THE ARCHITECTS' JOURNAL

No. 3234] [Vol. 125

THE ARCHITECTURAL PRESS

9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1. *'Phone: Whitehall 0611*

Price 1s. 0d.

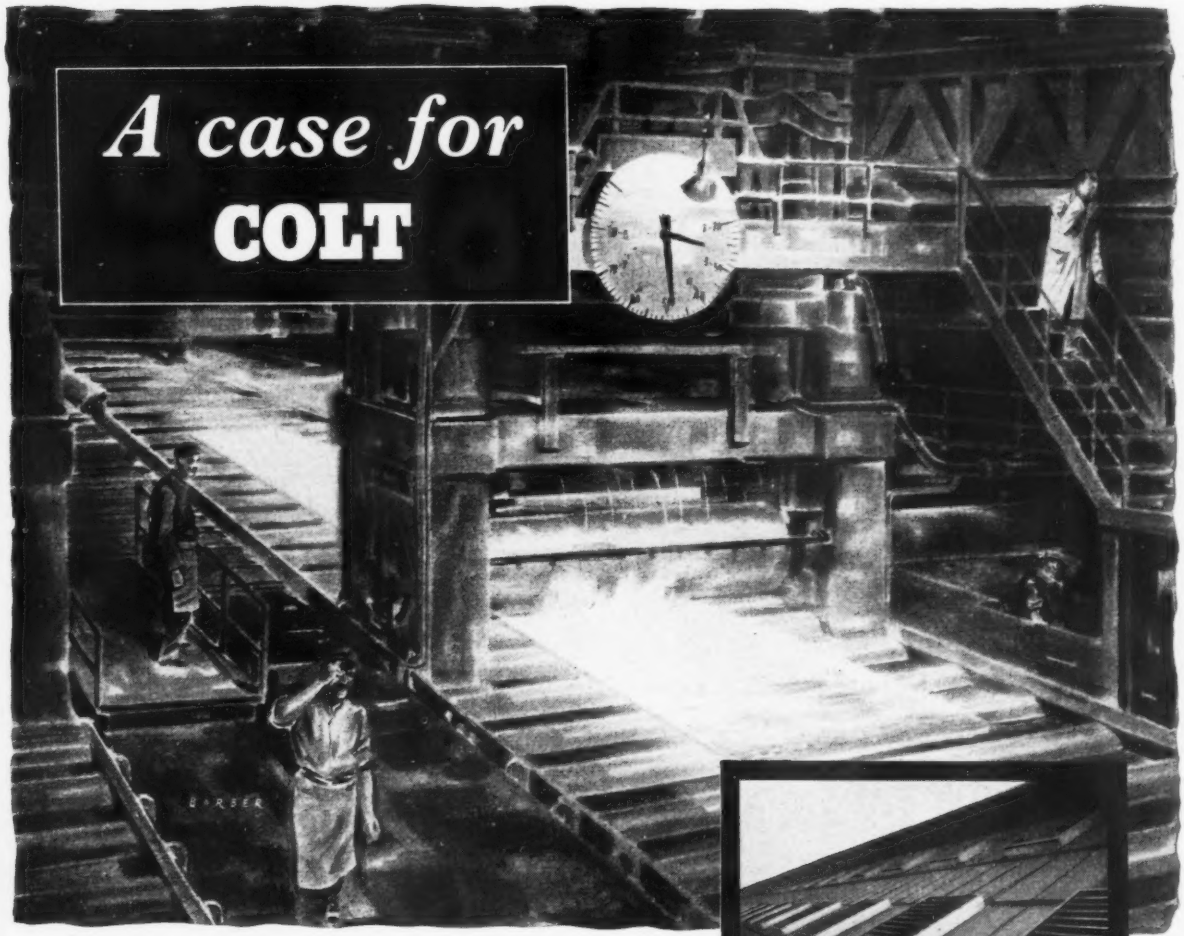
Registered as a Newspaper.

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

IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square. Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. 100, Park Street, Grosvenor Square, W.1. Mayfair 7086
ILA	Institute of Landscape Architects, 2, Guilford Place, W.C.1. Holborn 0281
I of Arb	Institute of Arbitrators. Hastings House, 10, Norfolk Street, Strand, W.C.2. Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1. Museum 7179
IQS	Institute of Quantity Surveyors. 98, Gloucester Place, W.1. Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3. Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1. Abbey 6172
ISE	Institute of Structural Engineers. 11, Upper Belgrave Street, S.W.1. Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1. Whitehall 7264/4175
LMBA	London Master Builders' Association 47, Bedford Square, W.C.1. Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1. Whitehall 7264/4175
MAFF	Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, A.R.I.B.A., 71, Blandford Street, W.1. Welbeck 4713
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1. Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1. Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1. Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1. Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, W.C.2. Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1. Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1. Reliance 7611
NAMMC	Natural Asphalte Mine Owners and Manufacturers Council. 94/98, Petty France, S.W.1. Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1. Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1. Abbey5111
NEFMAI	National Employers Federation of the Mastic Asphalt Industry. 21, John Adam Street, Adelphi, W.C.2. Trafalgar 3927
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1. Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4. Macaulay 4451
NFHS	National Federation of Housing Societies. 12, Suffolk St., S.W.1. Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1. Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington. Molesey 1380
NRDB	Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3. Mansion House 9383
NSAS	National Smoke Abatement Society. Palace Chambers, Bridge Street, S.W.1. Trafalgar 6838
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1. Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1. Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1. Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh. Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1. Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1. Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 5, Old Palace Yard, S.W.1. Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1. Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2. Trafalgar 2366
RSH	Royal Society of Health. 90, Buckingham Palace Road, S.W.1. Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1. Victoria 2186
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1. Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3. Mansion House 3921
SIA	Society of Industrial Artists. 7, Woburn Square, London, W.C.1. Langham 1984/5
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1. Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2. Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4. City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1. Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4. City 5040
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1. Whitehall 4341
ZDA	Zinc Development Association. 34, Berkeley Square, W.1. Grosvenor 6636

Problem No. 7 Intense radiant heat

A case for COLT



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G. 393

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SLIDING OR FOLDING

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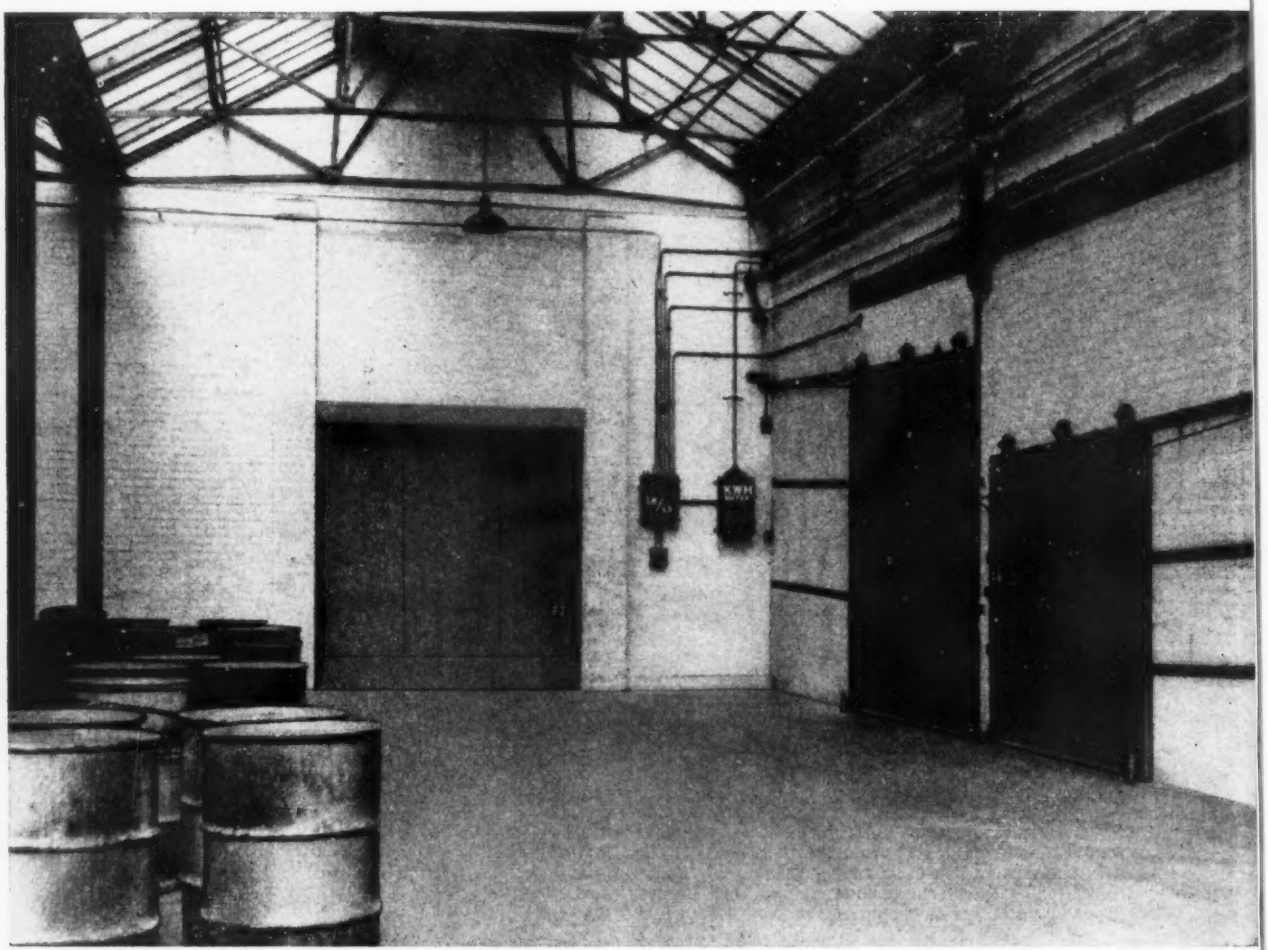

Automatic sliding composite fire doors at a reclaimed-rubber works in the North of England.

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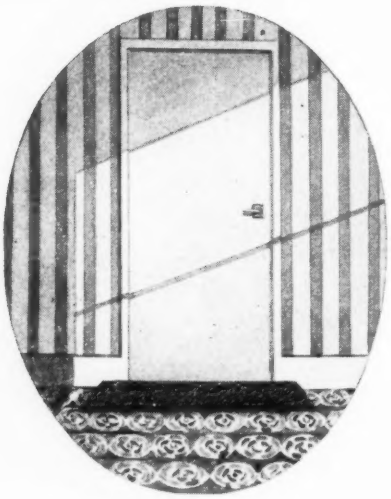

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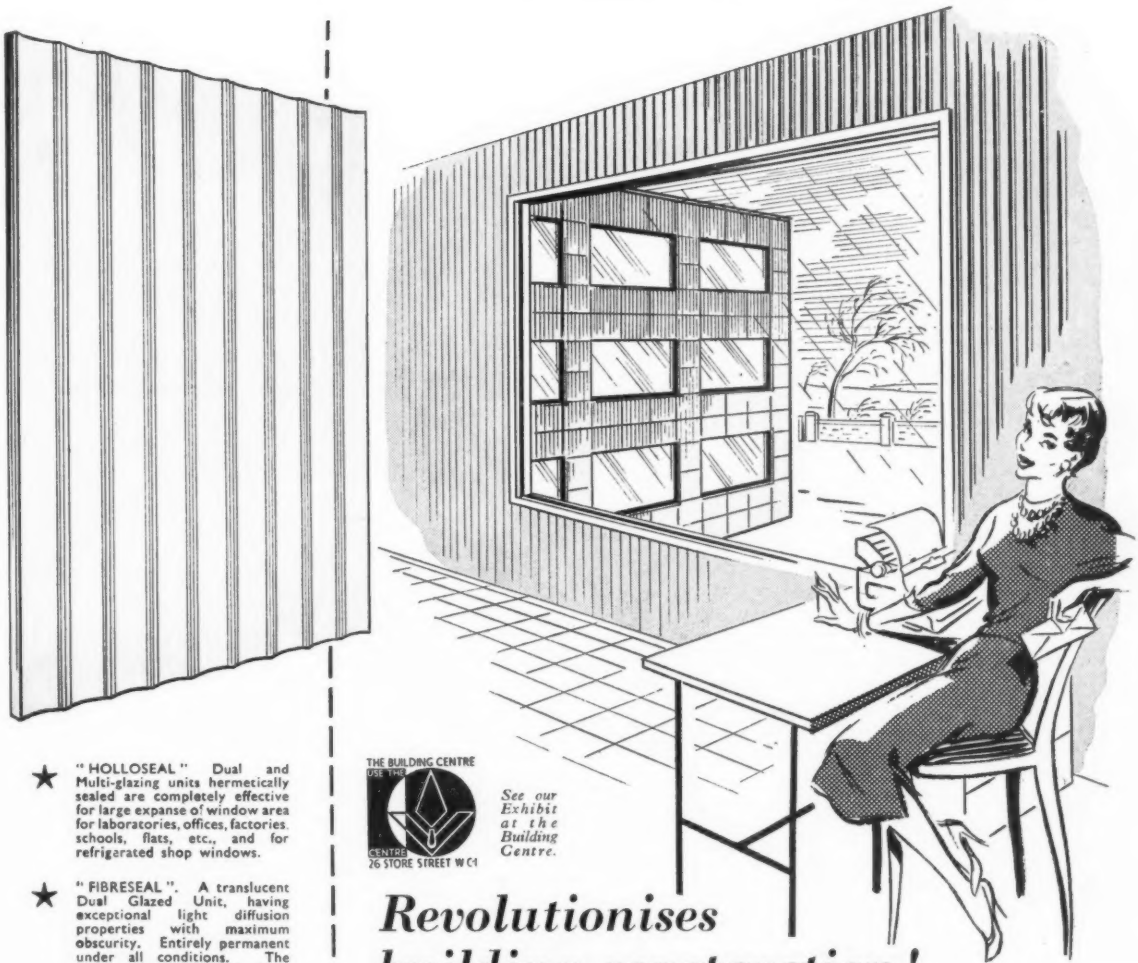

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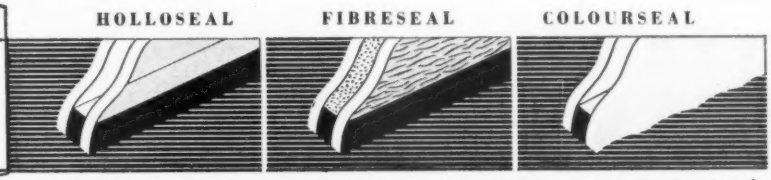

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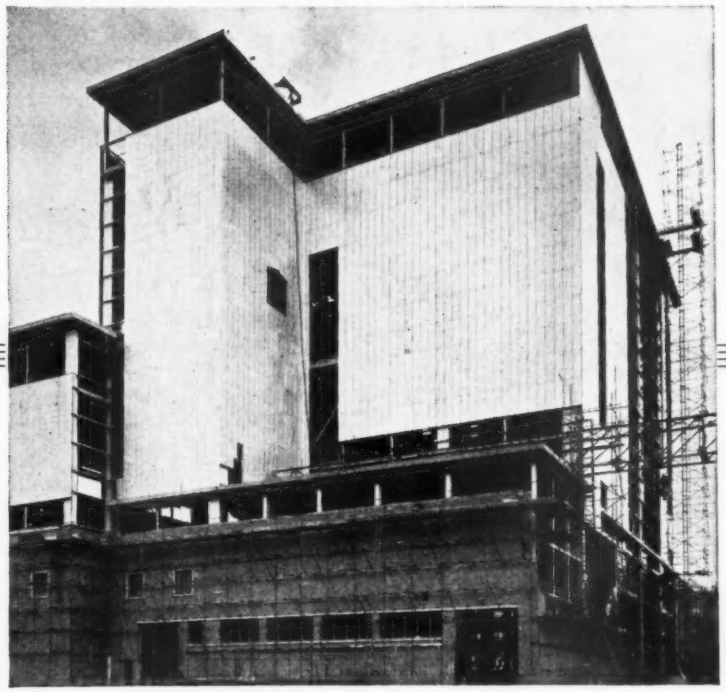

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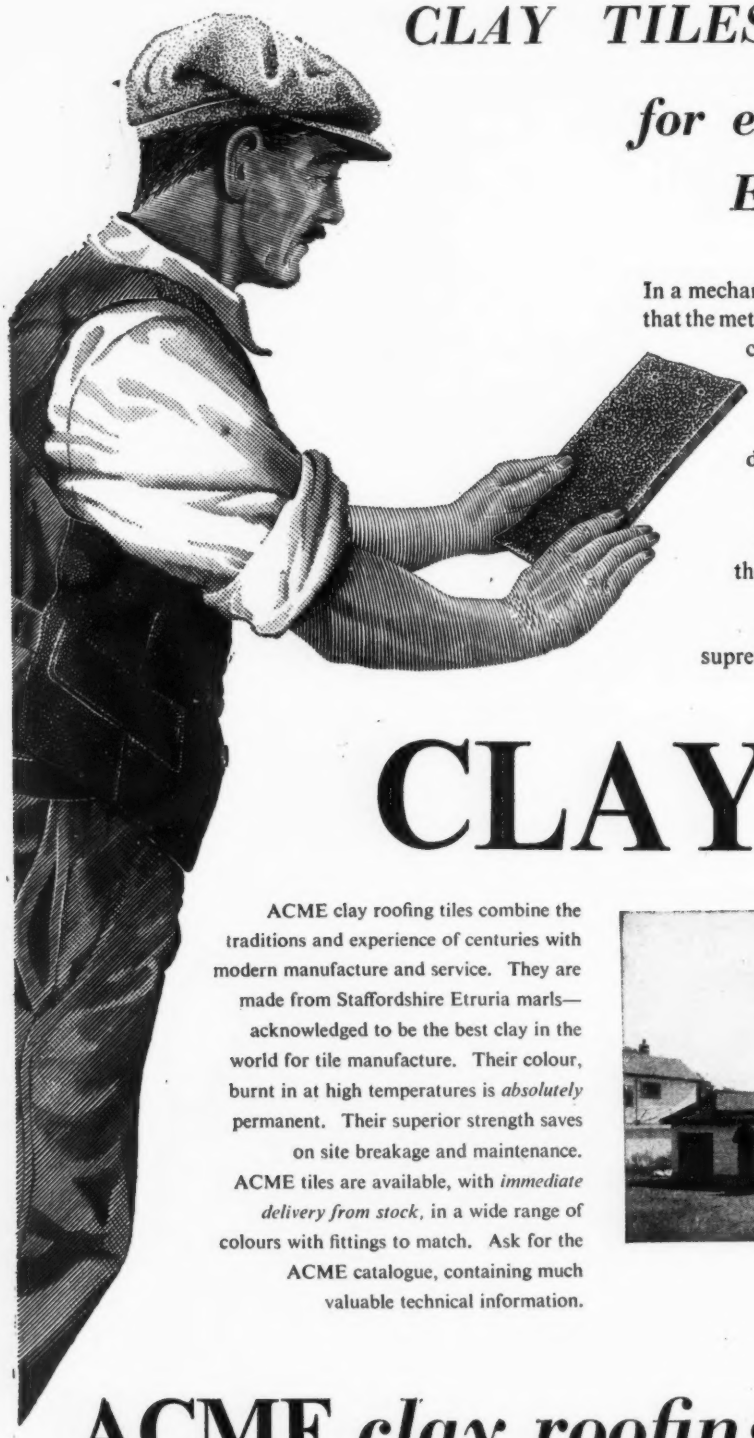

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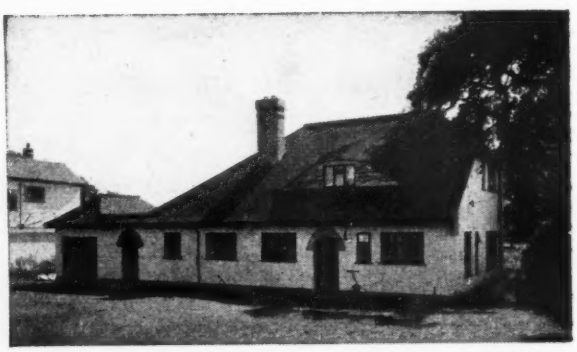

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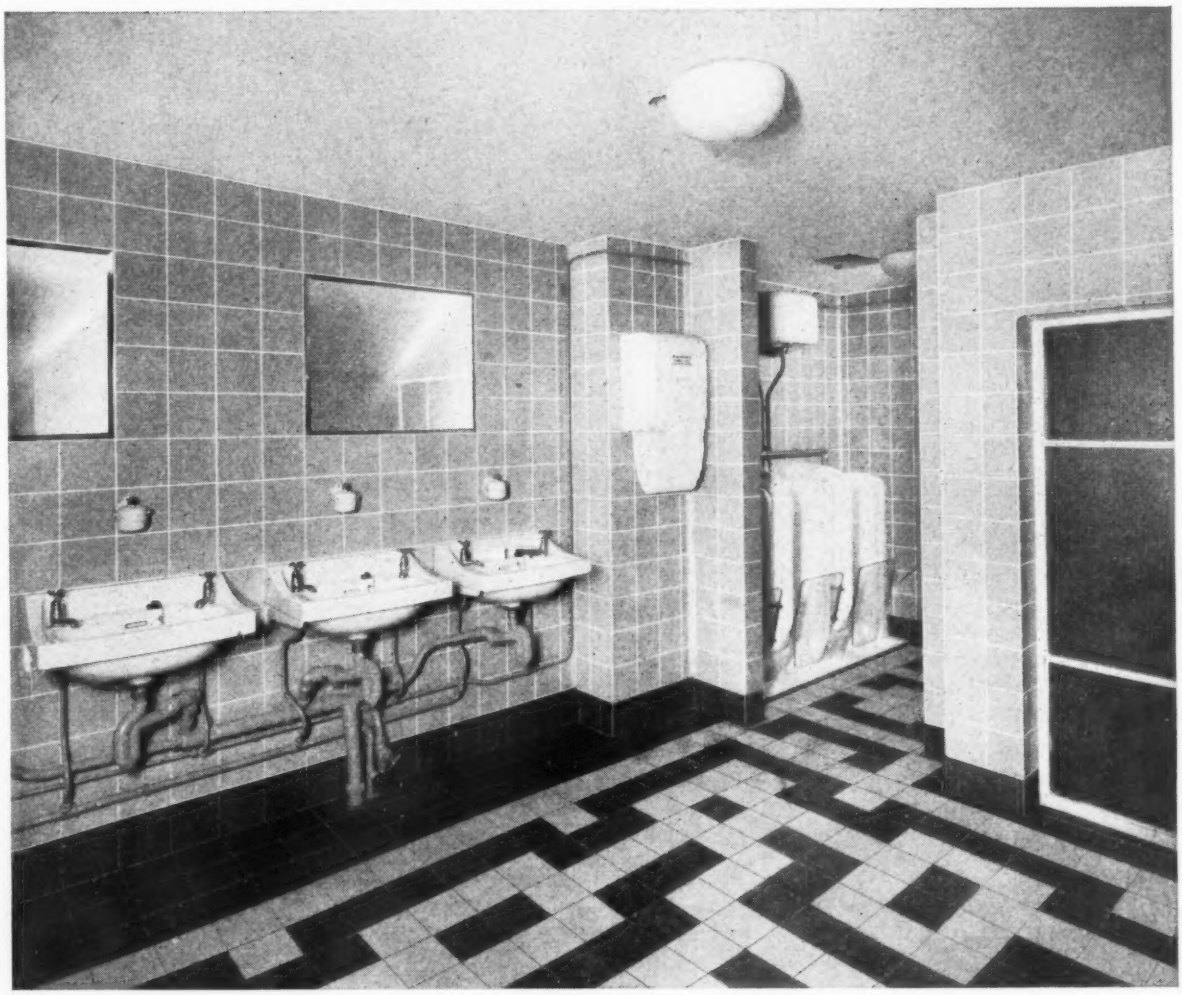

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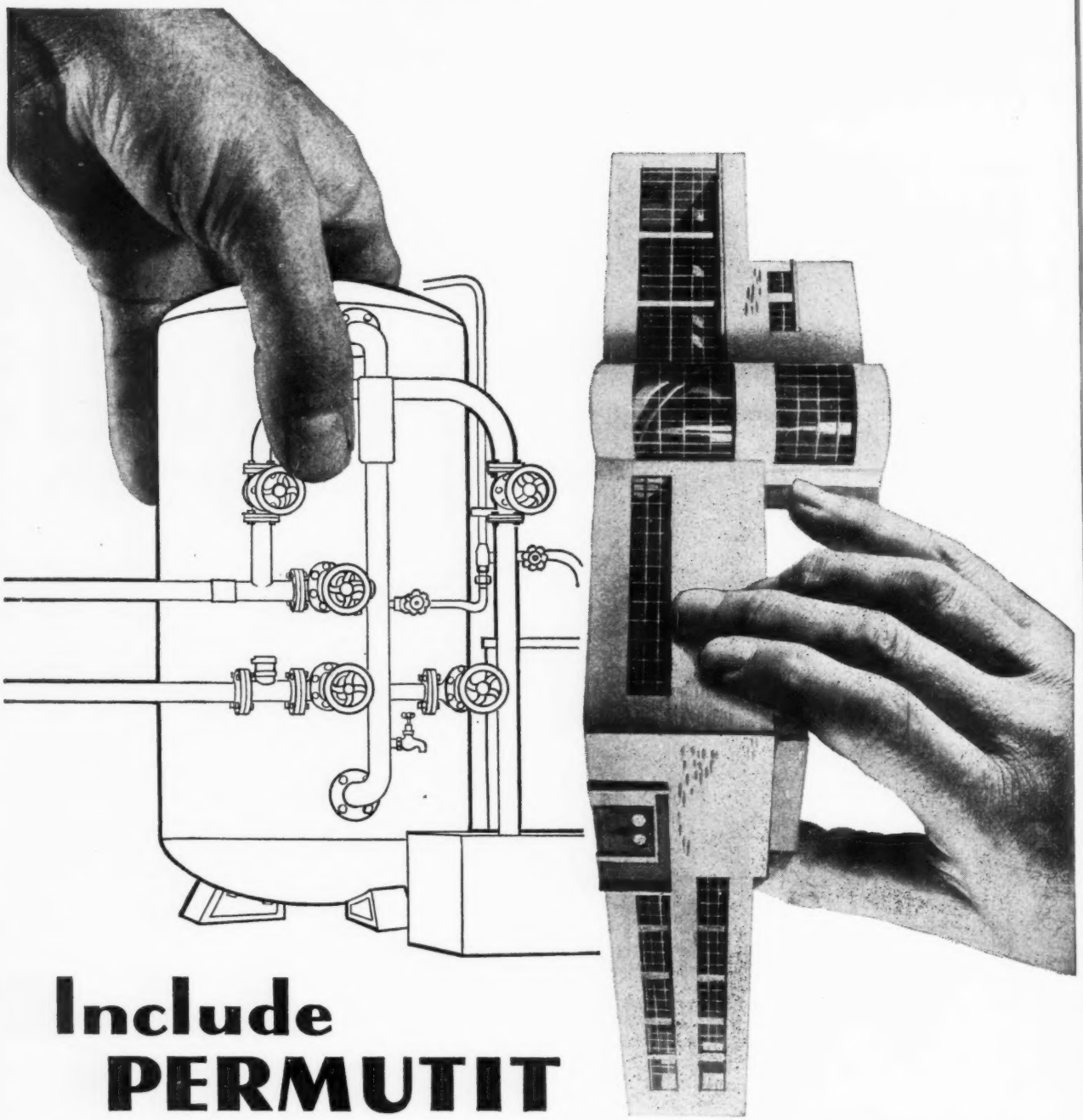

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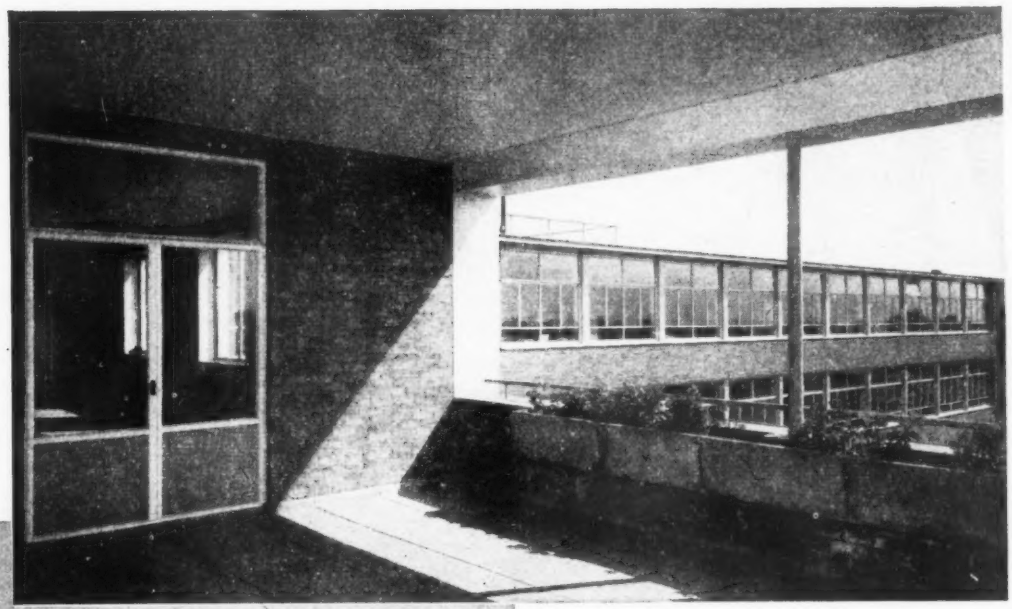

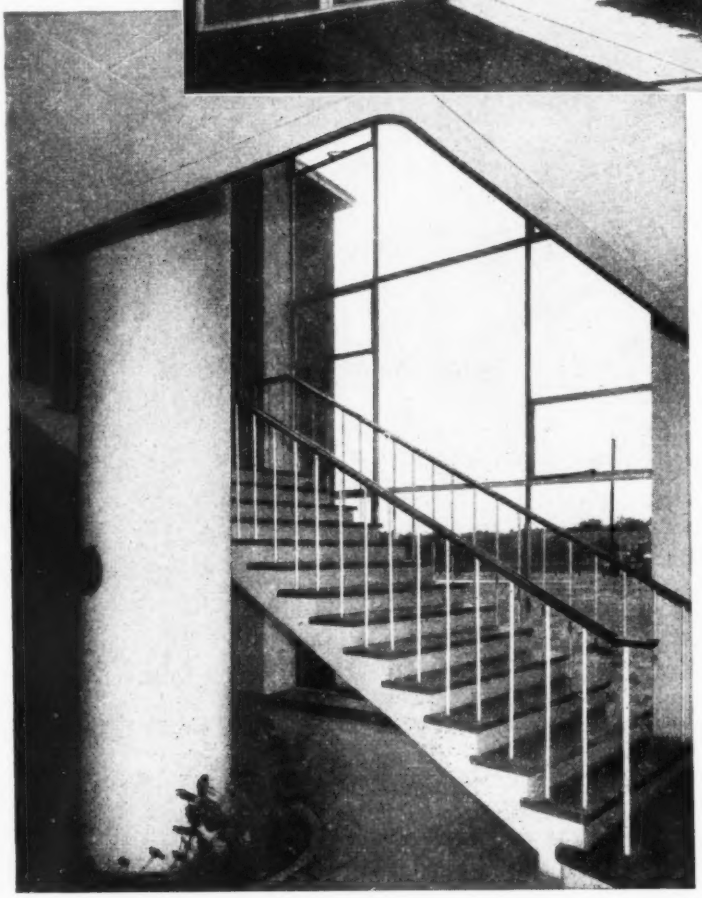

Architects: Meade Taylor & Wilson, AA.R.I.B.A.

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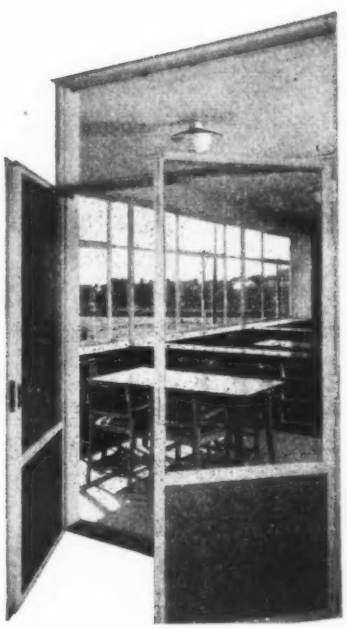

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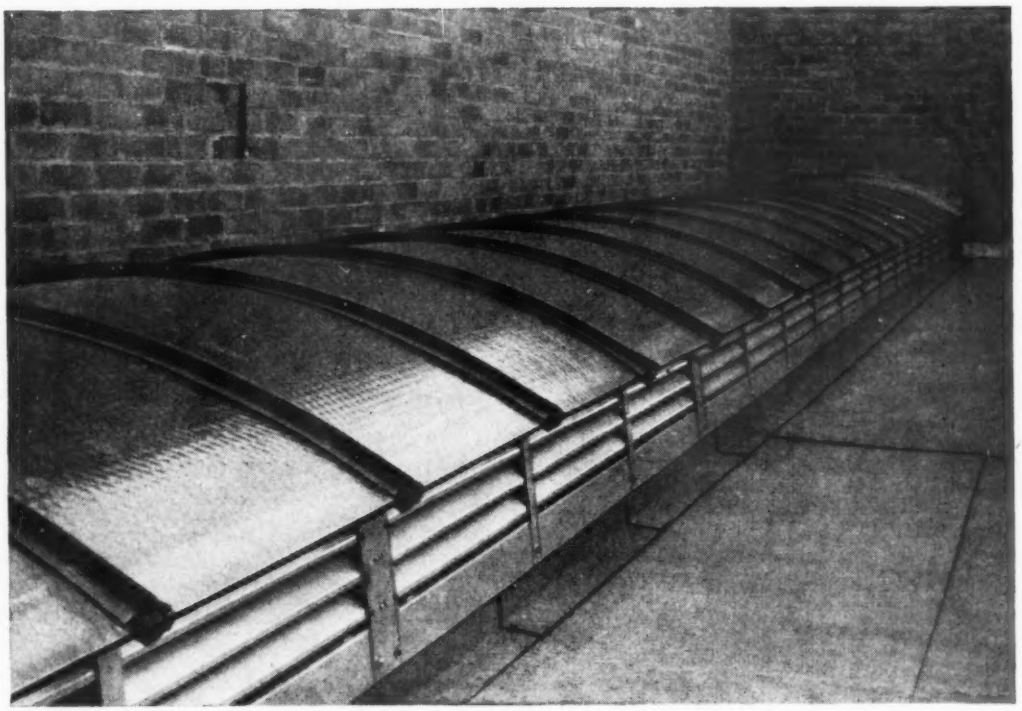

Architects & Contractors: Messrs. Gilbert Ash, Ltd.

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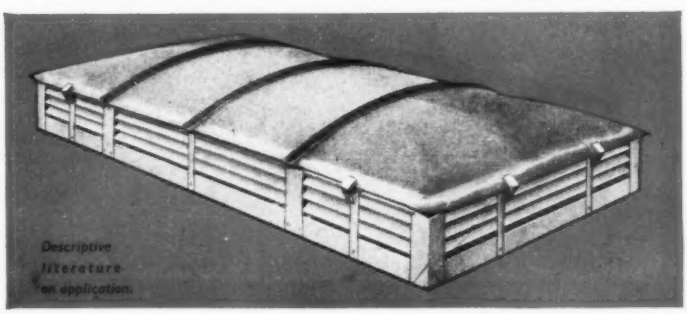

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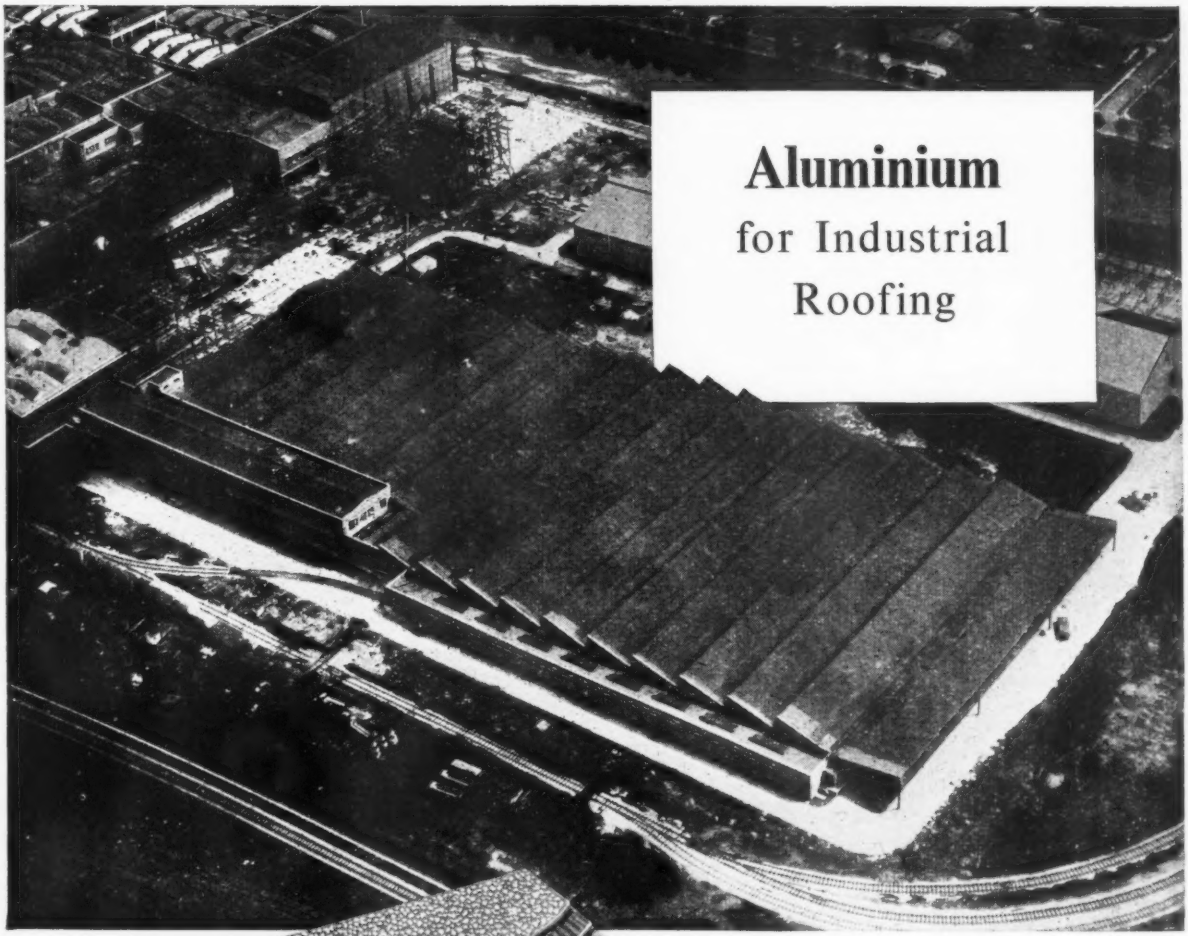

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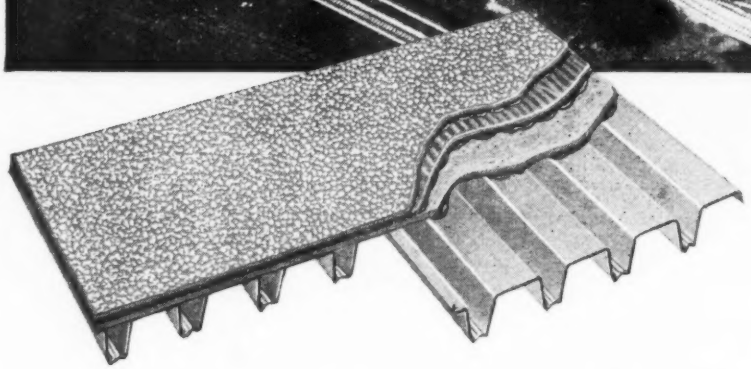

'E' Decking is manufactured for D. Anderson & Son Ltd., of Stretford, Manchester, from 18 and 20 gauge aluminium alloy sheet supplied by British Aluminium.

