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THE HONOUR OF BEING PRESIDENT of the Royal Institute gives him the opportunity in the January issue of the *Journal* to say something about the things in which he is particularly interested and in which he believes the whole Profession is interested. At the same time it gives him the opportunity of publicly thanking all those who have been so helpful during the past year and to extend to every Member of the Institute Greetings and Good Wishes from the Council and Executive Committee for their continued success, good health and happiness during the coming year. It also provides the opportunity to express my profound gratitude for the many honours that others have seen fit to confer. I refer especially to the Honorary Fellowship of the AIA, the Fellowship in the RIBA and the Honorary Fellowship in the New Zealand Institute, with which the Institute was honoured and which I received as President.

At the RAIC Assembly held at Banff in 1956 a discussion took place on the possibility of the Institute conducting a Public Relations effort on a national scale. It was pointed out that the Provinces, other than Ontario and Quebec, had little or no financial means for conducting a serious Public Relations programme. The result of the discussion was that it was generally agreed that it would not be wise for the RAIC to undertake such a project and also that the cost involved would be beyond the capabilities of the Institute. Yet on reflection, I believe that there are many opportunities for the Institute to help promote good Public Relations for the Architectural Profession other than in a costly manner.

Money expended for Public Relations is foolishly spent and of little value unless each individual is willing to do his part by first seeing to it that he does his job with full professional competence. Then take credit for it! In simple words, good Public Relations is primarily good performance publicly appreciated. In an address to the British Architectural Association Ruskin said, "You do not have like authors to plead for a hearing or to fear oblivion. Do but build large enough and carve boldly enough and all the world will hear you. They cannot choose but look."

The recognition of Architecture by the public imposes a great responsibility on each one of us. If we are to play our part, then we must carry our fair share of the burden. Architecture is in dire need for zealots to loudly proclaim with forcefulness and conviction the importance of our Profession. The Architect cannot expect an ever-changing public to respect or understand his services unless he makes a concentrated, well-planned effort to bring about this understanding. No Public Relations effort, whether by an individual or a group can long endure without reaching the public through the written and spoken word.

We have in our *Journal*, which every Architect receives, a perfect medium for providing helpful information on how each of us can maintain and improve professional competence and create better understanding of the work of our Profession. Here we have an unequalled opportunity to communicate information to every Member that might not otherwise be readily available.

I believe that if the *Journal* will make a serious effort to obtain and publish articles and information on the theory and practice of Public Relations for the Architect, information that will help to promote this better understanding, then we will have taken a major step forward. We cannot, however, expect the *Journal* to do this alone. If it is to be a national programme, it becomes the duty of each one of us to do our part if any measure of success is to be achieved. This I feel can be done *only* if we are seriously interested and will undertake to provide the *Journal* with details of what is being done in our particular Province – information which it is felt will be helpful and of value in formulating programmes of this nature. It is clearly your problem and mine.

In thinking of the relations between ourselves and the public, we would do well to stop once in a while and give serious thought to the relationship that we bear to each other – nationally, provincially and as individuals. We can not do better than follow the Golden Rule, "As ye would that men should do to you, do also to them likewise", or as we say in our shorter way, "Do as you would be done by." If this rule is well followed, we need have no fear for the future.

May the years ahead be kind to all of us. Let us endeavour to make the best of our opportunities by doing all in our power to improve our professional standards and so create better and closer relations between ourselves and the public.

D. E. Kertland, President

1958 RAIC COLLEGE OF FELLOWS SCHOLARSHIP

Applications for the 1958 RAIC College of Fellows Scholarship will be received by the Secretary of the RAIC until March 15th, 1958.

This Scholarship is awarded every second year and has a value of $2,000.00. Its purpose is the advancement of architectural knowledge through travel, study or research. It is open to Canadian citizens who have completed their entire architectural course and graduated from a recognized Canadian school of architecture. Application for this Scholarship must be made within five years of the date of graduation.

Members of the Royal Institute are invited to bring this notice to the attention of worthy persons who are known to them.

Full details of this Scholarship and application forms may be obtained from the executive offices of the RAIC, 88 Metcalfe Street, Ottawa, Ontario, or from the heads of each school of architecture.

BOURSE D'ÉTUDES OFFERTE PAR LE COLLÈGE DES FELLOWS DE L'IRAC POUR L'AN 1958

Le secrétaire de l'Institut royal d'Architecture du Canada recevra, jusqu'au 15 mars 1958, les demandes d'inscription des candidats à la bourse d'études du Collège des Fellows de l'Institut pour l'année 1958.

Cette bourse est décernée tous les deux ans et représente une valeur de $2,000. Elle a pour but d'accroître les connaissances en architecture au moyen de voyages, d'études ou de travaux de recherche. Le concours est ouvert aux citoyens du Canada qui ont terminé en entier leur cours d'architecture et qui sont gradués d'une école d'architecture canadienne reconnue. Les demandes d'inscription des candidats ne peuvent être acceptées plus tard que cinq années après la date de la réception du grade.

Les membres de l'Institut royal sont priés de souligner le présent avis à toutes les personnes de leur connaissance qui ont les qualités requises pour participer au concours.

On peut obtenir tous les détails relatifs à cette bourse, ainsi que les formules d'inscription au concours, en s'adressant au bureau administratif de l'IRAC, 88 rue Metcalfe, Ottawa, Ontario, ou bien aux dirigeants des écoles d'architecture.

L'HONNEUR D'ETRE LE PRÉSIDENT de l'Institut Royal lui fournit l'occasion dans l'édition de janvier du *Journal* de faire part de quelques faits qui lui sont d'un intérêt particulier et qu'il croit pouvoir intéresser la profession dans son ensemble. Cela lui procure en même temps l'avantage de remercier publiquement tous ceux qui lui ont été d'une aide si précieuse au cours de l'an dernier et de présenter à chaque membre de l'Institut les salutations et les meilleurs voeux du conseil et du comité exécutif de succès continu, de bonne santé et de bonheur pour l'année qui commence. Il offre de plus l'opportunité d'exprimer ma profonde gratitude pour les nombreux honneurs que d'autres ont cru bon de me conférer. Je fais allusion particulièrement au "Fellowship" honoraire de la AIA, au Fellowship de la RIBA et au Fellowship honoraire du New Zealand Institute; ces honneurs s'adressaient à l'Institut, car je les ai reçus à titre de président.

Lors du congrès du RAIC tenu à Banff en 1956, une discussion a été soulevée sur la possibilité pour l'Institut d'entrependre une campagne de relations extérieures à l'échelle nationale. Il a été souligné que les Provinces, autres que l'Ontario et le Québec, n'avaient que peu ou pas de moyens financiers pour lancer un programme sérieux de relations extérieures. Il découla de cette discussion qu'il fut généralement accepté qu'il ne serait pas prudent pour le RAIC de lancer un tel projet et également que les frais qu'il entraînerait dépasseraient de beaucoup les possibilités de l'Institut. Toutefois, à la réflexion, je crois qu'il existe plusieurs opportunités pour l'Institut de promouvoir de bonnes relations extérieures pour notre profession, autres que celles qui requièrent des déboursés.

L'argent dépensé pour des relations extérieures constitue une folle dépense et n'a que peu de valeur à moins que chaque individu ne soit prêt à faire sa part, tout d'abord en se faisant un devoir d'accomplir son travail en toute compétence professionnelle. Et alors, sayez-en fiers. En simples mots, de bonnes relations extérieures reposent sur un bon travail apprécié publiquement. Dans une causerie qu'il prononçait devant la British Architectural Association, Ruskin disait: "Vous n'avez pas comme les auteurs à prier pour vous faire entendre ou à craindre l'oubli. Batissez assez grand, ciselez avec assez d'audace et le monde entier vous entendra. Il n'a d'autre choix que de regarder."

La reconnaissance de l'Architecture par le public nous impose individuellement une lourde responsabilité. Si nous devons jouer notre rôle, nous devons alors porter notre juste part du fardeau. L'architecture a un vif besoins de personnes dévouées pour clamer avec force et conviction l'importance de notre profession. L'architecte ne peut attendre d'un public qui évolue sans cesse qu'il le respecte et comprenne ses services à moins qu'il ne fasse un effort concentré et bien équilibré pour développer cette compréhension. Aucune tentative de relations extérieures, qu'elle soit l'oeuvre d'un homme ou d'un groupe ne peut survivre longtemps à moins d'atteindre le public par le mot écrit ou parlé.

Nous avons en notre *Journal*, que chaque architecte reçoit, un médium parfait de renseignements précieux sur les moyens à utiliser pour maintenir et améliorer la compétence professionnelle et créer une meilleure compréhension du travail de notre profession. Nous avons là une occasion extraordinaire de communiquer à tous les membres des renseignements qui ne pourraient être obtenus d'autre façon.

Je crois que si le *Journal* fait un effort sérieux pour obtenir et diffuser des articles et des renseignements sur la théorie et la pratique des relations extérieures pour l'architecte, des renseignements de nature à aider à promouvoir cette meilleure compréhension, alors nous aurons fait un grand pas vers l'avant. Nous ne devons pas toutefois nous attendre à ce que notre *Journal* accomplisse seul toute cette besogne. S'il doit y avoir un programme national, il est du devoir de chacun de nous de faire notre part pour atteindre quelque mesure de succès. J'ai l'impression que ceci ne peut se matérialiser que si nous sommes sérieusement intéressés et nous faisons un devoir de fournir au *Journal* tous les détails de ce qui se fait dans notre Province individuelle des renseignements qui sont susceptibles d'aider et d'avoir une valeur positive dans la préparation de programme de ce genre. C'est clairement votre problème et le mien.

En pensant à nos relations avec le public, il serait utile de nous arrêter de temps à autre et d'accorder une sérieuse considération à nos affinités nationales, provinciales et même personnelles. Nous ne pouvons faire mieux que de suivre la Règle d'Or: "Faites aux autres ce que vous voudriez que l'on vous fasse à vous-même". Si cette règle est bien suivie, nous n'avons rien à craindre de l'avenir.

Puissent les années à venir être douces pour tous. Tentons de captaliser sur nos opportunités en faisant tout en notre pouvoir pour améliorer nos standards professionnels et, de cette façon, créer de meilleures et plus intimes relations entre nous et le public.

D. E. Kertland, Président

Walls off the Peg

BY MICHAEL BROWNE AND ALAN CRAIG

Reprinted from the September 1957 issue of The Architectural Review with the kind permission of the editors.

IT IS JUST UNDER HALF A CENTURY AGO since Walter Gropius sheathed the Fagus Works in a curtain wall of metal and glass – an enclosure which he himself described as 'restricted to that of mere screens stretched between the upright columns of the framework'. Since that date the curtain wall has become the accepted and demanded idiom of contemporary architecture. In the States, as was demonstrated in the May number of the 'Review', it has almost become synonymous with it. And yet in that half century the curtain wall has not changed a great deal; it has in the last five years merely become commercially available – surely an inordinate time lag between prototype and production model.

The curtain wall is, of course, merely one manifestation of the very general movement responsible for the industrialization of building. It is, however, a highly visible and dominant manifestation which has acquired an almost symbolic quality. The curtain wall, more than any other element, has become the stylistic mark of industrialised architecture at its present stage of development and its success can undoubtedly be attributed in large measure to this emotional appeal; this inherent rightness of the lightweight enclosure sheathing the sparse load-bearing skeleton. The answer it provides is so strictly rational that it evokes an emotional response.

It has only recently become possible to translate this emotional appeal into building reality because only in the last few years has the material-to-labour ratio changed to such an extent that the curtain wall made sense in terms of economics.

In the article which follows we discuss in the main section the inherent technical problems as they seem this side of the Atlantic, and in the second section we line up the proprietary systems which can (or which could at the time of writing) be bought 'off the peg' in this country.

In terms of material, two of its great virtues – thinness and lightness – can seldom be fully exploited in this country. The back-up wall or the projecting ledge required by fire laws destroy any gain in usable floor area, and therefore annual return from additional rent, which might otherwise have been achieved. The reduction in structure and foundations which the light weight of the wall brings about becomes appreciable in any significant sense only on quite tall buildings, and we have not yet been allowed structures of twenty storeys or more. It does seem strange, however, that a number of relatively tall office buildings now being planned do not use curtain walling. The most conspicuous and controversial amongst these is undoubtedly Sir Howard Robertson's project on the South Bank where it would seem that a large corporation does not wish to advertise itself through an architecture as technologically advanced as its products.

The great economic virtue of the curtain wall is undoubtedly its rapid installation. The bulk of the time and effort required to produce the wall are spent in the factory where the best use of manpower and machines can be made, and where a precision product can be created under close control. Precise elements are, of course, required because only these can be assembled speedily and easily on the site. Rapid site erection has a number of important results. The most significant is the much earlier occupancy which becomes possible. For one group of office buildings in Pittsburgh it has been computed that a brick and masonry cladding would have taken six months to complete; the erection of stainless steel panels took three weeks. The additional rental which this shorter construction period made possible was just under two million dollars. It is interesting to note that the saving in the structural skeleton due to the difference in weight between masonry and panels on the same project of office buildings 19 and 23 storeys high was only a sixth of that figure. The quickest possible construction time is, however, not only of interest to those renting office space but also to those financing the building. Investment companies are always anxious that their capital should not be tied up for any length of time, for the loss of interest on investment during construction can be quite considerable.

In the nine years that have elapsed since Belluschi's elegant aluminium cladding was put up in the centre of Portland, the manufacture of curtain walling has become a considerable industry. In this country there are about twenty manufacturers, mostly established producers of metal or wood windows, or of patent glazing, who have recently added a number of sections to their range which form mullions, transomes, cills, covers, etc., and which together with their windows provide a curtain wall. In other cases makers of infilling panels or of sheet metal work have taken up curtain walling. Several of the producers export their cladding and most will also install it, a course to be highly recommended.

Although the principle of the curtain wall has respectable nineteenth century origins, its full scale manufacture is a matter of the last few years. It is thus, as most manufacturers will agree, still at a very primitive stage of development, with its many inherent problems not yet solved and many of its potentials not fully exploited.

THE PROBLEMS

the joint

The curtain wall, as we know it at present at any rate, is an impervious skin stretched over a building. Most of its problems arise from this simple fact. None of the rainwater is absorbed and so very large concentrations of water may occur at any one point. These may easily, especially with wind pressure behind them, find their way through the skin at a joint. The Building Research Station has shown in its Digest on light cladding, the first part of which has just been published, that in a heavy rainstorm about one gallon a minute will run down every hundred square feet of vertical surface exposed to the rain. It is not surprising, therefore, that most thought devoted to curtain walling has up to now concentrated on the problem of the junction.

Two broad categories of joint seal can be distinguished: rigid and non-rigid. The rigid joint such as welding or glueing can seldom provide all the answers. Even if the design allows for movement of the cladding in folds of the material rather than at the joints, a perfectly feasible design with sheet metal, for example, it is rarely possible to weld or bond all the joints of the cladding after it is in place. A great many more joints could, of course, be fixed rigidly than is the case at present – the corners of metal windows are welded, the corner junctions between mullion and head in the curtain walling grid are not. This is especially true as the epoxy resin-based adhesives make metal to metal bonding a feasibility. Such rigid fixing only demands an even further concentration on shop fabrication.

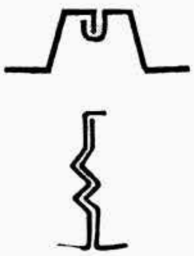
It is the non-rigid joint which is the weakness of the system.

Four types can be distinguished:

1. **mastic** This is probably the commonest sealer and in many ways the least satisfactory. The traditional oil based putty, a form of mastic, was only sound as long as it was kept painted. On curtain walls which often do not need painting, it soon fails. The same is true of many other mastics which, although not oil-based, only retain their elasticity for a limited period. Most are liable to erosion by wind and water and a number fail under direct ultra violet light.

Makers of mastics, like paint manufacturers, seem peculiarly reluctant to divulge the chemical base of their product or to publish any data on its physical characteristics. Such phrases as 'a specially prepared compound of unique properties' assume an excess of simple-minded trustworthiness on the part of architects.

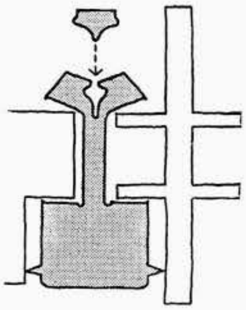
If mastics are specified they should, whenever possible, be placed in positions which are shielded from both sun and extreme exposure, 1, and where they are not liable to be sheared by the movements of the joint.



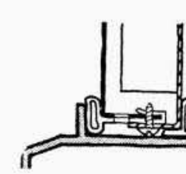
1, two panel joints in which the mastic is fully protected from exposure.

The most hopeful development in this type of joint is the use of a polysulfide synthetic rubber which is known by its trade name of 'Thiokol.' Strictly speaking this is not a mastic but a liquid polymer which, when compounded just before use with a curing agent such as lead oxide, forms itself without shrinking into a resilient rubber. Its properties are, in many ways, remarkable. It has adhesion in shear of at least 200 psi to aluminium, steel, glass, concrete, plywood, asbestos, brick and stone; it shows no water absorption after being immersed for four days at 80°F, and, most important of all, it can be elongated 200 per cent before breaking. Accelerated weathering tests which included exposure to ultra violet light and salt spray indicated a durability of 30 to 35 years without significant change. The material has for some years been employed in the aircraft industry both here and in America and has recently been used on curtain walling in the States. Lever House was not long ago entirely recaulked using 'Thiokol'. A number of British curtain wall manufacturers are at present experimenting with the compound and should soon be in a position to supply it as their standard joint sealer.

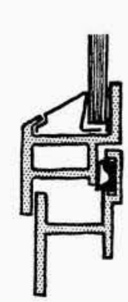
2. **gaskets** These have, of course, been in use for a long time in the automobile industry but are relatively new in building. Every car windshield is weathered by an extruded gasket and in view of the extreme wind pressure which it may experience it is really a remarkable tight joint. Gaskets for curtain walls have been extruded from a number of plastics, the commonest being neoprene and vinyl. The curtain wall on Saarinen's General Motors Technical Centre (AR, May, 1957) uses an ingenious neoprene gasket, 2, which grips the panel around its edge. A more common gasket consists of a hollow vinyl tube which seals the joint through being compressed against two planes, 3. At the corners the tube can be made continuous by being cut with a hot blade on the mitre and on making contact the two tubes will fuse. The great virtue of gaskets is that quite complex shapes can be extruded, both hollow and solid, with varying wall thicknesses giving different degrees of resilience and that, moreover, the die costs are relatively low. It is often quite easy to



2, the extruded neoprene gasket which joins the vitreous enamelled panel or the double glazing to the extruded aluminium framing on the General Motors Technical Centre. The gasket, 2⅜ in. by 1¼ in., is tightened by inserting a neoprene filler strip.



3, two tubular extruded vinyl gaskets weathering the junction between panel and framing. At the corners tubes are cut and fused to make a continuous seal. Weep holes at the foot of the panel are intended to drain any condensation which may form from within the cavity.



4, a hollow vinyl seal is gripped in a groove extruded as part of an aluminium window section and provides an almost airtight closure. The glass is, incidentally, held by a spring clip pressing it against a mastic tape, a patent glazing method applied here to metal windows.

