

# Architecture Canada

Journal *l'AAO* / La Revue de l'AAO / January / Janvier 1967

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du Canada

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**Canadian Conference of the Arts**

Working relationships between the architectural profession and the Canadian Conference of the Arts were strengthened at the Conference meeting in Montreal, December 2-4, with the appointment to the Executive Committee of the RAIC Honorary Secretary, Norman H. McMurrich (F) of Toronto. John C. Parkin (F), Toronto, continues as RAIC representative to the Conference and chairman of its Advisory Committee. Other RAIC members at the Conference meeting included Harry Mayerovitch (F), Jean-Louis Lalonde and Edouard Tremblay (F), Montreal.

The strengthening of the link with the architectural profession was accomplished by reorganization of the Executive Committee to provide two members, one English speaking and the other French speaking, to represent each of the disciplines. Mr McMurrich and Jacques Simard, urbaniste of Montreal, were named to represent the visual arts and environmental design, which embraces architecture, landscape architecture and town planning, as well as the arts allied to architecture.



Norman H. McMurrich (F)

**RAIC 60th Assembly**

A searching two-day study of urban society in Canada, looking to the century ahead, is programmed for the 1967 Assembly. Architects, planners, economists and sociologists from Britain, France, USA and Canada will join in seminars based on the theme, "The Building of Cities".

Dr John Deutsch, chairman of the Economic Council of Canada, will speak at the opening session on the significant developments that are shaping our urban economy. The second session is an attempt to trace the impact and implications of these changes upon the physical forms of cities. Architect Sir Hugh Casson will discuss "City Sense" at the final session.

Government departments are lending strong support to the Assembly program as a significant contribution to the Centennial of Confederation. "City Waterfronts", an extensive exhibition of models and photographs, is being prepared by Stig Harvor for CMHC and NCC.

The OAA Committee in charge is led by George Bemis.

The dates: May 24-27  
The place: Chateau Laurier, Ottawa.

**Dean John A. Russell, FRAIC**

We regret to announce the sudden death on December 28 of John A. Russell (F), Dean of the Faculty of Architecture, University of Manitoba. He was 59. Dean Russell joined the staff of the School of Architecture in Winnipeg in 1928 after receiving his Bachelor's and Master's Degrees in Architecture from MIT and a Diploma in Architecture from Fontainebleau. He succeeded Milton F. Osborne as head of the School, and became Dean of the Faculty of Architecture upon its formation in 1962. An appreciation of Dean Russell will appear in the next issue.

**J. A. Cawston, FRAIC**

John Alexander Cawston was born in Calgary in 1911 and attended school in Calgary and Victoria before graduation from the University of Alberta in 1935 with a bachelor of science degree in architecture.

In 1940 he married Marjorie Lorraine Nye of Edmonton and is survived by his wife and two children.

He served with the RCAF from 1941 to 1945 with the rank of Flight Lieutenant.

Mr Cawston formed his own firm of J. A. Cawston and Associates in 1951 and was made a fellow of the Royal Architectural Institute of Canada. He served in the Calgary Chapter of the Alberta Association of Architects as chairman, and on the Provincial Association on Council and also as President. On many occasions Mr Cawston headed delegations representing the Association to the Provincial Government. He also served on many committees forwarding the interests of architects in his province.

Mr Cawston's practice took him all over the Province of Alberta and many of the major buildings in Calgary are credited to him. Among these are the Brown Building, The Crown Trust Building, Chinook Shopping Center and the Rockyview General Hospital.

He was a member of the Elbow Park Christ Church, the Ranchman's Club, Earl Grey Golf Club, Glencoe Club, Calgary Petroleum Club, Zetland Lodge No 83 AF & AM and the Al Azhar Temple. His passing is a distinct loss, keenly felt by his fellow architects and friends.  
*J. Stevenson*

**Competition for 1970 Canadian Pavilion**

A two-stage competition, open to members of the RAIC resident in Canada, for the design of the Canadian Government Pavilion at the Japan World Exposition at Osaka in 1970, was announced December 21 by the Federal Department of Trade and Commerce. Registration (fee \$10) closes

January 27. Last date for despatch of entries for the first stage is February 27; judging is March 20; last date for despatch of entries for the final stage is May 29 and the winner will be announced June 19.

The professional adviser is Z. Matthew Stankiewicz, MRAIC, ARIBA, to whom all correspondence should be addressed at P.O. Box 203, Terminal A, Ottawa 2.

#### **CMHC Fellowship Program for 1967-68**

Sixty fellowships will be offered by Central Mortgage and Housing Corporation for graduate students entering courses leading to master's and doctoral degrees in fields related to planning, urban, and regional studies. Ten of these will be reserved for Canadians who wish to study at universities outside Canada. Each award will be \$3,000 for those working towards a master's degree, \$4,000 for those seeking a doctoral degree and in each case a supplementary sum of \$1,000 will be available for those having at least one dependent child. Arrangements are provided for the renewal of 30 CMHC fellowships for a second year. Applications for the fellowships are made through the universities. Closing date for applications is March 1. Further information may be obtained from the Administrator, Advisory Group, Central Mortgage and Housing Corporation, Ottawa.

#### **Hewitt's Architectural Tours of Mexico**

1967 dates for the annual seminar tours of Mexican architecture and interior design conducted by T. H. Hewitt in co-operation with the Sociedad Arquitectos Mexicanos, are February 12 to 25 and September 17 to 30. Cost of \$358 US per person. Write Mr Hewitt at Apartado Postal 5-251, Mexico 5, D.F.

#### **National Interior Design Show**

The 1967 National Interior Design Show will take place in Toronto at the Queen Elizabeth Building May 23-25. The Show is an expansion of the Canadian Contract Furnishings Show and will include commercial and residential interior products as well as those in the contract furnishings field.

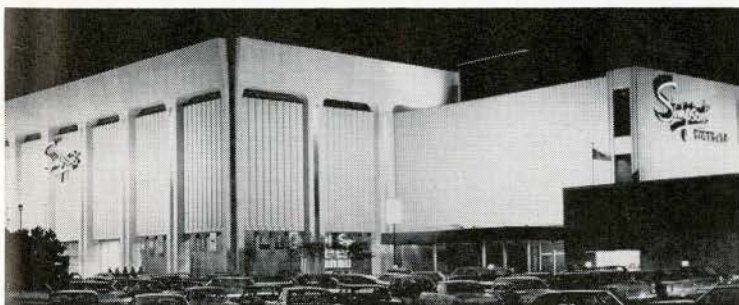
#### **Historic Architecture of Canada**

An illustrated booklet "Historic Architecture of Canada" is available from the RAIC at the price of fifty cents. This is a Centennial Project of the RAIC and members are encouraged to publicize the availability of this booklet and to obtain as wide a distribution as possible.



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**Qualifications** Applicants should hold a Degree or Diploma in Architecture and be a corporate member of an appropriate professional body. Experience in the practice of architecture is essential.

**Duties** To lecture or instruct in such subjects of the courses in Architecture, Interior Design, Building Technology, Quantity Surveying, Town Planning and Landscape Architecture for which he is qualified and to carry out certain administrative work associated with the work of the School.

**Salary** Up to \$A6,340 per annum.

**Other Conditions** Liberal annual leave and long service leave. Appointees will be eligible to join the S.A Superannuation Fund. At the completion of six years of service appointees may apply for paid leave of absence for up to one year to obtain further experience. Financial assistance may be granted at the discretion of the Council. Assistance will be given with travel and removal expenses. Under prescribed conditions approval may be given for staff to engage in consulting work.

Applications giving personal, academic and professional details, together with a recent photograph and the names and addresses of two referees should reach the Assistant Director (Administration & Finance) not later than 28 February, 1967.



### From Institute Headquarters

The RAIC has now entered its 60th year of existence, and the anniversary will be celebrated at our Annual Assembly in May. Among the charter members of the Institute who are still with us, Dr Cecil L. Burgess (F), recently celebrated his 96th birthday in Edmonton, and was the recipient of a testimonial from the Alberta Association of Architects. Col Colborne P. Meredith of Ottawa is now 93 and hopes to attend the Assembly. Dr A. R. Décarv (F), Quebec, is 91 and Leslie R. Fairn (F), of Wolfville, N.S., is 90 years of age. Our hearty congratulations to these fine gentlemen!

Professor Harold Spence-Sales, of the McGill School of Architecture, has made a striking contribution to Canada's Community Improvement Program with his new book, "Beautifying Towns". It is published by CMHC and is being distributed by Roderick Clack as an integral part of the Centennial Commission program in this field.

"We can see in almost every city in Canada the products of neglect, lack of co-ordinated planning and inadequate civic controls. Every moment of our lives, we are surrounded with unsightly overhead wires, unrestrained galaxies of neon lights, and a garish confusion of color schemes and facades. All this visual evidence of a busy, strident and modern-day commerce stifles our senses and obliterates vistas of potential beauty. Surely the time has come for us to divest our streets of this needless frippery and to address ourselves to the tasks of restoring order, evoking charm and revealing the true spirit and meaning of our communities."

*Hon John R. Nicholson*

Members will be interested in two other new publications: "Preserving Historic America", Department of Housing and Urban Development, Washington, D.C. "Architectural Guide and Period Walking Tours of the Old City of Quebec", by A. J. H. Richardson and Alan Gowans, Society of Architectural Historians.

Dr Thomas Howarth (F) and John C. Parkin (F) attended the recent inaugural meeting of the Board of Architectural Education, Commonwealth Association of Architects, in London, England. They report that the discussion centered on assistance to the developing nations of the Commonwealth; it did not concern action which might militate against the autonomy of RAIC and its component Associations.

Mr Parkin adds: "I am quite convinced that our Institute, in long range terms, should do all possible to participate in these international groupings of architects, that we should exercise a role of leadership and finally that we should increase, in years to come, the numbers of foreign students and, more particularly, Commonwealth students studying in Canadian Schools of Architecture".

The RAIC Committee on Preservation of Historic Buildings has recommended that the Toronto Old City Hall is an important Canadian building which should be preserved not only in its own right but as an essential part of Nathan Phillips Square; and that the RAIC should endorse and encourage the preservation and rehabilitation of the building and any fund-raising activity that might be required to buy it and keep it in its role as an essential part of downtown Toronto.

The Committee has also recommended that the Department of Transport, Ottawa, be congratulated for its assistance in restoring the blockhouses and other buildings of the Rideau Canal. Concern is expressed that "experiments in modification should not jeopardize the character of the Canal and . . . any money spent should give priority to the recreational needs of the canal system and to the preservation of the old structures". The Committee also expressed congratulations to the Historic Sites Branch, Department of Indian Affairs and Northern Development, "for its interest and encouragement of preservation of the character of the Rideau Canal".

A Seminar session on "Physical Planning of Universities" drew a large attendance of

### Du siège social de l'Institut

L'IRAC vient d'entrer dans sa soixantième année d'existence. Cet anniversaire sera célébré au cours de notre prochaine assemblée annuelle en mai. Parmi les membres fondateurs survivants, mentionnons: M. Cecil L. Burgess (F) qui a célébré récemment son 96<sup>e</sup> anniversaire de naissance à Edmonton et a été l'objet d'un témoignage d'amitié de la part de l'Association des architectes de l'Alberta; le colonel Colborne P. Meredith d'Ottawa, âgé de 93 ans, qui compte bien assister à la prochaine assemblée annuelle; M. A.-R. Décarv (F) de Québec, âgé de 91 ans, et M. Leslie R. Fairn (F) de Wolfville (N-E), 90 ans. A tous ces vaillants fondateurs, nos chaleureuses félicitations!

Le professeur Harold Spence-Sales, de l'École d'architecture de l'Université McGill, vient de faire une importante contribution au programme canadien d'amélioration des villes et des villages par son volume intitulé "Beautifying Towns". Ce travail est publié par la SCHL et distribué par Roderick Clack dans le cadre du programme de la Commission du Centenaire.

"Nous sommes témoins dans presque toutes les villes du Canada des fruits de la négligence, du manque de planification et de l'insuffisance de réglementation municipale. A tous les moments de nos vies, nous sommes en présence de fils suspendus qui déparent le paysage, d'une profusion désordonnée d'enseignes au néon et d'une confusion criarde de couleurs et de façades de magasins. Toutes ces manifestations visuelles d'un commerce trépidant, strident, émoussent notre sens du beau et masquent la qualité du paysage. Le moment est sûrement venu de débarrasser nos rues de tout ce clinquant inutile, de travailler à rétablir l'ordre et le charme et à redonner à nos villes et villages leur véritable esprit et leur véritable sens."

*L'hon John R. Nicholson*

Deux autres nouvelles publications sont de nature à intéresser les membres: "Preserving Historic America", du Department of Housing and Urban Development, Washington, DC. "Architectural Guide and Period Walking

University staff architects and engineers, together with academic representatives, at the recent meeting of the Association of Universities and Colleges of Canada. Dean John Russell of the University of Manitoba Faculty of Architecture was in the chair.

A comprehensive AUCC survey of Campus Planning will be made shortly under direction of Architect Evan Walker, of Toronto.

The RAIC Committee on Legal Documents has been engaged in revision procedures with the Department of Public Works, Ottawa, on the "Standard Form of Agreement between DPW and Consultants".

The Canadian Council of Professional Engineers has also been involved in these discussions and the new form will have many improvements from the Consultants' point of view.

Dartmouth College, the famous New Hampshire centre of learning and athletics, is giving "A Salute to Canada" through the first four months of our Centennial year. Architecture is among the many facets of our culture which will be featured, and we have made arrangements for two RAIC exhibitions to be shown: "Artist-Architect Collaboration" and "Historic Architecture of Canada". There will be other exhibits from CMHC and a speaker on the architecture of Expo 67.

Our Salute to Dartmouth!

*Fred W. Price,  
Executive Director*

Tours of the Old City of Quebec", de A. J. H. Richardson et Alan Gowans, de la Société des historiens en architecture.

MM. Thomas Howarth (F) et John C. Parkin (F) ont assisté récemment à la séance d'ouverture de la Commission sur la formation des architectes de l'Association des architectes du Commonwealth, à Londres. Les délibérations ont porté sur l'aide aux pays du Commonwealth en voie de développement et n'ont préconisé aucune mesure de nature à restreindre l'autonomie de l'IRAC ou de ses associations composantes, ont-il dit.

M. Parkins a ajouté: "Je suis persuadé qu'avec les années notre Institut devrait faire tout en son pouvoir pour participer à ces groupements internationaux d'architectes, que nous devrions jouer un rôle de premier plan et que, éventuellement, nous devrions recevoir plus d'étudiants étrangers, surtout des pays du Commonwealth, dans nos écoles d'architecture canadiennes".

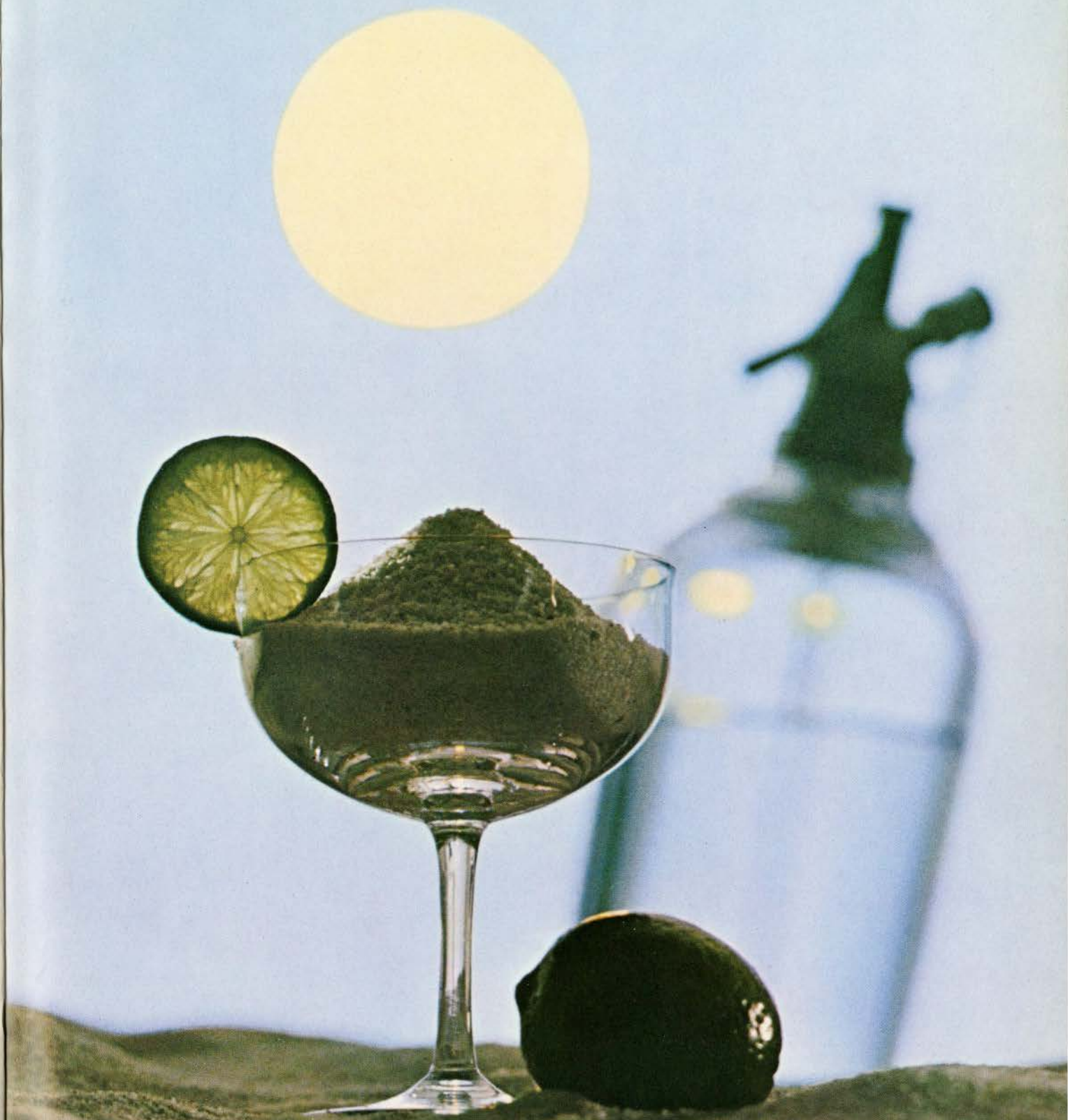
Le Comité de l'IRAC sur la conservation des édifices historiques a désigné l'ancien hôtel de ville de Toronto comme édifice important qu'il y a lieu de conserver non seulement comme tel mais comme partie essentielle du carré Nathan Philips. Il a aussi recommandé que l'IRAC approuve et encourage la conservation et la restauration de cette immeuble ainsi que toute campagne visant à recueillir les fonds nécessaire pour acheter l'immeuble et le conserver comme partie essentielle du centre des affaires à Toronto.

Le Comité a aussi proposé de féliciter le ministère fédéral des Transports d'avoir aidé à restaurer les blockhaus et d'autres bâtiments le long du canal Rideau. Il a demandé que "les travaux de rénovation ne nuisent pas au cachet du canal et que . . . dans les dépenses qui seront faites on songe d'abord à l'aspect récréatif du canal et à la conservation des vieilles constructions". Le Comité a également félicité la Direction des lieux historiques, du Ministère des Affaires indiennes et du Nord canadien, "de son intérêt et de son encouragement envers la conservation du cachet du canal Rideau."

Le Collège Dartmouth, fameux centre d'enseignement et d'athlétisme du New Hampshire, rend "Hommages au Canada" au cours des quatre premiers mois de notre année du Centenaire. L'architecture est un des nombreux aspects de notre culture que les autorités du Collège ont décidé de signaler et nous avons pris des dispositions afin de présenter deux de nos expositions: "La collaboration entre l'artiste et l'architecte" et "L'architecture historique au Canada". Il y aura aussi des expositions de la part de la SCHL et un discours sur l'architecture d'EXPO 67.

Nos hommages à Dartmouth!

*Le directeur général,  
Fred W. Price*



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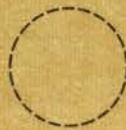
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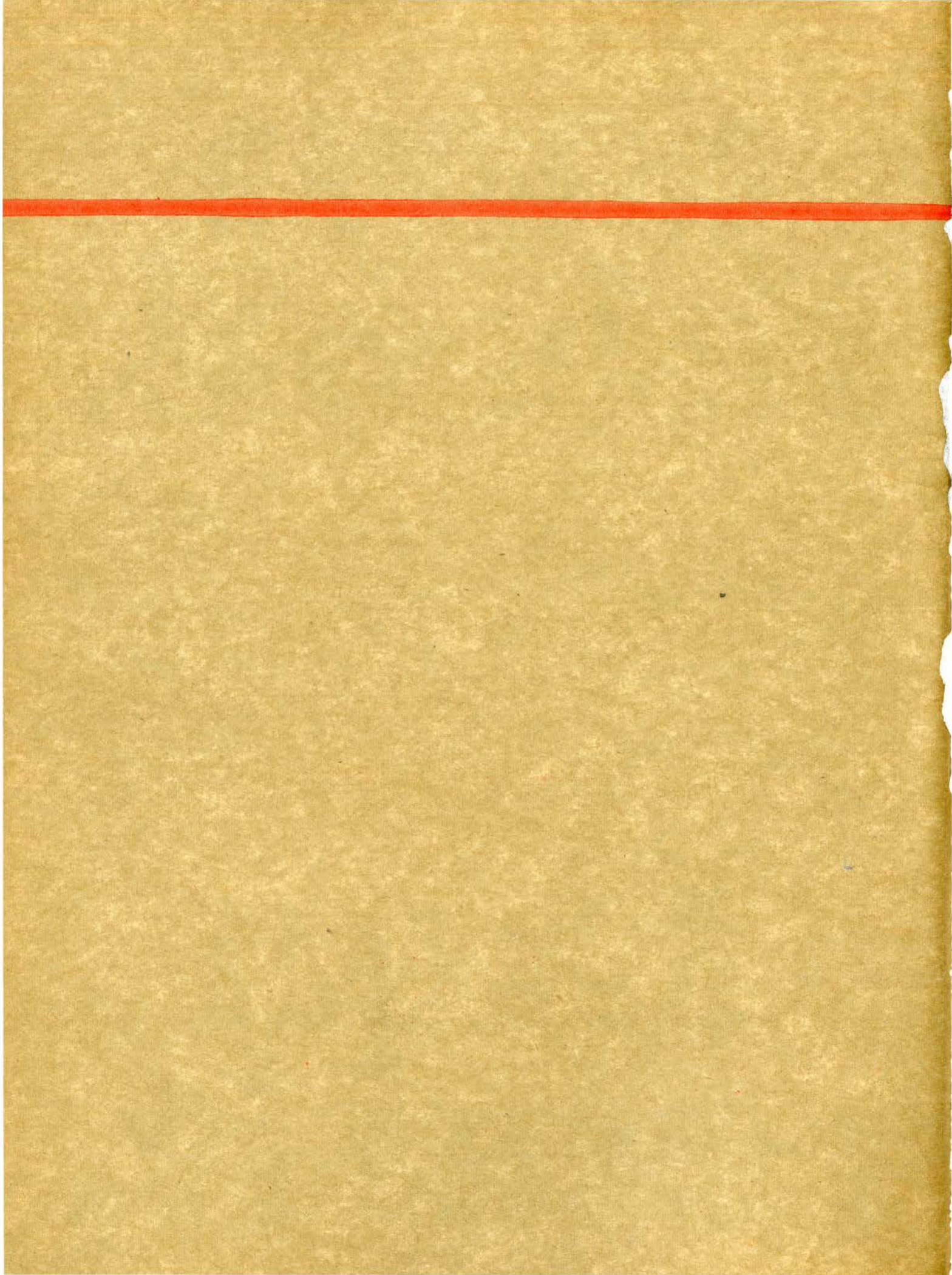
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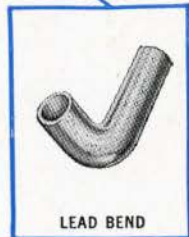
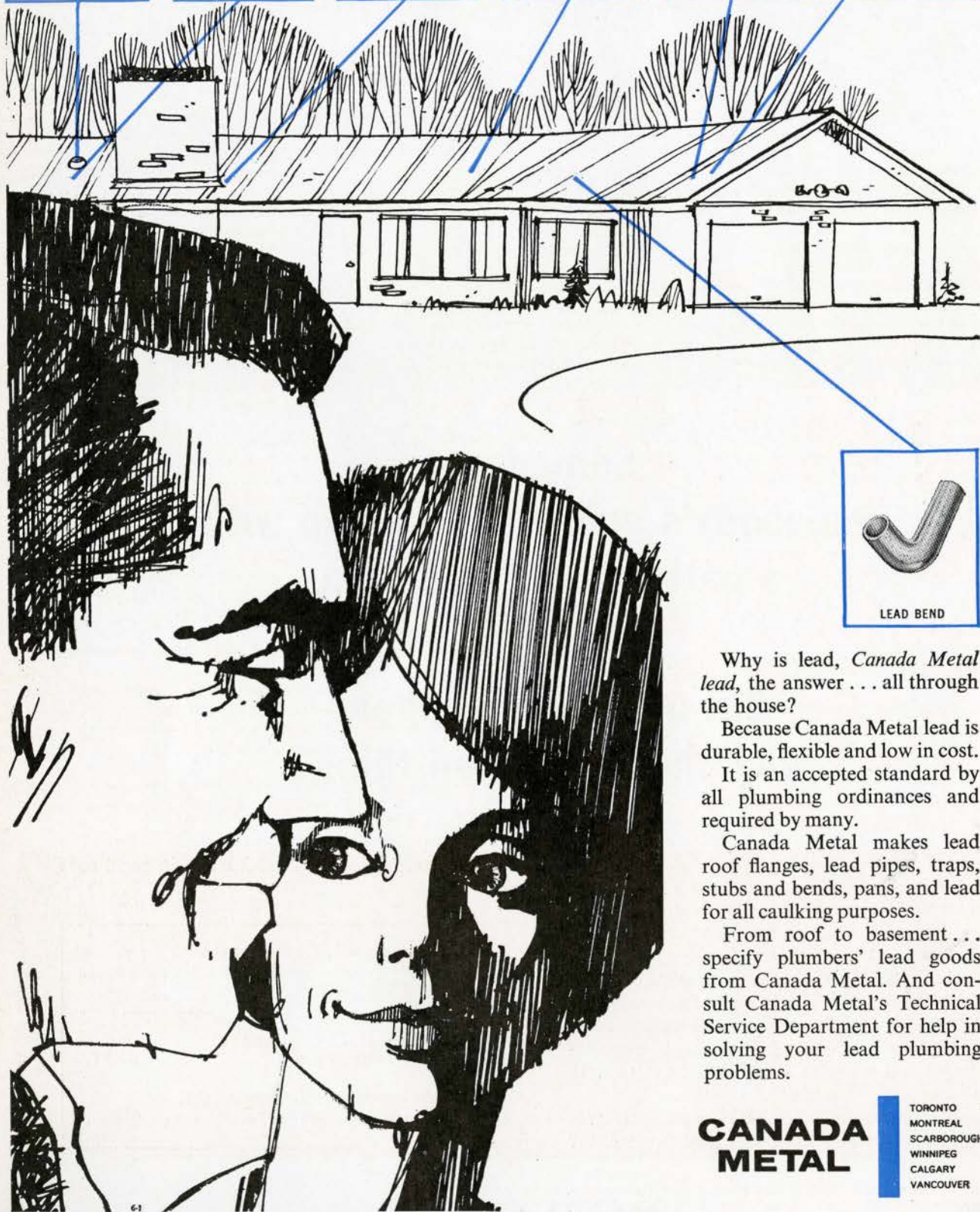
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LEAD STUB



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The next two articles will be devoted to personal reports on collaboration between two teams of architects and artists.

The teams presented are experienced, enthusiastic and successful members of the art and architecture world. Both artist and architect members are distinguished and respected in their separate fields. Their thoughtful, practical comments provide down to earth as well as imaginative inspiration for future collaborators.

The team presented in this issue is Louis LaPierre MIRAC and sculptors Yves Trudeau, Marcel Braitstein and Mario Merola and painter Laure Major, all of Montreal.

Next month we will present the team of Irving Grossman MRAIC and sculptor Ted Bieler and painter Graham Caughtry, all of Toronto.

#### Louis LaPierre Comments

The following are excerpts from LaPierre's report:

Experiments in "creative collaboration" with artists conducted during the last ten years have stressed upon me the importance of the following requirements:

1 Ability to communicate and be stimulated by exchange of ideas through dialogue.

- 2 Similar approach to exploration and creativity.
- 3 Absence of self-consciousness in the creative relationship.
- 4 Enthusiasm for a goal sufficient to transcend the personality problems that may exist and prevent communication.
- 5 Ability to work under time pressure.
- 6 An attitude towards the problem which permits consideration of the contingencies as a stimulus rather than a barrier.

Collaboration with artists has been carried on in the fields of:

- a Treatment of materials, surfaces and objects.
- b Architecture and form.
- c Light, space and atmosphere.
- d Aesthetic research.

