The Architects' JOURNAL for October 29, 1959

## ARCHITEC DURNA



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.

standard

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BIA

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

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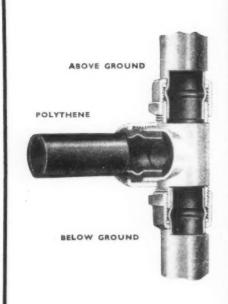
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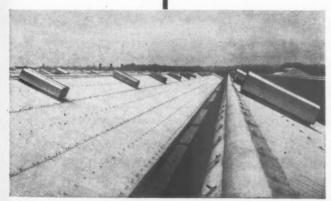
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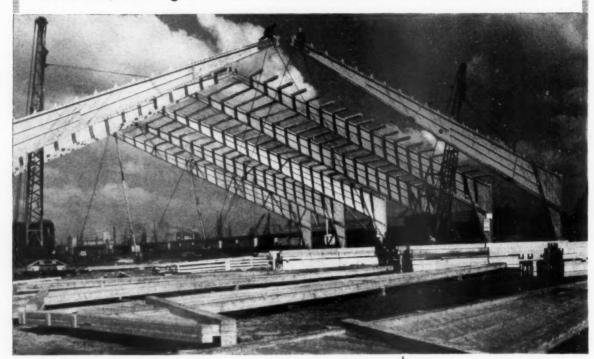
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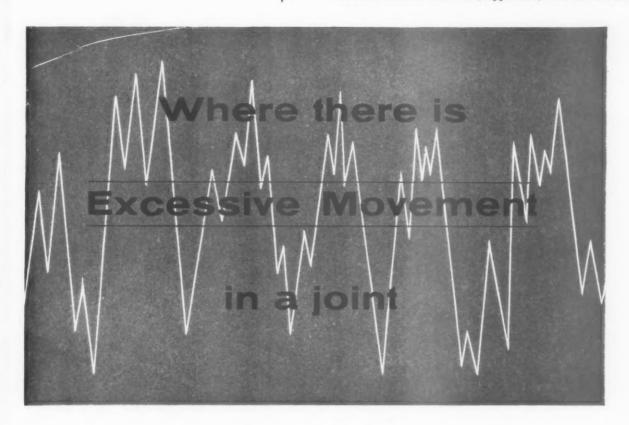
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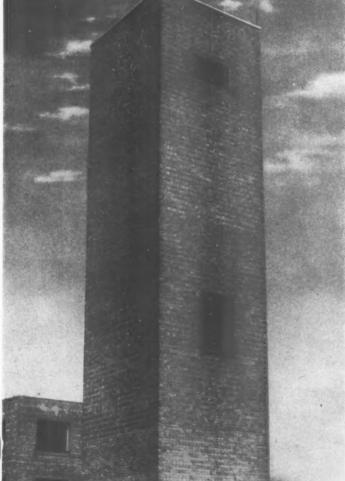
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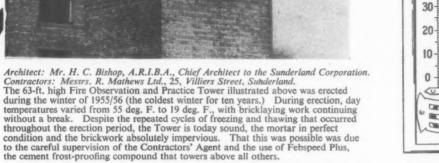
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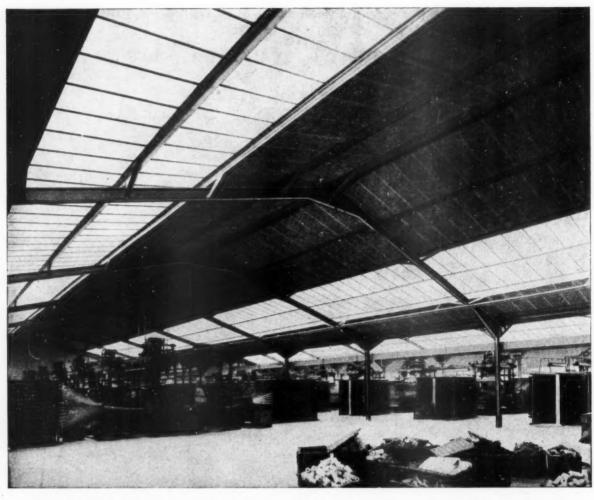
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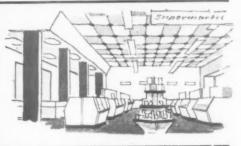


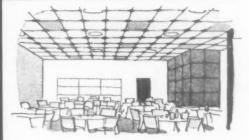
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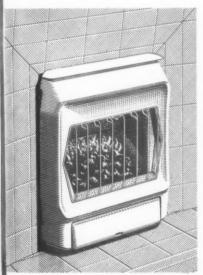
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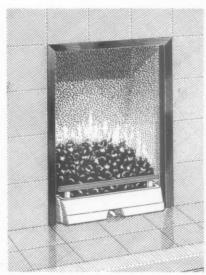
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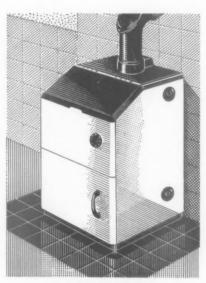
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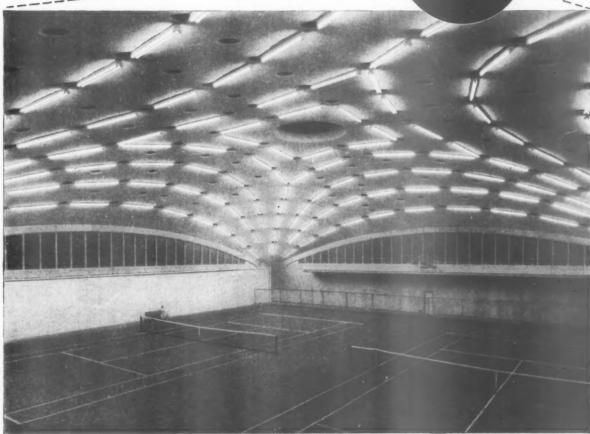
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The result, Celotex Flame Resistant Insulating Board—a tough, durable, light-weight sheet insulating material with a good light reflective surface requiring no further decoration. When fixed either over or under the Purlins with Celotex versatile metal fixing systems, it provides a complete economic answer to the most stringent requirements of the Thermal Insulation (Industrial Buildings) Act, 1957. It conforms to B.S. 476 Class I on both surfaces and when under test at the Joint Fire Research

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Redfyre 60



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provides superior standards of insulation and fire protection to those laid down in the new THERMAL INSULATION (INDUSTRIAL BUILDINGS) ACT, 1957

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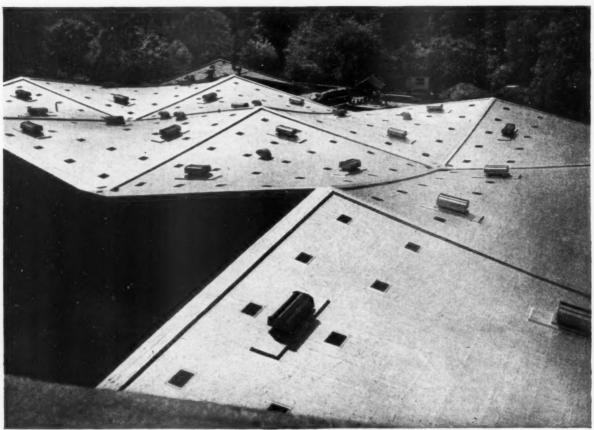
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Architects: Messrs. Johns, Slater & Haward Roofing Contractors: Wheelers Ltd., Sudbury

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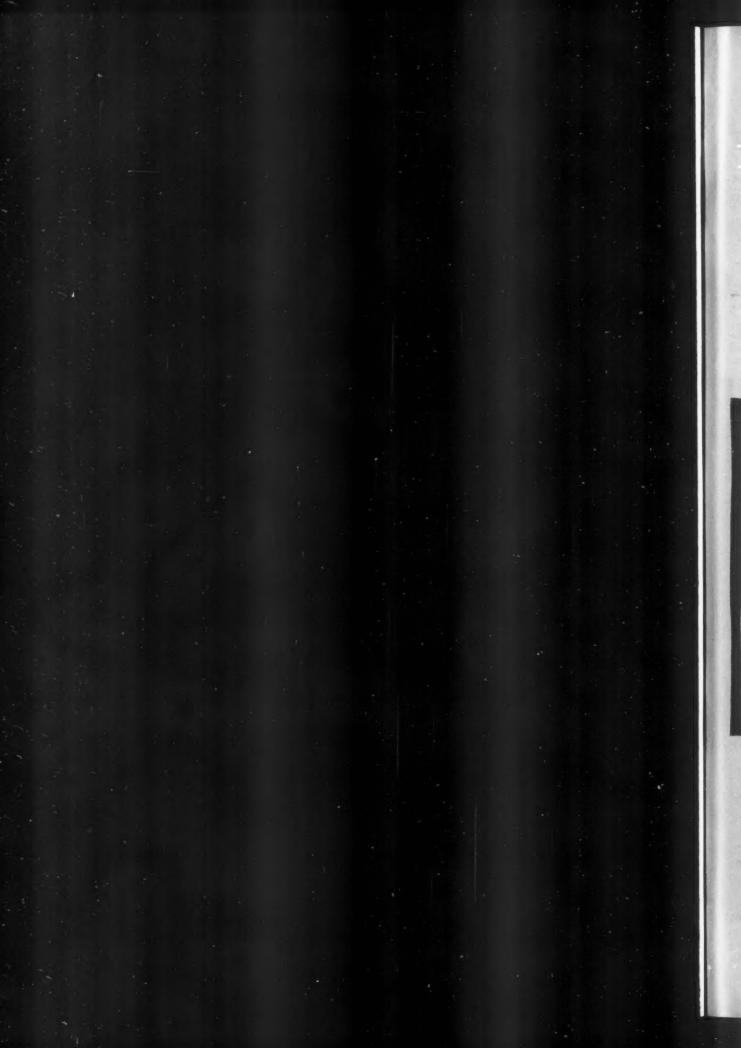
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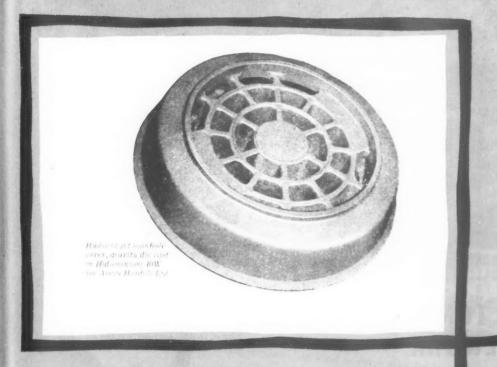
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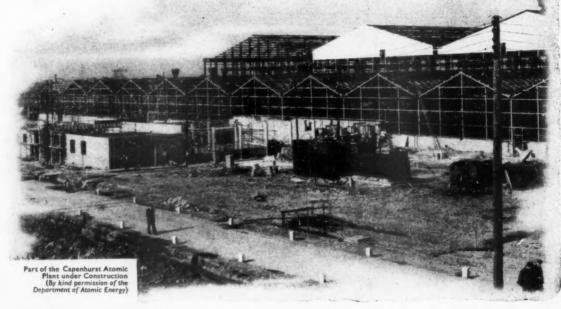
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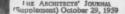
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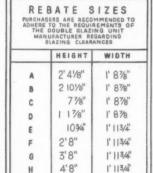
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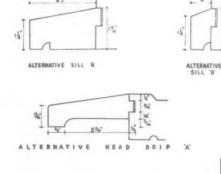
4'8"

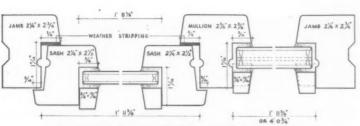
K

4' 03/4

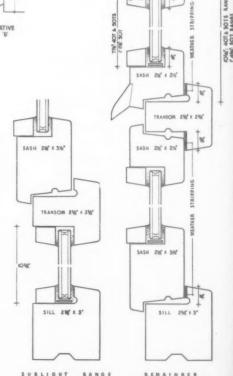
4' 034"

4 0 3/4"





DETAILS OF "EJMA" STANDARD CASEMENT WINDOWS (DOUBLE GLAZING UNITS)





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Illustrated on right:

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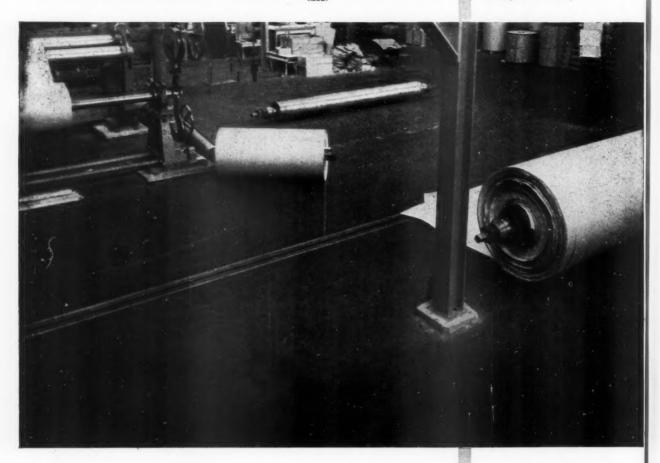
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#### GREVAK SENIOR

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# Every FORD



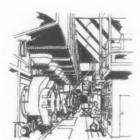
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Steam temperature
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forward on GOAL



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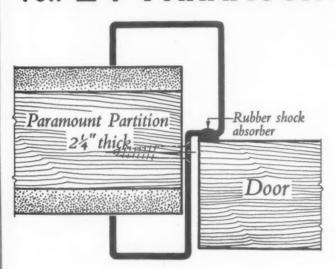
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# NEW STANDARD PROFILE FOR 24" PARAMOUNT PARTITION





Profile P is an addition to our standard range already made in profile A, B and C listed in our Door Frame Catalogue

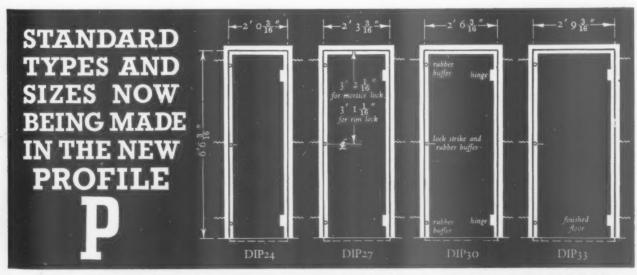
Beacon Steel Door Frames are manufactured from zinc—coated mild steel sheet of 18 BG and painted one coat of grey calcium plumbate rust-inhibiting primer before despatch. Each door frame is provided with the following:

6 csk. wood screws

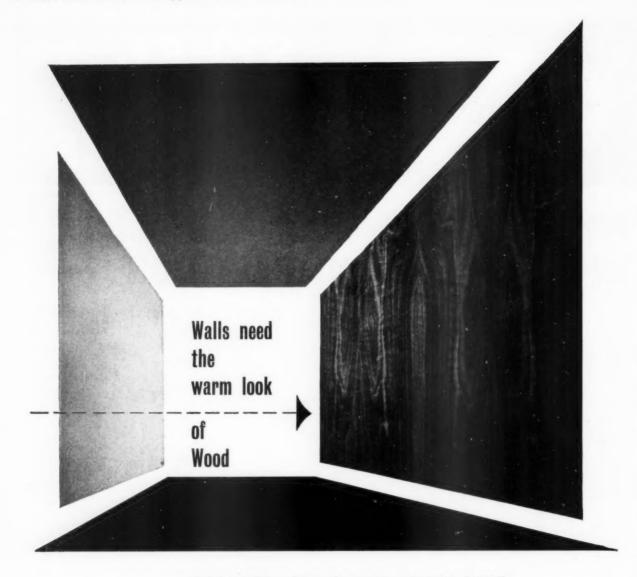
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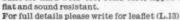
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# VENESTA FLUSH DOORS

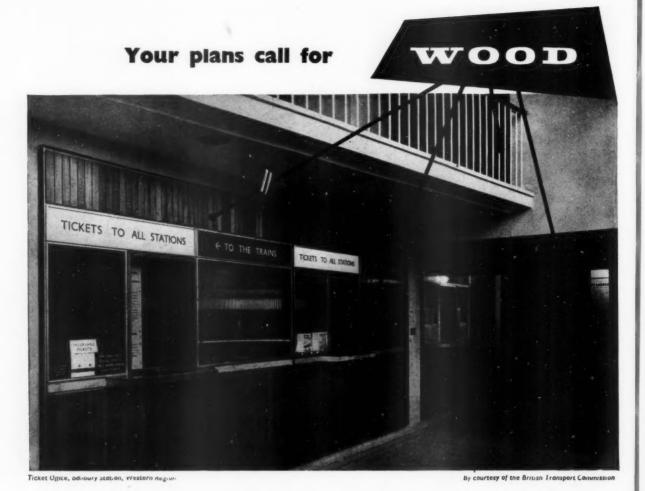
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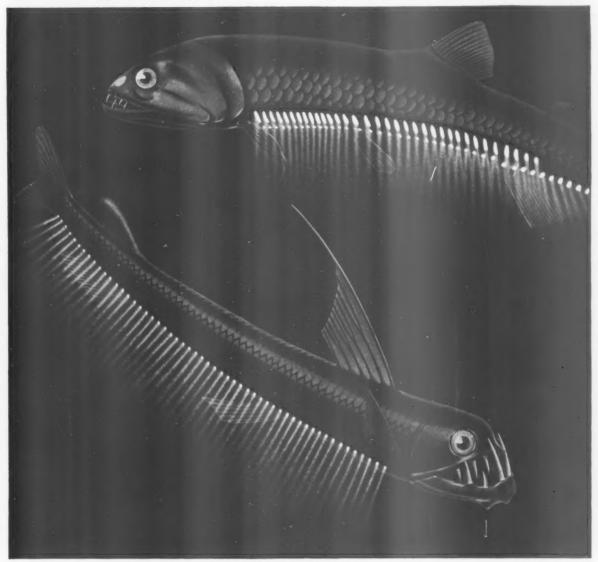




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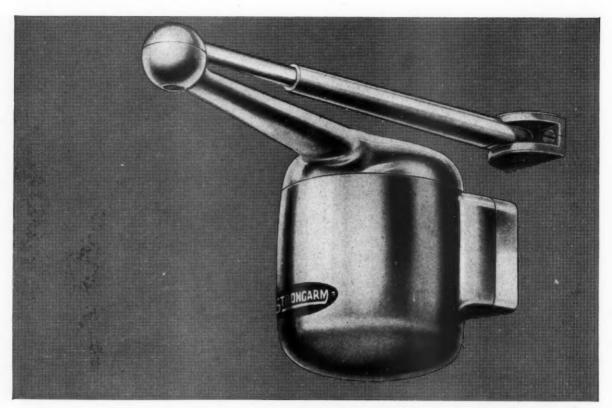
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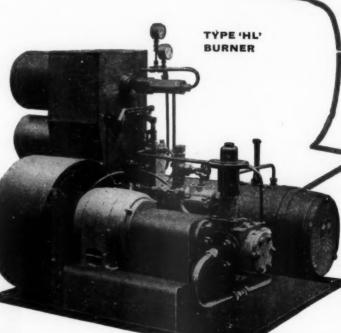
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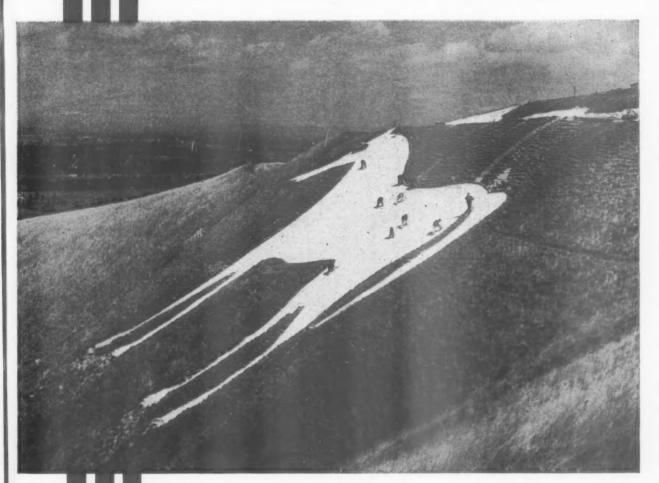
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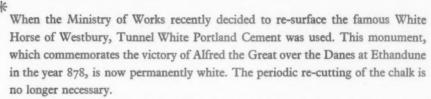


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For full particulars of Tunnel White Portland Cement and our wide range of Coloured Cements please write to our head office.



CEMENT

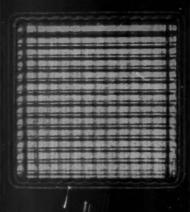




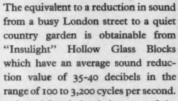
SORILAND CEMENT CO.

THE TUNNEL PORTLAND CEMENT COMPANY LTD. 105 Piccadilly, London, W.1. GROSvenor 4100

THE ARCHITECTS' JOURNAL appliement) October 29, 1959



reduce sound by about 35-40 decibels in the range 100 to 3,200 c/s

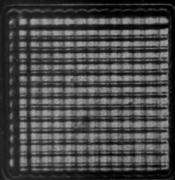


Sound Insulation is just one of the properties of this versatile building material. Others are:-

Thermal Insulation · Fire Retardance Good light transmission with diffusion

"INSULIGHT" is a registered trade mark of Pilkington Brothers Ltd. Supplies

are available through the usual trade



Privacy · Ease of construction Reduction of glare Little maintenance

Blocks are available in a range of attractive surface patterns, sizes and shapes. Further information is readily available from the Technical Sales and Service Department, St. Helens (telephone 4001) or Selwyn House, Cleveland Row, St. James's, London, S.W.I. (Whitehall 5672-6).

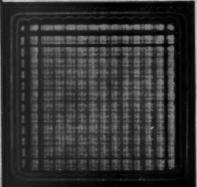


INSULIGHT Hollow Glass Bloc

A UNIQUE MULTI-FUNCTIONAL MATERIAL

Pilkington Brothers Limited ST. HELENS · LANCASHIRE







channels.

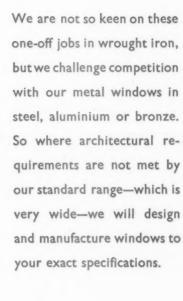
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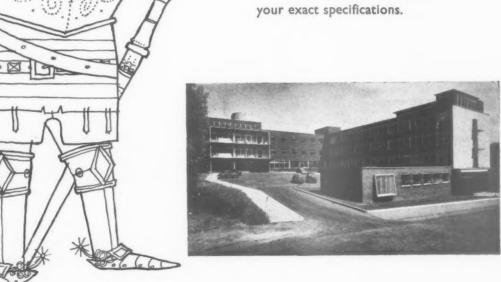
nited



# Braby

# PURPOSE MADE WINDOWS





# FREDERICK Braby & COMPANY LIMITED

LONDON: 352-364 Euston Road, London, N.W.I

Telephone: EUSton 3456

GLASGOW: Eclipse Works, Petershill Road, Glasgow, N

Telephone: SPRingburn 5151

CRAYFORD . LIVERPOOL . BRISTOL . BELFAST . PLYMOUTH



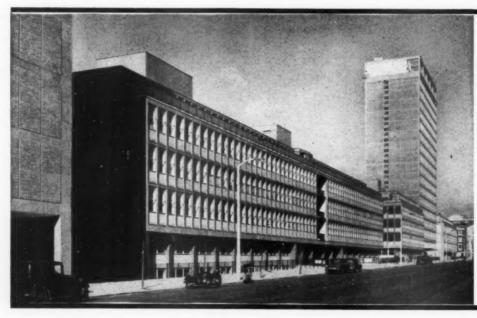
Aluminium Sash windows

ARE My FAVOURITE BECAUSE

I don't like draughts

and rattles and they

don't have any

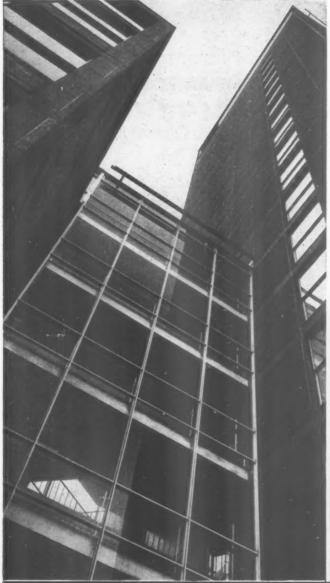


Despite the fact that this is one of Britain's tallest office blocks, it was up and occupied in the fantastically short time of 19 months.

Offices at Paddington.
Architects:
C. H. Elsom and Partners
Architect in charge:
F. P. Softley, A.R.I.B.A.

And she'd probably say that this is her favourite office block—the famous Eastbourne Terrace development at Paddington—it contains no less than 2,698 aluminium double-hung windows by Williams & Williams. This is the largest aluminium sash window contract carried out recently in this country.

The scheme occupies 1,000 feet of frontage along Eastbourne Terrace. The component buildings have been planned in varying sizes and heights to give each its own identity



WILLIAMS & WILLIAMS ALSO DID

### THE WALLSPAN CURTAIN WALLING

(The Wallspan clads the combined staircase and bridge structures which link the tower with the wings.)

# AND THE PURPOSE MADE BALUSTRADING

(2,050 feet of balustrading encircle the cornice of the wings. The rails are of aluminium, the upstands of steel for extra strength.)



and to make for flexibility in letting. All this has been done without sacrificing the unity of the design—partly by the consistent use of Williams & Williams double-hung windows.

forward looking building products

WILLIAMS & WILLIAMS

Williams & Williams make steel windows of every description. ALOMEGA and other aluminium windows, movable steel and glass partitioning. ALUMINEX patent glazing, wallspan curtain wailing and many other products,
WILLIAMS & WILLIAMS RELIANCE WORKS CHESTER WILLIAMS HOUSE 37-39 HIGH HOLBORN LONDON W.C.1



# A NEW STYLE IN SWITCH DESIGN

# The SHOCKPROOF FLIP-FLAP switch

Single unit

BROWN LB 8000 32/- DOZ.

WHITE LB 8020 35/8 DOZ.

IVORY LB 8040 37/8 DOZ.

Send for leaflet No. HPL 3040 giving details of the full range of FLIP-FLAP switches.



BRITMAC

the FLIP-FLAP leads the way

BRITMAC ELECTRICAL CO. LTD . BRITANNIA WORKS . WHARFDALE RD . TYSELEY . BIRMINGHAM 11

Telephone: ACOCKS GREEN 1191 (3 lines) . Telegrams: BRITMAC Birmingham

# There is nothing to equal LEAD for flashings to roof-lights



# THE LEAD SHEET AND PIPE TECHNICAL INFORMATION BUREAU

advises on the use of Lead in building work. Most of the many uses are detailed in the Association's publications, and in addition the Bureau's technical officers are always glad to give individual assistance.

# LEAD DEVELOPMENT ASSOCIATION

18, ADAM STREET, LONDON, W.C.2.

Telegrams: Leadevep, Rand, London.

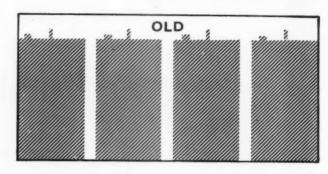
Telephone: WHItehall 4175

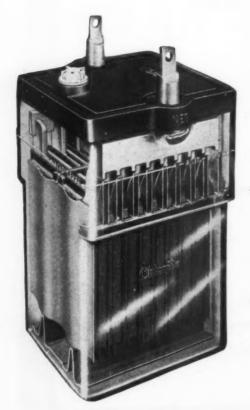
\* A new and important advance by Chloride Batteries Ltd

# Stand-by power in half the space—



# from the new CHLORIDE stationary cell





This new cell is specially designed for standby duties entailing discharge rates between, say, the 3-hour and the very high rates demanded for switch-closing purposes. With its Plante positive and pasted negative plates, Porvic microporous separators and many other improvements in material and in design, this light, robust cell will perform its duties with greater efficiency, with complete reliability and with a saving in battery space of approximately 50%. It is ideal for trickle-charge operation and has all the remarkable length of life associated with the Plante type of construction.

The field in which the new cell is designed to replace current Plante types is a very wide one. Emergency lighting\*, switch operation and emergency supply in hospitals, theatres, cinemas and other public buildings, both nuclear and conventional power stations, all rely on trickle-charged batteries. In Great Britain today such batteries occupy millions of cubic feet of valuable space. The new Chloride cell could free almost half of it.

\* The new cell will from now onwards be fitted in all Keepalite units
—the Chloride Company's automatic emergency lighting system.

By the makers of Exide Batteries

A PRODUCT OF CHLORIDE BATTERIES LIMITED . BACKED BY WORLD-WIDE SERVICE

Enquiries to: London, Elgar 7941; Bristol 64086; West Bromwich 2361; Leeds 20248; Glasgow, Bridgeton 3734; Manchester, Blackfriars 1158; Belfast 27953

# we make welded structures in tubular or sectional steel



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LIGHT SHELL ROOF FRAMEWORK

STAIRCASES

SHOW STANDS

STORAGE RACKS

**TOWERS** 

BRIDGES

RAMEWORK

Backed by experience

We fabricate Welded structures not only
Warrington where we have specialized in
Warrington where we have specialized Another
Warrington where we have specialized in
Warrington where we have specialized in the design
Union work for cover the Basin the design
Union Company Ltd., specializes in the design
I would be specialized in the design
Wisit us on Stand 62-63,
Row D, Building Exhibition,

Olympia, Nov 18-Dec 2

Can we make anything for you — from component parts to complete structures? Distance no obstacle. Design service if required.

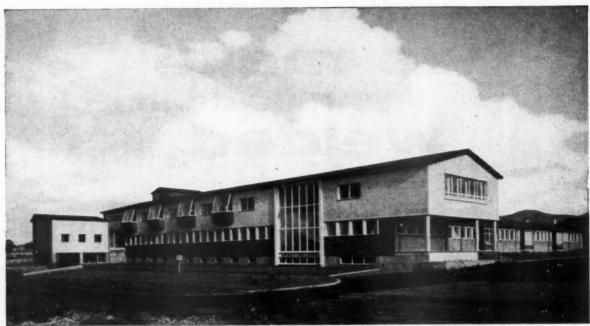


WELDED STEEL CONSTRUCTIONS

STEEL SCAFFOLDING CO. LTD

Head Office & Works: Union Road, London S.W.4 Macaulay 6666

TA 969



SIGHTHILL HEALTH CENTRE — designed by the Department of Health for Scotland.

# Electric floor warming at the Sighthill Health Centre

Fully controlled warmth

Loadings

A variety of floor finishes tested

Results

Sighthill was designed as an Experimental Centre under the National Health Service Act. The building forms a hollow square round a central courtyard. The north wing holds administrative departments on the ground floor and dental theatres on the first floor. The south wing houses the joint services departments. The east wing comprises child welfare services and the west wing is divided into six medical suites.

