ARCHITECT



tandard

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

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CURRENTBUILDING

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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.I. Institute of Landscape Architects, 2, Guilford Place, W.C.1. Mayfair 7086 ILA I of Arb Holborn 0281

Institute of Arbitrators. Hastings House, 10, Norfolk Street Strand, W.C.2. Temple Bar 4071 IOB IQS IR

Institute of Builders. 48, Bedford Square, W.C.1.

Institute of Quantity Surveyors. 98, Gloucester Place, W.1.
Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3. Avenue 6851
Institute of Registered Architects. 47, Victoria Street, S.W.1.
Institute of Structural Engineers. 11, Upper Belgrave Street, S.W.1.

Lead Development Association. Eagle House, Jermyn Street, S.W.1.

Whitehall 7264/4175 IRA ISF LDA

Whitehall 7264/4175 London Master Builders' Association. 47, Bedford Square, W.C.1. Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1. LMBA Museum 3891

Whitehall 7264/4175 MAFF MARS

Ministry of Agriculture, Fisheries and Food. Whitehall Place, S.W.1. Trafalgar 7711

Modern Architectural Research Group (English Branch of CIAM). Secretary:

Trevor Dannatt, A.R.I.B.A., 71, Blandford Street, W.1. Welbeck 4713

Ministry of Education. Curzon Street House, Curzon Street, W.1. Mayfair 9400

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94/98, Petty France, S.W.1.

National Association of Shopfitters. 9, Victoria Street, S.W.1.

National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1. Welbeck 0619

National Council of Building Material Producers. 10 Storey's Gate, S.W.1. Abbey 5111

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NFBTE

NFBTO National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4. Macaulay 4
National Federation of Housing Societies. 12, Suffolk St., S.W.1. Whitehall 10
National House Builders Registration Council. 82, New Cavendish Street, W.1. Macaulay 4451 Whitehall 1693 NEHS

NHBRC Langham 4341 Molesey 1380

National Physical Laboratory. Head Office, Teddington. Molest Natural Rubber Development Board. Market Buildings, Mark Lane, E.C.3. NRDB Mansion House 9383 NSAS National Smoke Abatement Society. Palace Chambers,

NT

National Smoke Abatement Society. Palace Chambers,
Bridge Street, S.W.1. Trafalgar 6838

National Trust for Places of Historic Interest or Natural Beauty.
42, Queen Anne's Gate, S.W.1. Whitehall 0211

Political and Economic Planning.
16, Queen Anne's Gate, S.W.1. Whitehall 7245

Reinforced Concrete Association.
94, Petty France, S.W.1. Abbey 4504

Royal Incorporation of Architects in Scotland.
15, Rutland Square, Edinburgh. PEP RCA RIAS

Royal Institute of British Architects. 66, Portland Place, W.1. Langham 5721
Royal Institution of Chartered Surveyors. 12, Great George Street, S.W.1.
Whitehall 5322/9242 RIBA RICS

RFAC Royal Fine Art Commission. 5, Old Palace Yard, S.W.1. Whitehall 3935 RS

Royal Society. Burlington House, Piccadilly, W.1.
Royal Society of Arts. 6, John Adam Street, W.C.2.
Royal Society of Health. 90, Buckingham Palace Road, S.W.1.
Rural Industries Bureau. 35, Camp Road, Wimbledon, S.W.19. W.
Society of British Paint Manufacturers. Grosvenor Gardens House, Regent 3335 Trafalgar 2366 Sloane 5134 RSH RIB Wimbledon 5101 SBPM Grosvenor Gardens, S.W.1. Victoria 2186

Society of Engineers. 17, Victoria Street, Westminster, S.W.I. Abbey 7244 School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3. SE SFMA Mansion House 3921

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Hon. Sec., Robert Pollock, Town Clerk, Rutherglen SNHTPC SPAB

Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1. Holborn 2646 Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.
Temple Bar 5006 TCPA

TDA Timber Development Association. 21, College Hill, E.C.4. City 4771 Town Planning Institute. 18, Ashley Place, S.W.1.
Timber Trades Federation. 75, Cannon Street, E.C.4.
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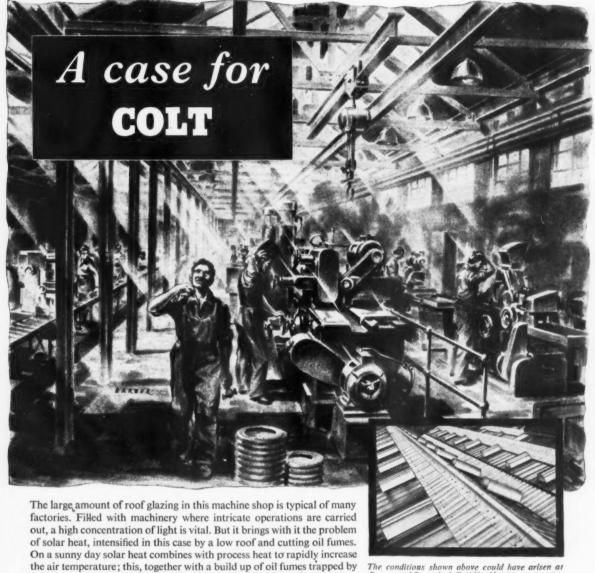
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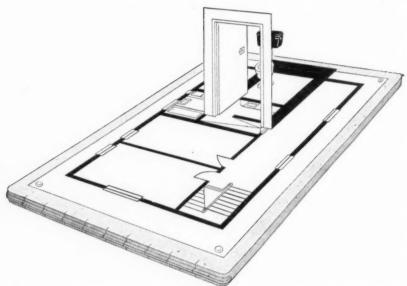
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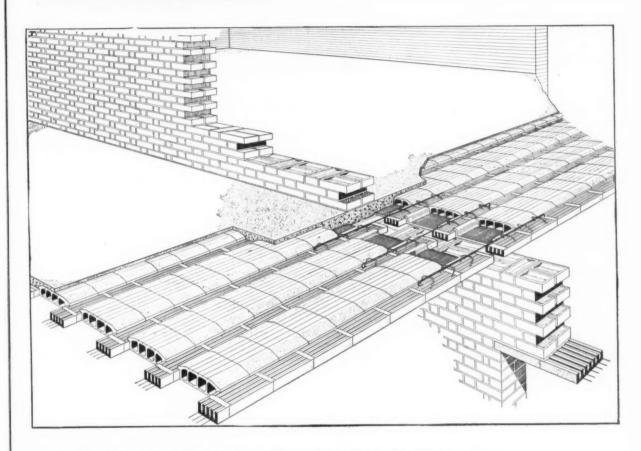
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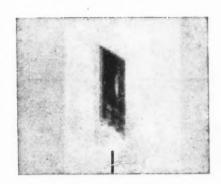
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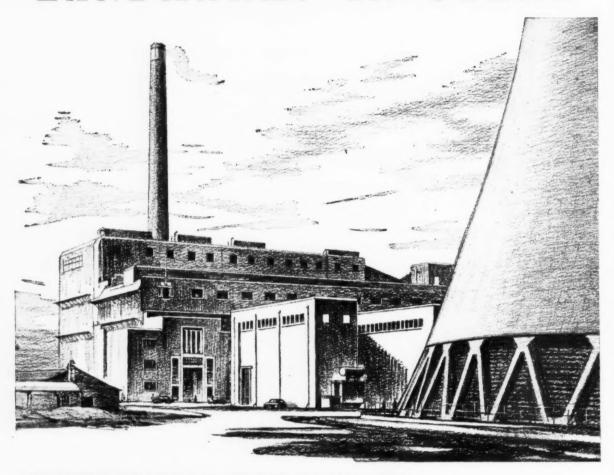
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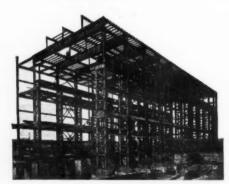
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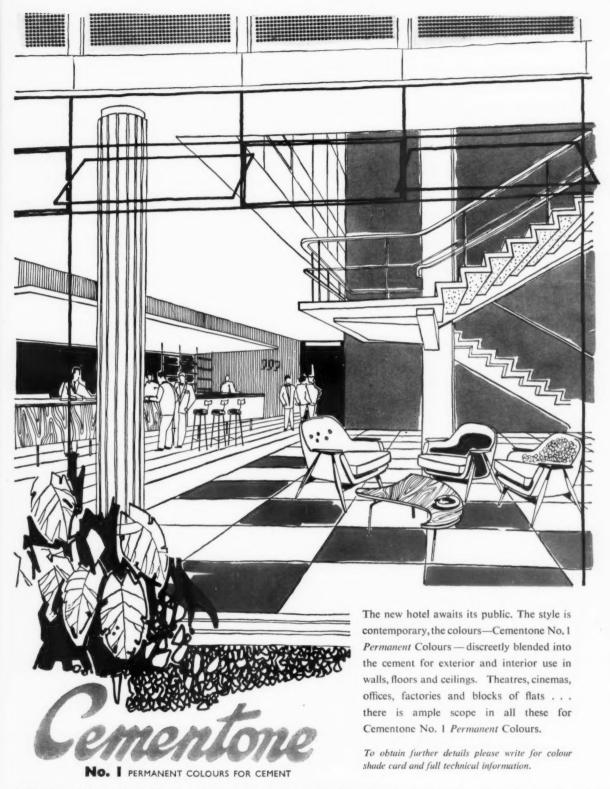
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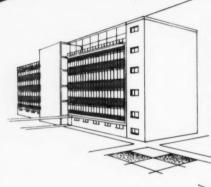


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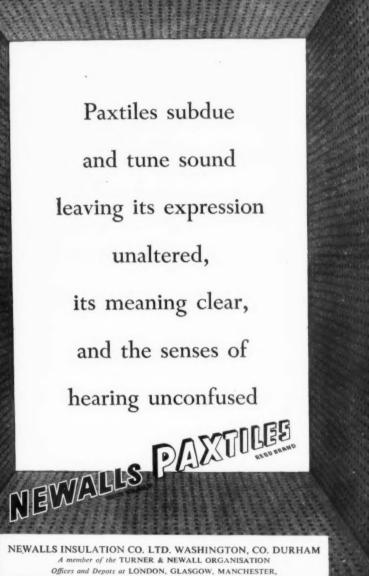
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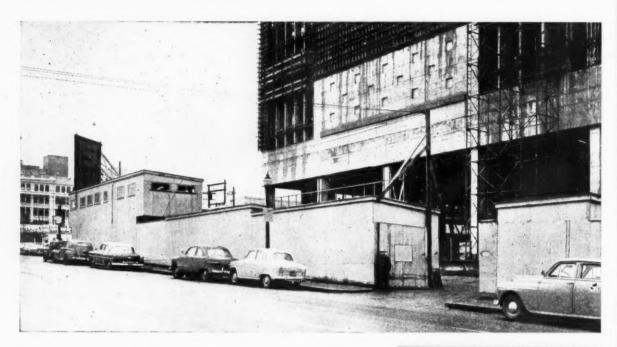
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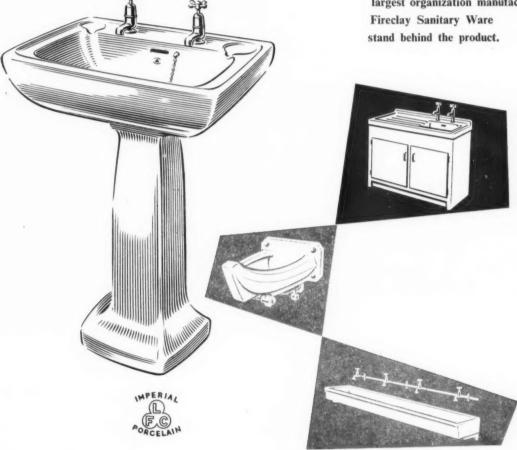
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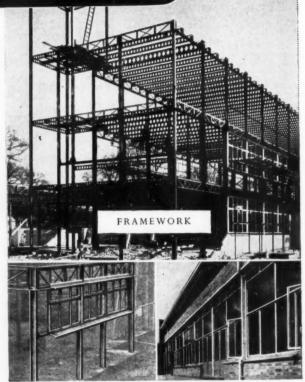
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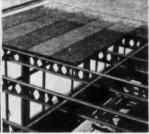


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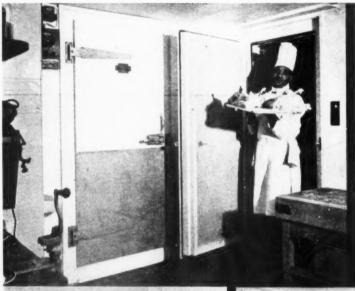
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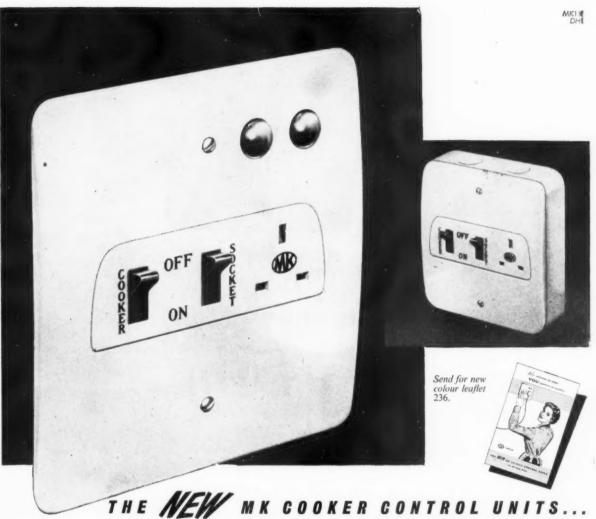
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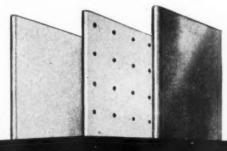
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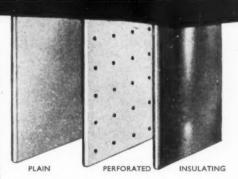
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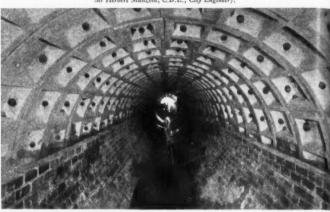
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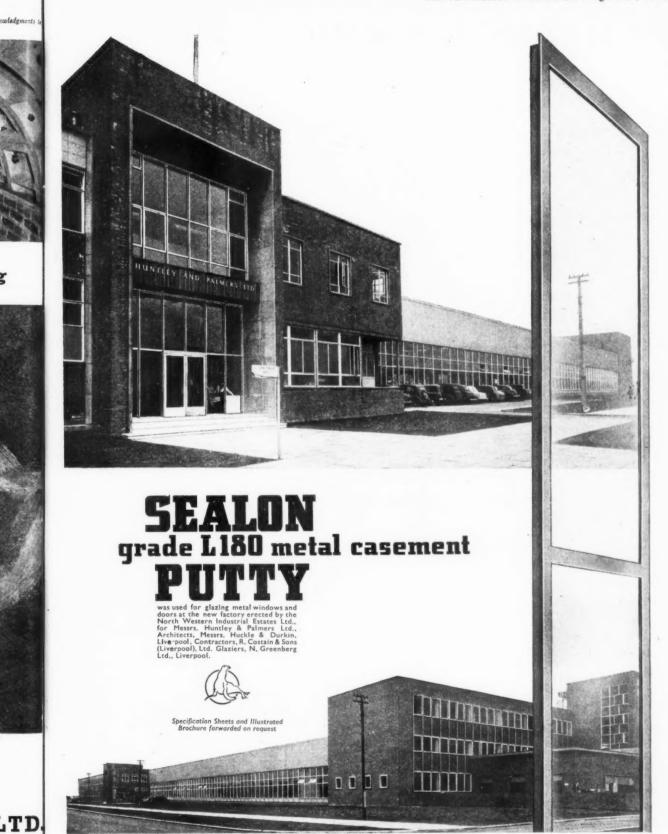
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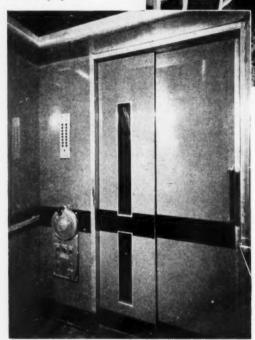
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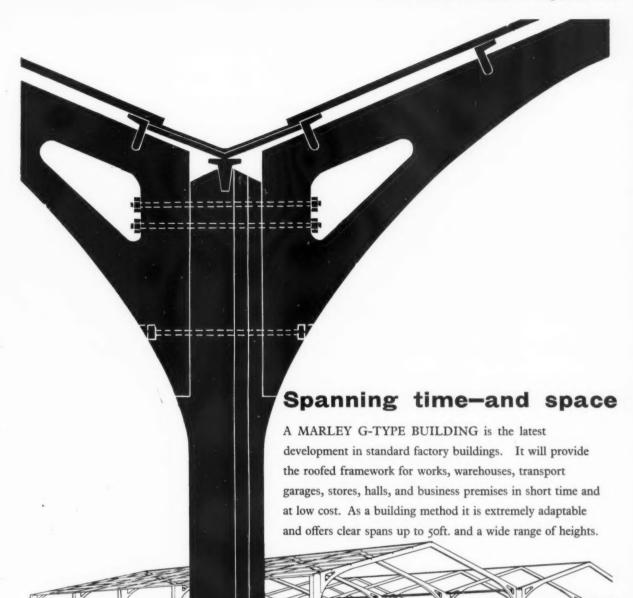


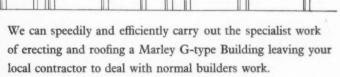
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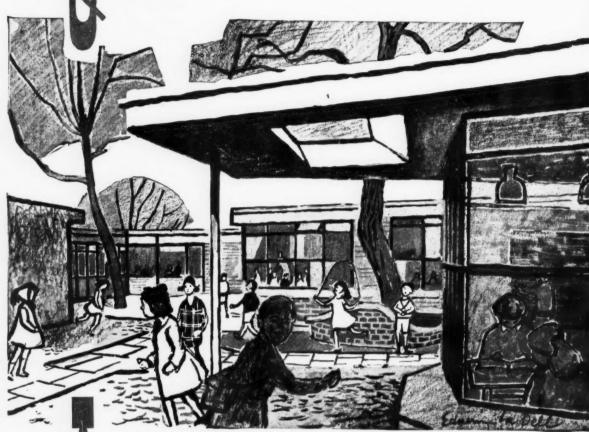
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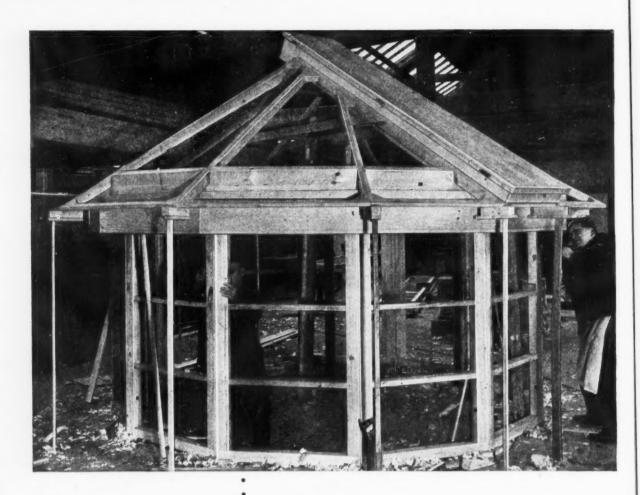
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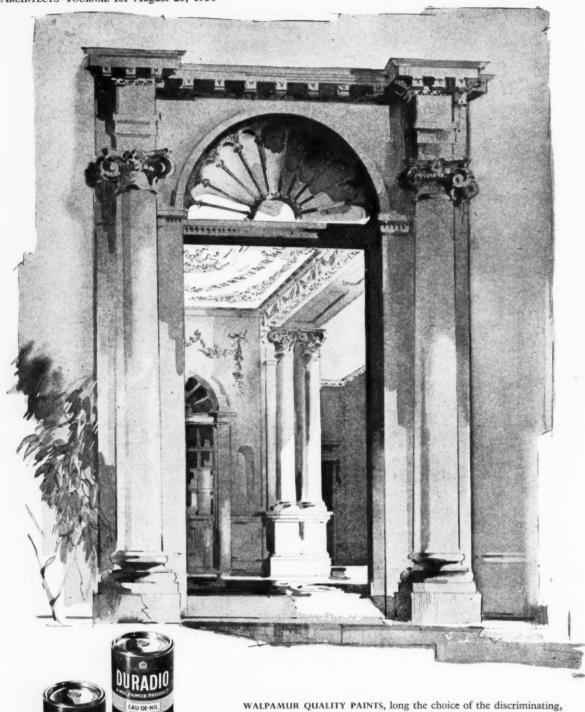
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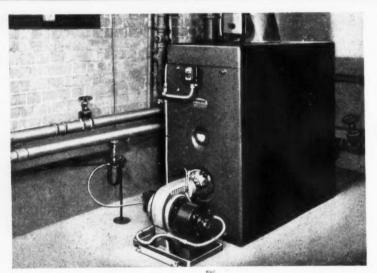
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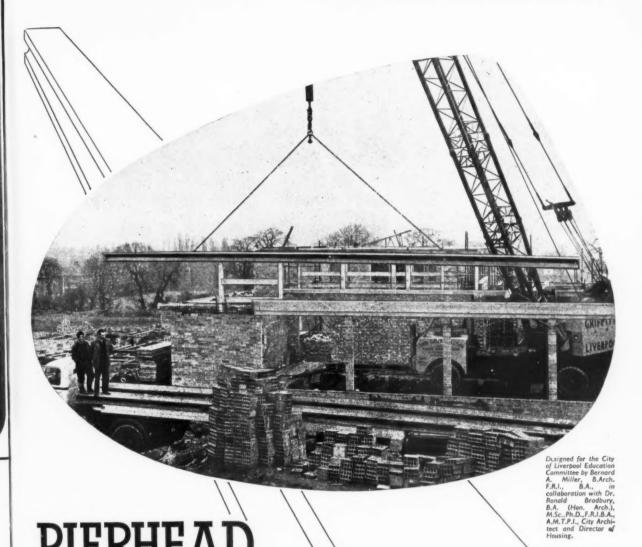
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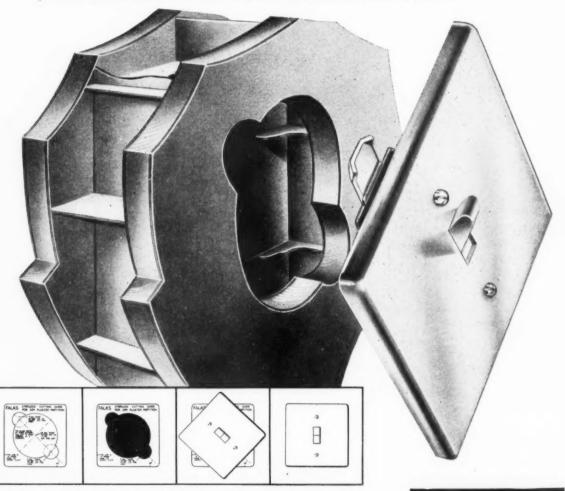
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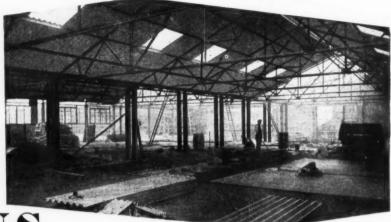
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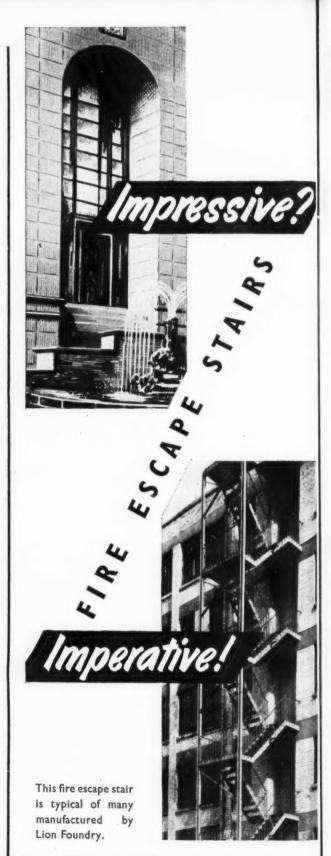
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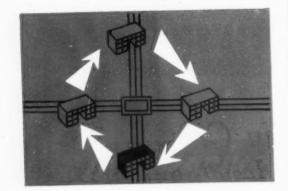
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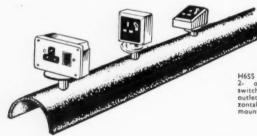
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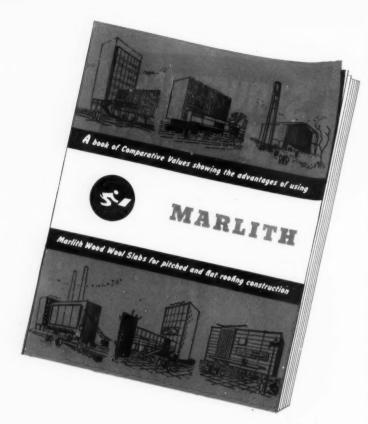
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THE ARCHITECTS' JOURNAL

