THE ARCHITECTS' JOURNAL

THE ARCHITECTURAL PRESS, *WAR ADDRESS:* 45 THE AVENUE, CHEAM

NO. 2503] Price 6d. [VOL. 97

REGISTERED AS A NEWSPAPER

S
S

V

hinge

SION MADE
FRICTION
S SERVICE

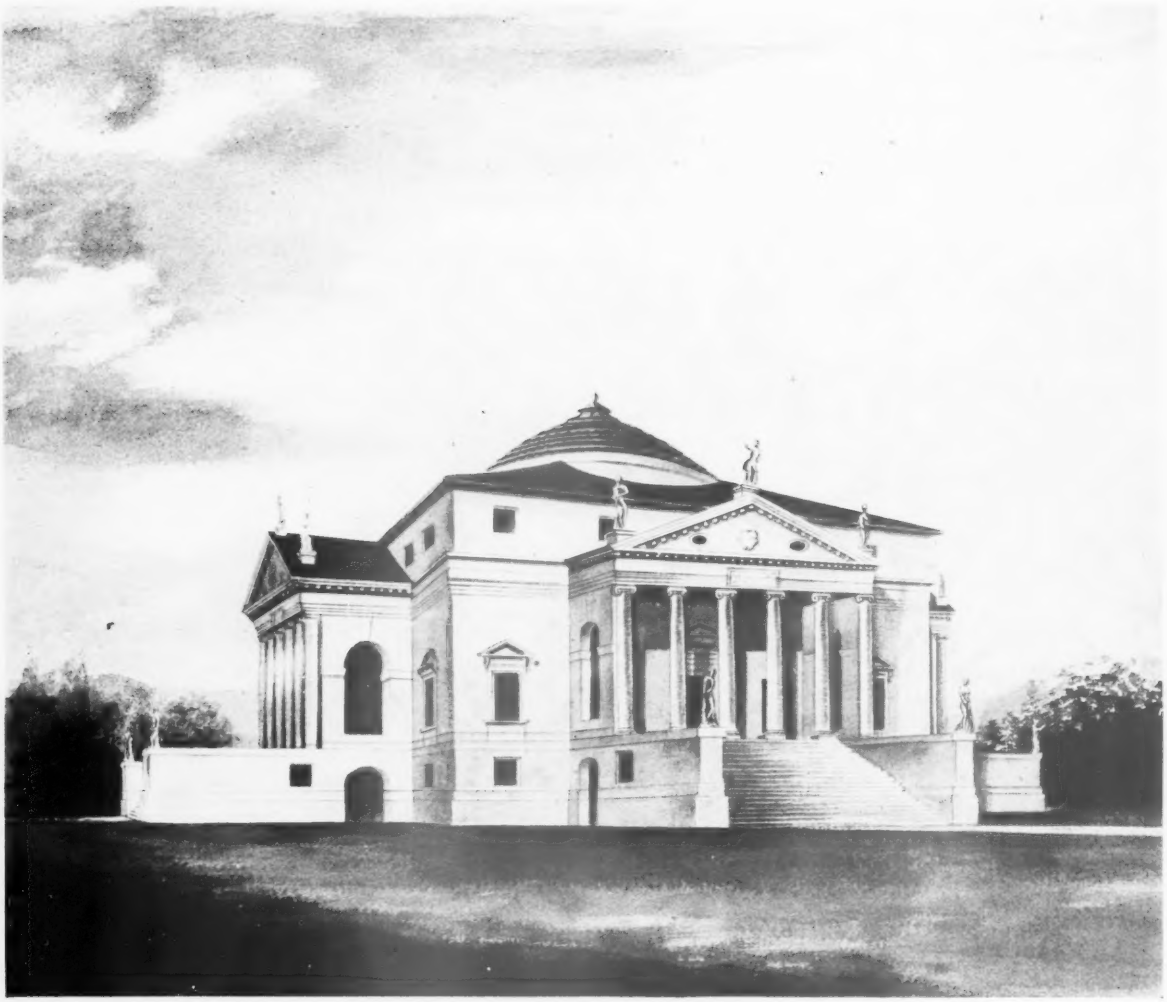
inge;
SEVERN

M-W.46

VS

TION

E D
E 4
ONDON



FONS ET ORIGO . . .

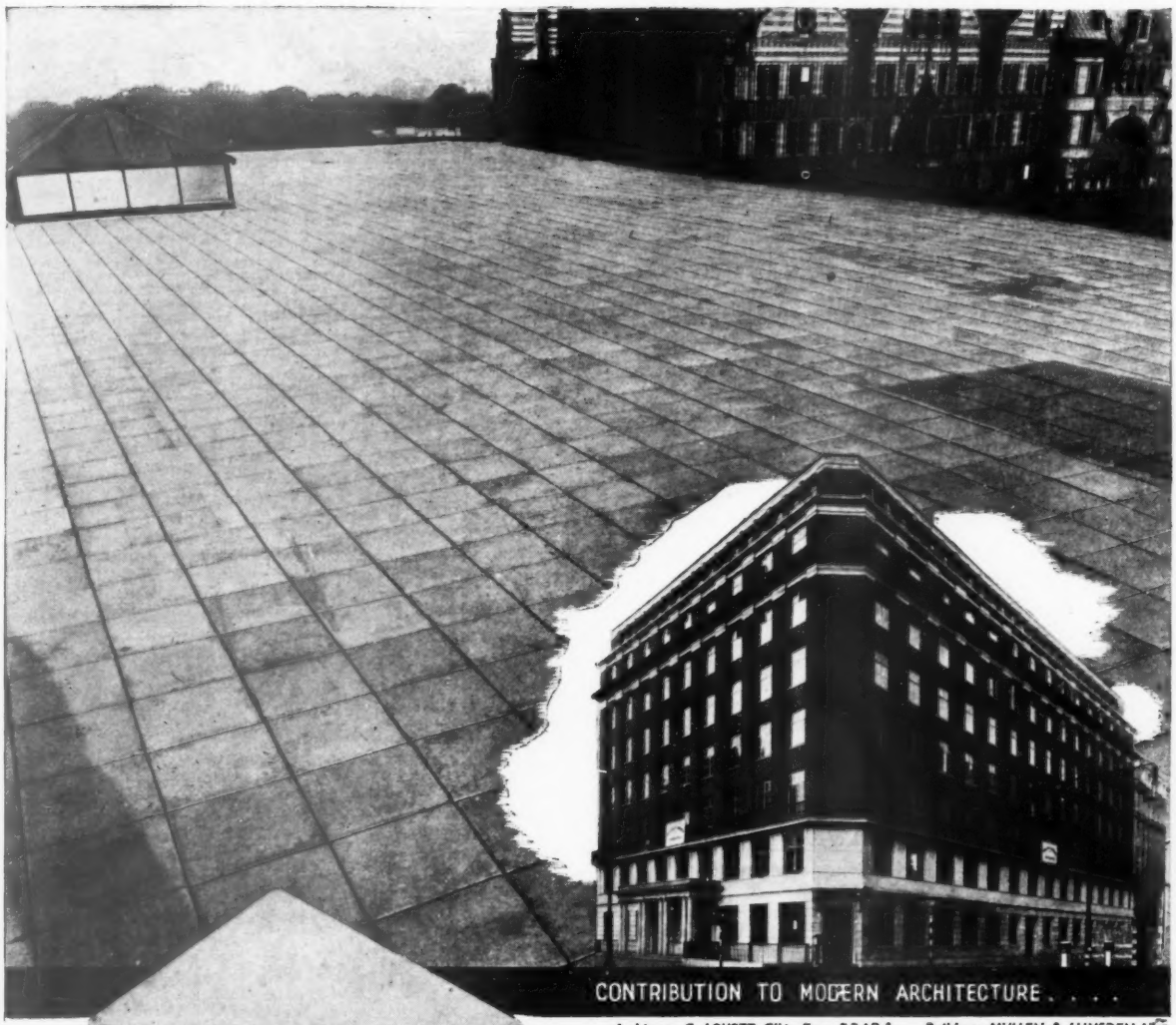
The famous Palladio was surely one who "builded better than he knew" — he who saw little beyond his Italian lakes and cypresses, and yet has been the father of innumerable of England's finest houses. But the astonishing vogue of his style in eighteenth century England is a tribute not only to him. It exemplifies the insight of his "discoverers"—they who recognised the wonderful rightness of his philosophy of architecture, with its three cardinal points — "L'Utile — La Perpetuita — La Bellazza". British architects have always shown themselves most ready to discern merit, both in material and style — and Celotex, makers of insulation and building boards, know they can trust their future safely to them.

CELOTEX LIMITED

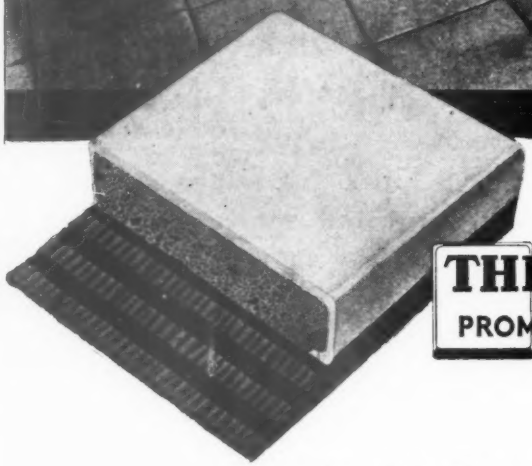
NORTH CIRCULAR RD.

STONEBRIDGE PARK

LONDON N.W.10



Architect: C. LOVETT GILL, Esq., F.R.I.B.A. *Builders: MULLEN & LUMSDEN LTD*



THERMOTILE
Insulated
PROMENADE ROOFING

A "Red Hand" Roofing

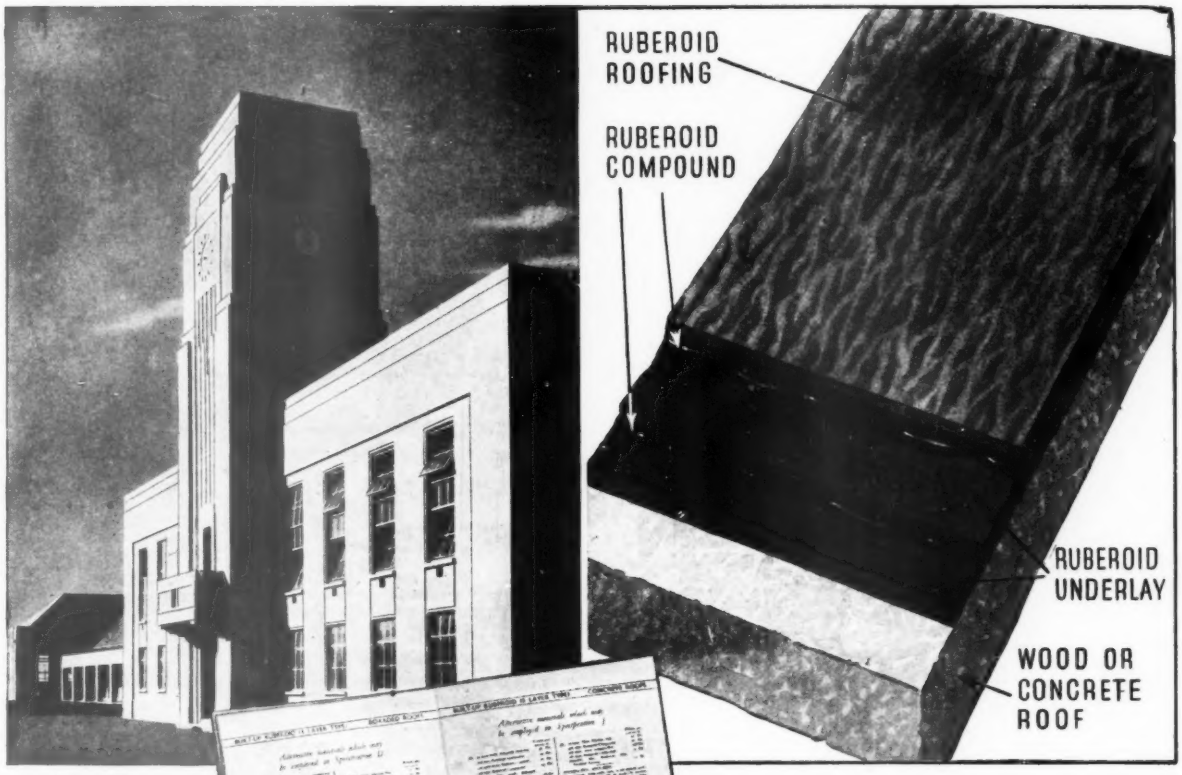
The utility of the Thermotile roof cannot be matched by any other type; the solar insulation is of the highest standard—and today the ease with which a building can be kept at even temperature is a major consideration; initial costs are no higher than any other type of first class roof, and, if maintenance is taken into consideration, the general costs are much lower than those of other types of roof. But the claims of Thermotile Promenade Roofing are carried past all stages of debate by the fact that this system has been used on many of our greatest buildings, proving the confidence of leading architects.

D. ANDERSON & SON LTD • STRETFORD • MANCHESTER

AND AT LONDON • BELFAST • BIRMINGHAM AND GLASGOW

Alphabetical Index to Advertisers

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Educational Legal Notices, Miscellaneous, Property and Land Sales—*see* pages xxx and xxxii.



County School, Weston-Super-Mare.
Architect : A. J. Toomer, Esq., F.R.I.B.A. Taunton.

Architects and Engineers are invited to write for a copy of this Ruberoid publication No. 326 entitled "Standard Specifications for Ruberoid Roofs."

THE RUBEROID BUILT-UP ROOF

A Ruberoid Built-up Roof consists of two or more layers of Ruberoid underlay, bedded together and surfaced with either Ruberoid Standard Roofing or Ruberoid Astos Asbestos Roofing. It can be laid on either boarded or concrete roofs, whether flat, pitched or curved. It is a permanent roof which will withstand all weather conditions

An attractive alternative is provided by a finishing layer of Ruberoid Slate Surfaced Roofing in red, green or blue. These colours are particularly soft and pleasant, being formed of natural crushed slate applied to the surface during manufacture

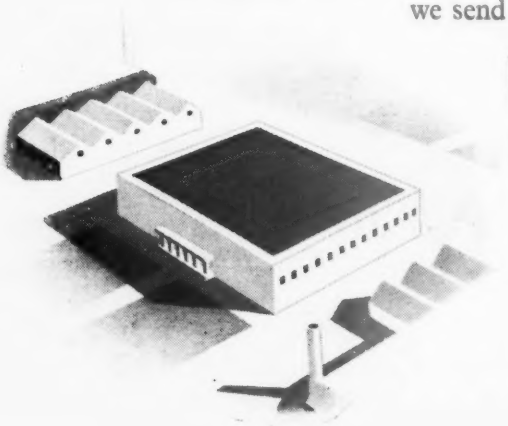
Ruberoid Contract Departments located in London, Birmingham, Manchester Newcastle, Edinburgh, Dublin and Belfast, promptly undertake work on any scale and in any part of the country. Estimates sent on receipt of particulars

RUBEROID ROOFING

THE RUBEROID CO., LTD., 1, MEADOW MILLS, STONEHOUSE, GLOUCESTERSHIRE

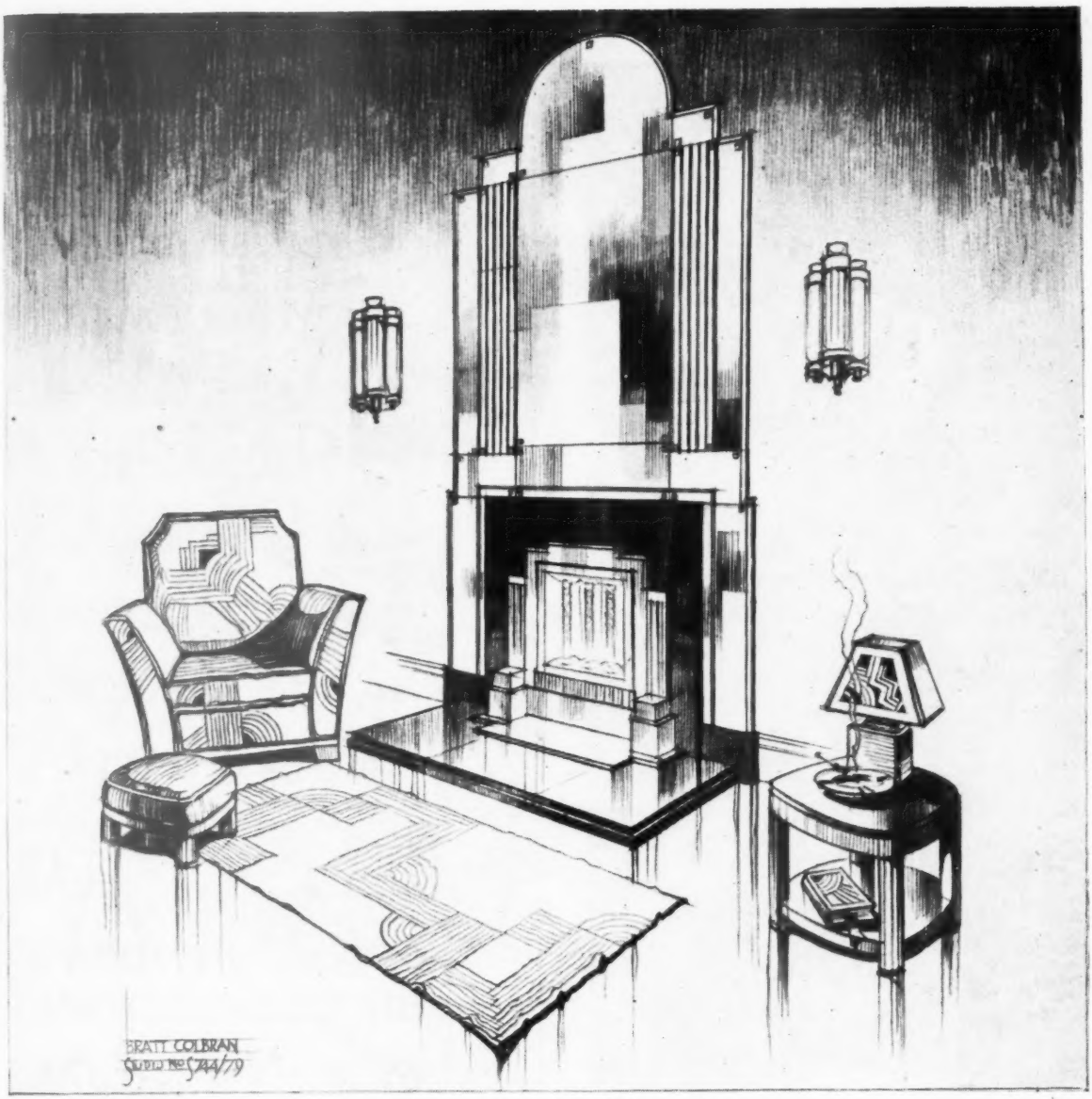
AS OUR INDUSTRY IS CONTROLLED AND PRIORITY HAS TO BE GIVEN TO GOVERNMENT WORK, OUR ABILITY TO EXECUTE ORDERS IS SUBJECT TO THE REGULATIONS IMPOSED ON OUR INDUSTRY BY THE MINISTRY OF WORKS AND PLANNING