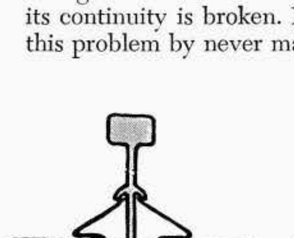
hold such gaskets in grooves which have been extruded in the aluminium section, 4. Such closures are frequently used on windows in air-conditioned buildings to reduce air infiltration. The latest curtain walling system to be developed in this country uses such an extruded gasket to seal both the glass and panels and is illustrated later.

3. **cover tapes** These are usually impregnated fibre tapes which will bridge a joint and if kept under pressure remain watertight. They can also be used between materials which fit tightly, for example in the corrugations of aluminium sheeting and will, as long as they are under pressure, provide a seal, 5. They have so far been used rather more in

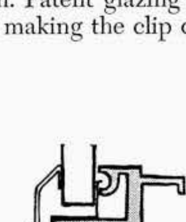
5, two synthetic rubber tapes reinforced with fabric are held under pressure on either side of the sheet metal screw. Such tape provides a very effective and easily applied seal.

the construction of caravans and similar coachwork than on curtain walls but their use should certainly be investigated further in building construction. Their ease of application is a point greatly in their favour.

4. **spring stops** A number of forms of this particular seal exist. The most obvious is the spring clip which holds the glass tight in certain forms of patent glazing, 6. The bent cover strip which is used on one English curtain walling system also comes into this group, 7. The same is true of various interlocking joints between metal sheets which depend for closure on the spring action of the material, 8. The great weakness of the spring clip is at the corner where its continuity is broken. Patent glazing rather neatly solves this problem by never making the clip change direction.



6, the spring action of bent metal is fully exploited in this method of patent glazing where it provides both seal and fixing for the glass.



7, a system of curtain walling derived from the patent glazing technique, and again using the spring action of bent metal to hold the glass panel in position.

8, the familiar snap closure in which two pieces of bent metal press against each other. This device is often used in curtain walling when a cover fillet has to be applied.

A very similar spring action is to be found in the closure given by mohair strip. This strip is the familiar lining of most car windows. It is also a common seal on steel or aluminium sliding doors. The strip consists of a short mohair pile on a woven backing or in a plastic cord. To give rigidity to the strip it is further backed by a very thin sheet of metal. The elastic tufts of the pile are slightly depressed and give an extremely tight seal unlikely to deteriorate.

It becomes obvious that many alternative ways of achieving a weather-tight joint can be devised. Only a few have so far been tried on curtain walling, and a great deal of experiment remains to be done. The assumption that a curtain wall is only a series of windows which can be sealed traditionally with putty-like compounds has been proved erroneous and new methods must be found by the manufacturers of this new product.

materials

After the joint, probably the next most important problem has been the material of the curtain wall. This is, of course, as much an economic and visual question as a technical one. The cost figures given with the system described later amply demonstrate this: other things being equal, a grid in ordinary mill finished aluminium is about 40 per cent more expensive than that in galvanized steel, and again, the opaque appearance of a coloured metal panel is very different from the translucency of cast glass. The choice of material, unlike perhaps the detail treatment of the joint, is moreover still very much an architectural responsibility. Few manufacturers are in fact able to give really unbiased advice on this choice, for most have a vested interest in one material or another.

Metal, wood, glass and plastics have up to now been the materials most used on curtain walling. No single material has yet probably answered all the exacting needs of strength, durability, colour, texture, cost and so on. Perhaps none ever shall, though it must be remembered that chemistry has only very recently turned its attention to building materials and there is no reason to suppose that the effect of such research into cladding will be any less spectacular than it has been in textiles, for example.

1. *metals*

(a) **steel** Carbon steel has for long been used in the making of windows and its extension to curtain walling seems natural. It, of course, suffers from two serious drawbacks: it rusts and has a limited number of feasible shapes. Its obvious advantage is its cheapness. Many forms of protective coating exist; galvanizing, cadmium plating, sherardizing, stove enamelling, paint. All these have a limited usefulness as they are liable to damage or, like painting, last only for a few years. Galvanizing is still the most permanent and satisfactory of these coatings. Unfortunately, the only really certain protection, vitreous (or porcelain) enamel, can only be applied to sheet steel. This process is the fusion of glass granules to steel in a furnace at about 1,500°F. The resulting material is extremely durable, colourful and once safely in place (the danger of chipping through careless handling must be taken into account) highly weather resistant. It has long been used for signs and a great many of these belonging to London Transport, for example, have suffered the severe strain of London grime without ill effect. Vitreous enamel must be clearly distinguished from stove enamelling which is merely the hardening of a special paint by passing the material through an oven.

Vitreous enamelled panels have been used with great success on a large number of buildings. They can be had in any colour except a metallic tint and can range from high gloss to semi-matt. They can also be textured by being corrugated or embossed before enamelling, and in many ways this is to be recommended as such depth will add strength to the sheet and it may be possible to specify a thinner gauge.

A somewhat analogous refractory process fuses small granules of stone to a steel sheet. The resulting panel has a dead matt appearance with a texture not unlike that of coarse sandpaper. Such matt appearance has, of course, the great advantage that any waviness in the metal is completely masked. There is also a great range of colours and the sheet can be either uniform in colour or have a number of colours sprinkled on at random or in a definite pattern. There is, however, a tendency for rainwater to lodge in the small pockets between the granules and for the panel to dry out unevenly if it is protected by a ledge somewhat in the manner of natural stone. Perhaps this material should always be mounted so that it receives completely uniform exposure. This particular refractory process has for some time been used as a lining for the exhausts of Rolls-Royce and Bentley cars and is just beginning to find its way into building.

The limited number of possible shapes in bar steel is due to the fact steel cannot as yet be extruded and is normally hot rolled. Hollow shapes are impossible as are also the rather intricate forms of extruded aluminium or bronze which are so useful in achieving weathertightness.

(b) **stainless steel** Many different alloys are produced but the most useful from the point of view of building, are two groups, one which contains chromium and the other chromium and nickel. The chromium alloys are slightly less corrosion resistant than those which also include nickel, but are lower in cost.

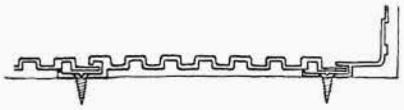
Stainless steel being in any case a much more costly material than either vitreous enamelled steel or aluminium, particular attention should be paid in the design to achieving its most economic use. This usually means texturing the metal in some way to increase its stiffness. Not all attempts at such shaping need have as unfortunate an effect as the 39 floors of the Socony Mobil Building in New York by Harrison and Abramovitz. It is often quite useful to restrict stainless steel to critical areas where some sparkle is needed. Farmer and Dark have done this on their factory for Bowaters, for example, where the cover plates to the steel grid are in stainless.

Although stainless steel is a perfectly satisfactory finish by itself and variety can be obtained by different degrees of reflectiveness and by the brushing of the metal, it can also be coloured by being glazed in the manner of vitreous enamel. This is still an experimental process but its possibilities are very interesting. A translucent glaze can be used which allows some of the sheen of the metal to come through and it can also be applied merely to the low areas of patterned sheets so that the high points remain bright and metallic. Great potentials of rich colour and texture remain to be developed.*

(c) **aluminium** Aluminium alloys have been used a great deal on curtain walling largely due to the fact that a great variety of shapes and forms of aluminium are available and that, properly coated, it will not deteriorate. Aluminium is available in sheet form, castings and extrusions. Its great virtue is undoubtedly the great range of profiles which can be extruded. Such profiles can be designed to include weathering bars, interlocking joints, pockets for mastic, stiffeners and so on. Extrusions have for long been used on aluminium windows (too often, unfortunately, imitating steel sections), and they are now common for curtain wall framing but flat interlocking extrusions, it should be remembered, can also form panels or column covers. One such shape which is in the standard range of an Italian aluminium company is shown in 10.

It is most important that aluminium should be ade-

**Stainless steel is presently utilized in Canada for exposed surfaces of curtain wall construction at costs comparing favourably with non-ferrous applications.*



10, one of a range of interlocking extruded aluminium sections which can be used for cladding purposes.

quately protected by being anodized. This is an electrolytic process which increases the thickness and effectiveness of aluminium's natural hard oxide coating. Without such protection it is really not a suitable material for urban use. Anodizing adds about 15 per cent to the cost. This is a rather high percentage which is still charged in this country owing to the very limited facilities for anodizing which are available. Specification for aluminium curtain walls should, however, always include for this additional price.

Special aluminium alloys may now also be had with coloured finishes. These are at the moment restricted to a very small range which includes blue, gold, green-yellow and black. It is still questionable whether these colours, with the possible exception of black, which has been used on Olivetti's recent office building in Milan, are really permanent. A dark grey colour, rather like gunmetal, can also be produced by anodizing an alloy with a high silicone content.

Aluminium sheets can also be vitreous enamelled using a low temperature process which fuses the glass frit at about 1,000°F. Unlike enamelled sheet steel, aluminium panels can be cut, drilled and pressed to some extent after enamelling and their edges are not vulnerable in the same way since even if the enamel should be chipped off, the metal will not rust.

Aluminium is a soft and vulnerable material and should be installed with great care and protected during erection. A temporary protective lacquer such as methacrylate should always be specified over the entire work to avoid staining the metal through contact with alkaline mortar and plaster. Metals (other than stainless steel, zinc and white bronze), concrete, masonry and timber which is liable to become wet or which has been treated with a preservative should all be painted where in contact with aluminium to prevent an electrolytic action.

(d) **bronze** Like aluminium this can be extruded though not in hollow sections; its weathering properties are, however, very different since bronze mellows to a dark brown with a slight green patina naturally and then retains that colour. It also has a hard precision which is sometimes difficult to achieve in aluminium. It was for these reasons used by Mies van der Rohe and Phillip Johnson for both framing and panels on their office building for Seagrams. Bronze has not been tried in this country on curtain walling since the war, presumably because of its high cost.

2. *wood*

This is in many ways a very good material for curtain walls especially if one of the timbers not needing painting, such as teak or western red cedar is used. Timber is, of course, particularly good from the point of heat insulation. Fire laws in built-up areas, however, are unfortunately likely to restrict timber curtain walls to schools and similar buildings.

The design of the wall must take into account the movement which is natural in timber and provide for joints which cope with this. Sections of the material will be a great deal bulkier than those in metal with a consequent emphasis on the vertical and horizontal grid. Window openings, if also in timber, will give yet more thickness and become dominant in the pattern. Their disposition on elevation can in no way be ignored. Windows can, of course, be in metal. The use of a horizontal sliding window consisting of frameless plate glass sliding in hardwood grooves would appear to be highly appropriate.

Resin bonded plywood has in the past been used for infilling panels. Unfortunately a certain amount of bleaching of the protective varnish is not uncommon. The development of a plywood which uses the natural weathering qualities of certain timbers seems in fact long overdue. Two timber curtain wall systems are now available in this country, one of which seems to offer great advantages from the point of view of erection.

3. *glass*

Glass in its clear form has been the inevitable infilling material in a certain proportion of almost every curtain wall. The use of obscure glass, or of clear glass with an obscure backing, in the remaining areas of the walls seems a logical extension. It is indeed in many ways an ideal material: it resists weather and corrosion, it will not burn, it may be had in many colours and textures, and it may be transparent, translucent or opaque. And yet there have been difficulties with glass in curtain walling. They can all be traced to incorrect fixing or the choice of the wrong glass.

It is essential that the glass is held in a cushioned position in which none of the stresses due to wind, thermal movement, building settlement or the addition of live loads are transferred to the glass. This means setting the glass in such a way that there is considerable clearance, a ¼ inch is not excessive, around it, and that the members holding it are sufficiently rigid as to prevent any bending under stress.

Failure has also occured through the use of wired glass. Wire in heat absorbent or coloured glass causes uneven thermal stresses and may easily lead to breakage. A clean-cut edge is also difficult to achieve with this type of glass, and there may thus be undue concentrations of stresses which will split the material.

Transparent or translucent glass with an opaque material a short distance behind it raises problems in the treatment of the cavity. If the cavity is not ventilated, condensation will under certain conditions form on the back of the glass which will then look streaked. If, on the other hand, the cavity is ventilated, it becomes very difficult to exclude dust and soot which will settle on the glass or the opaque surface beyond it. A dark colour would thus be advisable for such a panel if this latter solution is used.

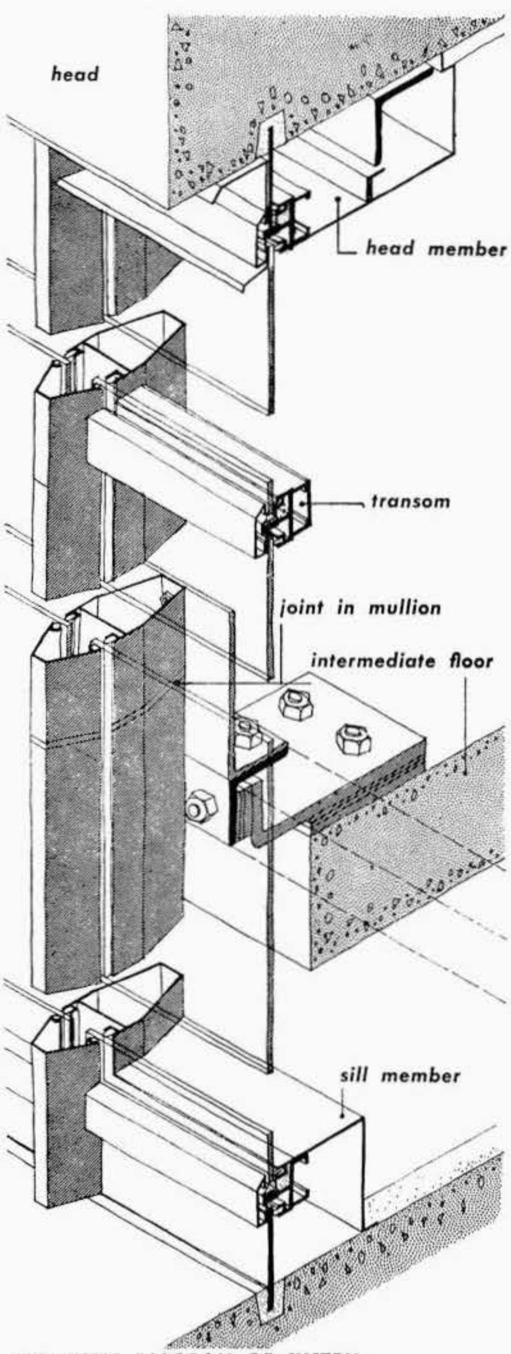
Glass is available in many patterns and several finishes. The majority are, however, glossy polished surfaces which on a façade act as mirrors, reflecting the sky or the building across the street. The difference in tone value between these two reflections, for example, may be far greater than any existing on the elevation and new patterns therefore superimpose themselves on the design. This is as true of clear as of opaque glass unless the illumination level behind the clear glass begins to approximate the light out of doors. Only thus can one arrive at that transparent luminous quality which a glass enclosed building seems to demand. So far perhaps it has only been achieved once: Skidmore, Owings & Merrills Manufacturer's Trust Company on Fifth Avenue dissolves the solidity of the enclosure.

4. *plastics*

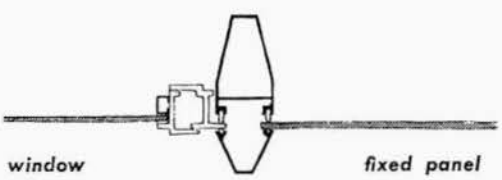
A phenolic based panel has been on the market for some time and now forms the standard infilling of at least one British curtain walling system. It was, in fact, used on one of the earliest examples, the Hertfordshire County Council's Clarendon School at Oxhey. Plastic window frames are manufactured in the States and a grid formed from box-shaped polyester fibre glass, for example, would pose no problems.

A number of moulders in this country are at this moment experimenting with such a box-shaped grid which would also act as permanent shuttering to the concrete frame, 11, and may soon in fact be able to market such a product. The resin can be coloured and the column and beam casings include flanges for windows and panels. Though such a plastic curtain wall seems perfectly feasible, it would hardly exploit the inherent possibilities.

The plastics, probably more than any other of the curtain



ISOMETRIC DIAGRAM OF SYSTEM

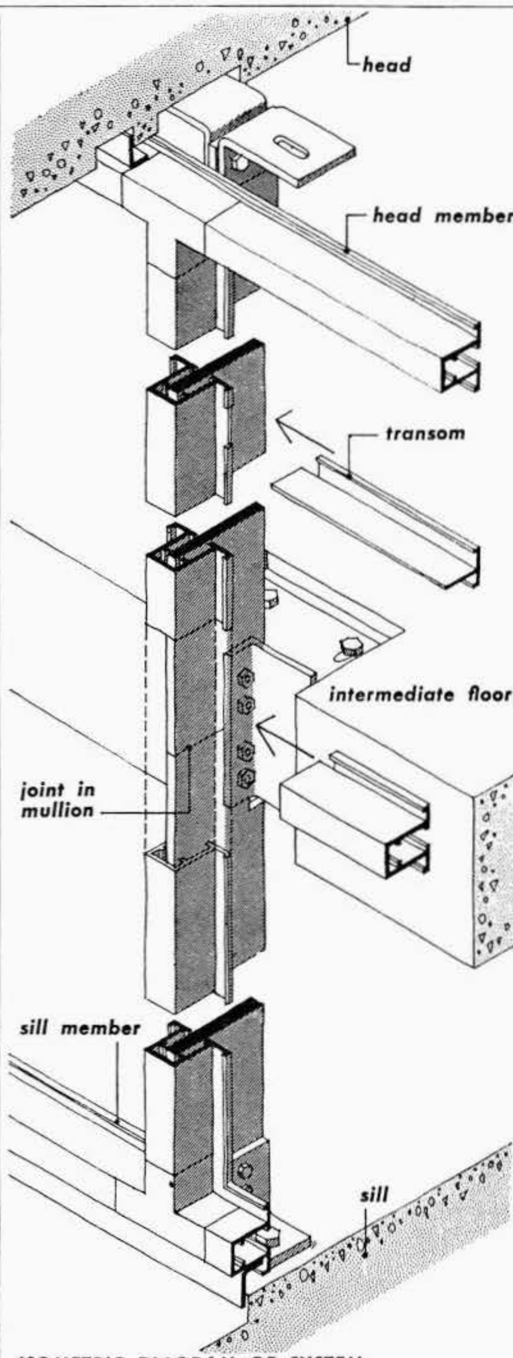


PLAN OF MULLION

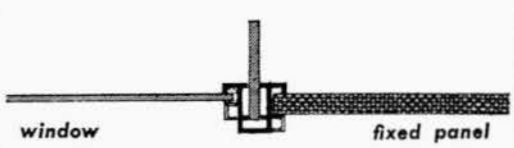
HILLS (WEST BROMWICH)

Material Aluminium

Some of the earliest English curtain walls used a much less refined version of this system based on patent glazing. This new and improved method is a very simple and economical curtain wall except for the curious weathering of the transom, where a piece of sheet metal has to act as a flashing behind the cover holding the glass in place. A series of accessories like ceiling and sill closures is also available and goes some way towards providing a complete cladding installation.



