide accommodation for 120 people in its first phase, who will be accommodated in single, ground



Model of the Horder Arthritis Centre, designed by James Crabtree & Associates, showing low buildings surrounding linked courtyards, with two-storey central treatment, social and administration block. Copper roofs have been chosen, to wear and weather well, and because on the sloping site the roofs will be a dominant feature.

level rooms, built round a series of linked courtyards, with sheltered terraces and covered walks, leading to the centrally placed treatment and social centre (which includes a communal dining room), with staff and administrative rooms above.

The buildings are designed to provide the best possible environment, with nothing institutional about it, and materials have been chosen that will weather well and be maintenance free. Cost of this scheme is likely to be about £350,000, not all of which has yet been raised. Later it is intended to include some bungalows, each for two people on the same site, and to plan further centres in other parts of the country.

CCA

New computer service

In addition to its service in testing structural models the Cement and Concrete Association is now in a position to offer the use of an electronic computer.

The Association has installed at its research station at Wexham Springs a Ferranti Sirius computer and tape editing equipment, which will be used primarily for processing data for the Association's own research and advisory work.

When the machine is not occupied in this way, however, the Association will gladly make it available for use by others at the standard hire charge of £25 per hour for normal work, and at reduced rates for research and development work on problems concerning concrete.

Arrangements for the use of the computer or for the model-testing service should be made through R. E. Rowe, MA, AMICE, AMISTRUCTE, head of design research department, Cement and Concrete Association, research and development division, Wexham Springs, Framewood Road, Stoke Poges, near Slough, Bucks (telephone Fulmer 212).

BRISTOL

Cultural centre for Wine Street

The Battle of the Wine Street area has ended—it seems, in a draw. At the September meeting of the City Council a scheme was approved for building a museum and art gallery, with restaurants, lecture theatres and other cultural facilities attached, on the much disputed central site—now the largest and most important remaining bomb site in Britain—with a surrounding public park.

The buildings are to be designed by the city architect, A. H. Clarke, and a "nationally known" landscape architect is to be appointed to design the park—one hopes in close co-operation from the start, since the landscape architect should have a considerable say on the siting of the buildings. Meanwhile Mr. Clarke and the directors of the Bristol Art Gallery are being sent on a tour of Europe "to look for ideas."

The boundaries of the site are those of Bristol Castle, once the most formidable in the west, until destroyed in the Civil War, and one admirable decision seems to be that a complete archaeological exploration of the site, perhaps with the help of the Ministry of Works, should be undertaken before development begins—other than that on the Norwich Union office site, which was the original cause of the widespread protest movement against piecemeal development here organised by Bristol Civic Society and the local architects, which won wide backing last year.

That campaign failed, in as much as it could not stop the development of part of the site already agreed to by the City Council with Norwich Union and the Bank of England. But many of the positive ideas it put forward seem to have won acceptance.

Is there still too much guesswork in specifying?

by Elizabeth Gundry, editor of *Shopper's Guide**

Recently a top person in architecture was much discomfited to find plastic basins in a building his firm had designed were crazing. Lower down the hierarchy, there happened to be someone whose wife's second cousin (or the like) had once seen a *Shopper's Guide** test report on plastic sinks—a cautionary tale which, if read in time, might have influenced the decision to install these plastic basins.

But relatively few architects read *Shopper's Guide* test reports, and the system of relying upon the second cousin of the wife of a colleague is not perhaps the best substitute for first-hand information. By the time the firm in question had written to *Shopper's Guide* for information, the damage had been done. The inquirer, now intent upon obtaining redress from his supplier, turned to *Shopper's Guide* for information as to a test-house which could give an expert report on the basins, and was put in touch with the laboratory that had done the sink tests. (Shutting the bathroom door after the basin had burst?)

To what extent can test reports help the architect assess products before he installs them? That question is best answered by describing some of the things *Shopper's Guide* has covered so far—what characteristics it tests them for—how it tests them—and how the technical data a laboratory produces are assessed and summed up for publication.

The whole concept of testing performance before purchase is a completely new idea to the ordinary consumer and not yet, it seems, second nature even to specialist purchasers such as architects. No architect can himself do any comprehensive testing, and there are few sources to which he can turn who will be willing to divulge actual test findings and comparative assessments of one brand versus another. *Shopper's Guide* (and *Which?*) are unique in this respect, and though many of their reports—on anything from nappies to seasickness pills—are way outside the architect's field, a lot which concern him have appeared since *Shopper's Guide* first pioneered this work in 1957.

Most reports are valuable not only for their assessment of one brand versus another, but also because they suggest what questions a purchaser should ask, what points to look for, how to assess quality, and what snags are most likely to crop up. Long after the specific findings have dated, this type of information can still be very valuable.

It is particularly useful if any kind of pre-purchase testing is going to be done—on large contracts this is a growing and very sensible trend—for much careful research usually needs to be carried out on devising a programme of tests, if the results are to be meaningful. Many of the newer products which *Shopper's Guide* tests are not covered by British Standards, or other recognised

criteria, and then the evaluating of alternative test methods is often as involved a job as the evaluating of the goods themselves. Thereafter, almost as much expertise is required in relating the findings of the laboratory to real-life conditions after the tests have been completed. To take some specific examples:

Adhesives

In 1959, *Shopper's Guide* reported on adhesives for wood: various brands of animal glues, urea formaldehyde, cellulose and casein. Price variations were very wide. In this case, a recognised test method was used (laid down in BS 1204) with specially prepared lap-joints pulled apart under various conditions, while the load (in lb.) needed to sever them was recorded. Both close and gaping joints were used, and some tests were done after a period in a steamy atmosphere, some after a day at a high temperature, some after prolonged soaking in water. The point of these tests was to discover what difference climatic conditions made—and whether the adhesives would be suitable for use near a radiator (say); and at a kitchen sink or anywhere else likely to get wet frequently. The work was done for *Shopper's Guide* by the Furniture Development Council (one of the DSIR-aided research bodies). Broadly speaking, the urea-formaldehydes were strongest under all these different conditions. Despite claims for certain others to be of "incomparable strength" or "heatproof," none justified such descriptions. (As a result of the variations revealed in these *Shopper's Guide* tests, the British Standards Institution is embarking on some new standards for adhesives, and perhaps a precise definition of terms like these may be reached.)

Paint

The testing of emulsion paints was far less straightforward. There are Defence and other official test methods—but all were rejected after inquiry and two trial series of tests. Whatever use these methods had within the laboratory, it was impossible to equate them to ordinary conditions in a house. With the assistance of the Paint Research Station (another organisation aided by DSIR), a much simpler series of tests was eventually worked out which consisted of practical trials—carried out, however, under carefully controlled conditions, and by highly experienced technicians, so that variations due to the human factor should be reduced to a minimum. The main characteristics studied were: coverage (or opacity), adhesion, washability. It was interesting that no one brand seemed excellent in all respects, but without controlled trials of this type it would have been impossible

to guess which would be best from the point of view of coverage, for instance; or which would stand up best to washing.

Carpets

Here, too, laboratory tests were not favoured, as there is no known abrasion machine which can reproduce the varied types of wear an average carpet gets. Instead, carpets were laid on the staircase of a busy college, moved and cleaned at specified intervals, and an electronic eye counted the passing footsteps. The carpets included Axminsters, Wiltons, cord and tufted carpets—wool and rayon. (A further series, with nylon carpets amongst others, is now in progress.) From the results it was possible to compare not just the number of treads needed to wear any particular sample to the back (44,000 in one case, 520,000 in another), but also to work out the true cost per 10,000 treads. The latter figure showed that the cheapest carpet to buy in fact cost nearly 5s. a yard per 10,000 treads, the dearest 10d., and a medium priced one only 8½d. Here, too, the findings are proving useful to the British Standards Institution in its attempt to draw up a scheme for grading carpets: there is some relationship between pile weight and density (not pile length); fibre-content; and probable durability. More research is, however, needed before anything so definite as a grading scheme can be confidently defined.

Plastic surfaces

Rigid sheeting materials (like Formica) were examined in an early issue of *Shopper's Guide*; and flexible self adhesive ones (like Contact) more recently. In this field, a laboratory can effectively simulate by mechanical means qualities like resistance to abrasion (using weighted abrasive wheels), scratches (using a diamond at a given pressure), and impact (dropping a steel ball from measured heights). The effects of heat, hot fat, stains and humidity are all reproducible, by British Standard or other dependable test methods. As in the case of the paints mentioned above, not all the virtues are usually to be found in any one brand. One that resists scratches well may not be the best for hot saucepans, and vice versa. But only by testing can the purchaser discover which is which.

These are only examples of the sort of questions which *Shopper's Guide* tests set out to answer. There are many characteristics (like design) which are as important but outside the scope of this type of inquiry. And even the down-to-earth questions like will-it-wear? will-it-wash? are not always readily answered by even the most carefully controlled tests. Nevertheless, even the asking of the right questions is of increasing importance in this technical age, if the consumer (or the architect specifying on behalf of the consumer) is ever to be in a position to make an informed choice.

**Shopper's Guide* is published by the Consumer Advisory Council, Orchard House, W1. The subscription (15s. p.a.) includes use of the advisory and complaints service.

Contract administration

Sequence of operations in the administration of a contract

On pages 447 and 448 are published the final two stages in the series on Contract Administration. The following is a list of the stages as they were published. It supersedes the list published on page 443 of the AJ for March 23, 1961.

	1961		
1. Preliminary enquiries	March 23	31. Insurances	May 25
2. Office programme		32. Liquidated damages assessments	
3. Architect's appointment		33. Clerk of works appointment	
4. Site inspection	March 30	34. Clerk of works	
5. Survey		35. Compiling tender list	June 1
Survey check list		36. Contract drawings	
6. Site analysis		37. Quantity surveyor brief	June 22
7. Consultant recommendation	April 6	Quantity surveyor brief check list	
8. Engineer appointment		38. Completed quantities	
9. Quantity surveyor appointment		39. Form of tender	July 19
10. Services consultants		Form of tender sample	
11. Murals or sculpture	April 13	40. Pre-tender statement	
12. Statutory consents		41. Receipt of tenders	
Statutory consents check list		42. Preparation of contract documents	August 2
13. Design drawings	April 20	43. Placing of contract	
14. Design report		Notes on the architect's legal standing in administering the contract	
15. Design fees		44. Contract interpretation	
16. Other consents		45. Contract stage fees	August 9
17. Adjoining owners	April 27	46. Contractor's programme	
18. Party structure notices		47. Site reports	September 6
19. Party structure settlement		48. Site meetings	
20. Drawings programme		49. Contract instructions	September 13
21. Construction drawings	May 4	50. Client's modifications	
22. Public services		51. Variations and extensions	
23. General services	May 11	52. Site progress photographs	
24. Collection of data		53. Site supervision	September 20
25. Schedules		Site supervision check list	
26. Technical representatives		54. Certificate procedure	
27. Sub-contract tenders	May 18	55. Maintenance information	
28. Sub-contractor nomination		56. Practical completion inspection	
29. Cost analysis information		57. Practical completion	
30. Alternative contracts		58. Defects liability	
		59. Final certificate	
		60. Final fees	
		61. Records	September 27
		62. Recommendations	
		Bibliography	

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 Site Supervision. By A. A. Macfarlane, published by The Architectural Press Limited.
 Supervision of Civil Engineering Construction. By Twort, published by Arnold.

RIBA Practice Notes.

A Code of Procedure for Selective Tendering. Published by the Joint Consultative Committee of Architects, Quantity Surveyors and Builders.

BRS Digests.

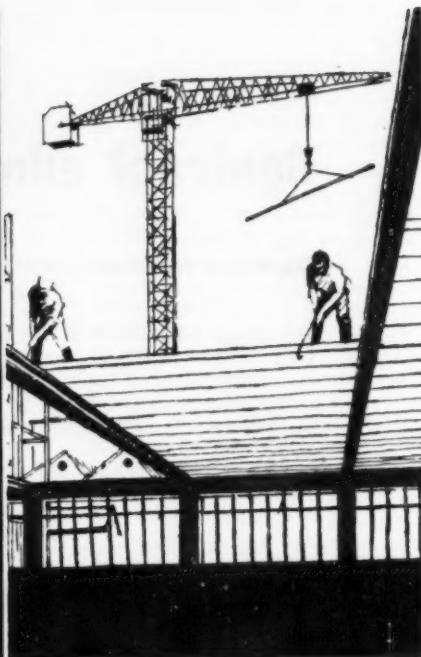
RIBA Conditions of Engagement and Scale of Professional Charges.

Pre-Contract Practice for Architects and Quantity Surveyors. By the Aqua Group and the accompanying Specification Notes published by Crosby Lockwood and Son Ltd.

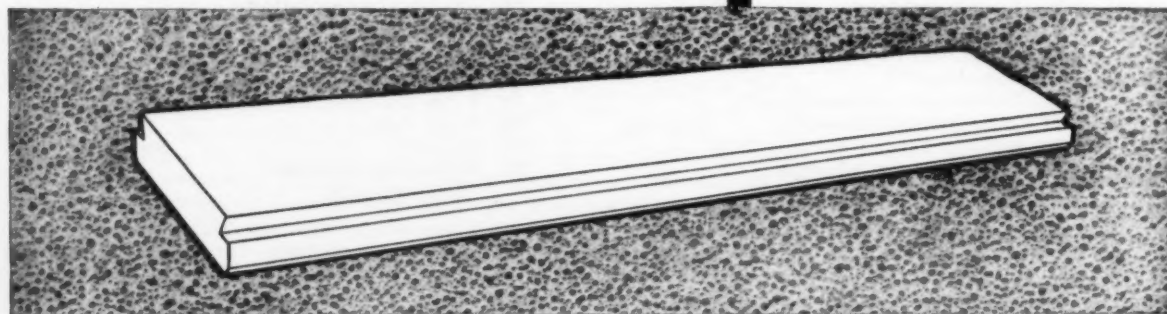
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Contract administration

records

61

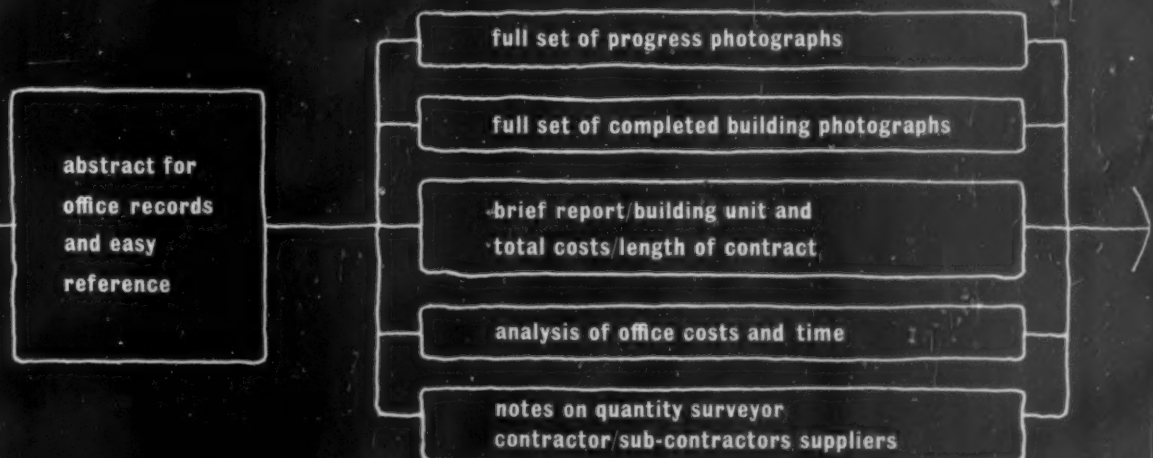
On conclusion of the contract, set aside for record purposes a comprehensive set of photographs of the completed building as well as those taken during the works. Photographs of the completed building should be taken by a competent architectural photographer after a careful site briefing. Your client's permission should be obtained before taking these photographs. Photographs are important for office records as potential clients will often ask to see examples of previous work and in

many cases are unable to read drawings. Alternatively, for diplomatic reasons, you may not be in a position to release drawings of previous contracts.

Should photographs be required subsequently for press publication a good set taken at this time will ensure that your client is not inconvenienced by having another photographer turn the place upside down again.

Together with the photographs should be a final analysis of the job in terms of total cost, cost per cubic foot, length

of contract, number of assistants and cost to the office, and a short report on the work including the approach to the problem and your recommendations. Notes should also be incorporated on the quantity surveyor, consultants, contractor, sub-contracts and suppliers. To abstract any of this information even six months after completion of the contract means endless research unless these records are compiled and, if the information is required ten years after, would otherwise be impossible.



Contract administration

recommendations

62

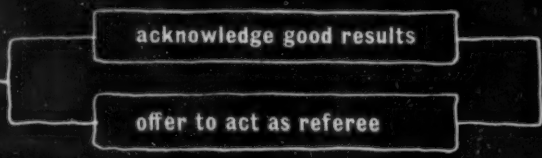
Just as at the outset of the contract you depended upon the opinion of referees before taking preliminary decisions, it is reasonable that at the end of a contract you should offer to be a referee to a firm which has produced a good result, given a good service to the client, or whose liaison throughout the work with all the people involved has assured good progress and sound relations.

Many smaller commercial firms depend a great deal upon recommendations from past clients for further

business. It is as much your duty to acknowledge a good service at the end of a contract as it was to recommend the firm to the client in the first place. When writing to offer your services as a referee for future enquiries, it is also reasonable to remember that the firm deserves to know which of their employees produced the result on their behalf, together with any comments you may have on the service, and information which would be of importance to the man running the business, or the way in which he conducts a

future operation. Similarly, you should inform a firm if you consider their service to have been bad.

It is easy to forget during the client's move into the premises that the individuals who have been working on the building since it was a heap of mud are being evicted at the very point where they are beginning to be proud of their finishes and before they even get the opportunity to stand back and admire their work. Acknowledgement of good results by individuals should not be overlooked.



acknowledge good results

offer to act as referee

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AJ 16



Who specified this wastepaper basket....?

He was a very talented architect, who knew all about design and quite a bit about comfort, but he missed a vital point. Design has three dimensions; comfort has four—length, breadth, depth and human nature. His client could never have kept a grate like this stoked. It was bound to end up as an ornate wastepaper basket.

At least there was no attempt to solve the problem in a plain-blunt functional

way. This was a period fireplace and quite unashamedly decorative. You couldn't use an electric heater with it. Or could you?

Yes, if it was the right kind of electric heater. A Magicoal period fire is quite the best compromise in a situation like this. Nothing else re-creates the atmosphere of the original fireplace so cleanly and so easily. May we send you a catalogue? Better still, why not visit our showrooms in Newman Street?

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Catalogues and information:

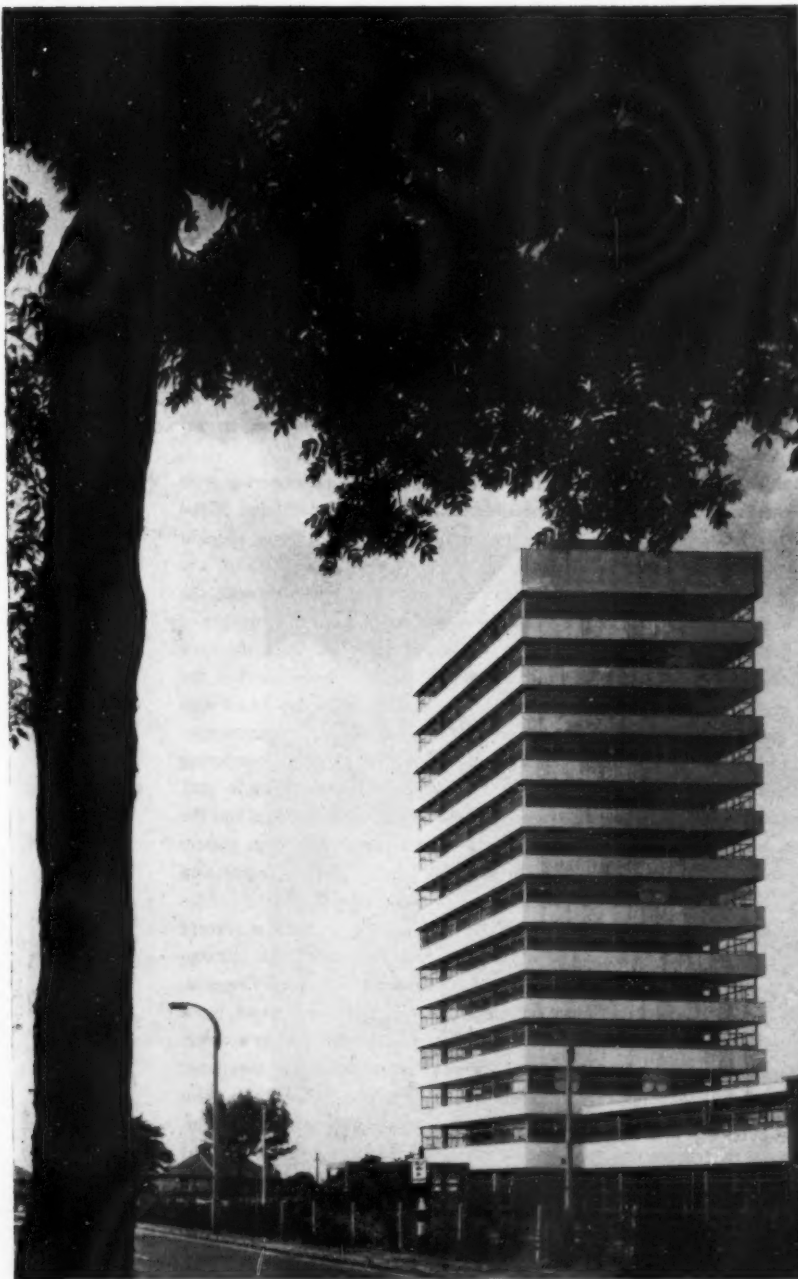
2nd Way, Exhibition Grounds, Wembley Hill, Middlesex. Tel: WEMbley 3201

building study—2nd series

STB File No. (92)

UDC No. 725.23

Office block



NEASDEN, LONDON NW10

architect

DENNIS E. PUGH

quantity surveyors

DAVIS, BELFIELD & EVEREST

who prepared the cost analysis

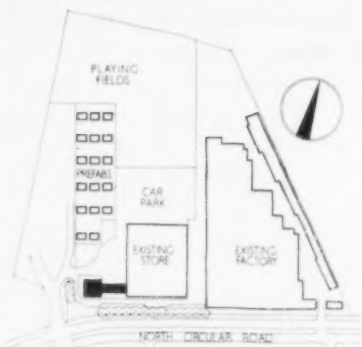
consultant engineers

OVE ARUP & PARTNERS

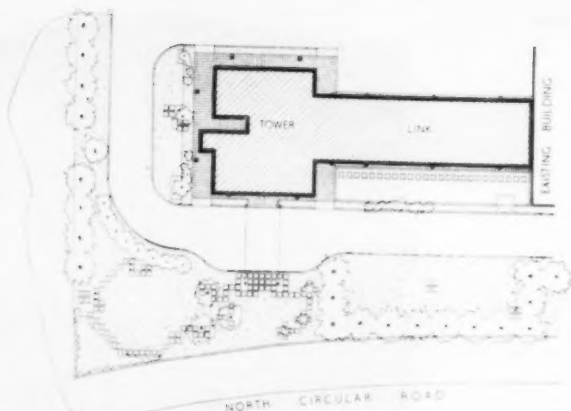
A distinguished example of the decentralisation of offices in the London area, bringing a carefully conceived and admirably detailed tower block into the otherwise dreary industrial sprawl of the North Circular Road area

Block from the North Circular Road, with the link to the existing building on the right

building study—2nd series



Block plan [Scale: 1:6000]



Site plan [Scale: 1/4" = 1' 0"]

APPRAISAL

The client, Radiation Ltd., required additional office accommodation which would form a focus for the twelve groups of which it is the parent company. The site chosen was a corner adjoining one of the company's existing premises on the North Circular Road at Neasden. A world of concrete posts and rusty chain link fences, railway sidings, advertisement hoardings and the constant rush and roar along the dual carriageway—a desolate landscape broken only by grey cooling towers, factory chimneys and concrete lamp standards. In this dismal man-made muddle, the crisp, calm 13-storey tower sounds a solitary, dominant note of sanity. The client's brief was just that. A request to "Do something architectural on the corner." This seemingly ideal programme required the architect to make some basic decisions. With no definite size or cost, the main influences came from considerations of the landscape and the position of the site. Three schemes were put forward by the architect, the most ambitious being a tower of about 13-storeys with a modelled form. This was accepted; the finished building, with its simple lines and articulated floors, has kept all the qualities of the original conception.

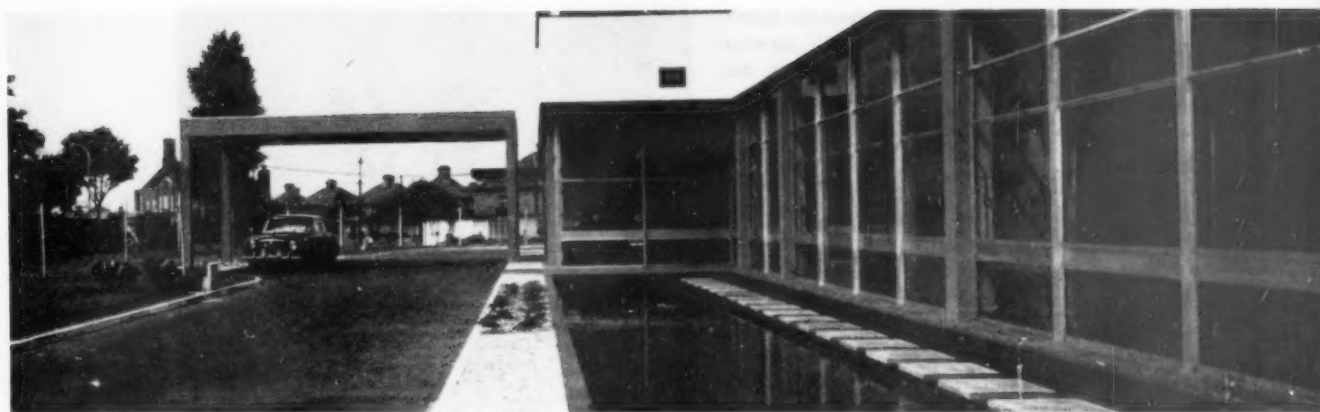
The plan is a square, 55 ft. 0 in. \times 55 ft. 0 in., with two r.c. columns on each face set a quarter of the way in from each corner, and a square structural core containing two lifts, the staircase and vertical services (with the internal lavatories built onto this where necessary). Between sill and window head a 4-ft. 10-in. deep concrete beam, precast in four sections, spans between columns and cantilevers to the corners. The floors are 10-in. overall *in situ* reinforced concrete coffered slabs. The tower is connected to the existing building by a two-storey link. On the ground floor this forms a large multi-purpose area, which can be subdivided by sliding folding doors and overlooks a long pool, and on the first floor general office space.

Before beginning detailed planning the architect consulted the local authority and fire brigade; he agreed with them the means of escape requirements for the building. Because of the compactness of the plan, it is possible to have a single staircase, naturally ventilated top and bottom, the lobby to which is approached from opposite directions, giving the alternative means of escape. There is a hose reel on each floor and a 4-in. dry riser serves all floors above the fourth. All vertical services are contained in ducts in the central

core and are easily accessible where necessary. Hot water in the lavatories is supplied by local gas heaters on each floor, accessible from the office area and connected to an SE duct. Each floor is connected to the mailing and sorting room on the first floor by a letter chute; a goods hoist serves the kitchen on the top floor. The original intention to have natural ventilation was modified; the building is heated and ventilated by units below the sills with air extracted through grilles in the ceiling. Part of the extra cost of artificial ventilation was met by the omission of high level fanlights, which also simplified the windows visually. The main sliding windows were retained and with this square plan even on windy days it is possible to open some windows on the upper floors without disturbance.

The finishings generally are kept to natural materials with as little paint as possible. Externally the weathering of the building has been very carefully considered. Some thought was given to having an exposed aggregate finish to the precast beams, but the necessarily bold joints between the sections would have detracted from the horizontal quality of these members and it was also thought that with the drab weathering of concrete they might soon have matched the cooling towers nearby. The beams, therefore, are faced with slabs of filled travertine, held in position with bronze cramps. This material was chosen because of its good weathering properties, though even so it tends to look dull in dull weather. All the windows are in anodised aluminium and the weathering of the facade is controlled by continuous gutters in the set-back at each sill level. These gutters discharge into pipes in the corner mullions of the windows.

Internally all the floors are cork with pvc skirtings, except the entrance, lavatories and kitchen, which are terrazzo and the directors' offices and boardroom which are carpeted. Below the windows are continuous removable birch faced panels and all ceilings are suspended fibrous plaster acoustic tiles. All the windows have venetian blinds at the head; these are very necessary to control not only sunlight but also glare, as even on overcast days upper offices are very bright. Structure, services and finishes all add up to a well-considered unified whole. Unlike so many office monuments, the entrance hall, general office space and directors' offices all feel like the same building, having an elegant quality without pomposity. By giving this commission to a young architect



Above, entrance canopy to tower, with link block to existing building on right. Right, base of tower, with existing buildings beyond. Below, night view from the main road



building study—2nd series

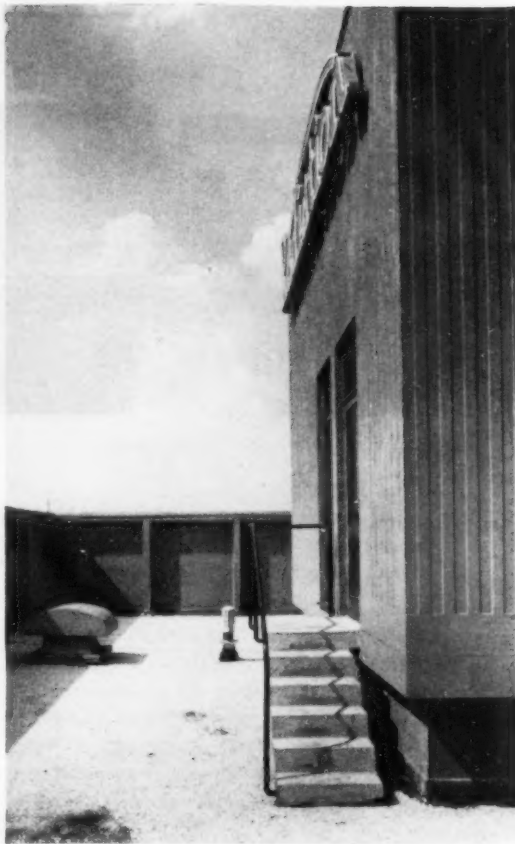
as his first large project, the clients have reaped the benefit of a design with an immaculate set of working drawings done by one man (in his bedroom, he says). It is a pity that in execution the general workmanship, especially some of the finishings, does not come up to the quality necessary for the precise detailing.

What little landscaping there is has been given careful thought, and includes a number of new birch trees. The access road is spanned at the entrance by a canopy (an obvious requirement in our climate, so often ignored) which leads to a pair of glass entrance doors—these are not very satisfactory and some form of draught lobby would seem to be necessary here. The entrance hall is freely planned within the ground floor structure, but though this has been handled with the same precision that can be seen in the rest of the building, it is not an entirely convincing space. This is due in part to its rather amorphous relationship to the link. To fit a two-storey link on to a tall formalised shape, with the two elements becoming one like an arm on a body, is difficult. Here both internally and externally the treatment is too conventional and does not succeed.

The typical floor plans are divided along one side into small offices, using demountable partitions, the rest of the floor space being left open. This open layout demands office furniture and fittings that are compact and well designed. The clutter of calendars, waste-paper bins, drawers, files, trays, etc., which are contained to some extent by the traditional cubicle offices, are exposed in all their nakedness when brought into the open. The interior often tends to look untidy as a result. Also some minor inadequacies of the original brief are becoming evident, such things as tea stations having to be fitted as an afterthought.

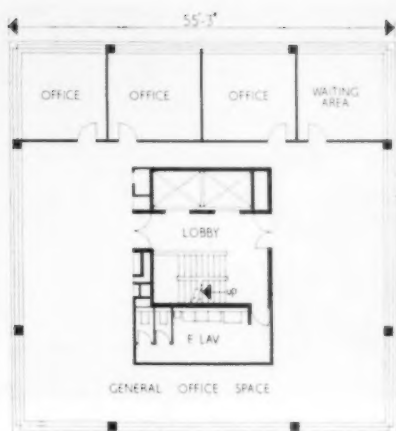
In the original scheme the top floor of the tower was to have contained flats. These were later omitted and the kitchen and dining room substituted. As a result the kitchen fits uncomfortably into the office framework; the sill is not work-top height and what might have been an interesting roof silhouette has become a high parapet, which while giving a formal solution to the facade externally, becomes rather dead and forgotten from inside. It would have been wrong to elaborate the tank and lift motor rooms into an "interesting" shape which inflated their relative importance, but as it stands the box rising up behind the parapet is an anticlimax. This is an important feature of many tall point blocks being built in this country at the moment, how dominant the roof and its silhouette appears to be. At a distance it is the first thing to be noticed—in built-up areas possibly the only one. Yet if it is not overplayed as a flourish, it is ringed with flying beams and columns or other paraphernalia as a disguise. Here the solution is honest and straightforward. It still, however, lacks conviction.

But viewed as a whole these are minor quibbles. This building standing high and dominant, and with its expression of simple order and elegance, is a pointer to the lack of these very qualities in the surrounding sprawl. This is only a single building, but it gives a glimpse of what an industrial estate could look like if it was properly planned and co-ordinated—a place where human beings could enjoy working. An important function of the decentralisation plan for offices should be to inject some architectural vigour into more of these suburban industrial areas.



Above, high parapet at roof level, with housing for lift motors and tanks on right. Below, superimposed photograph of the model, showing how closely the original design is in line with the completed building

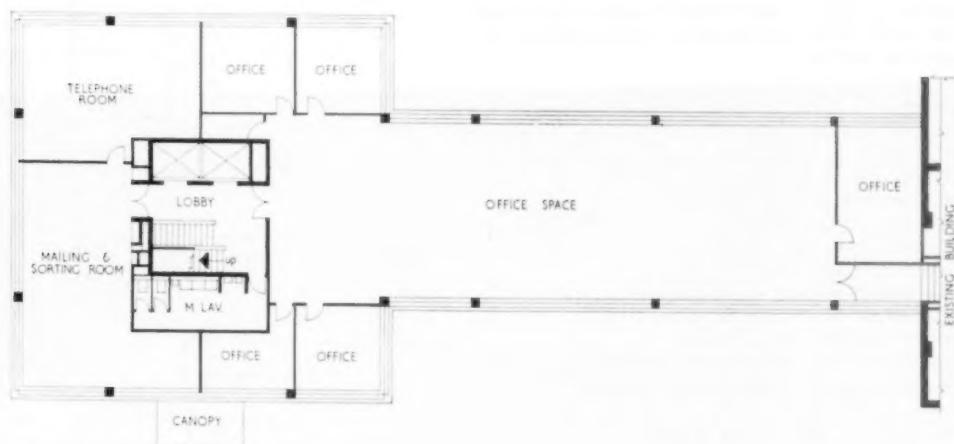




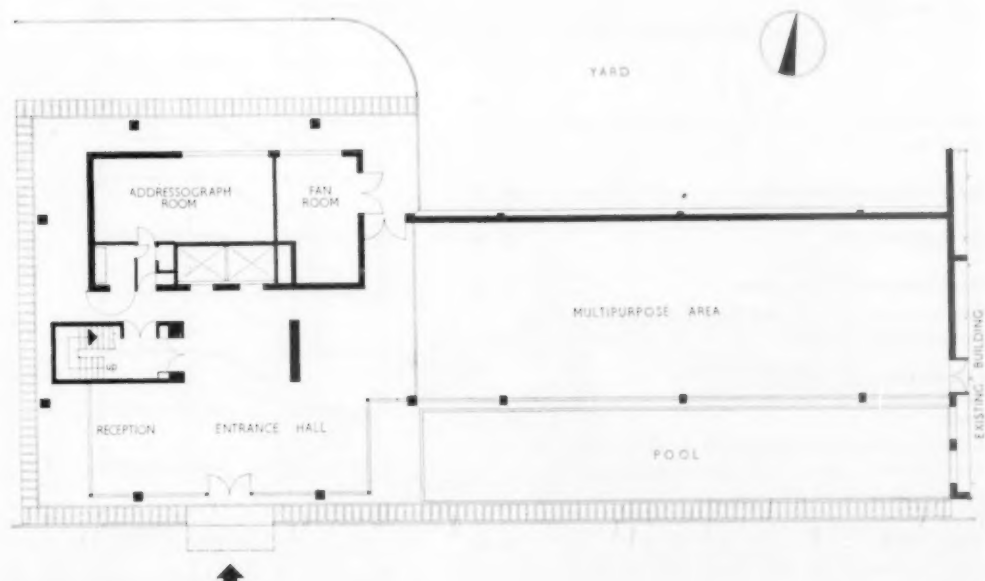
Typical upper floor plan



Plan of top floor



First floor plan



Ground floor plan [Scale: $\frac{1}{4}" = 1' 0"$]

building study—2nd series

CLIENT'S REQUIREMENTS

To provide 30,000 sq. ft. of office accommodation, centralising the firm's administration from the centre of London to the outskirts.