#### a Treatment of materials, surfaces and objects

This field is the most commonly known and consists in the modification and arrangement of materials to give them artistic significance such as:

materials: stamped bricks and concrete blocks  
surfaces: murals of ceramic, brick, concrete, wood  
objects: chimneys, diving towers, etc.  
works of art independent of the architecture of the building.

#### b Architecture and form

Experiments of this type are scarce but the results can be very exciting and consist of the preliminary explorations of forms.

As soon as the program (functional, psychological, philosophical) is sufficiently established and a general outline of the building can be forecast, experiments in possible forms can be undertaken if general guide-lines are given to the artist. Sculptors are particularly suitable to this kind of exploration.

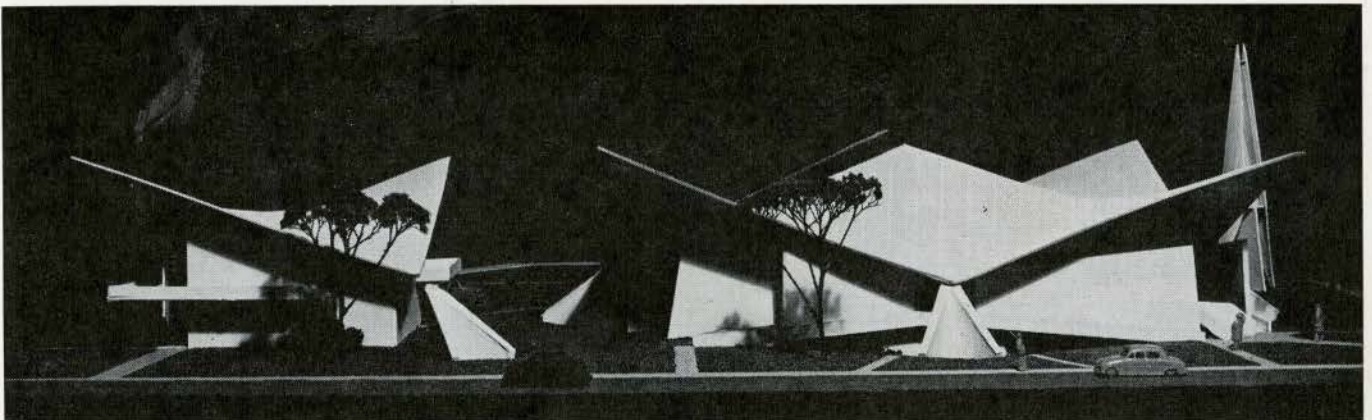
For the artist this kind of work is unrewarding in the sense that his participation is anonymous in the same manner as a musician is anonymous in an orchestra. (See Fig. 1)

All artists with whom these experiments were carried out were very enthusiastic because of the feeling of participation in the actual act of creation of an object that was going to be used and lived in.

#### c Studies in light, space and atmosphere

Prior to any research an agreement must be attained on the atmosphere to be created and the philosophical objectives this atmosphere should express.

The contacts between artist and architect who perform parallel and complementary work



1  
"Architecture and Form", Eglise St-Gaëtan,  
Montreal  
Architect, Louis LaPierre

"Architecture et Forme", Eglise St-Gaëtan,  
Montréal  
Architecte, Louis LaPierre

2

*Mural, surface treatment, Pensionnat Mont-St Joseph, Ottawa; Artist, Denise Beauchemin; Architect, Louis LaPierre*  
*Murale, traitement de la surface, Pensionnat Mont-St-Joseph; Artiste, Denise Beauchemin; Architecte, Louis LaPierre*

3

*Preliminary exploration of forms with sculptor. Caisse des Pompiers de Montréal, Architect, Louis LaPierre; Artist, Marcel Braitstein*  
*Exploration préliminaire de formes avec le sculpteur, Caisse des Pompiers de Montréal. Louis LaPierre, Architecte; Marcel Braitstein, Artiste*

4

*Surface treatments by Maurice Savoie*  
*Traitements de surfaces par Maurice Savoie*

must be very frequent and each should follow the other's evolution and establish a continuously revised co-relation. The psychological conditions required for this kind of collaboration are very exacting, since certain basic attitudes must be in harmony otherwise the relationship is not creative. This leaves, however, considerable room for divergencies.

*The Architect can also become a new "Synthetic Integrator" by explorations into scientific fields and unrelated art and thereby give a more universal meaning to the term "form follows function". This term may be extended to include the psychological, the philosophical as well as all other aspects of the activities of man.*

Because of the fantastic richness of the material available, new working methods have to be devised for the architect to become a "universal synthetic integrator", methods that will give him control over the unbounded field that is opened to him to exercise his art. Systems engineers can be of great help to prepare a method of co-ordination of the numerous elements that have to be considered.

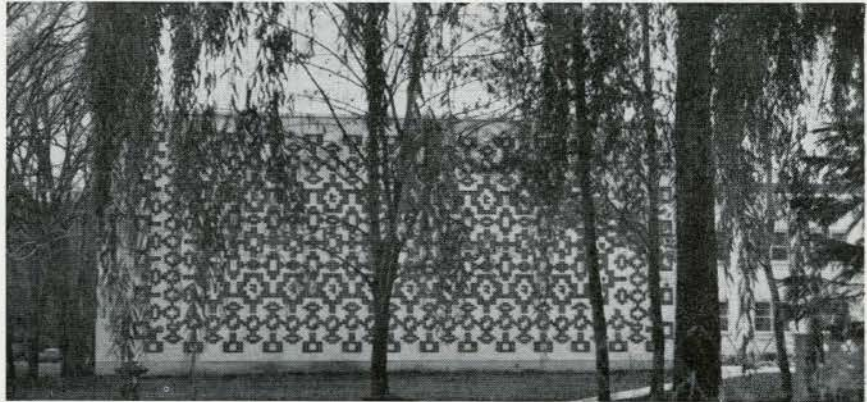
"Architecture fantastique" is the architecture of the future because we live in a fantastic world of reality of infinite inter-relationships.

**Creative collaboration and its risks**

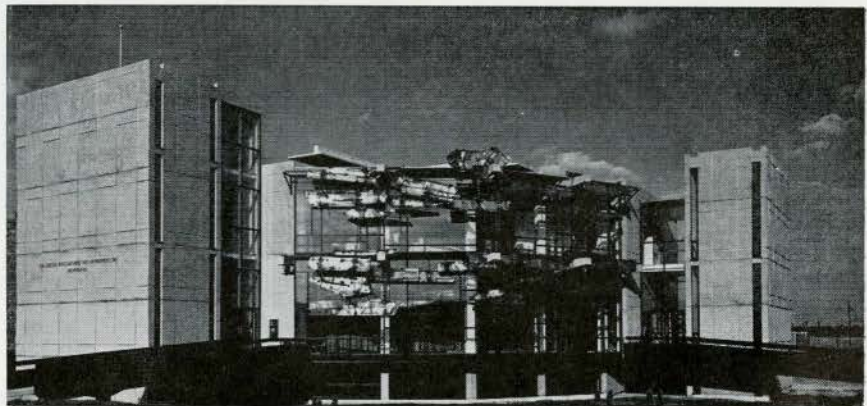
Sufficient personal conviction of the importance of aesthetic research and experiment to take risks is required to carry on such work.

The reward is satisfaction in the work accomplished only, because as a general rule, the more daring the experiment, the less chance there is of approval.

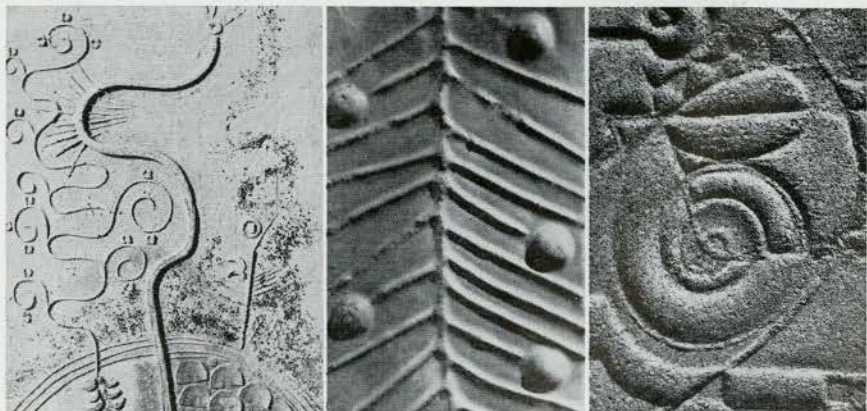
- 1 The risks are very great since there *is no precedent* if the creation is original.
- 2 *The technical problems* created by the new experiment require three times more work than normal, therefore such research is not conducive to profit. Economic risks are great.
- 3 *Margin of error is almost nil.* The final test of the experiment can be carried on only in actual construction and no client is willing to invest in an experiment either due to the



2



3



4

cost or to the criticism that would result from members of the group he represents.

4 *Aesthetics is very seldom considered as a functional requirement.* Therefore a continuous psychological battle has to be waged accompanied by the constant risk of refusal of the scheme.

#### Effects of this collaboration on the architect

1 A stimulus to the architect because the artist generally has a greater aesthetic curiosity, a greater freedom from practical problems and a greater desire to experiment and to explore new worlds. Whereas the architect is under constant danger of being overwhelmed by these practical problems.

2 The artist is the indispensable musician in the symphony of architecture creating with the architect, helping and sharing his experience.

3 Delegation and collaboration always require the participants to express their ideas more clearly in order to be able to communicate. The architect is therefore stimulated to become more alert intellectually, and more creatively sensitive to the human relationships.

4 The compressed time schedules existing presently and the ever decreasing time limits set for the completion of a project demand from the architect that an entirely different method of procedure be used for aesthetic creation.

The "creative collaboration" of artist and architect is a method of procedure which can be explored with rewarding results, and provides the opportunity to give new dimensions to the exciting experience of architectural creation.

#### Artists' Comments

The following are comments on collaboration gathered by Louis LaPierre from Quebec Artists:

The ideal situation is when artist and architect work together at an early stage of a conception. Even if the artist has nothing to do with the building itself, he at least becomes psychologically involved with it, and this work will, or should, influence his work. Unfortunately, most of the time, the artist is faced with a "fait accompli". Whether the work should be integrated, separate, or purely imaginary creation, depends on each individual building.

For large buildings, the artist should take into account the surroundings in order to understand the problem as a whole. If he has a mature personality, it will come through, no matter how many limitations there may be.

*Marcel Braitstein*

It is possible to foresee that eventually the artistic activities of architecture, painting, sculpture, ceramics will blend in an integrated whole to become an artistically multi-dimensional work of art.

The present segregated artistic activities are a paradox in our age of relativity.

Unfortunately, integrated collaboration occurs in isolated cases only but when it occurs it is worthwhile in spite of the numerous difficulties encountered. *Mario Mérola*

The worlds of sculpture and architecture are very closely related. Due to this fact, I believe the sculptor could make an important contribution to architecture provided he is consulted at the moment the project is conceived.

Most of the difficulties resulting from this collaboration can be eliminated by working in close contact preferably in the same studio.

For me, this type of collaboration has been an exciting experience. *Yves Trudeau*

I am one of the ever growing number of

artists who are fascinated by the adventure of architectural collaboration.

The contribution of the artist, however, must be made through an artistic creation which forms an organic part of the architectural design.

To succeed in this endeavor, the artist must make the synthesis of the material aspect (functional) and the spiritual aspect (feelings, human sensitivity).

To achieve this aim of total organic synthesis, a close spiritual and intellectual relationship is required between the artist and architect. *Laure Major*  
*Anita Aarons*



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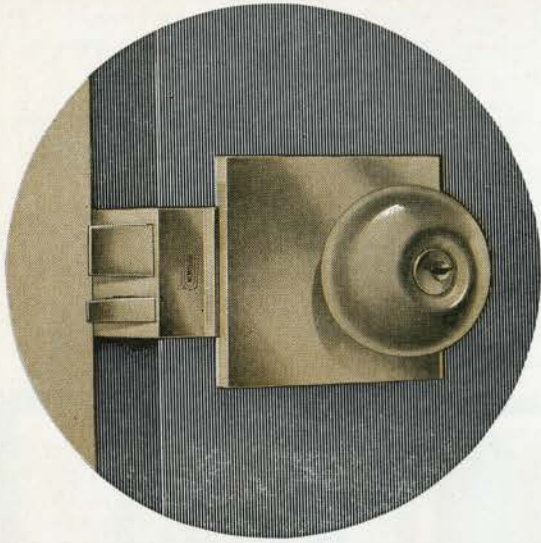


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# PREVIEW

Preview '67 is not one of our Centennial projects but the inaugural presentation of what from now on will be the editorial content of our January issues. It is not a deviation from our practice of examining subject matter in depth, but an effort to freeze, at a particular moment, the position of architecture in Canada. Except for the constraints imposed upon us by space, we have not been more than broadly selective. The diversity that Preview '67 exhibits, at a certain level, makes the point that style no longer is the point — only change is constant.

Conspicuously missing, however, are systems that recognize this diversity — methods to link differences, and modes to effect addition and change. This is the problem posed by the condition implied in the range of the projects shown in the pages which follow.

At another level, the diversity is narrow, not broad. Neither Corbusier nor Mies or any other master invented the characteristic forms of a truly modern architecture. It was Henry Ford. A visit to the Dagenham works will show how little architects have done to realize his vision.

AJD

L'inauguration de "Preview '67" n'est pas un projet de centenaire ; c'est ce qui va devenir le commentaire éditorial de nos numéros de janvier. Ce n'est pas une déviation de notre habitude d'examiner la situation en profondeur ; c'est plutôt un effort de fixer l'état de l'architecture au Canada à un moment donné. Nos sélections ont été catholiques, étant donné les limitations imposées par le format. Preview '67 nous montre que le changement lui-même est plus important qu'une divergence de style.

Il est évident que ce sont les systèmes tenant compte de cette diversité qui manquent — les méthodes reliant les différences, les moyens nécessaires à effectuer les additions et les changements. Et voici le problème posé par la condition impliquée par les pages suivantes.

A un autre niveau, la diversité est limitée. Ni le Corbusier, Mies, ou tout autre maître n'ont inventés les formes caractéristiques d'une architecture vraiment moderne. C'était Henry Ford. Un aperçu sur l'usine de Dagenham indiquera combien les architectes ont manqués de réaliser leur vision de l'avenir.

AJD

# Educational

1  
*Concept Sketch, Faculty and Graduate  
 Parking Garage, UBC ; McCarter, Nairne and  
 Partners*

*Esquisse du concept, Garage de la faculté  
 et des diplômés, Université de la Colombie-  
 Britannique ; McCarter, Nairne and Partners*

2  
*Site Plan, Engineering Complex, UBC.  
 McCarter, Nairne and Partners*

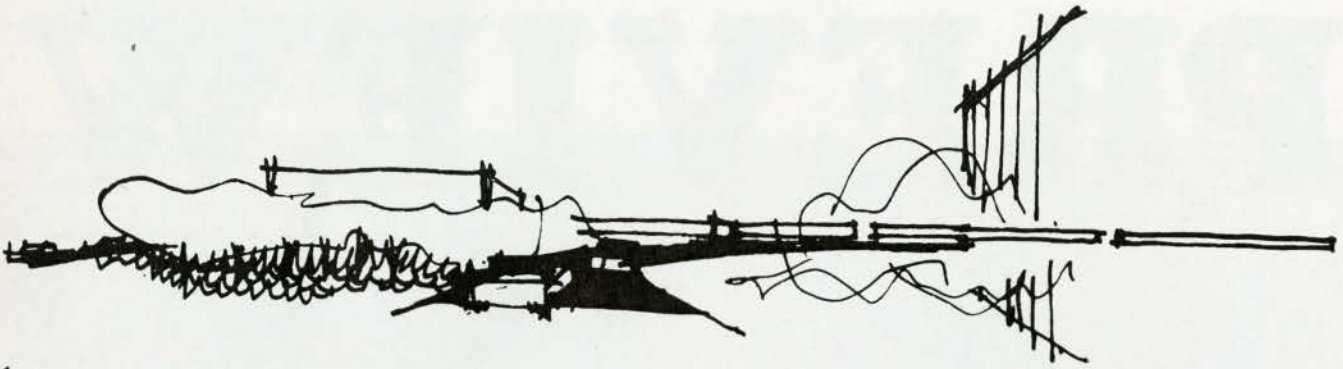
*Plan d'emplacement, Edifice du Génie,  
 Université de la Colombie-Britannique.  
 McCarter, Nairne and Partners*

3  
*Model, Forestry Agriculture Building, UBC ;  
 McCarter, Nairne and Partners*

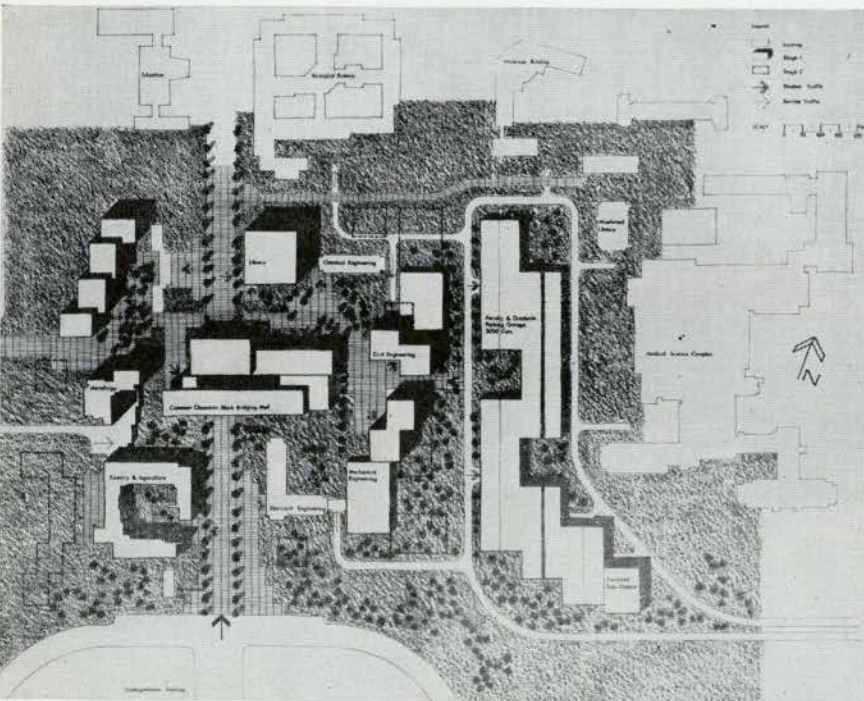
*Modèle de l'Edifice de la faculté de la  
 Sylviculture et de l'Agriculture, Université de  
 la Colombie-Britannique ; McCarter, Nairne  
 and Partners*

4  
*Metallurgy Building, UBC. McCarter, Nairne  
 and Partners*

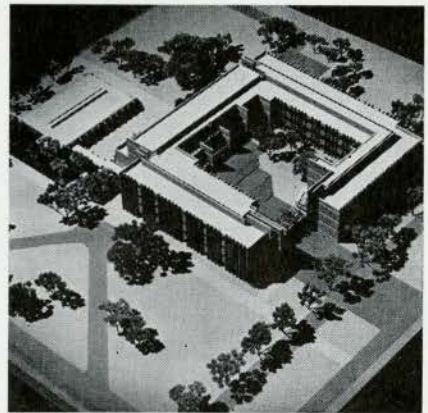
*Edifice de la Métallurgie, Université de la  
 Colombie-Britannique. McCarter, Nairne  
 and Partners*



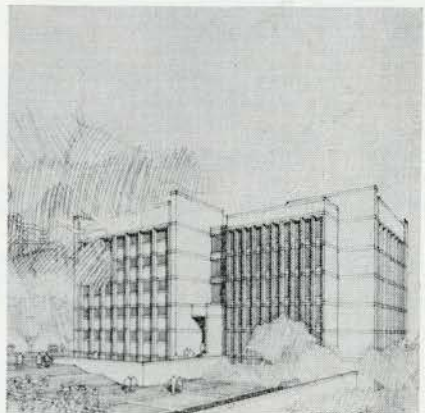
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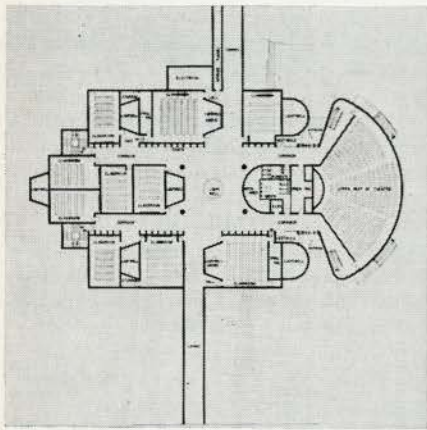
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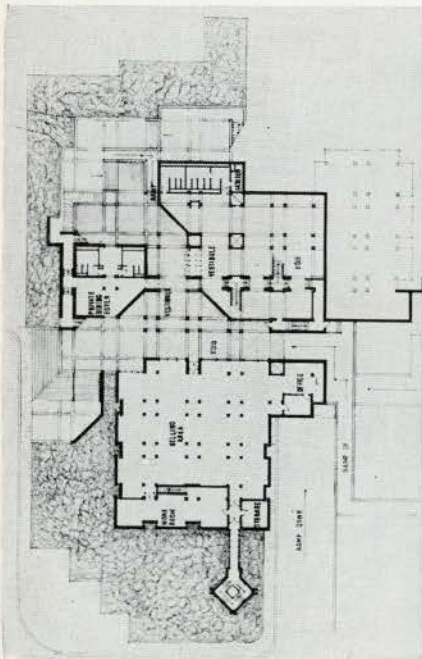
1  
*Lecture Building University of Waterloo,  
 Shore & Moffat and Partners, Architects and  
 Engineers, Upper Floor Plan  
 Edifice des salles de conférences à  
 l'Université de Waterloo, Shore & Moffat and  
 Partners, Architectes et Ingénieurs, Plan de  
 l'étage supérieur*

2  
*First Floor Plan, Food Services Building,  
 University of Waterloo  
 Plan du rez-de-chaussée, Edifice des  
 services alimentaires, Université de  
 Waterloo*

areas and the bookstore. Each dining area is oriented to a different part of the campus to give a variety of views. A structurally discontinuous network of 16'x16' bays separated by a smaller 6' wide neutral zone defines circulation and contains mechanical services. The "coffers", so formed, break large rooms into intimate groups of seating.

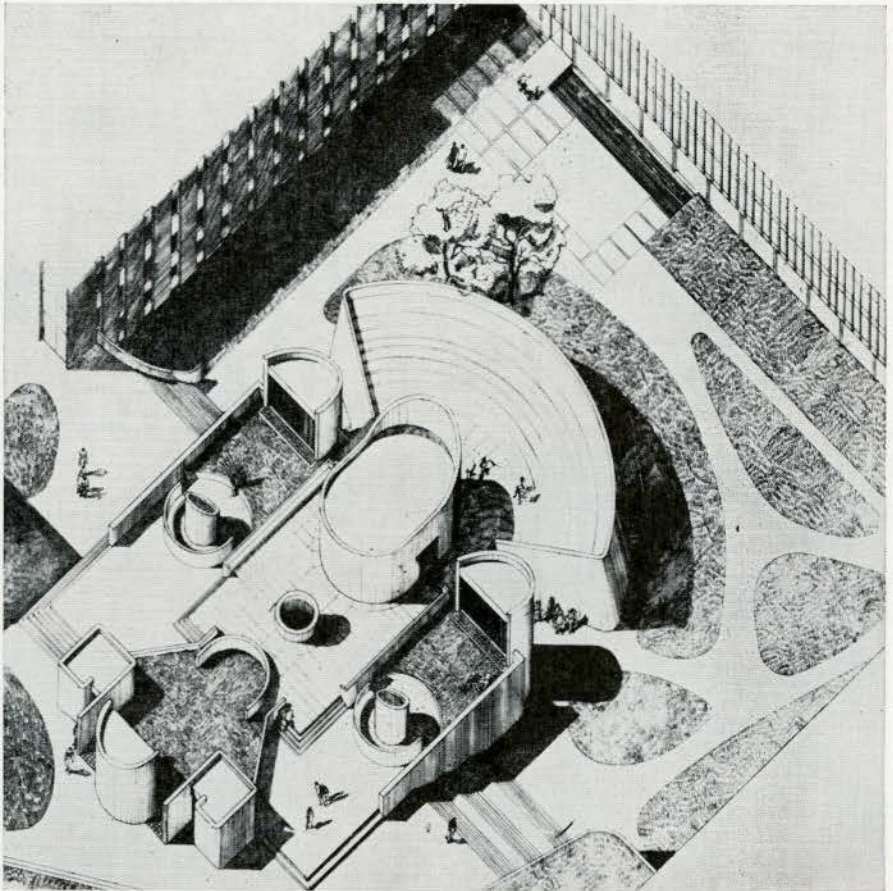


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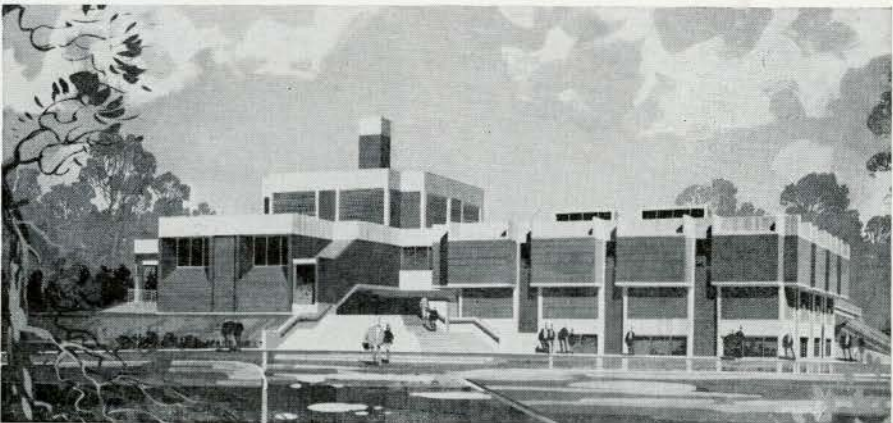


2

3  
*Sketch, Lecture Building  
 Esquisse, Edifice des salles de conférences*  
 4  
*Perspective, Food Services Building  
 Perspective, Edifice des services alimentaires*



3



4



1  
*Cambridge Bay School Project; McMillan Long and Associates, South Elevation*  
*Projet pour une école à Cambridge Bay; McMillan Long and Associates, élévation de sud*

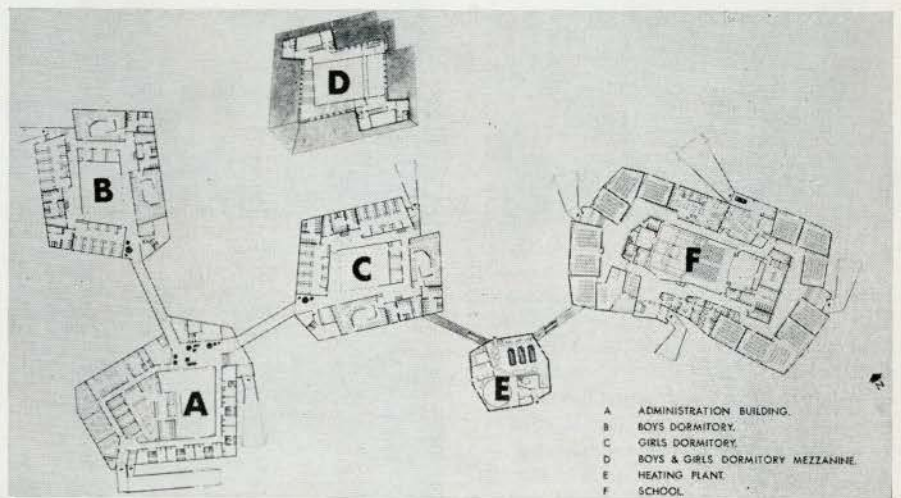
2  
*Plan*  
 3  
*Section, School*  
*Coupe, école*  
 4  
*Section, Administration Building*  
*Coupe Edifice de l'Administration*



1  
 Cambridge Bay School is planned for a remote Arctic location as a part of the educational phase of the development program for Northern Canada. About a third of the student body will be day students, the rest will live in residence. Initially the school will serve grades one to six. About 90% of the students will be of Eskimo origin. Half of the group will be ages six to nine and half ten to fourteen years. When the educational program has been in existence for a few years the school will become a combined elementary and junior secondary (Grades 7 to 9). Future science and language lab provisions will facilitate this conversion. Classrooms are designed for flexibility in teaching programs such as team teaching or group presentations. Additional classrooms as dictated by the evolving program of education may be added singly or in clusters connected by corridors to the main building. Residences provide sleeping, eating and recreational facilities for 200 pupils, a matron, and domestic staff as well as accommodation for visitors. The school is planned for non-student evening use without unnecessary encroachment upon classroom areas.

The building cost primarily reflects the cost of building in a remote area with no existing labor force and with all transportation by barge or airlift. Everything from equipment to temporary housing must be brought in specially.