Architects specify the Briggs "Challenge" Flat Roofing System with absolute confidence. It is dependable, as durable as the building itself, and, whilst it provides strength without weight, gives scope for individuality. There's seventy-five years of experience behind the Briggs weatherproofing materials, which include their "Aqualite" system of waterproofing. This is now used extensively for keeping basements, underground shelters, etc., free from water and damp. Briggs' long experience is especially valuable for dealing with unusual roofing and waterproofing problems — may we send you further details?



William Briggs
AND SONS LTD.
DUNDEE

London: Vauxhall Grove, S.W.8
Also at Glasgow, Edinburgh, Liverpool, Bristol, Aberdeen, Norwich



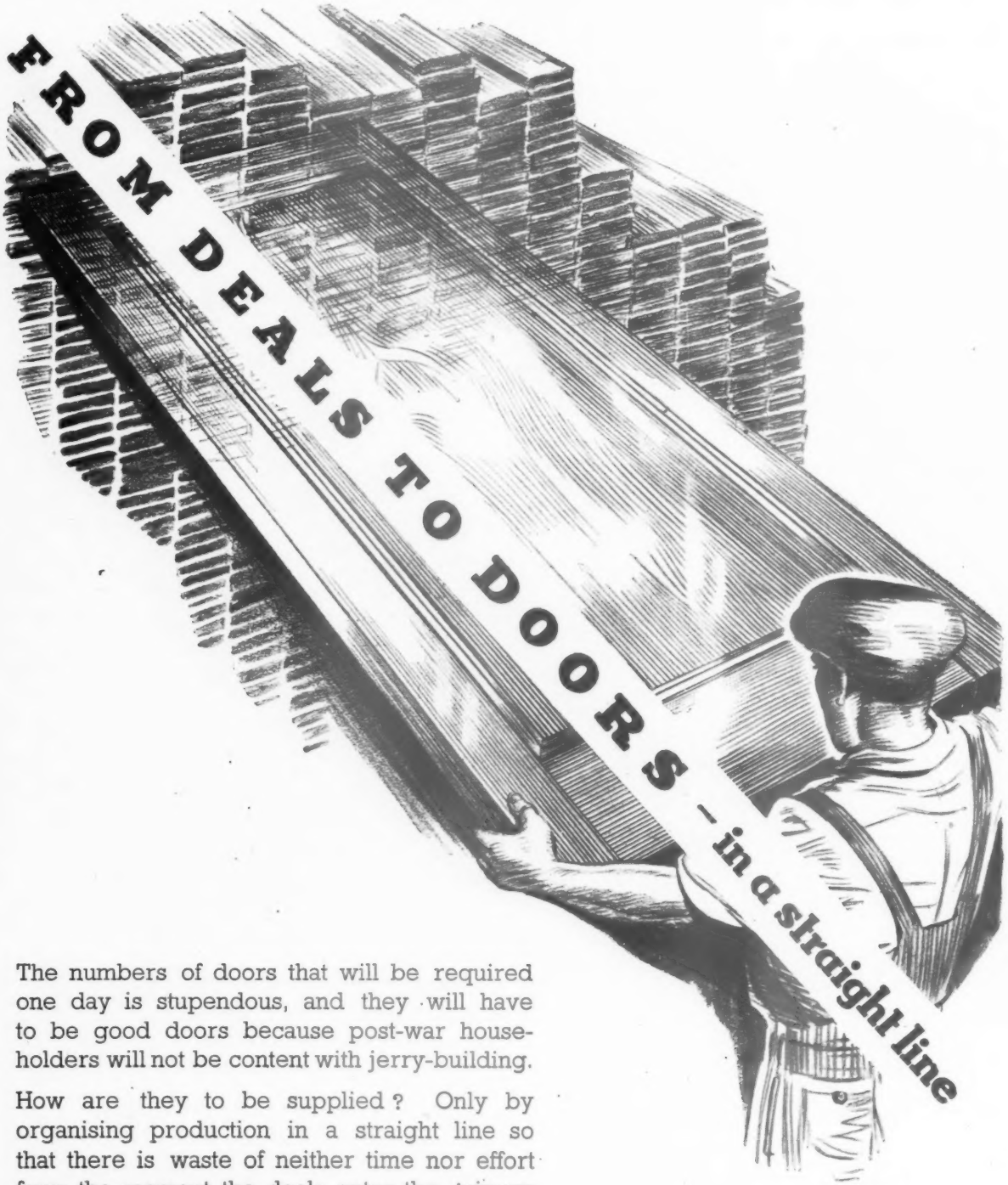
AFTER VICTORY

When the time comes to turn again to the tasks of peace, we look forward to making renewed progress in a tradition of craftsmanship we have made essentially our own.

—An echo of the past, a promise of the future—

BRATT COLBRAN LIMITED

10, MORTIMER STREET, LONDON, W.1.



The numbers of doors that will be required one day is stupendous, and they will have to be good doors because post-war householders will not be content with jerry-building.

How are they to be supplied? Only by organising production in a straight line so that there is waste of neither time nor effort from the moment the deals enter the joinery shop to emerge as doors.

Magnet Joinery is Line-Produced Joinery.

MAGNET JOINERY

WHITLEY STREET, BINGLEY, YORKS • KNARESBOROUGH, YORKS
WEST THURROCK, GRAYS, ESSEX • ANNE ROAD, SMETHWICK, BIRMINGHAM

Stoneham and Kirk

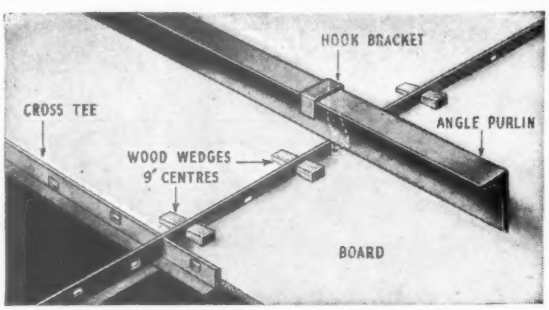
AnD WEDGE METHOD

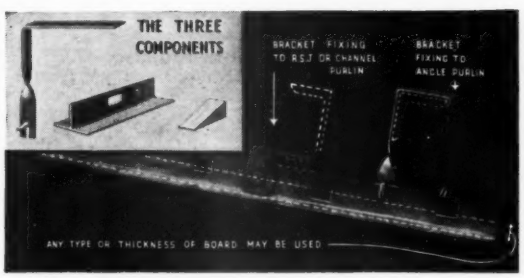
Patent No. 519406

FOR APPLYING ANY TYPE OF BOARD TO CEILING & WALLS

The Wallboard is secured to sherardised, pressed steel, slotted T-section by wedges. To the right are shown the methods of attaching the support to various forms of purlin.

Escalator Tunnel at St. John's Wood Underground Station. Architect: S. A. Heaps.





8 POINTS TO BE NOTED

1. Fixed to UNDERSIDE of purlins — steel or wood — covering unsightly hook bolts, clips, etc.
2. Assures the insulating value of air-space between roof and underside of purlins. No dust or dirt.
3. Can be fixed to steel or wood purlins of roofs and joists of flat ceiling.
4. No unsightly nail heads showing.
5. Can be applied to new or old buildings of any construction independently of the roofing contractor, who proceeds with his work ahead of the AnD Wedge Method.
6. Any thickness of board can be used, from $\frac{1}{8}$" to $\frac{5}{8}$".
7. This method can be used for applying linings to exterior walls.
8. The simplicity of application is such that any contractor can apply the AnD Wedge Method, and the materials making up this method can be purchased by the contractor.

Full particulars, specification and a typical layout will be sent on request

C. F. ANDERSON & SON, LTD.

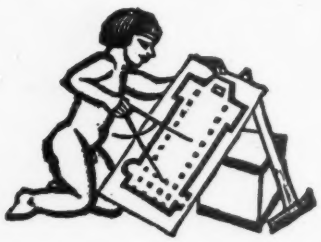
Wallboards for Government Work

Send us your "certificate of requirements" (such as Form PC/WD/1 War Dept.) and we will arrange for licence application to Paper Control

HARRIS WHARF, GRAHAM STREET, LONDON, N.1. TELEPHONE: CLERKENWELL 4582

TAS/AN/40.

In common with every other periodical and newspaper in the country, this JOURNAL *is rationed to a small proportion of its peace-time requirements of paper. This means that it is no longer a free agent printing as many pages as it thinks fit and selling to as many readers as wish to buy it. Instead a balance has to be struck between circulation and number of pages. A batch of new readers may mean that a page has to be struck off, and conversely a page added may mean that a number of readers have to go short of their copy. Thus in everyone's interest, including the reader's, it is important that the utmost economy of paper should be practised, and unless a reader is a subscriber he cannot be sure of getting a copy of the* JOURNAL. *We are sorry for this but it is a necessity imposed by the war on all newspapers. The subscription is £1 3s. 10d. per annum.*



Journal Abbreviations

AA	Architectural Association, 34/6, Bedford Square, W.C.1.	Museum 0974.
ABT	Association of Building Technicians. 113, High Holborn, W.C.1.	Holborn 1024-5.
BC	Building Centre. 23, Maddox Street, W.1.	Mayfair 2128.
BINC	Building Industries National Council. 110, Bickenhall Mansions, W.1.	Welbeck 3335.
BCG	British Commercial Gas. 1, Grosvenor Place, S.W.1.	Sloane 4554.
BEDA	British Electrical Development Association. 2, Savoy Hill, W.C.2.	Temple Bar 9434.
BIS	British Industries Services Ltd. 90, Ebury Street, S.W.1.	Sloane 9801.
BPVM	British Paint and Varnish Manufacturers. Waldegrave Road, Teddington.	Molesey 1063.
BRS	British Research Station. Bucknalls Lane, Watford.	Garston 2246.
BSA	British Steelwork Association. Steel House, 11, Tothill Street, S.W.1.	Whitehall 5073.
BSI	British Standards Institution. 28, Victoria Street, S.W.1.	Abbey 3333.
CCA	Cement and Concrete Association. 52, Grosvenor Gardens, S.W.1.	Sloane 5255.
CDA	Copper Development Association. Grand Buildings, Trafalgar Square, W.C.2.	Abbey 2677.
CMC	Cement Marketing Company. Coombe Hill, Kingston, Surrey.	Kingston 2140.
CPRE	Council for the Preservation of Rural England. 4, Hobart Place, S.W.1.	Sloane 4280.
DOT	Department of Overseas Trade. Dolphin Square, S.W.1.	Victoria 4477.
DIA	Design and Industries Association. Central Institute of Art and Design, National Gallery, W.C.2.	Whitehall 7618.
GG	Georgian Group. 55, Great Ormond Street, W.C.1.	Holborn 2646.
IAAS	Incorporated Association of Architects and Surveyors. 75, Eaton Place, S.W.1.	Sloane 3158.
IRA	Institute of Registered Architects. 59, Montagu Gardens, Wallington, Surrey.	Wallington 3278.
ISPH	Industrial & Scientific Provision of Housing. 3, Albemarle Street, W.1.	Regent 4782.
LIDC	Lead Industries Development Council. Rex House, King William Street, E.C.4.	Mansion House 2855.
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3767.
MARS	Modern Architectural Research Society. 8, Clarges Street, W.1.	Grosvenor 2652.
MICE	Member of the Institute of Civil Engineers. Great George Street, S.W.1.	Whitehall 4577.
MOI	Ministry of Information. Malet Street, W.C.1.	Euston 4321.
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.2.	Gerrard 6933.
MOWP	Ministry of Works and Planning. Lambeth Bridge House, S.E.1.	Reliance 7611.
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041.
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245.
PWB	Post War Building, Directorate of. Ministry of Works and Planning, Lambeth Bridge House, S.E.1.	Reliance 7611.
RCA	Reinforced Concrete Association. 91, Petty France, S.W.1.	Whitehall 9936.
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Welbeck 6927.
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Temple Bar 8274.
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1	Holborn 2646.
TCPA	Town and Country Planning Association. 13, Suffolk Street, S.W.1.	Whitehall 2881.
ZDA	Zinc Development Association. Lincoln Building, 15, Turl Street, Oxford.	Oxford 47988.

Though every news item is news to someone, it doesn't follow that all news has the same value for everyone. The stars are used to draw attention to the paragraphs which ought to interest every reader of the Journal.

★ *means spare a second for this it will probably be worth it.*

★★ *means important news, for reasons which may or may not be obvious. Any paragraph marked with more than two stars is very hot news indeed.*

THURSDAY, JANUARY 14, 1943
No. 2503. VOL. 97

NEWS

A consolidated memorandum on PAYMENT BY RESULTS, *showing the trade operations in the building and civil engineering industries for which basic output figures and bonus rates have been fixed, has been prepared by MOWP.*

The memorandum, which includes the original schedules of trade operations first issued on March 31, 1942, and all supplementary trade schedules approved to December 31, 1942, has been published by H.M. Stationery Office, price 6d. The three MOWP notes for guidance on the application of the scheme have been included in one document, "Notes for Guidance on the Application of the System of Payment by Results," which has been published by H.M. Stationery Office, price 1d.

At the end of this month more than 1,250 FURNITURE FACTORIES ARE TO BE CLOSED. *Half of their workers will be transferred to war work. A Trade Committee is discussing with Board of Trade officials a scheme of compensation.*

In future fewer than 150 manufacturers will be allowed to make utility furniture. Of the 150, about 20 will be in London. High Wycombe will keep its chair-making, Ipswich will make kitchen cabinets and tables, and London bedroom and dining-room suites and kitchen and nursery furniture.

At Bethnal Green, in the East end of London, a FARMYARD ON A BOMBED SITE *is to be laid out and designed voluntarily by architects. The site has been taken over by University House, the local settlement.*

A children's club with headquarters in a bombed beer-shop, will help to attend the animals. The pigsties, rabbit hutches and stable are to be built by settlement members, aided by Oxford undergraduates and Marlborough and Repton public schoolboys.

S

on
LTS,
n the
g in-
utput
been
WP.
s the
s first
lemen-
ber 31,
tionery
notes
scheme
Notes
of the
ch has
Office,

than
R E
BE
orkers
work.
ussing
fficials
ration.
ers will
Of the
High
Ipswich
es, and
ites and

st end
O ON
s to
ntarily
been
versity
lement.
rs in a
end the
nes and
embers,
d Marl-
oys.

from AN ARCHITECT'S *Commonplace Book*

On wide roads the architect has always wanted noble buildings and splendid vistas ; it has been said that " great roads demand buildings on a grand scale." The traffic specialist has quite other ideas. The proper use for wide and strongly built roads is to carry heavy loads of traffic, and such places are the very last spots for view-gazing. Æsthetically, it can be justly contended, the use of a busy thoroughfare as a viewpoint is wrong, because the prospect from the pavement is continually interrupted by the movement of large vehicles close at hand. From the practical point of view, the idea is even more misguided, because sightseers and promenaders, when drawn to these show roads, are exposed to serious risks. Noble buildings are of extreme value, but they should be isolated like most of our cathedrals, thus giving the buildings their proper atmosphere of dignity and repose, and promoting public safety at the same time. Handsome business buildings will be in handsome business streets ; a traffic artery is no place for any of them.

