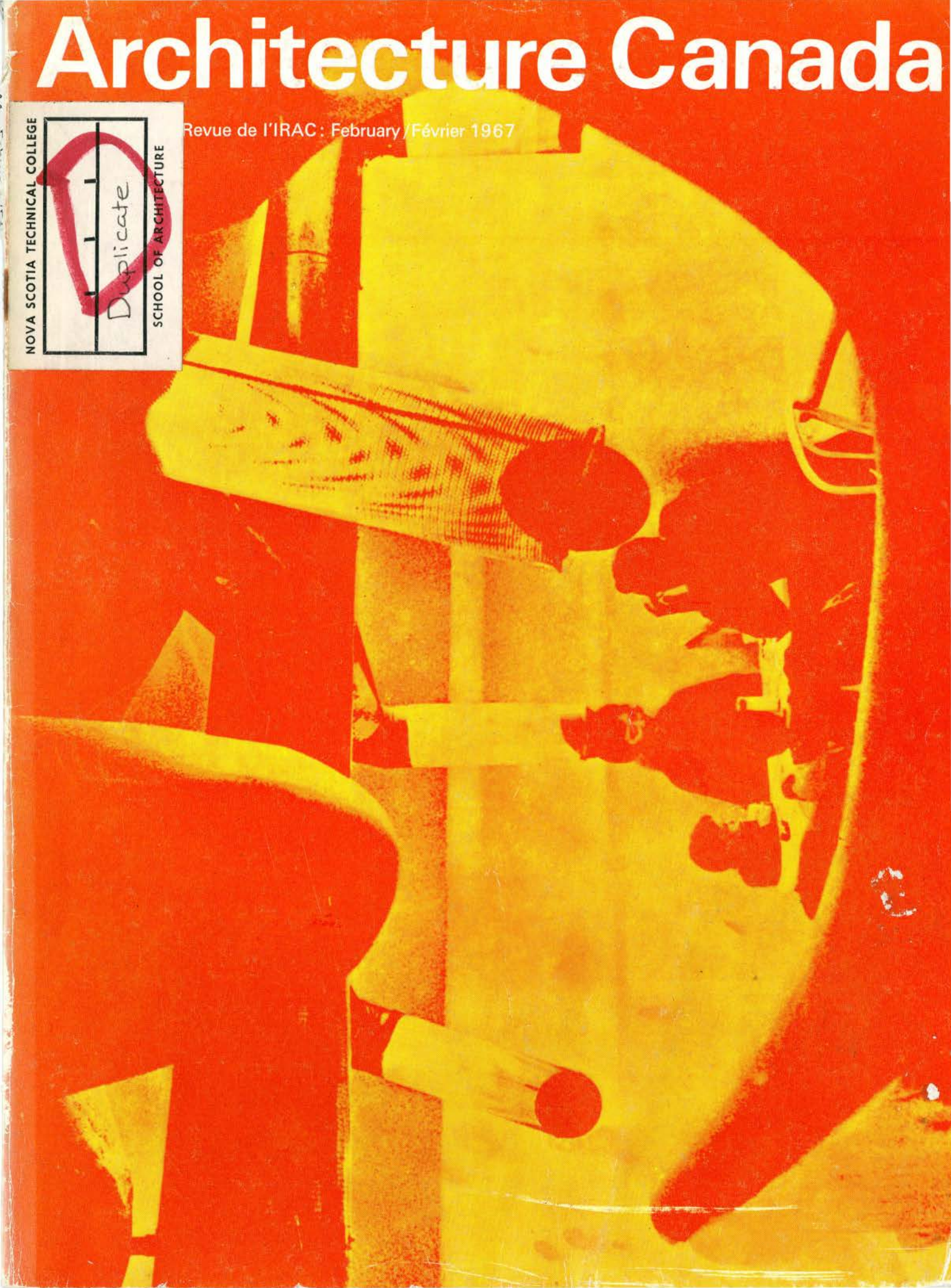
Architecture Canada

Revue de l'IRAC : February / Février 1967



Comment Pozzolith empêche-t-il les infiltrations dans le plus grand tunnel en béton précontraint du monde?

C'est une question d'étanchéité.

Les constructeurs de cet ouvrage remarquable qu'est le tunnel Louis-Hippolyte Lafontaine ont choisi POZZOLITH pour deux raisons.

Ils voulaient augmenter l'étanchéité du béton et obtenir une résistance élevée et uniforme.

L'une des raisons pour lesquelles ils y sont parvenus, c'est qu'avec POZZOLITH, le mélange nécessite moins d'eau.

Grâce à cette proportion d'eau réduite, le ressuage est considérablement diminué. Jusqu'à 50%. Résultats: (1) béton plus dense et meilleur enrobage des agrégats, (2) imperméabilité supérieure, et (3) risques de fendillement moindres.

En fait, POZZOLITH rend le mélange plus malléable. Ajouté à un mélange ordinaire, il peut en augmenter les propriétés d'affaissement de 150%, sans compromettre sa résistance.

Le béton coule plus librement autour des armatures, même très serrées, et il se place en laissant moins de vides.

On peut aussi contrôler le durcissement. Ce qui permet d'éviter la formation de joints froids entre les couches.

En outre, POZZOLITH peut augmenter de 25% la résistance à la compression par rapport à un béton ordinaire ayant un taux d'affaissement et une teneur en ciment identiques. La liaison à l'armature est parfois améliorée de 40%.

Si vous voulez en savoir davantage au sujet de POZZOLITH, notre représentant se fera un plaisir de vous renseigner. Téléphonez-lui.

Montréal: 5780, Côte de Liesse. Siège social et usine à Toronto (Ontario). Succursales dans tout le Canada.

Vue partielle du tunnel Louis-Hippolyte Lafontaine, à six travées de 4,500 pieds de longueur, qui fait passer la route Transcanadienne sous le chenal de navigation maritime du St-Laurent. *Ingénieurs:* Réalisation conjointe de Brett & Ouellette, Lalonde, Valois & Associates, Per Hall & Associates. *Entrepreneur général:* Atlas-Winston, Janin. *Béton préparé:* De-Mix Limitée.

POZZOLITH*

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MASTER BUILDERS

*POZZOLITH *est une marque déposée de The Master Builders Company, Ltd.*

MC-6603PF

February 1967 Février
497 Volume 44 No. 2

Architecture Canada

Subscription/abonnement $10.00
Foreign/étranger $11.00

Authorized as second class mail by the Post Office Department, Ottawa and for payment of postage in cash

The Journal of the Royal Architectural Institute of Canada

La Revue de l'Institut Royal d'Architecture du Canada

The Journal is not responsible for opinions expressed by contributors

Les opinions exprimées dans le Journal ne sont pas nécessairement celles de l'Institut

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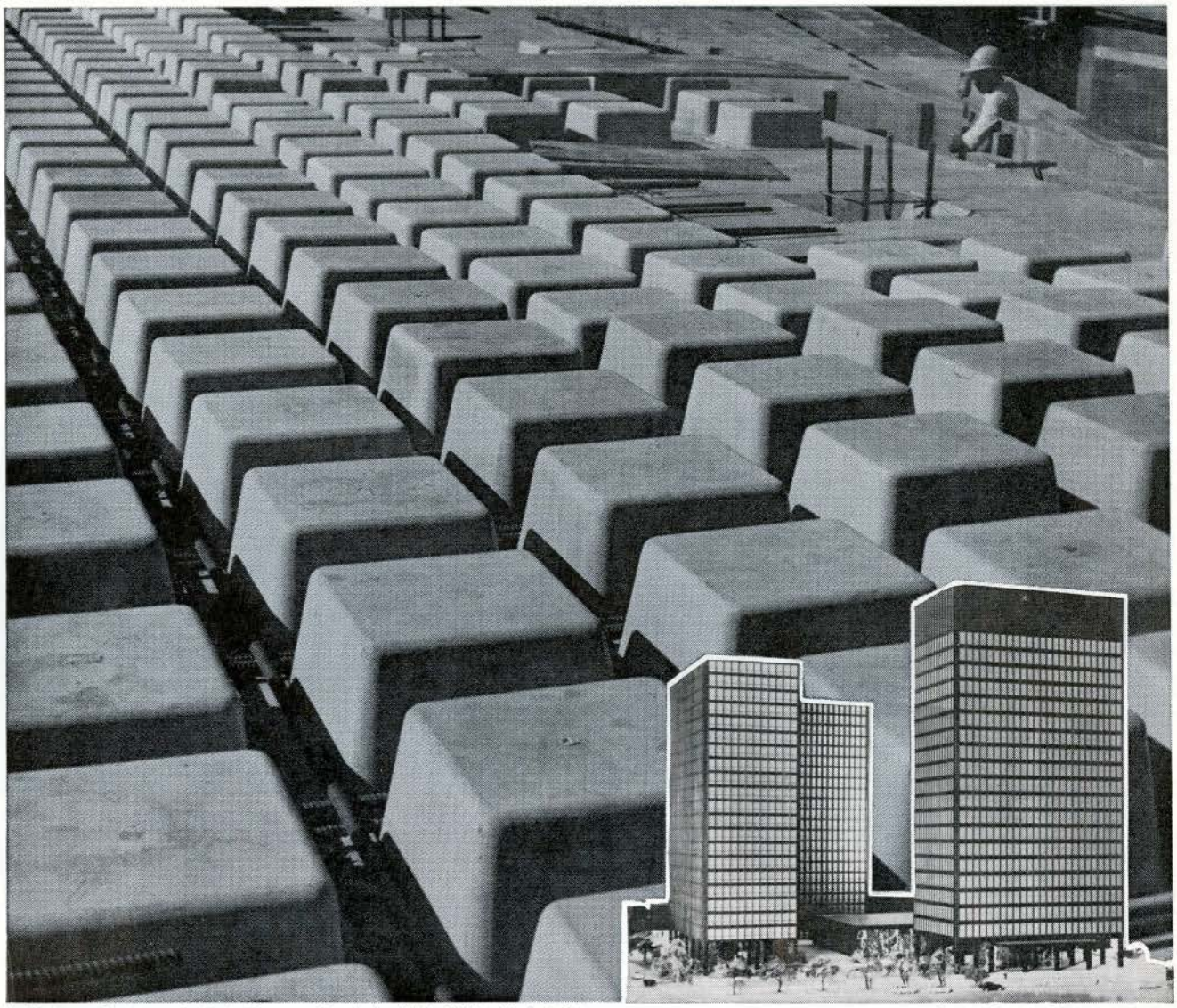

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FOR THE CROWD

Upholstered comfort, function and attractive styling are built into this COSF auditorium installation. The COSF seating line also includes Fiberglas chairs with tablet arm; continuous desk with pedestal base chairs; and Stakarm chairs for free-standing arrangements.

FOR THE GROUP

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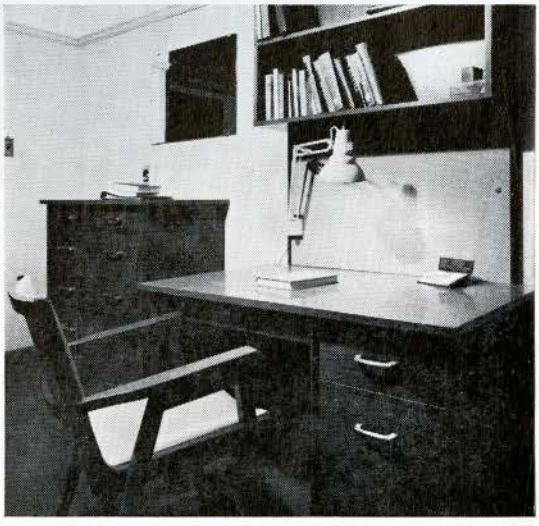

FOR THE INDIVIDUAL

Dormitory Furniture, Faculty Storage Units and Lectern Desks are all detailed in the new COSF Contract Furniture Catalogue – along with a wide selection of furniture manufactured in the COSF tradition.

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News
Nouvelles

AIBC Council, left to right: Donovan Marshall, (Chairman, Vancouver Island Chapter); Warnett Kennedy, Executive Director; Professor Henry Elder, Representing the Provincial Government; William R. Rhone, Vice-President; John M. Dayton, President; Ronald S. Nairne (F), Immediate Past President; Ian J. Davidson; John Lishman, Hon. Treasurer; Fred T. Hollingsworth

AIBC Annual Meeting

How the architectural profession is to meet the demands of the changing character of cities and ways of life was the topic of discussion at the AIBC Annual Meeting December 2, in Vancouver. James A. Murray (*F*), Toronto, was the keynote speaker and a member of the seminar panel chaired by Warnett Kennedy, AIBC Executive Director. Other panelists were Gilbert Hardman, president of Grosvenor-Laing Development Co. of Canada Ltd, Kenneth McIvor, editorial director of radio station CHQM, and Fred T. Hollingsworth, MRAIC.

In his address, Ronald S. Nairne (*F*), retiring president, called on universities to provide more properly trained recruits for the profession and warned the profession that it must provide more direction to universities.

At the annual dinner, awards were given for the best architect-designed buildings of the year in Greater Vancouver to Simon Fraser University, Architects Erickson-Massey, Rhone & Iredale, Zoltan Kiss, Duncan McNab and Associates and Robert F. Harrison and Associates; and the Graham Residence, West Vancouver, by Erickson-Massey.

John Dayton became the new President. Officers elected were, William R. Rhone, Vice-President; Ronald S. Nairne (*F*), Immediate Past President; Professor Henry Elder, Fred Hollingsworth, Donovan C. Marshall, Ian Davidson, Members; John Lishman, Honorary Treasurer and John L. Kidd, Registrar.

PQAA Assemblée Annuelle

Henri-P. Labelle, Montréal, a été réélu président de l'Association des Architects de la Province de Québec lors de l'Assemblée Annuelle qui se tenait à Québec du 19 au 21 janvier. L'exécutif pour 1967 se composent du président, du 1er Vice-Président, Joseph Baker; du 2ème Vice-Président, Jean Michaud; du Secrétaire, Jean-Louis Lalonde et du Trésorier, D. F. Lebensold. Les autres membres du Conseil 1967 sont: MM. Pierre Boulva, Peter Dobush, Michel Barcelo, Philip Freelander, Guy R. Legault, Russel Edge, de Montréal; Jean Ritchot, Henri Talbot, de Québec; Robert Boulanger de Sherbrooke, et Bertrand Dallaire de Jonquière. Le sujet d'une conférence qui dura toute une journée, était "L'Architecte et la Cité d'Aujourd'hui". Le conférencier principal était Guy Lagneau, architecte français.

Campus Planning Conference

The Third North American Conference on campus planning and college building design will be held at the University of Illinois, Urbana, Illinois, April 23–27, 1967. Discussions will include the design of the college library, communication, learning, and computer centers, planning for additions to an existing campus, and new campus plans. Write: Architecture and the College Conference, Department of Architecture, University of Illinois, Urbana, Illinois.

Theater Technology Conference

The US Institute for Theater Technology (USITT) will hold its seventh Annual Conference in New York City, from May 31 to June 3. Write: USITT Conference, 245 West 52nd Street, New York, N.Y. 10019.

Reynolds Award for Community Architecture

A new international biennial award of $25,000 for achievement in community architecture is announced by the Reynolds Metal Company and the AIA. The award, which will be given for the first time in 1967, is in addition to the original R. S. Reynolds Memorial Award for Architecture with Aluminum, and its conditions differ in that the use of any

Henri-P. Labelle, Président de l'AAPQ pour 1967

construction material will not be a factor. The award will be conferred "on the architect or architects practicing legally in their own country who are deemed most responsible for the design of an entire community, in which architectural planning and design have made a most significant contribution to the life of the community". Members of the Jury are Morris Ketchum, Jr, FAIA, Chairman, John Fisher-Smith, AIA and Archibald C. Rogers, AIA. Write AIA, Washington, for conditions and nomination forms.

Francis George Gardiner (F), **1878-1966**

Frank Gardiner was born in Bristol, England in 1878 and after leaving school became articled student to his father who practiced architecture in Bath. The spirit of adventure called him to South Africa, to Pretoria which was booming due to the recent discovery of gold. He worked as an architect in the Public Works Department for about three years enjoying the country and the companionship of a new community. His ties with family and the Old Country recalled him and he returned to work with his father and to continue his studies under the RIBA.

Like so many who once having left home, on return he became restless and this time he went to British Columbia which was to become his permanent abode and place of work.

He arrived in New Westminster in 1908 with five pounds in his pocket and hung up his shingle. A year and a half later his practice had flourished. He had designed the first multi-story (5) office building in New Westminster, and he returned to England for a holiday.

On the way back in the ship he met Kathleen Buckley who became his wife shortly after. His younger brother, William Frederic, joined him and they practiced together till his brother had established himself.

During the First World War he had a responsible position in making munitions and upon its termination moved to Vancouver and formed a Partnership with Andrew Mercer which continued till 1939. During this period the practice was a general one but two specialities developed, brewery and hospital work, the latter being Gardiner's special field.

He became member number 9 of the Architectural Institute of British Columbia when it was incorporated in 1920.

In 1940 he took Peter M. Thornton into Partnership but it was a dormant one during the Second World War. The partnership was resumed actively in 1945. The practice, in both general and hospital work, prospered and grew to a Partnership of four (Asbjorn Gathe and Michael Garrett).

In 1953 Gardiner was elected a Fellow of the RAIC, in consequence of his considerable contributions to building in his community and province.

In 1959 he was made an Honorary Member of the AIBC, and retired from active practice in the same year.

Among his major works are St Paul's Hospital, St Vincent's Hospital, Mount St Joseph's Hospital (Oriental) and hospitals in Chilliwack, Vernon, Comox, Alberni, Quesnel and numerous commercial, religious and industrial buildings.

He will long be remembered for his love of his fellow man, his dedication to his Profession and for his stalwart integrity.

Peter M. Thornton, FRAIC

MRAIC

Bound in this issue of **Architecture Canada** is a folder explaining the organization and activities of the RAIC

OAA Host Committee for RAIC Assembly, May 1967, Seated: George E. Bemi, Chairman; Standing, left to right: D'Arcy Helmer, Mrs Betty Bush, James W. Strutt, Mrs Hazel Helmer, James B. Craig, Andrew Hazeland, Antony Johnston, Fred W. Price, Michael G. Dixon, John Leaning, William A. Gibson, T. V. Murray.

SESSION 67

BANFF
MARCH 19-23 1967

theme:

Architectural Education

ALBERTA ASSN. OF ARCHITECTS

Banff Session '67

The Banff Session from March 20th to March 23rd sponsored by the Alberta Association of Architects will have as its topic "Architectural Education". Keynote speakers are A. J. Diamond, MRAIC, Joseph R. Passonneau, FAIA, Dean and Professor of the School of Architecture at Washington University and Shadrach Woods, of Paris and Berlin, visiting critic at Yale, Harvard, Washington Universities and Zurich Polytechnic. Panelists are John Bland, Guy Desbarats, Jonas Lehrman, Montreal; Henry Elder, Vancouver; Irving Grossman, Toronto, and Douglas Shadbolt, Halifax. Moderator is Peter Blake, MAIA.

The intent of the conference is to "prompt a dialogue between the Profession and the Schools of Architecture and to aid in the organization of curricula to satisfy the needs of the committee as experienced by the practitioners."

Canada Design '67 Catalogue

The Federal Department of Industry at Ottawa announces that its recently concluded "Canada Design '67" Program resulted in 657 accepted entries of existing products and 436 new products designs. The results are available in two catalogues, "Products for Building", at $2.00, illustrates 498 items related to building construction, furnishings and equipment; and "Giftware" at $1.00 illustrates 128 items.

Coming Event, Art and Architecture!

Architects of Ontario and out of town visitors are advised that a special exhibition of "Craft in Architecture" is to be held at

the School of Architecture Exhibition Hall, U. of T., from March 7–28.

This exhibition has been organized by Anita Aarons of our Allied Arts Department in conjunction with the Ontario Craft Foundation and the School of Architecture of the University of Toronto.

Special slides, photographs and over forty outstanding exhibits of architectural décor works, tapestries, furniture, stained glass, ceramics, etc. as well as a catalogue of selected Canadian handcraftsmen working with architects will be featured.

In conjunction with this exhibition, the Toronto Chapter is planning an evening March 15 at the exhibition with the artist exhibitors and their work. The last visit to artists' studios around Toronto was such an outstanding success, we are taking the opportunity once more to have architects and contemporary practicing artists meet with each other. Remember if you are in town March 15 at 8 p.m.

PCI 1966 Awards

Canadian architects and engineers won three of 15 awards in the Prestressed Concrete Institute's 1966 Awards Program. Awards were presented to Regis Trudeau & Associates, Engineers, for the Laurentian Autoroute Bridge, near Ste-Adèle, Quebec; Bell, McCulloch, Spotowski Associates, Architects, and Associated Engineering Services Ltd. Engineers for the Laboratory of the Research Council, Edmonton; and Erickson-Massey Architects, Otto Safir & Co. Engineers for the Central Mall and Transportation Centre, Simon Fraser University, Burnaby, B.C. The Canadian member of the jury was John C. Parkin, FRAIC, Toronto.

Moshe Safdie, MRAIC, Montreal, was one of six to give a paper at the Technical Session of the 12th Annual PCI Convention held in Houston, Texas. Mr Safdie spoke on "Habitat '67 – Towards the Development of Building Systems".

CMHC Theater at Expo

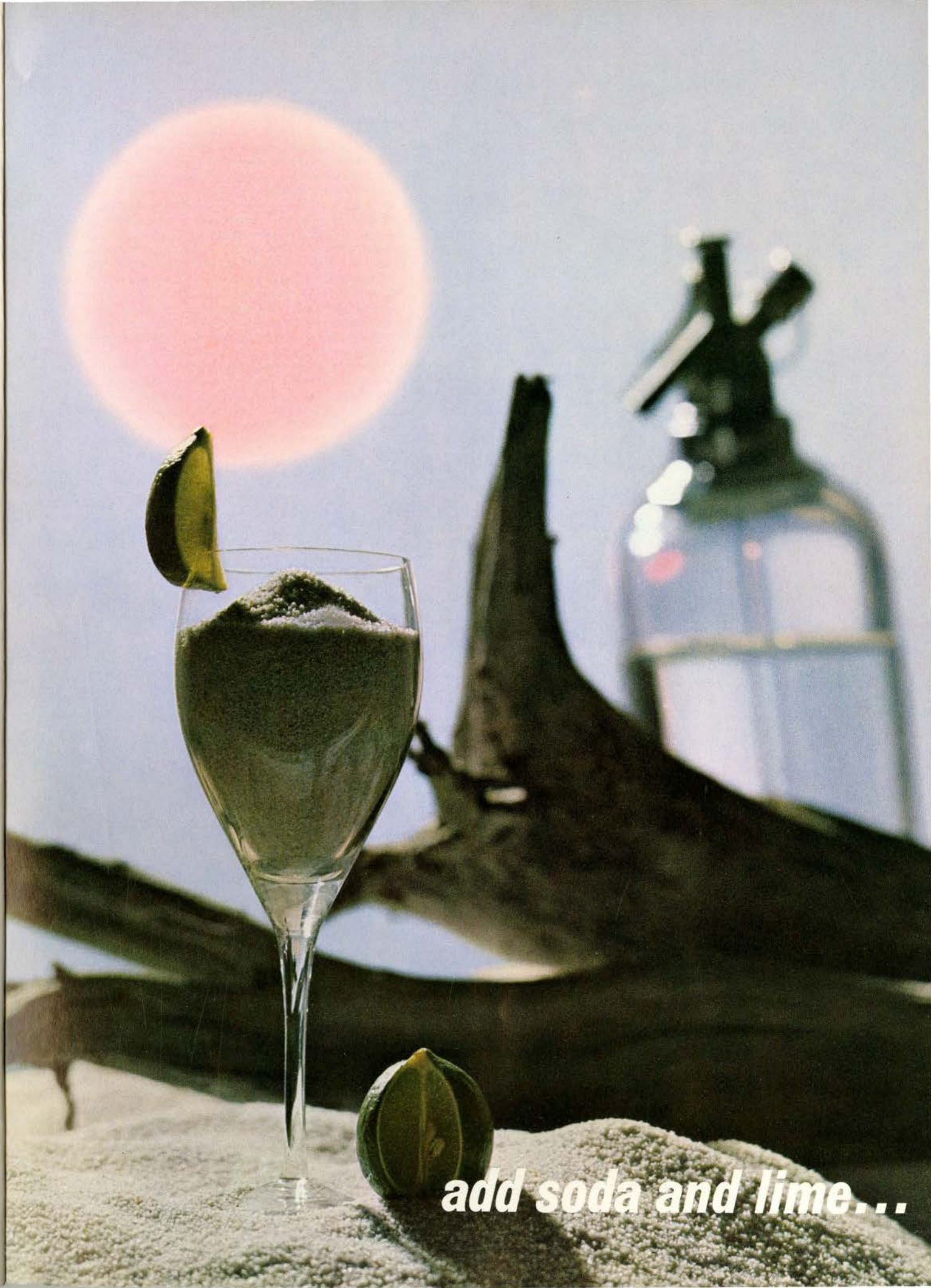
Central Mortgage and Housing Corporation is sponsoring a theater in the "Man in the Community" Pavilion at Expo '67. One of seven exhibits telling the Pavilion's story of the relationship between Man and his Community, CMHC's "Enchanted City" theater will seat an audience of 185. Inside, two stimulating experiences will await the visitor. First, "Urbanissimo", a five minute animated color film (by Hubley, creator of the short-sighted "Mr Magoo"), designed to jog its viewers into a little serious thought on the problem of how to come to terms with the city; and second, alternating with showings of the film, exhibitions of Canadian film maker Norman McLaren's "mobile sculptures", abstract figures of transparent, colored plastic material which rotate slowly and depend for their visual effect on the play of light through their various layers.