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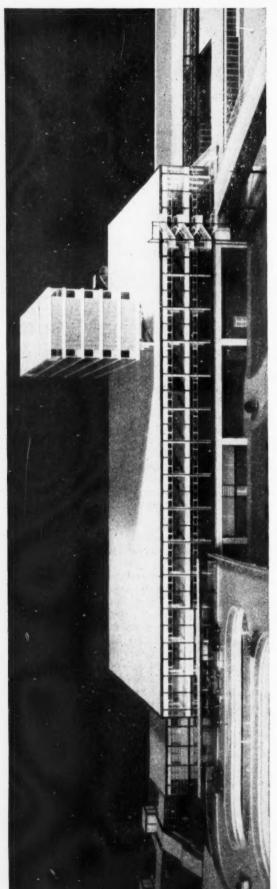
NOT QUITE ARCHITECTURE

L'E CORBUSIER AT LYONS

When French provincial towns describe their tourist and publicity offices as "Syndicates of Initiative," they are guilty of no exaggeration. Whereas in England most cities congratulate themselves if they mount a prepackaged exhibition from the Arts Council, and think that they are rather going-it in a cultural way, in France, if they do so, local art galleries, municipal bodies, and even chambers of commerce arrange exciting, unexpected, and invariably rewarding "manifestations," which attract visitors and publicity from all over the world.

At Bordeaux this summer "From Tiepolo to Goya," has made the usual Winter Exhibition at the RA look frowsty. At Aix-en-Provence there is the great Cézanne exhibition, and, now as part of the "Festival de Lyon-Charbonnières" there has opened at the Museum of Lyons a rewarding tribute to Le Corbusier. The Committee of Honour ranges from the legendary figure of Edouard Herriot to the unexpected one of M. Maurice Jardot, Inspector of Historic Monuments, who, one feels, may have been roped in because he hoped to find out how to keep his cathedrals white. The main burden of organising the exhibition seems to have rested on the shoulders of M. René Jullian, the Director of the Museum, and of his assistant, Mme. Rocher-Jauneau.

Perhaps it ought to be said, rather negatively at the outset, that the exhibition makes no positive contribution to those problems of lay-out and arrangement which so exercise the ingenuity of contemporary designers. On the other



in ract, is a traditional British airport, and its long-overdue improvements as covered "finger"

to

Scott's Dublin and Robert Matthew's Turnhouse

Gatwick.

borrowings are only such

a constituent feature of the

wet walk through the nature-made

humane provision that may well make the announcement

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England

are-for kinder climates than that

a sigh

corridors, on the American pattern, extending right out on to the tarmac and almost to puddles and the man-made gales that has become almost from travellers still clad—as air-passengers normally the doors of the aircraft, thus eliminating that long "We have been diverted to Gatwick traditional English airport, a and Moya's Eastleigh). oreign an industry like air-transport that is Gatwick and London's other main airports, now Gibberd's red-brick Englishry at London Airport, F. R. S. Yorke's new exposed framing the Against it is International mosaics. of the International Style. Except that—as far as European airports are concernedairports that are under discussion, then the prime examples are in Great well. are all to the architecture of their passenger and control buildings as Rome's leaning portal-frames and giant glazing and Airport, and genteel heimatstil, Le Bourget's Perret-type classicism, Style procedures as London for Gatwick will set the pure prisms, the The ancient rivalry—ancient, that is, in terms of forty years old-between style is not International. canonical International Frederick Zurich's

hand it adds considerably to our knowledge of the totality of Le Corbusier's personality. There are twenty-nine paintings, three pieces of enamel work, three photographs of mural paintings, three pieces of sculpture, five tapestries, a book, twelve series of photographs of architectural plans or realisations, and three maquettes. Short of a continuous tape-recording of the Master's voice. little could be added.

That Lyons has chosen Le Corbusier as the centre-piece of its festival is not all that remarkable. His Dominican convent of La Tourette is nearby. Tony Garnier of La Cité Industrielle fame, was a Lyonnais, and his native town constructed in the middle twenties a group of buildings which partly realise his dreams. With a population of about half a million, an intellectualised middle class possessing a long tradition of mechanical experience, and a working population which has never experienced the more squalid torments of industrial unrest, Lyons naturally takes kindly to a man who in some ways represents the tradition of Proudh'on and of the Ecole Polytechnique.

Here in this array of creative vigour is material enough for all those who wish to see in Le Corbusier the Alberti of our time, a man whose genius serves as the catalyst of all our contemporary preoccupations with function, form and life. On the one hand there is the Chandigarh Palace of Justice (1952-5) with its honeycombed façade, and its sense, a very Oriental one, of being composed of independent designs joined together by pressure of purpose rather than by unity of intention. On the other hand there is Le Poème de l'Angle Droit, a book of 156 pages in what might roughly be described as crown folio, with a manuscript text, 20 original lithographs in colour, 70 in black and white, divided into seven sections, and issued in an edition of 250 copies.

Michelangelo wrote sonnets, Le Corbusier produces verse which is architectural in titling rather than in style. The sculpture is closer to Léger perhaps than the painting, and the use of polychrome wood gives it a vitality and movement lacking in the works of such other exponents of that tradition as Mr. McWilliam.

Looking at all these differing artifacts, so various in their styles, so unequal in their excellence, one gets the feeling almost of being at a group exhibition rather than at the display of the works of one man. The curious thing too is

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that the status of many of the paintings and all of the sculpture is about the same as that of works in a mixed exhibition. It would be stupid to suggest that Le Corbusier is a "great" painter, or a "great" sculptor, he is not. The remarkable thing is that he does still, in

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An exhibit," La femme" by Le Corbusier (with J. Savina), from an exhibition of Corbusier's work at Lyons. The sculpture is of polychrome wood, 1 m. 83 cm. high.

the silence of his studio at Auteuil, experiment continuously and creatively in so many different media.

That an architect should paint is not in itself remarkable. The graphic arts are the research laboratories of all plastic form. The experimental art forms of today are the visual clichés of tomorrow. But Le Corbusier is like a manufacturing chemist who, when the day's work is over, potters about in his laboratory trying to find out things himself. That is the secret of the constant liveliness, originality and zest of his work.

BERNARD DENVIR

FILE THIS WEEK

Information Centre. Throw away your old MOE Bulletin on colour in school buildings. A new edition of the bulletin has been published which must be obtained by all architects. This is the main item in this week's reviews

page 264 Programming and Costing. This week's technical article describes a contract for three old people's dwellings in which a system of combined drawings, schedules of quantities and specifications was used by the architects. Details of final costs, and estimated savings over traditional page 265 construction are shown Construction are shown ... page 265

Garage near Dublin. A large service station and spare parts store is described and illustrated ... page 275
Two Information Sheets and a Working

Detail facing page 286

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

The Editors

THREAT TO DESIGN

THE announcement made recently by the associations representing asphalte and felt roofing contractors that in future they would not give long term guarantees came as a shock to many architects. The rather bland suggestion that the usual assurances were no longer needed because such roofs had proved themselves in practice takes a good deal of swallowing. If such coverings will in fact last the period which was previously covered by guarantee why do the firms concerned need to withdraw the comfort they have been in the habit of giving?

Many architects will regard the matter as a serious one because of its very probable limiting effects on their future designs. To the layman a flat roof is still all too often a novel idea and something regarded with suspicion. Hesitant about arguing aesthetics with their architects it is by no means uncommon for them to fall back on the suggestion that such roofs cannot be made to be waterproof for a reasonable length of life. Up till now architects have been able to point immediately to a 20-year guarantee and often thereby to soothe, if not entirely convince, the client. Now that argument has been swept away, and indeed, not only must the client be told that there is no guarantee but that the manufacturer has actually withdrawn the safeguard he used to give. Many clients will draw their own conclusions and instruct their architects to change over to pitched roofs. This would often be both unfortunate and ridiculous. Have the industries concerned considered this probable result of their actions?

Apart from the private client who may take the line suggested above, many public authorities will look at the change with deep suspicion. Some are already asking their architects questions which suggests that flat roofs without guarantee will not be acceptable in the future.

Surely the roofing firms have acted unwisely and would do well to reconsider the matter before too much permanent damage results? As things stand both their reputation and their trade seem likely to suffer and, more important, architectural design is likely to be faced with unnatural restrictions.

POSTSCRIPT TO A LETTER

The stimulating letter which Llewelyn Davies sent, via a BBC broadcast, to all young architects, last Sunday, although not meeting with everyone's approval (see Astragal's thinlipped comments, below) was calculated to make most architects attempt to draft their own version. Of a score of shrewd sound points raised by this accomplished architect there is one in particular to which, we feel, enough emphasis was not given. "Disgruntled, disappointed men," said Llewelyn Davies, "will tell you that really great design is impossible today, because most of our buildings are built within such tight budgets. This is no more true today than it was when Inigo Jones was told to design St. Paul's, Covent Garden, for the cost of a barn . . . " In the limits of a short broadcast Llewelyn Davies was no doubt unable to spare more time on this point, but in our view it is one of the fundamentals of modern architecture. It is better expressed, not as "building cheaply," but as "value for money." What architects must achieve, and they are woefully far from getting it, is a firm control of the cost of building and a better awareness of building economics. That has been our theme for some time. But it surely needs emphasising to the younger generation of architects who, due to the folly of our educational system, learn of costs only as a "spoil-sport" subject which prevents them "having fun designing," that building to a cost target based on correct economic values is an essential discipline to producing architecture in a democracy. If that sounds somewhat pretentious, can the critic say in all honesty that this country is getting the quality of buildings it should have at the cost and speed it needs them?

ASTRAGAL NOTES & TOPICS

MERSEA MEGABIVALVES

The atomic power station at Bradwell is to go on, in spite of protests, but when ASTRAGAL was there a fortnight ago he found a good deal of resentment

about it. Few of the locals really imagined that they'd be able to stop it, but they did rather feel that work on the site might, in decency, have been held up until the result of the inquiry was published. The Mersea men, too, are far from convinced that their oysters won't suffer, and point out that the same arguments were produced against the original Crouch-Roach site, where the oyster beds are owned by the Ministry of Agriculture & Fisheries, who have a research station at Burnham. Mr. Tom Driberg has already argued that if atomic stations have to be on the coast, and at least 10 miles either way from a population centre, then there isn't much coast left. Bradwell, for all I know, may have been the right choice, but in some ways it's better to have no appeal than to hold an inquiry and leave the impression that the verdict was fixed before the inquiry started.

INSTINCTIVE ARCHITECTURE

The BBC's Sunday evening series of Reithlets, under the general title of "Letter to a young X" (where X equals one of the liberal professions, not a term of opprobrium) clearly pre-

sents special problems for speakers, who have to sound as if they were giving inside professional advice, and yet remain comprehensible—and interesting—to the millions who can't be bothered to get up and turn the radio off when the News has finished.

So far, none of them has pulled it off, and it greatly grieves me to say that even Richard Llewelyn Davies got no nearer than anyone else to the just equilibrium between Shop and Public Relations. To speak of the space-frame as a "structural gimmick" is fine when one is pointing an avuncular finger at a Third Year drawing-board, but was it quite the thing to say on the Home Service? While to instance Aalto's work at Säynätsalo was to call for a visual memory that even a fair part of the profession couldn't summon up (can you, dear Reader, remember what Säynätsalo looks like?).

Furthermore, the major issues facing the Young Architect are, apparently, only a narrow range of æsthetic choices, from Herts Schools to Paddington flats. Even supposing this were the whole range of design attitudes available (which it isn't, but why stick to the available anyhow?) they are all of them only ways of putting across the business that Llewelvn Davies ought to have been talking about (in ASTRAGAL'S humble opinion) viz. the architect's relation to his public. But the public didn't get a look in. "Your work must flow from your own convictions and instincts, not from a desire to please . . . " Enter the New Irresponsibilism, under the ægis of the man who has done more than anyone else in his generation, to get architecture into a state of creative responsibility. Want to give up?

NO JEWEL

The reason Middlesbrough Town Council ignored the recommendation of its housing sub-committee and selected the architecturally less pleasing of the alternative schemes shown opposite is simple enough. The Mappin scheme offered an additional £2,100 a year ground rent for the 99 years of the lease above the alternative scheme's £8,000 a year.

The housing estate of which this

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tow new shopping centre will form a part is planned to have a population, ASTRAGAL learns, of between forty-five and fifty thousand by 1960-what we call a new town down in the south-so this centre of 44 shops will have a considerable task to perform. Middlesbrough is the kind of town one doesn't visit without very good reason. It is a dreary, industrial, characterless place very little improved even by post-war development, save for some remarkably competent schools. (These schools, incidentally, were designed by Phillip Middleton, the architect who produced the alternative scheme illustrated, when he worked for the local authority). One would have thought, therefore, that the Council would make every endeayour to achieve high standards of layout and design for important areas of development.

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But, of course, simple financial gain is bound to be put first by an average local authority. It is, however, surprising that no attempt was made to persuade one developer to offer a higher rent and the other to produce something better than what one outraged councillor (Alderman E. Whatley—surely sordid Middlesbrough's æsthetic hope) described as "an unexampled piece of mediocrity, outmoded 25 years ago."

It would seem to be true that where design standards are low, the natural sequence is for them to get worse, because, by and large, the clients, whether local authorities or private, have no examples of good design to see by which they can improve their æsthetic judgment.

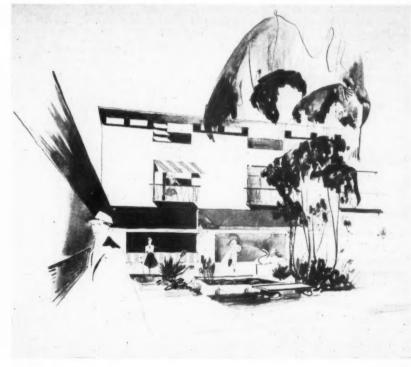
FIRST FLOOR LIVING

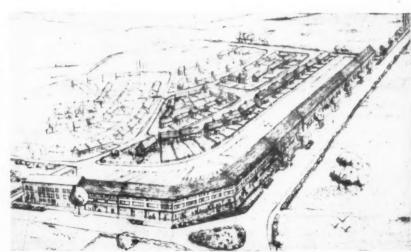
The September and October issues of House & Garden will contain articles on a nine-room house which has been specially designed for the magazine by Kenneth Capon of the Architects' Co-Partnership. A model and what the Press release describes as "dummiedup rooms" will be exhibited at the Tea Centre, Lower Regent Street, from August 27 to September 18. House & Garden call it the "House of Ideas" -which implies new ideas. This is rather hard to believe even from one of the ACP coterie. ASTRAGAL cannot recall that even the Smithson's town of the future actually had any new ideas in it. But this is, perhaps,



Left, layout plan, and below and centre, two sketches by architect Philip R. Middleton of a proposed shopping centre for the Berwick Hills housing estate, Middlesbrough. This design, which was commissioned by Graham Family Settled Estates, Ltd., was rejected by the Middlesbrough Town Council, who preferred the design shown bottom of page. This design was prepared by Manners & Manners, auctioneers, surveyors and valuers, of London, on behalf of Messrs. Mappin Properties. This is the property investment side of Mappin and Webb, the jewellers. See ASTRAGAL'S comment.







being a trifle obtuse on ASTRAGAL'S part. Obviously this house will bristle with fresh ideas as far as the general public is concerned.

It is designed for a family of four who have "£4,500 to spend on a home—apart from the plot and professional fees" and, one might add, apart from all the frills and lush, stark, colourful (take your choice) fripperies with which House & Garden editors are bound to fill it. Judging from the advance illustration the rather austere taste of Kenneth Capon has had little influence on the furnishings.

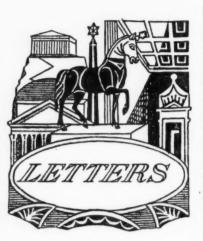
Incidentally, the house has been designed on stilts. Capon has personal experience of first-floor living. He has built himself an extremely attractive all-timber, week-end house on legs near Bosham, in Sussex. Judging from the photographs, which will shortly be appearing in the JOURNAL, architects will be interested in his neat, trim detailing and construction. Capon's development of this theme in the larger House & Garden project may well merit close study.

FREEZING LOGIC

The sharpest comment on English building design that has lately fallen on ASTRAGAL'S attentive ear, fell-via the Third Programme-from the lips of the distinguished Harvard Sociologist, Professor Homans. He observed that English hostility to sociological studies was largely due to the absence of any distinguished English writing on the subject, and that the absence of distinguished English writing on sociology was largely due to English hostility to the subject. Having arrived back at the point where we all came in, he threw up his metaphorical hands in despair and said, "All that a sociologist can say is that these self-reinforcing circular processes are common, and provide whatever stability a social Thus drain-pipes order possesses. remain on the outside of British houses so that they can easily be got at if they freeze."

It might be a useful spiritual exercise to repeat that last sentence to oneself at dictation speed as a kind of morning litany before sharpening one's pencil. It doesn't stop at drainpipes, either.

ASTRAGAL



F. C. Lee, L.R.I.B.A.

Peter B. Davenport, A.R.I.B.A.

Fire Resistance For Factory Walls

SIR,—I read with considerable interest, your recent comments on the revision of the Model Byelaws as they affect fire resistance for factory walls.

My Firm does a considerable amount of Industrial work, and we have had several instances of having to use costly solid walling, where an asbestos-cement sheeted wall would have been adequate for the building in question. For example, in the Pottery industry it is common to instal a tunnel kiln of some 200 ft. in length, and in many cases a single storey building with a height of about 12 ft. to 15 ft. is adequate, and can quite satisfactorily be enclosed with asbestos-cement sheeting and insulation board lining. The fire risk in the industry is very low, but the byelaw has, in several cases, compelled us to provide solid brick walls.