The building is heated by electric low temperature underfloor radiant heating. This is thermostatically controlled and designed to maintain against an outside temperature of 25°F. the following inside temperatures: surgeries, recovery and X-ray rooms 70°F.; passages and lavatories 60°F.; kitchen 52°F.; other rooms 65°F. Electrical intake is "off peak" and available between 7 p.m. and 7 a.m., and 11 a.m. and 3 p.m.

Total loading amounts to 262 kW and is designed for off-peak operation. This load comprises 232 kW embedded in the concrete floors and 30 kW in concealed wall panels. The total floor area of the building is 35,000 sq. ft.

Floor finishes laid were: wood block, cork tile, thermoplastic, mastic asphalt, Caithness stone slabs and terrazzo. All these have given very satisfactory service under heated floor conditions.

The installation has been running for over five years and the average annual consumption for floor warming purposes is 418,960 units costing £1,400.

Thermograph records were taken during the winter 1955/56. These show that when, in February 1956, the mean daily outside temperature was 22.6°F., the maximum drop in inside temperature during the cut-off period was only 2.6°F. Even under these extreme conditions the internal air temperature did not fall below 60°F.



Electrical Development Association, 2 Savoy Hill, London, W.C.2. Telephone: TEMple Bar 9434.



Though surfaces vary ...

the specification

remains the same

The "beauty" of Number Seven decorative finishes is two-fold—their lasting "eye" appeal and their unique variety of applications both interior and exterior. With the suitable primer you can now specify Number Seven Exterior Flat Finish for nearly every standard surface—wood, metal, brick, plaster, concrete—and thus eliminate estimating and ordering complications as well as time wasted in mixing and matching colours. An impressive list of recent contracts is proof of Number Seven's outstanding success in all types of contracts.

(Artist's impression)

Davyhulme Golf Club.
Number Seven specified by A. N. Potter Esq. M.I. Mun. E.
Painting Contractors: Arthur Wardle (Builders) Ltd.





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# NUMBER SEVEN

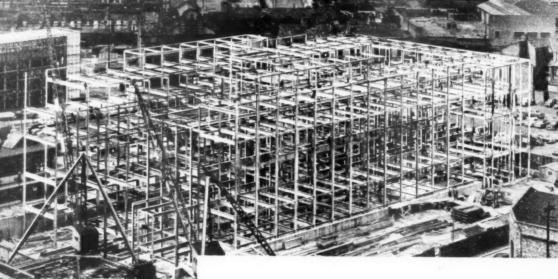
### NUMBER NINE

Where a textured finish is desired, Cementone No. 9 Waterproof Stoneface Composition is exclusively prepared for brick, cement rendering, reinforced concrete, asbestos-cement, plaster, and compo-board surfaces. Alkali-resistant, No. 9 matures to a natural stone finish and is available in ten colours.

Number Seven is available in a range of fifty-four matching colours as a gloss, satin or interior and exterior flat finish. Write for colour card and standard specifications.

You can depend on Cementone products

JOSEPH FREEMAN, SONS & CO. LTD., CEMENTONE WORKS, WANDSWORTH, LONDON, S.W.18 Telephone: VANdyke 2432 (10 lines)



**MANCHESTER** COURTS OF LAW

> Architect: Leonard C. Howitt, M.Arch, DipT.P, D.P.A, F.R.I.B.A, M.T.P.I. City Architect, Manchester

BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION



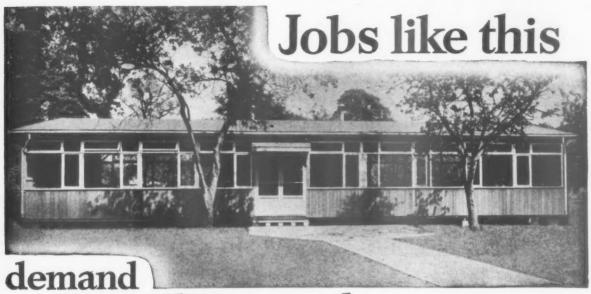
Artillery House, Artillery Row Westminster, S.W.I



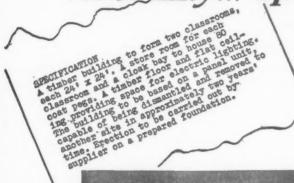




# **CASE RECORDS FROM THORNS' FILES-2**



versatility... speed... economy...





FAIRFORD FARMOR'S SECONDARY
MODERN SCHOOL near Circnecester, Glos.

Photographs by courtesy of the County Architect, Gloucestershire County Council.



Thorns' Contemporary Design, which conforms to Ministry of Education recommendations for school buildings, was eminently adaptable for this requirement. The consequent saving in time and cost was substantial. A trained THORNS' team was ready to start erection as soon as the foundations were completed.

The size agreed upon was 60ft. × 24ft. × 8ft. 6in. eaves. Walls were clad with vertical tongued and grooved boarding of Western Red Cedar with building paper behind, and lining of hardboard and insulation board. Partitions, similarly lined, were fitted to plan. The floor was constructed of tongued and

grooved boards on joists, with sleeper plates. Rain-water goods were included in the contract.

# **THORNS**

THORNS' prefabricated sections, as used at Fairford Farmor's School, are available on a 6ft. multiple basis.

All or any part of the construction work is undertaken by THORNS, at the client's request. Catalogue of designs and prices on request. Ask THORNS to quote for your own job.

J. THORN & SONS, LTD., (Dept. 188) BRAMPTON ROAD, BEXLEYHEATH, KENT

B.D. 510



Anthony van Leeuwenhoek (1632-1723)
"The father of microscopy"

# Pioneers...

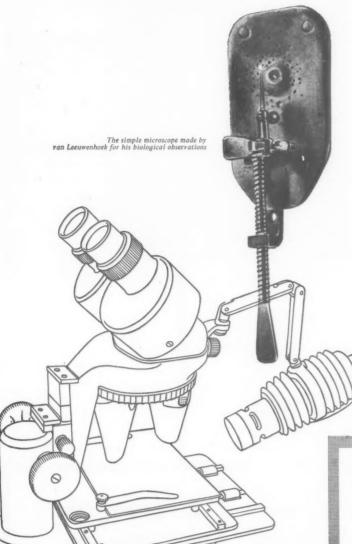
Man's inventive urge has ever impelled him to create and to improve upon accepted practices. A typical example of this inherent trait is to be found in the work of Anthony van Leeuwenhoek who, from the first microscope invented by Zacharias Jansen, developed a compact and efficient instrument to help him in his biological studies.

This consisted of a metal plate with a lens insert, a spike for holding the specimen and an adjustable screw for focussing. Van Leeuwenhoek's microscope was so successful that for many years his biological discoveries could not be confirmed owing to the lack of comparable equipment. Similarly, whilst the first crude switches and switched socket-outlets were invented during the "wooden age of electricity", the Crabtree Company successfully pioneered the development of high efficiency tumbler switches and switched socket-outlets of compact proportions. By reducing the cost of domestic installations, these new wiring accessories played an important part in the wider development of electrical service.

The Crabtree Company will continue to exert a vigorous influence on the design and development of electrical equipment for protection and control.

... Manufacturers of

Elec



A modern stereoscopic microscope for 3-dimensional viewing

# CRABTREE

J. A. CRABTREE & CO. LTD., LINCOLN WORKS, WALSALL

Electrical Control Equipment

# Wiring Accessories

Type AC and AC/DC tumbler switches of all types. Ceiling and suspension switches.

13 amp. socket-outlets and other ring-circuit wiring accessories.

2, 5 and

15 amp. socket-outlets. Plugs of all types. Ceiling roses, lampholders and bell pushes. Industrial wiring accessories.

### Circuit Breakers

Miniature (moulded case) circuit breakers in single pole, double pole, and triple pole and neutral patterns up to 60 amp. Earth-leakage circuit breakers in double pole, and triple pole and neutral patterns up to 60 amp. Distribution boards.

### **Control Gear**

Air-break contactor starters for motors up to 70 h.p. Oil-break contactor starters for motors up to 15 h.p. Hand-operated starters for small motors. Remote push-button stations for general purpose, weatherproof and flameproof applications. Limit switches. Pilot light and indicator units. On-load isolating switches.

# Heard the news from WEYROC?

As a result of increased production from new automatic plant . . .



WEYROC has always had the reputation of being the board you can trust—to do so many jobs, so well. Now, new developments put WEYROC even further ahead as the board of choice for the Building and allied Trades.

Blue Label weyroc has been discontinued and in its place comes a new, improved form of weyroc... in quantities never possible before. This new, improved weyroc is lightweight, strong, stable and durable, with smooth-sanded moisture-resistant surfaces for easier working. In short, a very much more precise board than before. As such, it has marked advantages for almost every job in building\* which calls for flat-form timber. This new weyroc is available...

in a choice of boards.

# weyroc '34'

layer construction board 8' x 4' boards

weilee '38'

graded density board 12', 8' and 4' x 5'8" boards

SEE US AT THE BUILDING EXHIBITION NOV. 18 – DEC. 2

Stand Nos.

572 & 574
Grand Hall Gallery
OLYMPIA

Both boards produced in  $\frac{1}{2}$ ",  $\frac{5}{6}$ " and  $\frac{2}{4}$ " thicknesses nominal and cost between  $1/1\frac{1}{4}$ d. and 1/6d. per sq. ft. (according to thickness).

Although these Boards are almost identical in strength characteristics and surface properties, we recommend WEYROC '34' particularly for the Building Trades. This is because it is available in the standard building board size and because it has a slightly higher impact resistance.

N.B. These Boards are not suitable for suspended flooring.

Top:

Fash

Desi

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Arch

Botte

Shop

Syste

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Shop Desi

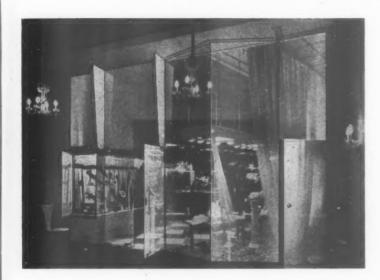
As Blue Label WEYROC has now been discontinued, this means that there is at present no WEYROC board for flooring. However, it is our intention to produce a new, special flooring grade in the very near future.

Medioc

one of the world's great man-made materials

WPS 7

# **ALL-GLASS CONSTRUCTION**



is provided by

THE CLARK-EATON 'BLACKFRIARS' SYSTEM

for all-glass entrances and surrounds

and

THE CLARK-EATON
'S.H.' GLASS CEMENT
TECHNIQUE

for continuous shopfronts and arcades.

Illustrations show how they can be used individually or in combination to great advantage.

### Top:

Fashion Shoe Shop for T. Elliott & Sons Ltd., Caltex House, Brompton Road, S.W.3.

Designed and installed by W. T. Booth Ltd., Kingston-on-Thames.

### Right:

Arcade Showrooms with  $\frac{5}{18}$  in. to  $\frac{2}{8}$  in. Plate Glass jointed with 'S.H.' Glass Cement and support clips.

Harrison Gibson Ltd., Bromley. Architect: Donald Forrest, A.R.I.B.A. Shopfitters: Frank W. Clifford Ltd.

# Bottom right:

Shopfront entrance showing §in. 'Armourplate' Glass Doors and surround in the 'Blackfriars' System of All-Glass Construction. Shopfronts in §in. Plate Glass constructed with 'S.H.' Glass Cement joints, incorporating Glass stiffeners and support clips.

Shopfront for Davis's (Woolwich) Ltd.

Designed by Bernard J. Owen and installed by own Building Department.



Full technical service available. Literature on request.

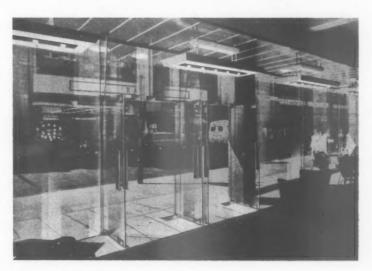
# JAMES CLARK & EATON LTD.

SCORESBY HOUSE, GLASSHILL STREET, BLACKFRIARS, LONDON, S.E.I.

Telephone: WATerloo 8010 (20 lines)

Branches: Canterbury, Bournemouth, Eastbourne, Reading, Oxford (H. Hunter & Co.).







SCHOOL CONSTRUCTION SYSTEM

GY GY GY GY

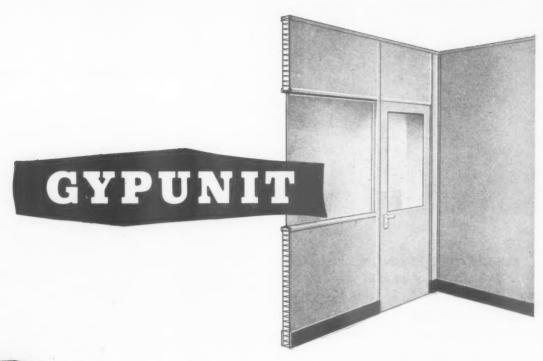
G

G P

THE G

School

HILLS (WEST BROMWICH) LTD., ALBION ROAD, WEST BROMWICH, STAFFS. Branches at Manchester, Bristol, Newcastle-on-Tyne, London, Glasgow



# GYPROC products include:

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GYPROC WALLBOARD GYPROC PLANK GYPROC LATH GYPROC SARKING BOARD GYPROC SHEATHING GYPUNIT PANELS GYPROC COVE GYPROC PLASTERS

Paristone Browning Plasters Haired, Unhaired and Metal Lathing grades Paristone Wall Finishing Plaster Gypstone Board Finishing Plaster Cretestone Concrete Bonding Plaster Gyproc Metropolitan Stucco Gypklith Surface Filler Gyplite Ready-Mixed Plasters

UNIT CONSTRUCTION PRODUCTS Gypunit Partition System and Wall Linings Gypstele Roof and Wall Linings Gypstele Suspended Ceilings Plaxstele Suspended Ceilings Gyproc 2-inch Solid Partition

ACOUSTIC PRODUCTS Gynklith Acoustic Tiles Acoustic Gyproc Gyproc Slotted Acoustic Tiles Gyptone Acoustic Tiles Acoustele Suspended Ceilings Dekoosto Acoustic Plaster

THERMAL INSULATION PRODUCTS Gyproc Insulating Wallboard and Lath Gypklith Wood Wool Slabs Zonalex Mineral Insulation

Literature is readily available on any or all of these products.

....is one of the most versatile and economical systems of demountable partitioning

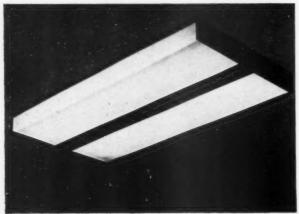
GYPUNIT Partitions are easily and speedily erected, light in weight, demountable and adaptable to individual requirements. The surface spread of flame classification is Class 1(B.S.476). For extra quietness there is a Double-leaf GYPUNIT Partition giving high sound reduction. GYPUNIT Partitions are described fully in "Architects' Journal" Information Sheet AB21G2. Copies available on request.

# GYPROC PRODUCTS LIMITED

Head Office: Singlewell Road, Gravesend, Kent. Gravesend 4251/4 Glasgow Office: Gyproc Wharf, Shieldhall, Glasgow S.W.1. Govan 2141/3 Midland Office: 11 Musters Road, West Bridgford, Nottingham. Nottingham 82101 London Office: Bath House, 82 Piccadilly, London W.1. Grosvenor 4617/9

Contracts Dept: Lacey Green, Aylesbury, Bucks. Princes Risborough 581/2

'GYPROC' IS THE REGISTERED TRADE MARK OF GYPROC PRODUCTS LIMITED



# Design plus Colour

Three new designs from the Harris and Sheldon Range of Fluoresecnt Fittings which are available finished in a range of 18 colours.

ABOVE:

# C.F.I. FOUR-TWO-ONE

To take four 5'-0" 80 w. lamps

RIGHT:

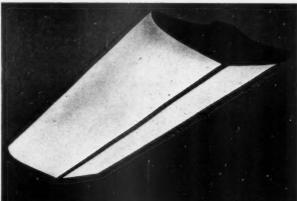
# C.F.2. KESTREL

To take four 5'-0" 80 w. lamps

BELOW:

# C.F.15. SURREY

To take two 5'-0" 80 w. lamps

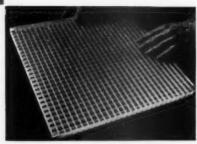


THESE THREE FITTINGS HAVE BEEN ACCEPTED
BY THE COUNCIL OF INDUSTRIAL DESIGN FOR
INCLUSION IN THE DESIGN INDEX

PRODUCED BY THE MANUFACTURERS OF PARAGRID. ONE OF MANY HARRIS AND SHELDON SYSTEMS WHICH ARE SOLVING EVERY TYPE OF LIGHTING PROBLEM

COMPLETE INFORMATION

AVAILABLE ON REQUEST



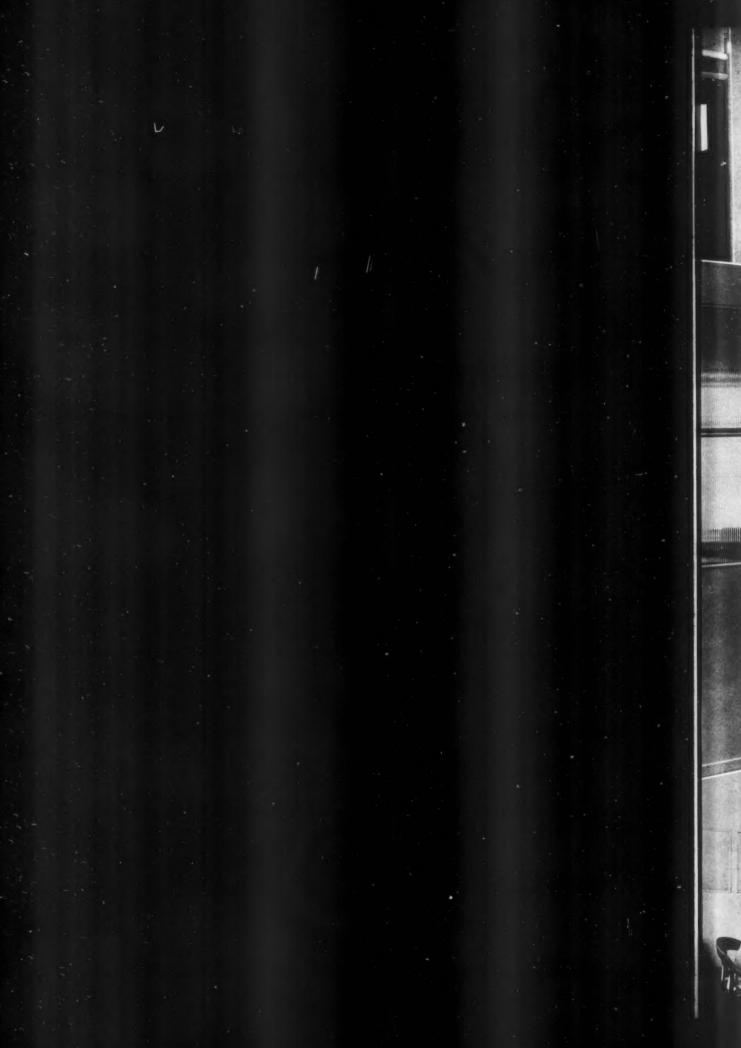
Complete Lighting Specialists and Manufacturers of Lighting Fittings and Equipment



Harris & Sheldon ELECTRICAL Ltd

RYDER STREET BIRMINGHAM CENtral 6272 . 46 GT. MARLBOROUGH ST LONDON WI GERrard 0869

DHB/7165



THE ARCHITECTS' JOURNAL for October 29, 1959

# Unique! Versatile! Economical!

that's

STRAMIT WOVAFLUSH

EASY-TO-ERECT
PARTITION

Just consider the outstanding advantages! Stramit 'Movaflush' Partitions are erected speedily and easily. They have remarkable sound-deadening properties and afford excellent thermal insulation, as well as a high degree of fire resistance. They also have an attractive flush finish (no unsightly cover-fillets) and offer an exceptionally good surface for decoration. What's more, Stramit 'Movaflush' Partitions are of completely dry construction and are available in a wide range of sizes. They're rigid, durable and de-mountable. And for all this, they're surprisingly low in price.

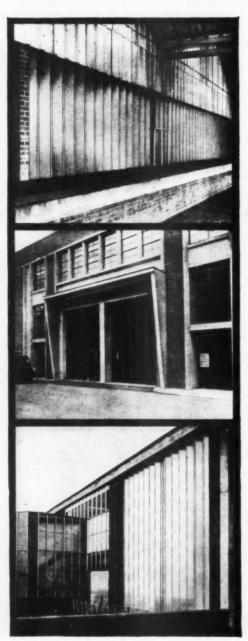
BUILDING EXHIBITION: Visit STAND 197-8, ROW L (Next to the Post Office)

		-
	Please send, without obligation, full details of the new Stramit 'Movaflush' partition.	
1	COMPANY	
1	ADDRESS	
i	***************************************	*
i	For the attention of	
-	STRAMIT BOARDS LTD., COWLEY PEACHEY UXBRIDGE, MIDDLESEX: West Drayton 3751 (10 lines	

# BOLTON

# COLLAPSIBLE SHUTTER DOORS

Recent Bolton Patent Shutter Door installations in Cardiff include : Wonder Bakery Ltd., Maindy; Elliots Wire Rope Works, Collington Rd.; J. Lyons & Co., Ltd., Newport Rd.



The illustrations show how versatile the Bolton Patent Shutter Door really is and installations everywhere are giving lasting trouble-free service. The doors are craftsman built from tested materials to a design which has never been bettered and hand or power operation may be had for any situation. Some of the details of the design and reasons for the popularity of Bolton Patent Shutter Doors will be seen from the diagrams.

- Two hand operated doors fitted to a loading bay for the British Oxygen Co. Ltd., Carlisle.
- Two electrically operated doors at Metropolitan-Vickers Electrical Co. Ltd., Manchester.
- One pair of electrically operated doors at a test bed for the Bristol Aeroplane Co.

The illustration right shows a partly bunched Bolton Patent Shutter Door at Onehunga War Memorial Swimming Pool, New Zealand.

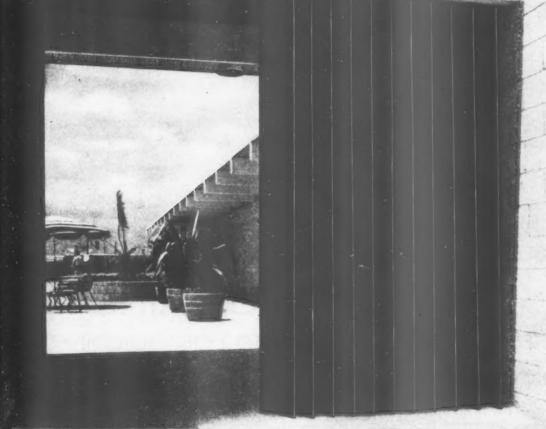
For full details write now for our comprehensive Gatalogue No. AJ306.

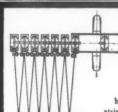
Bottom Track

This is purely a location guide since
Bolton Patent Shutter Doors are entirely
top hung. The bold outline indicates the
bottom guide piece which supports the
heavily sherardised leaves.

BOLTON GATE COMPANY

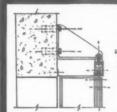
# FOR EVERY TYPE OF OPENING





# Sectional Door Plan

This sectional plan is of a Bolton
Patent Shutter Door in its
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sherardised shutter leaves
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by full height bronze or alloy hinging
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a box-track suspended from the inside face of the lintel allowing the door to bunch clear of the opening, Other arrangements can be made to suit your particular needs.

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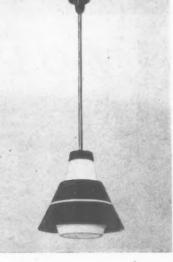
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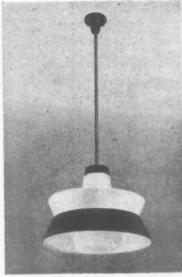
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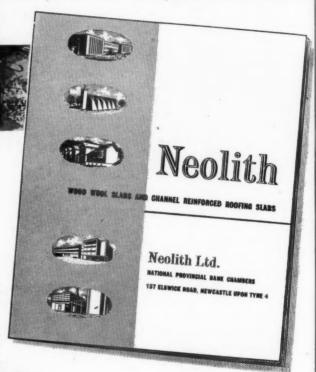
Neolith is effectively fire resistant and non-inflammable.

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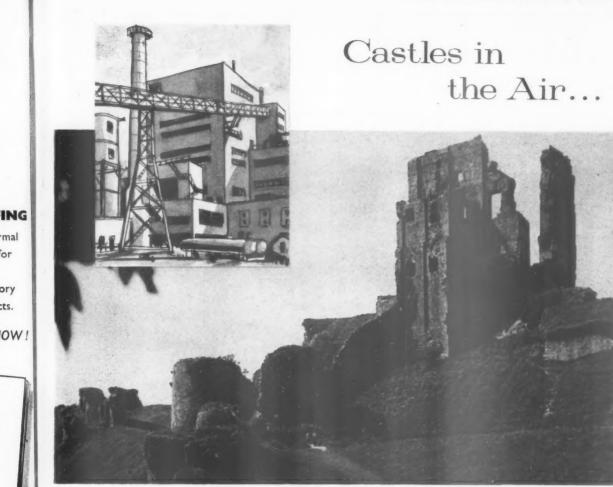


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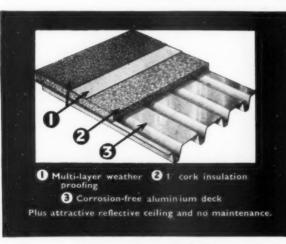
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ARCHITECTS: Holls Hoyce Ltd.

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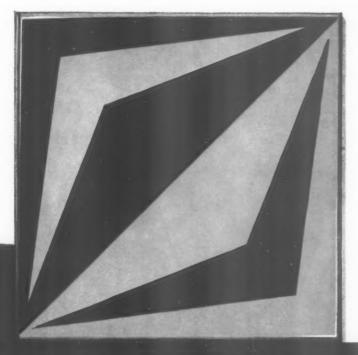
For this new Office Block at Hucknall, Rolls Royce Ltd. specified 'BITU-METAL' because it is:s completely weatherproof...proof against corrosion...dustproof...insulated to conserve heat and reduce fuel costs... speedily erected to cut building costs. Talk about 'BITUMETAL' with your nearest Briggs Area Manager.

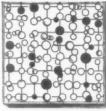
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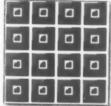




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The Architects' Journal

No. 3367 Vol. 130, October 29, 1959

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#### NOT QUITE ARCHITECTURE

# How to Drop a Chimney with One Shot

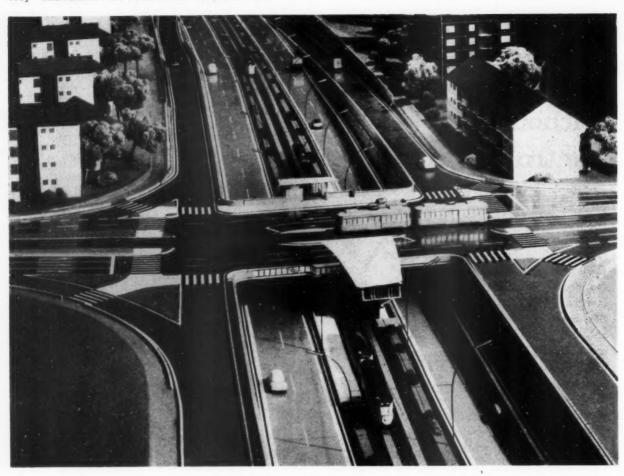
Ballistics being a branch of Physics, it is not unnatural that a certain Professor of Physics should also be a keen amateur pistol shot. So keen, in fact, that pistol shooting forms the basis of many of his university demonstrations. For instance:

"One day," said the Professor, "I came into my lab. and fired my pistol at a beaker. To my astonishment it completely disappeared and I could find no trace of it anywhere. I was puzzled by this until I realized that it must have been full of water; and since you can't compress a liquid the water was forced out in all directions equally, disintegrating the beaker in the process. Had the beaker been empty, i.e. filled with air, the air would have been compressed in front of the bullet, which would then have passed through the beaker and out the other side."

"It then occurred to me that this was an excellent method of demonstrating the difference between a liquid and a gas. So now, one of my first year demonstrations is to fire in this way at two beakers; the one fragments completely—that, you will see, is why I want the fine mesh screen around the theatre bench; the other you can make two neat holes in—if it's a good beaker, that is; and of course," concluded the professor with a modest smile "if it's a good shot."

All this of course is pure science. But how does it get applied?

"Well somehow, some demolition contrac-



# How the Germans do it— The Ruhr Expressway



The Motor Show, The Duke of Edinburgh's advice to us all to walk, BMC's announcement that it's going to double car production, and the Prime Minister's statesmanlike declaration that something must be done (though he can't say what) naturally raise the question "why can't we have roads like the Germans?" These photographs of the Ruhr Expressway in Essen, the biggest urban motor road in Europe, illustrate both the weakness and the strength of German road planning. It is to be 39 miles long, of which some of the easiest stretches in green country have been opened. The whole road is to be finished by 1965. Long stretches within towns are either to be elevated or sunk, and in Essen it is to dive under the city centre in tunnel. In the main it follows the line of existing roads, and the photograph, left, shows the existing road being widened and excavated at an intersection where it traverses a housing estate for Krupp workers. The model, photographed from much the same viewpoint, shows the double carriageway road, with trams in a central reservation, carried under the Hobeinstrasse. Complete segregation of through traffic has been achieved and the needs of public transport borne in mind, while the design is often pleasing. The retaining wall has an inward batter at the top both for architectural reasons and to reduce noise from Expressway traffic. But on the upper level, in the old street system, it is obvious that traffic planning is not town planning, and that German practice is no better than ours. Pedestrians getting from their homes to the tram station have to risk their lives on a series of zebra crossings. The trams, tucked away safely in the Expressway, retain all their awkward and dangerous characteristics when they resurface. The housing area is almost, though not quite, cut in two. Malcolm MacEwen, who visited Germany recently with a British Road Federation party to study urban motor roads, will be writing more fully about them later.

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tors heard of my demonstration with the beakers and they thought this would be a good way to demolish a factory chimney. The chimney was a hundred feet or so high, but of course they only filled about ten feet of it with water. Then put a stick of dynamite in the water and let it off."

Successful application?

"Oh well, in a way, yes. It worked beautifully—as an experiment. But unfortunately, only the bottom ten feet disintegrated, whereas the remainder of the chimney just dropped vertically in one piece. It was ten feet lower, but still upright. However, it was a little too shaky to demolish in the usual way, and of course the bottom was no longer watertight. So then," said the professor, "they really did have a problem."

GODFREY NEWTON-SMITH

# DIARY

Furnishing Scheme for Doctor's Waiting Room and Surgery. Display at the Design Centre, 28, Haymarket, S.W.1.

