The Architects' Journal
December 6 1961 Vol 134 No 23 Price 1s

AJ

SfB (21)

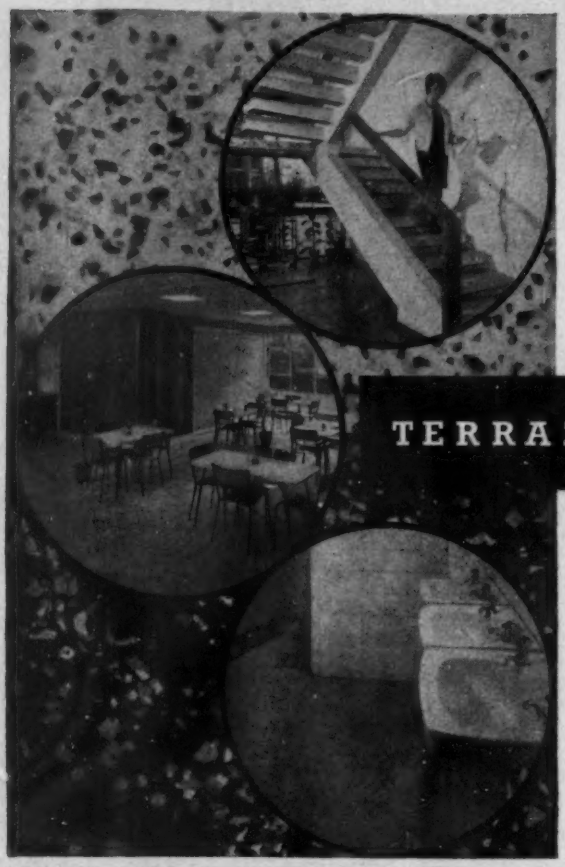
This issue of the AJ should be filed as it contains part of a 50-part technical information library which the AJ is founding. Below are the most important elements from Table 1 of the SfB classification.

These are the key to our library production programme, and each week we shall publish, with the normal AJ, a supplement dealing with one of these elements. Headings in bold type are those dealt with in previous issues. This week's supplement covers SfB (21). The remaining headings will be published in subsequent issues. This is a token preclassified file cover for the Element File Technical Studies, Element Design Guide and Information Sheets within, and for all subsequent articles and digests on these subjects which an architect needs to keep. At the end of a year readers will have a design manual covering all the functional elements listed below and forming the nucleus of a technical library.

(11) Ground: General
(12) Drainage: General
(13) Retaining structures
(14) Roads and pavings: General
(15) Garden: General
(15) Garden: Fences, gates, walls
(16)-(19) Foundations
(2) Structures: General

(21) Walls: External loadbearing: General

(2) Structures: Sections, metal
(2) Structures: Sections, wood
(21) Walls: External load-bearing: General
(21) Walls: External non-loadbearing: General
(22) Partitions: General
(23) Floors, ground: General
(23) Floors, structural: General
(24) Stairs and ramps: General
(25) Ceilings, suspended: General
(26) Roofs, structural, flat: General
(27) Roofs, structural, pitched: General
(30) Accessories, ironmongery: General
(31) Windows: General
(31) Windows: Sections, metal
(31) Windows: Sections, wood
(32) Doors: General
(34) Handrails and balustrades: General
(37) Roof-lights and traps, etc.: General
(38) Roof eaves, verges, gutters, rails: General
(41) Finishes, external: General
(42) Finishes, internal: General
(43) Finishes, floor: General
(46) Finishes, flat roofs
(47) Finishes, pitched roofs: General
(51) Installations, refuse disposal: General
(52) Installations, drainage and sanitation: General
(53) Installations, water, hot and cold: General
(54) Installations, gas, compressed air, steam, refrigeration: General
(56) Installations, heating: General
(56) Installations, heating: Equipment and fuel
(57) Installations, ventilation, air-conditioning: General
(63) Installations, electrical: Lighting and power: General
(63) Installations, electrical: Lighting equipment
(64) Installations, communications: General
(66) Installations, mechanical: General
(68) Installations, special: General
(72) Rooms, fixtures and equipment: General (fixed furniture)
(72) Rooms, fixtures and equipment: General (loose furniture)
(73) Kitchens, fixtures and equipment: General
(74) Cloakrooms, bathrooms and lavatories, fixtures and equipment: General
(75) Laundries, fixtures and equipment: General



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Left Hand Illustration: Works Canteen with Terrazzite decorative flooring. Photograph by courtesy of Hunt Barnard & Co. Ltd., Aylesbury.

Right Hand Illustrations: Staircase balustrade and cloakrooms using Terrazzite. Photos by courtesy of R. Seifert & Partners, Chartered Architects, London W.C.1.

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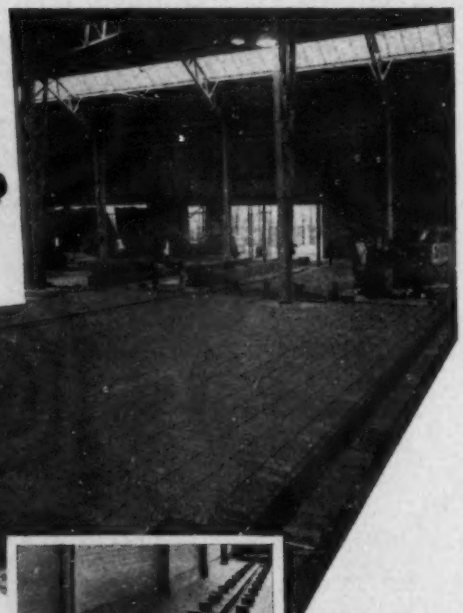

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Acid resisting flooring, drain channel and supports for sulphuric and nitric acid pickling tanks. Photograph by courtesy of Garringtons Ltd., Bromsgrove.

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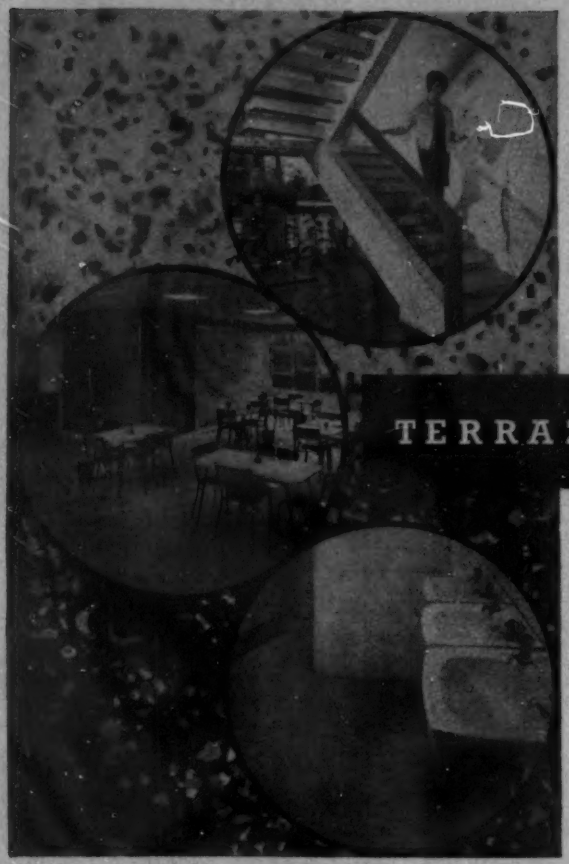

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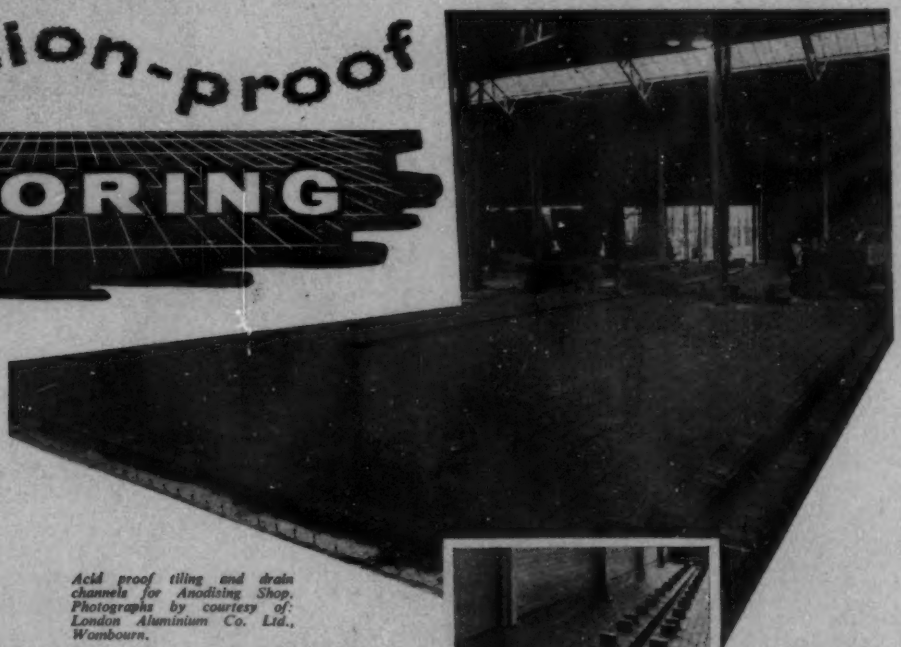

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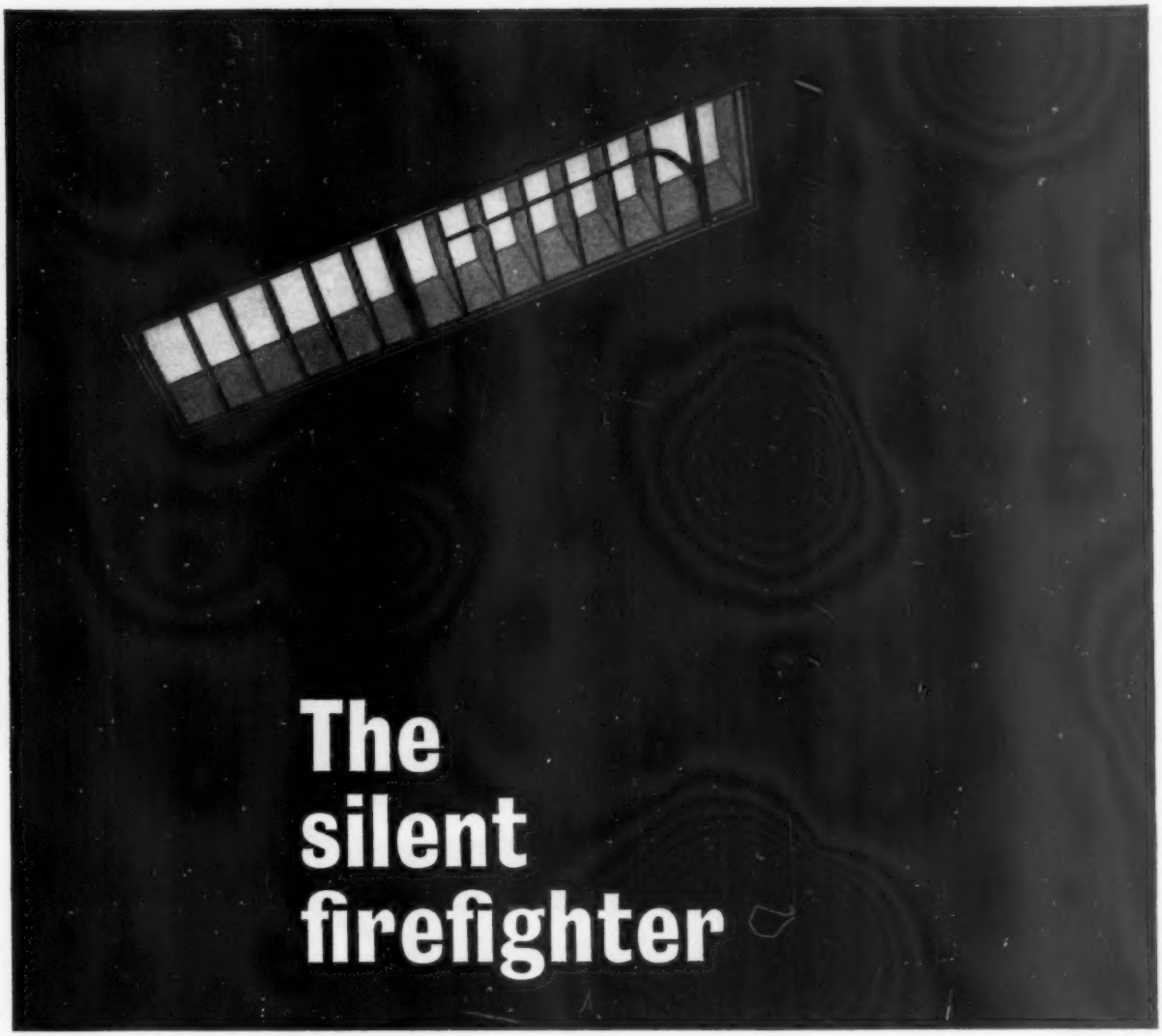

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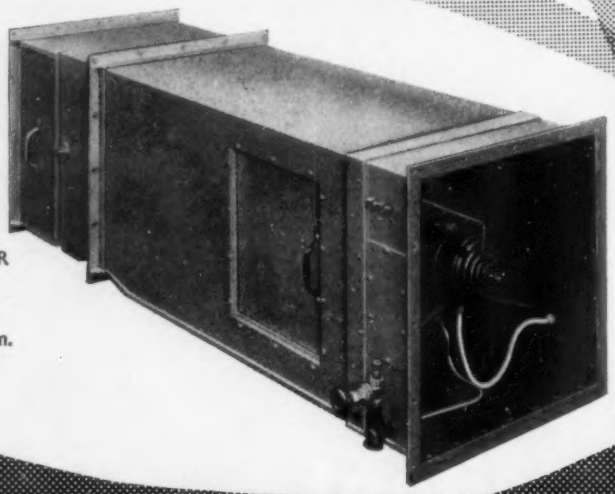

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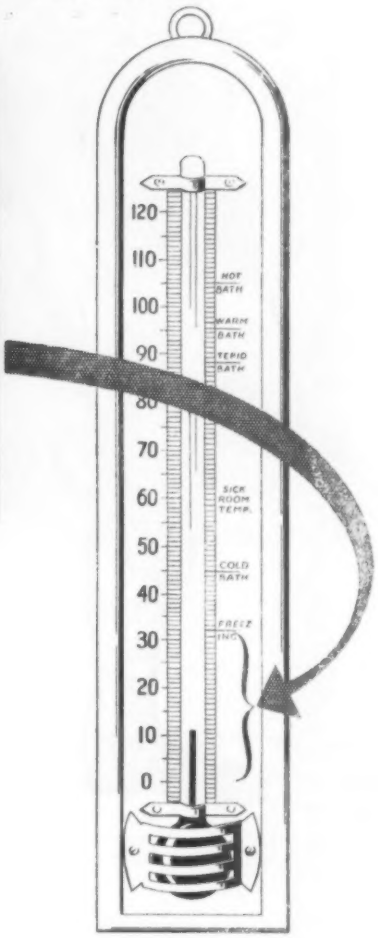

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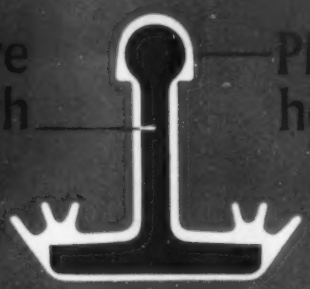

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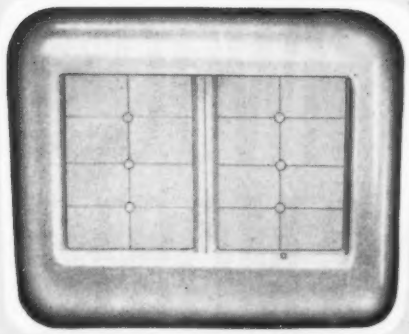

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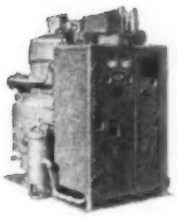

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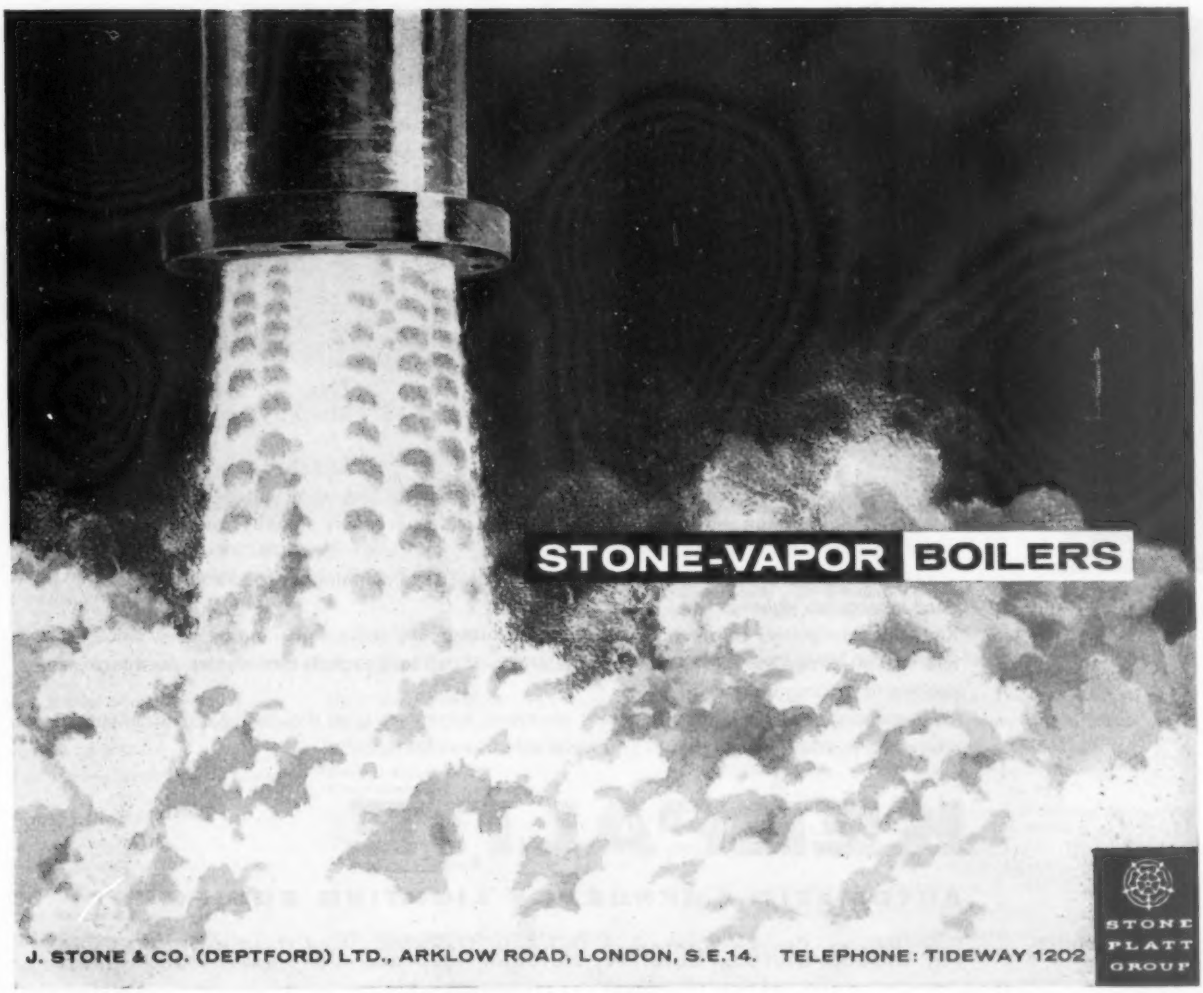

S.103

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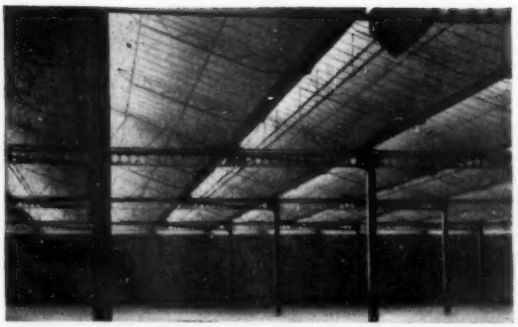

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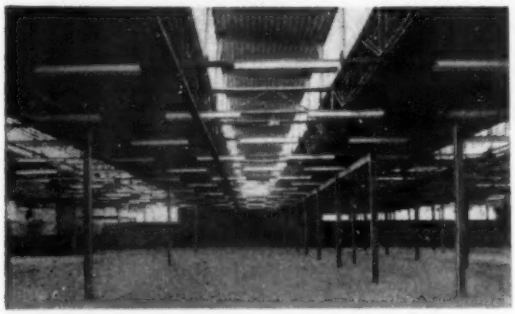

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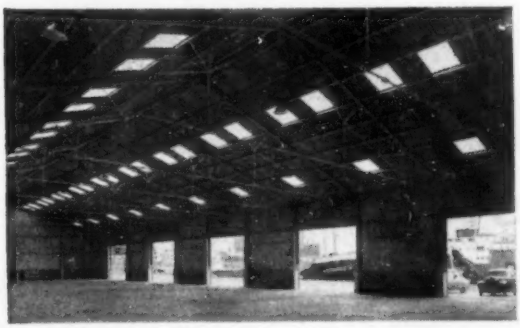

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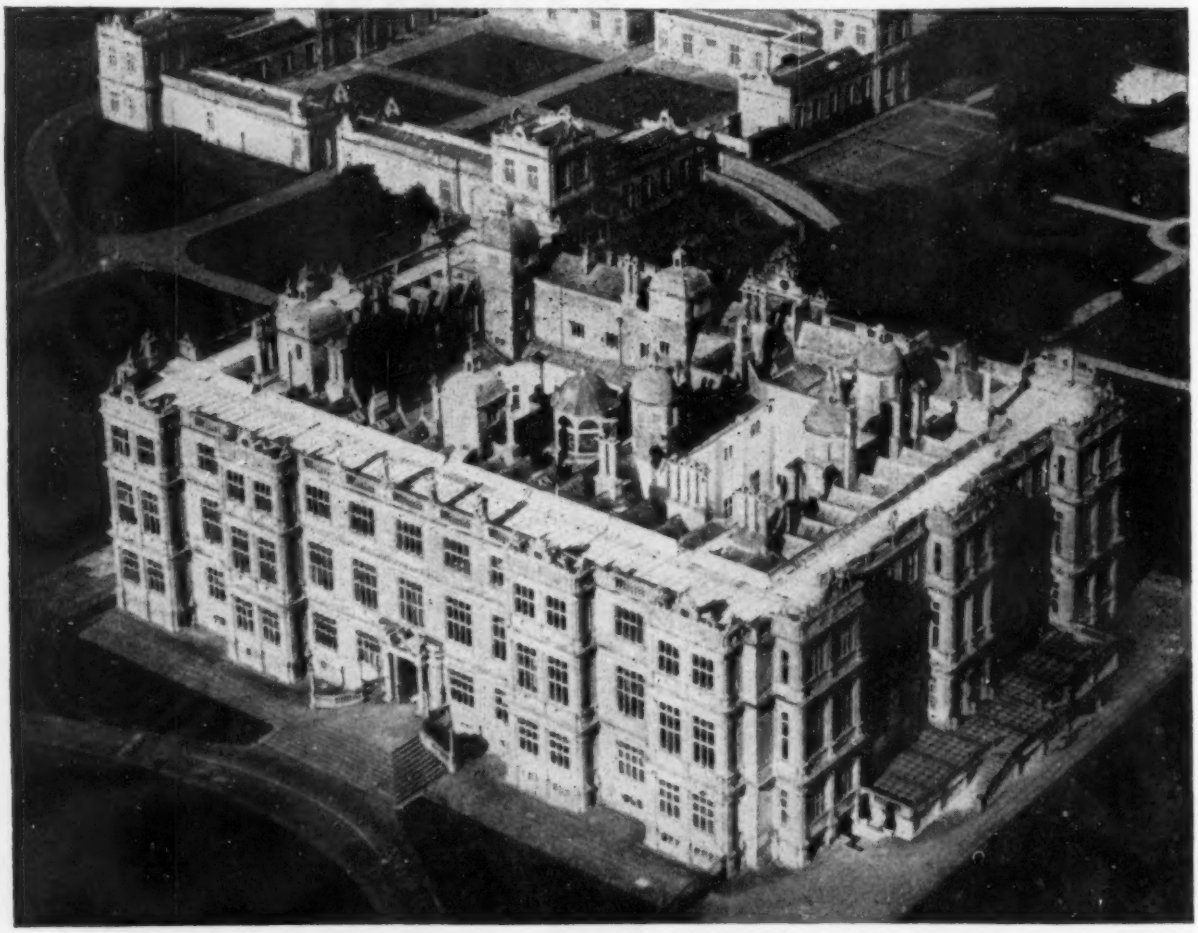

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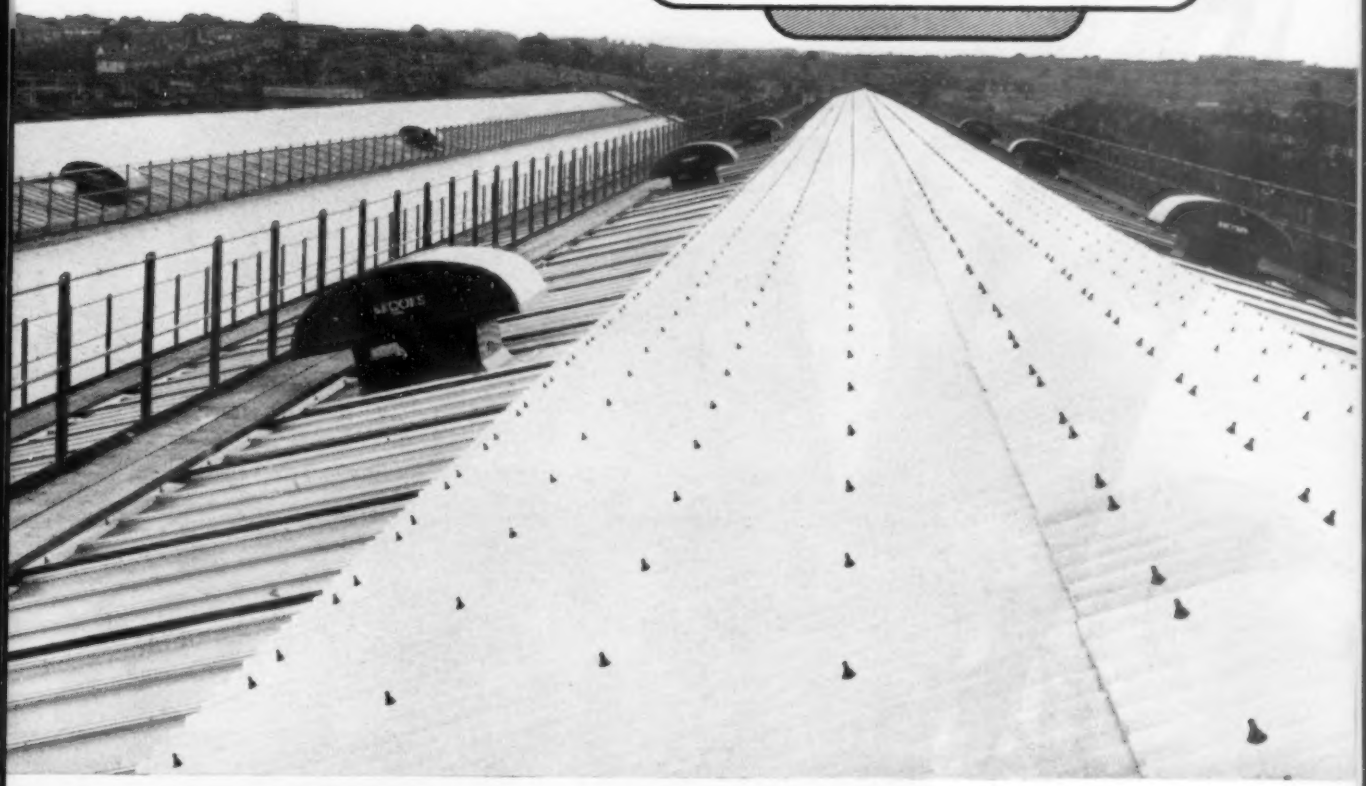

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Large warehouse depot for perishable foods in transit from the Continent to the London markets, where ventilation is essential to remove solar heat gain, smells from vegetables in storage and diesel fumes from fork-lift trucks.

A range of **'Brooks' 36" fan-powered units** constructed in **moulded glass-fibre (the** *'quiet'* **material)** were provided. Each unit was supported by angle trimmers tied back to roof steelwork. Extended lubricators provide easy maintenance from roof walkways.

We can also produce moulded glass-fibre units in shapes, colours and designs to meet architects' SPECIAL requirements

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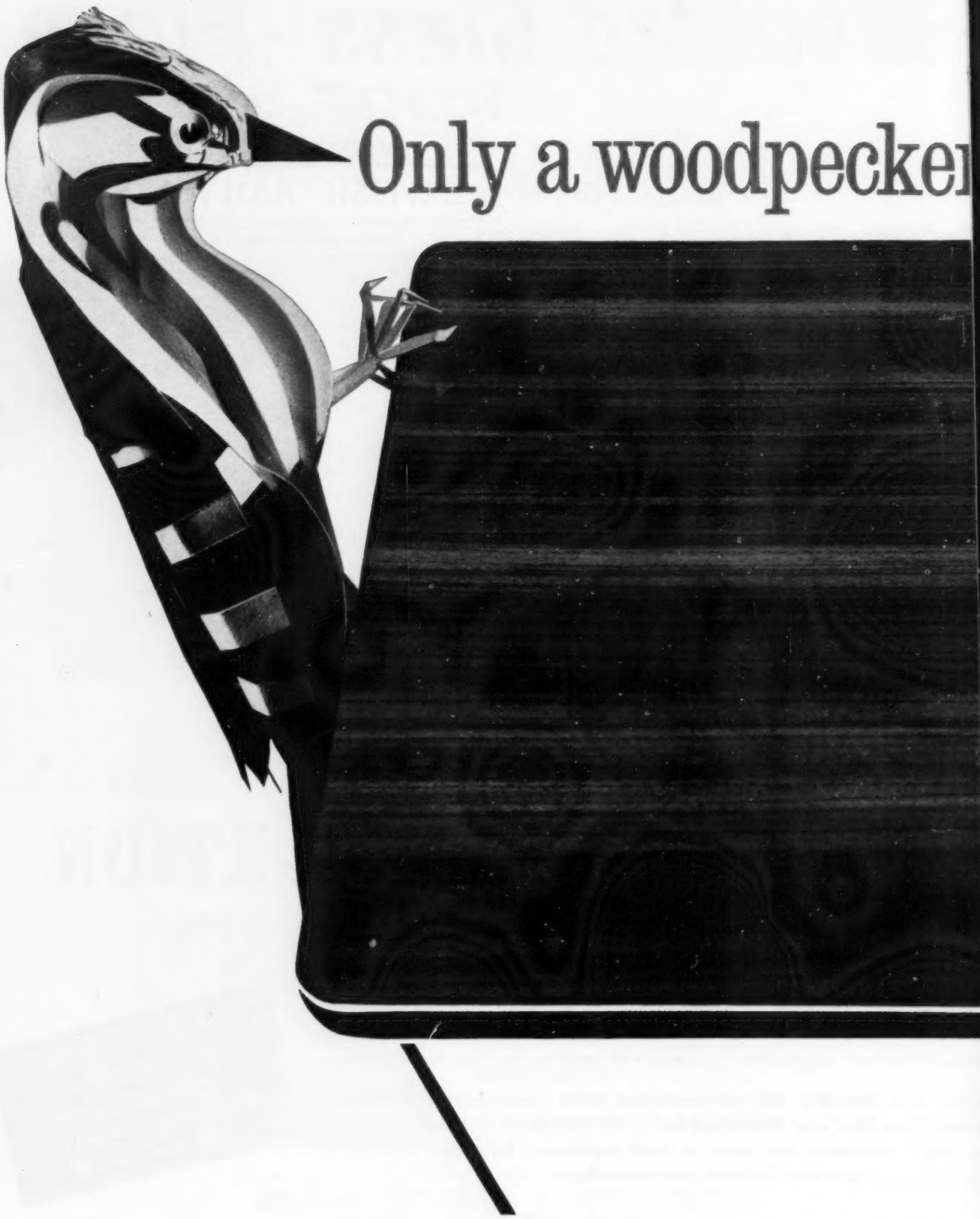

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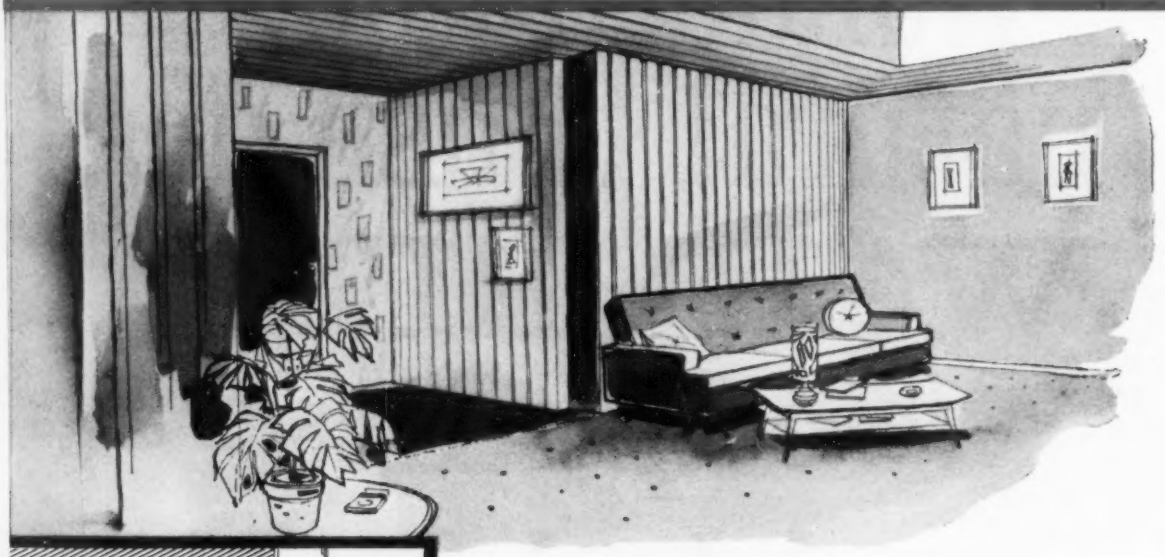
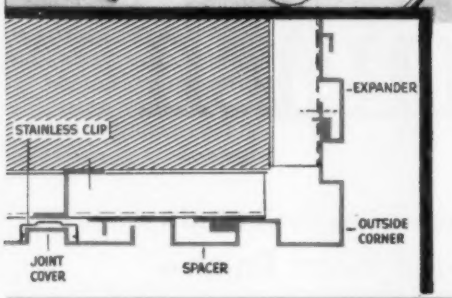
THE ALUMINIUM FACING SYSTEM WITH COMPLETE DIMENSIONAL FLEXIBILITY





This unique facing system, comprising nine aluminium extruded sections, fits any width of building surface without cutting or the use of make-up pieces. Erected vertically or horizontally, the system may be used for both exterior and interior applications including shopfronts and infill panels. Available from stock in lengths up to 16 ft. Larger sizes on application.

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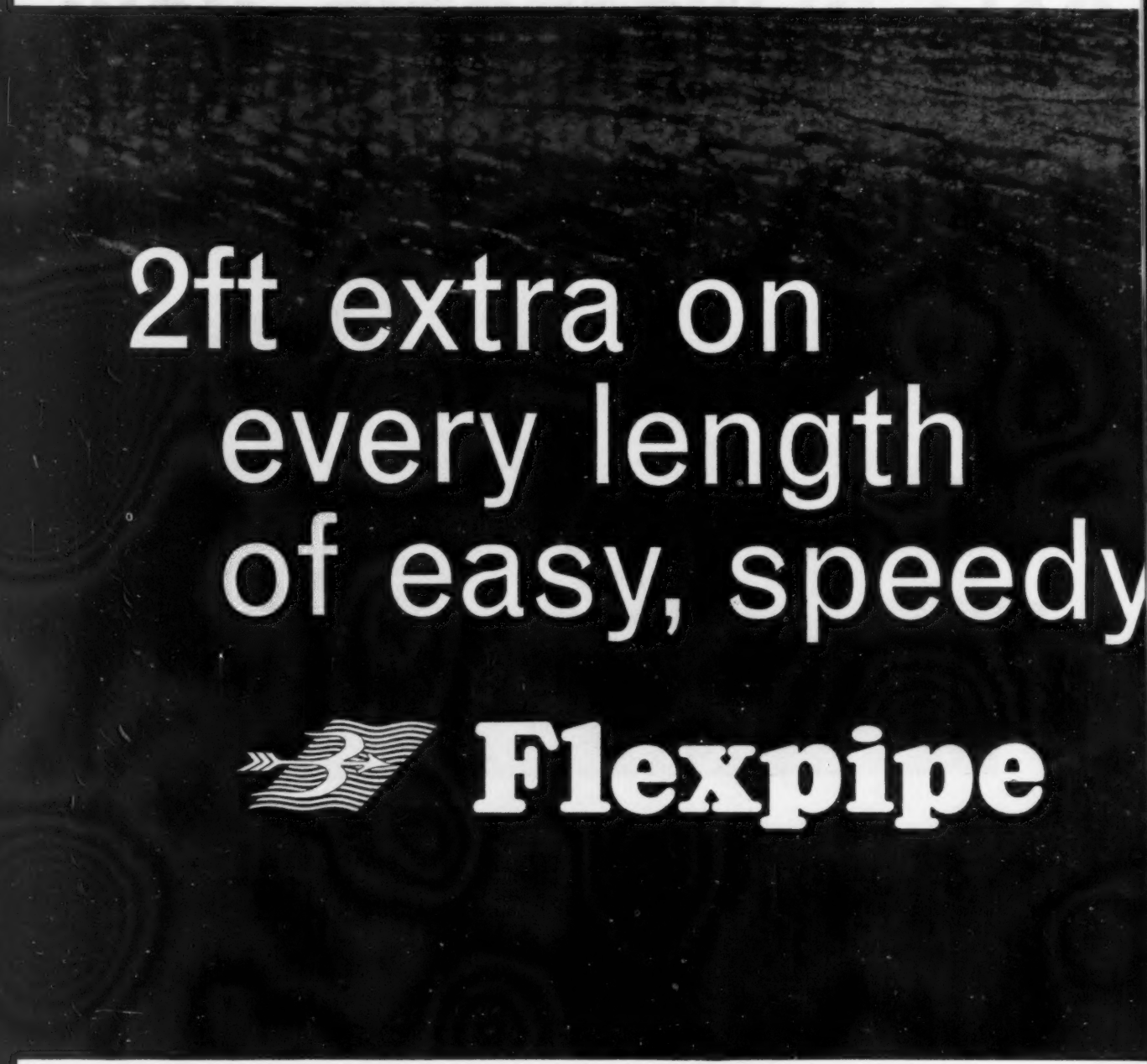

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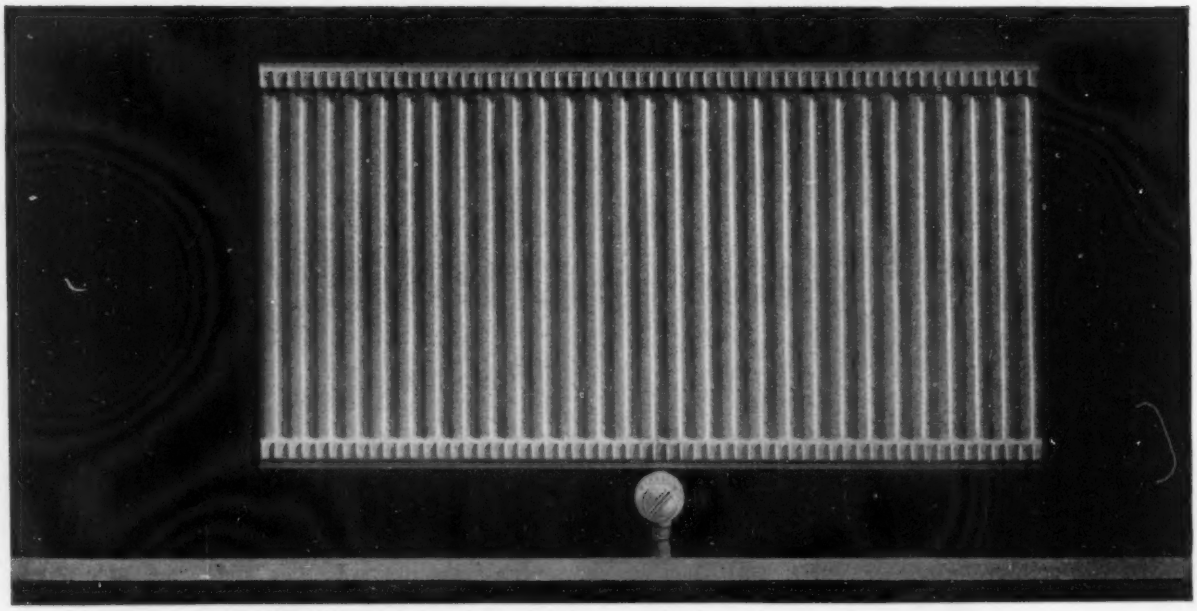

At last heating engineers can reap the benefits of simple, efficient one-pipe radiators.

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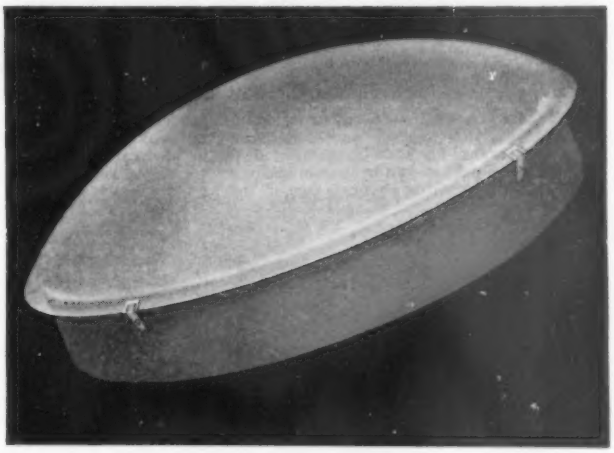

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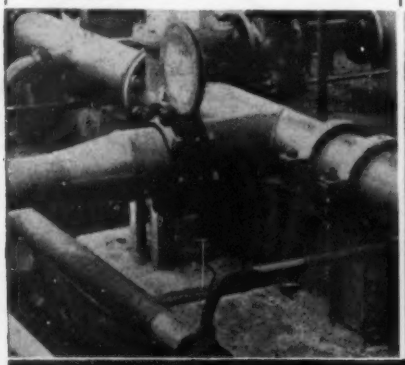

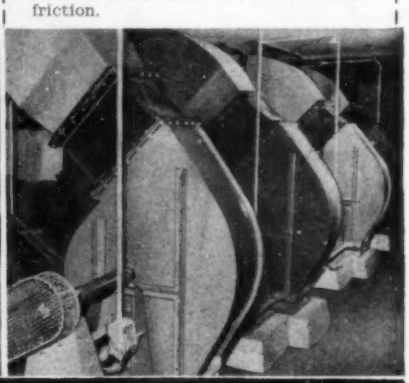

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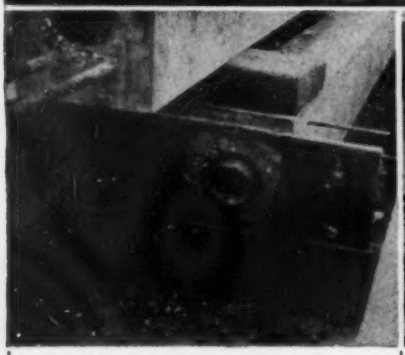

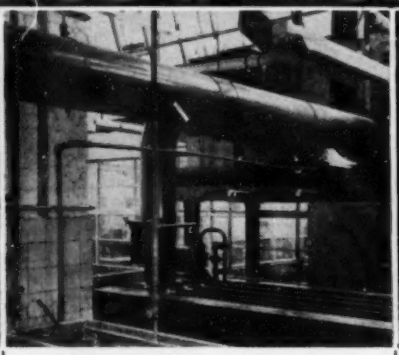

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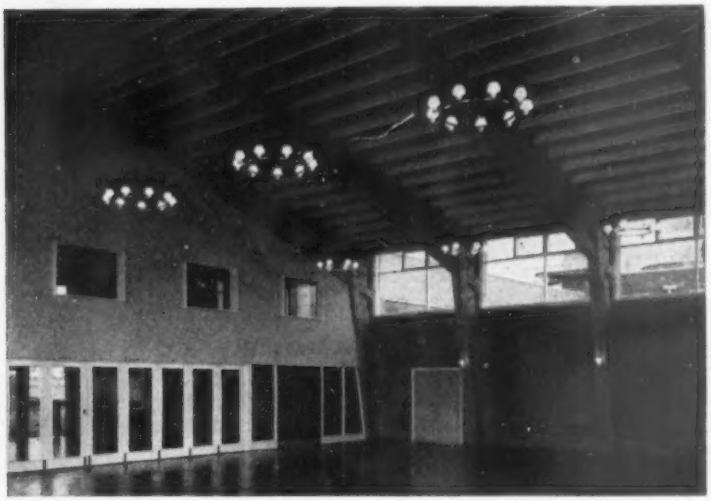

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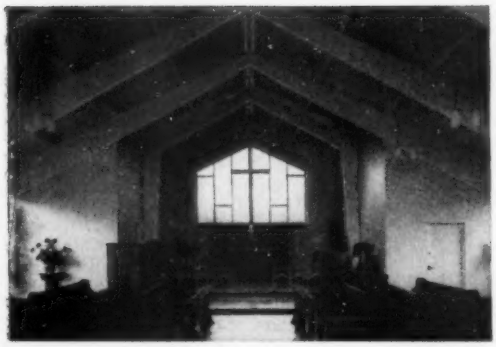

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Othello, v. ii.

By A. F. B. Nall, A.M.I.San.E., A.M.Inst.W.

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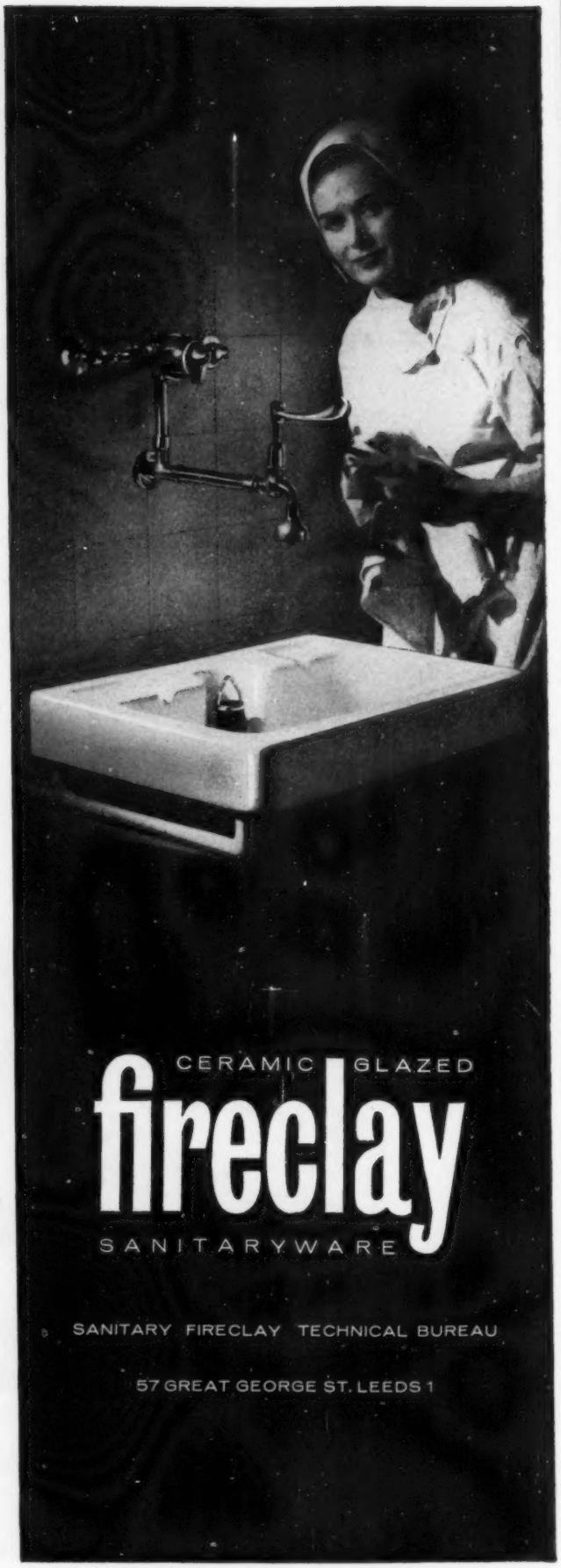

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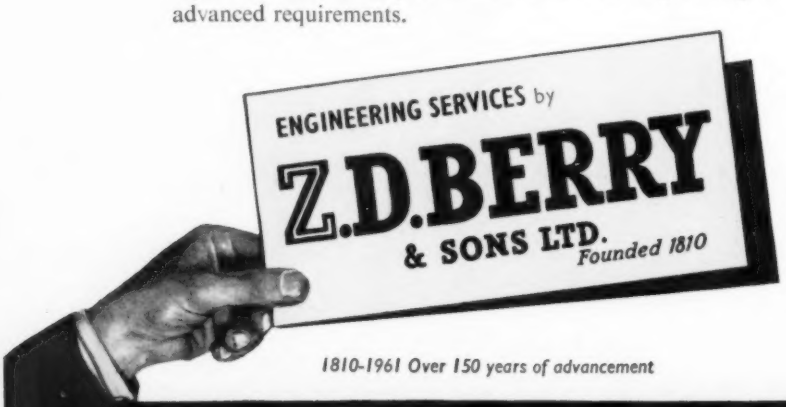

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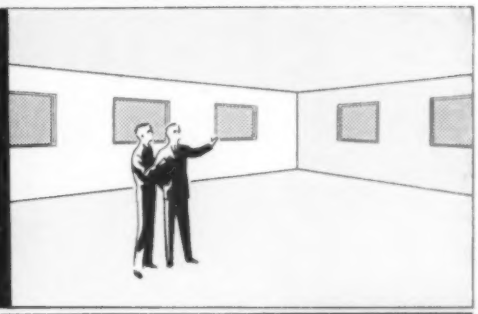

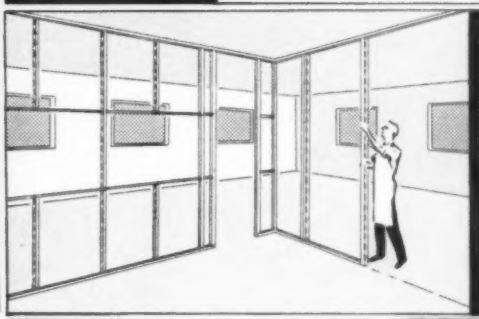

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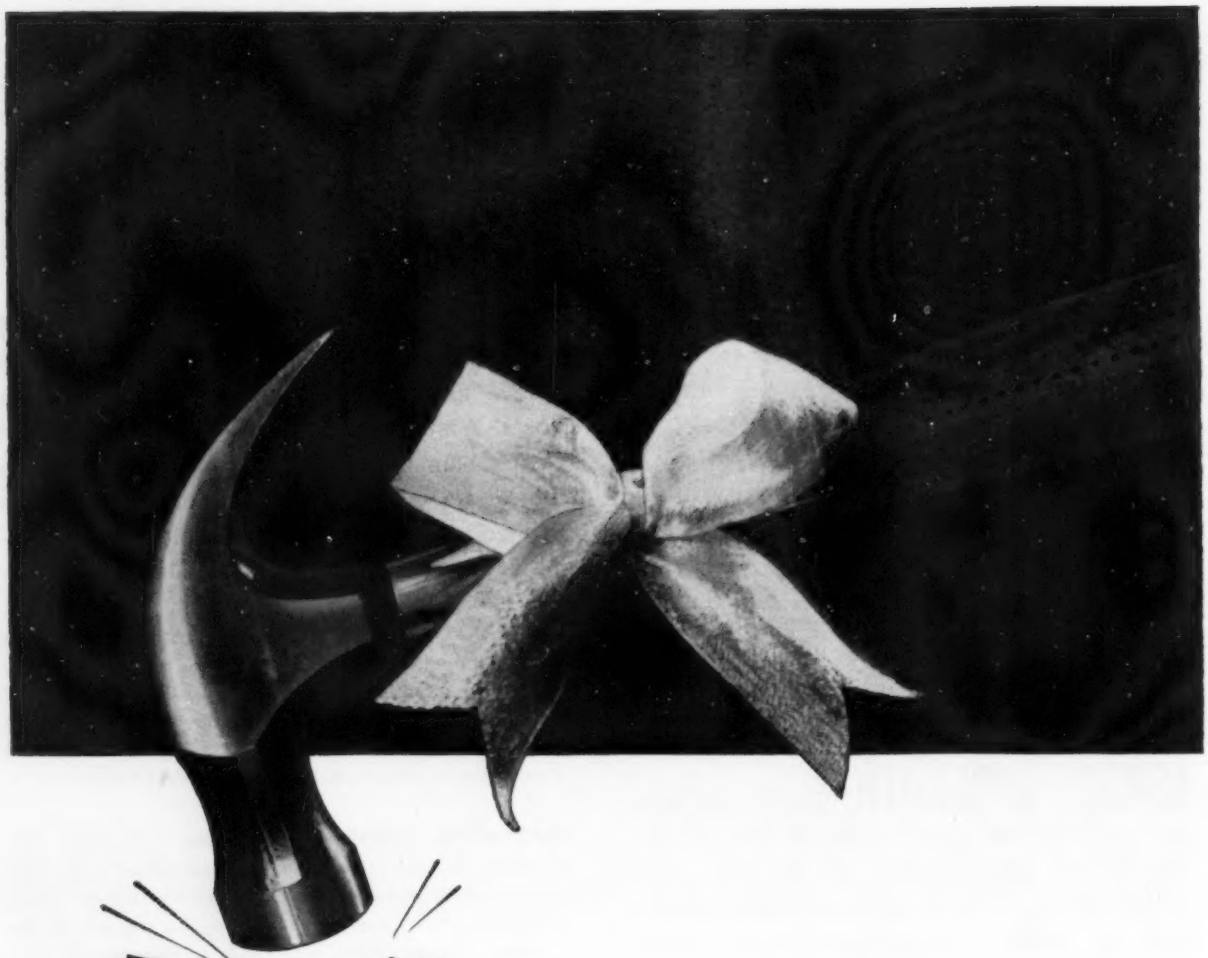

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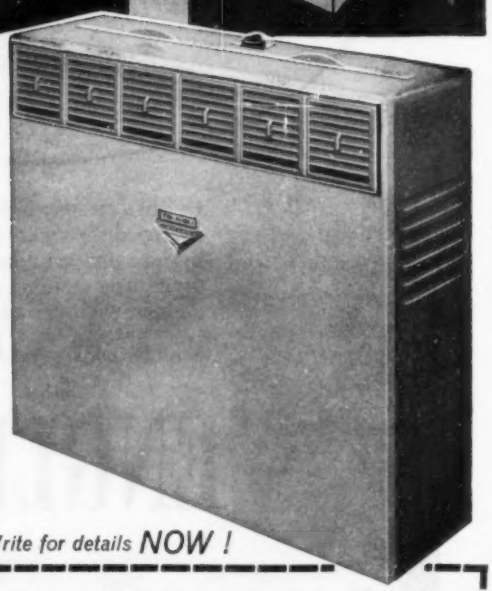

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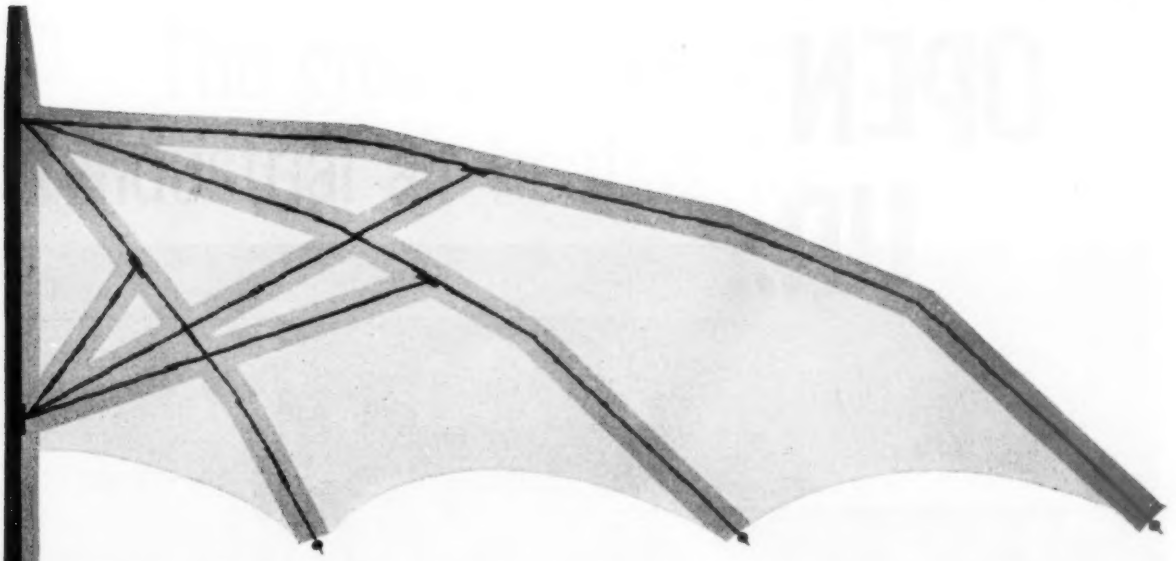

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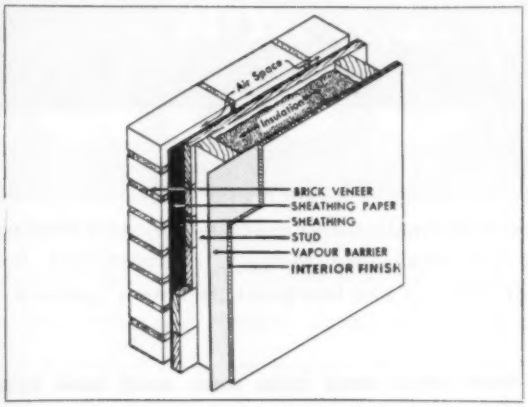
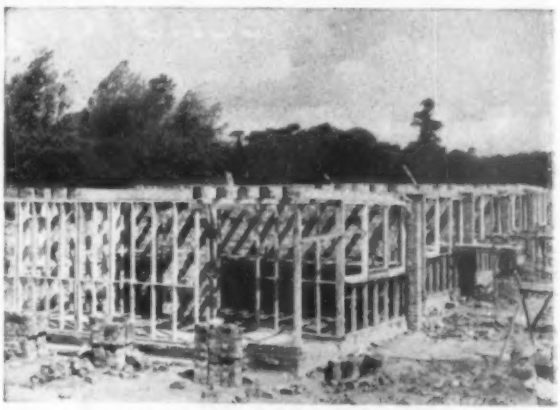
Take full advantage of the Western frame construction method by specifying Canadian timbers—durable, attractive Western Red Cedar for cladding, easy handling Pacific Coast Hemlock for structural components.



A construction detail



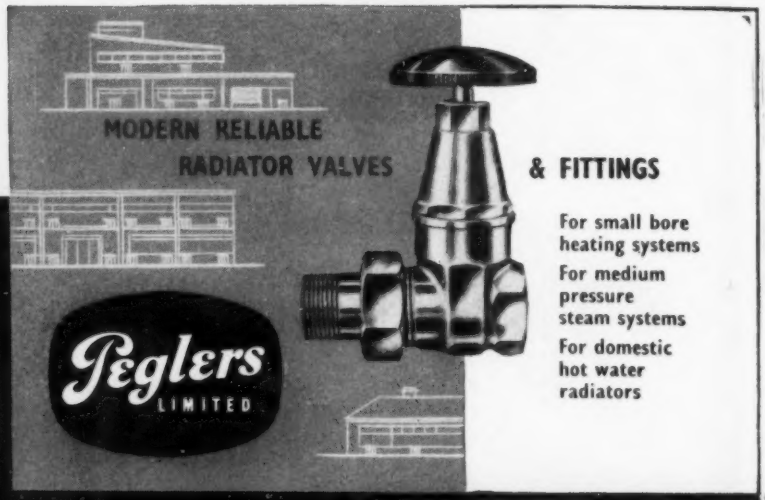
A typical timber frame construction

BRITISH COLUMBIA LUMBER MANUFACTURERS ASSOCIATION

1 GROSVENOR SQUARE, LONDON, W.1

51

OPEN UP...



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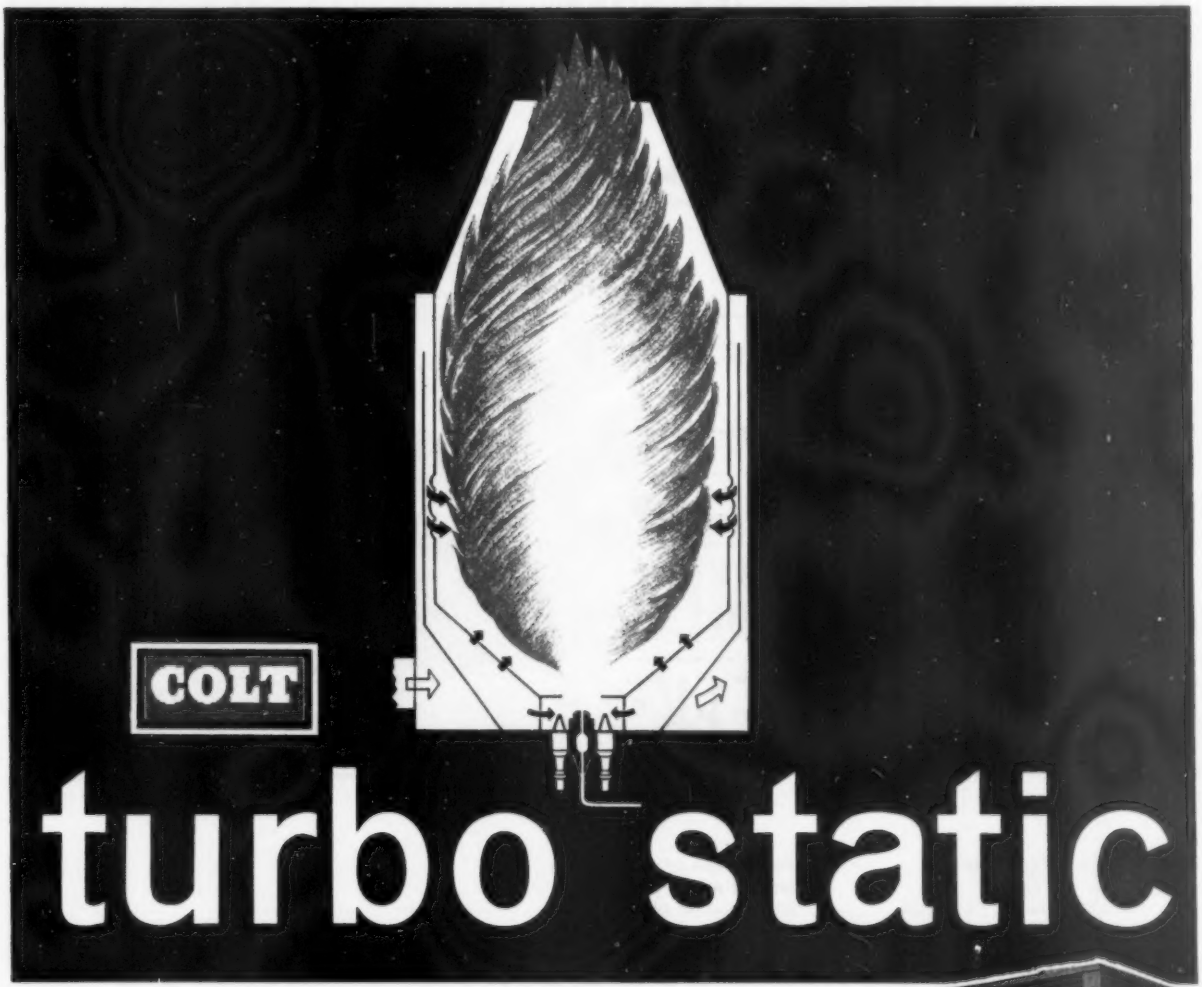

Complete control of the combustion air, that is the revolutionary advance embodied in the Colt Turbo-Static Heater. Preheated and injected under pressure through multiple openings in the combustion chamber walls, the combustion air stabilises the flame in three contra-directional air streams. The result—greater combustion efficiency, higher gas temperatures, more rapid heat exchange and a substantial reduction in overall size and weight. Ask your Secretary to write to the Information Officer for full details of the Turbo-Static Heater and the Colt Service.

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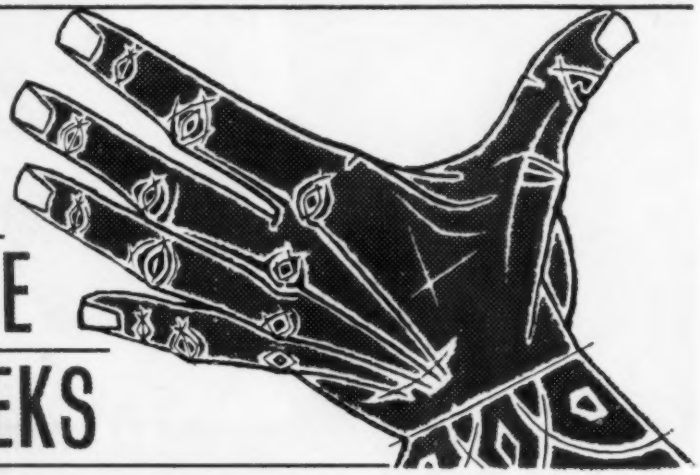
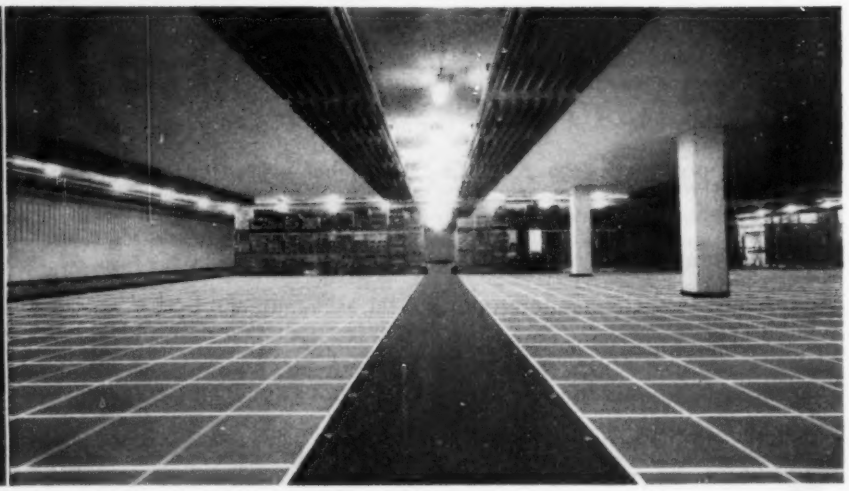


& AGAIN ON TIME IN ONLY 18 WEEKS

Interior of the new Birds Eye Foods Limited's Great Yarmouth cold store, showing the loading bank.

Photograph of a part of the interior which gives an indication of the size and stacking space of the new cold store.



An aerial photograph showing the vast single span roof of the new "Birds Eye" Cold Store at South Denes.

1½ MILLION CUBIC FEET IN ONE ROOM

The largest of its kind in Europe, this vast cold store at South Denes was ready for use only eighteen weeks after building commenced. Simultaneously 3 to 4,000,000 cubic feet of cold storage were under construction in other parts of the country.

Internal Dimensions: Length 341' 0". Width 239' 0". Height 20' 0". **Temperature:** Capable of operating at —20°F. **Storage Capacity:** 12,000 tons. **Cubic Capacity:** 1,500,000 cu. feet. **Special Features:** New fully automatic doors. Specialised unit construction. New type internal loading bank system. And many other modern features.

