## AMARR 196 HITECT OURNAL



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

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contents

CAS

CCA

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

and COMMENT

tragal's Notes and Topics

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SECTION ECHNICAL

formation Sheets formation Centre rrent Technique orking Details ustions and Answers ices

u Industry

URRENT BUILDING

ajor Buildings described: tails of Planning, Construction, ishes and Costs ildings in the News ilding Costs Analysed

hitectural Appointments anted and Vacant

[Vol. 131 PRESS ARCHITECTURAL 1 and 13, Queen Anne's Gate, Westminster, 'Phone: Whitehall 0611

> Price Is. od. Registered as a Newspaper.

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974
AAI	Association of Art Institutions. Secy.: J. H. Holden,	
	College of Art, Cavendish Street	, Manchester 15
ABS	Architects' Benevolent Society. 66, Portland Place, W.1.	Langham 5533
ABT	Association of Building Technicians. 1, Ashley Place, S.W.1.	Victoria 0447-8
ACGB	Arts Council of Great Britain. 4, St. James's Square, S.W.1.	Whitehall 9737
ADA	Aluminium Development Association. 33, Grosvenor Street, W.1.	Mayfair 7501/8
ARCUK	Architects' Registration Council. 68, Portland Place, W.1.	Langham 5861
BAE	Board of Architectural Education. 66, Portland Place, W.1.	Langham 5721
BC	Building Centre, 26, Store Street, Tottenham Court Road, W.C.1	Museum 5400
BCC	British Colour Council. 13, Portland Square, W.1.	Welbeck 4185
BCCF	British Cast Concrete Federation. 105, Uxbridge Road, Ealing, W.	
BCIRA	Fritish Cast Iron Research Association. Alvechurch, Birmingham.	
BDA	Butish Door Association. 10, The Boltons, S.W.10.	Fremantle 8494
BE	Building Exhibition. 11, Manchester Square, W.1.	Hunter 1951
BEDA	British Electrical Development Association, 2, Savoy Hill, W.C.2.	
BIA	British Ironfounders' Association. 145, Vincent Street, Glasgow, C	
		ow Central 2891
BID	Building Industries Distributors. 52, High Holborn, W.C.1.	
BINC	Building Industries National Council. 11, Weymouth Street, W.1.	
BOT	Board of Trade. Whitehall Gardens, Horseguards Avenue, Whiteh	
		Trafalgar 8855
BRS	Building Research Station. Bucknalls Lane, Watford. Building Societies Association. 14. Park Street, W.1.	Garston 4040
BSA		
BSI	British Standards Institution. British Standards House, 2, Park St., W	
CABAS	City and Borough Architects Society. C/o S. A. G. Cook, A.R.I.	B.A., Borough

Architect and Director of Housing, Town Hall, High Holborn, W.C.1. Holborn 3411 Ceunty Architects' Society. C/o S. Vincent Goodman, F.R.I.B.A., Shire Hall, Bedford. Bedford 67444 Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1. Belgravia 6661 Copper Development Association. 55, South Audley Street, W.1. Grosvenor 8811 Copper Development Association. 55, South Audley Street, W.1. Grosvenor 8811 Council of Industrial Design. 28, Haymarket, S.W.1. Trafalgar 8000 Council for the Preservation of Rural England. 4, Hobart Place, S.W.1. Sloane 4280 Coal Utilization Council. 3, Upper Belgrave Street, S.W.1. Sloane 9116
Council for Visual Education. 13, Suffolk Street, Haymarket, S.W.1. Reading 72255
Design and Industries Association. 13, Suffolk Street, S.W.1. White English Joinery Manufacturers' Association (Incorporated). Sackville House, English Joinery Manufacturers' Association (Incorporated). Sackville House, 40, Piccadilly, W.1. Regent 4448 English Place-Name Society. 7, Selwyn Gardens, Cambridge. Faculty of Architects and Surveyors. 68, Gloucester Place, W.1. Welbeck 9966 Federation of Associations of Specialists and Sub-Contractors, 14, Bryanston Street. W.1. Welbeck 1781

**FBBDO** Fibre Building Board Development Organization Ltd. (Fidor), Stafford House,
Norfolk Street, V.C.2. Covent Garden 3008
Federation of British Industries. 21, Tothill Street, S.W.1. Whitehall 6711 Federation of British Industries. 21, Tothill Street, S.W.1.

Forestry Commission. 25, Savile Row, W.1.

Regent 0221

Federation of Coated Macadam Industries. 37, Chester Square, S.W.1. Sloane 1002

The Flush Door Manufacturers Association Ltd. Trowell, Nottingham. Ilkeston 623

Friends of the Lake District. Pennington House, nr. Ulverston, Lancs. Ulverston 201

Federation of Master Builders. 33, John Street, W.C.1. Tel.: Chancery 7583 (6 lines)

The Federation of Painting Contractors, St. Stephen's House, S.W.1. Whitehal. 3902 FBI FC FCMI FDMA FLD Federation of Master Builders. 33, John Street, W.C.1. 161. Chancely The Federation of Painting Contractors, St. Stephen's House, S.W.1. Whitehal. 3902 Federation of Registered House Builders. 82, New Cavendish Street, W.1.

Langham 4341 **FMB FPC** FRHB

**GPDA** Gypsum Plasterboard Development Association. 11, Ironmonger Lane, E.C.2.

Monarch 8888 GC Gas Council. 1, Grosvenor Place, S.W.1 Sloane 4554 Georgian Group. 2, Chester Street, S.W.1.

Belgravia 308
Housing Centre. 13, Suffolk Street, Pall Mall, S.W.1.
Whitehall 288
Incorporated Association of Architects and Surveyors. 29, Belgrave Square, S.W.1. GG Belgravia 3081 HC IAAS Whitehall 2881 Belgravia 3755 **ICA** Institute of Contemporary Arts. 17-18, Dover Street, Piccadi W. M. 1. Grosvenor 6186 Institution of Civil Engineers. 1, Great George Street, S.V. Whitehall 4577 ICE

Institution of Electrical Engineers. Savoy Place, Victoria ...bankment, W C.2 Temple Bar 7676 Abbey 5215 Illuminating Engineering Society. 32, Victoria Street, S.W.I.
Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.I. Sloane 8266 Institution of Heating and Ventilating Engineers. 49, Cadogan Square

Sloane 1601/3158 Incorporated Institute of British Decorators and Interior Designers 100, Park Street, Grosvenor Square, W.1. Mayfair 7086



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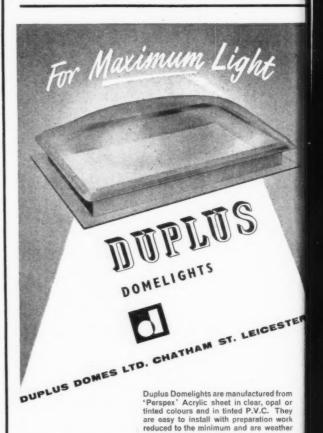
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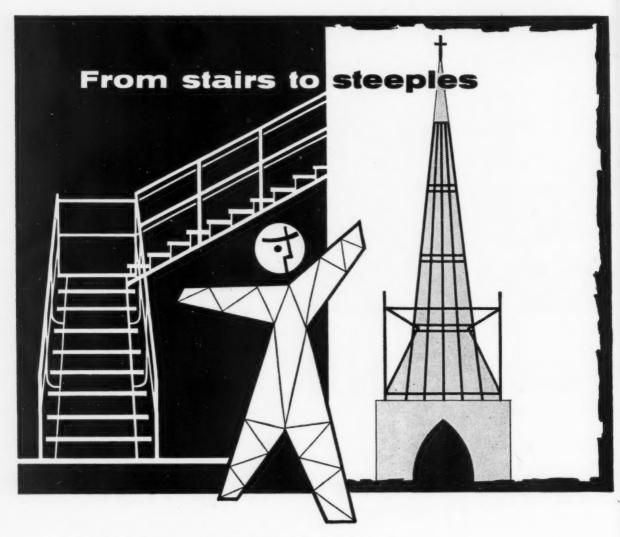


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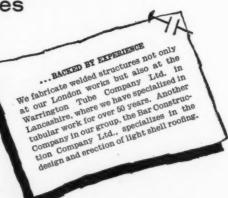
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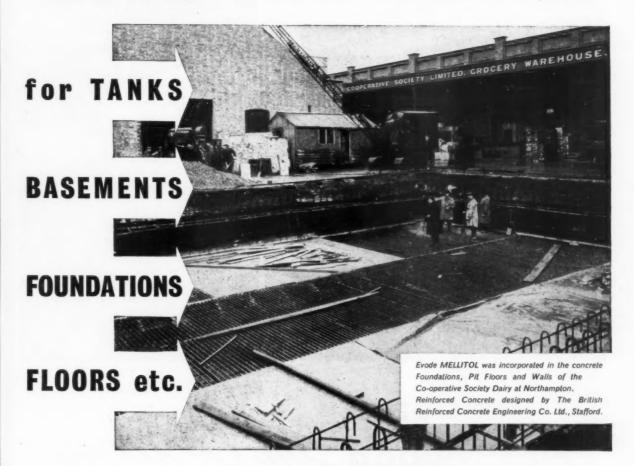
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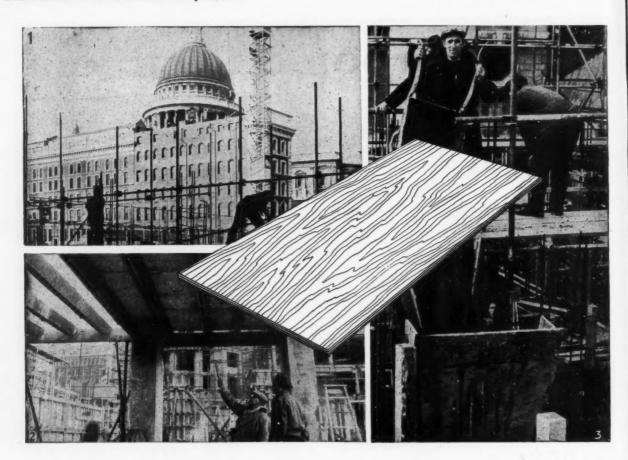
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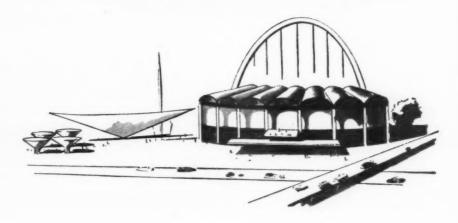


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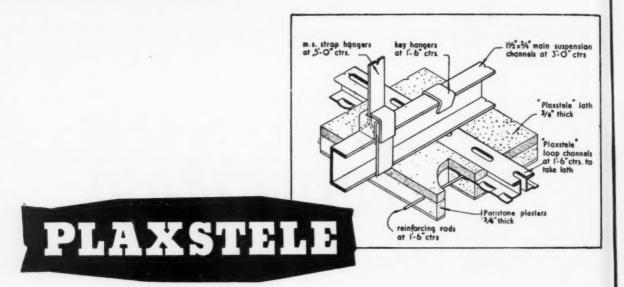
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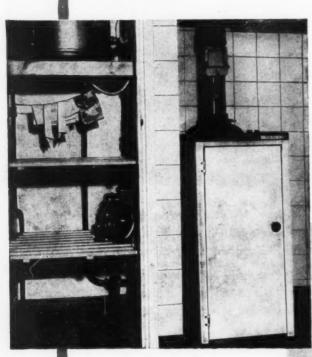
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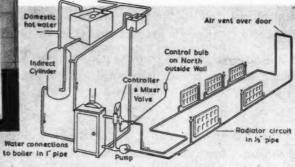
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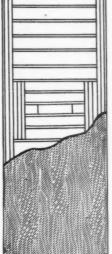
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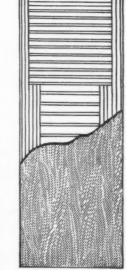


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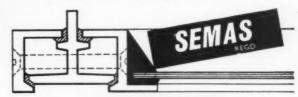
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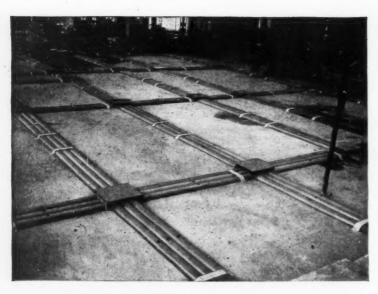
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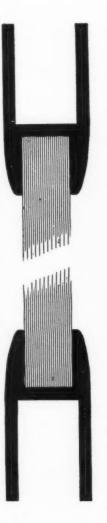
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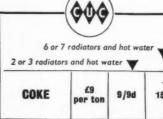
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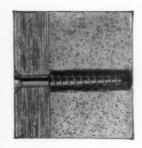


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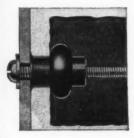


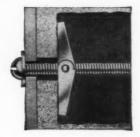
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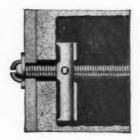
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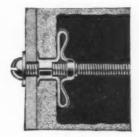












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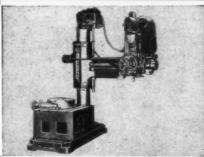
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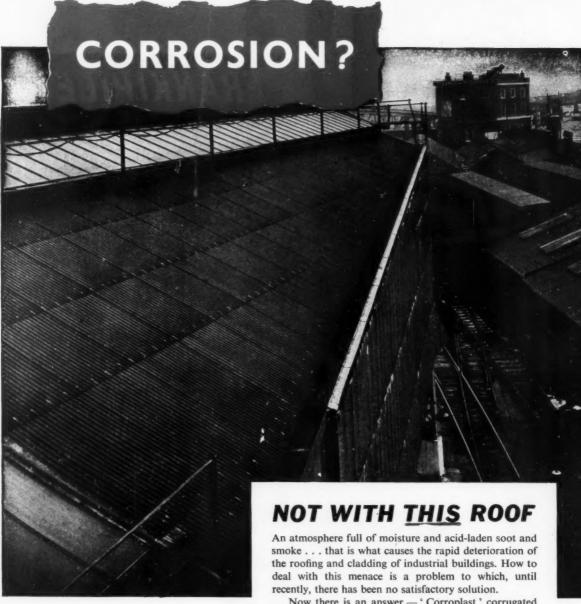
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## heating and sanitary equipment by Ideal-Standard goes into Leeds flats



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Leeds City Architect

Consulting Engineers — Heating: OSCAR FABER & PARTNERS London, W.C.1 Heating and sanitary equipment by Ideal-Standard has been installed in the new Leeds City Council flats at Saxton Gardens. Over a thousand Ideal cast-iron column radiators and over nine hundred pieces of 'Standard' vitreous china sanitary ware have gone into these multi-storey buildings.

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## Our latest development...

Sliding Door illustrated left. The door is constructed from Patent Hollow Aluminium Alloy Interlocking Panels which negotiate the 6" radius of the curved top track smoothly and quietly. Whilst the Multi-Panel Sliding Door is designed to run inside or outside the lift car, it may be adapted as a Landing Door running between the lift car and shaft wall. This new door like every other Bolton Lift Door can be arranged to receive lift makers lock beaks and vision panels.



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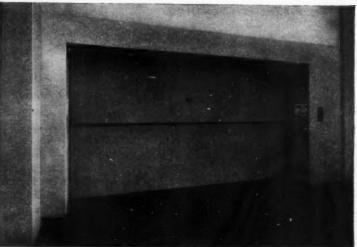
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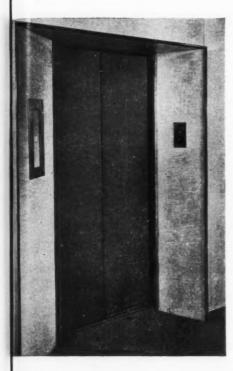


Bolton Patent Shutter Doors for lifts, illustrated above, embody all the well-known quality features of the industrial door and are available for hand or power operation.

Vertical Sliding Bi-parting Doors, illustrated below, slide above and below the lift car giving an unrestricted opening ideal for goods lifts. The upper edge of the lower panel can be reinforced to form a truckable cill of equal weight capacity to the lift.

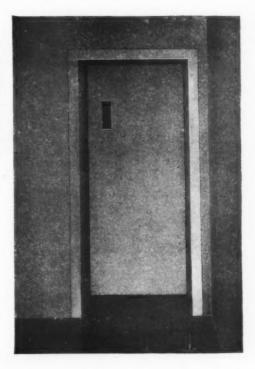


\* Write now for the latest Bolton Lift Door Leaflet AJ 317



The power operated Single Panel Sliding Door, illustrated right, glides smoothly and quietly behind the wall allowing an unrestricted opening. Flush or alternatively fluted panels of aluminium alloy are available.

The power operated 2 Speed Sliding Door, illustrated left, is smooth and silent in operation and is arranged to give maximum clearance. Panels may be flush or of fluted aluminium alloy.

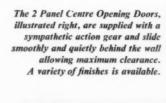


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The comprehensive range of Bolton Lift Doors includes doors which are suitable for every situation, from factory goods lifts to the most modern hotel lift. The variety of finishes available is such that harmony with existing decorations can readily be achieved. All Bolton Lift Doors can be fitted with vision panels to your requirements and can be arranged to receive lift makers' lock beaks, handles, etc.



The Multi-leaf Door, illustrated right, is among the most popular of lift doors and is available in a variety of finishes.







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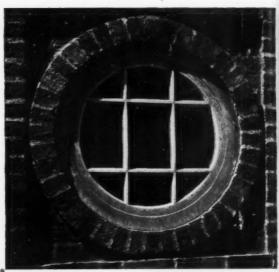
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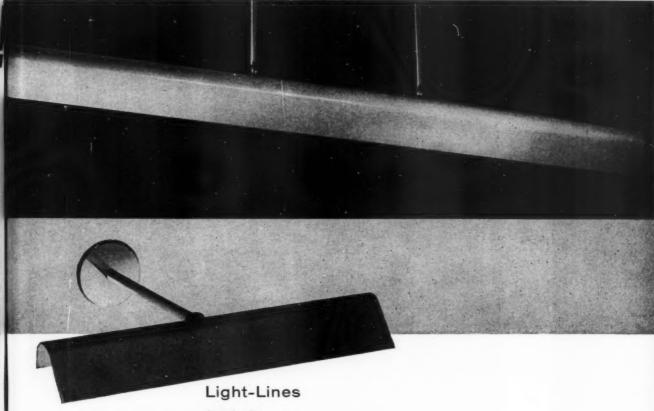
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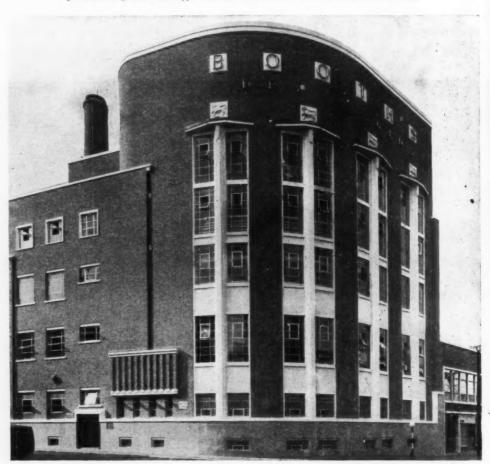


designed by Paul Bolssevain, Dip. Arch. M.S.I.A.

A comprehensive leaflet giving full data and prices is available on request.

#### **Merchant Adventurers Limited**

Head Office: Hampton Road West, Feltham, Middlesex. FELtham 3686 London Showrooms: 43, Portland Road, London, W.11. PARk 1221 This new building for Booth's Distilleries Ltd., Clerkenwell, incorporates aluminium windows made by Henry Hope & Sons Ltd. Those on the ground floor are "customs windows" being fitted with burglar bars and hopper casements. Architects: Architects to the Distillers Co. Ltd.



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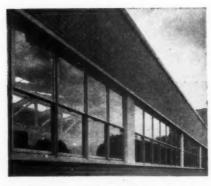
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A typical example of an extrusion for aluminium windows.

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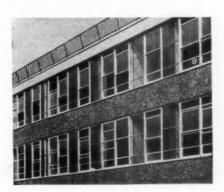


Hope's aluminium double-hung sliding sash windows, made entirely from extruded sections were used in this Comprehensive High School for the L.C.C. at Wandsworth.

Architects: Hening & Chitty.



The B.O.A.C. Air Training School at Hounslow is another example of the use of aluminium windows. Here, HOPE's windows have been built into wooden frames. Architect: F. Greenwood, A.R.I.B.A.

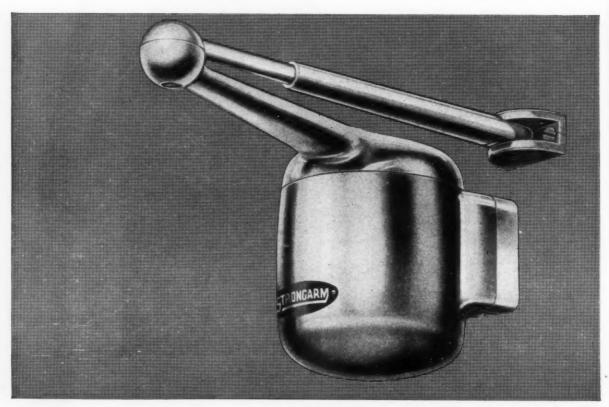


HENRY HOPE & SONS LTD., supplied the aluminium double-hung sash windows and aluminium casement windows for the Manor Laundry, Camberwell.

Architects: Stone, Thoms & Partners.

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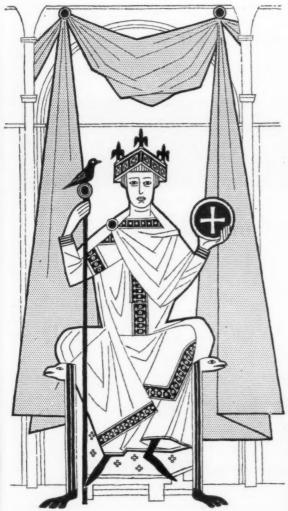
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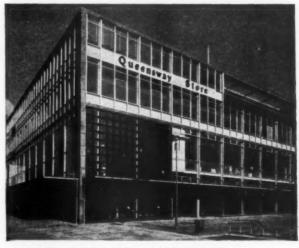
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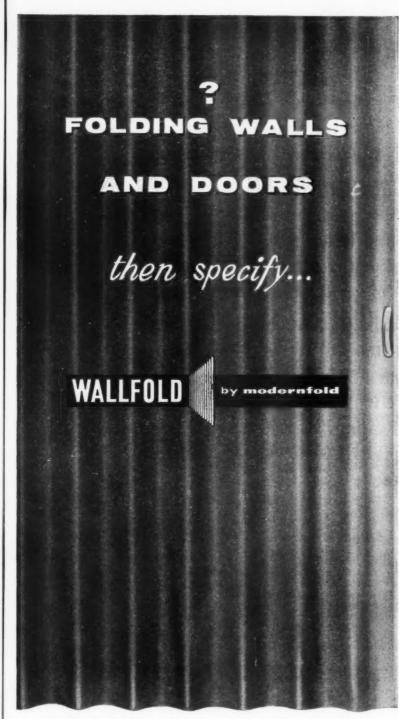
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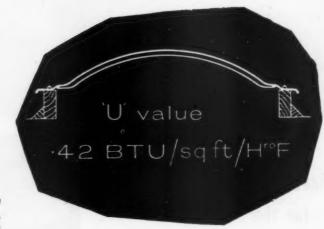
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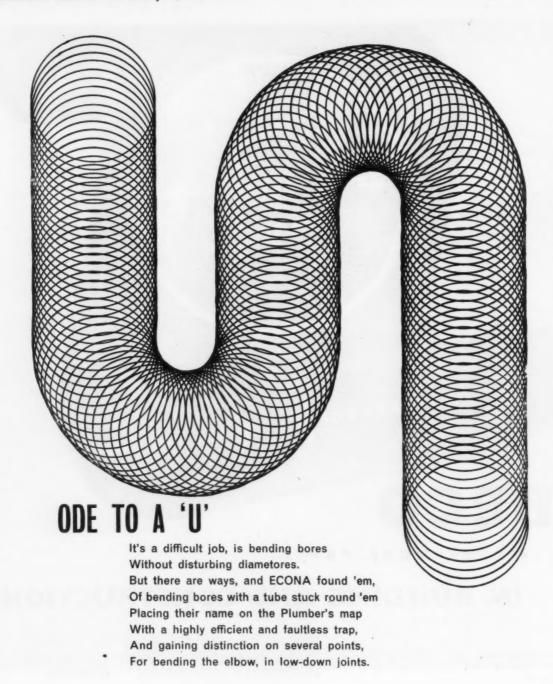
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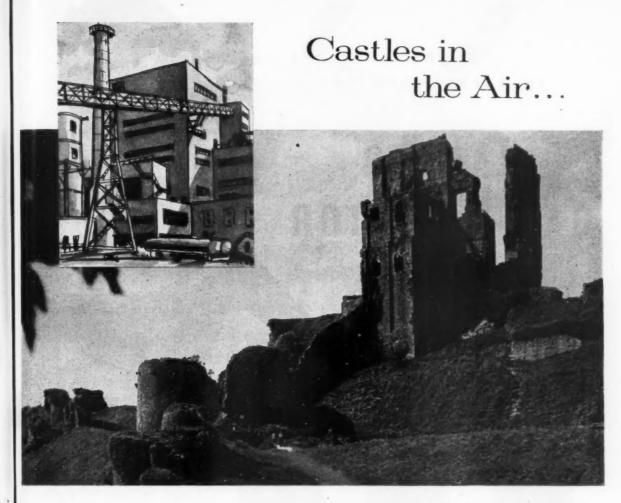
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per hour at 2½ in. W. ft.
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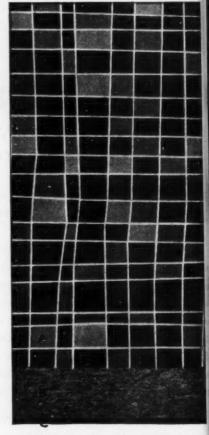
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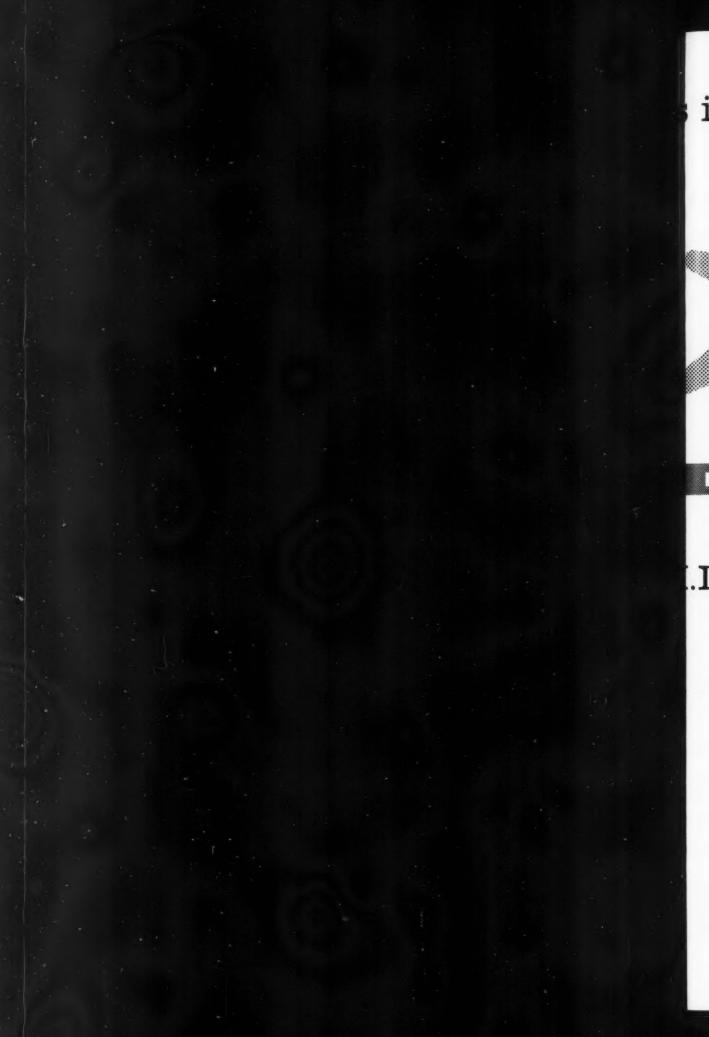
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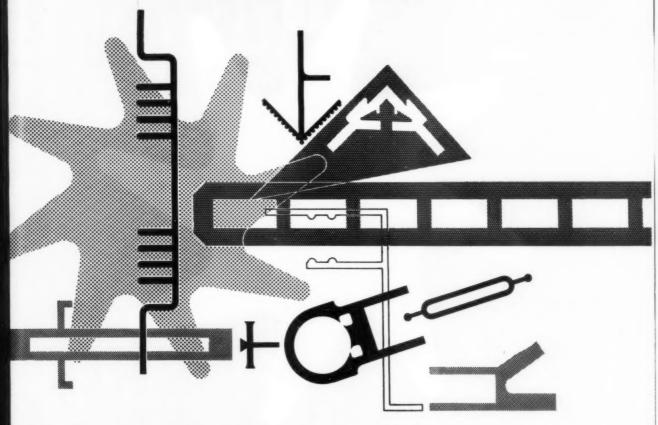
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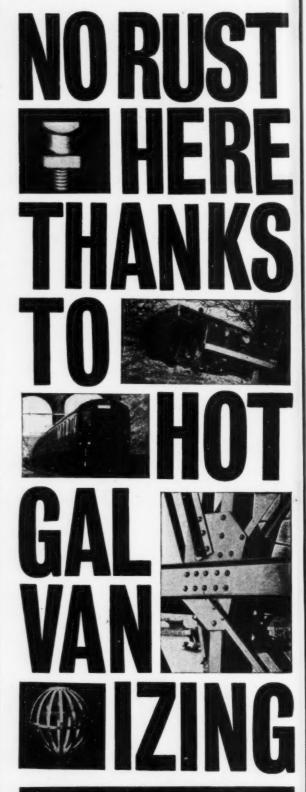
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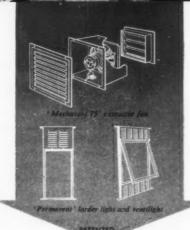
### **VENTILATION** by Greenwood-Airvac





(above) 'The Cricketers,' Woodford—Architect: C. P. Sapin, (Chief Architect)
McMullen & Son, Ltd
(left) photograph by courtesy of Turner and Kitching A/A.R.I.B.A., Gravesend





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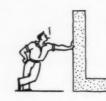
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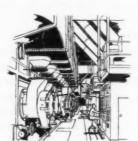
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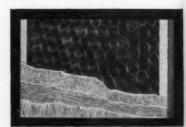


(Photograph by courtesy of Humphrey Park Estates Ltd., Manchester)

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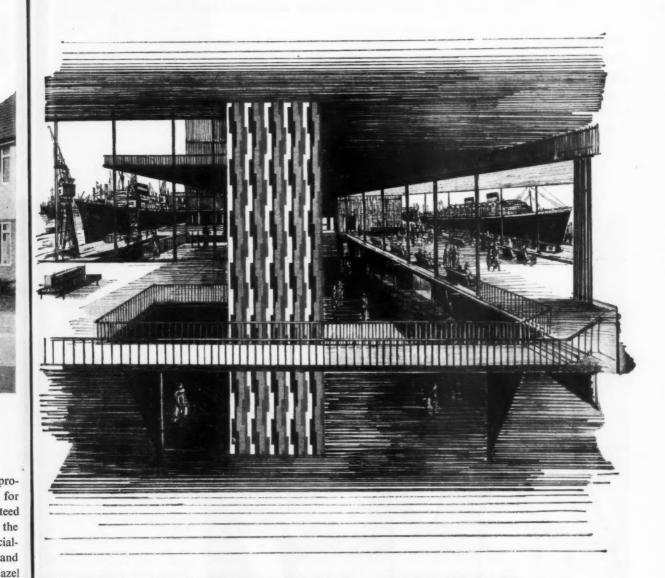
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15 STOREY MAISONETTES, SCEAUX GARDENS, CAMBERWELL (Photograph by Sam Lambert F. O. Hayes, A.R.I.B.A., Borough Architect.

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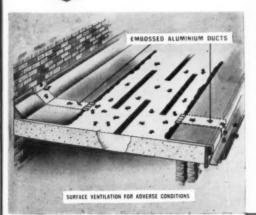
- \* Moisture and air in insulation
- \* Heat build-up on insulation
- \* Water in lightweight concrete
- \* Roof movement

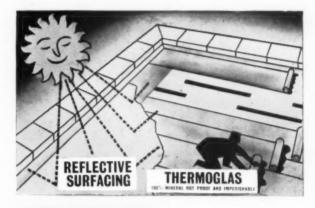
Thermoglas is laid by the isolated system combining frame bonding and anchor strips to permit free vapour dispersal. The waterproofing is finished with a heavy stone surfacing to secure maximum reflectivity.

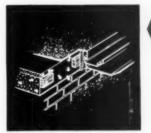


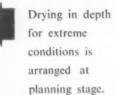
Where conditions are adverse surface ventilation is provided and metal ducts are fixed to relieve pressure to the outside air.











Typical detail is shown but others are available to suit design and advice will be given on request.

