JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

VOL. 22 TORONTO, JANUARY, 1945 NO. 1

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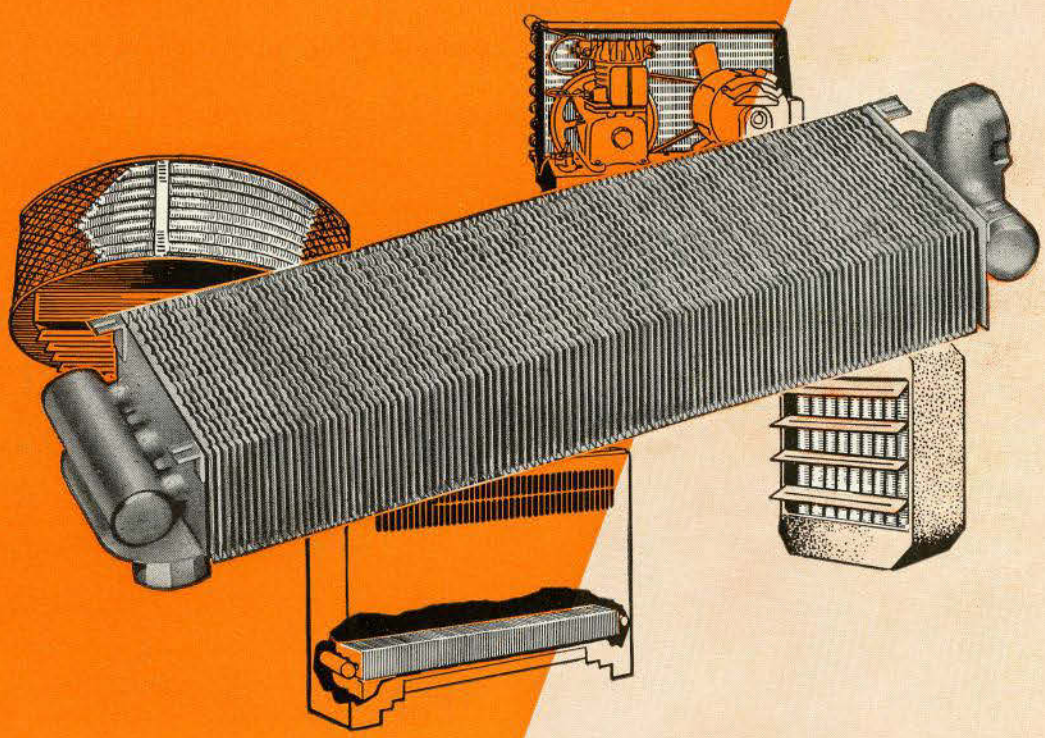

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JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

Serial No. 233 TORONTO, JANUARY, 1945 Vol. 22, No. 1

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R . A . I . C
JOURNAL
JANUARY 1945

IT has long been a tradition in this *Journal* for the Chairman to write the January editorial. When the custom was inaugurated, it is unlikely that anyone foresaw a time when the President of the Institute was also Chairman of the Board. The double duty, therefore, falls on me to continue one custom, as President, in December, and to help perpetuate another, as Chairman, in January. I would forego the privilege if I did not feel that tradition, even in detail, if worth while, is one of the sacred possessions of the Institute. I have for the last four years presided over the Editorial Board of the *Journal* and the fate and future of that magazine are very close to my heart, more so than would be generally understood.

ON the purely physical side I have shared with the Board the pleasure of seeing the *Journal* increase in size, and improve in quality of text and illustrative matter. I have shared also the pleasure and anxiety of watching the financial fortunes of the *Journal* which, like a barometer, indicated the peaks and depressions of the building industry. It is therefore a matter of much satisfaction to me to be able to report that the year 1944, the 20th year of publication, has been the most successful financial year in the history of the *Journal*.

THESE are the tangible things which are seen, but these, in themselves, do not form the mouthpiece of the Royal Architectural Institute: at least not as those who founded it, and we who carry it on, conceive it should be. The *Journal* is not a monthly compendium of architectural information, nor is it a substitute for any commercial architectural magazine, whether English or American.

SO far as we have been able to make it, the *Journal* is the leader in architectural thought in Canada. The thoughts expressed cannot always be construed as being the unanimous voice of every individual architect; some indeed might be supported only by a minority, but they were always views that the Board felt were worth expressing. In another field, he would be a poor conservative who turned a deaf ear to the worth-while elements in a leftist programme or conversely, he would be a poor socialist who saw no value in the solid and tried traditions of the older systems. It is one of the difficult and important tasks of the *Journal* to set a nice balance in just such a manner. We know that architects in this Dominion, with wide regional differences in their architectural idiom, and a wide difference in age and outlook do not all share the same feelings for extreme modern, or traditional architecture. We are aware that housing and town planning, where they affect public spending, do not strike a common chord in every architectural breast. Yet these are matters that architects in all countries are studying and debating, and they are all matters that we must weigh in all their aspects before coming to a definite opinion.

ANY business-like Board, given suitable economic conditions in the country, could produce a superficially successful *Journal*. That has not been the task or the objective of the Boards over which I have had the honour to preside. The effect of such intangibles as taste and opinion, and values in human relationships that will influence the daily lives of this and future generations are not easy to assess, but it is my hope that they have been presented in the *Journal* and will continue to be presented by future Boards.

I LEAVE, with confidence, to my successor, the double task of seeing to it that the *Journal*, as a physical professional organ, and a spiritual, intellectual and social force is maintained and developed through the years in keeping with the high aims and the dignity of the Royal Architectural Institute which it represents.

FORSEY PAGE, *Chairman, Editorial Board.*

An Architect's View On

EFFECTIVE TEAMWORK IN BUILDING DESIGN

THOMAS H. CREIGHTON

Alfred Hopkins & Associates, Architects-Engineers, New York, N.Y.

Contents in Brief—*In this article and the one that follows, an architect and an engineer make a plea for more intelligent co-operative use of their respective abilities in planning and designing buildings. They envision this partnership increased to a threesome by the addition of the contractor, with the result that we will produce real "modern" designs—efficient, sensible, economical—with or without the use of radically new materials, of which very few are presently in prospect. They use as an example a post-war design for a Nurses' Home for Bellevue Hospital in New York. Starting with the size and furniture requirements of a single room, all planning and design steps were integrated. Two of the interesting structural results are a cavity type wall and a thin flat slab that serves as floor and smooth ceiling and in addition is the heating surface by virtue of encased pipe coils.*

The shape of our buildings in the post-war period is a matter of interest to all engineers, architects and builders. Some confusion exists at the present time, for one reason because of an incomplete understanding of "modern" architecture—which seems to be something that we all desire in theory, but from which we shy when we put pencil to paper—and for another reason because of an uncertain expectation of new materials.

While half of the architects and engineers are thinking and talking of buildings somewhat vague in outline but made of glass, plastics and plywood, perhaps delivered completely assembled, the other half is engaged in the preparation of working drawings and specifications for buildings not much different from the ones they designed before the war.

What then is "modern" design? What physical differences can designers of buildings put their fingers on, which will distinguish the structures of 1946 from those of 1936? Is it a matter of flat roofs and corner windows? If it is, that isn't news; they have been around for some time. Is it new materials? If so we may have to wait over long, for professionals and constructors, when they are realistic, see no great change in the decade after the war in basic materials for permanent large construction.

But there is another aspect of the problem to be considered. Is there in the wind a changed attitude toward old materials? Can there be new ways of using them that deserve to be called "modern?" Can the engineer, the architect, the builder, approach a design problem with conceptions and design methods and construction systems that are radically different from the ones we have been used to? Fundamentally, can they co-operate and integrate their efforts to create something that can be called "modern" designs? The answer is "yes", and the implications are worth noting.

NEW CONCEPT VS. TRADITION

For example, among the projects designed for the armed forces and among the post-war buildings that are now being planned, there are some that stand out because of a new correlation of structural, architectural and mechanical aspects. They show a new feeling for efficient and economical use of basic materials. How did they get that way? To understand what modern design of buildings actually implies, let us first recall the traditional design process, and then examine a specific example of complete structural design co-ordination.

The traditional procedure begins with an architect making a sketch of a proposed building. He may, at this early stage, call on a structural engineer to make sure it can be "framed", that is, that spans are not too great or that there will not be too much eccentric loading of columns. The mechanical engineer is not consulted yet—mechanical equipment can surely be fitted in, somehow, later.

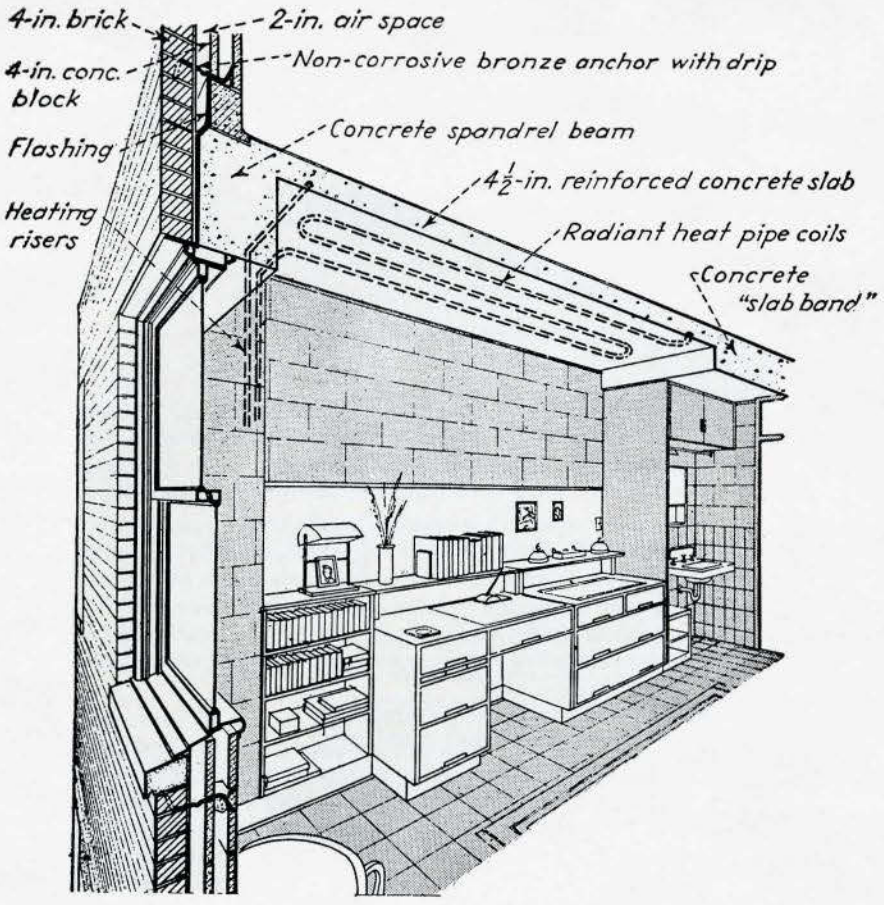
The preliminary drawings are approved, and the plan is frozen. Working drawings are begun, and the conflicts between structural engineer and architect are ironed out by compromise. Materials are chosen because of their appearance, with some consideration given to availability. Space is grudgingly granted to the heating and plumbing engineers for their equipment, and the electrical engineer is given pre-determined space to light. The methods the builder may employ to carry on the operation of construction are left to him and his ingenuity.