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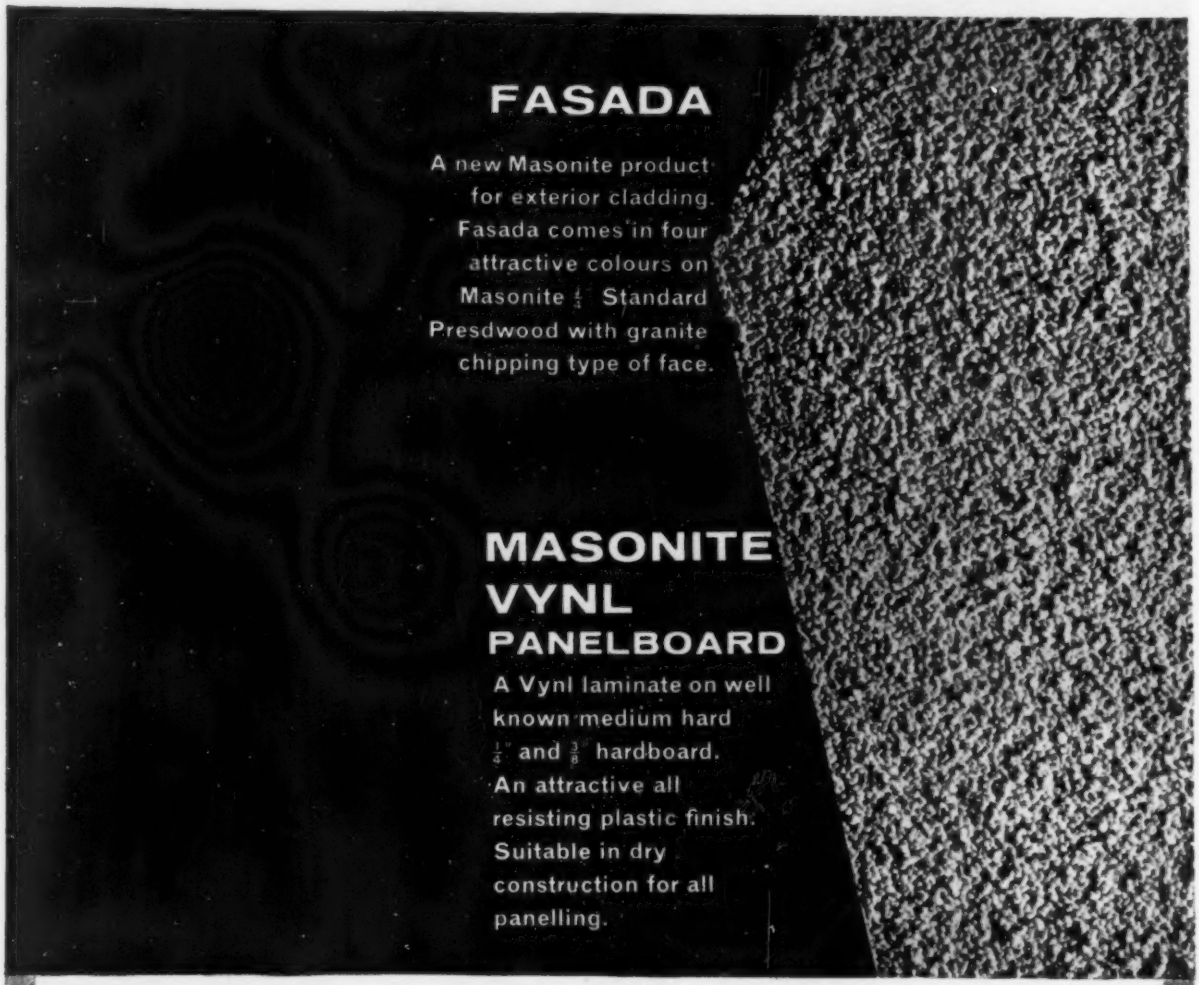

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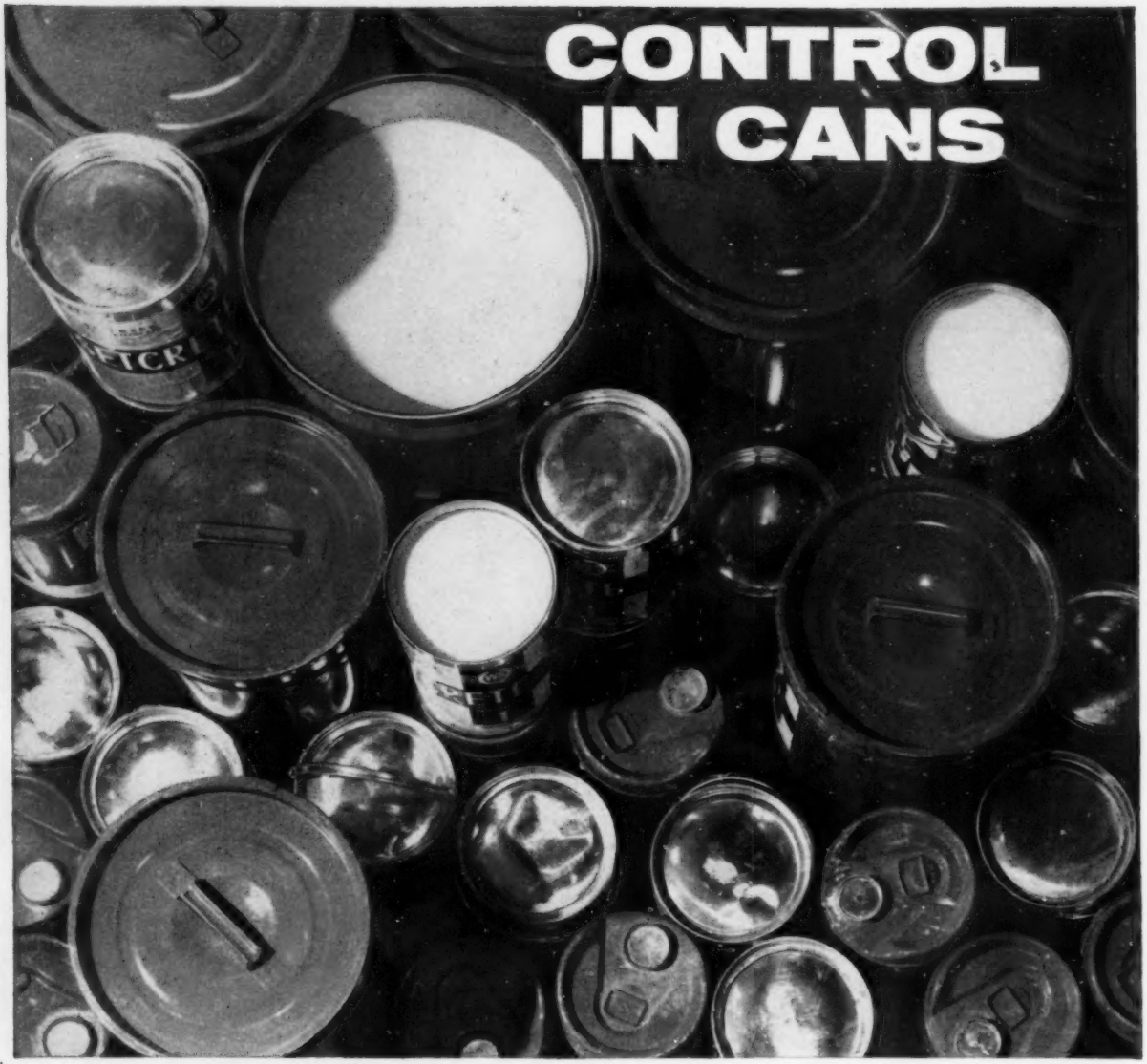

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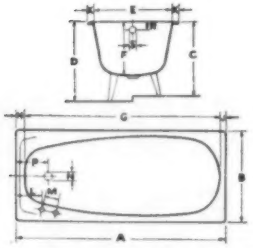
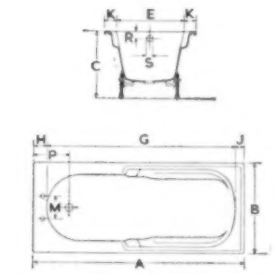


A	5′ 0″	F	1′ 3½″	L	7¼″
B	2′ 2″	G	4′ 8″	M	4″
C*1′	9½″	H	2½″	N	2¼″
D	1′ 11″	J	1½″	P	9¼″
E	1′ 10¼″	K	1¾″	R	2⅜″
				S	1¾″

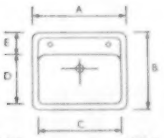
*Standard height unless No. 3A foot is specified.

2 VOGUE HARMONY



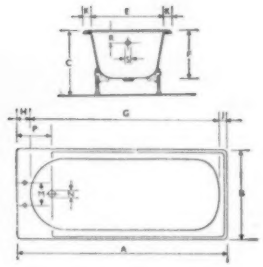
A	5′ 6″	F	1′ 3¼″	K	3¾″
B	2′ 4½″	G	4′ 11⅜″	M	7⅛″
C	1′ 8¾″	H	4⅛″	P	10⅜″
E	1′ 9″	J	2½″	R	2¼″
				S	1¾″

3 BRAEMAR HAND BASIN



	22″ x 18″			20″ x 15″	
A	22″	E	4¾″	A 20″	E 4″
B	18″	F	6½″	B 15″	F 6½″
C	19½″	G	8½″	C 18″	G 7¾″
D	12″			D 10″	

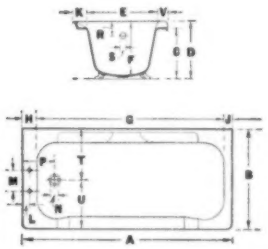
4 VOGUE



A	5′ 6″	F	1′ 3¼″	M	7⅛″
B	2′ 4½″	G	4′ 11⅜″	N	2¼″
C*1′	8¾″	H	4⅛″	P	10⅜″
E	1′ 11″	J	2½″	R	2¼″
		K	2¾″	S	1¾″

*Standard height with cast iron panels 19″. Also available with 6′ overall length

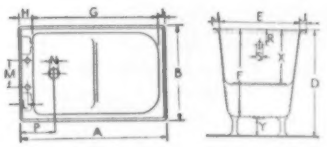
5 KENT



A	5′ 6″	G	4′ 11″	N	2¼″
B	2′ 7″	H	4½″	P	10½″
C	1′ 4½″	J	2½″	R	4½″
D	1′ 6½″	K	4¼″	S	1¾″
E	1′ 11½″	L	2⅝″	T	1′ 4″
F	1′ 5½″	M	7⅛″	U	1′ 3″
				V	3¼″

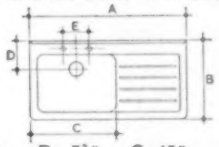
Also available with 6′ overall length

6 MAXIM



A	3′ 7″	G	3′ 1″	N	2¼″
B	2′ 3″	H	4″	P	11″
D	2′ 6″	J	2″	R	4″
E	1′ 11″	L	2⅜″	S	1¾″
F	2′ 0″	M	7⅛″	X	1′ 3¼″
				Y	5″

7 VOGUE SINK No. 24221



A	42″	D	7¾″	G	15″	K	12″
B	21″	E	7″	H	2″	L	3″
C	23″	F	4″	J	8½″	M	9″

1 COMPAC For low cost housing. Only 5ft. long, it gives maximum comfort with minimum water consumption. **2 VOGUE HARMONY** With non-slip handgrips, arm-rests and low sides. Ideal for children and the aged. **3 BRAEMAR HAND BASIN** A cast-iron, porcelain enamelled flat rim luxury basin. Supplied with stainless steel frame for counter top assembly, with or without loose overflow. **4 VOGUE** The wide flat bottom, low price and sleek lines make this the most popular bath of all. **5 KENT** A reasonably priced luxury bath with adjustable feet. **6 MAXIM** For small bathrooms and conversions. The shallow end forms a useful seat for children and the aged **7 VOGUE SINK No. 24221** Cast-iron combined sink and drainer in acid-resisting enamel. Left or right handed bowl as required.

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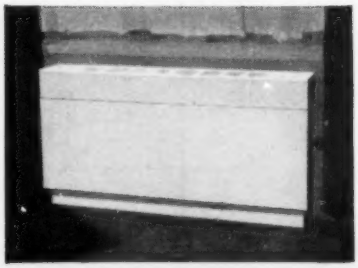

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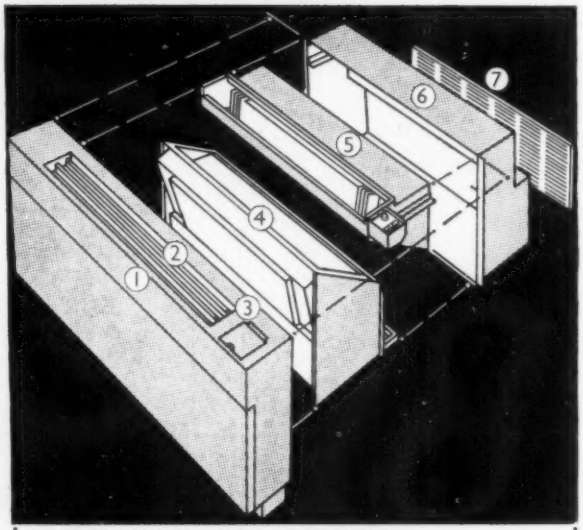

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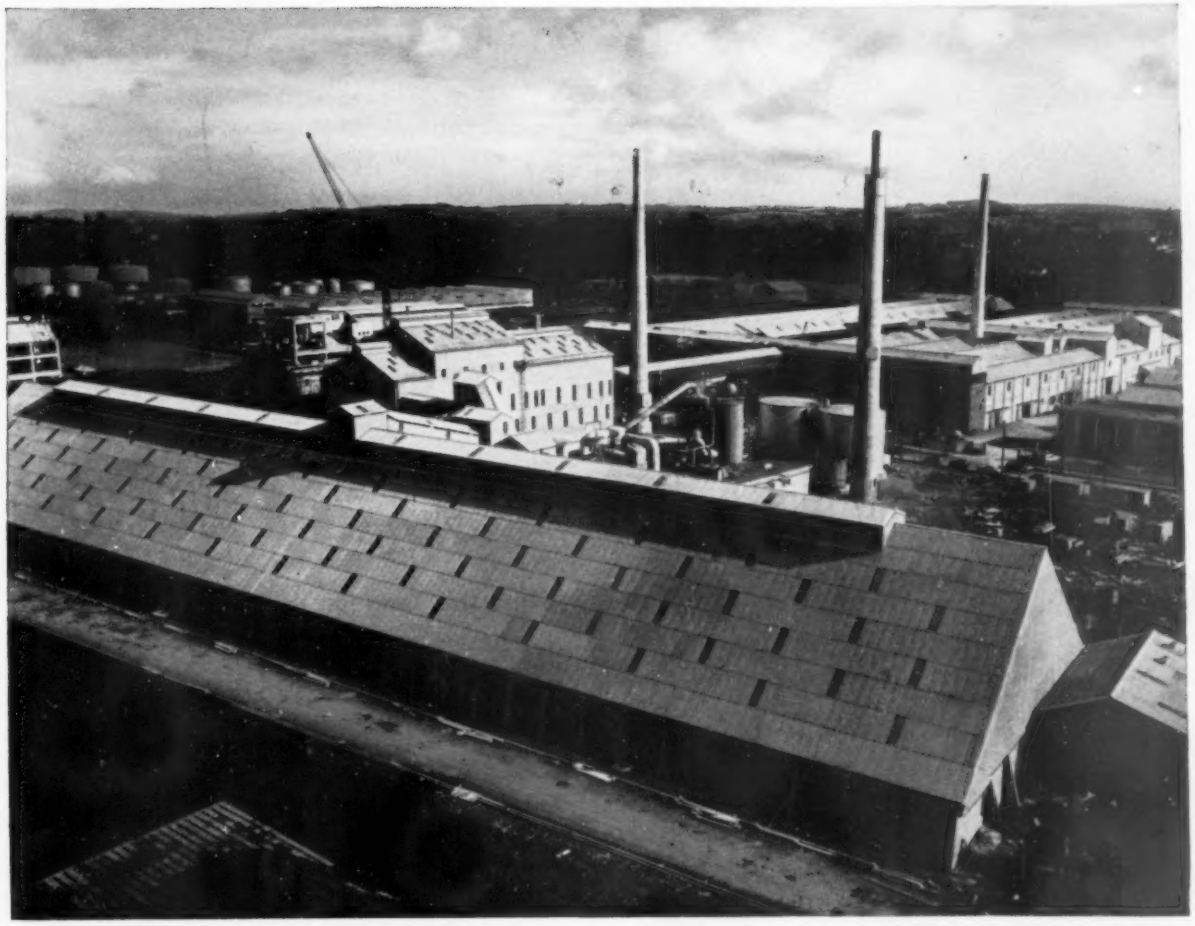

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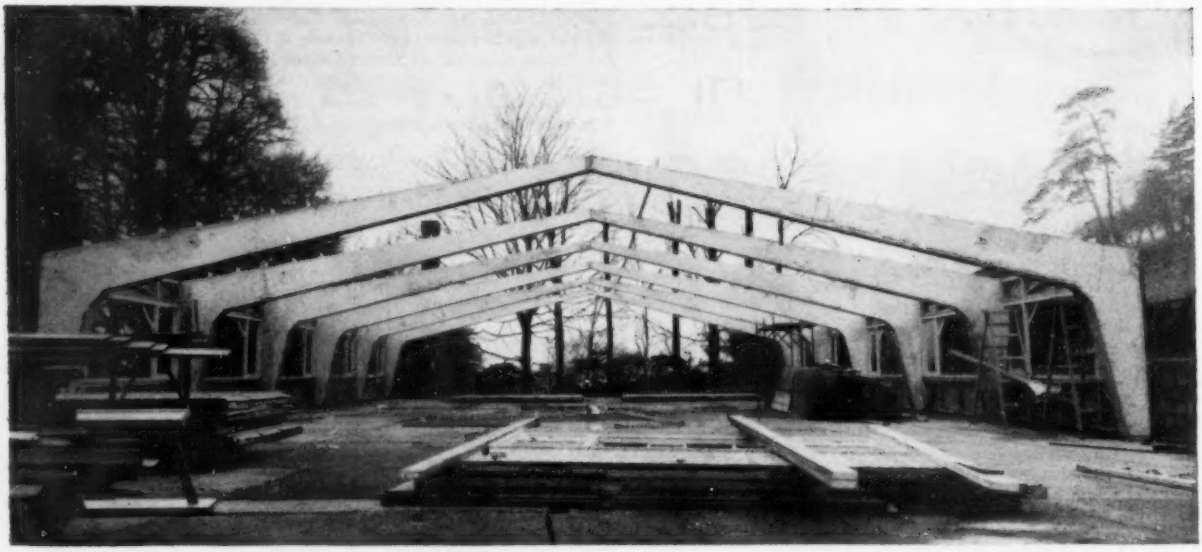

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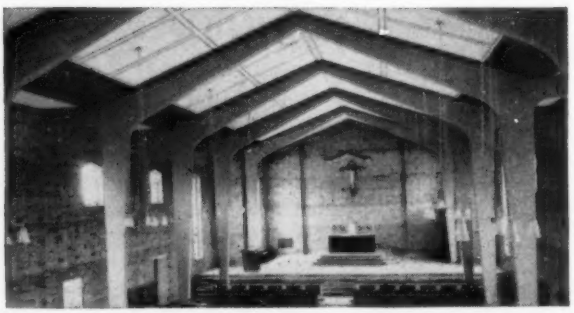

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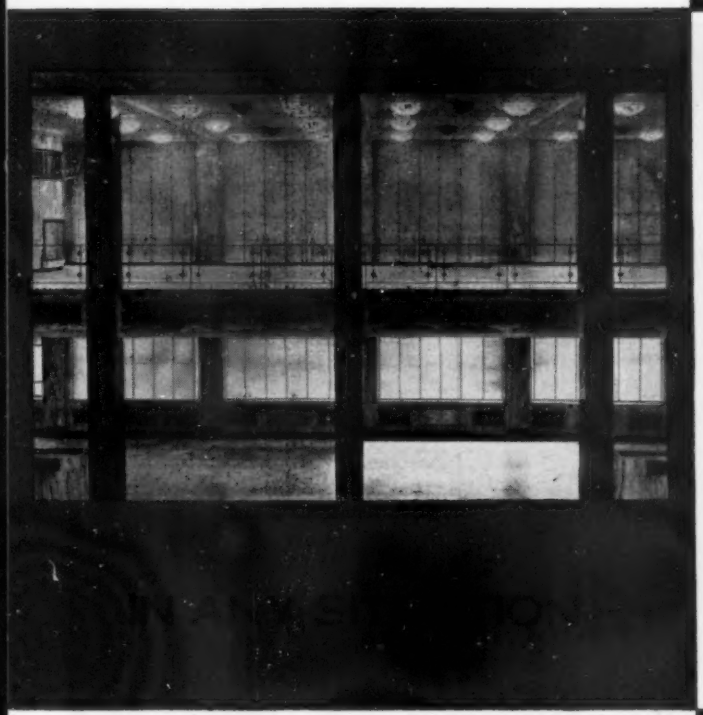

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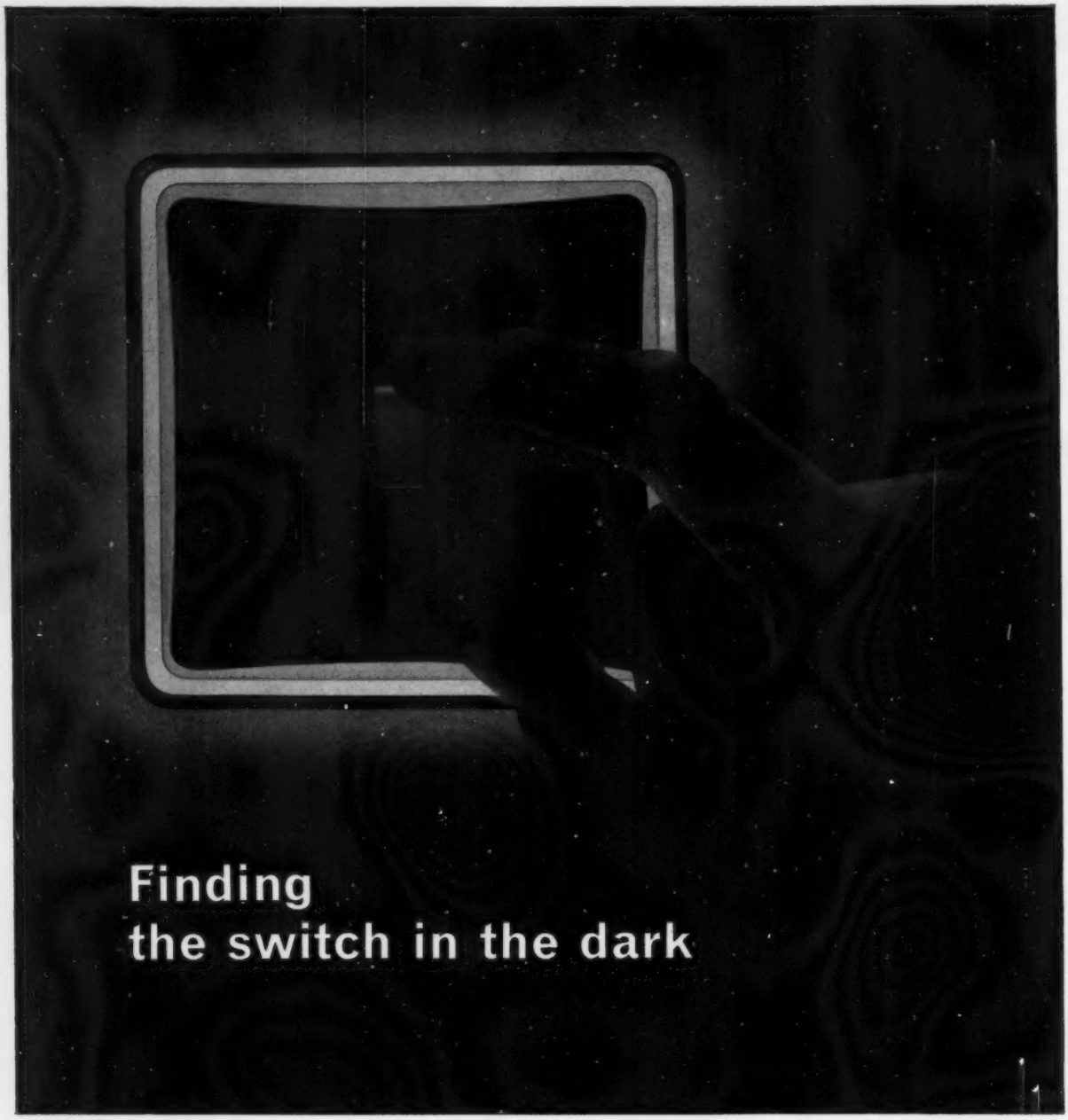

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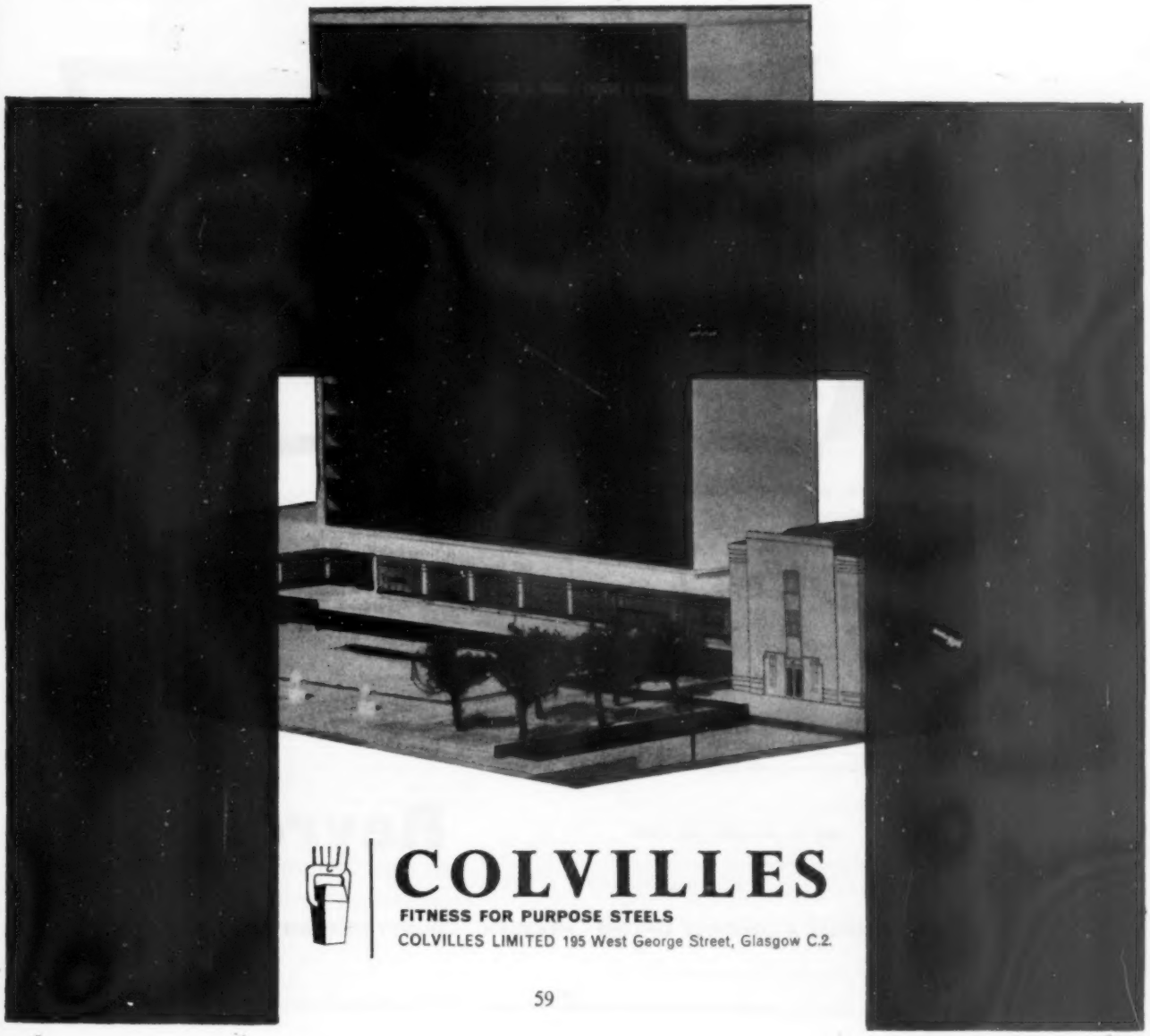

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. . . with desirable U-value at lowest cost. Apply the DOUBLE-'A' System . . . NOW!

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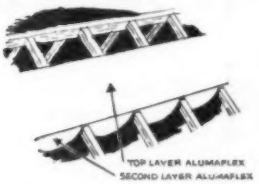
a reinforced bituminous felt **plus** a surfacing of flame resisting burnished aluminium foil that reflects 95% radiant heat back into the building.



THE NEW DOUBLE-'A' SYSTEM

consists of **two** layers of ALUMAFLEX . . . the first allowed to drape between the beams, the second stretched taut over the beams.

This creates pockets of warm air at the highest point of the building — and the most effective barrier yet against penetration of cold and loss of heat through the roof.

The Figures . . . . . .

An average ceiling and roof including ordinary underslating felt gives an approximate U-value of ·43.

ONE LAYER OF ALUMAFLEX—

in place of ordinary felt yet costing only about 7d. per sq. yd. more — **gives an approximate U-value of ·30.**

THE DOUBLE-'A' SYSTEM—

costing **less** than 3/- per sq. yd. more than ordinary underslating felt – **gives an approximate U-value of ·21!**

This — and the cost of labour **saved** by installing complete roof insulation in one operation — makes DOUBLE-'A' the finest system at the lowest possible cost available today!

ALUMAFLEX

In time for **your** next important project . . . please ask for a sample of ALUMAFLEX and full details of THE DOUBLE-'A' SYSTEM . . . Post your business letterhead or the coupon provided, to . . .

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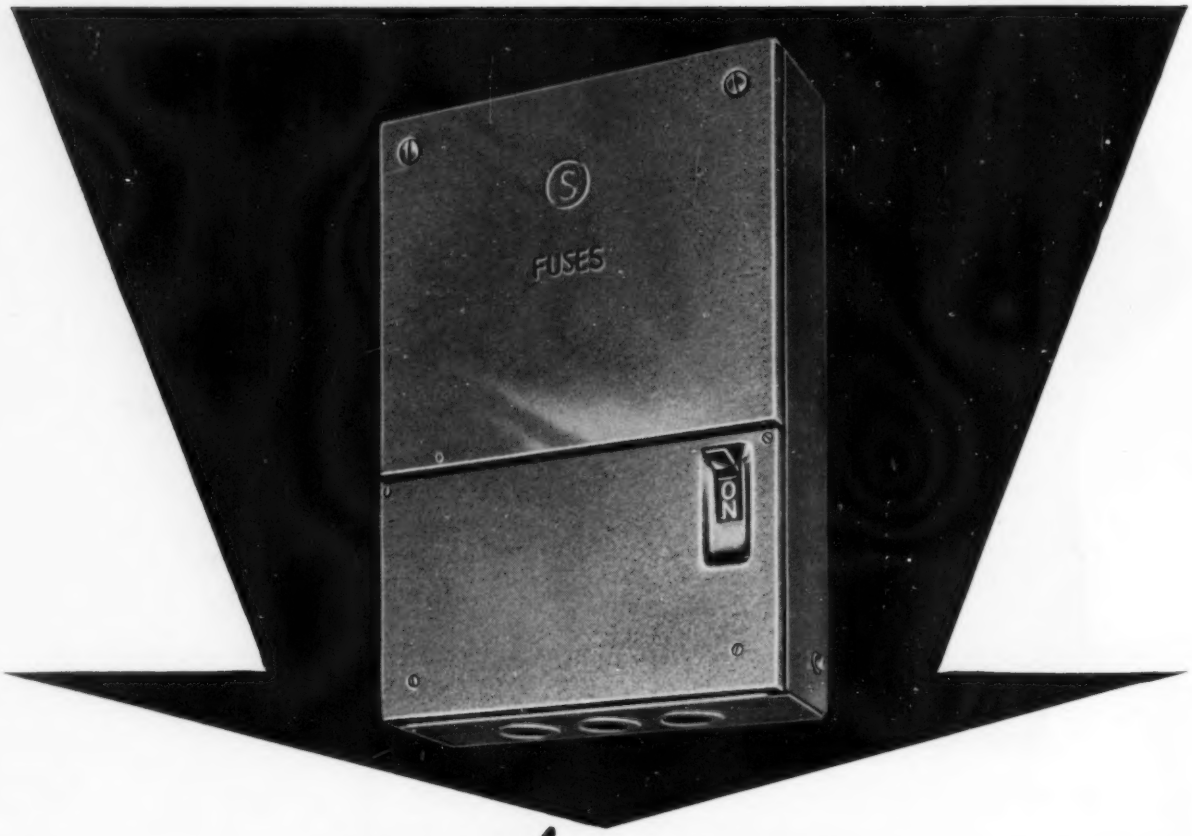

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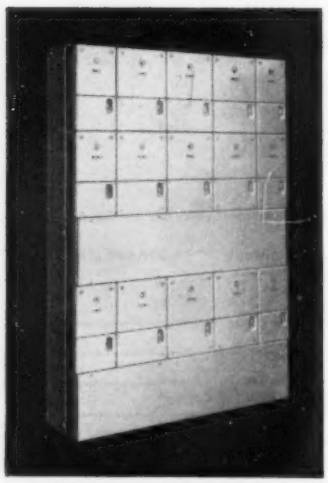
the outstanding new SANDACEE range of A.C. switch fuses



Build your switchpanels into compact space-saving units with SANDACEE A.C. Switch fuses. Smooth projection-free casing permits any form of unit assembly without spacings. Features include fully interlocked front-operated switch having heavy duty solid silver contacts and with ON/OFF indicator.

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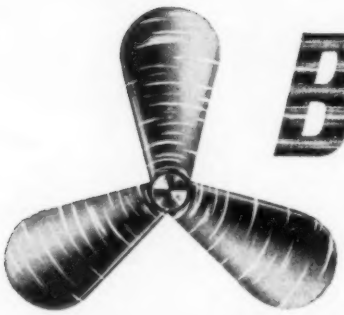

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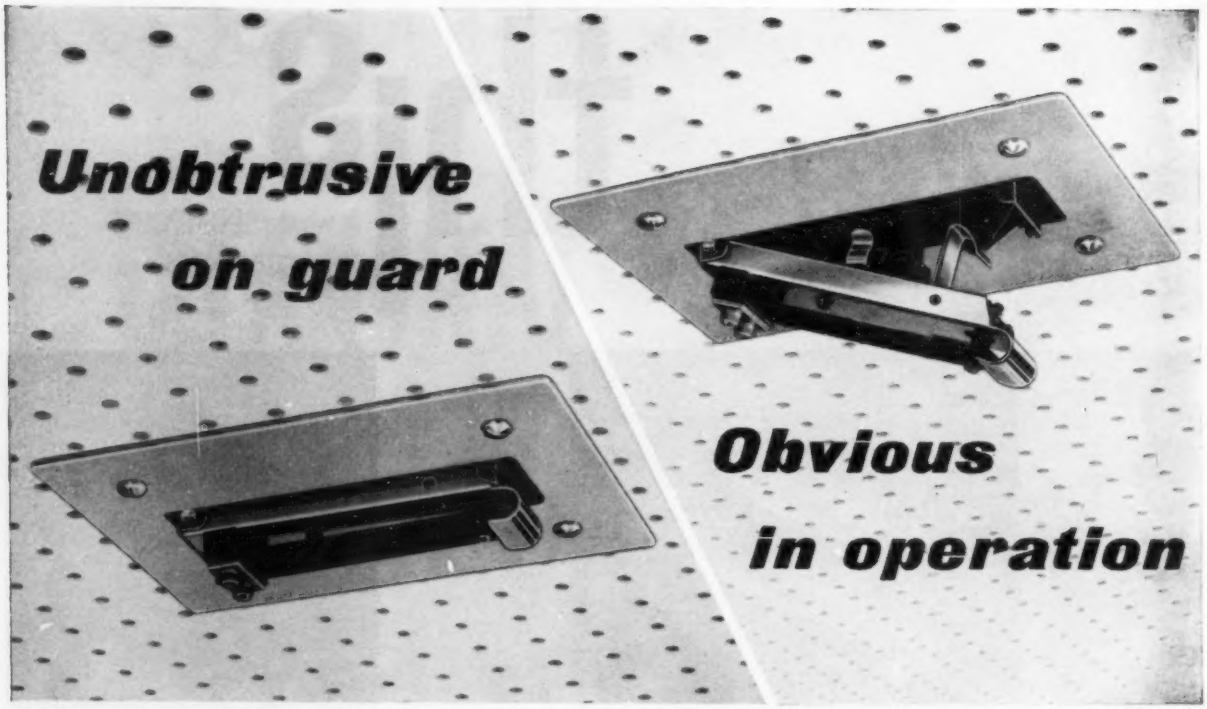
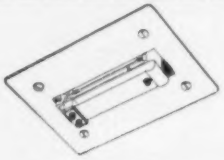
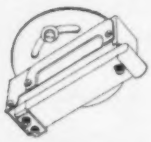




Gents Automatic Fire Detector
— flush fixing model



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When the temperature becomes dangerously high even without a fire breaking out, down tilts a Gent's Fire Detector to sound the alarm and you know where to look for the cause — because you can see which one has operated instantly. This is but one of the many important features of Gent's Automatic Fire Detectors — they are made to such a high standard and are so sensitive to temperature changes that they carry the Kite Mark (complying with British Standard 3116).

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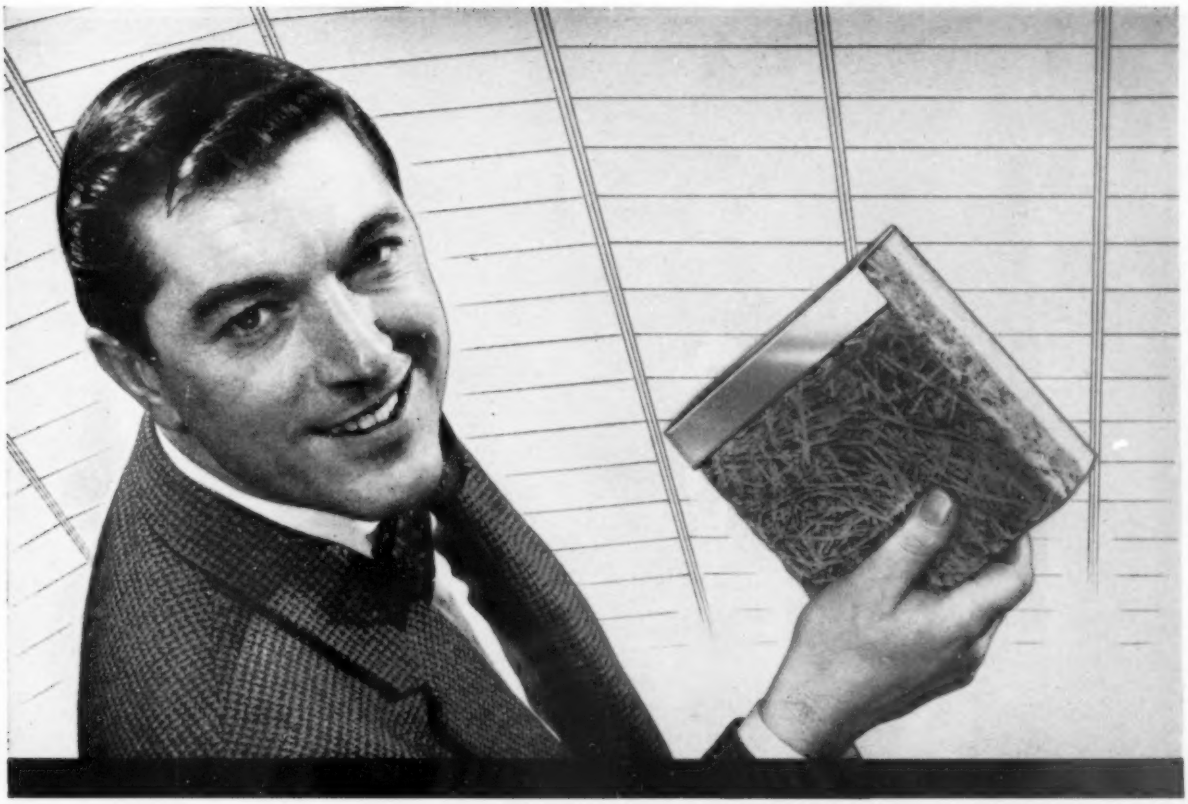

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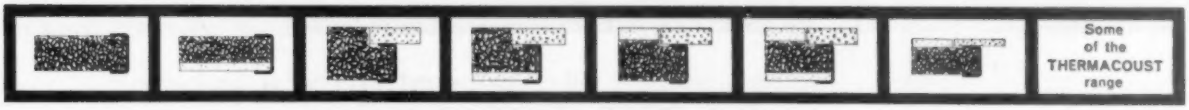

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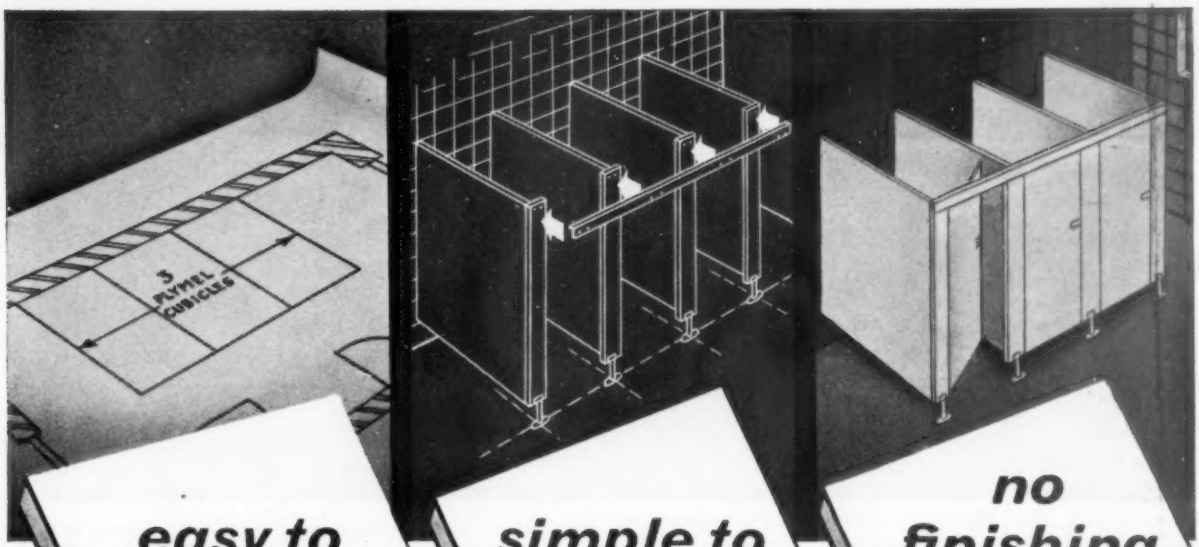

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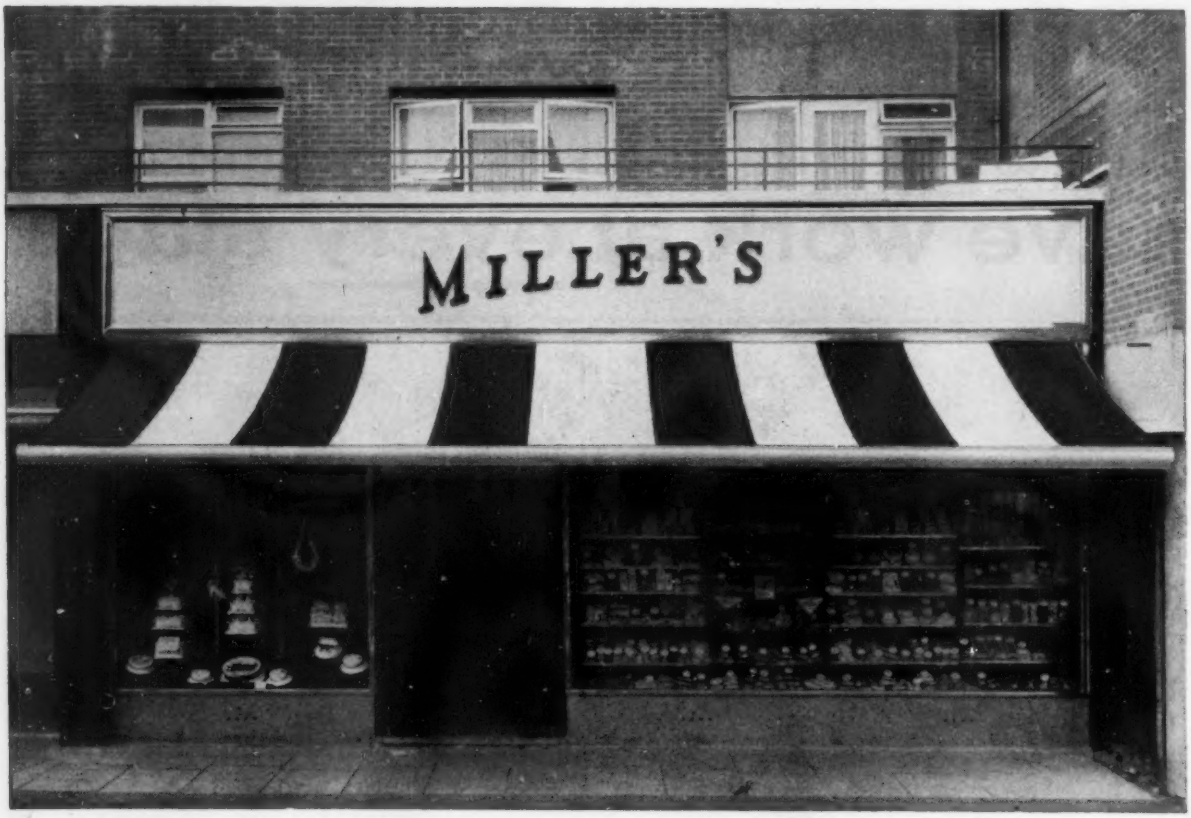

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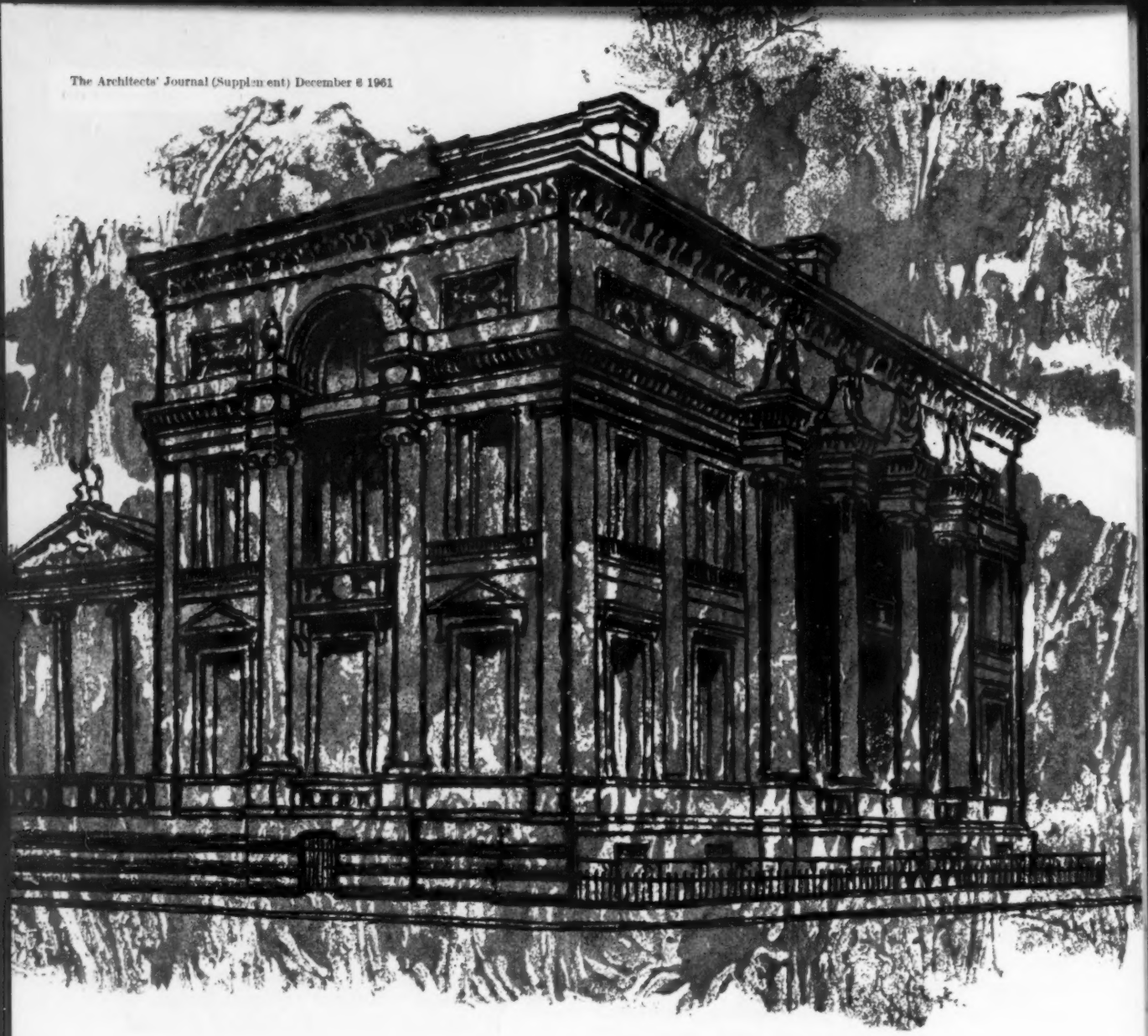
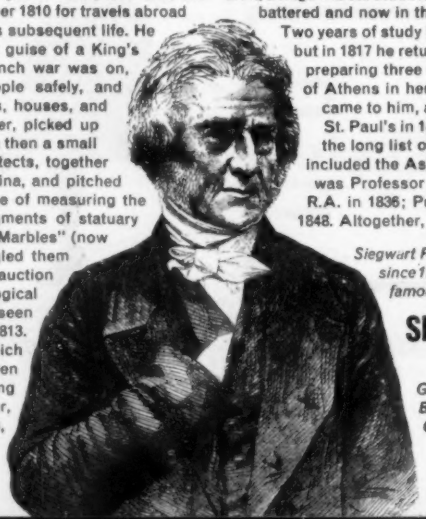


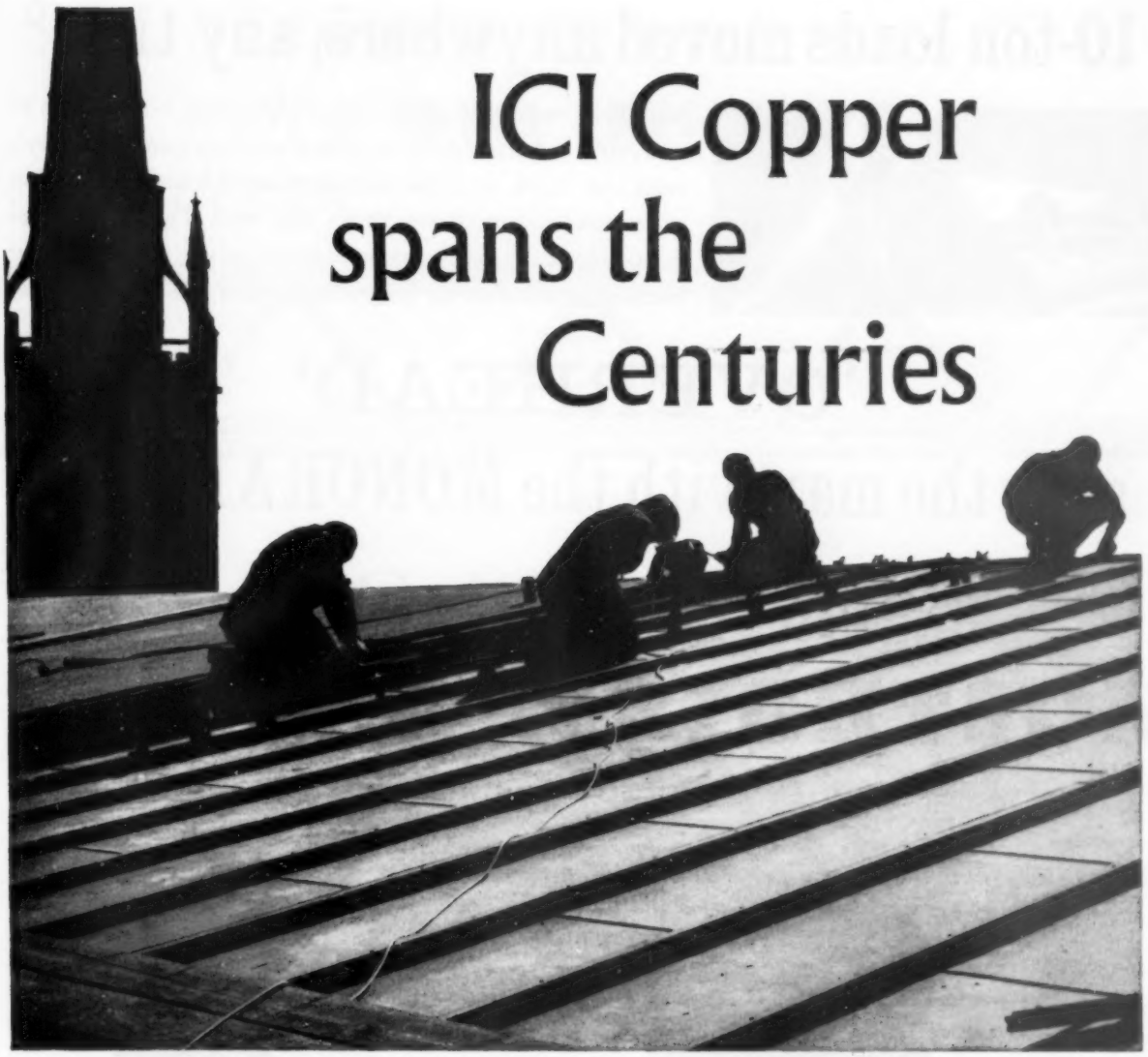
Charles Robert Cockerell *The Greek Revivalist*

Cockerell began his career with the advantages of an orthodox education. This was not surprising, for his father, Samuel Pepys Cockerell, as his name indicates, had Samuel Pepys among his ancestors. So Charles attended Westminster School, and then entered his father's office at sixteen. After five years there, and a further year in Sir Robert Smirke's office, he started in September 1810 for travels abroad which lasted seven years and profoundly influenced his subsequent life. He set sail with £200 in his pocket and in the convenient guise of a King's Messenger, in a Government despatch-boat. The French war was on, but, after sundry scares, they reached Constantinople safely, and Cockerell spent three months there, sketching palaces, houses, and mosques. With another young English architect, Foster, picked up in Turkey, he proceeded to Athens in December. It was then a small and squalid town with no proper hotel. The two architects, together with two German tourists, made a trip by boat to Aegina, and pitched their tents on the island for three weeks. In the course of measuring the Temple of Jupiter there, they discovered various fragments of statuary which later came to be known as the famous "Aegina Marbles" (now in the Munich Museum), and most shockingly smuggled them out of Greece at night, eventually to be bought at auction by the King of Bavaria. Cockerell's other archaeological scoop was the so-called "Phigaleian Marbles", to be seen in the British Museum, which purchased them in 1813. These came from the Temple of Apollo at Bassae, which Cockerell also measured. The lively account of his seven years' journeying in the Levant makes excellent reading for architects or anybody else. His companion, Foster, deserted him for a Greek girl encountered at Smyrna, and there are many other amusing incidents. The commandant of the Acropolis (then a fortress) at Athens offered to give him a souvenir if he would take it away. So he arrived at midnight with a cart, and the commandant pitched down to him, from aloft, a huge marble block forming part of the south frieze of the Parthenon (somewhat battered and now in the British Museum).



Two years of study in Rome, diluted with social dissipation, followed Athens, but in 1817 he returned at last to London. For some time he concentrated on preparing three magnificent imaginative drawings—of Rome in her glory, of Athens in her glory, and of the works of Wren; but a practice quickly came to him, almost unsought. He succeeded his father as Surveyor to St. Paul's in 1819; became Architect to the Bank of England in 1833; and the long list of his buildings from that date up to his retirement in 1859 included the Ashmolean Museum and Taylorian Institution at Oxford; He was Professor of Architecture at the Royal Academy, and was elected R.A. in 1836; President R.I.B.A. in 1860 and its Royal Gold Medallist in 1848. Altogether, a distinguished career.

ICI Copper spans the Centuries



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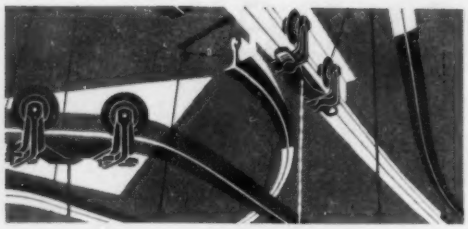

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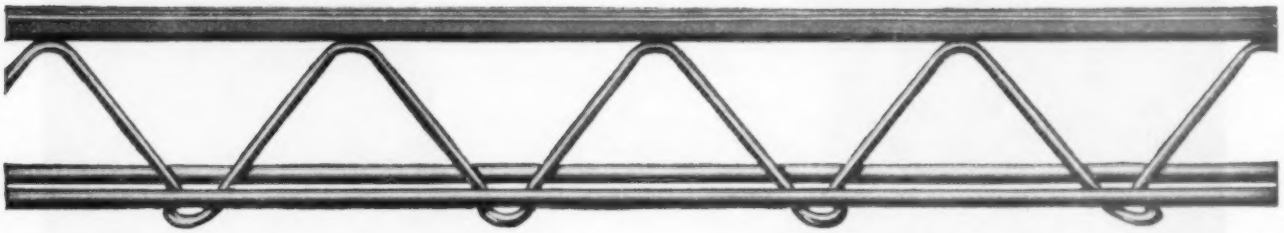

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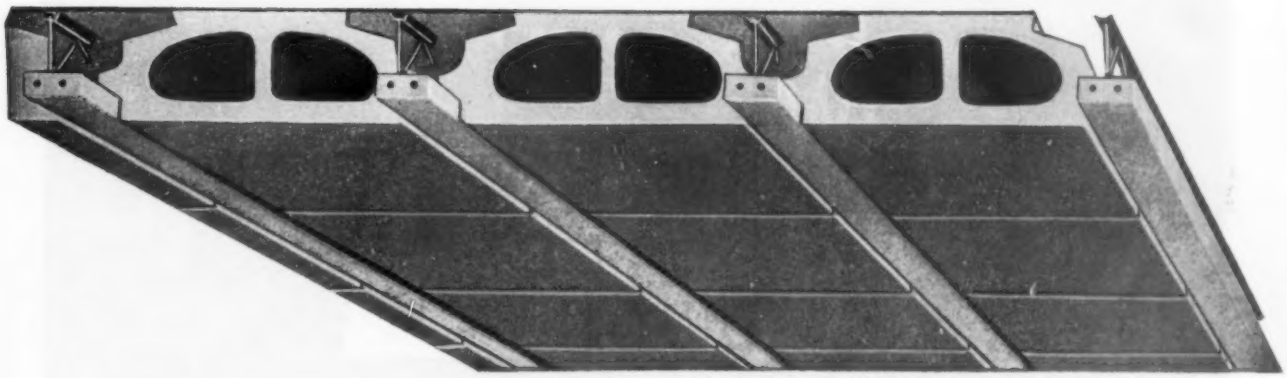

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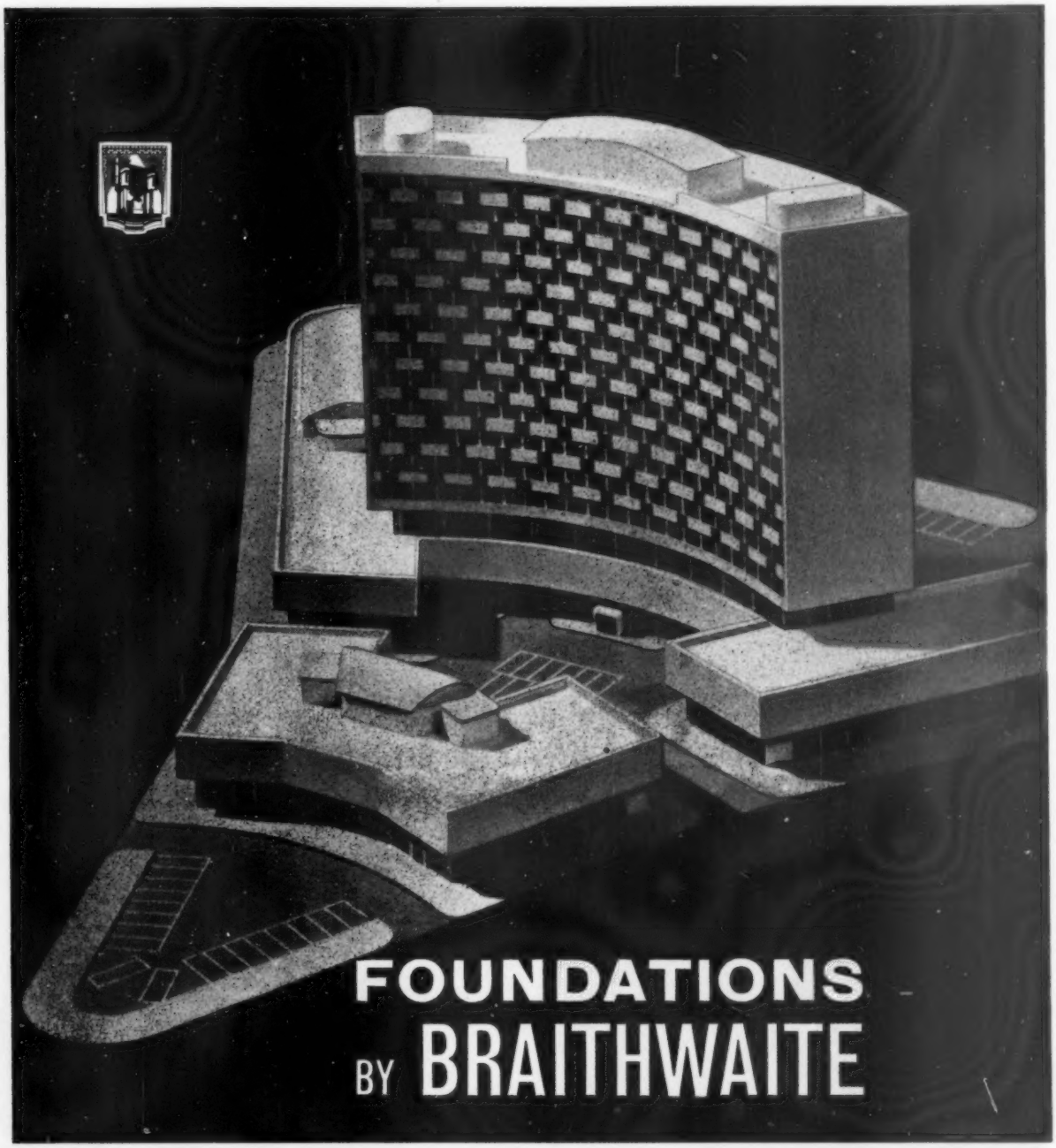

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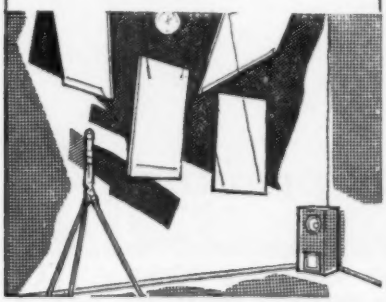

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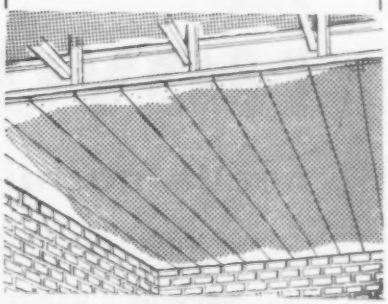

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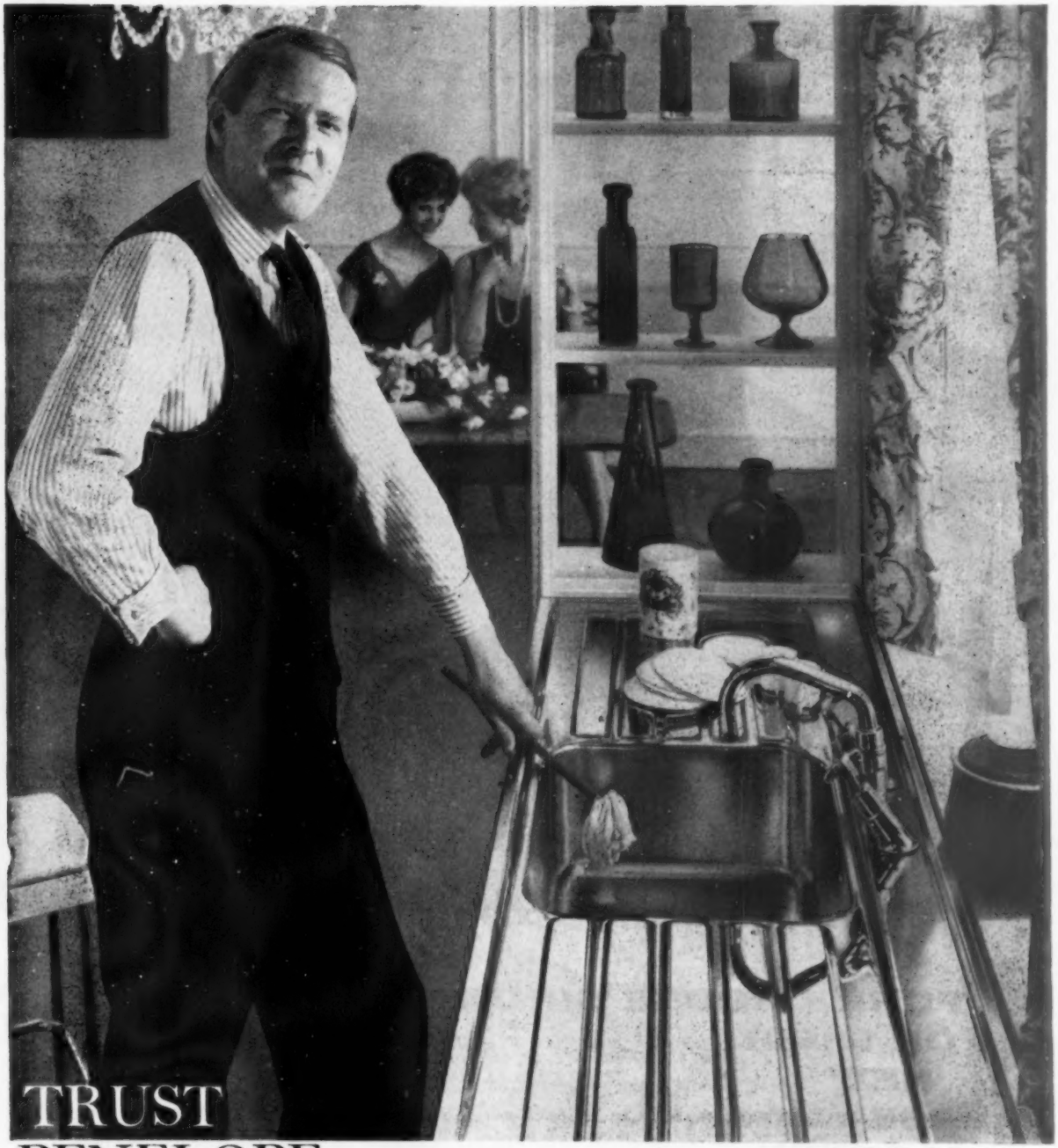

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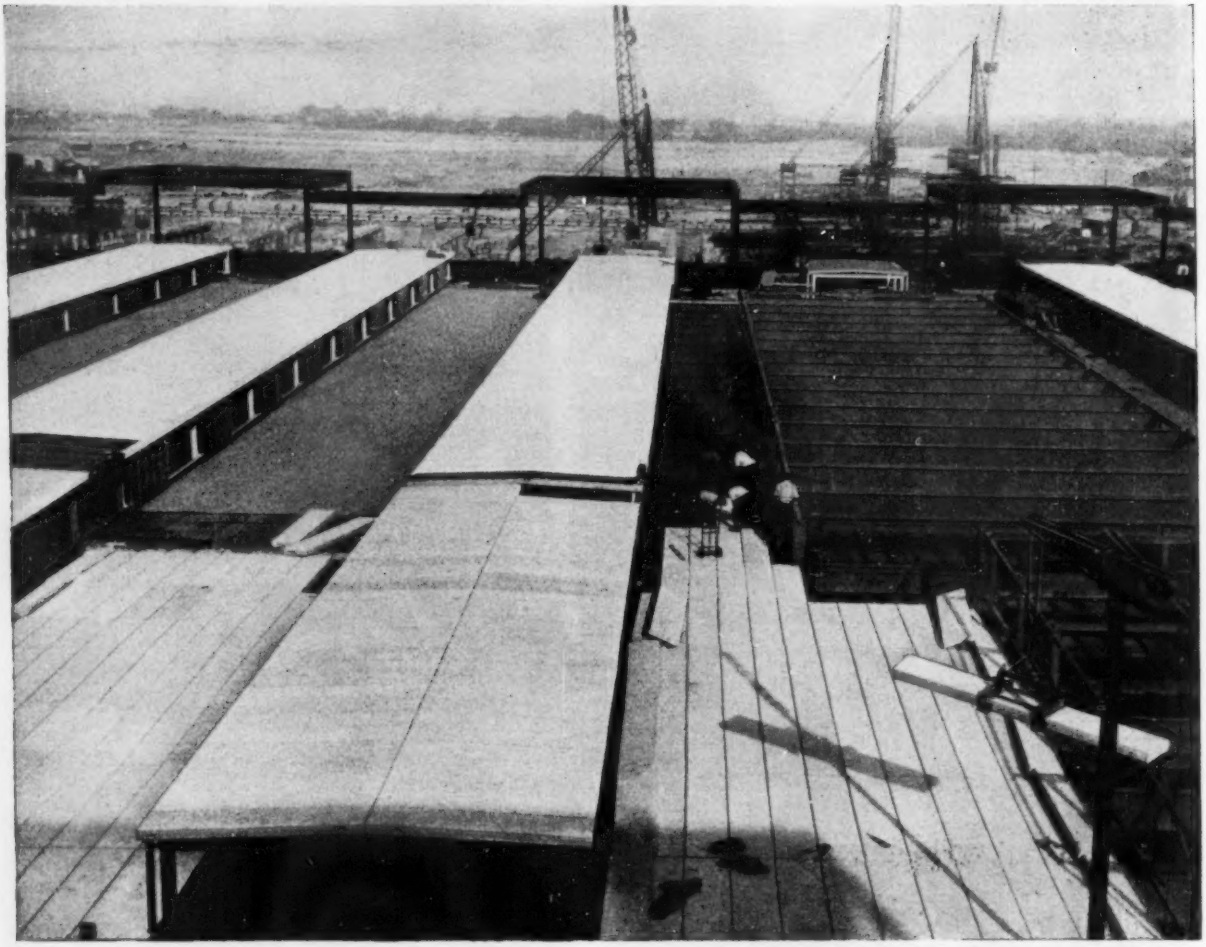

FORD CHOOSE SIPOREX FOR THEIR NEW MERSEYSIDE FACTORY

In all, 200,000 sq. yds. of roofing is being used for the new Ford factory, now under construction at Halewood near Liverpool. For two-thirds of that area (in fact 25 acres) Ford have chosen Siporex reinforced, precast roofing units. Why Siporex? Because its remarkable properties permit higher speeds of erection at a lower cost. Siporex roofing is light, really light, in fact only a quarter the weight of normal concrete. It has a thermal insulation *ten times* greater. It combines strength with dimensional stability and is resistant to fire and frost. Siporex is today's outstanding building material.