SITE

The site is between an existing two-storey office building and the western boundary in the south-western corner of the site, with main frontage to the North Circular Road. This gave a very small and cramped site owing to planning restrictions, site boundaries and an existing warehouse yard to the north.

PLANNING AIMS

Because the client firm works in a series of relatively small departmental groups of almost domestic scale, it appeared that the most logical solution to this problem was to arrange one department on top of the other, thus forming a series of departmental levels. It was decided to express these departmental levels sculpturally by setting the windows back from the external wall face.

SUMMARY

Ground floor area: 4,987 sq. ft.
Total floor area: 39,640 sq. ft.
Type of contract: RIBA Fixed Price
Tender date: October 1959.
Work began: November 1959.
Work finished: April 1961.
Tender price of foundation, superstructure, installation and finishes, including drainage to collecting manhole: £220,637 os. od.
Tender price of external works and ancillary buildings, including drainage beyond collecting manhole: £5,290 os. od.
Alterations to existing building: £2,450.
Total: £228,377 os. od.

COST ANALYSIS

	Cost per sq. ft.
	s d
Based on tender. (AJ revised elemental breakdown in use from November 10, 1960.)	
Preliminaries and insurances	4 1
Contingencies	2 6
Work below lowest floor finish	3 2
Reinforced concrete ground floor slab carried by 17 bored bell type piles.	
STRUCTURAL ELEMENTS	
Frame	10 9
Reinforced concrete columns and 80 per cent of the total cost of precast edge beams. Reinforced concrete walls to lift well.	
Upper floors	6 3
10-in. <i>in situ</i> coffered floor slabs; 3,336 sq. yds., 36s. od. per sq. yd.	
Roof	1 9
10-in. coffered floor slab. 3-layer built up felt roofing on 2-in. cement/sand screed; 565 sq. yds. 18s. 8d. per sq. yd.	



Entrance hall, with lift doors on right

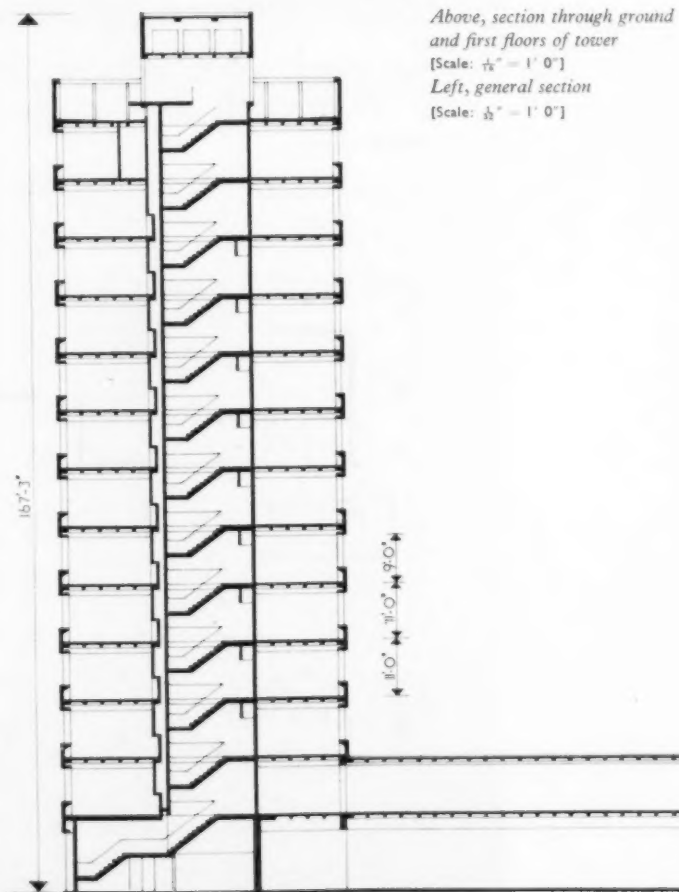


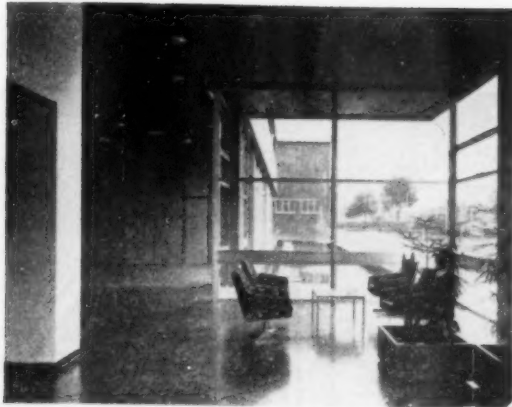
Above, section through ground and first floors of tower

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

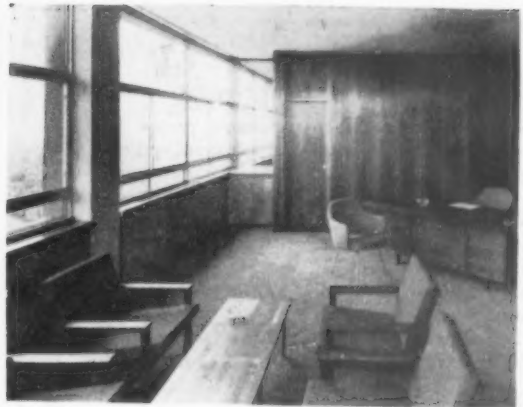
Left, general section

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



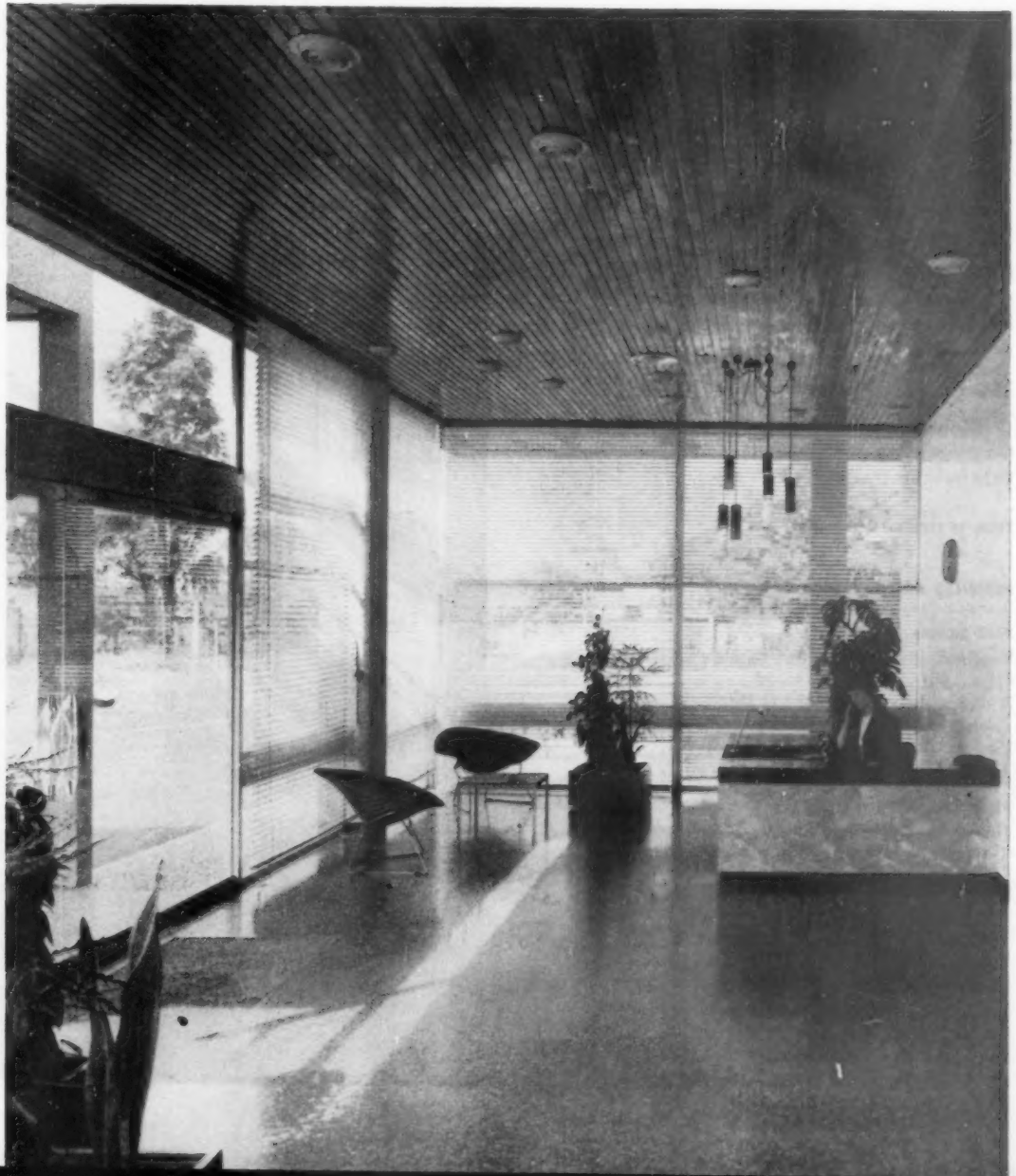


Entrance hall, looking towards multipurpose area in the link block



Director's office

Reception area in entrance hall



building study—2nd series**Staircases**

One 3 ft. 4 in. wide \times 136 ft. total rise.
6-in. *in situ* reinforced concrete ramp, precast
terrazzo tread units, mild steel balustrade and
hard wood handrail.

External walls

20 per cent of cost of precast edge beams (see also
Frame).
Uxbridge flint faced walls; 220 sq. yds. 32s. od.
per sq. yd.
Travertine marble fixed with bronze angles and
cramps; 1,794 sq. yds. 342s. od. per sq. yd.

Windows

Pre-glazed with 32 oz. clear sheet glass, horizontal
sliding aluminium sashes and fenestration to ground
floor link glazed with $\frac{1}{4}$ -in. Georgian wired polished
plate.
Fenestration: 1,750 sq. ft., 19s. 3d. per sq. ft.
2,754 ft. run of venetian blinds to all windows.

External doors

1 single with hardwood frame; 18 sq. ft.
1 pair double with hardwood frame; 31 sq. ft.
49 sq. ft., 17s. od. per sq. ft.

Partitions

3-in. block partitions to w.c. area; 1,450 sq. yds.,
14s. 11d. per sq. yd.
Synthetic resin laminated structural cavities
demountable partitions; 947 sq. yds., 171s. od. per
sq. yd.
10 metal faced plywood w.c. partition units:
£41 each.

Internal doors

Mahogany veneered doors in beech linings and
with beech architraves both sides.
48 single doors
27 double doors
Sliding screens to link area.
5,110 sq. ft., 9s. 6d. per sq. ft.

Ironmongery

Ogro furniture generally.

Total of structural elements: 52s 8½d

FINISHES AND FITTINGS**Wall finishes**

Veneered sill panelling 3 ft. 0 in. high to perimeter;
626 sq. yds., 45s. od. per sq. yd.
Walnut panelling to Board and Directors' rooms;
122 sq. yds., 360s. od. per sq. yd.
Plaster; 1,480 sq. yds., 6s. 9d. per sq. yd.
Tiling; 210 sq. yds., 40s. 7d. per sq. yd.

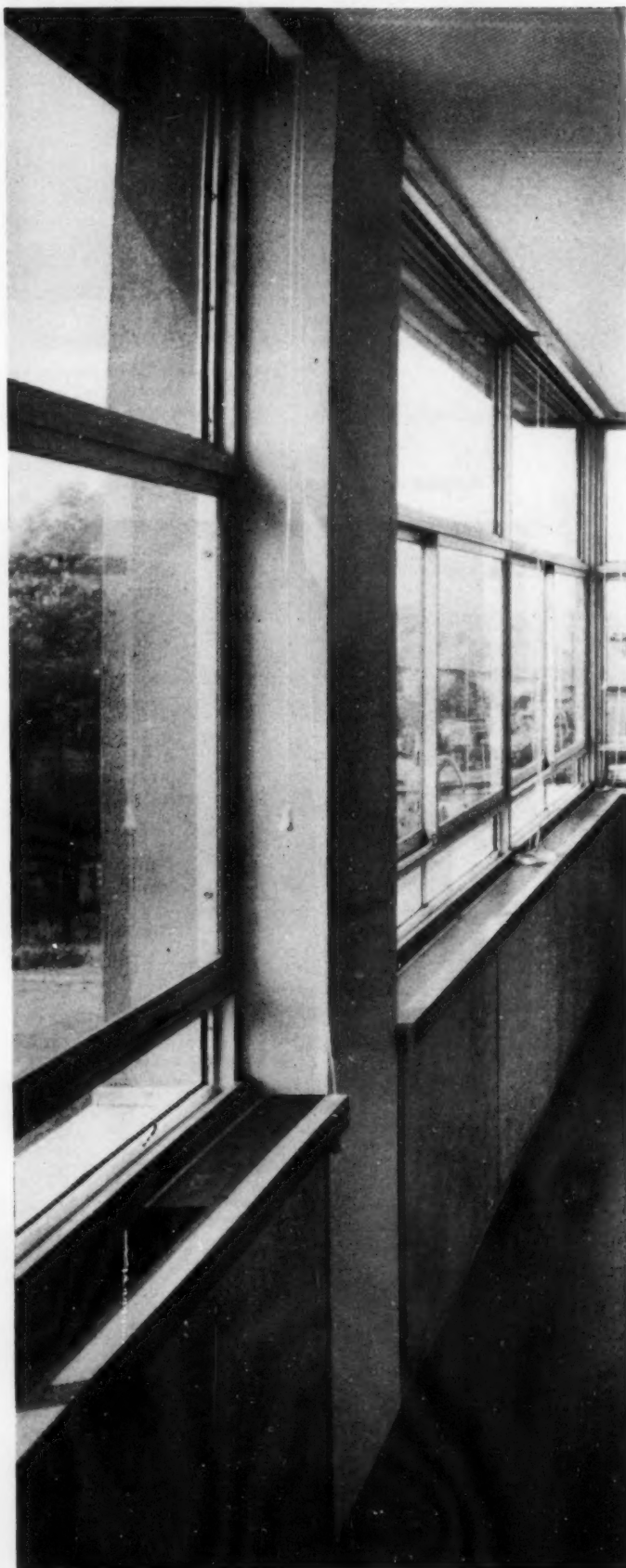
Floor finishes

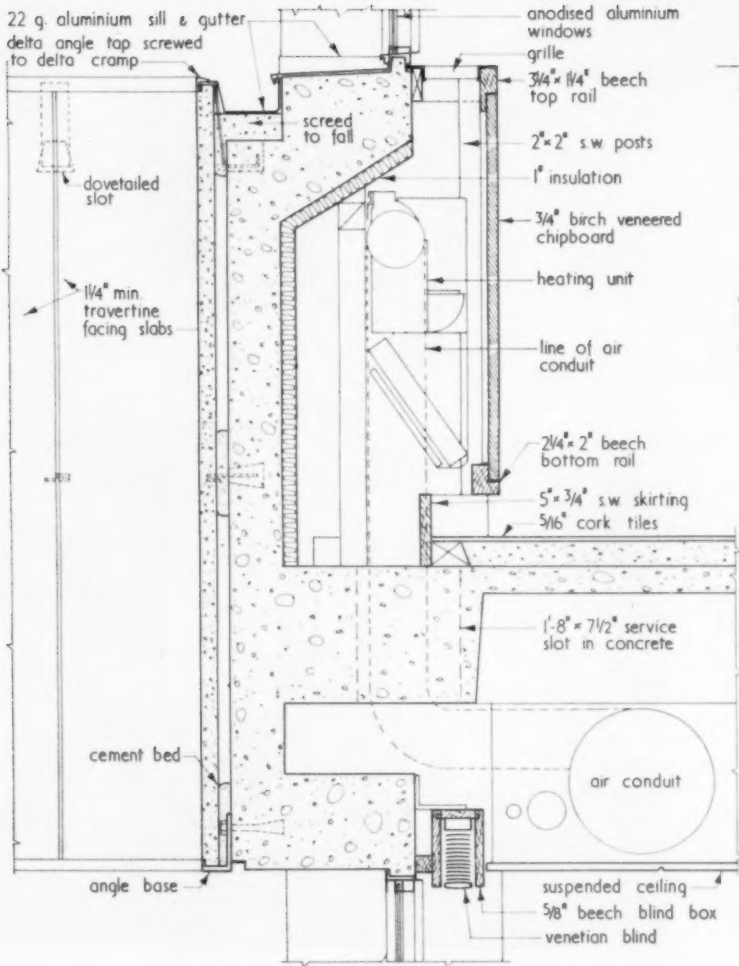
Granolithic paving; 76 sq. yds., 27s. 6d. per sq. yd.
Terrazzo tile paving; 690 sq. yds., 63s. od. per
sq. yd.
Cork tile paving and screed; 3,000 sq. yds.,
35s. od. per sq. yd.
Pvc skirting; 2,970 ft. run, 2s. 8d. per ft. run.

Ceiling finishes

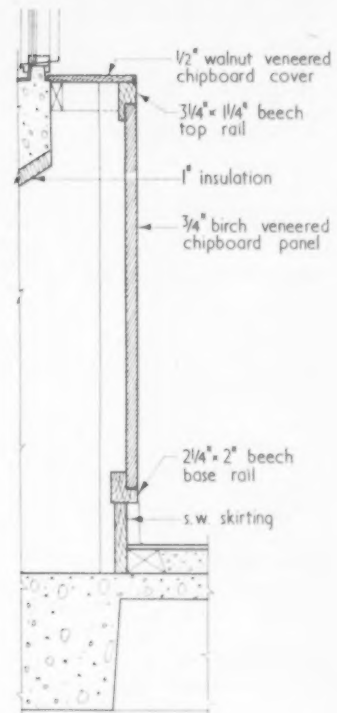
Mahogany strip soffit to ground floor; 420 sq. yds.,
54s. 1d. per sq. yd.
Suspended acoustic tile soffit; 3,120 sq. yds.,
47s. 6d. per sq. yd.

1 11 *Internal view of tower block windows*

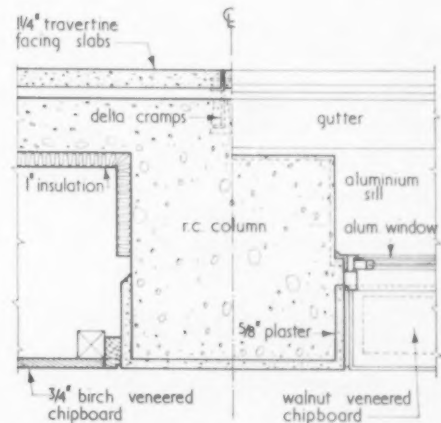




Typical section through sill and window head in tower block, showing air inlet [Scale: 1" = 1' 0"]

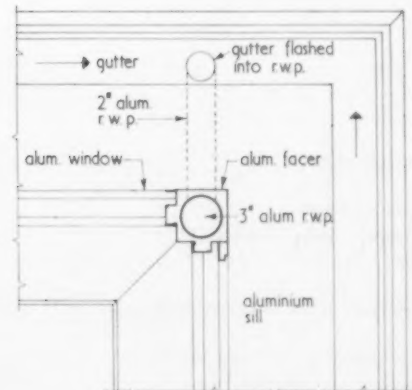
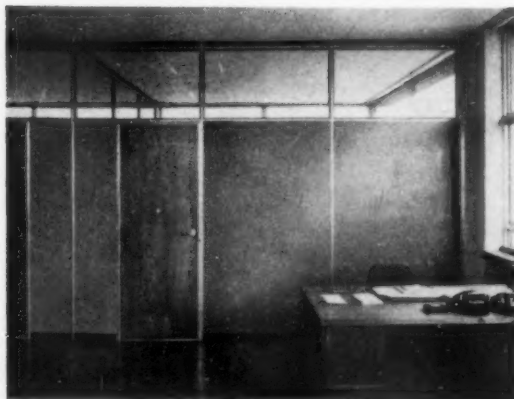


Alternative internal lining below sill



Plan above and below sill

Typical internal partitioning



Plan of windows at corner

building study—2nd series**Decorations**

Emulsion paint to walls and soffits.
Gloss enamel on hardwood.
3 coats of gloss paint to all softwood.

Fittings

Coat cupboards, reception desk, book benches and sundry shelving.

Total of finishes and fittings: 15s 6½d

SERVICES**Sanitary fittings**

Fittings in white glazed fireclay No. of each type

Wash basins	30
Low level w.c. suites	20
Wall-mounted urinals	10
Drinking fountains	10
Cleaners' combined sink and drainer	5

Waste, soil and overflow pipes

External drainage in cast iron.
Copper wastes.

Cold water services

Copper pipes and capillary fittings. 80 draw-off points.
Includes builders' work, 1d.

Hot water services

Domestic hot water supply to each w.c. by a multi-point water heater. 45 draw-off points.
Includes builders' work, 2½d.

Heating and ventilation services

Partial air conditioning exclusive of cooling.
Includes builders' work, 3½d.

Gas services

Gas carassing in copper only.
Includes builders' work, ½d.

Electric services

572 lighting outlets, with 96 switch points.
192 power outlets.
Total load, 100 kW.
Includes neon sign, 8½d., and builders' work, ½d.

Special services

Passenger lift with 2 cars to serve ground and 12 floors, 135 ft. 9 in. rise.
Goods hoist to service similar accommodation.
Chutes and ducts for letters, etc.
Includes builders' work, ½d.

Drainage

Stoneware and cast iron.
8 manholes to installation.

Total of services: 33s 4d

External works

Roadway, large pool and fountains, trees, flower beds and paving. Alterations to existing buildings.

Total cost per sq. ft. of floor area

£222,037 (net cost excluding alterations to existing building and external works)

39,640 sq. ft. (measured inside external walls)

1 6½ Lift lobby and staircase on a typical upper floor



1 5½

1 6

1 1

10 1

3

7 8½

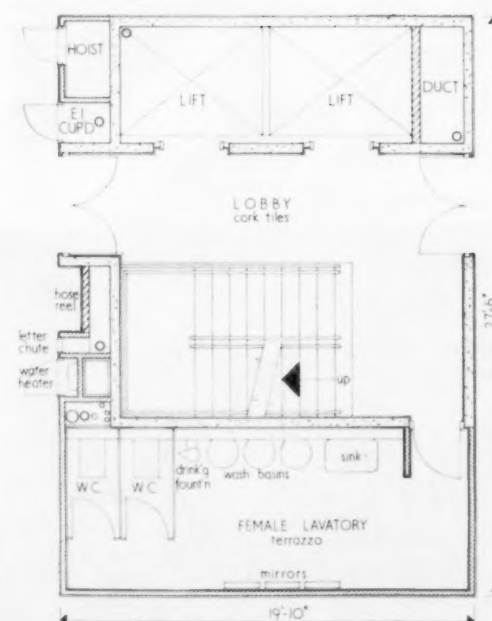
9 9

8½

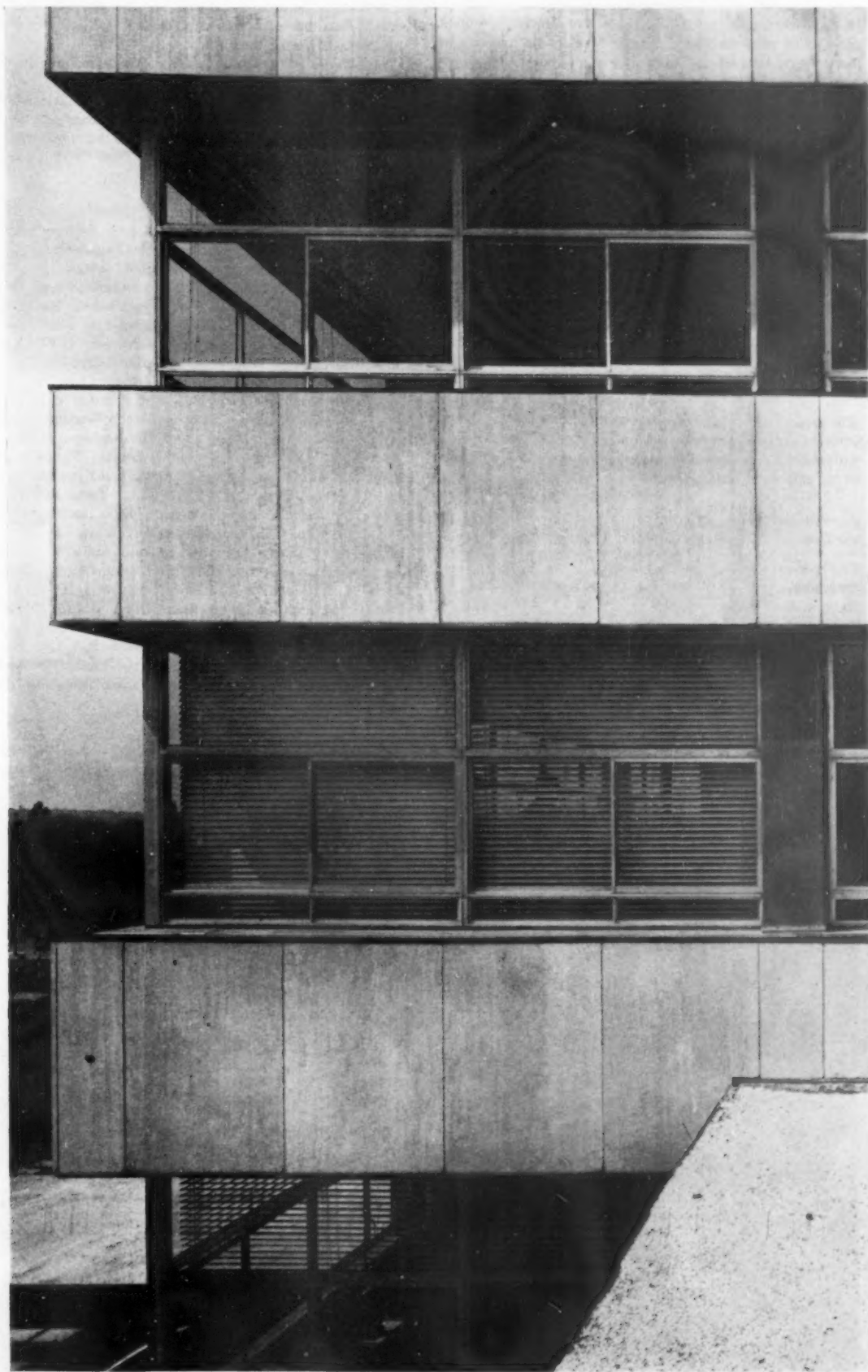
3 2½

111 4½

Plan of tower core



A gutter in each external sill carries off rainwater into downpipes which also act as corner mullions to windows



building study—2nd series

COST COMMENT

In the earlier stages of this series it was difficult to obtain analyses of office buildings, largely because the majority of the better examples are put up by developers who are reluctant to furnish costs. Two previous examples in the last twelve months, however, at Bournemouth (AJ October 13, 1960) and Coventry (AJ April 13, 1961), together with this analysis can provide a considerable amount of useful information for purposes of cost planning. The main breakdown of costs for the three jobs is as follows:

Group of elements	Neasden	Coventry	Bournemouth
Preliminaries, foundations, etc.	9s. 9½d.	7s. 11¼d.	9s. 10d.
Structure	52s. 8½d.	44s. 2½d.	39s. 4½d.
Fittings and finishes	15s. 5½d.	10s. 4½d.	17s. 5½d.
Services	33s. 4d.	35s. 5½d.	24s. 9½d.
Total net cost per sq. ft.	111s. 3½d.	98s. 0½d.	86s. 8½d.

The largest difference between the three buildings is in the external walls and windows. This can be explained by the variations in area, and in the average unit cost per square foot of the external cladding.

External walls and windows	Neasden	Coventry	Bournemouth
Cost per sq. ft. of floor area	26s. 7d.	19s. 10½d.	12s. 7d.
Ratio to floor area	0.88 : 1	0.71 : 1	0.56 : 1
Average unit cost per sq. ft.	30s. 3d.	27s. 11d.	22s. 6½d.

This second table shows quite clearly why Neasden is the most costly for this item, not only that the area of external

walling is relatively high (an inevitable result of the form of the building, due to site problems and the client's requirements), but that the materials chosen, particularly the travertine, are having their effect.

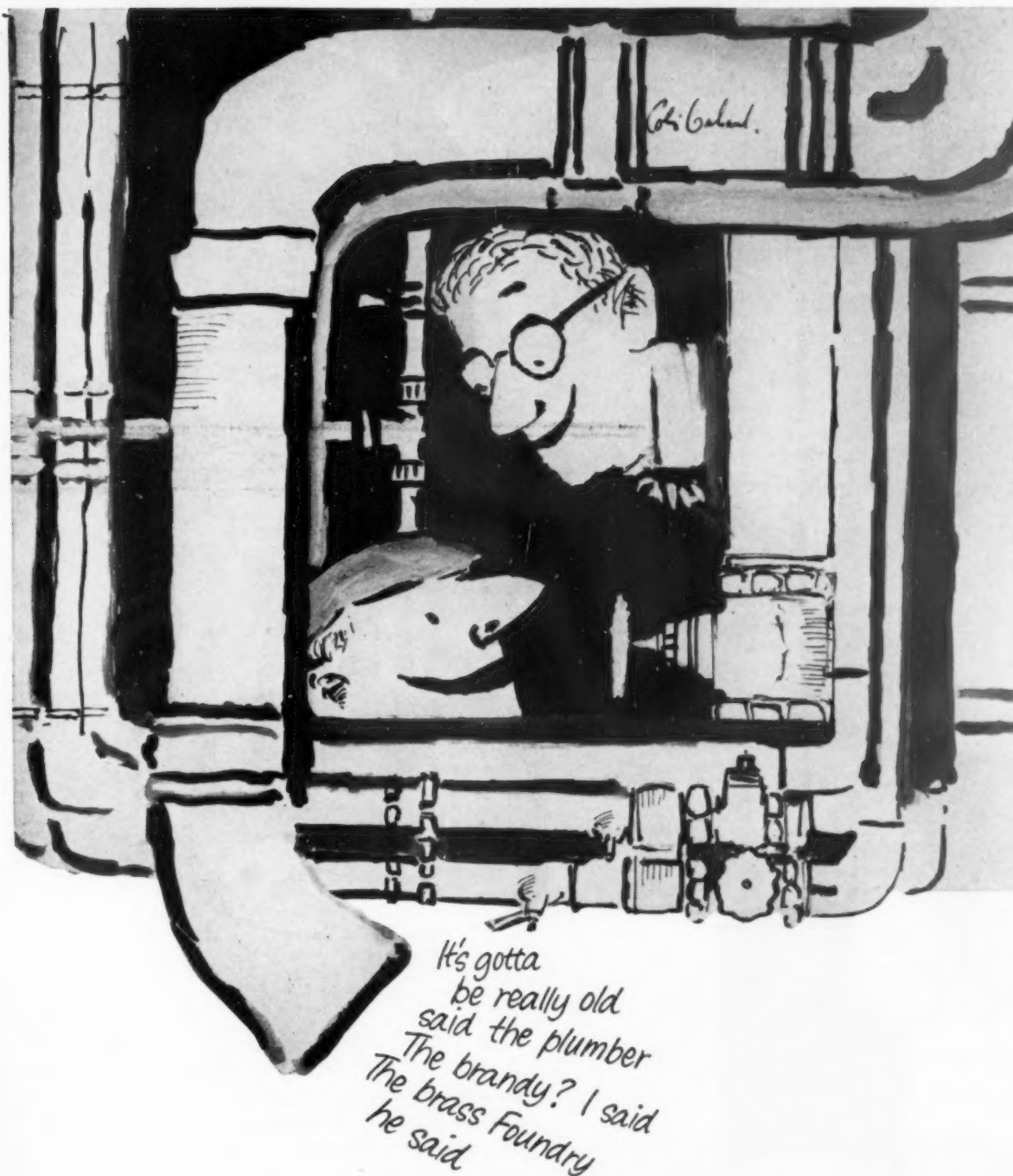
In this way, of course, each of the various elements can be compared. The other big difference that emerges between the three buildings is in services, that the Bournemouth offices are the only ones without lifts, which largely explains the saving in this group in comparison with the other two.

CONTRACTORS

General: Sir Robert McAlpine & Sons Ltd. *Sub-contractors and suppliers:* Foundations: Economic Foundations Ltd. Heating, ventilating, plumbing and water services: G. N. Haden & Sons Ltd. Sanitary fittings: Adamsez Ltd. and Alfred Goslett & Co. Ltd. Electrical installation: Electrical Installations Ltd. Ceilings: Clark & Fenn Ltd. Travertine: J. Whitehead & Sons Ltd. Lightning conductors: J. W. Gray & Son Ltd. Flues: True Flue Ltd. Sliding folding doors: Esavian Ltd. Demountable partitions: Holoplast Ltd. Internal telephones: Reliance Telephone Co. Ltd. External telephones: G.P.O. Windows: John Thompson Beacon Windows Ltd. Glazing (ground floor): Steele's Ltd. Ironmongery: H. & C. Davis & Co. Ltd. Venetian blinds: London Blinds Ltd. Roofing: Field & Palmer Ltd. Cork floors and pvc skirting: Acme Flooring & Paving Co. (1904) Ltd. Terrazzo: Alan Milne (Flooring) Ltd. Lighting fittings: Falk, Stadelmann & Co. Ltd., Thorne Electrical Industries Ltd. and Frederick Thomas & Co. Ltd. Neon sign: Neon Luminous Tubes (Lundsigns) Ltd. General signs: Millward Displays Ltd. Bronze: Delta Metal Co. Ltd. Paint: Murray & Jones Ltd., Vitretex (England) Ltd. and W. & J. Leigh Ltd. Kitchen equipment: Radiation (Large Cooking Equipment) Ltd. Clocks: Gent & Co. Ltd. Lifts: Express Lift Co. Ltd. Landscaping: Greensward (Contracts) Ltd. Furnishing (general offices): Conran. Furnishing (directors' offices): Heal's Contracts Ltd.

