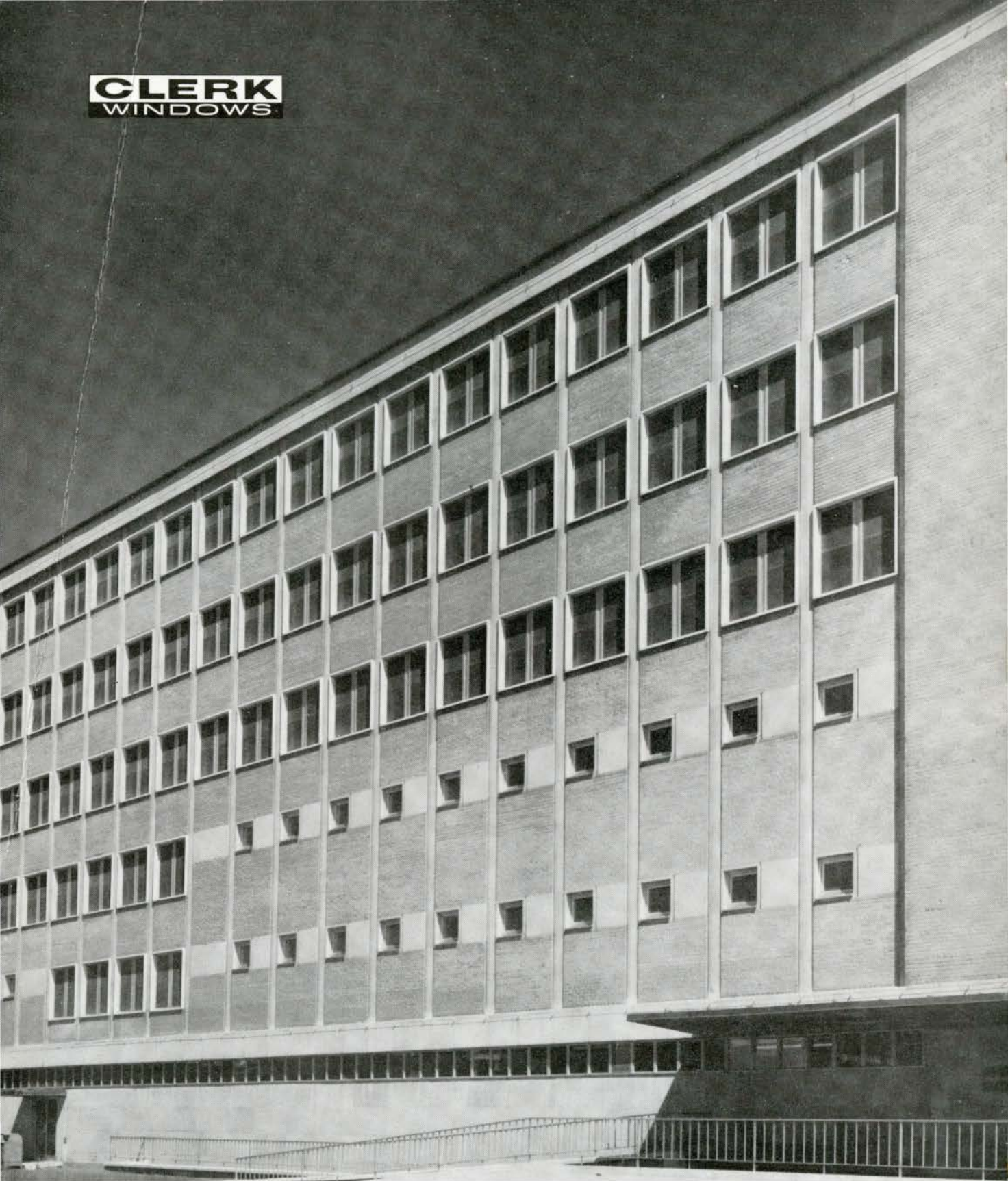




RAIC JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA / INSTITUT ROYAL D'ARCHITECTURE DU CANADA, NOVEMBER 1963

CLERK
WINDOWS



The Queen Elizabeth Hospital
Montreal

Ross, Fish, Duschenes & Barrett
and Comber & Mack
Architects, Montreal

CLERK WINDOWS
MONTREAL, QUEBEC, TORONTO, VANCOUVER



Credits—Model: Webb & Knapp (Canada) Limited Photo: George Hunter

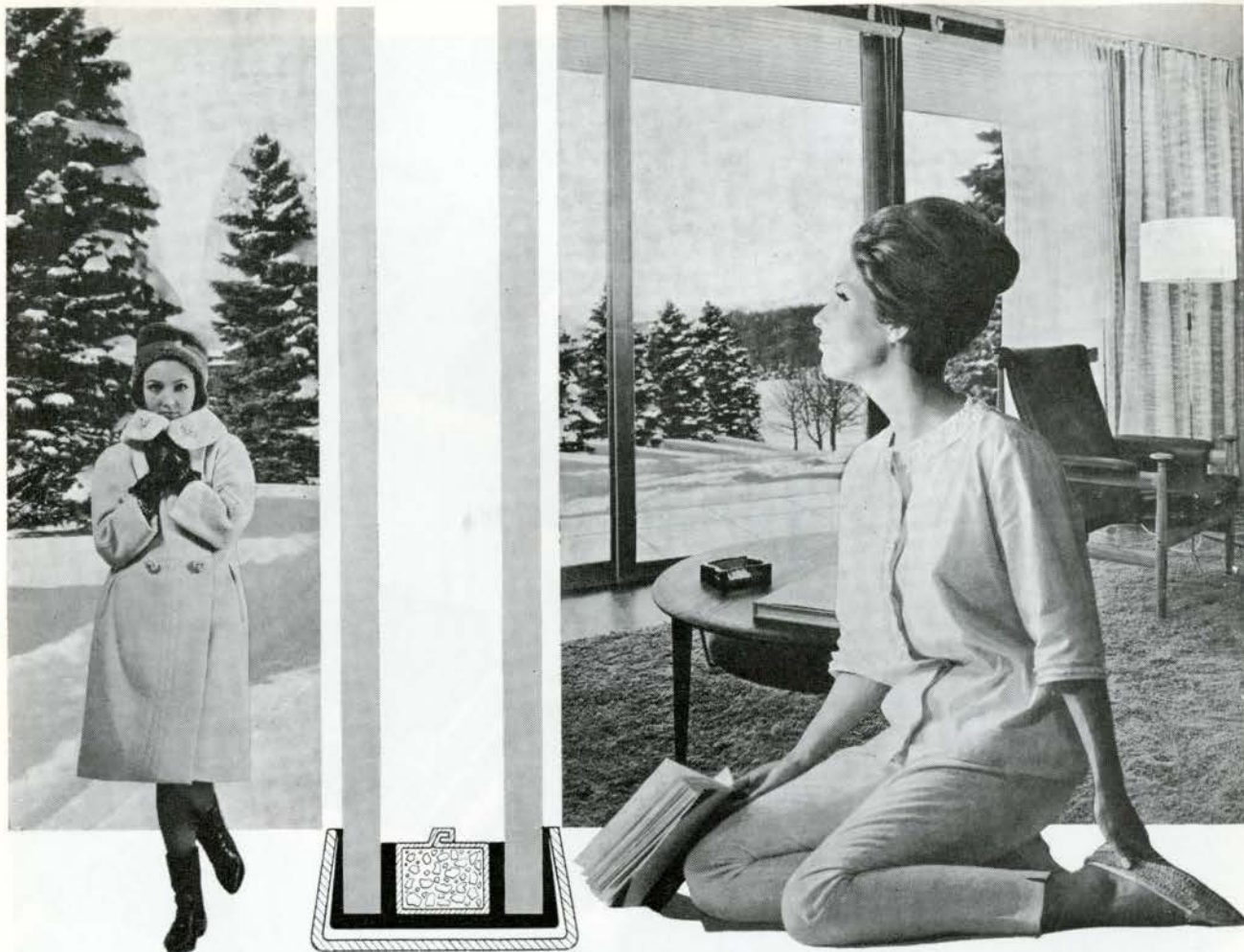
VANCOUVER, whose motto proclaims "By Sea and Land We Prosper", is indeed the beneficiary of both elements. It is fitting, therefore, that some of the most significant urban developments completed or contemplated within the City proper pertain to the seafront or harbour area. Notable among these is the Coal Harbour project planned by the widely-known development organization of Webb & Knapp (Canada) Limited. To the extent that we as citizens are collectively unable to, or fail to, undertake the replanning and renewal of our depreciated urban centres we must inevitably depend upon private enterprise to fill the gap. We will be fortunate if a due proportion of such undertakings proves to be as seemly and liveable as the Coal Harbour complex of commercial and office buildings, highrise apartments and marina facilities shown above in model form. A vital feature of many such forward-looking projects is vertical transportation by Otis.



**OTIS
ELEVATOR
COMPANY LIMITED**

Head Offices and Works: Hamilton, Ontario
Offices in 28 Cities Across Canada

AUTOTRONIC[®] OR ATTENDANT-OPERATED PASSENGER ELEVATORS • ESCALATORS • TRAV-O-LATORS • FREIGHT ELEVATORS • DUMBWAITERS
ELEVATOR MODERNIZATION & MAINTENANCE • MILITARY ELECTRONIC SYSTEMS • GAS & ELECTRIC TRUCKS BY BAKER INDUSTRIAL TRUCK DIVISION



il fait bon vivre...

...à l'abri de l'hiver et de son cortège de neige et de froid, grâce au confort qu'apporte à votre home le vitrage isolant

POLYGLASS *

Les vitrages à parois multiples **POLYGLASS** * (en glaces polies "Duplex" et en verre à vitres) assurent :

- une parfaite isolation thermique qui se traduit par une très sensible économie de chauffage
- une isolation acoustique efficace
- une plus-value certaine à tous les immeubles quelle que soit leur importance
- la suppression des buées et des dégâts dus à la condensation et permettent l'emploi des plus larges baies.

Autres produits fabriqués :

Les verres coulés, martelés, cathédrales, imprimés et armés

Les verres coulés et armés athermanes **FILTRASOL** * et **FILTRAGREY** *

Les verres trempés émaillés **PANOROC** *

* Marques déposées

Ces produits sont fabriqués par la

S. A. LES GLACERIES DE LA SAMBRE

principal fabricant belge de glaces doucies et polies.





NOVEMBER 1963

MANAGING EDITOR
WALTER B. BOWKER

ASSISTANT EDITORS
NOEL HANCOCK, *B.Arch.*
LEAH GINGRAS, *B.I.D.*

RESEARCH ASSISTANT
YVONNE HANCOCK, *B.Arch.*

TECHNICAL EDITOR
DOUGLAS H. LEE,
B.Arch., M.Sc., MRAIC, ARIBA

LEGAL EDITOR
N. J. P. MELNICK, *B.A., LL.B.*

REGIONAL ASSISTANT EDITORS
MARITIMES
YVON LEBLANC, *B.Arch., MRAIC*
Moncton

WEST COAST
CHARLES A. TIERS, *M.Arch.*
Vancouver

QUEBEC
JEAN GAREAU,
B.A., A.D.B.A., MRAIC,
Montreal

PRAIRIE PROVINCES
RADOSLAV ZUK,
M.Arch., MRAIC,
Winnipeg

ADVERTISING MANAGER
LLOYD SAWYER

ADVERTISING CONSULTANT
J. F. SULLIVAN

ADVERTISING REPRESENTATIVES
J. E. THOMPSON
P. A. SPENCER

MONTREAL
G. ROBITAILLE

VANCOUVER
T. G. VATCHER

JOURNAL COMMITTEE

Chairman
L. A. OXLEY
JOHN L. DAVIES (F)
F. BRUCE BROWN (F)
H. D. R. BUCK
R. A. DICK
FORSEY PAGE (F)
EARLE C. MORGAN (F)
Toronto
ANDRE BLOUIN
Montreal

EDITORIAL BOARD

Chairman
H. D. R. BUCK
Toronto
Vice-Chairman
W. N. GREER
Toronto
ALTON M. BOWERS
Calgary
K. E. R. KERR
Vancouver
H. CLAIRE MOTT (F)
Saint John
WM. J. RYAN
St Johns
J. A. LANGFORD
Ottawa
PETER F. TILLMAN
London
BOYLE SCHAEFFER
Winnipeg
P. A. ALLWARD
DOUGLAS B. BROWN
W. E. CARRUTHERS
R. G. CRIPPS
R. A. DICK
F. E. FLETCHER
P. M. KEENLEYSIDE
M. CLIFFORD
L. A. OXLEY
J. G. SPENCE
Toronto
PETER COLLINS
Montreal
DENIS TREMBLAY (F)
Sherbrooke
W. F. KELLY
Regina
G. A. LAMBROS
Halifax

THEATRES

- 30 ROYAL ALEXANDRA THEATRE, TORONTO
by James C. Acland and Yvonne Hancock
- 32 LA GRANDE SALLE/PLACE DES ARTS, MONTREAL
Architects, Affleck, Desbarats, Dimakopoulus, Lebensold,
Michaud, Sise
- 38 LA SALLE DE CONCERT DE LA PLACE DES ARTS
par Claude Beaulieu
- 42 LA STRUCTURE DE LA GRANDE SALLE
par Lucien Jacques
- 43 MECHANICAL AND ELECTRICAL
by D. W. Heywood
- 49 ACOUSTICAL DESIGN OF LA GRANDE SALLE
by Bolt, Beranek & Newman
- 50 PLACE DES ARTS/GARAGES
by Peter T. M. Barott (F)
- 51 THEATRE BUILDING/A DISCUSSION

LEGAL NOTES

- 22 THE ARCHITECT'S RIGHT IN HIS PLANS
by Norman Melnick

TECHNICAL SECTION

- 55 EXTREME TEMPERATURES AT THE
OUTER SURFACES OF BUILDINGS
by D. G. Stephenson, the November Building Digest Supplement
from the Division of Building Research, NRC, Ottawa
- 59 CONSIDERATIONS OF ENVIRONMENT FOR
AUDIO/VISUAL PRESENTATION
by G. C. Graham and R. W. Curtis

DEPARTMENTS

- 9 Institute News
- 13 Features
- 17 Book Reviews
- 94 Index to Advertisers

COVER: Ceiling detail, la Grande Salle, Place des Arts, Montreal;
Architects, Affleck, Desbarats, Dimakopoulus, Lebensold,
Michaud, Sise. Photo by Hans Samulewitz



The Royal Architectural Institute of Canada

Founded 1907 • Patron Her Majesty The Queen

OFFICERS 1963-64

PRESIDENT, JOHN L. DAVIES (F), *Vancouver*
VICE-PRESIDENT, F. BRUCE BROWN (F), *Toronto*
HONORARY SECRETARY, RANDOLPH C. BETTS (F), *Montreal*
HONORARY TREASURER, JAMES W. STRUTT (F), *Ottawa*

COLLEGE OF FELLOWS

CHANCELLOR, H. H. G. MOODY (F), *Winnipeg*
DEAN, EARLE C. MORGAN (F), *Toronto*
REGISTRAR, GERARD VENNE (F), *Quebec*

REPRESENTATIVES TO COUNCIL

ALBERTA ASSOCIATION OF ARCHITECTS —
H. SETON, D. G. FORBES, H. L. BOUEY (F), R. F. BOUEY, J. A. CAWSTON (F).
ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA —
JOHN L. DAVIES (F), W. G. LEITHEAD (F), C. E. PRATT (F),
R. S. NAIRNE, J. H. WADE (F), R. W. SIDALL.
MANITOBA ASSOCIATION OF ARCHITECTS — J. E. WHENHAM,
H. H. G. MOODY (F), S. LINDGREN, ISADORE COOP, JAMES E. SEARLE.
ARCHITECTS' ASSOCIATION OF NEW BRUNSWICK —
G. J. GAUDET, J. R. MYLES.
NEWFOUNDLAND ASSOCIATION OF ARCHITECTS —
F. NOSEWORTHY, W. B. GUIHAN.
NOVA SCOTIA ASSOCIATION OF ARCHITECTS —
C. A. E. FOWLER (F), T. W. BAULD, A. F. DUFFUS (F).
ONTARIO ASSOCIATION OF ARCHITECTS — F. B. BROWN (F),
HARVEY COWAN, ARTHUR W. DAVISON, G. Y. MASSON (F), N. H. McMURRICH (F),
EARLE C. MORGAN (F), A. R. PRACK (F), W. G. RAYMORE (F),
C. F. T. ROUNTHWAITE, HARLAND STEELE (F), JAMES W. STRUTT (F), PETER TILLMANN.
PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS —
F. J. NOBBS (F), RANDOLPH C. BETTS (F), RICHARD E. BOLTON (F),
HENRI MERCIER (F), GUY DESBARATS, GERARD VENNE (F),
PETER T. M. BAROTT (F), PIERRE MORENCY (F), EDOUARD FISET (F),
EDOUARD W. TREMBLAY, PETER DOBUSH (F).
SASKATCHEWAN ASSOCIATION OF ARCHITECTS —
G. R. FORRESTER, W. E. MARVIN, H. LARSON.

CHAIRMEN OF STANDING AND SPECIAL COMMITTEES

ARCHITECTURAL EDUCATION, F. J. NOBBS (F), *Montreal*
ADVISORY COMMITTEE ON UNIFORM REGISTRATION,
WILSON SALTER, *St Catharines*
BUILDING RESEARCH, ALSON FISHER, *Toronto*
PROFESSIONAL USAGE, JOHN L. DAVIES (F), *Vancouver*
SCHOLARSHIPS, A. T. GALT DURNFORD (F), *Montreal*
DUTY ON PLANS, L. E. SHORE (F), *Toronto*
EDITORIAL BOARD, H. D. R. BUCK, *Toronto*
INTERNATIONAL RELATIONS COMMITTEE, JOSEPH PETTICK, *Regina*
JOURNAL COMMITTEE, L. A. OXLEY, *Toronto*
LEGAL DOCUMENTS, MARVIN ALLAN (F), *Toronto*
SPECIAL COMMITTEE ON THE PRESERVATION OF
HISTORIC BUILDINGS,
E. R. ARTHUR (F), *Toronto*
MASSEY MEDALS COMMITTEE, J. A. RUSSELL (F), *Winnipeg*
PUBLIC INFORMATION, P. T. M. BAROTT (F), *Montreal*
COMMITTEE ON HOUSING, JAMES A. MURRAY (F), *Toronto*
ARCHITECTURE ABROAD, JOHN L. DAVIES (F), *Vancouver*
ARCHITECT-ENGINEER RELATIONS, C. A. E. FOWLER (F), *Halifax*
RAIC-CCA-ACEC COMMITTEE ON BUILDING MATERIALS,
ROBERT BRIGGS, *Toronto*
PLANNING FOR 1967 CENTENARY, PETER THORNTON (F), *Vancouver*
COMMITTEE ON ARCHITECTURAL COMPETITIONS,
H. GORDON HUGHES (F), *Ottawa*

HEADQUARTERS

88 METCALFE STREET, OTTAWA
EXECUTIVE DIRECTOR, FRED W. PRICE
EXECUTIVE SECRETARY, MAURICE G. HOLDHAM, MBE



NEW LUNA DESIGN

The clean modern lines of Luna blend beautifully with contemporary architecture and decor. One of the newest locks by —

SCHLAGE®

SCHLAGE LOCK COMPANY

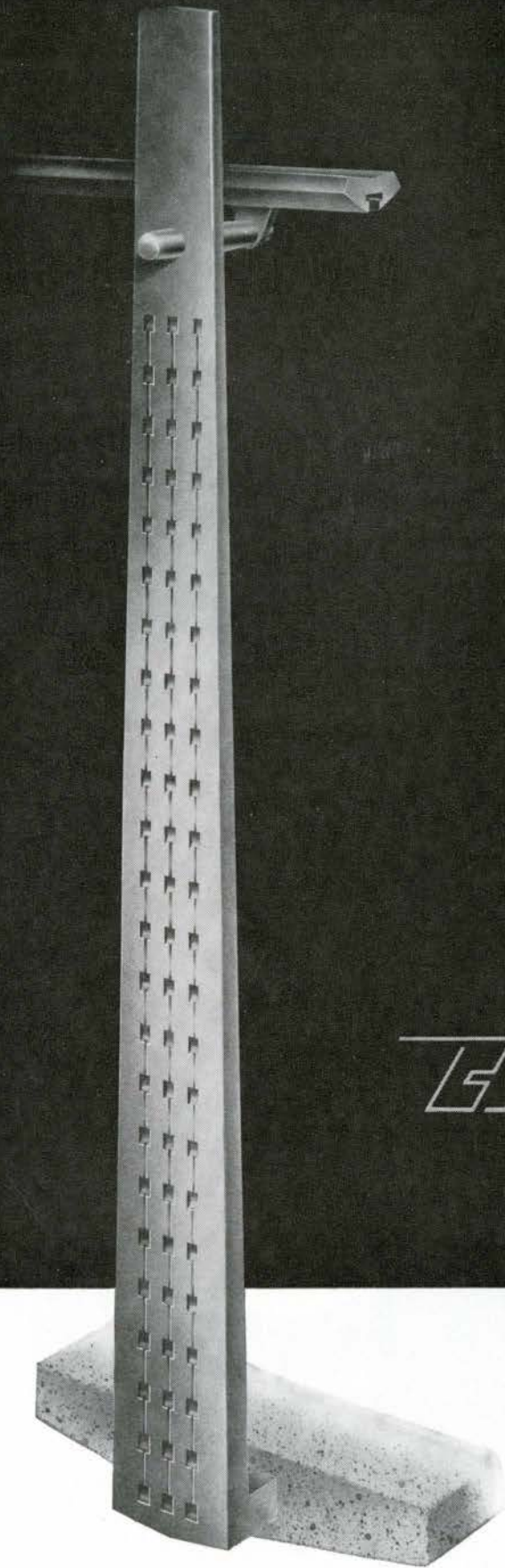
OF CANADA LTD.

SAN FRANCISCO • LOS ANGELES

NEW YORK • CHICAGO • VANCOUVER, B.C.



Illustrated in bright brass. Also available in all standard finishes. Knob, 2" diameter; rose 2⁹/₁₆" diameter.



Blumcraft
OF PITTSBURGH

NEW

classic tapered aluminum post 149-S. Sculptured pattern shown. Available with a plain surface or inlaid natural wood.

Complete catalogue of railings and grilles available upon request.

Permanent display - Architects Building, 101 Park Ave., New York, N.Y.

INSTITUTE NEWS

MASSEY MEDALS 1964

The 1964 Massey Medals competition will take place in the summer and fall of next year. Presentation of the medals for the winning entries will take place at the National Gallery, Ottawa, on November 29. The awards were instituted by the Massey Foundation in 1950, and the last competition was conducted in 1961, when one Gold and 19 Silver Medals were awarded. Details of the 1964 Competition will be announced in January.

The exhibition of 1961 Massey Medal winners is still on tour in the United States, from November 9 to 30 at the Trade and Convention Centre, Philadelphia. The exhibition travels the US under the title "Contemporary Canadian Architecture".

ARCHITECTURE AT THE ACADEMY

For the first time, a major feature of the Annual Exhibition of the Royal Canadian Academy of the Arts will be examples of contemporary Canadian architecture. Submissions were confined to work completed subsequent to December 31, 1959, and not previously exhibited at Ottawa. The RAIC jury of selection, John Bland (F), L. E. Shore (F) and John C. Parkin (F), are very pleased with the number of entries, about 18 of which have been chosen. The Exhibition will be at the National Gallery in Ottawa from January 16 to February 9.

RAIC EXECUTIVE ENDORSES COMMONWEALTH ASSOCIATION

The RAIC Executive Committee, meeting September 20, in Toronto, approved in principle a motion that the Institute join the proposed new Commonwealth Association of Architects. Formation of the new Association was recommended by delegates to a conference of Commonwealth and Overseas Allied Architectural Societies in London, July 21 to 25. The RAIC was represented at the conference by the President, John L. Davies (F), Gérard Venne (F) and Dr Thomas Howarth (F). A report on the Conference by the President is being sent to Provincial Associations, and Mr Davies is preparing an explanation of the nature and aims of the Association for the December *Journal*.

The newly appointed Executive Director of the Institute was introduced to members of the Executive Committee by the President. Maurice G. Holdham, whose title was changed to Executive Secretary by the Executive Committee, reported that copies of two revised booklets are now available at RAIC Headquarters, Ottawa — "Architecture as a Vocation" and "Suggested Minimum Syllabus of Study".

EXPOSITION UNIVERSELLE CANADIENNE

M. Edouard Fiset (A) a été nommé architecte en chef de l'Exposition Universelle Canadienne, "Expo 67". Urbaniste éminent, originaire de Rimouski, M. Fiset fut diplômé en architecture de l'École des Beaux-Arts de Québec; boursier du gouvernement



provincial, il a obtenu ensuite le titre d'architecte diplômé du gouvernement français à l'École Supérieure Nationale des Beaux Arts de Paris. Interné en France pendant l'occupation allemande, de 1940 à 1944, il y travailla pour le ministère de la Reconstruction après la libération. De retour au pays depuis 1945, Monsieur Fiset fut pendant plusieurs années le collaborateur de Monsieur Jacques

Gréber à la préparation du plan d'aménagement de la ville d'Ottawa. Il a de plus soumis un rapport sur l'aménagement de la ville de Québec. Il a été urbaniste-conseil de plusieurs municipalités, notamment Baie Comeau, Thetford Mines et Lauzon. Il est l'auteur du plan directeur de l'Université Laval et de la cité parlementaire de Québec. Il a fait les plans de quatre villes nouvelles, Labrieville, Baie Comeau nord, Gagnon et Wabush. Ses réalisations les plus récentes sont l'important immeuble à bureaux de "La Laurentienne" dans la vieille capitale et le pavillon des sciences humaines de l'Université Laval.

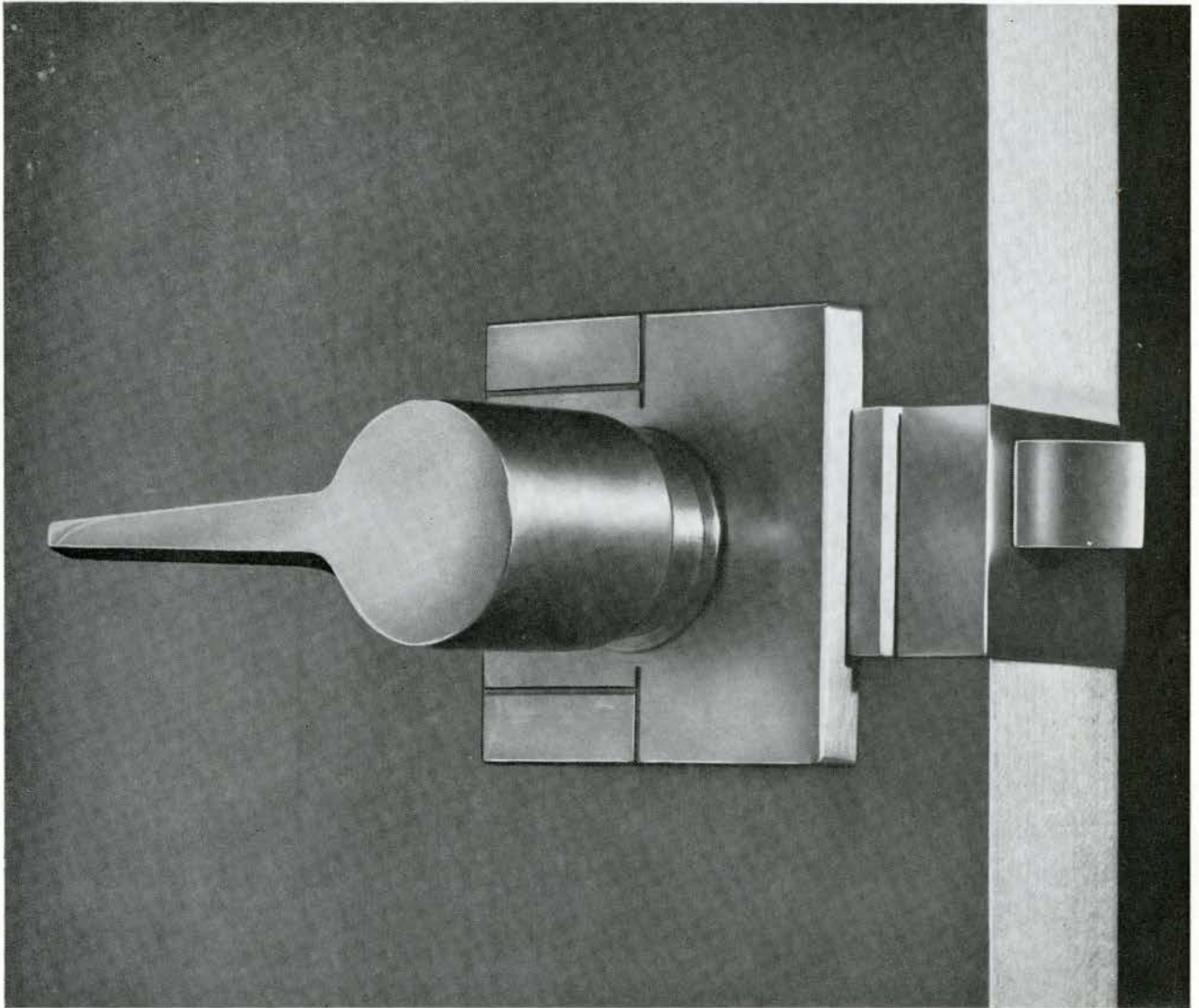
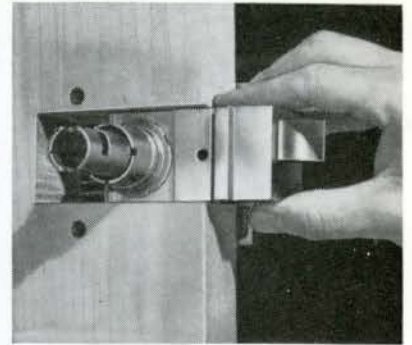
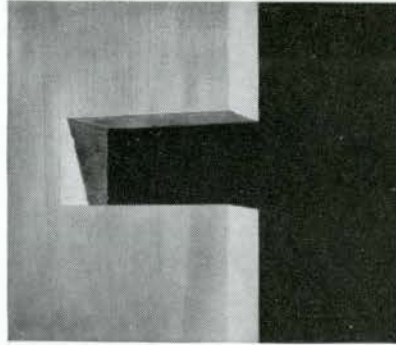
DESIGN AWARDS FOR TOURIST FACILITIES

The Ontario Association of Architects has instituted awards for excellence in design and construction of tourist facilities in Ontario. Hotels, motels, restaurants, cocktail lounges, ski chalets, are among the categories listed.

WINTERTIME CONSTRUCTION

The National Joint Committee on Wintertime Construction at its annual meeting October 7 passed a resolution concurring

New Yale* Mono-lock



“Social Security” for every room in your building

Meet the new Mono-lock, Yale's answer to architectural requirements for beauty and range of design in knobs, lever handles and escutcheons. Only in Mono-locks are beauty and brawn, high security and ease of installation combined so well. More than thirty functions make the Mono-lock first choice for schools, hospitals, hotels and motels. Installed

quickly and accurately on doors from $1\frac{3}{8}$ " to $2\frac{1}{4}$ " thick. For complete information ask for Bulletin A17R from your Yale contract hardware distributor or write to The Yale & Towne Manufacturing Company, St. Catharines, Ont.

* Registered Trademark

YALE & TOWNE

in the action of the Federal government in reducing the Municipal Winter Works program to a six-months period. The Committee noted that the program had been instituted with the specific intention of reducing winter unemployment and not as a subsidy for municipal works. The new Municipal Development and Loan Fund is designed to assist municipalities on a year-round basis.

Also noted were statements by John L. Davies (F), President RAIC, in favor of wintertime construction and on the progress being made by the RAIC-CCPE Architect-Engineer Joint Advisory Committee on Winter Employment. The Committee, which met on September 26, received a report from its chairman, Sidney Lithwick, on a survey he had made of a number of architects and engineers. Their replies to his questions all contained favorable comments on winter construction, with photos of examples. His fellow architects were of the opinion that the additional cost of wintertime construction averaged five per cent.

On the other hand, a Canadian Construction Association recent nation-wide survey indicated costs of winter construction were barely one per cent above normal, and this was offset by revenue earned from earlier occupancy and use.

The meeting heard Dr W. R. Dymond, Deputy Minister of Labor, outline details of the Municipal Winter Works Program for 1963-64, and plans for 45 areas of high winter unemployment and for 35 Designated Development areas. Dr Dymond also listed four points about the new Federal bonus of \$500 for winter-built homes:

1. Most of the work must be done between Dec. 1 and March 31. Foundations and first-floor joists may be put into place before Dec. 1 and outside painting, landscaping, walks and driveways may be completed after March 31.

2. The house must meet normal accepted standards for Canadian homes and must comply with local and provincial regulations.

3. Each dwelling must have four or more rooms with adequate heating and sanitary facilities and space for cooking, eating, living and sleeping.

4. If work is to start before Dec. 1, a bonus application must be made by the owner or builder before Nov. 10. If work starts after Dec. 1, it must be inspected before going beyond the first-floor joist stage. An application must be filed at least 15 days before inspection is desired.

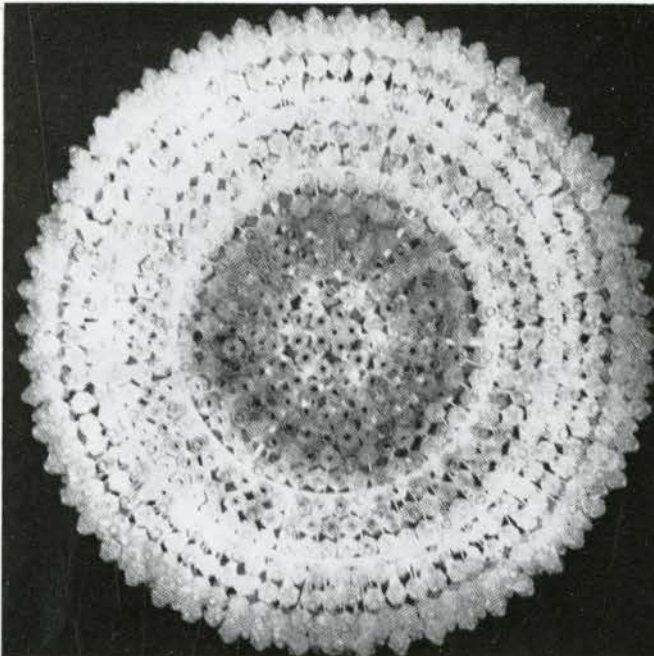
The RAIC was represented at the meeting by the Executive Director, Fred W. Price.

UNITED KINGDOM NOTES

The 1964 Annual Conference of the RIBA will be held at Glasgow, May 8-11. A welcome has been extended to any RAIC members who would like to attend.

The first installment of the RIBA Handbook of Architectural Practice and Management is now available.

A Commonwealth Arts Festival is to be held in Britain in September and October, 1965. Chairman will be the Duke of Edinburgh. Details are available from the British Council Liaison Office, Ottawa.



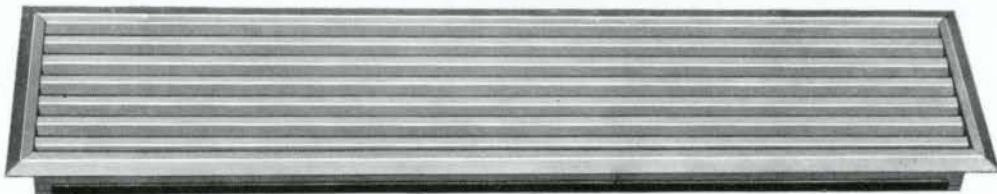
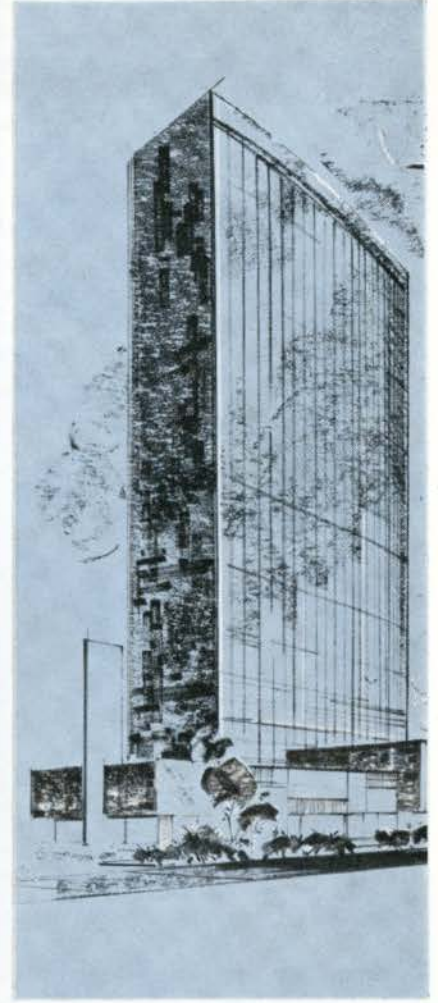
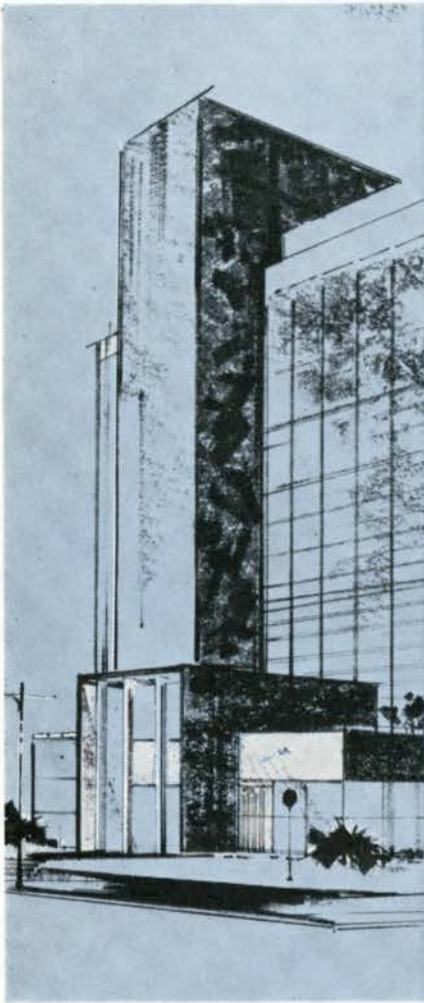
Whether round, square, oval or free-shaped as the chandeliers over the magnificent Piano Mobile of Montreal's Place des Arts, VENINI'S master craftsmen are able to execute the most imaginative designs in glass chandeliers, sconces or screens.

Can we assist you in any particular problem in the field of exclusive lighting or may we send you our illustrated brochures?

AKA

FURNITURE CO. LTD.
550 Sherbrooke St. W., Montreal

Exclusive Canadian Agents for Venini Glass



LINEAR DIFFUSER



IMPERIALINE

For harmony or accent on linear design concept
H & C EXTRUDED ALUMINUM GRILLES AND DIFFUSERS

Universal in application, for performance and prestige requirements, Extruded Aluminum Diffusers and Grilles may be used on the supply or return portions of heating, cooling or ventilation systems. Constructed throughout of aluminum, H & C Diffusers and Grilles are light in weight, easy to handle and simple to install. Units merely snap into place. Please write for full particulars.



HART & COOLEY

MFG. CO. OF CANADA LTD. FORT ERIE, ONT.

VANCOUVER, CALGARY, EDMONTON, REGINA, WINNIPEG, TORONTO, MONTREAL
 MANUFACTURER'S SALES REPRESENTATIVES
 C. K. HOWARD, NORTH BAY, ONT. — R. H. PATERSON SALES LTD., ST. JOHN, N.B.

