SOUTH AFRICAN ARCHITECTURAL RECORD

THE OFFICIAL JOURNAL OF THE INSTITUTE OF SOUTH AFRICAN ARCHITECTS, INCLUDING THE CAPE, NATAL, ORANGE FREE STATE AND TRANSVAAL PROVINCIAL INSTITUTES AND THE CHAPTER OF SOUTH AFRICAN QUANTITY SURVEYORS

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VOLUME 39

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A LAWRENCE H. TEARLE PUBLICATION

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Published for the Institute by
LAWRENCE H. TEARLE & CO. (PTY.), LTD., 206-208, Jubilee House, 15, Simmonds Street, Johannesburg. P.O. Box 9759. Phone: 33-3827/8

INFORMATION SHEET

Issued by the National Building Research Institute of the South African Council for Scientific and Industrial Research.

Removal of Stains from Face Brick Masonry

157 Q. What is the best method of removing cement or lime stains on face brick masonry?

A. The disfigurement of face brick masonry which results from plaster and mortar droppings and smears should be prevented either by covering the masonry with paper, or cleaning off such stains with a damp hessian pad, or bristle brush, within two hours of the material fouling the wall. If this has not been done, and such material has dried out it is afterwards quite difficult to remove.

Where early cleaning has been neglected, the best treatment is to wet the surface of the masonry thoroughly by spraying with a hose and, after scraping off the more severe stains, removing the rest by applying a solution of one part by volume of hydrochloric acid (Spirits of Salts) to about eight parts of water by means of a hessian pad and scrubbing. Where the stains are severe, the use of a metal scraping tool is again necessary. When the material has been removed, the wall should be well washed down with clean water. If the staining has been particularly severe or the walls inadequately washed down after treatment, they will, after drying, have a whitish dusty appearance. The disfigurement can be removed by a further application of a more dilute solution of acid — 1 part acid to 20 parts water, followed by washing.

In using hydrochloric acid it must be remembered that, in addition to being poisonous, it is a very corrosive chemical, which should be mixed and stored in a glass or porcelain container. Care should be taken in handling it and rubber gloves should always be worn when applying it.

It must be stressed that prevention is better than cure and it is strongly advised that staining by mortar or plaster should be prevented by covering or by early cleaning as mentioned above, rather than dependence being placed on the more expensive and laborious acid washing treatment.

Cracks in Reinforced Concrete Piles.

158 Q. Transverse cracks, which cannot be attributed to the usual causes, are sometimes observed at from about 1 ft. to 2 ft. centres in reinforced concrete piles after they have been driven. What is the cause of these cracks and how can they be avoided?

A. Cracking which was probably of the type referred to in the question, was recently observed in some reinforced concrete piles driven through loose sand into hard shale at a depth of about 30 ft. These piles were carefully handled and no cracking was observed prior to or during driving. In fact, the cracks were only discovered when the top 10 ft. of the piles were exposed during excavation for an abutment.

The driving conditions under which such cracks develop appear to be well defined, viz. hard driving against a relatively impenetrable medium, the major part of the pile being above ground or otherwise unsupported.

The appearance of the cracks proves that tensile stresses occur in the piles, but just how these arise has not been conclusively demonstrated and it is probable that the cracking, which occurs under these driving conditions, is due to a series of causes which tend to augment each other. As concrete piles are usually made of a rich mix, tensile stresses exist in the concrete before driving commences, due to the resistance of the longitudinal steel to the shrinkage of the concrete. When the relatively impenetrable medium is encountered, the hammer blow causes a compression wave which travels down the pile to the bottom. The wave then rebounds, due to the high point resistance, thus putting the pile into a state of longitudinal vibration. Also, due to lack of lateral support, the piles tend to vibrate transversely as cantilevers held at the bottom end by the more solid material causing the hard driving. The tensile stresses caused by these two vibrations increase the tensile stresses already existing due to shrinkage at certain positions along the pile. This may result in the formation of transverse cracks at these points.

If this explanation of the formation of the cracks is correct, the preventative measures to be taken are:—

(1) Proper design of the mix and curing of the concrete to reduce shrinkage to a minimum.

(2) Use of a thicker packing and/or heavier hammer to reduce longitudinal vibration.

(3) Care that the blow is struck axially and that the helmet and dolly fit evenly on the pile head; restraint of the pile at several points along its length and prevention of swaying of the frame so as to minimise transverse vibrations.

If jetting is possible this may prevent the formation of the cracks by removing the high point resistance. However, the use of jetting may aggravate the condition because, if used in the early stages of driving, it may destroy any lateral support on the top portion of the pile, thus reducing the damping effect on the vibrations.

Filter Design

159 Q. How can a fine-grained soil be drained without the material clogging the drains?

A. It is often necessary to keep a fine-grained soil well-drained in order, either to maintain or to increase its strength. Any fine-grained material washed into the drains will cause them to clog and thus cease to function. To prevent fine material entering the drains, they should be surrounded by correctly designed graded filters.

These filters consist of successive layers of material of decreasing grain size. Fig. 1 illustrates 4 types of drain with filters:—

(a) a toe drain used along the toe of an

embankment to collect seepage from the embankment;

(b) a French drain;

(c) a porous pipe drain used to drain wet soils on the level or on slopes;

(d) a drain behind a retaining wall to reduce the water pressure behind the wall.

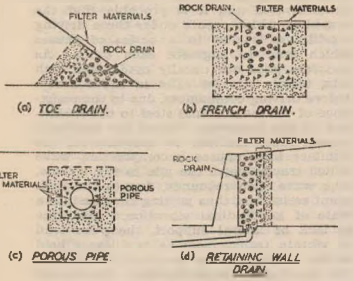

Fig. 1.

To ensure that the filters do not become clogged, the filter materials must be selected so that the finer material does not wash into the voids of the coarser material in the next layer. There will be no danger of this occurring, if the gradings of the two materials are properly selected. The criterion is that the ratio of the sieve size allowing 15 per cent. of the coarse material to pass, to the sieve size allowing 85 per cent. of the finer material to pass, should be greater than 4.

Artificial Illumination

160 Q. What factors influence the life and light output of filament lamps?

A. The life and light output of a filament lamp are inter-dependent, both being largely determined by the temperature of the filament when burning. Normally, the higher the filament temperature the higher will be the light emitted per watt power consumed (otherwise called the efficiency of the lamp) but the shorter will be the life of the lamp. Thus, lamps may be designed either for a long life with a low light output or for a higher output at the expense of a short life. In practice, lamp manufacturers aim at producing a general service lamp which will normally burn continuously for at least one thousand hours at constant rated voltage, with an initial efficiency of between about 9 and 15 lumens per watt, depending on the voltage and wattage rating of the lamp.

The life of a lamp can be seriously affected by variations in the voltage applied. Over-voltage running will result in a higher filament temperature and therefore a higher light output, but the life of the lamp may be shortened considerably. For instance, for the average type of lamp, a voltage of 5% above normal results in an increased light output of approximately 20%, but the life of the lamp will be about halved. Under-voltage running, on the other hand, will have the opposite effects. In this respect, it will be appreciated that the life of a lamp is greatly dependent on the nature of the voltage variations in the local power supply. It is not recommended that a higher voltage lamp be used to overcome troubles in regard to reduced lamp life since light output is then seriously reduced without a corresponding reduction in the wattage consumed; in other words, current is not being used economically.

Normally, the light output of a lamp depreciates gradually throughout life due to evaporation from the filament and consequent blackening of the inside surface of the glass bulb. With most types of lamp the depreciation in light output is reduced when the lamp is burned base upwards so that most of the blackening occurs near the base itself.

Other factors which affect the life of a lamp are its operation under conditions which cause excessive bulb temperatures, and contact between lamp and shade causing a local cooling effect, vibration and shock.

Copies of this sheet may be obtained on application to the Director, National Building Research Institute — P.O. Box 395, Pretoria

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Photo: E. Robinson

PROJECT FOR THE NEW GOVERNMENT CENTRE, LUSAKA, N.R.

FLEMING AND COOKE, AA.R.I.B.A., MM.I.A., ARCHITECTS

The vast development of Northern Rhodesia caused a corresponding growth of its administrative centre in the capital of Lusaka. As a result the Government required a large group of offices to house the various departments, which had outgrown the confines of the existing Secretariat Building.

Preliminary designs were prepared and Models were made. Photographs of these are used here to illustrate the scheme.

One Model was made to thirty second scale, of the entire Government Centre, covering an area of approximately a mile by two thirds of a mile, only the central portion of which is illustrated here. This follows a plan of the area, prepared by the Government Town Planning Department. The buildings modelled comprise existing buildings, buildings already planned or in course of construction and many conjectural buildings. The conjectural buildings are mostly those, the nature of which and whose siting have already been determined, for example the Cathedral, the High Court and the Town Hall and Municipal Offices.

The site chosen for the new Government Buildings, is directly opposite the existing Secretariat across Ridgeway, which is the most important road linking the town, the Government Centre and Government House.

Between these two is enclosed a large Government square which extends from the new buildings on the North, to the Secretariat on the South and enclosed by colonnades and architectural screens to East and West. This square is 600 feet in length which is approximately the same as that of St. Marks Square in Venice or the Library Square in Johannesburg.

The buildings were so grouped, that this large square contains a number of smaller squares, which lead off from it and from one to another. These partially enclosed squares, linked with the main place, or slightly separated by colonnades, were an attempt to give depth and visual penetration to the area. The enclosure of space is suggested, not rigidly bounded. Also the scale is reduced in the more intimate squares between buildings; and interest and variety has been aimed at in the vistas through them.

The loggia which penetrates through the central block allows a view from the Secretariat through it, to the North; and in the opposite direction the

Secretariat can be seen framed by the loggia, looking through it, from the North side.

The Vista down Ridgeway from the East, terminates on the Cathedral, with the Tower of the Government Buildings forming a strong accent.

To the North of this group is the High Court in the centre, flanked by legal chambers. Further to the North extend two large groups of commercial office buildings grouped round open courtyards. These would be for large companies such as Insurance or Building Societies as well as professional offices. The group of Municipal offices and the Town Hall are projected opposite the new Ridgeway Hotel and a conjectural Legislative Assembly building stands near the Cathedral, all occurring on Ridgeway immediately to the North-East of the layout illustrated on plan.

This briefly describes the new group of buildings in relation to the Secretariat.

The other model executed to one-eighth scale illustrates the new Government Buildings.

The requirements were for a very large number of offices, to house various Government Departments, for example, those of Public Works, Education, Agriculture, Health and many others.

It was determined that the amount of contact between departments, such as those mentioned above, was not so great as to warrant a vast compact building, built to a considerable height. In fact separate buildings loosely linked functioned as well; gave separate identity to various departments; and built to a lower height, grouped round shady courtyards, were more appropriate in the hot climate. There also seemed a need to enclose space on the large site available and so form a precinct type of development.

Thus the four separate blocks, the centre one housing mainly the Public Works Department and the others, Health, Agriculture and Education with additional departments, were evolved. This arrangement permits the group to be built in stages.

Offices of varying but normal sizes were required but no large rooms for assembly. These were planned on either side of corridors, on the basis of a regular module.

Due to the aspect which is mainly South West, great care had to be taken to prevent excessive penetration of sunlight and sky glare into the buildings, while providing an even distribution of light. This has been done by means of projecting hoods over the windows, to exclude the sun when it is high during the day; and by projecting vertical fins between the windows to exclude the early morning and late afternoon sun; which strikes the building obliquely and at low altitude. Staircases and the tower are screened with pierced grilles.

