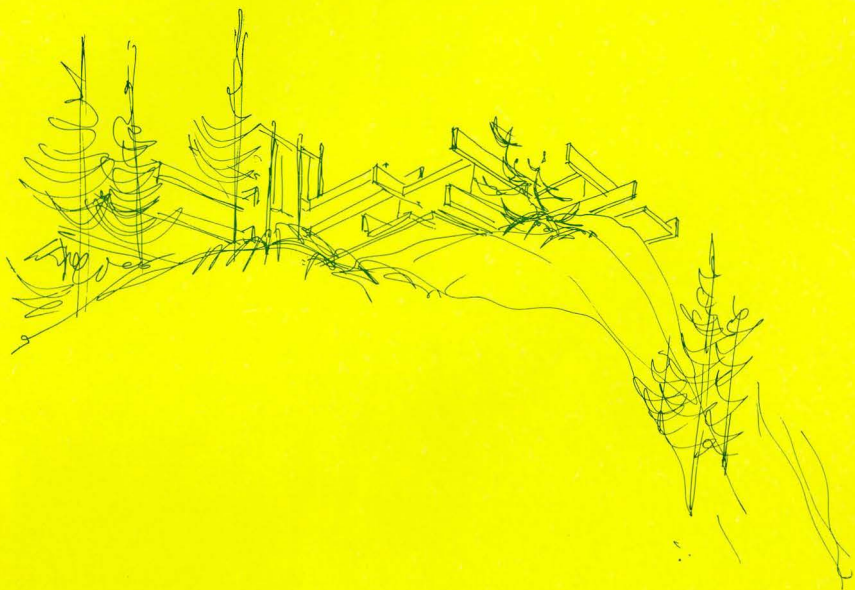


Architecture Canada

Journal RAIC/La Revue de l'IRAC: December/Décembre 1966





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du Canada

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Annabel Gerald New Assistant Editor

We are pleased to announce the promotion of Annabel Gerald to the position of Assistant Editor. Miss Gerald, who joined our staff in October 1964, as Assistant to the Editor, includes editorial production in her responsibilities, and her work contributed substantially to *Architecture Canada's* winning of Industrial Marketing's top award for design improvement in professional publications in North America. (See *Architecture Canada*, November, page 5.)

Incorporation of Architectural Practice

Incorporation of practice is a topic of both increasing interest and concern for architects across Canada. Already, firms in four provinces have undergone partial incorporation, where possible within existing legislation, and now look forward to legal changes which would allow them to fully incorporate their practices.

The advantages, as already enjoyed by other professions such as engineering, would be numerous. They include tax savings, limited liability and easier means of ensuring

continuity of practice when partners withdraw, retire or die. Opposition to any change of current legislation is based upon the two-fold argument that professional standards would suffer and that firms might become controlled by non-architects.

Strongest interest has perhaps been expressed in Ontario where the subject has been under study by the Registration Board of the OAA. Recently, they engaged a firm of chartered accountants to investigate and report on the feasibility of incorporating elements of practice. Submitted February 1st, 1966, it should be of interest to all architects in Canada. At present, only Quebec has a similar investigation underway, although representatives of other provincial associations expressed great interest in the Ontario report. Their general feeling was in favor of incorporation as long as professional standards could be maintained. Two of the strongest in favor felt that it would help the architect stabilize his position as leader of the architect-engineer-consultant-builder team and allow him to better compete with the developer and package dealer.

In the Ontario report, the right to presently incorporate on a partial basis is made clear by legal counsel. The extent to which it can be carried out, however, is most interesting. It appears that while an architect can only incorporate minor elements of practice within the Architects Act and the Regulations of the Registration Board, he can circumvent their intent and incorporate some major elements within the Engineers Act.

Specifically, relevant sections¹ indicate that the architect is not permitted to incorporate a company to provide drafting services; engineering services, as performed by him personally; and design and related planning, consulting and supervisory services, which are felt to be the essence of professional practice. He can incorporate blueprinting and reproduction services, landscape and interior design services, and office administration.

Within the Engineers Act, however, further incorporation can be managed. Relevant sections² cover the engineer's right to incorporate his practice and perform architectural services in the course of work

undertaken as an engineer. It was the opinion of counsel that the architect is able to incorporate engineering, drafting and related services provided that the practice is carried on under the responsibility and supervision of a professional engineer who is a director or full-time permanent employee of the company. Existing architectural legislation, therefore, can be circumvented to a considerable degree, depending upon the extent to which an architect's practice is conducted by an engineer.

The remainder of the report is devoted primarily to the advantages of the corporate form of ownership over proprietorship and partnership arrangements. They can be basically summarized under:

- a Control
- b Business Continuity
- c Tax Savings
- d Limited Liability

a Control

The principals of a firm can exercise effective control through ownership of 51 per cent of the issue voting shares. This factor eliminates reluctance to share ownership with younger architects of proven ability who might otherwise leave the firm.

b Business Continuity

A corporation possess immortality and individuality, properties which ensure perpetual succession of a company. The withdrawal, retirement or death of a principal does not terminate a corporate structure as in the case of a partnership. This factor is most significant for the following reasons:

- 1 It permits a firm to establish long-term planning for the entire organization.
- 2 The principals can provide for the orderly transfer of shareholdings over a period of time to other principals or associates in the organization.
- 3 A corporation has greater borrowing potential for working capital requirements.
- 4 The corporate form of organization more easily allows business values to be determined, especially in the event of the withdrawal, retirement or death of a partner. Under Corporation Law, for example, the death of a shareholder has no effect on the corporation itself. The practice would be carried on by the surviving members of the firm. By agreement, the shares of a deceased

Bibliography "Incorporation of Architectural Practice"

- 1 Sections 7(2) and 18(3) of the Architect's Act, Section 38(f) of the Regulations of the Registration Board and Section 2(b) of the Professional Engineer's Act.
- 2 Section 18(2) of the Professional Engineer's Act and Section 18(4)(b) of the Architect's Act.

member could be transferred on his death to his surviving associates according to a price determined by a prescribed formula.

c Tax Savings

At certain levels of income, less taxes are paid on corporate earnings than on individual earnings. Using 1964 tax tables, it was illustrated how a corporation would pay \$6,000.00 less than an individual on a taxable income of \$40,000.00. In addition, there are additional income tax exemptions for both the corporation and its employees in the areas of group life insurance, salary continuance insurance, pensions, profit sharing plans, medical group insurance, and death benefits.

d Limited Liability

As a general rule a partner is responsible for the debts of the firm, his own acts, those of his partners and of his employees to the extent of his entire personal holdings. A shareholder is usually responsible only to the extent of his investment in the company.

The report concludes that, due to the complexity of modern practice, the architect should be allowed the privilege of total incorporation. Partial incorporation is unsatisfactory because of the administrative problems created by the division of a practice into separate business entities. In addition, it was stressed that the architect does not achieve the desired advantages of full corporate ownership to which it is felt he is entitled.

Concerning professional standards and control by non-architects, it was stated that the Association could exercise effective control through legislation. Required would be clauses stipulating that voting shares of the corporation must be owned by professional architects and that an architect must affix his seal to every drawing or reproduction thereof prepared under his direction and responsibility. The architect would, therefore, be personally responsible for the quality of his work and be subject to disciplinary action by the Association. In this way, the practice of architecture would be confined to the profession.

Douglas Lintula, B.Arch.

American Standard Symposium

The second symposium on the human environment sponsored by American-Standard (Canada) Limited for a nationally representative audience of architects and consulting engineers in Toronto November 13 to 15 was a big improvement on the first, held in 1964. Two years ago the approach was directed to the physical aspects of buildings – lighting, heating, sound and shape. At times, the architect-engineer audience thought it was perhaps being a little talked down to, and occasionally unhappy at having to choose which to attend of several panel discussions going on at the same time. The problem will be familiar to those who have attended or participated in some RAIC Assemblies.

Such feelings and situations did not develop at the second symposium. It started well, interest was sustained, and the audience was kept together. This year the approach was directed towards an investigation of the "physiological, psychological and sociological factors which affect man and his environment". The task of the speakers was to present discoveries and new thinking in these fields and to stimulate thought and discussion on them in their application to environmental design and technology.

How to successfully launch such a "talk-in" can be a tricky problem, and Dr. Thomas Howarth, head of University of Toronto's School of Architecture, who directed the symposium and acted as its chairman, solved it admirably by inviting Felix Candela of Mexico to talk about the design and construction of his shell structures. Mr Candela and his shells are well known. What made it so enjoyable was his candid comments on his empirical approach to the calculations for the structures.

The other speakers were Dr Daniel Cappon, Department of Psychiatry, Dr Arthur Porter, Head of the Department of Industrial Engineering, and Dr E. L. Thomas, Professor of Pharmacology, University of Toronto; Dr Humphry Osmond, Director of Research in Neurology and Psychiatry, New Jersey

Bureau of Research; Allan Bernholtz, who specializes in computer technology at Harvard Graduate School of Design; Henry Wright, architect specialist in environmental technology at Kansas State University; Alan C. Green, director of the School for Architectural Research at R.P.I., Troy, N.Y.; Harold B. Gores, president of the Educational Facilities Laboratories, New York; and Edwin Diamond, science specialist for *Newsweek* magazine. The summing up was done by D. W. Thomson, Vancouver consulting engineer, and George Grenfell Baines, British architect.

Enterprises such as this are not lightly to be embarked upon, partly because of the risk involved in undertaking to maintain the interest and enthusiasm of a captive audience of busy professional people for two and a half days; and partly because bringing 280 architects and engineers to Toronto from all parts of the country and paying travel and living expenses, not to mention speakers and administrative expenses, represents a sizeable investment. If the account is charged to public relations, then American Standard is to be commended for a demonstration of enlightened self interest in advancing understanding of ideas to improve the human environment among the professions – architecture and engineering, which, in the end produce the finished product.

Schedule of Provincial Association Annual Meetings 1966-67

AIBC	Dec. 2	Grouse Nest, Vancouver
PQAA	Jan. 19, 20 & 21	Châteaueu Frontenac, Québec
MAA	Jan. 26, 27 & 28	Fort Garry Hotel, Winnipeg
AAA	Jan. 28	Palliser Hotel, Calgary
NSAA	Jan. 28	Lord Nelson Hotel, Halifax
SAA	Feb. 3 & 4	Sheraton-Cavalier Hotel, Saskatoon
AANB	Feb. 3 & 4	Brunswick Hotel, Moncton
OAA	Feb. 16, 17 & 18	Royal York, Toronto

- 1
Group Health Centre, Sault Ste Marie
2
Steaie Science Library, York University
3
Imperial Oil, Highway 400 Service Centre
4
Robert J. Smith Apartments, Etobicoke

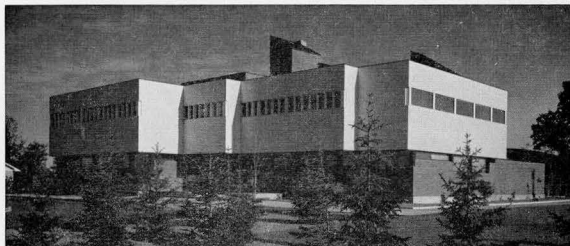
- 5
Beth Israel Synagogue, Peterborough
6
Sault Ste Marie Public Library
7
North Bay Public Library

Ontario Masons' Council 1966 Awards

The Group Health Centre in Sault Ste Marie, Ontario, by Jerome Markson won this year's award of excellence in the third annual competition of the Ontario Masons' Relations Council for outstanding Ontario buildings designed by architects and constructed essentially of structural clay products.

Awards of merit were presented for the following six buildings:

Steaie Science Library
York University, Toronto
Architects: Gordon S. Adamson & Associates
John B. Parkin Associates, Shore, Moffat and Partners



Imperial Oil, Highway 400 Service Centre
Southbound Lane of Highway 400, South of King City Interchange
Architects: Banz-Brook-Carruthers-Grierson-Shaw

Robert J. Smith Apartments
Etobicoke, Ontario
Architects: Boigon & Heinonen

Beth Israel Synagogue
Peterborough, Ontario
Architects: Craig, Zeidler and Strong

Sault Ste Marie Public Library
Sault Ste Marie, Ontario
Architects: Marani, Rounthwaite and Dick

North Bay Public Library
North Bay, Ontario
Architects: Wallis and Bywater

The 90 buildings entered in this year's program were judged by George F. Hamann, MRAIC, ARIBA and Raymond Moriyama, MRAIC, AMTIPC. The professional advisor was George Gibson, FRAIC.

Plumbing Hydraulics Show

The 1967 Plumbing /Hydraulics Show will take place in Toronto at the Queen Elizabeth Building April 17, 18 and 19, 1967. On display will be products and services of the plumbing and hydraulics (wet heat) industry.

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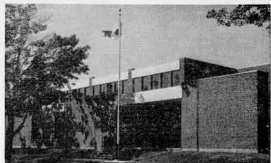
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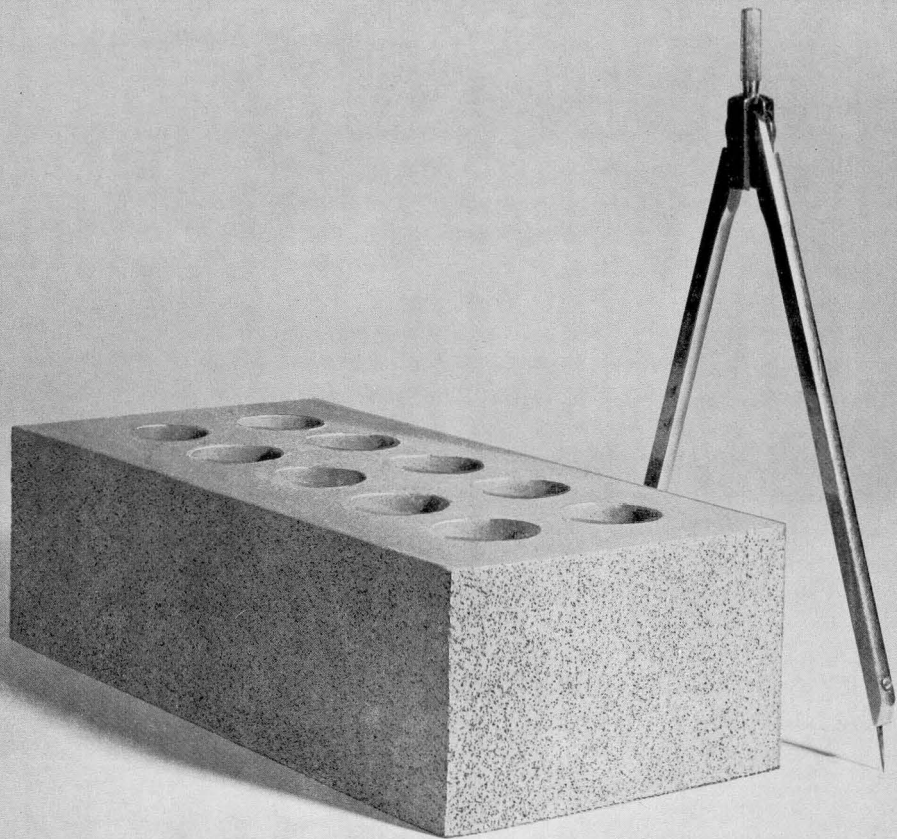
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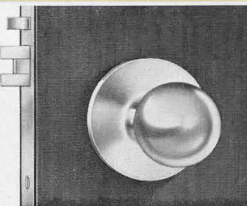
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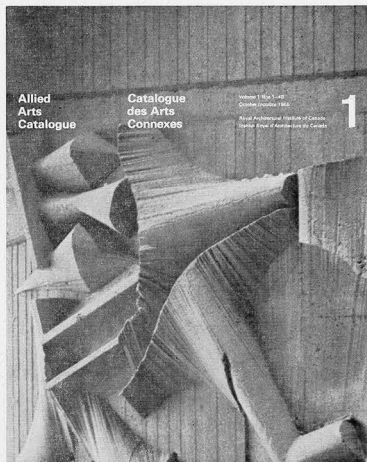
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From Institute Headquarters

Honorable George J. McIlraith, Minister of Public Works for Canada, has announced plans for a program of awards in recognition of architectural excellence in designs created for his Department. All architectural work produced from 1964 through 1967 will be eligible for entry. When the awards are announced in 1968 the winning consultants will receive citation plaques and the design submissions will form a traveling exhibition to promote the aims of the program. The Department also intends to give special consideration to the winners in future commissions for Government work. Dean John Russell, University of Manitoba School of Architecture, will direct administration of the program and exhibition. A similar program covering work done during the four previous years concluded with an awards presentation in June 1965. The aim is to recognize outstanding design done for the Government and to promote public interest in the architecture of Government buildings.

Among changes involved in the new regional reorganization of the Department of Public Works, the following new appointments are noted:

W. H. Robinson, formerly a Co-ordinating Architect in Ottawa, becomes Ontario Regional Manager of Operations with headquarters at Toronto.

R. J. Bickford, formerly Vancouver District Architect, becomes Pacific Regional Chief of Design.

E. A. Cook, formerly Edmonton District Architect, becomes Western Regional Chief of Design.

Harry C. Tod, formerly Winnipeg Executive Head, becomes Winnipeg District Director of the Western Region.

Richard F. West, formerly Ottawa District Architect, becomes Chief of Design in the National Capital Region.

Three plans of RAIC Group Insurance have been favorably received by members. The Professional Liability (errors and omissions) plan has been in particularly strong demand since its inception a year ago. For enrolment

information, write to Dunlop Farquhar Insurance Limited, 170 Metcalfe, Ottawa 4, Ontario. The Life Insurance plan is offered in units which pay \$100 monthly to the widow until the assured would have been age 65. Disability Income Insurance provides up to \$1,000 monthly in the event of disability. To date, there have been two claims; both have been paid and the two claimants have recovered and are back at full-time work. Enrolment information for both these plans available from Arnold Froom, CLU, 151 Slater Street, Ottawa 4, Ontario.

A group of 20 members visited new urban developments in Philadelphia, Baltimore and Washington in October, under the leadership of the RAIC - CMHC Joint Committee on Housing Design. In Washington, they were entertained by the AIA in its historic Octagon House.

A group organized by the Montreal Chapter of POAA also visited the Washington area in October.

The School of Architecture, Université de Montréal, welcomed two distinguished visitors recently in their program of special lectures. M. Yona Friedman, Paris architect and town planner, spoke on *Experimental Architecture*. Professor Dott G. Mazzariol, of the University of Venice, spoke on *Recent Trends in Italian Architecture*.

The Society of Architectural Historians has published *Architectural Guide and Period Walking Tours of the Old City of Quebec*, prepared by Allan Gowans and A. J. H. Richardson for the 1966 SAH Annual Tour in Quebec City. In this book, the authors discuss 143 buildings and include a full bibliography. SAH members were most enthusiastic over the excellent arrangements for this tour in August 1966 made in conjunction with La Société des architectes de la région de Québec.

Anyone concerned with urban development problems will find stimulating reading in *Habitation: Space, Dilemma and Design*, by Arthur C. Erickson, latest in a series of

Du siège de l'Institut

L'honorable George J. McIlraith, ministre des Travaux publics du Canada, vient d'annoncer la tenue d'un concours dont l'objet est de reconnaître la qualité architecturale des modèles créés pour son ministère. Tous les travaux d'architecture réalisés de 1864 à 1967 seront admissibles. Lors de la proclamation des vainqueurs en 1968, les architectes-conseils gagnants recevront des citations sous forme de plaques et les travaux soumis seront groupés en une exposition circulante destinée à promouvoir les objets du concours. Le Ministère entend aussi accorder aux vainqueurs une considération spéciale lorsqu'il s'agira de confier à des architectes de l'extérieur des travaux pour le compte du Gouvernement. M. John Russell, doyen de l'École d'architecture de l'Université du Manitoba, sera chargé de l'administration du concours et de l'exposition. Un concours du même genre, portant sur les travaux des quatre années antérieures, s'est terminé par une remise de prix en juin 1965. L'objet était de reconnaître les œuvres de haute qualité architecturale faites pour le compte du Gouvernement et de stimuler l'intérêt de la population envers l'architecture des édifices gouvernementaux.