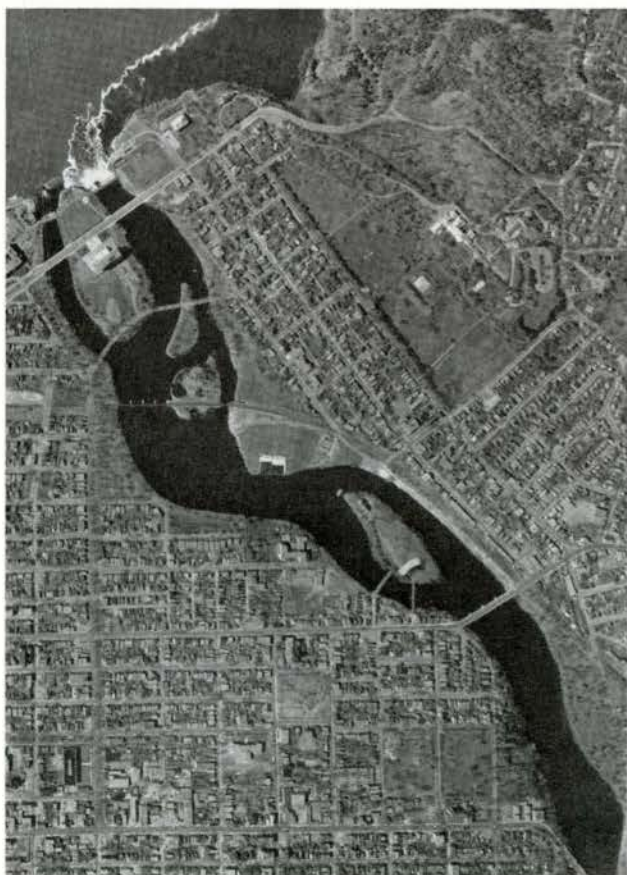
FEATURES

We are beginning to realize that planning is the essence of a city's system. Yet any attempt to establish a pattern seems to result in a political battle and the architect is eventually consulted to work with the results. In the remaining life expectancy of the project the owner or tenant is left to suffer with the mistakes.

The mistake in reference here is "Island Lodge" not far from Ottawa's City Hall (another island site), two or more miles from their future "suburban" railway station and even further from the strange reality of the different government groups located in idyllic greens like so many things being let out to pasture for the next one hundred years.

To point out the errors of locating an old age mansion in the centre of a river would seem to be unnecessary. But as well as the psychological implications of separating aging people from the activities of city life there are physical disadvantages of the development. A highway had to be cut through a quiet residential neighbourhood thus dividing the community with another asphalt strip bounded by concrete curbs and destroying a fine fresh vegetable market. Then a bridge was necessary to smoothly connect the mainland with the city-owned site.

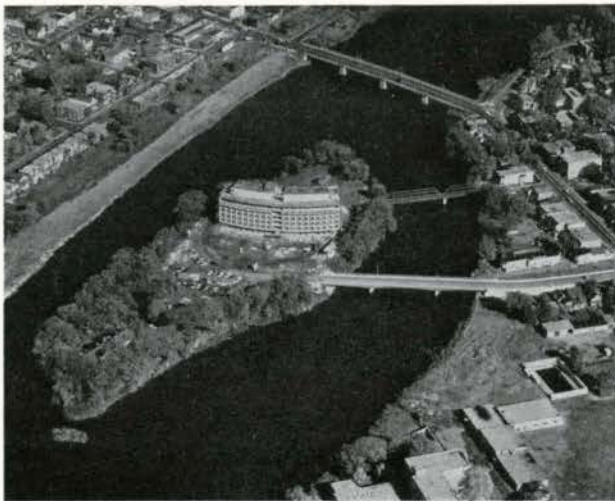
Aerial photo of part of the city of Ottawa. Island Lodge is located on Porter Island in the Rideau River (centre). City Hall is located on Green Island (top left) with Rockcliffe Park on the right.



for showers: flow control and thermostatic control of the water temperature are now combined in one compact, elegant, and recessible unit. This valve is called the Rada 72 and is manufactured by Walker Crossweller & Company Limited, England.

CANADIAN COMPANY:
P.O. BOX 380
Telephone—Area 416

MARKHAM, ONTARIO
Number 294-2173



Porter Island with new bridge and roadway in the foreground. The building represents a cost of \$8,720 a bed for the 260 bed project.

Many people are studying the problem of housing those who cannot have a choice. It would be very different to believe that this project was a result of these studies. Already the owners and interested committees are working towards a solution of the basic mistakes. "... oil painting, copper and aluminum work, rug making, ... discussion groups, a band or choral group and sing-a-longs are being planned." The auxiliary hopes to develop a regular "friend" for each resident. Other possibilities for this "Hilton Estate" would include imported sands, with sun shades and a wire fence around — to keep the children off and prevent the islanders from swimming in contaminated waters. "Island Lodge is not an old people's home — it is a residence for people over 60." *N.H.*

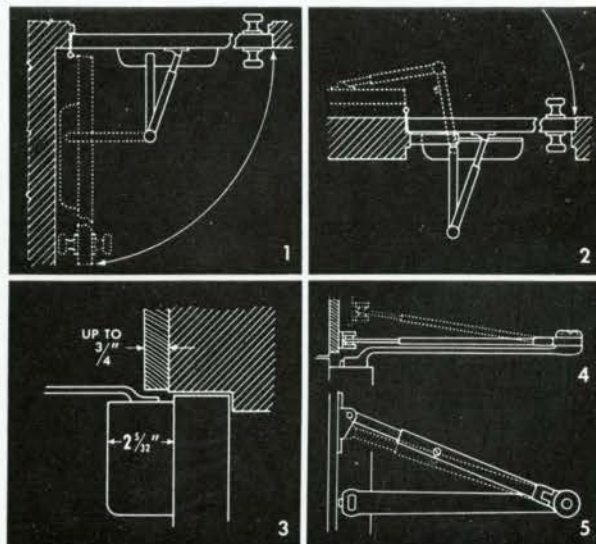
COMPETITION

A competition open to British Commonwealth Architects (and approved by the RAIC) is announced for a new grandstand and ancillary buildings at Ipoh, Perak, Malaysia. Assessors are W. I. Shipley, ARIBA and A. A. Geeraerts, ARIBA, and premiums are: first S£3,000; second S£1,500; and third S£750. Last date for questions is Feb. 15, and closing date is June 7, 1964. Conditions are obtainable from the Chairman, Perak Turf Club, P.O. Box 183, Ipoh, Perak, Malaysia on deposit (returnable) of S£5.

BANFF SESSION '64

While details had not been officially received prior to going to press, the Alberta Association of Architects is planning for Banff Session '64 to be held at the Banff School of Fine Arts March 21-26. The theme of the session will be "University Architecture", and it is understood that Thomas N. Creighton, former editor of *Progressive Architecture* and now a partner in John Carl Warnecke and Associates in Los Angeles has accepted an invitation to participate. Further details of the 1964 Sessions will be published when received.

*Our Lady, Queen of the World
Narthex to Nave
Richmond Hill, Ontario
Gilleland & Janiss, Architects
B. J. Arnold, Planning Consultant*



APPLICATION DETAILS

for LCN NO. 4010 SMOOTHEE® SERIES DOOR CLOSERS
shown on opposite page

1. In corners a "Smoothee" takes less space than most doorknobs between door and wall
2. Degree of door opening possible depends mostly on mounting; type of trim and size of butt used
3. Arm of "Smoothee" is formed to avoid conflict with almost any trim
4. Joints in arm and shoe make it easy to vary height of shoe as needed for beveled trim
5. Closing power is raised or lowered by reversing shoe and/or varying spring adjustment

NOTE: Interior doors shown in foreground are equipped with LCN 300 Series Concealed In-door Closers.

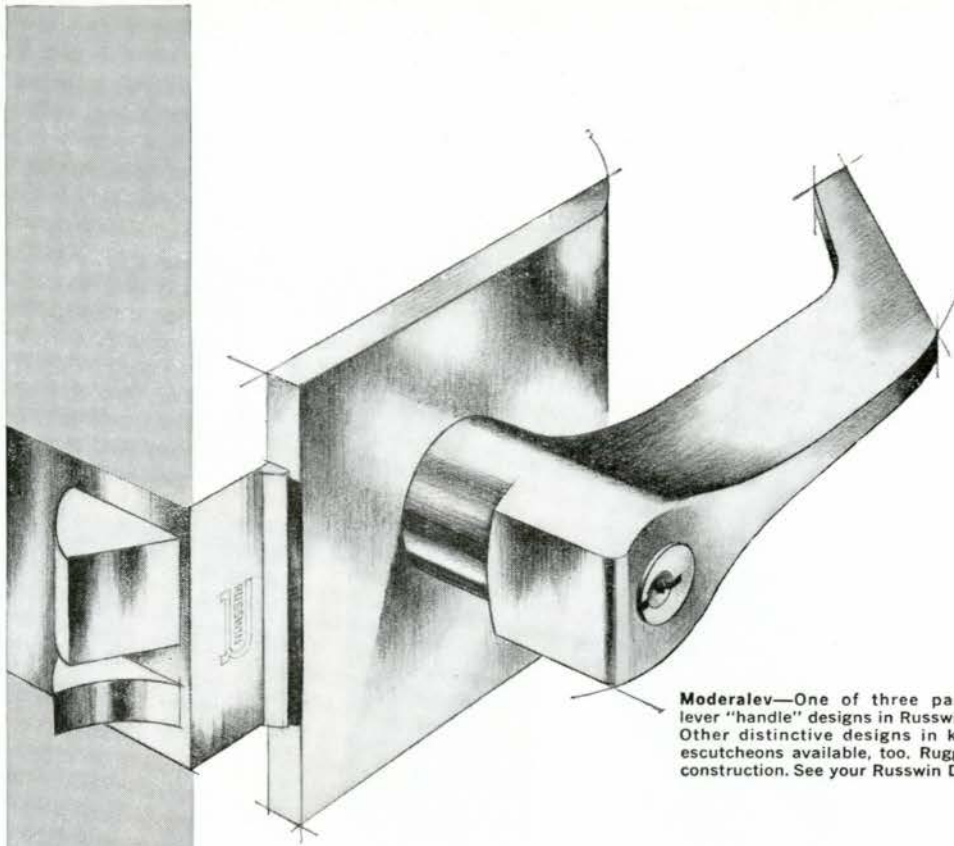
Complete Catalogue on Request—No Obligation
LCN CLOSERS OF CANADA, LTD.,
P. O. BOX 100, PORT CREDIT, ONTARIO.

AIA/RAIC FILE NO. 27-B. 63-4



MODERN DOOR CONTROL BY **LCN**. SURFACE AND CONCEALED APPLICATION

LCN CLOSERS OF CANADA, LTD., PORT CREDIT, ONTARIO



Moderalev—One of three pace-setting lever "handle" designs in Russwin Unilocs. Other distinctive designs in knobs and escutcheons available, too. Rugged "unit" construction. See your Russwin Distributor.

To accent
your
creative
design...



*...the doorware
that lives up to your reputation*

RUSSWIN LOCK DIVISION — BELLEVILLE, ONTARIO

BOOK REVIEWS

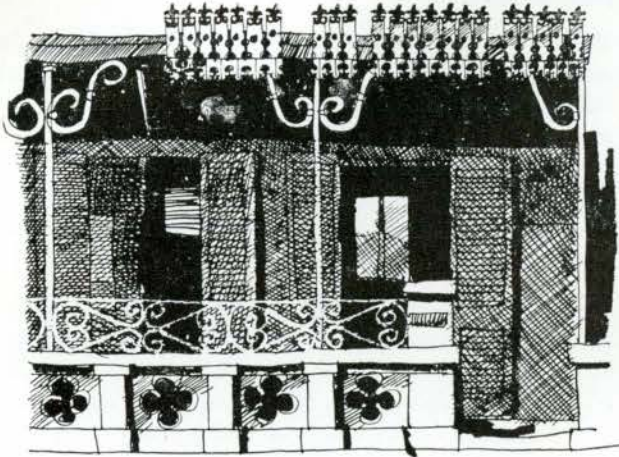


Plate from page 186 of *Townscape*.

TOWNSCAPE by Gordon Cullen. The Architectural Press, London, 1961. 315 pages, illus. index. 56s.

Townscape could be described as the art of exploiting both the relationship of buildings to each other, and the potentialities of the spaces around them; the aim being to create, in three dimensional terms, a meaningful environment — appreciated as one walks through it.

An early advocate of this aspect of planning was Camillo Sitte. His "Art of Building Cities", published towards the end of the 19th Century, was one of the first books to put forward theories to explain the visual enjoyment received from the inter-relationship of buildings, squares, fountains, and other urban elements. Various planners and writers have since touched on detailed aspects of the subject, and for several years *The Architectural Review* has carried illustrated articles and sensitive proposals by Gordon Cullen on contemporary problems of this nature. These have now been supplemented and published as a casebook.

Initially described are the basic elements of townscape (enclosure, focal point, mystery, continuity, and so on) elaborated with many examples. Studies of existing towns follow, and finally the principles are applied in proposals for various areas. As readers of *The Architectural Review* will know, Gordon Cullen is one of the most versatile draftsmen of our time. By means of many brilliant drawings, in several media, and by means of a vast collection of very clear photographs, which include what not to do as well as correct examples, the author helps to open the reader's eyes to this detailed but simultaneously wider aspect of architecture.

This is not a book of advanced theory, and it does not attempt to resolve all the vast questions with which architecture and planning are at present faced. But it overcomes the danger of emphasis only in terms of feeding and housing the world's expanding population, in terms of the effects of mass jet transportation, in terms of large span structures with controlled environment, and in terms of programming for the computer, leaving many unresolved corners in our immediate environment. It is these that are the concern of townscape. *Jonas Lehrman*

Designed
for architectural
acceptance

EMERSON pryne

**IMPROVING
ALL
BUILDINGS**

- commercial
- industrial
- residential

**always
seeking
the level
of perfection
in mechanical
ventilation**



EXHAUST VENTILATORS
EMERSON-PRYNE



EXHAUST FAN



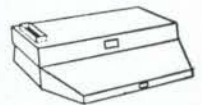
EXHAUST FAN



EXHAUST BLOWERS



ATTIC FANS



VENTILATOR HOODS

ask for a catalog today

EMERSON-PRYNE OF CANADA LTD.

550 HOPEWELL AVENUE • TORONTO 10, ONTARIO

CRITTALL

STEEL AND ALUMINUM

WINDOWS

*always merit
consideration
for your details
& specifications*

CANADIAN
CRITTALL
METAL WINDOW LTD.

Head Office and Factory
685 WARDEN AVENUE
TORONTO 13, ONT.

Branch Office
3300 CAVENDISH BLVD.
MONTREAL 26, P.Q.

Canada's oldest and
largest manufacturers
of metal windows for
over 50 years.

THE EARLY FURNITURE OF FRENCH CANADA by Jean Palardy. Translated from the French by Eric McLean; MacMillan of Canada, Toronto, 1963 (printed in France). 404 pages. \$17.50.

This is a very handsome book, and one's thanks go first to the author, but no less to the Canada Council and the Ministry of Cultural Affairs of the Province of Quebec "with whose support this history of French Canada has been published". I am frank in saying that I do not have a more beautiful book in my library, and while it may seem expensive to some, they can be assured that it is a bargain at the price, and its value will increase as this edition goes out of print.

The book is a mine of information for the discriminating reader, but even for those who perhaps will see French Canadian furniture for the first time, the layout is such that one can dip into it at any section with pleasure. Briefly, the plan is one of three brief introductions, after which one is in the body of the book with scores of illustrations (at least a dozen in colour), each piece as documented as painstaking research over many years will allow, followed by a no less interesting section of 20 pages dealing with fabrics, iron and brasswork, identification of woods, and kindred subjects.

The section headed conclusion covers such subjects as lists of master-woodworkers, woodwork and carvers, locksmiths, and a glossary of French Canadian terms.

Mr Palardy states in his introduction that "the work is limited to Canadian furniture in the French traditional manner, from the 17th Century to the first part of the 19th Century when it ceased to exist". Limited it may be to that period but whether one's curiosity is for the rich and beautiful armoire or the homely wash-stand — all are there.

Criticism of any section of this valuable book would seem an impertinence, but as an architect, reviewer, I would wish to see better sketches of the Quebec house and a clearer delineation

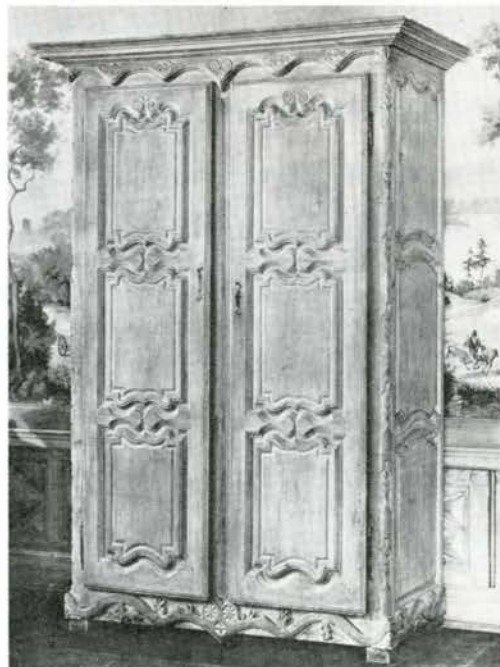
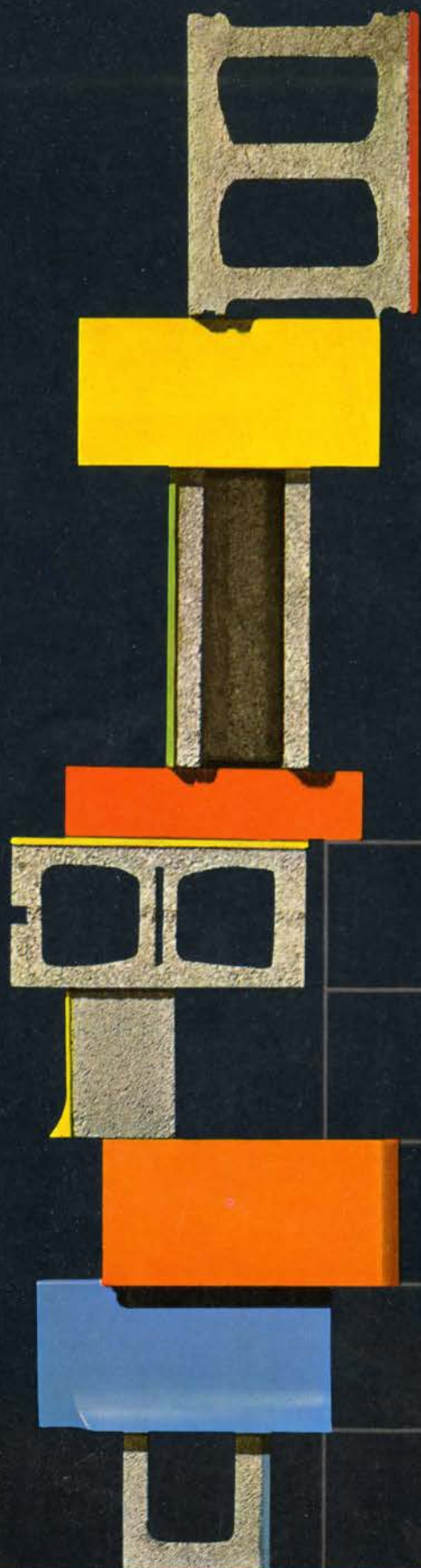


Plate 67 from *The Early Furniture of French Canada*.



Spectra-Glaze®

STACKS UP

These **GLAZED STRUCTURAL MASONRY UNITS**... provide the inherent economies of concrete block combined with the performance of glaze. Specify **SPECTRA-GLAZE** Units to meet requirements for fire safety (ASTM E-84); resistance to crazing (ASTM G-426); dimensional tolerances ($\pm \frac{1}{16}$ ") and chemical resistance (ASTM C-126, Grade G). Manufactured in 31 licensed plants and distributed locally.

SPECTRA-GLAZE® Glazed Structural Units
Complete the Concrete Masonry System

For name of the manufacturer nearest you, see reverse side

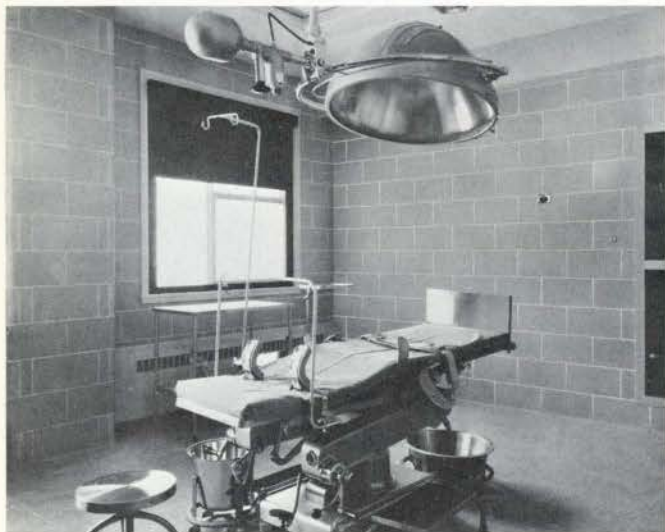


Reg. U. S. Pat. Off., U. S. Pat. 2,843, 274; Foreign Countries by THE BURNS & MORGAN CO.

Spectra-Glaze® **glazed concrete masonry units**
described on the front of this page

Reg. U. S. Pat. Off., U. K., Canada, Other Foreign Countries by THE BURNS & RUSSELL CO.

have been used in all building types throughout Canada



... in hospitals



... in public utilities



... in commercial buildings



... in schools

... available through these licensed manufacturers

GENERAL CONCRETE Ltd.

P.O. Box 46, Station "C"
Area Code 416

Hamilton, Ontario
549-4125

Capital

CONCRETE PRODUCTS LTD.

P.O. Box 430
Area Code 613

Iroquois, Ontario
652-4824

alsip

BRICK, TILE &
LUMBER CO., LTD.

508 Portage Ave
Area Code 204

Winnipeg 1, Manitoba
SPRuce 4-5581

EDCON

Edmonton Concrete Block Co., Ltd.

7425 120th Avenue
Area Code 403

Edmonton, Alberta
GRanite 9-3261

of mouldings without the interference of hatching (pages 48 and 49). I suppose we can assume that fan decoration on a Quebec door or on an Ontario tombstone stems from the brothers Adam, but I would hesitate to call a corner cupboard "American Chippendale Style", when the connexion with Chippendale is obscure indeed — Mr Palardy is on safer ground in various references to "English Influence".

We have heard a lot lately of French Canadian culture, but for most of us that means a knowledge and appreciation of the architecture of Quebec. Mr Palardy has opened our eyes to another aspect of French Canadian culture that must leave us, in the rest of Canada, with a feeling of real humility when we consider our achievements in the field of furniture and the objects of daily use. It is true that, for the eastern provinces, we started where they stopped, but where we produced a domestic architecture in the Maritimes and Ontario not inferior to the architecture of Quebec, we failed to produce comparable craftsmen.

With the success of this most excellent book, I hope the Mac-Millan Company will be encouraged to reprint a former triumph — Prof. Ramsay Traquair's "Architecture of the Province of Quebec".

E.R.A.

LE FONCTIONNALISME DANS L'ARCHITECTURE CONTEMPORAINE, par Ch. A. Sfaellos, Editions Vicent, Fréal & Co., Paris 1952. Un volume de 350 pages, illustré de 26 planches hors-texte et de nombreuses vignettes. \$8.00.

Il y a déjà dix ans que ce volume est paru, mais il n'a rien perdu de son actualité et de son intérêt. Il s'agit d'une thèse établissant que les principes et la philosophie de l'Architecture contemporaine ne sont pas nouveaux comme certains le prétendent, mais qu'à toutes les époques, à l'apogée des différents styles, les architectes ont appliqué, dans la composition des monuments, toute la somme des sciences et des techniques dont disposait la civilisation à cette époque. La tâche de l'architecte, en effet, est de donner une forme esthétique et expressive aux éléments de la composition, en puisant dans le répertoire des matériaux et des techniques disponibles.

L'auteur montre comment on s'est acquitté de cette tâche au cours des âges, et c'est principalement à l'aide de l'architecture byzantine, héritière de la Grèce et de l'Orient, qu'il illustre sa thèse. A chaque époque, hormis les périodes de décadence, l'architecture a répondu aux besoins pratiques, fonctionnels, de même qu'à l'idéal religieux et culturel de la civilisation. Nous voyons toujours, sous la diversité des formes l'union intime du contenu de l'édifice avec les moyens de construire et la plastique adaptée aux nécessités d'ordre matériel. Il n'y aurait donc rien de nouveau sous le soleil.

La technique est le moyen indispensable à la réalisation d'une oeuvre architecturale mais non point son essence créatrice. Le facteur déterminant de l'architecture, ce furent et ce sont toujours les besoins à satisfaire, mais l'architecture transcende les techniques; elle exalte et sublimise la forme pour la rendre significative.

L'auteur fait d'abord une analyse critique de différentes philo-

sophies de l'architecture pour établir sa thèse, qui consiste à prouver que la finalité de l'oeuvre doit s'identifier avec le contenu expressif, et que ce principe, qu'on nomme aujourd'hui fonctionnalisme, a toujours prévalu dans l'architecture d'autrefois comme dans celle d'aujourd'hui.

Denis Tremblay

LE LIVRE D'ARCHITECTURE MODERNE, par Michel Ragon. (Robert Laffont, Editeur, Paris 1958). 356 pages. \$6.30.

Comme le précédent, ce livre est un ouvrage de vulgarisation destiné au grand public. L'auteur prend souvent le ton de la polémique ou du manifeste pour exalter les mérites et la valeur incontestables de l'architecture d'aujourd'hui, comme si sa victoire n'était pas assurée contre l'académisme, pourtant mort depuis une vingtaine d'années, du moins au Nouveau Monde.

C'est à la fois une histoire et une philosophie de l'architecture moderne dans ses rapports avec les recherches des ingénieurs, des peintres et des sculpteurs.

Ce livre se lit comme un roman, et l'auteur nous communique, du commencement à la fin, l'enthousiasme des créateurs de l'architecture de notre époque en même temps qu'il nous fait l'analyse des oeuvres maîtresses de ces pionniers. Un chapitre est en effet consacré aux *grands constructeurs de XXe siècle*: F. L. Wright, Auguste Perret, Walter Gropius, Mies Van Der Rohe, Le Corbusier, Richard Neutra. L'urbanisme tient tout naturellement une place de choix dans ce texte alerte et bien documenté. Enfin, un panorama de l'architecture de XXe siècle à travers le monde nous présente un bilan fort impressionnant. des grandes réalisations de notre temps dans l'art de bâtir.

Une lecture stimulante et profitable.

Denis Tremblay

L'ISLAM D'ESPAGNE, par Henri Terrasse. (Librairie Plon, Paris 1958). 300 pages. \$4.80.

Pour mieux connaître et comprendre l'Espagne, il faut étudier l'influence que huit siècles d'occupation islamique y ont laissé dans les arts et les moeurs. Le beau volume de Henri Terrasse, d'une lecture facile et captivante, apporte des lumières originales et nouvelles sur la brillante civilisation de cette longue période marquée des luttes de la reconquête et de périodes de trêves et de collaboration. C'est en Espagne que l'Orient et l'Occident, l'Islam et la Chrétienté, ont eu leurs contacts les plus prolongés, les plus intimes et les plus féconds, et c'est à Cordoue, à Séville et à Grenade surtout qu'on peut admirer les monuments les plus parfaits et les mieux conservés de l'architecture mauresque à l'apogée de son raffinement.

Le touriste qui se propose de visiter l'Espagne ne peut mieux faire, avant son départ, que de lire l'ouvrage que nous recommandons, et l'amateur ou le spécialiste d'histoire de l'art y trouvera la solution de maint problèmes restés pour lui plus ou moins obscurs sur les origines et les emprunts de l'art islamique en Espagne et l'influence qu'il a exercé sur l'art roman du midi de la France.

L'ouvrage est illustré de cinquante hors-textes et de soixante-cinq dessins in-texte.

Denis Tremblay

THE ARCHITECT'S RIGHT IN HIS PLANS

by Norman Melnick

When an owner client retains an architect to design a building, after preliminary meetings wherein the owner imparts to the architect his own ideas, expectations and purposes, the architect sets his imagination and skill to work in the preparation of detailed drawings, plans, and specifications. Out of this relationship two distinct legal rights emerge: one in favour of the owner client; the other, for the benefit of the architect.

Apart from any special agreement between the architect and the owner, the plans prepared by the architect belong to the owner but it is the architect who owns the copyright of the plans and also of the design embodied in the completed building. The owner may not, therefore, reproduce the plans or repeat the design in any other new building without the architect's consent. The owner, on the other hand, obtains the exclusive right to have his building erected according to the architect's plans and the architect cannot, without the consent of his client, permit third parties to erect a building to the same plans.

Under the Copyright Act, the architect obtains a copyright for his plans as "literary work", which phrase is defined in the Act as including sketches and drawings. He also obtains a copyright for an "architectural work of art", which is defined as meaning "any building or structure having an artistic character or design . . ." The copyright is automatic and need not be perfected by registration. However, the work must be original in the sense that, while it need not be completely novel, it must not be a slavish copy of the work of someone else. The copyright does not subsist in the finished building itself but

rather, it exists in the innate conception or the artistic character of the design, so that the proprietary interest afforded an architect under our laws is twofold — in his plans as a "literary work" and in the completed building or structure as "an architectural work of art".

Furthermore, under our laws, the copyright for an architectural work belongs to the architect as the person who is the author of the design and it is the architect, therefore, and not the builder or contractor, who is the author of the architectural work. The architect prepares his plans as originals and even though he issues copies to the owner and the builder or contractor for his assistance and guidance, these plans always remain the architect's property. He can demand the return to him of all issued copies of the plans and even where such copies are not returned, his right in them continues and prevails against all others.

This right enables an architect to sue anyone who infringes on his property and while in the architectural context a suit for infringement of a copyright can never give rise to the obtaining of an injunction either to halt the construction of a building in progress or, if it is completed, to ordering its demolition, an infringement suit does result in the remedy of an award in damages. Infringement consists in the construction of a building in accordance with the plans prepared by the architect. Merely taking a photograph or preparing a drawing or painting of the completed building does not, however, amount to an infringement as long as such reproduction is not in the nature of an architectural drawing or plan of the building, which would, of course, constitute an infringement of the architect's copyright.



DISTRIBUTORS THROUGHOUT CANADA

Evans Building Products Ltd.
3628 Burnsland Road
Tel: CHestnut 3-5506
Calgary, Alberta

Evans Building Products Ltd.
11226 - 156th Street
Tel: HU. 9-5581
Edmonton, Alberta

B. T. Leigh
736 Newport Avenue
Tel: EV. 3-9685
Victoria, B.C.

Acme Sash & Door Co. Limited
400 Des Meurons Street
Tel: CHapel 7-1171
St. Boniface, Manitoba

Geo. H. Belton Lumber Co. Limited
313 Rectory Street
Tel: GEneral 2-3731
London, Ontario

Mac Saunders & Company Limited
127 Hickory Street
Tel: 722-8335 & 722-8336
Ottawa 1, Ontario

Belton Lumber Company Limited
Devine Street
Tel: Dlgby 4-3637
Sarnia, Ontario

Pella Products Company,
Division of
Overhead Door Co. of Toronto, Limited
289 Berina Avenue
Tel: BElmont 9-3077
Toronto 18, Ontario

Dial Distributors Limited
3008 Tecumseh Road East
Tel: 948-2121
Windsor, Ontario

M. F. Schurman Company, Limited
P.O. Box 1390
Tel: 436-2265
Summerside, P.E.I.

Pella Quebec Limitée
6252 St. Lawrence Blvd.
Tel: CRescent 2-5781
Montreal 10, Quebec

Jacques Chalifour Enrg.
2485 chemin St. Louis
Tel: 681-6258
Quebec 6, P.Q.

Evans Building Products Ltd.
1213 Winnipeg Street
Tel: JO. 8-1653
Regina, Saskatchewan

**ROLSCREEN COMPANY,
PELLA, IOWA**



WARREN REYNOLDS RESIDENCE, MINNEAPOLIS, MINN. ARCHITECT: NEWTON E. GRIFFITH



The big difference begins where the glass ends

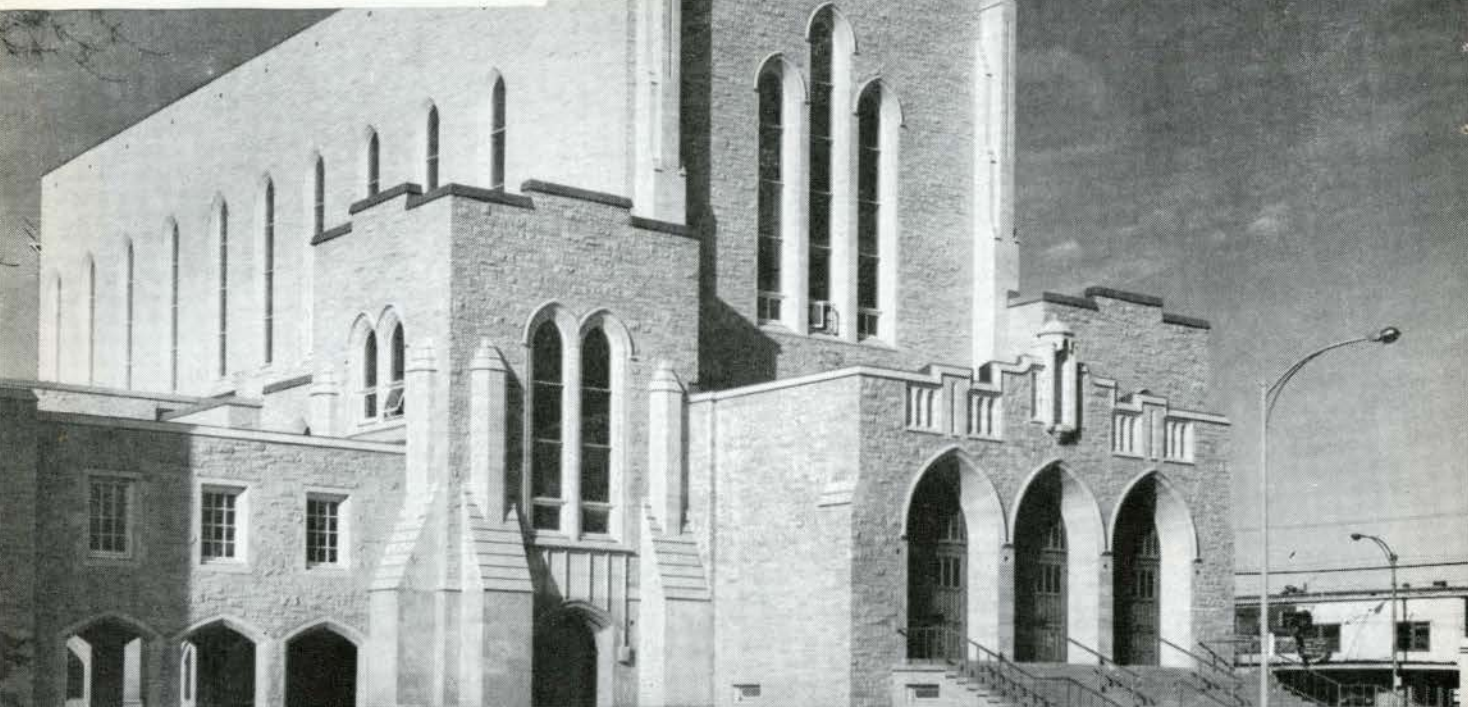
WOOD SLIDING GLASS DOORS

PELLA ALSO MAKES QUALITY WOOD
CASEMENT AND MULTI-PURPOSE
WINDOWS, WOOD FOLDING DOORS AND
PARTITIONS AND ROLSCREENS

PELLA SLIDING GLASS DOORS with frames of real WOOD say *home* to your clients. And, wood frames can be finished or painted to go with any decorative schemes—inside and outside. Wood frames eliminate condensation, too. Stainless steel and wool pile weather stripping combine to provide exceptional weathertightness. *Screens close automatically.* Removable muntin bars are available in regular or diamond shapes to add the traditional touch. O, OX, XO, OXO and OXXO combinations in 33", 45" and 57" glass widths. Custom sizes, too. Ask your PELLA representative to show you a sectional sample of wood frames with steel "T" reinforcement. Consult your classified telephone directory or the Canadian distributor list which appears at the left.

R O L S C R E E N C O M P A N Y • P E L L A , I O W A

FRANKI FACTS



CLIENT:
Roman Catholic Archdiocese of
Edmonton

STRUCTURE:
St. Joseph's Cathedral

ARCHITECT:
Henri S. Labelle, Montreal

CONTRACTOR:
Christensen and MacDonald Ltd.,
Edmonton

SOILS CONSULTANT:
R. M. Hardy and Associates Ltd.,
Edmonton

NUMBER OF FRANKI UNITS:
265 Mega Piles
78 Pipe Piles

WORKING LOADS:
20 Tons to 50 Tons

AVERAGE DEPTH OF PILES:
31' - 0" below outside grade

CATHEDRAL GIVEN NEW FOUNDATION WITHOUT INTERRUPTION TO SERVICES

Problem

In 1924, the Archdiocese of Edmonton began construction on a new cathedral, the episcopal seat for a large area of central Alberta. After the basement was completed, the project was interrupted by the depression and World War II. The work was not taken up again until 1960, when the original foundation footings and basement walls were underpinned.

In the intervening years, the existing work had been observed to move under load with changes in sub-soil moisture content and the first foundations were found to be inadequate to support the large superimposed loads intended with the construction of the cathedral superstructure.

The problem then was to stabilize the existing work and provide additional capacity for new loads by lowering the foundations to a soil bearing layer of sufficient strength.

Solution

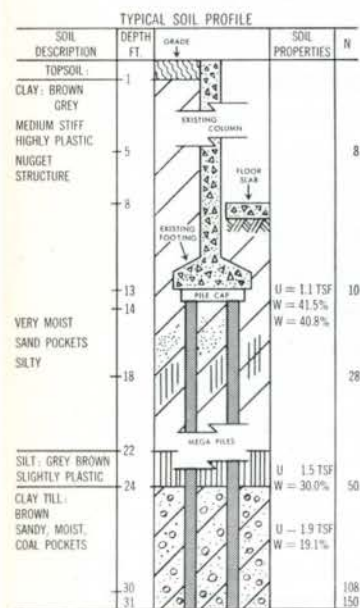
Soils information was augmented by dynamic cone penetration tests to assess the in situ resistance of the soil below footing level and determine absolute refusal for piles. The glacial till layer was known to exist at 24 feet, but maximum resistance in this soil was not reached until 31 feet, or 7 feet below the till surface. This soft condition in the upper till was due to past weathering and subsequent access by water.

Franki designed a new foundation on 6", 8" and 10" "Mega" Piles to underpin the original structure. In preparing the layout, careful consideration was given to a balanced design as related to existing and future loads.

The Mega Piles were installed by cutting trap doors in the floor system, excavating beneath the footing and jacking the piles in short lengths to refusal depth where they were held under working load until all settlement had taken place. The lack of reaction for jacking, in some cases, necessitated the reliance on arching action in the structure and some calculated available loads were exceeded by as much as 70%.

After preloading, the piles were wedged beneath the footings to take up the existing load. The wedging was then concreted into a cap. Excavated soil had to be stored inside the cathedral and the entire project, carried on over a period of 7 months, was done without interruption to divine services.

Franki has the "RIGHT FOUNDATION FOR EVERY STRUCTURE".