The tower, while it provides some useful accommodation; frankly serves an architectural and symbolic

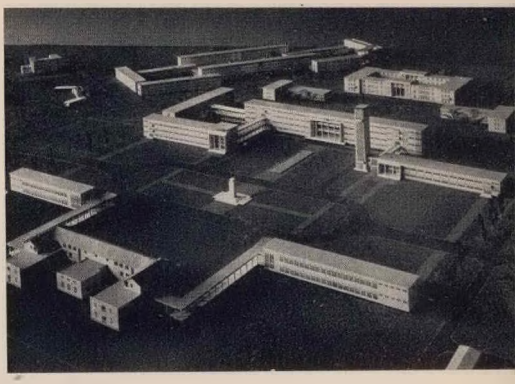
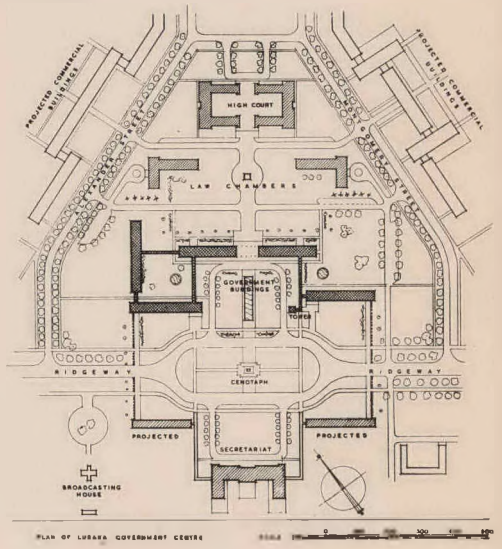


Photo: E. Robinow

OPPOSITE: Detail of the new Government Buildings from the Square.

ABOVE: Photograph of the small scale model showing the layout of the Government Centre as projected. The existing Secretariat building is seen in the left foreground, facing the new Government Buildings across the great Place with the cenotaph on the Ridgeway axis. To the north, on the cross axis are seen the High Court and Legal Chambers as well as the intended commercial developments beyond.

BELOW: The Layout Plan showing the Government Centre, the square on Ridgeway and the several buildings constituting the scheme.



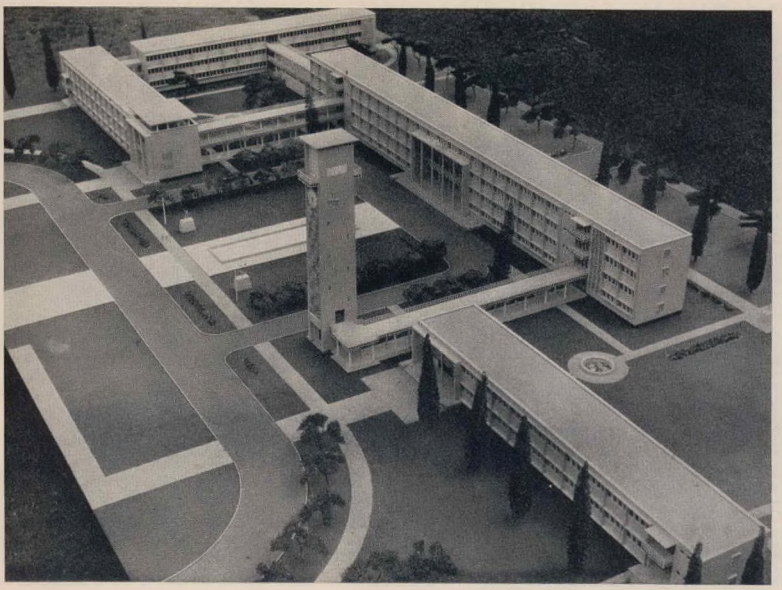
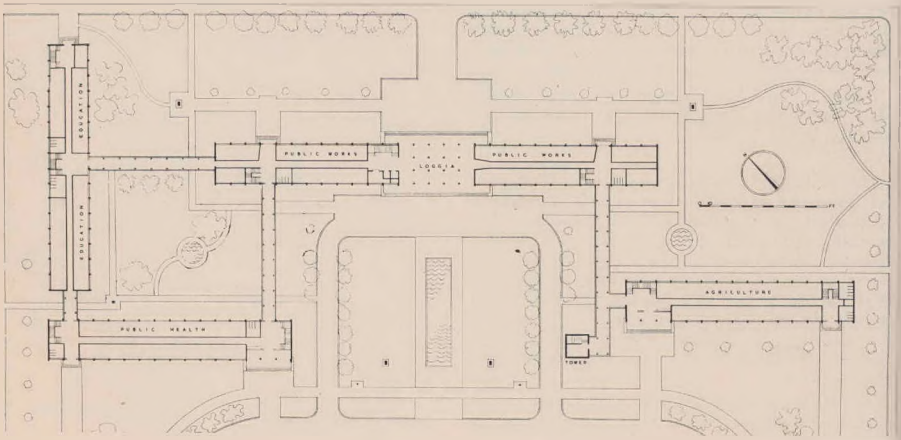


Photo: D. A. Bridge

ABOVE: Birds-eye view of the Government Buildings, linked together and grouped about shady landscaped courtyards, giving scale and punctuation to the generous spaces about the buildings.

BELOW: Plan showing the main elements of the government group.



RIGHT: A view across the group looking South, showing the pleasing character of the court defined by the covered link, and visually related to the main Square. This view also shows the methods adopted to screen the interiors from sun penetration.

BELOW: A view from the East. It will be seen that, by reason of the orientation of the wings, all facades merit the same protection against sun penetration.

Photos: D. A. Bridge

purpose. Its verticality is a foil to the long low line of buildings; and a foil also to the generally flat country in which Lusaka lies. Also, being well seen, standing on the highest ground in the town, it would mark the centre of Government from many miles round.

The building is enriched with low relief sculpture at various points, and sculpture in the round is suggested in the gardens.

Many formal architectural problems were implicit in the very nature of the scheme. The foremost of these was to create in the group of buildings a character and atmosphere of a Government Centre, a Capital in Central Africa.

Clearly a particular emotional ingredient was called for; a requirement which could not be met in terms of the old monumentality and the "grand manner". These are reminiscent of the vastly different ideological climate pertaining before the two wars, so aptly expressed in the classical architecture of the time, for example at Delhi. In recent decades this problem is largely without precedent, or will be until Le Corbusier's capital at Chandigarh in India emerges.

The new architecture, by its very nature, has not as yet to any great extent, expressed itself monumentally, at any rate in the type of buildings where previously this was expected.

Another problem here, was that of reconciling the new Buildings with the existing Secretariat. This was aimed at by linking it with colonnades to the whole group, and by placing the main block centrally upon its axis. Thus it was hoped to integrate it firmly into the whole complex while at the same time it stands distinct.

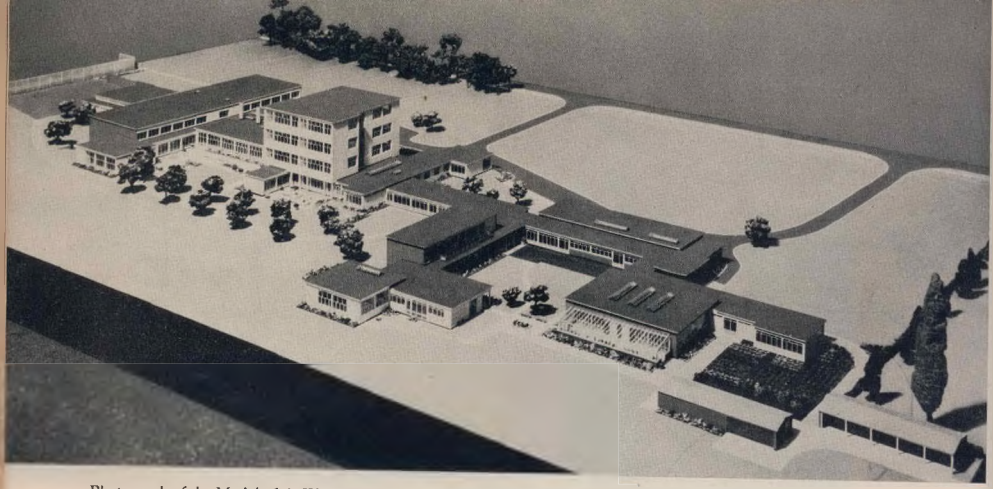
To achieve a character that is by nature African, seems a task that can hardly be approached self-consciously, but should rather emerge from local conditions, such as climate, or shadow under a brilliant sun.

* * *

These designs were prepared before the advent of Federation and now that this is established, it is evident that the Government's building requirements will alter, and consequently it seems probable that this project will not be carried out entirely in its present form or at the present time.

As mentioned, much of these models is conjectural, but an indication is given of developments that could be expected in a long term view, which may be of value at an early stage, in this fast developing centre.

The models were sensitively and skillfuly made by Mr. C. J. Pienaar.



Photograph of the Model of theWokingham School, the prefabricated construction of which is described in the accompanying article.

MINISTRY OF EDUCATION DEVELOPMENT WORK, WOKINGHAM

BY JOHN STILLMAN AND JOHN EASTWICK-FIELD

For a purely technical description of the components and the method of their assembly see *Building Bulletin No.* 8,* where a complete and well-illustrated description is given. In the following article we shall describe and comment on the most significant features of the structure, and, by means of photographs, supplement the drawings in the Bulletin. In addition we shall describe how certain of the components are manufactured, since we feel that certain trends in the manufacture of materials and components for building may ultimately have a considerable influence on the industry as a whole.

FACTORY PRODUCTION

A growing proportion of the materials used both in so-called traditional and non-traditional methods of building are now made in a factory before being delivered to the site; for example, the extensive use of precast concrete floor and roof units to replace *in situ* reinforced concrete. As we mentioned in our first article, the difference between traditional building and most systems of prefabrication is, in this respect, less fundamental than might at first be supposed. There are, however, wide differences between the methods of production of various materials in factories, and systems of prefabricated construction vary correspondingly in the extent to which they take advantage of modern mass production methods. For instance, Le Corbusier, when talking of prefabrication, no doubt envisaged production-line methods such as are used to make aeroplanes and motorcars—methods which he considered would lead to savings in labour and cost.

At its worst factory production may now mean little more than the carrying out by hand, under the cover of a shed, the same operations that would otherwise have been carried out on the site. This applies particularly where heavy traditional building materials are used; it is mainly with the new and less orthodox building materials, such as sheet metals, plastics, and building boards, that improved production techniques are employed. It is argued that the setting up of a fully mechanized production line is inflexible, restricts development work, and prevents improvements being made to the design. Nevertheless, it is clear that, once the prototype of a component has been made and tested, a sufficient quantity should be manufactured to make factory production economical.

SITE PRODUCTION

For economic reasons it looks as if the traditional heavy materials—clay, plaster and cement products, all of which are indigenous—will continue to be used for some time in prefabricated systems, even though they may at first appear unsuitable. Perhaps a new kind of factory production is needed to utilize these materials to their best advantage.

In their raw state these materials are already distributed throughout the country, whereas the transport of finished components from centralized plants is costly. The solution may, perhaps, be to bring such plant as is required—and this is often of a fairly simple kind—to the job, and to manufacture the

* HMSO 1952,. 3s. 6d.

components on the site. The originators of the plaster panels used for partitions at Wokingham have intelligently developed this technique: a number of important contractors have leased the necessary plant from them, and have mostly set it up in light demountable sheds on the sites on which they are working. The panels are then manufactured by these firms under licence from the originators. One local authority arranged, as part of a building contract, that a section of the actual building under construction should be set aside for the purpose of producing the panels. This type of prefabrication could well be more widely used for the manufacture of precast concrete products.

NEED FOR MORE MECHANIZATION

Many of the components used at Wokingham, including structural steel-work, pressed metal, metal windows and doors, and concrete products, are made in one factory in the Midlands, and, although the firm has shown great enterprise and flexibility and has been prepared to experiment, it would seem to an outside observer that there is scope in large factories of this kind for improvements in layout and increased mechanization. For instance, Fig. 2 shows each of the welds in a typical lattice beam being made by hand. One would have thought that it would be possible for a repetitive operation such as this to be done by machine, in order to increase output. After all, mechanization, even in the building industry, has been in people's minds for over a hundred years. Giedion, speaking of the American industry of 1850, says: "In America materials were plentiful and skilled labour scarce; in Europe skilled labour was plentiful and materials scarce. It is this difference which accounts for the difference in the structure of American and European industry from the 'fifties on. In America, just about that date, mechanization began to replace skilled labour in all the complicated crafts." Europe has now followed America in suffering from a shortage of skilled labour, and economic forces are bound to lead to much more mechanization.

STRUCTURAL STEEL FRAME

In the opinion of the manufacturer, the steel framework designed for an 8-ft. 3-in. grid for school construction and developed first in Hertfordshire has, after several years of manufacture, reached a stage at which production is unlikely to be interrupted by modifications.