NOVEMBER 2-28

RIBA President's Inaugural Address: Basil Spence. Presentation of 1958 London Architecture Bronze Medal. At 66, Portland Place, W.1. 6 p.m. NOVEMBER 3

Modern Architecture and the Church. Programme and Idea. Illustrated lecture by R. Maguire, organized by the University of London, Department of Extra-Mural Studies and the New Churches Research Group. To be held at the Lecture Theatre, Institute of Archæology, 31/34, Gordon Square, W.C.1. 6.30 p.m.

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The Pagodas of Burma. Informal illustrated talk by S. Rosenak. At the AA, 34/36, Bedford Square, W.C.1. 6.15 p.m.

NOVEMBER 4

The Royal Society of Arts: Its Past, Present and Future. Talk by O. P. Milne, at the RSA, 6, John Adam Street, W.C.2. 2.30 p.m.

NOVEMBER 4

Course on Recent Developments in Quantity Surveying. York Institute of Advanced Architectural Studies, Micklegate, York.

NOVEMBER 6-10

Design in Lighting. Display at Design Centre, 28, Haymarket, S.W.1.

UNTIL NOVEMBER 7

The Artist Relates. Exhibition of professional work by the staff of the LCC Central School of Arts and Crafts. At the Ceylon Tea Centre, 22, Regent Street, S.W.1. Monday to Friday 10 a.m.—6.30 p.m. Saturday 10 a.m.—1 p.m. UNTIL NOVEMBER 14

Building Exhibition. At Olympia.

NOVEMBER 18—DECEMBER 2

Exhibition of Paintings and Drawings by Members of the AA. 34/36, Bedford Square, W.C.1.

UNTIL NOVEMBER 20

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# The Editors

# GIVE THE ARCHITECT A CHANCE

THERE were two very good things about the Jubilee Conference of the Town and Country Planning Association. One was Henry Brooke's advice to the TCPA to think less about new towns in the future, and to crusade instead for urban renewal, which he described as "the most urgent challenge to planning today." The other was the advice given by the Permanent Secretary to the MOHLG, Dame Evelyn Sharp, who stuck her head into a hornet's nest by declaring that town planning is generally the job of the architect-planner. She added that more use should be made of Comprehensive Development Area procedure, which is almost unknown outside London and the blitzed areas. Words, however, are not of much use unless supported by money and action. To label an area a CDA may be all but meaningless, unless the government restores the grant for loss on redevelopment which it has cut from 90 per cent to The housing subsidies are designed to help slum clearance and overspill; there should also be subsidies for housing in areas of urban renewal. Local authorities, particularly in the declining industrial areas, require capital for urban renewal which only the government can provide. The Ministry is unable to offer any guidance to local authorities on urban renewal because it has organized no research: when is it going to undertake research in a big way, and carry through some pilot projects in urban renewal?

This problem is made all the more urgent by the clear intention of the motor manufacturers, with government backing, to double the flood of motor vehicles that already threatens to overwhelm both town and country. New roads in towns will provide unrepeatable opportunities for urban renewal, or they could be the cause of disaster. But no real thinking has been done on the problems of traffic in urban areas. The MOHLG handbook on Central Area Redevelopment was published in 1947, and is both out of print and out of date. The Ministry of Transport's handbook on The Design and Layout of Roads in Built-Up Areas was prepared during the war and was reprinted only two years ago although it, too, is out of date.

The task of leading this work in research, planning and design should rest, as Dame Evelyn Sharp has said, on architect-planners. She advised any local authority intending to embark

on urban renewal to spare no money on hiring the best (architect) town planner it could find, and to ask an engineer to work out a bold plan and programme with him. This is splendid advice, but it is unlikely to be accepted unless the Ministry does some helping and prodding. The plain truth is that salaries paid to many senior architects in local government are scandalously low, particularly in the unattractive towns which most urgently need to be renewed. In hundreds of local authorities the senior architect is not even responsible for architecture, let alone for planning. The artificial division between planning and architecture has deprived most architectplanners of building experience, and is one of the main reasons why architects leave planning. Life in planning offices is often deeply frustrating, because planners are forced to spend their time on negative controls instead of creative planning. Town planners are being educated, under the TPI syllabus, not to be creative town designers but to be officials administering the town and country planning acts.

These are questions to which both the Ministry, the TPI, and the RIBA should direct their urgent attention. We are in an emergency, that calls for solution by emergency measures.



DEVELOPMENT AT THE MOHLG

Some interesting jobs are going, I hear, for a few young architects with tip-top design abilty, the patience and stamina required for analytical research work and the amiable ability to work as a member of the team. An advertisement which appears this week from the Civil Service Commissioners, advertising jobs in the basic grade of the civil service for architects and maintenance surveyors, is intended

among other things (I hear) to find four architects for Cleeve Barr's new Development Group at the Ministry of Housing and Local Government.

The group is going to undertake studies of housing standards and user requirements, as well as cost studies and investigations into building techniques. Nor will the studies be mere paper work, for they will form preparatory investigations into actual building projects in collaboration with selected local authorities on very similar lines to the work at the MOE. The Group is also expected to start design studies for other kinds of local authority buildings—council offices, swimming baths and so on.

This is encouraging news, and I hope Cleeve Barr gets the men he's looking for. He would be more likely to get them, it seems to me, if the Civil Service Commissioners would put the facts in its advertisement which, as worded, seems more likely to attract men looking for a safe job and a pension.

" MOTROPOLIS" CATCHES ON

The JOURNAL'S special issue on Motropolis (October 1) continues to make news. Last week its author, Malcolm MacEwen, found himself in television studios on two successive evenings. And a very nice job he did,

banging away—as we all must do—at the need not only for a new kind of road, but also for a new kind of town. Vehicles, he said, must be separated from pedestrians—and public transport must be improved so it is attractive enough to pull in the motorist. Above all, he said, the government should appoint a team of architects, engineers and planners to consider all the problems involved.

I thought it rather curious that although Associated Re-Diffusion's This Week gave less time to the subject, it seemed to care more about it than the Tonight team, which did the thing in a big way, including a 6-minute film made up largely from Motropolis material. But the Tonight team thrive on a nightly overlay of cynicism. Anyway it seemed to bring out the best in Mr. MacEwen. Perhaps there's something to be said for the aggressive interviewer.

JAM FOR TOP PEOPLE

Before I leave the subject let me call your attention to the letter in this issue from the chairman of the British Motor Corporation, who has missed the point of the Journal's special issue. Perhaps we couldn't have expected a magnate to see that his products are a mixed blessing. Still, we ought to be able to expect more from The Times, which has published a leader asking for better roads and smaller purchase tax, so that the motor industry can expand even faster. Does Sir William Haley read The Times? If he does he will have noticed, on the day before this leader was printed, a report from his New York correspondent asking for town planners and civic authorities to find a "radically new approach to the communications tangle" if New York "is to be saved from selfstrangulation."

NOT HALF A GOOD DESIGN

This week's funny picture was taken by one of my spies who had heard that not everything was revealed to Sylvia Crowe and Alan Harris when they looked at the London-Birmingham motorway for the JOURNAL. It shows one of Owen Williams' standard in situ concrete bridges cobbled with brickwork on to a British Railways bridge. (There's another one in the background.) Is there a good story here of an inter-departmental wrangle?

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Did British Railways refuse to pay for their share of a new bridge? Or did the motorway designers simply think it didn't matter?

#### DUSTY ANSWER

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Ever since Punch published that rainy-day cover the other week, to coincide with the first break in the weather, a lot of people have been wondering whether to telephone the editor for information instead of dialling WEA. I'm told that the cover was printed some weeks in advance and the editorial staff went around at the last moment thinking very hard about rain. If that would really do any good, it's something we all ought to be doing, because another summer like the last one would land us in a bit of a mess. You may have read the hopeful statement by the Central Advisory Water Committee that supplies ought to be all right until 1965. But the Committee added "except in very dry years." Engineering has pointed out that irrigation has barely started in this country and that for optimum plant growth there's not enough rain in five years out of ten south of a Humber-Severn line, and nine years out of ten in Suffolk, Essex and Kent. I wouldn't pretend to know the answer: I only hope the water boards know it.

#### MCQUADE WADES IN

Occasionally a progressive journal wakes up to the need to be slightly progressive, and since the New Statesman now has an architectural column it is not surprising that its transatlantic counterpart, the Nation, has started a similar feature. Its author, Walter McQuade-an associate editor and contributor to the American magazine Forum—belongs to the younger generation of critics. His writings are gentle, humorous, informative and occasionally lyrical. His first article in this series is about the latest buildings in New York and about Wallace K. Harrison, who designs so many of them and gets slated for almost everything he does. Mr. McQuade gives him a fair trial, praising much of his work—especially the new Corning Glass skyscraper—but not overlooking the failures.

#### DANGERS OF EXPANDING

Ashford, in Kent—an agreeable middle-sized market town surrounded

by delightful country—has agreed to become one of the LCC's expanded towns. It will add 22,000 Londoners to its present population of 26,000. Can the inevitable upheaval be achieved without causing unreasonable damage? Will the town's new by-pass—the most efficient and best-landscaped in southern England—be swamped by this growth?

The Kent County Planning Officer, who is preparing a town map, has high standards and no doubt he will make sure the expansion does not sprawl unduly into the countryside. But the county has no control over layout or architecture, and we don't yet know who will be responsible for it. This task must not be left to officials without design qualifications or to speculative developers. If the LCC are not going to take on this development themselves, then Ashford should appoint a first-rate architect forthwith.

#### YOU'LL NEVER GET IT SO GOOD

Did you know that information is no problem once you've read the BRS Digests, the MoW Advisory leaflets and BSI's Handbook No. 3? ASTRAGAL was almost convinced when he heard Gontran Goulden say this recently on the BBC's "Building Matters" programme, speaking exactly like a Minister summing up Government achievement. But really, you know—these excellent sources are only the small beginnings of wisdom, and you'd be a remarkable man if the Cloud of Unknowing wasn't still pretty dense by the time you'd read them.

The programme itself remains a competent affair and I recommend you to dash home in time to hear it one week.

#### TEACHERS' SEMINAR ON COST CONTROL

The white-painted library of the Royal West of England School of Architecture at Bristol was the setting for this year's Architecture Teachers' Seminar. The subject was Cost Control, or more specifically, Cost Planning. The course was arranged in such a way that the first evening and the whole of the first day was spent in putting the case for cost planning to the teachers. Under the lively chairmanship of R. Baden Hellard a team of speakers, who have, by now, almost attained the status of veteran repertory



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performers, went to work on their respective themes—Professor J. V. Connolly, Director of Sundridge Park Management Centre, on "The Architectural Profession in Relation to the National Economy and World Conditions," Jim Nisbet, youthful father of the MOE system, on "An Introduction to Cost Planning," W. J. Reiners, outlining the new science of costplanning with typical BRS thoroughness and a couple of enlightened builders, V. H. Johnson from Birmingham and Bernard Heaphy of Bovis.

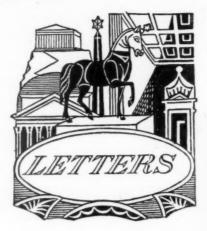
They did their work so well that by Friday, the last day, when the course broke up into group discussions, the teachers were in the right frame of mind to discuss, not so much whether an appreciation of costs should be taught to architecture students, but how it should be done, within the whole framework of management. An official statement will be issued by the organizers and will appear in the next week's issue accompanied by a full report.

#### PLEASE WRITE SOON

Have you submitted your check list suggestions to the editors? You still have time, if you hurry, to join the 50 architects who have sent in a total of 200 suggestions. Fortunately for the JOURNAL'S pocket, some of the suggestions received are duplicated and others are not satisfactory. If you expect to be one of the lucky ones, don't count on the cheque to pay this month's TV instalment; it will take quite a time to get the entries sorted out.

#### PENMANSHIP

By the way, if you still have confidence in British surveys after the recent election, you'll be interested to know that the Parker pen company has investigated handwriting in various professions and has put architects and accountants at the top, though whether for looks or legibility I don't know. Doctors, who don't, of course, want patients to know what they're having, come at the bottomtogether with successful business men. And while nuns write well, journalists -it seems-write badly. All this means very little until someone does a survey of who reads well. Top of the list, I suppose, would come chemists and printers. ASTRAGAL



Jack Howe and Partners, F/A.R.I.B.A.

W. G. Fiske.

Chairman, LCC Housing Committee.

Sir Leonard Lord, K.B.E.,
Chairman, The British Motor Corporation.

Peter Sharp, B.Sc. (Eng.), A.M.I.E.E.

# Lighting Columns

SIR: We were most interested to see your version of our winning design for the ADA Competition reproduced in the JOURNAL for October 22.

We feel that a technical magazine that has over the years continually expressed its righteous indignation at Subtopian mediocrity might be reasonably expected to take a little trouble when reproducing a design that has been judged somewhat above the average.

The clumsy capping at the top of the column does not, in fact, exist and we were intrigued at the "spatial relationship" between column and lantern. For your information we enclose a photograph of the winning design.

JACK HOWE & PARTNERS

#### London

The Editors reply: we agree with the writers that the illustration published last week did not do justice to their design. But it was not "our" version. It was the illustration provided by the organizers of the competition

# Are Expanded Towns a Failure?

SIR: In your leading article on October 8 under the heading "Sixty Years Ripening" you say that "the expanded towns programme is a failure." I do not know of any valid basis for this view. It seems very close to one expressed by Mr. Brook Taylor at the recent conference of the Institute of Housing; although later in the conference he himself said: "I should like to emphasize that there was never any suggestion that the expanded towns were not doing a good job."

This talk of failure appears to be based on

comparison with the achievements of the new towns. But if one looks at the figures for families from the County of London who have been placed in new towns and

The winning design in the ADA lighting column competition. See letter from Jack Howe and Partners.



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expanding towns under the Industrial Selection Scheme, one finds that for the new towns the number is 3,555 (up to September 1, 1959) while for expanding towns it is no less than 2,696. And this is the position despite the six-year start which the new towns have had over the expanding towns. Town development schemes admittedly were slow to start but they continue to gather momentum and they are fulfilling their purpose of providing homes and jobs for families from London. The new towns -brilliant successes that they are-have latterly, it would appear, been taking about one-third of their families from the Midlands and the North Country and elsewhere.

By comparison with the new towns or by any other standards the expanding towns are anything but a failure. And there is no reason to believe that the current programme-providing homes and employment for some 28,500 families-will not successfully be completed. The fact that the LCC -with the Minister of Housing and Local Government's approval in principle—is seeking itself to build a new town as an additional contribution to meet London's overspill needs is but a reflection of the vast size of the problem.

W. G. FISKE

Chairman of the LCC Housing Committee

The Editors reply: our criticism was not based on quantity, but on quality. There is no evidence that the expanded towns will reach even the standard of the New Towns in achieving a satisfactory town for late twentieth century living. There is all the difference between a town and housing and industrial estates

#### Motropolis

SIR: "Motropolis" performs a great service to the community. It is thoughtful, revealing and constructive, and will no doubt command the serious study of all those who have any interest in highway or urban development. It deals with one of the most serious questions of our day, and one which has always been of profound interest to the motor industry. I hope it will act as a stimulant to the need for this problem to be tackled adequately, energetically, intelligently and immediately. The march of the motor vehicle cannot be halted. As you say, private car ownership is a universal ambition, and the motor manufacturers make a greater contribution to this country's economy than any other single industry.

Inevitably, the use of the motor vehicle will expand globally because of social and economic implications. At the same time, public passenger and commercial rail and road services must be developed in any large community or road congested area, for, as you have so ably demonstrated, under present conditions the commercial life of the country and the daily commuting cannot continue without them.

LEONARD LORD

Chairman, The British Motor Corporation.

SIR: Your forthright and timely warning on the road problem was greatly appreciated. Lest it should be thought that the horrors of Los Angeles ("17 suburbs in search of a city"), or Detroit ("This is the home of the motor car therefore public transport is an anachronism") are the final words, there is one logical gleam of hope from the morass in the United States.

A change in family life is becoming apparent: Mother has taken over the car. After dropping Father at the bus or train station, she takes the kids to school, and then, after the rush hour traffic has subsided, does her shopping. If she goes to town she can park her car at a shopping centre, or at a parking meter in the city. She can even park on the main roads until 4.30 p.m. (But woe betide her if she leaves it after that time-the convoys of polic towing vehicles have to be seen to be believed in Cleveland!)

Father no longer considers the car a prestige item for business, the radio equipped taxi (which being in constant use takes up no parking space) fulfills his needs. Mother fetches the kids from school, and then fetches Father from the station. In the evening, the city again becomes the focal point with cars parked on the streets for theatre, cinema, or restaurant.

The pattern is logical: it depends on a good public transport system with adequate but not excessive radial and ring roads plus a disciplined parking system on the main routes. The cities in America which lost their heart are those that discarded public transport too soon.

PETER E. M. SHARP

London.



# YERBURY FOUNDATION

# Shapes and Cost

On Thursday, October 22, the newly founded Yerbury Foundation held their second public event. This was a symposium on the effect of shape on building costs and methods and was the first of a series of four lectures (or symposia) on the general subject of the relationship between design and productivity. The symposium took place in the Conference Hall of the TUC Building: Peter Trench was in the chair and the speakers were A. G. Sheppard-Fidler, vice-President of the RIBA and City Architect of Birmingham, H. Thackray, member of the Council of the RICS and past chairman of the QS Committee of the RICS, and T. V. Prosser, a Liverpool builder and President of the NFBTE. If the symposium as a whole was rather disappointing this was not because the participants had omitted to take their briefs seriously, but because satisfactory evidence on the subject in hand is exceedingly sparse and hard to get. A contributing factor was that, owing to the rush hour traffic jam, the proceedings started late, with the result that contributors had to make up for time lost at the kerbside by reading their papers at lightning speed.

Mr. Sheppard-Fidler took as the datum for his contribution C. N. Craig's paper on the comparative cost of tall flats, published in 1956; but he also presented a series of tables showing the unit cost of a number of buildings of different type chosen to represent different plan forms. His main conclusion was that the decisive influence on unit cost was the amount of perimeter walling involved and that, therefore, the square plan would be the most economical.

Mr. Thackray, who followed, drew most of his evidence from the work of the RICS Cost Research Panel and from the work of a study group of RICS members known as "The Wilderness Cost Research Study Group." The latter has been operating for six years and has made a study of over 2,500 buildings. Unfortunately, their work has not yet reached a stage at which it can be published and Mr. Thackray was, therefore, only able to remark on certain general trends which seemed to be emerging from it. The most important of these were that plan shape is more significant than height, and column spacing more significant than loadbearing capacity. After referring briefly to cost studies in Europe, he commented on the facts published in a recent article in The Times on the high cost of skyscrapers in America. The height of these is limited, physically, by the difficulty of getting a sufficient lift service to the upper floors without taking up too much space in the lower floors; economically, by the fact that the cost of labour goes up rapidly with height (by 100 per cent as between the 40th storey and the second storey), necessitating rents in the upper floors twice those in the lower floors. Mr. Thackray was of the opinion that, up to 10-15 storeys, the savings due to repetition offset extra cost due to height, but that above this limit, height began to tell. He concluded, however, by saying that to lump all different building types together for cost purposes was impracticable and that each must be taken separately.

Mr. Prosser, who drew his evidence from practical experience, began by denying Mr. Sheppard-Fidler's contention that in tall buildings the length of perimeter wall was decisive. In his view what matters most is the ease with which the builder can get men and materials to every point. In his view the square plan on a large and tall building made access more difficult than a rectangular | TWO plan: a building 200 ft. × 50 ft. would be quicker and easier to build than one 100 ft. × 100 ft. He also drew attention to the effect on cost of variations within the plan which hamper repetition, of the restrictions in road access characteristic in central areas which compel the builder to deliver materials at awkward hours, and of the troubles inherent in building at great height: of privations and the need to provide sanitary and rest room accommodation at every sixth or seventh floor, and the pumping of water to the upper storeys. The discussion which followed elicited little of value. Perhaps the most significant comment was that of Mr. Thackray when he pointed out that, though all concerned on this subject are keenly alive to the importance of studies of this kind, all are much too busy with day-to-day work to provide the basic information which we all need.

# OLD BUILDINGS

# A New Society

The first meeting of the Standing Joint Conference on the recruitment and training of architects for the care of old buildings took place earlier this month in the Jerusalem Chamber, Westminster Abbey. This body has been formed to give expression to the widespread concern increasingly felt in recent years by the many organizations having an interest in the problems of maintaining and repairing old buildings, and adapting them to modern requirements.

The membership of the conference includes representatives from the MOW, the MOHLG, the Central Council for the Care of Churches, the Society for the Protection of Ancient Buildings, the National Trust, the RIBA, the CPRE, the Georgian Group, the Historic Churches Preservation Trust, Institute of Advanced Architectural Studies, the Society of Antiquaries of London, the LCC and the AA and it is hoped ultimately to include all the major Amenity Societies. The Dean of Gloucester, at whose suggestion it first came into being, was elected as the Conference's first Chairman. The Honorary Secretary is Donald W. Insall, A.R.I.B.A., and the offices are at Fulham Palace, S.W.6. The Conference is taking active steps to provide increased facilities for the recruitment and training of architects in this specialized field, and to stress the need for the employment of architects properly qualified in this work.

## RIBA

# C. D. Spragg Honoured

C. D. Spragg, the former Secretary of the RIBA, has been elected as the first Honorary Member of the Ceylon Institute of Architects. In inviting Mr. Spragg to accept this honour the Ceylon Institute expressed its appreciation of all the help and advice which Mr. Spragg gave prior to the inauguration of the Ceylon Institute.

TWO ESSAYS AT COMFORT FOR STUDENTS'



Two very different organizations have been investigating the requirements of students for study bedrooms. One was House and Garden, with its customary elegance and panache, and the not inexpensive result is shown bottom, opposite page. Demountable shelving, anglepoise lamps, Wedgwood mugs, an impeccable pin-up board, and a prize-winning, architect-designed range of unit furniture creates an attractive atmosphere for study. Somewhat in contrast, in a floor area of 140 sq. ft., and for a maximum furnishing cost of £100, the LCC architects have been developing furniture for their programme of halls of residence for training colleges, polytechnics and colleges of advanced technology. The rather more austere result is shown on this page. While such individual endeavours to tackle an exceedingly difficult problem are essential and praiseworthy it is surprising that so far no published information on this problem has come from the most authoritative source: the architects of the University Grants Committee. Of course, the UGC would be

within its rights to confine its advice strictly to universities, and to deal separately and confidentially with each individual application for knowledge. But such a narrow attitude is the antithesis of the true architect's professional approach. It is to be hoped that the UGC architects will soon be publishing bulletins, similar to the MOE's, and thus fulfilling the high hopes engendered in the profession at large when this architectural department was created. The LCC architects (Furniture and Display section) together with the Education Officer and the Chief Officer, Supplies, have designed the furniture shown in the prototype study bedroom illustrated here. Questionnaires were circulated to discover

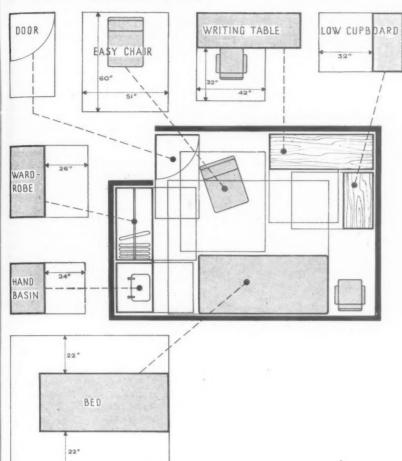


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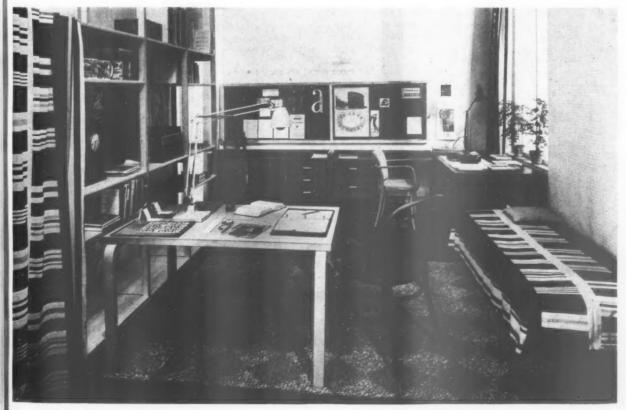
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# STUDY BEDROOMS



students' requirements, and this, supplemented by anthropometrical data, enabled decisions to be reached on the size and type of fittings and storage which would be adequate for the majority of students. By studying the operation of bed-making, and so forth, it was possible to discover the best arrangements and room proportions within the allowable area (see plan). The built-in furniture (allowance: £25) is grouped with the door on the inside wall, see bottom right, opposite. The wash basin is specially made to span the recess. Above it is m mirror, light, shelf, and wire for drip-dry. Alongside is the wardrobe in which stands a chest of drawers which can be free standing if extra hanging space is needed. There are two 3-ft. bookshelves, an upright and an easy chair, worktable and storage unit, and a 3-ft. divan. Lighting: reading lamp and ceiling point. There is either a pin-up board or a picture rail. More than 1,500 study bedrooms are to be provided during the next 3 to 4 years by the LCC.



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# SHOULD ARCHITECTS BE DIRECTORS OF BUILDING FIRMS?

# Architects, builders and engineers give their views

Should the Code of Professional Conduct be amended to allow architects to become principals in building firms? Would the integration of building and design in this way give the public a better architectural service than it can get from the independent professional man? What are the advantages and disadvantages of such a revolutionary change in the Code? These questions have been raised in an article in the September RIBA Journal, and we have invited architects, builders and engineers to give their views. We publish a first selection from the replies received; other replies will be published in later issues.

# Replies from architects

James Stirling (architect in private practice) It depends on the quality of the architects. Have Local Authorities benefited by having architect advisers? Has the standard of architecture improved in these areas? Sometimes—in the bigger units like new towns—perhaps, here and there—by and large not. Suspect it would be the same.

On the average what sort (standard) of an architect would a building firm ask to be a director?

Donald Gibson (architect to the War Office) The standing of the architect in the country will in my view always be set more by the skill and integrity of many individual members and less by any set of Codes of Practice. This being so, a widening of the restrictive rules would not damage the long-term "standing" of the architect, but it should present a wider opportunity for him to serve the public and to gain reward. I would therefore welcome the removal of the present barriers.

# Peter Womersley (architect in private practice)

There appear to be so many other loopholes left open in the Code for making money " on the side," that it seems illogical to single out directorship of a building firm as the one likely to bring latent evil to the surface. An architect may act as "consultant" to firms making building materials; he is usually responsible for the appointment of quantity surveyors and consultants; he could presumably be director of a furnishing business—all of which could become "dishonest" business. An architect surely has integrity or he hasn't; he also has ability to design or he hasn't; and directorship of a building firm isn't going to alter either. On the other hand, both the building industry and the architect might gain through closer co-operation-it would be worth trying at any rate.

If any safeguard was thought necessary, the appropriate ruling of the Institute of Civil Engineers could be adopted.

# Andrew Derbyshire (architect in local government)

I agree with you that this is an exceedingly important subject. Because of this—and because I have found the persuasively written RIBA document so provocative—I cannot give you my views as briefly as I, and you, would wish. Furthermore, I have by no means made up my mind on this, and it is difficult to be succinct when in doubt. However, my first reaction to the proposal is that it would in the long run mean a better architectural service for the public—for three reasons:

(i) More and more architects are being employed by building contractors and manufacturers of building materials, and this trend seems irreversible. These architects are at present held down by the Code to some status lower than that of "principal, partner or manager." If the bar to higher status were removed it could increase the influence of the architect in these firms. This could lead in turn to a greater respect for good technical standards and objective advertising, and perhaps a greater reluctance to sacrifice architectural values for commercial advantage.

(ii) The gulf in sympathy and understanding which seems so often to exist between designer and builder is obviously a prime cause of inefficiency and high costs in the industry. A change in the Code offers a good chance of bringing the two together on the best of all bases for co-operative effort —mutual self-interest.

(iii) This change would also help to pave the way for a development which I am convinced offers the best long-term hope for the building industry—the creation of combined teams of architects, builders and engineering specialists working on an equal

footing, who could offer a design and construction service which would combine low overheads with a high degree of professional integrity.

The arguments on the other side rest mainly on the proposition that firms in the building industry are motivated purely by the desire for profit, and that the director who does not devote all the energies of his organization to this end, regardless of any sacrifices which might have to be made in the quality of the product, will soon be called to account by his shareholders whether he is an architect or not.

I think the answer to this must be that, in general, and assuming no monopolythough this may be a big assumptionprivate firms survive and prosper in relation to the value for money they give. It may well be that building owners by and large do not know what value for money to expect-many builders, and architects, are undoubtedly getting away with murder and some examples of the "all-in service" are no exception. The remedy, whether the Code is changed or not, lies in more consumer research in the building field, for this would benefit architect and client alike in promoting greater awareness of the possibilities of good architecture.

It is true that great vigilance would be needed to make sure that the gains due to closer contact between architect and builder were really passed on to the consumer and not merely swallowed up in higher profits. We will have to rely, as we do now, on the professional integrity of the individual architect, and this would have to be backed up by an even stronger enforcement of the revised Code than exists for the present one. Whatever the dangers, the opportunities are greater. Unless we learn to emphasize the common interests of the architect and the builder, rather than their differences, the building industry as we know it may rapidly price itself out of existence. If the architect must learn to accept responsibility for-and a stake in-the economic health of the industry as a whole, then the builder equally must come to recognize the social obligations of architecture

# Richard Fairbairn (architect in private practice)

The RIBA Journal covers the subject admirably and presents a very clear picture, with particular reference to the question or integrity and principles.

Should we not know who it is that wants the architect to be a director of a building firm? Is it the architect who wants to become a director or is it the builder who would like an architect on their board? I suggest that the latter is more the case than the former, as the majority of building firms are efficient and appreciate that the skill of an architect is of great value if properly directed.

The present system of independent architects is ideal if the architect commands the respect of his client and the building industry, particularly now that so much of the activities of the profession are so closely associated with financial benefits of good site development. It is a question of the architect deciding whether he wants to be

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an architect or builder, but not to try and do both. If he wants to be a director of a building firm I consider he should be prepared to resign his professional status. I very much doubt if the public would benefit with architect directors of building firms, as it might tend to develop a rival faction.

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Some building firms today do employ architectural staff whereby they can offer the facilities of designing and erecting a building. This should cause private practising architects to realize that they must offer an efficient service of architecture to their clients in they are to compete with this arrangement.

# Anthony B. Davies (Chief Architect-Planner, Basildon Development Corporation)

I feel strongly that to permit architects to become directors of building firms would not better their service to the client. Though much is said and written from time to time about the necessity of closer integration between our profession and the builders the fact remains that the builder's sole motive is one of profit and this motive is being emphasized by the increasing control of contracting firms by financiers.