Distant, but unfortunately a now typical distant, view of tower block





“Stands to reason, said the plumber, when a foundry’s been going for seventy or eighty years, they got some valuable experience. Yes, I said. You know the stuff they produce is going to be absolutely top-quality, he said. You do, I said. Of course, just because they’re old-established, it doesn’t mean they close their eyes to new ideas, he said. Course not, I said. Well, name me a

ASTON

part of the V

foundry that's been going more than eighty years, he said. Aston Brass, I said. Oh, yes, he said, those words are music to me—like a sort of plumber's mating call. ♫ To put it simply Aston pillar taps, drum taps, wastes, mixers and ball valves are the finest brass fittings of all. Ask us to call, or to send you details. There's something solid about Aston Brass.



part of the Valor organisation

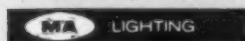
Aston Brass Co., Bromford, Erdington, Birmingham 24 Erdington 6151



Drum series. A range of 25 pendant, wall and ceiling units, from 5" to 15" in diameter, available in 6 colours.

Its salient feature is the translucent opal precision moulded louvre.

Designed by Paul Boissevain.



Merchant Adventurers Limited

Feltham, Middlesex. Telephone FEL 3686

Full information is given in publication D 4

SfB/UDC Main Tables

SfB	Aa1
UDC	025.4

On September 17 1959 we published the original English version of the SfB classification. This version was prepared by Dargan Bullivant (who at that time was an AJ Research Fellow) and has since been accepted by the RIBA. Since that date SfB has been increasingly accepted by the British building industry. Meanwhile the system has undergone some modification, so a corrected version of the tables has been prepared—again by Dargan Bullivant, acting this time on behalf of the RIBA—and will be published by the RIBA shortly. It is entitled "SfB/UDC Building Filing Manual" and will cost £1 16s. Readers are advised to order their copies immediately.

We begin the publication of our Functional Element Files next week, and as we are hoping that this will encourage readers to start their own personal SfB library, we publish here the corrected version of the SfB tables. See also page 439.

Functional Elements

Headings marked * have been found to be necessary but will not be considered to be authoritative until the tables are reviewed in four years' time.

(1)	External Elements: General	
(11)	Ground: General	
(11)	Ground: moulds, hollows, tunnels, ducts	
(12) 696.13	Drainage: General	
(12)	Drainage: Manholes	Below ground installations, gulleys, traps, interceptors Inspection chambers, covers, etc.
(13) 69.022.2	Retaining structures	Walls below ground generally, retaining, foundation, base- ment walls
(14) 625.8	Roads and Pavings: General	
(14)	Roads and pavings: Brick, flags	Clay bricks, precast concrete and stone flags
(14)	Roads and pavings: Concrete	In-situ concrete
(14)	Roads and pavings: Asphalt, tarmacadam	Including all varieties
(14)	Roads and pavings: Hoggins, gravel	Including water-bound macadam crushed stone, and surface dressing with binder and aggregates
(14)	Roads and pavings: Trim	Kerbs, edgings, steps
(15) 712.4/.6	Garden: General	(For landscape design and types of landscape spaces see Ac5, Ac6)
(15)	Garden: Soil, cultivation	
(15)	Garden: Grass, plants, trees	
(15)	Garden: Ponds, pools	Fountains
(15)	Garden: Fences, gates, walls	
(16) 624.15/.18	Foundations: General	
(17)	Foundations: Piles	
(18)	Foundations: Footings	
(19)	Foundations: Other substructures	Including foundations under water, coffer dams, caissons
(19)	Foundations: Under-pinning, etc.	Including all means of strengthening foundations
(19)	Foundations: Abutments	Piers, etc.
(19)	Foundations: Protective works	Special works and improvements in mountainous country
(2) 629.4	Primary Elements: General	
(2)Eq4	Structures: Concrete, heavy in-situ	Complete structural systems cast on site of normal concrete
(2)Eq6	Structures: Concrete, lightweight in-situ	Complete structural systems cast on site of concrete using lightweight aggregates or aerating techniques
*(2)Gd	Structures: Structural units, metal	
(2)Gf2	Structures: Structural units, concrete, heavy	Complete structural systems of precast units, such as columns, beams
(2)Gf4	Structures: Structural units, concrete, light- weight	Complete structural systems of precast units, such as columns, beams
(2)Gi1	Structures: Structural units, wood	Complete structural systems of fabricated wooden units, laminated columns, box beams, etc.
(2)Hd2	Structures: Sections, steel	Complete structural systems of steel sections, rolled or framed
(2)Hi1	Structures: Sections, wood	Complete structural systems of simple wooden sections
(20) 691.88	Accessories: Structural Fixings	Nails, screws, bolts, timber connectors
(21) 69.022.1/.4	Walls: General	
(21)	Walls: External loadbearing: General	
(21)	Walls: External, non-loadbearing: General	Panel walls, storey-height spanning between structural members
(21)	Walls: External, non-loadbearing: Curtain walls	Complete systems of external cladding
(21)	Walls: Internal load-bearing: General	Cross walls
(21)	Walls: Ducts, vertical	As formed in walls and by walls
(22) 69.022.5	Partitions: General	
(22)	Partitions: Blocks	Complete partitions made of blocks
(22)	Partitions: Large panel	Complete partitions of large units, chiefly storey-height

(23)	69.025	Floors, Structural: General	
(23)		Floors, ground: General	<i>Complete, including hardcore and damp-proof membrane</i>
(23)		Floors, structural: General	
(23)		Floors, structural: Galleries	
(23)Eq4		Floors, structural: Cast in-situ concrete	<i>Complete floors cast in situ, including blocks if subsidiary parts</i>
(23)Gd2		Floors, structural: Structural units, steel	<i>Complete floors of steel units, deckings, etc.</i>
(23)Gf		Floors, structural: Structural units, concrete	<i>Complete floors of precast units, slabs, beams, troughs, etc.</i>
(23)Gi1		Floors, structural: Structural units, wood	<i>Complete floors of prefabricated units, beams, troughs, boxes, etc.</i>
(23)Hi1		Floors, structural: Sections, wood	<i>Complete floors of simple wooden sections</i>
(23)I		Floors, structural: Ducts	<i>As formed in floors by cores, cutting out or special units, troughs or trays, etc.</i>
(24)	69.026.1	Stairs and Ramps: General	
(24)		Stairs: Structural units	<i>Complete stairs of prefabricated units</i>
(24)		Stairs: Prefabricated assemblies	<i>Complete stairs of assembled parts</i>
(25)	69.025.4	Ceilings, Suspended: General	
(25)		Ceilings, suspended: Suspension system	<i>Complete ceiling systems for general purposes</i>
(25)		Ceilings, suspended: Acoustic	<i>Complete ceiling systems, especially for acoustic purposes</i>
(25)		Ceilings, suspended: Illuminating	<i>Complete ceiling systems, especially for lighting purposes</i>
(25)		Ceilings, suspended: Fire-resisting	<i>Complete ceiling systems, especially for fire resistance</i>
(25)		Ceilings, suspended: Thermal insulating	<i>Complete ceiling systems, especially for thermal insulation</i>
(26)	69.024.3	Roofs, Structural, Flat: General	
(26)		Roofs, structural, flat: Structural units	<i>Complete structural roofs</i>
(26)		Roofs, structural, flat: Balconies	
(27)	69.024.2	Roofs, Structural, Pitched: General	
(27)		Roofs, structural, pitched: Structural units	<i>Complete roofs of structural units</i>
(27)		Roofs, structural, pitched: Shells	
(28)		Elements above Roof: General	<i>Tank and lift houses, cupolas, etc.</i>
(3)		Secondary Elements: General	
(30)	682.5/.6	Accessories, Ironmongery: General	<i>The following divisions are only examples, which can be added to (for structural fixing accessories see (20))</i>
(30)		Accessories: Weather-proofing	<i>Weather-strips, cords and special excluders</i>
(30)		Ironmongery: Windows	<i>Handles</i>
(30)		Ironmongery: Doors	<i>Handles</i>
(30)		Ironmongery: Furniture	<i>Special items suitable for furniture</i>
(30)		Ironmongery: Locks	
(30)		Ironmongery: Checks and closers	
(30)		Ironmongery: Hinges and springs	
(30)		Ironmongery: Sliding gear	
(30)		Ironmongery: Lifting gear	
(31)	69.028.2	Windows: General	<i>The following divisions are only examples, which can be added to</i>
(31)		Windows: Pivoting	
(31)		Windows: Sliding	
(31)		Windows, sections: Metal	
(31)		Windows, sections: Wool	
(32)	69.028.1	Doors: General	<i>The following divisions are only examples, which can be added to</i>
(32)		Doors: Overhead	
(32)		Doors: Sliding and folding	
(32)		Doors: Protecting	<i>Fire-resisting and safe doors</i>
(32)		Doors: Metal	
(32)		Doors: Wood	
(33)	69.025.28	Floors: General	<i>The following divisions are only examples, which can be added to</i>
(33)		Floors: Machine foundations	
(33)		Floors: Trap doors, covers	
(34)	69.026.33	Handrails and Balustrades: General	
(35)	69.028.3	Screens, Louvres: General	<i>Special screens, for privacy, sun-control, etc.</i>
(36)	69.024.98	Pavement lights: General	
(37)	69.024.9	Roof-lights and Traps: General	<i>The following divisions are only examples, which can be added to</i>

(37)		Roof-lights: Lantern	
(37)		Roof-lights: Dormers	
(38)	696.121	Roof Eaves, Verges, Gutters, Rails: General	<i>The following divisions are only examples, which can be added to</i>
(38)		Roof drains, water heads, outlets	
(38)		Roof canopies	
(38)		Roof gangways, snow rails	
(4)		Finishes	<i>This section should be reserved for the finishes of buildings, their comparison, function and maintenance. NOTE: products used to provide a finish, sometimes on different elements, should be referred to appropriate sections, e.g., P, S, T, U</i>
(40)		Finishes, Accessories	
(41)		Finishes, External: General	<i>The following divisions are only examples, which can be subdivided by material</i>
(41)P		Finishes, external: Plaster, rendering	
(41)S		Finishes, external: Tiles	
(41)U		Finishes, external: Claddings	
(42)		Finishes, Internal: General	
(43)	69.025.3	Finishes, Floor: General	<i>The following divisions are only examples, which can be added to Including granolithic</i>
(43)E		Finishes, floor: Concrete	
(43)H		Finishes, floor: Strip	
(43)S		Finishes, floor: Tiles	
(43)T		Finishes, floor: Blocks, jointless, sheet	
(44)	69.026.35	Finishes, Stair: General	
(45)		Finishes, Sills, Skirtings, Cover Strips	
(46)		Finishes: Flat Roofs	
(47)	69.024.15	Finishes, Roof: General	<i>The following divisions are only examples, which can be added to</i>
(47)Lu		Finishes, roof: Felts, bituminous	
(47)Ls		Finishes, roof: Bituminous, asphalt	
(47)Md		Finishes, roof: Sheet metal	
(47)N		Finishes, roof: Tiles and slates	
(47)Nd		Finishes, roof: Tiles and sheets, metal	
(47)Nh		Finishes, roof: Tiles and sheets, asbestos cement	
(47)Ni		Finishes, roof: Wood shingles	
(48)Md		Finishes, roof: Metal flashings	
(5)		Services, Installations, Sanitation, Heating, Ventilation: General	<i>This section should be reserved for design and constructional aspects of installations and the appropriate appliances and equipment (for theoretical aspects see Ab8)</i>
(50)	621.6	Installations, Accessories: General	
(51)	696.139	Installations, Refuse Disposal: General	<i>Bins, incinerators, Garchey system, refuse chutes</i>
(52)	696.122	Installations, Drainage and Sanitation: General	<i>Systems of waste, soil and ventilating pipes, prefabricated units and equipment (for basins, baths, w.c.s, see (74))</i>
(52)		Installations, Drainage: Rainwater	
(52)		Installations, sanitation: Waste, soil	<i>Special waste pipe systems</i>
(52)		Installations, sanitation: Gulleys, traps	
(53)	696.11	Installations, Water: General	<i>Systems of supply and distribution, appliances and equipment (for theoretical aspects, see Ab6)</i>
(53)		Installations, water: Cisterns, tanks, cylinders	<i>Storage units for hot and cold water</i>
(53)	696.4	Installations, Hot Water: General	<i>Systems of supply and distribution, appliances and equipment</i>
(53)		Installations, hot water: Heaters	<i>Local systems, circulators, geysers, immersion heaters</i>
(54)	696.2/.5	Installations, Gas, Compressed Air, Steam, Refrigeration: General	<i>Systems of supply and distribution, appliances and equipment</i>
(54)		Installations, gas: Fittings	
(54)		Installations, compressed air: General	

- (54) Installations, refrigeration: General
(54) Installations, steam: General
(56) 697.2/.8 **Installations, Heating: General** *Systems of supply and distribution, appliances and equipment
The following divisions are only examples, which can be added to*
- (56) Installations, heating: Equipment: General
(56) Installations, heating: Fires, stoves
(56) Installations, heating: Boilers, burners
(56) Installations, heating: Radiators, convectors, unit heaters
- (57) 697.9 **Installations, Ventilation, Air-conditioning: General** *Systems of supply and distribution, appliances and equipment
The following divisions are only examples, which can be added to*
- (57) Installations, ventilation, air-conditioning: Equipment
(57) Installations, ventilation, air-conditioning: Ducts
(57) Installations, ventilation, air-conditioning: Fans, extractors
(57) Installations, ventilation, air-conditioning: Filters
(57) Installations, ventilation, air-conditioning: Grilles
- (6) **Services, Installations: Electrical and Mechanical: General** *This section should be reserved for design and constructional aspects of installation and the appropriate appliances and equipment (for theoretical aspects see Ab2)
The following divisions are only examples, which can be added to*
- (60) 621.315 **Electrical Accessories: General**
(60) Electrical accessories: Conduit
(60) Electrical accessories: Cables, wires
(60) Electrical accessories: Switches
(60) Electrical accessories: Outlets
(60) Electrical accessories: Distribution boards
- (63) 696.6 **Installations, Electrical: Lighting and Power: General** *Systems of supply and distribution, and general purpose lighting and power equipment
Fittings and lamps*
(63) Installations, electrical: Lighting equipment
- (64) 621.39 **Installations, Communications: General** *The following divisions are only examples, which can be added to*
(64) Installations, communications: Telephonic
(64) Installations, communications: Visual
(64) Installations, communications: Audio
(64) Installations, communications: Radio, TV
(64) Installations, communications: Clock
- (66) 69.026.6/.7 **Installations, Mechanical: General** *Aspects concerned with the installation of equipment in buildings (for mechanical details and theoretical aspects, see Ab2)*
(66) Installations, mechanical: Lifts
(66) Installations, mechanical: Escalators, hoists
- (68) **Installations, Special: General** *Pneumatic tubes, vacuum cleaning systems, etc.
Burglar alarms
Extinguishing installations, warning systems, detecting systems*
(68) Installations, special: Security
(68) Installations, special: Fire fighting
(68) Installations, special: Lightning protection
- (7) 645.1/.5 **General Spaces: Fixtures and Equipment** *This section should be reserved for space planning data and the appropriate appliances and equipment for spaces generally found in all buildings*
- (70) **Accessories: General Spaces**
- (71) 643.563 **Entrances, Fixtures and Equipment: General** *Mats, foot-scrapers, signs, lettering, etc.*
- (72) 643.4/.5 **Rooms, Fixtures and Equipment: General** *Shelves, cupboards, curtain tracks, shutters, tables, chairs, blinds*
- (73) 643.3 **Kitchens, Fixtures and Equipment: General** *The following divisions are only examples, which can be added to*
(73) Kitchens, fixtures and equipment: Cookers
(73) Kitchens, fixtures and equipment: Sinks, washers
(73) Kitchens, fixtures and equipment: Refrigerators
(73) Kitchens, fixtures and equipment: Cupboards
*Ovens, grilling units, boiling rings
Washing-up machines
Deep-freezers*

- (73) Kitchens, fixtures and equipment: Heated cabinets
- (73) Kitchens, fixtures and equipment: Ventilators, fans
- (74) 643.52 **Cloakrooms, Bathrooms, Lavatories, Fixtures and Equipment: General** *The following divisions are only examples, which can be added to*
- (74) Cloakrooms, fixtures and equipment:
Hangers, lockers
- (74) Lavatories, fixtures and equipment: w.c.s, urinals
- (74) Lavatories, fixtures and equipment: Basins
- (74) Lavatories, fixtures and equipment: Baths, showers
- (75) 648 **Laundries, Fixtures and Equipment: General** *The following divisions are only examples, which can be added to*
- (75) Laundries, fixtures and equipment: Wash appliances
- (75) Laundries, fixtures and equipment: Dryers
- (75) Laundries, fixtures and equipment: Ironers
- (76) **Stores, Cupboards, Fixtures and Equipment: General** *General equipment, such as storage shelves*
- (76) Stores, cupboards, fixtures and equipment:
Fuel
- (77) **Plant, Fixtures and Equipment: General**
- (77) Garages, fixtures and equipment
- (77) Cycle parks, fixtures and equipment
- (77) Boiler rooms, fixtures and equipment
- (78) **External Fixtures and Equipment: General** *Seats, screens, sandpits*
- (8) **Special Spaces, Fixtures and Equipment: General** *This section should be reserved for planning data and the appropriate appliances and equipment for special spaces in buildings which relate to the special function of the building*
- (81) **Spaces, Fixtures: Engineering Works, Agricultural Buildings**
- (82) **Spaces, Fixtures: Civic, Administrative, Commercial and Office Buildings**
- (83) **Spaces, Fixtures: Transport and Industrial Buildings**
- (84) **Spaces, Fixtures: Health and Welfare Buildings**
- (85) **Spaces, Fixtures: Refreshment, Entertainment and Recreation Buildings**
- (86) **Spaces, Fixtures: Ecclesiastical Buildings**
- (87) **Spaces, Fixtures: Educational, Scientific and Cultural Buildings**
- (88) **Spaces, Fixtures: Residential Buildings**
- (9) **Buildings: General**
- (91) **Engineering Works and Agricultural Buildings: General**
- (91) 621.311 Power stations *All stations for power generation: steam, hydro-electric, atomic*
- (91) 624.19 Tunnels *Mountain, underground, underwater, culverts, canal tunnels*
- (91) 624.2 Bridges: General *Including parts of bridges, walls, arches, girders, docks*
- (91) 624.9 Large-span roof structures
- (91) 624.95 Bulk goods containers
- (91) 624.97 Towers, masts, pylons: General
- (91) 625.1 Railways: General
- (91) 625.3 Special types of railways, undergrounds, tramways
- (91) 625.7 Roads: General
- (91) 625.711.3 Motorways *(For road engineering, see Ab5)*
- (91) 625.9 Ropeways and cableways
- (91) 626 Hydraulic construction works: General
- (91) 626.1 Canals

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|-------------|-----------|--|--|
| (91) | 626.4 | Locks | |
| (91) | 626.8 | Irrigation | |
| (91) | 626.86 | Drainage, reclamation of marshes | |
| (91) | 627.2 | Harbour works | <i>Ports, roadsteads, coast works, marine works</i> |
| (91) | 627.5 | Dykes, polders, land reclamation | <i>Protection against flooding and against wind and waves</i> |
| (91) | 627.8 | Dams, reservoirs | <i>Water engineering works for power stations</i> |
| (91) | 627.9 | Lighthouses | <i>Signals, buoys</i> |
| (91) | 628.1 | Waterworks | <i>Wells, pumping stations, conduits, aqueducts</i> |
| (91) | 628.13 | Water towers | <i>Reservoirs</i> |
| (91) | 628.3 | Sewage works | |
| (91) | 628.4 | Refuse disposal stations | |
| (91) | 629.128 | Docks | <i>(For shipyard buildings, see (93))</i> |
| (91) | 629.139 | Airports | <i>(For airport buildings, see (93))</i> |
| (91) | 631.2 | Agricultural buildings: General | |
| (91) | 631.2 | Farms | |
| (91) | 631.2 | Animal houses | |
| (91) | 631.2 | Agricultural stores | |
| (91) | 637 | Dairies, slaughterhouses | |
| (92) | 725.1/.2 | Civic, Administrative, Public, Commercial and Office Buildings: General | <i>National and international legislative or educational bodies, e.g., UNESCO</i> |
| (92) | 725.11 | Parliament buildings, capitols | |
| (92) | 725.12 | Ministries, government buildings | <i>Embassies, legations, consulates</i> |
| (92) | 725.13 | Administrative buildings | <i>County, city and town halls, civic centres, headquarters</i> |
| (92) | 725.14 | Revenue buildings | <i>Customs houses, mints</i> |
| (92) | 725.15 | Judicative buildings | <i>Law courts, tribunals, record offices, archives</i> |
| (92) | 725.16 | Post, telegraph and telephone buildings | <i>Offices, exchanges, call boxes</i> |
| (92) | 725.17 | Royal, presidential, official residences | |
| (92) | 725.18 | Military and police buildings | <i>Barracks, depots, police stations</i> |
| (92) | 725.19 | Public service buildings | <i>Waterworks, mortuaries</i> |
| (92) | 725.191 | Fire stations | |
| (92) | 725.2 | Commercial and office buildings: General | |
| (92) | 725.21 | Shops | <i>Showrooms, department stores</i> |
| (92) | 725.22 | Shops and flats or offices | <i>Mixed buildings</i> |
| (92) | 725.23 | Offices | |
| (92) | 725.24 | Banks | |
| (92) | 725.25 | Exchange buildings | <i>Stock exchanges, chambers of commerce</i> |
| (92) | 725.26 | Market halls | <i>Shopping arcades</i> |
| (92) | 725.24 | Livestock markets | |
| (92) | 725.28 | Slaughterhouses | |
| (92) | 725.29 | Other trade buildings | |
| (93) | 725.3/.4 | Transport and Industrial Buildings: General | |
| (93) | 725.31 | Railway station buildings | |
| (93) | 725.32 | Goods stations | |
| (93) | 725.33 | Other railway buildings | <i>Repair shops, sheds</i> |
| (93) | 725.34 | Marine and waterside buildings | <i>Port and harbour buildings, lighthouses, boat houses</i> |
| (93) | 725.35 | Warehouses | <i>Cold storage buildings, depots</i> |
| (93) | 725.36 | Silos, grain elevators | |
| (93) | 725.38 | Garages, service stations | <i>Filling pump installations, bus and tramway garages, vehicle showrooms, car-parking systems</i> |
| (93) | 725.39 | Airport buildings | <i>Hangars, offices, workshops, terminals</i> |
| (93) | 725.4 | Industrial buildings: General | <i>Factories, mills, works</i> |
| (93) | 725.41 | Factory buildings, installations, services | |
| (93) | 725.42 | Heavy industry works | <i>Mines, quarries, lumber, oil-processing, lime, cement, concrete works</i> |
| (93) | 725.43 | Engineering and construction works | <i>Workshops, shipyards, aircraft construction works</i> |
| (93) | 725.44 | Chemical and allied industry works | <i>Glass, paint, rubber, plastic, gas, heavy chemical works</i> |
| (93) | 725.45 | Food and agricultural produce works | <i>Dairies, breweries, bakeries, tobacco, sugar, preserve works</i> |
| (93) | 725.46 | Other factories, mills, etc. | <i>Textiles, instruments, hardware, furniture, leather goods, stationery works</i> |
| (93) | 725.48 | Craft industry and consumer service works | <i>Laundries, forges, gunsmiths, upholsterers, cobblers, bookbinders, tailors</i> |
| (94) | 725.5 | Health and Welfare Buildings: General | <i>Treatment centres, pharmacies, health centres</i> |
| (94) | 725.511 | General hospitals | |
| (94) | 725.512 | Clinics, dispensaries, surgeries | |
| (94) | 725.512.3 | Practitioners' surgeries | |
| (94) | 725.513 | Nursing homes | |
| (94) | 725.514 | Convalescent homes | |
| (94) | 725.515 | Sanatoria | <i>For incurables, infectious diseases</i> |
| (94) | 725.52 | Mental hospitals | |
| (94) | 725.54 | Homes for the physically handicapped | <i>For the blind, deaf-dumb</i> |
| (94) | 725.56 | Homes for the aged | |
| (94) | 725.57 | Child welfare buildings | <i>Homes, creches, day nurseries</i> |
| (94) | 725.59 | Other hospices and institutions | <i>Hydropathic, veterinary establishments</i> |
| (94) | 725.6 | Prisons, reformatories | |

- 95) 725.7/.8 Refreshment, Entertainment and Recreation Buildings: General**
- (95) 725.71 Restaurants, cafés *Snack bars, milk bars, coffee bars, cafeterias, dining halls, refectories, canteens*
- (95) 725.72 Public houses, bars *Pithead baths*
- (95) 725.73 Baths, thermal and medicinal *Bathing huts, diving platforms and structures*
- (95) 725.74 Swimming baths, covered and open-air *Casinos, kursaals*
- (95) 725.75 Holiday buildings *Bandstands, conservatories, winter gardens*
- (95) 725.76 Park and garden buildings
- (95) 725.8 Entertainment and recreation buildings: General
- (95) 725.81 Concert halls *Halls, salons; audition, music practice rooms*
- (95) 725.82 Theatres
- (95) 725.821 Opera houses
- (95) 725.823 Dance halls
- (95) 725.824 Cinemas
- (95) 725.826 Amphitheatres, stadia
- (95) 725.83 Assembly buildings *Congress halls*
- (95) 725.835 Village halls, community centres
- (95) Sports buildings: General
- (95) 725.84 Buildings for indoor games *Sports centres and groups of buildings*
- (95) 725.85 Gymnasias, covered courts *Billiards saloons, skittle alleys*
- (95) 725.86 Rinks and racing tracks *Tennis, badminton, fives, squash courts*
- (95) 725.87 Buildings for yachting and boating
- (95) 725.88 Riding schools *Boat houses*
- (95) 725.89 Other recreation buildings *Shooting ranges, race-courses, grandstands, sports pavilions*
- (95) 725.9 Various civil buildings: General
- (95) 725.91 Exhibition buildings, fairs *Comprehensive layouts, buildings and stands*
- (95) 725.94 Monuments and other free-standing features *Arches, shelters, clock and bell towers, fountains*
- (95) 725.96 City and town gateways and walls *Gateways, barbicans, ramparts*
- (95) 725.98 Large underground halls or spaces
- (96) 726 Ecclesiastical Buildings: General**
- (96) 726.1 Temples
- (96) 726.2 Mosques
- (96) 726.3 Synagogues
- (96) 726.5 Churches, chapels, church halls
- (96) 726.6 Cathedrals
- (96) 726.7 Monasteries, abbeys, priories, convents
- (96) 726.8 Funerary architecture *Memorials, tombs, mausoleums, crematoria*
- (96) 726.9 Other religious buildings *Parsonages, episcopal palaces, tithe barns*
- (97) 727 Educational, Scientific and Cultural Buildings: General**
- (97) 727.1 Primary schools *Infant, junior, elementary*
- (97) 727.2 Secondary schools *High schools, comprehensive schools, boarding schools*
- (97) 727.3 Universities, colleges *Departmental buildings, and non-teaching buildings such as unions, administration (for halls of residence see (98))*
- (97) 727.4 Technical, vocational, professional training colleges *Art, technical, commercial colleges, academies, conservatories*
- (97) 727.5 Scientific and professional societies
- (97) 727.56 Laboratories *School, university, research stations*
- (97) 727.6 Zoological and botanical garden buildings *Animal houses, temperate and tropical houses, aquariums, herbaria*
- (97) 727.7 Museums and art galleries *Science, natural history museums, sculpture and picture galleries*
- (97) 727.8 Libraries *Public school, college, university libraries*
- (97) 727.9 Other scientific buildings *Observatories, planetaria, seismometric and meteorological stations*
- (97) 727.94 Broadcasting stations, studios
- (97) 727.97 Artists' studios
- (97) 727.98 Film studios
- (98) 728 Residential Buildings, Houses and Housing: General**
- (98) 728.1 Housing: General
- (98) 728.2 Flats: General *Maisonettes*
- (98) 728.3 Houses: General
- (98) 728.31 Terrace houses
- (98) 728.34 Semi-detached houses
- (98) 728.37 Detached houses
- (98) 728.4 Residential and social buildings *Hostels, halls of residence*
- (98) 728.5 Hotels: General
- (98) 728.54 Travellers' rest-houses *Motels, youth hostels*
- (98) 728.6 Farmhouses
- (98) 728.7 Occasional and mobile dwellings *Summer houses, chalets, caravans, houseboats*
- (98) 728.8 Country houses, castles *Manor houses, mansions, chateaux*

9-8	728.9	Outbuildings, sheds, garages	<i>Porters', gardeners' buildings, ice cellars, glass-houses</i>
A		Theory	
Aa	00	General Knowledge	<i>Knowledge required as a background to the investigation, planning and design of buildings</i>
Aa1	001	Information: General	<i>Information in general, research, recording, organisation, presentation and dissemination of knowledge, terminology, nomenclature</i>
Aa1	002	Information: Documentation	<i>Especially building documentation (002: 69)</i>
Aa1	01	Information: Bibliography	<i>Selected lists and accessories lists, library catalogues</i>
Aa1	02	Information: Library practice	
Aa1	025.1	Information: Library management	
Aa1	025.2	Information: Accessioning	
Aa1	025.3	Information: Cataloguing and indexing	
Aa1	025.4	Information: Classification	
Aa1	026	Information: Special libraries, information services	
Aa1	027	Information: General libraries	
Aa2		References and Institutions: General	
Aa2	03	References: Handbooks	<i>General reference books, and sources such as institutions, associations, dictionaries, encyclopaedias, atlases, gazetteers</i>
Aa2	05	References: Periodicals	<i>Directories, general year books, annual indexes to periodicals</i>
Aa2	06	Institutions, associations: General	<i>International and national statutes, year books, lists of publications and members</i>
*Aa2	06.063	Competitions	
Aa2	061.1	Institutions, associations: Official bodies	
Aa2	061.2	Institutions, associations: Private societies	<i>Statutes, year books, calendars, lists of publications, members, meetings</i>
Aa2	061.3	Institutions, associations: Congresses, conferences	<i>Notices and reports</i>
Aa2	061.4	Institutions, associations: Exhibitions	<i>Lists and catalogues</i>
Aa2	061.5	Institutions, associations: Business firms	<i>General descriptions, reviews of past and future work</i>
Aa2	061.5	Institutions, Associations: Trade	<i>Annual reports, summaries and reviews of work; DSIR, BRS, BSI research associations, development associations</i>
Aa2	061.6	Institutions, associations: Research bodies	<i>Annual reports, summaries and reviews of work; DSIR, BRS, BSI research associations, development associations</i>
Aa2	069	Institutions, associations: Museums, art galleries, collections	<i>Lists and catalogues (for museum buildings see (97))</i>
Aa2	07	References: Newspapers	<i>Collections of cuttings</i>
Aa2	08	References: Collections	<i>Year books of statistics, ready reckoners, time-tables, collected works, special collections of photographs, illustrations, maps</i>
Aa3	3	Social Sciences: General	
Aa3	301	Social sciences: Sociology	
Aa3	301.151	Social sciences: Social psychology	
Aa3	301.17	Social sciences: Social processes	
Aa3	308	Social sciences: Sociography	<i>Social surveys</i>
Aa3	311	Social sciences: Statistical theory	<i>(For statistical mathematics see Aa9)</i>
Aa3	312	Social sciences: Demography	<i>Population statistics, general and special groups</i>
Aa3	32	Social sciences: Politics	
Aa4	33	Economics: General	
Aa4	331	Economics: Labour	<i>Industrial conditions</i>
Aa4	332	Economics: Private finance	<i>Credit, interest</i>
Aa4	333	Economics: Land and property	<i>Real estate, rents in general (For realty law, see Aa5)</i>
Aa4	333.073	Economics: Estate administration	<i>Acquisition, mortgages, amortisation, tenants' rent, valuation</i>
Aa4	333.32	Economics: Housing problem	<i>Housing reform, shortages, subsidies, allocation, building land for</i>
Aa4	333.34	Economics: Land registration	
Aa4	334	Economics: Co-operative societies	<i>Building and housing societies</i>
Aa4	336	Economics: Public finance	<i>Rating and taxation, land tax, rating of buildings</i>
Aa4	338	Economics: Production	<i>Economic situation</i>
Aa5	34	Law: General	
Aa5	347	Law: Civil	<i>Acts of Parliament (including memoranda and forms related)</i>
Aa5	347:333.32	Law: Housing	<i>Acts of Parliament (including memoranda and forms related)</i>
Aa5	347:69	Law: Building	<i>Acts of Parliament (including memoranda and forms related)</i>
Aa5	347:711	Law: Town planning	<i>Acts of Parliament (including memoranda and forms related)</i>
Aa5	347.2	Law: Realty	<i>Property ownership, realty rights, easements, mortgages</i>
Aa5	347.23	Law: Property	<i>Law of landlord and tenant, ownership rights</i>
Aa5	347.4/.5	Law: Contract and tort	<i>Damages, compensation, indemnity</i>
Aa5	347.7	Law: Commercial	<i>Company law, financial law</i>
Aa5	347.77	Law: Patent and trademark	<i>Patent and trademark law</i>
Aa5	347.78	Law: Design copyright	<i>Artistic, architectural, industrial</i>

Aa6	35	Public Administration: General	
Aa6	351	Public administration: Services	<i>Public works, properties, police, health, housing safety, water, communications, traffic, rates and taxes, labour regulations</i>
Aa6	352	Public administration: Local government	<i>Local authorities' departments, water and drainage boards</i>
Aa6	352:628	Public administration: Public health by-laws	<i>Local and national</i>
Aa6	352:69	Public administration: Building by-laws	<i>Local and national</i>
Aa6	353	Public administration: Regional	<i>Authorities and their functions</i>
Aa6	354	Public administration: State	<i>Government departments, ministries and their functions</i>
Aa7	37	Education: General	
Aa7	371	Education: Organisation	<i>Educational programme systems and management, including year books, syllabuses and course lists</i>
Aa7	372	Education: Nursery and primary	<i>Up to eleven years</i>
Aa7	373	Education: Secondary	<i>Eleven to sixteen years</i>
Aa7	374	Education: Adult	<i>Private study, group study, courses</i>
Aa7	378	Education: Higher	<i>Further education at universities, colleges, specialist establishments</i>
Aa7	378.9	Education: Architects, builders, quantity surveyors	
Aa8	38	Commerce: General	
Aa8	381	Commerce: Inland trade	
Aa8	382	Commerce: Foreign trade	<i>Places for trade, agents, wholesale, or retail, trading techniques</i>
Aa8	389.1	Commerce: Metrology	<i>Weights and measures, metric and imperial systems</i>
Aa8	389.6	Commerce: Standardisation	<i>Theory and practice in general (for annual reports of BSI, see Aa2) (for individual standards, see appropriate subjects)</i>
Aa9	5	Natural Sciences: General	
Aa9	51	Natural sciences: Mathematics	<i>Science in general, not applied to building</i>
Aa9	52	Natural sciences: Astronomy, surveying, geodesy	<i>All branches, including computing aids, tables, nomography and computers</i>
Aa9	53	Natural sciences: Physics, mechanics	<i>General astronomy, the earth, surveying, photogrammetry, geodesy, cartography, navigation, chronology</i>
Aa9	54	Natural sciences: Chemistry	<i>Measurement, mechanics, fluid mechanics, gas mechanics, vibrations, acoustics, sound, optics, light, colour, heat, electricity, magnetism, nature of matter, molecular and atomic physics</i>
Aa9	55	Natural sciences: Geology	<i>Theoretical and physical chemistry, experimental, analytical, inorganic, organic chemistry, crystallography, mineralogy</i>
Aa9	551.5	Natural sciences: Meteorology, climatology	<i>Physical geography, topography, petrology, minerals, ores</i>
Aa9	57	Natural sciences: Biology	
Aa9	572	Natural sciences: Anthropometrics	<i>Anthropology</i>
Ab	6	Technology	<i>Human measurements</i>
Ab1	61	Hygiene, Public Health: General	
Ab1	613	Hygiene: General and personal	
Ab1	613.1	Hygiene: Climatic factors	<i>Inventions, discoveries, patents</i>
Ab1	613.5	Hygiene: House	
Ab1	613.6	Hygiene: Occupational and industrial	<i>Acclimatisation, composition of air, pressure, light, heat, cold</i>
Ab1	614	Public health: General	<i>Noxious gases, noise, light</i>
Ab1	614.7	Public health: Pollution	<i>Air pollution, soil and water pollution</i>
Ab1	614.8	Public health: Accidents	<i>Prevention, protection, safety</i>
Ab1	614.83	Public health: Explosions	<i>Storage of explosive or inflammable materials</i>
Ab1	614.84	Public health: Fires	<i>Fire-fighting (for fire protection and means of escape, see Ab9)</i>
Ab2	62	Engineering: General	
Ab2	620.9	Engineering: General economics of energy	<i>Resources, choice for specific purposes</i>
Ab2	621	Engineering: Mechanical	<i>Theory, principles</i>
Ab2	621.1	Engineering: Steam	<i>Theory, engines, boilers, evaporators (for installations in buildings, see (54))</i>
Ab2	621.22	Engineering: Water	<i>Theory, turbines, rams</i>
Ab2	621.3	Engineering: Electrical	<i>Theory, definitions, productions, distribution and control, Teletechnics (for installations in buildings see (63))</i>
Ab2	621.4	Engineering: Heat engines	<i>Theory of internal combustion</i>
Ab2	621.5	Engineering: Pneumatic	<i>Theory, machines, refrigeration, compressors</i>
Ab2	621.6	Engineering: Fluid	<i>Theory, gases, liquids, fans, pipes, ducts, pumps, ventilators</i>
Ab2	621.7	Engineering: Processes and practice	<i>Workshop practice, forging, casting, welding, soldering, brazing</i>
Ab2	621.8	Engineering: Power transmission	<i>Machine components, transmission systems, lubrication</i>
Ab2	621.9	Engineering: Operations and machine tools	<i>Polishing, grinding, saws, lathes, drills, punches, moulding and machine tools for</i>
Ab3	624	Civil Engineering: General	
Ab3	624.01	Structural Engineering: General	<i>Comprehensive theoretical studies of structures according to material</i>

