SCHEMES FOR AN ARTERIAL ROAD

THROUGH HAMMERSMITH AND CHISWICK

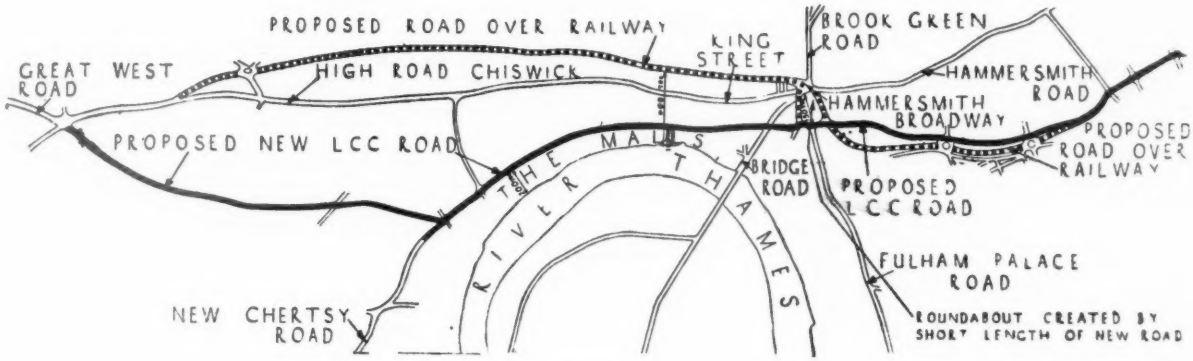


Figure 1

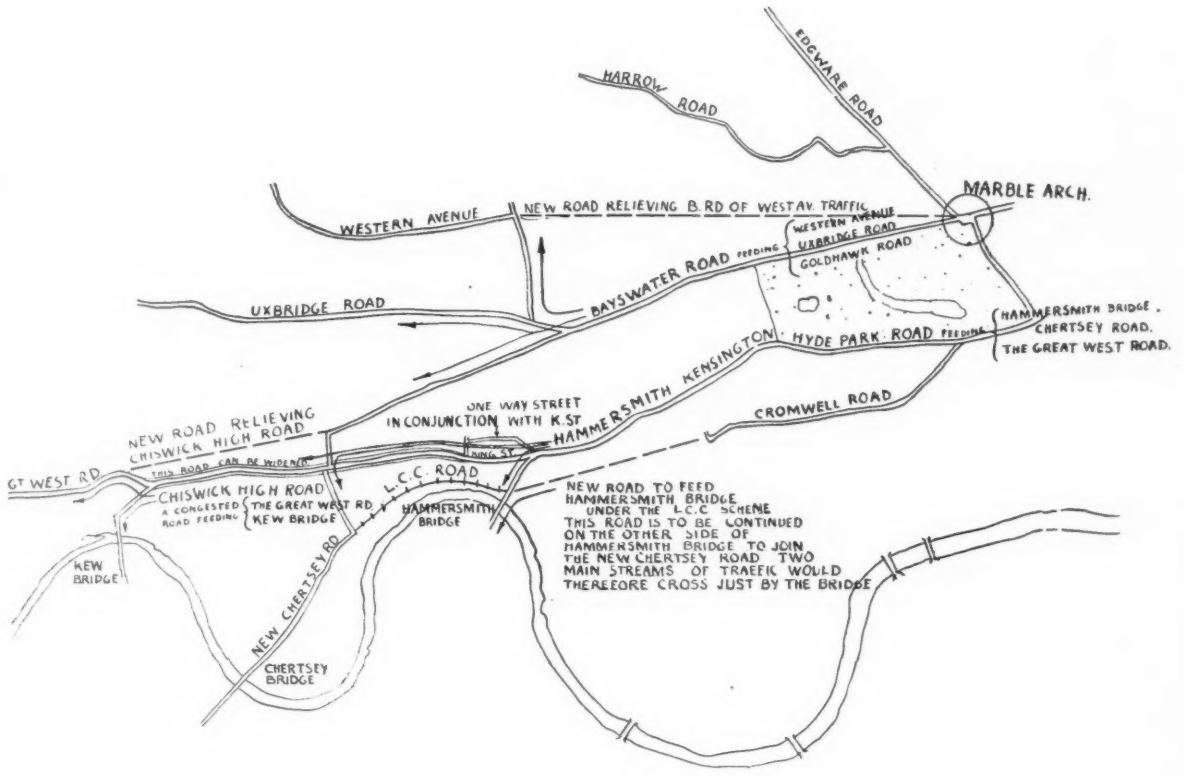


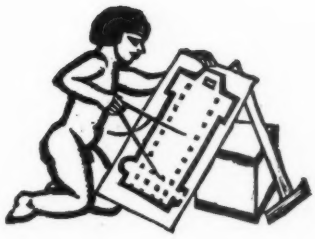
Figure 2

ON this page we reproduce a plan (fig. 1) showing the proposed L.C.C. by-pass road connecting Cromwell Road with the Great West Road and the new Chertsey Road, providing a through route to the west. The dotted lines on this plan show an alternative proposal which has recently been put forward—namely, a road extending along the railway.

Another alternative scheme is shown in fig. 2. This scheme, by E. A. Mitchell, considers the problem of a western exit from London as a whole: 1—to relieve congested Bayswater Road of a considerable proportion of traffic by connecting Western Avenue directly with Marble Arch, leaving Bayswater Road to feed Uxbridge Road and the Great West Road via Goldhawk Avenue. 2—To relieve Chiswick High Road by connecting Goldhawk Road directly to the Great West Road. 3—The Hyde Park-Kensington-Hammersmith Road could be used to feed the new Chertsey Road. In order to do this King Street could be made a "one way" thoroughfare, using Glenthorne Road to take the traffic in the opposite direction. Beyond Ravenscourt Park, King Street and Chiswick Park Road, could all easily be widened. 4—West Cromwell Road could be extended to feed a widened Hammersmith Bridge.

PRIDE AND PREJUDICE: A SCENE AT ST. JAMES'S

One of Rex Whistler's sets for the play, based on Jane Austen's novel, which is now running at the St. James's Theatre. The scene shows Lady Catherine de Bourgh's drawing room at Rosings Park, and is interesting for Mr. Whistler's acknowledgment of the three principal influences on decorative taste at the beginning of the nineteenth century: Adams, the Hellenistic revival, and Turco-Oriental.



ARCHITECTS AND STATISTICS*

THE public is gradually becoming aware of the changes which have been taking place in recent years in Great Britain, but, as yet, among the professions, there is little grasp of the deeper implications of these changes in their relation to the future development of the social and economic life of the country.

Outstanding among the movements in the structure and distribution of the population in the last fifteen years are the migration towards the south, south-east and Midlands, and the proportionally excessive growth in the 15–30-year-old group. London and the Home Counties have experienced the full force of both trends, and the chief result has been the phenomenal expansion of housing schemes and estates around the Metropolis.

One or two fundamental considerations help to explain the nature of this movement in its relation to the housing problem. Popular opinion is inclined to speak of a " migration of industry from north to south," but, in point of fact, it has been rather an expansion of the types of industry that are more specifically suited to the south and a coincident decline of the heavier trades in the north. Developments in world trade are responsible for the change-over, and it is not necessary to go into the details here. But the implications are important: it is not an expansion of employment of industrial workers that has occurred so much as an expansion of occupations rendering services; and where industrial employment has grown it is that part which caters for a steady internal market and not for export. This means that the level of earnings has been higher, and so the type of house required different from that which would have been in demand had the expansion of industry concerned the trades catering for export (iron and steel, engineering and heavy industry), and employing a greater proportion of lower-paid workers.

Considered from the standpoint of capital and wealth, the movement of population has also had some illuminating consequences. The last few years have seen the emergence of the " flat habit." In this promoters, architects and builders are merely responding to a real social demand. But, among the public, the demand for flats was, initially, not much more than a whim, born of resentment against the constant journeys " to town," and of the novelty of living in luxury labour-saving accommodation in a concentrated form. Assuming that population in this country continues to pursue its present trend, it is estimated that in twenty years' time a substantial decrease in the total will have been recorded, while in forty years the figure will be down by about 11 per cent. from its 1931 level. A block of flats on present-day construction basis has a life of about fifty years; in fact, that must be about the minimum, for the high maintenance costs will surely not allow anything more than a 2 per cent. annual amortization charge. Capital is thus being put into an enterprise that in less than two generations may not be in a position to earn current expenses because of decrease in demand for its services —even assuming that the present craze for flats does not meet with any reversal during this time. Land values, too, will be in the same sad position, because it is demand that gives a particular site its increment of worth.

How few people realize the intimate connection between the architect and general economic and social conditions. Not merely in self-contained problems like slum-clearance, where the influence that the work of the architect and builder exercises on life is so patent, but in the deeper ways. One instance will serve to show how far-reaching are the ramifications of architecture. Today, Britain's most serious industrial problem, apart from that of the " distressed areas," is the position of the coal trade—its slack working, its seeming inability to secure an expansion of business. High prices keep demand for coal low, especially in domestic consumption, which is the chief single market. High prices are invariably and rightly attributed to expensive distribution (the spread between " pit " and " house " prices is often more than 30s. a ton). The distributors come in for the bulk of the blame; they are inefficient, everyone says. Who thinks of blaming the architect and the builder? Yet if the bulk of the country's houses had stores capable of holding at least a ton of coal, the costs of coal distribution could be brought down enormously. And if all flats had centralized heating systems, fired on coal, further cheapening of distributive expenses could be secured.

The moral is simple. The architect and builder must remember that they are intimately linked up with the economic trends of the country. What is going to become of all the new house property in London and the south if a miracle happens and Britain's export trade becomes once again the leading part of her industrial activity; if iron and steel and ships and machines and cotton become once again the things that all the world is calling for? Gone will be London's pre-eminence, gone its demand for labour exceeding the demand of all other parts of the country. It will be Lancashire, the North-east Coast, South Wales, that will clamour for workers, and the population trek will be renewed, but this time from south to north—the wheel turned full circle.

* An admirable study of statistics for Britain has just been published by Messrs. Allen and Unwin: *The Home Market*, by G. Harrison and F. C. Mitchell. Price 10s. 6d.

The Architects' Journal
Westminster, S.W.1
Telephones: Whitehall
9212.7
Telegrams
Buildable
Parl
London

NOTES & TOPICS

MEMORIAL TO THE LATE KING

THOUGH it may cause the occupants of Abingdon Street—most of them professional people who have been there a long time—some grief and a good deal of inconvenience, it seems to me that the Archbishop's suggestion to pull down the houses in this street and form a large open space over which fresh views of the Abbey and Westminster Hall will be obtained as part of the memorial to the late King is a most excellent one.

*

The suggestion has the great merit of being much larger in conception than is usual in this country, but I wish he had coupled with it the further suggestion that the improvement of Parliament Square by the inclusion of the site of the buildings in the Canning enclosure should also form part of the scheme.

LONDON HOSPITALS

So Charing Cross Hospital hopes to acquire some 2½ acres of the Adelphi site. For a central London site this is a more suitable place for a hospital than most; much more suitable than, for instance, Hyde Park Corner, where, according to the notices stuck all about it, we may expect a rebuilt St. George's Hospital any day now.

*

It seems, on the face of it, rather absurd to rebuild hospitals in noisy central positions. With efficient ambulance services one would think hospitals could well occupy sites in the outer areas, large enough to ensure real quiet and seclusion—though possibly hospitals in the suburbs would not have quite the same publicity or appeal value as prominently placed central ones.

TOWN NOISE

London (and other centres), we are told, are to be less noisy. The authorities are going to encourage less noise by works machinery, road drills, cars and motor cycles, and (curiously enough) street musicians.

*

But the latest reports make no mention at all of trams. Now, a short while ago I made a personal investigation of the noisy tram question, the very noisy tram in fact.

*

I spent a week-end with a friend who lives within a quarter of a mile of a tram route. At night, two noises stood out above the general traffic hum, one slightly and one excruciatingly. We investigated. The slight one was made by solid-tyred steam lorries loaded with empty steel tubs. The terrific noise was made by trams—one at a time, of course.

*

And then and there we decided that if trams could be abolished our towns would, in one fell swoop, immediately become half as noisy and twice as safe.

ANTI-NOISE EXHIBITION

Meanwhile the Anti-Noise League exhibition tours the country, and with it goes the R.I.B.A. exhibit "Planning Against Noise." Architects, at any rate, are doing their bit in the campaign against noise. The exhibition is this week in Edinburgh.

GLASGOW ARCHITECT

The remark of His Majesty the King in Glasgow last week (which I mentioned in the last issue), that the success of the city's rehousing would depend on the architect has had a quick sequel.

*

Glasgow is to appoint a city architect. The salary is to begin at £1,400, one of the few reasonable salaries I have seen offered for some time for an official appointment.

*

If the status and responsibility is equivalent to the salary offered, then Glasgow should succeed reasonably well in its rehousing efforts. At the same time it should establish a more unified architectural service than can at present be possible through its architectural staffs attached to seven separate departments.

RADIO IN FLATS

The unusual publicity given to the R.I.B.A. Science Committee's report on radio reception in flats is having quick results, for now at least one agent is advertising that in a new block of luxury flats "radio reception will be guaranteed." Could there be better proof that architects should take this matter very seriously indeed?

B.B.C.

The report on B.B.C. developments issued this week by the Ullswater Committee contains much to interest architects.

*

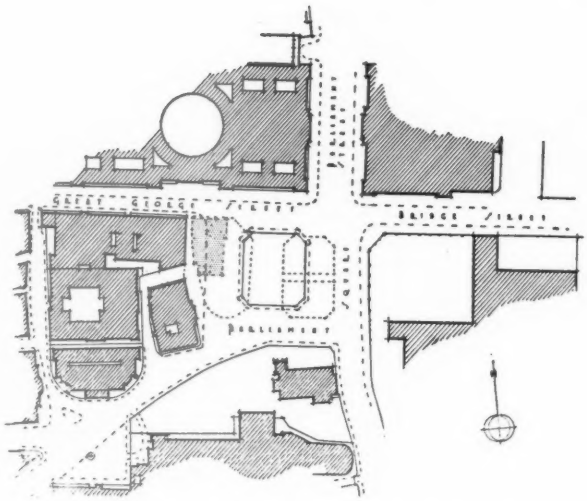
We may tremble ever so slightly at the suggestion of a Cabinet Minister to take responsibility for the "cultural" side of broadcasting, but most of us will distinctly shudder at the suggestion that all relay installations should be owned by the G.P.O., and that its programmes should be controlled by the B.B.C.

*

Fortunately there are alternatives for reliable reception of radio in flats, as the R.I.B.A. report clearly shows.

TELEVISION SETS

Talking of radio reminds me of the new television sets



Astragal suggests that Parliament Square should be replanned on the lines shown above, as a part of the Abingdon Street scheme proposed for a memorial to his late Majesty. See note on previous page.

I have seen, and some even newer ones I've only had described to me.

*

All might quite well be mistaken for an ordinary radio-gramophone, a cocktail cabinet, an enclosed gas cooker, or a rather plain refrigerator. At any rate when they are closed.

*

Now, television excites me ; a receiver is a marvellous piece of work, it has new and exciting shapes entirely its own, all precise and neat and full of meaning. Therefore I am both saddened and annoyed that this apparatus should be crammed into the dull old walnut cabinets with or without period trimmings, which we all know so appallingly well.

*

Cannot television at least *start* its popular life in appropriate clothing ?

FORESTS

In travelling about the country several architects must have been attracted by the areas of tree planting one sees from time to time. But it was not until I saw the forestry report that I realized the extent of re-planting which is going on.

*

In England, Scotland and Wales there are 194 forest units with over 565,000 acres of plantable area—figures which strike me as being commendably high, roughly one-fortieth of the area of the whole country.

*

About 4,000 men are employed in the work, many on a bi-occupational basis. What an admirable word " bi-occupational " is—it smacks of two equally interesting and mutually assisting activities, one using the brain and one primarily the body. The solution of many of our present-day labour troubles may be concealed in such a word.

LOOSE THINKING

As an example of the sort of inaccuracy which most people accept without question, I quoted a statement from an evening paper that a 1,250 ft. skyscraper had 10,000 steps from top to bottom. All the more grievous therefore, to hear, at Mr. Chalton Bradshaw's lecture at the R.I.B.A., the suggestion accepted without demur that two 1 ft. 9 in. pipes were a suitable substitute for one 3 ft. 6 in. pipe.

*

If any one cares to draw a circle 3 ft. 6 in. in diameter and then to draw two 1 ft. 9 in. circles inside it, they will notice that there is still quite a lot of the 3 ft. 6 in. circle to spare : exactly half in fact.

HIGH JINKS AT FOYLES

At Foyles last week there was a debate between Maxwell Fry and R. A. Duncan on " Should People Be Told How to Live." It seems to have been a very jolly evening indeed, for amongst other things, according to the reports, Mr. Fry hit his own wicket, the ladies all applauded and cried, " how pretty " when shown a slide of a " pseudo Georgian " house designed some years ago by Mr. Fry, and Mr. Duncan denounced thermostats.

BEDFORD

Bedford is to have a new town hall, and the council is trying to decide which is the best of three arbitrarily chosen sites. The Bedford newspapers assist by organizing a competition (with three one-guinea prizes) in which readers are asked to choose the best site, with three reasons, and three reasons against the other two sites.

*

This has been going on for quite a long time—and no one has yet suggested that one responsible architect, studying the sites for one day each, could give a sound and substantiated opinion in one short report.

SEGREGATION ?

The whole question of the segregation of certain sections of the community into particular habitable districts is a problem which has engaged sociologists for many years.

*

Many of the early housing schemes in this country started with the idea of making garden cities for one particular section of the community—the working classes. They did not, of course, remain long in such an isolated state, and today such schemes house, very properly, people from every walk of life, irrespective of " class," thereby returning to the conditions prevalent in a number of streets in industrial England—where the boss, and the foreman and the hand live side by side.

*

All the more surprising, therefore, to learn that Moscow should have started to build an " Artists' Community." This is to be a self-contained suburb (suburb, mind you), complete with all facilities for recreation and education, where artists may live in segregation to pursue their alleged idyllic life.

*

Could any ideal be more stupid ? Surely the artists, after a few years of secluded life, will be so remote from the economic and sociological conditions of the day that their interpretations will be unintelligible to the very people whose lives they are expected to enlighten ?

ASTRAGAL

NEWS

POINTS FROM THIS ISSUE

L.C.C. HOUSING

The London County Council is to issue a revised handbook on the housing work it has accomplished up to the end of this year. The book should be published in January, 1937. It will bring up to date the last volume, *Housing, 1928-30*, and, including a folding map showing all the Council's estates, will be put on sale at a popular price.

To make the volume comprehensive it is proposed to include a brief reference to the schemes of the Metropolitan Board of Works and pre-war Council action, a short review of the Council's post-war housing operations over the period covered by the previous books, and some account of the housing work of the City of London Corporation and of the Metropolitan Borough Councils. The edition is expected to run to about 2,000 copies, and a sum of £500 is being set apart for its production.

CHARING CROSS HOSPITAL

The proposed transfer of Charing Cross Hospital to a site in the Adelphi was discussed at a meeting last week of the Governors of the Hospital. Following the meeting, Mr. Philip Inman, Chairman of the Hospital, stated that negotiations for the removal were proceeding, and that a decision will be taken shortly.

HOUSING CENTRE

The Council of the Housing Centre held a reception last week at its headquarters in Suffolk Street, S.W., to meet the High Commissioners and Agents-General of the Dominions and Colonies. The guests were received by the Chairman of the Centre, Professor Patrick Abercrombie, who, in a speech of welcome, said that one of the objects of the gathering was to exchange information. They thought that the representatives of the Dominions and Colonies could teach them something about housing conditions in their countries, and they also hoped that their guests might learn something as the result of their visit about the best of housing conditions in Great Britain. Lord Balfour of Burleigh, a vice-chairman of the Centre, said London was the heart of the housing problem in England, and housing and transport there presented problems which were interlocked. A policy should be decided on by the responsible authorities to prevent London from growing any bigger. He believed decentralization would prove to be a solution. Workers and factories should be moved to new towns in the country.

THE ARCHITECTS' DIARY

Thursday, March 19

R.I.B.A., 66 *Portland Place, W.1. Exhibition of " Everyday Things." The Exhibition is open free to the public until March 21.* 10 *a.m. to* 8 *p.m.*

TIMBER DEVELOPMENT ASSOCIATION. *Exhibition entitled " Timber Through the Ages." At Charing Cross Station, W.C. Until March 21.*

SOCIETY OF ANTIQUARIES, *Burlington House, Piccadilly, W.1. " A Monument of the ' Wood-henge ' Type at Arnunghall, near Norwich." By Dr. J. Clark.* 8.30 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *Yorkshire Branch. At the Hotel Metropole, Leeds. " The San Francisco Bridge." By Professor J. Husband.* 7 *p.m.*

GEFFRYE MUSEUM, *Shoreditch, E.2. " Furniture: The Origins of Decoration." By H. C. Dowling.* 7.30 *p.m.*

SOUTH WALES INSTITUTE OF ARCHITECTS. *Central Branch. At the Technical College, Cardiff. " Modern Architecture and the Craftsman." By G. Grey Wornum.*

Friday, March 20

LONDON SOCIETY. *At the Royal Society of Arts, John Street, Adelphi, W.C. " Some Recent Investigations at St. Paul's." By W. Godfrey Allen.* 5 *p.m.*

INSTITUTION OF STRUCTURAL ENGINEERS. *Midland Counties Branch. At Worcester. " Reconstruction of the Holt Fleet Bridge." By B. C. Hammond.* 7 *p.m.*

INSTITUTION OF HEATING AND VENTILATING ENGINEERS. *Manchester and District Branch. At the Engineers' Club, Manchester. " Automatic Stokers." By J. Saunders.* 7 *p.m.*

Monday, March 23

R.I.B.A., 66 *Portland Place, W.1. " Architectural Education." By W. H. Ansell.* 8 *p.m.*

LONDON SOCIETY. *Visit to the Hall of the Leathersellers Company, St. Helen's Place, Bishopsgate, E.C.3.* 2.30 *p.m.*

Tuesday, March 24

IDEAL HOME EXHIBITION. *At Olympia, W. Until April 18.*

Wednesday, March 25

ST. PAUL'S ECCLESIOLOGICAL SOCIETY. *At 66 Portland Place, W.1. " Modern Churches in England." By W. E. Brooks.* 8 *p.m.*

INSTITUTE OF WELDING. *North Western Branch. At the School of Technology, Manchester. " Development of Atomic Hydrogen and of Oxy-acetylene Welding." By J. A. Dorrat.* 7.30 *p.m.*

INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS, 43 *Grosvenor Place, S.W.1. " The New Building Act." By Sir Robert Tasker.* 7 *p.m.*

ROYAL SOCIETY OF ARTS, *John Street, Adelphi, W.C.2. " Forestry in the British Empire." By Sir R. L. Robinson.* 8 *p.m.*

BRIXTON EXTENSION

Tomorrow (Friday) Mr. Oliver Stanley, President of the Board of Education, is to open the extension of the Brixton School of Building. Mr. Herbert Morrison will give an address.

CITY ARCHITECT, GLASGOW

The Glasgow Corporation last week adopted a recommendation of the General Finance Committee to invite applications for the position of city architect, at a salary of £1,400, rising to £1,800. Applications are to be invited from architects with experience in the designing of houses on housing estates and of rebuilding built-up areas.

PAINT-MAKERS' EXHIBITION FOR PAINTERS

Captain J. R. J. Macnamara, M.P., will open an exhibition of " Goya " oil paintings by living artists of the British Empire at the New Burlington Galleries on March 24.

Over 1,400 entries from the British Isles and all parts of the British Empire have been received for this Exhibition, in which prizes ranging from £200 have been given for painters whose works receive the largest number of votes in a daily ballot.

THE TYLERS AND BRICKLAYERS COMPANY

The second award of the Gold Medal to be presented annually by the above Company to the architect of the building judged to have the most merit within the R.I.B.A. radius of eight miles from Charing Cross, will be announced in June, 1936.

The building is to be one of brick and tile (buildings having a small amount of stone or other dressings will not necessarily be precluded) and must have been completed within the last three years ending December 31, 1935.

Any practising architect is at liberty to nominate any buildings, including his own, for the consideration of the jury, no special form is necessary and the following information only should be given:

Name, situation and architect of the building, signed by the nominator.

Nominations must be sent to the Clerk of the Tylers and Bricklayers Company, 6 Bedford Row, W.C.1, not later than April 15. The Company will be assisted by the R.I.B.A. in the adjudication.

KING GEORGE V MEMORIAL

We are informed by the Secretary of the Incorporated Association of Architects and Surveyors that the design of the £15,000 bronze statuary group which the Australian Commonwealth Government has decided to erect in front of Parliament House, Canberra, as a King George V memorial will almost certainly be offered to open competition within the Empire. This has been the invariable practice of the Commonwealth and State Governments in similar cases in the past. The Commonwealth

Parliament House is of white stone, carried out in severely simple form.

MORE PLANNING IN DERBYSHIRE

The Minister of Health has approved a Resolution of the Mid-Derbyshire Joint Planning Committee to prepare a Town and Country Planning Scheme for 70,000 acres of Derbyshire in Ilkeston, Alfreton, Belper, Heanor, Ripley and Wirksworth.

This follows the decision announced three weeks ago to plan Western Derbyshire, including the Peak District.

The area covered by the new resolution contains a number of towns, but the chief interest of the decision is in the lovely stretches of countryside which will be preserved; for example, Allport Hill and Shining Cliff Wood, which are both owned by the National Trust, are within the new scheme.

The decision to plan has not been made a moment too soon. A network of omnibus services now covers Eastern Derbyshire, and ugly, sporadic, haphazard development has become a real danger.

APPOINTMENT

Mr. G. H. Jack, F.R.I.B.A., has been appointed deputy secretary of the Council for the Preservation of Rural England in place of Mr. D. C. L. Murray, who recently took over the position of secretary of the International Federation of Housing and Town Planning.

LIVERPOOL ARCHITECTURAL SOCIETY

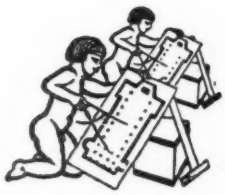
Mr. Percy Thomas, P.R.I.B.A., speaking last week at the annual dinner of the Liverpool Architectural Society, said that one of the great tasks before their profession was to bring home to the public the necessity for the employment of architects in every building operation, small as well as large. In this matter the local societies could do important work, though it would involve long and hard service by exhibitions, lectures, etc. He believed, however, that once the public realized the importance of the matter, improvement would be very rapid. Then the architects' dream of an England freed from slums, ribbon development and "dreadful villa residences that disfigure virtually every town in this country" would be realized.

"I believe," he continued, "that architects can do more to change England to a country with beautiful, well-ordered towns and unspoilt villages than any other body of men, public or professional. I am firmly convinced that there never was a time when the profession was more fully equipped and competent to carry out that work." There was a demand for a higher standard of architecture, and in that direction public authorities could do a tremendous amount of good work by seeing that the best architects, craftsmen and materials were utilized.

The time was past when they should aim at the cheapest building possible. The Italians have passed a law, which we might copy, insisting upon the employment not only of a competent architect for every public building, but also of artists and sculptors. Our people should have beautiful houses to live in as well as beautiful things to live with.

Lieut.-Colonel Gee, F.R.I.B.A., presided.

COMPETITION NEWS



SECONDARY SCHOOL, LUTON

THE CONDITIONS REVIEWED

Promoters: The County Council of Bedfordshire and its Education Committee.

Assessor: Professor William G. Newton, M.A., OXON., of 4 Raymond Buildings, Gray's Inn, London, W.C.

Premiums: (1) £200.
(2) £100.
(3) £50.

Questions: March 25, 1936.

Sending-in: May 27, 1936.

Conditions obtainable from the Clerk of the County Council, Shire Hall, Bedford.

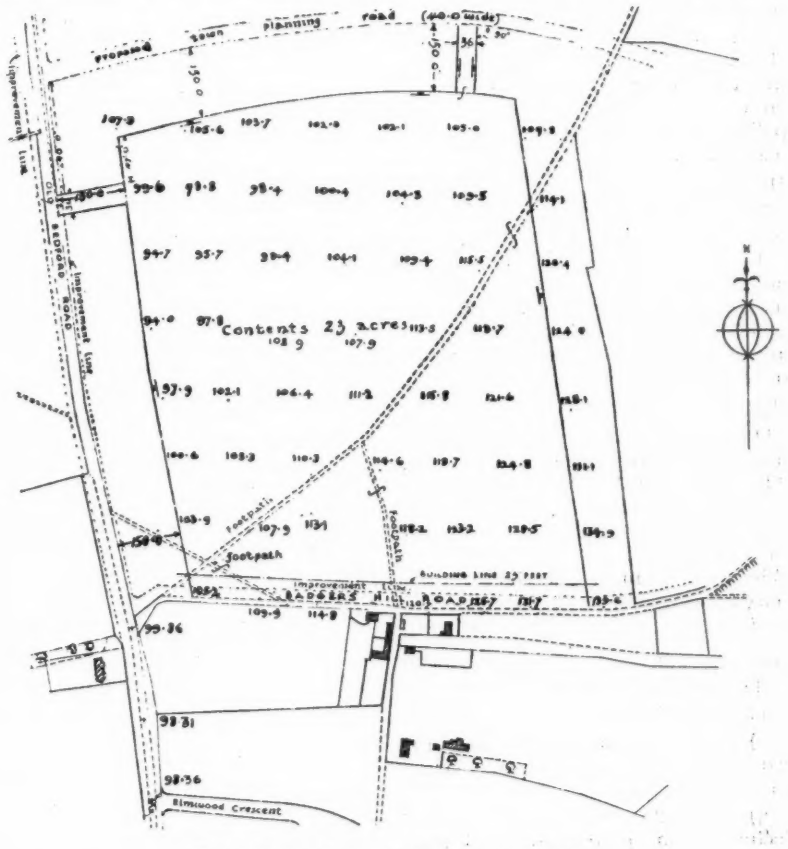
Deposit: One guinea.