The result cannot be anything startling. It will not necessarily be bad, because the same procedure has been followed many times, and improvements have gradually been made. But it will not be as good as it could be. Whether it is covered with Doric or Gothic ornament or none at all, whether it is "treated" horizontally or vertically, whether it is faced with brick or limestone, whether it employs hot water or steam heating, uses convectors or radiators, whether it is framed with structural steel or reinforced concrete—all these things are relatively unimportant. What is of prime importance is that it will be built with no conception of the possible unity of all its structural elements.

As an illustration of some of the things that can be accomplished when a unified design approach is realized, let us examine one of the post-war projects being designed under the direction of the Department of Public Works of the City of New York. At Bellevue Hospital there is required a Residence and School for Nurses, with rooms for 850 student nurses and 50 staff and faculty members, and with extensive educational, dining, and recreation facilities.

INTEGRATING PLANNING AND DESIGN

The design for this complex programme began basically with the individual nurse's room. Established at approximately 9 x 16 feet in plan, the typical room was required to contain a lavatory and a wardrobe, a bed, a study table, and space for some occasional furniture. A reinforced concrete skeleton with monolithic slabs was designed in bays fitting the room size—two rooms to the bay in the longitudinal sense. Since a flat ceiling was desirable, cross beams were eliminated. A $4\frac{1}{2}$-inch slab spans the space from wall to interior support. The lavatory and the wardrobe were organized at the corridor end of the room in such a manner that a thickened slab band, extending past the corridor partition into the room, lowers the ceiling only at this "vestibule" end of the room. Thus structure



Living requirements as to space and furniture influenced type of floor slab — no cross beams, thicker section over vestibule lavatory, encased heating coils and hidden supports — result of architect-engineer teamwork.

—basically and in detail—is related to, is fixed by, and literally expresses, the plan requirements.

A further correlation of design elements within the typical room is planned. Instead of a space-stealing radiator, radiant heating coils will be installed in the slab, which will become not only a structural means of spanning between supports, but a floor, a flush ceiling, and an integral heating unit. The structural system allows plumbing and heating pipe sleeves to be located in line with the columns, so that such facilities are built in where they should be and do not protrude into the room as though they were a last minute thought.

With this basic unit repeated along both sides of a corridor, the basis for the design of the upper or housing stories of the building is determined. Windows are large, the centre portion fixed, with operating sash on both sides. They make for pleasant rooms, and at the same time they form a pattern on the exterior of the building, which requires no extraneous applied ornament. Nothing is forced; the elements are well organized and are not ashamed to stand honestly on their foundations. The important thing to note is that this general design and all of its architectural and structural details resulted from continuous architect-engineer teamwork.

The wall construction proposed is a cavity wall, 10 inches thick overall, made up of a 3¾-inch brick on the exterior, a 2¼-inch space, and a 4-inch concrete block on the inside. Both the architects and the structural engineer have had extensive experience with this type of wall construction, and together they have carried it to a carefully integrated conclusion. Since the entire interior wall — including the columns — is removed from contact with the exterior shell, the construction is weathertight, has good insulation value, is simple to erect, and is economical. Moreover, the inner wall, being isolated from weather contact, need not be plastered. Concrete block units will be used for interior partitions, and an inexpensive, integral, utterly frank finish will result.

Without going further into the design of this building, it should be evident that an integration of design elements can achieve something much more satisfactory than uncorrelated methods ever did. The architects of the project, Alfred Hopkins and Associates, the structural engineer, Fred N. Severud, the mechanical engineers, Jaros, Baum and Bolled, and the clients, have found that working together from the earliest design stages, supplementing and unifying one another's work, rather than fitting in and compromising, is an exciting and a productive procedure.

USE WHAT WE HAVE INTELLIGENTLY

No claim should be entertained that a building such as this is the last word. When the principles of a co-ordinated, imaginative approach are generally appreciated, the possibilities of modern design will be endless. There is no need to wait for new, untried materials. There is no need to hunt for outlandish attention-arresting designs. A great deal of work can be done in bringing together, for their fullest realization, construction elements that we all consider familiar.

Inevitably it will be pointed out that such complete co-ordination is physically difficult. Architects and engineers are separate professional practitioners in most instances, and —let us be honest — they traditionally look down on one another's work. That this situation is not conducive to efficient design was recognized early in the war construction programme, and contracts for technical services were given to architectural-engineering combinations.

Surely post-war design—private and public—deserves the same correlated services. How can it be achieved? Ideally, perhaps there should be individuals who are neither engineers nor architects, but designers of buildings. Actually, although there are a few such persons, the tremendous amount of technical knowledge and ability required makes such an ideal impractical. The next best solution would seem to be an organization composed of experts in all branches of building design, working in an integrated manner under an executive head. Such architectural-engineering firms exist, but in many cases one branch or another of their services tends to become predominate.

In any event, not all of us wish to become absorbed in large, impersonal organizations. And even if physical closeness and unity were established, there still would be required full understanding of one another's part in the production of the completed building. That does not necessarily come from working in the same office. The suggestion is even being revived in some quarters that the designers of buildings—the architects-engineers—should also act as general contractors, and carry the physical collaboration to its ultimate conclusion. Again there is precedent for such an arrangement. But again, either design or construction efficiency tends to become subordinate.

No organizational arrangement can provide the complete answer. A new conception is required—not simply of co-opera-

Continued on page 19

An Engineer's View On

EFFECTIVE TEAMWORK IN BUILDING DESIGN

FRED N. SEVERUD

Consulting Engineer, New York, N.Y.

The conception of architect, engineer and builder working in an integrated manner toward the common goal of good buildings, as discussed by Mr. Creighton in the previous article, broadens the structural designer's function beyond the limits he has become accustomed to. He becomes part of a team, as he and his colleagues leave behind the crude methods of solving problems independently in the different but connecting fields.

He begins to think of his part in the composite job as including:

1. The provision of floor space with a suitable finish, sheltered from the elements with a minimum of future maintenance costs.

2. The design of exterior and interior wall and ceiling surfaces with a satisfactory appearance, as well as with structural value.

3. Integration, with the mechanical engineer and the architect, of mechanical and structural requirements.

4. Evaluation of human factors, such as the imagination of the architect, the personality of the owner, the ability and efficiency of the contractor. He faces the necessity of considering functions as well as formulas.

5. Knowledge of construction methods and the manner in which contractors prepare their estimates.

6. Appreciation of the economies inherent in the use of proper materials and construction methods that harmonize with the requirements.

In fulfiling these enlarging functions the engineer is aided by the fact that former approximate design methods are being abandoned in favour of analyses that give the designer a much more accurate picture of the real behaviour of his material than he has had before. He feels—if he has imagination enough—the pulling and pushing that the materials go through to bear up under the loads they are asked to carry. By changing the proportions of the various framing members, he finds that even the stresses can be changed, since large members will absorb a greater amount of stress than small members.

Conceptions such as this have opened up possibilities for greater improvement in many common methods of construction by making the designer a more skilful artist in the use of materials.

Even in the design of such a simple and apparently stereotyped thing as a concrete floor slab, the combination of progressive structural and architectural thinking leads to new concepts. This is well illustrated by the design of the Residence and School for Nurses at Bellevue Hospital, described in the previous article. There it was decided that there was no reason why the structural slab could not be finished directly and covered only with a thin asphalt tile surface to make walking easier. Moreover, the mechanical engineers and the architects agreed that mechanical work—even the pipe coils for radiant heating—could be completely installed in time to be buried

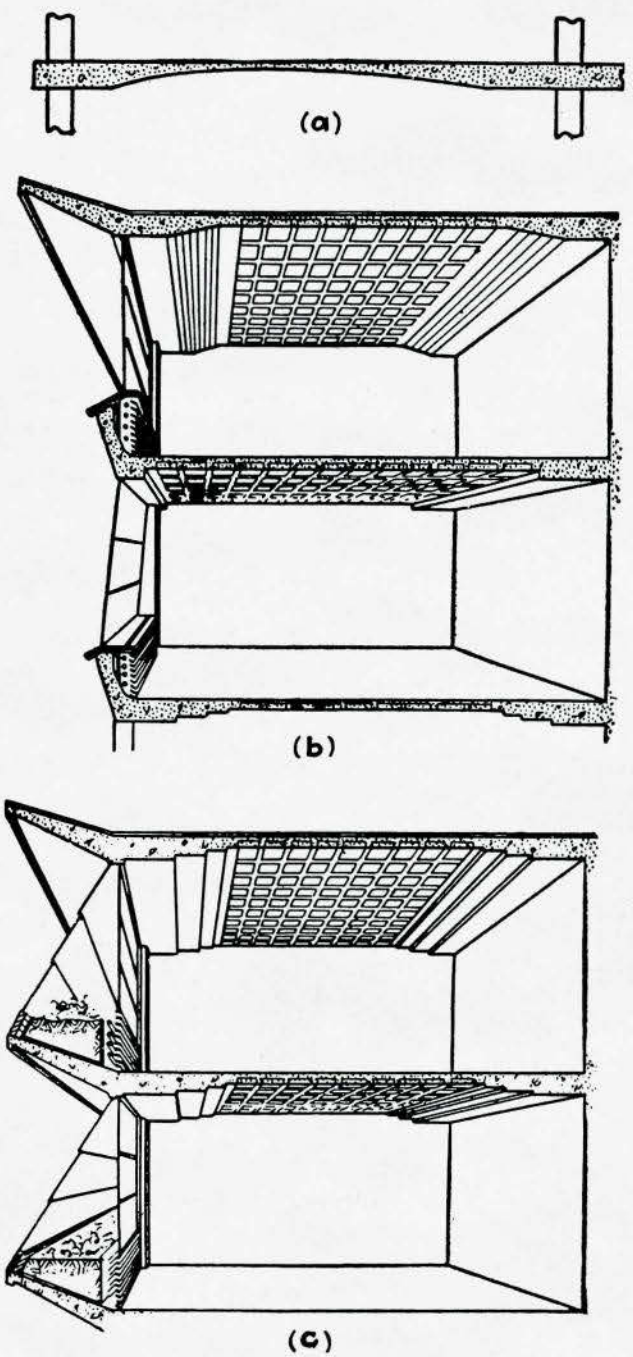


Fig. 1. Suggestions for slab and wall designs that stem from logical use and distribution of material. (a) shows ideal slab form and (b) and (c) practical variations as well as special concrete wall designs to give effective weather protection to the concrete.

in the structural slab. This concept, of course, eliminated the usual detail of slab, fill and separate finish.

SLAB DESIGN AS A MATTER OF LOGIC

Then the question arose as to the design of the slab itself. In a structure of this sort —rooms on either side of a central corridor —the columns are logically placed along the outside wall and the corridor partition. But, once the scheme of beams perpendicular to the walls is discarded, what is the ideal configuration for a concrete slab spanning between these columns? What is the simplest and most efficient design?

Fig. 1, (a) illustrates approximately an ideal outline. It may be that concrete buildings of the future will have such curved ceilings, but at the present time practical construction requires straight lines. Fig. 1 (b) and (c) — disregarding for the moment the exterior wall design in these illustrations— show a type of construction that follows closely the ideal concrete outline, but comes closer to practical attainment. The curvature would be formed by shiplap boards in one case, by short runs of straight surfaces in the other. With the present situation in building materials and labour I would not advocate any of these three types of design; but I would like to stimulate progressive thought and confidence in the belief that not too long from now, as a result of co-ordinated effort, construction difficulties will be overcome and the distribution of material will be made in more direct proportion to functions.

In the case of the Bellevue project, a perfectly flat ceiling was considered desirable for the efficient operation of the radiant heating pipe coils. The design adopted, illustrated in Fig. 2, included a pair of 4-ft. slab bands bordering the corridor walls. Columns are set away from the corridor partitions, a scheme which the architectural arrangement of the room makes possible. This allows the columns to be centred on the slab band, and the slab band to be of a width exactly equal to the "vestibule" of the repetitive room plan.