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| Ab3 | 624.011.1 | Structural engineering: Timber | |
| Ab3 | 624.011.7 | Structural engineering: Plastics | |
| Ab3 | 624.012.1 | Structural engineering: Stone | |
| Ab3 | 624.012.2 | Structural engineering: Brick and block | |
| Ab3 | 624.012.3 | Structural engineering: Concrete, precast | |
| Ab3 | 624.012.4 | Structural engineering: Concrete, in-situ | |
| Ab3 | 624.012.46 | Structural engineering: Concrete, prestressed | |
| Ab3 | 624.014.2 | Structural engineering: Steel | |
| Ab3 | 624.014.7 | Structural engineering: Aluminium | |
| Ab4 | 624.04 | Building Statics: General | |
| Ab4 | 624.042/.046 | Building Statics: Calculations | <i>Calculations for load, dead and live, wind pressure, stress, deformation, factors of safety</i> |
| Ab4 | 624.07 | Building statics: Calculations of members | <i>Members taking one axial stress</i> |
| Ab4 | 624.071 | Building statics: Ropes, cables, rods | <i>Members taking bi-axial stress, including trusses, frames</i> |
| Ab4 | 624.072 | Building statics: Girders, beams, arches | |
| Ab4 | 624.077 | Building statics: Slabs | <i>Three-dimensional structures</i> |
| Ab4 | 624.073 | Building statics: Domes, vaults, shells | |
| Ab4 | 624.075 | Building statics: Columns, walls | |
| Ab4 | 624.078 | Building statics: Connections | <i>Riveted and bolted connections, welded joints, bearings, hinges, stiffeners</i> |
| Ab5 | 625 | Road and Railway Engineering: General | |
| Ab5 | 625.11 | Railway engineering: Surveying and location | |
| Ab5 | 625.12 | Railway engineering: Formation, foundations, drainage | <i>Ballast, sleepers, rails</i> |
| Ab5 | 625.14 | Railway engineering: Tracks | <i>Junctions, branches, crossings, buffers</i> |
| Ab5 | 625.15 | Railway engineering: Track layout | <i>Level crossings</i> |
| Ab5 | 625.16 | Railway engineering: Accessory equipment | |
| Ab5 | 625.17 | Railway engineering: Maintenance | |
| Ab5 | 625.72 | Road engineering: Surveying and location | <i>Cross-sections, verges, ditches, slopes, footways</i> |
| Ab5 | 625.73 | Road engineering: Formation, foundations | <i>Culverts, drains, signs, furniture</i> |
| Ab5 | 625.74 | Road engineering: Construction | <i>Oiling, tarring, asphaltting</i> |
| Ab5 | 625.75 | Road engineering: Surface | <i>Repair, cleaning</i> |
| Ab5 | 625.76 | Road engineering: Maintenance | |
| Ab6 | 628 | Public Health Engineering: General | |
| Ab6 | 628.1 | Public Health engineering: Water supply | <i>For towns and villages, sources, catchment wells, mains reservoirs</i> |
| Ab6 | 628.2 | Public Health engineering: Sewers, sewerage | <i>Systems, construction, cleaning, pumping stations</i> |
| Ab6 | 628.3 | Public Health engineering: Sewage disposal | <i>Treatment, purification, septic tanks, sewage farms, discharge into natural waters</i> |
| Ab6 | 628.4 | Public Health engineering: Town sanitation | <i>Garbage and refuse disposal and treatment, public lavatories</i> |
| Ab6 | 628.5 | Public Health engineering: Industrial sanitation | <i>Protection against dust, gases and fumes, noxious gases, smoke nuisance and abatement, treatment of factory effluent</i> |
| Ab7 | 628.9 | Illuminating Engineering: General | |
| Ab7 | 628.9.001 | Illuminating engineering: Theory | <i>Theory and computation (for installations in buildings, see (63))</i> |
| Ab7 | 628.9.003 | Illuminating engineering: Economics | <i>Lighting levels, visual acuity and comfort, glare</i> |
| Ab7 | 628.9.004 | Illuminating engineering: Maintenance | |
| Ab7 | 628.9.008 | Illuminating engineering: Profession | |
| Ab7 | 628.92 | Illuminating engineering: Natural | <i>Including sunlight</i> |
| Ab7 | 628.93 | Illuminating engineering: Artificial | |
| Ab7 | 628.97 | Illuminating engineering: Special | <i>Exterior, street display</i> |
| Ab8 | 696/697 | Services Engineering: General | |
| Ab8 | 696.11 | Water engineering: Theory | <i>Theory and computation (for installations in buildings, see (56)). Including comparative studies of building types</i> |
| Ab8 | 696.11 | Water engineering: Economics | |
| Ab8 | 696.11 | Water engineering: Maintenance | |
| Ab8 | 696.11 | Water engineering: Profession | |
| Ab8 | 696.11 | Water engineering: Systems | <i>Comparative studies</i> |
| Ab8 | 696.12/.13 | Drainage engineering: Theory | |
| Ab8 | 696.12/.13 | Drainage engineering: Economics | |
| Ab8 | 696.12/.13 | Drainage engineering: Maintenance | |
| Ab8 | 696.12/.13 | Drainage engineering: Profession | |
| Ab8 | 696.12/.13 | Drainage engineering: Systems | <i>Comparative studies</i> |
| Ab8 | 696.14 | Sanitary engineering: Theory | |
| Ab8 | 696.14 | Sanitary engineering: Economics | |
| Ab8 | 696.14 | Sanitary engineering: Maintenance | |
| Ab8 | 696.14 | Sanitary engineering: Profession | |
| Ab8 | 696.14 | Sanitary engineering: Systems | <i>Comparative studies</i> |
| Ab8 | 696.2 | Gas engineering: Theory | |
| Ab8 | 696.2 | Gas engineering: Economics | |
| Ab8 | 696.2 | Gas engineering: Maintenance | |
| Ab8 | 696.2 | Gas engineering: Profession | |

Ab8	696.2	Gas engineering: Systems	<i>Comparative studies</i>
Ab8	697.001	Heating engineering: Theory	<i>Including insulation</i>
Ab8	697.003	Heating engineering: Economics	
Ab8	697.004	Heating engineering: Maintenance	
Ab8	697.008	Heating engineering: Profession	
Ab8	697.2/.7	Heating engineering: Systems	<i>Comparative studies, including district heating</i>
Ab8	697.9.001	Ventilation, air-conditioning engineering: Theory	
Ab8	697.9.003	Ventilation, air-conditioning engineering: Economics	
Ab8	697.9.004	Ventilation air-conditioning engineering: Maintenance	
Ab8	697.92/.98	Ventilation, air-conditioning engineering: Systems	<i>Comparative studies</i>
Ab9	699.8	Protecting, Proofing, Insulating Construction: General	
Ab9	699.81	Fire protection construction	<i>Fire-resisting construction, means of escape</i>
Ab9	699.82	Water-, damp-, proof construction	
Ab9	699.83	Storm-, wind-, weather-proof construction	
Ab9	699.84	Acoustics, vibration, sound insulation construction	<i>Noise, architectural acoustics, sound insulation (for acoustic products see Q)</i>
Ab9	699.85	Air-raid protection construction	<i>Shelters</i>
Ab9	699.86	Thermal insulation construction	<i>(For insulation products see K)</i>
Ab9	699.87	Fume-, dust-, rot-, vermin-proof construction	<i>Gas-, smoke-proof, dust- and dirt-proof; rot, fungi, moulds; pest- and vermin-proof</i>
Ab9	699.88	Light-, radiation-, lightning-, magnetic-proof construction	<i>(For installations in buildings see (68))</i>
Ac		Planning, Landscape, Architecture, Design: General	
Ac1	711	Planning: General	
Ac1	711.001	Planning: Theory	
Ac1	711.003	Planning: Economics	
Ac1	711.03	Planning: History	
Ac1	711.1	Planning: Principles and practice	<i>Preparation and survey, types of development, classification of property</i>
*Ac1	711.13	Planning: Population relocation	
Ac1	711.16	Planning: Programme and progress	<i>Replanning, improvement, clearance, conversion of use, rebuilding</i>
Ac1	711.2	Planning: Regional	
Ac1	711.3	Planning: Country and rural	
Ac1	711.4	Planning: Town and urban	<i>Built-up areas, conurbations, towns, villages</i>
Ac2	711.5	Planning, Area and Site: General	<i>Particularly legal aspects, ordinances (for planning law, see Aa5)</i>
Ac2	711.51	Planning, area : Zoning	
Ac2	711.55	Planning, area : Functional units	<i>Administrative units</i>
Ac2	711.551	Planning, area : Civic	<i>Shopping centres, office and business areas, market areas</i>
Ac2	711.552	Planning, area : Commercial	<i>Rail, road; port and harbour; airfields</i>
Ac2	711.553	Planning, area : Transport	<i>Location of industry</i>
Ac2	711.554	Planning, area : Industrial	<i>Health centres, hospitals, asylums</i>
Ac2	711.555	Planning, area : Health	<i>Isolation hospitals, prisons, reformatories</i>
Ac2	711.556	Planning, area : Segregation	<i>Hotels, cafes</i>
Ac2	711.557	Planning, area : Accommodation	<i>Cricket, football grounds, stadia, golf courses, race-courses</i>
Ac2	711.558	Planning, area : Pleasure	<i>Military, air force, naval establishments</i>
Ac2	711.559	Planning, area : Defence	
*Ac2	711.57	Planning, area: Education	<i>Community units, neighbourhood units</i>
Ac2	711.58	Planning, area : Residential	<i>Grouping of buildings, spacing, density, height, shape, outline</i>
Ac2	711.6	Planning, area : Site arrangement	
Ac3	711.7	Planning, Traffic: General	<i>Traffic routes, layout and planning, parking</i>
Ac3	711.71	Planning, traffic: National	
Ac3	711.73	Planning, traffic: Highway	
Ac3	711.75	Planning, traffic: Railway	
Ac3	711.76	Planning, traffic: Canals, waterways	
Ac3	711.77	Planning, traffic: Airways	
Ac4	711.8	Planning, utilities: General	<i>Distribution and supply lines, water, electricity, tele-communications, gas sewerage</i>
Ac5	712	Landscape: General	<i>Physical origin of landscape character, landscape of various countries</i>
Ac5	712.001	Landscape: Theory	

Ac5	712.003	Landscape: Economics, financial	
Ac5	712.01	Landscape: Aesthetics of scenery	<i>Taste and ideals, style and character, in relation to painting</i>
Ac5	712.03	Landscape: History	<i>Historic styles, their development and relationship</i>
Ac5	712.2	Landscape: Pattern and use	<i>Reserves, agricultural land, parks and open spaces, gardens and grounds</i>
			<i>Including tree plantations</i>
Ac5	712.23	Landscape: National parks and reserves	<i>Including hedges, terraced strip-cultivated development</i>
Ac5	712.24	Landscape: Agricultural land	
Ac6	712.25:58.006	Landscape, Spaces: General	<i>Open spaces, commons, parks, gardens in general</i>
Ac6	712.25	Landscape, spaces: Botanical	
Ac6	712.25:711.73	Landscape, spaces: Road	
Ac6	712.25:718	Landscape, spaces: Crematoria	
Ac6	712.25:725.4	Landscape, spaces: Industrial	
Ac6	712.25:725.5	Landscape, spaces: Health and welfare	
Ac6	712.25:725.7	Landscape, spaces: Restaurants, baths	
Ac6	712.25:727	Landscape, spaces: Educational and cultural	
Ac6	712.25:728	Landscape, spaces: Housing	
Ac6	712.25:791	Landscape, spaces: Exhibition	
Ac6	712.25:791.1	Landscape, spaces: Children's playgrounds	
Ac6	712.25:796.3	Landscape, spaces: Playing fields	<i>Cricket, football, rugby, hockey pitches; tennis, netball courts</i>
Ac6	712.25:796.4	Landscape, spaces: Sports	<i>Running tracks, jumping pits</i>
Ac6	712.26	Landscape, spaces: Private	
Ac6	712.27	Landscape, spaces: Market and nursery	<i>Orchards, fruit and vegetable gardens, kitchen gardens</i>
Ac6	712.3	Landscape design: General	<i>Garden planning, layout, design</i>
Ac6	712.3.025	Landscape design: Maintenance	<i>Techniques, equipment and considerations affecting design</i>
Ac6	712.4	Landscape design: Planting	<i>Plant forms, arrangement, planting; plants, shrubs, trees</i>
Ac6	712.5	Landscape design: Water	
Ac6	719	Landscape: Preservation of amenities	
Ac7	72	Architecture: General	
*Ac7	72:92	Architecture: Biographies and works	
Ac7	72.01	Architecture: Aesthetics and theory	<i>Including principles, proportion, colour and optical effect</i>
Ac7	72.03	Architecture: History	
Ac7	72.031	Architecture: Prehistoric and primitive	
Ac7	72.032	Architecture: Ancient	<i>Oriental, Egyptian, West Asiatic, Greek, Etruscan, Roman</i>
Ac7	72.033	Architecture: Mediaeval	<i>Early Christian, Byzantine, Islamic, Romanesque, Gothic</i>
Ac7	72.034	Architecture: Renaissance	<i>Including Baroque, Rococo</i>
Ac7	72.035	Architecture: Post-Renaissance	<i>Chiefly nineteenth century, classicism and romantic movement, historicism</i>
			<i>Chiefly twentieth century</i>
Ac7	72.076	Architecture: Modern	
Ac7	72.076	Architecture: Modern, in Great Britain	
Ac7	721	Architecture: Design	<i>A general section (for methods of investigation and planning, see Ba4)</i>
Ac8	729	Decoration: General	
Ac8	729.1	Decoration: Architectural	
Ac8	729.3	Decoration: Forms, elements	<i>Architectural elements</i>
Ac8	729.4	Decoration: Painting	<i>In buildings, murals</i>
Ac8	729.5	Decoration: Relief	
Ac8	729.6	Decoration: Facing	<i>Plaster, panelling</i>
Ac8	729.7	Decoration: Mosaics	
Ac8	729.8	Decoration: Vitreous, glass	
Ac8	729.9	Decoration: Fixtures	<i>Design of special furniture, e.g., altars, choir stalls, thrones, etc.</i>
Ac9		Art, Design: General	
Ac9	73	Art, design: Sculpture, plastic arts	
Ac9	74	Art, design: Drawing	<i>General technique; perspective, shading, line drawing</i>
Ac9	745	Art, design: Industrial design	
Ac9	746	Art, design: Tapestry	
Ac9	747	Art, design: Interiors	
Ac9	749	Art, design: Furniture	
Ac9	75	Art, design: Painting	
Ac9	76	Art, design: Engraving	<i>Prints</i>
Ac9	77	Art, design: Photography	
B		Practice	
Ba	65	Management: General	
Ba1	651/654	Office Administration: General	
Ba1		Office administration: Accommodation	<i>Space needs, layout</i>
Ba1		Office administration: Equipment	<i>Principles of using office furniture and equipment, typewriters, photocopiers, etc., including drawing office equipment (for products, see (82))</i>
			<i>Paper, envelopes and minor accessories</i>
Ba1		Office administration: Stationery	

Ba1		Office administration: Practice, procedure, general	<i>Handling and routing of mail, time sheets and other standard procedures, office supplies, diaries, etc.</i>
Ba1		Office administration: Records, filing practice	<i>All records, format, arrangement and method of filing (for costing records, see Ba2)</i>
Ba1		Office administration: Correspondence, notes, reports	<i>Use, methods and types of standard letters, notes, reports, forms, check lists, agenda, etc.</i>
Ba1		Office administration: Copying, reproduction, translation	
Ba1		Office administration: Communications	<i>Procedure manuals, form, content, methods. Including organisation of telecommunications</i>
Ba2	657	Accountancy: General	<i>Theory</i>
Ba2		Accountancy: Book-keeping systems	<i>Single and double-entry systems</i>
Ba2		Accountancy: Calculations	<i>Debit, credit, receipts, invoices, credit notes, techniques, systems, payments</i>
Ba2		Accountancy: Records, books	<i>Budgets, cash books, day books, ledger, balance sheets</i>
Ba2		Accountancy: Accounts, costing	<i>Accounting operations, types of accounts, kinds of costs</i>
Ba2		Accountancy: Accounts, financial	<i>Use of records and operations</i>
Ba2		Accountancy: Auditing	<i>Balance sheet analysis</i>
Ba2		Accountancy: Valuation, taxation	
Ba2		Accountancy: Accounting machines	
Ba2		Accountancy: Automation	
Ba3	658/659	Management Functions: General	
Ba3		Management functions: Financial	<i>Foundation, financing, reorganisation</i>
Ba3		Management functions: Establishment	<i>Organisation charts</i>
Ba3		Management functions: Personnel	<i>Selection, conditions of service, wages, hours, pensions, disputes, welfare, safety</i>
Ba3		Management functions: Development	<i>Design, research, product, processes</i>
Ba3		Management functions: Construction	
Ba3		Management functions: Production	<i>Plant, work study, rate fixing, quality control, automation</i>
Ba3		Management functions: Secretarial	<i>Legal, public relations, records, correspondence, office management</i>
Ba3		Management functions: Purchasing	<i>Hiring, receiving, storing of materials, plant</i>
Ba3		Management functions: Distribution	<i>Sales, marketing</i>
Ba3		Management functions: Public relations	<i>Advertising, advice, information</i>
Ba4	721	Building Investigation and Planning: General	
Ba4		Investigation and planning: Programme	<i>Theoretical background to method study applied to building</i>
Ba4		Investigation and planning: Accommodation	<i>Methods of study, collection and presentation of information</i>
Ba4		Investigation and planning: Space division	<i>Derivation of schedules of spaces from "the programme"</i>
Ba4		Investigation and planning: Number of floors	<i>Division of space in relation to function</i>
Ba4		Investigation and planning: Relationship of parts	<i>Division of space vertically</i>
Ba4		Investigation and planning: Relationship of exterior to interior	<i>Establishment of functional relationship, traffic, transport affinity of work</i>
Ba4		Investigation and planning: External spaces	<i>Establishment of functional relationship</i>
Ba4		Investigation and planning: Furniture and equipment	<i>Need for and use of external space</i>
Ba4		Investigation and planning: Dimensional co-ordination	<i>Functional studies of space and dimensions</i>
Ba5	69.001	Building Communications and Specification: General	
Ba5	69.001.1	Communications and specification: Pre-contract preparation	<i>Preparations before building commences</i>
Ba5	69.001.2	Communications and specification: Working drawings	<i>Form and contents, methods of preparation, presentation of information on drawings</i>
Ba5	69.001.2	Communications and specification: Schedules	<i>Form and contents, methods of preparation, presentation of information in schedules</i>
Ba5	69.001.3	Communications and specification: Specifications	<i>Description, identification of material, technique, process and method of ordering</i>
Ba5	69.001.3	Communications and specification: Codes and standards	<i>Guidance prepared by independent bodies</i>
Ba5	69.001.4	Communications and specification: Trials and tests	
Ba5	69.001.5	Communications and specification: Prototypes	<i>Mock-ups, experimental buildings or components</i>
Ba5	69.001.6	Communications and specification: Development work	
Ba6	69.002	Building Production: General	
Ba6	69.002.2	Production: Prefabrication	<i>Especially rationalisation and development of techniques generally</i>
Ba6	69.002.3	Production: Supplies	<i>Off-site manufacture and assembly</i>
Ba6	69.002.5	Production: Mechanization	<i>Distribution of materials and equipment, agents, stockists</i>
Ba6	69.002.68	Production: Wastage	<i>Application of tools and machines</i>
Ba6	69.002.71	Production: Transport	<i>Extent of and means of reducing</i>
			<i>To and from site, especially as affecting production</i>

Ba7	69.003	Building Economics: General	
Ba7	69.003.1	Economics: Valuation of property	
Ba7	69.003.12	Economics: Quantities and measurements	<i>Methods of measurement, types of bills</i>
Ba7	69.003.121	Economics: Surveyors' estimating and analysis	<i>Statistics, indices, price and cost analysis, approximate, estimates</i>
Ba7	69.003.13	Economics: Price planning and price control	
Ba7	69.002.2	Economics: Financial and legal aspects	<i>Conditions of contracts</i>
Ba7	69.003.23	Economics: Tendering, contracts and sub-contracts	<i>Forms of contract, tendering procedure (for contract law, see Aa5)</i>
Ba7	69.003.3	Economics: Builders' cost analyses and price records	
Ba7		Economics: Expenditure control	<i>Valuations, certificates, accounts by quantity surveyors</i>
Ba7		Economics: Materials prices	<i>Price lists of materials and components</i>
Ba8	69.007	Building Personnel: General	
Ba8		Personnel: Architects	<i>The profession in general, responsibilities, code of conduct, duties, fees</i>
Ba8		Personnel: Building engineers	
Ba8		Personnel: Quantity surveyors	
Ba8		Personnel: Clerks of works	
Ba8		Personnel: Builders' managers and supervisors	
Ba8		Personnel: Office staff	
Ba8		Personnel: Specialist professionals	<i>Structural, heating, mechanical, electrical, lighting, responsibilities, duties, fees</i>
Ba8		Personnel: Specialist sub-contractors, suppliers	
Ba8		Personnel: Operatives	
Ba9	69.009	Building Regulation and Control: General	<i>Scope, statutory instruments, procedures, forms, training (for acts and by-laws, see Aa5)</i>
Ba9		Regulation and control: Planning approvals	<i>Procedures, forms, timing</i>
Ba9		Regulation and control: Acts and by-law approvals	<i>Procedures, forms, timing</i>
Ba9		Regulation and control: Supervision and inspection	
Ba9		Regulation and control: Standards and quality controls	<i>Types of control, standards, tests, method of use</i>
Ba9		Regulation and control: Safety	
Ba9		Regulation and control: Licences	<i>For materials and labour</i>
Ba9		Regulation and control: Arbitration	
Bb	69	Building Practice: General	
Bb1	69.03	Building under Special Conditions: General	<i>Including size, permanence, location and shape</i>
Bb1		Building, special: Seasonal	<i>Including building in winter</i>
Bb1		Building, special: Climatic	<i>Including tropical building</i>
Bb1		Building, special: Very large or small	<i>Multi-storey buildings generally, high buildings, also very small and very light</i>
Bb1		Building, special: Demountable transportable	<i>Temporary buildings</i>
Bb1		Building, special: Floating, submerged	<i>Including influence of water, composition and change of level, and protection</i>
Bb1		Building, special: Hillside, underground	
Bb2	69.05	Building Site Administration: General	
Bb2		Site administration: Site selection surveys	<i>Including state of site at start of work</i>
Bb2		Site administration: Access	<i>Roads, temporary services, etc.</i>
Bb2		Site administration: Site layout	<i>Including marking out</i>
Bb2		Site administration: Hutted accommodation	<i>Including equipping for use (for products see Bb9)</i>
Bb2		Site administration: Preparations for construction	<i>Including handling, storage of materials, and temporary works</i>
Bb2		Site administration: Site fabrication, assembly and erection methods	
Bb2		Site administration: Shuttering and centering assembly	<i>Design and methods of use</i>
Bb2		Site administration: Construction and scaffolding assembly	<i>Design and methods of use</i>
Bb2		Site administration: Tests on site	<i>Types, sequence, responsibility for</i>
Bb3	69.008	Building Administration: General	
Bb3		Building administration: Advance planning	
Bb3		Building administration: Sequence studies and cost comparisons	
Bb3		Building administration: Expenditure analysis and forecasting	
Bb3		Building administration: Short-term planning	<i>Monthly and weekly</i>

Bb3	Building administration: Operational instructions	<i>Including production diagrams</i>
Bb3	Building administration: Bonus administration	
Bb3	Building administration: Clerical procedures	<i>As laid down for particular job</i>
Bb3	Building administration: Work study	<i>Method, motion and measurement</i>
Bb3	Building administration: Meetings, conferences	<i>Procedure</i>
Bb4	Mechanical Plant for Handling, Transport, Storage: General	
Bb4	Mechanical plant: Accessories	
Bb4	Mechanical plant: Scaffolding	
Bb4	Mechanical plant: Containers	
Bb4	Mechanical plant: Horizontal transport: General	
Bb4	Mechanical plant: Conveyors, transporters	
Bb4	Mechanical plant: Trucks, lorries	
Bb4	Mechanical plant: Dumpers, barrows	
Bb4	Mechanical plant: Railways	<i>Mono rails, transporters (worm-type)</i>
Bb4	Mechanical plant: Vertical transport: General	
Bb4	Mechanical plant: Cranes	<i>Static, rail-mounted, crawler, wheeled, including tower cranes</i>
Bb4	Mechanical plant: Lifts, hoists	<i>Elevators (belt and bucket), loaders (belt), shear-legs, jacks, winches</i>
Bb4	Mechanical plant: Loaders: General	
Bb4	Mechanical plant: Pumps	
Bb5	Power Plant: General	
Bb5	Power plant: Pneumatic	
Bb5	Power plant: Steam	
Bb5	Power plant: Petrol	
Bb5	Power plant: Electrical	<i>Motors, generators, transformers</i>
Bb6	Machines and Equipment for Manufacture on site: General	
Bb6.D	Site manufacturing machines: Materials preparation	
Bb6.E	Site manufacturing machines: Concreting	
Bb6.F	Site manufacturing machines: Bricklaying and masonry	
Bb6.G	Site manufacturing machines: Erecting	
Bb6.H	Site manufacturing machines: Carpentry	
Bb6.I	Site manufacturing machines: Pipe fitting and plumbing	
Bb6.L	Site manufacturing machines: Asphaltting	
Bb6.M	Site manufacturing machines: Sheet metal working	
Bb6.P	Site manufacturing machines: Plastering	
Bb6.R	Site manufacturing machines: Glazing	
Bb6.T	Site manufacturing machines: Floor laying	
Bb6.V	Site manufacturing machines: Painting	
Bb6.W	Site manufacturing machines: Cleaning and making good	
Bb6.X	Site manufacturing machines: Metal working and joinery	
Bb7	Machines for Earthwork, Roadwork, Mining and Quarrying: General	
Bb7	Earthwork machines: Borers	<i>Augers</i>
Bb7	Earthwork machines: Blasting	
Bb7	Earthwork machines: Excavators	<i>Mechanical shovels, back-acters, skimmers, drag-lines</i>
Bb7	Earthwork machines: Trenchers	<i>Multi-bucket machines</i>
Bb7	Earthwork machines: Graders, scrapers	
Bb7	Earthwork machines: Tractors, crawlers	
Bb7	Earthwork machines: Cultivators	
Bb7	Earthwork machines: Rollers, compactors	<i>Rippers, scarifiers, ploughs special rollers (sheep-foot)</i>
Bb7	Earthwork machines: Piling	<i>Vibrating rollers</i>
Bb7	Earthwork machines: Roadwork	
Bb7	Earthwork machines: Road maintenance	
Bb7	Mining and quarrying machines: Stone	
Bb7	Mining and quarrying machines: Sand and gravel	
Bb7	Mining and quarrying machines: Crushing and grinding	

Bb8		Hand Tools and Powered Tools for Operations: General	
Bb8.C		Hand tools and powered tools: Excavating	
Bb8.D		Hand tools and powered tools: Materials preparation	
Bb8.E		Hand tools and powered tools: Concreting	
Bb8.F		Hand tools and powered tools: Bricklaying and masonry	
Bb8.G		Hand tools and powered tools: Erecting	
Bb8.H		Hand tools and powered tools: Carpentry	
Bb8.I		Hand tools and powered tools: Pipe fittings and plumbing	
Bb8.L		Hand tools and powered tools: Asphalting	
Bb8.M		Hand tools and powered tools: Sheet metal working	
Bb8.P		Hand tools and powered tools: Plastering	
Bb8.R		Hand tools and powered tools: Glazing	
Bb8.T		Hand tools and powered tools: Floor laying	
Bb8.V		Hand tools and powered tools: Painting	
Bb8.W		Hand tools and powered tools: Cleaning and making good	
Bb8.X		Hand tools and powered tools: Metal working and joinery	
Bb9		Miscellaneous Equipment: General	
Bb9		Miscellaneous equipment: Heating	
Bb9		Miscellaneous equipment: Cleaning	
Bb9		Miscellaneous equipment: Lighting	
Bb9		Miscellaneous equipment: Safety	
Bb9		Miscellaneous equipment: Testing	
Bb9		Miscellaneous equipment: Huts	
Bc	69.059	Maintenance: General	
Bc1	69.059.1	Building Cleaning and Repair	<i>Methods of cleaning</i>
Bc2	69.059.2	Building Dilapidation and Damage	<i>Including collapse, settlement or subsidence</i>
Bc3	69.059.3	Building Reconstruction and Restoration	
Bc4	69.059.32	Building Strengthening	<i>Temporary and permanent methods, shoring and underpinning</i>
Bc5	69.059.35	Building Conversion	<i>Alterations, division</i>
Bc7	69.059.4	Building Durability	
Bc8	69.059.5	Building Moving	<i>Including displacing, raising</i>
Bc9	69.059.6	Building Demolition and Salvage	<i>Including dismantling of sound buildings and use of salvaged materials and standing ruins, old foundations, walls, replacement of roofs</i>
C	624.13	Earthwork	
Ca	624.131	Soil Mechanics: General	<i>Structural soil, technology</i>
Ca1		Soil Mechanics: Site Exploration	
Ca2	624.131.2	Soil Mechanics: Classification of Soils	
Ca3	624.131.3	Soil Mechanics: Examination of Soils	<i>Tests</i>
Ca4	624.131.4	Soil Mechanics: Properties of Soils	<i>Including frost problems</i>
Ca5	624.131.5	Soil Mechanics: Statics, Dynamics	<i>Including settlement, failure of slopes</i>
Ca6	624.131.6	Soil Mechanics: Ground Water	
Cb	624.133	Excavation: General	<i>(For machines for earthwork, see Bb7)</i>
Cb1	624.134	Excavation: Cuttings, Trenches	
Cb2	624.135	Excavation: Cut and Fill, Levelling	
Cb3	624.136	Excavation: Embankments	
Cb4	624.137	Excavation: Securing slopes	

Cb5 624.138

Excavation: Soil Stabilisation

D	Materials: General	<i>This section should be used only for information about the substances from which formed products are made: e.g. identification of types of substances, their production and properties. For products such as aggregates, cements, bituminous products, see Dp to Dw; for other products, units, sections, components, assemblies, see E to V and (1) to (8)</i>
Da	Materials: Properties: General	<i>Studies of the characteristics and properties of the substances, materials, products</i>
Db 620.1	Materials: Testing: General	<i>Types, derivation, modification</i>
Dc	Materials: Production: General	<i>General aspects, description of processes</i>
Dd	Materials: Metals: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
De	Materials: Stone, Natural: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8)) Mineral asbestos (for asbestos cement as substance, see Dh1)</i>
Df	Materials: Concrete, Artificial Stone: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
Dg	Materials: Clayware, Ceramics: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
Dh	Materials: Asbestos Cement, Gypsum Magnesite: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
Di	Materials: Wood: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
Dj	Materials: Organic Fibre: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
Dk	Materials: Cork, Reed, Straw: General	<i>Types, character, properties of substances (for all applications, products, installations, see E to V and (11) to (8))</i>
Dm	Materials: Felted: General	<i>Types, character, properties of substances (for all applications products, installations, see E to V and (11) to (8))</i>
Dn	Materials: Bitumen-bonded, Composition, Rubber, Plastic: General	<i>Types, character, properties of substances (for all applications products, installations, see E to V and (11) to (8))</i>
Do	Materials: Glass: General	<i>Types, character, properties of substances (since glass is used mainly in sheet form, see Ro)</i>
<i>These materials are sold as Building Products:</i>		
Dp	Materials, Aggregates and Fills: General	<i>Types, grades, properties</i>
Dp1	Aggregates: Mineral	<i>Sand, gravel, shingle, vermiculite, pumice, shale, crushed stone</i>
Dp2	Aggregates: Brick, concrete	<i>Crushed brick, concrete</i>
Dp3	Aggregates: Lightweight	<i>Slag, clinker, etc.</i>
Dp4	Aggregates: Ash	
Dp5	Fills: Shavings	<i>Sawdust, wood wool, paper wool</i>
Dp6	Fills: Powders	
Dp7	Fills: Wool	<i>Mineral, glass</i>
Dq	Materials, Limes, Cements, Mortars: General	
Dq1	Limes	<i>Quick, hydrated</i>
Dq2	Cements	
Dq4	Mortars	
Dq5	Terrazzo mortar	
Dq6	Lightweight concrete mortar	<i>Including coarse stuff for rendering, granolithic, screed</i>
Dr	Materials, Gypsum, Plaster, Magnesite: General	<i>Types, grades, properties, applications, method of use</i>