The competition is open to all registered architects.

THE competition is for a secondary school to accommodate 500 boys. The scheme, however, is to allow for approximately a 20 per cent. expansion in classroom and laboratory accommodation.

The new building, it is stipulated, should have the "dignity of simplicity." It will also perforce have the simplicity of economy, for although "a building is desired worthy of its functions and the site, the greatest importance is attached to economy." The total cost of the building is not to exceed £45,000, including fences, roads, paths, playgrounds, playing fields, garden work and everything except movable furniture.

The conditions (and fees) which have been drawn up with a praiseworthy clarity, are delightfully free from those perplexing ambiguities with which the



Proposed secondary school, Luton: site plan.

habitual competitor is so unhappily familiar.

The competitor is given considerable freedom as to planning style and construction. The only reservations are that the accommodation is to be mainly on two floors, and that the upper floors must be of fire resisting construction. Though it is suggested that the outside walls should be of brick, no form of construction or material is ruled out. The requirements of the Board of Education must be complied with.

The Site (see site plan).

The site is an open one of about 23 acres of treeless arable land, sloping to the north-west on the northern outskirts of Luton. It lies in undeveloped agricultural land and is protected on the east by a ridge of downs. The western boundary is the frontage reserved for private houses and borders the old Bedford Road; on which stands a pleasantly coloured modernist villa, a solitary outpost of a Brave New World. This road, which is to be widened, is at present little more than a lane. A new town planning road is to run along the north of the site. The main entrance is to be from Badgers Hill Road, now a cart track, which bounds the site on the south. Badgers Hill Road marks the present limit of suburban development. South of it are Elmwood Crescent and Wychwood Avenue, where half timber jostles mock modern, an embarrassing choice for the competitor who insists on courtesy to his neighbours.

Drawings.

Simple mounted line drawings are required—to $\frac{1}{16}$th scale except for a block plan to $\frac{1}{64}$th in. scale, and one elevation to $\frac{1}{8}$th scale. Perspectives are not allowed. Drainage and heating need not be shown. Room areas may be put either on the drawings or listed in a schedule with the report.

Report.

The report is to consist of the usual descriptive matter and estimate of cost. The latter must include a separate estimate for work to the site.

Reference: Competitors are recommended to refer to the Board of Education's Pamphlet No. 86, "Secondary Schools," H.M. Stationery Office, 1s. 6d., dated 1931.

Accommodation.

The components of the scheme are:

(1) Assembly hall.

(2) Four classrooms with art room, woodwork and metal work rooms, forge and stores.

(3) Four laboratories with attendant lecture room, preparation and store rooms.

(4) Gymnasium with instructors' room, medical inspection room and adjoining changing rooms.

(5) A library.

(6) Staff room and offices.

(7) Dining room (assembly hall may be used) and kitchens.

(8) Covered play space.

(9) Lavatories and cloak rooms.

(10) Stores, cycle sheds, boiler house, etc.

(11) Caretaker's cottage.

(12) Games pavilion.

(13) Playing fields. These are to be planned to take six cricket tables, six football grounds and four tennis courts. But the competitor's task here has been assisted by the exact dimensions of the pitches required.

It is impossible here to discuss the accommodation in detail. It offers no unusual problems and the schedule is presented clearly and with a profusion of helpful notes. It is to be hoped that the opening of a new field to open architectural competition will be rewarded by architects with a large and stimulating entry of schemes—*pour encourager les autres.*

●

WATER OFFICES, BELFAST

Mr. H. Austen Hall, F.R.I.B.A., has been appointed assessor of the competition for new office buildings for the Belfast City and District Water Commissioners. Conditions are not yet available.

LAY-OUT OF STATION APPROACH, CARDIFF

The Cardiff Corporation recently received a deputation from Principal J. F. Rees, M.A., Mr. T. Alwyn Lloyd, F.R.I.B.A., Mr. H. M. Thompson, M.A., and Mr. W. S. Purcheon, F.R.I.B.A., on behalf of the Civic Society, regarding the lay-out of the station approach. The deputation suggested that an open architectural competition should be arranged in connection with the scheme. It was decided to retain the services of Mr. Percy Thomas P.R.I.B.A., as consultant in connection with the lay-out, and also to defer further consideration pending a conference with the syndicate who were proposing to erect buildings on the site.

EAST AFRICAN PAVILION

Mr. A. G. W. Ogilvie, a Mombasa architect, has been awarded first in the competition for the East African Pavilion to be erected at the forthcoming Empire Exhibition in Johannesburg.

MUNICIPAL OFFICES, DARTFORD

The Dartford Council proposes to hold a competition for new municipal offices, and a total of 350 guineas is suggested for the premiums.

HOUSING AND HEALTH EXHIBITION, GLASGOW

In connection with the above exhibition, a sub-committee of the Glasgow Corporation has decided to hold a competition for designs for a five-apartment semi-detached house. Mr. James McKissack, L.R.I.B.A., has been appointed assessor, and three premiums will be offered: £75, £50 and £25.

SUB-FIRE STATION, BIRMINGHAM

The Birmingham Corporation is to hold a competition (open to architects of British nationality and practising in the city of Birmingham) for a new sub-fire station at Erdington. Major T. Cecil Howitt, F.R.I.B.A., has been appointed assessor; and two premiums of £100 and £50 will be offered.

OBITUARY

A. R. POWYS

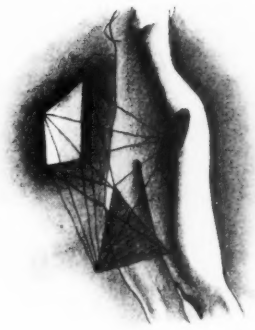
It is with deep regret we record the death, at the age of fifty-four, of Mr. Albert Reginald Powys, C.B.E., F.S.A., A.R.I.B.A., Secretary of the Society for the Protection of Ancient Buildings.

The fourth son of the late Rev. C. F. Powys, sometime vicar of Montacute, Somerset, Mr. Powys was one of a family of 11 children, three of whom, John Cowper, Theodore and Llewellyn Powys have become famous in the world of literature. He was educated at Sherborne and, at the age of 18, was articled to Messrs. C. and C. B. Benson, of Yeovil, with whom he remained for three years. Subsequently he was engaged in repair work under Mr. William Win. In 1908 Mr. Powys commenced private practice in London. Three years later he became secretary to the Society for the Protection of Ancient Buildings, the "Anti-Scrap Society," and, in 1912, entered into partnership with Mr. Thackeray Turner, of the firm of Balfour and Turner, Architects, and a former secretary of the S.P.A.B. In 1925 he became a partner of Mr. John Macgregor, F.R.I.B.A., under the style of Powys and Macgregor.

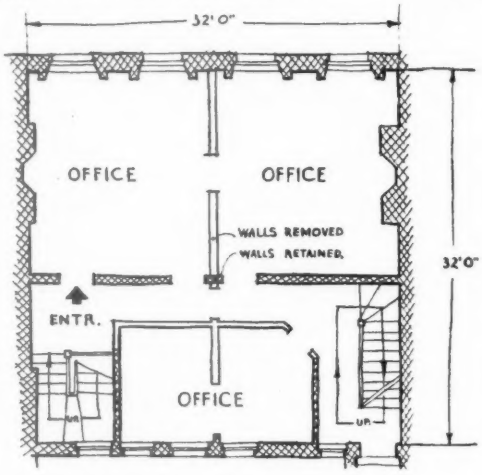
Mr. Powys was a frequent contributor to the technical journals and was the author of several books on ancient buildings, including *Repair of Ancient Buildings* and *The English House.*

The following appreciation of Mr. Powys was published in a recent issue of *The Times* under the signature of Lord Esher: "The death of Mr. Powys deprives artistic and historical England of one of its most devoted servants. A gifted and cultivated man, Mr. Powys would have risen high in the architectural profession to which he was trained, but he did not hesitate to sacrifice all such opportunities of wealth and distinction in order to save from decay or destruction the heritage of beauty that has been handed down to us from the past. For close on 25 years, as secretary of the Society for the Protection of Ancient Buildings, he made the objectives of that Society the business of his life, and took an outstanding part in the creation of the wide influence that the Society now enjoys. It has been my privilege of late years to work in close connection with him, and no one could fail to gather inspiration from the enthusiasm combined with patience which was characteristic of his personality. By his death all those who love our ancient England will lose an expert eye always intent upon its preservation, and all those who knew him a delightful companion and unselfish friend."

SHOWROOMS FOR A FIGURE SPECIALIST



161, NEW BOND ST., W. • ARCHITECT, FREDERICK GIBBERD



BEFORE ALTERATION

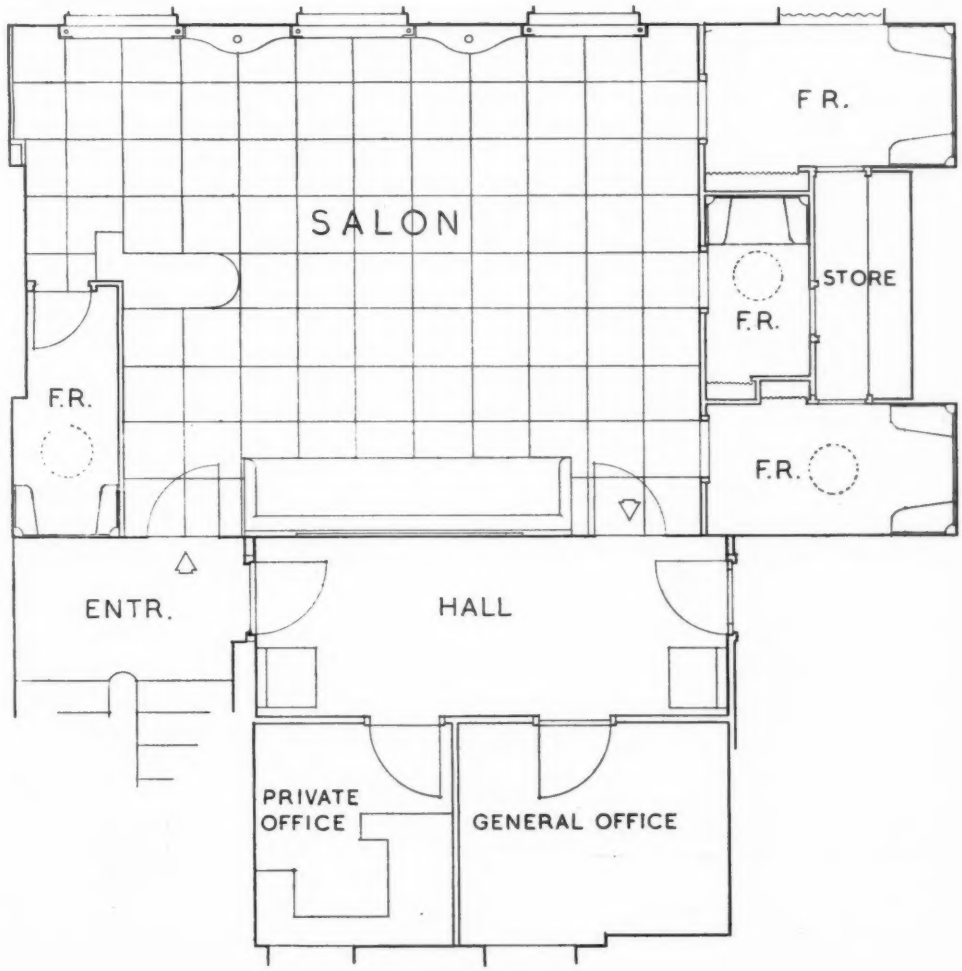
PROBLEM

THE ARCHITECT WAS REQUIRED TO PROVIDE ACCOMMODATION OF TWO DISTINCT KINDS, AS FOLLOWS :
(1) THE SALON PROPER : A LARGE SPACIOUS ROOM WHERE CUSTOMERS' REQUIREMENTS ARE DISCUSSED.
(2) THE FITTING ROOMS : SMALL INTIMATE ROOMS WHERE THE GARMENTS ARE FITTED.

PLAN

THE PLAN ADOPTED WAS DESIGNED TO GIVE AS MUCH SPACE AS POSSIBLE TO THE SALON. THE FITTING ROOMS ARE GROUPED ROUND A COMMON STORE TO AVOID ENTERING THE SALON.

THE SALON IS SET OUT IN 2 FT. UNITS, THIS BEING THE SIZE OF THE BIRCH PLY FLOOR : THUS THE JOINTS OF THE FLOOR COINCIDE WITH THE CENTRE LINES OF THE WINDOWS AND THE LIGHT UNITS BETWEEN AND ALSO WITH THE JOINTS OF THE MINOR WALL



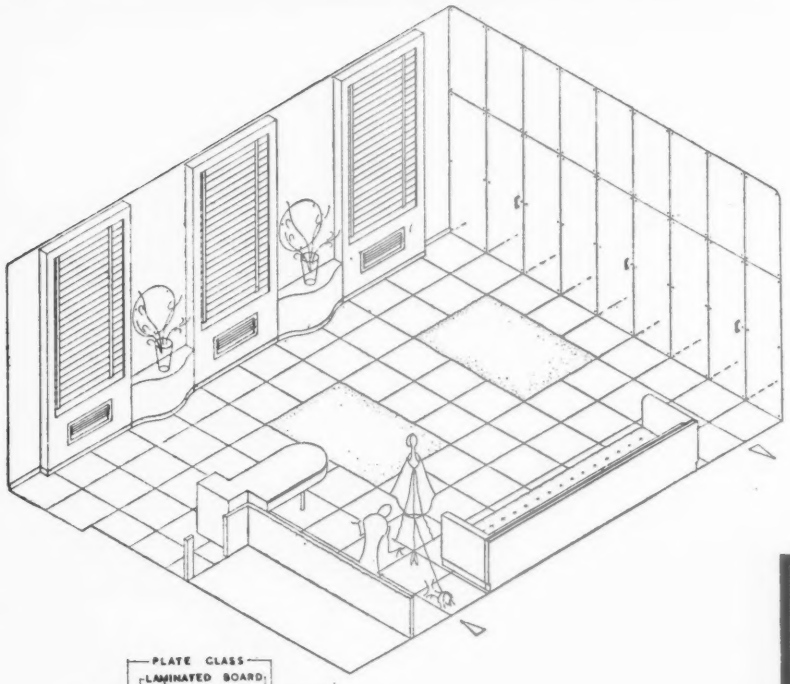
AFTER ALTERATION

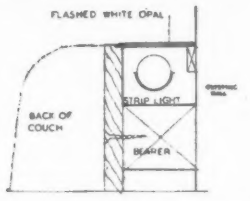
SHOWROOMS FOR A FIGURE SPECIALIST,

S A L O N

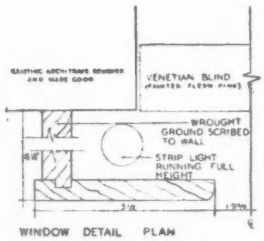
TO OBTAIN THE DESIRED BRILLIANCE AND SPACIOUSNESS IN THE SALON, THE DESIGN WAS BASED ON THE DIFFERENT QUALITIES AND INTENSITIES OF LIGHT ON DIFFERENT SURFACES. THREE WALLS AND THE CEILING ARE ENAMELLED WHITE, THE FOURTH WALL BEING OF PLATE GLASS MIRROR TO DOUBLE THE APPARENT SIZE OF THE ROOM.

DECORATION IS PROVIDED BY STRIP LIGHTS AND SPOT LIGHTS SO ARRANGED THAT THEY PRODUCE DIFFERENT SURFACE REFLECTIONS. THE ONLY COLOUR INTRODUCED INTO THE SCHEME IS THE PALE PINK OF THE VENETIAN BLINDS, CIRCULAR MIRRORS AND FLOWER VASES, AND THE DEEP REDS OF THE FLOWERS.

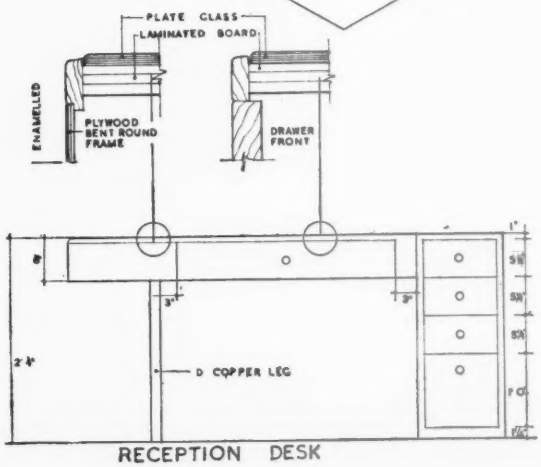




BACK OF COUCH SECTION

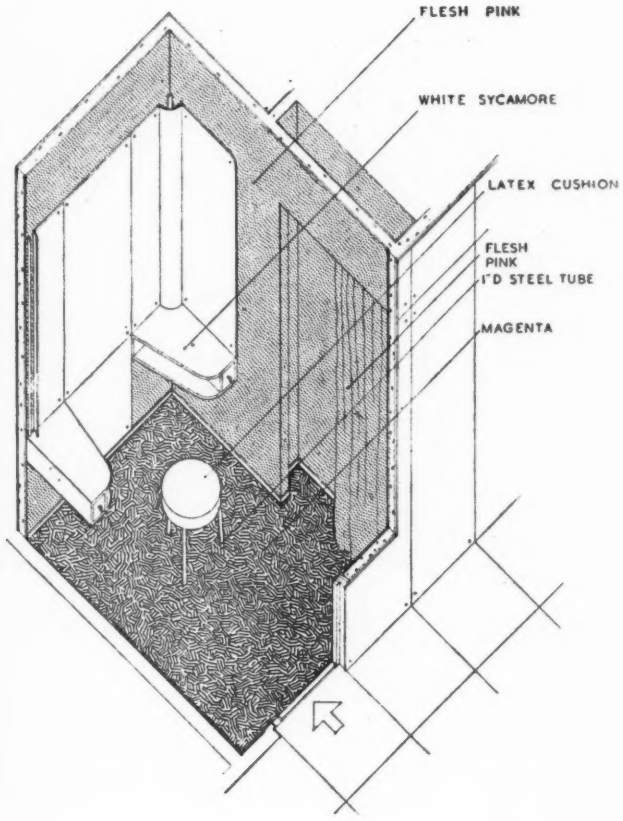


WINDOW DETAIL PLAN



RECEPTION DESK

NEW BOND ST., W. BY FREDERICK GIBBERD



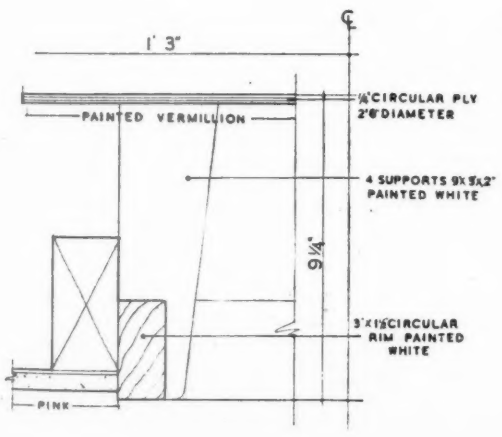
FITTING ROOMS

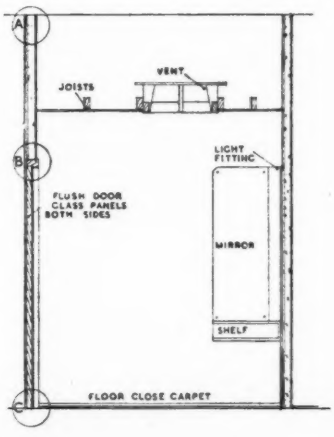
THE ALTERNATE 2 FT. WIDTHS OF THE PLATE GLASS MIRROR OPEN INTO THE FITTING ROOMS WHICH, IN DIRECT CONTRAST TO THE SALON, ARE MORE INTIMATE. THE WALLS HAVE A MATT PAINT FINISH IN FLESH PINK, THE FLOOR IS COVERED WITH A MAGENTA CARPET, AND THE DRESSING TABLE IS IN WHITE SYCAMORE.

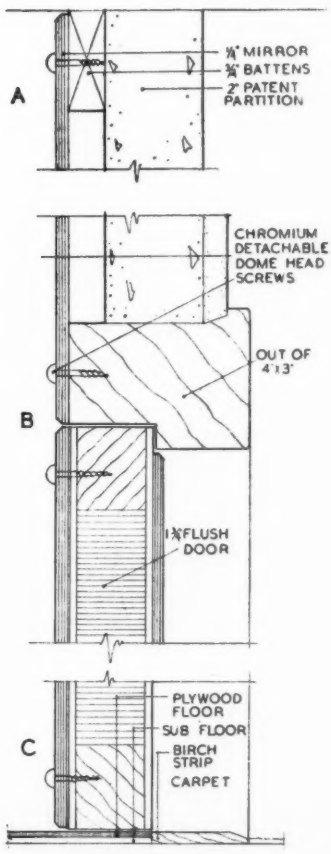
THE DRAWINGS SHOW THE ORIGINAL DESIGNS OF THE ARCHITECT, WHICH HAVE BEEN SLIGHTLY MODIFIED IN THE COURSE OF CONSTRUCTION, AS WILL BE SEEN BY COMPARISON WITH THE PHOTOGRAPHS.

THE DRAWINGS SHOW : A SECTION THROUGH THE GLASS WALL BETWEEN THE FITTING ROOM AND SALON ; A LONGITUDINAL SECTION THROUGH THE FITTING ROOM ; AND A DETAIL OF THE CIRCULAR VENT IN THE FALSE CEILING.

For list of general and sub-contractors see page 465.







IN THAT CONTINGENCY

The following abstracts of enquiries represent a number of those recently submitted to the Building Research Station. The information given in the replies quoted is based on available knowledge. It has to be borne in mind that further scientific investigations may in the course of time indicate directions in which the replies might be supplemented or modified. Moreover, the replies relate to the specific subject of each enquiry and are not necessarily suitable for application to all similar problems. [*Crown copyright reserved.*]

Sound Insulation and Absorption

¶ *A firm of architects submitted sketch plans of a hospital building requesting advice on the precautionary measures which might be taken to ensure as far as possible freedom from disturbance due to sound transmission. The building was of two storeys, and it appeared that in planning due regard had been paid to the reduction of disturbance due to noise. The ground floor was occupied by operating theatre, kitchens, recreation rooms, etc. and the upper floor consisted chiefly of wards. Indication was given of a preference for floors of precast concrete beams, and guidance was sought particularly in the selection of floor and ceiling finishes and of materials for partitions.*

In considering problems of noise reduction in buildings it is useful in the first place to distinguish between sounds which originate as wholly air-borne sounds and those which may originate from impacts on the structure itself. Conversation is typical of the former class while the commonest examples of the latter class are probably footfalls.

It appears that in the building under consideration the majority of rooms in which quietness will be desired are situated on the upper floor, so that it is likely that the problem will be confined to the reduction of air-borne noise transmitted from room to room on the upper floor and upwards from the ground floor.

With regard to transmission throughout the upper floor it should be pointed out that more sound is likely to pass from room to room by way of doors and corridors than through partitions. In addition some disturbance might be expected in the wards on account of the noises of footsteps in the corridors. It is suggested, therefore, that precautionary measures should be considered in the following order :—

(*a*) Fit doors of as heavy a type as is practicable and pay particular attention to making them tight fitting. Air-tightness at the head and sides can usually be achieved by the addition of felt strips fixed to the rebate of the frame, and at the foot by means of one of the commercial "draught preventors" or by ramping the floor slightly on each side and fixing a strip of felt to the bottom of the door itself.

(*b*) Apply a resilient floor finish in those parts where most traffic is likely to occur. The corridors would no doubt demand chief attention in this respect and some such finish as sponge-backed rubber would be useful.

(*c*) Take special precautions in the construction of partitions between wards. In this connection it should first be pointed out that, so far as single partitions are concerned, practically the only factor affecting sound transmission is weight of partition per unit area, and not the nature of the material composing it.

It is found that considerable misunderstanding exists on this point and that *sound-absorbent* materials are frequently assumed to be essentially good *sound insulators*. Sound absorption is a property of a surface and is measured by the extent to which the reflection of sound is restricted ; it has no relationship to the ability of the backing material to transmit sound.

As far as sound insulation is concerned weight is the only factor which need be considered, and the choice of a material for the construction should be governed by such factors as allowable thickness, moisture movement and strength (if partitions are load-bearing). It is difficult to fix a standard for the weight of partition necessary between small wards, but certainly nothing lighter than brickwork 4½ in. thick should be used.

The consideration of weight alone does not apply to double partitions, whose construction was discussed in a previous Note from the Information Bureau of the Building Research Station.

In considering the transmission of noise upwards through the floor it may be assumed that the reduction of air-borne sound afforded by most normal types and thicknesses of reinforced concrete floors will be of the same order as that of 4½ in. brickwork. While it cannot be stated that the floor construction proposed would be sufficient to produce the required silent conditions in all parts of the building, it is not possible in the present state of knowledge to suggest an economic alternative which could be relied upon to be markedly better. It is suggested, however, that useful results would accrue from the use of sound-absorbent finishes to walls and ceilings in certain parts of the ground floor, since by this means sounds emitted in these rooms would not build up to such high intensities as if hard reflecting finishes were adopted. In this connection, attention might be drawn more particularly to the recreation rooms and to a covered entrance-way for cars, both of which lie immediately under the wards. Hangings and upholstery are also good sound absorbents which in furnished rooms would be useful in this respect.

Information regarding sound-absorbent materials which may suitably be applied to walls and ceilings is available in most textbooks on acoustics.

Thermal Expansion of Asphalted Roofs.

¶ *It has been reported to the Station that there is reason to believe that some misunderstanding has arisen in connection with previous references in Notes from the Information Bureau of the Building Research Station to thermal movements in concrete roofs covered with asphalt.*

Further work on this question has recently been carried out, from which it appears that whilst an asphalt mastic is a good absorber of solar radiation, data now available indicate that the presence of a mastic does not necessarily increase the stresses in the sub-roof. In the case of concrete or hollow tile sub-roofs, closely similar temperature conditions obtain at the face of the concrete under the influence of solar radiation, whether the concrete be covered with asphalt mastic or not. The extra heat absorption of the asphalt surface appears to be largely counter-balanced by the thermal capacity of the asphalt layer.

Considerable advantage can, however, be derived by the provision of a light coloured upper surface which reflects heat. This applies, not only to asphalt mastic, but to any type of flat roof covering.

The subject will be discussed in more detail in a Bulletin dealing with the use of asphalt mastics for roofing, which it is hoped to publish in the near future.

●

Announcement

Mr. I. Schultz, A.R.I.B.A., has removed his offices to No. 251 Edgware Road, W.2. Telephone No. : Paddington 4270.

R. I. B. A.

ELECTION OF MEMBERS

At a recent meeting of the council of the Institute the following members were elected :

As HON CORRESPONDING MEMBERS (2) : Messrs. D. E. Arkin (Moscow) ; and N. Colley (Moscow).

As FELLOWS (5) : Messrs. H. W. Cash (London) ; S. Dawe (Watford) ; K. B. Mackenzie (Bibury, Gloucestershire) ; E. B. Musman (London) ; and A. C. Stillman (Stafford).

As ASSOCIATES (71) : Messrs. G. Arthur (Airdrie) ; W. W. Atkinson (London) ; C. R. Beecroft (Portishead, Somerset) ; H. A. Bowen (Twickenham, Middlesex) ; G. B. Bradley (London) ; A. Brooks (Stalybridge, Cheshire) ; S. T. Brown (Liverpool) ; L. B. Burnett (Liverpool) ; G. M. Chasser (Leicester) ; T. J. Colclough (Kidsgrove, Stoke-on-Trent) ; A. E. Cooper (Flixton) ; L. W. Cooper (Leicester) ; L. B. Cremer (Sittingbourne, Kent) ; J. Douglas (London) ; A. Dumble (Sutton, Surrey) ; W. J. Dungey (Plymouth) ; L. S. Dyer (Westcliff-on-Sea) ; A. V. Elsey (London) ; (Miss) C. E. Epps (London) ; N. H. Fowler (Leeds) ; E. L. Fox (Yeovil, Somerset) ; M. D. Furniss (Woodford Green) ; W. B. Galloway (Selsdon, Surrey); P. Gerrard (Nottingham) ; D. R. Gillam (Sutton, Surrey) ; G. I. Goulden (London); T. C. Hicks (London) ; E. L. Hoare (Twickenham) ; E. A. Houfe (Bedford) ; E. Hough (Altrincham, Cheshire) ; H. Jackson (London) ; D. Jones (London) ; A. B. Kerr (Edinburgh) ; W. H. Kwan (London) ; B. A. Le Mare (London) ; W. L. Lowry (Southport) ; E. D. Lyons (London) ; R. E. M'Caughan (Belfast) ; R. H. Mann (Leeds) ; H. A. Metayers (Dover, Kent) ; T. E. North (Barking, Essex) ; R. G. Parker (Norwich) ; H. L. Pitt (London) ; J. A. Powell (Torquay) ; H. D. Priestman (Hull) ; G F. Ransom (London) ; N. L. Reece (Southsea, Hants) ; J. G. Reid (Clevedon, Somerset) ; F. H. Risdon (London) ; A. F. Russell (London) ; H. Short (Kew Gardens, Surrey); R. R. Siggers (Leicester) ; H. Somjee (London) ; F. Stower (Dorking, Surrey) ; L. Sutton (London) ; E. Taberner (Chester) ; E. Taylor (Carlisle) ; A. A. Thomas (London); G. C. Timmis (London) ; D. C. Townsend (Cheshire) ; N. Tweddell (London) ; E. J. Weir (Edinburgh) ; F. G. West (London); N. E. Weston (Birkenhead) ; C. S. Whatmore (Kingston-on-Thames) ; N. Wheatley (Blackburn) ; E. P. Wilson (St. Albans) ; R. J. Wilson (Nottingham) ; L. Wood (Derby) ; L. J. Young (London) ; and R. M. Young (Troon, Ayrshire).