In using at Wokingham a framework which, in many respects, is of a similar character to that which has already been fairly widely used elsewhere, the Ministry was able to benefit from the experience already gained. On the other hand, the adoption of a 3-ft. 4-in. instead of an 8-ft. 3-in. grid meant that a new system had to be designed, and that modifications may have to be made as a result of the experience which will be gained. As secondary schools were being considered, it was also necessary to make it possible to

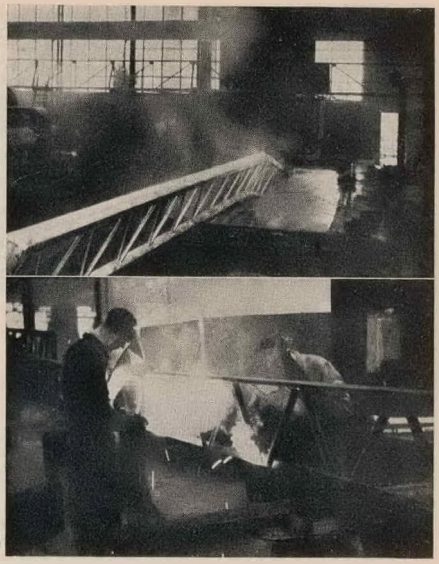


Fig. 1. A cranked lattice beam (not used at Wokingham) being galvanized by dipping in molten zinc. Fig. 2. A steel lattice beam being welded.

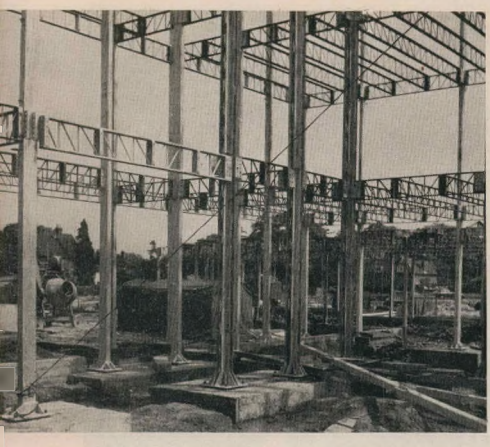
build multi-storey structures. At Wokingham, a four-storey block is being built, but it would be possible with the same structural components to erect a 10-storey building.

As with the 8-ft. 3-in. grid system, the essential characteristic is that the stanchions, where they occur, are placed on the intersection of the grid lines, and that, provided stanchions can be placed not further apart than the span of the longest beam, the planning is restricted only to the line of the grid. External cladding is in front of the columns, and the width of the panels can therefore conform to the grid, although special corner pieces are necessary to cover the exposed portion of the column wherever the wall returns. The partition panels, however, do occur on the grid lines, and narrower panels are required where the partitions abut against the stanchions.

The framework is designed to conform to a vertical module of 2 ft. which controls the finished floor and ceiling levels, the top of eaves and fascia, and the lengths of the stanchions. This module is reduced where necessary to a smaller module of 8 in.

LIMITATIONS OF THE SYSTEM

In considering the system, it must be appreciated that there are, as with all systems of construction, certain limitations, unless "specials" are introduced.



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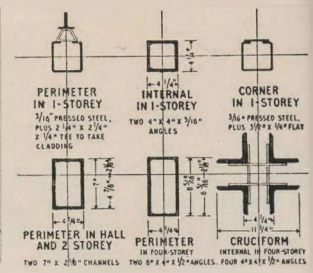

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Fig. 3. Steelwork in 4-storey block, showing stanchion bases and foundations. Box and cruciform stanchions can be seen.

Fig. 4. 4-storey block under erection, note the cleats. Fig. 5. Diagram of stanchion types. BELOW, Fig. 6. Single storey steelwork, showing roof beams at 3 ft. 4 ins. centres. This necessitates an edge beam and more steel than is structurally necessary but it maintains the grid for roof and ceiling units.

Amongst these are: that all roofs must be flat, that beams must be of a constant depth of 16 in. and that, even when the heaviest sections are used, spans are limited. At Wokingham, the maximum span of a 16-in. beam is 30 ft. A hall 46 ft. 8 in. wide was required and, in order to achieve this span, main beams 2 ft. 8 in. deep, were used; this depth preserves the vertical module. The standard secondary beams were replaced with two sets of special beams, 6 in. deep, to receive the roof and ceiling panels.

This use of deeper beams for large spans is restricted to single-storey parts of the building which are mainly independent of the rest.

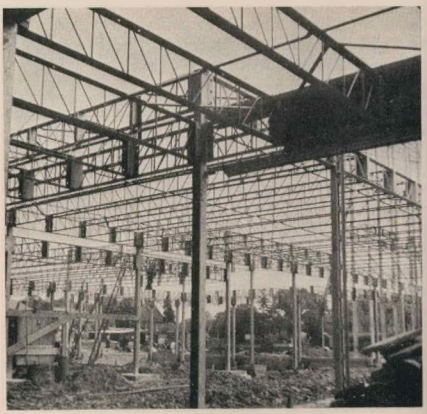
A more fundamental limitation of the system is that in multi-storey construction the floor-to-floor height includes 2 ft. for the depth of the floor construction, and this adds significantly to the cube of the building. (Incidentally, the suspended ceilings used are accepted as giving sufficient fire protection to the steelwork.)

In single-storey work the extra cube and cost of the ceiling may be partially offset against the service ducts in the floor, which would otherwise be necessary.

THE USE OF STEEL

Anyone visiting Wokingham during the course of erection would have been impressed by the seemingly copious use of steel, and on this point the Ministry comments: "Three main factors control its design: first, the components of the frame should be highly standardized; secondly, the frame should permit the simplification and standardization of all the other components of the building; thirdly, it should meet all the conditions of planning within the limitations of the 3-ft. 4-in. horizontal and 2-ft. vertical modules, including any combination of storey heights without loss of standardization. A steel frame designed without consideration of these factors could *itself* have been more economical in steel and money, but these other requirements have been imposed on the steel frame in order to simplify the building as a whole and to save site labour."

The experience gained at Wokingham has suggested one or two modifications to the framework and these are being investigated in connection with the design by the Ministry of a further school at Coventry. It is hoped to reduce the number of bolts for site connections, and experiments have been made to eliminate some of the secondary beams by substituting precast re-inforced concrete floor units spanning between the main beams.



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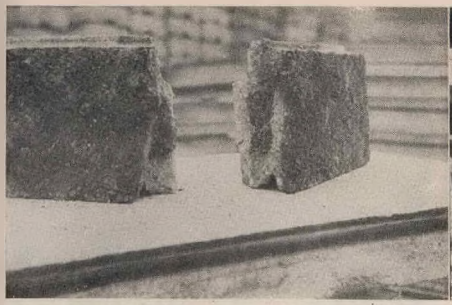

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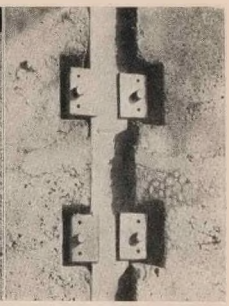

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THE WALL SLABS

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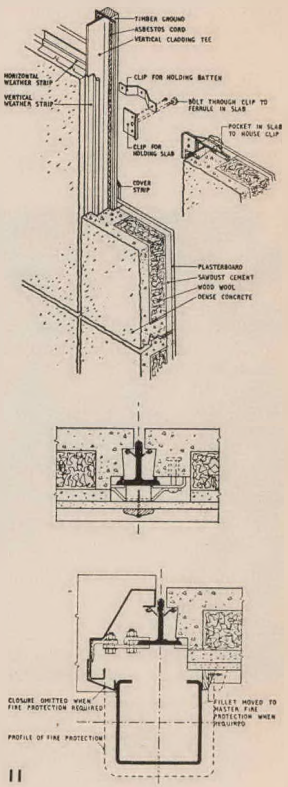
WALL SLABS

Composite concrete wall slabs are used 3¾ in. thick, 3 ft. 4 in. wide and of three heights, 8 in., 16 in., and 2 ft. The slabs form a "one thickness" wall and when erected serve to prevent water penetration and to provide resonable heat insulation. They are self-finished on the outside face with exposed aggregates (3/16-in. Derbyshire spar or ⅜-in. Penmaenmawr blue granite), but the inside face is subsequently lined with plaster board which is painted.

The slab is composed of a 2-in. wood wool core with 1⅛ in. of dense concrete lightly reinforced on the outside face and ⅝ in of sawdust cement on the inside face. The thermal transmittance value is U=0·21.

It is considered that it might be better to use light expanded clay aggregate as an alternative to the wood wool core, and experiments in the manufacture of

ABOVE: Fig. 7. Section through one of the precast vibrated 3 ft. 4 ins. by 1 ft. 4 ins. by 3¾ in. wall slabs, showing the wood-wool core and granite chipping surface. The ⅝ in. sawdust cement layer backing the slab cannot be distinguished, but forms part of the composite slab and is used as a fixing for the plastered lining. Fig. 9, above; having been placed in position the slabs are fixed by bolts passing through clips, holding the slabs to the cladding tees. Fig. 8, above; slabs in position, showing the cladding tee and the 22-g. aluminium vertical weather strip (coated with zinc chromate paint and having two oiled asbestos cords), also horizontal aluminium weather strip. Fig. 10, left; slabs are tamped into final position and bolts tightened. The slabs rest on one another and have a mortar bed across the inside half of their thickness. Fig. 11, right; details of the wall slab joints; plans at wall slab to wall slab, and wall slab to window. Above is an isometric of wall slab fixing, from outside.



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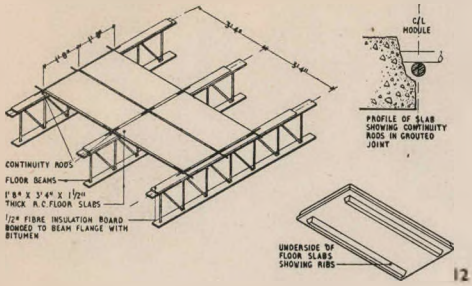
THE FLOOR SLABS



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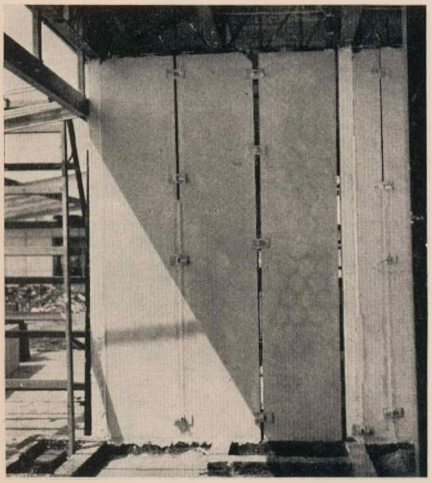
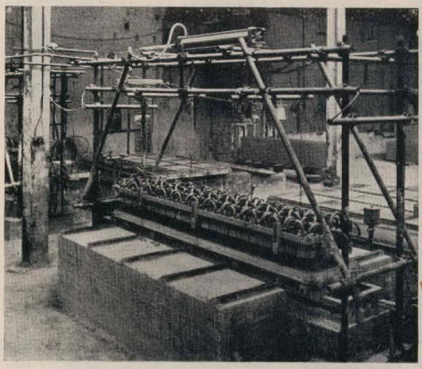
13

ABOVE. Fig. 12. Floor slab details. The slabs are reinforced vibrated concrete 3 ft. 4 ins. by 1 ft. 8 ins. by 1½ ins. thick excluding the rib, to form a floor. They are laid on beams on a strip of ½ ins. fibreboard, the joints have continuity rods in them and are grouted. The top surface is roughened to receive the screed. RIGHT. Fig. 13. Floor slabs laid in position.

Fig. 15, right; a view of the plant used in producing the honeycomb gypsum plaster partition panels. Each automatic press can make panels 7 ft. 6 ins. by 2 ft. by 28 ins., up to 10 ft. by 2 ft. by 6 ins. Fig. 16, pouring liquid plaster into the mould in which one face of the honeycomb web is formed. The honeycomb is shaped by inserted rubber cups which are withdrawn after the plaster has set.

