

RAIC JOURNAL

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EDITORIAL

WHEN WE WERE CHAIRMAN of a Provincial School Committee some years ago, we received our terms of reference from the Minister of Education. We took him to be a man of very conservative views — in fact, he is now the leader of Her Majesty's Loyal Opposition — and it was therefore, with great interest, that we listened to his observations on school buildings. It must be remembered that the year was 1945, schools were two and three storeys high, art was frequently taught in the basement, and the exterior was usually in either the classic or the gothic mode. Our first surprise arose from the Minister's reference to a school of glass in Iceland. He had admired it, and wondered why architects, in one country, thought of schools in terms of light; while others, in a different country, thought of them in terms of stone and bricks. He had a particular reason for asking because he saw the solution to the school problem of the future only through light construction and—impermanence. We are only now beginning to realize the dimensions of the situation which he foresaw quite clearly. What the dimensions are for Canada in numbers of desks and millions of dollars, we have no accurate knowledge; we are acutely aware of a certain university which may grow to thirty thousand in a decade.

Already, the press is asking where the millions will be found. In thinking about the cost, we do so with an uneasy conscience. Mr Drew saw prices rising and asked for a cheaper school. We not only failed to provide such a school, but we probably produced a more expensive one. He asked for extreme flexibility, and we presented him with rigidity. It so happened that at the time we hailed the one storey school with evidence of its merits from Houston, Texas to Colchester in Essex, we ran into rising costs and rising notions of "essential" pedagogical amenities. In fact, so expensive has the school already become that, like the improvident home-builder, no money is ever left for landscaping. It was our Minister's view that the next decade would see greater changes in educational methods than had been seen in the previous fifty, and that, to provide for such a contingency, maximum flexibility in planning should be a prime consideration. The factor of obsolescence is a modern one less to be feared in the school than in the apartment house and office building, but none the less real. Public schools exist in England that are several centuries old, and, in houses and other buildings, age is counted a merit to be exploited in the advertising pages of *Country Life*. It is not so in North America where houses, offices and apartments and, indeed, streets are permitted to decay spiritually, if not physically. There is always a movement from the out-moded to the new. Such a tendency immediately raises the question "Why then do we build, for centuries, buildings with an active life of but twenty-five years?"

A question that frequently faced the school building committee was the nature of the school with a life of twenty-five or thirty years. It would, presumably, be cheap, its construction would be such that classes could be enlarged or reduced depending on need; it could be easily added to, and its maintenance would be so low as to justify the economies represented by the capital cost. It goes without saying that, in the hands of an architect, it would be aesthetically pleasing. In the opinion of this writer, it also goes without saying that some future committee will be forced to produce such a school. It should be sitting now.

The Editorial Board regrets extremely that Professor Burgess of Edmonton feels it necessary to give up his membership on the Board. Whatever he wrote in the *Journal* was read, and that, in itself, is a compliment which all writers of articles or editorials envy. For as long as we remember, Professor Burgess was the faithful and interesting writer to the Provincial Page from Alberta. Indeed, that page has had many vicissitudes (not the least of which was its loss of name), and its continued existence under Institute News must be largely attributable to the loyalty of Professor Burgess.

As a very, very slight token of their appreciation of his devoted labours on behalf of the *Journal*, the Board has asked Professor Burgess to be their guest at the Annual Assembly. Every reader of the *Journal* will be delighted to know that he has accepted, and is well enough to attend.

journal

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THIS IS YOUR JOURNAL

IT IS VITAL to the Royal Institute that it be successful. The Institute believes that every member of the RAIC should consider himself a partner in its publication and do everything in his power to assure its continued success.

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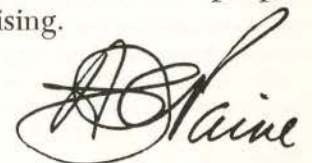
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You are asked to continue studying the advertising and, wherever possible, specifying materials advertised. It is well to remember that the success of the *Journal* depends in no small measure on the people who trust us with their advertising.



Earle G. Meyer

Eric Arthur

"It is no accident that the quality of a civilization stands revealed in its architecture. Few activities intersect so many aspects of daily life. Buildings spring from the very roots of social needs, aspirations and capabilities. They reflect inevitably the underlying conditions imposed by time and place. They disclose the purposes, preoccupation and susceptibility of those for whom they are built. They clearly reveal the varying degrees of technical knowledge, resources, skill and imagination commanded by their builders. Buildings become, therefore, tangible symbols of the societies which call them into being, and architecture provides a telling measure of a people's capacity to fulfill its highest vision."

THIS DEFINITIVE STATEMENT was written by Turpin C. Banister as the opening paragraph in an impressive and most readable two-volume report of the findings and recommendations of the American Institute of Architects' Commission for the Survey of Education and Registration appointed six years ago. In the same year of 1949, when this self-examination of a great profession was being organized, Canada engaged in a similar self-examination of its "National Development in the Arts, Letters and Sciences" by appointing a Royal Commission under the chairmanship of the Right Honourable Vincent Massey.

This Commission's Report was both searching and provocative in its frank appraisal of the state of architecture in Canada: "... Architecturally, the public in general has little respect for the past, is heedless of the future, and apathetic or confused about the present." This Report emphasized the truth of the statements that "public indifference produces indifferent architecture" and vice versa. "On the whole," it stated, "we have succumbed more completely than most other countries to the characteristics of this 'period of architectural confusion.'" As a result, "Canadians are still too little aware of the power of the architect to enrich their lives; they are too little conscious of mass-produced houses and characterless public buildings."

Those reporting to the Royal Commission designated one of the early basic faults of architecture in Canada as "the tendency towards imitative and derivative styles of architecture", which might be claimed as inevitable in a country without architectural roots. Public confusion and a consequent disregard for architecture, as well as some division within the profession itself, resulted. Obviously the needed "intellectual maturity" will come only when leadership and direction have established aesthetic standards whose consistency and coherence are understood, recognized and appreciated by public and profession alike. If architects today "are uncertain of the road ahead, their uncertainty, it seems, is derived from the general confusion in a society with no fixed values and no generally accepted standards."

This brief summary of the findings and observations on the state of architecture in Canada as set forth in this momentous mid-century document (1949-1951) raises a number of provocative questions: Is there a Canadian architecture? If not, should there be one? What of the past, present and future directions

of architecture in Canada? What are the remedies which will ensure the right directions for the future?

To initiate the discussion of some of those questions, let us commence by considering architecture itself. Countless times the question, "What is architecture?", has been posed, and it has been answered in almost as many ways. Usually ranked as one of the fine arts — in fact, frequently labelled "the mother of the arts" — *architecture is both an art and a science*; it is the result of the application of both aesthetic and scientific principles to the problem of shelter — shelter for living, working, recreation and the entire range of human activities. Buildings, to be good architecture, must satisfy more than the minimum requirements of existence and protection from the elements; indeed they must provide space for living — space that is adequate both physically and *psychologically*. On a recent lecture tour in the United States, William Marinus Dudok, the world-famous Dutch architect, remarked:

In my opinion, building only becomes art when it is sublimated by beautiful and harmonious space proportions, which ingeniously express the purpose and especially the cultural significance of the building. Architectural art has really but one means — proportion; the proportion of spaces and building masses in both form and color. It is not true that architecture is the most material of all the arts; as an art it is just as immaterial as any other form of art because its significance is not in its material but in its spiritual values, — namely, in how the architect has managed to express an idea in terms of spatial relationship.

The late Eliel Saarinen, in his speech accepting the Gold Medal of the American Institute of Architects in 1947, said:

Fundamentally, architecture is a human art form", the result of "the provision of all spaces where human life and work goes on . . . The architect's mission is to tune rooms, homes, towns and cities into resounding accord with the inhabitants of these places."

A third quotation, this time from Geoffrey Scott's admirable little book entitled "The Architecture of Humanism" and first published in 1914, will round out this symposium of statements concerning the essence of architecture:

'Well-building hath three conditions: Commodity, Firmness and Delight'. From this phrase of an English humanist, a theory of architecture might take its start. Architecture is a focus where three separate purposes have converged. They are blended in a single method; they are fulfilled in a single result; yet in their own nature they are distinguished from each other by a deep and permanent disparity . . . Between these three values the criticism of architecture has insecurely wavered, not always distinguishing very clearly between them, seldom attempting any statement of the relation they bear to one another, never pursuing to their conclusion the consequences which they involve.

Today, all too frequently perhaps, we hear the time-worn phrase "form follows function" quoted as the premise and the conclusion, the basic aim and the final test of good architecture. While recognizing the importance of the functional approach, the leading designers today agree that architecture must go beyond the basic requirements of efficiency and common sense economy. As Lewis Mumford affirms: "A building may be functionally adequate from the standpoint of engineering and yet be a failure from that of physiology and psychology." In transcending engineering, architecture must be human in its approach and in its achievements, contributing to the joy of living. Although the human activities which it houses are physical and utilitarian, they are also cultural and spiritual. All these activities — domestic, educative, religious, commercial and industrial — involve human standards and relationships, cultural traditions, spiritual aspirations. "To ignore these is to reduce man to his merely physical components and acts; to recognize and promote them is the distinctive task of architecture as an art." (T. M. Greene)

This emphasis on the importance of the individual in the whole creative process of architecture reflects the fundamental humanism of all the creative arts. The painter, the musician, the writer — each launches the art process by creating an expressive statement according to certain fundamental principles and in the medium of his art. The resultant art form must be seen, heard, read, or otherwise experienced by another human being in order to complete the creative art process.

Similarly, the architect aims to design a building which will exhibit maximum human significance in both use and expression, and this creative form must be *used and experienced by people* in order to have the creative art process completed, understood and appreciated. In other words, architecture should be designed both to be lived in and to be looked at: it is both functional and aesthetic in nature, fulfilling the requirements of *firmness and commodity*, and providing the element of *delight*.

The best architecture today is characterized by clarity and order in its design, by sound structural expression, by simplicity of inner spaces (the fundamental architectural commodity), by dignity of proportion and by a unity of the whole. It no longer has to struggle to free itself from the curious academicism of the early years of our century when much of the art on this continent was suffering from an eclectic "hangover" induced by too many stylistic revivals in the nineteenth century. At the same time, architecture today can aspire to greatness only as it avoids the manneristic adaptation of clichés. Too often, we detect evidence of an unthinking, uncritical acceptance of expressive motives which have been developed by the organic naturalists (the Frank Lloyd Wright disciples) or by the functional purists (the Mies van der Rohe disciples). On the one hand organically expressive use of materials, forms and patterns has evolved in harmony with the fluidity of space; on the other hand, functionally expressive use of structure has defined abstract volumes and spatial relationships. In recent years hero-worshipping adulation of these great architects often resulted in the exclusion of human values.

When manneristic adaptation manifests itself as a "fad" for form (such as the currently popular slab-like office building supported on stilts) we should immediately analyze the result: What does it mean in terms of human needs and occupancy? Is it logical? Is it the best solution to meet the human occupancy requirements? Is it therefore a form that *truly* has followed the function? Or has the architect succumbed to the "function follows form" dogma which countenances the adaptation of function within a form chosen *purely* on aesthetic grounds?

Architecture is closely related both to the geographic locality for which it is designed and the people for which it is designed. It is an expression of the period in which it is built and of the civilization surrounding it. Therefore it should not be "passed on" as a hereditary legacy from one era to another, nor should it be transplanted blindly from region to region. Both nature and humanity develop inherent differences in separate regions. These differences include conditions of climate, topography, horticulture, indigenous materials as well as sociological, occu-

pational and recreational pressures and needs. Architecture as an art transcends political boundaries and should develop in the terms of the region for which it is designed.

Since Canada includes several clearly distinguished regions, it follows that the answer to the question, "Is there a *Canadian* architecture?", must be in the negative. When one speaks of Italian architecture, or French architecture, one is referring to an art proper to a relatively small and self-contained region in which climate, topographical characteristics and natural materials are relatively homogeneous. Furthermore, down through history, the people have remained predominantly Latin in the one instance, Gallic in the other, with the result that well-defined cultural patterns inherent in their racial backgrounds have given consistent direction to their respective architectural expressions. In contrast, Canada is a vast territory embracing sharply contrasting variables in climate, topography and native materials; it does not have venerable traditions etched by the culture of a single racial stock; rather it includes many culture strains transplanted quite recently from their native soils and traditions to a land whose forms and patterns provide limitless possibilities for a new and different expression in all the creative arts.

Therefore, just as one would not lump together all the expressive architectural forms in the United States under the label of an "American Architecture", so one can hardly expect to find or develop a distinctive "Canadian Architecture". Of course, there is and always will be truly significant architecture *by* Canadians; but the real essence of architecture in Canada should be measured by its quality and calibre as architecture *for* Canadians — for people who live, work and play in various geographic regions of this great country and whose patterns of occupation, community life, social and cultural activities may vary from one locality to another.

The only way to avoid the uncontrolled spread and adoption of architectural mannerisms, or fads in stylistic appearances uniform from coast to coast, is to make the people aware of the potentialities of their own regions and to dissuade them from the illusion that *good* Canadian architecture is necessarily *all-Canadian*. This tendency for architectural mannerism to supersede common sense in the design of regional architecture was demonstrated in the 1953 house design competition conducted by the Plywood Manufacturers Association of British Columbia. This nation-wide competition was judged by regions; yet the jury could find little in the way of regional characteristics in the submissions, except in the character of the trees and the sky-lines indicated in the drawings! Furthermore, there was nothing about these entries (nor the ones submitted last year in the Calvert House Competition for the design of "the Canadian house of tomorrow") which marked them in any way as Canadian.

One of the greatest needs in Canada is good architectural criticism. Indeed, the lack of good architectural criticism is largely responsible for the lack of understanding of architecture by the general public in Canada. Unlike painting, drama, ballet and music, the architectural world has no regular criticism of its successes or failures. Therefore the man in the street has formed no habit of looking at architecture intelligently. It isn't his taste that needs educating; rather, he needs to gain an understanding of what architecture can do for him. He should learn that architecture is more than "skin-deep": that it is more than a visual composition of flights of stairs, impressive columns, picturesque dormer windows, massive stone chimneys, corner windows, horizontal canopies over windows and doors, aluminum casements, and the myriad details which comprise the language of architecture. He should be shown through intelligent critical analysis that it is the totality of effect, the pleasing proportions, the materials well used and in good scale which form the criteria for judgment. He will recognize that the whole function, structure and aesthetics of a building must be considered in appraising the building's influence on social, cultural and human behaviour.

However, as someone recently pointed out, no one is ever specially invited by the architect or by the owner to *criticize* a new building. Some dignitary may make a speech and cut a

satin ribbon stretched across the entrance; but no free tickets are sent to the press inviting it to analyze and appraise the work of art; yet this is a matter of course in theatrical and musical performances and at art gallery exhibitions. Routine press criticism, if intelligently done, would do much to help the man of the street come to terms with his man-made environment. As Dean Belluschi of the Massachusetts Institute of Technology has said: "We have taken away from the man of the street many of the established forms so cherished by his ancestors — the cornices, the cartouches and the green fake shutters — and have replaced them by stark utilitarian ones which provide little nourishment to the senses and are incapable of giving the equivalent in emotional value." Understanding must therefore replace this lack of emotional value. He draws the conclusion that "great architecture will eventually come from the receptive soil of wide, popular understanding."

While I shall not attempt a detailed criticism of individual works of architecture in Canada, a few general observations on our situation might serve to illustrate some of the ideas already presented. As one journeys from the Maritimes to the Pacific coast, regional areas define themselves geographically as well as architecturally. Certainly the most clearly defined architectural expression which has a strong regional character together with a healthy individuality of approach and design on the part of the architects is to be found in British Columbia, particularly in the Vancouver area. Elsewhere in Canada the regions are for the most part differentiated by evident influences from inherited or transplanted traditions. Far too many architects seem preoccupied with clichés of appearance and form, rather than with properly regional solutions of problems of wind, rain, sun angles, temperature extremes and the like. No part of Canada can as yet claim the development of an architectural as indigenous to its locality as that of British Columbia. Yet, it must be recognized that there appears to have been a strong west coast influence from "south of the border" which doubtless gave impetus and some guidance to this regional development. In any case, the calibre of west coast architecture as a regional expression is outstanding: many buildings exhibit a human scale and intimacy as well as a conscious awareness of setting.

In contrast, there appears to be a certain slickness of design in some of the new architecture of the Toronto area. Bigness of scale in the projects, combined with a conscious expression of the super-efficiency of a great financial and business centre has established a metropolitan architecture which contrasts strangely with the transplanted English tradition found in parts of the city. Nevertheless, the architects of this region have become proven leaders in the development and production of many fine schools, hospitals and housing developments as well as commercial structures of many types.

In Winnipeg and elsewhere in the prairie region, a number of examples of good architecture exist, each successfully solving a building type. However, there seems to be no regional expression resulting from local conditions or requirements. Perhaps the fact that almost any form can be adapted to a flat plain explains the apparent reluctance on the part of architects to solve problems on a specifically regional basis. The great extremes of climate, the prevailing winds, the flat terrain, the vast sunny sky, the limited tree growth and other regional characteristics should be as much a challenge to develop expressive building forms as have been the subsoil conditions in the development of foundation and superstructure patterns. The frequent use of excessively large glass areas underscores the

necessity for tackling the problems of heat loss in winter, heat accumulation in summer and conditions of extreme glare.

In Montreal and Quebec City, the younger architects of both French and English descent are beginning to introduce an unexpected freshness into a region steeped in old world atmosphere as well as old school traditions. Commercial impressiveness is evident in the architectural expression of the metropolitan areas.

The Maritimes, on the other hand, might be characterized as having had the greatest difficulty freeing themselves from inherited traditions which seem to have maintained a certain rigidity and unimaginativeness of character in spite of the use of contemporary methods and materials.

Finally, in Ottawa, one finds a government domination of architecture which, because of the very high proportionate rate of government patronage (not to mention all the habits of bureaucracy), has prevented a freedom of architectural expression. In contrast to some of the recent flash-backs to "ye olden days", it is reassuring to contemplate the possible results of the recent competition for the design of the National Gallery of Canada, a competition which in itself gave such a lift to the architectural horizon throughout all of Canada.

One of the major proposals of the Royal Commission in 1951, was that all important buildings be designed in *open competition*. The National Gallery Competition was one of the first immediately tangible results of this recommendation. Following its splendid example, several competitions for the design of civic buildings, including the City of Ottawa Police Building and the Vancouver Civic Auditorium, have produced designs of merit which should contribute considerably to the architectural sky line of the nation. It is most regrettable that the Alberta Government did not see fit to hold a nation wide competition for the design of the auditoria which it is going to build in Edmonton and Calgary to mark its jubilee celebrations. In Winnipeg, there is some hope, but no assurance, that the City Council will act favorably on the proposal that a competition be held for the design of a new city hall.

All such competitions not only benefit the sponsor and the participants (especially the younger architects), and frequently raise the standard of government architecture, but they also provide an invaluable stimulus to the architectural consciousness of the public.

If the general public can be brought to a lively architectural awareness, the future of architecture in Canada will be assured. We have the materials in ample abundance; we have experience in all the techniques of building; we have well-trained professional architects with ever widening experience. All that we need is an informed client. Our main job now, is to educate the public. Dr Hendrick Van Loon has said: "There is only one way to improve the taste of a nation. It cannot be done in a hurry and it cannot be done by force. It can only be accomplished by exposing the people patiently and systematically and continually to that which is truly 'good'; to that which is truly 'noble' in the sense that it deserves to be known."

The combination of understanding, appreciation and intelligent criticism will ensure an architecture not only of the people and by the people, but for the people of Canada.

The above article is one of a series "Our Lively Arts" published in the Queen's Quarterly, 1955. It is reprinted here with the kind permission of the author and the Quarterly.

Robin Boyd

WHEN MODERN ARCHITECTURE is not lounging complacently in the coloured magazines or chewing over the discoveries of its pioneers, when it is obliged to state its beliefs, or face up to a psychological problem, or look to its future, then the neurosis is most evident. Modern architecture is torn by remorse and doubt because it is still wavering on the point of renouncing functionalism, and yet has no other conviction to replace this god of its youth. Whenever it is tempted to build from the heart, and not from the head, it has the uneasy feeling that it is somehow letting the old side down. The single-minded revolutionary zeal of the early years has been replaced by nothing but a half-smug and half-dispirited slackening of the discipline. Sometimes deliberate reactions against simplicity and directness are tolerated, mostly on the pretext of reviving 'human' quality in response to calls which frequently sound more like advertisements for soft drinks than architectural criticism.

The delinquency and the neurosis of the day are not entirely due to a weakness in the present generation. The pioneers of the early years of the century may also be blamed for not having made the nature of the goal clear enough. Too often design-for-function was presented as a character, a quality of building, an end in itself; and it is of course none of these. It is an ethic and a technique, not some sort of mood or atmosphere; not something to be set up in opposition to the genre of humanism; never a substitute for creative architectural thought. It is the mould in which architecture is cast, not an ingredient.

As a technique and a philosophical basis for design, functionalism still holds the promise to direct and unite all the useful arts. The tragedy is that it is dying while still young and inexperienced. It is being discarded while virtually only one application of its principle has been investigated conscientiously, and even this one application is still so unfamiliar in the streets of most countries that the layman has not sufficient opportunity to evaluate it. Functionalism is being renounced because the first attempts to apply the principles of the functional ethic always tended in the same direction, and we are tiring of this direction. But its philosophical basis, glowing with the eternal validity of nature's own design, is bigger than any one of its possible human applications. One application suggested itself to men who were revolting against the aimless anarchy of nineteenth century eclectic exhibitionism. They saw a line of development which started with a white cube of concrete and appeared to lead ultimately to a cube of glass. This line has now been traversed assiduously, and some men, finding the end result lacking in certain qualities, and considering that all possibilities have been investigated along the line, are now all for throwing out the principles of functionalism along with the glass cube. The unforgivable oversight of Mies van der Rohe was that he did not build the Farnsworth house thirty years earlier, and so speed the investigation of the line to its conclusion. The Farnsworth house closed all investigation. It was the ultimate glass cage, made so superbly as to be a final word on the subject. Whatever esoteric pleasures may be savoured in future play with structure or proportion in variation of the theme, no one can expect the line to hold further undiscovered mysteries of

any significance.

If this present stage had been reached earlier, while the functionalist principles were still fresh, more attention might have been concentrated on achieving equal purity of conception in terms not necessarily limited to rectangles and continuous glass, in terms which might give always increasing consideration to the demands of living and environment – a more subjective, constructive simplicity for every purpose; not merely the plainness that results from the avid practice of elimination.

The basis of our present uncertainty is the fundamental error in identifying the functional method with the glass cube, and in contrasting it with the cosy cottage. The neurosis develops as we try to reconcile the familiar, austere version of functionalism with architectural expressions of greater emotional appeal. The principles of design-for-use still seem like a moral anchor stabilizing design; but now the more intellectual and sensual delights of architecture beckon us again. Should we, then, cut loose from the anchor, or continue to repress our desire for more excitement? But if this is the conflict within us it is quite unreal. For there is no need to cut the functional anchor while we explore architecture further.

Notwithstanding the confusion we are in, it is still just possible to imagine a building which could be discussed with unanimous admiration by a Wright, a Corbusier, and a Casson. No matter what shapes we build, all of us are likely to agree that one quality, if present in sufficient strength, will determine architectural merit and override such considerations as whether, in the historian's eye, the style is Cottage, International, or Baroque. The building of universal admiration would have some seemingly original and clearly valid idea permeating every part of it, unifying it with a nameless character. When present in other arts, this quality is generally recognized and acknowledged, and no one seems to find it necessary to attempt to name and define it. The work may be fitted into a generic style group, but it will be permitted its individuality of character. In our matter-of-fact architectural way, however, we like to get all the details settled in black and white; we like to tie art down to a contract specification; we still like to see all buildings in neatly labelled pigeon-holes, for we are still tied to stylism, despite all our protestations. We are at home with style, and fidgety when confronted with character. If it seems necessary today to renounce anything, we should be concentrating on ridding the movement of the identification of functionalism with the narrow range of expression so far accomplished in its name. 'Light, clean, fresh, simple' – this has become the almost universal, steadfast, emotional expression, the deadly constant of architecture. Even the more experienced critics often strike heavy weather trying to distinguish in general terms between new buildings, simply because so often there is so little difference between their architectural characters.

Perhaps the most humiliating thing is that we still use solemnly in description the word 'beautiful', which long ago was withered by parody from the vocabulary of painting. Passive acceptance of the implications of indeterminate terms of praise

such as this puts architecture in the intellectual company of the interior decoration magazines or Hollywood, where aesthetic right and wrong are defined and the prime achievement is the ability to work in the established idiom in such a way as to lull the observer to sleep. The quality most conspicuously lacking from international modern architecture is not beauty, but reality. Our buildings lack the confidence to be themselves, the strength and honesty to be what the situation makes them — ugly, if necessary, if the purpose is ugly. Architecture has accepted a sort of Hays Office emotional standard, a sophisticated but essentially chocolate-box ideal of prettiness, a timorous, sedate desire for conformity of the soul of the building. Even while the architect is planning a novel shape, or devising a new tensile structure, we can be pretty certain what the final quality will be — light, clean, simple; with an atmosphere fresh, open, uncluttered. And while this is a charming and delightful character for numerous occasions, a world of it — which is presumably the present ideal — suggests a decline which would carry architecture eventually to unplumbed depths of ennui.

The process which began with the elimination of ornament, and pressed on rapidly to the elimination of visually complicated details of construction, has passed to the stage where the elimination of architecture is in sight. Disturbed by this, many architects during the past decade have turned their backs on the goal which once seemed so desirable. No longer do they insist on a physical justification for everything. The thought grows, 'We have passed the stage of functionalism', and now perhaps we need not be so strictly simple, so grimly opposed to ornament. We can look for new devices to divert architecture from the decline. We may allow ourselves to interfere with a shape dictated by use or structure. We may return to pleasant diversions such as the play with arbitrary proportions of each flat plane.

Where will it all lead? Back to the plaster jungle of sentiment, unless we revise our attitude to architectural character; unless we reject the notion that functionalism represents one stock atmospheric type in building; unless we break our habit of confusing technique with character, and identifying certain characters with different regions and different architects. Functionalism is indeed doomed if it is taken as a substitute for an architect; if one believes that it can provide with mathematical precision the idea behind the building. It cannot present any idea. There is no substitute for creative thought. But functionalism, in ever stricter interpretation, with ever firmer denunciation of applied aids, can and must provide the discipline under which the architect's idea is worked out to its conclusion in terms of building materials.

We must be strict. A liberal interpretation of the meaning of functionalism destroys the concept altogether. It has never been unusual for an architect to imagine that he is serving purpose with the greatest possible economy. Only the purpose has varied from age to age. Early this century the definition of a building's function was finally narrowed down to the purely physical requirements of the occupants, and a new discipline tightened about this wonderfully solid, universal standard. But in our present state of vacillation, in our anxiety to explain away deviations from the cube, we are stretching the definition again. We allow that a building may serve what we call 'psychological functions', but we might as well talk of 'symbolic functions' or

'romantic functions', or 'advertising functions'.