Les changements effectués lors de la nouvelle réorganisation régionale du ministère des Travaux publics ont compris les nominations suivantes:

M. W. H. Robinson, architectes coordonnateur à Ottawa, devient directeur général des activités en Ontario, avec bureau à Toronto;

M. R. J. Bickford, architecte du district de Vancouver, devient chef de la composition architecturale pour la région du Pacifique;

M. E. A. Cook, architecte du district d'Edmonton, devient chef de la composition architecturale pour la région de l'Ouest;

M. Harry C. Tod, directeur administratif à Winnipeg, devient directeur du district de Winnipeg de la région de l'Ouest;

M. Richard F. West, architecte du district d'Ottawa, devient chef de la composition architecturale pour la région de la Capitale nationale.

Trois régimes d'assurance collective organisés

publications by the Canadian Housing Design Council. It is based on a lecture given by the Vancouver architect some months ago. Copies are available on request to the Council at CMHC Headquarters, Ottawa.

Another new publication of general interest is *The Citizen's Role in Community Planning*, edited on behalf of the Community Planning Association of Canada by Stanley H. Pickett, formerly of CMHC. Available from CPAC, 425 Gloucester Street, Ottawa 4, Ontario.

Advance program details are now available concerning the UIA Congress in Prague, Czechoslovakia, from July 1 to 7, 1967. Members planning to attend should make travel arrangements immediately through offices of Thomas Cook and Son Limited. You may wish to take advantage of reduced rates for group travel, plus special post-Congress tours, offered by Swissair: contact their sales representative, Charles J. McTigue, 1253 McGill College Avenue, Montreal 2.

We have received the advance program and registration forms for the symposium, *Weather-tight Joints for Walls*, to be held in Oslo, Norway, September 25-28, 1967, under the sponsorship of the International Council for Building Research, Studies and Documentation (CIB). Available on request to this Headquarters. The Quarterly Bulletin of CIB will be of interest to many of our members. Subscriptions at a nominal price from CIB, 700 Weena, PO Box 299, Rotterdam, Netherlands. The latest issue is devoted almost exclusively to the results of a Symposium on the Effects of Climate upon Buildings.

The Quebec and Ontario Organizations of Landscape Architects are sponsoring a conference on *Camping and Roadside Development* at Macdonald College, Quebec, next June. Information available from Louis Perron, PO Box 302, Montreal 9.

The latest Weinreb Catalogue is devoted to *Landscape Gardening and the Picturesque*. Very delightful.

Staff Notes: Mrs. Thérèse Nault has joined our Headquarters staff as my Secretary, replacing Miss Joan Rondeau who is now Office Manager of the Association of Universities and Colleges of Canada. Miss Claudette Lagimodière is the new Executive Secretary of the Manitoba Association of Architects.

Fred W. Price
Executive Director

par l'Institut ont été l'objet d'un accueil favorable de la part des membres. Le régime d'assurance responsabilité professionnelle (erreurs et omissions) est particulièrement en vigueur depuis son établissement il y a un an. On peut s'y inscrire en écrivant à Dunlop Farquhar Insurance Limited, 170 Metcalfe, Ottawa 4, Ontario. L'assurance-vie est offerte par unités garantissant à la veuve \$100 par mois jusqu'à la date où l'assuré, s'il avait vécu, aurait atteint l'âge de 65 ans. L'assurance du revenu en cas d'invalidité garantit jusqu'à \$1,000 par mois en cas d'invalidité. Jusqu'ici, il y a eu deux réclamations. Dans chaque cas, la somme prévue a été versée sous les auteurs des réclamations se sont remis et sont aujourd'hui au travail à plein temps. Pour tous renseignements au sujet de ces deux plans s'adresser à M. Arnold Froom, CLU, 151 rue Slater, Ottawa 4, Ontario.

Un groupe de 20 membres a visité des projets d'aménagement à Philadelphie, Ottawa 4, et Washington en octobre, sous la direction du Comité mixte de l'IRAC et de la SCHL sur les modèles d'habitations. A Washington, le groupe a été reçu par l'AIA dans l'historique Octagon House. Un groupe organisé par la section de Montréal de l'AAPO a également visité la région de Washington en octobre.

L'École d'architecture de l'Université de Montréal a accueilli récemment deux distingués visiteurs dans le cadre de son programme de conférences spéciales. M. Yona Friedman, architecte et urbaniste de Paris, a traité de "L'architecture expérimentale" et le professeur Dott G. Mazzariol, de l'Université de Venise, des "Tendances récentes de l'architecture italienne".

La Société des historiens en architecture a publié un "Architectural Guide and Period Walking Tours of the Old City of Québec", préparé par MM. Allan Gowans et A. J. H. Richardson à l'occasion de la tournée de la ville de Québec organisée par la Société en 1966. Cette oeuvre comprend des détails au sujet de 143 immeubles et une bibliographie complète. Les membres de la Société ont été enthousiastes au sujet de l'organisation de cette tournée qui a eu lieu en août 1966 avec le concours de la Société des architectes de la région de Québec.

Toute personne intéressée aux problèmes d'aménagement urbain lira avec profit "L'habitation; espace, dilemme et solution" d'Arthur C. Erickson, dernier travail paru dans le cadre d'une série de publication du Conseil canadien des modèles d'habitations". Cette publication est fondée sur une conférence donnée il y a quelque mois par cet architecte de Vancouver. On peut s'en procurer des exemplaires sur demande en s'adressant au Conseil, au siège de la SCHL à Ottawa.

On peut maintenant obtenir les détails du programme du congrès de l'UIA, qui aura lieu

à Prague (Tchécoslovaquie) du 1er au 7 juillet, 1967. Les membres qui songent à assister à ce congrès devraient prendre immédiatement leurs dispositions de voyage en communiquant avec un bureau de Thomas Cook and Son Limited. Ceux qui désirent profiter des tarifs réduits pour le voyage par groupe, et des tournées qui suivront le congrès, offerts par Swissair, sont priés de communiquer avec le préposé aux ventes de cette société, M. Charles J. McTigue, 1253 avenue McGill College, Montréal 2.

Nous avons reçu le projet de programme et les bulletins d'inscription pour le symposium sur "Les joints de murs à l'épreuve des intempéries", qui aura lieu à Oslo (Norvège) du 25 au 28 septembre 1967, sous la patronage du Conseil international pour la recherche, les études et la documentation en bâtiment (CIB). Vous pouvez en obtenir en vous adressant à nos bureaux.

Le bulletin trimestriel du CIB est de nature à intéresser un grand nombre de nos membres. L'abonnement est offert à un prix nominal au CIB, 700 Weena, CP 299, Rotterdam (Pays Bas). Le dernier numéro est entièrement consacré aux résultats d'un symposium sur les effets du climat sur les bâtiments. Les associations des architectes paysagistes du Québec et de l'Ontario organisent une conférence qui aura lieu au Collège MacDonald (Québec) en juin prochain. Pour tous renseignements s'adresser à M. Louis Perron, CP 302, Montréal 9.

Personnel: Mme Thérèse Nault est devenue ma secrétaire aux bureaux de l'Institut. Elle remplace Mlle Joan Rondeau qui est maintenant directrice du bureau de l'Association des universités et collèges du Canada. Mlle Claudette Lagimodière vient d'être nommée au poste de secrétaire administratif de l'Association des architectes du Manitoba.

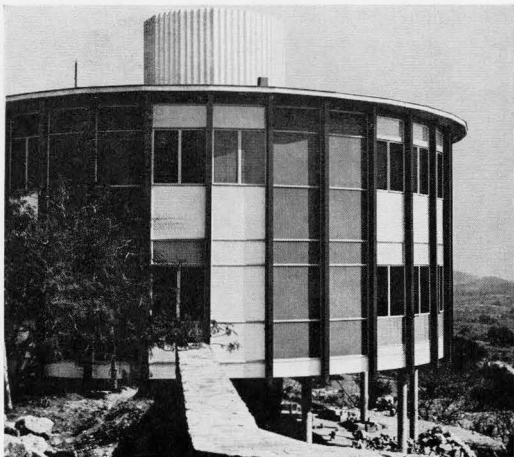
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Session '67

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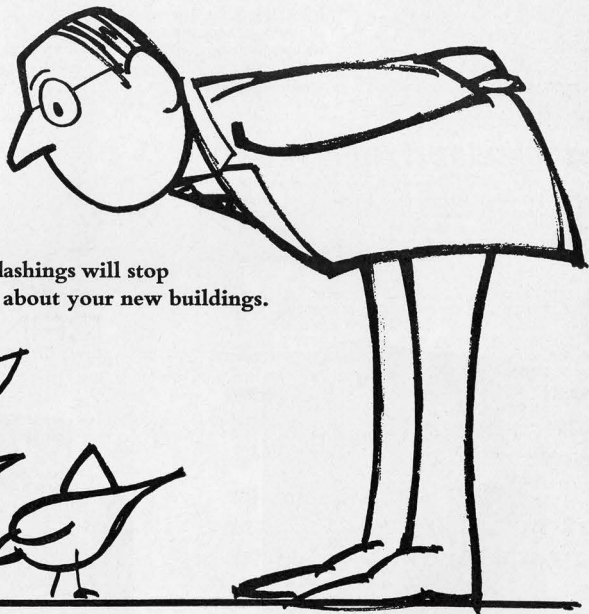
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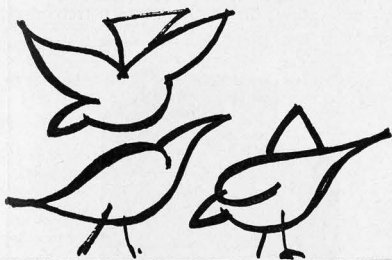
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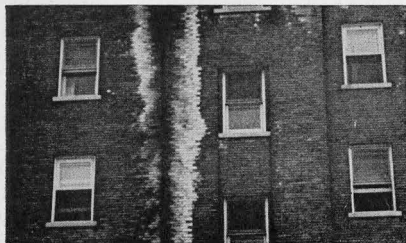
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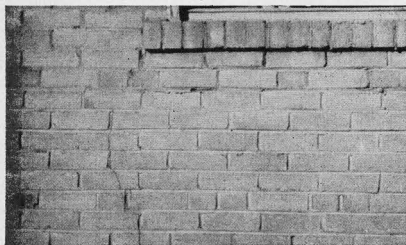
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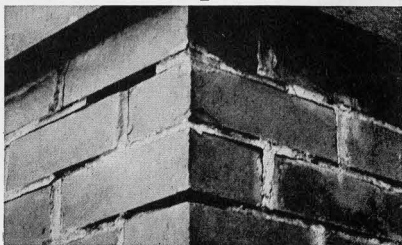
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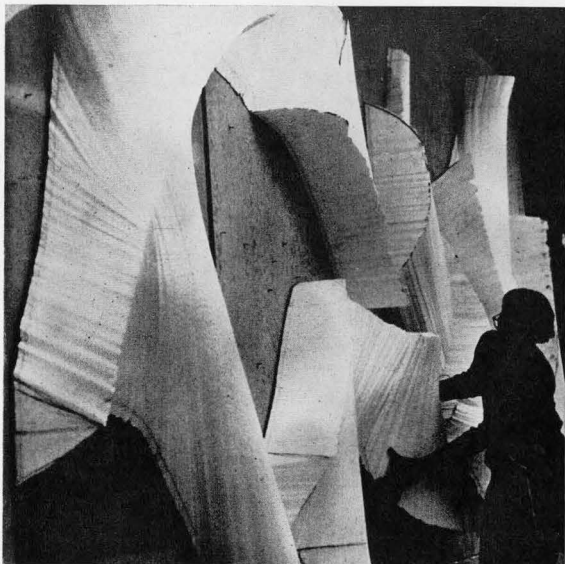
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The relationship of architects and artists who at the moment are working together, is in a state of flux. Wishful thinking that guidelines may be found from individual experience is dangerous and misleading. Trying to assess the process of *what* is happening while it *is* happening can easily lead to pedantic fixed rules of procedure "close to a cliché" (to quote an architect who is engaged in integrated work). This may produce a predictable result but is death to the exciting and unexpected. What we need to seek is the core of desire – the will or the want to do it, has brought well integrated projects about. With perception, we may grasp the self evident processes which may help to increase activity of the same nature.

That the means may be remarkable or the method somewhat intangible must be

acceptable for it is the life-blood of creative activity to remain fluid in nature.

Seeking a true source of the integrator's skill in Canada led to the taping of a four-hour discussion between a team of artists and an architect who, over a period of eight years, have eventually produced competent and exciting work which gives added interest to the architectural decor and is an integral part of it.

The discussion made clear that there are no tight rules to work by nor would rules for future behavior emerge out of the experience.

The Allied Arts section of the next issue will feature entirely the opinions of Irving Grossman, architect, Ted Bieler, artist, and Graham Caughtry, artist, the three very well-known and respected members of the team

whose work is featured in these pages. As the participating observer, who in this case felt it necessary to lay aside all personal opinions or previous misconceptions, certain factors in a good relationship did become clear.

What did emerge is the fact that no tight rules were set down for procedure, although it was evident that discussions were initiated by the architect at very early stages. Reference to the past would also seem redundant.

Gone are the common ideological backgrounds to create a common image. Gone is the uneconomical way of working together on a project in situ with hand crafted materials constructed with the building over a long period of time.

Gone is the affluent and enlightened client and with him the attitudes towards slave or ill-paid labor that made his indulgences possible. Instant city of 1967 can be as easily misled on art matters by looking backwards as were the town planners when attempting to measure today's problems of mushroom growth with a yardstick made for Boadicea's day.

In today's prospect of mixed philosophies, fragmented specialization forced an imposed relationships are to be avoided. "Today everything is its own thing" (Bieler). We have in evidence the early meetings of great minds in art, such as Sir Herbert Read and others, who instituted a well-meaning movement by government to encourage the integration of art in Great Britain. The failure of the plan of well-meaning patronage through economic aid, where no relationship was desired beyond earning ones daily bread, should be a warning to all the busy liaison groups presently so active in government enterprises.

Indeed, as a final observation, it would seem that the tender plant of human relationship between the architect and his artist is the main prerequisite for working together and this should be engendered and

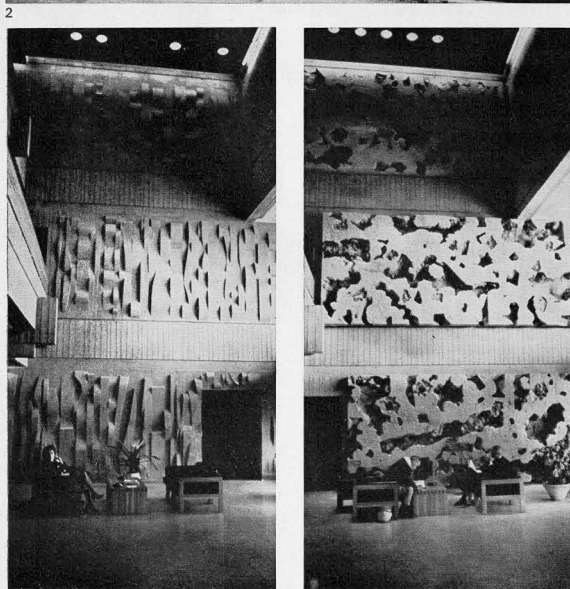
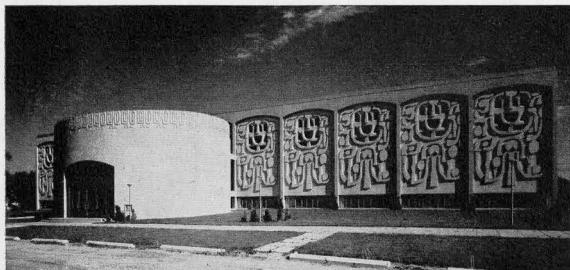
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Ted Bieler at work on wall of Administration Building, Expo '67; Architect Irving Grossman Ted Bieler au travail à l'Edifice de l'Administration, Expo '67; Architect Irving Grossman

2
An early attempt at wall integration. Graham Coughtry, Artist; Irving Grossman, Architect B'nai Israel. Beth David Synagogue
Un essai premier pour intégrer des murs.
Graham Coughtry, artiste; Irving Grossman, architecte

3
Wall by Ulysse Comtois at Expo '67
Administration Building
Mur par Ulysse Comtois, Edifice de l'Administration à l'Expo '67

4
Wall by Armand Vaillancourt at Expo '67
Building
Mur par Armand Vaillancourt, Edifice de l'Expo '67



fostered at the educational level. Both should enjoy mutual social and scholastic intercourse at the student stage. In professional life, the artist and architect should meet and enjoy each other's company rather than being coerced by legislation, compulsion or intimidation to enforce professional partnership. We have much to give each other in the mutual enrichment of our various professions through working projects. What is of the utmost importance is that the architect and artist "find" each other in every sense. They must not suffer, however busy they are, the intervention of paid or voluntary intermediaries in the guise of art advisory bodies or agents *per se* as buffers in the final choice of which man shall work for which architect. The growing habit in a busy professional life of delegating the "competition" commission furnished with "plans of the site" to a body of earnest and supposedly informed people is disastrous to any future hope of growth of mutual understanding. I have yet to find the architect who through personal contact with artists did not emerge as erudite and as capable as half the advisory members (which in this interim stage, I myself am often asked to help) who are the honest but unwelcome intermediary between the architect and his artist colleague.

Let me remind RAIC members that the architect members of the board have themselves taken the first positive step in direct relationship with artists by publishing the new RAIC Allied Arts Catalogue. Also, the Toronto Chapter in November spent a stimulating evening visiting work in progress for architecture at studios of three local artists, Ted Bieler (sculptor), Grace Svarre (tapestries) and Zbigniew Blazeje (kinetic construction). This is one of the activities which may well be instituted, along with the use of the Catalogue, as a working tool to forge a new linkage between our two professions. Most of all let this relationship give added pleasure to the professional and social life of the artist and architect and engender a healthy respect for each other's separate purpose. Next issue "The Integrators Speak".

Anita Aarons

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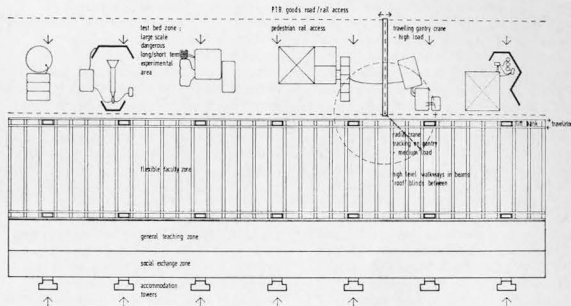
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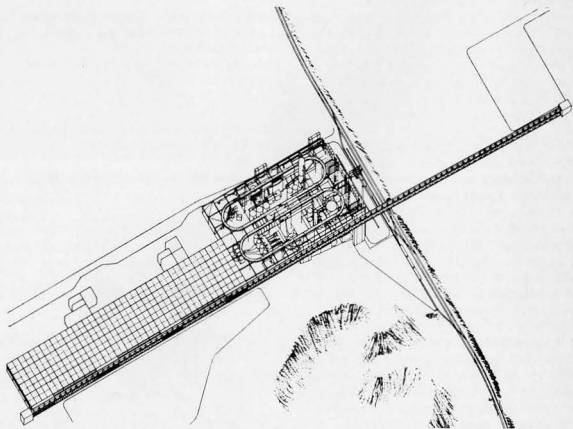
We don't like looking gift horses in the mouth. But, Fig. 1 is a picture of the bronze plaque for design, won by *Architecture Canada*. If it were redesigned, it would not be difficult to win an award for the greatest improvement in plaque design.