A 4½-in. flat slab spans from the spandrel beam at the wall to the slab band, and encases the radiant heating pipe coils. Architect, mechanical engineer and structural engineer are mutually satisfied. Structure, plan and equipment are all well served.

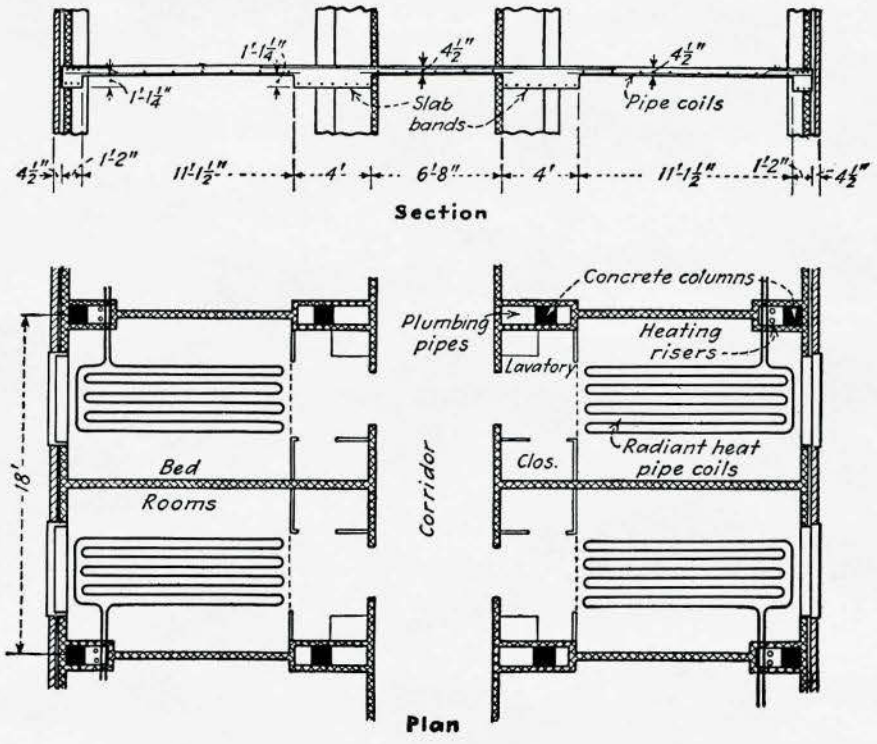


Fig. 2. Typical bay framing in Bellevue Nurses Home in New York utilizes a slab band instead of a beam, so placed as to be inconspicuous in the room. Heat coils are buried in 4½-in. floor slab.

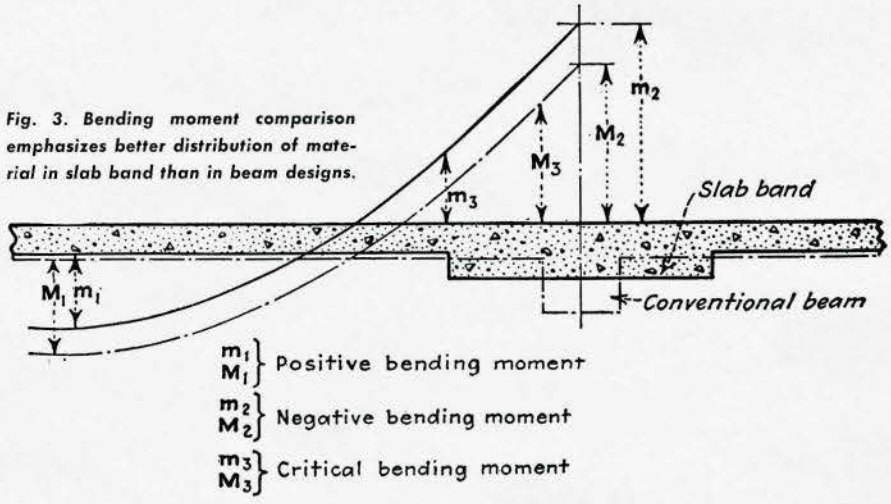


Fig. 3. Bending moment comparison emphasizes better distribution of material in slab band than in beam designs.

The structural principle involved in the use of the slab band is illustrated in *Figure 3*. Without going into all the technical aspects involved, a comparison is made in this figure of the moments in "slab band" construction and those in conventional slab-and-beam construction. Due to the greater stiffness of the slab in connection with the slab band, the initial negative moment m_2 is greater than the conventional M_2. However, the critical section for these moments is where the slab joins the supporting member. At this point m_3 is considerably smaller than M_3. It can readily be seen that the positive moments with slab band design are smaller than those in ordinary design.

For both negative and positive moments, therefore, the slab band method is quite superior. This might be expected, for the conventional slab-and-beam construction was adapted from forms demanded by rigid, inflexible materials, at a time when little consideration was given to the proper distribution of materials.

INTERESTING SLAB VARIATIONS POSSIBLE

Where radiant heat pipes are not required, filler blocks may be used in this type of design to provide economies by lightening the floor construction. In this case, another question would present itself to the architect-engineer team. Why should it be necessary to plaster these blocks, as is commonly done? We have been brought up under plastered ceilings, and we have taken it for granted that flat plaster is a desirable surface, but is that necessarily so? In all natural things, irregularity rather than regularity is the rule.

"But," you will say, "surely we cannot accept the drab and ugly finish of a rough concrete slab for the ceilings of important buildings." Not for the present, perhaps, but the time will come when, with some skill, we shall be able to produce a pleasing concrete surface just as it comes from the form. In the meantime, by using the filler blocks and arranging them in checkerboard

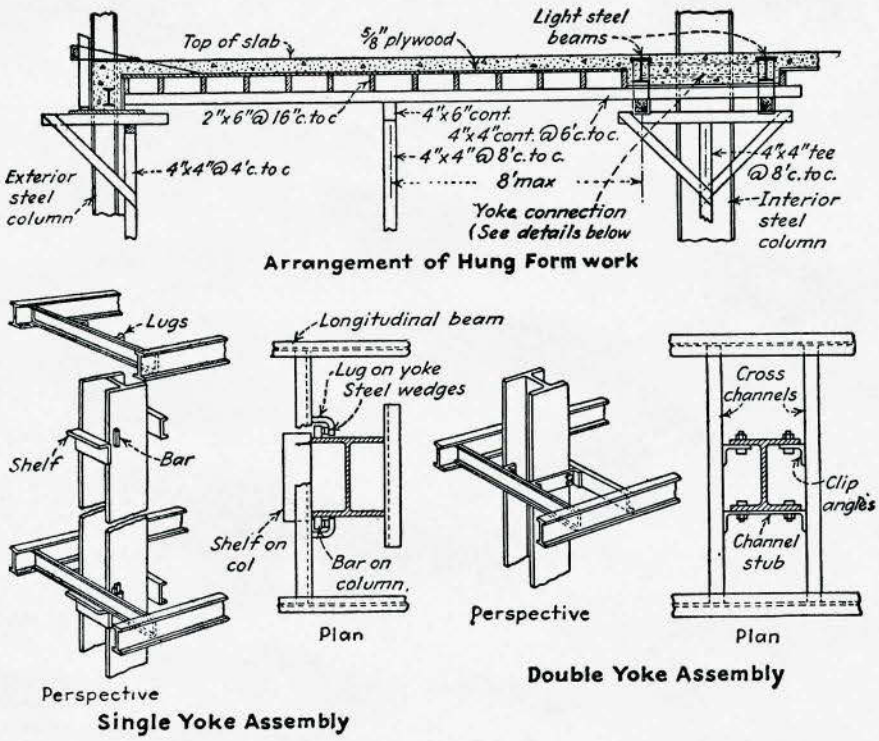


Fig. 4. Structural system involving steel columns and concrete slabs is made more efficient by light steel beams that serve initially as supports for floor forms and then as reinforcing for the concrete beams.

fashion with the concrete ribs between them, an interesting pattern can be achieved. The irregularties in the placing of the blocks and in the ribs, resulting from imperfections in the form work, combine to make an interesting surface. By using pigments to colour the blocks and the intervening ribs, attractive colour schemes can be developed. Furthermore, the blocks will absorb about 20 per cent. of room noises.

A cavity wall was selected for the Bellevue project as satisfying the requirements of economy and permanence. With the architects, I feel that such construction—brick used frankly as an exterior shell, unplastered concrete block used frankly as the inner wall—is intelligent utilization of structural materials. No applied finish is necessary; insulation and weathertightness are inherent in the construction; the wall is structurally sound, with proper reinforcement and anchorage.

ARCHITECTURAL CONCRETE WALLS

Other equally honest wall designs should be possible. There are many architects who would like to use concrete exterior walls, and clients are often interested because of the economy implied. Engineers may be more than willing, but there is the drawback that the present type of concrete construction is not very suitable for the climate of the northeastern United States. The principal reason for deterioration of concrete in such a climate is the wetting and drying of the walls and freezing action while they are wet. If it should be possible to shelter the walls somewhat from the elements, then concrete construction in rigorous climates could be accomplished as successfully as in the southern and western regions. Again, combined professional imaginations would have to be put to work.

As an example of the sort of design that might result from these considerations, let us examine *Figure 1* again. Here in (b) is illustrated an overhang at the roof level, which affords protection to the lower wall. As an additional safeguard, the spandrel walls below have been slanted outward, and the window sill has been so arranged that any great driving rain will be shed. The scheme would be unusual, but it is perfectly logical in rough climates. The sloping spandrels readily accommodate the heating requirements, and the sloping glass lends interest to the room.

Fig. 1 (c) indicates a further step. The greater overhang at the window is desirable from a structural standpoint since the loading at this point will relieve the interior spans. In addition an ideal place has been found for interior planting.

There will be great changes in wall design in the near future. Many prefabricated and semi-prefabricated panel designs will meet the requirements of a modern wall, in addition to simpler constructions built in place. We are just beginning to realize that the heavy building walls of great load-carrying capacity are no longer justified with skeleton frame structures. In a contemporary building the basic functions of an outside wall are simply protection from the elements, from noise and from fire, minimization of heat transmission, and resistance to wind forces and their transmission to the skeleton frame. The simple cavity wall proposed for the Bellevue project, with its two unfurred masonry wythes, is a large step in the right direction.

CO-OPERATING WITH THE BUILDER

Many other illustrations could be cited to show the sort of thinking that collaborative professional enterprise will induce. When the contractor is brought into the picture as well, further stimulation is provided.

For some buildings a serious modification of concrete design might be advisable, in order to avoid some of the builder's difficulties with this material. When concrete columns are used in buildings more than ten storeys high, they become very clumsy and space consuming. In addition, concrete construction always involves the use of a forest of shores. With a total concrete frame, the proper lining up of these shores and the bracing of them in the right position for the formwork of the floor above is expensive and difficult. This is a construction operation that can very well concern the designer.

The economy of a concrete floor system can be maintained with the use of steel columns, which take up much less space than those of concrete under certain circumstances. And since, with the steel columns, a certain amount of light bracing is desirable to keep the columns in line, a light system of steel beams can be utilized to support the forms while they are being built. (Fig. 4.) It is economical to provide a certain amount of shoring while the concrete is being poured, but this operation is very simple once the forms are in place. By using the system shown—that of a wide concrete band in the centre, encasing light beams — the beams are transformed into concrete reinforcing once they have served their original function of supporting the forms.