Employment for Japanese Architectural Students

The program begun in 1959 to bring outstanding Japanese architectural students to Canada for one or two years experience in Canadian offices has been found most successful, and the Japanese Architects Association, with the co-operation of the Canadian Embassy (supervision of English proficiency tests), is holding a national competition to select 20 candidates from the several hundred young Japanese architects expected to apply. Canadian offices may employ the winners at $500 per month, plus one way air fare to be recovered from salary during the first year. Architectural offices desiring to participate in this program are invited to write directly to Akira Fukanaga, Chairman, Candidate Selection Committee, Japan Architects Association, Kenchiku-Kaikan I. Ginza-Nishi 3-Chome, Chuo-Ku, Tokyo, Japan.

Leonard Shore made ARCA

Leonard E. Shore (*F*), senior partner of Shore & Moffat and Partners, has been created an Academician of the Royal Canadian Academy of Arts. He was elected an Associate in 1960.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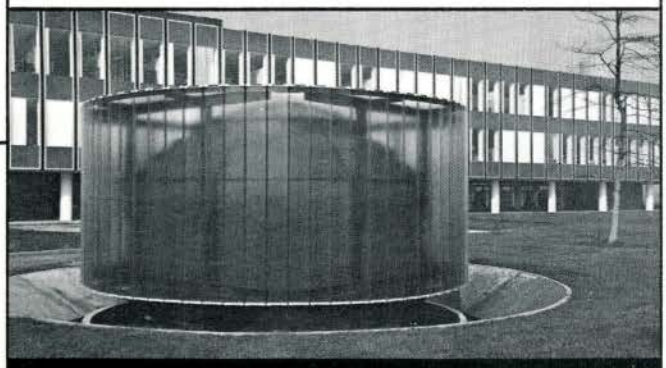

Profilit Wireline enclosure for an air conditioning and cooling tank.

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The curved elevation on the second story of this building is glazed with Profilit Glass.

Should you have any questions about the use of Profilit structural glass, please call your nearest Pilkington Contract Department.

AR-2

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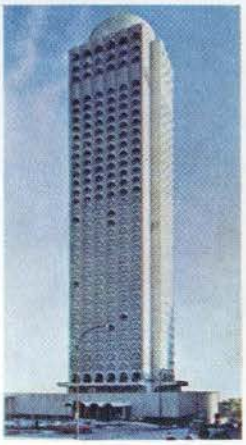

On the sweeping grand staircase . . . on the 36th penthouse floor . . . in all the rooms and suites . . . in the colourful bars and restaurants in the hotel you will find yourself walking on Brinton pure wool carpet. This, Canada's newest luxury hotel, is part of Place du Canada, Canadian Pacific's new multi-million dollar complex in downtown Montreal.

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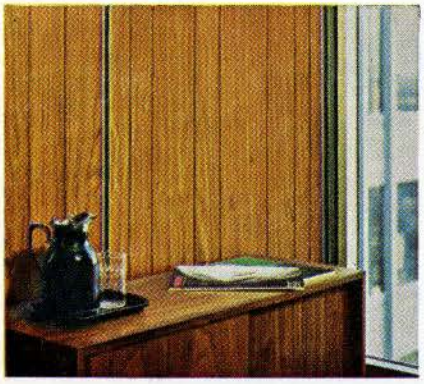
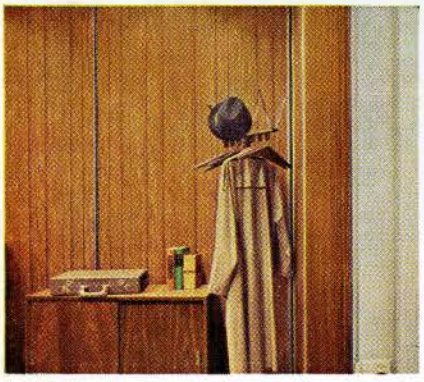


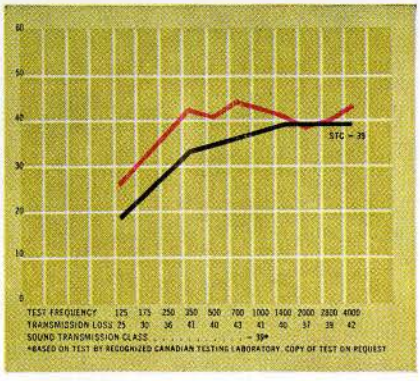
With Mova-Wall. The partition system that costs so little it's embarrassing. It cuts wide open spaces down to size and looks good doing it. Here's Mova-Wall in luxurious Vinyl-Kote Teak, rich and warm, the perfect panelling for a VIP's office.

And here, a cool, neatly detailed interior effect created by beautiful Beach Sand Capilano. There's a wide variety of Vinyl-Kote wood-grain and Capilano finishes to choose from, all with a fire-retardant Gyproc core.

Mova-Wall is two-faced. Thanks to its unique construction you can easily install different Vinyl-Kote wall panels back-to-back (as reflected in the mirror). Vinyl-Kote Teak in the office, Olive Green Capilano in the anteroom. That makes Mova-Wall versatile.



And adaptable. The wall on the left is a regular fixed partition. When you add Mova-Wall trim and Vinyl-Kote you are able to achieve a continuity of design that would be tough, or even impossible, with materials lacking Mova-Wall's flexibility.



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From Institute Headquarters

An event of wide interest is scheduled for Montreal on September 14 to 17 : the North American Conference on Historic Preservation in Urban Renewal. Chief sponsor is the National Trust for Historic Preservation in the United States, of which Anthony Adamson (*F*) is a member.

The principal task of this Conference will be to explore the possibilities of preserving historic and older buildings as a duty of local governments, rather than being left to volunteer organizations.

The RAIC Exhibition, "Historic Architecture of Canada", will be featured at the Conference, together with other special displays.

It is regretfully announced that ICOM-UIA Colloquium on Museum Architecture, previously scheduled for next summer in Montreal, has to be cancelled due to lack of financial support.

Dr Robert Legget (*Hon F*) Director of NRC Division of Building Research and President of the International Council for Building Research Studies and Documentation, has announced an important event for Canada in October 1968. The International Council, known usually as CIB, will hold its Fourth International Congress in Ottawa, October 7–11.

A preliminary planning meeting was held this month under Dr Legget's chairmanship. The theme of the Congress will be "World Building '68 – Cost and Quality".

The Canadian Council of Professional Engineers has sponsored "The Builders", a Centenary project film which tells the story of the contribution of our engineers to the development of Canada. This 14-minute film was produced by Crawley Films in both French and English language versions, and is available from CCPE, 116 Albert Street, Ottawa 4, or from provincial associations of engineers.

CMHC has published a new Site Planning Handbook, which generally permits greater flexibility in the design of housing developments. During 1967, those intending to take advantage of facilities available under the National Housing Act may work either to the requirements in Residential Standards 1965, or to those contained in the new Handbook.

A CMHC grant of $250,000 has been announced to help defray the costs of research and design incurred in the development of the experimental housing project Habitat '67.

'Townscape Rediscovered" is a new color film depicting the progress of community improvement in the heart of Victoria. It shows the evolution of Centennial Square from a derelict area into a jewel at the heart of the city, other related improvement projects including the restoration of Bastion Square, and the successful paint-up plan for commercial streets. The first step to action for brighter, more attractive, more liveable communities in 1967 and in the years ahead is citizen awareness and realization of the potential in our everyday surroundings for the kind of exciting transformation vividly portrayed in "Townscape Rediscovered". The film is available on loan from Roderick Clack, Centennial Commission, Ottawa.

"We must immerse ourselves, all of us, in the social, civic and political life of our communities. Unless we do this we cannot possibly comprehend the problems of contemporary urban architecture, much less solve them. . . . As ignorant and unprepared as we may be to deal with the complex design problems of this age, we are still the only profession that is trained in the three-dimensional planning of the urban environment. . . . We must make every effort to learn and understand what is happening to our society, who our clients will be and what they will require of us. We must free as much time as we can for important tasks . . . training other people and using devices to take over that traditional part of an architect's work which is essentially non-creative. We must communicate to our architectural schools the urgency of change and their need to change it." – *Charles M. Nes Jr., President AIA*

Du siège de l'Institut

Une réunion de grand intérêt aura lieu à Montréal du 14 au 17 septembre. Il s'agit du Congrès nord-américain sur la conservation des lieux historiques dans le renouvellement des villes. Le principal organisateur est le National Trust for Historic Preservation in the United States, dont M. Anthony Adamson (*F*) est membre.

Le congrès aura pour principal objet d'étudier la possibilité de confier aux autorités locales plutôt que de laisser à des associations bénévoles le soin de conserver les bâtiments historiques et anciens.

L'exposition de l'IRAC, "L'architecture historique du Canada" et d'autres expositions spéciales seront présentées à ce congrès.

Le Conseil canadien des ingénieurs professionnels s'est chargé de la production, à titre de projet du Centenaire, d'un film décrivant l'apport de nos ingénieurs à l'essor du Canada. Ce film de 14 minutes, intitulé "Le génie en marche", a été réalisé en anglais et en français par la maison Crawley Films. On peut l'obtenir du Conseil canadien des ingénieurs professionnels, 116 rue Albert, Ottawa 4, ou des associations provinciales d'ingénieurs.

La SCHL vient de publier un nouveau Manuel pour l'aménagement des espaces extérieurs qui, de façon générale, permet plus de flexibilité dans les plans de projets d'habitations. En 1967, ceux qui voudront profiter des aventages offerts par la Loi national sur l'habitation auront le choix de se conformer soit aux Normes résidentielles de 1965 soit aux prescriptions du nouveau manuel.

La SCHL annonce une subvention de $250,000 en vue d'aider à l'acquittement des frais de recherche et de composition compris dans la mise au point d'un projet expérimental d'habitation, Habitat '67.

L'amélioration du centre de la ville de Victoria nous est présentée dans un nouveau film en couleurs intitulé "Townscape Rediscovered". Le film montre la transforma-

The Society of Architectural Historians has appointed Peter Collins, Professor of Architecture at McGill, as Editor of the very fine SAH Journal.

Seventeen houses designed by Frank Lloyd Wright were recently honored with AIA commemorative plaques, thanks to the efforts of the Frank Lloyd Wright Memorial Committee. Photostatic copies of the original working drawings of most of these houses have been made and deposited at AIA Octagon House, where they may be used by students and architects.

William S. Goulding, Professor of Architecture at University of Toronto and Chairman of our Committee on Preservation of Historic Buildings, is at present on a four months' tour of Europe and Asia.

A new pamphlet, "Architects in Britain", describes architectural practice in Britain, recent developments in building procedure and the wide range of services which the RIBA provides for its members, for students, and for the general public. Available in English, French, Russian, German and Spanish from RIBA, 66 Portland Place, London W1.

University College Dublin has announced that the opening of the international competition for the design of a new library has had to be postponed.

Intercon I, the first international exposition and congress of the Contract Furniture and Furnishings Industries, is being held March 20–22 in the Merchandise Mart, Chicago. Write to Intercon I, 1060 Merchandise Mart, Chicago, Illinois, 60654.

The International Seminar on Ekistics and the Future of Human Settlements will be held in Athens, July 10–21, under the leadership of Architect C. A. Doxiadis. It will be followed by "Delos Five", the fifth year of an informal gathering afloat of a small group of invited authorities from different disciplines, countries, and cultures, discussing problems of human settlements.

Fred W. Price,
Executive Director

tion d'un endroit à l'abandon pour en faire la Place du Centenaire, véritable bijou au centre de la ville, ainsi que d'autres projets d'amélioration, y compris la rénovation de la Place Bastion et les travaux de peinture le long des rues commerciales.

La première chose à faire pour nous assurer en 1967 et au cours des années subséquentes des villes plus belles, plus attrayantes, où la vie sera plus agréable, est de bien faire saisir aux citoyens les possibilités qui s'offrent dans nos milieux ordinaires de réaliser des transformations du genre de celles que présente "Townscape Rediscovered". Ce film peut être emprunté de M. Roderick Clack, Commission du Centenaire, Ottawa.

"Nous devons tous, chacun d'entre nous, nous plonger dans la vie sociale, municipale et politique de nos collectivités. Autrement, il nous est impossible de comprendre, et encore plus de résoudre, les problèmes de l'architecture urbaine contemporaine. . . . Malgré notre ignorance des problèmes complexes de composition de notre époque et notre manque de préparation dans ce domaine, nous demeurons la seule profession formée dans la préparation des plans à trois dimensions de nos milieux urbains. . . . Nous devons faire tout en notre pouvoir pour savoir ce qui se passe dans notre société, qui seront nos futurs clients et ce qu'ils exigeront de nous. Nous devons nous libérer autant que possible de façon à consacrer plus de temps à ces tâches importantes . . . préparer d'autres personnes et employer des moyens pour faire faire la partie traditionnelle du travail de l'architecte qui n'est pas essentiellement créatrice. Nous devons faire connaître à nos écoles d'architecture l'urgence d'un changement, et la nécessité pour elles de l'opérer." *Charles M. Nes, président de l'AIA*

La Société des historiens en architecture a nommé M. Peter Collins, professeur d'architecture à l'Université McGill, rédacteur de l'excellent CAH Journal.

Dix-sept maisons, oeuvres de Frank Lloyd Wright, ont été récemment munies de plaques commémoratives de l'AIA grâce aux efforts du Frank Lloyd Wright Memorial Committee. Des copies ont été tirées au photostat des plans d'exécution originaux de la plupart de ces maisons, puis déposées à l'Octagon House de l'AIA, où elles sont à la disposition des étudiants et des architectes.

M. William S. Goulding, professeur d'architecture à l'Université de Toronto et président de notre Comité sur la conservation des bâtiments historiques, a commencé un voyage de quatre mois en Europe et en Asie.

Une nouvelle brochure, "Les architectes en Grande-Bretagne", présente une description de la pratique de l'architecture en Grande-Bretagne, des nouveaux progrès dans le domaine du bâtiment et de la grande variété de services que le RIBA offre à ses membres, aux étudiants et au public en général. Cette brochure, publiée en anglais, en français, en russe, en allemand et en espagnol peut être obtenue du RIBA, 66 Portland Place, Londres W1.

Le University College de Dublin annonce que l'ouverture du concours international pour les plans d'une nouvelle bibliothèque a dû être remise à plus tard.

Intercon I, première exposition internationale et premier congrès des industries des meubles et ameublements fabriqués à contrat se tiendra au Merchandise Mart, Chicago, du 20 au 22 mars. Ecrire à Intercon I, 1060 Merchandise Mart, Chicago, Illinois, 60654.

Le séminaire international sur l'ékystique et l'avenir des établissements humains aura lieu à Athènes du 10 au 21 juillet sous la direction de l'architecte C. A. Doxiadis. Il sera suivi de "Delos Five", cinquième année d'une réunion amicale sur l'eau d'un petit nombre d'autorités invitées représentant diverses disciplines, divers pays et diverses cultures, pour l'étude des problèmes des établissements humains.

Le directeur général,
Fred W. Price

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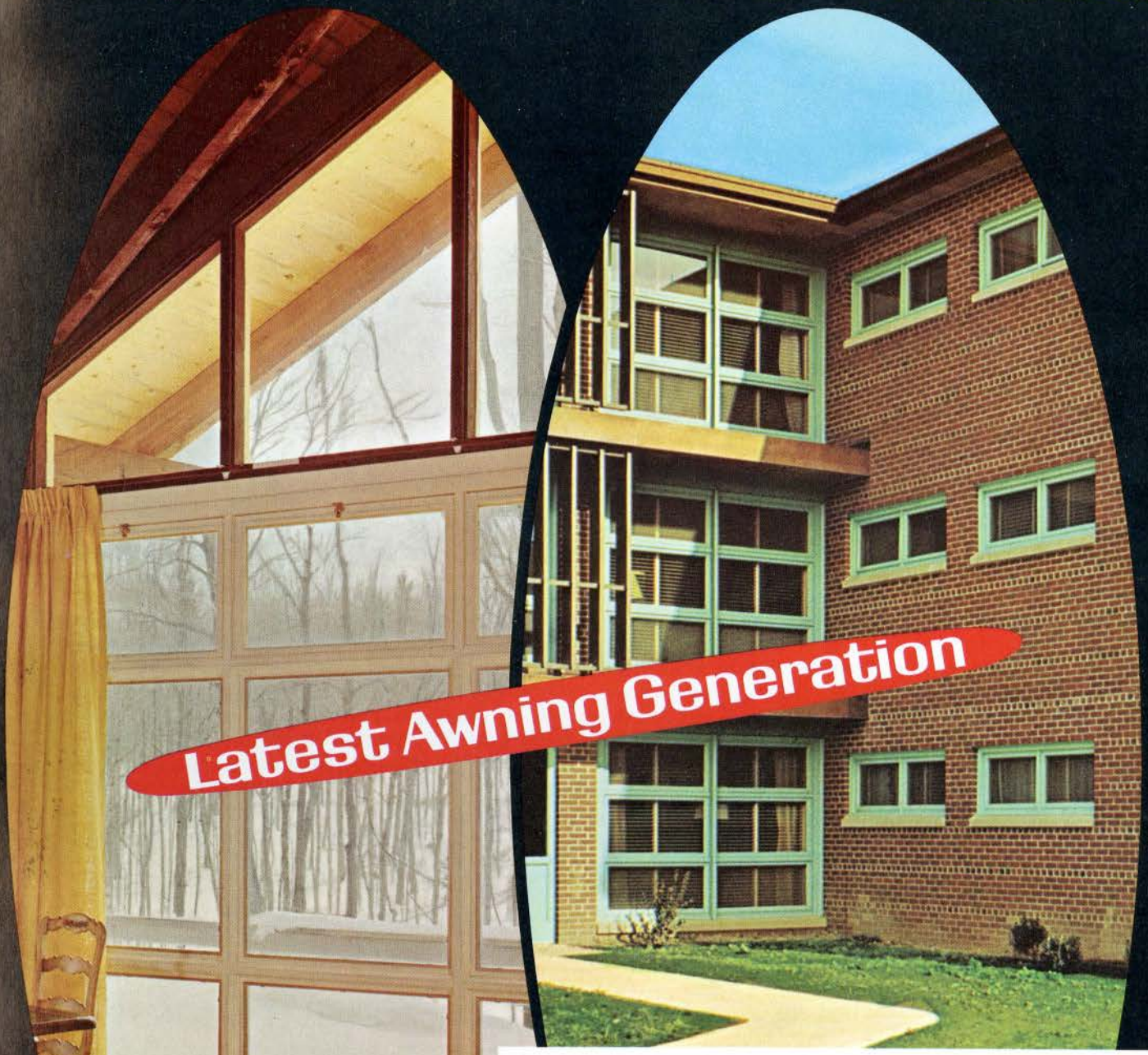

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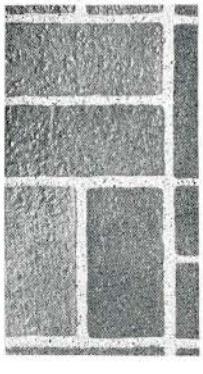
Coronelle Vinyl Corlon



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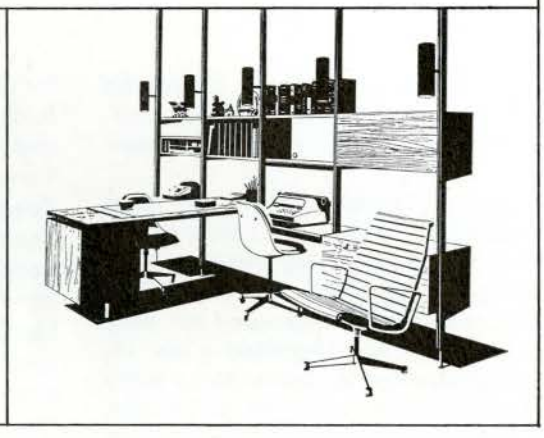

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The Integrators Speak Part II

This issue, we present the opinions of another team of architects and artists who are well known in the field of art and architectural integration. The architect *Irving Grossman*, Toronto, has for many years enjoyed social and collaborative life with artists. Sometimes his collaborators have been personal friends, but at other times as in the Administration Building at Expo '67, this was not the case. Artist *Ted Bieler*, Toronto, has always had a close association with architecture. His first year of design training was taken at The University of Toronto's School of Architecture. *Graham Caughtry*, Toronto, internationally well known painter has for several years had collaborative experience with architecture. His best known project is the series of murals on three floors at Toronto International Airport. His present new work, recently exhibited at Isaacs Gallery, Toronto, shows a strong development towards "Architectural' construction as a basis for the painted image. Indeed it needs thorough integration with a wall to be successfully hung.

The opinions printed are loosely gathered from a four hour tape of informal discussion between the artists and myself. All three were extremely reluctant to answer specific or leading questions or to accept that any ground rules could be laid down at present in the fluid and delicate state of relationships of artists and architects. So be it . . . wishful thinking and hard facts are not always compatible in seeking guidelines. It is, however, undeniable that new associations are growing and thoughtful digestion of today's conditions will be necessary if sensitivity and quality are to be arrived at rather than thoughtless if well meaning reaction to an unsatisfactory situation.

On Art Integration

Irving Grossman: I think we should dismiss the statement that everyone agrees (maybe they do not) that art should be integrated or that "everyone should try and work from the beginning". These are all clichés and never really produce rules or ideals. Everyone works differently.

Graham Caughtry: I am a sort of Utopian. I definitely think that there will be groups of architects and artist-craftsmen working together, possibly not on a global scale at first. There is certainly already the nucleus of groups who are arriving at a common ideology. I really feel it is *happening* and *now*. For instance, I have architects who are designing structures for me for my paintings – the kind of paintings I am getting into now, which are breaking out from the wall and coming into the room. I suddenly have realized that to get the sort of thing I want, I have to use the kind of knowledge that *they* have of structure and what not. So then immediately, there is a reverse situation where an architect comes to me and says I want you to fill this space or do something with this space. They are creating spaces for me on my terms. This will start revolving into a whole new concept. A mural doesn't have to be just a *thing* that is on the wall. A mural can be part of the structure itself, because architects are starting to think of structure in terms of painting or decorations (we might as well use that word, nobody is afraid of it anymore). These people and myself are climbing into a kind of empathy in our thinking which goes beyond art or anything else to where that kind of integration might come. It is not a matter of sitting down and saying, well this space works here and that space there. It gets to be a thing of pure feeling.

I am calling on Nobuo Kubota's structural "Know How" because I have a *certain feeling* and relationship with him. This way it gets to be more like the kind of thing that produces the mediaeval cathedral. It is like working on the site in a sense (you don't work on sites anymore) and using contemporary means.

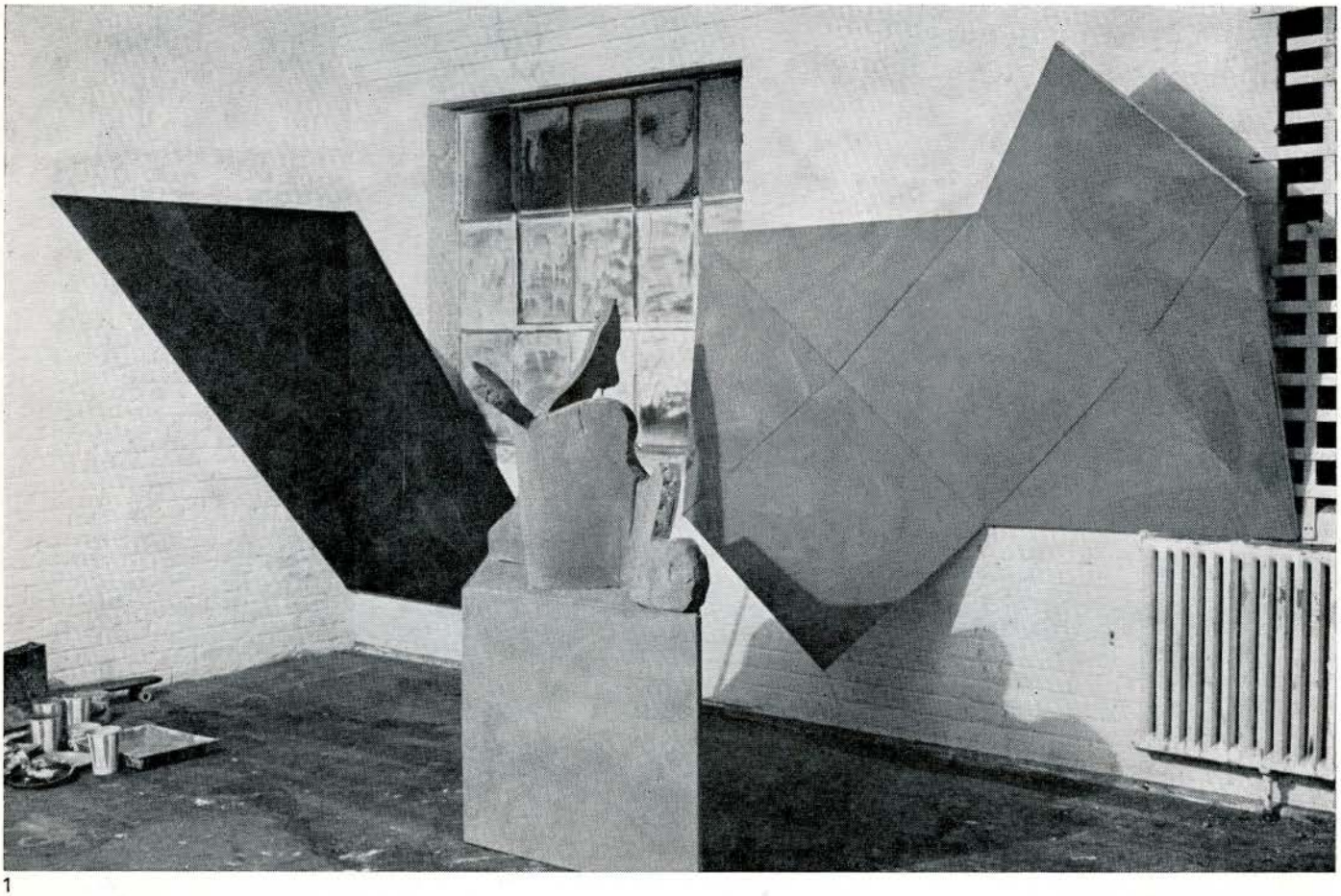
Ted Bieler: The world is so complex now that everything is its own thing. At the moment art integration is just a group of people who are getting involved in a series of ideas and relationships rather than people who have decided what their skills are and how they can be combined. In other words in this new situation the skill of one or the other person can change when the idea requires it. As an example, I was asked by an architect to develop a shape that would work as a (supporting) beam that could be developed with a degree of mass or limited production. The point is that it could not be drawn, and therefore he asked me, as a sculptor, to do the thing in reality, in the sense of making a model, afterwards make the full scale mock-up and then supervise the final construction. I still am having problems with this because basically it wasn't something which grew out of my thinking but rather something he challenged me to do. There is an extremely important point where at some existence in the creation of a thing, it has happened simultaneously to a group of people, in order for it to really snowball.