2

"The Potteries Thinkbelt (2, 3) is a seriously considered project for revitalizing that area in northern Staffordshire which has for generations depended for its livelihood and all sense of community on the manufacture of pottery. This industry has now become stagnant; the area a wasteland. Cedric Price's revolutionary proposal is that advanced education – and in particular advanced technical education – should become the new prime industry. But not education alone: local industries (old and new) would be encouraged to develop in close conjunction with university training and research programs. Properly concentrated, the best equipment and teachers could be available to all. There would be no uneasy demarcation between manufacture and learning. They would be integrated. To ensure this, teaching would take place wherever the particular research and manufacture related to it is sited. Students would be constantly on the move from laboratory to factory, from information center to home, and from one home to another. They would be taught in rail-buses, on the move or in sidings, utilizing to the fullest extent the existing rail network which has become unsuitable for high-speed traffic (there are far too many

3



halts and junctions) but is ideal for a regular service picking up people at frequent stops. For students would live all over the area. Their dispersal would mean that they would not live within a self-conscious and artificial "student-community". They would be members of a whole community, living and working together. So that, teaching factories and rail-buses apart, the greatest emphasis is on living units. These would be put wherever possible and wherever required. They would not be tied down to static civic and social centres – which don't in any case seem to work. Living units, like teaching units, would be moved whenever necessary; they would be expandable and, of course, expendable. No one would be strait-jacketed into a fixed community." Introduction to article in *Architectural Design*, October 1966.

While this might be swinging the pendulum too far, it does serve to point out the contemporary dispersal in space of the locus of our activities; of the discontinuity of the places in which each of us live, work and recreate; of the concepts of community as something having a contained physical counterpart as obsolete. The plans are also interesting attempts at a simple graphic language portraying activity as well as space and artifact.

Peter Collins has written in a Southam Business publication about Expo. He states that if Canada wanted to give a lead in planning, it should have empowered the Chief Architect of Expo '67 to impose complete "co-ordination" (my quotes) in the design of each pavilion, and the detail design of the spaces and relationships between them. His view is one which displays a total lack of understanding of conditions today, and the way in which planning is realistically and creatively attempting to order them. One can have historical nostalgia for a cosier world of conformity and homogeneity, but that won't bring it back. Richer rewards, however, are gained by taking one's ostrich head out of the sand, and facing the contemporary conditions of diversity and complexity. The problem is to order diversity without

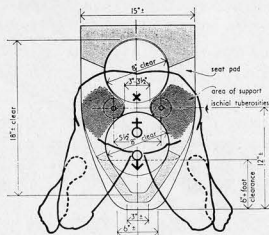
suppressing it. "Imposing complete co-ordination" is a syndrome of neo-renaissance or rather beaux-arts planning. Expo has done better than that (See *Architecture Canada*, August 1966 article by S. Staples). In his article he also comments on M. Fiset's introduction to "Architecture Canada" Expo issue, and states that the English version contains a grave mistranslation. Both English and French articles were issued by M. Fiset himself.

A 116 page paperback research report from the USA entitled "The Bathroom, (4) Criteria for Design" by Alexander Kira, does not sound exciting. It is a very remarkable and extraordinarily fascinating document, the product of eight years' intensive investigation into the design criteria of all aspects of personal hygiene. Previous reports have revealed that there are architects who are obsessed by such problems as the shape of the W.C. This is a document which they will relish.

Some indication of the scope of the report is given by selected headings from the contents page:
Historical and cultural aspects of personal hygiene attitudes, practices, and accommodations.

Major personal hygiene activities – problems and criteria for equipment design.

Body cleansing : Social and psychological



4

aspects; Anatomy and physiology of cleansing.

Elimination : Social and psychological aspects; Attitudes towards elimination processes and products; Confusion between elimination and sex organs and functions; Privacy; Attitude formation and training. Physiology and anatomy of, and design considerations for, defecation. Physiology and anatomy of, and design considerations for, urination. Other related activities – general problems, and criteria for design; Miscellaneous hygiene and grooming activities; Personal non-hygiene activities.

The author's capabilities as a psychologist are especially relevant, for as he shows clearly "There are almost as many psychological and cultural problems to be solved in developing design criteria (in the bathroom) as there are purely physiological or functional ones, and in some instances, it may almost be said that the problems to be solved are the psychological and cultural ones." As an example of the dominating influence which psychological attitudes can have on the design and use of bathroom facilities Kira discusses the bidet: "Both the activity and the equipment in this case are highly charged emotionally. . . . Through misunderstanding and misinformation, the bidet has become associated in the average person's mind with sex and sex-related usage. . . . This misconception is still widely held.

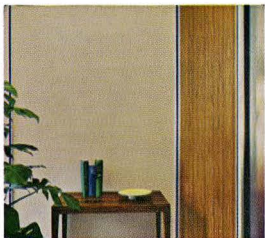
Kira concludes his report by saying "Perhaps more amazing than the fact that the bathroom is as inadequate as it is, is that the study of personal hygiene and its facilities has, to date, eluded all of the researchers who have otherwise delved into almost every facet of human activity. It is hoped, however, now that a start has been made, and some of the veil of embarrassment lifted, that this most basic human activity can be examined without fear and that the facilities to accommodate it can assume their proper place of importance in the home." This study is so brilliant that it is no less than the author deserves that his hopes should be fulfilled. *The Architectural Review*, October 1966

A.J.D.

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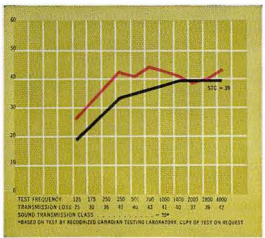
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Page 33

Light Cladding of Buildings R. Michael Rostron

Les revêtements extérieurs ont été un facteur important dans la construction contemporaine. Aux débuts, quelques revêtements étaient de poids léger mais la plupart était en maçonnerie sculptée en formes rappelant la Renaissance italienne ou Rome. De nos jours, l'image et la tendance est plutôt l'immeuble classeur en gratte-ciel à surface grillagée. "Revêtement" évoque l'idée d'un habit protecteur couvrant les membres d'une ossature nécessaire et utilitaire. Le revêtement léger, comme le vêtement, devrait rendre possible un contrôle de l'environnement plus complet entre l'extérieur et l'intérieur mais le dessin de murs-rideaux restera bien difficile tant que l'architecte ne se préoccupe pas plus des méthodes de fabrication, d'assemblage sur chantier et des procédés de montage. Ce livre pourrait aider à résoudre bien des problèmes rencontrés en choisissant la méthode de revêtement. Son contenu est forcément technique en grande partie, et l'auteur insiste trop sur l'aspect séparant du mur-rideau et néglige l'aspect contenant. Les présentations graphiques sont insuffisantes aussi bien que des descriptions des caractéristiques de performance des systèmes et des méthodes d'assemblage et de montage.

Stuart Wilson, *MRAIC, Ecole d'Architecture, Université de McGill.*

Page 34

The Concrete Architecture of Riccardo Morandi Giorgio Boaga et Benito Boni

Riccardo Morandi est un ingénieur italien qui n'est pas aussi bien connu que Perret, Nervi ou Ove Arup mais qui mérite bien de l'être de tous points de vue. Le présent livre remédiera à cette lacune et peut être recommandé à tous ceux qui s'intéressent aux problèmes de forme, de la traduction de ses déterminants par le génie créatif d'un seul homme. Sa croyance dans la totalité de forme et ses études ont fait de Morandi la

version moderne d'un architecte de la Renaissance et ses œuvres sont la preuve que la diversité et la perfection des formes originant dans la rationalité produisent une grande architecture. La plupart de ses œuvres présentent des problèmes de structure spaciaux, soit de dimension, d'emplacement ou de fonction. Dans ses bâtiments comme dans ses ponts, le béton est le matériau principal et Morandi sait l'exploiter pleinement. Ici, les dessins et les photographies sont groupés avec le texte suivant les déterminants et les facteurs communs à chaque groupe et chaque cas. C'est un excellent livre à tous points de vue.

B. P. Wisnicki, *Ecole d'Architecture, Université de la Colombie Britannique*

Page 36

Tropical Architecture Maxwell Fry and Jane Drew

Drawing from their vast professional experience, the authors have produced a fact-filled volume containing solutions, recommendations, examples, theories and opinions on the practice of architecture in tropical regions. They are concerned with three themes; people and their needs, climate and its health risks, materials and methods of construction, which are developed in six chapters with relation to 1) climate, 2) housing, 3) urban housing, 4) civic, commercial and industrial architecture, 5) schools and universities and finally 6) health, hygiene and hospitalization. Twelve appendices complete the technical outline.

Who is this book for? "What we can do here is to attempt to arrange what knowledge and experience we have, that will augment, define and perhaps refine the vocabulary that each reader may bring to the creation of new works of architecture. Architecture is a personal art responding directly to what its creator brings to it of feeling, knowledge and experience". (p. 17) The authors' intention is to share their knowledge and experience with other architects. There is a

wealth of knowledge and experience, perhaps too much so, or perhaps the confusion is a result of lack of organization in the presentation of information. I would have preferred more sub-titles, greater distinction between facts and theories, between personal opinions and indigenous ideas. Bibliographical references should have been less sporadic and more precise. It will help architects in a practical way and then indirectly but more importantly draw attention to a field that is just beginning to be explored systematically.

Jacques H. Derome, *MIRAC, Ecole d'Architecture, Université de Montréal.*

Page 36

The Regional City Édité par Derek Senior

Le sous-titre "une discussion anglo-américaine de la planification métropolitaine" indique précisément ce qu'il y a dans ce livre de stimulant: un rapport d'un symposium tenu en 1964 où des planners américains et britanniques comparèrent leurs expériences et attitudes. Le résultat est une contribution majeure à la littérature sur ce sujet. Le symposium traitait tous les aspects du sujet et n'évitait jamais les causes des problèmes. Par exemple, prenons la question du contrôle des terrains, les conséquences des hausses en valeur. En Grande Bretagne, on croit que la hausse en valeur d'un terrain doit être contrôlée par le public; en Amérique, c'est le contraire. Ceci fait partie de la plus grande question — jusqu'à quel point les contrôles publics doivent-ils gouverner le développement de la région urbaine? En somme, les Américains font les recherches et l'analyse, les Britanniques la planification. Les Américains peuvent apprendre des Britanniques l'acceptation de la direction publique du développement dans l'intérêt public; les Britanniques peuvent apprendre des Américains que la planification régionale n'est pas simplement une extension du plan civique et de l'architecture.

R. W. G. Bryant, *Département de Géographie, Université Sir George Williams.*

Page 37
Environmental Control
Robert E. Fischer

Ce livre consiste d'articles choisis publiés dans le "Architectural Record" durant les derniers 15 ans par plusieurs auteurs ; par conséquent il manque la continuité nécessaire à une oeuvre de ce genre. Diviser en trois sections, Chauffage et Climatization, Eclairage, et Acoustiques, la première section est de loin la plus complète. Les exigences mécaniques de diverses sortes de bâtiment sont passées sous revue, dont les appartement, écoles, bibliothèques, etc. En tant que livre de référence, sa valeur répond aux intentions de l'auteur, mais le titre laisse entendre que toutes les considérations relatives au contrôle de l'environnement seront considérées mais en fait, le traitement des considérations thermiques, visuelles et acoustiques n'est qu'un aspect de ce contrôle.

Norbert Schoenauer, MRAIC, Ecole d'Architecture, Université de McGill.

Page 38
Urban Design: The Architecture of Towns and Cities
Paul D. Spreiregen

Du point de vue de l'architecte, "Urban Design", une sélection d'articles publiés dans le Journal de l'IRAC de décembre 1962 à novembre 1964 est un des livres les plus compréhensifs publié sur les problèmes et conditions de nos villes. Il traite l'évolution de l'urbanisme de ses débuts jusqu'à nos jours, la présentation des faits est claire, les illustrations de l'auteur fort bien, le tout est bien mieux organisé que la plupart des textes similaires. Les influences sociales et techniques qui ont produit les formes urbaines sont développées et substantiées, la continuité est assurée par un choix d'exemples bien identifiés dont la plupart sont régionaux et montrent les éléments contribuant au succès ou au manque de succès de nos villes. Une étude plus approfondie des influences sociales, politiques et économiques aurait rendu ce livre même plus utile mais il reste un des meilleurs lorsqu'il s'agit du traitement des manifestations physiques des forces formant nos villes.

A. J. Donahue, MRAIC

Page 39
SER 1: Environmental Abstracts, University of Michigan, 1965; SER 3: Environmental Analysis, University of Michigan, 1965; The Effect of Windowless Classrooms on Elementary School Children, University of Michigan, 1965

Ces trois livres résultent des recherches rendues possibles par la Ford Foundation. L'École de Recherches Environnementales a pour but "d'établir une règle environnementale par laquelle l'environnement scolaire peut être mieux créé et son effet sur le savoir et la performance mesuré". SER 1 est une sélection d'articles scientifiques compilée par l'équipe de la SER afin de produire une référence de rapports techniques traitant du rapport entre l'environnement, le comportement et les sens. SER 2 fait le sommaire et évalue l'étendu du savoir actuel. La thèse motivant les travaux de la SER est la suivante; on n'a plus besoin de considérer l'architecture comme fournissant unabri uniquement; maintenant elle peut encourager un contrôle positif de l'environnement total, donc par définition n'est plus la construction per se. SER 3 essaie d'indiquer la méthode de définir les divers rapports environnementaux qui devront être examinés, et suggère une méthode de compilation de données afin de désigner des environnements plus désirables. Le troisième livre est "une opération pilote pour développer les techniques de recherches et représenter quatre ans de recherches dans une école primaire de Michigan. Malheureusement, les conclusions tirées ne valent pas la dépense ni de l'argent ni du temps.

Ces trois livres montrent le désir de l'équipe d'appliquer les techniques de recherche développées pendant des années par les sciences physiques à une étude de l'environnement de l'homme en général. On pourrait donc attendre à l'avenir des résultats plus concrets des futures études de la SER.

Denis M. Jesson, Faculté d'Architecture, Université de Manitoba.

Page 39
SER 2: Environmental Evaluations University of Michigan

SER 2 est le deuxième rapport d'une série publiée par l'Université de Michigan. Il essaie de résumer et d'évaluer l'état actuel de nos connaissances des aspects divers de l'environnement affectant le comportement humain en général et l'éducation en particulier. Comme manuel et livre de référence, la valeur de ce recueil est inestimable. Groupant des recherches de plusieurs disciplines et ayant pour sujet "L'homme comme mesure", il clarifie ce qui est connu et ce qu'il faut faire au sujet des interactions de l'homme et son environnement. Nos rélicitations aux auteurs. Leur oeuvre nous rapproche à une programmation plus compréhensive puisqu'il met en évidence toutes les considérations de dessin, nous aide dans notre travail interdisciplinaire en rapportant les connaissances fondamentales de sciences sociales par rapport aux bâtiments. Il sera utile aux éducateurs en faisant ressortir les effets du plan d'une école sur les élèves. Autre mérite: la

révélation de notre manque de connaissances relatives à la nature de l'environnement, son effet sur nous, l'interaction de l'homme avec l'environnement, la révélation du besoin de recherches fondamentales et appliquées.

E. Lindgren, Ecole d'Architecture, Collège Technique de la Nouvelle Ecosse

Page 41
Adolf Loos
Ludwig Munz et Gustav Kunstler

Deux faits importants sortent de cette excellente monographie – Loos avait une mission et il avait de l'intégrité. Sa mission – ramener la solidité à la construction et la noblesse à l'architecture; de ces jours, les deux étaient perdues de vue. Son intégrité était hors-pair; il détestait tout de ce qui était irresponsable et incompetent, surtout l'Art Nouveau. Il attaqua sur deux fronts: l'architecture et la littérature. Ce livre note son architecture construite et projetée sous quinze titres principaux. Chacun traite les origines et la signification de des formes. Le catalogue de ses oeuvres révèle quelques projets fascinants mais peu connus, et ses oeuvres littéraires ne sont pas négligées. Un troisième fait important ressort de ce livre. Pour la première fois Loos est le sujet en anglais d'une étude sérieuse dans l'histoire de l'art.

George Balcombe

Page 42
High Density Living
Rolf Jensen

Un titre plus exact aurait été "L'Habitation en Gratte-ciel" puisque l'auteur base son livre sur la supposition erronée que les hautes densités de population signifient automatiquement les immeubles gratte-ciel, excluant les habitations à hauteur restreinte. Au début, il traite les considérations de la planification, la densité, des facteurs économiques et sociaux, de l'aménagement, du planning des détails, de la structure et des services, avec appendices détaillés et illustrations des projets de dix-sept pays. Ce livre réussit comme étude internationale de la situation présente bien que les projets illustrés et décrits brièvement sont groupés par pays plutôt que pour illustrer une idée particulière. Malheureusement, la direction des développements dans ce domaine est rarement indiquée et il y a bien peu de suggestions relatives aux nouveaux besoins et solutions (tel que l'Unité d'Habitation). En détail, la valeur des illustrations est discutable; les descriptions des projets ne sont pas comparatives ou renvoyées, les plans n'ont pas d'indication d'échelle.

Jonas Lehrman, Faculté d'Architecture, Université de Manitoba.

Light Cladding of Buildings



Light Cladding of Buildings

R. Michael Rostron

The Architectural Press, London, England; in Canada, General Publishing, Don Mills, Ontario; 1964, 359 pages, 63s

Ever since the first curtain-walls on the tall steel-frame buildings of North America, cladding has been an important factor in contemporary building-design. Some of the earlier exterior walls were light-weight but the majority were made of heavy masonry sculpted into forms reminiscent of Renaissance Italy, Imperial Rome or even of ancient American Indian architecture, blown-up large. The filing-cabinet high-rise tower with the smooth-face gridded surface is the newer trend and image of today.

The term "cladding" is not essentially North American, although our National Building Code team is considering or has considered the adoption of this technical category, as a way of englobing a vast number of building operations and forms. Should the term be adopted, then the ensuing implications might well lead to fundamental changes in the make-up of the code.

"Cladding" evokes the picture of a protective garment thrown over the bones of a necessary and useful structural frame. Like the new clothing, using man-made fibres, light-weight cladding of buildings should make possible a more complete environmental control between inside and outside. At the moment, the fashion for large uncontrolled glazed surfaces has partially defeated this possibility.

The book, under review, should ease some of the problems encountered in the choice of suitable cladding methods for various types of buildings. The author emphasizes, in a short historical section, the continuity of this constructional method both through the pre-historical and historical periods. The limited connection of this method with historical architecture is revealed.

Covering a structure with cladding, to make a shelter, remains distinct from either heavy or light-weight surface methods of building, wherein the skin or outer wall has a structural role to perform. Cladding as a secondary structural infill, or cover-fabric, always goes together with a primary load-resisting structural frame to make an enclosed space. The recent widespread use of cladding methods has depended on industrial and scientific development, and the resultant availability and relative cheapness of high tensile strength metals for structural frames. Modern building cladding is the child of technology.

Inevitably the text of "Light Cladding in Buildings" is largely technical in content. Apart from the external presence of visual symbolic patterns which are often dry and meagre, the curtain-wall is primarily a separating and an enclosing or containing fabric. The separating aspects are probably more critical than the containing ones, particularly in high-rise buildings in difficult climates. The book under review says little about the internal or container conditions.

The relationship of all external energy conditions, whether primarily man-made such as sound, or natural such as the weather, to the curtain-wall and hence to the building, and its inhabitants, is crucial.

Any cladding membrane serves as a modulator between two environments at any one period or phase of operation. The cladding system constitutes an environmental control element and must be designed in conjunction, if necessary, with a heating, ventilating and cooling system, to maintain the internal environment at steady human comfort or other conditions. For this reason, cladding may be said to possess performance characteristics even though the actual physical elements appear to be relatively inert. The performance of the wall should be judged as a directed system or group of systems which perform under these given conditions.

The author provides a section entitled "Performance" which deals with various forces acting on the cladding, how they may be determined, as well as suggestions for designing the cladding to withstand or accommodate itself to these actions of the external environment. This chapter contains sections on some of the aspects of performance. Diagrams are employed but communication is essentially by words.