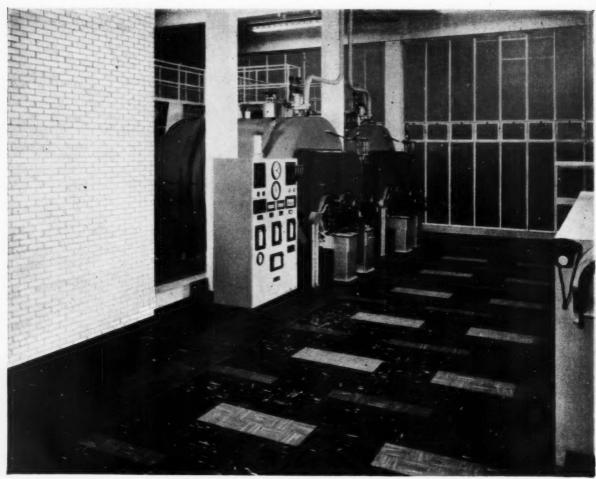






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### for the Royal Masonic Hospital, London

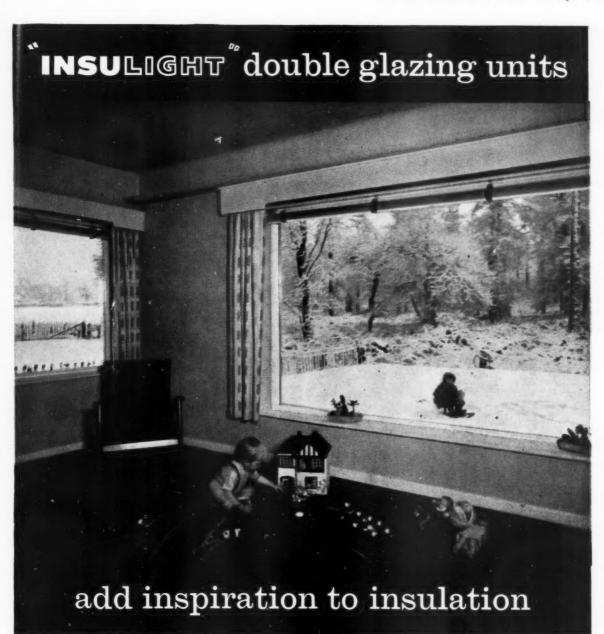
Beauty treatment for a boiler room! This attractive Accoflex floor is one of several that have been laid in this new hospital extension. Accoflex thermoplastic floor tiles are noted for their bright, fresh colours with which an endless variety of individually patterned floors can be planned. Hardwearing, and easy to maintain, Accoflex tiles are widely chosen for all types of commercial, public and residential buildings.

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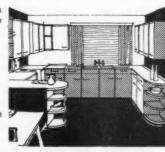
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#### The Architects' Journal

No 3383. Vol 131. February 18, 1960

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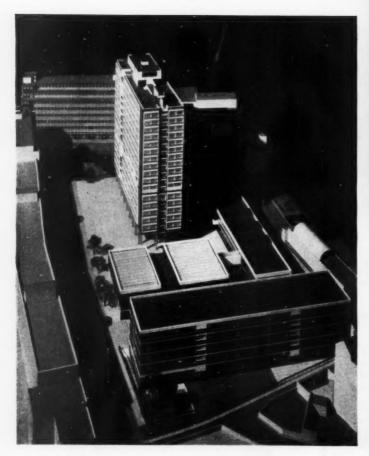
#### NOT QUITE ARCHITECTURE

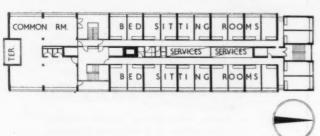
## Which?

Are you A or non-A? Should you be In or Out? Do you dig or should a specialist do the digging? Answer the questions and see whether you are really only a gilded hack.

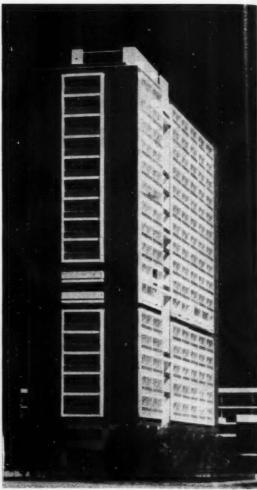
- 1. At an exclusive cocktail party a titled lady says Corbusier stinks. Do you:
- (a) Pretend you are in insurance?
- (b) Write to the RIBA for a ruling?
- (c) Point out, firmly but with good humour, that Corbusier is not cheese anyway?
- 2. You decide to integrate some abstract art into an office block. Do you:
- (a) Cut it out because of what the clients say?
- (b) Cut it out because of what the Town Planning officer says?
- (c) Wait until the tenders come in and cut it out with a clear conscience?
- 3. A house you have built on a bad site starts to settle. Do you:
- (a) Submit your account before anybody else notices?
- (b) Send a quick contribution to the ABS?
- (c) Go down with your house?
- 4. At an exclusive cocktail party a scrapmetal dealer asks you to design a bungalow with Dutch gables, half-timbering and some niches. Do you:
- (a) Agree that chacun must have his gout, and prepare a sketch scheme of a bungalow with Dutch gables, half-timbering and some
- (b) Tell him, firmly but with good humour, that such a project would be a betrayal of all your ideals, and prepare a sketch scheme of a bungalow with Dutch gables, halftimbering and . . . ?
- (c) Refuse, with anger and passion, and give him the address of a backstreet Licentiate you know who will prepare a sketch scheme of a bungalow with Dutch gables . . . ?

# Building High for the Public Good





Floor plan with common room. On other floors the common room is replaced by students' rooms. [Scale: 1," = 1' 0"]



Some interesting conclusions can be drawn from the LCC's scheme to build an 18-storey hall of residence for the Northampton College of Advanced Technology, and a new technical college (a separate institution) on a 2½ acre site in Bunhill Row, Finsbury. The site, says the LCC handout, is being quickly surrounded by new office blocks in an area that is short of open space. (On the reasons for this disaster the handout is silent). The model shows the cliff-like faces of the peripheral office blocks overshadowing the site, and hemming it in. By accommodating 500 students and some staff in an 18-storey block, and by placing all the internal circulation and principal rooms at first floor level, the LCC architects have been able to create an invaluable open space, flanked by the lower college buildings on two sides, that is completely open to the public. The warden has a flat on the roof, the seventh floor accommodates the staff, and the students live in study bedrooms, grouped in twelves; each bedroom has a wash-basin unit, and each group shares a bathroom, a shower and two w.c.s. The hostel is linked by a bridge to its dining room and the buildings of the technical college are also linked by bridges. The only entrances to the technical college are at first floor level, so that the students will use the open space for recreation, but not for circulation. This is the first time that the LCC has taken the welcome step of opening the site of an educational building to the public. Architects: Hubert Bennett, Architect to the LCC Michael Powell, Schools Architect, P. K. Nicoll, Group Leader.

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- 5. A site foreman punches you on the nose.
- (a) Write to the RIBA for a ruling?
- (b) Sue him, firmly but with good humour? (c) Concede to him that, in all honesty, there is nothing on the drawing which specifically says that the walls should be plumb?
- 6. An amenity hoarding is erected at the end of your road. Do you:
- (a) Do nothing?
- (b) Grumble to your wife, and do nothing? (c) Mention the matter to the President of the local Allied Society, so that he can grumble to his wife as well?
- 7. At an exclusive cocktail party an influential local contractor accuses you of preferential treatment towards local contractors. Do you:
- (a) Thank him for the calendar and the whisky?
- (b) Write to the RIBA, firmly but with good humour?
- (c) Stop going to exclusive cocktail parties?
- 8. Your scheme for a large, city-centre, commercial development causes heated controversy. Do you:
- (a) Ask the critics, firmly but with good humour, what is good taste and who should be the arbiter and isn't it really a personal thing and . . . ?
- (b) Let Michelmore make a fool of you on "Tonight"?
- (c) Write to Jack Cotton for a ruling?
- 9. You discover you have overcharged a client. Do you:
- (a) Lose the extra in unforeseen works below ground level?
- (b) Decide not to bother the RIBA again?(c) Go quietly?
- 10. One of your major projects ends up
- £10,000 over contract. Do you:

  (a) Tell your clients, clearly, honestly and
- with good humour, that you have blundered, and then wait to be sued?

  (b) Tell your clients that the extra cost has
- (b) Tell your clients that the extra cost has arisen through additional work authorized by them on the site, and then wait to be sued?
- (c) Just wait to be sued?
- 11. A letter informs you that you have been awarded a Gold Medal. Do you:
- (a) Say a quiet Thank-you to all the people who have helped you on your way?
- (b) Refuse the award, as a protest against the corruption and narrow-mindedness of the Establishment?
- (c) Re-address the envelope, correctly?
- 12. Have you answered the questions honestly?
- (a) No.

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- (b) No.
- (c) No.

Your answers should be written in ink, on a postcard please, and burnt.

ALAN PLATER

EDITORIAL BOARD (1) Consulting Editor, F. R. Yerbury, O.B.E., Hon. A.R.I.B.A. (2) House Editor, J. M. Richards, C.B.E., A.R.I.B.A. (3) Executive Editor, D. A. C. A. Boyne. (4) Editor Information Sheets, Cotterell Butler, A.R.I.B.A. (5) Editorial Director, H. de C. Hastings. TECHNICAL EDITOR: (6) Lance Wright, A.R.I.B.A.

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

## The Editors

# A POLICY FOR TALL BUILDINGS

ROFESSOR ROBERT MATTHEW'S paper on tall buildings, reported on page 283, contains warnings that it would be foolish to ignore. Tall buildings are now being designed in increasing numbers for every kind of use, in towns and cities all over the country. Yet the LCC is the only planning authority in the country to have equipped itself with a policy for tall buildings, a yardstick by which to treat individual applications on their merits. This, as Professor Robert Matthew indicated, does not go far enough and must be replaced by something both more positive and more restrictive, indicating more firmly where tall buildings should and should not go. Outside the LCC there is no planning policy at all, and the government seems quite content to observe the approaching disaster with philosophic detachment. The real question is whether the siting of tall buildings is to be determined by the planning authorities after careful study of the planning and architectural considerations, or whether developers are to run up tall buildings wherever sites happen to fall into their hands. There is room for an immense amount of argument on the location and design of tall buildings, whether they should be scattered more or less evenly throughout the city, whether they should be located singly at visually strategic points, or grouped in clusters, and so on. But one thing is certain: the pressure of the developers, each wanting his own podium and tall block on a restricted site, will produce visual chaos and not only fails to exploit but positively kills the undoubted advantages of building high, unless effective control is exercised by the planning authorities. Unfortunately the government, while paying lip service to the principle of comprehensive development—which enables tall buildings to be carefully sited in the design of a large area has effectively discouraged it. Outside the bombed areas comprehensive development is almost unknown, and the rule of thumb prevails. We can only hope that the Piccadilly Circus Inquiry will show the Minister of Housing and Local Government the need for him to mobilise national resources for comprehensive development on a large scale.

The resolution of the aesthetic problem is certainly not going to be easy if the tower block 100-120 ft. square is accepted because it is the most economical. Not only does it produce a squat building, if heights are to settle down at 20 to 30 storeys, but one must question the emerging belief that pro-

vided the top executives have a place near the outside wall, the secretaries and lower orders can safely be stowed inside, away from natural daylight. The solution of the lighting problem does not necessarily solve the human problem, on which the assistant may have much to teach us

which the sociologists may have much to teach us.

Singularly little is known about the cost of tall buildings, and valuable economies will undoubtedly be missed if builders and architects fail to share knowledge and experience, and if design and construction proceed in water-tight compartments. Professor Matthew hopes that all new high buildings will be cost planned and subsequently cost analysed, but it is not easy to persuade builders or commercial developers to divulge their costs or the technical knowledge that gives them an advantage over their competitors. So far Thorn Electric are the only commercial developers who have agreed to release the costs of a tall building to this journal.

Might it not be desirable, as part of the price that developers must pay for the privilege of going high, to require them to publish costs and to provide technical information to the BRS?

ASTRAGAL NOTES & TOPICS

SIR GILES GILBERT SCOTT

Sir Giles Gilbert Scott has died, after a full and often controversial career, at the age of seventy-nine. I can't say that his death marks the end of an epoch, because the end was really marked by the fuss about his design for Coventry Cathedral which led to his resignation and to Basil Spence's competition success. In the age of moon rockets and industrial architecture his Gothicism seemed more and more irrelevant, and (as the House of Commons showed) began to lack the convic-

tion of his earlier work. Sir Giles, who was the classic case of the young architect soaring to success after winning a competition (Liverpool Cathedral, which earned him a commission for life), certainly left his mark: in the Battersea power station, for instance, he set the style for all others for years. In addition he gave devoted service to the profession and its Institute, of which he was president from 1933 to 1935.

SQUARE BASHING

The finest square in Scotland, which is also one of the finest in Britain, is being spoiled by Edinburgh Corporation. Robert Adam's magnificent Charlotte Square is to be a traffic roundabout. It seems extraordinary that the Corporation should decide to bank the roadway by excavating deeply on the garden side without even taking its architect's advice. Still, I don't suppose anyone is really surprised. The same city fathers had already announced their intention of replacing the trees in Randolph Crescent with a roundabout.

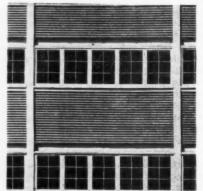
WHAT'S IN STORE?

My picture shows the 1860 boat store which Eric de Maré discovered in Sheerness dockyard when he was collecting material for J. M. Richards's special number of the *Architectural Review* (now a book) on "The Functional Tradition." This beautifully-expressed architecture is twelve years older than the famous Menier fac-

tory in France, which is often described as the first multi-storey, ironframed building. It was designed by G. T. Greene, civil engineer to the Admiralty from 1850 to 1864, and built by Henry Grissell, proprietor of the Regent's Canal Ironworks. These and other facts were given the other day in a paper to members of the Newcomer Society (experts in technological history) by Professor Skempton, of Imperial College, who had unearthed them with the help of Mr. de Maré and a fifth-year AA student, Charlotte Baden-Powell. I wish the new owners of the dockyard (Building Developments Ltd.), who have just taken over from the Admiralty, could have heard this detailed analysis of the building. I only hope they know it is valuable and should be properly cared for.

LIVERPOOL IN LONDON

Another, and much more important dock building is also in jeopardy, ASTRAGAL learns. Professor Holford, speaking at the annual dinner of the Liverpool School of Architecture Society, warned them that the eighteenth century Albert Dock, may not remain many years. Apparently the Mersey Dock and Harbour Board are removing the cupola, which they have decided is not worth preserving because the whole dock, with its hugecast-iron doric columns, is due to go in a few years. This would be a great disaster not only because Liverpool has so little of the eighteenth century left, but because this dock is now unique.



One bay of the magnificent four-storey 14-bay boat store at Sheerness, built 100 years ago and a worthy target for preservation by the Victorian Society. It has recently been purchased by Building Developments Ltd. See ASTRAGAL's comment on this page. The illustration is from The Functional Tradition by J. M. Richards, published by The Architectural Press. 36s.

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The Liverpool dinner-held for the first time at the RIBA-would seem to have been a great success, with an appropriate blend of hope, success and nostalgia. Stories about Reilly, of course, and Liverpool-trained architects overseas, and a speech from the guest of honour, Basil Spence (the Edinburgh student who broke the Liverpool run of successes in RIBA prizes), appealing for entries to the Liverpool Cathedral competition he is helping to assess (800 applications so far) and making a very sincere and also, apposite tribute to the conviction and dedication of Scott's cathedral design. Finally, a résumé of school news by Professor Gardner-Medwin. Presiding over all was the quiet and kindly J. H. Forshaw.

#### WATERY GRAVAMEN

Last week the TCPA had a planning forum and up sprang tireless Robert Aickman, with his excellent propaganda for the Association (Inland Waterways) which he founded and now vice-presides. Once again he convinced his audience of the need to revive our waterways in the interests of commerce, water conservation, pleasure and beauty. He reminded us of the support given to the IWA's argument by the Bowes Report of 1958 (the seventh of its kind since 1880) and by numerous speakers in the House debate last December. And he reminded us that nothing continues to be done to the charming and useful canals that would cost more to abandon than to maintain in good order.

What could be done? The BTC doesn't seem to want to maintain the waterways, apart from a few busy stretches. So what we need, says Mr. Aickman, is a new and independent Waterways Conservancy. The National Trust is keen on taking canals over (but not to hold them in trust indefinitely), according to John Smith who opened the TCPA's debate, and it has already taken over two. But don't let's be too beastly to the BTC. It is about to make a small effort on behalf of the waterways: it is going to surround that bosky, birdy eyot, Little Venice, with concrete and embellish it with a floodlit fountain. I have a feeling that Paddington's hallowed tradition for visual squalor will remain unbroken.



Whitbread & Co., the brewers, have shown their customary enterprise and converted part of the cellars under their Chiswell Street Brewery into an exhibition room and bar (above, the brick arches of the bar can be seen through the opening in the end wall), a dining room and a cinema seating 60. Each room is supposed to simulate various styles from 1742 (the dining room) until the present (the cinema). In the process the original simple cast iron columns and brick vaults have been completely concealed (the former are hidden in the fluted columns on the right). The exhibition room shows typical re-styled pubs, and pub signs, some of which are shown above, and the walls generally are decorated with old prints and recent paintings. It is startling, in the robust atmosphere of an old brewery, to observe the anaemic quality of the new pub interiors exhibited, of most of the paintings hung (used mainly for posters) of the pub signs, and, not least, of the rooms themselves, on which have been bestowed the evocative name of "City Cellars." Whitbread's have shown imagination in their ideas for pub interiors, but the artists and architects patronised seem unable to meet the challenge.

#### SAY THAT AGAIN

We don't often get professors of philosophy at architectural schools, so the AA had a scoop in Stuart Hampshire's lecture on "Æsthetic Judgment." If some of us were disappointed it is probably because we don't know enough about current philosophical methods-particularly the ritual of "getting out of the way" certain concepts that are to be excluded from the argument. We were still disposing of things that weren't going to be mentioned forty minutes after the lecture started. But the first thing to be got out of the way-the idea of a pure æsthetic response to forms-was slipped back into the argument just before the end, without any justification that I could follow.

Nevertheless, these formal exercises in hair-splitting and red-herring fishery were very instructive. I'm sure we shall all give further consideration to Professor Hampshire's concept of the expressive power of a work of art having. so to speak, to fight its way out of the conventions of the medium.

#### ERGO GNOMIC

A new magazine, called Mobile Home, opens with some over-sensitive editorial notes which defend residential caravan sites by swiping at architects ("experts in vaudeville sketch jimcrackery") and claiming that the fuss about Subtopia has been exaggerated. The tone of the whole magazine is anti-housing-as you might expect in a propaganda publication of this kind-and I must congratulate the editors on the ingenuity with which they state the case for wheeled suburbs. Judging by the descriptions of caravan tenants the cramped life turns many people into beaming, chuckling souls without a care in the world. One woman is said to stand at the door of her van "with the same twinkle in her eye" as the coloured gnomes on her rockery. Another "looks up with a smile as she goes round dusting" and even a mere eight-year-old wanders about (near a stream that "chuckles idly") wearing a "wise old smile." Everyone is happy. And no wonder. The site shop is a "cheery place," caravan stoves "burn brightly" and windows "glow cheerfully."

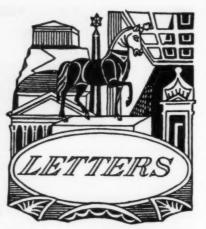
Before you dash off and book yourself in at the nearest residential caravan park, don't forget to buy yourself a visitors' book. This, says Robin Nessfield, in an article on his mobile home, "can be purchased from most goodclass stationers at prices, like those for photograph albums, ranging from a few shillings to a few pounds, according to the size and binding. . . . To anyone about to embark upon the exciting adventure of living in a mobile home I would unhesitatingly commend its adoption." Why? Well, you never know who's going to drop in. Take his "Among the signatories own case. have been actors and actresses, authors and authoresses, poets, musicians . . . " (what, no poetesses?). A bishop has scribbled his blessing, a doctor his approval and a countrylover his envy (" like the birds, I will return").

This is obviously the life, though the writer is anxious "not to suggest that residents of mobile homes should be proud people in the snobbish sense: that would be creating propaganda of the most unhelpful kind." So take care, as you squelch off to find an amenity-ridden rustic plot, that you don't look down your nose at the rest of us with our "long-term mortgages for bricks and mortar stretching ahead into the years."

And don't forget that if you're really thinking of settling down in a mobile home you're just the young man who'll want to know about the new magazine's feature on "First Steps to Fertility."

ASTRAGAL

Owing to a mistake by the printers the pages of last week's Gas Supplement were printed in the wrong order. I am glad to say that copies are being reprinted in the right order, and will be obtainable from the Gas Council.



W. Allen, A.R.I.B.A., B. Arch.

C. Douglas Woodward,

Press and Public Relations Officer, British Standards
Institution.

E. William Palmer, F.R.I.B.A.

Dariush Borbor, B. Arch.

K. S. Meakin,

Publicity Mauager, CIBA (ARL) Ltd.

Hugh Krall, A.R.I.B.A

# BSI Modular Building

SIR: In your issue of January 28 you published an article by Mr. Keyte describing the BSI modular building at Hemel Hempstead. There are one or two inaccuracies in it which affect the Building Research Station and on which I would therefore like to comment.

First, Mr. Keyte refers to delays which have kept the Station from getting its own modular project on the ground and includes among these "a change of site by the Hatfield Development Corporation." In fairness to the Corporation, who offered their site at an early stage in the work, I must correct this; there has been no change.

Second, he attributes to us two reasons for certain differences between ourselves and some of the other participants in the EPA project, "that in this country (the system) ought to be wedded to existing brick sizes of 41-in. multiples, and second that a logarithmic scale is needed to give relatively more choice in the smaller sizes than in the larger." These also need correction, but a short letter cannot discuss them adequately. The system is in fact related to a 3-in. base. As regards the system of preference, Mr. Keyte has the general intention correct, but not the method. The Pattern is a set of factorable numbers, which has merits for co-ordination which a logarithmic system would not possess, for it offers simple relationships between the smaller and larger sizes.

arston Building Research Station

Michael Keyte writes: I am grateful to Mr. Allen for correcting inadvertent inaccuracies that occurred in this short reference to BRS work in the modular co-ordination

field. Unfortunately I was misinformed on certain aspects of this programme.

SIR: It was a pity, surely, that your comprehensive and in most respects excellent report on BSI's new testing centre (January 28) should have been soured by an accompanying editorial note complaining that BSI had refused to release cost information on this project.

The allegation is quite untrue. The approximate cost of the Hemel Hempstead centre (£28,000) has long since been made public. So far as a detailed break-down is concerned, the figures are just not available yet. Certain equipment in these buildings remains to be completed and the final costs have still to be agreed between BSI and the building contractors at the termination of the maintenance period. When the figures are known, then you or any other interested party will be able to see them.

C. DOUGLAS WOODWARD

Press and Public Relations Officer

London British Standards Institution

The Editors reply: We are very glad to have Mr. Woodward's assurance that a cost breakdown will be available, and only regret that we were given a different impression earlier.

# What is 'Negligence'?

SIR: Your report "Court of Appeal—What is Negligence?" under News in the issue for January 28 is, in my opinion, misleading if read without prior reminder of the judgment given by Mr. Justice Lloyd-Jacobs in January 1959.

I feel I cannot put the matter more concisely than to quote from the report in the Estates Gazette for January 17, 1959. " He (his Lordship) was not satisfied that the building shown upon the plan, if the block plan was disregarded, could not have been satisfactorily erected on the site without infringing the easement enjoyed by Mr. Golledge. As this would depend on the siting of the building in relation to 65, London Road, only the block plan was material to the issue of negligence. This gave no dimensions whereby the location of the proposed building could be specifically defined. In his judgment this block plan could not fairly be taken to be a siting drawing, because it gave no position from which the measurements for marking the footings could be taken. Before the excavations could properly have been commenced the architect would have had to direct the builders further. If, as Mr. Palmer understood, his services as architect were terminated before the end of September, 1954, and the architect of Messrs. Leach substituted in his place, he incurred no responsibility for the siting of the builders' excavations. Thus the allegation of breach of duty was not well founded. He (his Lordship) accepted that Mr. Palmer's instructions were restricted to so much of the architect's task as was necessary to secure planning permission. He saw no reason why Mr. Palmer should have referred to the rights of light that would only become significant when the siting of the building was under consideration."

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#### Kitchen Design

SIR: Referring to ASTRAGAL'S remarks (AJ, February 4) on kitchen design, I would like to emphasize the necessity of experts especially in the design of restaurant kitchens.

A restaurant kitchen is a reasonably complex problem and the only people who can really render a useful service to both the architects and their clients are kitchen-expert architects, as we have them here in Switzerland. The average housewife, chef or dietetics student has a personal and warped view of the problem. This means that the kitchen must change with a new chef or management which is neither economical nor practical.

Only an architectural consultant will appreciate the problem in the round, his solution being valid for most people. Beside the efficient layout of the kitchen itself, there are many other auxiliary accommodations which have to be provided, each having its particular temperature requirement and positioning in the general plan. A licensed restaurant will require wine storage. beer storage (which differs with draught or bottled) frozen food space, linen store, even showers and staff restrooms. This deals with a seating capacity of about 80 persons; for larger restaurants, of course, the problem is far more complex.

DARIUSH BORBOR

## Laboratories in Cambridge

SIR: May we draw your attention to two inaccuracies in your review of the new CIBA (ARL) Limited laboratories and process block (AJ, January 14).

First, in the general introductory sentence, it is not strictly true to say that our epoxy resins are "chiefly used in the form of glues in the building industry and aircraft production." These are indeed important applications for the epoxies but Araldite is used just as much for potting and casting electrical components, for casting foundry patterns, for producing jigs, tools, fixtures and reinforced plastics and for providing protective anti-corrosive surface coatings. These comments refer only to epoxy resins; our other products include Aerolite and Aerodux synthetic resin glues employed on a large scale in the building industry for plywood, chipboard, veneering and now, increasingly, for laminated building structures. The other inaccuracies are of minor importance and involve only the transposing of parts of the descriptions of illustrations on page 85, where "process laboratories" are described as "typical floor in process area" and vice versa.

K. S. MEAKIN

Publicity Manager, CIBA (ARL) Ltd. Cambridge

## All Racy Goon-Type Talk

Glory be for Maggie (née) Lawson: for Ernie-Bonds, contractors huts, the two o'clock afternoon feed; for lucky baby boy in Marmet, airing, out in Battersea Park; and flipping, flapping nappies beneath grey skies in Albert Mansions, South-West.

For Banham, FJ, torsion bars, swing axles and for his private snigger at the establishment; All racy goon-type talk and "domes! domes!" Fuller, Elizabethan prose (Mark II): and for Gaitskellian-anti-nationalization-hot-sizzling-Lynd;

all space men, and science fiction, egg heads, marble heads and the long bread queue, Praise be

London



## THE TOWER CRANE

# Influence on Design

"Post-War Progress in Building Technique" was the subject of a valuable paper delivered by Ronald W. Wates at the Chartered Auctioneers and Estate Agents Institute on February 4, in which he brought out strongly the connection between design and construction. The salient features in post-war developments had been, he said, the increase in the skill of management, the closer interplay emerging between design and construction, and the enormous improvement that had been made in builders' plant.

The outstanding progress had been in management, particularly in pre-planning, but when the contract was placed a lot of drawings still remained to be prepared. This he attributed partly to the many consents that had to be obtained, and partly to the changing requirements of the client, "I am quite certain that one of the hidden and often avoidable costs of building is the difficulty which faces the architect in finding out what it is the client really wants."

The importance of the interplay between design and construction could not, he said, be over-emphasized. It was one of the peculiar features of the building industry that more often than not the design of a project was completed without reference to the organization that was going to build it. As a consequence the contractor had little or no opportunity of making any suggestions about methods of construction, planning, cost control or the appointment of specialist sub-contractors, although his experience in these matters might be invaluable. When design and construction were handled separately it was often too late at the time of the placing of the contract to integrate the two sufficiently well to secure the maximum building economy.

If, for example, it was decided to lift something, it obviously paid to lift the largest component that was possible within the capacity of the crane. In turn this demanded careful integration of pre-cast concrete into the design. The earliest collaboration, therefore, between designer and builder could often save the owner a great deal of money. The tower crane was not just a useful maid of all work, it was the hub of a new system of building and the focal point of a new concept of site organization. Recognition of this fact could have an important influence on the design of the superstructure, particularly in the case of tall buildings. It was possible that almost the whole structure could be designed around the methods encouraged by the tower crane with considerable savings in manpower, time and money. On occasions, said Mr. Wates, his firm had redesigned the structure of buildings to effect this increase in site efficiency, but this was a duplication of labour which could be

#### TALL BUILDINGS

# LCC Fire Requirements

The LCC at a Council Meeting held on February 9 received a report from the Town Planning Committee outlining the existing requirements for fire precautions in buildings over 100 ft. high. These included:

1. A lobby approach staircase with a lobby on each floor separating the staircase (which must have a "good standard of fire resistance") from the main floor areas. Each lobby to be properly ventilated and to have self-closing fire-resisting doors.

2. An enclosed stair at each end of the building. This, in the case of an office building, is to be not less than 25 ft. (i.e. one room's width) from the end wall and, in a residential building, not less than 35 ft. (i.e. one flat's width) from the end wall.

3. Fire lifts need not travel to the top floor. The Committee's report concludes with a note to the effect that in the last few years about 100 buildings over 100 ft. high have been finished and another 40 are in course of construction

## TRADE LITERATURE

# Competition Result

The result of the competition for the design of trade and technical literature, organized by the RIBA and the Building Centre, is as follows:

CERTIFICATES OF EXCEPTIONAL MERIT: Class I. Troughton & Young (Lighting) Ltd. Class II. The Cement & Concrete Associa-

CERTIFICATES OF MERIT: Class I. Ferodo Ltd. (Runners up for the Certificate of Exceptional Merit), The British Aluminium Co. Ltd., Redland Tiles Ltd., The Universal Asbestos Manufacturing Co. Ltd. Class II. Coal Utilisation Council.

HONOURABLE MENTIONS: Heal's Contracts Ltd., Imperial Chemical Industries Ltd., H. Newsum Sons & Co. Ltd., Profiled Spandril Panel Co. Ltd., QVF Ltd., Watts Metal Industries Ltd., Natural Asphalte Mine-Owners & Manufacturers' Council.

The entries will be on exhibition at the Building Centre until March 5, and the certificates will be presented at the Building Centre on February 24 by Basil Spence.

The assessors were George Grenfell Baines, Sir Hugh Casson, Bruce Martin and Bryan Westwood. They say in their report that they were impressed by the generally high standard of entries, and by the very large increase in the proportion of entries which conform as to size with BS 1311/1955. As the competition has brought about a marked improvement in trade and technical literature among the more enlightened firms, they strongly recommend that the competition be continued. But as the number of firms entering for it is a small proportion of the whole, they suggest that it might be given wider publicity.

# CO-ORDINATING DIMENSIONS

# The Cost Consequences

The MOW, in association with the London Building and Civil Engineering Joint Committee, the Liaison Sub-Committee of the RIBA and RICS Cost Research Committee and the Brixton School of Building, last week organized a discussion at the RICS entitled "The Cost Consequences of Coordinating Dimensions." This was the fourth in a series on costs which the MOW have been enterprising enough to arrange, previous discussions having been held at The Building Centre.

To avoid disappointing those who went to the meeting expecting concrete examples of the effect on the costs of actual buildings it probably should have been called "How the Co-ordinating of Dimensions Could Reduce Costs," for, until dimensional coordination within the building industry is a fact, its effect on cost cannot fairly be tested. But if we do not yet know that it will reduce

costs we at least know that it should do so and all the speakers at this discussion took this for granted, confining their remarks to the ways in which it should be possible. How the architect's work should be reduced and simplified was described by W. A. Allen, the benefits to the materials producer were set out by J. Barratt of Concrete Ltd. and those to the builder by H. J. Cruickshank of Gilbert-Ash Ltd.

Mr. Allen suggested that the architect would gain in three ways. Firstly, he would find that decision-making on the drawing board at the design stage was simplified. Lengthy debate and heart searching as to the effect on component X caused by making component Y 3 ft. 9 in. long instead of 3 ft. 11 in. would be eliminated. Secondly, drawings would be simplified in that nominal sizes could be used and figured dimensions would be fewer. (As a matter of interest, Bruce Martin has already proved this at BSI\*.) He pointed out that in America it was claimed that fewer dimensions on drawings reduced estimating costs and errors on the site. Thirdly, checking would be simpli-

Mr. Barratt qualified his support for dimensional co-ordination by presenting a "balance sheet" of credits and debits. His credits included the avoidance of cutting to waste on the site, interchangeability of components, greater efficiency in mass production due to repetition of components, simplified storage and identification, more stock sizes, smoother relations between trades on the site and a more rational approach to toler-

For debits he suggested that the architect would have to accept a degree of discipline in design and that unless the module were small an uneconomical use of material could result. He instanced the thickness of concrete floor slabs and the sizes of r.s.j's. His remaining debits-the cost of altering existing moulds and machinery, the confusion during changeover and the difficulty of agreeing sizes with other countries—are in the nature of teething troubles which a general acceptance of dimensional co-ordination must at

Speaking for the builder, Mr. Cruickshank said he was interested in anything which simplified and reduced site operations. He pointed out that the variables in building work were usually controlled by the designer, even to the extent of site programming, and asked architects why some uniformity could not be obtained in, say, column spacing amongst different building types. He suggested that one advantage of co-ordinating dimensions was in increasing the number of operations which could be carried out offsite, such as plumbing, heating, electrical, partitioning and joinery.

The discussion which followed the speakers was brief and not very fruitful. Donald Gibson cited an experience at Notts CC when he called in Bruce Martin of BSI to advise on window sections used in the school programme which, at the time, he believed to be uneconomical. He explained that Mr. Martin was able to rationalize the section sizes and profiles from 20 or so to two or three and substantial savings were made on subsequent work. Apart from this, however, there seemed little more to say that the speakers had not already said.