As LICENTIATES (6).—Messrs. M. Cowen (Johannesburg) ; P. B. Durey (Sunderland) ; H. J. Edgington (Abingdon, Berks) ; A. B. Fryer (Wirrall, Cheshire) ; F. C. Smith (Northampton) ; and C. F. Thurley (Paignton).

ANALYSIS OF A BUILDING : 5

WHITTINGHAME COLLEGE : BRIGHTON

BY A. V. PILICHOWSKI

This building is of special interest for the following reasons :—

(a) Cheapness in first cost and maintenance.
(b) Planning—ease of future extension.
(c) Straightforward solution of problems of ventilation and insolation.
(d) Use of welded steel construction and steel decking for roofs.
(e) Drainage R.W.P.'s cast in walls.

PROBLEM :

Boarding school of moderate size with usual accommodation—classrooms, dormitories, dining and social rooms (see detailed accommodation schedule on page 446).

SITE—GENERAL CONSIDERATIONS.—See Fig. 1. The site is approximately square, and about 4½ acres in area. There is a fall of 13 ft. from N. to S. and 10 ft. from E. to W. To the east is a permanently open public space ; the site is well wooded. Existing buildings are to be retained for use as the headmaster's. House and administration offices. Provision has to be made for two tennis courts and a football pitch and, at a later date, a swimming pool. The existing lawn is to be retained for open air receptions.

ANALYSIS OF PROBLEM.—BLOCK PLAN The three principal requirements are :

(1) Teaching.
  (a) Maximum sunshine.
  (b) Cross ventilation (See Fig. 2).
(2) Sleeping.
  (a) Morning sun.
  (b) Quiet and remote from main circulation.
(3) Eating and social rooms.
  (a) Sun not essential.
  (b) Dining room. Service of food separate from main circulation.

From these conditions it follows that : (1) Classrooms must be single depth, properly orientated and set in gardens ; all corridors must become low connecting links.

(2) Dining and social units should be in close connection with classrooms and preferably at same level.

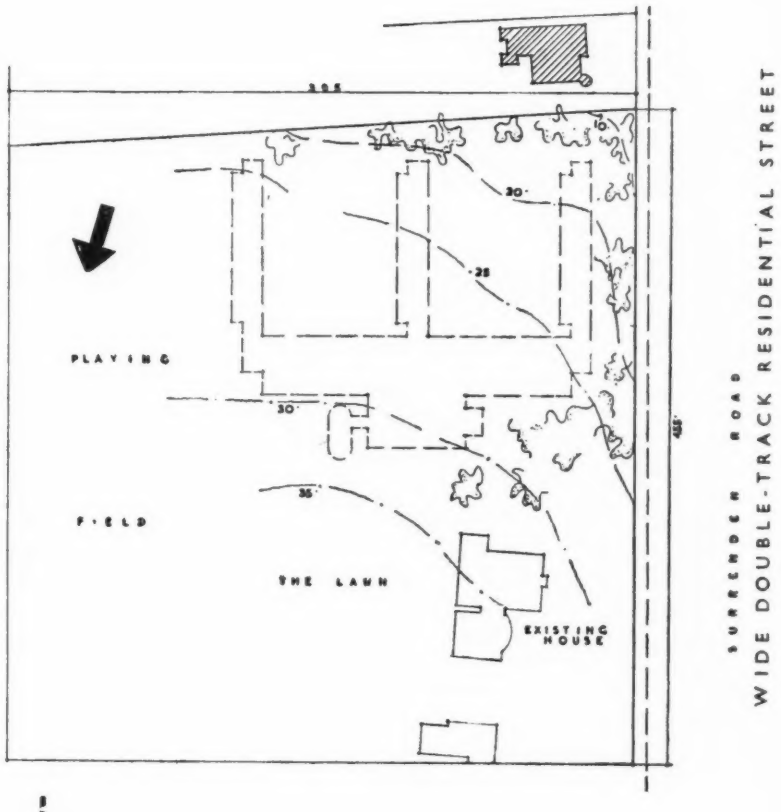
(3) Dormitories as a self contained unit, accessible in particular to (2).

From diagram 2 it is clear that morning sunshine is most useful for classrooms since four or five afternoons are devoted to sport.

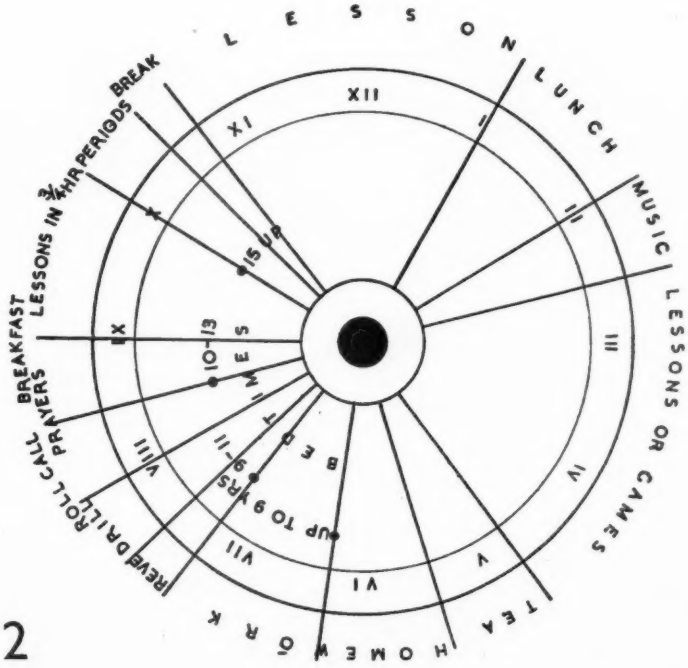
From insolation (Diagram 3) it will be seen that the N. to S. orientation 15 degrees E. to W. will give the maximum sun under these conditions for classrooms and an E. to W. orientation will be best for the bedrooms.

Hence the block plan indicated provides (other considerations apart) the only solution.

The occupation chart shows the various activities of the school throughout the day. Read in conjunction with Fig. 3 it gives the basis for planning the school.

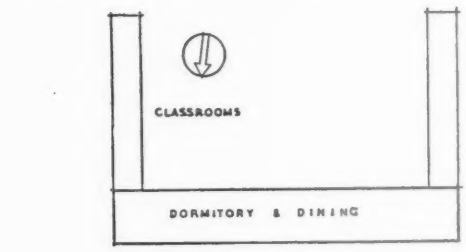


1



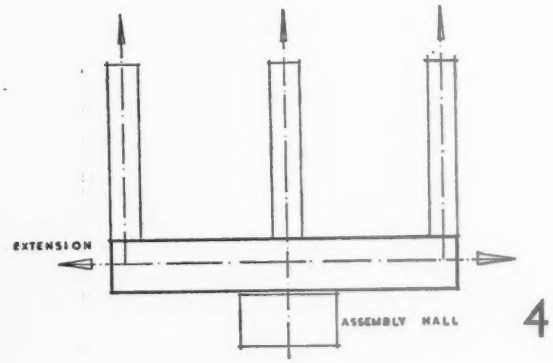
2

ANALYSIS OF A BUILDING : 5

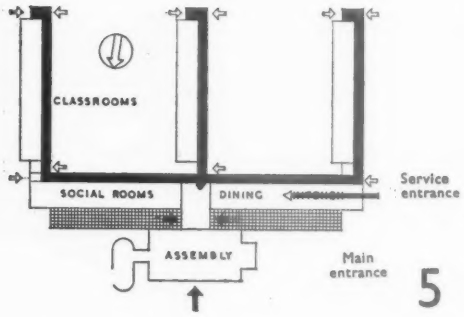


3

EXTENSION



4



5

6

CIRCULATION :

Three distinct circulations in the building.

(1) Main circulation. Gives direct communication to all parts and to gardens. Formal entrance (rarely used through assembly hall) Fig. 5.

(2) Service circulation from road to stores. Kitchen and dining and domestic staff. Fig. 5. No noise—no interference.

(3) Vertical circulation. Fig. 6.

ACCOMMODATION REQUIRED.—12 classrooms for Juniors and seniors for 15 pupils each. Chemical and physical laboratories. Studies and store rooms. Geography room. Music cubicles. Dispensary.

Assembly hall and gymnasium, the two together to accommodate 400. Cinema and talkie apparatus in hall (for educational purposes). Stage for theatricals and public lectures.

Dining rooms, kitchens, servery and staff dining rooms. Recreation rooms, including : junior and senior common rooms, masters' and prefects' common rooms, junior and senior libraries, billiard and playroom.

CLOAKROOMS, ETC.—Cloakrooms for coats, etc. Lavatories and w.c.'s. Changing room and shower baths to gymnasium. Masters' and matrons' cloakrooms.

BOILER HOUSE.—Boiler house and fuel stores. Trunk stores. Laundry, full equipment for washing, drying, and ironing. Lift and chute to above. General stores.

DORMITORIES.—Dormitories for 192 children. Bathrooms, lavatories, w.c.'s, clothes stores and shoe polishing room. Linen and towel stores. Masters' and matrons' bedrooms and offices.

GENERAL DATA

AREAS :

Classrooms	3,000 sq. ft.	15 sq.ft. per head
Laboratories	1,500 ,, ,,	8·5 ,, ,, ,, ,,
Dining room	1,073 ,, ,,	5·6 ,, ,, ,, ,,
Recreation rooms	1,800 ,, ,,	9·3 ,, ,, ,, ,,
Assembly hall	2,329 ,, ,,	6·0 ,, ,, ,, ,,
Kitchen, etc.	727 ,, ,,	
Corridors	3,216 ,, ,,	
Cloaks, etc.	794 ,, ,,	
Boys' dormitories	7,904 ,, ,,	43 ,, ,, ,, ,,
Matrons' ditto	884 ,, ,,	88·0 ,, ,, ,, ,,
Masters' ditto	884 ,, ,,	88·0 ,, ,, ,, ,,
Sanitary block	341 ,, ,,	
Stores, etc.	476 ,, ,,	

SANITARY PROVISIONS :

Ground Floor

Basins	12	or 1 per 16 boys
W.C.'s	9	or 1 per 21 boys
Staff basins	8	
Staff w.c.'s	8	

Changing room, 5 showers and urinals.

First Floor

Basins	16	or 1 per 16 boys
W.C.'s	6	or 1 per 16 boys
Baths	8	or 1 per 12 boys
Staff basins	2	
Staff w.c.'s	2	
Staff Baths	2	

Second Floor Ditto.

The lay-out shown appeared most likely to meet the requirements, and solutions based on it were attempted.

(1) The classrooms were thrown forward as single storey pavilions. Fig. 3.

(2) Dining and social rooms were found on analysis to be of approximately the same area, and were thus balanced about an axis in the E. to W. main block (Fig. 4).

(3) The only remaining position for the assembly hall was at the junction of these two units which was also central for the classrooms and it was thus placed here. (Fig. 4.)

The entrance hall therefore came at the nucleus of the system, and formed the easiest approach to the dormitories. Hence Figs. 4 and 5 were arrived at.

Placing of the block on site was governed by :

(1) Access from Surrenden Road.

(2) Necessity of preserving the lawn.

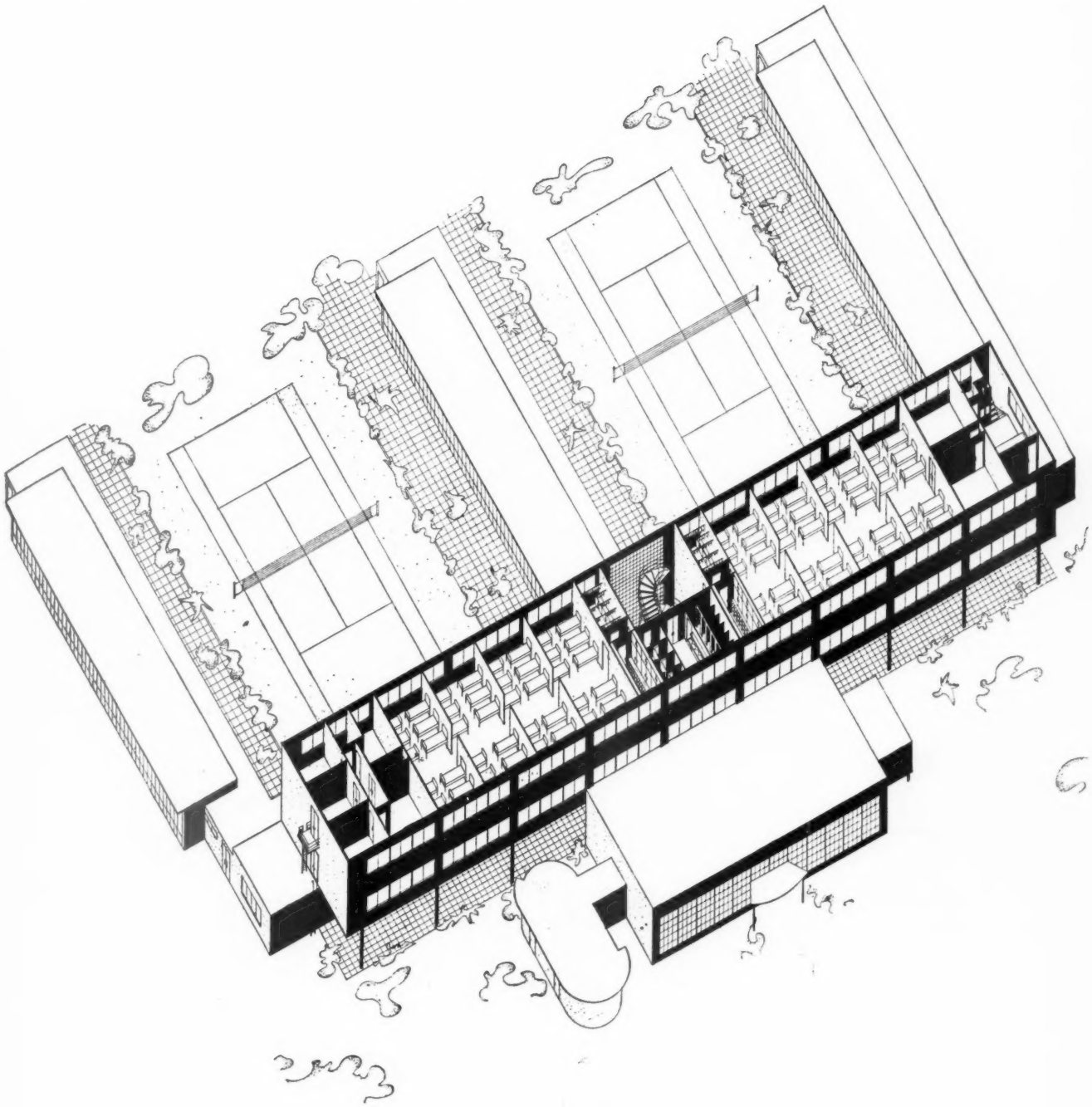
(3) The utilization of the fall of the ground.

LEVELS.

The ground floor was kept level and the fall to the S. and W. utilized on the main block to form stores, boiler rooms (with separate approach) and laboratories under the classroom block (Fig. 4) it was thus possible to form terraces at two different levels as shown on axonometric.

WHITTINGHAME COLLEGE, BRIGHTON

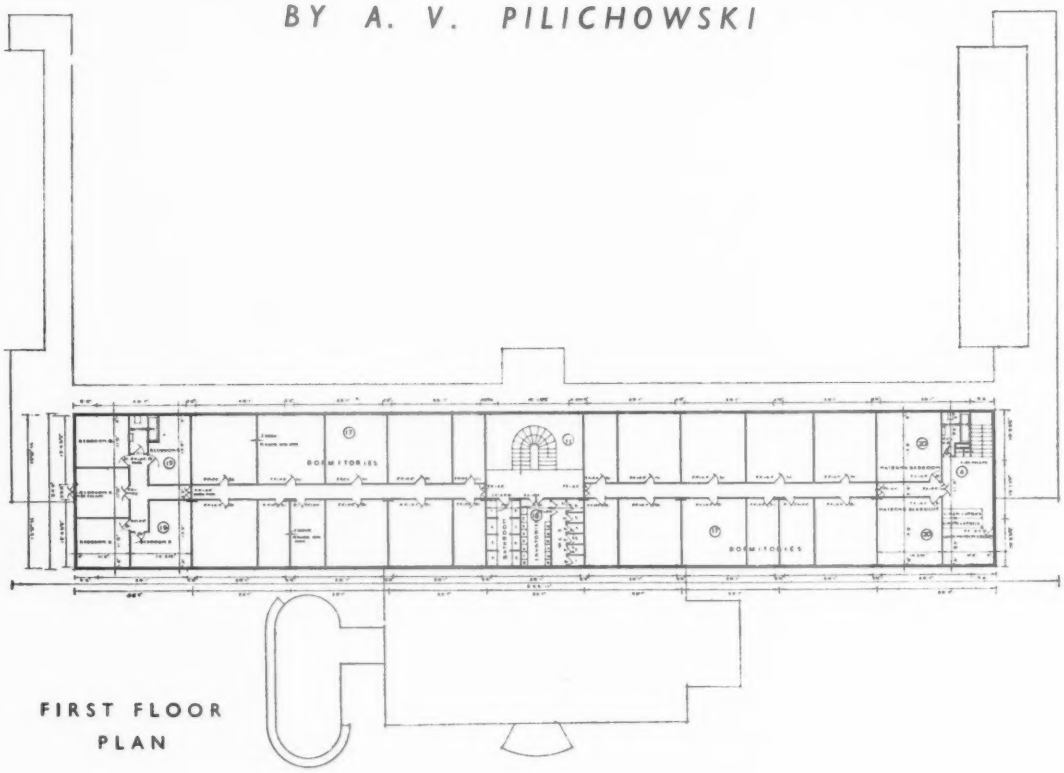
BY A. V. PILICHOWSKI



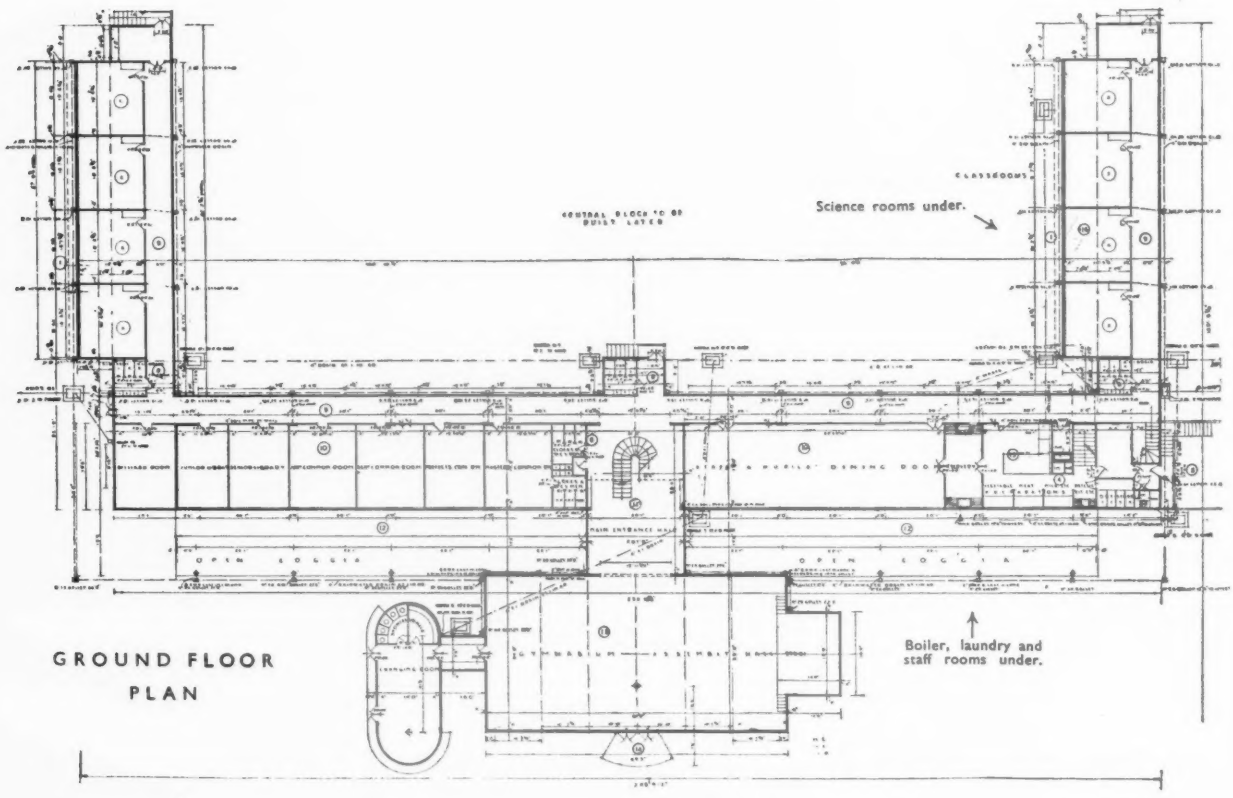
Axonometric: showing the dormitories on the first floor and the combined assembly hall and gymnasium in the foreground. This drawing shows the fully developed scheme: the centre classroom block and the second floor are not yet built.

ANALYSIS OF A BUILDING : 5

BY A. V. PILICHOWSKI



FIRST FLOOR PLAN



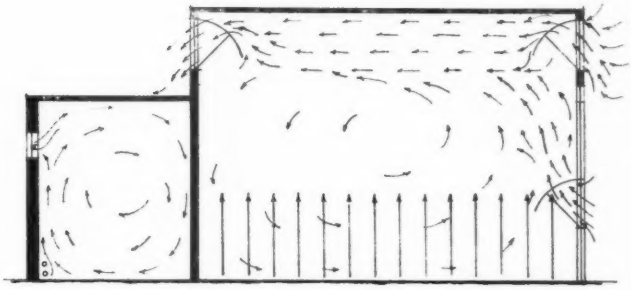
GROUND FLOOR PLAN

WHITTINGHAME COLLEGE, BRIGHTON

7 SECTION SHOWING CLASSROOM VENTILATION.—Cross ventilation provides adequate air conditions and is essential with panel warming systems. By adjusting inlets to admit the right proportion of air in relation to outlets, draughts will be avoided. A velocity of 2 ft. per second will be attained by making inlets 53 sq. in. and outlets 44 sq. in.

HEATING.—A panel warming system is installed in the floor, the maximum surface temperature not exceeding 75 deg. F. Apart from the recognized advantage of this system from a health point of view and lower running costs, the heat losses due to large glass areas are not so serious, as the system does not rely on maintaining air temperature but on direct radiation. The floors will be screeded with coloured cement for economy, and walls and ceilings painted a light colour to obtain heat reflection.

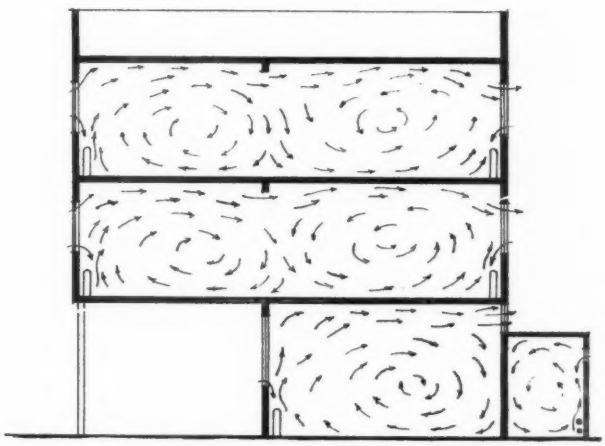
7



8 SECTION SHOWING MAIN BLOCK VENTILATION.—Dormitories and all recreation rooms and dining room are cross ventilated ; this is particularly important in the dining room and kitchen, and will avoid food smells penetrating to other departments.

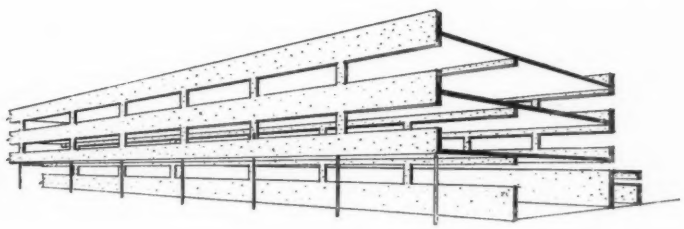
HEATING.—Ordinary wall radiators and pipe coils have been selected to economize on the prime costs ; the radiators are of the pressed steel type, which are rather more hygienic and provide more direct emission than the normal type. Partitions between dormitories are not taken to the ceiling to enable heat and air to circulate freely throughout the block.

8



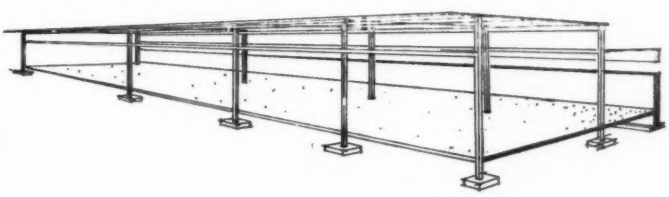
9 MAIN BUILDING—PRINCIPLES OF CONSTRUCTION. — Ferro - concrete construction, walls acting as beams carrying own weight and half floor load. Central "spine" beam with thin wall stanchions at 22 ft. 1 in. centres. Hollow tile floor spanning 33 ft. 9 ins. across beam. Set back at ground floor, loads from above being carried down through thin stanchions. Point load foundation for every load bearing member.

9

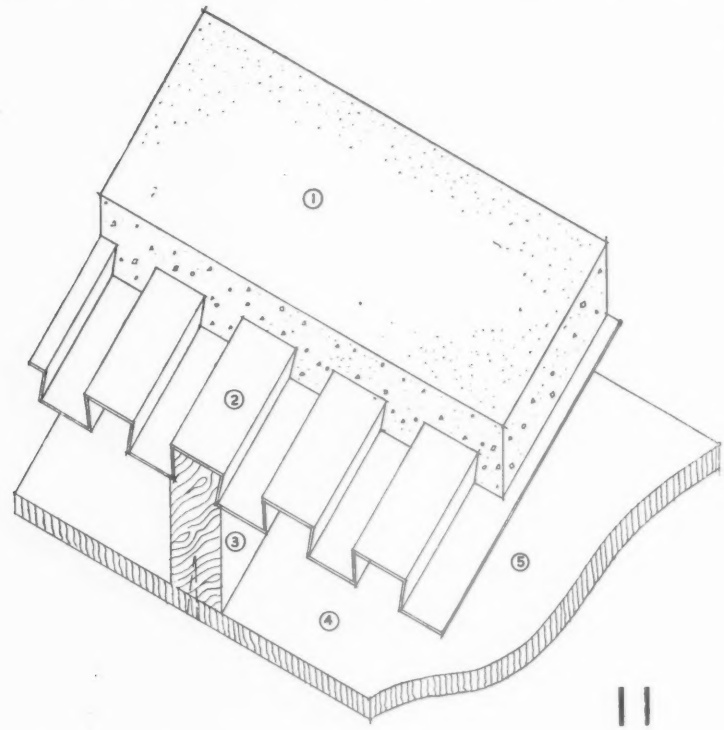


10 CLASSROOM CONSTRUCTION.—Classroom wings constructed of lightweight welded steel with dovetail sheet roofing. Regular grid pattern, stanchions at 16 ft. 8 in. centres. Cross girders built-up type, 1 in. diam. rod lattice, welded to T irons top and bottom. Dovetailed Lewis sheeting clamped to skeleton, $\frac{1}{2}$ in. concrete screeding over, air space and $\frac{1}{2}$ in. insulating board ceiling. (See Fig. 11). Stanchions built up of two angles welded at corners, rain water pipes in centre.

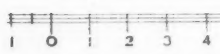
10

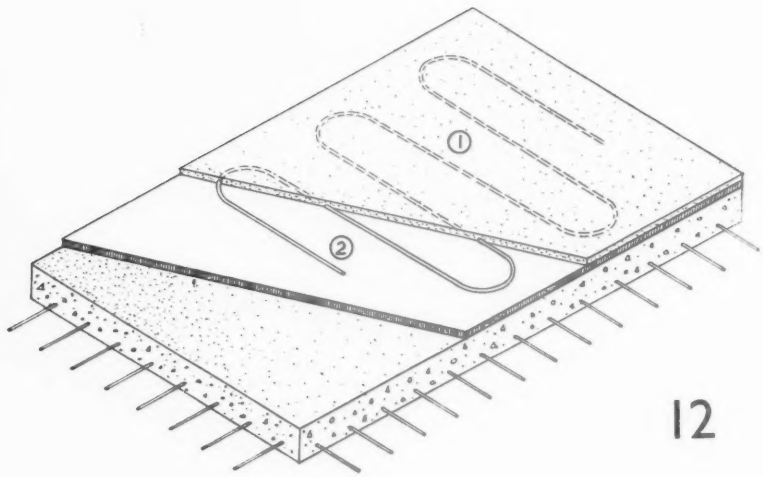


ANALYSIS OF A BUILDING : 5



11





12

11 CLASSROOM ROOFS :

(1) 1 in. waterproof concrete.
(2) Lewis steel decking, $\frac{5}{8}$ in. flange distance, laid to falls.
(3) Wood bearer notched to decking and carrying building board.
(4) $\frac{1}{2}$ in. building board.
(5) Air space.