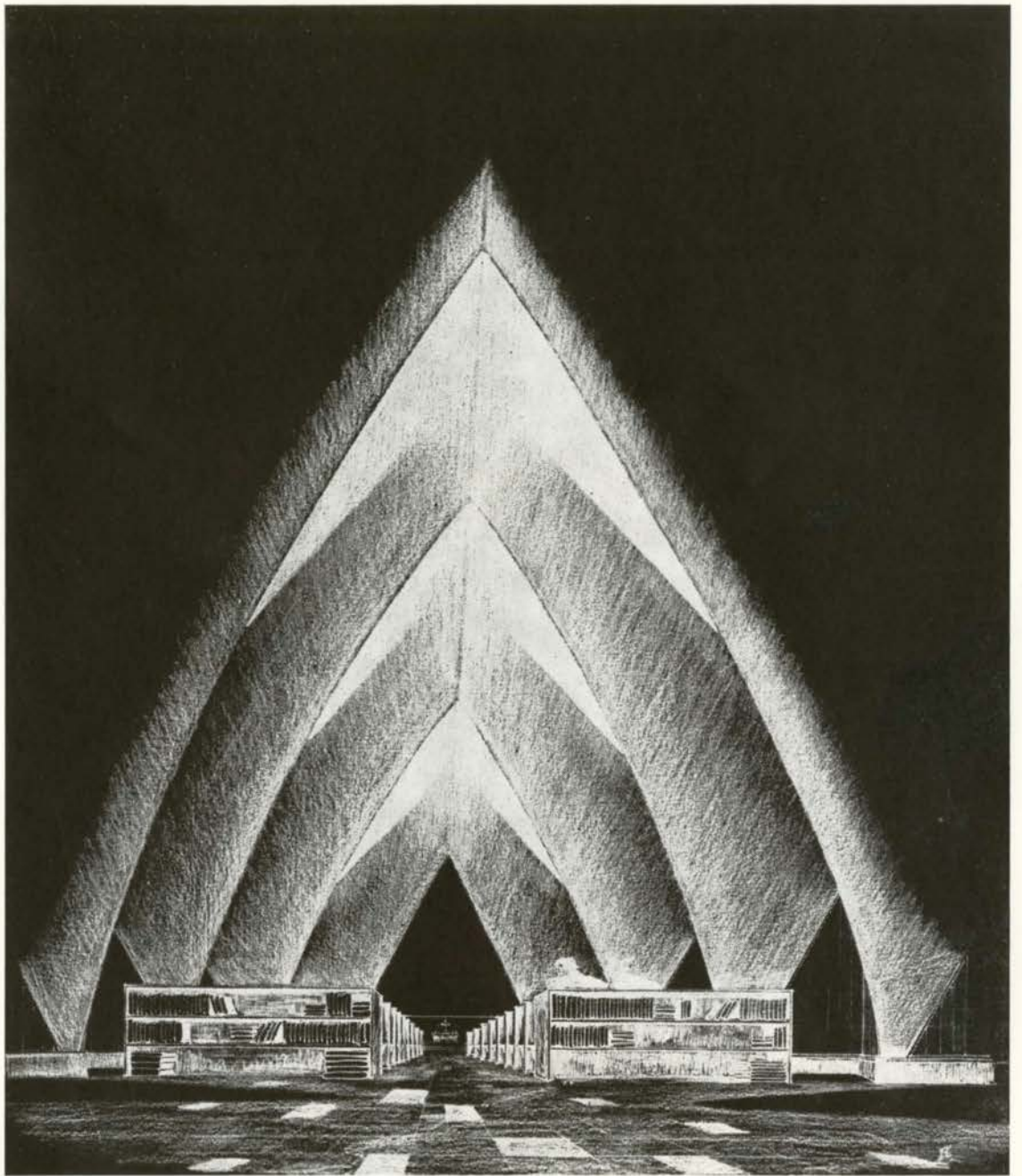
Dissatisfied with the current monotony of architecture, with 'inhuman' mechanical cages, disappointed to find so few monumental qualities, so few symbols, such numb response to any call to the spirit, we question the principle which once promised to remake the world of design. We do not dream of searching in ourselves to find why our ideas are so thin that they have let down the principle. But the fundamental weakness of the moment is here: in the low quality and lack of variety of architectural ideas. Yet a peculiarity of architecture, apart from other arts, is the scope it allows for the intrinsic theme, the operative idea. Each new building may have a theme derived from any of several different stimuli. It may be basically sculptural, as in the cathedrals or Le Corbusier, but it may be a geometrical idea, growing from any symmetrical or formal pattern; or an emotional idea, as in an introverted Wright house; or an intellectual idea of structural perfection, as in the best of Mies van der Rohe; or a mathematical constructional idea, such as a despotic module, or one of Paul Rudolf's demanding roofs; or a spatial idea; or a combination of several of these and other kinds as well. But not an idea of function. That is the mistake we make so often. The use of the building rules the entire development of the design, but it has never supplied a stimulus to fine architecture.

The basis of the original idea, however, is not of great moment. What matters is the strength of the idea, and how it is developed. What matters to the spirit of functionalism is whether the requirements of purpose are misinterpreted or distorted, or are in any way not suitably served by the idea when developed without stress or embellishment. What matters to the spirit of organic creation is whether or not the result is at ease within the laws of nature, of structure, of materials. What matters in terms of art is whether the idea is developed consistently enough to permeate the entire work. And what matters to the spirit of architecture is the extent to which the development of the idea exploits the qualities of space and enclosure.

These, however, are merely rules of technique and style — not of character, which cannot recognize rules or limitations. The essence of character is in the originating idea. If our buildings are monotonous, it is because our ideas are generally confined within a narrow range. Structure is approved as a stimulus by our unwritten architectural morality code rules; ideas based on shell-concrete or exposed steel cantilevers are always well accepted, but ideas based simply on the enjoyment of living, or springing from a sense of humour, or gaiety, or reverence, or mystery, or awe, are suspect, because we cannot bind them into a specification. They worry us; we wonder if they can be functional. Yet the question of functionalism should not enter until after the idea is formed. Then it will never let down the idea. It is never to be questioned; only our own lack of ideas is responsible for the coldness, the monotony of atmosphere, the constancy of mood, the limited range of expression in modern architecture.

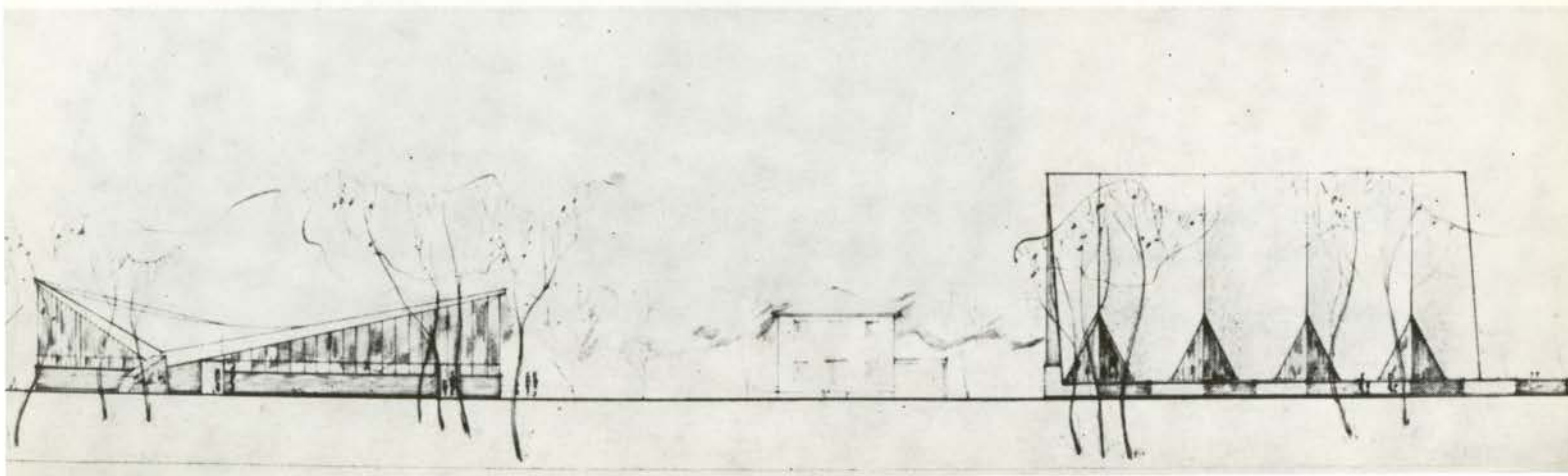
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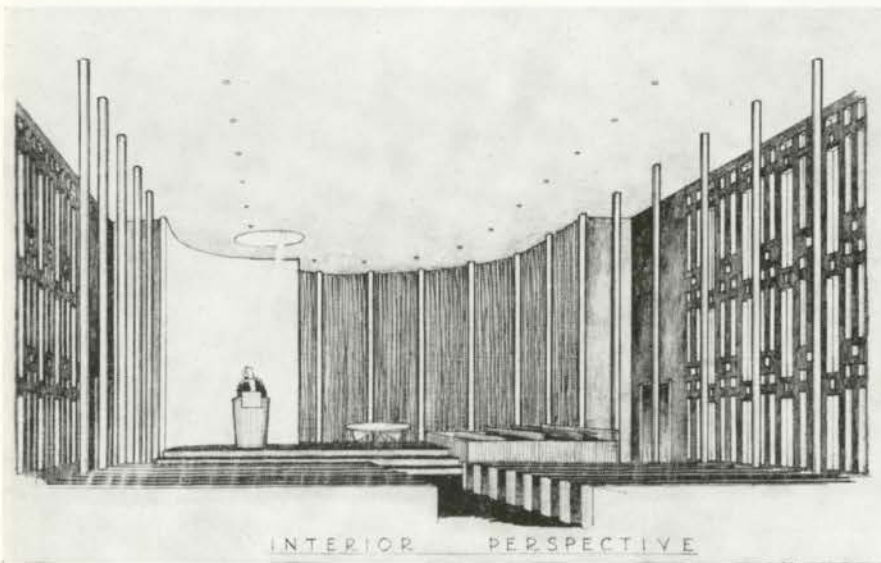
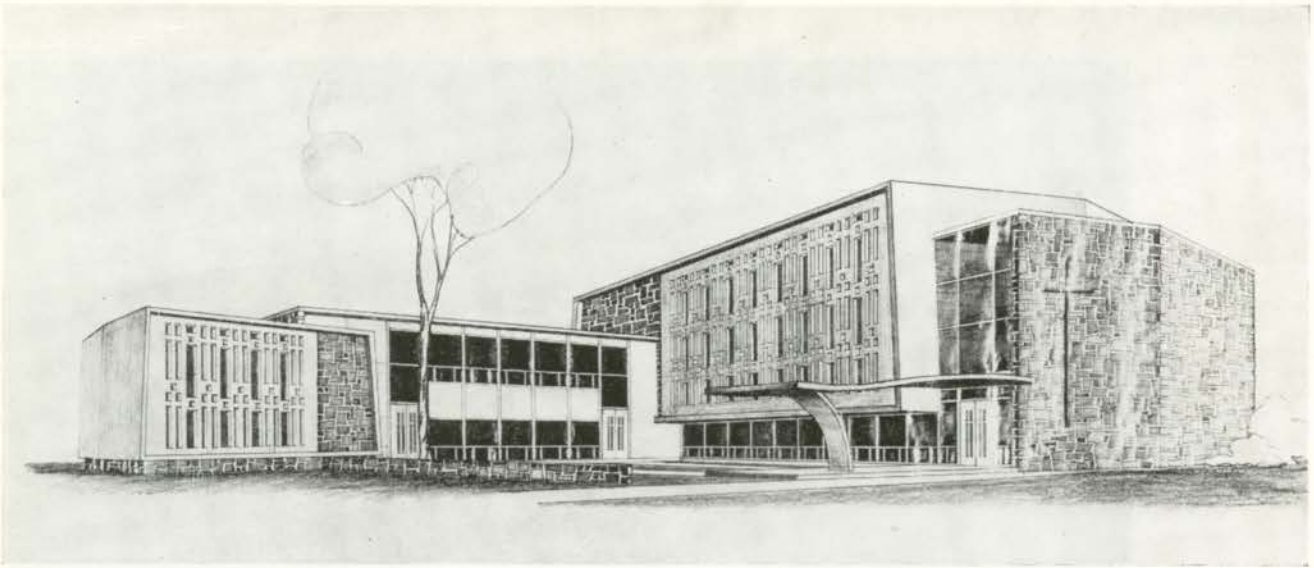
ECCLESIASTICAL



St. Peter's Anglican Church, Ottawa

Architects, Gilleland & Strutt



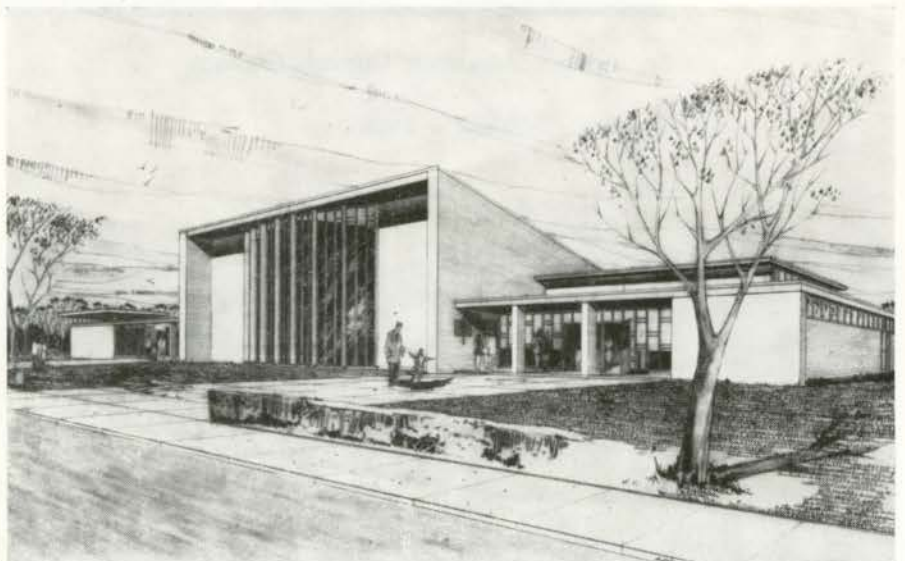


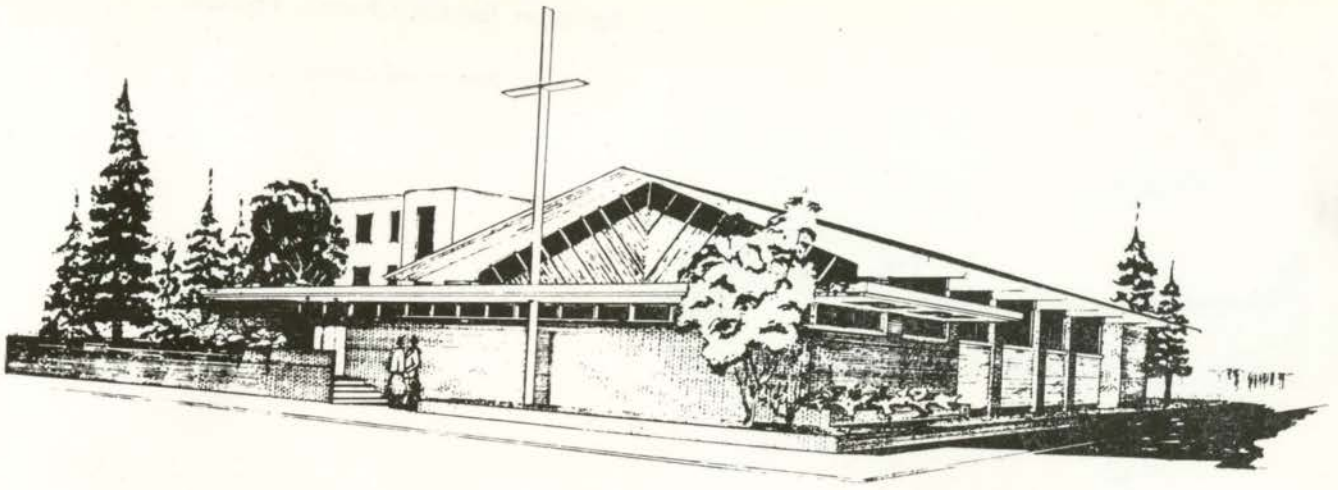
First Baptist Church, Welland

Architect, Philip Carter Johnson

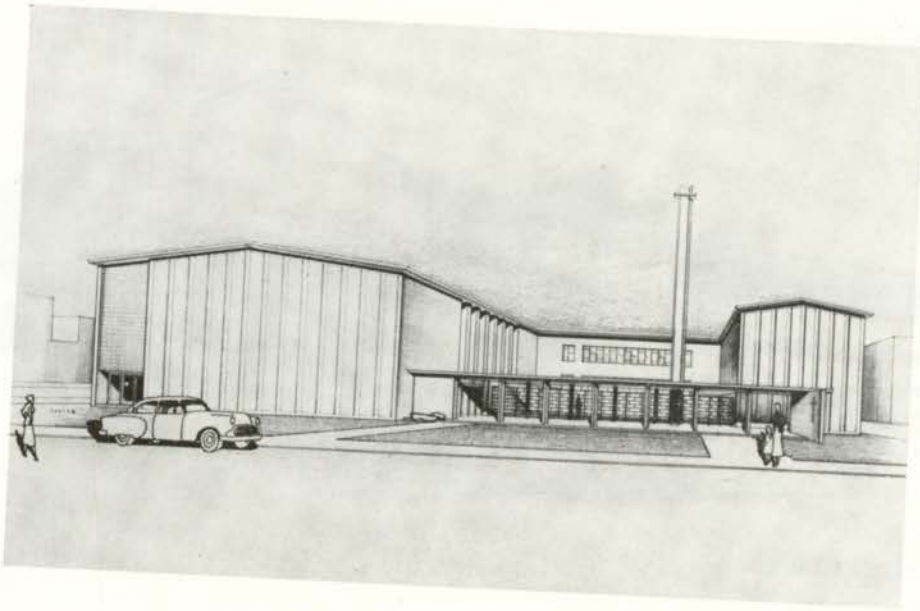
Clanton Park Synagogue
North York, Ontario

Architects, Bregman and Hamann



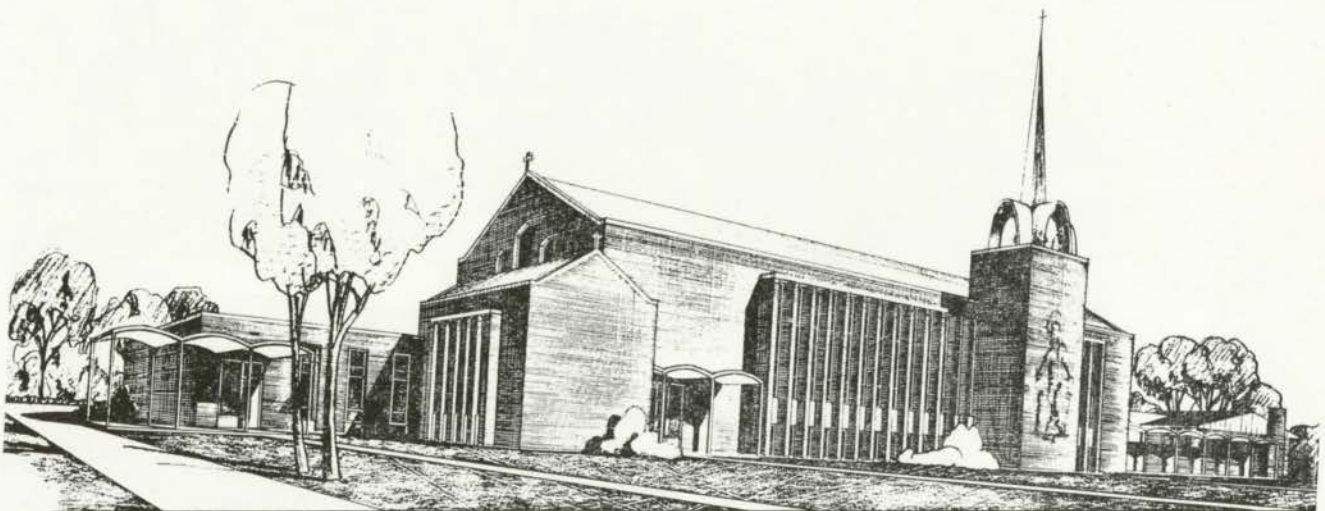


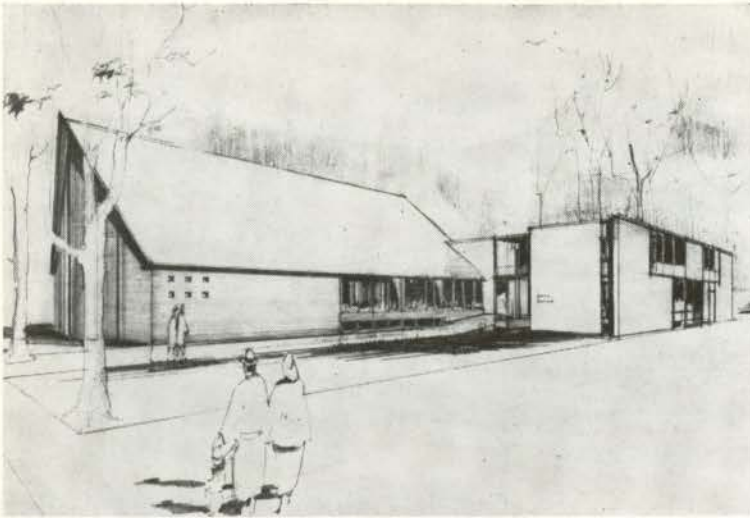
Grande Prairie United Church, Alberta
Architects, McKernan & Bouey



Woodgreen Church, Toronto
Architects, Gordon S. Adamson & Associates

Anglican Church, New Town No. 1, St. Lawrence Seaway
Architect, Philip Carter Johnson





Eglinton Baptist Church, Toronto

Architects, Servos and Cauley

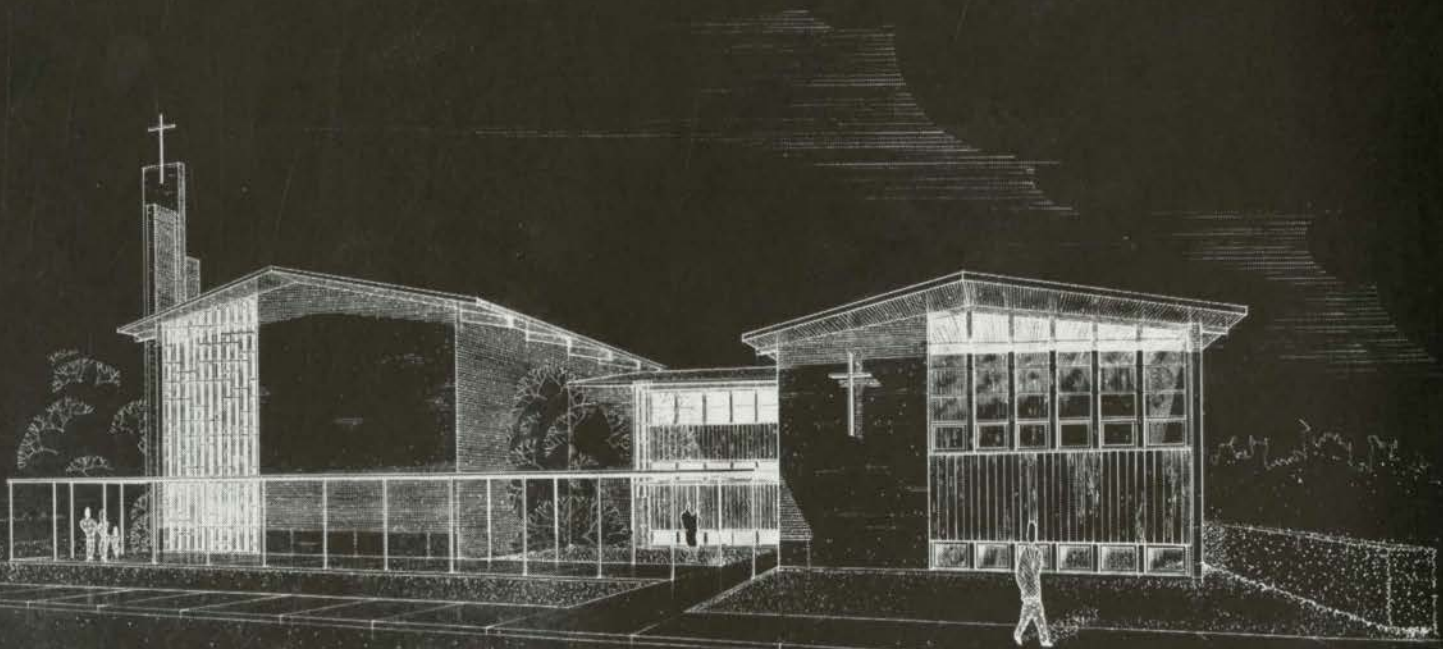
Lansing United Church, Toronto

Architects, Weir, Cripps and Associates



Church Buildings for St. Andrew's United Church
Lacombe, Alberta

Architects, Patrick Campbell-Hope and Associates

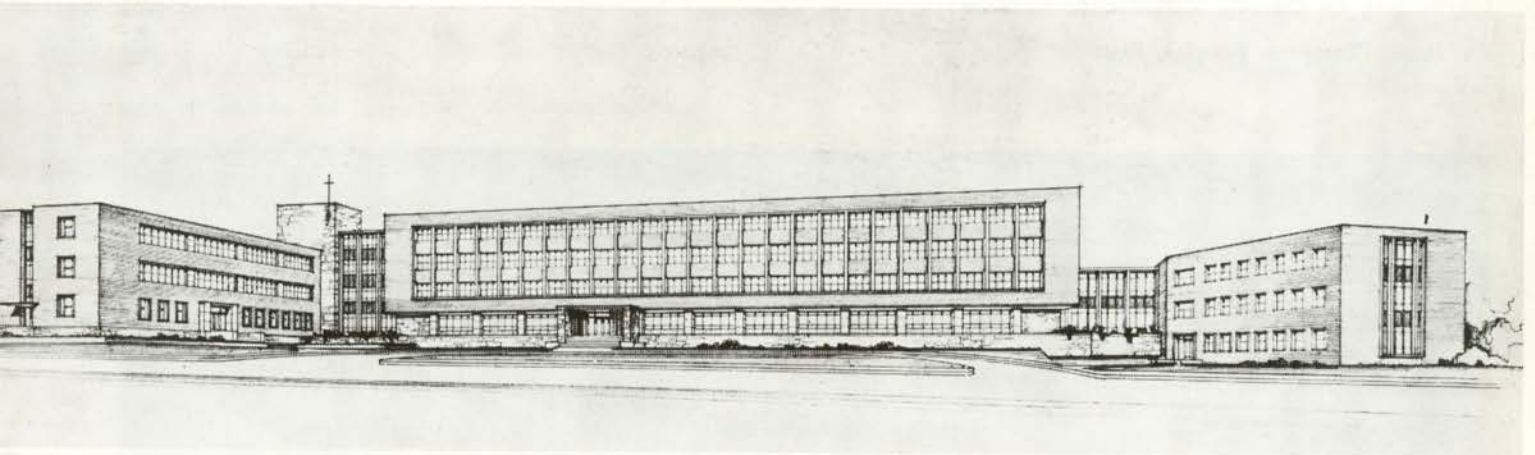


EDUCATIONAL



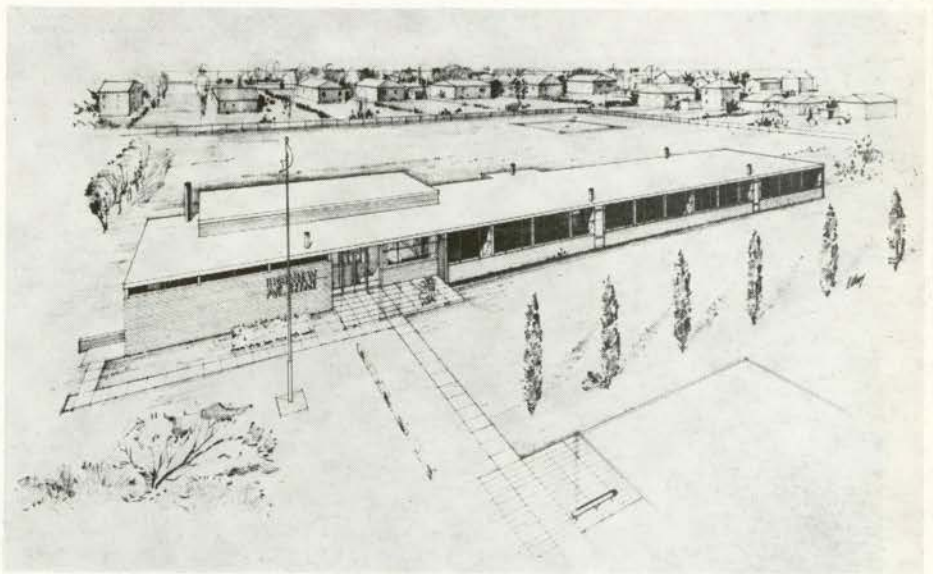
Kipling Grove Public School, Etobicoke, Ontario

Architect, E. C. S. Cox



Cardinal Leger Institute, Montreal

Architects, Larose & Larose



Highview Avenue Public School
Toronto

Architects, Weir, Cripps and Associates

The Problem

To design a structure to house the Arts Faculty and to include staff offices, lecture rooms, lecture theatres, students' lounge and all with their various adjuncts.