## RIBA

# Is Daylighting Necessary?

A one-day conference for architects on lighting, to be held at the RIBA on April 27. is being organized by The British Lighting Council. The theme is "Is Daylighting Really Necessary?" and the speakers are Alister MacDonald on designing a building, W. R. Stevens on lighting techniques, and Dr. F. W. Floyd, Post Office Consultant Physiologist, on humanitarian aspects. Tickets from The British Lighting Council, 16-18, Lancaster Place, London, W.C.2.

# Hospitals Course

A course designed to give architects who are not already experienced in hospital design background information about the health service, hospital treatment, hospital users, the responsible authorities and the results of research into hospital planning is being organized by the RIBA, in collaboration with the Ministry of Health, Department of Health for Scotland and the Regional Hospital Boards. The date is Monday, July 11, to Friday, July 15. A new hospitals exhibition will run from July 9 to 23. Application forms will be in the May RIBA Journal, or may be had from Anthony Williams at the RIBA from May 1.

## **NEWS**

# In Brief

Application may now be made for Ford Foundation-English Speaking Union travel grants, 1960-61, to the US. The maximum age limit is 50, and the grants are intended for those who have previously not been to the US, and are unlikely to have another opportunity of visiting that country in the normal course of their career. Application forms are obtainable from the Secretary, the English Speaking Union, Dartmouth House, 37, Charles Street, Berkeley Square, London, W.1, and should be returned by

The further premium to be awarded to the winning design in the competition for a new hospital at Boston, Lincolnshire, is £1,500, and not £500 as stated in our issue of February 4.

A Conference is to be held in Central London, commencing Friday evening, March 4, and extending through Saturday, March 5, on the subject "The Architect and the Church." This is a follow-up to that held under the auspices of the World Council of Churches at Geneva in May, 1959. Mr. Edward D. Mills will be in the Chair. Details from Stanley G. Cook, Hon. Conference Secretary, 248, Kent House Road, Beckenham, Kent.

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\* See AJ January 14.

## ROBERT MATTHEW ON TALL BUILDINGS

# 'Disaster' Possible Without Large-scale Replanning

The first conclusion to be drawn from Robert Matthew's talk on "High Buildings" at the RICS on February 1 is that the sky is not, after all, likely to be the limit. He noted the interesting fact that whereas, in America, tall buildings are becoming shorter (so that the Empire State Building with its 102 storeys seems likely to remain for a long time the tallest building in the world), in the rest of the world buildings are becoming higher, the two movements converging towards a ceiling in the region of 20 to 30 storeys.

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He dated this trend in America from Lever House, the first building (with its 21 storeys) to abandon sheer height as a mark of prestige, but he thought it was some measure of our unscientific modes of thought both in building and in town planning that he deduced this scale from practice and not from theoretical considerations.

He noted, too, that while tall building was a matter of fashion it was also a matter of the development of ideas, and that tallness was not now an attribute of any particular form of development—universities, housing, hotels, hospitals, even embassies were going up in the air. Even in residential building, where the LCC is going up to 25 storeys and Basil Spence to 22 storeys in the Gorbals, the new norm applied on a world scale.

What are the factors determining the scale? Professor Matthew found it curious that height limits were spontaneously occurring about the same point in different parts of the world where conditions were very different. While he quoted from the LCC report on tall buildings, to the effect that plot ratio and daylighting control encouraged tall buildings, he also noted that in Melbourne, where the maximum plot ratio in the central area was 12 to 1, and there was no height limit as such, none of the recent tall buildings exceeded 25 storeys.

Among the most important factors bearing on ultimate height were those determining the floor area of the "tower" part of the building. An estate agent in Canada had told him that 10-12,000 sq. ft. seemed to be about the economic minimum floor area for various reasons, and that the ideal shape would be a square 100 to 120 ft. on the face, preferably more, with a central shaft taking lifts, stairs, lavatories and vertical services. This prompted Professor Matthew to raise

the question: "can elegance be achieved at 100 ft. sq.?" Perhaps it could be if the tower was 500 ft. high or more, but at the heights of today the elegance must be of a different order, and on this issue the battle between æsthetics and economics had to be fought out. At the present time the power of two or three outstanding firms of architects was making architectural considerations dominate—for example in the narrow, boat-shaped Pirelli building in Milan, which was clearly not the most economic shape from the standpoint of internal planning, and the bizarre Tour Velasca. But the majority of tall buildings would be required to meet the

most stringent economic requirements, and this did pose very great problems for the architect.

Next Professor Matthew discussed the question of scale, and quoted from the LCC policy memorandum which asks "whether the site is large enough in relation to its surroundings to allow the erection of a suitably designed base of lower buildings, or the provision of open space." Where a tall building abutted an open space it could probably look after itself, as at the Elephant and Castle, but this was probably the exception. Where the site was more confined, a low base or a substantial set-back at pavement level could, more than anything else, keep the human scale at the street, however high the tower might go. Successful examples quoted by Professor Matthew were Lever House, the Seagram Building, Thorn House and Castrol House.

In the original design of New Zealand House the podium was only three storeys high, having been scaled to the adjoining Georgian buildings, and not to the adjoining Edwardian buildings, with the deliberate intention of reducing the scale of the street frontage. As a result of negotiations with various authorities (not, he was glad to say, the LCC) the podium was scaled up to match the Edwardian scale, very much to the detriment of the whole area—although he hoped that various devices employed to offset the excessive height would prevent the original conception being too badly obscured.

On the location of high buildings Professor Matthew gave a serious warning. Increasing numbers of planning applications for tall buildings on relatively small sites were being received in most of the larger cities. This placed the planning authorities in a dilemma that was not resolved by the present form of the development plans. The LCC by making its views known had done a considerable service by at least facing and discussing the issue, but it had not so far found anything like the full answer.

He assumed that in Britain we would not follow the American example of allowing tall buildings indiscriminately, or the Moscow example where seven skyscrapers (which, Professor Matthew thought, stood out most impressively on the skyline) had been built and were unlikely to have any rivals. But he did not find it easy to say what the next step in the evolution of British policy should be. The principles of the LCC were unexceptionable, and what would probably follow would be a tightening of the positive and negative areas, where high buildings could or could not be built, coupled with an extension of comprehensive development which had hardly commenced in most cities outside the bomb-damaged areas.

Outside these areas the problem of dealing with the individual applicant would be most acute. and in his opinion, unless there was a very real change of tempo in the direction of large scale replanning, or "urban renewal," tall building would inevitably get out





The UN building (top) was quoted by Professor Matthew as an example of a tower well related to a low base. The outline of Lever House (above) has been spoiled by its neighbour, which is clad in glass of a similar colour.

of hand and away ahead of planning, with possibly disastrous effects for the future. In the second part of his paper Professor

In the second part of his paper Professor Matthew dealt with more technical aspects of tall building.

First, fire. The British practice, that the fire-fighting staircases must be next the open air and to the street, placed severe restrictions on planning, and was not followed in America, where the standard practice was to locate the vertical services and the fire-stairs with smoke vents in the central core, surrounded by an uninterrupted ring of offices, and the fire-stairs are not linked direct to the street by cut-off corridors. Professor Matthew said he had still to be convinced that the American practice was unduly hazardous.

How structural design would alter the appearance of tall buildings he did not know, but he offered the personal impression that the day of the glass tower was almost over, and referred to the interesting alternatives being developed by Skidmore, Owings and Merill who were experimenting with "putting the bones outside the skin." To illustrate how glass cladding can be overdone Professor Matthew showed a slide (reproduced on this page) in which the unique

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silhouette of the Lever building was almost totally destroyed by its next door neighbour, which had been rebuilt with an almost identical colour of glass. From this he drew the conclusion that the shoddy or badly designed tall building became a tragedy, and that quality became a function of height. Tall buildings, volume for volume, were more costly than low buildings, and quality also meant cost. So there was a double burden in the capital cost for the privilege of building high-and it was a privilege, not a right.

In this connection Professor Matthew emphasized his hope that in the initial stage all high buildings would be both cost planned and cost analyzed, in a way that made fair and accurate comparison possible. Only in this way could a reasonable body of information be built up as a basis for future assessments.

## BOOK REVIEW

# Yorkshire Gazetteer

Yorkshire: The West Riding. Nikolaus Pevsner. Penguin Books Ltd.

This is the 17th volume in the Buildings of England series and the first volume on Yorkshire. The very broad terms of reference allow Dr. Pevsner great freedom. Apart from his avowed interest in buildings, he records prehistoric camps, Roman workings, gardens, monuments, church plate and many miscellaneous items. Nor does he stop short with the 18th century but continues into the 19th and rounds off his account with the more notable buildings of the 20th up to and including those of the present decade. The result is an uncommonly interesting gazetteer and a West Riding reference book unique in its scope.

Despite the fact that this Riding is the largest county of England, its buildings have never been comprehensively recorded and, outside the boundaries of Yorkshire, they have largely remained unknown. Dr. Pevsner's book provides the first noteworthy gazetteer, useful not only to the local enquirer but to the architectural student and the casual visitor.

Collaboration Between the Architect and the Landscape Architect. Talk by Arthur Ling and Bodfan Gruffydd at the ILA, 1, Park Crescent, Portland Place, W.1. 6.15 p.m.

FEBRUARY 23

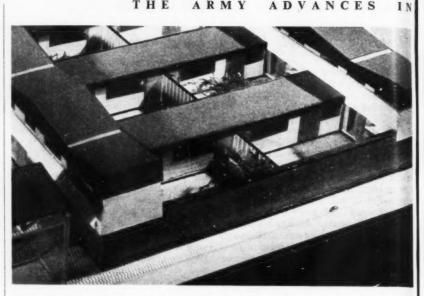
Discussion on the Henrion Exhibition. Speakers include K. J. Robinson, Kenneth Garland and Geoffrey Holroyd. At the ICA, 17/18, Dover Street, London, W.1. 8.15 p.m. FEBRUARY 23

Junction Design in Motorways. Traffic Engineering Study Group, Informal Discussion at the ICE, 1, Great George Street, London, S.W.1. 5.30 p.m.

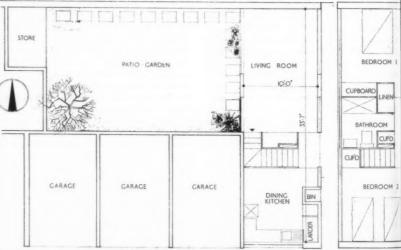
FEBRUARY 23

A New Town in France-Bagnols sur Cere. Talk by Georges Candilis at the AA, 34/36, Bedford Square, London, W.C.1. 8 p.m.

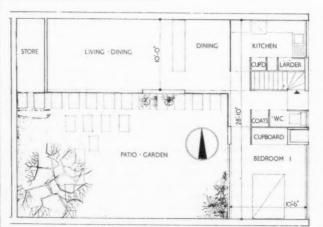




The patio house is more often designed and talked about than built. The advantages of this type of planning were elaborated by Walter Segal in his fascinating book Home and Environment\* seven years ago, but none of the many variations he discussed, so far as we know, have been built in this country. It is indicative of the advances being made



Ground floor plan, 2-bedroom house



Ground floor plan, 3-bedroom house [Scale: 12" = 1' 0"]

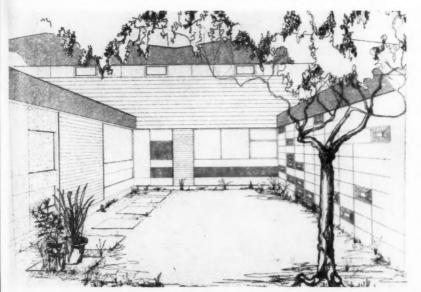


First floor plan

First floor plan



in the architects' department of the War Office that this theoretically most satisfactory type of housing is being put to practical test. It is to be built on the site of the Talavera and Waterloo barracks, Aldershot. There will be 298 dwellings. The overall net density is  $10 \cdot 5$  houses per acre. There are also five blocks of four storey maisonettes, as well as the two and three bedroom patio houses. The patios are entirely private, see sketch below, as the bedroom windows overlooking are at a high level. A block of garages completes the enclosure at the end of each group of houses. There are 104 garages altogether. The job architect responsible for this design is A. W. Butler, who also helped design the flats at Sceaux Gardens, Camberwell, published AJ, January 7. This is only one of many schemes now going ahead at Chessington under the overall control of D. E. E. Gibson, Director General of Works. He is engaged on a programme of expenditure running at £8m. a year at home and £7m. a year overseas, with a further £15m. for maintenance. He is



organising the department under six directors: Overseas, John Redpath; Home, Charles Richards; Research and Development, Roger Walters; Structural Engineering, M. T. Shaw; Quantity Surveyors, James Nisbet; the post of Mechanical Engineering is as yet unfilled. Each director has an administrative colleague on a pattern similar to the Ministry of Education. The Development Group is being expanded to undertake work study, O. and M., technical information and landscape design as well as technical development. The prospects are promising for architects: salaries are high and the range of work very varied.



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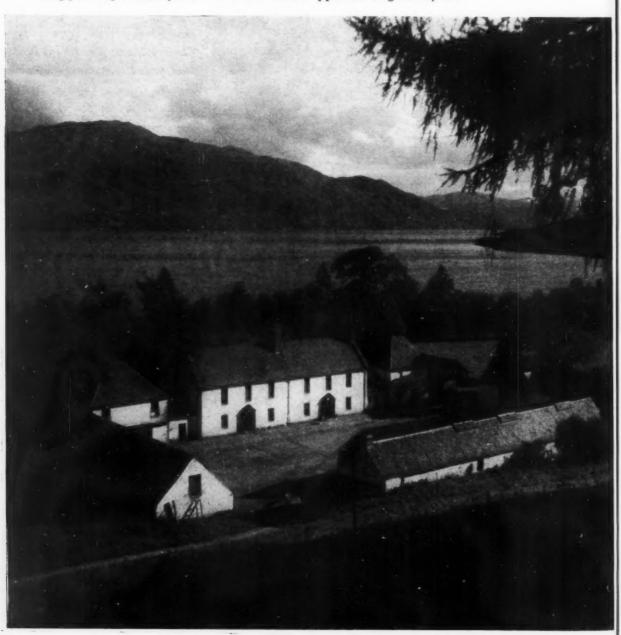
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# overspill

# Glasgow: 2

The Scottish Idiom at its best: estate cottages on Loch Fyne from the 1790's. These are the work of estate craftsmen taking their proportions from outline drawings originating in professional offices such as that of the Adam family. Similar impulses are needed today to keep the ordinary run of housing on a satisfactory design level. In the overspill towns quantity of houses needed makes this raising of local design standards imperative.

Glasgow Corporation plans to "overspill" more than a quarter of its population and industry to new or expanded towns in Scotland, and even to one in England. But is there sufficient capital behind this project? Are the reception areas well selected? Why is nobody in control of this vast operation at the Scottish national level? Can the town planning and architectural opportunities be realised through the present machinery? These are some of the questions asked by Frederic R. Stevenson (senior lecturer in architecture at Edinburgh University) in his second article on Glasgow. He also describes the plan to receive overspill at Haddington, the only one yet published. The first article appeared on January 28.



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Readers of this journal already know how decentralization into new towns works. Glasgow experience has been no different from that of other places. East Kilbride, and more recently Cumbernauld, easily fill up with housing and industry once the pump is primed with the impressive capital and organization of a new town corporation. Glasgow's disbelief in new towns, voiced when in 1946 East Kilbride was objected to. gradually disappeared and after six years of increasing difficulty in finding places to put new housing blocks within the city the municipality officially admitted the Abercrombie overspill of 200,000. They went further and found that by then a more realistic figure was 300,000.

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Meanwhile the Government had shut down on new towns and with the launching in England of the Town Development Act, Scotland too, after a curiously inconsequent struggle into which planning considerations hardly entered, adopted this apparently less expensive measure, chiefly with Glasgow in mind. Now people in Scotland rarely speak of Town Development but use instead the phrase Glasgow Overspill. By this they mean not new towns, which are nevertheless still the main means of dealing with overspill. but the gradual decanting of people and industry from Glasgow into the existing smaller towns of Scotland, as far north as Inverness, south into the border towns and east as far as Arbroath and Haddington. As an isolated case some steel people are to go to Corby.

The small towns have their own industrial difficulties not so general in England. Many are single-industry towns suffering from periodic depression and an attractive feature of taking Glasgow people to them with their industries or with new industries is the thought that local industry thus becomes diversified.

Arrangements made under the Housing and Town Development Act for Scotland follow those of the English Act. On either initiative Glasgow and a town willing to become "reception area" enter into an "overspill agreement" whereby houses are built with Glasgow as the main financing interest apart from Government subsidy. A "town development scheme," architectural and financial, is prepared and approved by the Secretary of State whereupon the site is serviced and building begins. Finance covers only housing. It is assumed that the influx of new inhabitants will itself stimulate the necessary provision for shops and social facilities locally. Similarly industry is assumed willing to follow the labour migration. The only prescribed provision for getting industry to the reception area is the earmarking of suitable land. In practice, the Board of Trade through its granting of licences and the Scottish Office as central planning authority are prepared to use persuasion and undertake some background management to get industry to go to reception areas, but the fact remains that this is left largely to the energy and interest of a few officers feeling personally concerned. Behind the whole effort, too, is the drive and resource-though incredulous of success-of the Scottish Council (Development & Industry), an agency privately financed to attract new industries to Scotland as a whole. Thus factories in which migrating Glaswegians find work in their new surroundings may not be the result of migration from Glasgow but, possibly, a move by Scandinavian, German or American industry setting up daughter factories that far afield. Irvine, a town on the Ayrshire coast, recently made an overspill agreement with Glasgow and sent a delegation to Sweden to bring a Swedish factory to the town, an enterprise which succeeded. In the same way Haddington proposes to employ its 200-odd migrating Glaswegians in an Americansponsored industry.

It is too early to say whether this overspill operation will produce adequate results. The fear is that too little capital is flowing. What is really needed is either government capital in the form of outright grants or cheap interest loans, or else the device of artificially created "taxation climates." In America remissions of State Tax in industries willing to migrate from heavily industrialized states to others which have too little industry are becoming common, and within Europe Norway has led a similar trend with tax concessions, special loans and financial guarantees to industries moving from the crowded Oslo area to the Arctic North. Overspill moves and industrial migrations so far proposed in Scotland are more modest in range but need on the other hand greater capital. Even in lighter industries Glasgow's industrial plant is expensive to move whether a short distance or a long. Industry says that under current taxation it has no spare money for such things, and sees Glasgow Corporation as a cruel landlord and political despot who threatens eviction through artificially cheap compulsory purchase orders. Government appears to believe that industry has the capital or can find it and that eviction must go ahead, for vociferous claims to the contrary have not been countered, while overspill schemes are approved as soon as they are submitted. Many observers feel that something needs to give and it is recalled that although industry at the new town of East Kilbride is now booming, the first moves there were by a Government industry and a private firm much under Government patronage at that time. The pump had to be primed before it would run and something like this seems to be needed now to get Glasgow industries properly on the move.

Another general criticism of overspill operations under the Housing and Town Development Act is that the distribution of overspill groups throughout Scotland is haphazard, depending on the accident of local initiative or Glasgow selection. Some feel, for instance, that the Inverness move ought instead to have been to a new town at Invergordon where a big natural harbour, much used by the Royal Navy, and a fine town site with cheap hydro-electricity available, not to speak of atomic power from Dounreay not far off, have often raised the question of major development whether or not Glasgow would be involved. Conversely, the proposed move to Arbroath can be criticized because that town is already



Map of Scotland showing towns taking part in the overspill operation outside the Glasgow area. Together they provide for just below 5,000 houses for migrating Glaswegians. Under current arrangements they attract 5,000 other houses built by government agency to accommodate a notional population migrating to the same areas from elsewhere, taking advantage—it is hoped—of migrating industries.

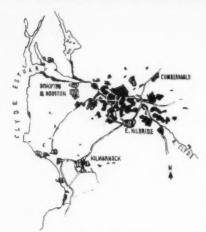
As compared with this whole operation the three new towns, East Kilbride, Glenrothes and Cumbernauld (shown here as unnamed squares) provide a total of 15,000 Glaswegian houses. Four other new towns were proposed by planning consultants, two in the west and two in the east. The new towns' potential appears to be much greater than that of the rival overspill method.

But the question is whether the overspill operation is at all on n big enough scale. Though it sounds imaginative, this is playing at planning rather than doing it.

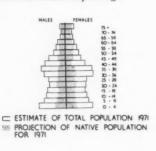
Observe how the Highland area—the greatest unused land resource in Great Britain—remains largely unaffected.

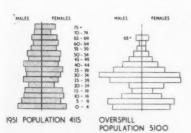


Characteristic Scottish country town housing where the architect has either been left without control of the design or has not exercised control: where the layout is neither urban nor rural, though houses are in some way pretentious.



The Clyde Valley Regional Plan, 1946, proposed two kinds of overspill. First, into four new towns, shown here in plain vertical hatching. Secondly into existing towns greatly enlarged, shown here by closer vertical hatching in conjunction with solid black. Best example of the second kind is Kilmarnock. Because the new town proposals went ahead too slowly and were starved of community facilities, additions to existing towns where such facilities existed already obtained a false advantage. The present overspill programme continues this false comparison. Architecturally, the new towns hold pre-eminence nevertheless, because of their opportunities to recruit more adequate staffs.





Typical statistical diagram now being used by East Lothian County Council in negotiations for bringing Glasgow overspill to Dunbar.

The lower diagram on the left represents the age structure of the existing population of Dunbar—containing a large number of old people—and on the right is the corresponding age structure of the expected overspill population. This predominates in children representing the post-war "bulge" and young parents of 25-40.

The diagram at the top shows the likely resulting age structure in 1971. The shaded portion is the structure which would exist then if no new population were brought in. Stretching from 4 to 75 with little variation in size between age-groups, this represents the general state of things in small Scottish towns and points to the need for migration of younger people from the cities to these places.

almost part of the growing conurbation of Dundee. Again, moves to the border towns, each differently situated within an agricultural region ought, it is felt, to be planned together with the development of agriculture and forestry on a regional basis. This was said long ago by Patrick Geddes and indeed it seems curious that so little regional planning has been done in Scotland where his world-famous and widely applied theories of regional planning were conceived.

All these fears and criticisms come home to roost in the fact that no single person or group of persons is in control of the overspill project which is a national problem but has arisen, and is dealt with, as if it were a Glasgow problem. It is Glasgow that publishes a book on the merits of moving to Corby or Inverness, not the Secretary of State. There is not even a Standing Committee representing the government departments. To run a revolutionary project of this size is being regarded as just normal central and local government administration. The problem of the smaller Scottish burghs merits government attention by itself. Their single industries are being taken over by big combines. Chain store shopping is ousting family businesses. It may be wrong to attempt small expansions which leave the town largely as it is socially and do nothing to balance the big city management systems which enter with big industry and big commerce. There is a strong argument for choosing a particular town with favourable conditions for expansion on a large scale and making this a new town within the meaning of the New Towns Act, possibly on the lines of Hemel Hempstead. This device would mean that New Towns powers and finance, proven as they are, could come to the aid of the inadequate resources of the Town Development Act.

Two big moves like this into the Borders and another two to the North, including Invergordon, could take a big bite out of the overspill total and have the merit of carrying out the Clyde Valley Plan on a scale which its authors would fully approve, and probably only refrained from suggesting because of the impossibility of getting government to move 10 years ago before the overspill figure itself had been accepted, and even before planning authorities as we know them had come into being.

The architectural opportunities of such big moves would be obvious. New town development, despite criticisms, has been in good architectural hands as compared with other publicly financed housing. The contrast between good and bad is clearer in Scotland than in England and there is now much cause to fear that architectural standards in the "reception areas" will be generally low. The provisions in the Act lead naturally to minimum expenditure on design, repeating the faults of the Housing Acts. No provision is made for new public centres and their buildings, nor for landscape work. There is not even insistence on the creation of a parks department either by burgh or county, as a condition of approval of an overspill agreement. Provision is made for scrutiny of lay-out plans and house types by central government technicians and administrators but this places too heavy an onus on them to reject at their own discretion schemes which are nevertheless well up to generally accepted low standards. What helped them in New Towns work was the general acceptance there of higher standards. Nor was this managed without a battle for the architect to be in proper control. It was fought well in Scotland and the position at Cumbernauld in this respect probably marks the furthest advance in the whole UK. In the overspill reception areas this battle has now to be fought all over again with fewer resources. Much will depend on local authority officers who work under the handicap that their Development Plan approved under the Town and Country Planning Act was prepared in the anti-planning climate of the late forties. Many such plans were little more than records of existing land use. Their first task is thus to revise these completely for all reception areas, pressing, too, for CDA work which sudden population increases make necessary.

A difficulty is the limited technical range of some officials and the general absence of salaried burgh architects. Some burghs attempt to solve this problem by employing private architects to design their housing schemes, working to the burgh officials as clients, but these have too much to fight against and some would lose their briefs if they insisted on standards of design they know to be right. Although a few young firms are fighting well, new status is needed for the architect working in the small burgh. Perhaps an experiment with the Scandinavian type of city architect allowed private practice to supplement his salary, ought to be tried. Many Scottish town clerks are young lawyers working on such an arrangement with clearly beneficial effects on the standard of work done in their departments, It is fortunate that the excellent housing handbook prepared by the Scottish Department of Health has just reached its full stage of publication. Certainly the architectural standards which it embodies are high enough to bring about general improvement if local authorities accept it. but architects employed on overspill housing may well find that the wrong aspects of it are being enforced, through the fact that councillors and administrative officers are on the whole more concerned with the financial aspects of the job than those which concern architectural and social improvement.

Only one overspill scheme has become available so far for scrutiny: Haddington. Here the housing has been laid out by the County Planning Officer in collaboration with Scottish Special Housing Association. This is a government-sponsored body whose services can be used for overspill schemes as for any local authority housing, both as architect and contractor; it has had its own difficulties with design standards in relation to cost reduction but could now get its chance to show some new paces.

Haddington has a population of 4,497, housed in the usual architectural mixture of styles from the sixteenth to the twentieth centuries round an ancient street plan which dates from the original creation of this and other Royal burghs as new towns

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Map of Haddington (above) showing proposals made possible by the overspill agreement, all in addition to development covered by the statutory plan. The wedge-shaped nucleus in the centre of the town is the remaining mediaeval town. It was planned, together with six others, during the reign of King David I in the 12th century, consisting then of a triangular open space with n fringe of houses having long narrow gardens behind, some of which are visible on this illustration. In Scotland these gardens are known as riggs.



Centre left: The High Street, Haddington.

Buildings retain late mediaeval features behind early Georgian fronts. The whole ground floor is in effect the shopping centre of the town. The upper floors contain flats, some of them converted to become annexes to the shops below. This decidedly urban scene is hard to recapture in redevelopment because of daylighting and other modern requirements.

Because of this the first redevelopment was bitterly opposed by preservationists.

Bottom left: another view of Haddington High Street, in effect the town centre. Since this picture was taken the air raid shelter has been removed, but so have the cobbled setts. This is an indication of a need widely felt in Scottish towns for firm guidance of local authorities as regards urban renewal; and also preservation.

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in the twelfth century. There is a partly ruinous mediæval abbey and two main streets of outstanding character. One old street after some decades of careless demolition of old houses, is now the scene of a small comprehensive development, partly for housing, but also to provide shops for the overspill scheme using private capital for that. An attempt made to marry new archi-



The term "Matthewtown" was used in the previous article to suggest a way in which a Glasgow custom that a new development takes the name of someone prominent in its promotion might now bring in the architects for this development are of course Robert Matthew and Johnson-Marshall, of Edinburgh and London.

big country estates. Some counterpart for this transmission of ideas must now be found if the calibre of work done in the small towns today is not to continue its devaluation of local architectural currency.



Top left: a small piazza formed in Hardgate, Haddington, by the demolition of corner shops, revealing an early 18th century house now being reconditioned by the County Council. Adjoining this house is a new fish and chip restaurant, designed by the author of this article. Landscaping by the County Council Planning Department.

Centre left: reconstruction of 18th century houses in Church Street, Haddington, financed under arrangements made for taking Glasgow overspill. These houses are being turned into dwellings, not necessarily for Glaswegians, but to add to the pool of housing available in the town. They form a natural traffic-free precinct, Church Street being a cult-de-sac, and there is a view over gardens behind towards a large 14th century church.

Bottom left: new housing built from the material provided by demolished houses in Hardgate. The houses reach a standard unusual in Scottish burghs: they are by J. A. W. Grant who has dealt with the burgh housing since it began in the 1920's. Landscaping is by the County Council Planning Department, who also selected the lamp standards.

The main feature provided for the public at the Furniture Exhibition this year was the section called "Budget Rooms." In this five designers each had the task of furnishing a pair of Victorian-type rooms. Each pair of rooms, large and lofty, was connected by inter-communicating doors. The budgets ranged from £100 to £2,000 and it was interesting to see that difficulties were experienced at both ends of the scale, those with the middling budgets coming off best. There was a certain amount of scope for cheating as "personal possessions" were outside the budget figure. An antique barometer as a wall decoration seems fair enough but an expensive Hi-fi radio and record player added to the cheapest room under this heading seems to be a trifle unfair. All the rooms were well and intelligently lit as rooms, but for the most part they were under-lit for exhibition purposes. Some exaggeration would have helped considerably, and would also have given the feature a more inviting appearance when seen from some distance away. It was a pity that the two lowest priced rooms were so lacking in any feeling of "homeliness." They were interesting but stark and it seems unfortunate that in the British Furniture Exhibition the public was given the impression that little comfort could be obtained by spending £400 on furnishing two rooms.

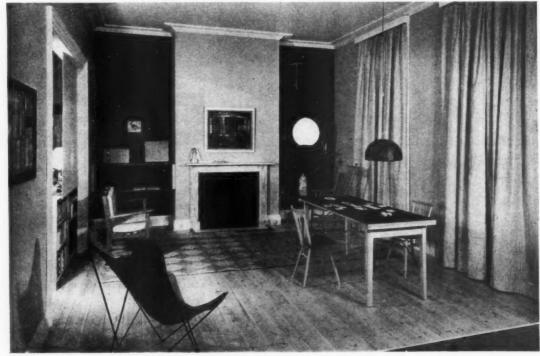
# Furnishing on a budget

John and Sylvia Reid describe five rooms at the Furniture Exhibition

Thurloe Conolly's room for a married couple looks rather bleak, largely because of the basic drab grey colour scheme. The curtains were made of mattress ticking, which is not a particularly exciting fabric. Immediately after the war this kind of dodge was a necessity but it seems somewhat unnecessary at the present time when there are many good cheap fabrics available which are both gay and

colourful. There is a double bed, "since sleep is so vital," in the back room (19½ ft. × 12 ft.) placed near the fire to provide extra seating when entertaining. The dressing-table is a wall-hung one of shelves and a mirror. Both the original fireplaces are retained and in the rear room there are curtained recesses on either side of the chimney for cubboard and shelf space.

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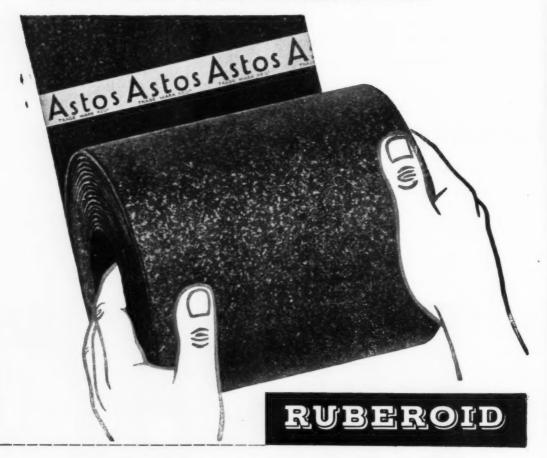
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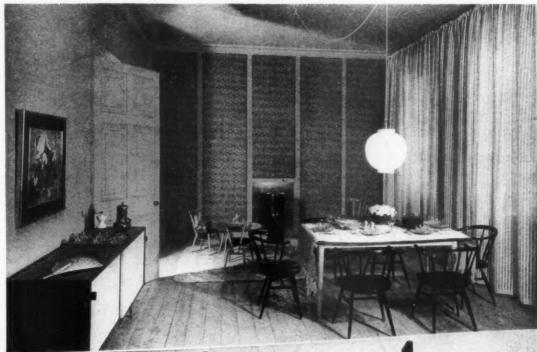
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Furnishing on a budget



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Elizabeth Henderson and the other three designers are catering for a family of parents and two children. The front room, above (19 ft. × 14½ ft.) is her "day" room, with dining area. She has removed the front fireplace and made a panelled wall, with a secret store for toys in it. A stove replaces the old fire, while the children's table and chairs stand somewhere near. A settee and one other chair complete the group. Across the front hall, with its two tall windows, net is hung over venetian blinds. Floors are sanded and polished, walls emulsion painted, but again the colour scheme is drab and cheerless and lacking any welcoming quality.

Jo Pattrick is i the middle of the price range, and her room (below) is probably the most successful. She has taken out the dividing doors and the wall partition nearer the fireplaces, and used the rest of the partition to form a dining alcove. The front fire is replaced with a stove, and the whole chimney breast wall features a mosaic in "do-it-yourself" tiles. Units fill the recesses between the fireplaces. Her seating scheme is unusual—a settee, a long cushioned stool, and another similar stool, arranged in a Z-formation so that people can sit and face either way when on the stools. The three parts are linked by tables to take lamps. As laid out this means rather a long walk to reach chairs by the stove, but this could easily be attended to. The ceiling-to-floor curtains consist of 2-ft. wide stripes of yellow and white repp. The remaining partition wall defines the dining alcove, which has banquette seats.