More emphasis on a logical analysis of the actual categories of the purposeful aims or so-called functions of various curtain walls and cladding methods, and their necessary hierarchical relations, might have led to an arrangement and exposition of information which would have been more easily grasped. Presentations, utilizing simplified graphical and symbolic methods, in the description and analysis of curtain wall make-up and overall performance characteristics would have improved this book as a reference for designers. Generally speaking more is included concerning the performance characteristics of different materials and separate structural elements, from which a curtain wall might be composed, than is said about the performance characteristics of overall systems. Perhaps this is inevitable at this stage of development. However, one wonders why such a large part of this treatise concentrates on various materials and their properties, since most of this information might well be obtained from handbooks or other sources.

The building processes of assembly and erection which do have or should have an important role in design-decisions are perhaps insufficiently stressed. A short section, including some photographs, is devoted to erection. The designer of curtain-walls, or of cladding systems, for high-rise buildings should read this section first.

Stuart Wilson, MRAIC, School of Architecture, McGill University

The Concrete Architecture of Riccardo Morandi

*Giorgio Boaga and Benito Boni
Alec Tiranti Ltd, London, England, in Canada
Clarke Irwin & Co. Ltd, Toronto;
1965, 234 pages, \$21.50*

The names of Perret, Maillard, Freyssinet, Nervi, Ove Arup are familiar to most architects but relatively few have heard of Riccardo Morandi, the Italian engineer of creative ability, philosophy and accomplishments of equal rank with the others.

A book recently published in the English

version should remedy this and its study is highly recommended to everyone interested in problems of form, of the translation of its diversified and complex determinants into geometry and mass under the catalyst of one man's creative genius, logic and urge for perfection.

A long apprenticeship in the "art of construction", starting with his own early designs of buildings proceeding through co-operation with contractor's and "calculator's" work of fitting other people's designs with structures and dimensions, together with continuing interest in form and belief in its totality helped Morandi blossom forth after the last War into a modern version of a renaissance master architect. His designs are scattered through Italy, you find them in Venezuela, British Columbia, proposals reach Persia, Argentina and different parts of Europe.

These designs prove clearly that the diversity and perfection of form originating in rationality — as is the case of great engineer builders mentioned before and Morandi — results in great architecture parallel with forms derived from the interpretation of modern thought by people such as Corbusier, Mies van der Rohe and their peers.

Morandi's designs illustrated in the book have faultless structural logic; they have been built in the competitive world but there is more to them. His bridges merge with surroundings, delicate arches soar over precipitous ravines, while shallow elegantly cambered beams, without sacrifice to their modern prestressed lean look fit into the renaissance air of Florence. Long viaducts carrying the traffic high above the broad valleys and settlements use not the conventional massive piers but groups of slender posts for support. Their interplay with light, their airiness and scale make the viaducts compatible with the environment.

An almost six-mile long bridge over Lake Maracaibo in Venezuela is probably Morandi's crowning achievement. Severe functional demands and construction problems are answered by an unorthodox

solution of startling appearance. Besides logic and inventiveness a great deal of courage and conviction was needed in the designer.

Morandi's buildings (exhibition halls, thermal and nuclear power stations, hangars, etc.) are of a special type, where size, site or function present a considerable structural challenge. As in his bridges, concrete is the principal material with all its possibilities fully exploited. Prestressing combined judiciously with reinforcing, precasting with situ work, pure tendons in form of external cables allow for forms unusual in conventional concrete solutions. Slender struts, inclined support, cellular volumes, non-orthogonal arrangement of planes. However these are all sound from the point of view of statics and building techniques.

The visual material, drawings and photographs — some of them startling — as well as commentary and analysis are put together well by two young Italian architects who had access to complete files of Morandi. The structures are well grouped, the determinants and common features for each group and case are discussed thoroughly and clearly.

Particularly effective is the combination of photographs of various stages of construction and completed structures with drawings of sections and outlines showing the network of reinforcing and prestressing. This compares true proportions with visual impressions and almost shows the flow of forces through the structure.

On the whole this is an excellent book offering clear proof that logic, rationality and technology are not synonymous with dullness, standardization and sterility.

*B. Paul Wisnicki
School of Architecture,
University of British Columbia*





Swelling and Shrinking Subsoils

by J. J. Hamilton

UDC 624.15

Clay subsoil provides a satisfactory bearing medium for many buildings. Occasionally, however, a combination of circumstances causes changes in the volume of the clay. This swelling and shrinking is sometimes of such magnitude that it, in turn, causes movements in a building, sometimes with disastrous results. This Digest describes some of the common causes of clay volume change and discusses the precautions that must be taken to prevent damage to buildings founded on subsoils that are susceptible to volume change.

Most of the foundation problems of residential, light commercial and industrial buildings, buried pipes, sidewalks and roadways do not result from excessive loading of the subsoil but from swelling or shrinking of the soil itself. In the subhumid to semi-arid regions of the Prairie Provinces and inland British Columbia, volume changes of clay-rich foundation strata are often caused by the secondary or side effects of man's construction and landscaping activities. In the more humid regions of Eastern and coastal Canada, shallow foundations placed on thick clay deposits may become seriously distorted as deep-rooted vegetation removes soil moisture which cannot be readily restored by infiltration or internal moisture movement (CBD 62). In many instances, the cost of correcting these foundation problems greatly exceeds the original expenditure on the foundation. If these problems are recognized in advance by designers, building officials, and owners, it will be possible to provide trouble-free foundations.

Examples of Foundation Failures

Numerous cases of foundation problems arising from swelling and shrinking subsoils have been observed in the field studies of the Division of Building Research. The worst case occurred in the dry grasslands of the central prairies where a floor in a shallow basement heaved at a continuing rate of almost 1 inch

per year. When this building was examined by DBR the floor had heaved more than 2 ft. In addition, the wall footings, which are more heavily loaded than the floor, had heaved differentially in excess of 5 inches.

In more humid areas of the northern and eastern prairies, on sites where trees have been removed prior to construction, basement floor slabs may heave by several inches. In one case the floor slab heaved more than 1 foot and wall footings more than 4 inches in less than 5 years. Where this heaving was resisted by partition walls, pressures were of sufficient magnitude to crush 8-inch concrete blocks.

Differential settlements of footings in excess of 1 foot have been observed when trees have grown near foundations on soils that have not previously supported tree growth. Such disruptive settlements may develop in a few weeks during periods of drought or they may occur gradually over the lifetime of a tree when the infiltration of moisture is less than that required by the tree.

Slabs-on-grade upset the natural transfer of moisture to and from the ground and for this reason they are subject to annual as well as long-term movements. Annual cyclic edge movements of an inch or more, and net edge heaves of more than 5 inches over a period of several years, have been observed. Spectacular heaves at rates of 3 inches or more per month have been observed due to plumbing leaks beneath light industrial or residential slabs.

Soil mechanics and foundation engineers now view these problems in the light of a growing understanding of the contributory factors. Completely satisfactory designs are now being made in most instances when the services of these specialists are obtained. They are, however, rarely engaged for the selection of foundations for the majority of buildings in the small to intermediate size range, including

single and multiple family dwellings, churches, and light commercial and industrial buildings.

Contributory Factors

The main factors that control the performance of foundations in such conditions are soil, climate and vegetation. The disruption of the natural equilibrium existing between these factors and the compatibility of the foundation structure with present and future subsoil conditions influence the magnitude of the problem.

Most of Canada's surface soils have been shaped and influenced by glaciation. Several western Canadian cities are located on deep deposits of glacial lake clays of high swelling and shrinking potential. Occasionally, glacial clay tills and alluvial clays are also troublesome. The preglacial Cretaceous clay shales are potentially highly swelling but are fortunately usually covered with considerable depths of more recent materials and generally only cause concern in large structures and engineering works requiring deep excavations. The marine clays deposited in estuaries in glacial times and which have since risen above sea level present serious shrinkage problems in several coastal areas.

It is possible to delineate the major deposits of troublesome subsoils on pedological and geological maps. Mineralogical investigations have shown that the clay soils of Western Canada are remarkably uniform in mineralogy and that the swelling mineral - montmorillonite - is a major constituent. Also important in the geologic history of a subsoil is its stress history, i.e., whether the soil has been previously stressed above its present conditions by loads since removed or by desiccation.

Climate has a great influence on soil moisture conditions. The engineering behaviour of soils is governed in large measure by their moisture contents. Most clay subsoils exist in an approximate state of moisture equilibrium that may be seriously disrupted by construction, drainage or irrigation. Lawn watering in urban areas can have results equivalent to a substantial increase in rainfall - by amounts estimated to be in excess of 25 per cent for at least one Canadian city. This practice often results in a marked increase in subsoil moisture and volume and brings about new problems for shallow foundations.

Vegetation also plays an important role in affecting soil moisture content. It may be visualized as a very efficient pump capable of extracting great volumes of water from relatively impermeable soils. Natural grasses and other similar vegetation may be capable of removing moisture from depths greater than 8 ft and at a rate of $\frac{1}{4}$ inch of water per day.

Large trees have been known to extend their roots to depths in excess of 25 feet and horizontally to distances greater than $1\frac{1}{2}$ times the height of the tree. Competition of shallow and deep-rooted plants in the same soil profile tends to accelerate soil moisture depletion.

Nature of Swelling and Shrinking Clay Soils

The physical dimensions, or volume, of coarse-grained soils, such as sand, are governed solely by loading stresses. In contrast to this, the volume of a clay soil is governed not only by external stresses (loading) but also by internal stresses.

The weight of overburden and foundation loads are the principal external forces acting on a subsoil. The internal stresses arise from physico-chemical forces which increase as the soil dries. A clay which has long existed in an environment where abundant moisture has been available, will have small internal stresses and has little tendency to take up more moisture. Roots of plants, however, may induce internal stresses much greater than the stresses applied by building foundations!

In humid areas natural clay soils with high initial water contents and which have not previously been subjected to drying or consolidation by loading will tend to shrink on drying or loading more than they will tend to swell on wetting or unloading. Under other climatic conditions, clays that have been subjected to cyclic moisture change or previously subjected to higher loading may tend to swell greatly when allowed access to water under light loading. Their rate of swelling is governed by the rate at which water can move into the clay, i.e., the permeability of the clay. Because of small pore size and thus their low permeability, clays may take years to reach new moisture equilibrium conditions.

The magnitude of heaving or shrinkage is dependent on the amount and type of clay minerals present, the previous stress history of the deposit, the magnitude of water content change from initial to final equilibrium conditions, and the thickness of the soil strata affected in addition to elapsed time. Although clays are complex materials, those that will be troublesome can be identified and rates and magnitude of volume change estimated from standard laboratory tests.

Seasonal and Long-Term Effects

The vertical movements of various natural subsoil strata have been measured at several test sites in Canada to establish the effects of natural grass, cultured grass, summer fallow, pavement cover, and large trees. Both annual and long-term trends have been measured. Under subhumid climatic conditions, annual

movements under grass cover usually have a maximum range of approximately 4 inches at the ground surface. In very dry years, shrinkage of over 1/2 inch has been measured at the 8-foot depth. The annual range of movements under summer fallow may be somewhat smaller than for grass cover.

Some of the serious problems created by the encroachment of deep tree roots into foundation strata have been described in CBD 62, particularly with reference to the Leda clay of the St. Lawrence and Ottawa valleys. On many tree-lined streets in several cities in Western Canada, the tell-tale bowl-shaped depressions in sidewalks, roadways and landscaping, and foundation distortions give evidence of progressive shrinkage settlements, often of a foot or more. Conversely, the removal of heavy tree growth from a building site prior to construction has resulted in some of the most spectacular heaves experienced by shallow foundations.

Paved surfaces cut off evaporation, and progressive heaving due to an increase in moisture may continue for several years after construction. A heaving rate of 1 inch per year is not uncommon. Landscape irrigation also has long-term cumulative effects on the volume change of clay subsoils. Uncontrolled roof runoff and excessive lawn watering have precipitated foundation problems in many small buildings. Localized shrinkage due to moisture migration caused by heat loss from structures has also had serious consequences.

The most devastating heaving occurs when the reduction in external stresses caused by excavation is combined with an abundance of subsoil moisture. This swelling results in cracked basement floor slabs so common in several urban centres on the Prairies. These cracks are usually evidence of the greater rate of heave of lightly-loaded, central floor areas and footings as compared with the slower rate of heave of more heavily loaded wall footings. Measurements in a large number of new house basements have proved that both the footings and floor slab continue heaving for several years after the time of construction. The rate of heaving of some floor slabs and central footings is of the order of 1 inch per year; that of the perimeter footings is approximately one-half of this rate. Plaster cracking, binding of doors, and superstructure damage often do not become serious in the first year after construction.

Foundation Designs

The selection of foundations for small buildings is usually based on local convention

(CBD 12). Many of these local designs have evolved through modifications to traditional designs brought from other areas. Rarely do these have the benefit of individual site investigations and design by specialists. In newly settled areas of Canada, the art of these foundation designs has been based on a relatively short span of experience. Many of the original foundations are still in service but their performance life to date is shorter than the effective period of some of the variables that have significant effects on their performance, e.g., growth of trees to maturity, or long-term effects of irrigation or drainage. Evolutionary changes in designs of house foundations have been made in an attempt to reduce the capital expenditure to the bare minimum. Some of these modifications are the adoption of cast-in-place concrete to replace stone masonry for basements, the inclusion of longitudinal reinforcement in long foundation walls, and the use of keyways and reinforcing tie-bars at the connection of walls and footings. These modifications have helped to increase the rigidity and have reduced the frequency of cracked foundation walls, but have not solved the problem of differential heaving or settlement of the footings or floor slabs.

Spread footings placed at depths ranging from 6 to 8 feet below original grade are commonly selected as foundation units for small buildings with basements. The root penetration of large trees and drought-resistant plants may go well below this level and eventually affect the soil volume and foundation performance. In at least one major Canadian city (Winnipeg), during periods of prolonged droughts, a great number of shallow spread footings have undergone serious differential settlements requiring extensive repairs. The complete prohibition of trees and deep-rooted plants within distances of up to 100 feet from such foundations on clay would be most unsatisfactory from the owner's point of view. One solution is to use foundation designs that carry building loads to deeper strata. Alternatively, one might consider measures for maintaining constant soil moisture conditions. This is not usually successful because of the difficulty in supplying and distributing enough water through the relatively impermeable clay to meet the tremendous demands of trees. On the other hand, the effects of a few years of intensive lawn and garden watering in more arid areas has effectively raised the level of the subsoil moisture around buildings, and induced heaving of previously stable soils. The long-term effects of this practice are yet to be felt in some prairie communities where water supplies are becoming more abundant. The removal of trees from a site prior to construction can have similar effects.

When severe differential movements of spread footings have been anticipated, excellent results have been obtained through the use of pile foundations. In such designs, exterior basement walls and partitions can be designed as deep beams spanning the piles, with space provided below the bottom of these beams to allow for the predicted heave. Structural basement floors spanning these foundation units are used in this design to combat the most severe conditions. Pile foundations with various structural floor systems over crawl spaces have been successfully used in many buildings without basements. Complete isolation of the structure from volume-changing soil is the key to good performance of this type of foundation. A void space of dimension greater than the anticipated heave should be provided beneath all beams and structural units. Heaving soil can develop pressures more than ten times greater than design floor loads. With the exception of those few cases where swelling pressures are unusually small, it is uneconomical to design spanning members in contact with the soil to resist uplift forces.

Perimeter walls and grade beams must be designed to resist lateral swelling pressures of backfill soils. Extremely high pressures can develop against these units if clay backfill is compacted to a high density in a dry condition and later becomes wet. An effective tile-drain system and free-draining granular backfill, extending almost to exterior grade elevation, should be included in perimeter backfill design.

In some cases the movement of shallow spread footings may be tolerated and the superstructure damage minimized through use of adjustable columns supporting the beams above. The problem of differential heaving of a basement floor may be avoided by providing a structural basement floor clear-spanning between foundation supports.

Although still not commonly adopted for small buildings, raft foundations might be considered in some cases. For a full basement beneath light, one- and two-storey buildings, the weight of soil excavated is considerably greater than the total weight of the building. This results in a net unloading of the subsoil and contributes to the swelling problem. For partial basements in which excavation is approximately 4 feet deep, the weight of soil removed more nearly

equals the weight of the structure and the principle of a "floating foundation", as described in CBD 81, might be employed. The shallower the foundation, the more vulnerable it becomes to subsoil moisture changes due to surface influence.

Slabs-on-ground for small basementless buildings have met with varying success in different areas of Canada. In areas of humid climate, slabs lightly reinforced to resist small edge deflections have usually performed well. Some difficulties have occurred when part of the slab is not heated and the superstructure has been damaged by frost heave, or where nearby trees have caused subsoil moisture changes. In more arid areas of Western Canada, the short-term performance of similar lightly reinforced slabs has not been good. The more marked effect of lawn watering and plumbing leaks on subsoil moisture conditions has resulted in many problems. In soil and climatic conditions similar or more severe than those of Regina, it is advisable that concrete slabs-on-ground be stiffened by beams and reinforcement. They may be required to span up to two-thirds the long dimension of the slab in the event of edge heaving at diagonally opposite corners, or up to one-third the length dimensions in the case of centre heaving. This heavy stiffening requirement will probably make ground-supported slabs uneconomical, compared with pile and crawl space construction, for all but small buildings.

Summary

The swelling and shrinking of subsoils of high clay content create serious problems in shallow foundations in many areas of Canada. Differences in performance of shallow foundations arise from small differences in climate and the extent of disturbance of natural conditions due to man's construction activities. Methods of identification of potentially troublesome conditions and various foundation design alternatives to cope with these problems are now available to foundation specialists. The value of new foundation designs, based on a fuller understanding of the various factors affecting performance, has been established by their improved long-term performance. It is to be hoped that changes in local practice for small building foundations, which are rarely designed by a specialist, will include the adoption of these improved foundation schemes.

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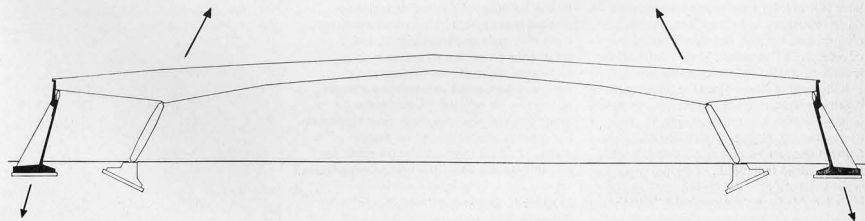
1, 2

*Static designing and plan of the roof soffit
of the underground hall from the "Concrete
Architecture of Riccardo Morandi", Authors,
Boaga-Boni*

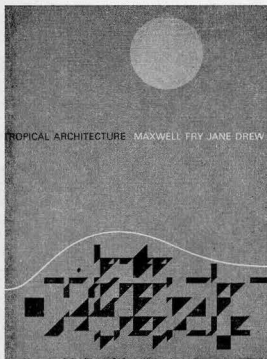
*Dessin statique et plan du soffite de toiture
de la salle souterraine. Concrete Architecture
of Riccardo Morandi, Auteurs, Boaga-Boni.*



1



2



Tropical Architecture

Maxwell Fry and Jane Drew
 Batsford Books, London, England; in Canada,
 Copp Clark Publishing Company, Toronto;
 1964, 261 pages, 84s

Mettant à contribution leur vaste expérience professionnelle, Maxwell Fry et Jane Drew ont produit cet album rempli de faits, de solutions, de recommandations, d'exemples, de principes et d'opinions sur la pratique de l'architecture dans les régions tropicales. Trois considérations les préoccupent : les gens et leurs besoins, le climat et ses dangers pour la santé, les matériaux et les moyens de construction. Et tout au long des six chapitres du volume, ces thèmes sont développés à l'occasion, 1) du climat, 2) du logement, 3) de l'habitation et de la planification urbaine, 4) de l'architecture civique, commerciale et industrielle, 5) des édifices scolaires et universitaires, et enfin, 6) de la santé, l'hygiène et l'hospitalisation. Suivent douze appendices qui complètent tout d'horizon technique.