On the Education of Artists and Architects

Irving Grossman: There is no reason why the education program for architects and artists should be in different buildings. It is a very obvious thing that there could be . . . first floor – painting, fourth floor – sculpture, sixth floor – architecture, seventh floor – "fighting". And there must be overlapping elsewhere . . . in the cafeterias, etc. Ted Bieler went to Cranbrook Art School and will tell you what happened there.

Ted Bieler: Simply, the fact was that a dozen or so architects already finished their course of four years basic training were there just to fool around for a couple of years. By the way, my whole structural education was gained in first year architecture at the University of Toronto. I think it was invaluable. They did not dig anything I was trying to pull off but I got my whole structural education there. . . . At Cranbrook we did terrific things together. There were architects who were basically interested in making buildings like sculpture. There it is, my whole education in design process is from the architects rather than the artists. And theirs, because of the kind of education they had at the art school. Then there is the vice-versa thing going on with architecture and sculpture. They were fiddling with sculpture and were trying different materials which were going, and then making different forms.

1
Acrylic wall reliefs by Graham Caughtry
Reliefs en acrylique pour un mur, par Graham Caughtry



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A current idea now is that architects consider the artist as one who has a different way of functioning in the situation. The architects have tabulated an endless stream of data and try to solve all this by cross reference. The artist has a different awareness. He is aware of his environment in an entirely different way than the architect is trained to be aware of his environment. This was my experience while at University, that architects did not have the vaguest clue what the process of art was or what the process of thinking creatively was.

Total Architecture or Artist Collaborator

Irving Grossman: There is a lot of talk about systems in architecture today and letting the building become what it wants to be. In my opinion all that means is that when you establish an idea for any work of art, including a building, the challenge to the creator is to be truthful in some intuitive way to the ideal. It is not to be diluted or watered down or confused. The problem is to find out where you are diverting from the ideal and where you are carrying it through.

The question of romantic or otherwise reveals that the architects today who are using this flag of functionalism, logic, and systematizing have produced the most sculptural form of architecture, and all the architects who did not necessarily repudiate sculptural architecture, also produced formal architecture. Scarborough College for example. The architect recently on television repeated over and over that the building wanted to be something. To me it is the most exciting, willful, bit of sculpture (I am using the word willful properly). The battering of the walls, all of these things are certainly related to function but the architect makes a decision, he chooses and rejects. His decisions are often based on arbitrary responses to form and space. Scarborough is a large scale piece of sculpture and concrete based on a system of circulation.

Now as to the question of repudiating the artist as a collaborator, generator or assistant.

It is difficult to generalize. I feel that I have come to want the stimulus and contribution of a sculptor at certain times and not at other times. To me the sculpture can become part of the architectural process in many ways. This is theoretical, it all depends on the problems. The artist can get involved at an early stage but I do not think this is always so. The artist can be the person who is the intermediary between pure creation of the form of technology which tends to mass produce.

On a Synagogue Done by Grossman in Collaboration with Caughtry

Irving Grossman: If we looked at the synagogue (*see A/C December 1966, page 22*) that Graham Caughtry and I worked on several years ago which was partially successful, I would say that if we were to do it again, in exploring the techniques, we would have gone much more out. Perhaps the budget was not adequate, but it was still a very strong idea.

Caughtry: Considering we had no idea what we were doing!!! A lot of the reasons it happened that way then was because of a common impulse and because we were friends. Now it is because something else is happening much deeper.

Grossman: (Terminating a long description of how the wall forms were reproduced in the factory from Caughtry's drawings). . . .
I was interested in a surface at the time. I felt the architecture was so plain and I wanted a richly embellished surface for the entire building. This is one way of using the artist in technology. A lot of architects would not agree with this idea and this is fair enough. I think there is a lot more to the surface of a building than board forming and concrete which a lot of architects seem to think is the end result because it is pure, virile and honest. That expresses the way the wall was built, as a structure, and that's the end of it. My own feeling is that this is one idea and I see no reason why we must all have these philosophies that are complete and restrictive. If everybody started to cover their buildings with bas-reliefs, sculpture for the hell of it, this is not the answer either.

On the Expo Administration Building

Grossman: The Expo '67 Administration Building was another instance of the building plans evolving at an early stage. I can't honestly say that I think about working with a sculptor at an early stage, from the day I get the commission. I think it depends on the kind of building and circumstances. In this instance, very shortly after I got the idea – (three major spaces in the building, and the walls around those spaces in concrete) it seemed right to me that the concrete walls wanted to have something said of them other than what the spaces themselves would say. It seemed very logical with concrete being fluid material, that instead of my devising what that concrete wall should be, it would be a very appropriate thing, an exciting, a creative and a natural thing to do with the wall, to let the artist, an appropriate artist, let the concrete (as I said to them) erupt out of the confines of the flat forming – and become some other type of forming as it entered the major spaces, and quietly go back to its original restricted forms, plywood and boards. I approached three different artists (Vaillancourt, Caughtry, Comtois), I chose three because I felt that the three spaces were sufficiently separated, that the idea developed in each would be different from each other, and I confronted them with this problem.

This was not the problem I had given to Graham for the synagogue. The Expo walls, concrete poured in place, were poured while the building was being built and the actual executor of the sculpture (in a sense) was the general contractor. This required forms created in some manner which would be integrated right through the building procedure when forms were started. The walls in some instances were to be flat and in the right places other than flat according to response of sculptor. In integrating, each sculptor responded in a different way. Each sculptor felt differently about the space and had to guess what the space was to be like, as I did. We could only work from drawings, models and therefore had to visualize it.

I think the walls are moderately successful. They made the spaces more exciting than they would have been without the sculpture. In the final analysis of whether we accomplished what I tried to set out to do, the only criticism I have, is my own, in not realizing that we should have penetrated the wall and gone into the wall, instead of going out from the wall. Consequently, there is a certain plastique which almost suggests that despite the fact they were poured they could have been applied to the wall. We could have penetrated through the wall, with depressions and even apertures so that there was no base plane onto which the sculpture projected. I think that probably this was only a limiting fact as that should have been disregarded. There were certain limitations – technical considerations which somehow we did not overcome, and we let them stand.

In Conclusion

This concludes the series of "The Integrators Speak". Whether the points and the message are as clear as they might be or whether more literary editing would make the series more "readable" is a moot point.

What has been attempted is to truthfully show that within the field of art and architecture people *are* working together and much is happening.

Are there any tangibles to observe? With some, a clear and specific line of behavior is being established – and to tell the absolute truth, others are groping, feeling into a new realm of thought and a relationship where the association and the attempt is as fruitful as establishing rules, procedures or set lines for collaboration. The greatest "moment of truth" to be realized is that nothing – and no one – no intermediaries or liaison committees, competitions, or well meaning promotion must interfere in any way with a direct relationship of the contemporary artist and the contemporary architect, delicately groping their way, voluntarily together. How the latter appreciates and houses the products of art in his community is for his own conscience and personal modus operandi to accomplish.
Anita Aarons

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Review
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4

Architectural Forum, Dec. '66, has published a project for the core of Rockville, Maryland, by Robert Geddes, Dean of the School of Architecture, Princeton University (**1,2,3,4**).
The scheme puts into practice ideas which are gaining currency among those in the forefront of urban design thinking. Instead of producing a dramatic set of drawings and models, and then leaving them to survive years of development as best they can, Geddes has established a basic framework of utilities, garages, walks, open spaces, and will be retained as a consultant only, for the buildings that follow. Of even more significance is the way in which the architect has made a comprehensive and co-ordinated client of the three agencies responsible for developing the city – the departments of planning, urban renewal, and public works. The most significant parts of the plan are those that do not show.


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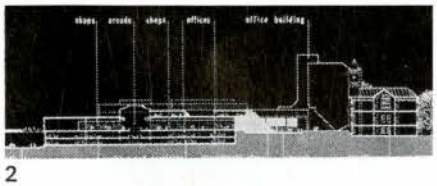

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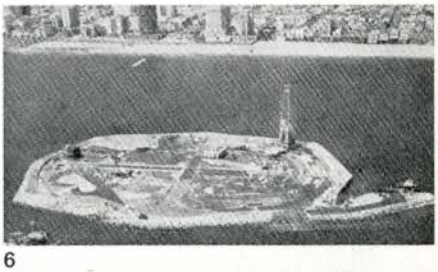
As is sometimes the case in television programming or in architectural journals, the (**5**) advertising shows more adventurous use of the medium it is using than the "serious" copy. Two commercial publications we have received of exceptionally high standard, both in graphic form and content are *Alcan News* and *CIL Oval.*

We reprint, without comment, excerpts from *Engineering News Record.* "Linesch and Reynolds, Long Beach environmental planners, worked out a plan of camouflaging . . . an offshore oil field at Long Beach, California (**6,7**). The 180 ft drilling towers which will be rail mounted for easy mobility will be made to look like high-rise buildings, complete with colorful panels and balconies . . . by night they will have dramatic lighting. . . . Approximately 300 trees, featuring Washingtonia fan palms up to 60 ft high and Canary Island date palms, will be planted as a screen. As the drill rigs move, the trees will be moved also."

Marcel Breuer's egocentric art gallery has at least one merit – it takes courage to build a barn on Madison Avenue. But it requires less courage to pander to chi-chi whimsey.
The interior, too, displays a set of inverted values – the genuine slab and beam construction is obscured by a suspended contrivance that *seems* like egg crate construction: Marie-Antoinette pretense at frugality, too, is the carefully roughened concrete walls and stairs. It is difficult to understand the willful section, when the form of the building does nothing to resolve the circumstances of a building on a corner site (**8**).
A.J.D.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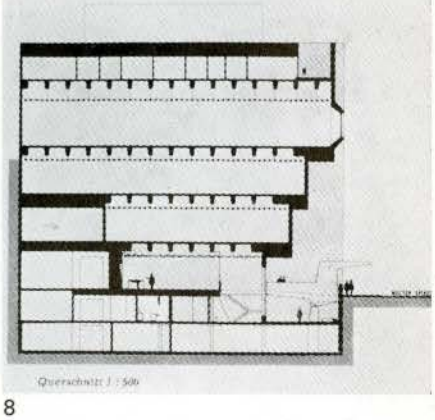
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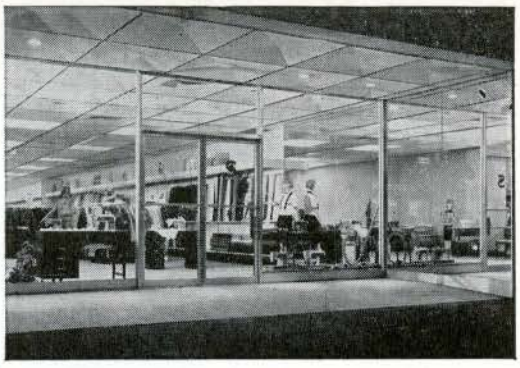

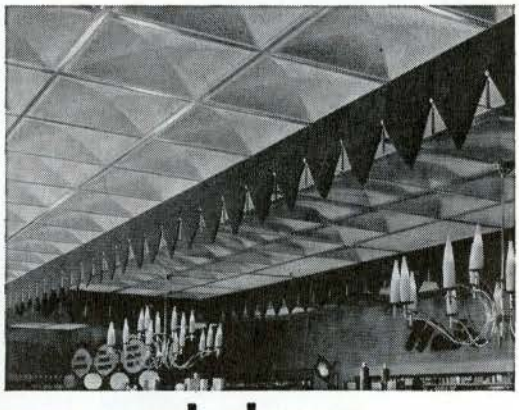

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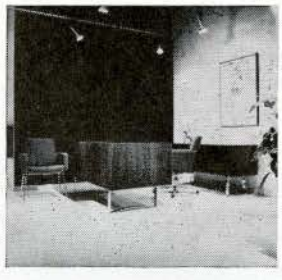




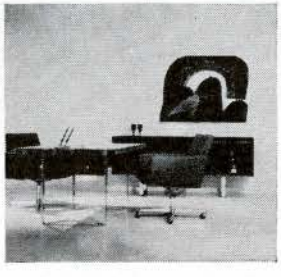
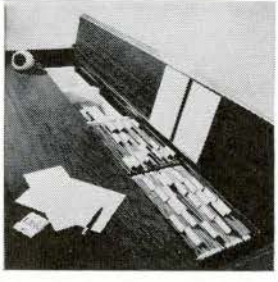
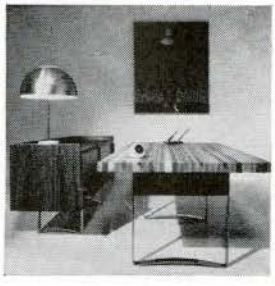


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Résumés

Page 35

L'Ameublement dans l'Architecture par John Gallop, MIRAC

Il est peu probable qu'un Charles Eames base le dessin de ses meubles sur le genre d'édifice susceptible à les recevoir, à part la considération des limitations générales. Sans doute, ses meubles doivent leur adaptabilité au fait qu'ils résoudent si bien leurs propres problèmes.

Pourtant, bien souvent les meubles doivent être choisis ou créés afin de résoudre un problème spécifique découlant de l'aspect physique d'un édifice où le matériau ou la forme doivent répondre à ses exigences spécifiques. Mais, dans le fond, c'est la raison d'être du dessin d'intérieurs. Cette intégration de l'ameublement n'est pas réussie lorsque l'ameublement devient l'architecture en miniature dans l'intérêt de la conformité visuelle. L'ameublement d'un édifice droit et carré est souvent carré et droit aussi.

Bien que la phrase "architecture intérieure" soit prétentieuse, elle décrit bien ce que devrait *être* la condition de l'espace intérieur. Une chaise est bien un meuble, mais un comptoir et un tapis, tout en faisant partie de la catégorie "meuble", sont en même temps inséparables de l'édifice et par consequent contribuent à la qualité de *l'architecture*.

Au théâtre, les rangs de fauteuils constituent un élément de la formation spatiale. Un tapis contribuant une couleur et une texture à 25% ou à 40% de la surface d'une pièce est une partie intégrale de l'espace intérieur.

Bien des architectes qui ont dessiné des meubles ou des intérieurs ont produit des choses curieuses. La manière "architecturale", telle que la chaise Rietveldt, ou de Stijl, était une manifestation d'un principe esthétique ; souvent, ces chaises étaient très peu confortables. Bels objets, mais piètres meubles aussi étaient quelques efforts de Charles Rennie Macintosh et de l'Art Nouveau. Ces solutions "architechtoniques" ne peuvent pas être considérées comme meubles bien qu'elles ont un certain intérêt en tant que formes, structures, matériaux. On continu à créer ce genre de mobilier même aujourd'hui.

Au mieux, l'ameublement peut compléménter l'architecture et s'y intégrer. De même que l'ameublement japonais sieds à un immeuble japonais, il est vrai que le bon ameublement est à son mieux dans un bel immeuble, point important si on veut réaliser qu'il n'est pas forcément nécessaire d'avoir des meubles en acier dans un immeuble en acier afin "d'intégrer" l'ameublement. Et tous comptes faits, lorsqu'il s'agit de meubles, les premières considérations sont anthropomorphes. La fonction devrait déterminer l'aspect d'un meuble ; le contraire se contredit.

L'ameublement se fabrique de n'importe quel matériau ; par tradition, le bois et l'acier, employés de manière traditionnelle. Leur diversité d'application et les nouveaux matériaux à notre disposition nous offrent immense variété de possiblités. La mode nouvelle des "chaises autrichiennes" en bois et canne au 19ème siècle, en canne nylon maintenant, offre diverses belles chaises solides et souvent confortables. Parmi les architectes qui ont exploité les nouveaux matériaux et techniques se trouvent Marcel Breuer, Mies Van der Rohe, Charles Eames. Breuer et Mies ont exploré les qualités du tube acier et de la tige plate pliés simplement afin d'exploiter leurs caractéristiques tensiles. Charles Eames a employé le contreplaqué pour tous les éléments de sa chaise "Eames" originale. La chaise pour enfant était moulée en une pièce. Le fils a été employé par Harry Bertoia pour ses chaises en fil métallique. Les chaises "Hardy", "British Officer" et "Directors" sont des exemples intéressants de l'emploi de toile. Les pays riches en bamboo, osier, canne, ont produit des meubles confortables et souvent amusants. En Italie, on fait des chaises plastiques moulées en une pièce par injection et aux Etats-Unis, des chaises d'enfant en papier lourd. On attend toujours des meubles faits des nouveaux plastiques – polyuréthane, styrène acrylique – mais le potentiel en dessin et en production est là. Les Bréziliens réalisent de nouvelles combinaisons de cuir et de bois exotiques, un autre Italien combine des éléments considérés jusqu'à maintenant comme éléments séparés, tels qu'une lampe avec une chaise. Au Canada, heureusement, nous avons des concepteurs imaginatifs et de bonne formation qui ont eu la chance de travailler en partant des principes de base. Les résultats vont compléménter l'architecture d'architectes également doués qui de leur part résoudent les problèmes en partant des mêmes principes.

Notes sur le choix de mobilier commercial.

1 Chaises

a Puisque les fauteuils prennent plus de place que les chaises, vérifier l'encombrement.

b Vérifier le dégagement entre les bras de fauteuils et le dessous du bureau ; une table lourde s'enfoncera dans le tapis.

c Protéger les murs avec un rail ou des "pieds garde-mur" ; si l'espace est restreint (caféterie) on pourrait faire trébucher les occupants.

d Protéger les bords des chaises en contact avec un bureau, mur ou personne. En exemple, la bande P.V.C. Herman Miller.

e Les chaises carrées sans bourrage adéquat abîmeront les bureaux et elles-mêmes. Les tissus en contact avec des surfaces dures s'useront.

f Sur une chaise basculante, les bras durs abîmeront un bureau, s'abîmeront au contact du dessous de bureau.

g Les bras de chaises se salissent vite ; les choisir remplaçables ou dans un tissu convenable.

h Choisir un tissu qui convient. Le nylon et les vinyls s'usent le moins, les vinyls sont moins chers mais ne respirent pas. On peut acheter presque toutes les chaises avec siège en tissu et bras en vinyl. L'effet de produits anti-salissant n'est pas permanent, mais efficace.

i Spécifier les glissoirs appropriés au plancher ; roulettes pour carrelage ou tapis. Les protège-tapis sont efficaces mais laids.

j Les finitions peintes s'abîmeront. Le chrome, l'aluminium, l'inox ou le zinc poli sont les meilleurs mais le chrome poli laisse voir trop facilement les marques. La fibre de verre est durable si elle àst de bonne qualité ; vérifier le raccord coquille-base. Les finitions mattes pour bois s'usent moins que celles qui sont pigmentées ou brillantes.

k Le tissu devra faire partie du contrat du fournisseur de chaises plutôt que d'être un contrat séparé.

2 Bureaux

La sécretaire s'y connait plus que son patron lorsqu'il s'agit de choisir la quantité et le genre de tiroirs, les accessoires, etc. . . .

a Les glissoirs doivent être facilement réglables.

b Les bords intérieurs des tiroirs et les bords du bureau, protégés.

c Les pieds en chrome plutôt que peints.

d Le bord rabattu protège et facilite le déplacement.

e Les poignées de tiroir devront être encastrées ou conçues de façon à ne pas accrocher.

f Les pieds ronds s'abîment moins que les pieds carrés. Un panneau encastré s'use moins qu'un panneau à ras.

g Vérifier les possibilités de dissimuler les câbles téléphoniques et de force.

h Choisir soigneusement les couleurs ; il est plus facile de remplacer les couleurs standardisées que les couleurs faites sur commande ou à la mode.

i S'assurer que le verrouillage se fait pour tous les tiroirs et crédences.

j La suspension des fichiers devrait être du type à progression.

k En faisant l'estimatif des bureaux, s'assurer que les éléments sont vraiment comparatifs.

3 Ameublement de Salon

L'usage et la longévité d'un sofa devraient être pris en considération.

a Les glissoirs doivent être appropriés au plancher.
b Et le tissu, à l'usage.
c Les ressorts doivent être appropriés au tissu ; la mousse de polyuréthane sur trame de latex pourrait être plus pratique que la mousse de latex sur ressorts.

4 Plantes
a Demander l'avis d'un expert et fournir les plantes les plus vivaces. Choisir le fournisseur qui entreprendra aussi l'entretien.

5 Tentures
a Fournir, fabriquer et poser les tentures en vertu d'un seul contrat.
b Exiger des échantillons de fabrication et de tringles.
c Parmi les centaines de tissus naturels et synthétiques on trouve toutes les qualités.
d Fournir les instructions pour l'entretien.
e Si motorisée, vérifier avec l'entrepreneur l'installation, l'accès, l'emplacement des moteurs, etc.

6 Moquette
a Exiger que le même entrepreneur fournit et installe la moquette.
b Spécifier la bonne moquette et le dessous approprié, de bonne qualité.

7 Notes Générales – Spécifications
a Spécifier l'ameublement fourni, assemblé et installé à l'emplacement définitif, tel qu'indiqué sur un dessin et tableau à moins que le client ait ses propres méthodes ;
b Spécifier l'enlèvement d'emballages et de débris, le nettoyage des éléments.
c Une clause couvrant l'entreposage per diem pourrait éviter des ennuis future.
d Du point de vue responsabilité et d'entretien plus tard, un nombre limité de fournisseurs est préférable.

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Murs Porteurs en Maçonnerie Pour Gratte-Ciels. par Douglas H. Lee,

Le système de murs porteurs en maçonnerie est un des plus anciens systèmes de structure connus. Il est donc intéressant qu'un des nouveaux devéloppements significatifs au Canada et aux Etats-Unis est son introduction dans la construction de gratte-ciels de douze à quatorze étages. Les murs porteurs indépendants en maçonnerie sont à peine plus épais que ceux employés avec les charpentes structurales.

Jusqu'en 1965, on pensait que la maçonnerie ne supporterait que trois ou quatres étages et qu'il fallait des murs excessivement épais pour supporter les édifices plus hauts. La maçonnerie était supportée invariablement sur une charpente d'acier ou de béton ; son rôle était nonstructural. Les codes du Bâtiment en vigueur dictaient ces règlements empiriques et l'épaisseur des murs rendaient leur emploi impracticable, comme par exemple, au Monadnock Building à Chicago où l'épaisseur des murs atteignait six pieds au niveau du sol. Il n'est pas surprenant que la charpente métallique a remplacé la maçonnerie.
La maçonnerie employée avec une charpente structurale sert comme rideau et remplisseur ; sa durabilité, son apparence, sa résistance au feu, ses caractéristiques thermiques et acoustiques rendent bien service mais sa résistance à la compression et au cisaillement n'est jamais assez exploitée. Sa haute densité ajoute aux poids propre ; l'usage de matériaux plus légers et d'assemblage plus rapide a donc été dévéloppé pour remplacer la maçonnerie en tant que matériau de mur rideau.

L'intérêt et les devéloppements récents au Canada ressortent probablement des nouvelles Provisions pour la Construction en Maçonnerie du Code National du Bâtiment du Canada 1965, uniques en Amérique du Nord, puisqu'elles permettent le dessin et l'analyse mécanique rationels des structures en maçonnerie et de leurs assemblages et admettent l'action composée des murs, planchers et toitures relatives à la résistance de l'édifice aux charges et forces externes. Puisque ce point de vue dépend de la résistance aux efforts des murs en maçonnerie, il est souvent désigné "la Construction de Murs Porteurs Résistants au Cisaillement" (Shear Wall Masonry Construction), ou "Construction Mécanique en Maçonnerie", (Engineered Masonry Construction).

Beaucoup d'ingénieurs-constructeurs ont été encouragés par ces révisions à porter leurs recherches sur le comportement fondamental des structures aux murs porteurs en maçonnerie. Un nombre impressionnant de grands édifices apparaissent en Ontario, l'épaisseur de leurs murs allant de 4 à 16 pouces, les matériaux employés étant de blocs en béton, briques en béton, briques ou tuiles en argile structurales.
La charpente d'un édifice à charpente structurale est conçue pour résister aux forces verticles et latérales ; les murs ou panneaux de maçonnerie d'un tel édifice n'ont rien à supporter sauf eux-mêmes et leur résistance latérale n'est que très peu considérée. Les murs et les planchers rigides et fixes d'un édifice cellulaire fournissent une résistance aux efforts. Ignorer cette caractéristique c'est gaspiller les capacités structurales de la maçonnerie, les capacitées d'insonorisation et de résistance au feu et à la transmission de bruit.

Ce concept de "Shear Wall Construction" est reconnu et accepté pour la construction d'édifices en béton armé. La structure porteuse et "shear wall" en béton a même remplacé la charpente structurale dans certains cas tels que les appartements de Tecton à High Point, Highgate, Londres, 1935.
L'usage est limité par deux raisons économiques : le coût élevé des coffrages et le coût des revêtements pour le béton apparent.