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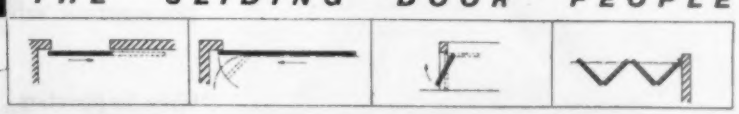

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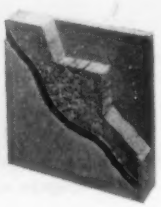

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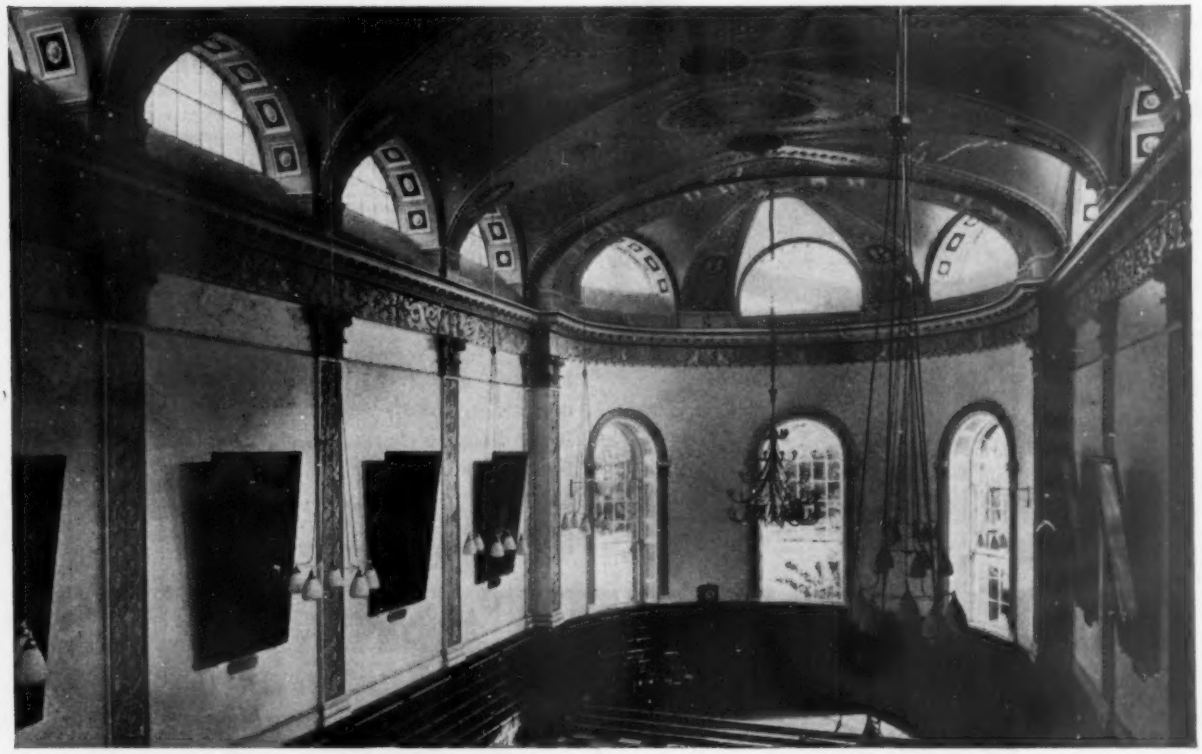
The music goes round and round...



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

...and now the music comes out in the proper places at the proper time in the Examination Hall of Trinity College, Dublin. Imperfect acoustic conditions were marring the quality of the concerts frequently held in the Hall. The architect, after careful investigation of the problem, recommended lining all wall panels with Armstrong Travertone tiles.

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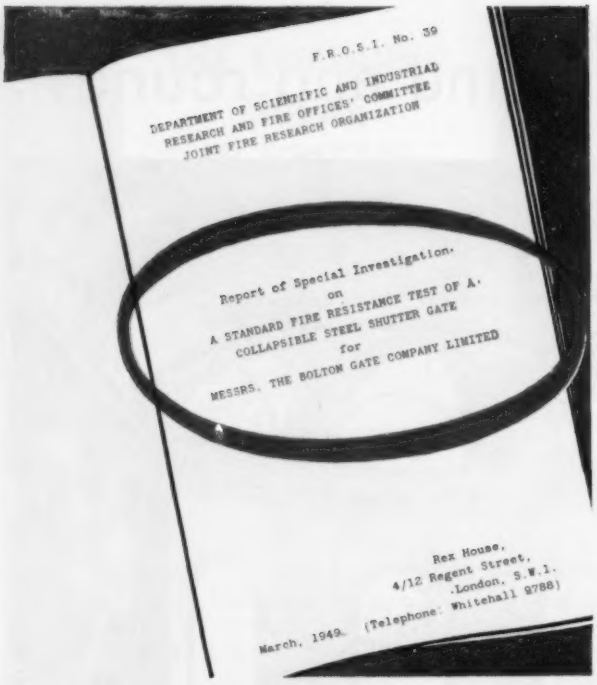
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DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH AND FIRE OFFICES' COMMITTEE JOINT FIRE RESEARCH ORGANIZATION

Report of Special Investigation on A STANDARD FIRE RESISTANCE TEST OF A COLLAPSIBLE STEEL SHUTTER GATE for MESSRS. THE BOLTON GATE COMPANY LIMITED

Rex House, 4/12 Regent Street, London, S.W.1. (Telephone: Whitehall 9788)

March, 1949.

"The Bolton Patent Shutter Gate described in this report . . . provides Grade C fire resistance"

In an official test for fire resistance to the appropriate British Standard, a Bolton Collapsible Fire-proof Shutter Door fulfilled the conditions specified for iron and steel doors and shutters for 2 hours. It was therefore classified as providing Grade 'C' Fire Resistance.

Write now for full details of the test, reference AJ 381.

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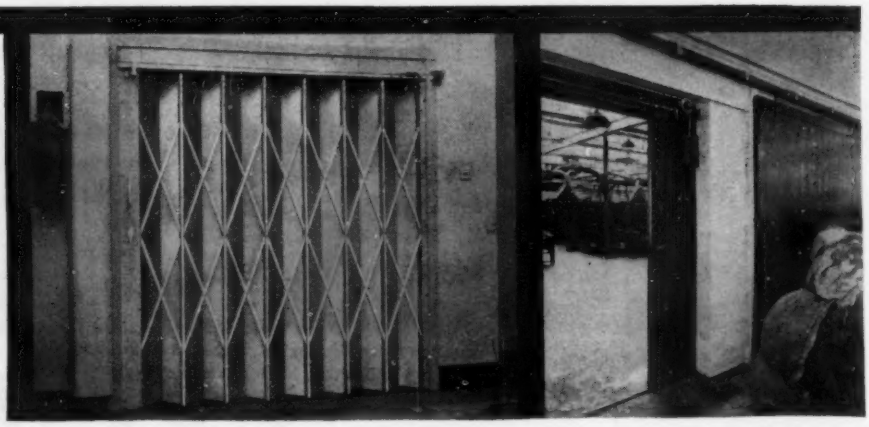
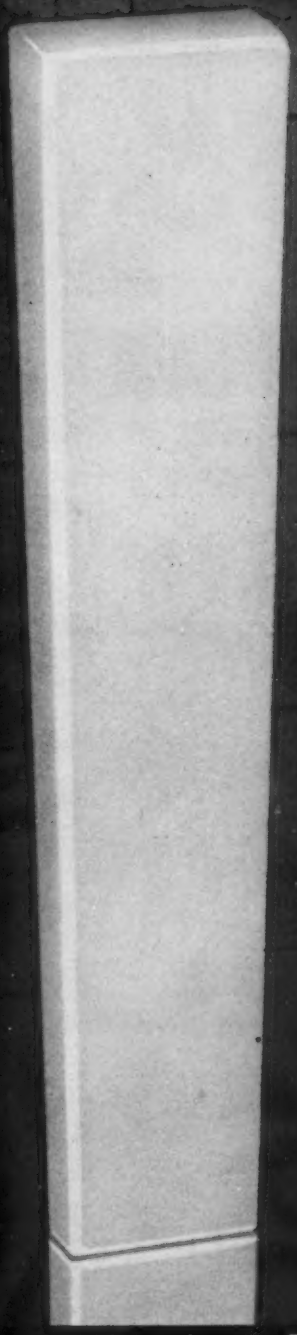
Branches at London, Glasgow, Birmingham, and towns throughout the country.

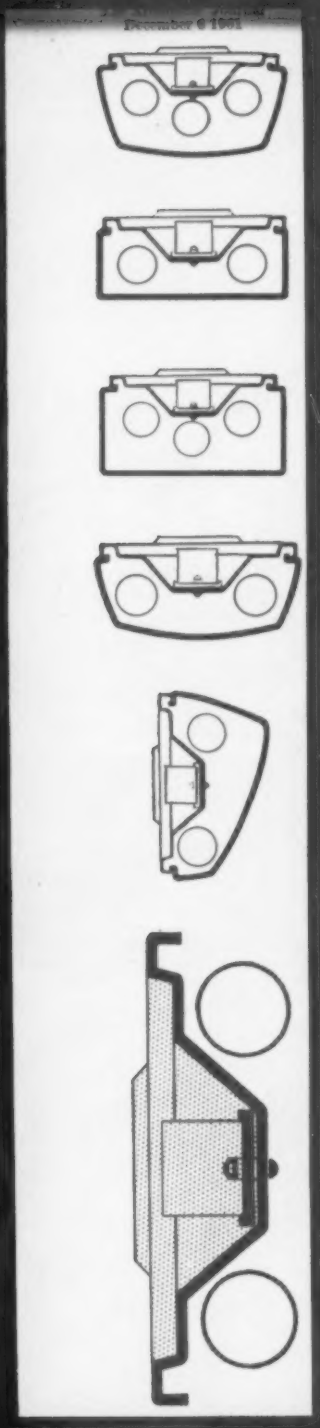
Right: One single leaf Fire-proof Shutter Door fitted with automatic closing gear at British-American Tobacco Co. Ltd., Liverpool.

Extreme right: One of two Fire-proof Shutter Doors which close automatically in the event of fire. Installed at The India Mill (Darwen) Ltd.



BG 381





Another exciting member of Lightplan, Opalux fittings have the following qualities:

The Chassis—a one-piece chassis of first-quality sheet steel, surface-treated by degreasing and bonderizing, providing perfect protection against corrosion; finished in white gloss enamel applied by electrostatic process and high-temperature stoving in infra-red drying units.

The profile of the chassis allows the ballasts to be housed separately above the tubes, reducing the internal temperature of the fitting to permit the tubes to operate at near maximum lumen-output. This means that lumen output is approximately 15% higher than in conventionally designed fittings.

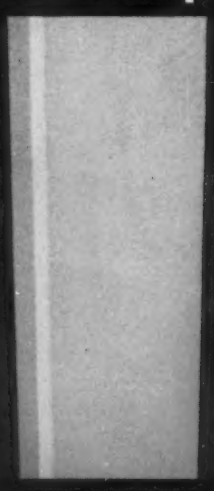
Mounting—The one-piece chassis is fixed to the ceiling by two screws—the exclusive Lightplan Slipwasher makes installation easy. Simply fix two screws into the ceiling at the approximate centres, place the chassis over the screws, push on the Slipwashers and the fitting is safely supported, leaving both hands free to tighten the screws. The fitting can easily be removed for maintenance by loosening the fixing screws and removing the Slipwashers, leaving the screws in the ceiling. An exclusive Lightplan safety feature, the 'Adit-plate', enables maintenance engineers to connect to the mains after the chassis is fixed to the ceiling (and likewise disconnect).

Electrical equipment—conforms to British Standards (where applicable) and is provided with earthing points. Wired ready for connection with capacitors, canister starter, bi-pin lampholders and separate ballasts, switch start.

Lightplan ballasts—conform to British Standards (where applicable), are cased in steel and vacuum-impregnated. Internal connections are terminated at connection blocks.

The diffusers—exclusive hinging and lever locks enable the diffusers to enclose the chassis so completely that no metal-work is visible. Made in 4' and 5' sizes, five designs in each size, they are moulded in one piece on steel dies from opal acrylic material. Exceptionally shallow, the diffusers give the fittings a 'built-in' appearance. Re-lamping is supremely easy, the diffuser conveniently hinging on the chassis.

rotaflex lightplan Opalux fluorescents



Lightplan, in devising these distinctive features, uses the resources of the Rotaflex Designs and Development Division, which offers the service of a team of technicians and designers for the preparation of specialised lighting schemes.

For further details of Opalux write for special leaflet L3 to Rotaflex House, Princes Street (Regent Street), London W.1.
Tel: HYD 7611

The Architects' Journal
December 6 1961

Who makes Snaprib

aluminium roofing?

Alcan Industries Ltd

where British skill and resources work with Canadian aluminium

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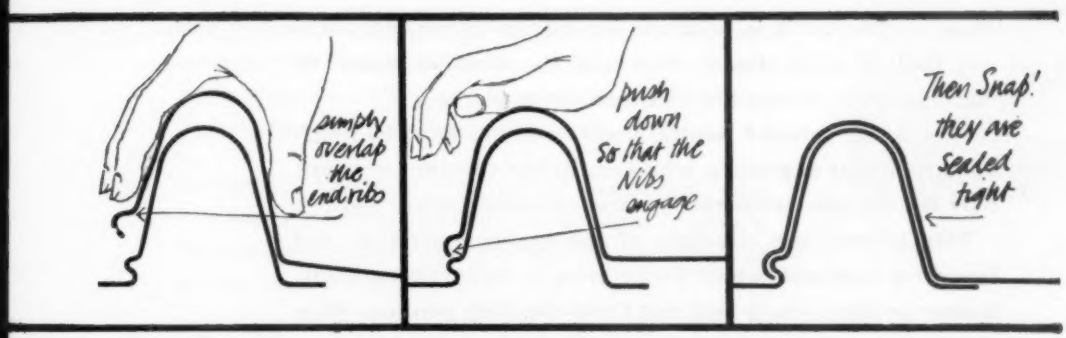
The Snaprib system is fully covered by patents held by Cookson Sheet Metal Developments Ltd.

SPAN HOUSES AT BLACKHEATH. ARCHITECT: ERIC LYONS, F.R.I.B.A., M.S.I.A.



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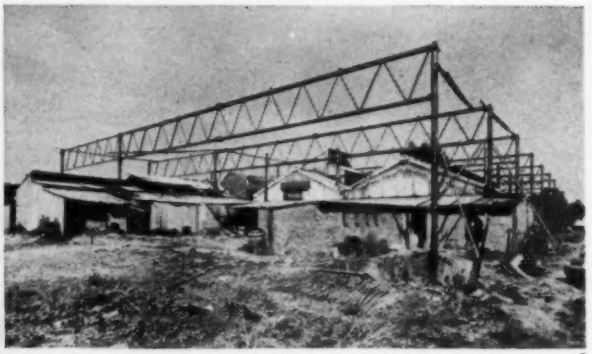

2

3

1 Main columns in position

2 Main girders in position

3 Trusses, jack roofs, purlins and rails in position

Architects : Paul Mauger, Gavin, Mathers & Mitchell. A.R.I.B.A.

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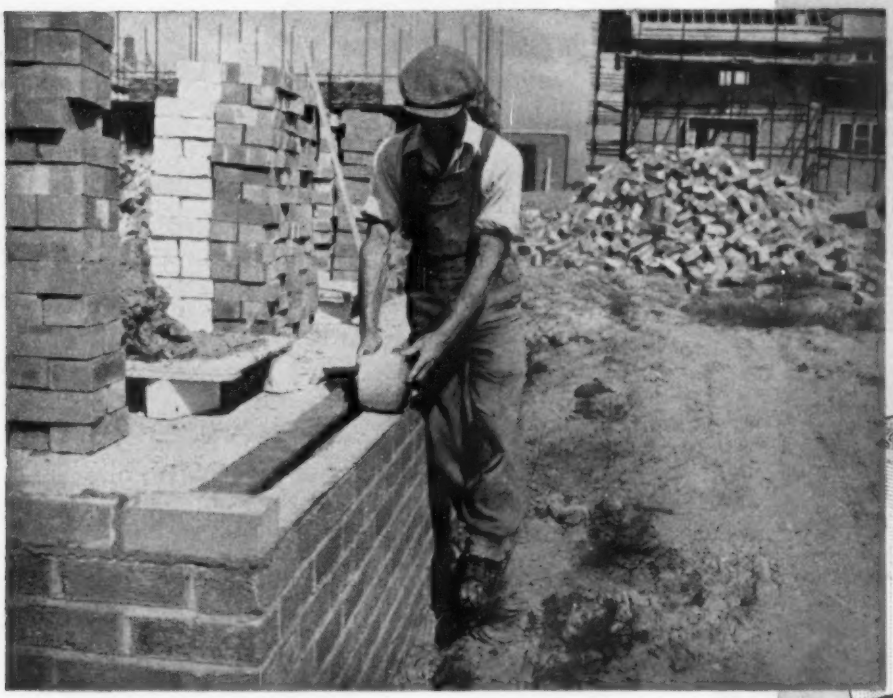

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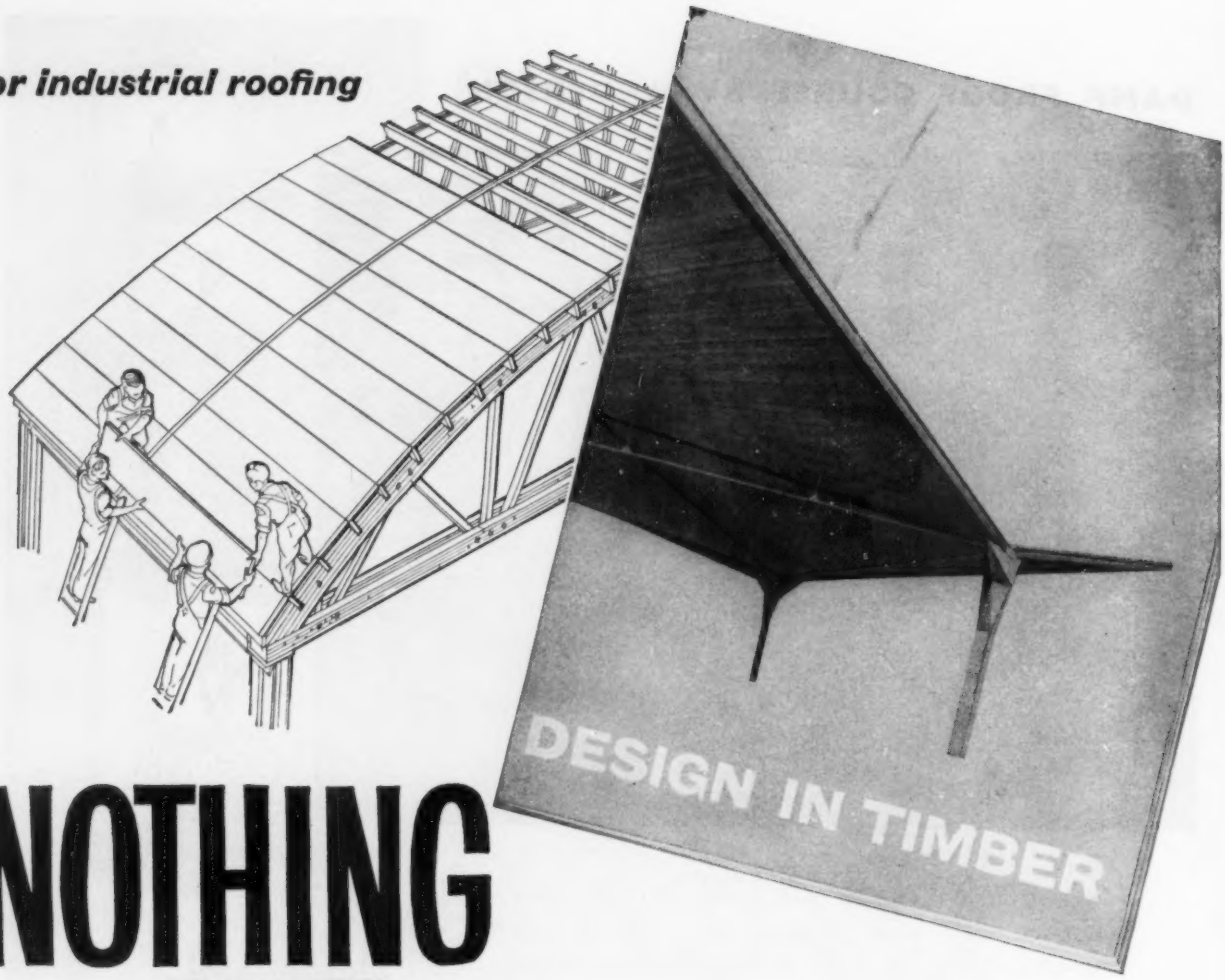

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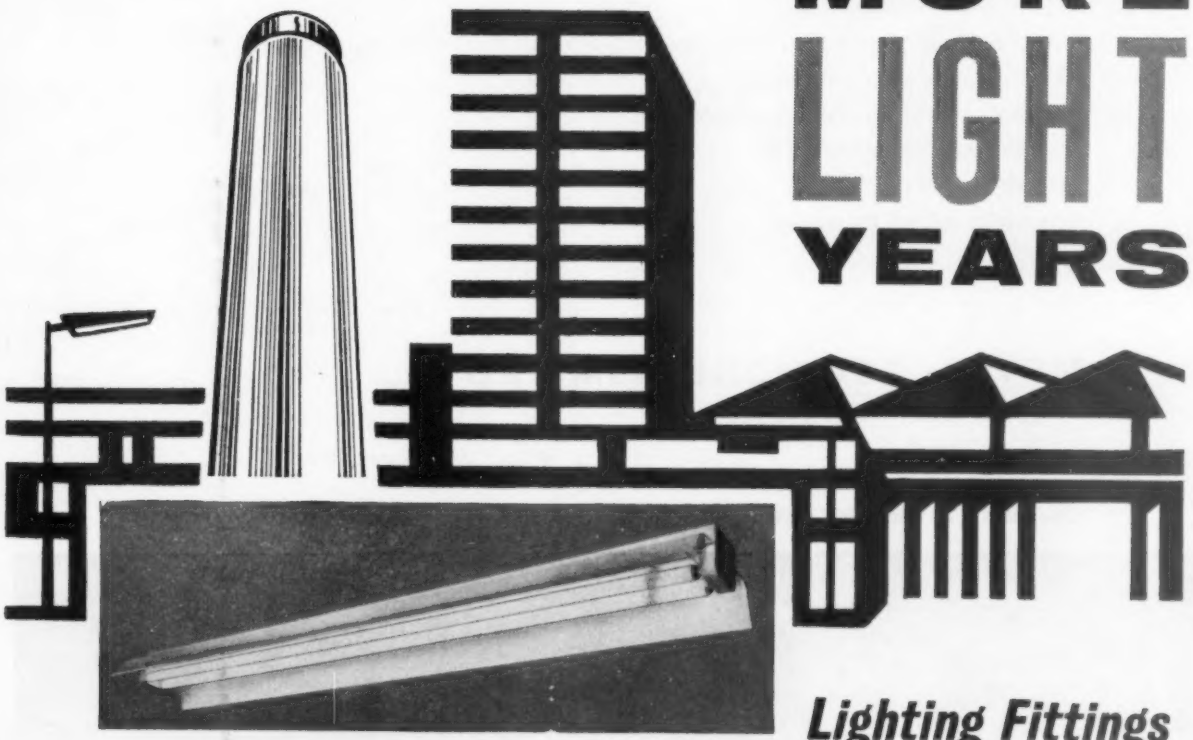
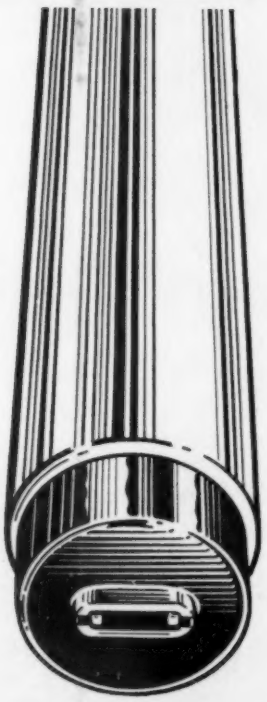


Lighting Fittings



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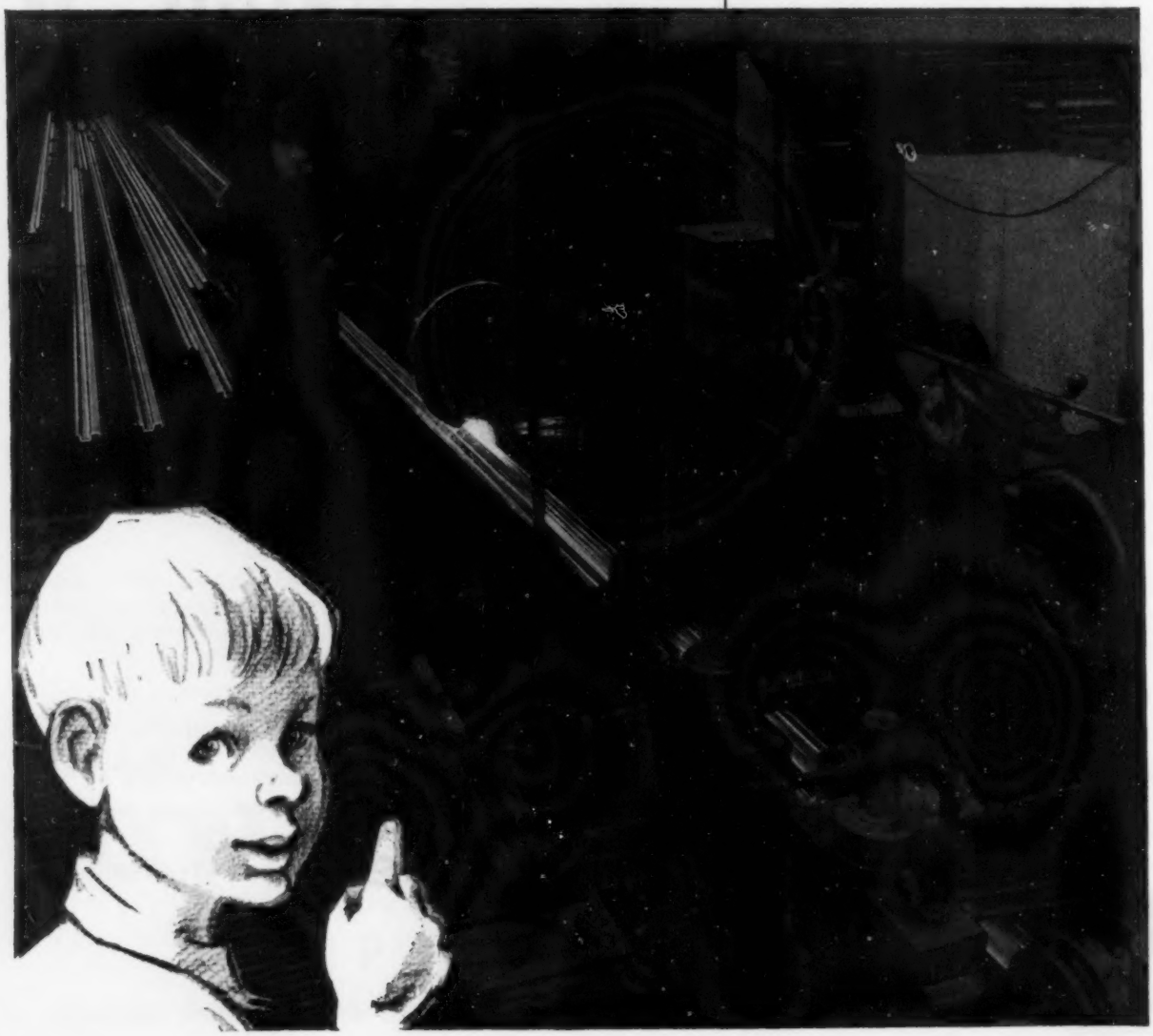

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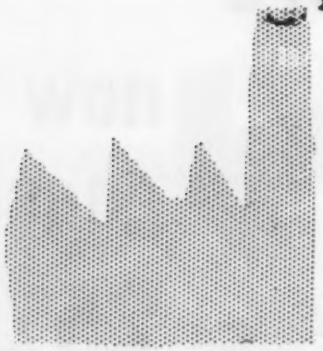

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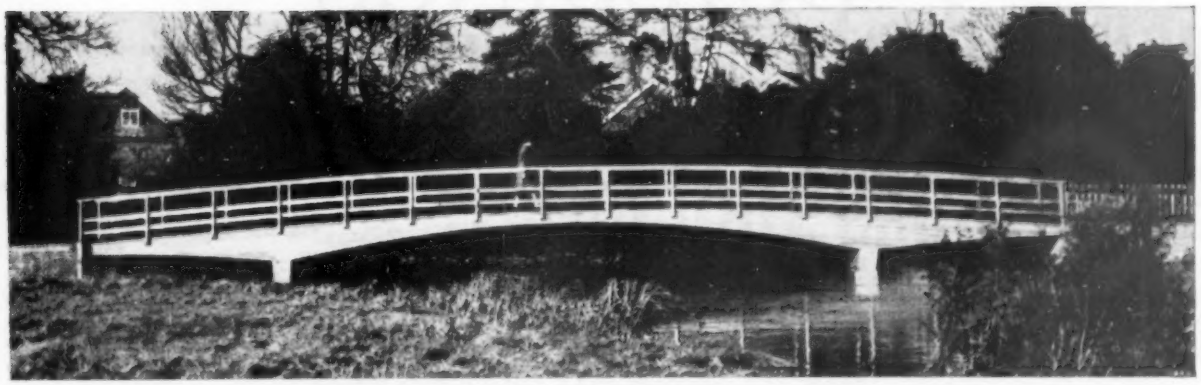

Footbridge at New Sarum, Salisbury, made by Kingston (Architectural Craftsmen) Ltd.
The six laminated beams are jointed mid-span to give an overall length of 77ft.

bridges them all

Footbridge, 38 ft span, at Grangemouth, designed by T. Harley Haddow & Partners and made by Muirhead & Sons Ltd.

Footbridge at Harlow New Town for the Harlow Urban District Council. Engineer A.W.R.Webb, A.M.I.C.E., M.I.Mun.E., M.R.S.H. The bridge consists of two laminated beams 66ft long giving a clear span of 50ft. The supports are also of laminated construction. The bridge was built by Laminated Wood Ltd, of Bideford. The main contractors were Walter Holme & Sons Ltd, Liverpool.

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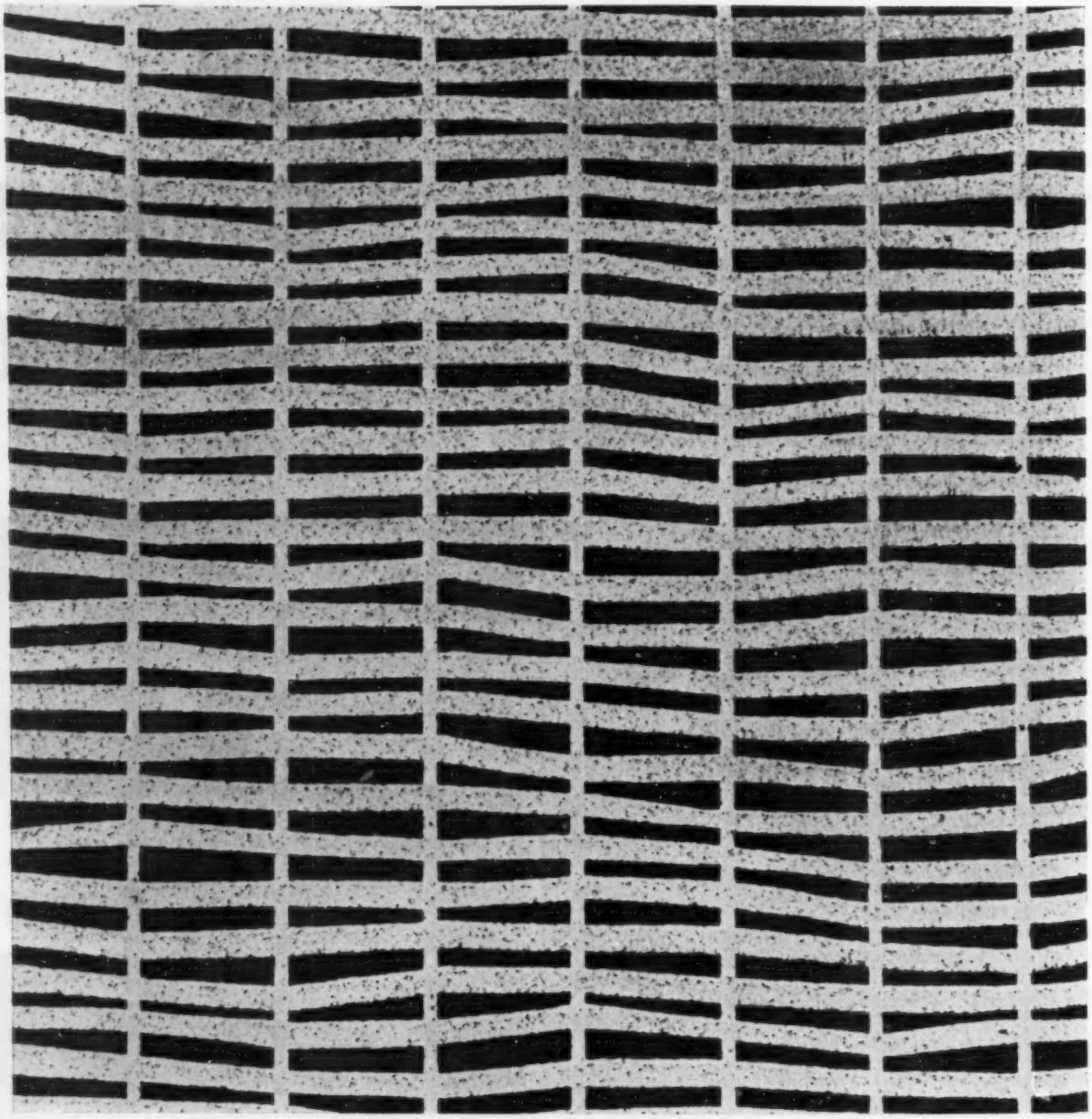

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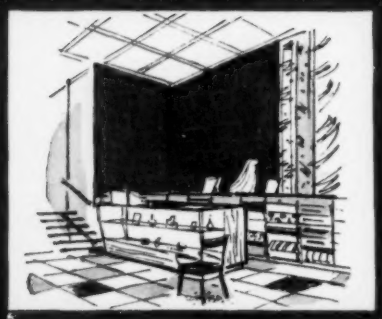

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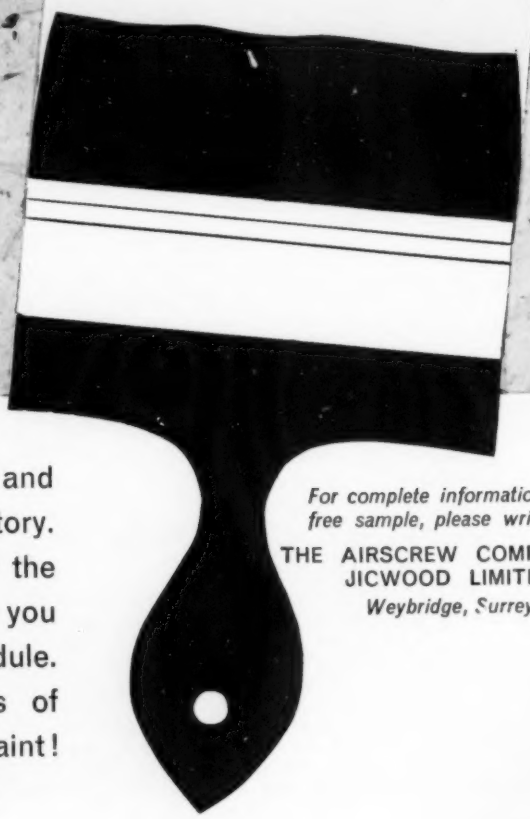

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NOT QUITE ARCHITECTURE

Office organisation—1

The large office combine

Our contributor, Mouthful F. Marbles (F), has introduced the package deal practice into British architecture in a modest attempt to attract contracts into the office of the private architect, where, he firmly believes, they belong. The private architect's office that our contributor is thinking about is, of course, his own—the Consortium of Architects, Landscape Architects and Men with Intermediate these Ten Years, or CALAMITY.

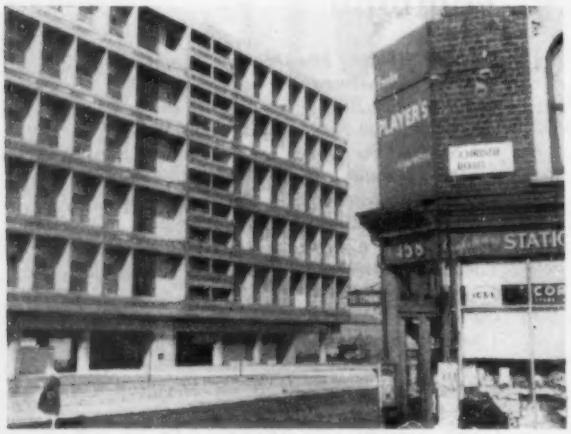
I began like you in a small way. While I was still at night school I was already putting bedrooms over all my friends' garages.

I well remember my friendship with a local bookmaker during those hard times. Whenever I was hard up he would bet me I couldn't fit another bedroom over his garage and I would rise to the challenge. When the garage was fully loaded he looked at me kindly and said, "Better build another garage." I believe he now has five garages and seventy-one bedrooms.

Those, of course, were the formative years. I left night school and took a junior position with a firm of architects and valuers. I learnt quickly, but I realised that without qualifications I could not succeed and so, on the 15th day of January, 1922, I took out a provisional licence with the RIBA, and after only four lessons I was fortunate enough to pass.

Privacy or sociability

When Denys Lasdun designed his cluster block in Bethnal Green (below right) he intended recapturing the intimate sociable quality of east London streets in the central access block of lifts, stairs, chutes and public space, while maintaining privacy in the maisonettes and flats which are approached along short access balconies. At the AA last week Peter Willmott and Edmund Cooney of the Institute of Community Studies gave the results of a survey of the tenants' opinions on the sociability and privacy obtained in this and other new buildings in the East End. Three questions were asked: "Is it easy to get to know other tenants if you want to; have you enough privacy, do you ever feel too cut off from others?" The LCC's four-storey maisonette blocks in Stepney, right, produced the best results with housewives answering "yes" to the above questions, in the same order, as follows: 95 per cent, 79 per cent and 5 per cent feeling "cut off." The



LCC's slab block of maisonettes in Hackney, above, was also satisfactory, the replies being: 71 per cent, 81 per cent and 13 per cent. With the LCC's point block at Poplar, top, the figures were 30 per cent, 95 per cent and 30 per cent; and this trend towards adequate privacy but a lack of sociable layout continued in the survey of Lasdun's block when only 29 per cent answered "yes" to the first question, 100 per cent had enough privacy and 42 per cent felt too "cut off." From these figures it would seem that Lasdun achieved one target, privacy, but failed on sociability. People resent a lack of privacy more strongly than not being able to be sociable, but Cooney was diffident about drawing any firm conclusions from the survey and even queried whether he had asked the right questions. Sociologist Ruth Glass forthrightly confirmed this, at the AA meeting, stating that sociability in Cooney's terms (interpreted as being able to borrow saucepans and take in parcels) was no real criteria of the validity of social life. Much more fundamental work is needed to discover the forms of social organisation which produce social cohesion at the crucial points of urban living. Architects, and the all too few sociologists, have plenty of scope for collaboration in research.

After that my career is well known: a primary school in Barnsley at 35s a square foot, leading eventually to my New Practices for Old campaign which finally led to CALAMITY. I soon accumulated up and down the country forty offices run by chaps I'd never heard of, eating my food and sharing their profits with me. These men I welded into an efficient mobile team with each other's wealth of experience only a telegram away. My design team were carefully selected for their ability to produce quick economical elevations with the occasional artistic touch. My working drawing, or technical, team were centred on Barnsley so as to be near the home of my crack specification writer in Knaresborough. My QS lives in a caravan at Skegness and my engineer would come over from Crete every September so that we could all meet my heating consultant a Newbury races. Forty minds without a single thought, they called us, but we had the last laugh. We very soon had the city centre development for Barnsley on the boards—this was, perhaps, my most successful transaction. Indeed the area is so profitable that some very respectable architects are now redeveloping it all over again.

We pioneered site visits by aeroplane during our rebuilding of Ammerta after the earthquake of 1934. This, too, proved a very profitable connection, as we used the same drawings after the 'quake of '49, and they are now at the printers again following last year's disaster.

•

The passing years have seen changes in the size of my firm. CALAMITY now employs two hundred principal partners, six hundred associate members, four thousand chief architects, twenty thousand assistants, ninety thousand draughtsmen, fifteen thousand secretaries, seven hundred and fifty librarians, twenty sundries, three peers of the realm, Lady Tithebarn and a jockey.

Perhaps you came across our annual convention: it was held in the open air outside the National Gallery. What a splendid sight it was—the Law holding back thousands who were eager to join, while the lucky members paraded such placards as CALAMITY IS NIGH and THE WORLD IS HEADING FOR CALAMITY. It was a great show of strength and, I think, sufficient deterrent to the unscrupulous manipulators of the package deal.

So be of good cheer and a large affluent practice may be yours. Remember, the hardest part is getting your first hundred assistants; after that it is plain sailing. However, though I don't want to discourage you, I should point out that by March '63, I shall be employing at least 54 per cent of all private architects and, given a continuation of sound politics and the abolition of certain green belts, I shall very soon employ you all.

I think that Britain should join the Common Market and that they in turn should join me. JAMES COLLIER

The Editors

FAREWELL, LCC!

The White Paper on London government published last week makes clear that the Government is determined to go ahead with dismantling the LCC, in spite of all difficulties and objections, and that it has accepted the Royal Commission's recommendations almost unaltered, despite urgent representations for important changes by the RIBA and other bodies concerned with the realities of town planning.

This is tragic, because it looks as if we are about to see the winding up of Britain's most efficient local authority without any guarantee that something still more efficient will replace it. Since any change of this scale must involve enormous upheaval and temporary dislocation, affecting about half the population of Great Britain, surely it is up to Parliament to ensure that what comes out of the change is designed to do the best possible job.

Most people with knowledge of planning and without an axe to grind would agree that the present boundaries of the counties of London and Middlesex are anachronistic, and that an authority with wider planning powers should cover a much larger area if the problems of the London region are ever to be solved. The new authority proposed has neither a large enough area, nor wide enough powers to do this.

Central to all the problems of the region—and indeed of south-east England as a whole—is the fact that it offers more and more jobs, more variety of work, and above all a larger proportion of service as opposed to manufacturing jobs than any other place in the country. It is this more than the bright lights that brings more and more people flocking into the area, so that the supply of housing and every other social service continually lags behind demand. And this situation can go on till greater London sprawls from the Solent to the Wash, the countryside reduced to green ribbon development between built-up areas, unless positive planning powers to control the building and extension of factories and offices throughout the region are granted to the Greater London Council. We hope that when the bill which the White Paper preludes comes before the House of Commons these points will be taken up and battered into the heads of Ministers by MPs of all parties.

Two other points seem worth making: last week also saw the publication of the official report on housing standards (see p 1094) which may well transform the quality of local authority housing in the years to come. Since this great upheaval in local government is upon us, isn't it time to try to establish standards covering all local authority services—many of which are merely permissive and often ignored by smaller authorities? For instance, when the enlarged greater London Boroughs take over from the LCC can we ensure that London's unique patronage of the arts continues, and that all the other services Londoners have taken for granted become standard provision?

Secondly, the architectural standard of London's new buildings is in serious danger from the replacement of the LCC by borough authorities, few of whom employ a chief architect. Of the hundred or so local authorities in the present Greater London areas we can think of only a handful—including Camberwell and Westminster in London—whose building is in any way distinguished. Unless the enlarged boroughs are instructed by the Ministry to establish architects' departments under chief architects, this pitiful standard is bound to fall. There will be no more Roehamptons, no more comprehensive developments like Poplar, without architects in charge

SOMETIME—NEVER

A packed audience listened to the RIBA's three lectures on Modern Architecture: Yesterday, Today and Tomorrow, by Professor Robert Jordan. A careful performance, I thought, watching the speaker unfold his tale, though it was here and there somewhat erratic, disconcerting and confusing. Robert Jordan's attachment to the narrow platform of a neo-Jacobean *avant garde* seemingly endures and bears upon his value judgments, colouring them sometimes too bleakly.

*

Perhaps Jordan treads this narrow path *malgré lui*: but he ought to know that here no useful tool for the understanding of some of the earlier trends of modern architecture can be found. Thus it will not suffice to state that Wright's Unity Temple was the first reinforced concrete structure; its strange ptolemaic architecture, so incongruous with material and so typical of Wright's many self-contradictory strains, cannot be left without comment. Likewise Jordan lacked a yard-stick for measuring Dudok's work: the lining up of Hilversum Town Hall with Oestberg's town hall in Stockholm and James and Pierce's Norwich Town Hall had no relevance.

*

In all this there was the scent of controversy and I expected stronger spice to come, reflecting the problematic and centrifugal period in which we find ourselves now.

*

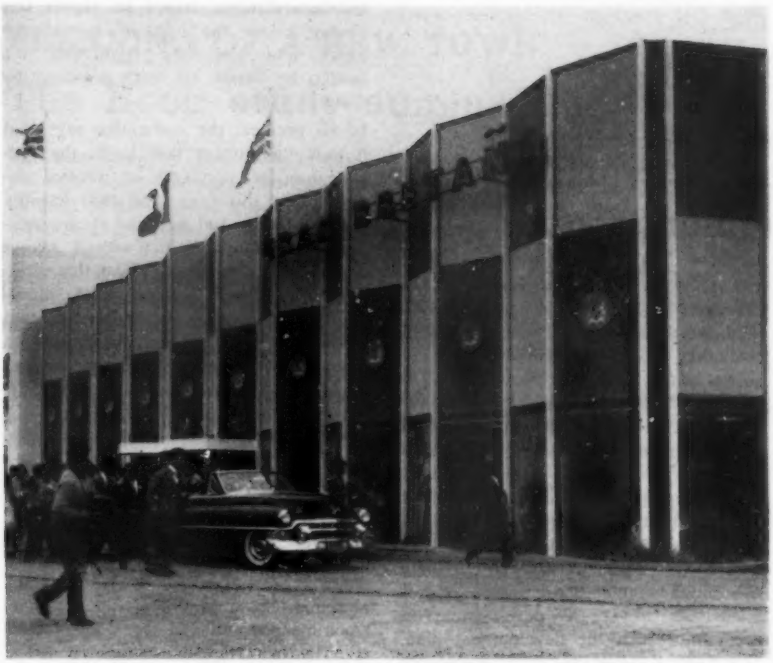
Alas, however, in the second and third lectures, Jordan grappled so hard with the architectural complexities of the present that what consistency there had been now got lost. The statement became confused, the comparisons pointless, and the similies difficult to follow. Why did he single out Saarinen's London Embassy for such praise? Why did he dwell on the affinities between Holden's London Transport Underground building and Lubetkin's Highpoint flats? Why did he have no slide of Impington College which he mentioned as a milestone in school building? Why did the Hertfordshire schools get such neglectful treatment? And why if "Today" in England was so confusingly treated, was "Tomorrow" which he promised in the title of the series dropped altogether?

NEW HOOK-UP FOR LECTURERS

Let me remind you that tomorrow the AA is kicking off its new policy of holding follow-up meetings to earlier ones staged by the RIBA. Tomorrow's discussion, which will start with no preliminary papers, will continue the debates started after Professor Pevsner's April lecture on "Modern Architecture and the Historian" and Dr Banham's May talk on "The History of the Immediate Future." The next follow-up, which is described as "a discussion in depth" will be a whole-day seminar (on January 27)—on Hook and the planning of new towns. Let us hope that Ian Nairn, who last week gave his fuddy-duddy readers in the *Daily Telegraph*—and particularly those living in Hampshire—reason to cheer because Hook New Town was abandoned, will attend the seminar and be converted.

NO MORE PLANNING?

Thomas Pakenham, who has given up his sensible architectural criticisms in the *Times Education Supplement* to take over this term's editorship of the universities page in the *Observer*, led a lively discussion the other night in the Third Programme's series on development groups. He said that the University Grants Committee should be strengthened so it could do full-scale development work on universities, which are not being built well enough or fast enough. He was supported here by Peter Chamberlin, Arthur Ling and Elizabeth Layton—but Alan Bullock, of St Catherine's, was not so enthusiastic. He thought the UDC would be too concerned about saving money to make a fair assessment of what universities really needed. In fact, he missed the whole point of the development group system—that buildings should be considered from every practical point of view, including the limited amount of money available. If a financing authority has its own development group it is much more likely to know how much the available money will buy. Another contributor to the discussion, Sir Hugh Casson, was unfair to the MOE Development Group when he said it had set minimum standards, and that minima always become maxima. The Ministry has, in fact, shown that the statutory minimum areas can be made considerably bigger, to the great advantage of educational techniques.



The Central Office of Information Design Department was responsible for designing this building for the Board of Trade at the International Trade Fair at Lima, Peru. If the BOT *is serious about boosting British design and quality, this enclosure for our display of goods is just not good enough*

HOLES WITH A MINT IN THEM

The bankers of London have a lot to answer for in the streets of the city, and it was good to hear Sir William Holford telling them so recently—in his most diplomatic way, of course. He managed to get almost to the end of his talk without letting his influential audience know that they didn't really have any worthwhile ideas about office buildings. Only at question time did he say " Your are much more conservative than in the 18th and 19th centuries " —illustrating his point with Soane's Bank of England.

OXFORD BAGS GOOD ARCHITECTURE

An admirable piece of enterprise is the first publication of the Oxford University Design Society, *New Oxford* (2s 6d), a detailed and critical guide to the post-war buildings, mainly for the University, in Oxford, with a succinct account of the Battle of the Roads (the clearest summary I have seen), and of the major town planning developments at St Ebbs and Cowley.

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David Smith and Godfrey Marks, of Hertford and Lincoln, explain modestly, " We are a small society consisting of undergraduates from all faculties. . . . We are without architectural training; but we enthusiastically follow form, and believe our judgments to have some value." They proceed to express them with sense and pungency, illustrating each new development and providing the essential information about it, and I am tempted to quote some good tart comments, but taken on their own they might suggest bright young men sharpening their claws, whereas this guide is outstandingly mature in its approach.

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The sum of Oxford's rebuilding is astonishingly large when gathered together, and what is cheering is that it gets better as it goes on. Despite some famous bloomers, the overall results so far do not merely reflect " the retarded aesthetic development of academic minds," against which the OU Design Society is prepared to wage war. The guide is on sale in Oxford bookshops, or obtainable from Robin Aplin (Pembroke) or John Chapman (Magdalen), and nobody thinking of visiting the city in the future should be without one.

KAHN ON THE CORB

The work of the Manchester University School of Architecture, displayed recently in the Whitworth Gallery in the now-mandatory wandering space-frame, had some nice touches: for instance, the timber was a bit rough on the part of the frame that carried the box with the catalogues in it, but for the benefit of do-it-yourselfers who were offended by rough finish, a piece of coarse sandpaper had been left in the bottom of the box.

•

This seemed a thorough exhibition of good workmanlike projects and exercises. There was nothing to frighten the Bartlett or to set Ulm on fire, but there was plenty of evidence of hard study and application. Presentation was mostly excellent and I liked the superb measured drawings of early industrial structures—a field of study that is fast becoming a Manchester speciality. But why were they grouped under the mass caption, *The Academic Tradition*? Surely the Academics made measured drawings as an aid to accurate copying, but I didn't see the slightest trace of copying from any structure of the sort in any of the projects exhibited. Such copying as one could see was from the New Academy—Utzon, Stirling, Kahn, Corb.

AUSSIE'S TALE

Robin Boyd's scarifying counter-attack book, *The Australian Ugliness*, has the unusual distinction of being currently a prescribed text for Matric in the State of Victoria. Professor Burke, the man responsible for this astute move, is in England at present and proves to be a man of many parts—educator, true friend to architects, historian, Hogarth-scholar and a mine of information on eighteenth century taste. He has been lecturing at the Courtauld Institute when I learned, among other things about landscape gardening, that the *name* of the Ha-Ha fence, as well as the idea, came from France. This knocks a number of hoary English anecdotes and legends on the head, but doesn't explain (nor did Professor Burke) how you get to the English form of words from the French, which is, of course *Ah-Ah*.

ASTRAGAL

NEWS

GREATER LONDON

White Paper accepts Royal Commission's recommendations

The White Paper on London government issued by the Ministry of Housing and Local Government last week foreshadows legislation which will result in the abolition of the administrative counties of London and Middlesex, and add the metropolitan parts of Essex, Hertfordshire, Kent and Surrey to the dominion of a new Greater London Authority. The Government hopes to introduce legislation in time for new authorities to be elected in the autumn of 1964 and to take over their responsibilities on April 1 1965.

The White Paper makes clear that the Government has accepted almost all the main recommendations of the Royal Commission on Greater London, and its proposals may be summarised as follows:

Present boroughs and urban districts are to be merged into new, enlarged London boroughs. The Government considers, however, that these should be larger and fewer than the Royal Commission proposed, aiming at a minimum population of 200,000 wherever possible.

A directly-elected Greater London Council will be established to carry out town planning, traffic control, construction and maintenance of main roads, refuse disposal (but not collection), fire and ambulance services. It will also have responsibility for overspill housing, and continue to be responsible for existing county council housing estates in the area for a period.

The new London boroughs will account for housing, personal and environmental health and welfare services, children's services; and education—except in an unspecified "central area" covering a population of about two million. The Royal Commission's suggestion that the enlarged boroughs should be responsible for education has been modified and the White Paper comments that in the centre of London, where the absence of administrative boundaries and the consequent complete freedom of choice for pupils and students is of special value," they would wish to see one education authority for an area much larger than can be envisaged for the individual boroughs."

The City of London remains sacrosanct. There is, strangly, no recognition in the White Paper that housing is a major London problem, already at crisis level. Ignoring the LCC's outstanding contribution, the White Paper says, "The Government accept the Royal Commission's main conclusion that housing is essentially a borough service. New boroughs . . . should be able to handle all aspects of their housing problems (including slum clearance) which can be solved within their own boundaries." It goes on, "The Government think, however, that it would be right to confer reserve housing powers on the Greater London Council. That body should be solely responsible for arrangements for overspill outside the area. They should be empowered to build within the area if and only if that is necessary to help a borough unable to solve its own problems, or to secure development in accordance with the development plan. The council should not build within the area except with the consent of the council of the borough in question, or of the Minister if the two councils are unable to agree."

The Greater London Council will be responsible for the preparation and periodic review of the development plan for the whole area, though borough councils will deal with planning applications. "The need to have one plan for the whole of greater London was the point on which there was most complete agreement among the authorities," says the White Paper. "It is true that the county councils who sponsored the joint board scheme also urged the need to look at a much wider area than that adopted in the Royal Commission's proposals; and it is true too that the influence of London spreads far beyond the continuous built-up area. There is, however, a clear distinction between the nature of the planning problems in the main built-up area . . . and those in the areas beyond."

An intelligence department is to be set up by the Greater London Council. But nowhere is responsibility for London as a great capital city with responsibility for civic and cultural provision allocated or even mentioned.

On the financial implications of the proposals the White Paper is vague, suggesting that "it would be premature at this stage to set out detailed proposals".

MOHLG

Report on housing standards

The committee set up under the chairmanship of Sir Parker Morris, LL.B, by the Ministry of Housing in January 1959, to consider housing standards and make recommendations, issued its report last Friday under the title of *Homes for today and tomorrow* (published for MOHLG by HMSO, 4s), with drawings by Gordon Cullen.

In its preface, the committee says that it took its primary task to be the consideration of standards of internal design. But, "this cannot be done sensibly without taking full account of the relation of the house or flat with its layout on the site, and we have had this interrelationship constantly in mind. Moreover we were given to understand that recommendations on certain aspects of layout, such as play space for children living in blocks of flats, and storage for cars, would be welcome. These two topics we have considered in some detail."

The first major departure from previous housing standards committees' recommendations is that the conception of minimum room sizes should be abandoned in favour of an overall standard of space related to size of family. "Our recommended minima are not to be taken as maxima," the committee writes, hopefully, and warns that the new proposals will cost more. "We believe that enough people are ready to pay more for the better article and that the country already has sufficient houses and flats of standards below those that we have in mind." It goes on to set out "guiding principles in the internal design of homes," including recommendations on heating, central heating, kitchens with room for labour-saving machinery and storage, a standard of general storage space, provision of electric socket outlets at a minimum of fifteen for a family of five; and, as special requirements for flats, a standard for lifts, improved methods of refuse disposal and more study of sound insulation.

The third section of the report deals with "the home in its setting" and makes important recommendations for provision of space for children's play areas, and for car ownership. Estates, the committee considers, should be planned from the start on the basis of one car per dwelling and with provision for visitors in cars, and "the visual effects of this must be carefully considered." The recommendations are backed up by a series of appendices, including calculations of the probable cost of the various recommendations.

Next week's AJ will contain a full report on this document, which is likely to be as important as the Dudley Committee's report of twenty-five years ago. This will be followed by the comments of five experts who have studied the report from their own particular angle. They are Elizabeth Layton, expert on local authority housing; Eric Lyons, architect to Span Developments; Jack Whittle, assistant housing architect to the LCC; Margaret Willis, sociologist with special knowledge of old people's housing; and Hugh Wilson, architect-planner of Cumbernauld New Town.

PLANNING OF A NEW TOWN

The Hook study summarised

SfB Ac1

UDC 711·4

The new town at Hook which never got built may well prove the most influential of all in shaping new towns of the future, thanks to the fact that, frustrated over building the town, the London County Council has wisely decided that the work that went into planning it should not be wasted and has published the data and design.

Clearly the planning of Hook was profoundly influenced by that of Cumbernauld, which pioneered conceptions of pedestrian - traffic segregation and of privacy within high density—our first Mark II New Town and already on the ground to show all who visit it that the theory works. Now we have also *The Planning of a New Town* (published by the LCC, price 50s plus postage, and available from the Information Office at County Hall, London SE1), in which the stillborn town of Hook is fully described. Head of the Study Group which planned Hook and produced this report was John Craig; Oliver Cox was architect in charge and Graeme Shankland, senior architect-planner. Oddly, the book makes no mention of those responsible for this work.

It is not only a "must" for all concerned with town planning, but is also well enough written and illustrated to be an enjoyable field for anyone to browse in. In the 10 years since the first new towns were under way there have been startling and rapid material and social changes, as the report reminds us: "Ten years ago there was a shortage of consumer goods and many items, including petrol, were rationed. Television was then still something of a novelty and its full social impact had yet to be assessed. At that time habits were conditioned by other forms of entertainment. Long queues outside cinemas and vast crowds watching sport led social observers to deplore the decline of the family and home-made entertainment. Now, with the lure of television making itself felt, the same observers are deploring the retreat to the home and the lack of active forms of recreation." Whether the views of these same observers have anything to do with the planners' change of emphasis from the neighbourhood unit to urban housing gathering at fairly high density around the town centre, the report does not indicate: there are, in any case, plenty of excellent reasons put forward for this fundamental change in the conception of a new town.

The LCC research and design team decided that Hook should have a coherent structure, easy to understand. The main elements of the plan should be arranged to assist the design of the town as an entity. Any ideas which might tend to cause disintegration were to be resisted. The town was to be compact without sacrificing standards of open space or open-air amenities such as private gardens and school play areas. Urban character in terms of buildings, landscape and the relationship between them should be achieved, although the town would be predominantly horizontal in design and developed at a gross overall density probably comparable with the other English new towns.

"The development of these principles led to the rejection of the idea of separate neighbourhoods within the inner town. Instead a strong central area was conceived as the dominant focus of the town's social, business and intellectual life, projecting outwards along the main pedestrian routes into the inner residential areas." To do this meant that the central area itself must include housing, of the highest density in the town, surrounding a pedestrian meeting place, served from below by ample car-parking space. From this centre, residential areas in concentric rings of decreasing density were envisaged, stretching out to a green belt of playing fields, a town park with a chain of lakes, the whole town not more than one mile wide and "not so much a garden city as a city in a garden." The town was planned from the beginning to contain a population of 70,000, increasing by natural growth to 100,000.

One of the first problems examined by the team was that of achieving a balanced population for Hook, and here the first new towns provided valuable lessons and figures which are graphically presented in the report. The first new towns—Crawley is taken as the example—were largely populated by young married couples with children: over 60 per cent of the heads of households there were married and under forty, compared with an average of less than 25 per cent throughout the country; there were less than 3 per cent of any category of people over sixty in Crawley, compared with 15 per cent in other parts of the country.

As the report points out, "The difficulties that arise from a lack of balance in the age structure of a new community result from the concentration of its social needs into a series of wave-crests . . . through the whole age cycle." A need for primary schools clashes with the initial building of houses; a secondary school "bulge" follows, then a teenage problem (which so far has always arrived in new towns before the dance hall or a sports stadium was ready to relieve it) and for a peak need of jobs for young workers. Such a series inevitably concludes with an excessive demand for provision for old people. These problems followed from the speed with which new towns were necessarily built and populated. Had the building of them been spread over thirty years (the normal family life cycle) instead of ten, a normal population age range would have been automatically achieved.

To prevent the same unbalance developing in Hook, studies of size of households, expanding, stationary and contracting, were used, and a housing "pool" offering a range of dwellings to reflect these requirements was estimated. It included a wide variety of types, from ground-level maisonettes with gardens for families with children to small ground-floor flats without gardens for old people, surmounted by flats with an outdoor room on the flat roof of the floor below, suitable for childless families or those with teenage children. "People are not sent to new towns, they are attracted to them," the report points out, and therefore Hook set out confidently to attract all kinds of families.

The report goes on to consider people at work, the existing employment structure of the region round Hook—which offered a healthy variety of work for short-distance commuters from the new town, with Reading and its factories to the north, military and research establishments throughout the countryside (including Sandhurst, Farnborough and Aldermaston), and good regional communications. This background would have given Hook a good start in variety over other forms of employment, which offered a preponderance of factory work over other forms of employment. This inevitably results in a shortage of jobs for women and girls, more of whom look for service employment in offices. The danger to a town in being too exclusively concerned with one type of employment if a slump should come is obvious, and the report points out that Hook was well sited to offer variety and also to "provide a major outlet for new office employment in the event of more restrictive policies . . . affecting the prospects of future office development in Central London." It then turns to the question of people as a community, where again balance of age groups and diversity of employment would increase the town's attractiveness to people of all kinds.

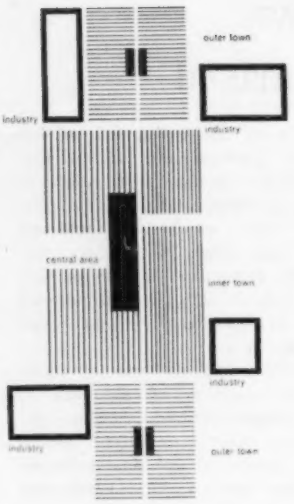
The team writes, "We have not been influenced . . . by the theory that a certain admixture of higher income or occupational groups is necessary in order to provide social leadership in a community. Nor, with the experience of other new towns before us, have we felt that a fair degree of social diversity would be too difficult to achieve. As we have seen it, the primary significance of questions of this kind lies in their possible influence on the aim to achieve a sufficient variety of vocational opportunities in order, especially, to enable the second generation to make its home

in the town. If, as we hope, office, research, etc., organisations are to help fill this need, it will be necessary to ensure that the character of the town, as expressed in such things as technological and other educational provision, cultural and recreational facilities, and arrangements for housing for all income groups, is attractive to the existing staffs of such establishments."

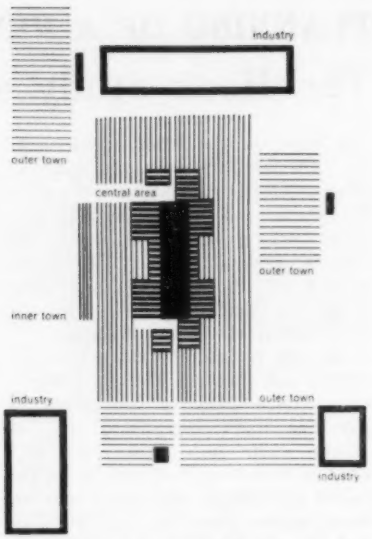
From these researches the team created the brief on which its master plan is based, and this perhaps will be most clearly explained by a series of diagrams taken from the report. (Top and below, left). Starting from the concept of a centralised town, with the town centre within ten minutes' walking distance from residential areas, the team arrived at a roughly rectangular shape, with linear town centre, an inner town containing the greatest proportion of high density housing in a continuous belt round the centre, with open space, playing fields and the industrial areas on the perimeter. Complete segregation of pedestrians from vehicles was proposed for the centre, and the team used the valley site to achieve this with the minimum of excavation for roads and car parks, by placing the pedestrian deck of the centre "like a lid over the valley." Underneath a grid of distributor roads lead to and from parking for 800 cars without any right turns, linking the centre through local to regional roads. One advantage of this form of plan, as opposed to the neighbourhood units idea, was that an efficient bus service could easily be provided—an exceedingly difficult problem in a radial town (on far right).