In another instance the building was to be used for the fabrication of structural steelwork, the building being 16 ft. to the eaves, but since it was only some 10 ft. from the site boundary we were compelled to use brickwork

In another case, in a different area, where the building was some 400 ft. long, and to which the same byelaw should have applied, the trouble was overcome with the assistance of the local surveyor, by describing the building as "temporary" and obtaining approval on this basis, on the guarantee of the surveyor that as long as the building was kept in good repair, the temporary approval would be renewed without question. Asbestos-cement sheeting was used, with considerable saving in money and time.

I heartily support any effort made to have a more realistic interpretation of byelaws brought about.

F. C. LEE.

Stoke-on-Trent.

Imitation Stonework

SIR,—David Russell, in his letter in the JOURNAL of August 2, asks for examples of mild steel sheet used to imitate stonework. I have seen the material used in two places near the Hereford-Radnor Welsh border. This was only discovered by accident as I was off my route. In each case it was painted black. I have not seen it anywhere else.

PETER B. DAVENPORT.

Cirencester.



MOHLG

Simpler Procedure for Slum Clearance

A marked speed-up in slum clearance, as well as steps to accelerate procedure, are indicated by Duncan Sandys, Minister of Housing and Local Government, in a circular to English and Welsh local authorities

More slum clearance orders were submitted to him in the first half of this year than in the whole of 1955, and the numbers will continue to increase as the work of slum clearance progresses. He has considered with the local authority associations ways of reducing delay and enabling orders to be dealt with as quickly as possible

possible.

Some of the changes which the Minister is introducing will affect the handling of orders within the Ministry. For instance, there will be much less scrutiny in detail of the various documents submitted, since these have in any case usually been prepared by experienced staff employed by the authorities. Other changes are for the Councils themselves to make, e.g., they will not have to observe such strict requirements in the preparation of maps nor to send to the Ministry copies of all the notices which they serve on landlords and occupiers.

In another circular the Minister explains the terms of the Slum Clearance (Compensation) Act, 1956, which is designed to provide increased payments to mitigate the hardship being suffered in a limited number of cases through the resumption of clum clearance on a lorge scale.

owner-occupiers of houses bought between September 1, 1939, and December 2, 1955, and persons in business with a free-hold interest or an appropriate leasehold interest in their premises will, in the event of the compulsory purchase, clearance or demolition of the house, subject to certain conditions, be compensated as though the house had not been declared unfit for human habitation.

Provision is made for payments in recognition of good maintenance of unfit houses to be varied by the Minister by Order. having regard to current prevailing costs of repairs and maintenance; and for these payments to become appropriate, for the future. to all types of slum clearance order, where it may be agreed that a property, though unfit, has been well maintained. This includes houses subject to Demolition Orders. Closing Orders and purchase in lieu of the making of a Demolition Order. Houses demolished by agreement with the local authority are also brought within the scope of the Act, both for increased compensation and for well-maintained payments.

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thi rat op An Order, which is subject to an affirmative resolution by both Houses of Parliament, has been made by the Minister providing for the payments for good maintenance to be increased to nine times the rateable value of the house in the case of an owner occupier, and four-and-a-half times the rateable value in any other case. At present the figures are respectively 3 times and 1½ times the rateable value, but it is intended that the Order should apply retrospectively to all payments made on or after December 13, 1955. This will bring the value of payments into line with current costs of repairs.

The Minister states that in dealing with claims for increased compensation and well-maintained payments under the Act, he has no doubt that local authorities will help claimants to establish their claims, and he hopes that local authorities will do their best to identify and trace those who might not otherwise be aware that changes in the law have entitled them to further compensation.

He points out that business occupiers whose tenancies are for a year or less do not come within the compensation terms of the Act, apart from those relating to payments for good maintenance. Nevertheless, the loss which such tenants may suffer on disturbance can be great, even though their legal interest may be small, and local authorities are asked to bear in mind, when they decide the value of discretionary allowances to be paid in mitigation of disturbance of trade, etc., under Section 44 of the Housing Act, 1936, the scale of payments which will be made to business occupiers who are compensated under the new Act.

BBC

Llewelyn Davies writes to Young Architects

In his "Letter to a Young Architect"—one of a series of talks on the BBC's Home programme, Richard Llewelyn Davies said: "Three well-known groups of buildings will serve to illustrate what are, I think, the three most important trends here in Great Britain. These are the Hertfordshire schools designed by a group of architects working under C. H. Aslin, the housing scheme and school at Paddington by Denys Lasdun, and Powell and Moya's housing at Pimlico

Pimlico.
"The Hertfordshire schools represent an austere, puritan approach to design. They reflect, faithfully, a deep imaginative understanding of the life of the school and a thorough grasp of the problems of pre-fabrication. The team of architects who designed them kept the element of personal design to a minimum, and as a result these schools have a flavour, a freshthese schools have a flavour, a freshness and an engaging simplicity which is They are criticized by architects with a different point of view as being with a different point of view as being formless, untidy and making little impact as a whole, although each individual corner is attractive in itself. The architectural philosophy which they reflect is that the architect's task is to accept and understand the needs of the building and the techniques of construction and and the techniques of construction and express them in the simplest, most direct, and most modest manner possible. Anything personal, whimsical or con-sciously charming is rigorously excluded and the architect hardly permits himself to impose any formal unity, unless justifica-tion for it can be found in terms of function or construction. It is worth noting that this architecture was the work of a team, rather than of an individual.

"The Paddington buildings represent the opposite extreme. Here the architect has

permitted himself full freedom to shape the building into forms and patterns of his own choice. He has met the functional and constructional needs, but the shape and appearance of the buildings do not derive, in any direct manner, from them. The school building swings round in a curve: the balconies of the flats have been arranged to give a strong pattern which masks the arrangement of the rooms behind, and conceals the structure. These Paddington buildings are impressive. They reflect a philosophy in which the architect has the right and the duty to impose forms which he feels to be appropriate.

"But two distinct criticisms are levelled against them: the first is that it is wrong in principle for the architect to approach design in such a wilful and personal manner, that this can only lead to a failure to meet the needs of those who use the building, and a failure to make logical use of structure and materials. Others who are prepared to accept the principles underlying the Paddington designs nevertheless criticize the forms themselves, much as you would criticize a painting or a piece of sculpture. Perhaps these two lines of criticism are not quite so separate as they appear. They can be put together if we say that in really successful architecture the formal concept carries right through the building and somehow sweeps the functional requirement along with it in a harmonious way. If it fails to do this, if behind an arbitrary form you are conscious of some cramped and contradictory elements, then the design does not come off.

elements, then the design does not come off.

"As designs, the Pimlico flats occupy a position midway between the two extremes I have just described. The latest buildings in this group are blocks of flats eleven storeys high. In contrast to the Hertfordshire schools they are very orderly and controlled; in contrast to Paddington they are simple and direct. The architects have taken the functional and technical data for the building as a starting point, but have permitted themselves a good deal of freedom in organizing it into architectural form. The shape of the blocks, the pattern of the windows and the proportions seem to have been considered in the abstract, as well as in relation to what goes on in the building and to its construction. At the same time there is a certain strictness of feeling; the bones of the building, and the shape of the flats it contains come through, they connect with, and partly control the formal pattern.

trol the formal pattern.
"Here, then, are three different answers to the question: how should the architect go about organizing the raw materials of his work into a creative whole? This, I believe, is the most important—the most central—question you face."

CIVIL ENGINEERING

Opencast Coal Production

Commenting on recent Press statements and correspondence about opencast coal production and the question of site restoration and the use of American excavating machinery, Lt.-Col. T. McMillan, Chairman of the Federation of Civil Engineering contractors, said recently:

"The new ten-year opencast coal programme will enable the industry to plan ahead with much greater confidence. Contractors could undoubtedly produce substantially more than the envisaged average output of 10 million tons a year if the necessary sites could be made available.

"The standard of restoration of sites after working is very high and it is perhaps not generally known that the opportunity is taken of installing better drainage during the reinstatement operations, which are carried out under the guidance of local

agricultural executive committees. The acreage of farmland temporarily occupied for opencast mining at any one time is extremely small. It amounts to about 30,000 acres (much of it never execavated but used only for topsoil storage), out of a total of some 45 million acres. The coal won from this land is worth on average over one hundred times the temporary loss of food production. It is worth noting, too, that since 1939 some 400,000 acres have been permanently lost to industrial and housing development."

BRIXTON

School of Building Old Boys' Association

Efforts are being made to re-establish the Old Boys' Association of the Brixton School of Building on a secure footing. To this end a temporary Council has been formed to overhaul the existing rules and to carry out preliminary work prior to the AGM which will take place early next year.

A get-together supper, however, has been arranged at the Albert Tavern, Victoria Street, S.W.1, on October 19, and all old boys of the School who are interested in joining the Association and also in being at this supper, are asked to get in touch with the Secretary—L. Wilder, School of Building Old Boys' Association, School of Building, Ferndale Road, Brixton, S.W.4.

STATEMENT

Historic Churches Preservation Trust

In the JOURNAL'S leading article of July 26 we commented on the dissolution, by the Trustees, of the Executive Committee of the Historic Churches Preservation Trust and the formation of a new one. The Historic Churches Preservation Trust have informed us that the Trustees, although they have agreed to consult ecclesiastical authorities and seek their advice, retain in their own hands full control of the Trust fund; that they are free to vary, reject or act against such advice as may be given; that they have borne the cost of restoration of several important redundant churches (e.g. Great Witley, Worcestershire; Burham, Kent; Llanrothal, Monmouthshire), and will continue to offer similar help to other churches possessing features worthy of preservation.

DIABY

The Architect as Captain of the Building Team. Essex, Cambridge & Herts Society of Architects discussion. At the AA, 34, Bedford Square, W.C.1. 6.45 p.m. SEPTEMBER 7

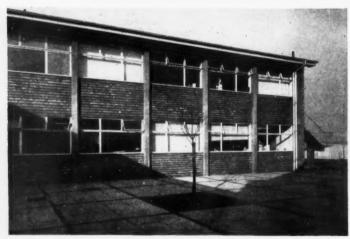
This is Tomorrow. Exhibition of the Integration of the Arts. At the Whitechapel Art Gallery, E.1. Monday to Friday, 11 a.m.-6 p.m. Sundays, 2 p.m.-6 p.m. Closed Monday. Admission free.

UNTIL SEPTEMBER 9

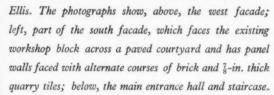
The Management of Design. COID 1956 Design Congress, three sessions: 1, Case Histories. 2, The Role of the Designer. 3, Implication for Management. At the Victoria and Albert Museum and the Royal College of Art, South Kensington. SEPTEMBER 12 AND 13

LABORATORY AND OFFICES AT ST. HELENS, LANCS.





The office and laboratory block illustrated on this page is the second phase of a scheme to accommodate the Research and Development Unit of Fibreglass Ltd. at St. Helens, Lancs; the architects were W. and J. B.





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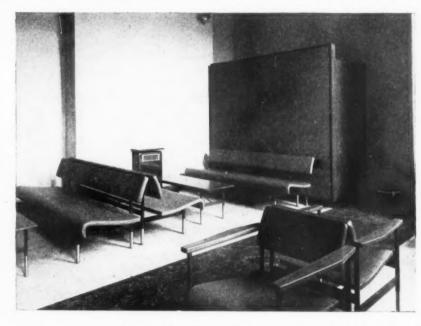
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MODERNISED WAITING ROOM, KING'S CROSS STATION

The Eastern Region of British Railways has begun a scheme of modernisation for waiting rooms at the principal stations in the region. The latest waiting room to be redecorated is the ladies' waiting room at King's Cross, a corner of which is seen, right. The walls are covered with a light grey fabric and there is a suspended ceiling decorated with an abstract mural by Enid Robbie. A completely new range of furniture, shown in the photographs below, has been designed for these modernised waiting rooms by Robin Day, working to a schedule of requirements prepared by the Architect, Eastern Region, H. H. Powell. The furniture, which is manufactured by S. Hille & Co. Ltd., is constructed with welded, stove enamelled steel frames and is upholstered in hard rubber, covered with red



leather cloth. The table top and the wood slats of the hard seating are of polished makore.









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RECENT BUILDINGS IN PARIS, 1



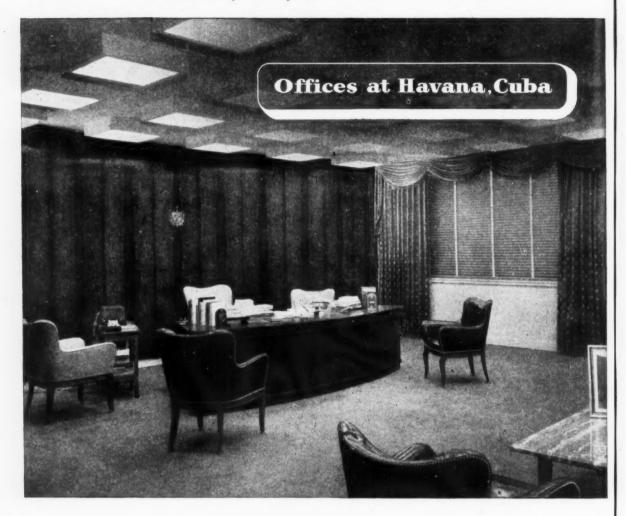


The skating rink, at Boulogne-sur-Seine above and left, was designed by Louis Saint-Calbre. Flats in the Square Mozart, Paris, below left, were designed by L. Mirabaud. Below, a close-up of the cladding, which consists of windows and aluminium sliding shutters. The windows are vertical sashes which slide below the sills when open. The upper lights are fixed, and in some cases are surmounted by hit-and-miss ventilators.





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RECENT BUILDINGS IN PARIS,





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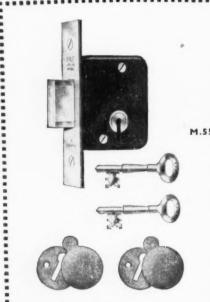
The photographs above and left are of the headquarters of the Paris National Federation of Builders. The architects were Lopez and Gravereaux. The architect for the offices below, in Rue Vineuse, was F. Carpentier.



Free House!



It wasn't supposed to be an invitation. The trouble is so many old locks do no more than just keep the door closed (and sometimes not even that) whilst real security measures are non-existent. The safest course if you value your property is to re-equip all important doors inside and out with the world's most reliable locks—YALE. There are YALE locks and padlocks to meet every security risk. Here is an example:



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Where there's a door there's a need for



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INFORMATION CENTRE

24.198 lighting COLOUR

Colour in School Buildings. MOE Building Bulletin No. 9 (2nd ed. HMSO. 5s.) A very important document for architects which contains much that is new. The main objects of this edition are: first to alter the method of calculating the daylight factor to take into account the studies of Hopkinson on reflected light (see articles in the JOURNAL, August 5 and September 16, 1954) and second, to bring the Archrome Range into line with the 101 colours of BS.2660:1955, and to take advantage of experience gained in using the Archrome colours. A new Range entitled " Archrome 2" and containing 54 colours is proposed, 27 of the colours in this new Range being carried over from the old. These colours are displayed on a double-spread card in a new sequence and in a manner which differentiates their use categories much more clearly. The method of calculating the daylight factor is given and, since one practical result of the new approach has been to make feasible low-ceilinged classrooms lit from one side, new diagrams are given showing how to solve the colour problems these raise. Lastly, there are some excellent new paragraphs discussing the effect of floor colour on the daylight factor. This new edition is a must for architects and prudence suggests that they would do well to throw away their copies of the old one.

28.22 miscellaneous **AESTHETICS**

Art in European Architecture. Paul Damaz. (Chapman & Hall Ltd. for Reinhold Publishing Corporation. 100s.)

The purpose of this bi-lingual book is better expressed in the French than in the English title: "le synthese des arts." For it is a polemic, a gathering together of all that has been said-at CIAM Conferences, in manifestos of the Groupe Espace, in American symposia and goodness knows where else-in favour of this grand desideratum of the modern movement; and these utterances are supported by a very large number of photographs, many in colour, of examples where this synthesis has been strenuously pursued. What this book says is no less true for having been said often: but even so, its most powerful argument lies in the wealth of illustrations. Many are all-too-familiar, but many are of examples which passed fleetingly through the pages of foreign periodicals and were unnoticed by English architects. These are chosen not always from merit-among them are many gruesome failures-but simply to show the scope of synthetised art, if this is the right word for the use of sculpture and painting with architecture. Even when an attempt is

unsuccessful the result is something of a different order from that of the separate artistic concepts which have gone to make it: it is as though a dimension were added, giving a wholly different experience to the onlooker. If more people could be given this experience, there would be less fruitless discussion, less shameful meanness on the part of building committees and we would perhaps use public art naturally, without an agony of apprehension. There is no real substitute for having been in the presence of these works, but pictures are a second best, and for once in a while that usually regrettable feature of American architectural publishing "the picture book" is fully justified.



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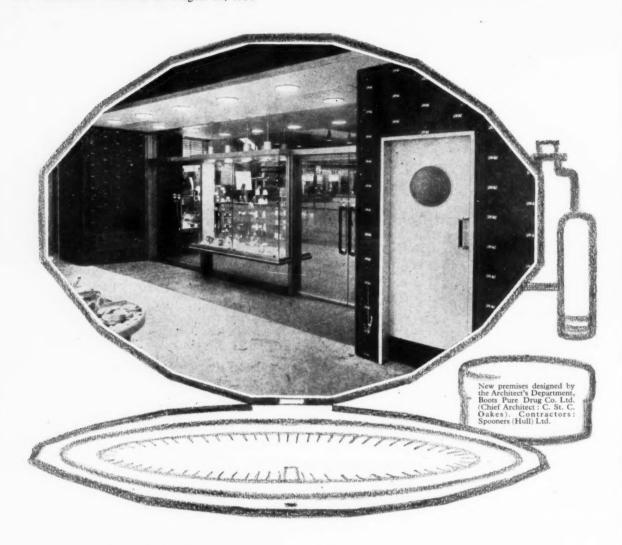
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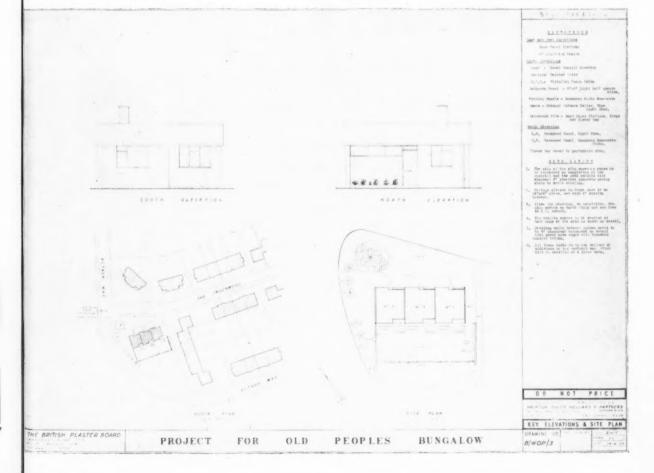
9 DESIGN: GENERAL

programming and costing

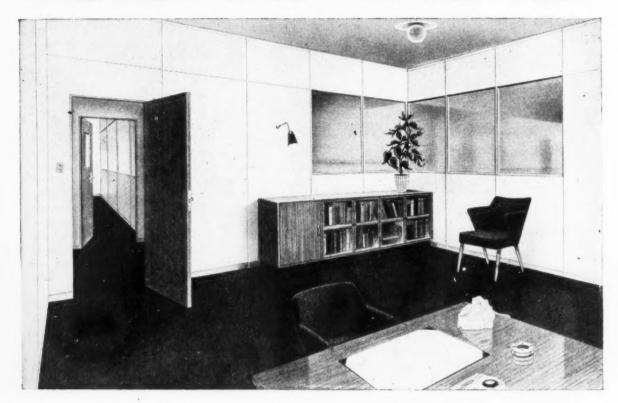
The British Plaster Board (Manufacturing) Ltd. have recently completed a group of three old peoples' dwellings at the Coldharbour Estate in the Metropolitan Borough of Woolwich. The contract was based on a system of combined drawings, schedules of quantities and specification devised by the architects: Brunton, Baden Hellard and Partners, and was first reported in the Journal for December 10, 1955. The quantity surveyor was Raymond J. Playle, ARICS, and the builder Anthony Cooper & Son Ltd.

Fig. 1. Typical sheet from the combined drawings, specification and schedule of quantities: "Key Elevations and Site plan."