The Site

The treed property north of the library — between the Main Mall and the East Mall — and having in it at this time the tennis courts and the women's gym.

The Solution

After much study of the problem and our presentation of the initial concepts with revisions, the Arts Building Committee has accepted the following concept. Three units in the shape of a U around a court or piazza. The bottom of the U being the 2-storey classroom block parallel to Memorial Road, the left leg of the U being the 2-storey theatre block and the right leg of the U being the 4-storey office building.

The Detailed Plans

The Classroom Block, which measures approximately 70' x 260', has been raised off the ground one floor, this fact facilitates the flow of pedestrian traffic between the lecture block and the library to the south across Memorial Road. Above are two floors of classrooms and on the roof a small faculty lounge. The following is a table of contents.

C	27' x 35'	8	72	576
D	27' x 30'	9	63	567
E	27' x 25'	7	45	315
F	27' x 20'	5	36	180
Staff Seminar				72
Additional seats in staff seminar				20
Language room, etc. (Lower Floor)	26' x 45'			55
Additional seats for Type C room	8' x 9'			72
				<hr/> 1857

The Lecture Block, which measures approximately 100' x 120' in two storeys and parallels the Main Mall. In addition to a students' lounge, gallery, main entrance and lobby area this block contains the following elements.

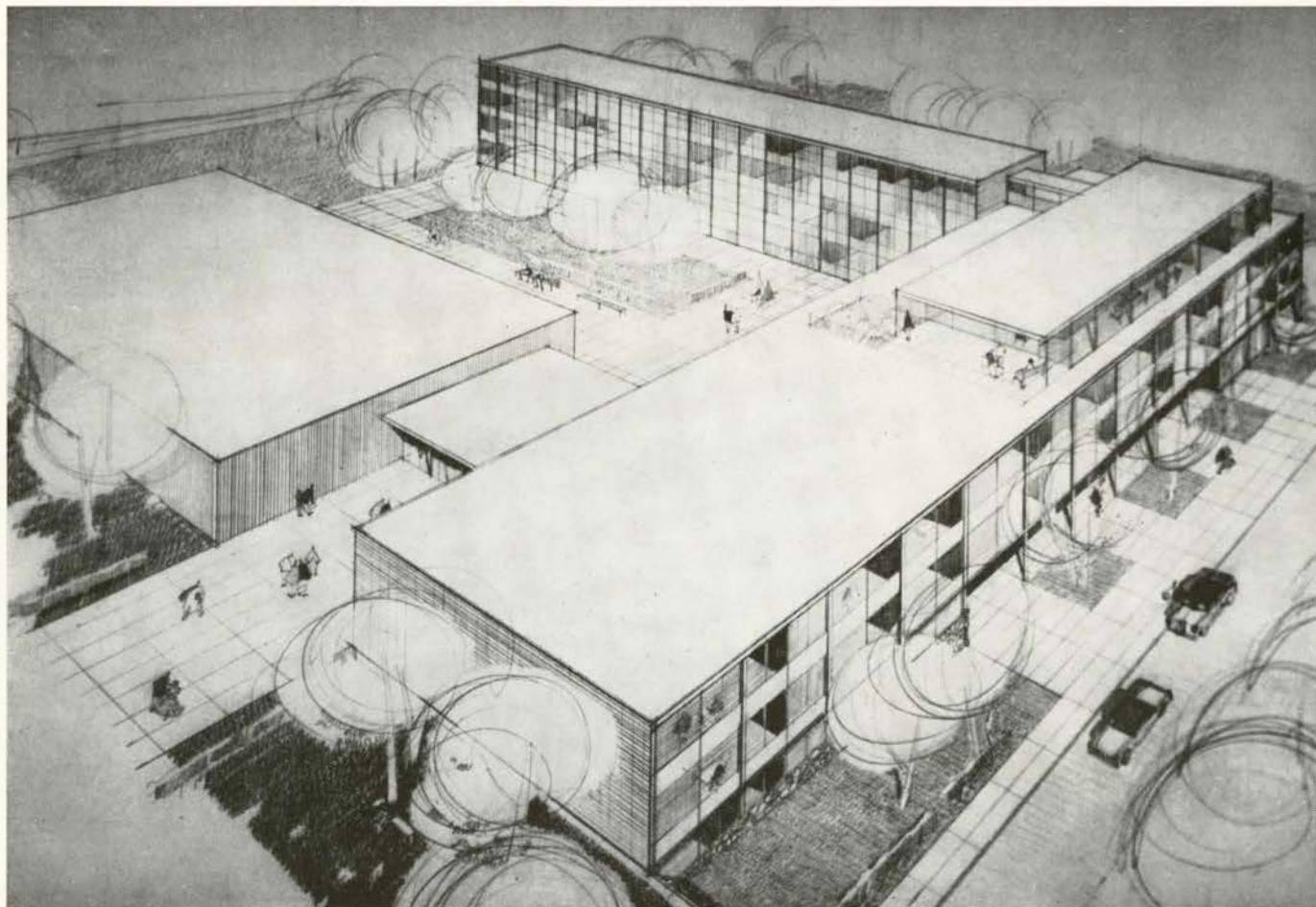
Main Lecture Hall	50' x 60'			250
A	40' x 50'	3	152	456
B	30' x 40'	4	99	396
				<hr/> 1102

Total Seating 2959

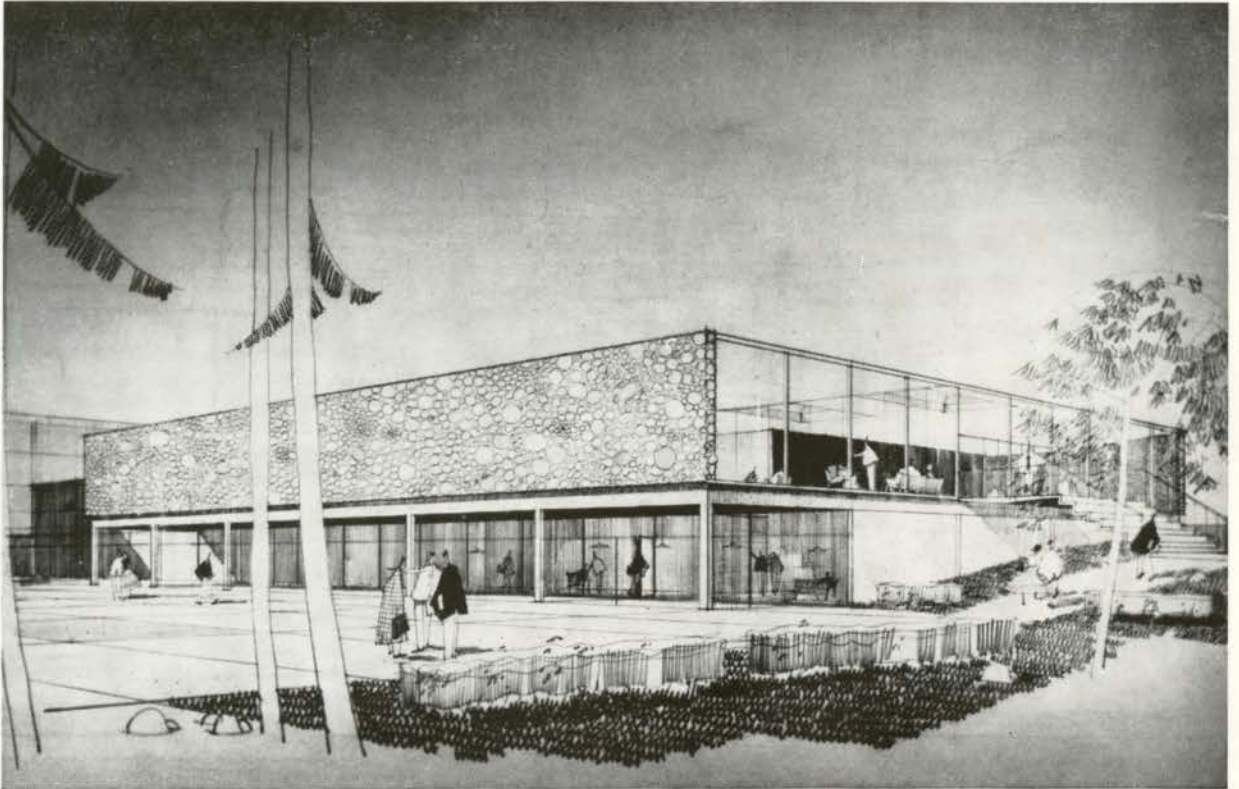
University of British Columbia, Vancouver

Architects, Thompson, Berwick, Pratt

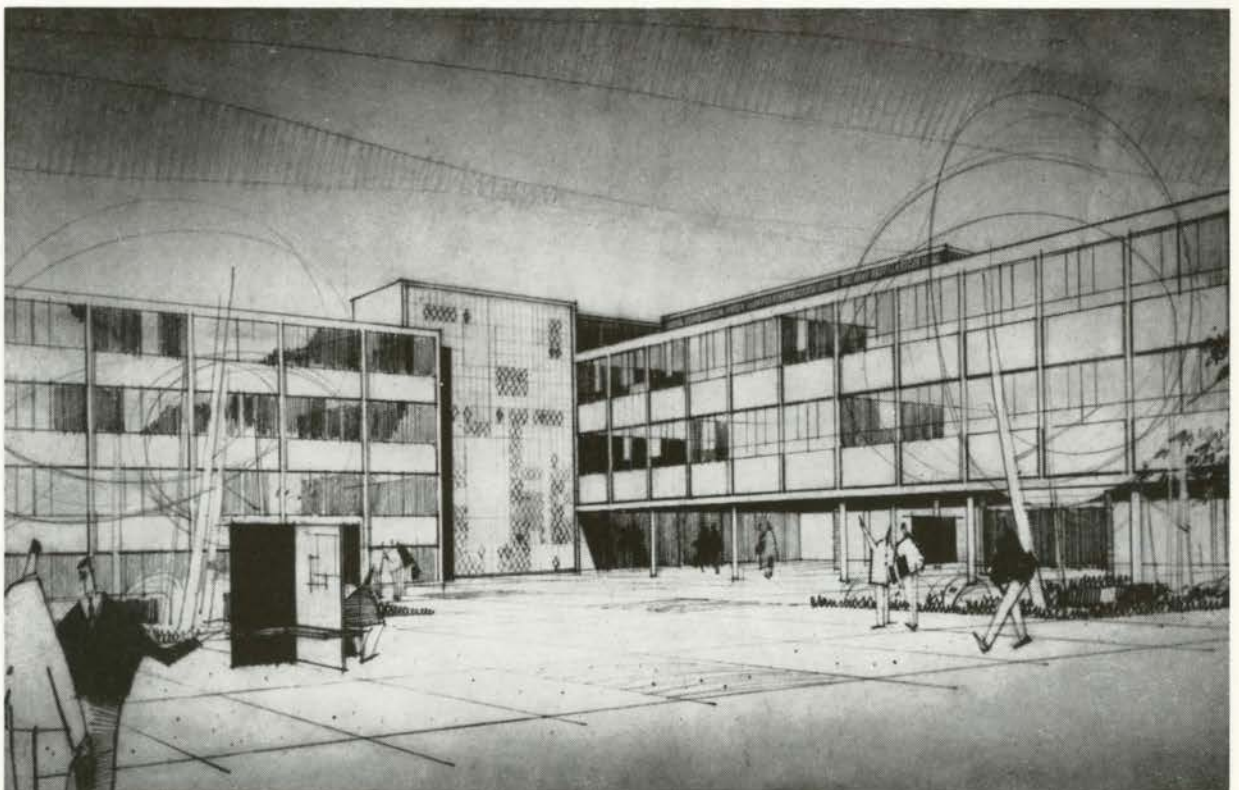
Bird's eye view of Arts Building



North end of lecture theatre block showing students' lounge, which has view north up Howe Sound and towards the mountains.



From inner court towards elevated classroom block on right, which forms arcade to the 'library', and the office building on left.



The Problem

To house men and women students, 400 in all, in an integrated housing development on the Campus. The development to be expanded later to house a total of 800. The two main points to be taken into consideration are general economies in methods of building, and the general environment and character of the development as a whole.

The Site

The site the strip of land between the Fraser River Model and Marine Drive, running north from the proposed Forest Laboratory Building.

The Solution

After months of study and research on behalf of all interested parties, the Housing Committee recommended the adoption of the following concept. A central or common building housing dining rooms, lounges and recreational areas with two 4-storey blocks to the south for men, and two 4-storey blocks to the north for women, the whole composition connected by covered walks.

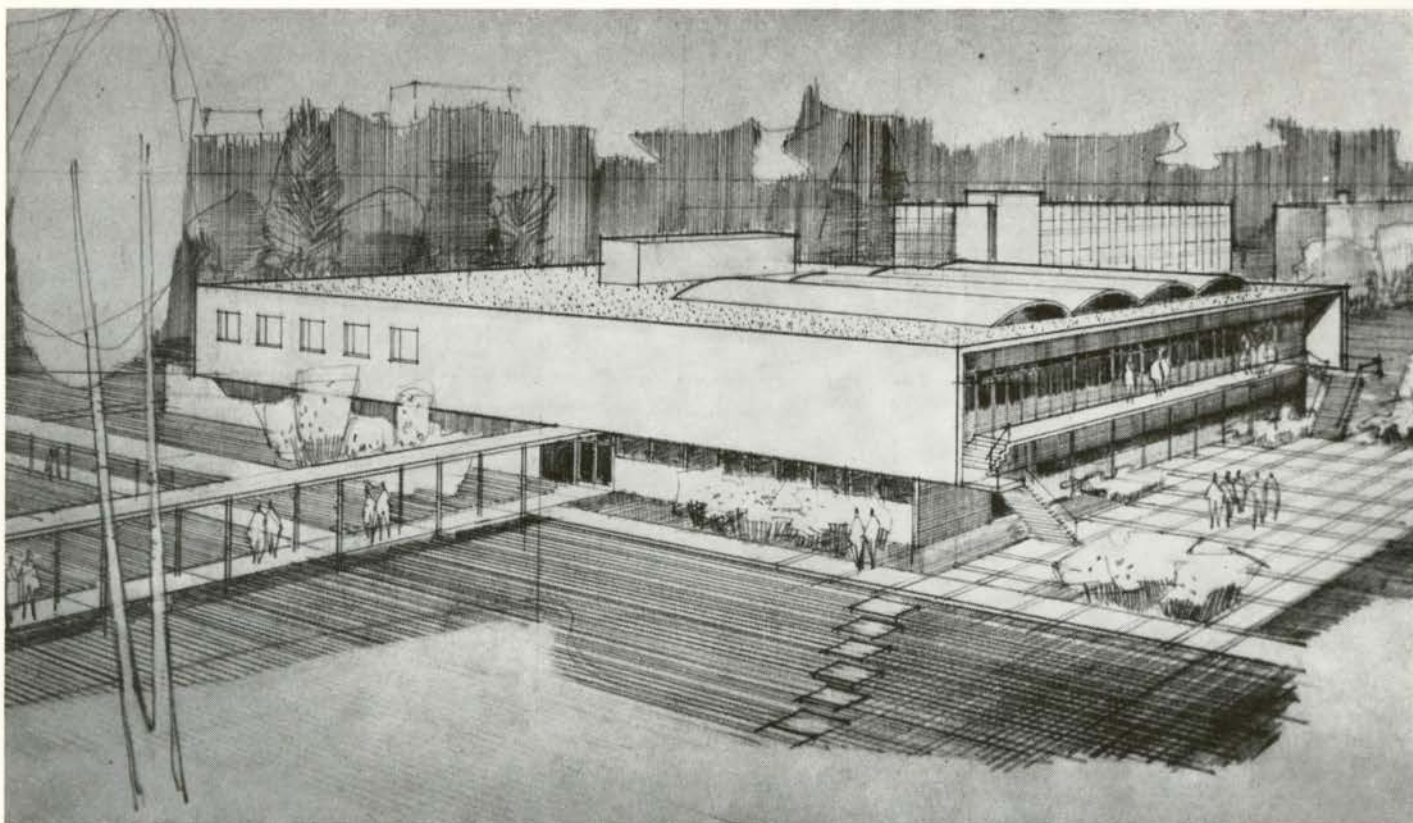
The Detailed Plans

The Central Building, which is common to both men and women, measures approximately 110' x 130' and two floors high. The ground floor contains the various recreational and lounge areas, canteen and Canteen Manager's suite, porter's office and suite, receiving area, and men's Don suite. The upper floor contains large and small dining areas seating approximately 400 at one time, kitchen and storage areas, and male and female staff quarters.

The Residence Block—(two for men and two for women) measures approximately 32' x 142' and in four storeys plus half basements. A typical floor contains 20 single rooms 9' x 12', three double rooms 17' x 12', wash room, small floor kitchenette, telephones, garbage chute. A typical ground floor has in addition to the above an entrance lobby and small lounge. In the case of the two women's blocks, there is a self-contained Don's suite near the entrance. In the basement of each block there is a recreation room 17' x 32', storage for trunks, etc., laundry room, incinerator and mechanical equipment area.

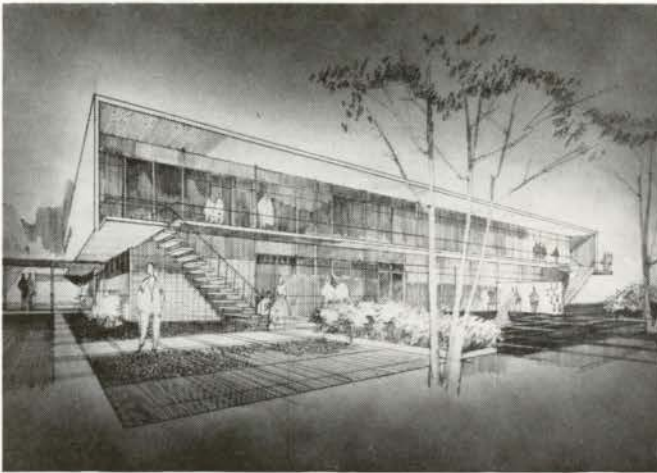
In the first stage the projects will house 208 men (104 in each block) and 196 women (98 in each block) or a total of 404 students and can be expanded by another two blocks on either side, housing a total of 808 in the final stage. The site allows for ample parking for resident students, tennis courts and pleasant landscaped quiet surroundings. It has been more or less agreed that the actual playing field would be located on adjacent or adjoining land and not within the development itself.

- 1, 2, 3 Residence Building
- 4 Brock Hall Extension
- 5 Medical Sciences Building



Close-up of Common Building which faces south-west towards Gulf of Georgia.

2

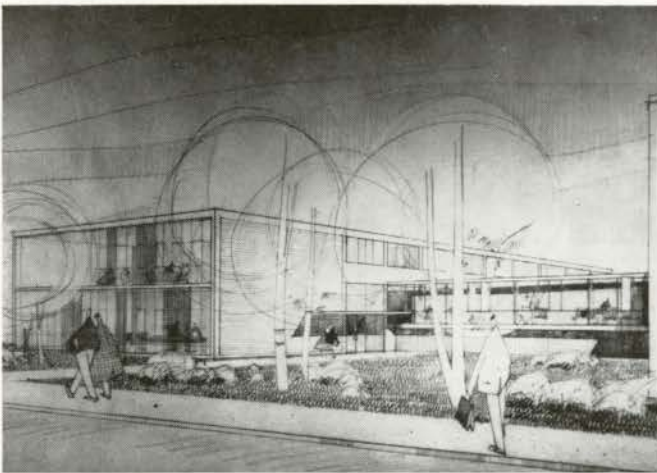


Close-up of typical 4-storey dormitory block.

3

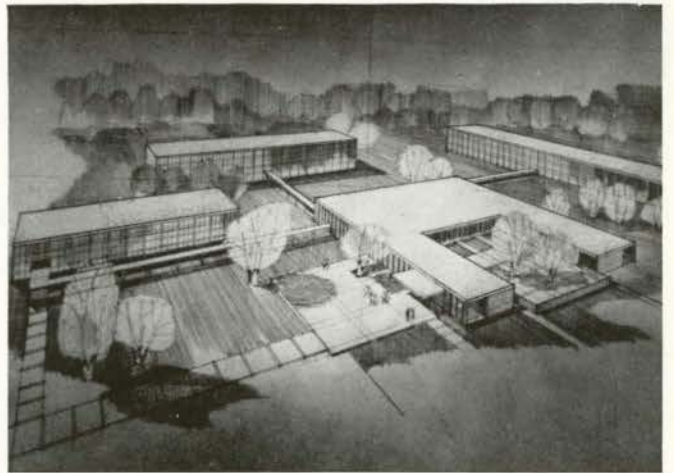


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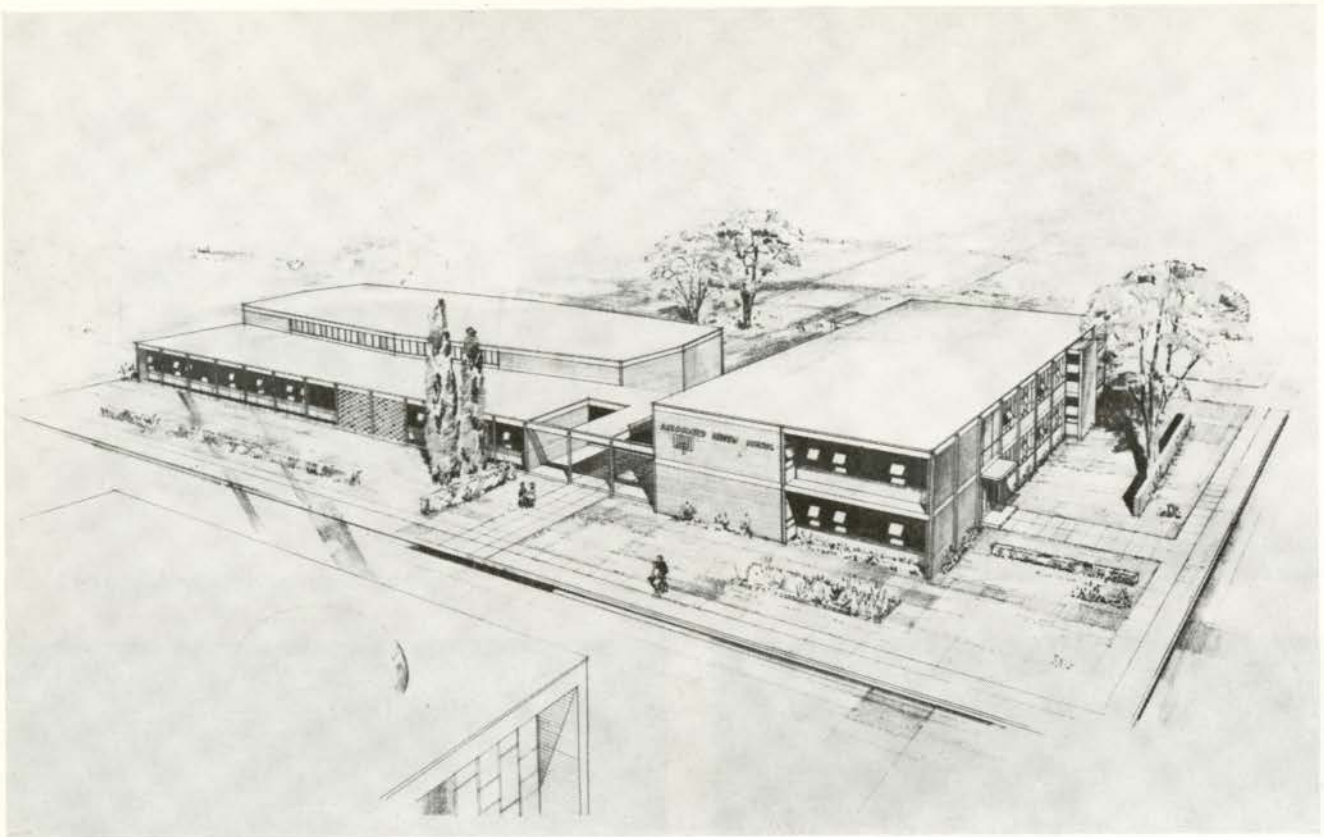


Brock Hall Extension — an extension to the Student Union Building.