Dr1	Fire-resistant mortar. Chemically resistant mortar	
Dr2	Gypsum plaster	
Dr3	Magnesian quicklime	
Dr4	Synthetic resin	
Ds	Materials, Bituminous: General	<i>Types, grades, properties, applications, method of use</i>
Ds1	Bitumen, tar, pitch, tar oil	
Ds2	Bitumen solutions and emulsions	
Ds4	Asphalt, mastic	
Ds5	Asphalt, bitumen macadam and tarmacadam	
Dt	Materials, Adhesives and Jointing: General	<i>Types, grades, properties, applications, method of use</i>
Dt1	Jointing materials: Welding	
Dt2	Jointing materials: Soldering, brazing	
Dt3	Jointing materials: Adhesives	<i>Glue, paste</i>
Dt4	Jointing materials: Mastics	<i>Putty, special caulking compounds, sealers</i>
Du	Materials, Protective: General	<i>Types, grades, properties, applications, method of use</i>
Du1	Protectives: Anti-corrosion	
Du2	Protectives: Cement and concrete admixes	<i>Plasticisers, waterproofers, colours, etc.</i>
Du3	Protectives: Rot and insect	
Du4	Protectives: Fire	<i>Retarders</i>
Du5	Protectives: Wear, seals, polishes	
Du6	Protectives: Water and damp	
Du8	Protectives: Radiation	
Dw	Materials, Chemicals: General	<i>Types, grades, properties, applications, method of use</i>
Dw1	Chemicals: Rust removers	
Dw2	Chemicals: Solvents	<i>Thinners, drying agents, emulsifying agents</i>
Dw3	Chemicals: Water-glass	
Dw8	Chemicals: Polishing agent	
E	Concrete: General	<i>Including concrete work description, specification and quantities (for complete structural systems, see (2))</i>
Ed2	Concrete: Reinforcement	<i>All types</i>
Eq4	Concrete: Heavy, in-situ	<i>Normal concrete cast in situ</i>
Eq6	Concrete: Lightweight, in-situ	<i>Concrete using lightweight aggregates or aerating techniques</i>
Er2	Concrete: Gypsum, in-situ	
Ex	Concrete: Prestressed: General	<i>Including post-tensioning</i>
F	Bricks and Blocks: General	<i>Including brickwork, blockwork and masonry, description, specification and quantities</i>
Fd2	Bricks and blocks: Reinforcement	<i>All types</i>
Fe	Blocks: Stone: General	<i>Including stone masonry in general; may be sub-divided by type of stone</i>
Ff	Blocks: Cement: General	<i>All types</i>
Ff1	Bricks and blocks: Sand-lime	<i>Including flint-lime</i>
Ff2	Bricks and blocks: Concrete, heavy	<i>Normal concrete cast into block form</i>
Ff4	Bricks and blocks: Concrete, lightweight	<i>Lightweight concrete cast into block form</i>
Fg	Bricks and blocks: Clay: General	<i>All types</i>
Fg2	Bricks and blocks: Heavy burnt clay	<i>Normal bricks</i>
Fg3	Bricks and blocks: Terracotta, faience, earthenware	
Fg6	Bricks and blocks: Fire-resistant clay, fire-clay	
Fg7	Bricks and blocks: Chemically resistant clay	
Fo	Bricks and blocks: Glass: General	<i>May be sub-divided by type of glass</i>
G	Structural Units: General	<i>Including work of erection of large or heavy units and its description, specification and quantities; if materials are mixed select the main one (for complete structural systems, see (2))</i>
Gd	Structural units: Metal: General	<i>Formed or fabricated units (for metal sections, extrusions, RSJs, etc., see Hd)</i>
Gd2	Structural units: Steel	
Gd4	Structural units: Aluminium	
Gf2	Structural units: Concrete, heavy	<i>Beams, slabs, troughs and storey-height units, including prestressed units</i>
Gf4	Structural units: Concrete, lightweight	
Gg2	Structural units: Heavy burnt clay: General	<i>Deckings, etc.</i>
Gh1	Structural units: Asbestos cement	<i>Built-up beams, troughs, boxes, arch members; may be sub-divided by type of wood</i>
Gi1	Structural units: Wood: General	
Gi2	Structural units: Softwood	

Gi3	Structural units: Hardwood	
Gi4	Structural units: Laminated wood	
Gk3	Structural units: Wood wool	<i>Slabs, panels</i>
Gk4	Structural units: Strawboard	<i>Slabs, panels</i>
Gx	Structural units: General	<i>Using a mixture of materials</i>
H	Sections and Bars: General	<i>Including the work of assembling structures and its description, specification and quantities (for complete structural systems, see (2)); (for larger and complex structural units, see (Gd))</i>
Hd	Sections and bars: Metal: General	<i>All types</i>
Hd2	Sections and bars: Steel	<i>Rolled and formed sections</i>
Hd3	Sections and bars: Steel, stainless	
Hd4	Sections and bars: Aluminium	<i>Extrusions, etc.</i>
Hd6	Sections and bars: Bronze, brass	
Hi	Sections and bars: Wood: General	<i>Laths, boards, planks, scantlings, and simple shaped sections</i>
Hi2	Sections and bars: Softwood	
Hi3	Sections and bars: Hardwood	
Hi4	Sections and bars: Laminated wood	
Hn5	Sections and bars: Rubber	<i>Shaped and extruded sections</i>
Hn6	Sections and bars: Plastic	<i>Shaped and extruded sections</i>
I	Tubes and Pipes: General	<i>Including the work of preparing and jointing pipes, and their description, specification and quantities: all types, plain and for service, installations, including rainwater, soil, drain and flue pipes</i>
Id	Tubes and pipes: Metal: General	<i>All types</i>
Id1	Tubes and pipes: Cast iron	
Id2	Tubes and pipes: Steel and wrought iron	
Id3	Tubes and pipes: Stainless steel	
Id4	Tubes and pipes: Aluminium	
Id5	Tubes and pipes: Copper	
Id6	Tubes and pipes: Bronze and brass	
Id8	Tubes and pipes: Lead	
If2	Tubes and pipes: Concrete	<i>All types, including drainpipes</i>
Ig	Tubes and pipes: Ceramic: General	<i>All types, including drainpipes</i>
Ig2	Tubes and pipes: Heavy burnt clayware	<i>Usually unglazed pipes</i>
Ig3	Tubes and pipes: Terra-cotta	<i>Usually unglazed pipes</i>
Ig4	Tubes and pipes: Salt-glazed ware	<i>Including stoneware, fireclay</i>
Ig7	Tubes and pipes: Chemically resistant ware	<i>Ware with specially resistant properties</i>
Ih1	Tubes and pipes: Asbestos cement	<i>All types, including rainwater, soil, drain, flue and pressure pipes</i>
Ih2	Tubes and pipes: Gypsum plaster	
Ij2	Tubes and pipes: Fibre, cardboard	
In	Tubes and pipes: Plastic and composition: General	<i>All types, including rainwater, soil and pressure pipes</i>
In2	Tubes and pipes: Pitch fibre	
In5	Tubes and pipes: Rubber	
In6	Tubes and pipes: Plastic	
Io	Tubes and pipes: Glass: General	<i>All types; may be sub-divided by type of glass</i>
J	Wires and Mesh: General	<i>Including work using wire and mesh, and its description, specification and quantities</i>
Jd2	Wires and mesh: Steel	<i>All types including cables, chains, ribbons</i>
Jd3	Wires and mesh: Stainless steel	
Jd4	Wires and mesh: Aluminium	
Jd5	Wires and mesh: Copper	
Jd6	Wires and mesh: Bronze and brass	
Jd7	Wires and mesh: Zinc	
Je8	Wires, scrim, ropes: Asbestos	
Jj3	Wires, scrim, ropes: Jute	
Jm1	Wires, scrim, ropes: Mineral and glass fibre	
Jn6	Wires, scrim, ropes: Plastic and synthetic fibre	
K	Insulation Products: General	<i>Including work with insulation products</i>
Kd4	Insulation products: Aluminium foils	<i>Only special insulation foils</i>
Kf4	Insulation products: Asbestos	<i>Only sheets with special properties</i>
Kh1	Insulation products: Lightweight concrete	<i>Only special products</i>
Kj1	Insulation products: Fibre	<i>Only fibre insulating materials, boards, etc. (for ordinary fibre boards, see Rj1)</i>
Kj4	Insulation products: Paper	<i>Including corrugated</i>
Kk1	Insulation products: Cork	
Kk3	Insulation products: Wood wool cement	<i>Only non-structural products (for structural slabs, see Gk3)</i>
Kk4	Insulation products: Straw	<i>Only non-structural products (for structural slabs, see Gk4)</i>

Kk5	Insulation products: Peat	
Km	Insulation products: Quilts: General	
Km1	Insulation products: Mineral, glass wool	<i>Quilts and bats</i>
Km2	Insulation products: Organic	<i>Quilts and bats</i>
Km3	Insulation products: Wadding	<i>Quilts and bats</i>
Kn6	Insulation products: Plastic	<i>Including foamed plastics</i>
Ko	Insulation products: Glass: General	<i>All types; may be sub-divided by type of glass</i>
Kp	Insulation products: Aggregates: General	<i>All types, but only if specially for insulation (for general-purpose aggregates, see Dp)</i>
Kp1	Insulation products: Aggregates, vermiculite	
Kp2	Insulation products: Aggregates, clay	<i>Granulated and expanded clay, especially for insulation purposes</i>
Kp3	Insulation products: Aggregates, slag, clinker	<i>Granulated blast furnace slag, expanded clinker</i>
Kp5	Insulation products: Fills, organic	<i>Sawdust, wood wool, paper wool</i>
Kp7	Insulation products: Fills, mineral	<i>Glass fibre</i>
Kq4	Insulation products: Mortar	<i>Special mortar for rendering and screeding</i>
Kq6	Insulation products: Concrete	<i>Lightweight concrete cast in situ</i>
Kr2	Insulation products: Plaster	<i>Special plaster</i>
Kr4	Insulation products: Synthetic resin	<i>Including foamed resins</i>
Kx	Insulation products: Anti-vibration: General	
Ky	Insulation products: Anti-radiation: General	<i>Against discharge, X-rays</i>
L	Foils and Membranes: General	<i>Including work of laying or fixing and its description, specification, and quantities for very thin sheets</i>
Ld	Foils: Metal: General	
Ld4	Foils: Aluminium	<i>(For special insulation foils, see Kd4)</i>
Ld5	Foils: Copper	
Ld8	Foils: Lead	
Lj2	Paper	<i>All types; building papers except bitumen-impregnated</i>
Ln2	Felts: Bituminous	<i>Including bitumen-impregnated papers</i>
Ln6	Membranes: Plastic	<i>Foils</i>
Ls	Membranes: Bituminous: General	<i>All types, laid hot or cold in situ (for bituminous materials in general, see Ds)</i>
Ls1	Membranes: Bitumen, pitch, tar	
Ls2	Membranes: Bitumen solution, emulsion	
Ls4	Membranes: Mastic asphalt	
M	Sheet Metal: General	<i>Including work of laying, forming, fixing, jointing, and its description, specification and quantities</i>
Md2	Sheet metal: Steel	
Md3	Sheet metal: Stainless steel	
Md4	Sheet metal: Aluminium	
Md5	Sheet metal: Copper	
Md6	Sheet metal: Bronze and brass	
Md7	Sheet metal: Zinc	
Md8	Sheet metal: Lead	
N	Tiles, Sheets (Overlapping): General	<i>Including work of laying, fixing, and its description, specification and quantities; these units may be used for roofing and siding</i>
Nd	Tiles, sheets (overlapping): Metal: General	<i>All types</i>
Nd2	Tiles, sheets (overlapping): Steel	
Nd4	Tiles, sheets (overlapping): Aluminium	
Nd5	Tiles, sheets (overlapping): Copper	
Ne	Tiles (overlapping): Stone: General	<i>All types</i>
Ne5	Tiles (overlapping): Slates	
Nf2	Tiles, sheets (overlapping): Concrete	
Ng2	Tiles, sheets (overlapping): Heavy burnt clayware	
Nh1	Tiles, sheets (overlapping): Asbestos cement	<i>Corrugated sheets and flat shingles</i>
Ni2	Tiles (overlapping): Softwood shingles	
Nn6	Tiles, sheets (overlapping): Plastic	<i>Glass-fibre-reinforced polyester and other plastics</i>
No	Tiles (overlapping): Glass: General	<i>All types; may be sub-divided by type of glass</i>
P	Plasters: General	<i>Including work of preparing and applying and its description, specification and quantities</i>
Pd2	Plasters: Laths, steel	
Pg2	Plasters: Laths, clay	
Ph2	Plasters: Laths, gypsum	
Pi2	Plasters: Laths, softwood	
Pn2	Plasters: Laths, impregnated fibre	
Pq4	Plasters: Lime and cement	
Pr2	Plasters: Gypsum	

Q

Qd	Acoustic products: Metal: General
Qd2	Acoustic products: Steel
Qh1	Acoustic products: Asbestos cement
Qh2	Acoustic products: Gypsum
Qi	Acoustic products: Wood: General
Qj1	Acoustic products: Fibre
Qk3	Acoustic products: Wood wool
Qm1	Acoustic products: Mineral wool
Qn6	Acoustic products: Plastic
Qq	Acoustic products: Plasters, lime: General
Qr	Acoustic products: Plasters, gypsum: General
Qx	Acoustic products: Special units: General

Including work of applying and fixing and its description, specification, and quantities
Sheets, tiles, etc.

All types, panels, etc.

Sheets and slabs

Panels finished with mineral wool

Units for special purposes and of special shapes, including composite panels

Sheets (Rigid): General

Rh1	Sheets (rigid): Asbestos cement
Rh2	Sheets (rigid): Gypsum plasterboard
Ri4	Sheets (rigid): Laminated wood
Rj1	Sheets (rigid): Wood and particle fibre
Rj2	Sheets (rigid): Pulp
Rk3	Sheets (rigid): Wood wool boards
Rn6	Sheets (rigid): Plastic
Ro	Sheets (rigid): Glass: General
Ro1	Sheets (rigid): Glass, transparent
Ro2	Sheets (rigid): Glass, translucent
Ro3	Sheets (rigid): Glass, opal, opaque coloured
Ro4	Sheets (rigid): Glass, wired
Ro5	Sheets (rigid): Glass, prismatic, crown, antique
Ro6	Sheets (rigid): Glass, heat and X-ray absorbing and resisting
Ro7	Sheets (rigid): Glass, mirror
Ro8	Sheets (rigid): Glass, toughened and safety glass

Including work of applying and fixing and its description, specification and quantities. Glazing work is included here

Including slabs

Plywood, laminboard, blockboard

Hardboard, medium hardboard and chipboards

Thin boards only (for structural units, slabs, see Gk3)

All types

S**Tiles (Butt Jointing): General**

Sd	Tiles (butt jointing): Metal: General
Se	Tiles (butt jointing): Stone: General
Se5	Tiles (butt jointing): Slate
Sf2	Tiles (butt jointing): Concrete
Sf3	Tiles (butt jointing): Terrazzo
Sg	Tiles (butt jointing): Clayware and ceramic: General
Sg2	Tiles (butt jointing): Heavy burnt clay
Sg3	Tiles (butt jointing): Earthenware, faience
Sg4	Tiles (butt jointing): Semi-vitreous ceramic
Sg5	Tiles (butt jointing): Vitreous ceramic, mosaics
Sg7	Tiles (butt jointing): Chemically resistant clay
Sh1	Tiles (butt jointing): Asbestos cement
Sn	Tiles (butt jointing): Composition: General
Sn1	Tiles (butt jointing): Mastic asphalt
Sn8	Tiles (butt jointing): Thermoplastic composition
So	Tiles (butt jointing): Glass: General

Including work of applying and fixing and its description, specification and quantities: large tiles or slabs are also included

All types

All types

Quarries

All types

All types; may be sub-divided by type of glass

T**Floor Products: General**

Ti	Floor products: Wood: General
Tj1	Floor products: Wood fibre
Tj3	Floor products: Wool carpet
Tk	Floor products: Cork
Tn	Floor products: Plastic and composition: General
Tn1	Floor products: Asphalt
Tn4	Floor products: Linoleum
Tn5	Floor products: Rubber
Tn6	Floor products: Plastic
Tq4	Floor products: Concrete screed

Including work of laying, jointing and its description, specification and quantities

All types, blocks, parquet; may be sub-divided by type of wood

Hardboard, etc.

Including thermoplastic composition

Sheets and tiles

Sheets and tiles

Sheets and tiles

Tq5	Floor products: Terrazzo in-situ
Tr3	Floor products: Magnesite in-situ
Tr4	Floor products: Plastic in-situ
Ts2	Floor products: Bituminous emulsion
Ts4	Floor products: Mastic asphalt

U**Claddings and Facings: General**

Ud	Claddings and facings: Metal: General
Ud2	Claddings and facings: Steel
Ud3	Claddings and facings: Stainless steel
Ud4	Claddings and facings: Aluminium
Ud5	Claddings and facings: Copper
Ue	Claddings and facings: Stone: General
Uf2	Claddings and facings: Concrete
Uf3	Claddings and facings: Terrazzo
Ug	Claddings and facings: Ceramic: General
Uh1	Claddings and facings: Asbestos cement
Ui	Claddings and facings: Wood: General
Ui2	Claddings and facings: Softwood
Ui3	Claddings and facings: Hardwood
Ui4	Claddings and facings: Plywood
Uj1	Claddings and facings: Fibre
Uj2	Claddings and facings: Wallpaper
Uj3	Claddings and facings: Organic fabric
Uk1	Claddings and facings: Cork
Un6	Claddings and facings: Plastic
Uo	Claddings and facings: Glass: General

V**Paints: General**

Vv1	Paints: Stopping
Vv2	Paints: Pigments and stains
Vv3	Paints: Vehicle, oil
Vv4	Paints: Varnish, clear finish
Vv6	Paints: Oil, emulsion, water

X**Assemblies: General and Installation**

Including work of applying, fixing, jointing and its description, specification and quantities

All types, including enamelled and finished units

All types; may be sub-divided by type of stone

Precast units, slabs, etc.

Precast units, slabs, etc.

Thin blocks, slabs, etc.

Only specially finished sheets, enamelled, etc.

All types

External grade only

Only specially finished, enamelled sheet, plastic-faced, etc.

Fabric, cloth and grass cloth

Only special products

All types

All types; may be sub-divided by type of glass

Including work of preparation, application and description, specification, quantities

This section may be used for specification, quantities when X can be used to prefix specialist building works, e.g.:

Xd Metal work generally

Xi Joinery

and

X (56) Installation, heating

X (63) Installation, electrical

X (73) Fixtures, kitchen equipment

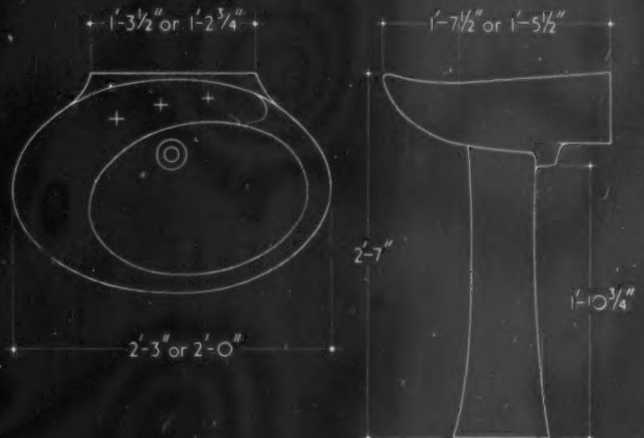
SANITATION | EQUIPMENT | MISCELLANEOUS

33.Z2

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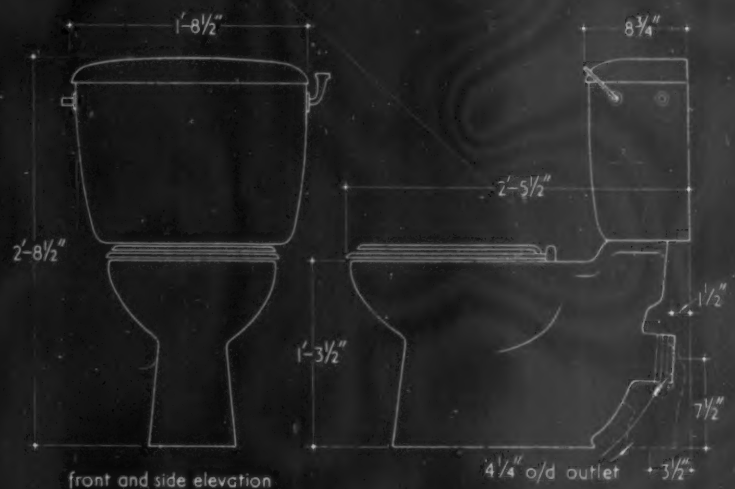
perspective sketch
OVADALE PEDESTAL BASIN.



plan and side elevation



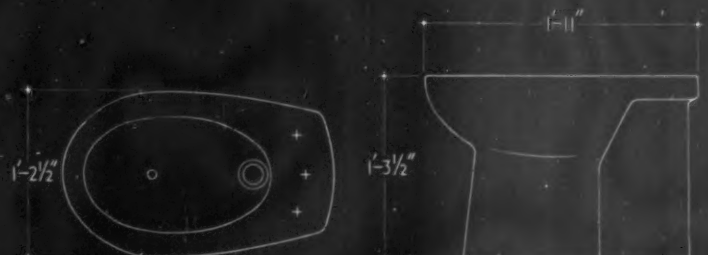
perspective sketch
UNISYLA W.C. SUITE.



front and side elevation



perspective sketch
ORIANA BIDET.



plan and side elevation

33.22 ·NUASTYLE· VITREOUS CHINA SANITARY FITTINGS

This Sheet describes vitreous china sanitary fittings in the Nuastyle range, which include the Ovadale pedestal basin, the Unisyla w.c. suite and the Oriana bidet.

Material

Vitreous china is strong and durable and is virtually impervious (not more than 0.5 per cent. absorption, in accordance with B.S. 3402 : 1961), the glaze being necessary only to provide a smooth surface that is easily cleaned. Armitage ware is guaranteed permanently non-crazing.

Ovadale Pedestal Basin

The dimensions of the basin are as shown on the face of the Sheet. It can be supplied with $\frac{1}{2}$ -in. mixer and $1\frac{1}{4}$ -in. pop-up or chain waste, or $\frac{1}{2}$ -in. taps and $1\frac{1}{4}$ -in. chain waste. The drain fitting is either a $1\frac{1}{4}$ -in. P trap to the wall or S trap to the floor. Supply pipes to wall or floor, with stopcocks, can be supplied if required. The basin is fitted with concealed hangers and a centre bracket can be supplied for additional support where the basin is used without a pedestal.

Unisyla W.C. Unit

The double-trap syphonic w.c. fitting is available with an S, P or turned P trap, with or without vent. It has a solid plastic seat and cover. Floor screws are supplied.

The cistern conforms to B.S. 1125 : 1959 and is available in three capacities, 2, $2\frac{1}{2}$ and 3 gallons. It has a valveless syphon of vitreous china, $\frac{1}{2}$ -in. bottom-

supply ballvalve, silencing tube and $\frac{1}{2}$ -in. bottom overflow: it is fitted with an Airex air extractor. The cistern can, if required, be supplied with side supply and overflow. Supply pipe with stopcock and overflow pipe can be supplied if desired and a cistern with valve fittings is available for use with the w.c. pan in areas where permitted by the water authority.

Oriana Bidet

The bidet has removable side shields to provide access to the fittings. It has $\frac{1}{2}$ -in. taps, with a transfer valve to rim or douche and $1\frac{1}{4}$ -in. pop-up waste. It is provided with supply pipes to the floor, with stopcocks, and a $1\frac{1}{4}$ -in. P trap to the wall. Floor screws are supplied. The bidet can be supplied without the removable side shields and a mixer is available with over-rim supply (no douche or rim flush).

Colour and Finish

The vitreous china can be supplied in white and the following colours: cream, blue, light coral, green, grey, primrose, turquoise, orchid, fawn, sky blue. All fittings are chromium-plated.

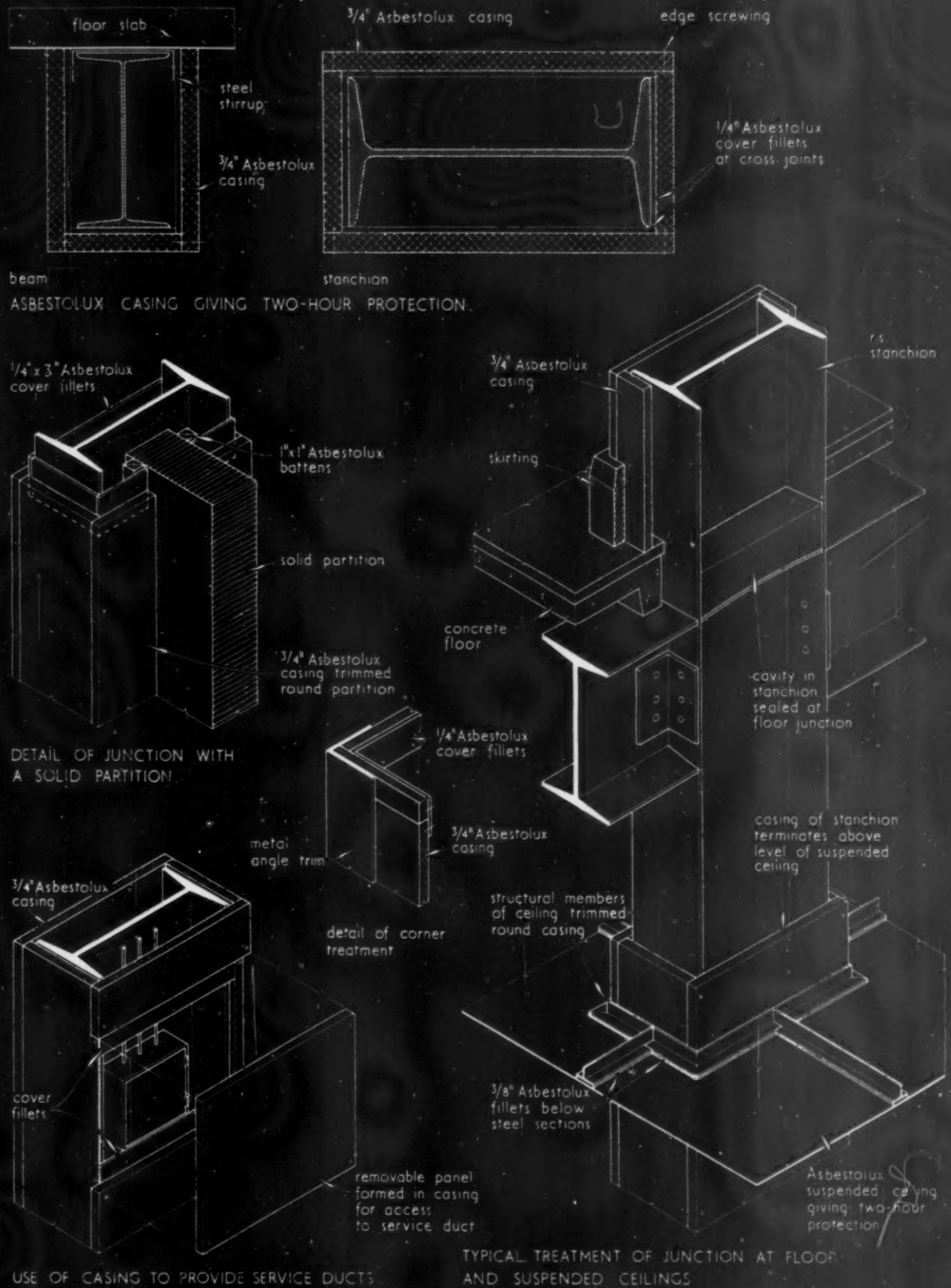
Compiled from information supplied by:

Armitage Ware Ltd.

Address : Armitage, Rugeley, Staffordshire.
Telephone : Armitage 253.

FIRE PROTECTION | STEELWORK**36.A3**

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36.A3 ASBESTOLUX NON-COMBUSTIBLE ASBESTOS INSULATION BOARD: FIRE PROTECTION 2

This Sheet is one of a series on Asbestolux insulation board and describes its use for fire protection of steelwork.

Method

General data on the material, its composition and properties are given on Sheet 15.B4. Sheet 36.A2 describes its use for providing specific degrees of fire protection and gives the definitions relating to the current fire regulations. Asbestolux board of the appropriate thickness for the degree of protection required is used to case the stanchions or beams. It is easily fixed around the steelwork at a late stage in the building work by a method of dry construction which allows for the passage of services within the casing.

Degree of Fire Protection

A special grade of Asbestolux has been developed for the protection of structural steelwork. Available in $\frac{3}{4}$ -in. and 1-in. thicknesses, it has good screw-holding properties and can be used over long unsupported spans. Special grade board is duo-sanded to give a fine tolerance in the thickness and at the same time provide a smooth and finished surface for immediate decoration after priming.

The drawings on the face of the Sheet show the use of $\frac{3}{4}$ -in. Asbestolux, which gives protection for two hours. The board has been tested by the J.F.R.O. in accordance with B.S. 476:Part I:1953. Variations in the profile of the steelwork will not normally affect the grading, but special designs such as thin gauge box sections, may require individual assessment. Any variation in fixing the Asbestolux from the details described on this Sheet should be checked with Cape Building Products Ltd., or a relevant authority to ensure that the degree of protection will not be prejudiced.

For one hour's protection a combination of $\frac{3}{4}$ -in. and $\frac{1}{2}$ -in. Asbestolux is used, to form a box casing. The cheeks of the stanchion are faced with $\frac{3}{4}$ -in. board, which is edge-screwed into $\frac{1}{2}$ -in. board facing the flanges. For four hours' protection, $\frac{1}{2}$ -in. Asbestolux is screwed to 1-in. Asbestolux battens to form a box casing and packed with Rocksil mineral wool to a density of 7 lb./cu.ft.

Sizes

$\frac{3}{4}$ -in. Asbestolux can be obtained pre-cut to standard size or specially ordered casing widths (for a minimum of 1,500 sq. ft.) or may be cut on site from sheets of standard sizes, which are 8 ft. 0 in. or 10 ft. 0 in. long by 4 ft. 0 in. wide.

Fixing

Columns: The $\frac{3}{4}$ -in. Asbestolux is fixed round the steel member, as shown in the section on the upper face of the Sheet, and edge-screwed with $2\frac{1}{2}$ -in. No. 8 self-tapping or wood screws. Cross joints in the board are covered on the inside by fillets of

$\frac{1}{4}$ -in. Asbestolux, to prevent flame penetration. The fillets are fixed by screwing to the end of the lower $\frac{3}{4}$ -in. board before it is placed in position.

Beams: The $\frac{3}{4}$ -in. Asbestolux is edge-screwed to form three sides of a beam casing with $\frac{1}{4}$ -in. Asbestolux fillets behind all cross joints to prevent flame penetration. The casing is held in position by $1\frac{1}{2}$ -in. No. 8 self-tapping screws through the Asbestolux and into $1\frac{1}{2}$ -in. wide steel stirrups which fit over the flange of the beam at 2 ft. 6 in. centres. The stirrups are placed in position before the floor slab is laid.

Screw holes can be filled and rubbed down so that the casing is ready for decoration. Where fittings are to be attached to the casings, cavity fixing devices should be used.

At floors: Where a stanchion passes through a floor the cavities in the casing must be sealed at floor level and there must be an airtight joint between the casing and the floor to prevent flame penetration in the casing void. A skirting of Asbestolux, hardwood or any other material can be screwed direct to the casing.

At walls: Where a beam passes through a wall, the cavities must be sealed as for a stanchion passing through a floor.

At ceilings: The drawing on the lower right face of the Sheet shows a treatment of the casing at the intersection with a suspended ceiling. Alternatively, the casing can terminate at the underside of the ceiling.

Junctions with partitions: Where a solid brick or breeze partition terminates at a cased stanchion, it is accommodated as shown in the drawing on the left face of the Sheet. A lightweight partition simply abuts the outside of the casing, the joints being masked with timber or Asbestolux fillets.

Services: The casing may be used as a duct for services and, subject to satisfying the requirements of the local authority, removable access panels can be incorporated.

Further Information

The manufacturer maintains a technical advisory department which is available to answer questions and advise on problems relating to this subject generally. Where external steelwork is to be protected with Asbestolux, the manufacturer should be consulted for latest information.

Compiled from information supplied by:

Cape Building Products Ltd.

Address: Cowley Bridge Works, Uxbridge, Middlesex.

Telephone: Uxbridge 37111.

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Editor: Cotterell Butler, A.R.I.B.A.

working detail

WALLS AND PARTITIONS: 117

DEMOUNTABLE PARTITION: OFFICES IN BELFAST

Munce and Kennedy, architects

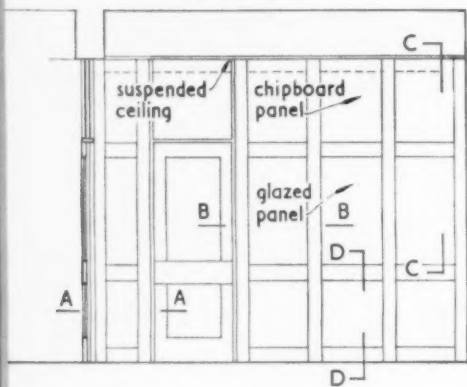
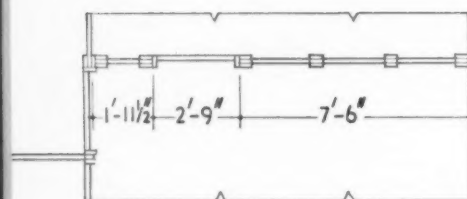
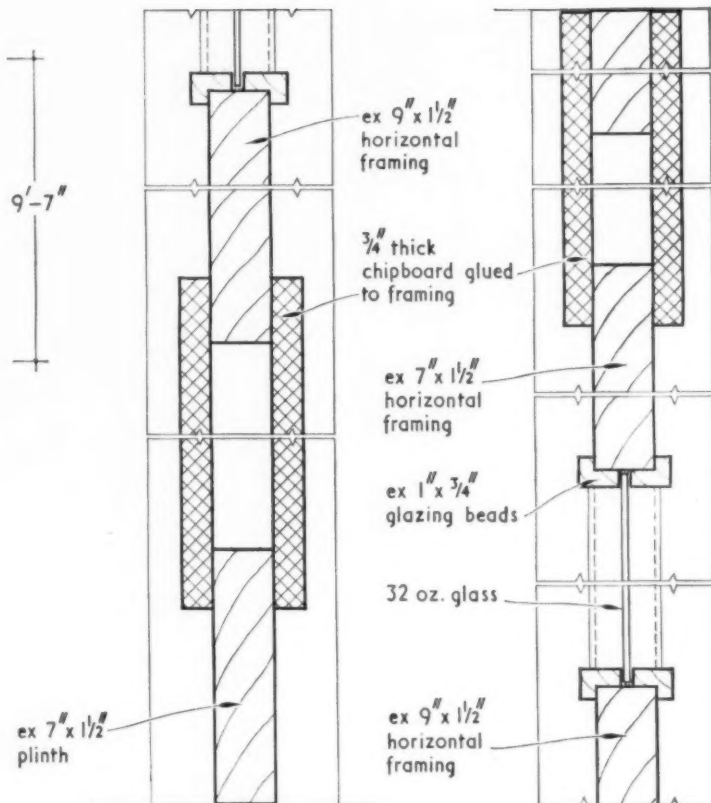


This partition for use in temporary offices is formed of sheets of chipboard glued to both sides of a timber framing. The panels thus formed are then held in position by two-piece uprights. The timber is described as "selected Baltic Redwood with small round knots min. m.c. 10% max. m.c. 12%."

working detail

DEMOUNTABLE PARTITION: OFFICES IN BELFAST

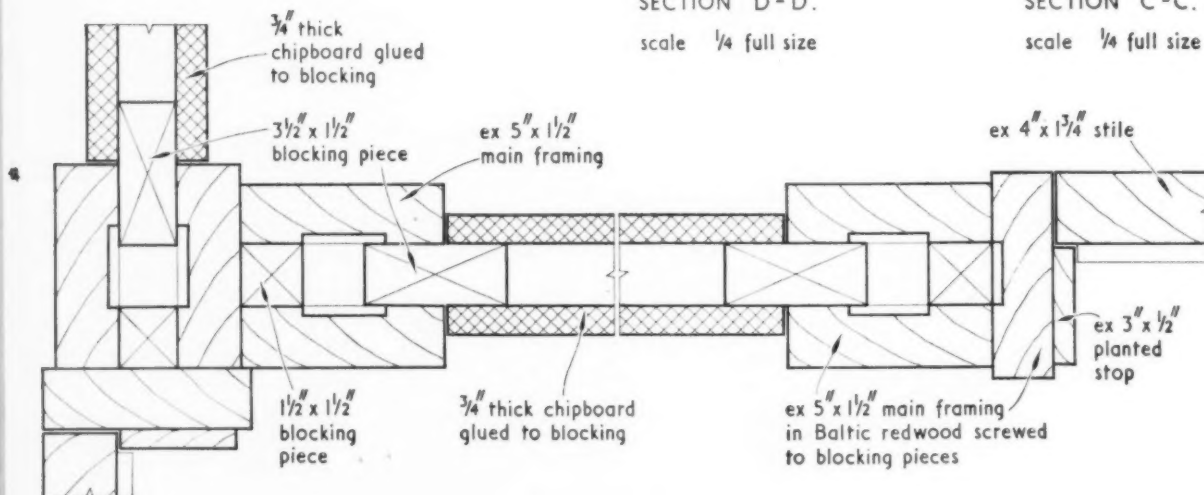
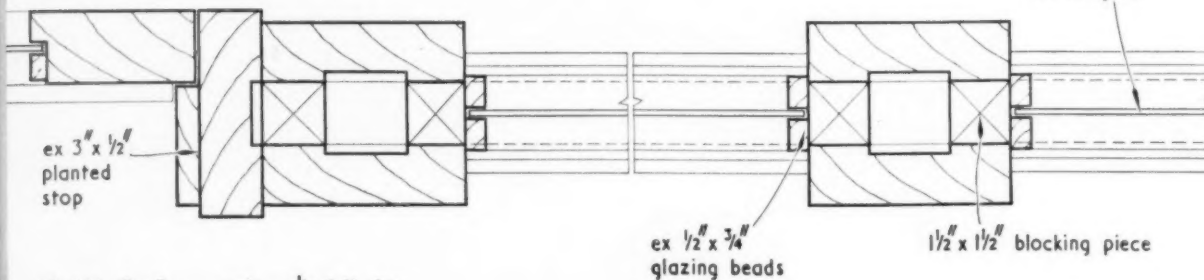
Munce and Kennedy, architects

ELEVATION. scale $\frac{3}{16}'' = 1'-0''$ PLAN. scale $\frac{3}{16}'' = 1'-0''$ 

SECTION D-D.

scale $\frac{1}{4}$ full size

SECTION C-C.