The method is to treat the building as a number of separate "operations" or to use the MOE term "elements," e.g. work below ground; roof construction; electrics, and so on. A separate drawing is made for each element showing details and specification, and where appropriate, the quantities of materials required for that element. Thus all the information needed for estimating, programming the work, the ordering of materials and execution on site for an element is on the one sheet (Figs. 1-4). Space is provided on each sheet for the builder to enter his tender price, and his actual cost on completion divided in each case between labour and materials. Thus the system would yield a "ready made" and very detailed cost analysis. The estimated (net) prices from each sheet are carried forward to a summary, at the end of which the builder enters an amount for gross overheads and profit, which in this case was 13 per cent., due allowance being made for the fact that the total net estimate included preliminaries and sub-contractors' amounts. The architects intended that the unusually precise and detailed information presented to the builder would help to mitigate the high pricing that attends unfamiliar types of construction, and that the systematic method of presenting it would enable him to programme his contract more carefully than is customary. The system of drawings which was developing in the office at this time permitted the consolidation of all



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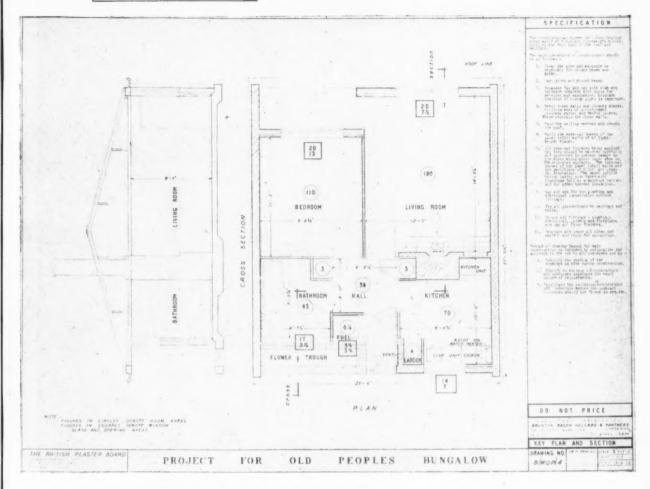


Fig. 2. "Key Plan and Section" sheet provided for the builder's general guidance, but not to be used for pricing. For a typical sheet devoted to one element only, see Fig. 3.

items of construction into elements, so that when an alteration was desired, say the substitution of locally produced lightweight blocks and pre-cast facing blocks peculiar to a district such as Cornwall, the withdrawal of the brickwork element and re-draughting of sizes, thicknesses and details, re-specification and re-scheduling of quantities, could be carried out without amending any of the other sheets comprising the full contract documents. The architects found that it took only nine man hours to re-draw the "brickwork" sheet to suit another type of block.

These then were the architect's aims, and although they have not all been fulfilled, the contract has proved a vital pilot study for later experiments with the same method. It has also enabled the architects to clarify their thoughts on drawing office procedure, and from their own cost records kept, enabled them to programme and target their own design costs.

Client's Aims and Brief

The architects were instructed to produce a nontraditional building, making maximum use of factory made components, unit prefabrication, etc., but in a manner suitable for construction by the average small to medium size contractor without any special plant. To show that the cost of such a building would be at least equal to, if not less than, its traditionally built counterpart, no attempt was made to produce the lowest possible cost by using the lowest possible standard of specification. It followed therefore that the design must be sufficiently "traditional" not to produce a psychological reaction of disbelief from the contractor or workmen.

Single-storey old peoples' dwellings were chosen for the first experiment partly because there is a market for this type of building which remains unsatisfied because of high costs, and partly because a more complex building type might have made results more difficult to interpret. The design had to be acceptable to the authorities responsible for housing old people throughout the country, and thus to an older generation, as the intended occupants. Since this involved a nation-wide potential use, the system chosen had to be adaptable, so that the best use could be made of local materials, where non prefabricated elements were involved. This would avoid the high carriage costs of transporting "package" buildings, and permit a sympathetic development, using predominant local materials for the brickwork and roofing elements, etc.

Contrasting Brickwork

is Permanently Decorative

FLATS AT HARLOW, ESSEX

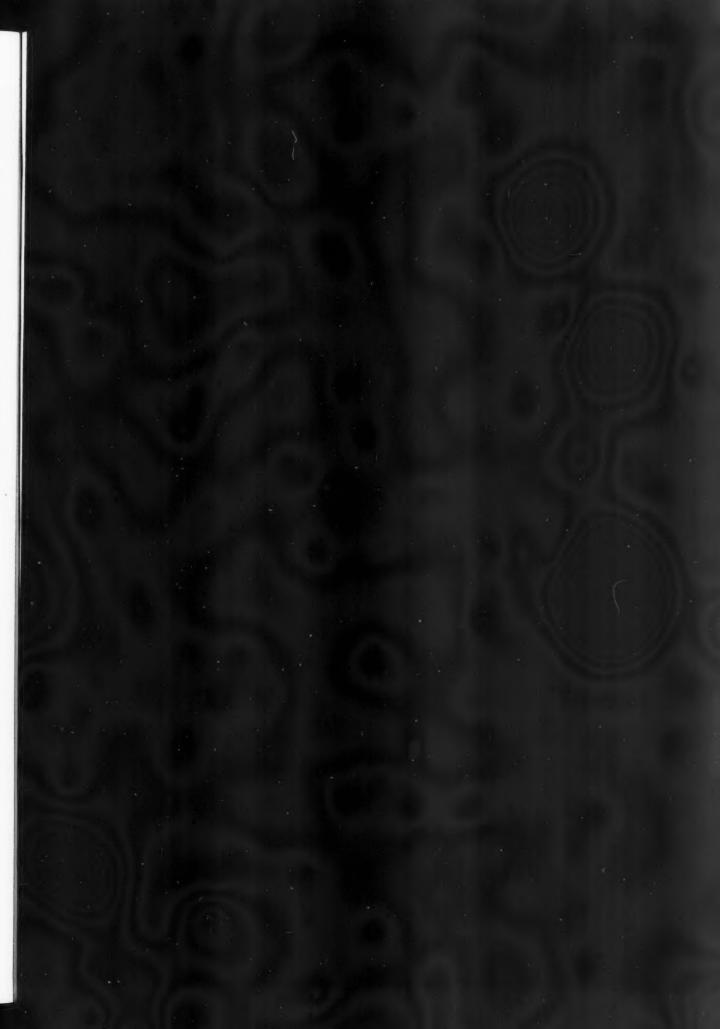
Architect: Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.

Assistant Architect:
R. J. Double, A.R.I.B.A

Build in BRICK

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III





The design was amended at the request of the Woolwich borough council, who are now the building owners, to include instantaneous gas heaters, which did not fit in with the client's brief of a design suitable for rural areas. This increased the cost and lowered the efficiency of the plumbing element. It was also

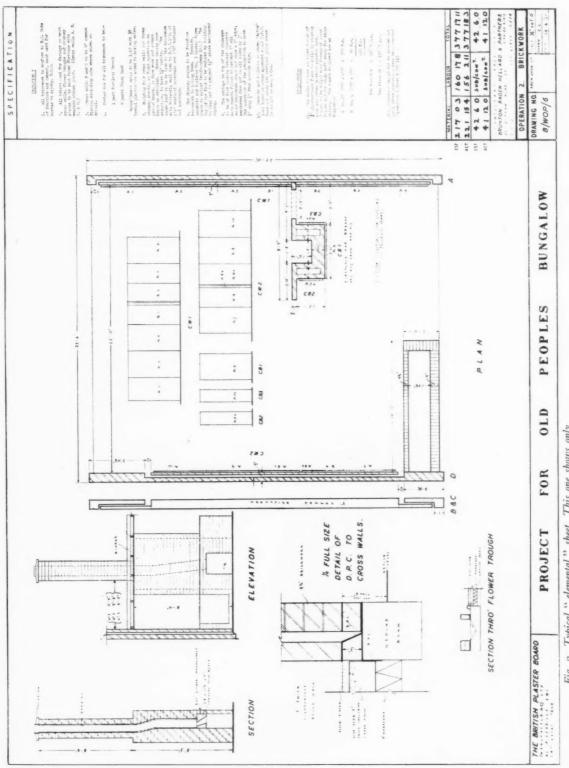


Fig. 3. Typical "elemental" sheet. This one shows only the structural walls, including stack. The right hand column gives the specification, certain of the quantities, and spaces for the entry of estimated prices and actual costs.



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MANCHESTER, HANLEY, BRISTOL AND KETTERING

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decided to carry out expensive site works to show the scheme off to its best advantage.

Throughout the design and construction; and sub-

sequent analyses, the client's *active* support was given, to further their desire that "real" cost information should be available to the industry generally.

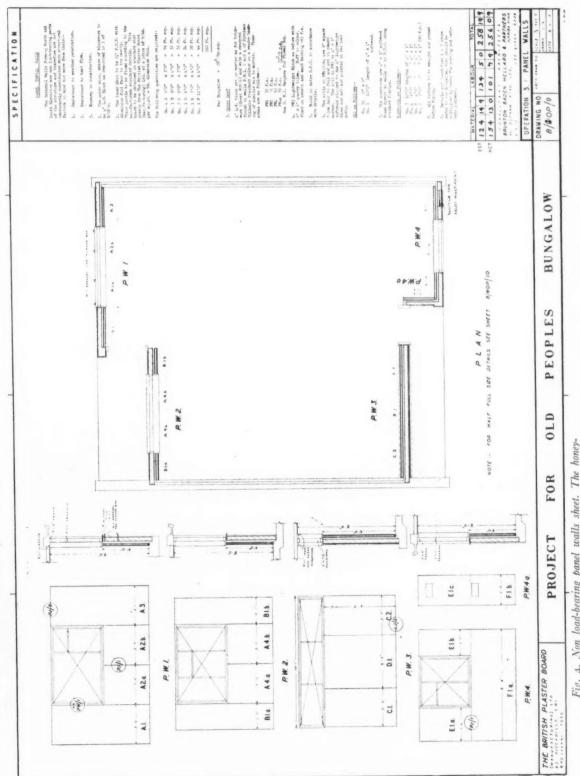


Fig. 4. Non load-bearing panel walls sheet. The honeycomb-core panels used as the inner leaf were worked out to minimise cutting and scheduled in the "Specification" column. Timber trim to openings was included.

technical se	ection	l
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ELEMENT	SPECIFICATION (as actually carried out at Woolwich)	Estimate	2 Materials	3 Sub- contractors	4 Labour	S Plant, transport, etc.	6 Estab. charges and profit	7 Normal costs	8 Development	9 Cost to client	10 Extimated traditional construction	11 Brief specification of traditional construction
PRELIMINARIES	Transport, plant, sheds, insurance, foreman, watching, W.R.A., notices, etc.	s. d. 2 113	s. d.	s, c,	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
FOUNDATIONS	1 Short bored piles, av. 8 ft. 0 in. deep, 12 in. ground beams, 4-in. oversite slab	3 41	1 34	1	1 73	I	4	3 33	3	3 7	\$ 10}	Normal Strip foundations to party and cavity walls and to load bearing 44-in. partitions. 4-in. oversite slab.
STRUCTURAL	2 Party and end walls: 3-in. I.w. block, lined with pl. bd., cavity, 44 bwk faced (9 in. o/a). Fireplace and chimney stack bwk.	5 9	2 81	9	1 103	1	00	6 5	-	5 10	9	11-in. load-bearing cavity walls, 44-in. I.w. block plastered and 44-in. facings. Fireplace and chimney stack in brickwork
ROOF	3 Noral "Snaprib" aluminium roofing on Benfix purlins. Prestressed concrete gutters	7 34	1 9	4 13	m	ĺ	Ť6	6 114	23	7	0 9	Timber framed pitched roof covered with felt, battens and concrete plain tiles. Timber fascia, asbestos soffit and H.R. enamelled gutter.
CEILINGS	4 Insulated plasterboard on joists on binders suspended from roof purlins. Fibreglass insulation	3 15	103	1	S	1	es	7 13	l	2 13	3 41	Plasterboard on joists on load- bearing partitions. Fibreglass insulation
EXTERNAL. PANEL WALLS	5 Outer skin: tiled or rendered I.w. 4-in. conc. block. Inner skin: 24-in. aluminum-faced plaster-board panel, softwood linings to openings	3 64	6	₹	1 23	1	4	9	-	3 7	4	As structural walls but tiled or rendered externally. Lintols and closing cavities at Jambs of openings, window cills and finishes to reveals
WINDOWS	6 EJMA section frames and sashes incl. glazing and furniture, and painting.	9 1	101	***	33.	1	74	1 53	Ī	5.5	1 64	As Woolwich.
PARTITIONS	7 24-in. storey height plasterboard panels (no plaster) incl. fixing timber	1 74	16	I	73	1	2.4	1 63	fo	1 7	1 101	3-in. lightweight block and 4½-in. brick plastered both sides. Lintels to openings
DOORS	8 External and internal glazed and plywood flush doors to BSS 459, incl. frames, locks, furniture and painting	3 7	2 04	-64	101	1	4	4	-57	3 54	3 64	As Woolwich but linings to suit partitions. Architraves
PLUMBING	9 R.W. pipes, san. fittings, storage tank, Ascot water heater, h. & c. copper piping	9	3 04	3	7	1	3 €	6 11	I	9	0 9	As Woolwich.
ELECTRICS	10 Wiring in 3.029 TRS to 18 no. lighting and 15 no. (ring main) socket outlets incl. lighting fittings	7,3	ľ	1 44	60	Γ	77	1 73	I	1 71	1 8 1	As Woolwich, but chased into brick-work or I.w. blocks
FITTINGS	11 Window box, bookcase, shelving, and kitchen fittings	1 23	16	1	23	1	-	1 13	10	1 21	1 31	As Woolwich
FLOOR	12 Kit. bathrm. and lobby quarry tiles on site slab. Remainder plastic tiles and screed	2 3	10	74	30 30	1	3	2 51	I	2 51	2 53	As Woolwich
DECORATION	 Glazed tile, paint to bathrm. walls. Wallpaper to L.R. & B.R. Emulsion paint remainder. Ceilings plastic paint 	1 54	7.	3.5	54	1	77	6	m	0 7	1 54	As Woolwich
		45 54	17 34	10 34	10 24	1 43	5 13	44 31		45 41	49 3	
DRAINS AND SERVICES SITE WORK GENERAL DEVELOPMENT		3 14 7 24	2 03	2 04	2 63	11	5 10}	3 84	84 -	4 7 8 15 1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Nore 1 All calculation ternal and party was and including front sup. 2 Ditto for tra Area = 1,728 ft. sup.	Nore 1 All calculations based on floor area between ex- ternal and party walls, measured over partitions, etc., and including front and rear porches. Area=1,650 ft, sup. 2 Ditto for traditional construction. Area =1,728 ft, sup.
TOTALS		\$6 \$8	20 8	12 113	14 13	1 43	6 44	9 88	6 9	62 3		

Fig. 5. Cost analysis per ft. super floor area.

55

6 44

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16

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technical section

	2721	17	3	275	6	8	0	1135		5 4	1060) 1	R	1	Totals
SITE WORKS	330	14	0	33	9	1	1	195	8	3 (210) {	8	1	No comment
DRAINS AND SERVICES	152	5	1	160	0 1	16	7	75	10	11	109	8	3	8	Extra materials and labour were taken up by variation in drainage, but adjustment of P.C. items nearly offsets material increases. Although these figures exclude the cost of alterations required by L.A. during progress of works (transferred to development), the high labour figure no doubt reflects the apathy of the workmen in such circumstances
13	61	0	0	74	4	8	1	43	10	4	53	14	1	11	Estimating error as a result of inadequate information being given to contractor at estimating stage, but labour costs were high due to an unbalanced labour force necessitated in order to complete on time and make up for delays in schedule of previous operations
12	118	13	5	12	1 1	16	3	46	5	1	56	2		2	Adjustment in P.C.s for floor coverings partly offsets additional cost of floor screeds. Extra labour in screeds, but see footnote for comment
11	59	13	6	6.	3	2 1	11	30	1	7	19	15		6	Estimating may have been slightly high for labour, but see footnote for comment
10	116	6	9	113	3 1	9	9	3	10	6	3	5	1	1	No comment
9	440	0	0	436	5	2 1	10	10	0	0	9	17	1	1	Cost of this element includes Ascot water heaters. This element may therefore be high by comparison with schemes where heating appliances e.g. backboiler, is part of cost of fireplace included in another element
8	197	3	8	170) 1	4	9	65	13	1	72	0		0	Cheaper purchasing and adjustment of P.C. amount for ironmongery accounts for savings in materials. See footnote for comment on labour
				03		* 1		40		10	*	12			was not used in this operation. This reflects a saving on materials; a comparative saving on labour might have been expected but it was found that labour was high on very small partition areas. Closeness of actual an estimated figures reflects the builder's previous experience
6	69	6				0 4 1		26		11		16			No comment A contingency in the estimate for materials and labour for cover fillets, etc.
	0.2	••		0.2		0	,		•		24	16			seen to have cancelled out, and which would not have shown at all but for the labour and material breakdown
5	124	14	9	154	1	3	0	134	5	0	101	7	9	9	Column 2 includes a figure of £10 for sub-contract labour for external plastering which was originally included in contractors' own labour estimat (column 3). There was also a double error in the estimate which can be
4	133	10	9	121		6 1	0	95		11	35	1	•	6	Substitution of simpler method of ceiling suspension during course of works. This was discussed during the design stage and agreed that it was one of the things on which thought could continue during the progress of the works. Estimating was confused by method of presentation of information i.e., no B.O.Q., and this is one instance where the estimate increased through the altered presentation
3	453	18	7	485	1.	1	1	76	15	4	21	8	1	I	A figure of £36 included in column 2 for fixing roof by sub-contract partl offsets difference in labour costs, but contractors' estimate for fixing roof included in column 3 was high due to unfamiliar construction
2	259	6	2	263		7	4	160	17	0	156	2	1	1	labour costs. Reduction in thickness of floor slab (intention to use thicker ground floor slab finish for floor coverings was not possible due to delay) and ability to use site rubble for hardcore contributed to reduced materials costs P.C. for fireplace increased
1	£ :			_		d.		-	s. 17		£ 135	s. 18			Schedule upset by alterations in drainage and delay with resultant higher
	Estin.	rate	d	Act.	ual	1		Estir 3	nati	ed	Actu	al			

Notes

- 1. All labour figures include allowance for on-site costs, e.g., holidays with pay, national insurance, travelling expenses, tool money and dirty money; all figures for materials and labour are those before the addition of 13% for establishment charges and profit
- 2. Due to the speeding up of later operations in order to make up time lost in schedule, second fixings were going on together, making the separation of labour very difficult.

 It would appear that costing records for operations 8, 11 and 12 are not entirely reliable
- 3. It was found in practice very difficult to separate the painters' work in respect of the various operations and it was necessary to cost the trade, and assess and allocate amounts for materials and labour accordingly

Fig. 6. Table of estimated and actual costs.

Costs

The houses which were built under a negotiated contract were begun on Aug. 22, '55, and completed on November 5 (11 weeks). The cost, excluding drainage and site works was £3,652 15s. 6d. or 44s. 3\frac{1}{4}d. per sq. ft. (floor area: 1,650 sq. ft. for the three houses). This may be compared with an equivalent "traditional" project estimated by the same builder to cost £4,254 16s. 10d. or 49s. 3d. per sq. ft. based on an

area of 1,728 sq. ft. (to allow for increased thickness of partitions), and a contract time of 15 weeks. As a result of experience gained, it is thought that the 11 week contract period could be reduced to 9 weeks. Detailed costs are shown in Figs. 5 and 6. Fig. 6 gives the estimated and the actual costs for each element, and, in notes alongside, the reasons for differences between them. The labour figures

include holidays with pay, national insurance, travelling expenses, tool money and "dirty" money, but they exclude overheads, profit and development costs. These are explained in greater detail below. Fig. 5 shows a cost analysis in shillings per sq. ft. of floor area, broken down into separate elements.

Col. 1 gives the estimated prices. These correspond to the figures in Fig. 1, but include 13 per cent. for overheads and profit. Cols. 2 to 6 give the element prices for materials, labour, plant and transport, overheads and profit. Col. 7 gives the sum of cols. 2 to 6 and represents the "normal" cost, excluding development costs.

Col. 8 shows the development cost attributable to particular elements. For example, changes in the site slab design made by the district surveyor added 3\fmathbf{4}d. p.f.s. Development costs not attributable to particular elements total 5s. 1d. and are shown at the bottom of col. 8. Col. 9 gives the sum of cols. 7 and 8 and is the cost actually paid by the client. Col. 10 gives the costs of a "traditional" equivalent project estimated by the same builder and based on more familiar forms of construction and a longer contract time.

Cost Comments

During construction the costs were affected by a number of factors:

- 1. The district surveyor did not accept the BRS bending formula of $\frac{WL}{100}$ for ground beams and required,
- at a late stage, both larger reinforcement and a different grade of aggregate.
- The drainage inspector twice required the drains to be altered and subsequently returned to the modified design, which involved the grubbing up of concrete beds.
- 3. There were visits by the press and film company.
 4. The MWB, were three weeks late in laying on a standpipe and thus water had to be drawn from nearby houses or brought onto the site by lorry, work continuing in order to meet a completion date already fixed.
- 5. The pre-stressed concrete gutters which also act as purlins, were $3\frac{1}{2}$ days late in delivery.
- 6. Unfamiliarity with either methods of construction, or with the system of presenting information, on the part of the contractor caused errors and imprecise estimating.

The direct additional cost of items (1) and (2) has been counted as "development" cost and is shown in col. 8 in Fig. 5. The *indirect* additional cost of items (1) to (5) incurred through the disruption of the planned sequence of operations is included in normal costs (col. 7) and is reflected in differences between the estimated and the actual costs in Fig.6. It is evident that while the experiment did not go "according to plan," many of the misfortunes that befell the contractor are of a kind commonly experienced, but not usually costed.

The value of cost analyses lies in the opportunity

they offer for comparing different forms of construction serving similar purposes. Although in this case, the comparison is between the "corrected" costs for an actual job and the estimated cost of a hypothetical job (column 10), some conclusions, of value in future work, can be drawn. The main savings occur in preliminaries, work below ground, panel infill walls, ceilings and partitions. The total saving of these five elements is 5s. 31d. p.f.s. of floor area, of which 2s. 6³/₄d. is contributed by work below ground. This is mainly a vindication of short bored piles, which are few in number as the job is of light construction. The saving in Preliminaries is a reflection of the shorter contract time, and the saving in panel infill walls, ceilings and partitions results partly from the basic materials chosen and their proper use in design. and partly from the precision with which they were specified. Thus fulfilling the client's brief and substantiating the contention that this construction need be no more expensive than "traditional" forms.

