Architecture Canada

Journal RAIC/La Revue de l'IRAC: October/Octobre 1966

* Over 1,000,000 square feet of insulating glass produced annually.

SEALITE GLASS LIMITED

HEAD OFFICE: 247 BRIDGELAND AVENUE, TORONTO 19

MONTREAL OFFICE: 2094 CHARTIER ST., DORVAL

October 1966 octobre
493 Volume 43 No. 10

Architecture Canada

Subscription/abonnement $7.00
Foreign/étranger $8.00

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

The Journal of the Royal Architectural Institute of Canada

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

The Journal is not responsible for opinions expressed by contributors

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

Head Office
160 Eglinton Avenue East,
Toronto 12, Ontario

Telephone (416) 487-5591

Vancouver,
165 W 40th Avenue FA 7-3388
London, England,

122 Shaftsbury Ave., W.1. GERard-7499

The Royal Architectural Institute of Canada
L'Institut Royal d'Architecture du Canada

Founded in 1907 / Fondé en 1907

Patron: Her Majesty the Queen
Sous le patronnage de Sa Majesté la Reine

Component Associations
Associations Constituantes

Alberta Association of Architects
318 Revillon Building, Edmonton
President: *Kenneth L. Bond*

Architectural Institute of British Columbia
567 Burrard St, Vancouver
President: *Ronald S. Nairne (F)*

Manitoba Association of Architects
909-213 Notre Dame Avenue, Winnipeg
President: *Dennis H. Carter (F)*

Architects' Association of New Brunswick
13 Germain Street, Saint John
President: *Alfred Chatwin*

Nova Scotia Association of Architects
5230 Tobin Street, Halifax
President: *J. Philip Dumaresq*

Newfoundland Association of Architects
P.O. Box E5204, St John's
President: *Frank Noseworthy*

Ontario Association of Architects
50 Park Road, Toronto
President: *W. M. Smale*

Association des Architectes
de la Province de Québec
1825 ouest, boulevard Dorchester, Montréal
Président: *Henri-P. Labelle*

Saskatchewan Association of Architects
2426 Hanover Avenue, Saskatoon
President: *Alex Hermann*

Headquarters / Siège Social

151 Slater, Ottawa 4, Ontario
Executive Director / Directeur Général
Fred W. Price
Executive Secretary / Secrétaire Administratif
Maurice G. Holdham, MBE

News
Nouvelles

1

Urban Studies Fellowships

The Canadian Council on Urban and Regional Research offers four Urban Studies Fellowships to assist candidates who in 1967 are undertaking advanced programs of studies related to Canadian Urban affairs. Each Urban Studies Fellowship will be for $3,500 for the academic year 1967–68. To any Fellow awarded this basic amount who will have to take leave without pay from present employment to do further studies, there may be given a supplemental sum of not more than $3,500.

New NRC Publication

"Melting Snow and Ice by Heating Pavements" by P. A. Schaerer, Division of Building Research, National Research Council, Ottawa, Building Research Note 55, January 1966, 12 pages – a summary of the information that is required for the design of melting systems, indicates where such information can be obtained, and points out where knowledge is still lacking and research is required. It provides a useful starting point for those who must design embedded systems or who wish to undertake research on problems associated with them.

Garnett W. Wilson

We regret to announce the death of Garnett W. Wilson, a charter member of the New Brunswick Association of Architects. Mr Wilson retired a number of years ago but held honorary membership until his death.

Session '67

Theme – Architectural Education
Sponsored by the Alberta Association of Architects, 318 Revillon Building, Edmonton, Alberta
To be held at the Banff School of Fine Arts, Banff, Alberta, Canada
March 20–March 23 inclusive, 1967
Moderator – Peter Blake, Editor, Architectural Forum, New York

Technical Seminars on Engineering Clay Masonry Bearing Walls

The Canadian Structural Clay Association is sponsoring three technical seminars across Canada on Engineering Clay Masonry Bearing Walls. The first is in Winnipeg, Manitoba, Monday November 14, 2.00–5.30 PM at the Fort Garry Hotel; the second in Saskatoon, Saskatchewan, Tuesday November 15, 2.00–5.00 PM at the Bessborough Hotel; the third in Edmonton, Wednesday November 16, 2.00–5.00 PM at the Macdonald Hotel. For further information contact John Caulfield Smith Executive Director, Canadian Structural Clay Association, 4824 Yonge St, Willowdale, Ontario.

New Officers of the Montreal Society of Architects

The new president of the Montreal Society of Architects is Lloyd Sankey. Vice-President is Steve Bleyer and Past-President is Joe Baker. Other officers elected – Serge Carreau, Secretary; Rudy Javosky, Chairman of Vernissage; Hans Stenman, Treasurer; and Al Thomas, Chairman of Building Centre.

New Courses at Nfld College of Trades and Technology

Four members of the Newfoundland Association of Architects will teach courses this year at College of Trades and Technology, St. John's, Nfld. The aim is to diversify the instruction and provide closer ties between the Association and its main source of draftsmen. W. J. Ryan will teach History of Architecture and Building Services; Frank Noseworthy, Advanced Architectural Drafting; Peter Holtshausen, Model Building, and W. B. Guihan will give Architectural Rendering.

National Design Institute Conference

The National Design Institute, devoted to the collaboration between those concerned with design of the physical environment, has a nine months' study program of Toronto's urban core. On November 4th a conference will be held at the Arts and Letters Club, Toronto.

Architectural Education Expansion in Ontario Report of the OAA Study Committee

The tables and graphs of the study accompany the original of the report

In 1964 an interim committee was appointed by the Ontario Association of Architects to establish terms of reference for a study committee on the expansion of architectural education in Ontario. Members included William A. Watson (*F*), and G. Everett Wilson (*F*) of the Registration Board, and J. A. Murray (*F*) and Warren M. Smale of OAA Council. The study committee then appointed, consisted of Messrs Murray and Smale and Douglas Haldenby. The study was completed this year and released to the press in September. A summary was published in September issue of *Architecture Canada*. But because of the thorough nature of the study it was felt a more complete report would be of interest to those concerned in and with architectural education elsewhere in Canada.

The terms of reference set forth, and the study committee's report on each follow. The committee was asked to take a broad view of the subject and extend its investigation beyond the confines of the profession.

The Committee felt it advisable to devote the first part of the study to the gathering of statistics and data upon which objective conclusions and predictions could be based. It was found that the more information that became available, the more difficult it became to arrive at exact quantitative predictions especially as to the number of architects and architectural technologists and technicians that would be required in the future. However, there is no question that the information drew an overall picture of what had happened and is happening now, upon which general statements may be made. In answer to the questions posed by the terms of reference, these are as follows:

1 What will be the nature of services which will be required from the architectural profession in the foreseeable future?

It is obvious that the demands for the services of the architectural profession are going to increase, and they are going to change. During the period 1950 to 1964, there was an increase of approximately 133% in the volume of construction. This represents an annual increase of about 9.5%. During the same period the number of registered architects increased 94% (7% per year average).

Recent Economic Council of Canada forecasts indicate that population growth should raise the demand for residential and social capital construction by over 55% between 1963 and 1970 (8% per year average) and that economic development should raise the demand for industrial, commercial and financial service by over 100% (over 14% per year average).

In the past decade and a half, the increase in the number of architects in Ontario has barely kept pace with the increase in volume of construction which has resulted from a growth in population and economic development.

The increasing urbanization of our population and the industrialization of our economy is creating a different kind of architectural service than that provided by the profession in the past. To generalize, the scale of projects has increased tremendously as a result of urbanization, and the new design problems that urbanization creates. Industrialization and urbanization have created more complex design problems to be solved, and this trend will surely intensify.

The solution of problems of greater complexity and scale will undoubtedly fall to design firms of larger size, greater competence and with a broader range of design services. We can expect to see fewer small architectural firms and a concentration of larger firms, especially in the large urban centers. The pattern has already been established by the creation of large architectural firms, capable of undertaking large projects and capable of integrating design services that include engineering, town and regional planning, landscaping, industrial design – in other words, complete environmental design.

The recent study by the OAA Committee on Fees, has illustrated statistically, the economic advantage held by the large, well integrated firms over the smaller firms, and it would appear that the economic pressure will ever be present to force architects into a more desirable economic position by consolidation into larger firms.

Architects will have increasing demands upon them to meet the changes in building technology. This will unquestionably result in greater specialization of individuals within larger design organizations. More sophisticated tools have become available, and a much greater use of computer technology can be expected by all members of the design team.

If more effective use of our architectural manpower is to be realized, architects must be more engaged in the work for which they are trained, with many of their present activities taken over by technologists and technicians. A greater supply of these "architect's assistants" is very necessary to make this possible.

2 What attributes will be required by the architect competent to serve the future requirements of the Profession?

It was noted above that architects in the future can expect greater involvement in projects of larger scale and complexity. This implies that he will become more a specialist working with other specialists, all of whom would be members of an integrated design team. *Whether the architect is to be the "captain", the prime consultant, or the co-ordinator of the design team, depends in large measure upon his competence vis a vis the other members of the design team.* In the past, architects have centered their efforts around the design of a building, or at best, a complex of buildings, and have been responsible for the co-ordination of all of the design services related thereto. Should we overlook the possibility that in the future, where projects of urban or regional scale are encountered, the architect may find himself working on a design team headed by urban or regional planners more specifically trained to deal with projects of a scale that surpasses that of individual buildings? The future role of the architect will be determined in large measure by the nature of his architectural education. Whatever his role might be, team captain or team member, he must be prepared in future, to be a part of a larger design group and his education should fit him to be able to work with all of the other disciplines involved.

3 What educational processes and training might be expected to satisfy the demands upon the profession?

The education of architects can be said to have four main phases, some presently better developed than others. They are:
(1) Academic Education.
(2) Experience.
(3) Professional Registration Programs.
(4) Continuing Education for Architects.

At the moment, this is the general pattern for the education of an architect, and the Committee feels that the basic structure is good.

It is felt that the greatest room for diversity of approach to the educational program lies in the academic program and continuing education. The experience phase and the registration course by their nature, are too specific to afford much opportunity for variation.

There is however, the Committee feels, merit in drawing graduates of universities into the profession, who have come from varied academic backgrounds. There are differences in educational philosophy and educational environment from one university to another, which carried over into the professional life of the architect would enrich the whole profession.

The same could be said of the Continuing Education for Architects. This program is not as fully developed as might be desired, but as it progresses, every effort should be made to treat the courses presented with a variety of points of view, and with a maximum of academic freedom.

The dimensions of the Province and the dispersal of over 1200 members throughout Ontario, makes the Continuing Education Program for all OAA members very difficult. The use of new communication media such as a closed circuit TV over telephone lines to regional lecture centers, may become a possibility in the future. Any and all techniques that can be used to expand the education of members and to re-educate members should be utilized. It should be noted that a very fine start has been made in this direction, and with the co-operation of OAA members, will grow into a significant program of the Association.

At present in Ontario, there is one School of Architecture, at the University of Toronto. The School has operated as a separate faculty within the University since 1950, and for more than half a century before that, was part of the School of Practical Science. At the present time, a five-year course in Architecture is offered leading to a degree of Bachelor of Architecture. There are also related schools of Town and Regional Planning, Landscape Architecture, and a School of Graduate Studies. Increasing attention has been given at the School, in the use of computer technology, and courses are now available in these techniques.

The undergraduate course generally runs around 250 students in the five-year course. Enrolment into first year has been limited to no more than 60 students for the past few years. Before admission to the School, students are carefully examined for aptitude and interest and only those candidates meeting the admission requirements are accepted. Care has been taken to maintain a good staff-student ratio.

The School of Architecture is a well established School, with a long tradition in architectural education. It is integrated into a large University with a very broad base in the Humanities and Sciences and with courses available in most of the other design disciplines. Further, it is located in a large urban center. The School has developed in size over the years to a dimension that has a large enough faculty to provide a wide diversity of background in its members.

It is the opinion of the Committee that any expansion of architectural education within the universities of the Province should only be considered if the following conditions can be satisfied by the institution concerned:
(1) *That the university have a sound, well-established base in the Humanities and Sciences.*
(2) *That the university have available well-developed courses in related subjects such as mechanical, electrical, civil, acoustics, illumination and other engineering related to buildings; fine arts; economics; town planning; product design; landscape architecture.*
(3) *That the site of any proposed school of architecture be in or near large urban centers, which would serve as a living laboratory for students who should be made aware of the problems of our society. We do not feel that an "ivory tower" pastoral setting is the proper context for a modern school of architecture.*
(4) *The university should have every expectation of creating a school of sufficient size to require a faculty with a broad range of experience and academic background.*

The Committee is also of the opinion that there is an optimum size for a school of architecture. This would appear to be a school with about 20 faculty members and with the maintenance of a desirable staff-student ratio of one to 12 or 15, which would mean a student enrolment of between 250 to 300. A school smaller than this would result in a lack of diversity of views and inefficiency of operation. A school larger than 300 results in the destruction of the personalized quality of education so important to architectural education.

4 What prediction can be made of the number of architecturally-trained persons required by reason of
(a) population increase,
(b) volume of construction, and
(c) involvement of the architectural profession in (b)?

(a) *Population Increase*

During the period 1951 to 1961 the total number of architects registered in the OAA increased from 568 to 988. This represents an increase of 74% over a period of ten years. During the same period, the population of Ontario increased from 4,597,542 to 6,236,092. This represents an increase of 35.8%.

In 1951 the ratio of population to architects was one per 8100; in 1956, one per 6900 and in 1961, one per 6300. The figures for 1964 indicate a ratio of one per 6000 of provincial population. It is interesting to compare this ratio with other areas, such as the following figures for 1960:

Norway	1 to 2949
U.K.	1 to 3118
West Germany	1 to 4333
East Germany	1 to 4400
France	1 to 5232
U.S.A.	1 to 7616
Canada	1 to 8000

It should be noted that the ratio of architects to population can be affected greatly by the capital development of the countries and areas concerned and also by the role of the architect in professional life of the nation or province concerned.

In those countries of high prosperity and where extensive capital development is taking place, the ratio of architects to population can be expected to be high.

There is also a great variation from one country to another in the activities of an architect in the professional life of the country. In some parts of the world where the number of architects seems high per population, on closer examination it is found that many of the architects registered are not directly involved in the traditional role of architect as we know it in Ontario, but are occupied in other disciplines such as product design, interior design and urban and regional planning.

The Department of Economics and Development of Ontario has predicted an increase in population in Ontario from 6,236,092 in 1961, to 9,291,600 in 1981. If the present ratio of architects to population is to be maintained without consideration of any other factors (one architect per 6000), 1550 architects would be required in 1981.

The average net gain in population due to immigration during the 40 years from 1921 to 1961, has been 30,000 persons per year.

In addition to immigration into Ontario from other provinces and countries, we have witnessed since the turn of the century, a continuing shift in population from rural to urban areas. The shift in population from rural to urban is indicated in the following table:
Urban Population: Municipalities over 1000
1941 – 54.34% of total population
1951 – 56.68% of total population
1956 – 57.74% of total population

In Canada, in 1941, there were 54 municipalities of 15,000 population or more. In 1951, this had risen to 77 and by 1956 to 93.

The demand for the services of architects is generally greater in the urban centers, especially in municipalities over 15,000 population, than in the rural areas, because of the greater need for planned disciplined development. The development of small municipalities into units greater than 15,000 creates further opportunities for architects to function. Generally, a municipality of less than 15,000 has insufficient concentration of population and volume of construction work to support an economically stable architectural firm.

For Canada, estimates of the ECC indicate that during the period 1966 – 70, the average annual net family formation (excluding Yukon and NWT Territories) will be 108,200, representing an increase of 35,800 over the period 1961 – 66 – approximately 50%. This increase is projected to require by 1970 the construction of new housing at an annual rate of 190,000 units as against 135,000 units in 1963. The value of new residential (including alterations and repairs) construction for 1970 is estimated at $3,246 million (1963 dollars) as against $2,257 million in 1963, an increase of over 40%.

Parallel to this rise in family formation causing major increases in the demand for residential construction, will be a demand for social capital investments by governments and private bodies to provide the necessary educational facilities, hospitals, roads, etc., which will also be needed. Non-government social capital investment in construction is projected to rise from $347 million in 1963 to $658 million by 1970 (both 1963 dollars), an increase of almost 90%. Public social capital investment in construction is expected to rise from $1.7 billion in 1963, to $2.8 billion by 1970 (both 1963 dollars), an increase of 64.7%. In summary then, Canada's population growth, rising Gross National Product and higher living standards between 1963 and 1970, could result in the following increase of construction:
(*see table*)

(b) *Volume of Construction*
The value of construction in Ontario (in thousands of dollars) rose from $1,105,503 in 1950 to $2,643,570 in 1964.

The total value of work reported by architects rose from $386,926,050 in 1950 to $925,249,500 in 1964.

The value of work *per architect* was $831,500 in 1950 and $841,135 in 1964.

It is obvious that the increase in the total number of architects has barely maintained pace with the volume of construction.

	1963	*1970*	
	(millions of 1963 dollars)		*Increase*
Residential construction	2,257	3,246	43.6%
Private social capital investment	347	658	86.9%
Public social capital investment	1,700	2,800	64.7%
Total	4,304	6,704	56.0%

ECC forecasts indicate an increase in the rate of increase in volume of construction, as a result of an increase in the number of new family starts, growth in population and economic development. The rate of increase has been 133% over the past 14 years, (9½% per year) and during the period 1963 to 1970, it is forecast that it will continue at least at the same overall rate. However, in the areas of private social capital and public social capital investment, it is expected that the rates will increase to averages of 12½% and 9½%. These are the areas in which the demand for architect's services are greatest.

(*c*) *Involvement of the Architectural Profession in* (*b*)
The part that the architectural profession will play in providing architectural services in the future will depend in large measure upon the profession itself. If the profession and architects are flexible enough to maintain their competence in an ever-changing situation, they will be able to maintain and increase their present involvement. Someone is going to provide the services demanded by an expanding economy. If it is not the architect in the architectural field, it will be as a result of default to other more competent professions.

Summarizing the answer to Question 4 of the Terms of Reference, it can be said that it is unrealistic to relate the number of architects to the population without considering (a) changing economic conditions, (b) age distribution of the population and family starts, (c) changing patterns of population, such as the increased urbanization of our population.

The increase in the number of architects over the years 1950 to 1964, has been about 94%, or an average of about 7% per year. This must be not only maintained but increased to meet future demands. Statistics show our dependence upon immigration to supply us with a large number of architects. The decrease in immigration in the past five years, coupled with no increase in the graduates from the U of T School of Architecture, can only mean a sharp drop in future years in the number of registrants. The decline in the registration of immigrant architects (especially those from outside Canada) must be met with expanded educational facilities in Ontario, and as rapidly as possible.

5 With regard to the total Canadian architectural scene, what form should any increase in architectural educational facilities take in the Province of Ontario?

Since architectural education at a university is one of the requirements for qualifying for entry into the architectural profession, any new program must be related to the requirements of the profession.

While academic freedom must be maintained at the university, and diversity of views assured in the academic arena, consideration must be given to the maintenance of standards and program content demanded by the Ontario Registration Board.

Uniform procedures should be established for determining standards, not only in new schools of architecture, but in all schools of architecture across Canada.

The Committee feels that the RAIC should be prepared to provide an accrediting service which would evaluate from the profession's point of view, the standards of student preparation for the architectural profession provided by all universities across Canada. Any new facilities in Ontario, of course, would be required to meet these standards if graduates are to be accepted for registration by any provincial architectural registration board.

6 What is the qualitative and quantitative nature of the requirements for architectural technicians?

It was noted earlier in this report that it is apparent there is a continuing misuse of trained professionals. In many cases, personnel trained to the professional level, are engaged in work that could more effectively be done by technologists or in extreme cases, technicians. Some of this misuse of highly trained personnel could be overcome by the availability of more technicians and technologists who would free the professional architect to carry out the work commensurate with his ability and education.

A recent study by the Fees Committee of the OAA revealed that the most efficient architectural firms in the Province were operating with a ratio of from one architect to five technical staff, up to a ratio of one architect to nine. Those firms with a ratio of less than one to five, were found to be at a definite economic and professional disadvantage.

Studies in the Scandinavian countries and Germany, have reported the same results. Since many firms in the Province are presently operating at below the minimum level of one to five, it can be concluded that there is room for a much greater number of architectural technologists and technicians.

The educational facilities have been created recently and are continuing to be expanded by the Ontario Department of Education for the training of both technologists and technicians.

At present, the formal training of architectural technologists is carried out at Ryerson Polytechnical Institute in Toronto. Students with four years of High School and at least some Grade 13 subjects may be admitted to a three-year course in Architectural Technology.

For those students with four years of High School wishing to train as technicians, two-year courses are available at vocational centers located in cities throughout the Province, such as London, Ottawa, Toronto (Provincial Institute of Trades) and at the Lakehead.

The new re-organized program in the Secondary Schools also provides courses in vocational training. It can be expected that the Secondary School graduates of either the four- or five-year programs will now be better equipped to enter into architect's offices as apprentice assistants, than in the past.

The opportunity for Secondary School graduates to improve their training by attending vocational centers or polytechnic institutes is now possible. It is also possible for those graduating from vocational centers, if they do well, to advance into the polytechnic institutes, and graduates of high standing from polytechnic institutes may now progress into the professional course at the School of Architecture. *The door is now open for students to pursue education and training to the utmost limits of their abilities in the new flexible program available in Ontario.*

The recognition of architectural technicians and technologists has become an important element in the development of more trained personnel required by the profession.

Recognition would be an encouragement for Secondary School students to enter into advanced training which would enable them to enter job positions with a measure of status and prestige, until now not enjoyed by capable technical personnel. The graduates of Ryerson Polytechnical Institute have shown their capabilities across this Province and deserve recognition. Such recognition would not only aid in recruitment of more personnel, but would generate pride of performance in those engaged in the field of technology.

Recently, steps were taken in Great Britain to recognize architectural technicians and technologists. In Ontario, the Professional Engineers have participated in the development of the recognition of engineering technicians and technologists. It is important that the terminology and titles used for architectural technicians and technologists be consistent with those established by the Department of Education and used by the engineering profession, if confusion in the minds of the public is to be avoided.

Conclusions

It is recognized that at least eight years will pass before a student entering training

tomorrow will be registered to practise in Ontario.

The Province has obtained over the years past nearly 60% of its annual increase in registration from sources outside the Province. There are indications that, particularly the European sources, will not be providing as many trained personnel as in the past. Regardless of the availability or otherwise of potential architects from outside the Province, we should not continue to rely on others to train such a large percentage of people who will serve our Province.

In our opinion, we should not anticipate any problems inherent in any temporary over-production of architects. The profession is able to offer full architectural services to only one-third of all buildings. Many allied fields could easily absorb people with architect's training. And finally, graduate emissaries to areas outside the Province, with the hope of possibly later returning to the local scene, would in many ways be beneficial.

Subject only to the expressed desire to maintain or raise the standard of education, *we encourage the evolution of curricula to better equip graduates to cope with the problems inherent in catering to the needs of today's and tomorrow's society*. Experimentation should be encouraged and modification of the universities' approach to problems such as specialization, equal distribution of the total work load among the various disciplines and integration of training so each discipline is sympathetic to the problems of all the others, is not only desirable but fast becoming mandatory.

We now absorb approximately 70 architects per year into the Profession. The training and availability of more support personnel will increase the efficiency of those presently practising and this training program must be encouraged. But it is obvious from the foregoing that if the Profession is to meet the demands that will be required of it, more schools are necessary – now!

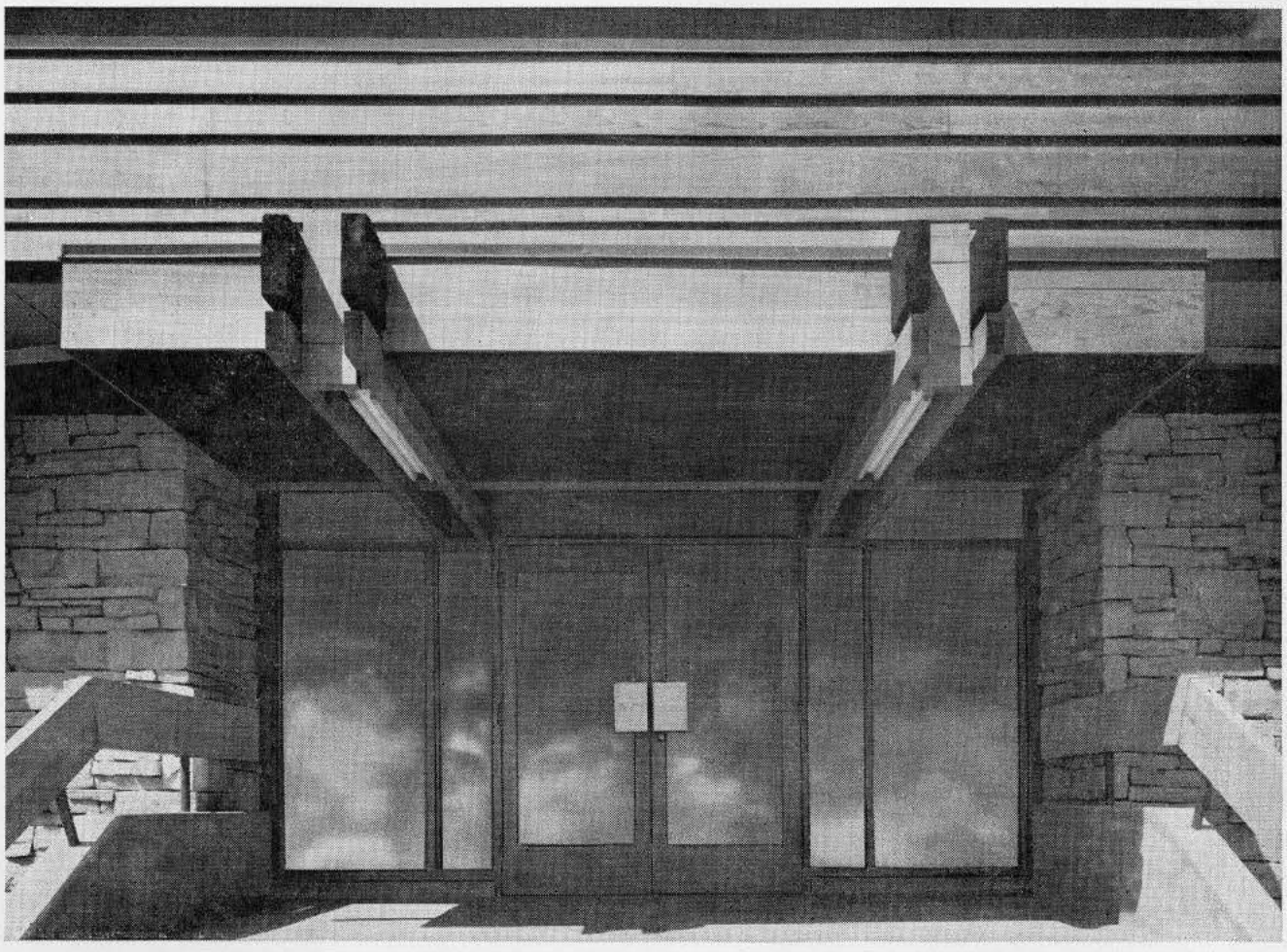
The population and work load distribution set out in a recent report of the Woods Gordon – OAA Fee Committee Survey indicates that the best choice for locations for new schools of architecture would be the Ottawa area and South-Western Ontario. There is every indication that established institutions in these areas are willing to fulfill the need.