The connection of these centre beams to the columns can be effected very simply, as shown in Fig. 4, with either single or double yoke assembly. By a wedging arrangement, as shown for the single yoke detail, a minimum amount of field work is required in erecting the steel frame.

In other ways design and construction can be integrated. The span of the beam can and should be made to utilize standard sheets of plywood, and the drop between the slab and the band can be accommodated to standard lumber sizes.

As another example, a concrete column is always thought of as a square member. Only occasionally, where dictated by

Continued on page 19

SITE LAY-OUT

4. This, though the universal layout pattern, is one of the two most costly, on account of the length of street frontage per house and the narrow distance between each interior* street.

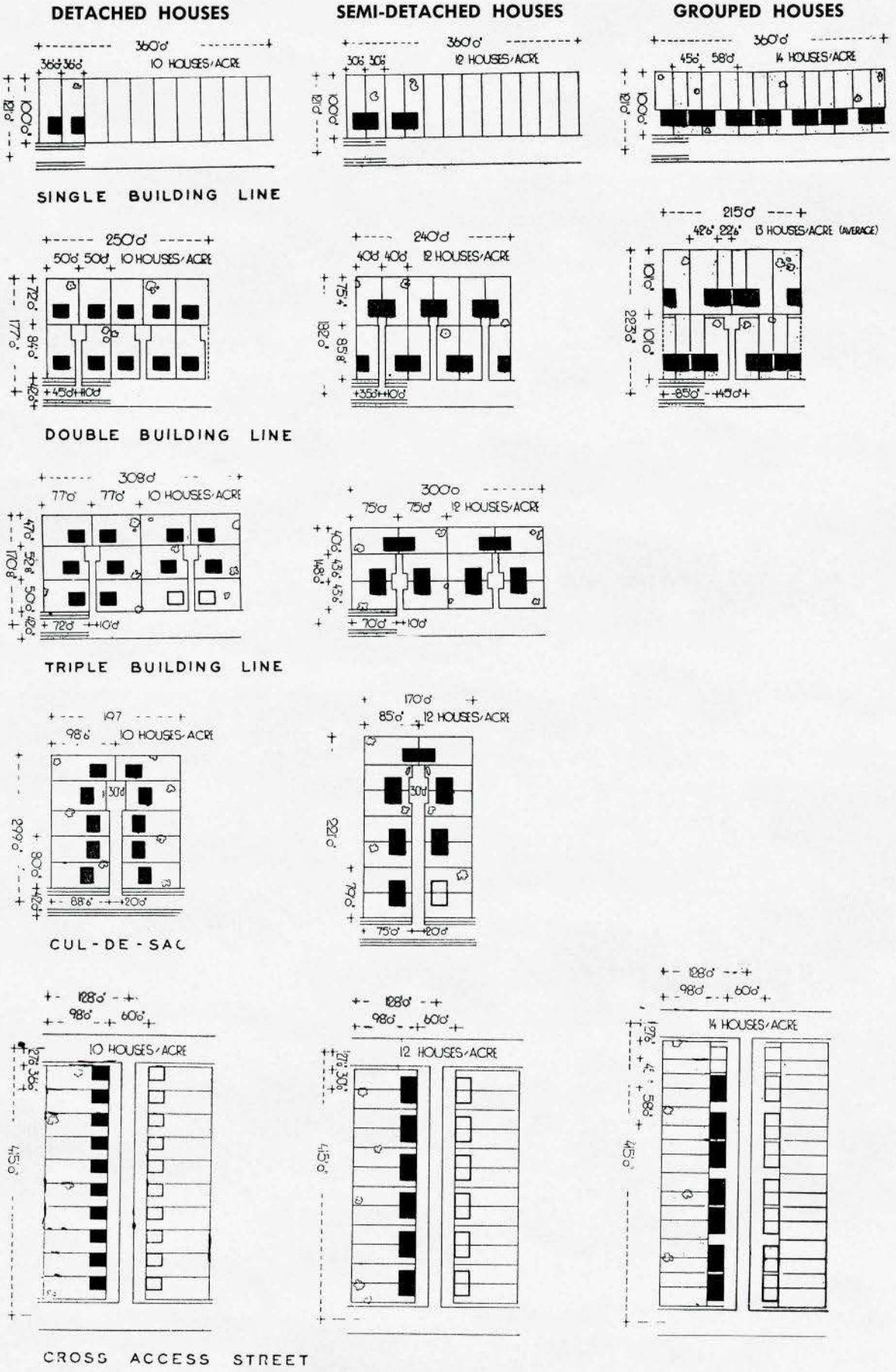
2. Here, the amount of frontage of the interior* road is reasonable, and cost would be similar to that of the "cross access street" layout.

5. This layout approaches in cost that of the single building line. Street frontages are only slightly reduced, as are road charges per lot. Also, the "access" streets to the rear houses would not entail the same savings as would be made with the double building line.

3. Here we have a smaller street frontage than in the case of the double building line, yet it is more costly as a result of the longer "access" road. The maintenance of the latter has also to be considered.

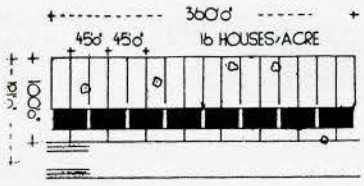
1. Here, a reduction of the interior* road frontages is allowed to an extent that makes this an economical method of subdivision. A cross-access drive running north to south gives satisfactory orientation.

** An "interior" or street is taken to be 40 ft.-45 ft.*

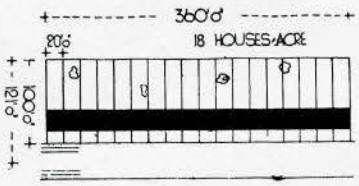


T E C H N I Q U E

TERRACE HOUSES
(with access to gardens)

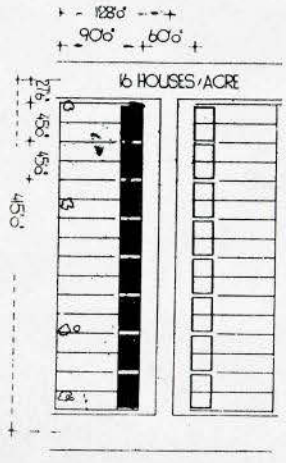


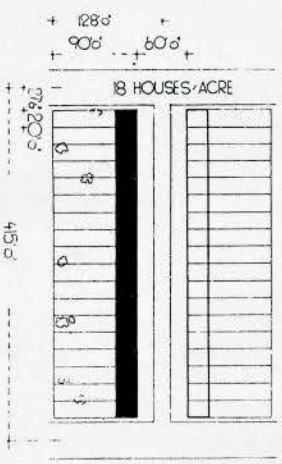
TERRACE HOUSES
(without access to gardens)



COMPARATIVE CHART ***showing various layouts of houses in relation to access streets, given the same total areas for each layout, but varying densities.***

In the left-hand column, the types of layout are numbered according to cost, No. 1 being the cheapest method, Nos. 4 and 5 the most expensive.





By WALTER SEGAL

In the last three or four decades considerable advance has been made in the art of laying out residential areas; and at a time when a huge re-building programme is shaping it would seem a good plan to take stock of what has been done and to reconsider the problem in its various aspects.

The great variety of ideas and conceptions that have been put forward also reveal the controversial nature of the subject, and opinion has been divided as to the merits of the various solutions that were suggested and tried out. First, came the ideas of the Garden City and Suburb, and, with them, the open layout and landscape planning. Later, attempts were made to introduce scientific methods and the last ten years or so have seen a marked increase of such tendencies. Generally speaking this was all to the good; though it has, on the other hand, contributed to a certain rigidity of thought and approach. The monotony that here and there appeared in more recent layout schemes, especially on the Continent, may be traced back to a certain overstressing of the scientific side of the subject, and is by no means merely an outcome of efforts to save cost.

Replanning of Existing Areas

The conception of the garden city has in many ways endured; and it may continue to apply to special circumstances, in particular where low and medium densities of population can be maintained. But it would seem that the re-planning of existing areas will claim priority in post-war building and that the development of new areas may have to wait.

In many instances, the former may enjoy all the advantages of being wholly or partly improved, and such sites would lend themselves easily to subdivision. They may be bounded by main roads and the problem may consist chiefly in the re-planning of the network of the interior streets. Sewage, gas and electric services would be available and new branches might be run to the existing mains. In many towns of Britain there are a great number of sites awaiting re-development on such lines.

Fewer will be the instances where the course of major roads will have to be substantially changed and whole districts to be entirely re-planned; and fewer still, at any rate for years to come, will be the number of new communities and settlements. It is not possible to foresee to what extent post-war transport will affect the network of major roads in urban areas; but whether the changes be great or small, a large number of interior streets will have to be re-planned in many instances.

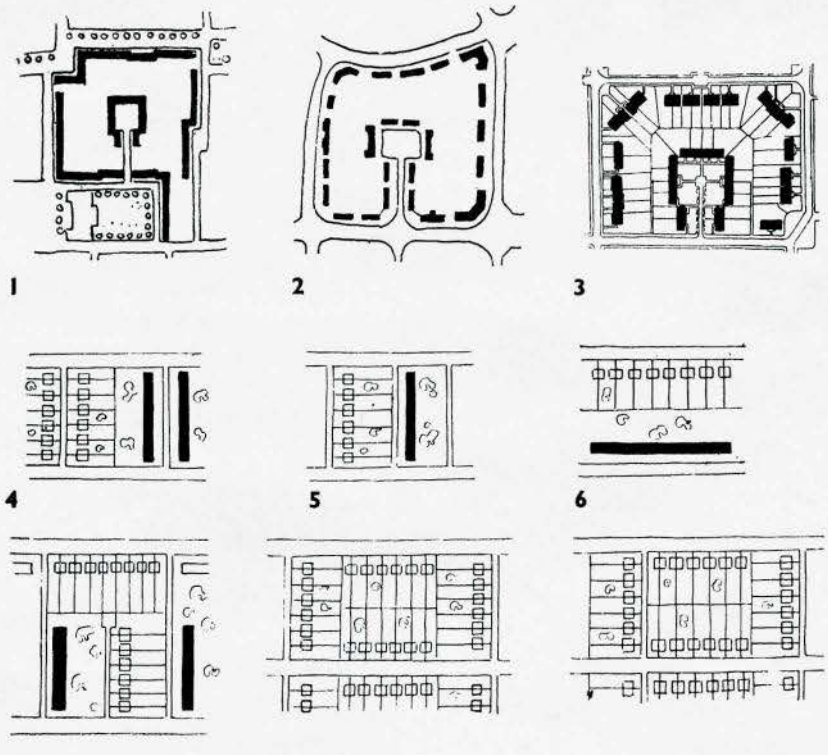
Ratio of Houses and Flats

These layouts will obviously be conditioned by such factors as densities of population and types of housing employed. Nowadays, mixed development is often advocated so as to further the natural inter-relation of house and flat in urban areas; and this means that a certain ratio of houses and flats is considered desirable in each district, and does not imply a development with houses and flats interspersed at random.

Thus there will be flats in one area and houses in an adjoining one; and while the former area may have to conform more or less to two or three of the usual standard layout patterns, there exists a greater variety of methods for subdividing land and siting houses.

Boundaries of Neighbourhoods

It may generally be assumed that in the case of residential areas, the main thoroughfares and to some extent the major residential roads are pre-determined and conditioned by the



1, 2 and 3 show square block patterns. The first is in Vienna, the second Suresnes, and the third Letchworth.