It seems to me that the fundamental service which the architect gives to his client is one of impartial advice and in any way to damage this by an architect becoming a director of a building firm would be disastrous. It has already appeared after the first onslaughts of the "package deal" that the clients who have authorized such procedures for producing their buildings have felt acutely the loss of the independent professional advice and I am sure this can no longer be considered independent whether the architect was a director of the contracting firm concerned on a project or of any other contracting firm.

To attempt to justify architects becoming directors of building firms as the natural evolution of architects being employed on the staff of building firms seems to me to be taking a diametrically opposite course to the right one and merely confirms the profession's acceptance of defeat. I have found as an architect/client that those qualified architects who are not principals and who work for employers other than architects stab the profession in the back and greatly weaken the defence of their own profession against the clients who have to be persuaded that the employment of an architect is the best and most economic way of producing their building. I would very much prefer to see the RIBA considering the prohibition of their members working as salaried employees of anyone other than principal architects rather than the dangerous course of considering the permission for architects to be directors of building firms.

# H. J. Whitfield Lewis (county architect, Middlesex)

I am against this. The architect can best serve the public by preserving his professional identity. This does not mean that he cannot collaborate closely with contractors and other members of the building team which he must, of course, do.

# Replies from builders

# G. D. Swayne (President of the Institute of Builders)

Personally, I am in favour of the continuance of the traditional independent role of the practical architect as recognized under the RIBA Contract provided that the growing technological and managerial competence and ethical standards of builders, as evidenced by the Institute of Builders' practice examinations and qualifications, are accorded much greater recognition by the profession than in the past, and that young architects are no longer taught to regard all builders as mere profit-seeking commercial agents and intellectual inferiors.

# Charles Crichton (builder, formerly an architect)

Much depends upon the status of the architect in relation to his directorship. An architect-director of a building firm could be any of the following:

# (a) In Private Practice and a Non-Executive Director:

In such a capacity he would be well placed to negotiate work between his clients and his building board. And why not? Clients might get a more realistic idea from the start of how much expenditure they would be faced with. The architect would lose his status as his client's "protector" against the "builder's wiles." But since this is largely fairy-tale stuff and most clients are grown up, I can see no insuperable problems in this set-up. It is not so easy to envisage the Local Authority or Official Architect as a building director.

#### (b) No Longer Practising or Designing on a Professional Scale but Acting as an Executive Director in a Building Firm.

In this case his architectural knowledge is of value to the building company and in their dealings with architects. Retention of his hard-won qualifications as an Architect would permit him to keep more closely in touch with the profession and thus act as a link between architecture and building. A vital necessity one would think. As things are an architect who seeks an outlet for his organizing ability and architectural knowledge with a building firm is stripped of his letters and tends to lose touch with the professional side.

# (c) As Director-Head of an Architectural Department in a Building Firm.

In this capacity he may be faced with the possible conflicting demands of design on the architectural side and the balance sheet on the builder's side. For a strong personality with a good business sense and a good sense of design this would be an enviable position giving great scope for designing in accordance with the economic demands of practical building. Not a position for the unbusinesslike artist because it could lead either to suppression of his freedom in design and consequent frustration or voluntarily to selling his design soul for a mess of £. s. d. pottage.

This category is, of course, representative

of the "all-in service," the success of which has yet to be proved.

Personally I think that the architect should by all possible means retain his absolute freedom in matters of design. But in all the three cases outlined above the architect must sacrifice one-sided professionalism in the interest of drawing architecture and building more closely together. To my mind the present "iron curtain" between architects and builders is detrimental to the industry as a whole. But, let there be no mistake, it will take a long time and much honest effort by architects and builders to raise that "curtain."

# Thomas V. Prosser (President, National Federation of Building Trades Employers)

The restrictions which the Code of Professional Conduct places on the activities of architects in regard to their employment within the framework of a building firm is very much a matter for the members of the profession as a whole and it would illbecome me to suggest any revision to the Code which might be out of keeping with the concept of professional practice.

It seems to me, however, that if the Code permits the employment by a building firm of an architect on a salary basis it is inequitable that a restriction should be placed on the person concerned limiting his enjoyment of the fullest advantages of this outlet for his professional ability. Whether this outlet would be broadened or narrowed if appointment to the board of directors was permissible is another matter and I find it difficult to formulate an opinion in the absence of historical experience.

In considering this aspect, I think it is necessary to bear in mind the following points:

1. Appointment to a directorship of a limited liability company involves questions of capacity and suitability which are not necessarily encompassed by an architect's professional qualifications.

2. A "good" architect would not necessarily make a good director of a company and conversely an architect whose professional skill is not particularly outstanding may well make a good director. The question of temperamental suitability cannot be ignored.

3. The integration of design and construction would not appear to become vulnerable if the boardroom door were opened to architects—it would depend largely on the integrity of the individual.

4. If one accepts the premise that once an architect has qualified, circumstances cannot deprive him of his knowledge of the profession, then he remains an architect whether he belongs to a professional institution or not. And if he wishes to have an outlet for his "professional" ability as a director of me building firm it is available to him under the title of the company concerned if not under his own name with the qualification of "registered architect."

To sum up, I think the Code should be reexamined, not so much within the concept stated in your letter but rather within the concept of freedom of the individual to employ his powers to the best advantage

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In this tect is tainted and site to himself. The only qualification I would make is that if an architect accepts an appointment to the board of a building firm it should not be permissible for him to carry on a private practice coincidentally.

#### N. S. Farrow (Past President of LMBA)

The present policy of the RIBA assumes that the type of occupation that a man undertakes affects his professional integrity. If this is the case, the RIBA have attracted the wrong type of man to the Institute.

In other spheres, *i.e.*, Institution of Civil Engineers, Institute of Chartered Accountants, no such restrictions appear necessary. Without having given the matter deep thought, my present reactions are that it would be a desirable change of policy of value to the profession and to the industry as a whole.

Providing I could obtain architects with the necessary qualities I would be very prepared to employ them in senior positions in my company.

set in and they now take their place on the Council of the ICE, alongside official and academic engineers and consultants.

Do architects possess skill and knowledge necessary to the execution of architectural works? If so, their position should surely be similar to that of civil engineers. If not, one would expect them to want to do something about it; for preference, to make themselves necessary.

2. Design: Commercial firms doing structural design are common, particularly in reinforced concrete (a possible reason for this may be that most of these firms started as licensees of patents). It is intriguing that they do most of their work for architects anxious to avoid the reduction of fees which follows the engagement of a consultant. These firms usually furnish the steel for their designs and the cost of design is included in the cost of the steel, unknown to the client. It cannot be said that the existence of these firms is a particularly bad thing: they can design very keenly and some of the best of them are progressive minded. When there is no competition for a job, however, many of them grossly exaggerate quantities of steel.

This type of firm is generally regarded as of low status; engineers employed as directors receive no honours from the ICE. 3. Design and construction: More and more contractors are carrying out design and construction and, of course, employ engineers, occasionally as directors for this purpose; they design and construct either directly for a client or in competition with others or as a variant on a consultant's or official engineer's scheme. In moderation this is undoubtedly a good thing; better design can be produced by a contractor to carry out himself than by a consultant aiming at a lowest common denominator of tenderers. It introduces, moreover, a competitive element into design which is no bad thing. Overdone, it leads either to tendering placing an intolerable burden on any but the largest firms or to work being placed by jobbery. In very large schemes, e.g., hydro-electric work, it falls down, since no contractor can carry out on a speculative basis the lengthy investigation needed to prepare even a preliminary scheme. Rumour has it that the competitive design arrangements in nuclear energy works are not proving entirely satisfactory.

Summary: Engineers have certainly not suffered from their ability to take part in all three of the above activities, nor can it be convincingly claimed that any of these activities are detrimental to the public interest, though exaggeration could bring abuse here as in most things.

At the moment architects can only act in the same way as do consulting or official engineers. For them to function as contractors is a fairly clear cut issue; to function as commercial designers either independently or as part of a contracting firm is good or bad as these activities are good or bad. If civil engineering be a true parallel, no one can sincerely claim that they are bad. It is quite certain that civil engineering would have made much less progress if qualified civil engineers could only act as consultants or employees of official bodies.

# Replies from engineers

#### Allan Hodgkinson (engineer)

At first sight it would appear that little effect would occur as in my experience the director, be he a contractor or the principal of a large consulting organization, is so much on the fringe of the design proper that he is almost entirely a business man. On the other hand he has from experience a good idea of what the client wants, therefore service should be improved.

However, taking the engineering aspect as a parallel, we can see the advantages and disadvantages and assume that these would be applicable to the architect on the whole.

Taking first the contractor who does nothing but build, I should say that the architect director could only add to the service to the client though his efforts would undoubtedly detract from the profits of the organization, always assuming the architect has a conscience and aims to achieve a first class job.

Taking the contractor who designs and builds we have quite a different aspect. First we have the specialist firms, some concrete, some steel, who design only in that medium, adding their design charges to the quoted price. I can't see how the architect would fit into this system at all unless it is on the basis of the previous paragraph.

Secondly we have the big contractor design types who are prepared to give a bid for a complete job, sometimes including the M & E side as well. Into this system you could fit the architect as overall planner but working with the contractor not for the client. This to my mind spells disaster!

I believe that on the whole an architect should be a consultant and that his best interests are further served by engaging consulting engineers of the various kinds. The exception to this is four or five of the bigger contractors who are equipped to give similar service.

In all the latter you have a big advantage in that a pricing department and a construction department are available to the designer and he should therefore produce a cheap job easy to build for that particular contractor. The disadvantage is that the same pricing and construction departments may have the whip hand, in which case the client only gets what the contractor wants to build.

In this case too I feel an independent architect is an absolute necessity to provide untainted advice to the client during design and site work even to the extent of appoint-

ing a resident engineer for that aspect of which he is not an expert. How this would be affected by architects being on the board of such a firm would, I think, depend on the extent to which they had a finger in the pie. If in the case of the consulting architect job the director architect collaborated, I think that would be effective. If the director architect takes over completely so that the contractor has complete control then as I said previously it would be disastrous.

As professionally qualified engineers we can hold a directorship, but in putting forward a scheme to a client we must disclose any interest we have in any of the products used. That could be quite a list for the average big contractor these days, and adding to that the immense range of products to be added by specifying all the finishes as well as just the engineering parts, I feel no client would be very assured.

In brief there is no clear-cut decision as to whether this would lead to improvement, but on the whole, as long as a client's architect controls jobs, it can do no harm.

#### Peter Dunican (engineer)

In general, design standards would go down, but service to the public, assuming that good design is not a service to the public which it is, should improve; jobs would be run more efficiently and cost control at design stage would be more of a fact than a fiction.

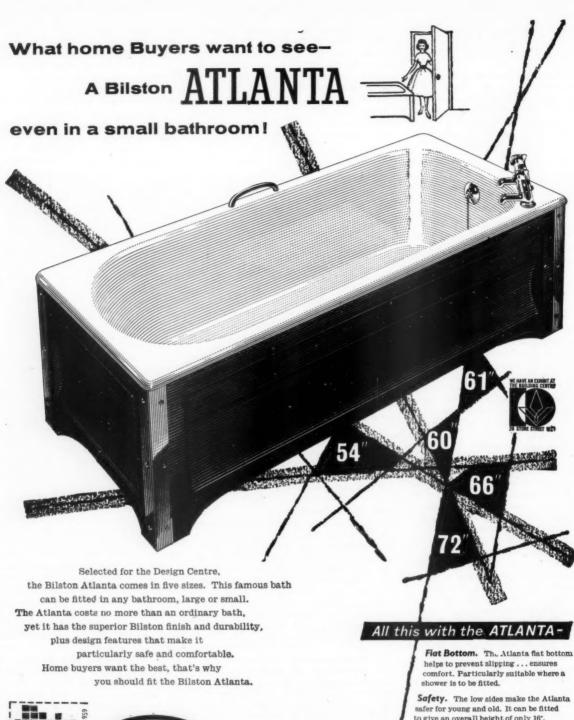
But surely you are putting the cart before the horse. You should enquire first how many builders would have architects on their board? As many as have engineers!!

#### A. J. Harris (engineer)

The employment of professional men, whether architects or engineers, as directors of commercial enterprises has three aspects, one where the commercial firm carries out construction, another where it carries out design, and other where it carries out design and construction.

1. Construction: A firm of contractors carrying out large engineering works must employ qualified engineers; the bigger the works the more is this necessary. It is right that these engineers should be represented on the board; moreover only an engineer can estimate an engineering risk. In fact, in the earlier days, say 150 years ago, the distinction between consultant and contractor was often ill defined; contractors came to be regarded as a slightly lower form of life later in the Victorian era, but a reaction

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The Diamond Jubilee Conference of the Town and Country Planning Association, held in London last week, produced at least two important statements. In one the Minister for Housing and Local Government, Henry Brooke, told the TCPA to launch a crusade for urban renewal in the old towns. In another Dame Evelyn Sharp, Permanent Secretary to the MOHLG, said that town planning was generally a job for the architect-planner.

# "TOWN PLANNING IS A JOB FOR ARCHITECT-PLANNERS"

# Dame Evelyn Treads on Delicate Ground at the TCPA

The Town and Country Planning Association's Diamond Jubilee Conference on "The Challenge To Planning" had an interesting, but rather lop-sided, agenda. The challenge presented by motor traffic, which the Motor Show has put in the headlines and into everybody's minds, was apparently not present in the minds of the organizers though it was very much in the minds of some of the delegates. Nor did the problems of urban renewal appear to be uppermost in the mind of the TCPA. The challenges it was primarily concerned with were the disturbing evidence of a renewed drift of population from the old industrial areas to the South and the Midlands, and the growth of speculative housing. The blurb on the conference agenda said that "if the challenge is to be confidently met, the administration of planning must be strongly based." The conference therefore devoted a day to discussing local government organization and planning, and the work of the planning committee. This, of course, assumed that faults or failures in planning can be explained primarily by failures in administration.

HENRY BROOKE, the Minister of Housing and Local Government, did not accept the TCPA's view that "at no time since 1947 has the future of planning seemed so uncertain." Hardly anybody, he insisted, believed today in complete laissez-faire, for we were resolved as a free nation not to allow individual exercise of freedom to destroy such amenities as green belts, good agricultural land, beauty spots and coast lines, or to jumble up houses and factories. One challenge to planning, as Mr. Brooke saw it, was the challenge to bad, blurred, hasty or "crawl" planning. He wanted planners to be more precise, more accurate, and to reduce delays.

Another challenge, which he put to the TCPA, was what contribution it was going to make to restore vitality to those parts of the country which have suffered setbacks and unemployment, and which are the real source of the flow of population southwards and eastwards. Before long, he said, the government would make known its plans to encourage development in these areas, but these would have to be reinforced by

enhancing their positive attraction, by making them places in which people wanted to live and work. So he asked the TCPA, which had done as much as anyone to create the idea of new towns and bring it to reality, to carry that same crusading spirit over into the renewal of old towns. "I regard urban renewal," he said, "as the greatest and hardest and most urgent challenge to planning in this day and age. If you will crusade for old town planning as well as country planning and new town planning, the second 60 years of your Association may place on record even finer achievement than the first."

DAME EVELYN SHARP, the Permanent Secretary to the MOHLG, promised Ministry support to local authorities in defending their green belts, and urged them to go very cautiously in revising their development plans in allocating more land for development. Where more provision had to be made for housing, she said, local authorities should do so by compact building round small villages and country towns, never relaxing their grip on the space round towns.

It was when she turned to the problems of the older industrial towns in the North, however, that she began to tread on what she admitted was delicate ground. It was not to be supposed, she said, that these towns could achieve urban renewal either quickly or easily. Their authorities would have to plan more boldly than they had done in the past, and some of them might need to revise their ideas about the people they employed to make their plans.

"Town planning," she said, stressing the word town, "is generally the job for the architect planner. I know some very fine plans have been produced by people not qualified as architects, but I think they were people who, whatever their qualification, had the architect's eye, the vision of what the city might some day be made to look like"

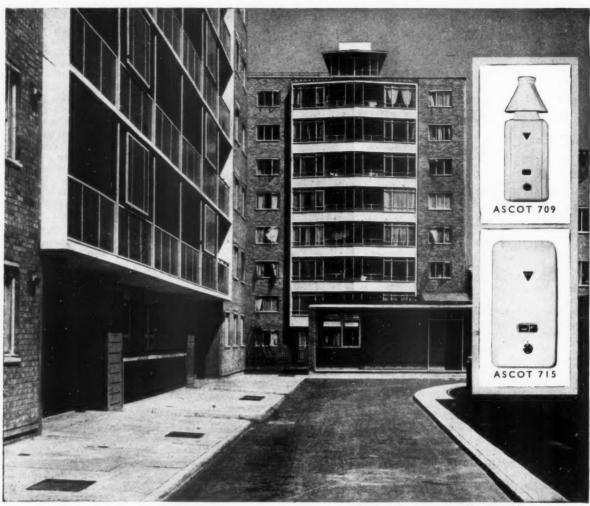
Looks, she added, were not everything, functional efficiency was essential, and town planning could not be the job of one man alone. But when they were talking about urban renewal they were thinking above all of a new look, a "beauty treatment." The

first thing she would do if she was responsible for an old decayed town would be to hire the best town planner she could find. "I would spare no money for this," she said, "it's a small investment for a very big prize." She would ask engineers to work with him to produce a bold plan and programme, and if satisfied with what they proposed, she would fight for it. But she felt that the authorities of some of the towns where slum clearance was pressing would miss some of their opportunities. They should make greater use of Comprehensive Development Area procedure, and she added that the Ministry was thinking very hard how to help the authorities, and hoped to be able to say something "in the next few years."

It was surely significant that, whereas Dame Evelyn Sharp's statement about architectplanners was heard in silence, there was audible support for ALDERMAN PRICE (Birmingham) who expressed surprise that she had entered into the battle that was being waged underground between engineers, planners and architects as to who should do the planning. He was sick and tired of it, and he wanted neither officials nor councillors to join in. Having said that, Alderman Price continued "it isn't the architect who knows it all, and it isn't the engineer or the planner. We have to get someone who doesn't want to build monuments to himself, but wants to build a better city. That's the man we want, whether he's an architect, a planner or an engineer." TRUSTRAM EVE, chartered surveyor, thought that the surveyor should work out the requirements for the different uses; then the architect should come along and design a wonderful scheme for new roads and buildings, and so on. But the architect, unless he had very unusual qualities, was not the man to do the investigating.

K. W. BLAND, staff architect of Wates Ltd., voiced the speculative builders' demand for more building land. He regarded the failure to ensure an adequate continuing supply of building land for this purpose as planning's greatest defect, and complained that the green belt policy had forced property prices up inside towns, made redevelopment too costly, and so virtually priced people earning under £800 out of the house purchase market. He wanted architects to educate the public to the point where all houses were architect-designed and planning control of design was abolished. But his approach to design was that houses built for sale must not have the slightest resemblance to council houses; for this reason he blandly dismissed any satisfactory architectural solutions in the realm of subsidized houses as of no use to the private builder.

PETER SELF, who spoke on "local government organization and planning" analyzed the deficiencies in planning machinery, organization and public relations, at national, regional and city level. He concluded that a Planning Ministry to lay down general economic and social policies as a framework for local planning was badly needed. He also proposed the creation of 15 elected regional authorities for England and Wales.



Caroline Estate extension, Hammersmith

# **ASCOT** IN NEW HOUSING (9)

Ascot instantaneous Gas Water heaters have been extensively used for providing hot water in dwellings comprising the London County Council's new Caroline Estate extension at Hammersmith, photographed above. In the eight-storey block, Joanna House, Ascot multipoints have been installed in the 30 three-room and two two-room flats. In the tenstorey block, Henrietta House, Ascot 715 'balanced flue'

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Two typical installations of Ascot Multipoints in a kitchen and a bathroom in flats on the Estate.

multipoints are provided in 20 three-room and 18 two-room flats. For technical reasons, an alternative water heating system was necessary in two two-room flats on the ground floor of this block.

In all other maisonettes and flats on the Estate, back boilers have been provided for hot water, except in six maisonettes. Here, Ascot 715 multipoints are installed to obviate difficulties which would have otherwise resulted from having flues for solid fuel fires situated near the ten-storey block.

## RESPONSIBLE AUTHORITY

London County Council Architects: Edward Armstrong & Frederick MacManus, F.R.I.B.A., Chartered Architects, 28, Gloucester Place, London, W.1



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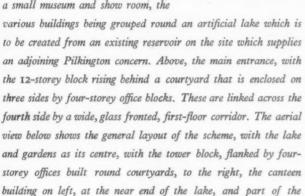
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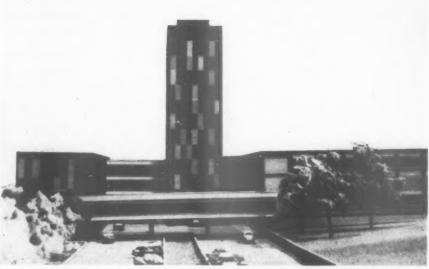
# GLASS HEADQUARTERS IN ST. HELENS, LANCASHIRE

A 159-ft. tower, clad in four tones of blue toughened glass sheet, will dominate the new headquarters of Pilkington Brothers, glass manufacturers, of St. Helens, and provide an effective permanent advertisement of their immensely successful enterprise. The buildings have been designed and landscaped by E. Maxwell Fry, of Fry, Drew, Drake and Lasdun (assistant in charge, P. Bond); the project will cost about £2 million and is to be completed by 1962. It will include headquarters offices, a large canteen building and a small museum and show room, the

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existing Ravenhead works seen on the far side of the lake, and linked to the offices by a curious, hump-tailed bridge. The canteen building (its south and north elevations are shown on page 423) is already under construction and will cost £480,000. It is designed to accommodate over 1,250 people, with exceptional spaciousness and comfort, and stretches for 296 ft. along the north end of the lake. The ground floor will contain foyers, sitting rooms, cloakrooms, lavatories and plant room—this last directly beneath the first-floor kitchen, whose services and plumbing will thus be readily accessible for inspection. The canteens are all on the first floor, [continued on page 423]



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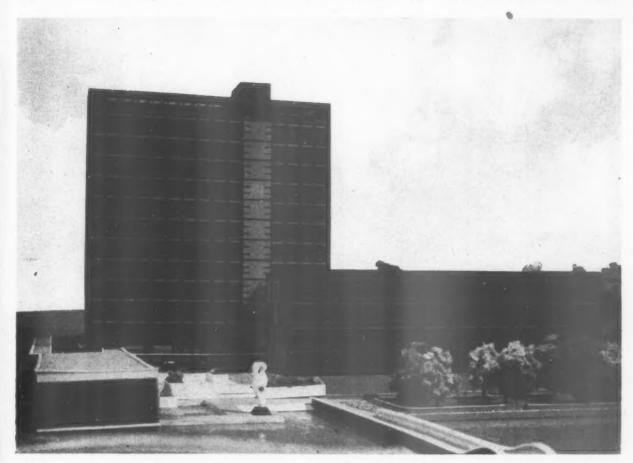
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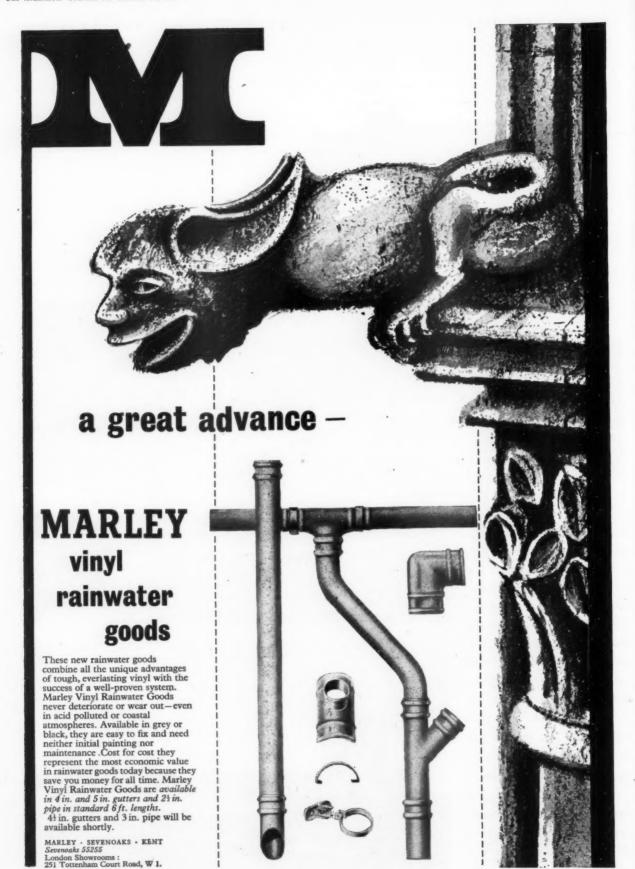
#### GLASS HEADQUARTERS IN ST. HELENS, LANCASHIRE: continued



facing south, with an agreeable prospect over the lake and gardens, and as the building is 90 ft. deep, additional light will be provided from two garden courts piercing the two floors and laid out at ground level with small trees, ferns and fountains. Above, the offices from the east, showing the terraced levels which lead down to the lake, which is some 40 ft. below the top of the site. The two-storey museum is in the foreground on the left, separated from the office blocks by a paved area but linked to them at its upper storey by a covered way. Consultants, civil engineering, Ove Arup and Partners; electrical engineering, Barlow, Leslie and Coombes; heating and ventilating engineers, G. N. Haden & Sons Ltd.







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## THE INDUSTRY

This week Brian Grant describes a cupboard door track, a new refrigerator, a range of boilers, plastic-faced building board and wooden frames with double glazing.

#### Track for cupboard doors

Geo. W. King have recently introduced the Wispa cupboard door track, which is suitable for doors up to 30 lb. in weight. An angled aluminium track is screwed to the top of the door opening and u nylon slide fixed to the top of the door. A 1½-in. long nylon guide is screwed to the floor of the cupboard and engages in a saw cut made in the bottom of the door. There is thus no bottom track to collect dirt. Standard lengths of track are 4 ft., 5 ft. and 6 ft. and they have fixing holes at 6-in. centres. Price is 2s. per foot, plus 5s. for a set of runners, guide and all the necessary fixing screws. (Geo. W. King Ltd., Stevenage, Herts.)

#### New refrigerator

English Electric have already placed on the market next year's 4 cu. ft. refrigerator. The price, £63 3s. 0d., is the same as the previous 3.4 cu. ft. Slimline. Standard colours are cream or white, and the shelving arrangements have been quite cleverly designed. The rod shelves divide or reverse and there are runners at five different levels so that it is possible to arrange standing space for tall bottles and awkward things like hams or turkeys. Cleaning the interior should be easy as all corners are rounded and the rod shelves are covered in plastic. Dimensions have been kept small, 201 in. width and 22½ in. from front to back, while the work top lines up with standard equipment. Current consumption has been reduced, the manufacturers claiming an average running cost of less than 1s. a week. (The English Electric Co. Ltd., Marconi House, Strand. London, W.C.2.)

#### Domestic central heating

Ideal have just announced a new Elite series of boilers for oil or solid fuel. There are four models of each, with outputs varying from 35,000 to 65,000 B.Th.U. per hour, and the prices run from £101 to £115 for oil, £45 to £66 for solid fuel. Both versions are the same in appearance, with white jackets and a yellow door, and the base and smoke pipe in grey vitreous enamel. Both versions have thermostatic control, and the oil burner is a fan assisted vaporising type with a gravity fuel feed. (Ideal Boilers & Radiators Ltd., Ideal Works, Hull.)

#### Plastic faced board

Most architects are by now familiar enough with Formica laminated veneers, and to the range has now been added a 5 in. thick constructional board which consists of a timber core with a Formica sheet on one side, balanced by a counter veneer on the other. The new material, which has been given the somewhat unfortunate name of Beautyboard, is intended for applications where the ordinary Formica panel cannot be adequately supported, and can be used for such things as wardrobe doors, hinged flaps and draw leaf tables. Standard board width is 4 ft. with a length of 8 or 9 ft., and the facing can be any of the standard Formica patterns or colours. The balancing veneer has a satin black finish and can be used decoratively, or it can be sprayed or hand painted. The current Formica fabrication handbook contains full details on fixing jointing and workshop practice. (Formica Ltd., De La Rue House, 84/86 Regent Street, London, W.1.)

#### Double glazing

The economics of double glazing were dealt with at some length in the Egerton report, which unfortunately appeared at a time when building of any sort was virtually illegal, and when there was no money for any sort of extra, even if it could show a profit in the long run. Now that several firms are making double glazing units, EJMA have evolved a standard range of wood windows especially designed to take them. There is a considerable range of sizes, 6 in. up to 5 ft. high by 8 ft. 6 in. wide, with casements and top hung ventlights. The rebates of all opening lights are fitted with plastic foam weatherstripping. There is also a range of





Top, the Elite boiler. Above, the English Electric 4 cu. ft. refrigerator.

standard double windows with coupled casements hinged together and secured by a catch so that the inner glass surfaces can be cleaned from inside the building. There are no standard sizes for this range, which is made up to architect's requirements. (The English Joinery Manufacturers Association, Sackville House, 40 Piccadilly, London, W.1)

# The cheapest

# central heating

# there is -

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Cheapest Running Costs. A new generation of house hunters is insisting on central heating. They regard it as just as much of an essential as the water supply. It's as well then that solid fuel central heating has such rockbottom running costs. Look at the figures on the right: no other fuel can compare for cheapness with solid fuel.

Low Capital Costs. It's not an expensive business installing a solid fuel central heating system. In fact, the recently developed small-pipe system, so perfect for smaller or medium-sized houses or bungalows, is of such low capital cost that central heating can now be put within the reach of a much larger section of the public than ever before. Special 5-year credit facilities are now available.

For Architects. "Central Heating for Houses." This 120-page survey of solid fuel central heating outlines the various systems available, from the open-fire-and-back-boiler to the latest small-pipe system. Copies 2/6 each. Write to the Coal Utilisation Council, 3 Upper Belgrave Street, London, S.W.1, for this booklet or any of the following publications:

List of Approved Domestic Solid Fuel Appliances, Warmer Homes with Solid Fuel, Fuel Stores for Houses and Flats, Building for Warmth—all free; and for 1/6—Correct Fixing of Domestic Solid Fuel Appliances,



Compare the Costs! These are typical weekly costs, averaged over a year, for central heating and for hot water, summer and winter, in a three-bedroom house or bungalow. If you would like the data on which these figures are based, write to the Coal Utilisation Council, 3 Upper Belgrave Street, London, S.W.1.

6 or 7 r	adiators a	nd hot wa	ter 🔻
2 or 3 radiators	and hot we	oter 🔻	
COKE	£9 per ton	9/9d	15/-
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# INFORMATION CENTRE

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

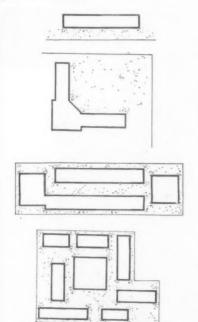
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# 6.59 planning: social and recreational SHOP LOCATION

The Selection of Retail Locations. By R. L. Nelson. F. W. Dodge Corp. \$9.