£800

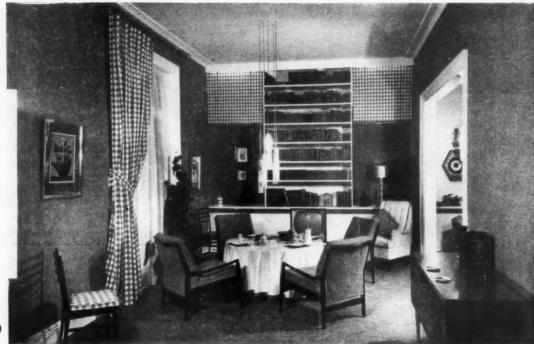




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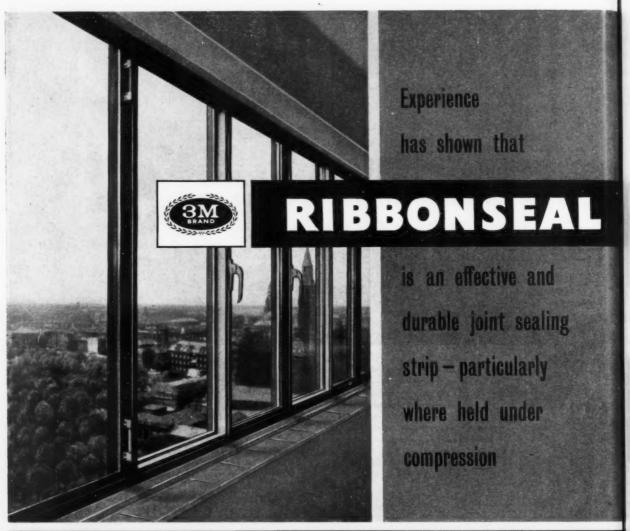
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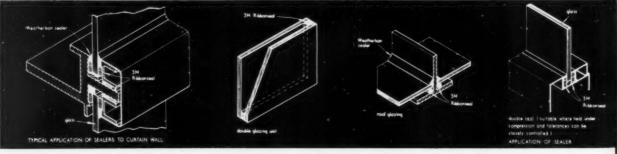
Dennis Lennon, with a little more money at his disposal, has created (above) a sitting-room, and a dining-room. The colour scheme throughout is mainly red and white. He has picked red and white gingham for the dining-room curtains and repeated it as panels on the upper part of the recesses to the chimney breast. The chairs and walls are red, offset by a white rug. In the other room, he has varied this scheme by choosing white walls with plain red curtains, red settee, red carpet and lime rug. These are extremely sophisticated rooms with a real feeling of quality about them, and it is a pleasure to see his immaculate detailing.

Margaret Casson leads us into the land of luxury (below). Structural changes take precedence here: two-thirds of the floor is raised by 1 ft., and a suspended ceiling fitted over the whole area to lower the heights of the respective rooms to 8 ft. and 9 ft., and she has dispensed with the dividing wall and the fireplaces altogether. The setting is shown as at night, with a curtain wall across the front. Gold leaf is applied to the wall at the other end. Structural changes on this scale make the project incomprehensible to the public, and the inescapable fact is that you do not necessarily get twice the value by spending twice the money.

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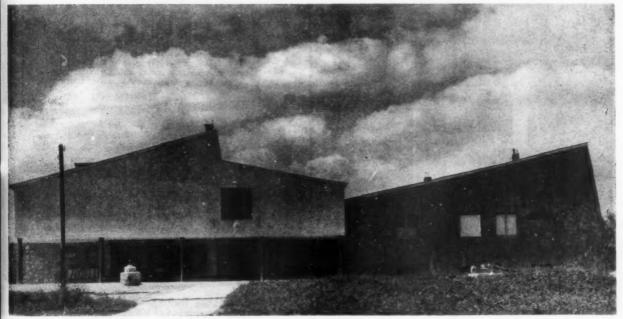
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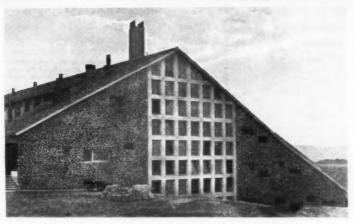
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A large programme of elementary school building is now going forward in Hungary, where most schools have been working a two-shift system since universal elementary education was introduced after the war. Above, a 16-classroom school in Budapest by Emil Zoldy, two-storey blocks with glazed link corridors. Left,





another 16-classroom Budapest school by Laszlo Medvedt: it is three storeys high on a restricted site, giving a rather barrack-like air. Above, a four-classroom school at Szentlaszlo, by Tibor Kiss. The four bilateral classrooms are separated into pairs by a corridor. Left, 16-classroom school, by Emil Koves, on a sloping site at Pecs, with main entrance visible on left.

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Part of this issue of the JOURNAL goes to press before it is known whether there will or will not be a railway strike. Consequently we are making preparations to comply with emergency regulations issued by the GPO. The result of these may be that some direct subscribers will receive the JOURNAL in two parts at different postal deliveries. We regret the inconvenience this will cause.

# THE INDUSTRY

From the industry this week Brian Grant describes a wood-veneer wall panelling, high-intensity fluorescent lighting, polyethylene bottle traps and a Scandinavian double-glazed window now available in this country.

Rollywood panels

Sanderson's Rollywood derived from Scandinavia, is composed of 1-in, wide strips of wood veneer bound together by strong thread: there are many variations of types and colours of wood, as well as of thread. It has now been introduced in a slightly different form-plastic bound panels in which the strips of wood veneer are relieved by occasional strips of coloured plastic. All panels are 24 in, wide and in two lengths, 79 and 116 in., and can be used as wall panels behind divans and sofas, as a background for displaying pictures, and in many other applications.

There are three designs: Texas is the most brilliantly coloured of the three, with two light coloured woods, blue, red and black plastic, and bound in black. Night and Day employs black plastic, and woods of honey colour and white, bound in black. Grey Stripe has white and walnut-coloured wood. grey and black plastic, and is bound in grey. Hanging is very easy, the panels are merely nailed to the wall by special brass pins (which are provided) hammered through the plastic border. (Arthur Sanderson & Sons Ltd., Berners Street, London, W.1.)

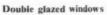
High intensity lighting

The GEC has just announced a 400-watt mercury fluorescent reflector lamp for exterior floodlighting or the interior lighting of large areas in factories, steel works and similar installations. The lamp has a hard glass bulb and can be used unprotected as long as the cup and holder are shielded. There is a thin aluminium reflector film on

the inside of the bulb to give a light distribution much the same as a standard lamp and a separate dispersive reflector. Maintenance of light on the working plane is, however, much better, as dust accumulating on the bulb makes no difference to the reflector. Colour correction is provided by a thin phosphor coating on the reflector. (The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.)

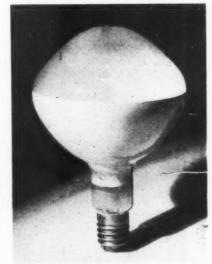
Traps in plastics

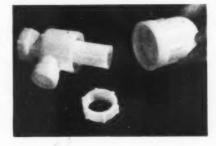
The photograph on the right shows a bottle trap which is moulded in Rigidex highdensity polyethylene and which provides a 3 in. deep seal with a fairly large bowl not likely to be blocked. The trap will withstand frost and boiling water as well as most chemicals, oils and solvents and has a smooth finish, both internal and external. Prices are comparable with conventional traps. (McAlpine & Co. Ltd., Kelvin Avenue, Hillington, Glasgow, S.W.2.)

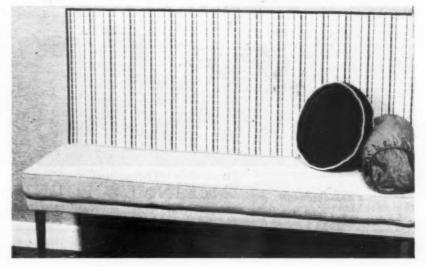


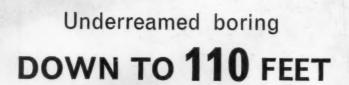
Viking Scandinavian windows consist of a fixed pane of 32-oz. glass glazed with a butyl rubber channel into an aluminium alloy channel. A further removable pane is then placed in the rebate formed by the

Above right, the GEC 400-watt reflector lamp. Right, the plastic bottle trap by McAlpine & Co. Ltd. Below, Sanderson's Rollywood Panelling.











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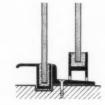
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#### technical section

channel to provide a double glazed unit with a \(\frac{1}{4}\)-in. air space. These fixed panes are combined with adjustable glass louvres and the standard range includes window units up to 9 ft. 3 in. wide and 4 ft. 1 in. high. The louvres are controlled by a single lever and can be locked shut. (Thomas Bennett & Sons (Leeds) Ltd., Meadow Lane, Leeds 11.)

Section through the Viking doubleglazed window.



#### Concrete additives

Brian Grant, when describing Conflo, a new concrete additive, in the JOURNAL for November 5, 1959, stated that the overmixing of concrete containing Conflo had no adverse effects as with air-entraining compounds." This statement was taken from the information leaflet supplied by the manufacturers of Conflo, Joseph Freeman Sons & Co. Ltd. The manufacturers ask us to state that this should have read: "no adverse effects as is the case with some airentrained types of concrete." There are, of course, air-entraining agents which have no deleterious effects on concrete as has been pointed out to us by Feb (Great Britain) Ltd. We join with Joseph Freeman Sons & Co. Ltd. in apologizing for any misunderstandings this statement may have created.

# INFORMATION CENTRE INDEX FOR 1959

An alphabetical index covering Information Centre items and special articles published in the Technical Section during the twelve months ended December 31, 1959, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor, The Architects' Journal, not later than March 4, 1960. This form will not be acknowledged.

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INFORMATION CENTRE

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4.86 planning: urban and rural

#### PLANNING TEXTBOOK

Town & Country Planning. Sir Patrick Abercrombie. 3rd Edition revised by D. Rigby Childs. Oxford University Press. 1959. 292 pp. 7s. 6d.)

This book is a re-issue of a volume that has become a town-planner's classic, first published in 1933. In it, Sir Patrick Abercrombie's original text is retained virtually intact while more recent developments, up to 1958, are covered by Mr. Rigby Childs—one of Sir Patrick's former associates—in a new fourth section. This reviews the major post-war events in the field of British planning and although necessarily brief, succeeds in giving the reader a good idea of the main trends since the end of the war. The bibliography has also been recast and now includes a number of standard modern references.

In spite of the emphasis it places on the historical development of planning, this new edition re-establishes Abercrombie's original work as one of the best treatments available of the subject both as a starting point for further and more serious studies, and as an introduction for the intelligent general reader. The professional planner, too, will find Sir Patrick's crisp re-statement of the underlying aims and objectives of planning a refreshing change from much of the stuff he is obliged to read and from the frustrations of day-to-day affairs. It may also serve to remind him of the great debt which all British planners owe to the work of this dedicated and farseeing man.

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8.63 surveying and specification

#### SPECIFICATION

Specification 1960. Edited by F. R. S. Yorke. Assistant Editor, Penelope Whiting. The Architectural Press, 35s.

This year's edition contains one new section, which is on Landscape Work, contributed by J. St. Bodfan Gruffydd, a landscape architect. Mr. Gruffydd begins with a brief explanation of the necessity for retaining the topsoil on a site where landscape work is to be carried out, a description of plant foods, and of the acid and alkaline content of the soil. The bulk of his subject he then deals with under the headings Lawns, Plants and Retention and Treatment of Trees. Architects, who may not always have the advice of a landscape architect available to them should find this section most useful. Apart from this new section, Painter has been rewritten by J. B. Screeton with H. S. Froude and A. O. Williams. The authors very sensibly deal with their subject in relation to the building materials to be painted. Thus there are sections on the painting of wood, of building boards, of brickwork, of non-ferrous metals and so on. This will make the reader's task in finding information much easier. The section also deals with the various failures of paint—blistering, bleeding, chalking—and sets out the reasons for failure.

The section known as Illumination has been renamed Lighting and rewritten by Michael Keyte. Mr. Keyte starts with basic principles, such as the behaviour of light, human reactions to different lighting conditions and the aims of lighting design. From this he proceeds to explain the various methods of calculation by which the levels of both natural and artificial light can be predicted, and finally he discusses the practical techniques for applying principles.

In the Shops section, new text on the subject of supermarkets has been contributed by M. J. Grafton and Excavator contains a note on site investigation by Oliver Leach. A large number of remaining sections have been brought up to date to comply with new techniques, materials or standards. They include Metal Windows, Curtain Walling, Shell Concrete and the sections on Plumber, Heating Engineer, Ironmonger, Electrical Engineer and Metal Worker. A significant indication of the growing importance of Timber Engineering in the building industry is its separation from Carpenter and Joiner and introduction as a section on its own.

A 624-04

18.206 construction: theory

#### STRUCTURAL DESIGN

Advanced Structural Design. Cyril S. Benson. (Batsford Ltd. 1959, 50s.)

The author is both consulting engineer and college lecturer in advanced structural design and, as one would expect, the work is well written, profusely illustrated and particularly easy to follow. The title "advanced" is of course a relative one and probably appropriate if the book is aimed at students preparing for final examinations or the younger practising members of the profession.

Some seventeen design problems are set and answered in detail. They include steel, concrete and brick structures, steel and concrete bunkers, steel and concrete water towers, 78 ft. span steel highway bridge, 220 ft. chimney, pump house steelwork, concrete grain silo, 120 ft. span weaving shed, 20 bay 80 ft. high steel portal, north-light steel frame, theatre balcony, concrete office building, foundations for retort house, steel gantry, brick arch vaults and a signal gantry over a railway. One learns far more from understanding a worked example than poring over pure theory and the idea behind the book is an excellent one. It could be extended to a more advanced edition. The choice of all the examples is not ideal when looked at from an aspect of modern technique but no doubt the author's object was to illustrate a type.

AJ, 18.2.60

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21st JULY



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UDC No. (14)

## 19 CONSTRUCTION: DETAILS

# minor roads and external pavings,

## 4 surfacing and trim

Having dealt in previous articles with the sub-grade, sub-base and base, W. Houghton Evans concludes his series by considering the top surface of minor roads and external pavings.

#### Surface drainage

IE

With a narrow road providing for a single line of traffic, a straight cross-fall will suffice. A cambered section is preferred where streams of traffic pass in opposing directions. Falls should be 1:48 for concrete and asphalt and 1:40 for more open-textured surfaces. As has been pointed out, a steady head fall will assist drainage. "False" falls may be contrived in the channel where no head fall is possible, by raising the channel level between gullies to within  $2\frac{1}{2}$  in. of the top of the kerb. In this arrangement, gullies will be spaced so that channel falls not greater than 1:180 are obtained. The crown or high points of the cross-section should not rise and fall with the channel, but should be maintained to an even line.

Grips cut through the verge, backfilled with clean rubble, may convey surface water to a ditch. Discharge onto the verge may lead to saturation of the subgrade, and is not desirable except with very well-drained soils. Soakaways well away from the formation may be employed where sub-soil drainage is good.

Gullies may be in the channel or under the kerb, when the channel should be dipped to divert water to them. Their spacing will depend on the width to be drained and the gradient. In general, the steeper the gradient, the closer the gullies. A good rule-of-thumb is that one road gulley drains 2,000 sq. ft. on normal slopes. Footways and hard verges must be included in this if they drain to the road channel.

Location of gulleys will be influenced by changes in line and grade. In good practice they are more closely spaced at the bottom of a slope than at the top, two being placed side-by-side at the bottom of a dip. On steep slopes the gulley frame should be set flatter than the channel to break the force of water.

#### Kerbs and channels

A kerb, supported by its foundation and backing, is used to resist the lateral thrust of the carriageway and prevent disintegration of the haunches; to assist drainage and prevent water from percolating to the subgrade; to define, support and protect footways and verges; and—especially at night—to define the carriageway itself. It may be used in conjunction with

a pre-cast block or in-situ channel—usually where slack falls and an open texture would impede drainage. A kerb should be well-bedded, haunched and backed. With granular based roads kerbs are usually placed after preparation of the sub-grade, in which case they must be protected during subsequent operations.

With soil-cement bases, it will be most convenient to extend the base 12 in. to 18 in. as a foundation for the kerb, when it should be laid flat and backed with concrete to prevent its dislodgement. This is also the best method with a concrete road, where in good practice, the edge of the slab is rebated to hold the kerb in place. Kerbs can, however, be laid before concreting, so that they provide side forms for the road itself, the tamper being cut to fit over the kerb. In this method, care must be taken to clean kerbs quickly and to insert expansion jointing along the kerb face as work proceeds.

Provision must be made for temperature movement. With pre-cast sections this may be done by omitting grout and pointing every fifth joint. Expansion joints should be carried through the kerb when it is bedded on a concrete base.

BS 340 specifies the standard sizes and profiles of precast concrete kerbs. Sandstone sections are covered by BS 706, and Granite and Whinstone by BS 435. The last two standards also cover setts, which are still extensively employed as kerbing. 2 in. pre-cast concrete edging intended for use with footways may be used on very lightly trafficked roads.

#### Surfacing

On minor roads, the main requirement of the surfacing is that it shall protect the road structure from surface water. A good riding surface, glare-free and non-skid, of good appearance and requiring little maintenance, is also desired.

Surfacing may be laid in one operation, or comprise a base and a wearing course. Two-course work is necessary where unevenness in the base shows variations of more than ½ in. under a ten-foot straightedge, or may be desirable for other reasons—especially where an expensive carpet is to be used. A building contractor will often find it convenient to use the roadway for site access, and where this is done, the base course of the surfacing may be laid at the commencement of the contract, protected by blinding, and cleaned off on completion, when the wearing course may be applied.

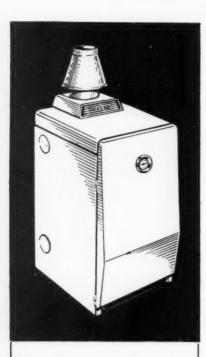
With a concrete base, where a variety of colour and suitable self finishes are possible, no additional surface is required, and it would be extravagant to provide one. The finishes normally obtained are:

(a) Tamped. A series of shallow ridges about ½ in. apart are formed during tamping. Such a surface, while glare-free and non-skid, is subject to abrasion and flaking—especially if over-tamped—and may

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#### technical section

impede the smooth run-off of water. It is particularly suited to steep gradients.

(b) Smoothing board. This resembles hand-floating, and is achieved by following the tamper with a board sprung to the road profile and resting between the side forms. As with tamping, care must be taken not to over-work the surface.

(c) An exposed aggregate finish is obtained by brushing with a hand broom shortly after compaction to remove some mortar from the surface and expose the stone. With suitable aggregates pleasant-looking good riding surfaces may be obtained.

With all bases other than concrete, surfacing is necessary. The materials principally used may be classified as aggregates, fillers, and binders—analogous to coarse aggregate, fine aggregate, and cement, in concrete work. The coarser the aggregate, the rougher is the texture. The use of filler gives denser, smoother, and less pervious surfaces. Binders (tar and bitumen) may be "straight-run" for hot-working, or "cutback" for cold working. Surfacing may be by hand or machine—quantity and accessibility governing the choice. Compaction should wherever possible be by mechanical roller—preferably of the tandem type. Aggregates for surfacings are crushed rock or slag,

gravel, etc. Granite and limestone chippings are commonly used, and any material hard, stable, well-graded, free from dust and preferably angular in shape, may be suitable. On very lightly trafficked areas limestone is preferred to granite, as although less strong, coated limestone is under these conditions less susceptible to frost damage.

BS 63 may be consulted for detailed specification of grading, and BS 812 for sampling and testing.

Tar (properly coal-tar) is a by-product of coal-gas distillation and is marketed in three grades:

- (a) Rapid setting—for base courses, close textured carpets and surface dressing;
- (b) Medium setting—for medium textured carpets;
- (c) Slow setting for open textured carpets.

Tar is more susceptible to temperature change than bitumen, and is harder to work when cooling.

Bitumen occurs naturally in rock asphalt, or is obtained as a by-product of petroleum distillation.

The viscosity of tar and bitumen is described in degrees Centigrade equi-viscose temperature ( ${}^{\circ}$ C.e.v.t.), being the temperature at which a given standard of viscosity is reached.

Emulsions: tar and bitumen can be emulsified by the addition of water and a saponifying agent, enabling them to be stored in sealed containers for cold working. Setting is effected by the evaporation of water. Only bitumen is normally obtainable in this form, and the use of emulsions is in the main restricted to surface dressing and maintenance.

Asphalt is a natural or mechanical mixture of bitumen and finely ground mineral filler. BS 348 covers compressed natural rock asphalt, and BS 1446 and 1447 the use of mastic asphalt. In both these forms, the performance obtained is much higher than is required for our purpose, and their use except in un-

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usual circumstances of very heavy traffic would be extravagant. Hot rolled asphalt—covered by BS 594—may be laid as a carpet on a coated macadam base course, and will provide a very hard wearing surface. Asphalt pavements tend to be very smooth, and may be roughened by rolling in grit or chippings. They have the particular virtues of long-life and of positively sealing the formation against the weather.

Cold asphalt is defined by the Cold Asphalt Association as "a fine graded bituminous asphalt (low temperature process) prepared from suitable aggregate, substantially passing \( \frac{3}{8} \) in. mesh sieve, and asphaltic cement and capable of being laid cold." It should comply with BS 1690. It has the advantage over other dense surfacings that it can be laid cold by comparatively unskilled labour, is less susceptible to bad weather during laying, and can be stored. Naturally fine and densely textured, its use in compacted thicknesses greater than 1 in. is extravagant, and is in the main confined to the wearing course. It may be laid mechanically or by hand-generally over a light tack coat except where an open-textured basecourse ensures good adhesion. A fine "sand-paper" finish is characteristic, but a coarser texture may be obtained by rolling in pre-coated ½ in.-1 in chippings of uniform size, at a rate between 65 and 120 sq. yds. to the ton. Dry chippings retaining their natural sparkle and colour may be used with good effect, but greater care must be taken in their application.

Dense tar surfacing is defined by the British Road Tar Association as a "hot process material consisting of a mixture of coarse and fine aggregate, filler and high viscosity tar, the proportions of which are selected so that, after rolling, dense and impervious surfacings are obtained which are capable of carrying all types of traffic." The fine aggregate may be either quarry "fines" or sharp sand, and the filler mineral dust. DTS may be used in one or two coat work. Warm dry weather is essential, and the material must be mixed and rapidly transported to the site if overcooling is to be avoided. It is likely to cost more than coated macadam, and its use will normally be confined to the wearing course, where its denseness gives added resistance to weather and traffic. Aggregate sizes, thicknesses and methods of laying are generally as for coated macadam. A light tack coat may be applied before spreading in places where poor adhesion is feared. DTS is less susceptible to damage from oil drippings than any other tar or bitumen bound material. It is for this reason most suitable for bus tops, car-parks, etc.

Coated macadam is the general name for aggregates bound with tar, bitumen, or tar/bitumen mixtures. It may be laid by hand or machine, hot or cold as the viscosity of the binder permits. BS 802 covers the use of tarmacadam with crushed rock or slag; BS 1241 of tarmacadam with gravel; BS 1242 of "tarpaving" for footways and playgrounds; BS 1621 of bitumen macadam with crushed rock or slag; and BS 2040 of bitumen macadam with gravel. For the base course maximum aggregate size will be approximately ½ in.

#### technical section

1 in. less than the course thickness, and for the wearing course,  $\frac{1}{8}$  in.- $\frac{1}{2}$  in. less. Base course thickness will be  $1\frac{1}{2}$  in.- $3\frac{1}{2}$  in., 2 in. being adequate on an average-good base. Reference should be made to BS gradings to ensure the texture required in the wearing course. In general,  $\frac{3}{4}$  in. down aggregate will give an open texture, and  $\frac{1}{4}$  in. down a close one.

Care must be taken with gravel aggregates, as coarsely graded and rounded gravel does not readily "lock" when rolled. With one course work, the surface may be improved by rolling in pre-coated chippings, or by "tar-spraying" and gritting. Where—as on footways—a dense surface is required, it is customary after consolidation of the wearing course to dust the surface with  $\frac{1}{8}$  in. down grit.

Grouted macadam: for light traffic, an uncoated aggregate may be spread and rolled in layers not exceeding 3 in., and blinded with smaller material. A binder of hot tar or bitumen is then applied at a rate of up to 2 galls./ sq. yd. according to depth of aggregate. The surface may then be racked up lightly with chippings and rolled, and rolling should be repeated 12 hours later. After sweeping loose material from the road, a seal coat of tar or emulsion is applied at 3-5 galls./ sq. yd. to receive ½ in. chippings (4-6 galls/sq. yd. for \( \frac{1}{8} \) in. chippings). Chippings should be spread at the rate of 100-180 sq. yds./ton according to grading, and a second application may be made after 2 to 3 months if required. Emulsions used as a binder may give better results, as they penetrate better than hot materials which chill rapidly on the stone. In wet weather, however, they may wash out.

Surface dressing: road maintenance has made familiar the various ways whereby a dry aggregate is spread on to a tack coat of tar, bitumen, or bituminous emulsion previously sprayed to receive it. It is possible by this method to provide a good and inexpensive wearing course, provided a good even profile has been obtained. On a soil-cement road, which must always be protected from abrasion, an emulsion containing 55 per cent. bitumen should be applied at a rate of 3-4 sq. yds./ gall, and covered with in grit or sand at the rate of 180 sq. yd./ton. With an open textured surface, more will be required. Rolling is not necessary, and up to a month later, excess grit should be removed, emulsion again applied at a slightly lower rate, and \( \frac{1}{8} \) in. shingle or chippings spread at 130 sq. yds./ton. 34-36 deg. C. e.v.t. tar may alternatively be used, and has a slightly higher rate of spread. This treatment will suffice for works traffic, and may be adequate as a final finish. A in. macadam course, or any other previously described, may alternatively be used on soil-cement.

If a coated macadam base course is blinded immediately after laying with pre-coated grit and then tarsprayed, the rolling in of  $\frac{1}{4}$  in. limestone, uncrushed flint gravel or other suitable material provides a cheap and effective wearing course of good appearance, retaining the natural sparkle of the stone used, which may be mixed to give varied colours.

Flags and block pavings from York stone to wood have been widely used in the past, but today their use

is increasingly confined to footways or areas where for reasons of appearance a change is desired from the relative monotony of homogenous surfacings.

Setts are still common in roadworks—their high performance under turning, accelerating and stopping traffic making them highly suitable for lay-bys, turnins, etc. They are obtainable in varying colours, grey and blue being common. The use of a double course of "nidged" (i.e., accurately dressed) setts on a 6 in  $\times$  6 in. concrete bed as a "draw" course to divide areas of flexible based pavements from concrete, is common and recommended practice. They are used also as a "buffer" course on footway crossings, set in the kerb line  $\frac{1}{2}$  in. proud of the channel. Setts of sandstone and granite are made in sizes from 4 in.  $\times$  4 in.  $\times$  4 in. up to 6 in.  $\times$  6 in.  $\times$  10 in.

The laying of all these materials is similar in principle. For a carriageway a concrete base is usual, but a granular one of good even profile will suffice. Over the base is laid a 2 in. bed of sand, sand-cement, or granite dust-cement, in a dry or semi-dry state. On to this the paving is bedded, wide joints racked up with chippings, and the joints then sealed with grout or bitumen. To preserve a good appearance, care should be taken to remove any surplus grout by vigorous brushing. With cobbles, a deeper bed may be required to reconcile differences in size of stone, and this should be of sand-cement into which the stones are set dry, no further treatment being necessary.

#### Footways and other pavings

The principles of construction and the materials described apply to all external pavings.

For foot traffic, the base may be reduced to a minimum, and on a good foundation, where flags are to be bedded, becomes a 3 in. to 4 in. bed of sand or clinker. On poor ground, place 3 in. of hardcore first. Coated macadam—"tarpaved"—footways will not normally need a base thicker than 3 in., but as they are consolidated by rolling, the construction must be strong enough to withstand the weight.

Vehicle crossings in macadam footways will require a 6 in. base, and in flagged footways the slabs should be bedded solid on 6 in. of concrete.

With large paved areas such as car parks and playgrounds, care must be taken to allow for adequate surface drainage. Remember that dishing an area to a gulley is impossible with flags. With diagonal crossfalls, concrete bays should be so formed that acuteangled corners to bays are avoided.

#### Conclusion

Fuller details may be got from one of the Manufacturers' Associations listed below, or in special cases from the Road Research Laboratory.

Manufacturers' Associations

Asphalt Roads Association, 53, Victoria Street, S.W.1.
British Granite & Whinstone Federation, 60, Haymarket, S.W.1.
British Road Tar Association, 9, Harley Street, W.1.
Cement & Concrete Association, 52, Grosvenor Gardens, S.W.1.
Cold Asphalt Association, 55, Romney Street, S.W.1.
Federation of Coated Macadam Industries, 37, Chester Square, S.W.1.
Department of Scientific & Industries, 37, Chester Square, S.W.1.
Road Research Laboratory. ath Road, Harmondsworth, Middlesex.

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#### FACTORY

designed by

CUMBERNAULD, SCOTLAND KEPPIE, HENDERSON AND PARTNERS

quantity surveyors

A. L. CURRIE AND BROWN who prepared this cost analysis GEORGE DAVIE, CRAWFORD AND PARTNERS

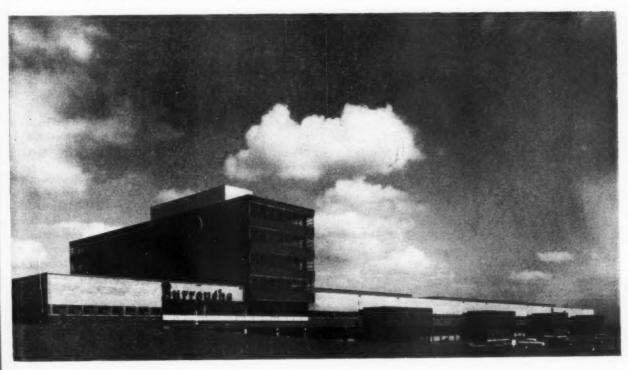
structural engineers heating consultants

heating consultants HULLEY AND KIRKWOOD electrical consultants RAMSAY AND PRIMROSE

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This factory and offices is a fairly typical example of the job many architects are given by industrial clients: the architect is asked to design so many thousand square feet of factory floor space in the shortest possible time, with little guidance as to how the space will be used. This particular scheme was divided into two stages, of which Stage I is illustrated this week, it not being known yet when Stage 2 will start. Architect and general contractor, who were appointed at the same time, responded to the challenge by completing Stage I, ready for occupation, 18 months after work on the site began—six months ahead of schedule.

From the south-west, with the office block rising above the factory area.



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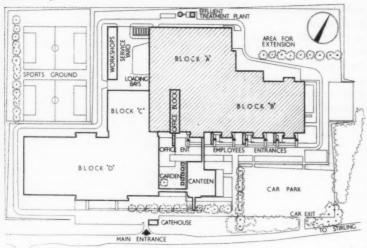
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#### building illustrated



Site plan

APPRAISAL: The 72-acre site is within the boundary of the new town of Cumbernauld and is roughly rectangular in shape, with a decided slope southwards towards the main road. In the part of the site used for the present building there is a cross fall from corner to corner of some 50 ft. Entrance is from the main Glasgow-Stirling road.

The site is at present devoid of trees and is bare and uninteresting. But when Stage 2 of the scheme, which involves a 100 per cent. expansion of the factory floor space and the erection of a separate canteen and welfare building, is completed, the development will be completed by extensive planting, and the layout of football pitches, tennis courts and car parks. For the moment a car park is provided beside the Loading Bay.

Because the whole of the factory floor had to be on one level, the architects had to find an economical solution on a site with a very decided slope. The most constant contour line was 335 ft. o.d., and this was chosen as the factory floor level in order to balance, as far as possible, the excavation and filling. Even so, this has involved considerable underbuilding, and to reduce this and make use of the space created, an extra floor at level 322 ft. o.d. has been inserted along the south frontage, where the main entrance, various subsidiary entrances, cloakrooms and minor offices are placed. The plan which finally evolved for the whole project is a double L-shape with the delivery and despatch department near the junction of each L, but away from the main entrance, which lies at the focal point of the plan.

To give the administration the most direct and close relationship with the factory floor, the 3-storey office block is hoisted up aloft, above the factory roof, with direct access to one end by stair and electric lift to the main entrance. At the other end, an open stair leads down to the factory floor.

To allow for the maximum unobstructed floor space in the factory, the main groups of lavatories are projected from the south frontage of the block. Each of these projecting pavilions contains a stair leading down to cloakrooms below and an external entrance.

The structural work up to factory floor level is all mass concrete. The factory itself is constructed as a single-storey steel framed building, with a minimum clear height of 13 ft. 6 in. The main frame is designed in square bays with

stanchions at 48 ft. centres, with 3 ft. deep lattice girders supporting the roof structure at 12 ft. centres.

The roof is of monitor construction with alternate high and low bays, respectively 13 ft. 6 in. and 22 ft. to the underside of the lattice girders. The resulting clerestory lights are patent glazed. The roof covering is one heavy layer of mineral surfaced felt on 1-in. insulation board, laid on pressed steel decking, spanning 12 ft., with a flat soffit. R.w.p.s occur at each stanchion.

The external walls are of 11-in. cavity brickwork, using two colours of external facing bricks. The external columns and beams are cast in precast concrete panels which are used as permanent shuttering with exposed granite aggregate finish. The office block is built with a standard steel frame on a column grid of 24 ft.  $\times$  24 ft., with in situ concrete floors on wood wool permanent shuttering. Because of the height and weight of the office block and the consequent danger of differential settlement to the single-storey factory, the structure of the office block is designed to be entirely separate from that of the factory, with expansion joints at all points of contact.