From Town Planning and Road Traffic, *by H. Alker Tripp.*

" When the last shot has been fired in the struggle for liberty of the nations, we must be prepared to TAKE UP THE CUDGELS *in the struggle with which owners as a body will be faced in defence of their freedom," says the Property Owners' Gazette, the organ of the National Federation of Property Owners.*

The journal adds the Federation are closely examining the Scott and Uthwatt Reports, " and will determine their campaign to counter proposals which impinge on the rights of property owners, and may even mean the nationalization of land, the abolition of freeholders and the establishment of a community of leaseholders."

Following an appeal by the British Employers' Confederation and the T.U.C., over 2,000 employers have so far agreed to afford facilities to their workpeople, numbering approximately 300,000, to give increased support to the RED CROSS PENNY-A-WEEK FUND.

Three years ago the T.U.C. and the British Employers' Confederation acted as sponsors to the then newly-formed Penny-a-Week Fund, and have ever since displayed the greatest interest in its progress. That the Fund to-day has 12 million regular contributors who are producing £60,000 a week for the Red Cross and St. John is due in no small degree to their practical help and encouragement. Every week more than 14 million pennies are paid into the Red Cross Penny-a-Week Fund by local honorary secretaries and workers' representatives through some 8,000 branch banks in England and Wales.

★

Since Ebenezer Howard first directed attention to the need of controlling the use of the limited area of the land of the country in the interests of the community it has increasingly been realized that the root of the matter lay in a just solution of the problems of COMPENSATION AND BETTERMENT. *So says Mr. Eric Macfadyen, the chairman of First Garden City Ltd., in a statement to the shareholders.*

By owning the freehold of Letchworth and the surrounding farm land, he says, our company has been able to reconcile these conflicting interests ; and for over 40 years we have been engaged in developing a new town whose social amenities, economic prosperity, and public health and vital statistics entitle us to claim that it constitutes an experiment of unique and far-reaching interest. He continues : Not the least interesting feature of that experiment has been that the town has been created by private capital ; a pointer to the possibilities of similar development backed by public credit. It is noteworthy that the Hertfordshire County Council, with its experience of Letchworth and Welwyn, should have laid down that Garden City principles should govern future urban development in the county. Taken in conjunction with the Barlow and Scott Reports the Uthwatt Report propounds a solution of the underlying problem applicable on a nation-wide scale and by doing so marks a milestone in the town and country planning movement. The circumstances of to-day create an unparalleled opportunity for translating theory into practice ; it remains now for public opinion to insist upon action.

In future crawler cranes will be produced only to CRAWLER-EXCAVATOR DESIGNS WITH CRANE EQUIPMENT, *and not as specially designed Crawler cranes. They come under the permit system now governing the purchase of excavators.*

All persons desiring to purchase new Crawler excavators with crane equipment must obtain a permit from the Joint Secretary, Engineer Stores Assignment Working Committee, Room 616, Lambeth Bridge House, Albert Embankment, S.E.1. This applies to all purchasers of such new plant, including local authorities and public utility companies, irrespective of the purpose for which the machines are required. Applications should be made on Form AS.72/CP/AR1, obtainable from the Joint Secretary, at the address above stated, by whom a permit to purchase will be issued in cases approved by the Committee. The purchaser will be notified accordingly. No " M " Form will be required as the necessary allocation of steel will be made direct to the manufacturers by the MOS.

★

During the coming Spring term, the following visitors will give TALKS AT THE A.A. SCHOOL OF ARCHITECTURE : *Sir Kenneth Clark on Is Art Necessary ? ; Mr. Edric Neel on " War-time Housing." The dates of the talks are not yet arranged.*

Officially opened last week, the road extension to Western Avenue which has only been open between Shepherd's Bush and the Middlesex and Bucks boundary, now by-passes Uxbridge and JOINS THE OXFORD ROAD *in Buckinghamshire, two miles beyond Uxbridge.*

To meet immediate war needs there is an URGENT NEED OF WASTE PAPER, *100,000 tons being required immediately. Nearly every local authority and many waste paper merchants now have arrangements for collecting confidential papers and repulping them without their contents being seen. Some confidential papers are put through a shredding machine that minces them beyond all recognition.*

★

Preparations are being made by the Government to RECONDITION 80,000 WAR-DAMAGED HOUSES, *including others unoccupied. The main difficulties are the supply of man power and material. The scheme is part of a bigger housing programme to be started during war time.*

To control Land and Planning

Mr. W. S. Morrison, M.C., K.C., M.P., the Minister-Designate for Town and Country Planning, has held appointments in the Government and in Government Departments for twenty years. At the moment he is Postmaster-General, a position he has occupied since 1940. Before this he was Minister of Agriculture and Fisheries (1936-1939) and Minister of Food (1939-1940). He began his Government career when he became Private Secretary to the Solicitor-General (1922-1923 and 1924-1927). From then on he was Private Secretary to the Attorney-General (1927-1929 and 1931 to 1935) and to the Treasury (1935-1936). While at the Treasury he was also Recorder of Walsall. During the last war he served in the R.F.A. in France (1914 to 1918), won the M.C., and was thrice mentioned in despatches, resigning his commission (1919) with the rank of Captain. As Minister of Town and Country Planning, Mr. Morrison will control the use of land and administer the planning laws in England and Wales. In Scotland these powers will be exercised by Mr. Johnston, Secretary for Scotland. Both Mr. Morrison and Mr. Johnston will serve on a special Ministerial Committee under Sir William Jowitt (recently appointed Minister without portfolio), who will continue his existing duties in regard to post-war reconstruction. Mr. Morrison is 48, and was called to the Bar, Inner Temple, in 1923. His new appointment carries a salary of £5,000 a year.

The Committee which the FBI has set up under the chairmanship of Sir William Larke to consider INDUSTRIAL RESEARCH, *has reached preliminary decisions with regard to its programme.* The preliminary task of the committee is to stimulate the utmost possible interest in industrial research. It is proposed to make a survey of present industrial research activities and to obtain an indication of the results already achieved in many spheres of British industry. The necessary information from which the survey can be compiled is being sought from various sources, including industrial research associations, commercial associations and individual firms, the assistance of which is earnestly requested.

★

Squadron Leader C. Beresford Marshall, Royal Air Force, partner in the firm of Messrs. Marshall & Tweedy, FF.R.I.B.A., London and Newcastle-upon-Tyne, has been made a Member of the Order of the British Empire in the NEW YEAR HONOURS *list. He designed the King's House presented by the Royal Warrant Holders to His late Majesty King George V.*

In view of misapprehensions that have apparently been caused in many quarters by the announcement that the Timber Control Board has been disbanded, the MOS. considers it desirable to make it clear that all orders relating TO THE CONTROL OF TIMBER *continue to be operative, and the functions of the Timber Control Department of the Ministry are in no way affected.*

★

In a report to MOWP the Institution of Municipal and County Engineers recommend, as an essential part of post-war planning, the CONSTRUCTION OF HIGH-SPEED MOTOR ROADS *through the open country, linking London with provincial centres.* Each of the new roads, it is suggested, would end a few miles outside London and the connected cities, and be served by link roads. Only the most important roads would be linked with the motorways, all minor roads being carried over by bridges or under. The Government is urged to make a complete investigation into the whole subject of national communications—road, rail and inland waterways—and draw up plans for effective action as soon as possible.

AFTER THE WAR

A FEW weeks ago the JOURNAL pointed out that the society for which architects have been used to work disappeared with the outbreak of war—probably for ever. Altered conditions seem to imply some change in the way the profession is organised and some alteration in the kind of work architects are called on to do, but the profession remains passive and without a policy. Architecture has not flourished lately and architects on the whole are ready to welcome change, but the results of it may be disappointing to them unless they take the trouble to work out exactly why they want it and what they expect from it, and explain their point of view to other people in unmistakable terms. The public has little understanding of architecture or architects, and it is improbable that either will benefit from changes which it is left to make without advice.

Until quite recently architecture has not been thought of as a necessity but as a way of ennobling and enriching the appearance of buildings that has no bearing on their efficiency. And so it has been thought of as something which only the rich could afford. Given the premises and the social and economic theories of the nineteenth century the conclusion was logical. It is undoubtedly a fact that buildings which rely solely on the proportions of their *necessary* parts to achieve architectural effect fall far short of what is wanted if this view of architecture is accepted. But the rich are dwindling in numbers and importance and the demand for expensive grandeur continues to shrink. The architectural profession must adjust itself to this fact.

It is equally true however, in spite of what functionalists have told us, that buildings which are cleanly planned and soundly constructed of appropriate materials, even though they have nothing added by way of ornament, usually cost more than those which are barely adequate for their purpose, are planned on a strictly minimum basis and built with the greatest possible economy of labour and materials. The public must be made to understand this. People are at last beginning to realize that one cannot distinguish between luxuries and non-luxuries *simply* by comparing costs; that it does not always pay to accept the cheapest tender; and that there are certain economies society cannot afford; certain standards to be maintained whatever the cost. They must be made to realise that comfortable efficient buildings and a healthy environment are as important as adequate food, and that the work of designing them is highly technical.

It is this changing view of the importance to the country of good technique and a good environment which, if it secures official acceptance, is going to alter the status of

the architect—not any increased appreciation of æsthetics. In fact most of our more enlightened contemporaries consider a building fitted neatly into the right place to be a satisfactory-looking building, regardless of what its individual features may be. If the architect ever becomes a public personage of importance it will be because the provision of a mechanically efficient and biologically satisfactory environment is seen to be a national necessity and for no other reason.

Architects as a whole are ready to agree that they should enjoy greater public responsibility. Some because they hope to design public buildings of real merit; others because they burn with the zeal of social reformers and are conscious of the contribution they could make to the comfort and well-being of the British race; others again because they long for the security that is usually associated with public service of one kind or another. Before the war there were many men in the ranks of the municipal offices who could be found to say "I don't often get a chance here to design a good building, but I like the feeling that I am working for the community. I get a regular salary and a pension when I retire and no one makes a profit out of anything I do." There is reason to believe that this desire for security has been increased by the upheavals of the last few years.

Needless to say these attitudes are poles apart, but they are not contradictory. A satisfactory form of professional organization has got to satisfy all of them at once. The chief trouble at present is that neither of the existing alternatives does so. Large architects' departments, government or otherwise, appeal to few young and enterprising men who have seen how they work in this country, though in theory they appeal to many who have no such experience and who are inspired by successful examples of group work on a large scale in other countries, e.g. the Swedish co-operative society. Private practice, on the other hand, has disadvantages that are equally serious. The single-handed architect feels inadequate in face of the kind of job he would like to undertake. Moreover the financial insecurity that haunts the young architect trying to establish himself in private practice is not only highly unpleasant but is also an almost insuperable obstacle to real efficiency. Architecture is no longer a question of personal talent. A good organization is necessary also.

The situation being as it is, it is a waste of time to debate the future of the profession in terms of "the State *v.* private enterprise." The two questions which seem to need discussion are :—

(i) What steps should architects take to fit themselves for greater technical and social responsibility?

(ii) What conditions of employment are necessary if society as a whole is to benefit by their skill?

The Architects' Journal

War Address: 45, The Avenue, Cheam, Surrey

Telephone: Vigilant 0087-9

NOTES & TOPICS

AUSTERITY'S LATEST

Architects seem to have just the right amount of knowledge of fuel and heating appliances to appreciate the wonderful queerness of the fuel-saving campaign. In three years many forms of austerity have been imposed upon us, but one can safely say that hitherto both imposers and imposees have been agreed about at least one or two main points of the austerity in question. With fuel saving it is otherwise. There is hardly a single point, however fundamental, about which the protagonists do not seem to be giving each other the lie on apparently most weighty and circumstantial authority; and the habit is now spreading among housewives.

★

We were all told as long ago as April or May that the fuel situation was grave and production does not seem to have increased since then; nevertheless a recent debate in the Commons found the Minister of Fuel and Power expressing a quiet optimism. We were told—and are still being told—that the big saving must come from domestic consumers; yet, according to a most authoritative letter in *The Times*, domestic consumption accounts for so small a proportion of total fuel consumption that it is hopeless to expect the housewives of Britain to

make good the alleged deficit ; and even the Ministry of Fuel says that the winter fuel of the small domestic consumer must be safeguarded.

★

And when one comes down from the experts to individuals the same situation of statement and flat contradiction persists. I have found that out of every four households who have compared their past consumption with their fuel target, three hold that it is absolutely impossible to keep within the target while the fourth either maintains it is easy to do so or that it can be done with a squeeze. The absurdity of this situation is enhanced by the " Can't be done " household being, apparently, quite as modest and economical in manner of living as the " Do it easily " school. It must be admitted that privately gathered statistics of this kind are unreliable, and not less so in that only about one householder in ten can lay a hand on his or her heart and swear that he has made an exact comparison of actual consumption and target figures. But they seem as sound as most other statistics put forward during this extraordinary argument.

★

I have also worked out some other figures which seem to bear pointedly on the question of what type of fuel consumer is in the best position to make substantial fuel economies. The figures are the approximate daily fuel consumption per head in lbs. of coal for (1) my own household and (2) a large group of centrally heated buildings used partly as offices and partly as living quarters by certain participants in our war effort. The figures are : 9 lb. for (1) and 16 lb. for (2).

★

To an advocate of the superior economics of central heating and community feeding these figures seemed unbelievable and they were carefully checked — arithmetically and otherwise. They were then submitted to a heating consultant. The heating consultant was inclined to be cross. He pointed out that in the household an average of 1½ rooms out of 7 was being heated as against *all* the rooms in the building group. Secondly, the 1½ rooms were heated over a period not exceeding 16 hours a day and usually less ; whereas the building group was heated fully for 16 hours and at about half strength for the remaining 8. He added, rather cattily, that the fuel consumption figures for the household seemed to have been based on some very mild autumn days.

★

These are convincing rejoinders. But if one could be sure that all stokers were being offered a very high bonus for producing more B.T.U.'s from a given quantity of fuel, prospects for BIG fuel saving would somehow seem brighter.

HOLIDAYS FOR ALL

In a P.E.P. broadsheet, *Holidays for All*, figures are published which throw light on the amount of building work that's been going on these last few years. The estimate for hostels alone is as follows :—

Royal Ordnance Factory Hostels	41,000 places
National Service Hostels Corporation ..	40,000 ,,
Temporary Hostels for Bombed-out Families	50,000 ,,
Rural Hostels for Agricultural Workers ..	12,000 ,,
	143,000 places (maximum)

★

The average hostel accommodates between 500 and 1,000 people so the number of hostels is probably somewhere between 145 and 290.

★

P.E.P. suggests that these hostels should be used as holiday camps after the war. But I can't picture the wife and family spending two happy weeks in an agricultural workers' hostel somewhere in Loamshire—even if the Government were to provide free bubbly and paper hats.

WOMEN IN THE BUILDING INDUSTRY

I have ventured to include in Astragal this week these photographs introducing Mrs. Flanagan and Mrs. O'Connor, now operating somewhere in the London area, as a reminder that women are doing their bit now even in the building industry. The number employed is said to be a closely guarded secret.

Mrs. Flanagan (left) and Mrs. O'Connor, two Londoners who are working as bricklayers' labourers on a site in the City. See Astragal's note on this page.

All things considered it's astonishing how little publicity these women get. Almost the only reference to their existence that I can remember seeing in print are some remarks made by Mr. Cruickshank, a contractor's labour officer at an A.A.S.T.A. discussion reported in the JOURNAL some weeks ago. After mentioning that his men had threatened to strike when they first appeared on the job, a threat happily averted by a reassuring letter from the N.F.B.T.O. he went on to add that he personally found them more useful than the average male bricklayers' labourers of to-day, who still refused to throw two bricks at once—a trick the women could learn in half an hour.

ASTRAGAL

LETTERS

A. A. Prett
F. R. Jelley
Henry J. Crone

The Building Control

Sir,—I liked that letter you published about Building Control from a Country Builder, because I am a country builder myself and I have had the same kind of experience.

Here is just one. Away back at the beginning of July last year, I wrote about a licence to do some painting work at a P.R.H.A. Rest House, which was badly needed, as the old paint was perished and weathered away, letting the wet into the woodwork.

Without making any enquiries about the job the Licensing Officer wrote to say that a licence could not be granted.

The owners wrote several letters appealing against this, and about the middle of September I was sent an application form to fill up to apply for a licence. This I did, but instead of a licence, I only received a lot more letters asking for all sorts of information, schedules and the like, which I did my best to give them after my working hours as I had no clerk who could deal with it. This went on for a couple of months or so; bad weather set in and, being pressed by the owners, I did not know what to do.

At last, towards the end of November, an architect came down from Reading, who went over the job with me, decided what could be done, and settled the whole matter on the spot, and in due course I received a licence.

Why all this delay and inconvenience when builders are so short staffed, and when the work could have been done in favourable weather.

A. A. PRETT.

Cadnam.

Sir,—The letter you publish is written in that robust controversial style which has always been associated with the English building industry, and I cannot believe that its author is really too bashful to append his signature.

However, in order to assure him that even the most controversial of subjects is always discussed in your columns in a friendly atmosphere, I hope he will permit me to call him "George."