5

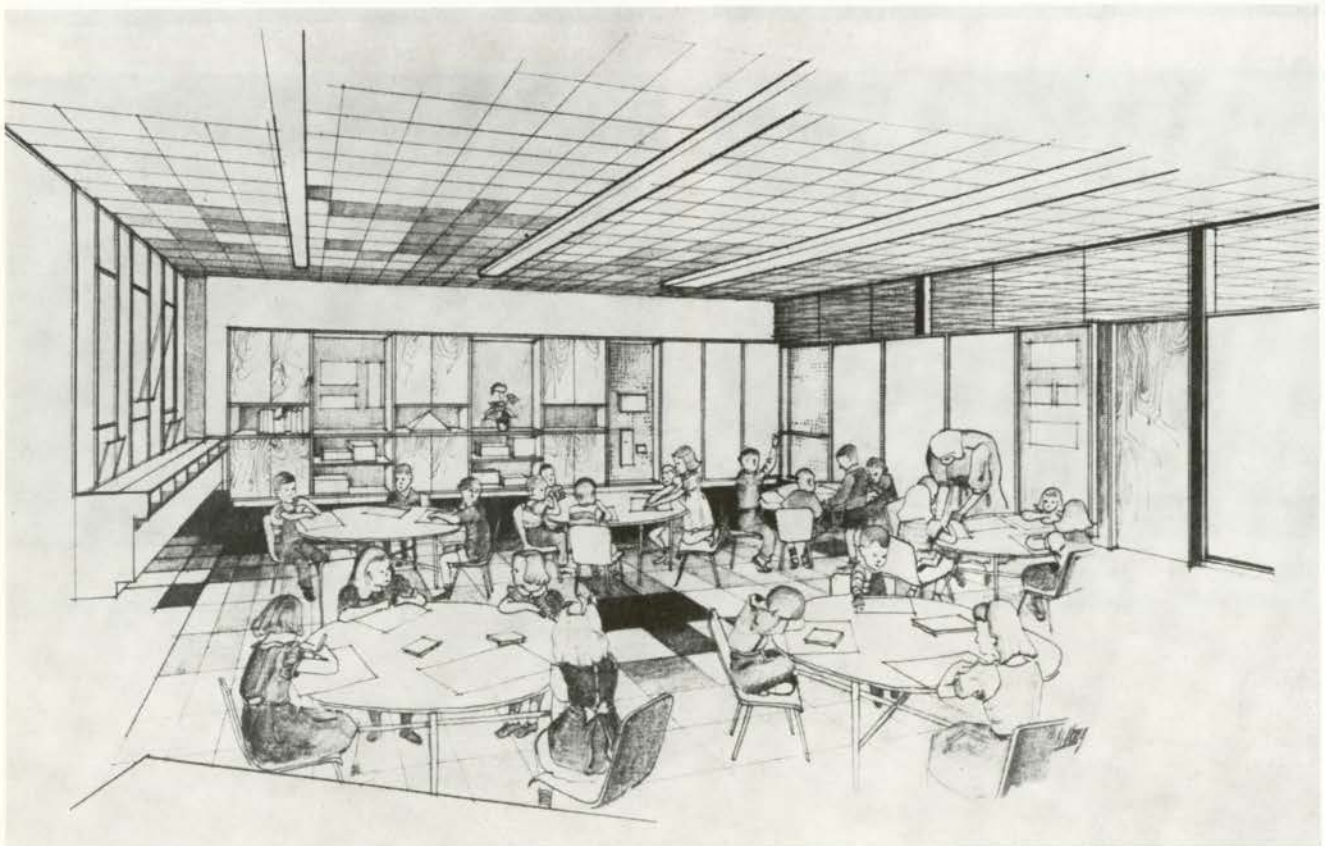


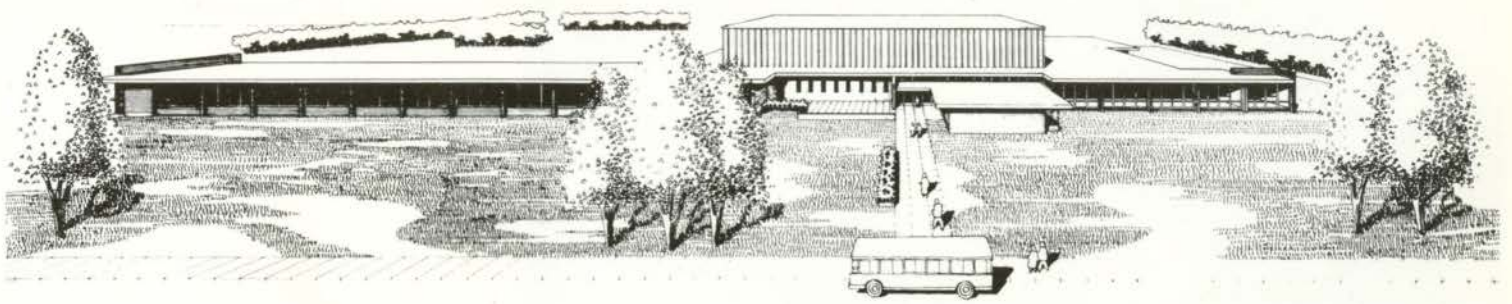
Medical Sciences Building



Associated Hebrew Schools, Toronto

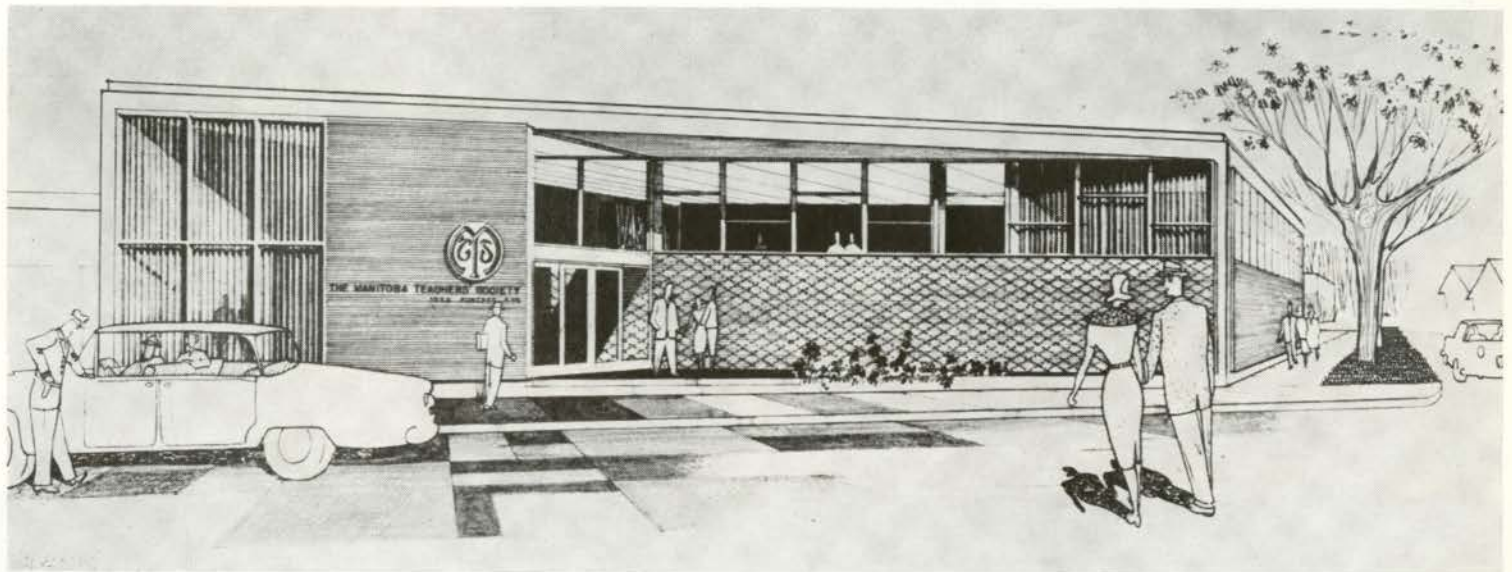
Architects, Weir, Cripps and Associates





Secondary School for South Chatham, Ontario

Architects and Engineers, Dunlop Moore Associates



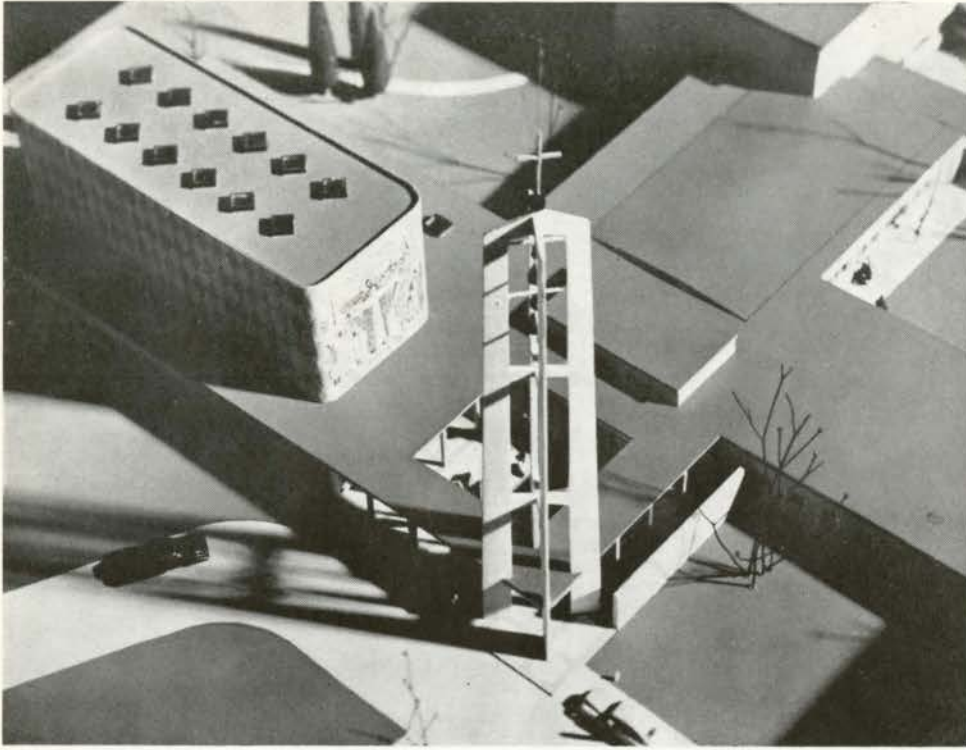
Manitoba Teachers' Society, Winnipeg

Architects, Libling Michener Diamond & Associates

School, Elk Point, Alberta

Architects, Patrick Campbell-Hope & Associates



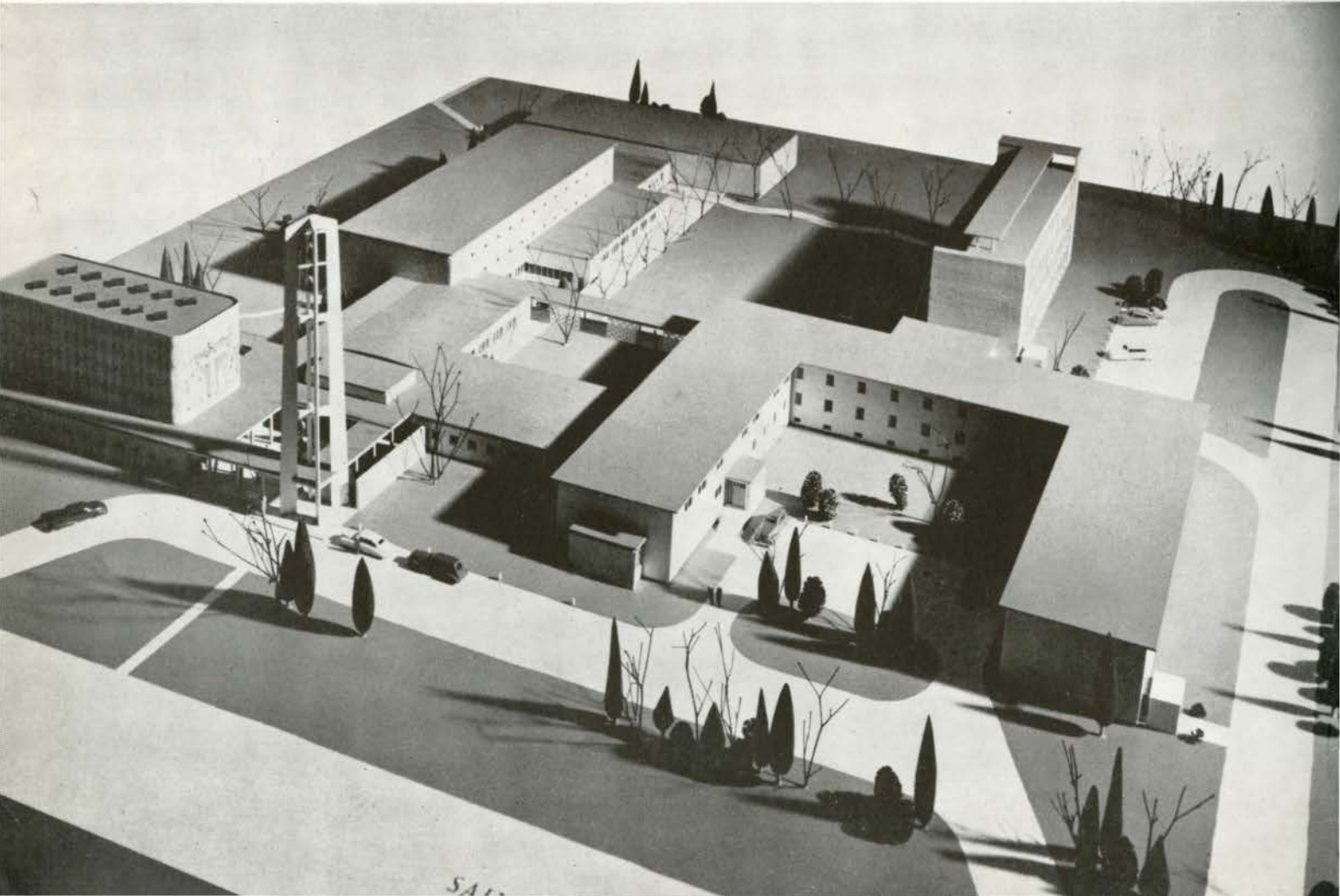


St. Paul's University College
University of Manitoba
Winnipeg

Architects
Gardiner, Thornton, Gathe & Associates

The chapel

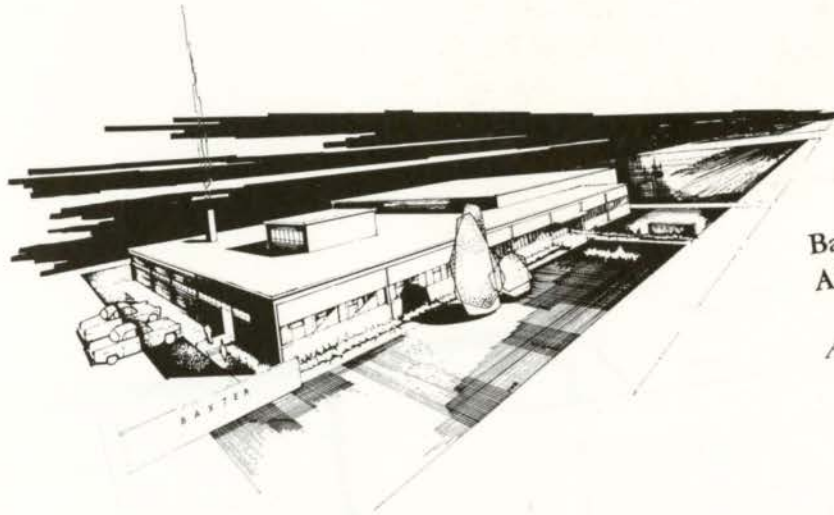
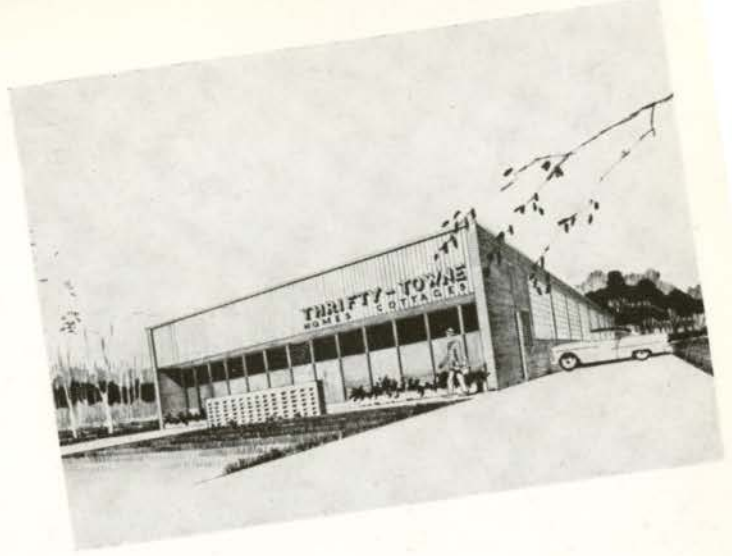
General view



INDUSTRIAL

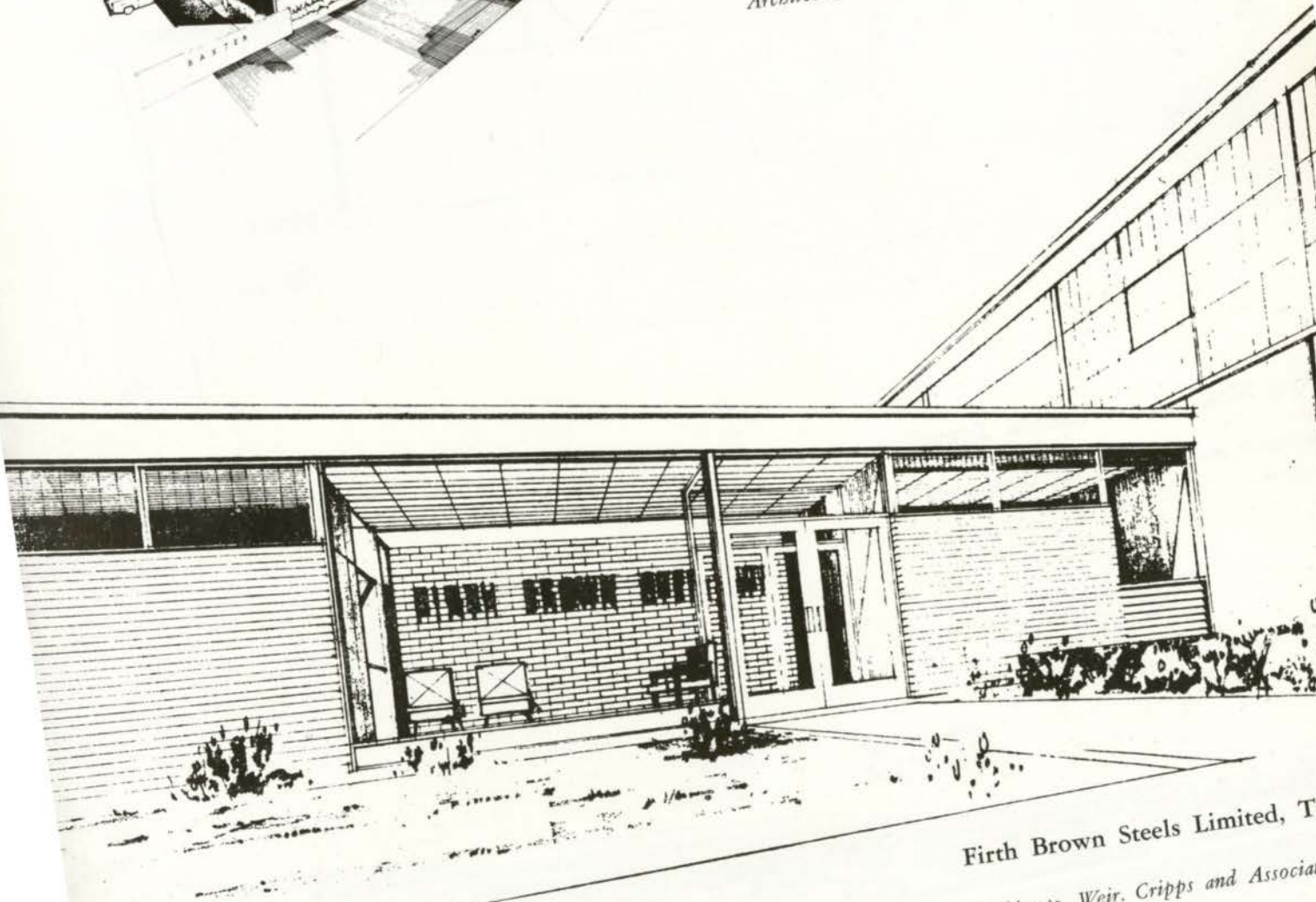
Factory with Offices
Brampton, Ontario

Architects, Venchiarutti & Venchiarutti



Baxter Laboratories of Canada Ltd.
Alliston, Ontario

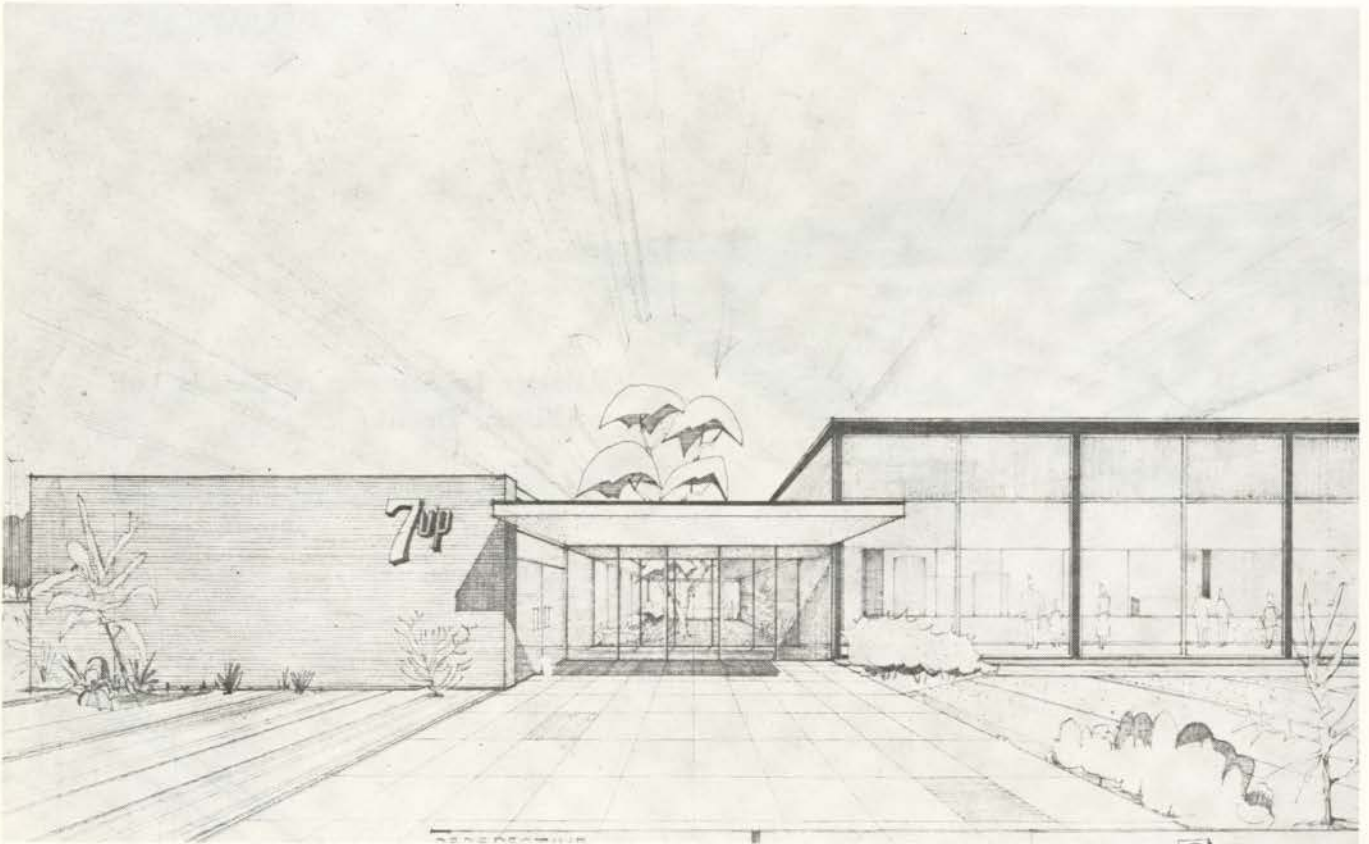
Architects, Gordon S. Adamson & Associates



Firth Brown Steels Limited, T
Architects, Weir, Cripps and Associates

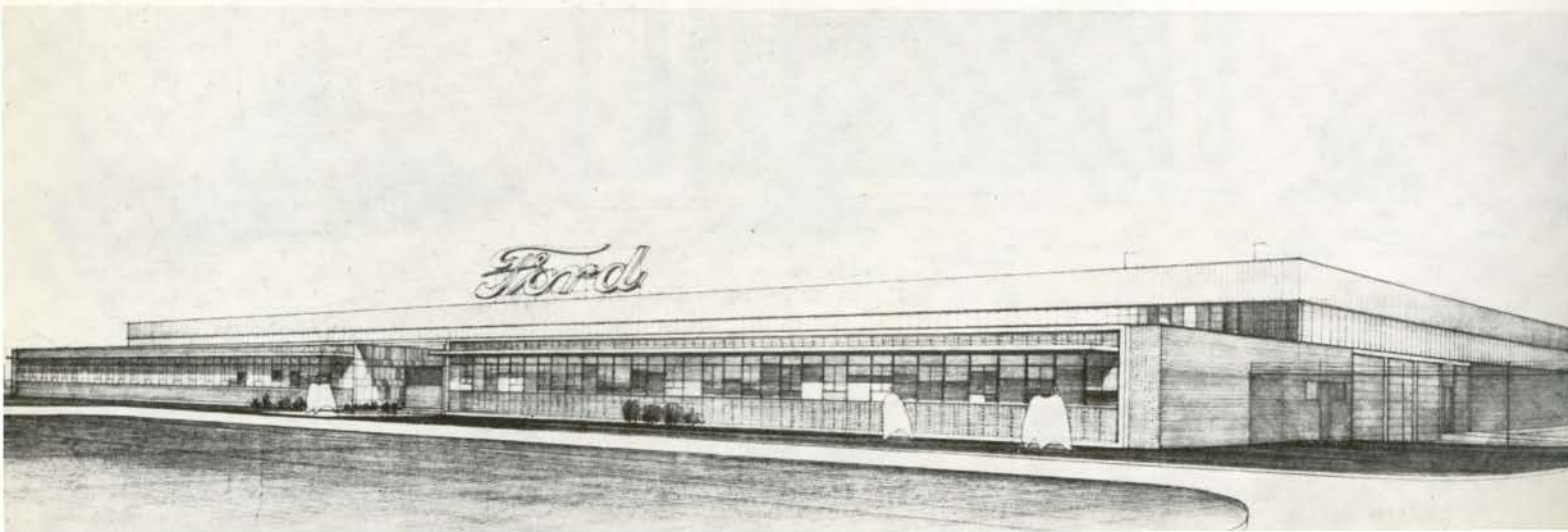
7 Up Bottling Plant, Winnipeg

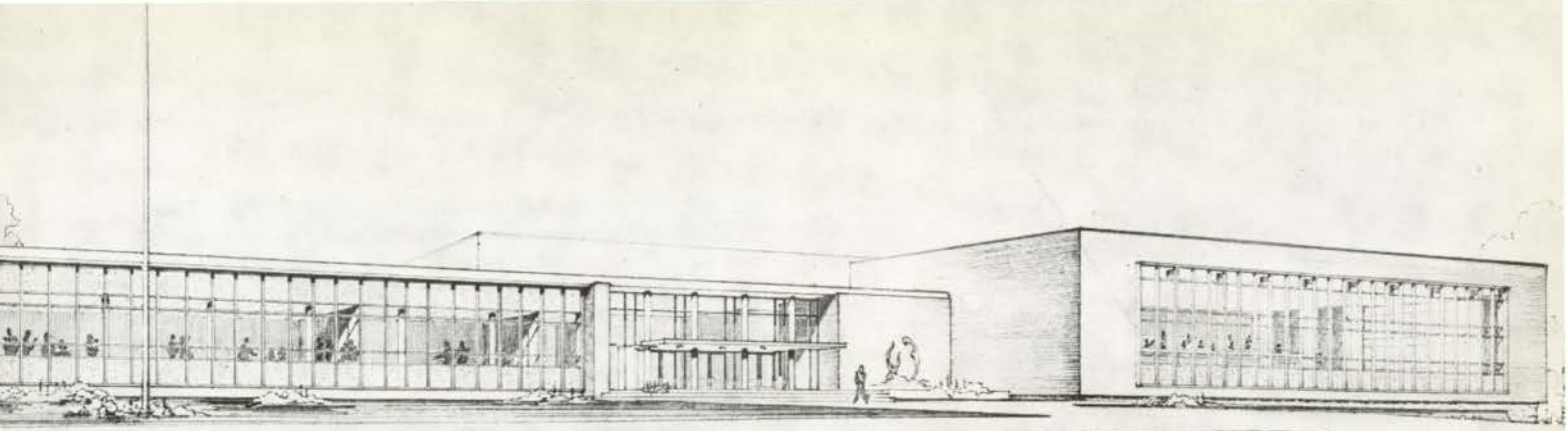
Architects and Consulting Engineers, Waisman & Ross



Ford Motor Co. of Canada, Edmonton

Architects and Engineers, K.C. Stanley and Company





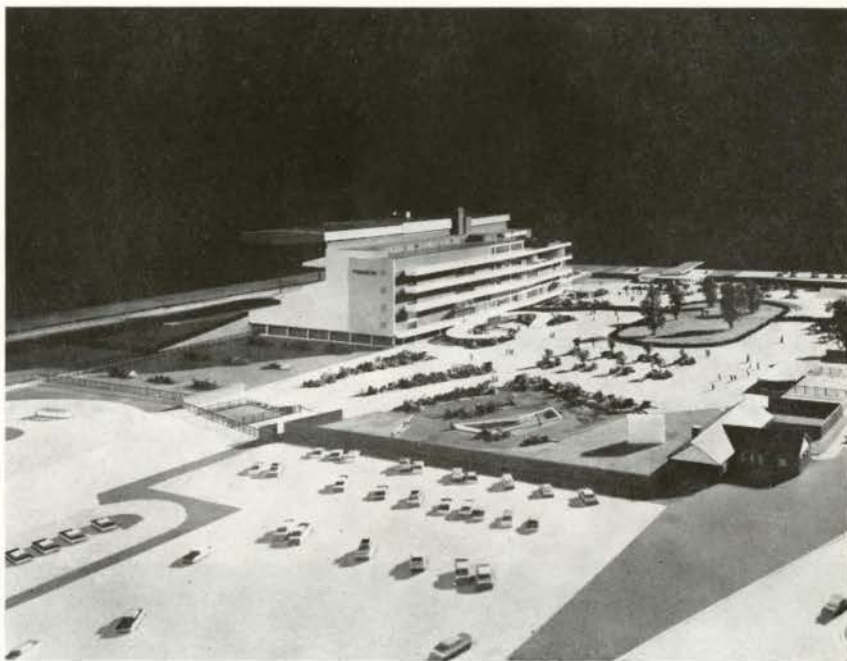
CENTRE RECREATIF - PARC GOTE
 LAROSE & LAROSE - architectes - Montréal

Architects, Larose & Larose

RECREATIONAL

Woodbine Race Track
 Etobicoke, Ontario

Architect, Earle C. Morgan



Edmonton Golf and Country Club

*Architects
 Patrick Campbell-Hope & Associates*

The proposed North York Memorial Swimming Pool is a frank expression of the unification of sound engineering and architectural principles. The interlocked parabolic arches rising obliquely from the ground form compression rings of reinforced concrete, the material most efficiently used when withstanding compression stresses. From the rings are slung a grid of high-strength, light-weight tension cables, the most efficient form of tension member yet developed.