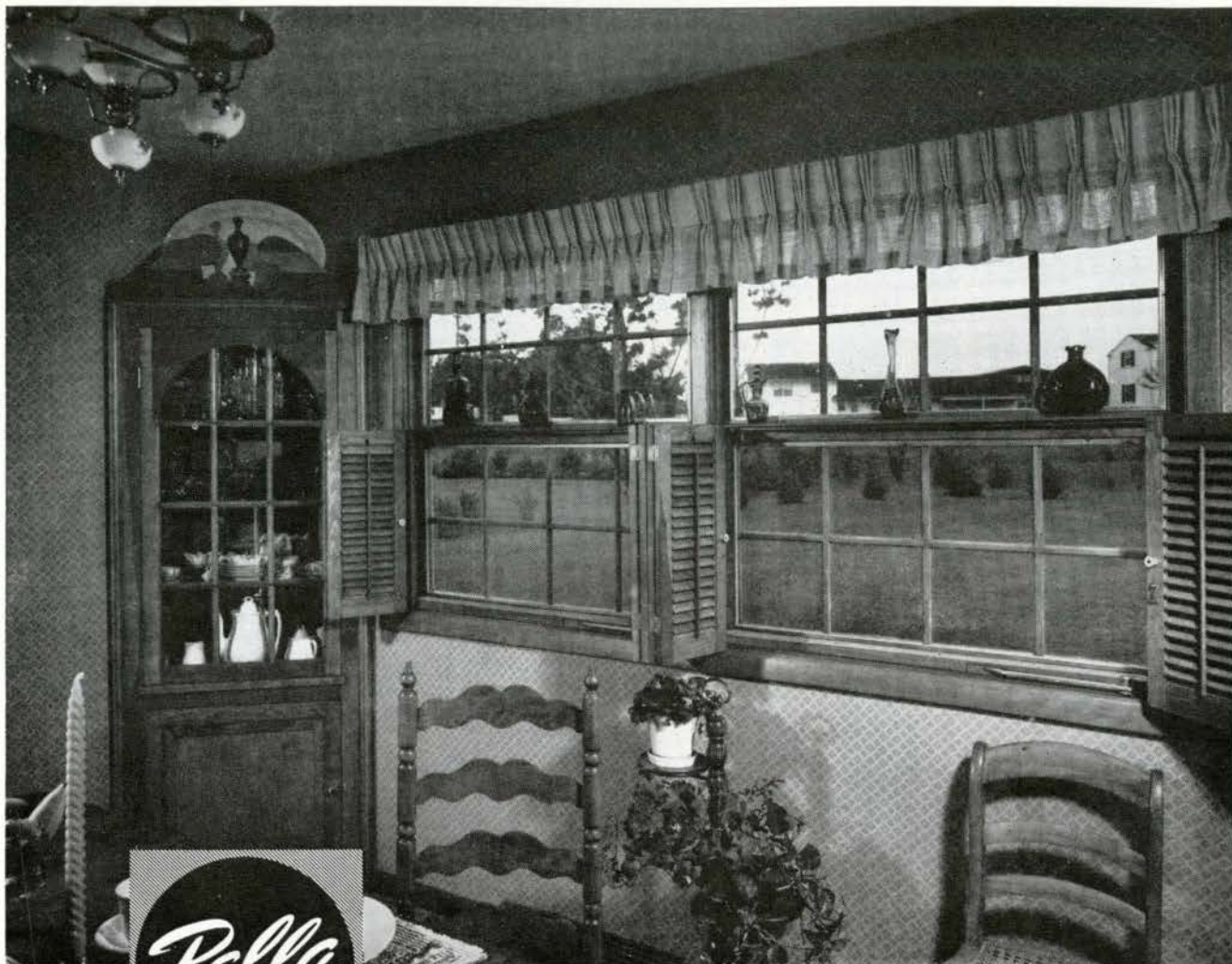
FRANKI

OF CANADA LIMITED

Head Office: 187 GRAHAM BLVD., MONTREAL 16, P. Q.
QUEBEC OTTAWA TORONTO EDMONTON VANCOUVER

Literature - This series of job highlights, as well as other descriptive literature, will be sent to you upon request to Franki of Canada Ltd., 187 Graham Blvd., Montreal 16, P.Q.





DESIGNER: J. DALE WILSON • BUILDER: KEITH ANDERSON



WOOD

TWINLITE® AND MULTI-PURPOSE WINDOWS

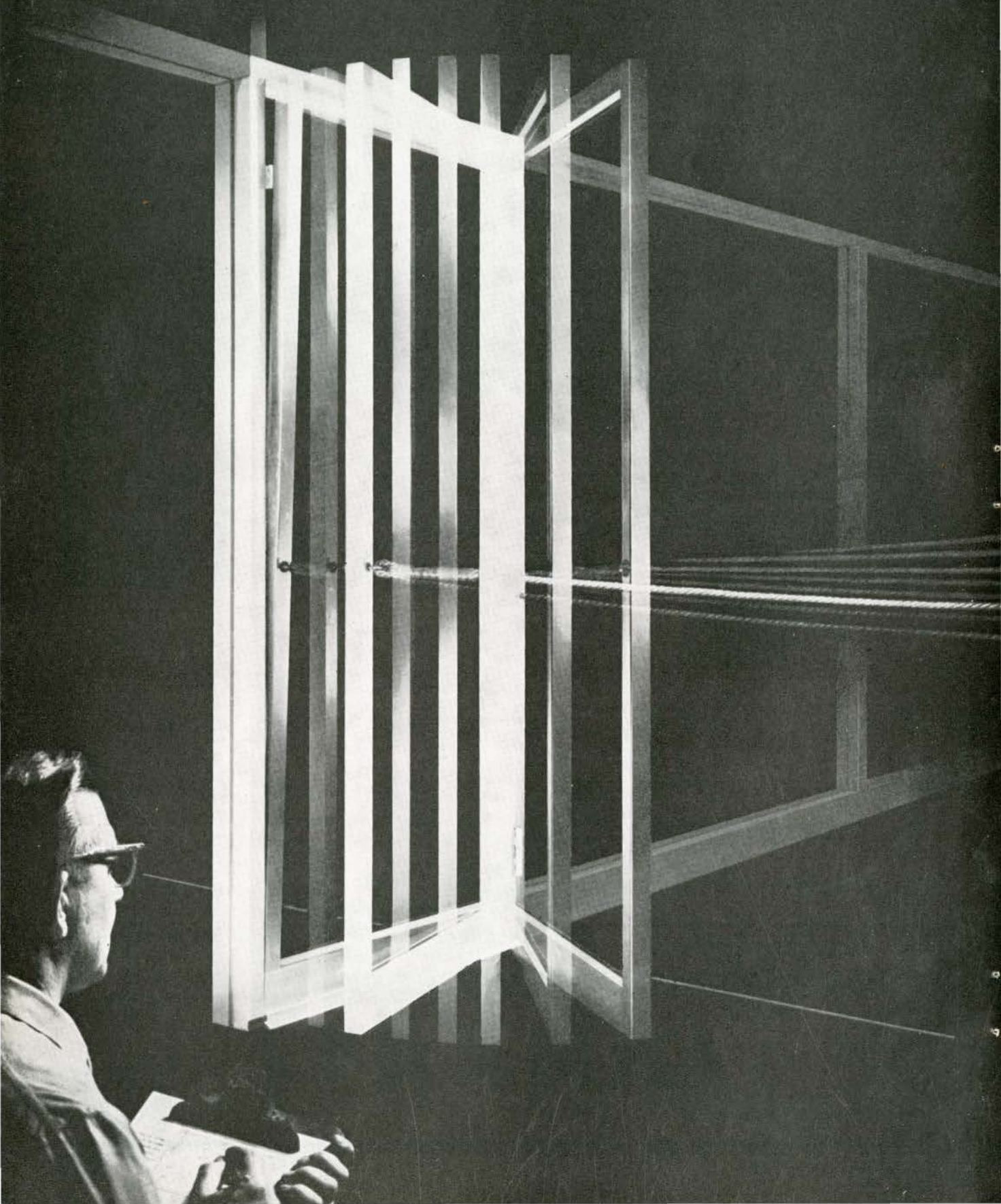
PELLA ALSO MAKES QUALITY WOOD
CASEMENT WINDOWS, WOOD FOLDING
DOORS AND PARTITIONS, WOOD SLIDING
GLASS DOORS AND ROLSCREENS

Cottage charm up-dated for tomorrow and years to come

The only traditional thing about these PELLA WOOD TWINLITE® and MP WINDOWS is appearance. In price and quality they are designed for *right now!* Start with the double-hung effect. It looks good on *this* awning type window. Specify them singly, stacked, in ribbons or as casements. Regular or diamond muntin bars snap in and out to speed painting and cleaning. Self-storing screens and storms plus stainless steel weatherstripping contribute to the year 'round efficiency of heating and air-conditioning. Sash locks in 10 positions with GLIDE-LOCK® under-screen operator (roto operators, too). For full information consult your PELLA distributor listed in the classified telephone directory or in the list on page 22.

R O L S C R E E N C O M P A N Y • P E L L A , I O W A

Slammed, banged, twisted and tortured



... over 1,000,000 times without breaking down!

Rugged testing to answer Architects demands for a Performance Standard

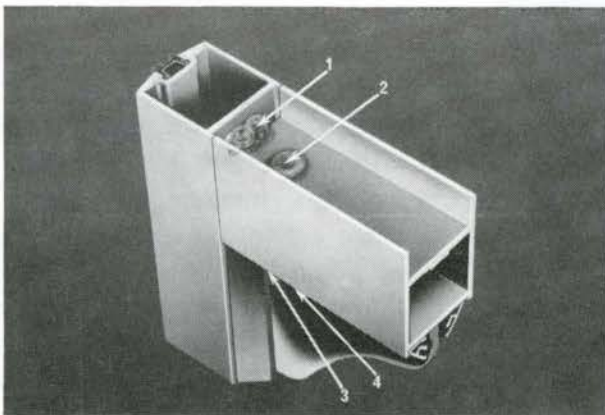
We slammed the doors against a racking block using the full spring force of a closer with no hydraulic checking action. This severest test of any door's strength was conducted by The Warnock Hersey Company Ltd., an independent Canadian testing laboratory.

The Kawneer 190 door was slammed 1,000,000 times! The report shows there were no cracks, corner damage, loose bolts, broken welds or twisted rails. There was no damage nor sign of wear to the hinges and fastenings. Clearances at head, jamb and sill remained constant. Diagonal dimensions were unchanged—proof the 190 didn't sag. The lock-in glass stops were still tight.

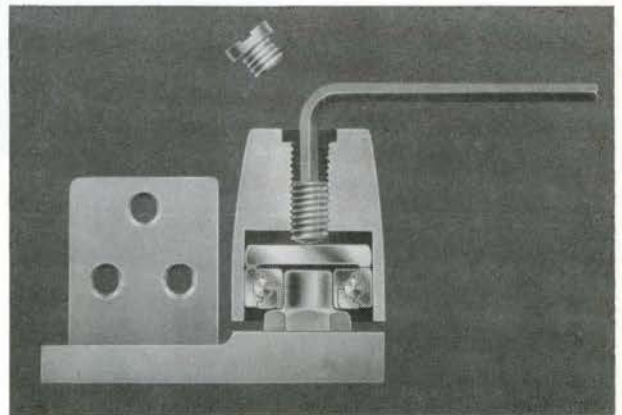
We also tested a door of a well known competitor, one of screw and spline corner construction, in Kawneer's Research Department. **"This door failed at less than 1,000 slams."**

In addition, we subjected models of the same doors to the tortuous dual-moment lever arm and torque test . . . applying forces of common door failure. The corner of the 190 door **held fast against a load of 220 pounds**. The competitive door, tested in Kawneer's Research Department **ripped apart at 40 pounds**. Aren't these good reasons to specify the Kawneer 190?

Copies of performance specifications and test reports are available to architects who write on their Company's letterhead.



Rack-proof . . . The strongest corner construction ever! Welded 4 times under stress . . . at both joints and through top and bottom holes in the rail to a secured reinforcement.



Wear-proof . . . Self-Aligning Ball-Bearing Pivots. Built-in vertical adjustments. Self-aligning greased and sealed ball-bearings guarantee proper function in any job condition.



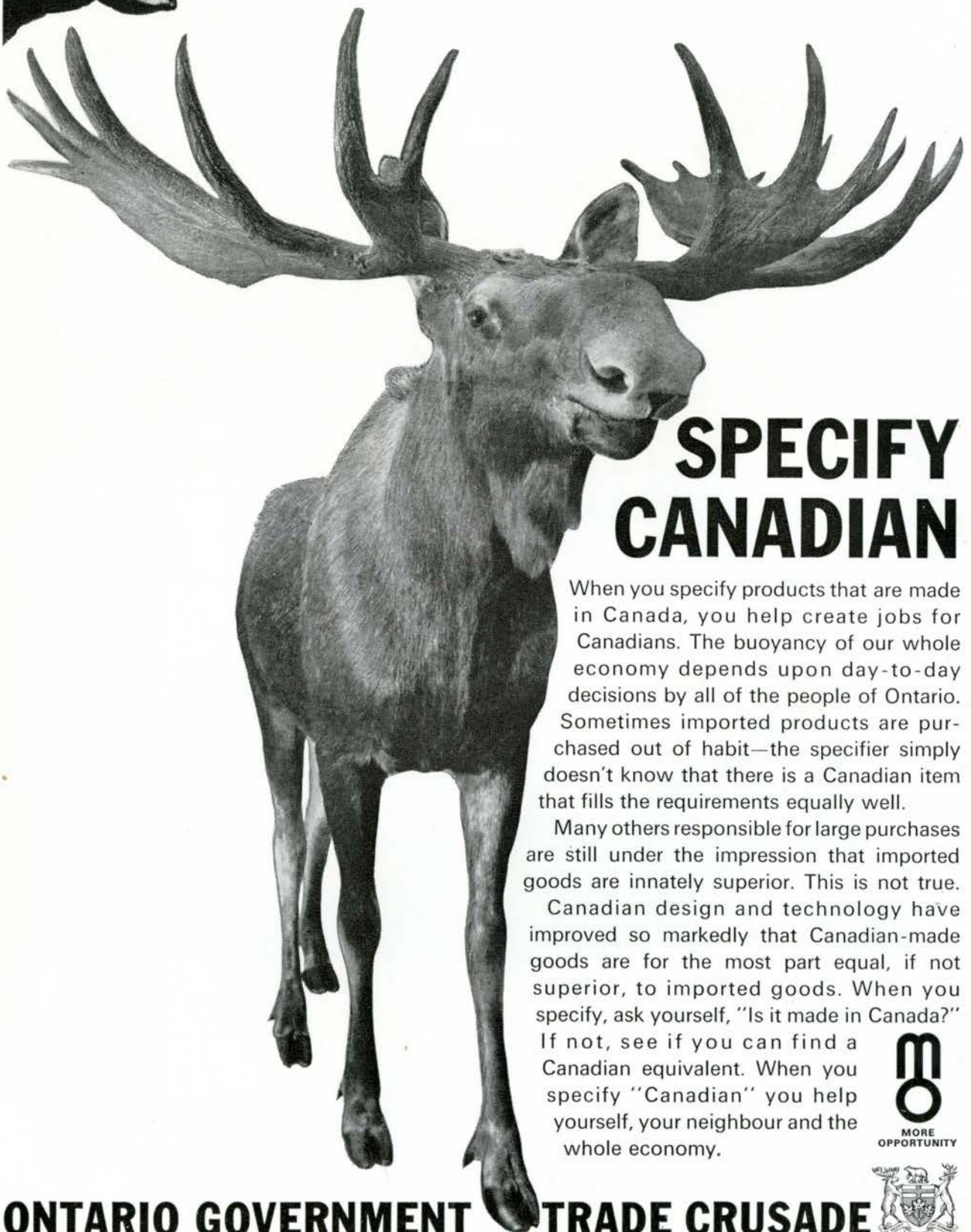
Kawneer Company Canada Limited
La Compagnie Kawneer du Quebec

Toronto, Ontario
St. Laurent, P.Q.

Divisions of American Metal Climax Incorporated



"Everyone's switching to Canadian products"



SPECIFY CANADIAN

When you specify products that are made in Canada, you help create jobs for Canadians. The buoyancy of our whole economy depends upon day-to-day decisions by all of the people of Ontario. Sometimes imported products are purchased out of habit—the specifier simply doesn't know that there is a Canadian item that fills the requirements equally well.

Many others responsible for large purchases are still under the impression that imported goods are innately superior. This is not true.

Canadian design and technology have improved so markedly that Canadian-made goods are for the most part equal, if not superior, to imported goods. When you specify, ask yourself, "Is it made in Canada?" If not, see if you can find a Canadian equivalent. When you specify "Canadian" you help yourself, your neighbour and the whole economy.



ONTARIO GOVERNMENT TRADE CRUSADE



THEATRES



BIBLIOGRAPHY

Compiled by Yvon LeBlanc

PLANNING THE STAGE by Percy Corry
Pitman & Sons, Ltd., Pitman House, 381-3
Church St, Toronto

THEATRES & AUDITORIUMS by Burris-
Meyer & Cole/Reinhold, New York

CIVIC THEATRE DESIGN by Richard
Leacroft/Dennis Dobson, London

BUILDING PLANNING AND DESIGN
STANDARDS by H. Sleeper — chapter on
THEATRES AND AUDITORIUMS/Wiley
& Sons, New York

STAGE PLANNING/Strand Electric & En-
gineering Co., London

ESSENTIALS OF STAGE PLANNING by
Southern, Marshall & Bell

NEW SCHOOL STAGES FOR OLD by
James H. Miller/Hub Electric Company Inc.,
Chicago

CRITICISM, BELGRADE THEATRE,
COVENTRY by J. M. Richards/"Architects"
Journal" (London) Aug. 7, 1958

RECHERCHES POUR UNE NOUVELLE
ARCHITECTURE SCENIQUE/"Aujourd-
d'hui" (Paris) no. 17, 1958

THE IDEAL THEATRE — 8 CONCEPTS
by Ford Foundation/American Federation of
Arts

THEATRE TODAY by Peter Moro/"Archi-
tectural Design" Sept. 1960

TRENDS IN CONTEMPORARY THEA-
TRE ARCHITECTURE by Hans Curjel
"Werk" (Zurich) Sept. 1960

THEATRE BUILDINGS/"Bauen & Woh-
nen" no. 9, 1958, Zurich

INTERNATIONAL THEATRE COMPE-
TITIONS/"Architektur Wettbewerbe" no.
25 & 29, Stuttgart

ARCHITETTURE PER LE SPETTACOLO
by Robert Aloï/Ulrico Hoepli editore, Milan

THE OPEN STAGE by Richard Southern
Faber & Faber, London

THE THEATRE by Richard Leacroft/ Me-
thuen & Co., London

PROSCENIUM AND SIGHT-LINES by
Richard Southern/Faber & Faber, London

ADAPTABLE THEATRES by Stephen
Joseph/Association of British Theatre Tech-
nicians, London

BUILDING FOR THE PERFORMING
ARTS/"Architectural Forum" June, 1960

THEATRE ARCHITECTURE Vol. IV, no.
3 & Vol. VII, no. 2/"World Theatre" Inter-
national Theatre Institute (UNESCO)

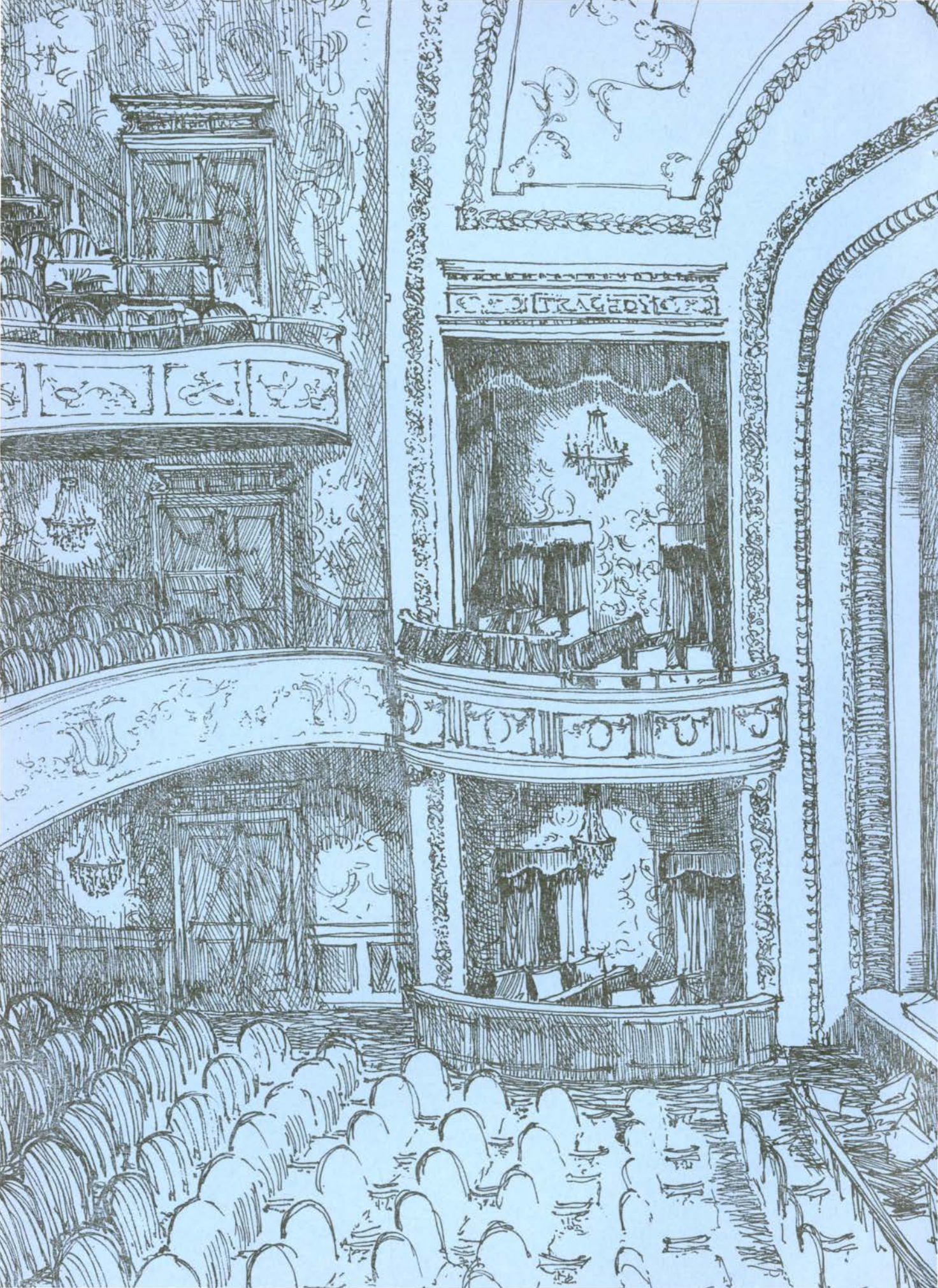
LITTLE THEATRES FOR MODEST
SPACES/Hub Electric Co. Inc., Chicago

TRAITE DE SCENOGRAPHIE by Pierre
Sonrel/Lieutier, Paris

NEW GERMAN THEATRES AND CON-
CERT HALLS/"Architectural Record" no.
10, Oct. 1963

ARCHITECTURE ET DRAMATURGIE
by Various Authors/Elammarion, Paris

The United States Institute of Theatre Tech-
nology, Inc., Box 866, Radio City Station,
New York 25, NY, compiles and keeps up
to date a complete bibliography of books,
articles and theses on Theatre Architecture.



Royal Alexandra Theatre

At its best, the theatre quickens and makes visible the texture and tempo of urban life. Even in the O'Keefe where the *lumpenproletariat* by their thousands goggle at the Trooping of the Colour or the Last Days of Pompeii, the swirl of the crowds as they pause, disperse, reform, and cluster in the lobbies and lounges brings a sense of occasion to the glass and steel.

But for the authentic stage-craft of total theatre do try the new/old Royal Alex. From the footman — with high-crowned, felted hat, frogged, gold-laced, and braided in resplendant livery — shutting the door of the Lincoln Continental, to the gossiping, brittle and incandescent glitter of the lobby, alive with chattering character assassination and the latest word, there is here no split between house and stage, between public and actor.

And how nice that the Louis XVI Lounge, or the Queen Anne Room, provides just the suitable mantel for the elbow of the ever so clever, elegantly tailored and soft shoe'd young man as he discourses learnedly of the play and of life. Musky with the scent of big money and brutal power these lobbies and lounges rustle with the swish of silk and the purr of ermine. The lighting, high keyed and brilliant, limns the powdered, haggard face and portly florid jowl, so that, however poor the play, the theatre of the audience, dispersed along the ramped planes of the house, holds the eye transfixed at the delicious spectacle of our betters at play.

This is all a marvellous fantasy world, in which scintillating chandeliers provide a prism'd accent to the globe or close meshed sphere of the house, where in serried ranks and in defiance of gravity the audience clings to the steeply pitched glacis of circle and balcony. Throughout the house, maroon and muted upholstered seating with gilded trim, felted walls, and soft carpeting provide a rich and opulent background to the portentous brilliant red and white livery of the ushers. The proscenium arch, newly painted in white and gold, makes full use of the tortured rocaille plasterwork to extend the effective range of the make-believe world of the stage.

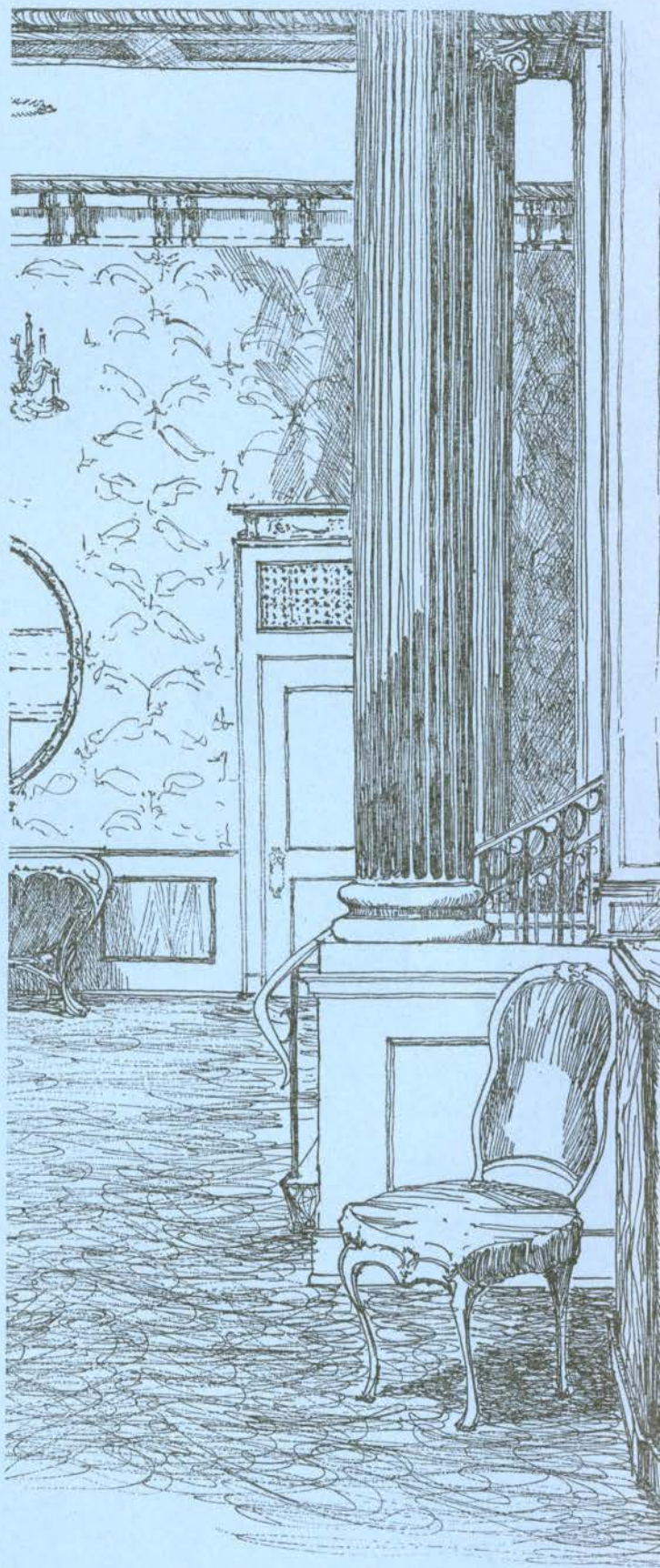
And marvel of marvels, for those who remember that long and dismal Kafka climb to the upper balcony, the corridors are resilient with carpeting and the walls are alive with a ruminative recall of the greats of the theatre world. In place of that chilling gas chamber which was deemed suitable to the thin and intellectual intermission, now there is a new and handsome lounge.

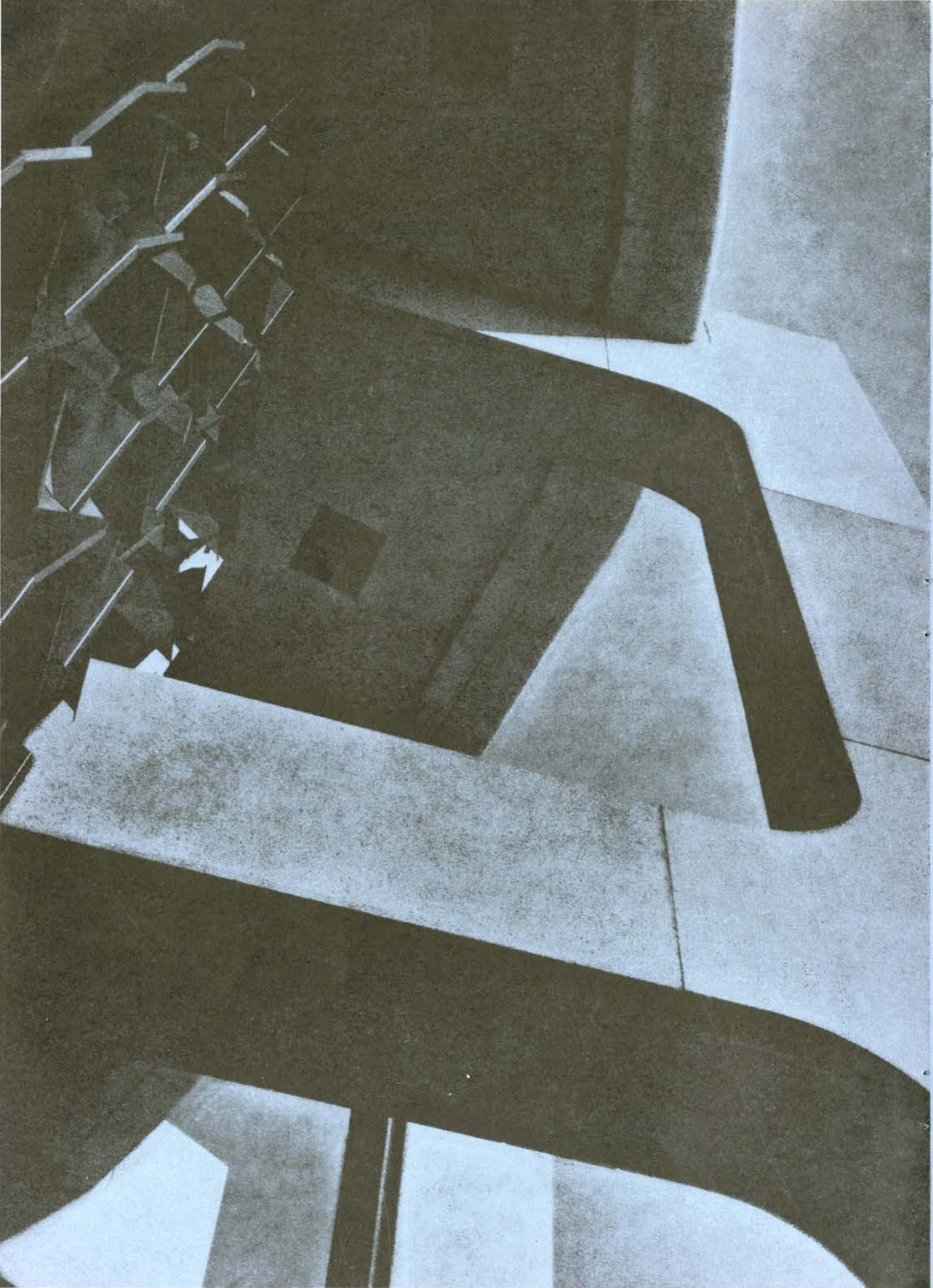
Now, this has been a very considerable achievement indeed, and Honest Ed Mirvish deserves a great big hand for his effort to preserve the Royal Alex — and not merely preserve it but enliven and rebuild it. But what is difficult to grasp is just how this near destruction of the theatre came about. It does seem that there will continue to be a need for the theatre of the scale of the Royal Alex which very nicely fills the gap between the immense opus — such as might be staged at the O'Keefe — at one extreme and the repertory or semi-professional effort at the other.

Of course, the whole concept of the theatre as a baroque milieu for elegant social snobbery and opulent display is perhaps silly but it really is extraordinarily good fun, and does serve to heighten the sense of occasion which is so critical a part of the evening out. Here once again we can see a clear demonstration of the value to our cities of buildings which can adapt and adjust to new needs. Too often we cheerfully tear down structures which could be saved with the exercise of a little wit and imagination; buildings which because of their special quality and style bring something of the elegance of a less hurried and harassed epoch into the fabric and life of our cities.

*Text by James Acland
Sketches by Yvonne Hancock*

Renovations by Allward & Gouinlock, Architects





La Grande Salle/Place des Arts

LA GRANDE SALLE/PLACE DES ARTS, MONTREAL ARCHITECTS/AFFLECK, DESBARATS DIMAKOPOULUS, LEBENSOLD, MICHAUD, SISE • PARTNER IN CHARGE/FRED LEBENSOLD ENGINEERS • STRUCTURAL/BROUILLET & CARMEL • MECHANICAL/McDOUGALL & FRIEDMAN CONSULTANTS • ACOUSTICAL/BOLT, BERANEK AND NEWMAN, INC/N. J. PAPPAS & ASSOCIATES SEATING/BEN SCHLANGER • STAGE/DONALD OENSLAGER • INTERIOR/HENRI BEAULAC • GENERAL CONTRACTORS/QUEMONT-DURANCEAU

On the 21st of September, 1963, the first completed element of Montreal's Place des Arts was opened to the public. Known as the Grande Salle, or Concert Hall, it occupies the dominant position in a project which, when completed, will include a theatre, a Petite Salle, restaurants, and conservatory. Bounded by St Catherine Street on the south, Ontario Street on the north, and Jeanne Mance and St Urbain Streets on the west and east, the site is an escarpment of high ground originally known as the Plateau. The Grande Salle today rises to approximately the same elevation as did the original buildings.

This site is an admirable location for the project since the area to be occupied by the cultural centre was for many years considered as a "no man's land" between the eastern (or predominantly French) and western (or predominantly English) parts of the city. In the heart of the commercial centre of the city, on busy St Catherine Street, the site was the location of a school which provided an interruption to the business activities on that thoroughfare — one of the conditions that our scheme attempted to rectify.

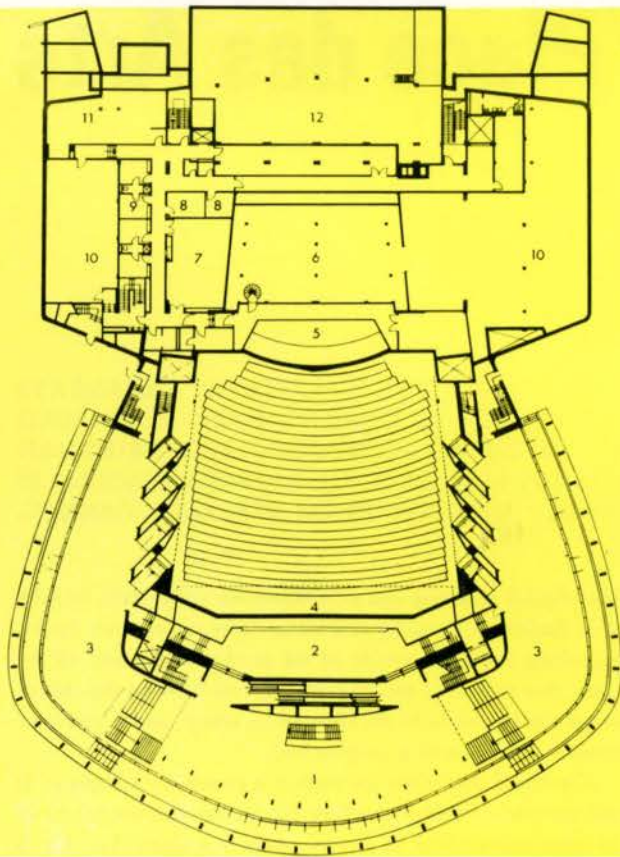
Our terms of reference for the design were embodied in an economic study prepared for our client, the Sir Georges-Etienne Cartier Corporation. The main elements of the master plan which we were requested to study were the concert hall seating approximately 3,000, a theatre for 1,200 to 1,500, a chamber music hall for 500 persons, plus conference facilities and underground garages. In our master plan, as prepared originally, in 1959, we had to consider leaving two buildings (the International Ladies Garment Workers' Union Building, and the Woodhouse Building at the south-east corner of the site) on the proposed site. Despite the problems presented by the presence of these two existing buildings, our firm has produced a symmetrical composition about a plaza placed in the centre around which the other buildings of the complex are to be grouped. This interior plaza would, in the European tradition, provide a focus for the other buildings which would not necessarily need to reflect the appearance of the main element, the Concert Hall, but would complement each other and provide a total enclosure away from the busy commerciality of St Catherine Street. The plaza could, in addition, be used for outdoor performances and other such activities on some occasions.

The original plan was also to continue the commercial identity of St Catherine Street by extending stores, restaurants, banks, etc., along it on the outside of the southern boundary of the plaza, thus providing the long-missing link between the eastern and western sections of the commercial artery (and a source of revenue to the owning corporation).

It is hoped that when the project is eventually completed it will provide a healthy stimulant for further redevelopment in the area surrounding it. Indeed, there are signs that this is already taking place. The construction of the metro, which follows Ontario Street at the northern border of the site, will provide a subway station at the north western corner of the project. The widening of Ontario and Jeanne Mance Streets has resulted in open space for redevelopment, and eventually the City of Montreal, which homologated wide strips of land facing the project, will provide an extended view from the Grande Salle south to Dorchester Boulevard.

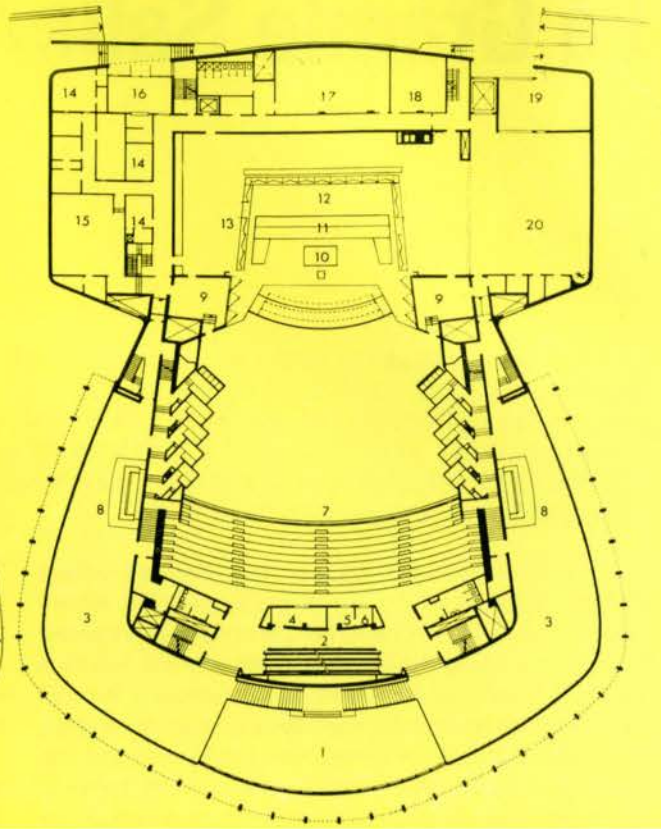
Vehicular and pedestrian traffic have been studied at length, based on the circulation to the underground garages placed on the east and west sides of the Concert Hall. The design of those garages was entrusted to the architectural firm of David, Barott, Boulva, who have co-ordinated their project with the Grande Salle. Because of climatic conditions during our long winters and the importance we placed on motor vehicle access to the building, a special arrival lobby has been provided, also below the plaza, for those arriving at performances in taxis and chauffeur driven automobiles. Off this lobby is located the ticket office, open at all times, even when the hall is closed, enabling the convenient purchase of tickets for future performances. The Grande Salle itself is a multi-purpose hall; since it is designed as an opera house it contains the very important bulk of the stage house within it. We have endeavoured to produce a building with a greater feeling of unity than many opera buildings built to-date. To this end we combined the volume of the stage house with that of the "house" or auditorium. This large dominant mass is supported by a horse-shoe colonnaded element containing the lounges and a smaller element on the Ontario Street side containing the backstage facilities.