4-9 are row patterns. 4, double rows; 5, single rows; 6, usual row patterns; 7, combined row pattern; 8, usual square pattern; 9, suggested square pattern. 10, the close.

principal network of urban communications. Thus the boundaries of residential neighbourhoods can be regarded as existing and the first task of the planner will be to produce a suitable system of interior communications and to determine the sizes and shapes of the individual blocks.

Shapes of Blocks

Blocks are bounded mainly by *interior streets, i.e.,* streets of a width of not more than 50 feet; and, in modern practice, block lengths up to 1,000 feet are advocated instead of the much smaller sizes of the past. As regards shapes, rectangular, square and even hexagonal blocks have been suggested and used. Square and hexagonal blocks may be somewhat more economical than rectangular blocks as regards circumferences in relation to areas, thus entailing some saving in improvement cost; but rectangular or near rectangular blocks have all the advantages of good subdivision and orientation. It is, of course, always possible to open blocks of considerable depth by means of cul-de-sacs and cross-access streets, but these tend to become unsatisfactorily long. Moreover, they might have to be used on all four sides, and this would produce a large number of badly orientated lots. Such would still be the case even if the centre of such squarish blocks were turned into a communal green space for the private use of the adjoining residents, as at least one-quarter of the houses and gardens would still have to face north, north-east or north-west. As it is, the rectangular block is the better planning proposition, and interior green spaces might run parallel with, or at right angles to, the long sides of the block. Such an arrangement would be satisfactory for both north-south or east-west streets.

In a great number of cases, moreover, it would be possible to reduce the widths of streets bounding the longer sides of the block, and to increase those of the streets on the shorter sides, which in turn would help to regulate the interior traffic and lend a more private character to the main access streets of the lots. In practice, of course, very different shapes of sites have to be anticipated; the grid-iron is not a pattern that can be enforced in all circumstances, nor would it be desirable or practical. Generally, it is sufficient to have two long and two short sides of blocks to obtain satisfactory results.

Subdivision of Blocks

As regards the interior subdivision of such blocks this depends on types and densities of houses to the acre, on frontages and depths of lots, and on the various forms of access. A number of methods are practised, and some of these are compared in the chart shown on pages 8 and 9. The comparison is based on equal acreages of land, and indicates varying densities of ten to eighteen houses to the acre for detached, semi-detached and terrace houses.

The Single Building Line

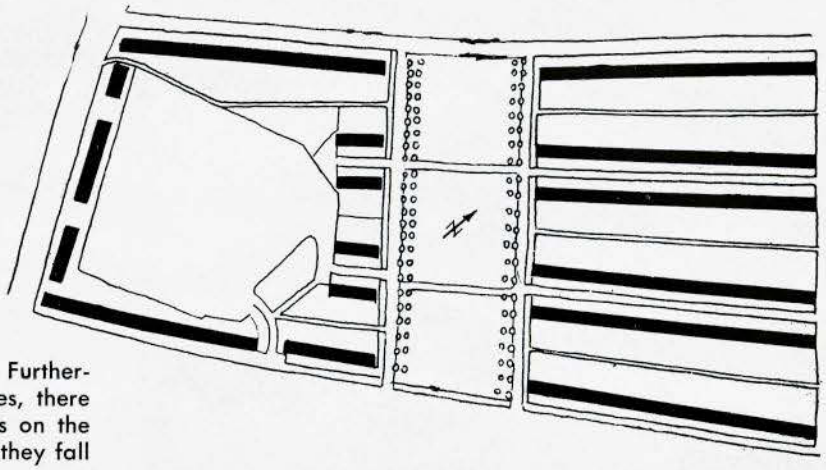
First we have the single building line, with all lots directly approached from the interior street. This provides comparatively narrow frontages and equal advantages for all lots. On the other hand it requires, in spite of the narrow fronts, a considerable length of street and, moreover, tends to result in narrow spacings of interior streets, both of which materially impair the economy of this layout. From the point of view of house-and-garden planning, the long narrow lots are unsatisfactory as the gardens are split into a front and rear portion, involving the problems of rear access and side passages. Of all the existing layouts, this is the most uneconomical, special cases excepted.

The Double Building Line

The double building line, with an equal number of lots in front and rear of the site, not only achieves considerable saving in street length but also provides for better shaped lots with wider frontages and thus assists the planning of the individual houses. A gravel path would suffice as access to the two houses in the rear, and there might be a small turning place for cars. All this could be arranged with economy. On the whole, the double building line is one of the most economical methods of subdivision.

The Triple Building Line

The triple building line continues the general theme of the double building line, though usually it is not nearly as economical. It requires greater street length per lot as the latter will have to be arranged the other way round so as not to increase



11. Bakkehusene, Denmark. Here, use is made of a row layout.

the length of the approach roads to the rear houses. Furthermore, with four lots at least facing these approaches, there arises the question of maintenance. Public authorities on the whole seem reluctant to take over such duties, and if they fall to private owners they mean quite some expenditure.

The Cul-de-Sac

Similar problems arise with the cul-de-sac pattern, though it has the advantages of still greater privacy and requires a very small length of interior street in proportion to the number of houses. Even though the construction of the approach street, with its turning place in the rear, will not differ much from that of the interior street (which, of course, offsets the initial advantage of short street length), this layout is fairly economical, though not as cheap as the double building line. Special care is required in the grouping of the lots around the turning place in the rear; though this may open many possibilities for artistic treatment, awkwardly shaped sites and badly orientated houses should under no circumstances result from it.

The Cross-Access Street

Except for a certain monotony, the cross-access street has very much indeed to commend it. It is the most economical subdivision of the lot. It offers equal facilities to all houses, good orientation is ensured, and satisfactory frontages can be provided. Interior streets can be spaced far enough apart to ensure economy and, though private, the cross-accesses can assist in easing the interior traffic. A minimum of interior street length is required.

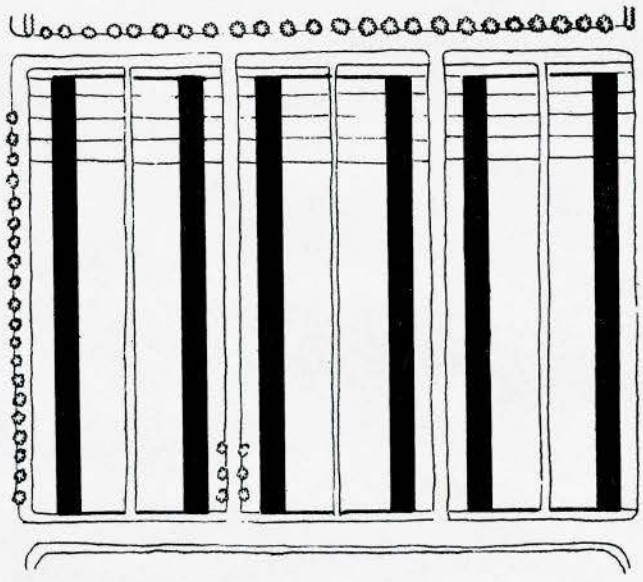
Combination of Patterns

In practical subdivision, it is usual to employ several of these layout patterns at a time to suit the particular properties of sites and to achieve an interesting grouping. The student of modern layout plans of residential areas will find the single building line coupled with the cul-de-sac or the cross-access street both very frequent practices. The double building line appears in fewer examples, which is deplorable, since this is a very suitable system of layout, especially for housing schemes using semi-detached houses where it would avoid those dismal, dank, dark and draughty gaps so typical of the single-building-line layout with economy enforcing narrow frontages and close spacing of houses. A comparison of both types on the chart will show how much more pleasant it is in this case to make use of the double building line, quite apart from the great saving in cost which would be made.

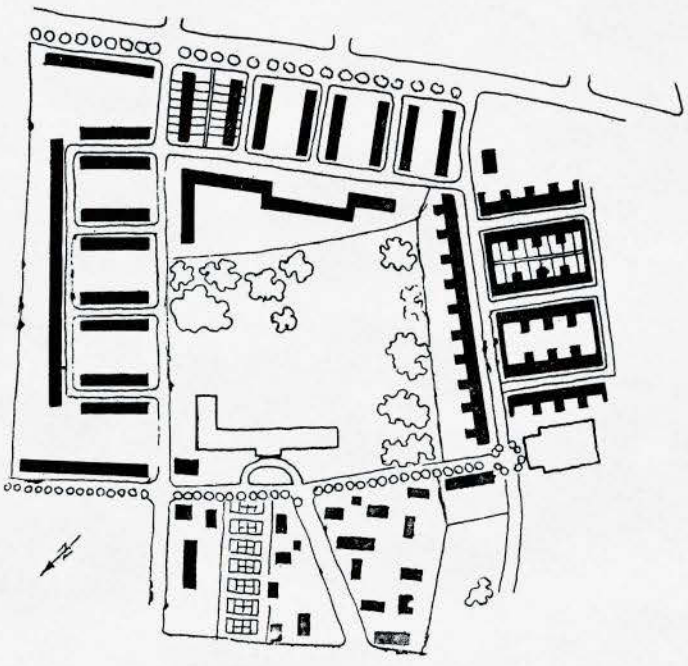
The Square Block

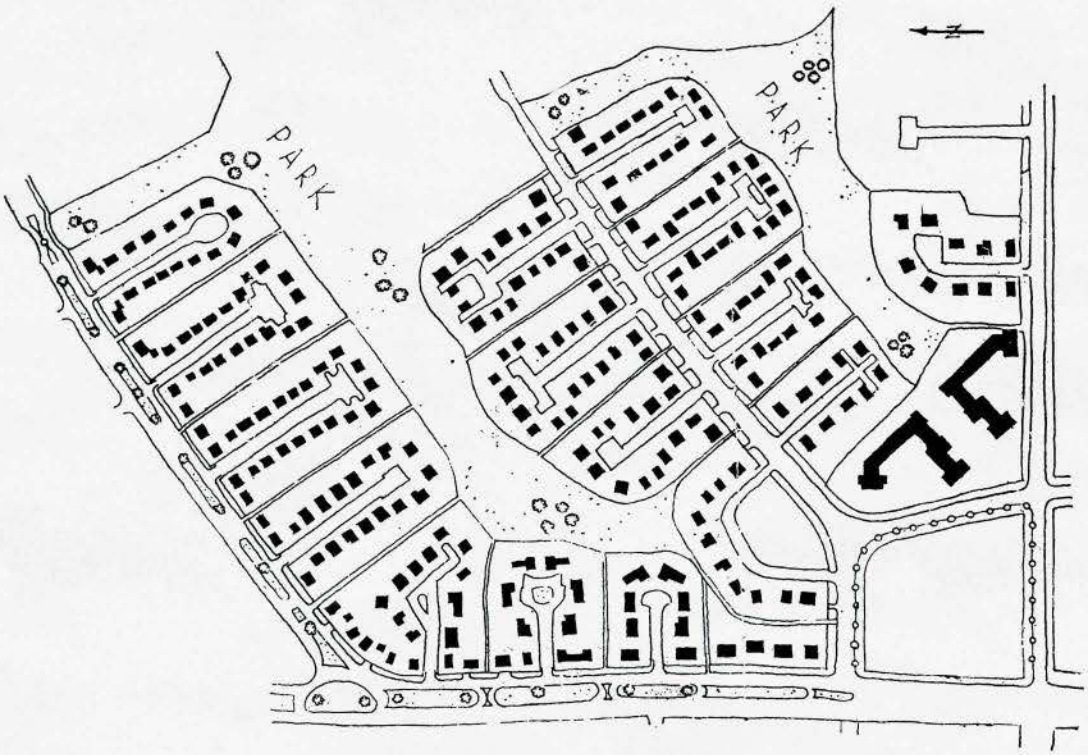
The examples from Letchworth (3), Suresnes (2) and Vienna (1) illustrate a very common use of the single building line coupled with the cul-de-sac, where squarish blocks have to be dealt with. This certainly offers artistic possibilities; yet the values of the sites facing on to the streets tend to be reduced for the greater convenience of the lots on either side of the cul-de-sac. Moreover, in all such cases a great number of awkwardly shaped, unpopular lots are unavoidable; also, there is always the difficulty, characteristic of the square block, of

12. Double-row layout in Sweden.



13. Row layout in Hirzbrunnen, Switzerland.





14. Radburn, U.S.A., a development consisting largely of culs-de-sac and interior parks.

ensuring adequate orientation. As it is, cross-access streets could have replaced the cul-de-sacs, allowing the lots to be planned more equitably.