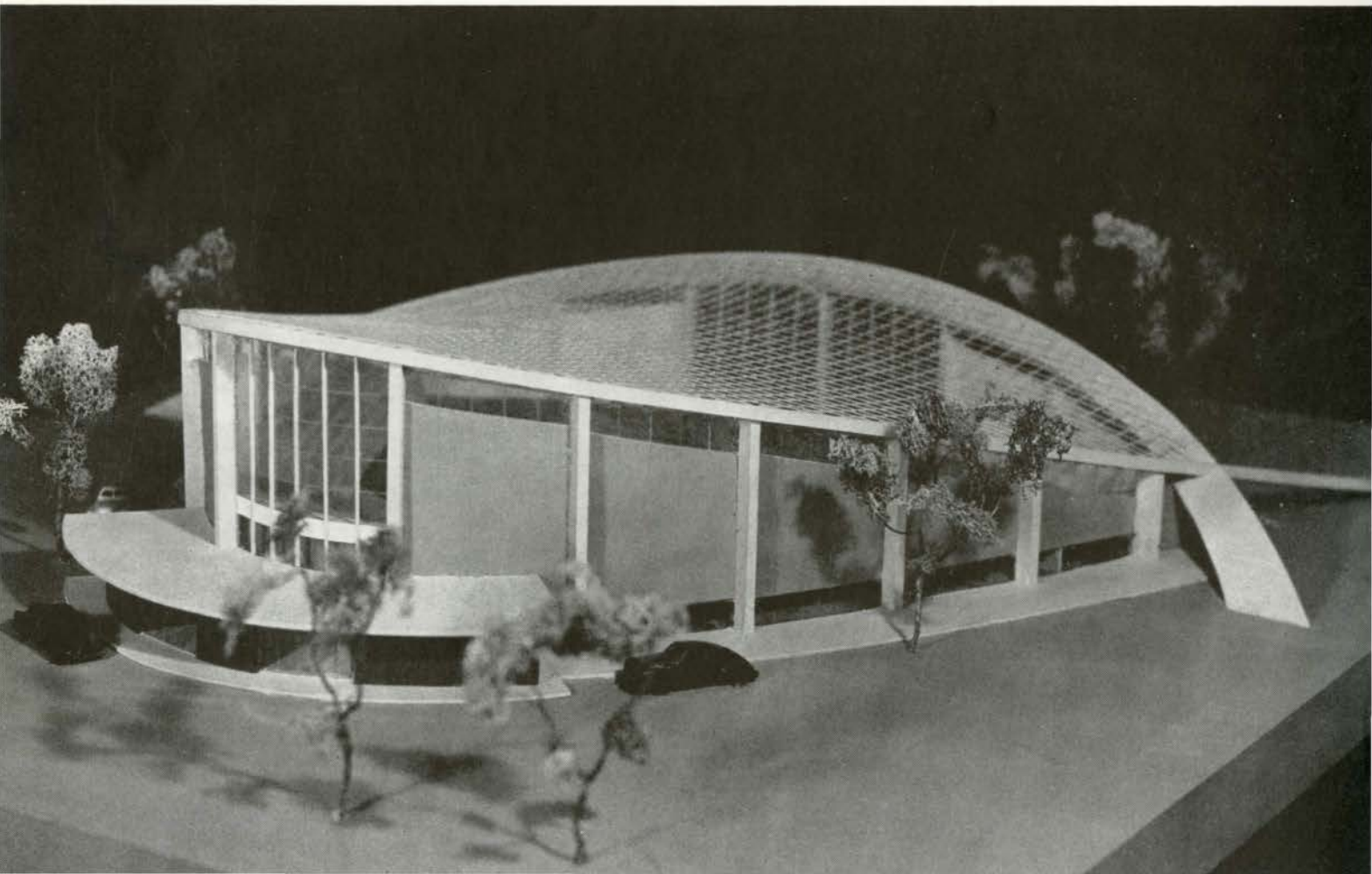
The main entrance doors are located in a low wing facing Yonge Street. The building is well set back from the street to provide a generous area for landscaping. Behind the entrance doors a spacious lobby provides access to all areas of the building. Spectator traffic is direct, up a wide stairway to the gallery. On either side of the spectator stair is a short run of stairs that go down to the women's and men's changing facilities. Doors to the manager's office, a committee room and the therapeutic pool open from the sidewalls of the lobby. A separate entrance for the therapeutic pool is conveniently located near the main entrance and driveway, but out of the main line of traffic and congestion. Access from the changing room level to the swimming pool deck, four feet above, is made safe by a gentle ramp.

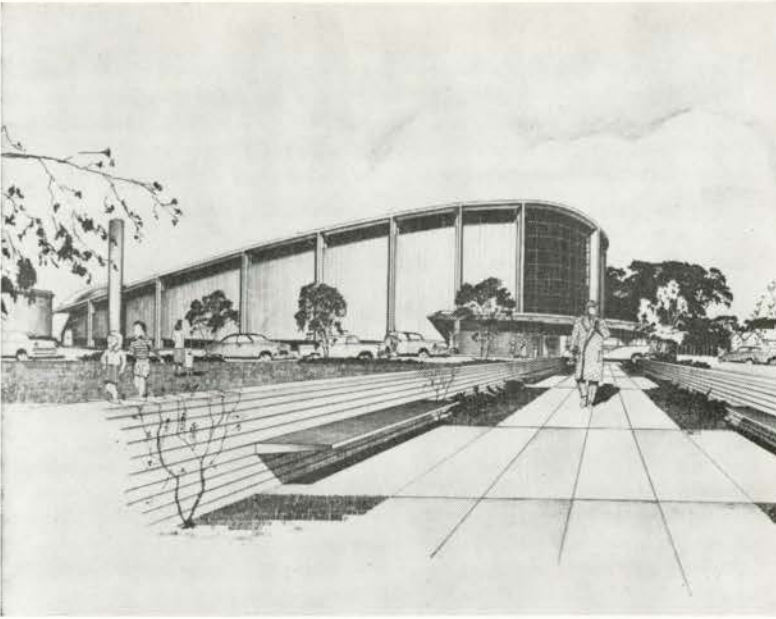
The inside space formed by the unique structural system is beautiful and practical. The spidery web supporting the corrugated steel roof decking sweeps upward at the edges, letting in a maximum of daylight. Generous space is provided over the topmost spectator and the high diving board by the tilt of the long arch.

The parabolic shape of the building in plan locates all spectators equidistant from the centre of activity with uninterrupted views to all. The stands hold 1,100 people with a possible additional 500 removable chairs around the pool deck.

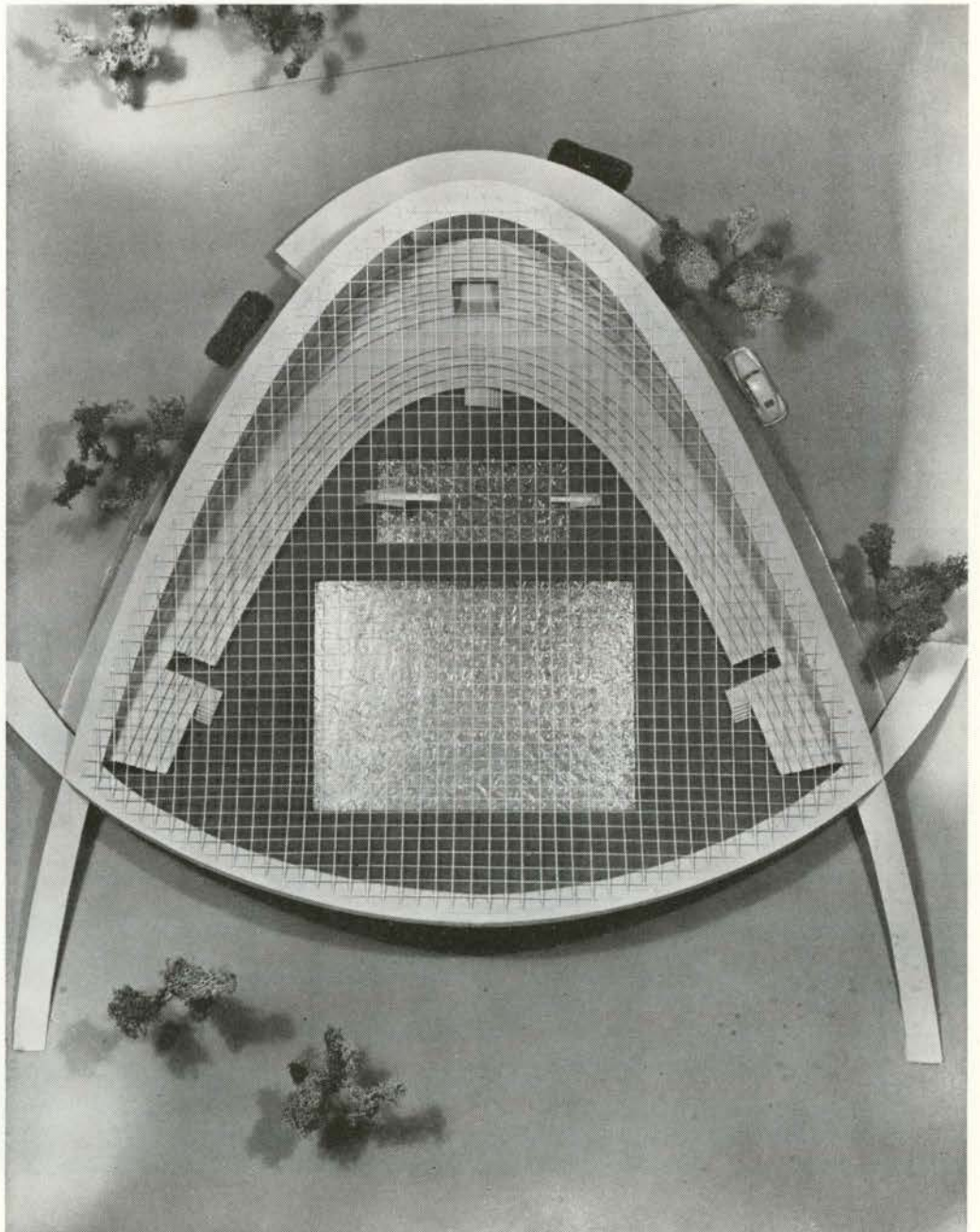
North York Memorial Swimming Pool, Toronto

Architects, Venchiarutti & Venchiarutti





Terrace leading to main entrance



Roof plan

The problem of designing a new building to replace the present tented theatre at Stratford has been simplified to the degree that the existing amphitheatre and stage are to be enclosed by the new structure, and will remain in about the present form. Having accepted these principles of planning, the search for the right design became considerably more interesting, and rather more difficult.

The buoyant charm of a temporary shelter contending with the elements infused the tent-theatre with a sort of mystic personality. Festival goers of romantic persuasion, wilting in the summer heat and exposing themselves to the vagaries of the weather, emerge with a tingling sense of having lived briefly under the spell of adventure, at no inconsiderable risk to themselves.

This, and other curious public sentiments, encouraged an alarming affection for the tent; an affection scarcely shared by that heroic company of perspiring actors, at times when dramatic illusion contended with the plaintive call of a CNR freight taking on water.

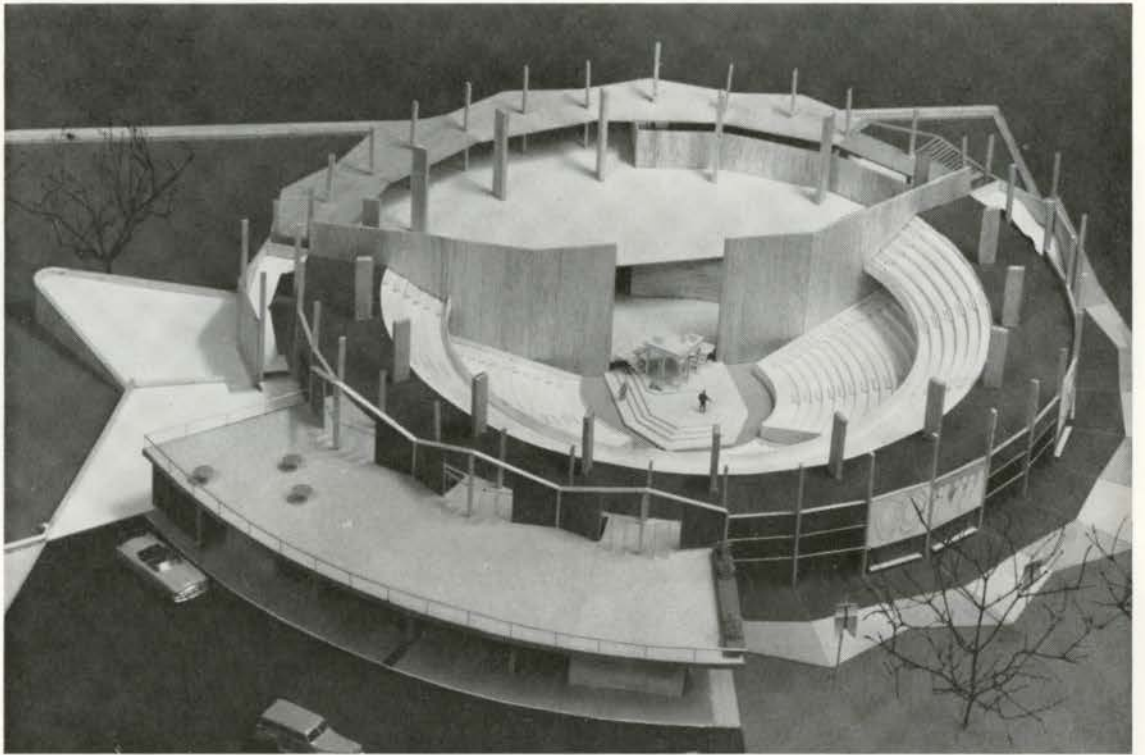
The design of the new theatre, in its outward form, attempts a clear and dramatic statement of purpose. The circular plan places the stage at the radius centre of the theatre, as both the visual and the constructional axis of the building. The roof form is intended to express both enclosure of the half circle auditorium, and of the perimeter rooms and corridors circumscribing this main interior room. The radial framing system is reflected in the repeating shape of the perimeter roof, and is exposed to view in the outer walls of the building.

The new theatre will be air-conditioned to the extent that funds will afford. Provision is to be made in the mechanical plant for future heating throughout the building, in anticipation of possible use of the theatre during winter months.

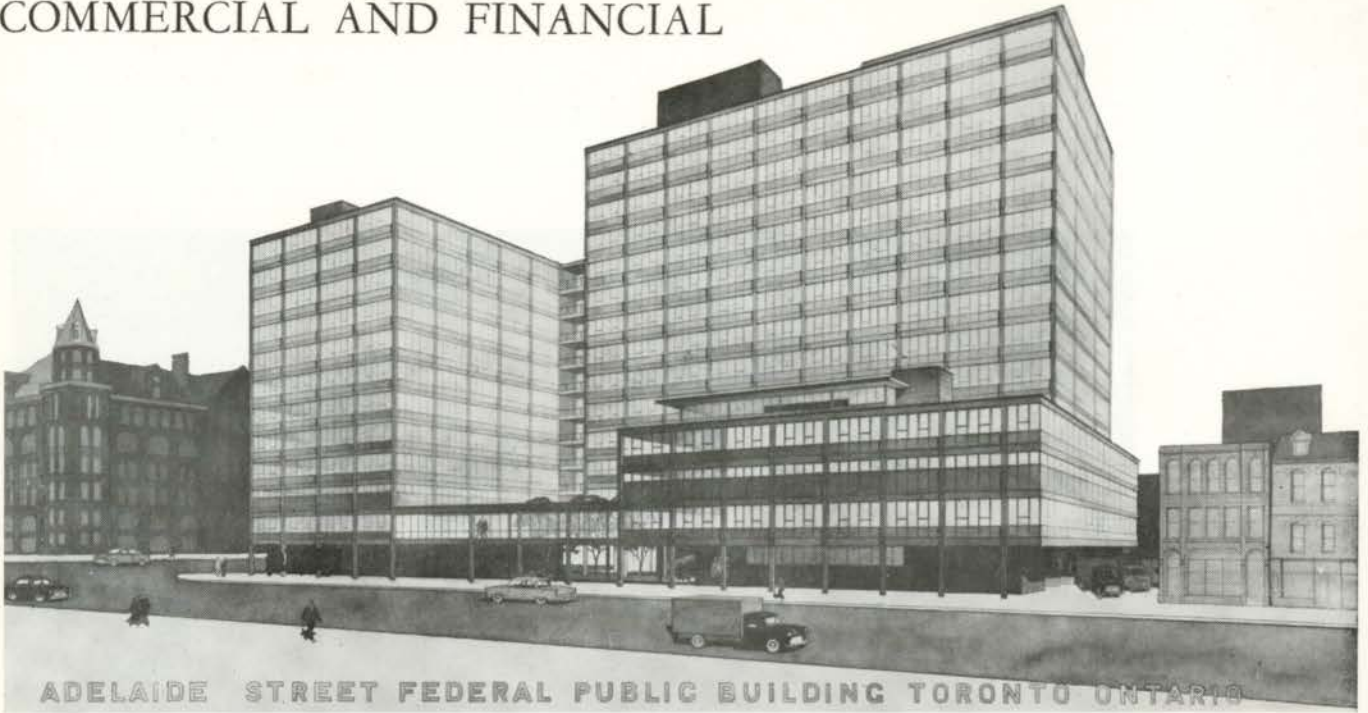
The Stratford Theatre Stratford, Ontario

Architects, Rountbwaite & Fairfield





COMMERCIAL AND FINANCIAL



Architects, Shore & Moffat

A twin tower building, fifteen storeys high, will have an exterior façade above the second floor of silicone anodized aluminum beam and column covers, aluminum windows, porcelain enamel spandrels.

The first floor has an open interior court approach to a glass-enclosed elevator-escalator lobby which clearly expresses the vertical transportation system. Columns and walls will be of granite. Doors, door enclosures and windows will be stainless steel.

Parking provision at the first basement level will accommodate 100 cars.

BC Electric Building, Vancouver

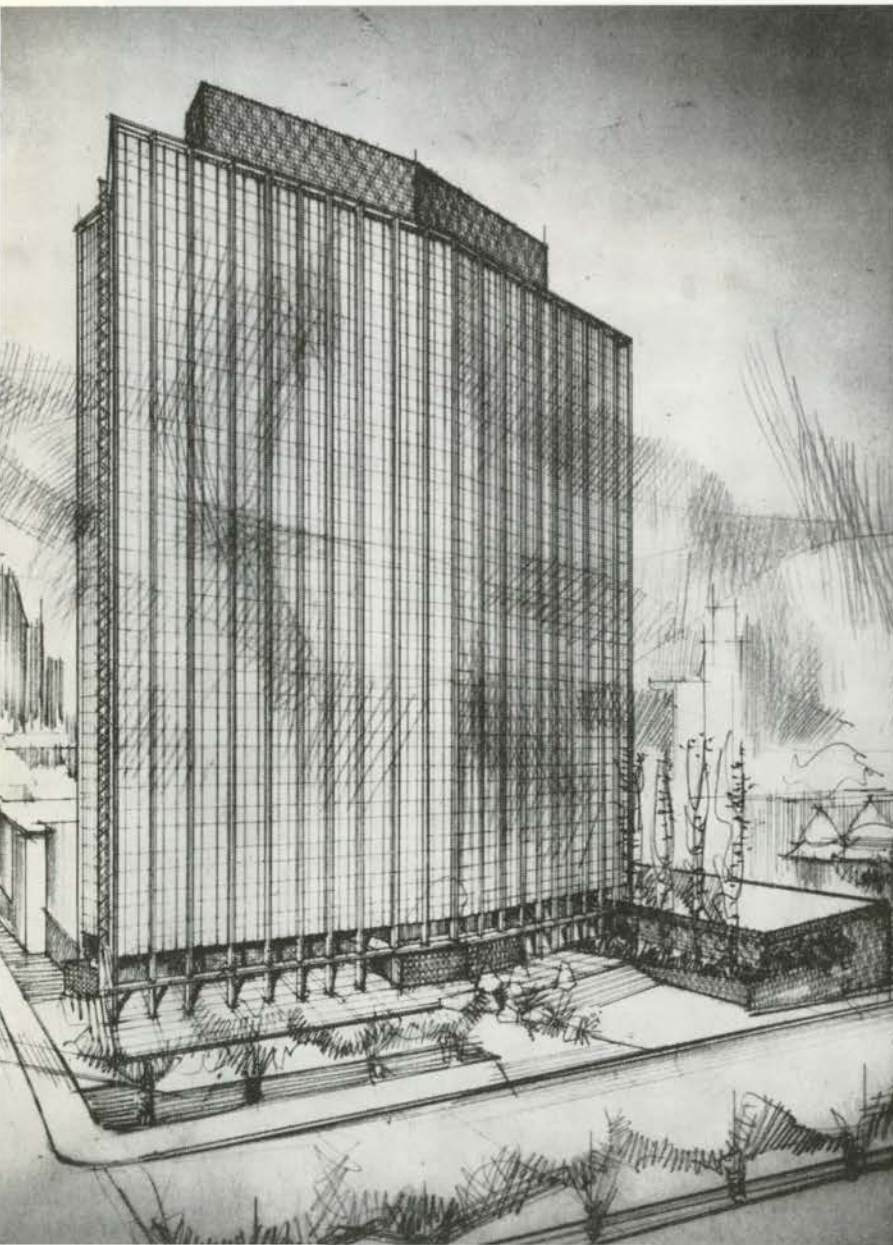
Architects, Thompson, Berwick, Pratt

The BC Electric Head Office Building is a twenty-three floor office tower in which no office has greater than a fifteen foot depth from the windows.

A central core carries all services, stairs, elevators, washrooms, etc., and forms a giant concrete honeycomb which gives structural backbone to the building.

Full use throughout is made of luminous ceilings. There are no masonry spandrel walls, the outer wall being formed by curtain walling and insulated porcelain enamelled panels.

All exposed concrete surfaces are to be covered with glass ceramic tile formed into large patterns.





Peel Centre Building, Montreal

Architects: Greenspoon, Freedlander & Dunne

The site covers an area of 32 acres, providing parking for 2800 cars. To be built on an interior pedestrian mall type plan, there will be 275,000 square feet of selling area and 125,000 square feet of basement area. All truck receiving and delivery will be carried out in a service tunnel at the south end of the site. It will be completely landscaped around its perimeter with 3½ acres earmarked for this purpose.