ISOMETRIC DIAGRAM OF SYSTEM

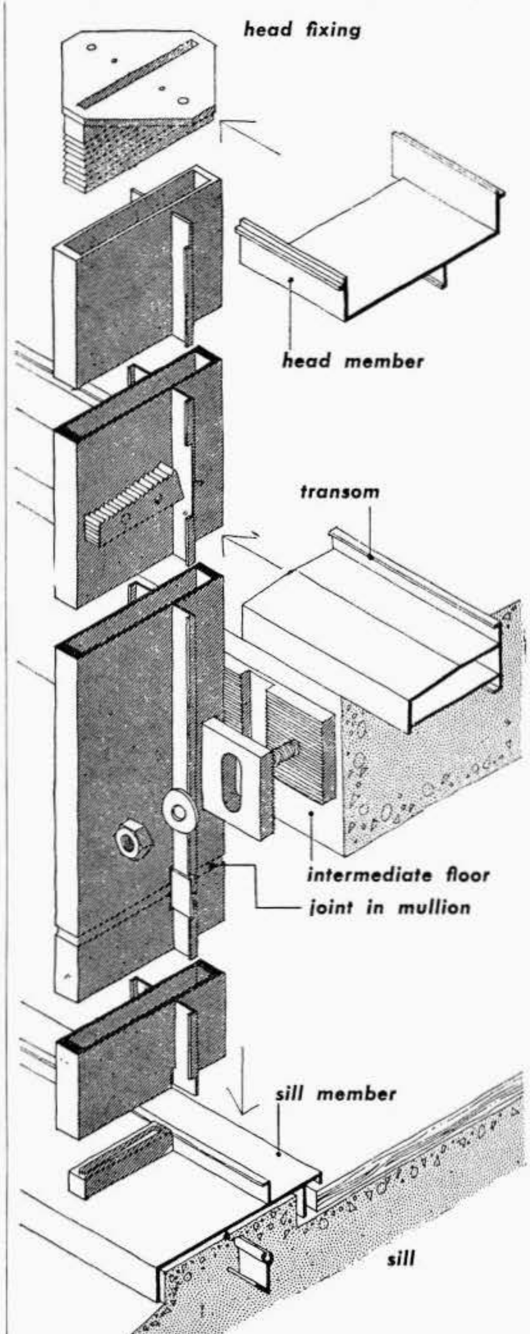


PLAN OF MULLION

HENRY HOPE 'WINDOGRID'

Material Aluminium and steel

A flat steel bar is used in this system to give rigidity to the vertical members. The bar is galvanized so that no problem should arise from its contact with aluminium. All fixings to the structure are made from this bar; the question of obscuring the head and sill fixings in the room does not however seem to have been dealt with.



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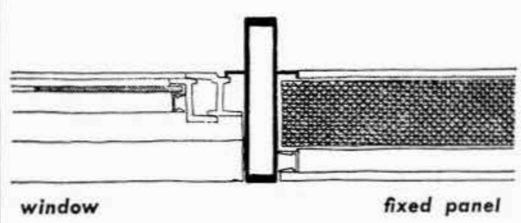
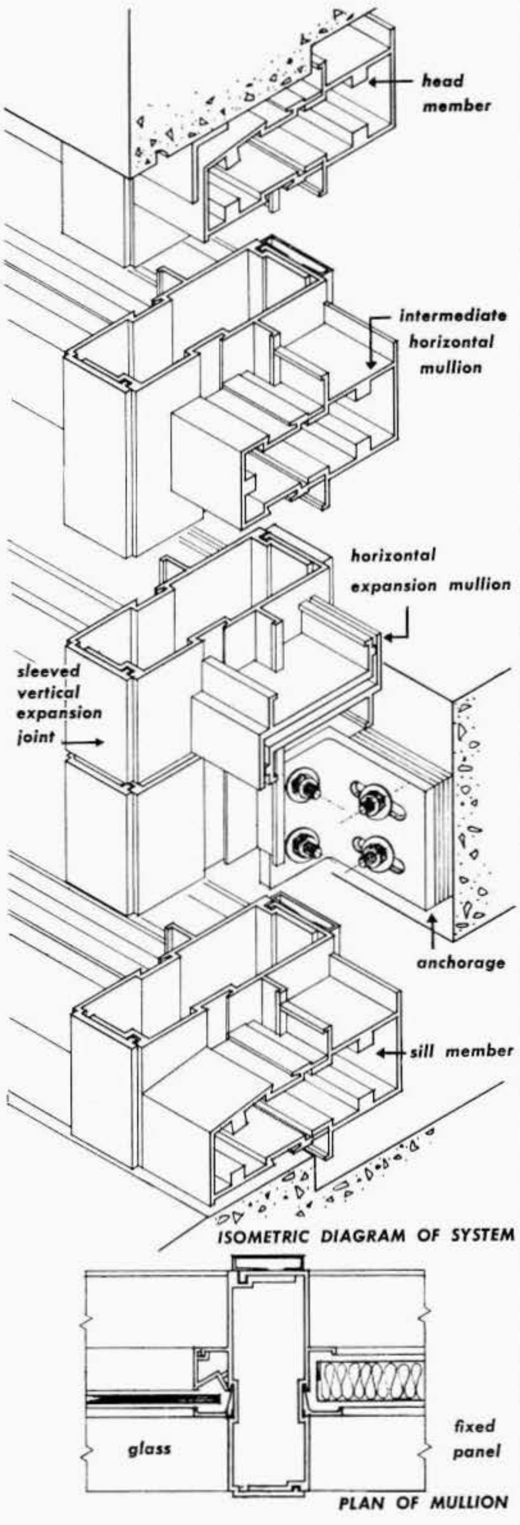


PLAN OF MULLION

WILLIAMS & WILLIAMS 'WALLSPAN'

Material Aluminium

The acid-etched finish now supplied as standard ensures much more even weathering than can be expected from plain mill-finished aluminium. Such consideration for weathering properties is commendable. The grooved spigots allow mastic to have some hold and not be squeezed out when sections are joined to each other. Unlike many other systems, this design acknowledges the existence of finishes in the profile of its head and sill members.



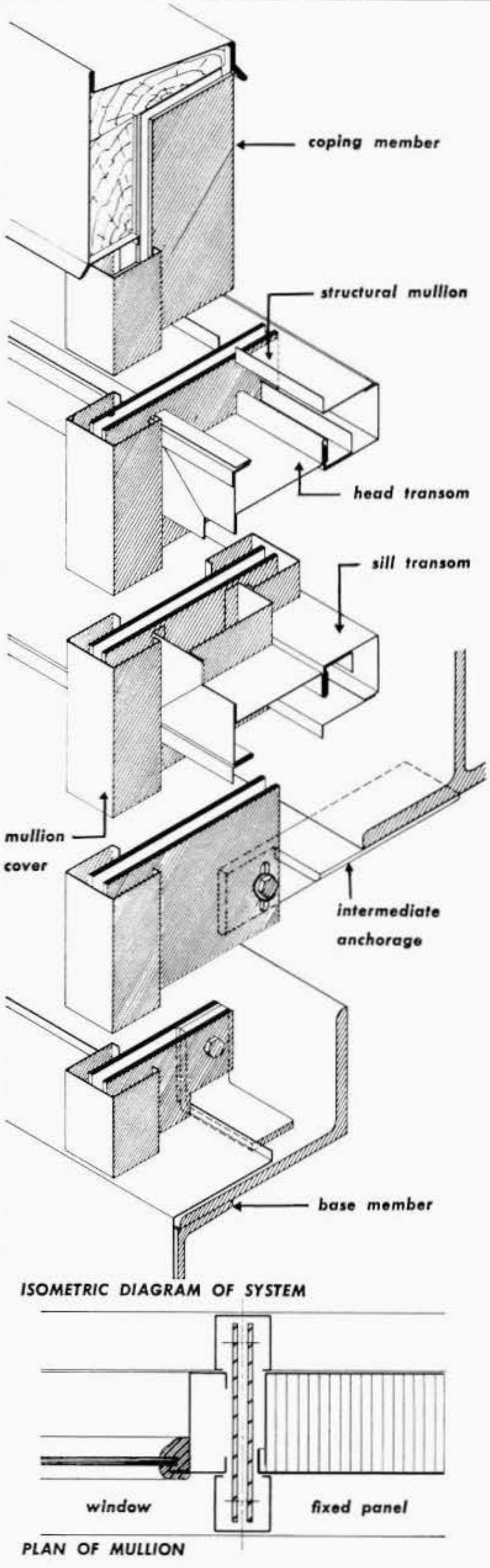
ISOMETRIC DIAGRAM OF SYSTEM

PLAN OF MULLION

KAWNEER COMPANY CANADA LIMITED

Series "S" Aluminum Metal Wall

Mullions are split section type which when assembled will accommodate the maximum range of temperature variation without distortion of metal or breakage of weatherseal. Insulated mullion covers are available to reduce heat transmission through grid members. Glazing stops are a combination of an integrally extruded glazing fin for the interior with a positive interlocking screwless stop for the exterior. Provision is made for ventilation and drainage of confined spandrel areas of the grid. All materials are completely shop fabricated and installed as panel units.



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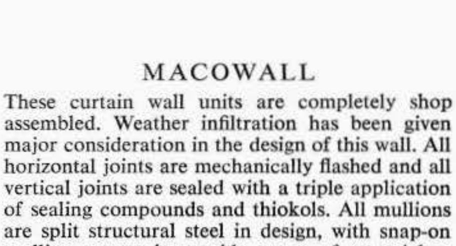
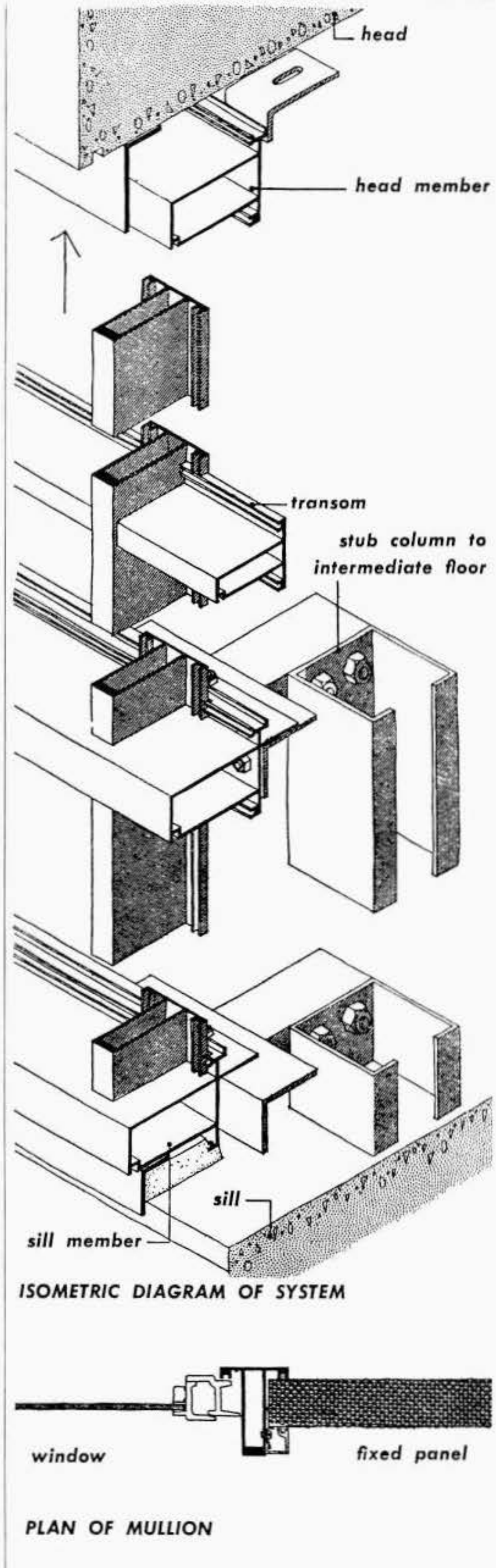


PLAN OF MULLION

MACOWALL

These curtain wall units are completely shop assembled. Weather infiltration has been given major consideration in the design of this wall. All horizontal joints are mechanically flashed and all vertical joints are sealed with a triple application of sealing compounds and thiokols. All mullions are split structural steel in design, with snap-on mullion covers in a wide range of material—Stainless Steel, Aluminum or Porcelain Enamel. The units are anchored securely at one point only, where the structural mullions meet the floor slab or steel lintel, allowing the unit to move freely in a vertical direction when subject to thermal expansion and contraction.



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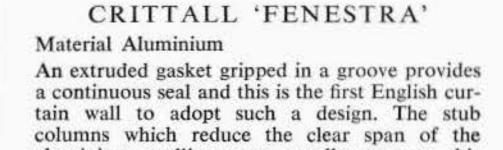
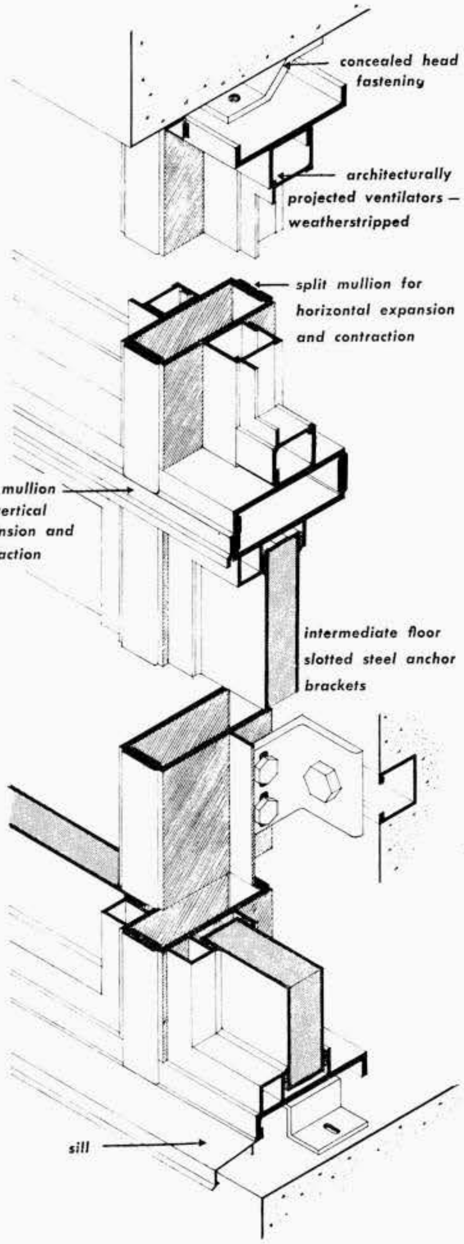


PLAN OF MULLION

CRITTALL 'FENESTRA'

Material Aluminium

An extruded gasket gripped in a groove provides a continuous seal and this is the first English curtain wall to adopt such a design. The stub columns which reduce the clear span of the aluminium mullions are equally new to this country; their relation to a back-up wall could create problems. The bead which is clipped on around panels prevents visible screws and the possible damage to aluminium from a slipped screw driver. (Exposed screw heads should thus always be Phillips head.)



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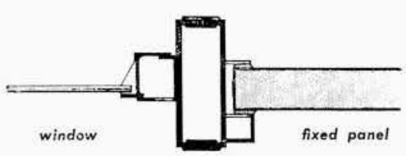
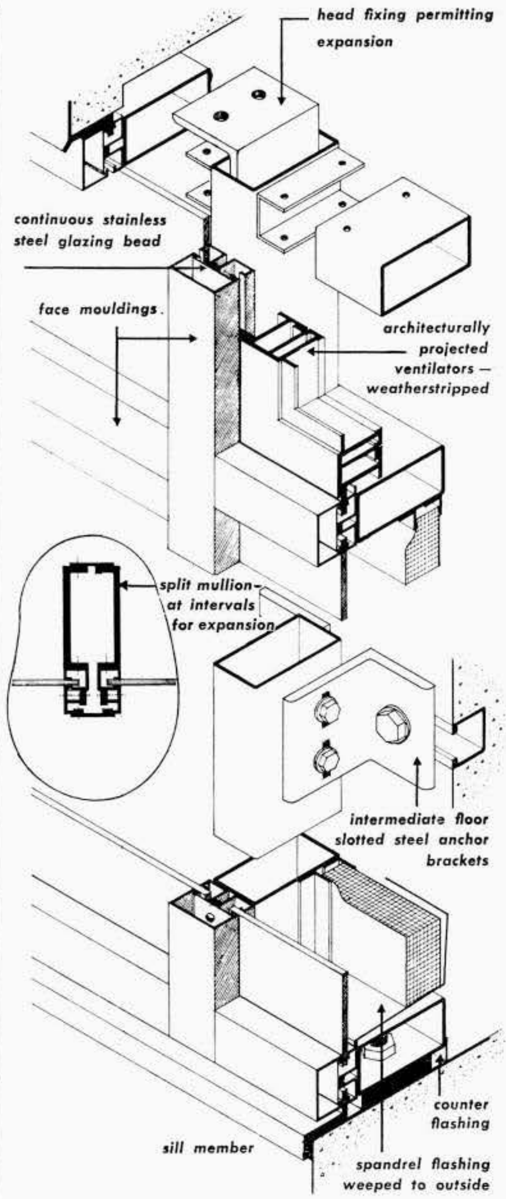


PLAN OF MULLION

CANADIAN PITTSBURGH INDUSTRIES LTD.

Vampco No. 200

This system is factory fabricated into units 5′ wide by 30′ high or with steel reinforcing up to 20′ by 30′. All joints are mortised and tenoned and securely air-hammer rivetted. All members are formed of extruded aluminum.



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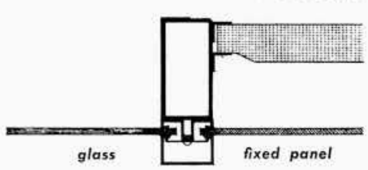
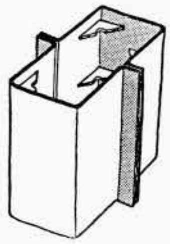


PLAN OF MULLION

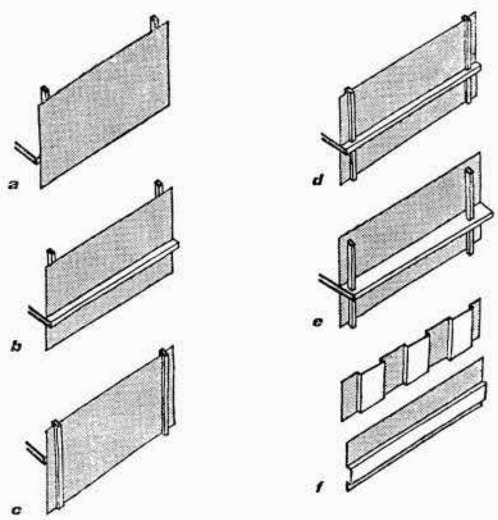
CANADIAN PITTSBURGH INDUSTRIES LTD.

Pittco Dry Set

This system is factory fabricated into tight waterproof frames in units up to twenty feet square. The supporting members are cold rolled steel tubes, varying in dimensions to suit job conditions. The glass is held by continuous stainless steel spring tension mouldings. Spandrel areas are ventilated, flashed and wept. Face members may be alumilited aluminum — stainless steel — bronze or anodized colours.