La construction contemporaine "porteuse" ou "Shear Wall" employée pour les grands édifices exploite la grande résistance en compression de la maçonnerie pour supporter les poids propres, comptant en même temps sur le comportement composé des murs, des plachers et des toitures pour fournir la stabilité latérale. La hauteur de ces édifices dépendra sur la résistance des murs à la compression et aux efforts dus au cisaillement, la nature et l'espacement des intersections des murs et des planchers, leurs méthodes de raccordement et la forme de l'édifice. L'épaisseur des murs dépend de leur capacité de résister aux charges en compression et pas de leur capacité de résister aux forces latérales par gravité, donc les murs pourraient être assez minces.
A part les changements dans le Code National du Bâtiment, il paraît que l'intérêt actuel porté à cette méthode de construction est dû aux faits suivants :
a Depuis quelques années, les fabricants de matériaux de maçonnerie encouragent l'usage de leurs produits. L'industrie en général, mais le "Structural Clay Products Institute of Washington D.C." en particulier ont faits des recherches considérables fournissant les renseignements nécessaires aux constructeurs.
b Des exemples de grands édifices construits par cette méthode en Europe ont été publiés et décrits par des journaux professionnels internationaux.
c Le redéveloppement de nos centres urbains et le besoin de résidences à haute densité, de résidences pour étudiants, de toutes sortes d'édifices cellulaires.
d Le coût de cette méthode de construction est moins élevé que le coût d'autres méthodes de construction d'édifices de hauteur comparable.
e Certains secteurs du pays manquent la main d'oeuvre spécialisée dans la construction en charpente acier et en béton armé, mais ne manquent pas de maçons. La nature et la situation des projets déjà complétés ou en construction témoignent l'intérêt porté à cette méthode : Ottawa 1964, 13 étages d'appartements ; Guelph 1965, 83 suites en 10 étages ; Kitchener 1966, 121 appartements en 11 étages ; et plusieurs autres en cours de construction.

Deux considérations majeures pour ceux qui s'intéressent à cette méthode de construction :
1 La Section Maçonnerie du Code National du Bâtiment 1965 permet le dessin et l'analyse rationnelle de la construction en murs porteurs en maçonnerie. Donc, cette méthode serait approuvée là où le Code a été adopté comme le Code officiel, mais une documentation sera requise avant l'approbation. Donc, ceux qui ont l'intention d'employer cette méthode devront être prêts à dépenser davantage pour le dessin et pour l'approbation.
2 La qualité de la construction en maçonnerie est critique. Les défauts de dessin ou de travail qui sont parfois tolérés dans les petits édifices ne peuvent être permis. Le choix et le calcul de la maçonnerie, de mortier et de détails de qualité ainsi que l'étroite surveillance des travaux sont essentiels à cette méthode. Il faut donc prévoir ces frais.

Introduction: Furniture in Architecture

by John Gallop, MRAIC

Mr Gallop has worked in Canada, USA and Hawaii. After six years as Architect in Charge of Interiors and Graphics with John B. Parkin Associates, last year he opened his own consulting office for interiors, graphics, color and product design.

It is unlikely that a successful furniture designer such as Charles Eames considers the type of building into which his furniture might be put other than considering the general limitations imposed by function – a stacking chair in a school, or a ganged seat in a terminal for example. Undoubtedly the reason his furniture fits so successfully into different buildings is that it solves its own problems so well.

However, there are many instances where furniture must be chosen or designed to solve a specific problem which is physically related to a building, and in which it is important that material or form must meet specific building requirements. But this, after all, is what interior design is all about. Where this integration of furniture is unsuccessful, it is where, in the interests of visual conformity, the furniture becomes miniature pieces of architecture. Square, flush buildings often have square flush desks and square flush chairs. Busy wood buildings often have busy wood pieces of furniture.

Saul Steinberg has justifiably satirized this non-functional view in his cartoons. In his drawings miniature businessmen come out of desk drawers that are buildings in miniature, so to speak.

Interior architecture is a pretentious phrase, but it is a good description of what at best should *be* the condition of interior space. There is no difficulty in describing a chair or a table or a sofa as a piece of furniture, but there is a grey area when one considers a library or a bank counter or shelving or even a carpet. It is furniture, but it is an inseparable part of the building, hence contributing to the quality of the *architecture*. Consider the conversation pit, or a theater with rows of seats; furniture here is an element of spatial formation. Library stacks which are 7' high and 40' long might be the only *perceptible* enclosing elements, thus this is an interior architecture. A carpet which may contribute color and texture to 25% to 40% of the surface of the room, or a drape which may modulate the quality of the light is an integral part of interior space.

Architects who have in the past designed interiors or furniture have done curious things. There have been "architectural" approaches to furniture design; the famous Rietveldt chair and the chairs of the de stijl movement were true to *aesthetic* principles – this often made extremely uncomfortable chairs. Some of the pieces of Charles Rennie Macintosh and of the Art Nouveau movement fall into the same category of handsome objects, but poor furniture. There are numerous examples of such "architectonic" solutions to furniture which, while they might be interesting in form or structure, or as uses of material, have no place as furniture. And such designs are not confined to examples from the past.

Furniture at best can compliment, and be integral with architecture. Japanese furniture is best in Japanese buildings, Indian furniture is best in Indian buildings, good old furniture looks best in good buildings, good new furniture looks best in good buildings. While this leads me to say something which might appear as a truism, that is, good furniture looks best in good buildings. This point is important in order to realize that it is not really necessary to put concrete furniture in concrete buildings or steel furniture in a steel building, or steel chairs with steel desks to "integrate the furniture". And anthropomorphic considerations after all, are, with respect to furniture, the prime considerations. If furniture is intended for use, then the function ought to determine looks; the contrary is, therefore, a contradiction in terms.

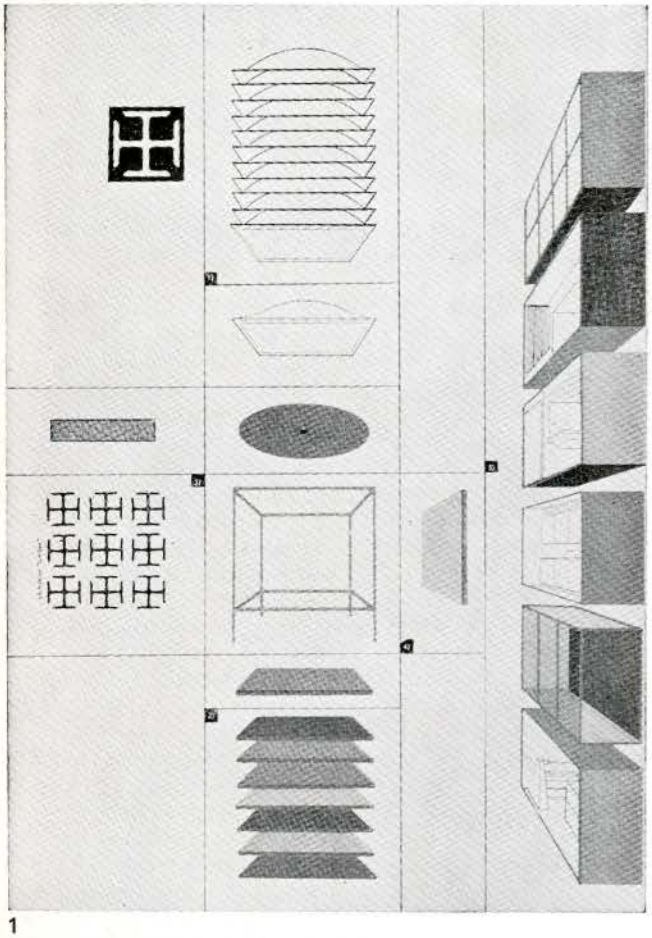
Furniture, it would appear, can be made out of anything. While we normally think in terms of the traditional materials, i.e. wood and steel used in traditional ways, the variety of applications of these materials besides the new materials now available has yielded an immense variety of furniture designs. The new vogue for the bentwood chairs designed in the 19th century, a combination of steam-bent beech and natural cane, (now usually substituted by the far more stable nylon cane), yields a variety of handsome, sturdy, and often comfortable chairs. Among the architects who have exploited new materials and techniques are Marcel Breuer, Mies Van der Rohe, and Charles Eames. Both Marcel Breuer and Mies Van der Rohe explored the qualities of steel tube and flat rod simply bent to exploit their tensile properties. Charles Eames original "Eames" chair of molded plywood used that material for every component. He also designed a companion children's chair, (since out of production) molded in one piece. A sculptor who works in wire, Harry Bertoia, has designed wire chairs.

The Hardey chair, the British Officers' Chair and the Directors' chair employ the tensile qualities of canvas in interesting variations. In countries where canes, bamboos and willow abound, wonderfully comfortable, and sometimes amusing pieces of furniture have been produced. Italians have made chairs moulded of plastic in one piece, by an injection method; Americans have made children's chairs of heavy paper. Furniture made of the new plastics – polyurethan, styrene acrylic – are yet to be produced, but clearly possess enormous potential in both design and production. Brazilians are experimenting with combinations of leather and wood, resulting in exotica not previously realized in those materials. A current Italian designer is combining elements until now only considered as separate pieces; lamps with chairs. These are less complex than one might have considered possible. An American designer is doing the reverse, making simple elements into complex artifacts. Herman Miller has produced a series of desks, "Action Office", which represents not a new look in desks, but a new approach to working. It is fortunate that in Canada there are furniture designers who are highly imaginative and skilled and who have been given the opportunity to solve problems from first principles. The furniture which results will, as a result, compliment the architecture of architects who are skilled, and who, in turn, also solve problems from first principles.

1, 2
An experimental house designed by George Nelson (1957) where the relation between furniture, architecture and industrial design is so close that dividing lines are impossible. It is an example of "design" and that's all. Number 1 shows a table of the standard components of the experimental house.

Une maison expérimentale créée par George Nelson (1957). La relation entre l'ameublement, l'architecture et le design industriel est tellement étroite qu'il est impossible de les distinguer. C'est un exemple du "design", et c'est tout. Numéro 1 montre une table ensemble avec des éléments dimensionnés standards de la maison expérimentale.

3, 4
Furniture or architecture?
Meubles ou architecture?
5
Again, furniture or architecture? "Living Tower" designed by Verner Panton, Germany
Encore une fois, meubles ou architecture? Une "tour à habiter", créée par Verner Panton, Allemagne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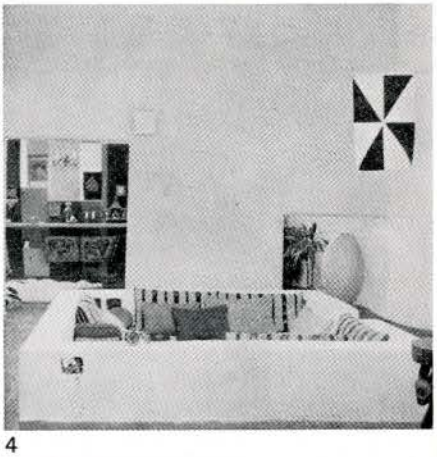
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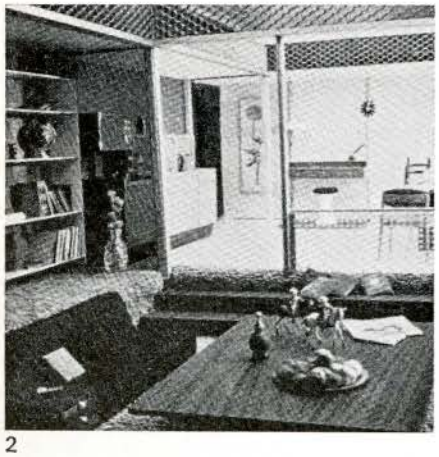
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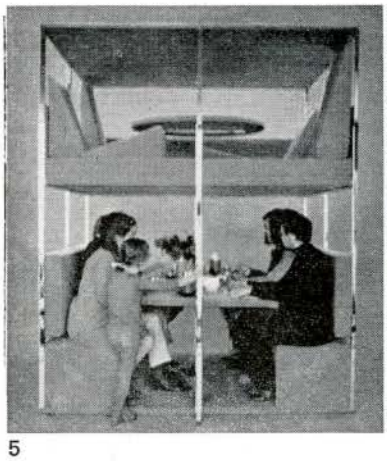
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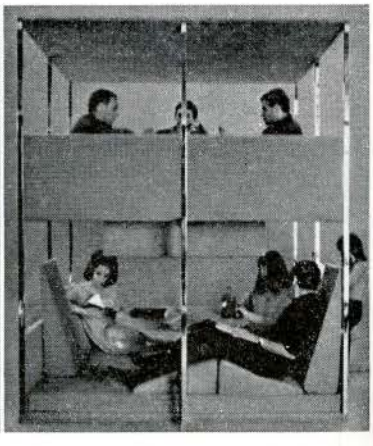


Some Notes on Selecting Commercial Furniture

1 Chairs

a Arm chairs take up a lot more room than side chairs, check that they adequately fit the space.

b Check that there is clearance between the top of the chair arms and the underside of the desk or table; a heavy table will sink into a carpet.

c Protect the walls with a chair rail or "wall saver legs"; these, however, tend to trip people in cramped conditions such as a lunch room.

d All the edges of the chair that come in contact with a desk, a wall or a person should be protected. The Herman Miller PVC strip which surrounds all the upholstered chairs is a good example.

e Square form chairs without adequate padding will damage desks or themselves. Upholstery in contact with hard surfaces will wear out.

f Hard arms, on a tilting chair, will damage a desk and scuff on contact with the underside of a desk.

g Arms get dirty fast, make sure they are replaceable or choose a material suitable for the use.

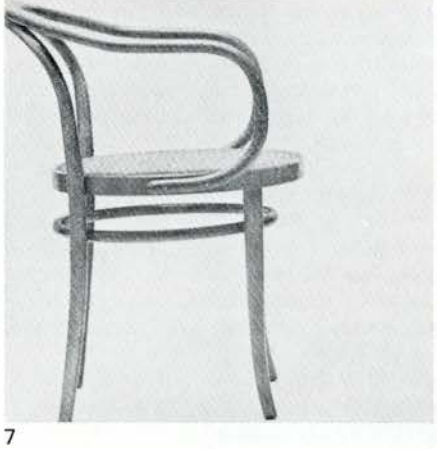
h Choose the right upholstery material. Nylon and vinyls give the best wear, vinyls are cheaper, but most don't breathe. Almost all chairs are available with a fabric seat and vinyl arms. Light colors show dirt rapidly. Soil repellants help, but are not permanently effective.

i Chair glides should be specified to suit the floor condition. Casters should be specified for tile or carpet. Plastic carpet protectors are ugly, but effective.

j Paint finishes will scratch off. Chrome, aluminum, stainless steel or bright zinc finishes last best, but polished chrome shows floor mopping and marks easily. Fibreglas wears well if it is of the best quality; fibreglas chairs should be carefully checked

6
French furniture by Oliver Mourgue
Meubles français par Oliver Mourgue
7
A bentwood armchair by Le Corbusier, 1925
Chaise autrichienne par Le Corbusier, 1925
8
An example of a desk which protects the chairs, the walls, the user and itself, all exposed edges are protected by plastic or polished chrome, damageable flat sheet panels are recessed, legs are round. Dynaform desk by Canadian Office and School Furniture, designed by Robin Bush.
Exemple d'un bureau qui protège les chaises, les murs, celui qui l'utilise et se protège soi-même. Tous les coins exposés sont protégés avec plastique ou acier chromé astiqué, les panneaux qui risquent d'être abimés sont enfoncés, les pieds sont ronds. Le bureau Dynaform peut être obtenu auprès du Canadian Office and School Furniture; créé par Robin Bush.
9
An all metal chair; steel tube legs and frame and an aluminum seat and back, designed by Hans Coray, Switzerland
Chaise en métal; les pieds et le cadre sont en tuyaux d'acier, le siège et le dos sont en aluminium, créée par Hans Coray, Suisse

6



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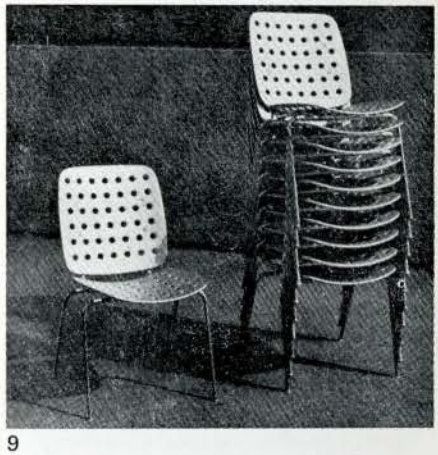

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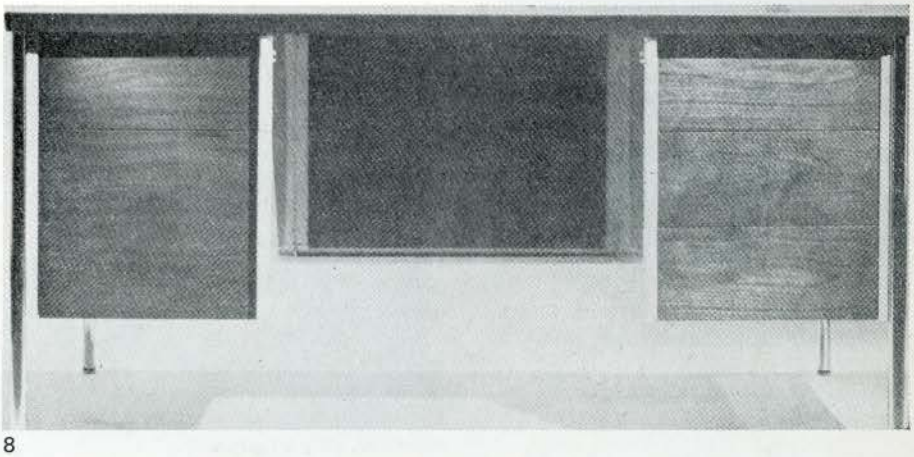

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10
A chair of aluminum and injection moulded plastic by Knoll Associates Inc. designed by Don Albinson, a former associate of Charles Eames
Chaise en aluminium et en plastique moulé, par Knoll Associés Inc., créée par Don Albinson
11
A chair of interlocking plywood panels and a chair of one piece of plywood split and rejoined to exploit its tensile and compressive characteristics, designed by Carol Russel
Une chaise en panneaux de contreplaqué emboîtés et une chaise d'une seule pièce de contreplaqué

especially with respect to shell/base connection. Natural dull wood finishes wear better than pigmented or glossy finishes.

k Upholstery fabric should be a part of the chair supplier's contract rather than a separate contract; this avoids the problem of establishing claims for flawed goods after the furniture is upholstered.

2 Desks

The number and type of drawers, the filing system, the accessories and dividers should be carefully investigated, and chosen according to need. A secretary knows more about her requirements than her employer.

a Glides should be easily adjustable.

b Inside edges of drawers and edge of desk top should be protected. The COSF Dynaform series, built some years ago, is a good example.

c As with chairs chromed legs are better than painted legs.

d An overhung edge provides protection and handgrip for lifting.

e Drawer pulls should be recessed or designed so as to be non-catching.

f Round legs offer and take less damage than square section legs. A recessed panel wears better than a flush panel.

g Check for possible means to conceal telephone and power lines.

h Desk colors should be chosen to wear well. Fashionable color or custom colors could be out of fashion when a later addition or replacement is made. Standard colors do not have that disadvantage.

i Desk lock should lock all drawers. Check that desk and credenzas are keyed alike.

j File drawer suspension should be full progression type.

k When comparing desks and costs check that you are comparing the same components.

3 Lounge Furniture

The requirements of a sofa for a student lounge will not be the same as a sofa for a VIP waiting room, factors relative to the expected life span should be considered.

a Glides should suit the flooring.

b Material should be appropriate to the use; french velvet might be ideal for the office of the president but vinyl might be more suitable for the Western Union boy in the lobby.

c The type of springing should be considered as well as the type of upholstery material. In many cases polyurethane foam over latex webbing may be a suitable and more economical solution than that of latex foam and coil springing.

4 Planting

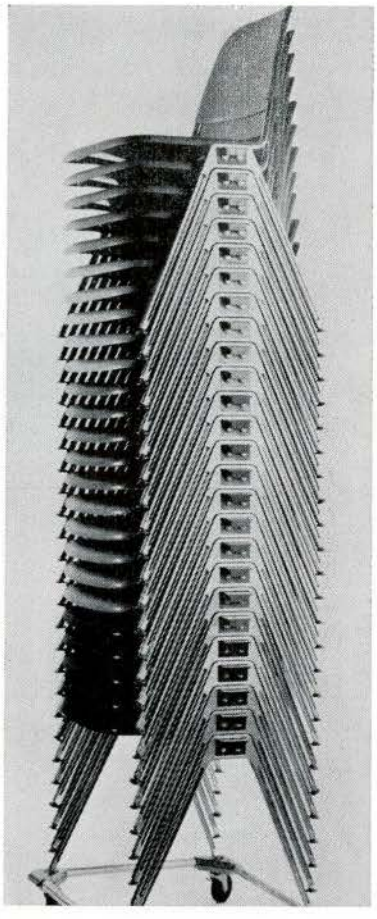
a Unless your client is Luther Burbank it is just as well to provide him with the hardiest least delicate plants available. A reputable greenhouse man will advise on plant container and will usually accept a maintenance contract as well. It is wise to have all aspects of planting from advice to maintenance handled by one supplier.

5 Draperies

a Supply, make-up and installation of draperies should be in one contract. It is difficult to assign responsibility where flawed material from one supplier is made up and hung by another.

b Ask for samples of make up and tract, check that you have sufficient space for fullness of drape, make provision for wood nailing.

c There are literally hundreds of fabrics, natural and man-made now on the market. Their quality and performance, as might be expected, vary enormously.



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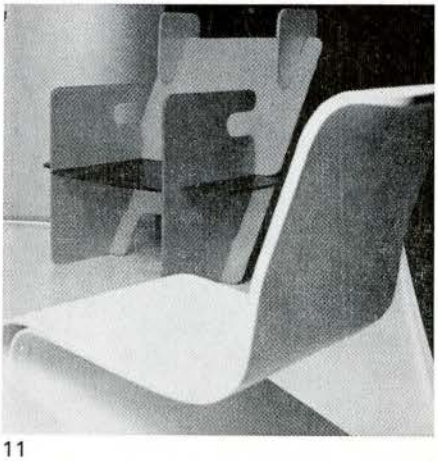

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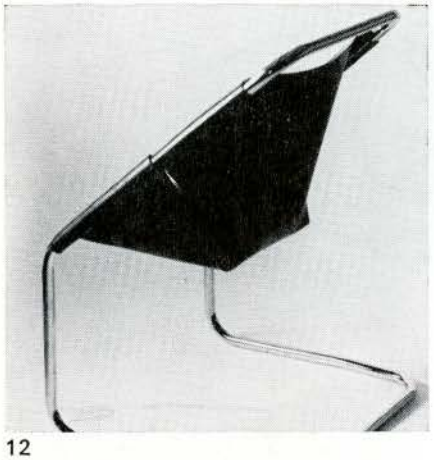
12
Metal and leather chair, designed by John Murray
Chaise en métal et en cuir, créé par John Murray
13
Karuselli chairs
Chaises Karuselli
14
A steel frame and cane seat and back in a wood frame, designed by Marcel Breuer, in 1928
Cadre en acier et siège en canne, et dos dans un cadre en bois, créé par Marcel Breuer
15
A steel chair with upholstered seat and back designed by Mies van der Rohe, the Brno chair by Knoll Associates, Inc.
Chaise en acier avec dos et siège tapissés, créée par Mies van der Rohe ; la chaise Brno par Knoll Associés, Inc.
16
"Action Office" by Herman Miller Inc., designed by Robert Propst and George Nelson
"Action Office", par Herman Miller Inc., créé par Robert Propst et George Nelson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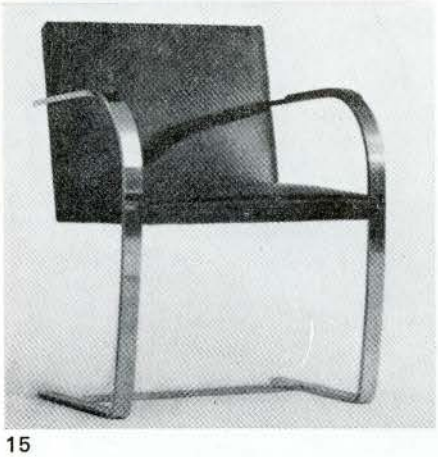
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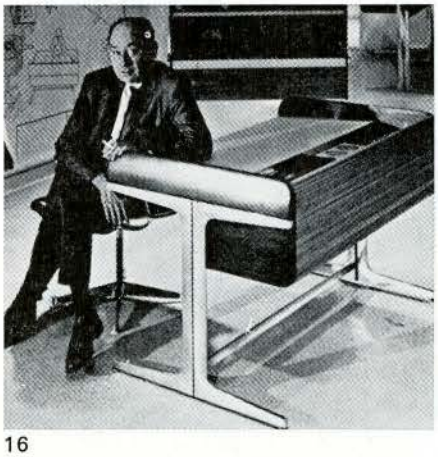
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d Ensure that your client has maintenance instructions.

e If the hanging is mechanized, check the installation with the contractor at an early date to make sure that access, motor location and service have been provided.

6 Carpet

a As in draperies a contractor who supplies and installs the carpet in one contract is more likely to examine the goods before installation.

b Specify the correct carpet and underpad for the job. Cheap domestic carpets won't stand up in commercial installations and many of the new synthetic carpets are designed for domestic use. The Canadian carpet mills are well qualified to advise on carpet specifications.

7 Some general notes on furniture specification

a Furniture should be specified as supplied, assembled and installed to an end location as laid out in a drawing and schedule unless the client has specific methods of handling furniture. This entails a good deal of co-ordination but it is a lot easier to assess damage claims and ensures correct delivery. There are firms whose job it is to place and service furniture.

b Specify the removal of wrapping and debris, the wiping clean of units.

c A clause asking for per diem storage rates may save some later headaches.

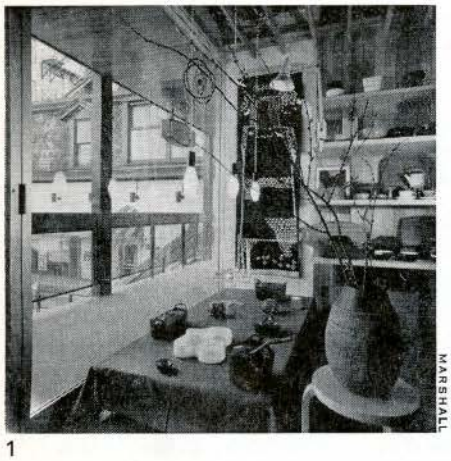
d From the point of view of assigning responsibility and later servicing, the smaller number of suppliers the better. □

Karelia Studio Ltd

Founded by Janus Kravis, B.Arch.