All the internal factory walls are in fair face sandlime bricks. The flat soffit of the steel roof decking is painted. The floor finish, which has proved successful, giving a relatively dust-free and so far completely crack-free surface, is of the mono-grano type, in which a dry mixture of cement and fine granite chips is spread over the in situ concrete floor slab while it is still wet. This dry mixture is trowelled into the surface and while the floor is still green it is polished with a terrazzo polishing machine. After hardening, the slab was cut into panels approximately 16 ft. × 12 ft. with a carborundum wheel, the cut extending to about  $2\frac{1}{2}$  in. below floor level, and the cut was then filled with non-hardening mastic type filler. All the offices have supended ceilings of asbestos composition

The factory is heated by a high temperature hot water system under nitrogen pressure. The boiler plant is fully automatic, using the heaviest grade of fuel oil. Within the factory area the heating units are formed of a single pipe running beneath the lattice girders and spaced to cover the whole floor area at approximately 12 ft. centres. Fixed above the pipes are insulated metal reflector units. In the office areas all the heating units are of the convector type, also served by the high temperature high pressure hot water.

To provide maximum possible flexibility in the placing of machinery, electric power is distributed throughout the factory by lines of bus bars suspended from the lattice roof girders with tapping facilities at 3 ft. centres.

The wiring for the artificial lighting throughout the factory is designed on a system of trunking at 12 ft. centres suspended from the roof girders, into which are clipped the lighting units. Ventilation of the factory is generally by natural means, opening lights being provided in the clerestory glazing. In the assembly area, however, high level extract fans are provided the intention being to keep down the amount of dust in this part of the factory.

The factory is built of unprotected steelwork, but firebreak walls are provided around the joiners shop, paint store and boiler house, these walls projecting through the roof. The office block is built to a 2-hour standard of fire protection, and the enclosed escape staircases is provided.



Above: looking from the south-east towards the office block on the left. The lower ground floor can be seen built under the main single-storey factory and extending along the whole south frontage for a depth of some 35 ft. It is used for cloakrooms and minor offices. Localised entrances and cloakrooms are placed in the ground floor of each of the four projecting cloakroom-lavatory blocks, the intention being that the workers can enter and leave the factory at points near their immediate place of work, although quite large areas of the factory are not so served. It appears that the idea has not been very successful, because of the staff needed to supervise each entrance and cloakroom, and the fact that the car park is on the west side, and workers

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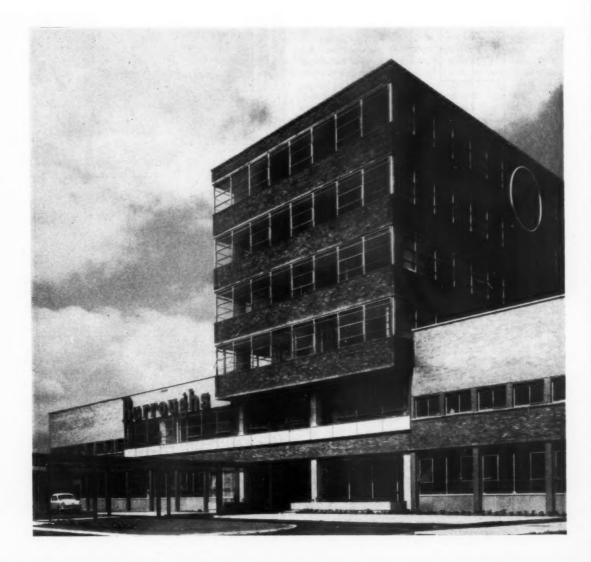
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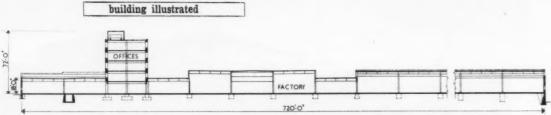
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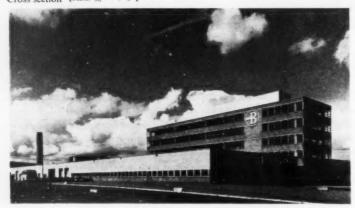
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eak and The arriving there enter the factory via the loading bays. Below: main entrance (with its projecting canopy) and the three-storey office block squatting rather uncomfortably over the factory. The several unrelated planes of different materials serve to emphasise this awkward junction. Note that the lowest storey seen at the south end of the office block is in fact a mezzanine floor extending only as far as the lift shaft and main stairs. The bands of brickwork below the windows are of brown clay bricks for both factory and offices, while above the factory windows (seen to the right below) runs a continuous band of grey sandlime bricks. The office block windows have hardwood panels and opening lights of galvanized steel.

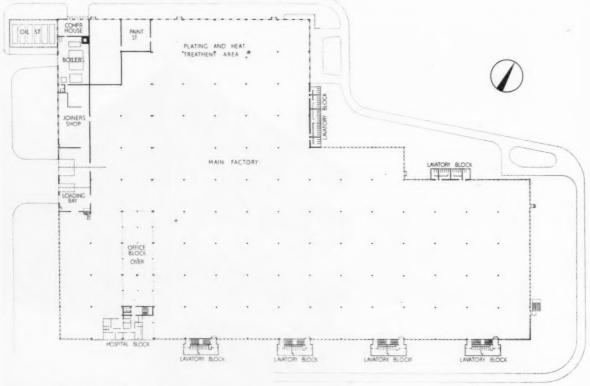




Cross section [Scale: dis" = 1' 0"]



Left: a general view from the south-west with the car park on the left adjacent to the loading bay. Note that the ground here is level with the factory floor. Opposite, top: looking towards one of the projecting lavatory blocks from within the ground floor cloakroom-cum-entrance hall of another. This lower floor contains coat hanging space and a stair to the factory floor. The lower storey of these projecting pavilions is constructed with an r.c. frame using panels of precast concrete similar to the factory frontage, as permanent shuttering. The upper storey, containing the lavatories, is constructed of hardwood framing with steel windows and infill panels of enamelled glass. Opposite, bottom: The junction of the cloakroom/lavatory blocks with the main factory building. Here the architect has tried to relate many different surfaces—without much success.

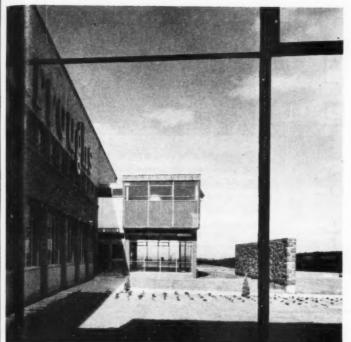


Upper ground floor plan



Lower ground floor plan [Scale: A" = 1' 0"]





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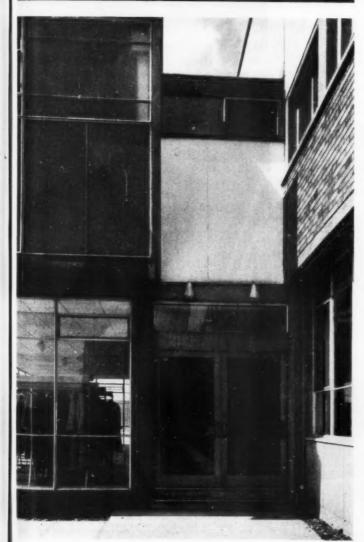
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#### CLIENT'S REQUIREMENTS

- 1. Two manufacturing units were required, each of about 100,000 sq. ft., of which this building contains the first
- 2. Two assembly units, each of about 80,000 sq. ft., the second to be built in the second stage.
- 3. The whole of the factory floor space was required to be on one level with a minimum of obstruction.
- 4. A central delivery and despatch department to serve equally both manufacturing and assembly units.
- 5. Ancillary production accommodation for raw stock storage, plating, heat treatment, and paint spraying.
- 6. Administrative offices of about 30,000 sq. ft. to be concentrated close and with easy access to the factory floor, particularly the central delivery and despatch department.
- 7. Ancillary office accommodation close to the main entrance.

#### SITE

A bare, roughly rectangular and sloping site, within the boundary of the new town of Cumbernauld on the main Glasgow-Stirling road.

#### PLANNING AIMS

To provide the one-level factory floor required on the sloping site as economically as possible, a lower ground floor level was placed along the south front, containing the main entrance, cloakrooms and minor offices. The completed building will be in the form of a double-L, with delivery and despatch department near the junction of each L, and to bring the administrative block as close to the production areas as possible, this takes the form of a three-storey block rising above the production area, at what will be the centre of the completed building.

#### SUMMARY

Ground floor area: 307,783 sq. ft.

Total floor area: 347,783 sq. ft. Type of contract: Scottish National Building Code with

re-measurement on completion.

Tender date: June 1956. Work began: July 1956. Work finished: July 1958.

Contract price of foundations, superstructure, installations

and finishes: £965,127.

Contract price external works and drainage: £124,395.

Total: £1,089,493.

Cost per sq. ft. of floor area s d

1 23

Contingencies

Nil

Work below ground floor level

Preliminaries and insurances

7 6

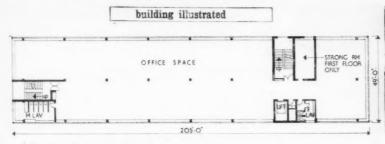
Excavation, mass concrete foundations faced with brick on exposed parts.

#### STRUCTURAL ELEMENTS

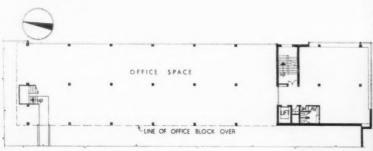
#### Frame or load-bearing element

7 11

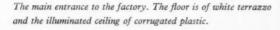
R.c. with exposed aggregate permanent shuttering up to factory floor level. Main factory building; steel stanchion and lattice beams (48-ft. spans). Office block; normal steel stanchion and beam construction (spans: 24 ft.).



Upper floor plan, office block



First floor plan, office block [Scale: 48" = 1' 0"]







The manufacturing area, which is lit entirely by artificial light, but with a continuous vision window along the external wall. All the machines are fed with electric power by overhead but bars running beneath the main girders. The flat soffit of the steel roof decking is painted white and the fluorescent lights are suspended from a system of metal trunking.



The assembly area, where the adding machines are built and tested on individual tables. Except in these raised portions of the roof, the quality and quantity of natural daylight are very poor even on a bright day; the required standard of lighting is therefore provided artificially.



A closer view of the overhead arrangement of fluorescent lights and radiant heaters, each running in lines at 12-ft. centres, 6 ft. apart. Above each single line of high temperature high pressure hot water pipe can be seen the insulated metal reflector units radiating the heat downwards.

#### analysis

#### External walls

Lower ground floor: 2-in. precast concrete slabs tied to inner skin of 4½-in. common bricks. Total thickness: 9 in.

Above ground floor level: brown sand-faced clay bricks, precast exposed aggregate sills and mullions. Cavity walling 161 in. thick below sills and 11 in.

external walls =  $\frac{\text{o·69}}{\text{floor area}} = \frac{\text{o·69}}{\text{I}} \text{ (office block)} \frac{\text{o·17}}{\text{I}} \text{ (factory area)}.$ Ratio:-

#### Windows

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Purpose-made galvanized steel windows in hardwood surrounds.

windows Ratio: floor area

#### **External doors**

22 pairs of double doors, 4 roller shutter doors, I single door and the main entrance (3 toughened plate glass doors).

doors floor area

#### Upper floors

Generally: 7-in. concrete with steel mesh reinforcement.

Office block: normal in-situ concrete cast on wood-wool permanent shuttering. The price includes for roof slab of office block.

4 main staircases, 8 ft. wide, rising 13 ft. each. 2 staircases, 4 ft. 6 in. wide, rising 61 ft. 6 in. and 48 ft. 6 in.

All in concrete, cast in-situ.

#### **Roof construction**

Factory area: steel decking spanning 12 ft. between roof lattice beams.

Main office block: in-situ concrete on 2-in. woodwool permanent shuttering (cost included with

Tank rooms; projecting lavatory blocks: boarding or wood-wool on joists covered with 3-layer roofing

Georgian wired cast glass with aluminium glazing bars and aluminium ventilators to Monitors, total area 21,840 sq. ft. 10 lights, each 8 ft. × 4 ft.

#### Glazing

Clear sheet glass generally, with 4-in. polished plate in large panes in office block.

Total of structural elements: 23s 51d

#### PARTITIONS AND FITTINGS

Demountable proprietary units in 2-in. × 2-in. framing, 6 ft. 6 in. high overall having georgian wired glass panels for the bottom 6 in. and clear sheet above up to ceiling height.

W.c. partitions of steel sheet welded to tubular steel frame.

#### s d

#### 1 93 Internal partitions

Walls to paint store, boiler house, joiners' shop,

s d

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31

41

21

03

51

10}

43

lavatory areas in office block and lower ground floor in 9-in. and 4½-in. brick.

#### Internal doors

Flush plywood faced doors. 60 single, 12 pairs of double and 5 fireproof.

Ironmongery

Nickel finish on brass

Fittings General joiners finishings, skirtings, radiator

framing, framing for lowered ceiling, asbestos insulation board and sill linings in main office block.

Canteen equipment accounts for 71d of this figure. 13

#### Total of partitions and fittings: 2s 2d

#### FINISHES

5 44

Floor	finishes				1

Type of finish Area in sq. ft. Cost per sq. yd. Linoleum 30,663 17s 9d Buff quarry tiles 16,650

Wall finishes Generally hard plaster, with quarry tile sills in the factory and wall tiling in lavatories. External cement rendering to boiler house.

Ceiling finishes

Asbestos insulation board on metal fixing system in office block and fibreboard on metal fixing system in factory area.

#### **Roof finishes**

Screed and 3-layer felt to roof of office block.

Decorations Gloss paint to steelwork, metal windows and joinery.

Generally emulsion paint. Total of finishes: 3s 31d

#### SERVICES

#### External plumbing

Sheet copper gutters and outlets, lead flashings, cast iron downpipes.

Hot and cold water installation

Supply piping in copper, ring mains and mains to tank in cast iron. Tanks in pressed steel with galvanized subsidiary cisterns.

#### Sanitary fittings

W.c.s: 85.

Lavatory basins: 12.

Urinal stalls: 14 (total: 127 ft. run).

Drinking fountains: 24.

Cleaners' sinks: 14.

Foot bath: 1.

Steel lavatory troughs: 274 ft. run in 36 ranges.

Showers: 2.

Foot spray: 1.

Surgeon's basins: 3.

#### analysis

#### Heating and ventilating

Factory area; high temperature high pressure hot water system through pipes suspended at 12-ft. centres from roof beams. Insulated metal panels radiate the heat downwards.

Office block; hot water serving convectors. Concealed ventilation by louvres in rooflights.

#### Gas installation

Supply for heat treatment furnaces and kitchen equipment and sanitary incinerators.

#### **Electrical installation**

Lighting: 315 twin 5-ft. fluorescent tubes and 90 13-amp. sockets in the lower ground floor. In the main office: 234 twin lighting fittings and 48 13-amp. sockets.

13-amp. sockets.

The factory itself has 1,609 twin 8-ft. fluorescent tubes and 84 13-amp. sockets.

Designed levels of illumination:

Manufacturing area: 25 lumens sq. ft.

Drawing office: 40 lumens/sq. ft.

Offices: 20 lumens/sq. ft.

#### Lifts and other mechanical services

Sixteen-passenger lift travelling at 300 ft. per minute.

#### Total of services: 14s 93d

#### Drainage and external works

Fireclay and spun concrete pipes. Roads and footpaths are generally tarmac with precast concrete kerbs.

#### Other elements not shown above

Free-standing chimney to boiler house.

Canopy over main entrance, special machine bases, leveller at loading bay, gas governor, incinerator house, process drainage, effluent treatment plant, signs, plate glass doors, metal fireproof doors.

Hose reels and hand extinguishers at strategic points. Shillings per sq. ft. of floor area:
£965,127 (net cost excluding drainage and external works)

347,783 sq. ft. (total floor area)

#### s d COST COMMENTS

#### 4 6

55 6

The most pleasing aspect to the client must have been the completion of this scheme six months ahead of schedule. The importance of this achievement cannot be shown in terms of cost in the analysis, but the overall economics of planning a factory as large as this must take account not only of capital investment but of turnover figures.

The production areas are confined to the most economic 1½ forms of construction, four walls, floor and roof with self-finished construction utilised to the full in the monolith granolithic floor, faced brickwork and exposed steel frame, which are, moreover, maintenance free, apart from repainting the steelwork.

Examination of the analysis in detail shows how a large inexpensive construction area deflates and perhaps distorts the cost of individual elements: it would require further analysis to isolate some of the interesting detailing and construction techniques used in areas other than the factory and to highlight their cost.

Worth noting in the factory is the high level of illumination provided by artificial means. The monitor rooflights, which apparently do not give adequate natural light only play a part in ventilation. Reference back to the Aspro-Nicholas windowless factory area (AJ, July 17, 1958) provides an interesting comparison in this respect.

#### CONTRACTORS

General contractor: Angus M. MacDougall & Co. Ltd. Sub-contractors-Steel: Donald Clerk & Son Ltd. Metal roof deck: Robertson Thain Ltd. Patent glazing: Pennycook Patent Glazing Co. Cast iron drains: Allied Building Services Ltd. Boilers: Penman & Co. Ltd. Factory heating: Matthew Hall & Co. Ltd. Office heating: Richard Crittall & Co. Ltd. Electrical services: James Kilpatrick & Son Ltd. Plumbing: Hugh Twaddle & Sons. Windows: Henry Hope & Sons Ltd. Glazing: Scottish National Glass & Glazing Co. Plastering: R. Y. Ritchie & Co. Ltd. Joinery: John Cochrane & Co Ltd. Tiles and terrazzo work: Toffolo Jackson & Co. Ltd. Canteen. equipment: Falkirk Iron Co. Ltd. Roof ventilators: Colt Ventilation Ltd. Fire doors: Mather & Platt. Effluent treatment Plant: Ames Crosta Mills & Co. Loading dock leveller: Wayne Tank & Pump Co. Ltd. Roller shutters: John Bryden & Sons (supplier); D. T. Pickett & Son (Engineers) Ltd. Flooring (linoleum): Korkoid Decorative Floors. Suspended ceilings: Wm. Gibson & Co. Ltd. Hardware: Bell Donaldson (supplier). Handrails: Kingston Brass Co. Precast concrete work: George W. Bruce Ltd. Ibstock brick: Currie & Co. Ltd. (supplier). Dockra brick: Taylor Brothers (supplier). Paintwork: MacLean & Speirs. Dovetail sheeting: Frederick Braby & Co. Ltd. (supplier). Lifts: John Bennie Ltd. Signs: Pearce Signs Ltd. Unistrut: Sankey-Sheldon Ltd. Sanitary fittings: Glen Paterson Ltd. Electrical equipment: General Electric Co. (supplier). Insulation: Newalls Insulation Co. Ltd. Paints: Federated Paints Ltd.

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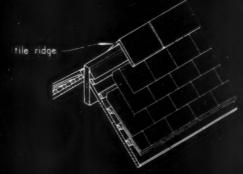
17.11

## ROOF SLATES NATURAL GENERAL DATA

The Architects' Journal Library of Information Sheets 753. Editor: Cotterell Butler, A.R.I.B.A.



ISOMETRIC VIEW OF TYPICAL RANDOM SLATING. (laid to 3"min. lap)



TYPICAL RIDGE

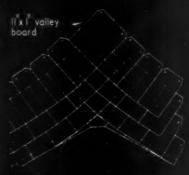


MITRED HIP



mitred valley

TYPICAL VALLEYS



laced valley



circular swept valley

#### 17.J1 · BROUGHTON MOOR · RANDOM GREEN ROOFING SLATES

This Sheet describes the application of Broughton Moor Random green slates to roofs and gives details of treatment at ridges, valleys, hips and verges.

#### General

Random slating in diminishing courses requires skilled craftsmanship to ensure correct bonding: the vertical joints between slates in adjacent courses should not coincide. The slates vary in length between 18 in. and 9 in. or 24 in. and 12 in., in random widths, and thicknesses between  $\frac{1}{3}$  in. and  $\frac{1}{2}$  in. The top shoulders of the slate are normally trimmed off to reduce weight and assist close fitting. The slates have spalled edges, are strong, durable, and suitable for use in exposed positions and corrosive atmospheres. The shorter lengths are suited to short rafters and steep pitches.

#### Size/Cover/Weight Table

Quality	Length in inches (random widths)	Cover in sq. yd. per ton (3-in. lap)	Approx. weight in cwt. per square (3-in. lap)
Bests	9 in. to 18 in.*	23	9
Seconds	9 in. to 18 in.*	20	101
Thirds	12 in. to II in.	18	12
Special peggies	7 in. to 15 in.	22	91
Second peggies	7 in. to 10 in.	20	11

<sup>•</sup> Larger sizes available in these two grades if required.

#### Preparation of Roof

Random slates may be fitted on  $2\frac{1}{2}$  in. by  $1\frac{1}{2}$  in. to 1 in. by  $\frac{3}{4}$  in. battens, depending on slate sizes. These are nailed direct to the rafters or to felt-covered boarding. Counter-battens, 1 in. by  $\frac{1}{4}$  in., may be used if desired. The rafters should be 3 in. by 2 in. minimum at about 1 ft. 4 in. centres: purlins should be at 4 ft. 6 in. to 5 ft. 0 in. centres, the section depending on length.

#### Laying

Random slates laid to a specified lap produce irregular margins, tending to increase towards the ridge. A minimum lap should be specified, allowing the slater to increase it where necessary to maintain diminishing margins: 3 in. is the normal minimum, 4 in. in exposed positions. The minimum pitch is 30°, but a steeper pitch permits reduced laps.

Copper nails are recommended except in corrosive or marine atmospheres where aluminium-alloy nails should be used. The size of nail depends upon the slate size:  $2\frac{1}{2}$  or 2-in. nails for the first four or five courses and  $1\frac{1}{2}$ -in. higher up the roof. Machine holing is recommended: for centre-nailing the holes should be  $1\frac{1}{2}$  in. from the edge to clear the spalled edges and the length of the gauge plus the lap and a small margin to clear the course below, from the tail of the slate. Small randoms may be nailed at the head 1 in. below the top edge.

For vertical work, the slates are nailed direct into the brick joints, which should be at least \( \frac{1}{2} \) in. and of 1:3 lime/sand or breeze cement. In exposed positions the slates may be bedded in mastic. Where the slates are to be applied to an existing wall not fulfilling the above conditions, battens and counter-

battens are necessary. In the latter case copper nails should be used, but for brickwork, galvanised iron or aluminium-alloy nails are essential.

Ridges: Bro-moor purpose-made ridge tiles of reconstructed slate, crushed and moulded from the same veins as the randoms, can be supplied in half-round sections 1 ft. 6 in. long, or plain angular sections 2 ft. 6 in. long, the angle varying with the roof pitch. Eaves: The eaves course can be thickened for definition by bedding several courses together. The length of the eaves course should be the normal gauge plus the lap: this may be exceeded slightly to save dressing. Where sprockets are used peggies are recommended, often with a reduced gauge, to soften the angle where the sprockets join the rafters. Tilting fillets may be used to accentuate the roof curve by raising the eaves course about 1 in.

Valleys: Three types of valley are illustrated, each of which permits the continuation of the courses through the change of slope. Open valleys may be used but these break the line of the courses. Mitred valleys can be constructed using the larger slates available, with lead soakers. Laced valleys are constructed by nailing the centre slates cornerwise to an 11-in. by 1-in. valley board and arranging the courses to radiate outwards and downwards to join the straight courses of the roof slopes. Circular swept valleys are suited to random slating as slightly curved slates occur which fit closely over the centre bridge. Lead soakers are used only at the top, bottom and midway. Hips: As with valleys, mitred joints can be made and lead soakers used. Covered hips may be used if required.

Verges: A bold verge may be obtained by fixing a slate undercloak and pointing with cement mortar.

#### Other Applications

Random slates may be used on circular roofs provided the curvature is not pronounced and horizontallycurved roofs where the curves of ridge and eaves are parallel. Random slates may also be applied to parabola roofs, cupolas and dormers.

#### Colour

The slates are available in three shades of green, olive, light sea green and pale green: a combination of any or all of these colours can be obtained.

#### Specification

The following is a typical clause for specifying Broughton Moor random green slates:

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

Compiled from information supplied by:

Broughton Moor Green Slate Quarries Ltd.
Address: Coniston, Lancashire.
Telephone: Coniston 225/6.



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### FLOOR FINISHES LINOLEUM AND CORK CARPET

19.GI 0

The Architects' Journal Library of Information Sheets 754. Editor: Cotterell Butler, A.R.I.B.A.

thickness (mm)	1.60	2 00	2.50	3.20	4-50	600	670
full size							
nominal thickness (in.)	V16	3/64	3/32	1/8	3/16	15/64	14.
approx. wt. (1b./sq.yd.)	. 4			8		15	16.5
backing	jute canvas	jute canvas	jute canvas or felt	jute canvas or felt	jute canvas	jute canvas	jute canvas
types	marble, granite, moiré , jaspe, inlaid, parquetry	grante, mone,		plain marble, granite, moiré, jaspe, inlaid, par- quetry, embossed	plain, marble, granite, moiré, jaspe, inlaid		plain, marble, granite, moiré, jaspe
applications	domestic uses e.g. private houses, flats etc.	rivate bathrooms, domestic uses		restaurants, shops, offices, churches, show- rooms, public transport, kir- chens, schools, (including stairs, bar tops etc.)	ships, hospitals, churches, schools, theatres, cinemas, department stores, hotels, canteens, banks, industrial and public buildings (including stairs, bar and counter tops etc.) 600mm and 670mm are for heavy duty applications		

<sup>•</sup>felt-backed linoleum available normally in tile form SHEET LINOLEUM.

thickness (mm)	1.40	1.80			
full size					
nominal thickness (in.)	3/64	1/16			
approx. wt. (Ib./sq. yd.)		4			
backing	jute canvas	jute canvas			
applications	domestic uses e.g. private houses, flats etc.				

PRINTED LINOLEUM.

thickness (mm)	2.00		
full size			
nominal thickness (in.)	5/64		
approx. wt. (l.b./sq.yd.)			
backing	cotton or jute convas		
applications	furniture and fitments		

DESK-TOP LINOLEUM.

thickness (mm)	2.50	3 20	4.50	6.70	8 00	
full size						
nominal thickness (in.)	3/32	1/8	3/16	1/4	5/16	
approx. wt. (ib./sq.yd.)	3.25	3.75		7.5	9.25	
backing	felt	jute canvas	jute canvas	jute canvas	jute canvas	
applications	insulating underlay	ships, libraries, offices, nurseries, etc.				

CORK CARPET.

#### 19.G1 LINOLEUM AND CORK CARPET: GENERAL DATA, TYPES AND USES

This Sheet supersedes Sheet 19.G1 published 15.4.54. It is the first of a series on linoleum and cork carpet and covers general data, types and uses. Sheet 19.G2 deals with laying, including typical designs, 19.G3 gives specifications for various applications and 19.G4 deals with specialised uses, e.g., to stairs, furniture, doors and walls.

#### LINOLEUM

#### Material

Linoleum was invented nearly one hundred years ago and has been used successfully on most types of floor under diverse conditions and in various climates.

It is manufactured to conform to B.S. 810:1957, or B.S. 1863:1952, for felt-backed linoleum, and is made from linseed oil, cork, gum, wood flour, whiting and pigments. The linseed oil is oxidised or polymerised and mixed with the other ingredients; this mixture is known as linoleum cement. After pigmentation and granulation in a mixing system, it is calendered or pressed on to a backing of either jute canvas or bitumen-saturated paper felt and then cured in heated stoves.

Linoleum is extremely hardwearing and, therefore, economical in use. Being resilient, it is quiet and comfortable to the tread and it possesses acoustic and noise reduction properties. It is hygienic and easy to maintain.

#### Types

The types, thicknesses (gauges) and approximate weights of linoleum, together with their recommended uses, are given diagrammatically on the face of the Sheet. The thickness of linoleum is universally measured in millimetres, but the English equivalent in inches is also given on this Sheet.

Linoleum is made in many plain colours and in a wide range of patterns. With the exception of printed linoleum, the colours and patterns extend throughout the thickness from the surface to the backing. Printed linoleum consists of light gauge linoleum with a pattern printed on the surface.

#### Properties

Electrical conductivity: Linoleum has a high electrical resistance and in all thicknesses greater than 1.60 mm. can be considered amongst those materials classed as insulators. A special linoleum conductive to static electricity is available for specialist installation where anti-static floors are required.

Thermal conductivity: The thermal conductivity of linoleum as determined by the National Physical Laboratory is 1·3 B.t.u. ft.²/h. deg. F. per 1 in. thickness. The R\* values of linoleum are 0·10 for 3·20 mm., 0·14 for 4·50 mm. and 0·21 for 6·70 mm.

\*R value — thermal resistance, i.e., temperature difference in degrees Pahrenheit between the two outer surfaces when 1 B.t.u. flows through 1 sq. ft in 1 hour.

Fire resistance: Linoleum, when laid, does not readily support combustion and will not burn unless exposed continuously to a naked flame.

Sound insulation: The Acoustic Committee of the Building Research Station reports a sound reduction of 5 phons as typical for 3.20 mm linoleum bonded directly to a concrete floor. The sound-insulating properties can be increased if linoleum is laid over cork carpet or cork slabs.

#### Maintenance

Under ordinary conditions linoleum may be kept clean by the use of mild soap or detergent. Scrubbing with harsh soaps or powerful alkali cleaning agents is injurious. To maintain the surface, it should first be cleaned of all dirt and a light, even application of either paste or emulsion polish should be given. At frequent intervals, once daily if possible, all loose dirt should be removed and the finish restored with a polishing machine. Linoleum should not be overwaxed: if this condition develops, the coatings should be cleaned off with white spirit and fresh polish applied.

#### CORK CARPET

#### Material

Cork carpet is composed of similar ingredients to linoleum, the main difference being in the increased size of the cork granules used. It is manufactured to conform to B.S. 810:1957 and is made in standard plain colours. Cork carpet is chiefly for use in situations where warmth, quiet and a more resilient floor covering are required and where decorative effect and ease of maintenance are less important.

#### Properties

Electrical conductivity: Cork carpet has a high electrical resistance and is virtually a non-conductor. Thermal conductivity: The thermal conductivity of cork carpet as determined by the National Physical Laboratory is 0.5 B.t.u. ft.2/h.deg. F. per 1 in. thickness.

Fire resistance: Cork carpet will not burn readily unless exposed continuously to a naked flame. By reason of its low mineral content and light density, it is slightly more inflammable than linoleum.

Sound insulation: A sound reduction value for 3.20 mm. cork carpet laid on a concrete floor is approximately 10 phons.

#### Maintenance

Cork carpet may be maintained similarly to linoleum except that soapless detergent only should be used.

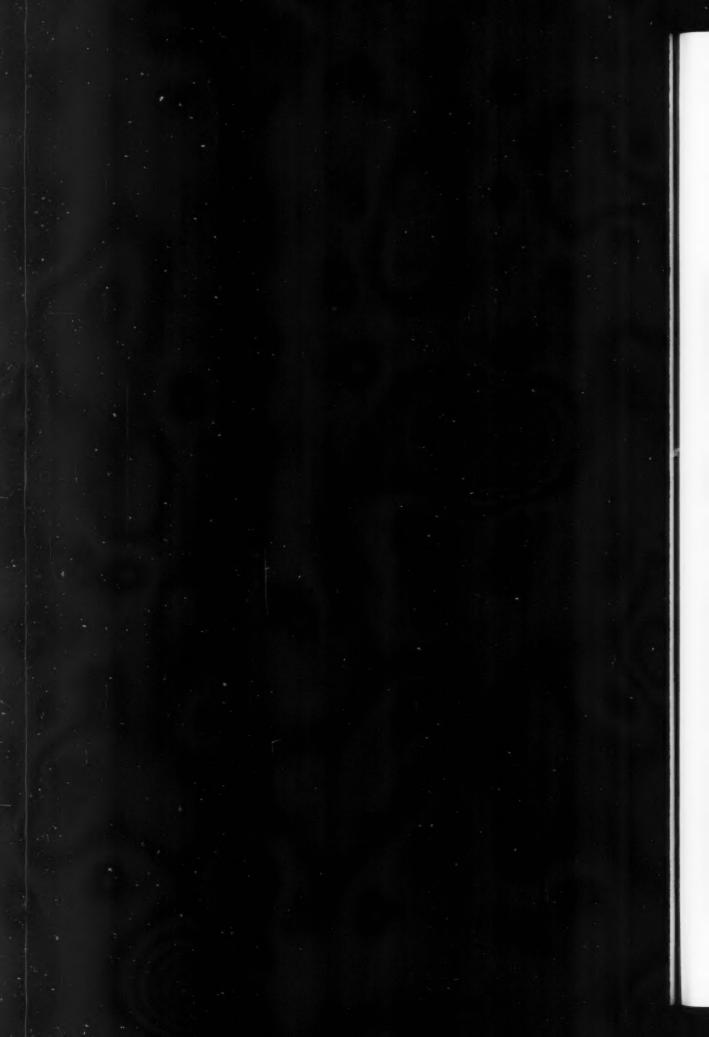
Compiled from information supplied by:

The Linoleum Manufacturers' Association

Address: 127, Victoria Street, London, S.W.1. Telephone: Tate Gallery 4218/9.

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Editor: Cotterell Butler, A.R.LB.A.