Total weight—live load, 20 lb./sq. ft.

12 PANEL HEATING IN FLOORS OF CLASSROOMS :

(1) Cement screeding.
(2) 2 in. cork insulation.

13 KITCHEN LAY-OUT :

(A) Servery and pantry.
(B) Main Kitchen.
(C) Meat Preparation Room.
(D) Vegetable Preparation Room.
(E) Bread and Milk.
(F) Special Dietetic Kitchen, etc.
(G) Servants' Stores.
(H) Food and Linen Lift.
(K) Linen Chute.
(L) Dry Stores.
(M) Maids' Lavatories.
(N) Cooks' Dining and Rest Room.

Food delivered at door is stored in L, prepared in various cubicles C, D, E and F, and cooked in main kitchen B on cookers 1, 2, and 3.

The cooked food is taken to electric hot plates in Servery A, and thence served by waiters to dining room.

Dirty plates and crockery are washed in two sinks in A and stored in cupboards in the same room until further use.

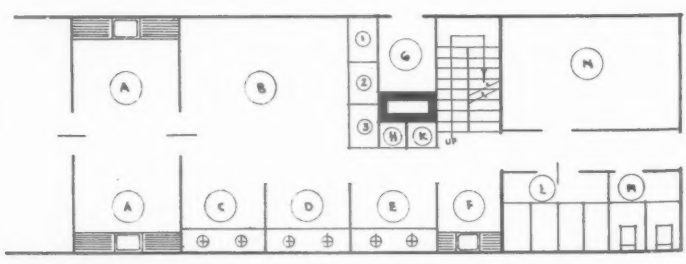
COST.—Unfortunately, owing to lack of funds, the original scheme was curtailed and the central block of classrooms omitted. The second floor of the dormitory block will not be proceeded with for the time being.

The total cost of this building has proved very low, just under 10½d. per ft. cube, thus showing that a modern school can give a considerable saving over traditional materials and methods of planning.

Total cost	.. ..	.. £16,000
Total cube	.. ..	.. 377,000 c.ft.

WHITTINGHAME COLLEGE : BRIGHTON 13

BY A. V. PILICHOWSKI



21 TOWN HALLS

The Architects' Journal Library of Planning

Municipal Offices

THE BUSINESS-LIKE ATTITUDE

MUNICIPAL offices should be planned as efficient modern office blocks and not as pieces of monumental architecture. The compact high building is easier to administer than the long low building which is generally designed for modern municipal schemes. There is no reason why this long, low shape is used except for architectural effect and to gain symmetry.

When a corporation buys a site for building purposes it should, just as any private owner, get the maximum return for its money, both in the way the site is used and in obtaining well-lighted efficient offices which will get the best out of employees and be convenient for ratepayers to visit.

The municipal office block should be capable of being rearranged without expensive alterations, and should be planned to give maximum unrestricted floor areas, with the lifts, stairs and lavatories in positions which will not make rearrangement impossible. All windows must be regularly and frequently spaced for the easy placing of partitions.

The office building must be planned for flexibility. The sizes of departments sometimes vary a great deal according to which political party is in power, and that is why departments should not be fitted into certain spaces and the planning kept tight. The areas given in competition conditions may be incorrect by the time the building is finished. For the same reason, although the committee system makes it possible to plan the majority of departments outside the central building altogether, this arrangement is not really practical. For with isolated buildings a department might shrink and leave part of its building empty and extravagant. Some of these remarks have been made before, but they are important and are worth repeating.

The amount of rearrangement of departments between the competition stage and the finished building is usually very great, and it is difficult to decide why assessors do not frame competition conditions in which only the area of required office space per floor is shown, with perhaps the positions of the rates office, the juvenile employment exchange and the M.O.H. departments indicated. There must be a reason why this has not been done, since it would save an enormous amount of time and help the small offices, but it is not easy to understand what the reason is.

Below are provided some short notes on the general setting out of an office building :

Depths of Offices

The depths of offices are governed by the quality of daylight obtainable, but the depth from the window wall to the partition should never be greater than 20 ft., and at best not more than 16 ft.

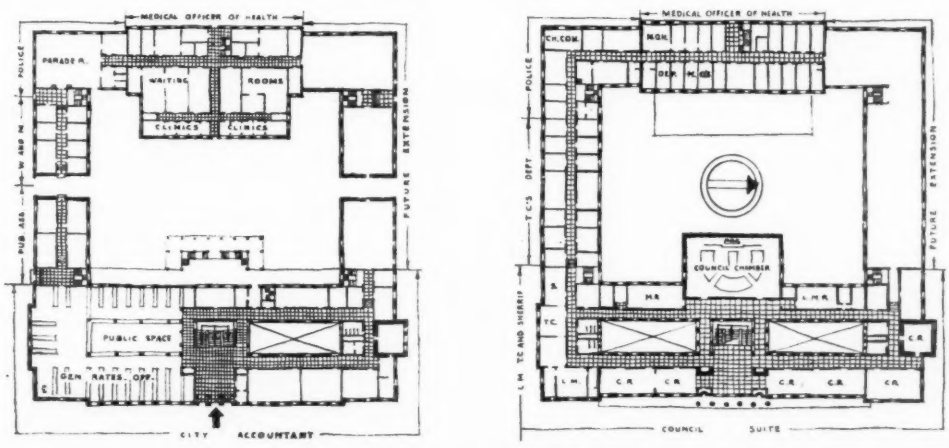
If steel frame construction is used, the width between stanchions should be approximately 16 ft., this arrangement allowing two windows to be placed in a bay.

Windows

In considering fenestration allowance must be made for orientation; too much light can be almost as bad as too little light and cause physical discomfort to occupants of the offices. Window surface is expensive to heat. The amount of light is not as important as the quality. High light is always better than low light.

The best type of windows in general use today are heavy section metal casement types with hopper-action windows above and below, an arrangement giving a screen to any direction of wind.

In ordinary offices the cills of the windows should be at least 2 ft. 6 ins. above the floor, and



Norwich : Ground and First Floor Plans

the heads of the windows, particularly the opening part, should be carried up as near the ceiling as possible to provide good ventilation and good light at the back of the room.

Corridors

Corridors vary in width from 6 ft. to 9 ft., depending on the importance of their position. They should be at least 8 ft. 6 ins. high and preferably 9 ft. These heights allow ample space above the false ceiling for ducts and lighting panels. Where there are rooms on each side of the corridor borrowed lights are generally used but should be double-glazed for sound-proofing.

Heights

General floor to floor heights vary from 10 ft. upwards. 12 ft. is considered to be a good average.

Stairs

Staircases and lifts should be placed so that no office is more than 100 ft. from vertical circulation.

Secondary staircases should be continuous from basement to the top floor, and be of fire-proof construction with cut-off doors at each floor level.

Staircases can be planned in positions not possessing a high quality of daylight.

Secondary staircases should be at least 4 ft. wide, and main staircases at least 6 ft. wide.

In computing the number of persons in office buildings for the purpose of means of escape it is the practice of the L.C.C. to allow 50 square feet of floor area to each person. There should be at least one staircase to every 50 persons.

Lavatories

In buildings where a department may take up the whole of one floor it has been found economical to place lavatories by the main stairs or lifts. Lavatories for male and female employees and for the heads of departments should be placed on each floor.

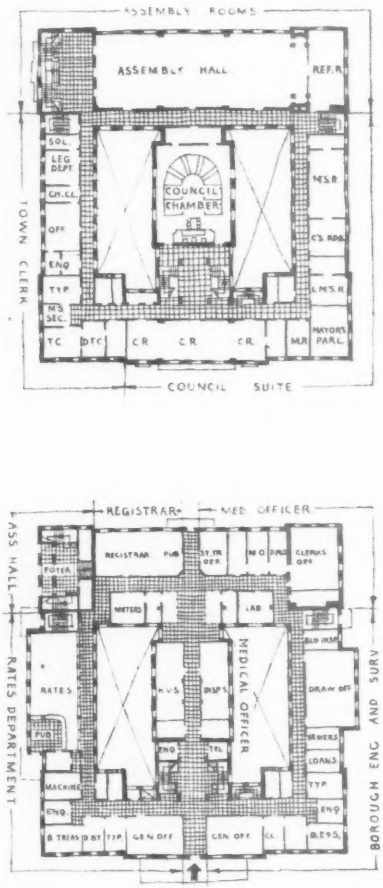
Allowing one person to every 50 square feet of floor area, and taking one-third of this number as women, then four w.c.'s and urinals for every hundred men and one w.c. to 15 for the first hundred women, and five for every hundred above that number are considered sufficient. The allowance for lavatory basins should be five per cent. up to the first hundred and four per cent. above that number for men and ten per cent. up to the first hundred and five per cent. above that number for women. In all cases principals' lavatories should be provided in addition. Access to the principals' lavatories may be through the employees' lavatories.

There should be a Berkenfeldt filter and a small sink for washing inkpots in each clerks' lavatory.

A separate sink and w.c. should be provided close to the boiler house.

Partitions

In a good office building partitions must look neat and substantial, and they must be as sound-proof as possible. General experience and tests show that weight is an important factor



Hackney: Ground and First Floor Plans

in the good insulation of solid partitions, and it seems that the weight of slabs used in a hollow partition may also have some bearing on its insulating properties. The degree of structural isolation of the two leaves of a cavity partition is of great importance, and connecting wall ties must be omitted entirely. The efficiency of double partitions is considerably increased by the provision of strips of insulation round the edges; with an insulated floor covering a hollow partition can be made almost as efficient as a 9 in. brick wall. Higher resistance to structural transmission is obtained when resilient supports are incorporated in the floor in the form of pads rather than continuous sheets. It is supposed that sound does not travel horizontally through a hollow partition, but having passed the first part of the slabbing it travels up the cavity, and might travel on through the surrounding structure by passing around the edge of the second part of the slabbing. Taking this theory as correct, the

TOWN HALLS

importance of insulating the edges of the partition cannot be too greatly stressed.

Floors

The constructional floors of the building are usually hollow tile or other fireproof construction, finished with a cement screed. Sufficient space should be left between this floor and the board floor above for services, which include electric light conduits for the floor and ceiling, and telephones. The placing of hollow tile slabbing at the bottom of the beams has also been found most successful in this respect, allowing three lines of lighting conduit to be run the length of the building with easy access to both floor and ceiling points. This system does, of course, make a thicker floor in which the beams do not show. Usually a space about 2½ in. deep is left between the hollow tile floor and the wood floor.

Access

There is a theory that the civic pride of the ratepayer is roused if he uses the main entrance to a civic centre when he goes to pay his taxes. To test this assumption a number of people were asked about their feelings on entering the great doors of a ceremonial lay-out, and it appeared that this was so. What was more interesting, however, was the fact that seven out of ten people, without provocation, said that on entering any town hall they immediately got lost and had to wait for the arrival of a clerk to inquire their way. That piece of misfortune was not caused by entering by a ceremonial door, but by the door not advertising its purpose sufficiently.

The planning of the entrances so that the public can easily find their way is very difficult, and the mixing of the ceremonial and business entrances has not simplified matters. The best arrangement seems to be for each big department which is on the ground floor, and which the public enters in large numbers, to have separate doors of its own. There would be no more difficulty in supervising such doorways than there is difficulty in supervising the average shop or office with its own entrance. Such an arrangement would finish once and for all the problem of people getting lost and wandering about the main corridors of the building, but it has the drawback that if the public cannot find instantly where to go they will go into a main entrance, ask the way, and then have to come out again to reach the department.

Vestibules to the main building should be simple, efficient and well proportioned. Entrance should be made to the stairs and lifts with as little delay as possible. The porter's box · indicator and signboards should be obvious.

Revolving doors are useful because they tend to keep temperature level and control crowds.

The stairs and lifts should be obvious to visitors and they should be arranged so that visitors pass up the stairs in a continuous direction and do not encounter any hidden twists and turns.

The Council Chamber—The Doctrine

That the council chamber may be regarded as the board-room from which the business of a town is administered, has already been expounded in these articles. So, in planning the council chamber it should be remembered that the effect to be gained is one of real efficiency rather than ceremonial greatness.

The most important qualities to be obtained in designing this room are (1) that it shall be free from internal and external noise. (2) That everyone shall be able to see, hear and talk without strain. (3) That the size of the room shall be comfortably adequate. (4) That it shall be properly ventilated and heated.

The council chamber normally has to accommodate the mayor, deputy mayor, aldermen, councillors, the town clerk and heads of municipal departments, clerks, press reporters and the public.

The council meetings are conducted under the chairmanship of the mayor, who sits in a commanding position, usually with the deputy mayor on his left and the town clerk on his right. The arrangement varies; sometimes the mayor sits with the deputy town clerk next to him, and the town clerk sits in the well of the chamber in front of the mayor's table.

It is most important to arrange the chamber so that the leaders of the opposing political parties in the council can converse easily with the town clerk. A great deal of business is done between these leaders and the town clerk.

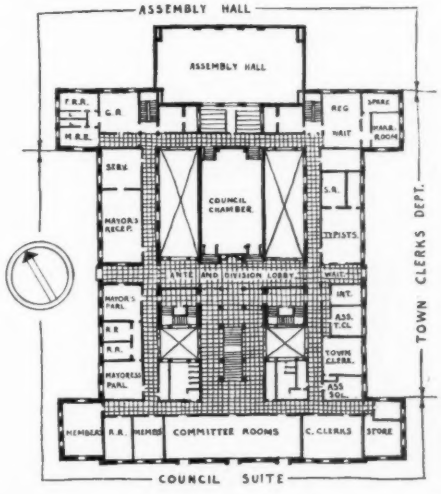
The mayor, as chairman of the meeting, must also be able to speak to the town clerk.

When all the heads of municipal departments attend council meetings they usually sit behind the mayor and on each side of him. A variation of this arrangement is the provision of an officials' table in the centre of the well between the aldermen's seats and in front of the mayor's dais.

The council is usually (but not always) divided into political parties, who sit on the right and left hand side of the mayor.

The Press Table

Opinion varies regarding the position of the press table. The reporters must have easy



Bury: First Floor Plan

access to and from the members' lobby, so, while the best position for the press would be in the centre of the room in front of the mayor's table, it must be remembered that such an arrangement would cause disturbance and is likely to be frowned upon by officials. There are a number of other positions that the press table can effectively occupy and which the shape of room would dictate; some of these are illustrated. The reporters must be able to hear and see without strain, and the table should not be placed near the public gallery. If necessary the press table may be placed on a dais.

The Public Gallery

The public gallery is generally planned so that it faces the mayor's dais on a mezzanine floor. This is not a definite rule by any means; the gallery may be divided and placed on each side of the chamber on the right- and left-hand side of the mayor, or on any wall except behind the mayor.

The public seating should not be too near the members. It is unsatisfactory for the public gallery to be on or close to the general level of the chamber. That the public accommodation varies greatly may be judged from this schedule :—

Swansea	provides	accommodation	for	about	80
Hornsey	,,	,,	,,	,,	54
Herne Bay	,,	,,	,,	,,	24

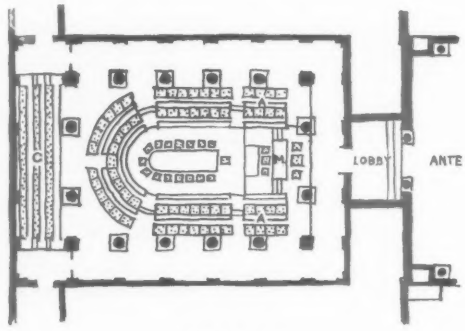
Lay-out of Council Chamber

Common arrangements of seating are the circular, semi-circular, oval, horse-shoe and House of Commons types.

The type used is largely governed by the shape of the room, which, in turn, is governed by the general lay-out of the scheme. The most commonly used and satisfactory types are the "semi-circular" for small chambers, and the "horseshoe" for large chambers. These types give everyone a good view and are comparatively simple to treat.

When the type of seating has been fixed, the position of the mayor's seat and the public gallery will decide the general arrangement of the room. It is usual for the council chamber to be entered from the members' lobby, and for the mayor's seat to be either on the same wall as this entrance or on the opposite side of the room. The first arrangement is very convenient for the mayor, but disturbance is caused by members and pressmen walking to and from their seats and passing the mayor while the meeting is proceeding. The second arrangement is inconvenient for the mayor as he has to walk the length of the room to his seat, but much more convenient for the councillors and pressmen. Which of these schemes is adopted is a matter of choice, but an examination of recent competition plans shows that in council chambers entered on the minor axis the mayor sits opposite to the entrances, while in council chambers entered on the major axis the reverse arrangement is used. The position of the public gallery and stairs often dictates the position of the mayor's seat.

Owing to the "peninsular" planning of council chambers in most modern schemes few have yet attempted to form a corridor round the room with a door in each wall so that little disturbance would be caused by the coming and going of members. Such a corridor would be



Swansea

extremely valuable as a sound baffle and seems to be practical.

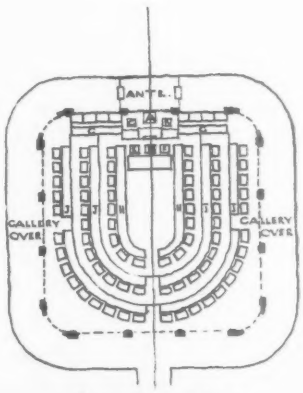
The winning design for Herne Bay has a very sound solution in having two entrances to the chamber on the side wall (the room being arranged on the long axis), one door being from the mayor's parlour and one door from the members' lobby.

Having decided the position of the mayor the arrangement of the councillors', aldermen's and officials' seats logically follows. It is usual to step the seats of the councillors down towards the centre of the room, leaving a clear space in the centre.

Lighting

The council chamber must be lighted in such a way that no strong sunlight or isolated patches of strong light shall shine into the eyes of the chairman or members, either when they are addressing the chairman or another member.

Top lighting seems to be the obvious solution to this problem, but unfortunately the absence of side lighting gives a sensation of oppression to anyone who has to use the room for long periods, and for this reason top lighting is not often used alone. Clerestory lighting or high windows have been found satisfactory.

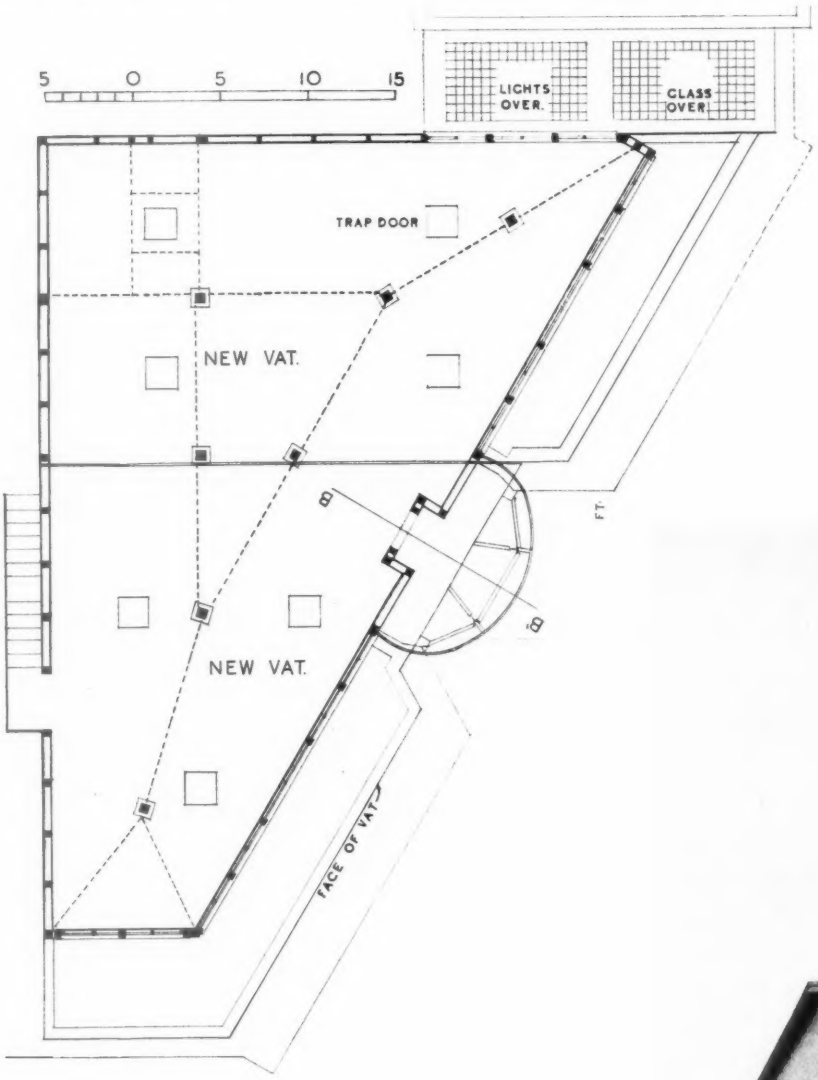


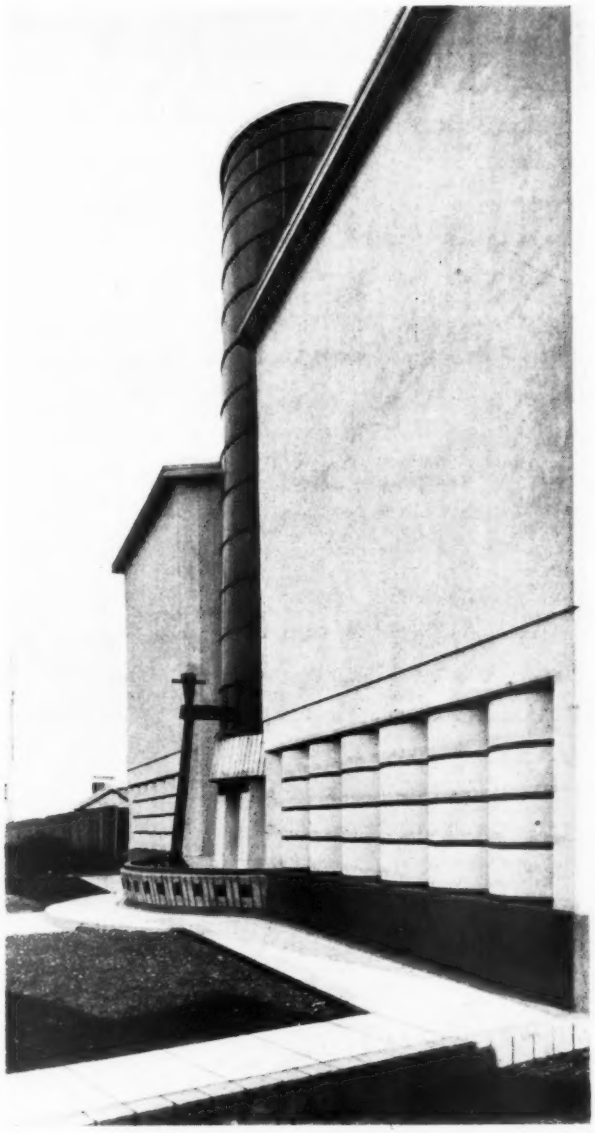
Southampton

WINERY AT ISLEWORTH, MIDDLESEX

DESIGNED BY

H. O. CORFIATO



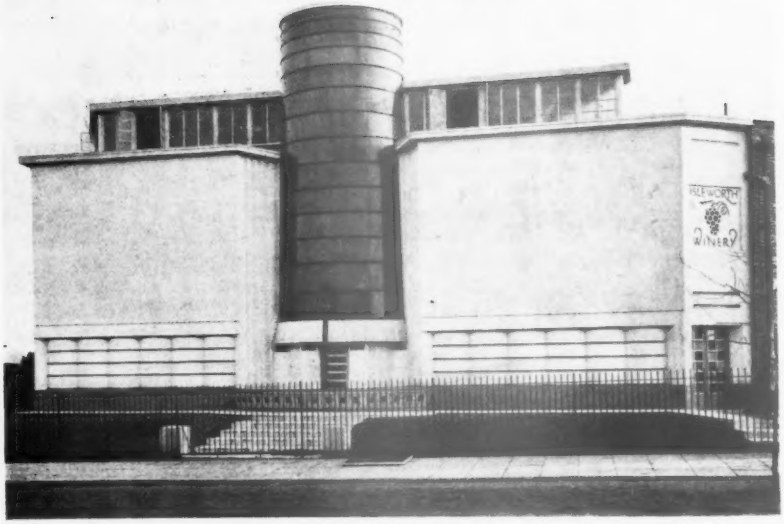


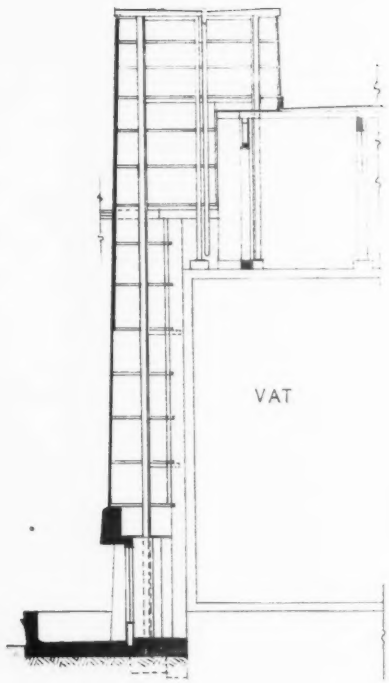
GENERAL PROBLEM.—*To provide an extension to the Isleworth Winery, on the Great West Road, consisting of two vats to contain 120,000 gallons of wine, in process of fermentation, the elevation of the building being designed to serve as an advertisement for the firm.*

PLAN.—*The two vats occupy the whole area of the extension, which is set back 20 ft. from the pavement. In the roof of the building are special openings or trap doors to allow the stirrers to pass their rods, measuring 18 ft. long, down into the vats. These openings are closed when not in use.*

The illustrations show: above, plan at upper part of vats; right, the main front to the Great West Road.

WINERY AT ISLEWORTH





CONSTRUCTION.—*The vats are constructed in reinforced concrete. The walls of the building are of mass concrete and steel; and the roof is in timber. Metal windows are fitted.*

The illustrations are: above, the main front; left, section.

For list of general contractors see page 465.

DESIGNED BY

H. O. CORFIATO

LAW REPORT

QUESTION OF LIABILITY—FINDING OF CONTRIBUTORY NEGLIGENCE

Harper v. Spurrier & Co. and Tarr—King's Bench Division. Before Mr. Justice Branson.

AN interesting point on the issue of alleged negligence against builders and a landlady and a decision on the plea of contributory negligence was raised in the action by Mrs. Violet Harper, the former tenant of a flat owned by Mrs. Tarr, her landlady, at Arlingford Road, Brixton, which she brought against Mrs. Tarr and Spurrier & Co., builders and decorators, of East Dulwich.

Mr. Jacobs, for the plaintiff, said the claim was for damages for personal injuries, she having fallen down some stairs from her flat to the floor below. Plaintiff took from Mrs. Tarr a flat in her house at Arlingford Road. At the time workmen of Spurrier & Co. were about the house carrying out constructional work. They left debris about the staircase, and the case for the plaintiff was that while she was going downstairs in the dark she slipped on a small piece of concrete on the staircase at the head of the stairs and fell down the stairs. She received somewhat severe injuries, for which she now claimed damages against Mrs. Tarr, alleging that Mrs. Tarr was negligent in not lighting the staircase and in not sweeping the stairs. She also claimed damages from the builders.

Mrs. Harper gave evidence in support of her case, and said she had complained to Mrs. Tarr's representative about the absence of light for the landing. She had also called her attention to the debris lying about.

For the defence, counsel contended that the plaintiff had not proved negligence. She had the landing under her control and knew that there was debris lying about. Under the circumstances it was submitted that defendants had no case to answer, as plaintiff was guilty of contributory negligence.

His Lordship said it was not necessary here to call in the defendants' witnesses to give evidence. Plaintiff was clearly guilty of contributory negligence. She knew the state the landing was in and it must have been obvious to her that it wanted sweeping. Apparently it did not impress her that it was dangerous, or she would have swept it. Under these circumstances he could see no evidence of any negligence on the part of the defendants. The debris was there, and the plaintiff knew it, and if she considered it dangerous and chose to go down the stairs in the dark, then she was guilty of contributory negligence. There would therefore be judgment for the defendants with costs.