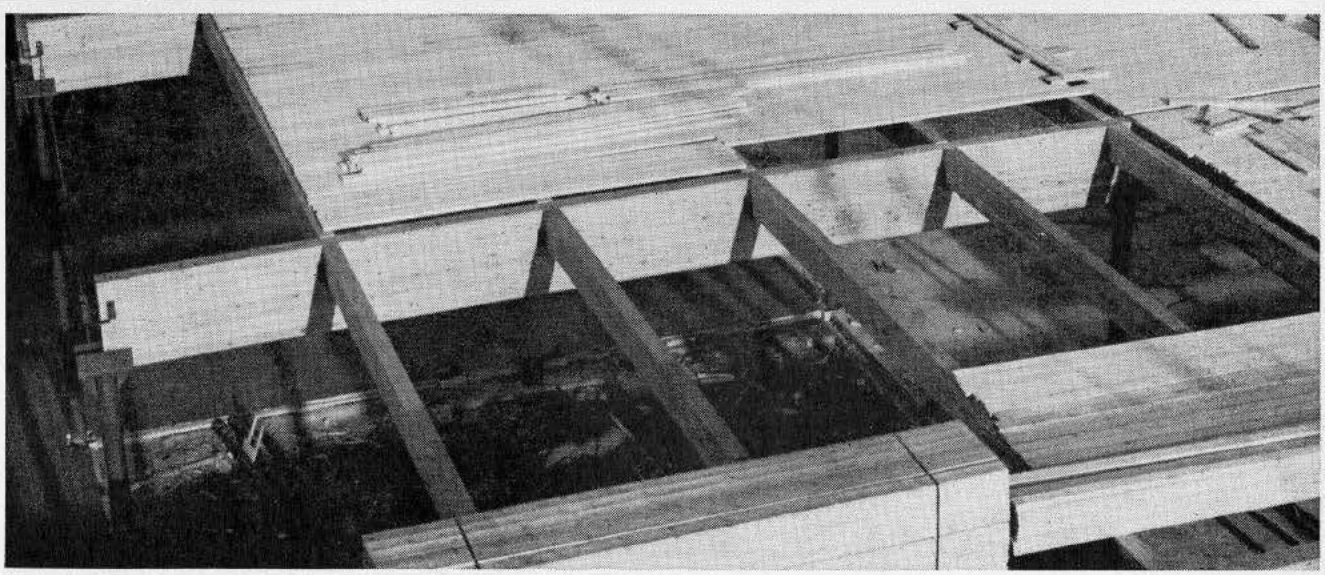
It should be emphasized that the Committee feels that the conditions for the establishment of a new school of architecture as outlined in this report should be seriously considered and the plans of the universities contemplating extension of facilities be co-ordinated at a Provincial level.

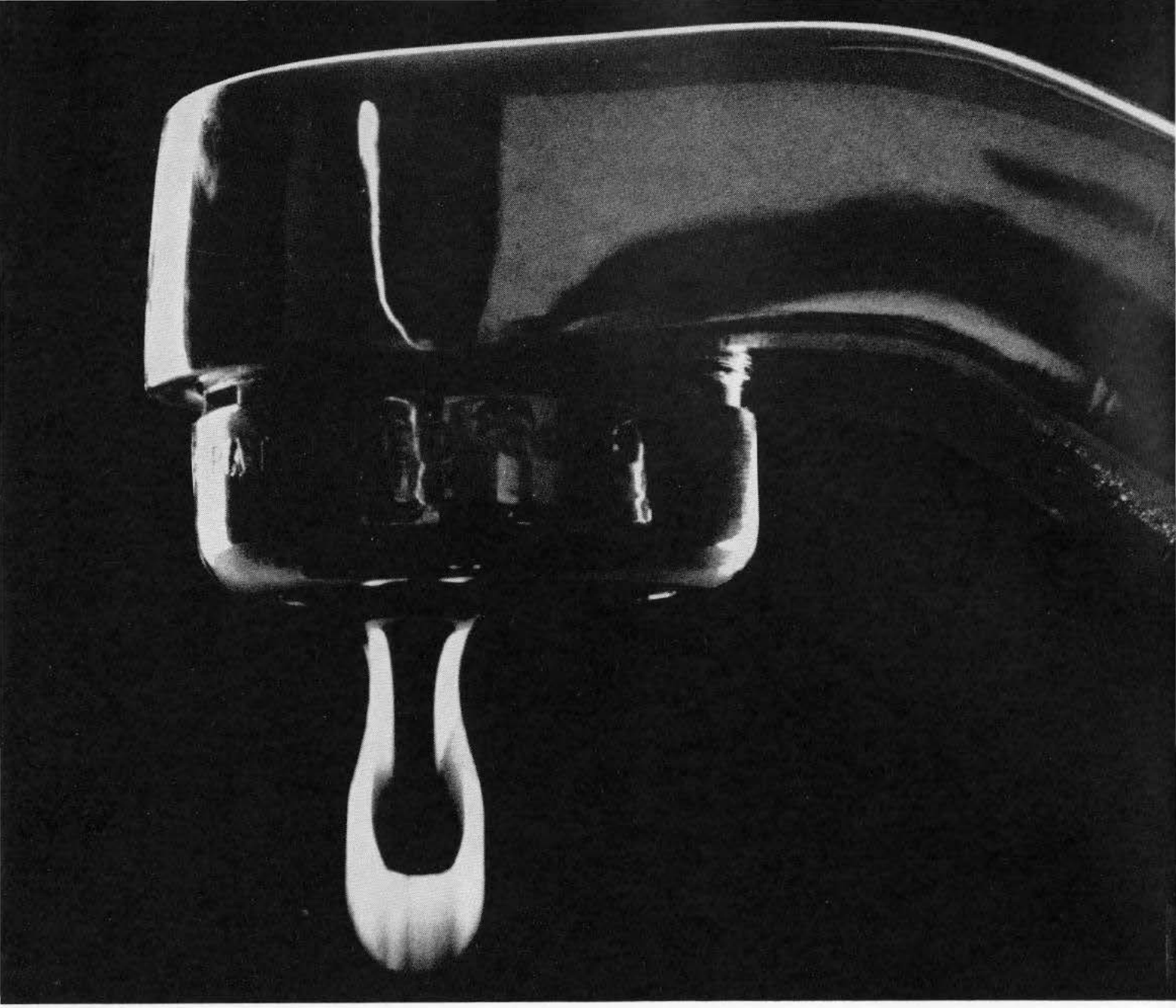
The Ontario Association of Architects stands ready to provide every assistance in this program. □

Warm and simple combinations of wood and stone enable the Civic Garden Centre to blend naturally with the landscaping in Edward's Gardens of the Metropolitan Parks Department, Toronto. Architect: Raymond Moriyama, Structural Consultants, G. Dowdell and Associates.

Below, wood was specified for the Allen Industries Canada Ltd. plant at Hamilton, Ontario by consulting engineers S. N. C. Filer Ltd. on the basis of fast delivery and fair price. Heavy timber construction, with laminated beams and purlins supporting 2" tongue and groove decking justifies a favourable fire insurance rate. Consulting Architects, Roscoe & MacIver.





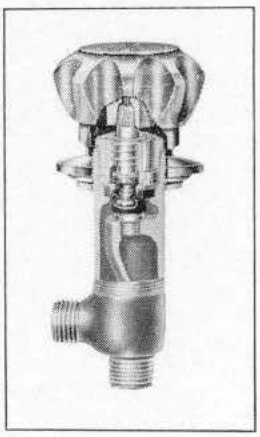


Is this how your last client is going to remember you?

Dripping taps. Quite a memento when you've put a lot of time and thought into a new building.

American-Standard Prestige fittings with Super Aquaseal and Hyseal valve mechanisms put an end to dripping taps. How? No washers. In our two-valve fittings with Super Aquaseal, there's a rubber diaphragm that moves straight up and down rather than twisting and grinding like a conventional faucet washer. In single control fittings with Hyseal, a simple tip valve replaces the usual washer.

These unique valve mechanisms are so reliable that American-Standard offers a 5-year warranty on Prestige fittings. The only one in the industry.



With Prestige, you also get the advantage of interchangeability. Though this is the most complete line of plumbing fixture trim in Canada, it's built up from a few basic interchangeable parts. So you never have to mix the trim even on the largest building complex.

Prestige is the finest line of fixture trim available, well worth a few dollars more.

Find out more about Prestige.

We'll be happy to send you literature.

AMERICAN-STANDARD

American-Standard Products (Canada) Limited,
1201 Dupont Street, Toronto.

Communiqué 2

From Institute Headquarters

University of Manitoba's architecture faculty members had a busy Summer on the initial phase of a 16-month study for CMHC. Subject: Apartment House Design for the Prairie Region. It is intended to make recommendations for design principles best suited to the region, for the guidance of architects, builders, and housing authorities.

A CMHC Urban Renewal Study in Halifax is being made under the supervision of architect Tom Januszewski. The study concerns a number of small communities in the County of Halifax.

In Ottawa, a planning study for a large urban renewal program is being carried out by Murray and Murray, architects and town planners. The City of Ottawa hopes to complete this lower-town program by 1970.

"Increasingly the quality of our societies will be tested by what we do *in our cities*. In the past the family, the firm and the nation have been our basic units of economic and social account. I am required by all religious and social tradition to predict that the family will continue to be of some importance. No doubt nationalism will continue to be something of a force. But I am persuaded that the city is on the way to becoming the decisive unit, so, if you feel that you are too good for business don't run for Parliament, run for mayor.
"I should like also to suggest that increasingly the test of public officials – prime ministers, premiers and above all mayors – when they reach the end of their appointed term in office will not be whether they left their constituency more prosperous than before. By that test it is too hard to fail. The test will be whether they left their communities more beautiful than before. By that standard no one so far in this century on this continent would have been re-elected. . . ."
Dr John Kenneth Galbraith, Professor of Economics, Harvard University.

Two noted Paris architects are participating in the 1966–67 program of talks at the National Gallery of Canada, Ottawa. Pierre Faucheux is speaking at the end of October, and Claude Aubert in March.

An excellent 45-minute film from Belgium, entitled *Architecture – Art de l'Espace*, was shown by the National Gallery during its Summer program. It is available from the Canadian Centre for Films on Art, c/o the National Gallery, Ottawa. (Commentary in English or French.)

If the first issue is any indication, there will be a good deal of interest to architects in the new Journal of Canadian Studies, published by Trent University, Peterborough, Ont. James Acland and Ronald Thom consider the Old City Hall-Eaton Centre question in Toronto in two very readable articles. And Alan Gowans' contribution is the concluding chapter of *Looking at Architecture in Canada*, new edition.

Two RAIC members have entered the ranks of *Great Canadian Writing*, the latest volume of the Canadian Centennial Library. Eric Arthur (*F*) is represented by two extracts from *Toronto: No Mean City*; Peter Collins, by part of his article on *Architectonics* in the RAIC Journal (1961).

The August issue of *AIA Journal*, in a section devoted to the Association of Collegiate Schools of Architecture, features articles by Peter Collins and Henry Elder. *Architectural Criteria and French Traditions* is Professor Collins' theme, taken from his address (delivered in French) to the 1966 Annual Meeting of PQAA. Professor Elder writes on *The Vancouver Experiment* – the new curriculum approach at the UBC School of Architecture.

John C Parkin (*F*) and Dr Thomas Howarth (*F*) are attending the first meeting of the Board of Architectural Education, Commonwealth Association of Architects, in October. The Board aims to set standards of professional education acceptable for recognition by all member societies of CAA, and for recognition of architectural schools. At the outset, its work will be mainly concerned with assistance to the developing nations of the Commonwealth.

Du siège social de l'Institut

Pour les membres de la faculté d'architecture de l'Université du Manitoba, l'été qui s'achève a été une période de grande activité consacrée à la première partie d'une étude de seize mois pour le compte de la SCHL Le sujet en est "Modèles de maisons d'appartements pour la région des Prairies" et l'objet, de recommander certains principes quant aux modèles les plus appropriés à la région, pour la gouverne des architectes, des constructeurs et des services d'habitation.

La SCHL a aussi confié à l'architecte Tom Januszewski la direction d'une étude sur le renouvellement urbain à Halifax. Cette étude porte sur un certain nombre de petites municipalités du comté d'Halifax.

A Ottawa, les architectes et urbanistes Murray et Murray ont été chargés de la préparation d'un plan de renouvellement d'une forte partie de la ville. Les autorités espèrent avoir terminé leur programme de renouvellement de la basse ville en 1970.

"De plus en plus, la qualité de nos sociétés sera déterminée parce que nous faisons *dans nos villes*. Dans le passé, la famille, l'entreprise commerciale et le pays ont été les grandes unités économiques et sociales. Toutes les traditions religieuses et sociales me forcent à prédire que la famille continuera d'occuper une place d'une certaine importance. Nul doute aussi que le nationalisme demeurera une force. Cependant, je suis persuadé que la grande ville est en train de devenir l'unité par excellence. Par conséquent, si vous pensez que les affaires ne sont pas à la mesure de votre taille, faites-vous élire, non pas député, mais maire.
"Je pense que, de plus en plus, les hommes publics, premiers ministres fédéraux et provinciaux, et maires en particulier, arrivés au terme de leur mandat, seront jugés, non pas par la prospérité qu'ils auront assurée à leurs circonscription – ce serait trop facile – mais par l'embellissement apporté aux villes. D'après ce barême, aucun homme public n'aurait été réélu sur notre continent depuis le début du siècle actuel. . . ."

Registration is now open for Canadian architects planning to attend the second biennial conference of CAA, in Delhi, India, from March 11 to 18 next. Theme: Role and Status of the Architect.

Some arresting conclusions from recent UIA Colloquium on Housing, held in Bucharest:

"The housing situation in under-developed countries appears to have reached a dead end. . . . The need to establish the bases of their own economy compels the governments to courageously postpone the solution to the housing problem in order to give priority to problems of national economy. . . . The housing problem is insoluble if the excesses of a galloping birth-rate are not fought with all the means at man's disposal. . . . It is necessary to encourage the development or the creation of techniques allowing the use of local materials and the abundant manpower available, rather than attempt importing industrialized methods."

Formal participation in the ICOM-UIA Colloquium on Museum Architecture, August 28–September 3, 1967, in Montreal, will be limited to five selected architects, five museologists, and three other experts. However, observers will be admitted, and will be invited to join in the discussion.

The Montreal Museum of Fine Arts will be given over to an exhibition of photographs, drawings, and models of notable museums throughout the world.

RAIC members who are interested in attending should advise our Headquarters before November 15.

University College, Dublin, is organizing its second international competition. The first, won by the Polish architect A. Wejchert, was for the site layout of new college buildings and detailed designs for the Faculty of Arts, administrative offices and examination halls. This second international competition is for design of the Library Building of University College. Registration closes December 1. Write to: Competition Registrar, University College, Earlsforth Terrace, Dublin, Ireland.

A CIB Symposium on weather-tight joints for walls is being planned for the early autumn of 1967 in Oslo, Norway. Advance information now available from: Norwegian Building Research Institute, Postboks 322, Blindern, Oslo 3, Norway.

Architecture and Construction, a new Brazilian monthly, invites Canadian architects to publish their works for the benefit of the profession in South America. Write to Architect Sérgio Teperman, A/C Revista AC – Arquitetura e Construçao, C.P. 30493 – Sao Paulo, SP. Brazil.

Fred W. Price
Executive Director

M. John Kenneth Galbraith, professeur de science économique, Université Harvard.

Deux architectes éminents de Paris sont inscrits au programme de causeries à la Galerie nationale du Canada. M. Pierre Faucheux prononcera une conférence à la fin d'octobre et M. Claude Aubert, en mars. Un excellent film de 45 minutes obtenu de Belgique et intitulé "Architecture-Art de l'Espace" a été présenté cet été à la Galerie nationale. On peut se le procurer en s'adressant au Centre canadien des films sur les arts, a/s de la Galerie nationale du Canada, Ottawa.

Dans une section de son numéro d'août consacrée à l'Association of Collegiate Schools of Architecture, le Journal de l'AIA présente des articles de Peter Collins et Henry Elder. Le professeur Collins a intitulé son article, qu'il a tiré de son discours à l'assemblée annuelle de 1966 de l'AAPQ, "Architectural Criteria and French Traditions".

L'article du professeur Elder porte sur "The Vancouver Experiment", nouveau programme d'étude de l'Ecole d'architecture de l'Université de la Colombie-Britannique.

MM. John C. Parkin (*F*) et Thomas Howarth (*F*) participeront en octobre à la première réunion de la Commission sur la formation des architectes de l'Association des architectes du Commonwealth. Cette commission doit travailler à établir des normes de formation professionnelle acceptables par toutes les sociétés membres de l'AAC et d'après lesquelles les écoles d'architecture pourront se faire reconnaître. Au début, la Commission concentrera surtout son attention sur l'aide à apporter aux pays du Commonwealth en voie d'évolution. Les architectes qui ont l'intention d'assister au deuxième congrès biennal de l'AAC à Delhi (Indes) du 11 au 18 mars prochain peuvent s'inscrire dès maintenant. Le thème sera: le rôle et le statut de l'architecte.

Voici certaines conclusions d'un récent colloque tenu par l'UIA à Bucarest sur l'habitation:
"La situation en ce qui a trait à l'habitation dans les pays sous-développés semble en être arrivée à une impasse. . . . Forcés d'établir les bases de leur économie, les gouvernements ont dû prendre la décision courageuse de différer la solution de leurs problèmes d'habitation afin de donner la priorité aux problèmes de l'économie nationale. . . . Le problème de l'habitation est insoluble en l'absence d'un recours à tous les moyens de lutter contre les excès de taux effrénés de natalité. . . . Il est nécessaire d'encourager le développement ou la création de techniques permettant d'utiliser les matériaux locaux et l'abondance de main-d'oeuvre disponible, plutôt que de chercher à importer des méthodes industrielles. . . ."

La participation formelle au colloque de l'ICOM et de l'UIA sur l'architecture des musées à Montréal du 28 août au 3 septembre 1967 a été limitée à cinq architectes choisis, 5 muséologues et 3 spécialistes. Cependant, des observateurs seront admis et invités à prendre part aux discussions. Le Musée des Beaux-Arts de Montréal sera employé à une exposition de photographies, de dessins et de maquettes des principaux musées du monde entier. Les membres désireux d'y assister sont priés d'en aviser notre bureau avant le 15 novembre.

Le University College de Dublin organise son deuxième concours international. Le premier, gagné par l'architecte polonais A. Wejchert, portait sur le plan d'implantation de nouveaux édifices pour le Collège ainsi que sur les plans détaillés de la faculté des arts, des bâtiments administratifs et des salles d'examen.

Le nouveau concours vise les plans de la bibliothèque. La date limite pour les inscriptions est le 1er décembre. L'adresse est: Competition Registrar, University College, Earlsforth Terrace, Dublin, Ireland.

La Russie soviétique a réalisé un film documentaire sur la construction dans les régions de pergélisol. Ce film a été produit dans deux villes sibériennes où le pergélisol atteint des centaines de pieds d'épaisseur. Il y en aura bientôt un exemplaire avec commentaires en anglais à la Division de la recherche en bâtiment du Conseil national de recherches à Ottawa.

Le CIB songe à tenir un colloque sur les joints de murs à l'épreuve des éléments à Oslo (Norvège) au début de l'automne de 1967. On peut dès maintenant obtenir des renseignements préliminaires en s'adressant à l'Institut norvégien de recherches en bâtiment, Postboks 322, Blindern, Oslo 3, Norvège.

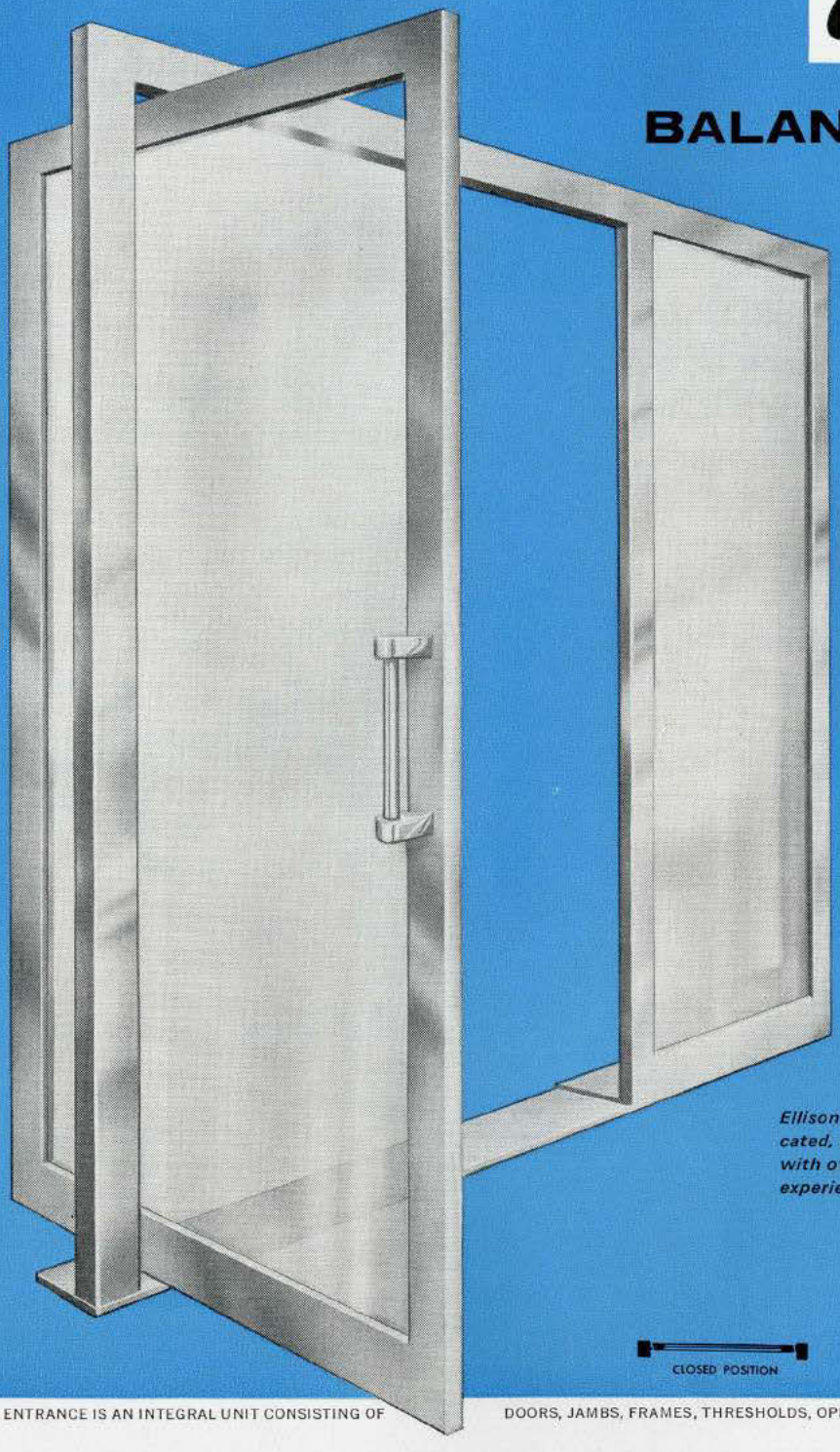
"L'architecture et la Construction", nouveau mensuel brésilien, invite les architectes canadiens à publier leurs travaux à l'avantage des membres de la profession en Amérique du Sud. Veuillez vous adresser à l'architecte Sergio Teperman, A/C Revista AC – Arquitetura e Construçao, C.P. 30493 – Sao Paulo, S.P. Brésil.

Le directeur général
Fred W. Price

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

Ellison

BALANCED DOORS



SAVE SPACE

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

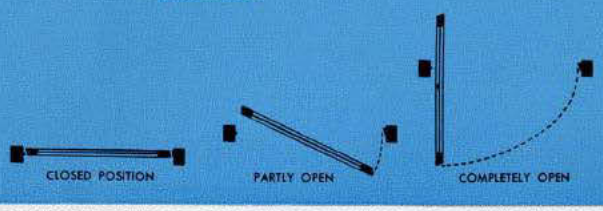
ALLEVIATE "STACK ACTION"

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

EASY TO OPEN

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

Ellison balanced door entrances are custom fabricated, erected and serviced by Canadian Rogers with over fifty years' architectural metalworking experience.



EACH ENTRANCE IS AN INTEGRAL UNIT CONSISTING OF DOORS, JAMBS, FRAMES, THRESHOLDS, OPERATING MECHANISMS AND ALL FINISHING HARDWARE.

Write or phone for full information

CANADIAN ROGERS EASTERN LIMITED

108 Vine Avenue • Toronto • Ontario • 762-7211

CREL

CANADIAN LICENSEES OF GENERAL BRONZE CORPORATION & ELLISON BRONZE CO., INC.