It has been obvious for some time that retail trade in Britain is changing considerably, but where the trends are leading is not quite so clear. The increase in the number of supermarkets, and self-service stores and in the number of car-shoppers has led to the view that the pattern of retail distribution might develop along American lines. In planning circles there has been some speculation as to whether such developments should be accepted or whether they should be curbed and channelled into the more orthodox forms. This book should go some way towards clarifying for British architects and planners recent trends in retail trade in America,

Basic types of shopping centre. Top to bottom: strip, gothic L, mall and hub.



It shows clearly how both parts of the former shopping pattern-the main downtown centre and the supplementary network of minor centres in the suburbs-have been affected by the new developments taking place on the outer fringe of the built-up area and even in the open country beyond. It shows too how changing trends in merchandizing are affecting the numbers and character of shops. "Crossing of lines" and "evening opening" are already familiar in Britain but the "discount house" and "trading stamps" are not yet so well known. On the design side there is much that is familiar particularly with regard to pedestrian shopping centres but the fact that there appears to be only a limited number of successful type-layouts may perhaps be news. The "strip," the hub, the mall, and gothic "L" are the four main types into which suburban centres can be divided. The author claims that although topography, road accessibility and type of tenancy produce variations on these types, a detailed analysis of several new centres will show that variations are not important. What he does stress, however, is that to be successful a shopping venture must be more than a group of shops with free parking. "It is extremely difficult to alter people's normal circulation patterns, and the opportunity to park will not, of itself, accomplish this . . . Glamour is supplied by bright new store fronts and facilities, fountains, art statuary, planting and (not the least important) an undertone of music piped throughout the entire centre."

The author makes critical references to certain site selection techniques such as the application of Reilly's law for the delineation of catchment area boundaries. He also develops his own "rule of compatibility" for measuring the degree to which "two businesses interchange customers." These calculations he says, depend "on the theory of cumulative attraction which, like other aspects of location study cannot stand independently. Two businesses that are compatible will do better side by side, other things being equal." Methods of defining catchment areas are well described and the American businessman's thoroughness is demonstrated by the questionnaire techniques used to derive information for example, on personal income and shopping habits.

Suburban growth is more widespread and less dense in America. There is no planned restriction by green belts to upset the natural spread of outlying areas, with the accompanying development of certain types of retail growth. Much more needs to be known about trends in Britain before anticipating the form future growth may take. The Selection of Retail Locations however is a most useful guide in that it describes the approach that is made in another country under different social and economic conditions. As such it will be of great interest to developers in this country who are anxious to anticipate the consequences of our own rising standard of living.

69.022.3

# 19.222 construction: details SULPHATE ATTACK

Sulphate attack on Brickwork. BRS Digest No. 123. HMSO. 3d.

This Digest-which is the fifth on sulphates -makes rather a meal of a comparatively straightforward subject. Attack is most prevalent in exposed positions when brickwork has been covered by a too-rich rendering. It shows in the form of cracking which is distinguishable from cracks due to frost by the fact that the mortar next the brick is white-ish. It is caused by brickwork remaining damp for long periods, thus allowing the sulphates in the brick to react with alumina in the cement. To prevent, use a brick with a low sulphate content (as low as 0.5 per cent, if possible) and, if you wish to render, do so with a rendering not richer than 1:1:6. The only remedy for existing damage is to stop water from getting to the wall face (e.g., by covering with a tile hanging or weatherboarding).

Hi

# 19.223 construction: details

Constructional Carpentry. Frank Keeling, A.I.B.I.C.C. Cleaver-Home Press Limited. 25s. This book is written explicitly for the craftsman, but it is sufficiently informative to fill a long-standing gap in the architect's reference bookshelf. Illustrated with a few hundred clear line-drawings, it puts the subject forward in a businesslike fashion and with a lack of the usual pomposity. Recent and advanced techniques such as timber shell roofs, laminated members, and bow-

string trusses are covered-from the con-

structional side only, of course-and there

are some instructive and perhaps useful

examples of applied solid geometry. As is only to be expected in books intended for craftsmen, concerned with how? and not with what? and why?, new techniques appear side-by-side with such anachronisms as the king-post truss; the author passes systematically from one to the other without comment.

(68)

# 26.134 services and equipment: miscellaneous FIRE ALARMS

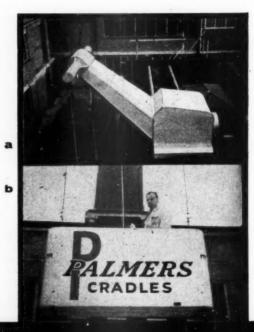
Heat sensitive detectors for automatic fire alarm systems in buildings. BS3116:1959. BSI. 4s.

This is a standard for manufacturers, but architects should know of its existence. Is concerned with three criteria: time taken for a detector to go off for a given temperature rise (this should be shorter for a high ceiling, as a detector placed high up will not be triggered off by a portable heater), resistance to damage by vibration and by corrosion. Standard to be used in conjunction with CP 327.404/402.501 Electrical Fire Alarms.

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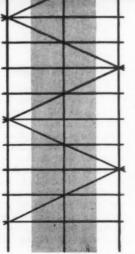
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## 7 PRACTICE

# an exercise in cost and programme planning

The schools at Coventry, illustrated on pages 432-442 of this issue, are an interesting example of an approach to design which recognizes that the production of an economical and efficient building is an intrinsic part of the architect's duties. This approach, which was first seen at Amersham, must be regarded as complementary to that used by CLASP: for both are essential to our technical progress. In the following article, Alfred Levy, an architect, and Brian Drake, a quantity surveyor, who collaborated in the design of the Nursery and Primary Schools at Coventry, describe their approach to the problem in terms of cost and programme planning.

In the postwar period this country has produced an impressive record in the field of school building. From the early days of the great Hertfordshire experiment to the more recent work by CLASP the record has been built on the idea of standardization and prefabrication with their attendant advantages of quick erection and a fair standard of finish within the Ministry's cost limits.

With men and materials more freely available the advantages of a prefabricated system of construction may be more apparent than real.

At best a normal building can only be partially prefabricated (site slabs and drains are inevitably site operations) and complete prefabrication such as in the motor industry is precluded by the diverse nature of buildings.

Prefabrication without mass production is almost certainly uneconomical as it involves the use of expensive factory accommodation and overheads which is why prefabrication in building is most successful with small components such as bricks, tiles, drain pipes, etc.

In fact most so-called prefabricated systems are simply restricted lists of standard components. There are clear advantages to a system using standard details provided it allows sufficient flexibility in design to avoid the necessity for the "one off" or "special,"

which normally plague "prefabricated" systems.

This article describes an attempt to obtain the advantages of such a system by standardizing working details and materials rather than complete components—e.g., window frames are of standard sections but windows themselves may be any size.

The building site, whilst sometimes wet and crowded, is also untaxed, unrated and uncapitalized, and the designers have tried to make the optimum use of these advantages which the site enjoys over the factory.

To be of value a school must be built within the Ministry's cost limits and be ready on time; to achieve these objects two techniques are almost essential: cost control from the earliest planning stage onwards and contract planning with its direct influence on site organization.

In their 1957/58 Nursery School programme and subsequently in the design of St. Michael's Primary School, Coventry City Architect's Department based their design approach on these two lines and on the belief that prefabrication, as we know it today, is not the only means of providing sound and economical buildings in a reasonable time. This led to an examination of the possibilities of traditional materials used in non-traditional ways. It was felt that traditional materials, being tested and proven by ageold use and being familiar to the average tradesman, could satisfy the essential requirements of good finish and freedom from maintenance, whilst careful attention to detailing and programming could produce buildings on time and at the right price.

#### Cost control

The team system, comprising architects, quantity surveyors and structural, heating, ventilating, electrical and specialist engineers, was instituted at the start of the programme. To ensure that all work was done within the framework of cost control the following design procedure was adopted:

Firstly a cost plan was drawn up, element by element, based on the cost analysis of similar buildings. These included Alderman's Green Primary School, designed by the Architect's Co-Partnership and Amersham Primary School. Then the architects produced alternative proposals for each element. These proposals were priced by the quantity surveyor, the results compared with the appropriate figures in the cost plan and a decision made as to which proposals should go forward for working drawings. It was intended that the total amount of the cost check should balance as nearly as possible the total amount of the cost plan. and so long as this was achieved variations between individual elements in cost plan and cost check were not important. Finally on receipt of tenders a cost analysis was prepared, based on the actual cost of the schools and this was checked against cost plan and cost

Table 1: Cost control data

	NURSERY	SCHOOLS		ST. MICH	AEL'S	
Element	Plan	Cost check	Analysis	Plan	Cost check	Analysis
Prelims, and contingencies Sub-structure Structural walls Windows and external doors Roof Roofights Partitions Doors Wall finishes Floor finishes Ceiling finishes Decoration Fittings Furniture Ironmongery Sanitary fittings Heating, H & C water Gas Electrical installation Drains (nett) Ex. works (nett) Ex. works (gross)	3 6 · 0 5 3 · 0 4 1 · 0 6 (4 · 0 8 / 10 · 0 8 / 10 · 0 1 / 4 · 0 6 (0 · 0 2 / 0 · 0 3 / 0 · 0 2 / 0 · 0 4 / 0 · 0 1 / 4 · 0 4 / 0 · 0 4 / 0 · 0 1 / 4 · 0 4 / 0 · 0 1 / 4 · 0 4 / 0 · 0 1 / 4	3/6·0 4/3·0 3/10·0 6/0·0 10/6·0 3/10·0 -/6·0 6/2·0 1/11·0 3/2·0 -/6·0 13/6·0 4/0·0	$\begin{array}{c} 3/3 \cdot 1 \\ 4/8 \cdot 1 \\ 4/0 \cdot 5 \\ 6/1 \cdot 5 \\ 6/1 \cdot 5 \\ \end{array}$ $\left\{\begin{array}{c} 11/0 \cdot 4 \\ 4/0 \cdot 8 \\ -/7 \cdot 2 \\ 6/5 \cdot 0 \\ 2/1 \cdot 4 \\ 3/7 \cdot 9 \\ -/6 \cdot 6 \\ \hline 2/7 \cdot 1 \\ \{12/8 \cdot 7 \\ 3/3 \cdot 0 \\ \end{bmatrix}$	3/6·0 6/6·0 3/0·0 17/6·0 10/0·0 11/0·0 11/0·0 11/0·0 11/0·0 2/3·0 3/6·0 3/6·0 2/0·0 {10/0·0 3/0·0 2/0·0	3/6·0 3/6·0 3/0·0 - 7/6·0 10/0·0 1/0·0 1/0·0 1/0·0 4/6·0 2/3·0 3/6·0 1/2·0 2/0·0 10/0·0	2/4·6 3/2·8 3/5·1 8/3·7·1 10/10·5 -/10·5 1/1·8 -/11·1 1/1·8 -/11·6 2/9·6 2/2·5 -/11·6 9/7·3 3/6·7 5/3·7
	82/1-0	76/8-0	77/11-8	67/1-0	68/3-0	68/10-8

The above figures show the three stages of cost control on both the nursery and the primary school. These stages being—(1) cost plan—the initial forecast of probable allocation of money between elements. (2) cost check—the quantity surveyor's estimate of the proposals chosen by the architect to become working details. (3) cost analysis—the actual cost to the client of these working details.

Table 2: Cost comparison

Element Group	Willenhall Wood II	St. Michael's	
PRELIMINARIES STRUCTURE PARTITIONS FINISHES FITTINGS SERVICES PLAYGROUND	1/9·9 30/6·3 5/9·0 11/5·1 2/3·5 16/8·2 2/7·0	2/4·6 26/8·6 3/3·8 11/5·5 3/2·1 16/6·5 5/3·7	This is a comparison between the cost analyses of the two primary schools at present being erected in Coventry. Both schools have the same floor area per place (44 f.s.) and a similar type of heating system (forced warm air). Willenhall Wood (II) is a CLASP system school and St. Michael's is brick cross-wall.  It is possible that the extra cost of the structural and partitions elements of the CLASP school is a reflection of its capacity to cope with mining subsidence movement
TOTAL	71/1:0	68/10-8	

In a way contract planning may be regarded as a corollary of cost control as its principal aim is to improve efficiency in the building operations and to translate this efficiency into a saving in the cost of building. Inefficiency and its resultant loss of time occurs both on and off the site. In both cases the architect can do much to help eliminate it. At Coventry the following methods were used:

#### 1. Programme of operations

Once the tender was accepted the builder was required to collaborate with the architects in drawing up a programme of operations. This was aimed at establishing a proper sequence of operations on the site, determining the responsibilities of sub-contractors to the programme and facilitating the ordering of materials. This Site Progress Chart was a detailed breakdown of work into individual operations—e.g. the construction of the ground beams was programmed as:

Trenches; formwork; placing concrete

Space was provided for recording estimated and actual time of completion of these operations.

In the case of St. Michael's Primary School the site operations were divided into three separate construction phases, each relating to a part of the building. For example after the whole of the site was cleared and general excavation and earth moving carried out, the trenches for phase 1 were excavated. As soon as

these were completed shuttering was prepared and hardcore spread at the same time as the trenches for phase 2 were excavated. Then, whilst concrete was poured in phase 1 and shuttering prepared and hardcore spread for phase 2, the trenches for phase 3 were excavated and so on.

The architects aimed at maintaining control over the progress of the work and ensuring reasonable adherence to the original programme by using the following system of records. Each day the Clerk of Works was required to prepare a report (Table 3), taking him not more than half an hour, which recorded the time spent on various operations.

At the end of the week this was entered on a form, known as a Progress Check (Table 4), which included not only a record of time spent to date on each operation, but also an estimate of the percentage of completion of each operation agreed by the architect, the Clerk of Works and the foreman at the time of the architect's weekly site visit. The information was then plotted on the Site Progress Chart.

Delays due to insufficient labour, bad weather or subcontractors were then immediately apparent, as were unrealistic estimates in the original programme. It is intended, by keeping careful records of time and labour on each job in this way, to be able to build up a system, on the principle of cost analysis, whereby the sum total of the experience gained from similar work

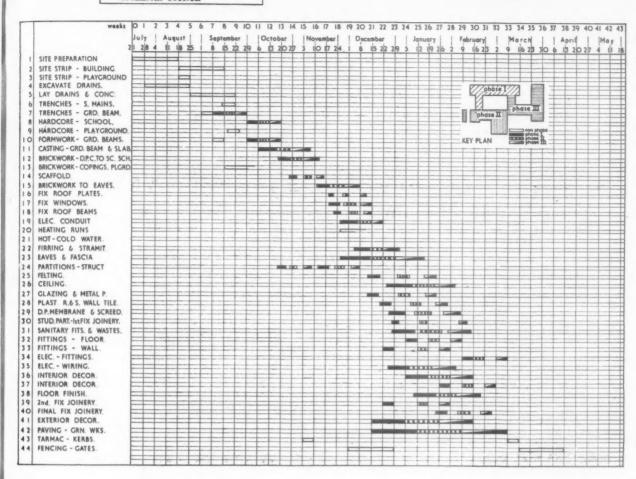


Fig. 1. Site progress chart.

Fig. 2. Construction phases at St. Michael's. The section on the left is complete to the stage of internal finishes, whereas that on the right is just ready for roof framing.



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/4·6 /2·8 /5·1 /3·7 /0/10·5 /10·5 /11·8 /10·9 /8·6 /10·4 /9·6 /2·5 /11·6 /2·5 /17·3 /2·0 /7·3 /2·0 /7·3

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Clerk of Works. Report No. 12 Programme WEEK NO. 15 COM. DATE 27th October, 1958.

' Table 3. Clerk of Works' daily record

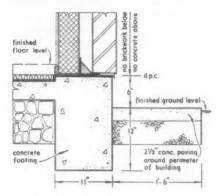
OPERATION			MON	DAY	TUES	DAY	WEDN	ESDAY	THUR	SDAY	FRI	DAY	SATU	RDAY	TOT.	REMARKS
DESCRIPTION	Serial no. and phase		T hrs.	L hrs.		T—Tradesman L—Labourer										
General site duties														3½	31/2	Foreman bricklayer setting or for frames
	-	-		8		4				2		41/2			181	
Drains and m/holes inc. excavating and back filling etc.	and 5	_		131				101		81		251	2	26	2 84	
Playground walls	-		38	-	421		11	-							911	inc. foreman bricklayer's time
	13	-		201	-	184		3					_		42‡	
Moving surplus soil	2	_											-			
				4						4				*	8	
Excavating for beam foundations	7	2					1									
Toundations	1	4		17½		191		29		23½				41	94	
Formwork for beams	10	2	17		17		17		17		17		5		90	Time including fixing concret
								81		81		8½			251	screeds
School			4½		81/2		4½		2		81				4½ 23½	M/c excavator time Roller time
Oversite hardcore	8	2		22		21		9		6		9		2	69	
School brickwork and partitions	12 and	1	2		3		23		41½		34		20		1231	inc. foreman bricklayer's time
and partitions	24			2		34		12½		25½		17		13½	74	
Water meter pit	6	-	81		1										9½	
				7											7	
Site slab and beams	11	2											3		3	
concrete	11	2								15		201		16	511	
TOTAL MEN			9	9	9	9	8	10	8	11	8	11	8	10		

Table 4. Weekly progress check

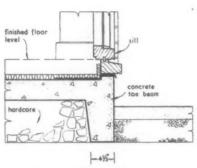
PROGRESS CHECK NO. 14								: 3rd Novemb	er, 1958
COL. 1			COL. 2	COL. 3	COL. 4	COL. 5	COL. 6	COL. 7	COL. 8
DESCRIPTION	Serial No.	Phase	Total man hours last check	Total man hours this period	Total man hours this check	Percentage completion	Man hours needed to complete	Man hours remaining in programme	Man hours delay
General site duties, erection of shed, setting out, etc.	_	_	597	22	619	_	_	_	_
Excavate drains, lay drains and cover with manholes	4 and 5	_	1,910½	86	1,9961	90	220	None	220
Playground walls, brickwork and coping	13	-	1,5131	1334	1,647‡	96	68	-	_
Site Strip School	2	-	121½	8	129½	98	_		-
Excavating for beam foundations	7	2	18½	94	112½	25	337½	None	3,374
Formwork for beams	10	2	1291	1151	245	30	571	None	571
School oversite hardcore	8	2	192	97	289	33	867	None	867
Brickwork D.P.C. to scaffold. School and structural partitions	12 and 24	1	_	1971	1971	10	1,777½	None	1,7771
Water meter pit, service main	6	-		161	16½	40	96	_	_
Casting ground beams and slab	1	2	_	541	541	15	325	None	325

in the past will be available to the architects and 2. Construction techniques enable them fairly accurately to forecast the time, As stated earlier the architect's general policy was to labour and equipment required for any given site operation. Thus the drawing up of a programme for a programme itself more reliable.

employ traditional materials as far as possible. Apart from their familiarity to the building industry their new contract will be much simpler and the resultant potentialities and limitations are a known factor and they focus work on to the site where the builder's own



TYPICAL FOOTING UNDER EXTERNAL WALL



TYPICAL FOOTING UNDER WINDOW.

Fig. 3. Sections through typical footings of nursery schools.

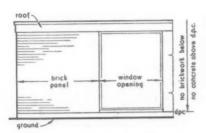


Fig. 4. Illustrates the separation of the trades, in this case Concretor, Bricklayer, Carpenter.

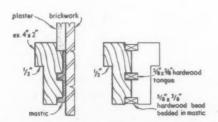


Fig. 5. The standard window frame section developed for St. Michael's and the Nursery Schools.

labour force may be more easily controlled and directed. Labour costs and standards of finish are predictable items. At all times during design, efforts were made to exploit these advantages, to select the most suitable materials for each job in terms of cost, durability, maintenance, etc., and to devise an appropriate working detail for the selected material. In fact, of course, most building materials are eminently suitable for their traditional usage, for instance, facing bricks, which are durable and have a pleasing appearance, were chosen for external walls, hard plaster as a finish on internal walls because of the ease of cleaning and redecoration, painted softwood for window frames because generally it has a longer life between redecoration than hardwood, timber for the roof structural system and so on.

From the materials themselves the architects moved to techniques where it was recognized that thoughtless detailing often produces operational inefficiency by necessitating a number of trades contributing to one item more or less at the same time and often getting in each other's way, or by having one trade carry out part of their work and then have to wait on another trade before finishing. It was regarded, therefore, as essential to separate the trades, as far as possible, to minimize interference and delays. Accordingly, for example, to keep concretor and bricklayer apart, the schools, which are built on an unreinforced concrete slab with strip concrete footings under external and load bearing walls, have no concrete above damp-proof level (6 in. above ground) and no brickwork below this level. Obviously these details are only suitable for average soil bearing capacities-alternatives have been devised for poor soil conditions.

Again it was found that the bricklayer and the carpenter could perform their operations independently if brickwork were built in slabs from floor to roof with no openings whatsoever and, where doors or windows occur these are carried up to the roof line with no brickwork above heads or below cills. This also simplified the plasterer's work as surfaces to be plastered were always plain surfaces from floor to ceiling and from corner to corner or window or door reveal. No openings occurred within these plain surfaces.

In designing the windows it was not intended to arrive at a standard window unit throughout the job. The aim was to select a very much smaller basic unit or module which would provide even greater flexibility in planning and design whilst at the same time simplifying construction. After considerable research the idea of devising a standard timber window frame section which would be used in a number of positions was accepted as the ideal basic unit. The earliest section perfected, Fig. 5, was used for head, jamb and mullion. More recently, with the advice of the Timber Development Association, the architects have developed two basic sections (Fig. 6) which, together cover all possibilities—head, jamb, mullion, cill, transom, suitable for all glazing or cladding conditions.

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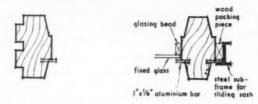


Fig. 6. Further developments of the standard section as used at a later school.



Fig. 7. A detail of the roof construction at St. Michael's, showing laminated timber principal beams.

It is hoped that this approach to detailing will eventually lead to a reduction in drawings, as standard drawings could be prepared showing the usual detailing problems met with at junctions between cills and floors, heads and ceilings, etc., and these standard drawings issued with the contract drawings for each new job.

The roof of St. Michael's consisted of pre-cambered laminated timber beams at 4-ft. centres, with softwood lattice beams for short spans covered with straw board and felt. Junctions of roof beams occur in the same plane by means of galvanized steel framing anchors, thus obviating the use of lintels over openings. Generally all services (hot and cold water and heating) run in the roof space in an unrestricted manner since it is possible to pass pipes through the beams anywhere within the middle third of their depth. Electric conduits run on top of the beams in the depth of the firring pieces. Access to services anywhere is ensured by the use of a demountable ceiling.

#### 3. Drawings

It was recognized that new techniques, the separation of the trades and the careful regulation of site operations necessitated a careful study of the drawings required and a probable rejection of traditional drawing types. The architects started by examining current drawing technique and decided exactly what purpose each drawing had to satisfy. This resulted firstly in a standardisation of scales to \( \frac{1}{8} \) in., \( \frac{1}{4} \) in., \( 3 \) in. and fullsize. Drawings were classified according to purpose and related to the construction phases. The result was a 1 in. key plan and elevations, 1 in. structural slab plan showing all setting out dimensions, drainage, structural walls, 4 in. finishes plan showing windows, non-structural partitions, sanitary and other fittings, but none of the information shown on the previous plan. This was followed by the 1 in. roof plan and details.

#### Conclusions

The architects responsible for the Nursery Schools and St. Michael's Primary School are a separate group to those working on Coventry's contribution to the CLASP programme within the City Architect's Department. The design approach initiated in a small way here is being steadily developed by them and amendments and refinements are continually being made to the construction details and structural systems already developed. They like to feel that their efforts at cost planning and site organisation will bring with them an improved standard of finishes as well as cheaper and more efficient techniques. At the moment their research into the structural possibilities of laminated timber sections is leading them to its application to multi-storey structures and it is hoped that use may be made of it in the near future, just as developments in the standard window section are being utilised in a couple of schools now on the drawing boards.

Some encouragement can be gained from the fact that the four Nursery Schools were all built within the contract time and well within the budget. NU

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design archit senion electr

Above: main en primary on the r

[433

building illustrated

SIB File No. (97)

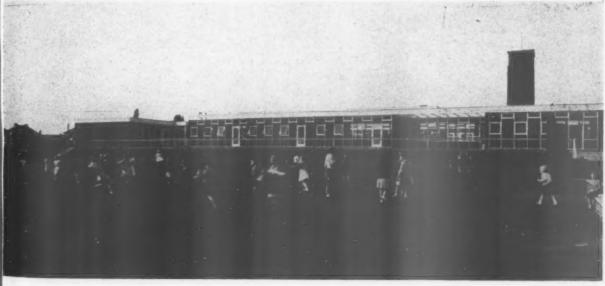
## NURSERY SCHOOL AND PRIMARY SCHOOL

ALDERMAN'S GREEN NURSERY SCHOOL, and ST. MICHAEL'S PRIMARY SCHOOL, COVENTRY designed by ARTHUR LING, city architect and planning officer; principal schools architect, w. Kretchmer architect-in-charge, Alfred Levy; assistant architect, t. Wall; chief quantity surveyor, Ronald f. Lear senior quantity surveyor, G. W. BICKHAM; assistant quantity surveyor, BRIAN DRAKE; structural, heating, electrical and ventilating engineer, GRANVILLE BERRY



Above: the west side of Alderman's Green school showing the main entrance porch on left. Below: the east side of St. Michael's primary school from across the asphalt playground. The tower on the right belongs to a building on the other side of the road.

The nursery school illustrated here is one of four schools of identical design being part of the 1957-58 programme. It is at present used as a primary school for two forms of the adjacent infants' school, but will eventually become a 1-unit Nursery School for 40 children. The same team designed St. Michael's Primary School which is a one-form entry school for 280 pupils comprising seven classrooms, a kitchen and a dining area for 150 meals, library and assembly hall. Both schools are the subject of a technical article on p. 427 on cost and programme planning.



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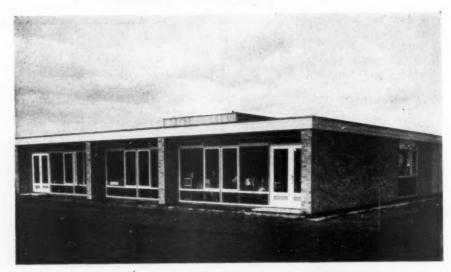
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pments sed in a

# Alderman's Green nursery school



Above: the south side. The deep fascia expresses the full depth of the laminated timber roof beams.

Right: economical planning is achieved with a central hall providing cloaks accommodation as well as access to classrooms and lavatories.

Below: the north side which shows the continuation of the fascia across the service porch thus linking the main block with the oil tank room on the left.







HEREN CHANGE STREET



Standard nursery school plan used at present as supplementary classroom accommodation for the adjacent infants school [Scale:  $\frac{1}{12}i'' = 1'$  0'']



Standard plan in its ultimate use as a nursery school

One of the two classrooms used at present as supplementary accommodation to the adjacent infants' school.



#### analysis

#### SUMMARY

Type of school: one-unit nursery school (temporary primary

Number of places: 40. Floor area: 2,339 sq. ft.

Area per place: 58 sq. ft. Net cost (excluding external works): £8,140 2s. 1d.

Net cost per place: £203 10s. 0 d. Net cost per sq. ft.: £3 9s. 71d. External works: £979 16s. 1d. Gross cost: £9,119 18s. 2d.

Type of contract: competitive tender, from selected list.

Tender date: January 7, 1958. Work began: April, 1958. Work finished: October, 1958.

	Tota	l		Co	
	cost			sq.	ft.
	£	S	d	S	d
Preliminaries and insurances and					
contingencies	381	2	11	3	34

547 3 0

716 9 2 6 11/2

Work below ground floor level Surface stripped 6 in. deep. Concrete ground beam. 8-in. bed hardcore blinded. 43-in. bed concrete. Patent bituminous d.p. membrane. Bituminous felt d.p.c. 3-in. insulation board. Heating ducts.

#### STRUCTURAL ELEMENTS

Structural walls	472	5	10	4	01/2
External walls: 11-in. hollow of					
facings and 4-in. lightweight					
concrete blocks.					
Internal walls: one brick in commons					

and reinforced half brick in commons. Reinforced concrete lintels.

external wall Ratio: floor area Windows and external doors

(including glazing and ironmongery) Softwood frames and casements, hardwood sub-sills.

Softwood panelled and glazed doors. Porcelain-enamelled metal-faced asbestos insulation board infilling panels.

Glazing: 1-in. g.w.p.p., 1-in. polished plate and 32-oz. Ironmongery: satin anodized aluminium.

windows and doors Ratio: floor area 1

1,289 17 8 11 01 Roof and rooflights

(including rainwater pipes) Softwood joists and plates. 2-in. strawboard. 3-layer bituminous felt roofing with chipping finish. Softwood fascia. Combined lantern light and tank housing. Steel rooflights and rainwater pipes. Area of roof: 3,196 sq. ft.

Area of rooflights: 29 sq. ft.

Total of structural elements per sq. ft.: 21s 24d.