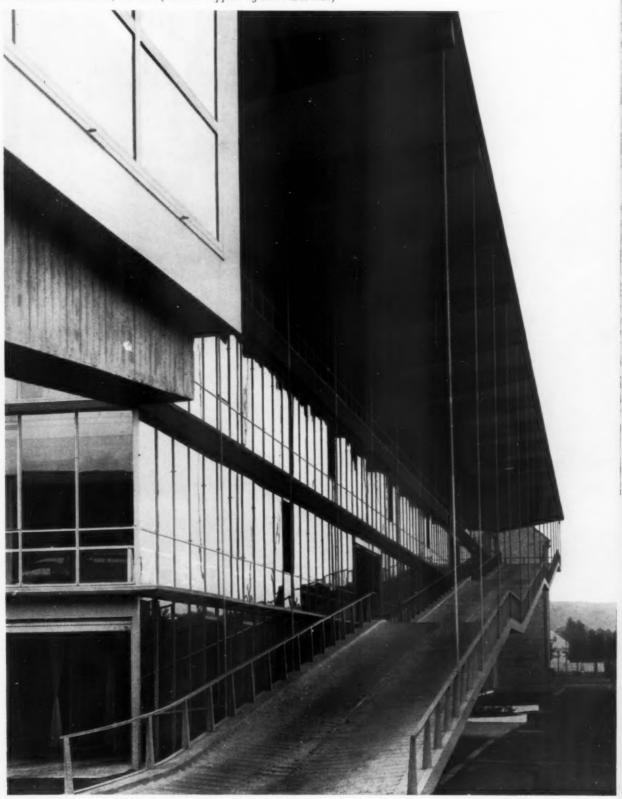




#### working detail

ACCESS RAMP: GARAGE IN DUSSELDORF

Paul Schneider-Esleben, architect (material supplied by Hans Haenlein)

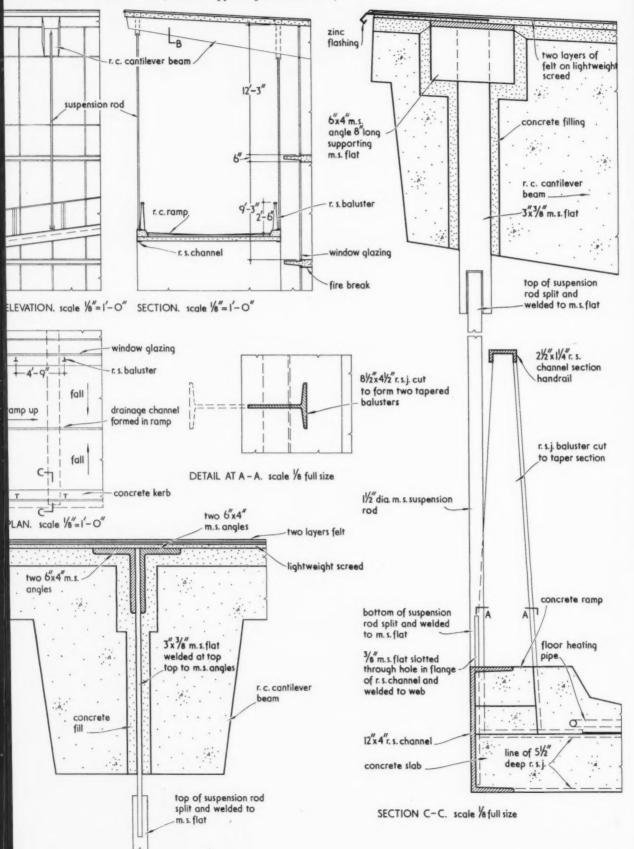


This detail, though not new (it was designed in 1951) has been made topical by the recent increase of multistorey garages in this country. Note the use of heating pipes bedded in the screed to prevent freezing up.

#### working detail

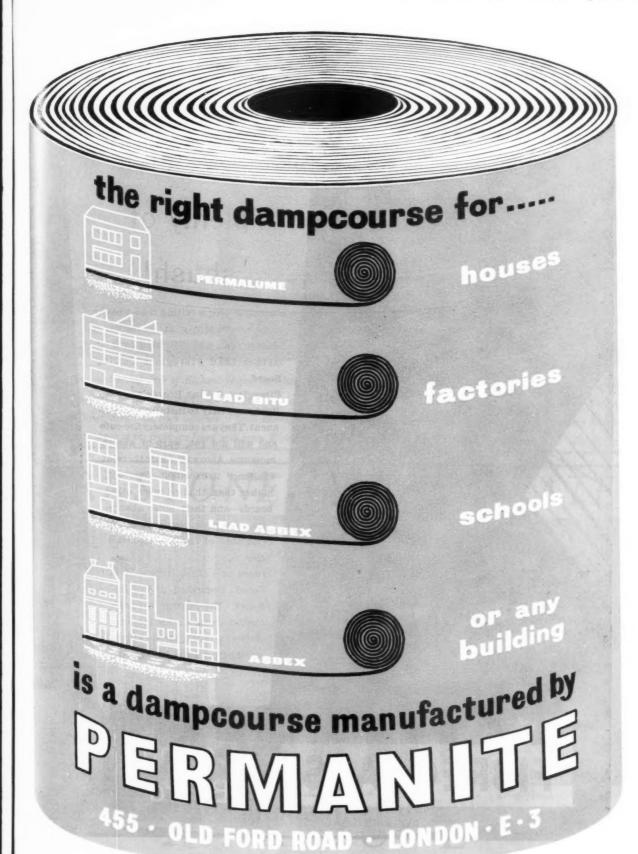
ACCESS RAMP: GARAGE IN DUSSELDORF

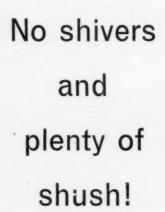
Paul Schneider-Esleben, architect (material supplied by Hans Haenlein)











When you need a ceiling that absorbs noise as efficiently as it insulates against heat loss, you need look no farther than Fibreglass Ceiling Board.

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Fibreglass Ceiling Boards are very light, very easy to install and permanent. They are completely fire-safe and will not rot, warp or absorb moisture. Above all, their thermal efficiency is excellent—over 40% higher than that of most other boards—and their noise absorption compares very favourably with that of the best acoustic tiles.

There are three types—Mat-Faced, Decorated and Film-Faced. The choice between them depends on the standard of decoration required—which varies from good to superb.

FIBREGLASS

Ceiling Board

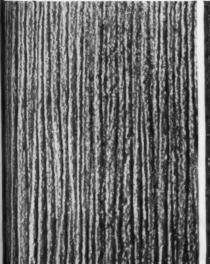
FIBREGLASS LIMITED, 'ST. HELENS, LANCS. TELEPHONE ST. HELENS 4224

#### HAIRDRESSING SCHOOL IN BAKER STREET, LONDON, W.

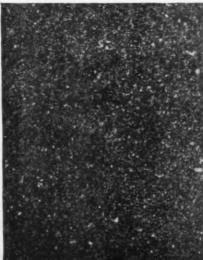


The well-known hairdressing firm of Richard Henry have recently moved their training school from Sloane Street to Baker Street. This has been designed by the Richard Henry Design Unit (architect Kenneth Gibson, assisted by Michael Tollit and Terence Wilson). The facade to Baker Street has been designed to be in keeping with the buildings on either side which are all shops. The walls flanking the glazed display space at the front are faced with green Westmorland stone and the floor to the lobby is in Italian mosaic. The purpose

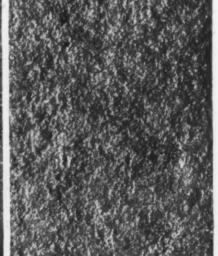
# KIRKSTONE GREEN SLATE



Frame Sawn Finish



Fine Rubbed Finish



Riven Finish

umples and unical information in request,

24

KIRKSTONE
GREEN SLATE QUARRIES LIMITED

REEN SLATE QUARRIES LIMITE AMBLESIDE, WESTMORLAND Cladding cills, steps, coping, tiling and flooring, etc,

#### HAIRDRESSING SCHOOL IN BAKER STREET: continued



of this school is to train 150 hairdressers at a time, in six classes, and the whole course takes six months. The display was the responsibility of David Marsden and the sculpture, which is supported on the left hand of the facade, was by John McCarthy.

#### Announcements

J. E. A. Heale has joined Associated Electrical Industries (Woolwich) Ltd., as general manager of works.

A. M. Bird has joined the sales staff of T. G. Lynes & Sons Ltd., of 17, Caledonian Road, London, N.1.

Irvin & Sellers Ltd., of Corporation Street, Belfast, have been appointed main distributors of Weyroc Products by the manufacturers, The Airscrew Company & Jicwood Ltd.

The Public Relations Department of The United Steel Companies Ltd. has moved to The Mount (GPO Box 64) Broomhill, Sheffield 10 (telephone Sheffield 60081).

The Building Boards Division of Bowaters Sales Co. Ltd., have appointed J. T. Moncaster to the position of Northern Area Manager.

The telephone number of the Erith Works of the Power Cables Division of British Insulated Callender's Cables Ltd., has been changed to Erith 33030.

Humphreys Ltd. will be moving to new offices at Market Road, Plympton, Nr. Plymouth, Devon (telephone Plympton 3741) on March 25.

The Chairman of The Trinidad Lake Asphalt Co. (North Western) Ltd., C. W. Matthewman, has retired from the firm.

C. W. Hamilton, managing director of McCall & Co. (Sheffield) Ltd., and McCalls Macalloy Ltd., has been elected president of the Prestressed Concrete Development Group for the coming year.

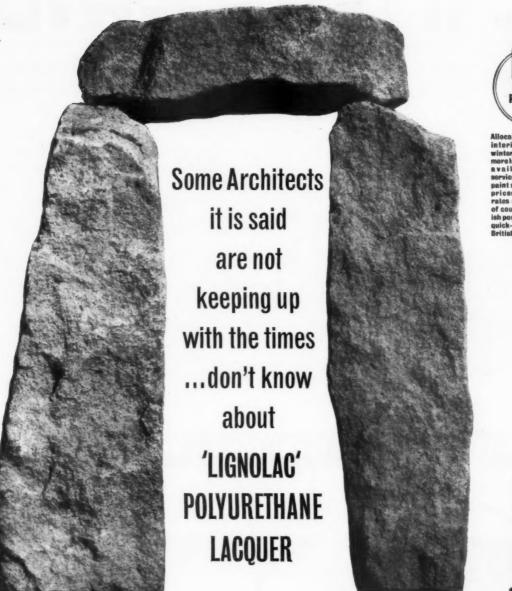


## FRIEDLAND

## Industrial bells

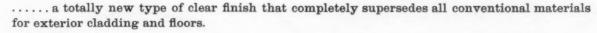
The bell illustrated is model 8/225/120, 8° gong, suitable for connection direct to AC mains. Write for leaflet giving full specifications of the complete range.

V& E FRIEDLAND LTD Macclesfield Cheshire





Allocating some of your interior painting to winter months means—more labour immediately a valiable: speedier service: easier to plan paint schedules: keener prices with overtime rates unnecessary: and of course the finest finish possible with modern quick-drying products of Beltish Points Limited



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> coating with outstanding resistance to water and to mild chemical action; a material in fact that few, if any, can match today.

> Easily applied on the site by spray or brush, Lignolac Polyurethane Lacquer can be overcoated in 4-6 hours...has a low flame spread... never cracks...and dries with a

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FOR FLOORS TOO! Outstanding too as a floor coating — for wood, lino, or tile (except PVC)—Lignolac Polyure-thane Lacquer takes all the impact of wear and dirtitself, has a shining finish that stays shining for many months without polishing and a non-slip surface that will not chip, mark or flake.



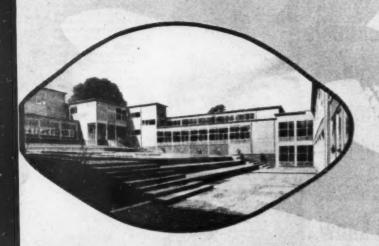
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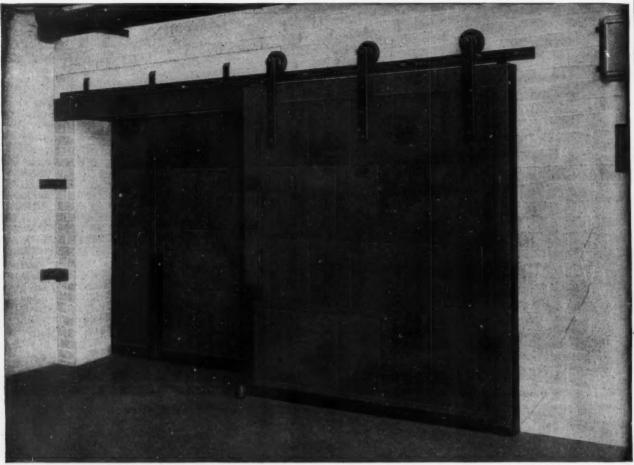


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"'So yer a stoker nah, Mrs. 'Iggins,' says she. Stoker hindeed! Jest 'cos I run the PURIPHER Oil 'eating in our building . . . all 32 million BTU of it. (Wot's a BTU?).

"Akcherly it's a bit of cake. I jest turn two nice clean switches wiv me lilywhite fingers and the gubbins does the rest.

"Stoker? . . . SORCE!"

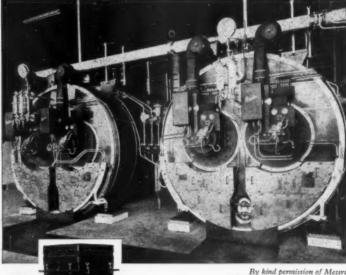


#### This is what Mrs. 'Iggins means:

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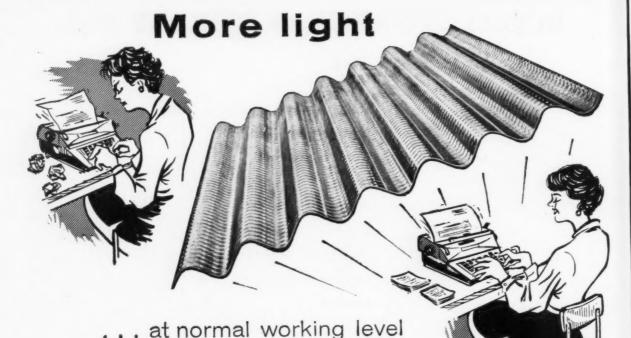
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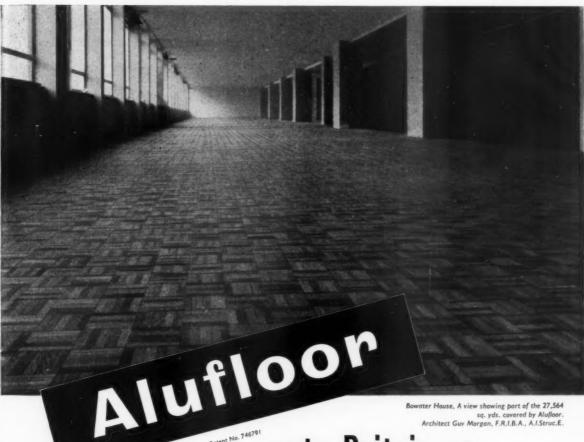
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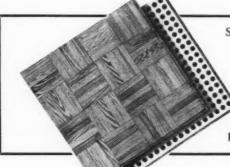
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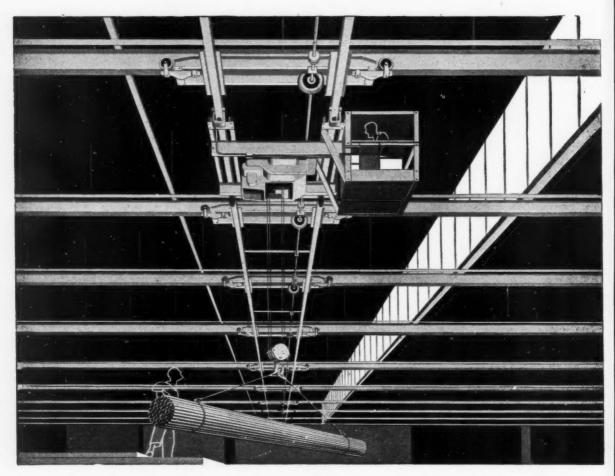
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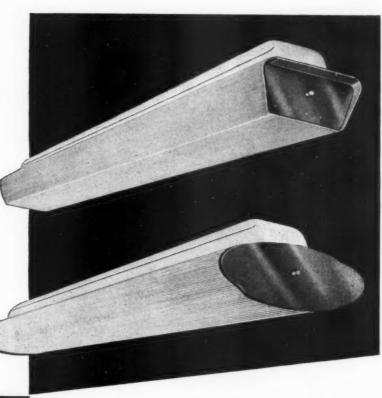
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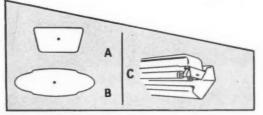
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Unique: It requires only one cold water supply tank to feed primary and secondary waters.

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**Unique:** The annular cannot be distorted by subjection to unequal pressure.

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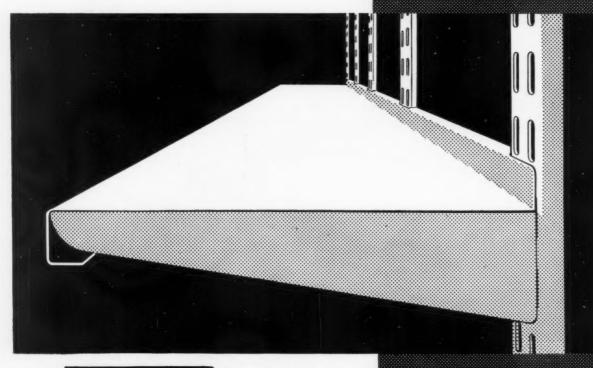
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# These New fittings mean

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Water main made from 'Corvic' vinyl polymers by Chemidus Plastics Limited, Croydon, being laid already jointed by Mid and South East Cheshire Water Board, Engineer and Manager: Delwyn Davies, M.I.C.E., M.I.W.E.

When Chemidus Plastics Limited make water mains from p.v.c.

# They make them from 'Corvic'

Another of the many uses of 'Corvic' vinyl polymers is piping for water mains. Chemidus Plastics Limited, Croydon, made the pipe line illustrated from 'Corvic'. The water main was ordered by The Mid and South East Cheshire Water Board to replace an existing one and p.v.c. was chosen to combat high corrosion and minimise damage from soil subsidence. In order to avoid any hold-up of traffic through the town centre, the pipe was jointed in a side street and the saddles

placed in position. During the night the trench was dug in the High Street and when this had been completed, the line was carried to the site and lowered into the trench.

Like all users of 'Corvic' vinyl polymers, Chemidus Plastics Limited benefit from I.C.I. research and technical service, the finest of its kind in the country. You, too, can benefit from this service. I.C.I. will be glad to hear from you to discuss the uses and advantages of 'Corvic'.



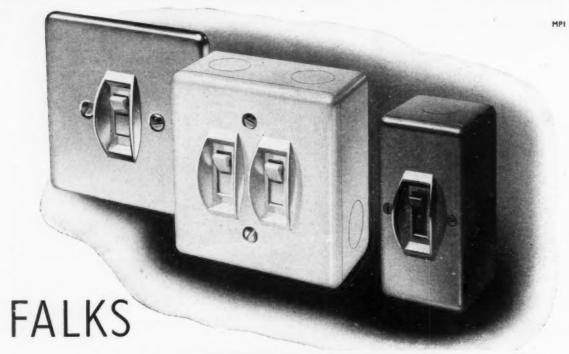
Water main made from 'Corvic'; the bend in the street was negotiated without the use of 'specials' as there was sufficient elasticity to allow for the fairly long-radius bends without any preforming of the pipe.



'Corvic' is the registered trade mark for the vinyl polymers manufactured by I.C.I.



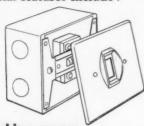
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# new METALCAST switches

for use in offices, hospitals, schools, etc.

Special features include:



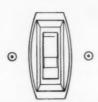
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It is possible to avoid unsightly cast iron boxes in commercial surface work. The "Metalcast" box is of the same excellent finish as the plate and permits matching flush and sur-face installations.



Boxes are provided with knockouts. These can be removed cleanly without spoiling the finish. They thus obviate difficult drilling or bench work





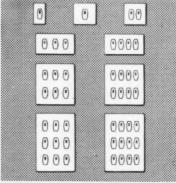
Effective dolly protection
The dolly cannot be damaged owing to the raised side protectors which also add distinction to the design.

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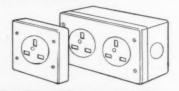
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See diagram—This applies to both flush and surface fixings.



Matching 13 amp sockets

In finishes as above, single and double units, unswitched, the single unit also being available switched.

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# Introducing the

# Ascot De Luxe G512

the new water heater giving complete control

The New Ascot De Luxe type G512 represents the latest developments in water heater design and performance. Developed by Ascot for use as an instantaneous multipoint and single-point sink water heater, this Ascot De Luxe with its complete controls for gas and water is sure to be popular with the modern housewife. Here are some of its features:-

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A temperature selector controlling a temperature rise between 45"-100"F is incorporated, allowing the housewife to choose water at whatever heat she wants.

Gas and Water Controls
The Ascot De Luxe is fitted with a constant volume gas governor and a water governor. External controls include hot and cold taps and a rotary gas control. Gas and water cocks are an integral part of the heater linings.

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**Versatility**The De Luxe is designed to operate as either a single point heater with a 9in. spout, or as a small multipoint heater.

The De Luxe is 23¼" high, 10¼" wide and 8½" deep and gives 30,000 B.t.u./hr. thermal output from an input of 40,000 B.t.u./hr. producing 0.5 g.p.m. raised 100°F, and 0.625 g.p.m. raised 80°F, and pro rata. Pilot consumption is 250 B.t.u./hr.

For full details of the

Ascot De Luxe type G512 write to

ASCOT GAS WATER HEATERS LIMITED, 255 NORTH CIRCULAR ROAD, NEASDEN, N.W.10





R. I



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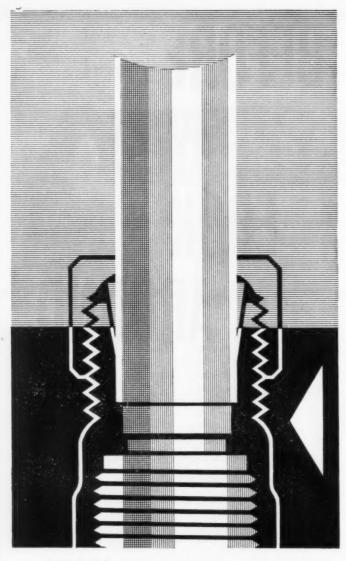
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# The new REDFYRE CENTRAMATIC makes oil-fired central heating the natural choice for three or four bedroomed houses

Oil-fired central heating is to be found perfected today in the new Redfyre Centramatic. All the problems of convenience and economy have been

solved in the most sensible way to provid trouble-free service that has never been possible until now. Read on and you will see . . .

### "Kitchen Equipment" Design

The new Redfyre Centramatic is the only oil-fired boiler which matches up to the accepted measurements for basic kitchen equipment. It is fully insulated, finished in a wipe-clean three-tone enamel and is available in an attractive variety of popular kitchen colours.

# Complete Thermostatic Control

The householder selects the temperature he needs on the temperature scale. Then the Redfyre Centramatic regulates the burning to keep the water automatically at the selected temperature.

### **Automatic Combustion**

The Centramatic does not rely on chimney draught for efficient combustion, although it needs a chimney flue into which to exhaust. It provides its own draught, and regulates how much it needs. This saves a lot of fuss and bother.

## **Electric Ignition**

Ordinary oil-fired boilers, when they are idling, cut down on the general rate of burning or rely on a simple pilot-light. Either way you get imperfect, uneconomical and "sooty" combustion. The Redfyre Centramatic has the perfect solution: when the thermostat control indicates "no heat required", the flames go out altogether and no oil or electricity is used. When heat is needed again, the oil is relit automatically and the unit is operating at maximum output within seconds.

### Easy to Install and Service

The Redfyre Centramatic comes as a packaged unit. It requires no specialised installation technique. The local supplier can service it yearly, and that's all the attention it should need.

### **Further Facts**

The Redfyre Centramatic can produce uto 50,000 B.T.U.s per hour—enough for radiators, plus heated towel rails, plus ample hot water for the kitchen, plus he baths. In other words it is ideal for the three or four bedroomed house. A point of remember is that because the Centramath has the benefit of electric ignition, it is stifficient and economical when worked a less than its full capacity.

# Two Sizes Available

There is also available a larger version, the Centramatic 80, with an hourly output of 80,000 B.T.U.s. It has all the good point of the Centramatic 50, is cylindrical in shape (22 ins. diameter by 54 ins. high) and compact for its output.

Centramatic 50 £128

Centramatic 80 £149

# May we tell you more?

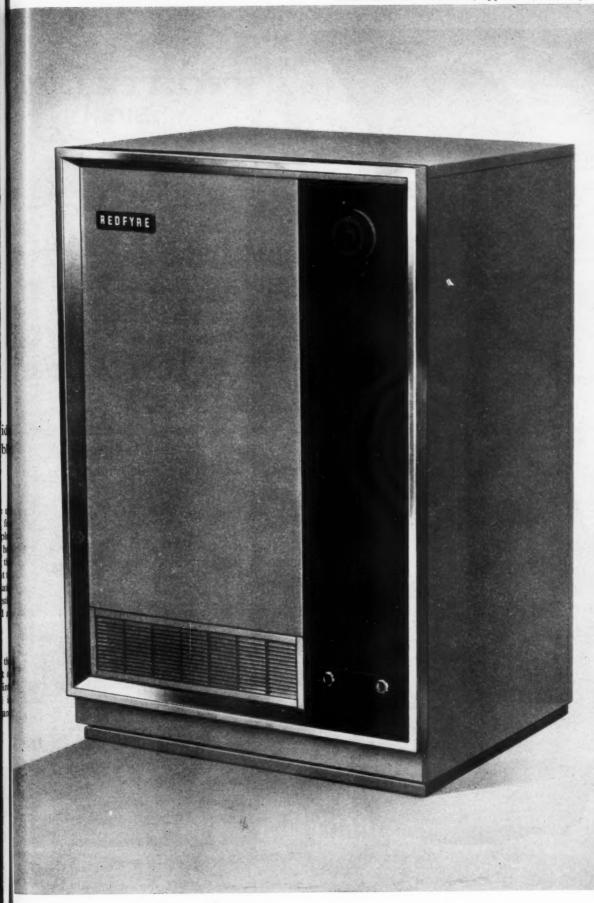
Full technical specifications of the Redfyre Centramatic oil-fired boilers are available. Please write to Newton Chambers & Co. Ltd., Redfyre Products, Thorncliffe, Sheffield.

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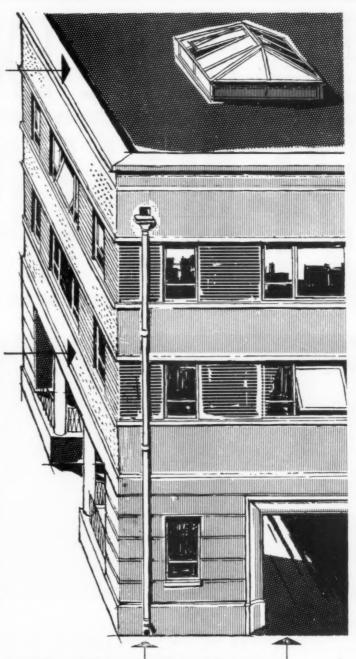
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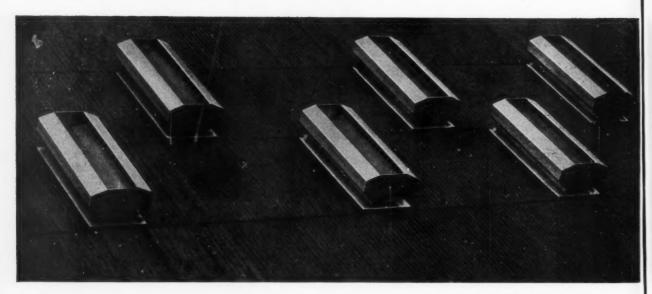
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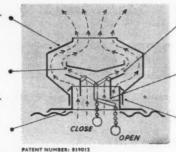
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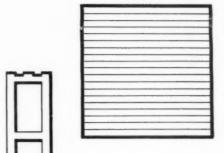
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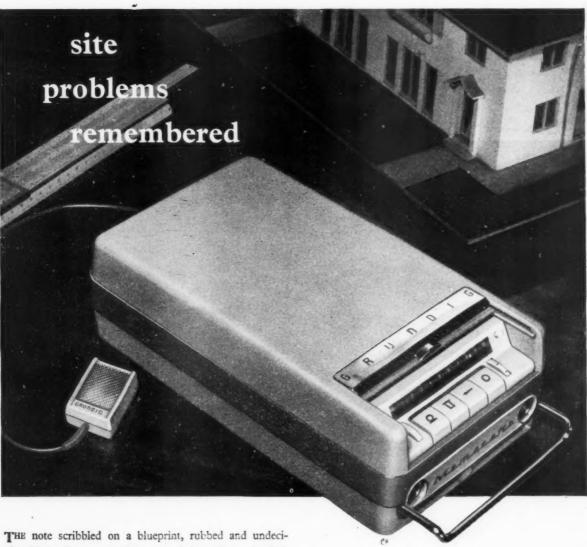
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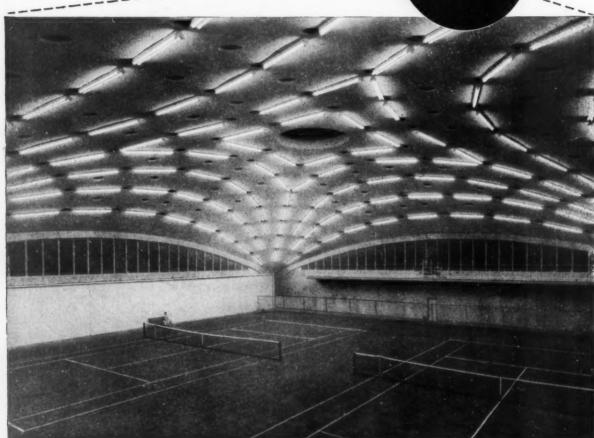
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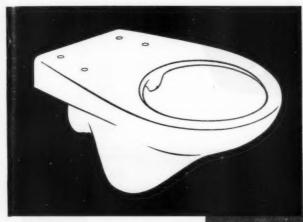




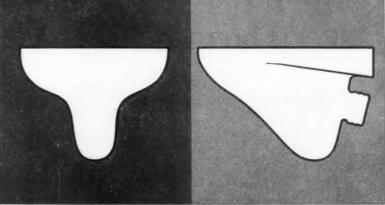
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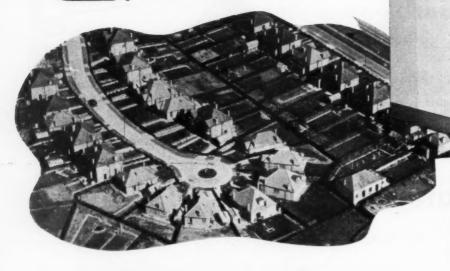
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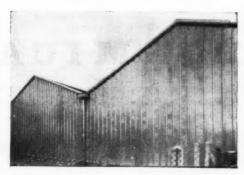
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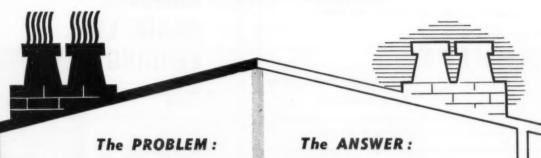
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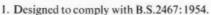
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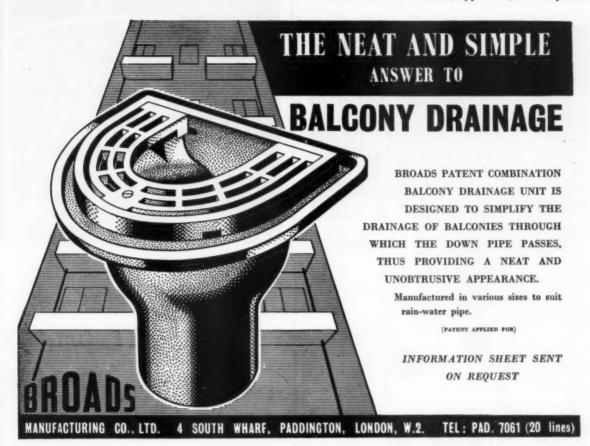
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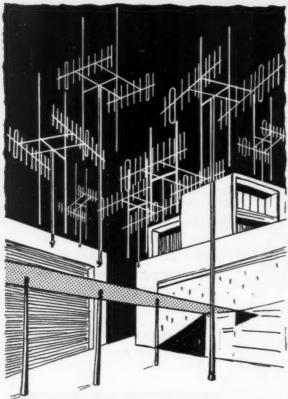
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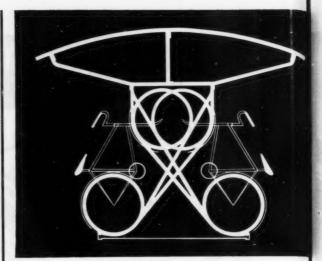
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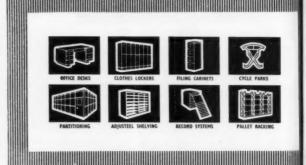
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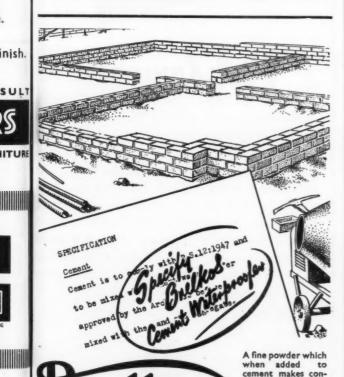
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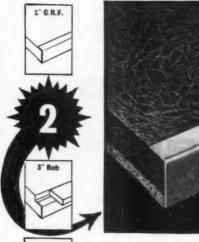
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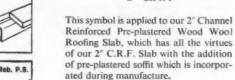
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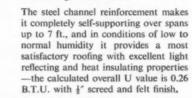
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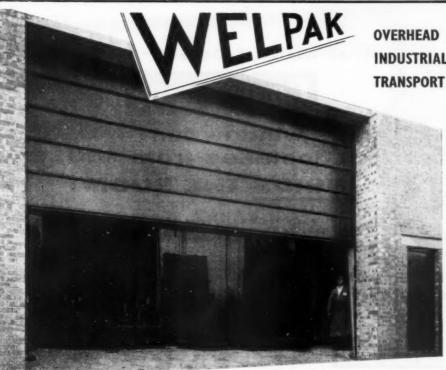
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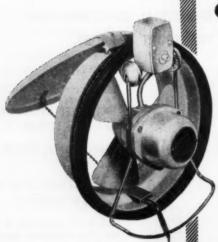
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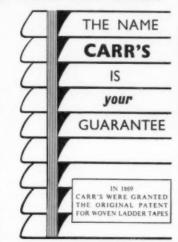
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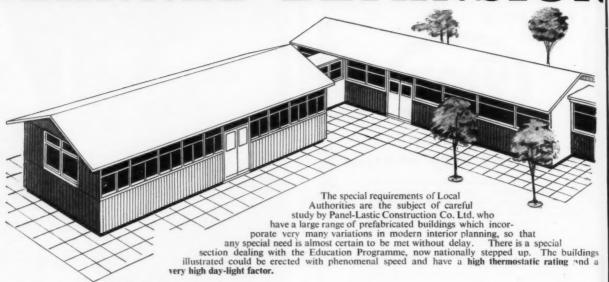
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LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
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Unqualified architectural assistants required in
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the Council.