R-107
PANCHROMATIC
ILFORD
HYPERSENSITIVE
PANCHROMATIC
HP3
HYPERSENSITIVE

MO-SAI STRUCTURAL LOAD BEARING WALL PANELS, NORTHERN ELECTRIC ADVANCED DEVICES CENTRE, OTTAWA

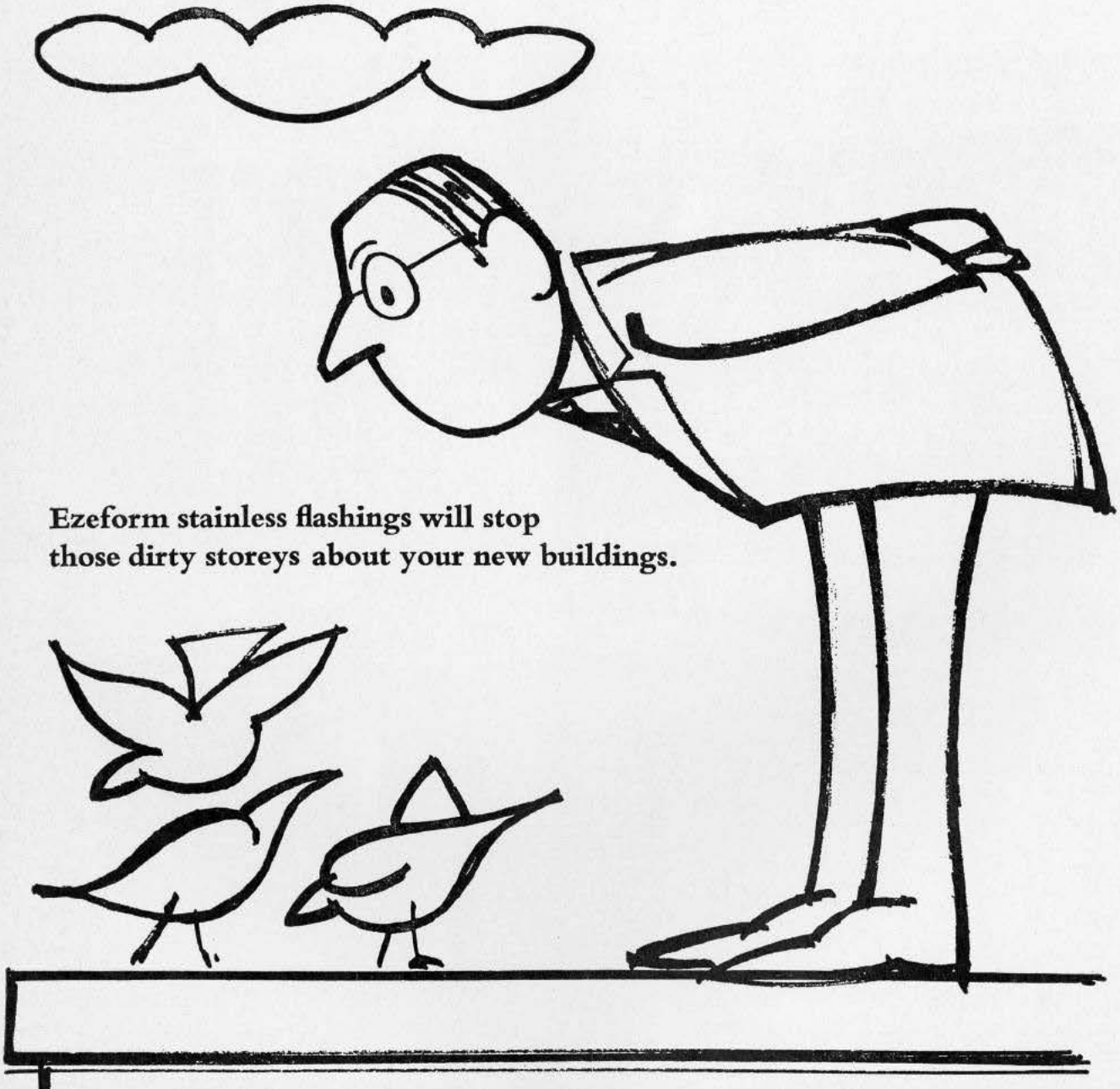
MO-SAI PRECAST FOR NORTHERN ELECTRIC'S $6,000,000 ADVANCED DEVICES CENTRE

The use of precast insured early completion for winter construction in this impressive project. Designed as box units with load bearing verticals placed directly on foundation wall, the 15 ton, 10′ x 20′ panels were temporarily braced until floor or roof slabs were poured. Polystyrene insulation was applied directly to back of Mo-Sai® panels with an inner run of concrete block as interior finish. Contract was let in June, erection of precast commenced in August with completion of main structure in February. Precast is ideal for winter construction and permits other trades to proceed under cover.

Registered Trademark.

BEER PRECAST CONCRETE LIMITED

110 MANVILLE ROAD • SCARBOROUGH • ONTARIO • PHONE 759-4151



Ezeform stainless flashings will stop those dirty storeys about your new buildings.

Now you can beat the problem of ugly oxide run-off streaks from corroding flashings. *Even if you are working with a pretty tight budget.*

Ezeform is a surprisingly economical annealed stainless steel.

How economical? Here's an example.

One contractor roofed a church with 22 tons of Ezeform stainless steel for $14,000 *less* than copper would have cost. And guaranteed the job for 50 years.

One more thing.

Ezeform doesn't cost any more to fabricate than any other sheet metal. Because it is just as easy to fabricate. Nothing more elaborate than tin shears and a brake press are required.

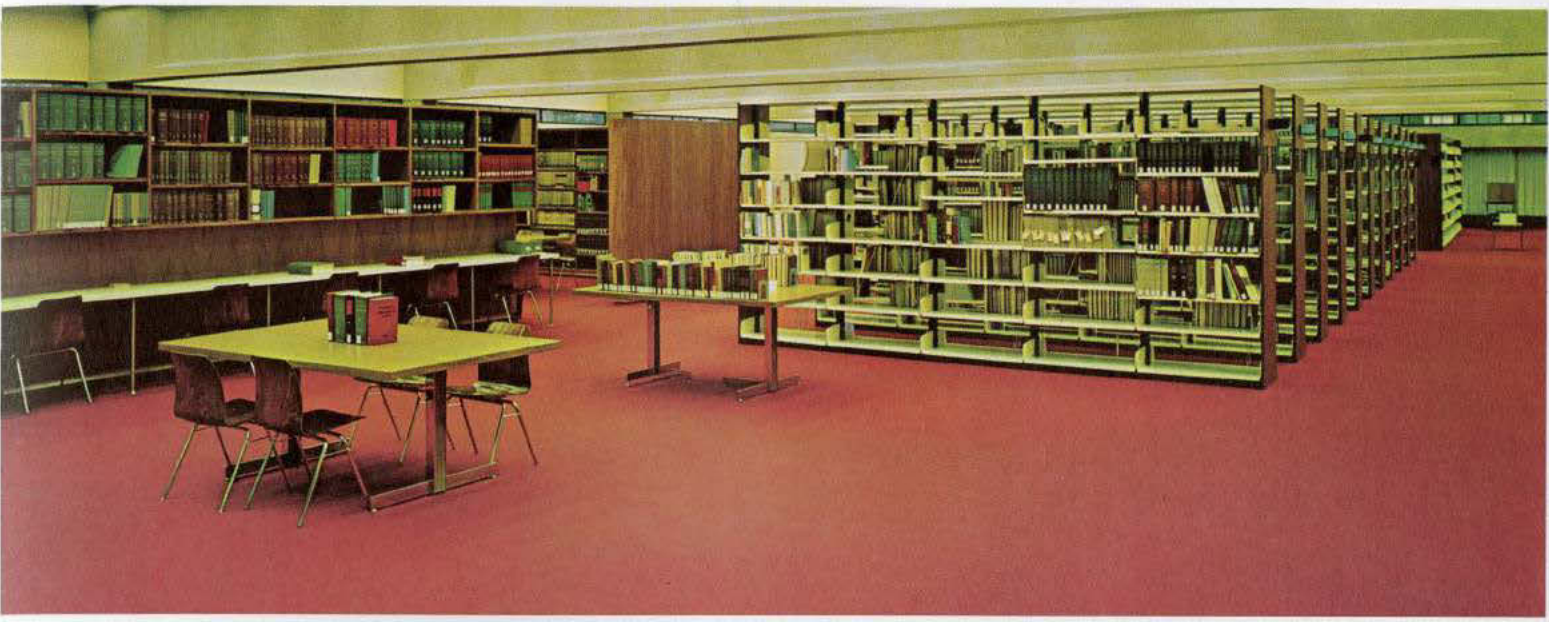
These are some of the reasons why Ezeform is worth investigating for flashings, roofing, eavestroughs and industrial wall cladding exposed to corrosive atmosphere.

And here's one more. Ezeform stainless has an attractive finish which is designed to obscure dents, scuffs and scratches. If you'd like to see for yourself, just contact one of the Ezeform stainless distributors listed below. Atlas Steels Company, Welland, Ontario.

Atlas Steels

Atlas Stainless Steel distributors: Atlas Alloys; Drummond, McCall & Co., Ltd.; Firth Brown Steels Limited; Wilkinson Company Limited.

Texama carpeting passes entrance requirements at YORK UNIVERSITY



The Douglas Library, York University, Toronto carpeted in Texama.

Texama supplied the right answers to these questions:

QUESTION 1

Does carpeting create a better atmosphere for learning?

ANSWER

Carpeting has a psychological effect on students. At York University where Texama is installed in libraries, lecture auditoriums and residences it has already produced a much quieter "living room" atmosphere among the students. The high noise absorption of Texama is achieved through the use of a foam rubber backing bonded integrally with the tight nylon pile. Rarely does one find cigarette ends or paper dropped on the carpet and in most cases overshoes are removed. Some students even go in stocking feet.

QUESTION 2

Is carpeting harder to clean than tile floors?

ANSWER

Actual maintenance costs studied over a long period show the costs of maintaining carpeted floors are much less than tile or terrazzo. At York University costs have been 35 % less with Texama as compared to resilient flooring installations. Even where a section of Texama became accidentally inundated with water the carpet dried naturally without shrinking or staining whereas an adjacent section of tile lifted and had to be relaid.

Texama, unlike ordinary carpeting, has a *tightly knitted* nylon pile which keeps dirt on the surface where it is easily vacuumed. The pile never flattens to show traffic patterns.

Texama carpeting in the library of a Metropolitan Toronto Secondary School.

QUESTION 3

How long will carpeting last?

ANSWER

There is no fixed life for a carpet floor. It depends on the amount of traffic and the quality of the carpet. Ten year installations of Texama in high traffic areas show little signs of wear. This is due in part to the tough Du Pont nylon knitted pile and the deep foam rubber backing. Texama requires no underlay.

Another library in a Metropolitan Toronto Secondary School carpeted with Texama. Notice the stair treads are upholstered with Texama.

QUESTION 4

Is carpeting an expensive "frill" for schools and universities?

ANSWER

No . . . the benefits to the learning environment in quietness and safety are hard to determine in financial terms but contribute importantly to the efficiency of both faculty and student alike. From a practical dollars and cents standpoint, savings in maintenance costs alone of Texama more than justifies the extra initial cost over hard flooring.

A classroom at the St. Charles School, Pierrefond, Quebec carpeted with Texama.

QUESTION 5

Is not heavy duty carpeting restricted to a few colours?

ANSWER

Texama is available in over 35 decorator colours and textures. This wide range gives freedom to the colour co-ordinator and designer to achieve the optimum effect, and to co-ordinate any decor and colour scheme.

CARPET DIVISION · THE DOBBIE INDUSTRIES LIMITED · GALT · ONTARIO · CANADA

Please send me more information of Texama Carpeting for Schools and Universities.

NAME .....

ADDRESS .....

CITY ..... PROV. .....

TEXAMA

Many Construction Joint Sealants need

"a crutch!"

(a primer or surface conditioner)

MONO®

LASTO·MERIC

1-Part Acrylic Terpolymer Sealant

does not!

Here's why!

Many of today's more costly sealants need primers or surface conditioners (a crutch) to gain proper adhesion. This has presented problems even where like surfaces are involved (metal to metal). Where different types of surfaces are involved (metal to masonry, glass or plastic to metal) problems become far more complex and costly. Sometimes, only one primer is required. Often, two primers or surface conditioners should be used unless it is decided to compromise. Occasionally, multiple priming coats are needed before adequate adhesion can be secured. A close look at the sealant manufacturer's recommendations will confirm these points.

Sealants that need a "crutch" increase chances of mechanic error—introduce risks of sealant failure.

MONO needs no primer crutch

MONO is inherently adhesive and does not depend on adhesive additives like most other sealants. These additives migrate, oxidize, react and eventually lose their adhesive ability resulting in sealant failure. This is why so many other sealants lean on a primer crutch to help gain adhesion. Only MONO with its *inherent* and *permanent* adhesion truly offers 20 years or more life expectancy.

End primer crutch problems. Send for results of eye-opening U. V. test today.

TREMCO

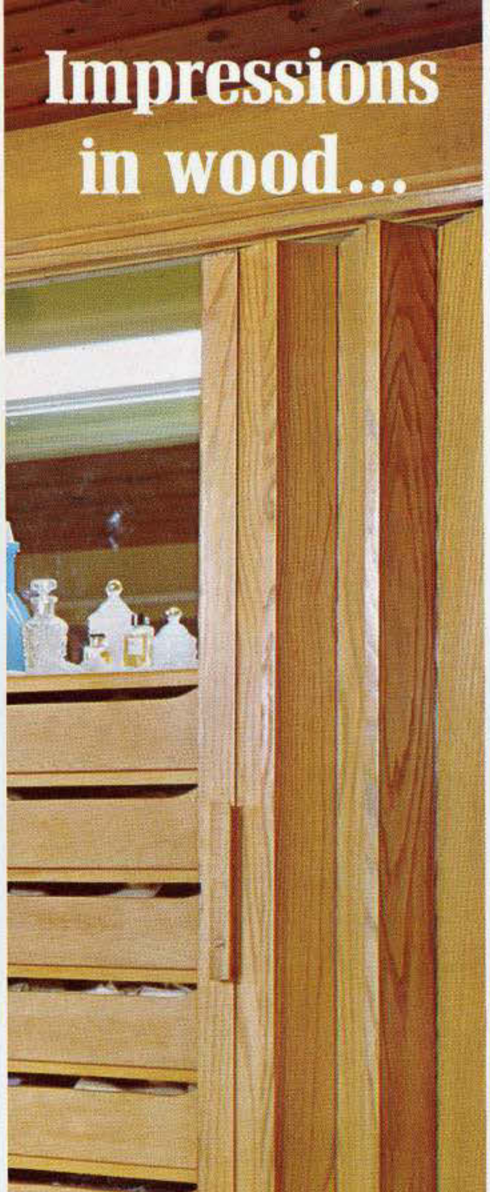
PRODUCTS AND TECHNICAL SERVICES FOR BUILDING MAINTENANCE & CONSTRUCTION

See SWEET's Architectural File 7cs/Tr, or write us.

THE TREMCO MANUFACTURING COMPANY (CANADA) LTD.

220 Wicksteed Avenue, Toronto 17, Ontario

Impressions in wood...



PELLA

Pella®

WOOD FOLDING DOORS & PARTITIONS

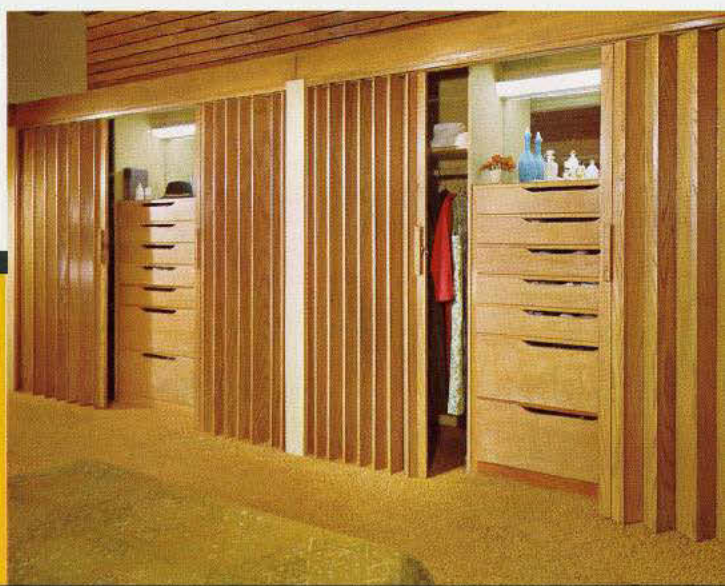
PLACE
FOUR
CENT
STAMP
HERE

PELLA ROLSCREEN CO.
PELLA, IOWA • U.S.A. 50219

To divide space decoratively and to keep sounds within bounds, genuine wood is **your** material. And, the best way to use it is in the form of PELLA Wood Folding Doors or Partitions. Choose them in soft-spoken wood veneers of OAK, ASH, PINE, BIRCH, PHILIPPINE MAHOGANY or AMERICAN WALNUT. We'll finish them in natural tones at the factory, or, you can have them stained or painted on the job. Long years of effortless operation are assured by **patented** steel spring hinging . . . an exclusive PELLA feature. Stable wood core construction **prevents** warping. Select PELLA Folding Doors for any width opening and in heights up to 10′1″. Or make it PELLA Wood Folding Partitions (with large 10⅜″ x 1 1/16″ panels in heights up to 20′1″) to divide space in schools, churches, restaurants, clubs or offices.

ARCHITECT: MARVIN L. THOMAS – CONTRACTOR: ROBERT JONES

ARCHITECT: JOHN J. FLAD & ASSOCIATES – CONTRACTOR: CAMOSY CONST. CO.



ARCHITECT: CHARLES VINCENT GEORGE & ASSOC.

Pella products are stocked and sold throughout Canada. Mail card for fast reply and name of distributor in your area.

ROLSCREEN COMPANY • PELLA, IOWA

YES, *via first class mail, rush more information on products checked below.*

- ☐ PELLA WOOD FOLDING DOORS
- ☐ PELLA WOOD FOLDING PARTITIONS
- ☐ PELLA WOOD DOUBLE HUNG WINDOWS
- ☐ PELLA WOOD CASEMENT WINDOWS
- ☐ PELLA WOOD MULTI-PURPOSE AND TWINLITE® WINDOWS
- ☐ PELLA WOOD SLIDING GLASS DOORS

Name

Firm

Address

City & Zone Province

S123456

MAIL CARD TODAY!
(Your Request Answered within 24 Hours)

WANT MORE INFORMATION ON PELLA PRODUCTS? Detach and mail your card at the left. Or, call your PELLA distributor. You can find his name in the Yellow Pages of your telephone directory, or, see SWEET'S Architectural or Light Construction Files for PELLA product details. **ROLSCREEN COMPANY, PELLA, IOWA**

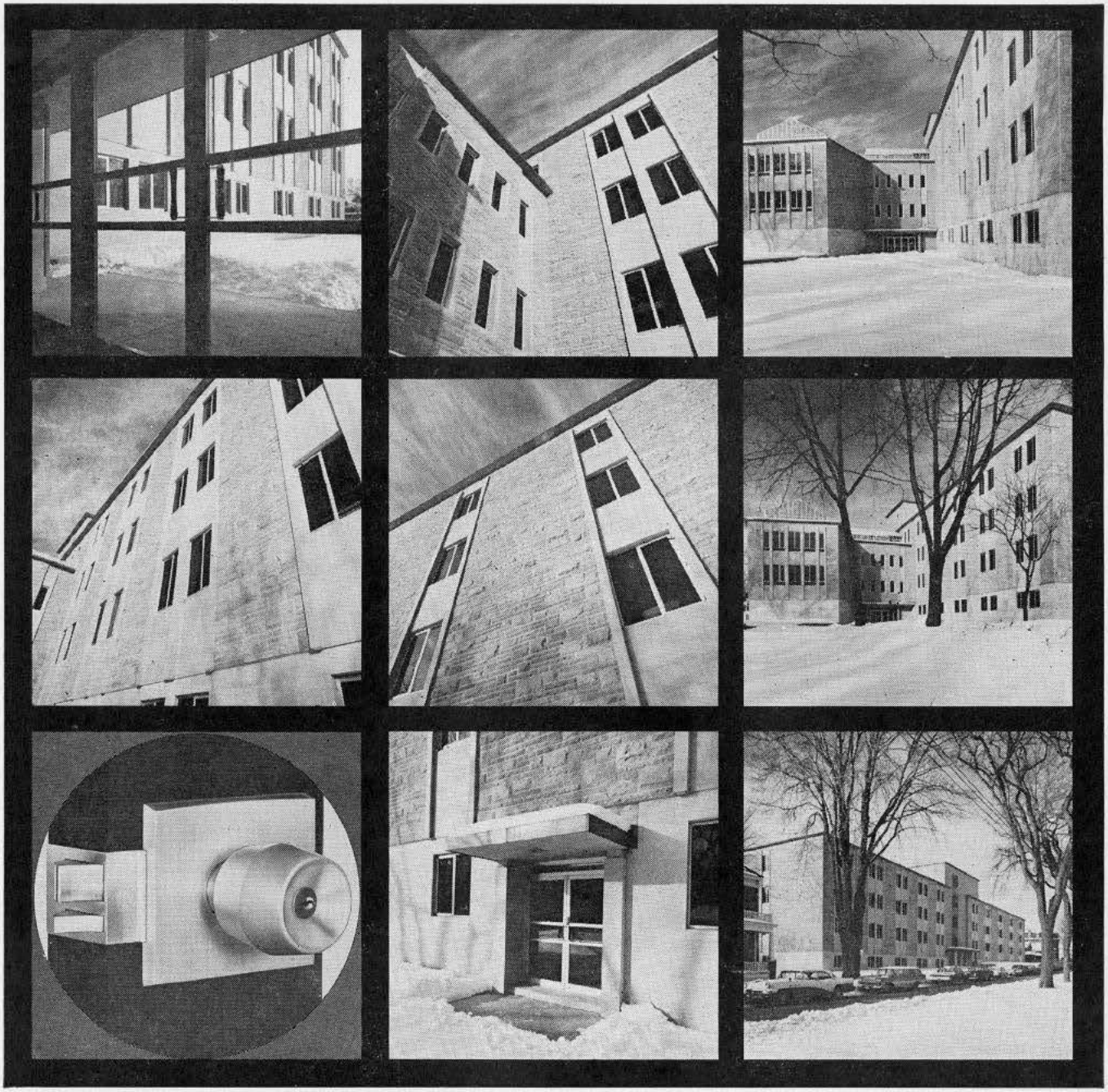
PELLA

Pella®

WOOD FOLDING DOORS & PARTITIONS

PELLA MAKES QUALITY WOOD WINDOWS, WOOD FOLDING DOORS & PARTITIONS AND WOOD SLIDING GLASS DOORS

ARCHITECTS: ALLWARD & GOUINLOCK, TORONTO • GENERAL CONTRACTOR: FOUNDATION COMPANY, MONTREAL • HARDWARE SUPPLIER: ARCHITECTURAL HARDWARE LIMITED, TORONTO



This is a

CORBIN LOCK

It's beautiful, functional and durable.

This is Queen's new biology building. It's beautiful, functional, durable and equipped with Corbin locks.

They deserve each other. When a building is as significant as Queen's Biology Building, it can't be equipped with just any lock. That's why we are so proud Corbin Monterey Series unit Locks were used throughout. □ Corbin designed a wrought stainless steel knob with cast escutcheon plate to match . . . an excellent example of Corbin's proven rugged performance and functional beauty.

CORBIN®

CORBIN LOCK DIVISION
International Hardware Company of Canada (1963) Limited
BELLEVILLE, ONTARIO

A bird's eye view of Montreal Trust Tower, Toronto

everything points to nickel stainless steel

Curtain walls, entrances, windows, doors, fascia, flashings, roofing, elevator doors, handrails. These are the uses that nickel stainless steel is being put to in modern architecture.

It has excellent corrosion resistance and a soft, permanent lustre. It needs little maintenance. Its high strength permits the use of light, economical gauges. Good points to keep in mind.

THE INTERNATIONAL NICKEL COMPANY OF CANADA, LIMITED, 55 YONGE STREET, TORONTO

Art and Architecture—Positives and Negatives

This is the eve of the publication of the first volume of our national catalogue of artists. It is a positive outcome of eighteen months of writing this column and liaison with members of the RAIC. We hope you will use it well. Other positive and negative developments appear also on the Allied Art front.

Positives

Due to Expo and the Centenary year more work is being commissioned of the artist by the architect. We can expect this to have a slight stimulus on private practice if affluence lasts. However, on the negative side, work is mainly being commissioned by appointed committees and has needed no persuasion for inclusion by the architect.

I am not yet aware that, in general, architects are now prepared to make a firmer start for art and architecture. Many architects indeed manifest the contrary and define a clear attitude that "architecture is architecture, and art is art, and it is not the architects' responsibility to house the art products of our time". The purchase of an item or two of art or a "good print" does not absolve the architect from having the courage to face the issue of his public role in accepting and housing the art of his time.

I quote Jasia Reihardt (*Architectural Design July 1966*) on sculpture in the open air . . . "Perhaps the object lesson of the Battersea Show is that the situation is far more complex than the situation suggested by Ozenfant thirty years ago. There is no such thing as an all purpose sculpture – sculpture that will reveal its meaning or make an impact under any circumstances, and the more crucial the content the more likely it is to depend on the tenuous and intangible characteristic of the environment for communicating it."

A development of significance in the art world is the new "total environment" movement. Here, the artist presents his image in his own contrived setting. This is the straw in the wind that reminds architectural society of a disability in providing a sympathetic area for concentrated contemplation of contemporary art.

It would seem that more than ever the sensitivity of a sympathetic architect is a necessary ingredient in the final placing of pure art forms in a worthy setting. Ideally it becomes a matter of his personal involvement in the problem rather than a tacit acceptance to purchase.

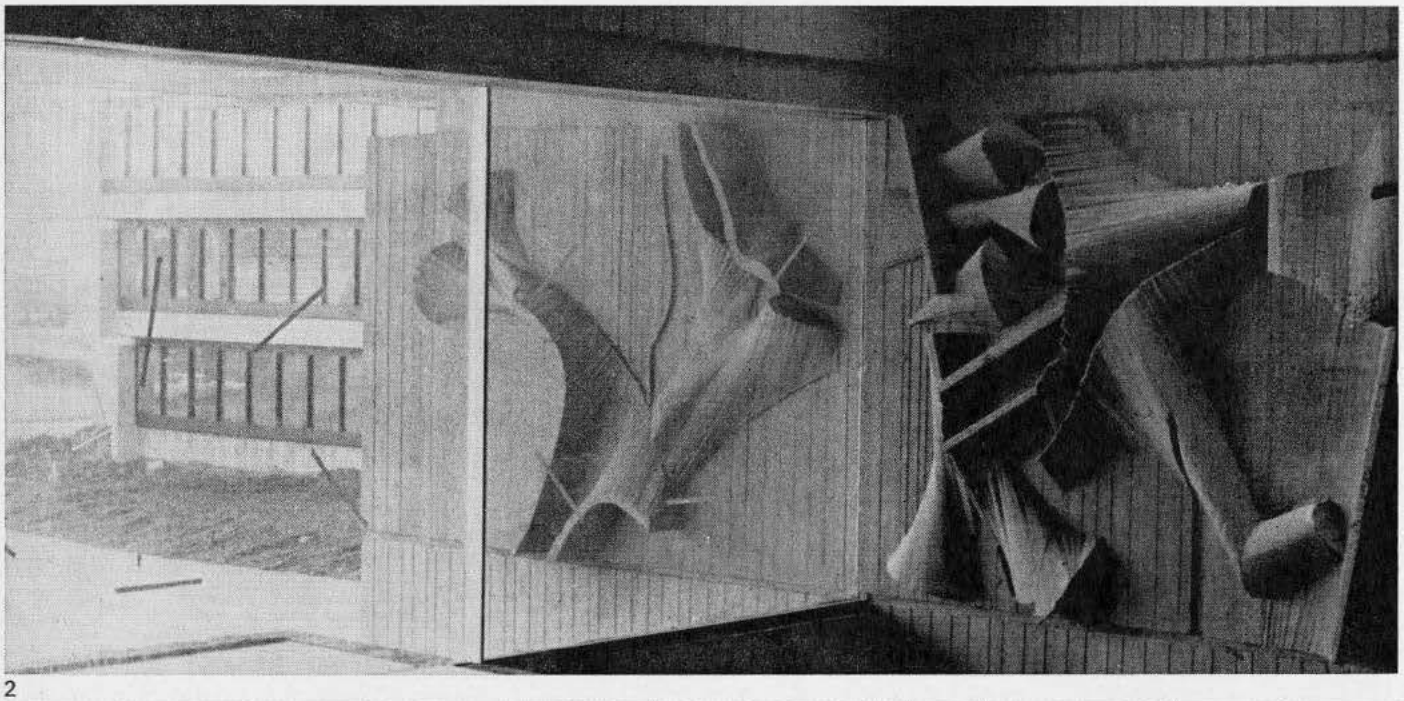
All architects need not "integrate" art motifs in the structure, although some closely knit associations between certain architects and artists have yielded exciting results. The "total" architect precludes this. This is a new species in architecture often dubbed by other architects as "More of an artist than an architect". Others, the clever technological space modulators with a nice sense of aesthetic design are excellent, successful arrangers of concrete, bricks and mortar. They are singularly untroubled by romantic conceptual doubts and are usually indifferent to collaboration with art. What I propose is two-fold.