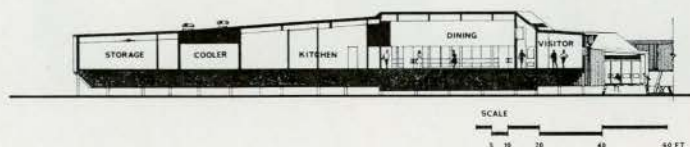
The months of continuous winter darkness and continuous summer daylight dictated the deep penetration of daylight when available with controlled artificial illumination used not only functionally but to enhance the spatial variety during the year. Windows at living level have been kept to vision strips to avoid distraction (black mirrors) during darkness and to assist in heating efficiency. The buildings are raised free of the ground with an insulated heated crawl space suspended below main floor level for building services. Surface drainage and maintenance of existing thermal regime is essential to ensure foundation stability.



2



3



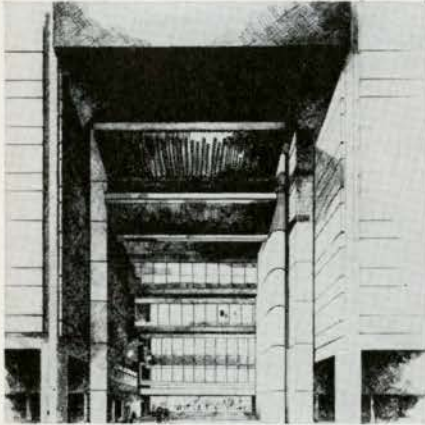
4

1  
*Humanities and Social Science Building,  
 York University, Ceremonial Entrance to  
 Central Square; Gordon S. Adamson &  
 Associates, John B. Parkin Associates, Shore  
 & Moffat and Partners, Architects and  
 Engineers*

*Edifice de la faculté des Sciences Sociale  
 et des Lettres, Entrée de cérémonie menant à  
 la Place Centrale; Gordon S. Adamson &  
 Associates, John B. Parkin Associates,  
 Shore & Moffat and Partners, Architectes  
 et Ingénieurs*

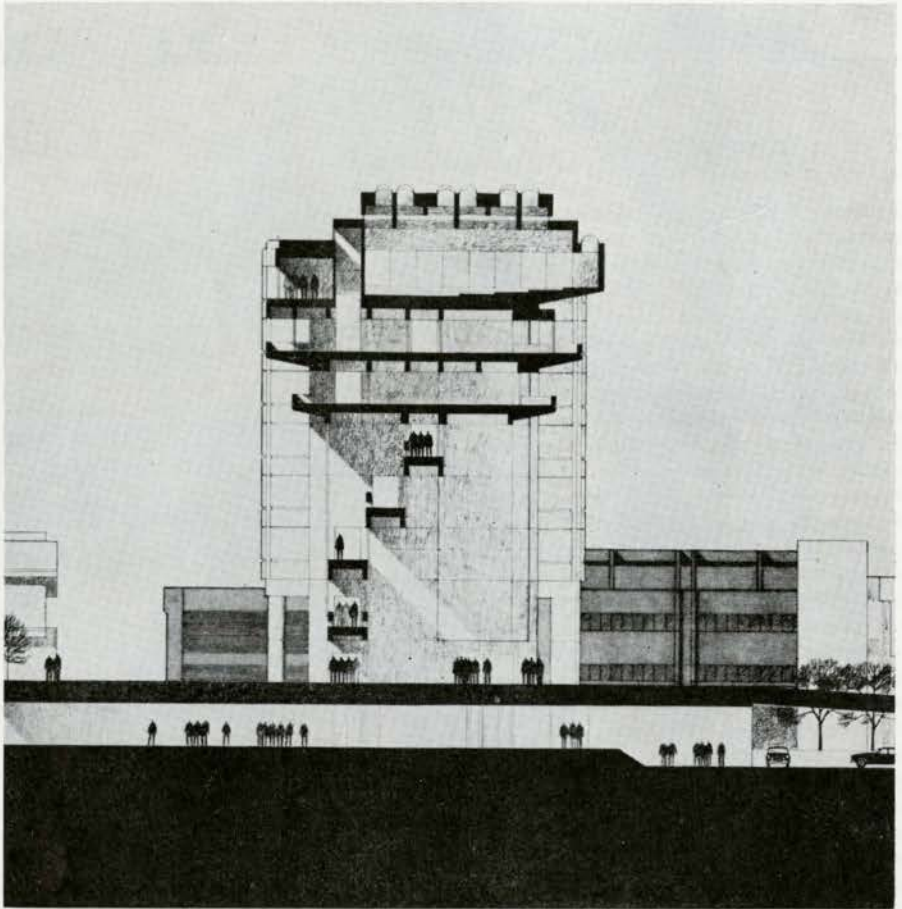
2  
*Third Floor Plan  
 Plan du deuxième étage*

3  
*Section  
 Coupe*

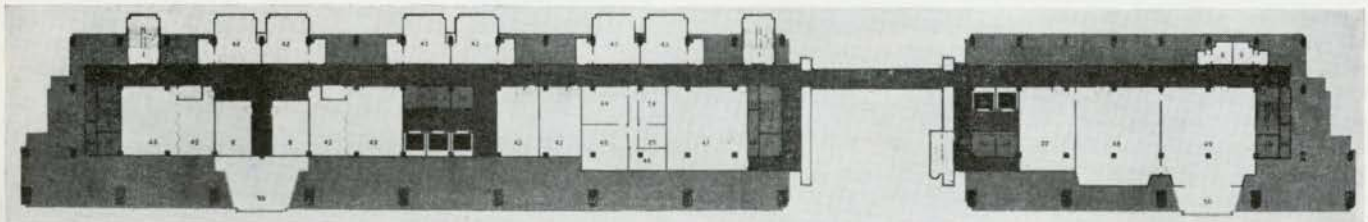


1

The Humanities and Social Sciences Building, York University, will be located at the centre of the campus. It will initially house departments of economics, english, geography, history, languages (classical and modern), mathematics, philosophy, political science and sociology. Provision has been made, however, for the eventual accommodation of 23 separate departments and inter-departmental institutes in 1980. The building will be nine stories high with the second or main floor at the Central Square level. The first floor, located beneath the Central Square, will contain lecture halls, classrooms, study rooms, exhibition rooms, storage, lockers and mechanical facilities. The second floor will include two 150-seat and two 100-seat lecture halls. The third floor will be recessed under the main building block above and will contain classrooms and special geography and calculating laboratories. The upper six floors from fourth to ninth, will constitute the office block.



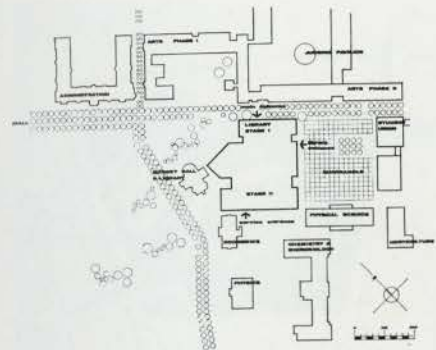
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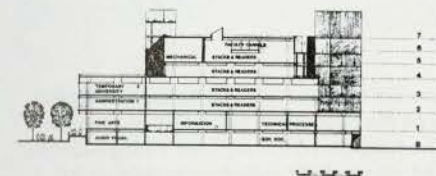
2

1  
University of Guelph, Site plan  
Plan d'emplacement, Université de Guelph

2  
Section, Library, University of Guelph;  
Hancock, Little, Calvert Associates, Archi-  
tectural Consultants; Sert Jackson &  
Associates Design Consultants  
Coupe de la bibliothèque, Université de  
Guelph; Hancock, Little, Calvert Associates,  
architectes-conseils; Sert Jackson &  
Associates conseils pour le design



1



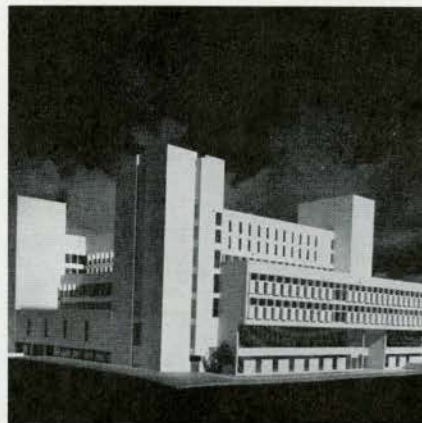
2

University of Guelph Library, Phase I, is 270,000 square feet of which 210,000 are for stacks and readers. Phase II, scheduled for 1975, is to be 100,000 square feet for additional stacks and readers. The structural system consists of poured concrete columns and floor slabs. Exterior cladding is double glazing in aluminium frames and precast exposed aggregate panels and fins. Exposed spandrel beams and the four service towers are board marked concrete. One of the important design considerations was flexibility which led to concentrating all services in the concrete tower and as far as possible eliminating structural elements in the stack-reader areas. The library is of the open variety and has been designed to be operated by minimum staff during off-peak areas. Furnishings are being designed with the basic objective of integrating readers and books, privacy for individual study, and individual lighting and modular flexibility for stacks and carrels.

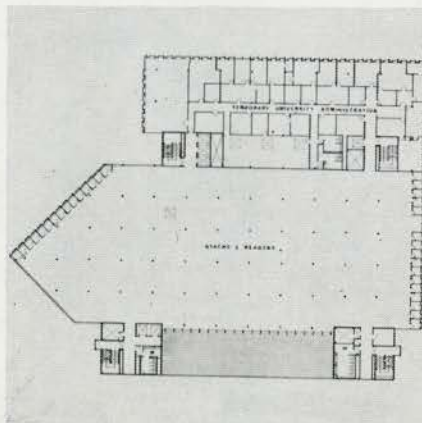
3  
Model of Library, Phase I  
Modèle de la bibliothèque, Etape I

4  
Third Floor Plan  
Plan du deuxième étage

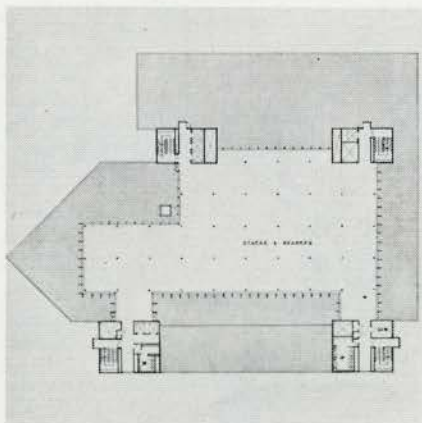
5  
Fourth Floor Plan  
Plan du troisième étage



3

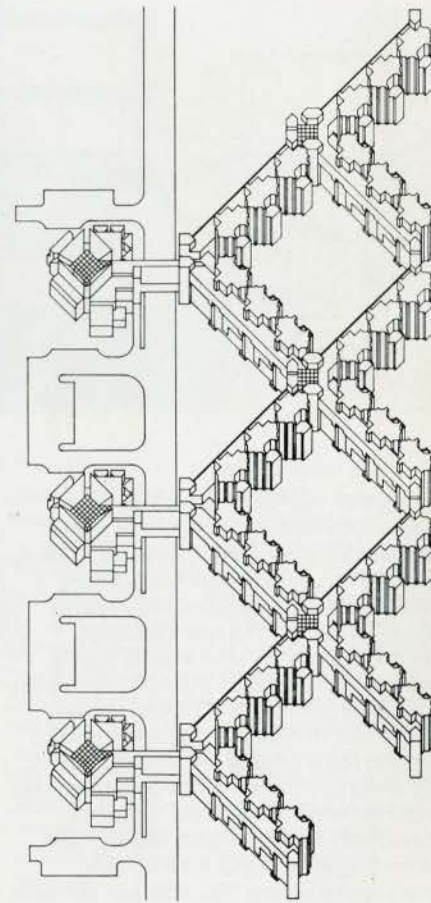


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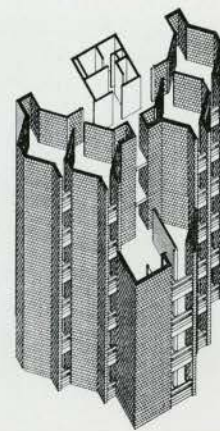


5

6, 7  
Housing Complex B, Guelph University;  
Architect John H. Andrews  
Complexe de logement B, Université de  
Guelph;  
Architecte John H. Andrews



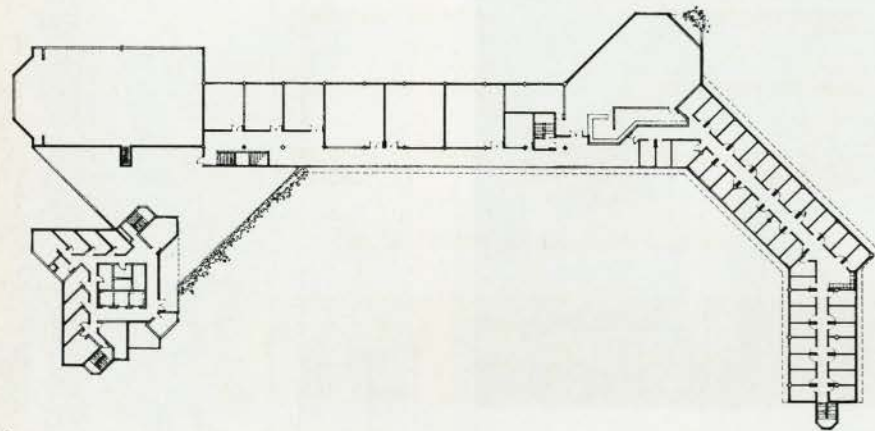
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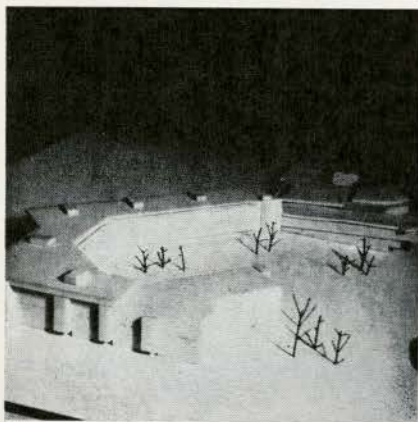
7

1  
*First Floor Plan, Lakehead University Centennial Building ; Architects Fairfield & DuBois*  
*Plan du rez-de-chaussée, Lakehead University, édifice centenaire ; Architectes Fairfield & DuBois*

2  
*Model*  
*Modèle*



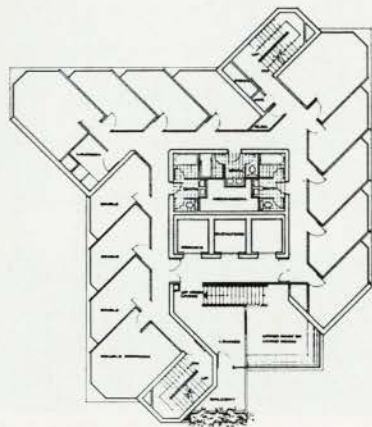
1  
 Arising from the Pilot Plan for Lakehead University (a land use diagram with space relationships shown) the Centennial Building takes the first steps toward free planning, a change from the orthogonal beginning of existing buildings. The new circulation patterns open to the main exterior spaces surrounding each building which in turn opens to the focal point of the University, a newly formed lake. In Centennial Building, general teaching space open to the whole University, is on the ground floor where weather protected University wide circulation is continued. Upper floors are laboratories, research and staff offices are in the roof. Three large lecture rooms seating 700, 350, and 180 each open on a large lobby.



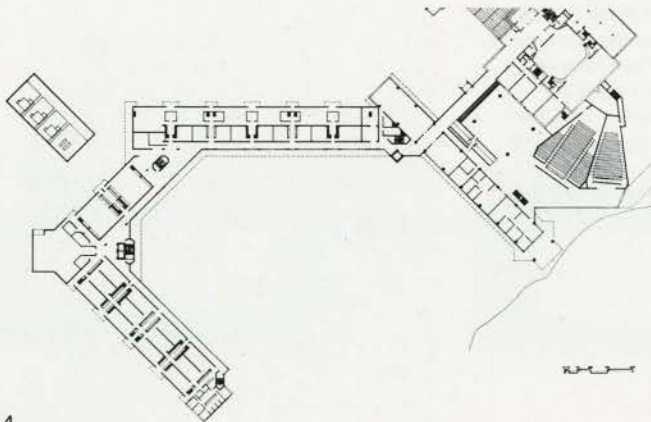
2

3  
*Typical Upper Level, York Regional School of Nursing ; Fairfield & DuBois*  
*Etage supérieur type, Ecole d'infirmières régionale York ; Fairfield & DuBois*

4  
*Second Floor Plan, York Regional School of Nursing*  
*Plan du premier étage*



3



4

5  
*Site Plan, York Regional School of Nursing*  
*Plan d'emplacement*



5

The site of York Regional School of Nursing is on the outskirts of metropolitan Toronto. The hospital which supplies dining facilities and much of the professional training of the nurses is across a heavily trafficked street. The tall residence tower combined with a low screening teaching building was designed to conserve land, to lift the bedrooms out of the immediate environment, to provide a marker for the medical complex, to save on the necessary piling costs and increase flexibility. The 400-bed residence tower works on social sub-grouping of 32 on two storeys of 16 beds each. Balconies were designed to forestall the claustrophobic feeling sometimes encountered in a multi-storied sealed residence. The project is awaiting approval from the Ontario Hospital Services Commission.

1

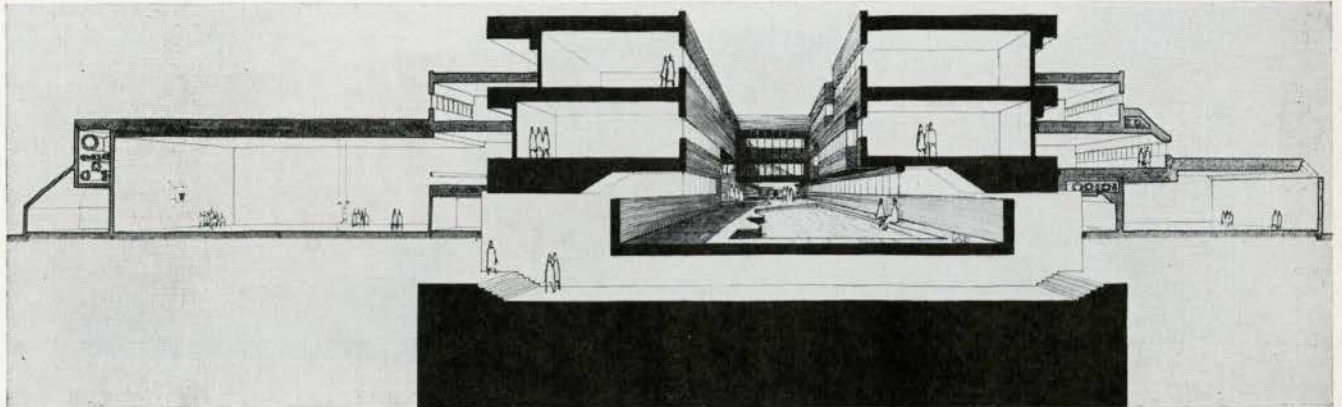
Section, Korah Collegiate and Vocational School, Sault Ste Marie; Architects Craig, Zeidler & Strong  
Coupe, Collège et Ecole professionnelle Korah, Sault Ste-Marie; Architectes Craig, Zeidler & Strong

2

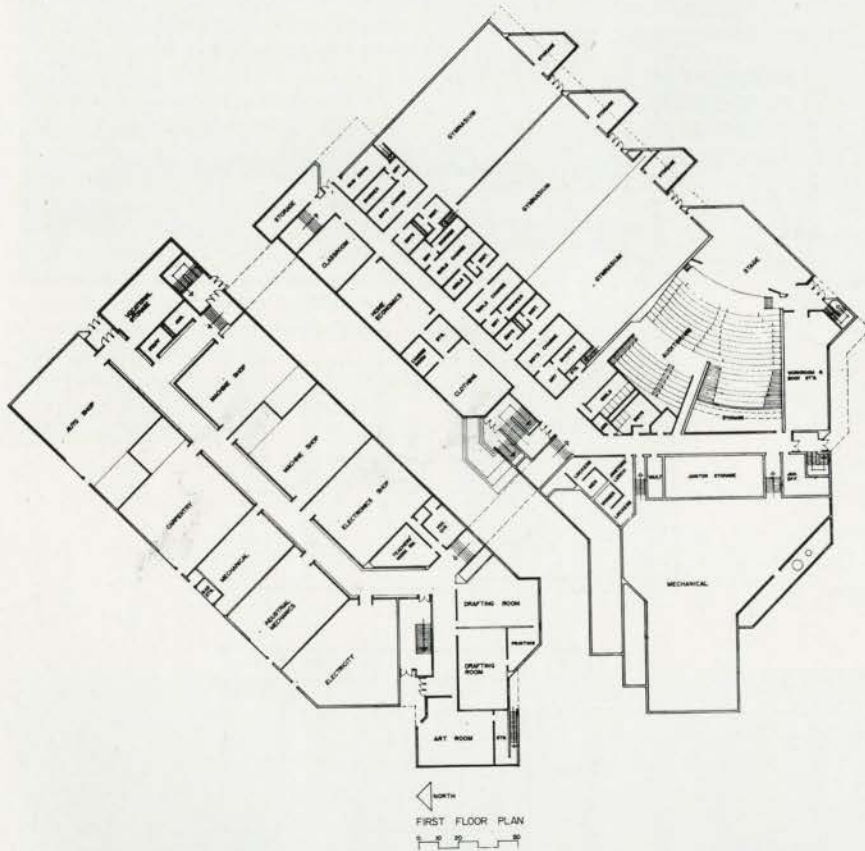
First Floor Plan  
Plan du rez-de-chaussée

3

Model  
Modèle



1



2

The architects for Korah Collegiate and Vocational School, Sault Ste Marie, have connected the streets on either side of the school by a "school street" around which the building has been designed. The outdoor pedestrian "street" widens between the wings to form a courtyard which is a focus of activity, movement and orientation. Classroom wings are three stories separating the three distinct courses; technical on the first for easy servicing of shops, commercial on the second and academic on the second and third. The second floor is the main entry level feeding all major activity areas. The corridors of the wings are joined to give a square donut circulation corridor for the total building.

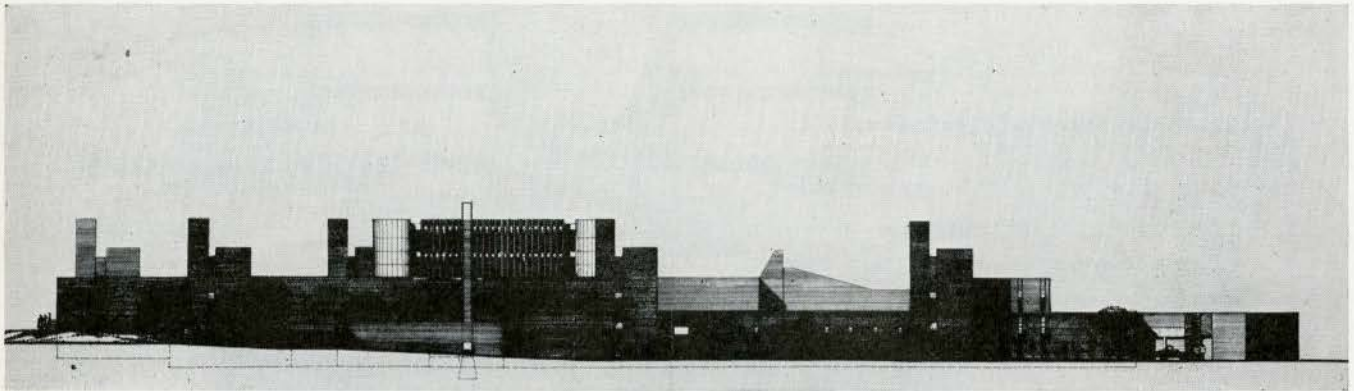


3

1  
*College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan; Izumi, Arnott & Sugiyama, Architects*  
*Faculté de la médecine vétérinaire, Université du Saskatchewan, Saskatoon, Saskatchewan; Izumi, Arnott & Sugiyama, Architectes*

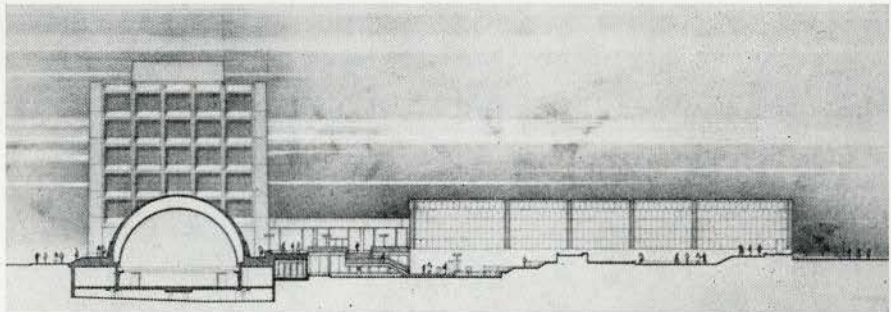
2  
*Manitoba Centennial Centre; Green, Blankstein, Russell, Associates, Moody Moore and Partners, Smith Carter Searle Associates. Site Plan*  
*Plan d'emplacement du Centre Centenaire du Manitoba; Green, Blankstein, Russell, Associates, Moody Moore and Partners, Smith Carter Searle Associates*

3  
*Section, Manitoba Centennial Centre Coupe, Centre Centenaire du Manitoba*  
 4  
*Lower Floor Plan, Manitoba Centennial Centre*  
*Plan du sous-sol, Centre Centenaire du Manitoba*

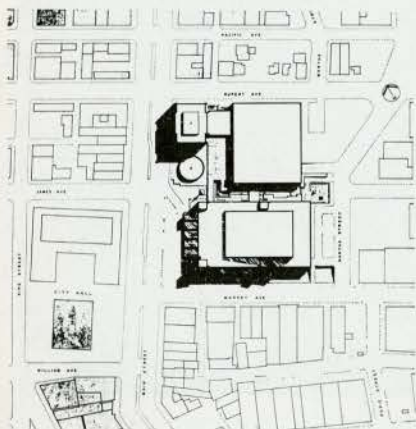


1

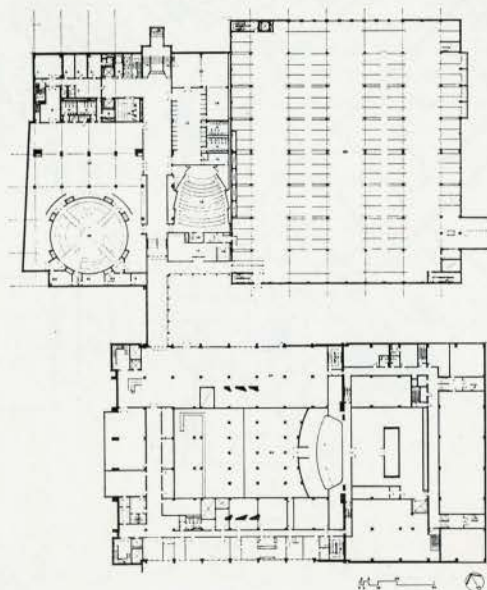
The Manitoba Museum of Man and Nature is a project for the Centennial of Canadian Confederation and the Province of Manitoba (1970). The museum is part of a complex which includes three main elements: a science and administration tower, an exhibition hall with associated design and preparation facilities, and the planetarium. The tower, stressed to reach 12 storeys, will initially be built to six. The hall is designed as a one-level structure capable of expanding independently by 60 per cent. The planetarium is located in a lower concourse with its theater dome projecting through a plaza framed by the other two components. At the same level, designed to serve both museum and planetarium, are auditorium, classrooms and other educational facilities.