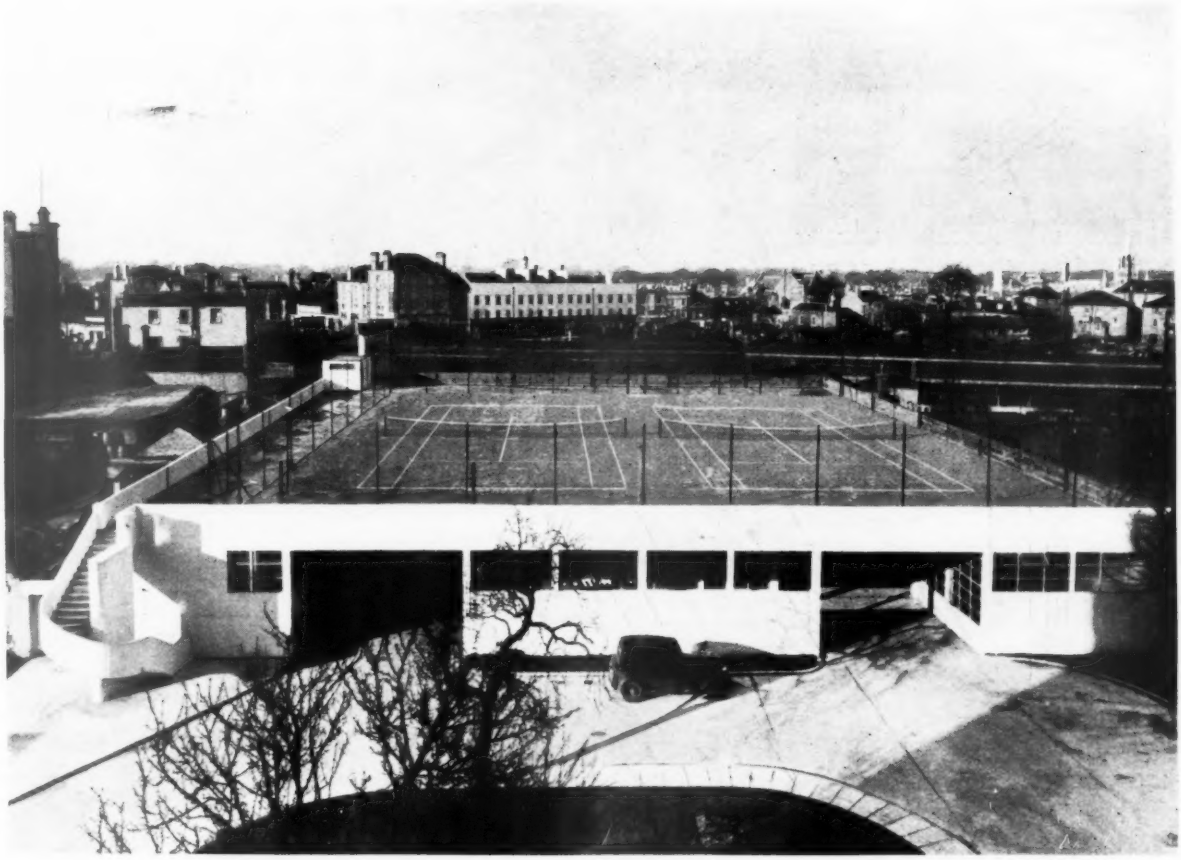
●

The Harrow Competition

In the result of the Harrow Competition, published in our last issue, it was stated that one of the commended designs was submitted by Mr. Stanley G. Livock. Actually, the design was submitted by Messrs. Arthur W. Kenyon and Stanley G. Livock.

WORKING DETAILS : 415

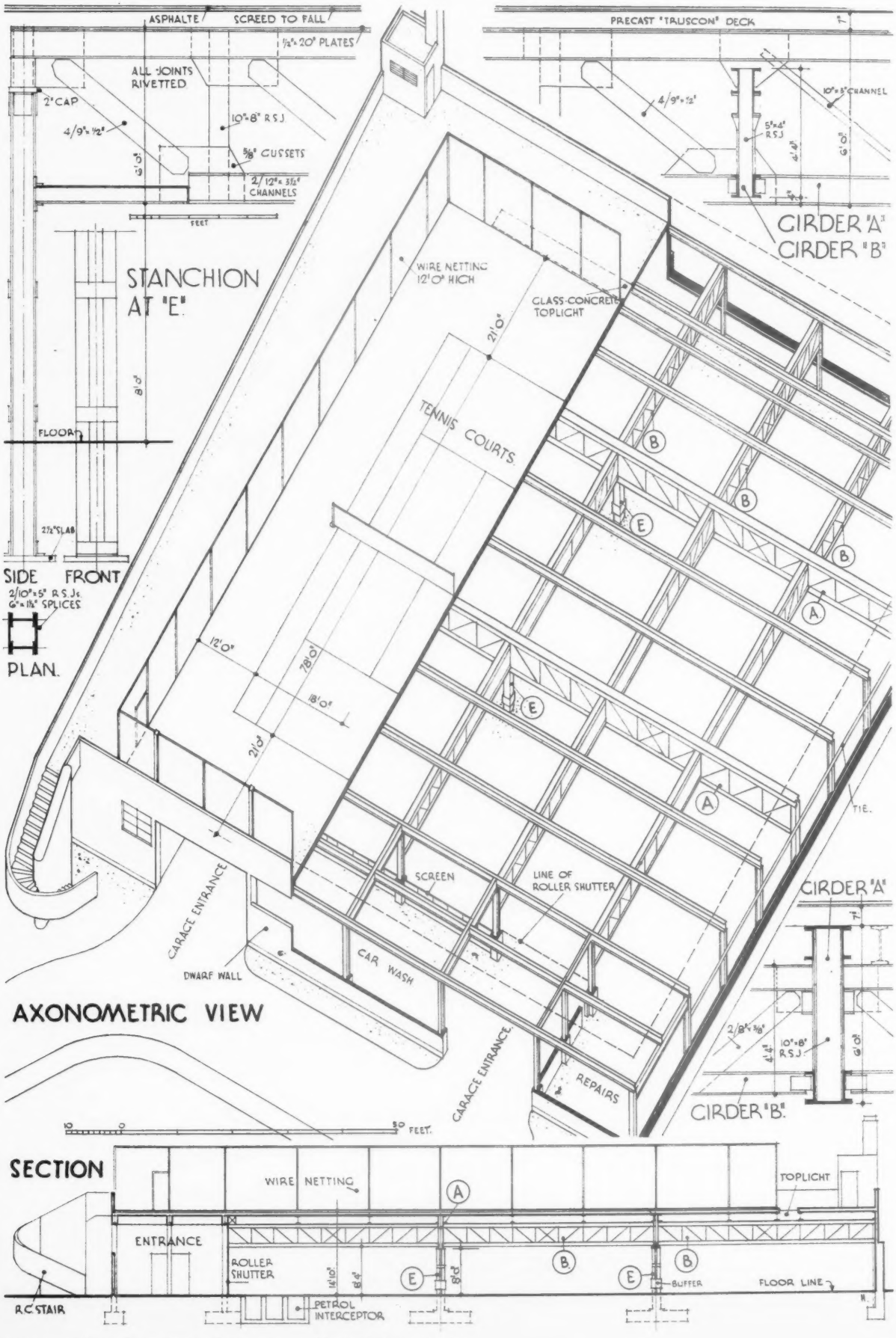
GARAGE • LICHFIELD COURT, RICHMOND • BERTRAM CARTER AND SLOOT



The garage illustrated above is a subsidiary to a large block of flats. A minimum of 8 ft. headroom is provided throughout, the roof being supported by lattice girders which carry the pre-cast reinforced concrete deck. The stanchions are cased in concrete with an additional buffer at wing height to prevent damage by cars. Access to the tennis courts on the roof is by a reinforced concrete staircase. An axonometric and details are shown overleaf.

WORKING DETAILS : 416

GARAGE • LICHFIELD COURT, RICHMOND • BERTRAM CARTER AND SLOOT



Axonometric and sections of the garage illustrated overleaf.

WORKING DETAILS : 417

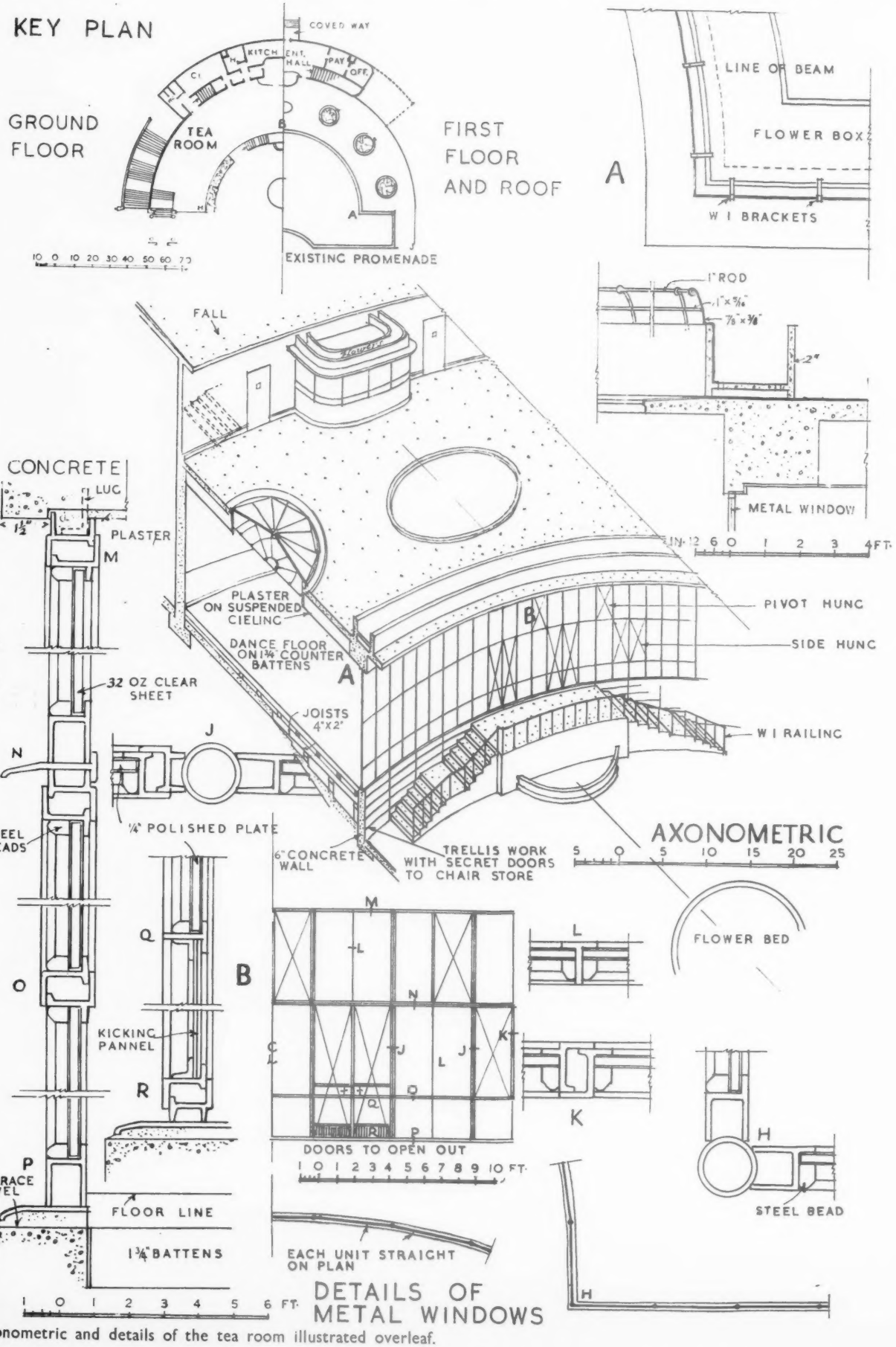
TEA ROOM • PAVILION AT MARGATE • STANLEY C. RAMSEY

The semicircular tea room illustrated above is fully glazed along its inner and return walls. The windows are steel with gas pipe mullions between each unit. To the left of the staircase is a concealed access panel to the chair store underneath the tea room floor. (See axonometric and details overleaf.)

FILING REFERENCE:

WORKING DETAILS : 418

TEA ROOM • PAVILION AT MARGATE • STANLEY C. RAMSEY



Axonometric and details of the tea room illustrated overleaf.

LITERATURE

BUILDING SURVEY, 1936

[*By PHILIP H. MASSEY*]

Building Industries National Council Year Book for 1936. London : B.I.N.C. Price 9d. net.

THE Building Industries National Council has now been in existence for over three years, and this Year Book, its first, provides a report on the work of the Council from its inception, together with a brief account of why and how it was brought into being.

The existence of the Council is an indication that a sufficiently influential section of those concerned in the building and building materials industries is conscious of some unity of interest between the employers, operatives and technicians engaged in the various branches. Lord Amulree emphasizes in his foreword, however, that such consciousness is far from generally felt.

"There is still, it is feared, too little desire on the part of sections of the industry to regard themselves as part of a composite, but none the less complete, industrial unit, having a common aim and purpose which can only be achieved by every section actively and effectively co-operating with the other sections for the general benefit of all. Modern conditions call, with increasing force, for the industries of the country to be organized on national lines and developed in accordance with preconceived and national administrative policies."

The Year Book explains how the Council is formed ; its objects, functions and powers. Lists of members of the Council in 1933-34, 1934-35, and in 1935-36, the text of its constitution and the list of its publications will be useful for reference. An account of work completed and in progress shows that the Council has been active in diverse spheres. Among the items of work recorded there may be mentioned particularly investigation of the question of delays in the approval of building schemes and the work of the Building Acts Panel and of the Special Committee for Public Relations.

The section dealing with the work of the Special Committee for Public Relations reviews briefly the general objects of the Committee, its early work in preparing *The Case Against "Economy,"* which had, as is quite properly claimed, an important effect upon public opinion, and its later work in connection with the *Report on Long-Term Public Works Policy* and the *Building Industries Survey*. The representations made to the Minister of Health on the need for co-ordination of activities in accordance with the industry's ability to cope with them, show an appreciation of the social desirability of steadying the cyclical variations in the volume of building work of different types. It was pointed out that the sporadic release or sudden curtailment of housing work at times when other building work is respectively plentiful or scarce makes it impossible for building materials manufacturers to plan production (and must necessarily increase their average costs) and that it causes wide variations in the volume of employment available.

The desirability of planning production as far ahead as possible is unquestioned, and the value of educative work in this field, though its immediate effect may not be noticeable, should not be dismissed lightly. It must be conceded, however, that there are two sets of limiting factors—one political and one economic. In a country which is governed by democratic methods and, in the main, by individualist enterprise, production obviously cannot be planned *exactly*. But if it can be planned within narrower, and narrowing, limits, very great benefits to the community will result.

The problem of planning the production of building materials and building work is therefore a dual one ; in the first place it is necessary to take all possible means to steady the cycle and to avoid upheavals in housing and public works policy due to changes of government, and in the second place it is desirable to forecast the probable extent and effects of movements which it will be impossible to even out.

The *Building Industries Survey* provides a convenient collation of statistical information directly concerning the building industries and an appendix to this Year Book covers similar ground in more summarized form. But the work of analysing the economic causes of variations in the volume of building work carried out, of correlating statistics of interest rates, fluctuations of business profits, etc., with those of the resultant building activity, of estimating the probable effects of the policies of alternative Governments—these are investigations of fundamental importance which still remain to be undertaken. The desirability of a steady level of activity, and the possibility of lessening somewhat the cyclical movement, must not blind us to the continuing existence of a large residual fluctuating element which cannot be evened out, and for which it is therefore necessary to be prepared.

THE BACKWARD-LOOKING SCIENCE

Ancient Monuments. Vol. I. Northern England. By the Rt. Hon. W. Ormsby-Gore. H.M. Stationery Office. 1s.

Bible and Spade. By Stephen L. Caiger : Humphrey Milford : Oxford University Press. 5s.

Archæological History of Iran. By Ernst E. Herzfeld, D.Phil. : Humphrey Milford, for British Academy. 7s. 6d.

TO look forward nowadays brings forebodings ; hence, no doubt, the increasing attractions of the backward-looking science. Of three archæological books on the desk two are for the general public.

That by the First Commissioner of Works, an attractive little handbook, with numerous fine illustrations, a sketch-map and bibliography, is intended as guide introductory to the Ancient Monuments in (and out of) the care of his Department, which, in this region, include Hadrian's Wall and many famous abbeys and castles in Northumberland, Durham, Yorkshire, Westmorland, Cumberland and Lancashire. His brief but vivid surveys of the Prehistoric, Roman and Mediæval Periods in Britain lead up to succinct notes on each "exhibit."

•

Necessarily more documented is Mr. Caiger's "Introduction to Biblical Archæology," for his object is to bring together accounts of the significant "finds" made in the ancient East (roughly, Asia Minor, Palestine, the Valleys of the Tigris and Euphrates) and the theories founded thereon to date, with special relation to the Old Testament narrative. Appendices discuss the date of the Exodus and describe the implications of the Lachish Letters (17 glazed potsherds) that have recently come to light near Jerusalem. Such illustrations as those of the actual line of the Flood, at Kish, and the Hanging Gardens of Babylon, as they now are, cannot but fire the backward-looking imagination.

•

Dr. Ernst E. Herzfeld's book is the substance of his three Sweich lectures (British Academy, 1934), a work by an erudite explorer who presumes a working knowledge of his period (which includes the domination of Persia by Alexander the Great) and locality—not, therefore, a book for the layman. Architects knowledgeable in Eastern archæology will be enthralled : even those who are not will find interesting light thrown by the excellent descriptions, photographs and drawings of ruined buildings on the development of Mohammedan architecture.

H. F.

SOCIETIES AND INSTITUTIONS

THE INCORPORATED CLERKS OF WORKS ASSOCIATION

The 53rd Annual Dinner of the above Association in aid of the Benevolent Fund was held at the Café Royal, London, W.1, on March 7, under the chairmanship of Mr. E. Stanley Hall, F.R.I.B.A.

Mr. Michael Waterhouse, F.R.I.B.A., responding to the toast of "Architects,

Engineers and Surveyors" (proposed by Mr. J. W. Bishop) said that it might be asked today whether the Clerk of Works of today differed from those of the past. The answer was in the negative. In those essential qualities which went to make a good Clerk of Works, namely, tact, vigilance, loyalty, devotion to duty and honesty, the Clerk of Works of all times, this generation, the last generation, were the same, and he had no doubt would be the same in the future.

HOUSING

"Taking it all round, it is my opinion that for livability and general homeliness and standard of accommodation there is nothing abroad to come up to the standard of housing provided by the L.C.C., and this might also be said of practically any housing authority in England and Wales." This statement was made by Mr. F. R. Yerbury in a lecture entitled "How the Housing Problem is Solved Abroad," at a joint meeting of South Wales Institute of Architects (Central Branch), the Institute of Builders, and the Cardiff Civic Society, held recently at Cardiff.

SOUTH WALES INSTITUTE OF ARCHITECTS

The annual general meeting of the Western Branch of the South Wales Institute of Architects was held recently at Swansea. The following officers were elected for the coming year :

Executive Committee : Chairman, Mr. G. R. H. Rogers, L.R.I.B.A. ; hon. secretary, Mr. J. Herbert Jones, F.R.I.B.A. ; hon. treasurer, Mr. O. S. Portsmouth, A.R.I.B.A. ; and hon. auditor, Mr. Ernest E. Morgan, F.R.I.B.A.

Committee : Messrs. Edwin Smith, A.R.I.B.A. ; V. E. Ward ; Ernest E. Morgan, F.R.I.B.A. ; W. S. P. Cottrell ; and F. A. Broad, F.S.I., L.R.I.B.A.

Students' Representatives : Messrs. E. H. Billings and B. T. Llewellyn.

The following were elected as representatives of the Branch on the Council of the South Wales Institute of Architects : Messrs. J. Herbert Jones, F.R.I.B.A. ; G. R. H Rogers, L.R.I.B.A. ; Edwin Smith, A.R.I.B.A. ; F. A. Broad, F.S.I., L.R.I.B.A. ; and Ernest E. Morgan, F.R.I.B.A. ; Students' Representative, Mr. B. T. Llewellyn.

ACOUSTICS

Following are some extracts from a paper entitled "The Acoustics of Halls," read by Mr. G. W. C. Kaye, O.B.E., at a meeting of the Royal Society of Arts on March 11.

WHAT are the requirements for satisfactory hearing in a hall? They are very simple, as Sabine pointed out nearly forty years ago :—

(1) There should be freedom from troublesome extraneous noise.

(2) The shape and size of the hall should be such that the loudness of sounds are everywhere adequate and uniform.

(3) There should be appropriate degrees of reverberation throughout the speech and music ranges of frequencies, so that (*a*) rapidly succeeding sounds do not overlap unpleasantly, and (*b*) the original quality of speech and music is not impaired.

EXTRANEOUS NOISE

A hall should preferably be situated in a quiet locality free from busy traffic. Air-borne sounds are best kept out either by massive single walls or lighter composite walls of suitable design : high notes are easier to stop than low. Impact noises are isolated by interposing discontinuity or elastic resiliency somewhere in the structure.

It is important that the windows of a hall should look out on quiet areas, as the insulating value against air-borne noise of a wall containing even a small window approximates more nearly to that of the window than of the wall. If there is much external noise, the windows should be of thick or double glass of correct spacing and should not be opened when the hall is in use, otherwise the insulation becomes almost negligible. For such cases, artificial ventilation may be required, in which event the ventilation ducts should be lagged to prevent fan noises reaching the hall. Silent motors are now available. A double set of silent well-fitting doors will help to prevent the intrusion of external noises from outside corridors, the floors of which should be covered with linoleum or carpet with an underlay of felt or fibre board.

The problem of excluding external noise from a hall is, of course, bound up with the degree of internal noise which prevails. Every hall when in service has a general noise level of its own, which varies according to the conditions, so that the precautions to exclude external air-borne noise need be no more than will ensure that the intruding noise will be effectually masked by the existing noise. Knudsen's measurements indicate that the intruding noise will be unnoticeable if its level is some 15 to 20 phons below that in the hall.

Internal noise in a hall may be much reduced by covering the gangways, etc., with rubber, linoleum or, better still, carpet with an underlay of felt or fibre board. If such a treatment is extended all over the floor, the noise of feet shuffling will be largely abated. Benches or chairs should be of the non-creaking variety. If an audience is made comfortable, it will be less restless, even when its attention is beginning to wander. Incidentally, restlessness is almost inevitable if the audience cannot see very well. The solution to this latter is a raked or terraced floor and a raised platform, features which are not always possible in general utility halls but have the additional merit of reducing transverse room resonances. Furthermore, heavily upholstered seats have acoustical merits from a reverberation point of view.

TABLE I.

Average materials (size of specimen 10 ft. by 10 ft.)	Approximate absorption coefficients, cycles per second		
	250	500	1,000–2,000
	%	%	%
Wall and ceiling coverings			
Hard plaster	1-2	1-2	2-3
Lime plaster, smooth, on laths	2-3	2-3	3-4
Acoustic plaster (⅓ in. to 1 in. thick) on stone	15	25	30
Plain fibre boards ½ in. thick on battens	30-40	30-35	25-35
Leather on ¼ in. felt on battens	35	40	25
Acoustic tiles on battens { Medium efficiency	40	40	50
Acoustic tiles on battens { High efficiency	50	80	80
Acoustic felts on battens { ½ in. thick	25	45	70
Acoustic felts on battens { 1 to 2 in. thick	50	70	75
Sprayed asbestos 1 in. thick	50	75	75
High efficiency materials with perforated surfaces or covers	40	80	80
Slag wool (1 in. to 3 in. thick) on battens 1 to 2 in. thick	70	85	90
Glass silk (1 in. to 3 in. thick) on battens 1 to 2 in. thick	70	85	90
Floor coverings			
Cork carpet ¼ in. thick	3	7	20
Porous rubber sheet ¼ in. thick	5	5	20
Felt underlay ¼ in. thick	7	15	40
Axminster carpet ¼ in. thick	5	10	35
" " with ¼ in. rubber underlay	5	20	45
" " " ¼ in. felt underlay	15	40	65
Turkey carpet ½ in. thick	10	25	60
" " with ½ in. felt underlay	30	50	65
" " " 1 in. "	50	60	70

SIZE AND SHAPE OF A HALL

It may be taken as a cardinal creed not to build a hall any larger than is likely to suffice for its normal purposes. As already remarked, there is a limit to the capacity of the unaided voice ; and a loud-speaker system will be required if a hall is very large. The following are a few acoustical maxims on the designing of halls :—

(*a*) Short broad halls are preferable to long narrow ones.

(*b*) Keep the ceiling low so that it can be used as a reinforcing reflector. If possible, restrict the height to about 30 ft. and so prevent echoes, which arise with a path difference of 70 ft. or more, i.e., when the reflected ray lags behind the direct ray by 1/16 sec. or more.

(*c*) Choose a design which will promote even distribution of sound, that is, one free from focussing and multiple reflections. Avoid therefore large concave surfaces, such as semi-circular or elliptical walls, domed ceilings or barrel vaulting. These may cause very troublesome effects, particularly if the centre of curvature is situated in the audience.

(*d*) Make full use of large smooth reflecting surfaces behind and near the platform, for example, by splaying the side walls and ceiling.

(*e*) Arrange for the floor and the remote

wall to be sufficiently absorbent to prevent undesirable reflections.

Long and relatively narrow rectangular halls with a high ceiling and the platform at one end are very common in this country, for example in University halls. One of the features is that hearing is often poorest in the central region, a defect determined jointly by the degree of delay of the reflection from the ceiling, and the strength of the direct sound compared with that of the echo. Close to the platform, the direct sound dominates the echo, and far away, the delay of the echo is sufficiently reduced to render it harmless. It is clear that in such halls it will be beneficial to line the far wall and the remote half of the ceiling with absorbent, but to leave the end of the hall near the speaker reflecting.

A properly designed ceiling is by far the most effective reinforcer of sound by reflection. The principle is exemplified very well by a comparison of the House of Lords and the House of Commons, which were erected in 1848. Both Houses were given very high ceilings and their acoustics were manifestly bad. The complaints in the Commons were so great that the chamber was fitted after two years with a false glass ceiling about 35 ft. high, a remedy which was completely successful. The volume is now 127,000 c. ft. and the reverberation period with a full house about 1.5 secs.

REVERBERATION

Reverberation is due to multiple reflection of sound by non-absorbent boundaries. It is an unknown phenomenon in the open air, but is familiar to all of us in large empty rooms and particularly in cathedrals. Excessive reverberation, which is probably responsible for nine-tenths of the acoustic defects of large halls, can be cured, as Reid pointed out 100 years ago, by introducing acoustic absorbent.

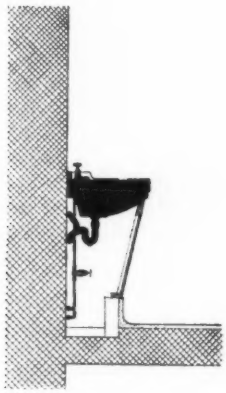
There is a large range of acoustic absorbents now commercially available for the treatment of walls and ceilings of halls. Good absorbents are characterized by the presence of innumerable small pores or crevices in the surface. Certain absorbents such as acoustic (aerated) plasters and tiles have a masonry finish, while soft materials such as felt, asbestos, etc., are often mounted behind a perforated or porous covering.

A number of representative measurements by the National Physical Laboratory are given in Table I. As will be seen, certain materials have values as high as 80 and 90 per cent. The acoustic advantages of a felt underlay to a carpet are apparent. It should be noted, however, that the coefficient of absorption of many materials is scarcely a physical constant as, apart from its variation with frequency, it may be appreciably influenced by the size, thickness, method of mounting and distribution. At the National Physical Laboratory, measurements are carried out in a reverberation chamber on single specimens 10 ft. by 10 ft. in area, the conditions of test being specified as rigidly as possible.

•

Police Buildings, Blackpool

The Blackpool Corporation recommends the appointment of Mr. Percy E. Thomas, P.R.I.B.A., to advise on the preparation of a scheme for new police and brigade buildings in Blackpool.



TRADE NOTES

[*EDITED BY PHILIP SCHOLBERG*]

Quick Decoration

MURAL decoration of any kind is a fairly lengthy process, and, in the general order of things, almost the last thing to be done on the job. Since jobs are liable to have finishing dates, and are equally liable to be rather behind schedule, it is generally the decoration which suffers. In cinemas, particularly, the carpet layers and a few workmen in the decorative trades creep quietly out through the stage door while the local Mayor is making his opening speech in the foyer.

•

A new photographic technique, which cuts down to about eight hours the time taken to apply even the most elaborate pattern has been evolved by Messrs. Mollo and Egan, who do a good deal of decorative work in cinemas and have therefore probably been stimulated by a natural desire for self-preservation.

•

The system is, in principle, quite straightforward, though preliminary experimental work must have taken a good deal of time. The surface to be decorated is first of all sprayed with an emulsion which gives it a light-sensitive surface like an ordinary photographic film: the pattern or photograph is then printed on to the surface by a projector (a rather similar process to the enlarging of an ordinary negative), and the result is finally obtained by developing, fixing and washing, all of which is done by means of a spray gun.

•

This method would seem to have many virtues, for the whole process can be carried out during the night, thus not only finishing the job quickly, but avoiding interference with other trades.

•

Although the process is a relatively new one, a good deal of work has already been carried out: the photograph overleaf being from Mr. Wells Coates's Embassy Court at Brighton, where a design by Mr. E. McKnight Kauffer has been reproduced in the entrance hall.

A Revised Steelwork Specification

A revised edition of the British Standard Specification for the use of structural steel in building (No. 449) has recently been issued. The original edition, it will be remembered, followed the publication of the code of practice recommended by the Steel Structures Research committee, and was almost identical with the L.C.C. edition of that code.

•

The chief alterations in the new edition are :—

(1) Working stresses for high tensile steel are included in addition to those for ordinary mild steel.

(2) Two sets of superimposed loads are given, one for slabs and the other for beams, columns, foundations, etc. This brings the code into line with the recommended code of practice for reinforced concrete.

(3) An alternative method of calculation for filler joist floor beams is given and the working stress for other beams which are cased with concrete of certain dimensions, is increased to 8.5 tons per sq. in. for mild steel and to 12.75 tons per sq. in. for high tensile steel.

(4) The clause dealing with effective pillar length is amplified, and definitions are given of the various terms used such as "restrained ends."