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SLIDING DOOR GEAR

Illustration on left shows ELLARD "Radial" Sliding Door Gear fitted to a private garage. Sliding doors are of great advantage in protecting cars against damage caused by accidental swinging of hinged doors. In addition, valuable working space is offered where it is most desired, at the entrance to the garage. Note also how ELLARD Door Gear provides easy access to and from the garage by a personal entry door. ELLARD "Radial" Sliding Door Gear is low in price and gives long service without maintenance. This gear is also suitable for the larger openings of commercial and industrial garages.

OVERDOR
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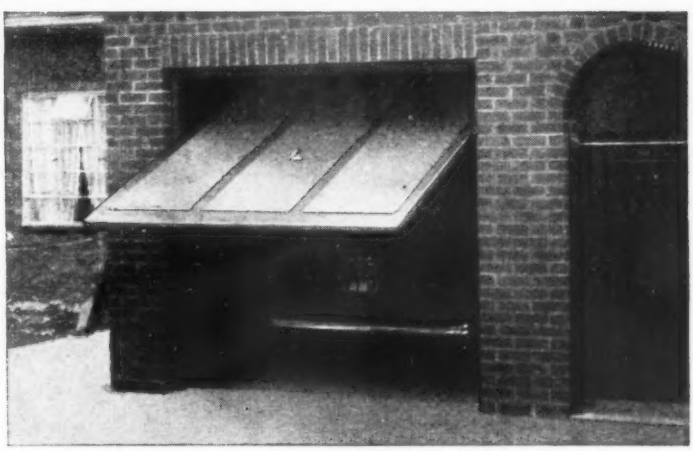
ELLARD "Overdor" Gear, illustrated on right, represents the best method of operating an overhead type door, and it requires the minimum space, fixing time and maintenance. An entirely clear threshold is achieved, and both side walls are available for windows or shelves. "Overdor" Gear is designed for doors from 6ft. to 7ft. 3in. high and up to 200 lbs. in weight. The door is safely balanced and can be opened and closed with ease. The width of the door is not critical, but the construction should ensure that the door does not sag when in the raised horizontal position, and we suggest a maximum width of 10ft. The balance springs impose a compression force along the iambs, thus relieving the building of all stress until the door is raised, when less than half the weight of the door is supported by the twin top tracks. ELLARD "Overdor" is therefore especially suitable for lightly constructed buildings.



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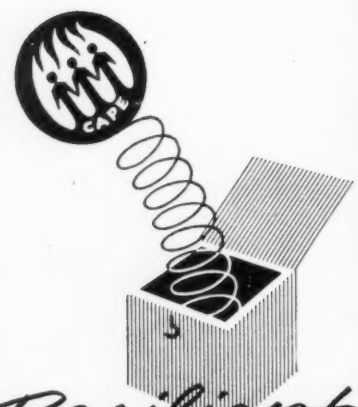

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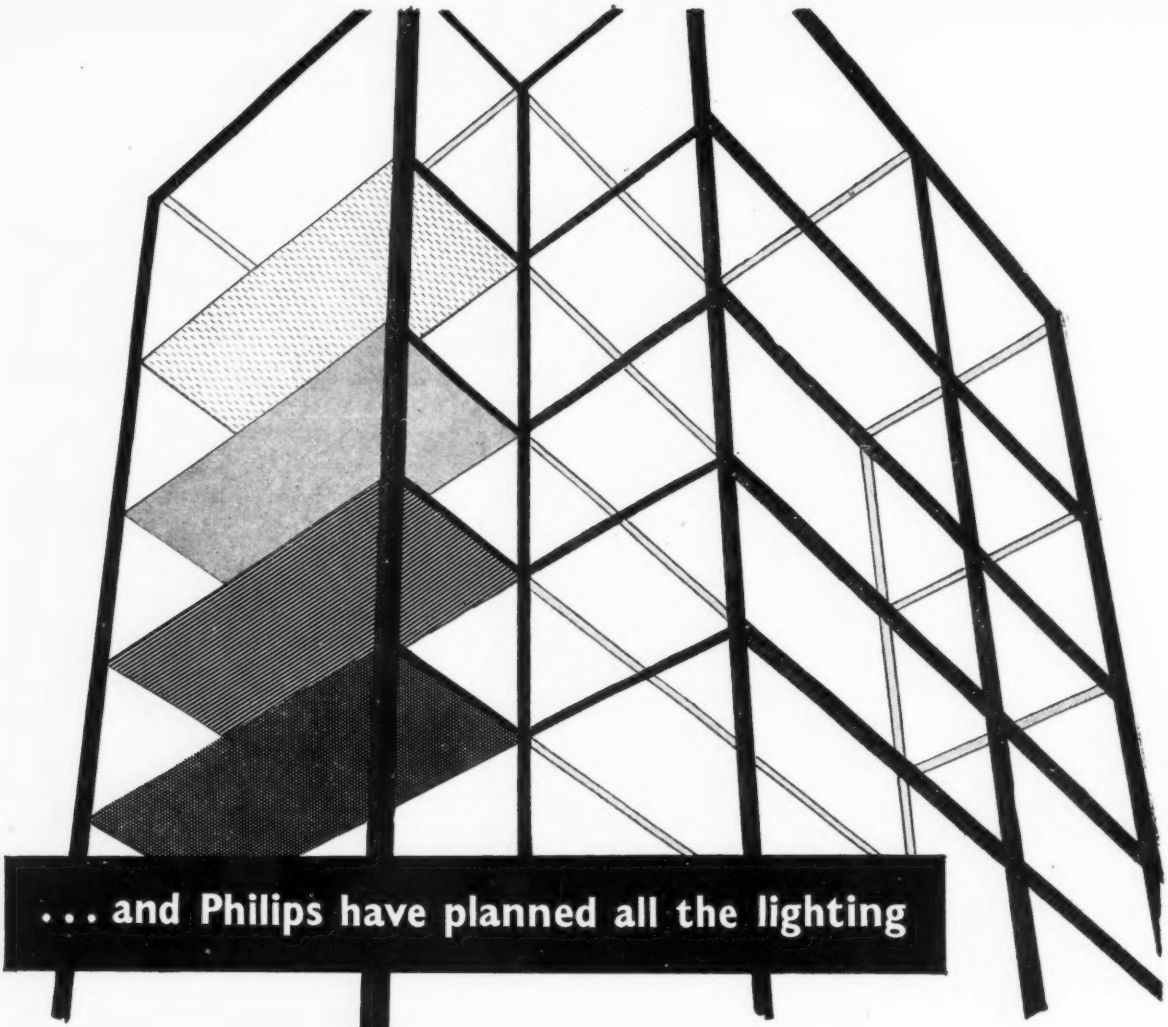

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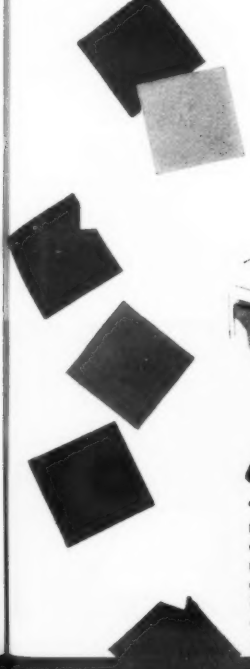

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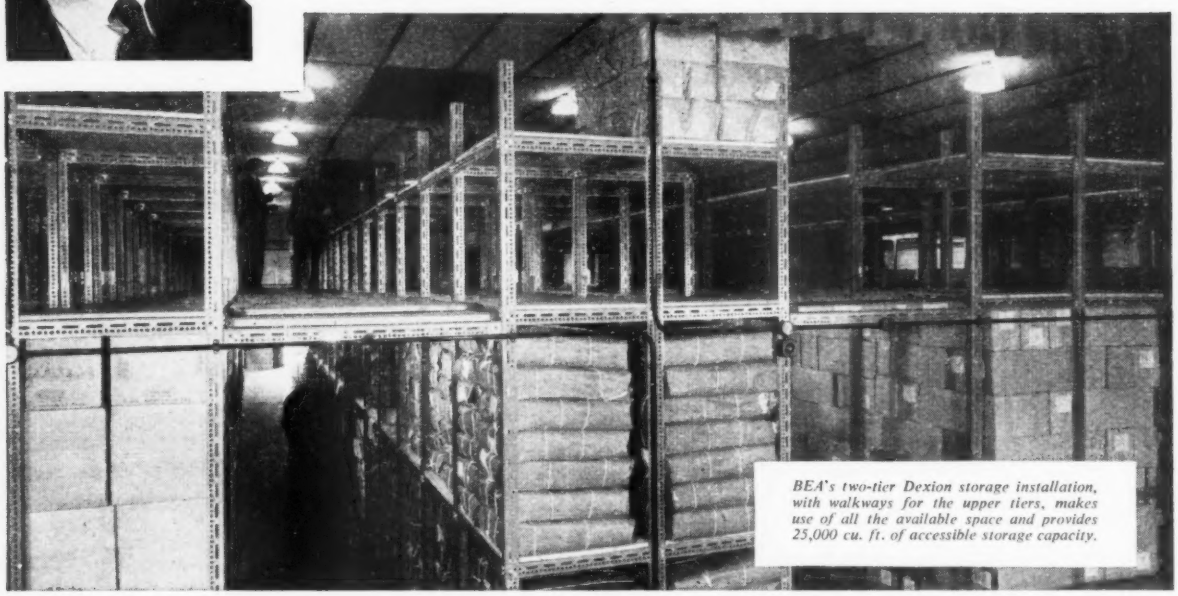

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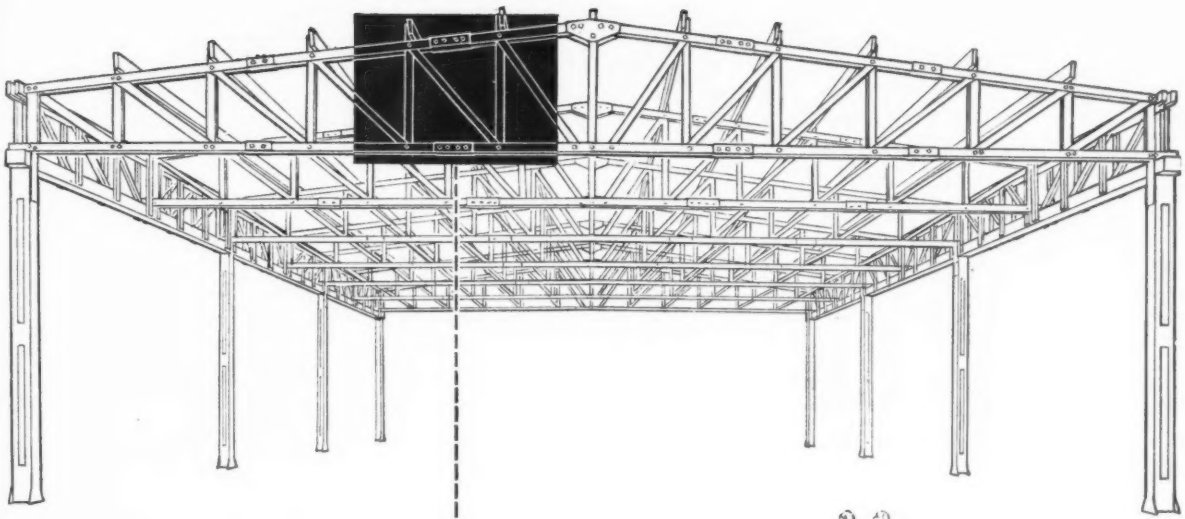

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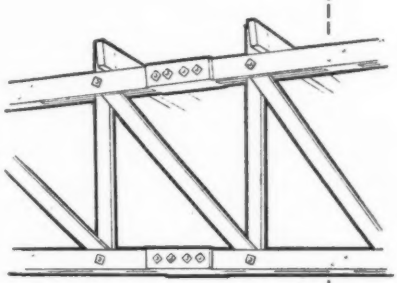

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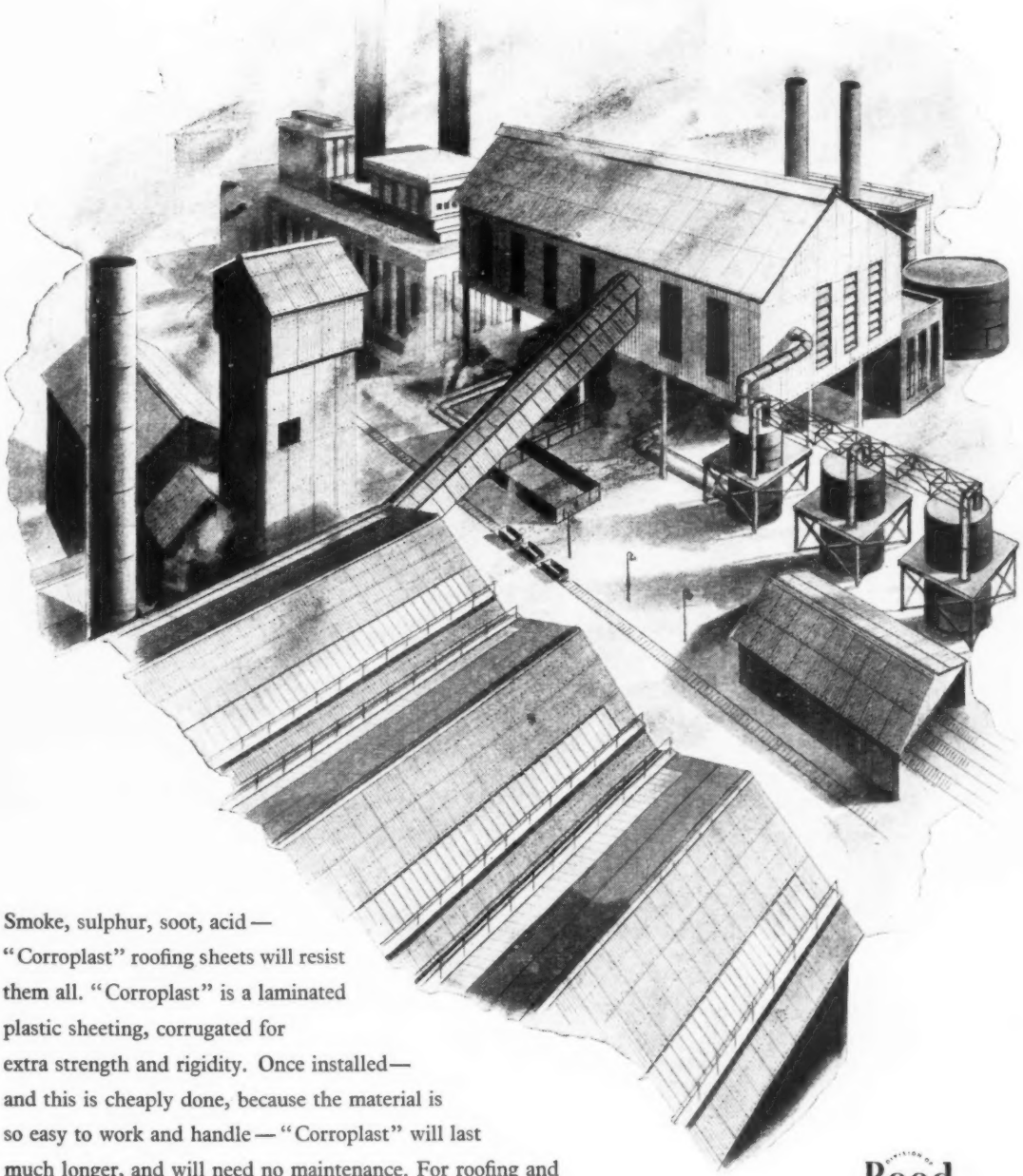

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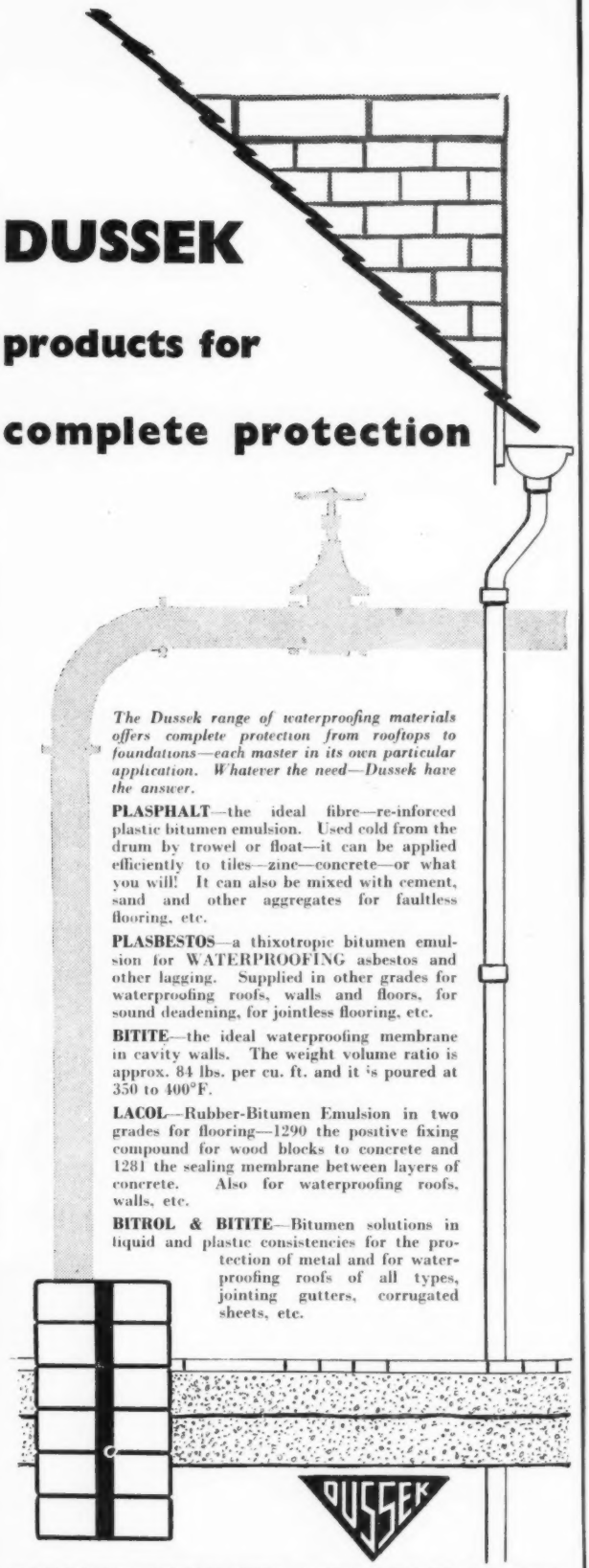

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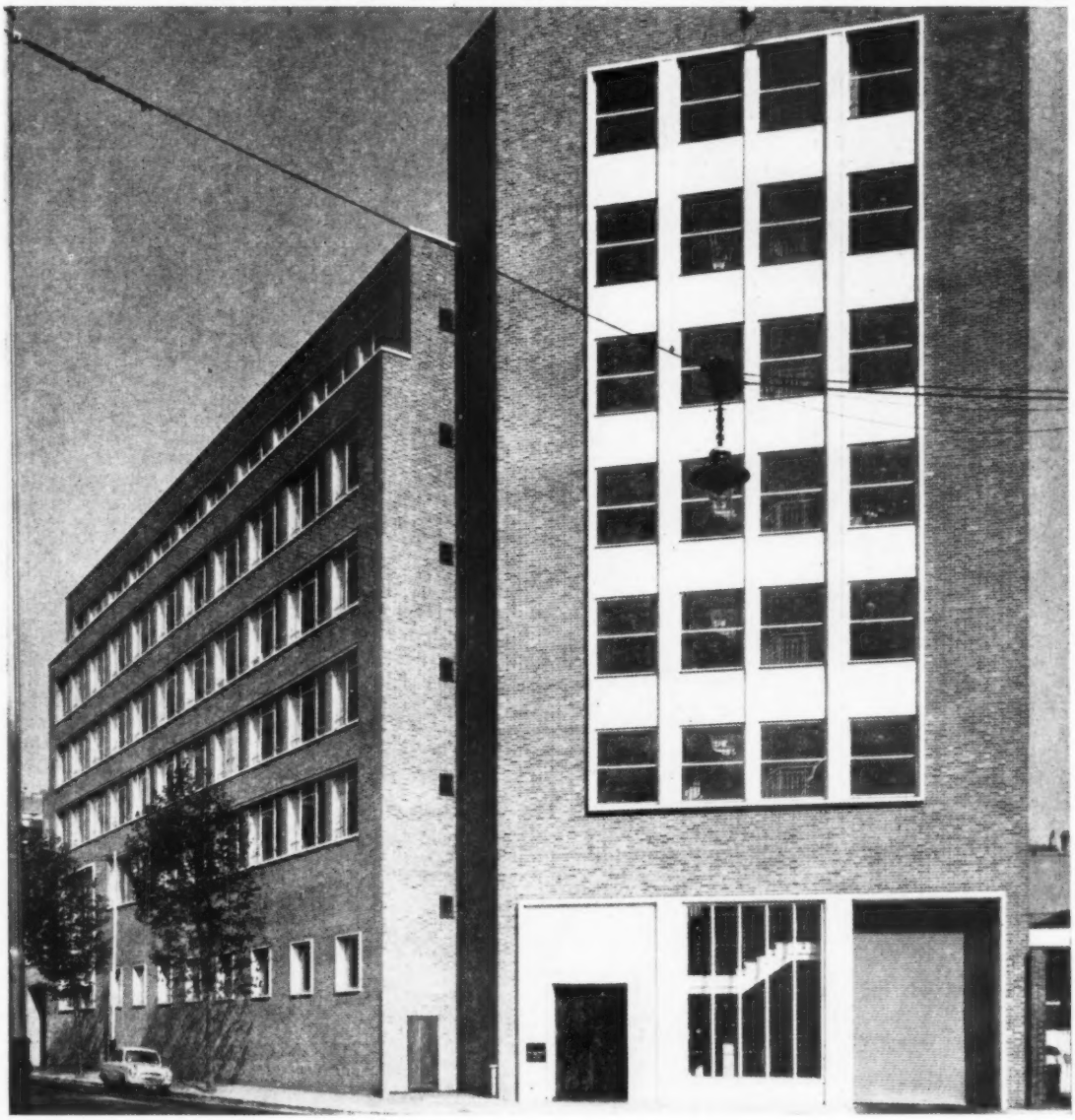

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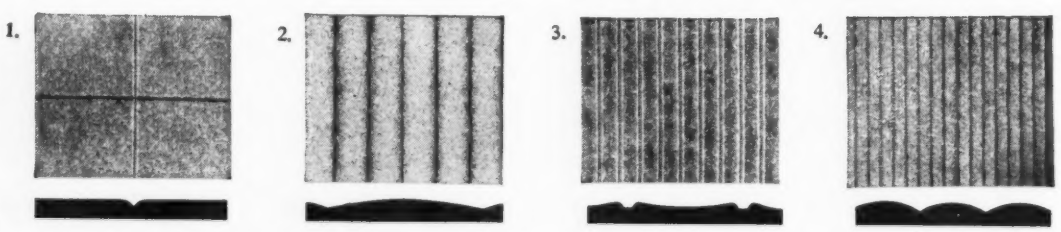


WILLIAMS & WILLIAMS

NEWS SHEET No: 5

Wallspan

cuts building costs for Midlothian C.C.

Bryans Primary School, Easthouses, Midlothian.
Architects: T. Bowhill Gibson & Laing, Edinburgh.
The incised wood panel on the left is by Norelle Keddie, and the glass screen on the right by Helen Monroe, also of Edinburgh.

In these days of austerity, near-inflation, and the credit squeeze, it is becoming less common to find decorative features like these in a school. That the Bryans Primary can boast them is due in some measure to Williams & Williams 'Wallspan'.

Easthouses is a new village in a mining area in Midlothian, some ten miles south of Edinburgh. The housing side of the project was well under way and the population already sizeable before the school was commissioned. So that when eventually it was put in hand, speed was a vital element of the contract—the school for 650 pupils had to be completed in nine months. To cut down building time, the architects decided to use curtain walling on the main classroom block, the assembly hall, and the gymnasium. Accordingly they specified 'Wallspan'. When the tenders were received it was found that the total cost, even after allowing for the embellishments, was considerably lower than the maximum permitted amount laid down by the Scottish Education Department.

Construction details

Bryans Primary School consists of a central block—which comprises the entrance hall, assembly hall, dining room, and infants' classrooms—and two wings—one the main classroom block, the other the gymnasium.

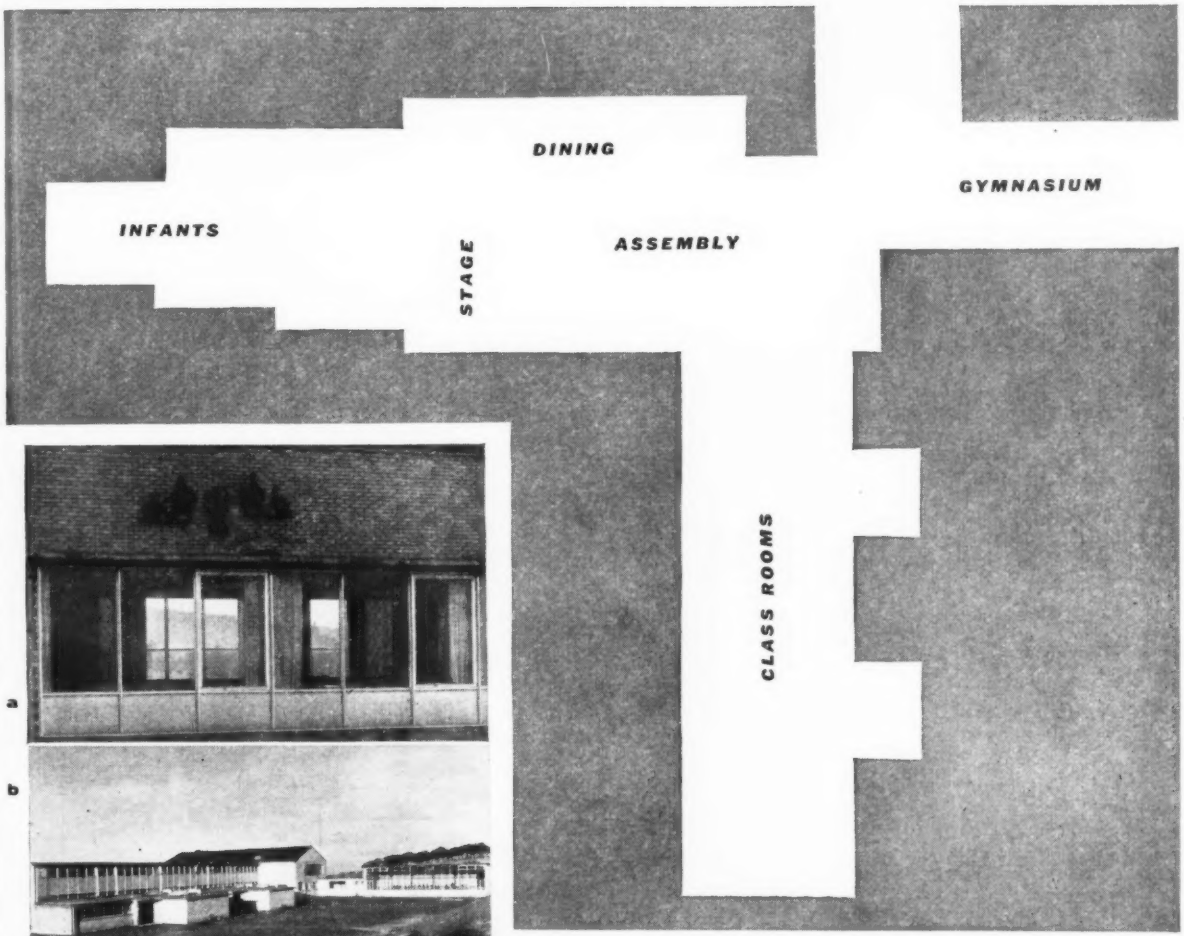
Both the main assembly hall and the dining hall have one wall clad with 'Wallspan'. The classroom block, which is the largest individual part of the whole school, has ten rooms on two stories. It is of cross-wall construction with Stalton prestressed concrete floor and roof slabs in which the electrical trunking and services are incorporated. 'Wallspan' covers the whole of one side of the block (which faces south-west to command a magnificent view of the Pentland Hills). The other side has toilet and cloakroom accommodation built out on the ground floor, the roof of which is some 18 in. lower than the ceiling slab of the ground floor classrooms. 'Wallspan' on this face extends from the cloakroom roof up to the eaves of the main block. The lowest section, i.e., from the cloakroom roof to the classroom ceiling, being fixed glazed and acting as a clerestory to the ground floor classrooms. The opening lights in the 'Wallspan' are Williams & Williams purpose-made horizontally pivoted windows in aluminium. The remainder of the grid is fixed glazed, with insulating panels, faced both sides with aluminium, in the spandrels. There is no internal rendering on the 'Wallspan'.

Heat economy too

Although only single glazing is employed and the school is on an exposed hill top, it has been found in practice that heat losses from the central heating system are very slight—the difference in water temperature in the flow and return pipes at the boiler reaching a maximum of 12½% in winter weather. This may be attributed to the excellent weather sealing of the 'Wallspan' and efficient draught-proofing of all opening lights.

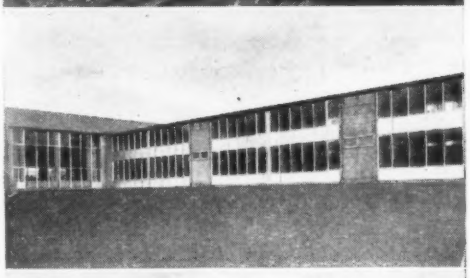
Social pioneering

An interesting sidelight on Bryans Primary School is the way in which it is divided into what may be termed 'public' and 'private' sections. The former includes the main hall and dining room together with two tutorial rooms on the first floor over the entrance hall (divided from the assembly hall by a continuous Williams & Williams sliding folding window 30 ft. long, enabling one classroom to be used as a gallery when the hall is used as a theatre). The stage too can be separated from the body of the hall by an electrically operated solid screen which is housed under the floor. By this arrangement the school is used as a community centre, without any appearance of makeshift, during the evenings, weekends, and school holidays. The classrooms, being entirely separate, are safe from disturbance from these extra-scholastic activities.



a

b



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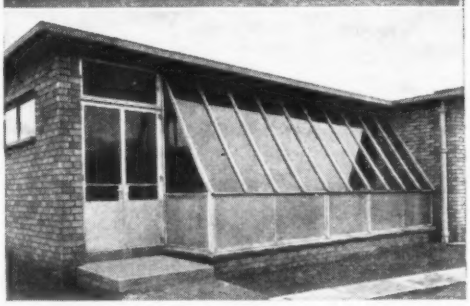


d

a

Sculpture group in fired brick clay by Norelle Keddie. Part of 'Wallspan' installation is seen underneath.

b

Gymnasium (right) and main classroom block showing clerestory lighting to ground floor.

c

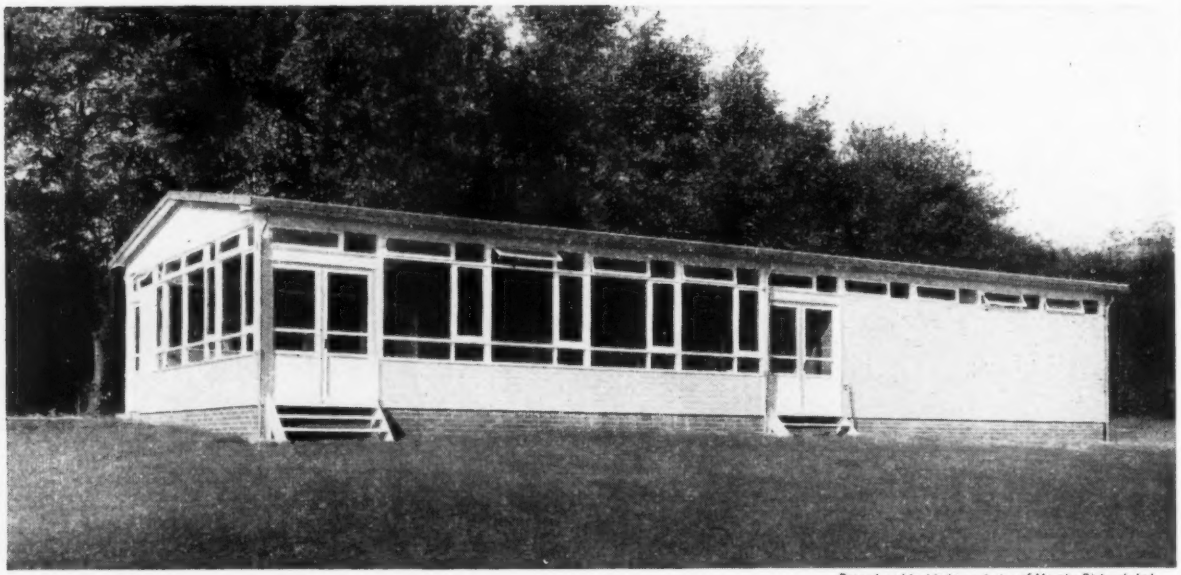
The main classroom block from the south-west.

d

Aluminex Patent Glazing is used on the southern aspect of the infants' classrooms to provide indoor window box space.

EXPORT

Architects overseas will be sorry to hear that Mr. G. T. MacEwan retired from his position as Head of the Williams & Williams Export Division at the end of 1956. He is succeeded by Mr. R. E. Rudge, who has been Mr. MacEwan's deputy for some time.