The final plan provided for some 48,000 to 60,000 residents of the inner town to be housed in a continuous system of residential areas at an average density of 70 to the acre, round the central core of pedestrian shopping malls running predominantly north-south and including all types of shop. A system of pedestrian routes opened it up to all town residents in a few minutes' walk. Three outer residential areas, developed at an average of 40 to the acre, and making allowance for private building as well as Dev-Corp housing, would have in addition their own sub-centres for shopping, one based on the agreeable village of Hartley Row, which was to be preserved as little changed as possible. The town's industry was located in three peripheral areas, so that journeys to work crossed the town in all directions.

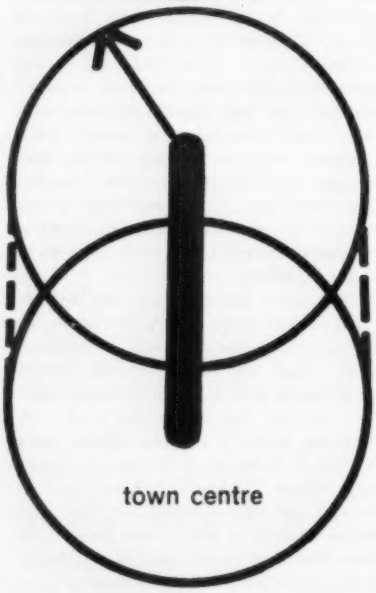
The report goes on to develop the advantages in high density, compact building in the town centre, pointing out that variety of size and type of dwellings, with the variety of the local topography would ensure diversity. "Attempts to give an artificial individuality to each neighbourhood . . . could have a disruptive effect," the team points out. "In our opinion, one of the most important lessons to be drawn from the new towns is that attempts to create 'genius loci' by artifice invariably defeat themselves.



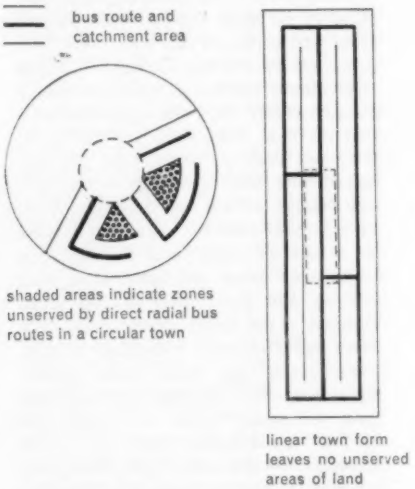
First town diagram, showing form and disposition of main town functions



Second town diagram showing initial idea as amended after consideration of local factors



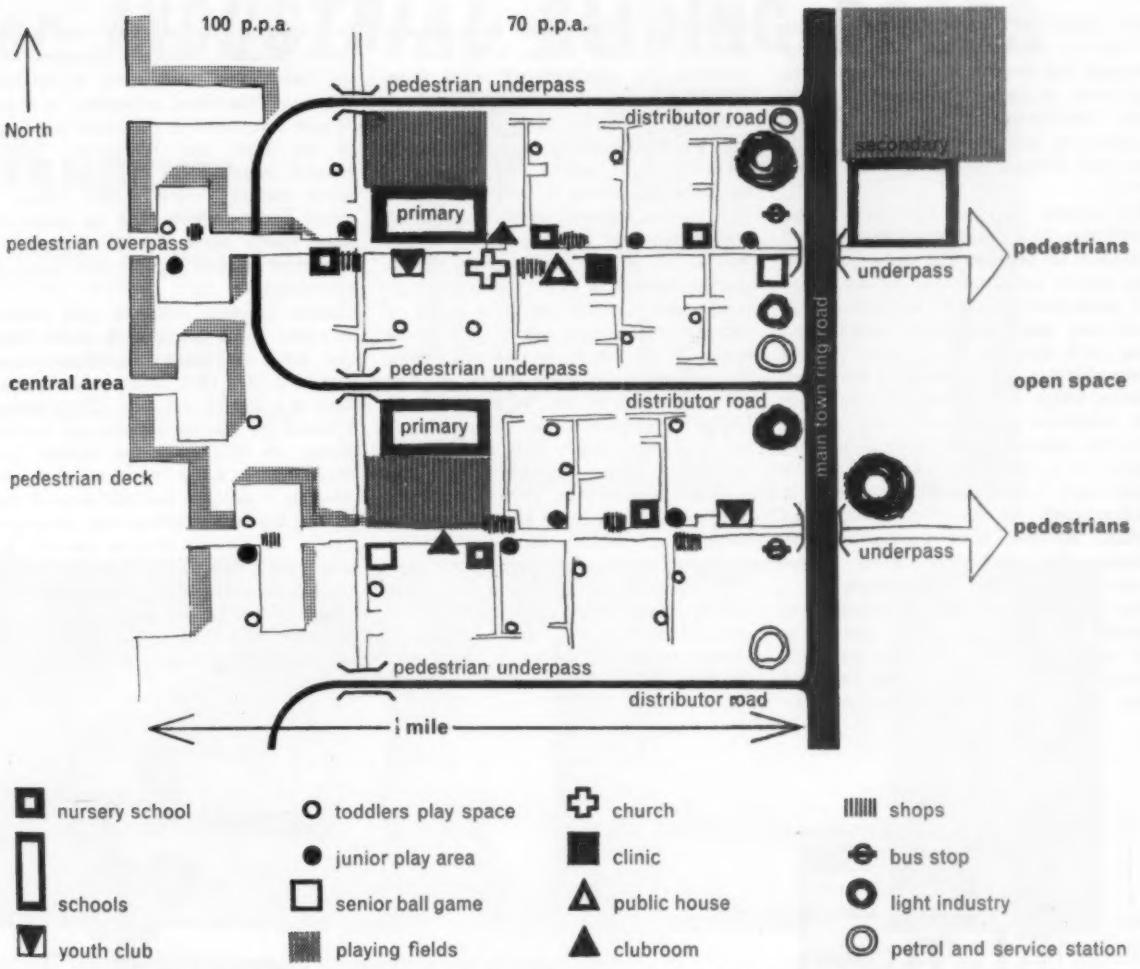
Linear compared with a circular centre. With a linear centre the number of people living within a 10-min walk of the centre increases



Bus routes in a linear town compared with those in a circular town

The results breed monotony in the act of struggling against it. Within the framework of the master plan, it should be the aim of subsequent detailed planning and design to create a sense of place in each part by exploiting functional diversity to the full without disrupting the unity of the town as a whole."

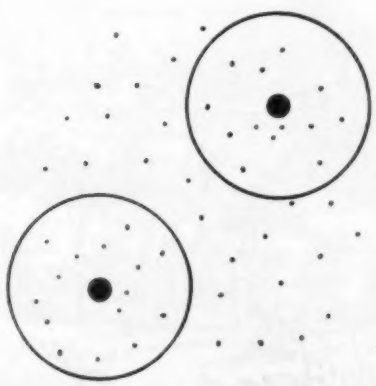
Turning to the pedestrian street system, which would extend throughout the town without crossing any traffic route—"like a spider's web"—the team points out that pedestrian movement is directed by the placing of shops, bus stop, primary school (near), secondary school, and other points where people gather, and that high density, by bringing these centres closer together, adds to the variety available to each family. The point is illustrated by diagrams (bottom of next page), which show that, for in-



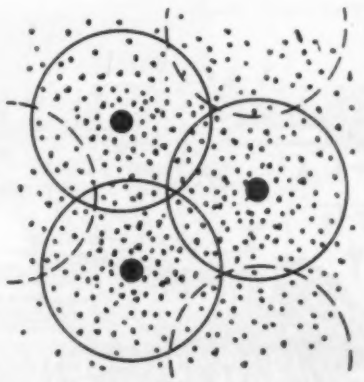
Concentration of social meeting points on central pedestrian way, showing traffic roads and underpasses

stance, in low density areas only one primary school can be within easy walking distance, whereas with higher density there could be a choice of three primary schools for everybody in the area. "The possibility of choosing is an extension of freedom," says the report. From there it goes on to consider problems of privacy in high density and the various English versions of Radburn previously adopted which "often present the visitor with a scene so dreary as to discredit the whole Radburn idea." At Hook the proposal was to avoid this by "turning Radburn inside out," so that gardens open into pedestrian ways, and with privacy guarded by wide-frontage single-aspect houses with front door opening to garden and pedestrian way, and back door to garage, parking and distribution road (above and next page).

"To reconcile a high proportion of gardens with the aim of a compact urban character, new forms of low tight-knit housing are needed." Privacy, it is pointed out, cannot be achieved by increasing space between buildings (within the limits imposed), but "unless a higher degree of privacy than is usual in new towns is achieved it is recognised that the smaller garden will not be acceptable. A generous use of screen walls and solid or louvred fences is essential in one- to three-storey housing at 70 persons per acre." The fact that children would be close to open play spaces free of traffic would also make smaller gardens more acceptable. But one of the innovations suggested for Hook is that upper-floor dwellings should also be provided with "balconies conceived as outdoor rooms and considerably larger than the average balcony. . . . In this way the usual sharp contrast between houses with gardens and flats can be diminished, making some flats and upper maisonettes much more suitable and attractive to families with children," particularly older children.



Low densities: wide dispersal of social facilities and greater distance to walk to them

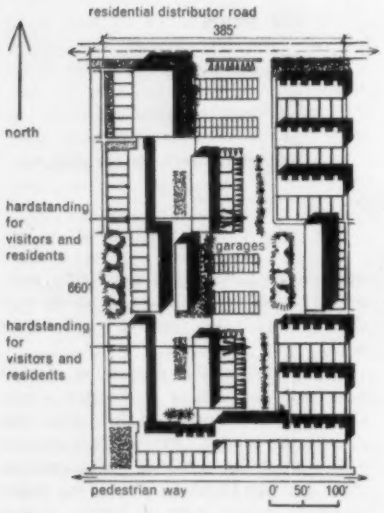


Higher densities: choice between several facilities possible within easy reach

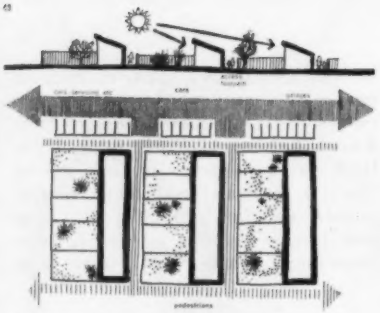
The report then considers in detail provision for the motor car, from the landscaping and shaping of major roads to the provision of car parking without presenting a dreary waste of tarmac, by tree planting in hard standing areas, or banking and planting to put cars below eye level.

The central area of the town "must inevitably be a complex mechanism . . . planned to provide the main focus of the town's social life and be the centre of specialised amenities and services for the local and surrounding population," the work that the Hook team has put into planning and designing a new town centre which will provide for the needs of commerce, traffic, and be a magnet for the community far beyond the outskirts is a lesson to all who imagine that town centres can be developed or redeveloped by piecemeal, unplanned effort. As the drawing, below right, shows, the pedestrian town centre carries "important retail concerns . . . key public and office buildings and blocks of flats acting as generators of pedestrian traffic between the main shopping parades. These generators and their siting are important, for on their positioning would depend the economic survival of other shops. It is vital to maintain the continuity of retail shopping frontages, breaks being kept to a minimum. The office and public buildings which, apart from the housing, form the bulk of the central area, could then be distributed along its length and used . . . to form areas of distinct and differing architectural character. . . . In this way quiet areas, entertainment areas, market, education areas, governmental, public and ecclesiastical areas could be created, the common link in forming the spine of the whole central area being the continuity of retail shopping." The group take calmly the prospect that the "large department stores would arrive late in the phasing"—only 62 per cent of the retail shops planned for being expected before Year 15. One wonders whether in a scheme as well thought-out as this one, the big department stores might not be queueing up much earlier. The report goes on to consider the amount, placing and diversity of industry required by the town, and similarly of community services, of which schools are the first, followed by medical and welfare services, churches, pubs and recreational facilities, including libraries, and the recreational open space to be laid out round the town, including "a chain of new lakes sited in the water-meadows of the Hart and Whitewater rivers. Needed in any event to absorb surface water run-off," these would create a centre for swimming and all kinds of water sports which "could become an important regional and even national centre."

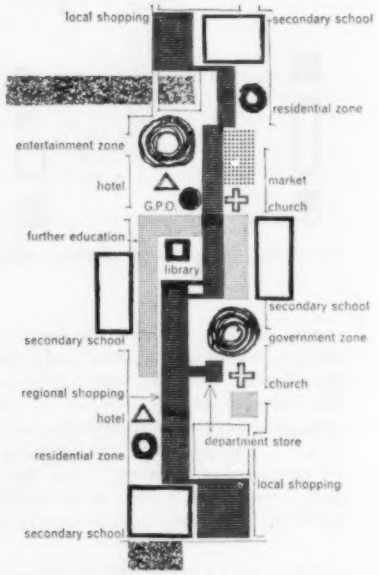
Chapter 12 deals with the vital subject of costs: Hook, as planned, would have cost some £86,000,000 in fifteen years, based on mid-1960 prices and interest rates at 5 and 6¼ per cent. This estimate is based on the annual average capital charge of £5,750,000 per annum for fifteen years, when immigration would cease. It is pointed out that nine of the existing fifteen new towns were showing a surplus on general revenue account by March 1960, and for the first time twelve showed an overall net surplus on the combined revenue account fourteen years after the New Towns Act. Hook could presumably have begun to pay its way by Year 15.



High density cul-de-sac group



Single-aspect housing



Town Centre: pedestrian level

Major open space with lakes and playing fields seen against compact housing

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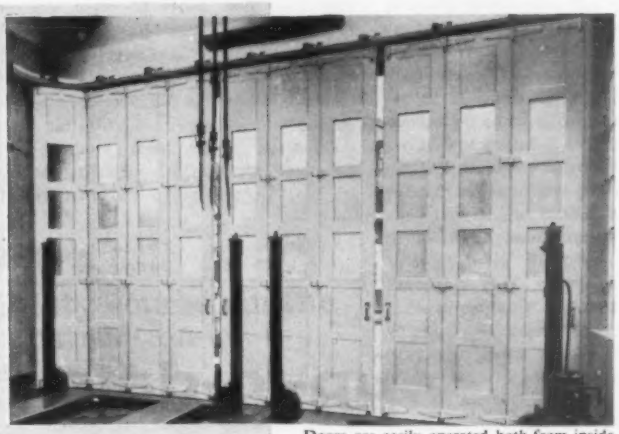
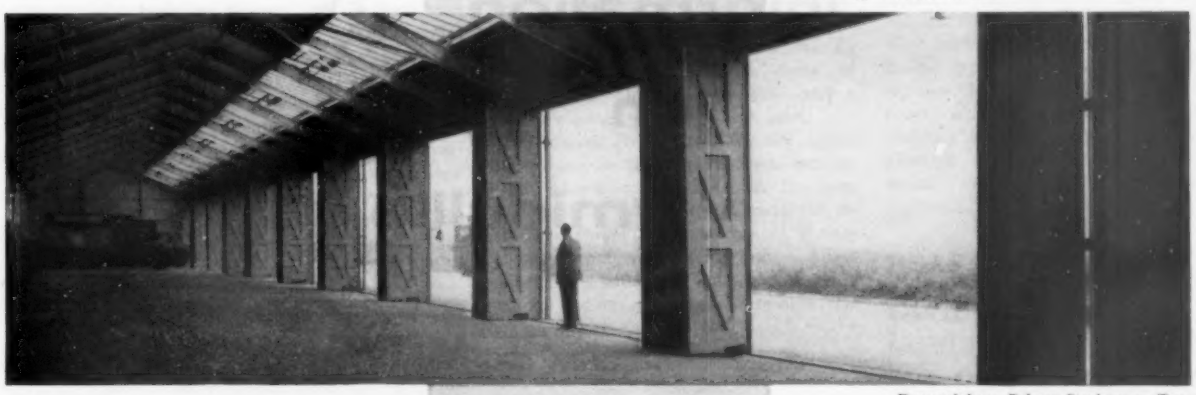
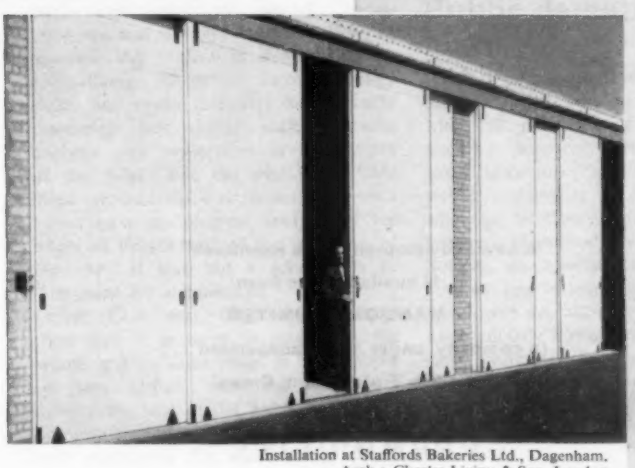


Doors are easily operated both from inside and outside, despite hydraulic jacks inside and cars parked close outside.



Despatch bays, Bakery, Stockton-on-Tees.
Arch.: Robert B. Clark, A.R.I.B.A., Hull



Installation at Staffords Bakeries Ltd., Dagenham.
Arch.: Charles Living & Son, London

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HOOK STUDY

Packed RIBA meeting

Three of the LCC architects most deeply concerned with Hook New Town, Frank West, deputy architect to the council, Oliver Cox, architect in charge, and Graeme Shankland, senior architect-planner, described the Hook New Town Plan and explained the research upon which is was based, at a crowded and deeply attentive meeting at the RIBA on November 28.

Mr West started by describing the immense amount of preliminary work in finding a suitable site. The search extended from the Solent to the Wash, he said, and seventy possible sites were investigated. But when all the problems involved had been considered—of building, of communications, of not using good agricultural land, of whether the site could be drained, and if there was an adequate local water supply, besides proximity to other built-up areas—the LCC had arrived at Hook as the one place which could be considered suitable. The 1951 London development plan showed the need for providing for overspill of 300,000 people; the 1959 review showed a higher figure, and the decision of the Ministry on that report is still awaited, but in 1957 the MOHLG had agreed in principle to the need for a new town.

Having chosen the site, Mr West went on, it had been agreed to prepare for the planning application with much more than a mere zoning plan, and an inter-professional group was set up, "something we had always wanted to do," to examine the project in depth. Led by John Craig, the group included many skills, and many members had "taught themselves new skills," such as traffic analysis and projection, in the course of the work. For the whole idea, Mr West emphasised, was to design a town based on a sociological analysis of the needs of people and of the problems of the site: it was not a scheme to be "imposed on a landscape."

Oliver Cox and Graeme Shankland then took it in turns to summarise the whole study, illustrating it with slides on two screens, and following very closely the text of the published report, admirably summing up the key decisions and explaining the reasons for them, and enlivening them with entertaining side comments.

Inevitably, the first question asked when the speakers had finished was "Why did the scheme fall through?" Frederick Gibberd, in the chair with a fit of chairmanly caution, refused to accept a "political question" at a meeting of architects and planners, but Councillor W. G. Fiske (LCC), who was chairman of the committee responsible for the scheme from its first mooting until the decision to publish the results, leapt in and replied frankly that the town was not built "because local authorities have not the necessary over-riding powers to secure land. It soon became apparent that the local authorities would oppose the new town at Hook and enormous pressure by local landowners was put on the Government." The lesson, he thought, was "that no local authority will be able to build a new town unless it can get an area of land made available to it: there must be a partnership between the local authority and the Government."

ROSPA

Safety courses in the construction industry

The increasing number of accidents on construction sites—there were 20,584 reported in 1960, of which 277 were fatal—has lead the Royal Society for the Prevention of Accidents to organise a series of special building civil engineering accident prevention courses, three of which have already been held and a fourth planned for early next year.

The demand for courses for site safety supervisors is likely to increase, because from March 1 employers in the construction industry will be required by law to appoint such supervisors if they employ more than twenty men. These supervisors will have to know the regulations and ensure that they are observed.

ST ALBANS

Public demands town plan

Whether or not small local authorities of historic towns can successfully grapple with the problems of traffic, parking, and big property developers were the main questions that emerged from a public meeting at St Albans last week, when Sir William Holford was the main speaker. Organised by the local Civic Society, the meeting was called largely because one or more of the big property developers are active in the town centre, anonymously buying up any buildings or land available in certain specific areas, at a time when there is no detailed three-dimensional plan ready in the hands of the local authority to control large-scale rebuilding.

Sir William pinpointed the main issue which, he said, applied not only to town planning but to many other aspects of our current society. A choice had to be made between social needs and commercial interests. We had a genius for compromise in this country, but in the conflict between these opposing forces, such a method could not hope to succeed when large areas of towns like St Albans were redeveloped. Such historic centres were a social asset of the very greatest magnitude, and some method must be found to preserve them. A major difficulty was that the powers of the 1947 Planning Act had been gradually eroded by successive Governments, and all the initiative had passed into the hands of property developers. But various methods could be adopted by local authorities—and Sir William outlined these during the discussion. The problem could be overcome by making use of developers' capital, so as to allow them a reasonable profit, but ensuring that important social needs such as separation of traffic from pedestrians, and the preservation of the character of the centre, would be met.

Sir William was backed up by L. G. Vincent, who described his layout for Stevenage New Town as an example of current planning techniques in terms of amenity and sheer human comfort. Support also came from representatives of a local panel of architects, who described a basic method by which through traffic could be diverted, and the centre of the town turned into a pedestrian precinct, linked to the cathedral close and the Roman remains in Verulamium Park.

The enthusiastic audience which overflowed from the St Albans Town Hall, showed that this is a live issue in the town, and how useful local amenity societies can be in converting apparently abstract planning ideas into human terms, creating public support and vigilance.

RSA

Civilisation and landscape

Sylvia Crowe suggested a new criterion of man's standard of civilisation, when she gave the inaugural "Reflection riding" lecture at the Royal Society of Arts on November 22, and suggested that he is only truly civilised when he becomes aware of the landscape as something to be "manipulated and cared for".

As long as a naturally balanced landscape formed the backcloth to man's activities, it was easy to adjust this natural background to accept man's works, especially while his chief activity was agriculture, only a variation on nature's own theme, she said, but now the fertility of man's inventions had loaded the balance against the organic landscape.

In Holland and Israel new landscapes had been made, one from the sea, the other from the desert, and in each case not only higher production but the creation of an environment for pleasant living had been the aim. These were extremes, she said. It was far more usual for the civilization and the landscape to evolve slowly together as in this country, or for the civilisation to come first and then invade the landscape as in the USA.

"In our case," said Miss Crowe, "the problem is to find the right adjustment between the new needs of our expanding population and the old landscape. We have to reconcile the desire for mobility

and increased communications and for less arduous work, all requiring industry and machines, with the desire for the peace which only the countryside can give, and which can be destroyed by these same machines. The lines on which we are working are becoming clearer although we are very far from a solution. First, we accept a certain extent of landscape zoning, such as national parks and areas of outstanding landscape value. These give varying degrees of protection to the old landscape with its established balance, its peace and its quietness."

Secondly, said Miss Crowe, we were progressively trying to improve the design of our new structures and their relationship with the old landscape. "The progress in this direction is shown by the growing number of public authorities and industrialists who take architectural and landscape advice on the design, siting and setting of their structures, whether these be roads, power stations, reservoirs, factories or housing. The third hopeful sign is the beginning of the counter-attack on waste areas. Some old slag heaps are being afforested, others cleared away. Gravel pits are being filled or converted into lakes and stocked with fish. There is a slight lessening of pollution in our rivers, clean air is already increasing the range of plants which will grow in London. The movement is slow but it is perceptible."

SHIRLEY ANDREW

BRITISH ROAD FEDERATION

Car parking survey

Last week the BRF published the results of its national car parking survey, ie the answers to a questionnaire sent out last January to 419 towns and cities, 80 per cent of which responded.

Introducing the survey results, BRF's chairman emphasised that "the provision of off-street parking facilities is a responsibility squarely on the shoulders of local authorities." On the other hand, he told reporters in reply to a question, the BRF was making representations about the need for parking space to the Ministries of Transport and Housing and Local Government, and that "the ball is now in their court." He gave no further information about this mysterious game of tennis, but perhaps we can guess the line that is being taken from the passage in the report which tells us that "only half of all councils which were able to give a figure for their maximum off-street capacity were above the level of ten car spaces to each 1,000 people." The report goes on: "Those which were much below average seem to have the greatest need—the largest cities of 100,000 inhabitants or more and boroughs in the greater London area. No doubt this may be a reflection of the very high land values in the central areas of these towns and cities. But high values are part and parcel of the problem itself."

What, precisely, is "the problem"? As the BRF sees it, the problem is one of providing "ample parking accommodation." Without this, its chairman claims, "the continued prosperity of towns and cities must obviously be at stake." This may seem obvious; but, in fact, evidence from the larger American cities shows that the continued prosperity of "downtown" shopping areas is affected very little, if at all, by the amount of parking space provided in these areas.

The BRF does not, of course, admit that there is any danger of providing too much parking space in relation to the capacity of the street system in a central area. It would be interesting to know which of the five cities of over 100,000 inhabitants think that parking in cities should be free of charge. But it seems doubtful whether these cities will ever provide many parking spaces out of their own funds. They are probably still hoping for assistance from the Exchequer. But the BRF chairman pointed out that: "In a number of statements the Government has made it perfectly apparent that it does not intend to give any financial assistance. There have been no 'ifs' or 'buts'—just a straight 'no'."

And quite right too. Subsidised parking in central areas would be, as one American commentator has said, "public housing projects for under-privileged Cadillacs."

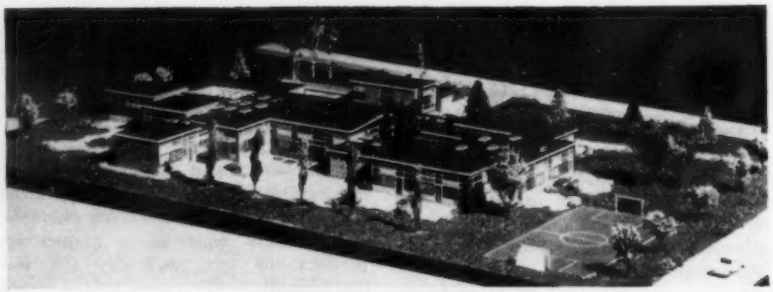
NIGEL SEYMER

MINISTRY OF WORKS

Production of bricks and cement

According to figures collected by the Ministry of Works, total production of bricks for the first ten months of this year was 2¾ per cent higher than for the same period last year. Stocks of bricks at the end of October were seventeen million more than at the end of October, 1960.

Production of cement was 7 per cent up and deliveries to the home market from home production were 11 per cent higher in the first ten months of the year than in 1960.



A model of one of the schools, to be built using the CLASP system at Biella, Italy, by Costruzioni Modulari S.p.A., a subsidiary of Brockhouse Steel Structures Ltd

CLASP

Raking in the royalties

The Consortium of Local Authorities Special Programmes is to receive £8,000,000 in royalties from schools being built in Italy and Germany using the CLASP system, according to a statement last week by Nottingham's finance committee chairman, Alderman F. A. Small. Royalties would be used to reduce the rates in member authorities' areas, he said. A model of one of the first schools is shown above.

MOT

One-way traffic at Kings Cross?

A one-way traffic scheme at Kings Cross has been proposed to the local metropolitan authorities by the Minister of Transport. The scheme has been worked out by MOT's London traffic management unit.

IDEAL HOME—RIBA

Housing group design competition

More than 500 applications have already been received from architects for the conditions of the housing group design competition, jointly sponsored by the RIBA and *Ideal Home* magazine, which closes on January 2.

MOW

Broad sanctuary competition

The Ministry of Works has been informed by the assessors of the Broad Sanctuary architectural competition that they expect to be able to announce their awards on Tuesday, December 19, and copies will be posted to competitors on that day.

CAMBRIDGE UNIVERSITY

Controversy over New Museums site

The future of the centre of Cambridge is again to the fore, owing to the university's outline application for permission to redevelop the New Museums site to a high density: here Derek Senior discusses the planning problems involved. Denys Lasdun's scheme for dealing with a complex brief for such an important site will be looked forward to with intense interest, and the AJ hopes to publish the scheme in detail as soon as it can be made public

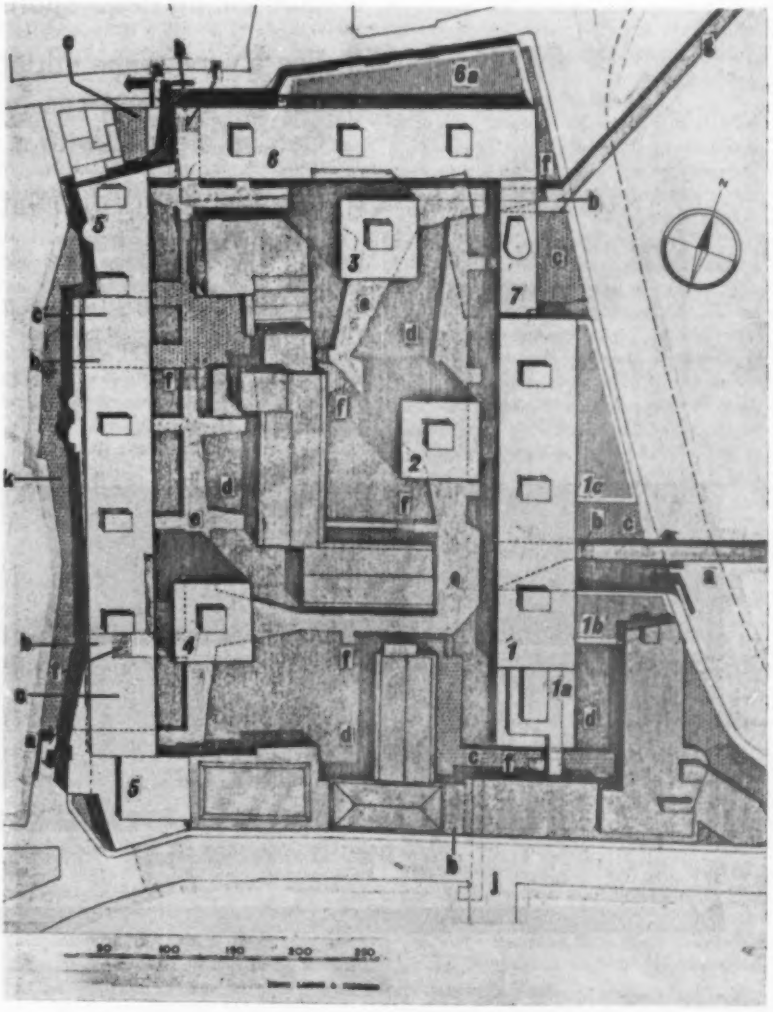
Ever since the Holford-Wright proposals were officially adopted as the basis for development planning and control in Cambridge, more than ten years ago, the university and the local planning authority have been at odds over the future of the city's central core. This chronic inflammation has now been brought to a head by the university's outline application for permission to redevelop its New Museums site, together with a small contiguous area in other ownerships, in accordance with a scheme prepared by Denys Lasdun & Partners. This application was rejected a few weeks ago by the Cambridge City Planning Committee and is now the subject of further negotiations.

Under the delegation arrangements now in force, a major departure from the approved development plan for Cambridge needs the consent of both the City Corporation and the County Council; it may thus be rejected by the City Corporation alone, to whom it is submitted in the first instance. Though city and county have not always seen eye to eye, in this case the County Planning Authority has completely endorsed the City Planning Committee's view that the university's proposals represent a gross overdevelopment of the area, and that it would be premature to consider any such application in advance of a clear indication of "the present and future functioning of the university and the inter-relationship of its various parts."

The Lasdun proposals include three tower blocks, each 60ft square on plan, two of which would rise to a height of over 200ft. This feature of the scheme will inevitably give rise to a lively debate on the architectural propriety of erecting really tall buildings in a city centre so domestic in scale and so intimate in character as that of Cambridge. The danger is that this æsthetic controversy may well obscure the more fundamental planning issues raised by the scheme as a whole. For the present, an appeal is being held in suspense, pending further discussions between the university and the planning authority. Meanwhile, the inquiry into objections to the first quinquennial review of the Cambridge Town Map has also been postponed.

In order to get a rough idea of what Denys Lasdun's towers would look like, the Cambridge County Council commissioned A. E. Weddle, AILA, AMTPI, to superimpose them on a series of familiar Cambridge views. At this stage no more than a rough idea could be attempted, for the applicants had abstained from the usual informal consultations with the county planning officer, and though their outline application indicated the position, height, plan, floor area and general shape of each tower, it included no elevational details. The fenestration indicated on Mr Weddle's montages was therefore necessarily conjectural. The applicants have refused to sanction the release for publication of these composite pictures, or of a subsequent series in which the fenestration was left to be imagined.

The most obvious conclusions to be drawn from the information contained in the application are that the towers, being masked on all sides by perimeter blocks of about the same height as the Guildhall, would be quite invisible from the immediate vicinity of the site and relatively unobstrusive from many other viewpoints in the city centre's narrow streets; but that they would certainly be conspicuous from the open spaces surrounding the central area and would completely dominate more distant prospects of Cambridge. Their effect on the well-known view of King's College across the Backs would be particularly interesting. This, with its happy juxtaposition of Gothic chapel and Georgian Gibbs Building, has always been the modern



Denys Lasdun's outline plan for the New Museums site

KEY: *a*, entries and exits for cars and vehicles, including ramps to basement level. *b*, Pedestrian entrances. *c*, Parking for cycles at street level. *d*, Parking for cars at basement level. *e*, Elevated pedestrian platforms connecting all buildings on site. *f*, Staircase connections from basement to pedestrian platforms. *g* and *h*, Connections to civic or university buildings in Lion Yard. *j*, Possible subway to Tennis Court Road. *k*, Free School Lane (closed to vehicles beyond car park entrance). Heights of buildings are indicated by numbers: 1, 78ft; 1a, 52ft; 1b and c, 26ft; 2, 150ft; 3 and 4, 205ft; 5, 65ft; 6, 78ft; 6a and 7, 65ft.

SfB. Rj1

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architect's favourite weapon against those who demand a respectful conformity in style when new buildings are erected cheek-by-jowl with old. The question now is whether this classic argument for building boldly in the idiom of one's own time, even among historic masterpieces, would be clinched or clouded if Denys Lasdun's towers were allowed to soar 50 ft above the chapel's topmost pinnacle.

The Royal Fine Art Commission's probable reaction may be surmised from the dim view it took of the tall blocks (less than half the height of the Lasdun towers) in the Edger scheme for the Lion Yard redevelopment, and from its deprecation of tall buildings in Peterborough and Chichester as damaging the dominance of their cathedrals. The Cambridge Preservation Society is known to be opposed to the erection of any building in the city centre higher than the Guildhall's 63 ft. The planning authority, for its part, has no objection to tall buildings as such in Cambridge, but it is anxious to preserve the traditional architectural character of the city centre. This was the ground on which it tried, unsuccessfully, to prevent the University from building its six-storey blocks of laboratories in Lensfield Road (condemned as "too massive" in the AJ university review of January, 1958). Faced with towers of 16 storeys, however, and with the probability that more will be proposed if these are allowed, the county planning officer advised his committee that he did not feel competent to pass æsthetic judgment on the Lasdun scheme in isolation. The committee accordingly agreed to commission an architect-planner of the highest calibre to make a comprehensive study of the city's architectural heritage and, in the light of that study, to propound the canons by which judgments of this kind should be guided.

No matter how single-mindedly public controversy may concentrate on the æsthetics of the Lasdun proposals, the planning authorities are obliged to take account of other cogent considerations. Given the architect's terms of reference, to provide "the greatest possible concentration of scientific accommodation on the site consistent with amenities and sound planning", there can be little doubt that he found the right, if not the only possible, solution. What the authority had to decide, however, was whether it was consistent with sound planning to give him those terms of reference. In effect, Denys Lasdun was called upon to try to fit on to one five acre site, at present "hopelessly congested" (in the words of the AJ university review) with a hotch-potch of buildings, all the floor space which the heads of the University's science departments thought they might need for teaching and research in the foreseeable future. This he was asked to do, not because anyone imagined it was an architecturally valid approach, nor because it formed part of any integrated plan for university development, but simply because the University preferred to have its science buildings close together, was determined to have them in the city centre, and had no other central site available.

There are, of course, clear academic advantages in a close grouping of science departments; but there are equally clear disadvantages in locating too many lecture halls and research facilities on a cramped site in a city centre. Some such facilities, requiring heavy, noisy or radioactive equipment, must in any case be sited elsewhere, and nobody can foretell what further accommodation will be needed as the frontiers of science advance and new fields of inquiry are opened up. American experience abounds in cases where a university, having reluctantly built new laboratories at some distance from its campus, has soon found cause to be thankful it did; or, having deferred to professorial demands for propinquity, now bitterly regrets its complaisance. Two years ago Lord Adrian, Cambridge's retiring vice-chancellor, publicly deplored the policy of concentration as being "in danger of creating a central core of large departments for orthodox and almost out-dated subdivisions of natural science, with no room to allow the growth of research and teaching in subjects outside the established hierarchy."

It was with such considerations in mind that the County Council, in its development plan, allocated a large area of undeveloped land for University expansion beyond the Backs where there is plenty of room for any conceivable future needs. On the New Museums site, by contrast, even the immediately foreseeable requirements of the existing science departments cannot be met without increasing the floor-space index by two-thirds, and then only by demolishing the Examination School, the University's only central accommodation for large assemblies, to make room for a tower block. Denys Lasdun's scheme more than adequately provides for parking and loading at basement level within the site, and for separate pedestrian circulation on elevated platforms; but the amount of traffic entering and leaving the site and travelling along the surrounding streets would inevitably increase, aggravating the congestion of the central area, as additional floor space came into use. Moreover, the scheme implicitly assumes that space would be made available for a large assembly hall and other displaced academic facilities on the adjoining Lion Yard site, which is officially allocated to shopping and commercial uses.

In these important respects the scheme represents a radical departure from the approved development plan and directly conflicts with the policies on which that plan was based. Whatever conclusion might be reached about the visual effects (when they are fully known) of this attempt to get a quart into a pint pot, its non-visual implications were certain to meet with disfavour. In consequence, the application was bound to be referred to the Minister, if not by the planning authority itself, as a matter of national importance, then by the University on appeal against an adverse local decision. Third parties who have any kind of interest in the future of Cambridge will eventually have ample opportunity to make their voices heard on either side at a local public inquiry.

DEREK SENIOR

EJMA TO BWMA

Manufacturers agree change of name

The English Joinery Manufacturers' Association decided at its annual general meeting on November 22 to change its name to the British Woodwork Manufacturers Association. The change is in line with the association's desire to widen its scope and bring together in one organisation all manufacturers engaged in timber engineering, architectural or mass-produced joinery, or any other branch of the industry.

RIBA

Meeting on professional responsibility

The public has become very "claims-conscious" since the introduction of the legal aid system, and as a result more people are prepared to claim damages from their architects or other professional advisers. In many cases they may be fully justified.

Insurance brokers at Lloyd's find that claims against architects for professional negligence are very much on the increase, and professional indemnity insurance policies have become much more expensive for this reason.

The RIBA has therefore engaged a leading QC, Mr J. P. Eddy, to speak at the general meeting on December 12, on professional responsibility. He will explain in some detail what is the care, skill and diligence expected of an architect, with particular reference to estimating and his supervisory work under the contract, and to his general liability for negligence. The meeting is at 6 pm.

Corrections

The title and price of Lewis Keeble's book, reviewed in AJ 22.11.61, was wrongly given: it should have been *Town planning at the cross roads* published by the *Estates Gazette*, at 32s 6d.

Information Sheet 2.B6, published 11.9.58, is cancelled from the Library. It is published in revised form as Sheet 1034 in this issue.

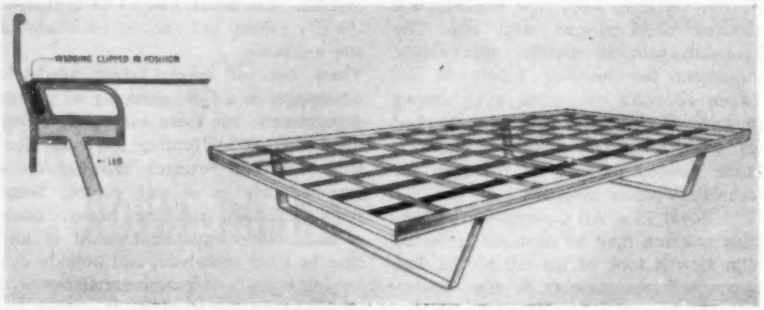
The design of the Nuffield Institute of Comparative Medicine, illustrated in ASTRAGAL's columns (AJ, 29.11.61) was credited to Professor Richard Llewelyn Davies: it was in fact the work of Llewelyn Davies and Weeks and John Musgrove. Professor Llewelyn Davies explained the plan at a press conference at the Zoological Society's headquarters in Regent's Park.

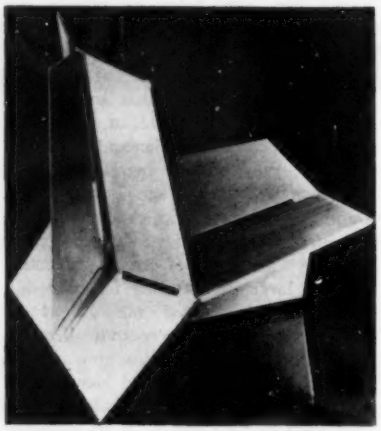
Aluminium furniture competition winning designs

First prize in this year's aluminium furniture design competition has been awarded to J. N. Stafford, SSC, DIC, and P. Key for an aluminium frame bed (top), which the judges considered had intelligently employed the advantages of aluminium extrusions to produce a light-weight, economical, visually pleasing and simply fabricated bed. An extruded aluminium frame carries elastic webbing and provides a retaining edge around the mattress. The designers receive £250.

The second prize has gone to F. J. B. Rowley, NDD, for an aluminium garden chair (right) which the judges thought "most striking and original." It is made from 14 gauge aluminium sheet, blanked, folded and assembled with adhesive, and consists of only four pieces.

Third prize has been awarded to T. P. Widdowson, FRSA, for an occasional chair on a swivel base, and the prize for a student's design to A. C. Revell.





THE BUILDING EXHIBITION

Design for mechanisation

Sir Thomas Bennett, who took the chair at the Building Exhibition discussion on November 28, asked if greater mechanisation in building could be expected to lead to the "monotony of the module" now demonstrated internationally and resulting in the blotting out of the architect's imaginative contribution to buildings.

Grenfell Baines, the first speaker, foresaw the danger of 1984 in the social effects of mechanisation on the building environment and emphasised that means should not be allowed to govern ends. He thought variety was essential and the architect's control of dimensions vital.

E. J. Cook, of Richard Costain Ltd, and O. J. Masterman, of Unit Construction Ltd. gave contractors' viewpoints. Mr. Cook defined design as, the sum of the decisions taken by and on behalf of the client, and mechanisation as, these methods used to supplement manual labour. Mechanisation, he claimed, was a continuing process and tended to stabilise costs and increase productivity. It should be considered in the very earliest stages of design, although the process was inhibited by present methods of competitive tendering. Using Pier Nervi as an example, he said that it should be possible for an imaginative designer to encompass mechanisation and that this process seemed to be well developed abroad. The challenge of the Common Market, he said, should not be overlooked.

Mr. Masterman felt that mechanisation was bound to increase, due first to the rising standard of living which demanded better and easier working conditions, second, to the fact that fewer men on sites made for simpler organisation, and third, to its necessity in some jobs. The process was likely to develop from the replacement of unskilled labour, to the replacement of the old crafts, the elimination of wet processes and, finally, the reduction of building to an assembly process. He said there were now 2,000 tower cranes in this country, most of them of foreign manufacture. They had to be planned for, and could act as useful pacemakers on site. Economies could be achieved by the use of machines and a table was shown to demonstrate a 60 per cent increase in output per man since 1950.

The future of building as an assembly process was taken up by the fourth speaker, Bruce Martin, of BSI, a lecturer in architecture at Cambridge University, who saw the future of the building industry in factory-made components and units. This industrialisation of building did not, he felt, restrict the designer and, in fact, if present trends continued, could well lead to an embarrassing range of choice. He thought that mechanisation was inevitable and welcomed it.

Comments from the floor, in the discussion which followed, were few. Most members of the audience obviously saw no problems in the increasing use of mechanical methods. Mr. Crittall thought some central organisation necessary to co-ordinate the work of architects, builders and manufacturers in this field. A "rogue" architect with Laing's development group thought that mechanisation could be integrated into design with proper advice freely available, as in a contractor's organisation.

Grenfell Baines felt he had been a little misunderstood in the discussion. Describing himself as "a long term realist," he drew attention to the many problems which accompanied factory made buildings, the high cost per unit of the aluminium prefab and its maintenance, and the social effect produced.

Sir Thomas summed up as a traditionalist by saying that in his experience industrial techniques were not cheaper than the site operations of British builders. He felt the fact that building costs were rising at a faster rate than wages might in part be due to mechanisation. Commenting on the universities, he thought that the type of mind found there might be tempted to theorise about a practical problem, a point to which he had the grace to allow Bruce Martin to reply at the end of the session.

DIARY

Planning in Britain—some next steps: Sir Colin Thornton-Kemsley, OBE, TPI. Meeting at Livingstone Hall, Carteret Street, London, SW1, 6pm.
DECEMBER 6

Informal dinner and discussion: Professor Pevsner and Dr Banham follow-up their RIBA meeting on "The history of the immediate future" at the AA. 7.0 pm. DECEMBER 7

The architect and the Factory Acts: E. I. Wilson, superintending inspector of factories, at the RWA School of Architecture, Bristol, organised by Bristol and Somerset Society, 6.30pm.
DECEMBER 7

Optical lantern entertainment; the Victorian era: Friends of the National Film Archive and the Victorian Society, at the Lyric Opera House, Hammersmith, 7.30pm. Programme, available from both organisations, admits two.
DECEMBER 10

Professional responsibility: J. P. Eddy, QC, at RIBA, 6pm. DECEMBER 12

The new IES *code:* discussion opened by Andrew Renton, DA, ARIBA, W. E. Smith, consulting engineer, E. E. Jacobi, electrical contractor, and R. R. Holmes, lighting engineer, at the FBI, 21 Tothill Street, London SW1, 6pm.
DECEMBER 12

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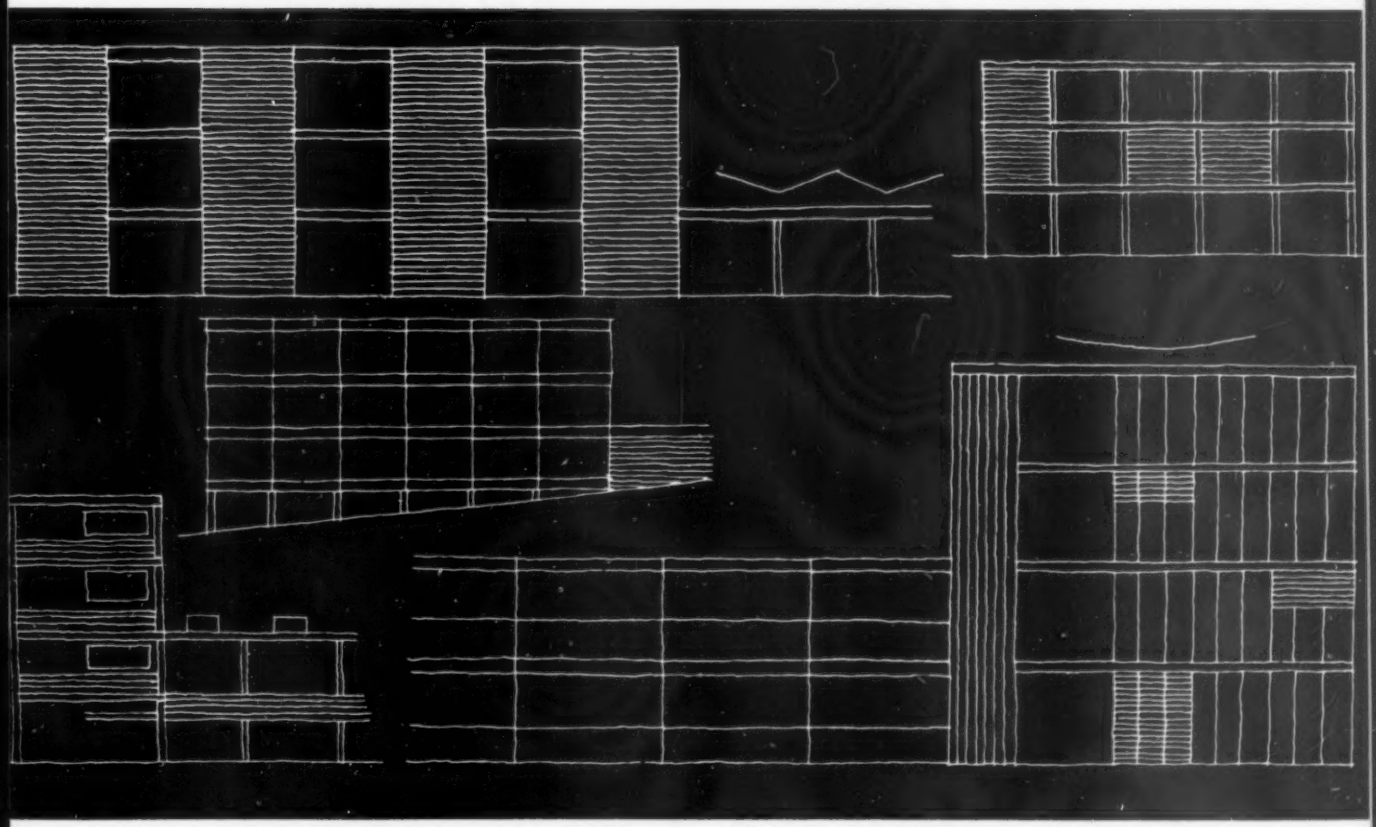

"Preferred Dimension" is a precast concrete technique which reduces the costs of frame construction by as much as 15%–20% and at the same time allows the architect free aesthetic expression

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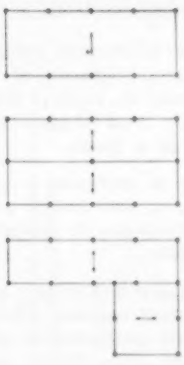

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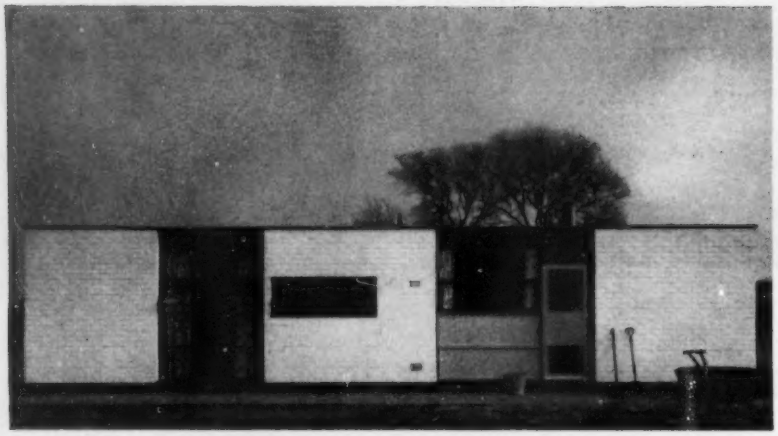
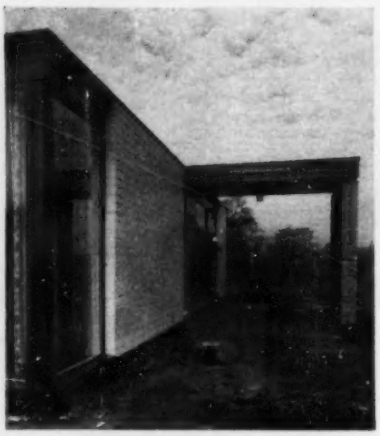




This cottage, designed by Diamond, Redfern & Partners (job architect Roy Gibson, assisted by Peter Jones) was originally designed as one of a group of three on a site adjoining the main Ashbourne to Lichfield Road in the village of Draycott-in-the-Clay, but to meet planning approval, was moved to front on to an adjoining lane. The local vernacular in the village is generally red brick with clay tile roofs, offset by the occasional house with whitewashed walls and black windows and doors. White-painted brickwork was chosen for the cottage, not only because it would express the essentially simple character of the design, but because of the acute shortage of the right type of facing bricks. This is used in combination with dark olive brown for the window frames and fascia, a tarred plinth, and neutral grey for external doors and inset plywood panels. The roof is boarding on timber joists, finished with asphalt topping. In order to unify the design, a standard width of external opening of 6 ft has been adopted, usually from floor to ceiling, with infilling of glass, opening lights or plywood panels on a standard vertical module, and as required by the internal function.

Space heating is by a closable solid fuel stove, plus electrical heating in the bedroom, with hot water supplied from an insulated immersion heater unit. For an area of 800 sq ft, the final cost was within the contract figure of £2,500, including provision of a septic tank.

File this week

The subject of this week's Element File is SfB (21) **Walls: External, loadbearing: General** and starts on page 1128, but the Information Library, of which this file is part, begins on the opposite page. Each feature within the Information Library is preclassified for tearing out and filing in SfB order. The subjects are:

1 **Products File** (pages 1106, 1107) is a record of new products and services arranged for cutting into A6 sheets. Items are classified separately so that, when the sheet is cut, each can be filed in its correct place. Alternatively, the intact sheet may be filed with earlier and later sheets under Aa2 in an SfB file.

2 Working Detail (pages 1108, 1109) deals with **Handrails and balustrades: General,** and should be filed under SfB (34): UDC 69·02·633.

3 Building Study, 2nd series (pages 1110–1127) **College of Further Education, St Albans.** This should be filed under SfB (97): UDC 727·4.

The Element File contains:
4 **Element Design Guide** (pages 1128-1146)

5 Information Sheets: Five of these deal with **Loadbearing walls** with reference to aspects of design, and properties and manufacturers of bricks and blocks, SfB (21): UDC 69·022, 69·022·3, 691·3, 691·4..
The Element File also contains a number of advertisements which are specifically concerned with the subject of the file.

ANNOUNCEMENTS

James-Carrington & Partners have moved to 65 New Street, Birmingham 2 (telephone Midland 6052/3).

G. W. Banfield, FRIBA, and P. J. Booth, ARIBA, DiplArch, at present practising under the name of Ernest W. Banfield & Son, have changed their style to Banfield & Booth.

A. B. Mallinson & Co, consulting engineers, have moved to Cornbrook Place, Manchester 15 (telephone Trafford Park 0264).

Munce & Kennedy, architects and consulting engineers (Belfast and London) have established an office in association with Colm Dixon, ARIBA, MRIAI, at 62 Merrion Square South, Dublin 2 (telephone Dublin 61361), where they will practise under the style of Munce & Kennedy, chartered architects and consulting engineers, in association with Colm Dixon, AXIBA, MRIAI. They will be pleased to receive trade literature.

Maurice Meyersohn has started a private practice under the name of Manfred Hermer & Maurice Meyersohn at 87 Wimpole Street, London W1 (telephone Welbeck 7601). Samples and trade literature are welcome; trade representatives by appointment only.

Felix Walter, FRIBA, has moved from Gray's Inn to 14 Garrick Street, London WC2 (telephone Temple Bar 7691-2), where he will be pleased to receive trade literature.

Alan J. Groves, ARIBA, will take up the duties of assistant city architect (education and general) on December 4 1961 and J. Lynn, BA (HonsArch), has been promoted to the position of assistant city architect (central area) in Sheffield.

The telephone number of J. M. Austin-Smith & Partners, chartered architects, has been changed to Regent 5924/8 for both their offices.

Jack Rosenbloom, ARIBA, DiplArch, has joined the firm of Joseph Berry & Sons in an executive capacity, and will take up partnership in that firm from January 1.

J. Roger Preston & Partners, consulting mechanical and electrical engineers, will change their address to 167 Queensway, London W2 on December 18.

AJ Products File December 6 1961

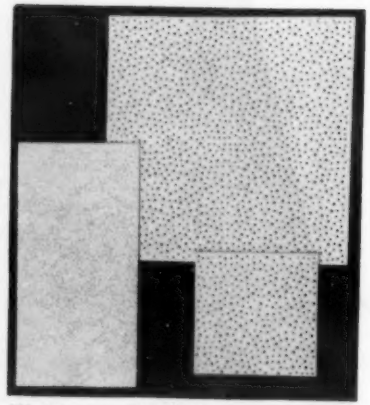
SfB Qm 1

UDC 699·84

Acoustic tiles

Minatone tiles are made from incombustible mineral wool fibre and factory finished in a washable white emulsion paint with a light reflection factor of 75 per cent. The absorbent holes are made in two patterns: the Classic and the Random, shown in the illustration. Like Armstrong Corkoustic it is recommended for high humidity areas such as swimming baths, commercial kitchens or special test areas. The tiles can be fixed with adhesive to any smooth dry surface, or hung by mechanical suspension systems with an air space. All tiles are in thick and have an absorption factor of about 0.85 at 1,000 cycles. Both patterns are made in 1 and 2ft squares, with an extra size of 1 by 2ft in the Classic. Dust does not readily adhere to the smooth surface of the tiles and can easily be removed by vacuum cleaner. Supply and installation are through officially appointed contractors.

The Armstrong Cork Co Ltd, Acoustic Dept, Carlisle Road, London NW9



Minatone acoustic tiles

AJ Products File December 6 1961

SfB (3) Di

UDC 69·028

Standard joinery

Austins of East Ham has issued a centenary A4 size catalogue of standard joinery. It lists a very large range of doors and frames, standard stormproof windows and the Ejma M type casements, as well as pivot hung types. Other items include kitchen units, cupboard fronts with adjustable heads, garage doors (side hung or with Henderson overhead gear), gates, cupboard fronts with adjustable heads, ceiling traps and service hatches. Dimensions of all patterns are clearly set out with all the necessary order numbers for fixed glazing, ventilators and the hand of the windows and doors.

Austins of East Ham Ltd, London E6

AJ Products File December 6 1961

SfB (32)

UDC 69·028.1

Steel doors

The Golmet steel door is intended for side entrances to garages and other similar applications and should have a longer life than the more usual light timber door. The frame is galvanised and has adjustable grouting lugs for building into an opening 78in by 27in. The door has a rolled section frame into which is fitted a galvanised sheet with vertical stiffening ribs at 6in centres. Both door and frame are welded and the price of £6 10s includes a cylinder night latch.

Golmet Doors Ltd, Lawrence Street, Caerphilly, Glamorganshire

Golmet steel doors for garages

Products File by Brian Grant

The Industry has been replaced by Products File. Each item occupies a quarter-page (ie A6 size) and is given an SfB number so that readers may cut the page and file each under its number if they wish. Alternatively, they may tear out the whole page and file all Products File pages together. Products File pages never back on to editorial matter. Readers wanting more information from manufacturers may turn to the back page where they will find Products File items included in the lists of advertisers. The reader, therefore, has merely to tick the manufacturer's name, add his own name and address, detach the page and post it to the Journal, using the reply paid folder.

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S 1

SfB (87)

UDC 645·4

Furniture for schools and colleges

Elington Industries has been making school furniture for a number of years and has recently introduced the first items in its new Studos range of furniture, which has been designed by Mr Frank Height. The first collection is a set of study-bedroom furniture for halls of residence, and includes a chair, bed, desk, table, a chest of drawers and a storage cabinet, as well as bookshelves. The furniture is of the type originally developed by the LCC to form a co-ordinated range with the greatest possible flexibility of arrangement. The manufacturer would be glad to discuss suggestions for new or revised items of furniture or other pieces of equipment for which there is a need. Leaflets are the awkward size of 9 by 4in vertical. A4 would be better.

Elington Industries Ltd, Testwood Totton, Southampton

Studos study-bedroom furniture

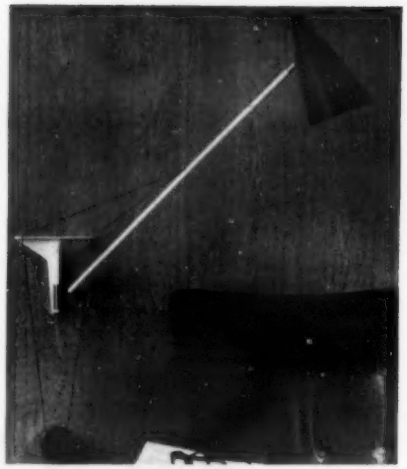
SfB (63)

UDC 628·95 h

Light fittings

Cone Fittings has gradually increased its range of light fittings since it started in a small way some years ago, and it now lists a couple of dozen models, all of which are available with various coloured shades. New models include a wall light with the lamps on a ball joint which cannot be rotated more than one complete turn, thus preventing the flex from being wound up until it is damaged and becomes dangerous. Illustrated here is the Swinglite fitting, in which the light may be adjusted to any position in the hemisphere round its pivot point at a radius of 36in. There are no springs to weaken as a weight is used as a counterbalance.

Cone Fittings Ltd, 9 Rosemont Road, London NW3



Swinglite reading lamp

SfB (43) H

UDC 69·025·351·1

Heavy duty wood flooring

The Taurus system of laying heavy duty flooring has been developed specifically to provide a dust free surface which will stand up to industrial trucking. On a level concrete surface, preferably screeded, kiln dried Protim treated softwood is laid in a damp-proof membrane applied hot, and then finished with 3in face hardwood, either tongued and grooved or square edged and laid at right angles to the softwood. A wide range of hardwoods is available, but rock maple is particularly recommended for factory work. Total thickness from the surface of the concrete varies from 1⅞ to 2¼in according to the board thicknesses used. The method avoids burying timber in wet concrete, the floor being laid as one of the final operations so that it does not get dirty or damaged. The leaflet is A4 and SfB.

Horsley, Smith & Co (Hayes) Ltd, Hayes, Middlesex

SfB Vv6

UDC 691·57

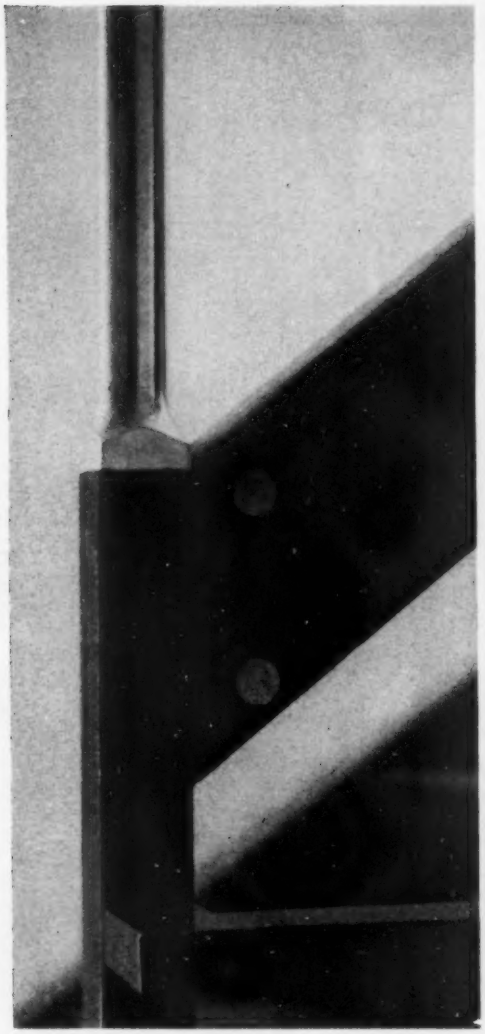
Vinyl water paint

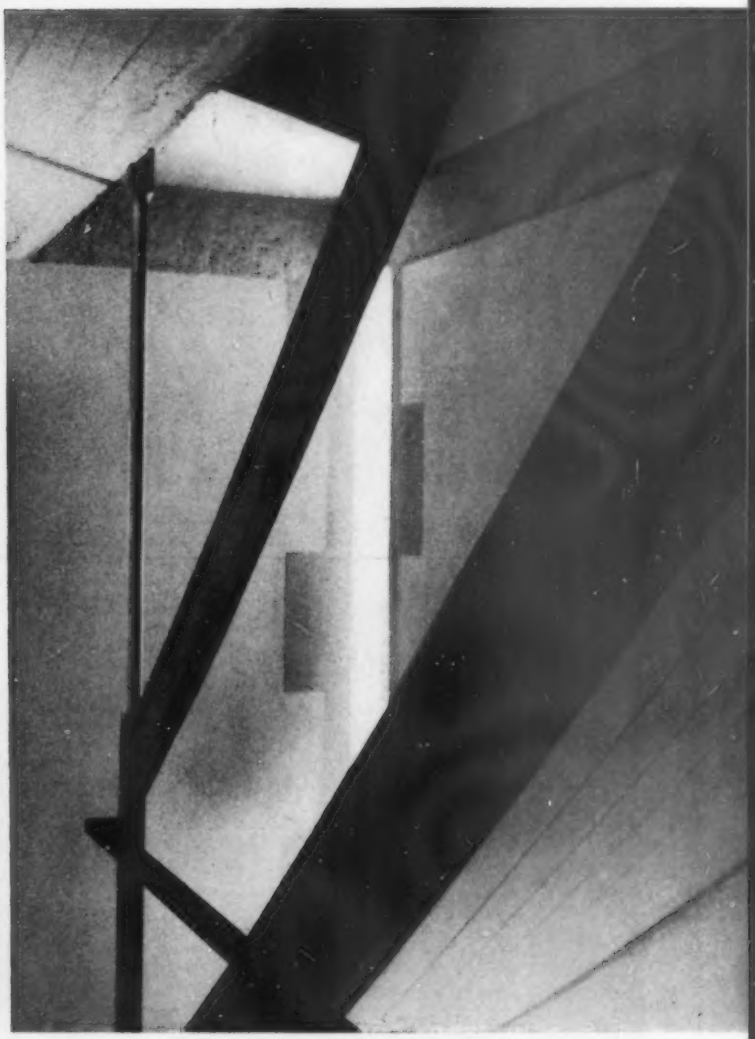
Jenson & Nicholson has just marketed a new Robbialac vinyl water paint known as Acquatint. It is made in white and seventeen BS 2660 pastel shades and is intended for use in housing schemes, schools, factories or other jobs where costs must be kept down, the price being 32s a gallon. It may be applied by roller, brush or spray to dry plaster or paper, to previously painted surfaces not subject to steam or heavy condensation, or to gloss finishes where the surface can be given a preparatory etching. It can if necessary be thinned with water. The manufacturer puts forward Acquatint as an alternative to oil bound distemper.