Of equal interest are the elements which have cost more than in the "traditional" equivalent project: roof construction, plumbing and decorations. Of these, roof construction contributes the largest proportion: 114d. The cost is high because it was the work of three different sub-contractors—for the alloy sheeting, the metal lattice purlins and the pre-stressed concrete gutters (which also act as purlins).

One interesting consequence of the design was the low cost of cartage of waste from the site (£17 10s. for the whole contract). This was due to accuracy of specification and thus of ordering; and to the use of brick rubble as hard-core in the oversite concrete. The walls were built before the site slab was laid. There was also a reduction in spoil resulting from the use of short bored piles. This latter factor produced a clean site during the early stages of the work, which had a good effect on the operatives.

Labour Costs

Reduction of labour costs is of course the key to greater economy in operations.

It was estimated that labour in a traditional equivalent of the project would be about 37.50 per cent, of the cost of the block complete with foundations and about 41 per cent, on the total cost (including preliminaries, drainage and site works). At Woolwich, comparative figures were 34.07 per cent, and 38.75 per cent, respectively, on the "normal" cost shown in column 7 of Fig. 5; these percentages take into account subcontractors labour and represent an estimated reduction of about 14 per cent, in the cost of labour over the whole contract. This is partially off-set in the total cost savings by the higher cost of materials used on this type of construction.

Development Costs

The architects and quantity surveyor have apportioned £557 5s. or 6s. 9d. per ft. sup. as costs that would not normally be expected in a "routine" job of this kind. This includes £77 for overtime pay to catch up on





Fig. 7 (top left): the completed dwellings on the Coldharbour estate at Woolwich. Fig. 8 (above left): during construction, showing the load-bearing cross walls and lattice roof joists. Roof support at the eaves schedule, £258 wages of a costing clerk, and exceptional time spent on supervision and costings, £21 for sundry development labour, and £64 expenditure on technical and press visits and the opening ceremony.

Lessons Learned

The lessons learned by the architects, quantity surveyor and the builder from this experiment are summarized as follows:

Estimating: This took much longer than is usual, because of the unfamiliarity of the documents, and there were some errors due to ambiguities and over-lapping between the drawings and information for different elements. These are felt to be teething troubles only, because the information given to the contractor is a good deal more complete and detailed

is provided by a pre-stressed concrete gutter. Fig. 9 (below left): placing lattice joists. Fig. 10 (below right): fixing honeycomb-core plasterboard partition panels.





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for items that matter than he would get with the normal "eighth scale and specification." The pricing of unfamiliar types of construction was still high for certain elements—Roof construction and ceilings—but the recording of actual costs shows what difference this makes and provides a basis for the estimating of future work.

On subsequent contracts the same builder has found it possible to estimate more quickly and to programme his site work at the same time. The architects have also found it possible to pre-plan their drawing office work and target the time for production of each element sheet (drawing, specification and schedules), On subsequent jobs, targets based on RIBA scale fees, broken down for each element, using drawing office "cost" as a norm, have been beaten by 30 per cent. to 40 per cent., indicating that it is possible—even with a system of such complete detailing, to show a profit on these small contracts.

Building operations: The builder states that the method of presenting information by elements made programming of site work easier, but it is essential that the general foreman be thoroughly familiar with the drawings. The splitting of material quantities among several elements-for example carcassing timber-may lead to errors in ordering, although it should be remembered that a job of this size would not normally have a schedule of quantities. The builder also suggests that a "key" drawing of the whole project is necessary, perhaps to a smaller scale, so that the foreman can "see where he is" in the job. The architects have conformed with this request on subsequent jobs, though not completely agreeing, since they believe there is a danger of misuse—the key drawing being used and perhaps scaled from, when the actual dimensions for an operation are shown on the detail sheets.

Costing and Contract

On this job it proved essential that the planned sequence of operations is adhered to in order to gain the benefits of pre-planning. Delays which occurred in the earlier stages of the contract affected finishing trades, with consequent higher cost of the project. This is a lesson to be borne in mind by architects, building authorities, sub-contractors and all other parties to the building team.

The "crowding" of labour at the end of the contract affected the accuracy of cost recording. If operations fall behind schedule so that men are dividing their time between two or more operations simultaneously, time sheets cease to be an accurate record. In fact, it was difficult to accustom the average workman to think in terms of elements. Labour expenditure on each element was recorded by the foreman or costing clerk. It is because of this and the costing details kept that the payments to the contractor for clerk and costing are rather high. For projects subsequent to the Woolwich scheme the procedure has been for the number of hours worked by each man to be marked

off against elements. Further breaking down of single operations within elements, while desirable for all elements, is considered necessary only on operations suspected of high labour content, which simplifies costing considerably.

Labour quantities are the key to building economy and the disclosure of labour costs gives the architect valuable information for guidance in choosing methods of construction for future work. But builders are not likely to disclose what is usually regarded as confidential information without some defence against "blackmail" by the architect. This is a question of the terms of the contract. The architect and the quantity surveyor are at present experimenting with a contract in which the builder is paid actual costs plus a fixed fee representing gross overheads and profit.

Conclusions

- All drawings are required by the contractor at the time of estimating.
- 2. It is important to ensure faultless co-ordination between all operations, without overlap or omission.
- 3. Pre-planning down to last detail is desirable.
- Materials chosen should be easily available *locally*, e.g. paint can be left to contractor if specification or BSS no. can be stated.
- It is essential that sub-contractors and public authorities or undertakings are dependable in meeting programme dates.
- 6. The inability of tradesmen to interpret new kinds of drawings is a serious drawback. Many building operatives, including trades foremen, and sometimes general foremen, have never been taught to read a drawing, but have merely "picked it up." Thus when a simpler, more logical type of drawing is used they fail to interpret it correctly. This, presumably, is something that can only be overcome by education. 7. The construction justifies the client's belief that prefabricated construction used in this context is at least as cheap as the usual conventional methods.

Building Research Station, Operations Research Unit carried out their own check throughout the construction, and have subsequently submitted the results to close scrutiny. While their conclusions are not exactly the same—being based upon different aims—they support this contention.

8. The tender documents have proved adaptable for the alterations necessary to conform with local characteristics and requirements when used in different parts of the country. The system is capable of adaptation and improvement to cope with other buildings of a more complicated nature where the Bill of Quantities and Schedules can be incorporated in the one set of tender documents.

The fees involved under scale charges for architects and quantity surveyors work should prove adequate for the amount of work involved. But proportions for different phases of the work within these scales may merit adjustment.

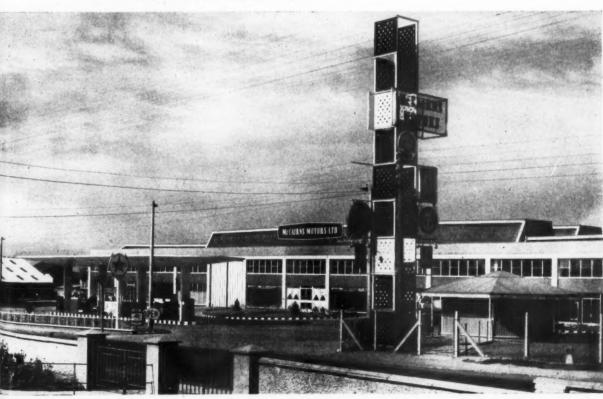
GARAGE

At SANTRY HALL, SANTRY, DUBLIN, IRELAND, designed by MICHAEL SCOTT assistants ERHARDT LORENZ, AODHAGAN BRIOSCU, SEAN ROTHERY and PATRICK SCOTT

consultants (structural) OVE ARUP and PARTNERS; (heating and electrical) VARMING and MULCAHY; quantity surveyors MORRIS and KAVANAGH

This building, which is the first of its kind to be illustrated in the JOURNAL'S new style of job presentation, is basically a large service station and spare parts store for the various types of vehicle handled by the clients, McCairns Motors Ltd. There is an "island" for serving petrol and oil in the forecourt and a carefully detailed scheme of landscaping designed by the architect and carried out under the direction of the client's wife. The site lies about half way between the city and Dublin airport, on the main road to Belfast.

Viewpoint 1: the garage and forecourt from the north-east.



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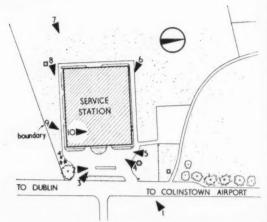
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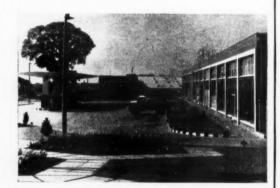


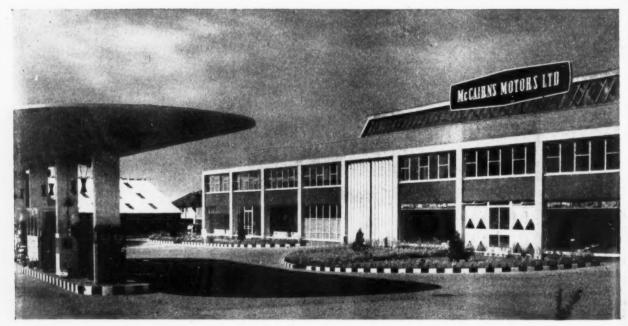


Top left (viewpoint 2): the forecourt from the south. On the left are the garage showrooms; in the centre is the petrol pump island; beyond it is a kiosk for the sale of cigarettes, confectionery, daily papers, ices, soft drinks, etc. The architect-designed "totem pole" is an attempt to group and display as effectively as possible the various trade symbols that otherwise clutter up the approach to a garage; the voids are to lessen wind pressure. As can be seen from viewpoint I, a number of signs, other than those fixed to the tower, have crept into the scheme. Above left: the petrol pump island and part of the east facade of the garage are seen at night in viewpoint 3. The unfortunate fascia lettering on the left was later replaced by the sign seen in viewpoint 4. Under this temporary sign are the double doors in the centre of the main facade, flanked by eight panels made of extruded steel pressings. These panels are convex and are painted to form a type of trompe l'oeil. The canopy ever the petrol pump island is illustrated as a Working Detail in this issue. Below (viewpoint 4): the forecourt seen from the edge of the rose garden. On this side of the main building are showrooms on the ground floor and offices, staff canteens, etc., on the first floor.



Below (viewpoint 5): this photograph, taken from the rose garden to the north of the forecourt, shows the entire east facade of the main service station. It also shows the carefully-detailed planting and paving. The scheme is an example of the advantages to be gained when an enlightened client gives his architect a free hand in planning, construction, decoration, furnishing, landscaping and even display. A detail plan of the garden layout is shown on page 283.





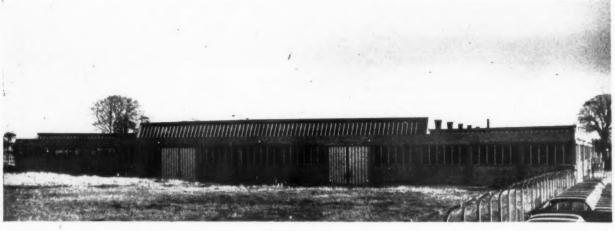
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GARAGE

at SANTRY, DUBLIN, IRELAND designed by MICHAEL SCOTT



Top (viewpoint 6): the north facade of the service station. Half-way along this side of the building is a tall sliding door and overhead gantry for unloading equipment into the spare parts department.

Above (viewpoint 7): the west facade. Note the two types of monitor roof lights; high in the centre and at a low level on the north and south sides. As these external photographs show, the immediate surroundings of this garage are kept remarkably free from broken down vehicles, old oil drums and all the other refuse which is a feature of the perimeter of most garages. Below (viewpoint 8): part of the south facade of the garage. Panel walls between r.c. stanchions are of mass-concrete blocks, left fair faced. The steel sliding-folding doors are painted white, grey or black.

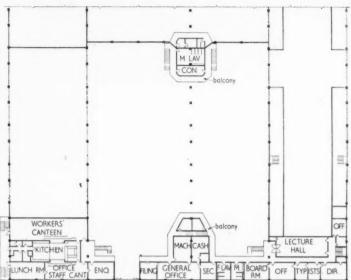




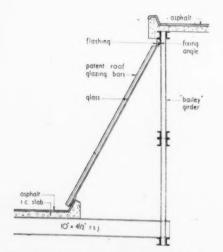
Above (viewpoint 9): the external staircases at the south-east corner of the building, leading to the workers' canteen and lunch room on the first floor. External walling consists of 9-in. mass concrete on the ground floor, and two skins of 6-in. concrete blocks, with cavity, under first floor windows. The stairs are of r.c. construction.



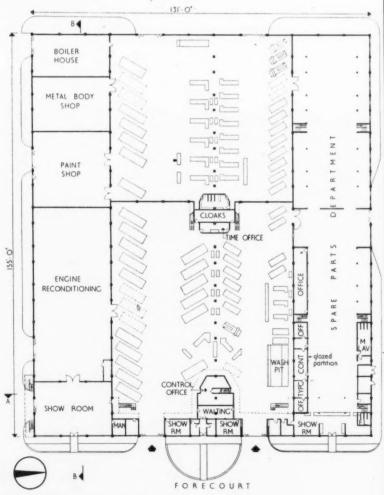
Viewpoint 10: typical junction of high and low level monitor roof lights. Those in the centre of the building have patent glazing at an angle of 61 degrees, flanked to north and south by patent glazing at 39 degrees. The roof finish is asphalt on 3½-in, thick r.c. slabs.



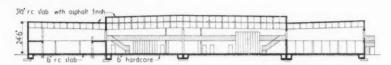
First floor plan



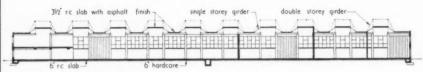
Part section through typical high-level roof-light [Scale: 4" = 1'0"]



Ground floor plan [Scale: 44" = 1' 0"]



Section A-A [Scale: 4" = 1'0"]



Section B-B

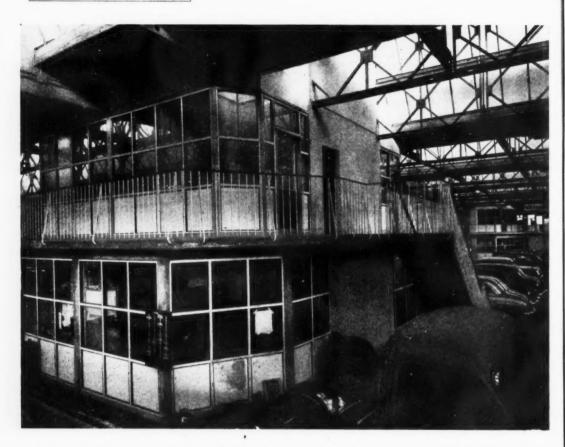
GARAGE

at SANTRY, DUBLIN, IRELAND designed by MICHAEL SCOTT



Left: part of the main repair shop photographed at night. The floor finish is concrete screed with hardener on a 6-in. r.c. slab throughout. The fluorescent lighting gives an illumination level of 12 ft. candles. It seems unfortunate that the client did not leave the design of the large name-signs in the hands of the architect. Below: the south entrance to the repair shop from the first floor balcony. The standard timber-framed partition to offices have upper panels of clear or obscured glass and lower panels faced with hardboard. Frames painted white, glazing beads and doors, blue.

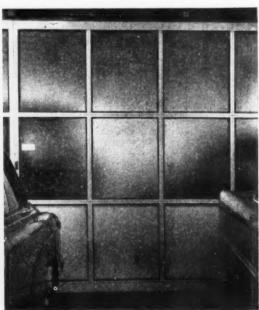


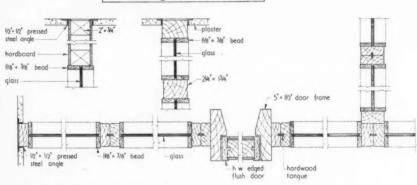


Above: the two-storey block in the centre of the service area. On the ground floor is a service store, in the foreground, and cloakroom and time-keepers' office. On the first floor is a works control office, service manager's office and staff lavatory. A concrete block partition, dividing the service area into two, at this point, had not been built at the time this photograph was taken. Below left: another view of the first floor access

balcony, high level monitor roof lighting and Bailey girders. These girders were not a special solution to this roofing problem, but were something the client happened to have bought. The architect received them with his brief and a scheme, already prepared for the client by a commercial firm, showing the girders used to form roofing. Below right: a close-up of the internal glazed partitioning on the ground floor.







Detail plan and section of internal partition [Scale: 14" = 1'0"]

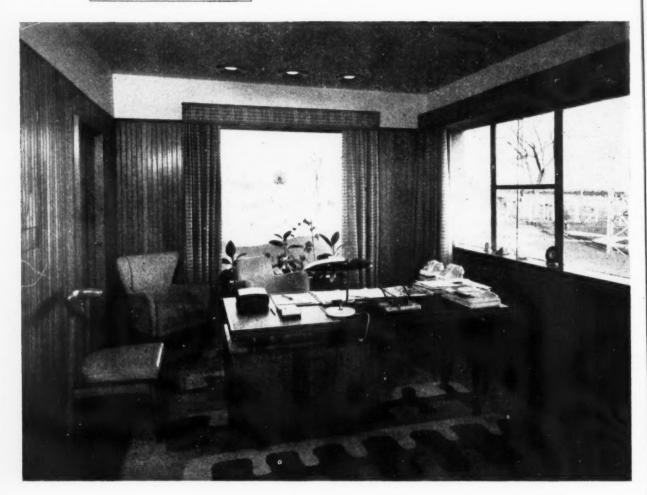
The lecture staff hall on the first floor. Walls are lined with acoustic panels and the indirect trough light fitting is designed by the architect.



GARAGE

at SANTRY, D UBLIN, IRELAND designed by MI CHAEL SCOTT

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Above: the managing director's office at the north-east corner, on the first floor. The hand-made wool carpet is to a special design and the floor finish is wood blocks. Walls are panelled with vertical elm boarding, wax polished. The desk and chairs (below) were specially designed by the architect and are made of elm and teak, wax polished. The desk has a leather top and there is also a specially designed plant box and radio cabinet. Light fittings are of Italian design.





analysis

CLIENT'S BRIEF: his stated requirements

Large workshops for servicing commercial vehicles and cars, showrooms and offices, a spare parts store for the vehicles assembled and distributed by the client and a petrol service station.

SITE: topography, surroundings, access, planting

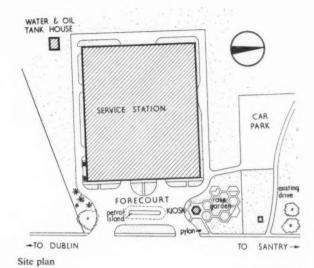
The ground occupied by the building is fairly flat, but rises gently towards the west. To the north a large car park has been made. The site is on the outskirts of the old village of Santry, now absorbed by the northern suburbs of Dublin. The building faces the main Dublin-Belfast road, which also serves Dublin Airport. Some fine old trees on one side of the site have been preserved. A rose garden has been provided on one side of the building. There are small trees and shrubs on the other side, and there are grass areas in front of the building and a service station.

PLAN: general appreciation

The building consists of a simple rectangular unit, capable of expansion. The nature of the business required display windows and entrances on the front giving access from the service station forecourt.

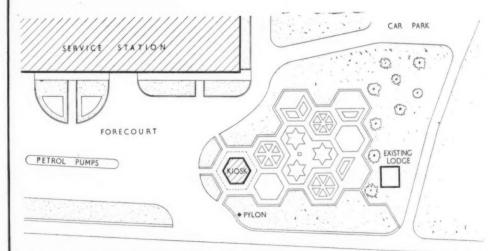
MAIN CONSTRUCTION: general appreciation

The client had purchased a number of Bailey girder units and because of the scarcity of steel at the time he wanted a structure which made use of these units as roof members.