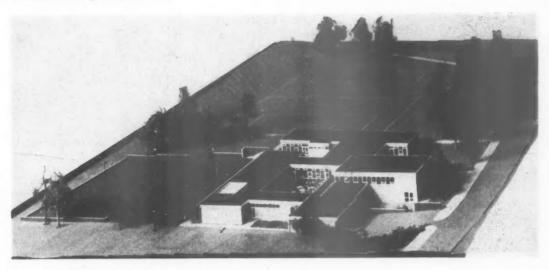
### analysis

# Alderman's Green nursery school

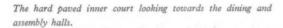
		Tot cost		d	1	ost er ft.		Tos cos £		d	sq	ost er . ft. d
PARTITIONS		~	3		,		SERVICES					
Partitions and inte		475	12	6	4	03	(external plumbing included under "roof")					
with plasterboard. Cloakroom partiti softwood studding	d divisions with  olive sq. yds. of g covered both sides on: 7 sq. yds. of						Heating and hot and cold water Low pressure compensated thermo- statically controlled hot water heating embedded floor warming coils; oil-fired boiler burner unit, pump circulation. Calorifier and mixing valves. Internal temps.: 65 deg. F. when external temperature is 32 deg. F.	1,488	1	10	12	82
Doors: four 15-in	med glazed with artition: 11 sq. yds. . softwood flush						Air changes: 2 per hour.  Type of supply: cold from mains.  Hot and mixed from calorifiers.  Distribution of fittings: dispersed.  Storage capacity: 95 gallons.	,				
doors covered with wood linings.	h plywood hard-						Sanitary fittings	303	5	8	2	7
Fittings Pin-up and chalk and racks. Meter		63	18	4		61/2	Type of fitting No. of each type Sinks 4 Basins 9 Drinking fountains I					
FINISHES							W.c.s 8					
Floor finishes Screeds: 1½-in. concrete be	ed over heating	750	15	2	6	5	Electrical installation	379	13	6	3	3
pipes, 255 sq. yds Cement and sand yds. Type of finish							Type of point No. of each type Lighting 45 Power 14 Clock 1 Lighting requirements, 10 lumens per sq. ft.					
Granolithic Quarry tiles Wood block,	5 sq. yds. 62 sq. yds.						Drainage	230	10	2	1	111
afzelia	183 sq. yds. with fibred rubber						(This covers only the drains within the curtilage of the building.) Salt glazed stoneware pipes and fittings. Brick manholes.					
Wall finishes 174 sq. yds., rend 12 sq. yds., eggsh	ler and set. ell blue wall tiling.	69	17	0		71	Courtyards Concrete paving slabs and curbs. Oil tank chamber, Louvred timber screens. Decoration.	295	1	9	2	64
Ceiling finishes 215 sq. yds. \(\frac{2}{3}\)-in. tion board panels.		247	16	9	2	11/2	Covered space for perambulators, and kitchen court.					
	perforated asbestos panels with glass						External works  These are not included in cost per sq. ft. of building, and cover roads, paths, drain and service connections		16	1	8	4
Decorations Two coats emulsi	on paint on walls	428	0	10	3	8	Total per sq. ft. of floor area: £8,140 28. Id. =				6	9 7
and ceilings. Three coats oil or work.							2,339 sq. ft.				-	-
Varnish on hardw Two coats of plas flooring.	rood. stic sealer on block									,		
Plastic leatherclot (Cost includes proworks of art, 51d.	ovisional sum for											

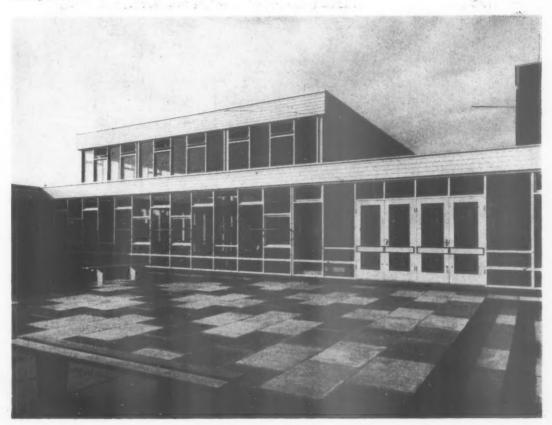
building illustrated

# St. Michael's primary school



Model of the building and the whole site showing proposed landscaping.





ft.

83

7

3

11½

64

4

09 /4

## building illustrated

# St. Michael's primary school



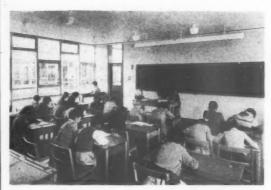
The infants' classrooms which face south.



Foot sh



The infants' reception classroom.



A typical junior classroom.



Young craftsmen at work in the practical room. Needless to say the door into the adjacent classroom is normally shut.



Foot showers in the boys' changing room.

#### analysis

#### SUMMARY

Type of school: one-form entry primary.

No. of places: 280. Floor area: 12,359 sq. ft. Area per place: 44 sq. ft.

Net cost (including sums chargeable to furniture account):

£42,581 14s. 10d.

Net cost per place: £152 Is. 61d. Net cost per sq. ft.: £3 8s. 10 d. External works: £4,445 17s. 7d. Gross cost: £47,027 12s. 5d. Tender date: June, 1958. Work began: July, 1958.

Work finished: August, 1959.

Cost sq. ft. Total cost s d s d 1,471 2 1

Preliminaries, insurances and contingencies

1,999 5 6 3 21

5,134 14 11 8 31

2 41

Work below ground floor level Surface stripped 6 in. deep, excavated to reduce levels. 5-in. bed of hardcore blinded. Concrete ground beams. 4-in. concrete bed. Liquid asphaltic composition d.p.m. Heating ducts.

2,118 16 9 3 5 Structural walls External walls, 11-in. hollow wall

of facings and 4-in. lightweight concrete blocks. Internal walls, one brick wall in commons.

Brick boiler flue with firebrick olining.

external wall Ratio: = 0.236 floor area

Windows and external doors Slate sub-sills, softwood frames, galvanised steel casements, metal louvred ventilators.

Softwood panelled and glazed doors, the glazing including some porcelain enamelled panels.

Cable gearing to hall windows. Softwood stud panels covered with cedar weatherboarding and lined fibreglass aluminium foil and plasterboard.

3-layer bituminous felt with chipping finish. Steel rainwater pipes. Area: 13,061 sq. ft.

windows and doors Ratio: --- = 0.624 floor area

Roof 6,719 11 1 10 101 Softwood laminated beams and latticed beams. 2-in. compressed straw decking. Hardwood fascia.

## building illustrated

## St. Michael's primary school





Left: an informal classroom used by the i fants with a finely detailed railing dividing the activity areas.

Centre left: looking into the library from the dining hall. Both rooms overlook a paved internal courtyard.

Below: the assembly hall, the ceiling of which has a flat corrugated profile and is finished in beech lathes fixed \(\frac{1}{2}\) in. apart with mineral wool above to provide sound absorption.



#### analysis

Cost Cost Total Total per per sq. ft. cost cost sq. ft. d s d Rooflights 541 11 7 104 FINISHES Steel rooflights. Timber lantern light and canopy Floor finishes 2,913 16 8 4 81 Cost includes cement and sand to kitchen. Rooflight area: 120 sq. ft. screeds. Lantern: 12 ft. 3 in.  $\times$  7 ft.  $\times$  3 ft. Area of Type of finish each type **PARTITIONS** Screed 1,311 sq. yds. Oil-proofed cement Internal partitions 709 13 7 1 13 and sand rendering 22 sq. yds. Granolithic Type of partitions Area of 49 sq. yds. Quarry tile and each type . . skirtings Lightweight concrete 248 sq. yds. Non-slip clay tiles blocks 299 sq. yds. 20 sq. yds. Softwood stud, Cork tiles 611 sq. yds. Afzelia wood blocks 362 covered with Afzelia skirting and steps with plasterboard or sapele matchboarding 29 sq. yds. steel balustrades. W.c. cubicles, Wall finishes plywood doors and 665 17 4 1 1 divisions with steel Render and set. White glazed wall tiling. frames 8 cubicles Provisional sum for decorative Folding screen 10 sq. yds. wall tiling. 574 0 5 Internal doors Softwood flush doors covered with Ceiling finishes 1,769 1 0 2,101 plywood. Softwood linings, and Softwood ceiling joists finished moulded beech slats, 3-in. asbestos finishing. Glazing. insulation board panels. No. of single doors: 34. No. of double doors: 4 pairs. Softwood cornice and blind box. 1,365 15 9 2 24 Decorations 1,730 0 7 2 93 2 coats emulsion paint on walls Store shelving, hat and coat rails, and ceilings. coat hanging units, potato hatch and chute, changing room benches Three coats oil on general and show lockers, drainers and sink supports, framed worktop, Two coats patent sealer on wood supervisor's desk, shoe locker units, block and cork tile floorings. Two coats patent varnish on cupboard units, enquiry hatch, kitchen servery. hardwood. Provisional sum for gymnasium Plastic leathercloth on walls. Provisional sum for works of art. equipment fixings. **Furniture** 598 19 6 113 SERVICES Pin-up and chalk boards, egg crate Sanitary fittings 956 19 0 1 61 storage units, staff locker, library shelf unit, shelving and cupboards, White glazed fireclay fittings. Preformed copper waste pipes and cupboard and open shelf units. steel ventilating pipes and fittings. Cost includes sum chargeable to furniture account. Mirrors. Cost includes builder's work. 767 5 1 1 3 Ironmongery Anodized aluminium. No. of Type of fitting each type W.c.s 18 Basins 22 Sinks II Urinals

Drinking fountains

by the railing

ry from rlook a

eiling of le and is in. apart ide sound

#### analysis

## St. Michael's primary school

Heating and ventilation and h	ot and	£	S	d	S	d
cold water services	ot and	5,936	14	8	9	71
Thermostatically controlled	warm	0,750	**			.4
air system.						
Cold water from mains.						
Hot water circulated by pun	nps to					
heat exchanger units and rad						
Calorifiers and oil fired boile	ers.					
Cisterns, galvanised steel: co						
cisterns and calorifiers, copp						
piping, galvanised steel and						
Temperature: 62 deg. F. wl						
external temperature is 32 de Air changes: 2 per hr.	eg. F.					
Distribution of fittings: disp	perced					
Storage capacity: 360 galls.	ocisca.					
		40-		•		
Gas installation	into: 1	105	0	0		2
Black steel tubing. No. of po	oints: 4.					
Electrical installation		2 198	17	1	3	$6\frac{1}{2}$
No.	of					
Type of point each	h type					
Light points 265						
Power points 36						
Clock points 3						
Thermostat points 13						
Switch points 67						
Lighting requirements, 10 lu	ımens					
per sq. ft.						
Drainage		1,024	13	1	1	8
(This covers only drains with	hin the					
curtilage of the buildings.)						
Salt glazed stoneware pipes	and					
fittings. Brick manholes.						
External works		3,279	19	2	5	33
(Included in net cost.)						
Tarmac playcourt. Brick reta	aining					
walls. Concrete steps.						
Steel balustrades.						
External works (additional)		4,445	11	7	.7	21
Roads, paths, drain and serv	rice					
connections, not included in	cost					
per sq. ft.						
Total per sq. ft. of floor area	ı:					
£42,581 14s. 10d. (excluding	g additions	al				
external works)						103
12,359 sq. ft. (measured insi	de externa	a1 =			08	103
walls)						

## COST COMMENTS

Both schools use identical basic forms of construction: apart from the methods of heating, difference between elements appear on comparison to be of a minor nature, e.g., hardwood sub-sills at the nursery school are replaced by slate sills at the primary, softwood fascias by hardwood, etc. The nursery school has a higher overall cost per sq. ft. as its compactness results in a relatively small floor area. The difference, however, is not immediately apparent as the children in the nursery school are given some 30 per cent more area per child than those in the primary school. These single-storey schools built in load-bearing cross-

wall construction are undoubtedly less expensive than those built with steel frames. Steel frames for single-storey schools are not economic unless coupled with the advantages to be obtained from increased flexibility in planning and speed of erection on site.

Without a frame a greater proportion of the total cost must go into roof construction: at Coventry, however, both schools have used a system of laminated timber beams which in themselves are relatively cheap. What is often forgotten when comparing them with, say, concrete beams is that the greater depth of the former adds to the overall height of elevations and more particularly to expensive eaves treatment. A total of 384 electric points have been installed at the primary school, which is a higher standard than is generally expected. The installation cost works out to £5 14s. od. per point, including fittings and builders' work.

The nursery school contract was obtained by competitive tender from a selected list. Presumably the same conditions applied to the primary school, though one might have expected the second contract to have been negotiated with advantage.

#### CONTRACTORS

Cost

per sq. ft.

Total cost

ALDERMAN'S GREEN NURSERY SCHOOL. General contractors: D. Lynch. Sub-contractors-Electrical installation: City Engineer's Department. Heating installation: Bayley & Dorsett. Roofing: Wm. Briggs & Sons Ltd. Sliding folding partitions: Esavian Ltd. Wood block floors: Viger Bros. Glass loweres: Glass (Coventry) Ltd. Laminated beams: Coventry Timber Bending Co. Ltd. Porcelain enamelled panels: Stewart & Gray Ltd. Preformed plumbing fittings: Econa Modern Products Ltd. Damp proof courses: RIW Protective Products Co. Ltd. Thermalite blocks: Thermalite Ltd. Facing bricks: National Brick Co. Ltd. Facing bricks, external works: Haunchwood Brick & Tile Co. Ltd. Lionide cloth: J. Williamson & Son Ltd. Febtone: FEB (Gt. Britain) Ltd. Lavatory basins and drinking fountains: Adamsez. W.c. pans: Leeds Fireclay Co. Ltd. Stramit board: Stramit boards Ltd. Ceilings: Cape Asbestos Co. Ltd. Ironmongery: G. & S. Allgood Ltd. Corroglaze: E. H. Smith (Westhaven) Ltd. Paints: ICI Ltd. Paints Division. Varnish: Nu-Finishes. Bourne seal: Floor Treatments Ltd. Lynx cisterns: Shire & Co. (London) Ltd. Formica faced resin-bonded plywood panels: Wm. Mallinson & Sons Ltd.

ST. MICHAEL'S PRIMARY SCHOOL. General contractors: F. Hocking & Son Ltd. Sub-contractors-Electrical installation: P. D. Brady. Heating installation: G. C. Toogood Ltd. Roofing: Wm. Briggs & Sons. Sliding folding partitions: Esavian Ltd. Metal windows, roof lights and cable gear: Crittall Manufacturing Co. Ltd. Floor finishes: Coventry Tile Co. Ltd. Sunsash louvres: Glass (Coventry) Ltd. Laminated beams: Coventry Timber Bending Co. Ltd. Preformed plumbing fittings: Econa Modern Products Ltd. Lightweight concrete blocks: Thermalite Ltd. Facing bricks, external works: Haunchwood Brick & Tile Co. Ltd. Febtone: FEB (Gt. Britain) Ltd. Lavatory basins and drinking fountains: Adamsez. W.c. pans: Leeds Fireclay Co. Ltd. Stramit boards: Stramit Boards Ltd. Ceilings: Cape Asbestos Co. Ltd. Ironmongery: G. & S. Allgood Ltd. Varnish: Nu-Finishes. Bourne seal: Floor Treatments Ltd. Lynx cisterns: Shires & Co. (London) Ltd. Facing bricks, school: Baggeridge Brick Co. Ltd. D.p.c. membrane: British Bituminous Emulsion Ltd. Pitch fibre pipes: Key Engineering Co. Ltd.; Union Fibre Pipes Heavy density cork tiles: Cork Insulating & Asbestos Co. Ltd. Trip-L-Grip framing anchors: McAndrews & Forbes Ltd. Paint: Permaglaze Ltd. Aluminium foil: A. Latter & Co. Ltd. Metal balustrade: T. Sadler.

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m: City yley & |folding | Bros. |beams: |amelled |fittings: |: RIW |crmalie | bricks, |Lionide |Britain| |damsez.

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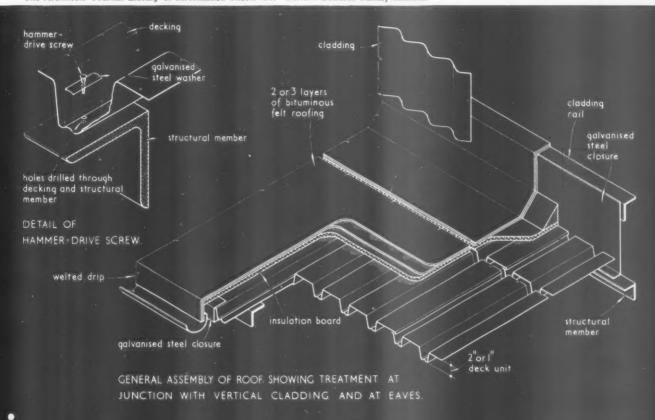
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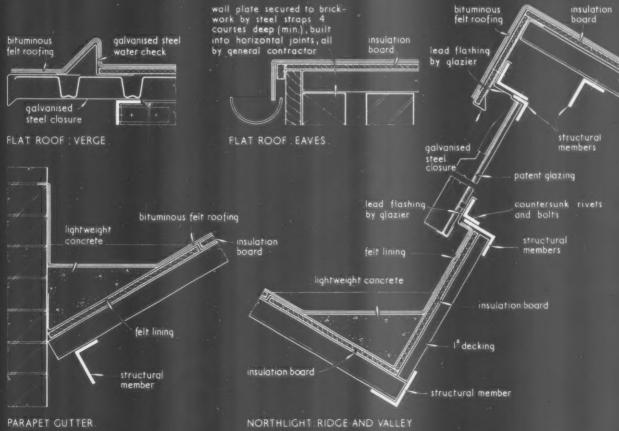
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# ROOFS COMPOSITE

The Architects' Journal Library of Information Sheets 736. Editor: Cotterell Butler, A.R.I.B.A.





### 20.Z10 ANDERSON INSULATED STEEL · D· DECKING

This Sheet describes a roof built up from galvanised steel decking, rigid insulation and bituminous roofing. Light in weight and quickly and easily erected using "dry" construction, it may be used for flat or sloping roofs and for most vertical constructions. The Sheet should be read in conjunction with Sheet 20.Z7 as the fixing for pitched roofs and patent glazing is similar to that given for E decking (aluminium).

The deck units are manufactured from hot-dip galvanised sheet steel, the material complying with Class F of Group 2 of B.S. 2989: 1958 and also with B.S. 1449: 1956 for steel in sheet form. The profile of the sheets is as shown on the face of the Sheet: side edges are interlocked 1 in. and the ends of units joggled to give a smooth rigid joint.

The maximum unsupported overhang at ends of deck units is 1 ft. 0 in. and 1 ft. 3 in. for 1-in. depth, for 22 and 20g respectively, and 1 ft. 6 in. and 2 ft. 0 in. for 2-in. depth. Side overhangs should not exceed 4 in. for 1-in. depth and 6 in. for 2-in. depth. The drawings show details for eaves and verge of a

flat roof, northlight glazing and a parapet gutter. Fixing: The decking is secured to the supporting structure by hammer-drive screws which give a neater finish than clips or hookbolts. They are fixed from above the decking; scaffolding is not normally required except sometimes for eaves finishes.

Insulation: The standard insulation is ½-in. fibreboard bonded to the top of the decking in hot bitumen. Other insulation can be used and typical U values are given under Thermal Transmittance. The insulation conserves heat losses and provides a barrier against solar heat, reducing the risk of roof movement due to expansion. Where a humid movement due to expansion. atmosphere is anticipated inside the building, a layer of felt should be fixed below the insulation as a

vapour barrier.
Roof covering: The roof is waterproofed with built-up bituminous felt, the number of layers depending on the climatic conditions and whether the roof is flat or pitched. General recommendations are given in B.S. Code of Practice C.P. 144.101:1952 and the manufacturer will prepare specifications for particular applications, taking into account the degree of insulation required and necessity for a vapour barrier. Arrangements can be made in the planning stages for the roof to be completed and waterproofed in advance of other trades, who can then operate under its protection, there being no props, etc., to hinder their

### work. Weight

Flat or pitched roofs up to 10°, finished with \{\frac{1}{8}\)-in. to 1-in. stone chippings weigh 8 lb./sq. ft. Pitched roofs over 10° finished with mineral-surfaced felt weigh 6 lb./sq. ft.

The depth and gauge of decking used will depend on the span and the superimposed load, as given in the tables below. Reference should be made to B.S. Code of Practice C.P.3, Chapter V, 1952, and the local byelaws. The Code of Practice recommendations with regard to wind pressure should be specially noted, particularly the section relating to suction on flat and low pitched roofs. Where the buildings are

high and exposed to strong winds special consideration may be necessary.

Decking 1 in. deep:

				Safe	inclusive	e load in	lb./sq. fl		
(ft.	and	nd		gauge			ige		
III	n.)	A	В	С	D	A	В	С	D
3	4	185	83	185	124	148	66	148 83 65 53	99
2	6	92	54	104	-	65	61	83	-
5	0	104 82 67 56 46	83 77 54 39 29 23	104 82 67 56	_	83 65 53	31	53	=
5	6	56	29	56	-	44	31 23	44	-
6	0	46	23	46		37	18	37	-

Decking 2 in. deep:

	S	afe inclusive lo	ad in lb./sq. ft			
Span (ft. and in.)	20	gauge	22	2 gauge		
(It. and in.)	A	В	A	В		
5 0 6 0 7 0 8 0 9 0	180 126 93 73 57 47	180 126 84 56 40 28	140 100 73 58 45 37	140 100 67 45 32 22		

A=Simply-supported, safe load based on stress
B=Simply-supported, safe load based on deflection limited to 1/250 span
Continuous over two spans, safe load based on deflection limited to
1/250 span
D=Continuous over three spans, safe load based on deflection limited to
1/250 span

#### Thermal Transmittance

The following U values are obtained using the various insulating materials as shown:

	Insui	ation t	oard	Cork				
Insulation	in.	∦ in.	1 in.	₫ in.	I in.	2 in.		
U value for composite roof system	0.32	0.26	0.22	0.23	0.19	0.12		

In accordance with normal practice it is recommended that the steel decking be painted after fixing. A paint suitable for galvanised surfaces should be used embodying a calcium plumbate primer or similar.

Compiled from information supplied by:

D. Anderson and Son Ltd.

Head Office: Stretford, Manchester.

Telephone: Longford 4444.

Telegrams: Roofing, Stretford. London Office: Old Ford, E.3. Telephone: Amherst 9381.

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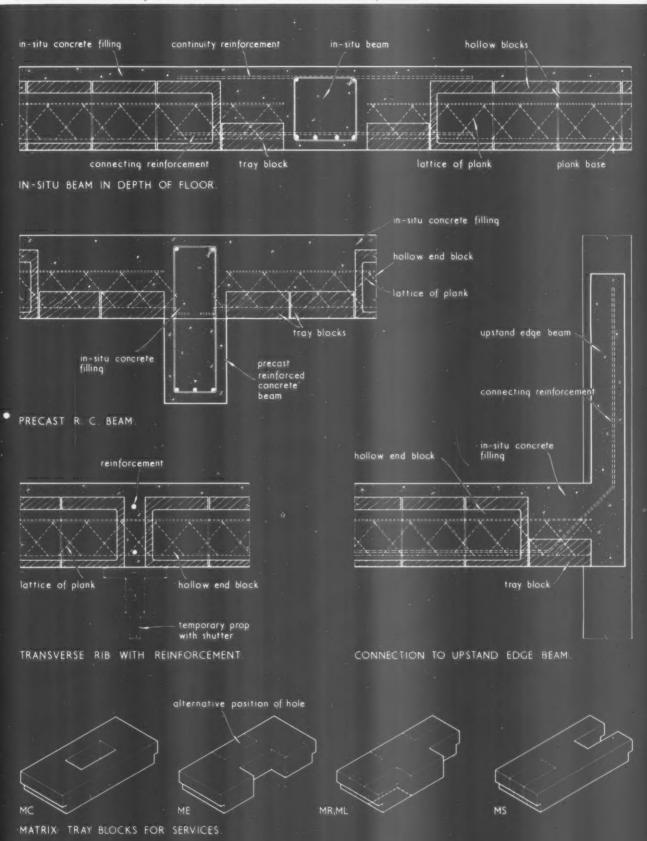
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# FLOORS | PRECAST CONCRETE AND HOLLOW BLOCKS

20. Z 12 5

The Architects' Journal Library of Information Sheets 737. Editor: Cotterell Butler, A.R.I.B.A.



### 20.Z12 ·OMNIA · FLOORS: 2. APPLICATIONS

This Sheet, the second on Omnia floor construction, gives typical details of treatment at walls, bearers, openings, etc. Sheet 20.Z11 gives a general description of the system and Sheet 20.Z13 gives loading data, including details of tests.

#### Floors Supported on Beams

In-situ beam in depth of floor: The drawing on the upper face of the Sheet shows a reinforced concrete in-situ beam within the thickness of the floor. The beam is flanked by tray blocks to form a tee flange and loose reinforcing bars are added, as shown, connecting the planks to the beam and providing continuity reinforcement.

*Precast r.c. beam:* Where a precast beam is used, the in-situ tee flange is formed as described under *In-situ beam in depth of floor*. The planks rest  $1\frac{1}{2}$  in. on the precast part of the beam, the plank reinforcement protruding into the in-situ portion.

In-situ r.c. beam: Where an in-situ beam protrudes below the soffit of the floor, the planks rest on the side shuttering of the beam, but otherwise the arrangement is similar to that for a precast r.c. beam.

Upstand edge beam: The treatment for an upstand edge beam is similar to that for an in-situ beam in the depth of the floor. Tray blocks may be used at the wall end and loose reinforcement bent up and positioned as shown in the drawing to connect with the plank.

Transverse rib: Transverse ribs for stiffening and load distribution can be formed in situ between ends of blocks as shown in the drawing. A line of temporary props, which normally occur at about 6-ft. centres, can often be arranged to coincide with the position selected for the transverse rib and can be used to support a shutter board: otherwise tray blocks can be used as shuttering.

#### Floors Supported on Walls

Where floors are supported on brick walls, the ends of the planks bear on the brickwork for a minimum of 3 in. The hollow blocks can be stopped at the wall face, but in-situ concrete must be cast to at least the full length of the plank. In the case of 9-in. walls, the outer layer of bricks acts as end shuttering: for  $4\frac{1}{2}$ -in. and cavity walls, end shuttering must be provided. Where adjacent

slabs are both supported on a  $4\frac{1}{2}$ -in. partition wall, the planks from either side are suitably offset: with a 9-in. wall they can be aligned.

#### Trimming for Openings

Openings for stairwells, rooflights, chimney stacks, etc., can be easily formed with Omnia trimmer planks. These incorporate precast upstands which fully enclose the opening and provide complete permanent shuttering with a neat finish.

#### Services

Electric conduits and service pipes can be run in the finishing screed, in the concrete topping or in the space between a suspended ceiling and the floor. Services may also be run parallel with the planks in the in-situ concrete, or at right angles to the planks by forming a channel with a transverse row of tray blocks in place of standard hollow blocks. For use where vertical services pass through the slab, 'Matrix-tray blocks with holes provided are available. The drawings on the lower face of the Sheet show the nine positions for the hole which can be arranged with the following five types of block available:

MC: centre hole.

ME: hole in centre of long side.

MR, ML: hole in right corner, left corner respectively.
MS: hole in centre of short side.

#### Further Information

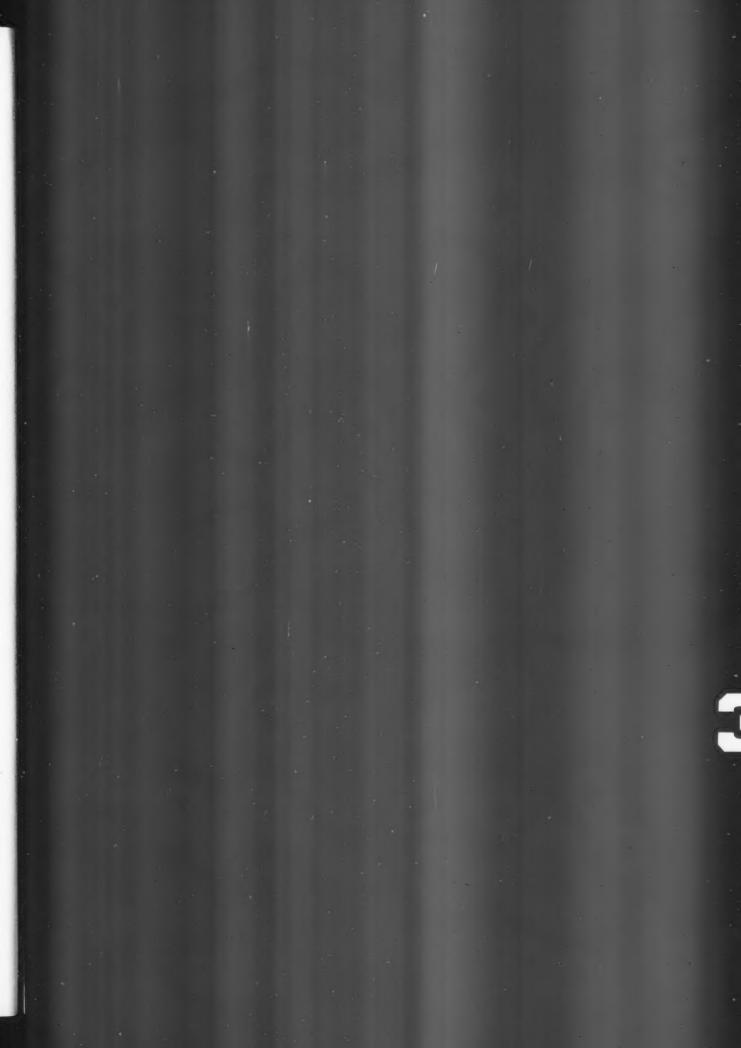
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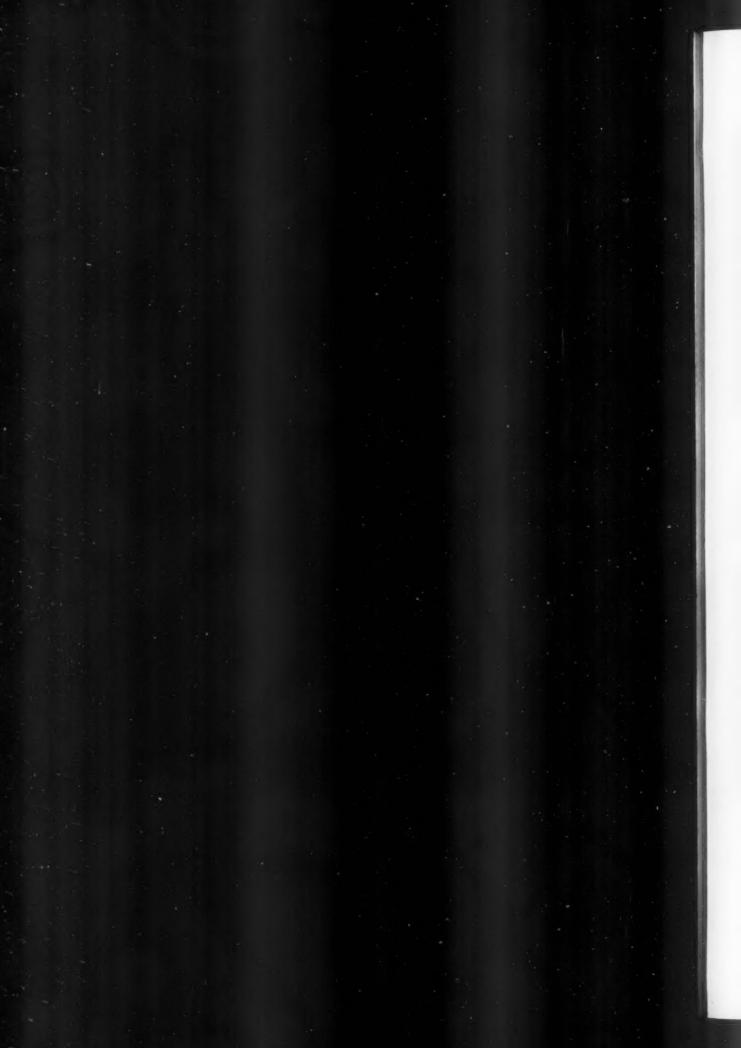
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FURNITURE AND FITTINGS: 80

working detail

TELEPHONE BOOTHS: AIR TERMINAL IN COPENHAGEN

Arne Jacobsen, architect (material supplied by Alice Mylo)

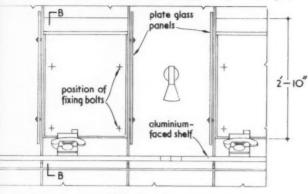


Too much should not be expected from these boxes in the way of sound screening, but it is probably sufficient in a room with a fairly high noise level and some measure of interference is a small price to pay for escape from the more usual igloo type canopy. Note the high quality metal finishes on the parts subject to wear and, in particular, the neat recessed joint round the edge of the prefabricated aluminium sheet forming the underside of the canopy. Contrast also the coin boxes with the G.P.O.'s huge strong-boxes.