14





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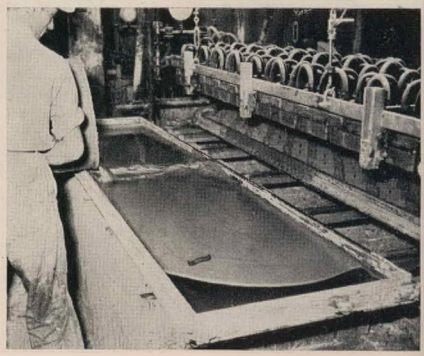
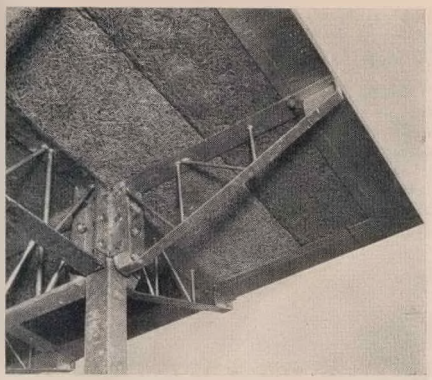


16

ABOVE. Fig. 14. Hollow gypsum plaster panels with honeycomb plaster core, during erection. The panels are precast, temporarily wedged in position and joints are made with poured plaster after aligning with cramps. The panels can then be decorated direct. To avoid the honeycomb pattern showing, as seen above, the system of manufacture has now been changed.



17

ROOF SLABS

ABOVE. Fig. 17, shows part of a covered shelter, illustrating the special cantilever eaves brackets supporting wood-wool roofing slabs. All roof slabs are heavy duty wood-wool 2½ ins. thick, 6 ft. 8 ins. long by 1 ft. 8 ins. wide, spanning 3 ft. 4 ins. between beams. They are located by 16 S.W.G. folded sheradized m.s. clips which straddle the beams and projected up between the slabs. The roof is finished with a screed laid to fall and two layers of built-up roofing felt.

such slabs are proceeding. The slabs are made with double rebates at the vertical edges and ferrules are cast into the backs. In fixing the slabs to the cladding rails they are drawn back against two oiled asbestos cords by bolts screwed into the ferrules.

The slabs weigh 27 lb./sq. ft. Sheet materials would appear to have many advantages over concrete slabs for cladding; they are easy to erect and to handle. It will be interesting, therefore, to compare the Wokingham School with others now under construction in which plastic or glass is used for the cladding panels.

PARTITION PANELS

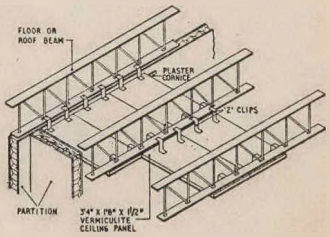
The partition panels, which are 5¾ in. thick, are of full room height and 2 ft. standard width. They are made of neat hemi-hydrate gypsum plaster, and are reinforced with short lengths of viscous fibre. The mixing of the water with the plaster is automatically controlled. The panels consist of two plaster faces formed with a continuous reinforced plaster honeycomb core. The edges of the panels are solid and have grooves for pouring in liquid plaster for jointing.

The panels are produced from a plant which includes a semi-automatic press and the whole plant is relatively simple to operate. From it (with two presses) about 100 panels can be produced per day. Three men are required to operate the plant for each press employed.

The cost is claimed to be comparable, thickness for thickness, with clinker blocks plastered both sides,

18

CEILINGS



19

ABOVE, Fig. 18; the ceiling panels are vermiculite concrete 3 ft. 4 ins. by 1 ft. 8 ins. by 1½ ins. thick. A workman is shown screwing hangers and reinforcing battens to pockets of screw holding concrete in the slab. Fig. 19, isometric showing panels in position between beams.

but the panels can be erected more rapidly, and decoration can be applied to the very accurate surface of the panels without further preparation. Plasterers are required only to form the plaster seal between adjoining edges of panels, thereby forming channels into which liquid plaster is poured to make the joint solid. When properly formed, the joints cannot be detected after decoration.

These panels can be made 3, 4 and 6 in. thick and 7 ft. 6 in., 8, 9 and 10 ft. high. The present standard widths are 1 ft. 6 in. and 2 ft., with filler pieces 3–6 in. wide. The panels can be sawn; holes can be made in them for cables; brackets can be embedded in them with plaster grout to support shelves, basins, etc.; they are capable of supporting a reasonable load (for instance, the upper floor of a house could satisfactorily bear on them when they are used as the inner skin of a cavity wall). The thermal transmittance of a

standard panel, when foam filled, is 0·15 B.Th.U.; the weight is 9 to 10 lb./sq. ft. for the 3-in. panel.

The Ministry states in its bulletin, "Precast gypsum plaster units are used throughout the whole school for internal partitions. This particular type of partition was chosen partly because of its reasonable cost, partly because the units can be erected by unskilled labour (as a plasterer is only required for final trimming and preparation for decoration), and partly because the material is sufficiently flexible in manufacture to be adapted to a number of special conditions (such as varying degrees of fire protection and sound insulation, tiled finishes, or fixing for equipment) without involving variations in overall dimensions."

CEILINGS

Ceiling panels are made of vermiculite and cement; they are suspended from the beam flanges by steel clips. Vermiculite is expanded mica, and, as an aggregate, makes a very light-weight concrete, with excellent fire-resisting properties. The panels have a textured surface, which is a good sound-absorbent, and their extensive use will, it is hoped, add to the general comfort of the school.

BELOW, Fig. 20. A general view of an interior, showing the steel stanchions and beams, the window wall, and the ceiling panels in position.

20

This article was sponsored here by the Institute's Architectural Science Committee and is reproduced with permission from *The Architects' Journal* for December 4, 1952. The photographs generally are by the authors; that of the model was by Sidney W. Newbery, these of Figs. 13, 17 and 20 were by Peter Pitt; those of Figs. 15 and 16 by courtesy Bellrock Gypsum Industries, Ltd.; diagrams are from *Building Bulletin No. 8.*

BUILDING SCIENCE PUBLICATIONS

S.A.B.S. SPECIFICATIONS IN RESPECT OF THE BUILDING INDUSTRY IN SOUTH AFRICA

By L. G. Warren

The opinion, not only of the South African Public in general, but those engaged in the Building Industry, who take pride in their work, is that something constructive should now be done to press for greater efficiency in the Building Industry.

This efficiency can only be achieved by the co-operation of all those who are not only professionally responsible, but are in duty bound to see that the best and most suitable material for conditions in South Africa is specified, and that workmanship of a higher standard is produced, than is very often accepted today.

The Council of the S.A. Bureau of Standards was established under the Standards Act in 1945 (Act No. 24 of 1945) for the purpose of framing South African Standard Specifications and Codes of Practice, and a great amount of work and time has been spent by the Bureau's staff, assisted by members appointed by Council on the various technical committees from Government Departments and other Organizations, to prepare the Standard Specifications and Codes of Practice applicable to the Building Industry in South Africa, which have so far been published.

Prior to the establishment of the South African Bureau of Standards, overseas standard specifications were, and are still being quoted, which, in some instances, cannot be complied with, and in other cases are unsuitable for use in South Africa, where conditions in climate etc. are different. Consequently, inferior materials, articles and workmanship are often being provided, to the detriment of the Industry, and disappointment of the owner, who has to pay the piper.

If greater efficiency in the Building Industry is to be achieved in South Africa today, S.A.B.S. Specifications and Codes of Practice must be put into practice in future. This will ensure that the correct standard in respect of materials and workmanship is provided.

Unless those specifications which have so far been produced for the Building Industry are made more use of by "Architects", "Quantity Surveyors", and those organizations responsible for building projects in this country, the South African Standards Council may feel that the good work of framing and publishing Standard Specifications has not been appreciated. This work is, without question, economically beneficial to both the Public and the Building Industry as a whole.

Such vague terms as best or approved quality, to the Architect's approval, approved hardwood, etc., etc., are frequently seen in documents issued by the Architects and Quantity Surveyors in South Africa. These terms are meaningless, while published S.A.B.S. Specifications could have been quoted to obviate vagueness.

The following South African Standard Specifications are available and can be obtained from the South African Bureau of Standards, Private Bag 191, Pretoria, viz.:

S.A.B.S. 02–1947: Nomenclature of South African Grown Timbers
S.A.B.S. 4–1947: Doorlocks
S.A.B.S. 5–1947: Graded South African Softwood Timber
S.A.S.S. 15–1942: Dry or Seasoned Timber
S.A.S.S. 21–1947: Asbestos Cement Sheets (Flat and Corrugated)
S.A.B.S. 28–1950: Metal Ties for Cavity Walls
S.A.B.S. 37, 38, 39, 41, 42, 43: Chemical Impregnation of Timber
S.A.B.S. 48–1949: Refractory Brick (Dimensional)
S.A.B.S. 52–1949: Gypsum Blocks
S.A.B.S. 82–1949: Bending Dimensions of Bars for Concrete Reinforcement
S.A.B.S. 92–1949: Mineral Stabilized Asphaltic Roofing Felts Surfaced with Finely Powdered Mineral Matter
S.A.B.S. 150–1950: Polyvinyl Chloride Insulated Electrical Conductors
S.A.B.S. 151–1952: Fixed Electric Water Heaters
S.A.B.S. 153–1950: Electric Stoves and Hotplates
S.A.B.S. 163–1951: Wall and Appliance Switches
S.A.B.S. 164–1953: Two-pole and Earthing-pin Plugs and Socket-outlets
S.A.B.S. 226–1950: Water Taps
S.A.S.S. 204–1950: Salt-glazed Ware Pipes and Drain Fittings
S.A.S.S. 227–1950: Burnt Clay Building Bricks
S.A.B.S. 242–1950: Stainless Steel Sinks
S.A.B.S. 248–1950: Asphaltic Materials for Horizontal Damp-proof Courses
S.A.B.S. 266–1950: Gypsum Plasterboard
S.A.B.S. 286–1951: Asbestos Cement Pressure Pipes
S.A.S.S. 285–1951: Sand-lime (Calcium Silicate) Bricks
S.A.B.S. 297–1951: Mastic Asphalt for Roofing
S.A.S.S. 310–1951: Non-pressure Concrete Cylindrical Pipes (Plain and Lightly Reinforced)
S.A.B.S. 312–1951: Red Lead Base Primers for Structural Steel
S.A.B.S. 322–1951: Cold Water Distempers for Interior Use
S.A.B.S. 340–1951: Eucalyptus (Gum) Wood Blocks for Floors
S.A.B.S. 448–1953: South African Wood Singles for Roofs and Walls
S.A.B.S. 03–1952: Code for the Protection of Buildings against Lightning
S.A.B.S. 05–1949: Code of Practice for Application of Timber Preservatives

MODEL BUILDING REGULATIONS

These Model Building Regulations will eventually comprise seventeen chapters of which the following are available (April 1954):—

Chapter 2, ADMINISTRATION Part II (For Transvaal) 023–1953: price 7/6
Chapter 3, LOADS 024–1952: price 7/6
Chapter 4, EXCAVATIONS AND FOUNDATIONS 025–1952: price 5/-
Chapter 6, STRUCTURAL STEELWORK 027–1952: price 7/6
Chapter 7, STRUCTURAL TIMBER 028–1951: price 7/6
Chapter 12, DRAINAGE AND WATER SUPPLY 033–1953: price 10/-
Chapter 16, URBAN AESTHETICS 036–1952: price 5/-
Chapter 17, ADVERTISING 038–1952: price 7/6
Model Building Regulations for Farm Dairy Buildings 020–1951: price 5/-

WORK IN HAND (APRIL 1954)

African Hardwood Flooring Block and Strip
Code for laying of Wooden Floors
Mastic Asphalt for Flooring
Roof Paints
Wood-fibre Building Board
Building Lime
Cast Iron Fittings for Asbestos Cement Pressure Pipes
Cast Iron Manhole Covers and Frames and Surface Boxes
Cement
Deformed Bars for Reinforced Concrete
Fire Hose Couplings
Fire Hose Reels
Indoor and Outdoor Paints
White Enamelled Fireclay Sanitaryware
Plasters and Mortars
Roof Ventilators (Test Code)
Sand for Mortars and Plasters
Standard Colours for Paints
Steel Window Frames
Emulsion Paints
Jointing Compounds for Water Retaining Structures
Primers for Wood
Undercoats for Paints
Wood and Steel Sash Putty
Polyethylene Water Piping

CODES OF PRACTICE IN THE COURSE OF PREPARATION

Jointing of Sewers
Weatherproofing of Buildings

BUREAU REACHES IMPORTANT GOAL

A comprehensive, detailed chapter on drainage and water supply has just been published as part of the Bureau's model building regulations, aiming at the greatest possible measure of standardization, which should contribute towards a general lowering of building costs in the Union.