11, fibreglass reinforced polyester used as permanent shuttering to a concrete frame This can form part of a plastic curtain wall grid. The flanges on either side take windows and panels, those within, position the reinforcing bars.



12, a great deal of the visual effect depends on the relation of cladding to structure. A distinction is sometimes drawn between the condition shown in (a) which is labelled curtain walling, and that in (b), (c), (d) and (e), which is described as window walling. The problems of both techniques are, however, very similar and little seems to be gained by the distinction. Within each example the visual emphasis can again be horizontal or vertical, that of a balanced grid or it may also be non-linear, and, of course, the cladding need not necessarily be in a single plane (f).

wall materials, should be used not to form a lineal grid to be fitted with panels, but to create large sheets which do not need additional stiffeners, which include interlocking joints, which are partly transparent and partly obscure, and which carry their own insulation. That such a form may soon be a reality has in some measure been demonstrated by the Geodesic radar domes of R. Buckminster Fuller and the recent experiments in plastic houses in this country, France and the USA.

the assembled wall

A distinction is sometimes drawn between an assembly projecting beyond the floor slabs and one spanning between slabs. The differences are more imagined than real and it would seem a pity to limit architectural expression by unduly emphasizing one particular form. A great deal of the variety possible in curtain walling in fact depends on the relation of the cladding to the floors and columns on both elevation and section, 12. In view of its derivation from patent glazing there has been an undue emphasis here on curtain walling as a predominantly vertical grid sheathing the building clear of the structure. A move away from this trend can be discerned on the second of the two new office buildings by Gollins, Melvin, Ward & Partners facing each other in New Cavendish Street.

1. *climate*

Both extremes of climate create their own problems in curtain walling. In hot areas shading devices are needed and an altogether more three dimensional approach than is at present usual in this cladding technique is required. Where curtain walls have been used in regions where shading is necessary, it has been usual to superimpose an outer layer of surfaces casting a shadow on the wall. It would also seem, however, possible to create a curtain wall which has depth which provides both shading and rigidity.

Much more serious difficulties exist in cold regions. Here, condensation, heat loss and cold radiation need to be overcome. Condensation will occur on any surface which has a temperature lower than the dew point of the air. The air inside a building usually has a dew point higher than that out of doors. If this inside air is allowed to pass through the wall, and if on its passage to the outside it finds a solid vapour barrier which is below its dew point, say an outer metal panel, it will condense on that surface. Two answers become obvious, either the inside face of the wall has to be a continuous vapour barrier or the outer face must be porous, or the cavity ventilated which amounts to the same thing, so that there is in fact no barrier.

Heat loss must be counteracted by proper insulation. Several of the infilling panels listed later include an insulating layer and have satisfactory 'U' values. If the insulation is also relied upon to give a rigid backing to a metal panel it is most important that the proper adhesives—the epoxy resins seem the most suitable at the moment—are used and that these are applied under carefully controlled conditions. Serious failures due to delamination have occurred and it has been necessary to replace large areas of panelling. Unfortunately, most walls as a whole are poor insulators due to the continuity of the metal. How serious an even small area of metal passing through from the outside to the inside may be is perhaps best demonstrated by an example. A square foot panel of two metal surfaces and an insulating layer between them has a 'U' value of 0.22. If a ¼ inch diameter rivet should link the two metal faces the 'U' value will drop to 0.33 if the rivet is in steel and to 0.70 if it is in aluminium. Only two of the systems available in this country go some way towards recognizing this problem. The problem is, of course, a great deal more acute in climates colder than England, but should not, on that account, be ignored here. This is especially true as a number of installations have been exported to Canada and the northern areas of the States. Much the same is true of cold radiation; it is perceptible in London, it becomes unbearable in a Canadian winter. Where there is metal which passes through from the outside to the inside without a break it may, despite indoor heating, become so cold on its inner face that a person standing near it will lose heat to that area and as a result feel cold. This can quite easily happen with a box mullion, for example, which presents quite broad areas to both the inside and outside and which from the point of view of cold radiation may thus greatly reduce any benefit derived from double glazing and well insulated panels.

2. *erection*

A curtain wall is an engineering product with tolerances of about ±1/32 inch. Few structures will have comparable precision. The relation between these two building elements must, therefore, be designed in such a way that adjustments can be made during erection. Most manufacturers do in fact supply brackets or shoes tying the curtain wall to the floors or framing which have slotted holes or some similar device, and these fixing devices should always be included in the tender of the curtain wall manufacturer.

The installation of a curtain wall demands skill and familiarity with the components. The responsibility for its erection must, therefore, always be with the manufacturer who is the only person likely to have a fully experienced crew, and tenders for curtain walls should include all the components of the wall as well as its complete installation and caulking. Divided responsibility should certainly be avoided. After erection it is wise, wherever possible, to demand a test of the work by spraying the elevation for a number of hours from a pipe mounted two or three feet beyond the edge of the roof.

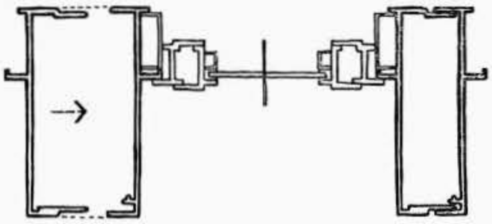
3. *maintenance*

Most so-called traditional materials need heavy maintenance – repointing, painting and replacement – at infrequent intervals; curtain walls, on the other hand, need little maintenance —cleaning—frequently. This difference means that all parts of the elevation should be accessible. In low buildings this can obviously be done from the ground, in high buildings cradles become necessary unless the wall spans between floor slabs and it can be cleaned from protected ledges. It is seldom sufficient to clean only the opening window areas or to assume that the rest of the wall can be properly reached from these openings.

POTENTIALS

None of the problems just discussed is by any means insoluble and all are certain to be overcome in the next few years. Yet even then only the first steps will have been taken. If the curtain wall is not to degenerate into the new cliche of the second-rate, a great deal more development work, both technical and visual, will have to be done in the immediate future, and the demand for such experimentation must come from architects aware of the potentials of the emergent technology.

The first step in the technical development of the curtain wall in this country would seem to be to cease to consider it as composed of a linear grid of metal or wood struts joined to each other on the site, and into which weatherproof flat panels are then inserted. It would seem logical to fabricate much larger units in the factory, in fact complete wall elements which incorporate solids and voids and which contain their own joints. Such an assembly was, of course, used as long ago as 1952 by Harrison and Abramovitz on their building for Alcoa in Pittsburgh. We have probably not seen it here because so far curtain walling has been largely confined to low buildings such as schools or factories and the great practical advantage of the larger assembly lies in the possibility of the entire cladding being done from the inside without scaffolding. The cladding unit of the Alcoa building was as die stamping produced on the presses of the makers of Pullman railway cars but the use of large elements does not necessarily presuppose such an expensive process. A series of extrusions or steel sections, panels and windows can also be jointed into an assembly in the factory so that only large units are coupled up to each other on the building. A method of using pre-assembled steel units somewhat along these lines was developed by Peter and Alison Smithson in conjunction with a manufacturer and carried out on their school at Hunstanton, the most virile example of curtain walling so far seen in this country. These elements can become quite sizeable and pre-assembled into units 9 feet high, 21 feet long anodized in their assembled state are being erected on Mies van der Rohe's Commonwealth Promenade apartments in Chicago. Such large units greatly reduce the number of joints which have to be made on the site and are much more likely to produce a weathertight wall. The smaller amount of jointing makes it also possible to use some of the more expensive and certain ways of sealing. The easiest way to achieve such a unit is to use a split mullion and join the panels and windows to a half mullion on each side.*



A curtain walling system using interlocking aluminium mullions. Fabrication tolerances and thermal expansion are absorbed in the overlap of the two parts of the mullions. Such a system makes it also possible to install windows and panels into the grid before erection.

The production of larger units merely takes the curtain wall out of its most primitive state. It does not significantly change its function or character; it is only the logical second step in an industrial process.

The second and urgently needed next step would seem to be to enlarge the function of the wall. The curtain wall has on the whole been considered merely as the outer waterproof layer of a building. It sometimes incorporates heat insulation and it occasionally includes the inner face of the wall area below the windows. It rarely, however, considers the fact that interior partitions may join the wall, that there are junctions with floor and ceiling finishes, that there may be sunshine and glare control devices inside and outside, that sound control, heating, lighting or air conditioning may have to form part of the enclosure of the building, that the spread of fire needs control. These considerations demand both technical changes and different attitudes to the problem. The spread of fire, for example, cannot be adequately controlled by any of the materials now in use for curtain walling. A different material is, therefore, needed or, alternatively, new ways of control need to be considered which are related to this type of cladding. Internally, sprinkler systems have made certain forms of construction possible; there is no reason why a system of external sprinklers flooding the wall surface should not also, as regards fire spread, satisfy a code written in terms of performance standards. Technically, it is a perfectly feasible device which might also incidentally be used for cleaning the façade. The important point in all these considerations is that the curtain wall must not be considered as an isolated and unrelated building element.

Technically the potentials of the curtain wall would seem to lie in two parallel directions: in it becoming part of an integrated system of industrially produced components and at the same time a complex and multi-purpose cladding unit. Both of these demand a further concentration on industrial production, and can thus be seen as merely part of the general technological trend. Experimental developments in both of these directions are in fact under way.

Something like this has, of course, to some extent already happened in ceiling construction. The ceiling developed by Wakefield for Saarinen's General Motors Technical Centre, probably the technically most accomplished building in the world, is a system of modular components which includes lighting, acoustic baffles, air outlets for heating or air conditioning, sprinkler heads and top fixings for internal partitions. The Wakefield ceiling is now commercially available and there seems to be no reason why curtain walls of similar versatility should not also be in the manufacturers' catalogues.

A large number of technical advances hold out considerable promise in the development of a multi-purpose curtain wall during the next ten or twenty years. Three of these – the printed circuit, thermo-electronic heating and electro-luminescent lighting – have recently been given some architectural publicity. The printed circuit embedded within the plastic sheet at the time of manufacture may become an important technique in supplying the greatly increasing number of electrical business machines coming into use. Thermo-electronic heating and cooling now being studied by RCA would appear to make it possible to produce quite thin panel-like units which would heat or cool a space depending on the direction in which the electric current is passing through a large number of small pieces of dissimilar metals joined in series. Electro-luminescence, the light glow produced by a phosphor-coated film between two electrodes, similarly opens up the opportunity of using very thin light sources in sheet form as part of a wall. The architectural implications of such research, especially the last two, are radical and must significantly affect the internal and external appearance of buildings.

additive architecture

The appearance of curtain walling even in its present form has been unnecessarily stereotyped. This is, unfortunately, especially true of buildings in this country which all have an extremely unmodelled surface with a predominantly vertical emphasis. Neither characteristic is inherent in the technique. Some of the rare pre-war examples of curtain walling, Le Corbusier's flats at Geneva or the Pavillion Suisse, do not, interestingly enough, in any way foreshadow such limitations.

Certain post-war examples abroad have also avoided such a limited vocabulary. Mies van der Rohe has at 860 Lake Shore Drive shown the possibilities of developing some form of modelling through the use of a repeating dominant projecting member, in that case an 8-inch R.S.J. Bernasconi, Fiocchi and Nizzoli's Palazzo Olivetti, achieves a completely different kind of depth through its double-layered wall. Glare control is needed even in London and may usefully become part of the curtain wall. Some of the expressive complexity of patterning which can be developed can be seen on I. M. Pei's Mile High Centre office building in Denver where there is a colour differentiation between the structure and the vertical and horizontal air conditioning elements exposed on the façade. Colour patterning of a different kind was used by The Architects' Collaborative on a number of their latest buildings. And that curtain walls need not be made up of identical units was beautifully demonstrated by Charles Eames on his showroom for the Herman Miller Furniture Company in Los Angeles. Nor for that matter need curtain walls always be composed of windows and panels; they can equally well be made up of doors – sliding, hinged, folding – with balustrading inside or out, of solid sliding panels, of louvred areas, or of completely solid cladding as in the industrial sheathing from which so much of the curtain walling technique is derived.

The aesthetics of curtain walling are those of additive architecture. This, unlike the carving out of space so characteristic of masonry construction, might perhaps best be described as the manipulation of space through individual and defined units which, in their multiplicity, create an architectural volume. Something like this can, of course, be felt in certain examples of Japanese architecture and something of the richness and variety possible can perhaps be deduced from the recent sculpture of Harry Bertoia. What we have not yet experienced, however, is an additive architecture of industrial elements which in any way approaches the subtlety of the Katsura Imperial Villa or the brilliance of a Bertoia gold screen. There is no reason, though, why it should not.

**The pre-assembled unit or split mullion type curtain wall has been adopted in Canada as a most reliable form of curtain walling.*

GRAHAM WARRINGTON

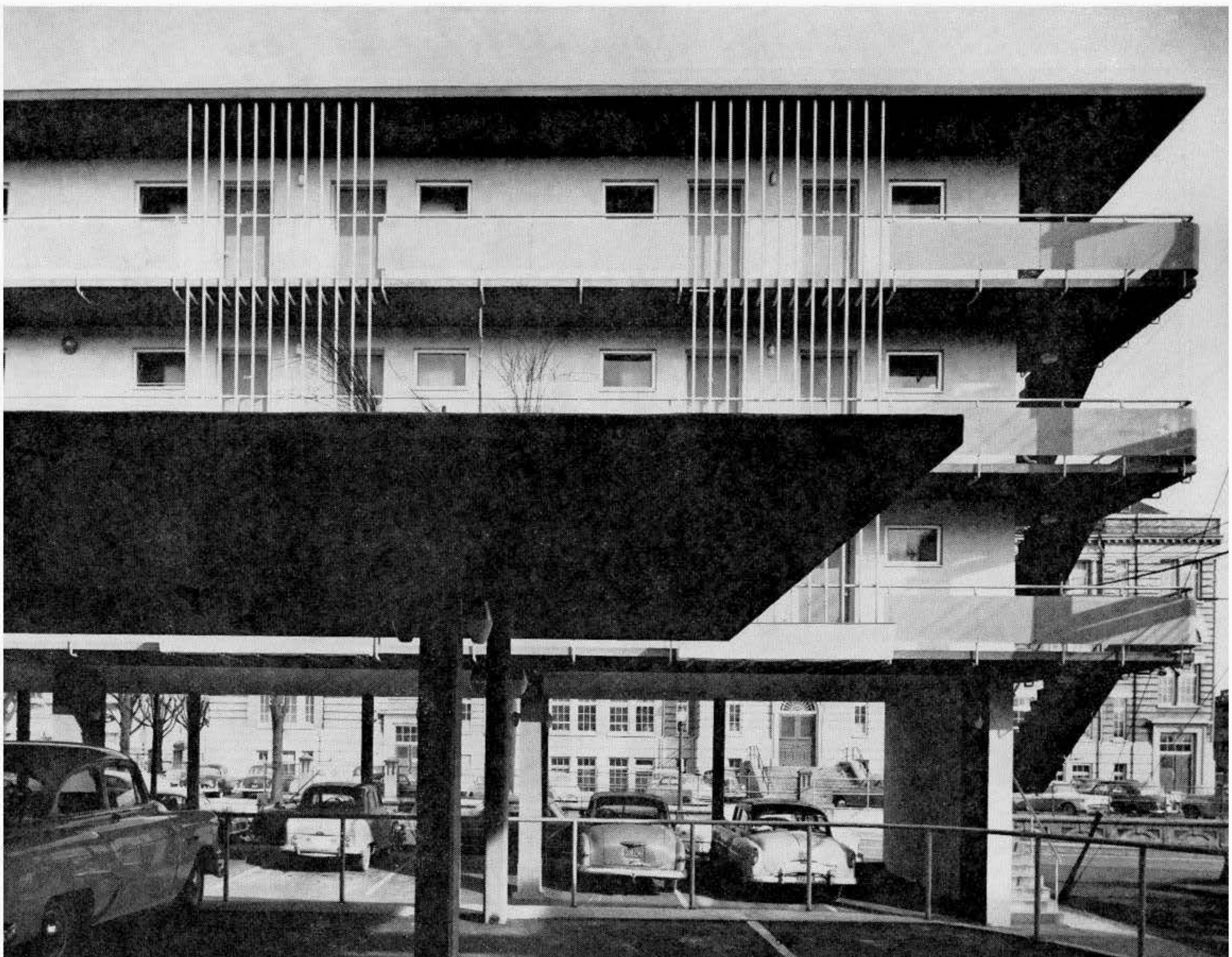
BURRARD MOTEL
VANCOUVER, B.C.