Generally speaking, artistic tendencies in laying out residential areas often militate against sound principles of subdivision. While the gridiron clearly spells monotony, it would be possible that some compromise could be found which would not impair the amenities of the individual lot in favour of an artistic conception of the whole. Obviously, well-designed surroundings and landscape planning would greatly assist in this task. Whereas the subdivider and architect would be more limited in their decisions by practical considerations, the landscape planner could relieve much of an unavoidable rigidity.

Six Usual Row Layouts

The six diagrams, 4 to 9, show a number of usual row layouts in relation to blocks. The double row pattern which would lend itself to the use of the cross-access road is indicated in *Figure 4*. Better orientation, though higher improvement cost, go with the single row type in *Figure 5;* whereas *Figure 6* shows the usual row pattern on either side of an interior street with all the disadvantages of the single building line. A combination of 5 and 6 is indicated on the next diagram, 7, which also incorporates the use of the cul-de-sac and may be suitable for blocks of some depth. The gardens of the block that runs parallel with the interior street face south.

Drawing 8 shows a typical arrangement of rows on all four sides of a block, and No. 9 suggests an improvement on the orientation. In No. 8 all gardens face inwards which must result inevitably in bad orientation for a great number of them. As this block plan is so frequent and has lately been suggested in several schemes, it might be considered if better orientation could be provided by using cross-access streets. No. 9 provides a suggestion whereby two of the rows are approached as before from the interior streets, and the two remaining rows are served by cross-accesses on their north sides, so that their gardens face south.

The Close

Lastly there is the close, 10, a pattern which has enjoyed much popularity in the past because of its privacy. In principle it comes nearest to the cul-de-sac and might be slightly more economical if a similar kind of approach were adopted. As with terraces, greater densities could be achieved and the two principal rows of the close could be so arranged as to face east and west. Alternatively, this might be a very suitable layout for small houses. It must, however, be borne in mind that spaces between houses facing east and west should be at least 2.7 times their height; where houses face south, the proportion of houses to intervening spaces should be 3 to 1 or $3\frac{1}{2}$ to 1. Thus only would sufficient sunlight be ensured in winter when it is most essential.

Sloping Sites

Sloping sites tend to increase the difficulties of subdivision, and the planner is faced with the alternative of following the contour lines when laying out either the interior streets or the secondary approaches. Both ways have their advantages and drawbacks. As regards the arrangement of houses it might in many cases be convenient and economical to rely on the single row pattern, especially where use has to be made of sites on steep slopes with gradients approaching 1 in 6. Where gradients are less steep, it might be possible to run the interior streets uphill; but though this might often be the cheapest way, such streets are not an asset from a traffic point of view and, moreover, are costly to maintain. Where interior streets are aligned with the contours, greater convenience is secured, but a certain amount of retaining structures have to be added to the cost of road making and secondary approaches would run up and down hill. Final decisions can only be made in specific cases, much depending upon the gradients of the slopes.

Residential Areas Abroad

The last four illustrations show some examples of residential areas of recent date. First, there is the Danish example (11) with its double row building and narrow lots. The outstanding feature of this layout is the park area in the centre of the site, generous of dimensions and conveniently arranged in relation to the houses. A very similar arrangement is shown in the Swedish layout (12), but the rigidity of the row pattern is not relieved, as in the Danish plan, by an open area. The Swiss plan (13)

Continued on page 19

THE THIRTY-EIGHTH ANNUAL MEETING

OF

THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA

in Toronto, Friday and Saturday, the 23rd and 24th February, 1945

(All Sessions to be held at the Ontario College of Pharmacy, 44 Gerrard Street East)

Pre-Convention Meetings

Thursday, the 22nd February, 1945

11.00 A.M.—Meeting of the Editorial Board of the *Journal*, R.A.I.C., with Provincial Representatives, in the Board Room of the O.A.A., 74 King Street East.

1.00 P.M.—Luncheon for the members of the 1944 Council, the Editorial Board and the Architectural Training Committee in the Elizabeth Room at the King Edward Hotel.

2.00 P.M.—Meeting of the 1944 Council of the R.A.I.C. in the Board Room of the O.A.A.

4.00 P.M.—Meeting of the Architectural Training Committee in the Board Room of the O.A.A.

7.00 P.M.—President's Dinner to the members of the 1944 Council, the Editorial Board and the Architectural Training Committee. The Dinner will be held at the Granite Club and wives of the members are invited to attend.

Programme

Friday, the 23rd February, 1945

10.00 A.M.—Registration of Members and Delegates of the R.A.I.C. and Architectural Students, at the Ontario College of Pharmacy.

11.00 A.M.—General Meeting at the Ontario College of Pharmacy. Mr. Wm. C. McBrien, Chairman of the Toronto Transportation Commission, will give an illustrated address on the "Proposed Subway and Rapid Transit System for Toronto".

1.00 P.M.—Buffet Luncheon at the Ontario College of Pharmacy. Mr. John W. Gooch, President of the National Construction Council, will be the Guest Speaker and will give an address on "The Work of the N.C.C.".

2.00 P.M.—INAUGURAL SESSION OF THE THIRTY-EIGHTH ANNUAL MEETING OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA at the Ontario College of Pharmacy.

(a) Reading of the Minutes of the Thirty-Seventh Annual Meeting held in Toronto.

(b) Report of the Council: The President.

(c) Discussion of the Report of the Council.

(d) Report of the Election of Delegates to the 1945 Council of the R.A.I.C. by the Honorary Secretary.

(e) New Business.

7.00 P.M.—Informal Dinner at the Arts and Letters Club, 14 Elm Street. Members of the R.A.I.C. from other Provinces will be the guests of the O.A.A. on this occasion. The Guest Speaker will be Dean R. O. Hurst, of the Ontario College of Pharmacy.

Saturday, the 24th February, 1945

10.00 A.M.—Meeting of the 1945 Council of the R.A.I.C. at the Ontario College of Pharmacy.

11.00 A.M.—General Meeting at the Ontario College of Pharmacy. Mr. H. J. B. Hoskins of Holabird and Root, Architects, Chicago, will give an address on "Architectural Hardware and the Operation of a Large Architectural Office".

1.00 P.M.—Buffet Luncheon at the Ontario College of Pharmacy. Mr. H. C. Nicholls, President of the Canadian Construction Association, will be the Guest Speaker and will give an address on "The Ontario Apprenticeship System".

2.00 P.M.—General Meeting at the Ontario College of Pharmacy. Mr. Prentice Bradley, Architect, Boston, Mass., of the Modular Service Association, will give an illustrated address on "The Standardization of Building Materials".

5.30 P.M.—Convocation of the College of Fellows at the Royal York Hotel. (Dress: dinner jackets and insignia).

7.30 P.M.—R.A.I.C. ANNUAL DINNER at the Royal York Hotel. (Dress: dinner jackets). Members, their ladies and guests are invited to attend this Dinner during which the Fellowship Diplomas will be presented to the newly elected Fellows. Announcement will be made of the newly elected officers. The Guest Speaker will be MR. FRANCIS HENRY TAYLOR, Director of the Metropolitan Museum of Art, New York City.

Sunday, the 25th February, 1945

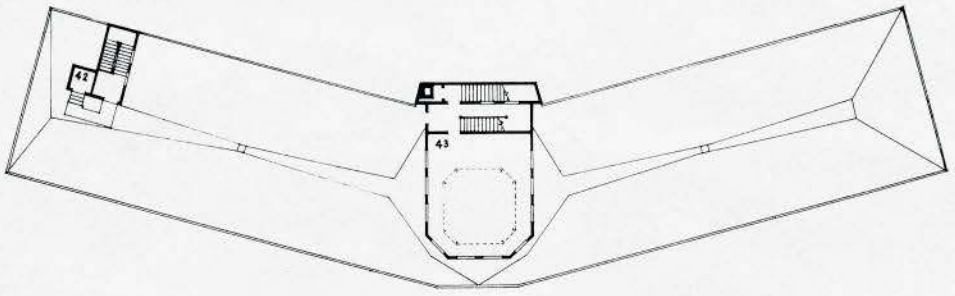
4.00 P.M.—The President's Tea to visiting Members and their wives at the University Club.

NOTICE TO MEMBERS: All Members who wish to make train or hotel reservations through the offices of the Institute are asked to do so at the earliest opportunity. Members making their own reservations are requested to advise either the Secretary or their Provincial Association of their intention to attend the Annual Meeting for the assistance of the Committee on Arrangements.

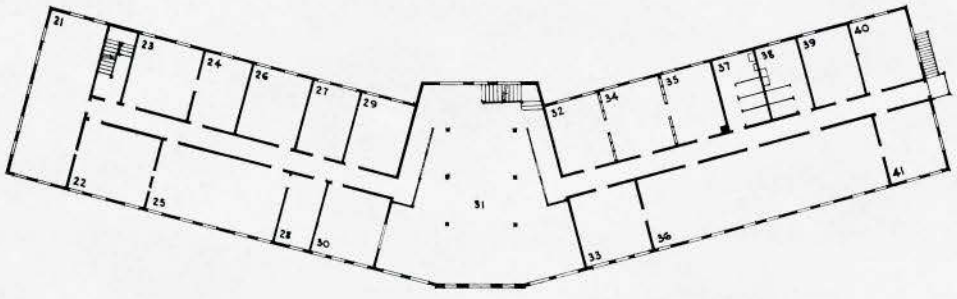
Constance Griffith, Secretary, R.A.I.C., 74 King Street East, Toronto. Telephone WA. 2118.