(5) The formulæ for the calculation of the thickness of caps to solid round columns and bloom bases are altered; the new formulæ will give reduced thicknesses.

(6) The clause dealing with fabrication has been re-worded to allow the use of welding.

(7) The appendix dealing with materials other than steelwork has been altered and amplified. W. E. J. B.

Concealed Plumbing

The first of the Lead Sheet and Pipe Development Council's technical bulletins deals with concealed plumbing for w.c.s and lavatory basins, with notes on the lay-out of pipe ducts. The bulletin makes

A mural decoration by E. McKnight Kauffer, applied by a photographic process. *(See note on Quick Decoration on page 463.)*

no attempt to be a comprehensive treatise, but merely gives examples of different types of treatment for the same problem.

•

A good deal of revision of building regulations has recently been done by local authorities, witness only the comparatively recent introduction of the one-pipe plumbing system, and it is therefore all to the good that architects should have available a series of recent examples showing how advantages may be taken of any recent amendments.

IN PARLIAMENT

[BY OUR SPECIAL REPRESENTATIVE]

Housing

MR. KIRBY asked the Minister of Health whether he was prepared to introduce legislation whereby vermin-infested old bricks taken from demolished dwelling-houses should be prohibited from use in the construction of new dwelling-houses of any kind.

Sir Kingsley Wood said that in view of the power conferred on local authorities by Section 82 of the Housing Act, 1935, to cleanse from vermin any house to which a demolition order or clearance order applied before it was demolished, he did not consider further legislation necessary.

Mr. Hardie asked the Minister of Health whether, in view of the fact that where houses had been decontrolled rents more than twice the normal were being charged, he would take steps to arrange for a method whereby those suffering could have some form of appeal.

Sir K. Wood said that his information did not support the suggestion that in general the rents of controlled and decontrolled houses varied to the extent indicated in the question, and he did not think that it would be desirable to introduce legislation for the purpose of reimposing control on decontrolled houses.

Mr. Crowder asked the Minister of Health if he could state the number of open spaces which had been acquired by local authorities in pursuance of the campaign to establish a green belt around London; and whether there were any local authorities concerned which had not taken any action on the subject.

Sir K. Wood said he regretted that the information sought was not in his possession. During the last four years local authorities in the Greater London area had been authorized by his Department to acquire 6,556 acres of land for public open spaces or playing fields.

Ribbon Development

Captain P. Macdonald asked the Minister of Transport whether he could make a statement as to the action which had been taken so far with regard to the prevention of ribbon development under the powers provided by the Ribbon Development Act.

Mr. Hore-Belisha said that resolutions had been submitted to him by 54 highway authorities proposing to bring under the restrictions of Section 2 of the Act some 5,000 miles of road, in addition to the 43,000 miles brought under these restrictions by the Act itself. He had already approved about half the resolutions. Five highway authorities had applied for his approval of standard widths under Section 1, but many more were engaged in the surveys necessary before the exact line of road and appropriate standard width could be determined.

Hampton Court Bridge

Sir R. Blaker asked the Minister of Transport whether he proposed to proceed with the erection of kiosks on Hampton Court Bridge; whether such kiosks formed part of the original design of the bridge as accepted by the county councils of Middlesex and Surrey or whether the approval of these councils had subsequently been obtained; and what was the estimated cost of these kiosks.

Mr. Hore-Belisha said that four pavilions, of which the estimated cost was £8,000, formed part of the original and accepted design. The question of their construction was now, he understood, under the consideration of the joint committee of the two county councils responsible for the bridge.

•

Slum Clearance and Rehousing

The latest figures showing the position of slum clearance and rehousing have just been issued by the Ministry of Health and are summarized below.

Clearance Areas and Orders.—During February, the good rate of progress of the previous month has been well maintained. The number of houses included in Orders submitted to the Minister by the local authorities was 4,253, involving the displacement of 17,412 persons. These figures compared with 3,557 and 14,421, respectively, in the previous month.

During the same month, Orders confirmed by the Minister covered 3,760 houses and involve the displacement of 14,900 persons. Local authorities during the month have declared further areas

affecting 4,001 houses and involving the displacement of 16,207 persons.

Rehousing Progress.—The latest rehousing figures available are those for January. At the end of January, 41,665 houses were under construction and definitely allocated to the Housing Act of 1930. The full total of houses under construction by local authorities at that date, was 51,804 and many of the remainder of this total figure may also be allocated to the Act of 1930.

During January, a further 4,899 houses were completed by local authorities. Of this number 2,933 were definitely allocated to the Act of 1930 and some of the remainder are likely to be so allocated.

During February, a further 4,358 houses were contained in building proposals approved by the Minister for the purpose of the 1930 Act. The whole total of houses approved in proposals submitted by local authorities was 5,887 and, of the remainder of these, a certain proportion are likely to be allocated to the Act of 1930.

Manufacturers' Item

Messrs. William Newman and Sons, Ltd., of Hospital Street, Birmingham, manufacturers of door springs and window opening gear, have secured the order for their patent "Vanguard" check hinges for the new Cunarder, the *Queen Mary*.

No doubt the "Vanguard" has been selected for doors where the general decoration and design of doors, etc., do not lend themselves to the fitting of ordinary door springs. It may not be generally known that "Vanguard" hinges are fitted in a similar manner to ordinary butt hinges—the one hinge containing a check and the other a spring.

THE BUILDINGS ILLUSTRATED

SHOWROOMS, NEW BOND STREET (pages 441-443). The general contractors were Welling Estates, Ltd. The principal sub-contractors and suppliers included :—Ferranti, Ltd., electric fires ; Troughton and Young, Ltd., light fittings ; W. J. Wheeler, furniture ; Scholl Manufacturing Co., Ltd., and S. Berger and Sons, Ltd., door furniture ; J. J. Payne, electric wiring.

ISLEWORTH WINERY, GREAT WEST ROAD (pages 455 and 456). The general contractors were Foxley & Co., and the metal windows were supplied by the Crittall Manufacturing Co.

THE WEEK'S BUILDING NEWS

LONDON & DISTRICTS (15-MILES RADIUS)

CHISWICK. *Hospital.* Work has just commenced upon the erection of the new hospital in Netheravon Road, which is estimated to cost £35,000. The architect is Mr. Hugo R. Bird, F.R.I.B.A., and the contractors are Messrs. Charles Foster.

POPLAR. *Tenements.* The L.C.C. is to erect 39 tenements in Gaselee Street and 29 tenements in Amias Place, Poplar, at a cost of £38,000.

SHADWELL. *Reconstruction.* The L.C.C. is to reconstruct the Glamis Road fire station, Shadwell, at a cost of £18,500.

SURBITON. *Club.* New Club premises are to be erected in Hollyfield Road, for the British Legion, at an estimated cost of between £5,000 and £6,000.

SOUTHERN COUNTIES

BOGNOR REGIS. *Police Station.* The West Sussex C.C. proposes to erect a new police station at Bognor Regis, with accommodation for one inspector, one sergeant and eight constables.

CHICHESTER. *School Extensions.* The West Sussex C.C. proposes to have extensions made to the Chichester Secondary School at an estimated cost of £13,375.

CHICHESTER. *Institution, etc.* A new institution and new steam laundry are to be erected on the site of the existing institution for the West Sussex County Council. Plans by the County Architect.

EFFINGHAM. *Hotel.* Approval has been given to an application, on behalf of Messrs. Barlow, Norris and Jenkins, for the proposed erection of an hotel near Effingham Station.

GRAVESEND. *Swimming Baths.* The Corporation is seeking sanction to borrow £20,807 for the erection of swimming baths.

GUILDFORD. *Technical College.* The Surrey C.C. has approved a recommendation for the proposed erection of a technical college and school of art in Stoke Park at an estimated cost of £125,000.

MIDHURST. *Hospital.* Alterations and extensions are to be made to the District Cottage Hospital at an estimated cost of £5,000.

SELSEY. *School Extensions.* The Selsey C. Infants' School is to be extended at an estimated cost of £8,360. Plans by the County Architect.

WANTAGE. *Housing.* The T.C. has decided to purchase the Charlton site for the purpose of rehousing tenants affected by the Slum Clearance Order.

WORTHING. *Development.* Messrs. Adams, Thompson and Fry are to develop the Sompting estate in the Worthing rural district.

WORTHING. *Development.* Messrs. Payne and Linfield are to develop 5 acres of land at Durrington Lane, Worthing.

WORTHING. *Swimming Pool, etc.* The Auto Type Services propose to construct a swimming-pool, and also make additions to their factory premises at Worting, near Basingstoke.

MIDLAND COUNTIES

BIRMINGHAM. *School.* The Birmingham Education Committee is to erect a secondary school at Beeches Road, Perry Barr, at a cost of £56,600.

BIRMINGHAM. *School.* The Birmingham Education Committee has purchased a site in Wheelers Lane, Billesley, for the erection of a secondary school for girls.

CHESTERFIELD. *Houses, etc.* Plans passed by the Corporation : Alterations, Horns Inn, Lordsmill Street, for John Smith's Tadcaster Brewery, Ltd. ; eight houses, Old Hall Road, for Messrs. W. and E. Dolphin ; alterations, 12, Parker's Row, for Messrs. Morris & Co. ; two houses, Langer Lane, for Mr. W. Marriott ; offices, Nelson Street, for Patent Electric Shot Firing Co.

CHESTERFIELD. *Extensions.* The Corporation is to enlarge the police premises at a cost of £8,300.

WOLVERHAMPTON. *Houses, etc.* Plans passed by the Corporation : 161 houses and six shops, Green Lane, for Brian Construction Co., Ltd. ; offices and stores, Crown Street, for Mac's Motor Transport Co., Ltd. ; mission hall, Warstones Road, for Mr. W. Beard ; cinema, Cannock Road, for Messrs. Salberg and Clift ; bank, Queen Square, for Martins Bank, Ltd. ; cinema, Garrick Street, for Associated British Cinemas, Ltd. ; three houses, Penn Road, for Mr. W. Whewell ; two houses, Uplands Farm estate, for Mr. S. P. Hughes ; four houses, Green Lane, for Mr. B. D. N. Tate ; estate development, Hollybush Lane, for Messrs. A. M. Griffiths and Sons ; eight houses, off Wyrley Street, for Messrs. A. Poole, Son & Co. ; four houses, Capstone Road, for Mr. A. E. G. Lockley ; six houses, Pinfold Lane, for Mr. L. T. Taylor ; six houses, Uplands Farm estate, for Mr. J. V. Powell ; motor showrooms, Stafford Street, for Mr. L. Neachell ; cinema, Penn Road, for Messrs. Whitehouse and Grindley ; four houses, Uplands Avenue, for Messrs. T. Wellings and Son ; six houses, Beech Road, for Messrs. Pidgeon Bros.

NORTHERN COUNTIES

BARROW-IN-FURNESS. *Housing Scheme.* The Corporation has purchased nine acres of land in Salthouse Road for a housing scheme.

BARROW. *Houses, etc.* Plans passed by the Corporation : 14 houses, Harrogate Street, for Mr. T. Chester ; two houses, Richmond Terrace, for Messrs. H. Atkinson, Ltd. ; alterations, Prince of Wales Inn, Ramsden Street, for Messrs. R. F. Case and Co., Ltd. ; eight houses, Furness Park Road, for Mr. A. Peet ; two houses, Furness Park Road, for Mr. J. Strickland ; nine houses, Victoria Avenue, for Messrs. R. T. Dockeray & Co., Ltd. ; 15 houses, Delhi Street, for Messrs. Kendal and Exton.

BLACKPOOL. *New Market.* The Corporation has approved preliminary plans of the borough engineer for the erection of a new market on the Brighton Grove site.

BLACKPOOL. *Houses, etc.* Plans passed by the Corporation : 51 houses, Carlisle Avenue, for Messrs. R. Fielding and Son ; additions, Colwyn private hotel, South Promenade, for Mr. H. Segar ; 14 houses, Cambray Road, for Messrs. G. Hodgson and Sons, Ltd. ; 14 houses, Dauntessy Avenue, for Mr. J. Bain ; four houses, Poulton Road, for Messrs. Gartside Bros. ; alterations and additions, Methodist church, Coronation Street, for trustees ; 24 houses, Worcester Road, for Messrs. Poole and Bould ; eight houses, North Drive, for Messrs. R. and H. Fletcher, Ltd. ; four houses, Lindale Gardens, for Mr. R. Bant.

BOOTLE. *Hotel.* Messrs. Peter Walker and Robert Cain & Co., Ltd., are to erect an hotel in Linacre Lane, Bootle.

BRADFORD. *Additions.* The Corporation has approved plans by the city architect for the erection of a maternity unit at St. Luke's Hospital.

BRADFORD. *Shops.* The Corporation has instructed the city architect to prepare plans for the erection of shops in Bank Street in connection with the central area development.

SCARBOROUGH. *Houses, etc.* Plans passed by the Corporation : Two shops and houses, Aberdeen Walk, for Mr. F. H. Hawksby ; estate development, off Westwood, for Mr. F. R. Walshaw ; alterations, Queen's Hotel, Queen's Parade, for Mr. E. C. Tasker ; two houses, Peasholm Drive, for Mr. G. E. Moore ; six houses, Devonshire Drive, for Messrs. F. Mitchell and Sons ; two houses, Stepney Road, for Mr. E. Hunter ; two houses, Sandybed Crescent, for Mr. F. W. Plaxton ; alterations, Pavilion Hotel, Valley Bridge Road, for Laughtons (Scarborough) Estates, Ltd.

WAKEFIELD. *Technical Institute.* The Wakefield Education Committee has selected a site in Balne Lane for the erection of a technical institute.

WAKEFIELD. *Dance hall.* Plans passed by the Corporation : Dance hall, Market Street, for Mr. Ledger Holdsworth, on behalf of George Street Assembly Rooms, Ltd. ; three houses, Marsland Terrace, for Mr. W. H. Ogden ; two houses, Bromley Mount, for Mr. W. H. Watson ; 14 houses, Farne Avenue, for Messrs. Newbold and Hartley ; mill extensions, Ings Road, for Messrs. M. P. Stonehouse, Ltd.

WAKEFIELD. *School of Arts and Crafts.* The Wakefield Education Committee has approved revised plans by the city surveyor for the new school of arts and crafts.

WALSALL. *Technical college.* The Walsall Education Committee is acquiring a site in Wisemore Street for the erection of a technical college.

WALES

CARDIFF. *Showrooms.* The Corporation has leased land adjoining the aerodrome to Mr. A. S. Davies on behalf of a new company for the erection of motor showrooms and eventually an aeroplane showroom.

CARDIFF. *Electricity depot.* The Corporation has approved plans by the city engineer for the erection of an electricity depot in Ninian Park Road, at a cost of £7,500.

ELY. *Baths.* The Cardiff Corporation is considering the provision of baths and swimming pools at Ely.

RATES OF WAGES

The initial letter opposite every entry indicates the grade under the Ministry of Labour schedule. The district is that to which the borough is assigned in the same schedule. Column I gives the rates for craftsmen; Column II for labourers. The rate for craftsmen working at trades in which a separate rate maintains is given in a footnote. The table is a selection only. Particulars for lesser localities not included may be obtained upon application in writing.

			I	II
			s. d.	s. d.
A_1	ABERDARE	S. Wales & M.	1 5½	1 1½
A	Aberdeen	Scotland	1 6½	1 2
A_1	Abergavenny	S. Wales & M.	1 6	1 1½
A_2	Abingdon	S. Counties	1 5	1 0½
A	Accrington	N.W. Counties	1 6½	1 2
A_3	Addlestone	S. Counties	1 5	1 0½
A	Adlington	N.W. Counties	1 6½	1 2
A	Airdrie	Scotland	*1 6½	1 2
C	Aldeburgh	E. Counties	1 2½	11
A	Altrincham	N.W. Counties	1 6½	1 2
B_2	Appleby	N.W. Counties	1 3	11½
A	Ashton-under-Lyne	N.W. Counties	1 6½	1 2
B_1	Aylesbury	S. Counties	1 4	1 0
B_1	BANBURY	S. Counties	1 4	1 0
B_1	Bangor	N.W. Counties	1 4	1 0
A_2	Barnard Castle	N.E. Coast	1 5	1 0½
A	Barnsley	Yorkshire	1 6½	1 2
B	Barnstaple	S.W. Counties	1 4½	1 0½
A	Barrow	N.W. Counties	1 6½	1 2
A	Barry	S. Wales & M.	1 6½	1 2
B_1	Basingstoke	S.W. Counties	1 4	1 0
A_2	Bath	S.W. Counties	1 5½	1 1½
A	Batley	Yorkshire	1 6½	1 2
A_2	Bedford	E. Counties	1 5½	1 1½
A_2	Berwick-on Tweed	N.E. Coast	1 5½	1 1½
A_2	Bewdley	Mid. Counties	1 5½	1 1½
B_2	Bicester	S. Counties	1 3	11½
	Birkenhead	N.W. Counties	*1 7½	1 2½
A	Birmingham	Mid. Counties	1 6½	1 2
A_1	Bishop Auckland	N.E. Coast	1 6	1 1½
A	Blackburn	N.W. Counties	1 6½	1 2
A	Blackpool	N.W. Counties	1 6½	1 2
A	Blyth	N.E. Coast	1 6½	1 2
B_1	Bognor	S. Counties	1 4	1 0
A	Bolton	N.W. Counties	1 6½	1 2
A_2	Boston	Mid. Counties	1 5	1 0½
A_2	Bournemouth	S. Counties	1 5½	1 1½
B_2	Bovey Tracey	S.W. Counties	1 3½	11½
A	Bradford	Yorkshire	1 6½	1 2
A_1	Brentwood	E. Counties	1 6	1 1½
A	Bridgend	S. Wales & M.	1 6½	1 2
B	Bridgwater	S.W. Counties	1 4½	1 0½
A_1	Bridlington	Yorkshire	1 6	1 1½
A	Brighouse	Yorkshire	1 6½	1 2
A_2	Brighton	S. Counties	1 5½	1 1½
A	Bristol	S.W. Counties	1 6½	1 2
B	Brixham	S.W. Counties	1 3½	11½
A	Bromsgrove	Mid. Counties	1 5½	1 1½
B	Bromyard	Mid. Counties	1 3	11½
A	Burnley	N.W. Counties	1 6½	1 2
A	Bursiem	Mid. Counties	1 6½	1 2
A	Burton-on-Trent	Mid. Counties	1 6½	1 2
A	Bury	N.W. Counties	1 6½	1 2
A	Buxton	N.W. Counties	1 6	1 1½
A_1	CAMBRIDGE	E. Counties	1 6	1 1½
B_1	Canterbury	S. Counties	1 4	1 0
A	Cardiff	S. Wales & M.	1 6½	1 2
A	Carlisle	N.W. Counties	1 6½	1 2
B	Carmarthen	S. Wales & M.	1 4½	1 0½
B	Carnarvon	N.W. Counties	1 4½	1 0½
A	Carnforth	N.W. Counties	1 6½	1 2
A	Castleford	Yorkshire	1 6½	1 2
A_2	Chatham	S. Counties	1 5	1 0½
A	Chelmsford	E. Counties	1 5	1 0½
A	Cheltenham	S.W. Counties	1 5	1 0½
A	Chester	N.W. Counties	1 6½	1 2
A	Chesterfield	Mid. Counties	1 6½	1 2
B_1	Chichester	S. Counties	1 4	1 0
A	Chorley	N.W. Counties	1 6½	1 2
B_1	Cirencester	S. Counties	1 4	1 0
A	Clitheroe	N.W. Counties	1 6½	1 2
A	Clydebank	Scotland	1 6½	1 2
A	Coalville	Mid. Counties	1 6½	1 2
A_2	Colchester	E. Counties	1 5½	1 1½
A	Colne	N.W. Counties	1 6	1 1½
A_2	Colwyn Bay	N.W. Counties	1 5½	1 1½
A_1	Consett	N.E. Coast	1 6	1 1½
A_2	Conway	N.W. Counties	1 5½	1 1½
A	Coventry	Mid. Counties	1 6½	1 2
A_2	Crewe	N.W. Counties	1 5½	1 1½
A	Cumberland	N.W. Counties	1 5	1 0½
A	DARLINGTON	N.E. Coast	1 6½	1 2
A	Darwen	N.W. Counties	1 6½	1 2
B_1	Deal	S. Counties	1 4	1 0
A_3	Denbigh	N.W. Counties	1 5	1 0½
A	Derby	Mid. Counties	1 6½	1 2
A	Dewsbury	Yorkshire	1 6½	1 2
B	Didcot	S. Counties	1 4½	1 0½
A	Doncaster	Yorkshire	1 6½	1 2
B_1	Dorchester	S.W. Counties	1 4	1 0
A	Driffield	Yorkshire	1 5	1 0½
A_2	Droitwich	Mid. Counties	1 5½	1 1½
A	Dudley	Mid. Counties	1 6½	1 2
A_2	Dumfries	Scotland	1 6	1 1½
A	Dundee	Scotland	1 6½	1 2
A	Durham	N.E. Coast	1 6½	1 2
A_2	EASTBOURNE	S. Counties	1 5½	1 1½
A_1	Ebbw Vale	S. Wales & M.	1 6	1 1½
A	Edinburgh	Scotland	1 6½	1 2
A_1	E. Glamorganshire, Rhondda Valley District	S. Wales & M.	1 6	1 1½
A_2	Exeter	S.W. Counties	*1 5½	1 1½
B	Exmouth	S.W. Counties	1 4½	1 0½
A_2	FELIXSTOWE	E. Counties	1 5	1 0½
A	Filey	Yorkshire	1 5	1 0½
A	Fleetwood	N.W. Counties	1 6½	1 2
B_1	Folkestone	S. Counties	1 4	1 0
A	Frodsham	N.W. Counties	1 6½	1 2
B_2	Frome	S.W. Counties	1 3½	11½
A	GATESHEAD	N.E. Coast	1 6½	1 2
B	Gillingham	S. Counties	1 4½	1 0½
A	Glasgow	Scotland	1 7	1 2½
A_2	Gloucester	S.W. Counties	1 5½	1 1½
A_2	Goole	Yorkshire	1 5½	1 1½
A_2	Gosport	S. Counties	1 5½	1 1½
A_3	Grantham	Mid. Counties	1 5	1 0½
A_1	Gravesend	S. Counties	1 6	1 1½
A	Greenock	Scotland	*1 6½	1 2
A	Grimsby	Yorkshire	1 6½	1 2
B	Guildford	S. Counties	1 4½	1 0½
A	HALIFAX	Yorkshire	1 6½	1 2
A	Hanley	Mid. Counties	1 6½	1 2
A	Harrogate	Yorkshire	1 6½	1 2
A	Hartlepools	N.E. Coast	1 6½	1 2
B	Harwich	E. Counties	1 4½	1 0½
B_1	Hastings	S. Counties	1 4	1 0
A_2	Hatfield	S. Counties	1 5½	1 1½
B	Hereford	S.W. Counties	1 4½	1 0½
A_2	Hertford	E. Counties	1 5½	1 1½
A	Heysham	N.W. Counties	1 6½	1 2
A	Howden	N.E. Coast	1 6½	1 2
A	Huddersfield	Yorkshire	1 6½	1 2
A	Hull	Yorkshire	1 6½	1 2
A	ILKLEY	Yorkshire	1 6½	1 2
A	Immingham	Mid. Counties	1 6½	1 2
A_2	Ipswich	E. Counties	1 5½	1 1½
B_2	Isle of Wight	S. Counties	1 4½	1 0½
A	JARROW	N.E. Coast	1 6½	1 2
A	KEIGHLEY	Yorkshire	1 6½	1 2
A_3	Kendal	N.W. Counties	1 5	1 0½
A_3	Keswick	N.W. Counties	1 5	1 0½
A_1	Kettering	Mid. Counties	1 6	1 1½
A_2	Kidderminster	Mid. Counties	1 5½	1 1½
B_1	King's Lynn	E. Counties	1 4	1 0
A	LANCASTER	N.W. Counties	1 6½	1 2
A_1	Leamington	Mid. Counties	1 6	1 1½
A	Leeds	Yorkshire	1 6½	1 2
A	Leek	Mid. Counties	1 6½	1 2
A	Leicester	Mid. Counties	1 6½	1 2
A	Leigh	N.W. Counties	1 6½	1 2
B	Lewes	S. Counties	1 3	11½
A_2	Lichfield	Mid. Counties	1 5½	1 1½
A	Lincoln	Mid. Counties	1 6½	1 2
	Liverpool	N.W. Counties	*1 8	1 3
A_2	Llandudno	N.W. Counties	1 5½	1 1½
A	Llanelly	S. Wales & M.	1 6½	1 2
	London (12-miles radius)		1 8	1 3
	Do. (12-15 miles radius)		1 7½	1 2½
A	Long Eaton	Mid. Counties	1 6½	1 2
A	Loughborough	Mid. Counties	1 6½	1 2
A_1	Luton	E. Counties	1 6	1 1½
A	Lytham	N.W. Counties	1 6½	1 2
A_1	MACCLESFIELD	N.W. Counties	1 6	1 1½
A_3	Maidstone	S. Counties	1 5	1 0½
A_3	Malvern	Mid. Counties	1 5	1 0½
A	Manchester	N.W. Counties	1 6½	1 2
A	Mansfield	Mid. Counties	1 6½	1 2
B_1	Margate	S. Counties	1 4	1 0
A	Matlock	Mid. Counties	1 5	1 0½
A_1	Merthyr	S. Wales & M.	1 6	1 1½
A	Middlesbrough	N. E. Coast	1 6½	1 2
A_1	Middlewich	N.W. Counties	1 5½	1 1½
B_2	Minehead	S.W. Counties	1 3½	11½
B_2	Monmouth	S. Wales & M.	1 3½	11½
	& S. and E. Glamorganshire			
A	Morecambe	N.W. Counties	1 6½	1 2
A_2	NANTWICH	N.W. Counties	1 5½	1 1½
A	Neath	S. Wales & M.	1 6½	1 2
A	Nelson	N.W. Counties	1 6½	1 2
A	Newcastle	N.E. Coast	1 6½	1 2
A	Newport	S. Wales & M.	1 6½	1 2
A	Normanton	Yorkshire	1 6½	1 2
A	Northampton	Mid. Counties	1 6½	1 2
A	North Staffs	Mid. Counties	1 6½	1 2
A	North Shields	N.E. Coast	1 6½	1 2
A_1	Norwich	E. Counties	1 6	1 1½
A	Nottingham	Mid. Counties	1 6½	1 2
A	Nuneaton	Mid. Counties	1 6½	1 2
A	OAKHAM	Mid. Counties	1 5	1 0½
A	Oldham	N.W. Counties	1 6½	1 2
A_4	Oswestry	N.W. Counties	1 5	1 0½
A_1	Oxford	S. Counties	1 6	1 1½
A	PAISLEY	Scotland	*1 6½	1 2
B_3	Pembroke	S. Wales & M.	1 3	11½
A	Perth	Scotland	*1 6½	1 2
A_1	Peterborough	E. Counties	1 6	1 1½
A	Plymouth	S.W. Counties	*1 6½	1 2
A	Pontefract	Yorkshire	1 6½	1 2
A_1	Pontypridd	S. Wales & M.	1 6	1 1½
A_2	Portsmouth	S. Counties	1 5½	1 1½
A	Preston	N.W. Counties	1 6½	1 2
A	QUEENSFERRY	N.W. Counties	1 6½	1 2
A_2	READING	S. Counties	1 5½	1 1½
B	Reigate	S. Counties	1 4½	1 0½
A	Retford	Mid. Counties	1 5	1 0½
A_1	Rhondda Valley	S. Wales & M.	1 6	1 1½
A	Ripon	Yorkshire	1 5	1 0½
A	Rochdale	N.W. Counties	1 6½	1 2
B	Rochester	S. Counties	1 4½	1 0½
A_1	Ruabon	N.W. Counties	1 6	1 1½
A	Rugby	Mid. Counties	1 6½	1 2
A_2	Rugeley	Mid. Counties	1 5½	1 1½
A	Runcorn	N.W. Counties	1 6½	1 2
A_1	ST. ALBANS	E. Counties	1 6	1 1½
A	St. Helens	N.W. Counties	1 6½	1 2
B_3	Salisbury	S.W. Counties	1 3½	11½
A_1	Scarborough	Yorkshire	1 6	1 1½
A	Scunthorpe	Mid. Counties	1 6½	1 2
A	Sheffield	Yorkshire	1 6½	1 2
A	Shipley	Yorkshire	1 6½	1 2
A_2	Shrewsbury	Mid. Counties	1 5½	1 1½
A_2	Skipton	Yorkshire	1 5½	1 1½
A_2	Slough	S. Counties	1 5½	1 1½
A_1	Solihull	Mid. Counties	1 6	1 1½
A_2	Southampton	S. Counties	1 5½	1 1½
A_1	Southend-on-Sea	E. Counties	1 6	1 1½
A	Southport	N.W. Counties	1 6½	1 2
A	S. Shields	N.E. Coast	1 6½	1 2
A_1	Stafford	Mid. Counties	1 6	1 1½
A	Stirling	Scotland	1 7	1 2½
A	Stockport	N.W. Counties	1 6½	1 2
A	Stockton-on-Tees	N.E. Coast	1 6½	1 2
A	Stoke-on-Trent	Mid. Counties	1 6½	1 2
B	Stroud	S.W. Counties	1 4½	1 0½
A	Sunderland	N.E. Coast	1 6½	1 2
A	Swansea	S. Wales & M.	1 6½	1 2
A	Swindon	S.W. Counties	1 5	1 0½
A_1	TAMWORTH	N.W. Counties	1 6	1 1½
B	Taunton	S.W. Counties	1 4½	1 0½
A	Teesside Dist.	N.E. Counties	1 6½	1 2
A_2	Teignmouth	S.W. Coast	1 5½	1 1½
A	Todmorden	Yorkshire	1 6½	1 2
A_1	Torquay	S.W. Counties	1 6	1 1½
B_2	Truro	S.W. Counties	1 3½	11½
A_3	Tunbridge Wells	S. Counties	1 5	1 0½
A	Tunstall	Mid. Counties	1 6½	1 2
A	Tyne District	N.E. Coast	1 6½	1 2
A	WAKEFIELD	Yorkshire	1 6½	1 2
A	Walsall	Mid. Counties	1 6½	1 2
A	Warrington	N.W. Counties	1 6½	1 2
A_1	Warwick	Mid. Counties	1 6	1 1½
A_1	Wellingborough	Mid. Counties	1 6	1 1½
A	West Bromwich	Mid. Counties	1 6½	1 2
A_2	Weston-s.-Mare	W. Counties	1 5½	1 1½
A_2	Whitby	Yorkshire	1 5½	1 1½
A	Widnes	N.W. Counties	1 6½	1 2
A	Wigan	N.W. Counties	1 6½	1 2
B	Winchester	S. Counties	1 4½	1 0½
A_2	Windsor	S. Counties	1 5½	1 0½
A	Wolverhampton	Mid. Counties	1 6½	1 2
A_2	Worcester	Mid. Counties	1 5½	1 1½
A_2	Worksop	Yorkshire	1 5	1 0½
A_1	Wrexham	N.W. Counties	1 6	1 1½
A	Wycombe	S. Counties	1 5	1 0½
B	YARMOUTH	E. Counties	1 4½	1 0½
B	Yeovil	S.W. Counties	1 4½	1 0½
A	York	Yorkshire	1 6½	1 2

* In these areas the rates of wages for certain trades (usually painters and plasterers) vary slightly from those given.