1
Lothian Mews Store
Boutique, Lothian Mews
2, 3
67 Front Street Store
Magasin à 67 Front Street
4
Marimekko print
Impression Marimekko

5
Beech chair
Chaise en hêtre
6
Artek chairs
Chaises Artek
7, 8
Artek Children's Furniture, Designer Pirkko Sterro
Meubles pour enfants Artek



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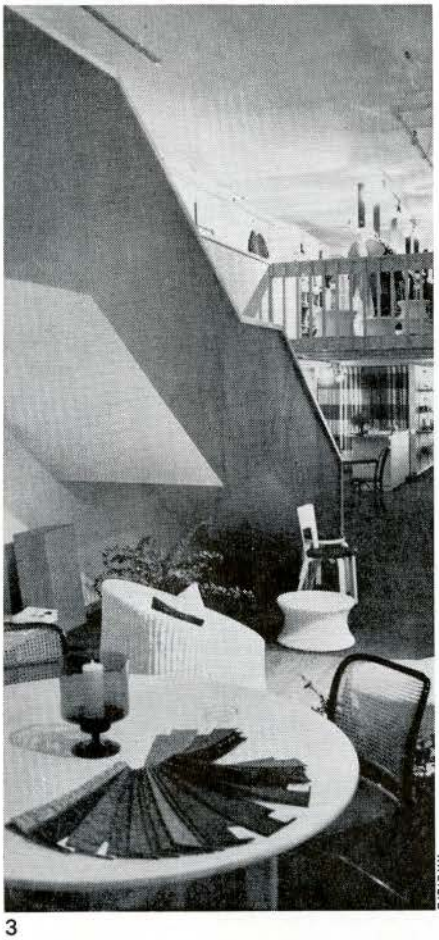

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6


7


8

Karelia Studio Limited, now at two locations in Toronto, was begun to provide a source of well-designed products for the Canadian consumer. Both a retail and a contract store, it is a place for exhibitions of industrial design as well as for distribution of products from all parts of the world. Merchandise includes contemporary lines of furniture, fabrics, lamps, kitchenware, china and glass for residential, commercial and contract interiors. The environment strived for in the store itself is one in which design is the unifying force. In these surroundings Karelia attempts, by making available products of a high design standard, to restate values which they feel have been obscured by clichés, fad and fashion.

Who Would Not Want to Work Together

by Jan Kuypers, ACID, APIDO

Mr Kuypers is Design Director of Dudas, Kuypers Rowan Ltd, Industrial Designers, Toronto.

If Industrial Design started with William Morris, then, certainly since then, Industrial Designers have wanted to work with architects and vice versa. And both groups were generally frustrated into being either Architect-Designers or Designer-Architects.

Architects could be defined as those who create specific pieces of environment, and designers as those who shape component parts of environment. Or, to paraphrase, designers create words – architects, sentences.
Confronted with Architecture, there are two arenas for designers:
(a) to provide complementary parts to an established environment, or
(b) to provide the component parts of which an environment can be created.

In the former arena, collaboration has been accepted and often quite successful. Design Collaborative's admirable developments for the Library at the University of Guelph is a good example. It is very satisfying to the Designer. He knows that what he is doing is to be part of a coherent totality, which compensates for a likely frustration that the design is probably so uniquely suitable that it is not suitable anywhere else. The Architect also is satisfied: the total environment has been enriched under his inspiring direction.

The latter arena of co-operation, the development by Designers of component parts of which an Architect can compose a specific environment, has been frustrating all the way. Architects can do little but wait for what Industry offers them, and are seldom delighted with the result.

Designers decry that they never can approach the problem but from a single industry's point of view. Though both parties realize that series of interlocking systems are required, neither is in a position to do much about it.

Amongst the few, small beginnings, the "furniture study" for the University of Guelph which Dudas Kuypers Rowan Ltd completed recently, should be rated. The "study" was conventional in its aspects that it tried to establish, in terms of function and space, the outfitting requirements of some repetitive areas of university buildings. These requirements were then translated, through design or selection, into terms of hardware.

The unconventional aspect was that these outfitting requirements are planned to be part of the architectural brief, and it is hoped that, through it, the requisites of need are recognized with an increased degree of finality, and integrated into the architectural concept. In its limited scope, this integration so far has been successful. The use value of spaces has certainly been increased, and the integration of outfitting and architecture is much better than usual, which is not difficult.

The danger of the limited scope is, of course, that the results can be too dictative, and not complete enough at the same time. On the one hand, if, in Toronto's City Hall, the concept and form language of the building made a special doorknob essential, does it follow that established storage equipment and chairs will dictate architectural concept? To a degree, perhaps, and it was felt by the University of Guelph, to be a desirable additional discipline in achieving cohesion on this campus. On the other hand, the line dividing building and outfitting can become awfully thin – at internal partitions for instance – and more integration seems not only possible but desirable.

In a larger framework with the conglomerate city environment in front of us, created by many Architects and many Designers, each concentrating on their individual challenges, the problem seems to be less of whether or not co-operation is desired, but in which manner it can be achieved. □

Design Proposal: Furniture and Furnishings University of Guelph Library

Design Collaborative Toronto Limited
Partner in charge: Al Faux
Consultants in Architecture: Hancock, Little, Calvert, Associates, Toronto

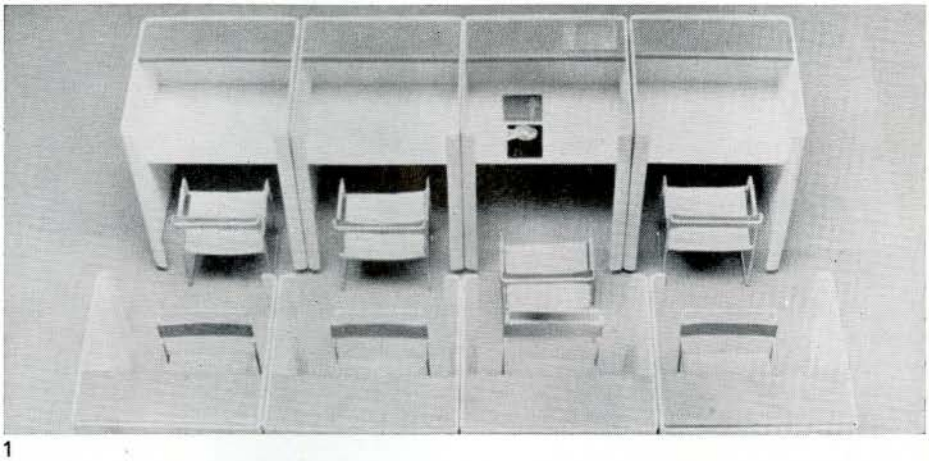
Mr Faux is a principal of Design Collaborative, consultants in industrial and graphic design. He is a graduate of Ryerson Polytechnical Institute, Toronto.

1 & 2
3 ft wide undergraduate study carrels, in back-to-back and front-to-front arrangements.
Pupitres, largeur 3', soit dos-à-dos ou face-à-face.
3
7 ft high stacks made up of two cases with adjustable shelves; bottom case 4 ft high, top case 3 ft, allowing other height combinations from 6 ft to 9 ft. Each section carries its own H-shape lamp unit (not shown), lighting both sides of stack.
4 ft unit converts to closed or open coat hanging or storage.
Réserves, hauteur 7', comprenant deux cadres à rayons réglables; celui du bas 4' de

The design proposal for the furniture for the University of Guelph Library was made in the form of ⅛ scale models. Production prototypes are at present being constructed for feasibility tests before the University decides to proceed to the final stages.
The Library is conceived as the central building on campus. Large flexible spaces within the building are planned by the architects to meet the constantly changing needs of the Library.
The importance of the furniture in an open building such as this cannot be overestimated, since the character of the furniture dominates the environment and creates the internal spatial relationships. The architects and furniture designers worked in close collaboration to ensure that the furniture complemented the interior. Lighting and planning were the result of joint consultations and full size mock-ups of furniture and column lighting were prepared to test the validity of the lighting system.
Architectural lighting, from ceiling boxes around columns, provides ambient light. Carrels and stacks are lit independently to create individual environments, so that each student has optimum lighting conditions as well as being contained in his own study environment, delineated by both carrel and lighting.

A grid of floor ducting satisfies the requirement of flexibility with electrical outlets provided over the entire floor. Carrel and stack lamps can be plugged in without need for an electrician. The requirement of mobility was satisfied in the physical design of the stacks and carrels: both can be shifted without elaborate equipment, and in minimum time, by the Library staff.
Study carrels account for the largest share of the total furniture budget of approximately one million dollars. 75% of the 5,000 study positions are carrels; tables account for the remaining 25%.

Undergraduate carrels are linked together in various back-to-back, front-to-front and front-to-back arrangements for choices of environment. Space from desk front to desk front is 5'. Aisle space is 3'. Size 3' x 3' x 4' high. Construction is from 7/16"



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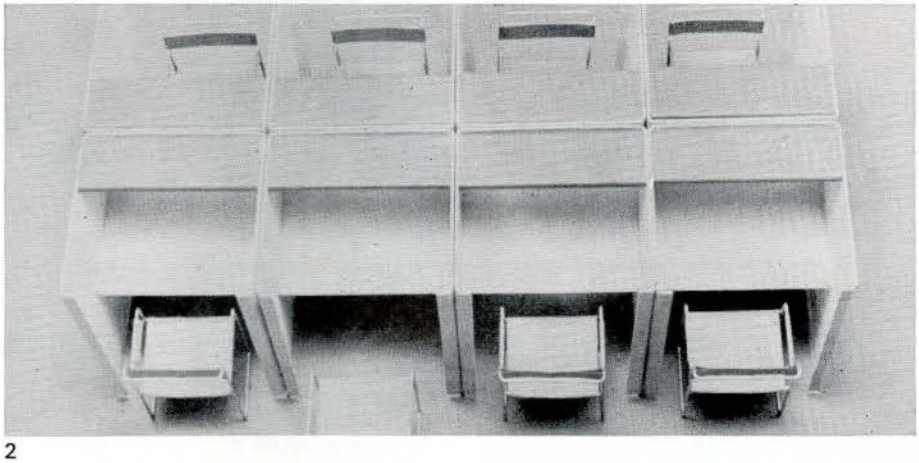

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moulded plywood in one piece, except for table top and lamp. Many finishes are being experimented with, such as vinyl and epoxy over birch ply. The entire carrel and desk surfaces will be off-white to give as much continuous inside shape as possible. The lamp on the model does not show the upward lighting component, a 3' baffled fluorescent tube.
Power source is taken from flush floor-mounting, up through the side of the carrel into one lamp and distributed across the rest.

The lamp shown had considerable study to determine best location to distribute light correctly over walls and desk top without glare, and to permit easy entry and exit from the carrel. The sheet metal construction of the lamp allows for the addition of audio-visual cable and grounded appliance outlet. Carrels are designed to make up a variety of study communities with emphasis on privacy and choice of space.

Cost of all furniture is to be within the price range of existing products of similar function. Initial pricing of proposed furniture suggests that these designs should fall well within the range of standard products.

The full value of a unified family of designs specially created for this particular building is difficult to estimate, but will obviously be an important factor in the functional and visual success of the entire building.□

hauteur ; celui du haut 3', permettant d'autres combinaisons de hauteurs allant de 6' à 9'. Chaque section porte son propre appareil d'éclairage en forme de H (pas indiqué) éclairant les deux côtés de la réserve. Le cadre de 4' se transforme en penderie ou en placard ouverts ou fermés.

4

Sloped shelf added to 3 ft or 4 ft stack section allows seated or standing index reference work. Lamp unit is same as used on stacks.

Etagère inclinée ajoutée à une section de réserve de 3' ou 4' permettant la consultation des fichiers de référence soit d'une position assise ou debout. L'appareil d'éclairage est le même que celui des réserves.

5

Inward-turning edges of the carrel strengthen edges, separate each carrel from the next psychologically.

Le rebord des côtés de pupitre renforce les côtés et offre une séparation psychologique des pupitres.

6

Study tables are used at perimeter of building, where there is overhead light source.

Disposition des tables d'études au périmètre de la bibliothèque, là où se troube l'éclairage vertical.

7

Height of the carrels allows homing in library but allows privacy.

La hauteur des pupitres permet un aménagement particulier avec un peu de retraite.

8

Carrel bank, rear view.

Rangée de pupitres, vue postérieure.

9

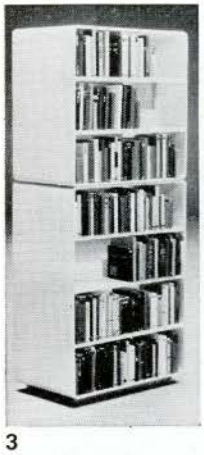
Ganging two 4 ft wide graduate carrels.

Groupement de deux pupitres de 4' pour diplomés.

10

Secretarial desk uses same forming dies as other furniture. Front panel of desk returns underneath as convenience shelf for typist.

Bureau de secrétaire formé de la même matrice que les autres meubles. Le panneau d'avant se retourne en dessous pour former une étagère.



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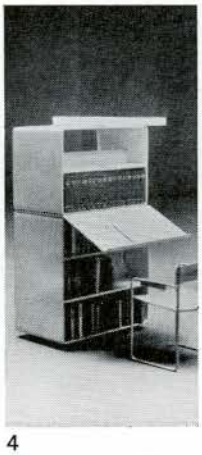

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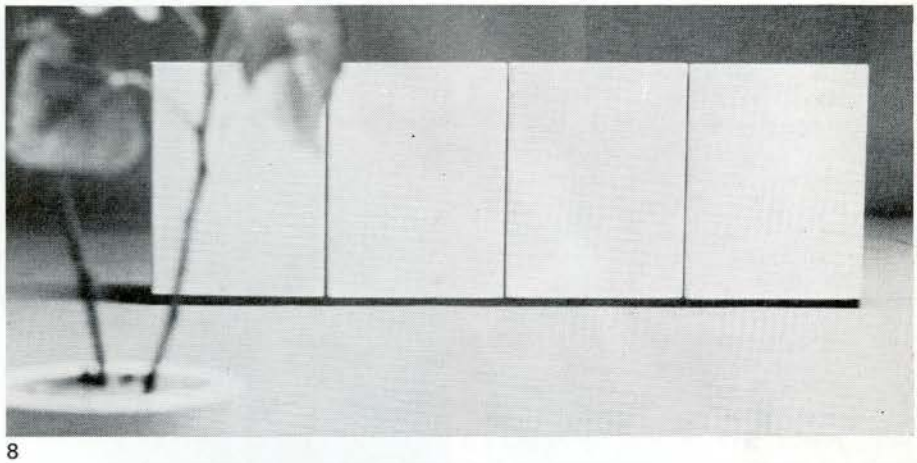

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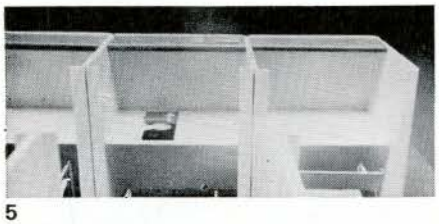

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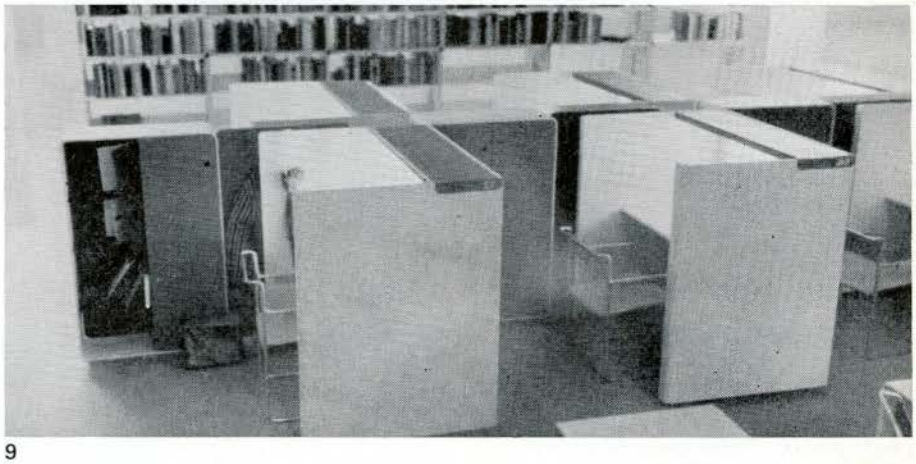

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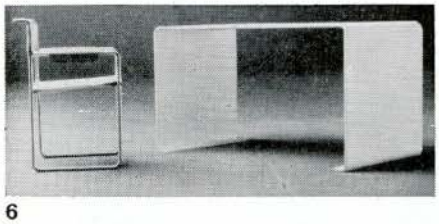

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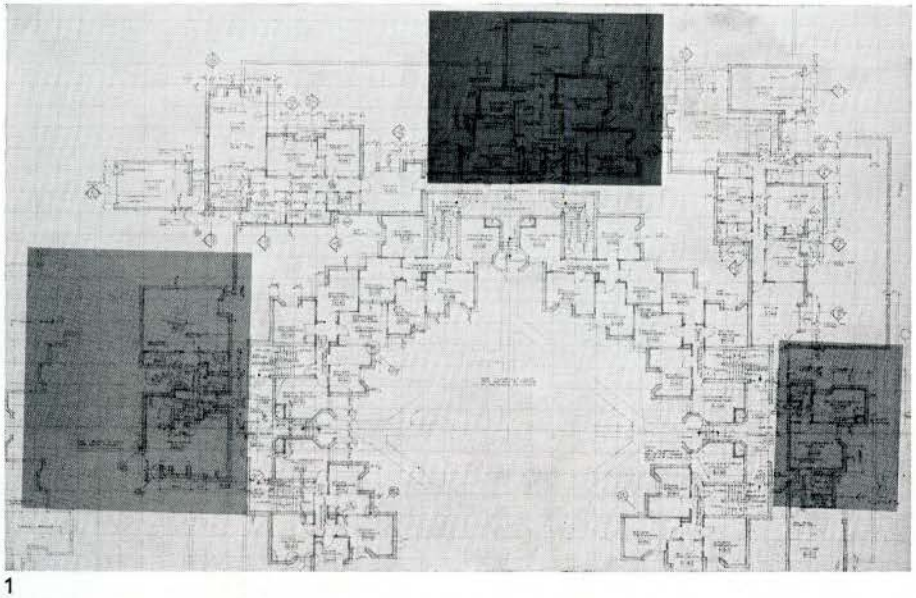
Interior Planning

1
Shaded areas indicate to client the area under discussion
Les aires plus foncées montrent au client l'aire en discussion

by R. J. Thom, MRAIC

Mr Thom is the Toronto Partner in the Architectural firm of Thompson Berwick and Pratt.



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Many of today's projects are large and complicated enough to necessitate the involvement of more than a single person or even a single group. For reasons of time and the need for people with specialized skills and knowledge, it is not uncommon for a single building to require in addition to architects; planners, a host of engineers, statisticians, building construction experts, quantity surveyors, industrial designers graphic designers and others. For these circumstances it is obvious that very strong ties must exist between all parts if the end result is to be coherent.

In most buildings it is the interior space, what happens to it, and everything associated with it that creates the significant environment. Interior space is implicitly or explicitly stated in the design of the building.

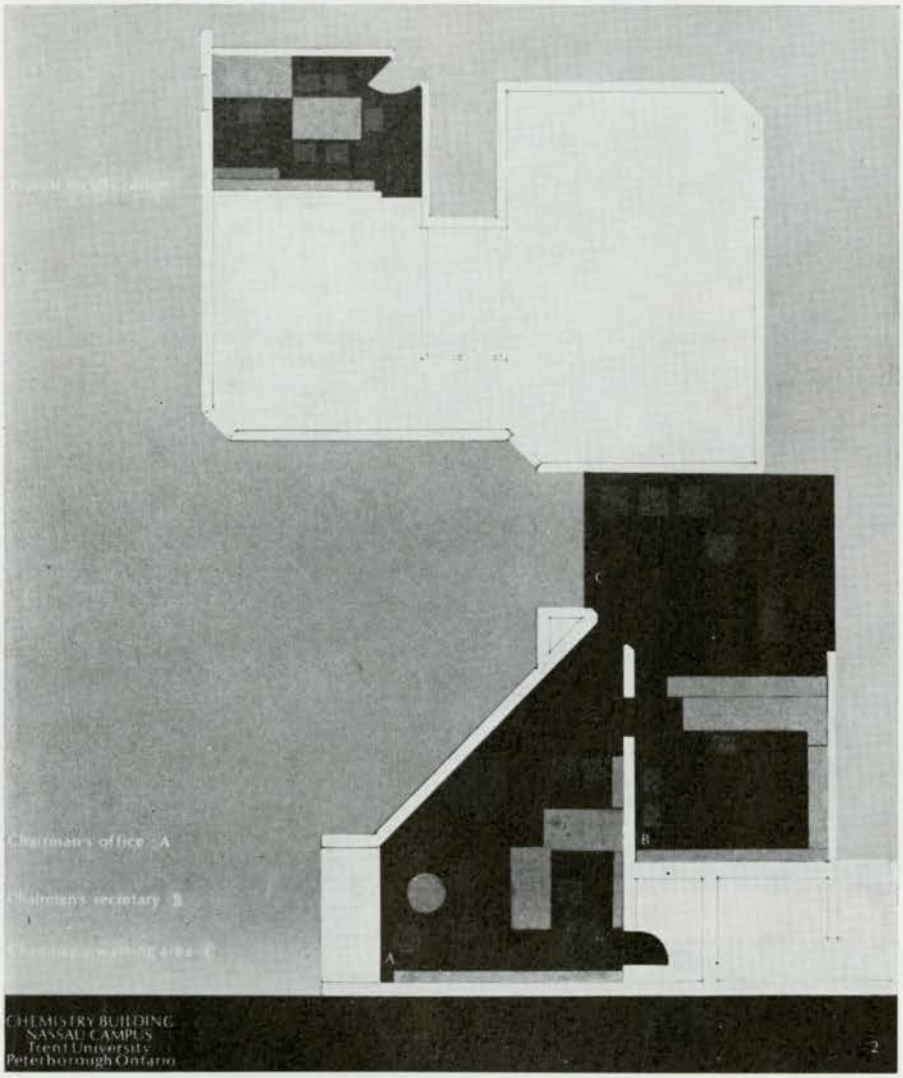
Building form, pattern, structure are one and the same as interior space – one the function of the other. To assume a different attitude in one or the other is arbitrary. For most buildings this is the case, although there are notable exceptions. For example, during the planning of an office building interior space is considered anonymous. This kind of space is deliberately created as a canvas on which almost anything can be painted. Therefore is it reasonable for a building to be conceived and executed with no consideration given to the quality and effect of its interior until another group takes over, after the fact, and "decorates" it? In fact, the opposite must happen. For any building to be more than an arbitrary piece of eclecticism, it must begin in the most supple way and be kept free as long as possible during its development to feel the effects of every force acting on it. It is only these forces that create the thing called "character" in a building, just as it is mostly the forces acting on a human being from birth that creates his uniqueness.

The demands of interior spaces are one such force. It is essential that they be studied in part, and that their special needs be allowed to make demands on the design of the whole. This extends also to furniture. It is difficult to see how some spaces could ever be intelligently planned without the furniture being planned at the same time.

To this end, in architectural offices having a group within whose sole concern is "space planning" – furniture or industrial design, and so called interior design – nothing is gained in this direction if they function separately from the "architects" by taking over plans after the building is a *fait complet*, and proceeding in the manner of a decorating shop. They must work simultaneously. Their work must be allowed when necessary to affect the work of the architects. Mainly, they must be in constant and continuous contact to such an extent that they in fact become an extension of the architect in the same sense that the engineer becomes an extension in another direction. Like everything, this is easier to state in theory than it is to put into practice. However, as exists between most engineers and most architects, a mutual dependance does in time appear.

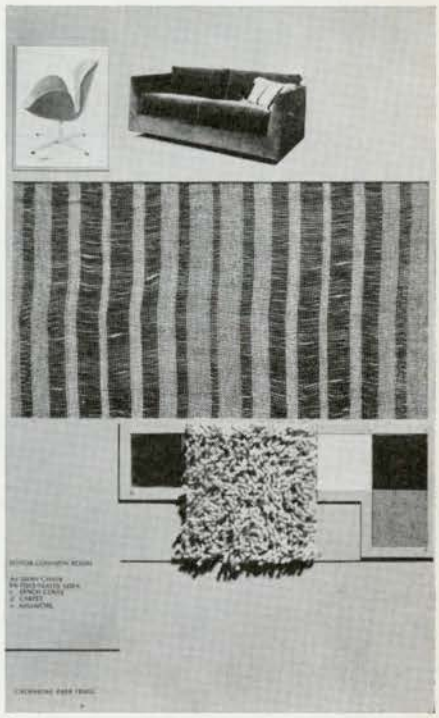
Since everyone of every discipline is acting on the development of a building simultaneously, it follows that exchanges between the client or the owner and the consultants will be involved with all facets as well. In this way individual parts are discussed in context. This tends to reduce the number of arbitrary decisions on the client's part.

2
Presentation of interior space planning
Présentation du planning de l'espace intérieur



2

3
Collage showing juxtaposition of color and materials
Collage montrant la juxtaposition de couleur et matériaux



3

Presentations of interior space planning and furniture design then become more a part of architectural presentations. Thus affecting the nature of presentation itself.

The presentations concentrate on showing space planning in a fairly abstract manner (**2**). The client can easily move from the planning rational of the building into this. This procedure has the reverse effect of explaining the building planning.

Then collages are made, using actual materials where possible, showing the juxtaposition of color and materials. This too is best done abstractly (**3**). A final step is for the client to see samples of the actual furniture itself.