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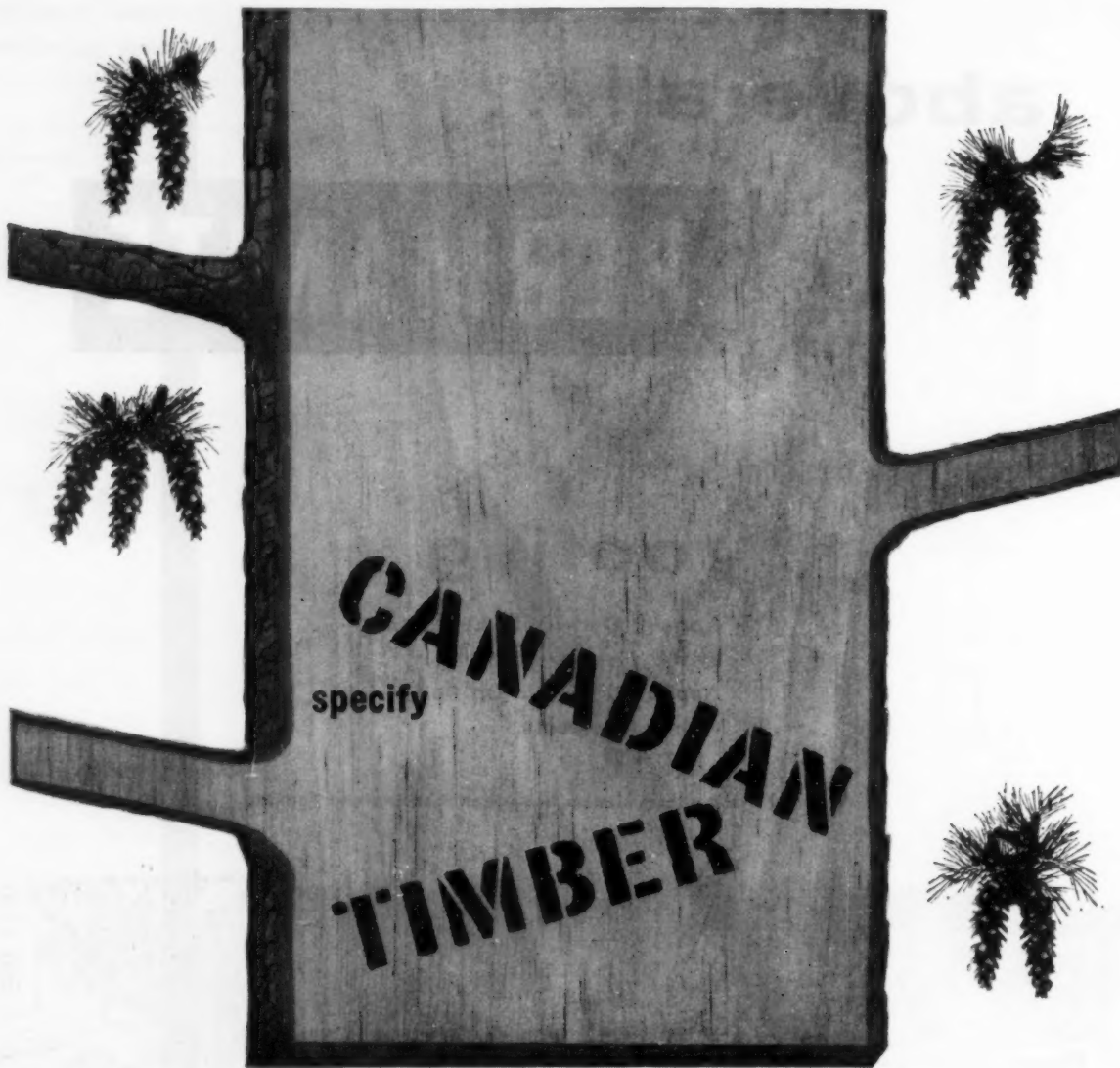
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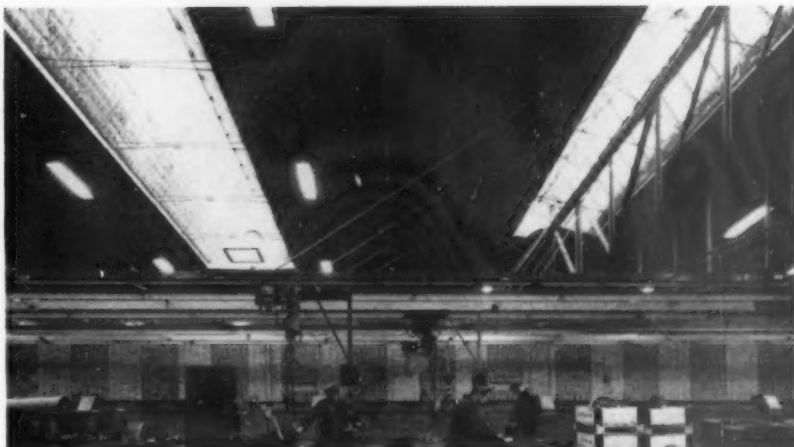


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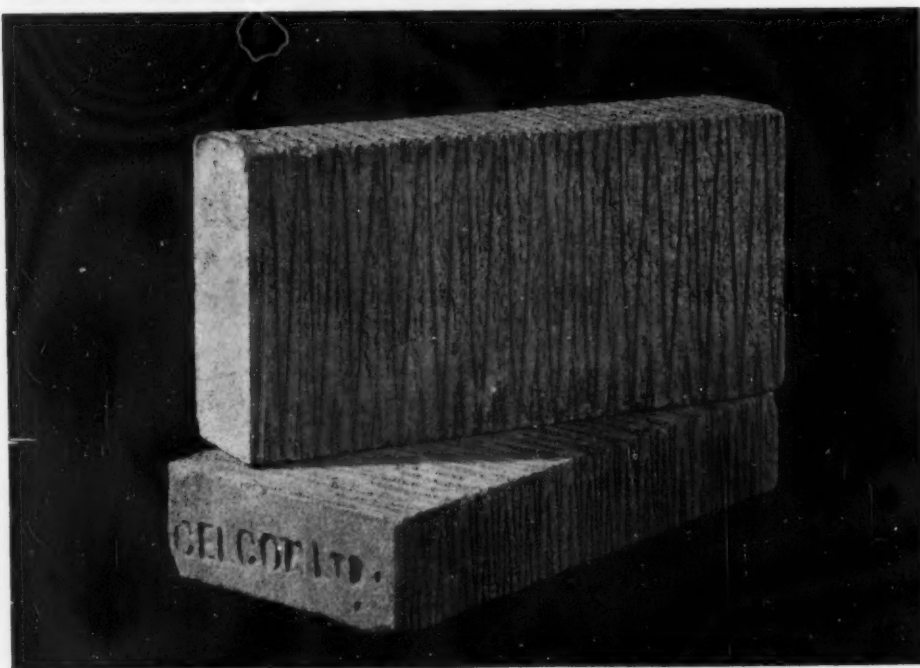
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Cable-spinning factory

(continued)

which was an important advantage from the point of view of production. In view of the high noise level of the spinning machines, the side walls of the shed are lined with panels of perforated bricks, to act as absorbents. At the same time the ceiling is finished with mineral wool laid on aluminium foil, also highly absorbent. The structural system was developed by the Stockholm engineer, David Jawerth, and may well have a future in the uninterrupted spanning of large areas.



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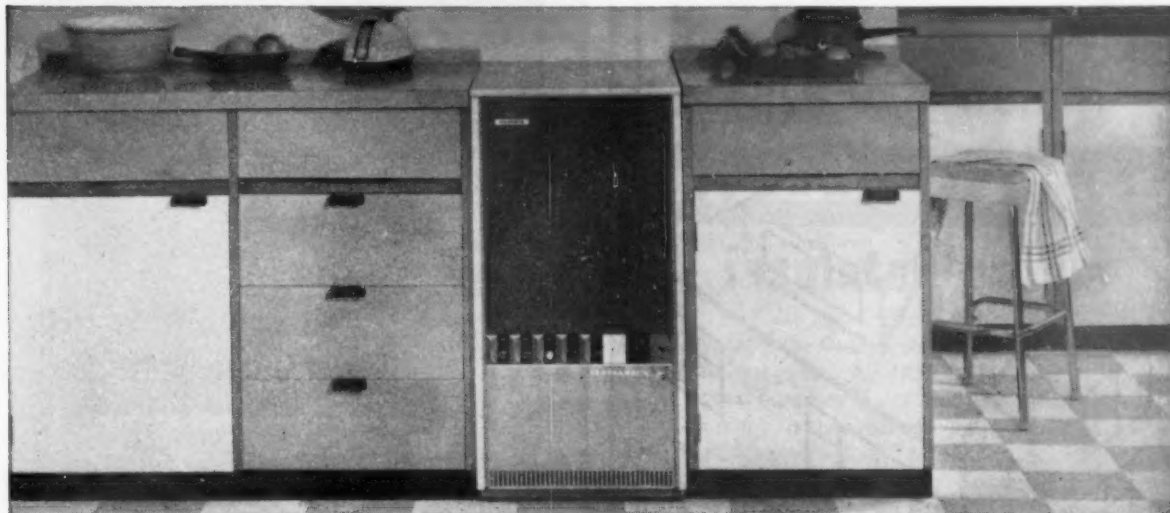
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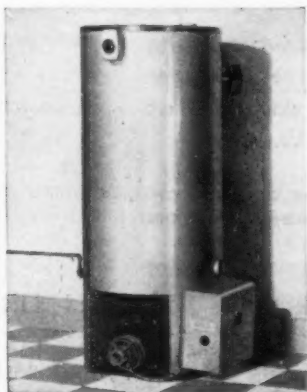
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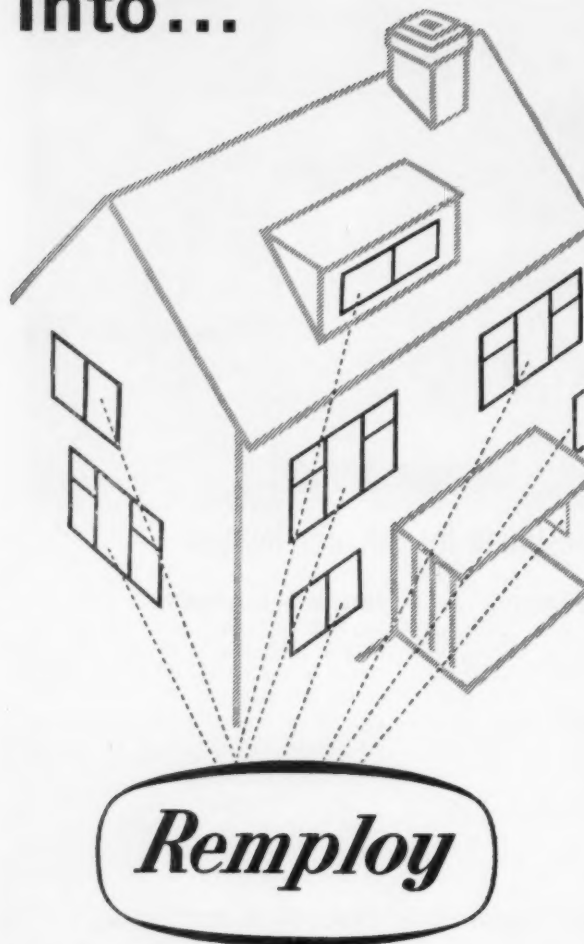
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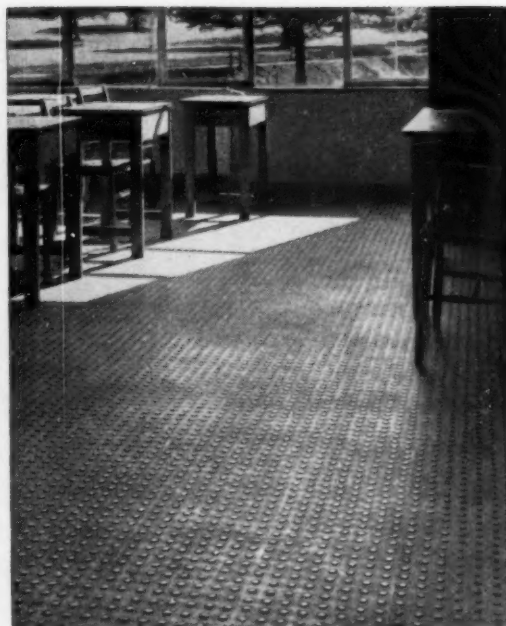
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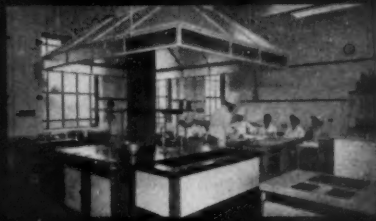
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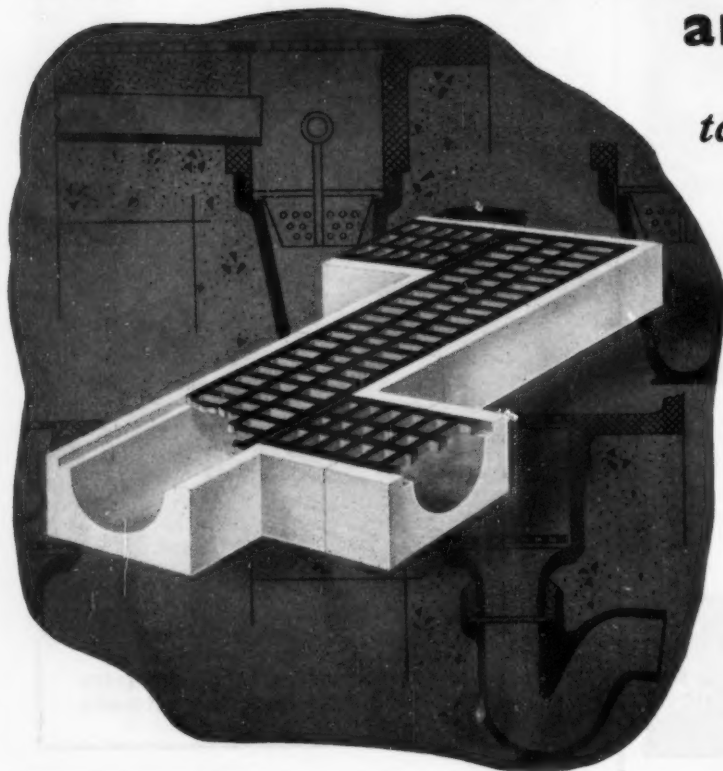
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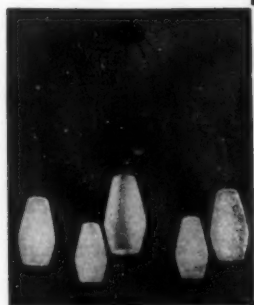
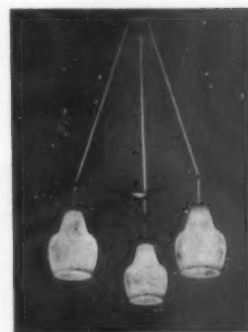
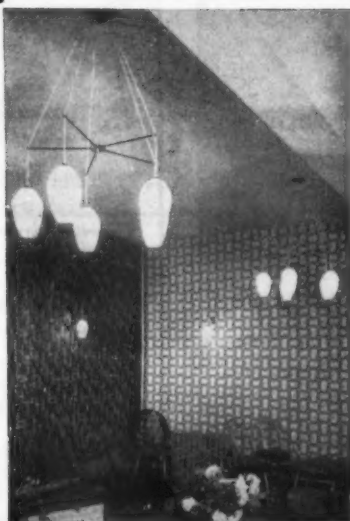
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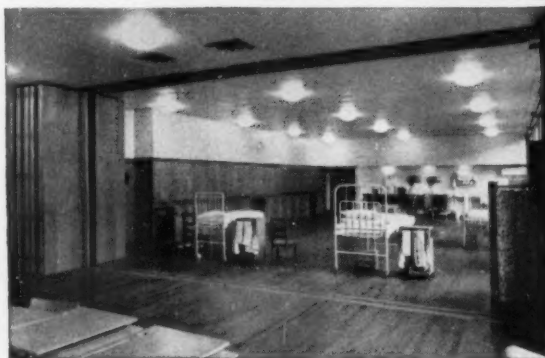
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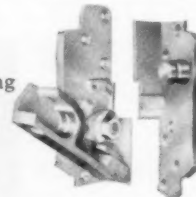
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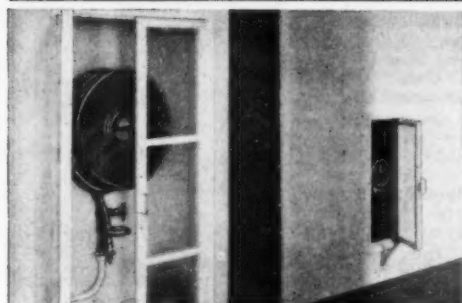
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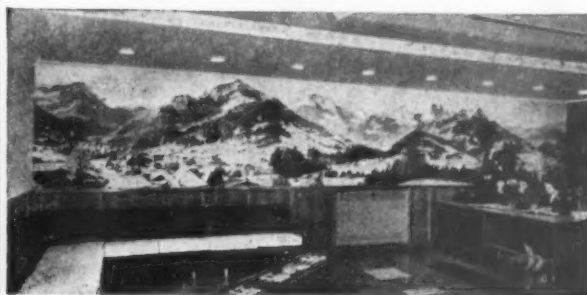
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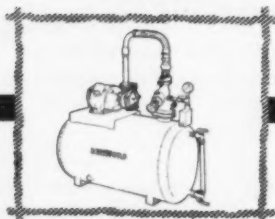
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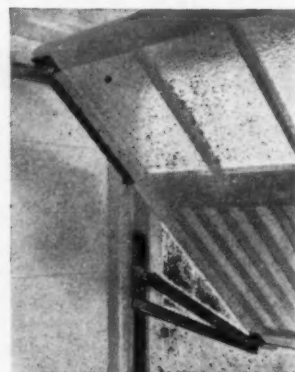
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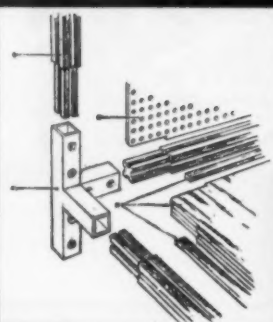
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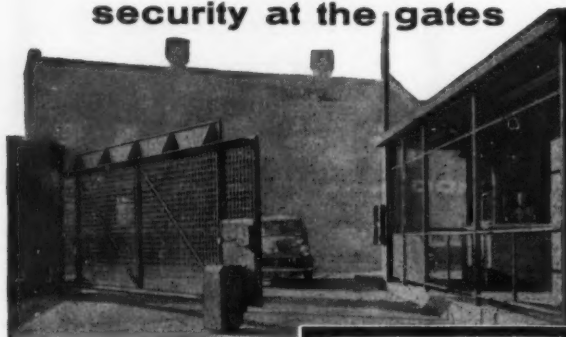
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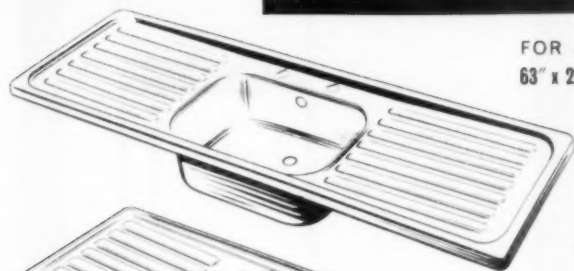
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(With combined overflow and 1½" C.P. Waste Fitting as standard, or 1½" if specified)

bowl size 16" x 12" x 7" deep

FOR PILLAR AND MIXER TAPS

63" x 21" No. 706 (without overflow)

No. 707 (with combined overflow and 1½" C.P. Waste Fitting as standard, or 1½" if specified).

Bowl size 20" x 15" x 8" deep.

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42" x 18" (Without overflow)

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FOR PILLAR & MIXER TAPS

42" x 21" (Without overflow)

No. 702 L. H. Drainer

No. 703 R. H. Drainer

No. 704 L. H. Drainer

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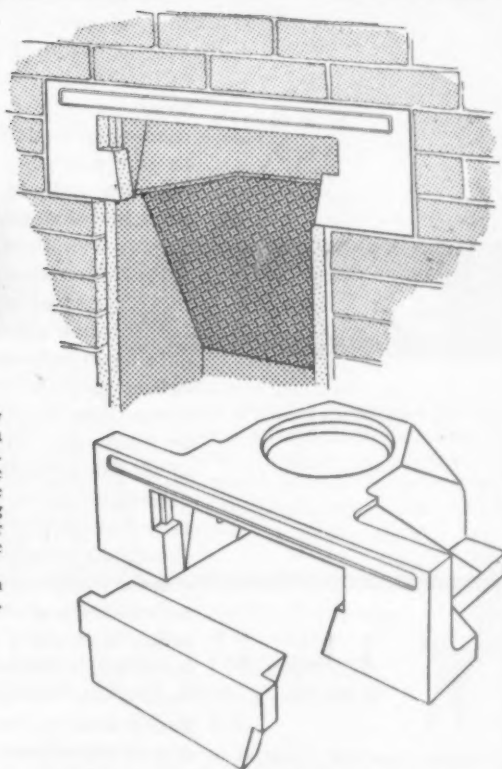
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**A
statement
to
advertisers**

We are appealing to advertisers to join with us in giving architects more concise, classified technical information.

A successful journal is a joint venture of editorial and advertising interests. The editors do their utmost to give architects the news, comment and technical information necessary for them to keep abreast with new developments and to practise efficiently. Our advertisers form a complementary service by supplying information on new materials, products and services, and by keeping this information up to date.

We believe that a neglected field of advertising lies in the preparation of informative advertisements. This is the field where the most response to an advertisement can be expected from a responsible, professional reader. In our policy of providing information for the architect we want to give every encouragement to advertisers to produce concise, logically ordered material, in tabular, drawn or diagrammatic form, fully dimensioned and annotated where necessary.

This is a method which has been successfully demonstrated by the AJ's Information Sheets. Advertisements that present information in an acceptable, authoritative way will be preserved by readers. Informative advertising is not intended to take the place of full catalogue information or the visit of technical representatives, but rather to assist the architect to make basic decisions and selections during the initial stages of his design when speed is vital.

In particular, The Architects' Journal seeks the co-operation of all the advertisers in its forthcoming series of supplements, which, commencing on October 4, will provide within a year the nucleus of a personal library (based on the SfB filing system)* for every architect. Easily detachable, the supplements will deal with a different building element each week, and contain a check list, design information, references and information sheets. We hope manufacturers will see the value of making their own contribution to this library by providing as much informative advertising as possible for each subject dealt with. Such advertising being an integral part of the supplement can be easily filed by readers as information complementary to the editorial. If any advertiser or his advertising agent seeks advice or further information on this we will be pleased to give it.

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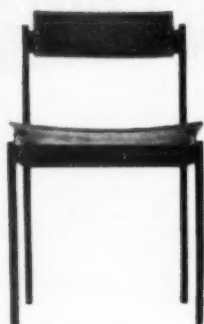


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was designed to meet the requirements of Richard Shepphard, Robson & Partners F/FRIBA for the School of Navigation, Southampton University. It has been specified for use in dining rooms, refectories, canteens and study bedrooms.

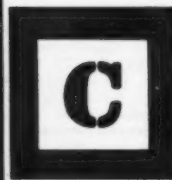
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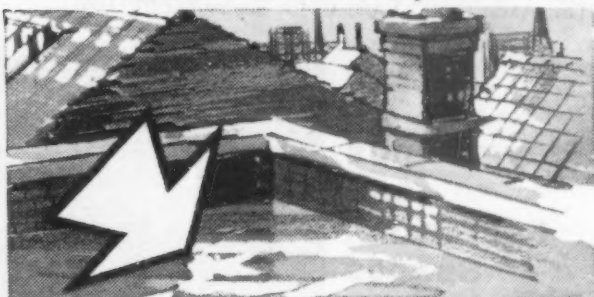
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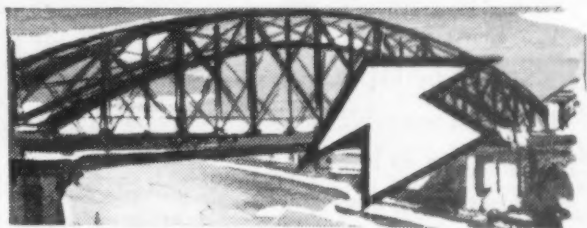
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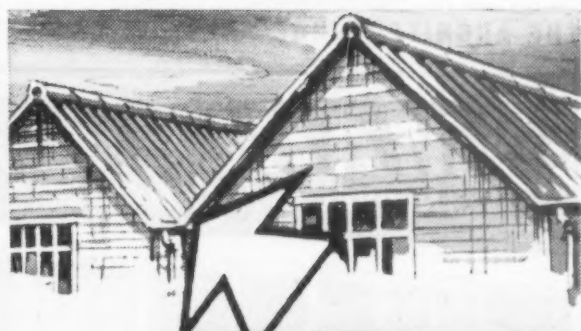
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It is now recognised by planners and local authorities that imaginatively-designed children's playgrounds and adult recreation spaces should be regarded as an essential amenity for all urban areas of any size, whether new or old; but so far very few really successful examples have appeared in the British Isles, and children in towns and cities continue, at their peril, to play their games in streets

and on roads. On the Continent, in Scandinavia and in the U.S., however, the subject is being tackled with the seriousness and care that it deserves, and there are many interesting and successful solutions to be seen. This book, after short introductory essays written by two of Europe's leading playground designers, consists of photographs and plans of a great variety of interesting examples

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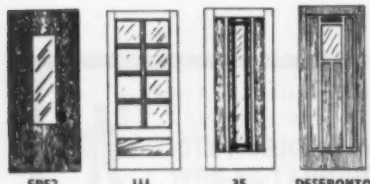
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Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

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

Public and Official Announcements

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ADMINISTRATIVE COUNTY OF LEICESTER

- (a) **PRINCIPAL ASSISTANT ARCHITECT.** £1,410-£1,565.
(b) **CHIEF ASSISTANT ARCHITECTS.** £1,310-£1,480.
(c) **SENIOR ASSISTANT ARCHITECTS.** £1,140-£1,310.

Candidates for (a) must be members of the R.I.B.A., have had sound experience and be capable of acting as Group Leaders on an extensive programme of education buildings. Candidates for (b) must be members of the R.I.B.A., have had considerable office experience and be capable of taking charge of contracts from inception to completion. For (c), should be members of the R.I.B.A., have had office experience and be capable of taking charge of small contracts. Lodging allowance and removal expenses may be paid to a married man. Apply on form obtainable from County Architect, 123, London Road, Leicester. TC9044

COUNTY OF LINCOLN

COUNTY ARCHITECT'S DEPARTMENT

- (a) **ASSISTANT ARCHITECTS, A.P.T. III-IV.** £960-£1,310.
(b) **ARCHITECTURAL ASSISTANTS, A.P.T. I-III.** £645-£1,140.

Full particulars of the above appointments may be obtained from the County Architect, County Offices, Sleaford, Lincs.
Applications from suitably qualified persons, together with the names and addresses of two referees, should reach the undersigned not later than the 16th October, 1961.

J. E. BLOW,

Clerk of the County Council.

County Offices,
Sleaford, Lincs.

September, 1961.

89342

GLOUCESTERSHIRE COUNTY COUNCIL
APPOINTMENT OF ARCHITECT-PLANNER

J.N.C. Grade D (£1,710-£1,975)
Applications are invited from suitably qualified and experienced Architect-Planners for the above appointment in the County Planning Department. The successful candidate will be required to carry out the necessary survey work and to prepare a redevelopment plan for the central part of the Borough of Cheltenham (population approximately 70,000) which is a fine example of a Regency town. The work gives scope for imaginative and constructive thought and calls for experience in town-centre redevelopment where architectural standards are high.

The appointment, which is likely to last from 2 to 3 years, is subject to medical examination and to National Joint Council conditions. A five-day week is worked.

Applications, stating age, qualifications, previous experience and present position and salary, together with the names of two referees, should reach the County Planning Officer, Unton Lane, Barnwood, Gloucester, not later than 10th October, 1961.

Canvassing will disqualify.

GUY H. DAVIS,

Clerk of the County Council.

89408

BOROUGH OF CASTLEFORD
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for this appointment in the Borough Architect's Department. Salary—Grade A.P.T. II (£815-£960). Applicants should have passed the Intermediate Examination of the R.I.B.A. or its equivalent at one of the recognised Schools of Architecture.

N.J.C. Service Conditions: Superannuable; terminable on one month's notice on either side; housing accommodation if required for successful married applicant.

Applications, on forms obtainable from me, to be returned not later than 9 a.m. on the 12th October, 1961.

Canvassing disqualifies.

ERNEST HUTCHINSON,

Town Clerk.

Town Hall,
Castleford.

9474

METROPOLITAN BOROUGH OF BATTERSEA
Applications are invited for the following permanent appointments in the Architects' Section of the Borough Engineer & Surveyor's Department:—

- (a) **ASSISTANT ARCHITECT, A.P.T. III.** Salary £960-£1,140 (plus London weighting £45 per annum).
(b) **ARCHITECTURAL ASSISTANT, A.P.T. I.** Salary £645-£815 (plus London weighting £40 per annum at age 26 and over).

Candidates for (a) should have had at least five years' practical office experience.
Candidates for (b) should be competent draughtsmen and have a good knowledge of building construction. One day's attendance at an approved course of Architectural study will be allowed, if required.

The Council's building programme is extensive and varied and offers scope for good experience in both design and construction.

Principal Architect: W. R. Fowler, F.R.I.B.A.
The appointments will be subject to the provisions of the Local Government Superannuation Acts, 1937-53.

Further particulars and application forms can be obtained from the Borough Engineer & Surveyor, Town Hall, Battersea, London, S.W.11, to whom they should be returned not later than 16th October, 1961.

C. M. W. S. FREEMAN,

Town Clerk.

89384

CITY AND COUNTY OF NEWCASTLE
UPON TYNE

CITY ARCHITECT'S DEPARTMENT

A unique opportunity exists in this office to take part in one of the most ambitious programmes of varied building works in the country, and vacancies in the establishment occur as follows:—

ARCHITECTS—who will be considered on their ability in design, experience and architectural outlook.

J.N.C. 'D'	£1,710-£1,975 per annum
J.N.C. 'C'	£1,560-£1,825 per annum
J.N.C. 'B'	£1,410-£1,670 per annum
J.N.C. 'A'	£1,365-£1,565 per annum
A.P.T. V	£1,310-£1,480 per annum
A.P.T. IV	£1,140-£1,310 per annum
A.P.T. III	£960-£1,140 per annum
A.P.T. II	£815-£960 per annum
A.P.T. I	£645-£815 per annum

The Department is engaged upon a wide and varied programme of major redevelopment schemes embracing multi-storey flats, shopping precincts and associated community buildings, one of which schemes is the Scotswood Road Redevelopment Area to rehouse approximately 5,000 people, and which is expected to cost in the region of £12 million.

Planning work has now commenced on the new Education Precinct in the centre area, comprising Colleges of Further Education, Art and Industrial Design, Drama, Commerce, and Multi-storey Hostels, which will be the largest development of its kind in the country.

Further projects include: Airport Terminal; Abattoir and Fatstock Market; Vegetable Markets; Central Library; and Divisional Police Headquarters, etc., and a varied programme of normal Housing development of a stimulating character.

The Department is also engaged on the New Town Hall, where an exceptional opportunity is presented for working on a building of some £4 million in value, and being executed in materials of the highest quality.

QUANTITY SURVEYORS:

A.P.T. IV £1,140-£1,310 per annum

A.P.T. I £645-£815 per annum

LANDSCAPE ARCHITECT:

J.N.C. 'A' £1,365-£1,565 per annum

Applicants will be considered on their ability in design, experience and capacity to carry out creative work, and the successful candidate will be required to prepare comprehensive schemes of Landscaping for the major Redevelopment Areas, Housing Estates, New Town Hall, Education Precinct, etc.

Applicants for posts in A.P.T. III and above must have appropriate professional qualifications.

The City Council has agreed (a) to pay 50% of the total cost of removal expenses of successful candidates up to a maximum grant of £50 in those cases where the Committee feels it is warranted, subject to the successful candidate remaining in the post for a minimum period of two years from the date of taking up the appointment, otherwise refund of the grant will be required; (b) to offer the successful candidates, in cases where the Committee deems it is warranted, the tenancy of a dwelling to be let at an economic rent, and (c) to draw candidates' attention to the facilities under the Council's scheme for advance on mortgage, whereby in approved cases a loan for the purchase of a house up to 100% of valuation may be granted by the Council.

Those wishing to take part in one of Britain's most stimulating programmes should apply immediately for further details and forms of application to George Kenyon, A.R.I.B.A., A.M.P.T.I., City Architect, 13 Cloth Market, Newcastle upon Tyne, 1, indicating the grade for which they wish to be considered.

JOHN ATKINSON,

Town Clerk.

Town Hall Newcastle upon Tyne, 1.
8th September 1961.

9336

COVENTRY CITY
SENIOR GROUP HOUSING ARCHITECT
£1,560 to £1,825—SCALE "C"

Applications invited for deputy to Principal Housing Architect.

Design ability, enthusiasm and drive required to implement urban renewal and neighbourhood projects on imaginative basis. New ideas encouraged.

Commencing salary according to experience. Application forms returnable by 6th October, 1961, to Council House.

ARTHUR LING,

City Architect.