The rates for every trade in any given area will be sent on request.

CURRENT PRICES

The wages are the standard Union rates of wages payable in London at the time of publication. The prices given below are for materials of good quality and include delivery to site in Central London area, unless otherwise stated. For delivery outside this area, adjustment should be made for the cost of transport. Though every care has been taken in its compilation, it is impossible to guarantee the accuracy of the list, and readers are advised to have the figures confirmed by trade inquiry. The whole of the information given is copyright.

WAGES

		s.	d.
Bricklayer	per hour	1	8
Carpenter	,,	1	8
Joiner	,,	1	8
Machinist	,,	1	8
Mason (Banker)	,,	1	8
,, (Fixer)	,,	1	9
Plumber	,,	1	8
Painter	,,	1	7
Paperhanger	,,	1	7
Glazier	,,	1	7
Slater	,,	1	8
Scaffolder	,,	1	4
Timberman	,,	1	4
Navvy	,,	1	3
General Labourer	,,	1	3
Lorryman	,,	1	5½
Crane Driver	,,	1	7
Watchman	per week	2	10

MATERIALS

EXCAVATOR AND CONCRETOR

		£	s.	d.
Grey Stone Lime	per ton	2	2	0
Blue Lias Lime	,,	1	16	6
Hydrated Lime	,,	3	0	9
Portland Cement, in 4 ton lots (d/d site, including Paper Bags)	,,	1	19	0
Rapid Hardening Cement, in 4-ton lots (d/d site, including Paper Bags)	,,	2	5	0
White Portland Cement, in 1 ton lots	,,	8	15	0
Thames Ballast	per Y.C.		6	6
½" Crushed Ballast	,,		7	0
Building Sand	,,		7	6
Washed Sand	,,		8	6
2" Broken Brick	,,		8	0
½" ,, ,,	,,		10	3
Pan Breeze	,,		6	6
Coke Breeze	,,		8	9

DRAINLAYER

BEST STONEWARE DRAIN PIPES AND FITTINGS

		4" s.	d.	6" s.	d.
Straight Pipes	per F.R.	0	9	1	1
Bends	each	1	9	2	6
Taper Bends	,,	3	6	5	3
Rest Bends	,,	4	3	6	3
Single Junctions	,,	3	6	5	3
Double ,,	,,	4	9	6	6
Straight channels	per F.R.	1	6	2	6
½" Channel bends	each	2	9	4	0
Channel junctions	,,	4	6	6	6
Channel tapers	,,	2	9	4	0
Yard gullies	,,	6	9	8	9
Interceptors	,,	16	0	19	6
IRON DRAINS:					
Iron drain pipe	per F.R	1	6	2	6
Bends	each	5	0	10	6
Inspection bends	,,	9	0	15	0
Single junctions	,,	8	9	18	0
Double junctions	,,	13	6	30	0
Lead Wool	lb.		6		—
Gaskin	,,		5		—

BRICKLAYER

		£	s.	d.
Fletton	per M.	2	15	0
Grooved do.	,,	2	17	0
Phorpres bricks	,,	2	15	0
,, Cellular bricks	,,	2	15	0
Stocks, 1st quality	,,	4	11	0
,, 2nd ,,	,,	4	2	6
Blue Bricks, Pressed	,,	8	17	6
,, Wirecuts	,,	7	17	6
,, Brindles	,,	7	0	0
,, Bullnose	,,	9	0	0
Red Sand-faced Facings	,,	6	18	6
Red Rubbers for Arches	,,	12	0	0
Multicoloured Facings	,,	7	10	0
Luton Facings	,,	7	10	0
Phorpres White Facings	,,	3	17	3
,, Rustic Facings	,,	3	12	3
Midhurst White Facings	,,	5	0	0
Glazed Bricks, Ivory, White or Salt glazed, 1st quality:				
Stretchers	,,	21	0	0
Headers	,,	20	10	0
Bullnose	,,	27	10	0
Double Stretchers	,,	29	10	0
Double Headers	,,	26	10	0
Glazed Second Quality, *Less*	,,	1	0	0
,, Buffs and Creams, *Add*	,,	2	0	0
,, Other Colours	,,	5	10	0
2" Breeze Partition Blocks	per Y.S.		1	7
2½" ,, ,, ,,	,,		1	10
3" ,, ,, ,,	,,		2	1
4" ,, ,, ,,	,,		2	6

MASON

The following d/d F.O.R. at Nine Elms:		s.	d.
Portland stone, Whitbed	F.C.	4	4½
,, ,, Basebed	,,	4	7½
Bath stone	,,	2	10
York stone	,,	6	6
,, ,, Sawn templates	,,	7	6
,, ,, Paving, 2"	F.S.	1	8
,, ,, ,, 3"	,,	2	6

SLATER AND TILER

First quality Bangor or Portmadoc slates d/d F.O.R. London station:

		£	s.	d.
24"×12" Duchesses	per M.	28	17	6
22"×12" Marchionesses	,,	24	10	0
20"×10" Countesses	,,	19	5	0
18"×10" Viscountesses	,,	15	10	0
18"× 9" Ladies	,,	13	17	6
Westmorland green (random sizes)	per ton	8	10	0
Old Delabole slates d/d in full truck loads to Nine Elms Station:				
20"×10" medium grey per 1,000 (actual)		21	11	6
,, ,, green ,, ,,		24	7	4
Best machine roofing tiles	,,	4	5	0
Best hand-made do.	,,	4	17	6
Hips and valleys	each			9
,, hand-made	,,			9½
Nails, compo	lb.		1	4
,, copper	,,		1	6

CARPENTER AND JOINER

		s.	d.
Good carcassing timber	F.C.	2	2
Birch	as 1" F.S.		9
Deal, Joiner's	,, ,,		5
,, ,, 2nds	,, ,,		4
Mahogany, Honduras	,, ,,	1	3
,, African	,, ,,	1	1
,, Cuban	,, ,,	2	6
Oak, plain American	,, ,,	1	0
,, Figured ,,	,, ,,	1	3
,, plain Japanese	,, ,,	1	2
,, Figured ,,	,, ,,	1	5
,, Austrian wainscot	,, ,,	1	6
,, English	,, ,,	1	11
Pine, Yellow	,, ,,	1	0
,, Oregon	,, ,,		4
,, British Columbian	,, ,,		4
Teak, Moulmein	,, ,,	1	3
,, Burma	,, ,,	1	2
Walnut, American	,, ,,	2	3
,, French	,, ,,	2	3
Whitewood, American	,, ,,	1	1
Deal floorings, ⅞"	Sq.	18	6
,, 1"	,,	1	1	6
,, 1¼"	,,	1	2	0
,, 1½"	,,	1	5	0
,, 2"	,,	1	10	0
Deal matchings, ⅝"	,,		14	0
,, ¾"	,,		15	6
,, 1"	,,	1	4	0
Rough boarding, ¾"	,,		16	0
,, 1"	,,		18	0
,, 1¼"	,,	1	6	0

Plywood, per ft. sup.

Thickness	⅜"			½"			¾"			⅞"		
Qualities	A d.	B d.	BB d.	A d.	B d.	BB d.	A d.	B d.	BB d.	A d.	B d.	BB d.
Birch 60×48	4	2½	2	5	3	2½	7	5	4	8	6	5
Cheap Alder	–	2	1½	–	3½	2	–	–	–	–	–	–
Oregon Pine	–	2½	–	3	2½	–	4	3½	–	5	4½	–
Gaboon Mahogany	4	3½	–	5	4½	–	7	6½	–	8	7	–
Figured Oak	6½	5	–	7½	5½	–	10	8	0	1/-	9	–

		d.
Scotch glue	lb.	8

SMITH AND FOUNDER

Tubes and Fittings

(The following are the standard list prices, from which should be deducted the various percentages as set forth below.)

	¼"	⅜"	1"	1½"	2"
Tubes, 2'-14' long, per ft. run	4	5½	9½	1/1	1/10
Pieces, 12"-23" long each	10	1/1	1/11	2/8	4/9
,, 3"-11½" long ,,	7	9	1/3	1/8	3/-
Long screws, 12"-23½" long,,	11	1/3	2/2	2/10	5/3
,, 3" M-1" long ,,	8	10	1/5	1/11	3/6
Bends	8	11	1/7½	2/7½	5/2
Springs not socketed	5	7	1/1½	1/11½	3/11
Socket unions	2/-	3/-	5/6	6/9	10/-
Elbows, square	10	1/1	1/6	2/2	4/3
Tees	1/-	1/3	1/10	2/6	5/1
Crosses	2/2	2/9	4/1	5/6	10/6
Plain sockets and nipples	3	4	6	8	1/3
Diminished sockets	4	6	9	1/-	2/-
Flanges	9	1/-	1/4	1/9	2/9
Caps	3½	5	8	1/-	2/-
Backnuts	2	3	5	6	1/1
Iron main cocks	1/6	2/3	4/2	5/4	11/6
,, with brass plugs	—	4/-	7/6	10/-	21/-

Discounts:

TUBES.

	Per cent.		Per cent.
Gas	65	Galvanized gas	52½
Water	61½	,, water	47½
Steam	57½	,, steam	42½

FITTINGS.

Gas	57½	Galvanized gas	47½
Water	52½	,, water	42½
Steam	47½	,, steam	37½

SMITH AND FOUNDER—*continued*

		s.	d.
Rolled steel joists cut to length	cwt.	12	9
Mild steel reinforcing rods, ½"	,,	10	6
,, ,, ⅝"	,,	10	3
,, ,, ¾"	,,	10	0
,, ,, ⅞"	,,	9	6
,, ,, 1"	,,	9	6
,, ,, 1¼"	,,	9	6
,, ,, 1½"	,,	9	6

		½" s.	d.	¾" s.	d.	4" s.	d.
Cast-iron rain-water pipes of ordinary thickness metal	F.R.	8		10			
Shoes	each	2	0	3	0		
Anti-splash shoes	,,	4	6	8	0		
Boots	,,	3	0	4	0		
Bends	,,	2	7	3	9		
,, with access door	,,		—	6	3		
Heads	,,	4	0	5	0		
Swan-necks up to 9" offsets	,,	3	9	6	0		
Plinth bends, 4½" to 6"	,,	3	0	5	3		
Half-round rain-water gutters of ordinary thickness metal	F.R.	5		6			
Stop ends	each	6		6			
Angles	,,	1	7	1	11		
Obtuse angles	,,	2	0	2	6		
Outlets	,,	1	9	2	3		

PLUMBER

		s.	d.
Lead, milled sheets	cwt.	24	6
,, drawn pipes	,,	24	6
,, soil pipe	,,	30	0
,, scrap	,,	16	0
Solder, plumbers'	lb.		9½
,, fine do.	,,	1	0
Copper, sheet	,,		8½
,, tubes	,,		11

		3"		4"		6"	
L.C.C. soil and waste pipes:							
Plain cast	F.R.	1	0	1	2	2	6
Coated	,,	1	1	1	3	2	8
Galvanized	,,	2	0	2	6	4	6
Holderbats	each	3	10	4	0	4	9
Bends	,,	3	9	5	3	10	3
Shoes	,,	2	10	4	4	9	6
Heads	,,	4	8	8	5	12	9

PLASTERER

		£	s.	d.
Lime, chalk	per ton	2	5	0
Plaster, coarse	,,	2	10	0
,, fine	,,	4	15	0
Hydrated lime	,,	3	0	9
Sirapite	,,	3	6	0
Keene's cement	,,	3	0	0
Gothite Plaster	,,	5	0	0
Pioneer Plaster	,,	3	6	0
Thistle plaster	,,	3	6	0
Sand, washed	,,	3	6	0
Hair	Y.C.		11	6
Laths, sawn	lb.			6
,, rent	bundle		2	4
Lath nails	lb.		3	9

GLAZIER

	s.	d.	s.	d.
Sheet glass, 21 oz., squares n/e 2 ft. s. F.S.				2½
,, ,, 26 oz ,, ,,				3
Flemish, Arctic, Figures (white)*	,,			7
Blazoned glasses	,,		2	6
Reeded: Cross Reeded	,,			11
Cathedral glass, white, double-rolled, plain, hammered, rimpled, waterwite	,,			6
Crown sheet glass (n/e 12 in. × 10 in.)	,,		2	0
Flashed opals (white and coloured	,, 1 0 and		2	0
⅛" rough cast: rolled plate	,,			5½
¼" wired cast; wired rolled	,,			9½
¼" Georgian wired cast	,,			11
¼" Polished plate, n/e 1 ft.	,, †10 to		‡1	1
,, ,, 2	,, †1 2 ,,		‡1	4
,, ,, 4	,, †2 3 ,,		‡2	6
,, ,, 8	,, †2 9 ,,		‡3	2
,, ,, 20	,, †3 1 ,,		‡3	9
,, ,, 45	,, †3 3 ,,		‡4	8
,, ,, 100	,, †4 0 ,,		‡4	10
Vita glass, sheet, n/e 1 ft.	,,		1	0
,, ,, ,, 2 ft.	,,		1	3
,, ,, ,, over 2 ft.	,,		1	9
,, ,, plate, n/e 1 ft.	,,		1	6
,, ,, ,, 2 ft.	,,		3	0
,, ,, ,, 5 ft.	,,		4	0
,, ,, ,, 7 ft.	,,		5	0
,, ,, ,, 15 ft.	,,		6	0
,, ,, ,, over 15 ft.	,,		7	6
"Calorex" sheet 21 oz., and 32 oz.	,, 2 6 and		3	6
,, rough cast ⅛" and ¼"	,,	8½ ,,	1	0
Putty, linseed oil	lb.			3

* *Colours, 1d. F.S. extra.*

† *Ordinary glazing quality.* ‡ *Selected glazing quality.*

PAINTER

		£	s.	d.
White lead in 1 cwt. casks	cwt.	2	8	6
Linseed oil	gall.		2	3
Boiled oil	,,		2	9
Turpentine	,,		4	1½
Patent knotting	,,		14	0
Distemper, washable	cwt.	2	6	0
,, ordinary	,,	2	0	0
Whitening	,,		4	0
Size, double	firkin		3	0
Copal varnish	gall.		13	0
Flat varnish	,,		14	0
Outside varnish	,,		16	0
White enamel	,,	1	15	0
Ready mixed paint	,,		13	6
Brunswick black	,,		7	6

CURRENT PRICES FOR MEASURED WORK

The following prices are for work to new buildings of average size, executed under normal conditions in the London area. They include establishment charges and profit. While every care has been taken in its compilation, no responsibility can be accepted for the accuracy of the list. The whole of the information given is copyright.

EXCAVATOR AND CONCRETOR

		£ s. d.
Digging over surface n/e 12" deep and cart away	Y.S.	2 9
" to reduce levels n/e 5' 0" deep and cart away	Y.C.	8 6
" to form basement n/e 5' 0" and cart away	"	9 0
" " 10' 0" deep and cart away	"	9 6
" " 15' 0" deep and cart away	"	10 0
If in stiff clay	add "	6
If in underpinning	"	4 0
Planking and strutting to sides of excavation	F.S.	1 0
" " to pier holes	"	5
" " to trenches	"	5
" " extra, only if left in	"	3
Hardcore, filled in and rammed	Y.C.	10 0
Portland cement concrete in foundations (6-1)	"	1 6 0
" " (4-2-1)	"	1 12 6
" " underpinning	"	1 16 0
Finishing surface of concrete, space face	Y.S	7

DRAINLAYER

		4" s. d.	6" s. d.
Stoneware drains, laid complete (digging and concrete to be priced separately)	F.R.	1 6	2 3
Extra, only for bends	Each	2 8	3 9
" junctions	"	3 9	4 6
Gullies and gratings	"	16 6	18 0
Cast iron drains, and laying and jointing	F.R.	4 9	6 9
Extra, only for bends	Each	10 6	15 6

BRICKLAYER

		£ s. d.
Brickwork, Flettons in lime mortar	Per Rod	26 10 0
" " in cement	"	27 12 6
" Stocks in cement	"	34 0 0
" Blues in cement	"	50 0 0
Extra only for circular on plan	"	2 0 0
" backing to masonry	"	1 10 0
" raising on old walls	"	2 0 0
" underpinning	"	5 10 0½
Fair Face and pointing internally	F.S.	1½
Extra over fletton brickwork for picked stock facings and pointing	"	8
" " " red brick facings and pointing	"	11
" " " blue brick facings and pointing	"	1 4
" " " glazed brick facings and pointing	"	3 6
Tuck pointing	"	7½
Weather pointing in cement	"	3
Slate dampcourse	"	10
Vertical dampcourse	"	1 1

ASPHALTER

		s. d.
½" Horizontal dampcourse	Y.S.	4 9
½" Vertical dampcourse	"	7 9
½" paving or flat	"	6 3
1" paving or flat	"	7 6
1" × 6" skirting	F.R.	1 0
Angle fillet	"	2½
Rounded angle	"	2½
Cesspools	Each	5 6

MASON

		£ s. d.
Portland stone, including all labours hoisting, fixing and cleaning down, complete	F.C.	17 9
Bath stone and do., all as last	"	13 6
Artificial stone and do	"	13 0
York stone templates, fixed complete	"	10 6
" thresholds	"	13 6
" sills	"	1 0 6

SLATER AND TILER

		£ s. d.
Slating, Bangor or equal to a 3" lap, and fixing with compo nails, 20" × 10"	Sqr.	3 10 0
Do., 18" × 9"	"	3 7 0
Do., 24" × 12"	"	3 17 0
Westmorland slating, laid with diminished courses	"	6 0 0
Tiling, best hand-made sand-faced, laid to a 4" gauge, nailed every fourth course	"	3 0 0
Do., all as last, but of machine-made tiles	"	2 16 0
20" × 10" medium Old Delabole slating, laid to a 3" lap (grey)	"	2 16 0
" " " " " " (green)	"	4 15 0

CARPENTER AND JOINER

		£ s. d.
Flat boarded centering to concrete floors, including all strutting	Sqr.	2 2 6
Shuttering to sides and soffits of beams	F.S.	7
" to stanchions	"	7
" to staircases	"	1 6
Fir and fixing in wall plates, lintols, etc.	F.C.	3 9
Fir framed in floors	"	4 6
" " roofs	"	6 6
" " trusses	"	7 6
" " partitions	"	8 6
¾" deal sawn boarding and fixing to joists	Sqr.	1 14 6
1" " " " " "	"	1 17 6
1½ " " " " "	"	2 3 0
3" × 2" fir battening for Countess slating	"	9 6
Do., for 4" gauge tiling	"	12 0
Stout feather-edged tilting fillet	F.R.	4½
Patent inodorous felt, 1 ply	Y.S.	2 3
" " " 2 "	"	2 9
" " " 3 "	"	3 3
Stout herringbone strutting to 9" joists	F.R.	10½
1" deal gutter boards and bearers	F.S.	1 2
1½" " " "	"	1 6
2" deal wrought rounded roll	F.R.	8
1" deal grooved and tongued flooring, laid complete, including cleaning off	Sqr.	2 1 0
1¼" do.	"	2 10 0
1½" do.	"	2 17 6
1" deal moulded skirting, fixed on, and including grounds plugged to wall	F.S.	1 6
1½" do.	"	1 9

CARPENTER AND JOINER—*continued*

		s. d.
1¼" deal moulded sashes of average size	F.S.	1 9½
2" " " " "	"	1 11½
1½" deal cased frames double hung, of 6" × 3" oak sills, 1¼" pulley stiles, 1¼" heads, 1" inside and outside linings, ⅜" parting beads, and with brass faced axle pulleys, etc., fixed complete		3 7
2" " " " " "	"	3 10
Extra only for moulded horns	Each	6
1¼" deal four-panel square, both sides, door	F.S.	2 0
2" " " " "	"	2 8
1¼" " but moulded both sides	"	2 4
2" " " " "	"	3 0
4" × 3" deal, rebated and moulded frames	F.R.	1 0
4½" × 3½" " "	"	1 4
1¼" deal tongued and moulded window board, on and including deal bearers	F.S.	1 9
1¼" deal treads, 1" risers in staircases, and tongued and grooved together on and including strong fir carriages	"	2 6
1¼" deal moulded wall strings	"	2 1
1¼" " outer strings	"	2 4
Ends of treads and risers housed to string	Each	1 9
3" × 2" deal moulded handrail	F.R.	1 3
1" × 1" deal balusters and housing each end	Each	2 0
1½" × 1½" " "	"	2 9
3" × 3" deal wrought framed newels	F.R.	1 3
Extra only for newel caps	Each	6 0
Do., pendants	"	6 0

SMITH AND FOUNDER

		£ s. d.
Rolled steel joists, cut to length, and hoisting and fixing in position	Per cwt.	16 6
Riveted plate or compound girders, and hoisting and fixing in position	"	1 0 6
Do., stanchions with riveted caps and bases and do.	"	19 0
Mild steel bar reinforcement, ½" and up, bent and fixed complete	"	17 6
Corrugated iron sheeting fixed to wood framing, including all bolts and nuts 20 g.	F.S.	11
Wrot-iron caulked and cambered chimney bars	Per cwt.	1 10 0

PLUMBER

		£ s. d.
Milled lead and labour in flats	cwt.	1 18 6
Do. in flashings	"	2 2 9
Do. in covering to turrets	"	2 7 6
Do. in soakers	"	1 13 3
Labour to welted edge	F.R.	3½
Open copper nailing	"	3
Close " "	"	4

		½" s. d.	¾" s. d.	1" s. d.	1½" s. d.	2" s. d.	4" s. d.
Lead service pipe and fixing with pipe hooks	F.R.	10	1 0	1 3	2 0	2 10	—
Do. soil pipe and fixing with cast lead tacks	"	—	—	—	—	—	5 6
Extra, only to bends	Each	—	—	—	—	2 0	6 9
Do. to stop ends	"	6½	8	9	11	1 0	—
Boiler screws and unions	"	3 3	3 9	5 0	8 0	—	—
Lead traps	"	—	—	—	6 3	8 9	—
Screw down bib valves	"	6 9	9 6	11 0	—	—	—
Do. stop cocks	"	7 0	9 6	12 6	—	—	—
4" cast-iron ½-rd. gutter and fixing	F.R.						1 0
Extra, only stop ends	Each						1 0
Do. angles	"						1 6
Do. outlets	"						2 9
4" dia. cast-iron rain-water pipe and fixing with ears cast on	F.R.						1 2
Extra, only for shoes	Each						1 3
Do. for plain heads	"						5 6

PLASTERER AND TILING

		s. d.
Expanded metal lathing, small mesh	Y.S.	2 0
Do. in n/w to beams, stanchions, etc.	"	2 9
Lathing with sawn laths to ceilings	"	1 3
½" screeding in Portland cement and sand or tiling, wood block floor, etc.	"	1 5
Do. vertical	"	1 7
Rough render on walls	"	1 2½
Render, float and set in lime and hair	"	1 9
Render and set in Sirapite	"	1 11
Render, backing in cement and sand, and set in Keene's cement	"	2 9
Extra, only if on lathing	"	4
Keene's cement, angle and arris	F.R.	6
Arris	"	1½
Rounded angle, small	"	3
Plain cornices in plaster, including dubbing out, per 1" girth	"	1½
1" granolithic pavings	Y.S.	3 6
1½" " "	"	4 6
6" × 6" white glazed wall tiling and fixing on prepared screed	"	17 6
9" × 3" " " " "	"	1 2 6
Extra, only for small quadrant angle	F.R.	8

GLAZIER

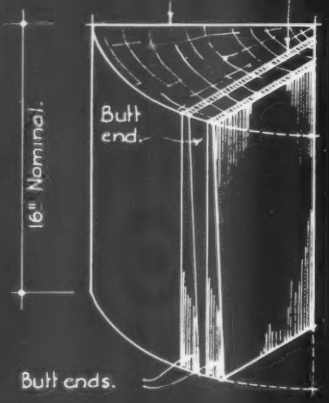
		s d.
21 oz. sheet glass and glazing with putty	F.S.	6½
26 oz. do. and do.	"	7½
Flemish, Arctic Figured (white) and glazing with putty	"	1 1
Cathedral glass and do.	"	1 2
Glazing only, British polished plate	"	7
Extra, only if in beds	"	2
Washleather	F.R.	4

PAINTER

		s. d.
Clearcolle and whiten ceilings	Y.S.	6
Do. and distemper walls	"	9
Do. with washable distemper	"	1 1
Knot, stop, prime and paint four coats of oil colour on plain surfaces	"	3 3
Do. on woodwork	"	3 6
Do. on steelwork	"	3 0
Do. and brush grain and twice varnish	"	5 6
Stain and twice varnish woodwork	"	1 11
Stain and wax-polish woodwork	"	4 6
French polishing	F.S.	1 2
Stripping off old paper	Piece	2 0
Hanging ordinary paper	from "	2 9

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

METHOD OF CUTTING WESTERN RED CEDAR SHINGLES FROM LOGS :



EDGE GRAINED MACHINE SAWN SHINGLES :

Shingles cut by this method (or rift sawn) will not split warp or swell.

LENGTH. Nominally 16". actually 15½"-16½"

THICKNESS. Butt end ⅜". tapering to a thin end.

WIDTH. 4" to 12". Shingles over 10" to be cut in half.

GAUGE AND SHINGLE EXPOSURE.

- For roofs over 30° pitch 5" shingle exposure is usual Below 30° it should be reduced to 3¾".

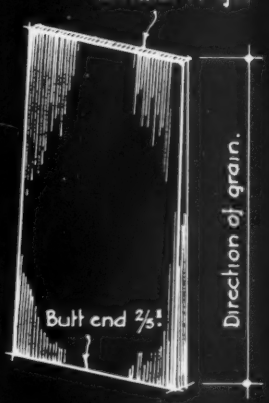
For walls 7½" weather exposure may be used.

NAILING.

- Nails should be 1⅛"-1½" best hot spelter galvanised or copper, or zinc-coated, (15 gauge), about 1" from side of tile and about 1" above exposure line. Two nails to each shingle.

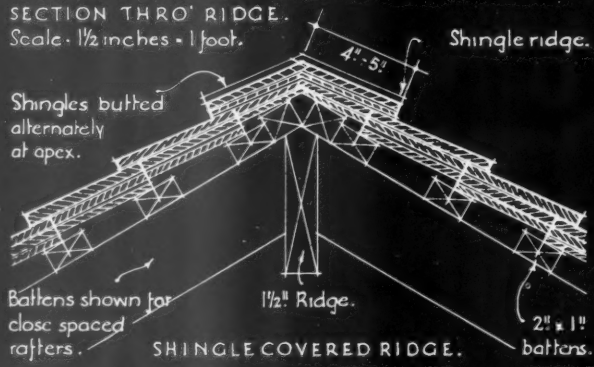
WEIGHT.

- Shingles are approximately ⅒th the weight of tiles. Roof timbers may be reduced & spaced more widely.



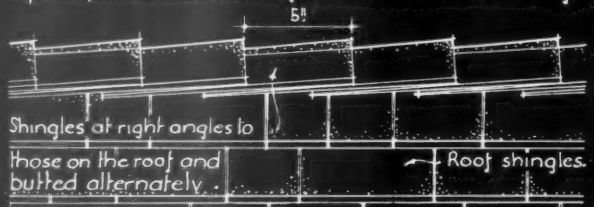
TWO TYPES OF FINISH TO ROOF RIDGE :

SECTION THRO' RIDGE.
Scale - 1½ inches = 1 foot.