GARAGE

atsantry, DUBLIN, IRELAND designed by MICHAEL SCOTT



Plan of rose garden layout and landscaping [Scale: 10"]

STRUCTURAL ELEMENTS

Work below ground floor level: Location foundation type, basement

Strip foundations Throughout Materials

Reinforced concrete

Finish

Reasons and comments

Instead of being built on the middle level of the 8-ft. fall from west to east, the garage was built into the slope. With modern earth-moving equipment this is cheaper

analysis

External walls and facings	Location	Materials	Finish	Reasons and comments
Panel walls	Workshops and parts store	Concrete block	Fair faced	
Panel walls	Offices	Concrete block	Coloured plaster	
Steel panels	Public toilets		Painted	
Frame or load bearing element	Location	Materials	Beam Column spans grid	Reasons and comments
Columns and beams	Offices and mezzanine	Reinforced concrete	20 ft. 3 in. 3 17 ft. 4 in.	space used for large commercia
Columns and Bailey girders	Workshops and parts store	Reinforced concrete and steel	60 ft. 17 ft. 4 in. × 60 ft. 17 ft. 4 in. × 80 ft. 12 ft. 1 in. > 60 ft.	
Upper floor construction	Location	Materials	Finish	Reasons and comments
Slab	Mezzanine balconies	Reinforced concrete	Concrete screed	
	Offices	Reinforced concrete	Asphalt tiles	
	Toilets	Reinforced concrete	Terrazzo	
Staircases	Location	Materials	Finish	Reasons and comments
Reinforced concrete	Outside canteen. All internal stairs		Concrete screed, asphalt tiles and screed	
Roof construction	Location	Materials	Finish	Reasons and comments
Monitor roof with concrete flats at two levels	Main workshop, parts dept., paint shop, etc.	Bailey girder panels and transomes	Oil painted over lecture hall	At the time steel was scarce and costly. The girders, as used for
Slab	Offices	Reinforced concrete	Asphalt	military purposes, had been purchased by the client shortly after the war
Rooflights	Location	Materials	Finish	Reasons and comments
Monitors	Glazing inclined between high and low slabs	Patent glazing		A high degree of natural light was required
Windows	Location	Materials	Finish	Reasons and comments
Floor to ceiling display windows	Showrooms	Plate glass and steel sashes	Oil paint	These windows face the main Dublin-Belfast road
	Offices	Steel		
External doors	Location	Materials	Finish	Reasons and comments
Sliding-folding gates	Entrances to shops showroom, etc.	Sheet steel with small observation windows	Painted white, grey and black	

PARTITIONING

Internal partitions	Location	Materials	Finish	Reasons and comments
Cavity blocks	All solid non-load bearing partitions	Concrete	Fair-faced, limewashed, plastered and painted	
Screens	Location	Materials	Finish	Reasons and comments
Standard units	Offices and balconies. Works control	Timber frame, upper panels glass, lower panel hardboard	Panels and glazing beads oil painted, blue. Frames white	Supervision from works contro and parts controller
W.C. doors and partitions	Location	Materials	Finish	Reasons and comments
Flush panel doors	All toilets	Timber	Oil paint. High gloss	
Block partitions	All toilets	Concrete	Plastered and terrazzo	
Internal doors	Location	Materials	Finish	Reasons and comments
Flush panel	Offices, lecture hall, etc.	Timber	High gloss dark blue oil paint	Easy cleaning necessary due to frequent contact with greasy, soiled hands
Ironmongery to internal doors	Location	Materials	Finish	Reasons and comments
Continental type mortice locks. Lever handles			Satin aluminium finish	

analysis

FINISHINGS

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Floor finishes	Location	Materials	Finish	Cost per sq. yard
Concrete	Main workshop etc.	Conc. screed with hardener		
Terrazzo	Main showroom and toilets			
Asphalt tiles	Offices			
Fitted carpet to special design and wood block	Managing Director's office	Hand made wool carpet		
Wall finishes	Location	Materials	Finish	Reasons and comments
Plaster	Office		Oil paint	Managing director's office is small, and secret cupboards
Terrazzo	Toilets			containing wardrobes, safe, cocktail cabinet and w.c. were
Hardwood in narrow widths	Managing Director's office	Kiln dried Irish elm	Wax polish. Eggshell finish	designed to be concealed behind the timber sheeting
Ceiling finishes	Location	Materials	Finish	Reasons and comments
Concrete soffits	Generally		Cement paint. Oil paint	
Decorations	Location	Paint types	Munsell or other ref.	Colour scheme and comments
Venetian glass mosaic	Showroom columns			
Paint	Office screens and wall. Built-in cupboards etc.	Oil		Blue

FITTINGS

Other fittings	Location	Materials	Finish	Reasons and comments
Counters	Parts store	Timber and glass	Lino top	Chairs, desk, radio cabinet and
Steel racks	Parts store		Stove enamelled	plant holder were designed by the architect for the client's private office
Furniture to special designs	Director's office	Elm and teak. Square section. Steel tubes	Wax polish. Leather top desk	once
Kitchen equipment	Location	Materials	Finish	Reasons and comments
Not yet installed				

SERVICES

Rain water disposal	Location	Materials	Finish	Reasons and comments
Internal r.w. pipes		Steel	Stove enamelle d	
Plumbing internal	Location	Materials	Finish	Reasons and comments
Waste disposal. Two pipe system		Light gauge copper brazed		
Hot water storage	Location	Materials	Capacity	Reasons and comments
Two steam-water storage calorifiers	Central	Copper	200 gal.	One for canteen and offices. One for central toilets
Cold water storage	Location	Materials	Capacity	Reasons and comments
Low level water tanks boosted water supply	Outdoor	Cast iron sectional	2,000 gal.	Poor mains pressure
Plumbing: sanitary fittings	Location	Materials	Finish	Reasons and comments
Vitreous earthenware				
Heating installation	Location	Criteria temp.	Air change rate	Reasons and comments
Heat exchanger type. Steam-water instantaneous calorifier	Central	65° F. in offices 58° F. in workshops	3 per hour 1,500 cubic ft. per hr. per person in workshops	The plenum heating system for workshops has been postponed
Boiler type and capacity	Location	Heat load and fuel type	Stoking method	Reasons and comments
Oil fired packaged type	Boilerhouse	1.7 million B.T.U.s per hour. 200 sec. oil	Fully automatic pressure type burner. Modulating control	

Soil and rainwater to separate mains Land drains to soakaways Open jointed concrete pipes Gas installation Location Materials Finish Reasons and comment. Gas to boiler as standby. Gas outlets to brazing equipment Electrical installation source and fitting type Fluorescent throughout Industrial type vitreous Workshops 12 F.C. in offices Location Location Location Location Location Reasons and comment. Specially designed indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment. Reasons and comment. How distributed Reasons and comment.	analysis				
Land drains to soakaways Open jointed concrete pipes Gas installation Location Materials Finish Reasons and comment. Gas to boiler as standby. Gas outlets to brazing equipment Electrical installation source Location Illumination level Quality Reasons and comment. Gas outlets to brazing equipment Electrical installation source Location Illumination level Quality Reasons and comment. Specially designed indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment. V.I.R. conductors in screwed galvanized Generally Power supply type Location How distributed Reasons and comment.	Drainage: type of system	Location	Materials	Finish	Reasons and comments
Land drains to soakaways Open jointed concrete pipes Gas installation Location Materials Finish Reasons and comment. Gas to boiler as standby. Gas outlets to brazing equipment Electrical installation source Illumination level Quality Reasons and comment. Gas outlets to brazing equipment Electrical installation source Location Illumination level Quality Reasons and comment. Specially designed indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment. V.I.R. conductors in screwed galvanized Cenerally Power supply type Location How distributed Reasons and comment.	Soil and rainwater to separate mains		Glazed earthenware		
Gas to boiler as standby. Gas outlets to brazing equipment Electrical installation source	Land drains to soakaways			*	
Gas outlets to brazing equipment Electrical installation source Location Illumination level Quality Reasons and comment. and fitting type Fluorescent throughout 20 F.C. in offices Louvred type in offices Industrial type vitreous Workshops 12 F.C. in shops Specially designed indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment. V.I.R. conductors in screwed galvanized Generally Power supply type Location How distributed Reasons and comment.	Gas installation	Location	Materials	Finish	Reasons and comments
Electrical installation source Location Illumination level Quality Reasons and comment. and fitting type Fluorescent throughout 20 F.C. in offices Louvred type in offices Industrial type vitreous Workshops 12 F.C. in shops Specially designed indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment. V.I.R. conductors in screwed galvanized Generally Power supply type Location How distributed Reasons and comment.	Gas to boiler as standby.				
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Industrial type vitreous Workshops 12 F.C. in shops Specially designed indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment. V.I.R. conductors in screwed galvanized Generally Power supply type Location How distributed Reasons and comment.		Location	Illumination level	Quality	Reasons and comments
enamel indirect trough fitting in lecture hall. Italian fittings in Director's office Wiring and switching types Location Materials Reasons and comment V.I.R. conductors in screwed galvanized Generally Power supply type Location How distributed Reasons and comment	Fluorescent throughout		20 F.C. in offices	Louvred type in offices	
V.I.R. conductors in screwed galvanized Generally conduit Power supply type Location How distributed Reasons and comment.		Workshops	12 F.C. in shops	indirect trough fitting in lecture hall. Italian fittings in Director's	
Power supply type Location How distributed Reasons and comment.	Wiring and switching types		Location	Materials	Reasons and comments
	V.I.R. conductors in screwed conduit		,		
a share A C are are V	Power supply type		Location	How distributed	Reasons and comments
3 phase A.C. 220–330 v. P.I.L.C.A. mains in ducts The building has its ducts	3 phase A.C. 220-330 V.			P.I.L.C.A. mains in ducts	The building has its own transformer station
Paved areas Location Materials Reasons and comment	Paved areas		Location	Materials	Reasons and comments
Concrete slabs laid in sand Pathways along front	Concrete slabs laid in sand		Pathways along front		

COST DETAILS

November 1950

Total ground floor area of superstructure	20,300 sq. ft.		
Total floor area (excluding basement)	29,100 sq. ft.		
Tender date	Tender cost of superstructure	Installations and finishings	Cost per ft, super of floor

£55,000

45s. 6d.

CONTRACTORS

Collen Bros. Ltd. General contractors: Sub-contractors: Asphalt: South of Ireland Asphalt Co. Ltd. Glass: Dublin Glass & Paint Co. Ltd. Patent Glazing: Henry Hope and Sons Ltd. Structural steel and casements and fireproof Excavation was by face shovel and dumpers, and doors: Smith & Pearson Ltd. Patent flooring: Irish Dunlop Co. Ltd. Central heating, plumbing and sanitary fittings: H. A. O'Neil Ltd. Electric wiring: Electrical Enterprises Ltd. Door furniture: Irish Overseas Importing Co. Ltd. Folding gates: Bolton Gate Co. Ltd. Plaster: T. J. Meehan. Marble: J. Logan. Tiling: Verso Bros. Furniture: J. V. Bowden & Co. Ltd. Paint: C. J. Treacy.

SITE ORGANIZATION

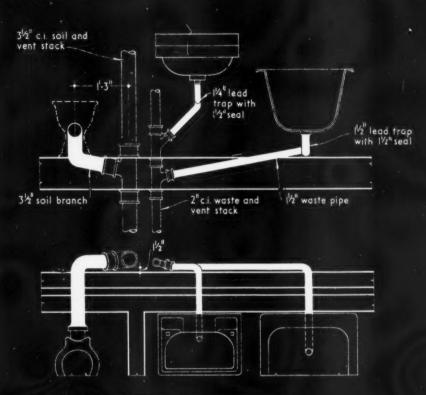
£144,000

Site labour and equipment: there was a resident engineer with general foreman, foreman carpenter, foreman steel fixer and ganger, under personal control from a visiting director. concrete was distributed by dumpers and hoists. Sub-letting: the plastering and painting was sublet for better control of quality.

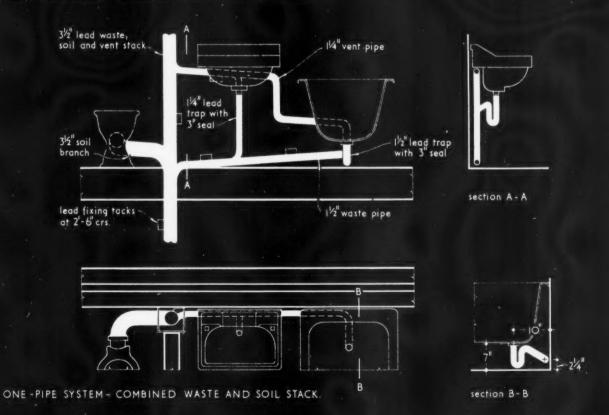
Job management: progress charts were used and as the site was very near the head office a director was able to visit the site every other day.







. TWO-PIPE SYSTEM - SEPARATE WASTE AND SOIL STACKS.



LEAD PLUMBING: SOIL AND WASTE PIPES FOR SMALL HOUSES.

Compiled from information supplied by The Lead Sheet and Pipe Council

33.C3 LEAD PLUMBING: SOIL AND WASTE PIPES FOR SMALL HOUSES

This Sheet sets out the general principles of soil and waste disposal plumbing for small houses. The two examples illustrated show arrangements where a two-pipe system is employed, *i.e.*, separate waste and soil stacks, and a one-pipe system, *i.e.*, combined waste and soil stack. Both examples are based on a typical grouping of appliances; for all normal groupings the same general arrangement of pipework will be suitable.

Two-Pipe System-Separate Waste and Soil Stacks

The two-pipe system, with the stacks and branch pipes fixed externally, has been the most usual arrangement adopted for small house disposal plumbing.

Waste and soil stack: The waste stack to which the bath, basin and possibly sink are attached, is connected to a back inlet gulley on the drain. The soil stack is connected direct to the drain. The stacks should be carried up to a point 2 ft. above the level of the top of any window within a distance of 15 ft. from their open ends.

Branches: These should be kept as short as possible. The lengths needed for the usual close grouping of appliances in small house work should not be excessive for unventilated waste branches.

Traps: Traps for bath, basin and sink branches have a $1\frac{1}{2}$ -in. seal where the waste stack is separate from the soil stack. The waste branch from the sink may be connected to the waste stack if the sink is conveniently sited, but may otherwise be connected direct to a back inlet gulley on the drain.

Open hopper heads: The widely used practice of discharging the wastes from sink and bath into a hopper head is not considered good, as with this arrangement lengths of fouled pipe are exposed to the open air, almost inevitably near window openings.

One-Pipe System-Combined Waste and Soil Stack

The example shown arranges all pipework internally. The single stack takes up little room and can be fitted within the thickness of the bathroom/w.c. partition. Investigations are being carried out on one-pipe arrangements for small houses, in which all branches are unventilated. As yet no generally accepted recommendations on suitable design principles have been made, but such one-pipe arrangements may be accepted by some local authorities.

Traps: When the one-pipe system is used the best current practice is to ventilate the waste pipe branches and use 3-in. seal traps, instead of the usual $1\frac{1}{2}$ -in. seal.

Vents: Where the w.c. soil branch is short in length and connects to the stack above the waste pipe connection, a vent pipe to it is generally considered unnecessary. The level of the vent pipe loop should be above the level of the lavatory basin outlet.

Sink waste: This is not connected to the stack but direct to a back inlet gulley on the drain.

Soil and vent stack: This is connected direct to the drain and carried up as described above.

Pipe Sizes

The recommended sizes for small house soil and waste pipes are as follows:

Two-pipe system: Lavatory basin branch $1\frac{1}{4}$ in. by 6 lb. per yd.; bath $1\frac{1}{2}$ in. by 7 lb. per yd.; sink $1\frac{1}{2}$ in. by 7 lb. per yd.; w.c. $3\frac{1}{2}$ in. by 17 lb. per yd.

One-pipe system: Primary waste branches as above; main waste branch 1½ in. by 7 lb. per yd.; vent pipes 1¼ in. by 6 lb. per yd. The weights of lead pipe given are in each case those recommended in B.S. 602: 1956 Lead pipe for other than chemical purposes.

Off Site Plumbing

Plumbing for small houses will frequently be repetition work; this can be most economically and expeditiously carried out by preparing elements of pipework in the workshop ready for straightforward site fixing. Difficulties involved in meeting the inevitable dimensional variations of both sanitary appliances and building work are readily overcome with lead pipe, because of its flexibility.

Further Information

The Lead Sheet and Pipe Council maintains a Technical Information Bureau which is available to answer questions and advise on technical problems dealing with this subject generally.

Compiled from information supplied by:

The Lead Sheet and Pipe Council.

Address: Eagle House, Jermyn Street, London, S.W.1.

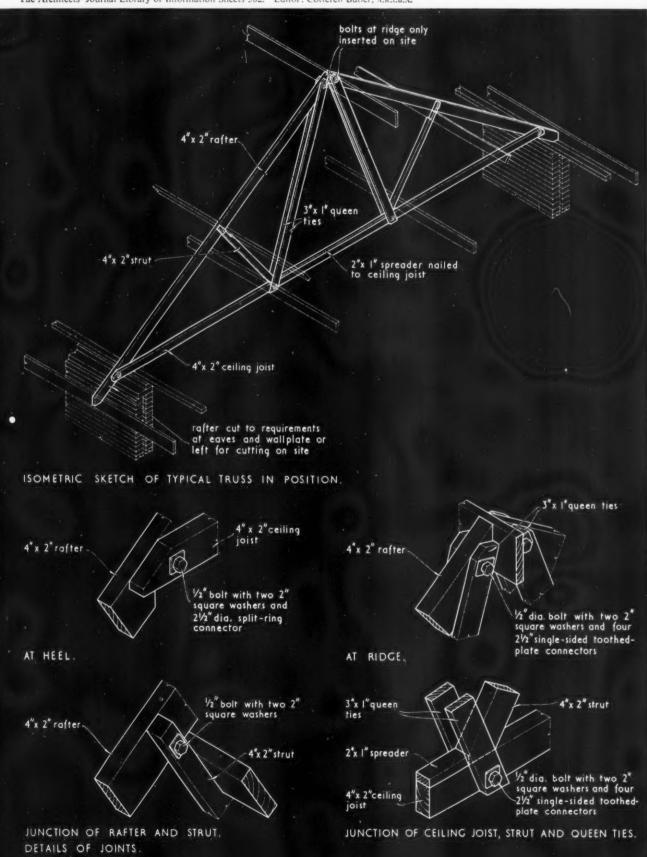
Telephone: Whitehall 4175.

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20.E3 · R.T.E. TIMBER ROOF TRUSS (Patent applied for)

This Sheet describes the R.T.E. prefabricated timber roof truss. This is delivered to the site folded up and the insertion of two bolts at the ridge is all that is necessary for its assembly.

Construction

The rafters, struts and ceiling joists are in parallel planes, giving face to face contact at the joints. Being factory-made, the connector joints are more precise than is possible with hand, or even power-assisted tools, on the site. The connectors are wholly and squarely embedded in the timber and the bolt holes drilled in exact position, end distances being meticulously observed, in accordance with B.S. Code of Practice CP. 112: 1952 The structural use of timber in buildings.

Ceiling joist: The ceiling joist is in one piece from end to end, supported by the queen ties, and it functions as a continuous beam over three spans, giving greater load-bearing capacity and reduced deflection. Where the joist has to be joined, owing to its length, the special R.T.E. joint is used, glued with synthetic resin glue.

Queen ties: The symmetrical arrangement of the double queen ties ensures that the load is equally divided between them and also between the connectors, thus developing their maximum strength.

Strut: The strut rests squarely on top of the ceiling joist between the double queen ties with the horizontal component of the thrust resisted by a spreader. This enables the load on the strut to be transmitted to the joist without bolts or connectors. There are no connectors between rafter and strut, as the rafter load is transmitted to the strut through the purlin.

Sizes and Types

The trusses are available in spans up to 30 ft. 0 in. in any pitch for hipped and gabled roofs.

Fixing

The truss is delivered to the site folded up and when it is unfolded, with the struts placed in position between the queen ties, all that is required to transform it into a rigid structure is the insertion of the two bolts at the ridge into the pre-drilled holes. When folded, the trusses may be easily stored on the site and protected by tarpaulin from sun or rain, if desired. To obtain the greatest advantage from the one-piece ceiling joist of the truss, R.T.E. one-piece common ceiling joists should also be used. This means there is no waste in the cutting of ceiling board as occurs where there are bolted lap-joints in the joists. The arrangement of the truss bracing necessitates using two rows of binders only. The truss rafter may be cut to requirements at the eaves and wall plate or it may be left for cutting on the site.

Preservation

The trusses can be treated before delivery, if desired, with Protim, a water-free preservative which gives lasting protection against insects and fungi.

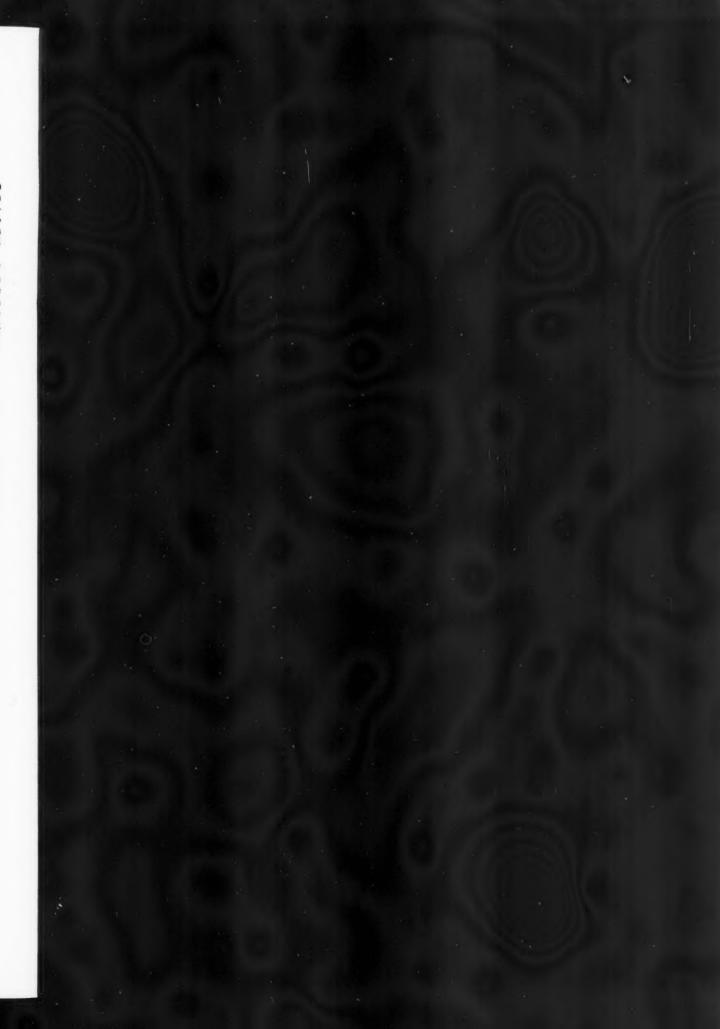
Relevant British Standards and Codes of Practice

The R.T.E. truss is designed in accordance with the provisions of B.S. Code of Practice CP. 112: 1952 The structural use of timber in buildings. All glues used are of the urea formaldehyde gap-filling type and comply with B.S.1204: 1945 Synthetic resin adhesives for wood. Bolts and nuts comply with B.S. 84: 1940, black nuts with B.S. 916: 1946, and connectors with B.S. 1579: 1953.