The chapter on drainage and water supply is one of seventeen proposed chapters in the "Comprehensive Model Building Regulations". It has been drawn up primarily for local authorities having metered water supplies. Where meters are not installed slight modifications to the text may be required.

The most far reaching step taken by the committee responsible for the completion of this chapter on drainage and water supply is that specific provision is made for the "one-pipe system" whereby soil and waste water enter a common stack pipe and not two separate pipes as is the present practice in most towns in South Africa. This decision of the committee

is based upon the best overseas experience, where it was found that such a system lowers building costs without sacrifice of hygiene.

Another provision which, if put into practice, will reduce costs is that 21 gallon cisterns are permitted to be used for flush sanitation. At present many municipalities insist that 3 gallon cisterns be used. Allowing the use of 24 gallon cisterns should not only lower the cost of the cistern itself, but will result in water consumption being considerably reduced.

In yet another way the application of one of the committee's recommendations will result in savings. Most municipalities insist on a gradient not flatter than 1 in 40 for 4-inch drains. It has been found, however, that gradients may safely be reduced to 1 in 60 without ill consequences. The model regulations therefore only call for this flatter gradient.

The adoption of this chapter by municipalities as their drainage and water supply regulations will facilitate matters for the plumbing and building industries in the particular areas, as these industries will be able to make use of the advantages offered by the model regulations. Indirectly these advantages will be felt in reduced building costs, first in the areas concerned and later, it is hoped, in the country as a whole.

Many builders and architects carry out work in different municipal areas, and these areas often have different requirements: this can cause considerable annoyance, frustration and uneconomic work, for the requirements of each municipality have to be studied by builders and architects. The widespread adoption of these model regulations will eliminate these irritations, reduce the amount of uneconomic work and lead to better relations between the architects and builders and the local authorities.

Within the chapter's 224 pages (English and Afrikaans) regulations are briefly laid down for private sewage disposal systems and septic tanks where municipalities have not yet provided all or any of its area with a sewerage reticulation system. Skeleton schedules of costs for the various services rendered by or through local authorities are also supplied. Local authorities need only fill in their own charges to complete these schedules.

The price of this chapter is 15s., post free.

* * *

Various technical committees appointed by the Council of the South African Bureau of Standards have now completed six chapters of the "Model Building Regulations". These six are: Loads, Excavations and Foundations, Structural Timber, Drainage and Water Supply, Urban Aesthetics, and Advertising. In addition, the chapters on Administration (Transvaal version) and Structural Steelwork are at present being printed. Chapters covering the following ten aspects are in the course of preparation: Definitions, Administration (Cape, Natal and Orange Free State versions), Plain and Reinforced Concrete, Masonry, Miscellaneous Materials and Constructions, General Health Requirements, Lighting, Ventilation, Fire Protection and Public Safety Requirements.

Once all these chapters have been completed, the various technical committees appointed by the Council of the South African Bureau of Standards will have given South African municipalities a comprehensive work which can be bound into one volume, covering every aspect of building legislation needed by local authorities. Some municipalities have written to the Bureau, stating that they consider asking their Provincial Administrations to make these chapters applicable to all municipalities inside the respective provinces. The various Provincial Administrations have also generally expressed interest and co-operation in this direction.

The primary aim throughout this work has been to meet the general demand for modern and uniform building by-laws, to assist in the development of better building constructions, to do full justice to new and existing building materials and at the same time to provide safety to the occupants of buildings.

The adoption by local authorities of these model regulations is entirely voluntary. Conditions in some municipalities will naturally necessitate modifications in certain respects but, generally speaking, the technical content should be capable of application throughout the Union without alteration. Administrative content will require to be modified to suit the enabling ordinance of the province in which promulgation is sought.

NATIONAL BUREAU OF STANDARDS U.S.A.

X-Ray Protective Design, by Harold O. Wyckoff and Lauriston S. Taylor, National Bureau of Standards Handbook 50, 36 pages, 7 figures, 18 tables, 15 cents.

This handbook contains primary factual data and basic principles necessary for designing shielded X-ray installations. It is based on the recommendations of the National Committee on Radiation Protection. Architects and designers of buildings and rooms in which X-rays will be used for fluoroscopy, radiography, or therapy can derive much helpful information from the handbook's discussion of these recommendations and from its sample design problems and methods of computing barriers for real installations.

Although many publications dealing with X-ray protection have appeared, no previous handbook has undertaken the explanation of certain assumptions and design specifications. These rules and recommendations are based on the best recommendations or included detailed data available at this time but may require revision as knowledge of the field of X-ray protection increases.

Properties of Cavity Walls, by Daniel S. Goulwin, National Bureau of Standards, Building Materials and Structures Report 136, 15 pages, 16 figures, 15 cents.

The report gives a compilation of data on the performance characteristics of cavity walls. The data include information on structural, rain-penetrability, and thermal transmittance tests conducted on cavity walls of brick, concrete block, and structural clay tile as well as tests made to determine the properties of wall ties and the fire resistance of cavity walls.

This report contains both previously published and hitherto unpublished data, thus summarizing information on cavity walls required for building design, construction, and code preparation.

Code for Protection Against Lightning, National Bureau of Standards Handbook 46, superceding H40, 91 pages, 40 cents.

In spite of the value of lightning rod systems for protecting buildings, their use has not proved as effective as possible because of a general lack of information as to the best methods of protection. To enable the public to demand installations designed for adequate protection, the National Bureau of Standards has just issued the new edition of "Code for Protection Against Lightning," sponsored jointly by the National Fire Protection Association, American Institute of Electrical Engineers, and the NBS.

Widespread ignorance regarding proper installation practice has resulted in great variations in lightning protection both of buildings and of electric equipment and, consequently, in installation of many inadequate systems. This handbook emphasises personal precautions and protection of buildings and miscellaneous structures.

In addition to including material revised from previous handbooks, the volume contains information on aluminium as a suitable material for lightning protective systems, new rules on grain elevators and on vents and stacks emitting explosive dusts, vapours, or gases, and detailed specifications for lightning rods.

The S.A.B.S. Specification Binder

The S.A.B.S. specification binder. Each builder will hold 10 specifications inserted by means of "fish bones" supplied with the binder. Obtainable from the S.A. Bureau of Standards, Private bag 191, Pretoria; 10/- each post free.

UNIVERSITY OF THE WITWATERSRAND, FACULTY OF ARCHITECTURE

THIRTIETH ANNUAL EXHIBITION AND PRIZEGIVING

ANNUAL REPORT BY PROFESSOR J. FASSLER

Ladies and Gentlemen, on behalf of the Board of the Faculty of Architecture and Staff and Students of the Department of Fine Arts, I have pleasure in welcoming parents, practitioners and students to this, our thirtieth Annual Exhibition and Prize Giving.

I also have to welcome Mr. Colin Sinclair, President of the Transvaal Provincial Institute of Architects, and Mr. John Castleton, President of the Board of the Chapter, both of whom have kindly come to present the Prizes.

You may recall that both Mr. Sinclair and Mr. Castleton served in this capacity last year. At that time they were Senior Vice Presidents of their respective Professional Committees, the Presidents being unable to attend the 1953 Ceremony. Both gentlemen are therefore making a second appearance to-day, as full-blooded Presidents and will, I am sure, feel comfortably familiar in these surroundings.

My report of the year's activities commences as usual with details of student enrolment. This year there are 120 students attending the Degree Course in Architecture, and 41 the part-time Diploma Course. There is one Certificate student, and five students, partially trained overseas, who are completing certain additional studies required for registration by the Institute of Architects. Thirteen students are attending the Degree Course in Quantity Surveying, and 44 the Diploma. Thirty-six students have been registered for the first year of the Course for the Post Graduate Diploma in Town Planning. This number, added to the 12 students at present completing the third year of the previous course, makes a total of 48 in the special Town Planning classes. The grand total of students in the Faculty is thus 272. This is 43 more than last year.

The Department of Fine Arts has 23 students for the Degree of Bachelor of Arts in Fine Arts, and 217 are attending lectures in the History of Art as part of the requirements for the Degree of Bachelor of Arts in Fine Arts. Two students are reading for Honours Degrees.

The following number of students graduated during 1953.

The Degree of Bachelor of Architecture was conferred upon 26; the Diploma was awarded to 6; the Degree in Quantity Surveying was conferred upon 1; the Diploma was awarded to 9; the Diploma in Town Planning was awarded to 2; the Degree of B.A., in Fine Arts was conferred upon 3.

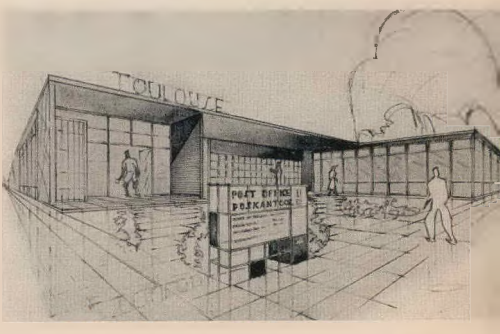
I now want to refer to two Doctorates in Architecture which were conferred at the recent March 1954 Ceremony.

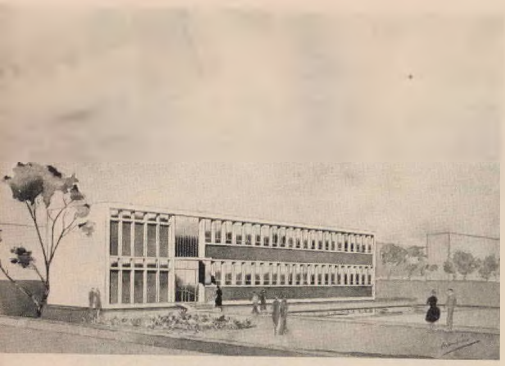
Strictly speaking I should include reference to these in my report for 1954, but I feel the occasion is so important that it must be mentioned now, while the event is still fresh.

An Honorary Doctorate in Architecture, the second to be conferred upon an Architect, was conferred upon Geoffrey Eastcott Pearse, who founded this Department in 1921 and successfully guided its development as Dean for many years until his retirement in 1947. Students of my generation appreciate the fact that in building up the School he made a real contribution to Architectural Education in this country. He has also assisted the University very materially over the years with its building programme, and will be remembered for his researches into the early history of Architecture at the Cape, studies of its social life and furniture. He will also be remembered for the high standard he demanded from those who came into contact with him. It was my pleasure, as one of his former students, to present him for the Degree of Doctor of Architecture at the recent Ceremony. For that occasion I prepared a comprehensive citation, which will be published in the S.A. *Architectural Record* as a record of the occasion.

At the March Ceremony, Douglas McGavin Calderwood had the distinction of becoming the first Doctor of Architecture in the Union of South Africa. He was awarded the Degree for the successful completion of a very fine Thesis on Urban Native Housing in the Union. This survey of a national problem is the

A perspective drawing of the design for a suburban Post Office by P. Brittan, Third Year.





Second Year Design: An Office Building by B. W. Powell, B.Arch.II.

most comprehensive document that has so far been prepared on the subject, and has a national importance. According to Professor Sir William Holford, the External Examiner concerned, it ought to be published, so that the record of experience it contains will be available to other countries which are also at a developing stage. I want to say how much we appreciate the interest Mr. Calderwood continues to take in the Faculty. We have always found him ready to give special lectures on his subject to our students, and to Post Graduate Students in the Town Planning classes.

Through the kind co-operation of the Visiting Lecturers' Trust Fund of the University of Cape Town, Mr. Hope Bagenal was enabled to visit the Department of Architecture for twelve days during September last year. He participated in Design Criticism, gave public lectures, and carried on interesting discussions with members of staff. It was pleasant having him with us, and I feel sure he enjoyed his stay as well.

A Second Summer School was held during the September Vacation, 1953, in collaboration with the Science Committee of the Institute of South African Architects. Mr. Pinfold and myself contributed papers on that occasion. This Summer School was well attended and contained lectures and discussions of real value to practitioners. It is proposed that the third Summer School be held at the University of Cape Town during September, 1954.