3



2



4

1

*Queen's University, Model of Music, Drama and Auditorium Facilities; Architects Affleck, Desbarats, Dimakopoulos, Lebensold & Sise*  
*Modèle des salles de musique et de théâtre, et de l'auditoire à Queen's University; Architectes Affleck, Desbarats, Dimakopoulos, Lebensold & Sise*

2

*Main Entry Level Plan*  
*Plan du rez-de-chaussée, entrée principale*

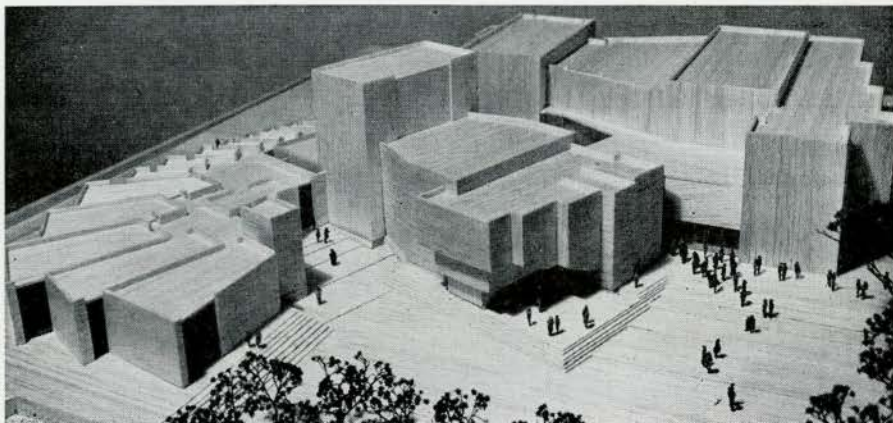
3

*Elevation*  
*Élévation*

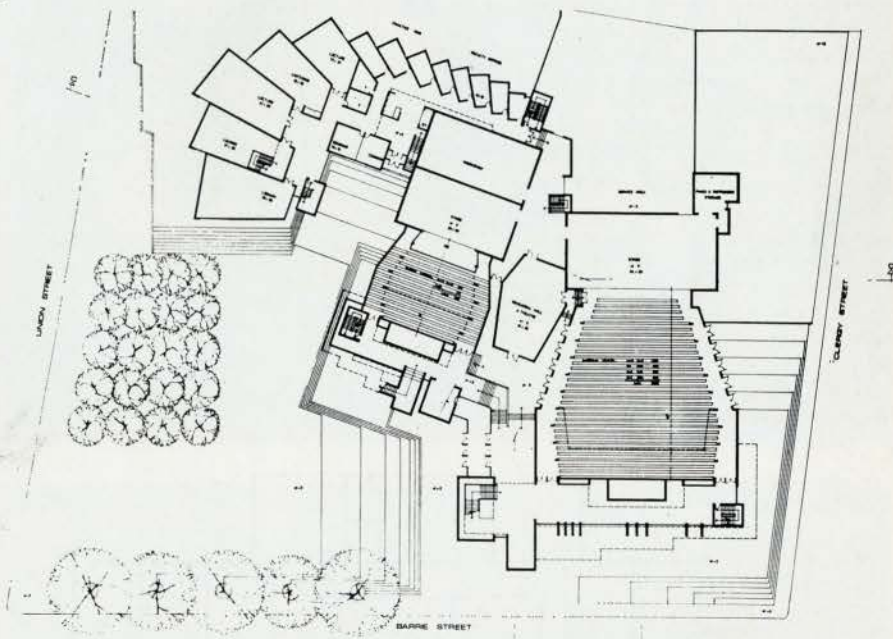
Auditorium, drama and festival activities at Queen's University, Kingston, are to be located at the eastern extremity of the campus. The auditorium element of the complex has been planned to face an important access road into the campus from Kingston's commercial area. The main element of the complex is to consist of: an auditorium with 2,000 seats, a theater with seating capacity of 425, a large rehearsal hall of 1,600 sq ft and practice and lecture rooms for the departments of drama and music. For flexibility the music and drama facilities will be integrated with the auditorium. The teaching facilities of these departments each have their own entrance from a court at the intersection of Union and Barrie Streets. The two theaters and rehearsal hall have the performing floors on the same level with a common service entrance at the rear.

The study was prepared to establish the potential final requirements for the departments. "Whereas the theater, the rehearsal room and the auditorium would have both teaching functions for the departments and a public function oriented towards the campus and the City, it would nevertheless be possible to use the total complex purely for University functions and the auditorium would provide the University with badly needed convocation space."

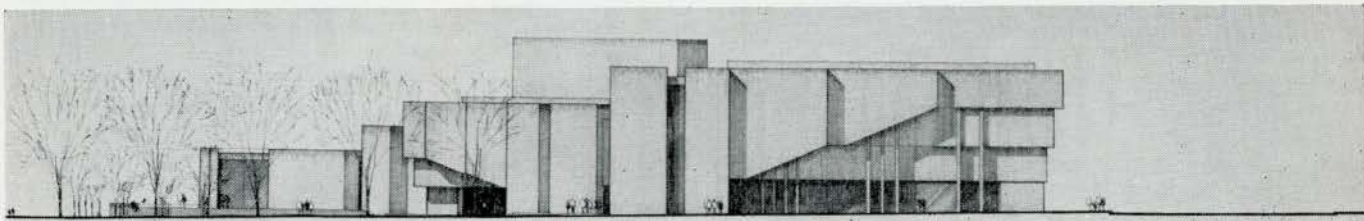
The structural system is reinforced concrete, the exterior finish masonry and the interior finish exposed concrete.



1



2



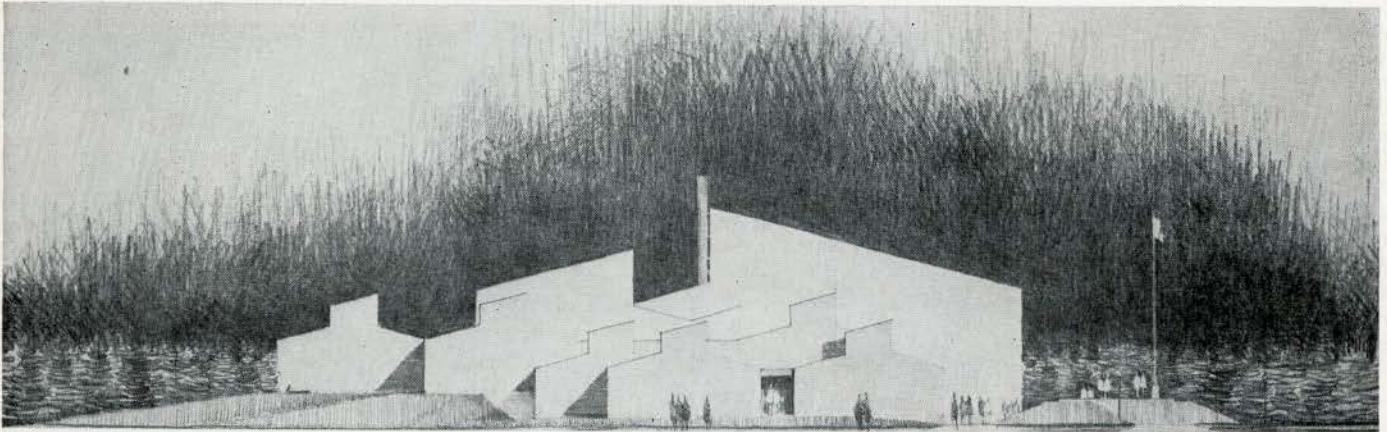
3

1  
*The Pas Collegiate, Manitoba, Architect  
 Etienne J. Gaboury  
 Collège Le Pas, Architecte Etienne J. Gaboury*

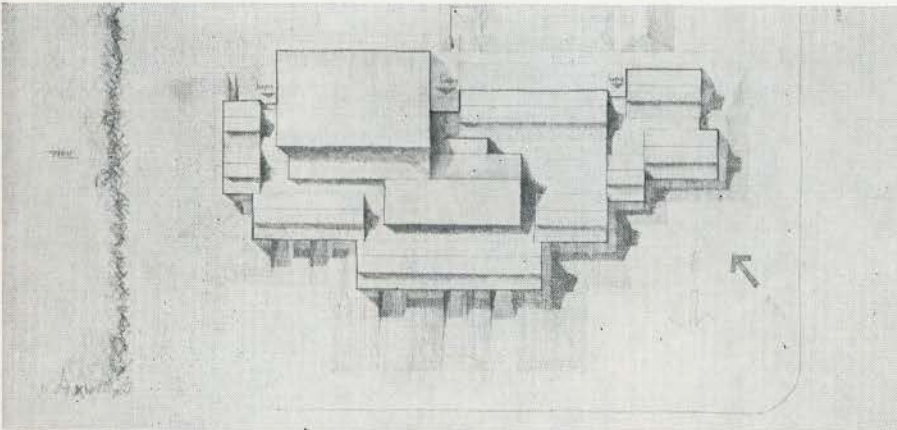
2  
*Site Plan  
 Plan d'emplacement*

3  
*Floor Plan  
 Plan d'un étage*

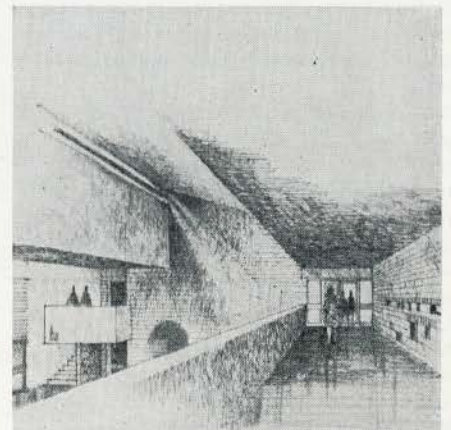
4  
*Overhead walk in Entrance Lobby  
 Promenade, servant comme foyer et entrée*



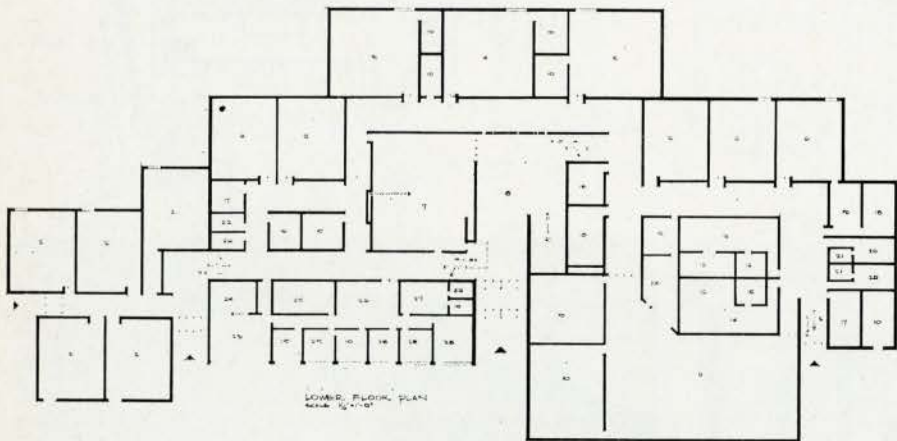
1



2



4



3

The Pas Collegiate, Kelsey School Division No. 45, at The Pas, Manitoba, 500 miles north of Winnipeg, is to be a 25-classroom high school with administrative facilities, library, laboratories, commercial, team teaching room, lunch and multi-purpose room and gymnasium-auditorium. Due to regional environmental conditions, extreme cold in winter, extreme heat in summer and an open flat site covered with muskeg bordered by a heavy growth of swamp spruce, the building must turn its back to the wind and open predominantly to the south so that the sun rays will aid vitality of the environment. The overall aim is to create an academic environment where social interchange is encouraged.



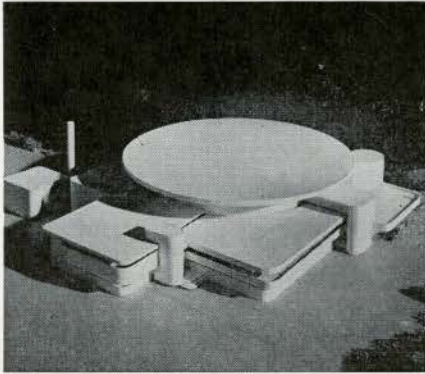
# Public

1  
*Model Ithaca Festival Theatre, Fairfield & DuBois*  
*Modèle du Festival Theatre à Ithaca, Fairfield & DuBois*

2  
*Orchestra Level Plan*  
*Plan de la fosse d'orchestre*

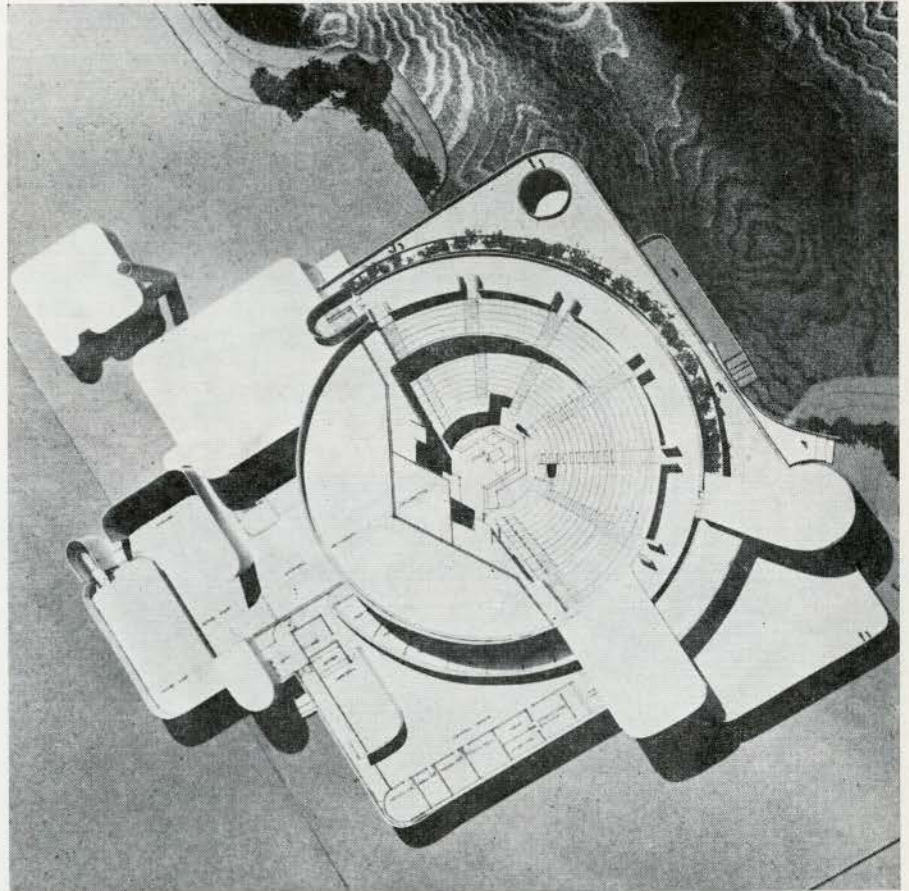
3  
*Model*  
*Modèle*

4  
*Section through Theatre*  
*Coupe à travers du théâtre*

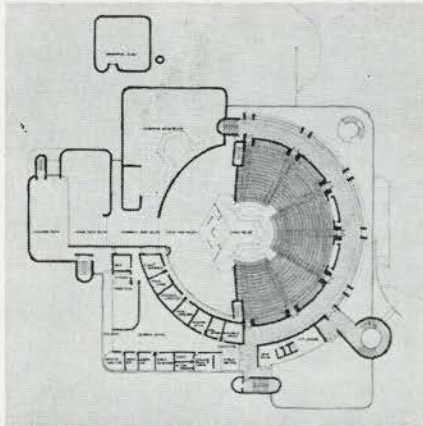


1

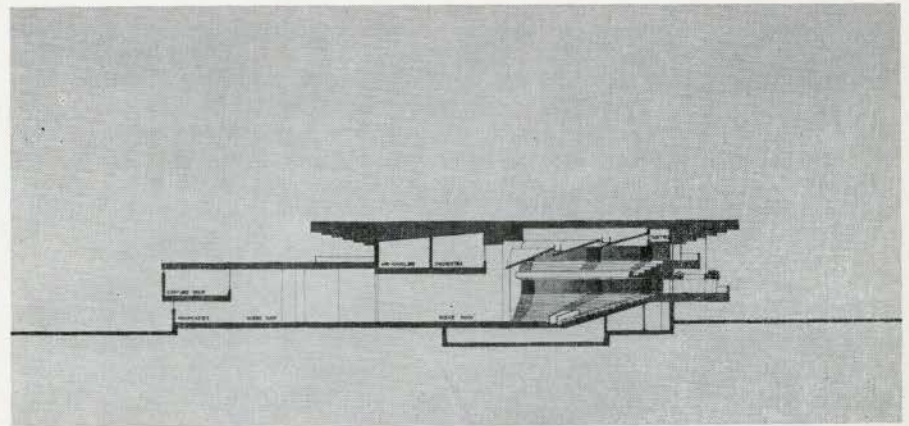
The Ithaca Festival Theatre is proposed as the first of a group of buildings making up a centre for the performing arts at Ithaca, New York. The site is between the city and the shores of Lake Cayuga. The accepted scheme for the entire waterfront area provides for a large marina lagoon as the dominant element about which the Theatre and other buildings will be grouped. The Theatre will provide about 1600 seats in an open stage arrangement on two audience levels. It will be equipped with full backstage facilities including workshops, studios for the design of productions, offices and work space for the Festival Administration. Materials of construction are to be reinforced concrete and concrete masonry with all roof structures and backstage suspended floor systems framed in steel.



3



2

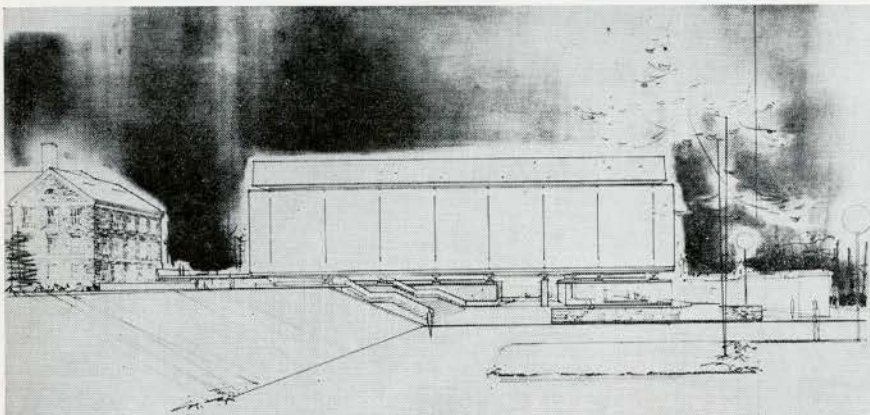


4

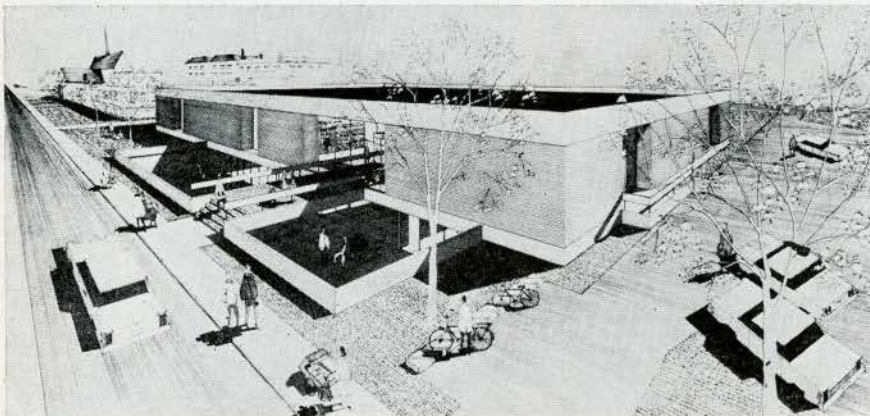
1  
*South Elevation, Killam Memorial Library,  
 Dalhousie University, Halifax, N.S.; Leslie R.  
 Fairn & Associates, Architects and Engineers*  
*Élévation de sud, Killam Memorial Library,  
 Université Dalhousie, Halifax, N.S.; Leslie R.  
 Fairn & Associates, Architectes et Ingénieurs*

2  
*Town of Mount Royal Library; Donaldson,  
 Drummond, Sankey, Architects*  
*Bibliothèque de la ville de Mont Royal;  
 Donaldson, Drummond, Sankey, Architectes*

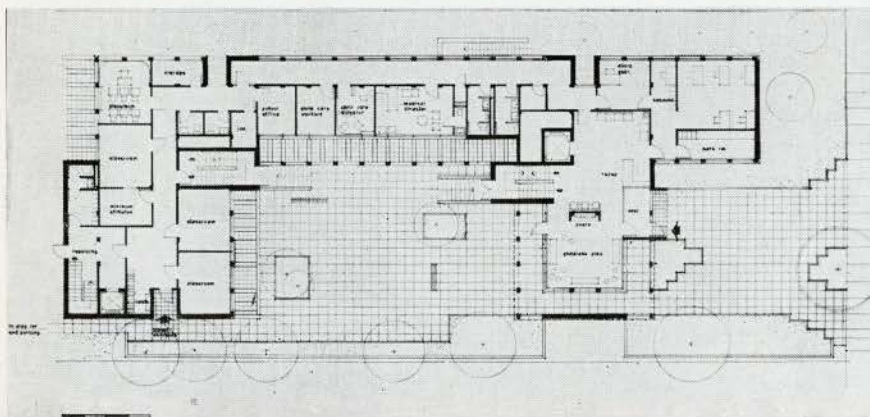
3  
*First Floor Plan, Toronto Mental Health  
 Hospital*  
*Plan du rez-de-chaussée de la maison de santé  
 à Toronto*



1

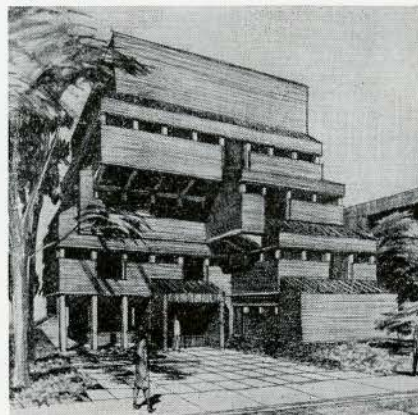


2



3

4  
*Toronto Mental Health Hospital; Shore &  
 Moffat and Partners, Architects and Engineers*  
*Maison de santé à Toronto; Shore & Moffat  
 and Partners, Architectes et Ingénieurs*



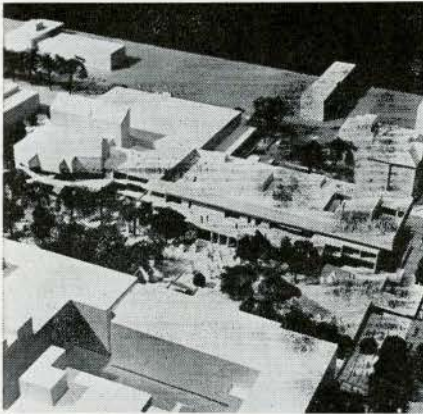
4

The Toronto Mental Health Hospital, a new four storey psychiatric treatment centre for children and adolescents, was begun in Toronto in the summer of 1966 and is scheduled for completion by early 1967. It will provide the first in-patients facilities for adolescents in the Metro Toronto area. Designed to be as little like an institution as possible the new building which will be turned sideways on the lot will be built in the basic shape of a horseshoe. Part of the concept is to eliminate long corridors. Functionally the building will be two wings, one for boys and one for girls, connected by a wing containing common facilities such as activity rooms, a group conference room and a play room.

An additional wing at the front of the building on Jarvis St will house the main entrance, the administration facilities and special function rooms. Of partly exposed concrete frame construction with unusual cantilevered floors and varied level pitched copper roofs, this front wing will create the main aesthetic character of the centre. It will be built of brown earth colored brick and will have stone paved areas running from the front beneath a colonnade and widening into a courtyard in the centre. In the basement will be located an occupational therapy room, a children's and staff dining room, and a large modern gymnasium and meeting room which will extend under the courtyard. A feature of the building will be the incorporation of the latest TV monitoring systems and observation rooms.

1  
*University Centre, University of Manitoba ;  
 Associated Architects Waisman Ross  
 Blankstein Coop Gillmor Hanna, C. R. Nelson  
 Jr., R. Sellors, C. de Forest*

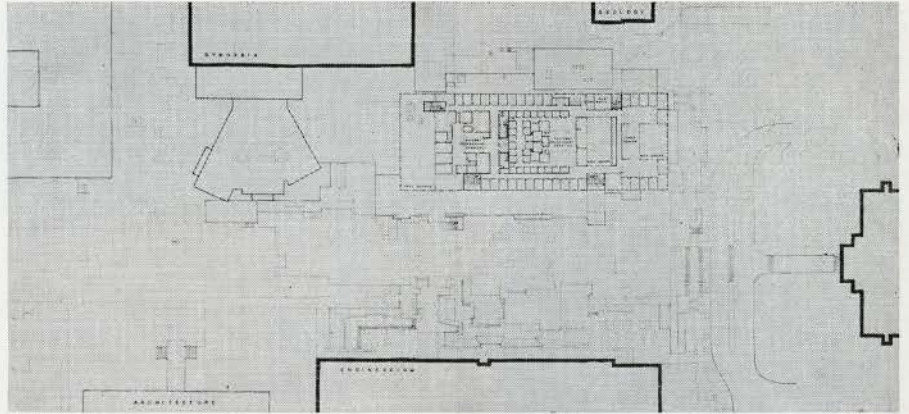
2  
*Site Plan, Showing Fourth Level of  
 University Centre  
 Plan d'emplacement, montrant le troisième  
 étage du Centre universitaire*



1

3  
*Model, Provincial Government Buildings,  
 Prince Edward Island ; Architects Affleck  
 Desbarats, Dimakopoulos, Lebensold & Sise  
 Modèle des Edifices du Gouvernement  
 Provincial, Ile du Prince Edouard ; Architectes  
 Affleck, Desbarats, Dimakopoulos, Lebensold  
 & Sise*

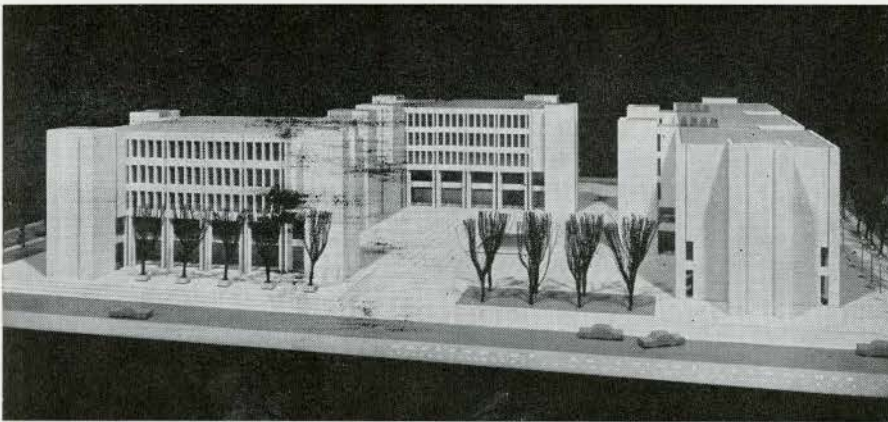
4  
*Site Plan, Provincial Government Buildings,  
 Prince Edward Island  
 Plan d'emplacement, Edifices du Gouverne-  
 ment Provincial, Ile du Prince Edouard*



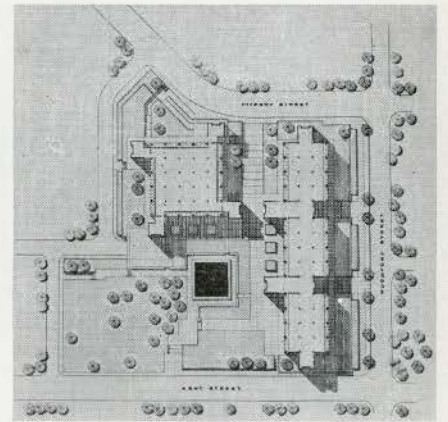
2

5  
*Model, Arts and Cultural Centre, New-  
 foundland ; Architects, Affleck, Desbarats,  
 Dimakopoulos Lebensold & Sise  
 Modèle du Centre culturel et des arts,  
 Terre-Neuve ; Architectes, Affleck, Desbarats,  
 Dimakopoulos, Lebensold & Sise*

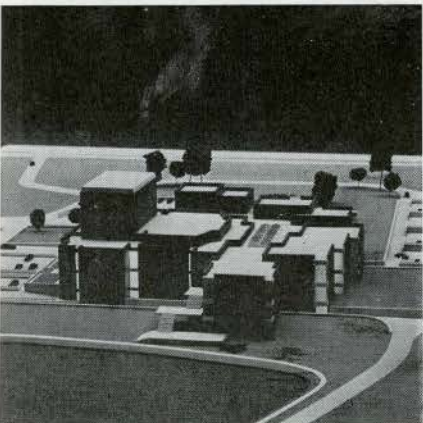
6  
*Guide to Model, Arts and Cultural Centre,  
 Newfoundland  
 Guide au modèle du Centre culturel et des  
 arts, Terre-Neuve*