In the centre there will be a major department store, food floor, fur-

Canadian Overseas Telecommunication Corp.
Montreal

Architect, A. Leslie Perry

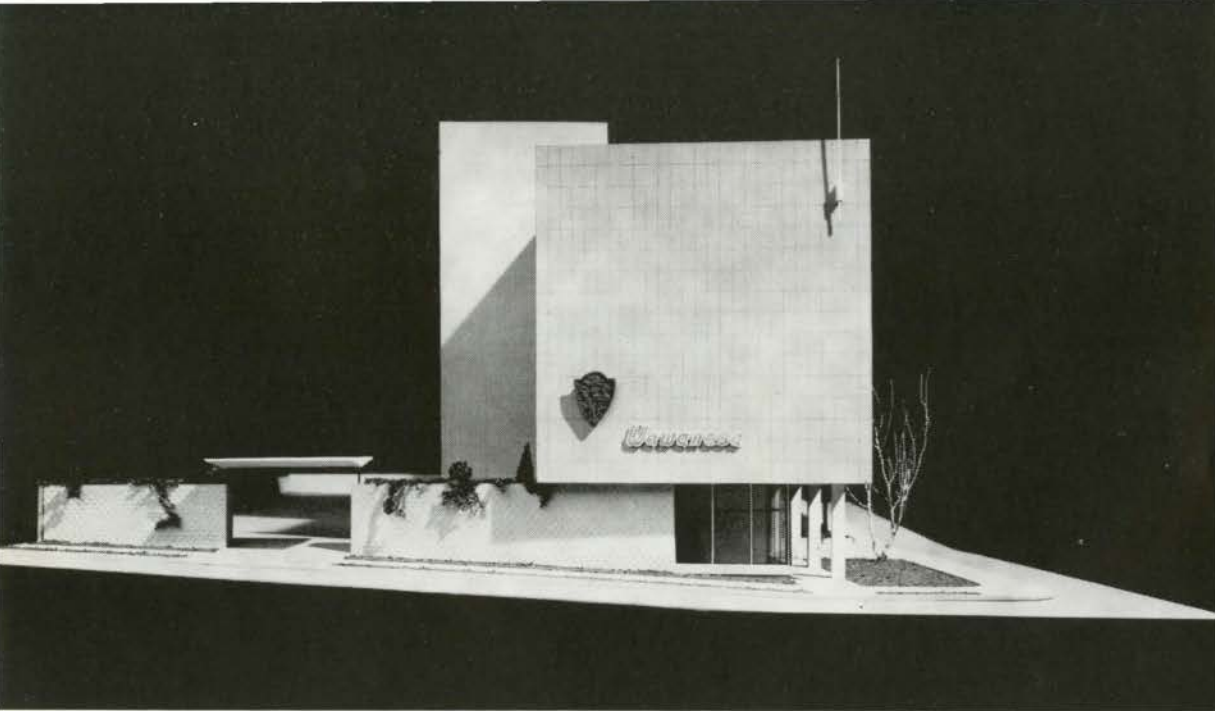


Oakwood Shopping Centre, Vancouver

Architect, James C. Page

niture and appliance store and thirty-five other tenants operating the various specialty shops. Underground conveyors carry food parcels from the check-outs in the food floor to a double-sided parcel pick-up depot in the parking lot. The main cruising lane is kept away from the buildings, so customers will not have to cross this main traffic lane to get to the stores.





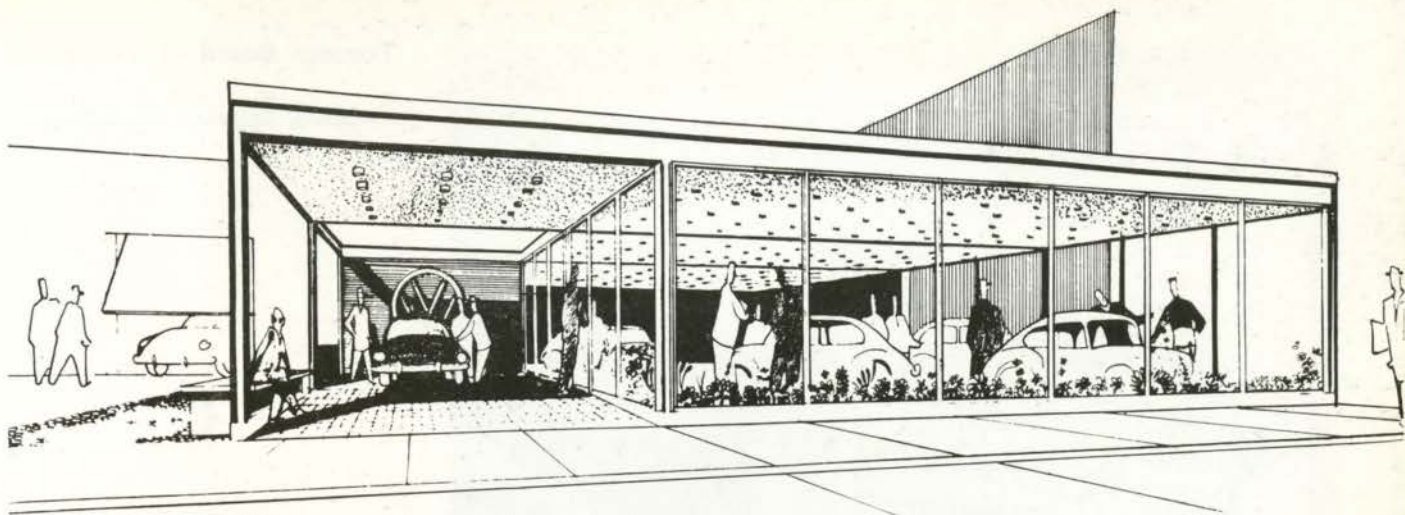
On May 1st, 1956, work was begun on a new office building for the Wawanesa Mutual Insurance Company at the north-east corner of Yonge and Merton Streets. This project will be coincident with the sixtieth anniversary of the Canadian Company whose head office is in Manitoba. The new office will be accommodated on four floors covering a site area of 150' x 35', oriented on an east to west axis, with the service core containing elevator, staircases and washrooms along the north elevation. North of the building will be a 25 space car park. The first floor will contain the staff cafeteria and kitchen, a stock room, rest room and company offices. The second floor will be the main executive section for the Company, containing several small office suites and one large open area. The third floor will house the electronic calculating machinery and general office staff and the fourth will be left as an open area for future division.

The building will be air conditioned and mechanically heated. Provision has been made for a future additional floor and, when this is built, a second elevator would be installed. The rectangular shape of the building and the fact that all windows are confined to the north and south elevations, ensures that no person is more than 17' from natural light. The exterior facings will consist of Indiana Limestone on the west wall facing Yonge Street. This wall is cantilevered out from the second floor upwards. The north and south walls will have alternate window and grey brick panels with the window bays divided by the exposed concrete columns. The window spandrels will be in coloured glass and all exposed concrete columns and floor bands will be polished and painted white. The remaining surfaces will be in light cream coloured brickwork with the west car park wall finished in a textured surface. The structure is in reinforced concrete throughout with rib and slab floors. These span from north to south walls and all interior columns are eliminated except one on the west end which carries the cantilevered wall.

Wawanesa Mutual Insurance Co., Toronto

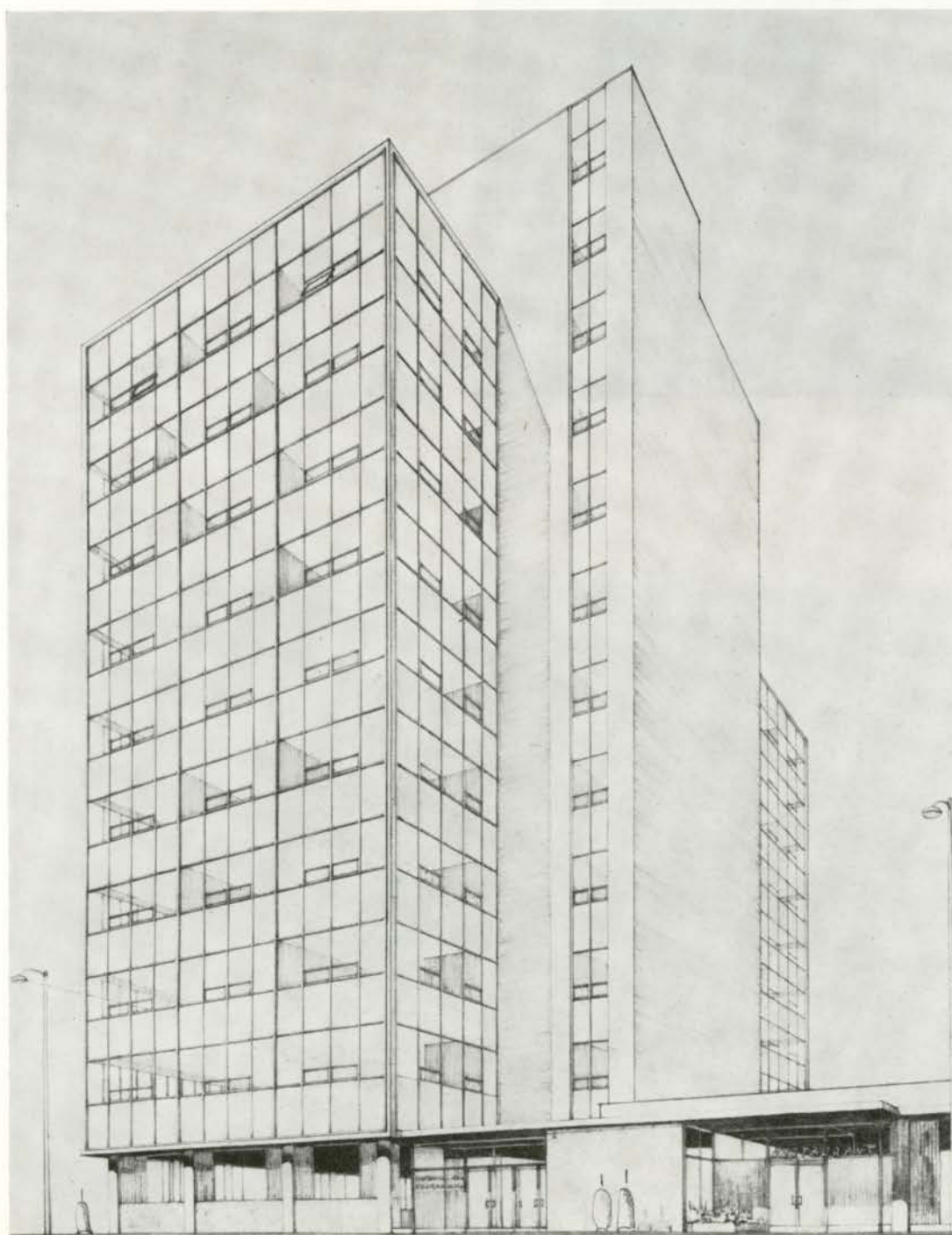
Architects, Page & Steele





Volkswagen Auto Sales, Winnipeg

Architects, Libling Michener Diamond & Associates

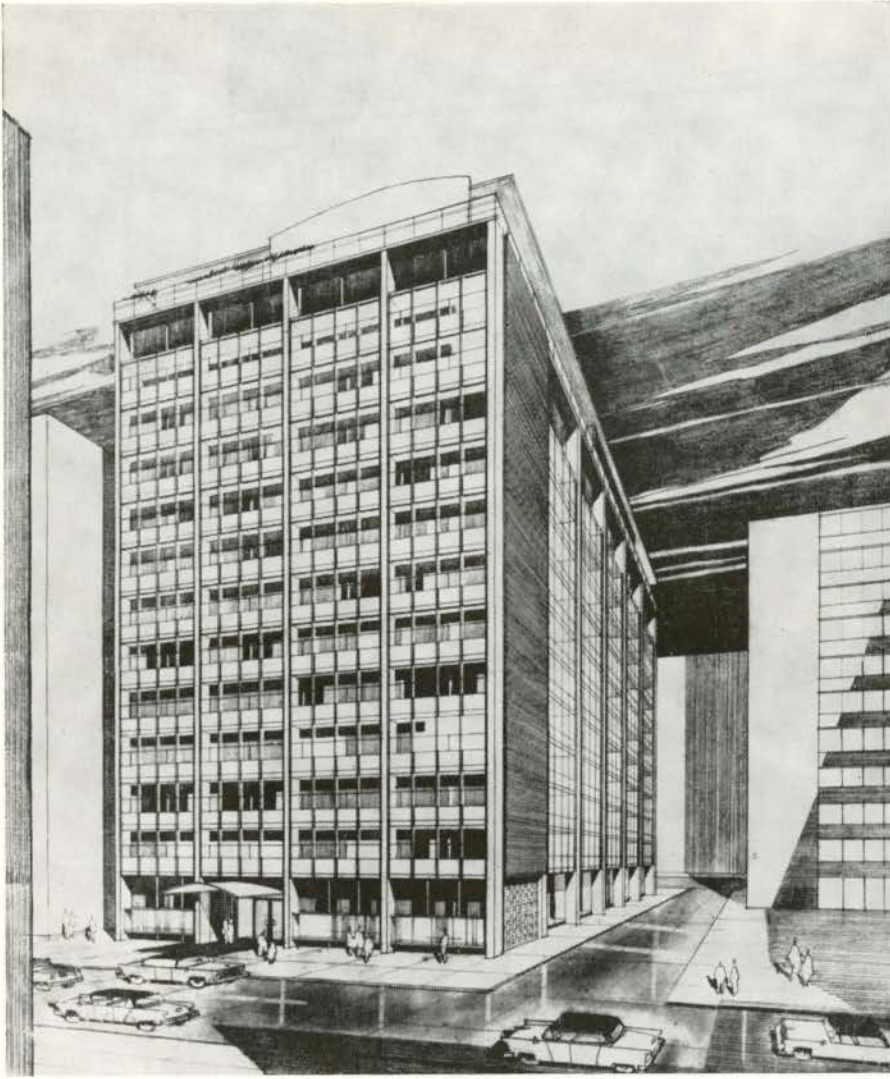


Crosstown Investments Ltd.
Edmonton

Architects, Bell & McCulloch

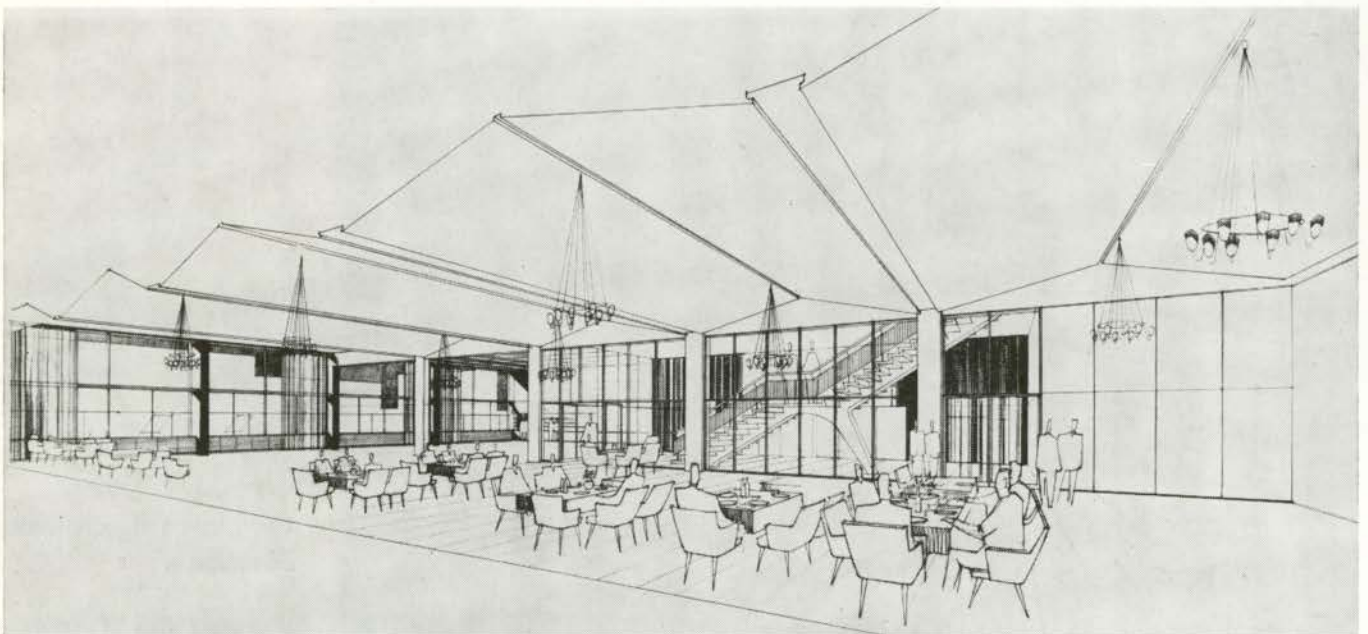
Toronto Board of Trade

Architects, Bregman and Hamann



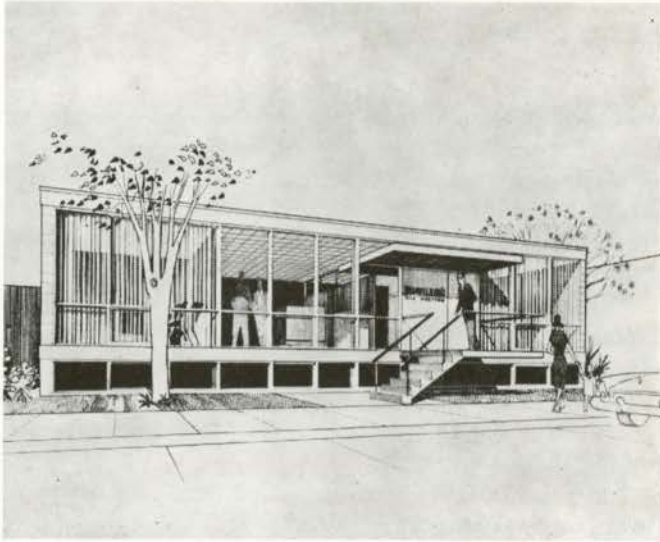
Adelaide Street view

The dining room



Offices and Sales Space, Winnipeg

Architects, Libling Michener Diamond & Associates

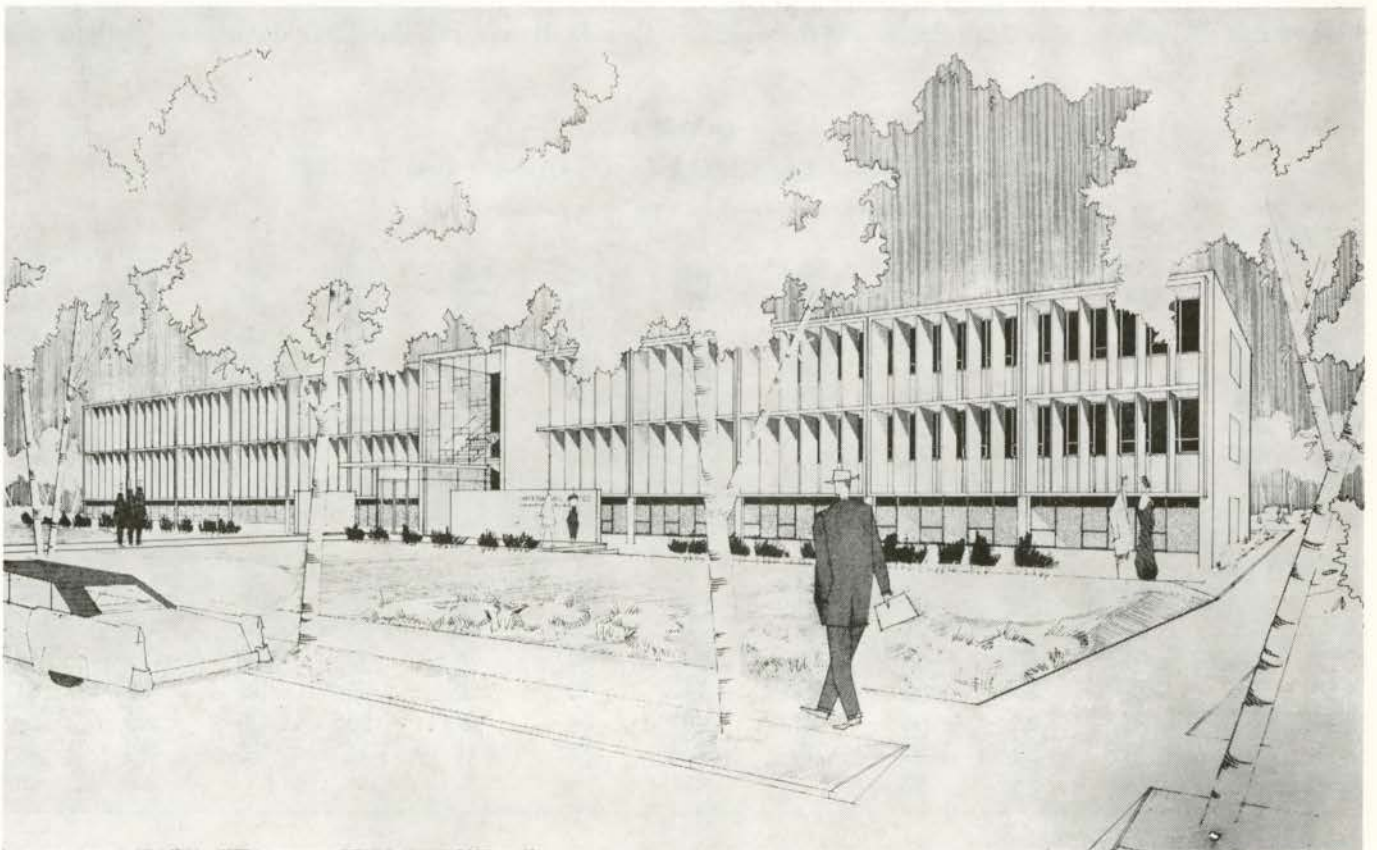


Office Building, Montreal

Architect, Reuben Fisher

Imperial Oil Limited, Edmonton

Architects and Engineers, K. C. Stanley and Company



THE USE OF ASPHALT SHINGLES for the surface covering of roofs has become so widespread in Canada, and their performance is generally so satisfactory, that any unusual experience with them is worthy of special study. Such an opportunity presented itself to the Division of Building Research, National Research Council, in May 1951. On the 6th and 7th of that month severe wind-storms swept the Ottawa Valley and caused considerable damage to shingled roofs, especially within the City of Ottawa. It was decided that a thorough investigation should be made of the nature and extent of damage and the causes of the widespread failures in shingle roofing. The task of investigating the damage done by the storm was entrusted to Mr E. W. Glenesk, and the author.

Wind Velocities

On May 6 the wind reached a velocity (one-hour duration) of 47 m.p.h. from 2 to 3 p.m. with a maximum gust velocity (10 minutes' duration) of 62 m.p.h. at 3.30 p.m. From 10 a.m. to 9 p.m. on May 6 the direction of the wind

was south-westerly. From then until the early morning of May 7 the direction was north-westerly, changing to westerly and continuing in that direction until the evening, at which time the velocity had dropped to normal. Thus the most severe wind came from a south-westerly direction. No rain fell during the wind-storm.

Table I, which has been prepared from data received from the Meteorological Division of the Department of Transport, sets forth on a monthly basis the maximum velocities of one-hour duration and the maximum gusts of ten minutes' duration during storms which have occurred during the past five years.

From this table it will be seen that during the past five years, on two occasions only has the severity of the subject storm been exceeded and that storms approximating it in intensity and having gusts in excess of 40 m.p.h. have occurred on sixteen occasions.

The average wind velocity at Ottawa has been exceeded at 97 of the 162 weather stations reporting wind data in Canada. It may, therefore, be assumed that methods and

TABLE I
MAXIMUM WIND VELOCITIES IN OTTAWA*: 1945 TO 1950

Maximum Velocity for One Hour per Month												
OTTAWA (A)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945	25	35	35	40	41	21	24	29	30	37	30	29
1946	34	54	31	44	26	27	28	25	28	30	35	42
1947	34	29	32	32	36	33	26	26	32	26	27	35
1948	32	35	31	29	26	25	29	26	23	28	36	27
1949	36	30	27	26	28	28	26	22	39	34	25	30
1950	48	32	33	26	47	—	—	—	—	—	—	—

Maximum Velocity for Ten-Minute Period per Month												
OTTAWA (A)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1945	29	35	—	41	41	—	29	35	35	41	35	35
1946	35	63	35	46	29	29	41	29	35	35	41	46
1947	41	35	35	35	41	41	29	29	35	29	29	41
1948	35	25	35	35	29	29	35	29	29	35	35	29
1949	48	35	29	29	29	29	33	41	41	35	35	35
1950	52	41	35	29	—	—	—	—	—	—	—	—

*Readings: Uplands Airport

procedure that will produce satisfactory roofing in the Ottawa district will be equally satisfactory in at least one-half of the weather districts in Canada. Meteorological charts which define these areas will be found in the "Climatological Atlas of Canada" published jointly by the Meteorological Division of the Departments of Transport and the Division of Building Research of the National Research Council.

Installation of Asphalt Shingles

Before dealing with the survey of the damaged roofs, it may be well to review the accepted regulations and standards which are applicable to the laying of asphalt shingle roofing. The manufacturers of asphalt shingles usually include a sheet of instructions, presented graphically as well as in text, which are complete and leave no room for uncertainty on the part of the builder.

Among these instructions, as applying to 3-in-1 asphalt shingles, are the following:

The pitch of the roof should be 4 inches or more to the foot;

Roof boarding should be flat and true and so nailed that it will not curl or warp;

The flashing strip at eaves and along the rake of gables should extend not more than $\frac{3}{4}$ inch beyond the wood fascia;

A starting strip of slate surfaced roll roofing at eaves should be at least 18 inches wide and not less than 6 inches wider than the projection of the eaves;

An underlay consisting of one ply of asphalt waterproof breathing paper over the entire roof should be lapped not less than 2 inches;

First course of slate surfaced shingles laid at eaves over the roll roofing;

Six nails per 3-in-1 shingle applied $\frac{1}{2}$ inch above the top of the cutouts and $1\frac{1}{2}$ inches from the end of shingle and from the centre line of the cutouts;

Nails shall be large-headed galvanized or aluminum roofing nails $1\frac{3}{4}$ inches long when laying over old shingles and 1 inch long for new work; and

If exposed to extremely severe winds, butts should be cemented down with a 1-inch spot of asphalt plastic caulking cement under the centre of each tab.

Other instructions relating to ridges, valleys, and chimneys are included but are not repeated here as they have no bearing on the damage caused by the storm.

The following stipulations are extracts from the two principal sets of building regulations in Canada:

CMHC Standards

- a) Material shall be laid in accordance with the manufacturers' directions;
- b) Asphalt felt shingles shall weigh not less than 210 pounds to 100 square feet of roof surface; and
- c) Slope of roof shall be not less than 6 inches in 12, except that on Vancouver Island and lower coastal regions of the B.C. mainland, the slope may be not less than 5 inches in 12. (In CMHC Building Standards, 1954, it is stated that a pitched roof shall have a slope of not less than 5 inches in 12.)

National Building Code (1953)

- a) The minimum head lap shall be 2 inches;
- b) There shall be two nails for each tab. The nails shall not be placed at the head of the slot;
- c) Where experience shows it to be necessary the administrative official may require shingle butts to be cemented down;
- d) The minimum nominal weight per square and the maximum exposure shall be 210 lb. and 5 inches respectively. With special types of shingles these restrictions are somewhat relaxed.

Field Study

Before beginning the investigation in the field, useful information as to the location and general extent of the failures in various areas was obtained from the City Architect's Office and from the Head Office and the Ottawa Branch Office of Central Mortgage and Housing Corporation. On completion of the survey a local firm of insurance adjusters was interviewed. They stated that as a result of the storm between 500 and 600 claims had been filed and that the amount of the claims averaged approximately \$20.00 per claim. It was estimated that at least one in every 15 to 20 asphalt shingle roofs in the area had suffered some visible damage due to the wind-storm.

On examining the damaged houses it was found that, with a few exceptions, they had all been built during the previous five years and that they were located in all parts of the City and district where extensive new housing had been built during that time. With few exceptions, the damage to any one roof was not extensive.