The most important decision affecting the crystallization of the design was the decision on the disposition of the main seating areas. In the auditorium section, the seating areas are



PLAN A

1 grand foyer. 2 vestiaire, cloakroom. 3 foyer, lounge. 4 parterre. 5 fosse d'orchestre, orchestra pit. 6 dessous de la scène, upper part of trap room. 7 foyer des musiciens, musicians' lounge. 8 bureau, office. 9 loges d'artistes, dressing rooms. 10 remise, storage. 11 vestiaire des musiciens, musicians' locker room. 12 vide de la chaufferie, upper part of boiler room.



PLAN B

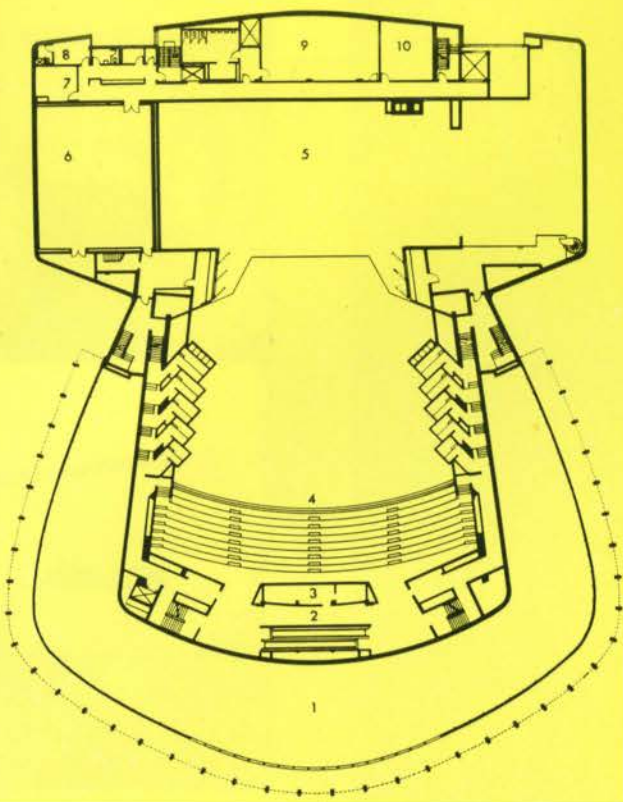
1 piano nobile. 2 escaliers, escalators. 3 foyer, lounge. 4 contrôle des éclairages, lighting control. 5 contrôle de la radio, radio control. 6 annonceurs, announcers' booth. 7 corbeille. 8 bar. 9 avant-scène, forestage. 10 ascenseur des pianos, piano elevator. 11 ascenseurs de scène, stage elevators. 12 plateau, stage. 13 abat-son, orchestra shell. 14 loges d'artistes, dressing rooms. 15 salon vert, green room. 16 hall d'entrée des artistes, stage entrance. 17 salle des figurantes, women's dressing room. 18 costumier, costumes. 19 plateforme de chargement, loading area. 20 dégagement de la scène, side stage.

divided into an orchestra level containing approximately 1,400 seats, three balconies containing approximately 400 seats each, with boxes accommodating 200 people. A further development of this decision was in the agreement to use continental seating on the main floor of the auditorium. The continental seating, because of its very nature, generated entrances and exits on the two sides of the body of the seats, thus creating the need for important side lounges. The continental seating which we used on the orchestra level and on the top balcony level has proved itself to be very successful and we have discovered that the hall can be emptied in approximately five minutes. In addition to greater safety, the continental seating pattern, decided upon with out seating consultant, Mr Ben Schlanger, provides an increased degree of comfort, intimacy and ambiance with the performers. Since deep balconies generally create a serious acoustical and psychological problem, we have endeavoured to make ours as shallow as possible, and through the device of setting each successive balcony back, relieve some of the so commonly found feeling of being over-shadowed by an oppressive second balcony. The first balcony named "Corbeille" contains nine rows of seats, the second one, "Mezzanine" has eight rows and the top balcony, only seven rows of seats.

The main form of the auditorium plan is one of almost parallel side walls widening out in the rear, thus enabling us to seat more people in the balconies. The proscenium arch, so often the divider between the audience and the performers, has been concealed by movable forestage doors designed as a visual continuity of the orchestra shell — a device for converting the opera house into a concert hall. The orchestra shell weighing approximately 15 tons, is normally stored below the stage providing a clear 55 ft by 150 ft stage floor for opera, ballet, and other performances.

Generally, with the exception of seats and carpets, the hall is hard with no absorptive wall surfaces.

The visible ceiling of the Grande Salle auditorium is built of precast plaster element joined together in place. The large number of openings in the visible ceiling enabled us to take advantage of the additional volume above this ceiling, a volume so very essential in creating the reverberation times required for a concert hall. In addition, the large number of openings permit us to utilize the ceiling for the concealment of the auditorium lighting, stage lighting, sound reinforcement electronic system, and mechanical ventilation system. All the walls of the auditorium, with the exception of the orchestra level which is



PLAN C

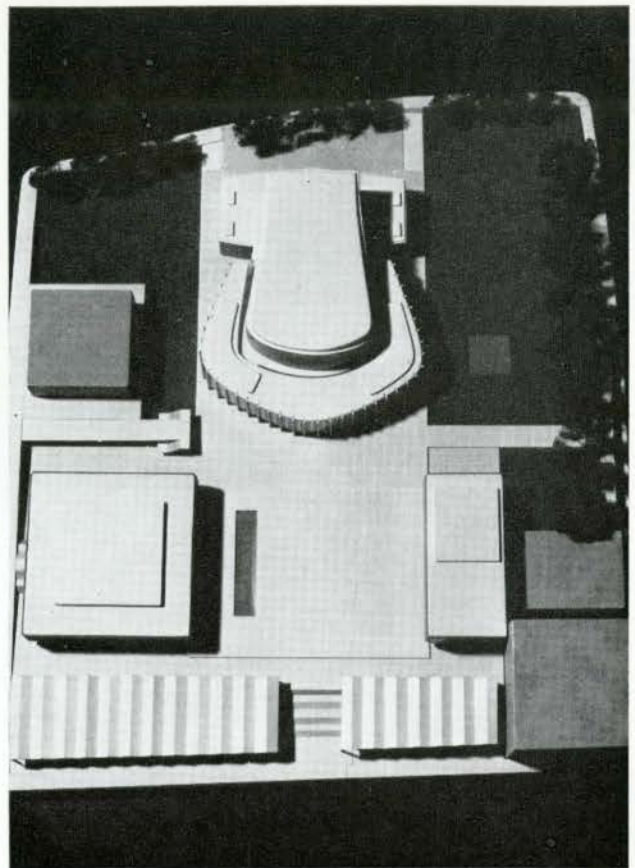
1 foyer, lounge. 2 escaliers, escalators. 3 contrôle du son, sound control. 4 mezzanine. 5 cage de la scène, stage house. 6 grande salle de répétition, main rehearsal room. 7 musicothèque, music library. 8 chef d'orchestre, conductor. 9 salle des figurants, men's dressing room. 10 salle de ballet, ballet room.

covered with rosewood panelling, are covered with plastic fabric, in a variety of colours designed in co-operation with Julien Hébert, industrial designer, providing a background for the light plaster forms of the balconies and boxes.

Any theatre or concert experiences are obtained under artificial conditions and for intermissions, entry, and exit experiences we have strived to create a visual contrast to the hall.

The lounges are disposed as a continuous space with as much outward view as possible. The exterior wall of the auditorium (inside lounges) is covered with the same quality precast aggregate concrete as that of the cladding above the lounges (the exterior). The vertical circulation from level to level is with escalators concealed behind the exterior auditorium wall. Basically there are five levels of lounges interwoven visually. A bar is located within the volume of the "house" at the so-called "piano nobile" lounge and large mural by Alfred Pellán; there are two bars, one on each side of the "house" at the upper side lounges. The flow of space through the lounges at intermission times has been enlivened with the open bars on the side lounges and "piano nobile" acting as great focal points for the moving audience.

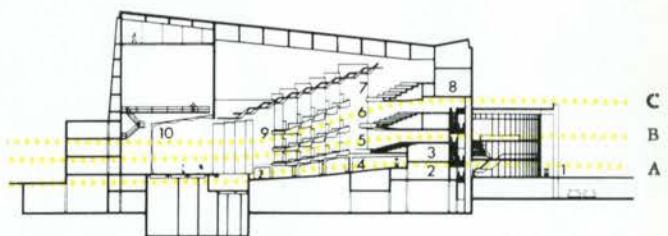
D. F. Lebensold



MASTER MODEL (1959)

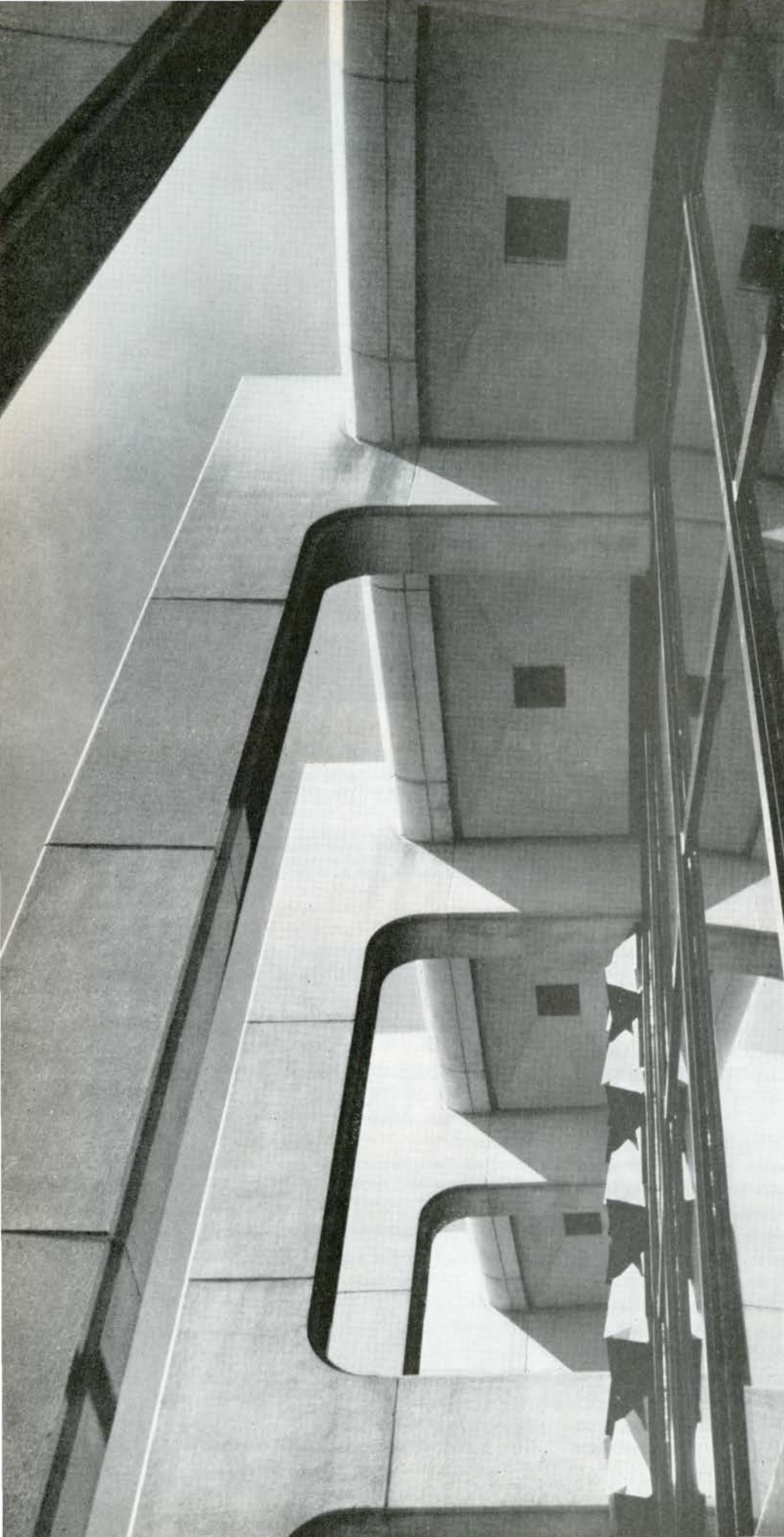
Block bounded by Ontario, St. Urbain, St. Catherine, and Jeanne-Mance Streets (clockwise with Ontario Street at top—north). Buildings: upper left—existing, left and centre—the Theatre, lower left and centre—offices and shops, lower right—existing, right and centre—la Petite Salle.

Îlot bordé par les rues Ontario au nord (au haut du plan), Saint-Urbain à l'est (à droite), Sainte-Catherine et Jeanne-Mance. Immeubles: à gauche au haut: existant, à gauche au centre: le théâtre, au gauche au bas: bureaux et boutiques, à droite au bas: existant, à droite au centre: la Petite Salle.



SECTION

1 place, plaza. 2 vestiaires, cloakrooms. 3 bar du foyer, main bar. 4 parterre. 5 corbeille. 6 mezzanine. 7 balcon, balcony. 8 galerie du balcon, balcony gallery. 9 loges, boxes. 10 abat-son, orchestra shell.



1

2



3

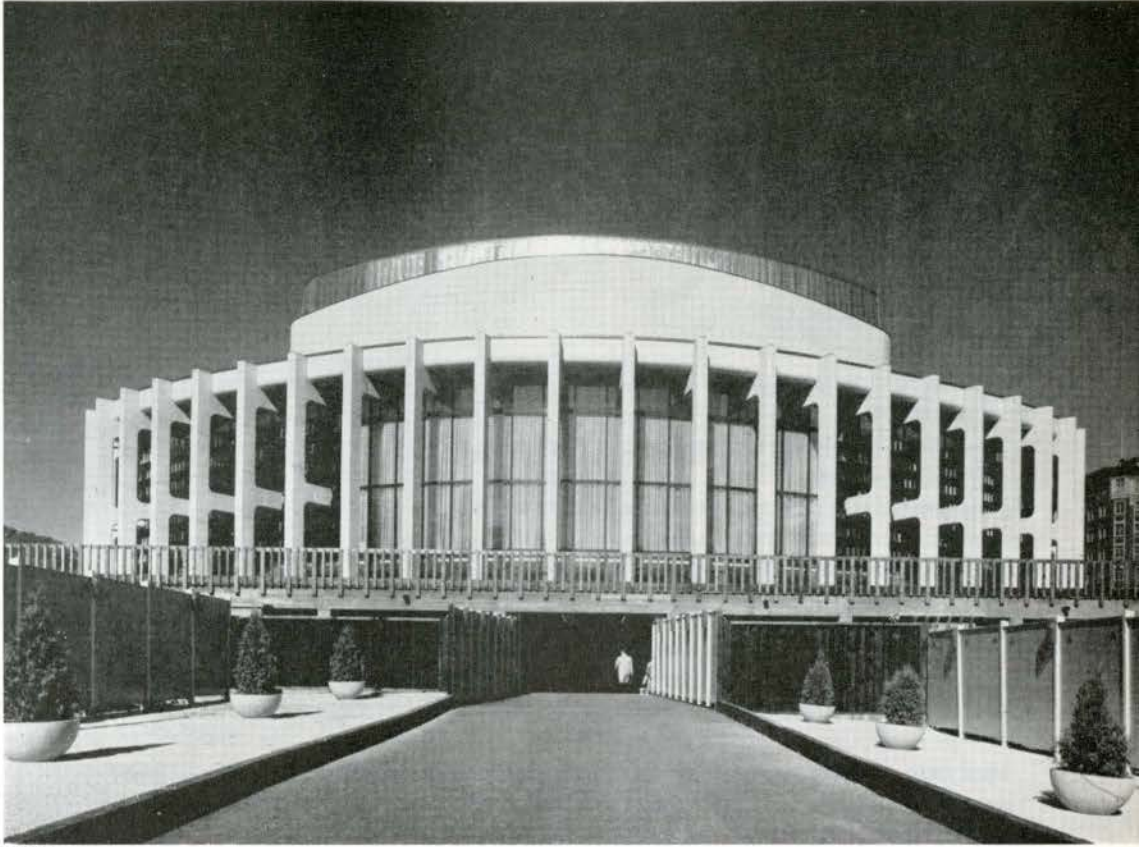


4



5

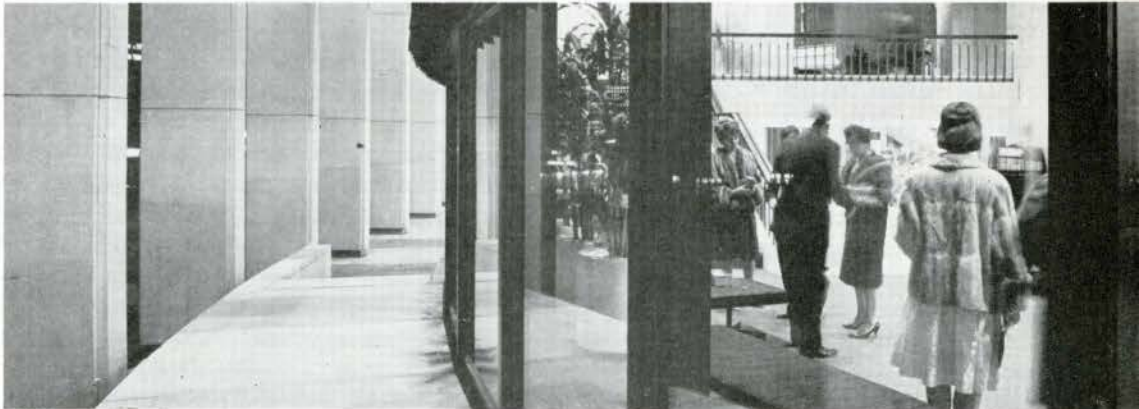




PANDA

1. South facade (photo on page 32 and this page by Hans Samulewitz). 2. Stage development from south-west corner of block. 3, 4, 5. General views from Ontario Street during construction. 6. South facade with "opening night" promenade. 7. Grand foyer from plaza.

1. Façade sud (cette photo et celle de la page 32 de Hans Samulewitz). 2 La cage de scène vue du sud-ouest. 3, 4, 5. Vue d'ensemble de la rue Ontario durant la construction. 6. La façade sud; la passerelle de la première. 7. Le grand foyer vu de la place.



PANDA

La Salle de Concert de la Place des Arts

par Claude Beaulieu

Les quatre ou cinq gratte-ciel de Montréal — promesse de chaos, si l'on n'y met l'ordonnance nécessaire (et comment l'y mettrait-on?) — ne nous avaient pas donné cette impression, ressentie dans la Salle de Concert de la Place des Arts, *d'être enfin dans une métropole*. Le passage de la rue aux accès puis aux foyers; l'aboutissement à ce volume intérieur impressionnant sans être gigantesque ou le monumental ne nous était pas trop épargné, nous sollicitaient d'une émotion sans retenue comme au contact d'un objet tant désiré qui donne satisfaction et fait rêver de bonheurs futurs.

Si je ne tiens pas la Salle de concert pour un des chefs-d'oeuvre de l'architecture (ou sont-ils?), je considère l'édifice comme une oeuvre tout-à-fait remarquable. Toute en courbes et en obliques, il a le lyrisme de sa destination; sa coquille est l'harmonieuse traduction d'un organisme exprimé par sa fonction avec, et j'en suis ravi, un souci de classique dans toute l'acception du mot.

Mais cette discipline a ses exigences. Aussi, j'aurais tort de trouver dévorant le grand volume dominant mais je chicanerais volontiers l'insuffisance des services enveloppants. En prenant plus d'importance, ils auraient réduit d'autant la cage de scène et surtout, se seraient raccordés à la colonnade; sans compter qu'ils auraient absorbé cette mécanique de toiture, chancre inacceptable dans un édifice de cette qualité. Au point de paraître tatillon, soulignerais-je dans cette colonnade, dont les supports ont en réalité l'apparence de poutres-béquilles, la lourdeur et la banalité des deux points de liaison poteau-poutre aux endroits de l'étage et de la toiture; mais surtout le rôle trop décoratif que pose cet élément essentiel qu'est la corniche? Si j'interprète bien l'intention des architectes et en déduis qu'il s'agissait de faire passer l'oeil, du sol au faite sans accroc, la corniche alors, aurait pu se faire oublier davantage. Mais je ne puis renier le rôle éminemment protecteur de la corniche.

Les matériaux de revêtement — économiques — sont d'un choix judicieux; l'expression plastique et la texture, la stéréotomie et les joints satisfont pleinement l'oeil. Les grandes ouvertures du foyer central, derrière la colonnade, ont de la noblesse. L'obligation fâcheuse dans laquelle se sont trouvés les architectes de camoufler les ouvertures de côté s'est soldée par une réussite. Des motifs de métal donnent vie et mouvement à ces surfaces autrement promises à la triste et sèche monotonie du verre aveugle.

Puisque nous sommes à l'extérieur, faisons quelques voeux pour qu'on ait le souci d'un art urbain, digne de cet ensemble architectural si bien amorcé. Nous savons tous ici que l'architecture vaut autant par ses alentours que par elle-même. Le monument pivot, conçu en éventail appelle des espaces dans le même mouvement. Il faut abandonner le mauvais contact qui fatalement se ferait avec la rue Sainte-Catherine: l'oeil doit se reporter beaucoup plus loin vers les grandes surfaces et les volumes statiques et rythmés. On ne peut plus se contenter du petit quadrilatère initial et surtout accepter l'idée d'une construction "rentable" en hauteur accolée à notre Palais. La Salle de Concert doit dominer dans un cadre aéré tout en horizontales...

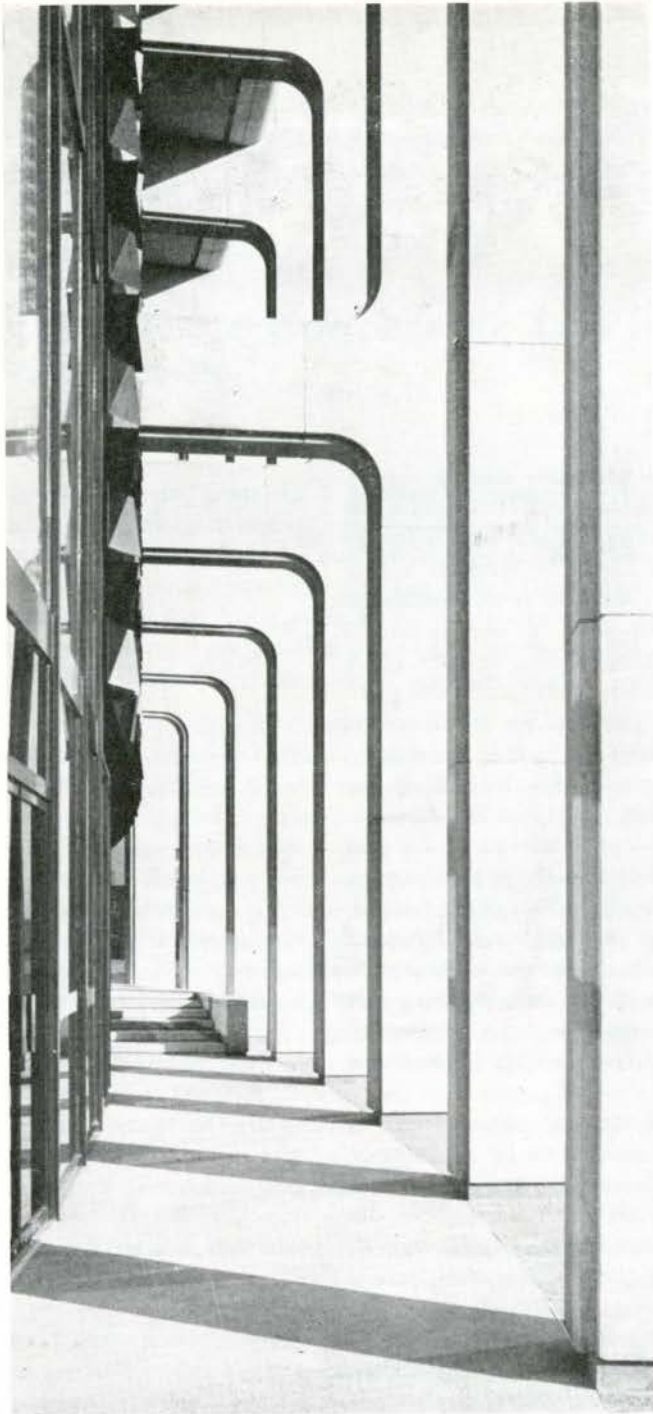
À l'intérieur, la Salle spacieuse et bien proportionnée se déploie en éventail, comme la colonnade en somme engendrée par elle. Heureusement peu profonde pour ses 3,000 places, elle possède trois étages de balcons qui se prolongent par des loges sur les murs latéraux; un peu sacrifiées par leur rejet sur les côtés et leur plafond trop bas, elles trouveront toujours des amateurs à la recherche d'un "coin intime" pas trop à l'abri des regards

qu'ils voudraient peut-être indiscrets. Les 1,500 sièges de l'orchestre sont en rangées continues, à l'euro péenne: largement espacées, celles-ci aboutissent aux extrémités à une batterie de 4 portes à doubles battants: solution particulièrement heureuse pour le confort des spectateurs et l'évacuation rapide de la salle vers les foyers. Le rouge et le noir dominent; les sièges sont tendus de tissus rouge, les tapis sont rouges et les murs recouverts d'un produit imprimé noir sur fond argenté d'un goût moyen qui se fait assez facilement oublier. Le plafond suivant la pente moyenne du troisième balcon au cadre de scène, s'étale en un vaste motif entrelacé "nid d'abeilles" conçu avant tout pour l'effet acoustique particulièrement au point ici. Je n'ai fait qu'entrevoir le rideau de scène dont le ton ocre et l'ample mouvement de drapé prendront toute leur valeur sous les feux de la rampe... c'est justement derrière que ma curiosité est attirée; sur le plateau, dans les coulisses, sur les grilles, véritable laboratoire d'illusions et dont le contrôle s'effectue à l'arrière de la salle au moyen d'un jeu d'orgue, authentique pièce d'art qui peut faire les délices d'un esthète. La scène possède tous les atouts mécaniques d'un théâtre moderne de premier plan. Un montréalais peut être impressionné par l'ampleur de la cage: 10 étages de hauteur, 55 pieds de profondeur et le double en largeur plus, côté cour, un dégagement additionnel de 45 pieds. Et pourtant, selon certains esprits critiques, ces dimensions, suffisantes en soi, sont mal réparties pour les jeux de scène de l'opéra. En effet, si on considère que la scène, au maximum, a une ouverture de 69 pieds, les coulisses côté jardin n'ont qu'un dégagement de 20 pieds; ces espaces sont malgré tout loin d'être étriqués et demeurent satisfaisants.

Les réactions du spectateur se manifestent avant tout à la vue des signes extérieurs et familiers du décor qu'il apprécie dans le contexte de son instinct ou de son bagage culturel. La succession des foyers, les divers niveaux et leurs liaisons sont merveilleusement bien agencés pour sa détente. Il trouvera des espaces aux perspectives imprévues, des échappées lointaines, invitantes. Les tons rouge et noir restent tristes et froids mais ils ont l'avantage de mettre l'élégance en valeur. Le décor est parfois trop décor, parfois étouffé dans un cadre un peu vieillot.

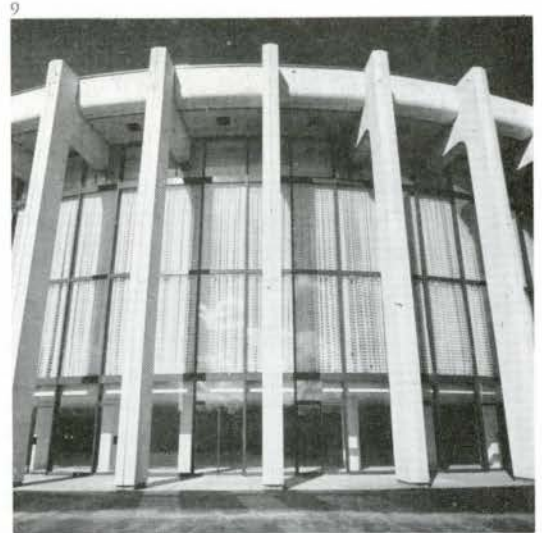
Le revêtement de Slater est de bon goût et à l'échelle; il aurait du servir de trame à l'ensemble de l'architecture intérieure: les céramiques de Bonet sorties de leurs cadres, y auraient gagné en liberté, les hauts reliefs d'Archambault, fins dans le détail et plastiquement beaux auraient eu plus d'échelle. Leur juxtaposition les rend étrangers à l'ensemble, froids et lourds comme les rampes de l'escalier d'honneur. Même étouffement ressenti dans cet antre chaleureux qu'est le grand bar de l'orchestre aux détails raffinés d'un goût exquis. Le vitrail fusionné de Pellan est lyrique dans son géométrisme, les couleurs sont somptueuses, mais il est hélas pris dans la gangue de cadres lourds qui le morcellent en lui enlevant sa fraîcheur: quelques points d'attache auraient suffi. La tapisserie exécutée à Aubusson d'après le carton de Robert La Palme et le tapis noué de Micheline Beauchemin, véritable chef d'oeuvre, sont les deux seuls éléments qui répondent bien à leur destination qui est celle de meubler un mur nu par la simple fixation; les sculptures en ronde bosse sont, elles, dans l'attente d'un déplacement ou d'un départ.

Ainsi, ces foyers tampons qui enserrant la Salle comme un étau et l'isolent des réalités du monde extérieur, par leur ampleur, leur aspect monumental insufflent un air nouveau à la vie montréalaise peut-être déjà emportée par le sentiment des grands espaces qui chantent.



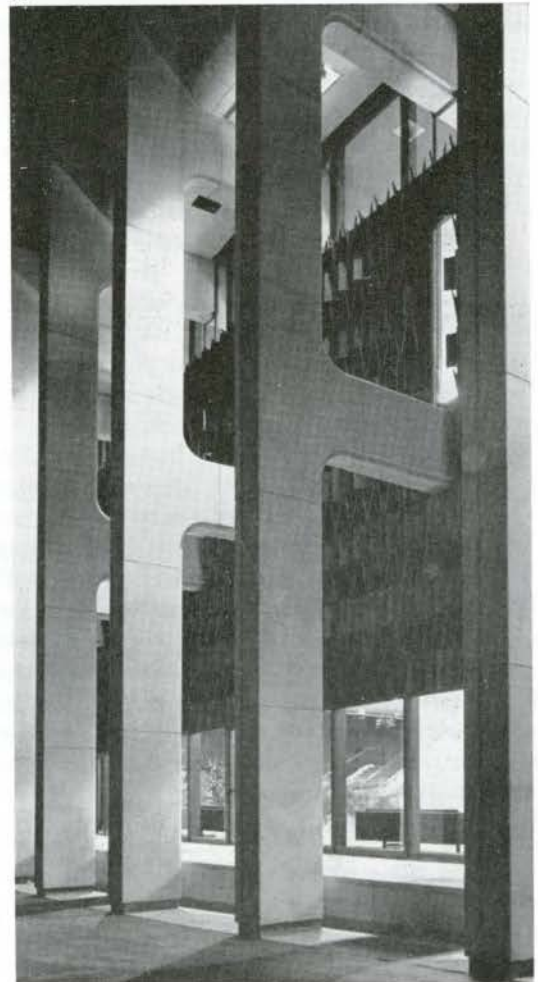
8

DIK NYE



PANDA

9



PANDA

8. Peristyle of la Grande Salle. 9. South elevation from the (future) plaza level. 10. Articulated screen at the upper lounges. 11. Piano nobile with the crowd of opening night.

8. Le péristyle de la Grande Salle. 9. Façade sud au niveau de la place proposée. 10. Ecran aux foyers supérieurs. 11. Le piano nobile, le soir de la première.



PANDA

La Structure de la Grande Salle

par Lucien Jacques
de Brouillet, Carmel, Bouleva
Ingénieurs Conseil

Aussi bien du point de vue architectural que du point de vue "génie", la Grande Salle aura été un véritable défi. L'impressionnante colonnade cache derrière elle les problèmes et les difficultés auxquels architectes, ingénieurs et constructeurs ont eu à faire face avant d'obtenir ce magnifique immeuble. Nous voudrions ici énumérer et expliquer quelques uns des problèmes auxquels ont dû s'attaquer les ingénieurs-conseil en structure.

L'un des premiers aspects intéressants de la Grande Salle, du point de vue structural, réside dans la complexité même du volume architectural. Rappelons entre autres, que la colonnade extérieure qui entoure le foyer principal, est située en plan sur un ensemble de courbes fait d'un grand arc de cercle, en avant, suivi de chaque côté d'un segment d'ellipse puis d'un court arc de cercle, et finalement d'un deuxième segment d'ellipse. A l'intérieur de cette courbe principale sont raccordés d'autres segments parallèles et enfin une série d'arcs de cercle de rayons variables aboutissant à des lignes obliques convergentes.

Pour démontrer la complexité de ces lignes, rappelons qu'à la suite de pourparlers avec les divers sous-traitants, la seule façon pour l'entrepreneur de réaliser avec exactitude ces divers éléments, fut de construire un gabarit à vraie grandeur de ces principales courbes. Ces gabarits servirent à la fois pour construire les coffrages des poutres, pour confectionner les différents éléments du mur-écran, pour déterminer certaines dimensions de la pierre artificielle et même certaines dimensions pour des "cabinets" de plomberie.

Il devient alors assez facile de comprendre la complexité du ferrailage des poutres et dalles situées à l'intérieur de ces courbes. Le calcul et la construction des loges latérales présentèrent également un problème. En plan, chacune des loges est un porte-à-faux faisant un angle de 37 degrés avec son support, porte-à-faux qui est terminé par un deuxième porte-à-

faux faisant un angle de 90 degrés par rapport au premier. C'est donc dire que dans la dalle en porte-à-faux nous obtenons non seulement des moments de flexion mais également des moments de torsion importants. Comme les codes de Montréal, du Canada et de l'American Concrete Institute ne mentionnent aucune norme concernant la torsion, nous avons dû avoir recours aux normes européennes et australiennes pour calculer ces effets de torsion.

Chacune des loges, du point de vue fonctionnel est placée en "escalier" par rapport à la précédente et les poutres supportant les dalles des loges sont en définitive des poutres étagées.

Au calcul normal de ces poutres étagées, vient s'ajouter celui des moments de torsion des dalles qui provoquent des moments de flexion dans l'axe de ces poutres. Chacune des loges est de dimensions différentes et les dalles qui prolongent les porte-à-faux, sont de forme trapézoïdale et chacune est différente des autres. Pour chaque dalle nous avons jusqu'à 28 types de barres d'armatures différentes.

Le problème le plus intéressant, du point de vue structural, fut sans doute le calcul des poutres courbes supportant les deuxième et troisième balcons. L'angle au centre de ces poutres est de 45 degrés, la portée de ces poutres est de 123 pieds et le rayon de courbure moyen de 160 pieds.

Chaque balcon est supporté essentiellement par une poutre maîtresse évidée ayant 10 pieds de large et une hauteur variable de 6'-8" à 10'-3". Les dalles des balcons sont reportées aux poutres maîtresses par des poutres radiales en porte-à-faux. Les poutres courbes sont placées à l'arrière des balcons. De cette façon, en tenant compte de l'angle au centre de ces cas particulier, les porte-à-faux ont pour effet de tendre à neutraliser les moments de torsion causés par la courbure naturelle des poutres maîtresses. Les colonnes qui supportent ces balcons étant relativement minces pour des raisons architecturales, l'encastrement aux appuis n'est que partiel et par voie de conséquence, les moments de torsion relativement élevés.

Les deux poutres courbes des balcons ainsi que la double poutre "Vierendeel" en acier du toit ont été calculées comme formant un cadre rigide avec les colonnes qui les supportent. Pour donner une idée de l'ordre de grandeur disons que le moment de flexion maximum obtenu est de 14,500,000 livres-pieds et que le moment de torsion maximum est de l'ordre de 1,160,000 livres-pieds. Au centre de la poutre, l'acier positif est formé de 32 barres d'armature No 18. Les étiers résis-

tant aux efforts maximum de cisaillement et de torsion combinés, sont des étriers doublés formés de fers de $\frac{3}{4}$ pouce de diamètre à 6 pouces centre à centre. Du point de vue pratique, à cause du peu d'espace et des nouvelles exigences américaines concernant l'adhérence, particulièrement des barres No 18, il fallait que certaines barres d'armature soient continues. Comme la longueur maximum des barres livrées sur le chantier ne pouvaient dépasser 85 pieds et que plusieurs barres devaient dépasser 120 pieds, il fallut trouver un moyen de souder ces barres. La méthode choisie fut celle qui a recours à une fusion thermique, connu sous la marque de commerce "Caldwell Splice Joints". En résumé l'application de ce procédé se fait de la façon suivante: les extrémités de deux barres à souder sont aboutées l'une à l'autre; un manchon rainuré à l'intérieur entoure le joint à souder; ce manchon est relié à un creuset en graphite contenant un alliage de cuivre; une poudre d'ignition recouvre cet alliage en poudre; à l'aide d'un briquet à mèche on enflamme cette poudre d'ignition; une réaction vive et instantanée se produit qui fait fondre le métal qui coule dans l'espace entre le manchon rainuré et les barres à souder, l'opération est terminée et l'ensemble des rainures du manchon et des déformations des barres font que les barres sont inexpugnables du joint.

La même méthode fut employée pour souder les barres des colonnes supportant les balcons.

Au niveau du toit, il fallait réaliser un cadre rigide continu intégrant une double poutre "Vierendeel" en acier à des colonnes de béton armées de barres No 18. 88 barres No 18 de qualité "High Strength Steel — A432" furent filetées à leurs extrémités sur une longueur de 4'-6". Encore là, nous croyons que ce fut une première au Canada. Quant aux poutres courbes, elles doivent évidemment prendre des déflexions appréciables. La déflexion maximum anticipée — compte tenu du retrait du béton et de l'effet de fluage, est d'environ $2\frac{1}{2}$ ".

La structure légère située à l'arrière de ces poutres maîtresses ne pouvait évidemment pas subir de telles déformations. Pour cette raison, les dalles situées immédiatement derrière les poutres, furent coulées et calculées comme reposant sur deux rotules. Aussi furent-elles coulées après décoffrage des poutres circulaires.

Qu'il suffise en terminant de mentionner quelques autres problèmes structuraux de la Grande Salle: colonnes longues, poutres longues et profondes sans aucun support latéral, murs minces et très hauts.