Architects, Gardiner, Thornton Gathe & Associates

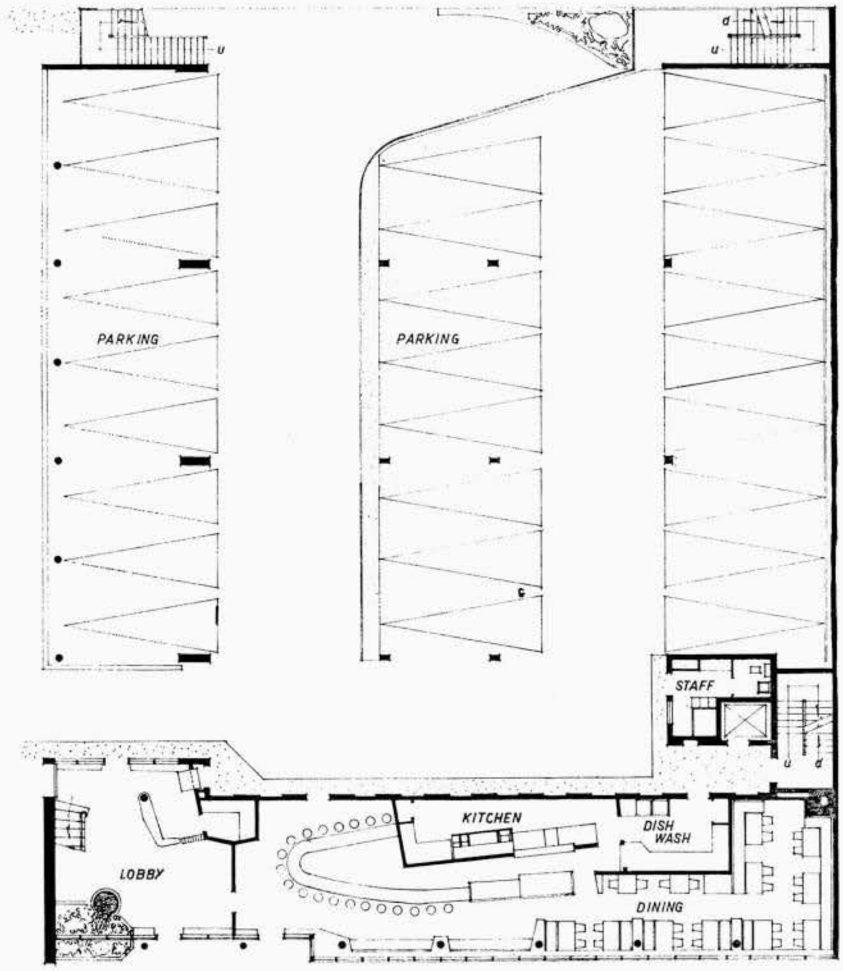
Reception area in lobby

Central courtyard, parking below, guest rooms above with view of planting on central carport roof

GRAHAM WARRINGTON



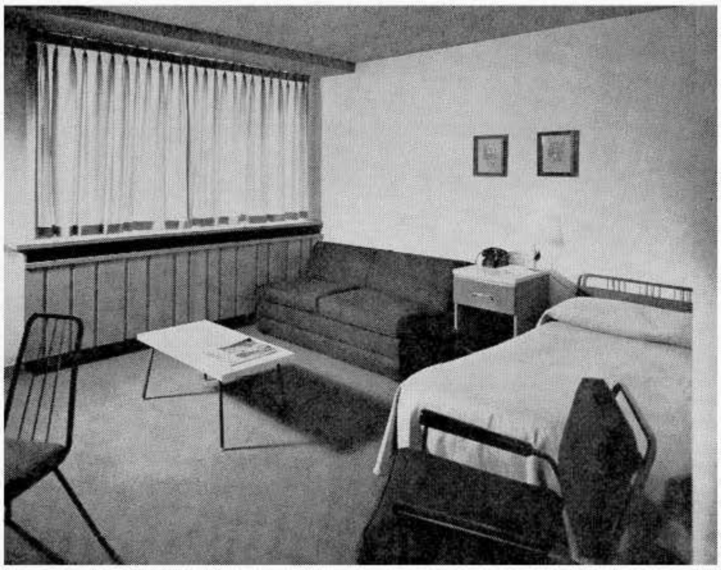
Ground floor plan



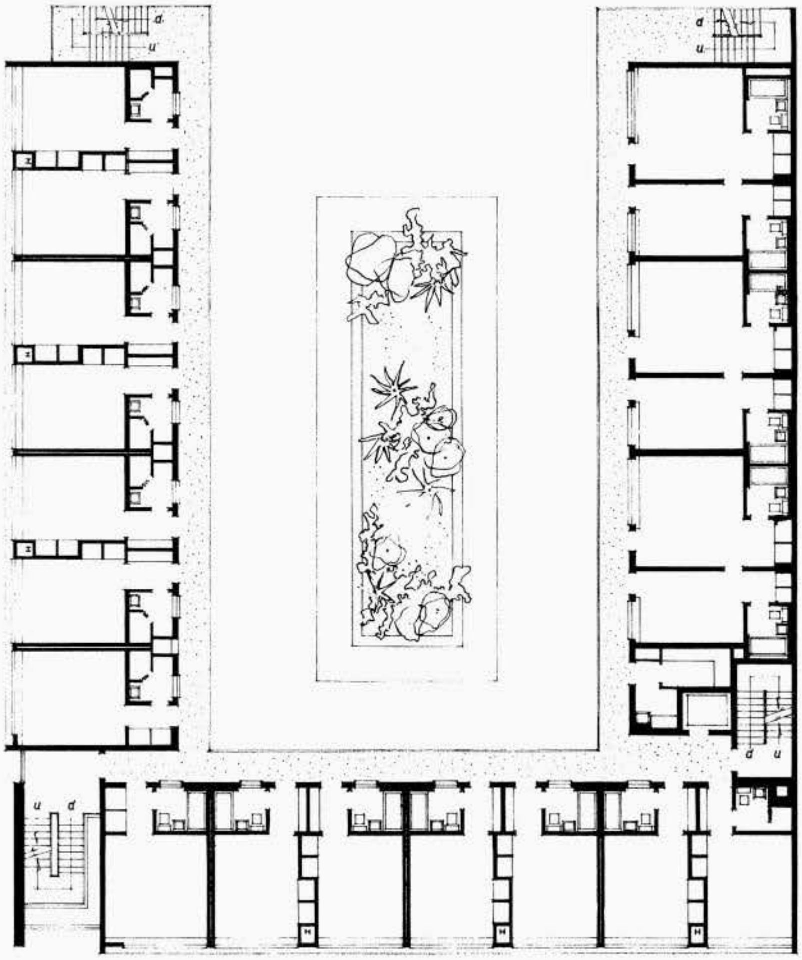
Main lobby

GRAHAM WARRINGTON

Typical guest bedroom



GRAHAM WARRINGTON



Typical upstairs plan

Auxiliary exit stair

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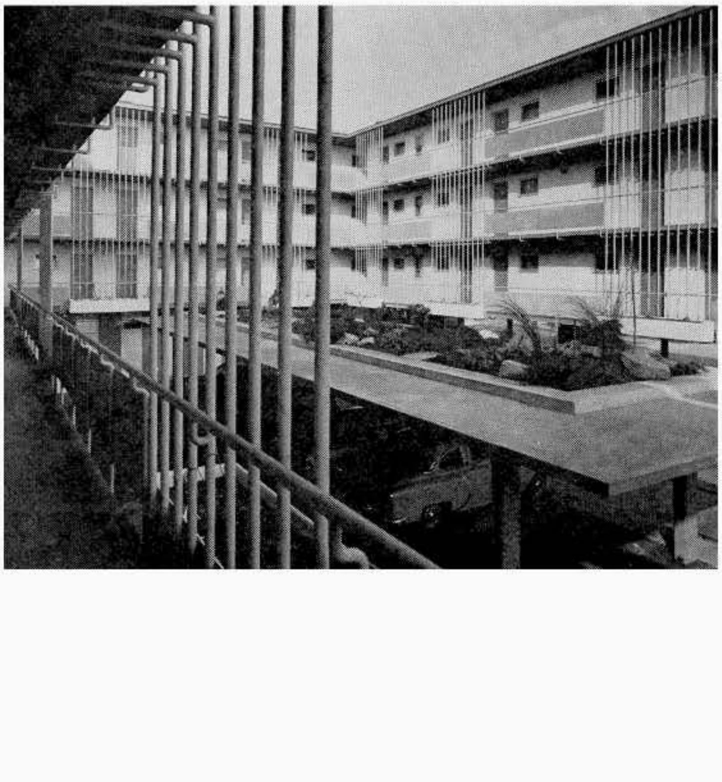
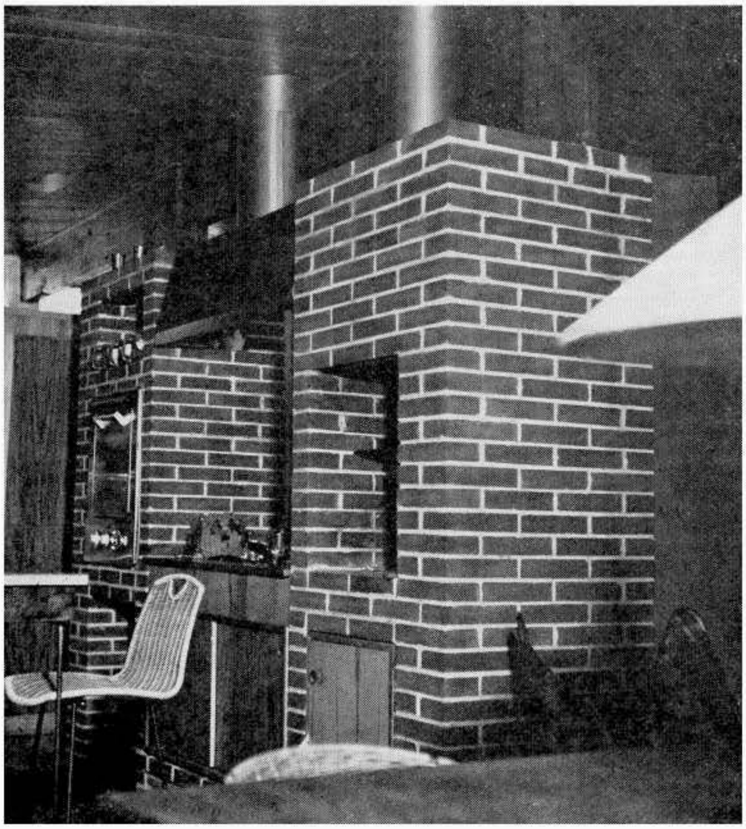
Interior court, parking at ground level



GRAHAM WARRINGTON



Kitchen from dining room

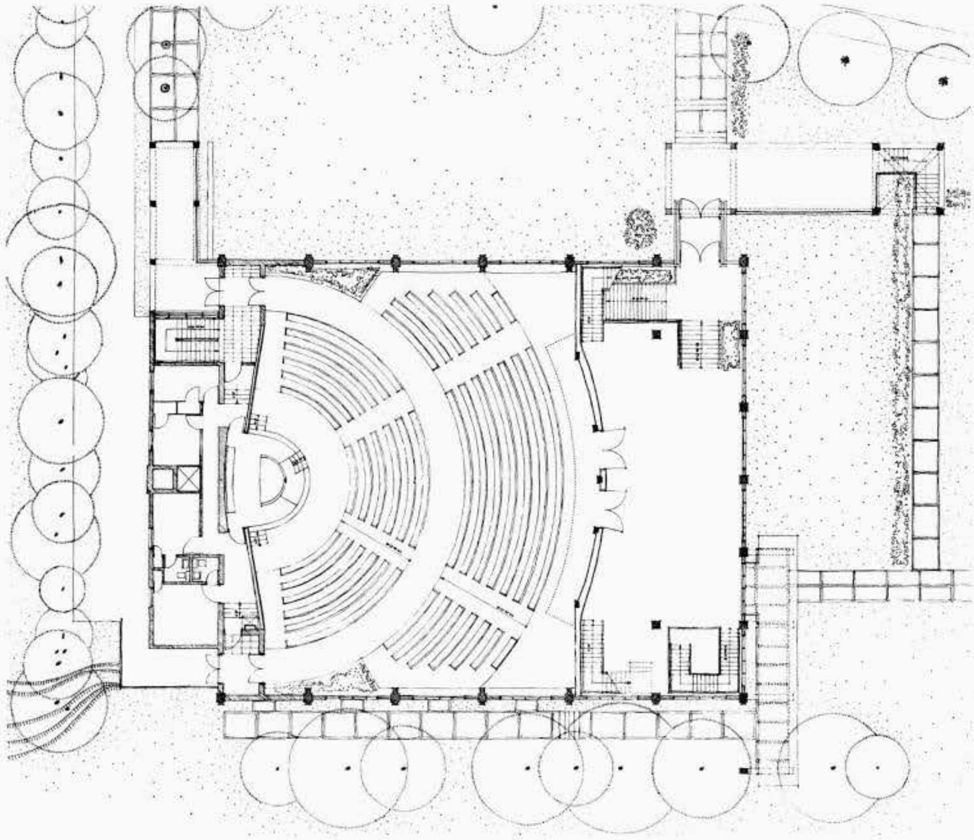
BEATTY HOUSE
BAIE d'URFÉE, QUEBEC

Architect, Raymond T. Affleck

Entrance façade

FIFTH CHURCH OF CHRIST, SCIENTIST
TORONTO, ONTARIO

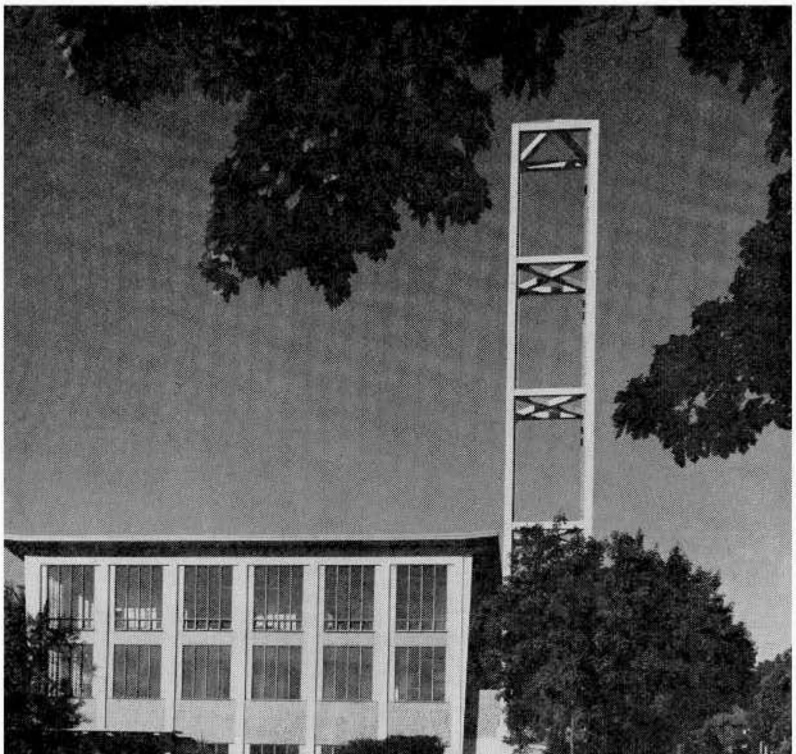
Architect, Michael Bach



Ground floor plan

East elevation from Chatsworth Drive

MAX FLEET



Located on a beautifully rising hill, Fifth Church evidences the desire of the congregation and the architect to erect a dignified static structure having architectural movement in tower and canopies. It is a mirror of Christian Science itself, for in this case we must cast off all expectation of the symbolical and traditional material which surrounds most Christian Churches. There is nothing of the severe or rigid in its simplicity, and when the sun floods in from the south, a subtle spiritual warmth breathes in this Church.

From the main entrance, one enters a large main foyer designed for assembly before and after services, and which also connects the auditorium with the Sunday School. This latter room, for twenty years served as a main auditorium and dictated the rectangular plan of the present building. It is rather interesting to see what has been done with such an old foundation, and it is apparent that a possible liability has actually succeeded in imparting to the final structure much of its simple yet articulate character.

The auditorium is the heart of the Church; the space to which all tends. Its seating is rounded, and slopes downward, grouping the congregation around the Reader's Desk, which is placed before a curved wall of wood battens and brown fibreglass fabric. This wall serves as a decorative screen to conceal the organ pipes, while still allowing sound to penetrate into the auditorium. In the rear, a balcony is hung from the arches of the roof to provide for overflow seating, and, further back, to provide a secluded area for board and meeting rooms. It is from this balcony that one best sees the auditorium. Looking down it is possible to see the semi-circle of pews pressing themselves to the wall, as though they were springs. There one can recognize objectively the sense of grouping and involvement which is so strong on the tower level. One easily recognizes how successful the architect has been in creating a church without shadow, symbol or mysticism.

Ernie Griffiths

South east corner with canopy to basement entry

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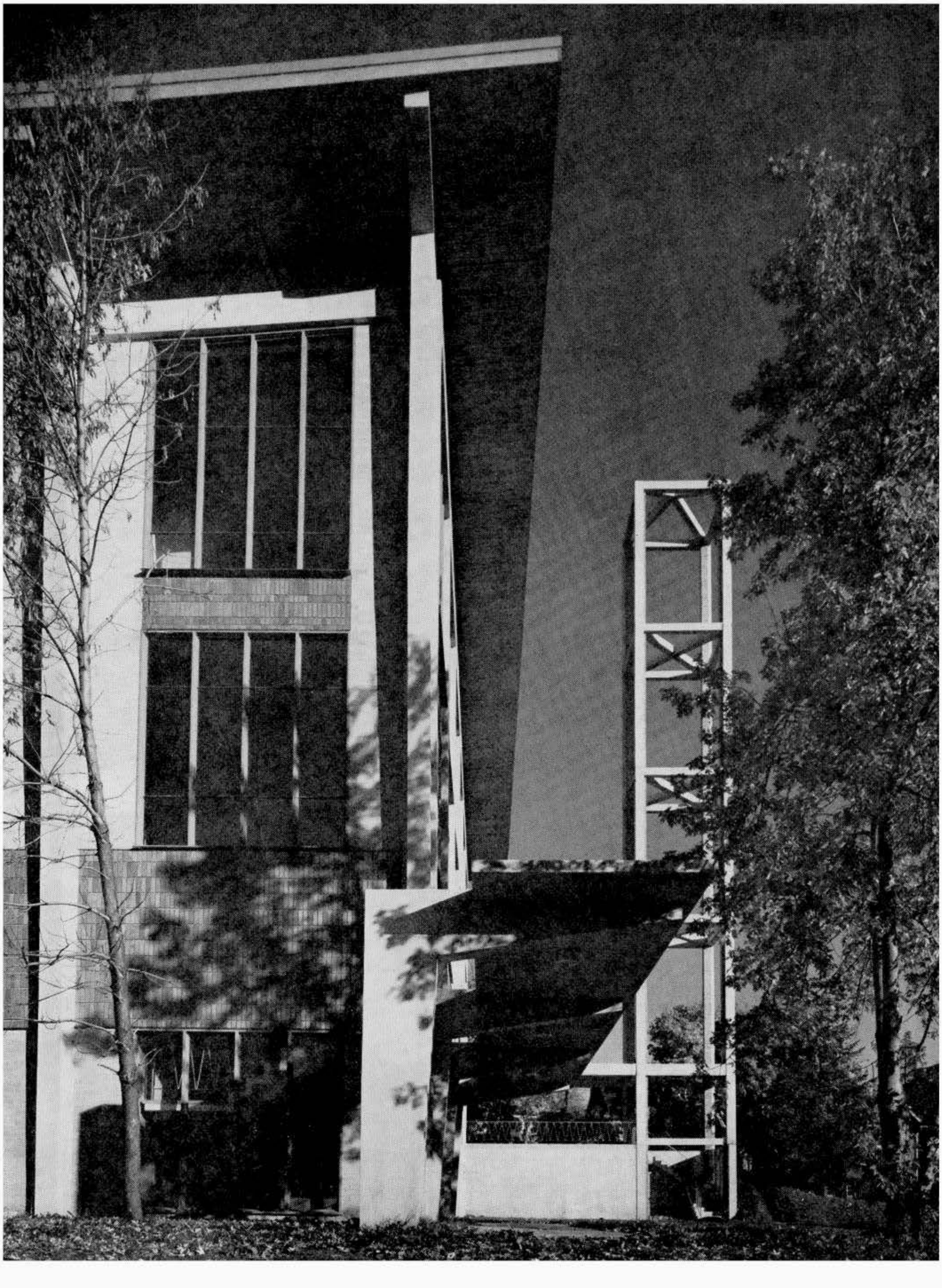

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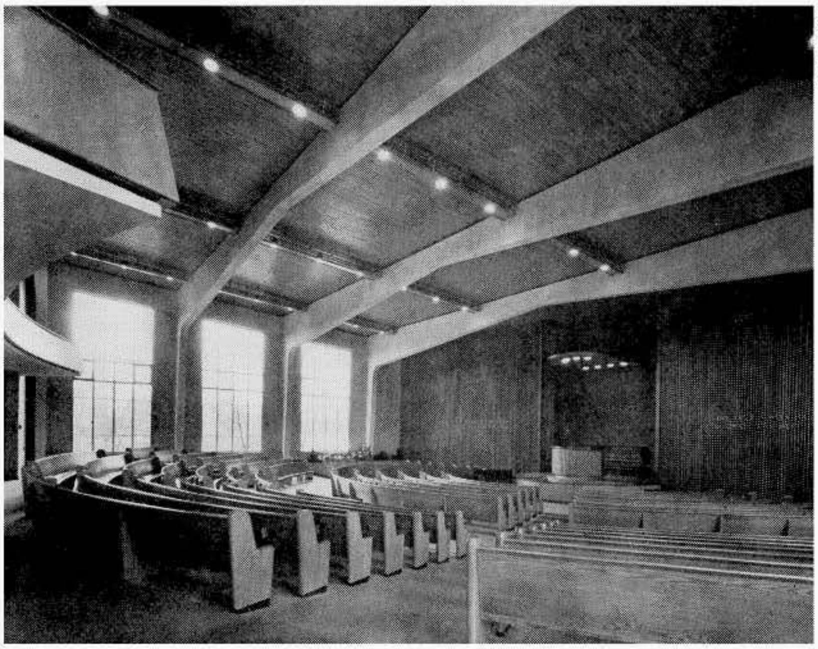
North elevation and shelter to main entry



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Auditorium facing reader's desk

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Basement entry with main lobby above

Urban Renewal

Planning the Neighbourhood

Following graduation from the School of Architecture at the University of Toronto, Mr Moriyama attended the Planning School at McGill University. The article which we publish here was part of the thesis for his master's degree.