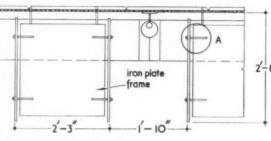
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TELEPHONE BOOTHS: AIR TERMINAL IN COPENHAGEN

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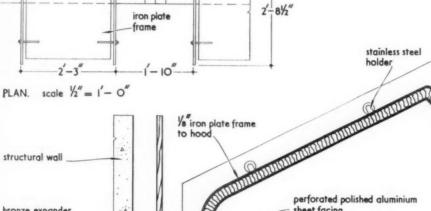


ELEVATION. scale 1/2"=1'-0"



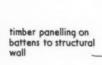
bronze expander

bolts



I"insulation board

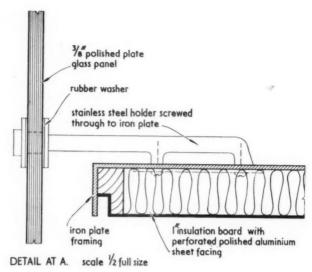
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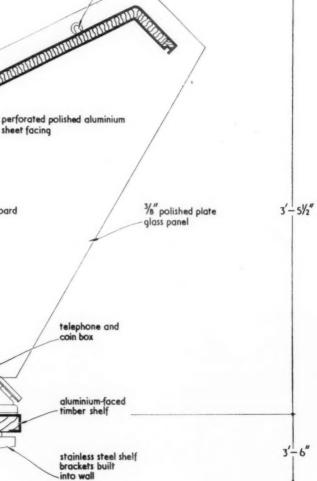
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SECTION B-B. scale 1/8 full size



stainless steel holder



note: figured dimensions in feet and inches are approximate





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turbine hall, showing the Ruston gas turbines and in centre of right wall, the glassfronted control room. The power house was designed by the General Division of the Architects' Department of the London County Council, chief architect, Hubert Bennett.

# Announcements

**PROFESSIONAL** 

Gerald J. Ellott, A.R.I.B.A., A.N.Z.I.A., has commenced practice at MLC Building, Queen Street, Auckland, New Zealand, in association with Donald Crawford Lloyd, A.R.I.B.A., A.N.Z.I.A., who is in practice at Queen's Chambers, Main Road, Upper Hutt, Wellington, New Zealand.

Paul Norveil, A.R.I.C.S., has moved his practice to 13, Wimpole Street, London, W.1 (telephone Langham 9852) and will be pleased to receive trade literature.

A. H. Brotherton & Partners, Chartered Architects and Surveyors, of 39, Oxford Road, Manchester, 1, have opened a branch office at 12a, Alderley Road, Wilmslow, Cheshire, where they will be pleased to receive trade catalogues and literature.

TRADE Goodenough Pumps Ltd., have appointed R. S. Reade as General Manager of the company.

Purimachos Ltd., announce that L. Williams has retired from his position as Sales Manager. His successor is Mrs. M. J. Murray who is operating from the company's Head Office at Bristol.

F. H. Bourner & Co. (Engineers) Ltd., have formed a new company—F. H. Bourner (Fixings) Ltd., Manor Royal, Crawley Sussex.

Siemens Edison Swan Ltd., have moved to a new branch office at 247, Western Road Leicester. The telephone number remains unchanged.

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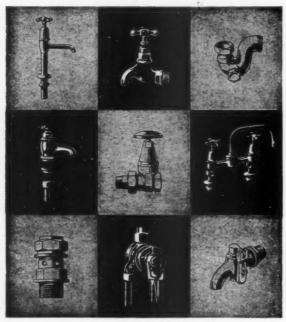


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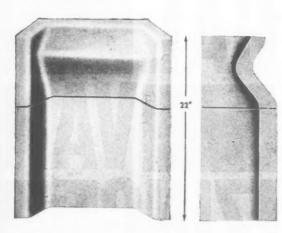
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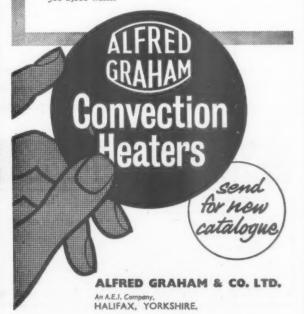
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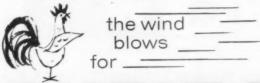
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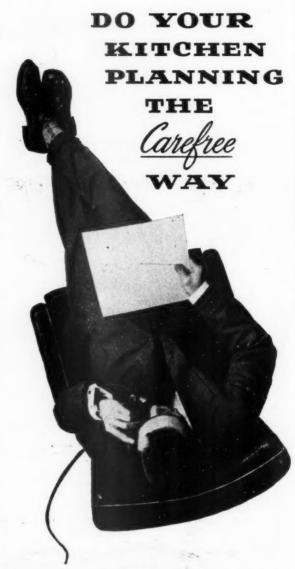


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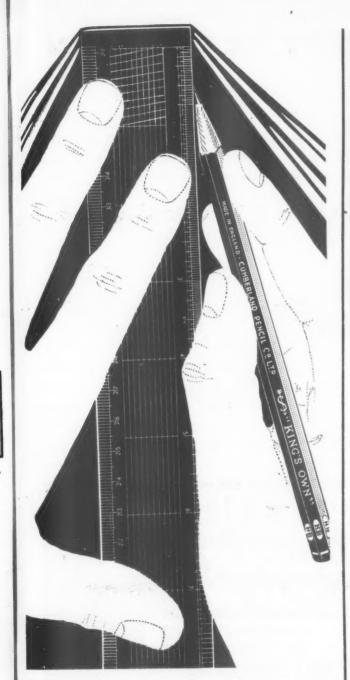
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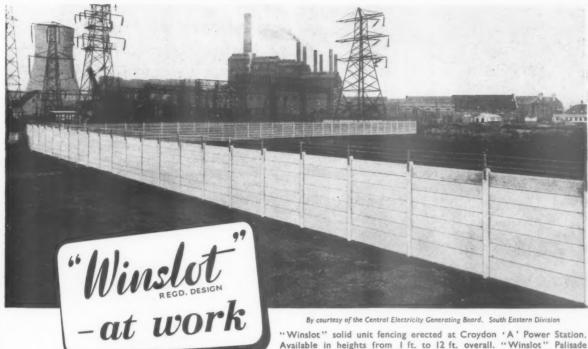
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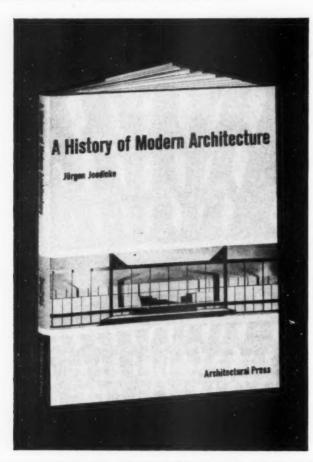
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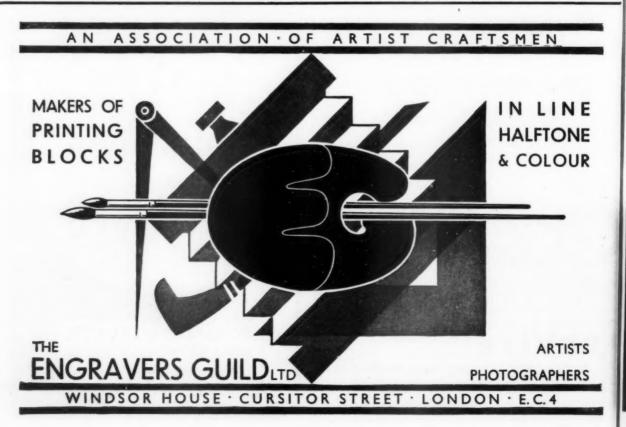
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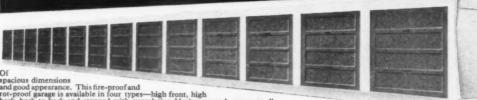
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Grade A.P.T. II (2765—2800 p.a.).
Annicants for post (a) must be fully analified Architects with good experience and should possess drive and initiative.
Annicants for posts (b) and (c) should have nassed the Intermediate Examination of the B.I.B.A. or R.I.C.S. as appropriate.
The commencing salary will be fixed according to the experience of the selected annicant. The appointments are subject to the provisions of the Local Government Superannuation Acts, to the National Scheme of Conditions of Service and to one month's notice in writing.
Half of the reasonable costs of removal expenses will be naid and where appropriate housing accommodation will be made available as soon as possible.
Annications, giving full particulars of past experience and quoting the names and addresses of two referees, should be delivered to the Rorough Surveyor, 90, Station Road, Solihall, Warks., not later than Friday, 6th November.

W. MAURICE MELT... Town Clerk

The Conneil House, Solihull. 13th October, 1959.

COUNTY BOROUGH OF SOUTHAMPTON requires under N.J.C. conditions of service:

(a) ASSISTANT ARCHITECT, Special Scale, 2785—21,070. Applicants must have passed Faris I and II of the R.I.B.A. Final Bramination and have had experience in housing design and construction and estate layout, preferably with a municipal authority.

(b) ARCHITECTURAL ASSISTANT, A.P.T. Grade II, 2765—2880. Applicants are required to have passed the Intermediate B.I.B.A. Examination or its equivalent at one of the recognised schools of architecture, and preferably have had experience in local government housing.

Apply on application forms obtainable from the Borough Engineer and Surveyor, Civic Centre, Southampton, by Monday, 2nd November, 1959.

the Borough Engineer and Surveyor, Civic Centre, Southampton, by Monday, 2nd November, 1959.

CITY OF HALIFAX
NOVA SCOTIA. CANADA
PLANNING ASSISTANT
Urgently required to assist the Director of Planning, K. M. Munnich, in work on an extensive redevelopment programme shortly to be undertaken by the City. Candidates to this new post should have some planning experience and be qualified planners. Additional qualification in architecture would be an advantage.
Salary range—\$4.455 to \$5.632 per annum defraying travelling expenses from overseas a strong possibility for the successful candidate. The work will include design for residential and commercial renewal of the central area of the City and development plan for the whole of Halifax and it will offer excellent opportunities to the successful candidate for progressive planning work and professional advancement.
Apply by Air Mail enclosing a recent photograph and stating age, marital status, educational training, details of experience, names and addresses of three references and when available, to G. F. West. Commissioner of Works. City Hall. Halifax. Nova Scotia.

METROPOLITAN BOROUGH OF CAMBERWELL
ASSISTANT ARCHITECTS
(BOROUGH ARCHITECT'S DEPARTMENT)
Vacancies for Assistant Architects, within a salary range of £795 to £1,405. Grade and commencing salary according to qualifications and experience. The work of the department includes salary range of £795 to £1,405. Grade and commencing salary according to qualifications and experience. The work of the department includes salary range of £795 to £1,405. Grade and commencing salary according to qualifications and experience. The work of the department includes and construction of public buildings, housing estates, including multi-storey construction. Application form from Town Clerk. Town Hall, S.E.S. Closing date 14th November, 1959.

ARCHITECT'S DEPARTMENT
QUANTITIES DIVISION
Opportunity for interesting and rewarding careers in various branches of quantity surveying. Applications invited, particularly from newly qualified SURVEYORS, for following types of work:

Junior taking-off/working-up.
Approximate estimating and assisting in cost planning.

Approximate companies for estimates companies with tenders.

Preparation and settlement of final accounts for major building contracts including interim valuations.

Measurement of minor works, schedule accounts.

valuations.

Measurement of minor works, schedule accounts, etc.

General technical duties and working-up.
Salaries up to £1,135. Application form and further particulars from Hubert Bennett, FR.I.B.A. Architect, London County Council.

County Hall. (2286)

ARGYLL COUNTY COUNCIL
ARCHITECTURAL ASSISTANT
Applications are invited for the post of Architectural Assistant in the County Architects Department, Dunoon. The salary scale will be Executive III-IV (£735-£855 per annum) with placing according to qualifications and experience. The post is superannuable.

Applicants must have had a general architectural training, be capable of surveying, levelling, preparing detailed drawings and specifications and have had experience particularly in connection with Housing and Schools.

THE SUCCESSFUL APPLICANT WILL BE GIVEN THE TENANCY OF A POIIT APART MENT COUNCIL HOUSE IF REQUIRED.

Applications stating age, experience and qualifications and giving names of two referees to be lodged with the County Architect, County Offices.

Dunoon, not later than 7th November, 1959. 649

COUNTY BOROUGH OF TYNEMOUTH
ROROUGH STRVFYOR'S DEPARTMENT
SENIOR ASSISTANT ARCHITECT required
architectural work. The Denartment has a full
and varied programme of work in hand, including
setorey flats, and Municipal Offices.
The starting salary will be in accordance with
qualifications and experience, and the Council
may assist in the provision of housing accommodation.

A JUNIOR ASSISTANT ARCHITECT (£610—
Application forms, forgather with

A JUNIOR ASSISTANT ARCHITECT

A JUNIOR ASSISTANT ARCHITECT

Application forms, together with conditions of appointment, are obtainable from D. M. O'Herlihy, O.B.E., B.S.C.Eng.). M.I.C.E., 15. Northumberland Square. North Shields. to whom they should be returned by 16th November. 1994.

F. G. EGNEB.

Town Clerk.

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3.NER. on Clerk.

HOLLAND COUNTY COUNCIL invite applications for the appointment of an ASSISTANT ARCHITECT. Salary will be in accordance with qualifications and experience, not exceeding £1,070 per annum.

The appointment will be subject to the provisions of the Local Government Superannuation Acts, N.J.C. Scheme of Conditions of Service and a medical examination. The County Council would consider making a contribution towards the cost of removal.

Forms obtainable from the County Architect, should be returned to the Clerk of the County Council, County Hall, Boston, Lincs, by 5th November, 1959.

BRITISH RAILWAYS

should be returned to the Clerk of the County Council, County Hall, Boston, Lines, by 9th November, 1959.

\*\*BRITISH RAILWAYS\*\*

Applications are invited for the post of ASISTANT ARCHITECT in the office of the Architect, Eastern Region, British Railways, at King's Cross. The office is engaged on a wide range of interesting buildings, and gives responsibility for design, administration and site supervision to those with ability. Applicants should be qualified with some years practical experience. Starting salary 2943 D.a. Modern working conditions, five-day week, and substantial rail travel concessions. Apply in writing to Chief Civil Engineer, British Railways, Eastern Region, King's Cross Station, London, N.1. 6534

\*\*BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT Applications are invited from suitably qualified and experienced persons for the following permanent appointment:—

\*\*ASSISTANT QUANTITY SURVEYOR, Grade A.P.T. 1-11, Special Grade (£575-£725-£845-£1,330 per annum). The Grade and position within the Grade on which the successful applicant is appointed will be according to qualifications and experience, with prospects of promotion to Senior Assistant.

\*\*Applicants should have experience of Local Anthority Housing work, including taking off. site measuring, interim certificates and final accounts. Experience in dilapidations would be an advantage.

The appointment will be subject to the Local Government Superannuation Acts, the National Conditions of Service, to the passing of a medical examination and will be terminable by one month's notice in writing on either side. Housing accommodation will be provided if required.

\*\*Applications giving age, experience, etc., together with the names of not more than three persons to whom reference can be made should reach the Borough Engineer and Surveyor, 6, Pulteney Buildings, Weymouth, not later than Saturday.

\*\*Lett.\*\*It.\*\* Jones.\*\*

\*\*Lett.\*\*It.\*\* Jones.\*\*

\*\*Municipal Offices.\*\*

E. J. JONES, Town Clerk.

Municipal Offices, Weymouth. October, 1959.

October, 1959.

ARCHITECTS AND MAINTENANCE SUR-VEYORS. Pensionable posts for men and women at least 25 and under 35 on 1st January, 1959 (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 posts, 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 230 to 21,125 according to age. Scale maximum (London) 21,300. Promotion prospects. Write Civil Service Commission, 17 North Audley Street, London, W.I., for application form, quoting 860-61.

BEDLINGTONSHIRE URBAN DISTRICT
COUNCIL
ARCHITECTURAL ASSISTANT
Applications are invited for the undermentioned appointment in the Surveyor's Department.
Architectural Assistant, salary in accordance with Special Grade, 2785—21,070. Applicants must have passed the Intermediate Examination of the Royal Institute of British Architects, or its equivalent, and have had considerable experience in architectural work, particularly housing and shop redevelopment. Housing accommodation will be made available in approved circumstances.
Applications accompanied by names of three referees to be delivered to the undersigned not later than Saturday, the Sist October, 1989.
Caucil Offices,
Bedirector.

Council Offices, Bedlington, Northumberland. 16th October, 1959.

CITY ARCHITECT'S OFFICE

MANCHESTER

Applications invited for the appointment on the permanent staff of a DEPUTY CHIEF STRUCTURAL ENGINEER, salary A.P.T. V, £1,220—21,375 per annum. Candidates must be A.M.I.Struct.E., or A.M.I.C.E., and have had at least five years' design experience since becoming an Associate member. Should also have a sound knowledge of design in reinforced concrete, steelwork and structural timber work, together with an adequate knowledge of current by-laws and codes of practice. Housing accommodation may be provided for a limited period. Removal expenses. Five-day week. Application forms from City Architect, Town Hall, Manchester, 2. Returnable by November 11th.

COUNTY OF LINCOLN
PARTS OF KESTEVEN
COUNTY ARCHITECT'S DEPARTMENT
TWO ASSISTANT ARCHITECT'S
Special Grade (£785—£1,070)
Full particulars of the above appointments may
be obtained from the County Architect, County
Offices, Sleaford, Lincs.
Applications from suitably qualified persons,
together with the names and addresses of two
referees, should reach the undersigned not later
than the 25rd November, 1959.

Clerk of the County Council.
County Offices,

County Offices, Sleaford, Lines.

County Offices, Sleaford, County Cou

porary appointment:— ARCHITECTURAL ASSISTANT, Grade II, £765

London weighting is paid in addition, and a salary in excess of the minimum may be paid according to qualifications and experience. The appointment is for work on a new Technical College and is expected to be for a period of not less than 3 years.

Further details and application forms returnable by 13th November, 1959 from the Town Clerk. Town Hall, East Ham, E.6.

6498

Town Hall, East Ham, E.6. 6498

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT
ARCHITECT'S (up to £1,25) required for interesting and varied programme of alterations and improvements works to Educational establishments and other buildings. Candidates expected to be able to carry jobs through from scheme stage to completion. Starting salaries according to qualifications and experience.
Particulars and application form returnable by 14th November, 1959, from Hubert Bennett, F.R.I.B.A., Architect to Council (EK/104/59), County Hall, S.E.I. (2311.) 6506

CITY OF LEEDS
CITY ARCHITECT'S DEPARTMENT
Applications are invited for the following appointments:—

1. ASSISTANT ARCHITECTS, Grade A.P.T.
III. Salary Scale 2880-21,065.
2. ASSISTANT ARCHITECT, A.P.T. II, £765—

3. ARCHITECTURAL ASSISTANT, A.P.T. I. 4. DRAUGHTSMAN (Female), G.D., Max. £595. 5. DRAUGHTSMAN (Structural), A.P.T. I, £610

-2765.

SENIOR ASSISTANT HEATING ENGINEER, A.P.T. III, £880-£1,065.

A.SSISTANT QUANTITY SURVEYORS, A.P.T. III. £880-£1,065.

8. ASSISTANT QUANTITY SURVEYORS, A.P.T. II, £610-£765.

9. ASSISTANT LAND SURVEYOR, A.P.T. II, £765-£880

9. ASSISTANT LAND SURVEYOR, A.P.T. II, 2765-2890.
10. ASSISTANT LAND SURVEYORS, A.P.T. I. 2610-2765.
11. ASSISTANT SURVEYOR, A.P.T. I. 2610-2765.
12. ASSISTANT SURVEYOR, A.P.T. I. 2610-2765.
13. CLERKS OF WORKS, A.P.T. I. 2610-2765.
14. ASSISTANT SURVEYOR, A.P.T. I. 2610-2765.
15. CLERKS OF WORKS, A.P.T. II. 2610-2765.
16. Applicants must clearly indicate the post for which they wish to be considered.
16. Application forms from the Acting City Architect, Priestley House, Quarry Hill. Leeds, 9, to whom they should be returned by 12 noon on Saturday, 14th November, 1959.

Canvassing disqualifies.

P. B. HASWELL.

P. B. HASWELL, Acting City Architect.

Priestley House, Quarry Hill, Leeds, 9. 19th October, 1959.

COUNTY BOROUGH OF DONCASTER
Applications are invited for the post of TEMPORARY ASSISTANT ARCHITECT in the
Borough Architect's Department. Salary in
accordance with the Special Grade, 2785—21,070.
Applicants must have passed parts 1 and 2 of
the R.I.B.A. Final or the Special Final Examina-

the R.I.B.A. Final or the Special Filies Basiliustion.

The appointment will be subject to one month's
notice on either side, will be superannable and
the successful applicant will be required to pass
a medical examination.

Application forms may be obtained from the
Borough Architect, L. J. Tucker, Esq., A.R.I.B.A.,
F.I.Hsg., 15 South Parade. Doncaster, to whom
they must be returned by the 9th November, 1959.

H. R. WORMALD,
Town Clerk.

COVENTRY
ARCHITECTS. Special Grade (£785—£1.076) with additional £26 p.a. on salary up to £795 in certain circumstances. Appointments may be made within the grade, according to experience and qualifications. Permanent and pensionable, subject to satisfactory medical certificate. Housing accommodation in approved circumstances, also interest free loan for removal expenses.

penses.
Application forms and details from City Architect and Planning Officer, Council House, returnable by 12th November.

ARCHITECTURAL ASSISTANT required in the New Works Section of British Road Services Limited. The office is located in London but work on projects in various parts of the country will involve travel. Applicants must be architects of wide experience and able to handle projects from sketch designs to completion, including the preparation of working and detailed drawings and specifications and supervision of work. Salary range £1,020-£1,075.

Applications giving age, experience and qualifications to Personnel Officer, British Road Services Limited, 222 Marylebone Road, London, N.W.1.

BOROUGH OF SUTTON & CHEAM BOROUGH ENGINEER & SURVEYOR'S DEPARTMENT APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of an Architectural Assistant, Grade A.P.T. II (2765-2380 per annum, plus 220/230 London weighting per annum).

Applicants should have good general experience in Housing and Public Buildings and should have reached Intermediate R.I.B.A. standard. The commencing salary will be according to ability and experience. The appointment, which is terminable by one month's notice in writing on either side, is on the permanent staff of the Corporation, is subject to the provisions of the Local Government Superannuation Acts, 1937-53, and to the National Scheme of Conditions of Service.

and to the National Scheme of Conditions of Service.

The successful candidate will be required to pass a medical examination. Forms of application may be obtained from Mr. C. Needham, M.I.C.E., M.I.Mun.E., A.M.I.Struct.E., Borough Engineer and Surveyor, to whom they should be returned accompanied by copies of two recent testimonials not later than 14th November, 1959, endorsed "Architectural Assistant."

Applicants must state whether they are related to any member or holder of any Senior Office under the Borough Council. Canvassing in any form will disqualify.

ARTHUR PRIESTLEY,

Town Clerk.

Municipal Office, Sutton, Surrey. October, 1959.

ARCHITECTURAL ASSISTANTS

REQUIRED BY

MINISTRY OF WORKS

For employment in London, Keen and enthusiastic Assistants of Intermediate R.I.B.A. standard are required for the design of interesting and varied types of buildings in all parts of the world. The salary range is from £550 (at age 21) to £900. Starting pay according the size and experience. 5-day week. 33 weeks annual leave. Good prospects of promotion and permanency. Permanent posts are pensionable and the pension scheme is non-contributory. Applix, giving details of age, training and experience to: E. Bedford, C.B., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, Abell House, Room 435, John Islip Street, London, S.W.1.

of Works, Abell House, Room 435. John Islip Street, London, S.W.1. 6456

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for the appointment of two SENIOR ASSISTANT ARCHITECTS on the permanent staff of the Board's Regional Architect, generally in accordance with Whitley Council conditions of service.

The Board is undertaking a considerable programme of hospital development and the persons appointed would be engaged on varied and interesting work in connection with major projects in this programme.

Applicants must be associate members of the Royal Institute of British Architects and should have had considerable experience in preparing working and detailed drawings and specifications and supervising work on individual projects. In addition applicants should have enthusiasm for hospital work and experience in contemporary construction and design. Previous experience of hospital planning and construction would be an advantage but is not necessary. The post offers a good opportunity to anyone wishing to gain experience in this field.

Salary (under review) £1,050 p.a. × £30 (3) × £35 (3) –21,246 p.a. pulus £50 p.a. London weighting allowance.

Applications should state age, experience, qualifications, present appointment and salary, together with the names of three referees and should be sent to the undersigned at 40. Eastbourne Terrace, London, W.2, by not later than 9th November, 1959.

E. G. BRAITHWAITE, Secretary. 6438

ROYAL BOROUGH OF
KINGSTON-UPON-THAMES
Applications are invited for the following
permanent appointments for an interesting programme including some redevelopment.
(a) ASSISTANT ARCHITECT, Grade A.P.T. IV,
£1,655-£1,220.

(a) ASSISTANT ARCHITECT, Grade A.F.I. IV, £1,065—£1,220.
(b) ARCHITECTURAL ASSISTANT, Grade A.P.T. II, £765—£880.
(c) ARCHITECTURAL DRAUGHTSMAN, Grade A.P.T. I, £610—£765.
The salaries stated are basic.
Details and application forms obtainable from the Borough Surveyor, Guidhall, Kingston-upon-Thames and returnable by the 9th November, 1959.

A. B. ROGERS, Town Clerk.

Guildhall Kingston-upon-Thames. 16th October, 1959.

COUNTY BOROUGH OF EAST HAM BOROUGH ENGINEER'S DEPARTMENT Applications are invited for the following temporary appointment:
SENIOR ASSISTANT ARCHITECT, Grade IV. 41,065-41,229.
London weighting is paid in addition and a salary in excess of the minimum may be paid according to qualifications and experience. The appointment is for work on a new Technical College and is expected to be for a period of not lees than 3 years.
Further details and application forms returnable by 6th November, 1959 from the Town Clerk, Town Hall, East Ham, E.6.

BOROUGH OF BEIDGWATER
BOROUGH ARCHITECT'S DEPARTMENT
APPOINTMENT OF QUANTITY SURVEYOR
Applications are invited for the post of Quantity
Surveyor in the above Department, at a salary
in accordance with A.P.T. III (£380-£1,065) or
Special Grade (£785-£1,709) according to qualifications and experience.
The appointment will be subject to the provisions of the Local Government Superannuation
Acte, the National Scheme of Conditions of Service, a satisfactory medical evamination, and one
month's written notice on either side.
Consideration will be given to the provision of
housing accommodation for the successful applicant, if married.
Applications, stating age, education, qualifications, training and experience, together with the
names of two persons to whom reference can be
made, should be sent to the Borough Architect,
Town Hall,
Bridgwater.

Town Hall, Bridgwater, Somerset. October, 1959.

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

(a) Two ENGINEERING ASSISTANTS, salary range Specialists Grade (£785—£1,070 p.a.). Candidates must have passed the Final examination of the Institute of Civil or of Municipal Engineers and have a general experience of Municipal Engineering.

(b) One ARCHITECTURAL ASSISTANT, salary range A.P.T. Grade II (£765—£880 p.a.). Candidates must have Intermediate B.I.B.A. or equivalent.

Casual Car User Allowance payable on authority of Borough Engineer. Housing accommodation provided if required.

Applications stating age, experience, qualifications, etc., and the names of two referees to the undersigned by not later than first post on Monday the 9th November, 1999.

PHILIP J. WALTERS, Town Clerk.

Guildhall, Wrexham. 16th October, 1959.

OUNDLE AND THRAPSTON BURAL

DISTRICT COUNCIL

ARCHITECTURAL ASSISTANT

Applications are invited for the temporary appointment of Architectural Assistant in the Architect's Department of the above Authority, at a salary within A.P.T. Grade I (£575 × £30-£725).

The appointment will be subject to: (a) the National Scheme of Conditions of Service: (b) the provisions of the Local Government Superannuation Acts, 1937 to 1953; (c) a satisfactory medical examination; and (d) termination by one month's notice on either side.

Preference will be given to applicants who have passed the R.I.B.A. Intermediate Examination and are experienced in housing.

Consideration will be given to the provision of housing accommodation.

Applications to be sent to me by the 9th November, 1959.

H. H. HASSALL, Clerk of the Council.

Council Offices, Midland Road. Thrapston, Kettering.

COUNTY BOROUGH OF SOUTHEND-ON-SEA BOROUGH ARCHITECT'S DEPARTMENT Applications are invited for the following posts: ASSISTANT ARCHITECT, Special Classes Scale (£785 × £40 (6) × £45-£1,070).
TECHNICAL ASSISTANT (Architectural), Grade A.P.T. I (£610 × £30 (4) × £35-£765).
ASSISTANT QUANTITY SURVEYOR. Special Classes Scale (£785 × £40 (6) × £45-£1,070). Candidates must be suitably qualified and experienced.

Candidates must be suitably qualined and experienced.

The appointments will be subject to the provisions of the Local Government Superannuation Acts and the National Joint Council's Scheme of Conditions of Service so far as adopted by the Council. Medical examination.

Applications, stating age, qualifications and experience, with the names of two referees, should be submitted to the Borough Architect, 30, Alexandra Street, Southend-on-Sea, by 16th November, 1999.

Canvassing will disqualify. Any candidate who is related to member or officer of the Council is required to disclose the fact.

ARCHIBALD GLEN,

Town Clerk.

BOROUGH OF KEIGHLEY

BOROUGH ARCHITECT'S DEPARTMENT
Applications are invited for the following temporary position, with a possibility of a transfer to a permanent position:—
ARCHITECTURAL ASSISTANT, Special Grade, Salary Scale 2785—21,070. Applicants must have had good experience in architectural design and building work under construction. Other things being equal, preference will be given to applicants who have passed the examination for Associateship of the R.I.B.A.
Applications to be made upon the prescribed form to be obtained from the undersigned, to whom same must be returned, accompanied by copies only of two recent testimonials, not later than first post, Thursday, 12th November, 1959.