12



13

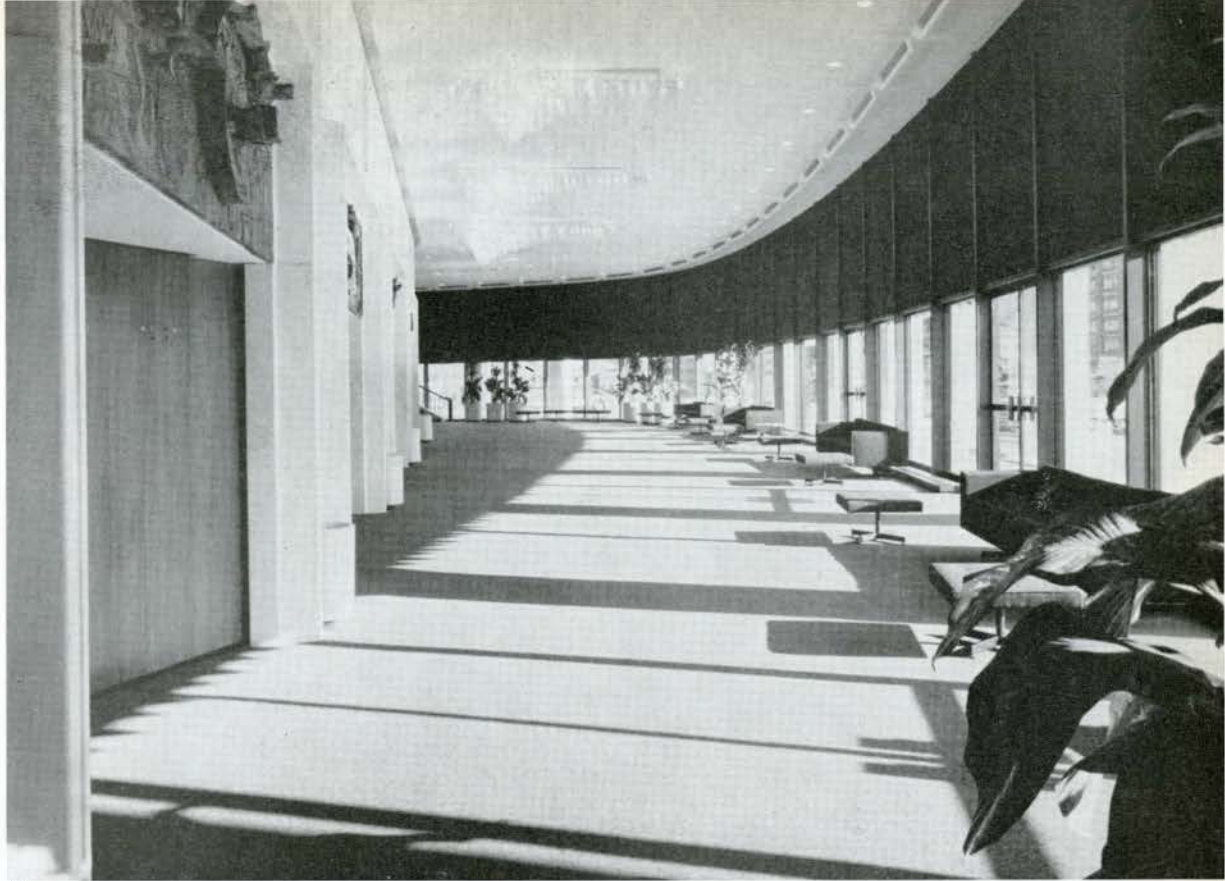


14

12. Lounge at bar (plan B). 13. Grand foyer from the second level lounge. 14. The piano nobile. 15. Lounge (plan C). 16. Sculpture by Hans Schlee. 17. Stair from the promenade level.

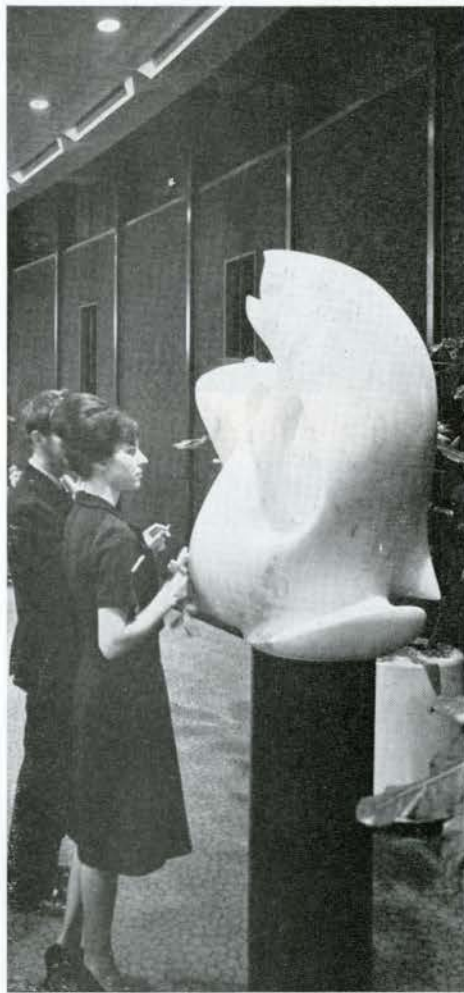
12. Bar du foyer, niveau B. 13. Le grand foyer, du piano nobile. 14. Le piano nobile. 15. Foyer du parterre. 16. Sculpture de Hans Schlee. 17. Escalier du promenoir.

Photos on this page by Panda.

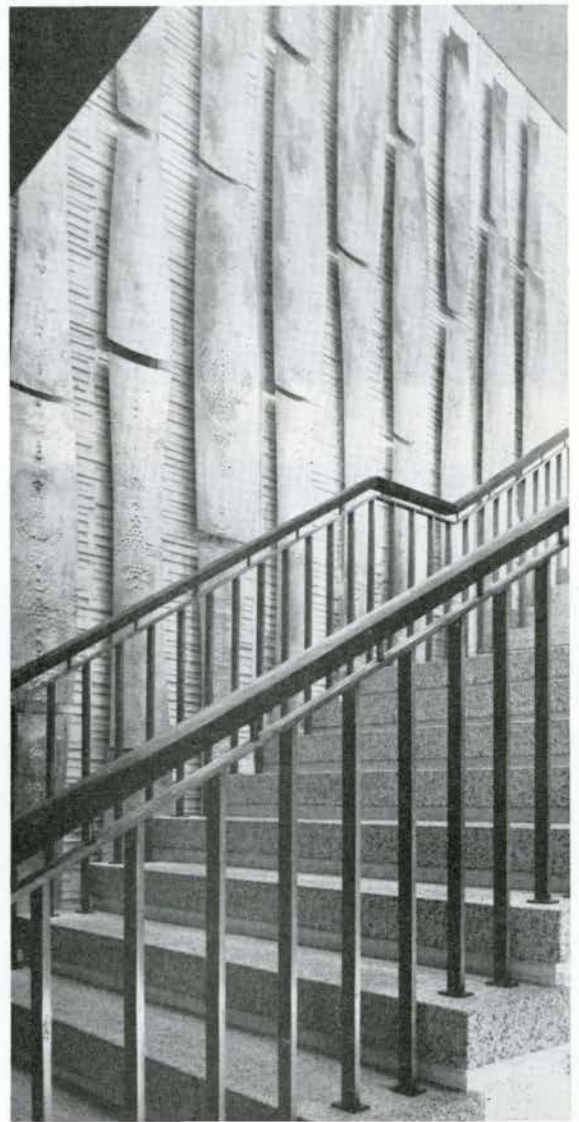


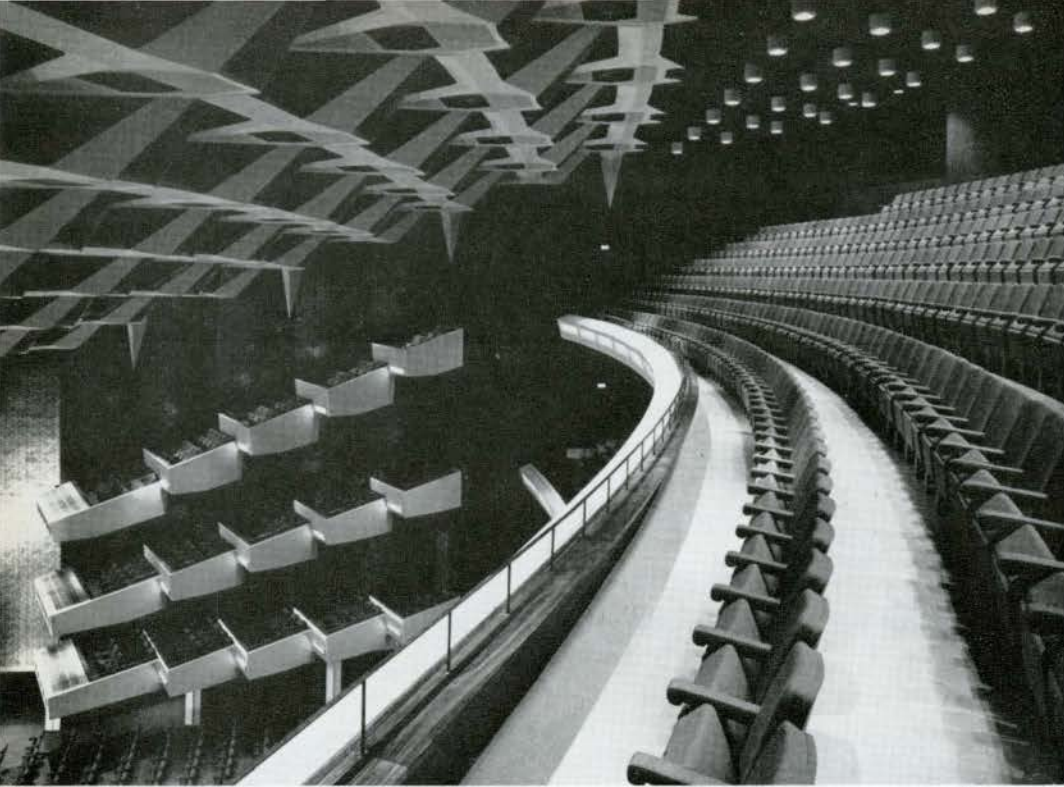
15

16



17





DIK NYE 18

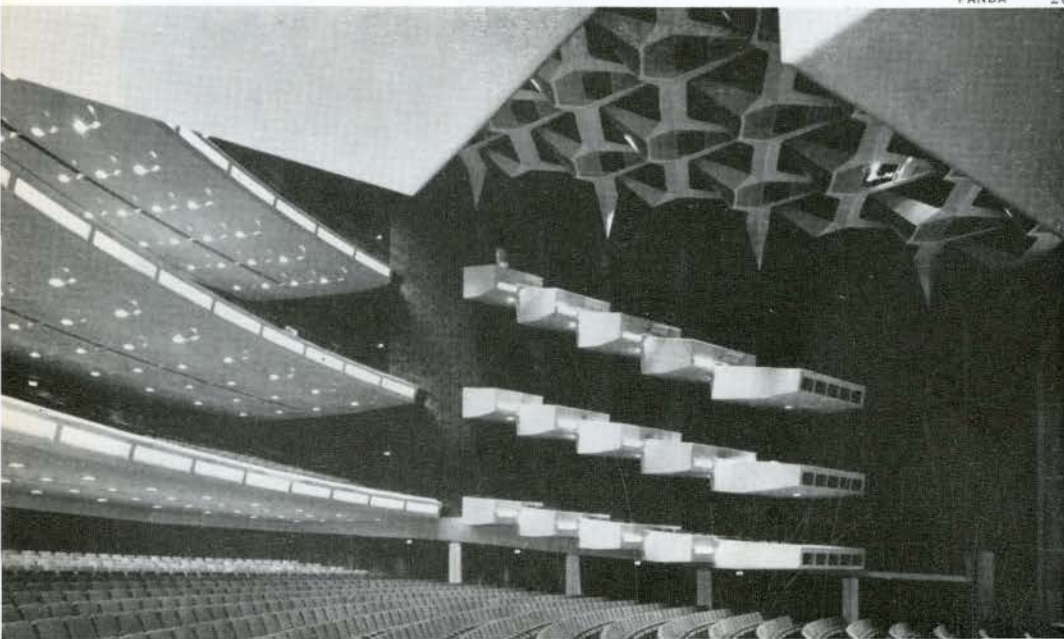
18. Concert hall at third balcony. 19. Seat detail. 20. Concert hall from under first level box offices. 21. Box seat details. 22. Concert hall from stage.

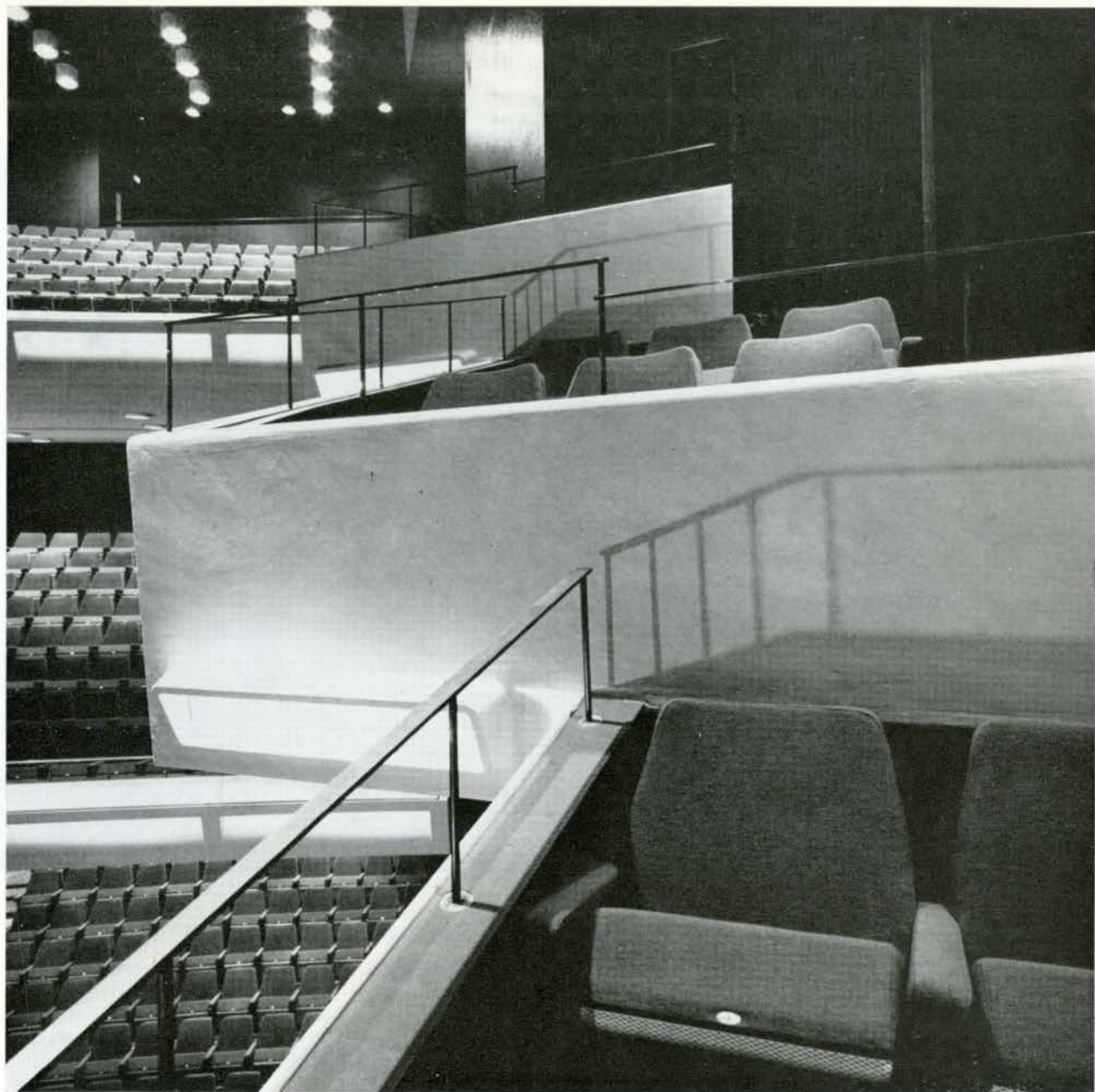
18. La Salle de Concert du troisième balcon. 19. Détail du fauteuil type. 20. La Salle de Concert, du dessous des loges. 21. Détail des loges. 22. La Salle de Concert, de la scène.



HANS SAMULEWITZ 19

PANDA 20





21 DIK NYE

22 DIK NYE

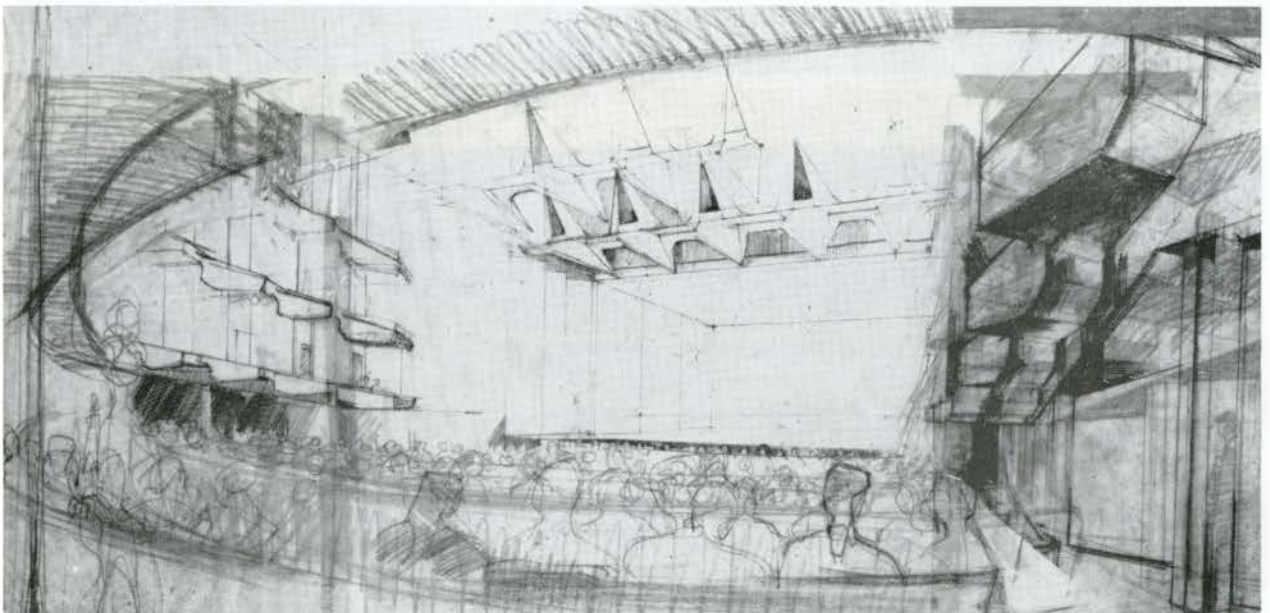




PANDA

Concert hall with opening night audience.
La Salle de Concert, le soir de la première.

Sketch of concert hall by Fred Lebensold.
Croquis de la Salle de Concert de Fred Lebensold.



Acoustical Design of la Grande Salle

by Bolt, Beranek & Newman, Inc

Commissioned by the architects in August 1958 to provide acoustical consulting services for la Grande Salle, our first step was to ascertain the predicted balance of the various types of rental activities. Only by determining the relative importance of the various activities to take place in an auditorium can the consultant establish the basis for the acoustical design of the hall.

We were informed that the economic studies indicated no one type of activity would predominate: la Grande Salle was to combine the functions of an opera house and a concert hall, a theatre for musical comedy and revues. At the same time we were informed that the economic study on which the architectural program for the building was based indicated a need for approximately 3,000 seats.

WIDTH AND SHAPING OF THE AUDITORIUM

The basic acoustical character of an auditorium is predetermined when the architectural aspects of the hall are established — the disposition of the audience, the width and length of the hall, and the cubage of the hall. The requirements for visual acuity seemed to dictate a rather wide, shallow hall, fan-shaped with one or, at the most, two deep balconies in the rear of the auditorium. This approach was in conflict, however, with the acoustical requirement for a narrow hall, and the architects' solution was to return to the basic architectural characteristics of the so-called Italian opera house.

The final design is relatively narrow, particularly in the front half of the auditorium, and relatively shallow (140 ft from the conductor's podium to the furthest seat) and, at the same time, by incorporating three tiers of seating above the main floor, with each tier continuing along the side walls almost to the proscenium opening itself, space was made for 3,000 seats.

As the reader can see from the drawings, the walls in the front half of the auditorium were kept close to parallel for acoustical reasons, and the hall was widened toward the rear in order to help achieve the seating capacity.

The decrease in liveness, always a characteristic of deep underbalcony areas, was minimized by the three balconies across the rear of the house being made as shallow as possible.

HEIGHT OF CEILING

If the ceiling of this hall were to be designed in the conventional way (that is, a solid continuous surface running from the top of the proscenium opening, sloping gradually upwards and terminating a few feet above the last row in the top balcony) the resulting reverberation time would be much too low.

With reasons already explained, the only remaining way of achieving the high volume required to maintain a sufficiently long reverberation time was to raise the ceiling height. Accordingly, the upper ceiling of the auditorium chamber was set about 80 ft above the stage level. It was recognized that, if no sound reflecting surfaces were inserted between the sound source on stage and this very high upper ceiling, the excessive time difference between a sound reaching the listener on the main floor by the direct path, and the reflected sound reaching the same listener via the upper ceiling would produce very noticeable echoes and in much of the seating area there would be insufficient definition. The solution was to utilize sound reflecting surfaces at an elevation of about 32 ft to 38 ft above stage level, adjacent to the proscenium opening. The architect developed these sound reflecting panels into an interwoven lace-work of plaster and extended this "lower" ceiling towards the rear of the hall, using this part-open, part-closed screen to conceal the auditorium lighting, the stage lighting, and the loud speaker cluster for the sound reinforcement system.

FINISH MATERIALS

Our reverberation time design studies indicated that it would be essential to eliminate all sound absorbing materials from the hall. Accordingly, the rear walls at all levels were designed to form large planes so that no sound absorbing treatment would be required for echo control. This use of nothing but hard, sound reflecting surfaces for all the walls and the ceilings, then, lengthened the low-frequency and mid-frequency reverberation time.

The acoustical warmth, or richness, of the characteristic sound of a hall is imparted to it by lengthy low-frequency reverberation. For this reason, all of the plaster surfaces of the walls were applied directly to reinforced concrete, masonry, or concrete masonry units, with no intervening airspace; for wall areas finished with wood, panelling was cemented directly to heavy masonry walls.

Another important aspect of music acoustics design is the provision of a diffuse, reverberant sound field. Much must still be learned about the acoustics of diffuse sound fields and how this property of a hall is related to the subjective reaction of the concert goer, but authorities agree that large plane, unadorned surfaces should be avoided, and that, insofar as possible, contemporary auditoriums should incorporate architecturally modulated surfaces. This sculpturing of the boundary surfaces of an auditorium, of course, was an ever present feature of concert halls built during the 18th and 19th Centuries. In la Grande Salle, the sculptured balcony and box fronts, the sculptured shaping of the plaster portions of the "lower" ceiling, the serrated wall behind the side boxes, and the architecturally modulated surfaces of the concert shell, and the six hinged portals which frame the proscenium opening constitute the architectural break-up designed to produce a diffuse sound field.

DEMOUNTABLE CONCERT SHELL

Opera and theatre productions, as well as many other auditorium activities, require a towering stage-house. One of the most important problems to solve, in a multi purpose auditorium, is the transformation of the cavernous stage-house (la Grande Salle's stage-house is 701,700 cu. ft) into an excellent concert shell.

A concert shell, to give adequate acoustical support to a symphonic ensemble, must be quite heavy and the architects selected thick laminated wood panels for the finished surface. It was necessary to

devise a method of erecting, or removing, this heavy concert shell quickly, at low cost, and with a small stage crew in order to permit the management to utilize the stage-house "around the clock" in cases of tight scheduling.

The solution developed by the architects for the concert shell in la Grande Salle employs 35 ft deep wells in the stage floor for the three walls of the concert shell.

A universal problem in auditoriums used for operettas and musical comedies is the balance between the singing actor on stage and the pit orchestra. The accepted solution for this type of balance is the use of a sound reinforcement system which amplifies the singer's voice but does not provide any amplification for the pit orchestra. Since musical comedies and operettas will be produced in la Grande Salle, a high-quality sound reinforcement system has been provided. The loud speaker cluster for this system is located on the centre line of the hall, directly above the orchestra pit. This same system will also be used for the amplification of speech.

ORCHESTRA PIT

Another design problem encountered in any hall which must serve as both opera house and concert hall is the design of the orchestra pit. For opera, the pit must be large enough to seat an orchestra of 60 to 80 musicians, and must provide enough room for the batteries of tympana, other percussion, and a good sized grand piano; musical comedies and operettas call for a much smaller pit. Another basic need when no pit is required is a way to eliminate the empty canyon of an 18 ft to 22 ft pit which would otherwise isolate the actors and musicians on stage from the audience area.

The architects' solution for la Grande Salle utilizes two pit lifts. When an orchestra is playing a concert in the shell on stage, both of these pit lifts are occupied by rolling seating wagons for the audience. For a small pit orchestra, the one lift is lowered to the basement, its seating wagon is removed, and the lift is then moved into a position suitable to form a smaller orchestra pit. This same process is accomplished with both sections of the pit lift accommodating the large orchestra required for grand opera production. The pit lift section closest to the permanent stage platform can also be raised to stage level to form a fairly good sized apron fore-stage.

Place des Arts/Garages

Architects / David, Barott, Boulva

When a large building is built in the centre of a city, the problem of moving people in and out of it with ease becomes very difficult. In the case of the Concert Hall the problem is further complicated by the necessity of carrying out these functions in very short periods of time. After careful study, it was estimated that two garages with capacities of approximately 400 cars each would be necessary to accommodate the patrons of the Concert Hall and also those of the two theatres and office buildings contemplated for the southern portion of the site. In addition to this, suitable accommodation would have to be provided for those arriving by taxi, bus, subway and on foot. Fortunately the site was large enough to permit underground garages to be built flanking the Concert Hall to the East and West.

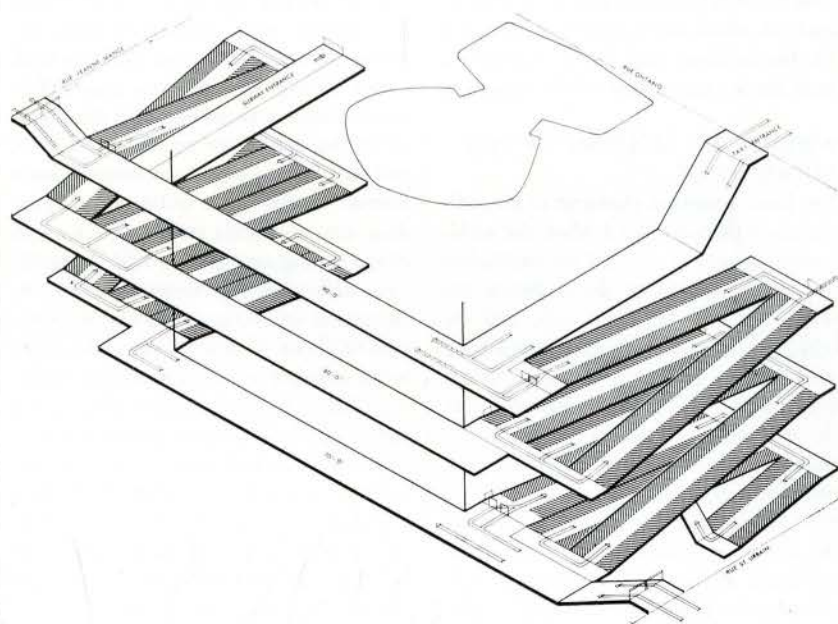
An underground street permits taxis and private cars to enter from Ontario Street, pass under cover to the main entrance where passengers are discharged, and the vehicles then exiting on Jeanne Mance Street. Subway passengers arriving at the proposed new station under Ontario Street will also be able to enter the Concert Hall under cover.

The garages were designed as continuous ramps requiring cars to enter from St Urbain Street to the lowest level and exit on Jeanne Mance Street from the highest level as well as to Ontario Street from the middle level. Patrons park their own cars and enter directly into the Concert Hall at each level, where they are transported by escalator to the main foyer.

When the garages are completed and under proper control, they will be able to be filled to capacity or emptied in a period of about twenty minutes. These rapid exit and entrance times are important for the convenience of patrons as well as reducing their time of exposure to noxious fumes in spite of the very excellent ventilating system which provides a complete change of air every four minutes during the peak period.

The problems of circulation, traffic control and air handling were unique and without precedent and were by no means easy to solve. The solutions which are embodied in the design of the garages and the circulation facilities have attained a degree of success worthy of the concert hall which ranks with the finest in the world.

Peter T. M. Barott



Theatre Building

a discussion

CHAIRMAN/DOUGLAS B. BROWN, MRAIC

In order to complement the descriptive material on theatres in this issue, and in anticipation of some upsurge in theatre building as we approach Canada's centennial, the *Journal* felt that some value would be derived from a general discussion on theatre building by people who have been concerned in the field. And so in August we brought together, for a discussion of theatre building, Fred Lebensold, MRAIC, ARIBA, of Affleck, Desbarats, Dimakopoulos, Lebensold, Michaud, Sise, Montreal, partner in charge of la Grande Salle, Place des Arts; Robert C. Fairfield, MRAIC, Toronto, associated with the Stratford Festival Theatre; K. H. Foster, MRAIC, of Gordon S. Adamson Associates, Toronto, associate in charge, Faculty of Music Building, University of Toronto; Celia Franca, artistic director, National Ballet Guild of Canada; W. A. Russell, technical director, Royal Conservatory of Music, Toronto; and Philip Rose, technical director and vice president, Strand Electric Co. Ltd, Toronto. A variety of topics was discussed with the object of presenting some of the problems, and some suggested solutions, in theatre design.

Douglas B. Brown

BACKGROUND

RUSSELL We feel the performing arts can't progress any more in Canada without better facilities. We are working to increase interest in producing excellent facilities, therefore providing the means for us to build audiences. Look at the number of people who have gone to Stratford because it is an excellent theatre producing excellent performances. Since the opening of the O'Keefe Centre more people have gone to the theatre in Toronto than ever before. This is because the O'Keefe theatre is a luxurious place — a good place to be.

LEBENSOLD Going to the theatre, or going to the opera, or going to the ballet is not only an artistic experience but a social experience. Many people in our country don't realize how wonderful this experience can be because we do not provide them with the background for this experience. European audiences have been familiar with this experience from childhood. To our children, going to the theatre is a novelty not a habit. The habit, if developed, would enrich the total fabric of this country. However, before this can happen we have to have the buildings, the artists, and the customers.

FAIRFIELD The audiences will certainly have to be built because right now they don't exist.

FRANCA This can be done if the facilities are available. Let us look at two cities — Windsor and Kitchener. We used to do one performance in a movie house in Windsor which had an impossible stage and no facilities; we had to work to get an audience for one performance. Within three years, after they built a theatre in which the audience could sit in comfort and we could move a little scenery and use some lighting, we were able to play a whole week. In Kitchener, on the other hand, a city where we should have been able to build up a very good audience, we perform in the arena and in spite of the most generous co-operation on the part of the management, the seats are too far away, and too hard, the acoustics are impossible, and no matter how much the dancers try to project, nothing comes across at all. And so we were not able to build an audience.

BUILDERS

ROSE I believe we ought to consider who is actually going to build theatres in the future. It would appear from the experience of the past four or five years that these people are public bodies, municipalities, and educational institutions, and this should give us the clue to the type of building required.

FAIRFIELD If theatre is going to be of any importance it will have to be supported by government sponsored agencies, because it cannot otherwise survive. No theatre in the world that I know of can get along without some additional source of support. It is not a profit making enterprise. Now if this is the case the theatre must be popular, and so must provide facilities for a wide number of uses so that it has popular appeal. And here is the first enemy of excellence.

RUSSELL Unfortunately popularity isn't the answer. Look at it this way: every performance that takes place has to be subsidized. The more performances the Metropolitan Opera Company gives the more money it loses. There is no satisfactory relation between artistic success and financial success.

ROSE This isn't a problem peculiar to North America. All the large theatres in Europe are subsidized by governments. An attitude of the civic mind is required to realize that a theatre or an opera house is as important to the community as the local hospital, or the water works, or the other civic amenities.

NATIONAL AND REGIONAL PLANNING

LEBENSOLD Actually it is my feeling that it is the responsibility of the federal government to take a look at Canada from sea to sea and determine not only how to help an individual group sprout or bloom but how each group can help its neighbour. There are special surveys being done for certain cities in the west, but not on a broad enough scale. We are in a rapidly shrinking country and travel is becoming faster and faster. Stratford has shown that people will go quite a distance to see something good. Just as Stratford is the centre of Shakespearean theatre in Canada why not create a similar centre for each of the other forms so that each contributes toward the total pattern. I strongly advocate a survey that will show all communities their place in the pattern.

RUSSELL There has been something along these lines. The movement towards regional theatres is partly co-ordinated. I feel the group in the best position to do something like this is the Canada Council who are in fact dealing with Canada as a whole.

FAIRFIELD I am perhaps a little old fashioned in my fear of surveys and rather a mystic believer in this sudden explosion of interest which stimulates the people involved so that they make it work. For example, it is conceivable that Niagara-on-the-Lake might produce a summer theatre accessible by helicopter, 45 minutes from Toronto, and it might work quite apart from a survey that might quickly become out of date. I think broad planning or the survey is certainly a background reservoir and I suppose, should be consulted to see whether or not we are going in the right direction. However, sometimes opportunities have to be seized. We have been talking about excellence and the necessity of making sure the client has everything, but damn it, that isn't the way things really work. I feel that the framework for the finished design has to be provided — with the owner taking as much as he can pay for at the time. Professionals have to get things done to the best of their abilities when the opportunity presents itself.

RELATION OF THEATRE TO THE COMMUNITY

LEBENSOLD I would like to raise the question of the relation of the theatre to the city, the town, or the village because, thinking again of the Canadian scene, I was rather surprised to find that two Alberta auditoria were built more or less on the outskirts of town. Then, on the other hand, we have Place Des Arts, O'Keefe's, and the Vancouver Auditorium in the centre of their respective cities. Some time ago at Banff I had a great argument with the western architects on this subject, and they pointed out that to the Westerner the problem of getting from place to place, miles apart, is habit, and all travel is by car anyway. However, I think that architects should be concerned with the impact of the theatre on the rest of the city, and the theatre, rather than being an isolated thing, should be part of the fabric that enriches the cultural life of the cities.

ROSE There is this curious phenomenon in New York and London where if a thing is "on Broadway", or in the Shaftesbury Avenue Picadilly complex, it is popular, but if one moves "off Broadway" or away from these centres, maybe only a few blocks, some of the appeal seems to be lost.

FOSTER How can we say that in Kitchener the theatre should be located downtown. With the right site and the right program provided, people would be attracted. In towns most people are going to use their own cars. I think you could take Stratford and relocate it in say Bolton or Brampton and it would be successful there — particularly if it were accompanied by two or three good restaurants. I'm not suggesting that the theatre should necessarily be in the suburbs, I am merely suggesting that in a town the theatre need not be in the downtown area.

RUSSELL Stratford is the fascinating exception to the rule. It isn't just a matter of going to the theatre, it has become a ritual — planning a whole day's trip for the sole purpose of attending a theatrical performance.

TYPES OF BUILDINGS

RUSSELL There are two distinct problems in the type of theatre to build in a given area and these are determined by whether the location is metropolitan or town. In the larger city we should try to provide more unique facilities for the different functions. But in the non-metropolitan

area we must go into a combined facility. To date it appears that no really satisfactory solution has been found for a combined theatre. The demands of various theatre forms are so different that they appear to be almost incompatible. For example the needs of the drama section of the theatre are so varied that it is almost a compromise to build a theatre for drama. Some experiments have been made in massive convertability and this seems to be the only possible answer to getting the required facilities.

FAIRFIELD

On this question of multiplicity of uses I would like to take the stand that if the building is going to perform really well for one or two purposes it can't be expected to perform well for a number of others. I know for example the opera and the operetta, that is large opera and small opera, obviously couldn't be performed satisfactorily in the same house — the whole scale of the event being different. Mr Rose suggested that the large multiple use theatre was a creature of political expediency or political prestige, characterized by panels and flaps and audiences going up and down. To do this is wrong. We should examine the merging groups which are providing theatre, and the people supporting them, and build for these groups the type of theatre they need.

LEBENSOLD

I don't agree that it is impossible to have many functions in one building, for example: concert music, opera, operetta, commentary, reviews, lectures. I think it is possible to do these things provided the theatre is not too big. After finishing the playhouse in Vancouver it was rather horrifying to find that it was going to open with a symphony concert. It was designed as a theatre. No one seemed to pay any attention to this and the music sounded very good. I am sure Mr Fairfield has had the same experience at Stratford.

FAIRFIELD

I think at first the surprise of hearing the piano played on stage delighted some people and they were inclined to say that it sounded very good. I've also had them come back after a couple of months with the conclusion that the music sounded awful.

Rather than take around a reduced ballet company with reduced properties and orchestra, and give viewers only the barest impression of what a performance could be, wouldn't it be better to have ballet superbly shown in a theatre of the right size, before an audience of the right size, even if the audience had to be brought from Moosonee by helicopter?

FRANCA

Yes, I would say bring them in by helicopter to see good performances in good theatres. I really think audiences do get terribly fed up with being dragged out to see a poor, dull, or boring performance. I wouldn't blame them for never wanting to go again.

LEBENSOLD

Can we say, in fact, that a great proportion of the Canadian population should not be exposed to these arts other than by helicopter. I don't know how many people in Canada have seen grand opera, but I do know there is a growing demand for high quality theatre.

Let me draw a line and say that buildings can be successfully designed for concert music, opera, musical comedy, movies, and probably ballet. I have grouped these together because in these forms the facial expression of the performer is important to a lesser degree than it is in drama. For example, in ballet, while it would be nice to see the facial expression, movement is really the most interesting thing. Again, in grand opera, one could tolerate some separation whereas in drama this separation is inexcusable.

FOSTER

We have talked about the need for both the large and small theatre. Our experience working with the staff on the Edward Johnson building taught us that we could not possibly hope to satisfy all the demands in one building other than by watering down particular qualities in order to satisfy the one form which was to predominate — in this case, opera. We felt that one form must predominate. I also suggest the possibility that it might cost almost as much to make the multi-purpose come off as to build two or three one-purpose buildings.

SIZE OF THE AUDITORIUM

ROSE

I would expect that any proscenium theatre that seats more than 1000 is in trouble as far as drama is concerned because of the distance between the artist and the viewer, and because of the artist's dependence on facial expression.

RUSSELL

My experience would indicate that the following dimension would be ideal: for opera, ballet, and concerts, (with some acoustical treatment) 2000 seats; for commercial or traditional theatre, 1000 seats; for chamber music, 500 seats; and for experimental drama, 250 seats. Now for economic reasons these seem to have been extended to 3000, 1500, 800 and 400; however, the first set of figures represents a more ideal number. We should remember that the volume of sound is directly proportional to the size of the auditorium so that if a symphony orchestra produces 75 watts of energy and you double the size of the hall, you have only one half the amount of sound available. We should also note that seating does not necessarily determine the volume of the hall. There is some flexibility here.

LEBENSOLD I know that this is what people have been talking about recently. I also know people who have spent months discussing how big their theatre should be when they don't realize that they should rather talk about the kind of theatre they are going to have. Too many people start off with size as the only criteria. Let's get criteria that can be used for design. What do you do when the experts say 2000 and you find you can get in 2500 or only 1800. Does one drop the project? People love figures — they build whole edifices around figures. That's why I'm against them. I think that depending on the type of theatre, the size of the hall can be varied. Rather than lay down certain limits we should indicate that the further you thrust the stage forward the more good sight lines you get, and that the wide stages proposed in the Ford Foundation studies took into consideration that the best viewing hinge existing in the theatre is someone's neck. The capabilities of the human body are the real criteria. I would agree with Mr Russell that the bigger the auditorium the more sound one has to produce. However, I dislike these numerical restrictions because they tend to result in a design pattern. Frankly I feel that human ingenuity should not be shackled by too many rules. We live in an age where we love to be surprised by wonderful things. If someone can figure out a new way of doing things let's hear about it.

SOME PRACTICAL PROBLEMS

CIRCULATION

LEBENSOLD I would like to sound a warning note here. Most of our theatres are now suffering from lack of lobby space so it is easy to say lets have huge lobbies. I think that there is something most unhappy about going out into a lobby and being alone. One of the wonderful things about the theatre is being with other people. Lobby space should be gauged so that while movement is easy, isolation is impossible. And while we are on this subject I think we should remember that, as well as coming to the theatre to see things, people come to be seen. North American audiences are not as concerned about the way they dress as European audiences and this I think is too bad because going to the theatre should be a gala occasion

SEATING

LEBENSOLD In la Grand Salle we have continental seating. There is no provision for it in the building code, in fact no one knew what it was. However we arranged a meeting with the building inspector, explained it, he said "it sounds very sensible", and we had it. We certainly have the largest rows in Canada. And if they went to the trouble to find out where people get killed during fires they would find it is in the aisles, not the seats. There is something quite wonderful about continental seating that you can only gauge when you see it in a theatre — and this is the absence of breaks. The extra wide spacing of rows means you sit in comfort.