Having grown tired of "too much delay and letter writing" and taken a trip to town in pursuit of a licence to build something or other, George complains that he "had to talk to a clerk who knows nothing about building," and then proceeds to deliver a devastating attack on architects.

This is all very entertaining but, on the evidence, George does not appear to have encountered any architects during the pursuit of his licence and in this respect he has merely shared the experience of many other citizens, for it seems that very few who go in quest of licences are permitted to see an architect.

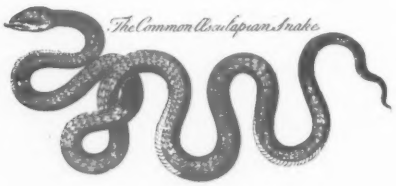
It may be, of course, that there are architects engaged upon such matters. Indeed George refers darkly to "a crowd who were given jobs when the Government Control started." I daresay he imagines they are kept in secret compartments carefully protected by immense clusters of busy little clerical worker bees, like drones in a beehive, lolling about, smoking enormous cigars, sipping nectar and listening to music-while-you-work programmes kindly provided by the B.B.C.

I implore George to calm himself by reading Mr. Maeterlinck's book about beehives and meditating on the horrid fate in store for his architect drones.

Personally I don't believe they exist! When George sends in his application for a licence it is possible that the busy little clerical worker bees do not realize that he really wishes to build something. However, they don't want to hurt George's feelings, so they pretend there are a lot of very fierce architects hidden away somewhere, who understand the queer sort of language he uses, and if he will kindly go away they will write and let him know what the architects say.

F. R. JELLEY.

Sutton.



After the War

Sir,—There are two attitudes of mind current among those who have sufficient vision to think positively about after the war:

A. How will post-war reconstruction affect me, or what do I get out of it?

or

B. What part have I to play in the post-war world, or what can I put into reconstruction?

A. is an insidious attitude. Many people, who sincerely think that their thoughts and ideas are for the public good, are in reality wish-thinking of a world in which they or their profession or their social group will be dominant. We have little to hope for from those whose thinking grows from such roots. No amount of super-imposed altruism will prevent the basic motive of self from sabotaging any efforts towards a policy beneficial to the community.

B. is an attitude which gives more hope. If a number of us with this attitude work together in trust we dare hope for progress.

The writer of this has made every endeavour to adopt attitude B but may not have attained absolute success. Few of us can achieve complete disinterestedness and still remain positive thinkers. However, in a group, personal prejudices can be cancelled out by a common aim.

Certain conditions are essential to the success of any scheme to organize the building professions for greater efficiency.

(*a*) All professions connected with planning and building must work together.
(*b*) Every practitioner must combine in the highest degree integrity and competence.
(*c*) Every practitioner must be kept, or keep himself, fully aware of the latest developments in his sphere. He must have both access to the results of research and some place to communicate the findings of his own researches.
(*d*) The decisions of technical nature which professional men agree on must not be subject to reversal by non-technical people such as politicians and clerical officers.
(*e*) Professional men must be left free to do their job without:—
  i. Having to adjust their beliefs to get jobs.
  ii. Having to tout for work.
  iii. Having to accept commissions they do not sympathise with.

With these conditions satisfied the building professions could, together, produce a physical Britain which would surpass the hopes of most of us.

Many of us shared in deploring the lack of a unified command for our three fighting services. After the war we will become the front line troops. It is important that we should profit by the experience of others and adopt as our strategy a system of combined operations.

Theoretically the architect should be chief of staff. Few architects are trained to tackle that task. The writer, a quantity surveyor, would sincerely like to meet an architect who can produce proof that he is better able to plan, control and organize a job on his own than with the co-operation of engineer and surveyor. Where cost is no object it could be so, but in our modern world the quantity surveyor should be allowed to sit on the money box.

The only rational answer is group working. This applies even more so in town planning where the specialists needed are even more numerous. The group must include a quantity surveyor to control cost. This despite the Chartered Surveyors Institution fear of collusion.

Only closely knit groups in business as one firm can ensure A1 service to the public. The voluntary and variable combination of separate firms belongs to mental attitude A and is dangerous. Most arguments against the close group spring from two causes:—

(*a*) The necessity of establishing a very high degree of integrity and competence.
(*b*) The difficulty in getting such a system adopted generally.

The following is a solution which is possible if professional men will sink their prejudices and think wide.

Step 1.—The formation of a democratically appointed council to represent all the professional bodies concerned with building works. Representation to be according to numbers. This council to draw up plans for the formation of regional councils, and for co-operation with government and other bodies. In addition the council to draw up a general code of conduct to operate with each body's own code.

Step. 2.—The formation of similar regional councils.

Step 3.—The professions in each region to form themselves into groups. Each group to have at least one architect, one engineer, and one surveyor. The staffs in these offices to be graded on a national scale. In addition there would be some system of profit sharing.

Step 4.—Preparation of panels of these groups and the work they are prepared to undertake. The council to have the right to query the ability of any office to undertake particular types of work. After discussion the matter be decided by a tribunal if agreement fails.

Step 5.—All building and planning works to be commissioned through the national or regional councils. These to share out the commissions among their groups. After that client and group continue as at present. Clients to be entitled to ask for any particular group. Groups to be entitled to apply for inclusion in other panels and the national panel.

ADVANTAGES:

1. The abolition of touting for work and of scamped work in offices where work exceeds capacity.
2. Research and experience available to every member and a centre for disseminating new ideas to professions and public.
3. Stabilization of standards of conduct.
4. Pupils guaranteed training and employment.
5. Cutting of fees and other underhand competition abolished.
6. Poor clients could be assisted since the work would be done by a big panel sharing any losses in such work.
7. The professions would present a united front and the unqualified dabbler would be kept out.

DISADVANTAGES:

1. Danger of domination of younger men.
2. No hope of £10,000 per annum.
3. Every unit must aim at perfection to avoid the public being let down.
4. A little more discipline would be necessary.
5. Inability to start in business and then chuck it and go on a world tour.

Utopia? Not really because if we don't do something like this, then we will all find ourselves either in a government department or sitting in offices starving while half-a-dozen firms build memorials to the glory that was us.

HENRY J. CRONE
(Chartered Surveyor)

PRICES

ELEVENTH WARTIME LIST

EXPLANATORY NOTES

The only changes worth noting since the last wartime list are in the prices of cast iron drain pipes and fittings.

The Rates of Wages have not changed since Feb. 1 1942, and are as follows :—

LONDON DISTRICT	*Craftsmen.*	*Labourers.*
Within 12 miles radius	2s. 0½d.	1s. 7¼d.
From 12-15 „ „	2s. 0d.	1s. 7d.

GRADE CLASSIFICATIONS

	A	A¹	A²	A³	B	B¹	B²	B³	C
Craftsmen..	1s. 11d.	1s. 10½d.	1s. 10d.	1s. 9½d.	1s. 9d.	1s. 8½d.	1s. 8d.	1s. 7½d.	1s. 7d.
Labourers..	1s. 6¼d.	1s. 5¾d.	1s. 5½d.	1s. 5d.	1s. 4¾d.	1s. 4¼d.	1s. 4d.	1s. 3½d.	1s. 3¼d.

F.S.I.

CURRENT MARKET PRICES OF MATERIALS

BY DAVIS AND BELFIELD, Chartered Quantity Surveyors

Prices vary according to quality and the quantity ordered.

Those given below are average market prices and include delivery in the London area, except where otherwise stated, but do not include overhead charges and profit for the General Contractor.

CONCRETOR

Cements

† All delivered in paper bags (20 to the ton) free.

* Paper bags charged at 7/– extra per ton non-returnable; jute sacks charged at 35/6 per ton and credited on return at 1/6 each.

		6 Tons and over	In 80-ton freights F.A.S. Safe Wharf in River Thames, London Area.
*Portland	per ton	51/–	48/6
*"417" Ultra rapid hardening	per ton	71/–	—
*Rapid hardening ...	per ton	57/–	54/6
*Water repellent ...	per ton	81/–	—
Atlas White (1 barrel 376 lbs.)			per barrel — 6 ton upwards
*Colorcrete rapid hardening, buff and red	per ton		91/–
*Colorcrete rapid hardening khaki ...	per ton		91/–
†Colorcrete rapid hardening dark ...	per ton		—
†Colorcrete non-rapid hardening ...	per ton from		175/– to 399/–
†Snowcrete	per ton		205/–
	1–9 cwts.	10–19 cwts.	1 ton and upwards
*Ciment Fondu, delivered Central London area	per cwt.	15/3	14/9 12/9

Aggregate and Sands (Full Loads)

2" Unscreened ballast	per yard cube	9/10
¾"(Down) Washed, crushed and graded shingle	per yard cube	10/4
¾" (Down) Ditto	per yard cube	11/4
2" Broken brick	per yard cube	14/–
¾" Ditto	per yard cube	15/6
Washed pan breeze	per yard cube	9/6
Coke breeze 1" to dust	per yard cube	—
⅛" Sharp washed sand	per yard cube	13/9
White Silver Sand for white cement (one ton lots)	per yard	40/–

(For Sands for Bricklaying and Plastering *see* respective trades)

Pavings

Brick hardcore	per yard cube	—
Concrete ditto	per yard cube	—
Clean furnace clinker and boiler ashes ...	per yard cube	4/6
Coarse gravel for paths	per yard cube	—
Fine ditto	per yard cube	—
Clean granite chippings	per ton	37/6

CONCRETOR—(*continued*)

Pavings—continued

Red quarry tiles, 6" × 6" × ⅞"	per yard super	8/1
Ditto 6" × 6" × ½"	per yard super	6/9
Buff ditto 6" × 6" × ⅞"	per yard super	8/10
Ditto 6" × 6" × ½"	per yard super	7/5
Hard red paving bricks, 2"	per 1,000	230/6
Ditto 1½"	per 1,000	208/3

Reinforcement

Home trade maximum basis price for mild steel rods, ⅜" diameter and upwards, ex mills delivered to station or siding	per ton £16 19 6
Extras for :—	
9/16" and ½" diameter...	per ton 10/–
7/16" diameter	per ton 15/–
⅜" diameter	per ton 20/–
5/16" diameter	per ton 30/–
¼" diameter	per ton 40/–
3/16" diameter	per ton 60/–
Lengths of 40 ft. to 45 ft.	per ton 10/–
Lengths of 45 ft. to 50 ft.	per ton 15/–

Sundries

Retarding liquid, in 5-gallon drums (for exposing aggregate)	per gallon 21/–	Ex Warehouse, Southwark Bridge. Drums chargeable and credited, if returned.
Ditto (for obtaining a bond)	per gallon 13/1½	

BRICKLAYER

Common Bricks

†Rough stocks	per 1,000	—
†Third stocks	per 1,000	—
†Mild stocks	per 1,000	—
Sand limes	per 1,000	—
‡Phorpres pressed Flettons	per 1,000	59/9
‡Phorpres keyed Flettons	per 1,000	61/9
Blue Staffordshire wirecuts	per 1,000	255/–
†Lingfield engineering wirecuts	per 1,000	83/–
Firebricks, best Stourbridge 2½"	per 1,000	365/6
Firebricks, best Stourbridge 3"	per 1,000	465/6

Facing and Engineering Bricks

Sand Limes, No. 1	per 1,000	—
Sand Limes, No. 2	per 1,000	—
‡Phorpres rustic Flettons	per 1,000	79/9

‡ At King's Cross. For delivery in W.C. district add 6/6 per 1,000.

† Price ex works, delivery extra.

BRICKLAYER—(*continued*)

Facing and Engineering Bricks—continued

Midhurst Whites	per 1,000	118/-
†Hard stocks, firsts	per 1,000	—
†Hard stocks, seconds	per 1,000	—
Sand-faced, hand-made reds	per 1,000 from	153/-
Sand-faced, machine-made reds	per 1,000 from	—
Red rubbers (9½-in.)	per 1,000	—
Uxbridge Flints (white)	per 1,000	78/-
Uxbridge Flints (creams, light greys, etc.) per 1,000	from	113/-
Dunbriks (concrete), standard greys, ex works ...	per 1,000	63/-
Dunbriks (concrete), in various colours, ex works	per 1,000	98/-
†Southwater engineering No. 1 (first quality red pressed)	per 1,000	128/-
†Southwater engineering No. 2 (second quality red pressed)	per 1,000	108/-
Blue pressed	per 1,000	275/-

† Price ex works, delivery extra.

Limes and Sand

		1-ton lots	6-ton lots
Lime, greystone	per ton	61/-	—
Lime, chalk	per ton	61/-	—
Lime, blue Lias (including paper bags)	per ton	—	—
Lime, hydrated (including paper bags)	per ton	70/6	—
Washed pit sand	per yard cube		12/-

(For cements, *see* "Concretor.")

Hire of jute sacks charged at 1/6 and credited at 1/6. If left charged at 1/9.

Sundries

Wall ties, self coloured	per cwt.	—
Wall ties, galvanized...	per cwt.	—
D.P.C. slates, size 18″ × 9″	per 100	38/-
D.P.C. slates, size 14″ × 9″	per 100	34/3
D.P.C. slates, size 14″ × 4½″	per 100	15/-
‡Ledkore D.P.C. Grade A	per foot super	7½d.
‡Ledkore D.P.C. Grade B	per foot super	9½d.
‡Ledkore D.P.C. Grade C	per foot super	11½d.

‡ Trade discount 5 per cent. and cash discount 5 per cent. Prices include delivery on minimum of £5 orders.

Earthenware airbricks: Red, blue, vitrified and buff terra cotta ... each	9″×3″ 1/-	9″×6″ 2/-	9″×9″ 4/6	12″×9″ —	14″×9″ 12/3
Black cast iron, School Board pattern airbricks per doz.	9″×3″ 3/9	9″×6″ 7/7	9″×9″ 15/1	12″×6″ 15/1	12″×9″ —
Galvanized ditto per doz.	7/7	15/1½	30/2½	30/2½	—
Black hit and miss cast iron ventilators per doz.	18/-	27/6	37/1	37/1	—
Galvanized ditto per doz.	36/-	57/2	74/3	74/3	—

Buff terra cotta chimney pots ... ... each	1′ 0″ 3/6	1′ 6″ 4/2	2′ 0″ 6/1	2′ 6″ 8/1	3′ 6″ 18/4	5′ 0″ 31/6
Fireclay ... per ton	67/6					

Wall reinforcement supplied in standard rolls containing 25 yards lin.

*2″ wide black japanned ...	per roll	2/5
*2″ wide galvanized ...	per roll	—
*2½″ wide black japanned...	per roll	3/-
*2½″ wide galvanized ...	per roll	—

Greater widths pro rata 2½″ price carriage paid on orders of £5. Discounts for quantities

* Prices subject to 5% advance.

Partitions

		2″	2½″	3″	4″
Breeze ...	per yard super	2/3	2/8	3/2	4/2
Clay tiles	per yard super	2/8	2/11	3/6	4/-
Pumice ...	per yard super	3/6	4/6	5/3	5/9
Plaster ...	per yard super	3/8	4/9	5/9	6/6

Gas Flue Blocks

		Single Flues	Double Flues
Straight blocks	each	1/3	2/3
Building in set	per set of 3	3/1	5/6
Cover blocks	each	1/7	3/4
Raking blocks 45°	each	3/-	4/8
Raking blocks 60°	each	2/1	3/3
Offset blocks	each	3/8	5/3
Closer blocks	each	1/3	2/3
Closer flashing blocks	each	10d.	1/9
Straight flashing blocks	each	11d.	1/9
Terminal and cap	per set	7/-	12/-
Middle terminal and cap ...	per set	6/6	11/3
End terminal and cap ...	per set	6/9	11/9
Corbel block	each	5/2	10/5
Gathering block	each	—	5/3

DRAINLAYER

Agricultural Pipes

		2″	3″	4″	6″
Pipes in 12″ lengths ...	per 1,000	75/-	105/-	142/6	270/-

(Delivered in full loads Central London Area.)

Salt Glazed Stoneware Pipes and Fittings

		4″	6″	9″
Pipes (2′ lengths)	each	1/8	2/6	4/6
Bends, ordinary	each	2/6	3/9	6/9
Single Junction, 2′ long	each	3/4	5/-	9/-
Yard Gulley, without grating ...	each	6/3	6/10½	11/3
Ordinary round or square Grating, painted	each	-/7½	1/3	2/6
Ordinary round or square Grating, galvanized	each	1/0½	2/1	4/4½
Extra for Inlets, horizontal	each	1/6	1/6	1/6
Extra for Inlets, vertical	each	2/3	2/3	2/3
Intercepting Trap with Stanford Stopper	each	17/6	22/6	37/6
Grease and mud interceptor with bucket for removing silt and grease for 6″, 9″ and 12″ drains, with iron grating, painted	each	20/-		
Ditto, with iron grating galvanized	each	21/10½		

The above prices to be varied by the following percentages for the different qualities given. All subject to 2½ per cent. cash discount.