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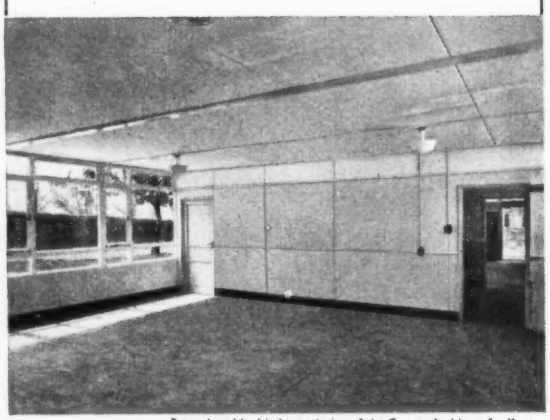

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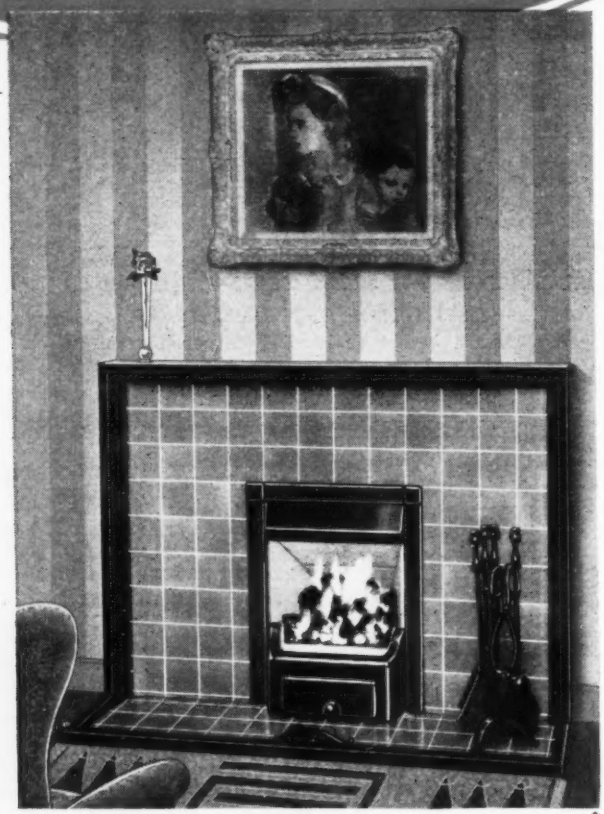

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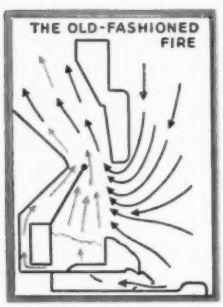
the wonder fire of the century



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*Note the range of fine Carron finishes . . . .
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The dual purpose "CALESTO"

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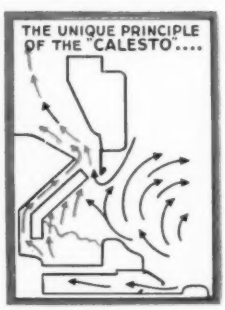

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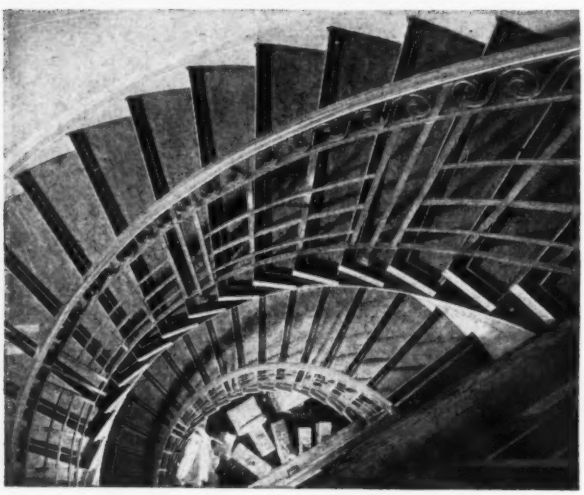

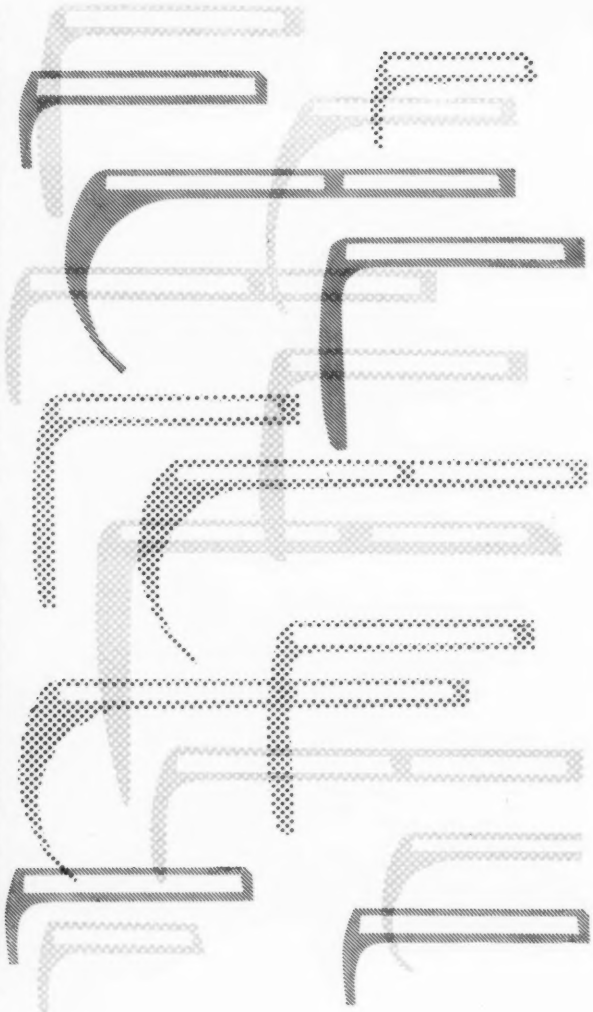

Top illustration: Crown House, Aldwych, London.
Below: Times Furnishing Co. Ltd., Bermondsey, London.

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THE ARCHITECTS' JOURNAL

No. 3234 Vol. 125 February 21, 1957

9 13 Queen Anne's Gate, London, S.W.1. Tel. WHI 0611

Subscription rates: by post in the U.K. or abroad, £2 10s. 0d. per annum. Single copies, 1s.; post free 1s. 3d. Special numbers are included in Subscriptions; single copies, 2s.; post free, 2s. 3d. Back numbers more than 12 months old (when available), double price. Half-yearly volumes can be bound complete with index in cloth cases for 30s.; carriage, 1s. extra.

NOT QUITE ARCHITECTURE

THE NEW CARS: A REPORT FROM AMERICA

During this season of new automobile shows, unusually-excited speculation may be excused. Some of the 1957 cars, first seen in the summer of 1956, were advertised as 1960 models. Will the 1958 models move on to 1961 or slip back to 1959? And will the next step of style be as long and low as the one just taken?

*

It is now clear that 1956 was the first baroque year in half a century of car styling. The bodywork has never been exactly integral with the business-end of car design, but last summer the separation was no longer concealed and the body became proudly free. It was the year of "sculptured steel," when "the forward look" swept us into "the wonderful world of autodynamics." Before this, even in heavily chromium-plated seasons, the car stylist was a little too self-conscious to realise himself as an artist. Symbols of functional design persisted: the steps, bulges and breaks in the body were made to look as if they might be usable parts of the equipment or the protruding ends of some concealed piece of pulsing mechanism. The celebrated vertical gash on each side of the middle of the Cadillac, whose task apparently was to convey the difficulty of making such a long car in one piece,

Research Fellowship for Dargan Bullivant

Dargan Bullivant, A.R.I.B.A., seen above at his desk at MOE, has been appointed by the ARCHITECTS' JOURNAL Research Board to take up the Fellowship (value £1,000: tenable for approximately one year) held by the late Michael Ventris. Like his distinguished predecessor, Dargan Bullivant holds an Honours Diploma of the AA and has experience of working with MOE. He began his architectural training at Birmingham School of Art, but took advantage of National Service to try his hand at another career—aeronautical engineering. Trained under the Navy's Y scheme at Edinburgh University, Loughborough College and Keyham, he emerged as a sub-lieutenant air engineer destined for carriers in the Far East, but did not go. Instead he completed his architectural training, first at Birmingham, then at the AA and in 1949 joined MOE where he has remained ever since. He has worked on Wokingham School, under David Medd and Mary Crowley, on Woodland Boys Comprehensive School, Coventry, and latterly has been joint architect in charge (with Peter Newnham) of Lyng Hall Girls' School, also at Coventry. He will be known to many readers for his connection with Section A-A Theatre Group, of which he is now business manager and treasurer, also for his contributions to our contemporary, *Architectural Design*, for which he has long been a consultant. Having had one foot in the door of aeronautical engineering he has managed to push the other into the door of landscape design, for he already holds the intermediate of the ILA. With these varied accomplishments he should be adept at forcing open those doors which are still shut against the architect and behind which lie so much of the information which he needs. We wish him every success.

was given little dabs of black paint to stimulate ventilation slots, airing the encased back wheel.

*

But no more of this pretence! Today the car accepts the supremacy of its position in American society and begins to dress accordingly. The Chrysler group goes further than most in bringing the swept-fin contour at last to its full glory. The folded wings, or raised fish-tails, whichever image you prefer, begin in the middle where the Cadillac droops in exhaustion and sweep back past the rear wheels, rising exultantly almost to the height of the cabin. From the rear view the car is now a wide U-shaped cradle of metal carrying a glass conning tower.

*

The side of a car is no longer plain duco striped tastefully with a few chromium fins; now panels and darts of anodised aluminium are inserted. Twin pairs of headlights and triple tail-lights promise to become standard. All trace of Raymond Loewy's touch has left the new Studebaker. The spare wheel is off the back of the Thunderbird and is tucked into the boot (trunk); that brief courtship with the Continental Look is over. Generally, the practice of adding massive bumpers and heavy ornaments to an inoffensive body shape is now seen by the stylists to be vulgar and untenable. Now they make the shape itself as offensive as possible in the first place. "These wings," says one advertisement, "are part of the body; not just added on as in some other makes."

*

For some time now in America the car has been an item of conspicuous consumption quite as important as one's home for keeping up with the Joneses. Today consumption is higher than ever before; hence it needs to be more conspicuous. But anything special in the way of a home—certainly a new house, site-built and sentimentalised—is out of reach of most people. So prosperity turns to the car, which is feeling the strain of keeping up the race against itself. In the last few years the horsepower has been tightened up to the 300 mark; automatic push-button control of transmission, seat position, windows, hood, bonnet, boot and cigar lighter has been installed. All that was left to do was to separate the styling from all pretence of rational discipline. This is the step which the stylists are now taking, elegantly and with obvious pleasure, out into the smoggy air of a new era.

ROBIN BOYD

The Editors

THE PRICE OF *THEIR* GOOD TASTE

CAN legislation ensure good design, or prevent bad? The ten years which will shortly have passed since the Town and Country Planning Act of 1947 should prove an adequate period in which to assess the value of the Act in so far as it is concerned with the appearance of buildings. Even a most superficial survey of building over the past ten years will show that the '47 Act has not prevented a large amount of third-rate designs—judged both in terms of planning and appearance—from being built. It is, however, unfair to expect an Act of Parliament to correct the inadequacies of the architectural profession and the speculative builders. It would be more reasonable to judge the Act by its success in preventing really bad designs from being built. Evidence on this point could, no doubt, be provided by the MOHLG and by the local authorities' planning officers.

There is also, of course, another aspect of the matter to consider. How many good designs have been rejected by planning officers or have been impoverished by their recommendations? We suspect, although there is little evidence to hand to prove it, that most architects would claim that a great amount of unwitting abuse of the '47 Act takes, and has taken, place.

Recent articles and correspondence in the professional press show that some architects are dissatisfied with the power that the '47 Act has given planning officers and committees to interfere in what the architects feel are matters on which only the qualified architect can decide. The arguments for and against the present form of control of building design are too lengthy to list here. It would, however, be valuable to know what the implementation of this attempt to control the appearance of buildings costs; and in the cost should be included not just the expense of planning enquiries and a proportion of the cost of running planning departments, but an estimate of the cost of the control of appearance, alone, in terms of delay and the waste of professional time.

THE CARAVAN PROBLEM MUST NOT REST

One in 145 people in this country now live permanently in caravans. This is a startling figure and reveals the size of the problem created by residential caravans. In a recent paper at the RSA, W. M. Whiteman, editor of *The Caravan*, not

unnaturally tended to stress, in his assessment of the ways in which the caravan is changing our lives, the use of the caravan for recreation. Although he referred to the apparent misuse of caravans for residential purposes, he might well have said a great deal more about this aspect of the question. For it is principally the agglomerations of residential caravans that interest the central and local authorities concerned with planning, public health, education, and other public services. Mr. Whiteman appears to throw the responsibility for the lack of well-ordered sites into the lap of the local authorities; but is this quite fair? He omits to mention a very pertinent characteristic of sites in general, whether recreational or residential. Many were set up without the consent of the local authority, or even approaching it; their geographical position leaves much to be desired and was certainly not chosen by the authority. They were presented, as it were, as a *fait accompli* to the authority which has had to make the best of a bad job, appreciating realistically that humanitarian considerations often made it difficult to prevent the misuse of the land.

Can any authority be blamed for restricting its consent to a limited period despite the fact that that period, in terms of site economics, might not allow for the construction of site amenities and facilities to a decent standard?

The caravan may be ideal as a recreational unit, but it is doubtful whether it can be a satisfactory all-the-year-round living unit, either for a single person, young married or aged couples, or a family. Statutory limitation of size, lack of satisfactory insulation materials to meet the vagaries of an English winter, vitiated air conditions produced in a confined space without air movement, are contributory factors which will require attention before the caravan, into which has been packed the brains and ingenuity of a well-organized industry, can in any way measure up to the traditional house. Mr. Whiteman rightly wants proof that caravans are sub-standard. Here is a field for useful study by medical authorities and others concerned with social behaviour.

The apparent antagonisms to caravans to which Mr. Whiteman refers are founded in part on the absence of a proper understanding and appreciation by both parties; local authorities on the one hand and caravan producers and distributors on the other. At some point in the scale the site operator enters. Whatever rival factions or ideologies are produced, or exist, it is the unfortunate caravan occupier who loses.

May the quick answer to all this divergence of view not be a second " Movable Dwellings Conference " ? The subject is profound, complexities are many and changing. Is review overdue? Is there a need for Government policy or guidance? Is controlling legislation out-of-date? Has a well-organized industry received sufficient recognition? Have local authorities had second thoughts?

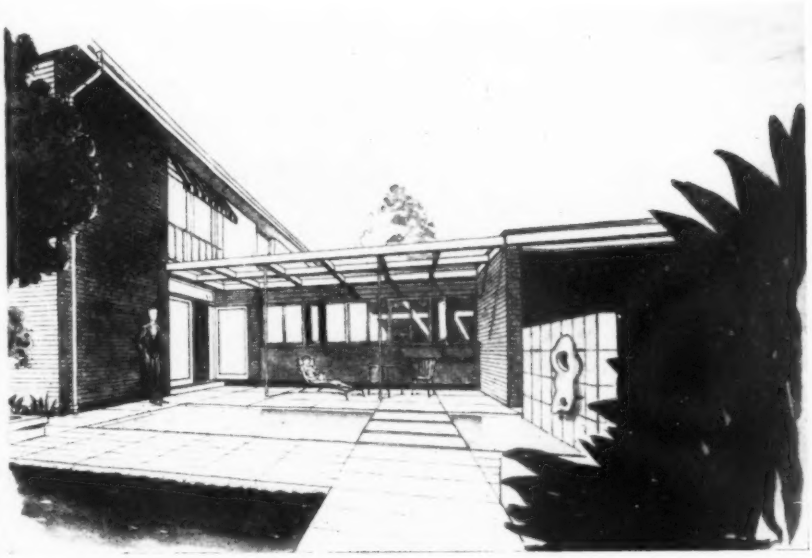
These, and many other questions require up-to-date and searching examination, and Mr. Whiteman's paper provides the kindling wood to ignite smouldering opinion.

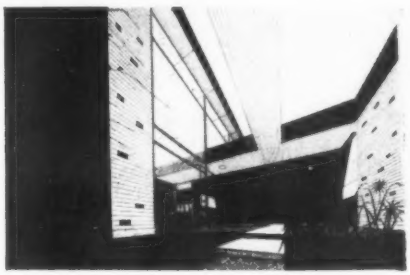
HOW TO ENCOURAGE EXPERIMENT

One of my favourite journalists is John Gordon, who is always championing hopeless causes in the *Sunday Express*, and showing how ass-like the law really is. (You know the sort of thing: Mother Bites Baby in Walberswick; Jailed for Ten Years—yet Man who Hacks Up Wife and Puts Her Up Chimney in Wigan merely has LICENCE ENDORSED.) I should like to see him deal with the strange case of Mr. Gardiner of Bristol, who is managing director of a firm that is experimenting with a solar heating system. Because he wanted to heat his own house with this two-shillings-per-week system the Inland Revenue stepped in. Ordinary methods of heating, they said, would cost £2 10s. a week, so Mr. Gardiner must pay tax on £2 8s. a week extra income *and* 5 per cent. of the installation cost.

*

This makes me wonder what happened to those Electricity Board employees who had heat pumps installed in their houses. Did they pay tax? And are we liable to pay tax if a manufacturer sends us samples and we try them out by actually using them? If a reviewer sells a copy of a book he is, strictly speaking, liable for tax on the small amount he gets for it? It looks as though he might even be liable for tax on the full price if he kept it.





Perspectives of the designs which won prizes in the Daily Mail's *Ideal Home competition. The first winning design, by D. W. Oliver, of Bath, will be shown in "live" form at the exhibition which opens at Olympia on March 5. The second and third designs (above and bottom left, respectively) will be shown at the exhibition, together with the remaining four hundred-or-so entries.* (*See also page 281.*)

THE STATESMAN CATCHES UP

ASTRAGAL is always delighted when that Friday paper which is such a comfort to angry young assistants and lower-grade official architects tries to keep up with its dreaded rival, the *Spectator*. A bare matter of weeks after the *Spectator* dealt with London office blocks the *Old Stagers and Indignation* (as G. W. Stonier once called it) has caught up. This particular article appears under the *New Statesman's* weekly rubric, "Arts and Entertainment," in spite of the fact that the first half of it is devoted to morality, politics, economics, climate and golf. It is only at about the middle of the third column that the man behind the words—no less than James Cubitt—begins to show through.

*

Then follow four paragraphs of sensible reflections on how to make office blocks look good, including thoughts on such problems as the oblique view of the façade from the street and the use of relief, patent glazing and colour. This last is something that architects conspicuously don't bother about much at present, but ought to. Mr. Cubitt commits himself to "brown grading to yellow ochre" as London's happiest colours, chiefly on the basis of their sunset performance. But *are* they so good? What about north elevations for the rest of the day when no westering sun rakes across them? And what are the odds when sodium glare from street lamps bathes the façade?

*

But no more carping: congratulations instead to the *Statesman* for continuing to fight for good architecture, and for securing a critic who is becoming a household word. Or hadn't you heard that Mr. Cubitt has recently joined Sir Giles and Messrs. Yorke & Spence as a trimmer-up of spec. housing for Boxgrove? In case his enterprising firm has missed a tremendous publicity gimmick, let me offer it to them free of charge: "Why not have *Your* House designed by the Man who did the Royal Dolls' House"?

CHRONICLE OF OUR TIMES

Talking of spec. housing, have you seen the *News Chronicle's* latest competition? There was a time when this newspaper seemed very enlightened from the architectural point of view (remember the pre-war school competition?), but since the war some of its ideas have gone moderately haywire. Recently it published a list of good points in speculative houses (flush doors, cavity walls (!), metal windows, etc.) and asked readers to mark them —at 2d. a go—in their order of importance, pretending that *they* were builders thinking up advertisements. The competition panel was surrounded by builders' advertisements, and it was interesting to note that scarcely any of these referred to points appearing in the competition list. Still, four out of forty—a pretty high average—thought it worth using the phrase "architect-designed," though this, of course, was a detail which had no place in the list of virtues.

IRISH ENTERPRISE

It was very enterprising of the Royal Institute of the Architects of Ireland to send their own comments on the City of Dublin planning scheme to the Irish Minister of Local Government. Let's hope they will be listened to, because they contain some sound ideas. They also have the merit of being presented in language that is unusually lively for a semi-official document—even though the metaphors tend to get a bit mixed.

For example, this passage, from the Institute's criticisms of the traffic plan based on a series of ring roads: "They appear to confirm the notion of an imaginary compass point at the Castle or, rather, of a demented ring-master whose one accomplishment, whipping the city traffic back and forth through the river basin, is making a motor-carousel of the city . . . Reason suggests that Dublin's peripheral roads should rather serve realities than resume the statuesque patterns of a mythical spider's web. The spider is taking on the attributes of a god—roads, particularly on the outskirts of the city, are poured out like libations, the only consideration being that they should perpetuate the Holy Web."

*

Can you imagine a report from the RIBA to the British Minister of Housing and Local Government written in this delightful style?

*

In another vigorous passage the Institute insists on the virtue of wide roads. Referring to the foresight shown by the 18th-century Wide Streets Commissioners, the report asks: "How can Dublin's 18th-century urbanity be preserved if its 20th-century civic heart is to be served by sclerotic boreens?" This is fine (if Boreens are what ASTRAGAL thinks they are) when applied to the approach roads, but in the centre road-widening would not be a substitute for better road-planning, and it must not be overdone. Visually it could have a disastrous effect on the centre by opening it up too much. Lovers of Dublin will, however, fully support the Institute's plea for trees in the new streets.

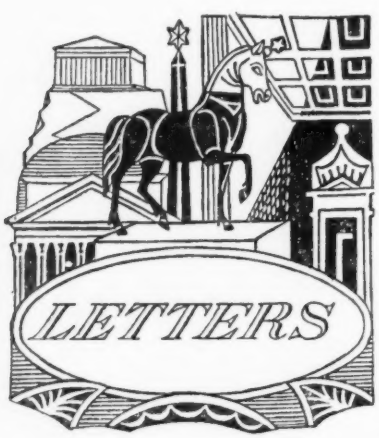
GOOD ON JORN

It would be more pleasant to sit through *Gervaise* half a dozen times than to listen to half a dozen architects discussing their contemporaries. If so-and-so collars a big job he is slick; if old what's-his-name talks wittily and designs infrequently he is a charlatan; if you-know-who does six churches in a row he is a pious hypocrite; if that bright pair down in where-is-it turn out some æsthetically-pleasing housing estates their work is pretty-pretty, and if that up-and-coming lad across the river is making rings around the unqualified clods in suburban planning offices he can't possibly find time to attend to his finishes. As for Jorn Utzon, the Danish winner of the Sydney Opera House competition (whose designs were published exclusively in the JOURNAL for February 7)—well, those of you who went in for the competition will see quite clearly what is wrong with his work. In fact, some of you have already taken me by the lapels (yes, it *was* me, your anonymous columnist) and torn Mr. Utzon to pieces. How vigorous your attitude of mind seems in comparison to that of one or two Australians who failed. A news flash from Sydney tells me that these are the remarks local boys are making. "The winning design is poetic . . . a piece of poetry . . . magnificent . . . I am quite staggered. . . ." Best of all is the comment by Laszlo Kollar, one of the commended competitors. "He was game to submit the design he did and good on him too."

*

Let that be our charitable thought for the week. What's that? Old who'sit's got his name $\frac{7}{8}$ in. high in the gutter press? If ever a man was a rogue. . . .

ASTRAGAL



Geoffrey Spyer, Christopher Stevens and Michael Willis, A., Student/Student A.R.I.B.A.

N. Keith Scott, A.R.I.B.A.
of Grenfell Baines and Hargreaves

J. W. Greenwood, A.R.I.B.A.

June Franklin

Prejudiced Canons

SIR,—We are concerned at the outcome, in practice, of the provision for the æsthetic control of buildings implied in the Town and Country Planning Act of 1947. By the nature of his training, qualification and professional responsibility an architect is presumably the person most competent to ensure that a building is of proper design and in keeping with its environment. Nevertheless, designs which are prepared and submitted by architects are rejected, and Town Planning approval is withheld, on purely æsthetic grounds by local committees which are usually less suitably qualified than are the architects submitting them.

Even though these committees do in some cases have their own qualified advisers they are under no obligation to accept, and apparently frequently disregard their recommendations. Appeals to the Minister against such local decisions are often undertaken almost as a matter of course, although this entails several months' delay. Both client and architect may well incur unnecessary expense and possibly considerable financial loss as there is no guarantee that the appeal will be upheld.

As a result, even the most unassuming attempts at innovation and experiment are discouraged, especially when the building is an individual house for which the most prejudiced canons would seem to exist.

We consider that the control thus exercised serves no useful purpose whatsoever and that at the same time the professional status of the architect is undermined.

Surely it is time some action is taken to remedy this situation? We believe that this is an issue which is of vital concern to the profession as a whole and that it can be tackled successfully only on that basis.

We understand from the January issue of the *RIBA Journal* that the report of the Joint Committee set up to consider this question is being reconsidered under pressure from other professional bodies. We are alarmed by the implications of this statement and we feel that the RIBA should be urged to publish the revised report as soon as possible in order to provide an early opportunity for the profession as a whole to consider and discuss the question.

GEOFFREY SPYER.
CHRISTOPHER STEVENS.
MICHAEL WILLIS.

London.

Cost Comparisons

SIR,—We would like to express our pleasure on seeing your cost comparison of a hypothetical Office Block in the AJ (October 25). Although pressure of time has so far prevented us from making such detailed cost comparisons of each "design unit" for any one scheme, we have sufficient experience of this method of cost analysis to have become convinced of its value. It is now our standard practice to compare constructional systems from a financial standpoint if there is any doubt in our minds as to their economy. The seeds of this doubt are, of course, sown in the results of the overall cost analysis.

Although we cannot offer a complete scheme broken down in the way you presented it in the JOURNAL (nor do we believe it to be practical or even necessary for every scheme in the average office), we can tell you the lines upon which we are building up a cost library in conjunction with our quantity surveyor.

Firstly, we are convinced that the most helpful method of comparing costs is the "design unit"—how much do different types of w.c. units cost, different staircases, different structural floors, roofs, etc.? To do this, one must have to hand the relevant unit prices. A price book such as Spons is the first essential, and parallel with this we build up our own book of prices of

proprietary materials. These prices are intercepted and dated as they arrive in the general office, either in the form of quotations or trade literature. (The literature from manufacturers who refuse to give prices is consigned to the dustbin.)

With the aid of this library of item costs, we and the Q.S. are able to build up the cost of whole design units such as the ones shown in your article. These are recorded, complete with date and location, in what we call the "3-D" section of our "bible." The cataloguing of this section entails a further breakdown of several of the 28 units in the JOURNAL'S cost analysis *pro forma*. This enables us to build these 3-D items into the major structural divisions of the cost analysis and to see how they affect the overall cost.

This scheme is still in its infancy but it can readily be seen how, after a few years' operation it should be possible to design the sketch scheme, break down the overall allowable cost into a preliminary Cost Plan and from that point on have complete cost control over each individual item. Conversely, where no maximum cost is fixed, it should be possible to show the client not only where every pound is being spent, but also where he may readily make cuts or most profitably "spread his wings."

We are therefore particularly pleased to note your new venture since we can incorporate your findings into our own system. Similarly, we were most interested in the working detail in the JOURNAL for November 22, in which for the first time you published the price of the design unit. How much greater use these details would be if as many as possible were priced. Staircases, for example: if each of your working details on this subject had been priced, architects would now have an invaluable catalogue of 25 staircase types, each priced as a lump sum, or still better, reduced to a price per foot run. The same applies to the section on windows—now numbering 45 types.

One more suggestion: Could you please ensure that as many items as possible in the cost analysis of "Buildings Illustrated" are given a unit price? For example, a price of 6d. per sq. ft. set against roof lights is meaningless, unless not only the number of them is given but also the price per roof light.

We trust that these suggestions and constructive criticisms will be of value and that they will perhaps provoke comment from yourselves or your readers. It is regrettably true to say that the science of cost designing is still a relatively young and long overdue development in the practice of most architects. A helpful pooling of information is surely the quickest way of remedying this situation.

N. KEITH SCOTT,
of Grenfell Baines & Hargreaves.

Preston.

Measured Rates: Presentation Not Good Enough

SIR,—Whilst your new presentation of measured rates is a great improvement on the previous form, it is still miserable in comparison with those of 1939-1940, which were far better presented and fully informative and included prices for approximate estimates as well and noted increases and decreases very clearly. The type face was also clearer to read. Why do we have to have so much "standard list plus per cent," instead of the actual current price—surely this could be sorted out by now.

J. W. GREENWOOD.

Herefordshire.

The Editors write:

We are sorry Mr. Greenwood dislikes our new style prices (see AJ for December 27). Journalistic presentation was more spacious in 1939 but the two-column layout, which we then employed, involved in many cases long rows of dots relating the description on the left to the price on the right. This the new three-column layout avoids.

Prices for approximate estimates are, we think, amply covered by such publications as Spons for general guidance in pricing. For more specific guidance we feel that unit prices should refer to more defined circumstances. For example, the small office building by Stillman and Eastwick-Field, a cost study of which we published on October 25 and January 24. We hope to present more studies of this kind which readers can file, together with our published cost analyses, to form a cost reference library.

"The standard list" prices convention for certain items ought, we agree, to be scrapped and we may change this in a later prices issue. The argument for retaining it is that those who use the prices feature are accustomed to using the standard list.

Letter From a Young Town

SIR,—We came to Crawley in 1952, and by 1954 I loathed it so much I sat down and wrote a letter to the editor of the local rag saying just what I thought of the place . . . architecture, social life, inadequate library, the lot. I thought it would be treated as a joke, but I didn't know what small towns are like! Letters poured in, mostly insulting, though I also got a few invitations to sit on committees and open jumble sales. I was also asked to address a meeting at the community hut on my Ideal New Town. Never having addressed more than one person at a time in my life, I swotted up Gropius and Charles Duff's Anthropological Report on a London suburb and cut an article about le Corbusier's block of flats at Marseilles out of *Picture Post*, cribbed as much as possible and off I went. It was like being thrown to a pack of hounds. They jeered and cat-called and at the mere mention of the words "block of flats" I was howled down. They *wanted* their little pink houses with gardens like pocket-handkerchiefs edged with chestnut fencing, and that was that. No good telling them that no block of flats worthy of the name exists in Crawley. As one man put it, "I think the new town is the most beautiful thing I've ever seen." He used to live in a council flat in Pimlico, I found afterwards. Only one man stood up at the back of the hall to agree with me and he was told to go home by the audience.

A surprising number of people *have* agreed with me, but always self-consciously and on the quiet, implying that we are both misfits. I expect they will all be glad to see me leave in a couple of months' time, and I shall certainly be glad to go. At the beginning I hoped I was starting a healthy controversy that might lead to something, but what a hope. In a place like this (which is essentially a village, whatever the planners who don't have to live here like to call it) to get involved in a public argument is worse than I ever realized when I was an innocent Londoner. They don't attack what you say, they attack YOU. Very nasty.

I think I could have tolerated the dullness of being hemmed in by thousands and thousands of practically identical houses if it weren't so dreadful socially. It's all right I suppose, if you're the type of woman to find complete fulfilment in whist drives and jam-making competitions, but that kind of thing makes me feel like an old lady . . . and I had no idea just how village-y life would be here. You need a genuine country-life atmosphere, preferably with picture-postcard views, to take your mind off the smallness of everything. And on a wet day Crawley in parts looks like the Old Kent Road with grass.

JUNE FRANKLIN.

Crawley.

THE OXFORD ROAD

A Novel Planning Inquiry

Last week's debate in the House of Lords on the Oxford traffic problem (writes a correspondent) appears to have thrown the whole matter back into the confusion and indecision from which Duncan Sandys seemed to have rescued it last year. The Government, which has been accused of issuing a direction to the Oxford City Council to prepare a scheme for the Christ Church Meadow inner relief road, now announces that it is in no way committed to the scheme; and when a scheme is prepared by the City Council, not only is that to be the subject of a planning inquiry of altogether novel scope, but that in turn is to be followed by further public debate before the Minister makes up his mind. Those who are opposed to the Christ Church Meadow Road will naturally hail the outcome of the debate with relief. Those, however, who applauded Mr. Sandys' courage in grasping the nettle and producing a bold and effective scheme to save Oxford from its traffic can only be disturbed. This is not to say that the scope and character of the inquiry are not to be welcomed on other grounds: they do, in fact, set a useful precedent and meet criticisms that have been made about many planning inquiries in the past. If it is a good thing to have an independent inspector, not a Ministry official, for the Oxford inquiry, then why should it be a bad thing for other important inquiries? If it is possible to publish the inspector's report on an Oxford inquiry, why should the report of the Minister's inspectors continue to be wrapped in secrecy everywhere else? If the Oxford inspector is to be empowered to hold a roving inquiry, considering not only the scheme against which objectors are appealing, but any alternative scheme that anybody cares to put up, why should inspectors elsewhere be forbidden to stray beyond the scheme before them? These innovations in planning inquiry procedure may, of course, merely be a tribute to the strength of the Oxford University lobby, which was able to muster a formidable confederation of peers in its efforts to stop the Christ Church Meadow Road, and take advantage of a change at the Ministry. One could hardly have thrown a brick into the chamber without hitting a Fellow or a Master. The Archbishop of Canterbury (Hon. Fellow of Exeter) had made the journey in person from Lambeth Palace to add public speech to his private prayers for the salvation of the Isis from the vandalism of Mr. Sandys, who was by general

consent the villain of the piece and a blot on the escutcheon of Magdalen. Mr. Brooke, a son of Balliol, sat listening to the debate on the steps of the Throne, in the uncomfortable posture that has to be assumed by commoners who venture into their lordships' house. Lord Salisbury, who wound up for the Government, in an evident attempt to acquit the Government of any charge of disloyalty sported what the press gallery identified as his Christ Church tie. Lord Munster, the Government's principal spokesman, must have bitterly regretted the day when he decided to seek his Further Education (as it would now be called) in the Grenadier Guards instead of the Oxford quadrangles: he was not really a member of the club at all. His title, Minister without Portfolio, sounds impressive but his emphatic declaration that the Government is not committed to any policy for Oxford seemed to show why he had no portfolio—there was evidently nothing much to put in it if he had one. Lords Beveridge (Balliol) and Samuel (Balliol) who opened the debate with a strong plea for a businesslike Royal Commission withdrew their motion: the character of the promised inquiry must have given them most of what they wanted. But if there was one thing that the debate, and the speech of Lord Beveridge in particular, brought out it was the terrible cost of the neglect for 30 years of the problem caused by the industrialization of Cowley and the growth of heavy road traffic.

It will be intolerable if, when the new inquiry has been held firm decisions are not taken and carried into action without any more delay.

HOUSING

Less Local Authority Work

Information on the number of local authorities that have suspended house-building has been given in Parliament by the Minister of Housing and the Secretary of State for Scotland. Of the 1,468 local authorities in England and Wales 202 have reported to the Minister of Housing that they propose to let no contracts in the current financial year. Some of them have however let new contracts since making the return, and others will let new contracts in the new financial year after March. In Scotland 79 rural counties and small burghs, approximately one in three of all local authorities (but covering only 4 per cent. of the population) had no houses under construction at December 31, 1956, although 12 were due to start building. The number of tenders approved in the six months ended January 31, 1957, was 10,433, compared with 12,777 and 15 026 in the corresponding period of the two previous years.

RIBA

A Decline in Building

There is a substantial decline in the amount of building work being started. The RIBA Council, in reporting this decline to the National Consultative Council of the Building and Civil Engineering Industries (who had asked for an estimate of "present trends of activity"), say that it is due to the credit squeeze. (The enquiry was made before there could have been time for further effects, if any, caused by the oil crisis.)

Drawing Technique Discussed

The Second RIBA Symposium on Drawing Office Technique, held last week, did not, (writes a correspondent), live up to the success of the first one, at which Henry Elder spoke on drawings "by trades." Only Grenfell Baines had a comprehensive idea to present. Mr. Baines, in his paper on "Infor-

CRITICISM

The architect replies

Last week J. M. Richards, in the first of a regular series of critical articles, discussed the primary school at Hornsey, London, N.6, designed by H. T. Cadbury Brown. The architect's replies to the points made by Mr. Richards are printed below.

I would first like to welcome this new idea in criticism, which gives the architect an opportunity to explain himself in a more direct way than by the usual caption which accompanies a photograph, an opportunity to say "I" or "We" did this because it seemed nice or logical or both. So I say thank you to Mr. Richards and the JOURNAL.

The next important thing is that criticism should encourage visits to buildings. Architecture is a total experience; it exists only in reality and cannot be gleaned from photographs. The men behind the cameras emphasize and sometimes deliberately distort the linear design and ignore the major architectural qualities, the sense of balance, of scale, of the presence of the building itself and its ability to touch our feelings. So long has our experience of modern architecture been filtered to us through a lens which has seized and captured the passing cloud and inferred the influence of Mondrian, that the buildings themselves become anti-climacteric. The photographs seem to have been the end in view. The neat iron rectangles sag and twist, the squares of red and yellow streak over with soot, the large areas of milky white craze and record the passage of countless dirty fingers, but in the albums and the architectural papers all is well and cosy. It seems impossible to capture second-hand the qualities of real architecture. What camera can record the Pantheon, Salisbury, the Petit Trianon, Notre Dame le Raincy, or 860, Lakeshore Drive? Their impact is on the spirit of awareness through the eye. Too often it stops at the eye and leaves us dissatisfied within.

Just as architecture is architecture and not something in books, so the major fact about concrete is that it is concrete, both for the purpose of art and construction. With glass it is the same. The essence of glass is that it transmits light and can be seen through. So to use materials that they become transformed by understanding and not by disguise should be our aim. "As found" should be as found after contemplation and not as found accidentally to hand. This attitude to materials is not new and shocking but is an aspect of architecture as old as architecture itself. Neither does it necessarily indicate an unsophisticated and humourless result.

Therefore when we discuss architecture it is good to remember the smell of a real building and the primary qualities of materials.

Mr. Richards' article is concerned with the eye and the mind, with sensitivity and intellectualism. I think that although he credited this school with a certain amount of each of these qualities, he felt that the latter had too often taken precedence and that he disapproved of this order. My own view is that a building, like a man, should have confidence. This can only be achieved if the building knows itself in relation to its mass, construction and materials as a man must know himself in relation to other men and to the phenomena of life. Not to know or not so to exist is to be adolescent. This state may have a juvenile charm but charm is not that for which I think we seek. However, charm is often easily achieved and has been identified, categorized and exploited with enthusiasm in the world of magazines, including the architectural ones. But it is only by adult intellectual effort that the true nature of a problem can be discovered (genius being the exception). Continuously however this effort should be matched with sensibility. To make decisions based only on whims will produce results that are only whim deep; at the same time a whim put to the test of intellectualism may produce the master stroke.

Returning more specifically to Mr. Richards' article, I would like to say that the original plan was to use an 8 ft. 3 in. grid as this seemed to suit admirably the planning problem and the room sizes required, and that this developed into the use of the Hill system using the normal 3 ft. 4 in. type curtain wall but in 2 ft. 9 in. widths. At the same time I felt that the nature of the membrane had not been tackled to my satisfaction, particularly at its boundaries and especially at the top and at the corners. Too often it had been used as a series of drums stretched in a series of frames, when its essence is its completeness, a never-ending flow, a serenity. I felt that it should cover the frame but not hide it from view and at the top where it finished it should cut back clearly to the line of the structure. It was a desire for this sense of continuation just as much as formal considerations which resulted in the even roof line. Within the membrane the dividing lines had certain freedoms and did not necessarily have to refer to structural or planning things behind. (Mr. Richards did not seem to like this.) It became a polythene bag over the structure and when brickwork occurred it did so in a similar way as an extension of the membrane and with similar tensions.

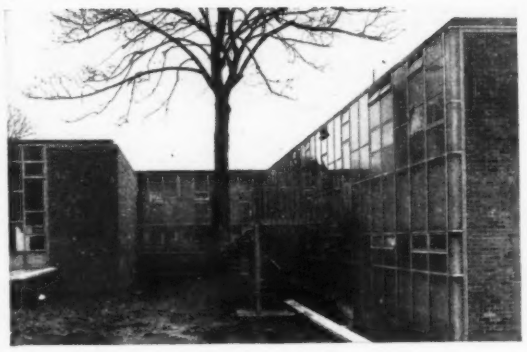
Colour

Mr. Richards, I think, was disappointed with the colour and transparency, feeling that glass could be obtained in bright colours and that the addition of bright colour produces vitality, that not to use it is dull.