LIGHTING

ROSE Let us look at the question of whether or not a theatre should have its own lighting equipment. Many of the theatres which are now being built — and let's face it, most of them are civic projects — are going to have to be available for local creations as well as touring companies. The Broadway tradition where the theatres are owned by the real estate companies and have no equipment does not apply here. If the theatres are to house local productions as well as touring groups they must be equipped. I think that the community theatre should be equipped with a basic flexible installation that will cater to the needs of local productions. However the system should be designed to accept a large amount of additional equipment brought in by touring professional companies. If the touring company can re-create 80 per cent of the plot from the equipment in the theatre they can bring in what we call specials: moonlight effects, sidelight effects, and special projection devices. To attempt to get a system which can re-create any plot is possible perhaps but difficult.

STAGE

FRANCA With ballet our biggest problem is the stage surface. The dancers muscles simply will not stand up to dancing on a hard surface with little or no spring. We have countless injuries because of stage surfaces. Sometimes the management of a theatre will insist on having the stage floor waxed when he hears the ballet is coming: a situation we are lucky to escape from without breaking our necks. I understand that Lincoln Centre, marvellous project that it is, ended up with the stage floor right over concrete.

Our other problem is of course trying to stretch the stage. Dancing is movement and dancers are trained to move freely: then nine times out of ten the stage is so cramped they can never use their training. However we did play recently in a theatre in Jacksonville, Florida which had an enormous stage — it was one of the few stages where the dancers could really breathe.

TECHNICAL COLUMN

D. H. Lee, *Technical Editor*

CONSIDERATIONS OF ENVIRONMENT FOR AUDIO/VISUAL PRESENTATION

Synopsis of a paper by G. G. Graham and R. W. Curtis of the National Film Board of Canada

BIBLIOGRAPHY

Due to the cyclical nature of this kind of construction, there is no constant flow of up-to-date information being published. Given below is a selection of literature concerning various aspects of design and operation which may be of use to those seeking more specific details.

Available from the Society of Motion Picture and Television Engineers: *Increasing the Effectiveness of Motion Picture Presentation*, B. Schlanger, April 1948; *Seating Arrangements, Sight Lines and Seating Design*, F. W. Alexa, April 1948; *The Psychology of the Theatre*, W. A. Cuttes, April 1948; *Auditorium Acoustics*, J. P. Maxfield, August 1948; *Theatre Engineering Conference — Discussion on Physical Construction*, April 1948; *Influence of West Coast Designers on the Modern Theatre*, S. C. Lee, April 1948; *General Theatre Construction*, J. J. McNamara, April 1948; *Theatre Engineering Committee Report*, B. Schlanger, January 1954; *Safety Requirements in Projection Rooms and Television Studios*, S. R. Todd, September 1952; *Auditorium Specifically Designed for Technical Meetings*, D. M. Beard and A. M. Erickson, September 1952; *Great Britain National Film Theatre*, Scott, August 1958; *Some Comments on Procedures Used to Compare Theatre Screens*, Y. G. Hurd, June 1957; *Design of Projection Rooms for German Motion-Picture Theatres*, H. Tummel, March 1957; *A.S.A. Standard PH 22.124-1961 Screen Luminance for Indoor Theatres*; *A.S.A. Standard PH 22.82-1951 Sound Transmission of Perforated Projection Screens*; *Colonial Williamsburg Theatre-Motion Picture System from Camera to Viewer*, B. Schlanger, September 1961; *Better Theatre Projection*, Research Council Developments for, W. Beyer, November 1960; *Wide Screen Motion Picture Booklet*, February 1959; *New Approaches Developed by Relating Film Production Techniques to Theatre Exhibitions*, B. Schlanger and W. A. Hoffberg, September 1951; *Photometric Factors in the Design of Motion Picture Auditoriums*, H. L. Logan, September 1951; *Surround Brightness—Key Factor in Viewing Projected Pictures*, S. K. Gutb, September 1951; *Influence of Color Surround on Hue and Saturation*, D. L. MacAdam, September 1951; *Advancement of Motion Picture Theatre Design*, B. Schlanger, April 1948; *S.M.P.T. Book — The Motion Picture Theatre*, Published in 1948. *Film and the classroom: Foundation for Effective Audio-Visual Projection*, Eastman Kodak; *Classrooms, Auditoriums, Instruction Materials Centre*, Department of A-V Instruction, National Education Association; *Project Reports of the Ford Foundation*. Available from the British Kinematograph Society, 164 Shaftsbury Ave, London, Eng.: *The Motion Picture Presentation Manual*, 1962, British Kinematograph Society. *General: Acoustical Designing in Architecture*, Knudsen and Harris. *Current articles on latest developments available from: Box Office*, (Modern Theatre Section) Associated Publication, 825 Van Brunt Blvd, Kansas City 24, Mo.; *Motion Picture Herald* (Better Theatres Section), Martin Queegely Publishing Co., 1270 Sixth Ave, N.Y. 20, N.Y. *Storage and Preservation of Motion Picture Film*, Eastman Kodak.

In the field of audio-visual communications, the envelope is as essential to successful utilization as the message itself. By whatever name the area is identified, its function is the effective transmittal of information using human voice, motion pictures, still pictures, the filmstrip, slide projector, tape recorder, television receiver and other related aids.

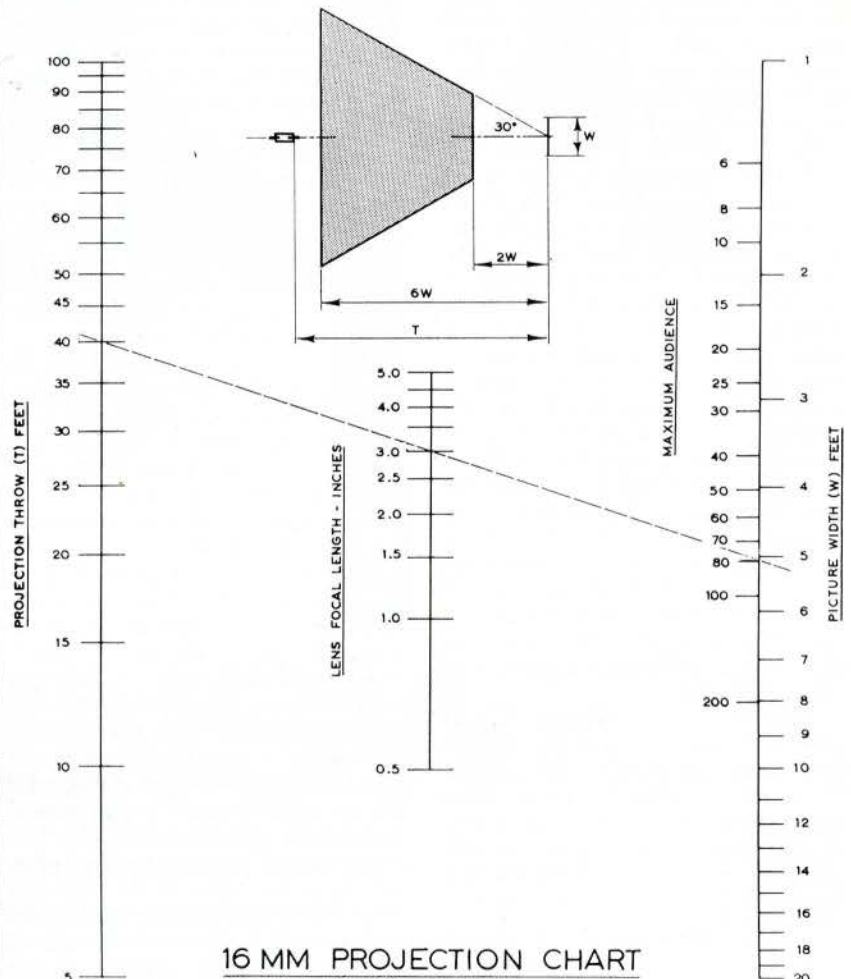
Rooms used today for audio-visual presentations range over a wide field, from the multiple purpose room of relatively small capacity accommodating 50 people or less, to highly specialized installations permitting more detailed and elaborate treatment for a limited number of uses. The possible functions might be grouped in three categories:

(1) *The prestige type of presentation*, where the primary objective is to convey a good public image of the organization

concerned and its services. Good showmanship may require introductory music, dimming of house lights, opening of screen curtains from projection booth, plus a flawless presentation of a company sponsored film or related material.

(2) *The internal, or house presentation*, chiefly for conferences, training sessions, evaluation of pictorial field reports, indoctrination in related industry activities, etc. The audience usually consists of company employees or close business associates, and music, dimmers and other prestige items are not essential.

(3) *Incidental presentations*, where the facilities are made available, often for public relations reasons, to outside organizations, employee associations, or are used by sales representatives for demonstration purposes. Here, for economic or security reasons, owners may wish to lock their own projection equipment in the



projection booth and require the outside users to provide their own equipment. This would require duplication of electrical and mechanical outlets and controls outside the booth.

An effective audio-visual communication centre is essentially a suite of three rooms suitably interconnected, (1) the material and equipment storage and handling room, (2) the projection booth and (3) the audience room and ancillary space. It is assumed safety-base film will be used exclusively and special safety precautions for use of 35mm nitrate-base film therefore are not required. In addition to film storage racks, the storage room should have equipment storage cupboards, shipping and receiving facilities and work table space with rewinds for film inspection, cleaning and repair. Films in regular use may be stored at temperatures between 65°F to 75°F, with a relative humidity preferably close to 50%. Low wintertime humidity in many buildings is hard on film emulsions and reduces useful life.

The projection booth should have provision for film and slide storage cabinet, projection equipment, disc or tape playback unit, associated amplifiers and power supplies, house light and dimmer controls, communications system and rewind and splicing table. There should be access to both storage room and audience room. Air conditioning is desirable because of the heat generated by projection equipment, particularly where ceiling heights are about the usual 11 ft and the floor of the booth cannot be more than 2 or 3 ft above the floor level of the audience room.

Factors affecting the location of the audience room are access, traffic control and adjacent functions. It should be convenient to the people it serves most often; if used only for internal presentations, considerable latitude may be allowed in locating it; but if it serves the public it is better located near a main entrance. A basement area, close to outside access is acceptable, particularly as this offers the possibility of improved booth design and seating by means of sloped floors.

Traffic control requires consideration if active use and tight schedules are contemplated. If one audience has to be "stacked up" until the other moves out, adjacent corridors should be provided with seats and cloakroom or hat and coat space. Washrooms should be easily accessible (and not off the perimeter walls of the audience room).

Adjacent functions should be of a kind that do not interfere, in any way, with the presentation going on in the audience room. Machine noises and people noises are very distracting. Low frequency components are most disturbing and the audience effect is aggravated if the source is intermittent and non-cyclical in nature.

For the present needs, it is certainly best to centre the design of the audio-

visual communication room around a 16mm sound film and adapt the other reproduction equipment, such as film-strip, slide set, still picture, overhead projection, standard television tape or disc, etc. to fit in around its needs. Obviously, there would be cases where one of the alternate means of presentation was considered to be more important, in which case the motion picture film equipment would have to be adapted to that end.

The standard ratio of screen width and height for 16mm projection purposes is 1.33 to 1. Up to the present time no significant portion of non-theatrical prints used in Canada require the wider screen ratios such as 2.55 to 1. It is normal practice to calculate seating requirements on the 1.33 to 1 standard but to provide a slightly larger screen at the time of installation, so that wider screen ratios can be accommodated should they become an important factor at a later date.

The correct size and brightness of the picture and the components that will give these can be selected by simple, time-tested methods. The accompanying nomograph will be of help here.

As a general rule, no viewer should be closer to the screen than twice the screen width (2w), and no further away than six times the screen width (6w). For a 2" lens the throw corresponds to about 6w, which would place the projector immediately behind the audience as in the conventional projection booth. For lenses shorter than 2", the throw is less than 6w, and for lenses longer than 2" the throw is greater than 6w. Such lenses are useful when the position of the projector is non-standard as with projection via mirrors.

The maximum angle from the viewer to the centre of the screen should be no greater than 30°, if apparent distortion of the picture is to be kept down. If a directional screen such as glass-beaded is used, this angle should be no greater than 20° because of light fall-off.

The "maximum audience" figure on the nomograph is based on this geometry. While essentially correct for smaller auditoria (less than 100) it should be used with caution for the larger values — it implies an extreme fanning out of the seating that would seldom be encountered in a commercial theatre.

This "audience" figure is based on the standard 6 sq. ft of floor area per person. Since the figure includes aisle areas, the degree of comfort implied by 6 sq. ft does not necessarily hold. For conference room or classroom applications it is conventional to assign 12 sq. ft per person.

With the correct size of picture attained through the selection of the proper lens for the given throw, it then remains to obtain the right picture brilliance. This is a function of the type of screen surface and the power rating of the projection lamp. Screen brightness can be measured with a meter having a small angle of acceptance and, for general purpose

screening, should be in the vicinity of 10-foot lamberts with the projector running but with no film in the gate. Too bright an image is just as unsatisfactory as one that is too dim and can be very annoying with large white areas in the picture, such as with snow scenes. Black masking should be used around the screen to keep the picture borders sharp.

Stray light falling on the screen should be kept to as low a level as possible in order to prevent a washing-out of the picture. Stray light in the order of 0.1 foot lambert reflected from the screen is quite acceptable. It does not necessarily follow that the whole room be kept at this low light level. Subdued light is preferred to absolute darkness and the guiding principle is, of course, one of providing comfort and lack of distraction. Most effective control of the lights is through dimmers and if this is not feasible, switching of groups of lamps.

The use of screen curtains has practical as well as aesthetic benefits — protection of the screen surface from dirt.

Whether or not a perforated screen is used will be determined by the location of the loudspeakers. The perforated screen, while allowing placement of the speakers behind it, has several disadvantages in the smaller installation. The perforations reduce the total reflecting area and hence the picture brilliance. It is possible that the perforations may be visible from the first row of seats. Sound treatment is required in the back stage area if boominess is to be avoided. If the speakers can be incorporated into the auditorium, a solid screen can be used which is usually the best solution for the non-theatrical application.

While being unobtrusive or even invisible, the speakers should have a clear line of sight to each member of the audience allowing free passage of the higher frequencies. Speakers should be grouped symmetrically with respect to the screen if the illusion is to be preserved of the sound coming from the screen. At the present time there is little, if any, use of stereophonic sound on 16mm film. Nevertheless, it may be useful to incorporate a stereophonic sound system to handle disc and tape playback, making a provision for the two channels to be combined for the monaural requirements of film.

Acoustic treatment

Acoustic treatment for rooms intended for the presentation of audio-visual material must provide for these requirements:

1. Isolation

In essence this covers such sound-proofing as may be needed to reduce solid-borne noises, shock, and vibration to acceptable limits and it also includes the steps which must be taken to insulate air-borne noise which might enter the room through walls, doors, ducts, windows, etc.

BRUNSWICK FOLDING PARTITIONS

Convenience Is Only The Beginning

At the turn of a key, Brunswick's Folding Partition slides into place and instantly one large school gymnasium becomes two distinct recreational areas.

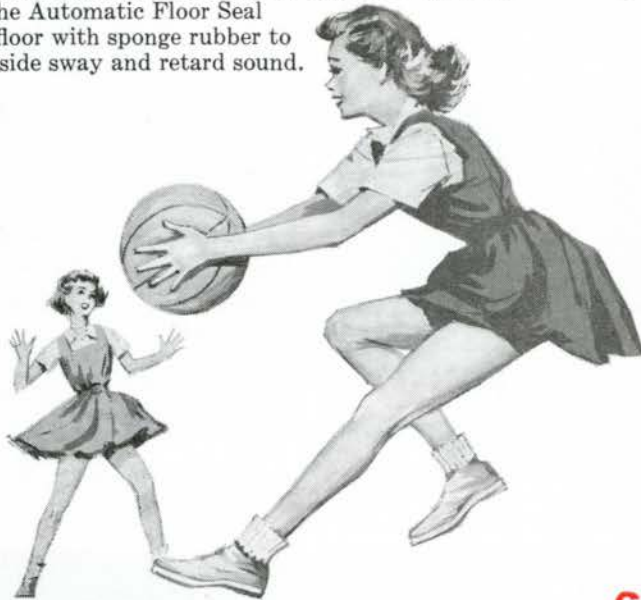
Certainly a wonderful asset—especially when the partition is built to withstand the punishment of active young people and designed to blend with the handsome appearance of modern schools.

For detailed specifications covering the Brunswick range of gymnasium equipment, write or contact the address shown below.

A Brunswick's "Y" yoke trolleys, which operate on an "I" beam track, provide feather-light, friction-free movement.

B Structurally proven Brunswick hardboard honeycomb 'AeroCore' panelling (cells of resin-impregnated paper) provides maximum stability, extra sound insulation, and is warpage-free even under extreme conditions.

C When the Brunswick Folding Partition is locked into position the Automatic Floor Seal grips the floor with sponge rubber to eliminate side sway and retard sound.



BRUNSWICK

BRUNSWICK OF CANADA School Furniture of Advanced Design

School Equipment Division

Head Office: 1156 Dundas Highway East, Cooksville, Ontario

BRANCHES: VANCOUVER, CALGARY, WINNIPEG, TORONTO, MONTREAL, QUEBEC CITY



OFFICE BUILDING, 43 EGLINTON AVE., EAST, TORONTO Architect: Douglas M. Hall, Owner: Builder: H. G. Winton Ltd., Engineers: Reichler Bradstock & Associates Ltd.





MO-SAI® Shadow Wall

Precast shadow wall, corners, fascia, fins and penthouse of exposed white aggregate and white cement. Three hundred and sixty identical zipper-type gasket glazed precast window units, overall depth 16", providing a prestige building of substantial appearance and interest, costing \$4.25 per sq. ft. of wall complete with insulation and plastering. All precast erected within six weeks.

BEER
PRECAST
CONCRETE LIMITED
 TORONTO - ONTARIO

REGISTERED TRADEMARK

2. Acoustical conditioning

This phase of the project covers the control of reverberation time, reverberation characteristics at various frequencies and the elimination of sound focal points and standing waves such as might be created by concave surfaces and parallel walls. A very comprehensive treatment of sound problems is presented in *Acoustical Designing in Architecture* by Knudsen and Harris.

Seating

If the room is intended for several kinds of functions it is likely that permanently fixed seating cannot be used. If solid wood office armchairs are provided, serious consideration should be given to the use of carpeting on the floor of the room in order to assist in maintaining an adequate acoustic balance for audiences of various sizes.

If permanent seating can be considered the following observations may be of some assistance.

To view any type of projected image with minimum distraction, obviously the desirable condition is a front row centre location. If we are considering new construction and the screening room can be located in the basement it is not too difficult to provide a sloped floor which will reduce obstruction to a considerable extent. In actual practice it has been found that the floor slope necessary to give each person a clear view of the screen over the heads of the people immediately in front exceeds the allowances in most city building codes. The most effective compromise is to design for, what is called "one row obstruction", in which case as a result of staggered seating you see the screen between the heads and shoulders of the people sitting immediately in front of you. If staggered seating is used, the ragged edges along the aisle can be reduced, if not eliminated, by using a selection of chair widths. These range from 19" to 22". Chair standards allow for a downward pitch in increments of one-quarter of an inch up to two inches per foot. In very large installations intended for the presentation of motion pictures only, a reverse pitch can be introduced as one nears the screen and suitable chairs are available for this purpose as well.

Given a fixed level floor slab one can introduce a series of broad steps on which each row of seats can be raised. It will be apparent that in working between two fixed concrete slabs constituting floor and ceiling, certain compromises have to be worked out with respect to the maximum elevation of the seating and the position of the projection booth which, in turn, will effect the location of the screen.

Usually for this type of installation, comfort is of more concern than the number of seats which can be fitted into the space available. For this reason we would strongly recommend, wherever possible, using wider seats and considering 36" as

an absolute minimum separation between the backs of seats in succeeding rows.

Particular attention should be given to the provision of ash trays on the seats and small litter baskets for coffee cups, note paper, etc. should be provided.

Air-conditioning

For the small auditorium comfort air-conditioning is quite satisfactory. We have noted previously the requirements for the film storage and handling area and aside from this point the only major consideration is insuring that the air-conditioning system does not contribute to the interior noise level of the room. To achieve this objective, consideration will have to be given to slow-speed, high-volume fans, the use of damping materials to reduce duct rattles, perhaps some interior insulation of ducts and the provision of noise-free air diffusers.

Electrical requirements

The general electrical requirements are quite straightforward. If a number of pieces of different audio equipment must be fitted into the system, we recommend the use of the services of a systems engineer to insure adequate performance. Close liaison is required between those responsible for the audio requirements and the electrical engineers to insure proper isolation of the circuitry to avoid electrical noise in the sound system, crosstalk and other interference.

Experience has shown that it is a wise precaution to allow extra empty conduits between the screen and projection room, along each side wall for later installations.

In general, lighting requirements follow standard practice and should be designed to fulfil all of the operating functions of the room concerned. Preference is now being given to use of indirect lighting during film presentations to get away from the "long black box" effect. Care must be taken to keep extraneous light off the screen to avoid degrading the images.

At least one desk installation with an illuminated writing surface is found handy in most situations where permanent seating is installed. A more elaborate version of this desk includes communication facilities with the booth and with the outside, a possible built-in control for sound levels, a film footage counter to aid in building particular sections of the film, etc. It is possible to control focus of the projectors from this point by means of a selsyn system, although this is not common practice.

In this article we have tried to present some general considerations which affect the design of the audio-visual communication centres. The reader should be cautioned that the rapid increase in the kinds and complexities of modern equipment necessitates the consideration of each of these design problems on its own specific merits. There is no one standard treatment applicable to all situations.



WINTER BUILT

ANNOUNCING A \$500⁰⁰ GOVERNMENT CASH INCENTIVE TO BUYERS OF A WINTER BUILT HOME

Help yourself to a busy winter this year. The new Federal Government cash incentive is going to persuade many more Canadians to have their new homes Winter Built. You can expect dozens of prospects in your area to approach you for details of the scheme. You stand to gain weeks of extra work this winter. Boost the scheme, it can help maintain a year-round tradition of work in the buying public's mind. Winter Built is going to be a mighty important trademark this year. Put your weight behind the campaign, gain extra orders through it.

Pamphlets and application forms for your customers can be obtained from any office of the National Employment Service and Central Mortgage and Housing, and where there is no NES office, from your Post Office. They are also available from the Special Services Branch, Department of Labour, Ottawa. Do it now!



Issued by authority of HON. ALLAN J. MacEACHEN, MINISTER OF LABOUR, CANADA

elevator contractor shall supply and install, complete with all wiring, a triplex selective control system for the automatic supervision and automatic dispatching of the operation of each passenger elevator from the car shall be such that the momentary one or more buttons shall send the car to the designated landing for which the buttons are pressed, in the order in which the landings are reached by the car, irrespective of the sequence in which they have been pressed. The control shall be arranged so that normally one car is parked at the main floor and the other cars are free to answer the landing calls. Should one car happen to finish their calls at the main floor, the one that arrived first shall become the free car to answer subsequent landing calls. An idle free car shall answer any hall calls either above or below where it may be standing. When a free car is clearing calls, the other cars parked at the main floor will automatically start to answer landing calls should the following conditions be met:



DIRECTIONS IN TRAFFIC PLANNING

Doctor, lawyer, president, clerk—each occupant creates his own traffic problem when you're specifying internal transportation for a building. The sum of all their requirements determines the building's traffic patterns. Your choice of internal transportation to match these changing patterns will depend on a careful traffic study, plus the right combination of equipment.

Let Turnbull Elevator work with you to establish specifications for transportation equipment that give you profitable and effective use of space through efficient traffic planning.

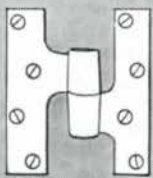
Passenger Elevators
Parking Garage Elevators
Dumbwaiters
Freight Elevators
Moving Walkways
Power Scaffolds



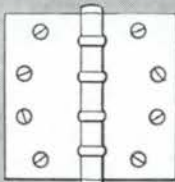
Executive Offices: 311 W. 43rd Street, New York 36, N.Y./Sales Offices Atlanta, Ga.; Philadelphia, Pa.; San Francisco, Calif. Canada: Head Office Toronto/Branches in Principal Cities

STANLEY

can hinge the doors
of any
building you design!



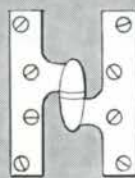
PAUMELLE



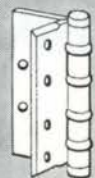
FULL MORTISE



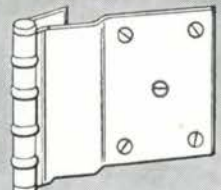
SWING CLEAR
HALF MORTISE



OLIVE KNUCKLE
PAUMELLE



EXTRA HEAVY
HALF MORTISE



SWING CLEAR FULL SURFACE

A modern building requires a wide variety of hinges, but whatever the finish, material or type, Stanley can supply it!

The Stanley hinge line is as handsome and functional as it is versatile. Crisp, modern designs and brushed finishes live well with the clean, simple lines of contemporary architecture. Advanced engineering guarantees each hinge will work smoothly and last longer.

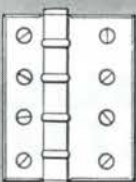
Write for your **free** copy of the Stanley Hinge Guide. It's a complete reference book on hinges and hinge application.



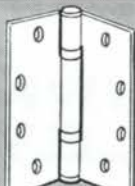
STANLEY

HARDWARE

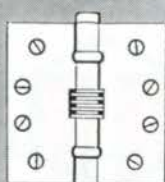
Canada builds better and lives better with Stanley.
THE STANLEY WORKS OF CANADA LIMITED, HAMILTON, ONTARIO
Hardware • Hand Tools • Power Tools



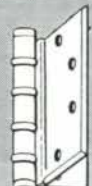
FULL SURFACE
EXTRA HEAVY



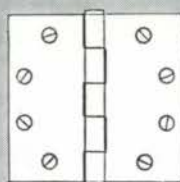
SLIMLINE
FULL MORTISE



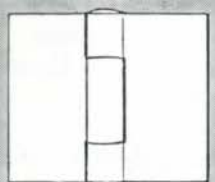
FRICTION



HALF SURFACE
EXTRA HEAVY



FULL MORTISE
PLAIN BEARING



TRIPLE AND DOUBLE WEIGHT

Architect: K. R. Cooper
Owner: Yonge-Eglinton Building Ltd.
Contractor: The Foundation Company
of Canada Limited.
Acoustical Contractor: Versa-Tile Ltd.
Toronto.

Wisper Tone

**F/R (fire-rated) mineral
acoustical board in the new
Foundation House, Toronto.**

Architect for the Foundation House,
Toronto—Mr. K. R. Cooper, states:
"Wisper-Tone ceiling board
was selected because of its fire-rated
qualities and decorative sound
control combination."

MICRO*

High light-reflecting
white finish
(reflection factor
of over .85 (a)),
double-coated
for permanence and
evenness of tone.



FISSURED

Available in white
surface treatment
having excellent light
reflection and evenness
of tone. Fissured appearance
results in ceilings of
informal pattern.



For further information and specifications write:

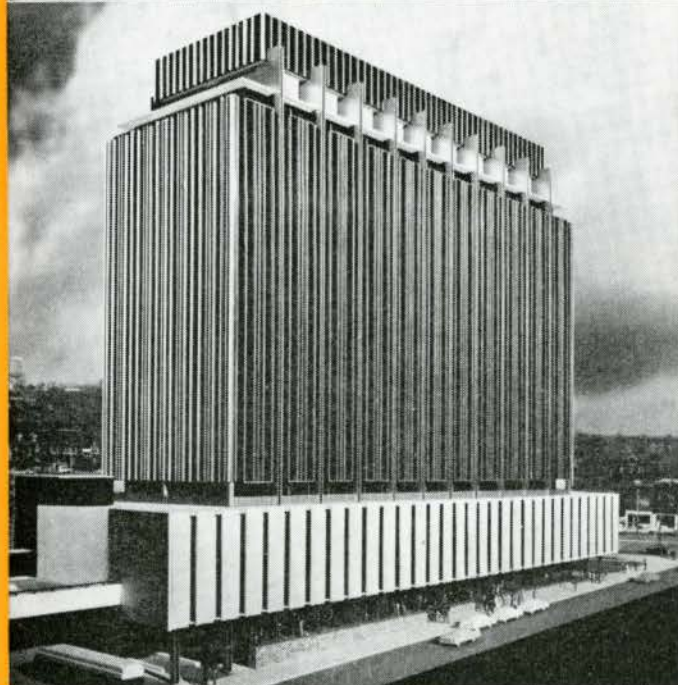
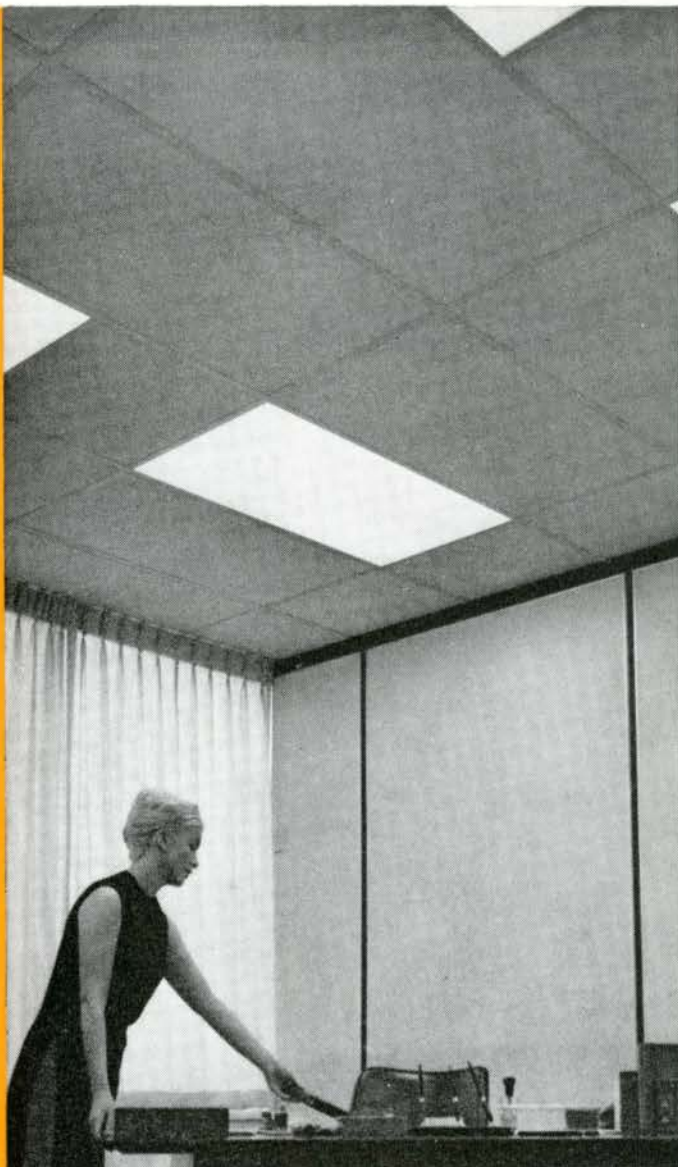
INTERNATIONAL PANEL BOARDS LIMITED

A Subsidiary of Canadian International Paper Company

Sun Life Building, Montreal



*Trade mark



FOR STRUCTURAL USES... ROOF AND FLOOR... DUCTWORK



For structural uses, steel plate provides increased design flexibility with decreased dead load in shop-fabricated girders and trusses.

Floor and roof decking goes down fast in any weather, when the material is steel, pre-formed to ensure ease of assembly.

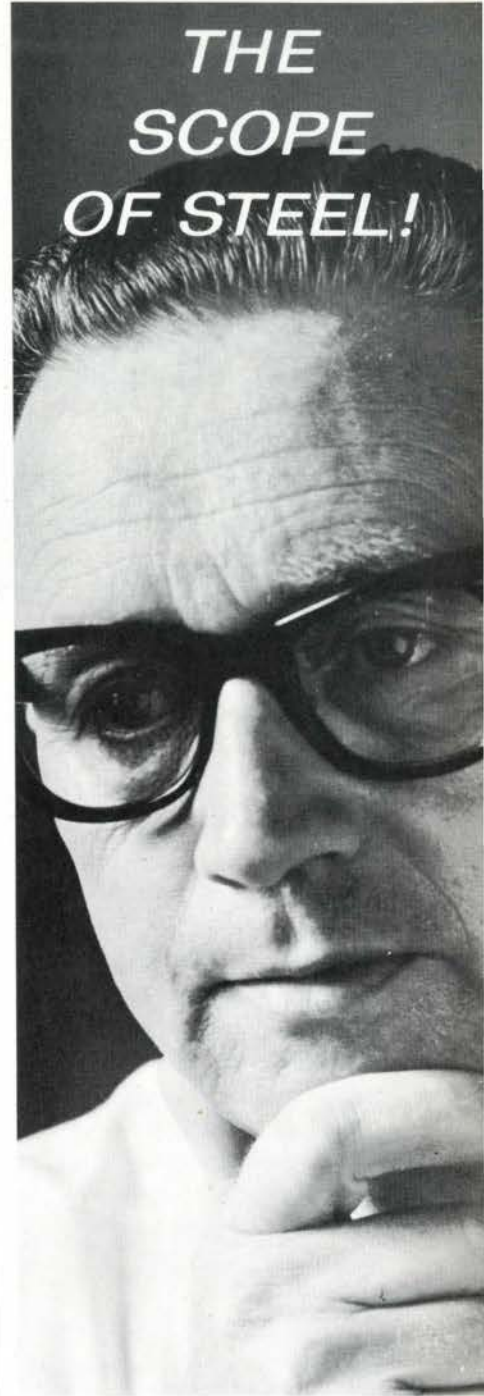
In ductwork, steel means lightweight strength with economy, easy handling, and speedy installation.

Steel displays its versatility in sidewall panels. Painted or porcelain enamelled, steel offers a wide choice of colour and texture.

Inside the building, too, partitions of steel add functional grace while ensuring durability at low cost.

... SIDEWALL PANELS... PARTITIONS...

*THINK OF
THE
SCOPE
OF STEEL!*



From the inside out . . . steel puts strength in the structure, while reducing deadload and speeding construction.

Steel is the truly year-round building material. Construction goes ahead swiftly and smoothly, in any weather, when full use is made of architectural steel products, pre-engineered for trouble-free assembly.

Look at the versatility of steel! From high

strength bolts to pre-formed flooring; from shop-fabricated girders to painted partitions, steel brings high strength and light weight with economy to construction of all kinds.





12th Century Bronze

Fine examples of the early metalworkers' art are to be found in the many South Indian bronze and copper images of Shiva or Nataraja, the Lord of the Dance. A Brahmanical bronze, "Cosmic Dance of Nataraja", in the Madras Museum dates back to the 12th century.

In the great temple of Nataraja at Chidambaram (151 miles south of Madras) which covers an area of 32 acres, the magnificent image of Shiva is cast in an alloy of five metals.

PHOTOGRAPH COURTESY OF DIRECTOR, GOVERNMENT OF INDIA TOURIST OFFICE, TORONTO, ONTARIO

milestones in metal...

Today, Canadian Rogers' craftsmen combine traditional skill with modern techniques to fabricate architectural metalwork which is both decorative and functional. When specifying metal for its strength, versatility, freedom from maintenance problems and lasting beauty, many leading Canadian architects prefer to work with Canadian Rogers because of their fifty years' experience in this field. For skillful fabrication and erection of entrances, curtain walls, and architectural work of all kinds in Bronze, Stainless Steel, Steel and Aluminum — please contact us in the planning stage without obligation.

20th Century Bronze

Fabricated by Canadian Rogers Eastern Limited, bronze windows, entrance ways and trim for The Bank of Nova Scotia's new building in Kitchener, Ontario provide an excellent example of the functional beauty of metal in modern architectural design.



*Architects:
Barnett and Rieder-Hymmen
Contractor:
Dunker Construction Ltd.*

CREL

CANADIAN ROGERS EASTERN LIMITED

108 Vine Avenue • Toronto • Ontario • ROger 2-7211

Canadian Licences: General Bronze Corporation, New York



Hauserman Movable Walls... Fit Any Budget, Any Price

Now, whether you want basic space division at the lowest initial cost, or the ultimate in appearance, performance and long-range economy, there is a Hauserman movable wall system to do the job.

For basic space division—new **Co-ordinator Double Wall**, the first practical **metal** movable wall at low initial cost—and the Hauserman **Co-ordinator Gypsum** walls, the lowest cost walls with any degree of flexibility.

For the ultimate in long-range economy and performance—Hauserman **Dimension** and **Delineator**—the most flexible, durable, attractive wall systems on the market and installed on time.

All Hauserman walls are sold installed complete with

Hausermanaged SERVICE—performance guaranteed by half a century of experience and leadership.



HAUSERMAN LTD.

Toronto, Ontario • Montreal, Quebec
Made and Serviced in Canada by Canadians

Hauserman Ltd., Dept. 311, Mallard Road, Don Mills, Ontario
Gentlemen: Please send me complete information on Hauserman Movable Wall systems.

Name _____

Title _____

Company _____

Address _____

SOUND CONDITIONING FIRE PROTECTION BEAUTY



THE HERITAGE
OF
EVERY BUILDING
THE HUSHED QUIET
OF CONTROLLED SOUND
AND THE
SHEER BEAUTY
OF MODERN
CEILING CONSTRUCTION

The Canadian Imperial Bank of Commerce,
Toronto
Architects: Marani, Morris & Allan, Toronto

At Left: 12" x 24" Perforated
Metal Pans.

Right: 12" x 12" x 3/16" Perforated
Densite.

These Cweco acoustical products
were installed in the Canadian
Imperial Bank of Commerce, Bay
and Richmond Streets, Toronto, and
are only a few of the many pro-
ducts available for sound/sound
conditioning, beauty, and to pro-
vide fire protection for many of
Canada's fine new buildings.

CWECO ACOUSTICAL PRODUCTS

Ask for the Cweco Acoustical Manual and the
Cweco Acoustical Fire/Tested Mineral Tile bro-
chure covering products, specifications and
application methods.

FOR SOUND/SOUND CONDITIONING



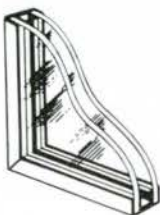
CANADIAN
CELOTEX CWECO
INDUSTRIES LTD.

100 Jutland Rd., Toronto 18, Ont./CL.5-3407



* Little extras like partial deliveries if you're in a jam . . . units delivered uncrated to the job site . . . and an overall willingness to oblige that makes you feel like a friend of the family! Try us. We still rank third, but we're coming up fast.

Solarpane insulating units are available in Canada through leading glass jobbers and window manufacturers.