BY RAY MORIYAMA

In earlier days, the individual home was the centre of family activity; and the parlour was the centre of community gathering. The life of the community extended into the individual home. Today, we observe the reverse trend. The family branches out into the community. Infants are taken out to nurseries; children spend more time with other children in schools, clubs, and other group activities; adults participate in a greater number of social and educational organizations. This reverse trend will continue with further increase in leisure. The livability of residential areas will not be based solely on the livability of individual dwellings, but it will be judged by the extent to which all family members can fulfil their daily recreational needs within a comfortable distance from home.

Many social scientists disagree on the effectiveness of the neighborhood principle in an urban area, claiming that families will satisfy social and recreational needs outside, in the heart of the city or in other areas, using the automobile. However, there are the children to consider, and there is a necessity of restoring some recognizable form in the physical reorganization of the city. Only a form based on some unit of human scale can have any meaning in weaving the urban pattern into a united whole. The scale is, therefore, man's walking pace – more the child's. The elements in a neighborhood depends on the daily needs of a child, the mother, and the family. Clarence A. Perry suggested a neighborhood of five thousand to six thousand people developed at ten families per acre. With this type of development, no child walks a distance of more than one-half mile to school. After several decades of trial and error, most architects and planners consider that a population between three thousand to eight thousand inhabitants is large enough to assure efficient operation of a neighborhood. In an urban area a population of ten thousand to twelve thousand people is thought not undesirable.

The concept of elementary school as the nucleus of a neighborhood is also valid in densely populated area. However, just as it is unrealistic to build a school in the dense area near the core of the city where basically the population is adult, it is unrealistic to ignore existing school facilities. To a large extent those existing schools determine the pattern and the size of the neighborhood. In theory, the outer limit of the neighborhood is based on the child's walking distance to school. In practice, the outer limit of a neighborhood is based on this walking distance as well as the distribution and relationship of existing facilities such as churches, shopping area, clubs, and existing physical boundaries such as railway lines, major traffic arteries, ravines, and rivers.

The habits of the existing population also affect neighborhood size and shape. It is imperative that the planners "live" and "feel" the area before they plan for renewal. They must assess the existing community facilities, and know the degree to which they can be living parts of future population. They must survey the structural qualities of every building to find the degree of redevelopment, rehabilitation, and conservation required. They must analyse shopping habits. They must keep in mind the impact of future projects such as subways, parkways, and roadways. They must consider the area in relation to the city as a whole.

Man walks at a speed of three to three and half miles an hour. A child, with his imagination and energy, may skip, hop, slide, and run at five miles per hour; but in terms of a straight line covers only two and half miles. The following chart shows what this author thinks is the ideal maximum distances from the dwelling to the various neighborhood and district facilities.

Neighborhood Facility	Distance from Dwelling in Miles
Nursery School	1/4
Elementary School	1/3
Neighborhood Park	1/3
District Park	3/4 - 1 1/4
Shops	1/2
Cultural and Recreational (Interior Activities)	1/2

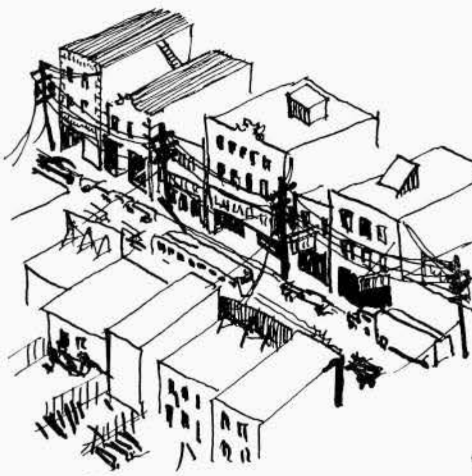
Planners cannot control the quality of people who will enter the neighborhood, but through a wise choice of density, floor space ratio, and sizes of shopping and educational facilities, they can help to ensure the desired characteristics of family groups and numbers of people. The neighborhood must be self-contained in respect to most of the daily necessities of life and in turn depend on the city for its basic employment, transportation and cultural facilities.

Neighbourhood Centres

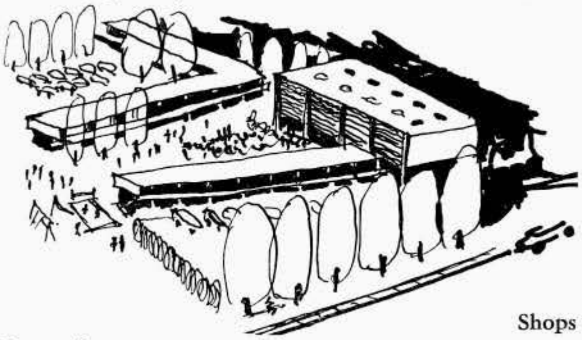
The future shopping centre must cater to both the customers who walk to it and those who ride to it. Many believe that the only successful shopping centres are those which cater to a district, and ones which cater basically to automobile driving customers. However, the experiences of many developer tell us that the neighborhood shopping centre is desirable not only for convenience but a profitable business venture for many. The following table is summary of a study done by Robert Dowling on neighborhood shopping facilities.

No. Families	Floor Area (sq. ft.)	Type
50	3,500	One general store.
250	9,500	Market, drugs, bar and grill.
500	12,000	Same as above with stationer, laundry, cleaner.
1,000	17,000	Same as above with specialty shops, delicatessen, beauty shop, bakery.
2,500	35,000	Same as above with addition of market, drugs, stationer and laundry, also restaurant, barber, florist, bowling (8 alleys).
5,000	90,000	Same as above with addition of market and drug store, also theatre (1,200 seats), variety shops, post office, professional offices, doctors, etc.
10,000	290,000	Same as above with library.

In urban renewal, the types and numbers of shops are dependent directly on the potential shopping habits of the existing population and the available existing facilities. The above chart seems too arbitrary; yet it indicates a rational relationship between the number of people in an area and the facilities to be provided. A consolidation of commercial area inward into the neighborhood is desirable. Shoe-string commercial development along main traffic routes carried over from the horse and buggy tempo of village life adds only confusion to the already congested streets. Both the pedestrian shoppers and drivers suffer from the presence of each other on the same street. Since only four per cent of retail business is estimated to come from those who drive by on the arteries, there is little to support the retention of such commercial ribbons, many of which are economically sub-marginal. Successful shops are those which are convenient and pleasant to shoppers, and those which do not add congestion to surrounding streets. In the renewed city we see the shops grouped together into a centre, integrated into neighborhood life, located inward into the residential area away from the busy vehicular routes, and convenient to the pedestrians as well as the driving shoppers.



Commercial ribbon

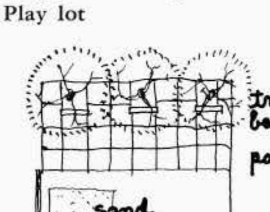


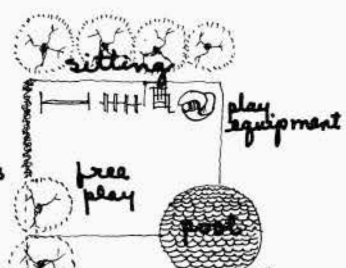
Shops grouped

Open Spaces

In the areas of detached, semi-detached, and row houses infants can play in the private backyards. In the more dense areas of multi-family residential buildings the private outdoor space is missing. Some form of play areas for children is essential. These are the smallest areas of public open spaces in the neighborhood, and in this thesis, they are termed the play lots. They are essentially places of fresh air for infants up to the age of six who are too young to be integrated with older and more active children in neighborhood parks and who still need constant supervision.

Neighbourhood park
Play lot





It is suggested that for every accommodation with more than one bedroom, twenty square feet per additional bedroom be provided for play lots. Their design must reflect the imagination and playfulness of infants. Areas of contrast – of shade and sunshine, of hard and soft surfacings, and of running and sitting – must be integrated into a single design. The location is important for play lots must be sited close to the dwellings.

The neighborhood park is the focus of outdoor activities in the neighborhood. While there may be several dozens of play lots in a single neighborhood, there would be only one major neighborhood park. It is essentially an intermediate recreational space, permitting the more passive activities of the adults – sitting, reading, horseshoe pitching, etc. – and the active play of children – swinging, see-sawing, hanging, running, wading. It is an area where people can meet people – where mothers can meet other mothers to discuss their problems, to chat, or to rest before continuing on to shops; where children can play with other children in safe, familiar surroundings learning cooperation and leadership; where old people can relax, read, play checkers, tell stories to children, or just watch. It is in other words an outdoor area, the function of which is to tie the neighborhood through recreational activities and face to face contact. The size of this park depends on the habits and needs of the particular neighborhood; but in general ten per cent of the total area in the neighborhood is considered a desirable minimum.

The playground serves the district (a group of neighborhoods). It facilitates participation of adults and older children in active sports. Some of the facilities needed are open green space for informal play; surfaced areas for tennis, shuffle board, volley ball, etc.; fields for softball, touch football, etc.; pool for swimming and wading; and shelters for protection and refreshment. To maintain life in this public open space throughout the year it must be built in conjunction with existing recreational buildings. The area recommended is a minimum of ten acres or a rate of half an acre for every thousand persons served.

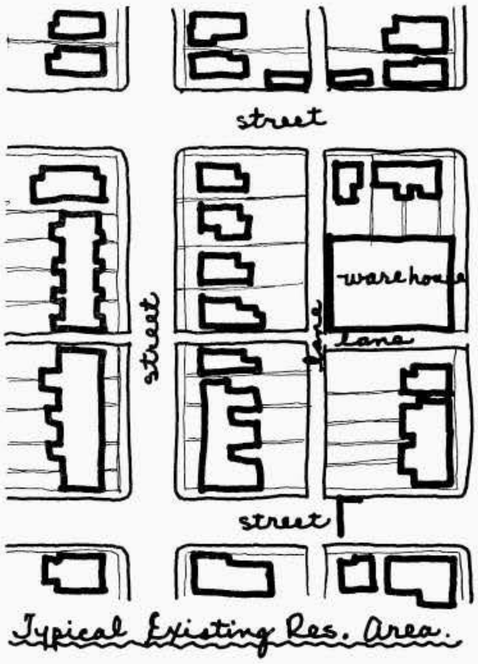
A city park serves as the words imply, the whole city. It is an area predominantly natural. It is an area for picnics, for seeing animals and birds, for hiking, and for active play. It can have a single character in the case of a small town or various forms and characters in a larger city. It can be a combination of ravines, islands, orchards and river sides. At least five per cent of the total city is desirable for this purpose.

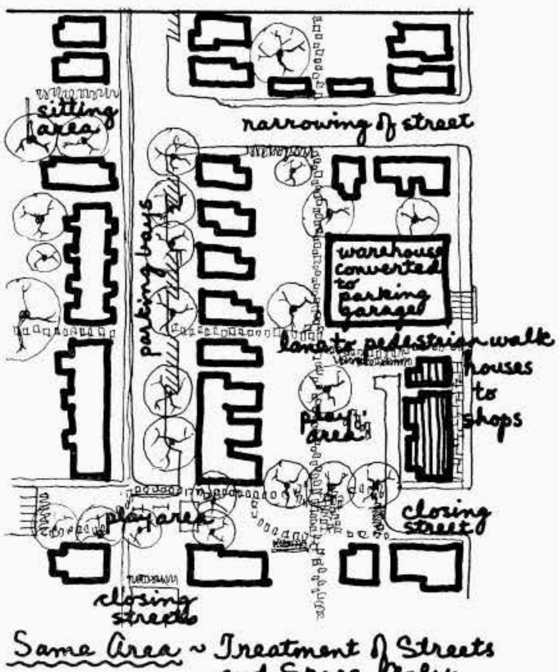
Car Parking

The constant parking problem in the neighborhood indicates a need for a greater number of off-street parking spaces, a greater care for providing parking spaces for visitors and delivery trucks, a progressive elimination of on-street parking in the rehabilitation areas and a careful relationship of parking with dwellings. Although there is no need to provide overgenerous amount of parking spaces, the renewal must insure a minimum of one hundred per cent parking, that is to say, one parking space or garage for every dwelling unit. Parallel parking along the street requires thirty feet of curb space per automobile, having taken into account twenty-two feet for the auto, and additional allowance for fire hydrant and clearance at the street corners. This means that a development requiring a parking space for one hundred automobiles will require three thousand feet of street frontage, or nearly three fifth of a mile packed tightly with cars. A row house twenty feet wide cannot manage even its own car. This curb parking is depressing visually and inefficient for maintenance and sanitation of streets. On the other hand, off-street parking space for one hundred cars will occupy a compact area little over half an acre or in terms of feet, one hundred and sixty by one hundred and sixty. If this space is carefully treated, it will not be objectionable.

General Considerations

The maximum open space and design possibility occurs when several facilities are combined together. The combination of elementary school and kindergarten offers no conflict. The combination of elementary school, neighborhood park and playground prevents duplication of facilities and increases the flexibility of space. The use of elementary school at night for adult education and indoor social and cultural activities is by far the most economical way of providing such space. The use of green area as buffer strip between residences and





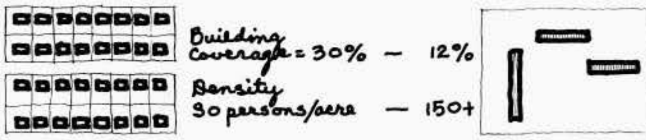
shopping centre reduces the sound level at the residences and provides a pleasant pedestrian approach to the shops.

In the process of creating neighborhoods out of existing built-up confusion, the analysis of the area in question and the land use in surrounding areas must be assessed for nuisances and hazards. Areas surrounded by immovable sources of nuisances and hazards must be re-zoned for functions other than residential.

In this age of machine and speed, we have two human scales, the walking and the riding man. Although the emphasis must be placed on the pedestrian man, the riding man must not be forgotten in the aesthetic consideration. Man as he speeds sees in montage — this and that, never in continuity. The monumentality of grand approach carried over from Victorian days has no validity. The major urban arteries should be enclosed by neighborhoods which in total appearance are soft and simple in silouette, designed to create tension of voids and masses when seen at thirty miles an hour. As the driving man enters the local streets and reduces his speed, this reduction of speed must be mirrored in the general design of the buildings. The subtle relationship of mass and voids, shade and shadow must be apparent. The protruding and the receding parts of the building must serve as scale for a new speed. When man parks his car and commences to walk, his attention is directed away from the busy streets inward onto the quiet of the neighborhood.

Density and Standards of Relationship

The physical feature of slums and blight is the overcrowding of buildings. In Toronto, the blight covers fifty per cent of the city and the slums, another ten per cent — a total of sixty per cent of the city requiring some measures of rehabilitation and partial or complete redevelopment. In these areas, building coverage of eighty per cent or more is not rare. On the other hand, human density is a moderate eighty to one hundred and twenty persons per acre. However, a desirable urban environment is possible with higher human density. A density of one hundred and fifty to two hundred persons per acre or more is not impossible. The over-crowding is not a matter of human density but of improper relationship of buildings and misuse of space.



Existing suburb — Possibility

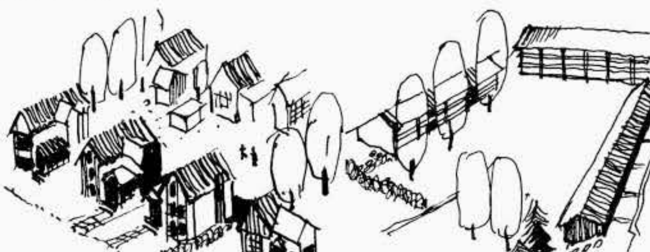
At this point, it may be wise to discuss the difference between net density and gross density. The gross density covers urban arteries (but excludes major highways), local streets, shops pertaining to the neighborhood, neighborhood parks, schools, and the net lot areas.
The formula reads:

$$\frac{\text{number of persons}}{\text{total area covered for residential uses}}$$

The net density covers only the net lot area and its formula reads:

$$\frac{\text{number of persons}}{\text{total area covered by residential lots}}$$

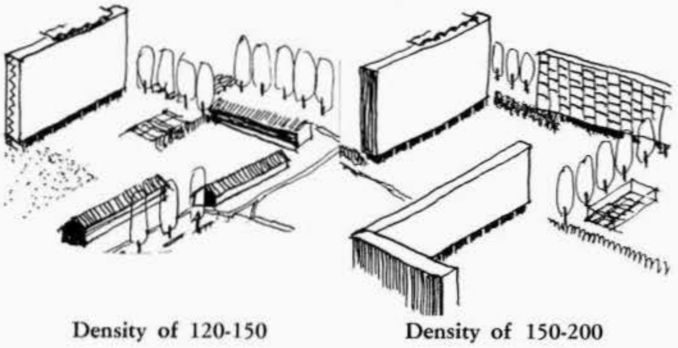
The use of gross density is most effective in the implementation of plan for the whole city. It does not fix future realities, but it prepares for and directs a balanced future growth. Its virtue lies in its singleness of formula and its ability to allow for flexibility within a broad limitation. Since the needs of every city and every sector of a city differ, the gross density must be varied to offer diverse accommodations. The net density is applicable in the implementation of short-term plans. It is only effective when the planners understand the potentialities of the areas, and the full implication of the final three dimensional realities. It is more rigid than gross density in the distribution of urban dwellers, therefore, only applicable for shorter span of time, to be altered every five years to meet new demands.



Density of 35-60 — Density of 60-110

A net density of twenty to thirty-five persons is a density applicable to suburban areas and some sections of towns, but rarely practical for larger urban centre. A net density of thirty five to sixty persons per acre is especially applicable to residential areas of sound structure which require conservation measures and suburban areas for apartment buildings which are generously spaced.

A net density of sixty to one hundred and ten is still essentially one to provide family accommodations. A combination of detached units, row houses, walk-ups, and flats with considerable amount of privately owned backyards are possible. A net density of one hundred and twenty to one hundred and fifty



Density of 120-150 Density of 150-200

applies to areas where a mixture of accommodations for families, single people and transient workers—of row houses, apartments, and high rise buildings—are desired. A net density of one hundred and fifty to two hundred plus is applicable at the heart of the city or in areas where visual punctuation and compact high rise buildings are deemed necessary. At this net density only high rise buildings with almost one hundred per cent underground parking can be provided satisfactorily.