89407

METROPOLITAN BOROUGH OF HAMPTSEAD
APPOINTMENT OF CHIEF PLANNING ASSISTANT A.P.T. V—£1,310-£1,480 p.a., PLUS LONDON WEIGHTING

Applications are invited for the above-mentioned appointment in the Borough Engineer's Department.

Candidates should have practical knowledge and experience of the Town and Country Planning Acts and Building Regulations and Byelaws, and be in possession of the appropriate qualifications.

The CHIEF PLANNING ASSISTANT, subject to overall supervision, will be in charge of the Planning Section of the Department.

The appointment is subject to the General Provisions of the National Charter.

A medical examination is required.

Housing accommodation cannot be provided.

Applications suitably endorsed and giving the names of two persons to whom reference may be made should be sent to the Town Clerk (A.J.), Town Hall, Haverstock Hill, N.W.3, not later than the 6th October, 1961.

9476

THE UNIVERSITY OF LEEDS

CLERK OF WORKS required in connection with the University development plan to commence duties on the Rodington Hall site, Lawnswood. The appointment will be initially for the completion of Stage III and the duration of the Stage IV contract about to commence (value £300,000; duration 3 years). The appointment will be renewable for other projects in the extended building programme now in hand. The commencing salary will be £1,150 and this will be renewed annually. Applications with the names of three referees and details of experience to be submitted to The Bursar, The University, Leeds, 2, by Monday 9th October. Envelopes to be marked Clerk of Works. 9459

AIR MINISTRY WORKS DEPARTMENT invites applications for ARCHITECTURAL ASSISTANTS, primarily for the architectural branch of the designs office in London.

SALARY (inner London Scale):

Grade II: £1,048-£1,220.

Grade III: £658-£1,048 (£866 at age 25).

Starting salary depends on age, qualifications and experience.

Qualifications and Experience: The work includes a wide range of domestic, administrative and technical buildings in varying forms of construction offering scope for imaginative design for which adequate training and architectural office experience is necessary. O.N.C. (Bldg.) some advantage for Grade III posts but progressive design ability is sought for Grade II. Financial assistance and time off may be allowed for recognised courses of study, e.g., R.I.B.A.

Prospects: Appointments are non-pensionable (retirement/resignation gratuity payable after 5 years' or longer service) but good opportunities exist both for establishment to pensionable posts, when all service counts, and for advancement to the higher grades in which posts number some 35. Higher grade salaries vary between £1,277 and £2,015 (inner London scale) and vacancies are, as a rule, filled by promotion of serving staff. Opportunities for tours of duty overseas, when additional allowances ranging, at present, up to £1,800 p.a. (depending on circumstances) are payable. 5 day week with 26½ days' paid leave per year initially including public holidays.

Applicants, who must be natural born British subjects, should write to AIR MINISTRY, W.G. LACON HOUSE, THEOBALDS ROAD, LONDON, W.C.1, or to any Employment Exchange (quoting Kings Cross, 838) giving age, details of training, qualifications and full particulars of former posts held. Candidates selected will normally be interviewed in London and certain expenses reimbursed. 89460

CHESTERTON RURAL DISTRICT COUNCIL
ARCHITECT'S DEPARTMENT
Applications are invited for the following appointments:—

(a) ARCHITECTURAL ASSISTANT (Grade A.P.T. III).

(b) ARCHITECTURAL ASSISTANT (Grade A.P.T. I).

(c) MEASURING SURVEYOR (Grade A.P.T. II).

The appointments will be subject to the N.J.C. Conditions of Service, Local Government Superannuation Acts, medical examination and one month's notice on either side.

Applications suitably endorsed with full details of experience and qualifications, accompanied by the names of two referees, to be sent to the undersigned, not later than the 14th October, 1961.

W. H. HAYWARD,

Clerk of the Council.

County Hall,
Hobson Street,
Cambridge

9484

CITY AND COUNTY OF NEWCASTLE UPON TYNE

**CITY PLANNING DEPARTMENT
PLANNING ASSISTANT A.P.T. III**

Applications are invited for the appointment of PLANNING ASSISTANT at a salary within A.P.T. III (£960-£1,140 p.a.) commencing at a point commensurate with qualifications and experience.

The vacant post is in the Development Control Division of the Department and experience in this field of Town Planning work is essential. Preference will be given to candidates holding suitable professional qualifications. Assistance with Housing and Removal Expenses may be available in approved cases.

The appointment is subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts, the passing of a medical examination, and the giving of one month's notice on either side.

Applications stating age, qualifications (if any), experience, and the names of two referees should reach the City Planning Officer, 2, St. Nicholas Buildings, Newcastle upon Tyne, 1, by Monday, 9th October, 1961.

City Planning Department.
19th September, 1961.

9464

**BOROUGH OF WREXHAM
ENGINEER AND SURVEYOR'S
DEPARTMENT**

ARCHITECTURAL ASSISTANTS

Applications are invited for the following architectural appointments in the Borough Engineer & Surveyor's Department.

(a) A.P.T. Grade II (£815-£960).
Applicants should have passed the Intermediate Examination of the R.I.B.A. and have had several years drawing office experience.

(b) A.P.T. Grade I (£645-£815).

Applicants should be studying for the R.I.B.A. Intermediate Examination and have had drawing office experience.

Housing accommodation available if required and the Council will consider the payment of removal expenses.

Further particulars and form of application from the Borough Engineer & Surveyor, Guildhall, Wrexham.

Applications to be returned to the undersigned not later than Monday, 16th October, 1961.

PHILIP J. WALTERS.
Town Clerk.

Guildhall,
Wrexham.
September, 1961.

89491

BOROUGH OF NUNEATON

APPOINTMENT OF

ARCHITECTURAL ASSISTANTS

Applications are invited for:—

(a) ASSISTANT ARCHITECT. Salary A.P.T. III/IV, £960-£1,310 according to qualifications.

(b) JUNIOR ARCHITECTURAL ASSISTANT. Salary A.P.T. I/II, £545-£960.

The posts will provide scope and opportunity for a varied experience as the Borough Council has a large building programme including houses, flats, swimming baths, schools and other public buildings.

Housing accommodation will be made available if necessary.

Further details and forms of application which must be returned not later than 16th October, 1961, may be obtained from me.

A. A. CRABTREE.
Town Clerk.

Council House,
Nuneaton.
22nd September, 1961.

89492

DARTFORD BOROUGH COUNCIL

has vacancies for suitably qualified persons for an interesting programme of new works, as follows:—

ARCHITECTS
SENIOR ASSISTANT ARCHITECT, Grade A.P.T. IV (£1,140-£1,310, plus £45).

ARCHITECTURAL ASSISTANT, Grade A.P.T. II or III (£815-£1,140 plus £25 to £45 according to age and grade).

ENGINEERS
SENIOR ASSISTANT ENGINEER, Grade A.P.T. IV (£1,140-£1,310, plus £45).

ENGINEERING ASSISTANT, Grade A.P.T. II or III (£815-£1,140 plus £25 to £45 according to age and grade).

PLANNERS
PLANNING ASSISTANT, Grade A.P.T. IV (£1,140-£1,310 plus £45).

Housing accommodation available.
Applications stating age, qualifications and experience together with the names of two referees, should be received by the Borough Engineer and Surveyor, The Bridge House, Dartford, Kent, not later than the 14th October, 1961. 9493

**WANDSWORTH BOROUGH COUNCIL
ARCHITECTURAL STAFF**

Applications for established posts within the following grades invited from qualified and unqualified persons:—

SENIOR ASSISTANT A.P.T. V, £1,355-£1,525.
ARCHITECTURAL ASSISTANT, A.P.T. IV, £1,185-£1,355.

TECHNICAL ASSISTANTS:
A.P.T. III, £1,005-£1,185.
A.P.T. II, £855-£1,000 and
A.P.T. I, £685-£855.

Grade and salary according to qualifications (if any), ability and experience.

Application forms from Borough Engineer, Municipal Buildings, S.W.18. Closing date 16th October.

J. NOEL MARTIN.
Town Clerk.
9479

**NORTHUMBERLAND COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT**

Applications are invited for the post of ASSISTANT ARCHITECT in the County Planning Department, Grade A.P.T. IV (£1,140-£1,310). The appointment is in the Design Section of the Department in the County Hall, Newcastle upon Tyne 1. The work is very varied including the redevelopment of industrial areas and market towns and the County Council are sponsoring the first self-contained township for Tyneside. It is essential that the applicants should be first class designers and experienced in planning work. Applicants should be Corporate Members of the Royal Institute of British Architects and/or Town Planning Institute.

The County Council operate a five-day week. The salary will be fixed in accordance with previous experience and ability.

Application forms are available from the County Planning Officer, County Hall, Newcastle upon Tyne 1, and must be returned not later than 9th October, 1961. 9453

**COVENTRY CORPORATION
REQUIRE**

HEATING AND VENTILATING ENGINEER, Grade A.P.T. V, £1,310-£1,480, for Mechanical Engineering Services Division of the City Engineer's Department. The person appointed will be responsible for the carrying out of regular, systematic inspection of heating installations in Corporation buildings and the maintenance and improvement as needed. He will also be required to ensure the efficient performance of installations and to organise instruction for plant attendants to this end. Applicants should be suitably qualified Heating and Ventilating Engineers with experience in the maintenance of boiler house plants.

MECHANICAL INSPECTORS, Grade A.P.T. II or III (£815-£960) or (£960-£1,140) for Mechanical Engineering Services Division of City Engineer's Department. Applicants should be holders of the Diploma of Heating and Ventilating Engineers or be otherwise suitably qualified and will be required to assist the H. & V. Engineer in the inspection, repair, maintenance and improvement of heating installations and the instruction of plant attendants. Housing accommodation may be available. Removal expenses loan (up to £50) provided where necessary.

Application forms from City Engineer, Council House, Coventry, returnable by 16th October, 1961. 9494

NORFOLK COUNTY COUNCIL

SENIOR PLANNING OFFICER (Amenity and Special Subjects) J.N.C. Scale B-£1,410 to £1,670. Applications are invited from persons holding suitable qualifications in planning, architecture and/or landscape architecture for appointment to the above new post as head of the Amenity and Special Subjects section of the Department.

The section is faced with an extremely interesting programme of work, and a person possessing an appropriate degree of enthusiasm and organisational ability is required.

An "essential user" car allowance and part removal expenses are payable, and the National Conditions of Service will apply.

Further particulars will be supplied on request. Closing date for applications 16th October.

R. I. MAXWELL,
County Planning Officer.

41/43, Thorpe Road,
Norwich, O2T.

89359

**ADMIRALTY—NAVY WORKS DEPARTMENT
ARCHITECTURAL AND CIVIL
ENGINEERING ASSISTANTS**

Vacancies exist in Navy Works Department Drawing Offices for ARCHITECTURAL and CIVIL ENGINEERING ASSISTANTS as shown. Posts are non-pensionable. Opportunities for transfer to Established Staff will occur.

Engineering Assistants:
Vacancies exist at Pinner (Middlesex), Liverpool, Rosyth, Greenock and Glen Douglas (Dumbartonshire) and occur at Establishments elsewhere in the United Kingdom from time to time. Applicants must be competent Draughtsmen and experienced designers in one or more of the following types of civil engineering works:—Structural steelwork, reinforced concrete; dock and harbour works; airfield construction; oil fuel schemes; roads, rail services and water supplies. O.N.C. or equivalent qualification is essential.

Architectural Assistants:
Vacancies exist at Head Office Architects Branch, Pinner (Middlesex), and also at Portsmouth, Devonport, Greenock and Chatham. Applicants must be competent Draughtsmen and will be required for work on the preparation of designs for a wide range of new works, including housing projects, all forms of accommodation buildings, specialised technical buildings and industrial type buildings in H.M. Dockyards. Preference given to candidates studying for professional qualifications.

Salary: (National Rate—subject to slight variation dependent on location) starting from £503 p.a. (at age 21) to £905 p.a. (28 and over); maximum of scale—£993 p.a. Opportunities occur for promotion to Leading grade—salary maximum £1,160 p.a. National Rate.

Five-day week. Annual leave 18 days rising to 22 after 10 years.

Consideration will be given to successful candidates being granted assistance to obtain professional or technical qualifications.

Candidates, who must be British subjects, are invited to apply, in writing (giving details of experience), to:—Director General, Navy Works (45/96/7/301) Admiralty, Chamberlain Way, Pinner, Middlesex.

Interview will be arranged locally. 89390

**BOROUGH OF ASHTON-UNDER-LYNE
APPOINTMENT OF:—**

(a) QUANTITY SURVEYOR GRADE A.P.T. IV (£1,140-£1,310 per annum).
(b) ARCHITECTURAL ASSISTANT GRADE A.P.T. III (£960-£1,140 per annum).

Applications are invited for the above appointments in the office of the Borough Engineer and Surveyor.

The provision of housing accommodation for the successful candidates will be considered if necessary.

Further particulars and application forms obtainable from the Borough Engineer and Surveyor, Municipal Offices, Ashton-under-Lyne.

Completed applications should be submitted to me by the 13th October, 1961.

G. A. MALONE.
Town Clerk.

Town Hall,
Ashton-under-Lyne.
13th September, 1961.

89406

**BOROUGH OF EDMONTON
BOROUGH ARCHITECT'S DEPARTMENT
ASSISTANT QUANTITY SURVEYOR**

Applications are invited for the appointment of an ASSISTANT QUANTITY SURVEYOR—Grade A.P.T. III, £960 to £1,140 per annum, plus £45 London Weighting. Commencing salary in accordance with qualifications and experience. Redevelopment programme includes multi-storey flats, Town Centre redevelopment, industrial dwellings and offices. House purchase facilities available.

Applications on forms obtainable from the Town Clerk, Town Hall, Edmonton, N.9. must be delivered by 20th October, 1961.

H. BACKHOUSE,
Town Clerk.

9470

**CITY ENGINEER & SURVEYOR'S
DEPARTMENT**

AREA PLANNING OFFICER GRADE B

Applications are invited from suitably qualified persons for the above appointment on the staff of the City Engineer and Surveyor and Town Planning Officer (Mr. C. L. Warman, B.Sc., M.I.C.E., M.I.Municipal P.L.).

The post is established in Grade B (£1,480-£1,670 p.a.).

Candidates should have a Town Planning qualification and an architectural or other suitable additional qualification would be an advantage. The commencing salary will be in accordance with experience and qualifications.

Superannuable post. N.A.C. Conditions of Service. Medical Examination.

Applications stating age, education and training, qualifications, experience, present and past appointments (with dates and salaries) and quoting the names of two referees should be submitted to the undersigned by the 15th October next.

JOHN HEYS,
Town Clerk.

Town Hall,
Sheffield, 1.

89472

**SOUTH WEST METROPOLITAN REGIONAL
HOSPITAL BOARD**

One Senior and number of other Architectural appointments are now being made in a recently formed team of young Architects engaged on the new hospital programme.

The Board are working on selected prototype schemes where basic research is necessary and a high standard of design is obligatory.

Registered Architects are invited to apply for posts in the following grades:—

SENIOR ASSISTANT ARCHITECT—Salary (including London Weighting) £1,350-£1,650 p.a.
ASSISTANT ARCHITECTS, £945-£1,360 p.a.
The senior appointment may only be made at the minimum of the scale.

In addition, candidates with the Inter. R.I.B.A. may be appointed to the grade of Architectural Assistant—Salary (including London Weighting) within the scale £645-£940 p.a.

Qualified but unregistered Architects may be appointed within the Architectural Assistant scale at £905 p.a. with immediate prospect on registration of proceeding to Assistant Architect grade.

Hospital experience while advantageous is not essential.

Applications containing age, present salary, experience, and the names of two referees to be made to the undersigned at 40, Eastbourne Terrace, London, W.2, by 9th October.

E. G. BRAITHWAITE,
Secretary.

9473

**HERTFORDSHIRE COUNTY PLANNING
DEPARTMENT**

ARCHITECTURAL DRAUGHTSMAN, A.P.T. II (£815-£960 p.a.) required in the Design Section. Experience in various forms of presentation desirable with ability to produce neat sketches in a wide variety of subjects related to town- and landscape. Training will be given in photographic montage presentation and general design. Permanent post, five-day week.

Forms of application from: The County Planning Officer, County Hall, Hertford, returnable by 16th October, 1961. 9482

**ISLE OF ELY COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT**
Applications are invited for the post of
HEATING ENGINEER.

Salary will be within Grade A.P.T. V (£1,310—£1,480) with Essential User car allowance.
Applicants must be A.M.I.H.V.E.

The post will be subject to N.J.C. Conditions and the passing of a medical examination.

Application forms and further particulars may be obtained from the County Architect, County Hall, March, to whom they must be returned by not later than Monday, 9th October, 1961.

R. F. G. THURLOW,
Clerk of the County Council.
S9276

**CITY OF OXFORD
DEPUTY CITY ARCHITECT AND PLANNING
OFFICER**

Applications for this appointment invited from qualified Architects who should preferably hold a town planning qualification and have had wide local authority experience in both fields. The Department is primarily responsible for all architectural work and the planning functions of the Council. Salary scale £1,860—£2,120 (N.J.C. Scale "E"). Car allowance.

Application form and conditions of appointment to be obtained from the City Architect and Planning Officer, Town Hall, Oxford. Closing date 10th October, 1961.

HARRY PLOWMAN,
Town Clerk.
S9290

**BOROUGH OF ENFIELD
BOROUGH ENGINEER AND SURVEYOR'S
DEPARTMENT**

Applications are invited for the following established appointment:
TOWN PLANNING ASSISTANT, Grade A.P.T. I
(£645—£815 per annum)

The commencing salary will be fixed at a point within the Scale commensurate with qualifications and experience.

The appropriate London weighting allowance will be paid in addition to the above salary.

Five-day week.
The Council are prepared to consider the provision of housing accommodation if required, or 100 per cent. advance to the successful applicant for house purchase within the Borough.

Details of appointment and application forms obtainable from H. D. Peake, M.Sc.(Eng.), Borough Engineer and Surveyor, 7, Little Park Gardens, Enfield, Middx.

CYRIL E. C. R. PLATTEN,
Town Clerk.
Enfield, Middx. 9418

**BOROUGH OF ALDERSHOT
BOROUGH ENGINEER AND SURVEYOR'S
DEPARTMENT**

ASSISTANT ARCHITECT

Applications are invited for the position of Assistant Architect on the staff of the Borough Engineer and Surveyor at a salary in accordance with Grade A.P.T. IV plus car allowance. Applicants must be Associates of the R.I.B.A.

Applications stating age, qualifications and experience together with the names and addresses of two referees, should be sent to the Borough Engineer and Surveyor, Town Hall, Aldershot, not later than Friday the 13th October, 1961.

Housing accommodation will be made available if required.

H. B. SALES,
Town Clerk.
9443

**STAFFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT**

**APPOINTMENT OF
SENIOR HEATING ENGINEER**

Grade A.P.T. V (£1,310—£1,480)

Applications are invited for the above post from Associate Members of The Institution of Heating and Ventilating Engineers. The offices are modern and well equipped and the Department has a large and varied programme of interesting work.

Five-day week, assistance with removal expenses, etc. The Council has a scheme for loans to employees wishing to purchase their own houses. Forms of application from P. Woodcock, F.R.I.B.A., County Architect, Green Hall, Lichfield Road, Stafford.

Closing date 10th October, 1961.

T. H. EVANS,
Clerk of the County Council.
9444

**COUNTY BOROUGH OF MERTHYR TYDFIL
APPOINTMENT OF
CHIEF ASSISTANT ARCHITECT**

Applications are invited for the above appointment on the permanent staff of the Borough Architect, at a salary within A.P.T. V (£1,310—£1,480 per annum). Applicants should be members of the R.I.B.A.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service and the terminable on one month's notice on either side; Housing accommodation will be available.

Applications, including names and addresses of two referees, should reach the undersigned not later than Monday, 9th October, 1961.

Canvassing will disqualify.

T. S. EVANS,
Town Clerk.
Town Hall,
Merthyr Tydfil.
18th September, 1961. 9449

**BOROUGH OF EDMONTON
BOROUGH ARCHITECT'S DEPARTMENT**

TOWN PLANNING ASSISTANT

Applications are invited from fully qualified persons for the appointment of a Town Planning Assistant in the Borough Architect's Department. Salary within Grade A.P.T. IV, £1,185—£1,355 inclusive of London weighting. The person appointed will be engaged primarily on development control with the opportunity of assisting in the comprehensive redevelopment of the main shopping and business area. The Council are prepared to grant loans up to 100 per cent. of valuation to facilitate house purchase.

Applications on forms obtainable from The Town Clerk, Town Hall, Edmonton, to be delivered by the 20th October, 1961.

H. BACKHOUSE,
Town Clerk.
9452

ARCHITECTS

The National Coal Board (South Western Division) invite applications for the following vacancies at the Divisional Headquarters, Llanishen, Cardiff.

(a) **ARCHITECT** to prepare sketch plans and working drawings and to undertake some executive duties and site supervision. Applicants must be Associate Members of the Royal Institute of British Architects. Salary scale: £900 × £35—£1,250 per annum. Please quote 525/40.

(b) **ARCHITECTURAL ASSISTANT** to prepare sketch plans, working drawings and details and to undertake associated drawing office duties. Applicants should preferably have passed the Intermediate Examination of the R.I.B.A. but applications will also be considered from persons with outstanding practical experience. Salary scale: £655 × £25—£785 per annum. Please quote 526/40.

Application forms, which may be obtained (quoting relevant number) from the Divisional Chief Staff Officer, National Coal Board, Ty Glas Avenue, Llanishen, Cardiff, should be returned by 7th October, 1961. 9435

**HERTFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT**

GROUP ARCHITECT (J.N.C. "D")—£1,710 to £1,975 per annum required.

Applicants should possess enthusiasm, good design ability and a comprehensive knowledge of modern building techniques.

A car user allowance will be payable.
Further particulars and form of application to be obtained from Geoffrey Fardell, M.B.E., A.R.I.B.A., County Architect, County Hall, Hertford, Herts, to whom they should be returned not later than Monday, 9th October, 1961. 9433

ARCHITECTS

Sydney Greenwood, A.R.I.B.A.
Chief Architect

JOHN LAING & SON LIMITED

requires

**ARCHITECTS, ARCHITECTURAL
ASSISTANTS AND DRAUGHTSMEN**

The office has been established for over 15 years, has broad experience, and offers tremendous opportunities.

There is full scope for close collaboration with all other branches of the industry; these include Civil Engineering, Plant Engineering, Cost Analysis, Project Planning and Construction. The Research and Development Centre provides a unique background to design work, and staff are appointed to the Centre as the occasion arises.

There is a regional office in Manchester, and there are opportunities with the Laing Housing Company at Edgware, for work on new housing projects.

Work in hand includes the following:

Redevelopment of Central Areas, Industrial, Commercial, Multi-Storey Dwellings, Schools, and Proprietary Systems. Staff are required in all grades up to Project Architect. Full advantage will be taken of skill in vigorous design and presentation, effective detailing and Draughtsmanship, and Technical knowledge and Project Management.

Applicants who have a positive attitude to the need for close collaboration between the branches of the industry, will be especially valued.

These posts offer excellent prospects and progressive benefits, including a pension scheme.

Applications giving brief details and quoting ref. M.A.6 to Group Personnel Manager, John Laing and Son Limited, London, N.W.7.

**NORTH EAST/METROPOLITAN REGIONAL
HOSPITAL BOARD**

40 EASTBOURNE TERRACE, LONDON, W.2

W. G. Plant, Dip.Arch. (L'pool), F.R.I.B.A.,
Regional Architect.

**PRINCIPAL
ASSISTANT ARCHITECTS**

The Board is engaged on a large and expanding programme of hospital development, and a large proportion of the work, which includes the construction of complete new hospitals, is undertaken by their own staff of Architects, on which there are several vacancies for **PRINCIPAL ASSISTANTS**.

Applicants for these posts must be Registered Architects, having passed the requisite examinations, and must be good designers with experience in the management of substantial projects. They must have experience controlling a Group of Architects working as a team, and be able to accept responsibility for contracts up to £2,000,000 in cost. Hospital experience, while desirable, is not essential.

Salary £1,715—£2,085 a year, inclusive.

Five-day week. Leave—25/30 days. Superannuable.

Mileage allowance paid for use of car on business.

Application forms obtainable on request to the Secretary, North East Metropolitan Regional Hospital Board, 40 Eastbourne Terrace, London, W.2, by 14th October, 1961.

METROPOLITAN BOROUGH OF CAMBERWELL
APPOINTMENT OF ARCHITECTS IN BOROUGH ARCHITECTS' DEPARTMENT
 The Borough Architect, having an interesting programme of housing and public buildings and a senior staff producing good contemporary work requires ASSISTANTS from good Schools of Architecture to back them up.

Newly elected Associates may expect a salary starting at £1,065 per annum and more for those with several years' experience; those who lack only the Professional Practice examination would commence at £840 to £855 per annum.

To arrange an interview write to Town Clerk, Town Hall, S.E.5. TC9424

CORPORATION OF LONDON

Applications are invited for the following posts in the Building and Architectural Division of the City Surveyor's Office:—

A. ASSISTANT BUILDING SURVEYOR
 (Two vacancies).

Candidates must have passed the Final examination of the R.I.C.S., possess a sound knowledge of building construction and the ability to prepare specifications for works of maintenance and supervise contracts.

Salary range £1,065—£1,310.

B. ARCHITECTURAL ASSISTANT

Applicants must be of Intermediate R.I.B.A. standard with the ability to prepare working and detailed drawings.

Salary scale £690—£1,095.

C. JUNIOR ARCHITECTURAL OR SURVEYING ASSISTANT

Applicants should be studying for Intermediate examination of the R.I.B.A. or R.I.C.S. and should possess a sound knowledge of building construction.

Salary scale £630—£990.

Write giving age and full details of previous experience, with the names of two referees, within fourteen days, to The City Surveyor, Guildhall, E.C.2. S9422

**MINISTRY OF HEALTH
 HOSPITALS RESEARCH AND DEVELOPMENT UNIT**

Registered ARCHITECTS are invited to apply for a Basic Grade unestablished post in London. Applicants should have good general architectural experience and be keen to join building teams engaged on development projects.

Salary: £991—£1,490. Commencing salary dependent on age, qualifications and experience. Five-day week.

Applications (two copies) stating nationality, date of birth, qualifications, experience, present appointment and three referees to the Director of Establishments and Organisation, Ministry of Health, Savile Row, London, W.1, by 6th October, 1961. 9420

TECHNICAL ASSISTANT (VALUATIONS AND ESTATE) required for office managing large number of scattered properties including furniture warehouses, shops and road haulage depots. Applicants, preferably with a professional qualification, must be able, with supervision, to undertake inspection of properties, preparation of reports, valuations, and negotiations in connection with sales, purchases, leases, renting, including drafting of agreements, and rating. Travel involved. Salary range £1,150—£1,350 per annum. Applications giving age, experience and qualifications to B.R.S. (Pickfords) Limited (SV.151), 59/67 Theobalds Road, London, W.C.1. 9428

**BOROUGH OF ENFIELD
 BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT**

APPOINTMENT OF CHIEF PLANNING ASSISTANT, A.P.T. V (£1,310—£1,480 p.a.)

Applications are invited for the above post. The Borough has a population of 110,000 and an area of 12,400 acres, of which 2,750 acres are preserved as Green Belt plus approximately 1,000 acres as parks and public open spaces. The Department has under preparation schemes of Comprehensive Development including the re-planning of The Town Centre and the lay-out of an Industrial Estate.

The successful applicant will be a Section Head and must have considerable ability, leadership and imagination.

All applicants must have passed the Final Examination of the Town Planning Institute, and Membership of another related professional body will be considered an advantage. Experience in the control of staff, Committee work, Planning Inquiries and general administration is essential.

The appropriate London weighting allowance will be paid in addition to the above salary, which will be fixed at a point within the scale commensurate with qualifications and experience. An "Essential Car User's" allowance is payable in connection with the duties of the post.

The Council are prepared to consider the provision of housing accommodation if required, or 100 per cent. advance to the successful applicant for house purchase within the Borough.

Five-day week.
 Details of appointment and application form obtainable from H. D. Peake, M.Sc.(Eng.), Borough Engineer and Surveyor, 7 Little Park Gardens, Enfield, Middx.

CYRIL E. C. R. PLATTEN, Town Clerk. 55419

Civic Centre, Enfield, Middx.

**YORKSHIRE ELECTRICITY BOARD
 HEAD OFFICE**

ASSISTANT QUANTITY SURVEYOR

Applications are invited for the post of an Assistant Quantity Surveyor. Candidates should be experienced in abstracting and billing, site measurements, valuation of works and the preparation of final accounts.

Salary: N.J.B. Class K, Grade II (transitional to Scale 8) within the range £900 to £1,365 per annum, the commencing salary will be according to qualifications and experience.

Applications, together with the names of two referees, should be sent to the Secretary, Yorkshire Electricity Board, Wetherby Road, Scarcroft, Leeds, within 7 days from the appearance of this advertisement. 9411

**STAFFORDSHIRE COUNTY COUNCIL
 COUNTY ARCHITECT'S DEPARTMENT
 VACANCIES**

(a) ASSISTANT ARCHITECTS, £1,140—£1,310.

(b) ASSISTANT QUANTITY SURVEYORS, £1,140—£1,310.

(c) ASSISTANT HEATING ENGINEER, £1,140—£1,310.

(d) ARCHITECTURAL ASSISTANTS, £815—£960.

Applicants should hold for post (a) A.R.I.B.A.; (b) A.R.I.C.S.; (c) A.M.I.H.V.E.; and (d) Intermediate R.I.B.A.

The Architect's Department is a busy and expanding office, dealing with a wide variety of projects, including Fire Stations, Colleges, Schools, Police Stations, Offices, Ambulance Stations, Clinics, Libraries, etc.

Good working conditions, assistance with removal expenses, etc.

There is a possibility that housing may be made available in special circumstances.

Forms of Application from P. Woodcock, F.R.I.B.A., County Architect, Green Hall, Lichfield Road, Stafford.

Closing date: 3rd October, 1961.

T. H. EVANS, Clerk of the County Council. 9429

BOROUGH OF SWINDON

(a) SENIOR TOWN PLANNING ASSISTANT, A.P.T. IV.

(b) TOWN PLANNING ASSISTANT, A.P.T. I or A.P.T. II.

Applications are invited for the above appointments on the staff of the Borough Engineer and Surveyor.

The town is rapidly expanding to provide accommodation and work for about 20,000 people from the Greater London area under the provisions of the Town Development Act and the present population of the Borough is approximately 92,000.

There is considerable scope for imaginative and skilful planning work in the layout of large open areas earmarked for expansion; in urban renewal, particularly where the central business and shopping area is being remodelled and developed on the pedestrian way principle; and general planning control work.

(a) SENIOR PLANNING ASSISTANT, A.P.T. IV (£1,140—£1,310).

Candidates should have had suitable experience and have passed the Final examination of the Town Planning Institute. Development control experience would be an advantage, and additional experience in surveying and valuation together with at least some qualification under the R.I.C.S. would also be helpful.

(b) PLANNING ASSISTANT, A.P.T. I (£645—£815) or A.P.T. II (£815—£960), according to qualifications and experience.

A five-day week is in operation.

Housing accommodation will be offered to married candidates from other areas, and assistance towards removal expenses may be granted.

Applications in forms to be obtained from the Town Clerk, Civic Office, Swindon, must be returned not later than Friday, 6th October. 9417

**AUSTRALIA
 THE NEW SOUTH WALES DEPARTMENT OF PUBLIC WORKS**

requires ARCHITECTS AND CIVIL ENGINEERS

Qualifications. Degree, diploma or equivalent qualifications meeting registration or Corporate Membership requirements in New South Wales.

Salaries. Up to £2,270 per annum. Commencing rate according to qualifications and experience.

Opportunities for promotion and good experience in Sydney and Country Offices. ARCHITECTS can obtain promotion as team or section leaders and as District Architects. Architectural work includes design construction and administration of contracts for hospitals, public buildings, schools.

CIVIL ENGINEERS. Vacancies available include the investigation, design and construction of water supply and sewerage schemes, harbours and rivers work, local government engineering and research work at the Hydraulic Laboratory, Manly.

Promotion positions carry salaries up to £4,500 per annum and beyond.

Selected candidates can also qualify for:

Permanent appointment.

Superannuation.

Liberal leave conditions.

Passage to Sydney arranged for successful applicants.

The Assistant Director, Department of Public Works, and the Principal Engineer, Harbours and Rivers Branch of that Department, will be available to interview applicants during the week commencing 9th October.

Application forms and further details available from the Agent General for New South Wales, 56, Strand, London, W.C.2. Please apply before 6th October, 1961. 9425

STEPNEY M.B.C.

require SENIOR ARCHITECTURAL ASSISTANT, £1,185—£1,355 p.a. Registered Architect, with suitable architectural qualifications and experience in design, construction and administration of large building contracts, preferably with a local authority. Forms of application and further particulars from Town Clerk, 227, Commercial Road, E.1. 9454

**Design and Detail
 of the Space
 between Buildings**
 by Elisabeth Beazley

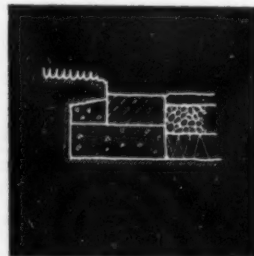
'It is not easy to see how any self-respecting architectural office can afford to be without it, as the time spent on acquiring the necessary information to deal adequately with even one individual problem would more than pay for a copy.'

Architect & Building News

Size 10 x 7½ in. 230 pages, fully illustrated.

Price 42s. net., postage 1s. 9d.

The Architectural Press,
 9-13 Queen Anne's Gate, S.W.1.



ARCHITECTURAL ASSISTANTS and DRAUGHTSMEN

All Grades

Required for heavy programme of building development.

Good working conditions in pleasant surroundings. 5-day week. Progressive salaries commensurate with age and ability. Continuous employment. Pension scheme. Staff canteen.

Interviews to suit applicants.

Write or Phone:—

**District Architect,
F. W. WOOLWORTH and CO., LIMITED**
1266, London Road, Norbury, London, S.W.16

Telephone: POLIards 5050

MANCHESTER CORPORATION

ENGINEERS & PLANNERS

Grades JNC 'B' (£1420/£1670) and APT V (£1310/£1480)

Engineering appointments offer experience in an extensive programme of design and construction work including highway improvements, new major roads and bridges, main drainage, airport extensions and new roads and sewers on housing sites.

The Planning appointments offer practical experience in comprehensive redevelopment schemes in central areas and in large scale new residential development projects.

Applicants must be appropriately qualified.

Housing Accommodation and Removal Expenses

Applications giving details of age, qualifications, and experience, together with the names of three referees, to the

City Surveyor, Town Hall, Manchester, 2



—the specialist designers and builders
of modern industrial buildings
are increasing their staff of

Qualified Architects and Assistants

IN WARWICKSHIRE · KENT · ESSEX

ABILITY AND ENTERPRISE OF PARAMOUNT IMPORTANCE

Superannuation and substantial
bonus schemes in operation

EXCELLENT PROSPECTS in rapidly expanding organisation

Replies, in confidence, to General Manager
**ATCOST (FACTORIES) LTD., YORK HOUSE,
TUNBRIDGE WELLS, KENT**

**Advance
with**

ATCOST

NORTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD

40 EASTBOURNE TERRACE, LONDON, W.2

W. G. Plant, Dip. Arch. (L'pool), F.R.I.B.A.,
Regional Architect.

ARCHITECTURAL ASSISTANT

The Board have a vacancy in their Architect's Department for an ARCHITECTURAL ASSISTANT to organise the Department's technical library and to provide a technical information service for a staff of over 50 Architects engaged in a large and interesting programme of hospital development.

The Applicants should be prepared to specialise in research, particularly in the use of materials and building methods, and must have passed the Intermediate Examination of the Royal Institute of British Architects, or an examination giving exemption therefrom.