Mais à qui le livre s'adresse-t-il ? "What we can do here in treating of architecture in the tropics is to attempt to arrange what

knowledge and experience we have, and can collect, upon the subject, that will augment, define and perhaps refine the vocabulary that each reader may bring to the creation of new works of architecture" (p. 17). Et qu'est-ce que l'architecture ? "Architecture is a personal art responding directly to what its creator brings to it of feeling, knowledge and experience" (p. 17). L'intention de Fry et Drew est donc de faire part aux autres architectes de leurs connaissances et de leurs expériences. Et il faut dire que connaissances et expériences foisonnent, peut-être même un peu trop. A moins que la confusion ne provienne du manque d'organisation de l'information, et de l'absence de hiérarchie dans sa présentation. En effet, je souhaiterais plus de sous-titres, j'aimerais pouvoir distinguer les faits des hypothèses, et les opinions personnelles des courants d'idées indigènes. Je désirerais aussi que les références bibliographiques soient moins sporadiques et plus précises.

Mais j'exige peut-être un peu trop d'un travail de vulgarisation. Par contre il s'en trouvera peut-être plusieurs pour croire que ce volume est une contribution scientifique à l'architecture. Je ne le crois pas. Ce livre fait partie de la tradition d'architecture empirique. Mais comme tel, il est doublement utile : il rend d'abord service aux architectes qui font face à des problèmes immédiats et ensuite, et surtout, indirectement il attire l'attention sur des domaines qu'on commence seulement à explorer systématiquement. Ici je pense au travail de J. Fritch à Columbia et aux études des frères Olgyai qui ont publié à Princeton *Design With Climate*. Ces travaux ne sont qu'un commencement, il est vrai, mais ils permettent d'espérer qu'un jour on pourra en arriver à une architecture non plus empirique mais expérimentale, scientifiquement autonome, qui au lieu de ne glaner à gauche et à droite que des résultats prouvés en laboratoire par d'autres disciplines, saura établir d'elle-même les méthodes et les principes scientifiques sur lesquelles pratique s'appuiera.

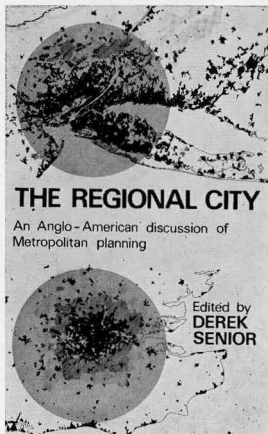
Jacques H. Derome, MIRAC, Ecole d'Architecture, Université de Montréal

The Regional City

Edited by Derek Senior
 Longmans Green & Co. Ltd., London, England;
 in Canada, Longmans Canada Limited, Don
 Mills, Ontario; 1966, 192 pages, \$9.25

This is a highly concentrated and very stimulating brew. The subtitle, "An Anglo-American Discussion of Metropolitan Planning" precisely indicates the contents. It is a report of a symposium discussion held in Oxfordshire in 1964, at which top American and British planners compared their respective experience and angles of approach. The product is a valuable contribution to the extensive literature in this field. The material was assembled and edited by Mr Derek Senior, himself no mean contributor to British thinking.

The symposium managed to cover a very wide field, without being superficial - it succeeds in getting to the roots of the



various problems in a succinct series of hard punches. It does not for instance, sweep under the rug the basic issue of development values and the financial consequences to landowners of public control over land use – this is dealt with in papers by Louis Winnink, Nathaniel Lichfield, Daniel Mandelker and Richard May. In this respect, British and American situations are in pronounced contrast: in Britain it is generally accepted now that increases in land values due to the general growth of the community, or the action of public authorities, are in principle to be regarded as public property. We have yet to tackle this problem in any fundamental way on this side of the Atlantic, although it is difficult to see how planning controls can ever be effective until it is tackled.

This, of course, is part of the major question of how far public controls, policies and plans can go in "shaping the structure and functioning of the urban region". In Britain, with three quarters of an acre per person, space is so evidently short, and careful husbandry so obviously necessary, that the public opinion accepts without batting an eyelid firm public control, over what goes where, of a kind that is often struck down by American courts. The British green belt policy simply would not work in the conditions of Maryland or Virginia, for example.

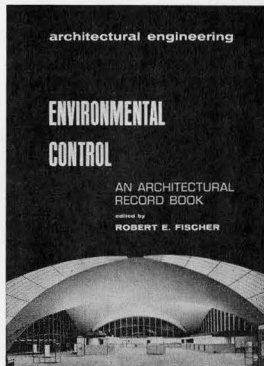
Few would deny, I think, that the control mechanisms of British land-use planning are far more effective than North American zoning by-laws, which are a rather clumsy weapon. A good deal of re-appraisal is correctly taking place on both sides of the Atlantic. Where the Americans score over the British is in the refinement and elaboration of the techniques of analysis. The transportation study technique, for example, as now being applied in Toronto; is a specifically American contribution, and an export product too, as in the Wilbur Smith study of London.

In sum, as a senior American planner once remarked to me rather wistfully, the Americans do the research and analysis, while the British do the planning! British planning can benefit from the careful and

profound thinking about regional and city structure, contributed by Americans. The British are pragmatists by and large and not given to deep reflection. Moreover, as remarked in this symposium (and from my own experience, I couldn't agree more) British planning has suffered from an undue emphasis on the physical aspects, and has been unduly slow in breaking loose from architecture and engineering. Regional planning is not simply an extension of civic design, these days, a fact perfectly well understood by most Americans. But, in Britain, one still finds eminent architects, innocents of even first-year geography or economics, to say nothing of the more sophisticated forms of regional science sounding off about regional development, and airily waving hands over maps. "Here's a problem area – let's build a new city there." without any real understanding of the problems. It is as silly as calling in a geographer to do the stress calculations for a building. We don't have this cross to bear over here, mercifully.

Conversely, America has much to learn from Britain and indeed from other European democracies, in respect of effective controls. This is basically a question of popular attitudes – we still have a lot of people metaphorically running around in nylon fur D. Crockett caps trying to kid themselves that we're still pioneers. Sooner or later, it may dawn upon the North American public that the urban problem can be licked only if people quit parroting ancient shibboleths about the sacred right of property, and accept the sort of public direction of development in the general interest, that is already commonplace in Britain or the Netherlands.

*R. W. G. Bryant, Department of Geography,
Sir George Williams University*

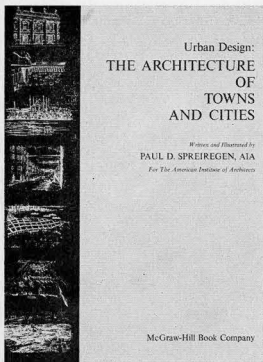


Environmental Control

*Edited by Robert E. Fischer
McGraw-Hill, Scarborough, Ontario;
1965, 212 pages, \$12.50*

It is unlikely that architects will want to read this book from cover to cover (although many would perhaps derive benefit from doing so). This is generally true of a book consisting of a number of articles by various authors because it lacks a sense of continuity. Such is the case, unfortunately, with "Environmental Control" which is basically a compilation of selected articles from the Architectural Engineering section of *Architectural Record* covering a span of 15 years.

The book has three sections. The first is devoted to Heating and Air Conditioning, the second to Lighting and the third to Acoustics. Thus, for example, the artificial internal climate of buildings is discussed in terms of thermal, visual and acoustical considerations. By far the most thorough coverage is given in the first section of the book; here, mechanical requirements of various types of buildings are reviewed,



namely those of Apartment Buildings, Schools, Auditoria, Libraries, Hospitals and Commercial Kitchens, although other building types are omitted.

Still, any Architectural Record Book is a worthwhile reference book to have. The principal aim of this one is enunciated in the Preface by the editor, Robert E. Fischer; that is, to "give the reader a background for well-grounded policy decisions on system selection, rather than merely computational familiarity". However, in the opinion of the reviewer, whereas the content of the book generally fulfils this aim, the title is a misnomer. "Environmental Control" implies many physical, psychological and social considerations beyond the ones dealt with in this book. Surely the term "environment" represents the aggregate of an infinite number of factors, and thermal, visual and acoustical considerations are only a few physical aspects of it.

Norbert Schoenauer, MRAIC, School of Architecture, McGill University

Urban Design: The Architecture of Towns and Cities

*Paul D. Spreiregen
McGraw-Hill, Scarborough, Ontario;
1965, 243 pages, \$15.65*

The rapid onslaught of change in our Cities and Urban areas has led to a plethora of books on this subject. Many are reports dealing with important though specialized aspects of the problem. The question for the average reader would seem to be; where do I start in my reading to become more comprehensively informed about these pressing conditions?

Urban Design The Architecture of Towns and Cities from an Architects point of view is certainly one of the most comprehensive books published to date. The book deals with the evolution of urban design from its early roots to the present time. The text is factual and the material covered is well documented on each page by delightful drawings by the

author. Contrary to most similar texts the reader has a plan or a section or a perspective close at hand to identify visually the concurrent text. It would be very difficult to verify the conjectures made, this would be the prerogative of the scholar of urban design.

The text develops and substantiates the influences both social and technical that have resulted in various urban forms. It will be well to understand that this is a survey of a broad range of urban problems. The reader will benefit from a sense of continuity as the selections of examples are well identified as to their endless variations as solutions to worldwide, regional, and local conditions. For the architect we find the discussion of the three dimensional impact of building forms on urban environments. In addition the effect of Government Programs & Regulators and Controls are studied to show their formidable and lasting impact on urban form.

Above all the examples are all from broad regional examples dealing with the constituent elements which contribute to the mosaic of what is either the success or failure of our cities.

The social, political and economic influences are not dealt with in the depth, which many know are an essential part of the understanding of the nature of cities. However, the book is one of the best of the illustrated plus text formats dealing with the physical manifestations of the forces shaping our cities.

The book is a compilation of articles appearing in AIA Journal from December 1962 to November 1964.

A. J. Donahue, MRAIC, School of Architecture, Nova Scotia Technical College



SER 1: Environmental Abstracts

School Environments Research Project, Architectural Research Laboratory, University of Michigan, Ann Arbor, Michigan; 1965, 768 pages, \$15.00

SER 3: Environmental Analysis

School Environments Research Project, Architectural Research Laboratory, University of Michigan, Ann Arbor, Michigan; 1965, 72 pages, \$4.00

The Effect of Windowless Classrooms on Elementary School Children

School Environments Research Project, Architectural Research Laboratory, University of Michigan, Ann Arbor, Michigan; 1965, 110 pages, \$2.00

These three books are from the Architectural Research Laboratory Department of Architecture, University of Michigan, and are the product of a research grant of the Educational Facilities Laboratory (Ford Foundation). The purpose of this continuing project, labelled School Environment Research, as outlined by the staff (educators and practitioners from all the physical and social sciences) is "the establishment of an environmental 'yardstick' by which the school environment can better be created and its effect on learning and performance measured".

SER 1 - Environmental Abstracts Abstracts selected from a series of otherwise unrelated papers compiled by the SER team to produce a reference of technical reports dealing with the relationship between environment, behavior, and the senses. The papers are paraphrased, their conclusions presented and comments inserted by the research team. This large volume should not be considered as another manual of standards for office reference. Practising architects will find little meat on which to chew. Rather, it is intended as a compilation of factual data for use by the researcher and does not make any evaluations for him. *SER 2 - Environmental Evaluations* though not

considered for this review is, according to the publisher, an attempt to summarize and appraise the extent of present knowledge led up to by the factual data of SER 1 with respect to various environmental relationships.

SER 3 - Environmental Analysis Now that the most obvious aspects of our physical environment have been tamed, architecture need no longer be considered in the negative role of offering shelter from the elements. It may promote a *positive control of the total environment* for the ever increasing benefit of the human organism. Architecture by this definition is not represented by building per se but by the relationships brought about by the ecological demands of individuals with relationship to any extensive social unit.

This generally is the thesis motivating the work of the SER team. SER 3 attempts to indicate a method of defining the various environmental relationships that should be investigated in a particular case study and suggests a way of compiling data in some useful form for designing more desirable environments.

The Effect on Windowless Classrooms on Elementary School Children "A pilot operation to develop techniques of investigation for evaluating effects of environment on human behavior in general and on the learning process in particular".

It represents four years research by the team in an existing primary school in Wayne, Michigan. "The reactions of students, teachers, and parents were collected and compared with those of another primary school identical to the test unit to determine the effect of windowless classrooms on student behaviour and performance." Unfortunately, very weak conclusions are reached after the expenditure of quite a considerable amount of time and money.

All three books reviewed here illustrate the desire of the team to apply research techniques developed over the years, by the physical sciences, to a study of man's

environment in general. They however, further illustrate a point raised at a recent seminar "Man-made Environment" held at the University of Manitoba. Professor Philip Lewis of Wisconsin pointed out that from his experience in interdisciplinary work, it took two years just to establish a common vocabulary for all those involved. Assuming SER 3 represents the culmination of that goal, it should be fair to expect more from future studies than the indefinite conclusions reached by the first case study - The Windowless Classroom.

Denis M. Jesson, Faculty of Architecture, University of Manitoba

SER 2: Environmental Evaluations

School Environments Research Project, Architectural Research Laboratory, University of Michigan, Ann Arbor, Michigan; 1965, 186 pages, \$5.00

SER 2 is the second report published by the University of Michigan's Environmental Research Laboratory on its School Environments Research Project sponsored by Educational Facilities Laboratories Inc. It is "an attempt to summarize and evaluate the present state of knowledge concerning the various aspects of environment that affect human behavior in general and learning in particular".

Unless one is an especially dedicated scholar, it is not likely that Environmental Evaluations will prove redundant. It is more likely that this book will have great value both as a text book and a reference book. For here are brief papers bringing together material from many disciplines, with ample references for more detailed reading, all on the topic of "man the measure". It makes clear what is known, and more importantly, what needs to be known, about man's interactions with his environment.

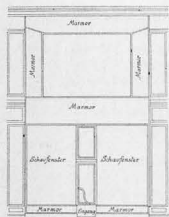
The production of this volume is one deserving of congratulation. It is a step closer to comprehensive programming since it

'Ornamentation is a crime" (Adolf Loos)

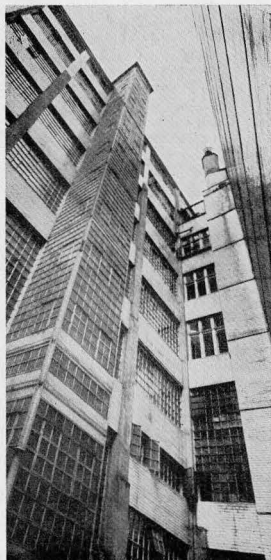
1
Steiner's Plume and Feather Shop, plan and elevation of shop front, 1907; Adolf Loos, page 42

Boutique à plumes de fantaisie et fleurs artificielles, plan et élévation avant de la boutique, 1907; Adolf Loos, page 42

2
Building on the Michaelerplatz, Vienna, 1910/11 Adolf Loos, page 114
Bâtiment sur la Michaelerplatz, Vienne, 1910/11; Adolf Loos, page 114



1



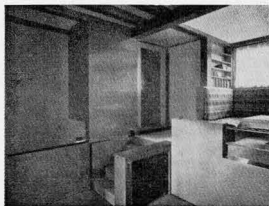
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3
Moller House. In the Living Room on the left, the staircase from the cloakroom; on the right, the raised sitting area, 1928; Adolf Loos, page 151

La maison Moller. Dans la salle familiale à gauche, un escalier mène à la garde-robe, à droite, le salon élevé, 1928; Adolf Loos, page 151

4
Project of a group of twenty villas with roof gardens. Long section through main blocks and oblique perspective, 1923; Adolf Loos, page 137

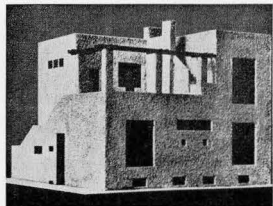
Groupe de vingt villas avec toits de lune.



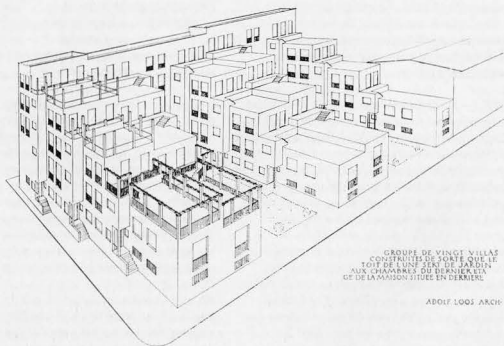
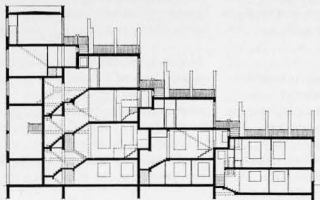
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Section à travers un des bâtiments principaux et perspective oblique, 1923; Adolf Loos, page 137

5
Project for a villa on the Venice Lido. View of model, 1923; Adolf Loos, page 160
Projet pour une villa au Lido de Venise. Vue du modèle, 1923; Adolf Loos, page 160



5



GRUPE DE VINGT VILLAS
CONSTRUITES DE 1923 ET LE
TOIT DE LUNE 2001 DE L'ARCHITECTE
ADOLF LOOS AVEC LE COLLABORATEUR
DE LA MISSION SUÈDE EN DANIELE

ADOLF LOOS ARCHT.

4

makes evident a full range of design considerations. It is also an aid to more effective interdisciplinary team work since it offers, for architects, fundamentals of knowledge in the social sciences relating to buildings, which in the same way as his engineering knowledge enables him to work with engineers, will facilitate work with social scientists. For the layman, a realization that buildings can in many ways contribute to function beyond that of providing shelter, should in the case of schools, for example, make educators, school boards, and granting agencies, look to new standards of design which will put the building into its true dynamic context: that of reinforcing and stimulating the learning process.

The book has one other important merit which evokes no feeling of satisfaction. It reveals how far we are from anything like full knowledge of the nature of environment as an influence, or how men interact with it. It really points to the need for much more research, both basic and applied. The tone of the writing does not hint at how critical the situation is, but perhaps this is not necessary for architects who must be only too aware of the scale and rate of new building to be complacent about the magnitude of error possible in this unprecedented explosive period.

One can only hope that this volume will stimulate similar activity in studies related to urban renewal, housing, and town planning where sound human principles and understanding is so clearly lacking.

One hopes too that as these studies proliferate, such useful summaries as SER 2 are produced from time to time to keep us all up-to-date. For even now, new writings have appeared since publication of SER 2 which properly belong in it.

*E. Lindgren,
School of Architecture,
Nova Scotia Technical College*

Adolf Loos

*Ludwig Münz and Gustav Künstler
Frederick A. Praeger, New York; in Canada,
Burns & MacEachern Ltd, Don Mills, Ontario;
1966, 234 pages, \$23.00*

"Adolf Loos remains enigma." (Nikolaus Pevsner)

"Adolf Loos was a well-rounded personality both as a creatively and critically endowed man." (Künstler)

"In Adolf Loos I always saw the last of the Greeks." (Kokoschka)

"... he constantly refers to the Baroque architect Fischer von Erlach and the classicist Schinkel as his spiritual ancestors." (Münz)

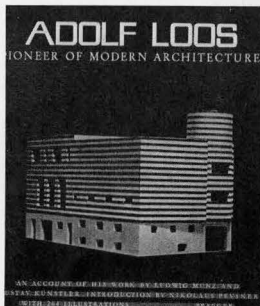
In spite of paradoxical assessments such as these from the authors and other contributors two important things emerge from this fine monograph - Loos had a mission and he had integrity.

His mission was simple. He wanted to restore soundness to building and nobility to architecture. In his time (1870-1933) architecture had lost sight of both. He was not so much concerned to do anything new as to regain something age-old.

His integrity was outstanding. Fundamentals occupied the whole of his life. He hated frippery, social irresponsibility and incompetence. He was saddened by the loss of grandeur in architecture.