Jenson & Nicholson Ltd, Jenson House, London E15

AJ SfB (34)

Working Detail No 8 UDC 69·026·33
Handrails and Balustrades: General

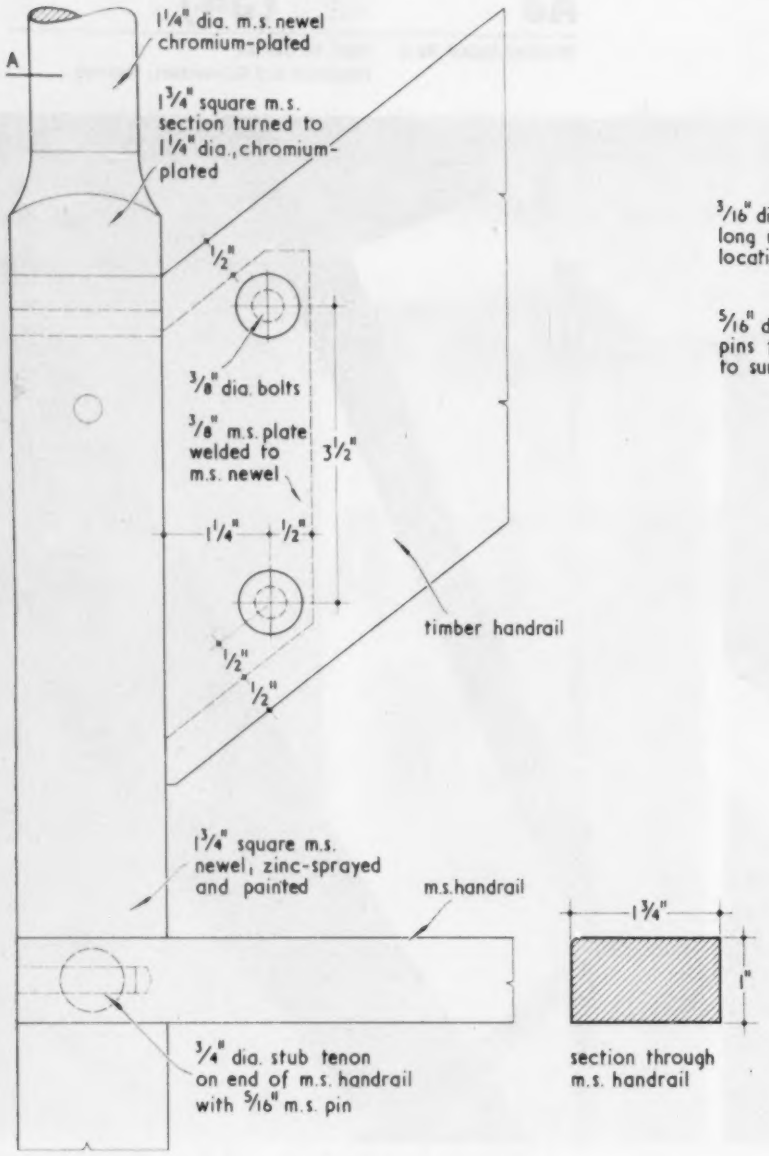




Handrail and newel junction: College in Oxford

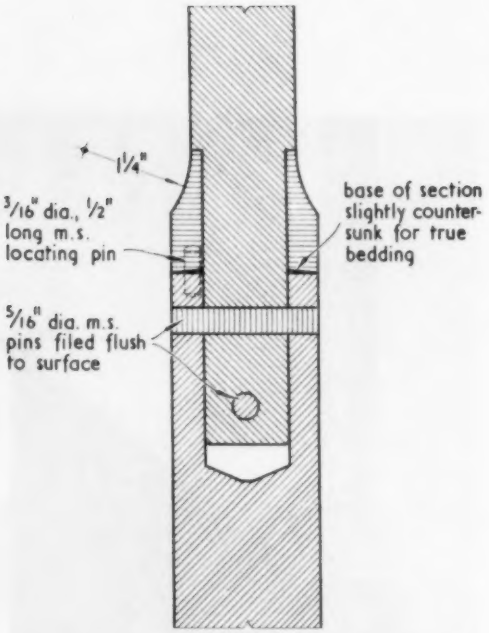
Powell & Moya, architects

This stair newel and handrail represent a really high standard of detailing and workmanship. Note on the drawing the method of connecting the upper chromium-plated section of the newel to the lower zinc sprayed and painted section

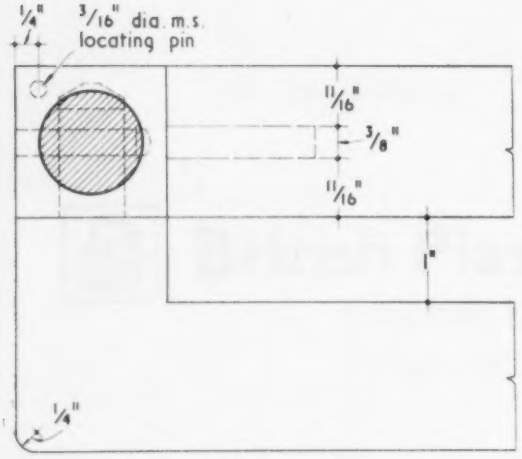


ELEVATION OF JOINT. scale ½ full size

section through m.s. handrail

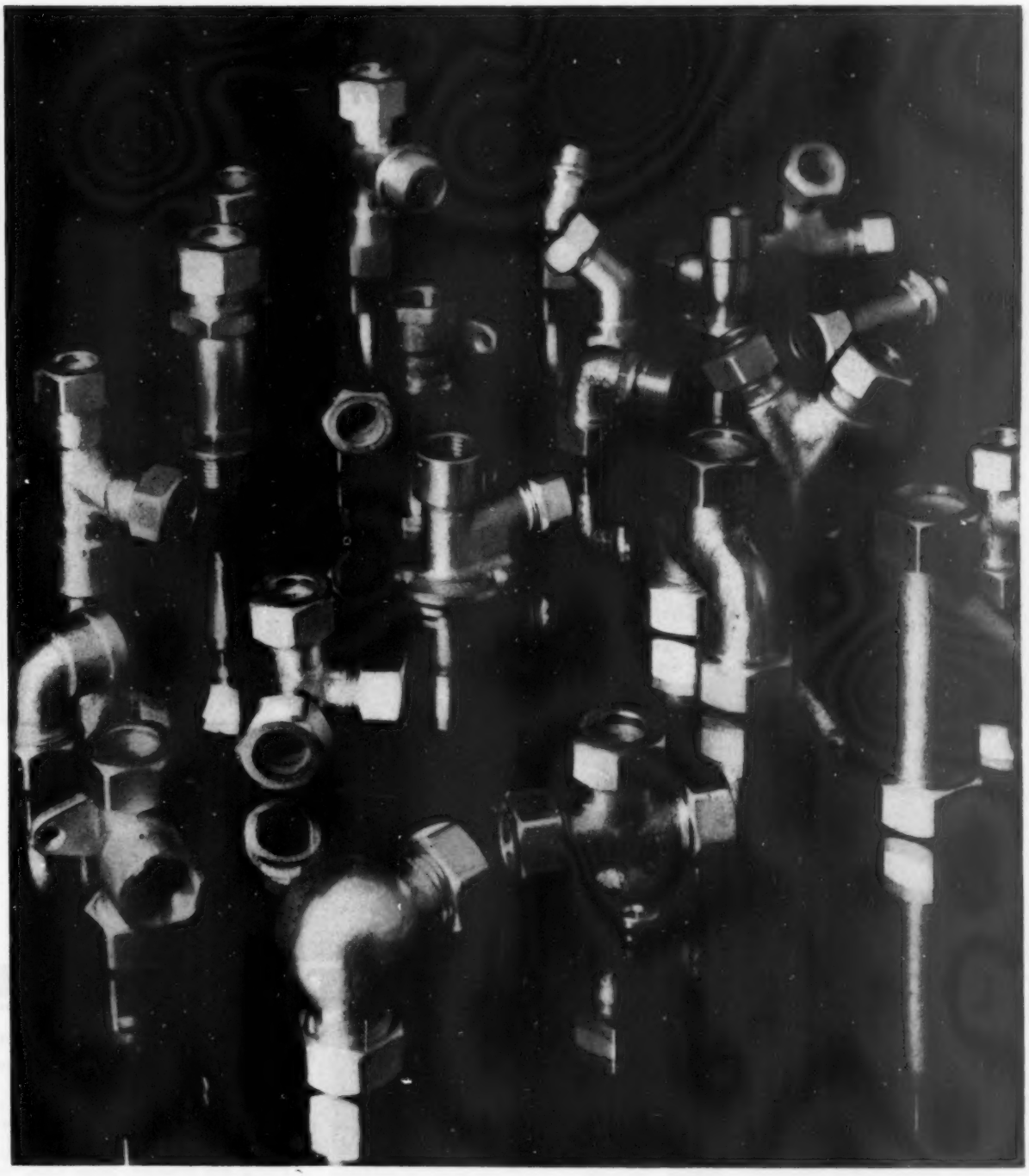


SECTION THROUGH JOINT.
scale ½ full size



PLAN AT A. scale ½ full size

TRUE SECTION THROUGH TIMBER HANDRAIL. scale ½ full size



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AJ SfB (97)

Building Study, 2nd series **UDC 727.4 Technical, professional, vocational training colleges**

College of Further Education

at	ST ALBANS
for	HERTFORDSHIRE COUNTY COUNCIL
designed in the county architects' department	G. C. FARDELL, COUNTY ARCHITECT
group architect	R. J. WHITLEY
job architect	R. J. A. WAKELY
quantity surveyors	THOMAS BARRETT, SON & PARTNERS

In the field of post-war school building the record of the Hertfordshire County Council has been quite outstanding. The early pioneer prefabricated buildings designed in the county architect's department in the forties have been followed, logically and progressively, by a sequence of building programmes, utilising dimensionally related components with a large element of prefabrication and dry construction technique, and employing diverse yet related modules. From these has evolved a practical and increasingly sophisticated style of building.

In recent years Hertfordshire systems have been developed to suit buildings for further education. This project was the first of a programme of four large colleges and was designed on a 2ft 8in modular planning grid. The building was awarded the RIBA *Architecture Bronze Medal for the area of the Essex, Cambridge and Hertfordshire Society of Architects for the period* 1958-60.

The college is formed of a series of blocks, some linked, arranged campus fashion in the well-planted grounds of two now demolished Victorian houses in which the college was formerly situated

APPRAISAL

With eleven elegant pavilions arranged informally and campus fashion in the well-planted grounds of two demolished Victorian houses, the new twin colleges at St Albans at once impress the visitor with the charm and romance of their setting. Established trees of varying girths and heights provide appropriate and pleasing foils to the mechanical rectangularity of the buildings with their cladding of glass, plastic-faced panels, cedar boarding and brick. With well-laid-out grounds such as these even the dullest of new buildings could look well.

Yet, although the landscaping and layout of the buildings here are quite masterly and provide visual stimulation of a high order, there is a certain lack of clarity in the plan arrangement that can bewilder and confuse the visitor. It is true that to those arriving on foot the main entrance to the administrative block is readily visible thanks to an extended entrance canopy, but to those using cars this entrance cannot be seen from the car parks and is not clearly signposted. There is a similar lack of clarity in the relationships between three individual blocks not physically linked by corridors or covered ways.

For the conventional school building this would be a criticism of little importance, but for a college of this nature with its relatively low number of full-time day students (257) compared with its part-time day release students (1,420) and high evening enrolment (2,924), the problem presented is a serious one. For a building designed to accommodate a numerically flexible and fast-changing population a high degree of plan clarity (knowing where you are and where you have to go) is most important. The pavilion plan arrangement tends to aggravate this problem, particularly at night, when the building is being used to an extent comparable with that of the day. The architects have gone to some pains to overcome this problem, by giving an obvious "character" to some of the blocks, by the discreet use of lettering and signs, and by the skilful manipulation of paths and paving. But their efforts seem not to have been entirely successful, and it will be a pity if the neatness of the buildings is marred by too unsightly a profusion of home-made signs, labels and instructions that could so easily arise from this situation.

Of the buildings in general perhaps their most noteworthy feature lies in the complete and total sense of consistency in detailing that is at once apparent. Each block has the outward directness and simplicity that only much careful thought in the design stage can ever achieve; and only where last-minute changes in user requirements have caused snap alterations to be made has the completed work shown a lack of this natural simplicity and appropriateness.

Externally, the materials used—aluminium, plastic-faced panels, cedar boarding and brick—have all been chosen to reduce expenditure on maintenance to the minimum. However, the treatment of the hardwood external doors with a proprietary varnish has not proved completely successful. Certainly the aluminium curtain walling has a distinctively pleasing appearance, but the use of outward projecting windows on the ground floors provides a hazard to those using the hard strips around each block as a path—a hazard that is now being remedied by the provision of somewhat unsightly tubular barriers at the corners and doors to each building.

The 2ft 8in modular planning grid lends itself to the satisfactory sub-division of internal spaces although the freestanding columns inevitably cause complications, most notably where they are found in the corners of relatively small rooms. Materials and finishes are generally sound and it is refreshing to note the absence of easily damaged fibrous plaster column casings—once always to be found in buildings of this type. They have now been replaced by timber casing painted or by metal clip-in strips (in the workshops).

Stiletto heels have damaged many of the floors, most notably those in cork tiling, which could be expected, but also those in quarry tiles, large areas of quarries in rooms used largely by girls have now a severely pock-marked surface that is quite irreparable.

But perhaps the most serious general defect in the buildings is to be found in insufficient sound insulation between some rooms. This has been caused by the use of dry partitioning in order to obtain maximum flexibility in room and space layout, and has been further aggravated by the arrangement of opening windows to adjacent rooms. At present, modifications to the partitioning are being planned to try to reduce this problem. It is to be hoped that these will prove successful, for in a building where quiet and noisy activities are sometimes required to take place in rooms close to each other, or separated only by a store or lavatory, this difficulty is indeed a crucial one.

Part of the problem has resulted from the adoption in this first 2ft 8in project of a partition design used throughout areas where flexibility was required. In subsequent projects fixed and heavier partitions are being used round such permanent and noisy areas as wcs and stairs, and this has been in itself a major step towards a satisfactory solution.

Another general defect, and one which can hardly be blamed on the architects, lies in the apparently largely inadequate storage space provided. Equipment and furniture are stacked in piles of variable tidiness, under stairs, in corridors and hallways and in many places obviously not expressly designed for the purposes of storage. As some of this furniture is old and shabby one suspects it may well have been salvaged from the original college premises, the two Victorian houses that formerly occupied the site. If so, it is probably surplus to requirement anyway and could well be carted away—but if it is all really needed then there ought to be store rooms in which it could be concealed.

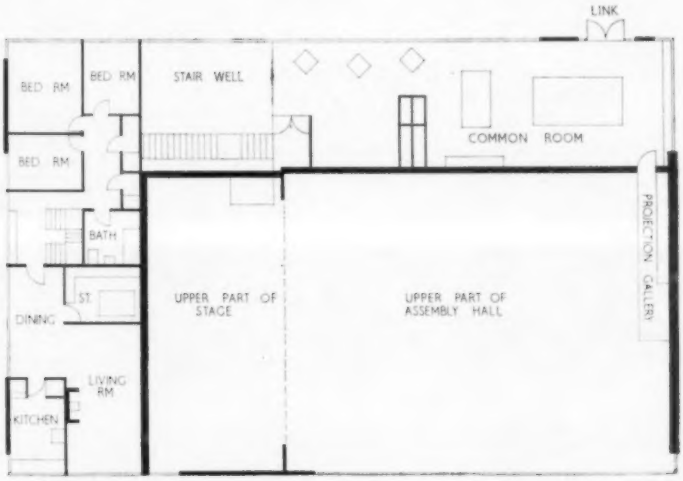
Other points for comment are concerned mainly with the individual blocks or specialist rooms. The administration and library block is neat and well planned although the arrangement of notice boards in the main entrance hall could have been improved. The library is one of the most satisfying rooms in the whole campus but is disturbed periodically by noise from the boys' changing room in the virtually adjacent gymnasium block. The administrative offices, which serve both the colleges, appear to be working well, although it seems a pity, for reasons other than architectural ones, that the staff of the College of Building now want their own separate staff room rather than use the one designed to accommodate teachers from all departments in both colleges.

The block containing the assembly hall, although prominently sited and designed to play an important part in the cultural life both of the colleges and of the city of St Albans, is disappointing compared with the rest of the buildings. The hall itself, which has a magnificent stage and a quite charmingly detailed projection box gallery at the back, is perhaps a little too dull and austere. However, the use of the foyer as an exhibition space has proved a success. Above the foyer is the students' common room, somewhat small and drably decorated (the colour scheme elsewhere, incidentally, is generally quite delightful)—a room that seems not to be treated as kindly by its occupants as other rooms in the college—which perhaps is a pity, if understandable. Tremendously noisy when in use and suffering from the all too

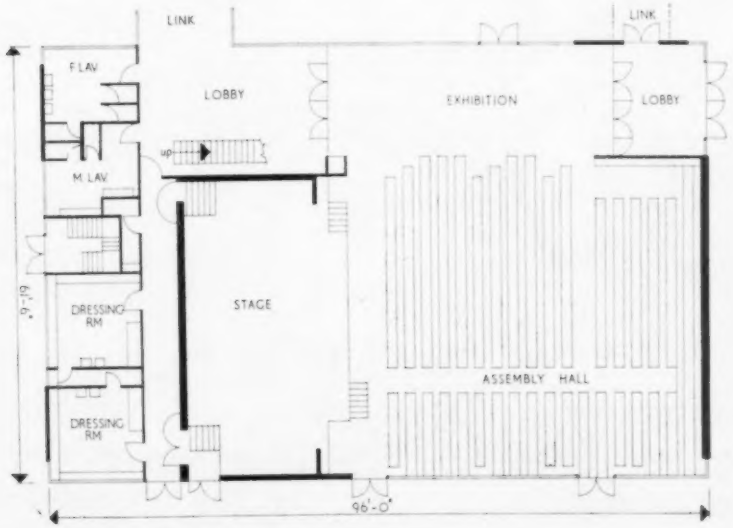
Site plan [Scale: $\frac{1}{480}$" = 1' 0"]

The various blocks are referred to in the text by the following letters:

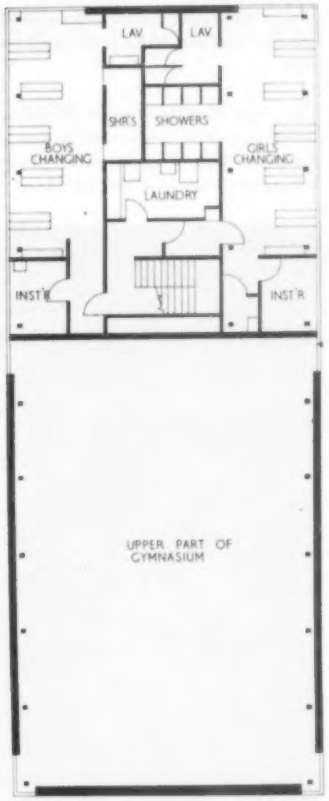
Craft	A	Motor engineering	G
Teaching	B	Machine shop	H
Dining	C	Building workshop	J
Assembly	D	Building science	K
Administration	E	Gymnasium	L
Engineering science	F		



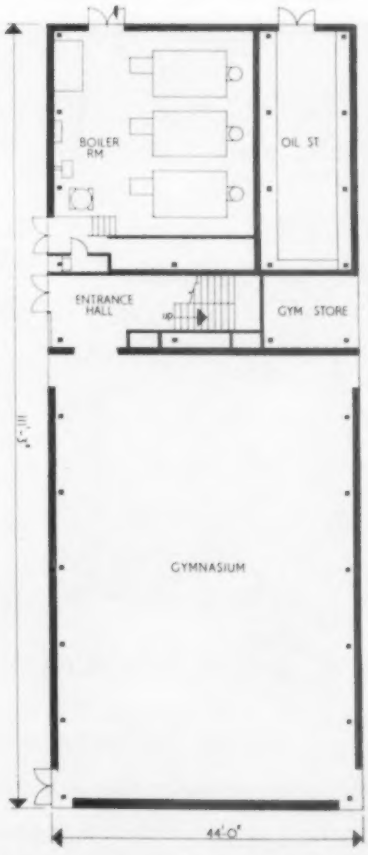
First floor, assembly hall with caretaker's flat



Ground floor, assembly hall [Scale: $\frac{1}{16}$" = 1' 0"]



First floor, gymnasium and boiler house



Ground floor, gymnasium and boiler house

One of the grassed courts. The administration block is at left, the general classroom block centre, and the engineering science block right

The main entrance at night. It has to be remembered that a building such as this is used as much during the evening as it is during the day. For many students will know the college only during the hours of winter darkness

Mature trees provide pleasing foils to the mechanical rectangularity of the buildings

The elevated corridor linking three of the blocks has been carefully detailed

The craft and commerce block seen from the corner of the refectory

common complaint of kitchen smell—intensified by inadequate or ill-used ventilation in the kitchen—the architectural effect of the main dining hall is marred by a formidable range of unsightly, hideously designed and tremendously popular vending machines which dispense an alluring range of confections and beverages. Fortunately, the smells referred to do not percolate to other parts of the college thanks to the refectory's relative isolation. In the craft and commerce block however the culinary activities of those engaged in domestic science exercises are frequently detected by the other occupants of the building—and again the cause is probably insufficient forced ventilation.

The general subjects classroom block would be completely successful were it not for the noise transmission problem mentioned earlier. Certainly the planning and layout here seem excellent and the treatment of the glazed corridors linking this block with those of the library and hall is particularly fine.

The workshops generally are also very well designed although in some instances, the brickwork room for example, it is considered that the artificial lighting would have been improved had the fittings been suspended. Otherwise space seems adequate, apart from that for storage, and the general high standard of detailing has been rigorously maintained.

In the gymnasium block, however, although the same care has been given to the detailing, certain criticisms must be made. Thus the columns projecting into the gymnasium form an unnecessary and dangerous hazard when ball games are being played, a hazard that could have been avoided. The flank walls in sandlime bricks, lacking expansion joints, have cracked as they almost invariably do. And the siting of the changing rooms at first floor level is not very sound; and the facilities in these rooms are not really adequate. Storage for games equipment is also quite insufficient. Yet apart from these criticisms the overall appearance and quality of this block are most pleasing.

Indeed the general effect of the whole layout is one that is immediately impressive. Only on closer inspection do these relatively few and often minor criticisms become apparent. Certainly the Hertfordshire county architect's department has here produced a basically fine and noble group of buildings—for which the recent award of the RIBA Bronze Medal is indeed thoroughly well merited.

SITE

The site comprises 3½ acres fronting on to the main St. Albans-Hatfield road surrounded on three sides by residential property. It included two large Victorian houses, which were occupied by the college, and mature gardens containing many fine specimens of forest trees. The site has a crossfall of 20ft 0in towards the Hatfield Road boundary. A right-of-way on the north boundary provides access for deliveries to the kitchen and workshops and to the main car park.

The nature of the site, together with the specialised functions of the departments and the requirements to provide for future extensions within the site, led to the decision to develop the plan as a group of pavilions in an informal campus arrangement.

PLANNING AIMS

This project is the first of a programme of four large colleges which have been designed on a 2ft 8in modular planning grid. The structural techniques involved are a direct development of earlier forms of structure developed in the Herts architect's department and based on dimensionally related components with a high degree of prefabrication and dry construction technique. The particular method of design and construction employed has been under development since 1957 and has also been used for several primary and secondary schools.

The requirements of flexibility and provision for future extension influenced the choice of planning grid dimensions and the decision to adopt an " off-grid " frame structure facilitating the use of a demountable partition system. The subsequent educational developments have already led to the need for certain internal rearrangements, and extensions and plans for major extensions are already in hand.

STRUCTURAL SYSTEM

The structural frame comprises dimensionally co-ordinated component light steel frame developed by the manufacturers in collaboration with the architects. The stanchions are fabricated from angles and ring battens and the beams are of light welded lattice construction. Spans of floor and roof beams are in multiples of 2ft 8in up to 26ft 8in and 32ft respectively at a constant depth of 1ft 6in with an overall finished floor to finished ceiling depth of 2ft. Vertical dimensions are related to a 4in base module giving a general ceiling height of 8ft 8in, but allowing co-ordinated arrangements of varying height structures with changes of level in multiples of 2ft. The maximum line spacing of stanchions is 10ft 8in.

The floor construction is of precast reinforced concrete planks spanning 5ft 4in between secondary beams; they come on site holed for services in standard positions where required. The roof construction is of troughed asbestos units spanning 10ft 8in maximum, laid flat and surfaced with asphalt on an insulating felt underlay.

Ceilings are generally suspended from the floor and roof beams on timber framing at 2ft 8in centres which provides head fixing for the prefabricated partitions.

The external cladding is in aluminium curtain walling with suitable opening lights; mullions are spaced at 2ft 8in or 5ft 4in centres. Infill panels are plastic-faced and self-coloured.

Untreated cedar ship-lap boarding is used in large areas where windows are not required and facing brickwork is used in workshops and other suitable areas.

The internal partitioning generally is constructed of 2¼in hardboard faced flaxboard panels in 1ft 4in, 2ft 8in and 4ft widths by ceiling height. Storey door frames complete with vertical service panels occupy a modular space of 4ft. Panels are fixed at head and sill and have screwed lapped joints, vertically. They are designed to provide 30db minimum sound reduction and to be easily demountable.

In workshops where strength and a higher degree of sound insulation are required fairfaced brick partitions are used.

The open lattice work of the floor and ceiling construction provides the flexible duct for all horizontal service runs within buildings.

CLIENT'S REQUIREMENTS

The buildings required were to house the first of a number of colleges of further education established as part of the county scheme for further education, with a county college of building under a separate governing body but housed on the same site and sharing certain communal and administrative facilities. The educational requirements for the college of further education were to provide facilities for:

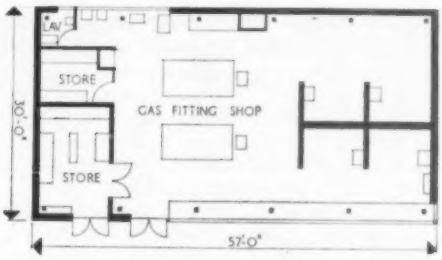
(*a*) General and vocational education for school leavers between the ages of 15 and 18 years, either by full-time or part-time courses, up to the standard of GCE A level and Ordinary National Certificate.

(*b*) Leisure time, recreational or cultural activities for young people or adults, generally in the form of regular evening courses or special courses.

(*c*) Vocational education for adults and young people in evening courses as required.

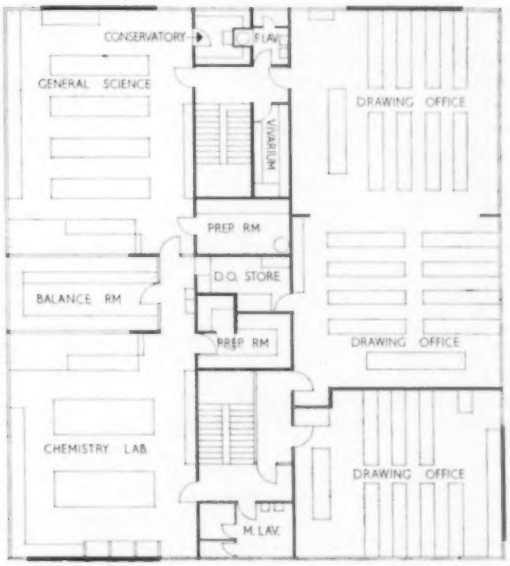
The existing building courses run previously at two centres in the county were to be centralised in the new college of building which was to offer professional and technical courses to National Certificate standards and craft courses to City and Guilds standards. There would be a small nucleus of full-time students but the majority would be on day release and evening courses. Many students would go to technical colleges after completing their course and in this sense the colleges are therefore feeder

First floor, administration and library



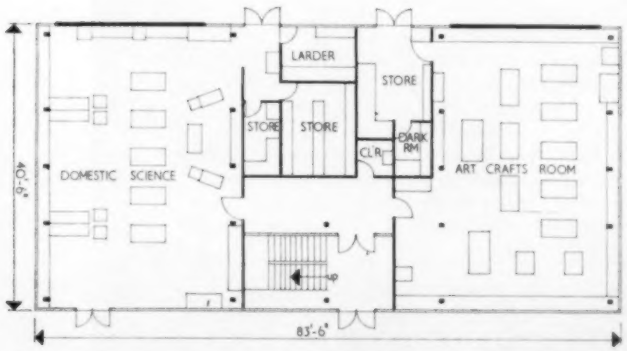
Gas fitting shop

Ground floor, administration and library [Scale: $\frac{1}{64}$" = 1' 0"]

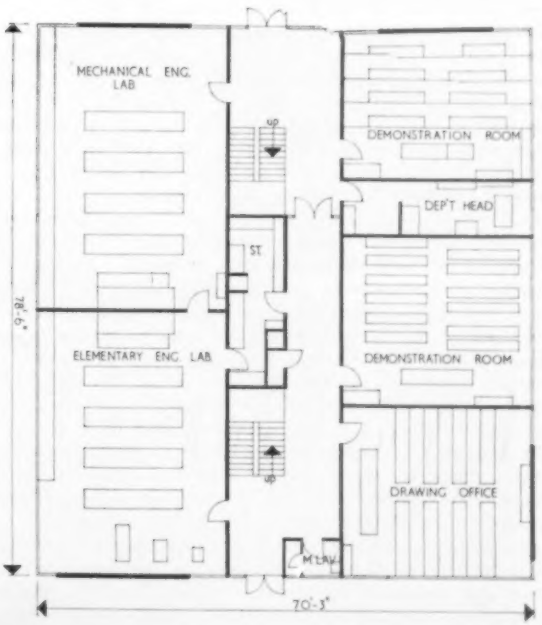


First floor, engineering

First floor, craft and commerce



Ground floor, craft and commerce



Ground floor, engineering

or branch colleges but they have an important role in their own right by making it possible for many school leavers to continue in full-time education and by providing an environment where the social needs of young people can be satisfied, at least to some extent, at a vitally important stage of their development. The colleges of further education are therefore very much concerned with the social education of the students as well as with their general or vocational education.

It is the Education Committee's policy that the colleges should serve the local community as centres for music and drama and similar cultural activities.

An important part of the client brief was the emphasis on provision for future growth and flexibility. Further education provision must essentially allow for growth and change; the growth will be limited solely by the availability of site and the manageable size of a college, as at some point it will prove to be more suitable to found a second college.

Movement or change of population and development in industry and commerce would affect the type and development of courses to be provided. It was therefore stressed that to some extent the schedule of accommodation provided might prove to be tentative and need revision even before the buildings were completed. (NB—This fact proved to be the case.)

The theoretical maximum student capacity was to be 1,030, this being based on the maximum seating capacity of each teaching room. The accommodation was to be grouped and provided under four main departments:

(a) Commerce.
(b) Engineering.
(c) Crafts and women's subjects.
(d) Specialist accommodation for the college of building.

The accommodation for these departments included 11 specialist teaching spaces, six drawing offices, six laboratories and eight specialised workshops.

The following accommodation would serve all departments as required:

Assembly hall (seating 450) with stage and ancillary rooms.
Refectory (seating 200) with kitchens.
Library.
Common rooms for staff and students.
Gymnasium and changing rooms.
14 general purpose teaching classrooms of various sizes.
Central administration.

It was stressed that the communal centre comprising assembly hall, refectory, library and common rooms should be grouped and linked to form the focal centre of the corporate life of the college and that the hall should be designed to facilitate outside lettings. The administrative offices should be grouped in a central position, with the exception of the rooms for departmental heads whose offices should be directly related to their respective departments. The library would be in a central position easily accessible from the students' common rooms and the staff rooms. Living accommodation was to be provided for a resident engineer. Parking space was required for approximately 200 cars, 80 motorcycles and 150 bicycles, preferably with room for growth.

The first stage of the college was to be built in two instalments but included in one main contract with provision for phased occupation. The two large Victorian houses on the site, in which was housed the nucleus of the existing college, were to be retained in use for classes until the first instalment was completed and occupied, upon which they would be demolished in order to make room for the second instalment. The client department was unable to forecast the detailed likely growth beyond the first two instalments which would depend upon availability of additional site area. It was however stressed that provision should be made for local expansion in each departmental group.

Information on detailed requirements was submitted by the existing staff and the client department during the detail planning stage and was clarified by discussion over draft layouts.

At the time of this contract the appropriate Ministry of Education limits were 65s per sq ft for workshop type of accommodation and 85s per sq ft for other accommodation in the first instalment; the figure of 79s per sq ft was allowed for other accommodation in the second instalment. In accordance with the usual Ministry of Education cost limits formula, site works were not normally to exceed 10 per cent of the maximum net cost as derived from the above figures.

SUMMARY

Ground floor area: 49,313 sq ft.
Total floor area: 77,987 sq ft.
Type of contract: RIBA.
Tender date: March 1958.
Work began: April 1958.
Buildings occupied:
1st instalment September 1959.
2nd instalment September 1960.
Tender price of foundation, superstructure, installation and finishes including drainage to collecting manhole: £315,354 18s 3d.
Tender price of external works and ancillary buildings including drainage beyond collecting manhole:
£32,175 18s 11d.
Total: £347,530 17s 2d.

COST ANALYSIS

Based on tender. (AJ revised elemental breakdown, in use from November 10 1960.) Following normal Herts practice, however, unit rates where quoted include decoration and ironmongery where appropriate.

Cost per sq ft
s d

Preliminaries and insurances 1 8½
2·1 per cent of remainder of contract.

Contingencies 2 5½

Work below lowest floor finish 3 6½
5in reinforced concrete site slab on made-up ground and 7ft perimeter strip.
Short bore piles and reinforced concrete edge beam.
Brick retaining walls with asphalt tanking to understage store and boiler room; 5,479 sq yd, 50s 5d per sq yd.

STRUCTURAL ELEMENTS

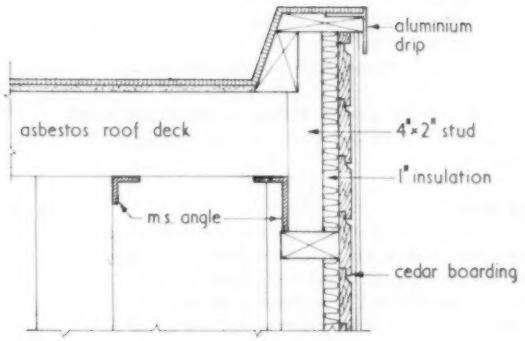
Frame 10 2¾
Prefabricated galvanised steel components, single-storey stanchions 5½in square, base plate 4in below finished floor level, multi-storey stanchions 5½in × 8in, base plate 8in below finished floor level.
Maximum bay dimensions 10ft 8in × 32ft 0in for single-storey, 10ft 8in. × 26ft 8in for multi-storey construction with 1ft 6in standard depth beams. 42ft 8in span beams, 2ft 0in depth used in assembly hall, gymnasium and machine shop.
Single-storey stanchion casings, softwood on pressed metal cover strips.
Multi-storey stanchion casings, softwood on asbestos giving ½h fire resistance.

Upper floors 1 2½
Precast concrete planks on 4in × ¾in cork bed laid on top of steel beams, holes for services where required; 2,871 sq yd, 33s 0d per sq yd.

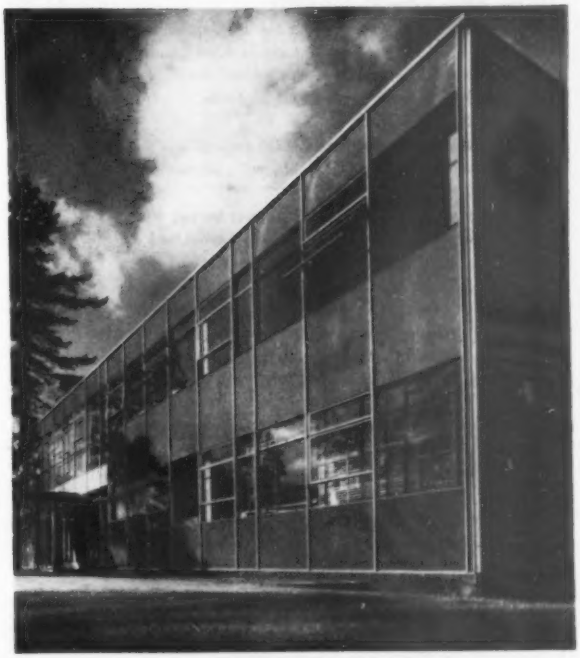
Roof 4 4½
Troughed asbestos units provided with 2in × 1in timber battens at 8in centres on underside where required for " fixed up " ceilings, ie workshops and gymnasium. Rainwater outlets preformed. 2-coat asphalt covering laid flat on bituminised hair felt underlay.
3in aluminium downpipes, three tank houses constructed of softwood framing sheathed in corrugated aluminium, 11 roof access hatches 2ft 8in square.
5,068 sq yd, 68s 9d per sq yd.

Rooflights 1 6½
Size 2ft 8in widths by any modular dimension in increments of 2ft 8in. Framed in western red cedar on impregnated softwood trimmers. Single pitched lights fixed or hinged in aluminium frames; 411 sq yd, 288s 0d sq yd.

The staircases were designed and developed in conjunction with the steel frame manufacturers



Standard eaves detail [Scale: 1" = 1' 0"]



A detail of the principal facade to the administration and library block

The elegant extended entrance canopy to the administration and library block

Staircases s d 11½

Prefabricated by steel frame manufacturer; flat steel strings, baluster rods and 4in × 4in box section stub columns supporting half landings.
Treads of 2in prestressed concrete with terrazzo finish, non-slip inserts and 2in teak with aluminium nosings, width 3ft 7in.
Handrails 4in × 1½in ash on steel core rail.
Floor to floor height 10ft 8in.

Location	*No*	*Total rise*	*Type*	*Treads*
Block A	1	10ft 8in	dog-leg	terrazzo
B	2	32ft 0in	dog-leg	terrazzo
D	1	10ft 8in	straight flight	teak
E	1	10ft 8in	straight flight	teak
F	2	10ft 8in	dog-leg	terrazzo
K	1	10ft 8in	dog-leg	terrazzo
L	1	10ft 8in	dog-leg	terrazzo

External walls, windows and doors 14 10½

Aluminium curtain walling with mullion spacing at 2ft 8in and 5ft 4in centres. Glazing in 32oz generally with ¼in polished Georgian wired at low level.
Opening lights factory glazed and includes top-hung and projected top-hung ventilators.
High level ventilators 5ft 4in × 1ft 4in.
Main ventilators 5ft 4in × 2ft 8in with satin chromed furniture.
Infill panels, integrally coloured plastic facing with asbestos wall board lining internally. Mastic bed and pointing. Aluminium snap-on beads; 4,284 sq yd, 210s 0d per sq yd.
Ship-lap boarding in 1in western red cedar left untreated on impregnated softwood studding with glass wool insulation and Gaboon-faced plywood lining; 999 sq yd, 78s 9d per sq yd.
11in cavity brickwork, white gault facings with coloured cement pointing. Fairfaced sandlime brickwork internally; 971 sq yd, 82s 6d per sq yd.
13½in brickwork—facing bricks fairfaced both sides in gym.
Assembly hall, facing bricks externally, ½in Parana pine boards internally with open joints on insulation board backing fixed to softwood battens; 103 sq yd, 92s 3d per sq yd.
28 double doors fully glazed with ¼-in armour plate.
Four double doors filled with hardwood louvres.
13 double doors filled with hardwood boards.
Size 6ft 6in × 5ft 0in; 2,925 sq ft, 30s. 0d per sq ft.

Partitions and internal doors 4 1½

2¼in hardboard faced flaxboard in panels 8ft 4½in × 1ft 4in, 2ft 8in and 4ft 0in with pressed metal channel head fixing and wedges at foot; 2,998 sq yd, 63s 0d per sq yd.
4½in sandlime brick usually fairfaced, lintels reinforced brickwork. 4½in brick with plaster finish and small areas of white glazed tiles; 928 sq yd, 47s 3d per sq yd.
3in lightweight concrete blocks, plastered; 335 sq yd, 45s 0d per sq yd.
Internal screens framed in Utile, glazed generally with ¼in Georgian wired. Solid panels in Gaboon-faced plywood; 335 sq yd, 198s 0d per sq yd.
Metal faced plywood wc partitions and doors, £20 per cubicle.
Flush doors skeleton core, mahogany veneered
No of single: 154.
No of double: 11.
Fully glazed doors in Utile
No of single: 3.
No of double: 17.
Internal doors; 31,460 sq ft, 22s 6d per sq ft.
Sliding folding screen in nine flush panels lined with Gaboon-faced plywood. Posts and sliding mullions in softwood; 23s 0d per sq ft.

Ironmongery s d 6½

Nickel plated lever handles, anodised aluminium kicking plates.

Total of structural elements: 37s 9d

FINISHES AND FITTINGS

Floor finishes 3 8½

$\frac{5}{16}$in heavy density cork tiles finished with three coats polish; 2,688 sq yd, 34s 0d per sq yd.
1in wood block finished with two coats polish; 352 sq yd, 37s 0d per sq yd.
1in wood strip finished with two coats non-slip oil; 105 sq yd, 40s 0d per sq yd.
⅝in heather brown and blue quarry tiles; 703 sq yd, 33s 0d per sq yd.
1½in granolithic; 1,635 sq yd, 12s 0d per sq yd.
⅛in thermoplastic tiles finished with two coats polish; 1,554 sq yd, 20s. 0d per sq yd.
¼in non-magnesite composition blocks; 958 sq yd, 28s 0d. per sq yd.
2in precast concrete paving; 212 sq yd, 19s 0d per sq yd.
Skirtings, 4in × ¾in Utile, 4in × ¾in blue-black asbestos cement.

Ceiling finishes 3 1

1in nominal fibrous plaster in 2ft 8in sq panels plain and pegholed with sound-absorbent backing, screwed to softwood bearers at 2ft 8in centres; 3,567 sq yd, 50s 0d per sq yd including suspension system.
½in insulation board nailed to softwood bearers at 1ft 4in centres; 2,343 sq yd, 21s 0d per sq yd including suspension system.
12mm flaxboard pinned to softwood bearers at 1ft 4in centres; 285 sq yd, 30s 0d per sq yd including suspension system.
1in woodwool screwed to underside of asbestos decking; 1,930 sq yd, 16s 0d per sq yd.

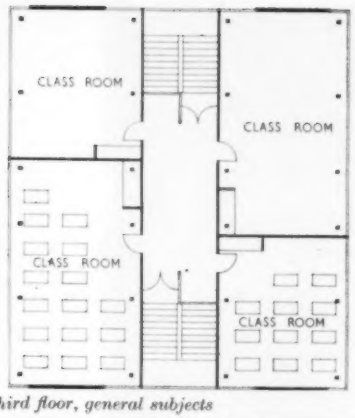
Decorations 1 2½

Emulsion paint on internal partitions, distemper on fibrous plaster ceilings, oil paint on insulation board ceilings, chlorinated rubber paint on inner face of panels under curtain walling, sealed on internal and external hardwood.

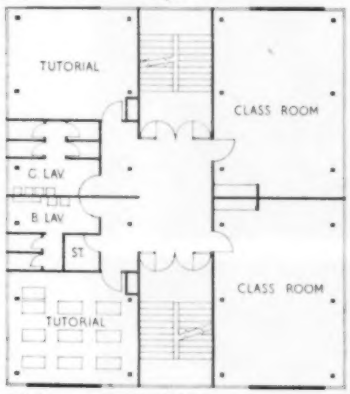
Fittings 8 6

Wall benching with hardwood tops and drainers and cupboards under.
Kitchen servery counter and roller shutter.
Projection gallery.
Electricians' gallery.
Venetian blinds—505 ft run × 5ft 4in drop.
Blackout blinds—351 ft run × 5ft 4in drop.
Electrically operated service hoist.
Stage construction, hardwood strip on timber joists.
Pin-up boards, 3,962 sq ft.
Tiered softwood flooring to demonstration classrooms, 780 sq ft.
13 dais.
Steel framed welding and leadwork benches.
Gymnasium equipment, £1,025.
Internal telephone system, 25 line capacity.
21 hose reels.
Welding installation, 19 outlets.
Includes builder's work.

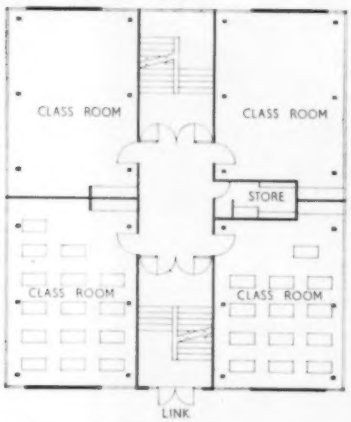
Total of finishes and fittings: 16s 5½d



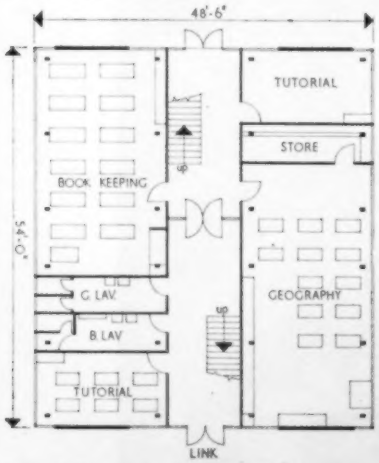
Third floor, general subjects



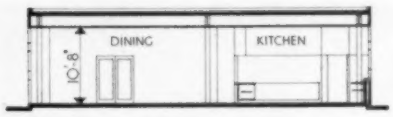
Second floor, general subjects



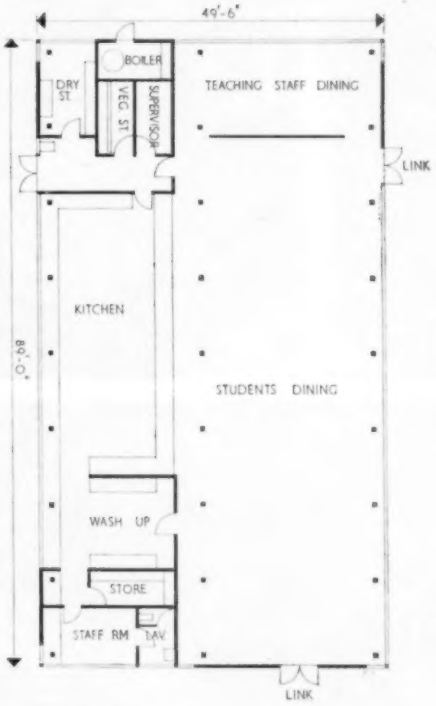
First floor, general subjects



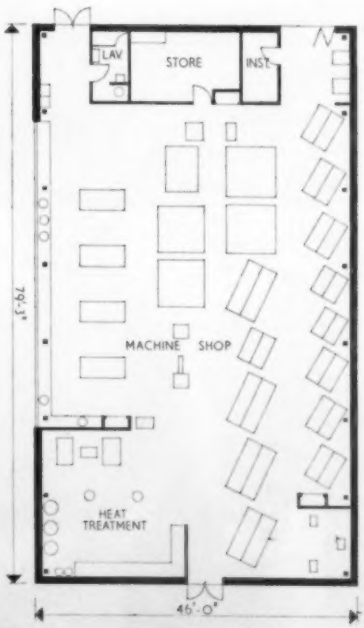
Ground floor, general subjects



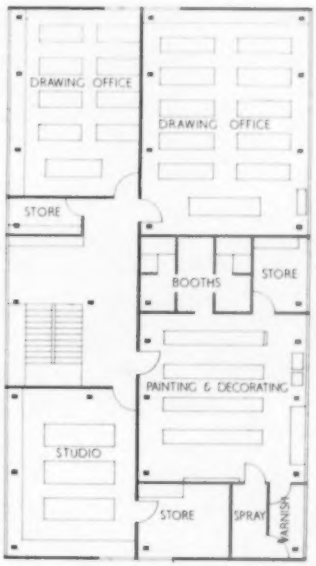
Section through dining and kitchen



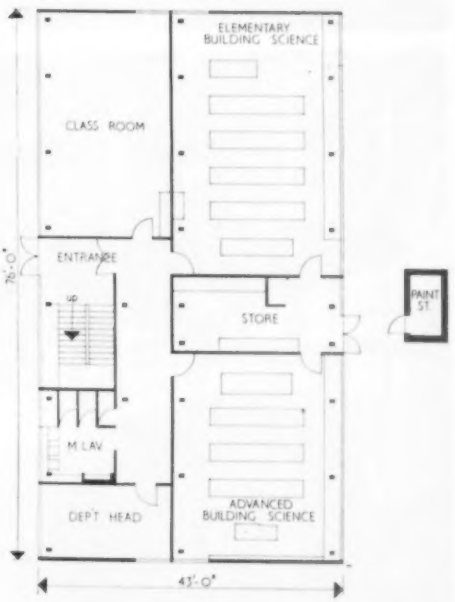
Dining and kitchen



Machine shop



First floor, building science

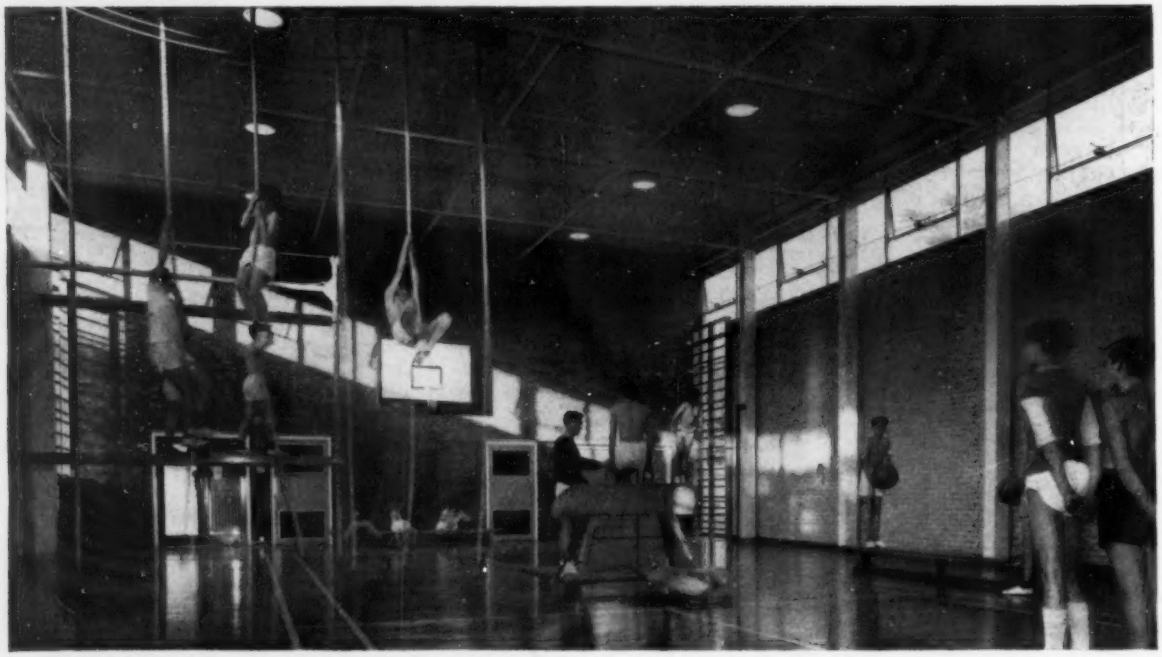


Ground floor, building science [Scale: $\frac{1}{16}$" = 1' 0"]

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

Stiletto heels have seriously pitted the quarry tile flooring in the domestic science room

One of the teaching laboratories



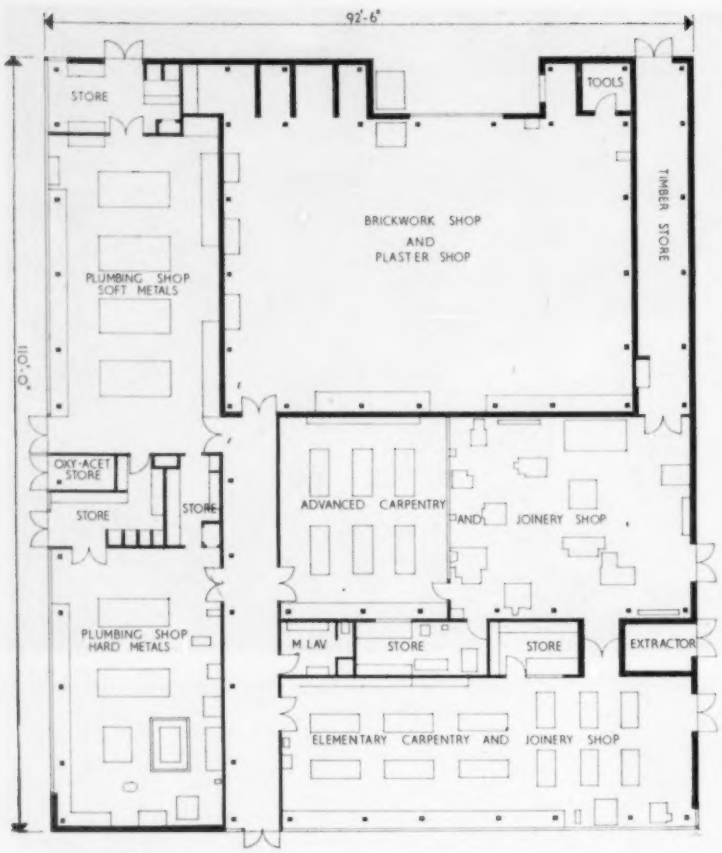
Gymnasium

The demonstration lecture classrooms have stepped seating

The refectory. Out of the picture at right is an unsightly group of hideous but tremendously popular vending machines not, unfortunately, mentioned in the brief to the architects

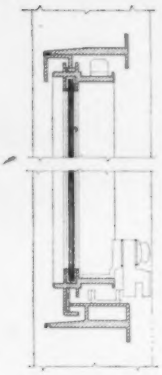
The assembly hall, although it boasts a fine stage, is somewhat dull and austere. Used by outside groups as well as by the college, the hall plays an important part in the cultural life of St Albans. The foyer at right serves as a useful exhibition space. This is apparently a temporary situation in view of the town's current project for a new town hall where such facilities will be made available

The library

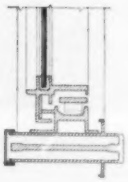


Building workshop

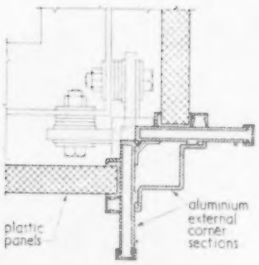
Details of external cladding



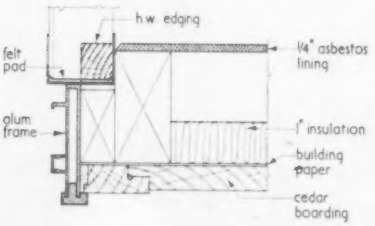
Section through aluminium opening light
[Scale: 2" = 1' 0"]



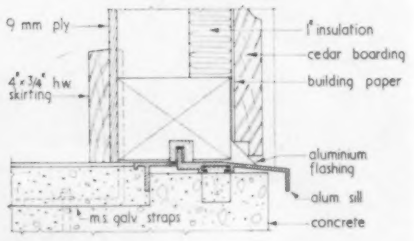
Plan at junction of cedar boarding and windows



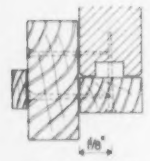
Typical external corner

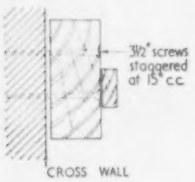


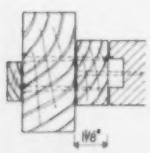
Plan of jamb of aluminium opening lights

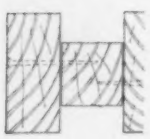


Sill at ground level

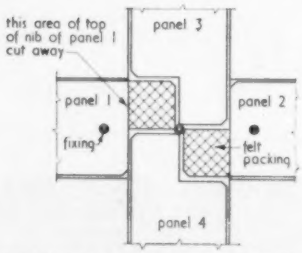




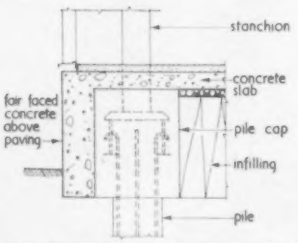




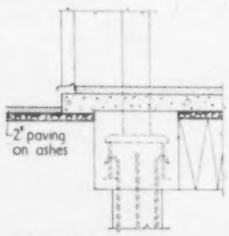
Typical door frame conditions
[Scale: 2" = 1' 0"]



Junction of four internal partitions



Foundations to perimeter stanchions **[Scale: ½" = 1' 0"]**



Foundations to perimeter stanchions on fill

SERVICES

Sanitary fittings, waste, soil and overflow pipes, cold water — 1 9½

White glazed fireclay fittings

Type	*No of each type*
Lavatory basins	58
Sinks	79
Wcs	45
Slab urinals	52ft total run
Bath	1
Stainless steel sink with combined drainer	2
Stainless steel drinking fountains	2

Copper wastes and vent pipes.
Cold water services in galvanised mild steel and light gauge copper tubing.
Cold water storage in galvanised mild steel tanks.
Total capacity 1,530 gal.
Includes builder's work.

Hot water, heating and ventilation — 9 1¾

Two gas boilers rating 142,000 Btus per h each and indirect cylinders for summer supply of hot water to kitchen, Block A and changing rooms.
Three oil-fired boilers rating 3,048,000 Btus per h each supplying heater cabinets, radiators and calorifiers.
88 heater cabinets and associated cupboards.
60 radiators, surface area 2,197 sq ft. 10,000-gal fuel oil storage tank. 4ft 0in id × 50ft reinforced concrete free standing flue. Mechanical ventilation, 12 roof mounted extractor fans. 10 wall mounted extractor fans. Fume exhaust system from four welding benches, eight soldering pots and two forges.
Wood refuse removal plant from nine woodworking machines and two floor sweep-ups, including all ducting and centrifugal dust settler.
Includes builder's work.

Gas services — 8¾

In the gas fitting shop (Block G) various gas appliances were installed (free of charge) on loan from the Eastern Gas Board. These are changed from time to time as new appliances appear on the market.
No of outlets: 212.
Includes builder's work.

Electrical services — 5 8¾

Lighting installation.
No of outlets: 1,203.
Fluorescent fittings: 271 (remainder tungsten).
Clock points: 58.
Fire alarm system comprising 30 bells, 37 pushes.
Stage lighting equipment, £350.
Includes builder's work.

Drainage — 1 7

Separate system.
Salt glazed ware encased in concrete under buildings.
68 brick manholes.

Total of services: 18s 11¼d

External works — 7 10

Brick retaining walls; steps; softwood guard rails on metal supports; 735ft run; pool; concrete bollards; 12 litter bins; 20 hardwood seats on concrete supports; notice boards; oil-resistant tarmacadam to roads and car park; in-situ concrete paving, 1,864 sq yd; 2-in precast concrete paving slabs, 1,818 sq yd; 4 pairs and two single tubular steel gates; external ducts; service connections; cycle and motor cycle shed, sub-station, gas meter room and gardeners' store, corrugated asbestos cement roofing on steel supports, cedar ship-lap boarding cladding on softwood framing; entrance canopy, softwood joists on steel tubular supports.

Summarised cost analysis of each block

BLOCK	Craft A	Teaching B	Dining C	Assembly D	Admin. E	Eng science F	Gas fitting G	Machine shop H	Building workshop J	Building science K	Gym L
Number of storeys	2	4	1	1 and 2	2	2	1	1	1	2	1 and 2
Ground floor area	3,389	2,628	4,315	5,725	4,324	5,460	1,700	3,588	10,047	3,380	4,757
Total floor area	6,778	10,512	4,315	8,018	8,648	10,920	1,700	3,588	10,047	6,760	6,701
ELEMENT	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d
Preliminaries and insurances	1 8½	1 8½	1 8½	1 8½	1 8½	1 8½	1 8½	1 8½	1 8½	1 8½	1 8½
Contingencies	2 5½	2 5½	2 5½	2 5½	2 5½	2 5½	2 5½	2 5½	2 5½	2 5½	2 5½
Work below lowest floor finish	2 11½	1 9½	4 6½	4 10	2 9½	2 4½	5 8½	4 5½	4 6½	2 5½	6 1½
Frame	10 10½	12 3	8 5½	11 6½	9 9	10 0	7 3	8 4½	7 10½	10 3½	12 2½
Upper floors	1 8½	2 4½	—	11½	1 8½	1 8	—	—	—	1 8	11½
Roof and rooflights	4 5½	1 11	9 6	5 6½	4 5½	4 10½	10 4½	10 3½	10 1	4 3½	7 0
Stairs	9	3 1½	—	1 0½	7	11½	—	—	—	9½	10½
External walls, windows and doors	17 6½	17 2½	15 8½	15 5½	14 4½	12 5½	19 0½	13 8	10 3	16 1½	16 11
Internal partitions and doors	3 6	4 8½	3 1½	5 5½	4 11½	4 10½	2 1½	1 6	3 4	3 7½	3 6½
Ironmongery	4½	11	8½	1 1½	6½	3½	3	3	5	4	4½
TOTAL OF STRUCTURAL ELEMENTS	39 2½	42 5½	37 6	41 0½	36 4½	35 2	39 0½	34 1½	31 11½	37 1½	41 10
Floor finishes	4 2½	4 3½	3 7½	4 8½	4 3	3 9½	1 1½	1 2½	2 0	3 6	4 10½
Ceiling finishes	3 6	4 1½	3 1½	3 7½	3 6½	3 11½	1 3½	1 4	1 3	3 9½	1 11
Decorations	1 4½	1 4½	1 6½	1 8½	1 4½	1 3½	1 1½	10½	11½	1 1	1 1½
Fittings	9 8½	4 2½	6 10½	5 0	11 5½	12 1½	4 10½	4 2½	12 7½	9 3½	4 11½
TOTAL FINISHES AND FITTINGS	18 9	13 11½	15 2	15 1	20 7½	21 1½	8 5½	7 8	16 9½	17 7½	12 11
Sanitary fittings, waste, soil, overflow pipes, cold water	2 6½	1 6	2 8½	1 7	1 5½	2 3½	7½	10½	11½	1 6½	3 1½
Heating, hot water and ventilation	8 1½	9 3½	14 5½	7 7½	7 8½	8 4½	12 0½	8 9	13 7½	7 11½	5 6½
Gas	9	—	1 5½	0½	—	5½	8 1½	1 6½	10½	11	9½
Electricity	4 10½	4 3½	3 4	7 5	3 7½	6 1½	8 10½	11 2½	7 9½	5 4½	3 5½
Drainage	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7	1 7
TOTAL OF SERVICES	17 10½	16 8	23 6	18 3½	14 4½	18 10½	31 3½	23 11½	24 9½	17 4½	14 6
TOTAL NET COST PER SQUARE FOOT	82 11¼	76 1	84 9½	83 5	78 3½	81 8½	88 7½	74 4½	82 3½	78 9½	79 6½

Traditional brick craft exercises, ornamental chimneys, fireplaces and so on, look rather out of place in this neat workshop Artificial lighting here might have been improved had the fittings been suspended

The wood workshop is somewhat small, but is well lit and ventilated

The heavy engineering workshop, well laid out and excellently lit

The two major workshop blocks seen from the entrance to the college of building, right

Total cost per sq ft of floor area:

£315,354 (net cost, excluding external works) / 77,987 sq ft (measured inside external walls) = **80 10½**

COST COMMENT

There are two main interests in this analysis. First, how the Hertfordshire 2ft 8in system compares with others that have been produced in recent years. Second, thanks to the table giving the separate costs for each block, how these vary in comparison with the variations of costs allowed by the MOE for different types of accommodation in technical colleges.

The overall analysis of the structural element in this analysis can be compared with those of CLASP (AJ 30.4.59) and Laingspan (SfB (97) : UDC 727 : 2 AJ 17.12.59). Some adjustments are required to the St Albans analysis in order to bring it into line with the other two, by distributing decorations and ironmongery into the various structural elements. In the table below, not only the costs per square foot of floor are given, but where appropriate the average unit cost per square yard of the structural component, so that direct comparisons can be made for the particular element.

All three systems are, of course, very similar in their basic characteristics, with the important exception of the relationship between cladding and stanchions. In CLASP the columns are on the planning grid, with external cladding outside, whilst in Laingspan, columns and external cladding are on-grid, in comparison with the off-grid arrangement of columns in the Herts system.

In foundations, CLASP achieves economies, thanks to a combination of lightness of the structure as a whole, and to the sheer simplicity of a five inch slab on a bed of sand or shale. Laingspan is shown to be the most expensive, but allowance here must be made for the fact that the Arnold project was on a steeply sloping site. The cost of frame is highest in the Herts 2ft 8in (whereas the other two are virtually identical); this may well be due to the higher proportion of columns resulting from pavilion planning.

But the biggest and most important difference shown by this comparison is that the cost of the external walling at St Albans is considerably higher than for the other two systems. This, of course, should not be regarded as a mere whimsy since, for the extra money, Herts have been able to use aluminium, and therefore achieve an exterior which is virtually maintenance free. CLASP shows up badly on internal partitions in this analysis, but these have since been revised, as has the whole range of external windows, the eaves (which are now prefabricated and which have thus achieved an important saving on roofs) and certain other items. There still would seem to be a case in CLASP for revising the staircase design to lower costs, although the need for flexibility in the strings for mining subsidence may well be at the root of the higher figure. It must also be remembered that the Laingspan costs are only for the MOE development project, since users of the system are only obliged to adopt the structural frame.

The other interest of the analysis is the comparison between the various blocks. At the time of building 65s per square foot was allowed for the workshop type of accommodation by the MOE and 85s for the rest, reduced to 79s for the second stage. (This compares with current figures of 75s for workshops and 95s for other accommodation.) These permitted figures are lumped together, of course, to give the total permitted net cost of the building. One strongly suspects that this is no unique example of where the overall figure has been held, but more than the allowed figure has been spent on some workshops, largely for services.

This comparison also shows a very interesting variation that can occur in the use of a standard set of components for different block shapes and in meeting a wide variation of functional requirements.

One final point should be noted, in comparing these three systems, that at St Albans the general contractor was faced with the problem of an extended contract period because of the need to start building round the existing Victorian houses while they were still occupied, and carry a second phase with the new college partially in use. This has doubtless resulted in a slight rise to the net cost.

CONTRACTORS

General, cycle sheds, fencing, non-magnesite composite block flooring, glazing and putties, tiles and wet plaster: William Sindall Ltd. *Subcontractors and suppliers: Balustrades, gates, staircase structure and structural frame:* Hills (West Bromwich) Ltd. *Blinds:* Tidmarsh & Sons. *Book lockers and built-in furniture:* E. C. Hodge. *Bricks:* E. H. Smith (London) Ltd. *Curtains:* Super Theatre Furnishings Ltd. *Flush doors:* Jayanbee Joinery Ltd. *Electrics:* Graham & White Ltd. *Cork floors:* Cork Insulation & Asbestos Co Ltd. *Terrazzo:* Art Pavements & Decorations Ltd. *Thermoplastics:* Hollis Bros Ltd. *Flues:* Chimneys Ltd. *Fibrous plaster:* Claridges (Putney) Ltd. *Internal telephones:* The Reliance Telephone Co Ltd. *Stage lighting:* W. J. Furse & Co (London) Ltd. *Window gearing:* Teleflex Products Ltd. *Changing room benches:* A. J. Binns Ltd. *Drinking fountains:* A. F. Collins (Catering Equipment) Ltd. *Gymnasium equipment:* Spencer, Heath & George Ltd. *Heating:* Weatherfoil Heating Systems Ltd. *Ironmongery:* Jas Gibbons Ltd. *Kitchen and laboratory equipment:* Education department, Herts County Council, *Stainless steel top, kitchen:* AME Manufacturing Co. *Lavatory partitions:* Flexo Plywood Industries Ltd. *Light fittings:* Falk Stadelmann & Co Ltd and Fluorel Ltd. *Paint:* Docker Bros and Vitretex (England) Ltd. *Tarmac playgrounds and roads:* Hobart Paving Co Ltd. *Plumbing:* J. H. Shouksmith & Sons Ltd. *Roof, structural:* Universal Asbestos Manufacturing Co Ltd. *Rooflights:* S. Warner & Son Ltd. *Roofing felt asphalt and tanking:* Faldo Asphalte Co Ltd. *Rainwater pipes:* High Duty Alloys. *Sanitary fittings:* Adamsez Ltd. *Staircase treads:* Kingsbury Concrete Ltd. *Floor blocks:* Kingsbury Concrete Ltd and Shockcrete Products Ltd. *Mechanical vents:* Greenwood's & Airvac Ventilating Co Ltd and Keith Blackman Ltd. *Internal walls:* J. Gliksten & Son Ltd. *Infill panels, external walls:* Vulcan Plastics (Manufg) Ltd. *Windows, curtain walling:* Quicktho Engineering Ltd. *Sliding folding metal doors:* Bolton Gate Co Ltd. *Sliding folding partitions:* Silent Gliding Doors Ltd. *Welding installations:* British Oxygen Gases Ltd. *Lift-over metal door:* Westland Engineering Ltd. *Dust and fume extract installations:* Keith Blackman Ltd.

Comparison of system costs

Building	Tuxford		Arnold		St Albans	
System of construction	CLASP		Laingspan		Herts 2ft 8in	
Total floor area in sq ft	26,914		56,829		77,987	
Element	*Cost per sq ft of floor area*	*Average unit cost per sq yd*	*Cost per sq ft of floor area*	*Average unit cost per sq yd*	*Cost per sq ft of floor area*	*Average unit cost per sq yd*
Work below lowest floor finish	2s 2d	23s 0d	4s 3½d	74s 6d	3s 6½d	50s 5d
Frame	8s 9½d	— —	9s 0d	— —	10s 2½d	— —
Upper floors	— 8½d	32s 3d	— 8½d	25s 0d	1s 2½d	32s 9d
Roof	4s 2d	46s 6d	3s 3d	28s 3d	4s 5½d	57s 6d
Rooflights	1s 3d	275s 0d	1s 9½d	623s 0d	— 6½d	98s 0d
External walls, windows and doors	8s 9½d	129s 0d	8s 11d	134s 0d	15s 1½d	174s 0d
Partitions, screens and internal doors	4s 4½d	119s 0d	4s 11½d	74s 0d	4s 1½d	81s 0d
Stairs	1s 1½d	£38 per ft rise	— 7½d	£28 per ft rise	— 11½d	£27 per ft rise

AJ SfB (21)

Walls : External, loadbearing : General

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(21) *Walls: External, loadbearing: General*

This Element File deals with the design of external walls which carry superimposed loading, although many factors dealt with will apply equally to internal loadbearing walls. The Element Design Guide outlines a design procedure for the element and includes references for each item and an appendix of British Standards.