	British Standard	British Standard Tested
Orders for 2 tons and over	Plus 10%	Plus 35%
Orders under 2 tons, 100 pieces upwards	Plus 27½%	Plus 52½%
Orders under 2 tons, less than 100 pieces	Plus 37½%	Plus 62½%

	Best	Seconds
Orders for 2 tons and over	Plus 2½%	Subject to 15%
Orders under 2 tons, 100 pieces upwards	Plus 20%	off the price of
Orders under 2 tons, less than 100 pieces	Plus 30%	best quality for all sizes

Cast Iron Drain Pipes and Fittings

Socket and Spigot Pipes :—

Weight (per 9 ft.)	Size	9 fts.	6 fts.	4 fts. each	3 fts. each
1 . 1 . 8	4″ per yard ...	7/11	8/11	14/2	10/9
1 . 1 . 20	4″ per yard ...	8/3	9/2	14/6	11/1
2 . 0 . 6	6″ per yard ...	12/3	14/7	23/7	18/10
4 . 0 . 2	9″ per yard ...	22/3	29/2	50/6	38/6

		2 fts.	18 ins.	12 ins.	9 ins.
1 . 1 . 8	4″ each	8/11	7/6	6/10	6/1
1 . 1 . 20	4″ each	9/-	—	—	—
2 . 0 . 6	6″ each	14/1	—	—	—
4 . 0 . 2	9″ each	—	—	—	—

Tonnage Allowances :—
Orders up to 2 tons nett.
Orders 2 to 4 tons less 2½%
Orders 4 tons or over less 5%

		4″	6″	9″
Bends	each	7/10	16/4	50/4
Single junctions	each	13/10	28/4	86/9
Intercepting traps	each	37/9	62/1	154/8
Gulleys ordinary trapped ...	each	18/3	—	—
Extra for inlet 4″...	each	5/-	—	—
Grease Gulley trap	each	145/3	—	—
H.M.O.W. large socket gulley trap with 9″ gulley top and heavy grating and one back inlet	each	31/9	58/9	—

Channels in Brown Glazed Ware

		4″	6″	9″
Half round straight channels 24″ long	each	1/3	1/10½	3/4½
Half round straight channels 30″ long	each	—	—	4/2½
Ditto, short lengths	each	1/3	1/10½	—
Half round ordinary channel bends ...		1/10½	2/9½	5/0½
Ditto, short	each	1/10½	2/9½	—
Ditto, long	each	3/9	5/7½	10/1½
Three-quarter round branch bends	each	5/-	7/6	—

		6″×4″	9″×6″
Half round taper channels 24″ long	each	3/9	6/9
Half round taper channel bends	each	4/8½	8/5½

The above prices are subject to the same discounts as those given for "Best" quality salt glazed stoneware pipes.

Manhole Covers, etc.

	Black	Galvanized
24″ × 18″ single seal for foot traffic. (Weight 0.0.3 in lots of 24) ... ... each	14/3	28/6
24″ × 18″ single seal for light car traffic. (Weight 2 cwts. in lots of 24) ... each	40/6	81/-
24″ × 18″ Wood Block pattern. For road traffic. (Weight 3 cwts.) ... ... each	Coated 67/6	

DRAINLAYER—(*continued*)

Manhole Covers, etc.—(continued)

		Fine Cast	Galv.
Cast iron steps, 13½″ long, 6″ wide, 9″ in wall, approximate weight 5½ lbs. each	per dozen	14/9	25/6
Galvanized fresh air inlets with cast brass fronts (L.C.C. pattern)	each	6/9	6″ 26/6

MASON

Yorkstone

Building quality Robin Hood and Woodkirk Blue Stone.

Blocks scrappled, random sizes... ...	per foot cube	5/7½
Add for blocks to dimension sizes ...	per foot cube	7½d. (each dimension)
Templates with sawn beds, edges rough (up to 4 ft. super and not over 2′ 6″ long) ...	per foot cube	6/3
Templates with sawn beds, sawn one edge, per foot cube		7/6
Templates with sawn beds, sawn two edges, per foot cube		8/9
Prices f.o.r. Yorkshire, railway rate to London Station per ton. (Minimum 4-ton loads.)		29/1

Artificial Stone

6″ × 3″ Copings and sills	per foot run	1/10
6″ × 6″ Copings and sills	per foot run	2/10
9″ × 3″ Copings and sills	per foot run	2/2½
9″ × 6″ Copings and sills	per foot run	4/0½
12″ × 3″ Copings and sills	per foot run	2/10
12″ × 6″ Copings and sills	per foot run	4/7
Cornices according to detail, per foot cube (from)		8/3

SLATER, TILER AND ROOFER

Best Bangor Slates

	£	s.	d.
24″ × 12″ ... ... per 1,000 actual	58	0	0
20″ × 10″ ... ... per 1,000 actual	38	0	0

Prices include for delivery to site in lots of 1,000 and upwards.

Tiles

	£	s.	d.
Hand-made sandfaced 10½″ × 6½″ red roofing tiles per 1,000	8	10	0
Machine-made sandfaced 10½″ × 6½″ red roofing tiles per 1,000	8	0	0
Berkshire rustic pantiles... ... ... per 1,000	35	0	0

Asbestos-cement

†6″ corrugated sheets, grey	per yard super	3/0¾
†Standard 3″ corrugated sheets, grey ...	per yard super	2/9½

Slates (*Manufacture temporarily suspended*) :—

* 15½″ × 7½″ grey	per 1,000	£6	15	9
* 15½″ × 15½″ diagonal, grey ...	per 1,000	£13	11	6
* 15½″ × 15½″ diagonal, russet or brindled	per 1,000	£21	19	6

Pantiles (*Manufacture temporarily suspended*).

* Large russet brown	per 1,000	—

* Prices are for minimum two-ton loads, and are subject to 5% trade discount.

† Do., but 3¾% advance and 5% trade discount.

JOINER

Asbestos-cement and Asbestos Products

†1/16″ Semi-compressed flat building sheets, grey	per yard super	1/3½
†1/16″ Ditto	per yard super	1/4
†¼″ Ditto	per yard super	1/11

†Prices are for orders of two tons and over and are subject to 10% advance and 5% trade discount.

*⅛″ Asbestos wallboard (in sheets 8′ 0″ × 4′ 0″),	per foot super	–/4⅝
*1/16″ Ditto	per foot super	–/3¾
*1/16″ Asbestos wood (in sheets 8′ 0″ × 4′ 0″)	per yard super	2/4

*Prices are for orders of 2 tons and over and are nett.

The following asbestos prices are subject to 10 per cent. trade discount :—

Asbestos-cement stipple glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″) ...	per yard super	8/–
Marble glazed sheets (in sheets 8′ 0″ × 4′ 0″ and 4′ 0″ × 4′ 0″) ...	per yard super	8/–
½″ Asbestos Insulating Board	per foot super	–/8½

		25–75 yards	150–300 yards	Over 600 yards
¼″ Fireproof plaster board	per yard super	2/5	2/1	1/9
¼″ Ditto	per yard super	2/3	1/11	1/7
Joint tape (approx. 250 feet run)	per roll	—	—	1/6
Joint filler	per lb.	—	—	–/4

Sundries

Slaters or sarking felt	per yard run	–/9
Roofing felt (1-ply bitumen)	per yard sup	1/–
Bituminous hair felt	per roll	58/–

All rolls 25 yards long by 32″ wide.

JOINER—(*continued*)

Sundries—(continued)

Building paper, 50″ wide (B.I. 20)	per yard run	1/1
,, (K. 40)	per yard run	–/5½

" Cabots " Quilt :—(Ex Works) Twenty roll lots delivered carr. free.

Double ply	per roll	—	per half-roll —

All rolls 28 yards long by 36″ wide. Special terms for quantities.

Cut steel clasp nails	1″	per cwt.	39/3	4″ per cwt.	30/3
,, ,, floor brads	2″	,,	30/3	3″ ,,	29/–
Bright oval wire nails	1″	,,	43/4	4″ ,,	31/3

Galvanized wire staples with slice cut points	1″ × 12 gauge	per cwt. 52/–
Scotch glue		per cwt. 95/–

STEEL AND IRONWORKER

Steelwork

		£	s.	d.
Basis price for rolled steel joists sections 5″ × 3″ to 16″ × 6″, in 10 ft. to 50 ft. lengths	per ton	15	10	6

PLASTERER

Plaster and Cement

		1-ton loads
Sirapite (coarse)	per ton	88/6
,, (fine)	per ton	87/6
Victorite No. 1	per ton	110/–
,, No. 2 or non-sweat	per ton	105/–
Thistle (browning) ...	per ton	88/6
Thistle (haired)	per ton	—
Pink plaster	per ton	84/–
White plaster	per ton	93/–
Keene's pink	per ton	138/–
Keene's white	per ton	—
Super Carbo	per ton	—
Carbo-setting	per ton	—

		1 ton upwards £ s. d.
Cullamix No. 2 cream (rendering mixture)	per ton from	—
,, No. 3 cream ,, ,,	per ton from	—
Snowcrete mixture ,, ,,	per ton from	—

Sundries

Sharp washed sand	per yard cube	13/9
Cow hair	per cwt.	50/–
Goat's hair	per cwt.	88/–
Expanded metal lathing, 9′ 0″ × 2′ 0″ ⅜″ mesh × 26 gauge	per sheet	2/9
Wire Slate nails (galvanized) 1¼″ × 15 gauge	per cwt.	62/5
,, ,, ,, (bright wire) ,, ,,	per cwt.	—

	Less than 150 yds.	Less than 300 yds.	Over 300 yds.	Over 600 yds.
¾″ Plaster board per yard super	2/–	1/8	1/7	1/6
1¼″ Galvanized nails ... per cwt.	56/7			
Scrim cloth in 100-yard rolls per roll	3/10			

Wall Tiles

The following prices are subject to 75 per cent. addition :

Commercial quality.		
Ivory, white, etc., glazed 6″ × 6″ × ¾″ ...	per yard super	10/1
Angle beads (1½″ wide)	per yard run	1/2¾
,, ,, (1″ ,,)	per yard run	–/10
Rounded edge tiles	per yard run	2/6½
Coloured enamelled bright glazed, 6″ × 6″ × ¾″	per yard super	14/3
Angle beads (1½″ wide)	per yard run	1/4¾
,, ,, (1″ ,,)	per yard run	–/11½
Rounded edge tiles	per yard run	2/7
Eggshell gloss enamelled, 6″ × 6″ × ¾″ ...	per yard super	15/–
Angle beads (1½″ wide)	per yard run	1/7½
,, ,, (1″ ,,)	per yard run	1/0¾
Rounded edge tiles	per yard run	2/8½
Special rates for quantities		

PLUMBER

Lead

3½ lbs. and upwards milled sheet lead in quantities of 5 cwts. and upwards	per cwt.	38/–
Add if cut to sizes	per cwt.	3/–
Lead ternary alloy, No. 2 quality extra over sheet lead	per cwt.	7/–
Allowance for old lead delivered to merchant	per cwt.	18/–

PLUMBER—(*continued*)

Cast Iron Goods

	Percentage Adjustment on List No. 3100 A.B, 1/2/40
Rainwater Goods (painted or unpainted) ...	*Plus* 12½%
Soil goods (coated or uncoated)	*Plus* 12½%

Mild Steel Rainwater Goods

The following prices are subject to 2½ per cent. trade discount and 32½ per cent. advance.

24 gauge rainwater slip jointed pipes.

	2″	2½″	3″	3½″	4″
Galvanized round pipes with ears ... ... per 6′ 0″	2/7½	3/1½	3/9	4/3	4/9
Painted round pipes with ears per 6′ 0″	2/4½	2/9	3/1½	3/7½	4/–
Painted or galvanized short lengths with ears, extra each	–/6	–/6	–/6	–/6	–/6

18 Gauge gutters.	3″	3½″	4″	4½″	5″	6″
Galvanized half round gutters per 6′ 0″	2/–	2/3	2/4½	2/9	3/–	3/7½
Painted half round gutters ... per 6′ 0″	1/6	1/9	2/–	2/3	2/6	3/–
Painted or galvanized short lengths extra each	–/3	–/3	–/3	–/3	–/3	–/3

Asbestos-Cement Rainwater Goods

The following prices are subject to 15 per cent. advance and 12½ per cent. trade discount.

Orders over £30 are subject to 17½ per cent. trade discount.

Rainwater pipes.

Prices are for 6′ 0″ lengths, and 10′ 0″ lengths in 2″, 2½″ and 3″ diameters. Short lengths up to 2′ 0″ are charged as one yard. From 2′ 0″ to 4′ 0″ charged as 1½ yards. From 4′ 0″ to 6′ 0″ charged as 2 yards. Over 6′ 0″ charged as 10′ 0″.

Round pipes.

2″	per yard run	1/10
2½″	per yard run	2/0¾
3″	per yard run	2/5¾
3½″	per yard run	2/11½
4″	per yard run	3/4¾
4½″	per yard run	4/10½
5″	per yard run	5/9½
6″	per yard run	7/1¾

Gutters.

Short lengths of gutter up to 2′ 0″ charged as 1 yard; from 2′ 0″ to 4′ 0″ as 1½ yards, and over 4′ 0″ as 2 yards.

Half round gutters	3″	4″	4½″	5″	6″	8″
per yard run	1/3¾	1/6¾	1/7¾	1/11	2/8	3/3½
Ogee gutters per yard run —		1/11	2/0¾	2/5¾	3/0½	3/11¼

INTERNAL PLUMBER

Lead pipe in coils, 5 cwts. and upwards ...	per cwt.	38/6
Lead soil pipe	per cwt.	42/6
Add if ribbon marked	per cwt.	–/6
Lead ternary alloy, No. 2 quality extra over lead pipe	per cwt.	7/–
Plumber's solder	per cwt.	145/–
Tinman's solder	per cwt.	200/–

Drawn lead traps with brass screw eye, 6 lbs.

		1″	1¼″	1½″	2″
S. trap	each	2/5¾	2/11½	3/8	5/2¾
P. trap	each	2/2½	2/4½	2/5¾	3/5¾
Extra for 3″ deep seal ...	each	–/6	–/6	–/6	–/6

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc.

Tubes.		½″	¾″	1″	1¼″	1½″	2″
Tubes 2 ft. long and over	per ft.	–/5½	–/6¾	–/9½	1/1	1/4½	1/10
Pieces 12″ to 23½″ long	each	1/1	1/5	1/11	2/8	3/4	4/9
Bends	each	–/11	1/2	1/7½	2/7½	3/2	5/2
Fittings.							
Elbows, square ...	each	1/1	1/3	1/6	2/2	2/7	4/3
Elbows, round ...	each	1/2	1/5	1/8	2/4	2/10	4/8
Tees	each	1/3	1/7	1/10	2/6	3/1	5/1
Crosses	each	2/9	3/3	4/1	5/6	6/7	10/6
Sockets, plain ...	each	–/4	–/5	–/6	–/8	–/10½	1/3
Sockets, diminished	each	–/6	–/7	–/9	1/–	1/4	2/–
Flanges	each	1/–	1/2	1/4	1/9	2/–	2/9
Caps	each	–/5	–/6	–/8	1/–	1/3	2/–
Plugs	each	–/4	–/5	–/6	–/8	–/10	1/3

INTERNAL PLUMBER—(*continued*)

Screwed and Socketed Steel Tubes and Fittings for Gas, Water and Steam, etc. (continued)

Fittings and flanges and tubes ordered in long random lengths are subject to the following trade discounts:—

	Tubes	Fittings	Flanges
"Light Weight" ...	51½%	47½%	43½%
"Heavy Weight" ...	44%	39½%	33½%

COPPERSMITH AND ZINC WORKER

Copper

Hot rolled copper sheeting in 1 cwt. lots, all gauges to 24 wire gauge	per lb.	–/11¼
Light gauge copper tube, solid drawn	per lb.	1/3½
Copper tube, solid drawn screwing sizes ...	per lb.	1/2½
Copper wire, 10 and 12 gauge	per lb.	1/1
Copper nails, 1″ and up	per lb.	1/1½

GLAZIER

Sheet Glass cut to size (ordinary glazing quality)

18 oz. clear sheet	per foot super	3¼d.
24 oz. ditto	,, ,, ,,	4½d.
26 oz. ditto	,, ,, ,,	5½d.
32 oz. ditto	,, ,, ,,	7½d.
⅛″ figured rolled glass, white and cathedral	per foot super	–/7½
⅛″ ditto, normal tints	per foot super	–/10½

British Polished Plate Glass cut to size

Ordinary ¼″ Substance In Plates not exceeding		Glazing for Glazing Purposes	Selected Glazing Quality	Silvering Quality
2 ft. super ...	per foot super	2/2	2/4	2/10
3 ,, ...	per foot super	2/9	3/–	3/9
5 ,, ...	per foot super	3/–	3/6	4/3
*45 ,, ...	per foot super	3/6	4/–	5/5
*100 ,, ...	per foot super	4/6	5/7	7/2

*Plates exceeding 100 ft. super or 160 in. long or 100 in. wide at higher prices.

Special quotations should be obtained for other qualities and thicker substances.