In particular Loos despised Art Nouveau, and revered the English Arts and Crafts Movement. He selected targets for his wit - "I tell you the time will come, when the furnishing of a prison cell by Professor van de Velde will be considered aggravation of the sentence," and "Cutlery for people who can eat ... and who cannot eat from designs by Olbrich."

The book is full of Loos's puckish humor although he shines through as more dogmatic than enigmatic.



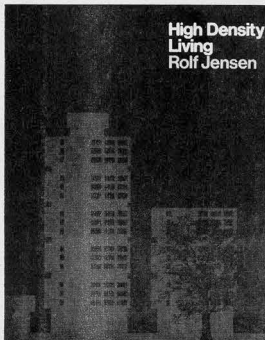
From 1893 to 1896 Loos lived in America and rejoiced in the freedoms he saw there. Those three years may well have given him the proof he needed that ideas of emancipation could and should be applied practically in his own Austria. In Europe again Loos made a double attack by architecture and by writing.

The architecture both built and in project or sketch form is excellently recorded in this book under fifteen main headings, such as "Houses on a 'Plan of Volumes'" and "Speaking architecture", and each is treated as an essay into the origins and significance of Loos's forms. Besides well-known projects like the apartment and shop interiors and the "Kartner Bar, and the curious Memorial Church in Vienna and the even more curious skyscraper in the shape of a Doric column proposed for the Chicago *Tribune* offices in 1922, and the Steiner House and the Müller House there are some fascinating lesser-known projects in the catalogue of works at the end of the book.

Loos's writings are well represented too. Three essays are given fully in an appendix with the provocative and famous "Ornament and Crime". Elsewhere throughout are quotations, some of which are from oral witnesses.

I said above that two important things emerge from this study, but there is a third. For the first time in English, Loos has become the subject of serious art history criticism. Oscar Kokoschka says, writing here " 'In memory of Adolf Loos'. Isn't it, really more valuable to study the works and ideas of a really civilized man like Loos before we all set off on a conducted tour of the moon?" I think so. And there could hardly be a better book to do it by.

*George Balcombe, School of Architecture,
Nova Scotia Technical College*



High Density Living

*Rolf Jensen
Leonard Hill, London, England, in Canada
Burns & MacEachern Ltd, Don Mills, Ontario;
1966, 245 pages, \$19.50*

This book is an account of the apartment block. Its initial sections deal with town planning considerations, density, economic and social factors, layout and detail planning, structure and services. These sections are accompanied by detailed appendices, and followed by many illustrations of high-rise

projects drawn from seventeen countries (Canada being represented solely by CMHC's Maclean Park, Vancouver.)

The apartment block is closely associated with city living, although for many families living in an apartment is often a matter of necessity rather than a free response to the demand for a particular type of shelter. In fact, the author of this book – which more accurately should have been entitled High-Rise Living – has fallen into the mistaken assumption that high densities invariably imply high buildings; whereas a true concern with the basic problem of residential densities would have included recent high-density projects at low level, of which there are a growing number in many of the European countries from which Mr Jensen has taken his examples.

The quality of urban housing has been recognized to depend on safety (in terms of the separation of pedestrian and vehicle), convenience (a full range of suitable dwelling types within any neighborhood), visual interest (buildings and spaces), and variety of things to do and places to go (proximity of housing to areas of employment, shops, public activities, or mass transit). In particular, the problems of privacy (visual and audio), identity (involving repetition and grouping), and adaptability (recognizing the problem of growth and change, and obsolescence), are fundamental in a subject of this nature, although very few of these aspects are here dealt with.

In so far as the projects illustrated and briefly described are grouped by country (rather than to illustrate a particular idea), the book is adequate as an international survey of the present situation. But few arguments are proposed for the direction in which development should be going, and there is certainly no suggestion of forces not previously seen to work together, requiring a new system of needs and a new physical solution (as, for example, with the Unité d'Habitation, which itself was but a beginning). In other words, the scale of the problem is such that it needs to be tackled less in terms of existing

housing types than in terms of places where people live, i.e. a complete environmental system.

In detail, the value of many of the illustrations is questionable. Descriptions of projects are not comparative and cross-referenced; the plans are unaccompanied by scales, and are reproduced in a variety of styles. Mr Jensen queries the value of balconies (p 41); and advocates underground car-parking at two cars per family, without mentioning what this implies at his suggested densities of 2-, 3-, and 400 ppa.

In conclusion, it may be said that although this book acts as a balance to the various pleas for low densities, in itself it remains insufficient as a rounded discussion of what still remains a major problem.

*Jonas Lehrman
Faculty of Architecture,
University of Manitoba*

Avery Index to Architectural Publications

Worthy of mention is this comprehensive index by the Avery Architectural Library, Columbia University, published by G. K. Hall & Co., Boston. Begun in 1934 it includes all decorative arts, interior decoration, furniture, archaeology, city planning housing plus an imposing list of individual architects. Cost is \$819.00 outside Canada for main index and \$71.50 for each supplement. The periodicals indexed are:

- Accademia di Archeologia, Lettere e Belle Arti, Naples. Rendiconti
- Accademia Nazionale dei Lincei, Roma. Notizio delgi scavi di antichità
- Accademia Nazionale di S. Luca, Roma. Atti. Nuova serie.
- Accademia Romana di Archeologia, Rome. Rendiconti
- Accademia Toscana di Scienze e Lettere "La Colombaria". "Studi"
- The American Academy in Rome. Annual Report
- The American Academy in Rome. Memoirs
- The American Association of Architectural Bibliographers. News sheet
- American Builder
- American City
- American Institute of Architects. Journal
- American Institute of Planners. Journal
- American Journal of Archaeology
- American School of Classical Studies at Athens. Annual report
- American Society Legion of Honor Magazine
- American Society of Planning Officials. Newsletter

- Analecta Romana Instituti Danici
 Anatolian Studies
 Ancient Monuments Society. Annual report and list
 Ancient Monuments Society. Transactions. New series
 The Antiquaries Journal
 The Antique Dealer and Collectors' Guide
 Antiques
 Antiquity
 Archaeologia
 Archaeologia Aeliانا
 Archaeologia Cambrensis
 Archaeologia Cantiana
 Archaeologia Ertesio
 Archaeological Bulletin for the British Isles
 The Archaeological Journal
 Archaeology
 Archaeologia Ephemeris
 Archaeologia (Poland)
 Archaeologia Classica
 The Architect and Building News
 Architect and Surveyor
 Architectoniki
 The Architects' Journal
 Architectural and Engineering News
 Architectural Association Journal
 Architectural Concrete
 Architectural Design
 Architectural Forum
 Architectural History
 Architectural Record
 The Architectural Review
 Architecture. Urbanisme-Habitation. Bruxelles
 L'Architecture
 Architecture
 Architecture and Design
 L'Architecture d'Aujourd'hui
 Architecture, Formes et Fonctions
 L'Architecture Française
 Architecture in Australia
 Architecture Plus. A & M College of Texas
 L'Architecture Vivante
 Architektur und Wohnform
 Architektur Wettbewerbe
 Architectura - Warsaw
 Architettura; Cronache e Storia
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 Arhitektura S.S.S.R.
 Arkitekten. Finland
 Arkitektur. Denmark
 Arkitekten. Kobenhavn
 Arkitektur; the Swedish Architectural Review
 Arkkitehti-Arkitekten. Finland
 El Arquitecta. Madrid
 Arquitectura. Mexico
 Arquitectura. Montevideo
 Arquitectura; Revista Mensual
 Arquitectura Portuguesa
 Arquitectura y Construcción
 Ars Orientalis
 The Art Bulletin
 Art d'Eglise
 Art Digest
 Art et Decoration
 Art et Industrie
 Art in America
 Art News
 Arts and Architecture
 Association Léonard de Vinci. Bulletin
 Athens. R. Scuola Archeologica Italiana. Annuario
 'Atiqot
 Der Aufbau
 Bati
 Bauen - Wohnen
 Baukunst und Werkform
 Baumeister
 Belgium. Commission Royale de Monuments et des Sites. Bulletin
 The Berkshire Archaeological Journal
 Birmingham Archaeological Society, Birmingham, Eng. Transactions and proceedings...
 Bollettino d'Arte
 Bonner Jahrbucher. Jahrbucher des Vereins von Altertumsfreunden im Rheinland
 Boston. Museum of Fine Arts. Bulletin
 Bouw
 Bouwkundig Weekblad
 British Archaeological Association. Journal
 British Housing and Planning Review
 British Museum Quarterly
 Brooklyn Museum Quarterly
 Buenos Aires. Universidad. Instituto de Arte Americano e Investigaciones Estéticas. Anales.
 The Builder
 Bulgarska Akademia na Naukite, Sofia. Arheologicheski Institut. Izvestia
 Bulletin d'Archéologie Marocaine
 Bulletin Monumental
 Byggkunst
 Byggmastaren
 Cahiers du Centre Scientifique et Technique du Batiment
 California. University. Publications in Classical Archaeology
 Canadian Architect
 Carnegie Magazine
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 La Construction Moderne
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 Cuadernos de Arquitectura
 Deutsche Architektur
 Deutscher Verein zur Erforschung Palastinas. Zeitschrift
 Deutsches Archaeologisches Institut. Bericht über die Ausgrabungen in Olympia
 Deutsches Archaeologisches Institut. Jahrbuch
 Deutsches Archaeologisches Institut. Abteilung Madrider Mitteilungen
 Deutsches Archaeologisches Institut. Mitteilungen.
 Athenische Abteilung
 Deutsches Archaeologisches Institut. Mitteilungen.
 Römische Abteilung
 Doms
 Empire State Architect
 Ethnos
 Fasti Archaeologici; annual bulletin of classical archaeology
 Fede e Arts
 Forum. Amsterdam
 Habitat - Habitations. Documents d'Architecture et d'Urbanisme
 Historic Preservation
 House and Garden
 House and Home
 House Beautiful
 Housing; Institute of Housing. Journal
 Industrial Design
 Ingeniería y Arquitectura
 Interior Design
 Interiors
 International Castles Institute. Bulletin
 Iranica Antiqua
 Iraq
 The Japan Architect
 Journal of Architectural Education
 Journal of Hellenic Studies
 Journal of Housing
 Kenchiku Bunka
 Kent Archaeological Society. Report of the Council
 Kokusai Kentiku
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 Landscape Architecture
 Liturgical Arts
 Marg
 Mélanges d'Archéologie et d'Histoire
 Michigan Architect and Engineer
 Michigan National Architect
 Mobilier et Decoration
 Modern Hospital
 Modular Quarterly
 Modulo
 Monuments Historiques de la France
 Münchner Jahrbuch der Bildenden Kunst
 Das Munster
 Museum; a quarterly review
 NABH Journal of Homebuilding
 Napoli Nobilissima; Rivista di Arti Figurative, Archeologia e Urbanistica
 National Institute for Architectural Education. Bulletin
 Nevada Highways and Parks
 New York (City) Metropolitan Museum of Art. Bulletin
 New York (City) Museum of Modern Art. Bulletin
 New York Historical Society. Quarterly Bulletin
 North Carolina. University. State College of Agriculture and Engineering. Raleigh. School of Design. Student publication
 Old Time New England
 Osterreichische Byzantinische Gesellschaft. Jahrbuch
 Osterreichische Zeitschrift für Kunst und Denkmalpflege
 Osterreichisches Archaeologisches Institut, Wien.
 Jahreshefte
 Palladio
 Parks and Recreation
 Perspecta
 Planen, Canada
 Planen, Bauen, Wohnen
 Program
 Progressive Architecture
 Publike Werken
 Revista de Arquitectura... (Montevideo - Buenos Aires)
 Revista Mexicana de Ingeniería y Arquitectura
 Revue Archéologique
 Revue Historique et Archéologique du Maine
 Rivista di Archeologia Cristiana
 Royal Architectural Institute of Canada. Journal
 Royal Institute of British Architects. Journal
 Rymhe
 Society of Architectural Historians. Journal
 South African Architectural Record
 Stained Glass
 Stedebouw en Volkshuisvesting
 Stockholm. Akademien för de Fria Konsterna.
 Meddelanden
 The Structurist
 The Studio
 Sumer; a journal of archaeology
 Syria
 Techniques et Architecture
 Town and Country Planning
 Town Planning Institute. Journal
 Town Planning Review
 Traffic Quarterly
 Turk Arkeoloji Dergisi
 Turk Tarih Kurumu
 Urban Land
 Urban Land Institute. Technical Bulletin
 Urban Renewal Notes
 Urbanisme; Revue Française
 Urbanistica
 La Vie Urbaine
 Werk
 Western Architect
 Western Architect and Engineer
 Wiener Jahrbuch für Kunstgeschichte
 Wissenschaftliche Zeitschrift. Hochschule. Weimar
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 Zodiac

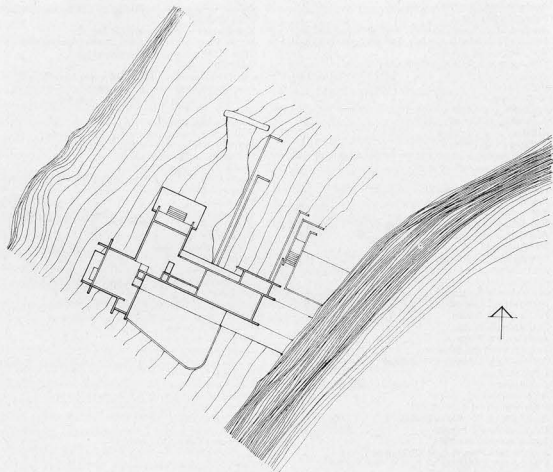
Graham House West Vancouver, B. C.

1
Site Plan
Plan d'emplacement
2
East Elevation
Élévation d'est

Erickson and Massey Architects

The Graham house was an experiment in the use of cedar that evolved from the Lloyd house which won an award in the National Housing Design Awards last year. Here a texture difference was achieved between walls and box beams by using flat siding on the beams and a deep board and batten on the walls. The house was similarly treated with a simple oil finish, and the only other materials used in conjunction with it were used-brick and Welsh quarry tile. The site was an extremely difficult one, dropping 40 feet from the arrival level down a sheer cliff to a rock bench over the sea. Again the idea of a piling up of hovering beams was the basis of the composition, and because of the ruggedness of the site, the outside living areas are confined almost entirely to the roof areas of the house itself.

Arthur Erickson



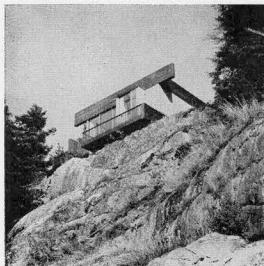
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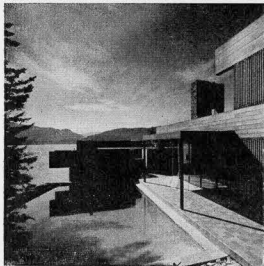
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- 3
Master Bedroom from Below
Chambre des maîtres
- 4
Pool and Howe Sound
Piscine et Howe Sound
- 5
Living room and deck
Salle familiale et terrasse

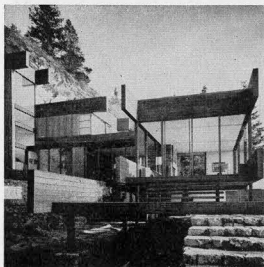
- 6
Main Level
Rez-de-chaussée
- 7
Upper Level
Etage supérieur



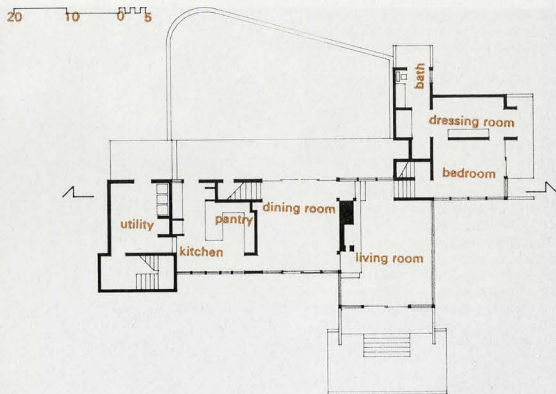
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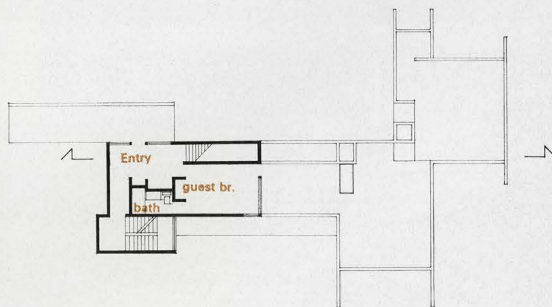
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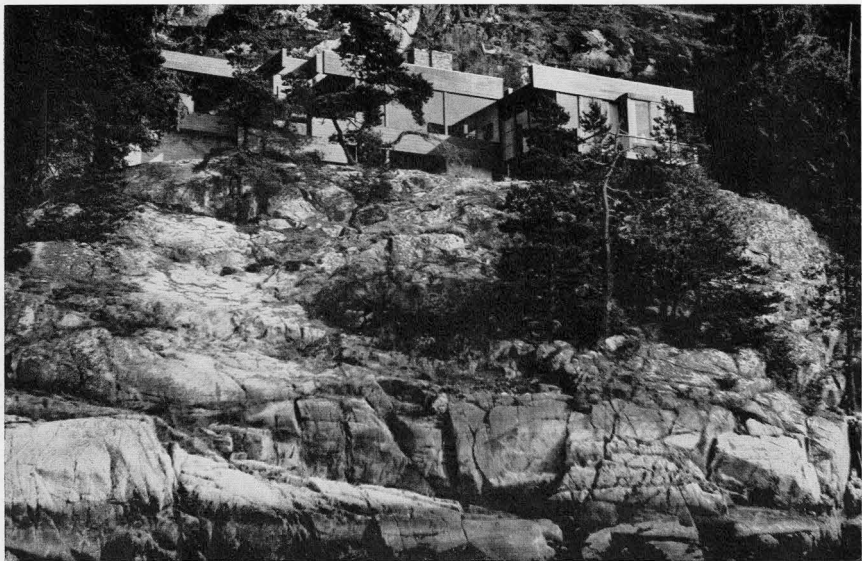
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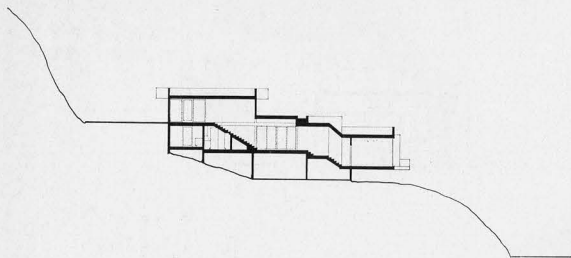
7

8
Graham House, View from Water
La maison Graham, vue de la mer

9
Section
Coupe



8



9

Smith House
West Vancouver, B. C.