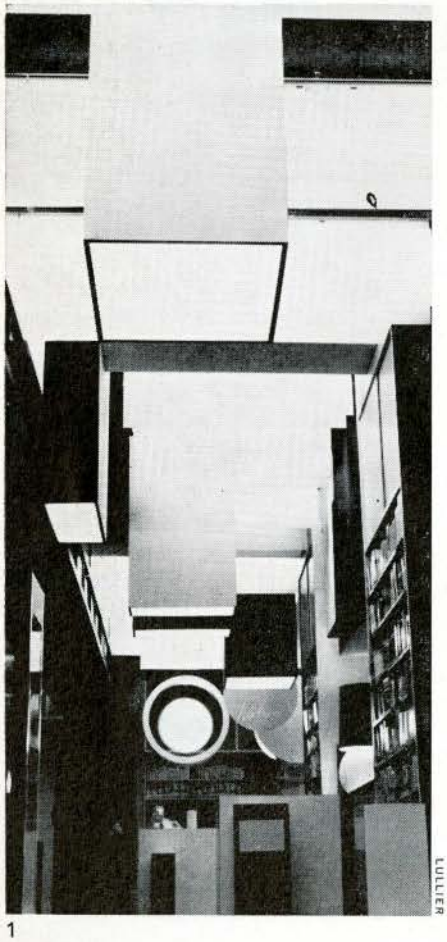
Where situations are too complicated for metal reconstruction of this information by either the consultants or the clients, models are used. But this has been found to be seldom necessary for presentation, because everyone, including the client, has by now gone step by step through the entire process. In this way the client has become more involved in the process that lies behind furniture planning or furniture design than he ever would by being presented with a wet watercolor of an accomplished end result. □

"Le Drug" and A Coffee House, Montreal

1
"Le Drug"
2, 3
A Coffee House
Un Café

MAX

François Dallegret



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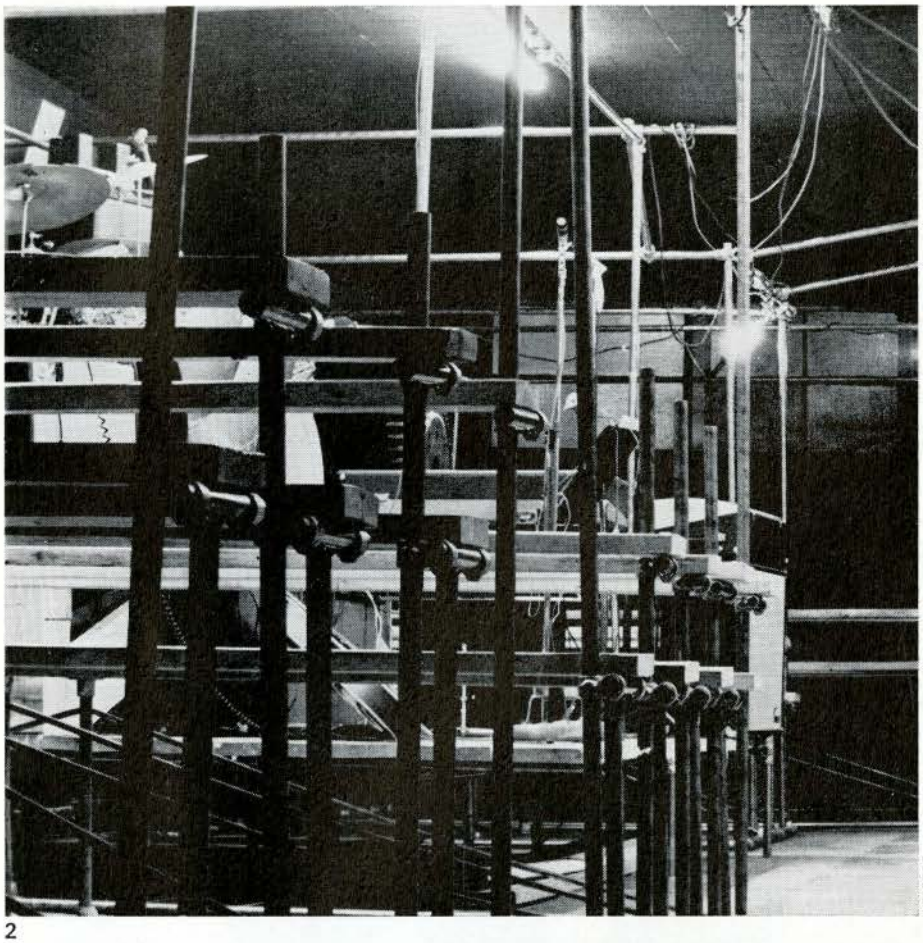

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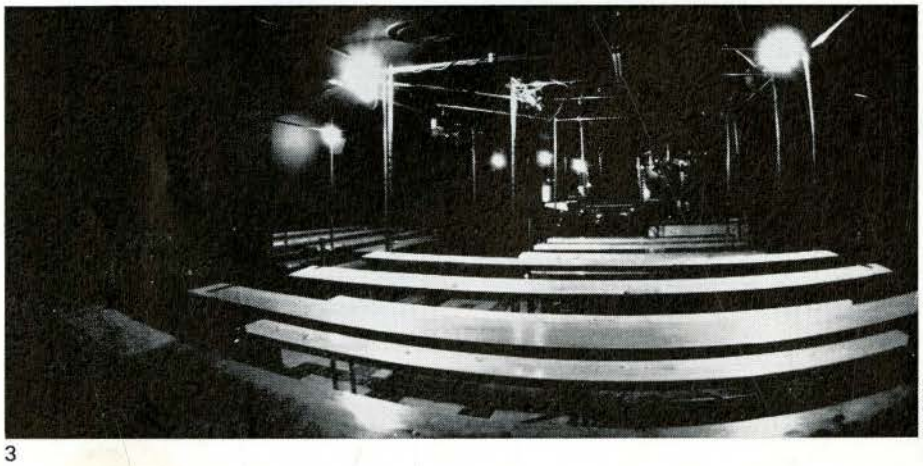
2



LULLIER

3

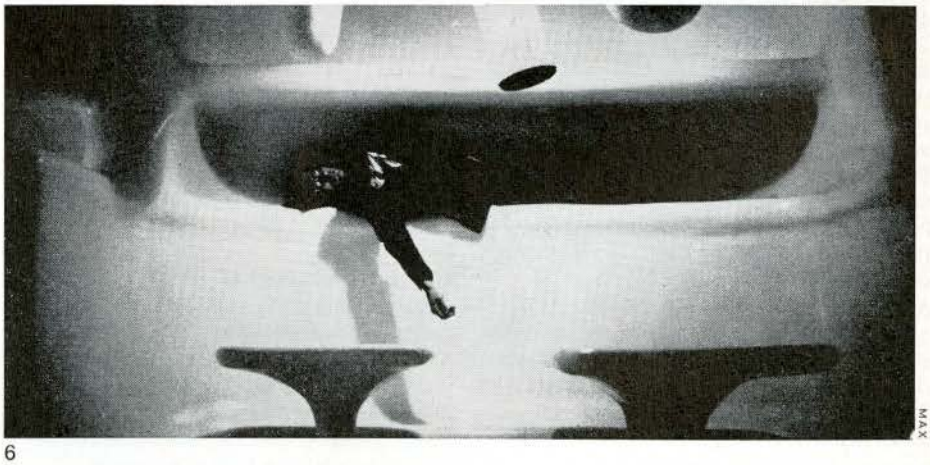
4, 5, 6
"Le Drug", Café

MASSENET

4

MASSENET

5



MAX

6

Masonry Bearing Wall Construction For Tall Buildings

This article is based on a report prepared by Professor Lee for the Ontario Concrete Block Association

by Douglas H. Lee, B.Arch, M.Sc., MRAIC ARIBA

Bearing wall masonry is one of the oldest structural systems known. It is interesting, therefore, that one of the most significant new structural developments in Canada and the United States has been the introduction of bearing wall masonry for the construction of tall buildings. During the past two years there have been designed and built in North America a number of apartment and other residential type structures of heights up to twelve and fourteen storeys. These buildings employ self-supporting masonry bearing walls which are hardly thicker than those used in conjunction with structural frames.

That such structures are possible may come as a surprise to many designers for until 1965 it was customary to think of masonry construction only for buildings up to three or four storeys high. For higher buildings the walls at the lower floors became excessively thick. When masonry was used in tall buildings it invariably was supported on a skeleton framework of steel or concrete and played a non-structural role.

Such limits to our thinking grew out of the empirical rules for masonry design found in most building codes. When tall buildings of masonry bearing wall construction were designed according to these codes the walls became so thick as to make masonry systems totally impractical. The classic and well documented example of this was the Monadnock Building of Chicago. Erected in 1891 it was a building of sixteen storeys employing a masonry bearing wall structural system. Because the exterior walls had to provide within themselves sufficient stability through gravity to withstand all lateral and vertical loads they accordingly increased in thickness as the building approached the ground. Starting at twelve inches at the top they added four inch increments at each floor becoming six feet thick at the ground. The implications of such wall thicknesses explain the eventual disappearance of masonry bearing wall construction for tall buildings and the subsequent domination of this field by the skeleton frame.

When masonry is used in conjunction with a structural skeleton it serves only as a curtain and infilling material which is either hung on the frame or set within the structural framework. Employed in this way designers can take advantage of the durability, appearance, fire resistance, thermal and acoustic characteristics of masonry. At the same time full use is not made of the substantial compressive and shear strengths of the material. The generally high densities of masonry constructions add substantially to the dead loads to be carried by the structural frame, and it can be appreciated why many lighter materials and assemblies have been developed and promoted to replace masonry as a curtain wall material.

Revival of Interest in Bearing Wall Masonry

It is probably fair to say that in Canada the current interest and developments in bearing wall masonry construction have grown out of the new Provisions for Masonry Construction of the National Building Code of Canada 1965. This Code which has been adopted by many municipalities throughout the country is probably unique in North America for while it calls for masonry design to be based upon empirical rules which are furnished in the Code, at the same time it allows for rational engineering design and analysis of masonry structures. The latter permits more and better use to be made of the structural properties of masonry units and their assemblies and enables the composite action of wall, floor and roof constructions to be considered in a building's resistance to external loads and forces. Because this approach oftentimes depends upon the strength in shear of masonry walls it has on occasions been referred to as "Shear Wall Masonry Construction". Since it involves engineering design and analysis it has also been called "Engineered Masonry Construction".

The revisions in the National Building Code 1965 have encouraged many structural designers to investigate more fully the fundamental behavior of masonry bearing wall structures. Since the Code was published a significant number of tall buildings using masonry bearing wall construction have been built or are under construction in various parts of Ontario. Wall thicknesses of these buildings vary from four to sixteen inches. Masonry materials used include Concrete Block, Concrete Brick, Structural Clay Brick, Structural Clay Tile and combinations of all these.

Masonry Walls in Structural Frameworks

The characteristics of tall buildings of masonry bearing wall construction may best be illustrated by first considering multi-storey buildings which employ structural frames. In these structures the framework is designed to withstand vertical and lateral forces to which the building may be subjected. The masonry walls or panels set within the framework work only to support themselves, and little credit is given to the lateral stiffness which they contribute to the structure. In multi-cellular buildings such as apartments fixed masonry walls and rigid floors provide closely spaced and permanent shear planes within the structure. To ignore these in the design is particularly wasteful of the structural capabilities of masonry materials notwithstanding that masonry walls and partitions provide a high degree of sound absorption and resistance to sound transmissions and fire.

Shear Wall Construction in Monolithic Concrete

The concept of "Shear Wall Construction" has long been recognized and accepted in the design of Reinforced Concrete Buildings. The strengths in compression and shear of reinforced concrete are well established and have been derived from experience and the results of considerable testing and research. Consequently many tall buildings exploit the three-dimensional rigidity of cellular structures in monolithic concrete and for certain building conditions concrete bearing and shear wall structures have replaced the structural frame. The Block of Flats at High Point, Highgate, in London, England, designed by Tecton and built in 1935 is an example that is well known to students of Architecture.

But while multi-storey shear wall buildings of

monolithic concrete are accepted in practice two economic factors tend to discourage their use.

1 Formwork costs with poured concrete construction can be substantial.

2 When exposed concrete is not acceptable as a finish material, this structural material must then be faced with another.

Because of this it would appear that as a structural system for tall multi-cellular buildings bearing wall masonry can offer some distinct advantages.

Masonry "Bearing Wall" Construction

Contemporary "Bearing" or "Shear Wall" construction when used on tall buildings makes use of the great strength of masonry in compression to support gravity loads. At the same time it relies on the composite behavior of wall, floor and roof planes to provide lateral stability. The heights to which such buildings can reach will depend upon the strength of the masonry walls in compression and shear, the nature and spacing of intersection wall and floor planes, their means of connection to each other and the shape of the building.

The thickness of walls need not be great since they are determined largely by their ability to resist loads in compression and not by their ability to resist lateral forces through gravity. By changing the type and strength of masonry and mortar to meet the varying compression and shear requirements at different levels, the variations in wall thickness throughout the height of the building can be minimized. This has been carried out in practice in the United Kingdom, however, in Canada it seems to be a refinement which has not yet been considered practical.

Shear walls can be used in conjunction with a variety of floor and roof construction which are capable of providing the necessary stiffness and transfer of lateral forces. In practice they have included poured-in-place reinforced concrete slabs, precast slabs, thin poured concrete slabs on permanent steel pans and joist supports and thin poured concrete slabs on precast concrete slab forms.

Other Reasons for Interest

Besides the changes in the National Building Code 1965 the current interest in bearing wall masonry construction would appear to be generated by the following events:

A A concerted attempt over the past few years has been made by manufacturers of masonry materials to encourage more and improved use of their products. Considerable research into masonry bearing wall has been carried out by the masonry industry and particularly those segments represented by the Structural Clay Products Institute in Washington, D.C. Their research activities have provided to a large extent the background information upon which much of the current methods for bearing wall masonry design and analysis are based. The First National Brick and Tile Bearing Wall Conference sponsored by that Institute in Pittsburgh May, 1965 helped to make known to Architects and Engineers the possibilites of masonry bearing wall construction in the United States and to some extent in Canada. This was accomplished despite the fact that there were at that time very few examples of these buildings in the United States.

B There has been a greater awareness of examples of tall buildings employing masonry bearing wall construction which have been built in Switzerland, Denmark and the United Kingdom. Descriptions of their design and construction have been published in Professional Journals throughout the world. In Canada they have been brought to the attention of Architects and Engineers largely through the efforts of the Canadian Structural Clay Association. The knowledge of successful European precedents undoubtedly have encouraged the interest of Canadian Designers in this method.

C During the past few years there has been considerable interest in the design and construction of high rise residential buildings. This has come about due to the public's concern for redevelopment of our urban areas and the need for residential buildings of higher density. The construction of public and private housing, student residences and Old Folks Homes and other cellular type buildings have become major projects in our cities and towns. The advantages claimed for masonry bearing wall construction for such buildings and the possibilities for its use are being investigated with interest.

D Cost savings have been claimed for bearing wall masonry over other currently accepted structural systems for buildings of comparable heights. This appears to be the most important reason for the current interest of apartment developers and builders in the system. The elimination of structural frameworks suggest definite economies. Cost advantages can be significant in respect of the mortgage financing of large projects particularly during the early stages of development of the structural system.

E In certain parts of the country the availability of masons coupled with a scarcity of experienced technicians of structural steel and reinforced concrete constructions have made bearing wall masonry construction particularly attractive. In some areas it may be the only way to build a tall building employing local tradesmen. It would appear to be a simple step from building single family bearing wall masonry dwellings to constructing a multi-storey bearing wall structure containing a number of units. However erroneous this thinking may be, it has encouraged some builders of single family dwellings to look into the possibility of building multi-storey apartments.

Buildings in Canada

The nature and locations of building projects completed or under construction in Canada at this time will attest to the wide interest in this method. In Ottawa 260 apartment units were erected in 1964 in a 13-storey Y-shaped building employing concrete masonry interior bearing walls and a combination of clay brick and concrete masonry exterior walls. In Guelph a 10-storey building containing 83 suites was completed in 1965 using concrete masonry bearing walls. In Kitchener an 11-storey concrete masonry building

containing 121 apartment suites was completed this year. In Oshawa a 10-storey building containing 142 apartment units is scheduled for construction this autumn. In Cooksville two 7-storey buildings containing 102 and 95 units are being completed. In Scarborough a 7-storey building containing 58 units has recently been approved for construction. In addition to these apartments a 7-storey Old Folks Home is planned for construction in Montreal as well as a Students Residence of 6 storeys. Structural clay masonry is to be used on these last two buildings as well as on a 14-storey apartment building of 120 units in Niagara Falls to be constructed early next year.

Two Considerations

As with any new construction technique there are a number of considerations accompanying bearing wall masonry of which all who would design, build or commission such buildings should be aware. Two of these are:

1 The rational design and analysis of masonry bearing wall construction is permitted by the masonry section of the National Building Code 1965.

Accordingly, it is more likely that masonry bearing wall buildings will be approved for construction in those areas where the National Building Code has been adopted as the official Building Code. Since this method of construction is comparatively new to building officials, it is to be expected that documentation of structural design and analysis will be required for construction approval. Anyone proposing its use, particularly during the early life of the system should be prepared to invest more time and more money for design and obtaining building approvals than with better known conventional systems.

2 Because the total structural stability of the building is derived from strength and interaction of the connecting wall and floor planes the quality of masonry construction is critical to the safety of the building. Flaws in masonry design and workmanship which may be tolerated in low bearing wall buildings or in buildings where the masonry is attached to a structural frame cannot be permitted in tall masonry bearing wall buildings. The careful selection and design of masonry, mortar and details and the close supervision of masonry workmanship are essential to this system of construction. The costs of such services must be provided for in the cost of the project. □

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CANADIAN
BUILDING DIGEST

DIVISION OF BUILDING RESEARCH • NATIONAL RESEARCH COUNCIL CANADA

Some Implications of the Properties of Wood

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

UDC 691.11

Many of the applications and the practices in the use of wood have become established through long experience. This basis for predicting performance can be inadequate or even misleading when conditions of use are changed or new applications are involved, unless the reasons for satisfactory past performance can be identified and related to new situations. It is thus important with wood, as with other materials, to understand basic properties and their implications in use in order to be able to select and to design with confidence that the desired results will be obtained. Some basic characteristics of wood were described in CBD 85; the implications of these will now be discussed in more detail.

Strength Properties

It is well worth repeating that the outstanding characteristic of wood, apart from its general availability, workability and relatively low cost, is its ability to withstand both tensile and compressive stresses along the grain. It can thus withstand bending loads, and it is this capability that makes it unique among natural structural materials and has always contributed greatly to its value as a natural resource. As this superior strength in tension and compression is along the grain, the length of the structural members obtainable is limited only by the height of the tree or by the length of log that can be handled. The appropriateness of the diameter to length ratio, which often means that the whole trunk can be used as a structural member, is a reflection of the natural function of the trunk in supporting the tree.

The markedly reduced strength properties across the grain and in shear along it introduce some interesting features to the use of wood for general structural purposes. While these are well recognized and are taken into account in timber engineering practice, it is well to review some of them in the interests of understanding wood. Wood columns themselves present little problem since they can carry axial compression well. When high concentrated loads are transferred to wood sills, plates or beams, local crushing in the cross-grain direction becomes a possibility and must always be checked in view of the reduced compressive strength in this direction.

Short wood beams, which can because of their short span carry high transverse loads and consequently have high induced shear stresses, must be checked for horizontal shear failure in the long-grain direction. The proportionately low shear strength along the grain also makes it necessary to design carefully when exploiting the generally excellent tensile properties of wood in tension members because complications are introduced into the transfer of end loads. Splices in tension members and on the tension side of beams require similar attention. Long-scarf joints or finger joints or relatively long gusset or splice plates become necessary in order to provide the areas necessary for load transfer by shear. For the same reason bolts or nails used in such fastenings must always be located at adequate distances from the ends of the members. Joints made with patented devices such as ring connectors are designed to involve relatively large shear areas along the grain for load transfer. When

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large tension loads must be transferred at an angle to one member, it is usually necessary to use intermediate elements such as gusset plates to assist in distributing the load without exceeding the permissible stresses in tension across the grain.

It has already been indicated in the preceding Digest that the normal working stresses in structural applications must be substantially reduced from the basic values for the species obtained from clear, air-dried specimens, because of such defects as knots and checks in commercial sizes and grades of timber. It is often desirable to differentiate further through adjustments in the allowable stresses between long-time and short-time load applications. There can be appreciable deformation with time, and failure can occur at lower loads when these are to be resisted continuously over long periods. Correspondingly, higher loads can be carried over short periods. This tendency under stress for continuing deformation, or creep, which occurs under certain conditions with most materials, is not always a disadvantage. It can lead to some desirable relief of stresses such as are caused by changes in moisture content.

Dimensional Changes due to Moisture

The most significant effect of moisture content on wood is related to the dimensional changes that take place with changes in moisture content. The marked difference between small moisture-induced movements along the grain and those across the grain introduces some important considerations.

It may be recalled that shrinkage along the grain, upon drying from a fibre saturation level of about 30 per cent to oven-dry, may be only about 0.1 per cent, while that across the grain can be of the order of 5 per cent, the shrinkage in the tangential direction being greater than that in the radial direction. Such an extreme range in moisture content is not normally to be expected in service, but wood put in place at a relatively high moisture content of say 19 per cent could readily dry in place to a moisture content of 5 per cent or even less (depending on the average relative humidity to which it is exposed), thus shrinking as much as 2½ per cent or ¼ inch in the width of a 10-inch board.

Fortunately the corresponding change along the grain, that is, along the length of the board, will only be about 1/50 of this amount. If this were not so, all structures made of wood could vary in their principal dimensions owing to moisture content changes in service by unacceptably high amounts and it would be impossible to combine wood satisfactorily with other materials. Consider, for example, the situation if the length of framing members in a house changed by 1½ per cent, or 2 inches in 10 feet, with changes in moisture content from 15 to 5 per cent.

The fact that such changes occur in cross-grain directions is significant, however, and must always be kept in mind. The walls of the traditional log cabin provide one example, but there are also contemporary constructions of solid wood in which the cross-grain dimensional change may be a major consideration. Walls made by placing logs or planks horizontally so that they bear on one another in resisting vertical loads can change in height by one or more inches per storey as the wood expands and contracts across the grain with changes in moisture content. This may be of little consequence when the wall consists of only logs or planks and the structure is a simple one. When other members are attached to the wall, however, many complications can arise. Interior partitions fastened structurally to the outside wall may not change by similar amounts or at the same time as the exterior wall. The vertical members of window and door frames and any other vertical members built into the wall do not change in the same way and must be provided with suitable clearances to avoid having the logs or planks pried apart when shrinkage takes place. If this is not done all such members may be heavily loaded when shrinkage takes place. Vertical boarding applied as sheathing or cladding either inside or out is unlikely to shrink and expand exactly in accordance with the basic log structure; it must always be specially arranged to avoid the conflict from differential changes in dimension if potential difficulties are to be avoided.

It should be appreciated that every application of wood in its natural or unprocessed state is affected potentially by the tendency to relatively large cross-grain dimensional change whenever significant moisture content changes in service can be expected. Consider, for example, that every structural connection in wood, with the possible exception of a glued joint, can be affected in its performance by differential dimensional changes in the members. Even simple glued joints, including those in laminated wood members, show shrinkage or swelling stresses if the pieces being put together do not have identical moisture response properties.

Every dimension across grain in wood and every dimension of any wood structure that includes cross-grain wood is subject to change with variations in moisture content unless this is prevented by some form of restraint. Under such restraint stresses will always be produced, except that, with shrinkage, stresses may be relieved by splitting or the opening of joints. All successful applications of wood must implicitly or intentionally take into account the dimensional change characteristics of wood due to moisture.

Moisture Content Changes in Service

Clearly, it is desirable also to appreciate the influence of the conditions of service upon the moisture content. As the moisture content of wood tends to follow any changes in the relative humidity to which it is exposed, wood in heated buildings will generally lose moisture during the winter because of decreasing indoor humidity and regain it the following spring and summer as the humidity rises. The moisture content of wood in buildings that are heated but not air-conditioned can thus vary widely, from as little as 5 per cent in winter to 12 per cent or more in summer, depending on the climate of the location involved. The moisture content of wood in an air-conditioned building in which the relative humidity is held between 40 and 50 per cent the year round will be about 8 or 9 per cent.

The relative humidity outdoors in winter, on the other hand, is usually quite high. Moisture contents of wood exposed outdoors but protected from rain and snow may therefore vary from a low of 10 per cent in early summer to as much as 18 per cent in mid-winter under climatic conditions characteristic of most areas in Canada. Direct wetting by rain or melting snow may lead to higher moisture contents at times, and some differences due to species are also to be expected.

Wood taken from outdoor storage to be used in the interior of occupied buildings will usually adjust to a lower moisture in service. If it is fastened in place at the outdoor moisture content there will be an initial shrinkage as well as a subsequent shrinkage and swelling owing to seasonal changes in service conditions. The influence of initial shrinkage may be avoided if the moisture content can be adjusted to the level it will subsequently have in service before the wood is put in place.

It is always preferable to use wood that is at least as dry as proper protected outdoor storage will provide. It is not always practical or necessary to require lower moisture contents; service conditions may not justify this, or the shrinkage that occurs may not be a serious problem. In some situations, particularly with furniture, flooring and other interior building applications where shrinkage must be minimized in the interests of good performance, wood may have to be kiln dried in order to achieve the desirable reduction in moisture content prior to manufacture or application. Moisture contents as low as 8 per cent, or even 6 per cent in some cases, as for fir flooring, are commonly provided through kiln drying. Such drying is of little benefit, however, if the wood is allowed to return to higher levels of moisture content before use. It may also be noted that swelling can also be a problem, as for wood flooring tightly laid at a low moisture content. It may, in extreme cases, buckle or shift with a rise in moisture content.