In the majority of cases the failures had occurred at the eaves or ridge, but there were many cases of damaged areas in the general field of the roof and a few failures on the roofs of dormers. Roofs having a low pitch, 20 to 30 degrees, appeared to be more susceptible to damage than those having a slope of 40 to 45 degrees. All damaged slopes had a southerly or westerly exposure.

As nearly all of these houses were built under the provisions of the National Housing Act, a restriction had automatically been applied on the use of shingles under 210 pound weight per 100 square feet. The great majority of the shingles examined were 210-pound 3-in-1 shingles of the thick butt type on which nearly all manufacturers had standardized under war-time controls. Some houses, however, were roofed with 210-pound shingles of the flat type, that is, of the same thickness from top to butt.

Many shingles were examined and no defects due to manufacture were found. Failure could not, therefore, be attributed to this cause. The failures appear to have been progressive. The butt of a poorly laid shingle on being lifted by the wind exerted a lifting effect on the shingles above it and this action continued from shingle to shingle. The resulting flapping of the tabs of the shingles caused tearing at the cutouts and even at the point of nailing by pulling over the nail heads.

Findings from Survey

It would appear that the failures can be attributed to one or more of three causes: negligence in preparing the roof to receive the shingles; improper nails and nailing;

and faulty workmanship. On comparing the results of the survey with the Manufacturers' Instructions for Application and with the building regulations quoted, it was found that the instructions and regulations relating to the preparation of roof surfaces, to nailing and to workmanship had been violated in every roof examined in one or more particulars.

Preparation of roof surfaces:

- i) In every case the flashing strip at eaves and at the rake of gables had been omitted;
- ii) In most cases the starting strip for reinforcement over the eaves had been omitted;
- iii) In many cases there was no underlay sheet; and
- iv) In a few cases there was no underlay sheet, flashing or starting strip.

Nails and nailing:

- i) Many of the nails were not corrosion resistant;
- ii) A large percentage of the nails were too short, being less than 1 inch long; and
- iii) Very few shingles were nailed with the stipulated 6 nails; in most cases there were only 4 nails per strip and in some there were only two or three. A few shingles were found which had no nails at the butt line being nailed only at the upper edge by nails from the shingle above.

Workmanship:

- i) In some cases the projection of the shingles at the eaves and rake was too great; being as much as 1½ to 2 inches;
- ii) In a few cases the starting shingles were not properly laid or nailed;
- iii) In the majority of cases, the nails were misplaced: they were driven through the selvage instead of through the top of the thick butt or were placed immediately above the cutout instead of being the stipulated 1½ inches from either side: nails driven into the selvage were pulled through the material or caused it to tear: when nails had been placed at the top of the cutout, many of the shingles had split apart at this point;
- iv) Many of the nail heads were driven into the shingle to the extent that the imprint of the hammer head was visible: this had a punching shear effect which materially weakened the shingle;
- v) In no case had the tabs been cemented down as recommended for severe exposure; and
- vi) In a few cases the ridge shingles were dislodged because of improper lapping or nailing.

Discussion of Findings

Deficiencies in the preparation of the roof surfaces to receive the shingles, although not the principal cause of failure, were indirectly an important factor. The flashing

at the eaves and rake reduces the effect of icing which tends to loosen the shingles at the most vulnerable part of the roof. Most of the failures occurred at the eaves or rake of the gables and this may be attributed to the too common practice of projecting the shingles as much as 1½ to 2 inches instead of the stipulated ¼ to ⅜ inch.

Improper nailing was the most general and the most serious fault and would appear to have been the principal cause of the failures. If from any cause a shingle becomes loose, lifting action by the wind will occur. This lifting causes the rigid butt of the shingle to exert considerable leverage on the nails. Unless they are properly placed and firmly driven, this leverage will cause withdrawal. If the nails are placed above the butt in the thin limp section of the shingle, the material will tear at the nail. If they are placed above the cutout in the weakest point of the butt, the shingle will crack and fail at this point.

When a loose shingle is lifted by the wind it acts as a lever on the shingle above. The force of this leverage may be considerable as the ratio of length of butt to overlap is about 6 to 1. This action becomes progressive and may continue from shingle to shingle until the wind subsides.

The "thick-butt" shingle, which was developed to stimulate wood shingles, may be weakened at the cutouts if improperly nailed as is the case with all shingles. When nailed correctly the butt has a satisfactory resistance to bending but nailing above the thickened bond into the thinner upper part reduces the resistance of the shingle to the lifting action of the wind.

"Slab type" shingles which are the same thickness throughout possess considerable elasticity and being thinner than the "thick-butt" shingles offer much less resistance to the wind. They will bend without cracking and so the leverage on the nails is less. Only in the event of extreme lifting would there be any stress on the shingle above. As the shingles are the same thickness throughout, misplacing of the nails (within reason) would have little or no effect. It would seem that this would account for the fact that in the survey no failures were found in this type of shingle.

The main and direct cause of failure was, however, the disregarding of regulations and instructions for application. That 500 to 600 roofs in the Ottawa area were damaged by this wind-storm is impressive even though a relatively small area of each of the roofs was affected. The percentage of shingles damaged to shingles laid was actually very small. It may, therefore, be assumed that had all the shingles been laid strictly in accordance with the regulations and instructions the damage caused by this storm would, in all probability, have been negligible. The study reinforces the vital importance of adherence to the recommendations of the manufacturers of building materials. It also shows the eminent desirability of adequate inspection to ensure good workmanship in house building.

Warnett Kennedy

Frank Lloyd Wright

AT LAST IT IS BECOMING POSSIBLE to talk about modern architecture without too much passion and prejudice. Hitherto, there has been so much strong feeling "for" and "against" that we architects have avoided public discussion, preferring to wrangle it out among ourselves. To tell the truth, we have been living through a revolution. Instead of enjoying years of placid application of timeless principles, our working lives have been dominated by doubt and dissension sown within our ranks by the archbishops of design — the international hot-gospellers — Frank Lloyd Wright, Le Corbusier, Walter Gropius, Mies van der Rohe and others. On the side-lines, the man-in-the-street has been both amused and exasperated; but, at last, he has picked up some of the jargon. He is asking questions.

And so it is that I find myself in this series of talks trying to sort out the main ideas which have transformed our architecture since the turn of the century — trying to appraise, separate and, perhaps, challenge the revolutionary teachings of these fluent and talented men. Let's start off with Frank Lloyd Wright. He is, by far, the most irritating and it will clear the air for discussion to "polish him off", as it were.

But I can imagine how amused he'd be at any attempt to write him off so easily — this handsome over-eighty with the mane of white hair, the eloquent and expressive gestures. He looks, and is, a prophet crying in the wilderness — Arizona to be precise. It is no surprise to learn that his grandfather was a Welsh Unitarian preacher, his father a music teacher turned Baptist minister and his mother a school-teacher. Before he was born, his mother said that he would be an architect. But many architects think that this is carrying competition too far! His grandfather, who emigrated from Wales to Wisconsin, had a family crest — a Druid symbol — with the motto, "Truth against the World."

From these roots, Frank Lloyd Wright grew to be self-confident, egotistical on his own admission — a young architect secure in the conviction of his own genius. Nevertheless, he pays warm homage to another man of genius, Louis Sullivan — "the Master", for whom he worked as personal assistant over a period of six years. Sullivan it was who coined the famous phrase, "Form follows function".

But it would be a mistake to think that the poetic Wright took over his master's gospel. Instead, he branched off with a declaration of principles and a way of expressing them which were peculiar to himself. Now, these principles have, of course, been preached by other men in other lands but Wright's colourful word-play, his output of work and the sheer force of his rebellious personality have combined to make them his own.

Can you imagine the spell which this man casts over the minds of restive young architects? Sometimes, I think that he would have achieved the status of a demi-god in any event, if only on account of his ability to mock and expose the weaknesses of the Classical Tradition in architecture as applied in this modern world. Indeed, I find his books both stimulating and irritating. A statement of his *positive* beliefs is difficult to come by. Instead, we have chapters of eloquent debunking in-

terlarded with half-glimpses of the new world of Wright's organic architecture. But fifty years ago, America had little or no tradition of her own. She borrowed from Europe and in every city was building pseudo-classical skyscrapers, banks and office buildings. So much so that it was said, "Good Americans, when they die, go to Paris."

Now, here are some of Frank Lloyd Wright's own ideas. He contrasts what he calls "thought-built" architecture with conventional designs which are put together by a process of compiling. We see this process at work today. Laymen in particular are to be found thumbing through the coloured "glossies" borrowing ideas which are thereafter tacked together to resemble a house design — a sort of "do-it-yourself" trend in home architecture. Against all this, a "thought-built" design is one which grows directly from its own soil. He uses this word, "soil", not only literally, but almost in a mystic sense to embrace all the pre-existing conditions peculiar to each assignment. It is as though each building were likened to a plant which in its growth displays accurately the precise soil conditions from which it springs. Architecture which grows to full bloom in this way he calls "organic" architecture. Now, right away you can see that this high ideal — this "thought-built" or "organic" architecture, in the hands of architects who are not blessed with a creative bent, can lead to endless experiments which madden the clients. But, on the other hand, the lack of it can lead to a debased situation wherein the architect is employed merely to "tart up" structures.

But let's get to grips with the basic idea which animates all modern architecture of whatever school of thought including the Wright school. I refer to the new use of space. Now, the layman seems to brush aside this space idea as just so much "baffle-gab" — and, indeed, seldom have so many difficult words and phrases been used to describe a simple idea. But, without this simple idea, it is impossible to understand what is happening in architecture today. It is the seed-thought.

Now, to understand Wright's idea, one must first realize that the "feel" of a room is caused not so much by the enclosing surfaces and the decor as by the shape and size of the air-space of the room. An architect, when designing, can vary the "feel" of a room by squeezing a given volume of air-space into different shapes — perhaps a higher or lower ceiling, a long or a short rectangle, an L-shape or even a change of floor level. In every case, the "feel" is quite different. When one comes to think in this way, the rooms of a house need no longer be always a series of closed boxes, and if, say, one wall be made transparent, the "space-feel" can be extended perhaps to the end of the garden or to a distant horizon.

In the same way, one can think of the shapes of the spaces outside and surrounding the building. That is why modern architects are fond of using screened patios to enclose outdoor living rooms which are designed to join up with the inside living spaces. Perhaps one of the reasons why our cities are so deadly dull is just this lack of consciousness of the "feel" of public spaces. We set our buildings alongside each other like

a row of ninepins, — only ninepins are at least related to each other in height and spacing. Our buildings are more higgledy-piggledy.

Wright is essentially a nature worshipper. He sees, in the fusing together of all the parts and purposes which make up a building design, the "nature principle" — the same process by which Mother Nature builds a tree. Everything belongs; everything is essential and interdependent. A tree is not butt-jointed together with small independent units. It is all one continuous structural growth subtly interlaced in the same way as a reinforced concrete building is held together by tensioned steel strands.

Wright is famed for his "Taliesin", which is the name of the home-cum-office-cum-training centre for his disciples. Among his other famous buildings are the Johnson Wax building with its vast hall of mushroom headed columns, the Imperial Hotel

in Tokio, countless private homes — perhaps, the most-photographed is "Falling Water," part of which is cantilevered above an actual waterfall. And I might mention the design of the Morris Glass and China Shop in San Francisco, which seems to contradict the basic teaching of Wright himself. But more of that in a later broadcast.

Frank Lloyd Wright seems to enjoy being at odds with his fellow moderns. He despises the so-called "international style". High blocks of flats and offices he dubs "standardisation way up on stilts".

But, in spite of Wright's scorn, you may be surprised to hear how convincing are the arguments on the other side; how many sided is genius in the field of modern architecture. So in my next broadcast I hope to tell you something of the life and work of that irrepressible Swiss architect-painter, Le Corbusier.

Le Corbusier

IN MY LAST BROADCAST, I talked about that colourful character Frank Lloyd Wright, "the prophet from the American prairies". I referred to his scorn of the so-called "international style", which includes the work of many brilliant European architects. Let me tell you about one of them — the famous Le Corbusier.

He was born in French Switzerland and left school at thirteen and a half years of age to become apprenticed to an engraver for a period of three years. He designed his first house at seventeen and built it when he was eighteen. He studiously avoided the schools of architecture. We school-trained men hardly know what to make of this! Following a family tradition, he was also a painter and it is said that he still paints every forenoon.

I have not had the pleasure of meeting Le Corbusier personally so I will give you a description by the painter Fernand Leger, who wrote, "One day, in Montparnasse, a friend said to me, 'Just wait; you are going to see an odd specimen. He goes bicycling in a derby hat.' A few minutes later, I saw coming along, very stiff, completely in silhouette, an extraordinary mobile object under the derby hat, with spectacles and in a dark suit. It was the outfit of a clergyman and of an Englishman on a weekend. He advanced quietly, scrupulously obeying the laws of perspective. The picturesque personage, indifferent to the curiosity he awakened, was none other than the architect Le Corbusier."

In appearance nowadays, Le Corbusier is hardly impressive — a smallish bow-tied chain-smoker of grave expression. But this misleading exterior hides sparkling imagination and enthusiasm, a brilliantly incisive intellect and a gift for lucid exposition.

Here is one of his more inflammatory passages. What young man could resist it? He writes, "Break down the idea of schools. Have done with formulae, tricks of the trade and slickness. We are on the threshold of discovering the architecture of the modern age. Let us have fresh proposals from every quarter of the globe. In a century's time, we can begin to talk of 'style'. Today, we dare not." He goes on, "I want architects to become the very elite of society — men with the richest intellects and an intelligence open to everything (instead of having an intelligence as hermetically sealed by professional specialism as that of grocers). Architecture is a habit of mind — not a profession."

Right away, let me confess that, when I was a student architect, the writings of Le Corbusier swept me off my feet. And, on my first visit to Paris, I hurried to the University City to see his Pavillon for Swiss students. I was sick with excitement. Coming from Glasgow, the contrast with anything I had known

was startling. The impact of so much thought which was fresh and new to me was quite overpowering. Le Corbusier, even today, when we are more accustomed to his type of architecture, still retains the ability to open doors in the mind and show us a world of still unconquered possibilities.

In the year 1930, Le Corbusier completed the construction of a villa at Poissy in France. At first glance it looks like a perforated cube on stilts but, when one starts to ask questions, it becomes clear that this remarkable design embraces a whole new set of principles. The stilts or pillars run clear and exposed right through the structure and, together with the floor and roof slabs, form the skeleton. The outer and inner walls, therefore, are quite free of structural value. So Le Corbusier is able to place the partitions anywhere at will, thus achieving what is called the "free plan" — as against the traditional method of treating each room as a closed box. This means that he can obtain special effects of space inside the cube. In this villa the roof garden is connected down into the interior by open ramps allowing the sunshine to penetrate into the heart of the house.

Now, Le Corbusier knows that, on the majority of house lots, a proper view of the countryside cannot be obtained from the ground, so he keeps the house raised on its stilts, thus also allowing the garden to spread underneath the house and alongside the car space.

Right away, you see how he differs from Frank Lloyd Wright, who believes that a house should cling to the ground.

In 1927, an international competition made world news. The contest covered the design for the Palace of the League of Nations at Geneva. Three hundred and seventy-seven schemes were submitted and it has been calculated that the drawings — placed end to end — would have stretched for eight miles. I don't quite know if there is any significance in this fact.

Until Meeting Number 56 of the panel of judges for the League of Nations Building, the design submitted by Le Corbusier and his partner ranked First Place. But, thereafter, it appears there was some "hanky-panky". The whole conception was so startlingly new and challenging to public opinion at the time that the academic judges lacked the courage or conviction to entrust the work to Le Corbusier. Instead, a panel of four traditionalist architects were appointed and actually carried out the now-forgotten "Palace". Many of Le Corbusier's pioneer town-planning schemes have suffered the same penalty, by pressing too far ahead of public opinion.

But I must tell you of his Housing Block in Marseilles. This project was in the nature of an experiment — to test Le Corbusier's conviction (and here he is again at odds with Frank Lloyd Wright) that housing for, say, sixteen hundred persons

need not be scattered over a wide area as little boxes, each with a tiny plot of ground. Instead, the same area of ground was left as beautiful open greenery and everyone housed in one huge high block centred on this parkland.

The building took five years to build — seventeen storeys of it — and contains three hundred and thirty-seven apartments. The shopping centre takes up the mid-level floor and is, in fact, somewhat like an internal street. Up on the seventeenth floor is a nursery for the young children and, of course, the roof garden contains a pool and play space, gymnasium and even a space for outdoor theatrical performances. The entire scheme is an essay in “social imagination”.

The expression “Social Imagination” describes what is expected of architects nowadays. Of course, architects at all times have had to look to the social needs of their clients. But the needs of private individuals and business groups are so much smaller in scale than the needs of modern industrial society — which requires whole new towns, vast programmes of housing and school building and, sometimes, entire industrial estates. It is midsummer moonshine nowadays to allow cities to grow and sprawl across the countryside cube by cube, little house cubes cheek by jowl with shop cubes and factory cubes and all the service entrails for these cubes tangled together and streams of automobiles circulating endlessly in and around these wee cubes. Seen from above, these cities appear to spread

planlessly, like a fungus, eating up the good earth.

Sometimes, I think that we, the public, can be divided into cave-dwellers and tree-toppers. The cave-dwellers incline to the ideals of Frank Lloyd Wright, preferring to live in homes which cling to the soil, nature-lovers — every man to his own acre.

The tree-toppers would follow Le Corbusier into *his* houses, raised above the ground on posts and, from the roof terraces, enjoying commanding views over the countryside or perhaps into the penthouses of his Radiant City — the city of towers rising above a sea of greenery.

But what — you may well ask — is Le Corbusier doing today? Well, his destiny has led him to a unique commission — to India, to the Punjab. The capital city of the Punjab is Chandigarh, and Le Corbusier has been appointed consultant architect-planner. It is a strange assignment — because it entails a marriage between the highly abstracted intellectualism of this great architect and the folksy traditionalism of the Punjabis. It remains to be seen whether he will be able to remodel the living habits and prejudices of an ancient people nearer to his heart's desire.

In my next talk, I would like to discuss the ideas of that monastic German/American architect, Ludwig Mies van der Rohe.

Mies van der Rohe

YOU MIGHT IMAGINE, from my previous talks on the works of Frank Lloyd Wright and Le Corbusier, that architecture is the affair of prima-donna personalities — but that impression would be quite misleading. It is only when the new ideas developed by these individuals are merged into the mainstream of development and become anonymous that true progress is being made. Actually, modern architecture is be-devilled by celebrity-architects, usually of lesser stature than the men we have been discussing, and whose eccentricities and novelties contribute nothing but confusion to public understanding.

A refreshing exception is to be found in the work of that austere perfectionist, Ludwig Mies van der Rohe. Here is a man whose work influences many architects today. He makes few public statements but his influence seems more pervasive than that of more colourful characters.

Ludwig Mies was born in Aachen, Germany, some sixty-eight years ago. Later, he added his mother's surname, van der Rohe. He had no formal architectural training. His father was a master mason and stone-cutter, for whom he worked for a time. Later, he was apprenticed as a furniture and cabinet designer. Perhaps these occupations laid the foundation of his impeccable craftsmanship.

Sometimes, it seems as though gifted and creative men are drawn to each other by some psychic force — because young Mies found himself working for the pioneer architect, Peter Behrens, at the same time as Walter Gropius and Le Corbusier. It would seem that there are qualities in one's education which can only be transmitted by personal contact. I can think of people in my own life who had the power to bring alive some latent potential within me. I often wonder how much weight our educationists give to the imponderable qualities which can only be found in the “born” teacher. There must have been a special ferment of the spirit alive in Peter Behrens' office to attract these three talented young men.

In 1930, Mies became director of the famous Bauhaus school in Germany, but as the Nazi revolution developed, all that he stood for became imperilled. It would seem that Nazi political revolutionaries cannot abide architectural revolutionaries and

the same is true of the Communists, whose architectural ideas incline towards the erection of huge classical palaces. Mies van der Rohe left Germany for America and became an American citizen in 1944. He is now Director of Architecture at the Armour Institute.

I cannot convey to you a warm living portrait of the personality of this man — because, for me, his personality has never come alive in human terms. I can only see him through his work, and get the impression of a disembodied brain inhabiting a rarefied world of pure spirit and art. And somehow, in this way, he influences me more deeply than the others we have been discussing. The others can be understood; Mies van der Rohe must be understood and felt.

His work demands that rare fusion of reason and emotion which is the goal of all our education. I can remember the shock with which I discovered a photograph of Mies and found him to have a face and flesh and blood like any of us!

In the work of Mies, you will find the same characteristics as in those of other leaders of modern thoughts — the “skin and bone” construction which leaves the outer and inner walls free of loads, the connecting up of the inner spaces, the use of glass and rich materials — but he stands out from them all in his passion for clear, lucid planning and detailing. The process of eliminating inessentials is carried to an extent which sometimes seems fanatical — but how well he proves to his fellow-architects that only by “raking out all the ashes can the fire burn brightly”. He has condensed this purist attitude in the well-known phrase, “less is more”.

But in the opinion of many, he leads his generation in his ability to bring everything — literally everything, including furniture and accessories, into a strict masterly artistic control. His sense of placement of objects is remarkable. His interiors are set pieces — somehow intimidating. The careless shuffling of a table or chair causes a psychic shock to the over-sensitised owners.

Before mentioning some of the projects for which Mies van der Rohe has been responsible, let me try to convey something of his ideas. He rejects traditional planning which uses major

and minor axial lines to give order and cohesion. Instead, he believes that a scheme is held together by the regularity of the skeleton structure. He rejects applied ornament and substitutes rich color, fine structural detail and beautiful materials. As against the play of light and shade on the surface of old masonry walls, he emphasises the play of reflection and transparencies of his glass walls. He abandons the traditional search for beautiful forms as the aim of architecture, believing that forms should be derived from the life of the building, not invented for their own sake. He is more concerned with the beauty of machinecraft than handcraft in this modern age and cites as an example that the automobile is no longer manufactured by carriage makers.

The first house built by Mies embodying all his beliefs without compromise, burst upon society with the effect of a time bomb. The occasion was the opening of the German Pavilion at the International Exhibition in Barcelona in 1929. Contrary to public expectation, the effect of luxury was overwhelming. With unexampled precision, he built up his design from interpenetrating slab walls of precious materials, glass and marble, reflecting pools and thin elegant roof slabs, hung upon a skeleton of chromed metal columns. To this day, it is considered a classic of modern architecture.

Incidentally, Mies van der Rohe it was who first introduced the zoning of house plans — now so popular. He separated the Living Zone from the Sleeping Zone and the Service Zone.

Now, turning to his larger works — this is no time to talk at length of the beauty of mathematics. But those who hope to understand the new architecture will have to follow both Mies van der Rohe and Le Corbusier into the realm of harmonic pro-

portions upon which their modular schemes are based. Mies is now working on the vast new campus buildings for the Illinois Institute of Technology. Here again, we find that all too rare combination of a great architect and a great client, without which combination great architecture is seldom possible.

You know, all this talk of human scale and concern for the humanities which is part of the jargon of modern architecture including Mies, is somehow suspect. It seems to betray misgivings. It reminds me of the story of the salesman trying to sell a second-hand bicycle. He says, "This bike is in perfect condition — and there's nothing wrong with the back wheel." Surely, the truth is that the problems put to architects nowadays are dehumanised before they start work on finding solutions. It seems inevitable that thousands of men and women must spend their lives in the skeletal skyscraper beehives which comprise our modern office and apartment blocks without the faintest possibility of their individual likes, dislikes, dreams and personal eccentricities being reflected in the structure. They must shape their lives to their own cells — not the cells to their lives.

The Chicago waterfront block of flats, designed by Mies van der Rohe in 1952, represents, perhaps, the best that can be done to introduce elegance and refinement into the necessarily beehive existence of the occupants.

Now, in these broadcasts, I have been trying to express the creed of modern architects as seen through the eyes of the great triumvirate, Frank Lloyd Wright, Le Corbusier and Mies van der Rohe. In my next — and last — broadcast, I intend to voice some of the misgivings of those architects who fear that we are coming to a dead-end, if this path *only* be followed much further.

The Big Three — A Summing Up

IN MY LAST THREE BROADCASTS, I tried to isolate the teachings of the Big Three modern masters — Frank Lloyd Wright, Le Corbusier and Mies van der Rohe, but it became clear that they really have a great deal in common, despite the obvious differences in the outward expression of their architecture. Indeed, the architectural creed which is generally accepted by the profession today is an amalgam of their ideas. Of course, it is an over-simplification to talk of the Big Three. There are others who have enriched the mixture, notably Walter Gropius, the founder of the Bauhaus School in Germany and now an Elder Statesman of Design, resident at Harvard University. One might also mention Richard Neutra, Marcel Breuer, Pietro Bel-luschi, Oscar Niemeyer, Eero Saarinen all of whom have, in one way or another, extended the range of modern architectural expression.

But in these short talks, I have had to confine the discussion and have chosen to talk of the Big Three. First, we had the flamboyant personality of that great American Nature-lover, Frank Lloyd Wright, with his horizontal dream city, which he calls "Broadacres" ("every man should own at least one acre", says Wright), and what he calls his "organic" architecture. Secondly, there was the short energetic French-Swiss visionary, Le Corbusier, with his vertical dream city — a city of glass towers rising above spacious parklands and criss-crossed by elevated express-ways; and thirdly, we had that great artistic purist inhabiting his own rarefied world, Ludwig Mies van der Rohe. He it was who re-captured for our generation the exquisite beauties of simplicity. There they are — and, together, they have given us our modern architectural creed — already quite a doctrinaire business. Within the profession and the schools they are powerful forces tending towards conformity to this creed. To challenge it is to run the risk of being labelled "reactionary". But no less a thinker than that great American

social philosopher, Lewis Mumford, has been wondering in public whether the modern masters are leading us into a cul-de-sac and, in this, he is voicing the misgivings of many.

In a previous broadcast in this series, I referred broadly to a division of the public into those who are, by temperament, cave-dwellers, and to those who might be termed tree-top-dwellers. The clean, space-freed glass-walled structures so characteristic of today's architecture find a ready responsiveness among the tree-toppers but the question might well be asked, "Has the new architecture nothing to offer to the cave-dwellers — the men and women to whom absolute privacy is a basic need?" It is simply not good enough to brush them aside as old fogies awaiting emancipation.

Now, I would like to make it clear that I am not myself a cave-dweller type. In point of fact, I am at present engaged in extending the area of glass of one side of my home — the side which faces the sea-wall and is, therefore quite private except from the seagulls. I would love to live in a glass-walled house, say on a mountain top or wherever reasonable privacy could be assured. But I can appreciate that there are others — probably a majority — who do not share my enthusiasm and, for them, the architecture of today has fewer exciting solutions. Indeed, the idea of "cosiness" has become synonymous with the old humanist tradition in architecture. Surely, this implies that the modern architect's vocabulary must be extended?

One might criticise the modern architectural creed from another point of view. According to the creed, the external form and appearance of a building should reflect the internal working life of the building and the structural system upon which it grew. We should be able to imply from the exterior the functions and purposes of the interior. This is, theoretically, admirable; but, in practice, we are dismayed to find growing up, in all countries, countless buildings all with a similar out-

ward expression: that is, usually a steel and concrete modular skeleton structure with glass skins as outer walls. Sometimes, it is difficult to distinguish between their varied uses. Are they offices, hospital blocks, apartments, auditoria, or multi-storeyed workshops? In our passion for the skin-and-bone architecture called for by the creed, we have forgotten one lesson of history — that there is such a thing as “stomach” architecture.