1

First Smith House
La première résidence Smith

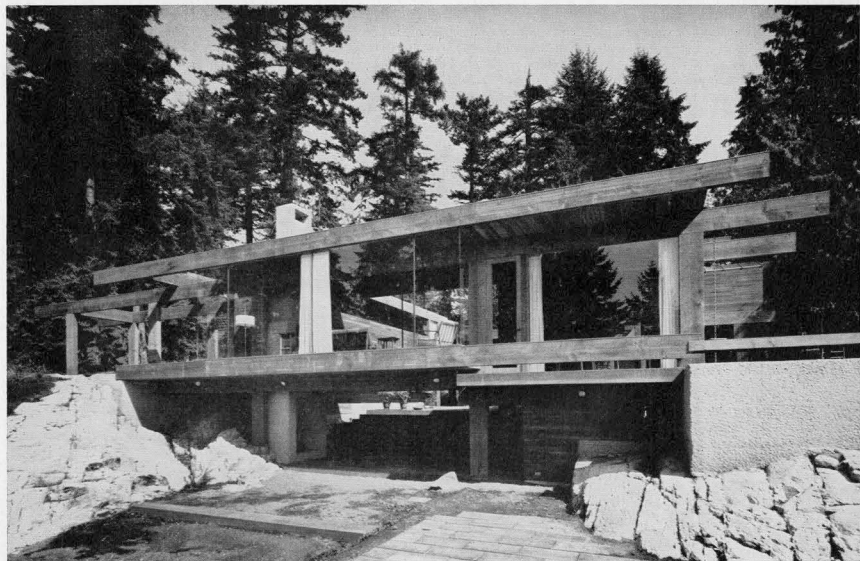
2

West Elevation, second Smith House
Élévation d'ouest, deuxième résidence Smith

Erickson and Massey Architects



1



2

The house for Mr and Mrs Gordon Smith was the second house designed by Erickson-Massey for them. The first received a Massey medal in 1956. Being their second house, they were ideal clients; I knew of their respect for texture, finishes and their taste for good pottery, tapestries and of course the paintings and sculpture of Gordon Smith, as well as the rugs of Marian Smith. The house was built by a Norwegian craftsman, the fifth in a series of houses that he has built for me, with no other crew than a single helper. This has proved to be an ideal arrangement in so far as he knows now my kind of detail. It not only proved to be a much better arrangement for craftsmanship but also for the price of the house. All in all it is an ideal working arrangement with the client, the contractor and the architect equally enthusiastic about the work in hand.

The materials of the house are the result of a great deal of experience with wood and wood finishes. It was an effort to find both

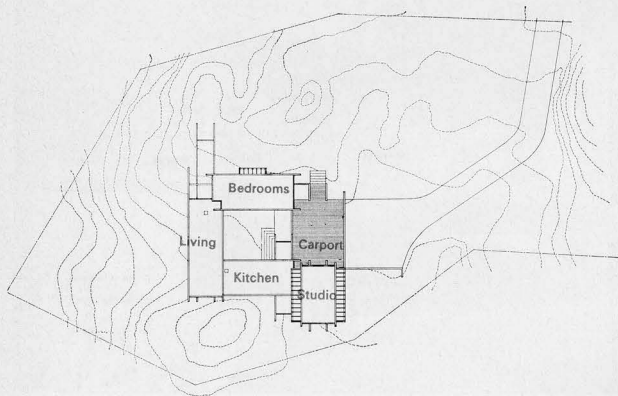
a finish and an appearance that would not in any way detract from the beauty of grain and the natural luster of the wood. A process of pressure treatment in Boliden salts, which has become almost a standard treatment for my houses, results in a color that is more of a patina than a stain. The harsher oranges of the wood are softened, and golds, green and olive tones emphasized. The dye takes differently with different grains and thus the unevenness, that is very much the nature of wood, is retained. The rough unsanded wood also contributes to the almost satin effect of the wood. This finish was used throughout the house, on the oak floors, on the cabinet work, on the burlap covering the walls, so that basically only one finish other than glass is present in the house. There is an equal concern for the texture of the concrete work, including the fireplace, which is bush hammered, and the concrete terraces, which are all exposed aggregate.

The site was a slight declivity between two rock outcroppings that are on a prominence

that slopes directly down to the sea. The house was conceived as a square spiral, building up by the lapping of major beams around a courtyard. From the entrance one can continue in a clockwise direction up to the kitchen wing, then up to the living-room wing, then emerging outside up to the deck over the carport, on up to the roof over the kitchen, the roof over the living-room, etc. By reducing the number of materials and the number of elements in the house, the effect of strength and simplicity is achieved. Beams and posts are the same size, and flooring, roofing and siding are much smaller but similar to one another in scale.

The landscape, other than exposing the bare rock, is confined to paving blocks of the same material as the columns and beams in a similar spirit of simplicity. Plant material, other than using the materials of the forest itself, will be confined almost entirely to mosses.

Arthur Erickson



4
 Court from Entry
 La cour vue de l'entrée

5
 West Elevation of Bedroom Wing
 Élévation d'ouest de l'aile des chambres à coucher

6
 View of Living Room from Dining Room
 La salle familiale vue de la salle à manger

7
 Plan
 8
 Section A
 Coupe A
 9
 Section B
 Coupe B



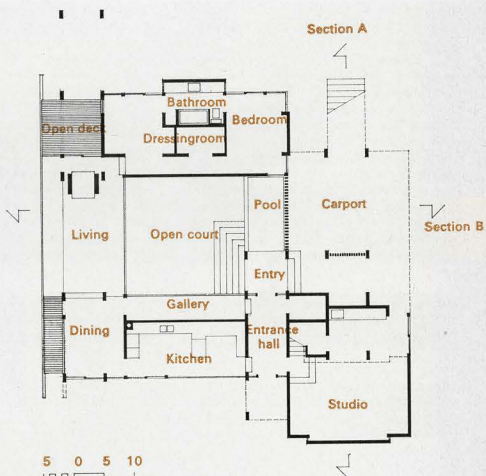
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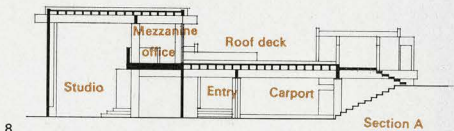
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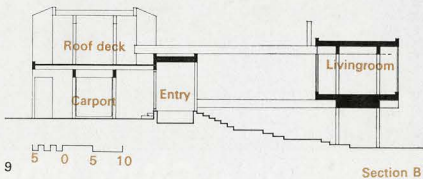
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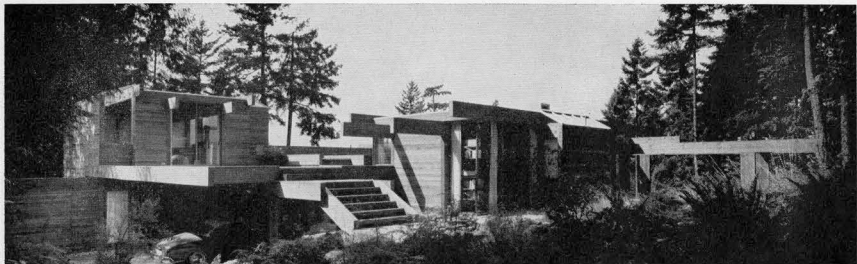
10
Smith House, View of house from approach
road

*La résidence Smith, vue de la route qui
y mène*

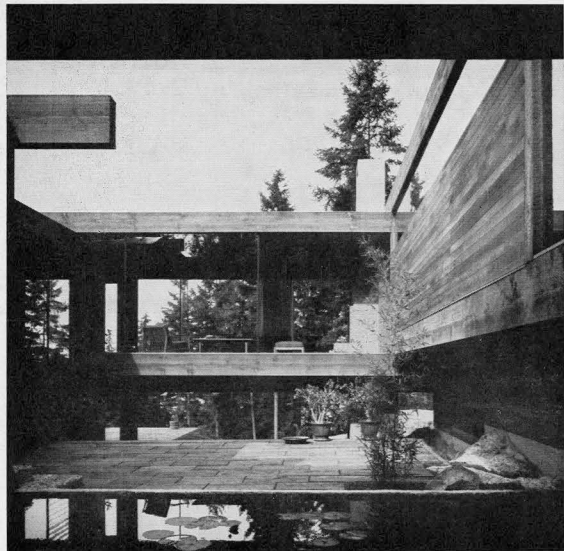
11
Living Room wing from Court
L'aile de la salle familiale vue de la cour

12
Studio Interior
Intérieur de l'atelier

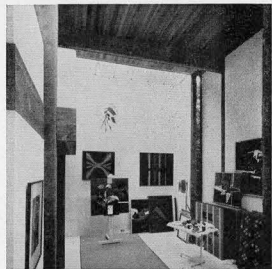
13
Bathroom
Salle de bain



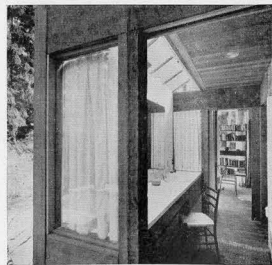
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11



12



13



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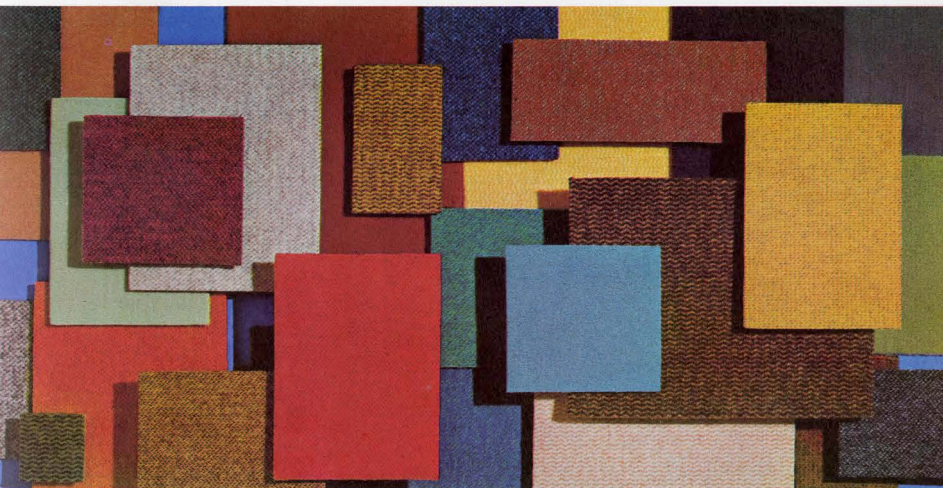
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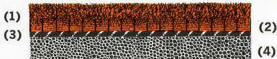
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by James Stansbury, BLA, OALA

Mr Stansbury is an associate of Michael Hough Associates, Landscape Architects, Toronto

This article attempts to explain the various environmental changes which can cause tree fatality during construction, and the procedures which can be utilized to promote survival. Since space does not permit an explanation of all the potential conditions requiring remedial measures, attention is given to the more common situations which may arise on building sites.

It should be emphasized that protective measures are necessary. Quite often the assumption is made that trees in apparently good health at the completion of a project have not been injured. However, tree fatality is never instantaneous, and a tree can die of unseen injuries inflicted three or more years before.

Preliminary Analysis

The importance of existing trees should be carefully evaluated in terms of locations, size, age, health, species and effects upon surrounding space. Old mature trees are not as adaptable to change as younger trees of the same species, and a young tree can often be replaced at less cost than preserving it. Certain species of trees have characteristics which may be undesirable for a given situation, while others may be of great value to the quality of a particular space.

All of these factors should be carefully considered during the preliminary planning phases in order to evaluate the importance of existing trees, and to incorporate valuable specimens or groups into the overall design.

Tree Structure and Growth

To fully understand the various conditions that must be met before a tree can successfully survive a radical change of environment, a basic knowledge of tree structure and growth is required.

Figure 1 depicts the various parts of a tree, the functions of which are as follows:

Roots

Large anchor roots – penetrate deeply into the soil to stabilize the tree. These roots

also store nitrogen and carbohydrates. Small feeder roots – lie near the surface and absorb water and mineral salts from the soil.

Trunk

Outer bark – composed of dead cells which insulate and protect inner tissues from disease, infections and drying.

Inner Bark – conducts usable food from the leaves to the cambium.

Cambium – produces new wood and bark.

Sapwood – conducts sap vertically from the roots to the leaves.

Medullary Rays – store food and conduct food and water laterally within the trunk.

Heartwood – the structural core supporting the crown.

Leaves – utilize sunlight to convert carbon dioxide and sap into food.

Physical damage or environmental change can decrease the root's ability to anchor the tree and provide necessary soil nutrients, the trunk's ability to transport nutrients and the crown's ability to manufacture food. Even apparently minor damage to any of these systems often results in an increased susceptibility to disease, insect attack and eventual death.

Microclimate

Microclimate changes are often so unapparent that they receive little consideration as compared with the more obvious physical disruptions occurring during construction.

Figure 2 shows that new structures can substantially reduce the period of direct sun exposure while increasing temperatures by reflecting radiation off wall surfaces. The amount of food produced by a tree's leaves during photosynthesis is directly proportional to the amount of available sunlight. Although sun exposure requirements vary greatly among different species, few trees are able to sustain a great reduction in their accustomed length of sun exposure.

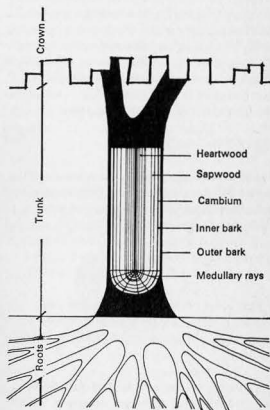


Fig. 1

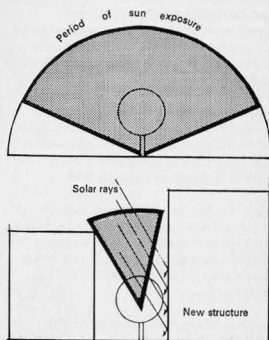


Fig. 2

Higher surface temperatures increase the rate of transpiration of moisture and release of oxygen from leaves. In severe cases, wilting of the leaves occurs, which can result in tree death if prolonged throughout an entire growing season or more.

Conversely, structures can also reduce temperatures by preventing air drainage and causing resultant frost pockets. Temperature reductions produce essentially similar results by shortening the accustomed season of growth. New buildings often create barriers to winds which previously stunted tree growth, while in other cases air currents are channeled into smaller spaces thereby increasing wind velocities. Increasing winds or air turbulence creates a more favorable atmosphere for transpiration. If this condition remains permanent, water loss can exceed the water supply at the roots, resulting in death. The many variations of microclimatic changes can be either detrimental or beneficial to tree growth, and an analysis of these changes should form a part of any consideration given to retaining existing trees.

"Save Existing Trees"

Unfortunately, the decision to retain existing trees often becomes a futile gesture due to a lack of understanding of the necessary methods of protection.

"Save existing tree" is a common blueprint phrase, but is rarely a guarantee of survival.

A contractor cannot be expected to adequately preserve existing trees unless he has a detailed specification of the actual methods involved.

The following diagrams and explanations describe the most common situations which occur during construction and site work, and the preventive measures which should be taken.

Protection from Mechanical Injury

The construction process itself produces the most prevalent change in the growth environment, and it is virtually impossible for an unprotected tree existing close to new construction to remain undamaged. Men and machines operating in close proximity to trees compact the soil, coat leaves with dust, and damage bark, branches and exposed roots. Foundation structures and exterior walls invariably require removal of roots and branches to the extent that the tree may lose its health or desirable form.

Figure No. 3 shows the measures which should be taken to prevent mechanical injury. The trunk of the tree should be wrapped with heavy planks to the height of the first branch. Nailing into the trunk should not be permitted.

As a general rule, the majority of a tree's root system is situated within the spread of

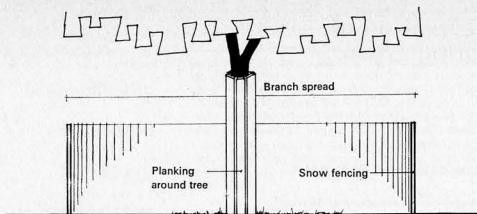


Fig. 3

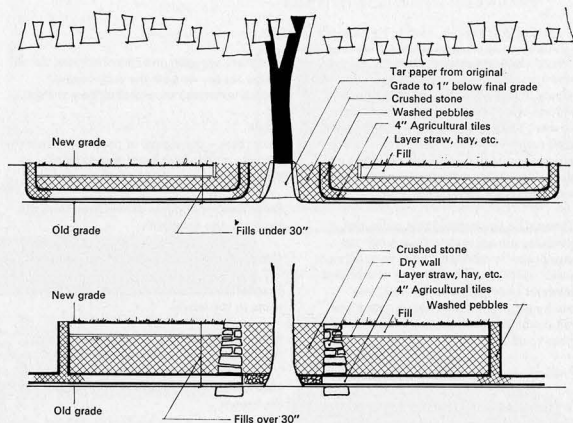


Fig. 4

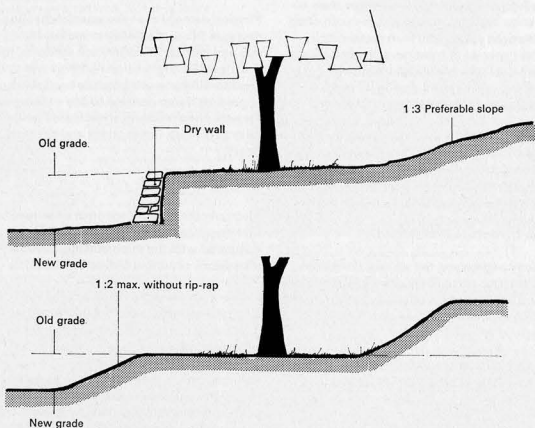


Fig. 5

the branches overhead. If the soil surrounding the small feeder roots is sufficiently compacted, these roots will suffocate and fail to provide nutrients to the leaves above.

Therefore, the death of one side of an otherwise healthy tree is often attributable to damage to the feeder roots directly beneath the dead portion. Certain species, such as Canada Hemlock, are extremely intolerant of any surface traffic as their feeder roots are barely covered by soil.

Temporary snow fencing should be placed around the tree at the branch spread limits to prevent compaction of the soil by workmen, machinery or stored materials. Upon completion of the contract, planking and snow fencing is removed to allow a visual inspection of the tree.

Protection from Grade Changes

Grade changes within the root spread of trees are a common cause of death. Unless protective measures are taken, the removal or addition of soil above the roots disrupts the ability of the root system to provide vital nutrients and physical stability. Maple, elm, beech and all coniferous species are particularly susceptible to injury from grade changes.

Figure No. 4 shows two methods of protecting trees from raises in grade, depending upon the depth of fill.

Root systems require proper air and water drainage, and care must be taken to prevent suffocation of the roots by compacted fill. As little as 3" of additional soil deposits for only a short while can lead to tree death.

A 4" agricultural tile system should be placed on existing grade, radiating out from the trunk to the spread of the branches, and sloping away slightly to allow drainage. In fills of less than 30" each end of the tile system is raised to the new grade to allow for air drainage and watering. With large trees, additional vertical tiles should be employed along the main lines. The entire tile system is then covered with crushed stone, and the vertical tiles are filled with washed pebbles. A layer of straw or perforated polyethylene film is placed over the stone to prevent soil particles from sifting down and clogging air spaces.

To prevent moisture from causing butt rot, tarpaper should be wrapped around the base of the trunk and then surrounded with crushed stone. The remaining fill is then placed to the required grade.

In fills over 30" deep, a dry wall should be constructed around the trunk, incorporating a similar tile system. A layer of pebbles within the well prevents clogging of the tile openings.

In general the tile systems should be as elaborate as necessary, according to the tree

and conditions involved. Normal conditions usually require 4 to 8 lateral tile lines.

Where possible, grades should not be lowered within the branch spread of existing trees.

Figure No. 5 indicates two methods of protection from lowered grades. When vertical grade changes surpass a 1:1 ratio, a retaining wall should be constructed to prevent soil from washing or falling away. On lesser slopes, rip rap or terracing can be employed. When lowering grade on a level plane the original grade within the branch spread can often be retained as a low mound. When a grade is raised at one side of a tree and lowered at the other a combination of methods should be utilized.

Protection from Adjacent Paving

The introduction of an impervious paving material over the root system of an existing tree almost invariably causes death, especially in species with shallow root systems. Figure No. 6 shows three basic methods of allowing water and air drainage for the roots. The most common method is to leave an unpaved area around the tree. The width of this area varies with the age, size, health and species of tree involved, but is usually not less than 8'. A cedar or metal screed can be employed to maintain a neat edge detail.

In areas of heavy foot traffic, a steel grating can be used above a shallow air space. The grating should be designed to allow easy removal for maintenance purposes and for modification to allow for growth of the trunk. A third method can be utilized with unit paving such as brick or granite sets by specifying open or sand joints which will allow the infiltration of ground water to the root system.