Between September 30th and November 4th, the Council of Architectural Students, in collaboration with the Transvaal Provincial Institute of Architects, arranged a series of six discussion evenings dealing with various topics associated with Home Building. Contributions were made by the Mayor of Johannesburg, members of the Staff, and other persons representing various bodies interested in the subject. This series of evenings proved to be so successful, that great difficulty was experienced in accommodating people who attended. To meet the demand for seats, some of the sessions had to be transferred to the University's Great Hall.

An event of some interest to us all during 1953, was the international competition sponsored by the Uganda Electricity Board for the purpose of selecting a design for a new Headquarters Office Building at Kampala, worth £350,000, to house the activities of the Board. One hundred and sixty-seven designs were submitted from many parts of the world. I have pleasure in telling you that the Competition was won by two young Graduates of the University of the Witwatersrand, Messrs. Graaf and Moross. A London firm came second. Messrs. Nurcombe, Summerley & Lange came third, Summerley being a Graduate of Wits, and Mr. John Shunn, a member of the staff of the Department, came fourth. Every other member of the Staff managed to obtain a place on the short list of 29 designs from which the winners were selected.

I am pleased to say that members of my Staff are continuing to play a part in the administration of their respective professions. I wish particularly to congratulate Mr. John Castleton on his election as President of the Chapter of Quantity Surveying.

The *South African Architectural Record*, the official journal of the Institute, continues to be edited by Mr. Duncan Howie, assisted by Messrs. Tomaselli and Herbert.

Turning to staff matters of a more detailed nature, I have to report that Doctor Martienssen is at present overseas on long leave. She was awarded a Carnegie Grant to visit Universities offering facilities for training in Fine Arts in the United States. She left the United States recently, at the end of her tour, and is now spending the remainder of her leave in Europe.

In July of this year, Mr. Pinfold, recently appointed permanent full-time lecturer on the staff of the Department of Architecture from the temporary position he held for many years, will go on long leave. He also proposes to spend it in England and Europe. I hope his travels will be fruitful for himself and the School.

Mr. Milford, our part-time lecturer in Quantity Surveying, left South Africa at the beginning of the year to spend some time in England. His place has been taken temporarily by his partner, Mr. Venn, whose assistance we value.

I would also like to express my appreciation to all the part-time lecturers who have assisted us during the past year: Messrs. Marcus and Smit, for lectures on the technical aspects of Architecture; Mr. Wilfred Mallows: for the onerous task he is performing in organising the practical work of the final year of the Post Graduate Diploma in Town Planning; Mr. Charles Argent, Dr. Stein-Lessing, Mrs. Erica Mitchell and Miss Joyce Leonard, for their help in providing lectures and practical training in Fine Arts. I am sorry that I cannot report any improvement in our accommodation, which continues to be unsatisfactory. Similarly,

our internal organisation whereby four widely different specialities, namely Architecture, Town Planning, Fine Arts and Quantity Surveying, continue to be administered under one Professional Chair in the Faculty, still continues, and in my opinion is a thoroughly unsatisfactory arrangement. What future developments we can reasonably anticipate are still obscure.

In conclusion, I wish to express the appreciation of the Board of the Faculty for the continued assistance we receive from the Institute of South African Architects, the Transvaal Provincial Institute, and the Board of the Chapter. From the Institute of South African Architects we received £100 last year for the purchase of books and illustrative material. The Transvaal Provincial Institute this year decided to increase its annual grant for Book Prizes from 15 guineas to 25, in view of the mounting cost of books.

I now have pleasure calling upon the President of the Transvaal Provincial Institute of Architects to present the prizes:

Transvaal Provincial Institute Prizes.

First Year: 1. D. G. Mackenzie. 2. M. Barnes and D. C. James.
Second Year: 1. K. G. McMullen. 2. L. Rosen.
Third Year: 1. R. H. Veitch. 2. G. H. McLean.
Fifth Year: 1. D. Evenary. 2. P. Tutton.
D. M. Burton Prize: D. Evenary.
W. H. Gresty Prize: J. Ross.
A. S. Furner Prize: D. Evenary, R. Scott Brown and J. van Schaik.

Mr. Sinclair's Address.

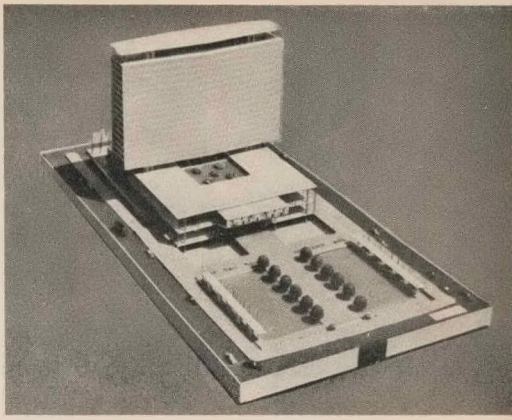
Prof. Fassler, Members of Staff and Students of the Faculty of Architecture, Ladies and Gentlemen.

It was with trepidation that I accepted Prof. Fassler's invitation to address you this afternoon. I am not a public speaker, but, I am on this occasion allowed to state my views, even if inadequately.

I was trained at this School of Architecture and I am proud of this School, its traditions and its accomplishments. This School has changed the pattern of architecture in Johannesburg. It is, and always has been, a living factor in the architectural development of South Africa.

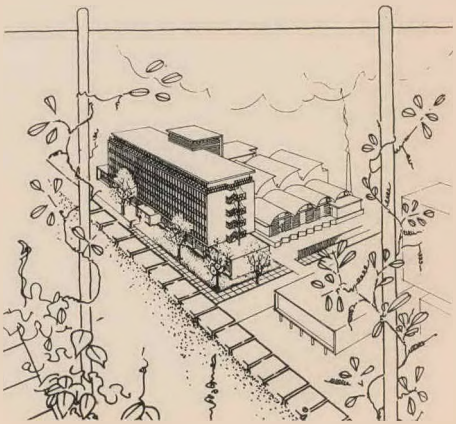
Schools of Architecture produce the theories, the drive, the research, the enthusiasm that leads to progress. In their graduates rests the future of Architecture. Schools of Architecture, however great their contribution may be, must still leave the development of that training to the conscience of their graduates. You are being trained here, as we can see from the exhibition, to design well, to draw well, and in fact to produce every conception and document necessary for the construction of fine buildings.

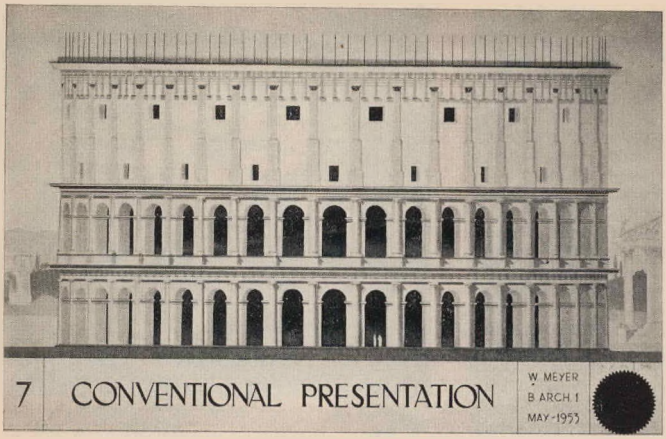
But the practice of Architecture will ask even more of you. It will ask you to be patient over years, to be consistent over years, to be faithful to your training over years. This is the basic choice that will face you



Two examples of work done in the Final Year of Design. Above is a model of a project for a new Public Library for Johannesburg, which project was carried out with the valued critical collaboration of the City Librarian, Mr. R. F. Kennedy. The superstructure contains the extensive stack areas. The design was prepared by Miss D. Evenary, Mr. R. Scott Brown and Mr. J. van Schaik working as a group, and was awarded the A.S. Furner Prize.

Below is the perspective of the design for a large newspaper building presented by Mr. A. M. Zeffertt.





One of the seventeen prescribed studies of the First Year course —a Chinese Ink rendering by W. Meyer.

for the rest of your careers as Architects; to be faithful to your ideals or to accept the easy way out.

Many of the graduates of this University who have qualified before you are trying to carry on the principles we have learnt at this School.

Our Profession looks forward to welcoming you into its ranks so that you will express in Architectural form in the buildings that the future will demand of you, the training you have received here.

Mr. Sinclair was followed by Mr. Castleton, who distributed the Prizes in Quantity Surveying and then addressed the Gathering.

Chapter of S.A. Quantity Surveyors' Prizes:

First Year: E. C. Birkhead; *Second Year*: B. M. Leask; *Third Year*: L. J. McDonald; *Fourth Year*: I. E. J. Bell.

Bell-John Prize: I. E. J. Bell.

W. H. Gresty Prize: D. A. Anagnostu.

University of the Witwatersrand Nomination for the Chapter's Gold Medal: I. E. J. Bell.

Mr. Castleton's Address

Following his opening remarks, in which he thanked Prof. Fassler on behalf of the Chapter for inviting him to be present, Mr. Castleton said that it was understood that he should have something to say to the students. One thing which had become apparent to him as a lecturer and examiner was an apparent falling off in the general knowledge possessed by students—both technical and otherwise—a lack of awareness of everyday matters, current events and new developments.

The quantity surveyor used to be purely a specialist but the tendency today was for him to widen his sphere and also become a consultant—a consultant on building finance. For a quantity surveyor to achieve this successfully he should have a well-rounded knowledge, not only of the costs and practical values of new materials and methods but also of the probable rise or fall in building costs and site values and the demand for different types of accommodation. In short, some ideas on economic and sociological trends. How could the student or graduate acquire such knowledge? Obviously by reading, discussions with men of experience in all walks of life and attendance at public lectures when they occurred. To make a simple beginning he urged the students and graduates to indulge in more private reading, not only of the technical publications but the overseas weeklies and last, but not least, our own daily press.

Concluding, Mr. Castleton said that he wished to congratulate the prize-winners. It was not usual to select any award for special mention, but he wished on this occasion to refer to the "Bell-John Prize", an award presented to the best student in any year of study. The number of students last year had been particularly large and he considered that the winning of the "Bell-John Prize" was indeed a great achievement.

* * *

After Mr. Castleton had concluded his address, the Dean read out the names of the Prize Winners in Fine Arts, none of whom could be present, and thereafter concluded with a vote of thanks to the Presidents.

THE INSTITUTE OF SOUTH WEST AFRICAN ARCHITECTS

FIRST ANNUAL GENERAL MEETING, 29th MARCH, 1954

REPORT OF THE PRESIDENT, Mr. JAC. A. JOEL, M.I.A.

I have much pleasure in presenting the first report of the activities of this Institute.

The Architects' Ordinance No. 38 of 1952 became law on the 30th day of July, 1952 but the Inaugural Board was not appointed until later in the year and, with the withdrawal of the Attorney General and the subsequent appointment of his professional assistant, the Board did not meet until the 1st November, 1952.

Advertisements were immediately placed in the press inviting applications for registration, and a start was made in framing Regulations. At the end of March, 1953 the Regulations were finally accepted by the Board, translated and approved by the Hon. the Administrator on the 8th June, 1953. The first Committee was appointed on the 26th June, 1953 and met for the first time on the 20th July, 1953. The first duty of the Committee was the consideration of the Examination Qualifications, which were assented to on the 15th October, 1953.

Your Committee accepted the invitation of the Administration to conduct a Competition for the proposed new Library, Museum and Archives, and the Assessor has now issued the Conditions of Competition.

It was decided to have a distinctive badge and Mr. van den Eschen was asked to prepare designs. Various motifs were considered including the early crosses on the coast, but as these devices had already been used by other bodies, it was decided to use the aloe, the distinctive mark of South West Africa, with the silhouette of a town in the background symbolising architecture.

The form of registration certificate was carefully considered and a standard type face was selected.

An article was published in the press on the work and advantages of employing an architect which caused some comment in the German newspaper. There seems to be a doubt in the minds of the public on the interpretation of the clause defining the work of an architect and, although the Committee has taken up a definite stand yet, in practice in a vast territory like South West Africa only served by resident architects in the main town, some concessions were considered necessary. The impracticability of requiring a man living in an outlying town who wishes to build his own house to employ an architect was realised and, at the request of the Administration to define the Institute's attitude in this matter it was recommended that plans for houses and other small buildings say to the value of £4,000 should not have to be prepared by an architect. In this connection the creation of a Small House Bureau was considered but, owing to a difference of opinion in the Committee this was allowed to drop.