Applications in writing, stating age, qualifications and previous experience, together with the names and addresses of two referees, should be sent to The Engineer and Surveyor, Town Hall, Station Road. New Barnet. Herts, not later than Monday. 29th February, 1960.

Amended Advertisement)

sation Road. New Barnet. Herts, not later than Monday. 29th February, 1960.

(Amended Advertisement)

ROROUGH OF SOLHHULL

APPOINTMENT OF SENIOR ASSISTANT ARCHITECTS AND SENIOR ASSISTANT QUANTITY SURVEYORS

Following a review of the establishment of the Architects Section of the Borough Surveyor's Department, applications are now invited from qualified architects and quantity surveyors, having suitable experience, for appointments as Senior Assistant Architects and Senior Assistant Quantity Surveyors, at a salary in accordance with A.P.T. Grade V (£1,220 per annum rising by annual increments of £50 and £55 to a maximum of £1,375 per annum).

The successful applicants will work under a Principal Assistant Architect or the Chief Quantity Surveyor as the case may be, the Section being in the charge of the Deputy Borough Architect and his Chief Assistant.

Solihull has a population of approximately 90,000 and is still expanding rapidly. It is an Excepted District under the Education Acts and is seeking County Borough status. There is a considerable programme of varied work ahead. In suitable cases, housing accommodation will be provided and half removal expenses paid.

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

Annications, giving full particulars as to age, qualifications, experience and past and present appointment should be addressed to the Borough Engineer and Surveyor, 90, Station Road, Solihull, Warwickshire, so as to reach him not later than Tuesday, 1st March, 1960.

W. MAURICE MELL.

Town Clerk.

Solihull.

Warks.

The Council House, Solibull. Warks. 4th February, 1960.

BOROUGH OF WILLESDEN
Applications are invited for the following
permanent appointments:—

(a) ASSISTANT ARCHITECT within Grade
A.P.T. IV (£1,065—£1,220 p.a.).

(b) ASSISTANT ARCHITECT within Special
Grade (£785—£1,070 p.a.).

(c) ARCHITECTURAL ASSISTANT within Grade
A.P.T. II (£656—£765 p.a.).

(d) ARCHITECTURAL ASSISTANT within Grade
A.P.T. II (£610—£765 p.a.).

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Candidates for posts (a) and (b) must be Associates of the R.I.B.A. and should have a high
ability in design, capable of supervising contracts
and experience of multi-storey flats.

For one post experience of redevelopment
schemes will be an advantage.

Candidates for posts (c) and (d) should have
passed the Intermediate Examination of the
R.I.B.A.

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A programme of interesting and varied works is expected to continue for many years and opportunities are offered to imaginative designers with a contemporary and practical outlook. The appointments will be superannuable and subject to the National Conditions of Service. The Council is unable to assist with housing accommodation.

Forms of application and conditions of appointment may be obtained from the Borough Engineer & Surveyor. Town Hall, Dyne Road, Kilburn, N.W.6. Applications to be returned to the undersigned not later than 9 a.m. on Monday, 29th February, 1960.

(signed) R. S. FORSTER, Town Clerk

(Amended Advertisement)

(Amended Assistant Following a review of the Borough Surveyor's Department, applications are invited from qualified architects, with good experience and initiative, for appointment as Principal Assistant architect at a salary in accordance with a Scale commencing at £1,275 per annum and rising by 3 annual increments of £55 to a maximum of £1,440 per annum.

The successful applicant will be in charge, under the Deputy Borough Architect, and his Chief Assistant, of a drawing office staff of approximately expensions staff.

Solibuil has a population of approximately applicating and landscaping staff.

Solibuil has a population of approximately 90,000 and is still expanding rapidly. It is seeking County Borough status and is an Excepted District under the Education Acts. It has approximately £260,000 of education building under construction at the present time. The 1900/61 programme includes work of approximately £350,000 in value and the future programme includes new primary and secondary schools, nursery schools, extensions and adaptations, and a considerable number of minor capital works.

works.

In suitable cases, housing accommodation will be provided and half removal expenses paid. A casual user motor car allowance will also be payable.

casual user motor car allowance will also be payable.

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

Applications, giving full particulars as to age, qualifications, experience and past and present appointments, should be addressed to the Borough Engineer and Surveyor, 90, Station Road, Solihull, Warwickshire, so as to reach him not later than Tuesday, 1st March, 1960.

W. MAURICE MELL.

Town Clerk.

The Council House, Solihull, Warks. 4th February, 1960.

BOROUGH OF TAUNTON
ASSISTANT ARCHITECT
Applications are invited for appointment of
ASSISTANT ARCHITECT
Assistant Architect in the Borough
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2785—E1.070 per annum.
Superamnuable post, subject to medical examination. and to National Conditions of Service.
Amplications, stating age, present position and
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Borough Architect. Flook House, Station Road,
Taunton, by 22nd February, 1960.
Canvassing will disqualify.
Consideration will be given to housing accommodation if required.

K. A. HORNE.

K. A. HORNE. Town Clerk

NORTH RIDING COUNTY COUNCIL
APPOINTMENT OF COUNTY ARCHITECT
It is proposed to amalgamate two (existing)
Architectural departments, one doing Education
buildings and the other general County, and
applications are invited from registered architects
to take charge of the combined department.
Salary 62,204 per annum, rising by increments to
43,539 per annum. For further particulars and
form of application write to the Clerk of the
County Council, County Hall, Northallerion, Yorkshire. Completed applications to be returned by
5th March, 1960.

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NEW TOWN HALL

APPOINTMENT OF CLERK OF WORKS

Applications are invited for the appointment of Clerk of Works in connection with the New Town Hall, the construction of which will commence March, 1960.

The salary for this appointment will be in the A.P.T. Division, Grade 111, 2880, rising to a maximum of £1,065 per annum.

Intending applicants should apply in the first instance for forms of Application and further particulars to the City Architect, deorge Kenyon, Dip. Arch., A.R.L.B.A., Dip.T.P., A.M.T.P.I.

JOHN ATKINSON,

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Town Hall.

Newcastle upon Tyne, 1.
29th January, 1960.

COUNTY BOROUGH OF ROTHERHAM

ARCHITECTS

Applications are invited for the following appointments:

ABUILLEAD

Applications are invited for the following appointments:

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(b) SENIOR ASSISTANT ARCHITECT.

The department has a varied and interesting programme of architectural work and candidates for (a) are required to have passed Parts I and II of the R.I.B.A. final examination and (b) to be Associate Member of the R.I.B.A. with good general experience in design and construction. The commencing salary in the grades will be according to capabilities and experience. Housing accommodation will be available if necessary for the higher grade appointment.

Applications to be endorsed "Architects," stating age, qualifications and details of experience, together with names of two referees, should be received by me not later than Friday, 26th February, 1960.

Canvassing will disqualify.

JOHN S. WALL,

Town Clerk.

Municipal Offices, Rotherham. February, 1960.

Rotherham.

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M. HAWORTH, Clerk of the Council.

Council Offices. Oxted, Surrey. 1st February, 1960.

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ARCHITECTURAL STAFF
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(c) 1250 p.a.)

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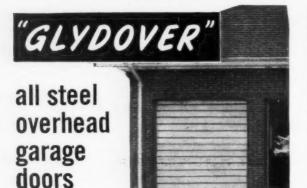
E. TARERNER,
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8358

Town Clerk. 8358

WESTMORLAND COUNTY COUNCIL COUNTY ARCHITECT'S DEPARTMENT Applications are invited for the appointment ARCHITECTURAL ASSISTANT, A.P.T.

ARCHITECTURAL ASSISTANT. A.P.T. 11 (2755—2880).
Candidates must have passed the Intermediate Examination of the R.I.B.A. and previous local authority experience will be an advantage.
Anolications stating age, technical training, qualifications, experience, previous and present appointments with salary, and the names of two referees, to the County Architect. County Hall.
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\* Please write for literature giving standard sizes etc. available under Reference Four panel construction minimizes maintenance and a finger touch operates the door leaving an unrestricted entrance.



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LONDON, MANCHESTER, NEWCASTLE-ON-TYNE.

dm BG 333/1

# Garages by MARLEY

Made of high grade reinforced concrete with asbestos cement roofing, these garages are strong and proven. Of unsurpassed appearance and spacious dimensions, they are fire and rot proof and virtually maintenance free.

All the necessary components are supplied for assembly by unskilled labour. Alternatively they can be supplied and erected by Marley experts.

Prices from £55 cash or attractive credit terms.

All garages may be extended in length by multiples of 1' 4"



MARLEY MINOR
Width 7' 10"
Lengths 11' 2" to

MARLEY MEDIUM Width 9' 2" Lengths 14' 1" to 22' 4"

MARLEY MAJOR Width 11' 10" Lengths 14' 1" to

MARLEY MAGNA Width 13' 2" Lengths 14' 1" to 22' 4"



TILED ROOF GARAGES Width 9' 2" Lengths 14' 1" to 22' 4"

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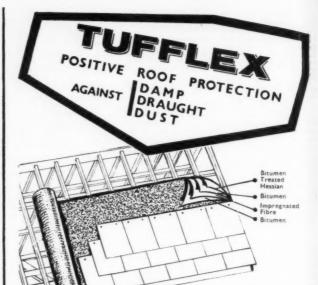
MARLEY Peasmarsh, Guildford, Surrey Guildford 69171

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Shurdington 334/5
Broadstone 626

Our London Showrooms are at 251 Tottenham Court Road, W.1 Showgrounds at Cheltenham, Poole and Guildford



Laid beneath slates or tiles Tufflex
Reinforced Underslating Felt forms a reliable
"second line" roof against damp, draughts and dust.
Tufflex will not sag or tear when stretched tightly across open

Samples and descriptive literature on request.

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LONDON MIDLAND

REGION

## ASSISTANT ARCHITECTS

REQUIRED

APPLICATIONS ARE INVITED FOR VACANCIES IN THE OFFICE OF THE REGIONAL ARCHITECT AT EUSTON STATION, LONDON

The Electrification Programme offers great opportunities for imaginative designers and the work is of wide architectural scope and interest. In addition to vacancies for general architectural work the present Research Unit is to be strengthened and its activities will embrace standardisation of buildings, furniture, equipment and unit planning.

**SALARIES** are offered within the range £833 per annum to £1,200 per annum, with five-day week and concessionary rail travel.

Apply in writing quoting reference No. 89, stating qualifications, age, experience and salary required to :—

## W. R. HEADLEY, A.R.I.B.A., A.A., Dipl., REGIONAL ARCHITECT

Chief Civil Engineer's Office, 5a, Euston Grove, London, N.W.I.

COUNTY BOROUGH OF SOUTH SHIELDS
Applications are savited for the following
appointments in the Quantity Surveying Section
of the Borough Engineer's Department.

(a) PRINCIPAL ASSISTANT QUANTITY SURVEYOR
Applicants must be Associates of the Royal
Institution of Chartered Surveyors and the
salary paid will be in accordance with
Grade IV (£1,055 to £1,220).

(b) MEASURING SURVEYOR
Applicants must have experience of site

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D.,

MEASURING SURVEYOR
Applicants must have experience of site
measurement for and including preparation of
interim certificates and final accounts and be
capable of working without supervision and
the salary paid will be in accordance with
Grade I/II (£610—£880) according to age and

Grade 1/11 (2010—2001) according to age and experience monodation will be made available of the successful applicants if necessary. The selected applicants for both appointments full be required to pass a medical examination or purposes of the Superannuation Acts. Application forms are obtainable from the 30rough Engineer, Town Hall, South Shields, and hould be returned to him not later than 10.0 a.m. on Friday, 26th February, 1960.

R. S. YOUNG, 8327

8327

EAST ANGLIAN REGIONAL HOSPITAL

ASSISTANT ARCHITECTS. Candidates must be qualified and registered architects by examination. Salary £730—£1,055 per annum: additional increments within scale based on experience and age may be granted.

ARCHITECTURAL ASSISTANTS. Candidates must have passed intermediate examination of R.I.B.A. Salary £545 (at 21 or over)—£765: commencing figure may be fixed at point above minimum but will not exceed £630.

These appointments are for work on major development schemes and offer considerable scope for gaining experience on large scale hospital projects. Both salary scales are under review. Applications stating age, qualifications, experience and details of present position (salary, etc.) with names of three referees to Secretary of Board, 117 Chesterton Road, Cambridge, by 24th February, 1960.

Board. 117 Chesterton Road, Cambridge. 3264
Pebruary, 1960.

BOROUGH OF FINCHLEY
TEMPORARY ARCHITECTURAL ASSISTANT
HOUSING DEPARTMENT
Salary within Grade A.P.T. I. (£610×£30×£35—£765). London Weighting Additional.
Candidates must have had practical experience in the preparation of working drawings and detailing for new developments and conversions. The National Scheme of Conditions of Service and the Local Government Superannuation Acts apply and medical examination required.
Applications, stating age and full particulars of qualifications and experience, with the names of two referees, to the Borough Housing Officer, The Avenue, Finchley, N.3, by first post on Wednesday, 24th February, 1960.

R. M. FRINKLIN.
Town Clerk.
3319

COUNTY BOROUGH OF GREAT YARMOUTH SCHOOLS ARCHITECT'S DEPARTMENT Applications are invited from Associate Members of the R.I.B.A. for a SENIOR ASSISTANT ARCHITECT within APT.IV (£1,065-£1,220). Preference will be given to candidates who have had experience on school work.

Housing accommodation will be available to the successful candidate if married. Assistance with removal expenses may be given in suitable cases. Full details of present and past appointments, aze, qualifications and experience, together with the names of two referees, should reach the Schools Architect, 22 Euston Road, Great Yarmouth, by 26th February, 1960.

D. G. FARROW.

Chief Education Officer.

Euston Road. Great Yarmouth.

COUNTY BOROUGH OF DEWSBURY BOROUGH ARCHITECT AND BUILDINGS SURVEYOR'S DEPARTMENT Applications are invited for the following annointments.—

Applications are invited for the following appointments:—
(a) PRINCIPAL ASSISTANT ARCHITECT (Housing and General Section), A.P.T. Grade

(Housing and General Section), A.P.T. Grade
(Housing and General Section), A.P.T. Grade
(b) ASSISTANT ARCHITECT (Education Section), Special Grade.
(c) TOWN PLANNING ASSISTANT, Special Grade.
The commencing salaries will be fixed within the scope of the grades stated according to qualifications and experience, i.e. A.P.T. Grade V, £1,220-£1,375, Special Grade £785-£1,070. Applicants for (a) and (b) should be A.R.I.B.A. and for (c) A.M.T.P.I.
Housing accommodation may be made available if required.
The appointments will be subject to one month's notice on either side and to the provisions of the Local Government Superannuation Acts.
Applications stating age, education, qualifications, full particulars of training and experience, together with copies of two recent testimonials, should be sent to the undersigned not later than Monday. 29th February, 1960.

Town Hall, Dewsbury.

Town Hall, Dewsbury.

8402

Town Hall, Dewsbury. 8th February, 1960.

CWMBRAN DEVELOPMENT CORPORATION APPOINTMENT OF ASSISTANT ARCHITECTS APT.III/IV

Applications are invited for the above superannuable posts in my Department in the Salary Range £880—£1,220 with a commencing salary according to Qualifications and experience. Candidates should be Associates of the R.I.B.A. with suitable office experience and should have had good experience in house design, construction and layout, experience in shop design would be an advantage.

tion and ayout experience in the part of the part of the part of the successful applicants if needed. Applications stating age, experience, details of present and former employment (together with applicable salaries) and the names and addresses of two referees must reach the undersigned by first post on Monday, 7th March, 1960.

J. C. P. WEST.

A.R.I.B.A., M.T.P.I.,

Chief Architect.

Victoria Street,

Cwmbran, Mon.

COUNTY BOROUGH OF DONCASTER
BOROUGH ARCHITECT'S DEPARTMENT
Applications are invited for the posts of ASSISTANT ARCHITECT and TEMPORARY ASSISTANT ARCHITECT at salaries in accordance with the Special Grade, 1785—21,070.

Applicants must have passed parts 1 and 2 of the R.I.B.A. Final or the Special Final examination.

the R.L.B.A. Then to the subject to one month's notice on either side, will be superannuable and the successful applicants will be required to pass a medical examination. Application forms may be obtained from the Borough Architect, 15, South Parade, Doncaster, to whom they must be returned by Monday, 22nd February, 1960.

H. R. WORMALD.

1. Priory Place.

Doncaster.

CITY AND COUNTY OF BRISTOL
ARCHITECT'S COMMITTEE
Applications invited for the following permanent
Staff Appointments from applicants who have the
qualification shown or equivalent qualification:
SENIOR ASSISTANT ARCHITECTS. Grade
A.P.T. IV (21.065-41,220 p.a.). Final R.I.B.A.
SENIOR ASSISTANT ARCHITECTS. Special
Scale (C785-41,070 p.a.), Parts 1 and 2 Final
R.I.B.A.

SENIOR ASSISTANT ARCHITECTS. Special Scale (2785-21.070 p.a.), Parts 1 and 2 Final R.I.B.A.

RCHITECTTERAL ASSISTANTS. Grade A.P.T. II (2765-2830 p.a.). Intermediate R.I.B.A.

ARCHITECTTERAL ASSISTANTS. Grade A.P.T. II (2765-2830 p.a.). Intermediate R.I.B.A.

RENIOR OLANTITY SILRVEYORS. Special Scale (2785-21.070 p.a.). Intermediate R.I.B.A.

(2785-21.070 p.a.). Final R.I.S.

QUANTITY SILRVEYORS. Special Scale (2785-21.070 p.a.). Final R.I.S.

LAND SURVEYOR, Grade A.P.T. II (2610-2765 p.a.). Intermediate R.I.C.S.

LAND SURVEYOR, Grade A.P.T. II (2610-2765 p.a.). Intermediate R.I.C.S. (Land Surveying or Building Surveying Section).

JUNIOR ASSISTANTS. General Division. Duties include assisting with surveys and generally to work under the supervision of an Assistant Architect. Preference will be given to apolicable experienced in land surveying. Starting salary at 20 not less than 6370 p.a. on scale rising to 655 p.a. University School Certificate or good G.C.E. essential.

The Department has an interesting and varied programme of work including the design and construction of Golleges of Art and Further Education, Secondary Schools. Markets, Baths. Libraries and redevelopment projects, including blocks of dwellings up to 15 storeys. Pacilities will be given for design and contract experience and good opportunities exist for men with drive and ivitiative to assist in works of major architectural importance.

Five-day week. Assistance with removal expenses.

Prive-day week. Assistance with removal ex-penses. Housing accommodation available, if necessary, at an economic rent. Defails and application forms, returnable by Ist March, from City Architect, Council House. Bristol 1.

Bristol . Borough Of Solihull . Borough Of Solihull . Appointment of Clerk of Works Applications are invited for an additional appointment as Clerk of Works in the Architect's Section of the Borough Survevor's Department at a salary in accordance with Miscellaneous Grade VI (£715×£20(3)×£775 per annum). This appointment has become necessary on account of the considerable programme of housing and other works at present being undertaken.

Anolicants should have been apprenticed in the building trade and have had considerable experience as craftsmen and general foremen. In appropriate asses housing accommodation will be provided as soon as possible, and half reasonable removal expenses paid.

The appropriate cases housing accommodation will be provided as soon as possible, and half reasonable removal expenses paid.

The appropriate continues the provisions of the Local Government Superannation Acts, the National Scheme of Conditions of Service, to one month's notice on either side and to a medical examination.

Applications giving full particulars as to age

month's notice of clear state and another examination.

Applications giving full particulars as to age, past experience and appointments held, together with the names and addresses of two referees, should be sent to the Borough Surveyor. 90, Station Road Solihull, Warwickshire, so as to reach him not later than 1st March, 1960.

W. MAURICE MELL.

Town Clerk.

The Council House, Solibull. 5th February, 1960.

VACANT POSTS IN THE PUBLIC SERVICE OF THE UNION OF SOUTH AFRICA TOWN AND REGIONAL PLANNING COMMISSION

TOWN PLANNER, GHADE II/III—£1,380 × £60 — £1,560/£700 × £50 — 2900 × £600 — £1,520 ON CONTRACT FOR 5 YEARS IF UNMARRIED, AT PIETER-MARITZBURG, NATAL.

Requirements: A recognised diploma in town planning gained as a post-graduate qualification after obtaining a recognised university degree in Civil Engineering, Architecture or Surveying. Other qualifications in town planning will also be considered. Appropriate post-qualification experience in town and/or regional planning practice, Civil Engineering, Architecture or Surveying will be taken into consideration in determining the commencing salary on the basis of one notch for each completed year of experience to the maximum of the higher scale. No candidate in possession of the required qualifications will receive a commencing salary of less than £850 per annum and those with at least five years' post-graduate experience qualify for appointment to Grade II posts.

Conditions of Service: 34 days' accumulative vacation leave per annum plus 120 days' sick leave on full pay and 120 days on half pay in a three-

Grade II posts.

Conditions of Service: 34 days' accumulative vacation leave per annum plus 120 days' sick leave on full pay and 120 days on half pay in a three-year cycle; congenial working conditions. Contracts may be renewed or permanent appointment offered on completion of contract.

Duties: The work of the office ranges from regional planning on the broadest basis to detailed town planning and basic research. Owing to the diversity of the work, a large measure of initiative and independence of thought are expected.

1. Application forms and particulars regarding appointment requirements, conditions of service, notes on Natal and the contract to be entered into with the Government of the Union of South Africa may be obtained from the Immigration Attaché, South Africa House, Trafalgar Square, London, W.C.2, upon request.

2. The successful candidates, their wives and wholly dependent children as well as a limited quantity of luggage will be transported at State expense from their places of residence to Pietermaritzburg in the Union and back on completion of the contract, if so desired.

3. Completed applications must be sent to the Provincial Secretary, Fietermaritzburg, Natal, Original testimonials and certificates should not be submitted.

submitted.

The closing date for the receipt of applicants is the 21st March, 1960.

CITY AND COUNTY OF
KINGSTON UPON HULL
TOWN PLANNING DEPARTMENT
Applications are invited from suitably qualified
persons for the following appointments in the
Design, Redevelopment and Estates Sections of
the above Department.
(1) SENIOR PLANNING ASSISTANTS, Grade
A.P.T. IV (£1,065 to £1,220 per annum).
(2) SENIOR PLANNING ASSISTANTS, Grade
for Special Classes of Officers (£785 to £1,070

for Special Classes of Officers (2018)
per annum).

(3) PLANNING ASSISTANT, Grade A.P.T. II
(2765 to 2880 per annum).
The commencing salary will be within the above
scales and commensurate with experience and
ability, and consideration will be given to the
provision of housing accommodation in appropriate cases.

Applications should be sent to the undersigned
not later than Saturday, 5th March, 1960.

M.T.P.I., A.R.I.C.S., A.M.I.Mun.E.,
Town Planning Officer.

Guildhall.

Guildhall, Kingston upon Hull.

HAYES AND HARLINGTON U.D.C.
Applications are invited for:—
(a) ASSISTANT ARCHITECT. Salary within Special Grade, i.e., 4785—41,070 p.a.
(b) ARCHITECTURAL ASSISTANTS (two). Salary within Grade A.P.T. II, i.e., 2765—2880 p.a., plus London weighting in all cases, 21-25 p.a.
Priceconce will be given to candidates for (a) who have passed the examination for Associateship of the R.L.B.A. and who must be capable of preparing sketch designs, full working drawings, specifications, supervision of building contracts, tet. Applicants for (b) should have passed the Intermediate examination of the R.L.B.A. and must have good general architectural experience. Five-day week, Housing accommodation if required will be made available for (a) and for one of the appointments (b). Further particulars and conditions of service and form of application obtainable from the undersigned, which when completed must be returned by 7th March, 1960.

GEORGE HOOPER, Town Hall.

Town Hall, Hayes, Middlesex.

Hayes, Middlesex. 8413

FIFE COUNTY COUNCIL
PLANNING DEPARTMENT
Applications are invited for appointment as
DRAUGHTSMAN. Salary scale—Executive III
(£735—£795). Placing may be given according to
experience. Applicants should preferably have
been trained in a Planning or Architect's office.
be neat and expeditious draughtsmen with ability
to prepare free-hand sketches. Previous planning
experience with a County Council desirable.
Housing may be available. Applications stating
age, experience, etc., accompanied by copies of
recent testimonials, by 26th February to the
County Clerk, County Buildings, Cupar. 8468

AIR MINISTRY Works Designs Branch requires in LONDON and Provinces, ARCHITECTURAL ASSISTANTS with adequate training and drawing office experience. O.N.C. (Building) an advantage. Work includes site layouts, sketch plans, working drawings and details for variety of technical and domestic buildings in permanent and semi-permanent construction. Financial assistance and time off given for recognised courses of study. Promotion and pension prospects. Five-day week with 18 working days leave per year initially. Overseas tours for which special allowances granted. Salary in LONDON ranges from £680 p.a. for women; somewhat lower in PROVINCES. Commencing salary dependent on age, qualifications and experience. Applicants, who must be natural-born British subjects. should write to Air Ministry. W.G.c. Lacon House. Theobalds Road, London, W.C.I., or to any Employment Exchange (quoting Order No. Kings Cross 3744 giving age, details of training, qualifications, full particulars of former posts held and copies of any testimonials). Candidates selected will normally be interviewed in London and certain expenses reimbursed. 7498

THE SCOTTISH GAS BOARD

GLASGOW AND WESTERN DIVISION

ARCHITECTURAL ASSISTANT

Applications are invited from suitably qualified persons to fill the post of Architectural Assistant in the Department of the Production and Technical Services, on the Divisional Headquarter's staff at 9 George Square, Glasgow.

Applicants should possess reasonable industrial and commercial architectural experience.

The nature of the work is such as will afford an excellent opportunity for broadening experience in commercial (including showroom layout) and industrial building design and for obtaining practical training on the various sites.

The appointment will be within the Scale (Provincial A) A.P.T.7 £733—£813 per annum with placing therein according to age and experience. The post is pensionable and the successful applicant will be required to pass a medical examination.

Applications and experience, should be addresse

examination.

Applications marked 'AA,' stating age and giving particulars of education, training, qualifications and experience, should be addressed to the Personnel Officer, Dept. A.J., before Monday, 29th February, 1960.

NEATH BOROUGH COUNCIL AND NEATH
RURAL DISTRICT COUNCIL
PROPOSED NEW CIVIC BUILDINGS
ARCHITECTURAL COMPETITION
The Neath Borough Council and the Neath
Rural District Council invite Architects registered
under the Architects (Registration) Acts, 1951 and
1938 to submit designs in competition for new
Civic Buildings, comprising Offices, Council
Chamber and Public Hall, to be erected at FairThe Promoters have appointed Sir Percy
Thomas, P.P.R.I.R.A. M.T.P.I. of Cardiff to

Champer and Public Hall, to be erected at Fairfield, Neath.

The Promoters have appointed Sir Percy Thomas, P.P.R.I.B.A., M.T.P.I., of Cardiff, to adjudicate on the designs and to make the award. Premiums

1st Prize ... £1,000 (to be merged with fee) 2nd Prize ... £500

3rd Prize ... £500

Conditions of Competition and plan of site may be obtained on application, accompanied by a deposit of £2 2s. 0d., to either of the undersigned, not later than 12 noon on Saturday, 12th March, 1960. Deposits returnable upon receipt of a bona fide design, or if Conditions are returned within one month before the date for submission of designs.

one month before the uate of designs.

Dated this 10th day of February, 1960.

D. King Davies,
Town Clerk.

Town Hall,
Neath.

Neath.

1. H. K. Thorne,
Clerk of the Council.
Orchard Chambers,
Neath.

8487

NIGERIAN COLLEGE OF ARTS, SCIENCE
AND TECHNOLOGY
Applications are invited for a LECTURESHIP
IN ARCHITECTURE.
Course leads to Final R. I. B. A. examination.
Contract salary scale: £1,194—£1,807 p.a., plus
inducement addition £270—£300 p.a., for overseas
appointees and gratuity at £37 los, for each completed 5 months' residential service. Salary
quoted includes an interim addition to basic
salary recently approved pending salary revision.
Entry point in scale according to experience.
Partly furnished quarters at one-twelfth basic
salary rental. Tours 10-18 months but leave
normally taken in long vacation. Free 1st class
passages. Children's U.K. maintenance grant up
to £150 p.a. and passages assistance.
Applications (8 copies) giving age, qualifications,
experience and names of 3 referces should be
sent to the Council for Overseas Colleges, 12,
Lincoln's Inn Fields, London, W.C.2, by 4th
March. 1960.

ARCHITECTS AND MAINTENANCE SUR-

March. 1960.

ARCHITECTS AND MAINTENANCE SUR-VEYORS. Pensionable posts for mer and women at least 25 and under 35 on 1.1.60 (extension for regular Forces service, Overseas Civil Service, established civil service and temporary Government service as Architect or Maintenance Surveyor). Candidates must be registered Architects or, alternatively for Maintenance Surveyor nosts, have achieved Corporate membership of R.I.C.S. (Building Section), or have passed examinations necessary for attaining Corporate membership Starting salary (men, London) from £350 to £1.25 according to age Scale maximum (London) £2,300. Promotion prospects. Write Civil Service Commission, 17, North Audiev Street, London, W.1, for application form quoting S 60-61.

COUNTY BOROUGH OF SOUTH SHIELDS APPOINTMENT OF ARCHITECTS Applications are invited for the following appointments in the Borough Engineer's Depart-

appointments in the Borough Engineer's Department:—
PRINCIPAL ASSISTANT ARCHITECT
Applicants must be suitably qualified and experienced and the salary will be in accordance
with A.P.T. Grade IV (£1.065-£1,220 per annum).
ASSISTANT ARCHITECTS
Applicants to have received training in Architecture and the salary will be within A.P.T.
Grades I/II (£610-£880 per annum) according to
age and experience, or alternatively, special grade
for suitably qualified applicants.
Housing accommodation will be made available
if necessary to successful applicants on Grade IV
and Special Grade, and those appointed will be
required to pass a medical examination for Superannuation purposes.

Application form Application forms are obtainable from the Borough Engineer, Town Hall, South Shields, and should be returned to him not later than noon, Moaday, 29th February, 1960.

R. S. YOUNG, Town Clerk. 8364

EASINGTON RÜRAL DISTRICT COUNCIL
CHIEF ASSISTANT ARCHITECT
APPLICATIONS are invited from persons with
good general experience and who have passed
the final examination of the R.I.B.A. for the
above mentioned appointment.
Salary Grade A.P.T. IV (£1,065-£55-£50(2)(£1,220).
Assistance will be given to find housing accommodation.

Assistance will be given to him location modation.

Form of application (with full details of the terms and conditions of appointment) obtainable from the undersigned, must reach me by WEDNESDAY, 2nd MARCH, 1960.

T. AGAR,

Clerk of the Council.

Council Offices, Easington, Co. Durham.

Easington,
Co. Durham.

COUNTY BOROUGH OF BOOTLE
Applications are invited for the appointment
of an ARCHITECTURAL ASSISTANT, Grade
A.P.T. I £610 to £765 per annum.
Preference will be given to those having experience in the design and planning of schools.
Application forms from the Borough Surveyor,
Town Hall, Bootle 20, Lancs., are returnable by
Friday, 4th March, 1969.
HAROLD PARTINGTON.
Town Clerk.
8467

BOROUGH OF LARNE

The Larne Borough Council invite applications for the position of TOWN PLANNING OFFICER and BOROUGH ARCHITECT. Commencing salary within the scale £1.210 × £45 to £1.525, will be determined according to qualifications and experience.

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

Candidates must be registered architects by examination, possess a recognised qualification in Town Planning and have adequate experience in Town Planning work. The work is of an interesting nature including a Redevelopment Scheme and general expansion following recent industrial development. Housing accommodation will be provided if required.

development. Housing accommodation will be provided if required.

Preference will be given to duly qualified candidates who have served with any of H.M. Forces during war time, provided the Council is satisfied that such candidates can or will within a reasonable time be able to discharge the duties efficiently.

a reasonable time be able to discharge the efficiently.