This expression is not mine. It is that of Misha Black, a well-known British architect. Now, what does he mean by “stomach” architecture? Well, the most extreme example might be the Great Pyramid, which gives no external clue to the shapes of the interior. Suppose we admit that this is a specialized structure. Let’s take a better example. The Baptistery in Florence is considered to be great architecture, but there is a complete separation between the external expression and the magical volume within. One can think also of the villas of ancient Pompeii. From the street, they often showed only a blank wall with a small doorway; but the interiors were a complete surprise, with their internal courtyards and luxurious decoration and furnishings; and, to take an up-to-date example, there is Frank Lloyd Wright’s China and Glass Shop in San Francisco. The wall to the street is completely blank except for a tiny arched entrance — certainly nothing to give a clue to the magic space within with elegant ramps and plastic bubble roof lights. The whole conception is a rich fantasy internally contrasted with a deliberately misleading exterior.

Sometimes, I think that the grand-scale rich interiors are almost things of the past. The technical complexity of large-scale building today leaves neither time nor money to give full artistic expression to the interiors, decoration and furnishings. This work goes by default. But observe! A new trend! After the completion of the United Nations building, the interiors of the main assembly halls were assigned to three separate designers. Another example! The interiors of the Royal Festival Hall in London were the work of a separate design consultant, (who happened, also, to be an architect). He was called in right at the outset and sat in with the building architects while the building itself was being designed. Perhaps that is why there

is no disharmony but, rather, a heightened overall effect.

Surely, this implies that a re-appraisal of today’s architecture is overdue. If we fail to advance to a new enrichment, we run the risk of sliding back into the sentimental building of the late nineteenth century. Of course, we are all well aware of the danger of divorcing — even on occasion — exterior and interior, even although there are these excellent historical precedents, but the hunger for an enrichment of our architecture will, in fact, have to be met. And if the challenge does not find its response within the new creed, it will assuredly find it in the past. That is, in fact, what is happening in England today. The leaders of the modern movement are introducing into their “contemporary” designs motifs from their Edwardian and Victorian past. It is all done very subtly and with great skill, but the new world cannot adopt the solutions of the old world and must, therefore, make a tremendous creative effort to find new and valid forms of enrichment. We seek new paths to follow. Perhaps, we seek new leaders. But out of creative discontent someone, somewhere, alive today, will focus our new needs and point the way to their satisfaction.

The flabbiness with which people nowadays are content to accept standardised solutions to all their building problems is positively frightening. The drive towards conformity needs no encouragement from architects, although that gospel is actually being preached by some architects today. Surely, the real need is for more leaven in the lump. The technical means at our disposal are so rich, opening to our imaginations so many breath-taking possibilities that one wonders at the poverty of our accomplishments. Our standardised thinking; our fear of the unorthodox; our readiness to fall in line; to conform! One cannot but infer the existence of a social canker. The law of life is “adapt or perish”. The law of society seems to be “Conform or perish”; but it was Solomon who said, “Where there is no vision the people perish.”

The above were four CBC talks given by Warnett Kennedy from Vancouver.

VIEWPOINT

Is it time we removed the restriction which prevents architects being members of a contracting organization?

The duties of the architect to the public comprise two major functions. The architect has to translate the requirements of his lay-clientele into building parlance, and he has to interpret building contracts between client and contractor with impartiality, guided only by his sense of fairness. He must possess at least adequate professional aptitude but more important still his reputation in the community must be one of absolute integrity.

As a member of a contracting organization, the architect assumes a position which does not allow him to exercise unfettered professional judgment. The loyalty to his firm exercises the predominant influence over him, and commercial expediency must override professional scruples by sheer weight of bread-winning considerations. This can lead to situations where the architect has to condone mal-practices to the detriment of the profession at large, and at the same time to the detriment of the public as a whole.

Only by continuous endeavour of the highest calibre on the ethical plane will the architectural profession in Canada succeed in achieving that status which it enjoys elsewhere. Anything not designed to assist that end must be considered undesirable.

Peter Caspari, Toronto

In this era of improved building techniques and new products, engineers and building specialists have assumed roles of major importance in construction and the architect, a well qualified professional artist, the master of the work, must remain, at all cost, true to himself and his clients.

By becoming a member of a contracting organization, he will subconsciously curb either his inspiration or his freedom of choice, depending on his financial interest. He is primarily an artist, a man who beautifies space and volume, and he must remain so more than ever today when architecture in many instances, tends to yield to mere technique.

Why should an architect have financial holdings connected to his field when so many other outside interests are available to him without being prejudicial to his art?

André Gilbert, Quebec City

The term "architect" is derived from the Greek prefix meaning "chief workman" which term naturally does not apply where the individual is an employee of a contracting organization.

Perhaps we should introduce a new title for those not following a professional practice.

Some modern and efficient industries use architects in all phases of their construction while other organizations, similarly efficient, seem to prefer the contractor to solve their problems. This variation indicates poor public relations on the part of practising architects.

Clare P. Thompson, Toronto

NEWS FROM THE INSTITUTE

CALENDAR OF EVENTS

British Architects' Conference at Norwich, England, May 30th to June 2nd, 1956.

Annual Assembly of the RAIC, Banff Springs Hotel, Banff, Alberta, June 6th to 10th, 1956.

75th Anniversary Celebration of the American School of Classical Studies at Athens, Greece, August 31st to September 2nd, 1956.

MANITOBA

This page of the *Journal* is here for the purpose of providing Provincial Associations with an opportunity to report on matters within the local Association's jurisdiction and scope. I often wonder who reads it, except "localities", perhaps only the man who writes it. We are, this year, in our Association doing everything possible to improve the fellowship, co-operation and understanding in our own Association, which, like all others is growing by leaps and bounds.

Thinking nationally, I feel that what is needed in our RAIC *Journal*, is a page headed "The Looking Glass". Here can then be reflected thoughts, which in time may blossom into sound policies for the Institute. To this page

every member should be encouraged to write. What a clearing house it would be.

Let's institute this page and let's work together in this Canada of ours to be leaders, not followers.

Norman C. H. Russell, Winnipeg

ONTARIO

So rigid and multiple are the physical demands of our present-day buildings, that we, as architects, perhaps neglect the spiritual aspects of our creations. A ventilating system must fit successfully into our design; the restrictions of local municipalities must be satisfied; our client's planning requirements must be arranged in a functioning order. But, must not architecture satisfy the aesthetical qualities that are within us also? Many of our buildings today appear to be mere exhibitions of our creative techniques and not of our truly creative arts. It is true that in an industrialized civilization such as ours we must make use of and keep abreast of the advances made by our industries. Time has proven, however, that as science progresses—so does art, in all the many fields of its expression. Should we not ask ourselves, therefore, whether we are taking advantage of the many and varied creative arts that are readily available to us, and which can be used

beneficially in the appearance of our buildings?

The architect today should, by necessity, be not only the co-ordinator of the many techniques involved in building, but also the co-ordinator of the many art media involved. By failing to appreciate the possibilities of the allied arts in architecture we are limiting our design scope.

Have we lost the idea that the cultivation of our senses is as important as the cultivation of our minds and bodies? Through our professional status in society we can do much to raise the standard of both artistic endeavour and appreciation. We cannot live today without participating in the efforts of our fellow man.

Our knowledge today is based on both the personal experiences of our own, and our forefathers' lives. Should we not participate totally in the arts and not just one of them, for by so doing we may gain fresh solutions to our own problems, as well as becoming more fully versed in the ways of our fellow creative artists.

"The total achievement of a group of individuals, who are trained in specific fields, but who are also aware of the correlation of their respective fields with the whole, can be expected to be and will be of a higher order than the sum achievement of the same group of individuals working alone." — Walter Gropius.

K. H. Foster, Toronto

OBITUARY

Well known Ottawa architect and soldier, **Lt-Col. Clarence James Burritt**, VD died in hospital at Ottawa on Tuesday, January 31st. He was 81. Col. Burritt, former commanding officer of the Princess Louise Dragoon Guards, and one of the most faithful and ethical members of the Ontario Association of Architects, had not been active since serving with the Engineering Services of the Second World War. A strong supporter of the Ottawa Chapter of the OAA, he served as an elected member of the Ontario Architects Registration Board, for five years from July 1935.

Born in Peterborough, Ontario, he was a son of the late Horatio Burritt and Harriet Rogers. The family moved to Toronto, and, there, Col. Burritt received his school and university education. In 1900 he moved to Ottawa to become a partner in the firm of Band, Burritt and Meredith. He was married there in 1906 to the former Eleanor E. (Bee) Ryley, who survives. Col. Burritt was made a Fellow of the Royal Architectural Institute of Canada in 1930.

Always interested in military life, Col. Burritt first enlisted with the Queen's Own Rifles of Canada at Toronto in 1893. He became attached to the PLDG after moving to Ottawa. At the outbreak of the war, in 1914, he enlisted and went overseas with the first Canadian Expeditionary Force, rising to the rank of Lieutenant-Colonel at the time of his discharge. He succeeded to the command of the PLDG in September 1920 but relinquished the post the following year, when he went on the Officers' Reserve list. In 1939, he volunteered for service as a civilian in government engineering services, and served until September 1944, when failing health forced him to retire.

William J. Abra, Ottawa



The Royal Architectural Institute of Canada announces the award of the RAIC College of Fellows Scholarship for 1956 to **David Ernest Horne** of Toronto.

A. J. C. Paine, President of the Royal Institute, in speaking of this award, states that this Scholarship is awarded every second year to a graduate of a School of Architecture of a Canadian university, that its purpose is the advancement of architectural knowledge through travel, study or research and that the value of the Scholarship has been increased to \$2,000.

Mr Horne was born in London, England in 1929, moved to Vancouver at an early age and graduated from the School of Architecture of the University of British Columbia in 1955.

During his student career, Mr Horne has taken part in most of the activities of the university. In addition to high grades in architectural subjects his achievements have included the winning of the book prize of the Architectural Institute of British Columbia for outstanding ability for architectural design in the fifth year and the winning of the Canadian Pittsburgh Industries award.

Most of Mr Horne's summers have been spent working as a draftsman or gaining experience in construction work and he is now employed as an architectural assistant in the firm of Shore & Moffat, Architects, of Toronto.

With the concurrence of the College of Fellows of the Royal Institute, Mr Horne plans to obtain his Master's Degree in Architecture and then to proceed with his study and scholarship thesis. His thesis is the development and result of architectural teaching techniques, prepared with a view to entering the teaching profession in architecture.

The Chancellor of the College of Fellows, Burwell R. Coon will make the formal announcement of this Scholarship at the 1956 Annual Assembly of the Royal Institute to be held at Banff, Alberta, 6-10 June, 1956.

RAIC ALLIED ARTS MEDAL

The Royal Architectural Institute of Canada announces the 1956 award of the Allied Arts Medal, which is awarded each year for outstanding achievement in the fields of the arts allied to Architecture.

This year's award has been won by **Lionel A. J. Thomas**, Artist, of Vancouver, B.C. Mr Thomas was born and received his early education in Toronto and his art education at the John Russell School of Fine Arts and the Ontario College of Art in Toronto. His education was continued at the Hans Hoffmann School of Fine Arts at Provincetown, Massachusetts and the California School of Fine Arts at San Francisco.

Among the many awards which Mr Thomas has taken are the Diploma of the Canadian College of Music, a Scholarship



from the John Russell School of Fine Arts and a Scholarship under the Emily Carr Trust Fund. In addition to these, in 1952 Mr Thomas won awards of the Florida International Art Exhibition and the Pacific Northwest Artists Exhibition in Seattle. After a period as an instructor in the Vancouver School of Art and the summer School of the University of British Columbia, Mr Thomas joined the staff of the School of Architecture of the University of British Columbia and is teaching there regularly. Among the professional societies of which Mr Thomas is a member are: The BC Society of Artists, The Federation of Canadian Artists, The Canadian Group of Painters and the Canadian Society of Watercolor Painters.

In addition to his teaching work, Mr Thomas carries out commissions for the various parts of buildings for the architects of those buildings. It is said that his success in this field is largely because of his ability to integrate art and architecture and to apply the ancient skills to modern structures. Mr Thomas' work has shown great versatility in the various materials in which he can work. These include canvas, mosaic, ceramic tile and enamel. In his work with architects Mr Thomas has seized the opportunity to participate in the everyday environment and to help narrow the existing gap between the artist and the public. In addition to this Mr Thomas has served as a colour consultant for several schools, a children's hospital and other buildings.

A few of his works include: — A mural on canvas for the Mercantile Bank of Montreal at Vancouver; furnishings of the aviary at the Vancouver Zoo; the copper doors for the Church of Our Lady of Perpetual Help in Calgary; a large figure for the Church of Our Lady of Assumption in Edmonton; doors, murals, altar fronts and Stations of the Cross for the Chapel of St. Thomas More College, Saskatchewan (Architects: Gardiner, Thornton, Gathe & Associates) a large mural for the Vancouver Public Library (Architects: Semmens and Simpson).

A. J. C. Paine, President of the Royal Architectural Institute of Canada, in speaking of this award, states that Mr Thomas becomes another of an increasing group of outstanding Canadians in the fields of the allied arts whose works have brought credit to their professions and pleasure to the public.

The Allied Arts Medal will be presented to Mr Thomas at the 1956 Annual Assembly of the Royal Architectural Institute of Canada to be held in Banff, Alberta, 6-10 June, 1956.

NETHERLANDS GOVERNMENT SCHOLARSHIP 1956-1957

The Netherlands Government announces a scholarship to enable one Canadian to study in The Netherlands during the academic year 1956-57.

Value: The scholarship will be tenable for a period of nine months and will amount to fl. 2,250 (approximately \$585), with exemption from university fees (fl. 325 — approximately \$85).

Qualifications: Applications from university students, research workers and other categories, such as architects, painters, musicians, etc., will be accepted. University students and research workers who wish to apply for this scholarship must be pursuing graduate or post-graduate studies. Those wishing to secure further training in the creative arts must have sufficient training and experience to enable them to enroll in an institution in The Netherlands which offers advanced work in their art. (It is recommended that the successful candidate acquire some knowledge of The Netherlands language before departure from Canada.)

References: Applicants are requested to furnish recommendations from at least three persons who are familiar with their work and who are experts in the field concerned. A short biography of the applicant mentioning date and place of birth, marital status, present occupation, educational qualifications, and other training and experience should be included. If possible, applicants should also submit specimens of academic papers or photographs of artistic work which they have produced.

Applications: Applications should be addressed to The Royal Netherlands Embassy, 12 Marlborough Avenue, Ottawa 2, Ontario, before June 1, 1956.

CONTRIBUTORS TO THIS ISSUE

Warnett Kennedy was born in Glasgow, Scotland, and received his training at the Glasgow School of Architecture. He practised architecture in Glasgow and London, and worked on the Festival of Britain. He is presently engaged as architectural designer for the Annacis Island Industrial Estate, and is also planning large-scale residential estates in British Columbia. Mr Kennedy has an independent practice in Vancouver, and is a planning consultant and industrial designer.

Before the war, **Mr J. Irving Lawson** was a partner in the firm of Marani, Lawson and Morris, but came to Ottawa to assist with war work. He completed this service with Central Mortgage and Housing Corporation and joined the Division of Building Research in 1948, shortly after its inception, on loan from the Corporation. He transferred to the Division in January, 1950, and was a member of the staff until retirement in 1953. Mr Lawson did much work in connection with the revision of Canada's National Building Code. His wide experience in building throughout Canada was of great benefit to the Division during its formative years.

BOOK REVIEWS

BUILDING PLANNING AND DESIGN STANDARDS by Harold R. Sleeper. Published by John Wiley & Sons, Inc., New York. 331 pages. Price \$12.00.

This new book is by the author of "Architectural Specifications" and co-author of "Architectural Graphic Standards". It is intended to occupy the position on your reference shelves presently held by "Time Saver Standards". Its layout, scope, and composition is similar to "Time Saver Standards" and its merits or faults are essentially the same.

Any book of reference dealing with standards for planning and design is, by its very nature, a book valid for design details at the specific time of printing only. As every new building is planned, as each new product or furnishing is introduced the design standards change. New buildings and techniques, new administrative and maintenance methods are forever changing the standards of planning and design.

In light of this time factor, a handbook of design and planning standards can only really be measured in comparison to

the previous set of standards. Therefore in direct comparison with "Time Saver Standards", I believe that this new book by Mr Sleeper is superior. It is better in presentation; all the essential information is graphic without unnecessary and confining "expert" descriptions. Each building type is clearly organized into a section beginning with several and varied schematic area diagrams, with each area then depicted with essential general furnishings and clearances. Truly a fine set of planning standards.

However, when Mr Sleeper tries to establish design standards, like "Time Saver Standards" he is trying to do the impossible. Instead of showing specific manufacturer's furnishings with dimensions, or recommending specific building materials or techniques, Mr Sleeper would have been wiser to insert his bibliographies of specialized books, architectural magazine articles, and manufacturer's literature. When he attempts to show this specific information, the writer is "dating" his book; the information shown will not be valid next year, or next month in some cases.

This book is of real merit when used as a quick reference in preparation of first preliminary sketches. When the information for establishing general planning elements is required this book clearly provides the typical area diagrams, the checklist of essential facilities and clearances, which other books bury in a wealth of unessential detail. It is a good handbook of planning and, on the whole, the emphasis is on general planning standards. It is weakest when it gets involved in specifics of materials, equipment, and products.

If faced with the choice of selecting either "Building Planning and Design Standards" or "Time Saver Standards" for my reference shelves, I believe this new book is the better investment.

Wm. A. Gibson

CONSTRUCTIONAL STEELWORK by Oscar Faber. Published by British Book Service (Canada) Limited, Toronto. 368 pages. Price \$8.50.

In this volume the author sets out to present, to engineering and architectural students and to draftsmen and engineers, the principles and procedures of design which are applicable to structural steel frames for buildings. Most of the methods presented are based on elementary structural members and arrangements and on the use of capacity tables and charts. Throughout is reflected the wide and profound experience of the author in the field of structural engineering.

The first chapter is devoted to a presentation of the elements of structural design in terms of statics and mechanics of materials. The next chapter, on the history and properties of structural steel and cast iron, is rather more detailed and comprehensive than is common in a text on structural steel design. In the succeeding three chapters the author deals with material and stress specifications as stipulated by British Codes of Practice, and includes an interesting presentation of a brief for increased allowable stresses in concreted-encased beams and columns (what would here be termed composite construction). In the six chapters which follow the author illustrates the design of beams, plate girders, columns and their connections. The examples are restricted largely to such as would be members of a simply-connected building frame with uniformly distributed loads applied to the beams and girders. Eccentrically loaded columns and wind loads are included. In general the procedures and methods are similar to those which are current in Canadian practice. Some problems (particularly in respect of columns) which are not usually encountered here, arise from the fact that the available British rolled sections are comparatively limited in number when compared with the range available here from domestic and American rolling mills. Few of the problems dealt with lie outside the capacity tables and charts included in the text. The remainder of the work deals with a brief outline of the plastic design method for steel frameworks, some discussion of rigid and semi-rigid beam to column connections, a brief consideration of trusses and mill buildings and an outline of structural welding.

On the whole the book cannot be considered as a comprehen-

sive text and handbook for structural steel design, except for simple tiered beam and column structures in which the members and their connections can be designed by the simpler procedures together with reference to tables and charts. However, the student of engineering or architecture will find much that is helpful by way of rounding out his knowledge and appreciation of the problems involved in the design of steel structures for buildings. The author, drawing on his wide and varied experience over many years of consulting practice, never fails to stress the practical aspect of design. This point of view, this continued endeavour to keep in mind the "constructability" of the framework is essential to sound design. The practising engineer and draftsman will find numerous examples of the concise application of sound "engineering" in which due consideration is given not only to matters of stress and strain but to all the other pertinent factors such as the problems of fabrication and erection. The tables and charts which are scattered through the text are drawn from the author's own design data and of necessity are based on British practice and requirements. While they are, in general, not directly applicable to Canadian practice, they could readily be modified to suit by anyone interested.

C. Hershfield

DESIGN OF PRESTRESSED CONCRETE STRUCTURES by T. Y. Lin. Published by John Wiley & Sons, Inc., New York. 451 pages. Price \$11.50.

Prestressed concrete construction in Canada and the United States has now progressed to the stage where engineers and architects feel the need of a general understanding of its principles and methods of design. Professor Lin's book is a timely and excellent addition to the literature on this subject.

While the book deals essentially with "design", the author points out that a designer must be acquainted with the materials and methods for prestressing as well as with economic factors and other special problems. Accordingly, a substantial portion of the book is devoted to these related subjects. It is assumed that the reader possesses a working knowledge of mechanics of materials, reinforced concrete, elementary structural analysis and design. Features of design peculiar to prestressed concrete are presented. Design data are given for most of the prestressing systems used on this continent and an extensive list of references is included.

Fundamentals of design are stressed and are illustrated by many examples. Examples are short and in each case the example is intended to clarify one particular method or formula. "It is believed that by singling out a specific point for each example, the attention of the reader is focussed on it and understanding can be obtained more easily".

One chapter is devoted to the Economics of Prestressed Concrete. Considerable material is included on Fire Resistance, Impact Resistance, Corrosion Resistance, and Fatigue Strength.

Of particular interest is the résumé of the development of Prestressed Concrete. The use of metal bands in tension around wooden staves to form barrels is cited by the author as perhaps the first application of the prestressing principle. As early as 1886 an engineer in San Francisco obtained patents for tightening steel rods in artificial stones and concrete arches to serve as floor slabs.

The book is dedicated "To engineers who, rather than blindly following the codes of practice, seek to apply the laws of nature".

Carson F. Morrison

HOUSES, INTERIORS AND PROJECTS by Harry Seidler. Published by Associated General Publications Pty. Ltd., Sydney, Australia. 155 pages. Price \$9.50.

The review of this book involves at once both an appraisal of its written text and an estimate of its author as an architect: the two cannot be separated. Through 11 pages of exposition and 156 pages of photographs this young architect presents his conception of the basic principles of contemporary building design and his application thereof to Australian conditions and requirements. With appropriate modesty, the author writes in

his preface:

The fundamentals discussed and illustrated are merely one designer's solution to local problems; in fact, it is hoped that the material in the book will not be unquestioningly accepted or reproduced, but rather that the spirit expressed will prove a stimulus to others to enrich the local architectural scene with a growing abundance of personal expressions of modern buildings.

Through type and photograph this book presents the autobiography of an architect and his architecture between 1949 and 1954. Its expert and most effective format reflects the same clarity and high degree of organization as the architecture it includes and thereby makes the whole presentation doubly convincing.

In his opening discussion, the author writes concisely of the heritage of modern building, describes the shortcomings and needs of the local scene in Australia, and then expands his theory of and approach to planning, climatology, construction and interior design. At times this exposition approaches the succinctness of a stream-lined specification in its well delineated statements of his philosophy of architecture, generously interspersed with planning standards and practical guides for their use. If any part of the book can be criticized it is this written section in which theory and practice are not too clearly integrated. However, it is the remaining 156 pages of illustrations, coupled with working details, descriptive commentaries, and outline specifications which reveal and underline the clearly defined philosophy which the author both preaches and practices.

This book is an impressive record of five years' consistent development underscoring the author's contention that 'it is the designer's task to produce a faultless answer to practical problems using the best technology put at his disposal and brought to life in a building which will reflect the will of his aesthetic intention'. Seidler is obviously a perfectionist in his insistence on both structural delineation and aesthetic expression. Perhaps the architect or student who investigates this book may accuse its author-architect of having nothing 'new' to offer. He may even accuse him of being a disciple of Breuer or Gropius. This, however, cannot be a derogatory criticism when it becomes obvious that only with a clear understanding of the Bauhaus approach could an architect create designs of such clarity and at the same time demonstrate the necessary individuality of approach and solution for each new commission. The consistency of application of fundamental principles as demonstrated in his initial five years of performance is the truly significant aspect of this author and his book.

If one were to offer a personal reaction that was at all negative, it would be this — the homes and their interiors seem, in black and white reproduction, to be almost too perfect, too pure in design. Perhaps we in the snow latitudes have come to expect much more in the way of color dynamics within our spaces for living, whereas the austere and abstract purity of line, plane and structural form may successfully complement and enhance the warmth and colourfulness of people and setting in a southern clime. However, the utter sincerity and quiet assurance with which the author presents his thoughts and his works will impress even the sceptic favourably.

Practising architects, as well as students of architecture and the interested public, will find both stimulation and challenge in the study of this book, its text and illustrations. We need more books on architecture with the same degree of clarity and directness.

John A. Russell

HOUSING DESIGN by Eugene Henry Klaber. Published by the Reinhold Publishing Corp., New York. 241 pages. Price \$8.50.

Mr Klaber has undertaken a comprehensive analysis of residential planning, including both the interior arrangement of dwellings and their site arrangement. As an architect in government service he acquired a wide knowledge of building types and a discerning eye for planning defects. He has performed a conscientious task in recording and commenting upon the characteristic housing product of the United States during recent years. It is a useful and sensible piece of work though it has some of the pedestrian qualities of a text book. Mr Klaber is not a man to be deceived by architectural glamour; he is concerned with the real living values of a plan. If you can't fit the necessary furniture into the rooms, if the windows are in the wrong places and there is no cross-ventilation people won't want to live there throughout the period of amortisation.

The designs of dwellings are an infinite number of variations derived from a limited number of basic prototypes. Any attempt to cover the whole subject presents a problem in methodology. Should the illustrations appear as an accompaniment to an unfolding theme in the text? Or should the illustrations present a classified series of examples with some text as their accompaniment? The author has not entirely solved this dilemma.

The subject of single detached houses is excluded from Mr Klaber's view of housing design. The title of his book should have indicated that he deals only with the building forms and site plans of multiple housing of all kinds. It is true, as he states, that the principles of internal planning are the same for all kinds of dwellings; but the effective grouping of single houses into a composite arrangement is an exercise just as challenging as the grouping of dwellings into the form of an apartment building.

The housing which a nation receives reflects its economy, its social system and its taste. Is this indeed the land of the free and the home of the brave? How extraordinary that all the enterprise, wit and invention of North America could have brought about such a standardisation and conventionalisation in the way of living. The vast apparatus of mass production and institutional financing have reduced us to regiments of uniform creatures living in hives. It seems to be increasingly difficult for the touch of architectural genius to free us from housing conventions. We take refuge in standards. (In one of his very few references to European housing Mr Klaber dismisses Corbusier's plans for the Marseilles block as "a much touted sacred cow", observing that "in overcast weather almost 60% of the dwelling area will be enveloped in cavernous gloom. An excellent dwelling for moles!")

It is not the author's purpose to stimulate and provoke housing designers by showing examples of the excellent and exceptional, but to survey the present housing repertoire as a basis for further evolution. An integral part of this repertoire is now the work of Clarence Stein whose designs are well represented and Mr Klaber mentions Henry Wright as amongst those "whose thinking and example have guided (his) professional life".

The book is one which all architects concerned with housing should have in their libraries. It is a salutary reminder that most designers are not geniuses and that they can only hope to add some personal touch to a slowly unfolding evolutionary process.

Humphrey Carver