Primary colours are not, I think, suited to the London light. They strain and gesticulate like madly precocious children demanding attention and have the garishness of the rosette, striped scarf and tam-o-shanter up for the Cup. These things may, for short moments, add to the scene but are not good as a permanent background. How much better is the more subtle approach of, for example, a water colourist. Buildings in London are seen in rain and fog and usually in fading light. Be sympathetic to this mysterious quality and help it. The bright summer morning which is the essential light for high colour, will make all things beautiful anyway.

Similarly I feel that white paint exercises a tyranny, that it should be possible to make a building which did not need white fascias perpetually repainted to give the design its necessary punch. So there is no white paint on the outside of this school. Brightness comes from the aluminium strips on the curtain walling which catch the light; later, in weathering, the aluminium

1



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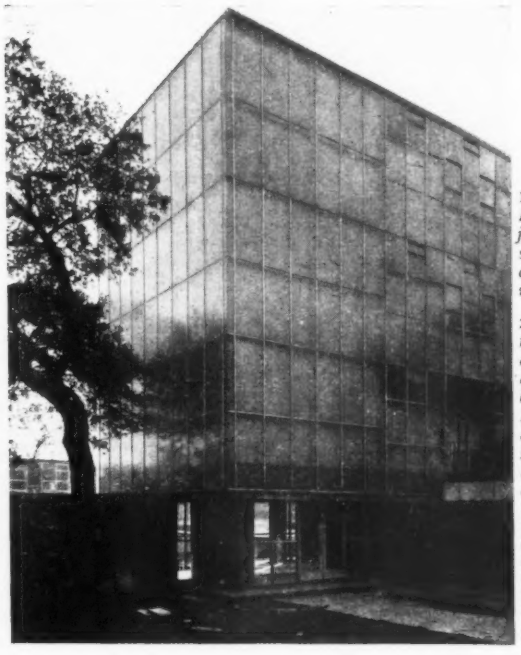


3

1. *View from Hornsey Lane of the junior block. The sculpture will stand on the boundary wall on the left.*

2. *View of part of the infants' and administrative block and the link between them. Emphasis on form and continuation of surface through both brickwork and curtain walling.*

3. *View of corner of junior block. Glass membrane with structure showing through (steel frame standing on concrete table).*

becomes whiter and less metallic but still retains its contrast.

Materials "As found"

I have already dealt with some aspects of this approach. In particular I would say that even synthetic building materials have a colour natural to themselves, plaster, rendering and concrete being those most normally seen on a building site. This natural colour can be adjusted by the choice of some of the ingredients without losing the essential quality of the material. To use materials "as found," as I said before, does not dismiss the element of choice or care. In addition these materials are I think more likely to grow old gracefully. In my particular case choice was more than usually limited owing to unforeseen cuts which had to be made after the receipt of tenders (because of the comparatively high cost of the frame and foundations).

Layout

Lastly, Mr. Richards referred to the general approaches and circulation. The school was planned with the infants entering from the side road and the juniors from Hornsey Lane. Both groups of children had direct access to their school and to their particular playgrounds.

However, during the time which the school has been in a state of construction the traffic on Hornsey Lane has considerably increased and it was felt by parents and the L.C.C. that, as much as possible, children should be kept off this road. Schemes for alternative approaches for the juniors are now being discussed.

Lastly, I would like to say that on the Hornsey Lane front a piece of sculpture is being made by John Willatts. This takes the form of a large cockerel and stands on a boundary wall. It has a very rigorous form and silhouette and is intended to contrast with the flatness and serenity of the building behind.

I understand that this exchange of views between critic and architect is intended to stimulate further discussions. I welcome this, and look forward to observations from other people.

NEWS: *continued from opposite page*

mation From the Client" (read by Thomas Hargreaves), said that architects were responsible for clients' ignorance about building costs. The use of cost planning on five of his jobs had, he said, proved it to be the solution to the problem of fitting requirements to a budget.

Kenneth Campbell dismissed the "angelic fringe" of perfectionists and pleaded for less crowded drawings and less duplication. He pictured the RSJ on padstones that might appear more than half a dozen times in the bill and drawings—not always consistently! Talking about the cutting of chases and holes, he suggested that some builders might prefer to build the building solid and then hack out the spaces afterwards. The reply to this, from W. Tompkins, a builder, was simply—"give us the drawings and we'll leave the chases." "It is quite usual," he said, leaning forward to watch the effect, "for my American Company to receive 500 very detailed drawings on the signing of the contract." He then listed the order in which he would like drawings to come—if they could not come all at once (permanent fencing, drains and public utilities *first*) and asked why architects always P.C. metal windows.

Cyril Sweett (quantity surveyor), who discussed the need to describe standardised items in the bill, struck a cautious note about elemental bills and drew a protest—and a flattering reference to AJ cost analyses—from John Bickerdike, when he described the Q.S. as a "cost adviser" to the architect.

Bruce Martin asked for "nominal" dimensioning in round figures ("throw away the fractions"). Howard Lobb suggested there should always be an architectural model in the foreman's hut, and George Fairweather reminded us that we were gentlemen who *advised* the client, *instructed* the quantity surveyor and *ordered* the builder.

BUILDING CENTRE

Solid Fuel Forum

The Technical Editor writes: If the few architects who attended the first of the second series of architect/manufacturer Forums—on domestic solid fuel appliances—have some justification in feeling that an opportunity was lost, they have only their own profession to blame. Where were those architects in the LCC who have been doing development work in this subject? They at least should know those detailed snags which certainly exist and which these excellent Forums are designed to help remove. As it was, the manufacturers certainly went away with the feeling that their products were as good as could be. It is always a bad sign when a manufacturer feels emboldened to inform a mixed audience (as did Mr. Elliot, the manufacturers' speaker) that for him "financial results are the only things that matter." This kind of remark, which meets with approving growls at a trade dinner, always grates on the professional ear.

John Pinckheard, who led off for the architects, has been made so familiar with the manufacturers' point of view from his work with CUC that he appeared virtually to have made their views his own. At the same time, we must admit that the best manufacturers have made great strides since the war, and that this is due in part to architects like John Pinckheard who have taken the trouble to inform themselves on the subject.

Mr. Pinckheard told the meeting that there is some evidence to show that the air pollution caused indoors by the emptying of a grate is much worse than that found outside. Apart from this there are several things the architect should be concerned with—controlling air flow, insulation, planning to get the best from appliances. When they have done this, they will find a new crop of troubles. They will find, for instance, that if they are too good at controlling air flow the appliances won't burn anyway.

FARM HOUSES

Design Committee to be Formed

A committee is being formed by the Agricultural Research Council to consider the design and reconstruction of farm houses. Heathcote Amory, the Minister of Agriculture, said in a parliamentary answer last week that the committee would consist mainly of persons with technical qualifications, co-ordinate the work already in progress at various research centres, and recommend further new lines of investigation. It is understood that there will be one architect on the committee, which is expected to meet early next month.

RICS

We print below a questionnaire and accompanying letter which the RICS Cost Research panel has sent to local branches of the RICS, to Ministries concerned with building, to the RIBA, NFBTE and other organizations. We are glad to respond to the Research panel's request to publish these questions, and to state that copies of the questionnaire may be obtained from the RICS at 12, Great George Street, Westminster, S.W.1. We are sure that architects will welcome this move to collect information to help in identifying the problems to be tackled. We do not envy the Research Committee its task of analysing the answers they receive, but we look forward to publishing, in due course, any conclusions that the Committee might wish to put before the architectural profession.

BUILDING COST RESEARCH

Dear Sir: The Minister of Housing and Local Government has expressed concern at the present high cost of building and has asked the Royal Institution of Chartered Surveyors to consider and advise him on the reasons why flats cost more than houses in this country, which is understood to be the reverse of the situation on the Continent.

There can be no doubt that a detailed investigation of this problem may contribute not only to a reduction in the cost of flats but in the cost of building as a whole, and when it is realised that a reduction of ten per cent. in the cost of building would represent a saving to the country of approximately £150,000,000 per annum, the importance of this research will be realized.

The Cost Research Panel is making a detailed analysis of a number of selected schemes covering two-storey and multi-storey housing development with a view to establishing the effect on cost resulting from differences in construction methods and from different forms of construction, finishings and equipment, and it is hoped to relate the results of this research to studies carried out by some of the Government Departments and the Building Research Station, with whom the closest degree of co-operation is being maintained.

It is believed, however, that there are a number of other factors which have an influence on the cost of building and are worthy of consideration by the Panel.

In order to make some assessment of the importance of these other factors in relation to cost, the attached questionnaire has been prepared by the Panel for circulation to Quantity Surveyor members of the Institution and to other organizations who may be able to contribute usefully to the investigation, and your co-operation will be very much appreciated in completing the answer sheets as fully as possible. Actual examples of your experience of the effects of any of the factors mentioned on cost will be of considerable assistance to the Panel.

Information on matters not specifically covered by the questions, but which appear to have a bearing on the subject, will be appreciated and should be stated on a separate sheet and attached to the answer sheets provided with the questionnaire.

IAN G. NEILSON,
Assistant Secretary, RICS

QUESTIONNAIRE ON THE COST OF BUILDING PREPARED BY THE COST RESEARCH PANEL OF THE RICS

The following questions have been prepared in order to obtain from chartered quantity surveyors and others their opinions based on their experience on matters affecting the cost of building, with particular regard to the cost of houses and multi-storey flats.

Answers should be given on the attached sheets which should be returned to the Secretary of the Royal Institution of Chartered Surveyors, 12, Great George Street, Westminster, London, S.W.1.

1. Do local authorities generally give their architects a limit of cost within which each scheme should be designed?
If not, would this be an advantage?

2. Would guidance from the Ministry of Housing and Local Government be useful to local authorities and architects in the above respect?

3. What are the effects on design and tenders and the advantages or disadvantages of ceiling prices such as those used by the Ministry of Housing and the Ministry of Education
(*a*) when published?
(*b*) when not published?

4. What form should information on ceiling prices take to be most effective?

5. Is sufficient attention paid to finding the most economic type and design of development, *e.g.*, high or low blocks for particular sites at required density?
For example, are the cost differences between high and low buildings fully appreciated and examined; is care given to the maximum reduction of the ratios between access space and living space and between external wall perimeters and plan areas; and to the reduction of site works to a minimum?

6. (*a*) Are major decisions influencing cost taken before the quantity surveyor is selected?
(*b*) Can the quantity surveyor, if called in early enough, provide advice on cost aspects of types of development and of design and specification?

7. (*a*) To what extent do building designs take account of alternative methods or materials of construction, structural designs, etc., in seeking economic solutions to the clients' requirements?
(*b*) Are attempts to secure economic savings in this way reflected in the tender prices received?

8. What is the most practical and economical method of obtaining designs and tenders for specialist work, *e.g.* from schemes prepared by nominated specialist sub-contractors or by including in the Bills of Quantities details and measurements from designs prepared by consulting engineers in respect of:—
(*a*) Structural frames
(*b*) Floors
(*c*) Any specialist forms of cladding
(*d*) Heating and hot water installations
(*e*) Plumbing and drainage installations
(*f*) Electrical services?

9. What proportion by value of a tender on Bills of Quantities for multi-storey flats consist of P.C. sums? Please give examples.

10. Is adequate competition always obtained in tenders from nominated sub-contractors?

11. Would it make for lower prices if contractors were given the opportunity of tendering (at tender stage) for some of the items usually treated as P.C. sums?

12. Are tenders for flats generally more or less competitive than tenders for houses?

13. Are tenders for houses generally more consistent than tenders for multi-storey flats having due regard to the accommodation provided?

14. To what extent are final drawings and specifications normally available at the time of tender and to what extent are tenders invited before designs and specifications are sufficiently complete?

15. What factors, if any, hinder planning prior to tenders?

16. (*a*) Does the time allowed for tenders have any marked effect on tender prices?
(*b*) Does inadequate time allowed for tendering lead to higher prices by excluding firms who might otherwise have submitted tenders?
(*c*) Do building owners spread their enquiries for tenders evenly throughout the year and, if not, does this have any marked effect on the tenders received?

17. (*a*) Is the present form of the bill of quantities and method of measurement best suited to all forms of construction?
(*b*) Does the present method give an adequate description of repetition or unusually complex work to enable accurate estimates of cost to be made (related to types of work).

18. (*a*) Do variations generally arise from inadequate pre-contract planning, or from subsequent changes of mind of architect or building owner or from other sources?
(*b*) What practical steps could be taken to lessen the number of variations?

19. Do you consider that the inclusion of the rise and fall clause in contracts has had any effect on the cost of building
(*a*) in respect of materials?
(*b*) in respect of labour?

Any further observations which appear relevant to this problem should be attached to the answer sheets.

DIARY

Exhibition of French Architecture. At the RIBA, 66 Portland Place, W.1. Monday to Friday 10 a.m.-7 p.m. Saturday 10 a.m.-5 p.m. FEBRUARY 21 TO MARCH 23

The Advantages of Modular Co-ordination in Building. Bossom gift lecture by Mark Hartland Thomas. Chairman: Sir Alfred Bossom. At the RSH, 90 Buckingham Palace Road, S.W.1. 5.30 p.m. FEBRUARY 21

Light Fittings. Building centre forum with John Eastwick-Field and Deryck Tabraham. At the BC, Store Street, W.C.1. 6 p.m. FEBRUARY 21

Lighting in Commerce and Industry. By C. Dykes Brown. Second of three Cantor lectures on the contribution of lighting to modern life. At the RSA, John Adam Street, W.C.2. 6 p.m. FEBRUARY 25

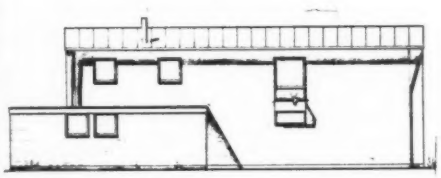
Fonthill—the building and its creators. Talk by H. A. N. Brockman at an RIBA Library Group meeting. At the RIBA, 66 Portland Place, W.1. 6 p.m. FEBRUARY 25

Moving from the Slums. Miss D. E. Miskin speaks on the Seventh Report of the Housing Management Sub-Committee of the Central Housing Advisory Committee, MOHLG. At the HC, 13, Suffolk Street, S.W.1. 6 p.m. FEBRUARY 26

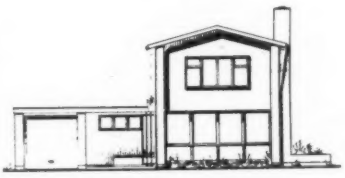
Talking Shop. By Ellis E. Somake. IIBDID lecture at the RSH, 90, Buckingham Palace Road, S.W.1. 6.30 p.m. FEBRUARY 27

FIRST PRIZE-WINNING DESIGN IN IDEAL HOME COMPETITION

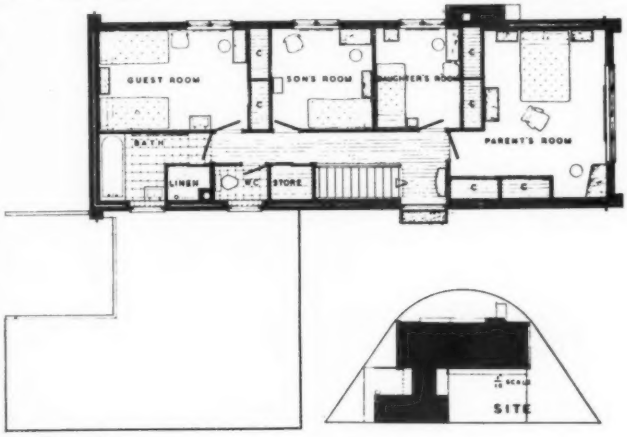
Last year the *Daily Mail* organized a house-design competition. The winners' names were published in October, but their designs have only just been released for publication. All designs submitted will be displayed during the run of the Ideal Home Exhibition at Olympia, from March 5 to 30. The object of the competition was " to obtain the most suitable design for a house representing the best possible value for money (£5,500) in planning, construction and fittings."



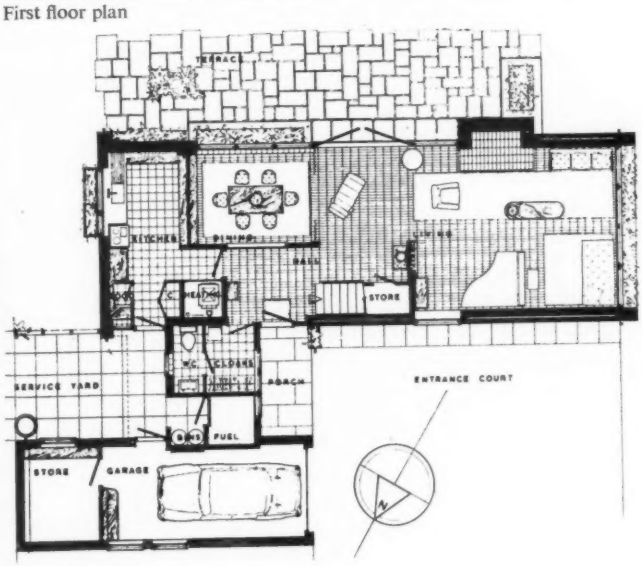
North-west elevation



South-west elevation



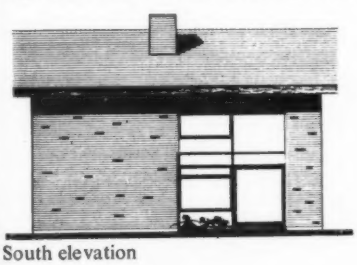
First floor plan



Ground floor plan

This £5,500 house is being built for the Ideal Home Exhibition to the winning design by David W. Oliver, in the Daily Mail's *architectural competition. The conditions of the competition set a dual problem—that of designing a house suitable for an open residential site, which nevertheless was capable of being erected upon the limited space of the exhibition plot. Foundations: Mass concrete, depending on actual site conditions. External Walls: Cavity walling. Outer leaf, 4½ in. Dorking pressed sand-faced multi-coloured facings. Inner leaf, on ground floor, of common stock bricks. These facing bricks are set upon a plinth of darker bricks. Inner leaf on first floor, partly 4 in. pulverised ash concrete blocks: remainder of inner leaf, timber-framed walling supported on steel beams. Timber framing is faced with vertical cedar boarding, insulated with fibre glass quilt. Outbuildings: 9 in. solid brick walling with facing bricks. Partitions: pulverised ash concrete blocks, 4 in. for ground floor, 2½ in. for first floor. Roof: insulated copper roofing at 15 degrees pitch, laid on prefabricated trusses chosen because it does not require internal load-bearing walls, thus giving the opportunity for more open planning. Floors: hard-wood blocks to the living room, dining-room and hall, and thermoplastic tiles to kitchen, bath-room, cloakroom and w.c.'s. First floor, deal boarding. Windows: Purpose-made in timber; main windows double glazed. Joinery: Doors (removed for exhibition purposes) would be flush and faced with veneered plywood. Stairs and built-in furniture, hard-wood. Heating and hot water: supplied by automatic oil-fired boiler situated in kitchen. Radiators on first floor. The designer of this house won £500. The second (£250) and third (£100) prizewinning schemes are not being built for the exhibition. They are published below and on the following pages.*

SECOND PRIZE-WINNING DESIGN IN IDEAL HOME COMPETITION



South elevation

The second prizewinners, Taylor and Crowther, of Truro, are young architects who have solved the problem of making house-designing pay (they have done seventy-or-so private houses in two years).

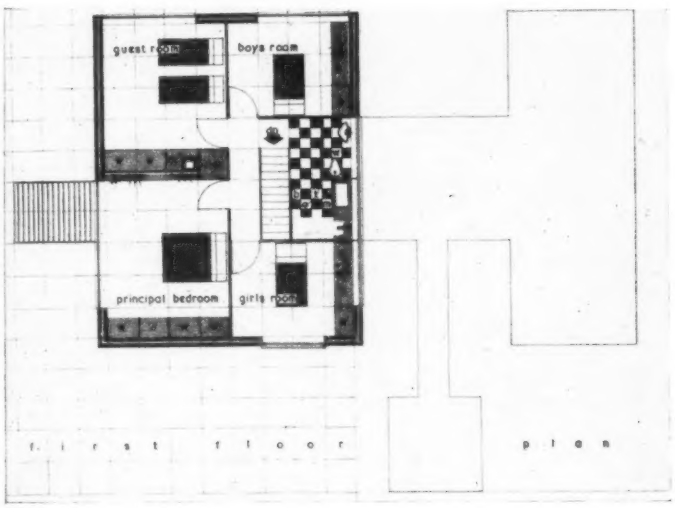
Ground floor: concrete-strip foundations and ground slab with waterproof membrane screeded for finish. First floor: traditional timber-joist construction with a boarded floor. External leaf of 11 in. cavity wall is built of selected facing bricks with 4½-in. brick inner leaf. Recessed in-filling panels are of plyglass carried through into roof space at gable ends to give natural light. External walls are designed in rectangular panels so that alternative materials may be used according to district and local tradition. On ground floor inner load-bearing walls are of 4½-in. brick placed to one side of 3 ft. grid; elsewhere they

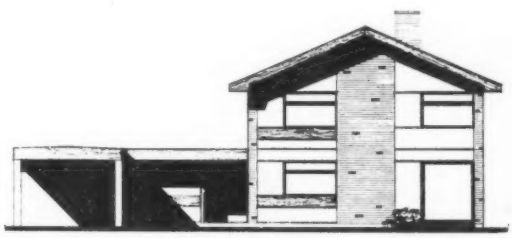
SECOND PRIZE-WINNING DESIGN IN IDEAL HOME COMPETITION continued

are of 2-in. egg-crate plasterboard partitions, placed centrally on 3-ft. grid. Roof is of Western Red cedar shingles laid at 22½° pitch on trussed timber rafters (T.D.A. trusses at 6 ft. centres), with concealed box gutters built into eaves. Fascia, barge and soffits boards and verge of selected Columbian pine. Garage has 9-in. solid-brick walls, flat timber roof covered with light-weight concrete slabs and 3-layer mineral-surfaced, asbestos-based felt finish over.

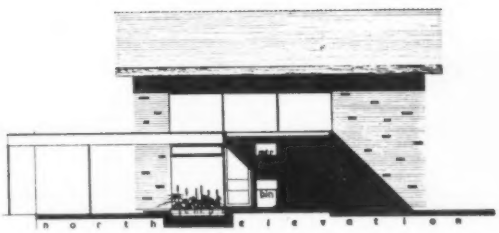
Domestic water supply carried out in plastic tubing, with main supply to kitchen. Storage tank in strawslab case housed in roof, adjacent to brick flue and on south slope of roof. Low-pressure supplies carried to bathroom, garage and garden. Rising main and service routes in internal duct at base of which is electric, storage-water heater with twin immersion elements. On ground floor, space heating is by embedded cable with thermostat control in living room. Secondary heating only provided by open fireplace in living area. Space heating on first floor by means of wall panels or movable electric convectors.

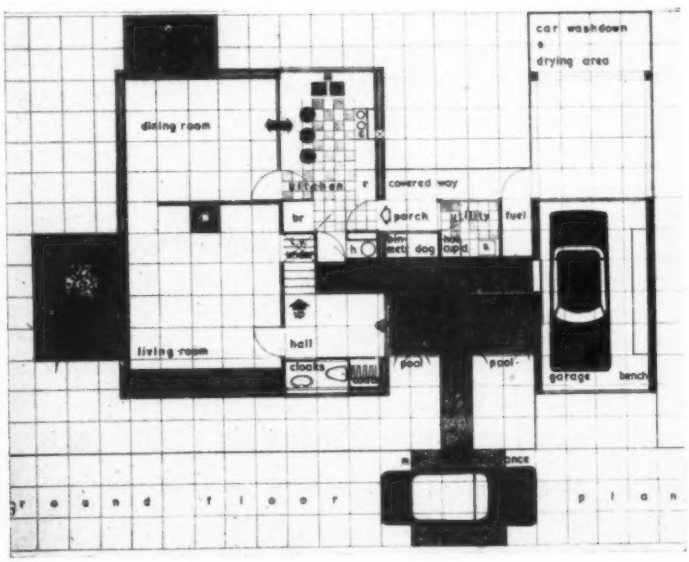
Finishes: Two-coat vermiculite plaster applied to walls, with roughened wood-float finish in living areas. Plastic cloth used for kitchen, bathroom, cloakroom and w.c. walls. Laundry tiled in white glazed tiles. Garage and fuel store finished in fair-faced brickwork. Floors in living room, dining room and hall, 1-in. nominal Muhuhu block with hardwood skirtings; in kitchen, utility and cloakroom, P.V.C. tiles laid in chequer-pattern with coved tile skirtings. Granolithic flooring used in garage and washdown, and quarry tiles to covered way and back porch. On first floor t and g secret-nailed Columbian pine boarding, sanded and polished, is used in bedrooms and on landing. Floors to bathroom and w.c. tiled in light and dark cork tiles in chequer pattern. Ceilings plastered on plaster lath throughout, and incorporate recessed curtain tracks with nylon runner, where necessary. Except where plastic cloth is used, 3-coat emulsion paint is applied to walls and ceilings. Hardwood treated with three coats of synthetic sealer, and other joinery with three coats of oil paint. Doors of selected West African flush-veneered hardwood on hardboard base, with formica-panel finger plates and satin chromium door and window furniture. Brass door furniture used elsewhere for dressing tables and service sideboard unit and kitchen fittings. Door linings and architraves of hardwood, continued to ceiling level with glazed fanlights over.

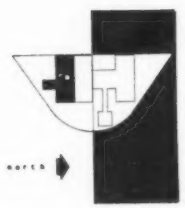




West elevation



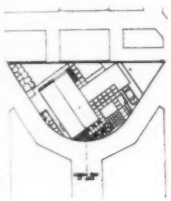




Site

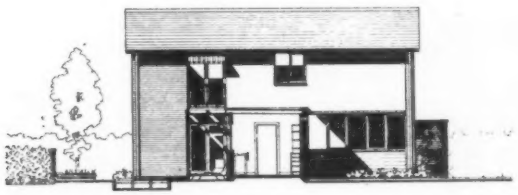
THIRD PRIZE-WINNING DESIGN IN IDEAL HOME COMPETITION

The winner of the third prize was Geoffrey Cash, of Halifax, Yorks, who "designed house and site together in related zones. There are two principal zones devoted to social activities and personal recreation respectively and the ground floor of the house is in the main heated by embedded floor panels to enable the various sections of the house to have a free and spacious interrelationship when required and also to avoid the effect of permanent, small enclosures." General construction of 11-in. cavity brick walling, with outer skin of multi-red and brown facings or of rendered block in some parts. Small sections of oiled Western red cedar weather boarding used to add interest and unity to the external surfaces (roofing being cedar shingles). Ground floor, solid with asphalte membrane and embedded hot-water heating coils. Coils are insulated from walls and site concrete at all edges with insulation board strip. Floors of kitchen, utility room, workshop and pets' room are tiles; floor of entrance lobby and bathroom are of cork; dining and music spaces are of Ekhimi strip on battens and the garage is granolithic. External paving of pre-cast art stone paving. Roof of light timber trusses of 22½ degree pitch at 2-ft. centres, with boarding and cedar shingles. Insulating quilt of glass fibre would be provided over ceiling joists. Flat roof is 5-in. × 2-in. joists, boarded and felted, with ceiling of insulation board. Ceilings are plasterboard with setting coat of plaster. Windows generally, timber but steel in single-storey wing with small box mullions incorporated in the unit at 3-ft. 6-in. centres to support roof timbers. Doors, flush faced. Domestic hot-water by calorifier from boiler with storage cylinder contained in first-floor linen cupboard. Cylinder would have immersion heater for summer use. Soil pipe taken internally through corner of fuel store and kitchen drainage is accommodated in small recess outside the line of the pat'way.



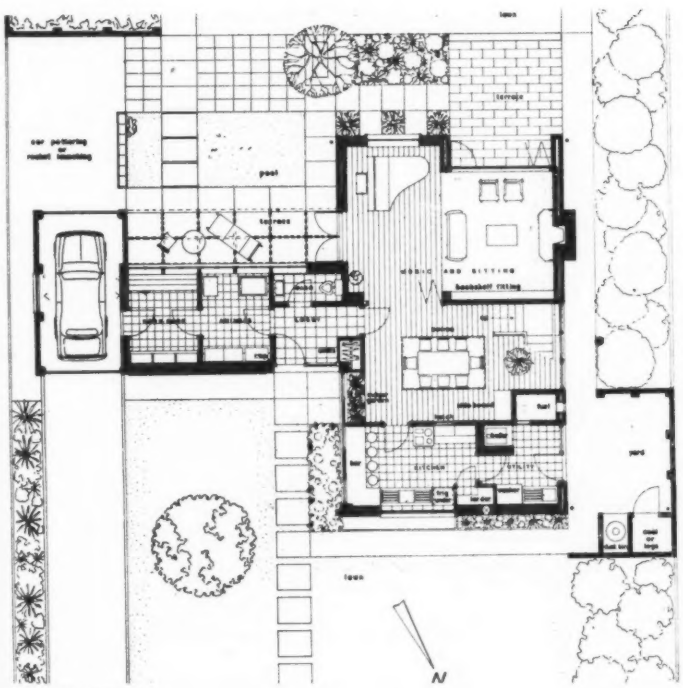
Site

First floor plan

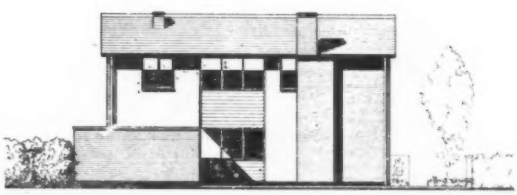


South-east elevation

South-west elevation



Ground floor plan



North-west elevation

North-east elevation

technical section

INFORMATION CENTRE

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

19.202 construction: details
PRECAST LIFT SHAFT

Elevator shaft goes up to nowhere. (Engineering News-Record [U.S.A.] 20.12.56 p. 25.)

American garage uses precast elevator shaft to ensure completion of lift installation to programme, of interest to architects and engineers.

Generally speaking lift installation takes place on completion of structural work and the lifts are in operation when the building finishes are completed. In the case of multi-storey garages, finishes are often non-existent and any time taken in the lift installation after completion of the structure represents lost earning time.

In Miami a contractor solved this problem by constructing the lift shaft in advance of the rest of the structure. The 8-in. reinforced concrete walls were cast on the ground in sections with steel angles embedded along the edges. Inserts for steel ladder and guide rails were cast into the panels. The panels were hoisted and, after plumbing, the angles were welded together. The floor slab of the machine room was precast and lifted into position, after concrete block walls had been built to roof level, a precast roof slab was added. The remaining structure was constructed while the lifts were fitted out.

20.231 construction: complete structures
SHELL CONSTRUCTION

A Saddle-Shaped Shell. (Engineering News-Record [U.S.A.], 25.10.56 p. 33.)

The roof of a gasoline station in North Carolina has been built as a section of a hyperbolic paraboloid, that is to say a saddle shape. Diamond shaped in plan the shell measures 70 ft. on the long profile and 45 ft. on the shorter. In profile along the short diagonal the shell is convex upward rising from a 3-ft. 6-in. high buttress on each side to a centre height of 13 ft. above the floor. In longitudinal profile it is concave upward attaining a height of 22 ft. 6 in. at the upswept corners.

The shell thickness is 2¼ in. It is bounded on all four sides by beams that taper from 12 × 24 in. at the buttress to 12 × 9½ in. at the high ends.

The two-point support is sufficient for stability under balanced loading but to provide against large torsional forces due to wind or unbalanced vertical loading each edge beam is supported by a 4 in. diameter tubular column located about 17 ft. from the high end of the beam.

The buttresses are connected by four 1 in. diameter tie rods to resist lateral load.

The roof is designed for 20 p.s.f. live load.

20.232 construction: complete structures
CONCRETE DOME

Dome roof on mound needs no shoring. (Engineering News-Record [U.S.A.] 27.9.56 pp. 36-38)

A civic auditorium with a 218-ft. concrete dome has been constructed at Albuquerque. The project cost about one million dollars and three schemes were considered, steel supported formwork for the dome, casting the dome on the ground and lifting it and forming the dome on an earth mound followed by excavating the mound. The latter was considered to effect a saving of fifty thousand dollars as a natural mound was available. The first step was column construction. A deep trench was excavated round the periphery of the mound and 22 columns and reinforced concrete footings were constructed. The columns ranged from 24 ft. to 42 ft. in height, thickness 18 in. and depth varying from 4 ft. at the bottom to 6 ft. at the top. The columns were then backfilled and the mound shaped. A mixture of sand and gravel with a natural binder was applied as a form surface for the underside of the dome. A layer of fine stone was placed and compacted with rubber-tyred and sheeps foot rollers and finished by a hand roller. The resulting surface was smooth enough for the main area of the dome but a 30-ft. peripheral strip was done in plywood to allow it to present a good exposed face in the final internal treatment. The dome is 218 ft. diameter with a rise of 23 ft. Thickness of concrete within the 160-ft. inner ring is 5 in. and outside the ring thickens gradually sweeping smoothly into the outer ring girder 24 in. thick and 36 in. wide. It took a week and a half to place the 1,000 cu. yd. in the dome, the outer portions were delivered directly from ready-mix trucks, the inner portion by crane skips and the centre portion by crane skips thence to prams. The ring girder was prestressed by winding 655 turns of high tensile wire, turns being anchored individually and each layer grouted.

Shovels and bulldozers then removed 120,000 yd. of earth from beneath the shell.

Saddle-shaped shell roof on an American filling station. See "Shell Construction."

technical section

1 SOCIOLOGY

a temporary township on the Gold Coast

The shift of interest to the underdeveloped countries and to their need for the rapid setting up of new industrial establishments and housing to match has brought a new set of problems to a small but increasing number of British firms of architects. This week, Leo de Syllas, of Architects' Co-Partnership, writes a synopsis of a report on a project on which his firm has been engaged. The project is a design of a temporary township at Ajena in the Gold Coast to house some 16,000 technicians, workers and their families during the seven years that it will take to build the projected Volta River Dam. In addition to using the material published in their Final Report, Ajena Township 1956 (Volta River Preparatory Commission, Ajena, Gold Coast) use has been made of the main report of the Commission, " Report of the Preparatory Commission, Volta River Project 1956," Vols. I and II.*

The Volta river project is a scheme for hydro-electric development and aluminium production in the Gold Coast. It envisages a dam across the Volta river, a power station capable of generating about 6,000,000 kW., and a smelter that would use the greater part of this power for the manufacture of aluminium from the very large bauxite deposits in the Gold Coast.

The earlier investigations into the project led to discussions in 1952 between the British and Gold Coast Governments and two aluminium companies: Aluminium Ltd. of Canada, and the British Aluminium Co. in Great Britain. It was agreed that the Governments would jointly set up a Preparatory Commission to examine the scheme comprehensively. The enquiry was carried out under the direction of a Special Commissioner, Commander (now Sir) R. G. A. Jackson, in close association with the Gold Coast Ministers of Finance and of Commerce and Industries. The Commission started work in 1953, and has from the first had three new towns on its hands: two permanent towns, one at Kpong, where the aluminium smelter is to be sited and another at Tema where a port is to be constructed to handle the finished product; and one temporary town at Ajena to house the labour force which is to build the dam and the hydro-electric plant. This third town is the subject of this article.

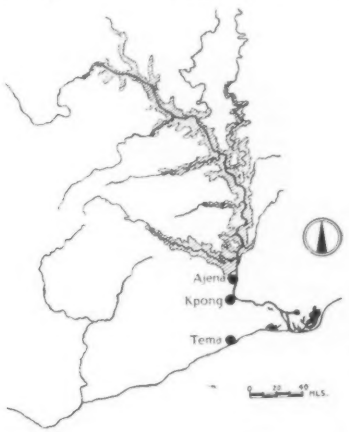
The architects' brief

Preliminary studies for the design of the temporary township at Ajena were prepared at the request of the Commission by their Consulting Engineers, Sir William Halcrow and Partners. The site chosen by the engineers lies in a valley ¼ mile south-east of the eastern end of the dam (see map, Fig. 2). This valley runs N.N.E./S.S.W. with a narrow floor and sides which are extremely steep, so that slopes as sharp as one in six must be used for housing. In July, 1955, the Commission invited Architects' Co-Partnership, through their Nigerian office, to prepare a detailed investigation into the design and construction of Ajena township. The Commission suggested that a detailed consideration of housing design, methods of construction and town layout would show whether savings might be made on the engineers' preliminary estimates without departing from certain fundamental standards which had been laid down by the Commission.

Perhaps the most significant of these standards were reached as a consequence of the Commission's family policy. To ensure a steady and contented labour force the Commission decided to provide facilities for families to accompany those workers with reasonable prospects of long-term employment in the area. The proportion of workers who would need or would qualify for this accommodation was put at 65 per cent. though the architects were also asked to prepare estimates for providing for 50 per cent. and only 10 per cent. of workers to be housed with their families.

The Commission required that low-cost housing for the labour element of the construction force should be designed in three major types of one-, two- and three-

Fig. 1. Map of Gold Coast showing Volta River, Ajena, Kpong and Tema. The shaded area shows the extent of the river after the construction of the dam.



*HMSO: Vol. I 35s. Vol. II 10ls.