1
Nowhere to go – "Homage to Helios" by M. H. Drope
Pas de place pour "Hommage à Hélios", sculpture par M. H. Drope

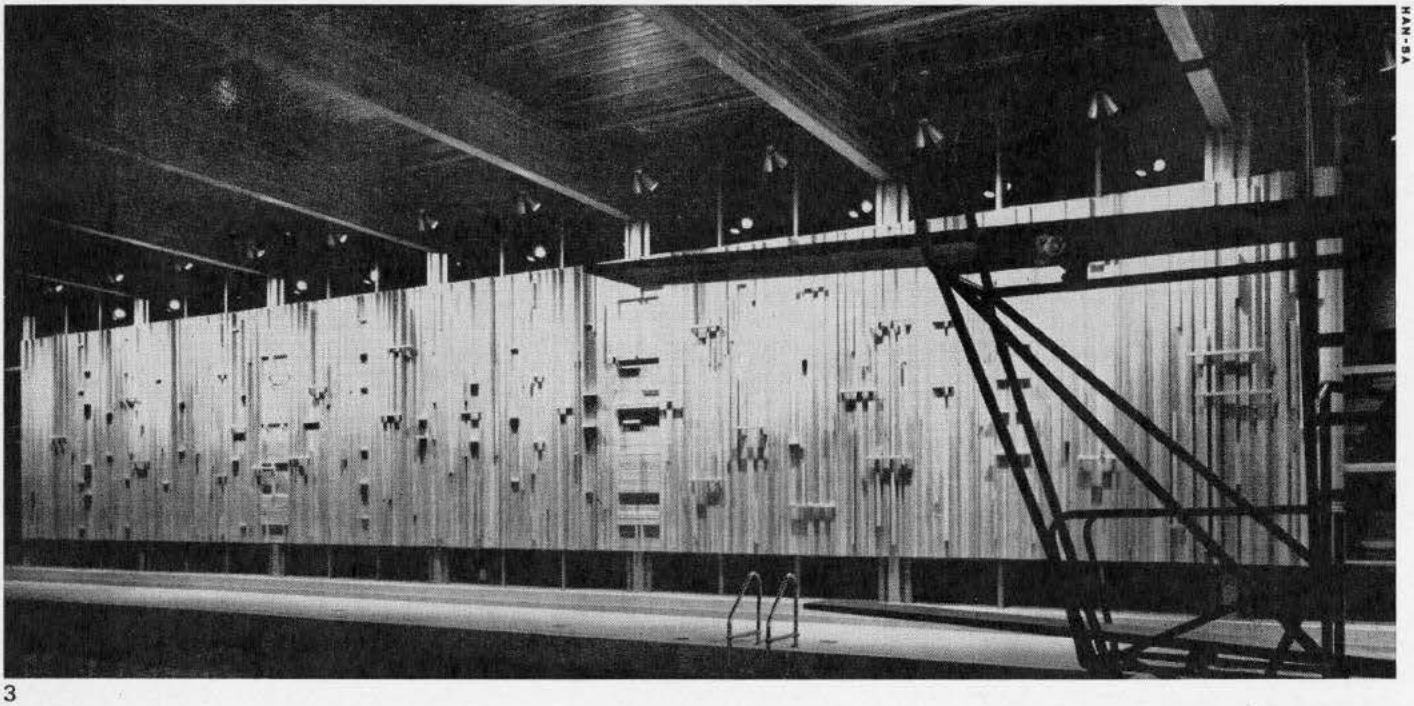
1

2,3
"Where have all the Murals gone?" Integrated walls by Ted Bieler, artist, Irving Grossman, architect at Expo '67 Administration Building; Laure Major, artist, Louis J. LaPierre, architect at Mont-de-LaSalle Gymnasium and Swimming Pool, Laval-des-Rapides

"Qu'est-ce qu'y s'est passé avec toutes nos murales?" Murs intégrés par Ted Bieler, artiste, Irving Grossman, architecte, pour le Bâtiment de l'Administration à l'Expo; Gymnase et Piscine du Mont-de-LaSalle, Laval-des-Rapides, par Laure Major, artiste, Louis J. LaPierre, architecte



2



3

Proposal One

If an artist's collaboration in design is needed in the treatment of surface elements or, for the addition of artifacts, crucifixes, metal screens, doors or mural embellishment, I propose that he be considered as important as the engineer and called in from the planning stage, and not later by a well meaning committee. I ask that his relationship be no less than the draftsman in the office and that he, the artist, be kept in close contact with the architect.

Proposal Two

The acquisition and placing of unrelated objects of pure contemplative works of art must be successfully practised. I ask all architects who in serious consideration believe they are capable of creating a complete architectural form of the aesthetic and practical use of man, to also consider their obligation as the final distributors of defined space in this day and age. I ask them to provide with sensitivity and care in their structures, isolated, contemplative spaces where one or two worthy works of art may be appreciated in the living galleries of life, *ie* our domestic and commercial buildings not the museums, where art becomes a collection torn from contemporary context.

The architect cannot absolve himself from this obligation by relegating his duties to directors of dead museums and archives or leaving peddling of art wares to the esoteric salon which his client and their staff may never visit.

The artist, in the face of great adversity and poor material rewards, has done his share by keeping metaphysic imagery alive in a material world. His art deserves to be housed in the architecture of his time. By hook or even crook, the architect should see to it.

Negative Relationships?

Growing out of the false stimuli of the centenary year is a matter which greatly disturbs the writer, the growth of the "liaison committee". A special feature on this problem will be written when more evidence is complete. At present it seems that pressure of time and an ignorance of "who to commission" for public works and other projects has resulted in the setting up of committees. Sometimes well chosen and at all times well meaning, these committees adjudicate work or choose artists for commissioning. The result unfortunately has been to place even a greater barrier between artist and architect. Artist, committee and architect meet only through a set of plans and stereotype correspondence. The haste in which ideas are solicited, long after the planning stage, and the nebulous nature of the full conceptual idea being transmitted to the artist can only be a cause for growing alarm. Expedient methods once used can so often give form for future procedures.

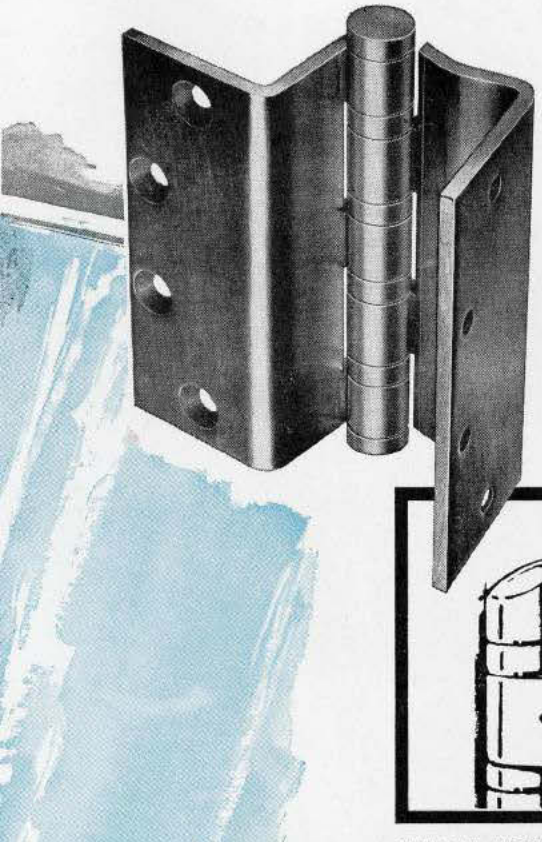
An SOS must be sounded to art schools and universities to examine and implement new forms of educational procedure for artists and architects' worlds. Strong measures are however needed at the educational level and there are no indications of any as yet.

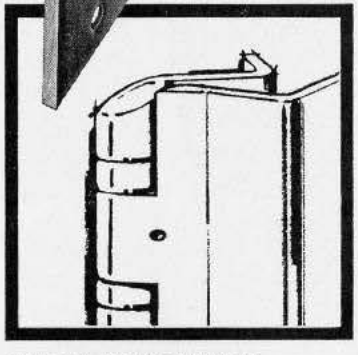
What is more important is a strong moral persuasion from the architects to see their proper role in the housing of contemporary art. As in other aesthetic matters of public interest, leadership from the architect is vital and urgent.

Anita Aarons

END DOORWAY SQUEEZE . . .

...specify Hager





SPECIAL HOSPITAL TIPS

Because of the unique tip on this type of Swing-Clear Hinge, access openings are milled into the back of the barrel to permit adequate and convenient oiling. (When hospital tips are desired prefix the symbol HT to Hager catalog numbers for Swing Clears.)

SWING-CLEAR HINGES

CLEAR ALMOST 2 INCHES MORE AT EVERY DOOR

Doors to patient rooms need all the width you can give . . . present special problems when you are restricted by room-dimension limits. Specify Hager Swing-Clear Hinges and you'll have almost two extra inches of clearance with the door open to 95 degrees.

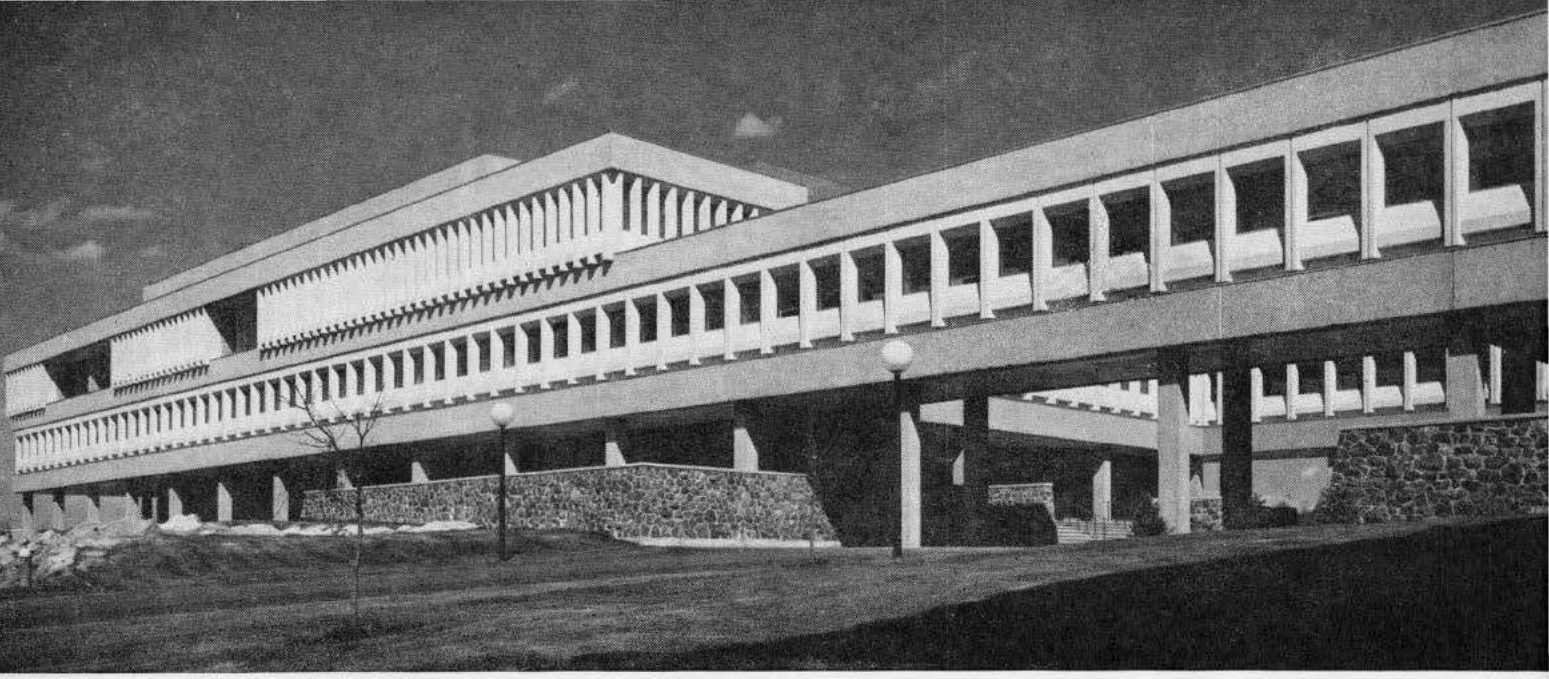
Hager Swing-Clear Hinges are the extra heavy duty type, with five knuckles and four ball bearings for lasting, smooth, easy openings. See your Hager representative or write for detailed specifications on any of the 5-inch, Swing Clear Hinges listed here.

BB 1264 Half mortise • BB 1268 Full mortise
BB 1266 Full surface • BB 1270 Half surface

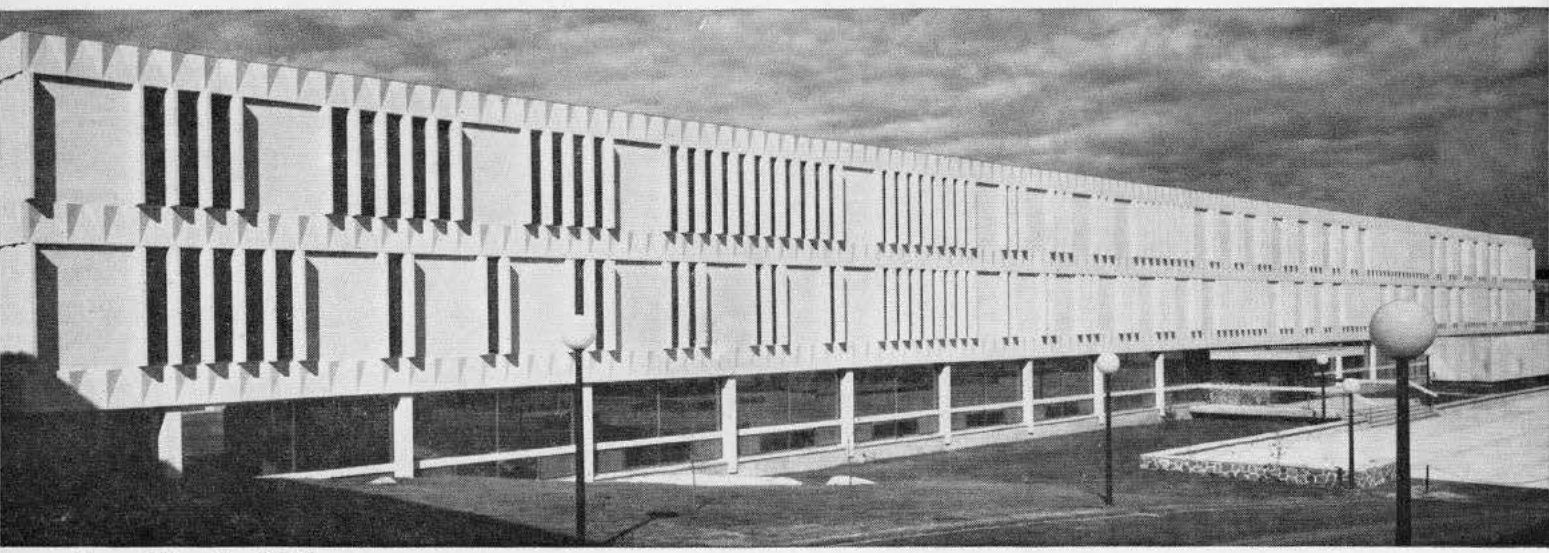
Hager

Everything Hinges on Hager

HAGER HINGE CANADA, LTD.
771 Wilson Avenue • Kitchener, Ontario

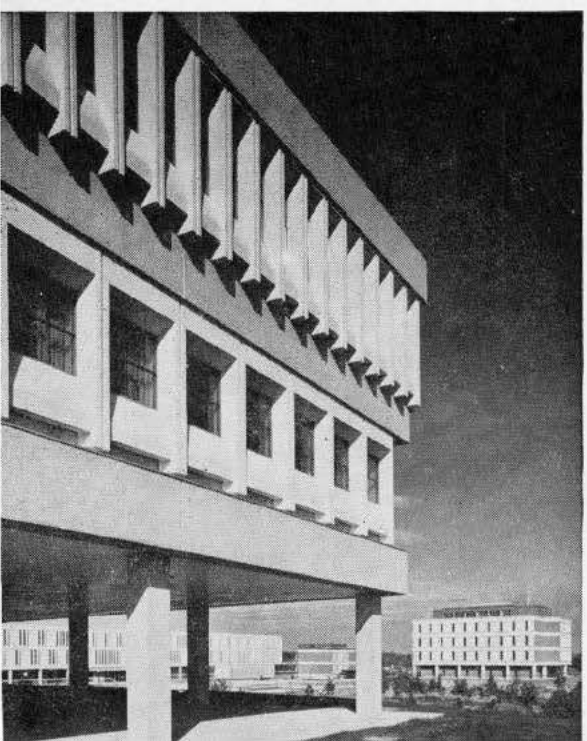


Library and Dining Assembly Building.



Arts and Humanities Building

Corner view of Library and Dining Assembly Building



LAURENTIAN UNIVERSITY

SUDBURY, ONTARIO

Huntington University, Sudbury, Ontario. Architects and Engineers: John B. Parkin Associates. General Contractor: Foundation Company of Canada Ltd. Precast concrete panels by: Beer Precast Concrete Ltd. Ready-mixed concrete supplied by: Mallard Ready-Mix Concrete Ltd.

Arts & Humanities Building, Laurentian University, Sudbury, Ontario. Architects: Marani, Rounthwaite and Dick. Consulting Structural Engineers: Morrison, Hershfield, Millman & Huggins Ltd. General Contractor: Janin Building and Civil Works Limited. Precast concrete panels by: Beer Precast Concrete Ltd. Ready-mixed concrete supplied by: Wavy Industries Ltd.

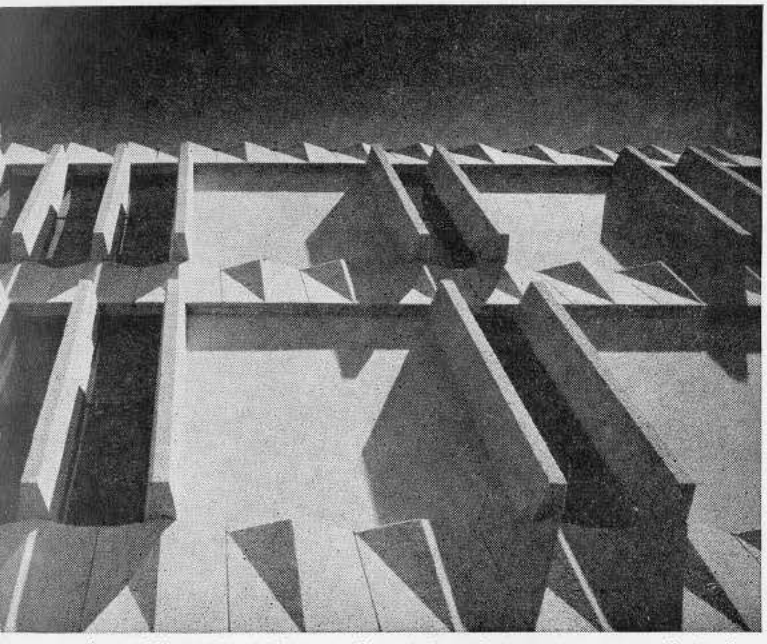
Library and Dining Assembly Buildings, Laurentian University, Sudbury, Ontario. Architects: Gordon S. Adamson & Associates. Consulting Structural Engineers: Morrison, Hershfield, Millman & Huggins Ltd. General Contractor: Janin Building and Civil Works Limited. Precast concrete panels by: Beer Precast Concrete Ltd. Ready-mixed concrete supplied by: Wavy Industries Ltd.

MEMBER
pca 50th year
PORTLAND CEMENT ASSOCIATION

CANADA CEMENT

Huntington University.

Arts and Humanities Building.



Arts and Humanities Building — close-up view of precast concrete panelled walls.

Library and Dining Assembly Building.

GREAT NEW LEARNING SEAT

vast precast concrete feat!

PRECAST CONCRETE PANELS, made with "Canada" Cement, contribute most dramatically to this new Laurentian University project at Sudbury . . . from the extensive main structures across the campus, to the elegance and practicability of Huntington University. Precast concrete is broadening the horizons of construction progress . . . through consistent quality, ease of erection and on-site efficiency. Precast concrete offers scope in design, durability, economy and freedom from maintenance. Free technical advice and literature on concrete construction are available through any of our sales offices located in major Canadian cities.

Canada Cement Company, Limited

CANADA CEMENT BUILDING • PHILLIPS SQUARE • MONTREAL

SALES OFFICES: Moncton • Quebec • Montreal • Ottawa • Toronto
Winnipeg • Regina • Saskatoon • Calgary • Edmonton

Please send me your publications:

- ☐ Precast Concrete Wall Panels
- ☐ Exploring Color and Texture
- ☐ Concrete Curtain Walls

Simply tear off this corner, attach to your letterhead and mail.

Laurentian University of Sudbury,
Entrance to Arts and Humanities Building
from Dining Assembly,
Dr. Thomas Howarth, Toronto: Architect Planner,
Marani, Rounthwaite & Dick: Architects

MODERN DOOR CONTROL BY **LCN** DOOR CLOSERS CONCEALED IN DOORS

LCN CLOSERS OF CANADA LTD., PORT CREDIT, ONTARIO

Styrofoam: The world's best insulation is also

No other insulation comes close to Styrofoam* for insulating effectiveness. And no other insulation provides so effective a base for plaster . . . especially when you combine Styrofoam with our new "floating action" adhesive — Dow Mastic No. 7. This special formulation will flex under drying plaster . . . taking the stress off the plaster and the foam. If you need more information on Styrofoam or new Dow Mastic No. 7, simply phone our nearest sales office, or write: Building Products Sales, Dow Chemical of Canada, Limited – Sarnia, Ont.

*TRADEMARK

DOW CHEMICALS

Kaleidoscope expo67
DOW CHEMICAL OF CANADA, LIMITED—CO-SPONSOR

the world's best plaster base!

Canarch curtain going up

on the Westmount Square Complex

A multi-million dollar luxury apartment-office-shopping complex calls for something special in the way of design and fabrication. So Canarch custom-designed curtain walls in keeping with this prestige development in the heart of Westmount.
Glass and black acrylic-coated aluminum will make up the walls of two separate 21-storey apartment buildings and a 20-storey office tower surrounding an all-weather mall. Canarch's ingenious curtain-wall design not only allows significant reductions in the size and cost of structural supports and foundations, but also permits every office in the tower to enjoy natural lighting.

If *you* have a problem involving curtain wall or any other architectural metal product, Canarch can help—all the way from design and specification to fabrication and erection. Just give us a call—we'll help you put your show on the road. Or write—P.O. Box 6087, Montreal.

CANARCH
DIVISION OF CANADAIR LIMITED

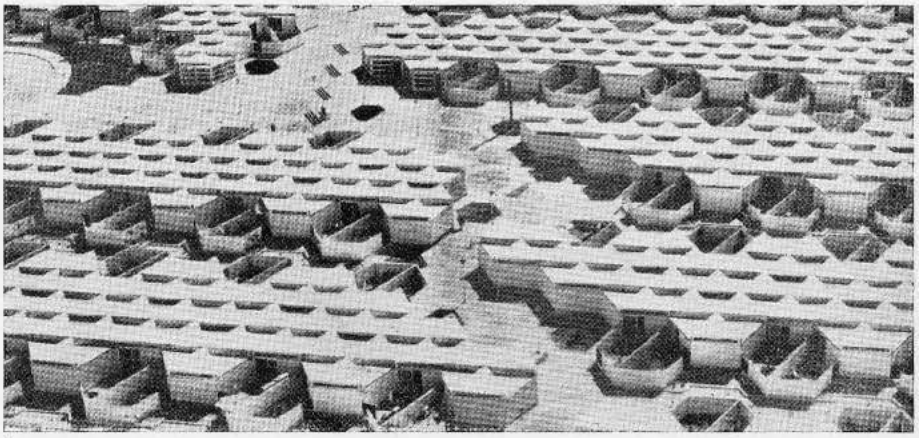
Architects : Greenspoon, Freedlander, Plachta and Kryton, Montreal. Consultant Architect : Ludwig Mies van der Rohe

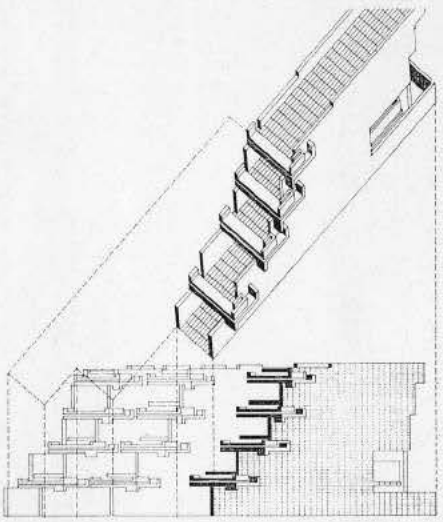
Unidads Vecinales de Absorcion,(**1**) brilliantly improvised structures for flood displaced persons were designed by José Luis Aranguren, and built in Spain for 916 families. The system used consists of hextagonal units which lock together and radiate high walled patios, forming broad pedestrian ways between.

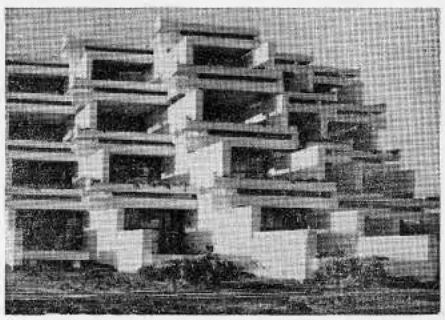
Zodiac, as usual has published an exceedingly high standard and comprehensive issue, this time on Spain. Among the many projects, papers and past accomplishments shown, is this apartment complex (**2,3**) of 100 balcony units by Saenz de Oiza. This is the first of a larger quarter to be built in the next few years. A single 4-story building, it is made up of varied apartments with communicating terrace-balconies, to create an articulate whole. Each has a sea view and a half-covered terrace balcony. On each floor there are 25 apartments protected from the neighbour's view by a "double amphitheatre" arrangement and vertical walls on the sides of balconies; the orientation is diagonal in respect to the beach to afford the best sea view and exposure. Each unit, served by a small heliocoid stair, consists of 4 apartments, one per floor. Each apartment is made up of 2 double-bed rooms, bath, kitchen, and a living room which is part balcony.

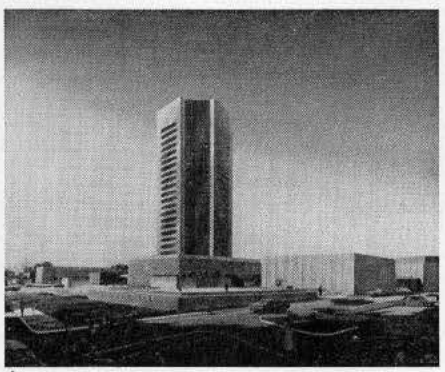
Place Radio-Canada, Montreal, designed by the CBC Staff,(**4**) will house both the Production facilities and offices to operate a French network of communications. The fancy card-board cut out tower joins a pastiche of crude cliché ridden plaza elements in an awkward fashion – neither isolated nor satisfactorily related. The townscape projected by the plaza is in fact anti-social.