Rehabilitation and Conservation

Rehabilitation is defined usually as "turning salvable areas into sound, healthy neighborhoods by re-planning, removing congestion, providing parks and playgrounds, reorganizing streets, and by facilitating rehabilitation of deteriorated structures". It involves rehabilitation of areas as well as that of buildings. Conservation is defined in the United States as "the prevention of blight into the good areas of community through strict enforcement of housing and neighborhood standards". Most cities consider conservation to mean as defined above, the maintenance of status quo. However, in an ever changing city no area can remain unchanged. The ever increasing number of automobiles, the parking problems and the constant rebuilding are threats to every part of the city. The enforcement of standards by negative restrictions cannot check the threats of decline. Conservation must include rehabilitation of area, not of structures, and the creation of neighborhoods and adequate neighborhood facilities.

Redevelopment is defined as the clearing of areas of extreme decay which have passed beyond the stage where they can be economically restored, and the rebuilding of these non-salvable areas. It is commonly and falsely understood that redevelopment is an action to be taken only in the elimination of slums. It is true that redevelopment of slums is necessary. It is also true that redevolpment should take place in areas where the changing needs of the city demands a sweeping change in land use. A new highway has its impact on the surrounding land use; a new rapid transit line and the major transfer stations affect the pattern of growth of commerce, industry, and the city in general.

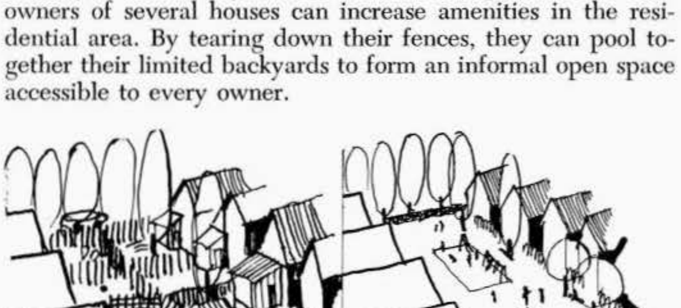
At present, most urban renewal studies and actions are concentrating only on redevelopment, often running into danger of over emphasis on this single aspect at a sacrifice of comprehensive renewal effort. Areas requiring rehabilitation and conservation action cover the greatest portion of the city; and today these areas need attention. In these areas, we deal with both the new and the old; and one of the essential problems is to make them compatible and, furthermore, to enhance each other. What we build today must be a clear expression of our contemporary way of life, but its respect for older buildings, especially those of architectural and historical value, needs emphasis. This respect is vital in maintaining the continuity of human experiences – the fusion of the past to the present and on to the future. We must appreciate the atmosphere that the past created, its psychological form, its aesthetic quality and more important, its representational satisfaction.

In rehabilitation and conservation areas, the existing buildings are the raw material to work with and the solution is to humanize them and to carve out from the formless built-up areas, meaningful entity.

The area handled must be large enough to be formed into at least a single neighborhood. When an area is designated for rehabilitation, it must be attacked on many fronts. To do this, further knowledge of the area and the buildings is necessary. A more detailed study of the structural stability – both of the interior and the exterior – the adequacy of sanitation facilities, and the potential density are essential for determining the actions on the buildings. To determine the actions on the area, several other informations are required. Traffic counts on vehicular movement should be taken on all streets to determine which streets can be closed, which can be eliminated, which can be one-way, and which are definitely essential for through traffic. The building coverage must be checked (the Fire Underwriter Atlas can give this information in a scale large enough to suit the planners) and this information can be used to determine the adequacy or deficiency of open spaces, both the public and the private. Further knowledge of the physical conditions and sizes of the existing streets, sidewalks, lanes and public utilities can aid us in determining action.

The plan must be in keeping with the concept of the whole city. Yet the flexibility within the framework of the whole must be exploited to the full in order to instil richness and balance within the unit of plan. It is the subtlety of feeling for the past, the maintenance of the good, and the creation of a new healthy compatible atmosphere that truly adds to the joy and livability of the rehabilitation and conservation areas. In the conservation area, separate ownership must be considered. On the other hand, in the rehabilitation area, ownership under one agent can be assumed as well as by separate ownership. Under one ownership a more complete rehabilitation program is possible. If no one is interested in revitalizing a certain area, it is felt that the city itself should purchase the whole area, revitalize it, then sell or lease out.

The improvement that the city can provide by its actions on public property alone is very great. The discouragement of through traffic by the closing or narrowing streets; the creation of parks and play lots where the streets once ran; the planting of trees and shrubs; the progressive elimination of on-street parking by providing off-street parking spaces and diagonal parking bays, the conversion of factories and warehouses of incompatible uses into parking garages or neighborhood centres, the conversion of vehicular lanes into pedestrian walks; the enlarging of open spaces around the schools; and the provision of pedestrian underpasses at all busy urban arteries – these, then, are the actions the city can take and add to the stability and livability of the area. The cooperation between owners of several houses can increase amenities in the residential area. By tearing down their fences, they can pool together their limited backyards to form an informal open space accessible to every owner.



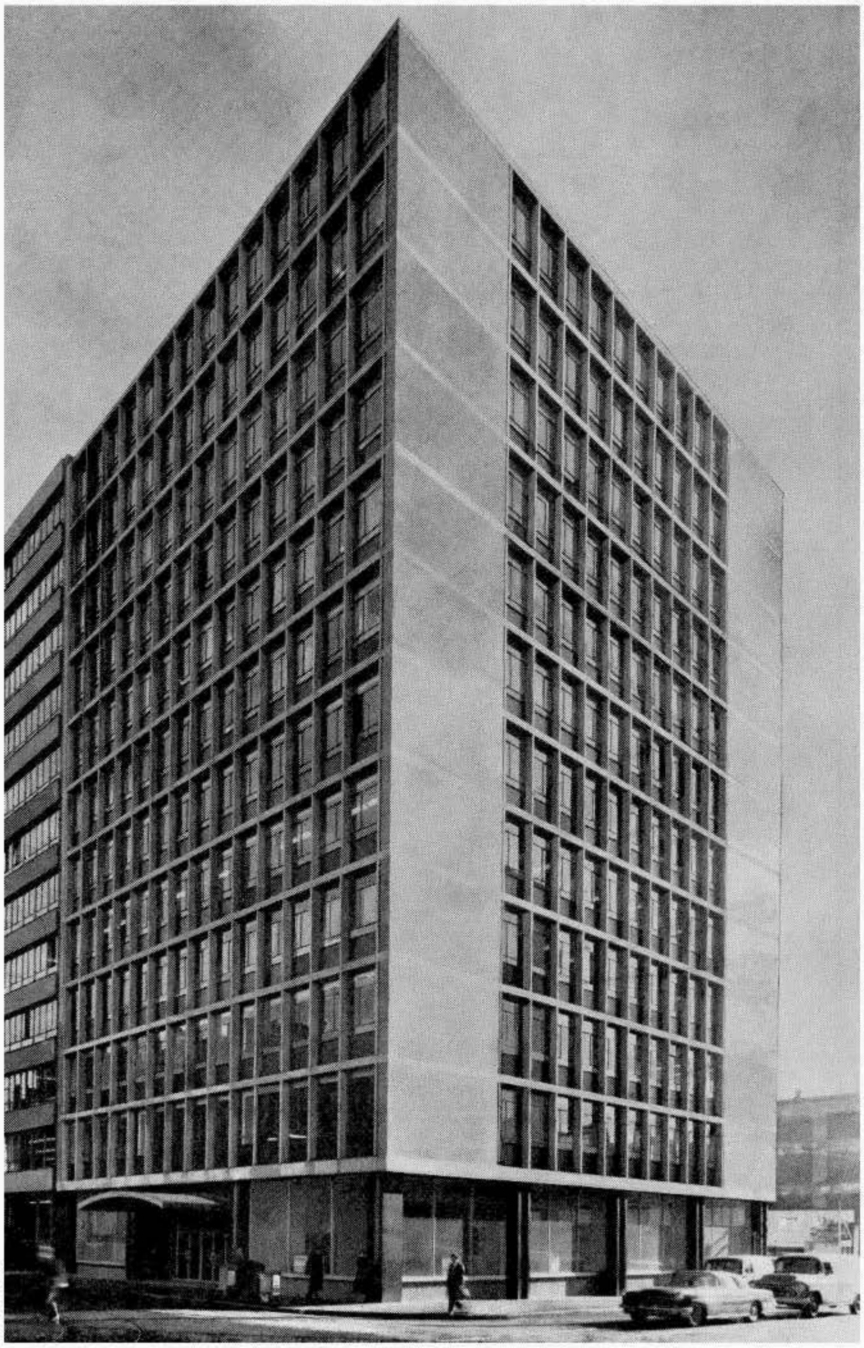
Cooperation between owners

In rehabilitation, we must remember that if it is to be successful it must be carried out in balance as part of a total renewal. We cannot, for example, close streets without putting great pressure on the other streets. The closing of streets must be balanced by a more efficient public transit and vehicular routes. Urban renewal must be total and a continual process.

MAX FLEET

Detail of Richmond Street façade

Exterior at Richmond and York Streets



MAX FLEET

OFFICE BUILDING
121 RICHMOND STREET WEST
TORONTO, ONTARIO

Architects, Bregman and Hamann
Kal Voore, Robert E. Briggs, Associates

Structural Engineers,
Farkas and Barron (Canada) Ltd.
Mechanical Engineers,
Frost, Granek and Associates
Electrical Engineers,
Jack Chisvin and Associates

The site in downtown Toronto was actually small, 75' x 91', but by careful planning a building was produced which has a net rentable area of 78% of the gross area. The public entrance to the building is by way of Richmond Street through a lobby which is faced with marble walls, aluminum doors and frames, terrazzo floors, acoustically treated ceiling and custom made acrylic dome lighting fixtures.

The building is equipped with three high speed electrically operated elevators, synchronized to handle varying traffic demands. The washrooms are finished in buff and grey ceramic tile walls with metal toilet partitions in complementary colours. The rentable space has plaster walls, acoustic ceilings and lino tile floors which contribute to a quiet working atmosphere. All lighting is by fluorescent units, which produce a minimum illumination level of 35 foot candles.

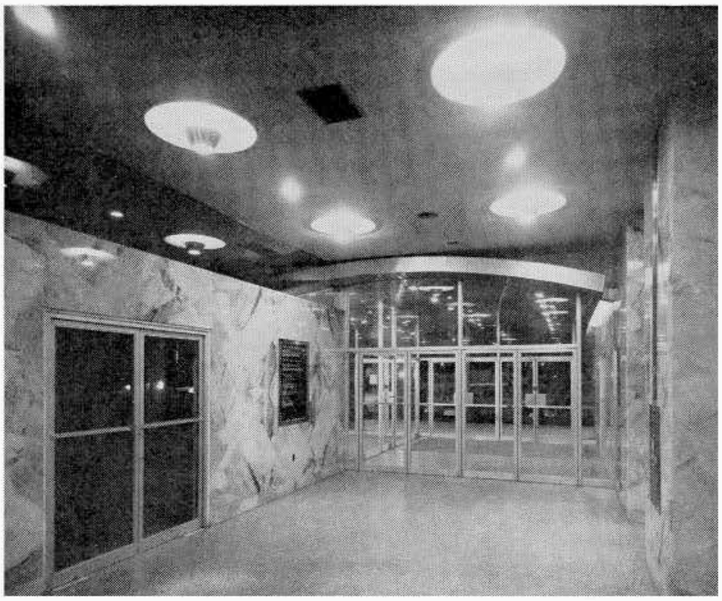
The rentable area of each floor is equipped with an underfloor duct system which carries power and telephone services. This is spaced at convenient intervals throughout the floor to allow for installing service outlets for a variety of desk arrangements.

The premises are completely air conditioned both winter and summer. Each floor has a separate interior zone supply unit, together with perimeter conditioning units which re-circulate the air within the building. In summer, warm air is brought into the interior zone unit and screened and cooled to the required temperature and ducted through the suspended ceiling and ceiling diffusers around the service core, and forced through grilles into the main office area. The perimeter units cool and re-circulate this air for a distance of approximately 10'-0" from the external wall. In winter, cold air is brought into the interior zone supply unit and mixed with the return-air, and heated if necessary and forced out as before into the office area. The perimeter units in winter heat and re-circulate this air as before. The air is exhausted by means of grilles in the ceiling of the suspended area around the elevator shaft, and released through the east wall.

The building has a structural steel frame and concrete floors. Exterior treatment is a Queenston Limestone grid based on a module of 5'-0" to allow for a flexible arrangement of tenant partitioning within. The grid panels infills are steel window frames with insulated coloured glass spandrels. The exterior masonry is pink and black glazed brick.

MAX FLEET

MAX FLEET

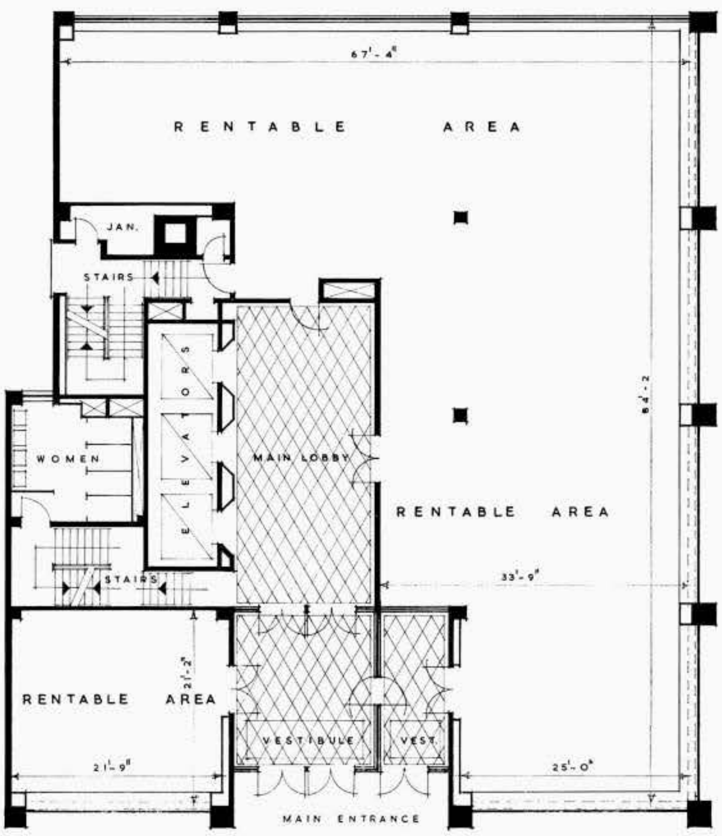


Main entrance lobby

MAX FLEET

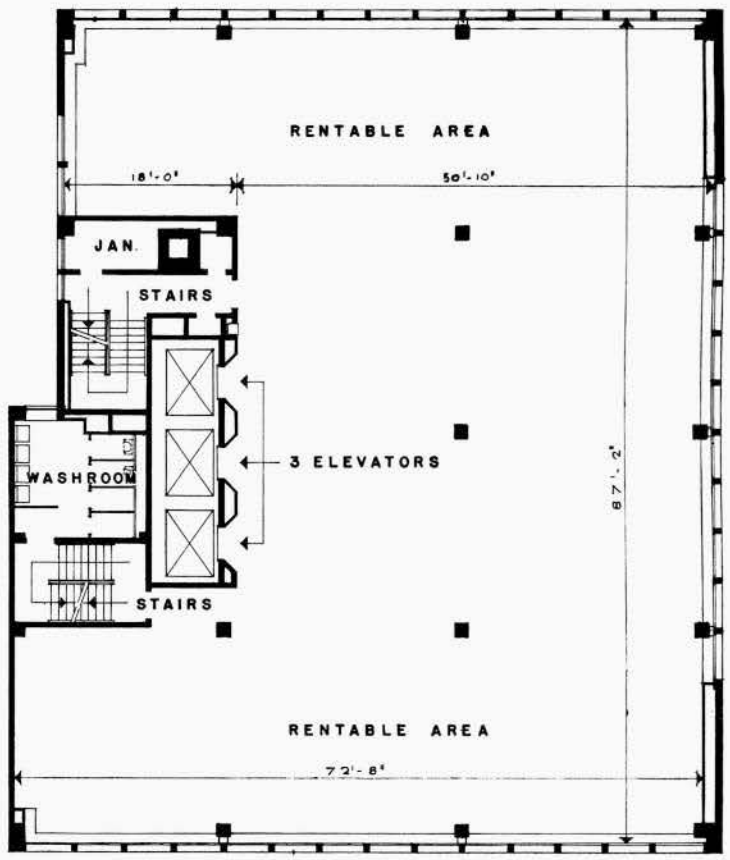
Typical office

Opposite page; night view of Richmond Street entrance



RICHMOND STREET

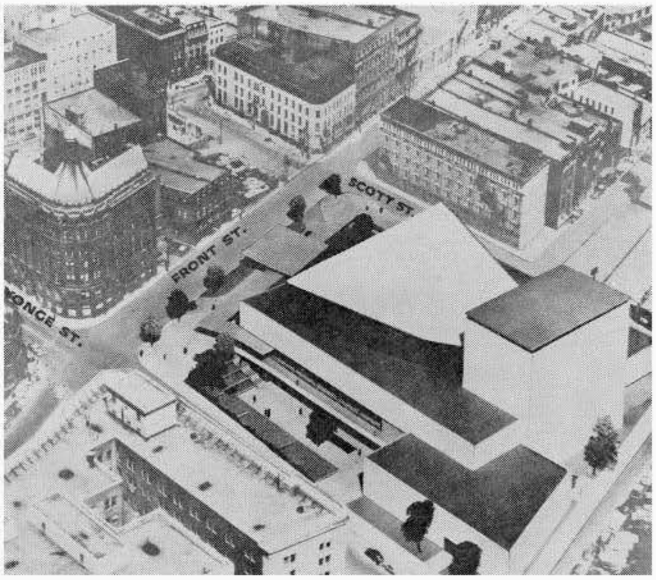
GROUND FLOOR PLAN



RICHMOND STREET

TYPICAL FLOOR PLAN

PROJECTS



GILBERT A. MILNE

Top — Sketch of the project

Bottom — T. E. Arkell, President of O'Keefe's, Toronto's Mayor Nathan Phillips, and Managing Director, H. P. Walker.