ADMINISTRATION BUILDING, MUNICIPAL AIRPORT, EDMONTON, ALBERTA

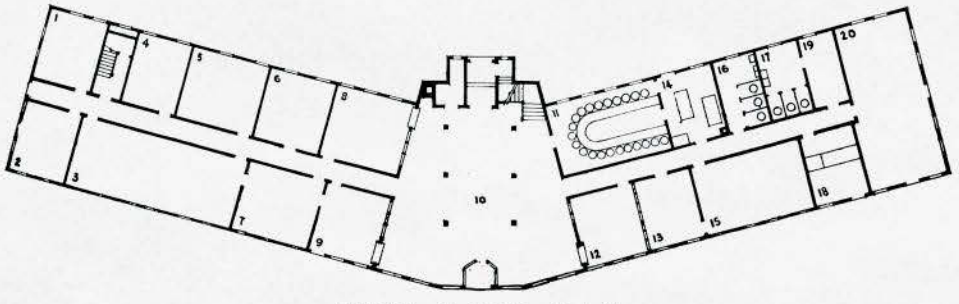
JOHN MARTLAND, ARCHITECT



THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

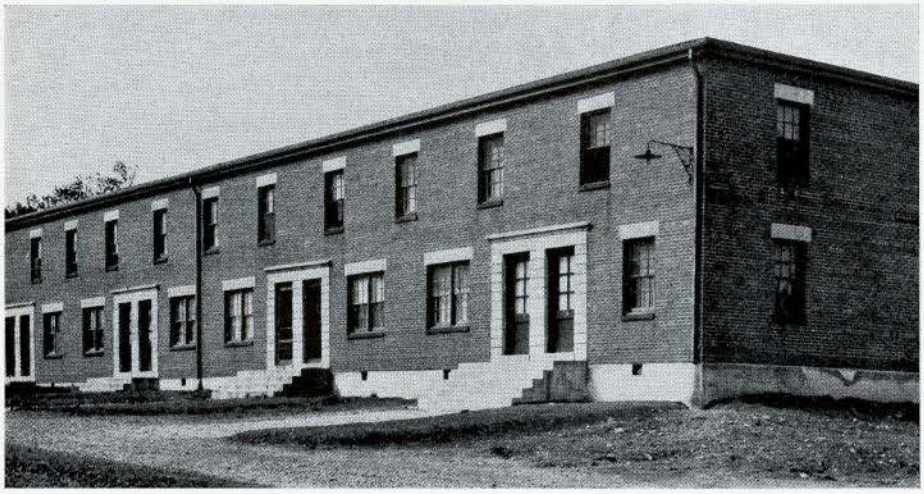
1. Stewardess Room
2. Pilots' Room
3. T.C.A. Dispatch Room
4. Maintenance
5. T.C.A. Office
6. T.C.A. Office
7. T.C.A. Radio Room
8. Ticket Office
9. T.C.A. Ticket Office
10. Rotunda
11. Lunch Room
12. C.P.A. Ticket Office
13. C.P.A. Radio Room
14. Kitchen
15. C.P.A. Dispatch Room
16. Men's Lavatory
17. Ladies' Lavatory
18. Customs Office
19. Ladies' Room
20. Post Office
21. Forecast
22. Teletype
23. Observers' Room
24. O.I.C. Met.
25. Radio Range
26. Meteorologists' Room
27. Stores
28. O.I.C. Radio
29. Airport General Office
30. Airport Manager
31. Upper part of Rotunda
32. Divisional Superintendent
33. General Superintendent
34. Secretary, Divisional Superintendent
35. Divisional Superintendent
36. C.P.A. General Offices
37. Men's Lavatory
38. Ladies' Lavatory
39. Superintendent, Maintenance
40. Superintendent, Pilot
41. Assistant General Superintendent
42. Theodolite Shelter
43. Regional Control Room

CONTROL TOWER

ENTRANCE DETAIL

Photographs Alfred Blyth Studios

PUBLIC HOUSING IN NEW BRUNSWICK



ROCKWOOD COURT, SAINT JOHN

H. S. BRENAN, ARCHITECT

Shortage of living quarters in Saint John, New Brunswick, urged the Common Council to set up the Housing Commission of the City of Saint John.

The Commission engaged the services of H. S. Brenan, Architect, to prepare plans and specifications for a project of 54 apartments, in the form of row houses.

The site selected by the Commission after due consideration of all available sites which might meet the qualifications was one owned by the City and situated corner of Gilbert's Lane and Tilley Avenue near Rockwood Park.

The Housing project consists of two groups of buildings. The first was completed in May, 1943, and the second will be completed shortly. Five brick units comprise the first group, containing in all 28 apartments; the second group have four units containing 26 apartments.

The buildings, all uniform in design, are two storeys, built on concrete foundation, 8" brick walls for the two storeys, pitch and gravel roof, interior walls and ceilings plastered throughout, hardwood floors, paint grade pine for doors, trim and base. Each apartment, with separating tile wall between occupies two floors—a combination kitchen-dining room and large living room on ground floor, with bedrooms, bathroom and linen closet on second floor. Some of the apartments have three bedrooms and some two bedrooms. Combination sink and tub in kitchen and standard plumbing fixtures in bathroom, plain electric fixtures throughout. Walls and ceilings were given two coats of water paint, wood trim in first group was painted, in second group it was stained and varnished. Outside walls and second floor ceilings are insulated.

The Tenant does his own heating with stoves and each apartment has a cellar for storing coal and wood.

Winter sashes and storm doors are provided, and these are put on and removed and stored by the Commission.

The apartments are rented on one year leases subject to cancellation upon 30 days' notice.

The Housing Commission of Saint John City retain the right to inspect the premises at any time. Provision is made for the outright sale of any apartment but the final decision rests with the Commission. Rents which are low are payable in advance. Tenants must have a minimum income of $1400.00 and a maximum of $2800.00. Rents are from $28.00 to $40.00 per month. Children are welcome in the housing units, and families with growing children are given preference in renting of apartments. It is felt that couples without children can more easily adapt themselves to conditions resulting from the housing shortage.

The gross rental is equivalent to 10 per cent. a year of the overall cost of the project which takes care of the interest on capital, collection of rents, administration expenses, maintenance, fire insurance, water and real estate taxes, allowances for possible vacancies and amortization.

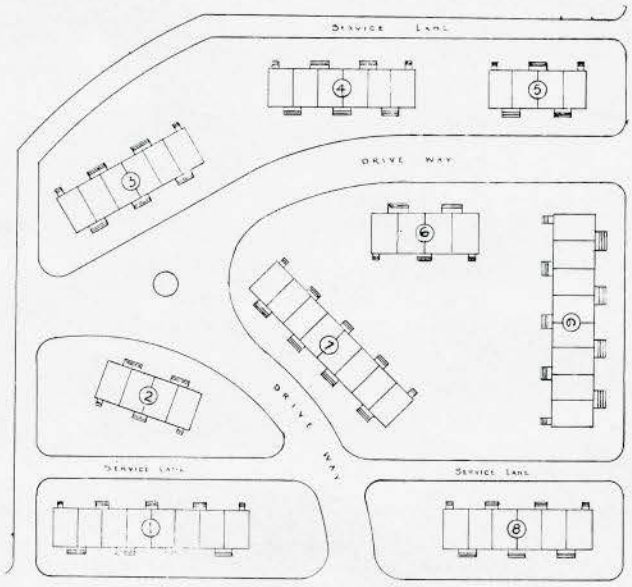
The cost of grading lot, excavating for sewer and water pipe, building roadways was borne by the Commission and amounted to $24,000.00. The City will take over all roadways and maintain same. The first group of houses was built by Mooney Construction Company at a cost of $98,812.00. The second group is being constructed by W. G. Usher at a cost of $116,345.00—total cost including architect's fee $246,952.00.

It is said that this is the first housing construction financed by any Canadian Municipality without a loan from the Dominion of Provincial Governments. In addition to Rockwood Court the Commission is considering a plan to build numerous housing units at several other locations. They decided strongly against temporary structures and are convinced that the difference in cost between temporary and permanent building is not sufficient to offset the balance of permanency and low maintenance costs.

The Housing Commission was set up by the Common Council under enabling legislation passed by the Provincial Legislature. A per capita cost of $5.00 is now permitted and this may be raised subject to the approval of the Legislature.

The members of the Commission are: Clarence K. Beveridge, Fire Insurance Broker, (Chairman), Arthur E. Skaling, representative of the Building Trades and the Common Council, (Vice-Chairman), Garnet W. Wilson, Architect, Frank B. Brennan, Bond Dealer, George M. Flood, Building Contractor and H. D. Hopkins, Secretary.

To these men and to the City officials the community owes a debt of gratitude for their efforts have resulted in action when action was urgently needed.



Rents: Minimum, $28.00 Per Month

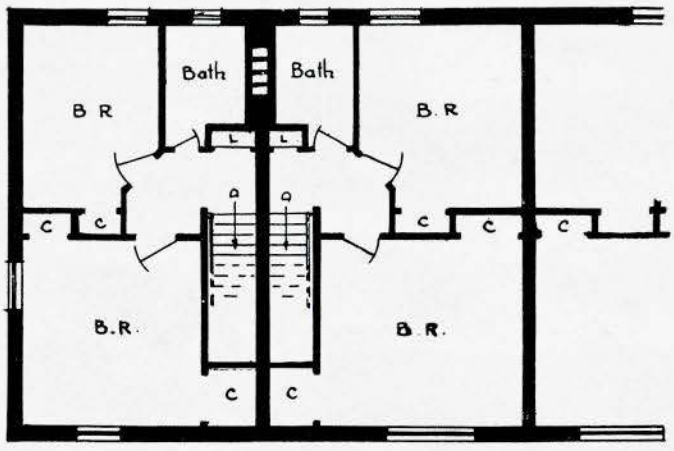
Rents: Maximum, $40.00 Per Month

Income of Tenants:
Minimum, $1,400
Maximum, $2,800

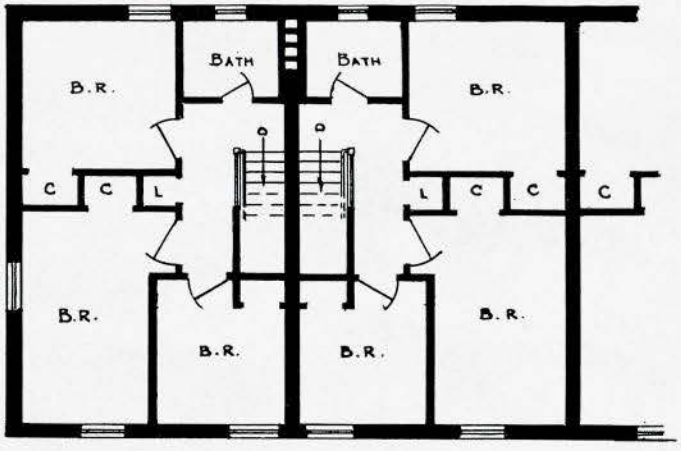
Heating:
Each Tenant Does His Own by Means of Stoves