Compiled from information supplied by:

Rainham Timber Engineering Co., Ltd.

Address: Frog Island, Rainham, Essex. Telephone: Rainham 3311





working detail

ROOF: PETROL FILLING STATION, SANTRY, EIRE

Michael Scott, architect; Ove Arup and Partners, consulting engineers

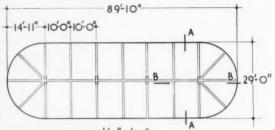


The roof of the canopy is stiffened by tapered upstand beams running from the outer rim inwards to an upstand spine which spans between the columns. Rainwater is carried off the roof by copper r.w.p.'s running through the centres of the columns.

working detail

ROOF: PETROL FILLING STATION, SANTRY, EIRE

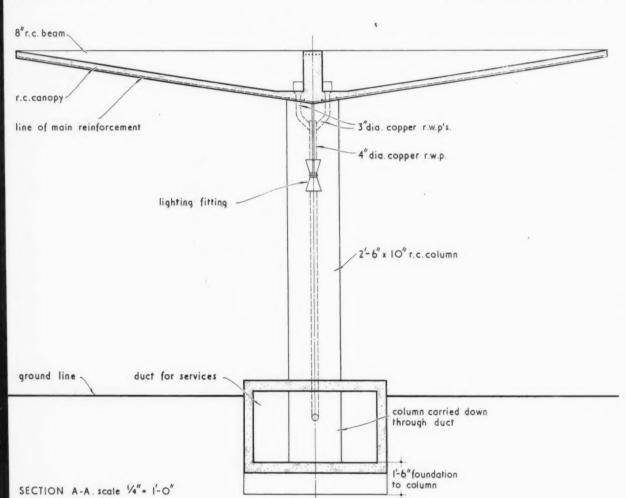
Michael Scott, architect; Ove Arup and Partners, consulting engineers

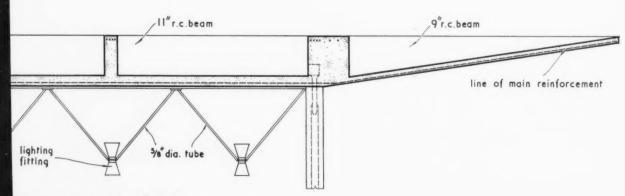


KEY PLAN. scale 1/32"= 1-0"



PLAN OF COLUMN. scale 1/2"=1-0"





SECTION B-B. scale 1/4" = 1-0"

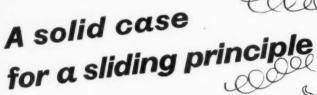


BUILDINGS RECEIVED



A Mobile Showroom

Misha Black and architect William Apps, of Design Research Unit, designed the colour scheme and furnishings of this mobile showroom, which is contained in a caravan made by Berkeley Coach Works, with the internal fittings provided by Pilgrim Mobile Units Ltd. The showroom is primarily being used to demonstrate Olivetti typewriters and calculating machines 10 British farmers. It has already visited the Bath & West Show, the Suffolk County Show, the Royal Counties Show and others. The exterior of the caravan is painted the standard buffgrey of Olivetti machines. but grey, black, red, orange. blue and yellow, with white trim, on cupboards and fittings, enlivens the interior and the display platform.





- A solid has three dimensions."
- 'Elementary.'
 'We have a solid reputation.'
 'Proof, please?'

- Proof, please?"

 Donkeys years ago, when ye olde wooden mullions first slid-and-folded along ye brazen track. Esavian experience began. No similar reputation has such length.
 You're just shooting an imaginary line.

 From Alaska to New Zealand, from Cape Town to China.
 the Esavian principle has proved invaluable. There's width for you—world-width.'
 Your reputation, if you'll forgive the pun, still looks a little "plane".

 When I draw your attention to our fourfold policy of exhaustive research, modern design, impeccable manufacture and painstaking service—you'll see our reputation has considerable height. Q.E.D.

 Jam. as they say, sold. Please supply a grows of your. impeccable manufacture and panishand.

 height. Q.E.D.' I am, as they say, sold. Please supply a gross of your folding and sliding portholes.'

 He had us there! But we can provide doors, windows, partitions and screens of amazing variety.

 Aircraft hangars, factories, garages, fire-stations, offices, private houses. . . most places are all the better for Esavian. Drop us a line and see if we can help you.

principle

Esavian Limited, Esavian Works, Stevenage, Herts.

Tel.: Stevenage 500

Esavian Works, Carfin, Lanarks.

Tel.: Holytown 391.

OBITUARY

John Perks of The Builder

On August 11, John Bernard Perks, the general manager and executive director of The Builder died of a cerebral haemorrhage at University College Hospital. He was the elder son of the late Bernard W. Perks, who was also once manager and executive director of The Builder. John Perks succeeded his father in this position on his father's death in 1948. John Perks first worked for Press Printers, Ltd., a subsidiary of Odhams Press Ltd., the printers of The Builder, to which newspaper he came, in 1947, as assistant to his father. In addition to his work for The Builder, John Perks managed The British Clayworker and The Architects' & Builders' Compendium for companies associated with The Builder Ltd. He was a member of the Council of the Periodical Proprietors' Association, and was chairman of the British Building Documentation Committee. In 1950 he made a tour of Canada on behalf of The Builder. In 1951 he married Brigid, the granddaughter of John Francis Bentley, the architect of Westminster Cathedral.

Announcements

PROFESSIONAL

Ramsey, Murray, White & Ward, F/F/F.R.I.B.A., 32 Wigmore Street, London, W.1. announce that their telephone number has been changed to Welbeck 0681.

D. I. Cantrell, B.A. HONS. ARCH. F.R.I.B.A., 31 Midfoeld Road, Crookes, Sheffield, 10,

will be pleased to receive trade catalogues, etc.

Richard Ferguson, A.A.DIPL., A.R.I.B.A., has changed his address to 124, London Road, Chelmsford, Essex,

TRADE

The Mond Nickel Co. Ltd., have appointed E. T., Gill, B.SC., F.I.M., as Development Officer for Constructional Alloy Steels in their Development and Research Department. He is taking up the position which became vacant when L. W. Johnson was appointed Assistant Manager of the Department.

Enfield Cables announce that their London Branch has moved from 1, The Colonnade, Victoria House, Southampton Row, W.C.1. to larger premises at 19/21, Store Street, W.C.1.

The Directors of the Tomo Group of Companies announce that they have appointed Mr. Harold W. Joynes as Public Relations Officer for the four Companies in the Group. These Companies are: Tomo Trading Co. Ltd., Linden Doors Ltd., Stramit Boards Ltd., and T. F. Sampson Ltd. Mr. Joynes will be operating from the Companies' Offices at Packet Boat Dock, Cowley Peachey, nr. Uxbridge.

The British Aluminium Co. Ltd., announce the following appointments: Mr. P. Ralph has been appointed Vice-President of Aluminium Transatlantic Inc., he will leave for New York in September. Mr. R. A. Martin has been appointed Manager of the Scottish Branch Sales Office, 113 West Regent Street, Glasgow. C.2., in place of Mr. P. Ralph.

The Marley Group will open London showrooms, in the autumn, at 251 Tottenham Court Road. In the meantime, the displays at Messrs. Alfred Goslett's, Charing Cross Road, have been discontinued, and all public enquiries can be made to the Head Office at Sevenoaks, Kent.

The Lincoln Electric Company of Cleveland, Ohio, U.S.A., according to an announcement by James F. Lincoln, chairman of the Board, has terminated its association with Lincoln Electric Company Ltd. of Welwyn Garden City. The sole distributor in the United Kingdom for all their products is now Armco Ltd. of 75 Grosvenor Street, London, W.I., to whom inquiries regarding current products and future developments should be addressed.

Philips Electrical Ltd, have transferred their North-West Regional Headquarters to new premises at 20, Cannon Street, Manchester.

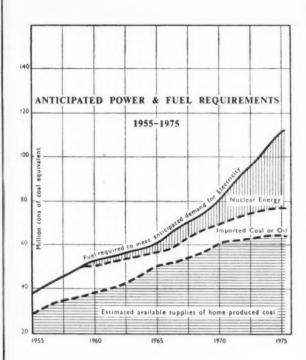
The Caterpillar Tractor Co. Ltd., Desford, Leicester, announce that D. H. Gilliver has been appointed Secretary of the Company and next year he will move to their new factory in Glasgow. They also announce that G. W. Almrott has been appointed Marager of the Company's operations at Leicester.

Correction

The contractors' list for the house at Oulton (AJ, July 19) incorrectly attributed roofing to Wm. Briggs and roofing felt to Stramit; these two references should be reversed.



HANGERS PAINTS LTD. HULL . LONDON . BIRMINGHAM . GLASGOW . TORQUAY & NORWICH



tenham lisplays Cross public office at

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airman ciation td. of utor in roducts Street,

garding

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ald be

Electricity from Nuclear Energy

A 20-year development programme

Britain's nuclear power station construction programme will go far to offset the growing shortage of coal in the next two or three decades.

The First Ten Years

Work will start on the first two nuclear power stations in 1957. These will each have two gascooled reactors and the stations will be in operation by 1960/61. Two further gas-cooled reactor stations — each housing two reactors of improved type — to be begun in 1958/9 will come into service by 1963. The output of these four stations will be between 400,000-800,000 kilowatts.

The construction of two groups of four stations each will begin in 1960 and 1961/2 and they will be supplying electricity to the Grid by 1963/4 and 1965 respectively. The first group of stations will probably

have one gas-cooled reactor each. The second will probably utilise liquid-cooled reactors—one high - rated reactor each. These stations will add well over 1,000,000 kilowatts to the nation's power resources.

The Second Ten Years

By 1975, it is anticipated that nuclear reactor power stations in Britain will have an aggregate installed capacity of between 10,000,000 and 15,000,000 kilowatts. Since these stations will be operated as base load stations working at full output for twenty-four hours a day they will be responsible for possibly half the units generated in the country.



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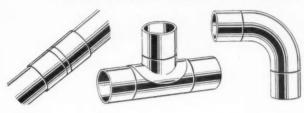
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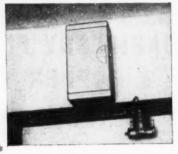


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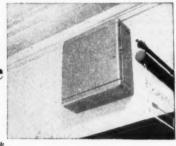
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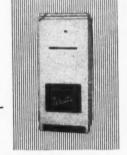
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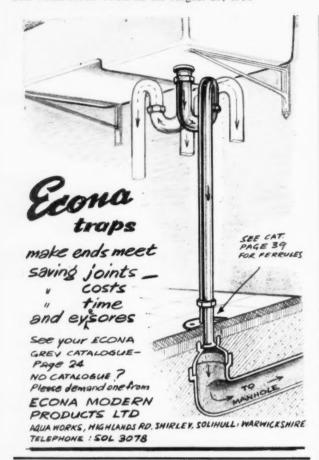
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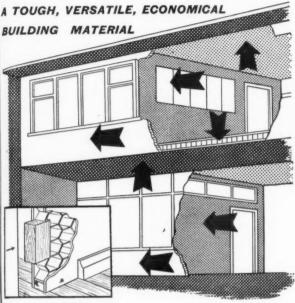
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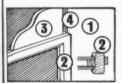
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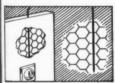
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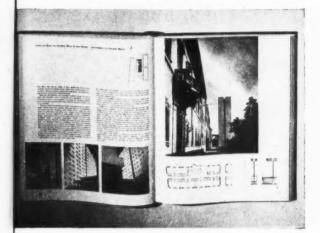






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Varied duties in the Estates and Planning Sections of the Department, particularly with regard to acquisition of property in areas of redevelopment and economics of Planning, including compensation matters. Local Authority experience desirable.

cluding compensation matters. Local Authority experience desirable.

(b) SURVEYING ASSISTANT. (To deal with maintenance work and small afterations to all types of buildings.) Grade: Special Classes of Officers (££690—£340 ner annum). Housing accommodation and car allowance. Candidates should preferably be outlified Members of the Royal Institution of Chartered Surveyors, although consideration would be given to applicants not yet fully qualified, in which case the salary would be at the appropriate lower level.

case the salary would be at the appropriate lower level.

(c) PLANNING ASSISTANT (temporary in the first instance). Grade: Special Classes of Officers, or Grade IV, A.P.T. Division (within the range £690—£885).

Candidates must be qualified Members of the Town Planning Institute; additional qualifications an advantage. Ability to deal on own initiative with general town planning problems desirable, although due consideration given to candidates with an aptitude in a particular field.

Further details and application forms, which must be returned by 31st August, from the City Architect and Planning Officer, Town Hall, Oxford.

Architect Oxford. Please indicate clearly for which post applica-tion is being made.

HARRY PLOWMAN.
Town Clerk.
1994

Town Hall, Oxford.

CITY OF PETERBOROUGH
APPOINTMENT OF ARCHITECTURAL
ASSISTANT. GRADE A.P.T. II
Applications are invited for the above appointment in the City Engineer's Department. Applicants must possess a sound knowledge of building construction and be capable of preparing working and detail drawings under supervision. Previous experience on school buildings will be an advantage.

experience on school buildings will be an advantage.

Applications stating age, experience, details of qualifications, together with copies of three recent testimonials, should be sent in envelopes endorsed "Architectural Assistant" to Mr. L. H. Robjohn, M.B.E. A.M.I.C.E. City Engineer and Surveyor, Town Hall. Peterborough, to reach him not later than 31st August. 1956.

Consideration will be given to the provision of Council housing accommodation, Canvassing, directly or indirectly, will disqualify. Candidates must disclose whether they are related to any member or senior officer of the Council.

C. PETER CLARKE.

Town Hall. Peterborough. August, 1956.

August, 1956.

UNIVERSITY COLLEGE OF NORTH
STAFFORDSHIRE
Anolications are invited for the post of ASSISTANT ARCHITECT on the staff of the Ruildings
Officer and Architect. Salary in the scale £790×
£30—£880 p.a. The post is superannuable.
Duties may include work on buildings for teaching and research students' hostels, staff
residences, general purpose buildings and services.
Annlicants must be Registered Architects.
Further particulars may be obtained from the
Registrar The College. Keele. Staffs. to whom
three copies of application, giving full details of
age. qualifications, experience, etc... and names
of three referees, should be sent within 10 days
of publication of this advertisement.

1990

COUNTY BOROUGH OF BURNLEY

OF publication of this advertisement. 1990
COUNTY BOROUGH OF BURNLEY
Applications are invited for the following appointments in the Borough Engineer and Surveyor's Department:
SENIOR ARCHITECTURAL ASSISTANT, Grade IV (£710-f885), and ARCHITECTURAL ASSISTANT, Special Grade (£690-£840).
Applicants for the Senior Post must be Registered Architects and for the other have the appropriate qualifications. Considerable experience in municipal building projects, including educational building is preferable.
QUANTITY SURVEYING ASSISTANTS, Grade II (£695-£675).

tional bullitum
QUANTITY SURVEYING ASSISTANTS, Grade
II (£595-£675).
Applicants should have a sound knowledge of
building construction and experience in the preorderation of quantities and measurement of
building work is essential.
Housing accommodation may be made available
if required.
Forms of application may be obtained from
the Borough Engineer, 22/24, Nicholas Street,
Burnley, and should be returned to him not later
than Saturday, the 1st September, 1956.
C. V. THORNLEY,
Town Clerk.
2033

URBAN DISTRICT COUNCIL OF CORBY SENIOR ARCHITECTURAL ASSISTANT GRADE A.P.T. IV (£710-£885)
Applications are invited for the above appointment in the Architectural Section of the Engineer and Surveyor's Department.
Applicants must be Registered Architects and should 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, 1937/53 will apply to this appointment.

ment. 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 Friday, the 14th September, 1956.

G. B. BLACKALL, Clerk of the Council.

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Council Offices, Corby, Northants. 14th August, 1956.

Corby, Northants.

4th August. 1956.

NEWTON-LE-WILLOWS URBAN DISTRICT
COUNCIL

APPOINTMENT OF ARCHITECTURAL
ASSISTANT

Applications are invited for the above-mentioned appointment, at a salary in accordance with A.P.T. III. The National Scheme of Conditions of Service and the Local Government Superannuation Acts will apply. Housing accommodation available if required.

Preference will be given to applicants who have had experience in Municipal housing.
Applications, stating age, qualifications and experience, together with the names of two referees, to be received by the Clerk of the Council, Town Hall, Market Street, Newton-le-Willows, Lancashire, not later than 25th August.

1982

DURHAM COUNTY COUNCIL
PLANNING DEPARTMENT
ARCHITECT PLANNER. Salary £975—£1,200.
Successful applicant will be in charge of a small design group dealing with the preparation of housing and redevelopment layouts, town centre layouts, village plans and the control of elevations. Applicants must be members of the Royal Institute of British Architects and preference will be given to those who are also members of the Town Planning Institute. Applicants should have had considerable practical experience of design problems.
ASSISTANT AREA PLANNING OFFICERS (3). Salary £796—£970. Must be Associate Members of the Town Planning Institute and have had at least 3 years' experience since qualifying in all aspects of development control work and preferably some experience of Town Maps.
ARCHITECTURAL ASSISTANT. Salary £710—£885. Must be qualified by examination. Successful applicant will be engaged on housing layouts, town centre layouts and control of elevations.
PLANNING ASSISTANTS (2). Salary £710—

elevations.
PLANNING ASSISTANTS (2). Salary £710—2885. Applicants must be associate members of the Town Planning Institute with experience of either development control or town map work.
PLANNING ASSISTANT. Salary £595—£675. Applicants must have passed the Intermediate Examination of the Town Planning Institute and have had experience on development control work.

and have had experience on development control work.

Note: A series of the control work.

Applicants must have a degree in either Geography. Economics or Sociology.

JUNIOR ARCHITECTURAL ASSISTANT.

Salary £530—£610. Applicants must have had practical experience in an Architect's office and preference will be given to those who are taking a course of study leading to a qualification in architecture.

Housing available—Peterlee, 12½ miles; Newton Aycliffe, 12 miles from Durham. Forms and particulars from County Planning Officer, 10, Church Street, Durham. Closing date 31st August, 1956.

Canvassing members of the Council is prohibited.

J. K. HOPE,

J. K. HOPE, Clerk of the County Council.

COUNTY COUNCIL OF ESSEX
Required on the established staff:—
(a) SENIOR ASSISTANT ARCHITECTS, Grade Required on the established staff:—

(a) SENIOR ASSISTANT ARCHITECTS, Grade V. salaries not exceeding £805.

(b) ASSISTANT ARCHITECTS, Grade IV. salaries not exceeding £805.

(c) ASSISTANT ARCHITECTS in Special Grade, salaries not exceeding £804.

(d) ARCHITECTURAL ASSISTANTS, Grade III. salaries not exceeding £875.

Candidates for appointments (a) and (b) must be Associates of the R.I.B.A., and for (c) must have passed Parts I and II of R.I.B.A. Final. Commencing salary in each case according to qualifications and experience.

The appointments offer opportunities for design and supervision on a variety of buildings-colleges, libraries, day and boarding schools, police and fire stations and health buildings-successful candidates will have much responsibility within the group system.

Application forms from H. Conolly, C.B.E., F.R.I.B.A. County Architect. County Hall, Chelmsford (state post for which form is required) to be returned with copies of three Canvassing disqualifies.

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Special Grade must must Final.

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C.B.E., Hall, is reCOUNTY BOROUGH OF ROCHDALE
ASSISTANT ARCHITECTS
Applications are invited for the appointment
of two assistant architects at a salary within
the Special Grade £690—£840 per annum, commencing salary depending upon qualifications
and experience.
One appointment will be in the housing architect's section, and one in the General Architect's

One appointment will be in the holdering architect's section, and one in the General Architect's Section.

Alternative applications will be considered from persons who are undertaking their professional training but have not yet fully qualified, at a salary within Grades I to III.

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

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

A Scheme for the payment of voluntary overtime is to be introduced.

Canvassing is prohibited and applicants must disclose whether they are related to any member or senior official of the Council.

Applications, stating age, qualifications, training and experience, together with the names and addresses of two persons to whom reference can be made, and endorsed "Assistant Architect," must be delivered to the Borough Surveyor, Town Hall, Rochdale, by the 11th September, 1956. 2047

Hall, Rochdale, by the 11th September, 1956. 2047

BOROUGH OF CASTLEFORD
QUANTITY SURVEYING ASSISTANT
Applications are invited for the above appointment in the Borough Engineer and Surveyor's Department at a salary in accordance with Grade A.P.T. IV.
Applicants should hold a recognised professional qualification and should have had experience in the taking off and preparation of bills of quantities for housing and other building work. Experience in the preparation of estimates for such works would also be of advantage.
The appointment is supermeable and the saccessful applicant will be returned not later than I frequired, housing accommodation will be provided for a successful married applicant. Forms of application may be obtained from the indersigned and must be returned not later than the 8th September, 1956.
Canvassing, either directly or indirectly, will disqualify.