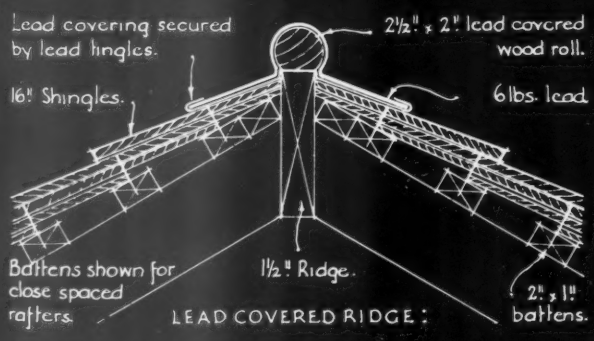


SHINGLE COVERED RIDGE.

The ridge tiles are lapped at right angles to those on the roof. Hips may be covered with shingles in the same manner as ridges.



SIDE ELEVATION OF A SHINGLE RIDGE :

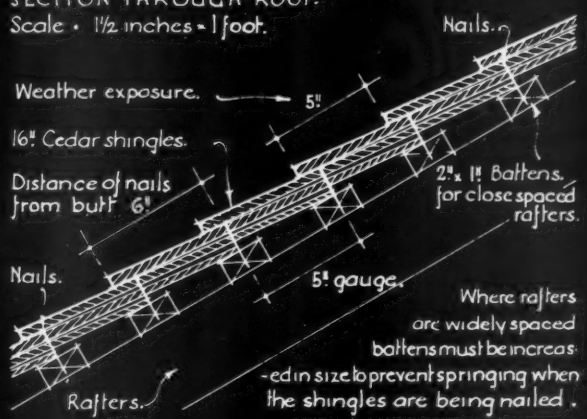


LEAD COVERED RIDGE :

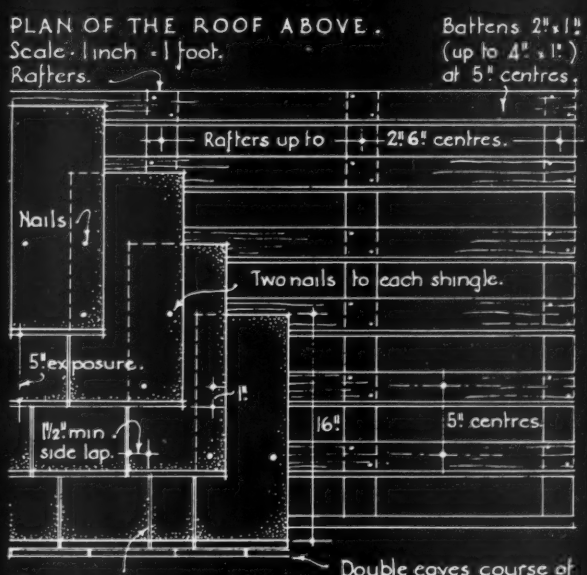
Battens are preferable to boarding as they allow air to circulate

METHOD OF FIXING SHINGLES ON A ROOF:

SECTION THROUGH ROOF.
Scale - 1½ inches = 1 foot.



PLAN OF THE ROOF ABOVE.
Scale - 1 inch = 1 foot.



Information from The Timber Development Association.

INFORMATION SHEET : CUTTING AND FIXING OF CEDAR SHINGLES.
SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1.

THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 328 •

ROOFING

Type of Product : Wood Shingles

Timber :

Examples may be found in this country of shingle work in oak, elm, pine and teak, but these woods are seldom, if ever, used now, red cedar having become the standard wood for the work owing to its greater durability and other characteristics.

Red cedar is also known as western red cedar, cedar wood and red wood.

Very good shingles can also be cut from cypress, but the wood is generally less used than cedar.

Sawn Shingles :

Shingles may be cut from the block by cutting :

(a) Tangential to the annular rings, producing " slash grain " shingles.

(b) At right angles to the annular rings as shown in the diagram on this Sheet, producing " Edge Grain " shingles.

Slash-grain shingles should never be used for good work, as the life of the shingle is short. They are liable to warp, shrink, split and curl after comparatively little exposure.

Edge grain shingles should always be used, as they do not shrink, curl, or warp.

Split Shingles :

Are generally regarded as being better than sawn shingles. They are heavier, may be obtained in lengths up to 25 in. and are said to be more durable. They are not, however, used to any large extent in this country.

Sizes and Grading :

Edge grain shingles are cut in various lengths, but as imported into this country they are in standard nominal lengths of 16 in., the actual length varying from 15½ to 16½ in. The widths vary from 3 in. to 12 in., shingles always being supplied and laid in random widths.

Shingles of greater width than 10 in. should be cut in half, as it is not advisable to lay them in great widths.

Edge grain shingles are sorted into five grades, the first quality being free from all knots and sap, and being straight grained throughout. This grade should be used wherever possible.

Laying :

Pitch.—The minimum pitch recommended for a 5 in. gauge is 30 deg., but a lower pitch may be used if a 3¾ in. exposure or gauge is used.

Exposure or Gauge.—A 5 in. exposure is recommended, giving a 6 in. lap beneath the shingle course above.

Weight :

The weight per square of cedar wood shingles laid is 144 lbs.

Battens :

Edge grain shingles, being tapered and not being subject to warping, lie close upon one another, and it has been found in practice that close-boarding or underfelting is unnecessary.

Shingles laid direct to battens give the best roof, the lightest construction and the greatest economy and, in addition, the method has the advantage of leaving a free air circulation on both sides of the shingles.

Roof Construction :

Generally, the roof construction required is of normal type and depends upon the conditions and type of job. If it is, however, of much lighter type than is required for tiling or slating, rafters may be lighter and more widely spaced.

As the limiting factor is the springiness of the roof during nailing, the roof construction may be either :

(a) Very light battens, e.g. 2 in. × 1 in., with fairly close spacing of rafters or

(b) Heavier battens, e.g. 4 in. × 2 in., and widely spaced rafters. The sizes most commonly used are 3 in. × 2 in. or 4 in. × 2 in. rafters at 2 ft. to 2 ft. 6 in. centres with 2 in. × 1 in. battens at 5 in. centres.

Nailing :

Each shingle is nailed twice as shown, the nails running through two shingles and the tip of the third.

Nails should be 15 gauge, 1⅛ in. long, and may be flat headed copper nails, or the best hot spelter galvanised or zinc coated wire nails.

Nails required : approximately 2 lbs. per square.

Ridges, Valleys, Gutters, Etc. :

Two methods of constructing a ridge are shown in this Sheet, and further details of a similar kind are to be given in a further Sheet of this series. Flashings are usually carried out in lead and in principle are the same as for other roofing work ; where special details are used for shingle work they will be shown.

Weather Resistance :

The close fitting character of edge grain shingles ensures a completely draughtproof roof when properly laid.

Durability :

The Forest Products Research Laboratory, at Princes Risborough, have reported :

" Red cedar remained completely immune from fungus attack in this experiment, and must be considered as possessed of great natural resistance to attack of dry rot, and other fungi, a resistance exceeding that of oak."

The life of the roof is usually determined by the durability of the nails used, and it is said that if only the best quality nails are used, a roof should last up to 60 years.

Weathering :

Red cedar shingles, left untreated, weather rapidly to a silver grey colour and remain so indefinitely.

Shingles dipped in oil keep the natural brown colour for some years, gradually changing to a dark grey.

Fire Risk :

Fire insurance rates are the same for buildings with wood shingle roofs as for other types of roof.

The close fitting nature of the shingle roof prevents upward draughts developing and drawing a fire from the interior of the house into the roof timbers.

Insulation :

1 in. of red cedar equals 12 in. of concrete ; 7½ in. of brick ; or 7½ in. of clay tile in insulation value.

Cost :

The average cost of plain shingling in normal straight work (material only) is approximately 32/- per square. Labour for fixing averages approximately 10/- per square.

General Data : Covering Capacity :

4 bundles on roofs at 5 in. exposure, 100 sq. ft.

4 bundles on walls at 7½ in. exposure, 150 sq. ft.

Waste—for average conditions allow 5 per cent.

Weight—average 144 lbs. per square.

Nails—15 gauge 1⅛ in. long, 2½ lbs. per square.

Sizes—16 in. nominal by 3 in. to 12 in. wide.

Issued by: The Timber Development Association, Ltd.

Address : 69 Cannon Street, E.C.4

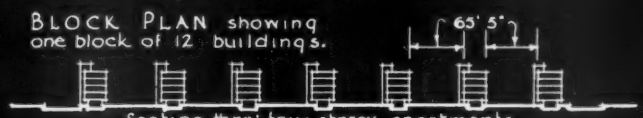
Telephone : City 2714

8

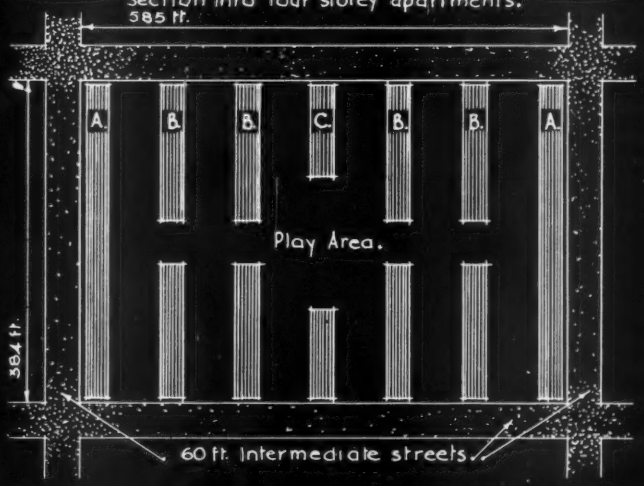
THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

TYPE : FOUR STOREY BLOCKS.

BLOCK PLAN showing one block of 12 buildings.



Section thro' four storey apartments.

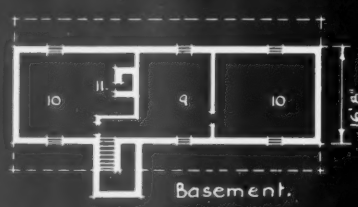


SITE PLAN OF 12 BLOCKS.
for notes see back of sheet 2.

Block size (property line to property line)	384 x 585	ft
Streets bordering 12 block area, width of	80	"
Intermediate streets, width of	60	"
Sidewalks, width of	10	"
Population for 12 blocks	16,128	People
Area built on	27·7	%
Play area for 12 blocks	67,500	sq. ft
Density per gross acre	216	People

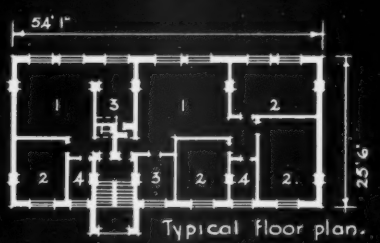
Number of buildings, 12 blocks	Number of units in 12 blocks	Number of rooms, per unit	Total no. of rooms in 12 blocks
24 Buildings (A.) 7 units each	168	32	5,376
96 Buildings (B.) 3 units each	288	32	9,216
24 Buildings (C.) 2 units each	48	32	1,536
Grand total	504		16,128

LEGEND:
1. Living room.
2. Bed room.
3. Kitchen.
4. Boiler.
9. Storage space.
10. Boiler room or storage.
11. Incinerator.



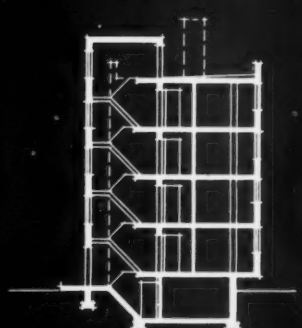
Basement.

Scale for plans and section



Typical floor plan.

PLAN OF FOUR STOREY APARTMENTS.
Cantilever construction.



SECTION.

Factual data of one complete unit:

	Four storey buildings
Number of rooms per floor (including kitchen)	8
" " 3 room apartments per floor	1
" " 4 " " " "	none
" " 5 " " " "	1
Total number of " " " "	2
" " " " unit	8
" " " rooms " "	32

Information from The Housing Study Guild, New York.

(5)

INFORMATION SHEET: ANALYSIS OF VARIOUS TYPES OF HOUSING SCHEME

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON W.C.1.

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

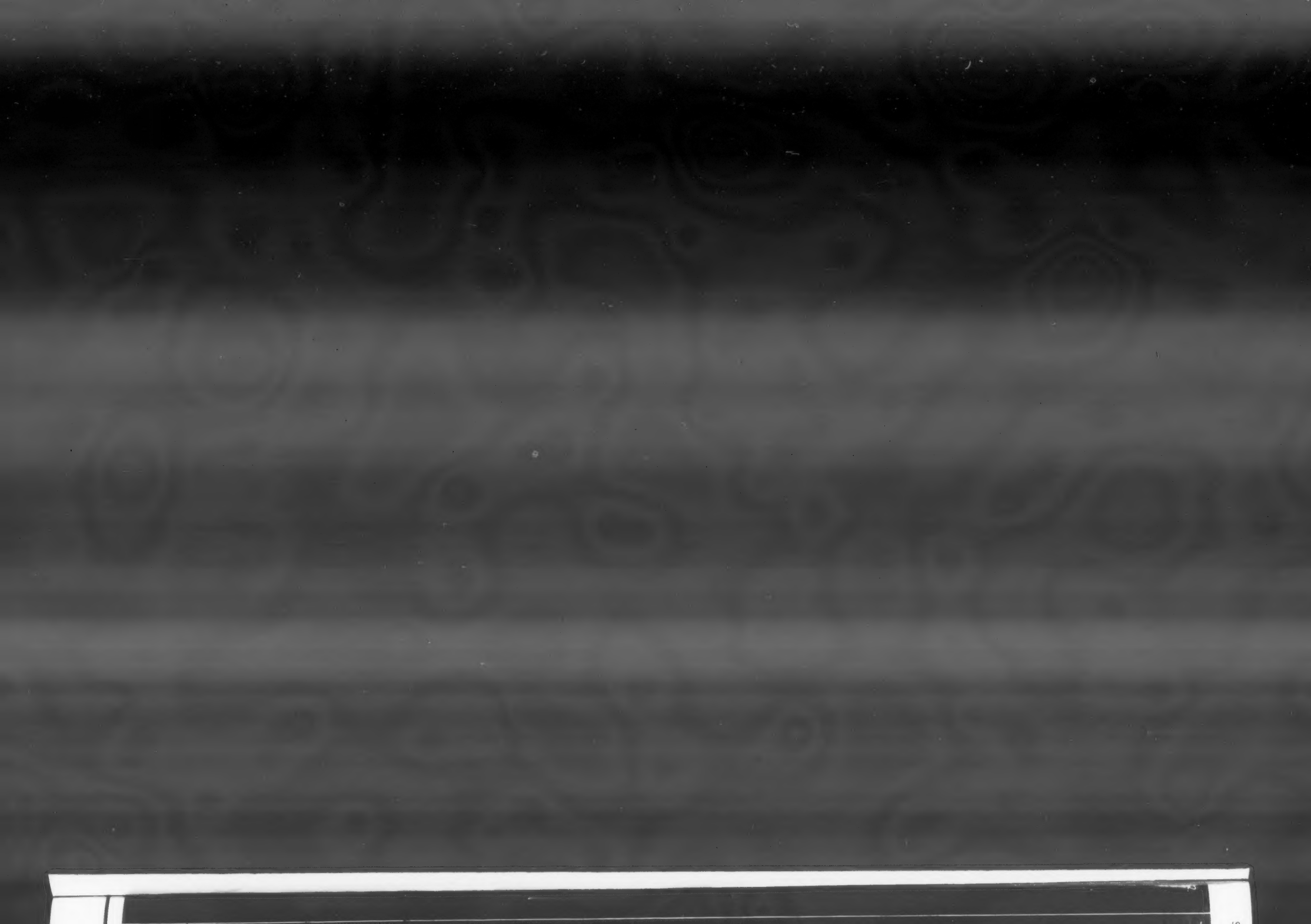
• 329 •

AMERICAN HOUSING

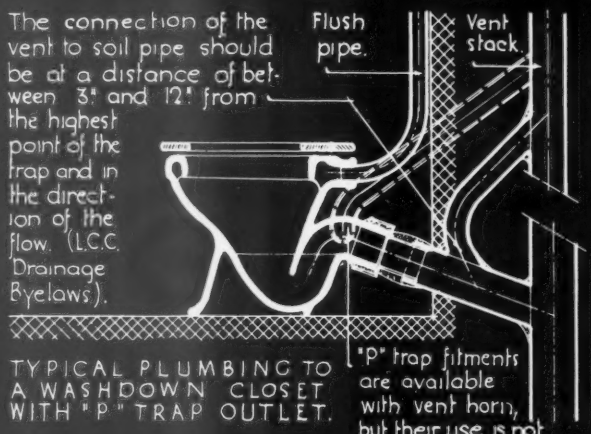
(v)

This sheet gives the site lay-out, plans, sections and general data for the four-storey flat block with basement. See also Sheets 292, 297, 301 and 305.

COSTS	Cost per 32-room unit	Cost per room including kitchen
Foundations and Basement :—	$	$
Excavation and disposal by steam shovel	161·60	
By hand	61·45	
Backfill	17·60	
Rough grading	13·00	
Concrete footings and basement walls, including forms and reinforcement	712·00	
Steel columns	123·50	
Floor screed	156·75	
Concrete waterproofing	25·75	
Total	1,271·65	39·75
Basement Finish :—	$	
Stairs, forms and reinforcement	14·10	
6 in. hollow tile walls	54·00	
2 in. plaster partitions	29·30	
Perambulator store (wood partitions)	18·20	
Steel sashes and glazing	18·35	
3 fireproof doors and hardware	56·10	
Whitewashing and painting	26·00	
7 electrical outlets and fittings	32·75	
Slop sink	44·00	
Total	292 80	9·15
Structure and Enclosure :—	$	
Steel columns	438·50	
Setting-out anchor bolts	8·85	
Grouting column bases	4·40	
Floor slabs, forms and reinforcement	2,540·15	
Roof slab, forms and reinforcement	630·70	
Hollow-tile walls	353·00	
Curtain walls with external stucco and internal plaster	1,100·20	
Steel sashes and glazing	908·50	
Insulation	194·45	
Total	6,178·75	193·10
Stairs, Halls, Corridors, etc. :—	$	$
Stair landings, forms and reinforcement	72·00	
Staircase roof, forms and reinforcement	54·70	
Stairwell walls, hollow tile glazed	766·25	
Steel stairs and intermediate landings	397·30	
Steel sashes and glazing	57·20	
1 fireproof entrance door, 1 bulkhead door and furniture	73·50	
Painting of stairs, ceilings, windows and doors	59·90	
7 electrical outlets and fittings	32·75	
Bellwork and mailboxes	55·80	
Porch, floor and finish, roof insulation, etc.	125·00	
Total	1,694·40	52·95
Roof :—	$	$
Copper flashings, etc.	86·15	
3-ply roofing	89·75	
Insulation and screeded fill	223·05	
Parapet. hollow tile, glazed inside, rendered outside	300·00	
Parapet, glazed tile coping	61·00	
Total	759·95	23·75
Finishes and Equipment :—	$	$
Column fireproofing (2 in. hollow tile and plaster)	291·50	
2 in. plaster partitions	812·00	
Plastering of internal walls	129·20	
8 fireproof entrance doors and furniture	187·60	
28 internal doors and furniture	294 00	
⅞ in. hardwood floors	950·20	
Skirtings and picture mouldings	172·90	
Tile floor for bathrooms	180·00	
Painting : walls, ceilings, doors, etc.	774·80	
32 metal wardrobes	400·00	
8 kitchen cabinets	360 00	
8 medicine cabinets	52·00	
52 window blinds	52·00	
8 gas cookers	200·00	
8 refrigerators	640·00	
Total	5,496·20	171·75
Plumbing :—	$	
Cost per unit, not including gas lines	3,048·00	95·25
Heating :—See Sheet 297.	$	
Total cost	1,702·08	53·19
Gas and Electrical :—	$	
Initial cost of gas carcasing	224·00	
Electric meter connections	23·36	
88 outlets and fittings	412·00	
Total	659·36	20·58
Total cost per room, including kitchen		$685·72

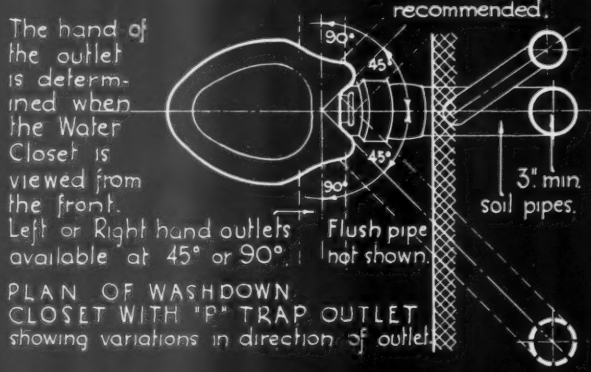


THE ARCHITECTS' JOURNAL LIBRARY OF PLANNED INFORMATION

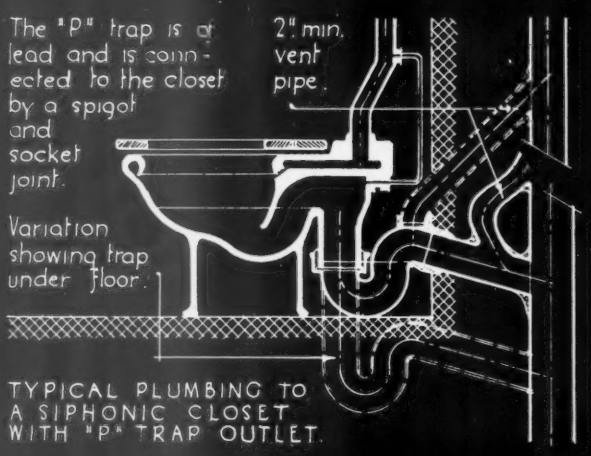


TYPICAL PLUMBING TO A WASHDOWN CLOSET WITH "P" TRAP OUTLET.

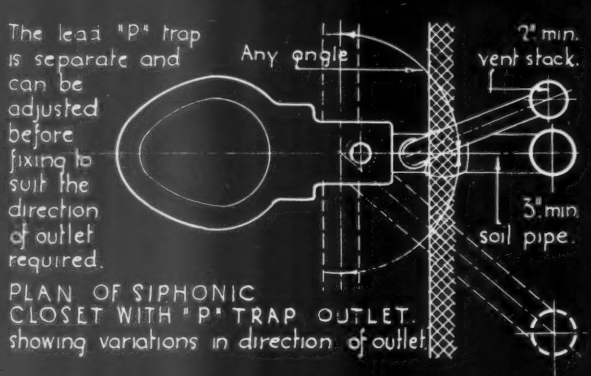
"P" trap fitments are available with vent horn, but their use is not recommended.



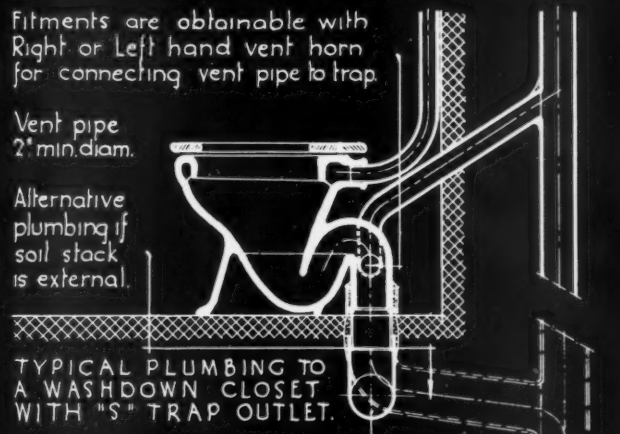
PLAN OF WASHDOWN CLOSET WITH "P" TRAP OUTLET showing variations in direction of outlet.



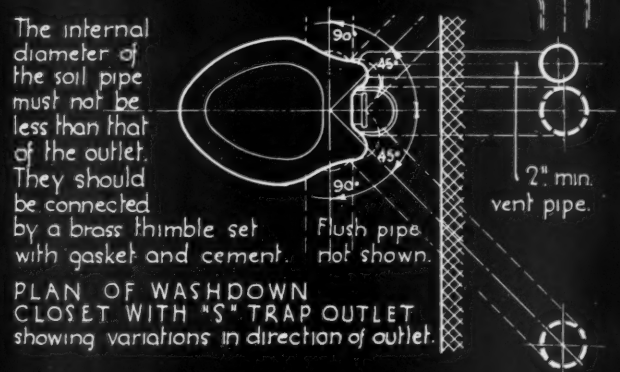
TYPICAL PLUMBING TO A SIPHONIC CLOSET WITH "P" TRAP OUTLET.



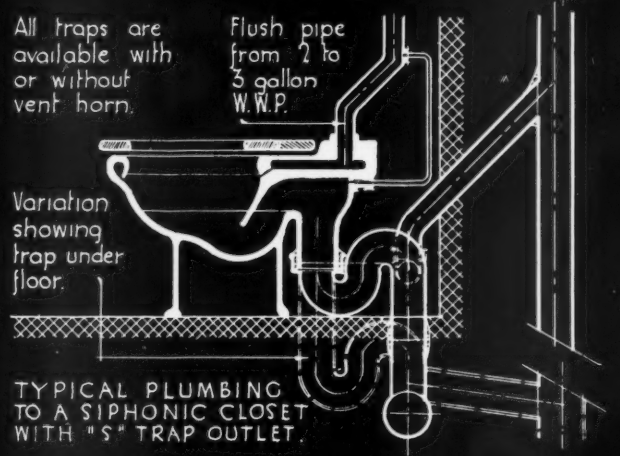
PLAN OF SIPHONIC CLOSET WITH "P" TRAP OUTLET. showing variations in direction of outlet.



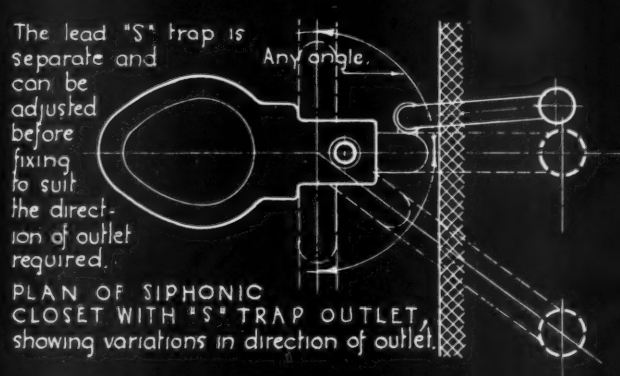
TYPICAL PLUMBING TO A WASHDOWN CLOSET WITH "S" TRAP OUTLET.



PLAN OF WASHDOWN CLOSET WITH "S" TRAP OUTLET showing variations in direction of outlet.



TYPICAL PLUMBING TO A SIPHONIC CLOSET WITH "S" TRAP OUTLET.



PLAN OF SIPHONIC CLOSET WITH "S" TRAP OUTLET. showing variations in direction of outlet.

Information from the Lead Sheet & Pipe Development Council.

INFORMATION SHEET : VARIOUS ARRANGEMENTS OF PLUMBING TO W.C's.-18-

SIR JOHN BURNET TAIT AND LORNE ARCHITECTS ONE MONTAGUE PLACE BEDFORD SQUARE LONDON WC1 • Oscar A. Bayne.

THE ARCHITECTS' JOURNAL
LIBRARY OF PLANNED INFORMATION

INFORMATION SHEET

• 330 •

PLUMBING

Subject : Plumbing to Water Closets

This Sheet gives details of the arrangement of pipes to water closets of the washdown type and the syphonic type.

These details show the clean and simple way in which pipes can be brought to the fittings if the relative positions of fitting and stack have been studied and provided for.

It is essential, if work of this quality is to be obtained throughout a job, that the arrangement of the pipes should be considered at an early stage of the work.

If sufficient study has not been given to this part of the work, the plumber is faced with difficulties and obstacles which he can usually surmount satisfactorily from a plumbing point of view only by arrangements and devices which are unsatisfactory from the architectural aspect.

Careful consideration of the plumbing system at an early stage usually results in a much more economical system, savings being effected both in material and labour, and it avoids the use of tortuous and ugly branches in much exposed pipe work.

Closets :

Water closets are manufactured in a great variety of design, of fireclay and earthenware, and of two main types, the washdown type and the syphonic type.

Washdown Closets :

Are manufactured with P-trap and S-trap outlets and they are usually to be obtained with the outlet discharging centrally on to the left or right at angles of 45 deg. to 90 deg. as indicated. Many designs are also provided with vent horns formed in the outlet, to receive the lead vent pipe, where this arrangement is permitted by the local authority.

Where this type is not used, the vent is connected to the lead branch as shown.

Syphonic Closets :

Are manufactured with P-trap or S-trap outlets which are adjustable to discharge in any required direction.

Pipe Work :

Lead branches should always be used between the soil stack and the fitting and the flexibility of the material permits the slight movements to be expected in the fitting itself and in the stack. Where a hard metal is used for the branch, any movement is liable either to break the joints or to crack the w.c. pan.

The branch is joined to the lead soil stack by a wiped joint.

Methods of jointing to cast-iron and stoneware pipe have been detailed in previous Sheets.

Sizes of Pipes :

Branch pipes should never be less in diameter than the diameter of the outlet to the pan. Branches are usually 3 in. or 3½ in. in diameter and stacks 4 in., although 3 in. in stacks are permitted in some districts.

Vents should never be less than 2 in. in diameter. Flush pipes are usually 1¼ in. internal diameter, but the size should be increased to 1½ in. (or even 2 in.) if the cistern is less than 5 ft. above the inlet to the pan.

General Arrangement of Plumbing :

The general arrangement of pipework, the venting of pipes and of fittings has been dealt with in the Sheets on the "one pipe" and "two pipe" systems of plumbing.

Information from : The Lead Sheet and Pipe Development Council

Address : Golden Cross House, Duncannon Street, W.C.2

Telephone : Whitehall 3715