Wired Glass Cut to Sizes

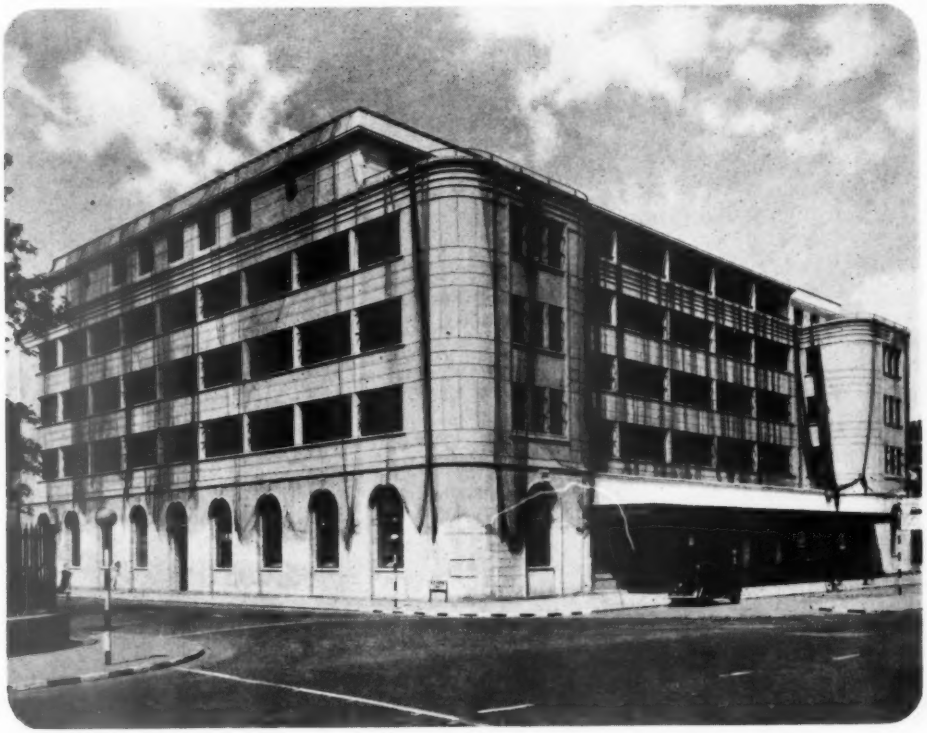
¼″ Rolled or rough cast	per ft. super	10½d.
‡¼-in. Georgian rough cast	per ft. super	11d.
‡¼-in. Georgian polished plate	per ft. super	3/2

Supplied in sizes up to 110 in. long and up to 36 in. wide.

‡ For cutting to allow for wires in adjacent pieces to be "lined up," add 4d. per foot super.

PAINTER

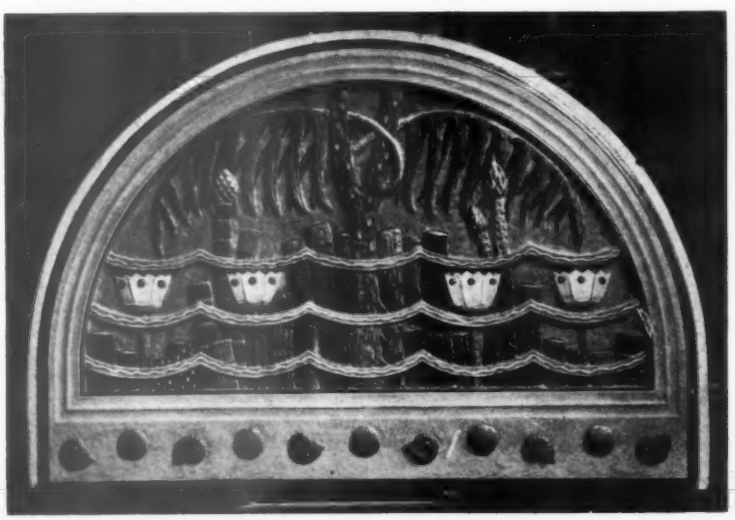
White ceiling distemper	per cwt.	22/–
Washable distemper (Walpamur, etc.) ...	per cwt.	66/–
,, ,, (others)	per cwt.	44/–
Ready mixed white lead paint (best), 5 cwt. lots, 14 lb. tins	per cwt.	95/6
Aluminium paint	per gallon	32/–
White enamel	per gallon	41/–
White enamel paint	per gallon	26/–
Stiff white lead (genuine English stack process, 1 ton lots, 1 cwt. kegs)	per cwt.	71/3
Liquid driers	per gallon	11/9
Linseed oil raw (5 gallon drums)	per gallon	5/9
,, ,, boiled (5-gallon drums)	per gallon	6/–
French polish	per gallon	14/–
Knotting	per gallon	17/–
Oil stain (scumble)	per gallon	17/–
,, ,, (paste paint in oil (to be let down with oil)	per lb.	3/–
,, ,, red oxide	per cwt.	62/–
,, ,, middle Brunswick green	per cwt.	88/–
,, ,, dark umber	per cwt.	77/6
,, ,, golden ochre	per cwt.	79/6
Varnish (outside quality) oak	per gallon	16/–
,, ,, ,, copal	per gallon	20/–
,, ,, ,, flatting	per gallon	22/–
Turpentine, genuine American 5 gallon lots	per gallon	15/–
,, substitute	per gallon	4/–
Creosote, 1 gallon lots	per gallon	1/–
Putty	per cwt.	23/3
Size	Per ¼ cwt.	30/–
Best quality English gold leaf, 23 carat ...	per book	3/3
Extra thick, ditto	per book	4/6



OFFICES

BY WILLIAM G. NEWTON AND PARTNERS

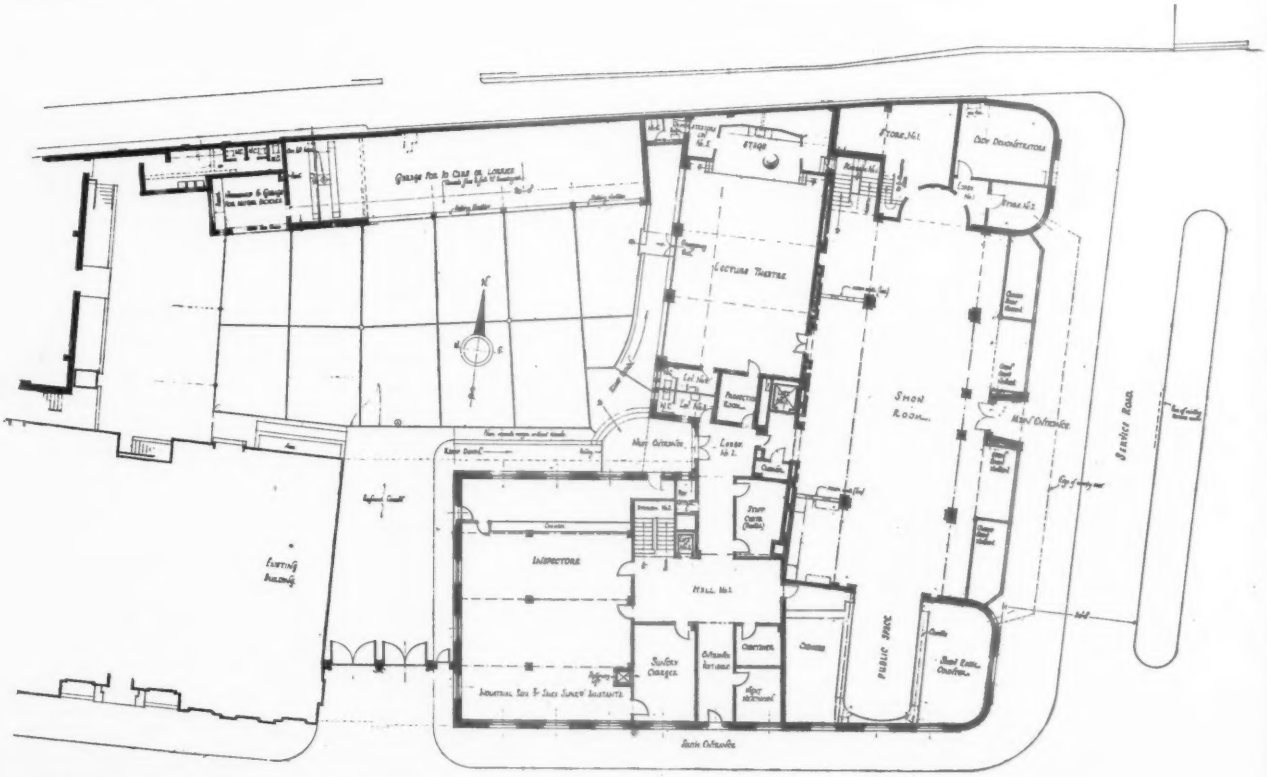
Top, view from south-east; below, coloured plaster tympanum. The Birthplace of Coal, by Esmond Burton, from the architects' sketch and colour notes.



GENERAL—The building is the first unit of a civic centre. Other architects will design other units. It was stipulated that the north wall should have no windows, that the south-east corner should be rounded—and that a set-back for cars should be provided to the show room front.

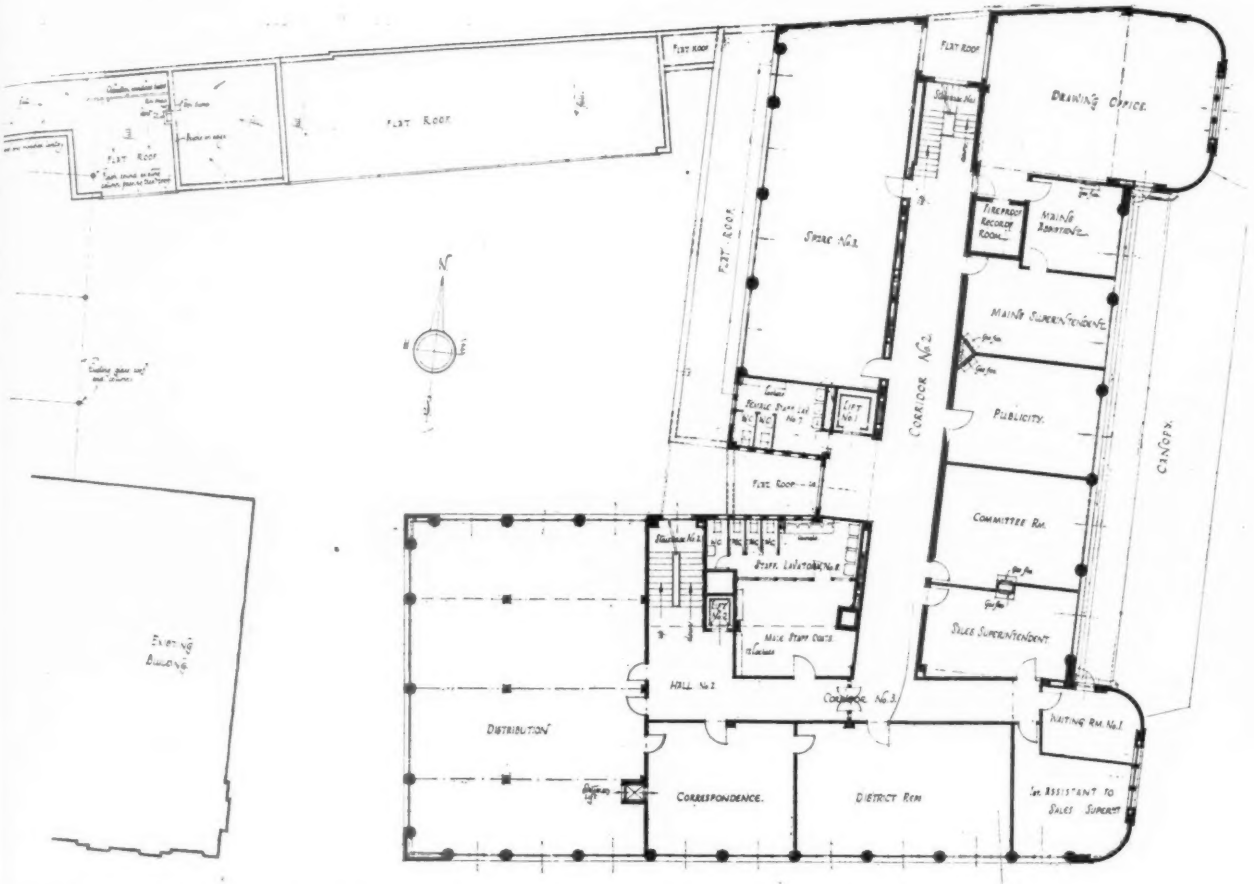
PLANT—There are show rooms on the ground floor and in the basement, and a public lecture theatre on the ground floor. All these are unfinished. Above the ground floor are offices and on the top floor the general manager's, chairman's, board and other rooms. Circulation and access are as follows: Public to show rooms and lecture theatre; staff through yard entrance (much traffic in and out of yard); goods access to basement by ramp (heavy things); and management, from side street.

Left, incompleted show room front. Above, fourth floor balcony; and interior courtyard.



GROUND FLOOR PLAN

GAS OFFICES. BY WILLIAM G



UPPER FLOOR PLAN

CONSTRUCTION—Ground floor, solid brick, with Empire stone surface; remainder shock-crete slabs, used as permanent shuttering for the R.C. construction. For sound proofing and the running of gas and electric services, most of the floors are boarded on wood joists, lying on insulating strips, like platforms, on the concrete structural floors. The great wall of flues, for the various fittings in the two show rooms, created a planning difficulty and door openings could not be frequent owing to the number of flues.

EXTERNAL TREATMENT—Above the ground floor the shock-crete slabs have been used to make a pattern, by emphasising horizontal joints. The structural mullions to the long horizontal windows are octagon, edge outward. All window cleaning can be done from within. On the ground floor the rooms are high and large. It has, therefore, been given different treatment externally from the upper floors, which are all the same height within a few inches. They are treated as a layered box lying on the block of ground floor, which is finished in Empire stone.

INTERNAL FINISH—The show room would have been finished with a floor of green and black rubber, stanchions of roughened glass slab and ceiling of fibrous plaster, and the lecture theatre with hardwood and hangings, attention being paid to acoustics. Upstairs generally.—The internal finishes are as follows: corridors cement, glazed dado walls plastered above. Rooms: many have special board walls and ceilings, left untouched. Board room panelled in Indian silver greywood. There is a coloured plaster lunette inside the entrance door—a conventionalisation of the Coal Age. By Esmond Burton, from the architects' sketch and colour notes. All the fires in the building are gas. For list of sub-contractors see page xxvi.

G. NEWTON AND PARTNERS

The Application of Quantity Production METHODS to the Construction of Standardized Dwellings

By "PREFAB"

The days when craftmanship alone was able to cope with the housing problem seem to be over. So far the building industry has lagged behind in the general industrial development. In the future, however, house building is bound to develop on industrial lines. It is up to the building industry to face courageously the trend of future development and to re-organize itself and adapt itself to new conditions and requirements. This can be done and, when achieved, it may give great stimulus to the building industry's activity.

The production engineer will hold the key in this new method of satisfying housing needs, and the architect needs to know the elements of that profession. If he ignores them, the production engineer may have to take matters into his own hands and then the architect will be left out of this field, as he was left out of the field of jerry building.

It is a common illusion that quantity production means merely repetitive production, based on designs which were intended for craft assembly. Quantity production is, in fact, something basically different; it affects planning, design, construction and certain other elements of the architect's approach to house building.

Let us face these facts and study the ABC of production engineering and its requirements.

The General Principle

The efficiency of quantity-production methods is due to the elimination of ineffective effort and the replacement of human by generated effort. The truth is shown in the following formulæ :—

Hand Method: Human Effort per Product Unit $=\frac{DE \times OP}{OP}$

Tool or Machine Method: Human Effort per Product Unit $=\frac{IE+(DE \times OP)}{OP}$

where DE=Direct Effort, i.e., Effort expended in performing the operations upon the actual part,
and IE=Indirect Effort, i.e., Effort expended in making the instruments which perform the operations upon the actual part,
and OP=Output in number of units.

Let us take a simple example. A primitive man hunts and kills an animal in 2 hours. This is direct effort. In order to improve his productivity, he sits down and thinks for 8 hours and conceives the idea of making himself a spear. He spends a further 8 hours finding suitable material, another 8 making the spear and yet another 8 learning how to use it.

After spending 32 hours of indirect effort on his spear, he finds he can hunt and kill an animal in an hour.

Applying our formula we find :—

Hand Method.

When killing 1 animal, effort required per animal $=\frac{DE \times OP}{OP}=\frac{2 \times 1}{1}=2$ hours effort per animal.

When killing 10 animals, etc.$=\frac{DE \times OP}{OP}=\frac{2 \times 10}{10}=2$ hours effort per animal.

With this method the time taken, regardless of the number of animals, remains constant.

Tool Method.

When killing 1 animal, effort per animal $=\frac{IE+(DE \times OP)}{OP}=\frac{32+(.5 \times 1)}{1}$
$=32.5$ hours per animal.

When killing 20 animals, effort per animal $=\frac{IE+(DE \times OP)}{OP}=\frac{32+(.5 \times 20)}{20}$
$=2.1$ hours per animal.

When killing 1,000 animals, effort per animal $=\frac{IE+(DE \times OP)}{OP}=\frac{32+(.5 \times 1000)}{1000}$
$=.532$ hours per animal.

We can make the same kind of comparison between a man making a door with simple tools and a man using a mechanical method of doormaking where, apart from feeding planks into a machine, nothing is done by hand.