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technical section

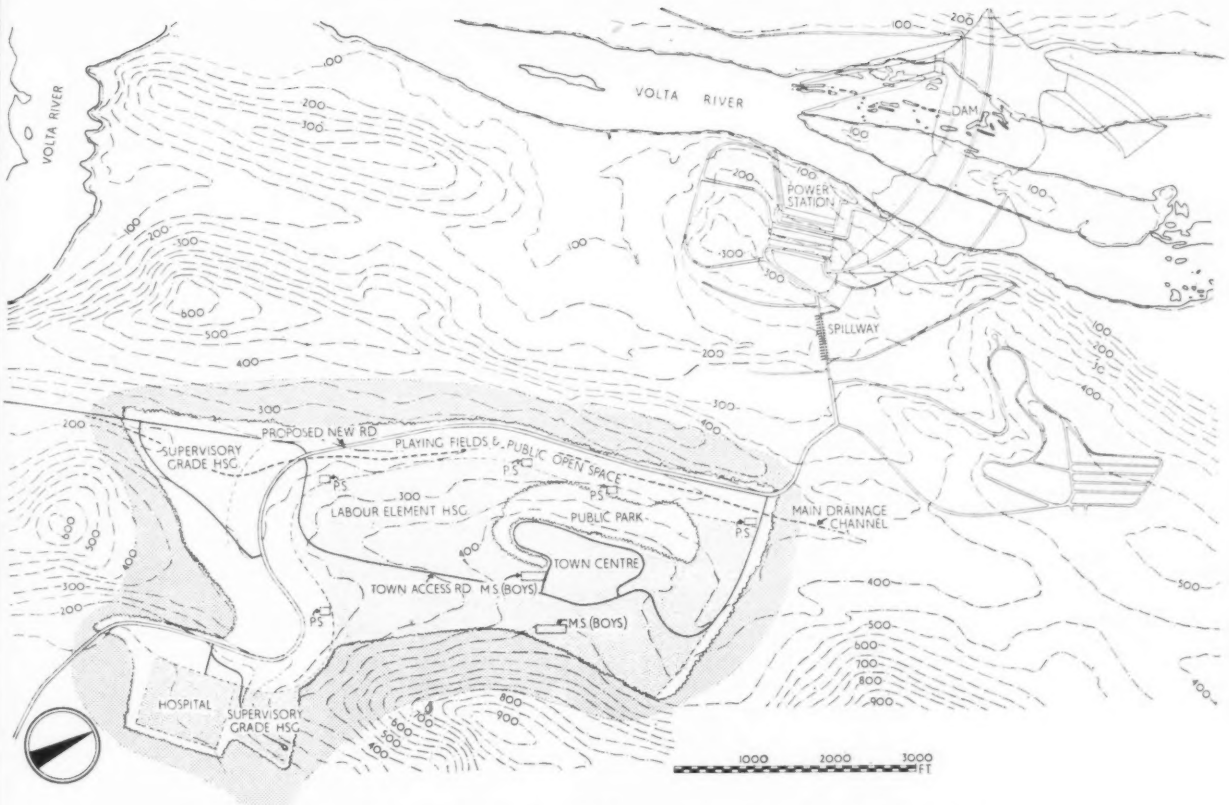


*Fig. 2. Map showing site and relation to dam. (**PS** means primary school, **MS** middle school).*

room accommodation. Housing for technical and supervisory staff was required to the generally accepted standards of accommodation supplied as Government quarters throughout the country. Such houses are usually two-, three-, or four-bedroom plans according to the status of the resident. A considerable number of single unmarried overseas technicians would be engaged on the project and the architects suggested that special bachelor quarters in units of four or eight bedrooms with living-room and dining-room accommodation should be developed for this category.

In addition to the housing requirements, the township would require up to four primary two-stream, and three middle two-stream schools. These schools would also have community centre annexes attached to them. A central community centre, hospital, shops, central town offices, assembly hall, cinema, police station and central market were also required.

Houses were to be sufficiently flexible in design to allow the conversion of one-roomed to two-roomed and larger houses. There were many standards bearing on insulation and ventilation. Buildings were to be one room deep, with their long axis across the direction of the prevailing wind ; all should have 6-ft. 6-in. (and preferably 8-ft.) wide verandahs, a roof overhang of at least 2 ft. 6in., ceiling heights of at least 8 ft. 6 in. when flat, 8 ft. when sloping ; every room to have at least one window in each of two opposite external walls ; the total window area on any outside wall to be at least one-quarter the internal wall area ; with sills not higher than 2 ft. 6 in. on the windward side, not lower than 4 ft. 6 in. on the leeward side ; walls and ceilings together must have a thermal conductivity of not more than 0·25 Btu./hr. ; and vegetation must be used to protect against the ground reflection of heat.

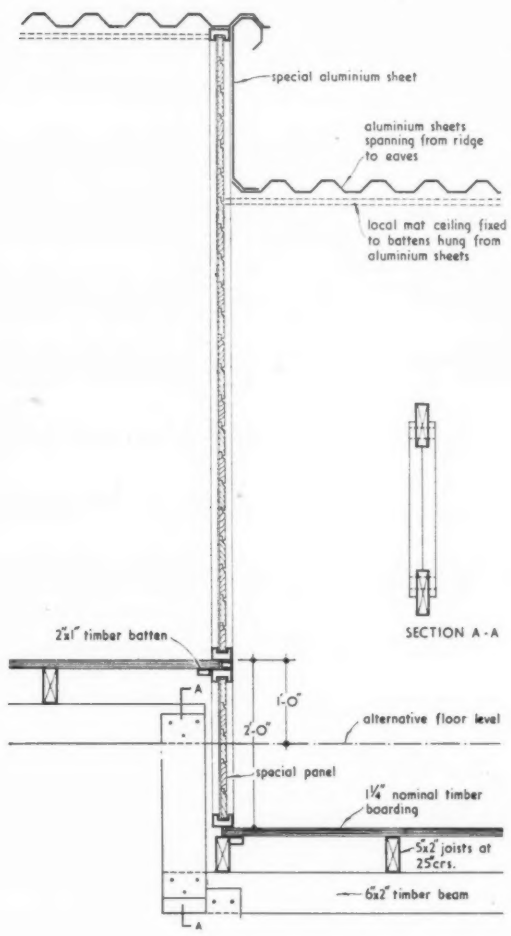
Houses for 300-400 workers would be needed before the main contract for the works was signed and houses for 2,500-3,000 more for occupation nine months to a year later. The peak working force would be made up as follows:

Supervisory and senior staff	255
Skilled labour	1,650
Semi-skilled labour	835
Unskilled labour	2,180

All of these would have to be housed during the second year of the project and all would have gone by the end of the seventh year.

Since an interim report on costs was required from the architects in six months and a final report in seven, it was decided to limit the investigation to a detailed study of the design, fabrication and cost of the housing element. In this the architects were helped by the Commission and their Consulting Engineers, by Dr. Otto Koenigsberger, D.ING., F.I.I.A., M.I.E. (INDIA), and Messrs. Widnell and Trollope, who were associated with them as Consultant and Quantity Surveyors respectively.

technical section



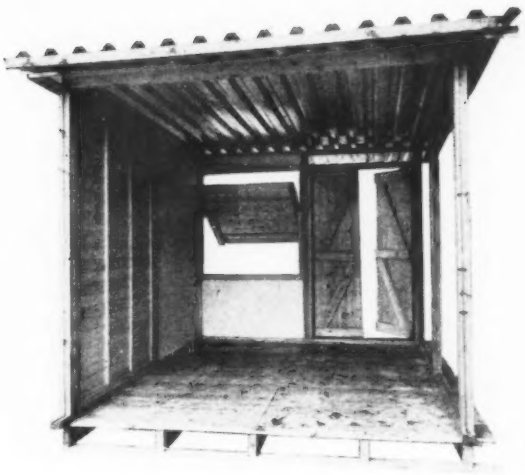
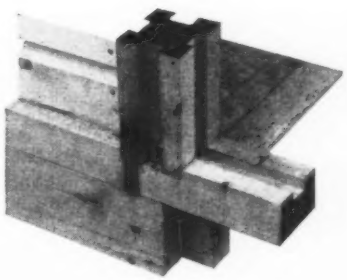
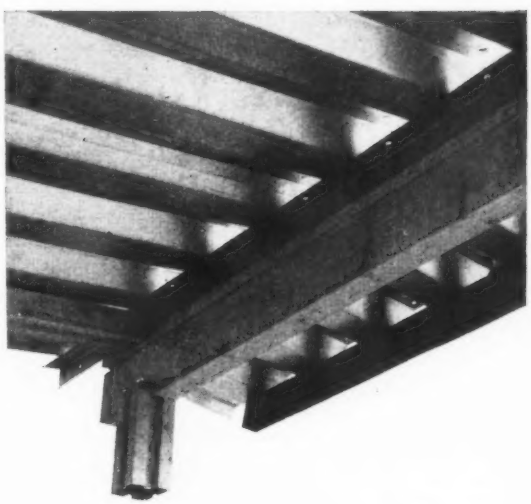


Fig. 3 (left). Detail showing change of level between terraces. Fig. 4 (above). Mock-up building. Fig. 5 (below). Detail at foot of post. Fig. 6 (bottom), Roof assembly.





The structural solution

The foregoing notes give an outline of the exceptionally well studied but flexible brief as it finally evolved—an evolution which took place largely in the architects' consultations with the Commission. It became clear that certain fundamental principles would have to be accepted at the earliest stage of the enquiry. The most important of these was that some form of prefabrication would be essential if the houses were to be ready in time. Three factors seemed to dictate the method of construction.

(*a*) The short time available to complete the whole project and particularly to accommodate the first 3,000 workers.

(*b*) The need to keep site labour on township construction to an absolute minimum.

(*c*) The intensely steep nature of the terrain which would mean that in situ construction would be slow as it would have to be largely carried out by unmechanized operations.

All three factors were conditioned by the need for the strictest economies in execution.

The only possible solution to satisfy these conditions is to fabricate as much as possible away from the site and to simplify all essential site operations. In situ construction, particularly for foundations, would also increase the difficulty of clearing the site when the township was dismantled.

The architects also considered that it would be desirable, both in terms of economy and in order that Gold Coast enterprise could benefit to the full, to use a

technical section

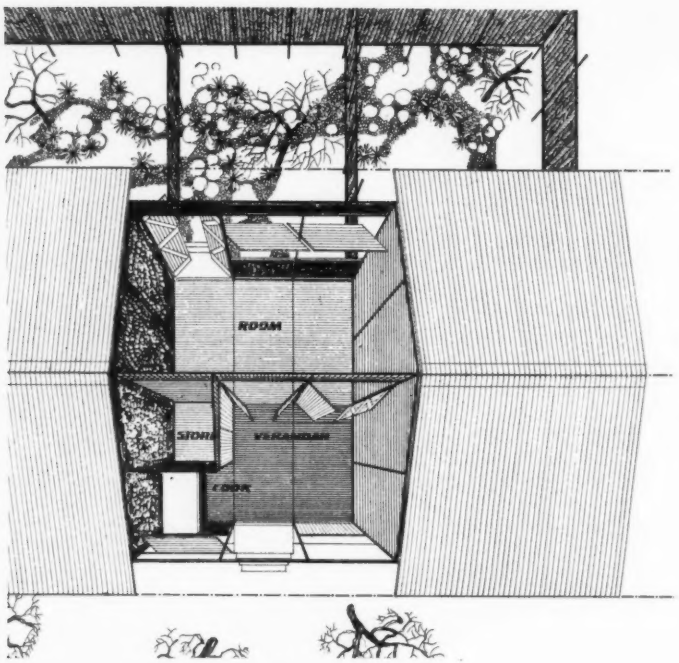


Fig. 7. One-room house type.

system of fabrication which could be manufactured with equal facility in the Gold Coast and in Europe simultaneously; each source of supply being free to develop the most economic technique of fabrication within a common system which would allow of standardized site assembly. A review of currently available systems of prefabricated building both in the United Kingdom and Sweden was undertaken and showed that although many structures would adequately solve some of the requirements set out in the programme no system was available which could satisfy all of them. The architects therefore invited a firm of timber building fabricators, Medway Buildings & Supplies Ltd., to work on the problem in co-operation with them. The system evolved uses a standard planning module for all buildings in the programme and, as far as variations in use and finish allow, the basic structural system is applied to the whole programme. All buildings are of single storey construction.

During the investigation visits were made to the majority of timber fabricating concerns in the Gold Coast in order to assess their capacity and capability in handling this type of work. The Gold Coast timber industry possesses several large units highly equipped for machine dimensioning of hardwood. One such unit is one of the largest mills in the world. Advice was also obtained as to the availability of second common grade hardwoods in the quantities that would be required, and it appears that with a carefully planned programme there would be sufficient timber to supply a large part of the requirements for the whole project. Though it was recognized that the accuracy of these assessments of capacity will largely depend on the method, timing and administration of the bulk ordering and purchase procedure by the controlling authority, it was decided that sufficient material and fabricating capacity exists in the Gold Coast to make an important contribution to the project in the time available. In the architects' cost analysis the whole of the foundation piers (in a termite-resistant hardwood: odum/iroko), sub-structure components and 50 per cent. of the superstructure components for all buildings, are assessed at Gold Coast rates. These rates were arrived at by inviting tenders from eight selected Gold Coast timber mills tendering from detailed working drawings and specifications.

No allowance was made for chemical preservation against termite in imported or indigenous timber or sheet materials. The required maximum life of a building will be 3-4 years and the odum foundation pier, when free of sapwood, is not liable to attack. All structures are protected by termite shields on top of the foundation pier. It is assumed that the usual tropical routine of building inspection and maintenance by the controlling authority would be quite sufficient to avoid serious termite infestation. It is proposed to combine measures for weather resistance with measures to improve heat insulation of the structure by spray painting the whole exterior surface with a bituminous undercoating and an emulsion finish coat in pale colours. Bituminous paint is made to any desired consistency and it is proposed to use it in paste form to create weather-tight joints. The reflective effect of pale finishing coats considerably increases the standard of insulation.

Studies were carried out in conjunction with the Colonial Liaison Section, DSIR, at the Building Research Station to arrive at the best form of roof insulation. It was found that though initial expenditure would be higher, the use of long span troughed heavy gauge aluminium simplifies assembly in construction and gives a high standard of reflection. Heat radiation through the roof is reduced by the addition of a suspended ceiling made of locally fabricated matting.

Housing types

Three house types for low-cost housing were required with one, two and three rooms. The three-room type only has a private latrine and wash cubicle. This type, without separate latrine and wash cubicle, is also used to accommodate groups of eight single workers.

Housing types are allocated to the various categories of labour on the assumption that occupancy will not be allowed to exceed approximately 60 sq. ft. per person. With the exception of the three-room type, all plans are one room deep. The partition between the front and back rooms in the three-room type is clear of floor and ceiling in order to allow adequate cross ventilation.

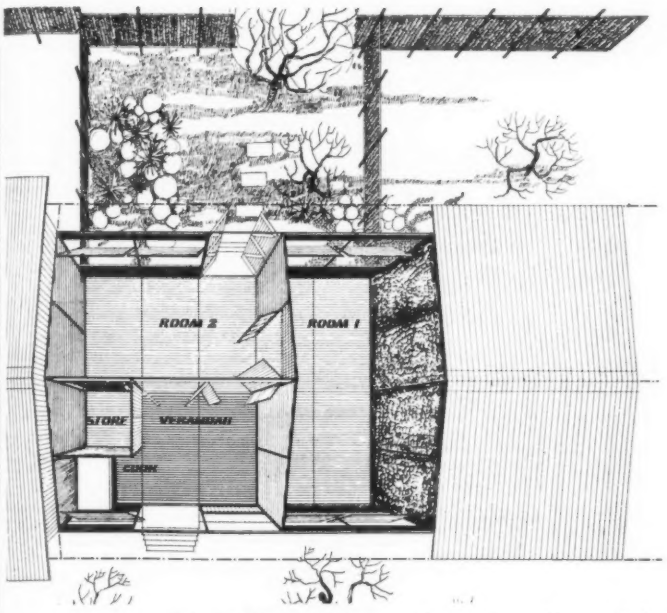
It would have been desirable to maintain the single room depth plan in all plans, but in the larger house this becomes totally uneconomic in terrace development. There is also considerable advantage in obtain-

technical section

ing separate access to the second and third room. The front verandah with its cooking alcove and lock-up store has been standardized for all types. It is believed that a deep verandah is more useful as additional living space than the usual narrower verandah running across the full frontage of the house common in the low-cost tropical housing. The kitchen alcove is lined in sheet aluminium with a counter-sloping aluminium ceiling to channel the smoke through the ventilator opening, thus avoiding expensive flue construction.

Low-cost housing in a tropical climate is primarily a shelter for sleep and safe storage of possessions. Where earned incomes are low the relative value of possessions, however humble, are proportionately high and must be protected from theft and unwanted neighbourly curiosity. Inevitably where rooms are small the verandah or "out of doors" is the main living area in the West African climate. It is noticeable that in densely built-up urban areas a fenced-in private compound is a characteristic feature of shanty housing and "bidonvilles." The architects have, therefore, planned all houses for family use with fenced-in compounds as part of their standard accommodation. The compound, which is the same area as the house to which it is attached, is fenced in local matting or bamboo fixed on hardwood posts and rails. Costs of this fencing have been included in the analysis of the final cost budget.

The housing for supervisory and technical staff (Fig. 10) uses a similar system of prefabricated construction. The panels only are increased in height to give a minimum external wall height of 9 ft. and have a variety of internal finishes according to room use. The same principles of construction apply to the



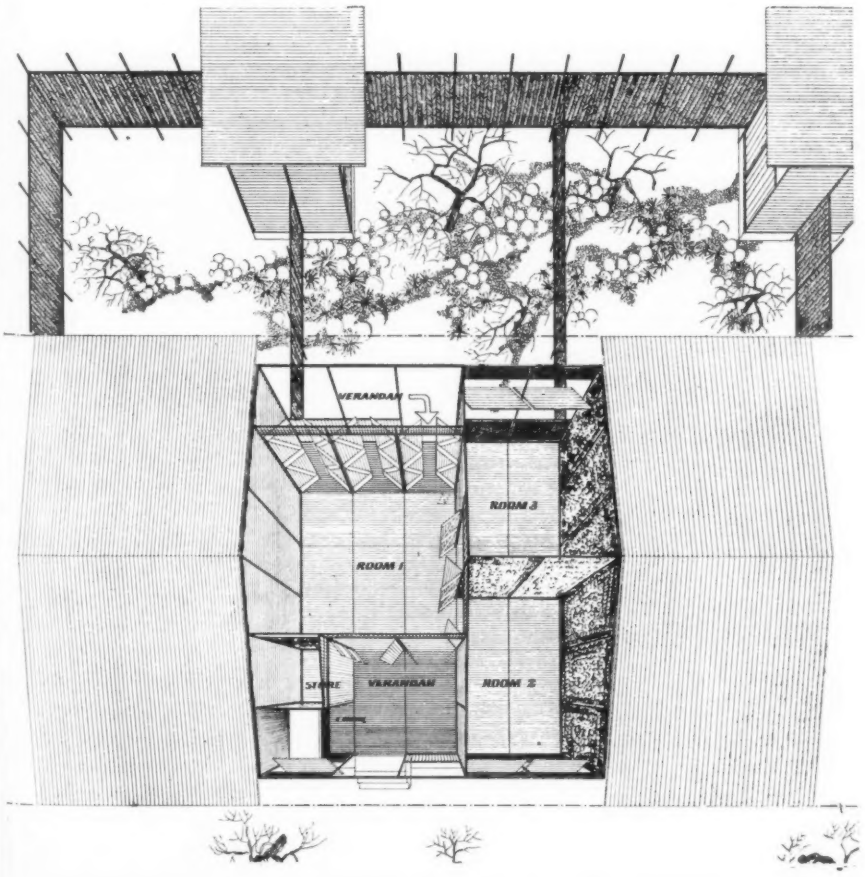


Fig. 8 (above). Two-room house type. Fig. 9 (below). Three-room house type, showing lavatory accommodation in private compound.

technical section

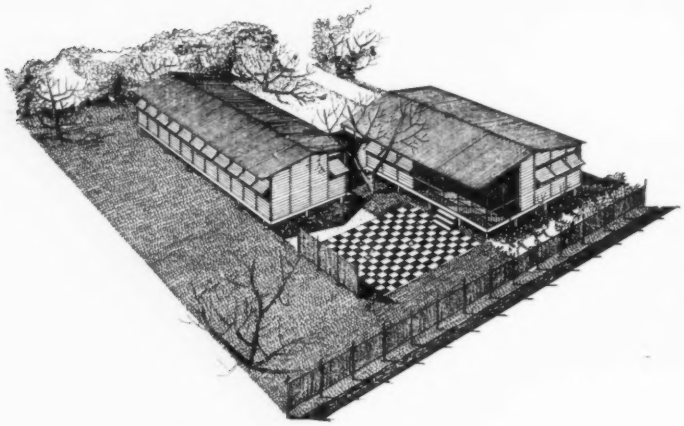


Fig. 10. Supervisory house.

remaining communal and public buildings using the 9 ft. high panel. Seven designs for alternative types and sizes of supervisory housing were included in the architects' final report. Preliminary designs for the township's schools and community centre annexes were also submitted—all other buildings were costed by area on a comparative basis to arrive at the total budget for the project.

The town plan

With a population of approximately 16,000 people at the peak period of labour requirements, Ajena would be comparable in size to a town such as Stratford-on-Avon. The short life of the town will make it difficult to develop fully a social structure comparable to that of established towns of similar size in other parts of the Gold Coast. Inevitably Ajena will to some degree suffer from an excess of control in its development, from an awareness of its own impermanence, and from some feeling of compulsion owing to its main employment being of a single source. It is important, therefore, that the planning should not add to this sense of rigidity ; on the contrary, it should be necessarily flexible and varied, and it should give the maximum opportunity for further variety of development during the period of construction.

In the architects' opinion there is insufficient data on the social pattern of densely built-up areas in small Gold Coast towns for any realistic neighbourhood planning conclusions to be formulated. Any planning pattern must, of course, allow access to everyday social facilities such as shops and schools and the physical limits of such groupings can be fairly easily assessed. How large a group remain socially homogeneous is more difficult to determine, particularly with a population which is rapidly changing in numbers. It is suggested, therefore, that the aim should be to achieve a housing pattern which, whilst satisfying the requirements of physical convenience, will not inhibit the natural formation of social groupings which may arise from other causes. This implies that whilst the pattern should permit easy and natural access to amenities such as local centres, schools and open spaces, it should not be subdivided into theoretical neighbourhoods by streets or any other physical boundaries. If such neighbourhoods arise they should grow from the social habits and needs of the people. Such an approach might be inapplicable for a larger town, but is appropriate to the relatively small size of Ajena.

A group around an open space or compound has been taken as the basic planning unit—a space that can be used for relaxation, for children's play and as a means of access to the communal water stand pipe sheltered in a small open building which also accommodates two laundry slabs in a shaded area for market women. From observation and from some evidence based on social studies which have been carried out in Accra, a number of families in a compound with some form of family connection may vary from six to 60. Five terraces of houses has been taken to form a compound group. A terrace consists of six houses, of any of the three wide frontage types, or ten houses of the narrow frontage type, each terrace having a total length of 125 ft. Such a compound might therefore consist of about 20 families and 30 single men.

The constructional system outlined in the preceding notes is in itself partly dictated by the physical conditions of the site. The extremely steep slopes make it necessary to place buildings along the contours so far as possible. The structural system which has been developed allows two changes of level of a maximum of 2 ft. each in the 125-ft. length of the terrace. As all the houses are built on piers with suspended joisted floors, the maximum height from ground level of any floor is restricted to 5 ft., and a minimum of 2 ft. Only where the housing is sited on narrow spurs of the hillside is it possible to turn two lines of buildings at right angles to each other without raising the suspended floors beyond these limits. By the use of changes of level in the substructure and the variation in the height of the foundation stubs it becomes possible, nevertheless, to make a considerable variation in the angles of the buildings from the main direction of the contours. Where possible, this adaptability has been used to adjust the alignment of buildings so that they relate to their compound groupings and to the breeze orientation.

Ideally, the orientation of the buildings should primarily be governed by the prevailing breeze. So far as possible this has been done, but evidently the nature of the ground makes it impossible over considerable areas of the site. The extremely broken character of the surrounding country suggests that even when the prevailing breeze is available (60 per cent. of the year at Akuse at the edge of the Accra plain) it will be channelled and diverted into many local variations. The best average condition that can be achieved, therefore, seems to be a maximum of opening on opposite sides of the house to allow full cross ventilation and to take advantage of any air movement that is available. The irregular nature of the layout will also contribute to this end.

There seems to be no need to isolate different economic

technical section

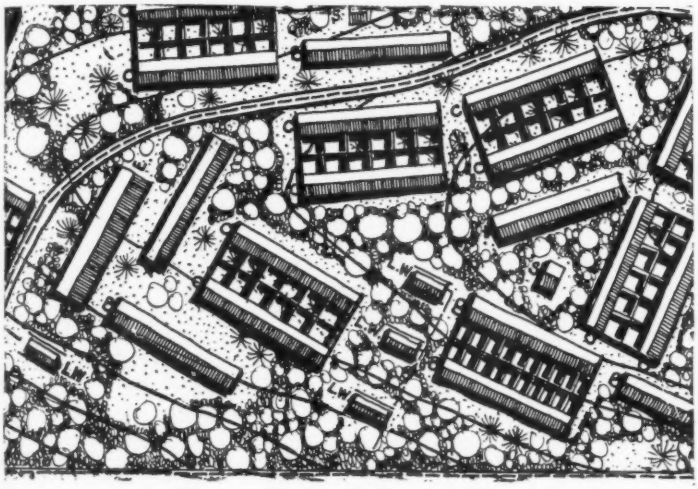


Fig. 11. Plan of a small section of the housing area A, B, C and D represent different housing types, S a shelter, LW a latrine and wash. Dotted line marks course of secondary French drains.

grades of worker in the context of this project. The vast majority will in any case start their lives at Ajena with variations in geographical background but little difference in technical skill. Patterns of grouping which will develop will arise in the first place from associations brought with them from their town and village background. These patterns will not necessarily be directly reflected in each man's capacity to acquire new skills and a new economic status in the initial years of the project.

It appears to be a sound social policy to minimize segregation of single workers in large groups. This category has therefore been accommodated in standard housing units in groups of four or eight to a house, and in large dormitory blocks. Each such unit is supplied with cooking facilities similar to those in the other housing units, and terraces of these units have been intermingled with the groupings of the family terraces.

The typical layout of part of the town shows compounds made up to give the greatest diversity of both labour grades and family and single households. It is to be noted that the family units have small enclosed private compounds at the rear of each house, while the units for single workers are open on both sides. Calculations have been made to arrive at a pattern for the composition of the compounds giving the maximum possible variation of types in each. No compound has one of every type, but no compound has less than three different types. Furthermore, both the two housing types for single workers never occur in one compound.

Sanitation and secondary access roads

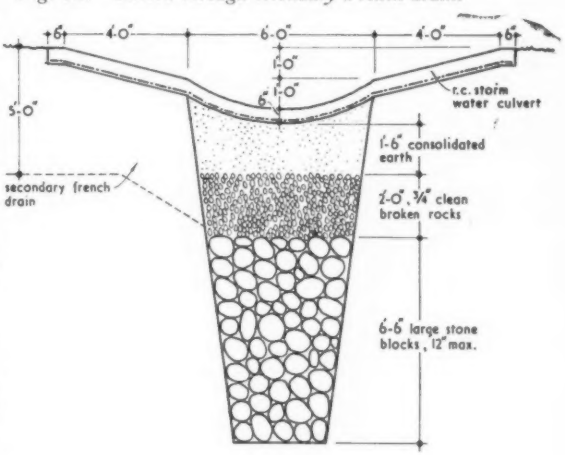
The siting of sanitary blocks, of which there is one to each compound, has been arranged so that they are not directly overlooked by any terraces and are never less than 50 ft. from any building.

The Consulting Engineer's survey of the depth of soil cover over the township suggested that it would be unwise to dispose of effluents from septic tanks into separate soakaways. It is impossible to establish absolutely that the amount of absorption or the existence of fissures in the underlying rock formations would not adequately deal with the problem ; nevertheless, with the relatively high density of development there might be a serious danger of flooding the sub-strata in the vicinity of housing areas and that excess effluent would find its way above ground lower down the slopes of the hillside.

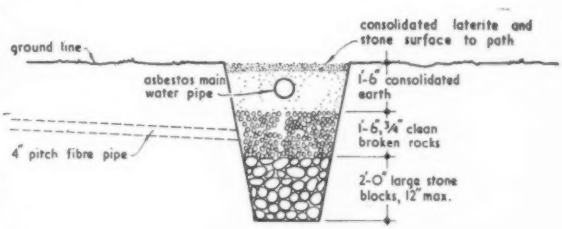
The installation of a piped system of effluent disposal would be extremely costly. The architects therefore recommend that the effluent from septic tanks should be carried in secondary French drains clear of the housing areas to connect to a main French drain along the whole length of the Ajena valley. The surface filling of the secondary French drains would be made up in laterite compacted over the broken rock back fill, at the same time forming a system of smooth-surfaced secondary access routes through the housing areas. The secondary drains are laid out so that they climb the contours obliquely in order to minimize the rate of flow of the effluent and at the same time give easy gradients for the access routes. The system shows considerable economies in the overall cost of secondary road construction.

The main valley highway will carry considerable traffic during night and day as there will be shift-

Fig. 12. Section through secondary French drain.



SECTION THROUGH MAIN FRENCH TRUNK RUNNING UNDER STORM WATER CULVERT.



technical section

working on the dam. It is, therefore, desirable to isolate the town as much as possible from the noise, dust and danger of this highway. The highway is sited along the western edge of the valley and the area of housebuilding is restricted to within 400 ft. of this road. This area has been used for playing fields and public open space. The town centre has been sited on the crest of a small hill which lies on the east side of the main Ajena valley. This is approached from the south by a single main access road passing through the centre of the housing centre and rejoining the highway at the northern end of the town. A loop road serves the main town centre and the market area and other public buildings. It also gives access to the rocky slopes of the hill which have been zoned as parkland where the ground is too steep for building development. Further secondary loop roads serve supervisory housing areas at the southern end of the valley and give access to the hospital area.

Cost analysis

It became clear at an early stage in the investigation that it would be difficult to show any considerable saving on the figures reached by the Consulting Engineers. These figures were based on the full standards of accommodation and sanitation originally envisaged by the Commission's Technical Sub-Committee, and assumed that 65 per cent. of the workers employed would be accompanied by their families.

In consultation with the quantity surveyors, it was agreed that the Cost Analysis should be based on a detailed breakdown of the costs of the components of the standard structure. As has been described in the foregoing notes, these component costs were assessed on the basis of competitive tenders from Gold Coast, United Kingdom, and Swedish fabricators. Site works were costed on a schedule of unit rates.

With this information it was, therefore, possible to arrive at approximate total budgets based on several variations from the original brief.

Studies have been presented showing three main alternative programmes:

1. Housing the total labour force, of which 65 per cent. were assumed to have their families with them.
2. Housing the total labour force, of which 50 per cent. were assumed to have their families with them.
3. Housing the total labour force, of which 10 per cent. were assumed to have their families with them.

The last alternative is in fact an orthodox labour camp, where only the most senior supervisory and technical employees are given family housing accommodation, and the remaining labour force is housed in dormitory-type accommodation.

The analysis was further extended to give three alternatives in the first category, giving slightly different standards of individual accommodation, particularly where it concerned sanitary equipment for the 65 per cent. of workers housed with their families.

The architects finally recommended that it should be possible to carry out the project on a 50 per cent. family policy within a budget of £4m. Any hope of making further substantial reductions in these costs could only be made as a result of reduction in the proposed standards of accommodation or in abandoning the Commission's family policy.

The relative costs of Gold Coast fabricated and imported houses, which were arrived at from individual component prices, are shown below:

COMPARATIVE COSTS OF EACH TYPE OF HOUSE FOR GOLD COAST AND IMPORTED SUPERSTRUCTURE

				Cost			
				Gold Coast superstructures		Imported superstructures and roofs through	
Type	Area in sq. ft.	No./terrace	Area/terrace in sq. ft.	Roof/Takoradi	Roof/Tema	Takoradi	Tema
A & C	345	6	2070	£2,394 23s. 9d. per sq. ft.	£2,391 23s. 9½d. per sq. ft.	£2,690 26s. 9d. per sq. ft.	£2,603 25s. 11d. per sq. ft.
B	205	10	2050	£2,601 25s. 4½d. per sq. ft.	£2,598 25s. 4d. per sq. ft.	£2,857 27s. 10½d. per sq. ft.	£2,735 26s. 8d. per sq. ft.
D & E	525	6	3150	£3,138 19s. 11d. per sq. ft.	£3,131 19s. 10½d. per sq. ft.	£3,518 22s. 4d. per sq. ft.	£3,400 21s. 7d. per sq. ft.

Total costs include all erection and site works, but exclude cost of storm water drainage channels. The alternative figures given for each source of supply under the heading Takoradi or Tema are due to the costs of haulage from these two ports. Takoradi is the only existing deep-water port in the extreme west of the Gold Coast, and would have to have been used for approximately the first 18 months to two years of the project, if it had been started in 1957, until the first deep-water berths now under construction at Tema were available to handle materials for the project.

The final cost analysis takes these haulage distances from the ports of entry into account.

The original timing programme for the project has been abandoned pending further consultations between the Government and the aluminium companies.

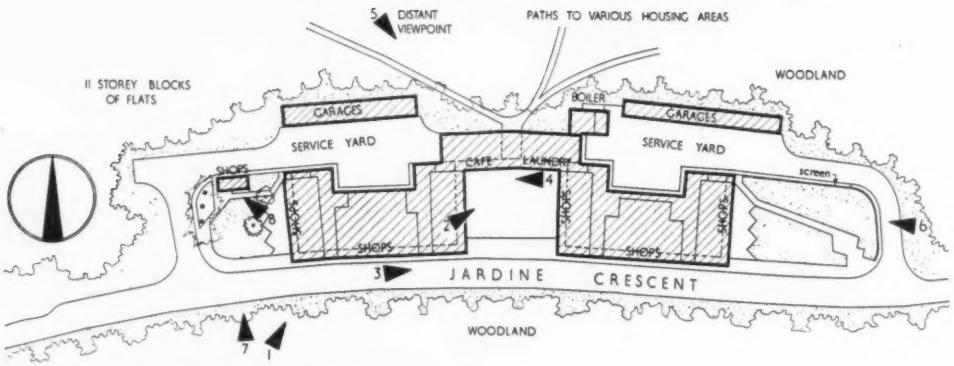
SHOPS and MAISONETTES

in JARDINE CRESCENT, TILE HILL NEIGHBOURHOOD, COVENTRY, for the COVENTRY CORPORATION; city architect, A. G. LING, in succession to D. E. E. GIBSON principal architect E. C. TORY; assistant-in-charge H. W. PEARSON; assistants G. A. GREY, H. G. LAVERICK; quantity surveyors C. H. OSBORNE and PARTNERS

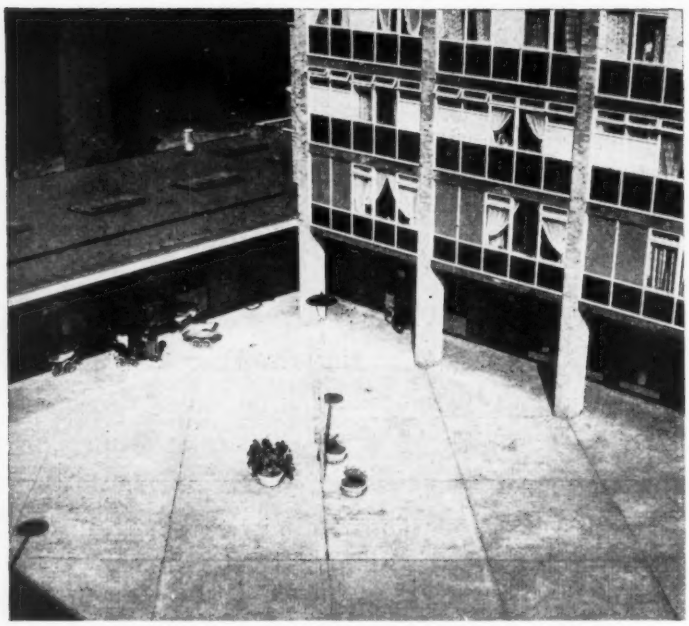
The new district shopping centre, comprising four multi-storey blocks, single-storey shop links, garages and storage, serves the recently—developed Tile Hill area of Coventry, located some two miles from the city centre. An extensive woodland skirts the site to the south and to the north stand the elegant point blocks designed as the culminating features of the new neighbourhood unit. This is the second shopping centre to be analysed in the JOURNAL. The first, at Basildon New Town, Essex, was illustrated on November 8, 1956.