There has been a close liaison with the South African Institute and, although this has not been confirmed, it is understood that we will be allowed to use the South African Institute's Notice Board and Form of Contract.

The South African Institute has gone to the limits of its powers to arrange for members of this Institute, not possessing the necessary examination qualifications to qualify for membership of the South African Institute, to take a very modified examination.

Three members were granted permission to undertake honorary work for religious and charitable organisations.

The proposed amendment to the building by-laws to give the Council the right to control elevations and uses of buildings was followed up by the Committee in a request that such powers should only be exercised through the advice of a competent technical Committee which should have a representative of this Institute as a full-time member.

Two cases of complaints against members were investigated. One will be settled between the parties and the other will go to arbitration.

The Inaugural Board and Committee have registered 41 members. It is with regret that the death of Mr. R. Schüler has been noted.

The Committee took advantage of an offer made by Messrs. John Meinert Limited to print the Ordinance and Regulations in the form of a booklet, using the type set up for the Law Book.

The Committee has met six times and it is with pleasure that I record my thanks to the members for

their close co-operation and to our able secretary/treasurer, Mrs. Kloot, for the competent and efficient way in which she has carried out her duties.

During the year I have had requests from members of the public and of this Institute for advice on matters of ethics and professional practice and I would now like to take this opportunity of making a few remarks on this important subject.

This is a new Institute, drawing its members from various groups with different views on ethics and professional conduct, and operating in a rapidly expanding society not accustomed to dealing within the confines of the regulations of a professional Institute. It is, therefore, important from the outset to set and maintain a high standard of ethics and professional dealing. The Committee has already seen fit to circularise its members to pay a great deal of attention to the purely business side of the profession and here I must again stress the importance of reducing all verbal dealings to writing. This will avoid misunderstanding, misconceptions and doubts leading to unpleasantness and ultimate requests for arbitration.

There seems to be an idea that clients would resent having their instructions confirmed in writing, or of being advised of their financial obligations to the architect. There seems to be a feeling that among friends we don't talk of money. Yet we all know how aggrieved a client can be when the tender for his dream building is beyond the sum he wishes to pay. It is essential, therefore, to keep the client advised of the estimate and to work within any sum stipulated. Careful estimating is important. Keep the client in the picture and avoid undue optimism just to please the client and to retain the commission.

The second point I wish to stress is the need for good documents, plans, details, specification and contract. How contractors can build from some documents which I have seen is amazing, and I would make a special appeal to you all to watch this aspect and to go on improving the standard of work leaving your offices.

The third point is one of ethics, the way in which you set about obtaining work. There are some very definite rules in the regulations against certain ways of obtaining work and for the protection of all, it is essential that severe action should be taken against any member not conforming to the rules. I refer particularly here to touting for work and in agreeing to take part in a form of competition to oblige unscrupulous clients who wish to obtain ideas without paying for them. I have heard it indirectly stated that certain of our members see no objection to this type of practice and I wish to make it clear now that the Institute cannot and will not stand idly by.

The standing of the Institute will be judged by the individual actions of its members and so it is important that all cases of malpractice should be brought to the notice of the Committee as soon as possible.

Contemporary Journals

ARCHITECTURE

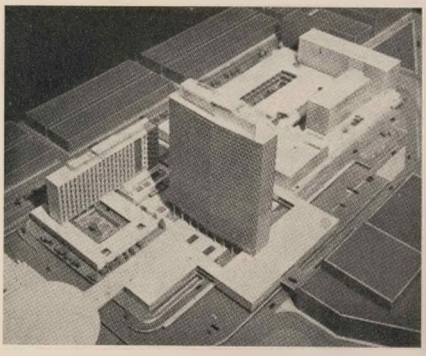
ARCHITECTURAL REVIEW. NOV., 1953. pp. 295-302.

Theory of Classical Lettering by Nicolete Gray. The author examines the range of possibilities and limitations of the Classical letter; possibilities in a formal sense, for though we have come to regard classical lettering as synonymous with the well-known inscription on Trajan's column, that example is only one of an almost infinite variety of alphabets, all equally classical in feeling and none of them reducible to geometrical rule without at once destroying that classicism. Although it undoubtably has its proper uses, the classical letter is by no means the cure all that we have eagerly supposed it to be.

ARCHITECTURAL REVIEW. JANUARY 1954. pp. 7-80.

Preview by J. M. Richards. Architectural Review devotes this full issue to projects still on or just off the Drawingboard, in an effort to identify the significant problems with which the architects, whose work is previewed, are faced and the trends which emerge from their solutions to them.

The two overriding problems are those of size and techniques. The former introduces the problem of lack of human scale in very large buildings, beehive aggregations of identical units. One solution is to treat the large building simply as a landscape setting for human life, finding the scale of man in the foreground buildings and the presence of human beings among the interstices of the structure; another is to impose on the facade an abstract pattern which, while somewhat arbitary, does render the building visably comprehensible; and the third is to accept the large block only on the Architect-planner's own terms, as a part of a larger composition. The problem of techniques has two focal points— one is the aesthetic status of the building erected from prefabricated units, and the association of this construction with low-cost building programmes; the other is the relationship of Architect to engineer,



Boston Centre. *"Progressive Architecture," January* 1954

and the creative contribution which each can make to the work of the other. Finally Mr. Richards indicates a number of other trends which hold out promising prospects in private and public building, but suggests that modern architecture still has a long way to go before it can claim to have evolved a language sufficiently public for ceremonial and representational buildings.

Among the buildings illustrated are Scientific and Medical Buildings, Educational Buildings, Public Buildings, Housing, Religious, Commercial and Industrial Buildings, an airport and a broadcasting unit.

Among the contributary architects are the following well-known names: - Sir Hugh Casson, E. Maxwell Fry, Jane Drew, Howard Robertson, Frederick Gibberd, G. Jellicoe, B. O'Rorke, and R. Sheppard, Yorke, Rosenberg and Mardall.

ARCHITECTURAL DESIGN. FEB. 1954. pp. 31-35.

Charles Eames, The Work of Charles Eames by Frank Newby. The Author discusses the work of Architect Charles Eames with particular reference to his furniture designs, which are abundantly illustrated.

COMMERCIAL

PROGRESSIVE ARCHITECTURE. JAN. 1954. pp. 73-84.

Boston Centre. The proposed Back Bay Centre is an extraordinarily impressive scheme which received the top design award for commercial buildings. This lively group of buildings was designed for the 30 acre site in the heart of the city by Pietro Belluschi, W. Bogner, Carl Koch and Associates, Hugh Stubbins and the Architects Collaborative. The main units comprise a splay sided 40-storey office block; a rectangular structure at right angles to the office building, which, with the low U-shaped wing enclosing a courtyard, constitutes a unique city Hotel of 750 rooms combining Hotel-Motel; a huge department store; an all-weather air conditioned, multilevel shopping promenade with a roof of glass; a street of shops; three smaller office buildings; a supermarket; an exhibition building all built around a pedestrian piazza, with landscaping, pools and other park-like amenities; and, closely related to the commercial centre, a convention hall. Six thousand cars are accommodated in an underground parking garage.

DOMESTIC

ARCHITECTURAL FORUM. MARCH 1954. pp. 162-168.

Three Houses by Sergio Bernardes in Sao Paulo.

1. *Suarez House.* In this Prize-winning house the architect illustrates successfully the use of vernacular and technological materials and imaginative but simple straight-forward planning.

2. *Sampaio House.* The three major domestic units, the living, sleeping and servants zones are clearly articulated around a central hall which also serves as car port.

3. *Cabal House.* A very large house planned on a small site resulting in the garden being reduced to an enclosed court between the two arms of an L-shaped plan. Excessive feeling of enclosure is avoided by the fact that the two arms of the L are on different floors, one fitted over the other and leaving a space underneath; the two parts of the house are visually united by the common roof line whose curvature has been determined, in part, by the slope of the mountain which forms a background to the house.

ARCHITECTURAL REVIEW. MARCH 1954. pp. 169-181.

American Villas by Vincent Scully Jnr. The author makes an excursion into hitherto unpublished material and uncovers the history of suburban building from the collapse of the Greek Revival, in the 1840's, to the emergence of the domestic genius of Frank Lloyd Wright.

HISTORY

ARCHITECTURAL REVIEW. NOV. 1953. pp. 285-288.

Pelican World History of Art by Reyner Banham. The author examines the changes of public opinion and taste which have taken place since the nineteen-twenties to displace pure aesthetics and minute studies of narrow fields as the characteristic types of English writing on Art, and outlines the influences which have brought these changes about. The world history of art is to be contained in forty-eight volumes. Four volumes are already available. They are:—

1. *The Art and Architecture of India*, by Benjamin Rowland.
2. *Painting in Britain* 1530-1760, by E. K. Waterhouse.
3. *Architecture in Britain* 1530-1830, by John Summerson.
4. *Art and Architecture in France* 1500-1700 by Anthony Blunt.

SCHOOLS AND UNIVERSITIES

ARCHITECTURAL DESIGN. FEB. 1954. pp. 44-47.

Staveley Road Secondary School, Chiswick. This 450 pupil school sited adjacent to an existing school, with which it was linked in order that meals could be served to both schools from a common servery was designed by John and Elizabeth Eastwick-Field in collaboration with C. Stillman.

An interesting structural system which is fully illustrated is adopted in this building. The three storey block consists of two lines of in-situ columns 9 ft. 3 ins. apart along the spine of the building, supporting precast cantilever frames 54 ft. long, which span the full width of the building at each floor. These in turn carry a composite floor of prestressed concrete units with in-situ topping. The cladding is carried by prestressed concrete mullions, suspended from the roof.

ARCHITECTURAL REVIEW. NOV. 1953. pp. 307-318.

Mexico University by Thomas Sharp. Thomas Sharp discusses the remarkable size of the new University City on the Pedregal, the amazing dispatch with which this enormous project was carried out, and as an example of co-operative design. Seventy five architects working independently, but under the general direction of one man, have produced a scheme whose total effect is coherent not chaotic. Furthermore while the buildings are modern in conception, they all have a strongly regional flavour. Dr. Sharp traces this to a variety of causes, among which was the purely aesthetic intention to respect the *genius loci* of the remarkable landscape in which the buildings stand, and, perhaps even more influental, the need to extract most of the building material from the native rocks of that landscape and to work them with local labour and traditional methods.

TOWNSCAPE

ARCHITECTURAL REVIEW. NOV. 1953. pp. 319-324.

Midland Experiment: Bewdley by D. Dewar Mills. This is the second of the studies of four West Midland towns undertaken by the Architectural Review in collaboration with Birmingham University Extra Mural Department. The first town to be treated was Ludlow. Bewdley's character comes primarily from its historical importance as a river port, and its finest development was along the river front and streets at right angles to it.

At present the river port is moribund, and though this has a certain charm, it is lost when it has to serve as a parking place for the Charabancs which bring trippers to Bewdley from the Midland Industrial towns, and, to make matters worse, it is becoming cluttered with the usual municipal Bric-a-brac.

Protection is required to avoid this kind of Townscape insensitivity, and against an incipient tendency to turn its back on the river and look inwards on itself. The river front must be integrated with the shopping area, and made a vital part of the daily life of the town, before it is lost by default.

ARCHITECTURAL REVIEW. MARCH 1954. pp. 191-194.

Casebook Precedents by Gordon Cullen. The author selects for examination one early scheme and one recent scheme. Well Hall Estate, Eltham is a design of 1915 and has already been selected by the Town Planning Review as particularly worthy of note; the other development is Redgrave Road, Basildon, of 1953. In both cases houses, roads, trees and hedges, the simplest of elements, are put together so as to produce an emotional stimulus be it surprise, anticipation, enclosure etc., in other words Townscape.

TRANSPORT

ARCHITECTURAL REVIEW. MARCH 1954. pp. 181-186.

Bus garages for London Transport.

1. Garage at Loughton, F.R.S. Yorke, Rosenberg and Mardall; architects in association with Thomas Bilbow, J. Penoyre and J. Vulliamy. This garage which is on a restricted and irregular shaped site which falls 15 feet from East to West is divided into three principal units.