There are, then, some limitations but also some excellent possibilities for minimizing dimensional change problems by controlling the moisture content of wood at the time it is put into service. It may also be possible, within limits, to select species having relatively small dimensional change characteristics. Cedar, for example, is relatively stable dimensionally across the grain and thus may be a preferred material for solid wood exterior walls of the real log or simulated log type. Some improvement may be achieved also in some applications by selecting a preferred grain direction, as with quarter-cut or edge-grain flooring, which takes advantage of the lower dimensional change in the radial as compared to the tangential grain direction.

Such possibilities, including the use of coatings to reduce the rate of response to short-time changes in conditions of exposure, serve only to emphasize the need to recognize that dimensional changes will take place consistent with imposed conditions and the basic nature of wood. It is necessary to design realistically for them, in both engineering and architectural applications if consistently good performance is to be achieved.

Processed Forms of Wood

Some processed forms of wood are of interest in the context of these discussions. Wood can be broken down by pulping or chipping and reconstituted into sheets in numerous ways as represented by paper, fibreboards and chipboards of various kinds. The strength and the dimensional change properties in the differ-

ent directions of the sheet or board are altered in ways that are generally quite consistent with the nature of the fibre reorientation achieved. When the fibres are laid in more or less random fashion in the plane of the finished board, some of the properties in the two principal directions of the board become more nearly equal at values between those for the long- and cross-grain directions of the original wood. Dimensional changes from the wet to dry condition in plywoods and most fibre and chipboards will normally be in the range of ¼ to ½ per cent in width and length directions. Changes in thickness may be much greater, approximating those in the original cross-grain direction.

Plywood is one of the more interesting forms of processed wood. As the geometry of the fibre orientation in the board is clearly defined — alternating grain directions in successive veneers at right angles — reasonably adequate calculations of the properties of the composite board can often be made. Plywood for general use must always be of balanced construction. Briefly, this means that each veneer on one side of a sheet must always be balanced by one of equal properties and equal orientation on the other side. Unless this is done, serious warping will take place when the moisture content changes.

A three-ply board with three equal plies provides balanced construction, but it has unequal properties along and across it because there are two long-grain plies in one direction and only one in the other. This directional effect is progressively reduced as the number of plies is increased. The strength of the board in tension or compression is determined largely by the percentage of long grain in the cross-section being loaded and on the long-grain properties of the original wood. The situation in bending is somewhat more complex: not only the grain direction but also the position of the veneers in relation to the surface of the sheet becomes involved. Shear properties in the plane of the sheet are always greatly improved because of the reinforcement given by adjacent plies against tension failure across the grain. The improvement in dimensional stability is marked, since the superior stability and modulus of elasticity along the grain provide an enhanced restraint for the cross-grain dimensional change.

Durability

It is appropriate in concluding this discussion to refer briefly to the durability of wood. As wood is organic in nature it can be attacked and destroyed by micro-organisms of various kinds. The risk generally becomes serious only when wood is maintained at a high moisture content in excess of 20 per cent but less than saturated. Treatment with preservatives is usually desirable in order to extend its life under these conditions. Wood can have a very long life when continuously immersed in water. At the other end of the moisture scale, it can last almost indefinitely if protected from sunlight and from excessive moisture contents and rapid or large changes in moisture content. Sunlight slowly attacks and changes the exposed surface, but its main deteriorating effect is probably associated largely with the rapid large moisture changes and corresponding dimensional changes that can result in serious checking when exposed wood is wetted by rain and then dried by sun heat. Even under these conditions wood can function very well as long as it is always arranged in such a way that it can drain and dry freely and is not held at high moisture contents for prolonged periods of time.

Conclusion

This discussion has tended to emphasize some of the potentially challenging aspects of wood and its applications. This has been done intentionally, not with any thought of being critical of wood as a material, but in order to promote a better understanding of its nature and of the ways in which it will perform in particular situations. It is only through such understanding that the best ways of using it can be devised and unsuitable performance avoided.

Anatomy of an Exhibition

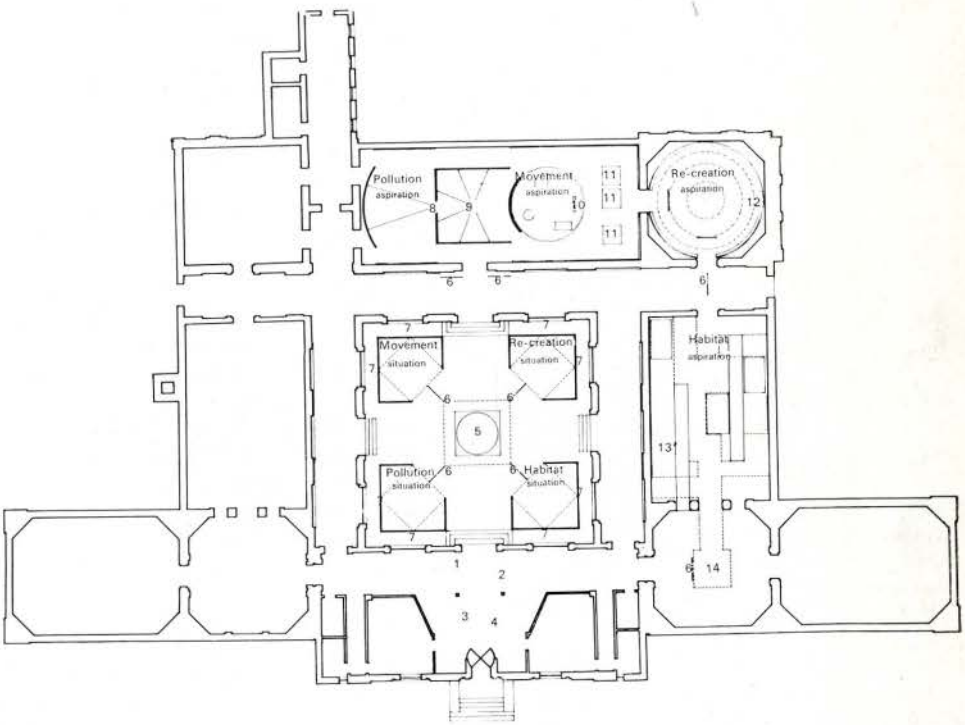
"This City Now" Exhibition
Art Gallery of Ontario
February 24 - March 26

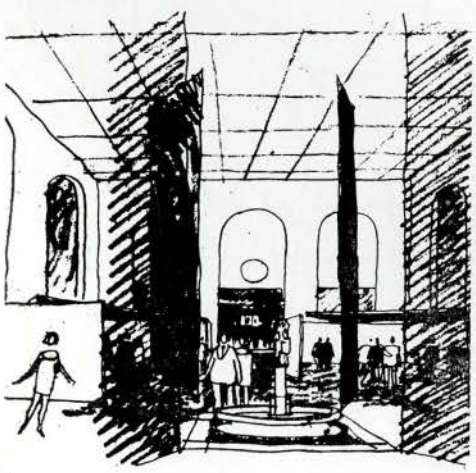
Director, Art Gallery of Ontario, William Withrow
Exhibition Designer, A. J. Diamond, MRAIC
Exhibition Co-Director, Arnold Rockman
Consultant, Richard Saul Wurman, AIA

The Centennial Project of the Art Gallery of Ontario is an exhibition entitled "This City Now". The exhibition, while like all exhibitions, is intended to have a visual appeal, it is also designed didactically: The theme is "this is what you have, bad and good, but this is what you could have."

In order to focus the problem, four particular areas of concern were selected – movement, habitat, pollution and re-creation. These subjects are used to categorize both situation and aspiration, and to demarcate areas in the gallery.

The gallery has a cramped entrance way. The design has taken advantage of the condition: Four photo-montage figures, a little larger than life size will be placed here,





1

Legend

1 Montage-Sculpture with loop sound, "Traffic is terrible. I can't get to work on time."
2 "There's no place for the kids to play."
3 "The city stinks."
4 "We can't afford to live in a decent neighborhood."
5 Aerial photo of Toronto over
6 6x18'0" banners on 4 themes
7 Booths with photos, artifacts and paintings
8 Loop movie "Sky"
9 Loop movies on movement
10 Model movement systems
11 Transparent movement layers of cities
12 Igloo of photo mosaic
13 Scaffolding construction, photos, models, slides
14 Interview table and questionnaire

to mingle, as it were, with the crowd. These four figures, each representing one of the selected four problems, will state the problem in simple terms. This is done with a concealed loop recording. The figure representing habitat, for example, will be a housewife endlessly repeating "we can't afford to live in a nice neighborhood" or pollution, a truck driver repeating "the city stinks, you can cut the air with a knife". Each figure also has a representative color. These colors are reproduced in the form of characteristic banners (**Figs 2,5,6,8,**) which identify the areas in the gallery dealing with that aspect of the city.

The main court (**Fig 1**), central to the whole exhibition, has four booths that display the four problems in terms of present-day conditions, in both Toronto and other cities. The public can then, via familiar and common associations, mostly shown in photographs, derive a simple and broad understanding of the subject matter.

The four surrounding galleries deal with the positive aspects of the four concerns. The visitor both mentally and physically here penetrates further into the exhibition material (**Figs 3,4,7,**). These areas show both the best achievements in each field, and the aspirations of those concerned with the topics of pollution, movement, re-creation and habitat. The exhibition techniques

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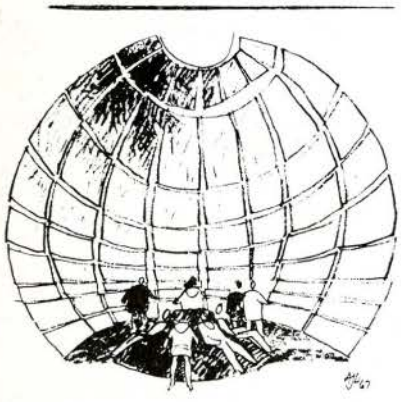

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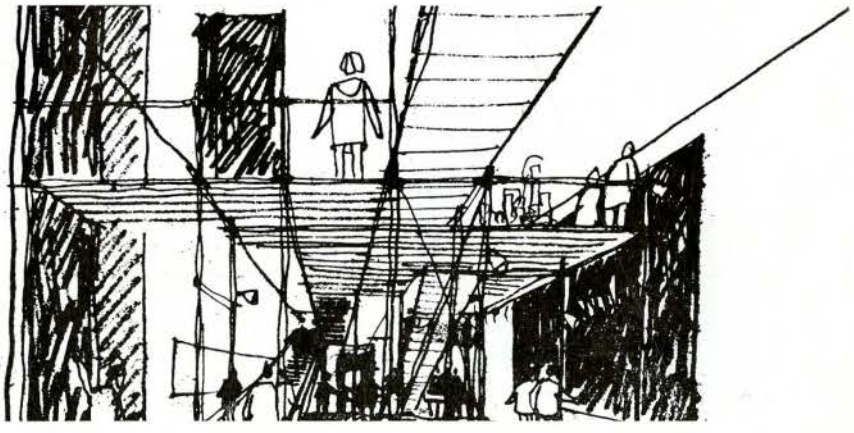

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employed in these areas are characteristically wilder, and try to use a medium appropriate to the subject: for example: Loop movies for movement, a scaffolding structure of two levels in habitat. More artifacts are used in these galleries than in the main court.

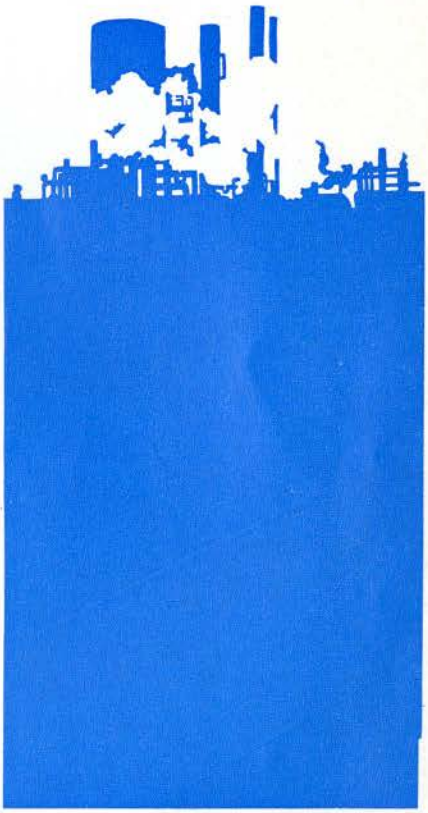
The "aspiration" areas have more for informed members of the public – bar-charts and maps to give some quantitative measure of the problems and possibilities.

A tabloid, which *Architecture Canada* is helping to produce, will be printed for visitors. This will, in journalese, reprint for the public the special issue of 'Habitat' that is being produced by CMHC in conjunction with the exhibition.

A first rate speakers program has also been arranged, to extend the awareness of the problems and potentials associated with urban life via another medium. Thus too, the concept of the art gallery as a dynamic cultural force is also reinforced – it becomes a catalyst for ideas, the fathers of action.

During the exhibition, York University is to also involve the public in a Kevin Lynch form of investigation – Members of the university, under the direction of Professor A. L. Murray, will gather material via taped interviews, to be later collated and analyzed.

AJD



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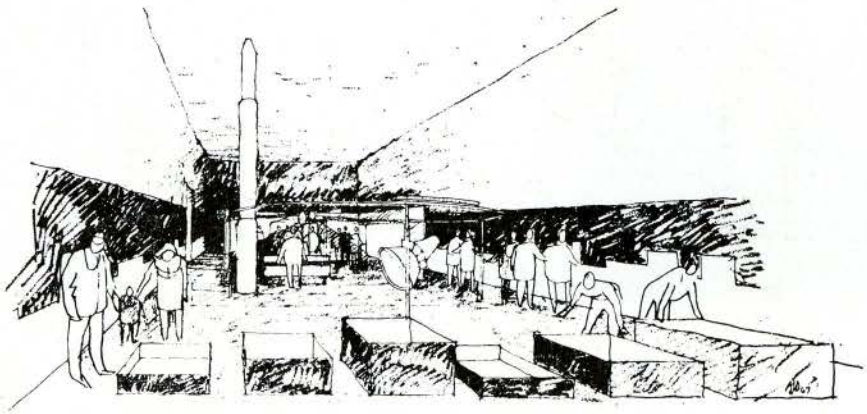

7

Now

City

This

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RUSSWIN

Mat Foundations

by W. J. Neish, MRAIC

Mr Neish is the Toronto Partner in the architectural firm of Smith Carter Searle Associates.

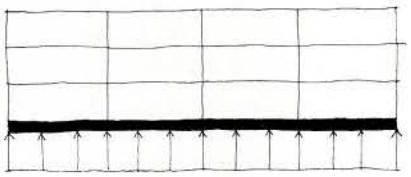
The earliest use of the mat foundation likely dates back to 5000 years to the building of the Great Pyramid of Cheops which was built on three-ton limestone blocks placed so as to form a 750-foot square. On this mat was constructed the 480-foot high pyramid which has endured without evidence of structural stress.

The builders of Babylon were less fortunate because their land was a broad alluvial plain. Flat mounds of earth from five to fifteen feet high and up to a mile in diameter were created. Under each structure were platforms of brick bonded together by natural asphaltic material and up to three or four feet in thickness. Because of the problem of differential settlement on these soft foundations, portions of the buildings were made structurally rigid and were connected with tongue-and-groove joints which permitted controlled movement of these individual portions.

The Romans employed wooden mats, usually on firm soil, to build many masonry structures. The Mayans in Yucatan (about 200 AD) made use of masonry mats consisting of varying sized stones and lime mortar. These mats often served as the floor of the rooms and foundation for the building. With the greater use of widely spaced walls and columns as developed with Gothic architecture, the mat foundation was separated to become spread footings.

An English engineer, Rennie, employed what was then a radical design where the weight of the excavated material for a mill basement was roughly equal to the weight of the superstructure. This design approach was soon forgotten only to be rediscovered in the twentieth century with the development of reinforced concrete.

Mat foundations, however, are still employed today where the superimposed foundation load must be distributed over the entire building area in order not to exceed the allowable bearing stress of the soil, or in the case where there would be little separation between spread footings some economies can be achieved by reducing forming costs.



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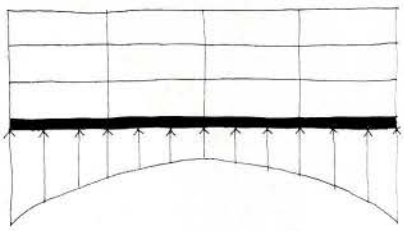

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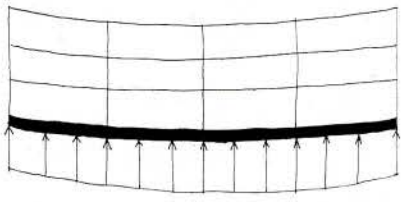

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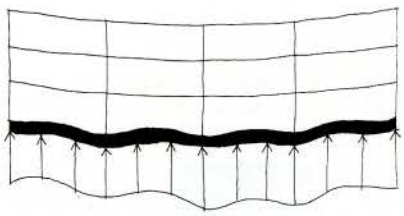

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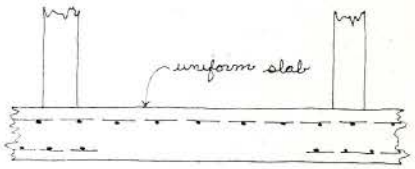

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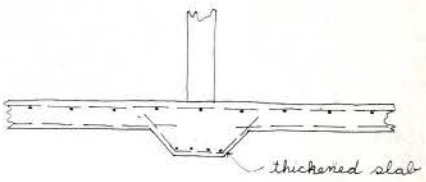

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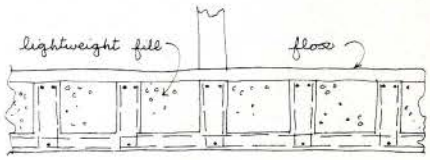

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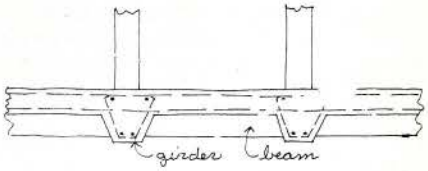

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The mat provides the maximum foundation area for a building and therefore the greatest safety against soil failure.

Mats can also be used to bridge over localized weak or compressed strata which would be unsafe for spread footings. Where the hydrostatic uplift is excessive mats may be used to resist this pressure by counteracting the upward lift with the column loads and entire weight of the structure. A continuous mat structure can be more easily water-proofed where a high water table is a problem. In the case of low soil bearing pressure using a mat foundation, it is often possible to take advantage of the hydrostatic pressure which can effectively reduce the bearing stress.

Substantial economies can often be achieved with mat foundations because of possible reductions in concrete and reinforcing using a continuous structure. Also, the excavation required for a mat is less than for individual footings.

The distribution of contact pressure depends upon the stiffness of the substructure and the bearing capacity of the underlying soil. Where the structure is rigid the pressure on cohesionless soils will be relatively uniform, *Fig. 1*, but on compressible soils the bearing pressure will be higher at the outer edges than at the centre. *Fig. 2*. On compressible soils, when the mat structure is flexible enough to conform to the settlement profile, the pressure will be relatively uniform as in *Fig. 3*. If the mat is very flexible, it will deform between the columns producing a non uniform pressure as shown in *Fig. 4*.

A mat is usually designed as an inverted floor system using the same principles as other floor systems. In the case of thin mat, a flat slab design is usually employed. *Fig. 5*. Where necessary the thickening of the slab at columns or walls may be achieved by simply excavating to the required depth. *Fig. 6*.

A T-beam system is sometimes used, *Fig. 7*, on thicker mats to produce a more rigid slab using less concrete. However, due to the complexities of constructing this system which requires a separate floor slab, a beam and girder system is more often used. *Fig. 8*.

Hollow mats have been designed using the entire substructure, consisting usually of concrete walls and slabs, to produce a box girder sufficiently rigid to resist differential settlement over a large area. Several levels of basement may be incorporated in this system to increase the depth of box girder structure when it is possible to construct walls strong enough and so located as to resist the necessary web shear strength.

When the structure extends below the water table, the water pressure can become a structural problem as well as a leakage problem. In some cases this water has caused serious fracturing of the substructure with an explosive force sometimes called a blow-in. As a result it is advisable in many cases to provide adequate drainage around the foundation to relieve the hydrostatic pressure. It is usually necessary to provide continuous blanket drain of granular material in order to eliminate the building up of pressure at local points.

Practical problems, as such, with the related cost determinate are important factors to be considered in foundation design. The suitability of this system, however, must be determined ultimately by the nature of the building loads and soil bearing capacity. The most economical solution often depends on the designer's ingenuity in translating these factors into a logical and creative design. □

Estimating

There is very little I can add to the comments I made last year about the cost of work below ground. Costs generally have, of course, gone up since then and some of this increase is reflected in the cost of work below ground, and I have shown this in the unit prices given below.

The statement in the preceding article that the most economical solution often depends on the designer's ingenuity is very pertinent. It also depends upon the designer giving some thought to the problem rather than accepting a stock answer. A not infrequent example of this is the use of reinforced concrete foundation walls where a block wall would be quite sufficient.

A word of caution about the selection of mat foundations. Contrary to the rule in other parts of the structure the cost of the concrete in foundations is usually more than the formwork required to support it, so don't be too eager to use a mat foundation in the hope of saving money on the formwork.

We have found that the following unit prices generally hold good for preliminary estimates:

1 Normal Foundations (trench and column excavation, concrete wall or column footings, and foundation walls and columns to the level of the lowest floor slab) .70 — $4.00 per square foot
2 Basement (bulk excavation and backfill for basement) .11 – .14 per cubic foot
3 Special Foundations:
(a) Caissons or piles $8.00 – $30.00 per lineal foot – average $9.50 per lineal foot
(b) Sheet piling $3.50 – $7.00 per square foot
(c) Underpinning $75.00 per lineal foot and up
4 Mat Foundations:
(a) 3,000 Concrete $18.50 per cubic yard
(b) Formwork to foundations .50 per square foot
(c) Reinforcing steel .14 per lb.
F. W. Helyar.

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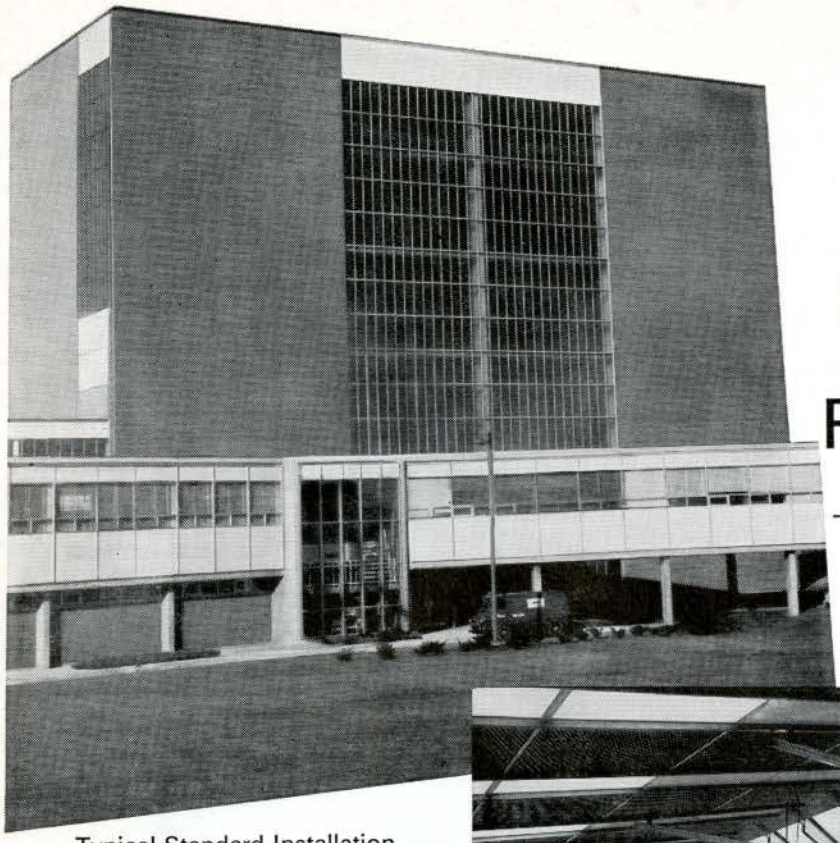

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Architects: Fairfield and Dubois

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Westroc Vinylboard is tough, colour-fast vinyl laminated on a solid, non-combustible, non-shrinking gypsum panel.
The prefinished surface gives maximum resistance to abrasion, stains and chemicals with the minimum of maintenance.
Panel installation is quick and simple with one-time, one-team application.
Installing Westroc Vinylboard is less expensive, less troublesome than building a wall and then applying a vinyl surface.

Westroc Vinylboard's wide range of colours and textures, and the variety of dividing battens and widths, provide unlimited opportunity for creative wall panelling in all areas requiring a durable wall finish.

Vinawood: The rich, masculine tones of Nutmeg Vinawood make it ideal for executive offices, boardrooms or other areas requiring distinctive elegance. The black 'T' and extruded aluminum divider sets a modern mood to the overall décor.

Coarse Suede: The practical beauty of Coarse Suede lends itself perfectly to school rooms, auditoriums and other heavily trafficked areas. The bright, distinctive colours (e.g. Brass Green) provide an excellent teaching atmosphere. Economically finished with a butt joint, Coarse Suede will give years of worry-free service.

Bombai: The contemporary elegance of Alberta Sand Bombai would create a favourable first impression in any reception area . . . especially when used in 2′ panels with a contrasting 2″ walnut divider. The Bombai line's wide range of colours also gives unlimited opportunity for new decorating ideas in offices and apartments.

Briar: Panels of Yellow Gold Briar are divided by a 1″ black 'T' batten and harmonize well with any furnishing design. The clean, bright colours in the Briar line add new scope to the decoration of lobbies, corridors and other areas where a durable wall finish is important.

Travertine: This series offers new dimensions in contemporary design for meeting rooms, banquet halls and other large assembly areas. Travertine's decorative effect can be fully realized when contrasting battens are used. Here, Aqua Travertine panels divided with 10″ teak set new standards for meeting room décor.