Salary, according to age and experience, from £645—£940 a year inclusive.

Applications, giving age, details of education, professional training, qualifications, experience and past and present appointments, present salary and other relevant details, together with the names and addresses of two referees, should be sent to The Secretary, North East Metropolitan Regional Hospital Board, 40 Eastbourne Terrace, London, W.2, within 14 days.

AIR MINISTRY WORKS ORGANISATION requires **QUANTITY SURVEYING ASSISTANTS** Grade III at R.A.F. and Ministry of Aviation stations throughout the United Kingdom. The work includes abstracting and billing, site measurement and preparation of estimates.

Salary, which is dependent upon age, qualifications and experience, ranges from £749 (age 23) to £988 National Rate (max.) in Grade III. There are pension prospects and also opportunities of advancement to numerous posts in the higher grades, viz.

Technical Grade II: £988 - £1,128 123 posts
Technical Grade I: £1,128 - £1,388 42 posts
Technical Grade B: £1,388 - £1,602 8 posts
Technical Grade A: £1,482 - £1,747 5 posts

Vacancies occurring in these higher grades are as a rule filled by promotion of existing staff. Overseas tours for which special allowances ranging at present up to £1,800 p.a. are payable in addition to a higher salary. Financial assistance and time off allowed for recognised courses of study leading to higher qualifications. Five-day week with 18 days paid leave a year initially.

Applicants who must be natural born British subjects, must hold O.N.C. (Building or Builders Qualities) or equivalent and had good experience under Quantity Surveyor or Building Contractor. Knowledge of W.D. Schedule an advantage. Forms from Manager (P.E.2), Ministry of Labour, Professional and Executive Register, Atlantic House, Farringdon Street, London, E.C.4. Candidates selected will be interviewed in Air Ministry, London and certain expenses reimbursed. Only applicants selected for interview will be advised.

S8923

CITY OF OXFORD EDUCATION COMMITTEE
COLLEGE OF TECHNOLOGY

SENIOR LECTURER IN TOWN PLANNING
Applications for this new full-time teaching post in the Oxford School of Architecture and Building are invited from architects who are Corporate Members of the Town Planning Institute and who have recent experience of planning.

The candidate appointed will, in the first instance, be required to develop a part-time post-graduate course for architects and others who seek a planning qualification.

Further particulars and application form (stamped addressed envelope) can be obtained from Principal, College of Technology, Headington Road, Oxford, to whom they should be returned as soon as possible. 3440

LANDSCAPE ARCHITECTS AND ASSISTANTS for preparation of working drawings and specifications and supervision of contracts on new parks, playing fields, grounds of housing estates, etc.

Salary up to £1,250 (£960 for Assistants), starting point according to qualifications and experience.

Apply to Chief Officer, L.C.C. Parks Department, County Hall, S.E.1 (WATERLOO 5000 ext. 8076) quoting (A1/A/402/9). 3416

POPLAR BOROUGH COUNCIL
PRINCIPAL ASSISTANT ARCHITECT required. Grade A.P.T. V (£1,310 - £1,480 per annum, plus £45 London weighting). Projects include multi-storey flats and maisonettes, houses and public buildings. Application forms from Borough Engineer & Surveyor, Poplar Town Hall, Bow Road, E.3, closing date 9th October, 1961. 3413

COUNTY BOROUGH OF SOUTHAMPTON
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT
Applications are invited for the following appointments:

(a) **ASSISTANT ARCHITECT**, Grade A.P.T. V (£1,310 - £1,480), for duties in connection with an extensive and varied programme of housing development including multi-storey flats. Applicants must hold the qualification A.R.I.B.A. with wide experience in the design and administration of major building works.

(b) **ASSISTANT ARCHITECT**, Grade A.P.T. III/IV (£960 - £1,310), for duties in connection with housing estate development. Applicants must have passed Parts I and II of the R.I.B.A. Final examination. Commencing salary according to experience and qualifications.

The appointment is subject to N.J.C. conditions of service. Housing accommodation available in approved cases, and approved removal expenses reimbursable up to a maximum of £50.

Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, to be returned by Monday, 16th October, 1961. S9441

Architectural Appointments Vacant
3s. per line; minimum 12s. Box Number, including forwarding replies, 2s. extra

CITY Architects urgently require **SENIOR ASSISTANTS**. Long term projects of contemporary design. Assistants would be in charge of projects in completion. Five-day week. Salary up to £1,750 per annum plus Luncheon Vouchers. Box S9466.

ARCHITECTURAL ASSISTANT. Man or Woman with some office experience required for interesting country practice. L. H. Bond and R. W. Read, 44, Castlegate, Grantham. TC8851

LANCHESTER & LODGE urgently require **ARCHITECTURAL ASSISTANTS** of all grades. Work includes hospitals, laboratories, universities, offices, housing, etc. Write full particulars or ring for interview: 10, Woburn Square, W.C.1. MUS 0845-6-7. TC7249

£1,000 / £2,000 p.a. will be paid to experienced competent **ARCHITECTS** by a private practice in the City of London. The work will be primarily on the drawing board on new and interesting projects of magnitude. A high standard of design and detailing ability is required. Please apply in writing to Box TC9360.

A FEW vacancies still left for experienced and confident **ARCHITECTS** to fill positions of responsibility in a growing and varied practice with industrial and commercial work throughout the southern half of the country. Applicants must have initiative as well as architectural ability to carry through contracts up to £100,000, working directly with Principals but with minimum supervision. Apply in writing to Thomas Mitchell & Partners, 20 Bedford Square, London, W.C.1. TC7443

BRYAN & NORMAN WESTWOOD require **ASSISTANT ARCHITECTS**. Salaries up to £1,200. Apply to 21 Suffolk Street, S.W.1, Trafalgar 1105. TC8690

£850-£1,600. **ARCHITECTURAL ASSISTANTS** required. Long term prospects. Non-contributory pension and life assurance schemes. Five-day week. Telephone or write: Ronald Ward & Partners, 29, Chesham Place, Belgrave Square, S.W.1. Belgrave 3361. TC6105

ARCHITECTS' ASSISTANT required, up to Intermediate standard, to work on large and interesting projects. Salary within range £600-£800. Applicants must be good draughtsmen, with sound knowledge of detailing. Please write giving full particulars of experience, age, etc., to: F. W. Beech & E. Curnow Cooke, F./L.R.I.B.A., 15, Dix's Field, Exeter. TC8706

ASSISTANT ARCHITECTS with Site experience, initiative and design ability, required as **GROUP LEADERS** immediately. Salary according to experience. Qualification, although advantageous, not essential if other qualities are present. Raymond Spratley & Partners, 9, Hertford Street Park Lane, W.1. GROsvenor 7912. TC8817

ARCHITECTURAL ASSISTANTS of all grades, particularly Intermediate standard, required on varied and interesting projects. High salaries will be paid in accordance with skill or experience of applicant. Lewis Solomon, Kaye & Partners, City 3811. TC5970

HOWARD V. LOBB & PARTNERS require **ASSISTANT ARCHITECTS**. Salaries would be between £750 and £1,250 per annum. Please write to 20, Gower Street, W.C.1. TC7789

SOUTHAMPTON, **ASSISTANT** of at least Intermediate standard required to help with projects in Hampshire and the Isle of Wight. Apply to E. M. Galloway & Partners, F./A.R.I.B.A., 10 Portland Street, Southampton. TC9098

£950-£1,500. **ARCHITECTURAL ASSISTANTS** with imagination and designing ability required to assist with large and important new developments in the central London Area. Telephone or write: Trehearne & Norman, Preston & Partners, 83, Kingsway, W.C.2. HOLborn 4071. TC8915

ARCHITECTURAL ASSISTANTS required in Busy Bloomsbury office with varied practice. Good salary and prospects for suitable applicants. Five-day week. Write giving particulars of age, qualifications, experience, etc., to Box 918, c/o 7, Coptic Street, W.C.1. TC5647

SENIOR ARCHITECTURAL ASSISTANTS. Large Office has a limited number of vacancies for Senior Architectural Assistants, salary range £900-£1,500, to undertake work of a varied and interesting character. Reply with particulars of experience to Box TC6875.

ROBERT MATTHEW & JOHNSON-MARSHALL have vacancies in their London office for **ARCHITECTS** at all levels of experience for a variety of interesting jobs. Apply to Robert Matthew & Johnson-Marshall, 24, Park Square East, N.W.1. TC6547

SENIOR ASSISTANTS required immediately. Salary by arrangement. Theo. H. Birks, 38, Portland Place, London, W.1. LAN. 7236. TC1486

ARCHITECTS required, Senior and Intermediate, with enthusiasm and initiative for varied young practice involved in comprehensive redevelopment schemes, shopping centres, offices, schools, flats, hotels, banks, markets, public houses, cinemas, bowling centres and industrial work. High design, detailing and technical ability essential, with analytic approach. Please write to: James A. Roberts, A.R.I.B.A., Lichfield House, Smallbrook, Ringway, Birmingham 5. S9356

ERIC FIRMIN & PARTNERS require **ASSISTANT** of Intermediate or Final standard preferably with previous office experience for interesting variety of projects. Five-day week. Luncheon Vouchers, holiday arrangements requested. Salary by arrangement according to qualifications and experience. Write to Thavies Inn House, Holborn Circus, E.C.1, or 'phone CITY 8811. TC8904

ASSISTANT ARCHITECT required, qualified and experienced, for interesting work. Salary according to experience and ability. Apply in writing with full particulars to Henry C. Smart & Partners, 120 Moorgate, London, E.C.2. S9669

SENIOR AND INTERMEDIATE ASSISTANTS required immediately in an expanding practice to work on large contracts:-

Schools; Housing; Office Blocks; Central, Commercial and Industrial developments.

Good salaries commensurate with ability and experience paid to keen men capable of taking responsibility.

Write to W. S. Hatfield & Partners, 1, Queens Road, Coventry. S9343

ROMFORD, ESSEX. SENIOR ASSISTANT. Qualified or Finals standard, experience in commercial buildings, housing and high flats desirable, three weeks annual leave, luncheon vouchers, non-contributory pension scheme with immediate life cover, motor expenses, removal and interview expenses if appropriate. Salary by arrangement, write L. D. Tomlinson & Partners, F./A.R.I.B.A., Quadrant Arcade, Romford 42533. S9329

A LARGE Insurance Society with Head Office in London has a vacancy in its Estates Department for a **STAFF ARCHITECT**. Applicants who should be between 23 and 28 years of age, must be members of the R.I.B.A. and be experienced in designing and supervising the erection of shops, offices and residential properties and conversions.

Commencing salary from £1,250 per annum according to experience.

Applicants should state their age and give particulars of their general and technical education together with past and present employment. Box S9325.

COMPETENT ARCHITECTURAL ASSISTANT, about Intermediate standard, required for small, progressive, expanding practice. **FIVE-DAY WEEK, STUDY CONCESSIONS WITH REAL OPPORTUNITY FOR THOSE SEEKING EXPERIENCE, RESPONSIBILITY AND SITE SUPERVISION - VARIETY ASSURED-SALARY £700-£900.**

Interview arranged to suit applicant's convenience. Write or telephone:

C. Timothy, One Gower Street, London, W.C.1. Tel. LAngham 5161. S9323

WELCH AND LANDER require **ASSISTANTS**: must be keen, efficient, dedicated and almost brilliant. In return we can offer you £800-£1,000 and the prospect of working till you are cross-eyed, and have gained plenty of all-round experience the hard way. No doubt this is what you need. WEL 6551. S9327

ARCHITECTURAL ASSISTANTS, all grades, required for work on a wide variety and interesting projects. Pleasant working conditions. Good salary offered with a non-contributory pension and life assurance scheme. Five-day week. Write or telephone: Bertram Butler & Co., Chartered Architects, 6 Tettenhall Road, Wolverhampton. Tel. No. 23924. S9332

SENIOR AND INTERMEDIATE ASSISTANTS required immediately in an expanding practice, to work on large and varied contracts.

Good salaries commensurate with ability and experience paid to keen men capable of taking responsibility.

Write or telephone: W. S. Hatfield & Partners, 21, Cleveland Place, King Street, S.W.1. Whitehall 4076. S9344

NEW PRACTICE (associated with London and provincial group) beginning October in London, W.1. Partner requires his first and for time being his only **ASSISTANT** who must be:

1. Final standard or nearly.
2. With some office experience.
3. Able to drive.
4. Keen about design, construction and contract management.

Excellent opportunity for all-round experience. Salary over £1,000. Write in confidence to Box S9328.

INTERMEDIATE TO FINAL ASSISTANTS required immediately. Salary from £1,000 onwards and luncheon vouchers. Theo. H. Birks, 38, Portland Place, London, W.1. LAN. 7236. TC8906

JUNIOR ASSISTANT required for small congenial office in Grays Inn. Approaching Intermediate standard, £400-£500 per annum and luncheon vouchers. Telephone HOLborn 9687. TC9358

GENERAL ASSISTANTS required. Good opportunity in expanding office. Intermediate and Final standard. Interesting variety of work. Staff pension scheme. Evening interviews if required. Write or 'phone George E. Clay & Partners, 198, Parrock Street, Gravesend, Kent. Gravesend 1401/2. S9355

ASSISTANT ARCHITECT required with sound general experience, for progressive varied and growing practice. Full particulars of experience, age, etc., in confidence to G. Parry Davies & Associates, Denbigh. 9450



ARCHITECTS

The United Power Company Limited recently formed to amalgamate the interests of ATOMIC POWER CONSTRUCTIONS LIMITED and G.E.C.—SIMON-CARVES ATOMIC ENERGY COMPANY LIMITED has vacancies in the Central London Offices for Architects interested in industrial buildings and keen to work as members of a team, consisting of Civil, Mechanical and Electrical Engineers on the development of major industrial buildings.

Applications giving full details of age, qualifications, experience, etc., should be sent to:—

THE PERSONNEL MANAGER

(Ref. AJ/202)
P.O. BOX 90
28 THEOBALDS ROAD
LONDON, W.C.1

NORTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD
40 EASTBOURNE TERRACE, LONDON, W.2
W. G. Plant, Dip. Arch. (L'pool), F.R.I.B.A.,
Regional Architect.

ARCHITECTS

are urgently required for the Board's expanding Architectural Department in LONDON.

A considerable programme of building, which includes the design and construction of complete new hospitals, is now getting under way offering scope for research, imaginative design and progressive thinking, and excellent opportunities for young architects, including those just qualified, for gaining experience in a wide field ranging from specialised hospital structures to Nurses' Teaching Schools, Domestic Residential Buildings, Recreational Centres, Workshops, Nurses' Homes, etc.

Architects will either be allocated jobs of their own and be responsible under limited supervision for work involving all stages from sketch plans and office administration to site supervision, or will work, as members of teams, on the larger projects and share in the work of research, design and detailed drawings.

The Region which comprises the City of London, and parts of the administrative County of London, parts of Middlesex and Hertfordshire, and the county of Essex, serves a population of over 3,000,000 and is responsible for over 130 hospitals.

Applicants should have passed the final R.I.B.A. examination, and registered architects would be appointed on the basic professional (assistant) scale: £945 × £35(1) × £45(6) × £50(2)—£1,360 inclusive, the commencing salary depending on age and experience; the salary for architects awaiting registration is £905.

Promotion prospects are good and the maximum of the Senior grade is £1,650 p.a.

PREVIOUS HOSPITAL EXPERIENCE IS NOT ESSENTIAL

Leave 20 days rising to 23 days p.a. Five-day week.

Posts are permanent and pensionable.

Mileage allowance paid for use of own car on business.

Application forms obtainable on request to be returned to the Secretary, North East Metropolitan Regional Hospital Board, 40 Eastbourne Terrace, London, W.2, by 14th October 1961.

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ARCHITECTS and ASSISTANTS

who are interested in the DESIGN, RESEARCH and DEVELOPMENT of Multi-storey projects and Contemporary Housing schemes, are urgently required by this progressive company.

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Apply in confidence to Chief Architect,
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is planning a considerable long term building programme and ARCHITECTS are required in the following categories:

PRINCIPAL ASSISTANT ARCHITECT,
qualified with at least 10 years' experience.

ASSISTANT ARCHITECTS,
qualified with some previous experience.

ARCHITECTURAL ASSISTANTS,
recently qualified or Intermediate.

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There are also openings for:

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NATIONAL PROVINCIAL BANK LIMITED,
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Additional facilities:

Non-contributory pension and other benefits.
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Three weeks' holiday to most grades.

SENIOR and JUNIOR ASSISTANT ARCHITECTS required with progressive outlook, for work on a wide range of projects. Starting salaries up to £900 for Intermediate standard and up to £1,250 for Final standard, according to experience. Five-day week. Box TC9219.

ARCHITECTURAL ASSISTANT, Intermediate standard, required in Architect's Department of S.W. London Brewery Company. Must be good draughtsman. Superannuation Scheme. Write stating age, qualifications (if any); experience, salary required. Box S9374.

ARCHITECTURAL ASSISTANTS required up to Intermediate standard to work on wide variety of projects. Commencing salaries £600-£800 range according to experience. Applicants must be good draughtsmen with sound knowledge of detailing. Apply giving particulars of experience to: Erp, Badger & Harrison, A./A.R.I.B.A., Winton House, Church Street, Stratford-upon-Avon, Warwicks (Tel. Stratford-upon-Avon 4461). S9372

SIR WILLIAM HALCROW & PARTNERS require **ARCHITECTS and ASSISTANTS** to join Design Group in London developing a large overseas industrial project. Please write with particulars of qualifications and experience to: Sir William Halcrow & Partners, 47 Park Lane, London, W.1. S9371

QUALIFIED and above Intermediate ASSISTANTS with experience and ability to assume responsibility, required at Charing Cross office. Interesting commercial and other schemes. Generous salaries, Pension and Life Assurance Scheme. Phone Riches & Blythin, Whitehall 7926. S9370

JUNIOR, INTERMEDIATE and SENIOR ARCHITECTURAL POSTS offered with good salaries and working conditions. Salary by arrangement and according to ability. Interesting projects at home and overseas. Apply in writing with full details to: Covell, Matthews and Partners, 34 Sackville Street, Piccadilly, W.1. S9369

MICHAEL LYEAL ASSOCIATES immediately require experienced Junior and Senior **ARCHITECTURAL ASSISTANTS** to work on major commercial and residential developments; initiative and responsibility encouraged; salary according to ability. Please write with full details to 16 Yeomans Row, London, S.W.3. S9387

ARCHITECT with small but expanding practice in pleasant Hampshire city requires **ASSISTANT**, able to accept responsibility. Prospects of early partnership to right applicant. Box S9388.

CLIFFORD CULPIN AND PARTNERS need additional staff in their London and Hemel Hempstead offices. Men of about Intermediate standard particularly required to join small teams of keen men on important, varied projects. All must have a sound sense of modern design. 39, Doughty Street, London, W.C.1. CHAncery 5395. TC9379

FARMER AND DARK have some vacancies for **QUALIFIED ARCHITECTS**, age 25/35, preferably with office experience for varied and interesting home and overseas work. Five-day week. Apply to Romney House, Tufton Street, S.W.1. Tel.: ABBey 6311. S9456

SMALL PROGRESSIVE AND CONTEMPORARY LONDON OFFICE REQUIRES **ASSISTANTS**. GOOD OPPORTUNITY FOR PEOPLE WISHING TO GAIN EXPERIENCE IN ALL ASPECTS OF A VARIED PRACTICE. BOX S9447.

QUALIFIED ASSISTANT required for Jersey, C.I., office. Write stating salary, experience, etc., to Box S9451.

ARCHITECTURAL ASSISTANT required of Intermediate standard, capable of working on own initiative. Ample opportunity to control projects from design to completion. Write or phone: Nicholson and Rushton, 2, New Square, Lincoln's Inn, W.C.2. HOLborn 2095. TC9446

ERNO GOLDFINGER requires several qualified **ASSISTANTS and DRAUGHTSMEN** with at least two years' experience to take part in a growing programme of interesting work which includes large office buildings, central developments, schools and private houses. Good salaries and scope for men with sound knowledge of construction. Phone HYde Park 5657. TC9448

ARCHITECTS in Watford, London and Glasgow require **ASSISTANTS** of Intermediate/Final R.I.B.A. standard for work on interesting commercial and industrial projects. Salary range: £800-£1,250. Quarterly bonus scheme. Non-contributory pension scheme. Apply Box TC6120.

ARCHITECTS with busy practice in Brighton require **ASSISTANTS** with practical experience for varied work. Salary up to £750 per annum. Five-day week, pension scheme, etc. Box TC5848.

ARCHITECTS, qualified single men required for Abadan, Iran. Salary £200 per month free of Iranian income tax. Free accommodation provided. Six-month contracts renewable by mutual agreement. Write Box 9471.

GEORGE, TREW & DUNN We need help with many projects and invite your application to work with us. Please write, giving the usual details to 50, Eastbourne Terrace, W.2. TC9477

ELIE MAYORCAS requires **ARCHITECTURAL ASSISTANTS** with a minimum of three years' office experience in this country. Write, giving brief particulars of architectural education and experience, to: 13, David Mews, Baker Street, W.1. TC9442

WOLVERHAMPTON

BUSY and EXPANDING FIRM OF ARCHITECTS REQUIRE **FIRST CLASS, EXPERIENCED CHARTERED ARCHITECT** TO TAKE CHARGE OF THEIR NEW BRANCH OFFICE IN WOLVERHAMPTON. SALARY £1,200 TO £1,600 ACCORDING TO QUALIFICATIONS AND EXPERIENCE. APPLY IN THE FIRST INSTANCE TO: HERMON CROOK AND WILLIAMS, 53, CHORLEY NEW ROAD, BOLTON. INTERVIEWS CAN BE ARRANGED IN BOLTON OR WOLVERHAMPTON. 9438

EXPANDING Brewery Architects DEPARTMENT requires a recently qualified **GRADUATE** of initiative, ability, and progressive ideas to take charge of projects through all stages in an interesting programme of new work and alterations to Hotels and Public Houses. Generous salary according to ability and experience. Pension scheme. Three weeks holiday. Write with full details to: The Leith Area Architect, Peter Walker (Warrington) Limited, Leigh Brewery, LEIGH, Lancashire. S9437

BIRMINGHAM—We need a young **ARCHITECT**, either qualified or in training, with a good sense for clean and straightforward design. There is plenty of scope for the right man. Salary according to ability and experience. Apply: J. Alfred Harper & Son, 63, Temple Row, Birmingham. S9436

ARCHITECTS' CO-PARTNERSHIP require **ASSISTANTS**, both qualified and Intermediate, with some experience for interesting and varied work. Write 44, Charlotte Street, W.1. or telephone LANGham 5791. S9426

AMBITIOUS ARCHITECTS—there are you in this City of London Office. A fairly free hand will be given in the development of some new projects. Lvs. State and Non-contributory Private Pension Schemes. Generous salaries. Apply Box 9414.

INTERMEDIATE / FINAL / QUALIFIED ASSISTANTS required for expanding Plymouth practice to work on public and private projects. Must have ability to carry through contracts with minimum supervision from Principals. Car drivers, five-day week, pension scheme. Salary by agreement. Applications in writing, stating age, experience and qualifications. Box 9410.

CITY Architects urgently require **JUNIOR ASSISTANTS** experienced in detailing and capable of assisting in design. Long term projects. Five-day week. Salary up to £1,250 per annum plus Luncheon Vouchers. Box 9467.

ARCHITECT with small practice in Chelsea requires Intermediate or recently qualified **ASSISTANT**. Reply to Anthony Mauduit, 35, Cale Street, Chelsea, S.W.3. FLAXman 6307. S9455

£1,400-£1,500 PLUS an agreed quarterly bonus. **SENIOR ASSISTANTS** required as Team Leaders for work on modular buildings in general private practice. Telephone Christopher Gotch & Associates—HAMstead 5396. TC9478

WEST END Architect wants two **ARCHITECTURAL ASSISTANTS**, at least Intermediate R.I.B.A. standard, wages £750 upwards, also two qualified **ASSISTANTS** with at least two years' actual office experience, salary £900 upwards. Apply with full particulars, stating when available. Box S9306.

C. H. ELSOM & PARTNERS have vacancies in their Victoria office for **ARCHITECTS** at all levels of experience for work on town centre redevelopment, schools, housing, commercial buildings and hotels. Superannuation scheme and luncheon vouchers. Applications in writing only please, giving brief details to 10, Lower Grosvenor Place, London, S.W.1. S9231

OXFORD Office requires **ASSISTANT ARCHITECT** to fill position of responsibility. Commencing salary £1,000 per annum, dependent upon qualifications and experience. Urgent that applicant can commence at an early date. Details to Box S9222.

KINGSTON-UPON-THAMES, SENIOR ASSISTANT required (male or female) for interesting and varied work. Salary up to £1,150 per annum for suitable applicant. Pleasant and congenial office conditions. Five-day week. Applications in writing only giving full particulars. Donaldson & Co., Architects, 75 London Road, Kingston-upon-Thames. TC9281

SEVERAL ARCHITECTURAL ASSISTANTS required up to Intermediate and Final standard in progressive Hampstead office. Five-day week. Experience on flat design necessary. Please apply B. Newton, A.R.I.B.A., M.R.S.H. of 307 Finchley Road, N.W.3. Tel.: SWI 5152. S9238

FREDERICK GIBBERD, ARCHITECTURAL ASSISTANTS, Final and Intermediate. Interesting work, excellent experience for anyone wishing to succeed in architecture. Salary according to ability. Five-day week. Pleasant and well organised office. Write giving full details: 8 Percy Street, W.1. S9242

BARTLETT & GRAY BNOTTINGHAM have a few vacancies for **ARCHITECTS and ARCHITECTURAL ASSISTANTS** for varied programme at home and overseas. Five-day week. Pension and Life Assurance scheme. Salary by arrangement. Write or ring for appointment. No life histories required before interview. 14-16, Bridgford Road, West Bridgford, Nottingham. 88711/2/3. S9246

ARCHITECTURAL ASSISTANT with at least three years' office experience required to work on expanding programme of school and church work. Braxby & Evans, Chartered Architects, 41/42 Bluecoat Chambers, School Lane, Liverpool. S9258

FIRST-CLASS ASSISTANT, A.R.I.B.A., required in busy London office. Good prospects and excellent salary to right man. Write stating age, salary and experience to: A. J. Fowles, F.R.I.B.A., 10, Great James Street, Bedford Row, W.C.1. or telephone CHAncery 2469, for appointment. S9297

SIR BASIL SPENCE requires qualified **ASSISTANTS**, preferably having experience of University work. Five-day week, luncheon vouchers. Salary up to £1,500 according to experience. Write to Sir Basil Spence, R.A., 1, Fitzroy Square, London, W.1. S9269

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EXPERIENCED ASSISTANT ARCHITECT required in West End office. Varied work, must be a competent designer and administrator. Opportunity for advancement to position of responsibility. Starting salary up to £1,250 according to experience. Luncheon vouchers. Five-day week. Box TC9218.

MANCHESTER. ASSISTANTS with initiative wanted, qualified, unqualified and intermediate standard, capable of handling a wide variety of interesting contemporary schemes from sketch plans to final accounts.

Five-day week.
Three weeks holiday.
Bonus system.
Pension scheme.

Salary £300-£1,300 or by arrangement depending on ability. Mather & Nutter, A.R.I.B.A., Canada House, 3, Chesham Street, Manchester, 1. S9250

THE following vacancies occur in Bristol for:—
(1) **SENIOR ASSISTANT ARCHITECT** £1,200-£1,400.

Applicants must be qualified and have had post-graduate experience, or have had ten years' experience.

(2) **ARCHITECTURAL ASSISTANTS** £750-£1,200.

Applicants should have had several years' experience in an Architect's office and be capable of producing working drawings and details with the minimum of supervision.

Salaries progressive on merit; permanent pensionable positions. Applications stating full details of qualifications, experience, age, etc., should be forwarded to the Senior Architect. Box S9287.

JUNIOR ASSISTANT required; also a **SENIOR ASSISTANT** with view to associate partnership required immediately in small private practice. Capable of working on own initiative. Five-day week. Please reply, stating age, training, experience and salary required. Graham & Bellamy, Chartered Architects, 15, The Tything, Worcester. S9457

ARCHITECTURAL ASSISTANT required for a small private practice, Worcester. Five-day week. Please write, stating age, training, experience, and salary required. Box S9458.

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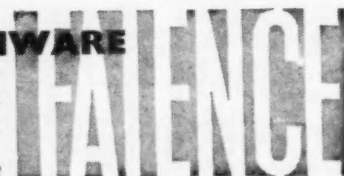
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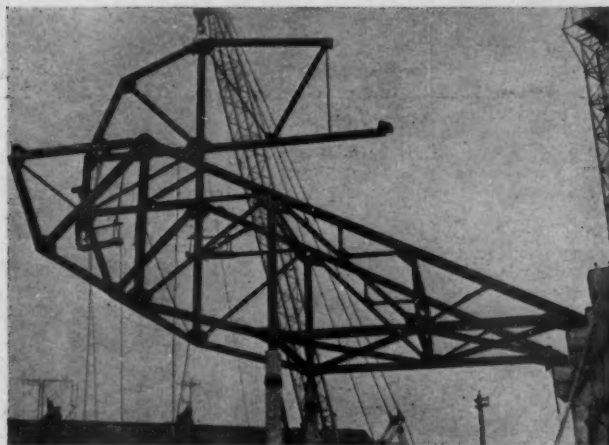
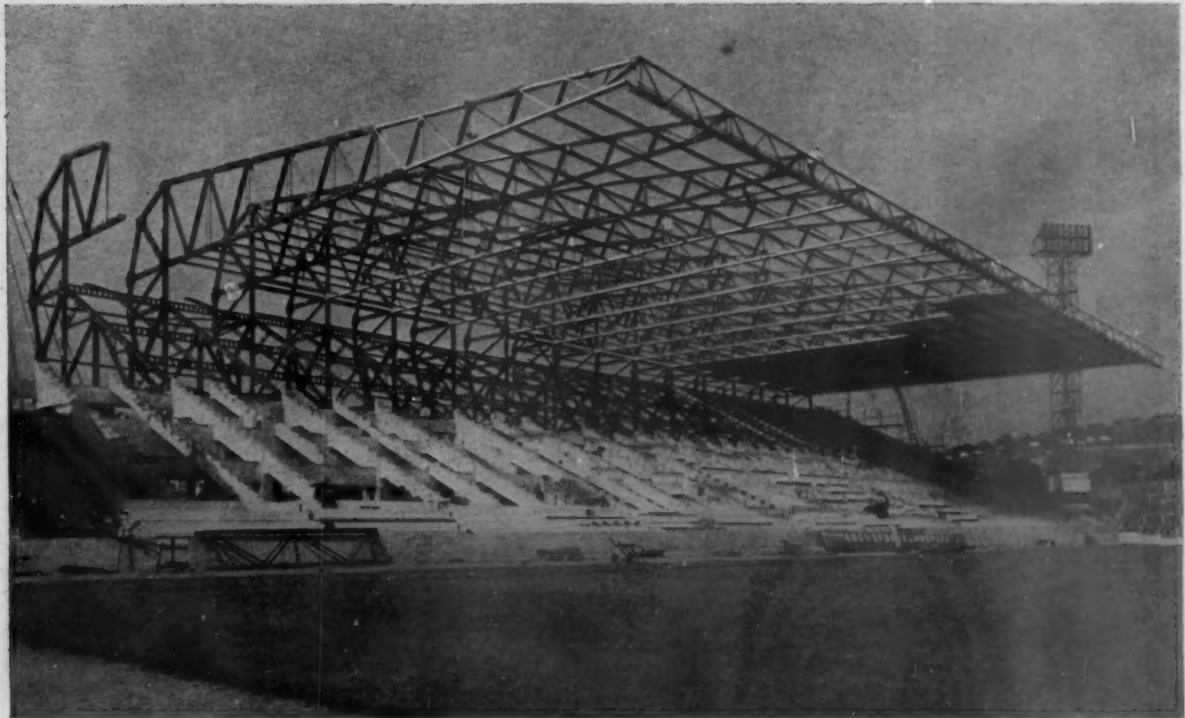
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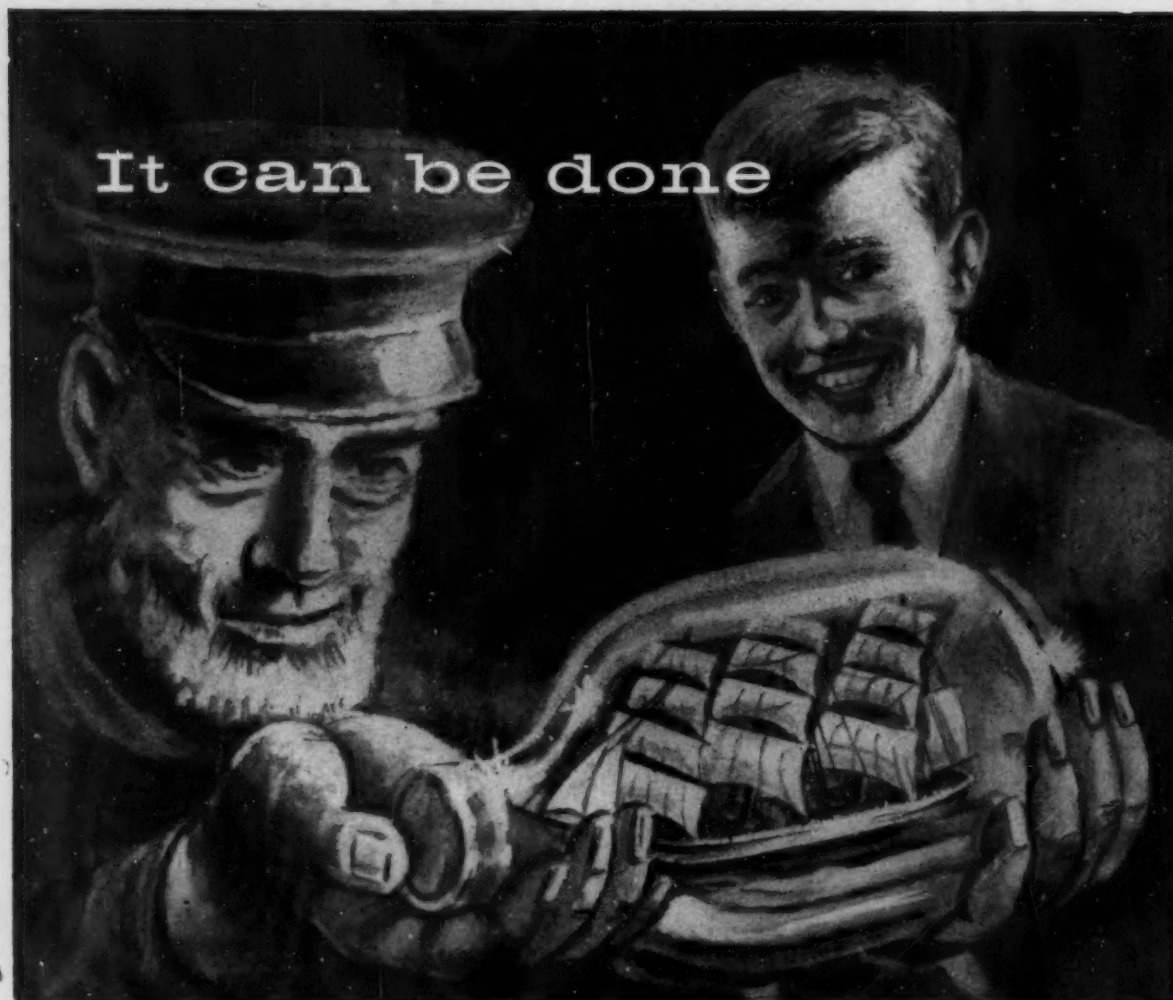
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