Moving Trees

In instances where removal of existing trees is mandatory, consideration should be given to moving them to other locations. Although this is an expensive process, it can often lower overall costs by reducing the number of trees to be imported to the site during planting operations. The transplanting of large trees requires a knowledge of root pruning and other vital procedures which cannot be adequately described in this article.

Treatment of Basic Injuries

There are times when it becomes mandatory to remove a branch or root during the course of construction or trenching. All cuts should be made cleanly, with no splitting or tearing of adjacent bark and wood. Cuts over 1" in diameter should be treated with an approved tree paint to prevent drying, and entrance of disease. A well-drained fertile soil should be backfilled around cut roots to provide a

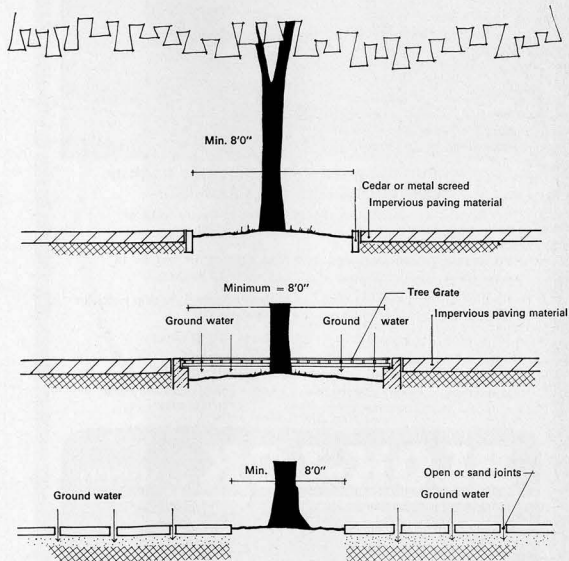


Fig. 6

loose growing medium which will allow the severed roots to regenerate. Abrasions to trunks should be traced back to living cambium and treated with tree paint. Care should be taken to prevent water from accumulating in such wounds.

On long-term construction projects it is often possible to change environmental conditions in stages. For example, grades

may be lowered at one side of an existing tree one year and altered on the other side the next year, allowing the tree to adapt itself to less severe changes in growth environment over a longer period of time.

In addition, many of these described preservation techniques can often be avoided by refraining from extensive re-grading, locating services beneath trees and other obviously harmful practices. □

Estimating

The cost of External Works bears no relation to the size of the building and there is, therefore, no point in quoting unit prices per square foot of the gross floor area. The usual method of estimating External Works on a preliminary estimate is to include a lump sum allowance, perhaps based on the quality and type of building and the location and size of the site.

Approximate unit prices which may be used when some information on the requirements for External Works is available are as follows:

- 1 Asphalt paving— heavy duty \$45 per SF
- 2 Asphalt paving— light duty \$34 per SF
- 3 Concrete sidewalks \$7.70 per SF
- 4 Gravel paving \$1.0 per SF
- 5 Granite setts \$2.25 per SF
- 6 Cobbles \$1.75 per SF
- 7 Precast concrete paving \$1.50 per SF
- 8 Brick paving \$2.25 per SF
- 9 Concrete curbs \$2.50 per LF
- 10 Topsoil and nursery sod \$.07 per SF
- 11 Topsoil and field sod \$.05 per SF
- 12 Seeding \$.03 per SF
- 13 Ground cover \$1.75 per SF
- 14 Rough grading \$.02 per SF
- 15 Fine grading \$.01 per SF
- 16 Chain link fencing \$4.50 per LF

Unit prices which can be used in connection with the preceding article are as follows:

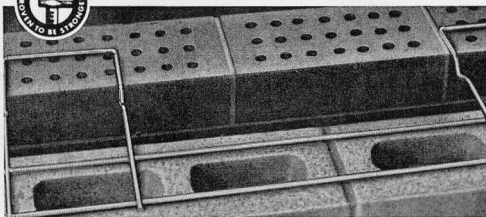
- 1 Wrapping tree trunks with heavy planks as Figure 3 \$5.00–10.00 per tree; approximately \$30.00–50.00 per tree.
- 2 Snow fencing \$1.00–2.00 per LF; approximately \$30.00–50.00 per tree.
- 3 Raising grade up to 30" around tree as Figure 4 \$7.00–15.00 per inch of trunk diameter or \$50.00 for a 6"–8" tree with a 20" spread.
- 4 Raising grade over 30" around tree \$15.00 and up per inch of trunk diameter plus cost of dry wall.
- 5 Dry wall 12"–14" thick as Figures 4 and 5 \$3.50–5.00 per SF.
- 6 Cedar screed as Figure 6 \$.75 per LF.
- 7 Metal screed as Figure 6 \$1.50 per LF.
- 8 Steel grating as Figure 6 \$4.00 per SF and up.
- 9 Wood grating as Figure 6 \$2.50 per SF
- 10 Moving trees to new location on site— 6" diameter, \$150.00 each; 12" diameter, \$650.00 each
- 11 Purchasing and installing new trees— 6" diameter, \$250.00 each; 12" diameter \$975.00 each

It should be emphasized that these figures are very approximate, much depending upon the circumstances of the individual project. They are based upon information provided by Lakeshore Landscape Associates and John H. Putzer Limited, both of Toronto.

Frank Helyar

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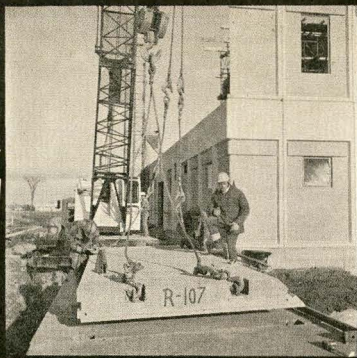
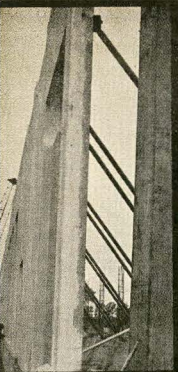
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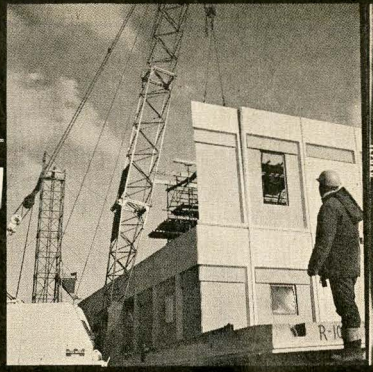
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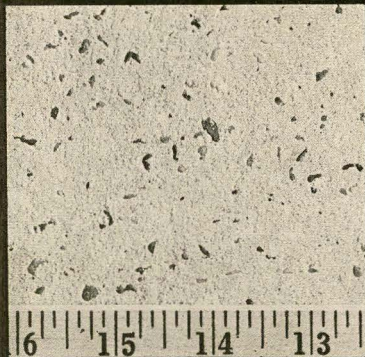
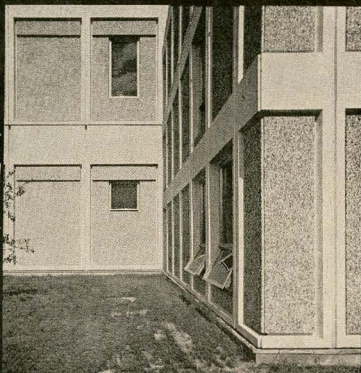


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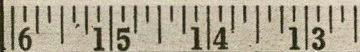
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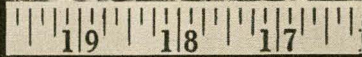
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APPROXIMATIVE



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


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1966 RAIC Medal Winners

RAIC Medals were presented this year to leading graduates from the seven Canadian Schools of Architecture. The medallists are:

Mr Sperry of Halifax, a member of the second graduating class of the School of Architecture, Nova Scotia Technical College, won, prior to the RAIC Award, the 1965 Weldon Travelling Scholarship to attend the International Summer School in Oslo, Norway. Before transferring to the Nova Scotia Technical College he studied for two years at the Dalhousie University, Department of Engineering. Mr Sperry is now employed with R. J. Flinn, Architect, Halifax.

M. Brassard de Jonquière, P.Q. obtint son baccalauréat-ès-arts de l'Université de Laval en 1960 et son baccalauréat en Architecture en juin 1966. Son projet de baccalauréat fut choisi pour être soumis au Concours Piikington.

M. Bouchard, gagnant de la médaille d'étudiants de l'IRAC en 1965, est diplômé de l'Université de Montréal, Ecole d'Architecture. A part de la Médaille du Lieutenant-Gouverneur de la Province de Québec, le Prix Cyanamid lui fut décerné. En 1965 il gagna la Bourse de Voyage en Europe de la Compagnie American Standard. Il étudie présentement au Graduate School of Design de l'Université Harvard.

Mr Rybczynski, McGill University 1966 RAIC Medal winner came to Canada in 1953 from Edinburgh. Mr Rybczynski has won a number of prizes throughout his university years and was editor and co-founder of the magazine "Asterisk". He currently is employed by Moshe Safdie.

Mr McLaughlin, University of Toronto, RAIC 1966 Medal winner, obtained honor standing in his graduation year. He is presently studying in Europe under the George T. Goulstone Fellowship.

Mr Cunningham the 1966 RAIC Medal winner from the University of Manitoba

received as well in his graduating year the Manitoba Association of Architects Book Prize. In 1963 he was awarded the Saskatchewan Association of Architects Book Prize.

Mr Hamilton from the University of British Columbia, RAIC Medal winner, attended McGill University, School of Architecture, before attending UBC in 1960 for one year Arts and Science and three years Architecture. Mr Hamilton worked for Thompson, Berwick, Pratt & Partners, Vladimir Plavsic and Associates, Erickson-Massey-Architects; Vancouver. He is presently employed by Joseph Baker in Montreal.

Staff Artist for Manitoba Faculty of Architecture

Gordon Adaskin, an established painter, has joined the teaching staff of the Faculty of Architecture at the University of Manitoba. He will contribute to the recently inaugurated courses in Environmental Studies especially in the fields of design and graphics.

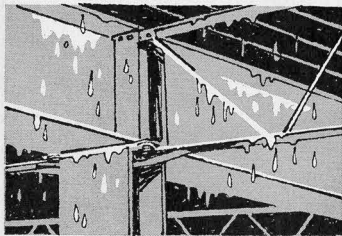
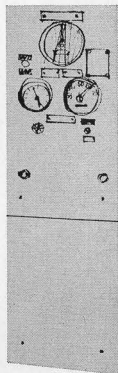
U. of T., Graduate Design Studio

Application may be made by Master of Architecture candidates for the Graduate Design Studio, School of Architecture, University of Toronto for the session 1967-68. The course is normally of one academic year's duration. It studies architecture in the context of cities. The studio program is the major element of the course, the theory courses in such subjects as transportation, urban case studies, urban sociology, and theory of architecture, are ancillary to the studio work.

Enquiries should in the first instance be made to the Director. Enquiries for scholarships should be made to the Secretary, School of Graduate Studies, U. of Toronto, except for the following scholarships, which should be applied for via the Director of the School of Architecture: CMHC Fellowship assistantships, CCUKK Fellowships. Fees are approximately \$450, and last date for receipt of applications is June 1st 1967, except in special circumstances.

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The Editors :

Perhaps one of the privileges of being a Fellow is being allowed to criticize the publication, and – as I criticized the covers before – I feel that it is now up to me to praise, instead.

While the building portrayed on the cover of the October issue can hardly be called architecture – the atmosphere of a damp, winter day has been superbly indicated. It is gratifying to see that there are still – in spite of all the atrocious scrawls called Modern Art – people who can draw beautifully. The trees are exquisite, the values perfect.

Of course, with many others, I deplore the modern trend of changing TCA to Air Canada, and the RAIC Journal to Architecture Canada. Why should we use incorrect English just because a well-known air-line in France is called Air France? Why not "Architecture of Canada" – if you must change?

P. Roy Wilson, B. Arch, ARCA, ARIBA, FRIBA, Beaufort, PQ

The Editors :

Having now received and, to some degree at least, read the first three issues of *Architecture Canada*, I wish to take this opportunity to express my genuine appreciation of the thought and effort which has gone into producing such an improved publication. It is hoped, as evidence to date seems to indicate, that the banality of the *Journal* will disappear with the name. The new name conveys to me the feeling of freshness and revivification which was much needed and which has been taking place in recent issues.

I would hope that, should Mr Kyles' suggestion (see letters in the September issue) be implemented, those of like opinion to his will be found to be a small minority. The type and quality of material now being published can provide a valuable aid to our "continuing education" if we can but find or make the time to read and digest it all.

In my opinion *Architecture Canada* shows great promise of deserving the appellation of a Professional Journal – my heartiest congratulations to the Editors and the Journal Board.

Alton M. Bowers, MRAIC, Calgary

The Editors :

I was interested in your article on Simon Fraser University Science Complex in which it was stated that the use of cast-in-place post-tensioned concrete beams was a "first" for Western Canada.

As you well know reporters should be extremely careful when claiming "first".

Our office has been using this method of construction in buildings in Winnipeg since 1961, and we like to feel that Winnipeg is still a part of Western Canada.

David M. Kilgour, P.Eng., Crosier, Greenberg & Partners, Winnipeg

The Editors :

Simon Fraser University opened its doors little more than a year ago and has already mounted several courses of graduate study. One of our problems is in obtaining back volumes of Canadian periodicals such as the *Journal of the Royal Architectural Institute of Canada*.

We would be pleased to hear from any of your readers who may have back volumes either to donate or for sale.

C. MacDonald, Processing Division – Serials, Simon Fraser University Library, Burnaby 2, BC

The Editors :

Is it not unfortunate that the imagination of architects is so limited that their *Journal* follows the cliché of Air Canada, Opera Canada, etc.

S. R. Kent, MRAIC, Ajax, Ontario

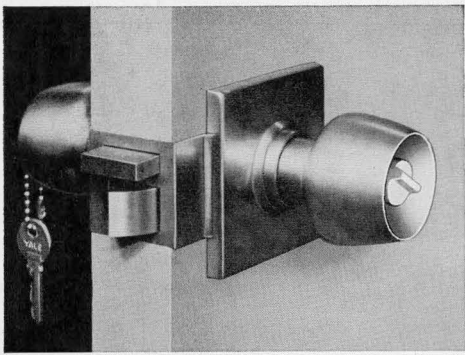


Allied Arts Editor :

Herewith a photograph which you can use as a guide to beautify the city of Toronto!

Louis J. LaPierre, MRAIC Montreal

Editors Note : Bilingual contribution – from a well known integrator of arts with Architecture !



Yale compliments unique design concept of new hospital residence in Saskatoon



Yale Series 6200 precision-crafted mono-locks were chosen for the new House Staff Residence of Saskatoon's University Hospital. Chosen for a lot of reasons: distinctive styling, dependability, durability, positive protection, and because the keying convenience within the series helped to simplify architectural specifications . . . all of which combined to blend in harmony with the architect's total design concept. Yale 6200 series heads an impressive list of fine Yale® lock hardware that has been installed in thousands of institutional, industrial, commercial and residential buildings across Canada. *Yale specializes in custom design service too.* Plan on using Yale to complement your structural designs . . . leading architects and contractors do. For further details write directly to:

The new staff residence of Saskatoon's University Hospital was designed to accommodate 40 interns and senior house staff. It offers a striking contrast to the antiseptic environment of the hospital itself . . . individual privacy, lounges, kitchen facilities and many other amenities. Although generally intended for single room occupancy, the quarters can be coupled to form efficiency units for married interns. Yale 6200 series mono-locks were installed throughout the new staff residence.

Architects: Izumi Arnott and Sugiyama, Regina, Saskatchewan

Contractor: W. C. Wells Construction Ltd., Saskatoon, Saskatchewan

Consultant: Marshall Wells of Canada Ltd.



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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.

Practice Notes

Gardiner, Thornton, Gathe and Associates and Ian Davidson announce the formation of the partnership Gardiner, Thornton, Gathe, Davidson, Garrett, Masson & Associates at 1111 West Hastings St. Vancouver (684-8264). Mr Davidson will continue to occupy his present offices at 1714 Alberni St. until January 1967.

Donald Wagg, ARIBA MRAIC, architect, announces that David H. Hambleton, ARIBA MRAIC has joined him in the practice of architecture. The new partnership will be known as Wagg & Hambleton with offices at 611 Courtney Street, Victoria, B.C. Telephone 386-7774.

After October 29 the main office of van Ginkel Associates, Architects and Planning Consultants, will be in Winnipeg at 39 Eastgate, Winnipeg 1, Tel. 943-1104, with offices in Montreal and Philadelphia. Professor H. P. Daniel van Ginkel recently accepted an appointment at the University of Manitoba. He continues his association with Nova Scotia Technical College, but as a Visiting Critic. Mrs van Ginkel has resigned from the faculty of the Université de Montréal.

The firm of Fairfield & DuBois Architects have moved their offices from 120 Eglinton Avenue, East, to 45 Charles Street, East, Toronto.

La liste des membres de l'AAPQ dans ADA 66-67 montre le numéro de téléphone de M. Jean-Claude Leclerc comme 375-6646, au lieu de 375-6645.

Positions Wanted

23-year-old architect, B.S.Arch. graduated in 1963 with three years' experience in the U.S. in design and development of presentation and working drawings, is interested in a permanent position in a Toronto or Montreal architectural office. Reply Modesto M. Puno, 7824 E. 58th Street, Kansas City, Missouri 64129, U.S.A.

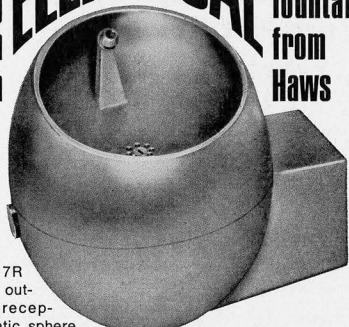
Filipino architect, B.S.Arch. of the University of Sto Tomas, four years' experience as an architectural designer, wishes employment in Canada. Write Miss Aurora N. Torio, 727 Sulucan Street, Sampaloc, Manila, Philippines.

English-speaking Chinese Engineer, graduate in Civil Engineering in 1957 with a B.Sc. degree, three years' experience as a Quantity Surveyor, wants a position in Canada with view to immigration. Contact Kin Yeung, 140 Shanghai Street, 6th Floor, Kowloon, Hong Kong.

25-year-old graduate of the Far Eastern University, Manila, B.S.Arch. in 1964, two years' post-graduate office experience, wishes a job in a Canadian architectural firm. Arsenio V. Enriques, 625 Sulucan, Sampaloc, Manila, Philippines.

Turkish architect, graduate of the Technical University of Ankara in 1963, with one and a half year's experience in Germany, presently employed as an architect in the Turkish army, wishes a job in the Montreal area with view to immigration. Reply Mr H. B. Miovski, Is.Tgm., As.Ins.Eml.Md., Malatya, Turkey.

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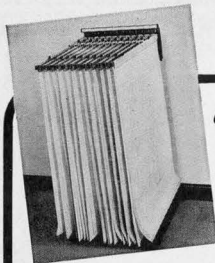
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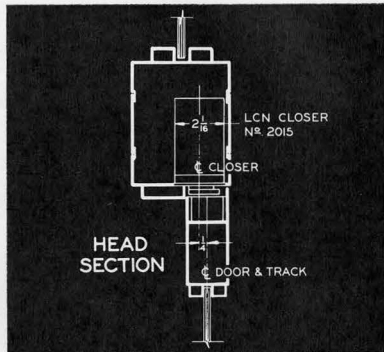
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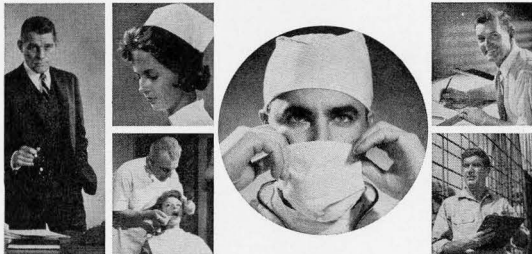
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