(a) The office and canteen block containing the conductors' room and traffic office from which the operation of buses is controlled. Above are the canteen, kitchen, recreation room, and a dining room for the administration staff.

(b) The parking area for 137 buses. The bus on entering one of the three servicing bays is refuelled, given lubricating oil, vacuum cleaned and automatically washed—within about four minutes. There are also five inspection pits for routine maintenance.

(c) The docking area for major repairs containing ten inspection pits, each provided with special lighting and heating, vacuum cleaning points, a bus exhaust extract system, compressed air etc. The area also contains ancilliary stores, offices and workshops, in addition to a high pressure steam-cleaning booth.

2. Garage at Stockwell. Adie, Button and Partners; architects in association with Thomas Bilbow.

RECENT ACOUSTIC DEVELOPMENTS IN SOUTH AFRICA

By W. S. ARMSTRONG, B.A., B.A.I., A.M.I.E.T.

A further development in the use of Hardwood was evident at the Rand Show exhibit in the form of acoustic materials. These consisted of two types, a perforated hardboard acting on the more recently developed damped-resonator principle and an absorbent tile of the more conventional type manufactured from the new ½" thick pine board.

Both of these acoustic materials go under the name of "Fibra-coust" and are produced at the Johannesburg factory of Messrs. Fibrous Plaster Ceilings (Pty.) Ltd. A panel of "Fibra-coust" hardboard measuring 8′ by 4′ was installed in the kitchen of the Masonite house and the high degree of absorption over the voice frequency range provided by this was most remarkable, whilst the decorative appearance was also most attractive.

The Fibra-coust panel resonator type of absorbent consists of ¼" or ⅛" hardboard perforated with 1/16" holes at ½" centres and backed with a soft absorbent material, and patents for this new system of acoustic panelling have recently been applied for in South Africa, the Rhodesias, Australia, Great Britain and other parts. The great technical advantage of this system over most of the more conventional types is that it is most efficient in providing a high degree of absorption over the lower and middle frequencies which have long since been recognised by acoustical engineers as the most difficult with which to deal. It is this lower frequency band which is receiving a great deal of attention in present times due to the necessity of absorbing machinery and traffic noises and the noises produced by modern office equipment which is being ever more increasingly employed.

In addition, it is readily noticeable that when efficient absorption is extended to the lower frequencies the peculiar hollow sound or "boominess" often experienced in a room treated with some of the more conventional materials (due to over-damping of the high frequencies) disappears and more comfort results.

This new system has passed the most stringent tests and the rather amazing figures of absorption given in the following table are the result of tests carried out by and reproduced by kind permission of the National Physical Laboratory in Pretoria.

Distance of Fibra-Coust From wall	Absorption co-efficients frequency in cycles per second					
	125	250	500	1000	2000	4000
4½ inches	·53	·84	·88	·70	·55	·55
3 inches	·45	·80	·86	·79	·55	·47
2½ inches	·33	·62	·85	·80	·63	·63
1½ inches	·25	·43	·80	·87	·58	·33
½ inch	·16	·16	·32	·80	·80	·49

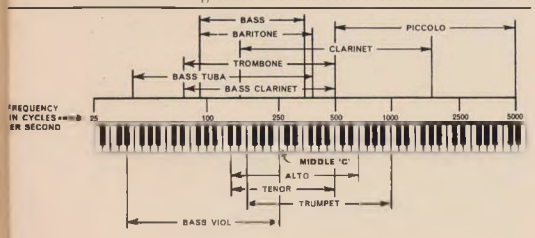
It is evident from the above table that the degree of absorption varies according to the spacing of the material from the walls or ceiling, being fixed to timber grounds or brandering at 12" centres, the minimum spacing from walls or ceiling for efficient results being approximately ¾". Various spacings may be employed to obtain any required effects over the entire frequency band. This effect has been referred to as "tuning" the hall, or room, and was employed in the acoustic design of the Royal Festival Hall in London. Other great advantages of this type of panelling are that it can be supplied in 4 ft. wide sheets up to 16 ft. in length, it is entirely workable and may be cut to any individual size or to free-shaped designs if required. It is most durable and may readily be painted without loss of effect.

Where highly specialised treatment is required further effects may be obtained by the incorporation of other materials such as glasswool behind the panels. The manufacturers run a special technical department under the supervision of a qualified acoustics engineer to deal with various types of problems encountered and architects and others have readily availed themselves of and expressed appreciation of this facility.

Many installations have been carried out with this material most prominent of which have recently been Regional Court "L" of the Johannesburg Magistrates' Courts and the Feathermarket Hall in Port Elizabeth. Many recreation halls for multi-purpose use, bioscopes, banking halls and machine rooms, hotels, canteens and restaurants, telephone and record-playing booths and private houses have also been treated.

The other material produced from ½" thick insulation board is in the form of a tile of conventional type, size 18" square and compares most favourably with similar products of this type. Authorized test figures for this tile are available from the manufacturers and these tiles may be obtained in a standard cream colour or in various shades to order depending upon the quantity required.

For the convenience of readers, a table showing the relation of frequency to the human voice and various musical instruments is illustrated at left:—



BOOK REVIEW

"**Planning:** The Architect's Handbook" by "E. & O.E." (S. Rowland Pierce, V.P.R.I.B.A., Dist. T.P., Rome Scholar in Architecture and Patrick Cutbush, A.R.I.B.A., A.A.Dip., A.I.L.A., R.I.B.A. Alfred Bossom Gold Medallist.) Seventh Edition. Published on 29th September, 1953 for *The Architect and Building News* by Iliffe & Sons Limited. Price 30s. (in England). Size 11 in. × 8¾ in. 571 pages. 655 illustrations.

"Planning" is a constantly used reference work for architects. Here, in 550 large pages, are given basic facts, dimensions and principles of lay-out for almost every type of building—domestic, public or industrial—that the architect is likely to encounter. The book saves the architect time and labour by providing the essentials of plan types and the more important details and components. It analyses buildings from the points of view of planning and equipment, dealing amongst other aspects with siting considerations, problems of circulation, zoning diagrams, room relationships and planning details, in a clear text and simple, well-dimensioned line diagrams. "Planning" is a valuable tool for the student and the practising architect, while it will prove most useful to many others with management and establishment responsibilities in large buildings.

This latest edition contains 32 sections arranged for rapid reference, all of which have been completely revised. Much new material has been added, including three entirely new sections dealing with Hostels, Public-service Vehicles, and Camps for Motorists. Many new illustrations have also been provided, and the book now contains over 650 line drawings.

The pseudonym "E. & O.E.", familiar to a whole generation of architects, is that used jointly by the distinguished co-authors of this book: S. Rowland Pierce, Vice President of the R.I.B.A., and Patrick Cutbush. A foreword has been contributed to the seventh edition by the President of the R.I.B.A., Mr. Howard Robertson.

TRADE NOTES AND NEWS

SPIRATUBE VENTILATION DUCTING

Claude Angwin (Ptv.) Limited, Sole Agents throughout Southern Africa for "Spiratube" Flexible Ventilation Tubing have pleasure in announcing the opening of the new factory in Scotland for the manufacture of this unique product under licence from the Flexible Tubing Corporation of America. This development solves the former difficulty of importing "Spiratube" from the dollar area and enables Mining and Industrial applications to be supplied from Sterling sources at greatly reduced prices.

A Technical Advisory and Sales Service covering "Spiratube" installations on behalf of The Flexible Ducting Co. Ltd. of Glasgow is provided by Claude Angwin (Proprietary) Limited, Windward House, 22 Thorpe Street, Johannesburg.

A ½" TEMPERED HARDBOARD

Less than five years after commencing production of the first South African made Hardboards, Masonite (Africa) Limited announce an achievement that is yet another illustration of the contribution South African industry is making to world progress.

Masonite (Africa) Limited have succeeded in manufacturing for the first time in the world Tempered Hardboard ½" thick.

After satisfactory proving tests this new hardboard is now in full production and is available throughout the Union and Rhodesia.

TECHNICAL DATA

Modulus of rupture 7,600 lbs. per square inch. Water absorption 5% (24 hours % by weight).

One of the outstanding qualities of this new ½" Tempered Hardboard is the fact that one can screw into the edge of this material obtaining a grip equal to screwing into the edge of timber. *Some Uses*: Unframed cupboard doors, meter boards, control panels, bench tops, drawer sides and fronts. The new board machines beautifully and perfect dove-tail and similar joints can be made.

"SAFETY ROOF"

The accompanying photographs illustrate a prototype prefabricated African native-style hut designed and built by Messrs. Booth and Co. (England) Ltd. This design known as the African "Safety Roof" is believed to be the first attempt by the British prefabrication Industry to tackle the African problem on more or less traditional lines. An Aluminium (or Steel) roof is made of 18 separate panels and is erected on metal legs which are embedded in the earth. The African builds his own walls after the roof is up resulting in a cheap, light, and safe rondavel.

The "Safety Roof" on a partially completed hut.

NOTES AND NEWS

TRANSVAAL PROVINCIAL INSTITUTE

Registrations: Messrs. A. S. Brown, M. Joffe, W. S. Marais, C. J. Neser and G. Salomon as Practising and Messrs. R. S. Brown, A. Hack, S. Pockroy, J. J. A. van Schaik, G. M. Zeffertt and Miss M. S. Siskind as Salaried Members.

Transfers: Mr. M. Hackner to N.P.I.A., Mr. A. A. Gordon from Practising to Salaried; Mr. D. M. Cowin to Retired, and Mr. R. N. Densem to Absentee Salaried Membership.

Partnerships: Abramowitch, Pinshaw and Schneider, practising at 301 United Buildings, Benoni and Abramowitch and David Pinshaw practising at "Cambridge", Sauer St., Johannesburg. Charney and Margolis, practising at 407 Fanora House, Rissik St., Johannesburg. Cowin, De Bruyn, and Cooke lately Cowin and Ellis, practising at Portland Place, Braamfontein, Johannesburg. Logan and Rosekilly, practising at 732 S.A. Mutual Buildings, Johannesburg. Pearse, Aneck-Hahn and Bristol, practising at University, Johannesburg. Salomon and Silverman, practising at 115 Norwich Union Buildings, Johannesburg.

Keith E. Gow, President of the Natal Provincial Institute of Architects.

S.A. ARCHITECTURAL RECORD, MARCH 1928

Mr. C. H. N. Merrifield of Port Elizabeth is anxious to obtain a copy of this issue. If any member can assist will he or she please write to the Editor?

PROVINCIAL WORK

LIST OF ACCEPTED TENDERS FOR MAJOR PROVIVCIAL SERVICES FOR QUARTER ENDING 31st MARCH, 1954

SERVICE	ARCHITECTS	QUANTITY SURVEYORS	CONTRACTORS	AMOUNT
Alterations and additions to the Athlone Girls High School	Marshall & Paynter	H. Muller	Mr. Eric Morren	£40,398
Additions to the Lyndenburg High School	P. Nel	Hodge & Beveridge	Messrs. Botbyl & Schep (Pty.) Ltd.	£39,900
Erection of Hostel at Eendracht School, Heidelberg School Board	M. Hussey	Departmentally	Mr. N. J. Hangelbroek	£32,800
Erection of a High School at Derdepoort, Pretoria	Departmentally	Departmentally	Mr. V. Moore	£55,488 17s.
Erection of the Springs Girls' High School	C. S. Brink	Departmentally	Messrs. R. Herd (Pty.) Ltd.	£66,495
Alterations and Additions to the Queens High School	Taylor & Snodgrass	More & Bell	Messrs. G. Vincent & Co. (Pty.) Ltd.	£49,680
Alterations and additions to the Ventersdorp High School Hostels	C. Wouda	S. D. v.d. Merwe	Messrs. J. H. Boerman & Son	£31,149
Additions to Pretoria School Clinic	Gordon McIntosh	R. J. C. Prentice	J. D. Verhoewe	£76,950
Erection of new Hall at Hercules High School	A. O. Fishbeck	Departmentally	J. E. Tegart (Pty.) Ltd.	£8,400
Alterations and additions to Christiana Primary School	D. v. d. Walt	Departmentally	H. Kop & Son	£16,365
Erection of Hugenote Girls High School	C. S. Brink	Departmentally	De Klerk & Hewett	£78,539