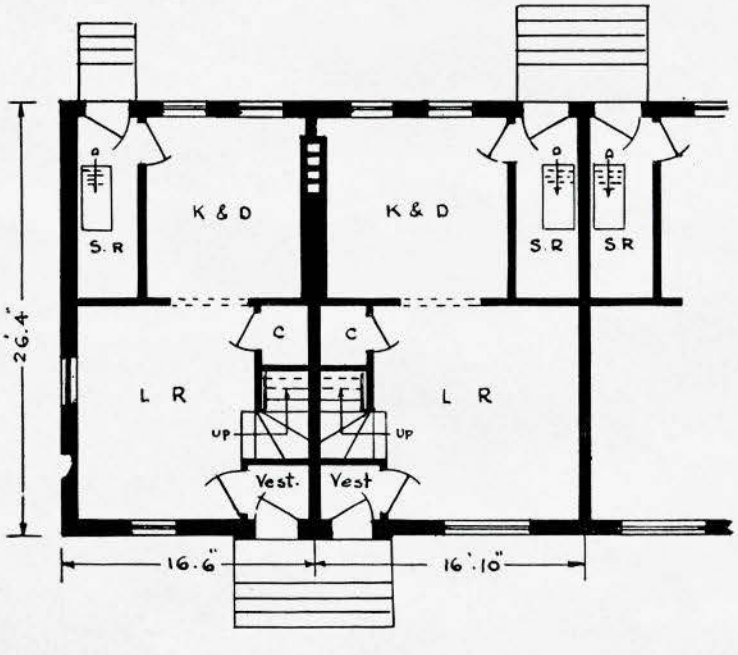
Period of Lease, One Year

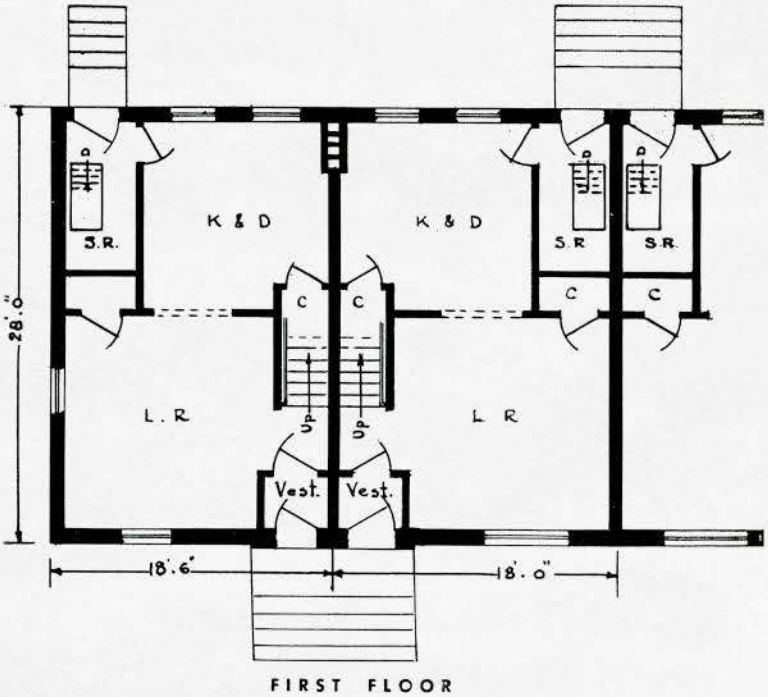
TWO BEDROOM APARTMENTS



THREE BEDROOM APARTMENTS







THE PROVINCIAL PAGE

ALBERTA

There is a very definite antagonism between architectural design in the grouping of buildings and the individualistic attitude of the general public which is strongly supported by our system of private ownership and entire private control of many small parcels of land. When an architect is employed by a client to design a residence or a commercial property, the client judges the design wholly individually without any regard to neighbouring buildings. There is often not very much that the architect can do about it. The proposed building is apt to be appreciated only with regard to the private advantages it offers to the owner and on its individual appearance. Building or zoning regulations do exercise a certain salutary but very limited influence. Take a private residence as an example. Certain "set-backs" are probably required. These regulations may state that so much per cent. of the width of the site must be held open at each side and that the front of the building must be 20 or 25 feet back from the street line. There is generally no maximum placed on this front line set-back. If the owner so choose he may elect to build much farther back. This may not only result in limiting the view from his neighbour's rear windows and consequently in obstructing a certain amount of his daylight, but it also takes away from the sunshine and the privacy of his rear yard to which he may attach much importance. Incidentally, it will impose similar drawbacks on his own front windows and garden. It is true that by-laws may provide for a certain area or length of rear yard, but this is usually too little to ensure against the above detraction. The trouble is apt to be still more serious where multiple dwellings are built with the financial purpose of squeezing in as many flats as possible and therefore go to the limit in shutting off the neighbour's light and view.

In pre-Hitler Germany these difficulties were definitely recognized and taken account of in a rational way. The logical result was the operation of the principle which they called "zeilenbau" or "line-building". This meant that rear excrescences were forbidden—to the great advantages of light, air, and general orderliness of appearance. Since, on narrow lots side windows are relatively useless, the logical thing is to build in continuous rows. Another logical consequence was the requirement of not more than two flats entering from the landings of common stairs. For, if a third flat is introduced, it will either have no cross ventilation or else it will form an excrescence from the building, which is not permissible.

Referring again to the case of the architect consulted by the individual client. He is faced with the problem of making an exclusive picture of one individual building, respecting not its neighbours in front view and definitely disrespecting his neighbour's convenience in the rear. Catherine Bauer somewhere says, "A single building is not a painting hung in a gallery—it is rather an arm or a leg, or a spinal column of a larger organism which, if it is healthy, we may call architecture. If buildings do not express an integrated society, (or, at least, a desire for such a society) they merely state the fact that society is discordant—and little more." Such is, surely, the condition of architecture today.

Architects sometimes do have pictures of their buildings hung in galleries and, naturally, like to see them look well as pictures. Their clients examine the drawings of their future buildings very much as they look at pictures in a gallery and criticize them apart from any consideration of neighbouring buildings, and purely with a view to the individual interest displayed by the picture. Such criticism tends inevitably to neighbourhood discordance. What is the hope of larger architectural effects under these conditions?

It is interesting to notice what takes place where large schemes are undertaken under one control. The Regency schemes in many cities of Britain are classic examples in both senses of the word. A more recent type of examples dates as far back as Hampstead Garden Suburb. There are many sporadic examples of the same class. In these it is noticeable that the individual buildings are often of remarkable simplicity, not individual pictures, but the groups are frequently of much beauty. They are sometimes criticized as adhering too much to outworn traditions. Consider, if you have the patience to penetrate through the fog of verbiage to the kernel of its sound philosophy, the following from Thorstein Veblen's "Theory of Leisure": "The canon of beauty requires expression of the generic. The 'novelty' due to the demands of conspicuous waste traverses the canon of beauty in that it results in making the physiognomy of our objects of taste a congeries of idiosyncrasies." There is good truth contained in this tough nutshell.

The best hope for group designing under one control, for the immediate future, seems to be in the region of public housing for the benefit of that one-third of our society that cannot afford to have adequate housing at all. These people are not likely to be too individualistic and homes cannot be built for them except under single control over fairly large schemes. The many economies possible under this method of design will recommend group designing. But unless that designing is in the hands of skilful men and directed by humane rather than purely financial motives, the last end of the occupants is likely to be worse than the first.

Cecil S. Burgess.

ONTARIO

LOOKING FORWARD

At the beginning of a new year it is perhaps appropriate that our thoughts should strike a note of optimism. Great events are in the offing and today it is more natural than ever that we should be looking forward. But our optimism must be of a practical nature, based on the knowledge of accomplishment and tempered with the realization of difficulties yet to come.

The year just closed has not only brought to culmination a great contribution to the war effort on the part of the construction industry, of which we may well be proud, but has marked the beginning of the transition period. It has introduced a definite step towards rehabilitation with a distinct emphasis on Post-War Housing and Town Planning. Indeed it is safe to say that no subject, apart from the conduct of the war itself, has so caught and held the public imagination as these two co-related objectives. It has filled the pages of our journals and our trade and science magazines to the virtual exclusion of all else.

But here let us interject a word of caution. There is always a danger in enthusiasms created during the stress of the moment. The brave new world of which we read so much is not to be built in a day. In the light of past achievement there is probably nothing illogical in our dreams of the home of tomorrow. Man's inventive genius will not cease with the ending of the war. Not for worlds would we wish to be cast in the rôle of a doubting Thomas or even to dampen the exuberance of the many. New materials will doubtless have a place and may, indeed, revolutionize construction but the fact remains that until they are tried and proven they are still substitutes.

So much for Housing! But there is nothing new or synthetic about Town Planning. This is purely progressive. The remark-

able thing is that it should have lain dormant for so many years. And it is still more remarkable that the newest of our cities should be so little better than the oldest. Our Federal, Provincial and Civic bodies, however, are evidently alert to the need for civic betterment. And rarely has such an opportunity presented itself to the planner. But again there is the ever present danger of lethargy. The energy of a few is not sufficient and if success is to be achieved public opinion must be constantly stimulated.

We might be pardoned here for interjecting a word in regard to the city whence this epistle emanates. Windsor, too, is town-planning. To be precise one should add that this is the second time, its prior ambitions having succumbed to force of circumstances and the well-known depression. The ground work of the new scheme has been laid, however, civic interest assured and the work placed in the capable hands of Town Planning Consultants Limited. The local chapter is staunchly in support and indeed has done much to foster progress.

It is perhaps true that Windsor has not the heritage of natural beauty of surroundings enjoyed by many of our kindred municipalities, apart from a very fine and well behaved river. It is also true that the depression was more keenly felt here than in most comparable areas, and the marks are still evident. By and large, however, in the eye of the critically inclined there is little to choose between this and any other major municipality. The old saying, "Handsome is as handsome does" applies equally well to cities, and Windsor may at least be commended on a magnificent all-out war effort.

At this stage the writer wishes to pay tribute to the work of Wartime Housing Limited for the able and energetic manner in which it met the housing demand. In this area it was particularly acute. No less than 2,050 single houses have been built and occupied with 250 more now under construction. This represents an undertaking of considerable magnitude and since all tenants are munition workers gives some idea of the extraordinary development in this area due to the war.

Notwithstanding a few doubts and cautions which have been interjected here and there in the foregoing, we will conclude as we began, on a note of optimism. We are privileged to live in a land of opportunity. With faith in the future we shall succeed.

D. J. Cameron.

☆ ☆ ☆

AN ARCHITECT'S VIEW ON EFFECTIVE TEAMWORK IN BUILDING DESIGN

Continued from page 4

tion or of collaboration—but of full integration. With such an understanding of the unity of building design, post-war structures can be very different from pre-war. Materials can be selected for use on the basis of structural fitness, appearance, finish, availability, economy. Construction systems can be chosen, not imposed, according to their appropriateness, soundness, economy. Mechanical equipment can be integrated with the structure. Walls and floors can be designed to act fully as structural members, at the same time that they serve equally and efficiently to enclose and subdivide architectural spaces.

To many architects, engineers, and builders the prospect is exciting. Architectural engineering begins to mean something quite different from adding Doric ornament to steel columns. Building construction begins to mean something far beyond the taking off of quantities and the letting of sub-contracts.

Courtesy Engineering News-Record, New York

AN ENGINEER'S VIEW ON EFFECTIVE TEAMWORK IN BUILDING DESIGN

Continued from page 7

special considerations, is a rectangular column used. The result is that the column forms for one floor must be entirely ripped apart to fit the smaller columns above. The sensible thing to do is to use a column form with a constant width and varied lengths, made to fit standard lumber sizes. In this manner only one end of the column needs adjustment, and great savings are made possible.

When a man is in danger, he discovers miraculous powers. So with a nation in danger. Miracles have been performed during the stress of the past few years. Although permanent construction has not been in the forefront of the battle, it is obvious that it will be affected by the independent, progressive thinking that this period has required. We must be forewarned and be on the alert. All the old wasteful methods will go by the board. A new conception is dawning—the integration of the whole building operation.

Courtesy Engineering News-Record, New York

SITE LAY-OUT TECHNIQUE

Continued from page 12

shows a grouping of terraces arranged as in the Swedish example, and planned round a central open green area with all the features of a public park.

Quite a different, and in many ways a happier, approach is apparent in the well-known layout of Radburn (14), which shows the most consequent use of the cul-de-sac to date. This is one of the most advanced layout schemes and one from which much can be learned. There is privacy, satisfactory orientation and a very convenient arrangement of interior parks. The use of cul-de-sacs throughout has, of course, some disadvantages; but the continuity could have been broken by a cross connection without any harm.

Courtesy Architectural Design & Construction, London, England

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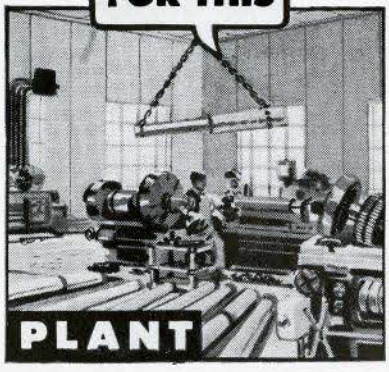

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