The file also contains a group of Information Sheets giving data on strength calculation of walls and properties and lists of manufacturers of bricks and blocks.

AJ **SfB (21)**

Element Design Guide **UDC 69·022·3/·4**
Walls: External, loadbearing : General

(21) Walls : External, loadbearing : General

Bibliographic references (third column) are graded as follows:

* General references of value to every architect and which he may wish to possess

** Specialised references normally used by consultant or architects with special knowledge of particular aspects of building

*** Highly specialised references and research papers which would not be of value to the architect unless working with a consultant

Figures in square brackets are SfB references to the publications. References in **bold type** are to AJ Element Files

Data required

		There are numerous works on this traditional element of construction. Many are out of date. As architects will be familiar with the general construction, no references are included from building construction textbooks. The items listed below are mainly concerned with recent developments, both theoretical and practical, and data acquired from general textbooks should be checked against these references to contemporary research
1 **Obtain preliminary site information**	SUBSOIL TOPOGRAPHY EARLIER USERS OF SITE ADJACENT PROPERTIES (position and condition) ADJACENT LANDSCAPE FEATURES	**SfB (11) Ground: General** Element Design Guide paras 1–5
2 **Assess environment**	CLIMATE: rainfall: seasonal distribution	*Obtain data from local meteorological office*
	prevailing winds temperature range sunshine	
	SOURCES OF NUISANCE	*Note whether nuisance level is increasing or decreasing*
	fumes dirt pollution	*Obtain data from local medical officer of health*
	vibration noise	*In severe conditions initiate noise survey* BRITISH STANDARDS INSTITUTION *CP 3: Chapter III (1960) Sound insulation and noise reduction [Ab9] Appendix A: p 44–45 Properties and behaviour of sound; p 46–51 Sound measurement Appendix E: Noise from aircraft Appendix F: Legal aspects of noise nuisance
	VISUAL local character grouping of features dominant views: from site of site	
3 **Investigate planning requirements**	Building and improvement lines Height restrictions Aesthetic: form materials	**SfB (11) Ground: General** EDG para 6

4 Obtain client's instructions

Form
Material

5 Determine statutory requirements

	MINISTRY OF HOUSING AND LOCAL GOVERNMENT: Model byelaws—series IV Buildings. 1953 edition, HMSO [Aa6]	LONDON COUNTY COUNCIL: London building (constructional) by-laws, 1952 [Aa6]	MINISTRY OF EDUCATION: Building Bulletin No. 7 Fire and the design of schools. 1961, HMSO [Ab9]	DEPARTMENT OF HEALTH FOR SCOTLAND: Model building byelaws: Burghs 1954, reprinted 1957. HMSO [Aa6]	DEPARTMENT OF HEALTH FOR SCOTLAND: Model building byelaws: Counties 1954, reprinted 1957. HMSO [Aa6]
Nature of material	13	part III	—	12	18
Permanency of material	14	—	—	13	19
Loadbearing and stability	21	1·04	—	part III	part IV
	26	part V	—		
Weather resistance	27	—	—	93	94
Position of openings	47	5·26	table X	30, 31	36, 37
Fire resistance	32	part IX	89	29 and table 10	35 and table 10
	34		90		
	35		95		
	38		96 and table VI		
	39		table IX		
	40				
	41				
Thermal insulation	78	—	—	147	161

THERMAL INSULATION (INDUSTRIAL BUILDINGS) ACT 1957 [Aa5] and REGULATIONS 1958, Statutory instruments 1958 No 1220 [Aa6]

For further data on statutory requirements see

*NATIONAL FEDERATION OF CLAY INDUSTRIES (NFCI) Brick Information Sheet No 9 Thickness of loadbearing and party walls [Fg]

*BUILDING RESEARCH STATION Principles of modern building: vol I chap 17 p 232–233. HMSO, 3rd edition [Bb]

6 Assess nature of loading

Nature of loading will depend at this stage primarily on nature of accommodation

7 Assess degree of weather resistance required

Nature of the enclosed accommodation
Aspect of the wall
Local climate

8 Assess degree of heat insulation desirable

Nature of enclosed accommodation
Local climatic conditions
Type of heating or cooling to be used within building

*BS CP 3: Chapter VIII (1949) Heating and thermal insulation [Ab9]

Cl 5 table 1 Recommended temperatures

Cl 5 table 2 Standards of warmth recommended for the rooms of a dwelling

Cl 5 Thermal insulation of heated buildings

*HARDY, A. Thermal comfort and building structure: 1 Comfort and climate. *Arch. Review*, 1961, 129 (March) p 211–213 [Ab9]

Statutory requirements

See para 5 above

9 **Assess degree of sound reduction desirable**	Nature of enclosed accommodation Noise level outside proposed building Noise generated within building Acceptable internal noise level	*BS CP 3: Chapter III (1960): appendix A, cl 15 Background noise and masking [Ab9] *POST-WAR BUILDING STUDY No 14 Sound insulation and acoustics: cl 15-190 p 7–41, 1944, HMSO [Ab9] o/p
10 **Determine further constructional requirements**		
INSURANCE	Fire Burglary	*In consultation with Fire Offices Committee and client's insurance company*
FIRE BRIGADE	Nature of contents Means of escape Access	*Chief fire officer*
11 **Establish desired internal illumination level**	Nature of enclosed accommodation	**SfB (31) Windows: General** *BRS Digest 70 (first series) Some general principles of the lighting of buildings [Ab7] *BRS Digest 80 (first series) The prediction of levels of daylighting in buildings [Ab7]
12 **Estimate proportion of total cost to be allocated to external walls**		*With quantity surveyor* *From published cost analyses* *From past experience*
13 **Assess degree of maintenance desirable**	Building type Recurring cost	
14 **Assess visual quality of wall**	Function of building Relationship with adjacent buildings	*GIBBERD, F. Expression in modern design. RIBA *Journal*, 1952, 59 (3) (January) p 59–87 [Ac7]

Basic design decisions

15 **Determine position of walls in plan and section**	FUNCTION: arrangement of accommodation position of openings climate STRUCTURE: foundations nature of loading lateral stability economic structural spans COST AESTHETICS	*In many respects consideration of exterior loadbearing walls cannot be separated from that of interior loadbearing walls, especially party or cross walls. The following reference is one of the few devoted to cross walls:* *DUNICAN, P. and A. W. CLEEVE BARR Cross walls. AJ March 17 1955 p 357–374 [**(21)**]
16 **Determine extent of openings**	Statutory requirements, access, required illumination level, aspect, prospect, local climate, required insulation: *thermal*, *sound*, appearance	See para 5 above
17 **Consider whether strength of walls should be calculated**	Plan shape of walls Distribution and size of walls Nature of loading Cost	*Principles of modern building: chap 12 p 153–181 [Bb] *BRS Digest 75 (first series) Strength and stability of walls [(21)] *NFCI Brick Information Sheet No 9 Thickness of loadbearing external and party walls (rule of thumb) and No 10 Thickness of loadbearing walls and piers (calculation) [Fg] *DUNICAN, P. and A. W. CLEEVE BARR [(21)] AJ Information Sheets No 1032 and 1033 [**(21)**]

18 Determine extent of loading	Dead, imposed, wind, special: *static, dynamic*	**SfB (2) Structures: General** EDG paras 11 and 12
19 Consider construction	Cost: *material* *labour* Availability and delivery times Ease of delivery to site Ease of handling Mechanical aids: *necessary* *available* Specialist subcontractor required Tradesmen available in locality Sizes available Tolerance Ease of cutting Strength Weight Fire resistance Thermal qualities Sound-reducing properties Thermal movement Permeability Moisture movement Weathering qualities Nature of finish Appearance	*Principles of modern building: chap 12 p 153–183 [Bb] *BS 648:1949 Schedule of weights of building materials [Ab4] *Principles of modern building: chap 17 p 230–234 [Bb] chap 15 p 218–234 chap 16 p 224–229 chap 13 p 184–187 chap 14 p 198–210 chap 13 p 187–198 chap 18 p 234–267
20 Determine construction FORM	Single or solid wall: *with or without piers* *in one material throughout* *with facing material bonded to back material* Double or cavity walls: *both leaves in same material* *leaves in different materials* *both leaves supporting load* *one leaf supporting load* Framed wall Prefabricated composite wall units	*Consult building construction textbooks but check information obtained against relevant Code of Practice*
MATERIALS	Stone: *ashlar* *random* Reconstructed stone Brick: *clay* *sand-lime* *flint-lime* *slag-lime* *concrete*	For BSS of particular materials see appendix A below *Principles of modern building: chap 18 p 240–246 [Bb] *BS CP 121.201 (1951) Masonry walls ashlared with natural stone or with cast stone: cl 303–310 [Fe] *BS CP 121.202 (1951) Masonry—rubble walls: cl 301–313 and figs 1–13 [Fe] *Directory of quarries *BRITISH STONE FEDERATION (BSF) Stone Information Sheets [De] *Principles of modern building: chap 18 p 246–249 [Bb] *BS CP 121.201 (1951): cl 303–310 [Fe] *Principles of modern building: chap 18 p 234–239 [Bb] **BUTTERWORTH, B. Bricks and modern research. London, 1948, Crosby Lockwood [F] *BS CP 121.101 (1951) Brickwork: cl 202–207 and 302–308 [Fg] *BRS Digest 25 (first series) The selection of clay building bricks [Fg2] and Digest 53 (first series) Perforated clay bricks [Fg2] *NATIONAL BUILDING STUDY Bulletin No 4 Sand-lime and concrete bricks. G. E. Bessey, 1948, HMSO [Ff1] *NATIONAL BUILDING STUDY Special Report No 3 Sand-lime bricks, G. E. Bessey, 1948, HMSO [Ff1]

		*NFCI Brick Information Sheets: No 1 Squares, closers, copings 2 Bullnose 3 Bullnose (continued) 4 Radiated, squints 5 Splays and angles 6 Plinths [Fg]
	Block: *terra-cotta*	*Principles of modern building: chap 18 p 250–252 [Bb]
	hollow clay	chap 18 p 249–252 [Bb]
	concrete: solid	*CEMENT AND CONCRETE ASSOCIATION (CCA) Concrete block walls. 1961, The Association [(21)Ff2]
	hollow	
	aerated	*BS CP 122 (1952) Walls and partitions of blocks and slabs: cl 2.008 to 2.009, 3.001 to 3.010, 3.025 to 3.029 [(21)F]
	In-situ concrete: *dense*	*Principles of modern building: chap 11 p 102–109; chap 12 p 171–173; chap 18 p 258–260 [Bb]
		*BS CP 123.101 (1951) Dense concrete walls: cl 302–307 [(21)Eq4]
	no-fines and lightweight	*Principles of modern building: chap 11 p 109–112; chap 12 p 171–173 [Bb]
		*BRS Digest 5 (second series) Materials for concrete [E]
	Precast concrete units	
	Composite wall units	
	Timber	*Principles of modern building: chap 11 p 118–125 [Bb]
		*EASTWICK-FIELD, J. and J. STILLMAN The design and practice of joinery. London, 1958, Architectural Press [Xi]
		*BS CP 112 (1952) The structural use of timber in buildings: cl 0.202 Species of timber, and table 1 Classification of structural softwoods [(2)Hi1]
		*TIMBER DEVELOPMENT ASSOCIATION (TDA) Red Booklet: Timber and fire protection, 1953 [Ab9]
		*US DEPARTMENT OF AGRICULTURE *Forest Service*, Wood frame house construction. Agriculture Handbook No 73 compiled by L. O. Anderson and O. C. Heyer. Washington DC, 1955, US Government Printing Office, distributed in UK by Canada House, London [(2)Hi]
21 **Estimate wall thickness**	Loading	AJ Information Sheet No 1034 [(**21**)]
	Wall dimensions: LENGTH	
	HEIGHT	
	Functional properties of material	
	Statutory requirements	Model byelaw 26 [Aa6] London building (constructional) by-laws; part v [Aa6] Model building byelaws (Scotland): Burghs, part III; Counties, part IV [Aa6]

Detail design

CHECK PERFORMANCE		
22 **Statutory requirements**	Planning	see para 3 above
	By-law	see para 5 above
23 **Strength if calculated according to BS CP 111:1948**	DETERMINE: effective height	*Principles of modern building: chap 12 p 153–181 [Bb]
	effective length	
	effective thickness	**SEDDON, A. E. Strength of concrete walls. London, 1955, Cement and Concrete Association [(21)E]
	slenderness ratio	
	reduction factor	
	tested crushing strength of units per sq in	*BS CP 111 (1948) Structural recom-

		mendations for loadbearing walls [(21)] *which incorporates the three following:* *BS CP 111.101 (1948) Masonry, including brickwork (unreinforced) [(21)] *BS CP 111.102 (1948) Masonry, including brickwork (reinforced) [(21)] *BS CP 111.201 (1948) Concrete cast in-situ [(21)] *BRS Digest 126 (first series) Mortars for jointing [Dq4] *NFCI Brick Information Sheet No 10 [Fg] AJ Information Sheet No 1034 [**(21)**] For calculated timber walls see para 45–47 below
	grade of mortar maximum permitted stress slenderness ratio reducing factor CALCULATE the permitted stress in the wall and check with the actual stress ADJUST the permitted stress by: altering the unit and/or grade of mortar altering the effective dimensions addition of brick reinforcement	
24 **Thermal properties**	Calculate U value of wall, compare with required U value and determine whether additional insulation is required Achieve additional insulation by: use of lower density structural material addition of low density non-structural material creation of cavity construction cavity filled with insulating material application of reflective surface to face of cavities or to internal finish	*Principles of modern building: chap 15 p 217–223 [Bb] *BRS The thermal insulation of buildings. Nash, G. D., Comrie, J. and Broughton, H. F. 1955, HMSO [Ab9] *BS CP 121.101:1951: cl 802 and table 4 [Fg] *BS CP 121.201 (1951): cl 801 [Fe] *BS CP 121.202 (1951): cl 306 and 801 [Fe] *BS CP 122 (1952): cl 3005 and table 13 [(21)F] *BS CP 123.101 (1951): cl 306 and tables 1 and 2 [(21) Eq 4] *NFCI Brick Information Sheet No 11 Thermal insulation [Fg] *LONDON BRICK COMPANY LTD. Pamphlet: U values, the facts [Ab9] *HARDY, A. Thermal comfort and building structure: 2. Structure, the moderator of climate. *Arch. Review*, 1961, 129 (April) p 284–285 [Ab9]
	Position thermal insulation to achieve required thermal capacity of wall	*Continuously heated buildings require insulation layer to be outside mass of wall; intermittently heated require insulation layer within mass of wall*
	Check for risk of interstitial condensation. If risk exists, overcome by: incorporation of correctly located vapour barrier ventilation and drainage of cavities to exterior	*Principles of modern building: chap 4 p 40-43 [Bb] *NASH, G. D. Condensation in buildings. AJ January 14 1954 p 49 [Ab9]
25 **Sound insulation**	Calculate sound reduction of wall and compare with required reduction If necessary increase sound insulation by: increased density of material discontinuous construction	*Post-war building study No 14: p 19–41 [Ab9] *BS CP 3: Chapter III (1960): Appendix A Principles of airborne sound insulation p 55–58 Appendix B Constructional measures for noise control p 63–64 Appendix D Insulation values of walls p 86–91 tables 11–14 p 105 (mass law) [Ab9] *BRS Digest 88 (first series) Sound insulation of dwellings—1 [Ab9]
26 **Weather resistance**	INCREASE IF NECESSARY BY: incorporation of a cavity incorporation of impermeable membrane use of less permeable material application of surface water repellent	*Principles of modern building: chap 14 p 198–209 [Bb] **NATIONAL RESEARCH COUNCIL Publication CBD 6 Rain penetration of walls of unit masonry. 1960 [Ab9] *BS CP 121.101 (1951): cl 302 and table 1 (for brick walls) [Fg] *BS CP 121.201 (1951): cl 301 (for ashlar walls) [Fe] *BS CP 121.202 (1951): cl 303 and table 1 (for rubble walls) [Fe] *BS CP 123.101 (1951): cl 302 (for concrete walls) [(21)Eq4] *BRS Digest 33 (first series) The

		causes of dampness in buildings, para 4 (a) [Ab9] *BRS Digest 128 (first series). Stone preservatives [Du6]
STONE, BRICK AND/OR BLOCK WALLS		
27 **Check relationship of unit dimensions to wall dimensions**	Horizontal dimension divisible by unit length of block plus joint Vertical dimension divisible by unit height of block plus joint Difference in height of blocks if two types used Depth of units	*Overall height divisible by unit height plus joint may result in economies and will give neater site work* *Overall lengths greater than unit length × 6 are not critical* *BS CP 121.101 (1951): cl 311 Bonding [Fg] *BS CP 121.202 (1951): cl 310–312 and figs 1–13 (types of rubble walling) [Fe] *BS 657:1950 Dimensions of common building bricks [Fg2] *BS 2028:1953 Precast concrete blocks [Ff] *BS 1232:1945 Dimensions and workmanship of natural stone for building [Fe] AJ Information Sheet No 1035, [**(21)**]
28 **Check construction of solid walls**	Horizontal bonding Vertical bonding Extra protection against moisture penetration	*BS CP 111 (1948): cl 303 [(21)] *NFCI Brick Information Sheets Nos 7 and 8 Brick bonds [Fg]
29 **Detail cavity**	Width of cavity Reduction in width due to variation in depth of units	*Principles of modern building: chap 14 p 203–209 [Bb] *LLOYD, A. P. Cavity wall construction. NFCI *Brick Bulletin*, 1949, 1 (8) (December) [(21)] *BS CP 111 (1948): cl 306 [(21)]
	Closed or ventilated	Model byelaw 30 [Aa6] London building (constructional) by-law 5.16 (Aa6] Model building byelaws (Scotland): Burghs 94, Counties 95 [Aa6]
	Fire stops	Model byelaw 46 [Aa6] London building (constructional) by-law 9.02 (11) [Aa6] *MOE Building Bulletin No 7: cl 90 and appendix 1, 5 [Ab9] Model building byelaws (Scotland): Burghs 35, Counties 41 [Aa6]
	Ties: *type* *frequency and position* *level of opposite joints*	*BS 1243:1954 Metal wall ties [(20)] *BS CP 121.101 (1951): cl 211 and 314 [Fg] *MACFARLANE, A. A. Site supervision, p 60. London, 1956, Architectural Press [Bb]
30 **Determine composition of mortar**	proportions of: CEMENT LIME SAND	*BS 12:1958 Portland cement (ordinary and rapid hardening) [Dq2] *BS 890:1940 Building limes [Dq1] *BS 1200:1955 Building sands for mortar [Dp1] (*incorporated with* BS 1198 *and* 1199)
	Use of premixed or added plasticiser in place of lime Strength related to strength of blocks Thickness of joints	*BRS Digest 126 (first series) [Dq4]
31 **If units are to act as facings, determine**	FACING BRICKS: hand-made machine-finished: *textured* *sand-faced* glazed: *opaque colour* *transparent* check size with other bricks used STONE: texture of tooled finish	Specification. London, annually, Architectural Press [Ba5] Manufacturers' catalogues *MCKAY, W. B. Building construction: vol 1, p 36–45. London, 1959, Longmans, Green and Co [Bb] *BS CP 121.202: 1951: figs 1–13 [Fe]

	MORTAR POINTING: colour mix type: *flush, struck, recessed keyed, vee, projecting*	*BS 1014:1942 Pigments for colouring cement, magnesium oxychloride and concrete (Du2] *NFCI Brick Information Sheet No 12 Mortars and jointing [Fg]
DENSE IN-SITU CONCRETE WALLS 32 **Consider implications of use of dense concrete**	Determine method of dealing with daywork joints shrinkage cracks thermal movement	**SfB (2) Structures: Concrete: General** *BS CP 123.101:1951: cl 506 and fig 10 Construction joints [(21)Eq4] *BS CP 123.101:1951: cl 313 and fig 9 (expansion joints and control of shrinkage) [(21)Eq4] *Principles of modern building: chap 2 p 20–27 [Bb]
33 **Determine mix**	CEMENT AGGREGATE WATER RATIO ADDITIVES: aids to workability waterproofers frost resistants	*Principles of modern building: chap 11 p 102–112 [Bb] *BRS Digest 5 (second series) [E] *BRS Digests 13 and 14 (second series) Concrete mix proportioning and control: parts 1 and 2 [Df]
34 **Determine reinforcement**	Against shrinkage For strength	*BS CP 111.201 (1948): cl 303 [(21)] *BS CP 114 (1957) Structural use of reinforced concrete in buildings [(2)Eq4]
35 **Determine extent and type of vibration**	Density of concrete required Complexity of: *shuttering, reinforcement* Size of aggregate Water cement ratio	**SfB (2)Structures : Concrete : General**
36 **Consider finish**	UNTREATED SHUTTERED: retarder, textured lining, designed pattern, smooth, oiled WORKED: rubbed, bush hammered, cement slurry	*Specification [Ba5]
37 **Detail shuttering**	CLOSE BOARDED SHEETED: plywood, hardboard, metal, plastic, special textured sheets	**WYNN A. E. Design and construction of formwork for concrete structures. London, 1956, Concrete Publications Ltd. 4th edition [E]
NO-FINES AND LIGHTWEIGHT CONCRETE WALLS 38 **Determine availability of specialist labour**		*Lightweight concrete loadbearing construction. AJ, March 16 1961 p 391 [(2)E]
39 **Determine constructional details**	PROPORTIONS OF: cement, aggregate, water TYPE OF SHUTTERING PROVISION OF FIXING BLOCKS APPLIED FINISH RUN-OFF OF PERCOLATING MOISTURE AT: lintels, ground level	*Principles of modern building: chap 12 p 171–181 [Bb] *BS 1180:1944 Concrete bricks and fixing bricks [Ff2] *BS 2028:1953 [Ff]
PRECAST CONCRETE UNITS 40 **Consult specialist subcontractor or supplier**		*Concrete unit walls are normally developed as proprietary systems and detailing should be carried out in conjunction with specialist consultant or supplier*
41 **Determine size of units**	Appearance Loading	
42 **Consider type of jointing**	DRY MORTAR MASTIC	*Principles of modern building: chap 14 p 210 [Bb]

43 Determine finish	SMOOTH RUBBED TOOLED TEXTURED EXPOSED AGGREGATE COLOURED: cement aggregate	*WILSON, J. G. Concrete facing slabs. London, 1959, Cement and Concrete Association. 3rd edition [Uf2]
TIMBER-FRAMED WALL		
44 Choose species and optimum moisture content of timber	Strength	*BS CP 112 (1952): cl 0.202 Species of timber; table 1 Classification of structural softwoods [(2)Hi1] *FOREST PRODUCTS RESEARCH (FPR) Bulletin No 28 Strength properties of timber. HMSO [Ab3] ***DEPARTMENT OF RESOURCES AND DEVELOPMENT (CANADA) Mechanical and physical properties of Canadian woods. W. E. Wakefield, Ottawa, 1952 [Ab3]
	Moisture content Durability Cost Availability	*BS CP 112 (1952): cl 0.203 and table 2 [(2)Hi1]
45 Determine size and spacing of	STUDS SPACERS SILLS HEADS DIAGONAL BRACING } *by general practice* *by calculation*	*Wood frame house construction [(2)Hi] *BS CP 112 (1952) [(2)Hi1] *FPR Bulletin No 37 Working stresses in structural softwoods. 1956, HMSO [Ab3]
46 Bolting of sills to base	Bolts: SIZE, SPACING, POSITION, CAST IN, GROUTED Continuity of dpc	*BS 1494:1951 Fixing accessories for building purposes [(20)]
47 Determine method of jointing	Nails	*BS 1202:1944 Wire nails and cut nails for building purposes [(20)]
	Screws	*BS 1210:1952 Wood screws [(20)]
	Bolts	*BS 1494:1951 [(20)]
	Timber connectors	*BS 1579:1960 Connectors for timber [(20)] *WALTERS, R. T. Design manual for timber connector construction. London, 1960, MacAndrews and Forbes Ltd [(20)]
48 Consider protection against rot and insects	Kiln treatment On-site treatment	*BS CP 112:100 (1952) Preservative treatments for timber in buildings [Ab9] *incorporated in* BS CP 112 (1952) *TDA Publication TBL8 Timber preservation [Du3] *FPR Bulletin No 1 Dry rot in wood [Ab9] *FPR Bulletin No 19 Beetles injurious to timber and furniture [Ab9] *o/p*
BELOW DAMP-PROOF COURSE		
49 Consider construction of wall below dpc	Statutory requirements	Model byelaws 28, 29 and 30 [Aa6] London building (constructional) by-law 5.28 [Aa6] Model building byelaws (Scotland): Burghs 90, Counties 91 [Aa6]
	Omission or filling of cavity below dpc	*BS CP 111 (1948): cl 303 (b) [(21)]
	Depth of footings	*BS CP 121.101 (1951): cl 312 [Fg]
	Position of wall on foundation	
	Possibility of attack on wall material below dpc from: FROST	*Principles of modern building: chap 9 p 82–83 [Bb]
	SULPHATES	*BRS Digest 31 (first series) Concrete in sulphate-bearing clays and ground waters [Eq4] *BRS Digest 123 (first series) Sulphate attack on brickwork [Fg2]

	Height of lowest floor relative to ground level Form of junction between wall and: SOLID LOWEST FLOOR SUSPENDED LOWEST FLOOR Possibility of unequal settlement between wall and lowest floor Possibility of horizontal pressure on wall from: OUTSIDE GROUND INSIDE FILL	
DAMP-PROOF COURSE		
50 **Determine level of dpc relative to**	Finished ground level Lowest floor	Code of Practice clauses illustrating wall construction at ground level: *BS CP 121.101 (1951): cl 313 and 315 figs 7, 8, 9 and 10 [Fg] *BS CP 121.201 (1951): figs 1 to 4 [Fe] *BS CP 121.202 (1951): figs 18, 20 and 24 [Fe] *BS CP 123.101 (1951): figs 1 and 2 [(21)Eq4]
51 **Determine flexibility required**	Nature of bedding surfacing Movement	
52 **Determine material**	BITUMINOUS FELTS: weight metal core fibre base: *hessian* *asbestos* *glass* ASPHALT PLASTIC SHEET METAL SHEET IMPERMEABLE BLOCKS SLATE	*Principles of modern building; chap 14 p 210–213 [Bb] *BS 743:1951 Materials for damp-proof courses (L)
53 **Consider continuity of dpc and floor membrane**	Need for vertical dpc or tanking Position and material for vertical dpc Method of retaining vertical dpc Extent and position of lap at junction of dpcs Effect of wall and vertical dpc on interior wall finish	*The vertical dpc connecting wall dpc to floor membrane may appear on inner surface of wall. This will affect interior wall and floor finishes especially if these:* ARE APPLIED HOT ARE FIXED BACK TO WALL INCORPORATE A HEATING ELEMENT
54 **Determine form of dpc at and across cavity**		Model byelaw 30 [Aa6] London building (constructional) by-law 5.28 [Aa6] Model building byelaws (Scotland): Burghs 90, Counties 91 [Aa6]
55 **Consider appearance of dpc on exterior surface**		*BS CP 121.101 (1951): fig 3 [Fg]
PLINTHS		
56 **Assess necessity for plinth to protect wall from damage**	Impact, disfigurement by splashing, vehicle exhaust, frost	
57 **Determine position and form of plinth**	PROJECTING RECESSED FLUSH	*If plinth projects, check position in relation to building line*
ENDS AND CORNERS OF WALLS		
58 **Protect vulnerable parts of wall from damage**	USE: Less brittle material Metal guards Projecting piers or quoins: *in same material* *in different material* Rounded corners	

59 **Junctions with adjacent walls**	Bond and course heights Type and position of fixing devices Provision, size and position of rebate and reveal Closing of cavity Prevention of rain penetration: WEATHER BAR VERTICAL DPC	
OPENINGS: GENERAL		*Principles of modern building: chap 14 p 205–209 and figs 14.2 and 14.3 [Bb]
60 **Consider factors affecting detailing of openings**	Distribution of loads around openings Reduction of loads over openings Omission of wall and footings below ground-floor openings Spread of fire between openings	Model byelaw 47 [Aa6] London building (constructional) by-law 5.26 [Aa6] *MOE Building Bulletin No 7 table x [Ab9] Model building byelaws (Scotland): Burghs 147, Counties 161 [Aa6]
61 **Relate height of opening to depth of courses**		See para 27 above
OPENINGS: SILLS		*BS CP 121.101 (1951): cl 212 Sills and lintels [Fg]
62 **Determine sill material and thickness**	Timber: HARDWOOD SOFTWOOD Sheet metal: STEEL COPPER OR COPPER ALLOY ZINC ALUMINIUM ALLOY Brick: FACING ENGINEERING BULLNOSE OR RECTANGULAR Tile: ROOFING QUARRY Clayware Cast concrete Stone Slate Extension of timber window or door frame Asbestos cement	*BS 1422:1956 Steel subframes, sills and window boards for metal windows [(31)] *BS 1236:1956 Clayware sills [(45)] *BS 1237:1956 Cast concrete sills [(45)] *BS 1238:1956 Natural stone and slate sills [(45)]
63 **Assess permeability of and need for dpc under sill**		*BS CP 121.202 (1951): fig 17 [Fe]
64 **Determine method of closing and bridging cavity**	Self-supporting sill Bridging unit	
65 **Determine projection of sill**	At front At sides	
66 **Determine degree and direction of weathering of sill**	Along front At ends	
67 **Check detailing of sill to ascertain possible damage from ladders and window cleaners**		
OPENINGS: JAMBS		
68 **Consider factors affecting detailing of jambs**	Position of door or window frame Depth of reveal Position and size of rebate Method of fixing frame to wall Method of closing cavity Type and position of vertical dpc	*BS CP 121.101 (1951): cl 313 and figs 12, 14, 16 and 18 [Fg] *BS CP 121.201 (1951): figs 6, 7, 8 [Fe] *BS CP 121. 202 (1951): figs 30, 31 [Fe] *BS CP 123.101 (1951): figs 3, 4 [(21)Eq4]

OPENINGS: HEADS		
69 **Determine form, material and detailing of lintels or arches**	Position Size Sectional shape Material: STEEL REINFORCED CONCRETE WOOD REINFORCED BRICK BRICK ARCH STONE End supports Closing of cavity Weepholes from cavity Position and type of dpc Exposed on exterior or concealed Support for facing material	*BS 1239:1956 Cast concrete lintels [Gf2] *BS 1240:1956 Natural stone lintels [Ge] *BS CP 121.101 (1951): cl 313 and figs 11, 13, 15, 17 [Fg] *BS CP 121.201 (1951): figs 5, 7 [Fe] *BS CP 121.202 (1951): figs 15, 16, 23 [Fe] *BS CP 123.101 (1951): figs 3, 4 [(21)Eq4]
TOP OF WALL		
70 **Choose method of terminating top of wall**	CORNICE EAVES PARAPET	**SfB (38) Roof eaves, verges, gutters, rails: General**
71 **Determine height of parapet above roof finish**	External appearance of whole wall Amount and type of roof traffic Need to conceal features projecting above roof Form and position of gutter Possibility of wind blowing rain off roof	
72 **Determine construction of parapet**	SOLID CAVITY	*BS CP 121.101 (1951): cl 206 and 317 and figs 20–25 [Fg] *BS CP 121.201 (1951): figs 9, 10 [Fe] *BS CP 121.202 (1951): figs 19, 21, 25, 26, 27 [Fe] *BS CP 123.101 (1951): figs 5, 6 [(21)Eq4]
73 **Choose coping material**	STONE BRICK CLAYWARE PRECAST CONCRETE IN-SITU CONCRETE SLATE ASPHALT SHEET METAL BITUMINOUS FELT	*BS 1235:1945 Natural stone copings [Fe] *BS 1233:1945 Clayware copings [Fg] *BS 1234:1945 Cast concrete copings [Ff2] *BS 988:1957 Mastic asphalt for roofing (limestone aggregate) [Ds4] *BS 1162:1957 Mastic asphalt for roofing (natural rock asphalt aggregate) [Ds4] *BS 849:1939 Plain sheet zinc roofing [Hd7] *BS 1178:1944 Milled lead sheet and strip for building purposes [Hd8] *BS 1470:1955 Wrought aluminium and aluminium alloys. Sheet and strip [Hd4] *BS 1569:1949 Copper sheet and strip for roofing [Hd5] *BS 747:1952 Classification of roofing felts (bitumen and fluxed pitch) [Ln2]
74 **Determine weathering of coping**	Degree and direction of fall Extent of projection: OUTWARDS OVER ROOF Form of drip Metal trim: GAUGE SECTION LAP OR BUTT JUNCTIONS	
75 **Decide method of fixing coping**	Mortar, adhesive, dowels and cramps, metal plates	
76 **Provide dpc**	Below coping	*BRS Digest 11 (first series) Damp-

	Continuous with, but above, roof finish	proof courses in parapet walls [L]
JUNCTION OF WALL WITH FLOORS AND ROOFS		*Principles of modern building: chap 12 p 153–158 and 165–167 [Bb]
77 **Transmission of loads**	Distributed loads	*BS CP 111.101 (1948): cl 303 [(21)]
	Point loads	*BS CP 111.101 (1948): cl 305 [(21)]
	Bending moments	
	Horizontal thrust from: INCLINED FORCES	*BS CP 111 (1948): cl 303 (*a*) (ii) [(21)] *BS CP 111.101 (1948): cl 304 [(21)]
	EXPANSION	*Principles of modern building: chap 2 p 22–27 [Bb]
78 **Form of junction**	WALL PLATES: height in relation to block courses	*BS CP 121.101 (1951): cl 315 and figs 7–10 [Fg] *BS CP 121.202 (1951): fig 22 [Fe]
	material	
	PADSTONES: size and position	
	material	
	provision of bolts	
	METAL BRACKETS	*Design manual for timber connector construction [(20)]
	JOIST HANGERS	
	CORBELS: extent of projection	
	possibility of eccentric loading on wall	
79 **Constructional details of junction**	Projection of horizontal member into wall:	
	EXTENT	
	EFFECT ON CAVITY	
	PROTECTION OF TIMBER	
	Filling between: JOISTS	
	RAFTERS	
	Ties between wall and floor for stability	*BS CP 111 (1948): cl 303 (*a*) (ii) [(21)] *DEPARTMENT OF HEALTH FOR SCOTLAND Construction of loadbearing brickwork for buildings of more than two storeys. Memorandum reprinted in NFCI *Brick Bulletin*, 3 (1) [Fg]
	Holding-down straps or bolts to prevent movement of lightweight roofs	*BS CP 3: Chapter v (1952): cl 7–12 [Ab4]
APPLIED EXTERIOR FINISH		**SfB (41) Finishes, external: General**
80 **Choice of finish**	Thin films: PAINTS	*Principles of modern building: chap 18 p 260–264 [Bb]
	SEALS	*BRS Digest 17 (first series) Colourwashes (including paints) on external walls [Vv6]
	VARNISHES	
	RENDERINGS	*BS CP 221:1960 External rendered finishes [Pq4]
		*Principles of modern building: chap 18 p 252–258 [Bb]
	Cladding fixed directly to walls: TILES	
	STONE SLABS	*BSF Stone Information Sheets [De]
	SLATE SLABS	
	CONCRETE SLABS	*WILSON, J. G. [Uf2]
	Cladding fixed to secondary framing:	*Principles of modern building: chap 18 p 264–265 [Bb]
	ROOF TILES	*BS CP 142 (1958) Slating and tiling [N]
	ROOF SLATES	
	TIMBER BOARDING	*Wood frame house construction [(2)Hi]
	SHEET MATERIALS	*Principles of modern building: chap 11 p 125–128 [Bb]
	Self-supporting cladding: BRICK	*Wood frame house construction [(2)Hi]
	STONE	
	PRECAST CONCRETE	
81 **Consider termination of exterior finish**	Plinth	
	Ground dpc	
	Corners of wall	
	Ends of wall	
	Under sill	
	Reveals of openings	
	In front of and under soffit of: *lintels*	
	arches	

	String courses Parapet dpc Under copings	
82 **Consider risk of disintegration or disfigurement**	FROM SOLUBLE SALTS	*Principles of modern building: chap 9 p 83–84 chap 11 p 144–146 chap 18 p 240–244 [Bb] *BRS Digest 20 (first series) The weathering, preservation and maintenance of natural stone masonry: part 1 [Fe] *BRS Digest 123 (first series) Sulphate attack on brickwork [Fg2] *BUTTERWORTH, B. Efflorescence and staining of brickwork. Reprinted from NFCI *Brick Bulletin* 1957, 3 (5) [F]
	FROM FROST	*Principles of modern building: chap 9 p 82–83 and chap 11 p 144–146 [Bb] *BRS Digest 21 (first series) The weathering, preservation and maintenance of natural stone masonry: part 2 p 1 [Fe]
	FROM POLLUTED ATMOSPHERE	*Principles of modern building: chap 9 p 84–85 and chap 11 p 143–144 [Bb] *BRS Digest 20 (first series) p 2 [Fe] *NATIONAL BUILDING STUDY Bulletin No 9 Some common defects in brickwork. D. G. R. Bonnell and W. R. Pippard. 1950, HMSO [F] *BRS Digest 4 (second series) Repairing brickwork [Bc1]
83 **Control staining**	Correct detailing of drips Surface modelling	
84 **Obviate disintegration of finish**	Use of more permanent material Surface protection	
85 **Reduce risk of vegetable growth on wall**	Less permeable surface Application of fungicide	*Principles of modern building: chap 11 p 146–147 and chap 18 p 258 [Bb] *BRS Digest 21 (first series) p 2 [Fe]
86 **Provide access for maintenance**	Ladders Platform lorry Structural projections Scaffolding Suspended cradle	
INTERIOR FINISH		**SfB (42) Finishes, internal: General**
87 **Choice of finish**	Thin films: PAINTS, SEALS, VARNISHES Plaster Cladding fixed to secondary frame: BOARDS, STRIPS, SHEETS	
88 **Provide key for plaster**	Absorption of material Roughness of surface	
89 **Provide fixings for applied finishes**	Battens Grounds	
STRING COURSE		
90 **Determine type of string course**	Projecting, flush, recessed, structural, non-structural	
91 **Choose material**	Applied, integral, same material as wall surface, different material from wall surface	
92 **Determine position of string course**	Relate to: sills, lintels, floors, height, block course height, shuttering lift	
93 **Consider implications of use of string course**	Effect on cavity Possible damp penetration over string course Additional flashings	*BS CP 121.101 (1951): cl 319 fig 26 [Fg]

LARGE HORIZONTAL PROJECTIONS		
94 **Consider effect on wall construction** CANOPIES BALCONIES OUTSIDE STAIRWAYS LOWER PROJECTING BUILDINGS	Extent of support from wall Fixing to wall Effect on stability of wall Height relative to courses Cutting of blocks around projecting members Damp penetration at junctions Change of wall construction below projection: *reduction in resistance to damp* *reduction in thermal insulation* Change of wall finish below projection	*BS CP 121.101 (1951): cl 313 fig 27 [Fg] *BS CP 121.201 (1951): fig 11 [Fe] *BS CP 121.202 (1951): fig 28 [Fe] *BS CP 123.101 (1951): fig 7 [(21)Eq4]
SMALL OPENINGS		
95 **Consider detailing of openings for** AIR BRICKS VENTS PIPES CABLES	Position and appearance Built-in or cut after erection of wall Effect of applied finishes Position of chases or grooves: *exposed* *covered* Depth and effect on stability of wall Sleeves for pipes and cables	*BS CP 121.101 (1951): cl 210 (air-bricks) [Fg] *BS 493: 1945 Airbricks and gratings (dimensions and workmanship) [(57)] *BS 61: Part 1: 1947 Copper tubes (heavy gauge) [Id5] *BS 65: 1952 Salt-glazed ware pipes [Ig4] *BS 143: 1952 Malleable cast iron and cast copper alloy pipe fittings for steam, air, water, gas and oil [Id]
FEATURES FIXED TO OR BUILT INTO WALL		
96 **Consider structural factors**	Weight of feature Resistance of wall to eccentric loads Support of wall over built-in features	
97 **Determine method of support**	Applied Built-in: *during erection* *on completion*	
98 **Determine method of attachment**	Ease of drilling into wall material Position and number of: NAILING BLOCKS, PELLETS, PLUGS, BOLTS, CEMENT-IN SOCKETS	
99 **Consider staining**	Of the feature Of wall below feature From fixing brackets and lugs	
100 **Consider colour of wall finish behind transparent features**		
101 **Consider need for access to back of feature for cleaning and maintenance**		
102 **Consider projection of feature in front of building line**		
GENERAL		
103 **Make final check**	Cost Statutory requirements Client's requirements Strength Weather resistance Insulation: *thermal* *sound* Maintenance	

Specification

104 **Specify materials**	SOURCE: manufacturer, quarry, merchant TYPE: manufacturer's name or number, density or grade, colour, finish DELIVERY: times, place, assistance required from contractor PROTECTION FROM: impact damage, frost, damp	AJ Information Sheet No 1036 [**(21)**] *BRS Digest 3 (second series) Working in winter or bad weather [Bb1] *or* *NATIONAL BUILDING STUDIES Bulletin No 3 Concreting and bricklaying in cold weather. A. J. Newman. 1948, HMSO [Bb1]
105 **Specify workmanship**	Quality required: *if better than normal describe with special drawings or photographs sample wall* Uniformity Tolerances Bond—with special attention to narrow piers Making good after other trades Keeping clean	

Contract stage

106 **Appoint specialist suppliers and subcontractors**		*With authority of client*
107 **Advance order materials with delayed delivery times**		*With authority of client*
108 **Arrange with local authority to set out new improvement lines**		
109 **Supervise erection**	Check dimensions: *horizontal vertical* Check deliveries with samples Inspect deliveries for defects Check lining through of vertical joints Reject making up of dimension with wide vertical joint Check pattern of headers on wall Check mix of mortars and concrete Make tests of concrete Ensure that: *frost precautions are taken* *blocks and bricks area correctly wetted* *stone is bedded correctly* *cavities are kept clean* *dpcs and membranes are inserted* *courses are level* *drying out is not accelerated*	*MACFARLANE chap 4 p 40–47 (concreting); chap 6 p 52–67 (bricklaying) [Bb] *NATIONAL BUILDING STUDIES Bulletin No 9 [F] *BRS Digest 105 (first series) Limeblowing in brickwork p 1 [F] *BRS Digests 13 and 14 (second series) Concrete mix proportioning and control [Df] *Concrete control for the architect: AJ, July 15 1954 p 83. *Useful for the smaller job* [E] *BS CP 111.201 (1948): sec 8 [(21)] *BS CP 114 (1957): sec 8 [(2)Eq4] *BRS Digest 3 (second series) [Bb1] *MCKAY, p 37–38
110 **Carry out final inspection**	Defects from poor workmanship or use of unspecified material Damage Dirt Damp Excessive cracking: *in new building in adjacent structures*	 *BRS Digest 4 (second series) Repairing brickwork [Bc1] *BRS Digest 33 (first series) [Ab9]

Appendix A British Standards of materials

STONE	BS 1232: 1945 Dimensions and workmanship of natural stone for building [Fe] BS 1235: 1945 Natural stone copings [Fe] BS 1238: 1956 Natural stone and slate sills [(45)] BS 1240: 1956 Natural stone lintels [Ge]
RECONSTRUCTED STONE	BS 1217: 1945 Cast stone [Df2]
BRICKS	BS 187:1955 Sandlime (calcium silicate) bricks [Ff1] BS 657: 1950 Dimensions of common building bricks [Fg2] BS 1180: 1944 Concrete bricks and fixing bricks [Ff2] BS 1257: 1945 Methods of testing clay building bricks [Db] BS 1301: 1946 Clay engineering bricks [Fg2]
BLOCKS	BS 1190: 1951 Hollow clay building blocks [Fg] BS 1364: 1947 Aerated concrete building blocks (dimensions only) [Ff4] BS 2028: 1953 Precast concrete blocks [Ff2]
IN-SITU CONCRETE	BS 12: 1958 Portland cement (ordinary and rapid hardening) [Dq2] BS 146: 1958 Portland-blastfurnace cement [Dq2] BS 877: 1939 Foamed blastfurnace slag for concrete aggregate [Dp3] BS 882, 1201: 1954 Concrete aggregates from natural sources [Df] BS 915: 1947 High alumina cement [Dq2] BS 1014: 1942 Pigments for colouring cement, magnesium oxychloride and concrete [Du2] BS 1047: 1952 Air-cooled blastfurnace slag coarse aggregate for concrete [Dp3] BS 1165: 1957 Clinker aggregate for plain and pre-cast concrete [Dp3] BS 1200: 1955 Building sands from natural sources [Dp1] BS 1881: 1952 Methods of testing concrete [Db] BS 1926: 1953 Methods of specifying ready-mixed concrete [Eq4]
TIMBER	BS 144: 1954 Coal tar creosote for the preservation of timber [Du3] BS 913: 1954 Pressure creosoting of timber [Du3] BS 1455: 1956 British-made plywood for general purposes [Ri4] BS 1579: 1960 Connections for timber [(20)] BS 1860: Structural timber. Measurement of characteristics affecting strength [Di2]

SfB (21) Fg

EASTWOODS *stock bricks*

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Mild stocks were specified for this important Span Developments Ltd. project at Blackheath. Designed by Eric Lyons, O.B.E., F.R.I.B.A., and built by Myton Ltd., this development was one of the show pieces seen by Architects attending the International Union of Architects 1961 London Conference. The project received wide acclaim, and Eastwoods are proud to be associated with this outstanding example of present-day planning.

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MILD STOCK FACINGS
A fairly hard brick of good medium yellow colour. Regular shape and fast in colour.

YELLOW FACINGS
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An economical, reliable and well-burned brick of varying colour and slight irregularity in shape.

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A hard irregular shaped brick for foundations, garden walls, etc.

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AJ SfB (21)
Information Sheet No 1032 UDC 69·022
Walls: Loadbearing

LOADBEARING WALLS 1: PRELIMINARY DESIGN

2.B6

This Sheet, together with Sheet 1033, describes a method of selecting the dimensions and construction of loadbearing walls and of determining the permissible loads on these walls, in accordance with BS Code of Practice CP 111:1948 *Structural Recommendations for Loadbearing Walls*. It explains the use of the chart on the face of Sheet 1033 and the table on the reverse of the same Sheet.

General

To obtain the maximum efficiency and, therefore, economy in materials, a loadbearing wall should carry its full permissible load without detriment to its other requirements of space dividing, sound and thermal insulation and weather protection. The following three factors can be adjusted to affect the loadbearing efficiency of a wall.

Load: With predetermined live and dead loads, the total load transferred to the wall can be adjusted by altering the spacing of the walls, ie the span supported.

Unit strength and construction: The selection of units and the construction may be affected by functional requirements other than strength.

Slenderness ratio: This is calculated from the effective height or length whichever is least and the effective thickness.The effective height takes into account lateral support from anchorage at the top of the wall. The effective thickness may be increased by the provision of piers or intersecting walls, when the height is to be used in the calculations.

These three factors, together with the other functional requirements of the wall, must be considered at the sketch-design stage. The chart and table on Sheet 1033 enable a comparison to be made in the loadbearing performances of walls of differing construction and dimensions. Detailed calculations are required during the preparation of working drawings when the exact loads, materials and dimensions have been determined: Sheet 1034 shows how these calculations should be carried out.

Uses of Chart and Table

The chart and table on Sheet 1033 may be used in several ways, according to the designer's requirements. Each use necessitates selecting a value for one of the variable factors and comparing the alternative conditions of the other two factors which meet the BS Code of Practice requirements. The uses for the chart and table are as follows:

Walls:

(1) Where the *load* is fixed, the alternative forms of construction and the range of overall dimensions which will carry this load can be found.

(2) Where the *height* (or *length*) of wall is fixed the alternative forms of construction and the maximum permissible loads for each can be found.

(3) Where the *form of construction* is fixed (ie unit strength and wall thickness) the range of overall dimensions and the maximum permissible loads can be found. It should be noted that the dimensions and maximum permissible loads will be affected by buttressing piers and intersecting walls.

Columns:

(4) With a given *load* (lb/sq in), a comparison of suitable horizontal dimensions and heights may be made.

(5) With given *horizontal dimensions*, a comparison of suitable heights and permissible loads is possible.

(6) With a given *height*, a comparison of horizontal dimensions and permissible loads may be made.

Procedure for Each Use

Walls:

(1) The total load (lb/ft run) which it is proposed that the wall shall carry should be determined.

From the table on the reverse of Sheet 1033, those wall strengths which equal or exceed this load should be noted and, by reading across to the left in each case, the respective thicknesses and type of loadbearing unit can be found. At the same time, the maximum permissible slenderness ratio should be noted in each case. From the chart on the face of Sheet 1033, the effective thicknesses should be found for the constructions chosen from the table. The effective height (or length) for the slenderness ratio for each thickness can then be found and the actual height for the appropriate top conditions (restrained or unrestrained). The data can then be assembled and a comparison made between the walls of various constructions, thicknesses and dimensions capable of supporting the assessed load.

Example:

It is required to select the construction, thickness, maximum permissible height (or length), and size and spacing of piers or intersecting walls, if necessary, of an external wall for a two-storey domestic building.

The total load to be carried is 2,000 lb/ft run and the construction desired a cavity wall of which the inner leaf, 4½in thick maximum, is to carry the total load. The appropriate slenderness ratios, wall thicknesses and effective dimensions should be noted and tabulated as shown below:

Thickness of unit (in)	Type of unit	Mortar mix	Strength of unit (lb/sq in)	Permissible load (lb/ft run)	Slenderness ratio	Wall thickness (in)	Effective thickness (in)	Effective height or length (ft in)	Actual height restrained at top (ft in)	Actual height unrestrained at top (ft in)
(*a*) 4	Concrete blocks	1:2:9	500	2,230	12	4½-2-4	5⅝	5 6	7 4	3 8
(*b*) 4⅝	Sandlime bricks, type A common bricks	1:2:9	2,000	2,184	18	4½-2-4½	6	9 0	12 0	6 0
(*c*) 4⅝	Sandlime bricks, specials, common bricks	1:1:6	3,000	1,976	21	4½-2-4½	6	12 0	16 0	8 0

LOADBEARING WALLS 1: PRELIMINARY DESIGN

It should then be considered whether, in (*a*), 4in wide piers at 5ft 6in centres and 3 × wall thickness will affect the effective height.

$$\frac{\text{Pier spacing}}{\text{Pier width}} = \frac{66}{4} = 16{\cdot}5$$

By interpolation of values from the table on the face of Sheet 1034, under the heading *Definitions*, it will be seen that the multiplying factor is 1·15. The effective thickness for (*a*), which is 5⅛in, should therefore be multiplied by this factor, giving an increased effective thickness of 6·5in. Reading off the chart on Sheet 1033 this means that, for the slenderness ratio of 12, the increased effective height is 6ft 4in. As this is greater than the length of 5ft 6in, the latter is to be used in the calculations (see *General, Slenderness ratio*): the height is not critical. The choice of wall for the given conditions will therefore lie between:

(*a*) with piers or intersecting walls as previously described at 5ft 6in centres and of any required height.

(*b*) without piers or intersecting walls, restrained at the top with maximum storey height of 12ft 0in and of any required length.

(*c*) without piers or intersecting walls with a maximum storey height of 16ft 0in (if restrained at the top) or 8ft 0in (if unrestrained at the top) and of any required length.

The final selection will depend on other factors, eg

Actual height required.
Position of any intersecting walls.
Cost.
Thermal / Sound } insulation required.

(2), (3) The procedure for using the chart and table for 2 and 3 is similar to that used for 1.

Columns:

The procedure for using the chart and table for 4, 5 and 6 (columns) is exactly as for 1, 2 and 3 (walls) provided consideration is given to the *direction of lateral restraint* at the tops of columns, and the larger of the two slenderness ratios obtained for each direction is used: this modification is explained in detail below. The horizontal scale for effective thicknesses given on the chart on Sheet 1033 is used for height or length of columns when determining the slenderness ratios.

The depth to breadth ratio of a column should not exceed 4:1. The calculation of the slenderness ratio for a column differs from that for walls. For each column there are two effective heights, dependent on the direction of the lateral restraint at the top.

Where sides are parallel to direction of restraint (X), effective height = actual height × 1.

Where sides are at right angles to direction of restraint (Y), effective height = actual height × 2.

Consequently, there are two slenderness ratios:

$$\frac{\text{effective height X}}{\text{length of side parallel to restraint}} = \text{slenderness ratio X}$$

and

$$\frac{\text{effective height Y}}{\text{length of side at right angles to restraint}} = \text{slenderness ratio Y}$$

The greater of the two values should be used. It follows that the slenderness ratio and permissible load can be altered considerably by turning the column through 90 relative to the direction of restraint at the upper floor and roof levels.

Example:

A column 1ft 6in by 9in, actual height 12ft 0in', when restrained at the top in a longitudinal direction, gives effective height X = 144in × 1 = 144,

$$\text{slenderness ratio} = \frac{144}{18} = 8$$

effective height Y = 144in × 2 = 288,

$$\text{slenderness ratio} = \frac{288}{9} = 32$$

32 is therefore the slenderness ratio to be used and that is too great. By restraining the top of the column transversely the following results are obtained:

effective height X = 144in × 1 = 144,

$$\text{slenderness ratio} = \frac{144}{9} = 16$$

effective height Y = 144in × 2 = 288,

$$\text{slenderness ratio} = \frac{288}{18} = 16$$

Additional Notes

The unit strengths given in the table on the reverse of Sheet 1033 are the minimum required by the relevant British Standards. The effect of a greater unit strength can be assessed.

The table takes into account the doubling of strengths when the ratio of block height to thickness equals 2:1. All loads given in the table are concentric and evenly distributed. Permissible point loads are 50 per cent greater than permissible distributed loads.

AJ **SfB (21)F**

Information Sheet No 1033 **UDC 69·022·3** **Walls: General**

actual height (ft) columns a	b	walls c	d	length or effective height
36	18	48	24	36
35	17½	46⅔	23⅓	35
34	17	45⅓	22⅔	34
33	16½	44	22	33
32	16	42⅔	21⅓	32
31	15½	41⅓	20⅔	31
30	15	40	20	30
29	14½	38⅔	19⅓	29
28	14	37⅓	18⅔	28
27	13½	36	18	27
26	13	34⅔	17⅓	26
25	12½	33⅓	16⅔	25
24	12	32	16	24
23	11½	30⅔	15⅓	23
22	11	29⅓	14⅔	22
21	10½	28	14	21
20	10	26⅔	13⅓	20
19	9½	25⅓	12⅔	19
18	9	24	12	18
17	8½	22⅔	11⅓	17
16	8	21⅓	10⅔	16
15	7½	20	10	15
14	7	18⅔	9⅓	14
13	6½	17⅓	8⅔	13
12	6	16	8	12
11	5½	14⅔	7⅓	11
10	5	13⅓	6⅔	10
9	4½	12	6	9
8	4	10⅔	5⅓	8
7	3½	9⅓	4⅔	7
6	3	8	4	6
5	2½	6⅔	3⅓	5
4	2	5⅓	2⅔	4
3	1½	4	2	3
2	1	2⅔	1⅓	2
1	½	1⅓	⅔	1

a - restrained at top parallel to short side: square columns restrained in both directions (effective height x 1)
b - restrained at top parallel to long side: square columns restrained in one direction or unrestrained (effective height x ½)
c - restrained at top (effective height x ⅓)
d - unrestrained at top (effective height x ⅔)

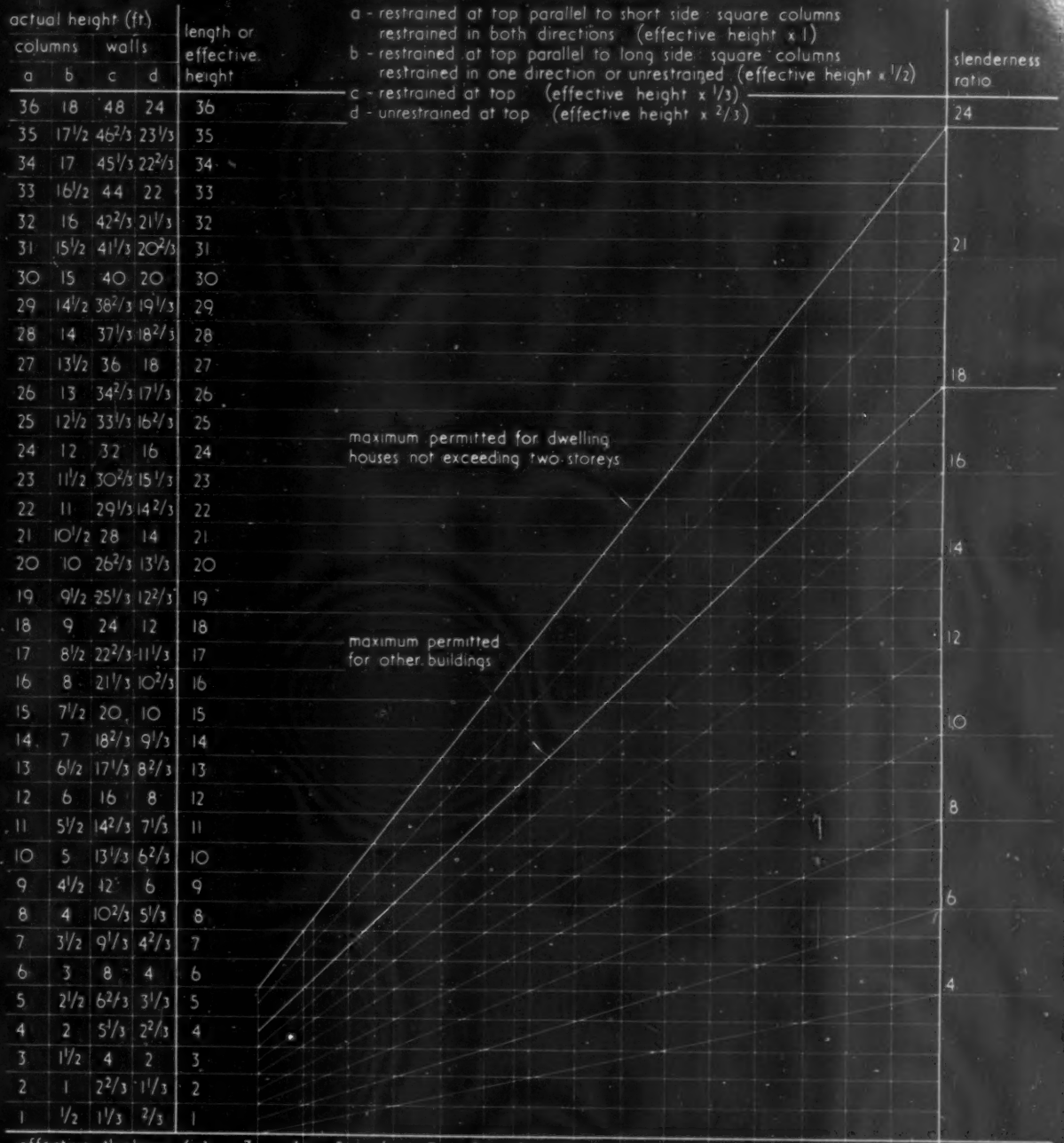


CHART SHOWING RELATIONSHIP BETWEEN SLENDERNESS RATIO, THICKNESS AND HEIGHT (OR LENGTH)

LOADBEARING WALLS 2: PRELIMINARY DESIGN

Width of loadbearing unit (in)	Type of loadbearing unit	Mortar or concrete mix	Tested strength of unit (lb/sq in)	Wall strength (lb/sq in: lb/ft run) for given slenderness ratio figures given in brackets are multiplying factors explained on Sheet 1034										
				1	4 (0·88)	6 (0·80)	8 (0·70)	10 (0·60)	12 (0·50)	14 (0·40)	16 (0·35)	18 (0·30)	21 (0·25)	24 (0·20)
3	Concrete blocks lightweight Type B	1:3:12	400	30×2*	53 1,908	48 1,728	42 1,512	36 1,296	30 1,040	24 864	21 756	18 648	15 540	12 432
3	Concrete blocks dense Type A	1:2:9	500	46·6×2	82 2,952	74·5 2,682	65·1 2,344	56 2,016	46·5 1,675	37·2 1,340	32·6 1,174	28 1,008	23·4 840	18·6 670
4	Concrete blocks lightweight Type B	1:2:9	400	40×2	70 3,460	64 3,072	56 2,648	48 2,304	40 1,920	32 1,536	28 1,344	24 1,152	20 960	16 768
4	Concrete blocks dense Type A	1:2:9	500	46·6×2	82 3,936	74·5 3,568	65·1 3,125	56 2,648	46·5 2,232	37·2 1,785	32·6 1,565	28 1,344	23·4 1,123	18·6 893
4 3/16	Bricks, sand-lime Type B	1:3:12	1,000	70	61 3,172	56 2,912	49 2,548	42 2,184	35 1,820	28 1,456	24·5 1,274	21 1,092	17·5 910	14 728
4 3/16	Bricks, clay and sand-lime Type A	1:2:9	2,000	140	122 6,344	112 5,824	98 5,096	84 4,368	70 3,640	56 2,902	49 2,548	42 2,184	35 1,820	28 1,456
4 3/16	Bricks, clay and sand-lime special	1:1:6	3,000	190	167 8,684	152 7,904	133 6,916	114 5,928	95 4,940	76 3,952	66·5 3,458	57 2,964	47·5 2,471	38 1,976
6	In-situ concrete lightweight	—	400	78	66·5 4,788	60·4 4,349	54·6 3,931	46·8 3,370	39·0 2,808	31·2 2,246	27·3 1,956	23·4 1,692	19·5 1,404	15·6 1,123
6	Concrete blocks lightweight Type B	1:2:9	400	40×2	70 5,040	64 4,608	56 4,132	48 3,556	40 2,980	32 2,304	28 2,016	24 1,728	20 1,440	16 1,152
6	Concrete blocks dense Type A	1:2:9	500	46·6×2	82 5,804	74·5 5,346	65·1 4,687	56 4,032	46·5 3,348	37·2 2,678	32·6 2,345	28 2,016	23·3 1,684	18·6 1,339
6	In-situ concrete no-fines	1:10	800	156	133 9,576	120·8 8,698	109·2 7,862	83·6 6,740	78 5,616	62·4 4,492	54·6 3,912	46·8 3,384	39 2,808	31·2 2,246
6	In-situ concrete structural grade	1:2:4	3,000	1,000	880 63,360	800 57,600	700 50,400	600 43,200	450 32,400	400 28,800	350 25,200	300 21,600	250 18,000	200 14,800
8 3/4	Bricks, clay and sand-lime Type A	1:1:6	2,000	160	141 14,705	128 13,440	112 11,760	96 10,080	80 8,400	64 6,720	56 5,880	48 5,040	40 4,200	32 3,360
8 3/4	Bricks	1:1:6	3,000	190	167 17,535	152 15,960	133 13,965	114 11,970	95 9,975	76 7,980	66·5 6,982	57 5,985	47·5 4,788	38 3,990
8 3/4	Bricks	1:1:6	5,000	260	229 24,045	208 21,840	162 17,010	156 16,380	130 13,650	104 10,920	86 9,030	78 8,190	65 6,825	52 5,460
8 3/4	Bricks	1:0:3	5,000	360	317 33,285	288 30,240	252 26,360	216 22,680	180 18,900	144 15,120	126 13,230	108 11,240	80 8,406	72 7,560
8 3/4	Bricks engineering Type B	1:0:3	7,500	510	449 47,145	408 42,840	357 37,485	306 32,120	255 26,775	204 21,420	178·5 18,742	153 16,065	124·5 13,072	102 10,710
8 3/4	Bricks engineering Type A	1:0:3	10,000	660	581 61,005	528 55,440	462 48,510	396 41,580	330 34,650	264 27,720	231 24,255	198 20,790	165 17,225	132 13,860

* See Sheet 1033 *Additional Notes*

LOADBEARING WALLS 3: DESIGN

2.B8

This Sheet describes the method of designing loadbearing walls according to British Standard Code of Practice CP 111:1948, *Structural Recommendations for Loadbearing Walls.*

General

The Ministry of Health Model Byelaws Series IV "Buildings" require that a loadbearing wall *shall be capable of safely sustaining and transmitting the dead load and imposed loads and the horizontal and inclined forces to which it may be subjected without exceeding the appropriate limits of stress for the materials of which it is constructed and without undue deflection.*

This provision may be satisfied in the following two ways:

(*a*) by determining the thickness of the wall in relation to its height and length, in accordance with the rule of thumb method set out in the Third Schedule of the Model Byelaws;

(*b*) by calculating the thickness of the wall required to carry the loads on it, in conjunction with certain specified permissible stresses, as set out in CP 111.

It is found that the second method, by taking account of the strength of the walling unit and mortar, the quality of workmanship and the imposed loads (especially as applied to multi-storey buildings), shows considerable economies in labour and materials over the first method.

Definitions

Column: An isolated vertical loadbearing member, one of whose horizontal surface dimensions, whilst not less than the other horizontal surface dimension, is not more than 4 times as great.

Effective height: Where wall is laterally supported* top and bottom, effective height = $\frac{3}{4}$ × height between supports.

Where wall is laterally supported* only at bottom, effective height = $\frac{3}{2}$ × height of wall above this support.

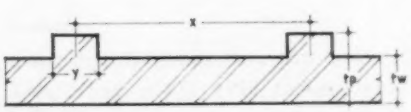
Where column is provided with complete support at the bottom and lateral support parallel to the line of one of the horizontal surface dimensions at the top, effective height, relative to the direction of top support = height between supports; effective height at right angles to the direction of top support = 2 × height above lower support.

Where column is not supported at the top, effective height, relative to both directions = 2 × height above lower support.

*This term is defined in detail in CP 111:1948.

Effective length: This is the distance between centre lines of properly bonded adjacent piers, buttresses or intersecting walls.

Effective thickness of solid wall = actual thickness × factor in the table which follows.



$\frac{x}{y}$	Factor $\left(\frac{\text{effective thickness}}{\text{actual thickness}}\right)$		
	$\frac{tp}{tw} = 1$	$\frac{tp}{tw} = 2$	$\frac{tp}{tw} = 3$ (including intersecting walls)
6	1·0	1·4	2·0
8	1·0	1·3	1·7
10	1·0	1·2	1·4
15	1·0	1·1	1·2
20 or more	1·0	1·0	1·0

Note: This modification may not be used if the effective length of the wall is less than its effective height.

Effective thickness of cavity wall = $\frac{2}{3}$ × sum of thicknesses of two leaves, even if only one leaf carries the load

$$\textit{Slenderness ratio} \text{ of wall} = \frac{\text{effective height or effective length (whichever is less)}}{\text{effective thickness}}$$

The slenderness ratio should not exceed 18 (or 24 for dwelling houses of not more than 2 storeys), but *must not* exceed 12 where lime mortar is used.

Calculation of maximum permissible stress

The permissible stress uniformity distributed in wall depends on:

(*a*) crushing strength of walling units;
(*b*) grade of mortar;
(*c*) slenderness ratio.

From the walling units and grade of mortar to be used, and assuming a slenderness ratio of unity, a stress value is found from Table 1: this value is then multiplied by the factor corresponding to the actual slenderness ratio found from Table 2, which gives the maximum permissible stress.

Table 1: Where the slenderness ratio is not more than unity, the stress in the wall due to the combined dead and imposed loading, uniformly distributed over the area sustaining the load, should not exceed the values given in the table below, at or after the times stated. When blocks are used as the walling unit and the height of the block is not less than twice its thickness, the maximum permissible stresses in a wall using such a block may be increased to twice the values given in Table 1. The stresses are given in lb/sq in.

Crushing strength of walling unit in lb/sq in (linear interpolation allowed)	Mortar (by volume) not weaker than:					
	Cement*	Cement-lime			Hydraulic lime	Non-hydraulic lime
	1:0-¼:3 (7 days)	1:1:6 (14 days)	1:2:9 (14 days)	1:3:12 (14 days)	1:2 (14 days)	1:3 (28 days min)
400	40	40	40	30	30	30
1,000	100	100	80	70	70	60
1,500	150	140	120	100	100	80
3,000	210	190	170	130	130	100
4,000	250	230	210	170	170	100
5,000	360	260	250	200*	200	100
7,500	510	350	350	200	200	100
10,000	660†	350	350	200	200	100

* In cement mortar, the inclusion of lime is optional.

† If strength of brick is 10,000 + A, stress may be increased to 660 + 0·042 A but not more than 900.