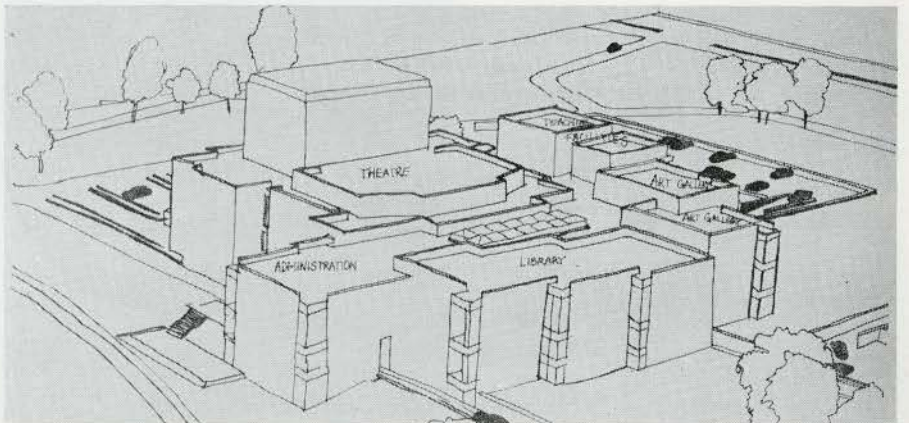
3



4



5



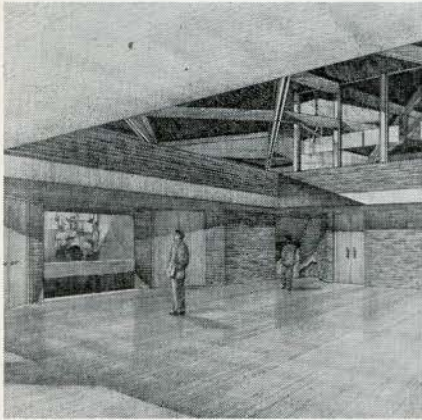
6

1  
 Lobby, Miners' Museum, Glace Bay,  
 Nova Scotia; C. A. Fowler, Bauld & Mitchell,  
 Architects and Engineers  
 Foyer, Musée des mineurs  
 Glace Bay, Nouvelle-Ecosse; C. A.  
 Fowler, Bauld & Mitchell, Architectes et  
 Ingénieurs

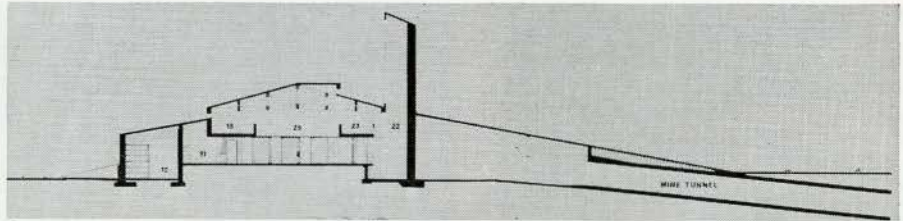
2  
 Main Floor Plan  
 Plan du rez-de-chaussée

3  
 Mezzanine Floor Plan  
 Plan de la Mezzanine

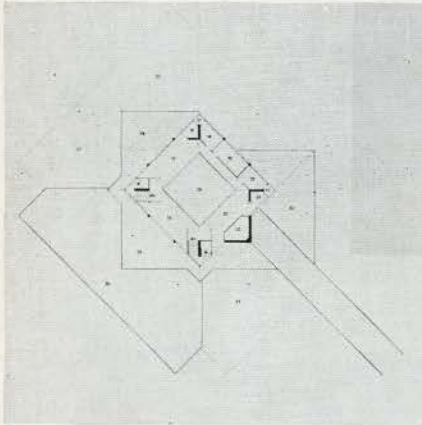
4  
 Section  
 Coupe  
 5  
 Perspective  
 Perspective



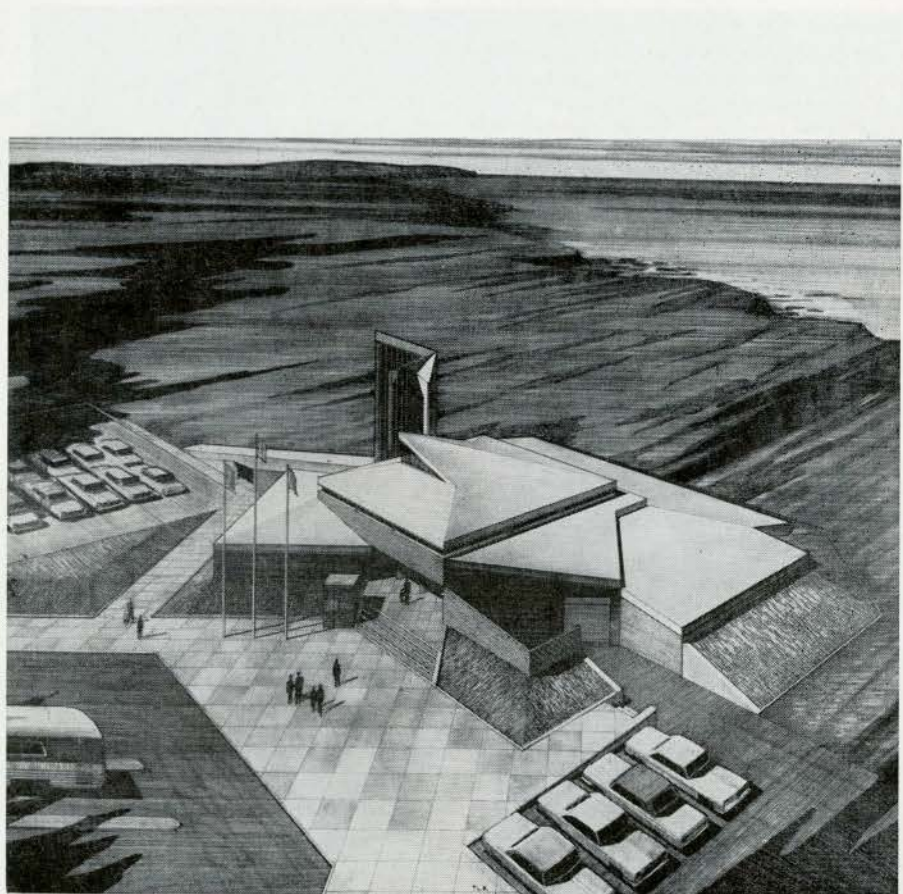
1



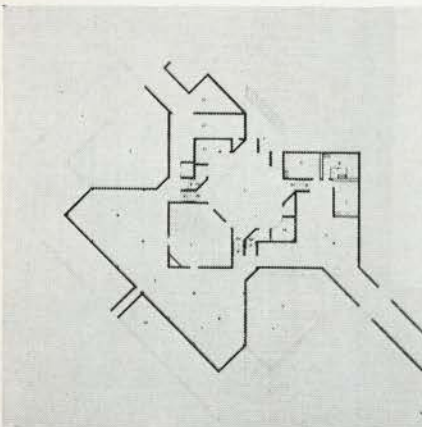
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2



5

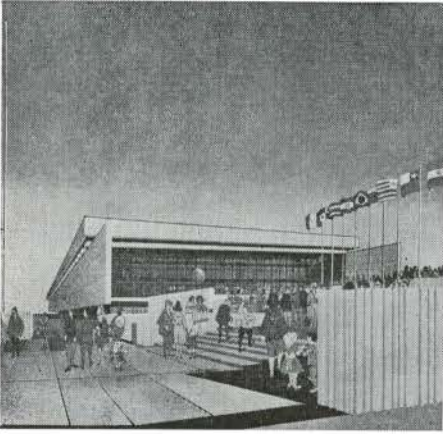


3

1  
*Pan-American Games Swimming Facilities,  
 Winnipeg, Manitoba; Smith Carter Searle  
 Associates*

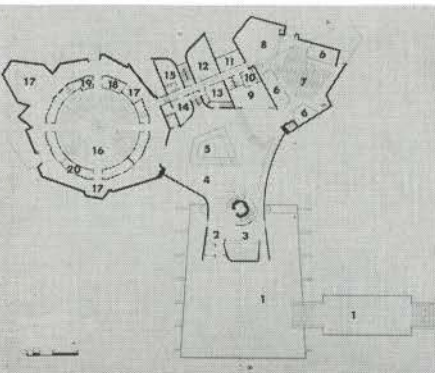
*Centre de natation pour les jeux Pan-  
 Américains à Winnipeg, Manitoba; Smith  
 Carter Searle Associates*

2  
*Pool Deck Level, Pan-American Games  
 Piscine, centre de natation pour les jeux  
 Pan-Américains*



1

The Planetarium, Calgary's Centennial project, for which an architectural competition was held, is to be located in a triangle of land on the western portion of the city center at the terminus of Seventh Avenue visible from the river drives. The proximity to traffic provides the site with immediate entry and exit of vehicles. Pedestrians enter via a bridge and an esplanade over parking areas and traffic ways below. The planetarium divides itself into five major functions: the planetarium chamber, the lecture hall, exhibition space, an administrative section and an observation deck. Exposed concrete used in a very plastic manner is the basic building material, roofs are of structural steel joists and beams.



3

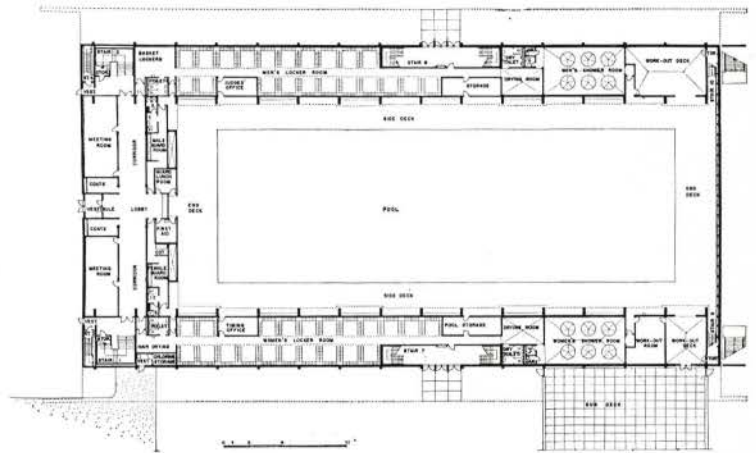
3  
*The Calgary and District Planetarium;  
 McMillan, Long and Associates, Main Floor  
 Plan*

*Plan du rez-de-chaussée, Planétaire de  
 Calgary et de la banlieue; McMillan, Long and  
 Associates*

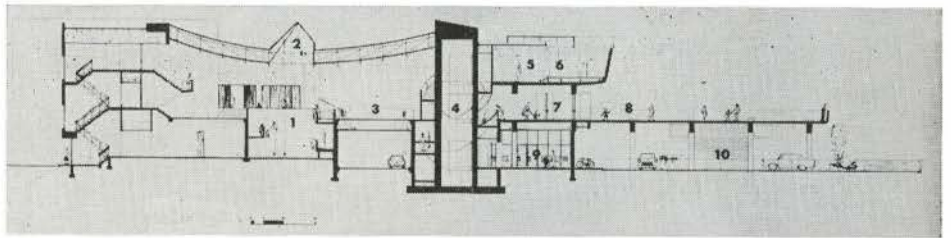
4  
*Section, The Calgary and District  
 Planetarium*

*Coupe du Planétaire de Calgary et de  
 la banlieue*

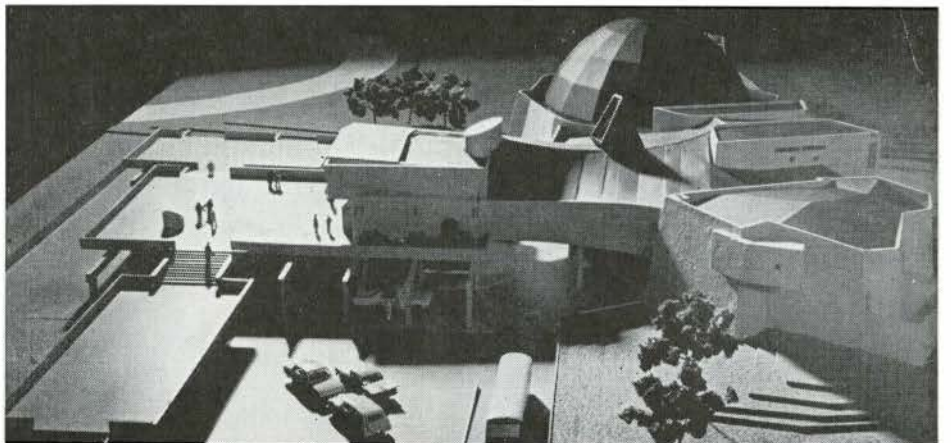
5  
*Model, The Calgary and District Planetarium  
 Modèle du Planétaire de Calgary et de la  
 banlieue*



2



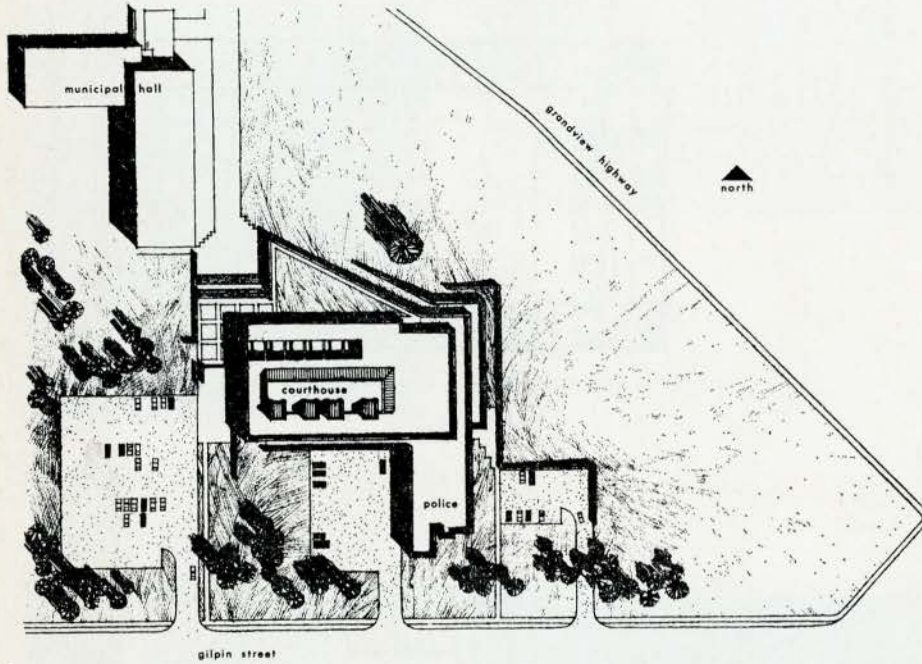
4



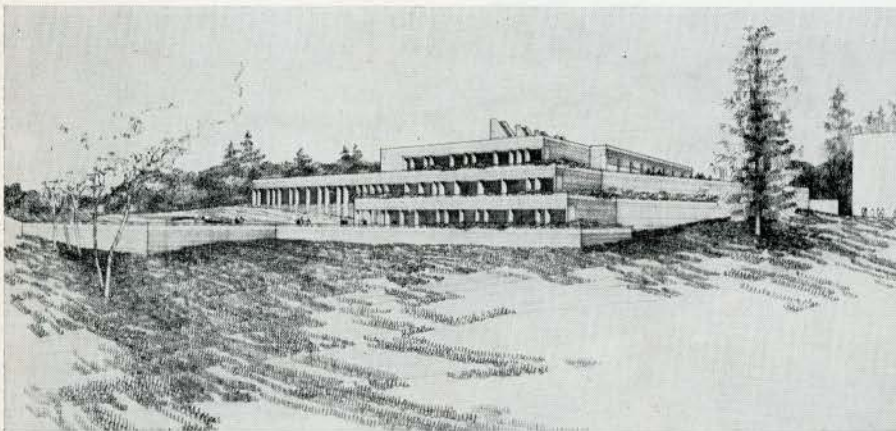
5

1  
*Site Plan, Magistrate's Court and Police Station, Burnaby, B.C., McCarter Nairne and Partners*  
*Plan d'emplacement, tribunal et poste de police, Burnaby, B.C., McCarter Nairne and Partners*

2  
*Perspective from North East, Magistrate's Court and Police Stations*  
*Perspective du nord-est, tribunal et poste de police*



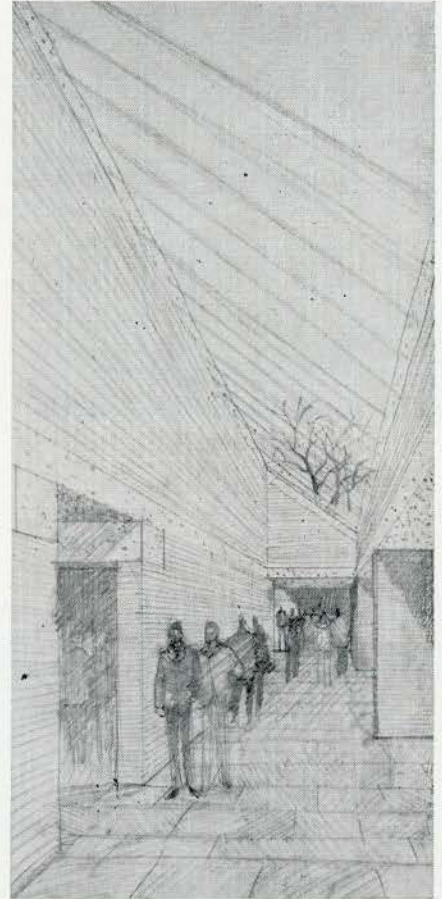
1



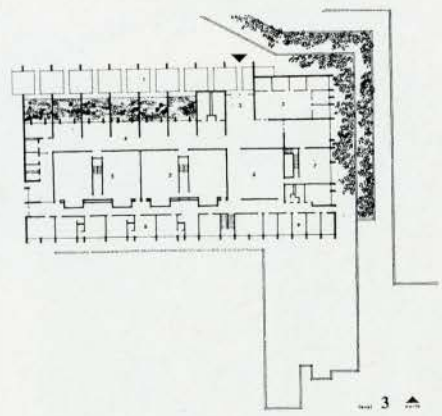
2

3  
*Interior Perspective of Public Waiting Lobby*  
*Perspective intérieure de la salle d'attente publique*

4  
*Plan, Level 3*  
*Plan du deuxième étage*



3



4

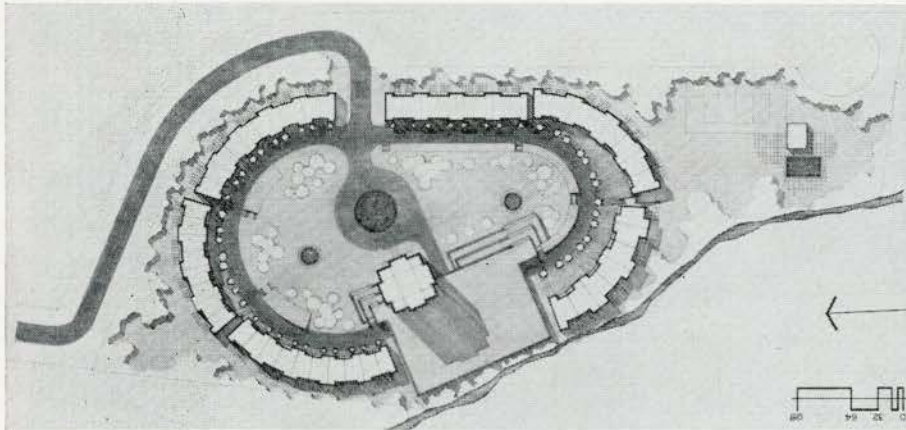
# Housing

1  
*Musqueam Gardens Apartments, Site Plan, Vancouver; C. B. K. Van Norman and Associates Architects and Engineers*  
*Plan d'emplacement des appartements Musqueam Gardens, Vancouver; C. B. K. Van Norman and Associates Architectes et Ingénieurs*

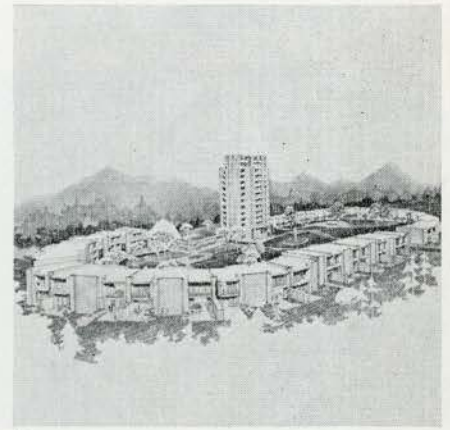
2  
*Perspective, Musqueam Gardens Apartments*  
*Perspective des appartements Musqueam Gardens*

3  
*Cross-Section, Tudor Manor, Proposed 90-suite deluxe apartment block, Vancouver; C. B. K. Van Norman and Associates Architects and Engineers*  
*Coupe en travers de la maison collective Tudor Manor, avec 90 suites luxurieuses, projetées, Vancouver; C. B. K. Van Norman and Associates Architectes et Ingénieurs*

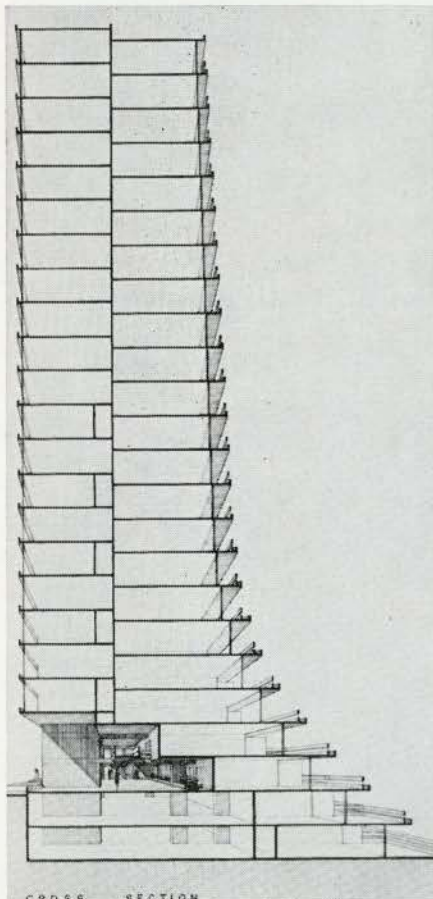
4  
*Model Tudor Manor Apartments*  
*Modèle des appartements de la maison collective Tudor Manor*



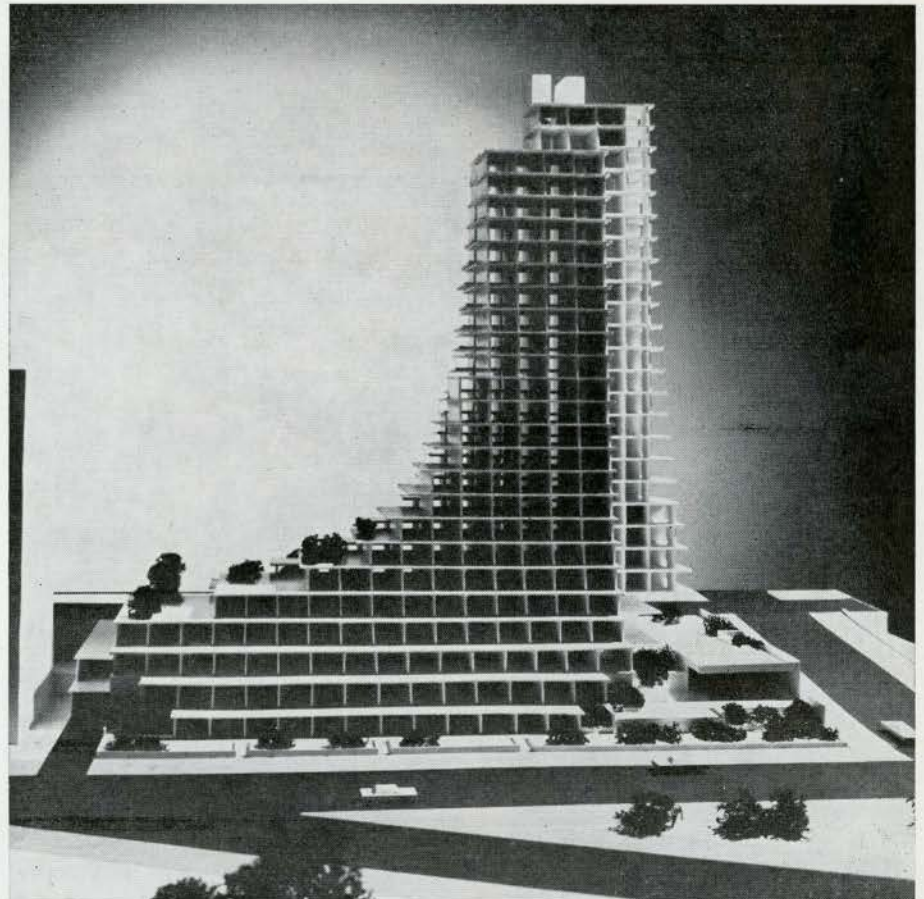
1



2



3



4

1, 2 & 3

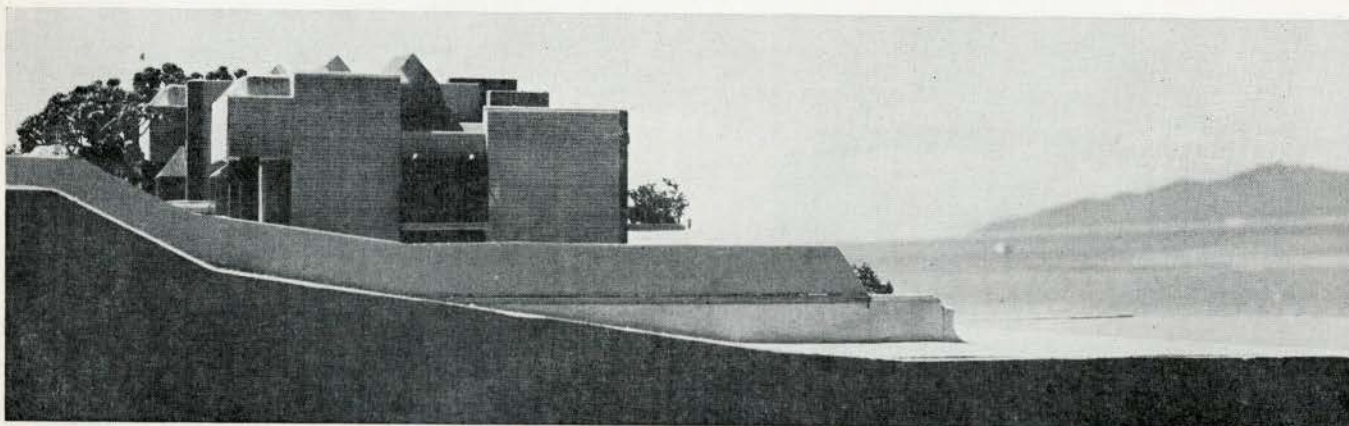
*Simpson Project, Garden Apartments  
Point Grey Road, Vancouver, B.C.; Architects  
Erickson-Massey*

*Projet de la compagnie Simpson, Garden  
Apartments, Point Grey Road, Vancouver,  
C.B.; Architectes Erickson-Massey*

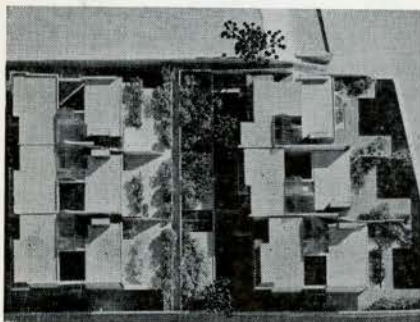
4

*Perspective, Federal Provincial Housing  
Project No 7, Vancouver, B.C.; Rhone and  
Iredale Architects*

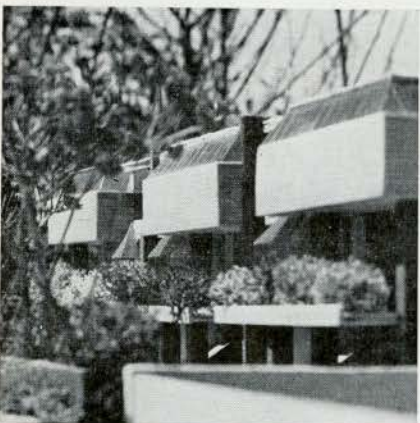
*Perspective du Projet fédéral provincial  
No 7 de logement, Vancouver, C.B.; Rhone  
and Iredale Architectes*



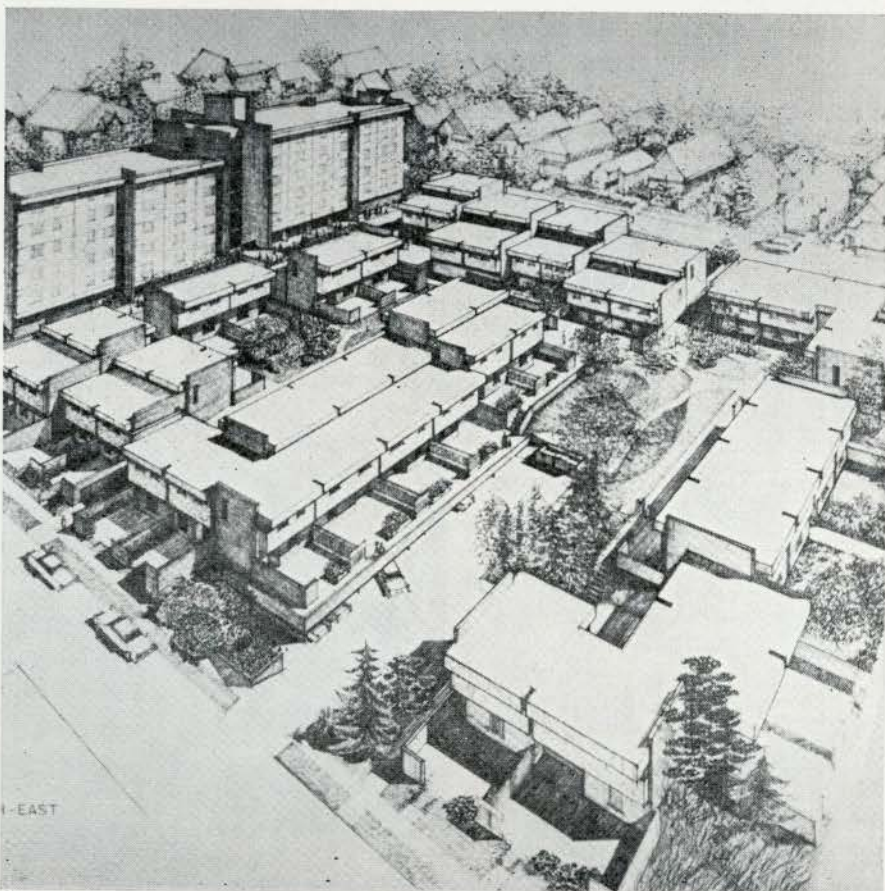
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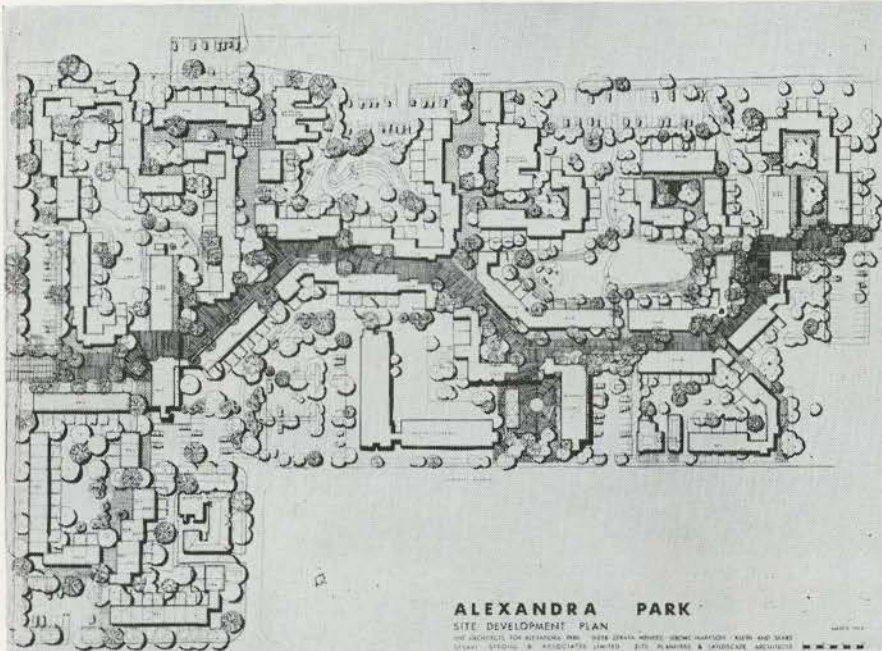
*Alexandra Park, The Architects for Alexandra Park (Webb-Zerfa-Menkes-Jerome Markson-Klein and Sears) Sasaki-Strong Associates Limited Site Planners and Landscape Architects*

2

*Alexandra Park, Perspective*

3

*Alexandra Park, Perspective*



1

This public housing project consists of a total area of 72 acres of which about 18 acres have been selected for complete renewal with the provision of public housing. The remainder of the project will consist of the building of individual homes and renovation of existing homes in good condition. Phase 1 is now almost complete and being occupied and Phase 2 is under construction. The development, bounded by Queen, Spadina, Dundas and Bathurst, will provide a wide range of accommodation for single people and large families. A major determinant in the design concept was the provision of an urban character compatible with the neighbourhood. A total of 429 units will be provided, comprising 147 apartments, 267 new row houses, 13 existing houses and six existing apartments. Also there will be accommodation for elderly people. All units with three or more bedrooms are contained in row housing, with direct access to private gardens. The project contains a small community core comprising 4,000 sq ft of shops, a nursery, a sitting-out area and administrative offices. The peripheral road system allows for parking and servicing without undue intrusion into the site.