Of course, we cannot always *assume* that a machine can do a particular job more quickly than hand methods. This has to be proved by actual timing, and it is usually the custom of the machine manufacturer, when he is trying to sell a newly designed machine, to give operation-times in comparison with hand methods, existing designs (particularly the nearest competitors), or with his previous model.

If a machine can carry out an operation quicker, the only problem is, how big does the output have to be to justify the cost of the machine ?

Maintenance and running costs have to be included in the calculations, also the standard of ability of labour required to operate the machine.

(Once quantity-production reaches the 100,000 class and fast changing demands do not disturb continuity too deeply, one finds that cost of machinery, plant, administration staff costs, etc., can be spread without the careful calculations implied in the above remarks.)

The fundamental issue is, obviously, to find the type of design and procedure that gives a satisfactory functional result with the minimum amount of operational time. The common fault is to pay close attention to the cost of making parts and to overlook the time spent on fitting and assembly. Quite the largest part of possible improvement is lost in this way. It must be remembered that fitting and assembly is pure direct effort and therefore the most expensive type of operation. It is the very type of operation that should be attacked the most intensely.

When one comes to consider house building, one realizes that assembly time is the largest item of cost. It is this very fact that makes pre-fabrication a profitable field of investigation.

Let us outline in this connection some possible approaches to the problem of finding the cheapest means of making and erecting pre-fabricated houses.

There appear to be many possible conditions needing investigation.

1. Entire fabrications at a centralized plant making all required parts, with assembly gangs sent to make erection on site with minimum amount of fitting and assembly time.
2. Entire fabrication at a centralized plant making all required parts but assembly done by local builders, either trained at a school run by the centralized plant, or assisted by assembly plans and instructions.
3. Entire fabrication, but at various plants situated according to location of raw materials and required type of labour.
4. Fabrication of main structure but finished with someone else's fittings.
5. Fabrication of main structure on site and completed with fittings made and supplied from centralized or separate plants (e.g., Mopin).

All such varying conditions may have to be considered. It largely depends on the type of construction and the cost and bulk-limits of transport. Whatever type of construction is adopted—one thing is certain. Parts must be standardized as far as possible, and any variations must be superficial, i.e., they must not affect the parts of the structure which account for a high proportion of the cost of pre-fabrication. To reduce assembly time, and to avoid prefitting of parts, special attention must be given to make the parts as accurately as possible. The secret of this is to design with fullest possible allowances to allow for inevitable variations. (Many draughtsmen draw things as if every part will, when made, be dead flat, and the exact size. They must be trained to allow space between parts and to allow for variations.) The motto is "Keep the parts as close together as necessary, and as far apart as possible."

Parts List

The first thing the production engineer would demand is a Parts List of *all*

PATENT WELDED TUBULAR CONSTRUCTION

Data Sheet No. 11

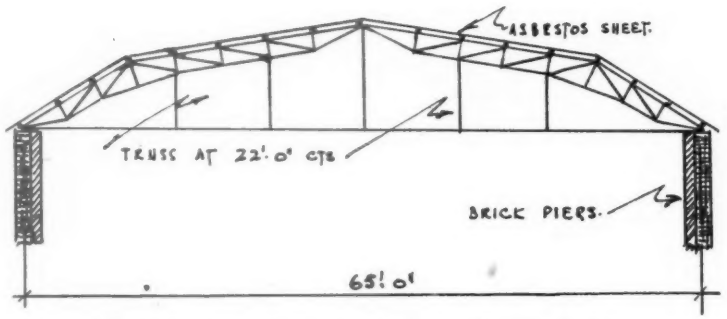


Fig. 22. Composite tubular roof truss used in conjunction with brick construction.

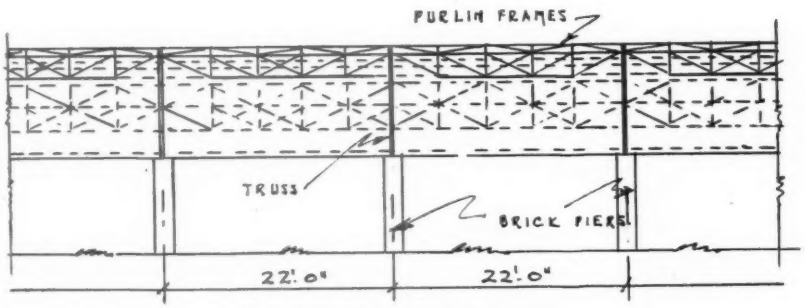


Fig. 23. Elevational detail.

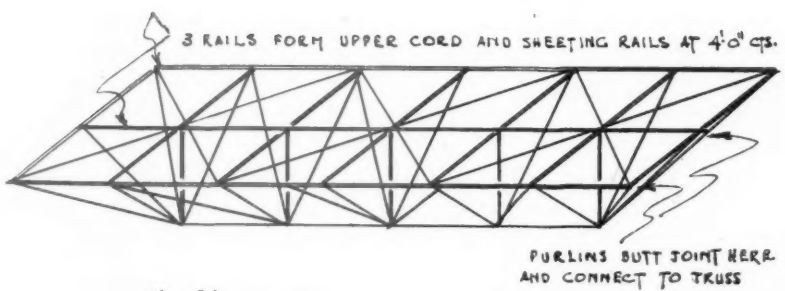
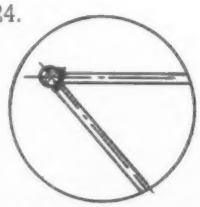


Fig. 24.



Triangular girder detail, a form of directional jointing only possible with the tubular section.

IN CONJUNCTION WITH BRICK CONSTRUCTION

This sheet demonstrates a satisfactory method of employing standard tubular roof principles in conjunction with brick construction, the tubular principles being placed at 22 ft. centres.

The tubular design and assembly only differs in minor details from the examples shewn in previous data sheets. The purlins are of the same fabricated beam construction but, instead of being used as single members, they are framed into triangular girders, the upper chord being three members at 4 ft. 6 in. centres (Fig. 24).

At first glance Fig. 24 would appear to indicate intricacy of design and fabrication, but the inset detail shews its real simplicity — this simple form of directional jointing can only be used with tubular steel members, the circular section allowing braces and diagonals to be used in any direction.

A structure of this type 80 ft. in length and with a roof span of 65 ft., has a total steel tonnage of 7.0, and cost details of roof construction and assembly (inclusive of delivery, erection and asbestos-cement covering) are available.

• • •

NOTE—These data sheets are appearing weekly in THE ARCHITECTS' JOURNAL—*they are now available in complete Folder form and application for these Folders should be addressed to Scaffolding [Great Britain] Limited, 77, Easton Street, High Wycombe, Buckinghamshire.*

the parts which go to make a house. This would not only include all the parts of the main structure, but every woodscrew, switch, clip, knob and everything else. If one does not know every detail, one cannot plan every detail.

The main consideration, if one is to gain minimum cost and maximum efficiency, is to make up one's mind to list every detail, as it is done, for instance, on motor-cars, where it is applied to the third decimal part of a pint of paint, and to every tintack. If we cannot get our quantities accurate, at least let us get our items. (One can only get accurate costs after taking statistics over a period of production). Figures must be fixed for the items of cost of ordinary houses and segregated into percentages of the total cost. If possible, all costs should be set in terms of man-hours and *ability rates*. Economically speaking, all costs are man-effort costs and material costs are an accumulation of man-effort costs plus commercial royalty costs. If comparative costs are needed between saving material and saving labour, then the wage multiplied by 3 is generally a good guide of the comparative material cost. For preliminary planning, it should be sufficient to work with bare labour and material costs based on pre-war rates. It is only when the time comes to launch the product on the market that anything more exact is required. Then the ruling prices of each and every item must be taken.

The question of anticipated durability must be decided right at the beginning. The main structure should be calculated to last "x" years, and then other parts should be made to last as long—accidents omitted.

The amount of built-in equipment to be provided must also be decided. Obviously more can be done than has been done hitherto to build in furniture and to pre-fabricate services, lighting, fittings, etc.—always essential, but generally treated as accessories. These things are easy to make and readily fitted. Quite a big business can also be built up in supplying replacement parts. Attention should also be paid to finding remedies for the host of petty troubles from which the normal householder suffers, such as leaky windows, draughty doors, etc. "Clean-easy" devices are all well worth studying, and some practical housewives ought to be enrolled on the designers' staff. These things are pointed out because one must work to practical requirements and, unless considered from the beginning, they have the knack of swallowing up the small margin of profit and upsetting all wonderful notions of planning.

All these points should be settled before going too far into final design and production schemes.

Construction.

After preliminary cost studies have been made, it is usual to choose one or more methods for further development.

There is no space to deal here with methods of construction. One point, however, should be noted. Whatever type of construction is decided upon, it is best to develop it in model form rather than on paper.

Models.

From layouts and Parts List, sketches are made of the principal components, and a working model provided. The best scale depends on the type of construction, but the bigger the better. Time and money spent on model making save a lot of expense at a later date correcting errors that might otherwise pass unnoticed. Apart from the use of a model for demonstration purposes, it is invaluable for developing design, determining production operations and designing jigs, plant, etc.

Juggling with the main components of the model, one decides on the main stages of the final assembly. From these one develops the sub-assemblies until one has accounted for the very last and smallest detail. Of course, there is no need to go to the smallest details on the model. These can be indicated on drawings. But the model should comprise any part that affects the assembly of the major portions.

One should then be able to lay out an assembly table to account for every piece on the Parts List. It will look something like Figure 1.

1. *Assembly List.*

Part No.	*Part Name.*	*No. of*
	Bungalow Assembly	1
	. Front Wall Assembly	1
	. . Wall Slats	25
	. . Door Jamb	1
	. . Door Assembly	1
	. . . Door Panel Assembly	1
	. . . Door Inner Panel Assembly	1
	. . . . Door Inner Panel	1
	. . . . Door Lock Reinforcement	1
	. . . Door Outer Panel Assembly	1
	. . . etc.	
	. . . Door Lock Assembly	1
	. . . ½" × No. 10 Screws (door lock to panel)	2
	. . Door Handle	2
	. . . ½" × No. 10 Screws (handle to door panel)	4

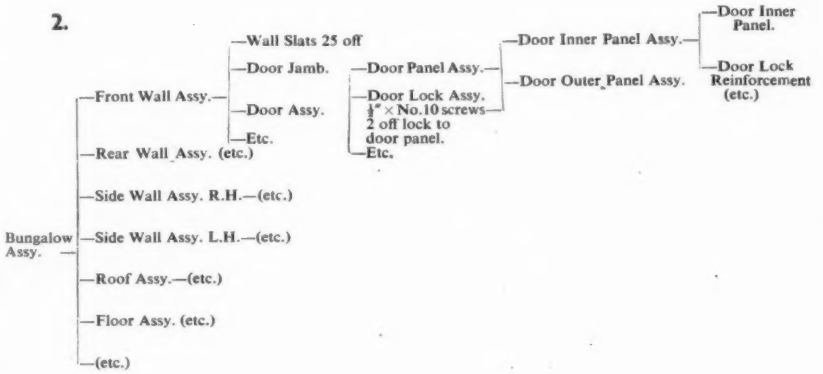
It will be found more convenient probably to lay it out as Figure 2, and then to show it in the more diagrammatic form.

Every part must have a name first and later on a number, and only when parts are really identical must they be given the same number. This is essential for checking over to see that standardization is as complete as possible.

Operation Sheets.

There should be an operation sheet for every assembly and the making of every part. This ensures that every part is considered separately and critically to decide the best and most economical means of production. Let us take the Door Assembly as an example (this corresponds by no means to reality, but it helps to visualize the procedure more readily). Figure 3.

2.



3. OPERATION SHEET. Part Name. DOOR ASSEMBLY.

Op. Time.	*Op. No.*	*Operation.*	*Material Required.*	*Equipment Required.*
2 mins.	1	Fit Lock to Panel Assy.	Panel Assembly 1. ½" × No. 10 Screws 2.	1 Assy. Jig. 1 Screw Box. 1 Power Screw-driver. Dubilier No. 7.
3 mins.	2	Fit Handle to Panel Assy.	As above. Handle 2. ½" × No. 10 Screws 4.	As above.
4 mins.	3	Fit Hinges.	As above. Hinges 2. ½" × No. 10 Screws 8.	As above.
1 min.	4	Stack ready for Painting.	——	1 Felt-lined racktruck (capacity 12).
6/12 mins.	5	Transport to Paint Depot.	——	
4 mins.	7	Transport to Wall Assy.	——	

OPERATORS.

		OUTPUT PER DAY.
1 Fitter	10 mins.	48
1 Trucker	1½ „	360
1 Painter	7 „	70
Total Operation Time =	18½ mins.	

Operation sheets make it possible to plan each operative's time, so that he is kept busy all day and made to produce a regular output.

(The times and details are, of course, wild and worthless guesses.)

Planning for Quantity-Production.

From the memo quoted above, one can visualize the amount of planning work to be done when going into quantity-production business. It is good practice for the designer and teaches him the consequences of his actions. It is also essential to plan, in this detailed fashion, in order to discover what costs have to be covered and how much capital is involved. There is generally no company rich enough to go into full quantity-production without passing through a transitional stage. Even if the design were approved as a whole one might invest in main die presses only and leave all subsequent operations to be done by skilled men using ordinary hand tools. This shows how necessary it is to consider all methods of manufacture. If a company really intends to go in for quantity-production, it is usual to begin with machinery for the high productive operations and gradually develop as demand rises.

Material and Equipment Lists.

From the Operation Sheet, a list of processed materials is made, i.e., the wood, steel, paint, screws, etc., which form the basis on which the actual material costs are calculated. A list is also made of all the equipment required.

The various methods of construction and manufacture are then described as A, B, C, etc., and working from the figures obtained, they are compared in terms of total costs, i.e., cost of operations and materials plus equipment, divided by output. The result then gives an idea as to how many houses must be made in order to cover instrumental costs.

A good method of approach is to start with a house built by existing methods, and then to work by stages from no pre-fabrication to the maximum pre-fabrication, and to find out what amount of pre-fabrication can be made to pay, with the most economic amount of equipment.

Standardization.

It is obvious enough that the larger the amount of parts required, the more cheaply they can be produced. Much can be done with our designs. One naturally tries to develop different types of houses by using as many parts of the first model as possible. This study reveals how many optional designs (probably with varying standards of accessories) can be marketed without incurring proportionally large equipment. The secret of standardization (whereby the minimum number of different parts are used in the greatest number of places) is not only to keep the parts identical, but to keep variations confined to changes incurring the least amount of extra equipment. For instance, to make a 2 ft. 9 in. wide door and 3 ft. wide door, would be bad standardization, but by using inserts in the dies, a multitude of different designs could be provided. This lesson is taught by the car industry, where all the main body panels of 10 H.P., 12 H.P. and 14 H.P. cars are made from the same dies. Yet each type is 3½ in. longer and 2 in. wider than its smallest counterpart.

It is up to the production manager to agree to accept the manufacturing limits laid down by the designer. It is up to the designer to know where those limits can be given. The designing staff must learn to realize that their value lies in what they allow to happen in production.

The journey from the drawing board to hundreds of erections on sites, miles apart, is a long one. Every step of the way must be surveyed and clearly indicated. It calls for the very close co-operation of the planning staff and a swallowing of innumerable personal preferences. But it can be done, and it is well worth while.

THE Information Centre answers any question about architecture, building, or the professions and trades within the building industry. It does so free of charge, and its help is available to any member of the industry.

Answers are sent direct to enquirers as soon as they have been prepared. The service is confidential ; and in no case is the identity of an enquirer disclosed to a third party.

Questions should be sent to—

THE ARCHITECTS' JOURNAL

War Address :

45 THE AVENUE, CHEAM, SURREY.

Telephone : VIGILANT 0087

THE ARCHITECTS' JOURNAL

INFORMATION CENTRE

Q 1024

ARCHITECT, BIRMINGHAM.—*We are experiencing considerable trouble with humid or DAMP AIR IN THE VAULT of an office building, erected in* 1938. *The vault,* 16 *ft.* 6 *in. by* 8 *ft.* 0 *in. by* 7 *ft.* 6 *in. high, below ground level, leads off a basement (where there is a gas-fired boiler for central heating), lighted and ventilated by windows at ceiling level. Vault construction :* 14*-in. brick walls in cement with* 4½*-in. internal lining of white limestone bricks, slate D.P.C. at floor level and thick vertical slate D.P.C. forming external lining, floor to ceiling ; roof (being the ground floor of a four-storey building) is of* 9*-in. reinforced concrete ; access is by heavy steel airtight door.*

Heating pipes run round the vault at ceiling level. In one corner there is an air brick built into the concrete ceiling, giving access to a 9 *in. by* 4½ *in. brick ventilating shaft, taken up alongside the boiler flue, having a vertical length of* 35 *feet, and discharging above roof. Two* 9 *in. by* 6 *in. air bricks are built in the wall between the vault and the basement. Subsoil is sand, and structurally the vault is perfectly dry.*

The original purpose of the vault was for the storage of deeds, ledgers, drawings and the like. The deeds are stored in metal boxes in shelves inside a steel cabinet. The deeds and papers when removed from the boxes were found to be slightly damp and gradually deteriorating.