Viewpoint 1: from the south-west.

building illustrated



Key plan showing photographic viewpoints



SHOPS AND MAISONETTES

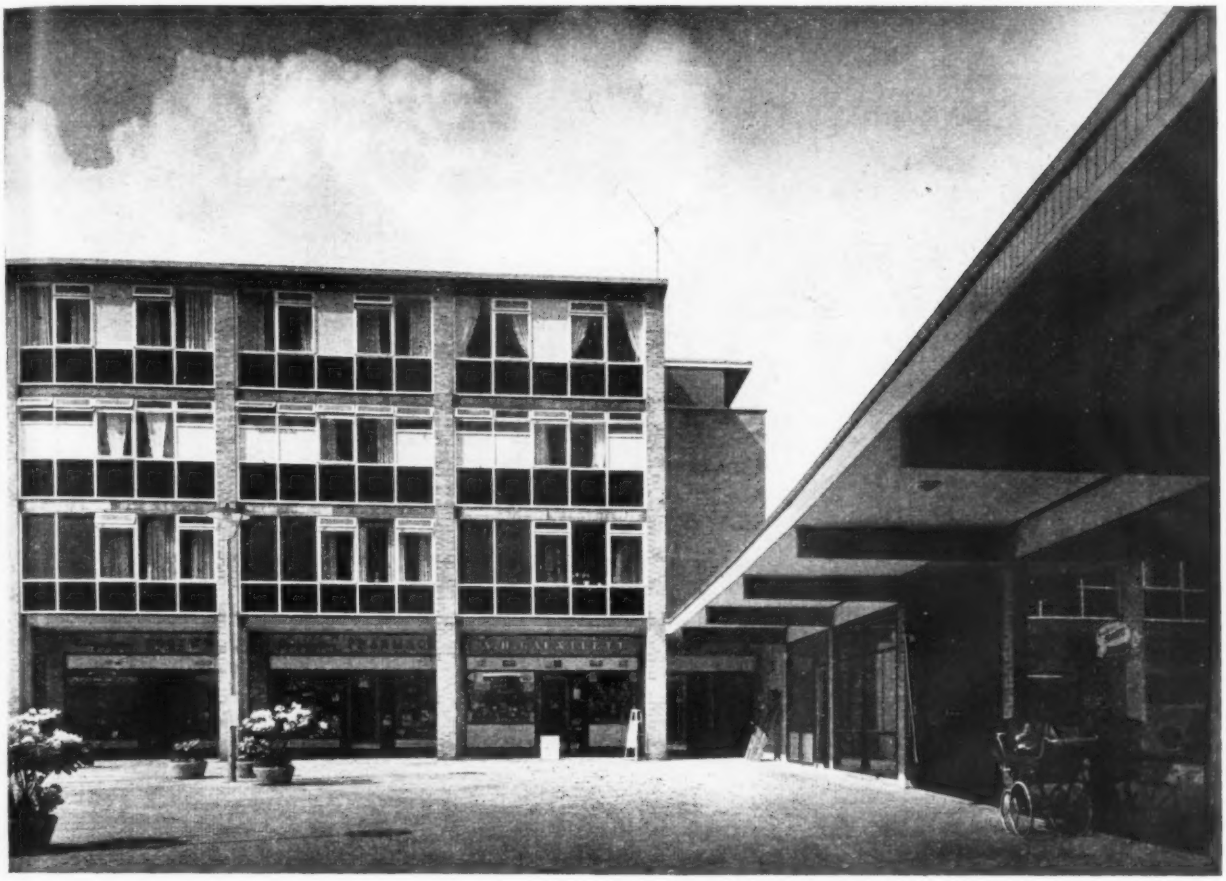
at TILE HILL NEIGHBOURHOOD, COVENTRY

designed by A. G. LING, city architect

Viewpoint 2 (left): the cross-wall construction of the shop and maisonette block can readily be appreciated from this view. The end walls maintain a thickness of 14 in. for the full height, with intermediate walls reducing to 11 in. for the top three storeys. The expressed brickwork of the dividing walls maintains a standard width externally of 16 in., justified for reasons of appearance. Service ducts are formed as an enclosed extension of the brick piers with demountable access panels to the rear. The intermediate floor beams spanning between cross walls are prestressed precast concrete beams which are dressed externally with a lead apron. Painted softwood window spiders inserted between cross walls and floor beams contain coloured, opaque-glass sandwich slabs and coloured, opaque-glass panels as spandrel and upper window cladding. A 4½-in. brickwork back-up to the spandrel cladding provides additional stiffness to the structure. Top-hung hopper and side-hung casement windows provide the opening lights within the fenestration. The paving to the re-entrant courtyard is in large in-situ concrete squares alternately finished with exposed granite aggregates of different colours. The peripheral paving is in standard precast concrete slabs.

Viewpoint 3 (left): it was decided that in order to satisfy the urgent need for essential shopping facilities in this neighbourhood, the single-storey link shops would be constructed first. One link is shown in the foreground of the photograph. Rainwater disposal to the four-storey blocks is achieved by a slight fall to the flat roof towards sumps set along one side, served by four 3-in. aluminium, rainwater pipes face-fixed to the exposed ends of the load-bearing cross walls, which in turn discharge on to the flat roofs of the single-storey shop links adjacent. The fascia trim to the four-storey block is formed with an aluminium pressing, butt-jointed and left undecorated. The projecting bays at second floor level in the end walls of the multi-storey blocks are emergency fire assembly points which have been accepted by the local fire authority as part of the planned arrangement for alternative means of escape. They also provide a limited amount of light to penetrate the corridor on this floor, and they house the soffit of the bay street-lighting equipment.

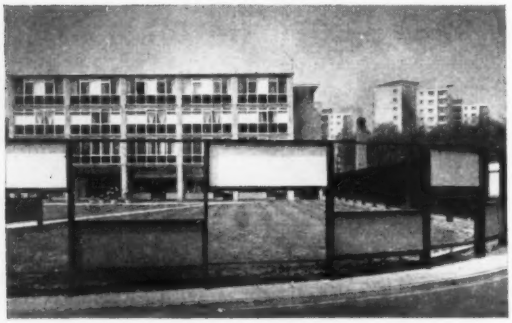
building illustrated



Viewpoint 4 (above): to assist prospective shopkeepers whose capital may have been limited, the responsibility for the construction of all shop fronts was taken over by the building authority. They had, however, the opportunity of determining to some extent the general arrangement of their shop fronts by being allowed to choose between various depths of fascia and stallboard. This enabled an elevational discipline to be maintained without imposing unreasonable limitations. Shopkeepers were also offered a choice from six type faces for the lettering on their fascia boards. The size of letter was limited: this has the same advantages as the limitation of the fascia and stallboards referred to. The single-storey shops on the right of the photograph are roofed with prestressed precast concrete beams spanning between load-bearing brick cross walls. The cantilevered canopy is supported by stressed concrete beams laid along the cross walls. The fascia board is formed with painted softwood T and G boarding capped with a pressed aluminium trim. Viewpoint 5 (right): this view, taken from one of the point blocks, shows the extent of the young woodland to the south of the new road running adjacent to the shopping centre. Being common land the woods are used extensively by the children in the area. The single-storey shop link in the centre foreground houses a café and a launderette with an opening between the two, through which access may be gained to the re-entrant courtyard from the housing to the west. A master television aerial has been provided to each of the four-storey blocks in order to thwart the metal scarecrow menace.

The interlocking maisonette arrangement has made it possible for the living rooms overlooking the flat roofs of the single-storey link blocks to be at third floor level. Kitchens and bathrooms to all flats are located on the second floor. Staircases to the blocks can be seen projecting from the end walls with water storage tanks housed above. A cleaners' store and a refuse disposal chute are accessible from the staircase landing.

building illustrated

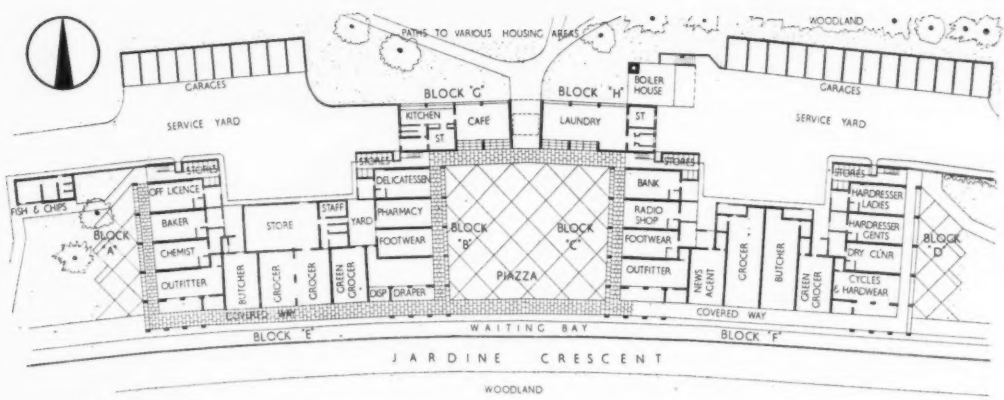


SHOPS and MAISONETTES

at TILE HILL NEIGHBOURHOOD, COVENTRY

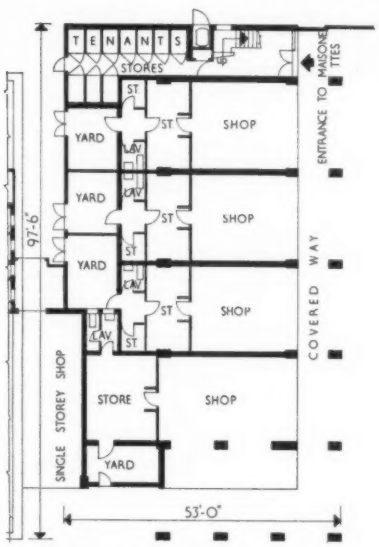
designed by A. G. LING, city architect

Viewpoint 6 (left): the screen in the foreground follows a boundary of the site and at the same time defines a space which will later be developed as a children's play area. The painted softwood framing contains reinforced asbestos sheets which are painted alternately yellow and green with a heavy chlorinated rubber based paint. Existing planting and the maintenance of the grass and shrub areas is the responsibility of the Corporation Parks Department. Viewpoint 7 (below): the isolated single-storey building in the centre foreground overlooked by the point blocks and flanked by an end shop and maisonette wing is the fish and chip shop. The architects felt that the problem of smell invariably associated with this local institution could best be overcome by complete isolation and the result, in addition to satisfying this requirement, has also assisted in the general blocking and site layout arrangements. Numerous young trees have been preserved on the site which together with the careful consideration given to new planting and paving layout has resulted in an impression of maturity so often lacking in work today.

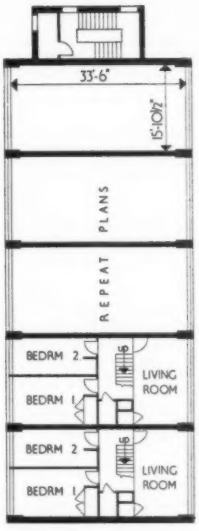


Ground floor plan [Scale: $\frac{1}{16}$" = 1' 0"]

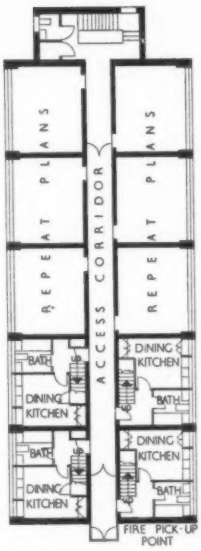
building illustrated



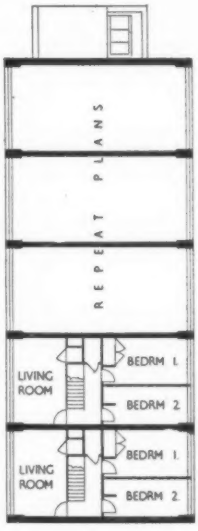
Ground floor plan, 4-storey Block 1
[Scale: $\frac{1}{32}$ " = 1' 0"]



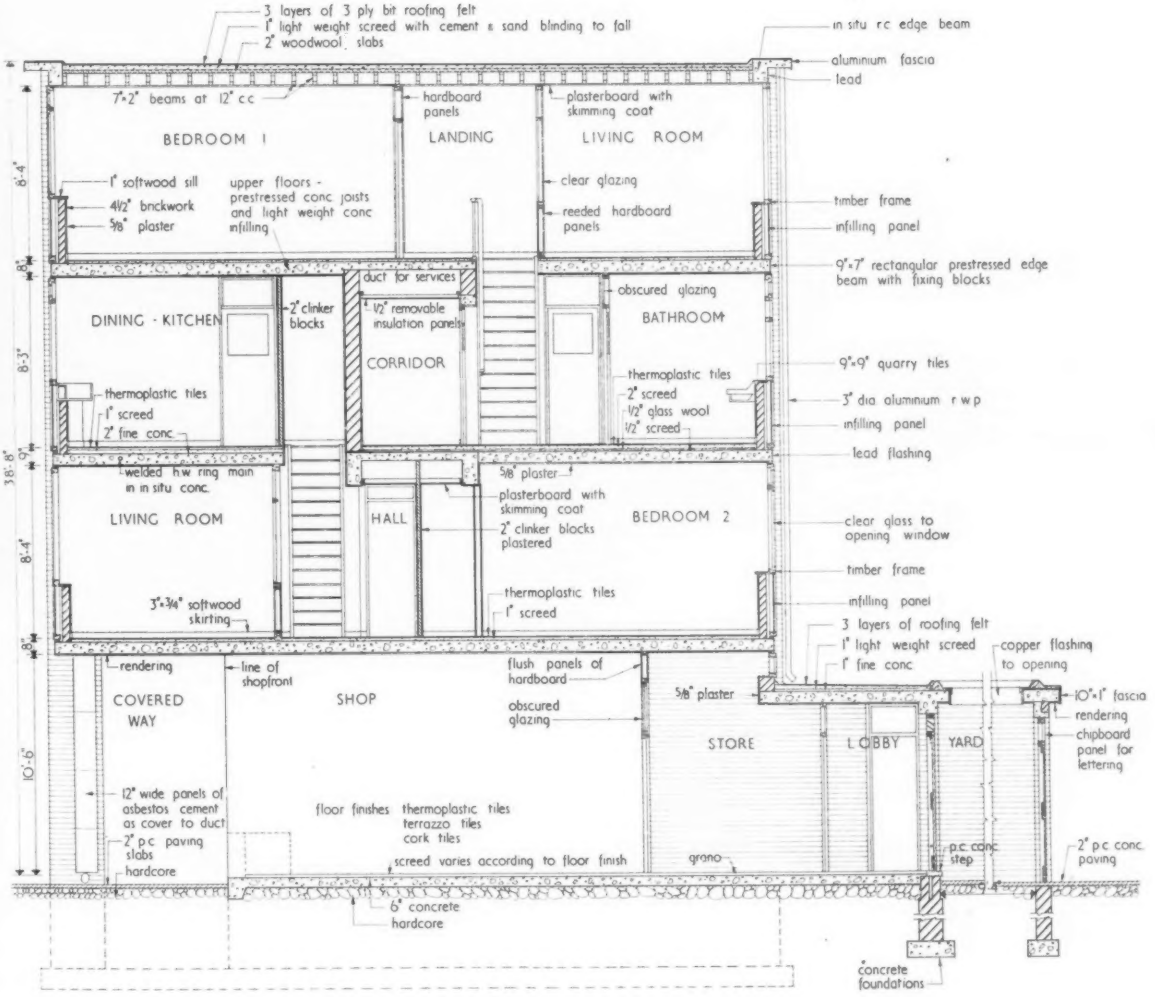
First floor plan



Second floor plan

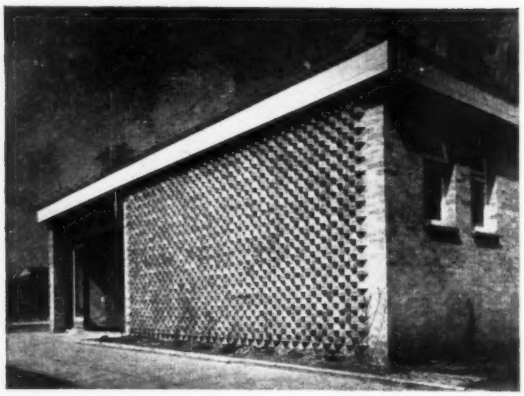


Third floor plan

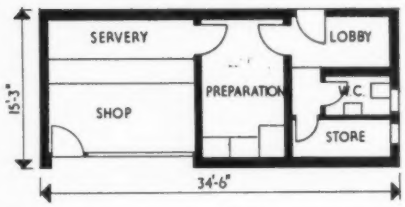


Typical cross section 4-storey block [Scale: $\frac{1}{8}$" = 1' 0"]

building illustrated



Viewpoint 8: a detail view of the fish and chip shop. The entrance on the left comprises a fully-glazed door adjacent to a large plate glass window. The assertive brickwork texture is achieved with projected headers laid diagonally.



Ground floor plan, fish and chip shop [Scale: $\frac{1}{16}$" = 1' 0"]

analysis

SHOPS and MAISONETTES

at TILE HILL NEIGHBOURHOOD, COVENTRY

designed by A. G. LING, city architect

CLIENT'S BRIEF: his stated requirements

This scheme incorporates 27 shop units of various trades, garages, and sufficient integrated housing units to create an urban atmosphere appropriate to a district centre. Shopping facilities were urgently required, as housing units on the adjoining neighbourhood unit were rapidly being completed. Shops selling basic provisions had priority and were accommodated in single storey link blocks which were built first. To facilitate a quick start on the work, the general contractor was nominated and the contract carried out on the basis of an agreed schedule of rates. Bills of quantities were produced and priced as the drawing office programme proceeded. The corporation has provided the shops with finishings appropriate to their trade, lavatory accommodation, central heating and shopfronts. Shopfronts were provided in order to limit capital outlay by small tenants; a choice was given from standard types with variations of position of door, sill height, etc. Shopfitting, fascia letters, blinds and the provision of hot water were the responsibility of the tenant.

SITE: topography, surroundings, access and planting

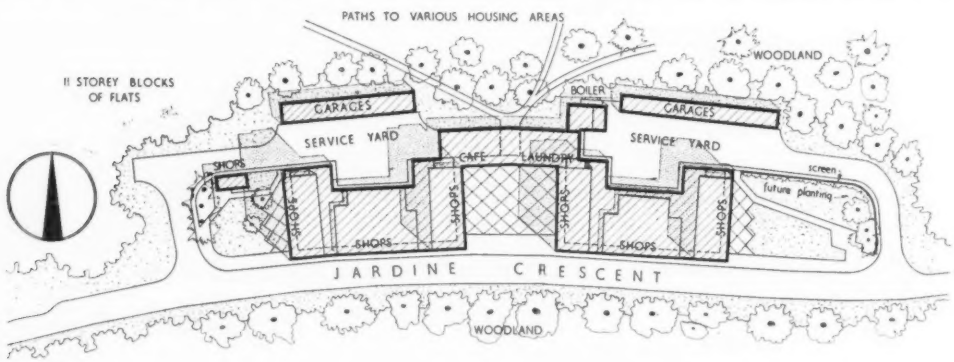
The 2·2 acre site is a clearing in woodland, and falls gently from west to east. A new neighbourhood unit lies to the west of the wood, and there is an area of pre-war housing development to the east. Access is by a new road linking the new and old housing developments. Planting was carried out and is maintained by the Corporation Parks Department.

PLAN: general appreciation and relation of units

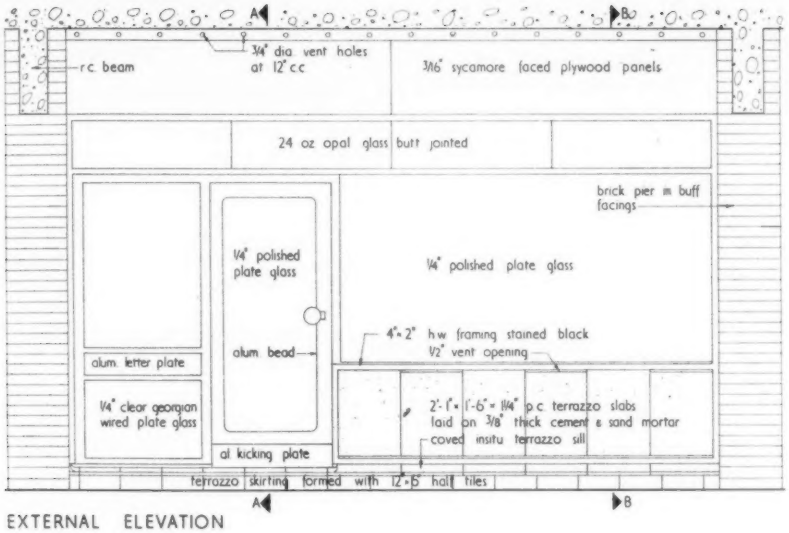
The plan form adopted provides sheltered shopping in what almost amounts to a shopping precinct. Shop service areas are concentrated at two points at the rear of the scheme together with boiler house, garages and refuse disposal access. There are four main blocks of shops with interlocking maisonettes over. They are spaced about 100 ft. apart at right angles to the road, and linked by single-storey blocks containing the larger shops. The link between the two centre blocks accommodates a cafe and a launderette and is set back to form a pedestrian square. The square is open to the road and may also be entered from the north through an open way from which paths lead to the nearby point blocks and other parts of the neighbourhood unit. The fish and chip shop is set apart in order to isolate the inevitable smells. Interlocking maisonettes were used for the following reasons: 1, the deep plan width made it possible to form covered ways within the block and limited the projection of shop roofs at the rear. 2, central corridor access was most economic in circulation space. 3, the small periphery, a product of the deep plan, made central heating more economic at present fuel costs. 4, this arrangement allowed the living rooms overlooking the flat roofs of the single-storey link blocks to be on the third floor.

MAIN CONSTRUCTION: general appreciation

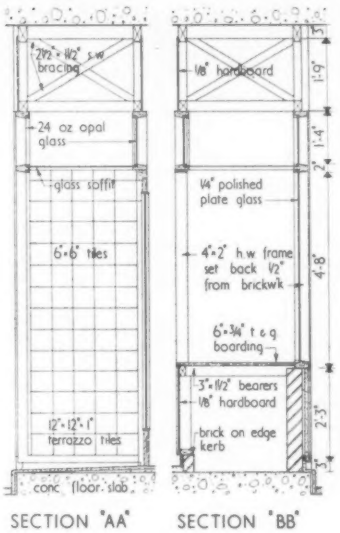
Four-storey blocks are constructed with load bearing cross walls of brickwork with precast, prestressed, concrete beam floors. Roofs are spanned with lightweight, open web, nailable joists. Stiffness is provided by the staircase tower, 9-in. brickwork corridor walls, 4½-in. brickwork walls behind spandrel panels of curtain walls, and brick piers at the ends of the cross walls. The end walls of each block are in 14-in. brickwork, the intermediate walls are 14 in. thick up to 1st floor level and 11-in. cavity for the top three storeys, the 11-in. walls between the 1st and 2nd floors being mesh reinforced. Openings formed in cross walls to accommodate the covered way are spanned with *in situ* r.s. beams. Single-storey blocks are also constructed with load bearing brickwork cross walls but are roofed with precast prestressed concrete beams. Covered ways are formed by carrying out the roof on special precast, prestressed concrete cantilever beams laid along the cross walls.



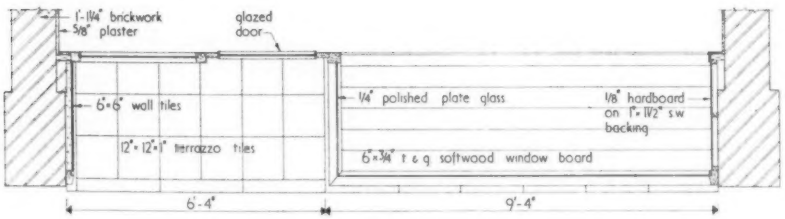
Site plan



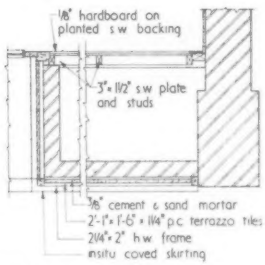
EXTERNAL ELEVATION



SECTION "AA" SECTION "BB"



PLAN AT WINDOW LEVEL



PART PLAN BELOW SILL

Plans, elevation and sections A-A and B-B, typical shopfront [Scale: 1/4" = 1' 0"]

	maisonettes only		*shops and maisonettes*	
cost per sq. ft.	**s**	**d**	**s**	**d**
preliminaries and insurances	**2**	**2**	**2**	
contingencies		**2**		**3**

STRUCTURAL ELEMENTS

Work below ground floor level: foundation type	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Brickwork strip concrete footings	Under cross walls	Semi-engineering brick. 1:2:4 reinforced concrete		Concrete footings were reinforced because of openings in walls over and sand pockets in ground				
				work below ground floor level			**2**	**1**

External walls and facings	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Brickwork	Piers, gable ends and stair tower	Leicestershire buff rustic facings						
Non-load bearing screens	Side elevations 1st floor to roof	16-ft. 3-in. × 8-ft. softwood frame containing 24-oz., 32-oz. 3/8-in. sheet glass according to size and position, clear glass, opaque glass, glass fibre-glass/glass sandwich	Softwood, painted Black and pale grey (opaque glass). Various colours (glass sandwich)					
				brickwork	**3**	**4**	**2**	**6**
				screens including glazing, except for shops	**3**	**3**	**2**	**5**

Frame or load-bearing element	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Piers and cross walls	Ground floor	Brick (14-in.)	Facings externally	Internal finish taken with shops			**1**	**0**
Cross walls	All upper floors	Brick cavity (11-in.)	Plaster	Mesh reinforcement in every 4th course from 1st to 2nd floors	**1**	**4**	**1**	**0**
Stiffening walls between cross walls	Access corridor 2nd floor	Brick (9-in.)	Plaster					
Stiffening walls behind curtain walls	1st, 2nd and 3rd floors	Brick (4 1/2-in.)	Plaster	To sill height only. Providing solid fixings for sanitary fittings		**9**		**7**
Services duct and cleaners' store	Ground floor to roof	Brick, reinforced concrete landings	Fairface	House calorifiers, service pipes, etc.		**1**		**1**
Tenants' store	Ground floor	External brick walls, breeze partitions, flush doors	Facings and fair face painted	Lock up pram stores for each of ten maisonette tenants	**1**	**2**		**10**
Tank room	On roof over communal staircase	T & G V-jointed boarding on studding	Painted			**2**		**1**

analysis

					maisonettes only s	d	*shops and maisonettes* s	d
Upper floor construction	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	1st and 3rd floors	Reinforced concrete beams and precast, prestressed concrete joists with lightweight concrete infiller blocks	Screeded to receive thermoplastic tiles	Reinforcement and joists fixed only by general contractor				
	2nd floor	As above	Half area screeded to receive thermoplastic tiles. Half area glass wool quilt covered with 2-in. reinforced screed to receive thermoplastic tiles	Sound insulation between upper and lower maisonettes				
				upper floor construction	**6**	**7**	**4**	**11**
Staircases	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Communal	North side rising to 2nd floor	Reinforced concrete	Granolithic treads risers and skirtings. Plaster soffit painted	Serves access corridor				
		Mild steel balustrade	Painted, handrail cellulose spray					
Maisonette staircases	1st to 2nd floors, 2nd to 3rd floors	Softwood with hardwood balusters	Softwood painted. Hardwood treated with synthetic varnish					
				communal staircases		**10**		**7**
				maisonette staircases		**9**		**7**
Roof construction	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Structure	Throughout	Prefabricated lightweight open web, nailable joists		Lightweight				
Decking	Throughout	2-in. wood wool slabs screeded to falls		Good insulating properties				
Waterproofing	Throughout	Three layers of bituminous felt and aluminium angle drip at eaves						
				roof construction	**2**	**7**	**1**	**11**
Rooflights	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	Over communal stairwell and tenants' stores	Rustproofed steel frame, wired glass		Cost included with roof construction				
Windows	*Location*	*Materials*	*Finish*	*Reasons and comments*				
In communal staircase	North side	Softwood, 24-oz. glass (clear)	Painted	Special		**1**		**1**
Fire pick-up balcony and street light	South side at end of access corridor	As external screens	Painted	Special				
External doors	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Entrance door and screen to maisonettes	Ground floor	Hardwood, glazed with Georgian wired plate	Stained black and finished with plastic polish	Floor springs				
				external doors		**1**		**1**

PARTITIONING

Internal partitions	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	Generally in maisonettes	2-in. or 3-in. breeze block	Plastered					
				internal partitions		**9**		**6**
Screens	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	Between living rooms and landings in maisonettes	Softwood framing infilled with clear 24-oz. glass and plywood	Painted	To provide daylight to staircases and landings				
				screens		**6**		**4**
Internal doors	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Fire resisting doors	Access corridor	Hardwood, glazed with Georgian wired plate	Treated with synthetic varnish	Floor springs				
Maisonettes	Generally	Flush doors, chip-board core, gaboon faced plywood both sides. Softwood frames	Synthetic varnish or paint					
				fire resisting doors		**1**		**1**
				maisonette doors	**1**	**1**		**10**
Ironmongery to internal doors	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Door furniture	Generally	Aluminium	Silver anodised	Good quality and appearance				
Window furniture	Generally	Malleable						
				ironmongery to internal doors		**5**		**4**

analysis

FINISHINGS

Floor finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*	*maisonettes only* s	d	*shops and maisonettes* s	d
Internal finishes	Maisonettes and corridors	Thermoplastic tiles	Mottled black	Skirtings softwood painted				
				floor finishes	1	2		11

Ceiling finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Concrete	1st and 2nd floor	Plaster	Distemper					
Lightweight joists	3rd floor	Insulation board	Distemper	To avoid cracking				
Suspended ceiling	Access corridor	Perforated hardboard panels and obscured glass panels under light fittings. Fixed on softwood framing	Painted	Suspended ceiling forms pipe duct and is glazed at intervals for concealed lighting. Panels are demountable and provide continuous access				
				ceiling finishes		9		7

Wall finishes	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Brickword and breeze partitions	Generally	Plaster	Emulsion paint, distemper or wall paper					
Interior of external screens	Behind coloured glass panels	Plywood	Painted or wall paper	To protect glass. This cost includes quarry tile softwood sills and tile splashbacks				
				wall finishes	1	10	1	4

Decorations	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	Ceilings	Distemper and emulsion paint	Colours from archrome range	Washable, bright colours in circulation areas only				
	Walls	As above	As above					
	Woodwork	Gloss paint						
	Wardrobe doors	Wallpaper						
				decorations	2	0	1	6

FITTINGS

Other fittings	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Wardrobes	Bedroom No. 1	Hardboard faced flush doors	Wallpaper	Built in with breeze wall sides and back				
		Softwood framing	Painted					
Curtain recesses	Bedroom No. 2	Softwood framing, brass curtain rail set	Painted					
Mat frames and mats	Entrance	Mild steel and coconut						
Bath panels	Bathrooms	Cellulosed hardboard						

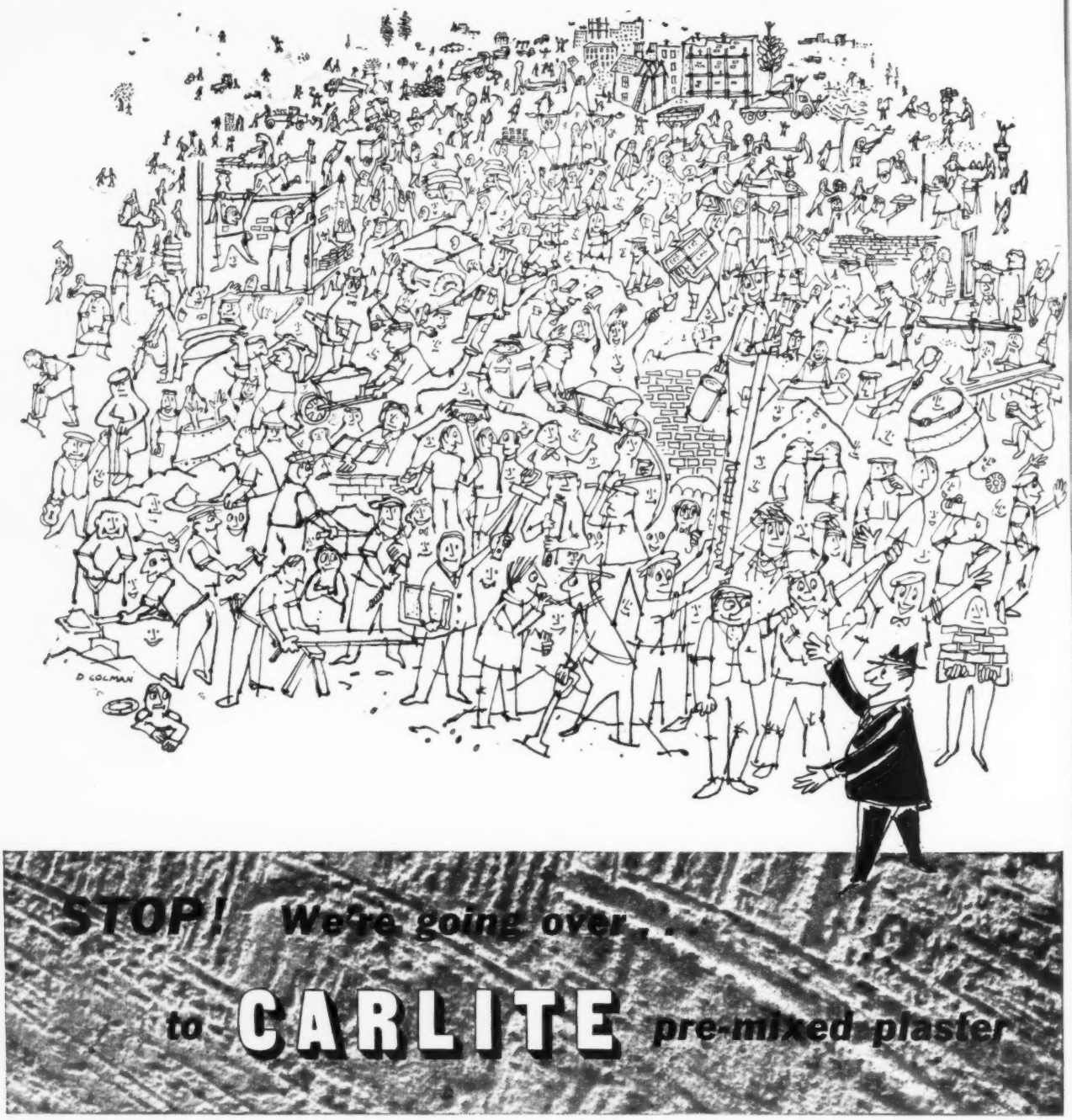
Kitchen equipment	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Cold slab	Larders	Concrete						
Combined cupboard	Dining kitchen	Hardboard faced flush doors. Softwood framing	Painted	Built into formed recess				
Shelving	Larder	Softwood						
Draining boards	Dining kitchen	Iroko						
				other fittings and kitchen equipment		10		7

SERVICES

Rainwater disposal	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	To long side of block	Aluminium r.w.p. and head. Sheet steel r.w. sump		Long length. Discharge on to link roofs				
				rainwater disposal		1		1

Plumbing, internal	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Soil disposal from w.c., sink, lavatory basin and bath	In 9-in. × 9-in. ducts formed in brick piers adjoining bathrooms	Prefabricated steel with welded branches	Galvanised	Vent pipe asbestos				
Cold water		Copper	Painted	Ring main embedded in second floor				
Hot water		Class " B " galvanised barrel	Painted where exposed	Fixed by heating specialists up to fittings				

Hot water storage	*Location*	*Materials*	*Capacity*	*Reasons and comments*				
Storage cylinder	Service duct next to communal staircase	Galvanised indirect cylinder	200 galls., lagged					
				plumbing internal, hot and cold water storage		9		7



Carlite is the first really big departure from plastering tradition for five thousand sanded, site-cluttering years. Superfine gypsum and lightweight aggregate of perlite is factory-mixed for complete uniformity. It saves a lot of weight, a lot of bother and a lot of worry.

Technical details of Carlite's many practical advantages make most instructive reading. Architects, builders and anyone else concerned with plaster (and who are still unaware of Carlite's major contribution to modern building technique) should write for this information.

The Gotham Company Limited, Gotham, Nottingham.
The Carlisle Plaster & Cement Co., Cocklakes, Nr. Carlisle.
Thomas McGhie & Sons, Ltd., Kirkby Thore, Westmorland.

analysis

					maisonettes only		shops and maisonettes	
					s	d	s	d
Cold water storage	*Location*	*Materials*	*Capacity*	*Reasons and comments*				
Feed tanks	Tank room	Galvanised mild steel cistern	200 galls.					
Plumbing: sanitary fittings	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Bath, lavatory basin, low-down w.c. suite, sink	Kitchen and bathroom	Cast-iron enamelled, vitreous china and fireclay. Plastic cisterns	White glazed, cistern black					
				plumbing: sanitary fittings	1	4	1	0
Heating installation	*Location*	*Criteria temperature*	*Air change rate*	*Reasons and comments*				
Gilled battery and fan heat exchanger units	Between living room and halls	65° for 30° externally		Each unit thermostatically controlled				
				hot water storage cylinders, heating installation	2	1	1	6
Boiler type and capacity	*Location*	*Heat load and fuel type*	*Stoking method*	*Reasons and comments*				
Two cast-iron sectional boilers	Central boiler house	Output each boiler 1,642,000 B.T.U.'s per hour, fuel bituminous coal	Bunker to boiler underfeed screw type stokers, electrically controlled	200 gall. expansion tank in one maisonette block. It is difficult to give a cost per sq. ft. as the boiler installation serves the whole scheme. However, the approximate cost of the complete boiler plant and mains installation (within the boiler house) is £3200				
Drainage: type of system	*Location*	*Materials*	*Finish*	*Reasons and comments*				
Two pipes	Maisonettes			See " Plumbing, internal "				
Drain types	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	Throughout	Stoneware in concrete surround		Separate systems for foul and surface water				
Gas installation	*Location*	*Materials*	*Finish*	*Reasons and comments*				
	Kitchen	Gas barrel	Painted where exposed	Installation to a meter in each maisonette carried out by local gas authority. 10-gall. wash boiler				
				gas installation		4		3
Electrical installation: source and fitting type	*Location*	*Illumination level*	*Quality*	*Reasons and comments*				
Main supply 240/415 volts, 3 phase, 50 cycles/sec. a.c.	Throughout			Street lighting separately metered and switched				
Communal television aerial installation	Aerial fixed to tank room			Cost includes builders' work				
Wiring and switching types	*Location*	*Materials*		*Reasons and comments*				
Cables in conduit	V.I.R. cable, heavy gauge and welded, block enamelled steel conduit							
Power supply type	*Location*	*How distributed*		*Reasons and comments*				
13-amp. socket outlets								
				electrical installation	1	10	1	5
Shops and stores complete except for shopfront and cross walls	Ground floor	Store walls, lavatories various wall and floor finishes					4	9
Shopfronts	Ground floor	Various types					2	1
				total net cost per sq. ft. of floor	39	3	39	9

THERMAL INSULATION

Type	*Location*	*U-value*	*Reasons and comments*
2-in. woodwool slabs	Roof	0·27	

SPECIAL ACOUSTICAL TREATMENT

Sound insulation	*Location*	*Absorption coefficient*	*Reasons and comments*
	Second floor between maisonettes	Glass wool quilt with 2-in. reinforced screed over	To minimize transmission of sound

analysis

FIRE

Planning precautions	*Access for fighting*	*Means of escape*	*Reasons and comments*
		If the main staircase is blocked tenants escape via lower maisonette at opposite end of block on to flat roof of link block. If this maisonette is also blocked then tenants are picked up from the balcony at the end of the access corridor. Both the end maisonette and the pick-up balcony are screened from the rest of the access corridor by fire doors	

REFUSE DISPOSAL

Method	*Type of refuse*	*Waste recovery*	*Materials and installation*
Chute	Domestic	Bin extracted through access door in service yard	Patent 15-in. diameter vented salt-glazed pipes with hopper head, discharging into special bins

TIME SCHEDULE

Drawings	*Contract signed*	*Work commenced*	*Work completed*	*Type of contract*
Commenced December, 1952	April 15, 1953	February 23, 1953	August 23, 1956	Negotiated

RATIOS (maisonettes and communal staircase only)

Area of enclosing walls / Total floor area = 0.793 / 1

Area of windows / Total floor area = 0.235 / 1

Area of solid wall (including opaque section of glazed screens) / Total floor area = 0.558 / 1

Total roof area / Total floor area = 0.328 / 1

COST SUMMARY

As each shop varied in internal layout and finish it proved to be a difficult proposition to give a complete analytic break-down throughout; therefore where shops and stores are included an "average from total" basis has been used. It would have given a false impression of cost if the foundation, ground floor shops and stores had been omitted. Therefore, two costs are shown for comparison:
1, 10 maisonettes only from 1st floor upwards with communal staircase and tenants' stores. 2, 10 maisonettes as above, and including foundations and 4 shops and stores.
Cost per ft. cube of one block of shops and maisonettes 3s. 5½d.
Cost per ft. cube of one block of maisonettes only 3s. 1½d.
Storey heights between floors: ground floor 10 ft. 6 in.
1st floor 8 ft. 0 in.
2nd floor 8 ft. 0 in.
3rd floor 8 ft. 0 in.