2



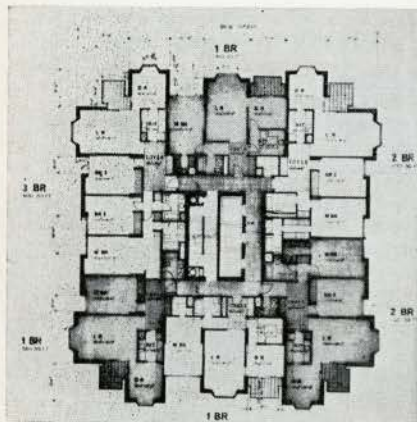
3

1  
*Harbour Park Development, Vancouver,  
 Stage I; Architects Thompson, Berwick,  
 Pratt & Partners, Typical Floor Plan, Towers  
 11a and 11b*

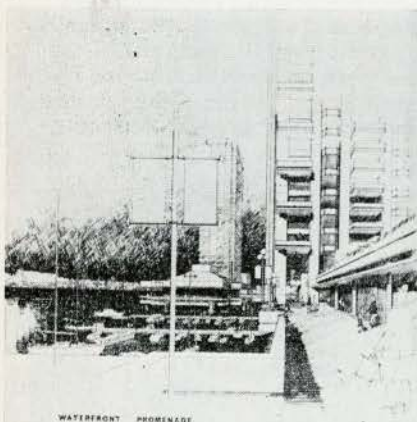
*Projet d'aménagement pour Harbour Park,  
 Vancouver, étape I; Architectes Thompson,  
 Berwick, Pratt & Partners. Plan type d'un  
 étage, tours 11a et 11b*

2  
*Harbour Park Development, Waterfront  
 Promenade*

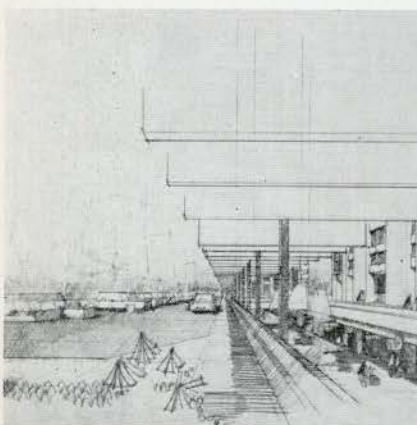
*Projet d'aménagement pour Harbour Park,  
 promenade au bord de la mer*



1



2

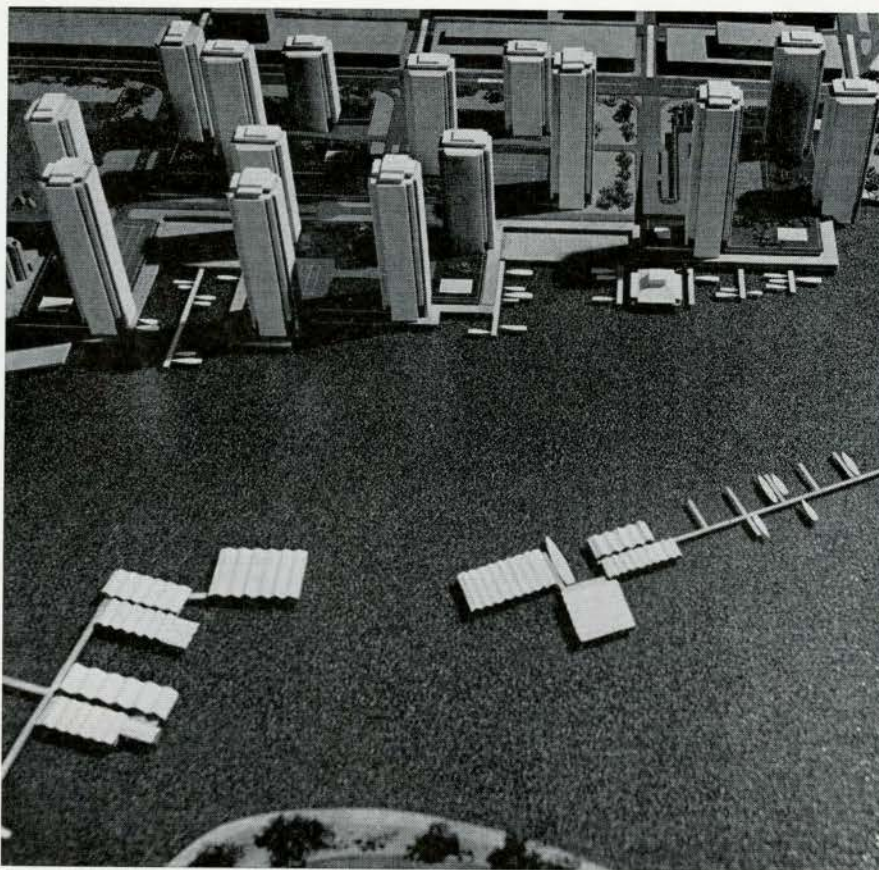


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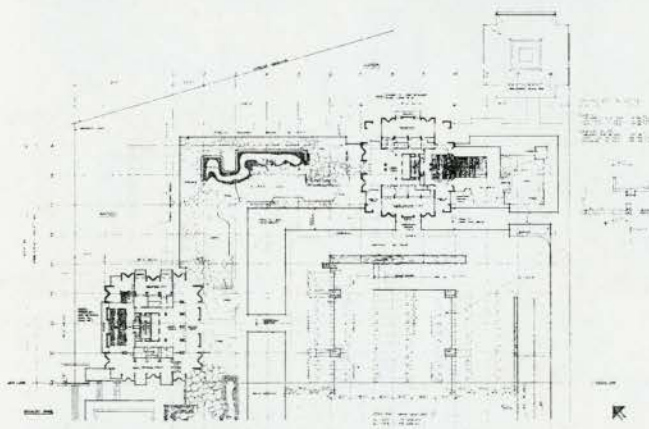
3  
*Harbour Park Development, View of Shopping  
 Arcade from Upper Level Private Driveway  
 Projet d'aménagement pour Harbour Park,  
 Arcade à boutiques, vue du chemin supérieur  
 privé*

4  
*Harbour Park Stage I Plan, Part A, Level 125.0'  
 Plan d'aménagement, étape I, partie A,  
 étage 125.0', Harbour Park*

5  
*Harbour Park Development Shopping Arcade  
 Projet d'aménagement pour Harbour Park,  
 arcade à boutiques*



4



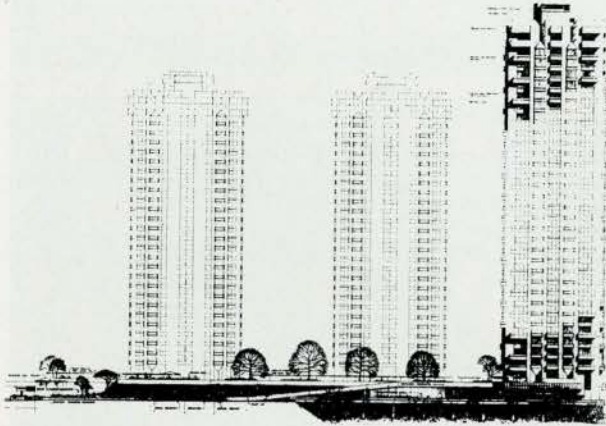
5

6

Harbour Park Stage I, Elevation from  
Gilford Street  
Etape I du projet d'aménagement pour  
Harbour Park, Elevation, vue de Gilford  
Street

7, 8

Sketches, Harbour Park  
Esquisses, Harbour Park



6

9

Model, Duthie Avenue Housing ; Architects  
Thompson, Berwick, Pratt & Partners  
Modèle du projet de logement pour Duthie  
Avenue ; Architectes Thompson, Berwick,  
Pratt and Partners

10

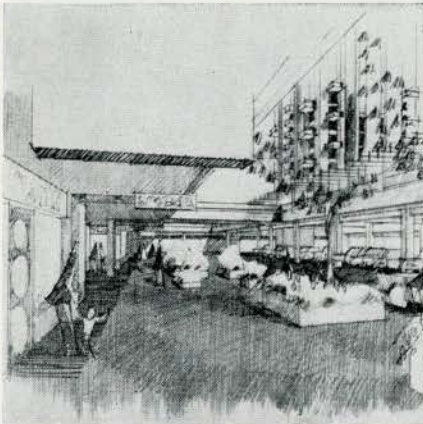
Site Plan  
Plan d'emplacement

11

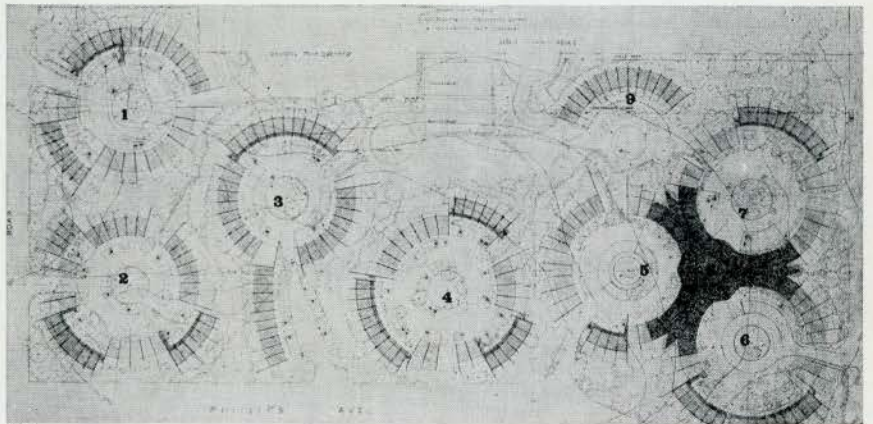
Sketch Duthie Avenue Cluster Housing  
Esquisse du projet de logement pour  
Duthie Avenue



9



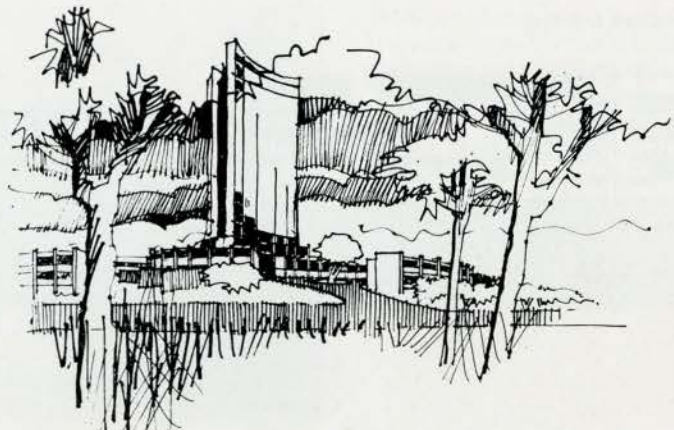
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10

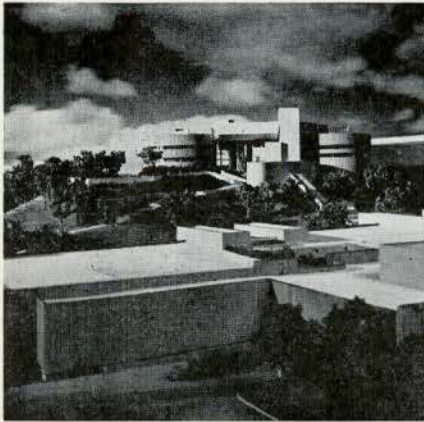


8



11

1  
*Centennial Centre of Science and Technology; Toronto Architect Raymond Moriyama. View of the model from the west*  
*Centre centenaire de la science et technologie; Raymond Moriyama, Architecte à Toronto. Modèle vu d'ouest*

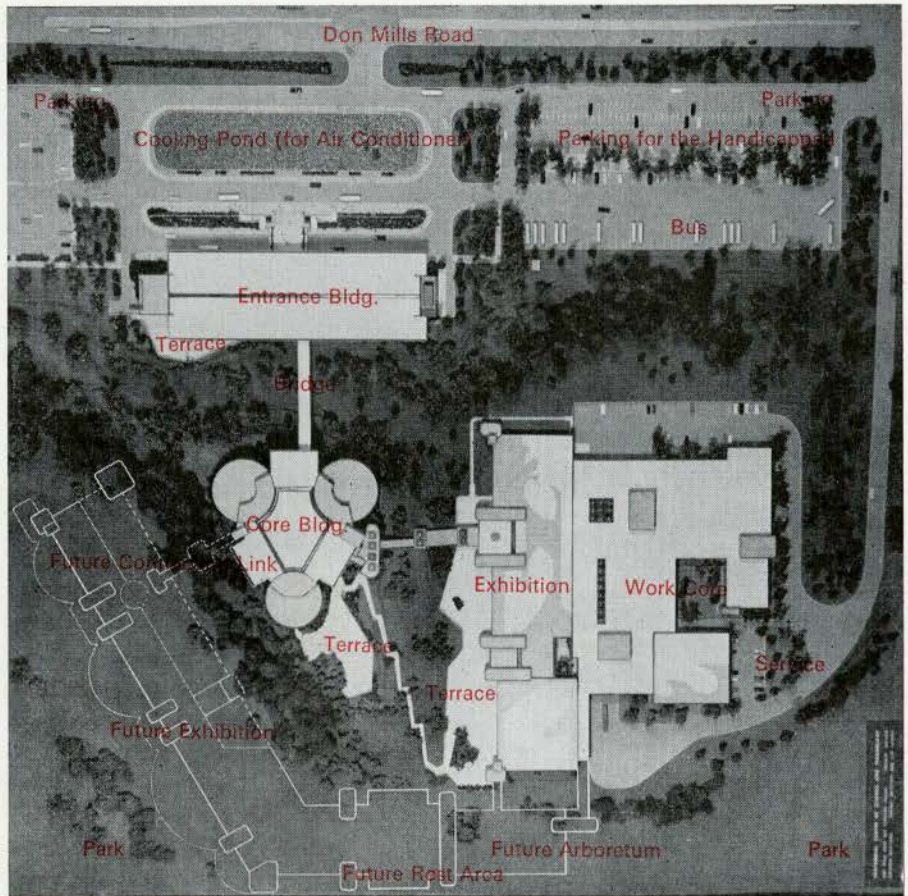


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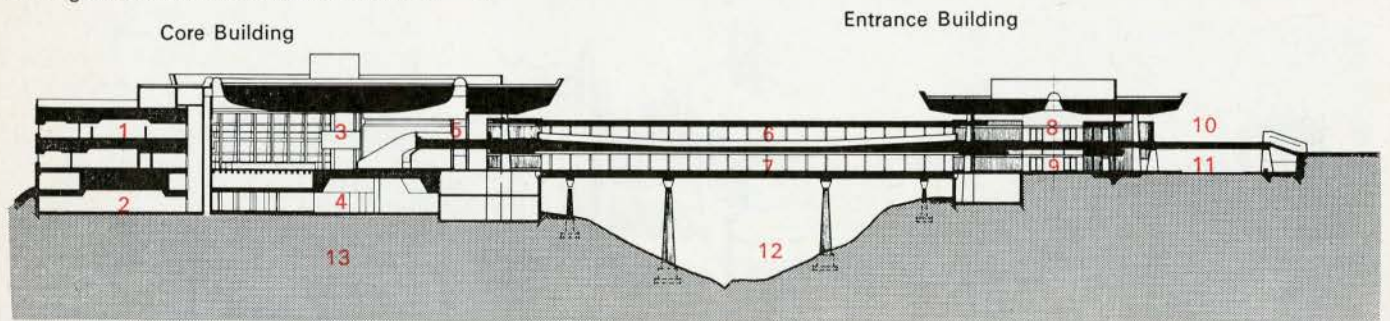
The initial stage of the Centennial Centre of Science and Technology, the official Ontario Government Centennial project, now under construction in Toronto will consist of a cluster of three buildings. The site, a strip of rugged ravine land is approximately 20 acres including tableland, a 90-foot hill and a U-shaped area around its base. 160 acres surrounding the Centre are being developed as parkland.

As there was not enough tableland to accommodate the three buildings (470,000 feet of floor space) and parking for 5,000 cars it was decided to locate all parking at the periphery. The basic materials for the Centre are pre-cast concrete, poured concrete, steel, tinted glass and bronze-anodized aluminium.

3  
*Site Plan, Centennial Centre of Science and Technology*  
*Plan d'emplacement du centre centenaire de la science et technologie*



3



2

- 1 Offices
- 2 Data Centre
- 3 Great Hall
- 4 Orientation
- 5 Mezzanine

- 6 Upper Bridge
- 7 Lower Bridge
- 8 Adult Assembly

- 9 School Children Assembly
- 10 Entrance Bridge
- 11 Vehicular Unloading
- 12 Ravine
- 13 Knoll

# Commercial Industrial

1

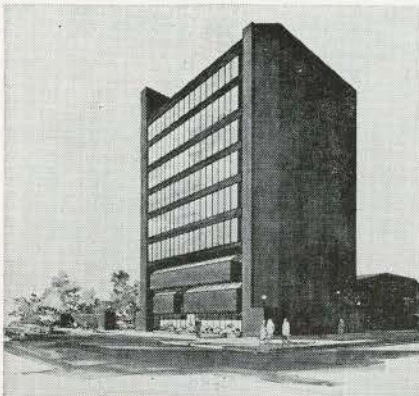
*Regina Labour Building ; Izumi, Arnott and Sugiyama Architects and Engineers  
Edifice du Travail à Regina ; Izumi, Arnott and Sugiyama, Architects et Ingénieurs*

2

*New Tower for "Inn on the Park", Toronto ; Architects Webb Zerafa Menkes  
Tour neuve pour "Inn on the Park", Toronto ; Architectes Webb Zerafa Menkes*

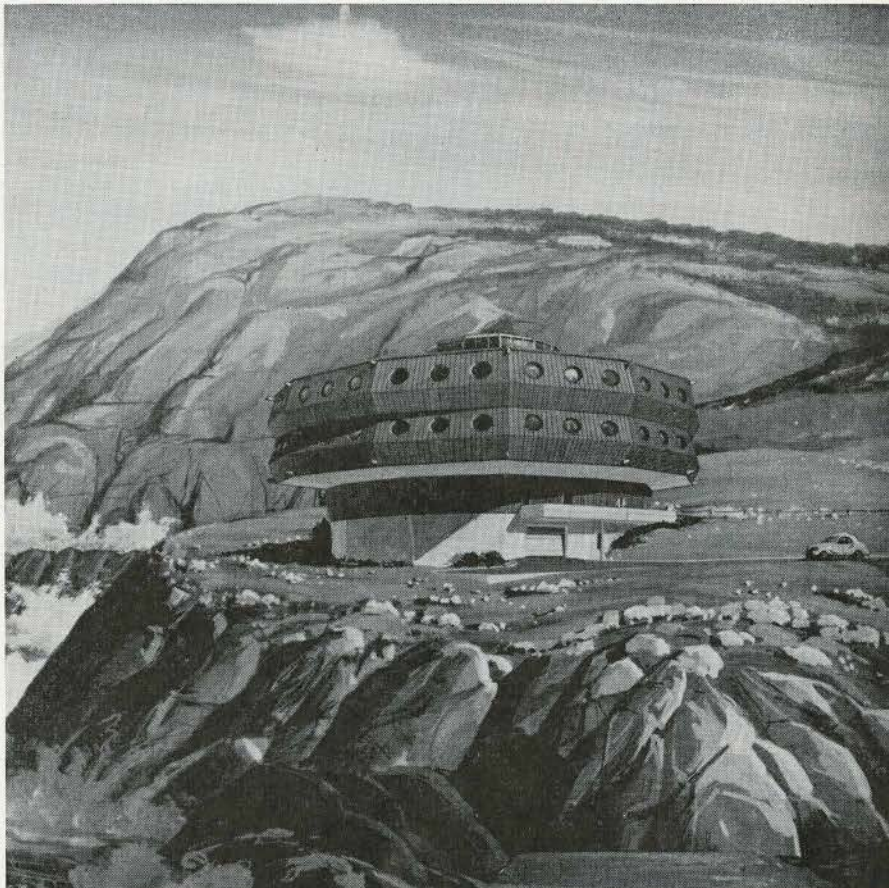
3

*Marine Science Research Laboratory, Logy Bay, Newfoundland ; Architects, Dobush Stewart Bourke Holtshousen  
Laboratoire des recherches scientifiques pour la marine à Logy Bay, Terre Neuve ; Architectes, Dobush Stewart Bourke Holtshousen*

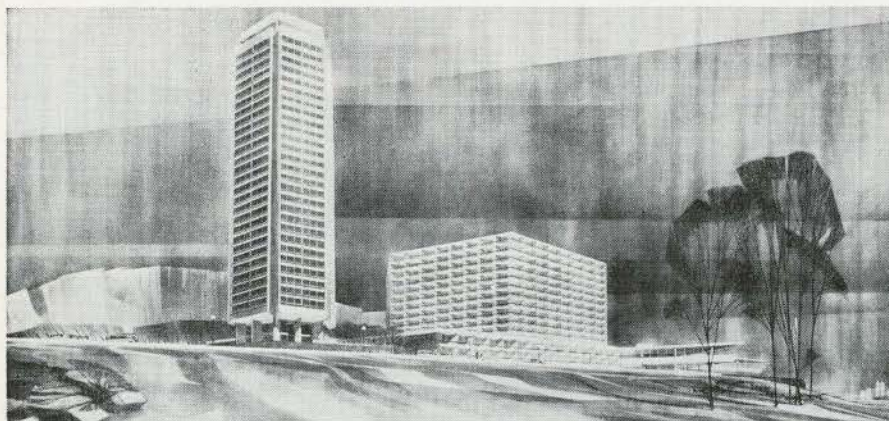


1

The Marine Sciences Research Laboratory is situated on a rugged coast line at Logy Bay, approximately six miles from St. John's. The building faces the North Atlantic and has been designed to withstand winds of up to 125 mph. Exterior "rain" cladding is redwood and designed to protect the structure from at least six months of continuous sea spray. A water system in triplicate draws sea water through a man-made shaft from a depth of 40' to gravity tanks. The building is the first of similar buildings to supplement present facilities. Because of its inaccessibility in winter it is designed to operate year round. The central core contains all services which fan out to surround research facilities. No metal is exposed within the building.



3



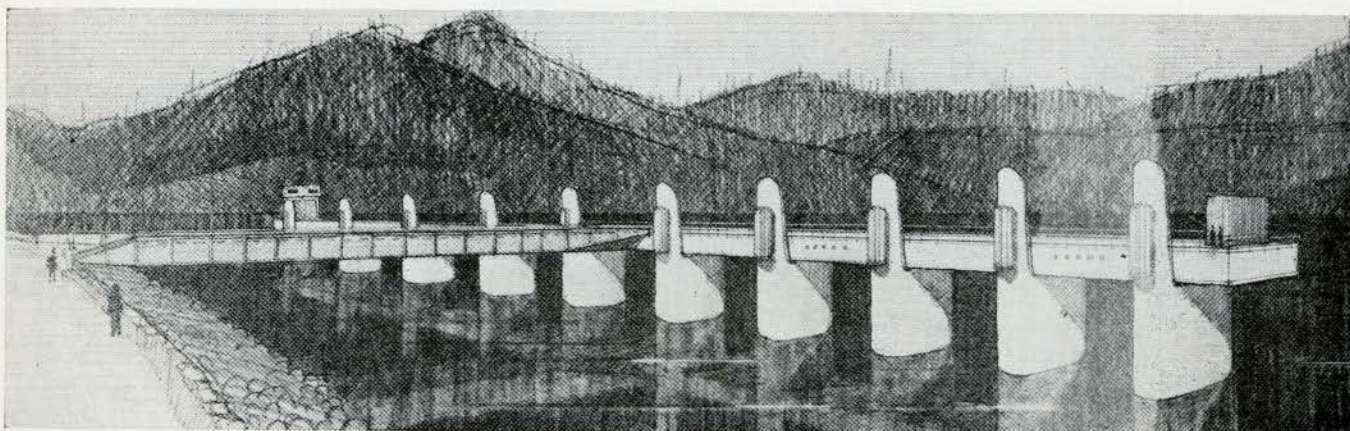
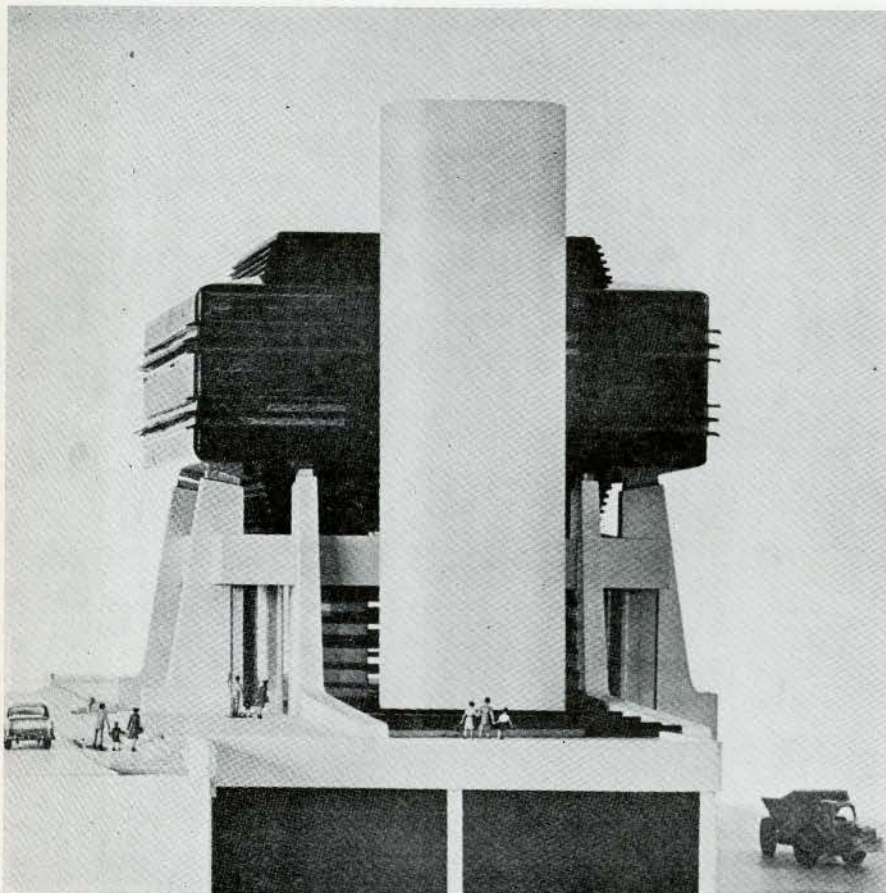
2

The second expansion in two years for Toronto's Inn on the Park will make it the third largest hotel in the Commonwealth. The proposed 30-storey tower, to be situated on the northwest corner of the present building, will contain 324 suites, doubling the capacity of the hotel to 1,800 guests. The concept is that city hotels should offer a resort atmosphere, achieved through use of landscaping, swimming pools, ample parking facilities, emphasis on comfort and service.