*Books were stored on portable wood racks (greenhouse shelving—*8*-in. centres). All books in course of time were found to be damp, the bindings deteriorated and covered with white mould, or mildew and stained—all smelling badly.*

The drawings—mainly linen negatives of considerable value, put up in rolls and stored on another wooden rack—rapidly deteriorated, became obscure and stained and subject to the mould. All articles (including some oil and water-colour paintings) were laid out on the racks so that no article was touching—either vertically or horizontally and permitting undercurrent of air. (Articles in contact with one another, or floor or walls, had previously been found in rapidly decaying condition, due to the seal created).

The principles affecting condensation are simple. Warm air can contain more moisture than cold air and warm air, chilled by contact with cold air or cold surfaces (e.g., external walls) tends to lose its moisture in the form of condensation.

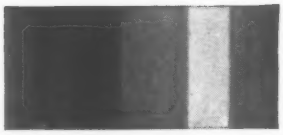
The remedies, in theory, are also simple :—

1. Increased ventilation.
2. Heating, to raise the temperature of the air in the room and to do away with cold surfaces.
3. Insulation to exclude chilling influences, so that the walls, floor and ceiling readily take on the temperature of the air.

The application of the proper remedy in a particular case is much more difficult.

In our opinion it was a mistake to have the heating pipes at ceiling level, there is little radiant heat and the warmed air must merely pass straight up the flue leaving the remainder of the room cold.

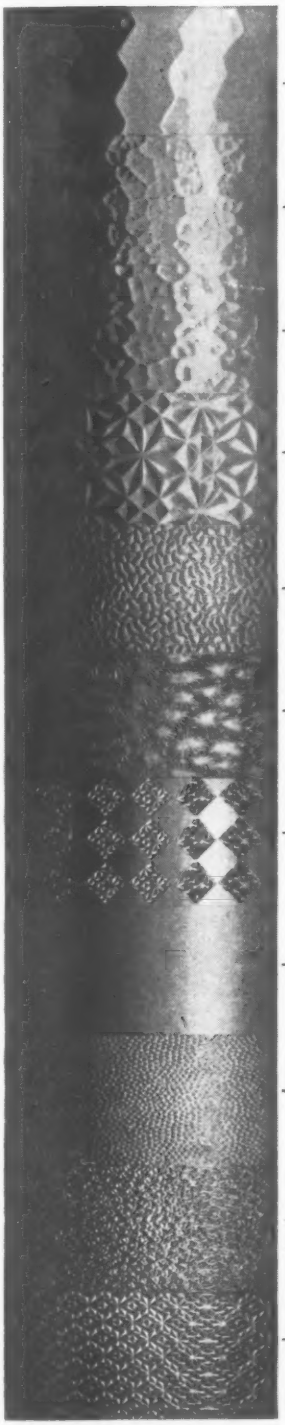
It would be better to have the heating pipes near the floor—also the air inlet



The apparatus used to demonstrate the properties of these Glasses consists of a white opal tube lamp 4½" behind Clear Glass, and a ½" wood strip, painted black on a white background. Each type of glass in turn is placed in front of this, so that its properties may be illustrated.

FACTS ABOUT GLASS FOR ARCHITECTURAL STUDENTS

USES—No. 6 Figured Rolled Glass



Formal Patterns :
The pattern, deeply impressed on one surface, gives brightness to the appearance of the glass and partly obscures direct vision.

Diffusing Patterns :
The pattern, deeply impressed on one surface, gives a high degree of brightness to the appearance of the glass and almost completely obscures direct vision, with very little loss of light.

Complete Diffusion and Obscuration Patterns :
The pattern, deeply impressed on one surface, is geometrical in design. It gives a high degree of brightness to the appearance of the glass, complete diffusion, and totally obscures direct vision, with very little loss of light.

The patterns shown are approximately ¼ actual size.

USES

Figured Rolled Glasses are used for internal partitions, windows of rooms where partial or total privacy is desired, and also in factory glazing where direct vision is not essential.

★

SPECIFICATION

The groups of glasses described here possess a varying and progressive degree of light diffusion and privacy, and the photographs demonstrating these properties indicate the most suitable type for any specific purpose.

This is published by Pilkington Brothers, Limited, of St. Helens, Lancashire, whose Technical Department is always available for consultation regarding the properties and uses of glass in architecture.

LONDON OFFICE AND SHOWROOMS AT 63 PICCADILLY, W.1 · TELEPHONE : REGENT 4281

where architectural students may get advice and information on all questions relating to the properties of glass and its use in building.

(air bricks) if they are not already there. The outlet flue, if it is adjacent to the boiler flue, may be efficient but a cowl or ventilator would increase its efficiency if you do not want to go to the expense of an extract fan. An extract fan would undoubtedly be the best.

As the external walls are below ground and not subjected to such extremes of temperature as walls above ground, they should take on the temperature of the inside air fairly readily, but if condensation does occur to a marked extent, it would be advisable to insulate them with a material such as wall board on battens with an air space behind.

Q 1025

CONTRACTORS. — *Where can I obtain the WAR-TIME PITCH MASTIC floor treatment advocated by Government Departments.*

Pitch mastic, which is home-produced, is similar in appearance to asphalte, the main difference being that it contains coal tar pitch instead of bitumen.

It can be supplied by most well-known asphalte firms, among which are :—

Engert & Rolfe, Ltd., Barchester Street, Poplar, London, E.14.

Limmer & Trinidad Lake Asphalte Co., Ltd., 19, Grosvenor Place, London, S.W.1.

Val de Travers Asphalte Paving Co., Ltd., 21-22, Old Bailey, London, E.C.4.

Q 1026

ARCHITECTS.—*We are about to prepare plans for a factory. The walls are 14 in. with piers at 12 in. centres, the average size of window is 10 ft. by 5 ft. 6 in. at a height of 8 ft. 6 in. from the floor to bottom of window. The factory also has fixed north roof lights, each being 50 ft. long by 9 ft. Can you suggest a good and economical system of BLACKOUT FOR FACTORIES, also provide a list of specialist firms who could advise us and prepare estimates.*

If you merely wish to get an idea of the general principles for the purpose of a preliminary scheme, you should study the Bulletins issued by the Ministry of Home Security and obtainable from the Research and Experiments Laboratory, Princes Risborough, Near Aylesbury, Bucks. The recommendations are too lengthy to summarize here.

If the scheme is more advanced you should get in touch with the Controller of Supply, Ministry of Works and Planning, London, S.E.1, who will give you the name of the contractor who will be allotted to the job and any other particulars you require. You will find that most of the decisions will not rest with yourselves.

Q 1027

ENQUIRER, DEVON.—*Can you give me the address of a firm that specialises in manufacturing SPIRAL STAIRCASES?*

It is improbable that any firms are now engaged on the manufacture of spiral staircases, but we give below three well-known firms who manufactured them before the war.

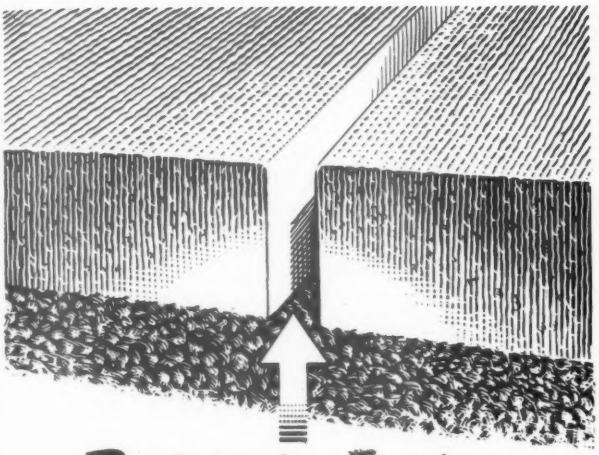
H. & C. Davis & Co., Ltd., 1, The Pavement, London, S.W.4.

Haywards, Ltd., 187/200, Union Street, London, S.E.1.

T. W. Palmer & Co., Merton Abbey Ironworks, Merton, London, S.W.19.

BUILDINGS ILLUSTRATED

OFFICES (pages 27-29). Architects : William G. Newton & Partners. General Contractors : G. R. Price. Sub-contractors : Neuchatel Asphalt Co., asphalt ; Truscon (Trussed Concrete Steel Co., Ltd.), reinforced concrete ; Shockcrete Slab Finish, bricks ; Empire Stone Co., Ltd., artificial stone ; Carter & Co., Ltd., terra-cotta ; D. Anderson & Son, Ltd., thermotile ; Wenham & Fowler, Croydon, cast lead ; Thomas Potterton, Ltd., central heating and boilers ; Buchanan & Curwen, electric wiring ; Nautilus Co., ventilation and stoves ; Burn Bros., Ltd., plumbing and sanitary ; Stuart's, terrazzo and balustrade wall ; C. E. Welstead, Ltd., Croydon, casements ; F. Sage & Co., Ltd., shop front.



Bridging the gap

Joints in concrete roofs, floors, etc., to allow for shrinkage, temperature changes and settlement provide but one type of gap in building construction for which a permanent, watertight filler is essential.

For this gap there is

FLEXCELL
(A CELOTEX PRODUCT)
SEALED WITH 'ELASTITE'

'Flexcell' provides a filler which does not extrude under compression, and reforms immediately the compression is released, whilst 'Elastite' permanently seals the joint against moisture penetration.

We are specialists in 'bridging the gap.'

Our range of bitumastic products and plastic sealing compounds provides the right type of filler for every form of joint.

EXPANDITE
PRODUCTS LIMITED

CUNARD ROAD WORKS, CHASE ROAD, N.W.10

TRUSCON PRECAST FLOORS

- SAVE SITE LABOUR
- SAVE TIMBER
- PROVIDE WORKING PLATFORM FOR FOLLOWING TRADES
- SAVE COST
- SAVE WEIGHT

TRUSCON FLOORS
6 COLLINGHAM GARDENS, EARLS COURT, S.W.5 'PHONE: FRO 8141

A RONUK PRODUCT

COLRON WOOD DYE

★ THE "1-COAT" TRANSPARENT PENETRATING, PERMANENT PRESERVATIVE STAIN FOR ALL NEW WOODWORK.

It cannot raise the grain.

★ 8 SHADES: ALL SIZES

ADVISORY SERVICE
Shade cards, panels, full directions and working instructions for contractors' use, estimates and 45 years of specialists' experience are at your service.

RONUK Ltd., Portslade, Sussex
Polishing Contract Depot: 16 South Molton Street London, W.1

CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal." War Address: 45 The Avenue, Cheam, Surrey, and should reach there by first post on Monday morning for inclusion in the following week's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal." War Address: 45 The Avenue, Cheam, Surrey.

Public and Official Announcements

Six lines or under, 8s.; each additional line, 1s.

The Incorporated Association of Architects and Surveyors maintains a register of qualified architects and surveyors (including assistants) requiring posts, and invites applications from public authorities and private practitioners having staff vacancies. Address: **75 Eaton Place, London, S.W.1. Tel.: Sloane 5615** 991

Architectural Appointments Vacant

Advertisements from Architects requiring Assistants or Draughtsmen, and from Assistants and Draughtsmen seeking positions in Architects' offices will be printed in "The Architects' Journal" free of charge until further notice. Other "Appointments Vacant" and "Wanted" will be found under later headings, and are subject to the charges given under each heading.

Wherever possible prospective employers are urged to give in their advertisement full information about the duty and responsibilities involved, the location of the office, and the salary offered. The inclusion of the Advertiser's name in lieu of a box number is welcomed.

A large firm of Architects and Surveyors practising in the Midlands has vacancies for the following:—

SENIOR ASSISTANT. Qualifications required: A.R.I.B.A. or better; excellent designer and draughtsman essential; capable of preparing coloured perspective drawings.

SENIOR ASSISTANT. Qualifications required: A.R.I.B.A. or better; first-class experience in modern cinematograph theatre design and construction essential.

SURVEYOR (LAND). Qualifications required: F.S.I., A.M.T.P.I. or better; Experience in the preparation of lay-out and management of large estates essential.

QUANTITY SURVEYOR. Qualifications required: F.S.I. or better. Able to take control of section.

Applicants should indicate clearly which post they are applying for, and state age, details of previous employment and salary required. Box No. 44.

Architectural Appointments Wanted

YOUNG CHARTERED ARCHITECT offers part-time services. Experienced war damage surveys, working drawings, perspectives, etc. Please write Box 27.

SENIOR TECHNICAL ASSISTANT (34). experienced in prefabrication and scientific construction methods, hostels and labour camps, factory layouts, road construction, field surveys, quantities, supervision, seeks position of national importance, interest and responsibility. Box 30.

CHARTERED ARCHITECT, A.R.I.B.A., Dipl. Arch. Lond., experienced in all branches of the profession, including architectural education, desires part-time teaching appointment (architectural subjects) in London or Home Counties. Box 34.

ARCHITECTURAL AND SURVEYING ASSISTANT requires position, preferably Manchester, Birmingham or London areas. Experienced in domestic and industrial work. Salary required, £250 to £300 per annum. Box No. 35.

A.R.I.B.A., age 37, Exempt Military Services, requires work in London. Salary £450 per annum or by arrangement. Box 37.

PROBATION R.I.B.A., age 22½ years. Exempt Military Service, seeks progressive position of Architectural Assistant in Birmingham area. Five years office experience of all types of work. Box 36.

ARCHITECT, experienced carrying through works complete, requires post in London area as manager. Please state approximate salary and prospects. Box 38.

YOUTH just turned 17, seeks position in drawing office, preferably architect's, in London area. Had 6 months' varied training in Provincial Civil Engineering Drawing Office. Willing to submit testimonials. Box 40

ARCHITECTURAL AND BUILDING DRAUGHTSMAN would like part-time work.—F. T. P. W., 53, Eaton Mews West, S.W.1. 42

ARCHITECT AND SURVEYOR, A.R.I.B.A., seeks position or work in own office which will allow him a day per week to attend to his own practice. Box 45.

ARCHITECT AND SURVEYOR with own office in Gloucester, offers assistance in all branches of the Profession. Box 46.

Classified Advertisements continued on page xxxii.

JUNIOR ASSISTANT requires a progressive position in an Architect's office. London area. Have knowledge of draughtsmanship and building construction. Studying second year at Regent Street Polytechnic. Excellent references. Pupilage is possible. Box 47.

ARCHITECT'S ASSISTANT, A.R.I.B.A., T.P.I. Final Exam.; 31 years (woman); all round experience; present salary £355 per annum; seeks position in Sheffield. Box No. 48.

SENIOR ASSISTANT (age 26), recent experience in hostels, factories, canteens, etc., expert draughtsman, requires responsible position in London architect's office. Exempt from military service. Box 49.

Other Appointments Vacant

Four lines or under, 4s.; each additional line, 1s.

BUILDERS' CLERK wanted for Lincolnshire builders office. Used to preparing jobbing accounts. State experience and salary required. Box 855.

WORKER UP wanted for Lincolnshire builders office State qualifications, experience and wages required. Box 856.

QUANTITY SURVEYOR wanted for Lincolnshire builders office. State qualifications, experience and wages required. Box 857.

Other Appointments Wanted

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

LADY SECRETARY requires post in London. Good record of architectural experience. Excellent references. Box No. 43.

Miscellaneous

Four lines or under, 4s.; each additional line, 1s.

A. J. BINNS, LTD., specialists in the supply and fixing of all types of fencing, tubular guard rail, factory partitions and gates. 53, Great Marlborough Street, W.1. Gerrard 4223-4224-4225.

SPECIFICATIONS AND BILLS OF QUANTITIES, etc., expeditiously and accurately typed or duplicated. Translations and Facsimile, Typewriting. All work treated confidentially. Miss G. Saunders, Typewriting Bureau, 17, Dacre Street, Westminster, S.W.1. Telephone: Whitehall 2605.

WANTED, Second-hand and new copies of Standard Text Books of reference given in Memorandum for R.I.B.A. Final Examination. Good condition only. Box 839.

ARCHITECTS' JOURNAL, March 4, 1937. This number wanted to purchase. Apply Box 41.

QUANTITY SURVEYOR, injured and long convalescent, requests architect to give unneeded set of drawings and specification of old job, approximately £5,000, for practice in preparing Bills of Quantities. Postage refunded.—Blake, 53, Radbourne Road, Balham, S.W.12. 850

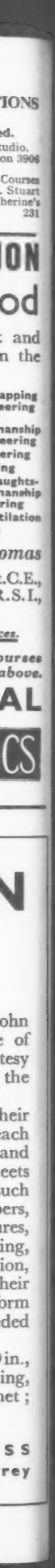
FURNISHED WORKING SPACE for One required in Architects of similar office, W.1 or W.C.1. Use of 'phone not necessary. Berner, 416m, Fulham Road, S.W.6. 852

WANTED TO PURCHASE. Copies of *Architectural Record* (N.Y.) for July and August, 1942. Box 853.

Educational Announcements

Four lines or under, 4s.; each additional line, 1s.

CORRESPONDENCE COURSE for Planning Examinations. Particulars from G. E. Payne, F.R.G.S., P.S.I., M.T.P.I., "Marchfield," Taynton, Glos. 844



Printed in Great Britain for the Proprietors of "THE ARCHITECTS' JOURNAL"
(The Architectural Press, Ltd.) War Address: 45 The Avenue, Cheam, Surrey

burn

ms

V.6