Cost covering whole scheme (27 shop units and 40 maisonettes):

	£	s.	d.
Foundations, all blocks	10,280	5	3
4 blocks of four-storey maisonettes and shops comprising 40 maisonettes and 16 shops, blocks A, B, C and D	86,550	8	9
2 blocks of single-storey shops, comprising 8 shops, blocks E, F	17,203	13	6
1 block of single-storey shops, cafe and launderette, blocks G, H	7,115	12	10
4 blocks of single-storey stores to shops of blocks A, B, C, D forming connecting links to blocks E, F	10,532	9	7
1 single-storey shop, fish and chip shop, block J	1,188	2	0
2 blocks of garages	2,082	11	11
Boiler house and fuel store	8,543	17	3
Site works and external services	10,850	6	4
	154,347	7	5
Savings	4,125	5	3
Gross total	150,222	2	2

FLOOR AREAS

Ground floor area of shops and stores	3160 sq. ft.
Ground floor area of tenants' stores	269 sq. ft.
Ground floor area of communal staircase and entrance	347 sq. ft.
Floor area of maisonettes	8571 sq. ft.
Tank room	95 sq. ft.
Total floor area of one block of maisonettes, shops and stores	12,442 sq. ft.

Note: cost comments on this scheme will be published in next week's JOURNAL.

SITE ORGANIZATION

Site labour and equipment: A general foreman was permanently employed on the site, with individual charge hands in bricklaying, carpentry and plumbing, working directly under his control. A ganger was also employed in charge of excavations, concreting and site works. Site transport was carried out by means of ½ ton capacity diesel dumpers and lifting plant consisted of two high-speed hoists and one scaffold fitted crane.

Sub-letting: plastering and glazing were sub-let, there being no tradesmen in either group directly employed by the general contractor.

Job management: an incentive scheme was in operation and contact between head office and site was kept through a contracts manager who visited about 3 times per week. Fortnightly site meetings were held and were attended by the job architect, quantity surveyor, resident clerk of works, general contractor's representatives and specialist sub-contractors (when necessary).

CONTRACTORS

Clerk of Works: R. Fulford. *General contractors:* J. G. Grey Ltd. *Sub-contractors—Prestressed precast concrete floors:* Pierhead Ltd. *Bar and fabric reinforcement:* Twisteel Reinforcement Ltd. *Prefabricated roofing:* Benfix Steel Co. Ltd. *Softwood-framed external screens:* Boulton & Paul Ltd. *Prefabricated soil waste and vent pipes:* J. S. Wright & Co. Ltd. *Duct covers and frames:* Broads Manufacturing Co. Ltd. *Ir nmongery:* Lockerbie & Wilkinson (B'ham) Ltd. *Sanitary fittings:* Matterson Huxley & Watson Ltd. and Edwin H. Fryer. *Flush doors:* F. Hills & Sons Ltd. and Gliksten Doors Ltd. *Decorative plywood veneering:* Saro Laminated Wood Products Ltd. *Stone ashlar:* Hornton Quarries Ltd. *Bitumen felt roofing:* William Briggs & Sons Ltd. *Floor and wall tiling:* Coventry Tile Co. Ltd. *Asphalt tanking:* Ragusa Asphalt Paving Co. Ltd. *Rooflights:* Guildford Glass & Metal Works Ltd. *Light oak flooring:* The Granwood Flooring Co. Ltd. *Wood block flooring:* Hollis Bros. Ltd. *Accotile floor tiling:* Premier Tiles (Coventry) Ltd. *Electrical installation:* P. D. Brady. *Heating and hot water installation:* Weatherfoil Heating Systems Ltd. *Gas fittings and fixtures:* West Midlands Gas Board. *Balustrades and handrail:* George Wragge Ltd. *Sliding window installation:* P. G. Allday & Co. Ltd. *Shopfront fitters:* Fredk. G. Plumb & Sons Ltd. *Virtolite and vitroslab cladding:* Glass (Coventry) Ltd. *Television aerial installation:* Antiference Installations Ltd. *Terrazzo work:* Marbolino Co. Ltd. *Decorative exterior wall tiling:* Carter & Co. London Ltd.

STONE | NATURAL SLATE

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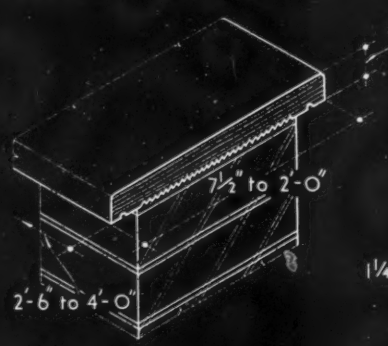

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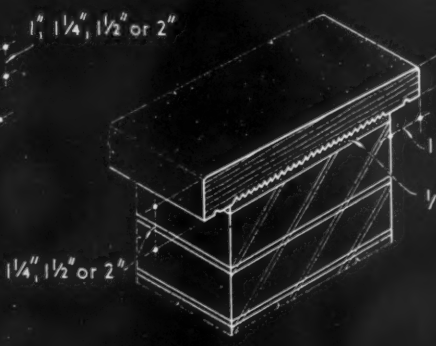

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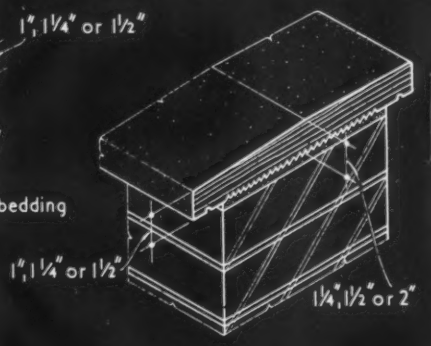
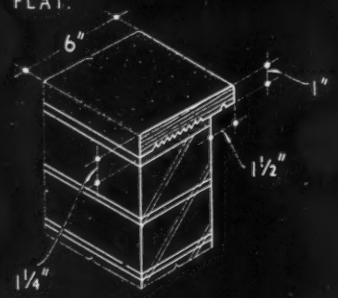
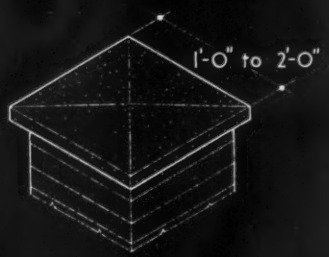


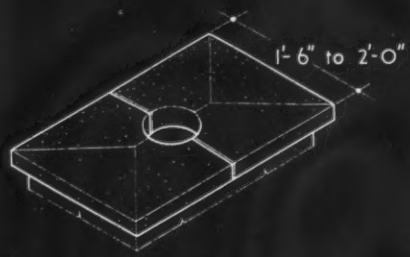
SADDLEBACK.



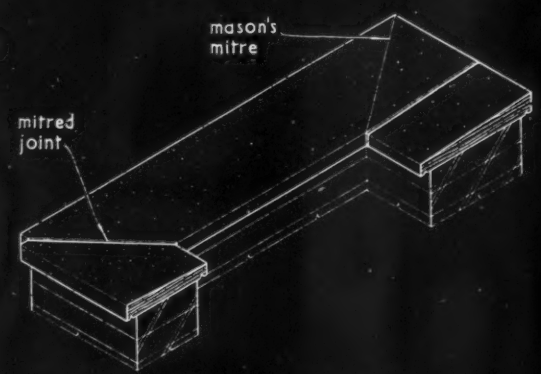
FOR 4½" WALLS.
SLATE COPINGS.



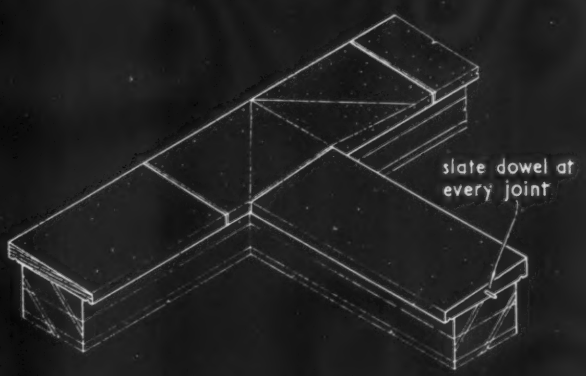
PIER CAPPING.



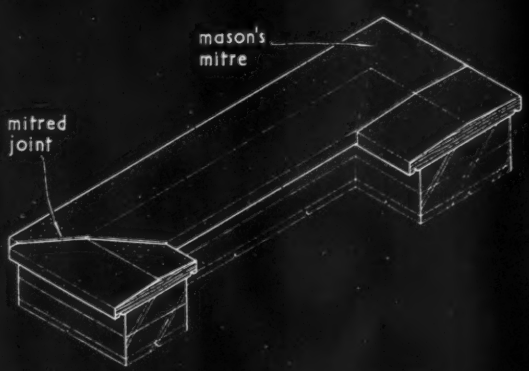
CHIMNEY CAPPING



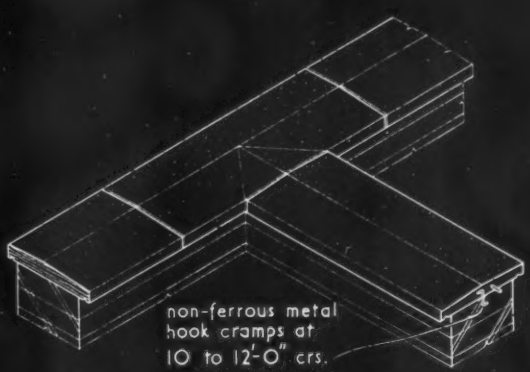
RIGHT-ANGLED JUNCTIONS (weathered).



TEE JUNCTION (weathered).



RIGHT-ANGLED JUNCTIONS (saddleback).
TYPICAL APPLICATIONS.



TEE JUNCTION (saddleback).

·WINCILATE· SLATE COPINGS. Manufacturer: The Bow Slate and Enamel Company Limited.

5.B1 ·WINCILATE· SLATE COPINGS

This Sheet describes Wincilate slate copings and cappings. Slate window sills are described on Sheets 24.Z1 and 24.Z3, slate surrounds for windows on Sheet 24.Z2, and slate cladding on Sheet 5.B2.

Material

As slate is chemically inert, non-porous and does not warp, shrink or rot, it is particularly suitable for copings and cappings. The need for damp-proofing is eliminated. Slate copings are effective where a precise skyline to a building is desired.

Description

Three types of slate coping are available: flat, weathered and saddleback. Each type is available in sizes to suit various wall thicknesses and may overhang the brick or concrete or lie flush with the wall face on one or both sides.

Flat coping: This is scored on the underside to provide a key for bedding and normally polished on the face and edges. Copings and cappings which overhang are grooved on the underside for throating.

Weathered coping: As for flat coping, this is scored on the underside, polished on the face and edges and, if required, grooved for throating. In addition it is weathered in one direction for the entire width. The fall is normally $\frac{1}{2}$ in., but this dimension may be varied.

Saddleback coping: As before, this is scored on the underside, polished on the face and edges and, if required, grooved for throating. In addition it is weathered in two directions from the centre to the edges. As for weathered copings, the fall is normally $\frac{1}{2}$ in., but this dimension may be varied.

For returned ends, the scoring is stopped and both throating and weathering returned. The details on the face of the Sheet illustrate the various standard junctions in use. These may be varied to meet special needs. Normally the copings are made in straight lengths but, subject to certain limiting conditions, may be manufactured circular on plan. Joints between lengths of coping are usually butt joints, but simple rebated joints are also made.

Pier cappings: Standard pier cappings are manufactured, as illustrated, weathered four ways, throated all round and scored on the underside.

Chimney cappings: Standard chimney cappings are similar to pier cappings, but make provision for chimney pots by circular or square apertures. For ease of fixing, these are usually supplied in two or more pieces.

Sizes

As shown on the face of the Sheet, copings are supplied in sizes between 2 ft. 6 in. and 4 ft. 0 in. in length and, unless otherwise requested, will be manufactured in random sizes within these dimensions. The only exceptions are the junction pieces which are made of sufficient length to keep the joints between slate pieces away from the junctions: these sizes cannot, in the normal way, be increased. Pier and chimney cappings are made to specific sizes required, not usually exceeding 2 ft. 0 in. in width. The apertures for chimney pots are varied according to requirements and the cappings may be designed with as many apertures as are necessary.

Fixing

Slate copings should be fixed on $\frac{1}{2}$-in. solid mortar bed (1 : 3 cement/sand). The joints between slate pieces should be as tight as possible (i.e. $\frac{1}{8}$ in.) and pointed with a mastic. Pieces should be dowelled together by means of slate circular dowels at each joint. At approximately every 10 or 12 ft. 0 in., a $\frac{3}{16}$-in. non-ferrous hook cramp should be used (see face of Sheet) in addition to the dowels which can be placed slightly off-centre. The cramps should be 2 in. or 3 in. long to be effective.

The copings may be supplied drilled for cramps and dowels and the latter also supplied if required. Dowel and cramp fixing may also be used with chimney cappings but are not usually required for pier cappings.

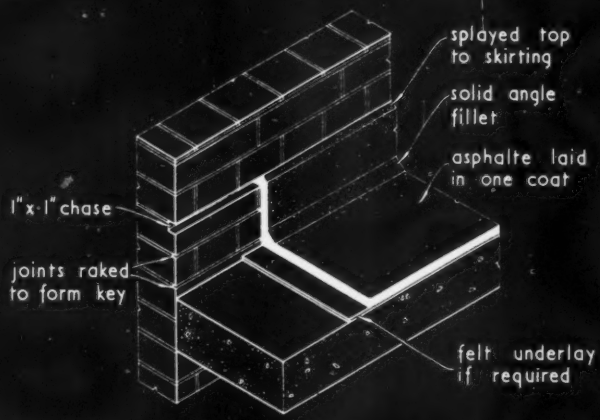
Finish

The slate used for the manufacture of copings and cappings is specially selected for the uniformity of its natural blue-grey colouring. Exposed surfaces are polished smooth.

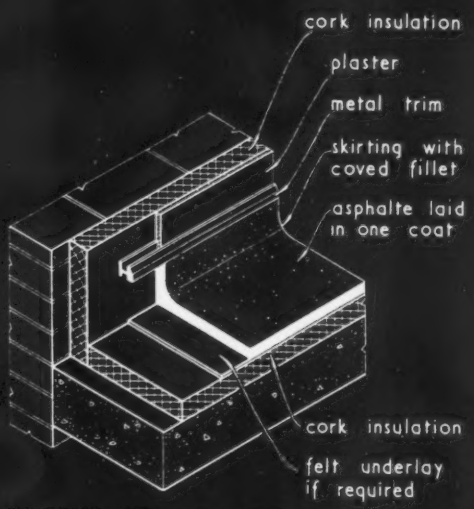
Compiled from information supplied by:
The Bow Slate and Enamel Company Limited.
Address : British Railways Bow Depot, Old Ford Road, Bow, London, E.3.
Telephone : Advance 2203-5.

FLOOR FINISHES | ASPHALT

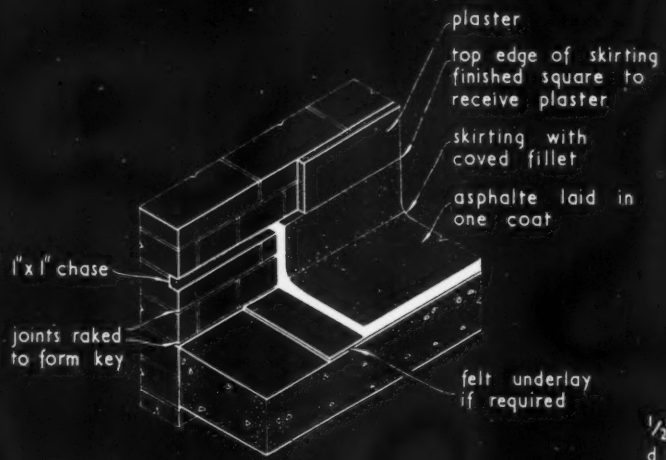
The Architects' Journal Library of Information Sheets 608. Editor: Cotterell Butler, A.R.I.B.A.



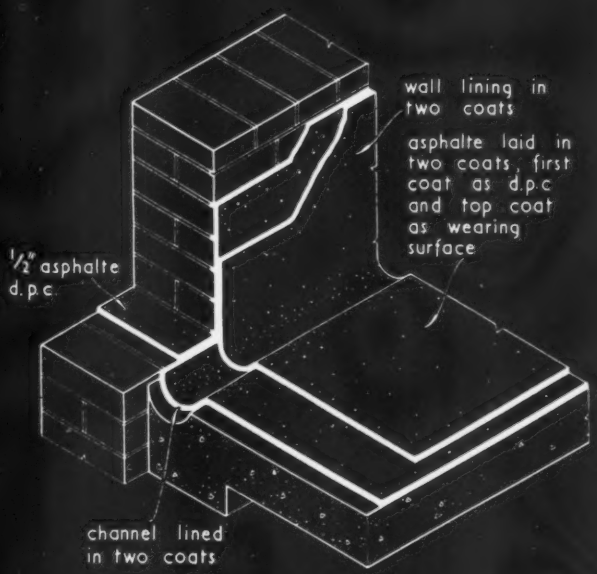
SKIRTING TO BRICK WALL 1.



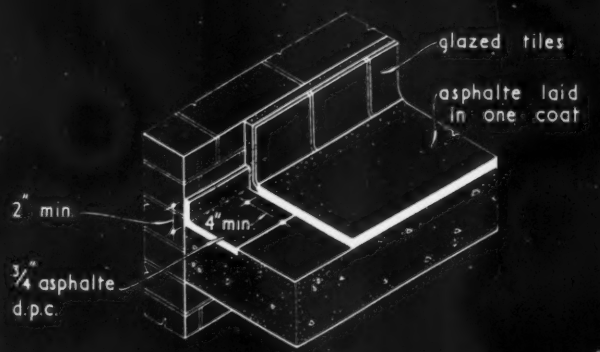
SKIRTING TO INSULATED FLOOR AND WALL.



SKIRTING TO BRICK WALL 2.



FLOOR, CHANNEL AND WALL LINING.



ASPHALTE FLOOR WITH TILED SKIRTING.

ASPHALTE FLOORING. Manufacturer: Val de Travers Asphalte Ltd.

19.D1 ASPHALTE FLOORING

This Sheet is one of a series on asphalte. It deals with the use of asphalte for flooring and paving. Sheet 12.F1 describes the material as used in building construction and other Sheets in the series deal with specific applications in damp-proofing and tanking and in roofing.

General

Asphalte floors and pavings can be laid in a wide variety of situations as the material can be specially prepared for differing conditions of wear, temperature and contact with chemicals, etc. The different grades that are available are given on Sheet 12.F1, which should be read in conjunction with this Sheet. Coloured asphaltes and special finishes are also obtainable.

The material can be laid over most types of sub-floor provided they are structurally sound, even if they are worn. It only takes a few hours to cool and is then ready to receive traffic, therefore it can be laid in sections during working hours or overnight. It is readily applied around projections, recesses and upstands without breaking the continuity of the surface. It provides a jointless floor covering that is resilient, non-dusting and hygienic and proof against rot and vermin. Where repairs become necessary or alterations are to be carried out, an area can be relaid, the new material joining in perfectly with the old without the use of a bonding agent.

Asphalte can also be used to provide an underlay for other floor coverings, e.g. linoleum, cork, rubber, and beneath tiles or wood blocks as a damp-proof membrane.

Laying

Asphalte floors are usually laid in one coat and the thickness varies according to the amount of wear they are to withstand. Underlays of felt may be used where required. Coloured asphalte is generally applied for light duty floorings in one coat ⅝ in. thick on a felt underlay. Where a heavier duty flooring is required it can be applied in one coat ⅝ in. thick over a base coat of black asphalte ⅜ in. thick.

The grade of asphalte for any flooring application must be carefully selected and the contractor should be supplied with the following information, particularly with regard to industrial floors:

(1) Type of traffic, including average loads to be carried by wheeled conveyors, type of wheels and width of treads.

(2) Type and approximate maximum weight of standing loads.

(3) Nature, concentration and temperature of oils or chemicals liable to come in contact with the floor.

(4) Maximum and minimum temperatures (°C.) anticipated.

(5) Provision for washing down.

Three of the drawings on the face of the Sheet show floors where the asphalte has been carried up the face of the wall to form a skirting. In two cases, it has been tucked into a chase cut in the brickwork, and in the third, which shows floor and wall insulated with cork, the skirting is finished with a metal trim.

The drawing at the bottom right of the Sheet shows a floor with a surrounding channel combined with a d.p.c. This is necessary where the floor will require frequent washing down. Finally, at the bottom left an example is given where asphalte flooring is used in conjunction with a tiled skirting.

Colours

Light duty, medium duty and acid-resistant asphaltes are obtainable in shades of brown or red. Grey, buff and green mixtures can be produced, but they are more expensive.

Finish

The floor surface can be given a polished, matt or special non-slip finish.

Maintenance

Industrial floors should be washed down frequently with soap and hot water or, if necessary, washing soda may be used in place of soap to remove accumulation of grease and dirt. Thorough rinsing with clean water is essential after this operation. Domestic, decorative and coloured asphalte floors should be washed in the same manner and, when dry, polished with an approved polish. It is, however, recommended that the advice of the asphalte contractor on cleaning be obtained. For large areas, the use of a sweeping powder which imparts no gloss may be advocated.

Compiled from information supplied by:

Val de Travers Asphalte Ltd.

Head Office : Val de Travers House, 21/22 Old Bailey, London, E.C.4.
Telephone : City 7001 (10 lines).
Works : Sun Wharf, Creekside, Deptford, London, S.E.8.
Telephone : Tideway 2611.
Branches : Birmingham, Canterbury, Exeter, Glasgow, Lincoln, Liverpool, Manchester, Newcastle.

NOTE.—Throughout this series of Sheets the spelling asphalte *has been adopted to comply with this manufacturer's usage.*

working detail

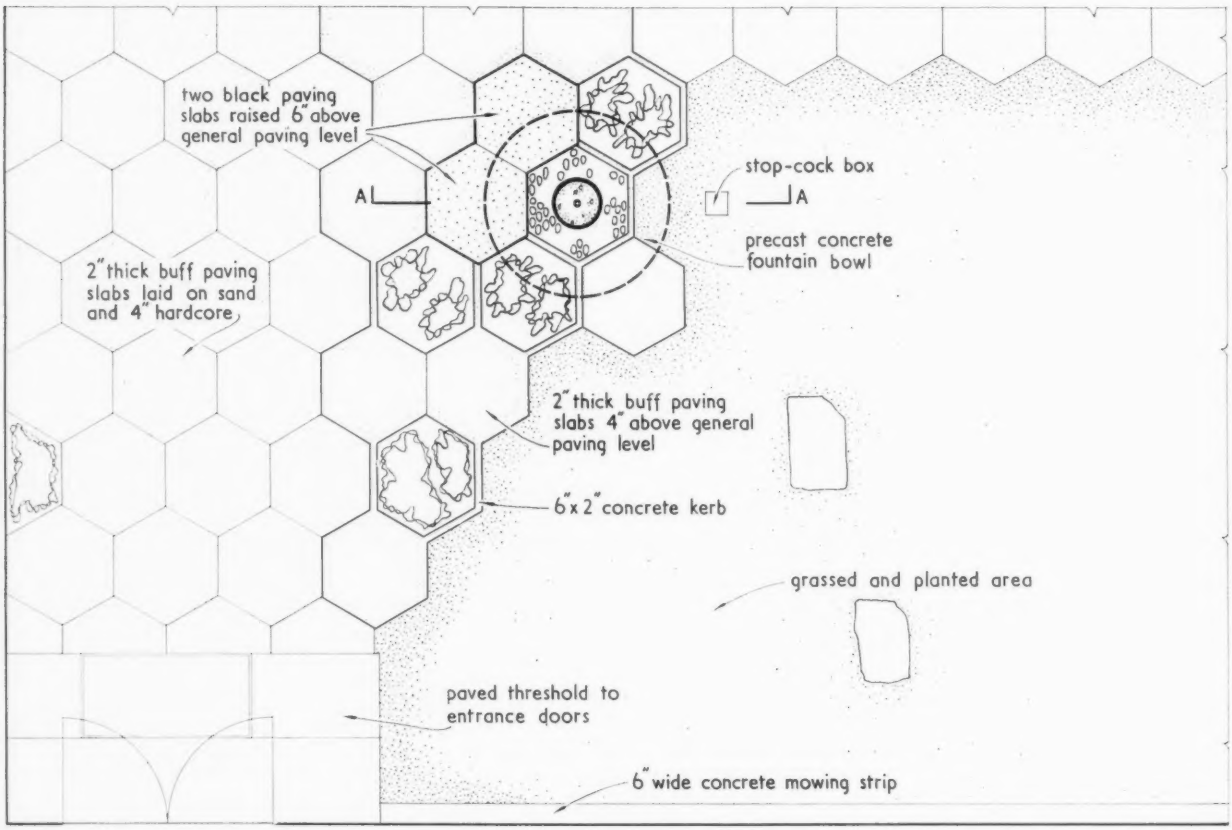
FOUNTAIN: SCHOOL AT COVENTRY

Designed by the Chief Architect, M.O.E. in association with the City Architect, Coventry; Peter Newnham and Dargan Bullivant, architects-in-charge

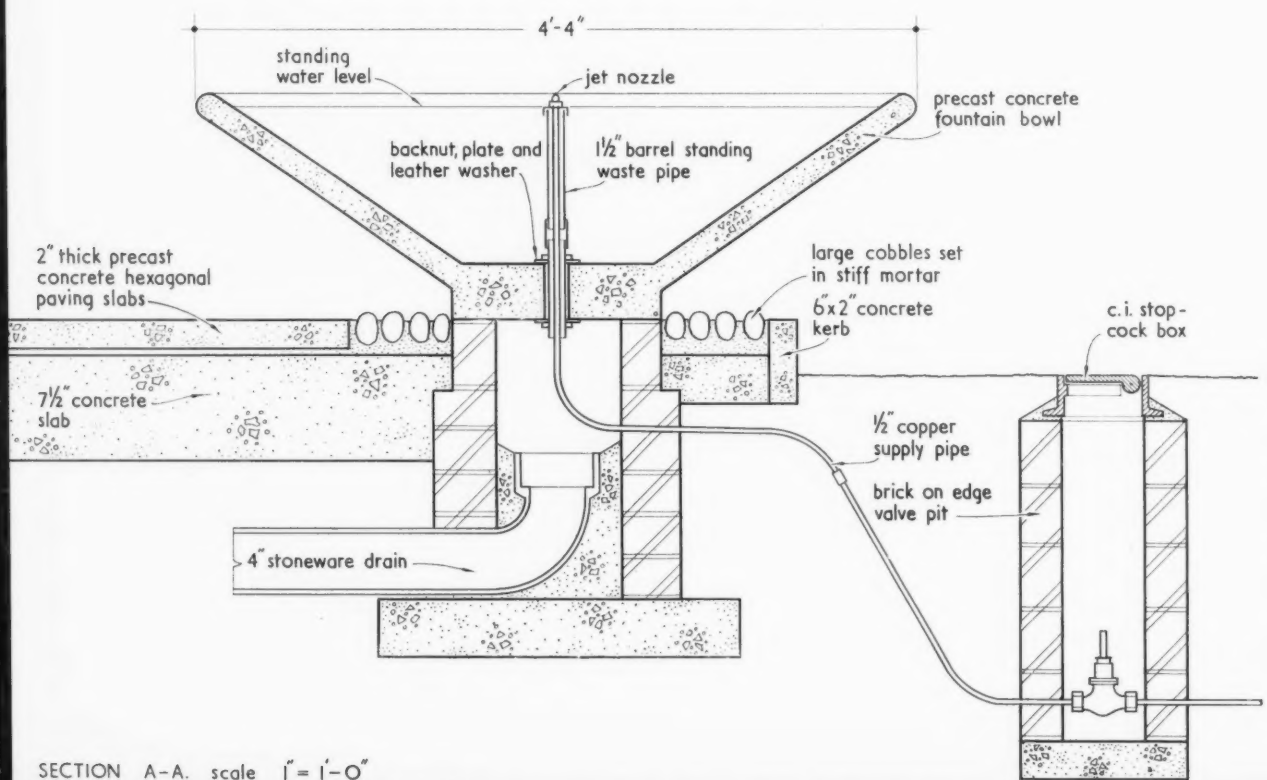
Though the strong light diminishes differences of tone in the photograph, the precast concrete hexagonal paving slabs are in three colours: black, buff and grey. Only the raised slabs rest on a concrete base; the remainder are laid on 1 in. thick 1:3 cement-sand mortar on 4-in. hardcore. The kerbs are of 6-in. by 2-in. section and, where not cast in with the main foundation slab, are held in place by a haunched concrete foundation. A detail of interest on the fountain itself is the incorporation of the overflow in the vertical column containing the jet nozzle.

FOUNTAIN: SCHOOL AT COVENTRY

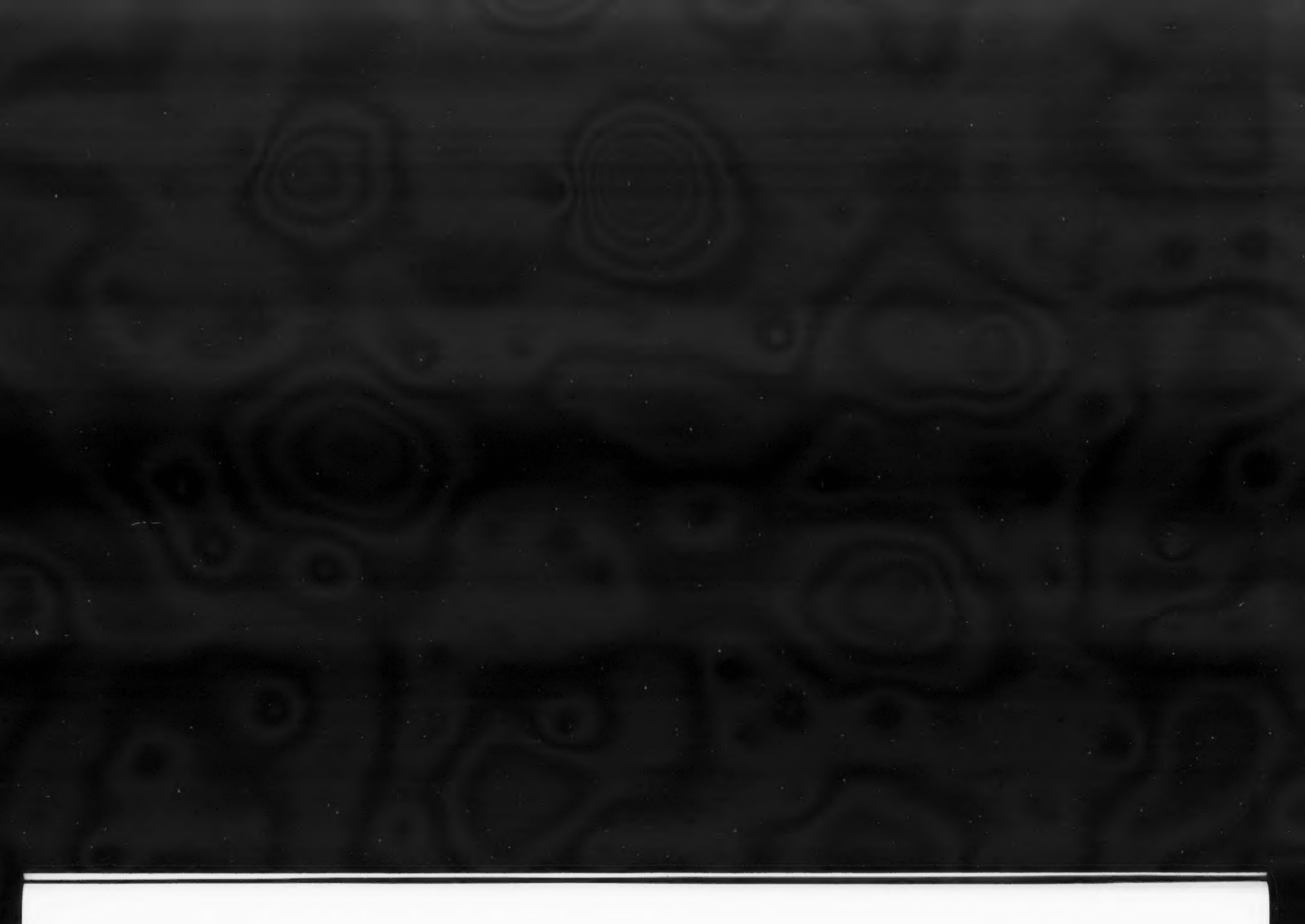
Designed by the Chief Architect, M.O.E. in association with the City Architect, Coventry; Peter Newnham and Dargan Bullivant, architects-in-charge



PART PLAN OF COURT. scale 1/4" = 1'-0"



SECTION A-A. scale 1" = 1'-0"



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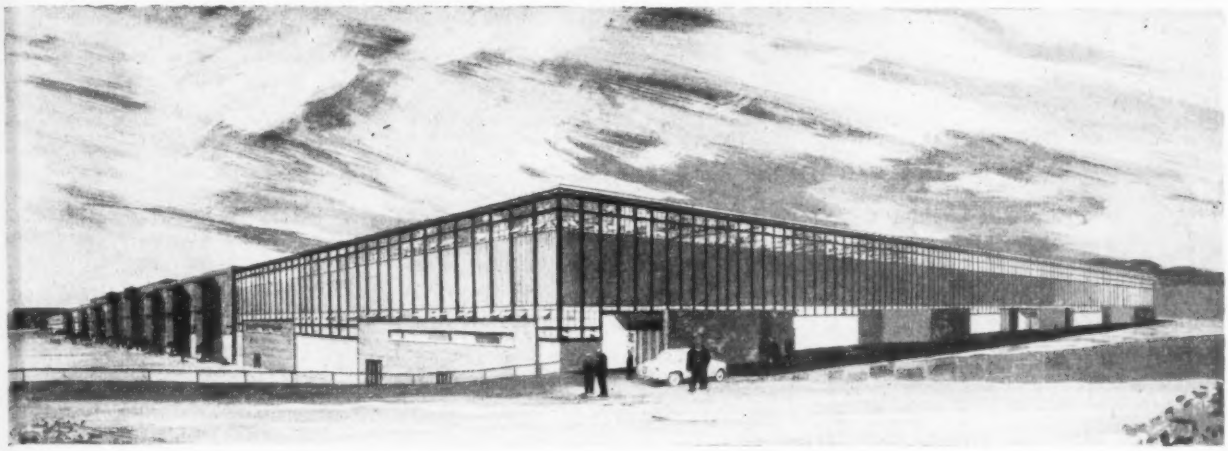
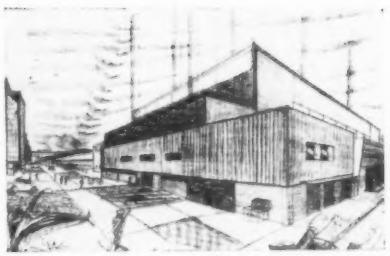
EXTENSION TO VAUXHALL FACTORY AT LUTON





This extension of the Vauxhall Motors factory at Luton consists of a new press shop, assembly shop and panel stores, all contained within one building, and was designed by Howard, Souster and Fairbairn. The total floor space provided is approximately 1½ million sq. ft. and, in addition, there are various ancillary buildings, such as boiler house (right), mix building and metal baler house. The main construction is of steel frame with reinforced concrete basements to the press shop and assembly shop portions. Aesthetically, the main problem in the design was to endeavour to relieve the feeling of immense bulk as presented by the overall grouping and yet to express the functional uses of the different sections of the building. To achieve this, the external cladding is of light weight dry construction, contrasted with large areas of glazing. The first site excavation was begun October, 1955, and production installation started in January, 1957.

TECHNICAL SECTION INDEX FOR 1956

An alphabetical index covering special article and Information Centre items published in the Technical Section during the twelve months ended December 31, 1956, is being prepared. Readers who wish to have a copy—it is free of charge—should complete the form below and post it to the Technical Editor, THE ARCHITECTS' JOURNAL, *not later than March 11, 1957. This form will not be acknowledged.*

Please send me the Information Centre Index for 1956:

Name
(Block letters)

.....

Address
(Block letters)

.....

.....

AJ 21.2.57

Announcements

PROFESSIONAL

Geoffrey Bazeley and Barbary, F/F.R.I.B.A., of 15/16, Alverton, Penzance, and 1, Church Street, St. Austell, have opened a new office at 5, Portland Square, Plymouth (telephone Plymouth 66224), where they will be pleased to receive trade catalogues, etc.

Alan C. Turner, DIPL.ARCH., A.R.I.B.A., announces that he has taken Robert A. Kitching, DIPL.ARCH., A.R.I.B.A., into partnership. The practice will continue at 20, Stone Street, Gravesend, Kent (telephone Gravesend 6996) under the title of Turner & Kitching, A/A.R.I.B.A.

W. S. Horsfall, F.I.A.S., F.I.ARB., quantity surveyor and arbitrator, has changed his address to Barclays Bank Chambers, 2, Birley Street, Blackpool.