1  
*Central Control Building, Portage Mountain  
Development, B.C.; Rhone and Iredale,  
Architects*  
*Edifice de contrôle, aménagement pour  
Portage Mountain, C.B.; Rhone and Iredale,  
Architectes*

2  
*Perspective of Intake Structure, Portage  
Mountain Development, B.C.; Rhone and  
Iredale, Architects*  
*Perspective de la structure à prise,  
aménagement pour Portage Mountain, C.B.;  
Rhone and Iredale, Architectes*

3  
*Perspective of Burnaby Mountain Control  
Centre, B.C.; Rhone and Iredale, Architects*  
*Perspective du Centre de contrôle à Burnaby,  
C.B.; Rhone and Iredale, Architectes*



CANADIAN

# BUILDING DIGEST

DIVISION OF BUILDING RESEARCH • NATIONAL RESEARCH COUNCIL



## Some Basic Characteristics of Wood

by N. B. Hutcheon and J. H. Jenkins\*

UDC 691.11

Wood has always been and continues to be a material of great importance to mankind. It is highly versatile. It is relatively light in weight, yet has good strength in both tension and compression; and provides rigidity, toughness and insulating properties. It can be bent or twisted into special shapes, and it is readily worked, fastened and finished. The finished surface is pleasant to the touch and the visual patterns provided can be of great beauty. Consequently wood is widely used in buildings in a variety of ways.

Despite its wide range of application and the profligate use made of it when it is abundant, wood, like most other materials, should not be applied without thought for the conditions under which it will serve or for the inherent properties that will determine its suitability. A natural substance, wood reflects the conditions under which it was grown through the variations in its properties, which vary in different directions. There are marked variations also from one species to another. Consequently there is a continuing challenge in the development of wood technology to recognize the inherent nature of wood and to understand the implications of it at every stage, from the harvesting of the trees to their final conversion to the end uses.

This challenge exists also in varying degrees for the building designer who must know how best to employ wood to achieve the desired results in any given application and how to select and to specify it. It is of overriding importance that the designer should understand fully the anisotropic or directional character of wood, particularly in respect of its strength and

moisture response, and it is with these features of wood that this Digest will be mainly concerned.

### Growth of a Tree

The growth of a tree trunk takes place primarily by the multiplication of cells on either side of a thin layer called the cambium, which is immediately under the bark. From the inner surface of the cambium is deposited new wood, which increases the volume of the tree. Each year a layer of wood is deposited outside the previous wood of trunk and branch by this tissue, which at the same time generates the bark from its outer surface. This bark varies in colour and texture, depending on the species.

There is often a difference between the new wood formed early in the season and that formed later, so that well-marked annual growth rings are developed in the trunk cross-section. Although growth takes place mainly at the cambium, the living cells of the adjacent rings formed from past growth continue to function as part of the living tree, making a concentric ring of material known as sapwood. The older layers of sapwood gradually become less active and add to the heartwood core. With the accumulation of certain materials, heartwood may sometimes darken so that it becomes visually distinguishable from sapwood, but there are no consistent differences between the two with regard to ultimate quality.

\*Dr. J. H. Jenkins, now retired, was for many years Director of the Forest Products Laboratories of the Department of Forestry, and through all this time a valued collaborator with DBR/NRC in work of mutual interest.

NRC DBR OTTAWA JANUARY 1967

CBD 85

At the centre of the trunk there is a small core, called the pith, usually darker in colour. This was part of the primary growth formed in the elongation of stems and the formation of branches. Branches originate at the pith and become intergrown with the trunk, giving rise to knots in sawn wood.

The basic structure of wood is made up of cells of various shapes and sizes firmly grown together. In dry wood these cells may be empty or partly filled with gums, resins or other deposits. Those that are considerably elongated are called fibres, the length of which may vary within one tree and from one species to another, being shorter, on the average, in hardwoods than in softwoods. The fibres, which are the chief source of the strength of wood or the paper made from it, lie parallel to the long axis of the tree, thus imparting excellent strength properties in this direction. Hardwoods have, in addition, a system of larger cells, known as vessels, through which the sap moves vertically. Both hardwoods and softwoods have systems of cells called rays and these provide for horizontal movement of sap.

### **Composition of Wood**

The main constituent of wood is cellulose, which accounts for up to 70 per cent by weight of dry wood substance. There are two types; one, the alpha cellulose which is the constituent of major importance in the making of paper. The main cementing action that bonds cells together and imparts rigidity to the wood is provided by lignin, in amounts from 18 to 28 per cent. There are, in addition, certain minerals present that can be recovered as ash when wood is burned, in amounts up to 1 per cent. These three constituents form the essential dry wood substance. Wood may contain, in addition to substantial amounts of water, certain chemical compounds that may be extracted from the wood by solvents of various kinds. These include tannins, starch, oils, waxes and resins, which may contribute colour, taste and odour as well as resistance to decay to the wood.

### **Moisture in Wood**

Water, which is an essential agent in the life process of a tree, is present in large quantities in the tree and in the green log after felling. As wood has a highly cellular structure and since the weight of the dry wood substance may be as little as 20 to 30 lb per cu ft (the lower value being for some softwoods) it is not surprising that fully saturated wood may contain

a weight of water greatly in excess of the weight of dry wood substance. The moisture content of "green", i.e. freshly cut, lumber varies with the species and the portion of the log from which it is cut. Douglas fir, for example, has a relatively low "green" moisture content. The moisture content of freshly-sawn lumber containing sapwood may at times exceed 100 per cent of the dry weight.

Green wood begins to lose moisture as soon as it is cut if the surrounding air is at less than 100 per cent relative humidity. The higher the temperature and the lower the humidity of the surrounding air, the more rapid will be the moisture loss. As drying proceeds through evaporation from the exposed surfaces, all the larger cells will gradually be emptied and the point reached at which the contained water is more or less tightly held in the fine structure of the cell walls. This condition, which is referred to as the fibre saturation point, is commonly reached at a moisture content of around 25 to 30 per cent.

This moisture condition is of great significance because in drying down to this point green wood will have experienced relatively little change in properties and very little if any shrinkage, having mainly been reduced in weight. In drying below this point shrinkage develops progressively, roughly in proportion to reduction of moisture content below the fibre saturation point. As it affects the further drying of the wood and its subsequent manufacture, this inherent characteristic is of great importance. It also affects use of wood, since changes of moisture content in service will also produce changes in dimension, including swelling upon re-wetting.

As wood is dried progressively from the fibre saturation point, a definite equilibrium moisture content will be developed at each level of relative humidity, given enough time. The curve of Figure 1, showing this relationship, applies reasonably well to all common woods. Moderate temperature variation from room temperature has no appreciable effect. The same curve may be applied also to subsequent wetting and drying in service. More accurate information regarding the kind of wood and the differences between wetting and drying may be found in the literature.

The relation between dimensional and moisture content changes is shown by Figure 2. These curves are greatly simplified, but may be



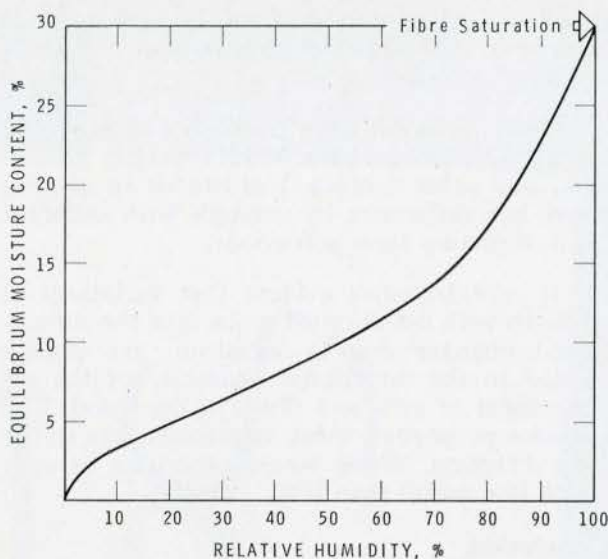


Figure 1 Moisture content of wood at various relative humidities.

taken as roughly representative of a number of common woods. It may be noted at once that a higher shrinkage is shown for the flat grain or tangential direction than for the edge grain or radial direction, as referred to the tree cross-section. For Canadian woods the range of radial shrinkage is from 1.7 to 6.7 per cent, that of tangential shrinkage from 3.7 to 10 per cent. The shrinkage along the length of the grain is not shown, but it is normally very much smaller, being from 0.1 to 0.3 per cent in

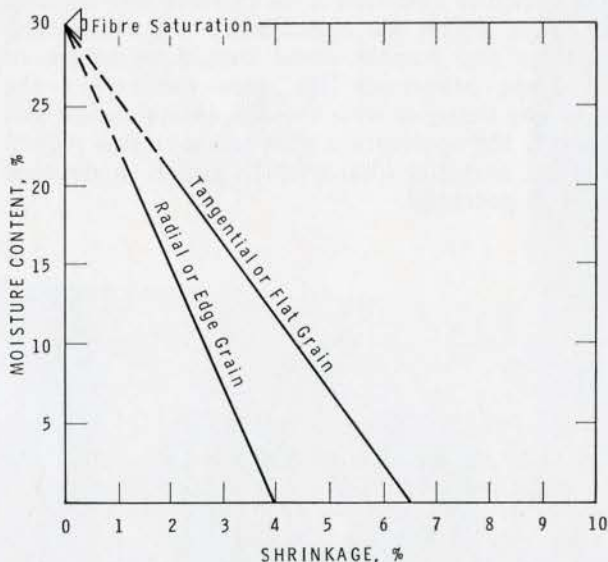


Figure 2 Shrinkage on drying to various moisture contents from fibre saturation.

total, except for some abnormal conditions that can develop. These inherent characteristics of wood give rise to some important considerations.

If a green log is allowed to dry it will develop circumferential shrinkage stresses, not only because it will dry first at the outside but also because as drying progresses the circumferential shrinkage will be greater than the radial shrinkage. It is thus impossible for the log cross-section to shrink uniformly without stressing. In most cases shrinkage stresses will exceed the capability of the wood to accommodate them and radial cracks or splits will form. It is customary, therefore, to saw logs into lumber while they are still "green" and drying below the fibre saturation point has not occurred.

When the log is sawn into lumber, this green or unseasoned lumber will ultimately dry to a moisture content that is dependent upon the atmospheric conditions to which it is exposed. The lower the ultimate moisture content, the greater the shrinkage, which may result not only in a reduction in the width and thickness of the piece, but also in internal stresses that could cause distortion. The development of these shrinkage stresses is influenced by the angle of the grain in the board and by the drying conditions. When proper care is not taken, warping and bowing (forms of twisting) and cupping may occur. Cuts tangential to the annual rings (flat-grain) are more liable to produce cupping than cuts diagonal or vertical to the annual rings. Because of this uneven shrinkage characteristic of wood and the resultant development of shrinkage stresses, it is essential that the proper care and techniques are used when wood is seasoned. With this proper care, however, wood can be dried flat and straight.

Consideration of the magnitude and nature of the shrinkages that are possible brings a realization of the importance of the moisture content of lumber at the time it is fixed in place for use. There is no easy way in which these shrinkage and swelling tendencies can be avoided. They must be recognized and taken into account in design. Painting or varnishing does not eliminate them. It only slows the rate of adjustment of the wood moisture content to changing conditions. It may thus reduce the response to short-time changes greatly, but it has no effect on longer term ones.

## The Strength of Wood

The basic strength properties representative of various species are always established on the basis of a large number of tests on clear specimens in the air-dry condition. Such values obtained for white spruce, for example, show that its modulus of rupture in static bending can be about 8500 psi. The crushing strength in compression parallel to the grain at maximum load is about 5000 psi. For a variety of reasons, including the necessity to allow for variations in properties and defects such as knots and checks in commercial sizes and grades of lumber, the safe stresses that can be used in engineering design must be substantially reduced from such values by a factor of 5 or more, in accordance with carefully established formulae. Even with these reductions white spruce is seen to have a quite remarkable, safe load-carrying capacity in proportion to its weight, when it is considered that its density is only about 1/18 that of steel.

It is noteworthy that wood has good tensile strength in relation to its compressive strength along the grain, thus making it most useful for carrying bending loads. This is one of the features that has always made it a valuable natural building material.

An examination of the corresponding properties in directions at right angles to the grain reveals another basic characteristic of wood, namely the substantially lower strength properties in these directions. Again referring to clear, air-dried specimens of white spruce, the compressive stress perpendicular to the grain is about 450 psi at the proportional limit. The maximum tensile strength across the grain is about the same; the maximum shear strength parallel to the grain, about 1000 psi. These reduced strength properties in the cross-grain

directions introduce many special and interesting considerations in design with wood for load-carrying purposes.

Other species have similar characteristic strengths, differing with density, origin, growth rate, and other factors. Hardwoods in general show less difference in strength with different grain direction than softwoods.

It now becomes evident that variations in strength with direction of grain, like the dimensional changes due to moisture, are closely related to the directional character of the arrangement of cells and fibres in the wood. The superior properties, most fortunately, are in the long direction. Wood would otherwise be very much less useful than it is.

## Conclusion

It has been possible to indicate only briefly some of the inherent characteristics of wood. Their further significance in building applications will be discussed in a future Digest, but a comprehensive treatment is to be found in the excellent book, *Canadian Woods, their Properties and Uses*, which is available from the Queen's Printer, Ottawa.

Wood, although a familiar and highly regarded material presents a unique challenge in use because of its variability and the directional nature of its basic structure and therefore of some of its basic properties. These are the source of some of its attractive features but they require also that it be handled and applied in ways which are appropriate. All those who process and handle wood should be aware of its basic properties but none more than the building designer who should always design and specify the application of wood with due regard for its essential character in order to develop its full potential.

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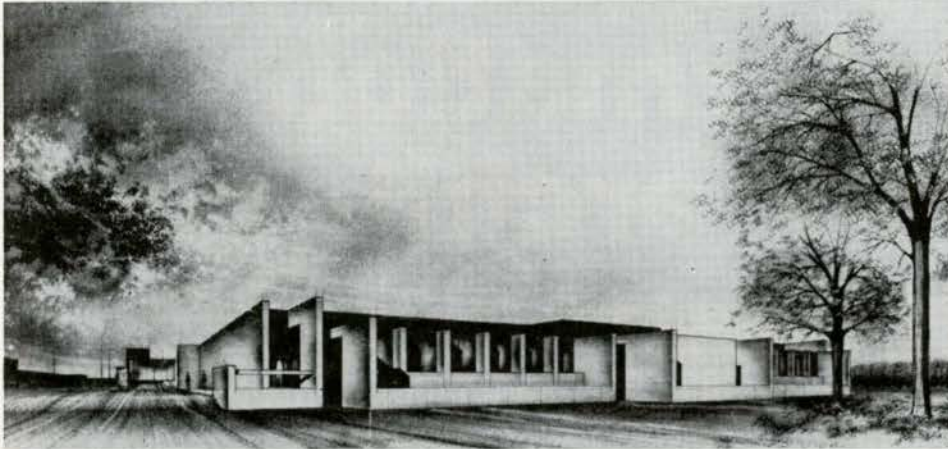
1  
*Perspective Mill Haven Fibres Ltd. ;  
 John B. Parkin Associates, Architects and  
 Engineers*

2  
*Section Mill Haven Fibres Ltd.  
 Coupe*

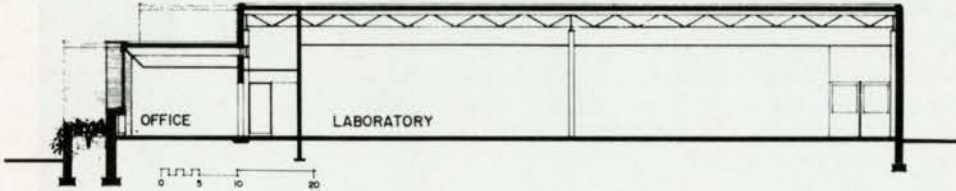
3  
*Floor Plan, Mill Haven Fibres Ltd.  
 Plan d'un étage*

4  
*Research Centre, Shell Canada Ltd., Bronte,  
 Ont. ; Shore and Moffat and Partners,  
 Architects and Engineers, Site Planners  
 Centre de recherches, Shell Canada Ltd. ;  
 Shore and Moffat and Partners, Architectes et  
 Ingénieurs, Projetants de site*

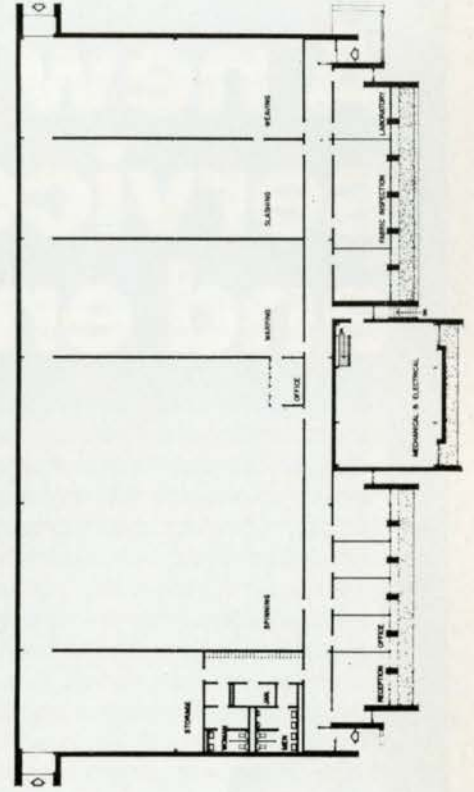
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*Plan, Research Centre, Shell Canada Ltd.  
 Plan, Centre de recherches, Shell Canada Ltd.*



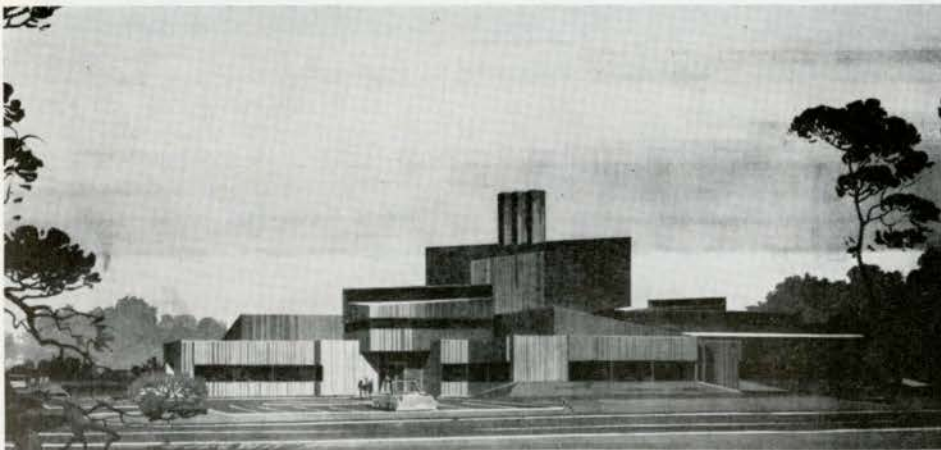
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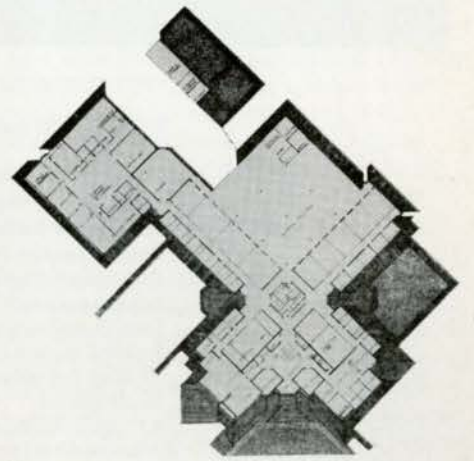
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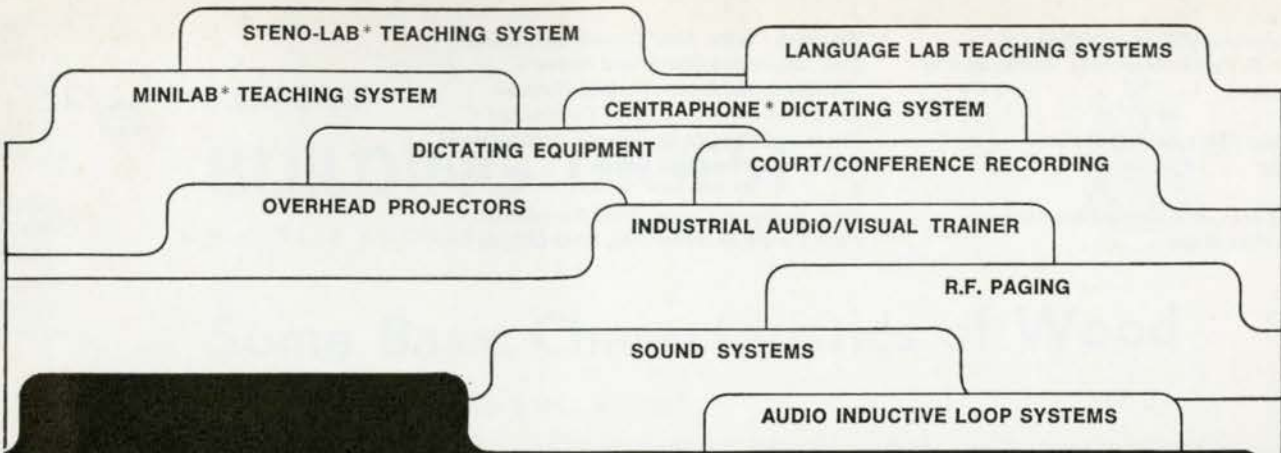
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<input type="checkbox"/> Dictating Equipment	FIRM NAME _____
<input type="checkbox"/> Court/Conference Recorder	ADDRESS _____
<input type="checkbox"/> Industrial Audio/Visual Trainer	CITY _____ PROVINCE _____
<input type="checkbox"/> Overhead Projectors	
<input type="checkbox"/> Sound Systems	
<input type="checkbox"/> R.F. Paging, Simultaneous Translations, Audio-Inductive Loop Systems	
<input type="checkbox"/> Other (please specify) _____	

by F. W. Helyar

*Mr Helyar, the consultant for Architecture Canada's Technical Section since January 1966 is a practising quantity surveyor with the Toronto firm of Helyar, Vermeulen, Rae & Mauchan.*

During the past year I have provided, as an appendix to the monthly articles in the technical section, a summary of unit prices which could be used for preliminary estimates. These prices are linked to a method of estimating we have used with some success over the past few years, and with an appreciation of this method there is no reason why architects shouldn't use them with a similar degree of success.

The publication of unit prices does, however, raise a few problems. It is impossible to give unit prices which are applicable from one end of the country to the other unless they are broken down into much greater detail than we are able to provide, and we are therefore open to criticism when a published unit price does not quite correspond to an architect's own experience. This is why I have tried to emphasize throughout that they are shot-gun figures and should be used only for preliminary estimates.

Another factor which has concerned me is whether architects generally are sufficiently worried about costs to become involved in the details of estimating methods; whether they feel that it should be left to specialists in this field; and whether in any case the method we are advocating sounds too complicated for the average busy architect to attempt to understand. If the method is not properly understood then the unit prices are not of much use.

Reading the RAIC Survey of the Profession brings some reassurance on at least one of these points. It is evident that there is great concern among architects about the problems of estimating and cost control, as is shown by the many references to the poor image created by the failure of the architect to provide accurate cost estimates. I believe that the architect should be able to give his client adequate cost advice, and to do this he must be aware of the best methods of preparing estimates, or, if he employs a consultant to prepare them, to know enough about the subject to be able to discuss it intelligently with his consultant.

The preparation of an estimate can be divided into two main operations; the measurement

of the quantities and the application of the right unit prices to those quantities. Measurement is comparatively simple and anyone who has a knowledge of construction, can read a drawing and use a scale can, with a little practice, produce a fairly respectable set of quantities. The difficulty lies with the unit prices. In the first place there is the problem of obtaining accurate unit prices, and then there is the problem of keeping them up to date. Unless you keep abreast with current cost trends you soon lose touch with the market, as many people have found to their cost in the last two years.

It is probably quite unnecessary for me to emphasize this difficulty of keeping up to date with construction costs. The problem exists for architectural firms whether they are large or small. Admittedly the larger firms can usually afford to employ a quantity surveyor on their staff, part of whose responsibility it is to be well informed on construction costs. But what of the smaller and medium-size practices?

Under current conditions they have three alternatives available to them. They may prepare their own estimates using the by guess or by God inspirational system which usually manifests itself in a square or cubic foot method, which sometimes works but frequently doesn't; they may go to their friendly local general contractor who may be a mine of information on excavation, concrete, masonry and carpentry costs but becomes a little hazy on sub-contract prices, and who in any case is usually too busy trying to obtain work for himself to be able to spend any time doing pre-contract estimates; or they may go to a firm of quantity surveyors and pay a fee for having their estimates prepared for them. As a member of a firm of quantity surveyors I have to admit that I fully support the third alternative, but as a quantity surveyor sympathetic towards the architect's problems, I feel that more encouragement should be given to the first.

One of the suggestions in the RAIC Survey of the Profession was that the profession "undertake a comprehensive educational program in which a major

factor would be the sharing and compilation of cost data according to locality" and one of the member's comments on RAIC activities was that there should be the "production of (a) quantity survey guide for architects' use giving cost data with subsequent circulars giving fluctuation in cost data".

For the last two years we, as a firm of quantity surveyors, have been giving serious consideration to the publication of a quarterly or semi-annual document giving much more detailed cost information than is contained in the present series in *Architecture Canada*. The only thing that has held us back is the vast expenditure of time and money required to launch such a venture.

It would seem to me that now is as good a time as any to make this idea a reality, and in this belief I make the following suggestion: The RAIC should start whatever processes are necessary to establish a quarterly publication devoted entirely to cost information. It could be a supplement to *Architecture Canada* and would contain detailed information on estimating methods, unit prices, and current construction cost trends. It would also contain articles which would be of interest to those architects who wish to make a serious study of cost estimating, financing, feasibility studies and architectural economics generally, and capsule information for those architects who are only intermittently concerned with costs. The intent would be to provide the necessary information for those who wish to prepare their own estimates, check changes, and negotiate contracts with contractors, and to provide those who prefer not to enter too deeply into the hitherto uncharted seas of costs with at least the rudiments so that they can answer the questions of their clients with some degree of confidence.

In order to pay for the project, participation should be by subscription only. It should be self-supporting, and costs, at least initially, are likely to be high. All subscribers would be expected to contribute, as well as receive, pertinent cost information so that a respectable central library can be developed. It would be supplemented by the continuation of the monthly unit rates now given in the regular

issues of *Architecture Canada*.

This project is perfectly feasible. As a member of the Royal Institution of Chartered Surveyors, there are two services which are available to me, both of which are entirely self-supporting, and which I would probably use if I were working in Britain. The first is the Technical Information Service (another idea which might well be adopted by the RAIC) which, among other things, provides a monthly resume of all technical articles which might be of interest to me with a notation of where the originals can be found, and a review of current technical nooks. The second is the Building Cost Information Service which is run on somewhat similar lines to the project I am

suggesting, and has been successfully operating now for five years.

I believe that by the initiation of this step the RAIC can show that, contrary to popular misconception, the architectural profession is very much concerned with costs and their clients' budgets, and at the same time provide a service which can be of enormous benefit to the individual architect.