Applications giving date of birth, full particulars of qualifications and experience, together with two recent testimonials, must be lodged with the undersigned not later than 12 noon on Friday, 11th March, 1960.

The appointment is subject to the sanction of the Ministry of Health and Local Government.

Dated this 9th day of February, 1960.

R. LYTTLE,

Town Clerk.

Gardenmore House, Larne, Co. Antrim, N. Ireland.

BEDFORDSHIRE COUNTY COUNCIL
(Amended Advertisement)
Applications are invited from suitably qualified persons for two posts of ASSISTANT AREA PLANNING OFFICER in County Planning Dept.. Salary within scale £1,056–£1,220. Application forms and further particulars from Establishment Officer. Shire Hall, Bedford. Closing date 29th February.

29th February.

BRITISH TRANSPORT COMMISSION
OFFICE OF THE ARCHITECT
SENIOR ASSISTANT ARCHITECT
SALARY Range: £1,200-£1,420 p.a.
Applicants must be Associates of the R.I.B.A.
with experience in architectural practice and
combine design ability with a practical approach
to office procedure. Work dealt with covers wide
range of large modernisation projects connected
with all activities of the Commission.
Superannuation scheme; certain travel facilities; medical examination. Write stating age,
qualifications and experience to Director of
Establishment. British Transport Commission,
222 Marylebone Road, London, N.W.1, within
14 days; addressed envelope for acknowledgment.
8496

CITY OF SALFORD
APPOINTMENT OF TOWN PLANNING
ASSISTANT
qualified persons for the position of Town Planning Assistant in the office of the City Engineer and Surveyor (G. A. McWilliam, B.Sc., A. M.I.C.E., A.R.I.C.S., M.I.Mun.E.). The salary will be within the scale A.P.T. I-II (£610 per annum to £880 per annum).
Applicants must have previous town planning experience and should have passed the intermediate examination of an appropriate professional body—preferably the Town Planning Institute.

Institute.

The post is subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service, the Standing Orders of the City Council, and the passing of a medical examination, and is terminable by one calendar month's notice.

Applications stating age, education, qualifications, and details of experience, together with the names and addresses of two referees, should be sent to the City Engineer & Surveyor, Town Hall, Salford 3, Lancs., to arrive not later than Monday the 29th February, 1950.

R. RIBBLESDALE THORNTON,

Town Clerk,

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LANCASHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT
Applications are invited for the permanent appointment of LAND SURVEYOR and VALUER within the salary scale £785-£1,070.
Applicants must be Associate Members of a recognised professional institution. Work involves the selection, surveying, acquisition and leasing of sites and properties for all purposes of the County Council.
Application forms obtainable from and returnable to The County Architect, P.O. Box 26, County Hall, Preston, by 1st March, 1960.

BRORDIGH OF LEVYON

BOROUGH OF LEYTON
(in the County of Essex)
(COMMITTEE FOR EDUCATION
APPOINTMENT OF ARCHITECTURAL
ASSISTANT

Signified for the perman

Applications are invited for the permanent appointment of ARCHITECTURAL ASSISTANT Grade A.P.T. II 765-4880 per annum, plus London Weighting. The successful applicant will be employed by the Essex County Council, and will work in the School Architect's Section of the Borough Engineer and Surveyor's Department. Town Hall, Leyton, E.10. Five-day week is operated.

Details and form of application from the Borough Education Officer, Education Offices, Kirkdale Road, Leytonstone, E.11, to whom the School and the Council and Monday, 7th March, 1960.

D. J. OSBORNE, Town Clerk.

Town Hall, Leyton, E.10. BOROUGH OF ENFIELD BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT

Applications are invited for the post of ARCHITECTURAL ASSISTANT, Grade A.P.T. I (£610-£765 per annum, plus a London Weighting Allowance of £10-£30 per annum according to

Allowance of £10-£30 per annual age).

Applicants must have had experience in the preparation of plans, specifications, etc., including the maintenance of public buildings.

Saturday mornings are normally free of duty. Application forms obtainable from H. D. Peake, M.Sc.(Eng.), M.I.C.E., Borough Enginet & Surveyor, 7 Little Park Gardens, Enfield. Middx., returnable to the undersigned.

CYRIL E. C. R. PLATTEN, Public Offices.

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

Public Offices. Enfield, Middx.

BIRMINGHAM REGIONAL HOSPITAL
BOARD
ARCHITECTS DEPARTMENT

A) ASSISTANT ARCHITECTS (ref. Arch. 1)
Salary scale 1730-61,055 per annum. Starting
salary according to age and experience. Applicants must be registered architects having
passed the requisite examinations. Experience
of hospital planning and construction an advantage. Sound knowledge of architectural design,
working drawings, surveying and specifications
essential.

essential.
ARCHITECTURAL ASSISTANTS rch. 2)
Salary £545 (at age 21 years or over)—£765
per annum. Point of entry according to experience. Inter-R.I.B.A. essential.

\$\frac{1}{2}\$ ASSISTANT QUANTITY SURVEYORS (ref.

Arch. 3)
Salary scale £730-£1,055 per annum. Starting salary according to age and experience. Final R.I.C.S. and experience in taking off and praparing bills of quantities and settlement of final accounts essential.

(d) SURVEYING ASSISTANT (BUILDING)

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Written red and .B., 10, March, 8438

ISLE OF ELY COUNTY COUNCIL
RE-ADVERTISEMENT
(OUNTY ARCHITECT'S DEPARTMENT
Applications are invited for the following
appointments:—
(a) SENIOR ASSISTANT ARCHITECT A.P.T. IV.
40.65—£1.20 p.a. Must be A.R.I.B.A. with
some experience.
(b) ASSISTANT ARCHITECTS Special Grade.
£785—£1.070 p.a. A.R.I.B.A. or should have
completed Parts I and II of the R.I.B.A.
Final examination, or have completed a
course at a School of Architecture.
(c) ARCHITECTURAL ASSISTANT A.P.T. II.
£765—£880 p.a. Previous experience necessary and should have passed R.I.B.A. Intermediate examination.
Extensive programme of work in Education and
social Welfare buildings in an office organised on
a Team basis and where the scope offered will
entirely depend on the efforts and ability of the
persons appointed.
All posts are subject to Standard Conditions
and to the passing of a medical examination.

persons appointed.

All posts are subject to Standard Conditions and to the passing of a medical examination. Assistance towards removal expenses.

Application forms and further particulars are to be obtained from the County Architect, County Hall, March, Cambs., to whom they should be returned not later than 14th March, 1960.

R. F. G. THURLOW.

Clerk of the County Council.

8497

Clerk of the County Council.

3497

ARCHITECTS AND BUILDING SURVEYORS
Vacancies in Architect's Department, London County Council, for Architects or Building Surveyors experienced in surveying existing buildings, preparing sketch schemes, working drawings and specifications and supervising works in progress, for the complete internal replanning and modernisation of the older blocks of Council flats (jobs up to £50,000).

Applicants should have initiative, a real interest in this type of work and the ability to act on their own judgment since the maximum opportunity will be afforded for each to carry his own job through from survey to completion. Salaries ranging from £700-£1,135 (under review). Promotion by merit.

Application form from Hubert Bennett, F.R.I.B.A., the Architect to the Council, County Hall, S.E.I., quoting ref. AR/EK/25/60. (210.)

8495

ROYAL BURGH OF AYR
APPOINTMENT OF CHIEF ARCHITECTURAL
& TOWN PLANNING ASSISTANT
Applications are invited for the post of Chief
Architectural & Town Planning Assistant in the
Department of the Burgh Surveyor at a salary of
£1,040-€1,120 per annum The post is superannuable.

£1.040—21.120 per annum The post is super-annuable.

Applicants should be A.R.I.B.A., and member-ship of the Town Planning Institute would be an advantage. Applications, giving age, qualifi-cations and experience, together with two copies of recent testimonials, should be sent to the undersigned by 12 noon on Saturday, 27th Feb-ruary, 1960. Housing accommodation may be made available to the successful applicant, if required.

ROBERT C. BROWN

ROBERT C. BROWN, Town Clerk

Town Buildings,

Ayr.

8th February, 1960.

8th February, 1960.

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

Applications are invited for the following appointments:

(i) ASSISTANT QUANTITY SURVEYOR, salary within the Snecial Scale £785—£1,070. Applicants must be chartered quantity surveyors, preferably with experience in municipal housing including multi-storey flats and shooping centres.

(ii) ASSISTANT ARCHITECT. Special Scale. £785—£1,070. Applicants must have passed Parts I and II of the R.I.B.A. Final examination and have had experience in housing design and construction and estate layout, preferably with a municipal authority.

(iii) ARCHITECTURAL ASSISTANT. A.P.T. Grade II. £765—£880. Applicants are required to have passed the Intermediate R.I.B.A. examination or its equivalent at one of the recognised schools of architecture, and preferably have had experience in local government housing.

any have had experience in local government housing.

The appointments are subject to N.J.C. conditions of service.

Consideration will be given, if necessary, to the provision of housing accommodation.

Apply on application forms obtainable from the Borough Engineer and Surveyor. Civic Centre.

Southampton, by Monday, 7th March, 1969. 8437

NOTTINGUAMSHIRE COUNTY COUNCIL APPOINTMENT OF ASSISTANT ARCHITECT Applications are invited from suitably qualified persons for the post of Assistant Architect in the Minor Works Group within the Department.

ned persons for the post of Assistant Architect in the Minor Works Group within the Department.

Duties include preparation of sketch plans, working drawings and details of new buildings, and alterations and extensions to existing buildings. Previous Local Government experience is not essential.

Salary range £785-£1.070 per annum.

Forms of amplication from the County Architect, County Hall, West Bridgford. Nottingham, to whom they should be returned as soon as possible.

A R DAVIS.

A. R. DAVIS

Clerk of the County Council.

8435

HUNTINGDONSHIRE COUNTY ARCHITECT'S DEPARTMENT ARCHITECTURAL ASSISTANT—Grade A.P.T

II (£765—£380).

Applications are invited to fill a number of appointments which exist in the above Depart

appointments which exist in the above department.

The persons appointed will become members of small architectural teams engaged in projects of varying size. It is desired that the persons appointed shall be keenly interested in architecture with an up-to-date approach to both planning and design.

Application forms may be obtained from the County Architect, County Buildings, Huntingdon.

County Buildings, Clerk of the County Council.

County Buildings.

CITY AND COUNTY OF

County Buildings.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE CITY ARCHITECT'S DEPARTMENT Applications are invited for the undermentioned vacancies on the permanent staff of the City Architect's Department:

SENIOR ASSISTANT ARCHITECTS (Housing)

—A.P.T. IV (£1,065-£1,220).

SENIOR ASSISTANT ARCHITECTS (General. Education, Housing or Re-Housing)—Special Class (£785-£1,070).

ASSISTANT ARCHITECTS (General. Education, Housing or Re-Housing)—A.P.T. II (£765-£880).

ARCHITECTURAL ASSISTANTS (General or Re-Housing)—A.P.T. I. (£610-£765).

and commencing salaries will be fixed within the above scales according to qualifications and experience.

These appointments offer excellent opportunities to play a vital part in the design and construction of a large and varied programme of normal Housing and Multi-Storey Flats, and/or a wide range of civic buildings, including Schools and Schemes for Further Education purposes: Divisional Fire Stations, a new Airport Terminal building for the City Airport, Clinics, Libraries and Art Gallery, and a Regional Abattoir and Cattle Market.

Application forms and full particulars may be obtained from George Kenyon, A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle-upon-Tyne, 1, to whom they should be returned not later than Thursday 10th March, 1960.

Applicants must clearly indicate when requesting particulars the Section of the Department and

be returned not pater than 1960.
Applicants must clearly indicate when requesting particulars the Section of the Department and the Grade for which they wish to be considered.
JOHN ATKINSON.
Town Clerk.

Town Hall, Newcastle-upon-Tyne, 1. February, 1960

EBBW VALE URBAN DISTRICT COUNCIL. Appointment of CHIEF ASSISTANT ARCHI-TECT (Non-designated post), Grade A.P.T. IV (£1,065-£1,220).

TECT (Non-designated post), Grade A.P.T. IV (11,065-£1,220).

An architect (Degree, Diploma or A.R.I.B.A.) is required to lead a small, but enthusiastic young group in the Architect's Department, working on the new Civic Ceutre in Ebbw Vale. The project includes Municipal Offices with Council Chamber and a covered swimming pool for immediate construction, and a large Public Hall to follow. Other interesting schemes include a small Public Hall. Community Centre and an extensive Housing Programme.

The salary will be in accordance with Grade A.P.T. IV, the appointment being subject to three months' notice on either side, to the passing of a medical examination, and is superannuable. Alternative Saturday mornings are free and there are Canteen facilities.

The Council will provide housing accommodation frequired and consideration will be given to the payment of reasonable removal expenses.

Ebbw Vale is situate in close proximity to the beautiful Usk Valley and Brecon Beacons National Park.

Forms of application may be obtained from the undersigned and applications are to reach him by not later than Wednesday, the 2nd day of March. 1960.

HOWARD J. WILLIAMS.

Clerk of the Council.

HOWARD J. WILLIAMS, Clerk of the Council.

Council Offices, The Walk, Ebbw Vale, Mon.

Ebbw Vale. Mon.

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
Vacancies for ARCHITECT/PLANNERS. Tasks
include three-dimensional planning in Comprehensive Development Areas and all other important areas of new development throughout London, including those associated with road improvements. Up to £1.35 (under review) according to experience and qualifications.
Application form and particulars from Hubert Bennett. F.R.I.B.A.. Architect to the Council. EK/23/60, County Hall S.E.I. (208.) 8244

LANCASHIRE COUNTY COUNCIL
Applications are invited from qualified ARCHITECTS of initiative, keen on design and modern constructional methods for a large and varied programme.

programme.

Permanent posts in A.P.T. Grade V (£1,220—
£1.375). Starting point according to experience.

Previous applicants should not re-apply.

Application forms from the County Architect.
P.O. Box 26, County Hall. Preston, quoting reference A/AJ.

8267

WORCESTERSHIRE COUNTY COUNCIL ARCHITECT-PLANNER required for urban renewal, particularly in shopping centres. Salary 61,065 rising to £1,220. Application forms and further particulars may be obtained from:

be obtained from:— The County Planning Officer, County Buildings Worcester (W.125).

The County Planning Officer, County Buildings.

Worcester (W.125).

NORTH RIDING EDUCATION COMMITTEE
Applications invited for the post of ARCHITECTURAL ASSISTANT; salary N.J.C., A.P.T.I.,
610 × £30—£765; commencing salary according
to previous experience; Local Government Superannuation; canvassing disqualifies; closing date
for completed applications 12th March, 1960.—
Further particulars from F. Barraclough, County
Hall, Northallerton.

CITY OF COVENTRY

Hall, Northallerton.

CITY OF COVENTRY
DEPARTMENT OF ARCHITECTURE AND

(a) SENIOR ARCHITECTS, A.P.T. IV (£1,065-£1,220). Planning or Architectural Divisions.
(b) ARCHITECTS, Special Grade (£755-£1,070).
(c) SENIOR PLANNING OFFICERS, A.P.T. IV.
(d) PLANNING OFFICERS, Special Grade.
(e) PLANNING ASSISTANT, A.P.T. I. (£610-£765).

4795).
Appointments may be made, according to experiuce qualification, within the Grade. Permanent
and pensionable subject to satisfactory medical

and pensionable subject to satisfactory medical history.
Housing accommodation in approved circumstances. Removal expenses loan.
Details and application forms from City Architect and Planning Officer, Council House.
Coventry, returnable 14 days publication.
Indicate clearly post applied for . 8439

COUNTY BOROUGH OF HALIFAX
BOROUGH ENGINEER'S DEPARTMENT
Applications are invited for the following appointments.
SENIOR ENGINEERING ASSISTANT, Grade
A.P.T. IV—el.065-£1.200.
ENGINEERING ASSISTANT, Special Grade—£785-£1.270.

ENGINEERING ASSISTANT, Special Grade—2785-£1.070.

ARCHITECTURAL (General and Housing)
ARCHITECTURAL ASSISTANT (Two appointments) Special Grade—2785-£1.070.

ARCHITECTURAL (Schools)
ARCHITECTURAL (Schools)
ARCHITECTURAL ASSISTANT, Grade A.P.T.
I—2610-2765 or Grade A.P.T. II—2765-£880 in accordance with qualifications and experience.
TOWN PLANNING
SENIOR TOWN PLANNING ASSISTANT,
Grade A.P.T. IV—21.065-£1.220.
TOWN PLANNING ASSISTANT (Two appointments) Grade A.P.T. I—2610-2765.
Applications stating age, education and training, qualifications, present and past appointments (with dates and salaries) and experience along with the names and addresses of two persons to whom reference may be made, should be delivered to the undersigned not later than Saturday, 27th February, 1960.

RICHARD de Z. HALL.
Transport Clerke.

RICHARD de Z. HALL. Town Clerk Town Hall, Halifax.

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

IMPERIAL CHEMICAL INDUSTRIES LIMITED, PLASTICS DIVISION, has vacancies for two ARCHITECTURAL ASSISTANTS of Final standard for employment in the Civil/Architectural Section of its Engineering Department at Welwyn Garden City.

It is implicit in the function of this Section that it should co-operate easily with other technical staffs both inside and outside the Chief Engineer's Department.

The work is interesting and varied and will include site development with multi-story R.C. and steel frame buildings to house manufacturing plant and all ancillaries such as offices, laboratories, amenity and welfare buildings.

Five-day, 39-hour week, Pension and Profit Sharing schemes in operation.

Apply briefly to the Staff Manager, Imperial Chemical Industries Limited, Plastics Division. Black Fan Road, Welwyn Garden City, Herts.

A SSISTANTS required for busy Architect's City office: Laboratory and Industrial projects. Intermediate standard or above. Apply to: Secretary. Fairflough and Morris. Temple Chambers. Temple Avenue, E.C.4. FLE. 6396.

PONALD WARD & PARTNERS have immediate vacancies for ASSISTANT ABCHITECTS with initiative and some experience. for interesting, commercial, industrial and civile projects. Salaries commensurate with ability. Apply, 29. Chesham Place, S.W.I. BELGTAVIA 3361.

ARCHITECTURAL ASSISTANT at Final standard required by Buckinghamshire office. Interesting and varied work with scope for initiative and responsibility. State age, exceptione and salary required to Box 5871.

ENIOR ARCHITECTURAL ASSISTANTS, and JUNIORS up to about Intermediate standard, required for varied industrial and commercial work in West End Office. Scope for initiative and advancement, Salary from £500 to £1.000 according to age and experience. Fiveday week. Write, giving full details, te Box 7220.

A ECHITECTURAL ASSISTANTS, Senior and Junior, required by firm in High Wycombe for commercial and industrial schemes. Scope for responsibility and experience. Five-day week. Box 6636

TREHEARNE & NORMAN, PRESTON PARTHERIES & NORMAN, PRISTON A PARTNERS, have vacancies for ARCHITECTS and ASSISTANTS with imagination and designing ability to assist with important saw developments in the London area. Apply in confidence to 85, Kingsway, London, W.C. (HOL. 4071.)

CHOL. 4071.)

QUALIFIED ASSISTANT ARCHITECTS required, minimum three years' office experience, preferably in London. Minimum salary 21,000 according to ability and experience. Theo. H. Birks. 38, Portland Place, W.1. LAN 7236. 7126

INTERMEDIATE standard ASSISTANTS required, minimum two years' office experience. Minimum salary 2750 according to ability. Theo. H. Birks. 38, Portland Place, W.1. LAN. 7236. 7127

ARCHITECTURAL ASSISTANT required, with at least two years' office experience. Apply in writing to Thomas Mitchell & Partners. 20, Bedford Square, London, W.C.1.

ARCHITECTURAL ASSISTANTS of Final and Intermediate standard required for work

A Intermediate standard required for work on industrial buildings. Excellent opportunities in an expanding London office. Apply, stating age, experience and salary range, to the Chief Architect, Nuclear Civil Constructors, 52/56, Carnaby Street, London, W.I. 7460

NORMAN & DAWBARN require experienced ARCHITECTS for interesting prolects
both here and overseas. Applicants should be
good designers. Salaries from 2900 upwards.
Phone or write for an appointment to 7. Portland Place. W.1.

EWIS SOLOMON. KAYE & PARTNERS, rapidly expanding practice, require ARCHITECTS and ASSISTANTS with initiative and competence to work on major design projects in the London area. These projects include Comprehensive Development Schemes, Hotels, Schools, Offices, and Luxury Flats. Good salaries according to ability and experience, uncheon vouchers, five-day week, and excellent working conditions. Write 5, Holborn Chrous, Thavies Inn House, E.C.1, or telephone CITy 8811, quoting SLB is both instances.

LARGE SCALE Development in London and Industrial Buildings in Home Counties. High office blocks and residential flats. Four ASSISTANT ARCHITECTS required. Sentor and Intermediate standard. West End Office. Piveday week. Good salaries and bonuses. Box 8086.

QUALIFIED ARCHITECT required. Bristol Unliffed ARCHITECT required. Briston.
Industrial/commercial experience. Scope
for individuality and freedom of expression. Good
salary. Interesting work. Pension
ASSISTANTS of Intermediate standard also required. Details of experience to W. H. Watkins,
Gray and Partners, 1, Clare Street, Bristol. 1.
7868

A RCHITECTURAL ASSISTANT required with A good general training, capable of taking charge of London Office. Good opportunity for progressive young architect. Write giving particulars of qualifications and salary required to Box 7870.

NORMAN & DAWBARN invite applications from ARCHITECTURAL ASSISTANTS at Internediate/Final standard with at least three years' office experience. Salary approximately 2900 upwards. Write to: 7. Portland Place, W.I. giving full particulars.

ARCHITECTURAL ASSISTANT with experisure one and willing to travel periodically to sunervise work for Schools and Villages for children in need of special care required for Aberdeen or London office. Permanent position, Salary 2700—2900. Write to Box 8259.

BEWCASTLE. Good salary to ARCHITECTURAL ASSISTANT of Intermediate or experience to Austin Child and Donald Hall, F/A.R.I.R.A. 6, Archbold Terrace, Newcastle upon Tyne, 2.

experience to F/A.R.I.B.A.. upon Tyne, 2.

KEBN ARCHITECTURAL ASSISTANTS.
Final and Intermediate Standards with desire for responsibility wanted immediately. Only good draughtsmen welcome. Site experience available, as well as drawing office. 5-day week. Details to Felix Walter. F.R.I.B.A.. 4 Raymond Puildings, Gray's Inn. W.C.I., or 'phone HOLborn 2005.

A SSISTANT ARCHITECTURAL DESIGNER required by the Richard Henry Design Unit. Good and speedy draughtsmanship essential, counsed with an ability to handle and develop details in the show fitting and interior design field. Apply in writing to Michael F. Tollit, Esn., Collingwood House, Mercers Road, N.19. 8289

A RCHITECTURAL ASSISTANTS REQUIRED.

A RCHITECTURAL ASSISTANTS REQUIRED.

ASSISTANTS, Inter-Final grade, first class work on Stores, Office Buildings, Factories, Dance Halls, etc. Five-day week, bonus scheme, luncheon vouchers, use of cars on job visits and for summer holidays, Pleasant surroundings with easy access to Morden Underground and Southern Electric Merton Park Station. 146, Mostyn Road, S.W.19. Tel.: LiBerty 3181.

JUNIOR required in Staff Architect's Department of well known City firm. Salary £6 to £7 per week. Apply Box 8227.

A RCHITECTURAL ASSISTANTS required at our Poole and Bolton offices, salaries £500— £1,000 according to experience. Reply to W. Leslie Jones & Partners, 59 High Street, Great Missen-

Jones & Partners, 59 High Street, Great Missenden, Bucks.

276

VACANCY FOR STAFF ARCHITECT

APPLICATIONS are invited for the above stuation which has become vacant with a firm of Contractors carrying out Estate development in the Banbury area. The work involved is the design and layout of various types of houses, planning roads and sewers and the supervision of their construction.

Excellent office accommodation is provided together with Secretary and other staff, and pirector, W. Timms & Sons, Ltd., Newland, Banbury, Oxon., with whom salary would be agreed according to qualifications and experience. 8250

TROPICAL ARCHITECTURE. W. H. Watkins & Partners require ASSISTANT of Intermediate-frial standard for Bristol office in connection with West Indies practice. Excellent opportunity. Possibility of future overseas appointment. Full details to R. Fraser Reekie, F.R.I.B.A., 14, St. Stephen's Street, Bristol 1.

ARCHITECTURAL ASSISTANTS. Four Intermediate or similar standard architectural assistants, must be good draughtsmen mainly for industrial work with considerable practical experience, required immediately. Salary ranging from £750 to £900 p.a. plus Christmas and holiday bonuses. Write giving full particulars in the first instance to: Barnes, Challen & Cross, Architects and Engineers, 74, Gloucester Place, London, W.1. Tel.: WELbeck 0297.

W.1. Tel.: WELbeck 0297.

JOHN & SYLVIA REID require an assistant ARCHITECT aged between 25 and 35, with a good educational background and at least 3 to 4 years' office experience, who is capable of becoming Senior assistant. Must be keenly interested in Architecture! and a wide variety of related design problems including caravans, furniture, domestic equipment exhibitions, etc. Good prospects for someone who is conscientious and welcomes responsibility. Please reply in writing stating age and salary required to 88. Tablot Road, Highgate, N.6.

SSISTANT for new office in Kingsway.

A SSISTANT for new office in Kingsway.

Attractive prospects. Must be able to use win initiative and have personality. Minimum intermediate standard with sound knowledge of building in London essential. State salary required. Box 2304.

required. Box 8304.

ENIOR ARCHITECTURAL ASSISTANTS
Prequired to work on Industrial projects,
having experience in handling complete contracts.
A.R.I.B.A. or Final standard. ARCHITECTURAL
ASSISTANTS of Intermediate Standard for work
on varied projects. Apply stating position
applied for, age, experience and salary required
to:—(Group Architect, Associated Electrical
Industries (Rugby) Limited, Mill Road, Rugby,
Warwickshire.

8290

A RCHITECTURAL ASSIGNATION

Warwickshire.

A RCHITECTURAL ASSISTANTS required.
Probationer up to Intermediate R.I.B.A.
level, or Students R.I.B.A. Facilities given for
study of design at London schools. Hare & Pert,
A./A.R.I.B.A., 29, Elm Street, Ipswich.
2223

A./A.R.I.B.A.. 29, Elm Street, Ipswich. 6223

ANCHESTER Office requires Intermediate to Final standard ARCHITECTURAL ASSISTANTS. Busy contemporary office. Ring Manchester Central 5777. 8225

ENFIELD, Middx. Established practice requires ASSISTANT. Interesting range of work: Hospital, Industrial, Domestic, etc. Fiveday week. Three weeks annual holiday. Apply in writing giving full details of training, experience and salary required to: E. William Palmer & Partners, Chartered Architects, 8, The Town. Enfield, Middx. 8229

Enfield, Middx.

ARCHITECT'S ASSISTANT required in Slough office, Final or Intermediate standard. Varied work in industrial, research, church and domestic buildings. Box 8230.

ARCHITECT'S ASSISTANT (preferably Final standard) required in Camberley, to work on own initiative. Box 8231.

on own initiative. Box 8231.

INTERMEDIATE STANDARD ASSISTANT required. Apply in writing, stating age, experience and salary required to Stovin-Bradford and Partners, The Red House, Market Square. Amersham, Bucks.

EICESTER. Progressive office required ASSISTANTS, all grades, permanent; varied and interesting work. C. Edmund Wilford & Son, 2, Hastings Street, Leicester.

221

T. CADBILLY REQWN. requires. ASSIS.

A TANT with some experience prepared to take charge of job. Salary e950. Write giving particulars, etc., to 17, Clarges Street, W.1. 8216

A RCHITECTURAL ASSISTANT, Intermediate standard, required, Small progressive Kensington office. Tel. Knightsbridge 6937. 8235

RCHITECTURAL ASSISTANT required by West End Architects, small busy varied clice, qualifications not essential, salary comsurate with ability and experience. Howard lly and Partners, 11, Duke Street, W.1. Well-7006

YOUNG ASSISTANT required. Good draughts man, Intermediate standard. Salary £400-£450 p.a. Five-day week. Telephone REGent 7551

A RCHITECTURAL ASSISTANTS required for once experience and sound knowledge of con-struction. Varied and interesting work. Apply stating age, experience and salary required to Box 8329.

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A SSISFANTS required in West End Architects'
Omce. Salary up to £1,300. Box 8046.

Two ASSISTANTS required: one at Intermenate standard and one qualified with
some years omce experience, for small busy office.
Salary according to experience. Ring LANgham
AGZ or write to F. G. Frizzell, A.B.I.B.A., 86,
Portland Place, W.I.

CAPABLE ARUHITECTURAL ASSISTANTS
(all grades) required in a modern office in hemei Hempstead. Interesting and varied work. State age, training, qualifications and/or experience. Box 7978.

Perience. Box 7978.

ARCHITECTURAL ASSISTANTS required in West End office. Should have good knowledge of building construction and several years' office experience. Box 7777.

COLLCUTT & HAMP will welcome applications from experienced and enterprising STUDENT ASSISTANTS who are eager to pursue their studies and to take a responsible part in the work of a varied, interesting and busy practice. The office is very pleasantly situated, and the staff, though young, are keen and experienced. Five-day week. Phone: PRI 5157. 86, Prince Albert Koad, Regents Park. 5017

ARCHITECTURAL ASSISTANTS required.

And experienced.

ARCHITECTURAL ASSISTANTS required,
R.I.B.A. Intermediate standard with some office experience. Varied and interesting work. Five-day week. Good salaries for keen and competent people. William Crabtree, F.B.I.B.A., 8. Bobert Adam Street, W.I. (WELDeck 9909).

ASSISTANT ARCHITECTS and STUDENTS are desperately required to help on scheme for hospitals, offices, colleges, housing, showrooms and a power station, scattered from Scotland to Nigeria, with ship interiors floating between. All the work, however, is done from our new offices in High Paddington. Please telephone for an interview. George, Trew and Dunn, Paddington bell.

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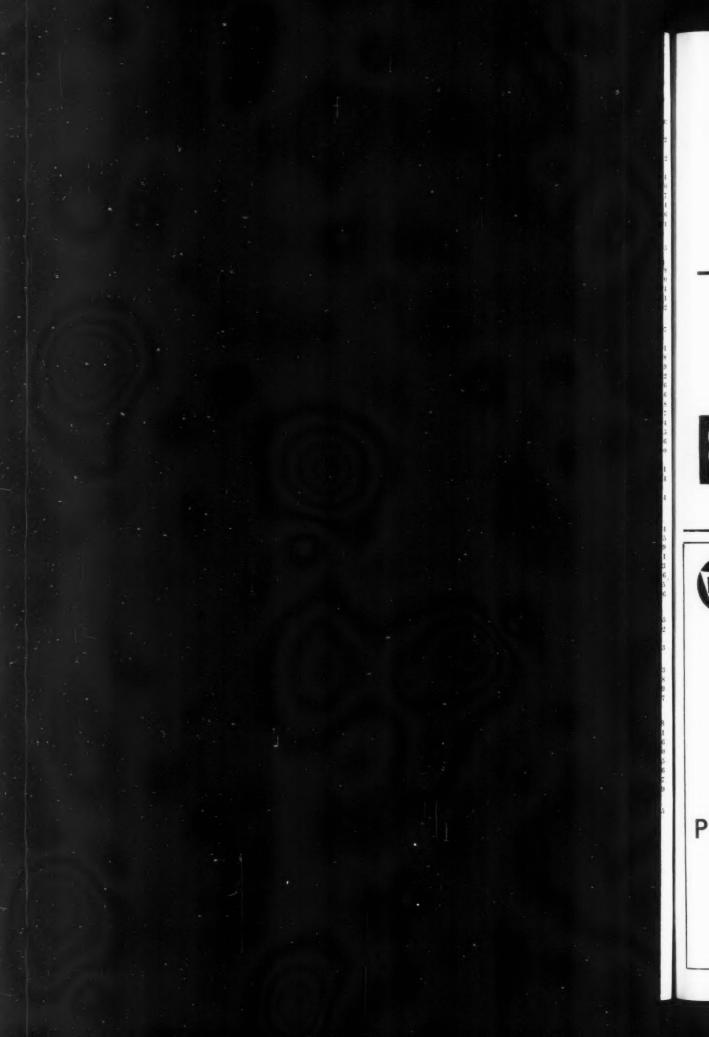
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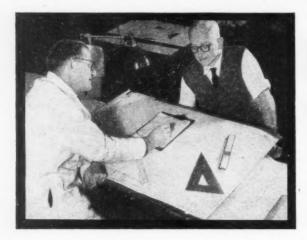
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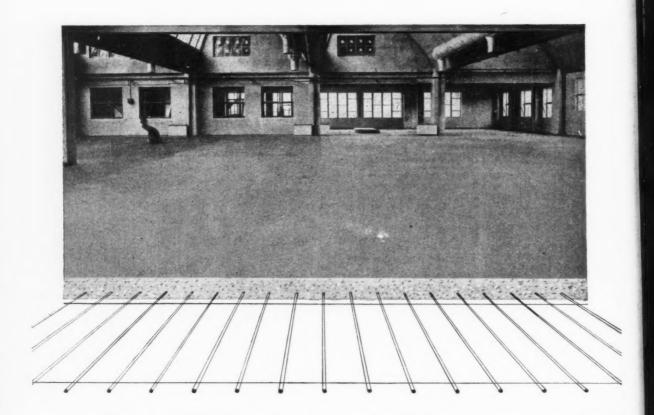
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