Keith P. Roberts, L.R.I.B.A., wishes to announce that he has transferred his main office from 2/4, Upper Dagnall Street, St. Albans to 17, Verulam Road, St. Albans, Herts, and his London office from 21, Woodstock Street, W.1, to 16, Brook Street, W.1.

TRADE

In the AJ for December 27, on page 922, R. B. Hellard referred to a resin bonded sand tile with a 4-mm. hardwood veneer finish. This was manufactured by Aero Research Ltd., of Duxford, Cambridge, and was called an "Ardux" tile. As from January 1, 1957, manufacture of this tile ceased, to enable its production to be changed to a mechanical method, so that the manufacturers can meet the increased demand which is anticipated. It should be in production again by mid-summer.

Nettle Accessories Ltd., of Harper Road, Wythenshawe, announce that due to the rapidly increasing demand for their festoon lighting equipment, they have decided to form a new company to deal exclusively with this section of their range of products. For this they have appointed D.R. Illuminations Ltd., of Leestone Road, Wythenshawe, Manchester, 22, and all future enquiries and orders (except export) should be sent to this address.

Expandite Ltd., of Chase Road, N.W.10 have recently inaugurated a new Technical Development Department. J. W. Babbs, B.SC., A.P.I., has been appointed Technical Development Manager and A. B. Kozlowski, B.SC., Chief Development Chemist.

McKechnie Brothers Ltd., of Birmingham (Metals Division), have pleasure in announcing that L. Hewitt has been appointed London Area Manager (Sales) and H. Hollingworth Midland Area Manager (Sales).

Air Control Installations Ltd., of Ruislip, Middlesex, have opened a new branch office at Cross House, Westgate Road, Newcastle-upon-Tyne, 1 (telephone 28861).

Merediths Ltd., of 11, Grosvenor Gardens, S.W.1, announce that N. G. M. Waters has been appointed a director.

Correction

It was incorrectly stated in the AJ for February 7, that F. R. Bottle assisted C. F. Epril and Associates, architects for the new furniture showrooms of the Times Furnishing Co. Ltd. at Southend-on-Sea. They were in fact solely assisted by Murray Simons, A.R.I.B.A. The general contractors were Bovis Ltd. Their name was inadvertently omitted from the list of contractors and sub-contractors.

Architect: Thomas Mitchell, B.Sc., A.R.I.B.A.

A thousand dinners a day off CATESBYS lino

In Maidenhead's new super-market a thousand shoppers a day buy their groceries off Catesbys lino. No wonder! For this is an easy and pleasant way to shop—but one that creates special problems of flooring. This is where Catesbys come in with their unsurpassed experience of lino and lino laying—sixty years of it! Next time you think of lino think of Catesbys to do it for you.

Catesbys LINOLEUM CONTRACTS

TOTTENHAM COURT ROAD • LONDON W.1 • MUSEUM 7777

CLASSIFIED ADVERTISEMENTS

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

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

Public and Official Announcements

25s. per inch; each additional line, 2s.

URBAN DISTRICT COUNCIL OF CORBY
SENIOR ARCHITECTURAL ASSISTANT

Applications are invited for the appointment in the department of the Engineer and Surveyor of SENIOR ARCHITECTURAL ASSISTANT, Grade A.P.T. V (£814 17s. 6d.—£994 5s.), commencing at £814 17s. 6d. per annum.

Applicants must be Registered Architects of at least five years' experience, have considerable experience in design, construction and contract administration as applied to contracts for Public Buildings and local authority housing.

The provisions of the Local Government Superannuation Acts, 1937-1953, will apply to this appointment.

Housing accommodation will be made available to the successful candidate, if married.

Forms of application may be obtained from the undersigned, to whom they should be returned not later than the first post on Saturday, 2nd March, 1957. Testimonials will be required only from applicants selected for interview.

G. B. BLACKALL,
Clerk of the Council.

Council Offices,
Corby,
Northants.
6th February, 1957. 5290

CUMBERLAND COUNTY COUNCIL
COUNTY ARCHITECT'S DEPARTMENT

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

(*a*) ASSISTANT ARCHITECT: A.P.T. Grade VI (£902—£1,107). Must be A.R.I.B.A. with experience of large contracts and supervision of staff.

(*b*) ASSISTANT ARCHITECT: A.P.T. Grade V (£814 17s. 6d.—£994 5s.). Must be A.R.I.B.A. with experience of handling large contracts.

(*c*) ASSISTANT ARCHITECT: A.P.T. Grade IV (£727 15s.—£907 2s. 6d.). Must be A.R.I.B.A. preferably with Schools experience.

(*d*) ARCHITECTURAL ASSISTANT: A.P.T. Grade III (£656—£784 2s. 6d.).

Application forms and further particulars may be obtained from John H. Haughan, F.R.I.B.A., County Architect, 15, Portland Square, Carlisle, to whom completed applications should be returned not later than Monday, 11th March, 1957.

G. N. C. SWIFT,
Clerk of the County Council.
5292

BOROUGH OF LUTON
TECHNICAL STAFF

Applications are invited for SENIOR QUANTITY SURVEYING ASSISTANT, Salary A.P.T. V (£814 17s. 6d.—£994 5s.). Fully qualified, preferably R.I.C.S., with experience of taking off for large contracts of all types and settlement of final accounts.

Housing accommodation available. N.J.C. Service Conditions.

Application forms from Borough Architect, Town Hall, Luton, returnable by 4th March, 1957. 5275

HUYTON-WITH-ROBY URBAN DISTRICT COUNCIL
ARCHITECTURAL ASSISTANT, A.P.T. Grade II
(Salary £609 17s. 6d.—£691 17s. 6d.)

Applicants should have had a sound architectural training and several years' office experience. The person appointed will be required to assist with the design of new type houses, flats, shops and community centres.

Housing accommodation will be considered.

Applications, stating age, qualifications, experience, present position and salary, together with the names of two referees must be sent in envelopes endorsed "Architectural Assistant" to the Architect, Architectural and Housing Department, "Grasscroft," Archway Road, Huyton, Lancs, by the 1st March, 1957.

H. E. H. LAWTON,
Clerk of the Council.

Council Offices,
Huyton. 5271

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies exist for ARCHITECT/PLANNERS (salaries up to £817). Tasks include 3-dimensional planning within London's eight major Comprehensive Development Areas (including Stepney/Poplar, the South Bank, and Elephant and Castle) and other Redevelopment Areas.

The work includes the preparation of comprehensive layouts covering all the important areas of new public and private development throughout the County, and covers the whole field of planning technique.

Particulars and application form from Architect (AR/EK/ATP/1), County Hall, S.E.1. (907)
4x43

PADDINGTON BOROUGH COUNCIL
SENIOR ASSISTANT ARCHITECT
(A.P.T. VII—£1,029 7s. 6d. to £1,260)

Candidates should have had practical experience of building construction; design and supervision of housing schemes (including multi-storey reinforced concrete framed structures); supervision and control of drawing office staff; and be acquainted with local government procedure. Some experience in town planning would also be an advantage. A.R.I.B.A. essential. Starting salary according to experience. National conditions of service. Applications stating age; qualifications; present and past appointments with dates and salaries; experience; and names and addresses of three referees, should reach me by 4th March, 1957 (quoting A.327).

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington Green, W.2.
8th February, 1957. 5340

SURREY COUNTY COUNCIL

Applications invited for the following appointments:—

1. ASSISTANT QUANTITY SURVEYOR, Grade IV, £727 15s.—£907 2s. 6d. p.a. plus £30 London allowance. Must be A.R.I.C.S.

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

Full details, present salary and three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 5368

CITY ARCHITECT'S OFFICE, MANCHESTER

Applications are invited for the following appointments on the permanent staff:—

SENIOR ASSISTANT ARCHITECT. Salary A.P.T. Grade V, £814 17s. 6d. to £994 5s. per annum.

SENIOR ASSISTANT ARCHITECT. Salary A.P.T. Grade IV, £727 15s. to £907 2s. 6d. per annum.

SENIOR ELECTRICAL ENGINEER. Salary A.P.T. Grade IV, £727 15s. to £907 2s. 6d. per annum.

SENIOR HEATING, VENTILATING AND MECHANICAL ENGINEER. Salary A.P.T. Grade IV, £727 15s. to £907 2s. 6d. per annum.

SENIOR STRUCTURAL ENGINEER. Salary A.P.T. Grade IV, £727 15s. to £907 2s. 6d. per annum.

STRUCTURAL ENGINEERING ASSISTANT. Salary A.P.T. Grade I/II, £543 5s. to £691 17s. 6d. per annum.

Forms of application may be obtained from the City Architect, P.O. Box 488, Town Hall, Manchester 2. Returnable by 7th March, 1957. 5364

CITY OF SHEFFIELD
CITY ARCHITECT'S DEPARTMENT

Applications are invited from suitably qualified persons for the undermentioned appointments on the staff of the City Architect, Mr. J. L. Womersley, F.R.I.B.A., M.T.P.I.

(*a*) GROUP LEADER ARCHITECT, Grade A.P.T. VII (£999 7s. 6d. to £1,230).

(*b*) ASSISTANT ARCHITECT, Grade S.C. (£707 5s. to £861).

Both posts are in the Education and General Section which has an extensive programme including new schools, and public buildings of all kinds.

Candidates for post (*a*) will be required to design and supervise to completion major works of this nature, and applicants for post (*b*) should have had experience on similar works.

Applications stating post applied for, age, education and training, qualifications and experience, present and past appointments together with the names and addresses of two referees should reach me by Monday, 4th March, 1957.

JOHN HEYS
Town Clerk.

Town Hall,
Sheffield, 1. 5356

COUNTY BOROUGH OF SOUTHPORT
TEMPORARY CLERK OF WORKS

Applications are invited for the temporary appointment of a Clerk of Works to supervise the erection of a Girls High School.

The wage is £15 15s. per week. Candidates must have a sound knowledge of all trades, setting out, levelling, and experience in erection of traditional public buildings. The appointment is subject to the Local Government Superannuation Acts.

Application forms may be obtained from the Borough Architect and Town Planning Officer, 99/105, Lord Street, Southport. Forms to be returned not later than Saturday, 9th March, 1957.

R. EDGAR PERRINS,
Town Clerk.

Town Hall,
Southport. 5316

COUNTY BOROUGH OF BOOTLE

Applications are invited for the following appointments:—

(*a*) ASSISTANT ARCHITECT, Grade A.P.T. III (£656—£784 2s. 6d. per annum).

(*b*) ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£609 17s. 6d.—£691 17s. 6d. per annum).

Preference will be given to those applicants having experience in the design and construction of schools.

Application forms obtainable from the Borough Surveyor, Town Hall, Bootle, are returnable by Friday, 8th March, 1957.

HAROLD PARTINGTON,
Town Clerk.
5333

PADDINGTON BOROUGH COUNCIL
ASSISTANT QUANTITY SURVEYOR
(A.P.T. IV—£757 15s. to £937 2s. 6d. p.a.)

Applications are invited for the above-mentioned post at a salary within the scale shown according to qualifications and experience. Candidates must be Intermediate R.I.C.S. (Quantities Sub-Division) and should be experienced in estimate preparation, working up, abstracting, billing, site measurement, and working up to final account stage. Applications stating age, qualifications, experience, present and past appointments, names and addresses of three referees, should reach the undersigned (quoting A.328) by 4th March, 1957.

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington Green, W.2. 5341

SURREY COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT

Applications are invited for the following appointment in the South-East Surrey Area Planning Office at Reigate:—

AREA PLANNING OFFICER, Grade B (£1,185 × £55—£1,405). (The Area covers one Borough, two Urban Districts and two Rural Districts with a total population of 160,000).

Applicants should be Corporate Members of the Town Planning Institute and applications, together with the names of two persons to whom reference may be made, should be lodged with the Clerk of the Council not later than 2nd March, 1957.

W. W. RUFF,
Clerk of the Council.

County Hall,
Kingston-upon-Thames. 5343

BIRMINGHAM REGIONAL HOSPITAL BOARD
ARCHITECTURAL STAFF APPOINTMENTS
(Donald A. Goldfinch, E.R.D., F.R.I.B.A., Dip.T.P., Architect to the Board)

(*a*) SENIOR ASSISTANT ARCHITECT: £975—£1,160. Applicants must be registered architects having passed requisite examinations.

(*b*) TWO ASSISTANT ARCHITECTS: £680—£985. Applicants must be registered architects having passed requisite examinations.

(*c*) ARCHITECTURAL ASSISTANTS: £510—£710. Required to give technical assistance to professional officers. Inter-R.I.B.A. or equivalent essential.

(*d*) ASSISTANT QUANTITY SURVEYORS (THREE): £680—£985. Final R.I.C.S. or recognised qualifications of I.Q.S. or I.A.A.S. and experience in taking off and preparing bills of quantities and settling final accounts essential.

(*e*) QUANTITY SURVEYING ASSISTANT (ONE): £510—£710. Inter-R.I.C.S. or equivalent essential.

(*f*) ASSISTANT SURVEYOR (BUILDING): £680—£985. For extensive surveys of existing hospital properties and preparation of record plans. Required to build up record library of some 250 hospitals located in counties of Warwickshire, Staffordshire, Worcestershire, Shropshire and Herefordshire. Consideration given to applicant's wishes in regard to location of office within region. Applicants should be corporate members of the Royal Institute of Chartered Surveyors (Buildings Division) and neat and expeditious draughtsmen with sound experience in measurement and plotting of building surveys to all scales.

(*g*) SURVEYING ASSISTANT (BUILDING): £510—£710. To assist in survey of existing hospital buildings and preparation of record plans. Intermediate R.I.C.S. (Buildings Division) essential, must be neat draughtsman with experience in measurement and plotting of surveys to all scales.

All appointments superannuable.

Apply naming two referees to Secretary, 10, Augustus Road, Birmingham, 15. 5358

COUNTY BOROUGH OF BIRKENHEAD
BOROUGH ARCHITECT'S DEPARTMENT

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

ASSISTANT QUANTITY SURVEYOR, A.P.T. VI (£902—£1,107).

ASSISTANT QUANTITY SURVEYOR, A.P.T. V (£814 17s. 6d.—£994 5s.).

ARCHITECTURAL ASSISTANT, A.P.T. IV (£727 15s.—£907 2s. 6d.).

ARCHITECTURAL ASSISTANT (JUNIOR), A.P.T. II (£609 17s. 6d.—£691 17s. 6d.).

ARCHITECTURAL ASSISTANT (JUNIOR), A.P.T. I (£543 5s.—£625 5s.).

ARCHITECTURAL ASSISTANT (JUNIOR), Higher General Division.

The appointments are superannuable subject to satisfactory medical examination and to one month's notice on either side.

Forms of application obtainable from the Borough Architect's Department, 3, Conway Street, Birkenhead.

Closing date for applications, 28th February, 1957.

DONALD P. HEATH,
Town Clerk.

Town Hall, Birkenhead. 5321

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Assistants required for building control work in BUILDING REGULATION DIVISION to examine applications under the London Building Acts and analogous legislation with regard to compliance with the Council's constructional and fire-guarding standards.

Starting salaries up to £817 according to qualifications and experience.

Particulars and application form from the Architect (AR/EK/BCW/3), County Hall, S.E.1. (139)
5182

BOROUGH OF CROSBY
ARCHITECTURAL ASSISTANT

Applications are invited for the appointment of Architectural Assistant in the Borough Engineer's Department at a salary within the range A.P.T. II to Special Grade (£609 17s. 6d.—£861) according to qualification and experience.

Housing accommodation available upon satisfactory proof of need.

Applications, on forms obtainable from the Borough Engineer and Surveyor at the address below, must be delivered suitably endorsed not later than noon on the 6th March, 1957.

Canvassing directly or indirectly will be a disqualification.

HAROLD O. ROBERTS,
Town Clerk.

Town Hall,
Waterloo, Liverpool, 22.
5th February, 1957. 5333

NOTTINGHAMSHIRE COUNTY COUNCIL
COUNTY PLANNING DEPARTMENT
APPOINTMENT OF ASSISTANT ARCHITECT

Applications are invited for the appointment of Assistant Architect. Salary £814 17s. 6d. to £994 5s. per annum. Applicants must be qualified Architects with experience in the design and grouping of buildings. Experience in the redevelopment of built-up areas and the preparation of housing layouts would be an advantage.

Further particulars from County Director of Planning, Shire Hall, Nottingham, to whom applications must be submitted not later than 7th March, 1957.

A. R. DAVIS,
Clerk of the County Council.
5317

COUNTY BOROUGH OF ROCHDALE

Applications are invited from suitably qualified candidates for the appointment of a QUANTITY SURVEYOR in the Architects' Department of the Borough Surveyor's Office, at a salary on Grade A.P.T. V (£795—£970). The commencing salary will not necessarily be the minimum of the Grade and will be fixed according to ability and experience.

Applications will be considered from persons who have quantity surveying experience, but have not passed final examinations. Such appointment would be on the above salary but for a period not exceeding two years. If, however, qualification is obtained during the two years, the appointment would then become permanent.

The appointment will be subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts, and to passing a medical examination Canvassing is prohibited and applicants must disclose whether they are related to any member or Senior Official of the Council.

Housing accommodation will be provided by the Council in appropriate circumstances.

Applications stating age, qualifications, training and experience, together with the names and addresses of two persons to whom reference can be made, and endorsed "Quantity Surveyor," must be delivered to the Borough Surveyor, Town Hall, Rochdale, not later than 9 a.m. on Saturday, 9th March, 1957.

K. B. MOORE,
Town Clerk.
5320

LIVERPOOL REGIONAL HOSPITAL BOARD

Applications invited for the following appointments to the staff of the Department of the Regional Architect, T. Noel Mitchell, B.Arch., F.R.I.B.A.

(1) **ASSISTANT ARCHITECT**
Salary scale £680 to £985 per annum. Applicants must be Registered Architects having passed the requisite examinations.

(2) **DRAUGHTSMAN**
Salary scale £415 (at age 21 or over) to £615 per annum. Applicants must have had suitable training including three years' technical experience in architectural drawing.

(3) **ASSISTANT QUANTITY SURVEYOR**
Salary scale £680 to £985 per annum. Applicants must hold Corporate Membership of Royal Institution of Chartered Surveyors (Sub-Division III Quantities) and have had experience in preparation of Bills of Quantities and in checking final accounts.

(4) **ASSISTANT BUILDING SURVEYOR**
Salary scale £680 to £985 per annum. Applicants must hold Corporate Membership of Royal Institution of Chartered Surveyors (Sub-Divisfon III(b)) and have had experience in detailing and setting out of buildings, roads and services and in land surveying, levelling and contouring.

The starting salaries will be dependent on age and experience. In each case the appointment will be subject to the National Health Service (Superannuation) Regulations.

Appointments (1), (2) and (3) will be to established posts and will be subject to one calendar month's notice on either side. Appointment (4) (Assistant Building Surveyor) will be primarily for duties in connection with the construction of a new 1,000 bedded mental deficiency hospital at Greaves Hall, Banks, near Southport, and will be of limited duration, extending to probably five years, and will be terminable at any time within that period by 3 calendar months' notice.

Applications stating the post applied for, and age, qualifications, details of present and previous appointments and salary and the names and addresses of three referees (two technical) to me by 28th February, 1957.

VINCENT COLLINGE,
Secretary to the Board.
19, James Street, Liverpool, 2. 5303

COUNTY BOROUGH OF SOUTHAMPTON
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the following permanent appointments:—

(*a*) SENIOR ASSISTANT PLANNING OFFICER Grade V-VI (£814—£1,107).

(*b*) SENIOR ASSISTANT PLANNING OFFICER Grade V (£814—£994).

(*c*) SENIOR ASSISTANT PLANNING OFFICER Grade IV (£727—£907).

(*d*) ASSISTANT PLANNING OFFICER Special Grade (£707—£861).

(*e*) PLANNING ASSISTANT Grade II (£609—£691).

Applicants for (*a*) and (*b*) should be members of the Town Planning Institute and hold a qualification either in architecture or landscape architecture. Duties offer considerable scope for preparing and executing schemes of urban landscaping or architectural aspects of planning particularly with Central Area reconstruction in addition to normal planning work.

Candidates should possess appropriate qualifications, and for senior posts state housing needs.

Application forms from the Borough Architect, Civic Centre, Southampton. Closing date 11th March, 1957. 5373

CITY OF SALFORD
CITY ENGINEER AND SURVEYOR'S DEPARTMENT

Applications are invited from persons having appropriate qualifications and experience for the undermentioned posts in the office of the City Engineer and Surveyor (G. A. McWilliam, B.Sc., A.M.I.C.E., A.R.I.C.S., M.I.Mun.E.).

(*a*) ASSISTANT ARCHITECT (Three), Grade A.P.T. VI. £902—£1,107.

(*b*) ARCHITECTURAL ASSISTANT (Two), Grade A.P.T. I-III. £543—£784 2s. 6d.

Applicants should hold at least the minimum qualification appropriate to the grade as set out in the National Scheme of Conditions of Service. Facilities for professional training are given to holders of junior posts and the work of the Department affords experience in a wide variety of municipal engineering and architectural projects carried out for all Committees of the City Council.

Housing accommodation will be provided in approved cases.

Appointments will be subject to the provisions of the Local Government Superannuation Acts, the National Scheme of Conditions of Service and the passing of a medical examination.

Applications stating age, qualifications, and details of experience together with the names of two referees, should be sent to the City Engineer and Surveyor, Town Hall, Salford 3, Lancs, to arrive not later than Monday, 11th March, 1957.

Applicants must indicate by reference letter and designation the post for which they are applying.

R. RIBBLESDALE THORNTON,
Town Clerk.

Town Hall,
Salford, 3, Lancs. 5345

NATIONAL COAL BOARD
NORTHERN (N. & C.) DIVISION

Applications are invited for the appointment of an Architect Grade II at a salary up to £900 per annum in the Divisional Architect's Branch, Longbenton, Newcastle-upon-Tyne. Applicants must be associates of the R.I.B.A. with two or more years' experience in the preparation of working drawings and details of good class work.

Applications stating age, training, and details of past and present appointments should be submitted to Staff Department, National Coal Board, Northern (N. & C.) Division, Whitley Road, Longbenton, Newcastle-upon-Tyne, 12, by 8th March, 1957. Please quote A2. 5361

GOVERNMENT OF CYPRUS
TOWN PLANNING OFFICERS, PLANNING AND HOUSING DEPARTMENT

To be responsible for the administration of a District Planning Office; assist in the working up of outline and detail plans; liaison with, and advice to, local authorities on Planning and Building Bye-Law matters. Permanent and pensionable appointments. Salary range £1,677 to £2,101 p.a. Point of entry according to qualifications and experience. Free passages for officers and families up to five persons in all. Quarters, if available, at low rent 3½ days leave for each month of resident service.

Candidates must be A.M.T.P.I., preferably with secondary related qualification. Experience in carrying out Planning Surveys and preparation of plans and development.

Write Director of Recruitment, Colonial Office, London, S.W.1, giving briefly age, qualifications and experience, quoting BCD 62/17/03. 5379

SPALDING RURAL DISTRICT COUNCIL
APPOINTMENT OF TECHNICAL ASSISTANT ARCHITECT'S DEPARTMENT

Applications are invited from persons having a sound and practical knowledge of achitectural and quantity surveying work for the above appointment. Salary A.P.T. II (£609 17s. 6d. to £691 17s. 6d).

Appointment subject to the Local Government Superannuation Acts, 1937 to 1953 and to a satisfactory medical examination.

The Council are prepared to let a house in the Rural District to the successful applicant.

Applications giving the names of two persons to whom reference may be made to reach the undersigned not later than 6th March, 1957.

G. S. ASHWORTH.
Clerk of the Council.

Rural Council Offices,
Priory Road,
Spalding, Lincs 5330

BOROUGH OF STOCKTON-ON-TEES
APPOINTMENT OF ASSISTANT QUANTITY SURVEYOR

Applications are invited for the above appointment in the Borough Architect's Department. Salary within Grade A.P.T. IV (£727 15s.—£907 2s. 6d.).

Candidates should have passed the final examination of the R.I.C.S., or be of equivalent standard.

Forms of application may be obtained from the Borough Architect, 28, The Square, Stockton-on-Tees, and must be returned to him by the 28th February.

Housing accommodation available if the successful applicant is married.

The department is responsible for all new building work for the Corporation and the person appointed will be required for the first instalment of the Municipal Buildings, an extensive school building programme, the re-development of the Central Area of the Borough, and the construction of approximately 500 houses and flats per year and ancillary buildings.

Canvassing disqualifies. Relationship to be disclosed.

JOHN B. HAWORTH,
Town Clerk.

Barclays Bank Chambers,
49, High Street,
Stockton-on-Tees. 5325

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD

The Board are engaged on a number of new building projects including a new hospital at Welwyn and the following staff are required to fill new posts on the establishment created to deal with the increased work :—

(*a*) **ASSISTANT ARCHITECT.** Good experience of design and construction necessary preferably in hospital work. Salary scale £680 × £25 (3) × £30 (2) × £35 (1) × £30 (1) × £35 (3)—£985 plus £20—£40 London weighting.

(*b*) **ARCHITECTURAL ASSISTANTS.** To give technical assistance to professional officers. Salary scale £510 (age 21 and over) × £20 (5) × £30 (1) × £20 (1) × £25 (2)—£710 plus £20—£30 London weighting.

Applicants for (*a*) above must be Associate Members of the R.I.B.A., and for (*b*) must have Intermediate R.I.B.A. Commencing salary above minimum may be paid to successful candidates according to appropriate experience since qualification. Posts are subject to Whitley Council conditions and are superannuable.

Apply, stating which post and giving age, qualifications (with dates) and experience, with names of two referees, to Secretary, North West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, by 4th March. 5327

CITY OF BRADFORD
SENIOR TOWN PLANNING ASSISTANTS

Applications are invited for the appointment of Two Senior Town Planning Assistants (Posts Nos. 8 and 14) at a salary in accordance with A.P.T. IV (£727 15s.—£907 2s. 6d.). These posts are superannuable.

Post 8. The successful candidate will be required in connection with the layout of large Corporation Housing Estates and in connection with schemes of development as the result of slum clearance. Experience in the design and siting of multi-storey flats is desirable. Applicants should be A.M.T.P.I. and/or A.R.I.B.A., A.M.I.Mun.E. or A.M.I.C.E.

Post 14. The successful applicant will be required to have experience in dealing with applications for development for new housing, industrial and commercial building and advertisement control. Should be A.M.T.P.I. or equivalent and should preferably in addition be M.I.Mun.E., A.M.I.C.E. or A.R.I.B.A.

All applicants should have completed their National Service No housing accommodation can be provided by the Corporation.

Applications on forms to be obtained from the City Engineer and Surveyor, Town Hall, Bradford, 1 (quoting post No) together with three testimonials must be received by the undersigned by 4th March, 1957.

W. H. LEATHEM,
Town Clerk.

Town Hall,
Bradford, 1. 5332

LANCASHIRE COUNTY COUNCIL
DEPUTY DIVISIONAL PLANNING OFFICER.

salary A.P.T. Grade VII (£999 7s. 6d.—£1,230) required at the Divisional Planning Office, Manchester

Candidates should possess a recognised qualification in architecture, civil engineering, surveying and/or planning. They should have wide experience in the preparation of Development Plans and in the control of development, and should possess a sound knowledge of town and country planning legislation.

The successful applicant will be expected to own and use a car in the execution of his duties for which a travelling allowance will be paid.

Applications stating age, qualifications, present appointment, experience and two referees to the County Planning Officer, East Cliff County Offices, Preston, by 4th March, 1957. 5329

LONDON COUNTY COUNCIL
ARCHITECT'S DEPARTMENT

Vacancies for ARCHITECTS Grade III (up to £987), and ARCHITECTURAL ASSISTANTS (up to £818), for widespread construction programme which includes houses, blocks of flats, schools of all types, and various public and industrial buildings. Application forms and particulars from Architect (AR/EK/A/2), The County Hall, S.E.1. (1189) 4544

BEDLINGTONSHIRE URBAN DISTRICT COUNCIL
APPOINTMENT OF ARCHITECTURAL ASSISTANT

Applications are invited for the established post of Architectural Assistant in the Engineer and Surveyor's Department.

Salary in accordance with Grade II of the National Scale of Salaries (£609 17s. 6d.—£691 17s. 6d.).

Candidates should have had previous experience in housing and other architectural works.

The appointment will be subject to the Local Government Acts, 1937 and 1953 and to the National Scheme of Conditions of Service. The successful candidate will be required to pass a medical examination.

Housing accommodation will be considered.

Applications, stating age, qualifications and experience and accompanied by the names of two referees, should reach the undersigned not later than 8th March, 1957.

F. S. FORSTER,
Clerk to the District Council.

Council Offices,
Bedlington.
12th February, 1957. 5344

BOROUGH OF BRIDGWATER
BOROUGH ARCHITECT'S DEPARTMENT

Applications are invited for the post of ASSISTANT ARCHITECT on A.P.T. Grade V (£814 17s. 6d. rising to £994 8s. p.a.). Applicants must be A.R.I.B.A. with good experience in Housing and General Municipal Works.

Housing accommodation will be considered for the successful applicant, if married.

The appointment is subject to the Local Government Superannuation Acts 1937-1953, the National Scheme of Conditions of Service, a satisfactory medical examination and termination by one month's notice on either side.

Applications, stating age, qualifications and particulars of present and past appointments and experience, and also giving the names and addresses of two referees, are to be sent to the Borough Architect, Town Hall, Bridgwater, by 14th March, 1957.

H. A. CLIDERO,
Town Clerk.

Town Hall,
Bridgwater.
9th February, 1957.

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD
SENIOR ASSISTANT ARCHITECT

Applications are invited from Associate Members of the R.I.B.A. for the post of senior assistant architect. The Board are engaged on a number of new building projects including a new hospital at Welwyn.

Salary scale £975 × £35 (1) ×£30 (5)—£1,160 plus £40—£50 London weighting. Applicants must have had considerable experience in design and construction preferably in hospitals and associated buildings.

Apply, giving age, qualifications and experience, together with names of two referees, to Secretary, North West Metropolitan Region Hospital Board, 11a, Portland Place, W.1, by 28th February, 1957. 5323

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

ASSISTANT ARCHITECTS AND SHOPFITTING DRAUGHTSMEN. Co-operative Wholesale Society, Ltd., invite applications for the following appointments: (1) Assistant Architects capable of preparing working drawings from preliminary details. (2) Shopfitting Draughtsmen with experience in Shop Equipment and modernisation of Interiors.

The posts are pensionable, subject to medical examination. Five-day week in operation. Applications, giving age, details of experience and salary required to W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1. 4977

CO-OPERATIVE WHOLESALE SOCIETY LTD. ARCHITECT'S DEPARTMENT, MANCHESTER SHOPFITTING DRAUGHTSMAN required, experienced in shop equipment and modernisation of interiors.

The position calls for the preparation of layouts and perspectives with a modern approach to store fitting problems.

The post is pensionable, subject to medical examination and there is a five-day week in operation.

Applications giving age, details of previous experience and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester 4. 3056

ASSISTANT SURVEYOR
THE REED PAPER GROUP

have a vacancy in their Civil Engineering Dept. at Aylesford, Kent, for a Young Man aged 25/35.

He must have had at least 3 years' experience in a Building Contractor's or Surveyor's Office and be fully conversant with the preparation of estimates for building and Civil Engineering projects, and to be able to carry out all phases of working up in the preparation of accurate Bills of Quantities.

The post is permanent and the work varied and interesting with a good salary and excellent conditions of service including non-contributory pension and house purchase schemes.

Apply with full particulars to: The Group Personnel Officer, Albert E. Reed & Co. Ltd., Larkfield, Nr. Maidstone, Kent. 5349

ARCHITECTS require ASSISTANT: passed R.I.B.A. Intermediate; large scale commercial work. Salary about £520 according to experience. Watson, Johnson & Stokes, 5, Victoria Square, Birmingham, 2. 5029

POST-INTERMEDIATE ASSISTANT required, in large London Office with widely varied practice. Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, London, W.C.1. Telephone HOL 7082. 3152

ARCHITECTURAL DRAUGHTSMEN required for leading firm of Consulting Civil Engineers, Westminster. 5-day week—bonus and pension schemes.—'Phone Mr Simmons ABBey 1122 for appointment. 5209

MORRISON AND PARTNERS require additional Staff for interesting new projects, including one person to take charge of development of new structural system. 5-day week. Salary according to qualifications and experience.—103, Belper Road, Derby. 5169

TAKER-OFF. Applications are invited from experienced and suitably qualified persons. Salary on the scale £850—£1,005, inclusive of L.W., with placing according to age, qualifications and experience. The post is superannuable, subject to medical examination. Five-day week in operation. Applications, stating age, experience, qualifications and salary required to: W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 99, Leman Street, London, E.1. 5157

ARCHITECTURAL ASSISTANT required in busy Office. Applications giving age and experience to F. Tomkinson & Son, Architects, 180, Edleston Road, Crewe. 5299

ASSISTANT required in London practice with qualification either as Architect or Interior Decorator to specialise in the preparation of quick, attractive sketches and coloured perspectives of interior designs for stores, cinemas, public houses, etc. A high standard of draughtsmanship and presentation is required. Write stating experience and salary required to Box 5288.

EXPERIENCED ARCHITECTURAL ASSISTANTS required for contemporary office, salary according to experience. C. H. Elsom, 10, Lower Grosvenor Place, S.W.1. VIC 4304. 5291

ARCHITECTURAL ASSISTANTS, all grades, required in progressive office. Varied and interesting work at home and abroad. Good salary and prospects for Assistants with ability and initiative. Box 5255.

PROGRESSIVE Architectural firm, Midlands, require immediately JUNIOR AND SENIOR ASSISTANTS. Intermediate or Final R.I.B.A. Permanency. Please apply Box 5251.

SIR GILES SCOTT, SON & PARTNER require a qualified and experienced SENIOR ASSISTANT. Write giving particulars of experience and salary to 9, Gray's Inn Square, London, W.C.1. 5243

SOUTH COAST Architects require JUNIOR ASSISTANT with office experience up to Intermediate standard. Box 5249.

SMALL Office N.W. London seeks ARCHITECT. Minimum three years experience. Start £750 p.a. Box 5236.

ARCHITECTURAL ASSISTANT required in City Architect's office. Intermediate standard at least. Good draughtsmanship essential. Full particulars including age and salary required to Vigers & Co., 4, Frederick's Place, E.C.2. 5235

VINCENT BURR & PARTNERS are still expanding and urgently require another ARCHITECTURAL ASSISTANT of approximately Intermediate standard. Great scope for future promotion. Large and varied practice. Salary according to experience. Telephone Museum 2201 for appointment. 5233

N.E. SCOTLAND. Opportunity for recently qualified ARCHITECT as assistant in varied general practice. Write Box 5227.

ARCHITECTURAL ASSISTANT required. Must have attained R.I.B.A. Intermediate standard. Reply giving full particulars to Bernard H. Dale & Partners, 19, Carlton Crescent, Southampton. 5355

ARCHITECTURAL ASSISTANTS required, London. Salaries £509—£650. Write: W. Leslie Jones, High Street, Great Missenden, Bucks. 5362

CLERK OF WORKS required for supervision of building contract in Buckinghamshire, comprising road, sewers and domestic properties for a Benevolent Institution. Apply in writing, stating experience, when free and salary required to Box 5372.

ARCHITECT, County Town, Midlands, requires ARCHITECTURAL DRAUGHTSMAN immediately, must be neat, quick and accurate. Good prospects. Write stating age, salary and experience to Architect, Box 5370.

ARCHITECTURAL ASSISTANT required for the London head office of a major oil company. Should be of Final standard and have passed the Intermediate examination of R.I.B.A. Candidates should have experience of contemporary design and be capable of working independently. A high standard of presentation is required. Good salary. Pension and life assurance scheme; generous sickness benefits; free luncheon vouchers; Social Club. Write giving full details of experience, age and salary required to Box 5369, quoting ref. AA22.

WILLIAM WOOD & SON of Taplow, Bucks, require a young DRAUGHTSMAN or TRAINEE in their Landscape Department. The duties will be to work up rough drawings to finished landscape plans including the development of detail in conjunction with experienced designers. Good prospects for a young man interested in this field. Pensions scheme and 5-day week. Please give full details of career to date and state salary required in first application. 5365

EXPERIENCED and JUNIOR ASSISTANTS required by London Architect. Interesting work on hospitals, schools and laboratories. 5-day week. Write giving details of age, experience and salary required to Box 5363.

WESTERN WELSH OMNIBUS CO. LTD., a substantial omnibus undertaking with headquarters in Cardiff, invites applications for the position of ARCHITECT.

The person appointed will be responsible for the maintenance of the Company's garages, bus stations and offices, and (with or without other professional assistance) for the design and supervision of new building, including alterations. Salary will be in accordance with qualifications and experience.

Applications, with full details of training and experience, should be marked "Confidential" and addressed to the General Manager at 253, Cowbridge Road West, Cardiff, Glam. 5357

ARCHITECTURAL ASSISTANT required immediately for a Bank's Architect's Department in Manchester. Up to Intermediate R.I.B.A. standard. Permanent position after satisfactory probationary period. Contributory pension scheme and staff dining room. Salary £630 at age 27 rising by annual increments to £760 at age 31 and thereafter upon merit. Applicants outside this age range will also be considered. 5371

JUNIOR ARCHITECTURAL ASSISTANT required. Salary £500-£600, according to experience. Baker Street area. Reply stating age and experience to Box 5378.

ASSISTANT required between intermediate and final R.I.B.A. standard for interesting and varied work. Write for interview to Messrs. Lassetter & Judd, L/A.R.I.B.A., Somerset House, Reading, Berks. 5377

JUNIOR ARCHITECTURAL ASSISTANT required with office experience for General Practice. Write full particulars and salary required.—H. Geoffrey Round, A.R.I.B.A., 53, Oxford Street, Weston-super-Mare. 5376

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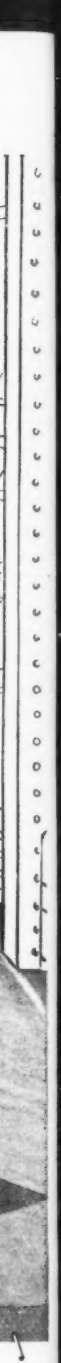

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