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LOADBEARING WALLS 3: DESIGN

Table 2: Where the slenderness ratio exceeds unity, the values from Table 1 should be multiplied by the factor tabulated below. Linear interpolation is allowed.

Slenderness ratio	Factor	Slenderness ratio	Factor
1	1·00	12	0·50
2	0·96	14	0·40
4	0·88	16	0·35
6	0·80	18	0·30
8	0·70	21	0·25
10	0·60	24	0·20

Loading

The Second Schedule of the Model Byelaws provides a table of the minimum permitted imposed loads on floors, which may be reduced (where the building is not a warehouse, a garage or intended chiefly for storage).

Table 3

Number of floors above floor under consideration	Percentage reduction in imposed floor loads
Roof only	0
1 floor and roof	0
2 floors and roof	10
3 floors and roof	20
4 floors and roof	30
5 or more floors and roof	40

Eccentric loads and lateral forces: The maximum stresses due to these forces may exceed permitted stresses from Table 1 by not more than 25%. Wind pressures can be ignored for most buildings of solid wall construction where the height does not exceed twice the base-width.

Concentrated loads: These should be calculated as uniformly distributed pressures under the contact area, and the maximum permitted stresses from Table 1 may be exceeded by not more than 50%. Where wall-plates, etc, have to be built in, the reduced thickness of the wall must be adequate to carry all the calculated load.

General performance of walls

The thickness of an external wall, even though calculated to be structurally sufficient, may have to be increased to provide adequate standards of insulation and resistance to rain penetration.

Cavity walls: Width of cavity should be not less than 2in, not more than 3in. Each leaf should be not less than 3in thick. Metal ties should be used to secure the two leaves together. They should be spaced 3ft apart horizontally and 18in apart vertically and staggered. Near the sides of all openings, where there is not a bonded joint, ties should be placed 12in apart vertically. Metal ties should conform with BS 1243 *Metal Wall Ties.* Other ties should have a stiffness and strength at least equivalent to the weakest metal ties given in BS 1243.

Method

1. Loads per foot run of wall to be tabulated.
2. Effective height of each storey to be found. Effective thickness of each storey to be found.

Hence, slenderness ratio $\left(\frac{\text{effective height}}{\text{effective thickness}}\right)$

3. From grade of mortar and crushing strength of bricks, the maximum permitted stress on wall to be found for unit slenderness ratio from Table 1. Reduced permitted stress for actual slenderness ratio to be found, using Table 2.
4. Loads for successive floors, from roof downwards, to be tabulated, including reductions from Table 3.

Actual stress $\left(\frac{\text{total load}}{\text{area}}\right)$ to be checked at each storey height against maximum permitted stress already computed.

Note: Thickening of the wall increases the permitted stress by reducing the slenderness ratio as well as reducing the actual stress, but the permitted stress may alternatively be increased by using a stronger mortar (or a stronger brick).

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AJ SfB (21)

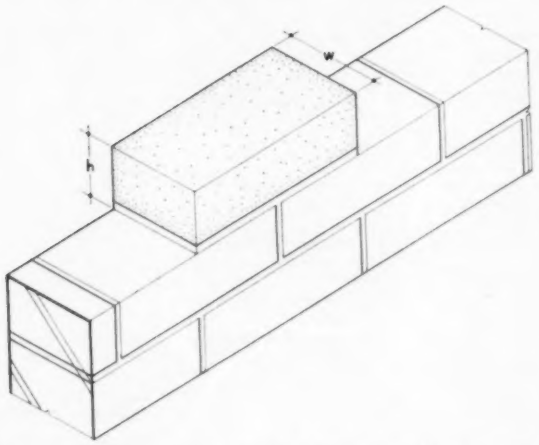
Information Sheet No 1035 UDC 691·3:691·4
Walls: Loadbearing

LOADBEARING WALLS 4: PROPERTIES OF BRICKS AND BLOCKS 2.B9

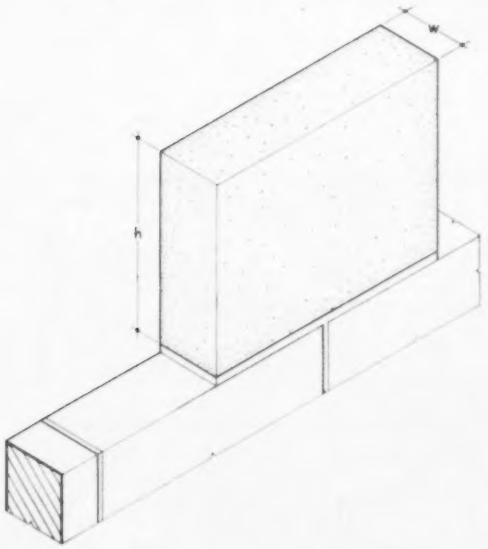
This Sheet, one of a series on loadbearing walls, describes the properties of clay, sandlime and concrete bricks, and clay and concrete blocks for use in loadbearing walls. It should be read in conjunction with Sheet 1036 which lists manufacturers and trade associations.

Definitions

Brick: A walling unit, the height of which is not greater than its width when laid horizontally (ie on its normal bed).



Block: A walling unit, the height of which is greater than its width when laid on its normal bed.



Loadbearing wall: A loadbearing wall in this case is one in which the forces resulting from the weight of the wall and any superimposed loads are opposed by the combined resistance to crushing of the walling units and the mortar.

British Standards

The relevant British Standards are as follows:

Clay building bricks: BS 657: 1950, *Dimensions of Common Building Bricks.*

Clay engineering bricks: BS 1301:1946, *Clay Engineering Bricks.* This Standard sets down two types, class A and class B, according to crushing strength.

Concrete bricks: BS 1180:1944, *Concrete Bricks and Fixing Bricks.* This Standard sets down four types: bricks for special purposes for use in positions where they are liable to be exposed to temperatures below freezing when saturated with water (eg bricks used in parapets or externally below damp-proof course); class A (i) for general external facing work; class A (ii) for general external facing work in mortars other than strong cement mortars; class B for internal use only and in mortars other than strong cement mortars.

Sandlime bricks: BS 187:1955, *Sandlime (Calcium Silicate) Bricks.* This Standard sets down four types: bricks for special purposes, for use where a high crushing strength is required or where they are continuously saturated with water or likely to be exposed repeatedly to temperatures below freezing when saturated with water; class A (i) for general external facing work; class A (ii) for general external facing work in mortars other than strong cement mortars; class B for internal use only and in mortars other than strong cement mortars.

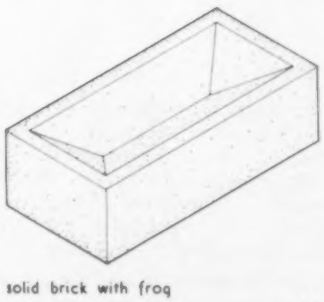
Hollow clay blocks: BS 1190:1951, *Hollow Clay Building Blocks.*

Open-textured concrete blocks: BS 2028:1958, *Precast Concrete Blocks.*

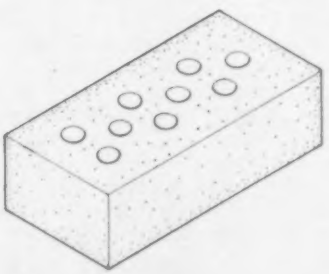
Autoclaved aerated concrete blocks: BS 1364:1947, *Aerated Concrete Building Blocks (Dimensions only).*

Types

Bricks and blocks may be as follows:
Solid: (*a*) without frog
(*b*) with frog

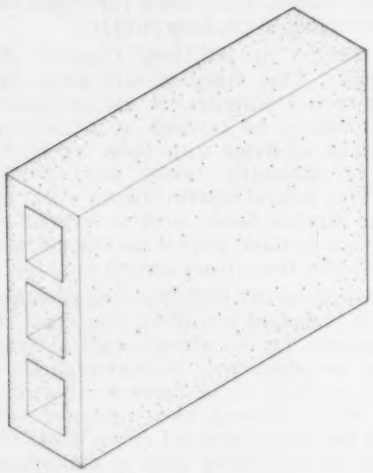


Perforated: A perforated brick or block is one which is pierced in a direction at right angles to the bedding plane with one or more holes of which the greatest dimension parallel to the bedding plane does not exceed 1 in.

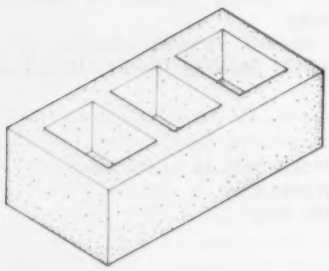


LOADBEARING WALLS 4: PROPERTIES OF BRICKS AND BLOCKS

Hollow: A hollow brick or block is one which is pierced in a direction either perpendicular or parallel to the bedding plane with holes which are usually greater than 1in in each direction.



Cavity: A cavity brick or block is one which contains cavities closed at one end.



Properties

Crushing strength: So far as its use in loadbearing walls is concerned the most important property of a brick or block is its crushing strength. When considered with the crushing strength of the mortar used in the wall the resultant crushing strength is a measure of the stress, or load, which the wall will carry. The first table gives the crushing strengths of various bricks and blocks.

Dimensions: The second table gives standard dimensions of bricks and blocks as defined by the relevant British Standards.

Tolerances: Tolerances on dimensions for clay bricks are allowed by the following method of measurement: 24 bricks are selected at random and laid end to end. They should then measure overall between 207 and 213in. The same 24 bricks if laid side by side should measure between 99 and 102½in and if laid bed to bed between 61½ and 65in (for nominal 2⅝in) or between 67½ and 71in (for nominal 2⅞in). Tolerances for concrete and sandlime bricks are as follows: length ± ⅛in; width ± $\frac{1}{16}$in; height ± $\frac{1}{16}$in. Tolerances for hollow clay blocks are: length ± $\frac{1}{16}$in for types A, B and C; width ± ⅛in for types A and C, ± $\frac{1}{16}$in for type B; height ± ⅛in for types A, B and C. Tolerances for autoclaved aerated concrete blocks are: length ±⅛in; width ±⅛in for 8⅝in wide, ± $\frac{1}{16}$in for remainder; height ±⅛in.

Walling unit	Type	Crushing strength (lb/sq in)
Clay bricks	Commons	500–10,000
	Facings	1,000–8,500
	Perforated	Up to 12,000
	Engineering, BS 1301:1946	
	Class A	10,000–20,000
	Class B	7,000–10,000
Concrete bricks	Range with natural aggregates	1,000–6,000
	BS 1180:1944 Special purposes	2,500
	BS 1180:1944 Building class A	1,750
	BS 1180:1944 Building class B	1,000
Sandlime bricks	Range	1,000–5,000
	BS 187:1955 Special purposes	3,000
	BS 187:1955 Building class A	2,000
	BS 187:1955 Building class B	1,000
Clay blocks	Hollow	400
Concrete blocks	Fully compacted	By arrangement with the manufacturer
	Open-textured (solid and hollow) dense aggregates (type A)	500
	Lightweight aggregates (type B)	400
	Autoclaved aerated concrete	Manufacturer's standard taken as requirement for lightweight aggregate blocks

Note: Hollow clay blocks, as defined in BS 1190:1951 are for use internally only. BS 2028:1953 lists three types of open-textured concrete block. Of these only types A and B are for use in loadbearing walls. They should not be used externally unless protected by rendering.

Walling unit	Length (in)	Width (in)	Height (in)
Clay brick	8¼	4 $\frac{3}{16}$	2⅝ or 2⅞
Concrete brick	8¼	4 $\frac{3}{16}$	2⅝ or 2⅞
Sandlime brick	8¼	4 $\frac{3}{16}$	2⅝ or 2⅞
Clay block BS 1190:1951			
*Type A	12	2, 2½, 3, 4¼	8⅝, 9½
B	12	2, 3, 4	8⅝, 9½
C	12	2, 2½, 3, 4¼	8⅝, 9½
Fully compacted concrete block	By arrangement with manufacturer		
Open-textured concrete block			
(*a*) Dense aggregate	17⅝	3, 4, 4¼, 6, 8¾	5⅝ or 8⅝ (in some areas 6⅛ or 9⅛)
(*b*) Lightweight aggregate	17⅛	3, 4, 4¼, 6, 8¾	8⅝ (in some areas 9⅛)
Autoclaved aerated concrete block	17⅛	2½, 4¼, 6¼, 8⅝	8⅝
	(special sizes by arrangement with manufacturer)		

*Type A Keyed for plaster on one face only
B Both faces form a finished surface
C Keyed for plaster on both faces

The Architects' Journal Information Library December 6 1961

AJ **SfB (21)F**

Information Sheet No 1036 UDC 691 Walls : Loadbearing

the numbers on the map indicate regions represented by manufacturers' organisations whose names and addresses are given on the reverse of this Sheet

MAP SHOWING REGIONS IN ENGLAND, SCOTLAND AND WALES REPRESENTED BY ORGANISATIONS AFFILIATED TO THE NATIONAL FEDERATION OF CLAY INDUSTRIES

LOADBEARING WALLS 5: MANUFACTURERS OF BRICKS AND BLOCKS

This Sheet one of a series on loadbearing walls, gives lists of names and addresses from which information can be obtained on clay, sandlime and concrete bricks and blocks.

Clay Building Bricks and Blocks and Engineering Bricks

The names and addresses of the regional organisations only of the National Federation of Clay Industries have been given, but these organisations can supply information on individual manufacturers in their respective areas, or, alternatively, a complete list can be obtained from:

The National Federation of Clay Industries, Drayton House, 30 Gordon Street, London WC1.

The map on the face of the Sheet, which is based on information supplied by the Federation, shows the counties covered by each regional organisation.

1. *Northern, North-Eastern, North-Western England, North Lincs and North Wales*

The Northern Brick Federation, 1 Tithebarn Street, Liverpool 2.

2. *Stoke-on-Trent District*

The North Staffs Clay Products Association, 17 Albion Street, Hanley, Stoke-on-Trent.

3. *East Midlands*

The East Midlands Brick Association, Curtis House, 12 Poplar Road, Solihull, Warwickshire.

4. *West Midlands*

Midland Federation of Brick and Tile Manufacturers, 1 Grove House, Sutton New Road, Birmingham 23.

5-6. *Eastern, Southern and South-Eastern England*

The South Eastern Brick and Tile Federation, 20 Southampton Place, London WC1.

7. *Stock Brick Industry*

The Stock Brick Manufacturers' Association, 14 Queen Victoria Street, London EC4.

8. *North and Central Wales*

Information may be obtained from The National Federation of Clay Industries.

9. *South Wales and Monmouthshire*

The South Wales and Monmouthshire Federation of Clay Industries, Empire House, Mount Stuart Square, Cardiff.

10. *South-Western England*

The South Western Brick and Tile Federation, 7 Castle Street, Bridgwater, Somerset.

11. *Scotland*

The Scottish Employers' Council for the Clay Industries, 200 St Vincent Street, Glasgow C2.

Information on engineering bricks can also be obtained from:

The British Engineering Brick Association, Grove House, Sutton New Road, Birmingham 23.

Sandlime (Calcium Silicate) Bricks

All information on sandlime (calcium silicate) bricks, including flint bricks, can be obtained from:

Sandlime Brick Manufacturers' Association Ltd, Hanover House, 73-78 High Holborn, London WC1.

The following is a list of members of the Association

The Beacon Hill Brick Co Ltd, Corfe Mullen, Dorset.

The Chester Brick Co Ltd, 4 Holmlands Park, Chester-le-Street, Co Durham.

Esk Manufacturing Co Ltd, 133-139 Page Street, London NW7.
Works at Dalston Road, Carlisle, Cumberland.

The Kentish White Brick Co Ltd, Ightham, Kent.

Kinson Pottery Ltd, Parkstone, Dorset.

Mansfield Standard Sand Co Ltd, Sandhurst Avenue, Mansfield, Notts.

McCarthy & Sons Ltd, Bulwell Limeworks, Bulwell, Notts.

Midhurst Whites Ltd, Midhurst, Sussex.

Redland Tiles Ltd, Castle Gate, Castlefield Road, Reigate, Surrey.

Ryarsh Brick & Sand Co Ltd, Ryarsh, Malling, Kent.

Sevenoaks Brick Works Ltd, Greatness, Sevenoaks, Kent.

The Standard Brick & Sand Co Ltd, Holmethorpe, Redhill, Surrey.

Stonehenge Bricks Ltd, Mile Tree Road, Leighton Buzzard, Beds.

Sykes & Son (Poole) Ltd, Creekmoor, Poole, Dorset.

Concrete Bricks and Blocks

All information on concrete bricks and blocks is obtainable from:

Cement and Concrete Association, 52 Grosvenor Gardens, London SW1.

who will also supply a complete list of members.

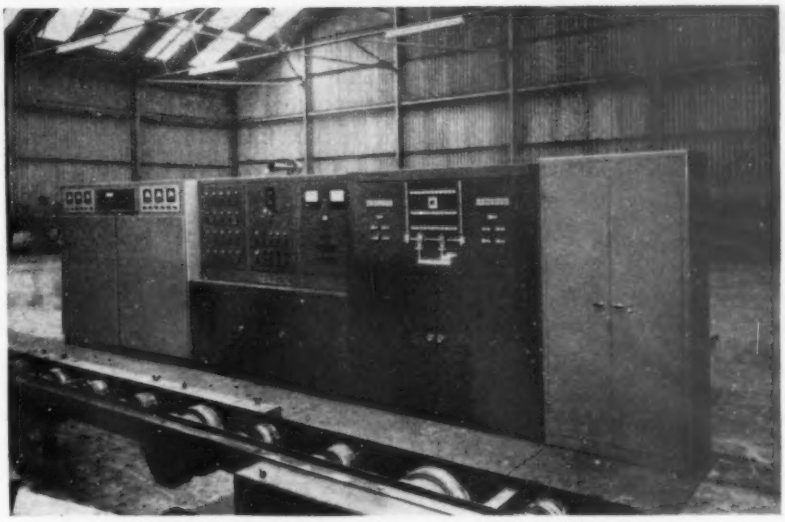
SfB (21) Fg

AUTOMATION comes to Ibstock

Modern brick production requires the most up-to-date mechanisation and automation to meet the ever-growing demand of the Building Industry. The Ibstock Brick & Tile Co. Ltd., being fully alive to the needs of the rapidly expanding brick industry, have recently built one of the most modern brick factories in the world.

This new factory will produce additional bricks in conjunction with their other completely modernised factories. A wide variety of colours and types being available. An up-to-date Laboratory is in course of erection and we will be pleased to supply technical information and to advise on the suitability of the various types of bricks which we manufacture.

Personal invitations are extended to all Architects and their clients who wish to visit our factories.



The Control Panel in the centre of the new factory is illustrated above.

Send for samples and full details of

Ibstock FACING BRICKS

THE IBSTOCK BRICK & TILE CO. LTD., IBSTOCK near LEICESTER. Ibstock 591 (3 lines). *London: B.R. Goods Depot, Wright's Lane, Kensington, W. Western 1281 (2 lines)*

Loadbearing Brickwork

ENGINEERING and FACING BRICKS
conforming to BS.1301, Class "B".

SEMI ENGINEERING
minimum crushing strength 6,000 p.s.i.

PYRAMID COMMONS
minimum crushing strength 4,000 p.s.i.

THE HIMLEY BRICK COMPANY LIMITED
Kingswinford · Brierley Hill · Staffs.
Telephone: Kingswinford 3118/9/3110

SfB (21) Dq4

Walcrete

WALCRETE complies with the requirements laid down for mortars under the British Standard Code of Practice C.P.121.101, 1951 for Brickwork and British Standard Code of Practice C.P.121.201, 1951 for Masonry Walls. It also exceeds the minimum strength requirements laid down in the Standard Specification of the American Society for Testing materials (A.S.T.M.) for Type II high-strength masonry cement.

WALCRETE can be used for bedding and pointing all types of brick and block.

WALCRETE has been produced particularly for this type of work and has the water retention necessary to resist the suction found in dry and porous bricks and blocks.

WALCRETE has low drying shrinkage and moisture movement.

Mortar (proportions by volume)	Drying Shrinkage %	Moisture Movement %
1 : 3 Walcrete : Sand	0·077	0·048
1 : 4 Walcrete : Sand	0·068	0·041
1 : 5 Walcrete : Sand	0·064	0·037
1 : 6 Walcrete : Sand	0·058	0·033
1 : 7 Walcrete : Sand	0·052	0·029
1 : 3 Ordinary Cement : Sand	0·110	0·093
1 : 6 Ordinary Cement : Sand, with plasticizer	0·082	0·060
1 : 1 : 6 Ordinary Cement : Lime : Sand	0·077	0·055
1 : 2 : 9 Ordinary Cement : Lime : Sand	0·056	0·034

recommended mixes BRICK AND BLOCKWORK

Building Units	Position	Degree of Exposure to Weather	Recommended Walcrete Mortar	
			Parts Walcrete	Parts Sand
Clay Bricks and Blocks Concrete Bricks and Blocks Sand/Lime Bricks Lightweight Blocks	Above damp proof course	Internal or sheltered (1) external	1	5 to 7
		Moderate (2) external	1	5 to 6
		Severe (3) external	1	4 to 5
	Below damp proof course Free-standing walls Parapet walls	For all conditions from moderate to severe	1	3
Calculated Brickwork including Engineering and Semi-Engineering Bricks			1	3 to 5

Key to Exposure Conditions

1. SHELTERED CONDITIONS are where the walls are protected by overhanging eaves or other nearby buildings.
2. MODERATE CONDITIONS are where the walls get only partial protection from eaves or nearby buildings.
3. SEVERE CONDITIONS are where the walls are exposed to the full force of wind and rain, e.g. walls on open exposed sites or projected above the level of surrounding buildings.

conversion table FOR CONVENTIONAL MORTARS TO WALCRETE MORTAR

Conventional Mortars			Recommended Walcrete Mortar	
Parts Cement	Parts Hydrated Lime	Parts Sand	Parts Walcrete	Parts Sand
1	0 to ¼	3	1	3
1	½	4 to 4½	1	4
1	1	5 to 6	1	5
1	2	8 to 9	1	6
1	3	12	1	7

Walcrete is supplied in 1 cwt. bags.
NOTE: Where coloured pointing is required the joints should be raked and the pointing carried out with Cullamix, or Colorcrete/Hydralime/Sand.

A BLUE CIRCLE PRODUCT

THE CEMENT MARKETING COMPANY LIMITED
Portland House · Tothill Street · London SW1 Telephone TATe Gallery 3456 Telex 23701-2
G. & T. EARLE LIMITED · HULL
Telephone Hull 26121 Telex 52132-3
THE SOUTH WALES PORTLAND CEMENT & LIME CO. LIMITED · PENARTH
Telephone Penarth 57301-4 Telex 49320

THE TRETOL GROUP

TRETOL MORTA-MIX—Mortar Plasticiser for Brickwork, etc.

SfB (21) Du2

UDC 666.971. 32

FUNCTION

To replace lime in cement, lime/sand mixes for both load bearing or non-load bearing brickwork and internal and external renderings.

TYPE

Concentrated liquid form—used diluted with gauging water.

EFFECTS OF USE

TRETOL MORTA-MIX entrains approximately 10% more air in the mix than usual. This air is in the form of minute bubbles which reduce the friction within the mortar, thus providing a marked improvement in the plasticity and workability of the mix. Using TRETOL MORTA-MIX it is possible to utilise very lean mixes of cement and sand only, even though a sharp hungry sand is used in the mix. Because of the air entrainment obtained, TRETOL MORTA-MIX gives the mortar a molecular cellular construction which will provide a much greater tolerance for expansion and contraction within the mortar. Improved adhesion is also obtained and mortars containing Morta-Mix handle extremely well on the trowel. The mortar can, therefore, be much more easily controlled, dropping being eliminated, thus making for a cleaner job.

MORTARS FOR LOAD BEARING BRICKWORK

The addition of TRETOL MORTA-MIX has no adverse effect upon the strength of the brickwork; in fact, it may often increase the compressive strength of the brickwork. The following is an extract of the report issued by R. H. STANGER LABORATORIES covering tests carried out on brick piers built with mortar containing TRETOL MORTA-MIX.

RESULTS OF TESTS

	A			B		
Mortar	1 : 1 : 6, cement, lime and sand			1 : 6, cement, sand and Tretol Morta-Mix		
Pier	1	2	3	1	2	3
Dimensions, in. Top	8·75 × 8·60	8·70 × 8·60	8·70 × 8·75	8·65 × 8·70	8·75 × 8·75	8·75 × 8·75
Bottom	8·70 × 8·70	8·65 × 8·75	8·65 × 8·70	8·70 × 8·60	8·70 × 8·75	8·75 × 8·65
Height	37¼	36¼	37	37½	38¼	38¼
Crushing load of brickwork, lb.	67,440	56,820	88,270	72,870	86,320	100,800
Compressive strength of brickwork, lb./sq. in.	895	760	1170	975	1135	1330

Details of the two mortars which were used are as follows:

A. The mix proportions by weight were 1 : 1 : 6, cement : hydrated lime : sand. It was gauged to give a slump of 2½ in. when the water/cemen ratio was found to be 1·36.

B. This was a 1 : 6, cemen sand mix to which Tretol Morta-Mix was added at the rate of ½ pint per 1 cwt. of cement. It was gauged to the same 2½ in. slump as A and required a water/cement ratio of 1·0.

ADJUSTMENT OF MIXES

Where a fairly strong mix is required such as 1 : 3 or 1 : 4, this can remain unchanged except for the addition of TRETOL MORTA-MIX. Mixes of 1 : 1 : 6 and 1 : 1 : 7 should be adjusted to 1 : 6 cement and sand only, plus TRETOL MORTA-MIX. Weaker mixes of 1 : 2 : 9 and 1 : 3 : 12 should be adjusted to 1 : 8 cement and sand only, plus TRETOL MORTA-MIX.

QUANTITIES USED

As a general rule, ½-pint of TRETOL MORTA-MIX should be used in the gauging water for each 1-cwt. of cement. In a 1 : 6 cement/sand mix, this is equal to about ½-pint to each 10-gallons of water, i.e., a ratio of 1 : 160.

These proportions will, however, vary slightly according to the type of sand used. A coarse hungry type of sand will necessitate a slight increase in the quantity of Morta-Mix required whilst, with a soft loamy sand, the quantity of Morta-Mix can be slightly reduced.

Renderings, etc.

TRETOL MORTA-MIX is also indicated for the following:

External Renderings

Renderings of cement/sand and TRETOL MORTA-MIX only as lean as 1 : 6 can be brought to a good finish without over-trowelling. TRETOL MORTA-MIX will help in keeping the water content to a minimum; excess water, of course, being a serious cause of cracking and crazing.

Floor Screeds

TRETOL MORTA-MIX will improve floor screeds and toppings enabling them to be brought to a good finish with the minimum of trowelling. The lower water-cement ratio made possible by the incorporation of this material will have a most beneficial effect on the final hardness of the topping.

Browning Plaster

TRETOL MORTA-MIX can be used with considerable advantage in mixes of browning plaster and sand used as an internal backing coat. It will provide a very consistent and even suction in these coats enabling the setting coats to be applied without difficulty even after several days have elapsed.

SfB (21)

Empire Stone

RECONSTRUCTED STONE · EXPOSED AGGREGATE FINISHES · STAIRCASES · GRANOLITHIC PAVING

1 Gower St./Euston Rd., London, N.W.1. *Architects: Stone, Toms & Partners, F/F.R.I.B.A.*
2 Austin Motor Co. Ltd., Engineers Office Block, Longbridge. *Architects: Harry W. Weedon, F.R.I.B.A. & Partners.*
3 Department of Botany, Oxford University. *Architects: Thomas Worthington & Sons.*
4 Multiple Shops, Stevenage New Town. *Architect: L. G. Vincent, A.R.I.B.A., Chief Architect, Stevenage Development Corporation.*
5 Magistrates Court House and Police Station, Harlow New Town. *Architect: Frederick Gibberd, C.B.E., F.R.I.B.A.—in association with H. Conolly, C.B.E., F.R.I.B.A.*
6 University College of Swansea, Natural Sciences Building. *Architects: Sir Percy Thomas & Son, PP.R.I.B.A., A.R.I.B.A.*
7 St. Helens Co-operative Society. *Architect: G. S. Hay, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., Manchester.*

1

2

3

4

EMPIRE STONE CO. LIMITED

Thanet House, 231 Strand, London, W.C.2.
Berkeley House, Birmingham 16.
Narborough, Nr. Leicester.
26 Greek Street, Stockport.

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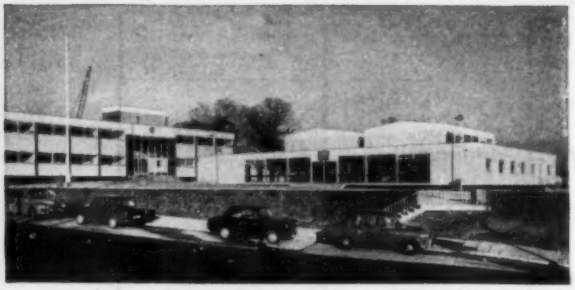

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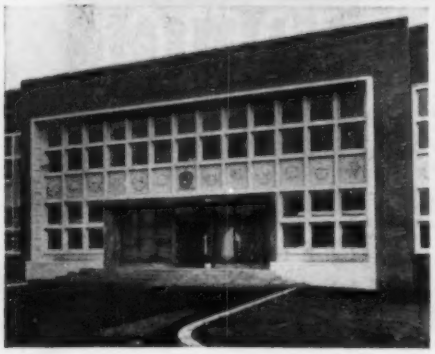

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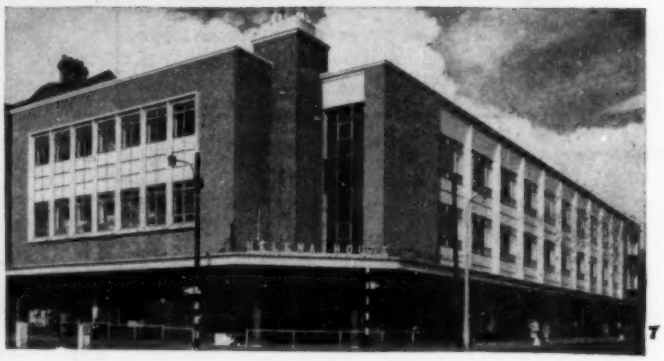


SfB (21) Fg2

Burwell Brick Company

Harvest House, Princes Street, Ipswich

Telephone : Ipswich 56721 *A branch of Fisons Fertilizers Limited*

WHITE FACING BRICKS

Flats, Highview Gardens, New Southgate

Architects : David Du R. Aberdeen & Partners

Illustrated Brochure and delivered prices on request.

Manufacture

Burwell bricks are made by a modern stiff plastic process from Gault clay.

Repressed in electric presses the bricks are fired at controlled temperatures in Hoffman and Super Staffordshire kilns.

Crushing Load

Burwell bricks when tested to B.S.S.1257 show an average crushing load of 3,500 lb. per square inch.

Size

Square bricks are made to conform with British Standard 657 : 1950. Nominal dimensions 8$\frac{3}{4}$in. by 4$\frac{3}{16}$in. by 2$\frac{5}{8}$in. Thickness Type 2.

Weight

Approximately 2 tons 5 cwt. per 1,000 dry.

Expansion

The expansion on wetting 0·008 per cent. is among the lowest recorded by B.R.S. Watford for clay bricks.

Grading

First Selection White Facings

Four white faces, even in size and shape.

Second Selection White Facings

A typical Cambridgeshire Gault Facing, predominantly white, tinged with pink. Good size and shape.

Primrose Facings

Smooth matt surfaced Facing with colour range from pale cream to Primrose yellow, some bricks slightly tinged with pink.

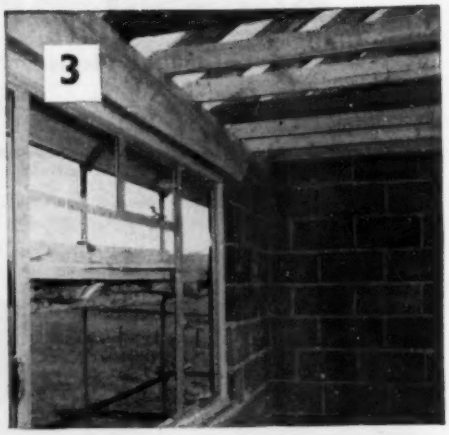
Use

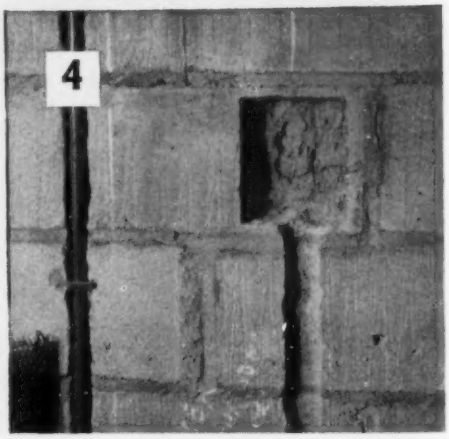
These special purpose White Facing bricks meet the requirements of Architects for use where maximum light reflection and a permanent smooth finish is essential.

Extensively used for light wells, areas, schools; internal linings of factories, workshops and garages—at a fraction of the price of glazed brickwork.

Primrose Facings are used in all types of architecture.

SfB (21) Ff4





Practical structural insulation with

THERMALITE

Loadbearing insulating building blocks

The photographs here show portions of a two floor detached house currently being built. The methods of construction shown comply fully with requirements and will provide a high standard of comfort in the complete house.

Owing to the adaptability and the ease with which Thermalite can be worked an overall saving in man-hours can be achieved for each house erected.

Properties of Thermalite.

1. Dry density 50 lb./ft.³
2. Compressive strength to BS:2028 type A.
3. Moisture movement/drying shrinkage to BS:2028 type B.
4. Thermal conductivity (k) 1.4 B.T.U.'s, etc.
5. Nominal face size 18″ x 9″ or 9½″, actual sizes 17⅝″ x 8⅝″ or 9 1/16″ x 2½″, 3″, 4″, 5″, 6″ and 8½″ (tolerance to BS:2028).
6. Fire resistance 4″ loadbearing plastered hot face—2 hour grade. Fire resistance 4″ non-loadbearing unplastered—4 hour grade.

1 ***Load Bearing: Inner Leaf.***
Here 4″ Thermalite blocks are shown carrying the first floor joists. The inner leaf above the joists is continued in 3″ Thermalite.

2 ***Load Bearing: Front Face.***
This 6″ Thermalite solid wall provides simple direct fixing without battens. The wall when tile-hung will have a 'U' value of .16 B.T.U.'s. The end wall shown is in cavity construction using 3″ Thermalite inner and 4½″ brick outer leaf with wall-ties spaced at 18″ centres horizontally and vertically.

3 ***Load Bearing: Eaves Level.***
This internal view shows the 6″ Thermalite solid wall carrying lintel, roof plate and roofing members.

4 ***Chasing and Fixing.***
Internal mains service arrangement and the direct, positive fixing of joinery, plumbing and etc. are greatly simplified. Thermalite will not cause corrosion of metal fixings.

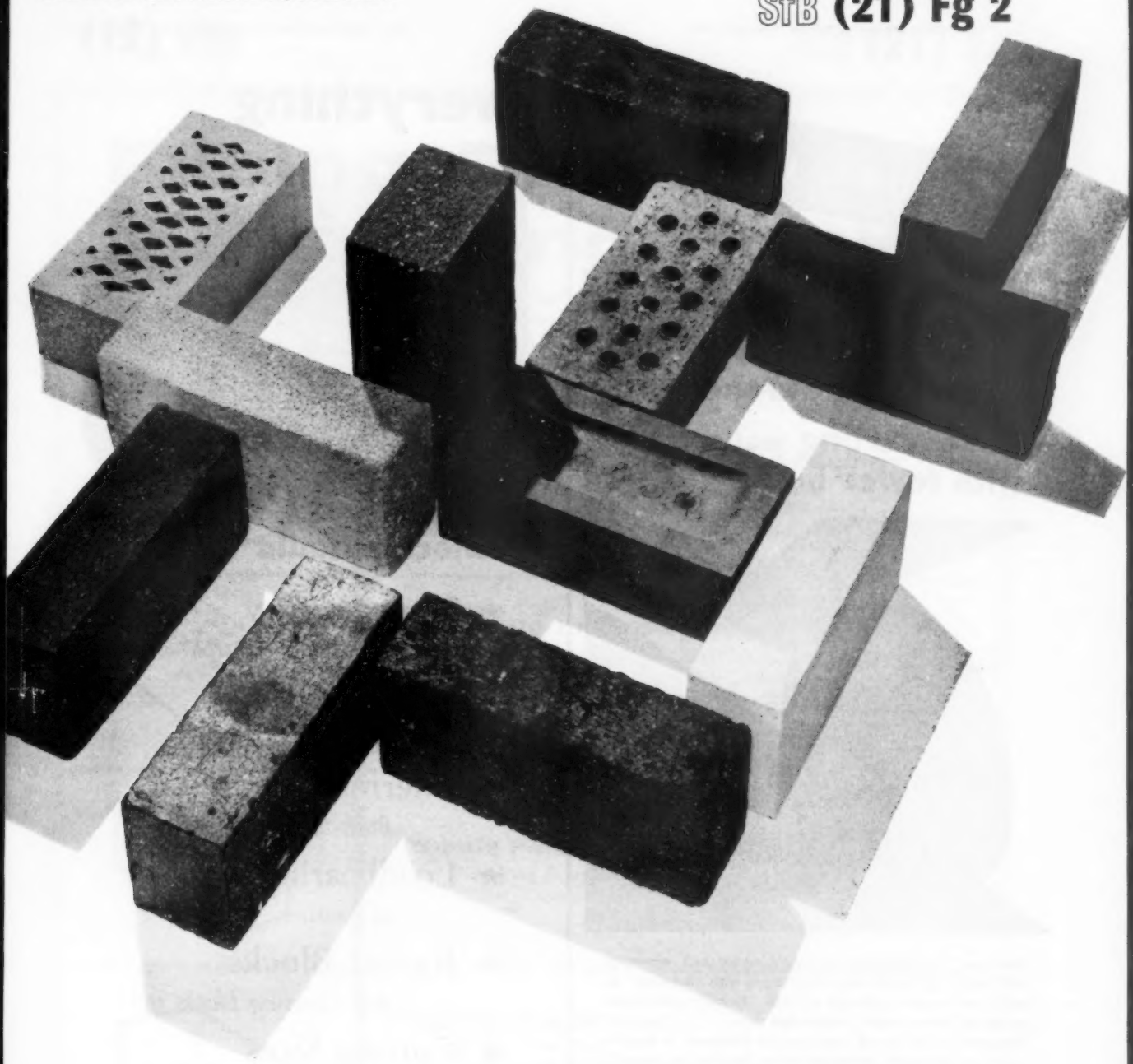
For further information and samples apply to:

THERMALITE YTONG LIMITED,

Hams Hall, Lea Marston, Sutton Coldfield, Warwickshire.
Telephone: Coleshill 2081

A LAING COMPANY

SfB (21) Fg 2



There's a CLAY BRICK

for every structural purpose

Commons
Facings
Engineerings

Solid or
Perforated

Wide range of
colours & textures

For details of types available, loadbearing qualities and information on loadbearing construction, consult the CLAY PRODUCTS TECHNICAL BUREAU, Drayton House, 30 Gordon Street, London, WC1. Telephone: EUSton 2338.

BUILD IN BRICK

Issued by the National Federation of Clay Industries

SfB (21)

strength with economy

'BONDENN'

BRICKWORK REINFORCEMENT

— makes strong walls with fewer bricks

'Bondenn' Reinforcement ends the need for thick, expensive brick walls. 4½" brickwork strengthened with 'Bondenn' in many cases replaces ordinary 9" walls. Result — substantial savings in bricks, cement, labour and time.

'Bondenn' in brickwork increases the resistance to load by 68%— an invaluable advantage when foundations stand in made-up ground or doubtful subsoil and in structures where heavy and intermittent loads are applied.

'Bondenn' consists of rolls of straight longitudinal steel wires of 25/30 tons tensile secured with mild steel spacing wires. Hot spelter galvanising after fabrication ensures high resistance to deterioration.

BOULTON AND PAUL

Obtainable from your nearest builders' merchant.

Write now for full technical information to

Boulton & Paul Ltd.

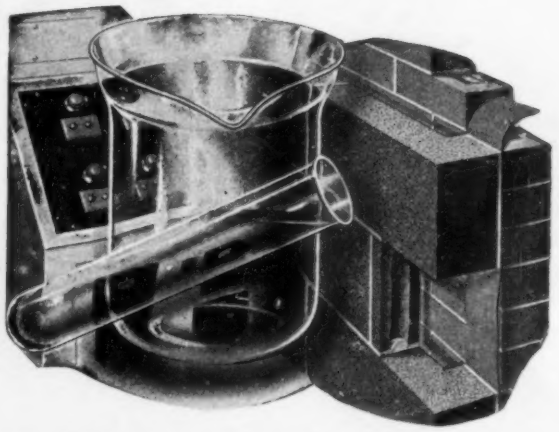
NORWICH P.O. Box 5, Riverside Works, Norwich. NOR 72A
Telephone: Norwich 25251. Telegrams: Boulpaul, Norwich

LONDON 5th Floor, Trevor House, 96-104, Brompton Road, London, S.W.3. Telephone: KNI 6226
Telegrams: Boulpaul, Wesdo, London

TIPTON P.O. 11, Midland Works, Tipton, Staffs
Telephone: Tipton 1191/2 Telegrams: Boulpaul, Tipton

B.20

Everything



a block should have . . .

★ High Quality
Laboratory control

★ Low Cost
Quicker building

★ Thermal Insulation
Built-in warmth

★ Loadbearing
of course

★ Reveal Blocks
and Coursing blocks too

★ Cutting Slots
for quick and easy cutting

★ Delivery
ex-stock

. . . the Broad - Acheson Block has.

The new Technical Brochure is worth having— a copy will be sent on request

BROADS

BROAD & CO., LTD.
4 SOUTH WHARF, PADDINGTON, LONDON W.2
Telephone: PADdington 7061(20 lines)

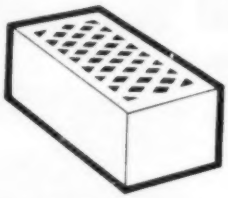
SfB (21) Fg2

Facing Bricks and Engineering Bricks

SfB (21) Fg2

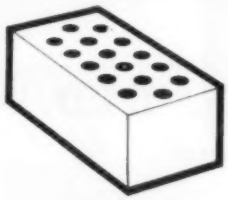
Standard sizes to conform to B.S.657:1950.
Nominal dimensions $8\frac{3}{4}$" x $4\frac{3}{16}$" x $2\frac{5}{8}$" or $2\frac{7}{8}$".
Bricks of 1", 2" and $2\frac{1}{2}$" thicknesses made to order.
Full range of Special Shapes.

Certified Tests carried out on all bricks according to B.S.1257:1945. Typical results are given below.



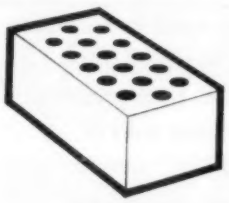
Diamond Pattern Perforated Facings:

Crushing Strength: Over 7,000 lbs./sq. in.
Water Absorption: 8.3% (after 5 hours boiling)
Colours: Smooth Red, Red Sandfaced, Antique Tudor, Madeley Mixture



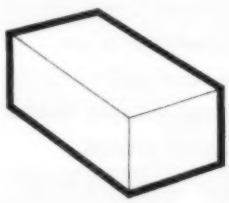
16-hole Perforated Facings:

Crushing Strength: Over 7,000 lbs./sq. in.
Water Absorption: 5.8% (after 5 hours boiling)
Colours: Red Rustic, Dark Rustic, Straw Thatch, Brampton, Wulstan



16-hole Perforated Blue Rustic Facings:

Crushing Strength: Over 10,000 lbs./sq. in.
Water Absorption: 3.1% (after 5 hours boiling)



Engineering Bricks:

Staffordshire Blue:
Crushing Strength: Over 11,000 lbs./sq. in.
Water Absorption: 3.9% (after 5 hours boiling)

Staffordshire Blue Brindled:
Crushing Strength: Over 11,000 lbs./sq. in.
Water Absorption: 5.9% (after 5 hours boiling)

Efflorescence and Soluble Salts:

None of these bricks will give rise to efflorescence or any other problems associated with soluble salts. The soluble salts content is well below the limit laid down in British Standard Code of Practice CP.121.101(1951).

G. H. Downing & Co Ltd

Head Office: Brampton Hill, Newcastle, Staffs.
Telephone No.: Newcastle, Staffs. 65381 (5 lines).

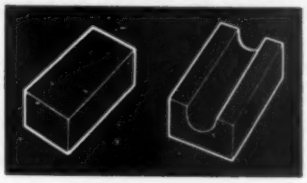
SfB (21)

SfB (21) Fg

HAUNCHWOOD

vitrified blue clay products

NON-HYDROSCOPIC—ACID, OIL AND GAS RESISTANT

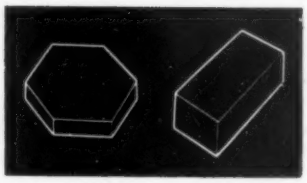


PRESSED BRICKS Building—plinth—splay—bullnose—squint—manhole— arch or culvert—damp-course bricks

GUTTERS Channels—kerbs—sills—copings—ridges—fittings—chimney pots and linings.

BLUE WIRE-CUT AND BLUE BRINDLE ENGINEERING BRICKS

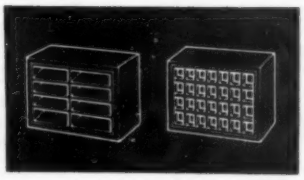
ENGINEERING BRICKS are also made in Brown Brindle and Hard Red qualities.



ABRASIVE RESISTANT PAVING, FLOORING TILES AND PRESSED BLUE ENGINEERING BRICKS

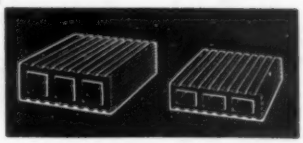
Nuclear and Traditional Generating Stations, Gas Works, Chemical Works, Sewage Schemes, Railway Works, Public Buildings, etc. Pressed Blue Engineering Bricks were chosen for parts of the outer radiation shielding at Hunterston Nuclear Generating Station. Haunchwood's Advisory Service will solve your difficulties arising from specifications requiring non-standard bricks and fittings or products for special duties.

hollow blocks and air bricks



HOLLOW BUILDING, PARTITION AND FLOOR TILES

For the conservation of heat and noise elimination. Of sound construction and well burnt, and with keyed surfaces well-adapted for rendering. Smooth-faced blocks can be made to order. These blocks have been used in many large and famous buildings for over 30 years.



AIR BRICKS

Red—Blue—Buff—Louvre and Square-Hole. L.C.C., Square-Hole to meet London County Council's special requirements.

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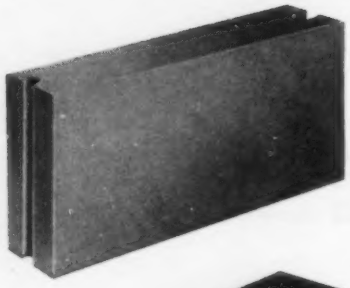
FWS

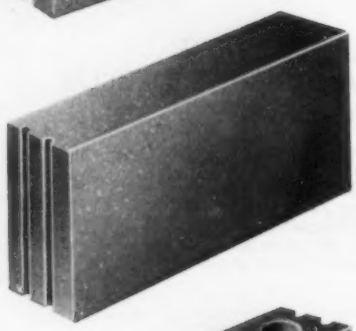
LIGNACITE

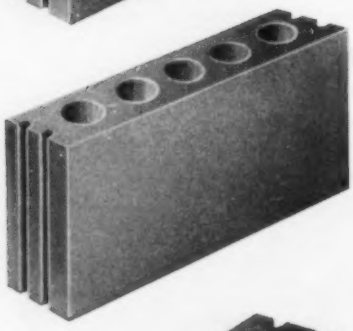
REG^{D}

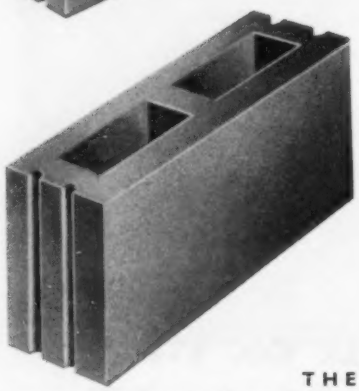
SfB (21) Ff4 BUILDING BLOCKS

LIGHTWEIGHT · INSULATING · FIRE RESISTING · LOADBEARING









LIGNACITE BLOCKS are suitable for all types of partitions, inner leaves and load bearing walls. They are extensively used in the construction of public, domestic, industrial and agricultural buildings.

SPECIAL PROPERTIES OF LIGNACITE BLOCKS. They can be sawn, chiselled drilled, channelled, screwed, nailed or bolted, showing a considerable labour saving for plumbers, joiners and electricians. Lighter fixings, e.g., skirtings, picture rails, doors and window-frames and electrical fittings may be nailed or screwed directly to the material. This material HOLDS nails and screws permanently as NO CORRODING chemicals are incorporated.

SIZES OF BLOCKS

from 18″ x 9″ x 2″ nominal

to

18″ x 9″ x 9″ nominal

HOLLOW BLOCKS with solid laying edges and cavities in most sizes.

ROCK FACED BLOCKS, RIDGED CAPPING BLOCKS, HALF BLOCKS AND CLOSURES ALSO AVAILABLE

TYPICAL EXAMPLE OF THERMAL CO-EFFICIENTS

"U"

4″ Lignacite skim plastered one side . . . . . =·33

11″ cavity wall 4½″ brick, air space, 4″ Lignacite skim plastered one side . . =·22

9½″ cavity wall 4½″ brick, air space, 3″ Lignacite skim plastered . . . . . =·25

11″ cavity wall 5½″ Rock-faced Lignacite, air space, 3″ Lignacite skim plastered =·176

FOR FULL PARTICULARS AND DELIVERED PRICES PLEASE CONSULT OUR NEAREST WORKS OR LONDON SALES OFFICE

TECHNICAL SPECIFICATIONS

based on solid Lignacite

FACTS

1. DENSITY . . . . 80/90 lbs./cu. ft.
2. COMPRESSIVE STRENGTH at 28 days 500 lbs./sq. in.
3. DRYING SHRINKAGE. . . . 0.06%
4. MOISTURE MOVEMENT . . . 0.05%
5. THERMAL INSULATION . . . k = 2·08 per sq. ft. per hour per °F per in. thickness.
6. COMBUSTIBILITY · Meets combustibility requirement of B.S. 476 : 1953 part 1. "Fire Tests on Building Materials and Structures".
7. SPREAD OF FLAME . . . As detailed in appendix to B.S. 476 : 1953 = Class 1.
8. FIRE RESISTANCE . Resistance of test wall 4½″ thickness with one face skim-plastered as detailed in B.S. 476 · 1953 part 1, equals 4 hours 7 minutes.
9. SOUND REDUCTION . . Sound reduction of party walls constructed of two leaves 4½″ Lignacite Blocks with 2″ cavity = 51 decibels over 100-3,200 cycles per second.

DETERMINATIONS

Items 1-7 . . . Messrs. Ellis Research and Testing Laboratories Ltd.

Item 8 . . . Department of Scientific and Industrial Research and Fire Offices' Committee Joint Fire Research Organisation.

Item 9 . . . Building Research Station.

Thickness of Lignacite	"U"
2″	0·51
2½″	0·45
3″	0·41
4″	0·34
4½″	0·33
4½″	0·32
6″	0·26
9″	0·188

Cavity wall of 4½″ brick externally, sealed 1″ air space, 4½″ Lignacite with plaster skim coat internally. "U" = 0·21.

THE LIGNACITE GROUP OF COMPANIES

LIGNACITE (NORTH EASTERN) LTD., Whitley Bridge, Nr. Goole, Yorks. Telephone : Whitley Bridge 354/5

LIGNACITE (NORTH LONDON) LTD., Meadgate Works, Nazeing, Essex. Telephone : Hoddesdon 4441/2

LIGNACITE (HOME COUNTIES) LTD., Bracknell, Berkshire. Telephone : Bracknell 666

LIGNACITE (FORDINGBRIDGE) LTD., Fordingbridge, Hampshire. Telephone : Fordingbridge 2177

LIGNACITE (BRANDON) LTD., Brandon, Suffolk. Telephone : Brandon 350 & 482

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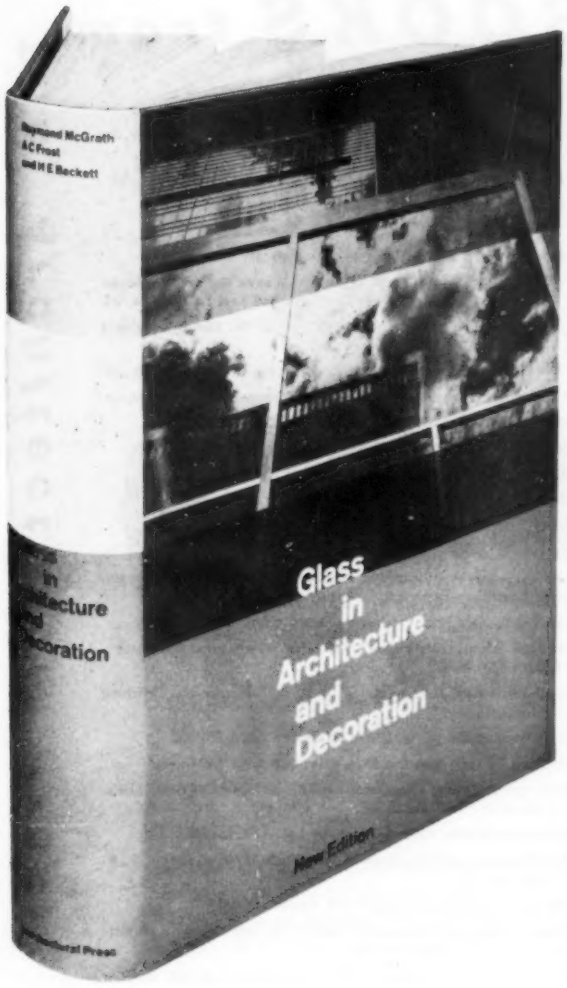
LONDON SALES OFFICE : 119 Parkway, LONDON N.W.1 Telephone : EUSton 2114/5

SfB (21)



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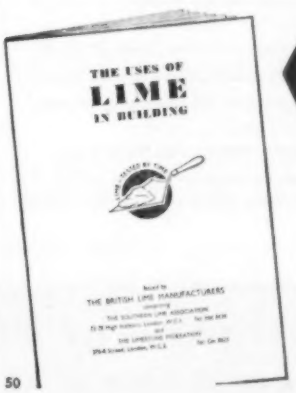
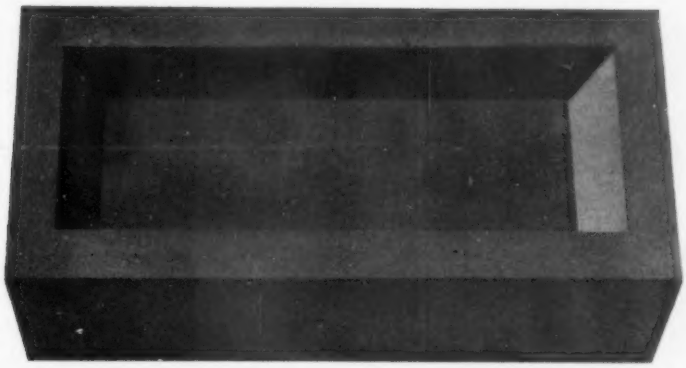


50

A booklet on gauged LIME/sand mixes conforming to British Standard Codes of Practice will be sent free on application to:—

THE LIMESTONE FEDERATION
Manfield House, 376/8, Strand, London, W.C.2
Tel: COVent Garden 0621
OR
THE SOUTHERN LIME ASSOCIATION
Hanover House, 73/78 High Holborn, London, W.C.1
Tel: HOLborn 5434



LOADBEARING BRICKS FACING BRICKS

BRICKS TO FIRST DESIGNATION L.C.C. BYE-LAWS (10,000 lbs. a square inch)

Southwater Pressed Engineering Class 'A', B.S. 1301*
Southwater Pressed Engineering No. 1
Lingfield Engineering Wirecut (Selected for Grade 'A' strength, B.S. 1301)
Lingfield Sandfaced Rustic (Grade 'A' strength B.S. 1301)
Lunsford Sandfaced Dark Grey
Lunsford Sandfaced Blue Brindled
Lunsford Sandfaced Brown Rustic
Lunsford Brown Brindled
Lunsford Buff Pastone
Southwater Perforated Golden Brown
Southwater Perforated Silver Grey

BRICKS TO SECOND DESIGNATION L.C.C. BYE-LAWS (7,000 lbs. a square inch)

Southwater Pressed Engineering No. 2
Lingfield Engineering Wirecut (selected for Grade 'B' strength, B.S. 1301)
Lingfield Sandfaced Rustic (Grade 'B' strength, B.S. 1301)
Lingfield Crowhurst Brown
Lingfield Crowhurst Dark
Nutbourne Multi-coloured
Nutbourne Hazelnut Brown
Lunsford Multi-coloured
Southwater Machine Pressed Red
Dorking Pressed Multi-coloured
Dorking Pressed Pastone
Dorking Pressed Red
Dorking Pressed (Second Quality)

BRICKS TO THIRD DESIGNATION L.C.C. BYE-LAWS (5,000 lbs. a square inch)

Warnham Selected Hard Pressed
Warnham Buff Rustic
Warnham Dark Rustic
Dorking Handmade Red
Dorking Handmade Silver Grey

BRICKS TO FOURTH DESIGNATION L.C.C. BYE-LAWS (4,000 lbs. a square inch)

Warnham Selected Hard Pressed
Dorking Handmade Multi-coloured
Dorking Handmade Grey Brown

* Southwater Pressed Engineering Class 'A' comply with B.S. 1301 for Engineering bricks both as regards strength (10,000 lbs. a square inch) and absorption (4.5% B.5) and should be used where a dense impervious finish is required (e.g. in basements or plinths). They can by arrangement be supplied specially selected for strength in excess of Class 'A' for very high loadings.

Write for fully descriptive leaflet to:—

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AJ SfB (21)

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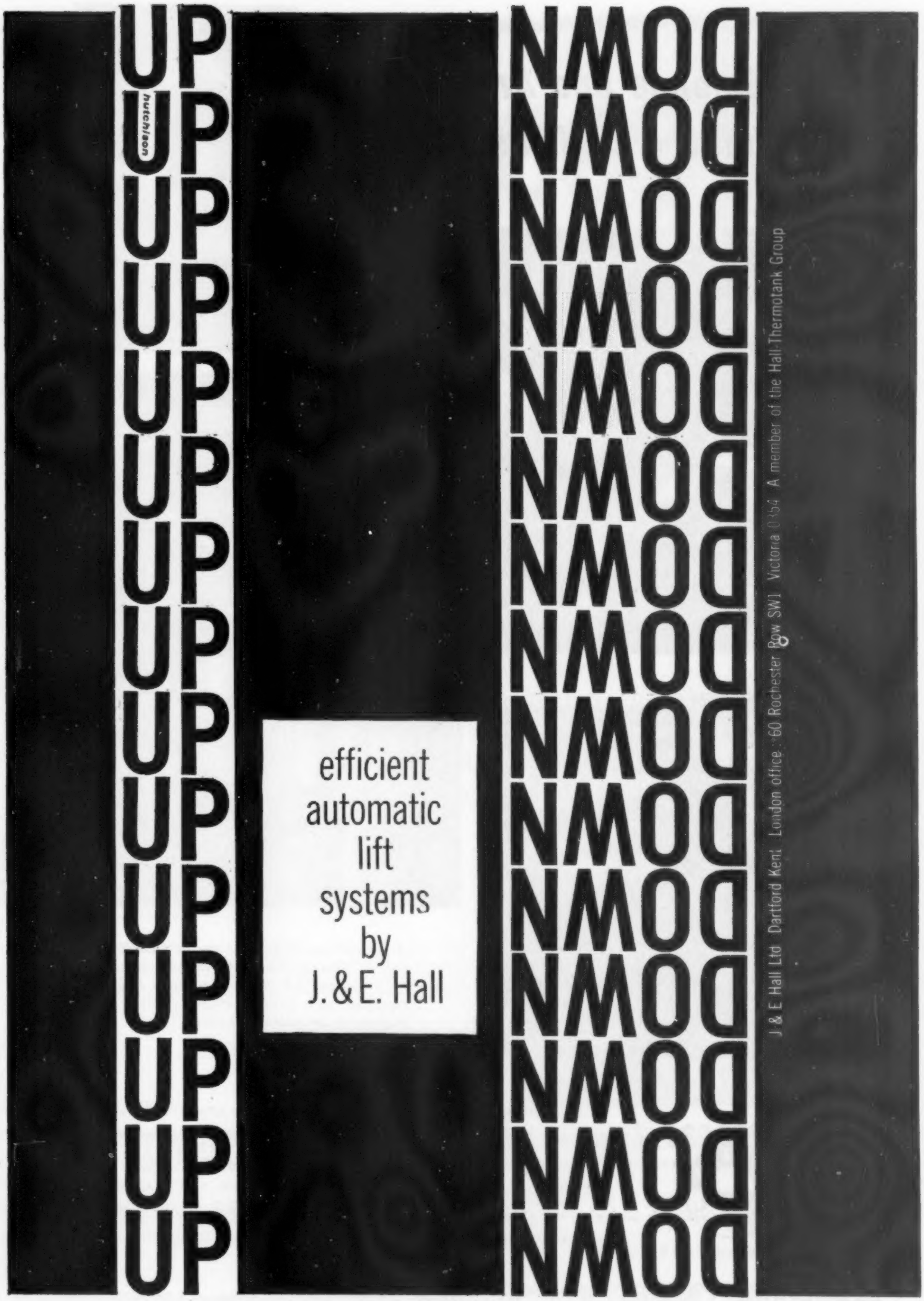
END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The Science and Art of Theatre Lighting

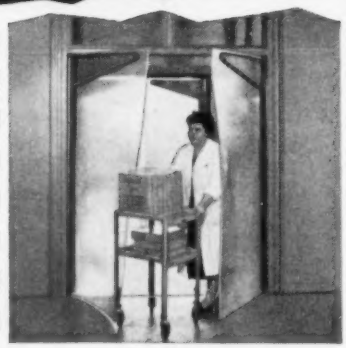
A recent installation at Upper Canada College by Strand Electric Ltd., 36 dimmer circuits controlled by a Strand SR Remote Control board are used. Opposite is a Strand remote control desk for 72 transistor-controlled dimmers.

If your job involves lighting stages, or similarly specialised lighting applications you will find 'Stage Planning' invaluable reading. Copies are free on request. As a further help to those interested in the theatrical aspect of lighting Strand Electric have arranged a programme of lectures and practical demonstrations at their theatre in King Street covering stage lighting technique, lighting planning and demonstrations of lanterns and remote lighting control equipment.

STRAND ELECTRIC

THE STRAND ELECTRIC & ENGINEERING CO. LTD., 29 KING STREET, COVENT GARDEN, LONDON, W.C.2. TEMPLE BAR 4444

POSITIVE



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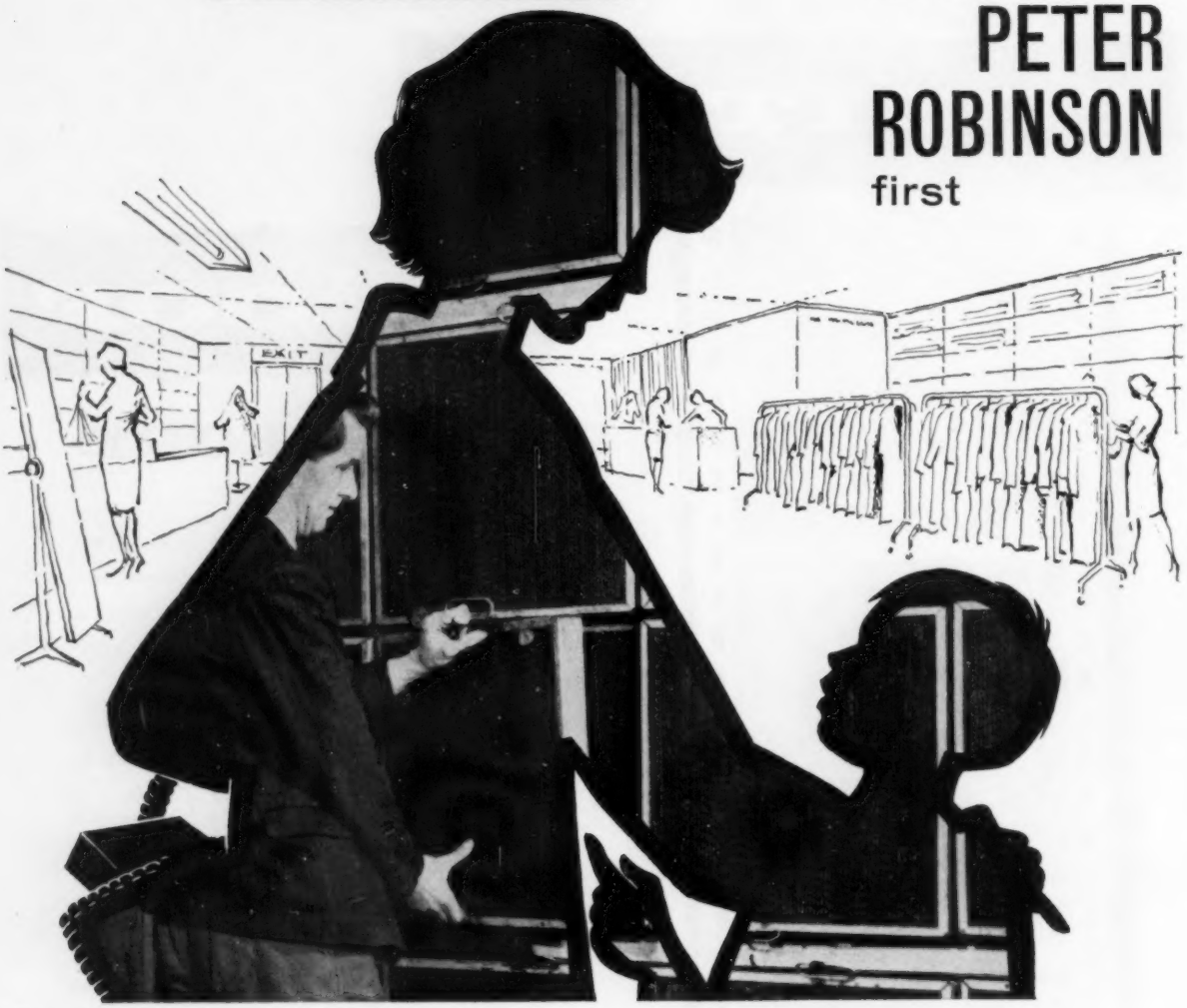
let's go to
PETER ROBINSON
first



Photographs by courtesy of Peter Robinson show part of the filter bank at their store in the Strand.

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THE AIR
is
BETTER
by
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Even the things you can't see at Peter Robinson's are rather wonderful.

Take the air, for example. It's always so fresh and clean, better for everyone and the merchandise too. That's because they use Far-Air Viscous Panel type filters which can be changed for servicing in seconds, yet which obtain maximum filtration efficiency.

Far-Air Filters have a very long life and cost far less to install and maintain than any conventional system. Would you like to have full details?

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When you're in the market for a better building

The superstructure in the supermarket is a model of R.U.4.C., which sounds like an Admiralty code signal, but is actually another Wates project planned for the City of London. Upon completion it will be known simply as number 40 Basinghall Street, but known widely for its number of interesting features. Among these is the public shopping promenade two floors above street level, while the glass and aluminium tower, rising to a total of 20 storeys, will be the first speculative office block in the City to be fully air conditioned. *Architects: Sir John Burnet, Tait, Wilson & Partners. Structural Engineers: Alfred E. Beer, E.R.D., A.C.G.I., M.I.C.E., M.I.Struct.E., M.Cons.E.*

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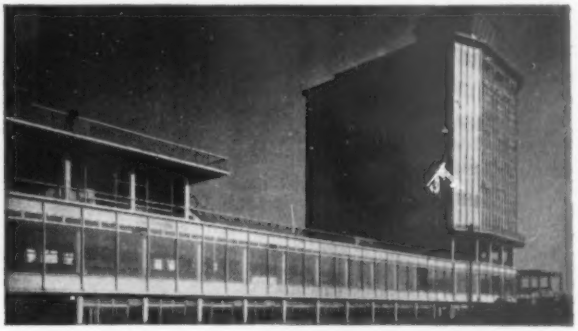
WILLIAMS & WILLIAMS light, bright and graceful Wallspan

WILLIAMS & WILLIAMS

Wallspan at Manchester Airport

To accommodate ever-increasing passenger and freight traffic, a two and a half million pound extension scheme is being carried forward in two stages at Manchester Airport. Williams and Williams Wallspan was chosen for the curtain walling throughout the first stage of development, now complete, which includes the new ten-storey control tower and the first half of the terminal buildings and administration offices. Wallspan is being used also for the second stage, comprising the completion of the terminal buildings and the embarkation piers. Quick to erect and virtually maintenance free, with double glazing for sound insulation, Williams and Williams Wallspan will provide a light and happy atmosphere for all who use the new Manchester Airport—and a welcome for visitors from all over the world.