E. HUTCHINSON,

E. HUTCHINSON, Town Clerk.

County Borough of Darlington
County Borough of Darlington
Borough architectrs Department
Applications are invited for the post of ASSISTANT QUANTITY SURVEYOR, salary within
Grade A.P.T. V., £795-£970 p.n.e.d in the preparation of Bills of Quantities, Interim Valuations, and settling up Final Accounts. Preference
will be given to members of the Royal Institute
of Chartered Surveyors (Quantities Division).
Consideration would be given to the question of
providing housing accommodation, if required.
Applications giving age, qualifications, present
appointment, present salary, previous appointments with dates and names and addresses of
three Referees, to be sent to Borough Architect,
central Buildings, Darlington, not later than
lith September, 1956.

NORTHERN IRELAND HOUSING TRUST
ASSISTANT ARCHITECT on the salary scale
2000-£25-£875.
Candidates must be Associate Members of the
Royal Institute of British Architects.
Preference will be given to ex-service candidates.
The person appointed will be required to par-

dates.

The person appointed will be required to participate in a contributory superannuation scheme which allows for the reciprocal transfer of benefits in Local Government Schemes in suitable

Assistance in obtaining housing accommodation may be given in suitable circumstances to the successful candidate.

Please apply not later than 15th September, 1956, giving full details of age, education, qualifications and experience, including present post and salary, to the General Manager, Northern Ireland Housing Trust, 12, Hope Street, Belfast.

Please mark envelope 33/56.

COUNTY BOROUGH OF BOLTON
HEATING ENGINEER
Applications are invited for the appointment
of HEATING ENGINEER in the department
of the BOROUGH ARCHITECT (Mr. K. Martin
Baxter) at a salary within grade A.P.T. III/IV
(£640-£835 per annum) of the National Salary
Seales, Commencing salary according to exDerience.

Searces, Commences, Pericace.
Candidates should have had a wide experience in the design of all types of heating and ventilating, cold water and gas installations for all types of buildings and of the maintenance of

plant.

The appointment is superannuable, and is subject to the passing of a medical examination. Applications, giving details of experience, qualifications and the names of two referees, should be received by me not later than Monday, 10th September, 1956.

PHILIP S. RENNISON.

Town Clerk.
2083

Town Hall Rolton

ARCHITECTURAL ASSISTANTS and JUNIOR ARCHITECTURAL ASSISTANTS required by Hackney Borough Council for extensive programme of new housing, public baths, libraries and other public buildings. Appointments may be in Grades A.P.T. I (£596-£619), A.P.T. II (£596-£619), or A.P.T. III (£640-£765) p.a., singly or combined, plus London weighting allowance of up to £30 p.a. Candidates must be Probationers or Students of R.I.B.A. Grade and commencing salary according to training, qualifications and experience.

Application form obtainable from the Town Clerk, Town Hall, E.S., returnable by 29th August, 1956, quoting reference J.2.

SHEFFIELD REGIONAL HOSPITAL BOARD Applications are invited for the post of ARCHITECTURAL ASSISTANT. Candidates should have passed the Intermediate Examination of the R.I.B.A., or an examination recognised as equivalent. Salary scale is at present £480 × £20(7) × £25(2)-£670, and an increase of 6'o is pending. The appointment is subject to the Whitley Council terms and conditions of service, to the National Health Sorvice (Superannuation) Regulations, and to one month's notice on either side. Applications together with the names of three referees should be sent by the 8th September, 1956, to the Secretary to the Board, Fulwood House, Old Fulwood Road, Sheffield, 10. 2048

CENTRAL ELECTRICITY AUTHORITY EAST MIDLANDS DIVISION. Applications are invited for the following positions within the Division:—
SECTION LEADER TRANSMISSION DEPARTMENT DIVISIONAL HEADQUARTERS Vacancy No. 154/66/AJ.

A Section Leader is required in the Drawing Office of the Transmission Department at this Divisional Headquarters in Nottingham for work associated with H.V. Substations and Transmission Systems. Considerable experience on this type of work, including the Civil and Electrical Engineering involved, is essential.

Salary will be in accordance with Grade 3 (£925-£1,025 per annum) of Schedule D of the National Joint Board Agreement according to experience and qualifications.

Closing date for receipt of applications: 30t

National Joint Board Agreement according to experience and qualifications.

Closing date for receipt of applications: 30th August, 1956.

SENIOR DRAUGHTSMAN (MECHANICAL)
GENERATION (CONSTRUCTION) DEPARTWACARCY No. 151/56/AJ.

Candidates should have experience on one or more of the following:—

(i) Design and layout of Power Station equipment, including turbo-alternators, boiler plant, coal and ash plant and general station auxiliaries.

(ii) H.P. and L.P. steam and feed pipework. Condensing plant and feed heating systems.

(iii) Conveyor plant, coal handling systems and material handling of station auxiliary equipment.

Salary will be in accordance with Grade 5 (2700—2500 per annum) or grade 4 (2810—2910 per annum) of Schedule D of the National Joint Board Agreement

Closing date for receipt of applications: 6th September, 1956.

These appointments will be pensionable within the terms and conditions of the Central Electricity Authority and Area Boards (Staff) Superannuation Scheme.

Applications should be submitted on the official form AE6/ACT which may be obtained from the Divisional Establishments Officer, Central Electricity Authority, P.O. Box 25, Barker Gate, Nottingham, and returned to the undersigned. Please quote Vacancy Number.

E. J. EFFREY.

Divisional Controller.

2062

15th August, 1956.

ARCHITECTS AND MAINTENANCE SURVEYORS IN GOVERNMENTS
The Civil Service Commissioners invite applications for pensionable posts for Architects and Maintenance Surveyors.

Age at least 25 and under 35 on 1st July, 1956, with extension for regular Forces service and appropriate civil service. Candiates must be Registered Architects, or for Maintenance Surveyor posts, Corporate Members of the R.I.C.S. (Building Section) or have passed examinations necessary for obtaining Corporate Membership. London salary scale (men) 4765 (at age 25) to £1,190. Starting salary up to £1,030 at age 34 or over on entry. Prospects of promotion. Salaries of next higher grades are £1,25-£1,640 and £1,690-£1,950. Somewhat lower in the provinces. Women's scales lower but being increased under equal pay scheme.

Further particulars and application forms from Civil Service Commission. Scientific Branch. 30. Old Burlington Street. London, W.I., quoting No. S,60-61/56/7. Application forms should be returned by 17th September. 1956.

CITY OF PLYMOUTH
CITY ARCHITECT'S DEPARTMENT
Applications are invited for the appointment of ASSISTANT ARCHITECT'S, Grade V (£795£970). Applicants must be Registered Architects and preference will be given to members of the R.I.B.A.
Application forms, obtainable from the City Architect, Seymour Road, Plymouth, accompanied by copies of not more than three recent testimonials and/or names of persons to whom reference may be made, returnable not later than the 15th September, 1956.

COUNTY OF ESSEX
BOROUGH OF WALTHAMSTOW
COMMITTEE FOR EDUCATION
Applications are invited for the appointment
of SENIOR ASSISTANT ARCHITECT in the
office of the Education Architect, Mr. T. L.
Rampton, A.R.I.B.A., A.R.I.C.S.
Salary in accordance with A.P.T. Grade VI
4880 to £1,080 per annum plus a London weighting of £30 if 26 years of age or over. Permanent
pensionable post.
Applicants must be Associate Members of the
R.I.B.A. Experience in the design and construction of schools. in contract administration
and control of staff an advantage.
Forms of application to be obtained from and
returned to the undersigned within three weeks
of the appearance of this notice.
E. T. POTTER,
Borough Education Department,
Town Hall,
Forest Road,
Walthamstow, E.17.
CORPORATION OF LONDON

CORPORATION OF LONDON
ARCHITECTURAL AND BUILDING SURVEYING ASSISTANT required. Intermediate or
Final R.I.B.A. or R.I.C.S. Sound knowledge of
construction and good draughtsmanship essential.
Salary within the Grade £795–£1,000 according to
qualifications, ability and experience.
Applications in writing to the City Surveyor,
55/61, Moorgate, E.C.2.

ASSISTANT ARCHITECT required by Hackney Borough Council for extensive programme of new housing, public baths, libraries and other public buildings. Salary in accordance with either Grades A.P.T. V-VI (£795-£1,080 p.a.) or VI-VII (£880-£1,200 p.a.) according to experience, plus London weighting allowance. Application form obtainable from the Town Clerk, Town Hall, Hackney, E.8, returnable by 29th August, 1956.

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

A RCHITECTURAL ASSISTANT required, approaching Finals, with at least one year's office experience. Box 1896.

office experience. Box 1896.

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, MANCHESTER. A PPLICATIONS are invited for the following appointments:—
(a) SENIOR ASSISTANT ARCHITECTS, with experience of work on commercial and industrial projects.
(Salary range £820 to £975 per annum.)
(b) ASSISTANT ARCHITECTS, capable of preparing working drawings from preliminary details.
(Salary range £550 to £820 per annum.)
There is a five-day week in operation, and both appointments offer prospects of upgrading.
Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., I, Balloon Street, Manchester, 4, 5871

CO-OPERATIVE WHOLESALE SOCIETY, LTD., ARCHITECT'S DEPARTMENT.

ARCHITECT'S DEPARTMENT.

ASISTANT ARCHITECTS, WORKER-UP.
Applications are invited from suitably qualified persons. Salary on a scale 2495—2494 inclusive of L.W., with placing according to age, qualifications and experience. The posts are superamulable, subject to medical examination. Five-day week in operation. Applications, stating age, experience, qualifications and salary required, to.—W. J. Read, F.R.I.B.A., Chief Architect. Co-operative Wholesale Society, Ltd., 99, Leman STORMER ACCORDANCE AND ACCORDANC

Street, London, E.I. 2824
CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, BIRMINGHAM.

A PPLICATIONS are invited for the following appointments in a newly formed Branch Office. Interesting and varied commercial and industrial projects.

(a) SENIOR ASSISTANT ARCHITECT, with experience in Store and Shop Design.

(Salary range £220 to £975 per annum.)

(b) ASSISTANT ARCHITECTS, capable of pre-liminary sketches.

(Salary range £250 to £820 per annum.)

Both appointments offer prospects of upgrading. Applications, stating age, experience, qualifications, and salary required, to G. S. Hay, A.E.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., I, Balloon Street, Manchester, 4.

CROYDON.—ARCHITECTURAL ASSISTANT required immediately for interesting and varied work. Inter./Fimal standard; capable of running small coatracts.—Write age, experience, and salary required, to George Lowe & Partner, 4, High Street, Croydon, Surrey. 1951.

ASSISTANT, of Intermediate standard, required by Norfolk Architect.—Reply, with details of experience and salary required, to Box 1926.

A SSISTANT ARCHITECT required by West End firm for important airport, industrial and office schemes. Salary according to experience. Box 1891.

RCHITECTURAL ASSISTANT with experi-ence required by old-established Plymouth with wide range of work for man of iative. B.I.B.A. qualification desirable.— ase write, giving full details, to Box 1946. firm with vinitiative.

A RCHITECTURAL ASSISTANT required in busy London office with varied practice. Good salary and prospects for suitable applicant. 5-day week. Write, giving particulars of age, qualifications, experience, etc., to Box 775, 5/0 7. Coptic Street. W.C.L. 9313

7. Coptic Street, w.c.i.

LONDON Consultants require immediately
ASSISTANTS of Intermediate and
R.I.B.A. standard for varied and interesting contemporary industrial projects. Responsibility
given to applicants with good design sense and
constructional ability. Apply, giving full particulars and salary required to Box No. 401, Glovers
Advertising Ltd., 351, Oxford Street, London, W.I.
9541

NOBMAN & DAWBARN invite applications from ARCHITHCTURAL ASSISTANTS of Inter. or higher standard, with not less than 3 years' office experience, to assist in preparation of working drawings for a large and technically complex building development in the Shepherds Bush neighbourhood of London.—Write to 7, Portland Place, London, W.1, or 'phone Hunter 1948

EXPERIENCED SENIOR ARCHITECT re-

RYPERIENCED SENIOR ARCHITECT required; contemporary office. Good prospects. Salary according to experience.—C. H. Elsom, F.R.I.B.A., 10, Lower Grosvenor Place, S.W.1. VIC. 4504. Lower Grosvenor Place, S.W.1. VIC. 4504. The properties of the prope

FOLKESTONE practice has vacancies for ARCHITECTURAL ASSISTANTS. Interesting and varied work, 5-day week. Apply stating age, experience and salary required: Willan, Stewart & Waite, A.R.I.B.A., 127, Sandgate Road, Polkestone, Kent. Folkestone 2134. 2012

A RCHITECTS in South Kensington require SENIOR ASSISTANT, a man accustomed to carrying responsibility as regards design and specification work. Salary range 2750 to 2850 according to experience. Busy general practice; five-day week. Phone KENsington 1242 or write Box 2015.

Box 2015.

REGENT OIL CO., LTD., have a vacancy at their London office for an ARCHITEC-TURAL ASSISTANT. Applicants should have passed the R.I.B.A. Intermediate Examination and should have sound practical experience. The work includes Industrial Buildings, Offices, Canteens, Laboratories, Garages and Service Stations throughout the country. A thorough working knowledge of construction and design is essential. The post is pensionable. Three weeks' annual holiday, Luncheon vouchers.—Apply in writing, stating age, qualifications, experience, and salary required, to Personnel Officer, 117, Park Street, London, W.L. 2082

A SSISTANT (R.I.B.A. Intermediate standard)
required by Estate Department of a
Brewery Company.—Apply, stating age, experience, and salary required, to Rd. Whitaker &
Sons, Ltd., The Brewery, Halifax, Yorkshire.

RONALD WARD & PARTNERS require an temporary outlook and willing to use own initiative. Salary range £500 to £800. Interesting and varied work home and abroad. Congenial working conditions—Apply 29, Chesham Place, Belgrave Square, S.W.1. Telephone Belgravia 3561.

A SSISTANT A SSISTANT ARCHITECTS.—Glasgow firm has vacancies for ASSISTANT ARCHITECTS (Final and Intermediate standards).—Please write, stating particulars, to Baron Bercott, 118, Blythswood Street, Glasgow, C.2.

H. WATKINS, GRAY, FF.R.I.B.A. and
Partners require ARCHITECTURAL
ASSISTANTS of Intermediate or near-final
standard for Bristol Office. Applicants should
preferably have passed R.I.B.A. Intermediate
and be studying for Final. Good salary and
conditions; contributory pension scheme in
operation. Full details of age, experience, salary
required and date available to 1, Clare Street,
Bristol 1

IR GILES SCOTT, SON & PARTNER have vacancies for qualified and experienced SENIOR and also JUNIOR ASSISTANTS. The salaries paid will be according to experience, with a maximum starting salary in the case of the senior post of £950.—Apply in writing, giving brief career details, to 9, Gray's Inn Square, W.C.1.

A RCHITECTURAL DRAUGHTSMEN for Industrial Building and/ort Staff housing. Good salary, pension scheme. Apply stating age, qualifications and experience, Staff Personuel Manager, Ashmore Benson, Pease & Co., Stockton-on-Tees.

SCHERRER & HICKS, of 19, Cavendish Square, W.1 (Tel.: Museum 1105), require immediately several ARCHITEOTURAL ASSISTANTS of Intermediate standard. The work is varied and covers Research Laboratories, Offices, Housing and Schools. Pive-day week. Salary by arrangement. Box 1980.

A RCHITECT required to take responsibility of progressive department attached to old established firm of Surveyors and Valuers, North East Kent. Age 35 to 45. General practice with drawing staff of 3. House available. Car driver. Write stating age, experience and salary required to Box 1974.

PETER LAWRENCE, A.R.I.C.S., require TAKER-OFF in his Wimbledon office. Fla available if required. 26, The Broadway, Wimble don, S.W.19. Telephone Wimbledon 2993.

PR-FINAL ASSISTANT required early September, 1956. Opportunity to gain all-round experience taking charge of jobs in office and on site. Salary £600 p.a. Five-day week. Geoffrey Shires, 75, Victoria Street, S.W.I. Tel. ABBey 4900.

INTERMEDIATE TO FINAL ASSISTANTS required for interesting London practice. Interview expenses for provincial applicants. Five-day week. Full particulars to Box 1979.

ENIOR ASSISTANT required, Maidstone architect, possibility later partnership suitable applicant. State age, experience and salary required. Box 1983.

SENIOR ASSISTANT required in busy office, with varied practice, capable of taking responsibility. Salary: #850 per annum. Also ASSISTANT of Intermediate or post Intermediate standard.—Apply to Sir John Brown A. E. Henson & Partners, 117, Sloane Street

ARCHITECTURAL ASSISTANTS, Intermediate and Final standard, required for Coventry and London offices. Excellent opportunities in varied practice covering wide area. Good salaries, closely related to capabilities and reviewed annually. Pension scheme available. 5-day week. Travelling expenses to applicants selected for interview.—W. S. Hattrell & Partners, 1, Queen's Road, Coventry-60668, and 14, Hanover Square, London, W.1—Mayfair 4992.

A RCHITECT'S ASSISTANTS required mediately. Inter Final standard. So according to experience, 5-day week. canteen. Pension Scheme.—Applications writing, giving full details of age, experiand salary, to Personnel Department, Br Home Stores, Ltd., 129, Marylebone R London, N.W.1.

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Writ Over Har

A RCHITECT, A.R.I.B.A. (30/35), required for A WORLIEGE, A.K.I.B.A. (30/35), required for work in connection with Nuclear Power. Stations. Must have had industrial experience, preferably on conventional power stations.—Write in confidence, stating salary required and giving details of experience and qualifications, to Bot AJ 946 LPE, 55, St. Martin's Lane, London, W.C.2.

A RCHITECTURAL ASSISTANT wanted early September. Interesting and varied work in a pleasant office. Scope for initiative and enterprise. 5-day week.—Maurice W. Jones, 1, College Yard, Worcester.

GEORGE WIMPEY & CO., LTD.

THE Architect's Department seek Architectural
Staff enthusiastic to apply their knowledge
to new construction techniques covering Houses
Multi-Storey Flats, Offices, Schools and Industrial
Buildings for contracts in the U.K. and Over

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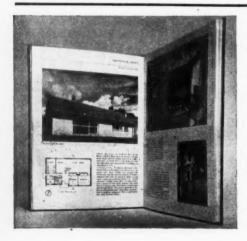
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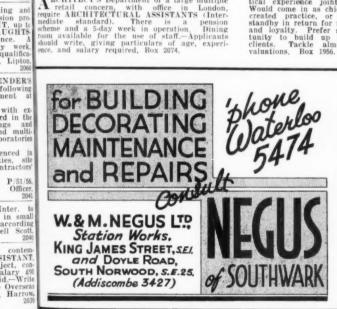
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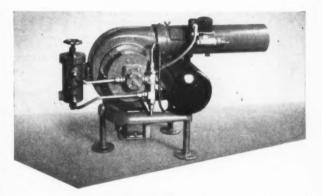
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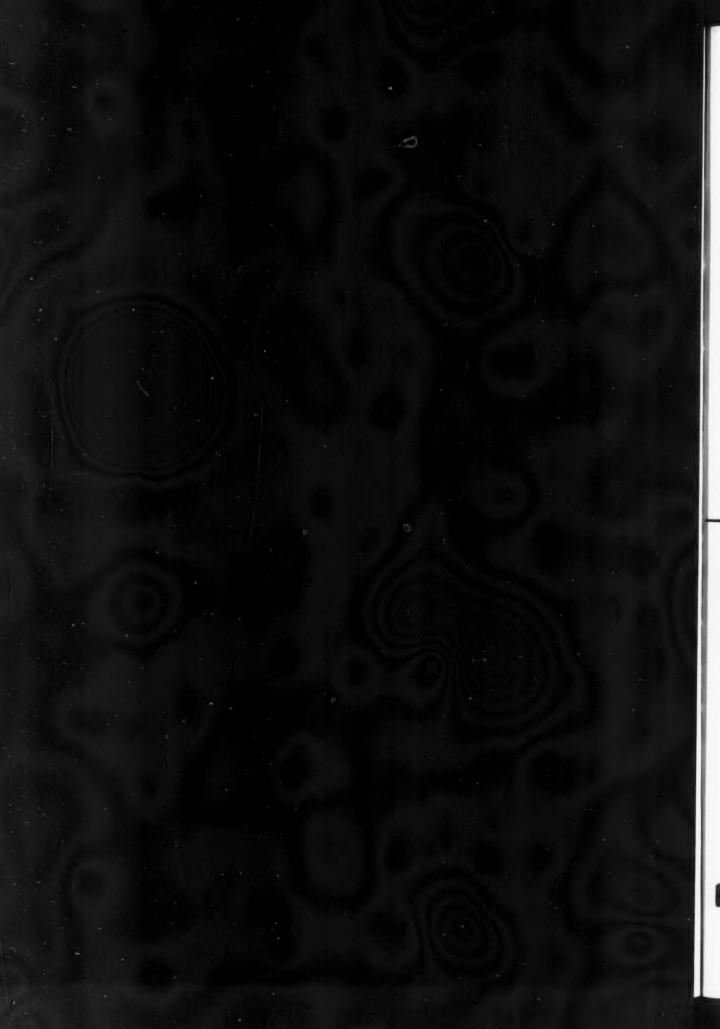
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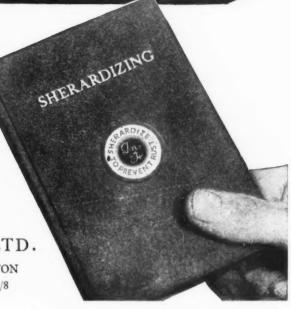
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