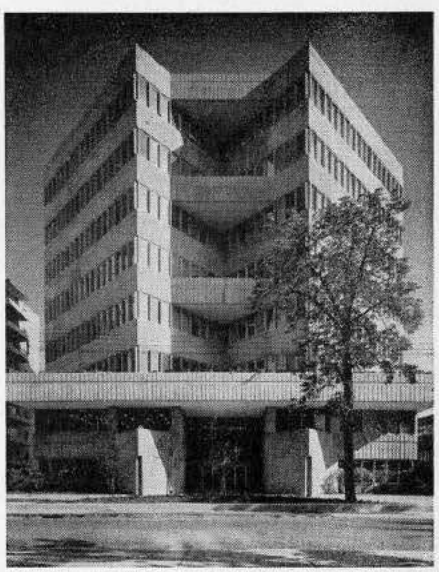
This office building (**5**) designed by Fairfield and Dubois, for Toronto has Domtar Packaging Ltd as a major tenant. The cruciform has a center core of elevators and services in a conventional disposition of office elements, but by breaking the box of slab structures, many corner spaces, cross lighting and terraces are created. By turning the upper floors 45°, the extent of vista is increased. The finish is of fairface concrete. *A.J.D.*


1

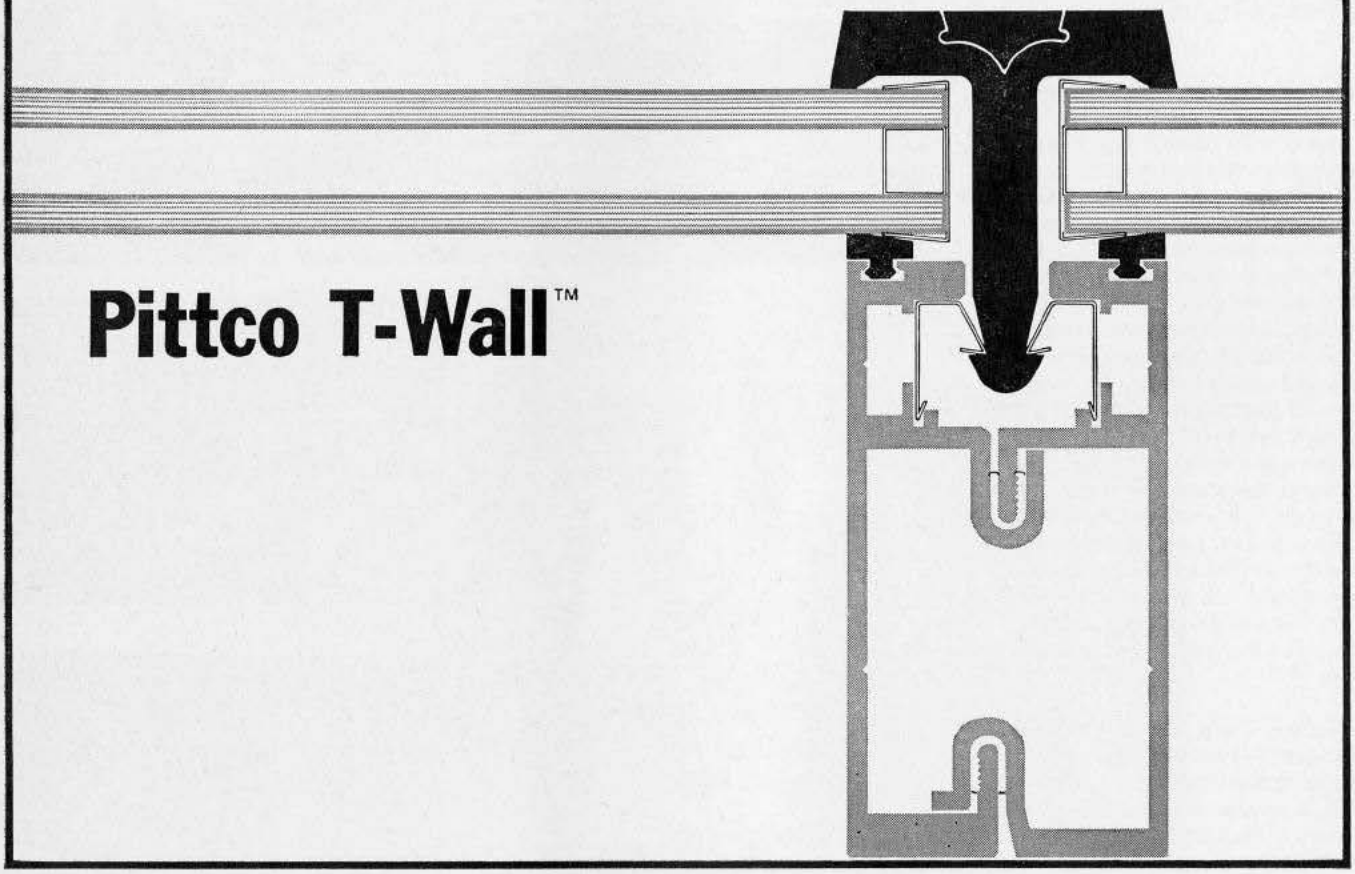

2


3


4


5

New thermal framing system prevents condensation, cuts heat loss



Pittco T-Wall™

Canadian Pittsburgh Industries announces an entirely new thermal wall framing system called Pittco T-Wall. There is no through metal from outside to inside. Heating and air conditioning costs are reduced. No condensation occurs with room temperatures of 70° with relative humidity to 35%—even with outdoor temperatures of minus 20°. Walls aren't chilly to the touch. Sound transmission is noticeably less. Pittco T-Wall can be glazed in varying thickness combinations from ¼" to 1".

For full details, get in touch with your nearest CPI branch or write **Canadian Pittsburgh Industries Limited, 48 St. Clair Ave. W., Toronto.**

See our catalogue in Sweets

CANADIAN CPI PITTSBURGH
INDUSTRIES LIMITED

...new ideas in architectural glass and metal.

6A31

Structural steel chosen with a view to the future

Structural steel frame construction was selected over competitive materials for this 14-story Campus Block in Edmonton, Alberta.

The first three floors are designed for commercial use and the remainder for apartment occupancy. Approximately 600 tons of steel were fabricated and erected by Guardian Steel Fabricators Limited of Calgary during some of the coldest weather in the 1965-66 winter.

Composite design was used to advantage to help produce an economical, lightweight building structure.

The commercial area includes a banking hall with the apartment tower being designed with a look to the future. In the opinion of the architects and builders, the size of apartments in vogue today may prove insufficient in the future and an advantage of using structural steel is that it will allow redesign of the apartment layouts.

Steel has again proved to be the most modern building material, to allow the designers unlimited freedom of expression.

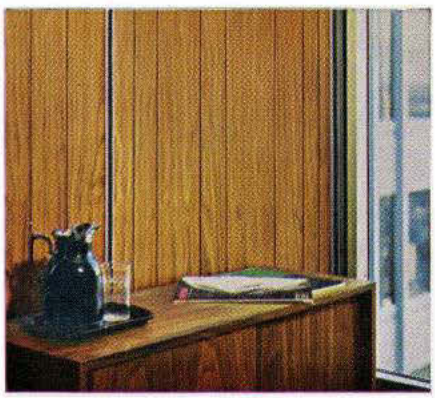
Algoma continues to be a leader in the development of new steel products and a major supplier to Canadian business and industry.

THE **ALGOMA STEEL** CORPORATION, LIMITED

SAULT STE. MARIE, ONTARIO · DISTRICT SALES OFFICES: SAINT JOHN, MONTREAL, TORONTO, HAMILTON, WINDSOR, WINNIPEG, VANCOUVER

STEEL expo'67

Domtar conquers inner space.

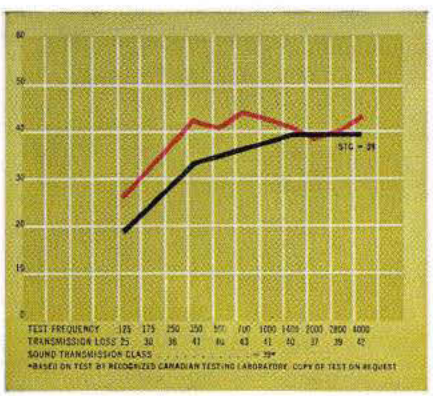


With Mova-Wall. The partition system that costs so little it's embarrassing. It cuts wide open spaces down to size and looks good doing it. Here's Mova-Wall in luxurious Vinyl-Kote Teak, rich and warm, the perfect panelling for a VIP's office.

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

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

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



Mova-Wall stops noise. For example: a 3½″ wall has an STC of 39. (That's far better than average for office partitions) Or you can achieve 43 STC with a 5″ wall. That's enough sound privacy for a boardroom.

Mova-Wall is a complete standard component low cost package with a wide selection of door and window details. It goes up fast. Stands fast. But it'll move over when you want it to. Mova-Wall. See what it will do for your space program.

Beautifully.

DOMTAR
Construction Materials Ltd.

Résumés

Introduction
par A. J. Diamond

Ce numéro traite de ceux qui sont responsables du développement des universités. Les accomplissements et l'état d'esprit de l'université sont partiellement le produit de son milieu. Ironiquement, il faut faire remarquer à ceux engagés dans l'avenir de l'éducation le besoin de préparer l'avenir. Cet article n'insiste pas sur des idées rigides; au contraire, on a besoin d'une attitude accommodante et flexible.

L'université doit avoir une compréhension de sa propre philosophie d'éducation; le rôle qu'elle jouera dans la communauté; la composition et les limites de sa population. Comment accueillir les étudiants venant de loin? Et le parking dont ils auront besoin? Que sera la relation entre les centres d'enseignement et les centres de résidence? Faut-il relier les disciplines diverses? Ces facteurs vitaux fournissent des renseignements sur les dimensions: longueur, largeur, hauteur, etc. Ainsi fourni de critères, peut-on lancer un programme, qui, soigneusement utilisé, transformera des nécessités en vertus? Le programme pourvoit aussi aux besoins de l'université dans son ensemble. Donc, les relations et l'antagonisme se présentant entre l'université et son milieu, la ville, doivent être considérés. Les projets, les bâtiments et les articles ci-après proposent des solutions différentes apportées à ces problèmes.

Simon Fraser utilise des voies de circulation comme véhicule de rapports sociaux, l'intention étant d'envisager le prototype du collège contemporain. Red Deer insiste sur l'éducation de la communauté et comprend un système de passages utilisables en tout temps. Ryerson, Toronto mettra en oeuvre le système le plus flexible et compact pour un centre-ville – les ascenseurs. L'emplacement de Ryerson attirera des étudiants qui pourront bénéficier des facilités de transport. Cap Rouge, malgré son emplacement presque rural, emploie des bâtiments à usages multiples. En vue du problème de la multiplicité, Trent emploie le système de collèges afin de faire ressortir l'identité de l'étudiant; ce collège comprend aussi des routes de service qui deviennent les toits des voies de circulation et les bâtiments s'attachent à cette ossature. Mme Hosken décrit les problèmes du campus urbain; elle fait remarquer que l'université et la ville peuvent bénéficier réciproquement.

Nous espérons que ce numéro indique l'urgence de préparer l'avenir des instituts d'enseignement. Leur planification devra pouvoir s'adapter à toute éventualité.

Trent University

Trent sera la seule université canadienne qui suivra exactement le système de collèges. L'ensemble aura éventuellement quatorze collèges, chacun ayant à peu près 300 membres dont 200 en résidence. Le groupe scolaire sera d'environ quatre mille. Chaque collège se composera de disciplines diverses et fournira des facilités d'enseignement aussi bien que de résidence. Le campus est situé sur les deux rives de la rivière Otanabee, 2 milles au nord de Peterborough. La rivière deviendra l'élément central du campus. Le plan directeur est concentré sur les voies de circulation et les services, évitant un site spécifique ou un type de bâtiment qui poserait des restrictions éventuelles. Il a fallu retracer des routes existantes, les remplacer de routes périphériques, tout en considérant un centre réservé aux piétons et aux services essentiels. Le noyau de ce système de circulation est un triangle coupé par la rivière. Le sommet du triangle sur la rive ouest devient le coeur du campus où se déroulent les activités principales, où la bibliothèque occupe une position d'importance.

Les voies principales de circulation pour piétons traversent le centre du complexe des sciences à l'angle nord-est du triangle. Ce groupement s'efforce d'éviter une séparation anormale des disciplines scientifiques diverses. Les bâtiments sont reliés à niveau du sol par les services et le toit de ces passages forme le chemin les reliant au pont. Le troisième angle sera l'emplacement d'un village desservant la ville et l'université. Avec cette conception du système de circulation, on peut disposer les collèges de manière flexible. Leurs sites sont indiqués sur le plan directeur par des cercles représentant un certain terrain. La réalisation d'un collège établit les bornes réelles des collèges voisins. On espère créer des alentours assez urbains, entourés d'arbres indigènes. Au lieu d'éparpiller les bâtiments sur les 1500 acres, on a respecté le paysage sans affaiblir la concentration au centre académique. Il est à noter qu'un plan de ce genre commence des années avant que toutes les exigences soient connues. Ainsi, paraît-il, il faut pouvoir contrôler le développement et prévoir l'adaptation aux nouveaux développements. La contribution des ingénieurs était un élément essentiel au projet. C'est à espérer que la souplesse du plan permettra toutes les possibilités d'aménagement et de transformation des années durant.

L'université urbaine et l'environnement urbain
par Franziska P. Hosken

L'éducation est la clef de l'avenir, de l'intégration raciale et des changements sociaux. Les universités se développent plus rapidement que leurs environnements. La plupart d'elles sont urbaines; les problèmes y découlant sont divers – en 1975, il va falloir loger, nourrir, instruire une armée de 8.5 millions d'étudiants, leurs professeurs, etc. Puisque les universités sont exemptes de taxes et qu'il leur faut occuper de plus en plus de terrain urbain, la ville-hôte perd des revenues – un état de choses particulièrement aigu à Boston. Ses taxes sont les plus élevées aux Etats-Unis, mais c'est à cause de ses instituts d'éducation que Boston est si bien connu et que son développement économique s'est accru (M.I.T., Route 128 etc.). Ce problème de taxes pourrait être résolu si le gouvernement fédéral remboursait la communauté des pertes de revenues dûes aux universités.

Autres problèmes – la concentration des gens et de voitures a créé des problèmes de stationnement, de circulation et de logement autour des universités; la planification pour l'avenir, la coordination de l'avenir de l'université et de la ville pourront aider à

resoudre ces problèmes. Mais la planification coûte chère; elle est subventionnée pour les villes. Pourquoi pas pour les universités?

Une université devra dominer son environnement physiquement et symboliquement autant que visuellement. De nos jours, ses ressources sont considérables et elle devra contribuer davantage à son environnement, non seulement du point de vue enseignement, mais de la planification communautaire. Plusieurs universités dominent Boston; depuis moins de dix ans, Harvard et M.I.T. possèdent des bureaux de planification travaillant pour l'avenir. Cette année, la Cambridge Corporation a été fondée, groupant ceux qui s'intéressent aux problèmes locaux de logement, etc, dont Harvard et M.I.T. A proximité d'un quartier déprimé qu'elles ont ignoré jusqu'à maintenant, la menace posée par un nouveau expressway a convaincue ces universités de faire face à la situation. Deux autres instituts, Boston University et Northeastern, ont changés complètement depuis quinze ans.
Une firme d'architectes s'occupe des problèmes de planning à Northeastern, mais la contribution architecturale laisse à désirer. L'Innerbelt expressway rend incertaine la direction de leur expansion mais cette expansion est certaine. L'Université de Boston domine un secteur de choix en centre ville mais elle n'a pas de plan pour l'avenir; comme bien d'autres, elle construit aux hazards du terrain et de l'argent disponibles, normes qui ne promettent rien pour l'avenir de l'université ou de la ville. Sans doute, des subventions fédérales aideront la ville et rendront l'université responsable de son environnement.

Un des devoirs d'une université est de "servir" et ce mot a une nouvelle connotation de nos jours. Une ville a besoin d'aide pour resoudre ses problèmes; les universités ont les experts. Leurs services sont indispensables à la planification, donc, il faut que l'université et la ville travaillent de concert, les étudiants formant un corps de liaison entre les deux. L'environnement urbain qui, d'une part restreint l'expansion des universités, pourrait d'autre part contribué à l'accroissement des qualités humaines des étudiants. Quelques-unes des organisations estudiantines servant la communauté ont été subventionnées mais leur influence pourrait s'étendre si tout un département académique y participait et si les étudiants étaient accrédités pour les travaux pratiques effectués dans la communauté, soit en éducation, en architecture, etc., ainsi créant un nouveau rapport entre l'université et la ville. C'est avant tout en participant directement que l'étudiant contribuera et apprendra en même temps. Il faudra établir un équilibre entre la formation spécialisée académique et la responsabilité envers la vie urbaine. La "Tour d'ivoire" n'a plus de sens; l'université ne peut plus ignorer les problèmes de son environement.

C'est une rue à deux sens; en rayant la question de taxes, en coordinant la planification pour l'avenir, en insistant sur les projets de service pour étudiants, on pourra s'assurer l'avenir. L'université et la ville devront oeuvrer ensemble pour pouvoir partager une destiné commune.

Red Deer College

Le site se trouve au perimètre sud de la ville de Red Deer, Alberta. L'accès sera par voiture ou autobus du centre ville à quelques milles du site. On propose de créer un noyau central pour piétons utilisable en tout temps autour d'une cour ouverte. Les premières extensions seront les laboratoires et des classes. Si le nombre d'étudiants dépassent 2000 après dix ans, le centre pourra se développer davantage.

Au-dessous de la voie de circulation intérieure qui relie l'ensemble de théâtre, classes, bibliothèque, il y a un passage au sous-sol réservé aux services. Le but que le collège propose en principe, l'éducation continuante, explique le genre de bâtiment exigé; le Collège devrait devenir le centre des activités culturelles et éducatives de la communauté.

Trois possibilités de développement ont été examinées: le développement du campus central à St James Square; des campus satellites avec peu d'expansion du complexe actuel; une combinaison des deux premières avec l'accent sur St James Square. Le premier alternatif est jugé préférable en raison des facteurs suivants: l'attraction des étudiants – le déplacement de Ryerson du centre-ville enlèverait l'attraction principale pour 50% des étudiants venant d'en dehors de l'agglomération torontoise. Les aspects éducatifs d'un site en centre-ville – les facilités disponibles contribuent considérablement à l'éducation de l'étudiant. L'emplacement offre des facilités d'accès par transport en commun sans problèmes de stationnement. Mais comment développer en centre-ville? En tenant compte du prix du terrain urbain et de l'augmentation de la population du Collège, l'expansion verticale est la meilleure solution.

Simon Fraser University

Ce complexe universitaire s'efforce d'incorporer les buts et les méthodes de l'enseignement contemporain. Le campus nord-américain se divise mécaniquement en facultés spécialisées – une tendance contemporaine qui empêche l'intégration des connaissances. Donc, les architectes de Simon Fraser, au lieu d'isoler chaque faculté, les ont reliées par moyen de voies de circulation. Les couloirs, places et escaliers sont les éléments de communication sociale. Alors, la fonction de la communication devient en plus un moyen de stimulation intellectuelle.

Toutes ces voies partent du point d'arrivée, continuent vers la Cour Académique, constituant l'ossature où s'attachent les bâtiments et d'où commencera l'expansion. La voie vitrée offre des vues magnifiques et la protection contre les intempéries.
Ce complexe horizontal s'adapte bien à son cadre montagneux.

Le Complexe des Sciences, Simon Fraser University

Les phases 1 et 2 du projet sont complètes. La phase 3, les salles de conférence, les bureaux et les laboratoires, se réalise dans un bâtiment à deux niveaux sur la pente de la montagne. Au sommet, le Complexe des Sciences se rattache à la Cour Académique. Construit en béton, il conserve son unité sans nuire à la cohérence de l'université toute entière. □

Universities
Introduction

Features
Projets

5

This issue of *Architecture Canada* is not intended for architects alone. It is for all those people – government and academic administrators, college boards, foundation members, lawmakers and potential donors – who collectively determine the standard of the nation's universities.

The intellectual accomplishments and attitudes that staff and students develop will in part be dependant on the kinds of physical environment provided for them.

It is surprising and ironic to have to point out, to those concerned with the future of education, the necessity for planning. Many universities and colleges either do not have plans that extend beyond a few years, or pay little attention to the plans they do have. This comment is not intended to support master plans, or a strict adherence to them. On the contrary, an adaptive attitude is realistic if unitary *systems* are carefully projected.

In more than a few instances the academic community has failed to concern itself with long range plans. Expediency has often characterized planning. Too often the building next on the priority list is built on the next or cheapest (in first cost terms) land, without regard to other highly relevant considerations. Without investigation and articulation of these other considerations or criteria, it is not surprising that the physical results are confusing and restrain, rather than promote, the interests of college and community.

The university must arrive at an understanding of its educational philosophy. It must determine its role in the community. It must decide how many and what kind of students it will admit, must examine the relationship and ratio between graduate and undergraduate programs, and what research activities it will sustain. Will it provide community education facilities on the one hand, or undertake work projects in the community on the other? How will it integrate the commuter student? Does the commuter travel via mass transit or automobile? If the latter, how will parking be accommodated? What relationship will residence bear to teaching space and what linkages among disciplines are potent, and worth fostering?

If these and more particular factors are taken into account, then the required physical dimensions may become apparent. These dimensions are five in number – length, width, height, time and cost. It is then that site studies may be made, for new or existing campuses, to maximize the advantages to be gained from circumstance. With care and forethought in design, necessities may become virtues. Movement systems can transcend their prime function to become means of intellectual interaction. Sublime results may be extracted from mundane elements; service lines may be used as frameworks for additions and connections.

Besides the assemblage of intra-fragments, the total, and dynamic whole must also be viewed in its environmental context. How does it affect the city, and conversely what restraints or incentives does the city provide the campus? Can the university play the larger role of focus in the physical and social texture of the community? Can it reconcile to advantage the conflicting demands of expansion in both city and campus?

The projects, buildings and articles presented in this issue attempt many solutions to these problems. Simon Fraser uses movement channels as a vehicle for social transaction. The express purpose has been to seek the prototypical college for contemporary conditions. Red Deer College has community education as a goal. It also uses an all-weather connection system. Toronto's Ryerson is a downtown institute, which will employ perhaps the most logical and extendable of compact expansion systems – the elevator. That institution also recognizes the advantages of a city location – the attraction of students to the city. It also takes advantage of mass transit to avoid costly downtown parking facilities. Cap Rouge, while retaining the free standing building in a quasi-rural campus, has employed mixed use building of some architectural sophistication. In order to focus identity for the student – a problem endemic to the multiversity – Trent has a college system. Every student belongs to a college, and each college is interdisciplinary. While educational and building first costs could conceivably be higher in this system, these may well be offset by the less easily demonstrated educational advantages. Trent has also used a system of service lines to provide roofs for connecting ways. To this skeleton are the buildings attached.

Mrs Hosken in her article lucidly describes the problems of the urban campus, ranging from tax conflicts to community integration, both physical and educational. She persuasively writes of the benefits to be gained by both university and urban society via academic work projects on city problems, for, as she points out, they share a common destiny.

We hope the time spent reading this issue of *Architecture Canada* will indicate the necessity and the urgency, in view of the burgeoning student population and the growing service function of the university, for educational institutions to plan decades in advance.

Change is inevitable. To cater for change, in fact to build change into plans, only emphasizes the necessity and urgency of setting goals, of planning, and of devising short, medium and long range fiscal and physical strategies. With these questions at least posed, universities stand to benefit from plans not based on partial information, from programs that do not lack insight and noble aims.

A. J. Diamond

Trent University
Peterborough, Ontario

1, 2
Circulatory System, Trent University
Système de circulation, Université Trent

Architects, Thompson, Berwick, Pratt and Partners
Architect in Charge, R. J. Thom

Trent will be the only Canadian University based fully on the college system. It will consist eventually of 14 colleges, each having a membership of about 300, of which slightly more than 200 will be in residence. The ultimate size of the University is to be limited to around 4000 graduate and undergraduate students. Every student will belong to a college, and every college will be interdisciplinary. In addition to containing study bedrooms for resident members, and common rooms and dining hall for both resident and non-resident members, each college will contain its share of teaching facilities, classrooms, seminar rooms, and in some cases small lecture rooms. These are used by the entire university and not just by members of colleges to which they are attached.

The campus is located astride the Otonabee river, which is a part of the Trent Canal System, two miles north of Peterborough. The river valley, formed between drumlins (glacial dumps) and the river itself become the central features of the campus.

Master planning was concerned less with the definition of specific sites than with the creation of systems of movement of pedestrians, cars and site services. This was a necessary approach in view of the fact that none of the buildings were programmed at the early planning stage. To have worked with hypothetical building shapes and site shapes would have created unreasonable restrictions in the future.

It was first necessary to re-route some existing roads running through the site and replace them with ring roads, having spurs running in to peripheral parking lots, and to consider a central area open only to the minimum University service traffic, but otherwise maintained as a pedestrian precinct.

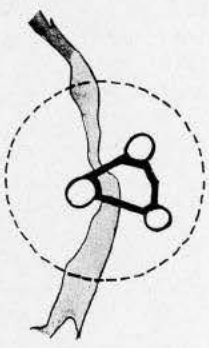
The basic core of this circulatory system is a triangle drawn across the river. At the apexes occur the three non-college functions of the campus. (Since classrooms are attached to the colleges, there are no general arts buildings.)

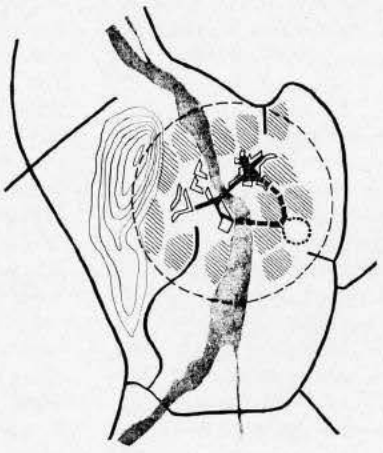
The apex on the west bank is the real heart of the campus. Transportation Centre (bus stop), University Court (Convocation and General Assembly Plaza) and the main University Library are located here, at the confluence of the two bridges. Considering the significant role of the library in a university of this sort where so much teaching is by means of tutorials, and so much responsibility for private study is placed on the student, it is imperative that it occupies this place of central importance in the plan.

The northeast apex of the triangle is where the main pedestrian paths cross through the centre of the science complex. Here chemistry, physics, biology, life sciences and earth sciences are grouped. Common services join them at ground level. The roof of these common services becomes the path leading from the bridge. A grouping of this sort was inevitable, since the boundaries separating various science disciplines have become so ill defined in recent years. To have scattered sciences throughout the campus in the usual way would have created an unnatural separation between them.

The final apex of the triangle will become the site for a village, which is planned to answer many practical needs of the university community, and also as a link between town and gown. This village will serve the surrounding community as well as the university. It will be the site, too, for other facilities that will be used by both the town and the University – such as a theatre, a gallery/museum, and a non-denominational chapel etc.