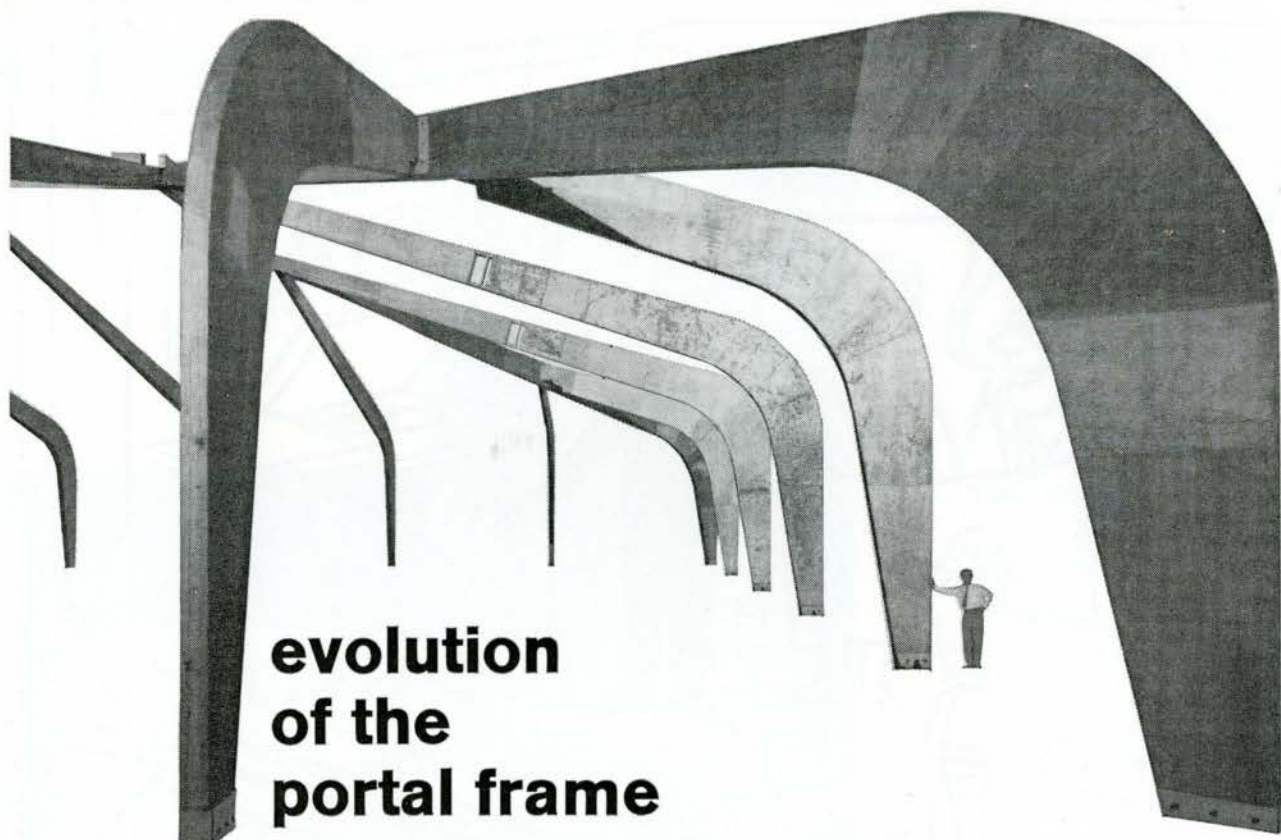
SOLARPANE

ENGINEERING PRODUCTS OF CANADA LIMITED

5035 Ontario St. East, Montreal, Que. Tel. CL. 5-3613 - 57 Bloor St. West, Toronto, Ont. Tel. WA. 2-8378

In Western Canada manufactured by:

Solarpane Manufacturing Co. Ltd., Regina, Sask. Available in Western Canada through a list of exclusive distributors.



evolution of the portal frame

A wider range of application for plywood portal frames was indicated by the recent use of giant size frames in Sunderland, England. The huge plywood components served as supporting members in covering a 12,000 square foot playing field. The combination of plywood's light weight and structural strength proved an ideal solution to a load bearing restriction (imposed because of a feared subsidence cleavage at the site). In all, 20 portal frames were constructed. The largest, 62 feet in length, stretch from the 4 corners to a central 22 square foot area of plywood box beams. Of the others, placed around the perimeter, 8 are 44 feet long, the remainder 22 feet in length.

A new method of construction was employed in producing frames of this size, beginning with fabrication of a simple box core using 7" x 2" softwood members, with $\frac{3}{8}$ " plywood both sides. Prelaminated chords were then glued to top and bottom of this core and, after planing, the entire structure was covered with a further skin of $\frac{3}{8}$ " plywood. Finally, the portal frames were finished with polyurethane varnish.

The use of large plywood portal frames enabled construction of a covering area of the required size, within the limitations imposed and at a low cost. As a further step in development of this form, it indicates the increasing value of the portal frame as a structural and design element. Information about structural uses of fir plywood is available from the Association field offices.

Covering structure for the Sunderland playing field is the work of H.C. Bishop, A.R.I.B.A., and A. R. F. McGahan, A.M.I.C.E., A.R.I.B.A., A.I.W.S.C.

Waterproof Glue

FIR PLYWOOD

Plywood Manufacturers Association of B. C., Vancouver, B. C.

FIELD OFFICES: Vancouver • Edmonton • Winnipeg • London • Toronto • Ottawa • Montreal • Moncton

SP-63-2



Here's rust endangering structural safety, piling up maintenance costs... *2¢ to 5¢ per pound of steel for zinc galvanizing could have prevented this...* a zinc coating applied by hot dip galvanizing is one of the most economical and effective ways of saving steel—a metal unrivalled for strength, versatility and low cost—from the ravages of rusting. Galvanizing protects the steel from corrosion. Long, maintenance-free life is extended almost indefinitely when decorative painting is carried out after coating. This combination of zinc galvanizing and painting reduces maintenance to occasional retouching, saves millions of dollars annually and eliminates unsightly staining.

Note: Steel structures can be protected against rust right on the site by metallizing with zinc.

Write for details on the protection of buildings by galvanizing or metallizing, to:
The Consolidated Mining and Smelting Company of Canada Limited, 630 Dorchester Boulevard West, Montreal 2, Que.

COMINCO



CGE equipped Medallion Apartments

Rent faster, more profitably

Give the apartments you design the definite competitive advantage you need to create immediate rentals and protect your clients investment. Design Medallion Apartments equipped with famous brand Canadian General Electric wiring, appliances and electric heating.

With the impact of the electrical industry's Medallion Home program, it's little wonder that today's apartment hunters recognize, in the familiar Medallion, a known standard of quality and extra value.

Medallion apartments embody all the important features people insist on when they

'shop' for a new suite: full housepower with sufficient capacity, and plenty of circuits and outlets for present and future needs; modern breaker type power panels; built-in electric appliances; eye-saving and attractive lighting; individual Thermostatic Control — room by room . . . to name just a few. Design your apartments to rent faster. The CGE Medallion Builder Package offers advantages you cannot afford to miss. Contact the Builder Sales Specialist or the application engineer at your nearest CGE office or write: Residential Market Development Operation, Canadian General Electric Co. Limited, 214 King Street West, Toronto.

RIA



CANADIAN GENERAL ELECTRIC

HOLOPHANE Research Produces PRISMALUME One-Piece Lenses

(ACRYLIC PLASTIC)

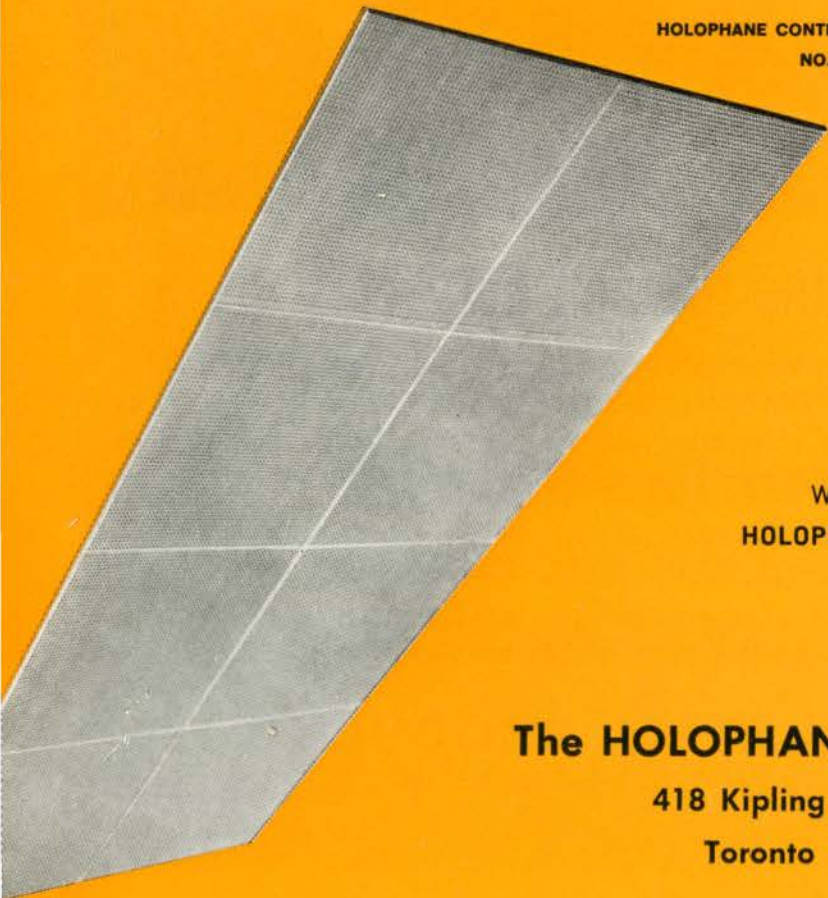
In the fluorescent lighting field acrylic plastic has established its merit as the **one** tested-and-proven raw material for quality lenses...Methyl methacrylate (acrylic plastic) was the logical choice of Holophane engineers in developing PRISMALUME® and the production of one-piece, injection-molded CONTROLENS®..Here are the characteristics that made the fabrication of these lenses possible: unusual weight-lightness, fine color stability, high light-transmission ratio and great impact resistance. Moreover, use of this plastic assures installation and maintenance economies. Above all, it permits prismatic designs of advanced efficiency and performance, heretofore unachievable...

Below—one of the largest one-piece plastic lenses made... **Favored by architects and designers**...They like this CONTROLENS for its sophisticated, crisp-lined **simplicity**—no cluttered ceilings...

They're delighted with its **versatility**—can be sized to fit any ceiling area...They recommend its precise **prismatic control**—for highest utilization of light with maximum **lamp concealment**.

Made in two standard types: **No. 6250** (2' x 4' shown) and **No. 6150** (1' x 4'). Write for complete engineering data.

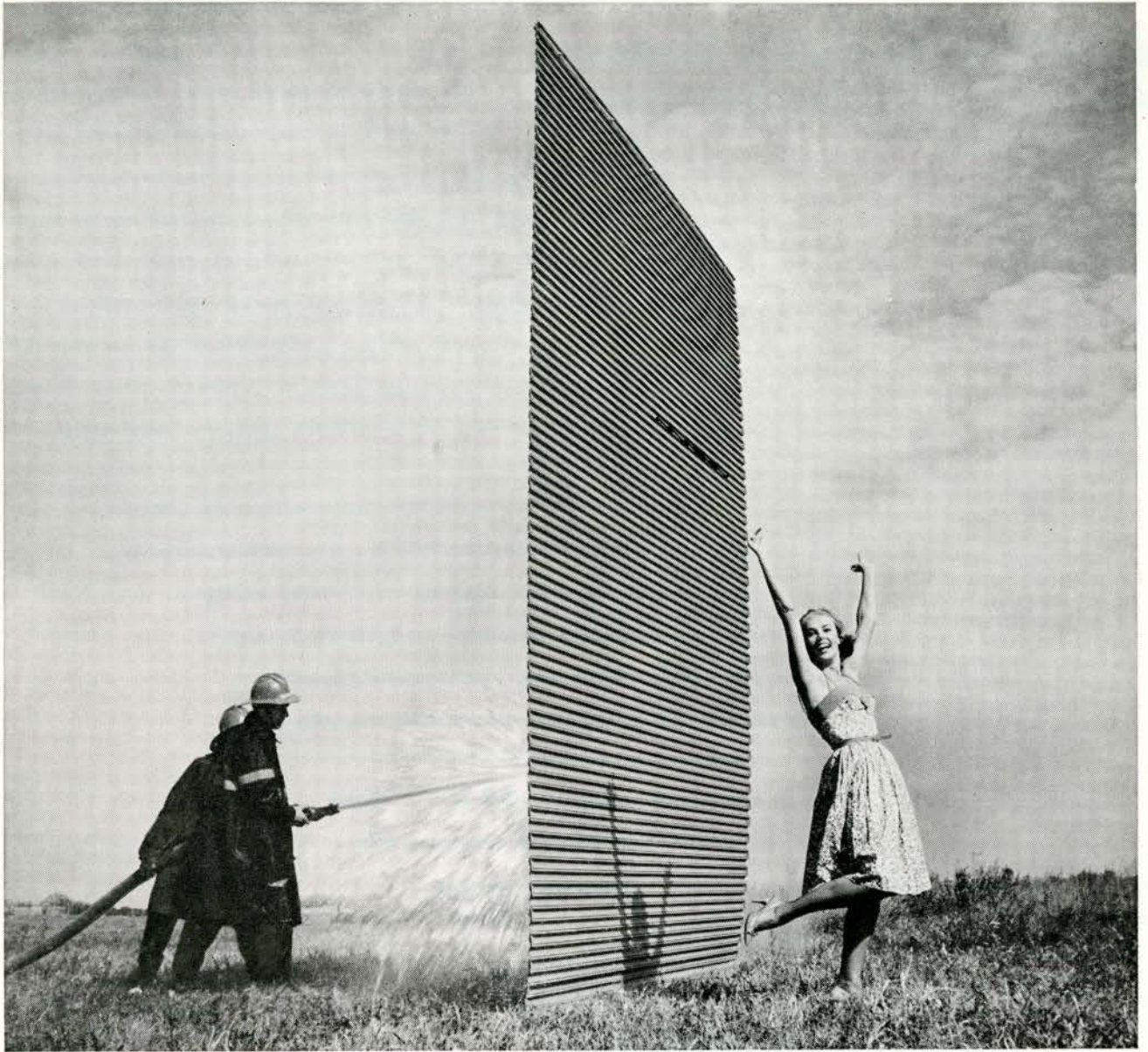
HOLOPHANE CONTROLENS
NO. 6250



Write for a complete booklet on
HOLOPHANE PRISMALUME CONTROLENS
"MADE IN CANADA"

The HOLOPHANE Company Ltd.
418 Kipling Avenue South
Toronto 18, Ontario





... and only the firemen got wet!

She's completely dry, and her expensive gown protected from the efforts of the Fire Department, because E. S. P. *WEATHERSEAL ROLLING METAL DOOR is designed to protect your building interiors (and her gown) from extremes in weather—rain, sleet, snow, or even the high pressure blast from a fire hose.

WEATHERSEAL DOORS SEAL OUT THE WEATHER ■ They effectively stop drafts and heat loss
 ■ They resist oxidization and acid action ■ They are quiet — slats don't rattle or slap

NO OTHER ROLLING METAL DOOR WORKS LIKE WEATHERSEAL

For information and specification data about WEATHERSEAL Rolling Metal Doors — contact:



EASTERN STEEL PRODUCTS

DIVISION OF TURNBULL ELEVATOR LIMITED

777 Laurel Street, Preston, Ontario

2162 Demontigny Street East, Montreal, Quebec

*PATENTS PENDING

DESIGN FREEDOM & FIRE PROTECTION

WITH

ACOUSTI-CELOTEX

TRADE MARK

REG. U.S. PAT. OFF.

FIRE-RATED CEILING ASSEMBLIES FOR SCHOOLS

"PROTECTONE" mineral fiber tile is available in a variety of unusual and tasteful surface patterns assuring the widest freedom in creating distinctive ceilings. Each "PROTECTONE" tile has an excellent sound-absorption rating. "PROTECTONE" is rated by UL for 1-2 and 4-hour fire-rated assemblies.

Complete details of patterns, ratings, and installation are available from Dominion Sound Equipments Limited — Canada's foremost acoustical applicators.

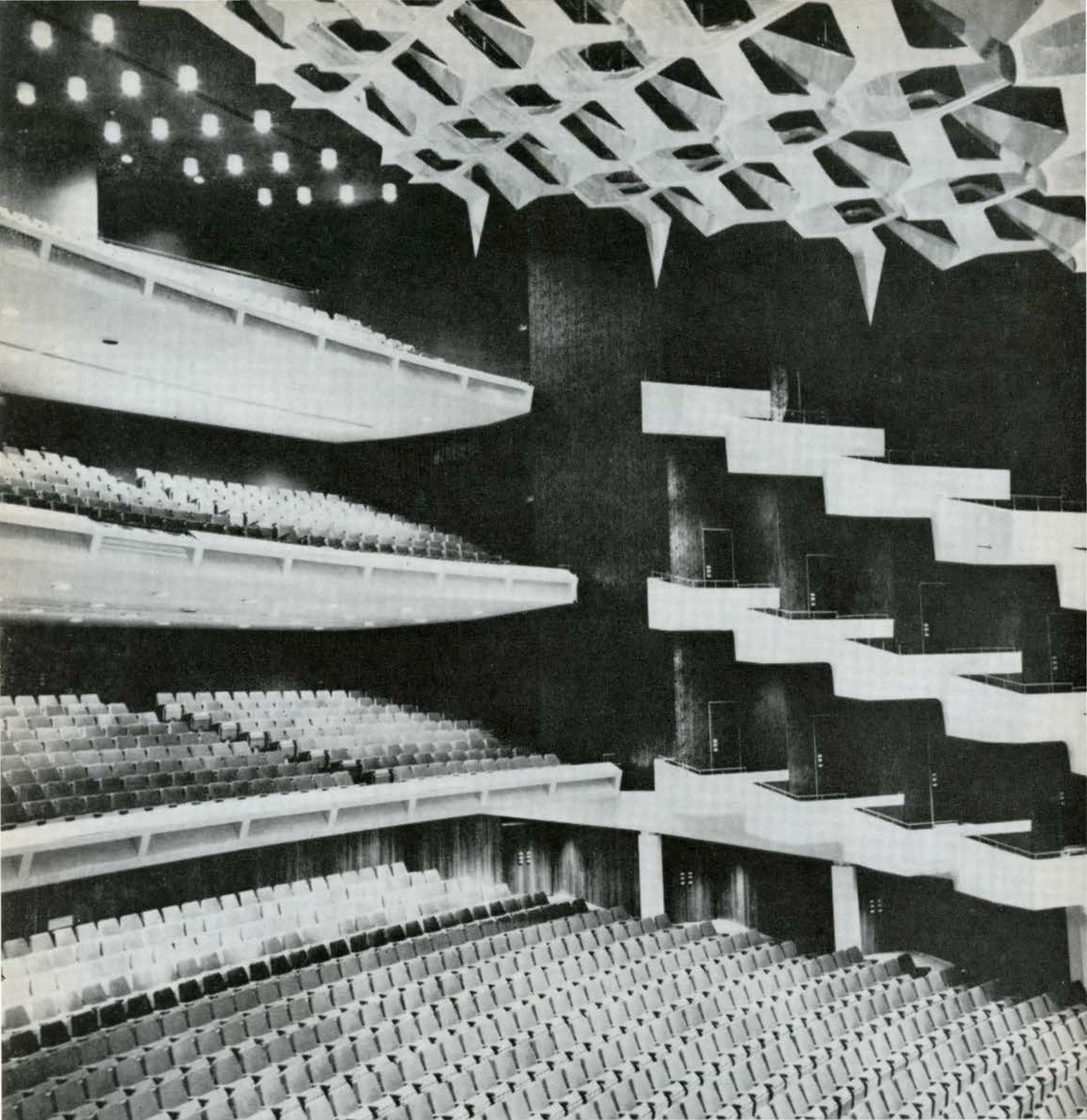
In addition to a complete range of ACOUSTI-CELOTEX sound conditioning products, Dominion Sound also provide NESLO "CLIP-GRIP" partition systems . . . Cepco conventional and "POLRIZED" translucent ceilings.



Dominion Sound

EQUIPMENTS LIMITED

HEAD OFFICE: 4040 St. Catherine Street West, Montreal • BRANCHES: Halifax, Saint John, Montreal, Ottawa, Toronto, Hamilton, London, North Bay, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver



Place des Arts, Montreal

Architects: Affleck, Desbarats, Dimakopoulos, Lebensold, & Sise.
 Consulting Structural Engineers: Brouillet & Carmel.

**steel speeded construction
 of Montreal's new concert hall**

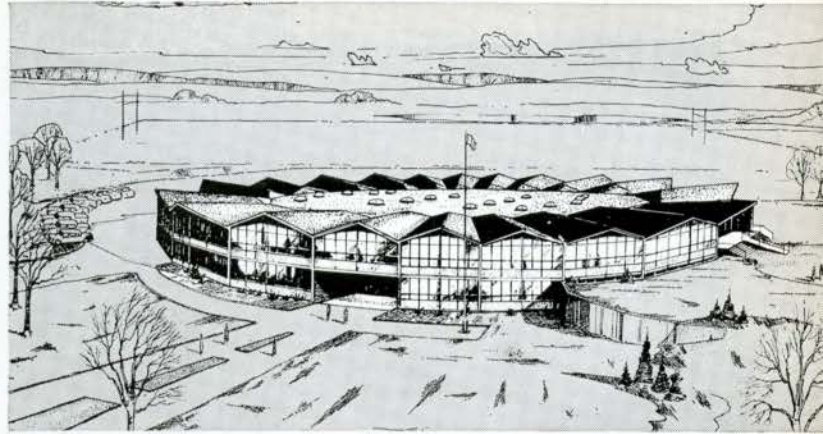
By using steel to support the roof of the stage house and the auditorium and to provide structural stability for the three balconies, the very best use was made of construction time. Steel is always shop fabricated and structural members can be delivered to the site and put into place at the most expedient time and with the minimum of hinderance to other trades. Small illustration shows Dominion Bridge riggers joining roof sections. Altogether 530 tons of structural steel went into this building.



steel speeds construction

When evaluating framing materials bear in mind all the advantages of steel. Steel goes up fast, gives an early return on invested capital and reduces interest charges on construction loans. Lightweight steel framing keeps foundation costs down and the strength of the material permits large column-free areas for maximum usable floor space. These are some of the many advantages that steel construction practice offers the builder.

Dominion Bridge maintain design, fabrication and erection facilities in most of the major cities. Their Sales and Engineering Departments are always available for discussion, and to assist in any way they can.

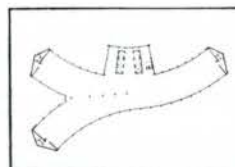
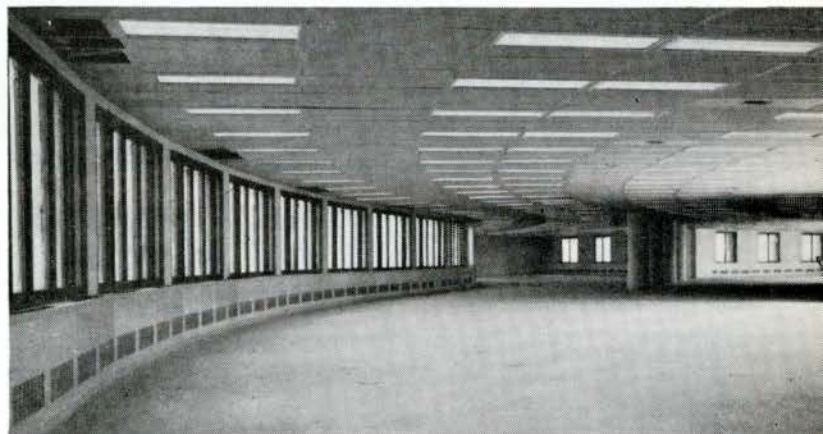


Brule Street School

Dartmouth School Commission, Nova Scotia
Architects: J. Philip Dumaesq & Associates
Contractors: Blunden Supplies Limited

school in the round

Not unique anymore but interesting and efficient. This school is a 20-sided structure, approximately 196 feet in diameter. A gymnasium occupies the core to the full height of the building, and two floors of classrooms are located on the perimeter. A 9-foot corridor on each floor provides access between the classrooms and the gymnasium.



Saskatchewan Power Corporation, Regina
Architect: Joseph Pettick
Consultants: C. C. Parker, Whittaker & Co. Ltd.

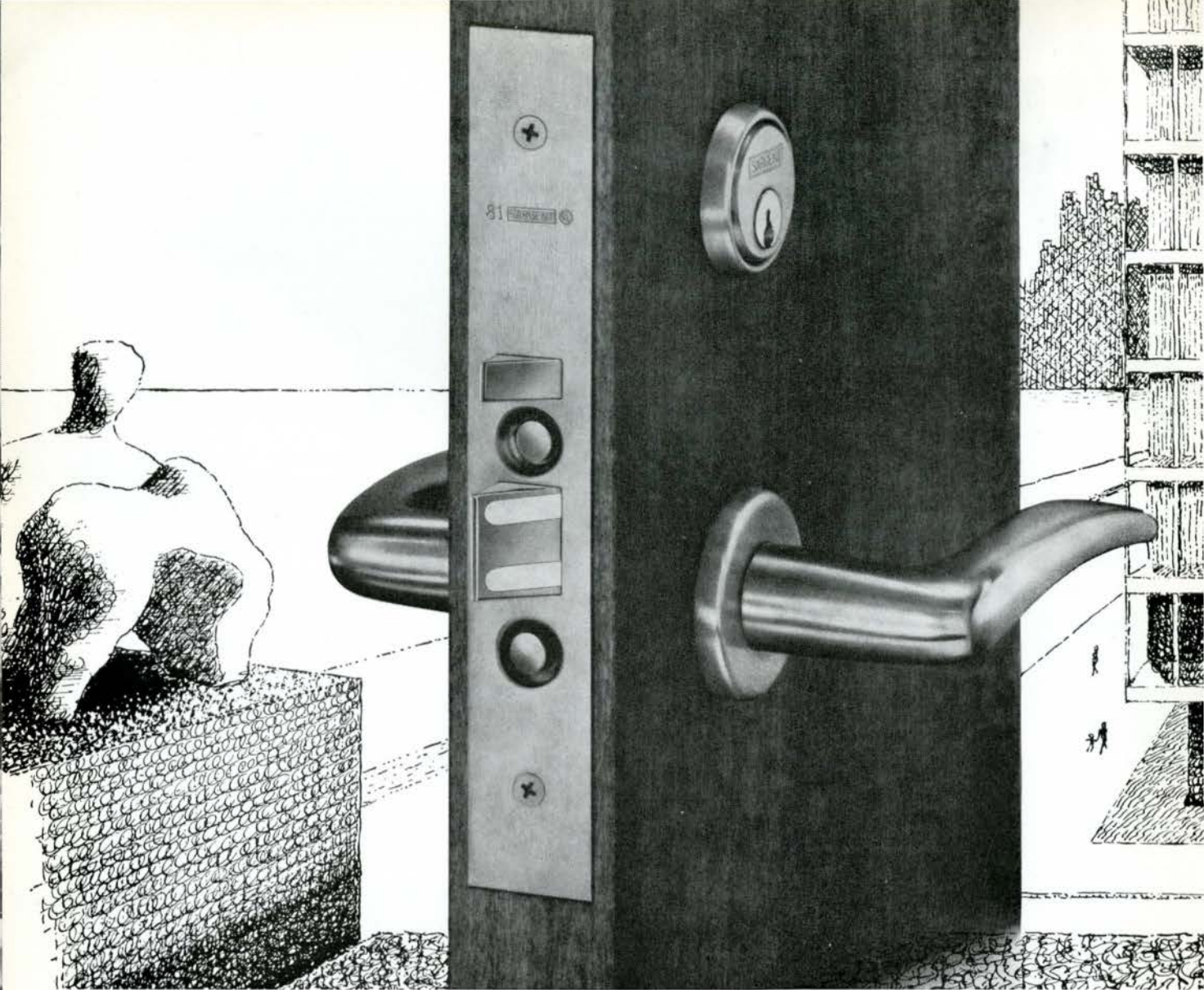
"Y" shaped with flowing curves

Structural steel was chosen to frame this unusual building in Regina. Thirteen floors each with column-free areas 270 ft. x 42 ft. provide wide open spaces for the efficient layout of offices. Twenty-three hundred (2300) tons were erected on schedule. A.36 is used for the beams and bracing and A.7 for the columns. Photograph shows one of the 13 floors. Note the flow of the wall line and the vast open area so easily obtained with steel construction.

166

STRUCTURAL DIVISION
DOMINION BRIDGE

16 PLANTS COAST TO COAST



Dimensions of tomorrow . . . in today's locksets from Sargent

Here's a new twist on the old continental lever handle — a style resurgence which smartly complements contemporary architecture . . . it sets the fast styling pace for a whole line of sophisticated locksets from Sargent. MagnaLock, the T-zone, torque-resistant bored lock . . . IntegraLock, combining the best features of both unit and mortise locks . . . modern mortise locks with an endless variety of sculptured, screwless trim — all available in brass, bronze, aluminum and stainless steel — or colorful fired copper or DuPont Delrin® in lustrous finishes . . . one or more perfect for your type of structure.

Mortise Lock with screwless trim

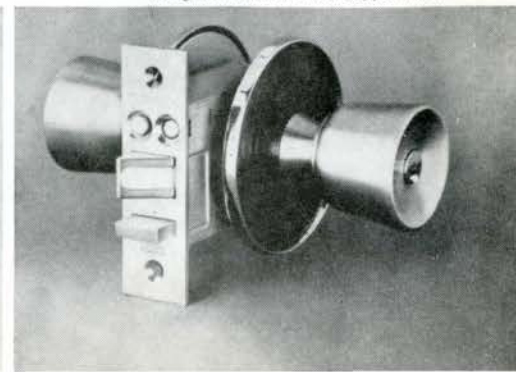
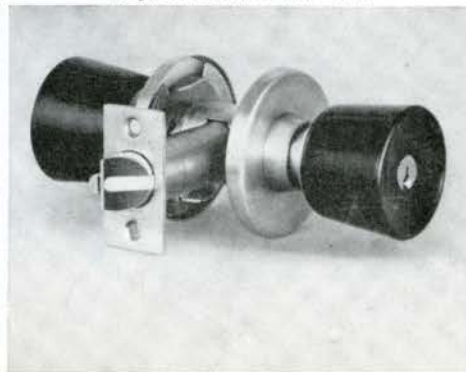
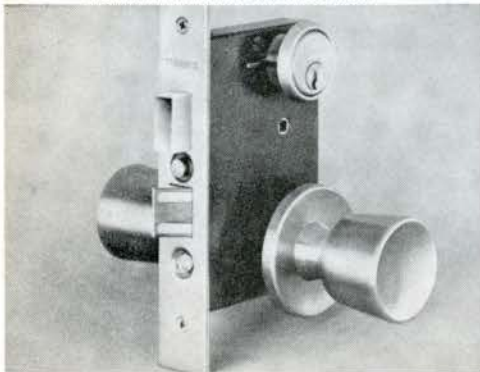
In addition to these heavy duty locksets, Sargent also leads in the design and manufacture of quality, high fashion door closers, exit devices and other safety hardware — your single source of responsibility for all your requirements. See your Sargent hardware supplier, or write Sargent & Company, New Haven 9, Connecticut. In Canada, Sargent Hardware of Canada Ltd., Peterborough, Ontario.

 **SARGENT**

the newest fashion in a complete line of architectural hardware

MagnaLock with Delrin® knob

IntegraLock with fired copper rose





Draperies with **Rovana**^{*} can even be machine washed!

Only draperies with Rovana as the warp offer so many tangible advantages — for long life — beauty — economy.

THESE ARE THE ADVANTAGES: ■ permanently flame resistant ■ resistant to cracking, scratching or splintering ■ hand or machine washable ■ dry cleanable ■ colour fast ■ variety in patterns ■ resistant to solvents and chemicals ■ mildew proof ■ odourless ■ non-allergenic ■ weathers well ■ moderate in cost

Textile Fibres Department
DOW CHEMICAL OF CANADA, LIMITED
SARNIA, ONTARIO



**Registered trademark Dow Chemical of Canada, Limited*

Your clients should know about flame resistant, easy care draperies . . . with Rovana. For your Fact File on Rovana mail this coupon.

TO: Textile Fibres Department,
Dow Chemical of Canada, Limited, Sarnia, Ontario

*Please send me a Fact File on Rovana
(R.A.I.C. File No. 28-D-1)*

NAME

FIRM NAME

ADDRESS

DR-290



UNDERWRITER
APPROVED

You probably have
INSURANCE
in case of fire...

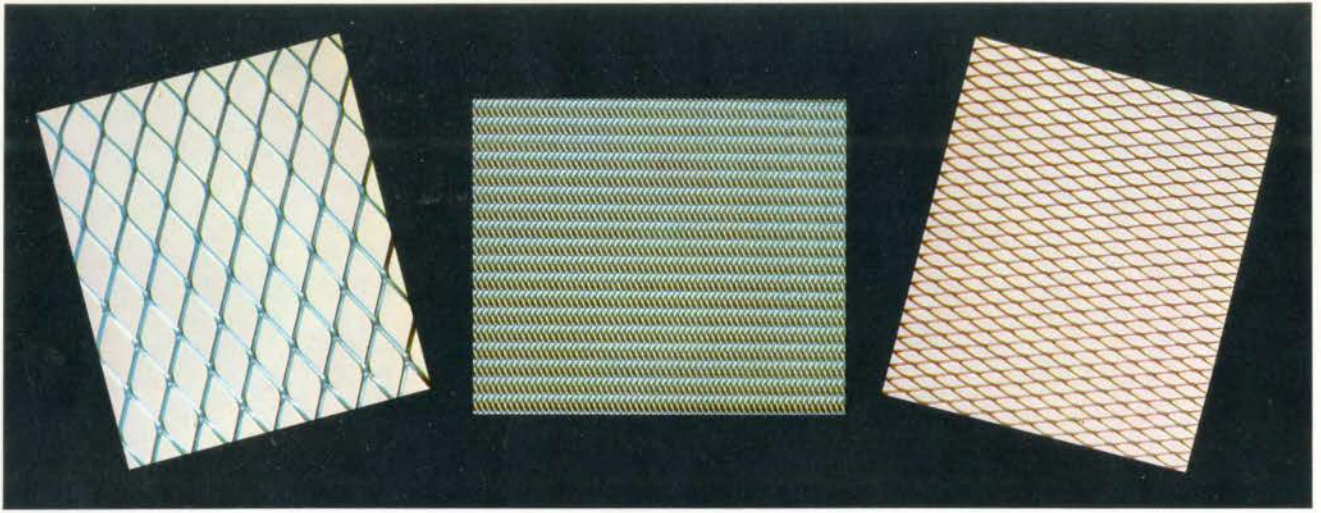
but what about ASSURANCE?

You get that assurance with Darling Fire Pumps... assurance of dependability based on the results of three-quarters of a century of engineering experience!

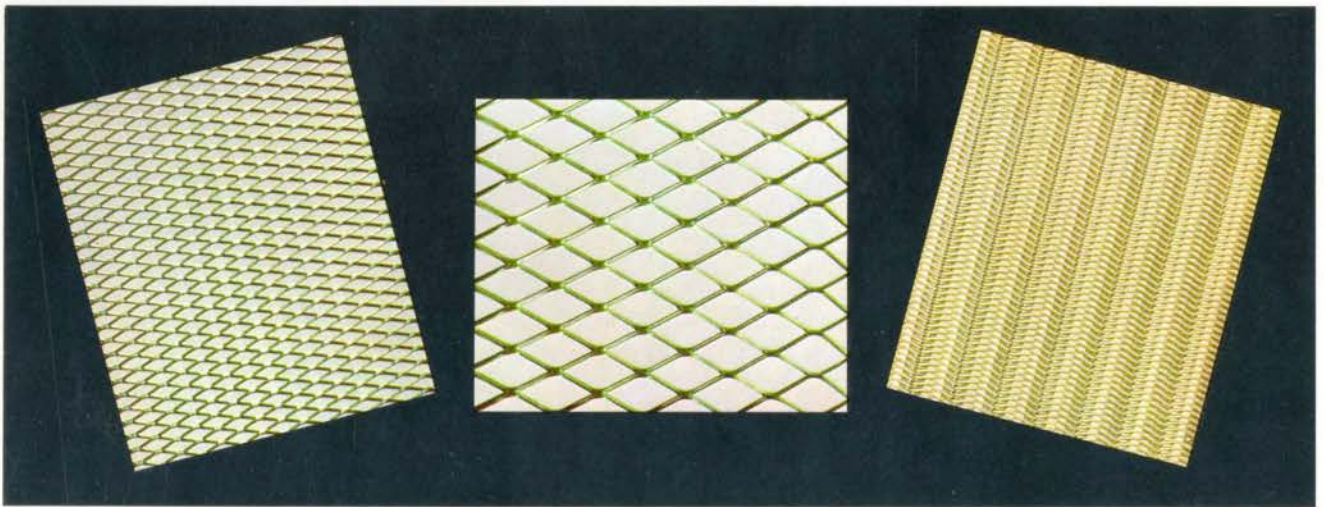
With Darling equipment, you also get unexcelled performance. For example, the Darling Class 'B' Split Case Double Suction Centrifugal Fire Pump is designed to achieve the flat contour head/capacity curve to meet Underwriter requirements of furnishing not less than 150% of rated capacity at a total head not less than 65% of total rated head. The shut-off total head does not exceed 120% of total rated head. In addition, Darling Class 'B' Fire Pumps are pre-tested in our Hydraulic Test Laboratories prior to delivery. So, for assurance in addition to your insurance... look to Darling for new and replacement installations. Darling equipment costs far less in the long run.

DARLING BROTHERS LIMITED
140 PRINCE STREET, MONTREAL, QUEBEC.
Branches and Agents Across Canada





THE METAL THAT MOTIVATES IMAGINATION



PEDLAR EXPANDED METAL MESH

The moment you see and touch this imaginative metal, an endless flow of fresh and daring approaches to design problems begin to form in the mind.

For, here is beauty and strength, as light or heavy as you wish, in a new, flexible material... a material that begs to be cut and curved, by mind and machine, into exciting forms that please the eye and satisfy functional demands.

The possibilities for Pedlar Expanded Metal Mesh are infinite for the architect, product design and industrial engineer. Available in steel, aluminum, stainless steel, copper, *Monel and *Inconel, it can be used plain, galvanized, painted, anodized or plated. Free samples are available, along with a catalogue, at your nearest Pedlar office.

**T.M. Registered International Nickel Co. of Canada Ltd.*

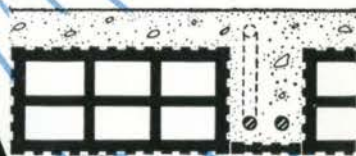
THE PEDLAR PEOPLE LTD.

519 Simcoe Street South, Oshawa, Ont.



MONTREAL • OTTAWA • TORONTO • WINNIPEG • EDMONTON • CALGARY • VANCOUVER

YOU GET A SOUND DIFFERENCE



WITH CLAY TILE FLOORS



Cutting deadweight is always desirable — provided it can be done safely . . . and especially if additional benefits can be gained.

Structural Clay Floor Tile actually reduces dead load by 37% — without reduction of load-bearing safety factor. At the same time, Floor Tile deadens sound — gives a ready-made plastering surface for ceilings — speeds erection — and is fire resistant.

No wonder the *best* floor plans include Structural Clay Floor Tile. Do yours?

**BRICK AND TILE
INSTITUTE
OF ONTARIO**



4824 YONGE ST., WILLOWDALE, ONTARIO

NATIONAL LIBRARY AND ARCHIVES BUILDING



Architects: Mathers & Haldenby, Toronto. Gen'l Contractors: Ellis Don Ltd., London

A new Canadian landmark leaves the drawing board . . . and CMT is proud to make a most significant contribution!

This is a model of Canada's new and immensely impressive Library and Archives Building, soon to be erected in Ottawa. The construction and supply of the stainless steel window units . . . many hundreds of them . . . and various exterior door leaves . . . will be in the hands of CMT . . . Chubb-Mosler and Taylor . . . one of many architectural metalwork projects in this rapidly growing sphere of the

company's activity. CMT, with its long experience, is eminently capable of the precision work required in this realm.

Enquiries are invited from architects, specification writers and builders wherever architectural metalwork — in stainless steel, bronze, or nickel silver — is involved.

CMT

CHUBB-MOSLER AND TAYLOR SAFES LTD.

HEAD OFFICE: BRAMPTON, ONTARIO. SALES OFFICES: VANCOUVER • SASKATOON • CALGARY
WINNIPEG • HAMILTON • TORONTO • OTTAWA • MONTREAL • QUEBEC CITY • HALIFAX

NUCLEAR SHIELDING PRODUCTS,
FIRE & BURGLAR ALARM SYSTEMS,
ARCHITECTURAL METALWORK, BANK
SECURITY EQUIPMENT, COMMERCIAL
FIRE & BURGLAR RESISTANT PROD-
UCTS, PRISON SECURITY EQUIPMENT

From 130° above to 30° below in four hours

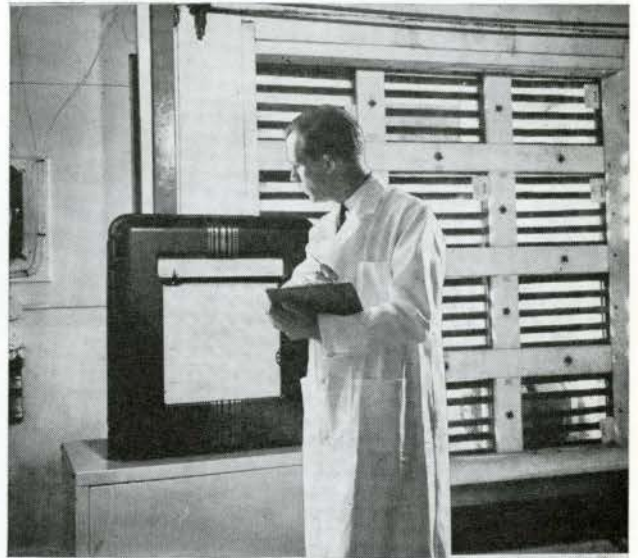
This Twindow* accelerated weathering test shoots the temperature to a sizzling 130° above, then drops it to a frigid 30° below — in a repeating four-hour cycle. As well, water is sprayed on the units for a 10-minute period during the cycle. A double-glazed window unit built to take this kind of punishment without fogging, frosting or breaking its seal will stand up in any weather! In addition, repeated quality control tests make certain Twindow will live up to its reputation for trouble-free performance.