E. G. FELGATE, A.R.I.B.A.,
Borough Architect's Department,

than first post, Thursday, 12th November, 1959.

E. G. FELGATE, A.R.I.B.A..

Borough Architect's Department,
College Street, Keighley.

COUNTY BOROUGH OF WEST HAM
BOROUGH ARCHITECT AND PLANNING
OFFICER'S DEPARTMENT
Applications invited for established posts:
(a) DEPUTY GROUP ARCHITECT
(b) ASSISTANT PLANNING OFFICER
2785—21,070 p.a. plus London Allowance.
Commencing salary according to qualifications and experience.
Application Form and Details from: Thomas
E. North, 70, West Ham Lane, E.15, returnable
by Tuesday. 17th November, 1959.

NEWMARKET URBAN DISTRICT COUNCIL
ARCHITECT'S DEPARTMENT
Applications are invited for the above appointment at a salary in accordance with the A.P.T.
Grade II, 2765—2880.
The department is responsible for all the Council's building projects including interesting developments in connection with Urban Renewal and a new Town Centre. Candidates must be quick and accurate draughtsmen with a sound knowledge of building construction. A five-day working week is in operation and housing accommodation will be provided for the successful candidate.

Applications stating age, qualifications, training, experience and present appointment and giving the names and addresses of two referees, should be sent to the undersigned not later than 21st November, 1959.

JOHN CRABB.
Clerk of the Council.

JOHN CRABB.

Council Offices, Severals House, Newmarket.

Newmarket.

CITY OF WINCHESTER
Applications are invited for the post of ARCHITECTURAL ASSISTANT in the City Engineer's
Office (C. C. Steptoe, A.R.I.B.A., Chief Assistant
Architect). It is essential that the applicant
should be a neat and accurate draughtsman and
have had previous experience in an architect's
office and have passed the Intermediate examination of the R.I.B.A. Salary according to experience will be within Grade I, of the National
Scales, and the appointment is subject to the
Local Government Superannuation Act.
Applications, stating age and details of experience, together with the names and addresses
of two refreess should be addressed to the City
Engineer, Guildhall, Winchester, and should reach
this office not later than Monday, 9th November,
1959.
Canyassing, either directly or indirectly with

Canvassing, either directly or indirectly, will disqualify.

R. H. McCALL, Town Clerk.

Guildhall, Winchester. 15th September, 1959.

HEREFORDSHIRE COUNTY COUNCIL
TWO SENIOR ASSISTANT ARCHITECTS required on A.P.T. IV (£1.055 to £1.220 per annum).
Must be A.R.I.B.A. Interesting and varied programme. Five-day week.
Superannuated posts, subject to medical examination, and one month's notice either side.
Travel and subsistence payable to married men in
certain cases for limited period.
Application forms from County Architect. Bath
Street. Hereford, to be submitted by 9th November, 1959.

ASSISTANT ARCHITECTS
REQUIRED BY
MINISTRY OF WORKS
For employment in BRISTOL and LEEDS.
GENERAL CONDITIONS
Salary range between £305 (at age 25) and
£1,260 per annum, on the National Scale. Starting
point according to age, qualifications and experience. 5-day week. Annual leave 4 weeks and
2 days initially. Prospects of promotion and
opportunities for permanent and pensionable
posts.

OUALIFICATIONS

posts.

QUALIFICATIONS

Candidates must be Registered Architects by examination, or Registered Architects who, since registration, have passed a professional examination in Architecture recognised by the Architects Registration Council of the United Kingdom. They must also possess good professional experience.

perience. APPLICATIONS
State age and full details of training and experience to Chief Architect, Ministry of Works, (A), Room 435, Abell House, John Islip Street, London, S.W.I.

BEDFORDSHIRE COUNTY COUNCIL
The appointment of COUNTY ARCHITECT
will fall vacant in March, 1960, and applications
for the post are invited from Members of the
Royal Institute of British Architects who have
had wide architectural experience with a local
authority and who possess administrative ability.
The salary within scale £3,000–£3,335. Application
forms and further particulars from Establishment
Officer, Shire Hall, Bedford. Closing date 237d
November, 1959.

November, 1959.

KIRKBY URBAN DISTRICT COUNCIL
ENGINEER AND SURVEYOR'S DEPARTMENT
APPOINTMENT OF ARCHITECTURAL
ASSISTANT
Applications are invited for this appointment
from suitably qualified and/or experienced persons. Salary in accordance with the Special
Scale, i.e., 2785 to 21,070 per annum.
The Urban District Council was formed on the
1st April, 1958, and considerable development is
contemplated, including Town Hall, Community
Centres, Central Depot, Sports Pavilions, etc., and
the successful applicant will obtain wide experience.

Perience.

Applications for the post, giving details of age, education, experience, qualifications, together with the names of two referees to the undersigned not later than the 9th November, 1959.

Canvassing disqualifies. Relationship to be disclosed.

W. BYRON, Clerk of the Council.

Kirkby Hall, Hall Lane, Kirkby, Nr. Liverpool.

Kirkby, Nr. Liverpool. 6515

COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE
COUNTY SUPPLIES DEPARTMENT
Applications are invited for the post of DRAUGHTSMAN (furniture). Candidates should have had a sound technical training in furniture construction and be capable of preparing drawings, full-size working details, and specifications Experience in design and manufacture of school furniture an advantage.

Salary in accordance with Grade A.P.T. I of the National Scales, i.e., £610 × £30 (4) × £35 (1)—2765 per annum. Appointment subject to the Local Government Superannuation Acts, to a medical examination, and to the County Council's general conditions of service.

Application forms, obtainable from the Chief Officer of Supplies, County Supplies Department, Cliff Lane, Wakefield, should be returned not later than the 13th November, 1959.

COUNTY BOROUGH OF READING

later than the 13th November, 1959.

COUNTY BOROUGH OF READING ASSISTANT ARCHITECT
Applications are invited for the above appointment. Candidates must have passed Parts I and II, R.I.B.A. Final or Special Final Examination or their equivalent and have had at least five years' experience. Salary range 4785 × 440 (3) × 245 (1) × 240 (3)—21.070 according to experience. Post permanent and appointment subject to N.J.C. Conditions. Housing accommodation will be considered. Applications, stating age, qualifications and experience, together with names and addresses of two referees to Borough Architect. P.O. Box 17, Town Hall, Reading, not later than Monday, 16th November, 1959.

CITY OF LINCOLN

CITY OF LINCOLN
ASSISTANT ARCHITECT
Applications are invited for this appointment on established staff of City Architect, dealing with schools, new housing and general architectural work. Salary: Special Grade £785-£1,070.
Applicants must have passed parts I and II of R.I.B.A. Final or. special examination, or equivalent at one of the recognised Schools of Architecture.

lent at one of the local ture. The appointment is subject to the Local Government Superannuation Acts. The successful applicant will be required to pass a medical

The appointment Government Superannuation Acts. The summarian applicant will be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with names of two persons to whom reference may be made, should be submitted to Mr. R. R. Alexander, F.R.I.B.A. M.T.P.I.. City Architect, Stamp End, Lincoln, not later than 16th November, 1959.

J. HARPER SMITH, Town Clerk.

Town Clerk's Office, Lincoln.

ARCHI manent, weighting salary ac some exp schemes for the R cations wage, etc., to the Charing

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RONA dis TECTS interesti projects. Apply. 3361.

CITY OF WESTMINSTER

ARCHITECTURAL ASSISTANT (MALE), Permanent, required. £610—£880 (plus London weighting maximum £30) per annum. Starting salary according to qualifications and experience. Candidates should be good draughtsmen with some experience in the preparation of sketch schemes and perspectives, and must be studying for the R.I.B.A. examination or equivalent. Applications with particulars of previous appointments, age, etc., and names of two referees, to be sent to the Tewn Clerk, Westminster City Hall, Charing Cross Road, W.C.2, by 13th November, 1959.

BOROUGH OF SCUNTHORPE

(An expanding modern town of 61,000 population)
Applications are invited for the following appointments in the Borough Engineer & Surveyor's Department:—
(a) SENIOR ASSISTANT ARCHITECT, A.P.T.
IV (£1,065—£1,220 A.J.).
(b) ASSISTANT ARCHITECT, Special Grade or A.P.T. III (£785—£1,070 or £880—£1,055 p.a.).
(c) QUANTITY SURVEYING ASSISTANT, A.P.T. I (£610—£765 p.a.).
A.P.T. I (£610—£765 p.a.).
Applicants for (a) must be fully qualified with considerable experience in the design of public buildings and for post (b) preference will be given to applicants with the appropriate qualification.
Housing accommodation will be available if required.

Housing accommodation will be available it required.

Applications giving particulars of age, experience, qualifications and appointments, together with the names of two referees, should be submitted to the undersigned—not later than Wednesday, 11th November, 1959.

The Management of the submitted to the undersigned—not later than Wednesday, 11th November, 1959.

The Management of the submitted to the submitted to the undersigned—not later than Wednesday, 11th November, 1959.

T. M. LISTER,

Municipal Offices, 34. High Street, Scunthorpe. 22nd October, 1959.

6511

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

THE UNITED NEWCASTLE UPON TYNE

ROYAL VICTORIA INFIRMARY
The Board proposes to erect a new main boilerhouse (approximate cubic capacity 224,000 cubic feet). coal yard, and ancillary buildings, at the Royal Victoria Infirmary. Tender documents will be ready for issue to contractors in mid-November and it is expected that it will be possible for building operations to commence in mid-December. The project has been planned and will be carried out under the direction of Messrs. J. H. Aspher & Parthers of 56 Eldon Places, Newcastle upon Tyne 1, in collaboration with the Staff Architect. Mr. H. E. M. Dobson, Dip.Arch. A.B.I.B.A.
Contractors wishing to tender for the work are asked to notify the undersigned within fourteen days of the appearance of this advertisement. A limited number of contractors may be selected and invited to tender and the lowest or any tender will not necessarily be accepted.

Secretary to the Board of Governors.
Royal Victoria Infirmary,
Newcastle upon Tyne 1.

## Architectural Appointments Vacant

Alines or under, 9s. 6d.; each additional line, 2s. 6d. Box Number, including forwarding replies, 2s. extm

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LEWELLYN SMITH AND WATERS require
Senior and Junior ASSISTANTS for a widely
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W. H. WATKINS. GRAY & PARTNERS require ASSISTANTS of Intermediate standard for interesting hospital work, salaries according to experience and capabilities, pension scheme in operation. Write or 'phone: 57. Catherine Place, S.W.1.—VICtoria 7761.

ENIOR ARCHITECTURAL ASSISTANT canable of making site surveys, preparing sketch plans, working drawings and specifications, and supervising work in progress, Applications stating age, experience, qualifications and salary required to R. E. Akerman, F.R.I.B.A., Chief Architect, United Dairies Ltd., 31 St. Petersburgh Place, W.2.

RONALD WARD & PARTNERS have immediate vacancies for ASSISTANT ARCHITECTS with initiative and some experience, for interesting, commercial, industrial and civic Brojects. Salaries commensurate with ability. Apoly. 29, Chesham Place, S.W.1. BELgravia 3361.

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. File. 6295.

A RCHITECT'S ASSISTANTS required for busy office: varied practice including Industrial, Housing, etc. Write, stating experience and salary required, to Francis W. Keyworth, L.B.I.B.A., 31, Friar Lane, Leicester.

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

M. AUSTIN-SMITH & PARTNERS, 29, Sackville Street, London, W.1. have vacancies for qualified ARCHITECTURAL ASSISTANTS with office experience. Opportunities for designing and taking responsibility in running and supervising contracts. Salary according to age and experience, but in range of 2800—21,000. Please apply in own handwriting.

SENIOR ASSISTANT ARCHITECT required to take charge of project. Apply Ronald Ward & Partners, 29, Chesham Place, S.W.1. BEL-gravia 3561.

Ravia 3361.

\*\*DUSSELL DIPLOCK ASSOCIATES require perceptive 5th, 6th or 7th year evening school students, for work on varied and interesting projects. Salary by arrangement. Telephone: TATE Gallery 0771/2 for appointment. 6069

\*\*WEST END Architects require ASSISTANT with good knowledge of building construction and ability to prepare working drawings and details under supervision. Box 6033.

BOOTH, LEDEBOER AND PINCKHEARD, 17-20, Mason's Yard, Duke Street, St. James's, S.W.I., require ASSISTANTS in salary range 2750-21,000 ps. Tel. TBA. 1866. 5957

COVELL & MATTHEWS require capable and enthusiastic Senior and Junior ASSISTANTS, to work on large central area redevelopment projects. Salary according to experience. Five-day week. Ring REGent 2991. 6627

Five-day week. Ring REGent 2391.

ERIC FIRMIN & PARTNERS require Senior ASSISTANTS for work on industrial and commercial projects. Five-day week, Luncheon Vouchers. Salary by arrangement. Please apply 5 Holborn Circus, E.C.I. CITY 8811.

ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard required in Reading Office. Applicants must be good draughtsmen, able to make surveys, produce working drawings and details. Must be used to working in a provincial office. Apply in writing, stating experience and salary required, to Box 6126.

ONTEMPORARY Sheffield Architects require experienced ASSISTANTS for work on major schemes, able to take initiative and responsibility. New offices in pleasant surroundings. Pension scheme and Listensen Scheme. Salary according to experience and ability. Full particulars to Hadfield Cawkwell & Davidson, 17, Broomgrove Road, Sheffield, 10, 6990

ARCHITECTS and ASSISTANTS required.
Minimum Intermediate standard. Very
large programme commercial, industrial and
residential work. London Office. Good salaries
and bonus to right men. Five-day week. Box

A RCHITECTURAL ASSISTANT, Intermediate to Final standard, with some office experience, required for interesting work in West End Office. Plenty of scope for responsibility and experience. Telephone for appointment to MAYfair 9554, or write with particulars to Box 6123.

A RCHITECTURAL ASSISTANT, Channel Islands, required. Intermediate to Final standard, salary according to experience. State age and experience to Box 6135.

A SSISTANT ARCHITECTS, Intermediate and Final standards. Busy offices, South Yorkshire and near Nottingham. Box 6096.

A RCHITECTURAL ASSISTANTS, Final and Intermediate, required by progressive firm of Birmingham architects. Work involves preparation of designs, working drawings, site supervision, etc., on numerous types of work. Salary by arrangement. Box 6102.

Salary by arrangement. Box 6102.

LOUIS DE SOISSONS, PEACOCK, HODGES & ROBERTSON have immediate vacancies in their Welwyn Garden City office for SENIOR and JUNIOR ASSISTANTS. Write, stating age salary and experience, to the above at: Midland Bank Chambers, Howardsgate, Welwyn Garden City, Herts.

BIRMINGHAM—Intermediate to Final standard ASSISTANTS required for group work on interesting projects. James A. Roberts, AR.I.B.A. 86. New Street, Birmingham 2. MIDland 4315/6.

BUSY and expanding practice requires Intermediate ASSISTANTS of initiative, and ability to handle varied work. Jack E. Dalling. COVent Garden 2942.

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

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

ARCHITECTS' ASSISTANTS required, Senior and Junior, qualified or otherwise, with practical experience, general private practice. Apply W. B. Starr, Clifford & Carman, 204, Derby Road, Nottingham. Tel. 43192.

ARCHITECTURAL ASSISTANTS, Senior and Intermediate, required urgently by firm with General Practice in Cotswold area. Service bungalow becoming available. Applications stating experience and salary required to: Eric Cole & Partners, Dyer Street House, Cirencester, Glos.

Partners, Dyer Street House, Cirencester, Glos. 6327

UILDFORD. Expanding firm of Architects with the control of the control o

Box 6325.

ASSISTANTS of Intermediate or equivalent standard, required in busy city office. Interesting and varied work, offering scope for initiative and responsibility. Commencing salary up to £800 per annum, according to qualifications. Write Stewart & Hendry, F.F.R.I.B.A., A.M.T.P.I. 90 Fenchurch Street, E.C.3, or telephone ROYAL 6216/7.

VORKE, ROSENBERG & MARDALL require ASSISTANTS. Apply in writing to 2 Hyde Park Place, London, W.2.

RCHITECTURAL ASSISTANT required in the Constructional Engineer's Office of The General Electric Co. Ltd., Wemblev. Experience in design and construction of Industrial Buildings and Office Blocks. Write stating age, experience and salary required to Box 6310.

RCHITECTURAL ASSISTANTS required in

and office Blocks. Write States and Salary required to Box 6510.

A RCHITECTURAL ASSISTANTS required in Browery Architect's Office, Final or Intermediate standard. Five-day week. Pension Scheme. Write stating age, qualifications and Experience to Chief Architect. Renskin's Watford Browery Limited, P.O. Box No. 105, Watford. Herts.

ONE SENIOR ASSISTANT of Final R.I.B.A. standard and one JUNIOR ASSISTANT of Intermediate R.I.B.A. standard required in City office for a variety of interesting jobs. Five-day week. Apply, giving details of past experience and salary required, to Vigers & Co., 4, Federick & Place. Old Jewry, E.C.2. Telephone MONarca 3735.

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BIRMINGHAM Architects require Senior and Junior ASSISTANTS for large industrial work and also general practice. Five-day week. Good salary according to experience. Box 6338.

TWO additional ABCHITECTURAL ASSIS.
TANTS required—preferably canable of handling jobs throughout. Busy and varied practice. Salaries by arrangement. D. C. Dentonsmith and Partners, Chartered Architects, Surveyors, 40 Regent Street, Cambridge.

SCHERRER & HICKS, 19 Cavendish Square,
London, W.I. require immediately several
ASSISTANTS of graduate standard prepared to
accept responsibility. Interesting and varied
projects. Apply giving age, qualifications, experience and salary required.

A RCHITECT'S ASSISTANT required for West London Office. The work is of a good general nature as Industrial and Domestic and some experience in measuring for alterations would be advantageous. Good draughtsmanship essential. Apply: Hammond J. Harvey, F.R.I.B.A.. 8-10 King Street. Hammersmith. W.6.

A RCHITECTURAL ASSISTANTS required between Intermediate and Final standard, for work on varied commercial and office building, etc. Knowledge required of survey work and specifications. Salary according to ability and experience, 146. Mostyn Road, S.W.19. Tel.: LIBerty 8181.

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Clerk.

A RCHITECTURAL ASSISTANTS, one Senior and one Intermediate grade, required by Yorkshire Brewery Company. Applicants should be capable Draughtsmen, good designers and have sound knowledge of building construction. Experience in Licensed property work desirable. Excellent modern three-bedroom house with garage available for Senior appointment. Salary negotiated according to ability and experience. Apply giving full details of age, training, experience and salary required to Box 6387.

EXPERIENCED ASSISTANTS required for Architects' office in W.C.1 area, to work on Laboratory and Hospital schemes. Salary according to experience. Telephone HOLborn 3518/8371 or write Box 6396.

ing to experience. or write Box 6396.

or write Box 6396.

ARCHITECTURAL ASSISTANTS, Intermediate standard, required for City Office. Good draughtsmen, previous office experience and sound knowledge of construction necessary. Apply stating age, experience and salary required to

ERIC LYONS requires two SENIOR ASSISTANTS to prepare drawings and control major projects in varying types of housing, and one JUNIOR ASSISTANT with some office experience. Realistic salaries in accordance with experience and capabilities. Write: Mill House, Bridge Road, Hampton Court, Surrey.

A SSISTANT with office experience and wishing to supervise work from inception through construction to final settlement urgently required by R. J. Sargent, 8, Queen Street. W.1. Salary £875. Superannuation Scheme. Grosvenor 3254.

STAFF ARCHITECT to a number of Development Companies requires ASSISTANT with L.B.A. experience, and capable of running jobs from start to finish. Salary 2900. Box 6395.

SELY AND PAGET, 41 Cloth Fair. E.C.1, need another responsible ASSISTANT to help with training colleges, churches and other varied work. Near Final standard preferred, with some office experience; salary by arrangement. Write or ring MET 8511.

W H. WATKINS, GRAY & PARTNERS Final standard, pension scheme and luncheon vouchers, salary range £700 to £1,000. Apply 57, Catherine Place. London, S.W.I.

W H. WATKINS, GRAY & PARTNERS

H. WATKINS, GRAY & PARTNERS
require an ASSISTANT for their Oxford
Office, pension scheme and luncheon vouchers,
salary approximately £800. Apply 57, Catherine
Place, London, S.W.1.

Place, London, S.W.1.

BESIGN GROUP of a DEVELOPMENT COMPANY, one of an international Group of
Companies require ARCHITECTURAL ASSISTANT or DRAUGHTSMAN for private enterprise
housing in United Kingdom operating from S.W.
London. Qualifications immaterial so long as
hardworking, enterprising and sense of humour.
Salary £600—£800. Box 6531.

Salary £600—£800. Box 6381.

A SISTANT ARCHITECT (Associate) required by Leonard J. Multon & Partner, of 6, ferenfield Crescent, Edgbaston, Birmingham. The position offers scope for advancement in an expension office engaged on large scape projects. Working conditions are exceptionally good in writing, stating experience and salary required.

SENIOR AND JUNIOR ARCHITECTURAL ASSISTANTS and DRAUGHTSMEN required for multiple company's Architect's Department. Please reply stating age, experience and salary required to Box 6369.

A M. GEAR & ASSOCIATES have vacancies for ARCHITECTURAL ASSISTANTS for the velopment of new building techniques, previous office experience not vital, or R.I.B.A. Intermediate standard with 2/3 years' office experience, Apply A. M. Gear & Associates, 12 Manchester Square, London, W.I.

ATLOR YOUNG & PARTNERS, MAN-CHESTER, require ASSISTANTS for work on schools, hospitals and other projects. Apply in writing to 195. Oxford Road, Manchester, 13.

A SSISTANT ARCHITECTS urgently required A SSISTANT ARCHITECTS urgently required for work of contemporary character in rapidly expanding offices in Rochdale and Manchester. Assistants would be required to work in first instance in Head Office at Rochdale. Apply, stating age, salary required and experience and when available to Moir & Bateman Dip. Arch. L'pool, F/A.R.I.B.A.. AMT.P.I. Prudential Buildings, South Parade, Rochdale.

A SSISTANT ARCHITECT of R.I.B.A. Final or equivalent standard, with good general experience, required. Pension scheme available, salary by agreement. Apply, giving brief details of qualifications and experience, to Brierley, Leckenby & Keighley, F/A/A.R.I.B.A., Architects 10. Lendal, York.

WILLIAM RYDER, 21. Bruton Street,
Berkeley Square. W.1. requires keen
young ASSISTANT with good constructional
knowledge and experience of work in London,
and with special flair for contemporary design.
Apply, giving age, qualifications, experience and
salary required.

A SSISTANT required immediately; varied and interesting work. Salary £500-£700 p.a. according to ability. Antony Lamb, A.R.I.B.A., A.M.T.P.I., Ottery St. Mary, Devon. Tel. 278.

CLIVE PASCALL & PETER WATSON, 24,
Half Moon Street, W.1, require two experienced post-Intermediate ASSISTANTS for
lively work on commercial and industrial projects. Salary £650—£800. Telephone GRO. 734
for appointment.

TWO ARCHITECTURAL ASSISTANTS quired for detailing work on new colleges laboratories. Write stating experience to 6477.

A RCHITECTURAL ASSISTANTS required, Intermediate R.I.B.A. standard, for work on schools offices and industrial projects. Apply, giving brief details, to Kendrick Findlay & Partners, 5-15, Cromer Street, W.C.1.

A RCHITECTURAL ASSISTANTS of Intermediate and Final standard required for London Office for a variety of interesting work. Write, giving details of experience and salary required, to Box 6483.

PRISTOL.—ARCHITECTURAL ASSISTANTS required, starting salaries between £500—£800 (with annual increments), depending on age and experience. Arrangements for part-time school study considered if required. Apply to Kenneth Nealon & Partner, F/A.R.I.B.A., 28, Orchard Street, Bristol, 1.

A SSISTANTS able to take responsibility and participate in the supervision of medium size contracts required by small London office. Opportunity to gain site experience. Write salary and experience to Box 6473.

QUALIFIED but enthusiastic ARCHITEC-TURAL ASSISTANT wanted to work on projects varying from a new town to a country cottage. Small, newly established Edinburgh office. Brutal tendencies an advantage. Box

RIGHTON Architects require ASSISTANT with experience. Write, stating age, salary required, etc., to Overton, Massey, Grimsdell & Farley, 38, West Street, Brighton. 6491

A SENIOR ASSISTANT is required, preferably qualified, and with some office experience; able to work on own initiative. Salary according to experience, etc. Self-contained flat could be made available in New Year if required. Pension scheme available to married man. Apply in writing, giving full details, to: Ruddle & Wilkinson, F/L/AR.I.B.A., Long Causeway Chambers, Peterborough.

ROBERT MATTHEW & JOHNSONMARSHALL are forming design teams in
Edinburgh and Dundee for work on major hospital projects. and have vacancies for recentlyqualified ASSISTANTS at salaries from 26504800 and for experienced ASSISTANTS at
salaries from 2800 unwards. Please reply to 31,
Regent Terrace, Edinburgh, 7. 6504 ROBERT

REDERICK GIBBERD'S London office requires two ARCHITECTURAL ASSISTANTS: one Intermediate and one Final standard. Write, giving experience and salary required, to 8, Percy Street, London, W.1. 6487

PATRICK GWYNNE requires an ASSISTANT to work personally with him on private nouses and interior design. Must be thoroughly experienced and capable of first class detail trawing. The Homewood, Esher. Surrey. 6404

A RCHITECTS urgently require ASSISTANTS
R.I.B.A. Intermediate to Final standard,
also JUNIOR. Please reply, stating qualifications, experience and salary required, to Herbert,
Son & Sawday, 13, Friar Lane, Leicester. 6407

BUILDING Contractors engaged upon private development of housing estates require an ASSISTANT to WORKS DIRECTOR. Salary £1.500 per annum. Only men fully experienced in office administration and site supervision need apply as the applicant will, after satisfactory trial period be invited to join the Board of Directors. Write giving fullest details to Box 400

ARCHITECTURAL ASSISTANT of Intermediate R.I.B.A. standard required. Should be capable of all stages of supervision for medium sized work and have good knowledge of specifications, etc. Apply, stating full particulars of experience, to Leslie Chandler, A.R.I.B.A., The Shrubbery, Grove Road South, Southsea. Telephone Portsmouth 25217. 6410

A SSISTANT ARCHITECT required. Experienced on the maintenance of industrial buildings. Apply for further information to the 
General Manager, Lancashire United Transport 
Ltd., Atherton, Lancs. 6411

EXCELLENT opportunity for Senior and Intermediate ASSISTANTS in a nermanent and progressive appointment with Midland firm of Architects who are working on large projects of an advanced type of design, including comprehensive development schemes, multi-storey office buildings, multi-storey flats, shooping centres, schools, banks, public houses and industrial projects. Apply Box 6415. EXCELLENT

CROYDON.—Experienced and competent ARCHITECTURAL ASSISTANT required, write, stating fullest particulars, to Graham Crump and Denis Crump, FA.R.I.B.A., Chartered Architects, 43, George Street, Croydon.

Crump and Denis Crump, Street, Croydon. tered Architects, 43, George Street, Croydon. 6412

Liverpool.—Architectural Assistant, required for interesting and varied work in a small office. Five-day week. Apply in confidence to Gerald R. Beech, A.R.I.B.A., 64, Rodney Street, Liverpool. ROYal 2000. 6413

Architectural Assistants required. R.I.B.A. Intermediate and Senior grade respectively. Commercial practice. Five-day week. Salary according to experience. Eric H. Davie, F.R.I.B.A. A.M.T.P.I., Chief Staff Architect, Hillier Parker May & Rowden, 77, Grosvenor Street, London, W.I. MAYIRI 7666. 644.

JOHN H. D. MADIN, Chartered Architect, 33/85, Hagley Road, Birmingham 16, has further vacancies for Senior and Intermediate ASSISTANTS. Suitable Senior Assistants would be required to take full responsibility for large scale interesting projects.

be required to take full responsibility for large scale interesting projects. 6416

A SSISTANT ARCHITECT, experienced in design and construction of London Offices and Flats, required in City office. Salary £1,350 per annum, plus luncheon vouchers. Five-day week. Long-term engagement. 6417

E ASTBOURNE Architect requires capable young ASSISTANT with specification experience. Write with full details, stating salary required. Box 6418.

A SSISTANT ARCHITECTS required to work

required. Box 6418.

A SSISTANT ARCHITECTS required to work on Schools, Industrial and Domestic Buildings. Salaries £600 to £1,000 per annum. Ellery Anderson, Roiser & Falconer, L/F.R.I.B.A., Imperial House, Stroud, Glos. 6419

INVERNESS Architects require Qualified ASSISTANT having at least three years' experience, or Senior Unqualified ASSISTANT. State particulars and salary required to McKillop & Lawrie, A/A.R.I.B.A. 41a, High Street, Inverness. 6420

ARCHITECTURAL ASSISTANTS with office experience required immediately. About Intermediate or equal standard. Good salary scale. L.V. and Pension. Five-day week. Ley. Colbeck & Partners, F/F.R.I.B.A., F.R.I.C.S. LON. 7282.

MEDIUM sized practice in Manchester area requires first class ASSISTANTS, Intermediate and Final standard, for various interesting projects. Five-day week. Three weeks holiday per annum. Good salaries offered to successful applicants. Particulars in writing, please, to Box 6423.

please, to Box 6425.

A RCHITECTURAL ASSISTANTS required in the Regional Architect's Office to work on projects connected with the Railway Modernisation Plan. Good educational standard and high standard of draughtsmanship required. Salary range £336 to £753 p.a., according to age, qualifications and experience. Residential and other travel concessions available. Apply, giving age, experience and qualifications, to H. E. B. Cavanagh, A.R.I.B.A., Architect, C.O.E.O., Paddington, W.2.

A SSISTANT ARCHITECTS required in the

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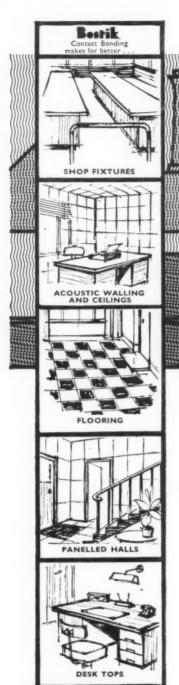
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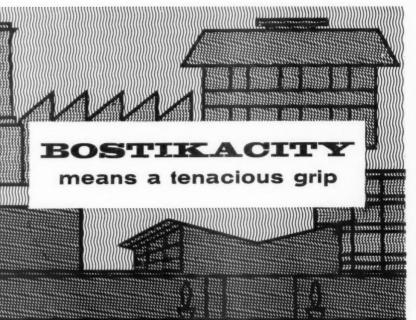


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