TECHNICAL DATA ON VINYLBOARD SURFACE

THICKNESS	.010 Bombai Pattern. .006 Briar, Coarse Suede, Travertine, Vinawood.
BOARD SIZE	Width: 4 feet. Thicknesses: ⅜", ½" and ⅝". Lengths to order.
COMPOSITION	A vinyl compound of poly-vinyl chloride resin combined with plasticizers, pigments and stabilizers to produce a durable and resistant surface.
ABRASION RESISTANCE	Meets D.P.W. specification 4-20A, section 5.3.
COLOUR FASTNESS	Meets D.P.W. specification 4-20A, section 5.4.1.
WASHABILITY	Good; no effect on the surface when cleaned with mild or common household cleaners.
STAIN RESISTANCE	Resistant to most stains; should be cleaned as soon as possible after staining.
CHEMICAL RESISTANCE	Resistant to most dilute acids and alkalies. Can be affected by active organic solvents.
HEAT RESISTANCE	Unaffected by normal temperatures.
MISCELLANEOUS	Resistance to cracking, peeling or chipping of the vinyl surface is very good under normal usage.
FLAME SPREAD	Flame spread 10. Fuel contributed 5. Smoke developed 5.
FIRE RESISTANCE	See ratings for gypsum wallboards.
METHODS OF ATTACHMENT	Can be used with most movable partition systems. May be attached to steel or wood studs, to backing board or to existing walls by 3 basic methods: (1) Nail or Screw (2) Adhesive nail-on method (3) Lamination.

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Department of Interior Design 1966-67 University of Manitoba

The Philosophy

We in Interior Design have always been very happy to be a Department in the Faculty of Architecture at the University of Manitoba.

The Philosophy of the Department is that interior designers are professionals who, by choice, deal with the problems of the immediate environment of people. They are not merely embryo-architects who have not been able to make the grade.

Closely related as the two areas are, it is still possible to specialize sufficiently to produce obvious differences.

In today's complex civilization, diverse areas of specialization exist. The architect no less than the doctor finds himself required to know much about many things; to be landscape architect, city planner, structural engineer, interior designer, industrial designer, not to mention architect. Though called upon to supervise these many areas, the architect is able to call upon the many specialists, each to bring his own detailed knowledge to the problem and with the leadership of the architect, to work together to arrive at the complete project. When all specialists work together, understanding something of the problems of the others and starting from the same point of reference, much greater unity results. The interior designer brings particular knowledge of precise effects of size, knowledge of materials and details the effects of lighting, color, character, and conviction of the worth of the individual.

While the architect deals mostly with new buildings, the interior designer might also be called upon to replan parts of existing buildings, better to suit the requirements of the client. Though an increasing number of design graduates go to architects' offices, many a graduate goes into the Commercial field, where, acting as his own agent, he in turn must understand the various fields of specialization of the related professionals and the trades and must supervise and co-relate their efforts.

We have developed a course that is known through Canada and in many parts of the United States as one which produces well-trained, serious, modern-thinking designers, capable and enthusiastic. Students' comments on the next page supplement and extend this picture.

Joan Harland
Head, Department of Interior Design

The Course

In 1948 the Department of Interior Design was reorganized to award a *Bachelor of Interior Design* degree (*BID*) at the end of a four-year specialized, University-level course in Interior Design.

The program of studies in Interior Design at the University of Manitoba embraces three major fields of study: Creative, Humanistic, and Technical.

Creative. The study of the principles of Design and their application leads to the solutions of man's environmental problems. The core subject of Design provides ample opportunity to analyze the requirements of people engaged in various 20th century living and working activities, and to provide for these with intelligence and sensitivity.

Humanistic. With the study of the social and cultural backgrounds of our times, the past lessons, the present conditions and the future developments become pertinent. The cultural heritage is considered in the perspective of such subjects as Theory of Design, English, Psychology, Economics, Philosophy, Sociology, and the Histories of Art – Architecture, Painting, and Sculpture, of Furniture, and of Western Music.

Technical. The study of materials, construction, mechanical equipment and other technical aspects of building, enables the Interior Designer to work within the 20th century technology. Such subjects as Materials of Interiors, Furniture Construction, Interior Detailing, Interior Workshop, Building Materials and Equipment, Industrial Design, and Lighting give a background of necessary technical information.

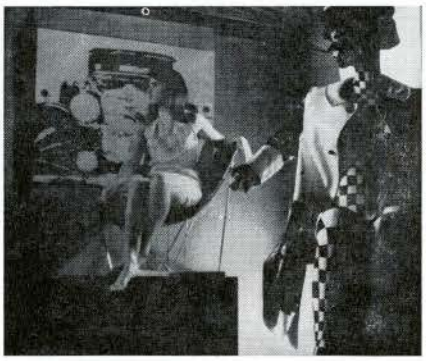
The first year is an introductory period during which the tools of the Designer are provided, together with Theory and History the beginnings of creative philosophy.

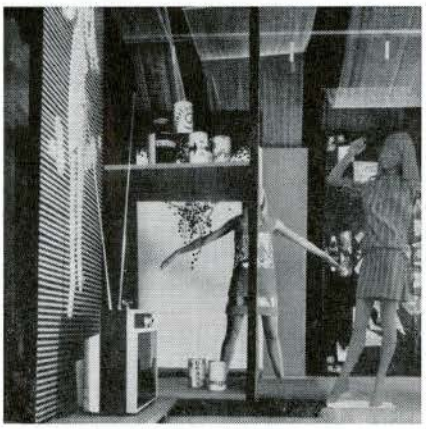
The second year work is focussed on the Residential shelter – small simple units where the requirements of the individual can be carefully inspected.

Design three deals with Commercial requirements; problems of the Designer in Store, Lounge, Restaurant, where a greater number of people multiply the questions but still require individual care.

The fourth and final year provides students with experience in complex Commercial and Public projects; Hotel Design, Department Store organization, Art Gallery and Civic Center.

Part of Open House Exhibition, Nov. 1966
Department of Interior Design,
University of Manitoba
Exhibition Design, Fabrication and
Comments by 4th year Interior Design
Students





Traffic signs glare – conflicting orders and headlines shout events to the background of electronic music. Finally a model room which gives an imagined place where retreat is possible and where equilibrium can be regained. The Display, begun by turbulence, explained by graphics, is concluded in a quiet interior space. . . .

A collection of signs, sounds, images form impressions of the 20th century, influences which guide and infringe upon a man's daily activities, symbols of the rapid pace of our era, the breathless speed with which ideas and technology must advance before ever-sure obsolescence.

In order to create for the 20th century life, the sense of the specific room must be destroyed and a formless space created.
Our model interior, expressive of the technology of our era, yet co-ordinated and apart from the confusion outside.
We wanted to study our era and to make people familiar with the characteristics of their environment.
The upside-down man said: "I personally find the 20th century upsetting".

Mannequins, painted in "op" art pattern, posed in front of kaleidoscopic panels of vibrant fashion photography. Everywhere our preoccupation with our appearance, and our susceptibility to attractive advertising promises.
Where does the Designer fit into this whole thing? Some may argue that the display was out of the scope of the Designer, this of course is not true, we must also be aware of what is happening.

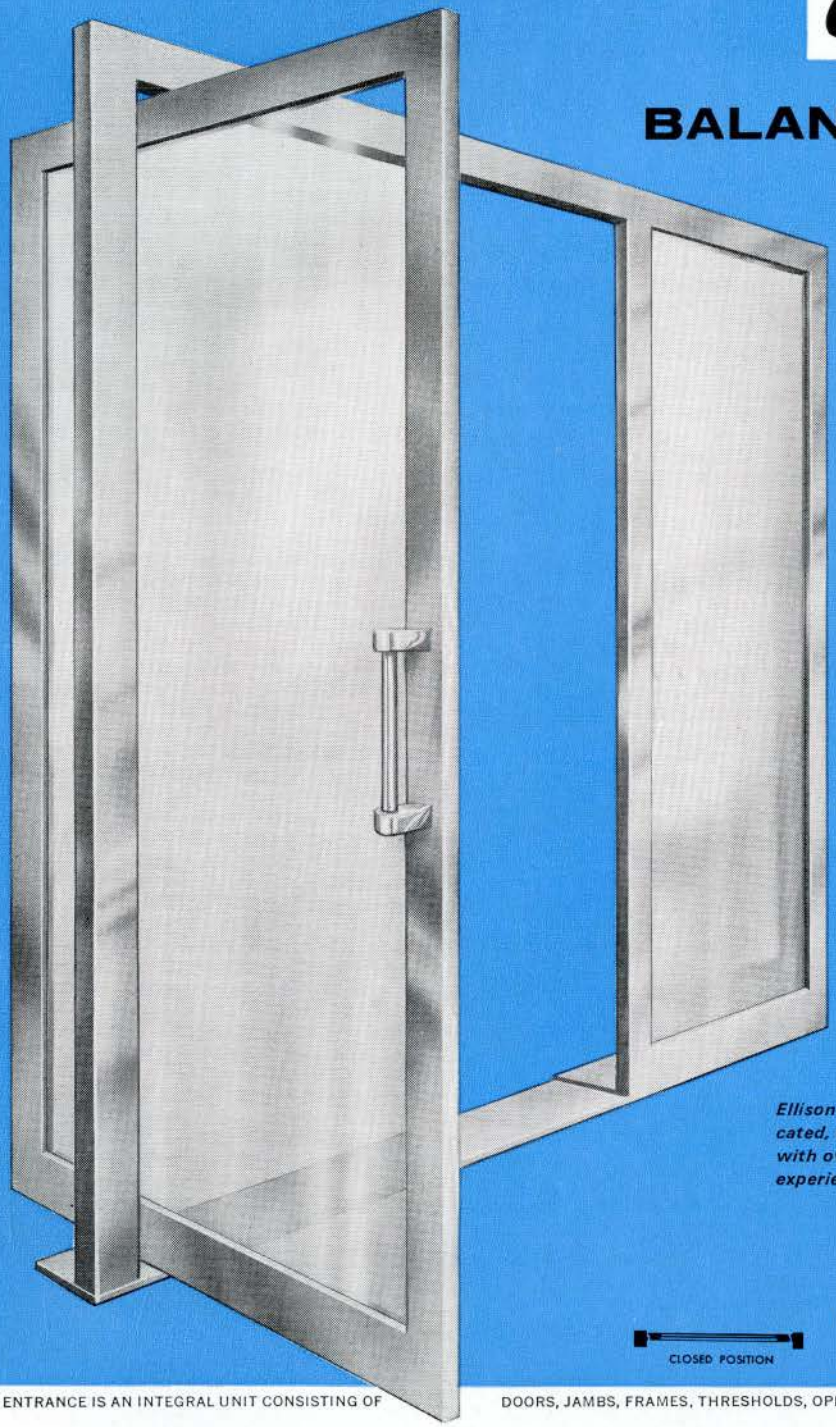
The exhibition demanded much of the guest in that he was expected to participate, *not only to* observe. *Perhaps we should have prepared a pamphlet – many people did not understand our message. Those who did understand, responded enthusiastically.*

We feel positive that in concept and inspiration Interior Design should not be and is not limited to furniture and interior planning.

Save lobby space–reduce obstruction–alleviate "stack action"

Ellison

BALANCED DOORS



SAVE SPACE

Architects specify Ellison Balanced Doors to save lobby space or reduce sidewalk obstruction. The shorter arc which the Balanced Door travels permits faster opening and closing and reduces the outward projection of the door when fully opened. Sketch 3 below shows the latch stile travelling in an elliptical arc.

ALLEVIATE "STACK ACTION"

Ellison Balanced Doors let people through quickly—make possible an uninterrupted flow of traffic where winds and suction problems exist. The hinge stile swings inward as the door opens—instantly neutralizing any effect of exterior wind pressure or interior suction (see Sketch 2 below).

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The force required to open Ellison Balanced Doors against external wind or internal suction load is only a fraction of that needed to open conventional doors. Ease of operation also permits the use of extra large doors.

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CREL

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Letters
Lettres

8

The Editors:

Having just heard of the honor awarded your magazine I would like very much to congratulate you and your staff on your excellent efforts and on your gaining the award.

We have a large number of architects in our membership, and are always interested in the views expressed in your fine publication.

A. J. Mitchell, Editor,
Professional Public Service, Ottawa

The Editors,

We are so pleased with the new format and contents of *Architecture Canada* that we would be remiss not to tell you of our appreciation. Keep up the good work.

J. Long, MRAIC, Calgary

The Editors:

I thought you would be interested in the following letter from William G. Harris, President, Norply Corporation Ltd., Port Arthur, to myself.

"You receive double thanks for your Christmas present. In putting together the Allied Arts Catalogue architects deserve a great deal of credit, for a well done definitive source document on Canadian artists. Even someone as familiar with Canadian artists as myself found the specific examples of works and the biographies to be revealing in many cases. This is a contemporary catalogue and there is no such thing anywhere else that I know of. The best you can do is look through some of the latest books or the gallery catalogues and these won't give you more than one picture by the better known artists, and usually none. I hope you'll keep up the good work."

W. J. Neish, MRAIC, Toronto

The Editors,

We have noticed over the more recent issues that your magazine has undergone a most marked change of format.

May we congratulate you heartily on this change.

We especially appreciate the choice of type-set and the vertical composition of the text into shorter line columns. This undoubtedly is a more scientific approach which enables speedier reading whilst increasing comprehension.
Keep up the good work.

Roger Kemble, MRAIC, Vancouver

Anita Aarons
Allied Arts Editor

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Advertisements for positions wanted or vacant, appointments, changes of address, registration notices, notices of practices including establishment or changes in partnership, etc., are published as notices free to the membership.

Registrations

Kenneth S. Avery, B.Arch., 731 Markham Street, Toronto, Ontario was registered as a member of the OAA in November.

Neil G. Crowell, B.Arch. became a member of the Nova Scotia Association of Architects in January 1967.

Practice Notes

As of January 1, 1967, the firm of Rensaa, Minsos, Architects and Engineers divided to form two firms, Minsos, Vaitkunas, Architects, and Rensaa & Alexander, Consultants Ltd, an engineering firm.

Architects Wanted

Moderate-sized, progressive office in Central New York, USA, seeking B- and C-level architects (RIBA Standards).
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Submit résumé to: Quinlivan, Pierik & Krause Architects, 841 Onondaga County Savings Bank Building, Syracuse, New York, 13202.

Positions wanted

English architectural students (4th year), qualified to RIBA Final Part 1, wish to gain practical experience in an architect's office in Canada (July '67–August '68) before commencing final thesis year. Messrs G. Thorpe, J. Armitage, M. J. Coyne. School of Architecture, Anlaby Road, Kingston Upon Hull, Yorkshire, England.

English architect, aged 35, ARIBA, full-time school trained, eleven years varied experience in London, England (four of them as associate Partner) immigrating to Canada during July 1967 seeks suitable employment in London, Ontario or nearby. Reply J. E. V. Jones, 14, Wave Crest, Whitstable, Kent, England.

British architect, 29 years old, graduate of Leicester School of Architecture, wishes to immigrate to Canada in March 1967 and seeks position in Toronto architects' office. Write Geoffrey Foster, 14 Gayton Crescent, Hampstead, London, N.W.3, England.

Architectural Assistant, nine years office experience, training to RIBA intermediate, experienced in sketch designs, presentation, detail and working drawings, contract control to completion wishes a position in Toronto or Niagara area. Contact Richard J. Owen, c/o Frederick, 414 Varsity Avenue, Niagara Falls, Ont.

33-year old architect, presently working in an architectural office in Switzerland, eight years office experience, very good knowledge of French, seeks position in Toronto, Hamilton, or Windsor areas. Write Ceyhan Guran, Les Pontins, 1920 Martigny, Switzerland.

Indian architect, graduate in 1964 from the Academy of Architecture, Bombay, with two years of experience, wants employment in Canada with view to immigration. Reply Vilas V. Joshi, I-1 Sharadashram, Bhavani Shankar Rd, Dadar, Bombay No. 28, India.

Index to Advertisers

MRAIC

Canadian architects have for 60 years used the letters MRAIC, or FRAIC, as one means of identification with their profession. For as many years, hundreds of architects have made considerable sacrifices in time and energy to maintain a national body to administer, for its members, those professional matters of national, rather than provincial scope and character.

Architects across the country are not in full agreement as to which matters should fall within provincial and which within national jurisdiction, however, the findings of the recent Survey of the Profession reveal that the present activities of the Institute and its committees are not only appropriate but in some areas should be broadened.

The following list and the organization chart opposite are published to illustrate the nature and scope of current major RAIC activities and the structure of the Institute which has evolved over the years :

1. Publication of Architecture Canada (Journal RAIC/la Revue de l'IRAC), the RAIC Allied Arts Catalogue and the Architectural Directory Annual.

2. Liaison with the Government of Canada and its various departments on behalf of the profession.

3. Liaison and joint committee activities with other national professional organizations.

4. Participation in international architectural bodies.

5. Assistance to provincial associations on architectural education as requested by them.

6. The creation and revision of legal documents.

7. The conferring of honors and awards on architects, students, artists and distinguished patrons of architecture.

8. The maintenance of committees on national matters such as historic buildings, architectural competitions, research, construction materials and housing design.

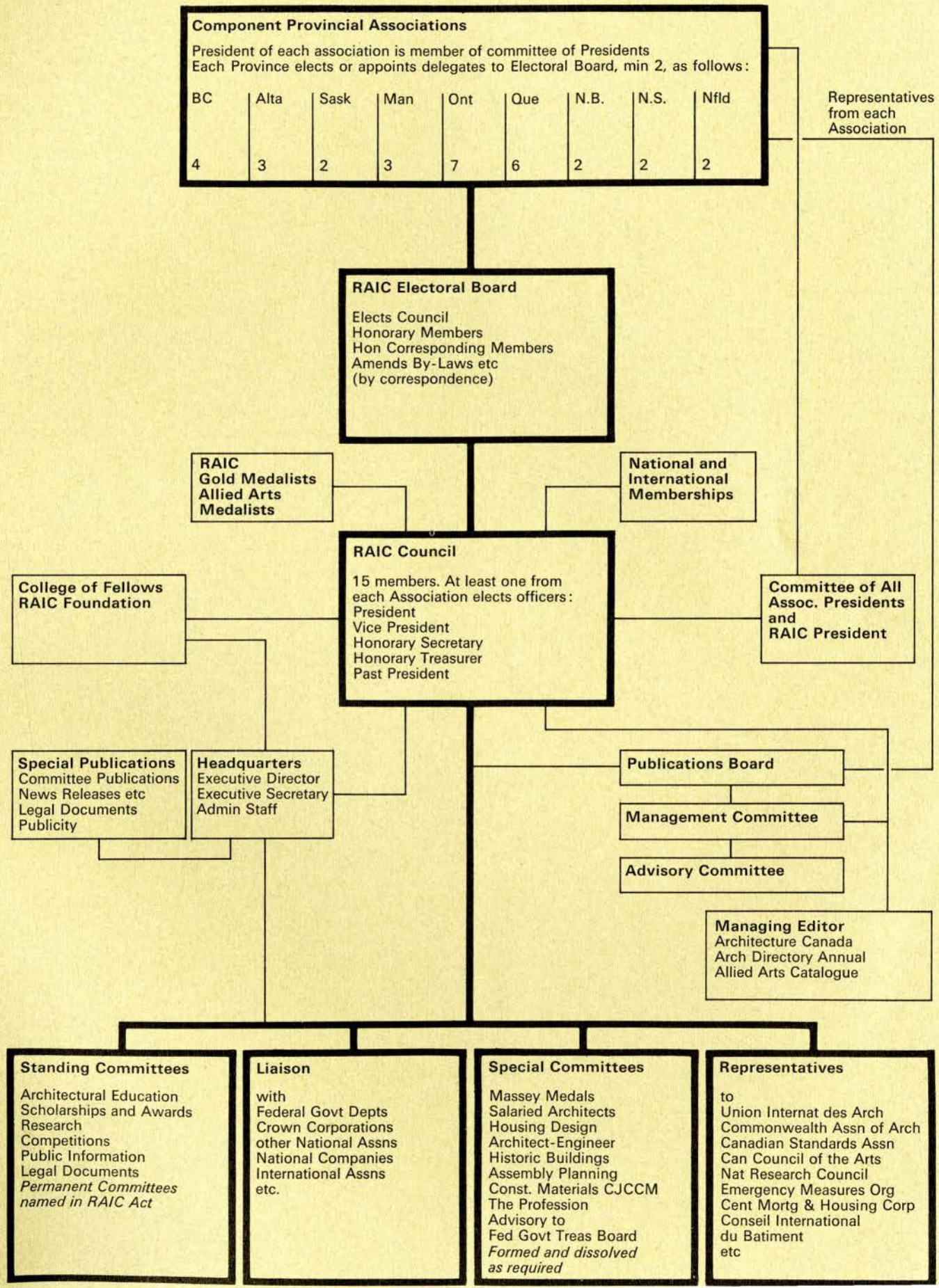
9. Creation of committees to conduct special inquiries and implement recommendations (professional collaboration in environmental design ; Survey of the Profession).

10. The handling of all matters of professional and public information of a national character, including publication of reports of committees, news letters and bulletins and public information brochures.

11. The organization of annual national assemblies of architects to review the affairs of the Institute and determine its forward policy.

12. The maintenance of Headquarters in the National Capital.

Royal Architectural Institute of Canada: Organization Chart



Published for the Royal Architectural Institute of Canada by the RAIC Publications Board.

February, 1967

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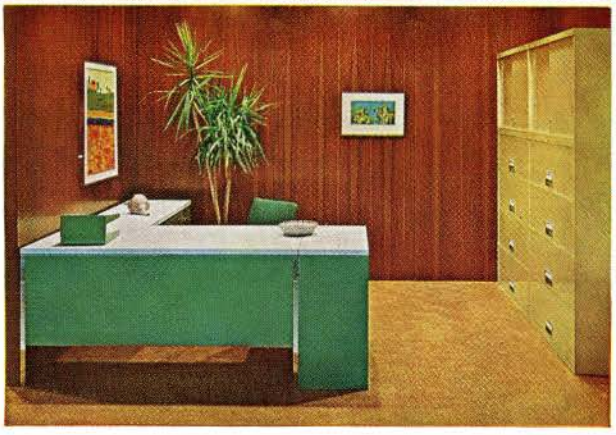

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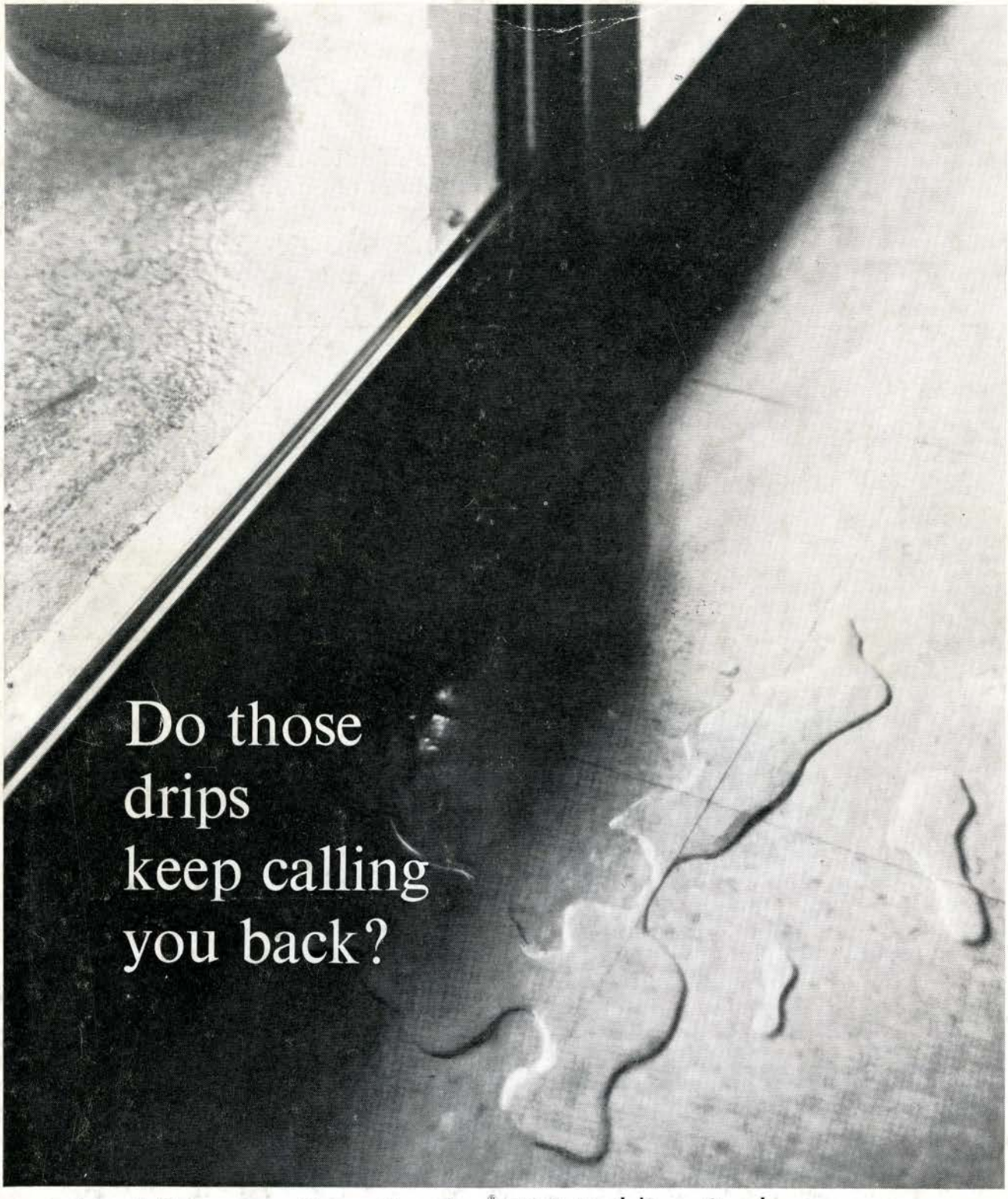

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