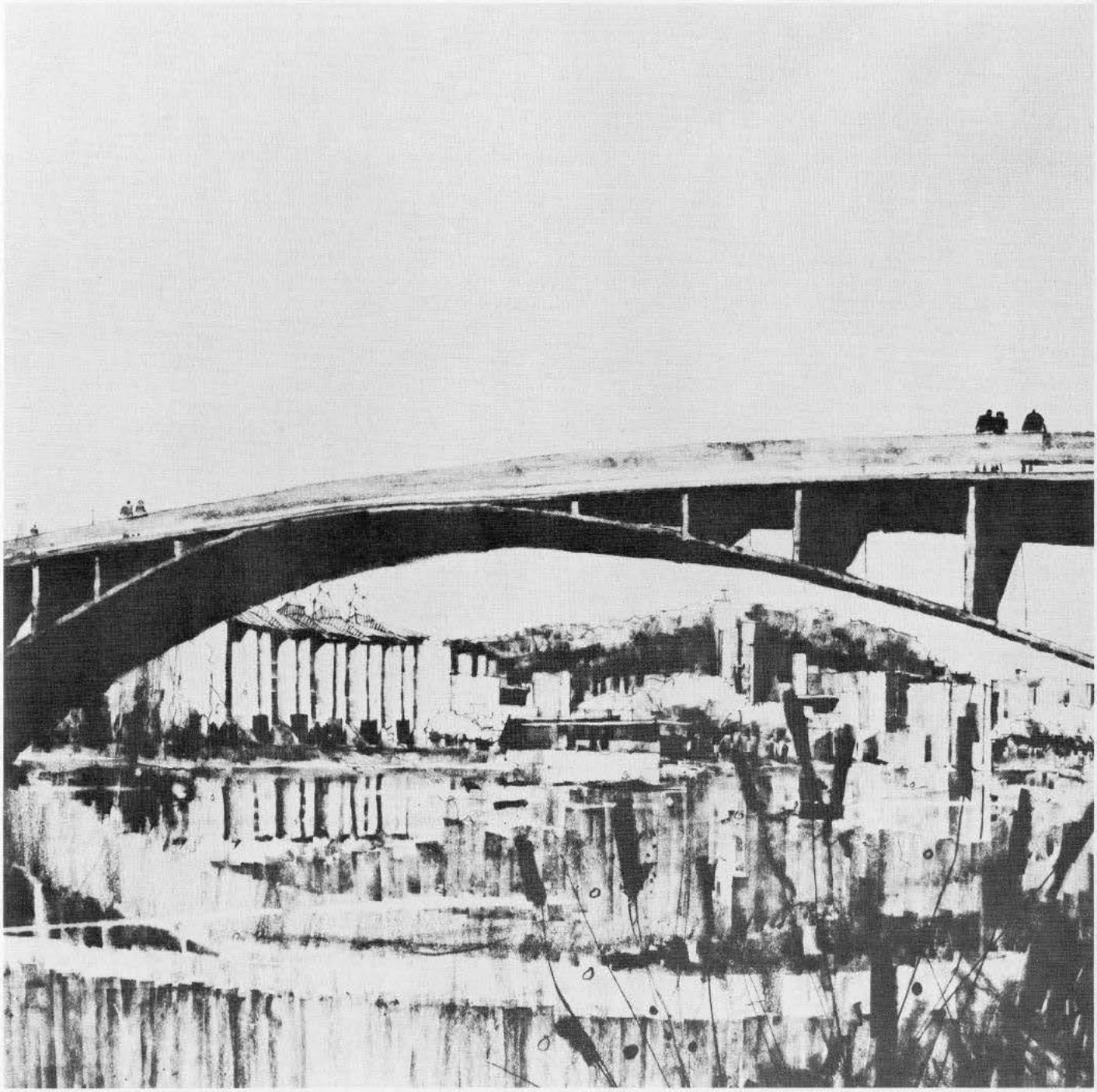
Having thus arrived at such a strong framework of primary circulation, it was possible to consider the colleges as growing off it and to avoid giving each one a fixed inflexible site. Since there is such a high proportion of students in-residence at Trent, there is a correspondingly larger number of rooms to be located within a reasonable walking radius. Hence, college sites are simply





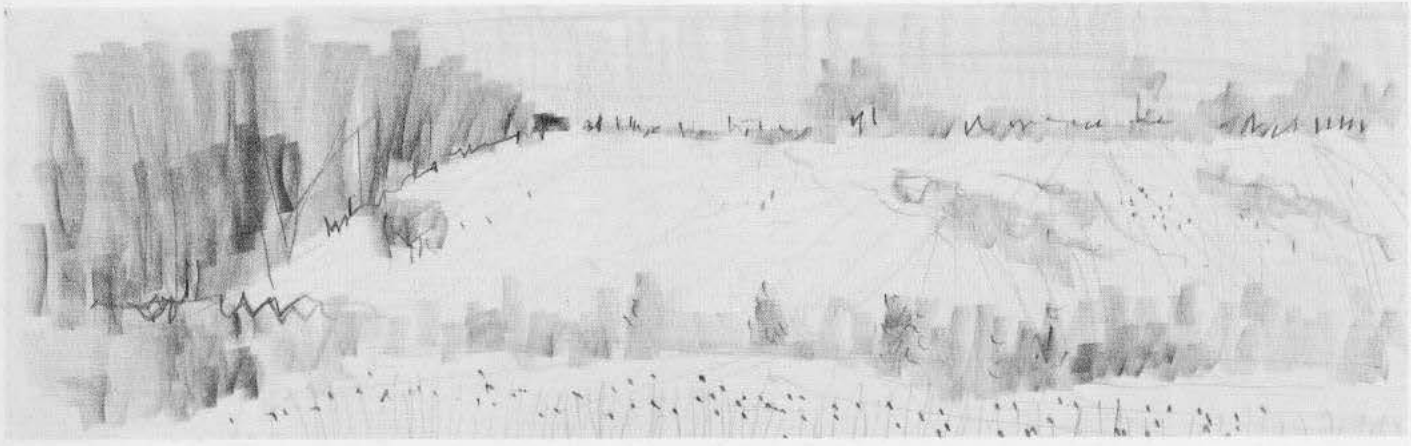
1,2

3
Champlain College
Next to the bridge are the rooms used by the entire college as well as by members of other colleges on occasion. This wing contains the dining hall, junior, graduate and staff common rooms, college library, small lecture theatre and squash court.
Près du pont se trouvent les salles utilisées par tous les membres du collège ; ces localités sont occasionnellement utilisées par des membres d'autres collèges. Cette aile consiste de la salle à manger, des salles communales d'étudiants, de diplômés et de professeurs, de la bibliothèque, d'un petit théâtre et d'une cour à "squash".



3

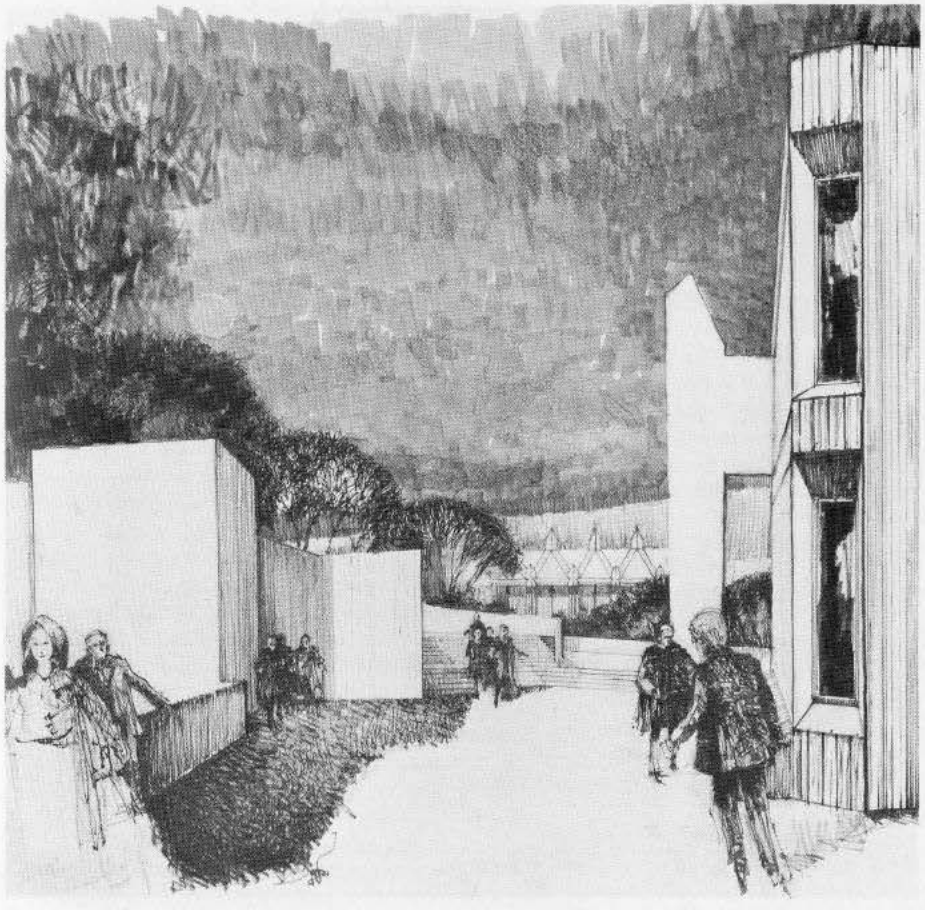
4
Sketch
Esquisse
5
Site Plan
Plan d'emplacement



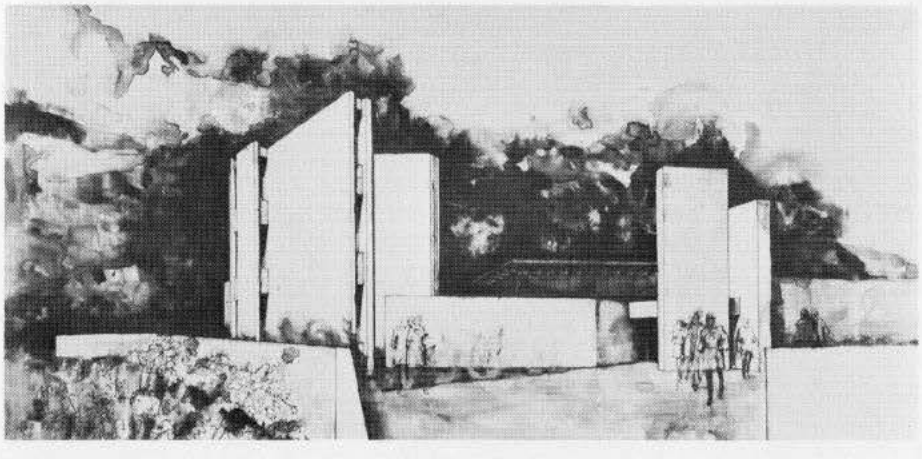
4

5

6
Champlain College seen from the main pedestrian path between the Chemistry and Physics buildings. Because Trent is being built from the centre outwards, its final form is emerging at every stage of development.
Le collège Champlain vu du chemin principale entre les bâtiments de chimie et de physique Comme Trent se construit du centre vers l'extérieur, sa forme finale émerge de chaque étape du developpement
7
Lady Eaton College, as the first women's college Lady Eaton is the counterpart of Champlain. It is slightly smaller in membership, but contains essentially similar facilities. Like Champlain it will have academic facilities. used by all members of the University.
Comme premier collège pour filles, "Lady Eaton" est la contre-partie de "Champlain". Le nombre des immatriculés est peut-être moins grand, mais le collège Lady Eaton offre essentiellement des facilités pareilles. Comme à Champlain les facilités académiques sont utilisées par tous les membres de l'université.



6



7

indicated on the Master Plan as circles representing so much area. As each building is designed it takes its place on the plan, replacing one of the circles. In this way, some restraints are established for the adjoining sites, and neighbouring colleges can then be planned to fit themselves into the ones already existing, rather than having to respect arbitrary site boundaries. Development will take place from the centre outwards so that at every stage there is a campus environment in its completed form.

The intention is to create a fairly urban university precinct, and to reforest the land surrounding it with trees indigenous to the region. Trent has a large site – 1,500 acres – and the temptation to scatter buildings openly over it had to be resisted.

This would have weakened the concentration of the academic precinct and would also have squandered the natural benefits of the countryside.

The most important consideration in planning of this sort is that it takes place years before the final requirements are known. There is no possible way of predicting what faculties or departments the university will require in twenty years time, or what demands the sciences will make in that time. Therefore planning has the seemingly irreconcilable job of providing for a controlled growth, avoiding an outcome of anarchy, while at the same time leaving the door open for any possible development that might occur, however unknown and unpredictable it might be at the time of planning. This is the antithesis of the Renaissance approach to planning so prevalent up until the last few years.

Engineers were involved from the beginning. Decisions made by structural engineers as well as those of mechanical and electrical engineers affected and influenced planning. They were not treated as necessary aides to be tacked on to the end of the planning process, after the fact. Consequently the contribution made by engineers is a very central one, and a major determinant of the outcome.
R. J. Thom

The Urban University & the Urban Environment

by Fran P. Hosken

Mrs Hosken, an architect, has worked in city planning at MIT. She was architectural and urban affairs critic for the Boston Globe. She is now writing for the Boston Herald Magazine and guest editorials for the New York Times.

Education is the key to the future: It is regarded as the basis of our mobility and the foundation of democracy. Education is also the key to racial integration and many believe that education will achieve social change.

Universities are changing and much faster than their environment. By now most universities are urban even if once located "far from the madding crowd". Most of them have become surrounded by what they set out to escape. And now they are also faced with the problem to come to terms with their urban environment.

Universities and Taxes

The universities are growing and expanding much faster than their urban hosts. This year and next there are and will be four million young people of college age in the US; about 1970 this number will have increased to seven million (average) per year. It is predicted that in 1970 more than 6.9 million of them will be enrolled in a college, and by 1975 this number will increase to more than 8.5 million. This is about the entire population of metropolitan New York or about one and one-half times the entire population of Switzerland! Add to this the army of professors and administrative and other personnel needed, plus the plant required to teach, house, and feed this crowd, and one might get a vision of the staggering problem ahead. It is, however, a problem that simply cannot be postponed because many of the children who will become those students are already here. And it is plain that the ways and means to educate them have to be found.

Since most universities are in an urban environment, and any new educational institutions will soon share this fate, their competition with their environment for space will accelerate. But institutions, including universities, are tax free, and thus their growth and acquisition of more buildings increases the tax losses of their surrounding cities. This obviously leads to much hostility. True, they provide jobs and many services and amenities to the communities. But many of the cities have serious economic difficulties to which the institutions contribute in terms of loss of revenue.

Particularly in Boston, which is often called the City of Institutions, this situation is acute. Boston has the highest tax rate in the whole US, and there is no doubt that institutions contribute to this. Yet it is these same institutions which put Boston on the world map. Without them much of the new economic development on Route 128, which circles the metropolitan area of Boston, simply would not exist. Research and development is flourishing there in the wake of MIT. Many firms like to locate in Boston simply because of the wide range of consultants available from the universities. Executives like the educational facilities for their children, and the whole atmosphere and quality of life.

In fact, the whole economic development of the greater Boston area, which was until recently far behind the rest of the US, has taken a new lease on life in terms of flourishing service industries of all kinds and a considerable increase in white collar jobs. It is quite plain that institutions and largely universities are responsible for this change.

We recently suggested that an answer could be found to this problem in terms of a federal refund to the local community of the tax losses incurred by the institutions. This is not so revolutionary as it may sound at first. Because right now the federal government under Section 112 of the Urban Renewal law gives the local community (—the city) credit for all institutional building and improvements. That is, the city gets urban renewal money which must be matched in a fixed percentage by its own expenditures. The city is entitled to use the institutional expansion and building expenses much as its own. So we suggested to go a step further and directly reimburse the city for the losses in taxes of the rapidly growing universities.

It is in the interest of the whole country that the universities expand. Often they use their own money and private funds to build. And universities educate students from all over the US; their research and service activities are frequently on a national level. But the local community only suffers by that expansion and is made to pay for something which they usually cannot share. Taxes have become a guiding factor in urban development; so this would do much to equalize the situation and would establish peace between the institutions and their communities.

Universities and Planning

With rapid expansion necessitated by the increase in students, universities are faced with still another set of problems. Universities, due to their concentration of people, create considerable parking and traffic problems which can be quite abrasive. The exuberance of their students is often less than welcome by the permanent inhabitants of the area, and the rapid increase in numbers of the young people has often changed whole neighborhoods and seriously upset the housing situation.

At least some of the abrasive problems can be alleviated by sound long range planning, by coordinating the university's future with that of the city, rather than piling up more buildings in a haphazard way wherever a piece of land can be bought. But planning costs money, though by now most cities have learned to plan, especially since urban renewal. Planning grants under urban renewal are available to cities. Why not make planning grants directly available to universities and all urban institutions – as their development and expansion is of such great importance to their environment.

Universities, with their many large buildings, visually dominate their environment. Their contribution as a viable new city center and focus could be a most important one, not only visually and physically but also symbolizing their leadership. The resources of universities today are considerable, and they should contribute more actively to their urban environment, also in terms of more city directed teaching and community programs. But above all, they should plan, not only for themselves but for and with the surrounding city.

CANADIAN
BUILDING DIGEST
DIVISION OF BUILDING RESEARCH • NATIONAL RESEARCH COUNCIL
CANADA

GROUNDWATER

by R. F. Legget

UDC 624.131.6

Groundwater has been mentioned in several previous Digests dealing with soils and foundations. Despite its importance in subsurface work it is often found to be a matter almost of mystery even to those acquainted with engineering fundamentals. The widespread acceptance of "dowsers" as a means of "finding water" is in keeping with this lack of appreciation of the simple principles that govern the occurrence and movement of groundwater. This Digest is devoted to a discussion of these principles, with special reference to the importance of groundwater in foundation work. Many excavations are dry and so raise no questions about the occcurrence of groundwater. When, however, water is encountered in excavation work, the problems it presents will be much less troublesome and costly if its character is understood and the necessary methods of control are properly applied.

The Hydrological Cycle

Water exists in some form beneath almost the entire surface of the earth. It is almost always in movement, normal groundwater being dynamic, not static. Its dynamic character becomes evident as soon as the *Hydrological Cycle* is appreciated. This title is used to describe succinctly the natural circulation of water – a phenomenon that should be at least generally understood by all informed people. The increasing importance of clean water in the public domain, and the associated problems now being caused by pollution, are warrant enough for this assertion. It should be thoroughly familiar to all who have to deal in any way with subsurface conditions.

When rain falls on the surface of the earth, some of it can be seen to run off directly into drainage gullies, stream courses, or other depressions that will lead it, as surface water, into rivers and so eventually to the sea. Some rain, however, does not flow away on the surface but sinks into the ground. Some of it will be held in the top-soil by capillarity, giving the damp feel to surface soils that is always found except after prolonged drought. Most of the rain that sinks into the surface, however, will percolate slowly through this upper "zone of aeration" (air being present as well as water in the voids of the soil) until it reaches the body of water that has accumulated in the ground from previous rainfall. It is this natural reservoir of water held in the voids of the ground – whether soil or rock – that is called groundwater.

When viewed in this way, groundwater loses its mystery; it can be recognized as a natural phenomenon of extreme importance to human welfare. For the water so held in the ground is not static. It moves under the influence of gravity in the direction of the prevailing hydraulic gradient. This gradient will often be determined by the surface contours of the ground above, but the moving water will eventually reach a point at which it will emerge from the ground – by seeping into the beds of lakes, rivers or streams, or by appearing as springs on a hillside. Springs are a certain indication of the level of the groundwater in the hill from which they emerge. Spring water will follow the normal route for surface

NRC DBR OTTAWA OCTOBER 1966 | CBD 82

water, along streams, then into rivers and finally into the sea. Water is continually returned to the atmosphere by the transpiration of vegetation and by evaporation from water and ground surfaces. This will lead to the formation of clouds and they, in turn, will result in rain or snowfall. In this way, this quite wonderful "hydrological cycle" continues ceaselessly (Figure 1).

The Water Table

The upper surface of the vast hidden reservoir of groundwater is approximately defined by the water level in wells, although in some cases this may be an over-simplification. Correspondingly, it is shown by the level of standing water in a test boring after equilibrium has been reached. This upper surface of groundwater is called the *Water Table*. In some ways it is an unfortunate name, since it suggests a perfectly level surface, whereas a water table is almost never perfectly horizontal. It may be very slightly inclined – just enough to permit the slow lateral movement of the body of water below – but some variation from the horizontal is essential in view of the dynamic character of groundwater.

Nor is the actual level of the water table constant. It will vary depending upon the quality of water being stored at the location in question. In temperate regions characterized by winter rains (and possibly snowfall) the water table will probably be at its highest late in the winter or early spring, gradually falling throughout the summer. This normal decrease in the quantity of groundwater is what keeps streams and rivers flowing throughout the year when rain is not falling. A falling water table during the summer is, therefore, a natural feature of groundwater movement. Only when the drop in level is due to excessive pumping does the movement of a water table become a matter of public concern.

The conditions so far described are those found when geological strata near the surface are normal. With certain distorted geological arrangements, it is possible for groundwater to be "trapped" in a water-bearing stratum overlain by an impervious bed. The buried water may then be under considerable pressure. If this pressure is released, as by the drilling of a well through the impervious stratum from the surface of the ground, the water may shoot up and even flow out of the drill hole. This pressure is called artesian pressure. If the water is forced up to a level just below ground surface, then it is described as sub-artesian. These special conditions do not occur very often in excavation work, but when they do they can be very troublesome, always requiring expert advice for their control.

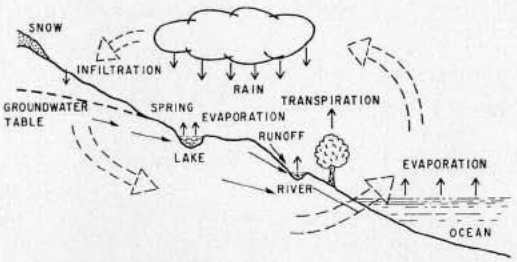


Figure 1 Hydrological cycle.

Groundwater Movement

The dynamic character of groundwater is shown not only by variation of the level of the water table but also by the actual horizontal movement of the water, of which the water table is merely the upper surface. The ease with which the water moves will depend upon the permeability (or, in more popular terms, the porosity) of the material in which it is held. Groundwater will be encountered in many types of so-called solid rock, especially sandstone, which can be quite porous. Even rocks such as granite may be water-bearing due to fissures or joints that provide channels for groundwater flow. It is easier, however, to imagine groundwater flowing through sand or gravel, materials that are so obviously permeable.

Convenient methods exist for calculating in advance of excavation (for example) the rate of flow of groundwater at any location, on the basis of field tests or tests upon soil samples carefully taken. This permits evaluation of the quantity of groundwater that will enter an excavation and the manner in which it will appear. The direction of flow is of particular interest. Downward flow will stabilize the walls of the excavation, but upward or inward flow will decrease their stability.

In foundation work the annual variation to be expected in the level of the water table is of much significance. Provided that enough time is available before the start of construction (and in most cases this can be achieved with some reasonable planning), this information can readily be obtained as a part of the

general program of preliminary subsurface investigation. In the absence of artesian pressures, but where the water table is above the level to which test borings are taken (as will normally be the case), its elevation will be shown by the water level in the drill holes after they have come to equilibrium. If a few holes can be selected in advance at key locations, they can be cased with porous pipes (possibly fitted with special fine screens where needed in fine sand), the casings being left in place and suitably capped. At regular intervals the caps can be removed and the water level measured, in this way a continuous record of water table variation being readily obtained.

Quality of Groundwater

Water stored in the ground, although filtered to a degree by its passage through the soil from the surface of the ground, is still not "pure water." It will contain small amounts of some chemicals. If there are soluble salts in the ground itself, these will also enter into solution under appropriate conditions. Of special importance in Western Canada is the amount of sodium sulphate that may be present in groundwater. When such water is in contact with concrete, as in the foundations of buildings, deterioration of the concrete may occur, with serious results. The quality of groundwater should, therefore, usually be checked in advance of construction. If sulphates are present, the use of special sulphate-resisting cement for all concrete that is to be placed below ground surface will become essential.

Groundwater and Foundations

Where deep excavation is necessary for the construction of a foundation structure, it is clear that the most complete information possible about local groundwater conditions is essential before even the excavation work is planned. Correspondingly, for the design of foundation structures knowledge of groundwater conditions and possible variation in the level of the water table is imperative if designs are to be satisfactory and economical. If the groundwater table is below the bottom level to which excavation has to be taken, all doubt will be removed before work starts, with consequent economy in design and construction.

If the water table at any time of the year will be above the elevation of the bottom of the foundation walls, provision will have to be made for drainage around the foundation, if this is possible. If not, then allowance will have to be made for hydrostatic pressure against the foundation structure. Of equal importance will be the allowance to be made in the design of the bottom of the foundation structure, since the upward hydrostatic pressure that may be exerted against a large expanse of concrete floor can have a profound effect upon the structural design of the floor system. A 3-foot head of water, for example, will exert sufficient force to float one storey of an ordinary reinforced concrete building.

When a structure is to be founded upon timber piles, there arises another reason for accurate predetermination of water table variation. Wood is an excellent structural material with a very long effective life if it is kept either always wet or always dry. Alternate wetting and drying can, however, cause deterioration of most species of wood, including those regularly used for piles. If, therefore, it can be shown in advance of construction that the water table at a building site will vary throughout the year, or in other ways, between levels that include any portion of timber piles proposed for a foundation design, it will be essential to reconsider the design in order to eliminate this undesirable feature. There are on record enough cases of trouble from this cause to warrant even extra expenditure in order to avoid such an undesirable feature of design.

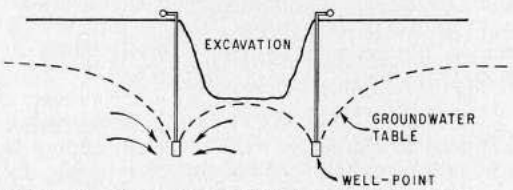


Figure 2 Groundwater table lowered by pumping.

Control of Groundwater

This precautionary note serves well to introduce the final section of this Digest. The fact of groundwater must, naturally, be accepted in connection with all foundation designs that are to involve the use of subsurface strata for the support of any structure. Exact information on groundwater conditions at the building site must be obtained as an essential part of preliminary subsurface investigations, including as accurate an estimate as possible of the maximum variation in the water table to be expected. Whenever possible, and to the extent that appears desirable, this information

should be provided to prospective tenderers in the regular contract documents.

In planning the construction methods to be used, there are available alternative ways of dealing with groundwater during excavation. If the anticipated quantity near the bottom of an excavation in relatively stable soil is small, drainage by means of peripheral trenches leading to one or more sumps, from which water can be pumped, may be adequate. Even in such simple cases, however, the possible effect of drainage upon the surrounding ground and buildings must be investigated. In regions of compressible subsoils the lowering of the water table may cause serious settlement of the ground and of the structures founded on it.