Twindow is built stronger, with corrosion-proof stainless steel channeling that holds sealant under constant pressure for lasting, trouble-free performance. And Twindow is guaranteed for 5 full years by Canadian Pittsburgh Industries Limited, a well-established, responsible company with thousands of successful Canadian Twindow installations to its credit.

Use Twindow for every application. Twindow is CMHC approved (approval #1002), and comes in either plate or sheet glass, in standard and custom sizes. For conditions of unusual glare or extreme heat, Twindow can be supplied in Solex* green tint or neutral Solargray* or Graylite* heat-absorbing, glare-reducing glass.

Why not investigate the many advantages and cost-cutting economies of including Twindow in your building plans? For further information, including our illustrated booklet, "Two types of Twindow," write to Canadian Pittsburgh Industries Limited, 48 St. Clair Ave., W., Toronto 7, Ontario.

*T.M. Reg'd.



Technician checks temperature graph during accelerated weathering test.



*Twindow installation at Montreal International Airport, Dorval, P.Q.
ARCHITECTS: Illsley, Templeton & Archibald, Larose & Larose,
Associated Architects
GENERAL CONTRACTOR: The Foundation Company of Canada Limited
GLAZING CONTRACTOR: Canadian Pittsburgh Industries Limited*

genuine **TWINDOW***

MADE IN CANADA BY DUPLATE CANADA LIMITED
distributed exclusively by Canadian Pittsburgh Industries Limited

Noranda Mines Limited Research Centre, Point Claire, P.Q.



Architects facing special technical problems are invited to call on us. We will be glad to offer them our services in any construction work in stainless steel, bronze, iron and aluminum.

Architects:

Messrs, Dobush, Stewart,
Bourque & Young

General Contractor:

J. L. E. Price & Co. Ltd.

A. Faustin Co. Ltd. specialists in bronze, stainless steel, aluminum and wrought iron architectural works have fabricated and installed all the beautiful bronze window frames, doorways and entrances of the new building of this important company.

A. FAUSTIN CO. LTD.

500 DAVIDSON STREET, MONTREAL

Why MEDUSA WHITE Was used for distinctive Precast Panels in ...

MAGISTRATES COURT BUILDING

The wide acceptance of precast concrete panels has opened a new era in Canadian Architecture. For load bearing or curtain wall applications, they provide the perfect medium for exciting ideas in wall design.

To faithfully reproduce designs, shapes, colours and textures, Canadian architects specify Medusa, the original White Portland Cement. It can be used white or colour-tinted, smooth or with exposed aggregates, sculptured or shaped for the individual job. It contains non-staining properties so essential to product manufacturers for maintaining low water soluble alkali content. And Medusa White is equal in strength to regular Gray Portland Cement.

Specify Medusa White Portland Cement for your next precast panel job.



MAGISTRATES COURT BUILDING, Willowdale, Ont.
ARCHITECT: Sproatt and Rolph
GEN. CONTR.: Stowe and Gould Ltd.
PRECAST PANELS BY: Pre-Con Murray Ltd.

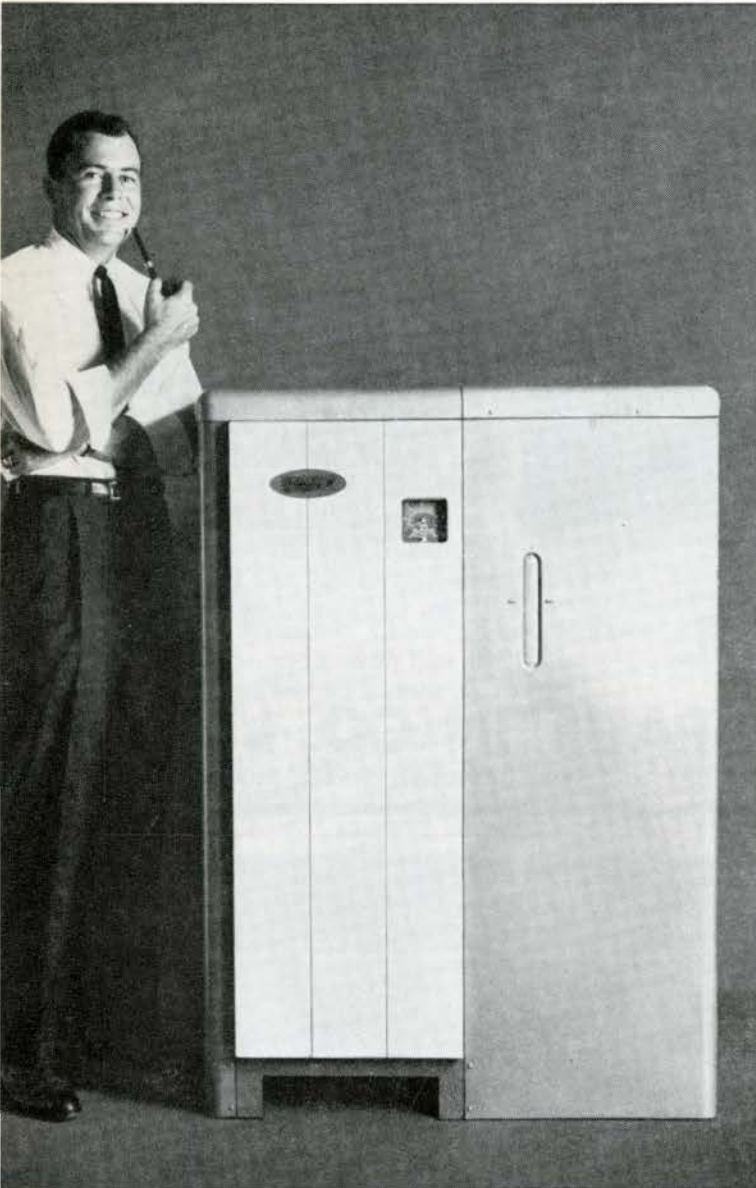


Manufactured by

MEDUSA PRODUCTS OF CANADA, LTD.

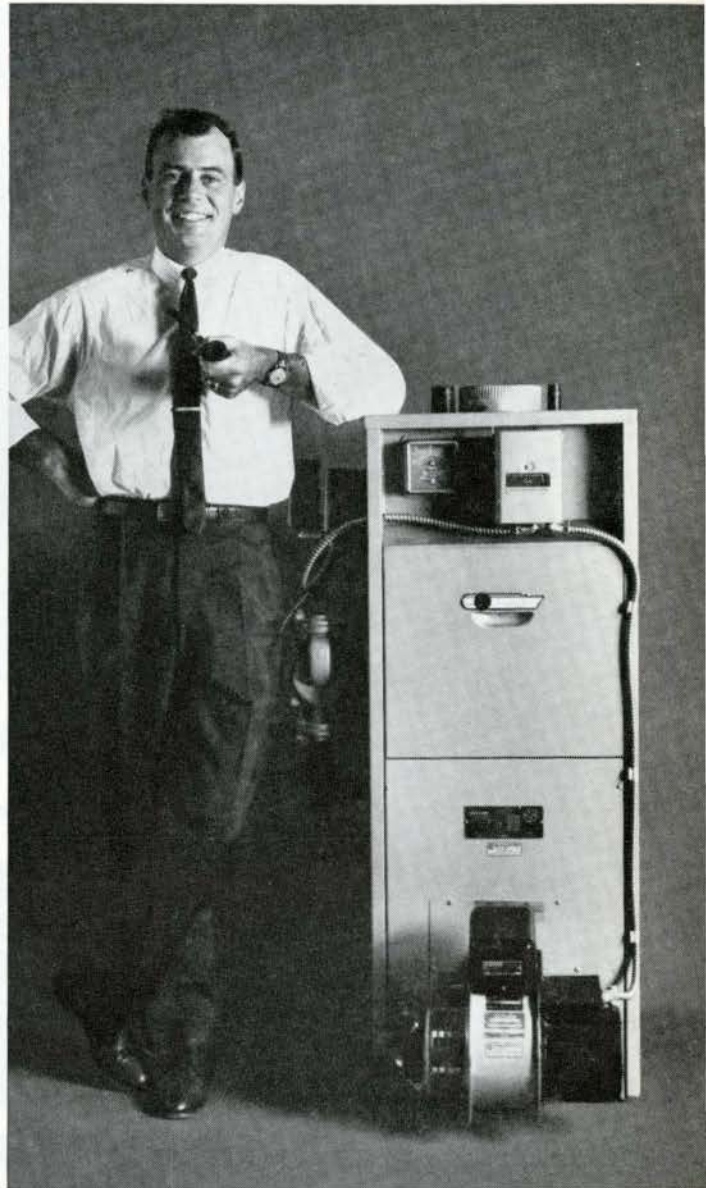
PARIS, ONTARIO • CANADA

HOW TO PLEASE YOUR CUSTOMERS,



GAS VERSATILITY

Sunnyday 36 is the most versatile gas-fired boiler ever developed. It works efficiently for water or steam. Comes in 12 sizes with CGA input ratings from 145,000 to 942,500 Btu/hr. Available with budget-priced flush jacket or deluxe enclosing jacket. Accommodates 4 sizes of tankless and 3 sizes of storage-type built-in domestic water heaters. Cast iron boiler sections are joined with *three nipples* for perfectly balanced, dual circulation of water.

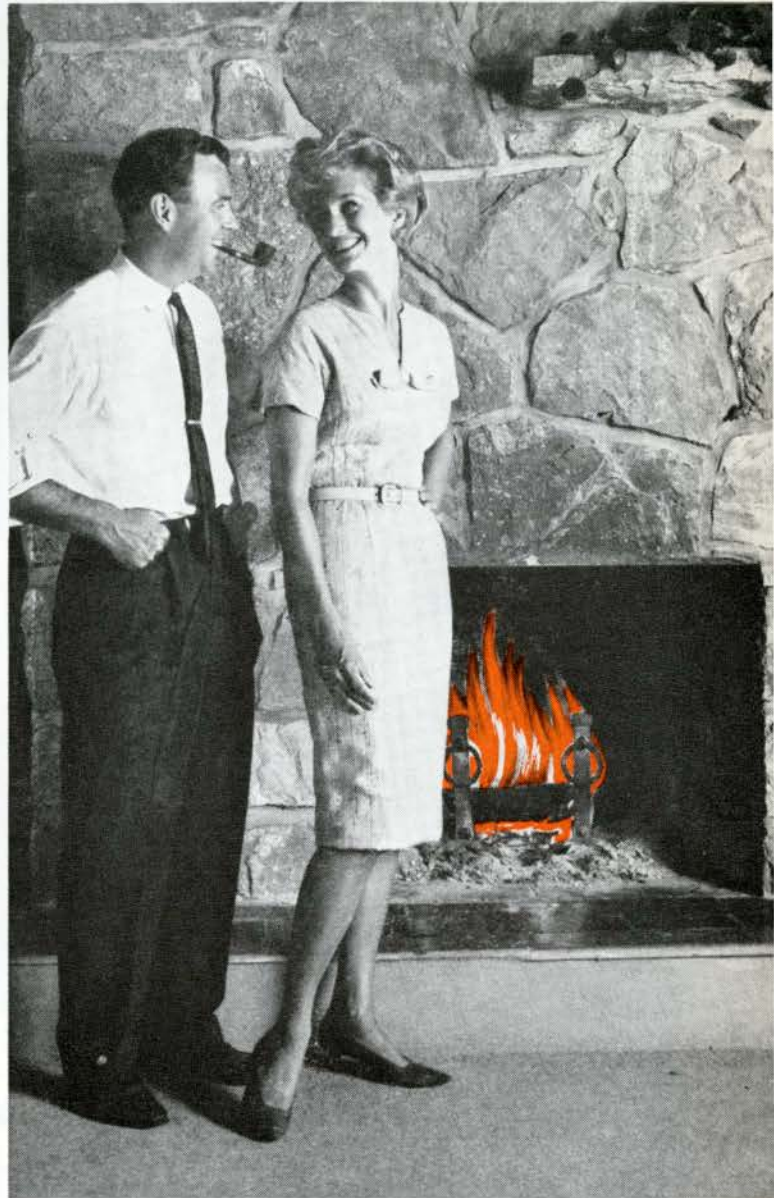
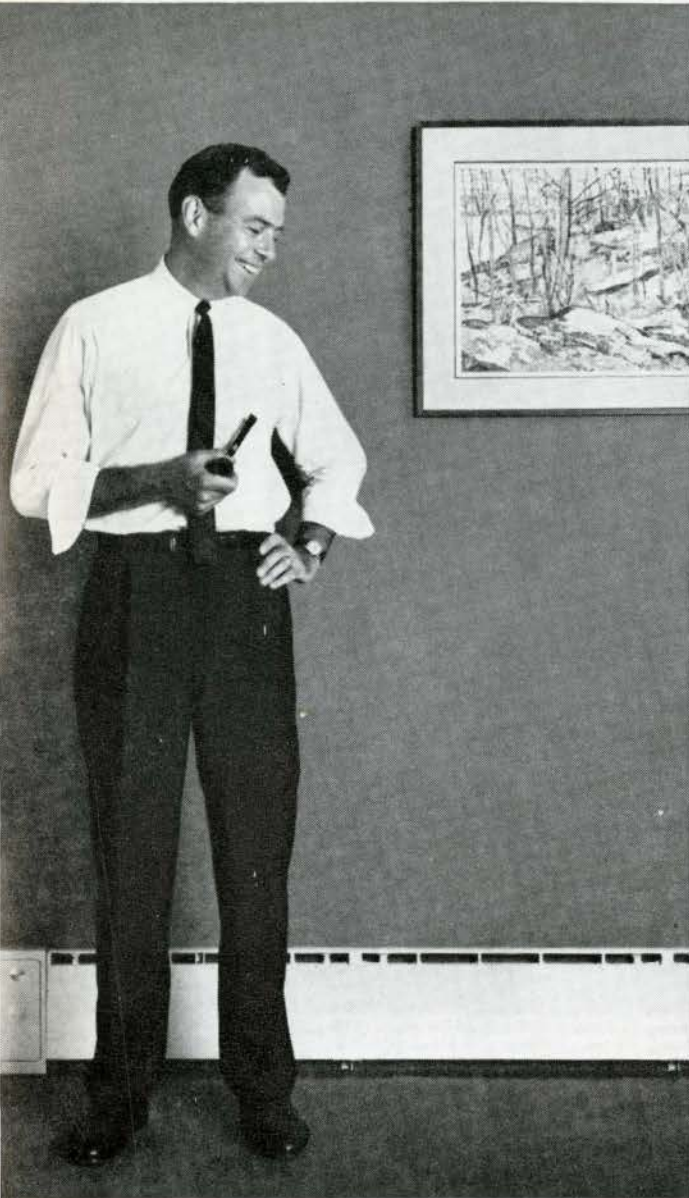


OIL ADAPTABILITY

Comfort without compromise: that's an oil-fired hydronic system using Warden King's superb Sunnyday Seven! Here's quiet, *consistent* comfort, the kind that only hot water heating can provide. Compact Cast Iron Sunnyday Seven can be equipped with a tankless water heater, and comes in two basic models: 104,000 or 157,000 Gross IBR output Btu/hr. Comes pre-wired, factory-assembled, ready for a lifetime of heating satisfaction.

Clean comfort for a lifetime.

YOURSELF AND YOUR BOOKKEEPER



BASEBOARD RADIATION

Here's one of the biggest plusses in hydronic heating. Warden King Cast Iron baseboard heating is cleaner, draft-free, silent and consistent. No problems, ever, with furniture placement. No cold air "puddles" at floor level. Zoned heating control is simple, automatic and economic: keeps the bedrooms healthily cool, while living areas are maintained at 72° (And remember that the Warden King boiler that warms the home can also supply tankless hot water!)

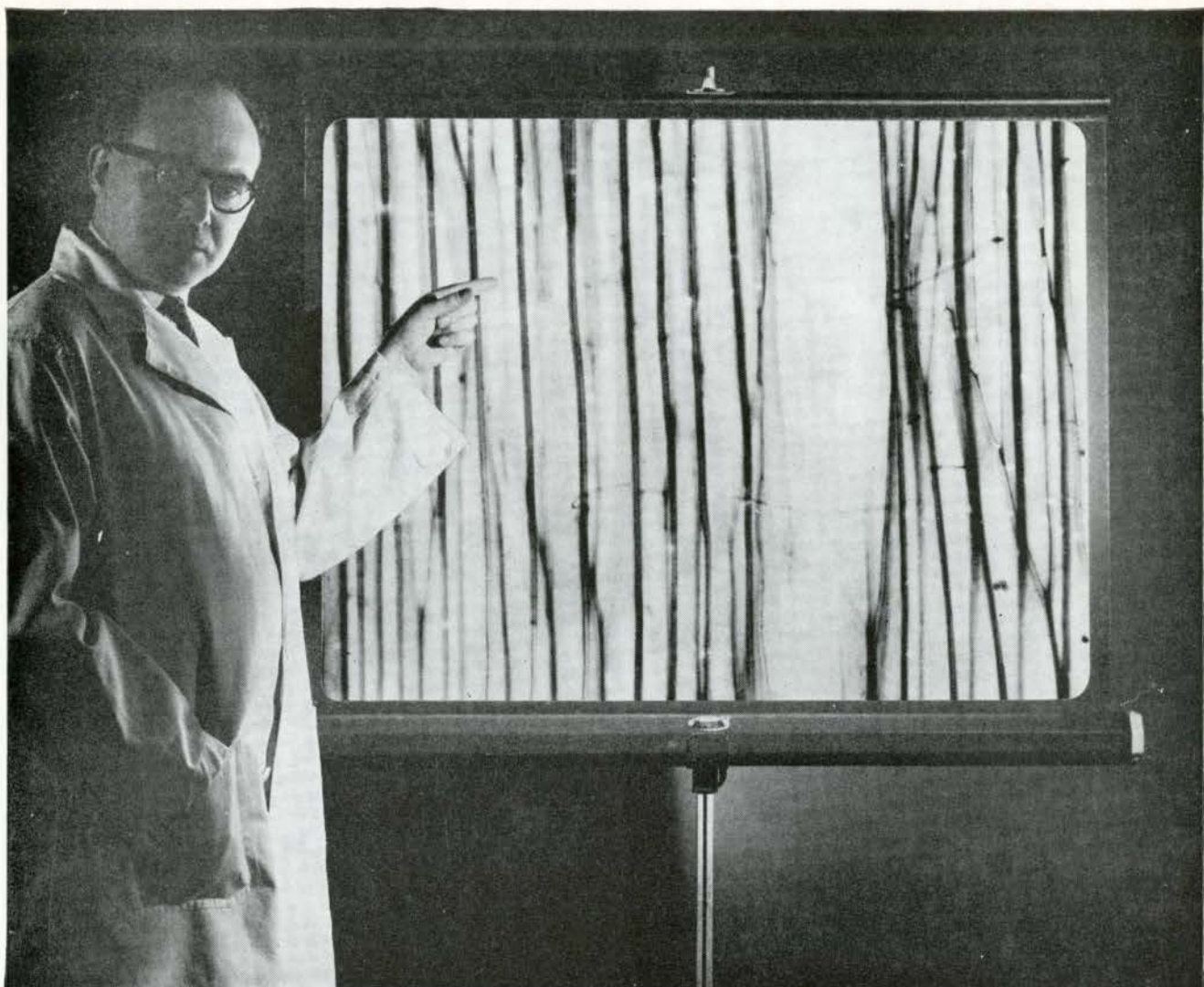
(for quality homes)

There is only one way to build lifetime quality into a heating system. That is the hydronic way—with automatic hot water heating and cast-iron radiant baseboards. Warden King hydronic systems are compact, quietly efficient and meet or surpass the highest industry standards.

For full information, see your plumbing and heating supplier, or write WARDEN KING, P.O. BOX 70, MONTREAL . . .

. the Hydronic way with





Photomicrograph courtesy Forest Products Research Branch, Department of Forestry, Ottawa showing the innocent looking, bamboo-like tubes called hyphae, (or, in mass, mycelium) which cause wood rot. They are an air-borne form of plant life of a very low order.

Is wood rot eating away at YOUR REPUTATION?

Anything made of wood which is exposed to the elements — even if painted — can become severely damaged by rot in as little as 5 years, particularly wood in contact with the ground or exposed to dampness. Your reputation could be needlessly involved if this happened . . . “needlessly” because today scientific protection against wood rot is available. Whenever you specify wood, protect the job and yourself by remembering:

- 1: Green wood can be made rot-resistant right in the field, by mopping, brushing or dipping with OSMOSE;
- 2: Poles, posts and timber in contact with the ground can be brush-coated with extra effective OSMO-CREO;
- 3: Seasoned lumber (sash and woodwork) can be treated anywhere by brushing or dipping with PENTOX;

- 4: Clean, paintable, fire-retardant, pressure-treated lumber, impregnated with OSMOSALTS, is also available.

PENTOX and OSMOSALTS meet CSA standards. Both will make the wood in your jobs last 3 to 5 times longer. For complete information contact our Service Department.

OSMOSE

WOOD PRESERVING COMPANY OF CANADA LTD.

Head Office: 1080 Pratt Avenue, Montreal, Que.

TRURO • TORONTO • WINNIPEG • EDMONTON • VANCOUVER

YOUR REPUTATION BACKED BY OUR EXPERIENCE OF OVER 25 YEARS

BUILD BETTER WALLS WITH

ECONO CAVITY-LOK®

for cavity walls of block and brick. Reinforces both face shells of backup and ties in facing.

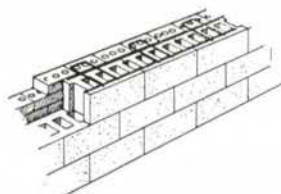
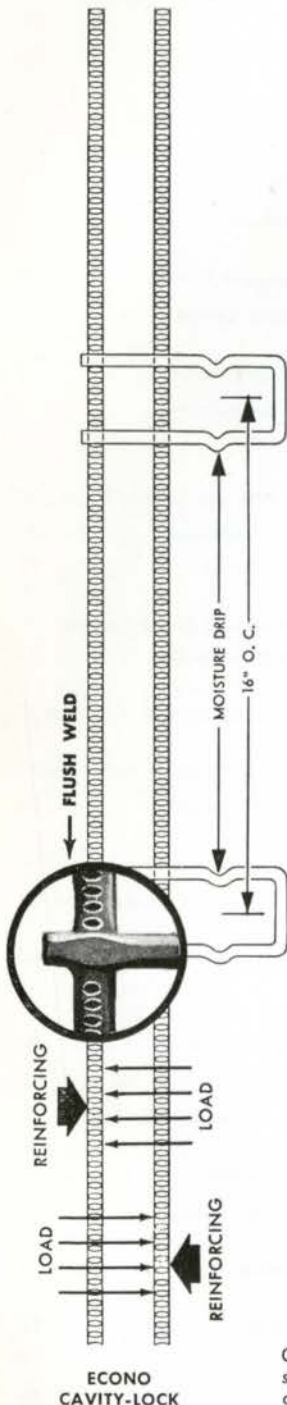
ECONO-LOK®

for solid walls of block and brick. Reinforces both face shells of backup and ties in facing. Eliminates brick header.

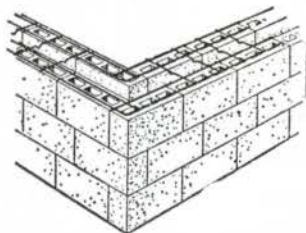
CAVITY-LOK®

for cavity walls of block and brick. Reinforces both face shells of each block and securely ties them together.

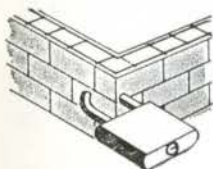
Reinforcing ties for composite masonry walls. "Flush-welded" for maximum strength and control of mortar joint thickness. Available in all brite basic all mill galvanized brite basic side rods with mill galvanized ties or hot dipped galvanized after fabrication.



ECONO-LOK



CAVITY-LOK CORNER



Complete brochure containing product specifications, tests and technical data can be obtained from:

BLOK-LOK LIMITED

Canadian Patents
No. 575399 and No. 574984

3240 Bloor St., West, Toronto 18, Ont.

Phone 239-8443

Architectural Woodwork

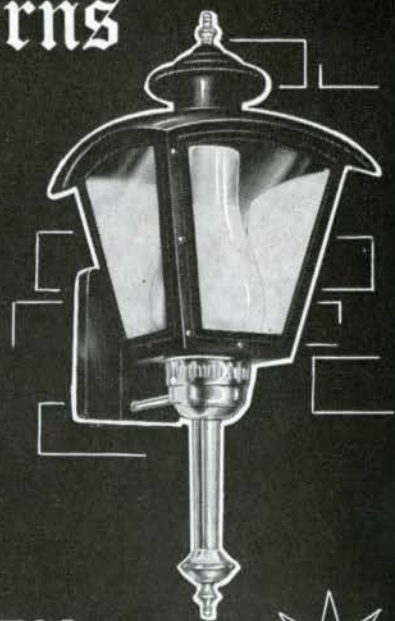
Laidlaws is supplying the architectural woodwork from their manufacturing division for the following prestige buildings:

- St. Andrew's College, Aurora
— Marani, Morris & Allan
- Toronto International Airport—Aeroquay No. 1
— John B. Parkin Associates
- Massey College, University of Toronto
— Thompson, Berwick & Pratt, Vancouver
- National Trust Building
— Page & Steele
- Riverdale Hospital
— Chapman & Hurst

LIDLAWS
50 Oak Street, Weston, Ontario

Coach Lanterns

The rustic charm of yesteryear is recaptured in these authentic designs by Columbia Electric... adding warmth and distinction to any home. See our catalogue for a complete line of residential lighting fixtures.



Mail this ad for
free color catalogue

**COLUMBIA
ELECTRIC LTD.**

ST. ISIDORE, LAPRAIRIE CO., P.Q.



INDEX TO JOURNAL ADVERTISERS

	Page		Page		Page
Aka Furniture Company Limited	- - 11	Canadian General Electric Co. Ltd.	- 76	Darling Brothers Limited	- - - - 84
Beer Precast Concrete Ltd.	- - - 62-63	Canadian International Paper Co.		Dominion Bridge Company Limited	- 80-81
Blok-Lok Limited	- - - - - 93	Panel Board	- - - - - 67	Dominion Sound Equipments Ltd.	- - 79
Blumcraft of Pittsburgh	- - - - - 8	Canadian Rogers Eastern Ltd.	- - - 70	Dow Chemical of Canada Ltd., (Rovana)	- - - - - 83
Brick & Tile Institute of Ontario	- - - 86	Chubb-Mosler & Taylor Safes Ltd.	- - 87	Duplicate Canada Limited	- - - - - 88
Brunswick of Canada Limited	- - - 61	Clerk Windows Limited	- - - - - IFC	Eastern Steel Products Company, (Rolling Metal Doors)	- - - - - 78
Burns & Russell & 4 Licensees	- - 19-20	Columbia Electric Limited	- - - - - 93	Emerson-Pryne of Canada Ltd.	- - - 17
Canadian Celotex Cweco Industries	- 72	Consolidated Mining & Smelting Company of Canada Ltd.	- - - - 75	Engineering Products of Canada Ltd.	- 73
Canadian Crittall Metal Window Ltd.	- 18	Crane Canada Limited, Warden King Division	- - - - 90-91		

ZERO meets all your needs for

- WEATHER STRIPPING
- SOUND-PROOFING
- LIGHT-PROOFING

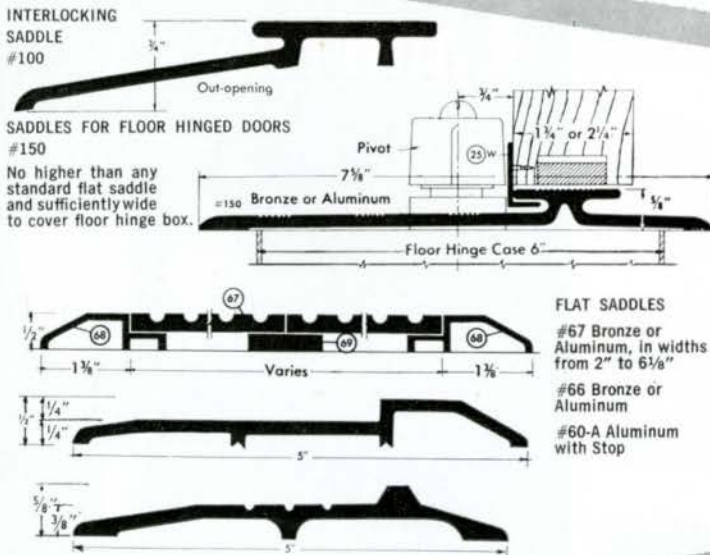


Write for ZERO'S new catalog today. Contains full size details, 168 drawings of weatherstripping and related products, for

- doors
- sliding doors
- saddles
- windows
- expansion joints.

Architects agree, weatherstripping can be the most significant detail of a structure's success. For 4 decades ZERO has been creating and manufacturing to meet changing needs.

our 40th year

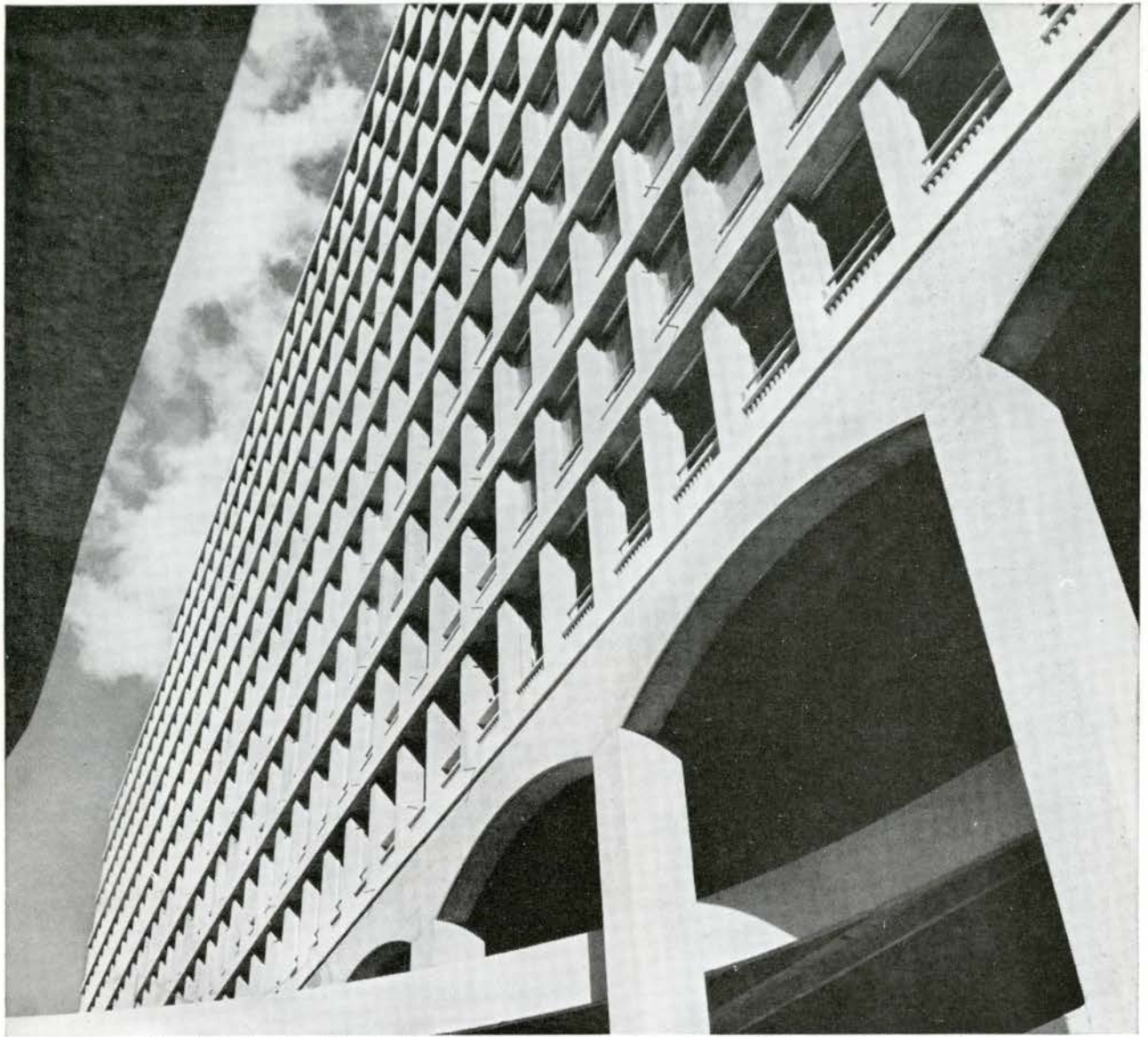


18b-ZER



ZERO WEATHER STRIPPING CO., INC.
451 East 136th St., New York 54, N.Y. • (212) LUdlow 5-3230

Faustin, A. Company Limited	- - - 89
Franki of Canada Limited	- - - - 24
Glaceries de la Sambre, Les	- - - - 4
Government of Canada — Dept. of Labour	- - - - - 64
Hart & Cooley Mfg. Co. Canada Ltd.	- 12
Hauserman, E. F. Company	- - - 71
Holophane Co. Limited	- - - - 77
International Hardware Co. of Canada Ltd., Russwin Lock Division	- - - 16
Kawneer Co. Canada Limited	- - 26-27
L.C.N. Closers of Canada Limited	- 14-15
Laidlaw, R. Lumber Co. Ltd.	- - - 93
Master Builders Co. Limited	- - - IBC
Medusa Products Co. of Canada	- - 89
Natco Clay Products Limited	- - OBC
Ontario, Province of, Dept. of Economics & Development	- - - 28
Osrose Wood Preserving Co. Inc.	- - 92
Otis Elevator Co. (Canada) Ltd.	- - - 3
Pedlar People Limited	- - - - 85
Plywood Mfrs. Assn. of B.C.	- - - - 74
Rolscreen Company	- - - - 22-23, 25
Sargent Hardware of Canada Ltd.	- 82
Schlage Lock Co. of Canada Ltd.	- - 7
Stanley Works of Canada Limited	- - 66
Steel Company of Canada	- - - 68-69
Turnbull Elevator Co. Limited	- - - 65
Walker, Crossweller & Co. Ltd.	- - - 13
Yale & Towne Mfg. Co. Ltd.	- - - - 10
Zero Weatherstripping Co., Inc.	- - 94



Colonnade Apartment and Shopping Complex, Bloor at Avenue Road, Toronto. *Owner-Contractor: 131 Bloor West Limited, Architect: Gerald Robinson. Engineer: Norbert Seethaler. Ready-Mix Supplier: Dual Mixed Concrete & Materials Co.*

POZZOLITH...specified for controlled performance concrete in Toronto's new Colonnade

Toronto's new Colonnade Apartment and Shopping Complex proves again that when POZZOLITH is specified you can be sure of the ultimate in controlled performance concrete. For POZZOLITH, the water-reducing, set-controlling admixture, makes concrete a more versatile building material by which architect or engineer can add new dimensions to his designs. Specify POZZOLITH for more workable concrete with increased strength—compressive, flexural and bond of concrete to steel; greater watertightness—reduced cracking; easier and more economical placing; more uniformity with controlled rate of hardening. Then you'll have a sound, durable, controlled performance concrete superior in quality and economy to plain concrete or concrete made with any other admixture.

POZZOLITH *
A Product of
MASTER BUILDERS®

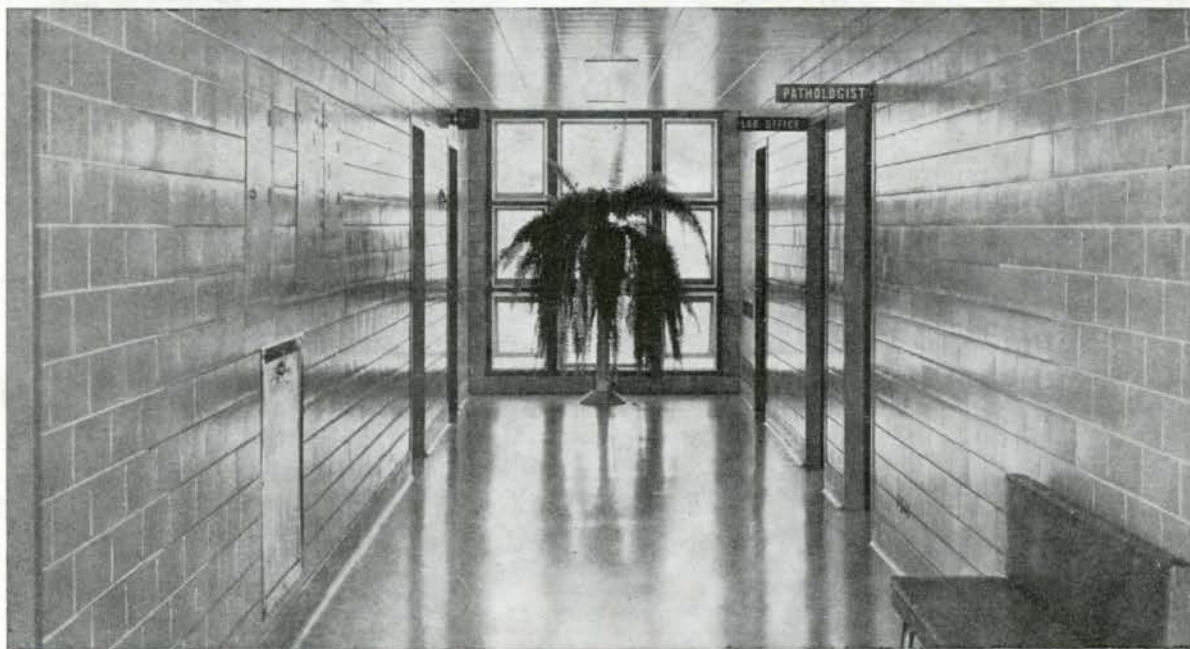
MASTER BUILDERS Field Service

Benefit by the competent, job-proven experience of your MASTER BUILDERS field man. Through him you get maximum value from the use of modern technical products. General Office and Factory—Toronto 15, Ontario. Branch offices: Vancouver, Calgary, Edmonton, Winnipeg, Ottawa, Montreal and Saint John.



MC-6308P

*POZZOLITH, a registered trade mark of The Master Builders Company, Limited, a construction materials subsidiary of **MARTIN MARIETTA**



**SCARBOROUGH
GENERAL HOSPITAL
GETS COMPLETE
SANITATION
COMBINED WITH
THE BEAUTY AND
DURABILITY OF
NATCO VITRITILE**

LATEST ADDITION TO SCARBOROUGH GENERAL HOSPITAL

Architects: Govan Kaminker Langley Keenleyside Melick Devonshire Wilson, Toronto. General Contractor, Anglin-Norcross Ontario, Limited

NATCO VITRITILE is a ceramic glazed structural clay facing tile available in forty-four standard and accent colours to provide a wide selection of interior colour combinations. All colours are permanent and will never fade. NATCO VITRITILE is a genuine load-bearing clay tile, resistant to moisture, fire, chemicals,

dirt and scuffs, and is capable of lasting the lifetime of any building in which it is used. To retain NATCO VITRITILE'S original finish and lustre, it requires only periodical cleansings with common soap or detergent and warm water. For complete information, write to:

NATCO·CLAY·PRODUCTS·LIMITED

*Offices: 55 Eglinton Ave. East
Toronto 12, Ontario.*

*Plant: Aldershot Sub P.O.
Burlington, Ontario.*