Part of the administration area high in the control tower. A feature of these rooms is the heated aluminium sills with pressed louvres. These were specially designed to counteract cold radiation from the windows due to the use of heating coils in the ceilings. They were installed as an integral part of the Wallspan.



The control tower and part of the terminal buildings. On the airport faces of these new blocks, double glazing for sound insulation was used throughout except on the visitors' lounge — people who come to watch aeroplanes like to hear them too. Infilling is in blue Escol Panels, with vitreous enamel finish, bonded to Asbestolux.

S. G. B. Roberts, Dip.Arch., A.R.I.B.A. Leonard C. Howitt, M.Arch., D.A.(Man.), Dip.T.P., D.P.A., F.R.I.B.A., M.T.P.I. *Contractors:* Richard Costain and Sons

Barbour index: 245

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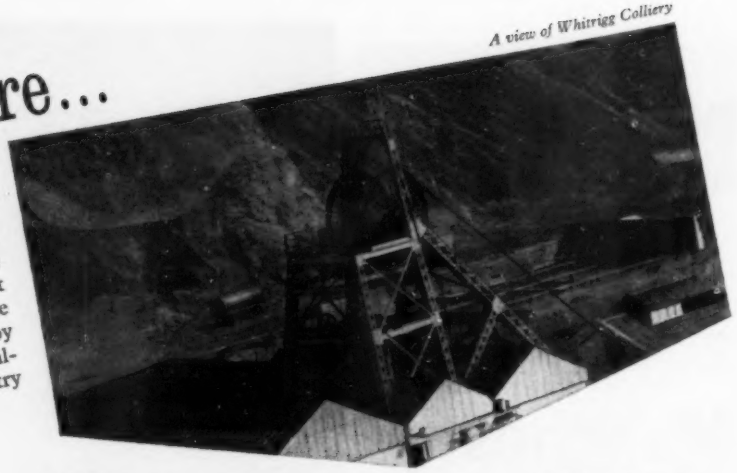
Coal from here...

A tonnage equivalent to the entire output of a colliery will be consumed by the new British Motor Corporation factory now being erected at Bathgate in Scotland. The B.M.C. choose *coal* because coal has proved the most economical fuel for their purpose, because coal is home-produced and unaffected by policy changes abroad, and because our coal-fields can produce all the coal British industry will need for many generations to come.

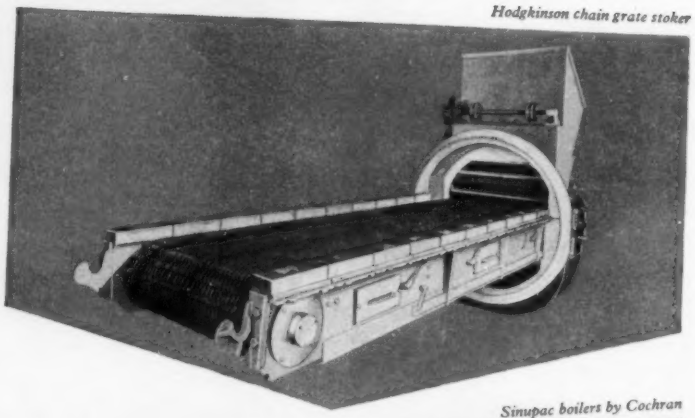
A view of Whitrigg Colliery



...will be fed...

Hodgkinson new design Mark V Chain Grate Stokers are being installed by B.M.C. for maximum thermal efficiency. These stokers maintain a flexible heat control, burn coal smokelessly and can cope rapidly with fluctuating loads.

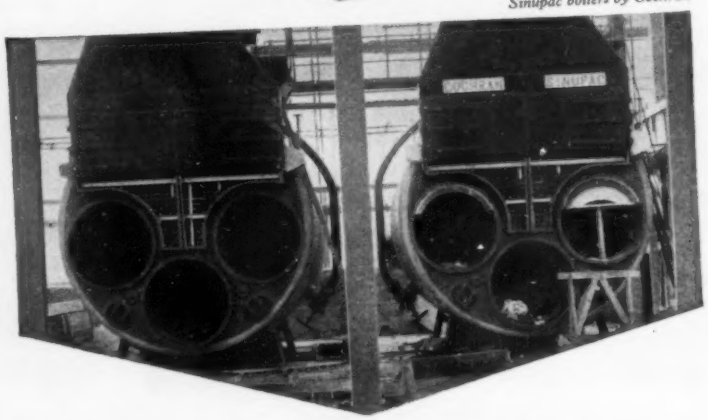
Hodgkinson chain grate stoker



.....into these...

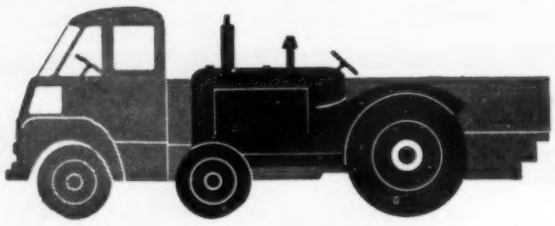
Five high-pressure automatically controlled, hot water Cochran 'Sinupac' boilers will each burn (per hour) 1.8 tons of untreated smalls containing 40 per cent fines. B.M.C. choose Cochran because, even with this low-grade coal, the efficiency will be approximately 80 per cent on the gross C.V. The total capacity of the five boilers is potentially 160,000,000 B.T.U.'s per hour. This will increase when the factory is in full production.

Sinupac boilers by Cochran



to power the factory that makes these...

The new B.M.C. factory—an important landmark in the industrial progress of Scotland—will produce approximately 400 tractors and 1,000 commercial vehicles a week, and will employ some 5,000 to 6,000 people. This new B.M.C. factory, burning British coal, automatically fired by Hodgkinson stokers in Cochran boilers, will increase Britain's prosperity at home—and British trade overseas.



BMC DRIVE AHEAD WITH COAL, HODGKINSON AND COCHRAN

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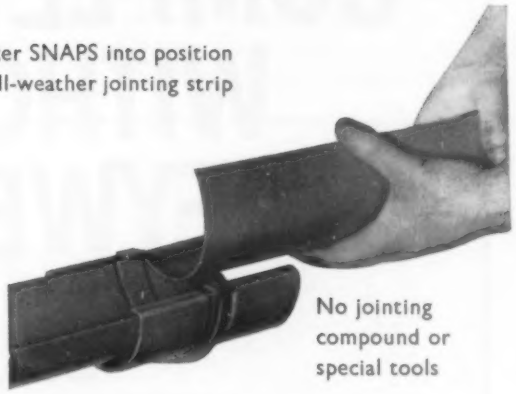
4. Aluminium alloy fascia brackets give strength and safety
5. Adequate and positive Allowance for expansion and contraction at every gutter end.

Gutter SNAPS into position on all-weather jointing strip



No jointing compound or special tools

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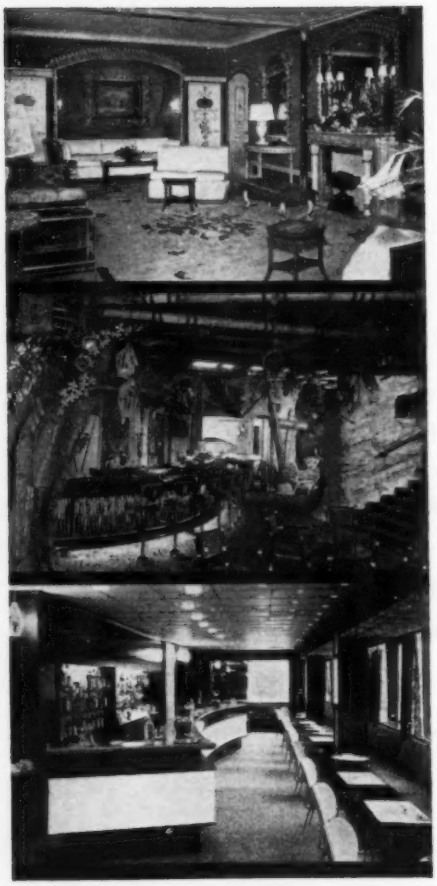
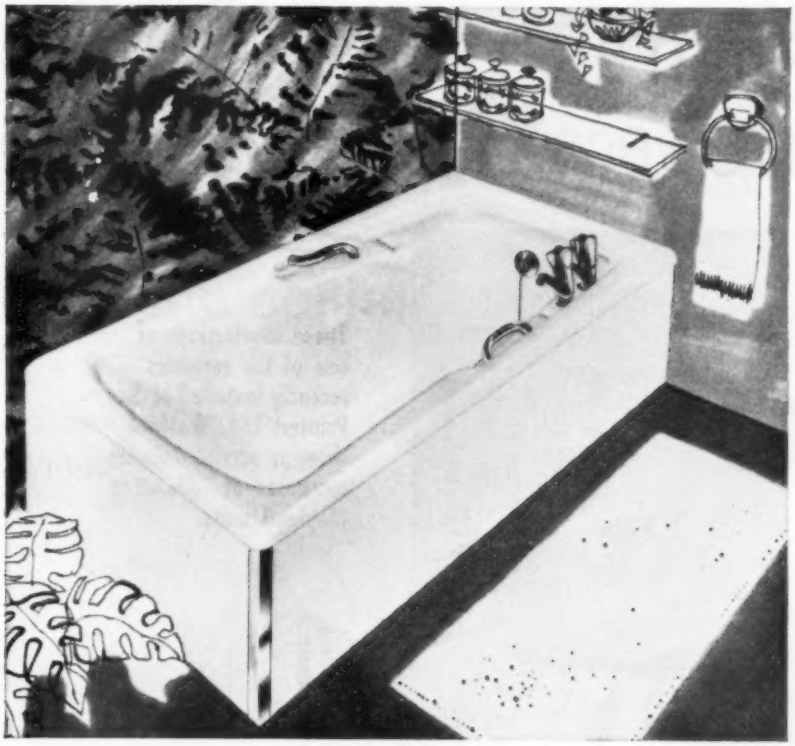


NEWS FROM HULL



new Kingston Bath completes Britain's best Bathroom suite

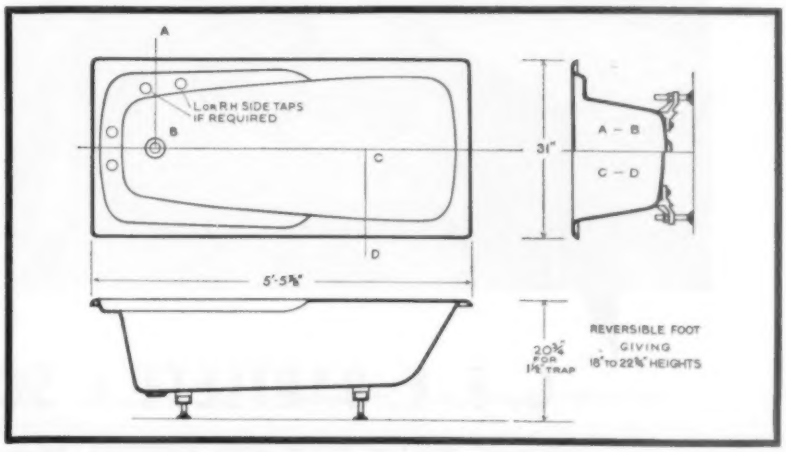
IDEAL-STANDARD Introduce New Luxury Bath in Moderate Price Range

Kingston vitreous china sanitary appliances have for some time been accepted as outstanding designs. Now Ideal-Standard have completed the suite by introducing the Kingston bath.

The new Kingston bath is 5′ 6″ long and is finished in high quality porcelain enamel. Its main features are:—

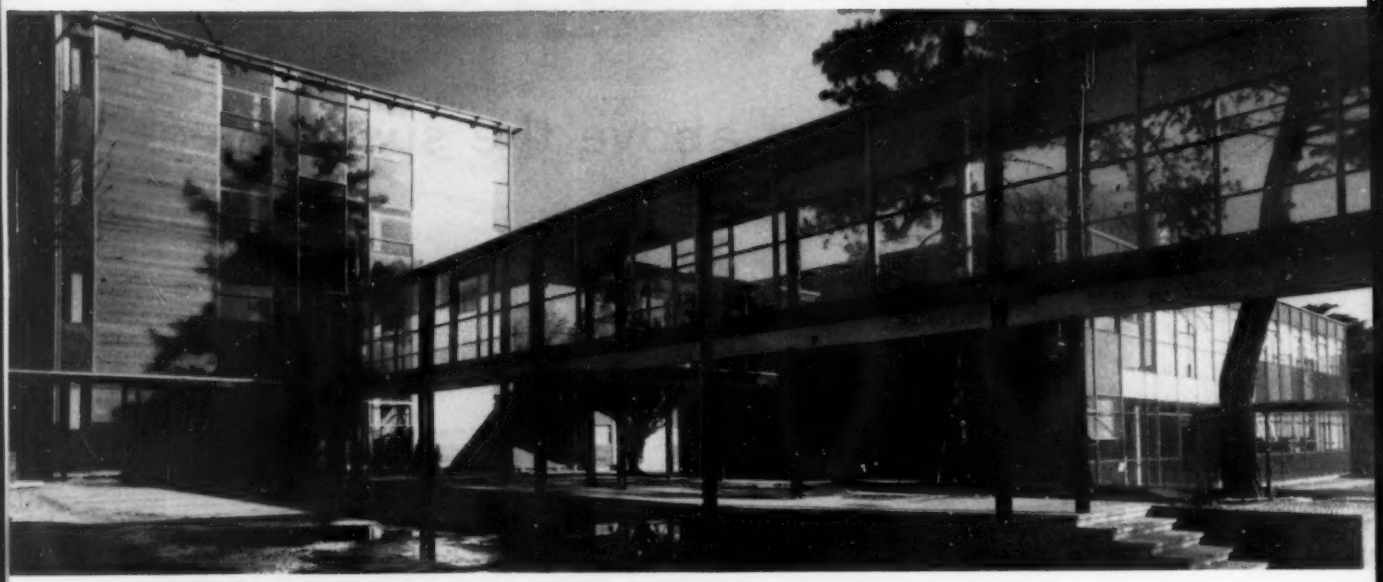
1. Wide shoulder space and special slope to headend to provide maximum comfort.
2. Flat bottom for more space and safety when standing or entering the bath.
3. Special adjustable feet give very low height for the elderly — and also for bathing children.
4. A generous shelf area with soap sinkings.
5. Optional twin handgrips.
6. Easy-to-clean sloping rim.
7. Generous water content — this will be appreciated by "soakers".
8. The bath can be supplied to take mixer or pillar taps centrally mounted or on either side.

The design of the bath is simple and elegant with an attractive low appearance. It can be used in conjunction with the Trimline as well as the Kingston suites, and is available in the usual range of Ideal-Standard colours.



The new Ideal-Standard Kingston bath completes the elegant Kingston suite. It is 5′ 6″ long, low in outline and has many unique features.

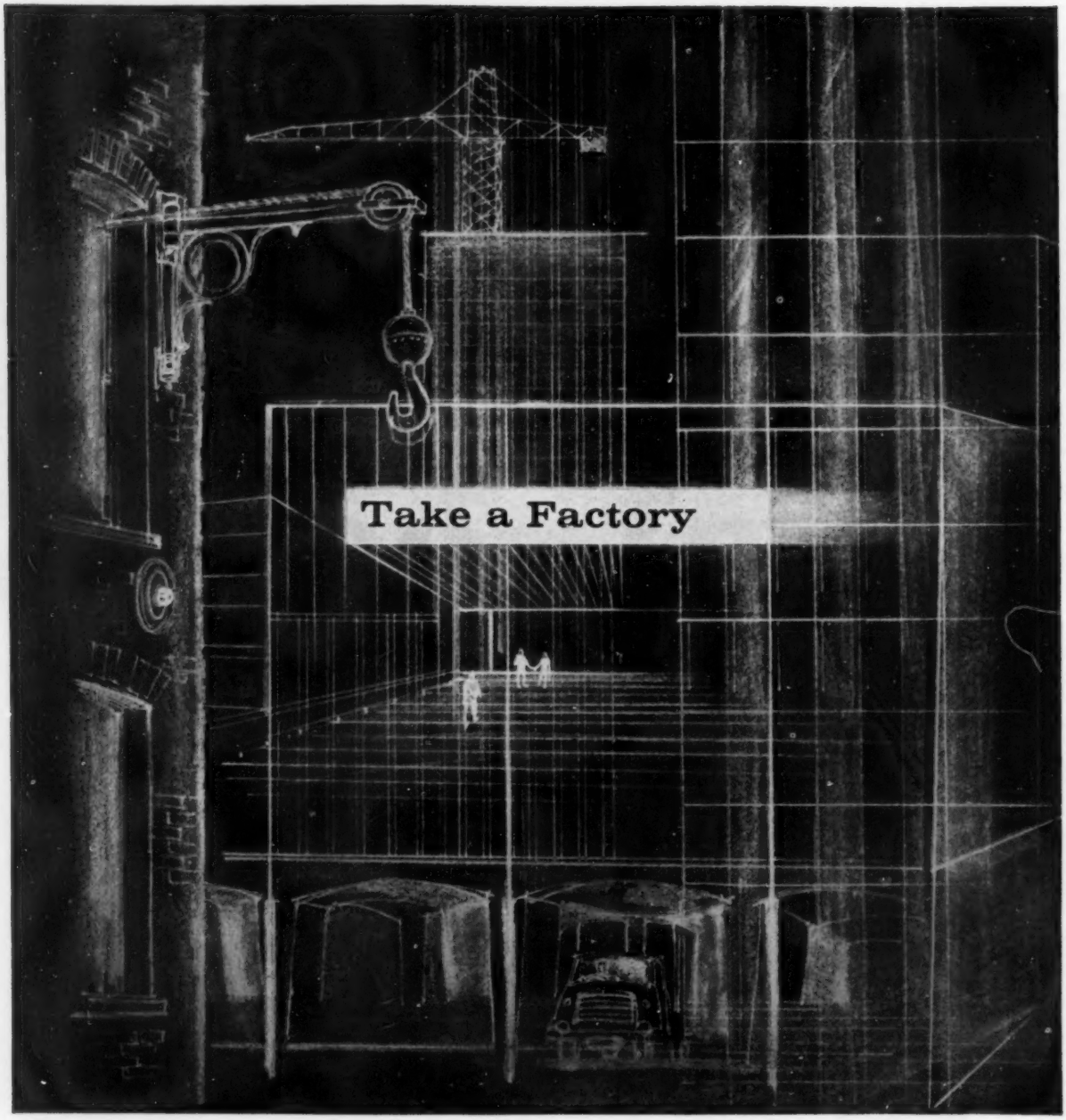
consultation... design... construction...



County Architect:
G.C. Fardell Esq. M.B.E., A.R.I.B.A.
Hertfordshire County Council.

The St. Albans College of Further Education and Hertfordshire College of Building was awarded the R.I.B.A. Architecture Bronze Medal in the area of the Essex, Cambridge and Hertfordshire Society of Architects for the period 1958-60.

The project is the first of four large colleges which have been designed on a 2′ 8″ modular grid. Hills produced the dimensionally co-ordinated light steel frames from their Presweld units, structural techniques being developed in close collaboration with the Hertfordshire Architect's Department.



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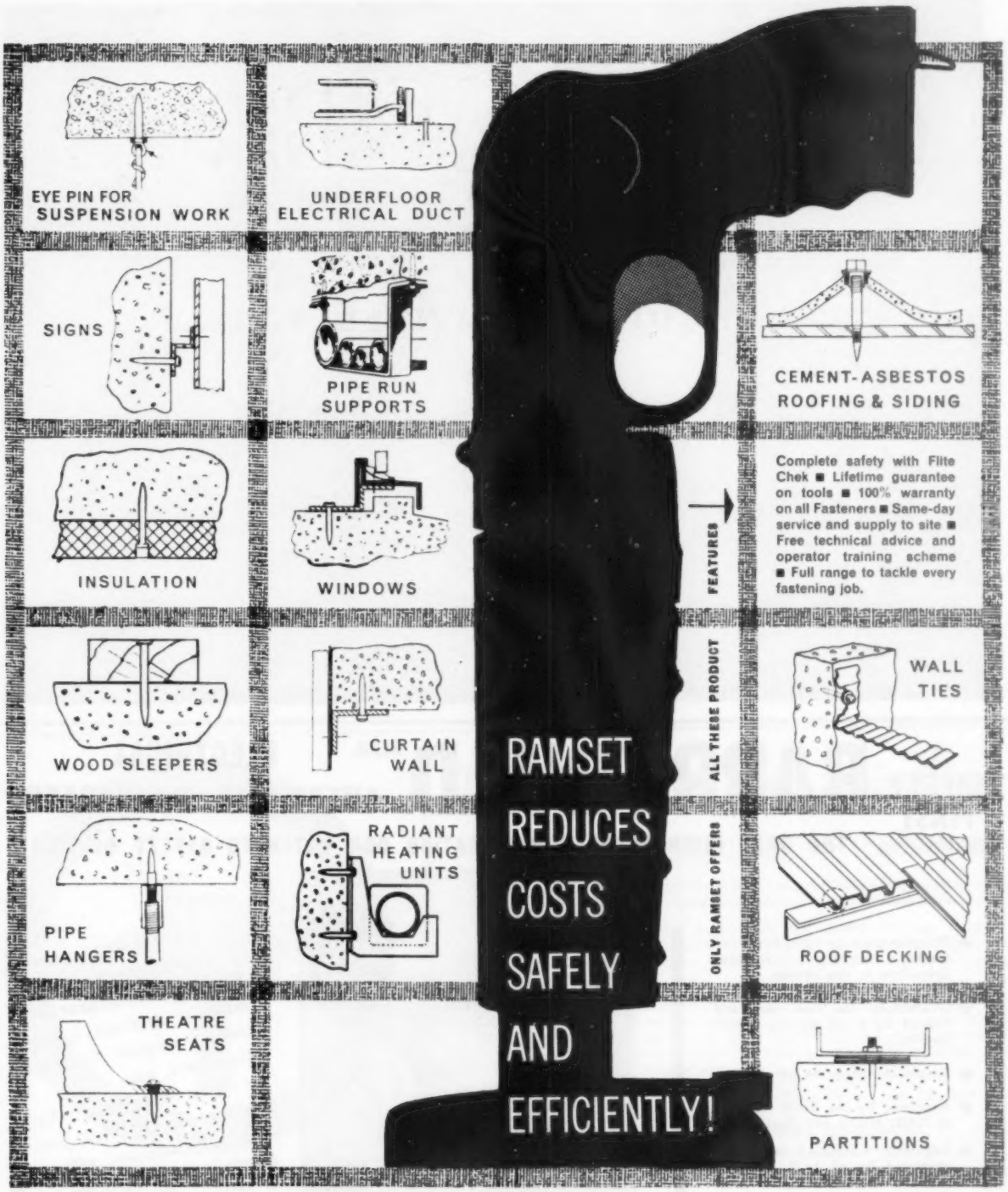

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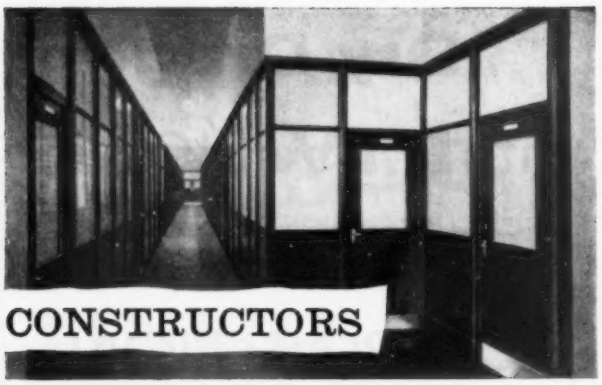

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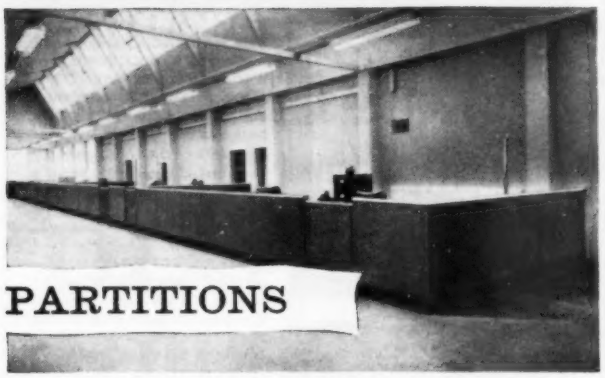

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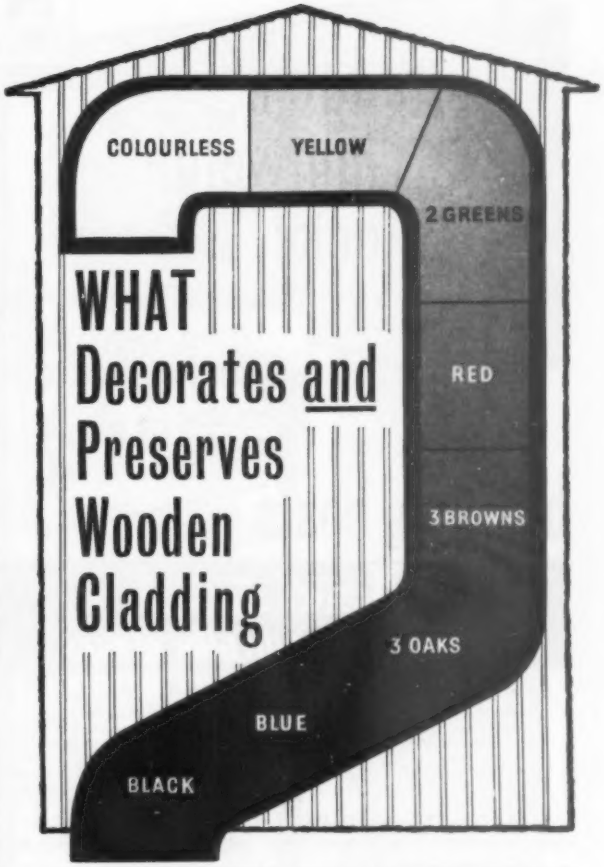

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Size 12×8¾ ins. 160 pages. 148 half-tone and line illustrations. 25*s.* net, postage 1*s.* 9*d.*

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

CLASSIFIED ADVERTISEMENTS

CHRISTMAS PRESS SCHEDULE

Normal printing arrangements have been altered to allow for the Christmas holiday. The latest dates for receiving advertisements for the following issues are:
December 13 issue—Thursday, December 7.
December 20 issue—Wednesday, December 13.
December 27 issue—Monday, December 18.
January 3 issue—Friday, December 29.

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9-13, Queen Anne's Gate, Westminster, S.W.1.

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

AIR-MAIL SERVICE available on request.

In response to requests from a number of Overseas subscribers for air-mail delivery of Public and Official Appointment details and Other Appointments Vacant, we have been pleased to arrange that cuttings of all such classified advertisements appearing in the A.J., shall be despatched by air-mail on Wednesday of each week (one day prior to A.J. publication date). The cost of this special service to Overseas subscribers will be 5s. for four weeks (1s. 3d. for each additional week) and prepayments should be sent by subscribers wishing to take advantage of this service. The charge we are making represents only the actual cost of the postage involved.

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Please apply on application forms from the Principal Administrative Officer, 20, Trongate, Glasgow, C.1.

A. G. JURY,
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S9917

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There are vacancies for ARCHITECTS in the COUNTY ARCHITECT'S DEPARTMENT on all Grades up to the maximum of A.P.T. V (£1,480 p.a.). In addition to the usual building programme of new schools, police stations, welfare homes, etc., work in the Department includes the New Shirehall (nearly £1,000,000) and the development of SCOLA.

Appointments are subject to the N.J.C. Conditions and a five-day week is in operation. A disturbance allowance or weekly separation allowance is payable to a married man taking up an appointment.

Architects interested in working in Shropshire are invited to write to the County Architect, Ralph Crowe, A.A.Dipl., A.R.I.B.A., A.M.T.P.I., Column House, London Road, Shrewsbury, giving details of their training, qualifications and experience. 1218

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2. QUANTITY SURVEYOR—Trainee or Learner, General Division, £260—£630 p.a.

Minimum qualifications required for professional examinations as follows:—

R.I.C.S.:—Five passes at "O" level at one sitting including English Language and Mathematics.

I.Q.S.:—Five passes at "O" level including English Language, Mathematics and Geography.

Application forms may be obtained from the County Architect, R. Allport Williams, Esq., M.B.E., B.Arch., F.R.I.B.A., County Hall, Northallerton. Completed forms should be returned to the Clerk of the County Council, County Hall, Northallerton, by the 22nd December, 1961. S1387

WORCESTERSHIRE COUNTY COUNCIL
REDEVELOPMENT OF TOWN CENTRES

Applications are invited for the following appointments to reinforce the staff engaged on schemes of urban renewal:—

AN ARCHITECT/PLANNER, Scale "A," £1,365—£1,565.

A PLANNING ASSISTANT, A.P.T. II/III, £815—£1,140.

A DRAUGHTSMAN, Misc. IV, £625—£685.

Applicants for the first appointment should be qualified architects with practical experience in the design of schemes for the redevelopment of built-up areas. The planning assistant should be of Intermediate standard in the R.I.B.A. or T.P.I.

Applicants for the draughtsman's appointment should have some ability in architectural drawing and previous experience in a Planning Department would be an advantage.

Further particulars of these appointments and forms of application can be obtained from:—The County Planning Officer, County Buildings, Worcester. (T.194.) S1300

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Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECT — "CAREER CLASS" commencing in A.P.T. IV (£1,140—£1,310 p.a.) progressing to A.P.T. V (£1,130—£1,480 p.a.) subject to satisfactory report on reaching appropriate incremental point in Grade. Applicants must be Registered Architects and Associate Members of the R.I.B.A.

(*b*) ARCHITECTURAL ASSISTANTS—"QUALIFYING CLASS." Vacancies exist in the following Grades:—

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A.P.T. II: Salary £815—£960 p.a.
A.P.T. III: Salary £960—£1,140 p.a.
A.P.T. IV: Salary £1,140—£1,310 p.a.

Applicants for posts in Grades I and II should have passed the Intermediate Examination of the R.I.B.A., and for Grades III and IV the full R.I.B.A. Final Examination.

N.J.C. Conditions of Service; superannuation; medical examination. Canvassing will disqualify.

Applications, stating age, present position and salary, details of previous appointments, together with the names and addresses of two persons for reference, must reach the County Architect, Shire Hall, Gloucester, by 15th December, 1961.

GUY H. DAVIS,
Clerk of the County Council.
1315

KENT COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

The volume of work undertaken by this Department requires the filling of vacancies now existing for ARCHITECTS. Enthusiastic and competent ARCHITECTS are invited to join in a large and varied programme. Salaries within range £1,140—£1,480 a year. Applications to be sent to the County Architect, Springfield, Maidstone. S1292

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Applications are invited for the following posts in the Quantity Surveyor's section:—

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A.P.T. IV: Salary range £1,140—£1,310.

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Applications stating appointments applied for, age, qualifications, experience, present and previous appointments, together with the names of two referees, to whom reference may be made, must reach me by Monday, 11th December, 1961.

T. CARTLIDGE,
Borough Architect and Planning Officer.
Municipal Buildings,
75 Union Street,
Oldham. 1385

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DREWERY F. BUNKALL,
Clerk of the Council.
Town Hall,
Northfleet,
Kent.
November, 1961. 1389

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L. EDGAR STEPHENS,
Clerk of the Council.
Shire Hall,
Warwick.
December, 1961. S1380

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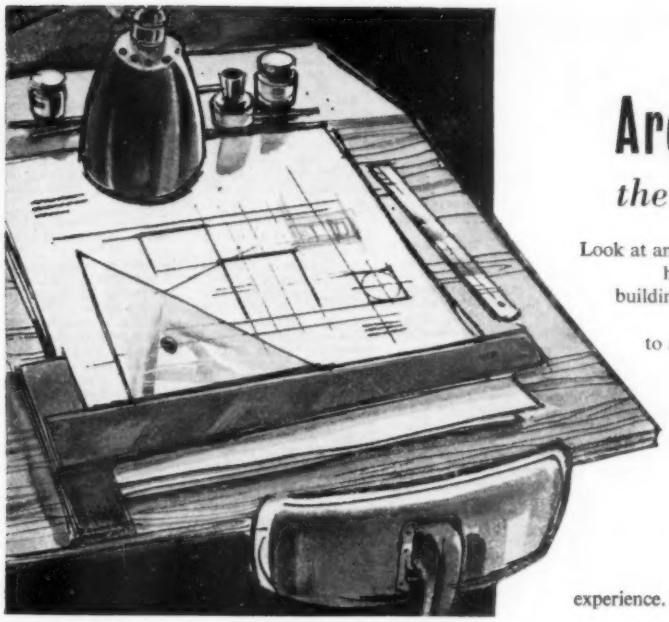
A. W. GLOVER, F.R.I.B.A.,
County Architect.
Bishopgarth,
Westfield Road,
Wakefield. 1409



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The posts are superannuable and subject to N.J.C. Conditions of Service.

A five-day working week is in operation and housing accommodation is available if required.

Applications, stating appointment applied for, age, qualifications, experience, present and previous appointments, together with the names of two referees to whom reference may be made, must reach me by Monday, 18th December, 1961.

T. CARTLIDGE,
Borough Architect and Planning Officer.

Municipal Buildings,
75 Union Street
Oldham. 1381

STAFFORDSHIRE COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

Applications are invited from suitably qualified candidates for the following posts:—

ASSISTANT QUANTITY SURVEYORS, Grade A.P.T. IV, £1,140—£1,310 per annum.

HEATING ENGINEER, Grade A.P.T. IV, £1,140—£1,310 per annum.

The Architect's Department is a busy and expanding office, dealing with a wide variety of projects including Fire Stations, Colleges, Schools, Police Stations, Offices, Ambulance Stations, Clinics, Libraries, etc. Good working conditions, five-day week, assistance with removal expenses and housing accommodation may be made available.

The appointments will be subject to:—

(*a*) The National Scheme of Conditions of Service.

(*b*) The Local Government Superannuation Acts and the passing of a medical examination.

Forms of application, which must be returned by the 18th December, 1961, may be obtained from the County Architect, Green Hall, Lichfield Road, Stafford.

T. H. EVANS,
Clerk of the County Council.
1382

COUNTY BOROUGH OF STOCKPORT

Applications invited for following appointments:

ARCHITECTS, A.P.T. IV/V (£1,140—£1,480).

ASSISTANT ARCHITECTS, A.P.T. II (£815—£960).

ASSISTANT ARCHITECTS, A.P.T. I (£645—£815).

Men or women of initiative and ability required for a stimulating and varied programme of work in a progressive office. Commencing salaries according to experience and qualifications. Previous local government experience not essential. Five-day week. 100 per cent. mortgage for house purchase considered in approved cases. Posts pensionable, subject to medical examination. Full particulars stating age, qualifications, experience and two referees and if related to any member/senior officer of Council to Borough Architect, Town Hall, Stockport, by 14th December, 1961. Canvassing disqualifies. 1383

COUNTY BOROUGH OF ROTHERHAM
ARCHITECTS

Applications are invited for the appointment of ARCHITECTURAL ASSISTANTS, A.P.T. III/IV (£960—£1,310).

The department has a varied and expanding programme of architectural work including schools and large central redevelopment areas.

Candidates are required to have passed Parts I and II of the R.I.B.A. Final examination.

The commencing salary in the grades will be according to capabilities and experience.

Housing accommodation will be available if necessary.

Applications to be endorsed "Architects," stating age, qualifications and details of experience, together with names of two referees, should be received by me not later than Friday, 15th December, 1961.

Canvassing will disqualify.

JOHN S. WALL,
Town Clerk.

Municipal Offices,
Rotherham.
November, 1961. 1384

COUNTY OF ARMAGH EDUCATION COMMITTEE
ARCHITECTURAL STAFF

Applications are invited for the following posts:

(*a*) ONE ASSISTANT ARCHITECT. Salary Scale £936—£1,430.

(*b*) TWO ARCHITECTURAL ASSISTANTS. Salary Scale £645—£915 with possible progression to £1,040.

For post (*a*) applicants must be Associates of the R.I.B.A. or have an equivalent qualification, and for post (*b*) should have previous architectural experience.

Application forms and particulars and conditions of appointment may be obtained from the Director of Education, Education Office, Courthouse, Armagh, with whom completed application forms must be lodged by 5 p.m. on Friday, 22nd December, 1961. 1377

CORPORATION OF GREENOCK

The Corporation has formed a new Department of Architecture and Town Planning, under the direction of Mr. F. Silvester White, A.R.I.B.A., A.R.I.C.S., A.M.T.P.I., M.I.Mun.E., Burgh Architect and Town Planning Officer.

Greenock is a "Large Burgh" (equivalent to a County Borough in England) situated on the Firth of Clyde within easy reach of country of great scenic beauty. Population 77,000. Industries principally connected with shipbuilding, marine, heavy and light engineering. The difficult topography, the legacy of nineteenth century tenement housing and the pressing need for redevelopment present challenging problems requiring imagination and bold treatment.

The Corporation is involved in C.D.A. procedures in four areas and others are contemplated. A scheme for the total redevelopment of the central shopping area by a private estate company in collaboration with the Corporation is in course of preparation. There is a housing programme of over 3,000 dwellings, many in multi-storey flats.

The following vacancies occur, all of which offer opportunities for creative design and constructive thinking, viz.,

(A) DEPUTE BURGH ARCHITECT & PLANNING OFFICER (£1,415—£1,665).

(B) PRINCIPAL TOWN PLANNING ASSISTANT (£1,135—£1,300).

(C) REDEVELOPMENT ASSISTANT (ARCHITECT-PLANNER) (£1,055—£1,300).

(D) ARCHITECTURAL ASSISTANT, Senior Grade (£1,055—£1,300).

(E) DRAUGHTSMAN (£665—£810).

There will be placing according to experience and assistance with housing accommodation will be given, if required, in respect of Posts A to D.

POST A. An officer who is both Chartered Architect and Chartered Town Planner is envisaged, of mature experience in both fields. A thorough knowledge of planning law, administration and practice is essential. Although he will be concerned principally with all aspects of planning work, he will be required to take part in architectural activities and co-relate the work of both sections.

POST B. This officer should be a Chartered Town Planner, with preferably an architectural, engineering or valuation qualification. He should have wide experience in research, survey and presentation of essential information and in the preparation, presentation and administration of schemes, statutory processes, etc., and in the control of development.

POST C. This post requires an Architect-Planner, of good training, preferably qualified in one or both fields. A lively mind, imagination and creative ability are more important in this post than mature experience or administrative capacity. The work will be principally in the field of redevelopment, renewal and the improvement of urban environment, but the officer will be required to assist in all activities of the Department.

POST D. Requires a Chartered Architect with wide experience in design and contract management, particularly in housing and multi-storey flats.

POST E. Applicants should be skilled in both Architectural and Town Planning draughtsmanship, capable of effective rendering and presentation of schemes. Some skill in model making and perspective drawing will be an advantage.

The Department is small and the task is considerable. Enthusiasm and a sense of purpose are essential in all posts.

Applications stating age, experience, etc., and accompanied by the names of three persons to whom reference may be made as to general character and professional ability, should be sent to the undersigned not later than 3rd January, 1962.

JOHN LIDDELL,
Town Clerk.

Municipal Buildings,
Greenock.
27th November, 1961. 1379

COUNTY BOROUGH OF BOURNEMOUTH
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the appointment of:—

(*a*) SENIOR ASSISTANT ARCHITECT. Salary Grade A.P.T. IV, £1,140—£1,310 p.a.

(*b*) ASSISTANT ARCHITECT. Salary Grade A.P.T. III, £960—£1,140 p.a.

(*c*) ARCHITECTURAL ASSISTANTS (five). Salary Grade A.P.T. II, £815—£960 p.a.

(*d*) ARCHITECTURAL ASSISTANT. Salary Grade A.P.T. I, £645—£815 p.a.

(*e*) ASSISTANT QUANTITY SURVEYOR. Salary Grade A.P.T. III, £960—£1,140 p.a.

The successful candidates will be appointed at not less than present salary if within the incremental scale and reasonable removal expenses will be paid.

For Posts (*a*) and (*b*) all applicants must be fully qualified (by examination) members of the R.I.B.A., and for Posts (*c*) and (*d*) must have passed the Intermediate Examination R.I.B.A., and for Post (*e*) to be a fully qualified member of the R.I.C.S. Applications from candidates over 45 years of age will be considered.

Application forms and further particulars from Borough Architect, Town Hall, Bournemouth. Completed applications to reach the undersigned by 10 a.m., 30th December, 1961.

A. LINDSAY CLEGG,
Town Clerk.
1365

MIDDLESEX COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

(*a*) ASSISTANT ARCHITECTS, A.P.T. V (£1,355—£1,525).

(*b*) ASSISTANT ARCHITECTS, A.P.T. III/IV (£1,005—£1,355).

Established. Commencing salaries according to qualifications and experience. The department is divided into groups and there are good opportunities for architects with special design ability. Prescribed conditions. Application forms from County Architect, (s.a.e.), 1, Queen Anne's Gate Buildings, Dartmouth Street, S.W.1, returnable by 1st January. (Quote H.992AJ.) 1370

HOME OFFICE require basic grade ARCHITECT and ARCHITECTURAL DRAUGHTSMAN in Architects Branch, London, S.W.1.

Architectural staff are concerned with examination and approval of building projects under Home Office jurisdiction, and preparation of designs and research into the economy of design. Candidates for the Architects post must be registered architects with professional experience and must satisfy Selection Board of their capability in Architectural design by producing drawings, sketches, or other evidence thought necessary. Candidates for draughtsman post must have reached satisfactory standard of technical knowledge, have had adequate practical training and experience of draughtsmanship including design. Salary scale: Architect £991 (age 25)—£1,490, and Draughtsman £617 (age 20)—£1,048, starting salary for both posts according to age. Men and Women eligible to apply. Forms from Ministry of Labour, Technical and Scientific Register (K), 28 King Street, London, S.W.1, quoting J387/1A. Closing date 15th December, 1961 1376

THE URBAN DISTRICT COUNCIL OF FELLING
SURVEYOR'S DEPARTMENT
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the appointment as Assistant Architect in the Surveyor's Department. The salary payable will be within Grade A.P.T. IV of the National Salary Scales (£1,140—£1,310 per annum).

Applicants must have passed the Final examination of the Royal Institute of British Architects.

Forms of application together with particulars and conditions of employment can be obtained from the undersigned, to whom they must be returned not later than 11th December, 1961.

Housing accommodation will be provided by the Council if required or alternatively the Council will grant a 100 per cent. mortgage for the purchase of an approved private dwelling house.

Canvassing will disqualify any applicant.

JOHN DONKIN,
Clerk of the Council.

Council Buildings, Felling,
Gateshead 10. 1364

AIR MINISTRY WORKS DEPARTMENT invites applications for QUANTITY SURVEYING ASSISTANT, Grade III, posts at R.A.F. and Ministry of Aviation stations throughout the United Kingdom.

Salary (National Rate) Grade III. £697—£988 (£749 at age 23). Starting salary depends on age, qualifications and experience.

Qualifications and Experience. Work includes abstracting and billing, site measurement and preparation of estimates. Candidates who must be natural born British subjects must hold O.N.C. (Building or Builders Quantities) or equivalent and have had good experience under Quantity Surveyor or Building Contractor. Knowledge of W.D. schedule an advantage. Financial assistance and time off allowed for recognised courses of study leading to higher qualifications.

Prospects. Appointments are non-pensionable (retirement/resignation gratuity payable after five years or longer service) but good opportunities exist both for establishment to pensionable posts, when all service counts, and for advancement to the higher grades in which posts number some 180. Higher grade salaries vary between £988 and £1,747 (National rate) and vacancies are, as a rule, filled by promotion of serving staff. Opportunities for tours of duty overseas, when additional allowances ranging, at present, up to £1,800 p.a. (depending on circumstances) are payable in addition to a higher salary. Five-day week with 26½ days' paid leave per year initially including public holidays.

Forms from Manager (PE.2), Ministry of Labour, Professional & Executive Register, Atlantic House, Farringdon Street, London, E.C.4. Candidates selected will be interviewed in Air Ministry, London, and certain expenses reimbursed. S9987

COUNTY COUNCIL OF ESSEX
COUNTY PLANNING DEPARTMENT
SENIOR PLANNING OFFICER
A.P.T.D. V (£1,310—£1,480) at Romford

Applications invited for above post in charge of a small section in an Area Office at Romford to deal mainly with redevelopment schemes for central areas, including civic design projects. Candidates should be Corporate Members of the Royal Institution of British Architects and the Town Planning Institute, and have had considerable allied architectural and planning experience in large redevelopment and central area schemes.

Five-day week; medical examination; superannuation. Assistance towards removal expenses will be given in approved cases.

Applications, with the names of three referees, to the County Planning Adviser, Broomfield Place, Broomfield, Chelmsford, Essex, by 15th December, 1961. S1402

MANCHESTER CORPORATION
ENGINEERS AND PLANNERS
Grade A.P.T. V (£1,310—£1,480)

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

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

Applicants must be appropriately qualified.

Housing accommodation and removal expenses.

Applications giving details of age, qualifications, experience, together with the names of three referees to the City Surveyor, Town Hall, Manchester, 2, by 18th December, 1961. 1415

WEST SUFFOLK COUNTY COUNCIL

Applications are invited from suitably qualified persons for the post of SENIOR ASSISTANT ARCHITECT. Salary within Grade "A" (£1,320—£1,565). National Conditions of Service; medical examination; five-day week; schemes for payment of removal expenses and housing separation allowances in operation; travelling allowance at casual user rate.

Application forms from County Architect, 13, Westgate Street, Bury St. Edmunds, to be returned as soon as possible. S1403

THE COUNTY BOROUGH OF NEWPORT

is establishing a separate Town Planning Department and applications are invited for the following appointments:—

(a) PRINCIPAL ASSISTANT, A.P.T. V, £1,310 to £1,480. To be in charge of the Section responsible for the review of the Development Plan. Applicants must be Corporate Members of the Town Planning Institute.

(b) SENIOR ASSISTANT, A.P.T. IV, £1,140—£1,310. For work in connection with the redevelopment of the Town. Applicants must be Corporate Members of the Town Planning Institute.

(c) RESEARCH ASSISTANT, A.P.T. III, £960—£1,140. Applicants should hold a University Degree having qualified in Statistics with either Sociology, Geography or Economics.

(d) ASSISTANT, A.P.T. II, £815—£960. To be employed in the Development Control Section.

The new Department will be undertaking a full, varied and interesting programme including redevelopment and a complete review of the Development Plan.

A five-day week is in operation.

Approved furniture removal expenses will be paid.

Applications, in envelopes suitably endorsed and accompanied by two recent testimonials, should be submitted to the undersigned by not later than the 22nd December, 1961.

Borough Planning Officer (Designate), Civic Centre, Newport, Mon. S1439

BINGLEY URBAN DISTRICT COUNCIL
APPOINTMENT OF DEPUTY ARCHITECT

Applications are invited for the post of Deputy Architect, Grade A.P.T. IV (£1,140 to £1,310) in the Department of the Engineer, Surveyor and Architect.

Applicants must be A.R.I.B.A., and have considerable experience in the work of an Architect's Department to a Local Authority, and be capable of taking charge of the Architect's Section of the Department including the Council's Housing programme and the maintenance of a variety of Buildings and attendance at Committee Meetings.

Applications, stating age, qualifications and previous experience, together with the names of two referees must be received by the undersigned not later than Monday, 18th December, 1961.

F. M. DUNWELL,
Clerk of the Council.

Town Hall,
Bingley,
Yorkshire. 1430

BERKSHIRE COUNTY COUNCIL

Applications are invited for the post of PLANNING ASSISTANT: Applicants with Intermediate examination of Town Planning Institute or University graduates (first appointment)—A.P.T. Grade I (£645—£815 p.a.). Applicants with five or more G.C.E. "O" level passes (including English Language and Mathematics)—General Division, commencing at between £290 and £390 (according to age and qualifications) to £630, with progression on passing the Intermediate examination of the Town Planning Institute to A.P.T. Grade I. Application forms obtainable from County Planning Officer, 7 Abbott's Walk, Reading, to whom completed applications must be delivered by 16th December, 1961.

E. R. DAVIES,
Clerk of the County Council.
1447

COUNTY COUNCIL OF ESSEX
ARCHITECTS DEPARTMENT
ASSISTANT ARCHITECTS
(Salaries up to £1,310)

The County Council has a large and interesting programme of building work. If you are interested in the designing and all other stages, including site visits, of new colleges, homes for children and the aged, clinics, offices, schools, court houses and police buildings, write to H. Conolly, C.B.E., F.R.I.B.A., County Architect, County Hall, Chelmsford, for an application form.

Assistance towards removal expenses will be given in approved cases. 1438

AIR MINISTRY WORKS DEPARTMENT

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

SALARY (inner London Scale):

Grade II: £1,048—£1,220.

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

Starting salary depends on age, qualifications and experience.

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

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

Applicants, who must be natural born British subjects, should write to AIR MINISTRY, W.G.d., LACON HOUSE, THEOBALDS ROAD, LONDON, W.C.1, or to any Employment Exchange (quoting Kings Cross, 838) giving age, details of training, qualifications and full particulars of former posts held. Candidates selected will normally be interviewed in London and certain expenses reimbursed. S9460

SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

TWO SENIOR ARCHITECTS are now being appointed to complete recently formed teams of young Architects engaged on the new hospital programme.

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

Salary scale rising to £1,650 p.a. (including London weighting).

Hospital experience while advantageous is not essential.

Applications containing age, present salary, experience and the names of two referees to be made to the undersigned at 40 Eastbourne Terrace, London, W.2, by 16th December.

E. G. BRAITHWAITE, *Secretary.*
1416

HAMPSTEAD BOROUGH COUNCIL

ARCHITECTURAL ASSISTANTS required in the Housing Architect's Department for new development including multi-storey blocks of flats. Salary will start at a point within A.P.T. Grades I-IV (£645—£1,310 per annum plus London weighting) according to qualifications and experience. Local Authority experience not essential. Group system of working. Advances for house purchase up to 100 per cent. of valuation will be considered in suitable cases. Applications with names of two referees to Town Clerk, Town Hall, Haverstock Hill, N.W.3. TC7886

BASINGSTOKE DEVELOPMENT GROUP
MODELMAKER

This Group has recently been set up to design and implement a project for the expansion of Basingstoke from its present population of 25,000 to 75,000 by 1975. Basingstoke is 47 miles WSW of London, 18 N of Winchester and 35 miles from the New Forest and the coast.

Applications are invited for the post of MODELMAKER to the Group on salary grade A.P.T. II (£815—£960). Candidates must have thorough knowledge and experience of all types of planning and architectural models and be capable of working quickly and accurately in close co-operation with the architect/planners of the Group and other technical officers. The work will include the organisation and preparation of exhibition material.

The successful candidate will be appointed to the staff of the Hampshire County Council and will work under the direction of the Chief Architect/Planner of the Group, Allan G. McCulloch, A.R.I.B.A., A.M.T.P.I.

The post is pensionable. Separation allowance and assistance with removal expenses will be paid in approved cases.

Applications, stating full details of age, education, qualifications and experience, including present grade and salary and accompanied by a copy of one testimonial and the names of two referees, should reach the Clerk of the County Council, The Castle, Winchester, by 22nd December. S1428

DURHAM COUNTY COUNCIL
RESIDENT ENGINEER
at the New County Hall

Applications are invited from engineers who have had a thorough practical training and good experience and who hold a First Class Board of Trade Certificate. Salary £1,050 p.a.

Further particulars and form of application may be obtained from the County Architect, South Street, Durham. Closing date 30th December, 1961.

J. T. BROCKBANK,
Clerk of the County Council.

Shire Hall,
Durham. 1399

AIR MINISTRY WORKS DEPARTMENT

invites applications from WORKERS UP for duties in the Quantities Division, London.

SALARY scale (inner London rate), on annual increment basis, are between the limits £882 to £1,188 p.a. Starting salary depends on age, qualifications and experience.

QUALS. AND EXP. Candidates, who must be natural born British subjects, must be fully experienced and competent to work up entire bills of quantities. O.N.C. and C. & G. or equivalent technical qual. in Quantities should be held. Financial assistance and time off allowed for recognised courses of study leading to higher quals.

PROSPECTS. Appointments are non-pensionable (retirement/resignation gratuity payable after 5 years or longer service) but opportunities exist both for obtaining pensionable appointment when all service counts, and/or for advancement to higher grades. 5 day week with 26½ days paid leave for year initially including public holidays.

Forms from Manager (P.E.4012) Ministry of Labour, Professional and Executive Registrar, Atlantic House, Farringdon Street, London, E.C.4. Candidates selected will be interviewed in Air Ministry, London, and certain expenses reimbursed. S1419

MIDLANDS ELECTRICITY BOARD
BIRMINGHAM AREA
APPOINTMENT OF
FOURTH ASSISTANT ENGINEER
(TEMPORARY CLERK OF WORKS)

Applications are invited for the above post in the Area Engineer's Department.

The applicants must have extensive experience in Civil Engineering and Building works associated with multi-storey buildings.

The successful applicant will be employed at Summer Lane, Birmingham, for the duration of a Contract covering the construction of a new Office Block for the Birmingham Area of the Midlands Electricity Board, which is to commence early in 1962.

The salary will be within the range £1,115/£1,245 per annum (N.J.B. Class N, Grade 13).

Apply by letter, within 14 days, stating age, full details of experience, present position and salary, to Emil Braathen, Area Manager, Midlands Electricity Board, 14, Dale End, Birmingham, 4.

F. W. CATER,
Secretary.
1434

BOROUGH OF CHESTERFIELD

Applications are invited for the position of ASSISTANT QUANTITY SURVEYOR (Grades APT.I/II £645—£960 per annum if qualified, or Miscellaneous Grades II/VI £490—£825 per annum if unqualified), the grade and commencing salary depending on the qualifications and experience of the successful applicant.

Housing accommodation will be provided if required.

Applications stating age, qualifications and experience, with the names and addresses of two referees to be received by the Borough Engineer, Town Hall, Chesterfield, not later than Wednesday, 13th December, 1961.

RICHARD CLEGG,
Town Clerk.
28th November, 1961. 1437

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

Salary up to £1,250 (up to £1,100 for assistants), starting points according to qualifications and experience.

Apply Chief Officer, (A1/J/3182/12) L.C.C. Parks Department, County Hall, S.E.1 (WATerloo 5000, ext. 8076) 1422

EDINBURGH CORPORATION
DEPARTMENT OF THE CITY ARCHITECT

ASSISTANT ARCHITECTS qualified by examination to act as Group Leaders. Salary Scale £1,210 × £45 — £1,435 with placing according to experience.

Applications giving age, full details of qualifications and experience and the names of two referees as to character to the City Architect, City Chambers, Edinburgh, 1. 1426

BERWICKSHIRE COUNTY COUNCIL
ARCHITECTURAL ASSISTANT

required for County Architect's Department. Salary Scale £1,120 × £40 (4)—£1,280. Placing may be given. Candidates must be registered architects and preferably members of the Royal Institute of British Architects. The post is superannuable. House available. Application, stating age, qualifications and experience and quoting two referees to be lodged with the undersigned not later than 22nd December, 1961.

J. B. SMITH,
County Clerk.

County Buildings,
Duns.
16th November, 1961 S1398

LONDON COUNTY COUNCIL
ARCHITECTS DEPARTMENT

ARCHITECTURAL ASSISTANTS wanted immediately for working drawings on South Bank Development.

Salaries up to £1,100.

Application form and particulars, obtainable from Hubert Bennett, F.R.I.B.A., Architect to the Council, the County Hall, S.E.1. Quoting ref. (EK/A/3253/12). 1400

EASTERN ELECTRICITY
NORTHMET SUB-AREA
GENERAL ASSISTANT ENGINEER
(Engineering Draughtsman)
Substation Drawing Office, Sub-Area Engineer's Dept. (Ref. 1098)

Candidates should have had a good technical training and experience in the layout of switchgear, transformers and associated equipment for outdoor and indoor type substations up to 33kV. Possession of an Ordinary National Certificate or equivalent qualification is desirable.

Salary: N.J.B. Class N, Grade 1B (£815—£920) including London Allowance.

Apply by letter to the Manager, Eastern Electricity, Northmet Sub-Area, Northmet House, Southgate, N.14, by 22nd December, 1961. 1453

HAMPSHIRE COUNTY COUNCIL
BASINGSTOKE TOWN EXPANSION

CHIEF CLERK, A.P.T. IV (£1,140—£1,310) required for pensionable post in the office of the newly formed technical group who are to draft and carry out a scheme for the expansion of Basingstoke from its present population of 25,000 to 75,000 by 1975. The office will be based on Winchester in the first instance but will eventually move to Basingstoke, probably within a year.

Applications stating age, education, qualifications and experience and the names of two referees should reach the Clerk of the County Council, The Castle, Winchester, by 18th December. S1401

PERTH COUNTY COUNCIL

Applications are invited for a vacancy in the COUNTY ARCHITECT'S DEPARTMENT, Perth, on salary scale £1,000 to £1,300. Applicants should be fully qualified A.R.I.B.A. but applicants with a Diploma in Architecture will be considered. Placing on the scale may be given according to experience. Housing accommodation will be available. Particulars and forms of application from The County Clerk, P.O. Box 15, County Offices, York Place, Perth. Applications to be lodged by 23rd December, 1961. 1445

CORPORATION OF LONDON

The City Planning Department requires STAFF to assist on a number of planning projects at present in hand and others in course of preparation. These include the Barbican Commercial Zone where separated walkways are planned for a large area and the Tower of London Precinct. The work is varied and interesting and appeals to qualified Assistants with a fresh but disciplined approach to planning design.

Grade II/III, £990 × 10 increments to £1,310 p.a. (Two posts.)

Please apply in writing to the City Architect, Corporation of London, Guildhall, E.C.2, stating experience, present salary, etc. (no forms are issued). The posts are permanent and superannuated. S1442

ARCHITECTS (one position up to £1,500 and others up to £1,250) for design and construction of buildings for new and existing parks and open spaces. Opportunity for interesting work in association with landscape architects. Starting points according to qualifications and experience.

Apply Chief Officer, (A1/A/3181/12) L.C.C. Parks Dept., County Hall, S.E.1 ('phone WATerloo 5000 ext. 8076). 1421

Competition

36s. per inch; each additional line 3s.

THE UNIVERSITY OF LIVERPOOL

OPEN COMPETITION

Architects are invited to submit designs for halls of residence for 1,100 to 1,200 students on the Carnatic site at Mossley Hill, Liverpool. The cost of the works will be approximately £1,500,000.

Assessors: Sir James Mountford, M.A., D.Litt., D.C.L., LL.D. (Vice-Chancellor).
Donald Gibson, C.B.E., M.A., D.C.L., F.R.I.B.A., M.T.P.I.
Professor Myles Wright, M.A., F.R.I.B.A., M.T.P.I.

Premiums: £5,000; £3,000; £1,000. Further premiums, to a total not exceeding £2,000, may be awarded at the discretion of the Assessors for other designs of merit.

Sending in Day: 4 September, 1962.

Last Day for Questions: 1 January, 1962.

Conditions may be obtained, upon payment of a deposit of £3, from The Registrar, The University of Liverpool, Liverpool, 3. Quoting Reference RVCH/518/AJ. 9647

Architectural Appointments Vacant

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

ARCHITECTS' ASSISTANTS URGENTLY REQUIRED IN BUSY CENTRAL LONDON OFFICE. DETAILING AND WORKING DRAWING EXPERIENCE ESSENTIAL. QUALIFICATIONS AND EXPERIENCE IN DESIGN UNNECESSARY. LONG TERM ENGAGEMENT. FIVE-DAY WEEK. LUNCHEON VOUCHERS. SALARY UP TO £1,250 PER ANNUM. BOX 1157.

SENIOR ASSISTANTS required for work on large hospital programme, excellent opportunities for the right men. Salary £1,000—£1,400. Luncheon vouchers and five-day week. Write giving full particulars: Watkins Gray & Partners, 57, Catherine Place, S.W.1. TC9690

£950-£1,500. ARCHITECTURAL ASSISTANTS with imagination and designing ability required to assist with large and important new developments in the central London Area. Telephone or write: Trehearne & Norman, Preston & Partners, 83, Kingsway, W.C.2. HOLborn 4071. TC9798

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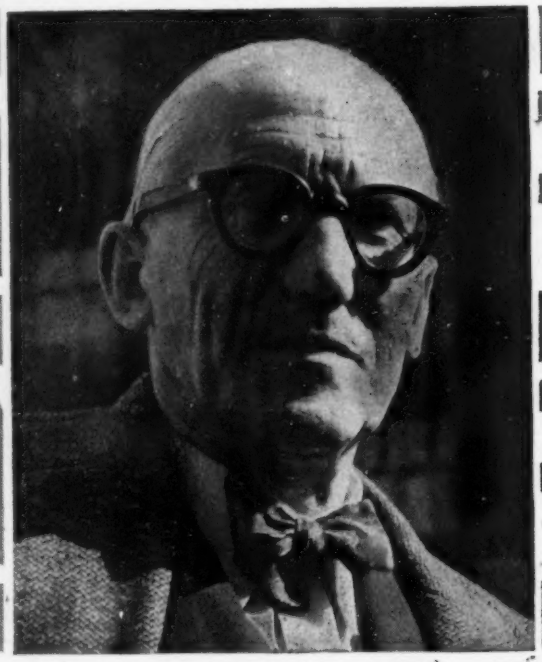

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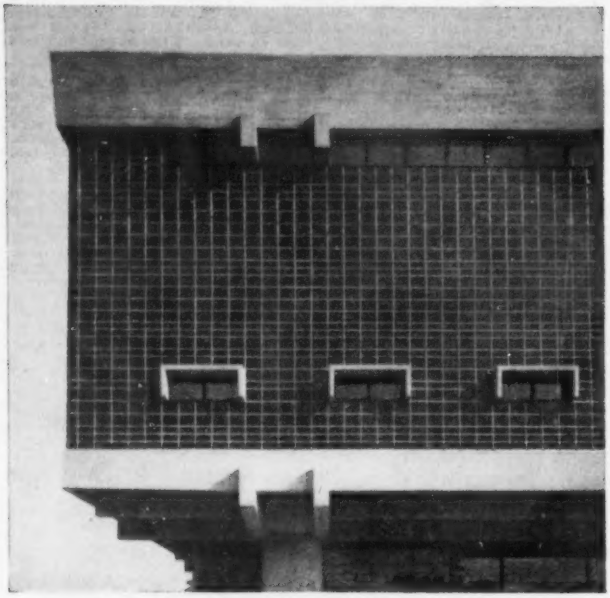

New Japanese Architecture

by Udo Kultermann

Western opinion has an ideal image of modern Japanese architecture: spare, elegant, informal. While the work of Junzo Sakakura seemed to support this, there is an increasing awareness that in Kenzo Tange Japan possesses an architect who probably ranks with the world's top ten, but practises an entirely different kind of architecture.

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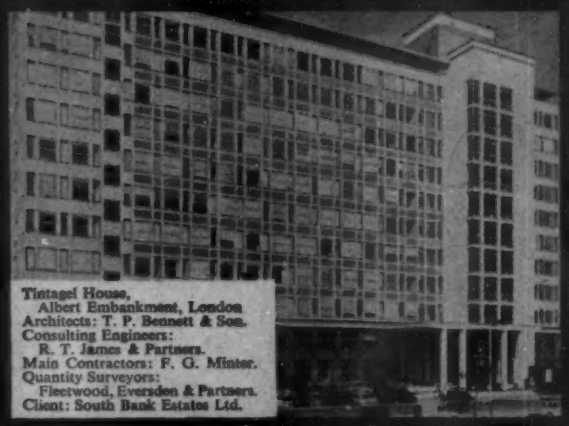

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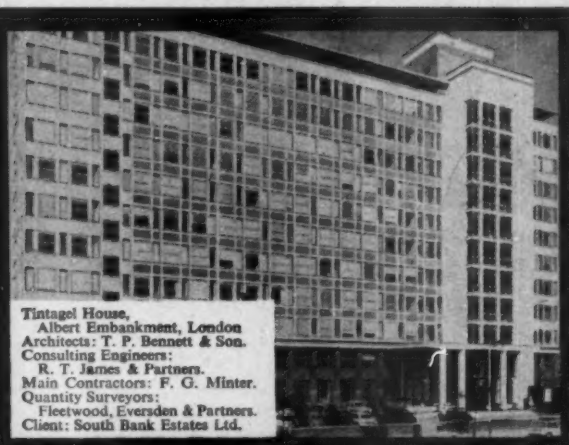

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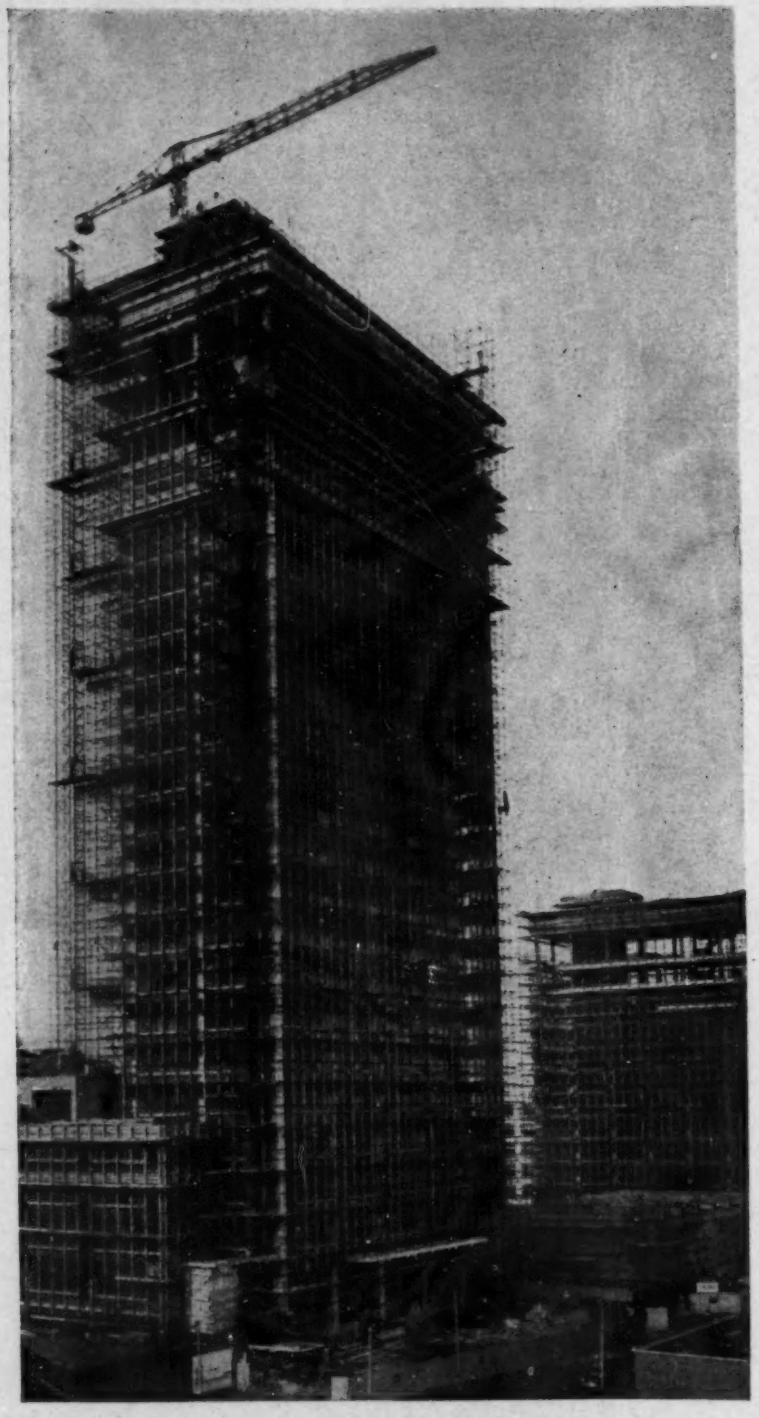

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