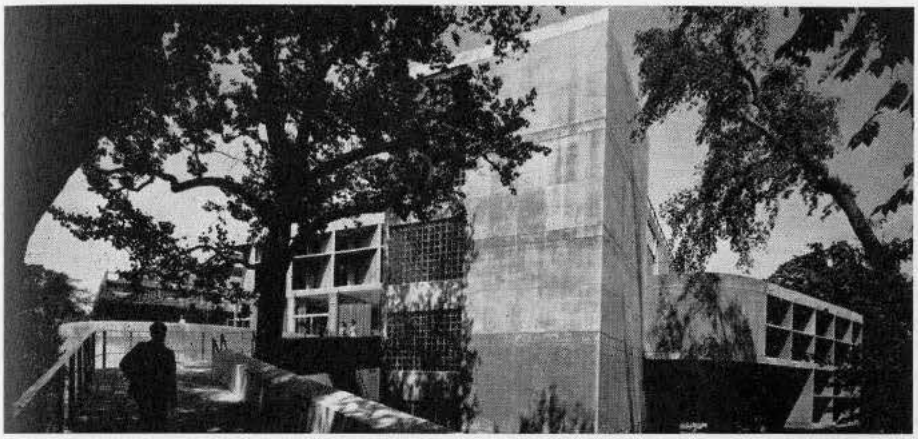
This usually requires that excavation should be carried out without undue interference with groundwater conditions except at the building site itself. This can be achieved, if ground conditions are suitable, by a special type of pumping involving the use of ingenious but simple units called *well-points*. These are small-diameter pipes with specially designed fine screens at their lower ends. These can be jetted into the ground at relatively close intervals all around the site of a planned excavation. They are then connected with suitable header pipes which, in turn, are connected to a special pumping system. Pumping is usually started before excavation so that removal of soil can proceed in the dry, the ground being "dried out" ahead of excavation. This is possible by reason of the way in which water flows in porous media.

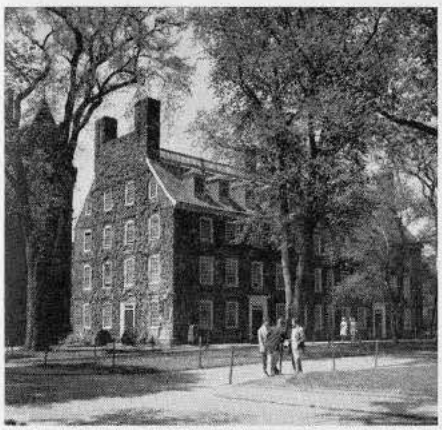
A simple diagram, Figure 2, shows what happens to the water table when pumping is carried out in such media, as, for example, by a well-point. If the three-dimensional character of this "draw-down" of the water table is visualized, it will readily be seen why the effect of such a pumping operation is the creation of what is called a *Cone of Depression*. If the properties of the ground in which the pumping is to be carried out are known, the extent of the cone of depression can be calculated. When well-points are so spaced that the individual cones they form intersect one another, it will be seen that a complete building site can be surrounded by a water table sloping (as shown in the diagram) towards the line of well-points, but unaffected beyond the range of the pumping from each point. Within the excavated area, the direction of flow will be altered, the water table will be lowered to a depth determined by the original design of the well-point system, and it will remain at this depth as long as pumping continues. When designed and installed by experts, a well-point system can be of immeasurable assistance in excavation work, illustrating vividly the application of scientific principles to a somewhat mundane construction operation.

Some of the effects of groundwater upon foundation design have already been mentioned. Deep foundations where drainage is impossible will require waterproofing of basement concrete, the best of all methods being the specification, production, placing and curing of absolutely first class concrete with effective construction joints, again carefully placed and well inspected before being concreted in. In these cases, the structural design must allow for substantial hydrostatic pressures.

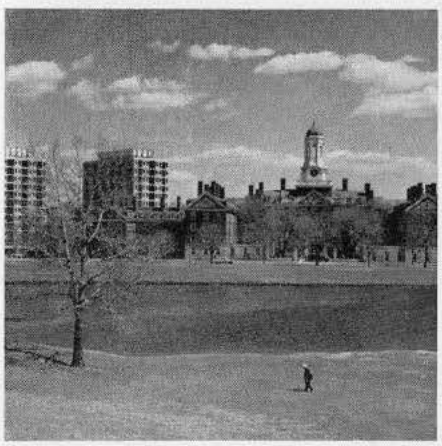
For shallow foundations that can be drained, such as the basements for ordinary houses, a well-placed and accurately-graded circumferential drain connecting with a sewer or other outfall will have, in effect, the same result as the more elaborate well-point installation. Backfill above such drains must be carefully placed and properly compacted, porous material being preferable. The fact that so many house basements are damp is a sad reflection upon the inadequate attention all too often given to this detail of house foundation design. Correspondingly, it is convincing evidence of the need for better appreciation of what groundwater is and how it can be dealt with, an understanding it is hoped this Digest will promote.

1
Carpenter Centre for the Visual Arts, Harvard, Cambridge, Mass.
Carpenter Centre pour les arts visuels, Harvard, Cambridge, Mass.
2
Massachusetts Hall, Harvard
3
River View, Harvard
Harvard, vue de la rivière
4
Peabody Terrace, Harvard Married Student Housing
Peabody Terrace, logement pour des étudiants mariés de Harvard
5
Boston University, Charles River side of campus with Law-Education Building dominant
Université de Boston, bâtiment du droit et Charles River


1


2


4


3


5

In greater Boston several large universities dominate the scene. Harvard and MIT in Cambridge both have active planning offices which are working on long range development plans. They have existed for less than ten years only, though both institutions have been in Cambridge for quite a long time. In fact, Harvard was founded when Cambridge was hardly on the map.

Now both are hemmed in in all directions, cut up by traffic arteries and beset by monumental parking problems. Only this past spring after some long negotiations, the Cambridge Corporation was founded, a community organization primarily concerned with local housing and community problems. Both Harvard and MIT are board members together with local church groups, community and business leaders.

The distance between the campus of Harvard and that of MIT can be walked in 20 minutes. The universities between them share a very run down residential and industrial community around Central Square in Cambridge. Despite the proximity of these great institutions this section has been deteriorating for years while the universities played ostrich. Perhaps the threat of a new expressway, the "Innerbelt" which is to cut through Cambridge near both institutions, helped persuade them that times had changed.

Boston University and Northeastern University, both within the city limits of Boston, have grown very rapidly and changed completely in the past 15 years. Northeastern has no physical planning office, but the same architectural firm has guided their building program. Still, it can't be said that their architectural contribution is of any interest. As a co-operative institution, they are unique in Boston; their evening school is large and growing every year. Located at the edge of an urban renewal area and next to the projected Innerbelt Expressway, the direction of this university's needed expansion is uncertain, but expand they must.

Boston University, located at a crucial traffic crossroad of the city, dominates one

of the prime areas of the town. The Charles River Campus, located between Commonwealth Avenue and Storrow Drive, is the main academic and administrative center. It boasts several outstanding buildings by the architects Sert, Jackson, and Gourley. The new main library is just being completed. A fourteen-story tower, the law and education building, commands the river and dominates the campus. Its distinguished architecture relates to some of the new buildings by the same architects up the Charles River at Harvard. Aside from that, Boston University builds but Boston University has no long range plan. Their planning office is concerned with housekeeping problems. Some new dormitories added lately by another firm cannot be called a contribution to the city, which the university dominates at that point.

Like too many other urban universities Boston University grows by acquiring any available piece of land and building on it whatever they need most urgently at the moment or whatever they can afford. That this method of expanding neither holds much promise for their future nor for their surrounding city must be fairly evident.

Surely federally supported planning grants would remedy the situation and would not only help the institutions but indeed would greatly help the surrounding city and make the university responsible for its urban environment.

Universities and Student Service

The universities' duties traditionally have been defined as teaching, research, and service. While the first two are quite clear, "service" has lately taken on a special meaning in terms of the city, the urban environment.

The cities' economic plight and demands for service have multiplied lately, and cities desperately need the help, advice, and assistance in developing new techniques, new approaches to their problems. The universities have the professionally trained experts from education to public health, from engineering and planning to social science, in fact in all major disciplines. Their point of view is so much needed to guide the future, including that of their own institutions' environment.

Increasingly, the urban university and the city share this future and must work together constructively. In this approach, the students can form the most important link – especially those vocal protestors who are looking for causes for involvement with the here and now. There are most necessary contributions to be made in cities in terms of service, teaching and neighborhood activities which need positive new ideas and the spirit of innovation. There are cultural activities and social concerns where the creative enterprise of students is in much demand. The urban environment, which often is deplored as hemming in the expansion of the institutions, can contribute to the growth of the human qualities of its students, rather than just be used as research material for social science and other academic concerns.

There are many student organizations involved in service; one of the oldest certainly is Phillips Brooks House at Harvard. Some recently have even obtained Office of Economic Opportunity grants for their work. But more could be done in this direction by more active participation of academic departments, not just individual faculty members. That is, students engaged in this service activity of some proportion should not only be given advice but indeed academic credit. In education, sociology, city planning, architecture, engineering, music, fine arts, theater, law, political science, and others, work projects in the city could be organized which in rotation could extend over the whole year and engage a part of the student body in practical work for the public good. With direction by the faculty and for academic credit. No doubt foundation and government grants could be obtained for this important work which would create a whole new relationship between university and city.

Above all, it is the students who by direct involvement will gain from this experience as well as contribute. They will have an opportunity to directly participate with ideas and skills in the urban future of the country. There are going to be many more students, and they will go to school much longer. Graduate schools are besieged with applicants now, and the need for longer and more specialized training is getting greater. For that reason this proposal becomes even more important, to establish some kind of balance for each individual between his specialized training and the broad human concerns and very pressing daily needs of urban responsibilities.

Universities' ivy clad walls no longer provide protection from the urgent urban problems, and universities can no longer turn away, as leaders of the country, from the problems which surround them on all sides. Also as the numbers of students and with it professors increase, their role in the future of the country will become more and more important. They will be heard, but they also must shoulder those responsibilities in the urban environment which too many still choose to ignore. That this is a two-way street is plain.

By removing the friction over loss of taxes, by rational long range co-ordinated planning, and by directed service projects of the students for the city, a whole new future can be opened up. The university in many ways is a small city, a joint enterprise by many for all. The university and the city must work together because they share a common destiny. □

Campus Intercommunautaire Cap Rouge, Que.

1
Photographie de l'emplacement du campus à Cap Rouge
Cap Rouge Campus, Site Photograph
2
Plan d'emplacement
Site Plan

Architecte-Coordonnateur:
Jean-Marie Roy
Architectes, Jean-Marie Roy; St-Gelais, Tremblay & Tremblay; Jacques deBlois; Leclerc & Villemure; Gaston Amyot; Germain Chabot; Bélanger & Tardif; Gilles Côté

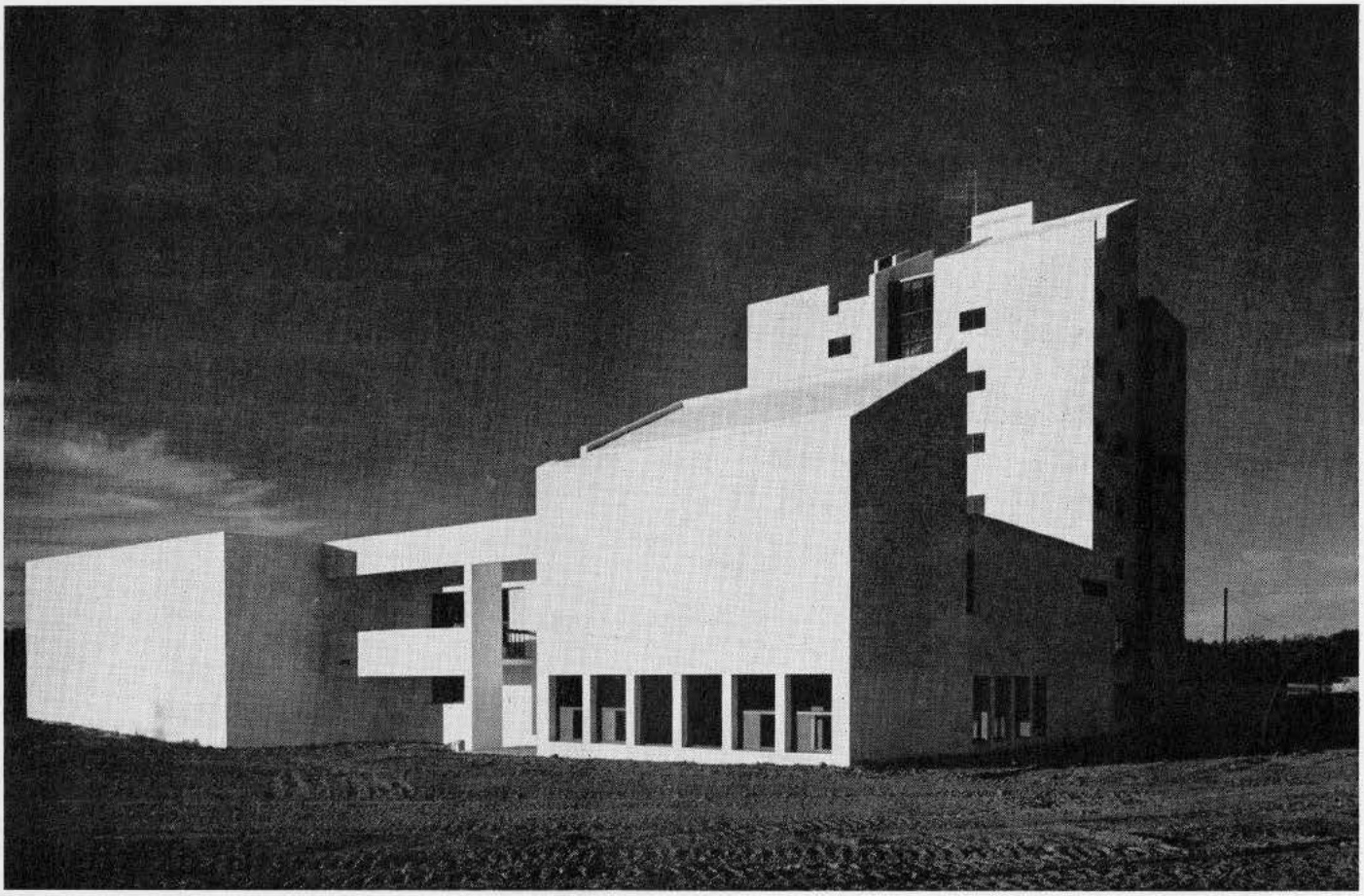
1

Legende

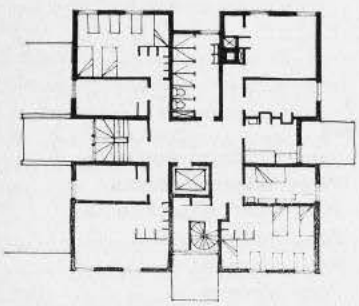
P1 Seminaire Saint-Augustin
P2 Pères Assomptionnistes
P3 Pères Saint-Vincent de Paul
P4 Pères Redemptoristes
P5 Pères Capucins
P6 Pères Maristes
P7 Pères Saint-Sacrément
P8 Terrain de Sport
P9 Pères Servites de Marie
P10 Pères du Sacré-Cœur
P11 Pères Marianhill
P12 Pères de Sion et de la Consolata
P13 Pères Oblats Marie-Immaculée

2

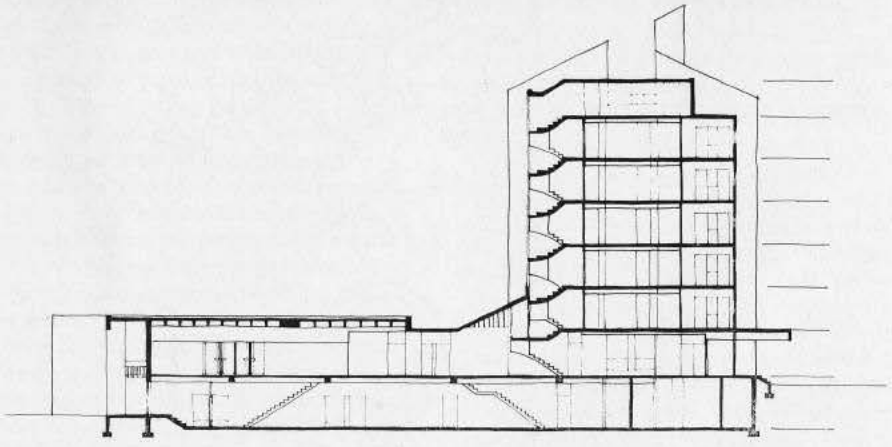
3
Pères de Sion et de la Consolata
Architecte, Jean-Marie Roy
4
Plan d'étage typique des étages 1 à 5
Typical Floor Plan of Floors 1 to 5
5
Coupe
Section



3



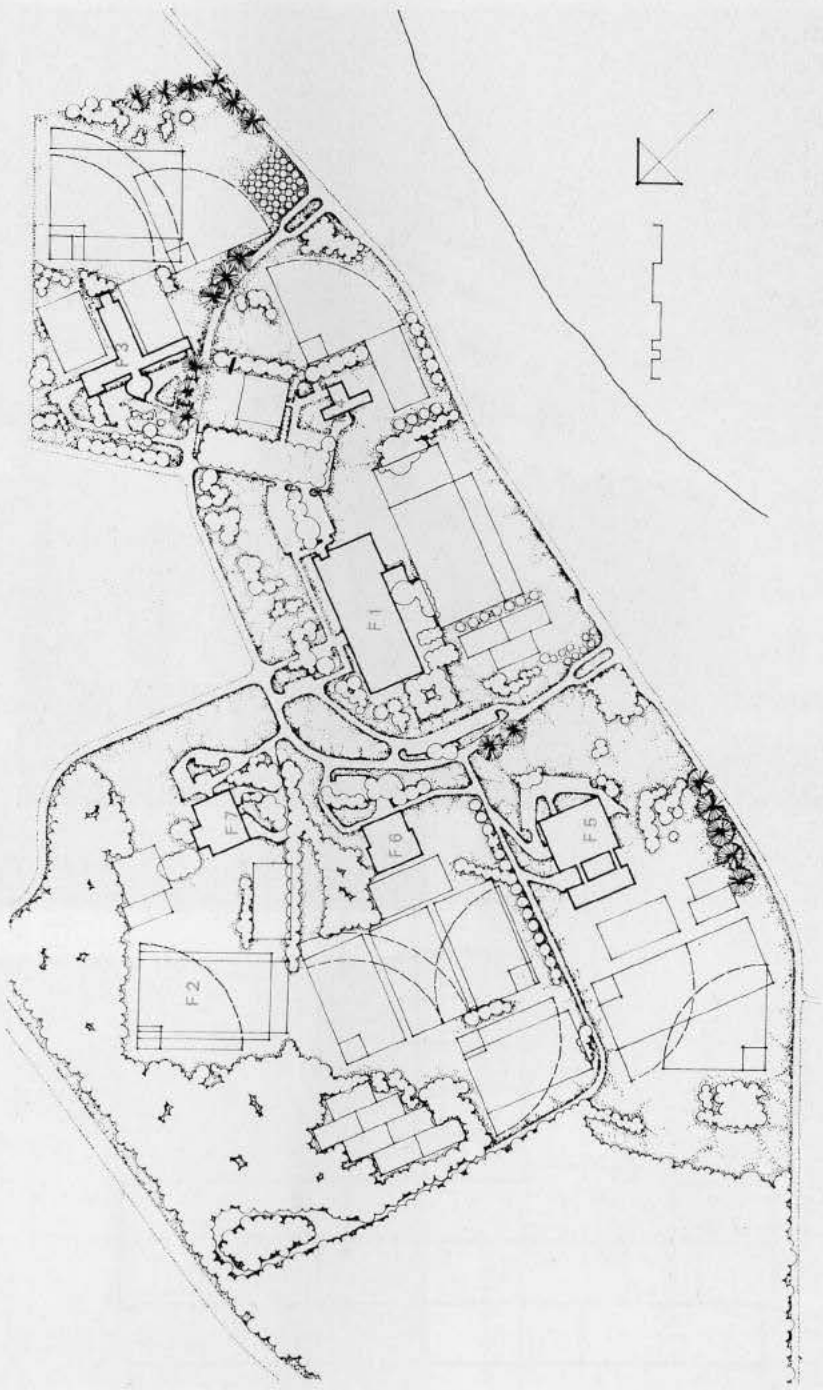
4



5

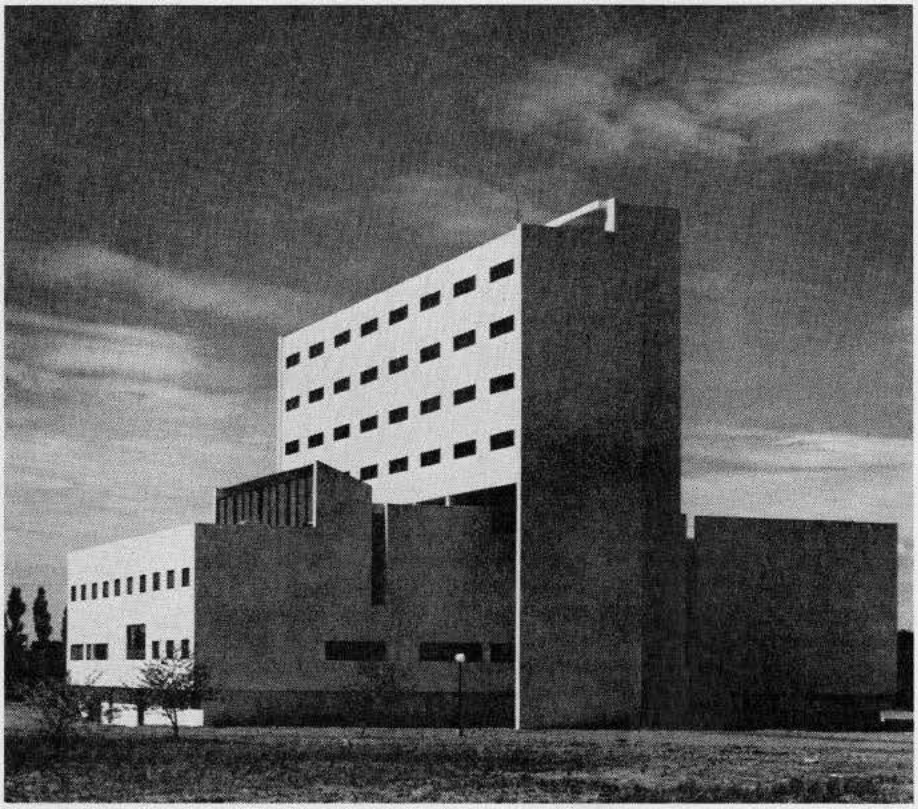
6
Plan d'emplacement
Site Plan

Groupées sur un seul campus, chaque communauté garde son entité comme résidence distincte avec école centrale en commune ; la distance relative entre chaque bâtiment découlant du fait que des courses de récréation sont aménagées pour chaque résidence. Le parti des résidences en hauteur a été adopté, les services communautaires se trouvant au niveau du sol, les étages de chambres, au-dessus, afin de libérer le sol pour l'aménagement paysager et les sports, relier plus directement les services communautaires aux chambres des étudiants et créer des terrasses permettant une vue sur le fleuve St. Laurent et le lac. Les arbres ont pu être conservés ; un souci positif du respect de la nature fut un mot d'ordre général à tous les collaborateurs. Un architecte-coordinateur a été désigné avec mandat de composer dans l'espace cet ensemble et d'assurer une homogénéité architecturale. Il a établi des normes générales précises mais peu nombreuses, afin de ne pas entraver les moyens d'expression de chaque architecte : les bâtiments devront coller au terrain, c'est-à-dire que les pentes naturelles devront être respectées ; les creusages et les rechargements autour des bâtiments devront être reduits au minimum ; l'implantation exacte des bâtiments sera faite en fonction d'obtenir le maximum de vue sur le fleuve et de conserver le plus d'arbres possible. Dans le but de conserver l'allure de parc et d'aménager des terrains sportifs pour chaque résidence, les édifices ne devront pas occuper une surface exagérée du sol (cependant, cet aspect n'est valable que si la solution en hauteur rencontre le problème de chaque communauté) ; absence de mur-rideau ; unité de couleur et de matériau dans les grandes masses, soit blanc ou gris pâle ; les accents au bas des édifices devront être exprimés par des ombres et des couleurs ; les fenêtres seront de bois ou d'aluminium de préférence de même teinte ; absence d'aluminium naturel. Les accès seront au niveau du sol ; les fenêtres des résidences seront des trouées dans les mur plutôt que le mur soit un cadre aux fenêtres ; il est souhaitable que le toit le plus élévé de chaque résidence soit traité en terrasse, de façon à y incorporer le cabanon des ascenseurs.
Jean-Marie Roy, MRAIC

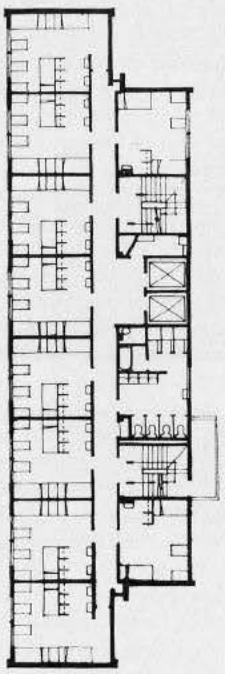


Legende
F1 Ecole Normale Notre-Dame-de-Foy
F2 Terrain de Sports
F3 Frères des Ecoles Chrétiennes
F4 Frères Marianistes
F5 Frères Maristes
F6 Frères de l'Instruction Chrétienne
F7 Frères du Sacré-Cœur

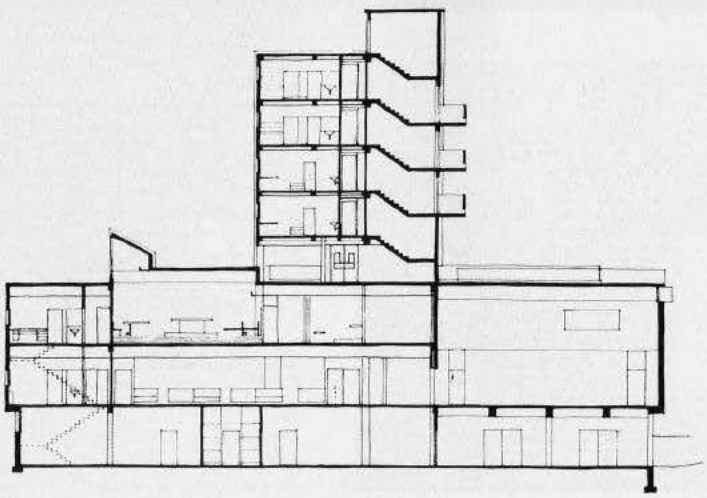
7,8,9,10
Pères Saint-Sacrément
Architecte, Jean-Marie Roy