As one of the members commented in the questionnaire for the RAIC Survey "Coordinate cost information. This is the biggest door used by package deal contractors in usurping our position."

As mentioned in the preceding article I have sometimes wondered whether the

method of estimating we are advocating in these articles sounds rather complicated. Space does not permit a fully detailed explanation of the following example, but if it is followed carefully and reference made to the articles published over the last twelve months, it should show that although it takes a little longer than the square foot method, it must provide a more reliable and reasoned answer.

Assume that a sketch design (fig. 1) has been prepared for an eight storey office building and the client wishes to know how much it is likely to cost. The immediate answer could be about \$19.00 per square foot, but it would be better to take a little more time to analyze the problem.

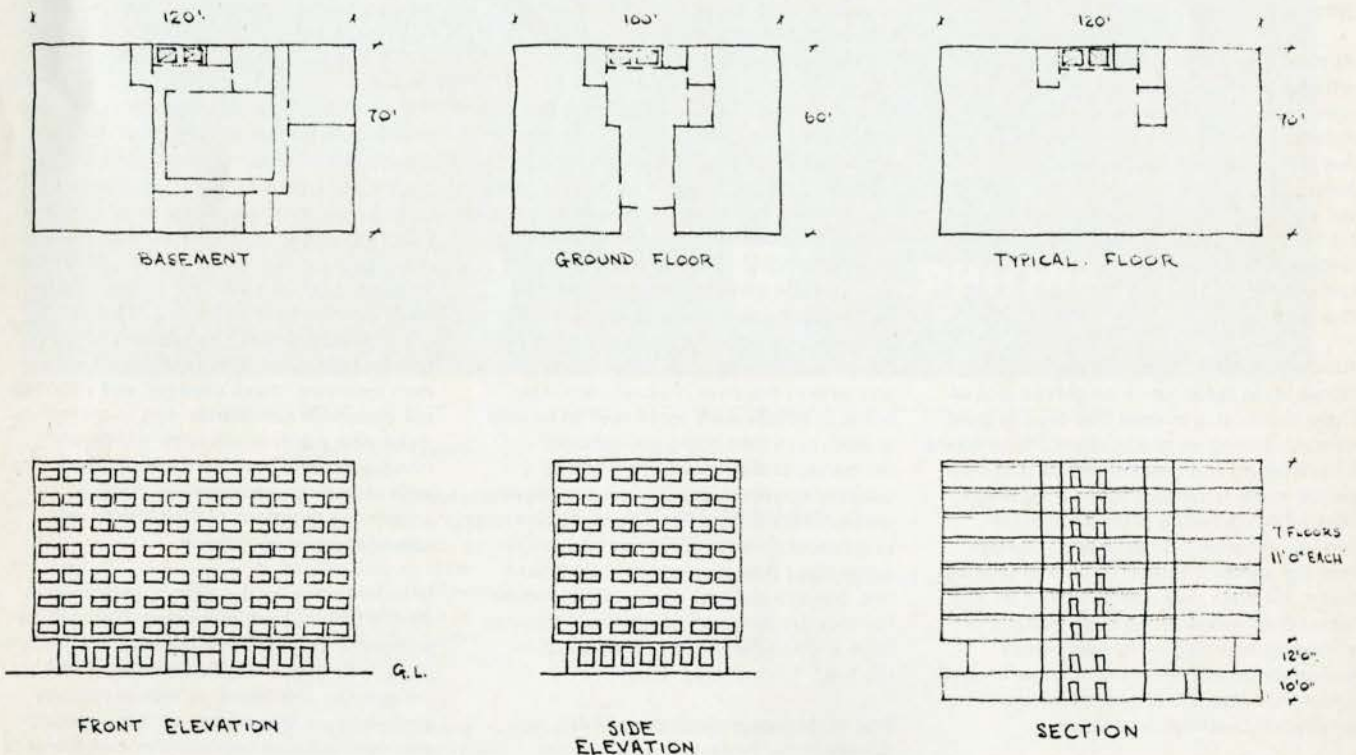


Fig. 1

The first operation is to calculate the gross floor area which in this instance is 73,000 square feet. We might therefore expect the total cost to be in the region of  $73,000 \times \$19.00 = \$1,387,000.00$

Now follow the details of our estimate:

- 1 Normal Foundations:  
120' X 70' = 8,400 SF @ \$1.00 = \$8,400
- 2 Basement:  
120' X 70' X 10' = 84,000 CF @ .09 = \$7,560
- 3 Special Foundation (Sheet piling to three sides of the excavation) 330' X 10' = 3,300 SF @ 4.00 = \$13,200
- 4 Slab on grade:  
120' X 70' = 8,400 SF @ .65 = \$5,460
- 5 Suspended Floor Slabs:  
73,000 SF less 8,400 SF = 64,600 SF @ \$2.80 = \$180,880
- 6 Roof Construction:  
Main Roof 8,400 SF @ \$2.50 = \$21,000  
Roof over basement:  
Basement area: 8,400 SF  
less first floor area: 5,800 SF  
2,600 SF  
@ \$2.80 = \$7,280
- 7 Roof Finish:  
Main Roof 8,400 SF @ \$1.05 = \$8,820  
Roof over basement (paving and water-proofing) 2,600 SF @ \$2.50 = \$6,500
- 8 Walls Below Ground:  
380' X 10' = 3,800 SF @ \$2.75 = \$10,450
- 9 Walls Above Ground:  
Ground floor 340' X 12' = 4,080 SF  
Typical floors 7 X 380' X 11' = 29,260 SF  
33,340 SF
- Less windows 8,600 SF  
" doors 70 SF  
" entrances 160 SF 8,830 SF  
24,510 SF @ \$5.00 = \$122,550
- 10 Windows 8,600 SF @ \$7.00 = \$60,200
- 11 Exterior doors 2 X 5' X 7' = 70 SF @ \$5.00 = \$350
- 12 Entrances and Screens 20' X 8' = 160 SF @ \$9.00 = \$1,440
- 13 Finish to Second Floor Soffit:  
Area of second floor 8,400 SF  
less area of first floor 5,800 SF  
2,600 SF @ \$3.00 = \$7,800
- 14 Permanent Partitions and Doors:  
4" Block 18,500 SF @ .70 = \$12,950  
8" Block 4,500 SF @ .80 = \$3,600
- 15 Glazed screens 580 SF @ \$6.50 = \$3,770
- 16 Stairs 1,504 LF @ \$15.00 = \$22,560
- 17 Elevators 2 No. @ \$65,000 = \$130,000
- 18 Mail chute 9 floors @ \$450.00 = \$4,050
- 19 Floor Finishes 73,000 SF @ .53 = \$38,690
- 20 Ceiling Finishes 73,000 SF @ .61 = \$44,530
- 21 Wall Finishes:  
Walls below ground 3,800 SF  
Walls above ground 23,920 SF

Windows	5,200 SF	
Exterior doors	70 SF	
Permanent partitions	33,800 SF X 2	67,600 SF
		<u>100,590 SF X .75</u>
		= 75,400 SF @
		\$ .50 = \$37,700
	73,000 SF @	\$ .07 = \$5,110
	73,000 SF @	\$1.80 = \$131,400
	73,000 SF @	\$ .90 = \$65,700
	73,000 SF @	\$4.00 = \$292,000

26 Hardward allowance	\$ 7,500
27 Contingencies	\$ 50,000
28 External Works — allow	\$ 10,000
29 Indirect and site expenses	\$ 140,000
<b>TOTAL</b>	<b>\$1,461,450</b>

This works out to \$20.01 per square foot which shows that the initial guess of \$19.00 per square foot was a trifle low. But more important the \$20.01 is based on reasoning rather than pure guesswork, the architect and his client know how the money has been budgeted and where savings might be made, and the architect and his consultants have a formal cost plan to follow in the development of the design.

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# The simplicity and versatility of electric heating



Fonthill Municipal Building, Fonthill, Ontario • Architects — Fraser & Macie, Welland.  
Consulting Engineers — Howard C. L. Joe & Associates, St. Catharines.

In that simplicity is the essence of good design, electric heating has contributed considerably to both the functional and aesthetic qualities of the new Fonthill Municipal Building.

The multi-purpose nature of the building . . . offices, council chamber, library, police headquarters . . . put electric heating's claims of simplicity and versatility to the test. Success took the form of a warm welcome at the two much-used entrances, made possible by strategically-positioned, wall insert, fan-forced heating units. It took the form of neat, unobtrusive baseboard units that quietly convect a gentle, even, wall-to-wall warmth wherever there are people at work. Success showed up with the compact unit-ventilators in the library where the books require an extra special environment control.

Versatility was emphasized by the comfort and economy of precise zone control. The council chamber, used but twice a week, is heated but twice a week. The police headquarters is kept comfortably warm all night long, while other parts of the building are "turned down."

All this, from a clean, maintenance-free nerve centre tucked neatly under a staircase. Yet this is only part of electric heating's success story. It has a lot more to offer your clients. Ask your Hydro.





*The Editors,*

After thinking over the impending destruction of the Old City Hall and its implications, I got so angry that I decided not to start a campaign.

The reason for my anger, or perhaps more precisely my disgust, is the plain fact that a whole nation – rich, progressively oriented, educated, and out to make its name in the civilized world – sits back in utter complacency while this sort of rape on a city is to be committed. I am perfectly aware that by itself this incident in Toronto is not of world-shaking importance. It is easy to say: well, what the hell, if they are so blind, so brutally ignorant, both architecturally and historically, not to see that this is an exceptionally fine building which is urgently needed to maintain the balance of a representative city core, let them! It serves them right.

But the implications are much larger. They are, in fact, nation-wide, because they set a precedent for all future destructions. If the Canadian Big Business has in the first place to choose an architectural firm – Skidmore Owings and Merrill – known for the browbeating uniformity and for the brutal disdain for any regional environment of their work, should there not be a public outcry that Canada today has architectural talent that far outdistances the big package dealers of the United States? And if, true to expectations, SOM then comes up with a scheme that would disgrace Johannesburg or Oslo in precisely the same way in which it will Toronto, where are the cultural leaders of a whole nation to say NO? — the Howarths, Blands, Bronfmans, the RAIC, Eatons, Globe and Mail etc, interests to preserve a unique cityscape? Canadian historical heritage is thin, as you know, and what is there is mostly of French origin. In Toronto you have this extraordinary continuity of the classical Law Courts, The Ultra 20th century new City Hall, and the, in the best sense, eclectic old hall. How many such combinations of Canada's English heritage are there that you can offhandedly dispose of this one?

It seems absurd for a foreign architectural historian to have to go to press on this

when, for instance, Professor Peter Collins of McGill should be eager to prove that architectural historical theory every now and then can be supported by architectural practice.

*Sibyl Moholy-Nagy, Pratt Institute, Brooklyn, N. Y.*

*The Editors,*

The October issue of *Architecture Canada* looked just wonderful. I haven't seen any of the previous issues since you changed the format. (I subscribed a few years ago, but there was so little in it at the time that I gave it up.) I like particularly the layout, and the whole organization is eminently clear and most interesting. I am also glad that in contrast to some of our US magazines, you are not trying to overwhelm your readers with bigger, better, and more dramatic pictures which frequently are taken out of context and have no relation to reality. I should be very glad if you would arrange for a subscription and bill me for the same.

*Fran P. Hosken, Lexington, Mass.*

*The Editors,*

I have recently seen a copy of the October 1966 issue of your magazine which includes a four page article described as notes on a lecture which I gave to a course organized by the British Council in June of this year. These notes are not, of course, a report that comments on this lecture but merely an abbreviated version of it. I am extremely surprised that I was not consulted before you published this, both as regards the facts given and the association of these notes within your magazine to a series of illustrations with captions which are unrelated to the article and which I would in no way like to have associated in any reader's mind as being my responsibility.

I am also perturbed at the publication of this lecture since a somewhat similar report, which I have edited, is to be published shortly by Percy Lund Humphries. I should be glad, therefore, if you would make it clear in the forthcoming issue of the magazine that the illustrations and captions are not based on my lecture and that this

précis in any case only represents a personal abridgement made by Mr Evan Walker. I would be glad if you would also add that an extended version of this material will appear in a report on University Planning which will be published by Percy Lund Humphries early in 1967 and distributed by Clarke Irwin and Company of Toronto.

*Michael Brawne, M. Arch. (MIT), A A Dip. ARIBA, London, W. 1.*

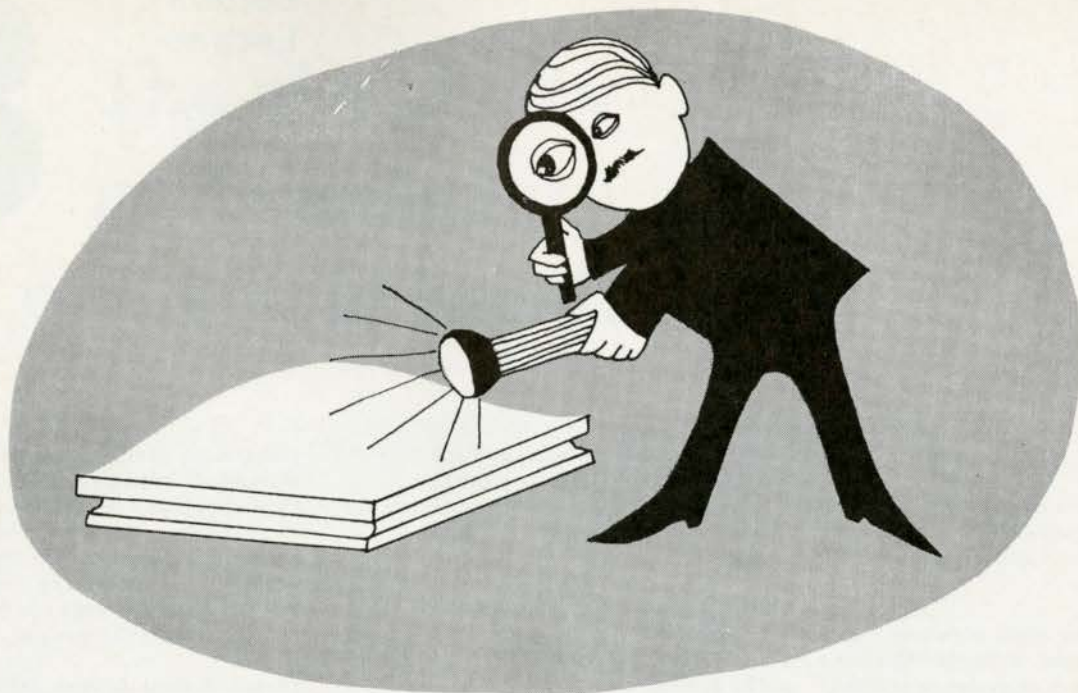
*I would like to offer my apologies to Mr Brawne: if the notes on his lecture have been associated with the illustrations in the supplement, it was not my intention to mislead. Comments on the plans are in no way attributed to Mr Brawne. The heading of the article explicitly states: "Notes on a lecture by Michael Brawne", and on the previous page the heading reads: "A report on the British Council Conference on New University Building by Evan Walker".*  
*Evan Walker*

*The Editors,*

On page 28 of your December issue, Mr Diamond reviews three periodicals: *The Architectural Review*, *Architectural Design* and *The Canadian Architect*. The first two are referred to by name, but the latter is referred to simply as "a Southam Business publication".

Whether or not the first two periodicals (issued by the Architectural Press Ltd., and the Standard Catalogue Co.) are ineligible for the description "business publications" is perhaps a fine legal distinction; but if Mr Diamond thinks that his adamant prose, sandwiched between the maximum permissible advertising material, suffices to raise *Architecture Canada* to the level of a Professional Journal, his advice about "taking one's ostrich head out of the sand" would seem more profitable to him than to me, whose views he so elaborately contradicts.  
*Peter Collins, MRAIC, Professor of Architecture, McGill University*

*Adamantine (aedamaentin), a. ME. (ad. L.adamantinus. a.Gr.: see ADAMANT.)*  
*1. Made of, or like, adamant; unbreakable, impenetrable, impregnable. 2. Like the loadstone: magnetic-1055. — Oxford Dictionary. The Editors*



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**1961** WASCO name is phased out of existence.

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Assistant architect wanted, annual salary range \$8,000 to \$10,000. Duties, to supervise drafting staff, prepare proposals, designs and specifications for work related to new schools and renovations. Board of Education, Township of North York, 15 Oakburn Crescent, Willowdale, Ontario.

**Positions Wanted**

British Architect Planner, wishing to emigrate, seeks position. College trained, Architectural Diploma 1948. Town Planning Institute Diploma 1953. Associate RIBA. Experienced in Government, Private Practice and Commerce. Deputy Chief Architect to one of the largest commercial organizations in England. Reply F. W. Thorpe, 54 Ennisdale Drive, West Kirby, Cheshire, England.

Registered Filipino architect, 24 years old with experience in architectural and engineering offices, seeks employment in Canada. Write Amando R. Molino, 2041 Vision Street, Sta. Cruz, Manila, Phillipines.

32-year-old Korean architect, graduate of the Seoul National University in 1958 with own practice since 1962, counsellor to the Korean Institute of Architects, wishes to immigrate to Canada and seeks a job with a Canadian architectural firm. Contact Jin-Sung Chung, U-11 Architects and Engineers, No. 345 3-KA ULCHI-RO Chung-Ku, Seoul, Korea.

Graduate architect from the University of Delhi, India, with 3 years of practical experience as assistant architect, wishes to obtain a position with an architectural firm in Canada. Write M. G. Kalra, N-9, Patel Nagar West, New Delhi-8, India.

Third year architectural student of the University of Strathclyde, Glasgow, wishes to obtain one year's practical experience in a Canadian office, after having taken examinations leading to the Intermediate membership of the RIBA, in June 1967. For more information contact Roger Stewart Trueman, 55 Rawthorpe Lane, Dalton, Huddersfield, Yorkshire, England.

Indian architect, AIIA, two years experience in private firms in different capacities, wishes employment in Canada. Reply R. S. Advani, 2304, IV Cross, Malleswaram, Bangalore-3, India.

Young Swiss architect, graduate of the Zurich State Technical College, Winterthur in 1966, with three years undergraduate office experience, presently working as architectural assistant in London, England, seeks position in a progressive architectural office in Toronto. Write Peter Jucker, 40 Egerton Gardens, London, S.W.3, England.

27-year-old Indian architect, graduate of the Indian Institute of Technology, Kharagput, with three years experience in India and one year in Great Britain, wishes employment in a Toronto architectural firm. Contact Sapish Rao, c/o Mr R. L. Jain, 257 Holland Avenue, Toronto 4 (923-3982).

Young Israeli architect, graduate of the Faculty of Architecture and Town Planning in the Technion, the Israeli Institute of Technology in Haifa, two years experience and member of the Israeli Association of Architects since 1965. Reply Ichezkiel Philon, 48 Nordau Blvd., Tel-Aviv, Israel.

Holder of the Government Diploma in Architecture, member of the Indian Institute of Architects since 1965, with 4 years office experience in a leading Bombay architectural

firm, wishes a job in Canada with view to immigration. Murli Dhar Agarwal, c/o Sir William Halcrow & Partners, P.O. Box 360, Dubai, (Arabian Gulf).

23-year-old Indian architect, graduate of the University of Bombay, four years experience as an architect and commercial artist, wishes a position with a Canadian architectural firm. Write Box 134, c/o *Architecture Canada*.

Armando F. Gutierrez of 921 Dos Castillas Sampaloc, Manila, Philippines. Education attainment: Bachelor of Science in Architecture from the Far Eastern University on November 23, 1963. Member: League of Philippine Architects. Experiences: Engineer Pacifico R. Sanchez - Senior Draftsman from 1960 to 1965. At present I am in private practice. Skills: Drafting and Rendering.

George Moiseyev, ARIBA, ARAIA, 16 years designing experience, especially hospitals, studied at Munich and Karlsruhe Universities, wishes to settle permanently in Eastern Canada, and seeks suitable senior designing position. Write G. Moiseyev, 25 Riverview Terrace, Mt. Pleasant, Western Australia.

Indian architect, 28 years old, Government Diploma in Architecture, graduate of Sir J. J. College, working toward the RIBA final, five years experience in architectural firms, seeks position in Canada. Write Noshir N. Dastoor, 764 E', Tilak Road, Dadar, Bombay-14, India.

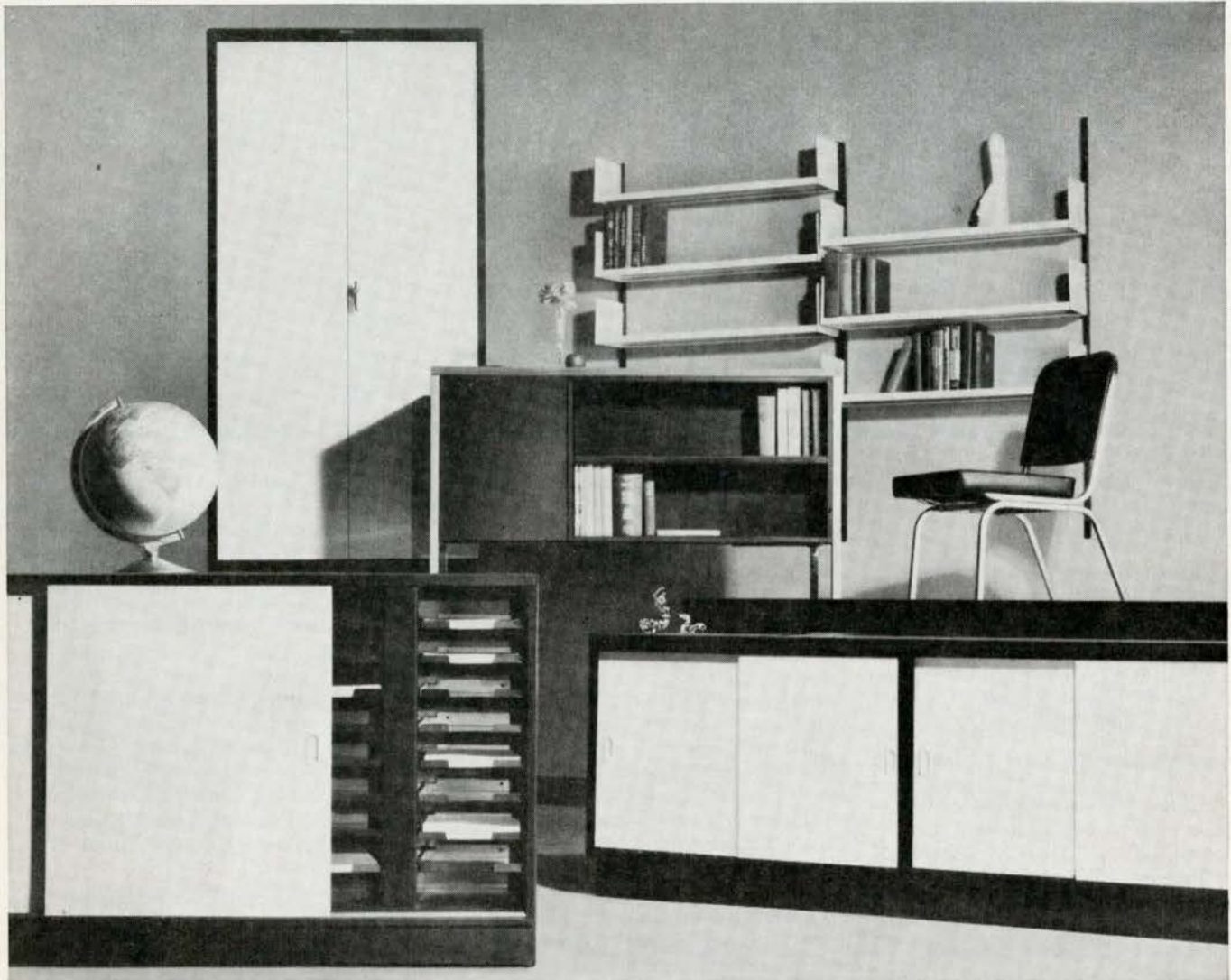
Graduate of the School of Architecture and Planning, Mapua Institute of Technology, 28 years old with four years office experience, wishes employment with a Canadian architectural firm. Contact Paterno G. Bautista, 62 Int. 7. Pascual Street, Wawa, Navotas, Rizal, Philippines.

Indian architect, B.Arch. (Hon.) with practical and teaching experience wants a job in Canada with view to immigration. Reply P. M. G. Rao, Dept of Architecture, Indian Institute of Technology, Kharagpur, India.

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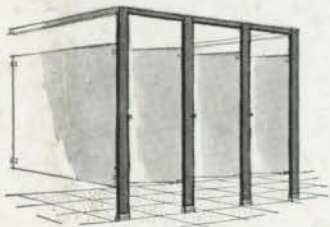
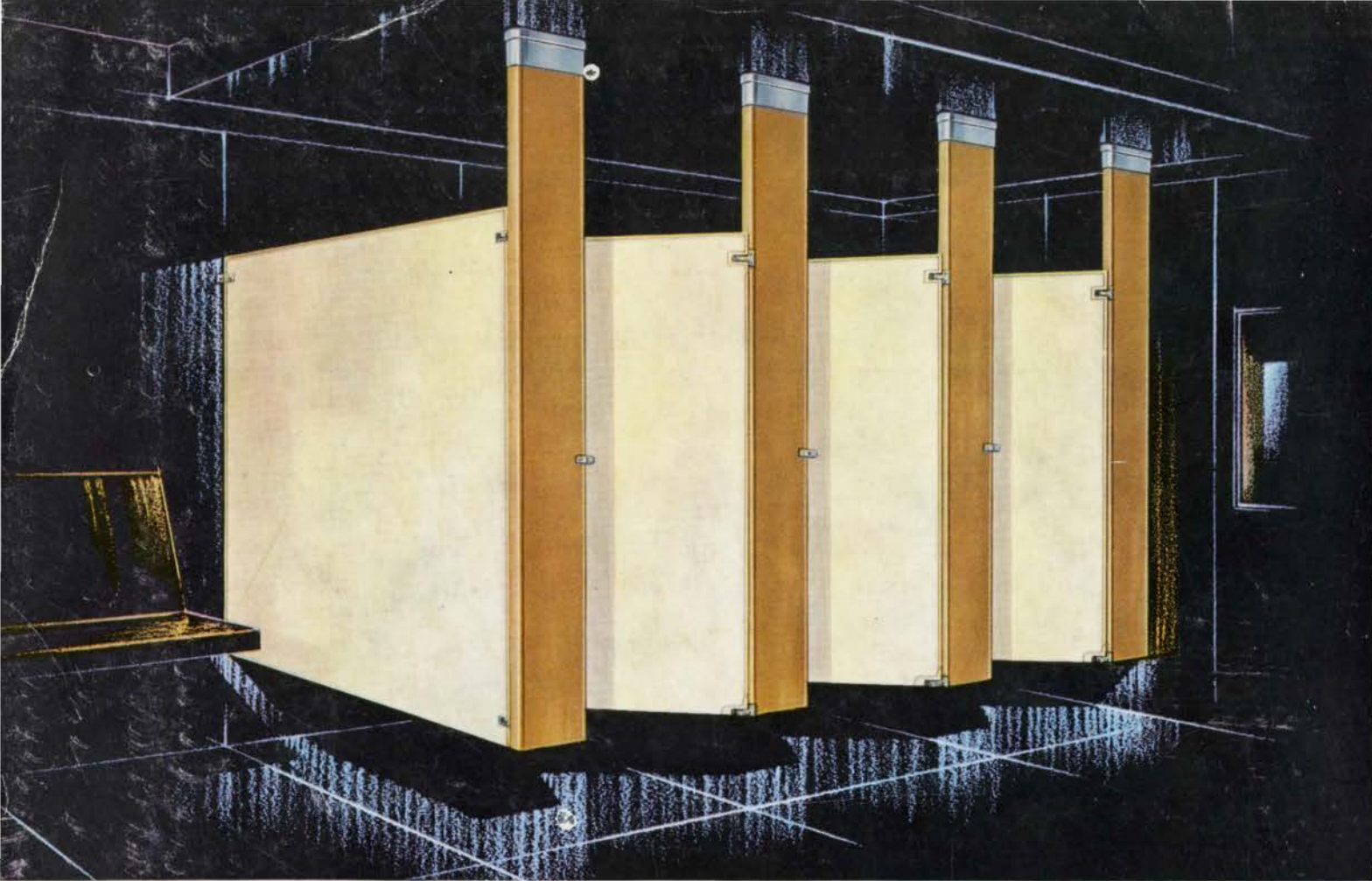
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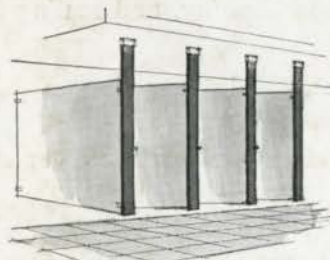
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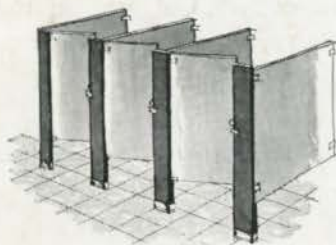
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