O'Keefe Auditorium
Toronto, Ontario

Some significant dates in the history of the project

Jan. 19, 1955:	*M. J. Kelly, then president O'Keefe Brewing Company, makes company offer of $10 million auditorium project.*
Feb. 1, 1955:	*Toronto City Council accepts offer, and instructs Board of Control to discuss details.*
Feb. 14, 1955:	*Proposal defined to Mayor; no cost or liability to City; project to be operated on non-profit basis by O'Keefe; to commemorate Eugene O'Keefe, Toronto philanthropist and brewer who established company in 1846.*
Mar. 19, 1955:	*Ontario Legislature passes bill allowing Toronto to expropriate land, and sell it at cost to O'Keefe foundation for auditorium. However, O'Keefe purchased all land on open real estate market over two year period without recourse to expropriation.*
Nov. 21, 1955:	*Location of site for O'Keefe Auditorium at foot of Yonge Street announced.*
May 20, 1956:	*J. B. Carswell, consulting engineer, Toronto, named project manager for O'Keefe Auditorium.*
July 31, 1956:	*Final parcel of land in two and half acre auditorium site acquired.*
Architects:	***Earle C. Morgan, of Toronto, and Page & Steele, of Toronto, with Eggers and Higgins, of New York, as architectural consultants.***
Purpose of the Auditorium:	*"To provide Toronto with a multi-purpose entertainment centre capable of meeting all tastes with the best facilities available."*
Facilities:	*A 3200-seat auditorium with the largest stage in Canada; mechanically elevated 50-piece orchestra pit; unique acoustic facilities; production, radio and television control rooms; remote controlled stage lighting; full size rehearsal hall with studio type control booths; large lounge areas suitable for exhibitions; kitchens to cater for special functions; stage proscenium and lighting bridges which adjust in size; eight star dressing rooms and dressing rooms to accommodate up to 100 chorus and cast, each with attached washrooms; street-level access to auditorium and to stage; escalators for balcony patrons; special provisions for hard of hearing and invalids in wheel chairs. Auditorium will seat up to 3,200 persons; 2,200 in orchestra stalls; 1,000 in balcony. Capacity can be reduced to 1,200 seats with appropriate adjustment of acoustics to maintain ideal conditions. No seat more than 124 feet from stage.*

Arts Building, Carleton College
Ottawa, Ontario

Architects, Carleton College Architectural Associates:
Watson Balharrie, Hart Massey, John Bland, Campbell Merrett

News from the Institute

THE JOURNAL TAKES PRIDE and pleasure in the announcement made in London on January 7 last, that the Royal Gold Medal in Architecture for 1958 has been awarded to a Fellow of the RAIC and a member of the Institute's Executive Committee.

Mr Morris is the first Canadian to have received this award since 1915 when it went to Mr Frank Darling. The recipients as a group make a spectacular company for they include among others, Sir Giles Gilbert Scott, Frank Lloyd Wright, Walter Gropius and Le Corbusier. The Medal was instituted in 1848 by Queen Victoria and is given each year to an architect, regardless of nationality, for an "outstanding contribution to the profession."

In addition to his heavy schedule as a partner in the firm of Marani and Morris, Mr Morris has acted as chairman of the Toronto Chapter of the Ontario Association of Architects, as president of the OAA and as president of the RAIC. During his term as president of the Institute he represented the architectural profession of Canada at Her Majesty's Coronation. He has also had the honour of being made a Fellow of the Royal Institute of British Architects and of the American Institute of Architects.

In a recent letter to Mr Kertland, Mr. Kenneth Cross, president of the RIBA, wrote, "I am really proud and delighted to have had a hand in all this. I believe in Canada, in Canadian Architects and in Canadian Architecture and I sincerely hope that this award, the highest we have to offer, will help your efforts and mine to bring the two great Institutes closer together."

ASHLEY & CRIPPEN

R. Schofield Morris, FRAIC
Royal Gold Medallist for 1958

CALENDAR OF EVENTS

Annual Meetings of the Provincial Associations:

Quebec, Chateau Frontenac, Quebec City, January 30th to February 1st, 1958.

Alberta, MacDonald Hotel, Edmonton, January 31st to February 1st, 1958.

Ontario, Royal York Hotel, Toronto, February 28th to March 1st, 1958.

Brussels Exhibition, Belgium (theme–"The Unity of Mankind"), April 17th to October 17th, 1958.

1958 Annual Assembly of the Royal Architectural Institute of Canada, Queen Elizabeth Hotel, Montreal, June 11th to 14th.

1958 Annual Convention of the American Institute of Architects, Hotel Cleveland, Cleveland, Ohio, July 7th to 11th.

NOVA SCOTIA

A most successful exhibition on Modular Co-Ordination was held recently at Halifax, organized and sponsored by the Nova Scotia Association of Architects. The programme included manufacturers' displays of modular materials; an exhibit on Modular Co-Ordination provided by the Division of Building Research, National Research Council; and a series of lectures and discussions led by Professor Stanley Kent of the University of Toronto and the National Research Council.

The Exhibition was officially opened on Friday, October 25, by T. H. Lusby, Nova Scotia Deputy Minister of Public Works, who was introduced by C. A. Fowler, president of the Nova Scotia Association of Architects. It was held at the Nova Scotia College of Art and activities of the first two days were directed towards architects and engineers. Invited were architects of the four Atlantic provinces and the professional engineers of Nova Scotia as well as manufacturers' agents connected with the building industry. The final two days of the exhibition were open to the general public with a special lecture by Professor Kent on Monday evening.

The first lecture by Professor Kent on Friday afternoon, was an introduction to the Modular idea, its conception in the U.S.A. and its progress in development and application up to the present day. The following lecture, which was illustrated, gave a second introduction to the Modular idea, traced the European developments of Modular Co-Ordination and gave an appraisal of the Canadian developments in the field.

The lecture Saturday morning by Professor Kent concerned Modular drafting and the practical advantages of Modular Co-Ordination on the drawing board and on the job. The final session, on Saturday afternoon was a panel discussion. On the panel were C. A. Fowler and A. F. Duffus, representing the architect; and R. E. Johnson of L. E. Shaw Limited and John Robinson of the Robertson-Irwin Limited, who represented the manufacturer. The architects pointed out that the use of a module as a controlling tool in design is not a new idea, it was used by both the ancient Greeks and by the traditional Japanese. It was admitted that there would probably be reluctance on the part of some to adopt this new technique immediately, but over the long term could see no objections to its complete acceptance. Mr. Johnson explained why the L. E. Shaw Company are changing their entire regular production to modular, beginning the first of January, and the advantages of having a completely standard masonry dimension. Mr. Robertson pointed out that the steel products of Robertson-Irwin Limited, have always been modular as a natural result of using standard steel shapes in the most economical manner.

Saturday evening, October 26, the twenty-fifth anniversary banquet of the Nova Scotia Association of Architects was held in the club rooms of the Halifax Curling Club at which the guests included visiting architects and all those concerned with the Modular Exhibition and their wives.

The Committee for the Modular Co-Ordination Exhibition was headed by Andris Kundzins and Jeffrey Cook. Publicity was handled by J. S. MacDonald and social arrangements were made by W. W. Downie and Henry Romans. Among the manufacturers who exhibited modular building materials were Canadian Gypsum Company, Canadian Pittsburgh Industries Limited, Westeel Products Limited, Fiberglass of Canada, Rusco Doors and Windows, Dominion Sound Equipment, Moyer Chalkboards, Northern Electric Company representing Wakefield Ceilings, David MacNab representing Robertson-Irwin Limited, Roper Agencies representing Williams and Williams, and L. E. Shaw Limited.

QUEBEC

There is a delightful story told about an Indian chief on the Caughnawaga reserve who was interviewed each year by Montreal newspapermen for his opinions on future weather conditions. The accuracy of his prognostications every October impressed the newsmen so very much that they decided to ascertain if his skill as a forecaster was acquired by a study of heavenly portents or inherited from tribal folklore. To their amazement the Indian chief said that he always took a look at Joe Leblanc's wood-pile – if it was a heap big wood-pile – then he figured it would be a long and bitter winter. Perhaps some people who take a Forward Look base their conclusions on some such hunch or other. You, dear reader, will be the judge in this instance.

During the past year we have been favoured with an unparalleled programme of expansion in the building industry. This year the Forward Look may not mean a bigger and better version of the present mode. Rather may we expect a levelling off in building activity in Quebec and in most other sections of Canada. If the Forward Look really proves to be period of adjustment and consolidation then we may expect certain stresses and strains to become more pronounced. Recently we have experienced labour troubles in Montreal, a rare incident indeed. The Bid Depository system is having organizational pains, bidding practice seems to be extremely keen and there are still some pockets of slow delivery in material and equipment. These are probably some of the symptoms which indicate a need for adjustment.

As architects we should encourage any steps taken by the industry to alleviate these maladjustments. Certainly it is in the broad interests of the community and of the building industry in particular to achieve stability. A bill will be presented to the Legislature at Quebec by the Builders Exchange which is designed to promote more stable working conditions in the building industry between labour on the one hand and management which will be represented in this instance by the Builders Exchange of Montreal. If we continue to expect contractors to provide firm competitive bids then the cost of labour and material must be set at a predetermined level from year to year. If competition is such that quotations are imprudently low or costs fluctuate widely then the chain reaction can have serious consequences throughout the industry for labour, the material suppliers, the sub-contractors as well as architects and consulting engineers. In turn the work suffers and the client usually ends up with an inferior job. May we hope that the Forward Look will be a garment that contains no shoddy material or workmanship but is a well-tailored job to suit the clients' needs.

The Forward Look would not be quite complete without a word about our President-elect Mr. Gerard Venne of Quebec. By nature he is cheery and vivacious so that articles with more wit and wisdom may be anticipated during the coming year.

H. A. I. Valentine
President P.Q.A.A.

ANNOUNCEMENTS

Frank W. Moore, B.Arch., MRAIC, has opened an office for Architectural Practice at No. 3 Kernaghan Building, Prince Albert, Sask., phone RO. 3-7103.

The Council of the Province of Quebec Association of Architects entertained the Past Presidents and the newly elected members of the Association at a dinner on November 4th, in the Rose Room of the Windsor Hotel, in Montreal.

This event, inaugurated three years ago, has become an important yearly affair and was attended by about 200 members and 12 Past Presidents. There were 66 newly elected members. Each presented himself when his name was announced by the Secretary of the Association and received his Diploma from the President of the Association.

The Medal of the Royal Architectural Institute of Canada was presented by Mr. Payette, Honorary Treasurer of the Institute, to Mr. Jean Gareau. Mr. E. C. S. Cox, President of the Ontario Association of Architects, delivered an address on Professional Ethics. His address was very timely and much appreciated by those present.

Edward J. Turcotte, Montreal, Que.

The *Journal* was pleased to receive notice that Mr. Lane Knight had been appointed President of The Master Builders Co. Ltd., Toronto. Mr. Knight is known to readers of the *Journal* for his occasional, and always readable, articles on concrete or mortar, and to many architects, throughout the country, for his persuasive presentation of the products of his company.

Here, in the east, many of us know Lane Knight as a friend who has done as much as anyone to bridge the gap that once existed between the architect and the construction industry. For many years, he has accepted the often thankless task of organizing the exhibitions of building materials and techniques that are so lively a feature of the Annual Meetings of the OAA. and the RAIC. We know him well enough to be sure that his new eminence will, in no way, dampen his enthusiasm for our annual exhibitions, or lessen his enjoyment of the society of his architect friends.

E. R. A.

The *Journal* has received the following notice of the appointment of **Mr. Warnett Kennedy,** MRAIC, ARIBA, as executive director of the Architectural Institute of British Columbia. As the communication suggests "this is believed to set a precedent for the profession in Canada."

Victoria – Appointment at the annual meeting here last week for the Architectural Institute of B.C. of Warnett Kennedy, MRAIC, ARIBA, as executive director of the Institute is believed to set a precedent for the profession in Canada.

Mr. Kennedy has resided in B.C. since coming from Britain several years ago.

In his new role Mr. Kennedy will determine how the Institute can help other organizations in the province, either personally or through other AIBC members. Such bodies will include allied arts and technical groups, business, government, service clubs, the construction industry, town planning commissions, etc.

He will arrange speaking dates for Institute members, public lectures, exhibitions, etc.

Press contacts will be established and material supplied for publications such as the *Journal of Commerce Weekly,* AIBC official organ.

Competitions will be promoted for public buildings.

Mr. Kennedy will investigate and, if possible, promote a new building to be known as The Architectural Institute of B.C. Building Material Display Centre.

His duties for relations within the Institute will include: Investigation of members' complaints; consultations with J. Gould, Institute lawyer; liaise with Institute officers on matters pertaining to charter or bylaw alterations; RAIC group insurance; budgeting; interviewing applicants for membership and other callers; handling advertising; etc.

He will liaise to expedite correspondence with Executive-secretary R. B. Deacon, who will continue to be responsible for running the secretarial office including such duties as bulletins, agenda and minutes, records, seals, bookkeeping, etc.

The new executive director will assist AIBC Council in formulating policies and implementing its decisions but with official matters remaining the prerogative of the president and council.

POSITIONS WANTED

Capable Ontario Architect with varied experience in design, working drawings and job control interested in responsible position. Reply care of the *Journal RAIC*, 57 Queen Street West, Toronto.

English A.R.I.B.A. qualified London 1940 extensive UK experience and at present in private practice in Cyprus emigrating to Canada late spring 1958 seeks senior appointment in established private practice with view to later partnership or senior staff appointment with industrial or commercial organisation. Reply care of the *Journal RAIC*, 57 Queen St. West, Toronto.

ERRATUM

It is with regret that I have to say that we received insufficient material in regard to the Honorary Degree which Mr. Percy E. Nobbs received at McGill University on October 7th. Mr Nobbs received the Honorary Degree of Doctor of Letters, and was presented by the Director of the School, Professor John Bland.

Editor.

VIEWPOINT

To what extent should an architect assist a fellow architect in a project similar to one he has completed . . . to what extent should he divulge information without remuneration.

In the interests of the public and the profession an architect has an obligation to perform and if assistance is required it is my opinion that the profession should provide the help needed. I am opposed to giving information in general conversation, and consider that any assistance given should be on a formal basis of which remuneration forms a part.

For one architect to consider seeking assistance from another would indicate that the problem is of real importance. Accepting this assumption then, a formal request for consultation should be adopted, which would provide a degree of protection for both parties, and remuneration (token or otherwise) should be arranged. There are, however, qualifications such as:

(a) If the request deals with topographical conditions or characteristics peculiar to the location, then I feel the exchange of information can be made by letter without remuneration.

(b) If the request deals with a technical problem, and is of a nature that does not entail divulgence of knowledge that would be detrimental to the owners of the initial project, then I consider a formal consulting agreement should be entered into.

(c) If the architect seeking advice is not known his professional standing should be investigated.

C. D. Davison, Halifax, N.S.

"Service before self, he profits most who serves the best" is a slogan of Rotarians, that is just as applicable to the profession of architecture.

The members of the architectural profession must be broad enough in concept to put the good of the profession ahead of the individual. A dog in the manger attitude hurts no one but the dog. Generally this does not apply to architects, because their basic training in university is one of constructive criticism and is so deeply rooted that one is always willing to divulge information that will help a confrère. This attitude increases his stature not only in the eyes of the profession, but of the public as well.

Humility is a great asset and we must never forget that the architect is the servant of the client, who is entitled to receive the best architectural service possible. If an architect, on being approached, can take time to assist his competitor, he may in the process add to his own knowledge, besides having the inner satisfaction that comes to most persons, when they do a good deed. Never as a struggling young architect will I forget a leading local architect saying: "Mac, never hesitate to come to me for advice if I can help you, and save you from some of the pitfalls I have experienced." It is to be hoped that this attitude will always prevail in the profession.

Remuneration should depend on the assistance rendered. Architects from my own experience have never made a charge for an exchange of normal information or consultation. However if more extensive assistance is rendered, such as use of drawings and data on buildings being altered or added to, which will save time and office expense, it is only right, even if the helping architect does not or is reluctant to render an account, to pay him for the service.

L. Y. McIntosh, Fort William, Ont.

The limit of exchange of information between fellow architects has surely been for many years and presently is largely contingent upon the meaning of the term "fellow" architect. If "fellow" means a personal friend or just an acquaintance, the amount of information divulged varies directly with your personal interpretation.

The most sought after and given knowledge may vary from giving your personal experience with contractors and applicators or the various new materials and equipment, to the reasons for your choice of a particular method of construction. You may even disclose the comparative costs of alternative construction and technical data on materials used and the merits and limits of products based on your experience. Beyond this point it would seem that an architect who may have spent much time and money on research is "giving away" information.

It is regretable that we have such a nebulous arrangement at the present for the interchange of information and needless to say it would be of great benefit to the strength of the profession to have at least a pool of case histories to which we could refer.

Langton G. Baker, Toronto, Ont.

Assistance to a fellow architect on a project similar to one on which you have already had experience can only be decided upon by the individual after he knows the particular problem.

My first reaction is to offer a confrère whatever help he may need. I have always felt this way and I would not hesitate to lend sketch plans if they are of a public building type, such as hospitals, colleges, or schools. When industrial work is involved or buildings for clients in competitive fields, then the architect must use his own judgment and generally, in this case, sketches would not be offered. The enquiring architect, however, would still be welcome to advice.

If he has a consultant in mind, he will generally say so, then the remuneration question is settled. Otherwise, I would not consider personal gain as I feel that a fellow architect is a neighbour who is entitled to the benefit of my experience.

Robert P. Fleming, Montreal, Que.

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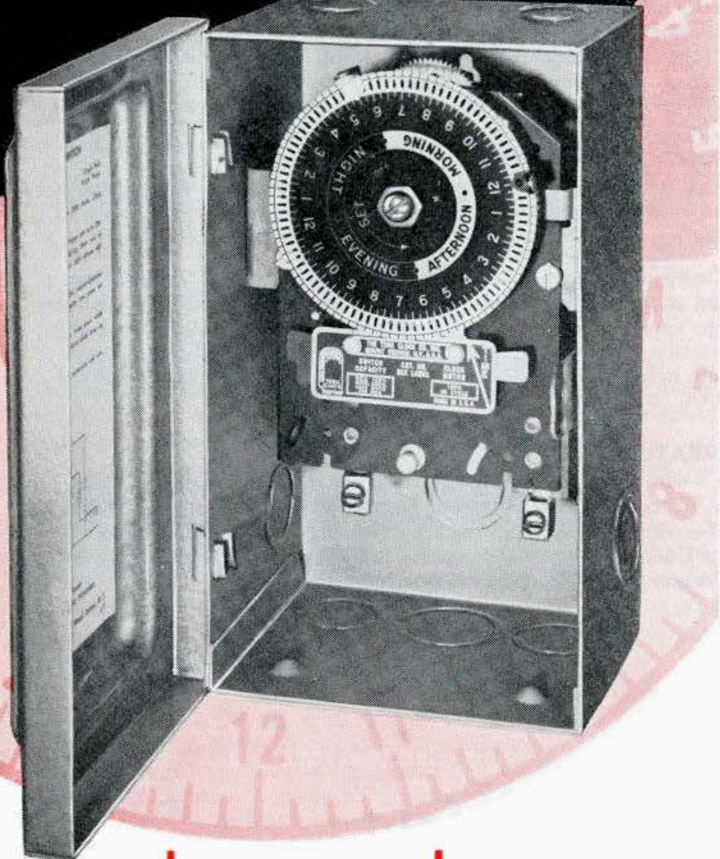

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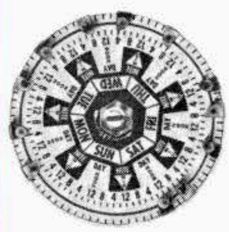

SEVEN DAY DIAL
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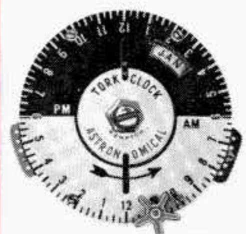

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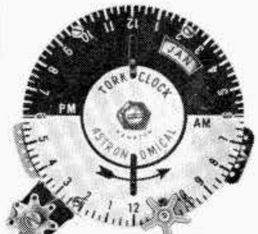

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