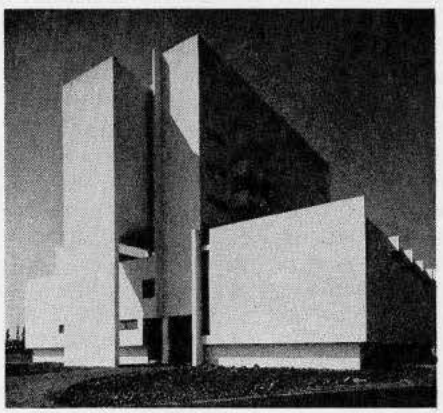
7



9



8



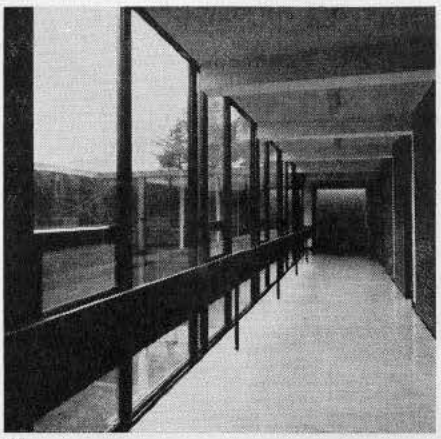
10

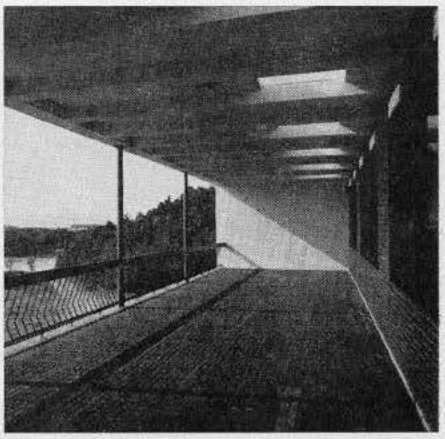
11
Terrace, Pères Capucins, Architectes Tremblay, St-Gelais & Tremblay
12
Chapelle des Pères Redemptoristes, Architecte, Jean-Marie Roy
Chapel, Pères Redemptoristes
13
Chapelle des Pères Maristes, Architecte Jacques deBlois
Chapel, Pères Maristes

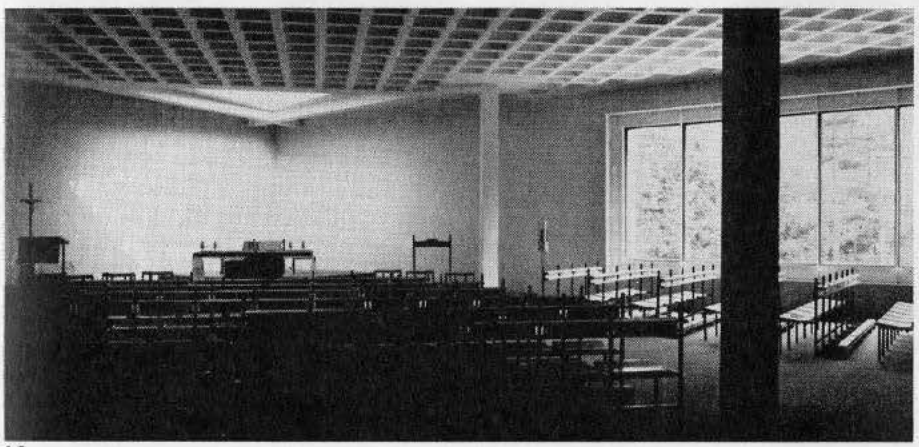
14
Cour, Pères Redemptoristes, Architecte Jean-Marie Roy
Pères Redemptoristes, Courtyard

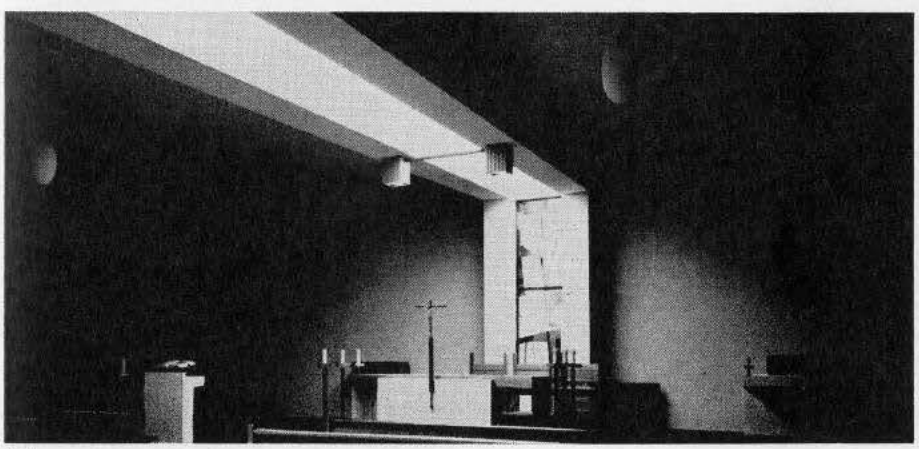
15
Balcon, Pères Saint-Vincent de Paul Architecte, Germain Chabot
Pères Saint-Vincent de Paul, deck
16
Frères de Ecoles Chrétinnes, Architecte Gaston Amyot

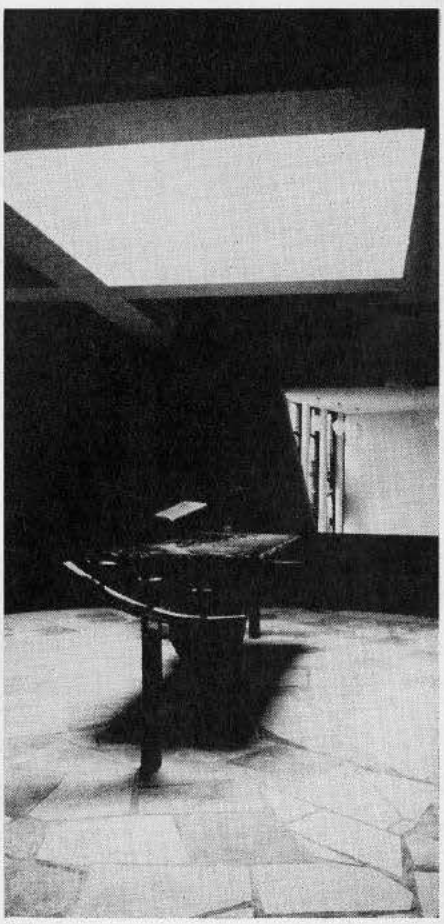

11


14

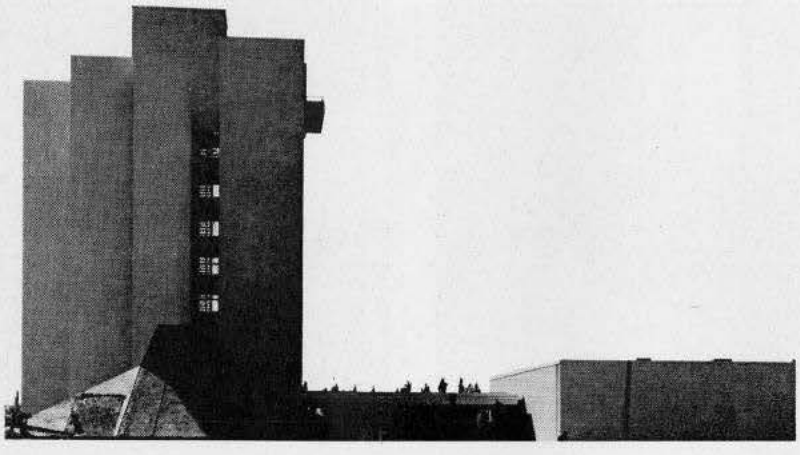

15


12

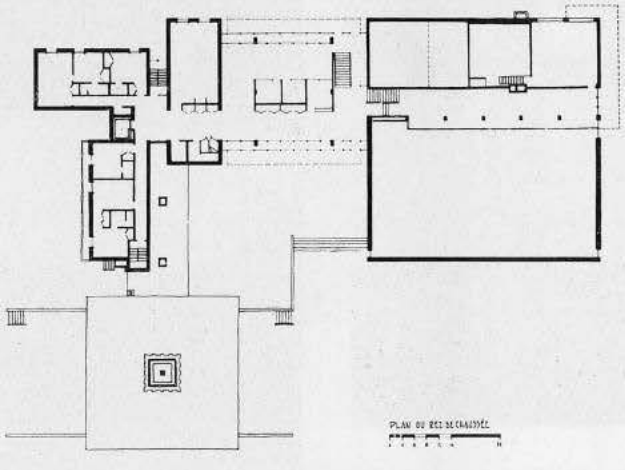

13


16

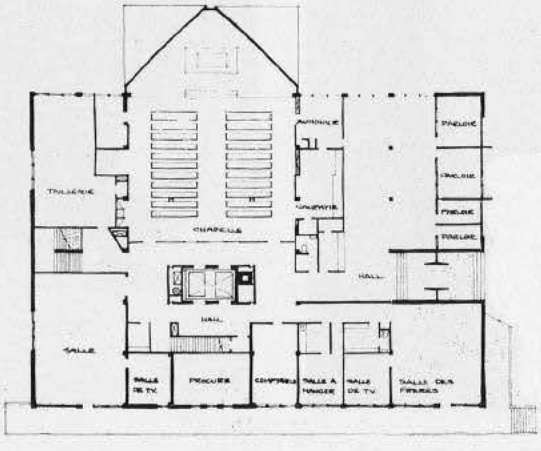
17
Pères Oblats Marie-Immaculée
Architectes Tremblay, St-Gelais & Tremblay
18
Plan du rez-de-chaussée, Pères Oblats Marie-Immaculée
Ground Floor Plan, Pères Oblats Marie-Immaculée
19
Plan du rez-de-chaussée, Frères du Sacré-Coeur, Architecte, Jacques de Blois
Ground Floor Plan, Frères du Sacré-Coeur
20
Frères du Sacré-Coeur



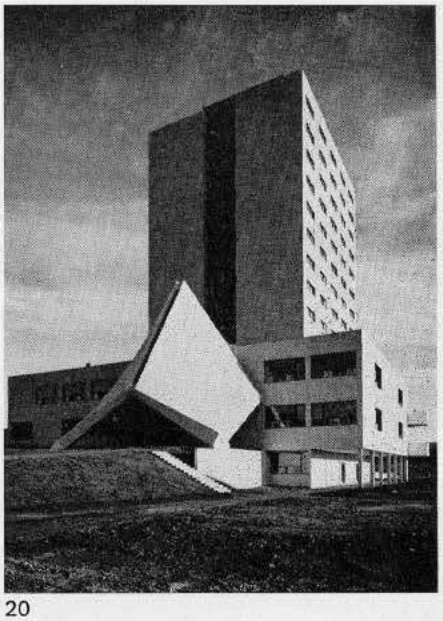
17



18



19



20

Red Deer College
Red Deer, Alberta

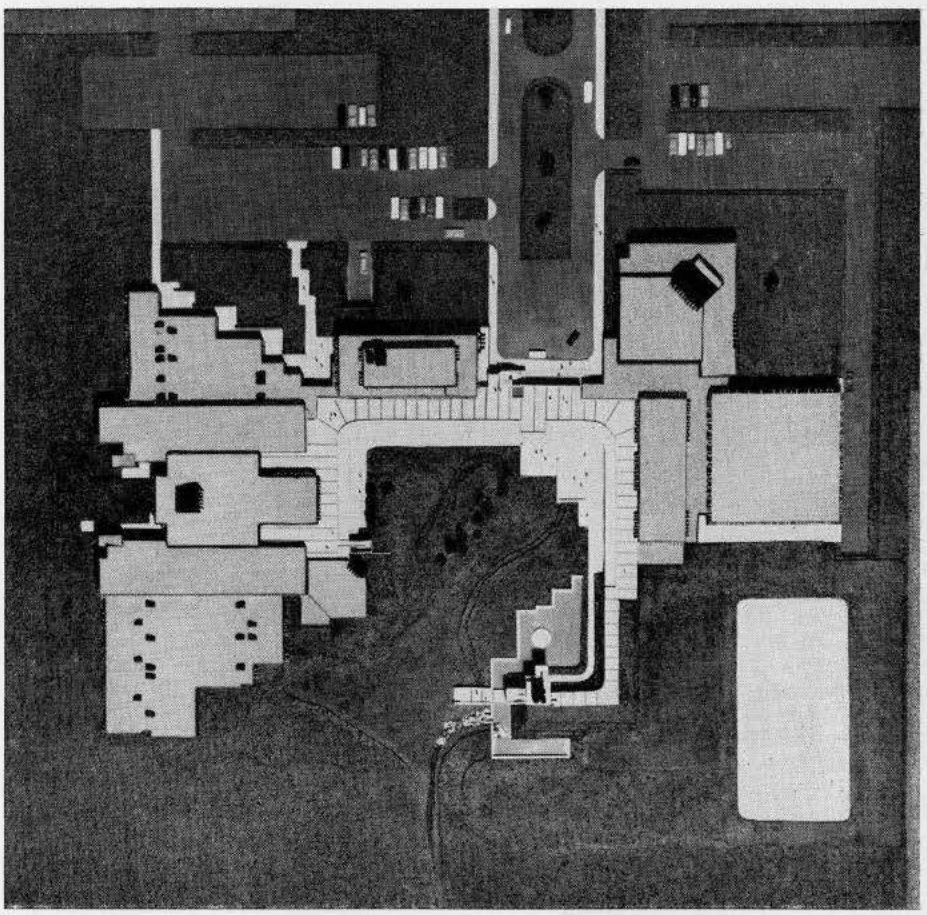
1
Model Red Deer College
Modèle pour le collège à Red Deer
2
Site Plan
Plan d'emplacement

Architects, J. Stevenson and Associates

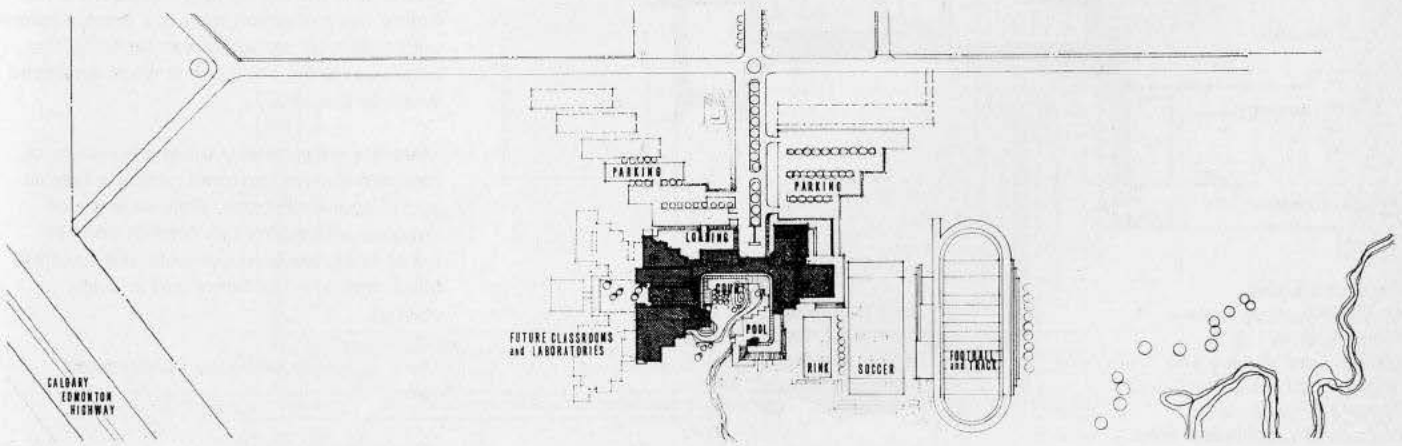
The site is located at the south perimeter of the city of Red Deer, a city of about 25,000 population, located in north central Alberta, half way between Calgary and Edmonton. The College board includes an area of seven rural school divisions. Approach to the site will be by automobile and city bus on an access road through a developing housing subdivision and is a distance of several miles from the centre of the city.

The physical site is a rolling wheat field bordered on the south by a treed creek. The land beyond the creek which is hilly and treed will eventually be acquired by the college.

This quotation from a statement of the educational policy of the College explains the type of institution required.
"The Red Deer Junior College believes in community service. An important part of this service is the provision for continuing education. Adults should have the opportunity to maintain and to improve occupational competency. They should find in the College the means to prepare for a change in occupation. In the less materialistic aspect, there should be provision for courses in the fine arts and in the art of living. College staff should assist in developing evening programs. Their knowledge and abilities should be a source of help in worthwhile community projects particularly those of an educational or a cultural nature.

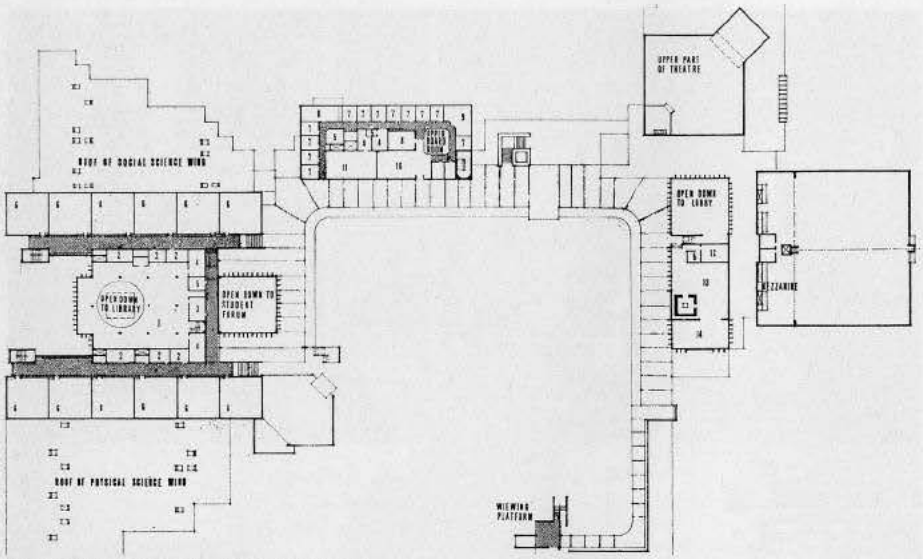


1

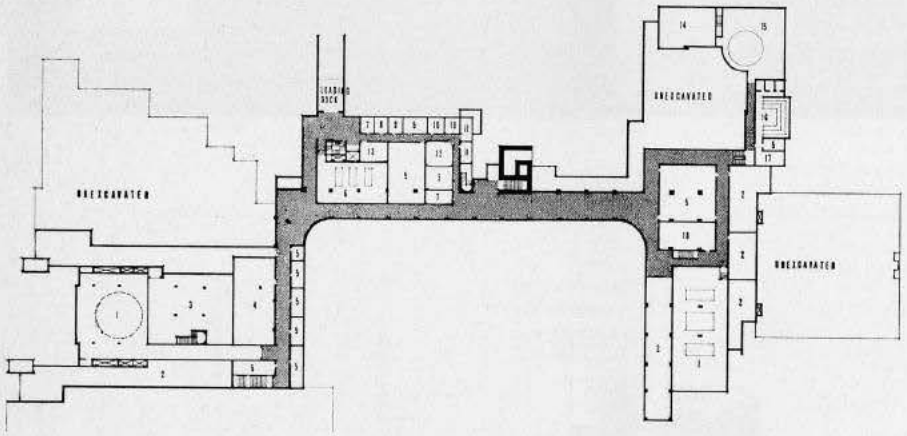


2

3
Red Deer College, Second Floor Plan
Plan du 2e étage du Collège à Red Deer
4
Red Deer College, Basement Floor Plan
Plan du sous-sol du Collège à Red Deer



Library Mezzanine Reading and Shelf Space 1
Study Rooms 2
Committee Room 3
Washrooms 4
Storage Rooms 5
Classrooms 6
Administrative Offices 7
General Offices and Work Rooms 8
Quiet Work Room 9
Staff Lounge 10
Staff Work Room 11
Students' Union Committee Room 12
Students' Union Lounge 13
Games Room 14
Gymnastics Mezzanine 15
Elevators 16



Basement Level
Air Conditioning Rooms 1
Crawl Spaces 2
Library Stack Space and Work Area 3
Geography Wet Laboratory 4
Storage Spaces 5
Boiler and Mechanical Room 6
Electrical Rooms 7
Gas Meter Room 8
Water Meter Room 9
Caretaker's Offices 10
Staff Washrooms 11
Caretaking Staff Lounge 12
Incinerator Room 13
Dressing Rooms 14
Dramatics Studio 15
Music and Practise Rooms 16
Music Director's Office 17
Student's Union Workroom 18
Service and Pipe Tunnel 19
Elevators 20

In brief, the College should become the educational centre for the adult population of its service area.

"It has sponsored extensive evening university and non-university courses. It is moving to a two-year program in nursing education. At the same time plans are being developed to open up programs in social work and business administration. Enrolment is advancing rapidly."

The building proposal is to provide an all weather, linear pedestrian core around a 200-foot square open court. The college is immediately for a student population of 500 expanding to 2,000 in ten years. These first additions would be extensions of the class-rooms and laboratory wings as the major core facilities were all in the program at this time. Should the college expand beyond 2,000 or develop into a small University, the core can expand or be extended to enclose more spaces.

Because of a lack of trees on the immediate site, extensive use was made of land forms to define the court, parking areas, and the playing fields.

The interior pedestrian mall has at one extremity, a two storied lobby area servicing the theatre, gymnasium and student centre. At the other extremity is a two storied student forum area which distributes the students to the library and classroom areas. Below the pedestrian mall is a service tunnel with basement storage areas servicing the whole complex. The loading dock is ramped down to this area.

Materials are generally antique brown brick, concrete louvres, textured concrete fascias and copper roof forms. Walkways are of concrete and quarry tile. Interior finishes are of brick, textured concrete and concrete block with lino tile floors and acoustic ceilings.

The structure is generally of reinforced concrete.

J. A. Barrett, MRAIC
Stevenson, Raines, Barrett, Hutton, Seton and Partners

Ryerson Polytechnical Institute, Toronto

1
Site Model from the North-east
Modèle du bâtiment proposé, vue du nord-ouest
2
Primary Circulation Diagram
Diagramme de la circulation principale

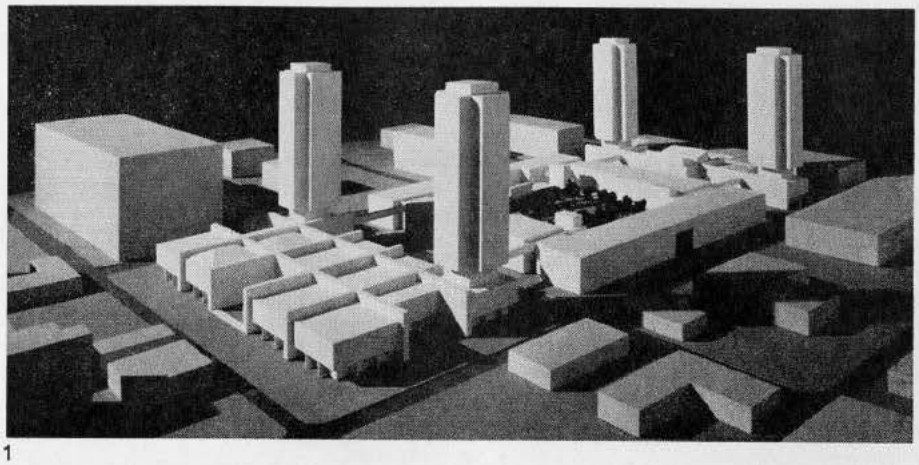
Ryerson is located in downtown Toronto on what is known as St James Square – seven acres of land bounded by Gerrard, Church, Gould and Victoria Streets. Existing facilities are housed in the three-storey quadrangle building as well as in eight nearby structures. Three of the latter, in fact, have just been acquired and have undergone minimum cost renovation to temporarily handle enrolment overflow until the new buildings are constructed.

Architects, Gordon S. Adamson & Associates, John B. Parkin Associates, Shore & Moffat and Partners Architects and Engineers

Expansion Alternatives

Three different methods of expansion for Ryerson were investigated:
1 Expansion wholly at the main campus at St James Square (Gould, Church, Victoria and Gerrard Streets).
2 Expansion principally through a system of satellite campuses with relatively minor expansion of the present complex of buildings.
3 A combination of these but with the major emphasis upon the present St James Square campus.

Of the above, the first alternative was deemed most valid for the following reasons:



1

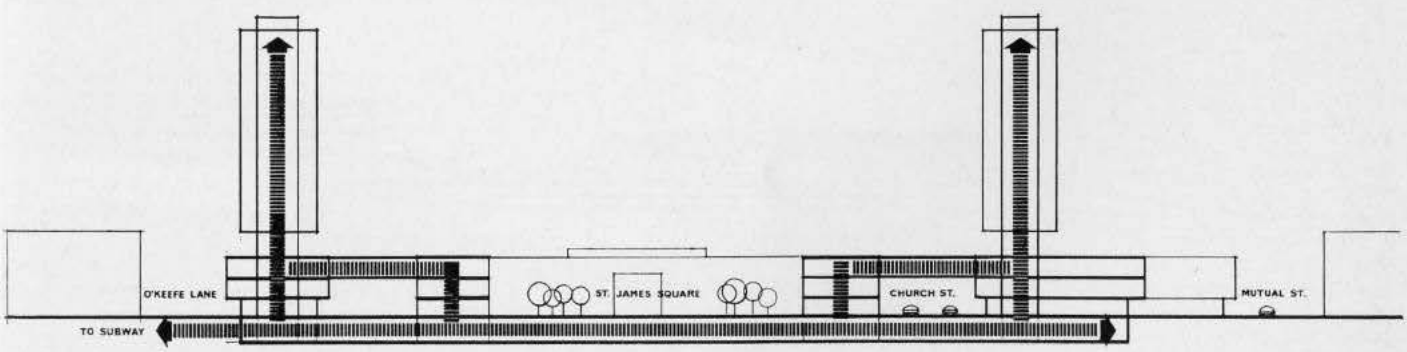
1 *Attraction of Students*
Approximately 50% of the Ryerson Student population originates from outside Metropolitan Toronto. The key drawing factor in attracting these students is, as indicated by past experience, the life and excitement of a large city. Removal of the core of Ryerson from the city centre would doubtless cause a decline in out of town student enrolment.
2 *The Educational Aspects of a City Centre Site*
It is Ryerson's belief that the extra curricular life offered to a student through facilities that are available to him in the core of a city, forms an important part of a student's education.

3 *Ease of Accessibility*
Since 50% of Ryerson's Students emanate from the City of Toronto, excluding to a great degree the suburbs, the present location of Ryerson offers ease of accessibility through public transportation, that would be denied were this centre to be discontinued. This has a capital cost implication as well. By relying upon public transportation, Ryerson will avoid the expense of executing and maintaining large parking areas or expensive parking structures.

The High Rise Solution

Once expansion at the downtown site was deemed most feasible, there arose the question of how it should take place. Primary factors were the extremely high cost of urban land and Ryerson's future population growth. The only way to equate these two within reasonable economic limits is to expand vertically. The high-rise solution, therefore, was adopted which will also allow open green areas at grade.

The use of high-rise buildings for education is not a new concept. It has been applied before both to house one discipline, such as physics at the University of Toronto and a however, that of many disciplines in a tower, has not been carried out before in Canada.



2

Simon Fraser University Burnaby, B.C.

Architects Erickson Massey

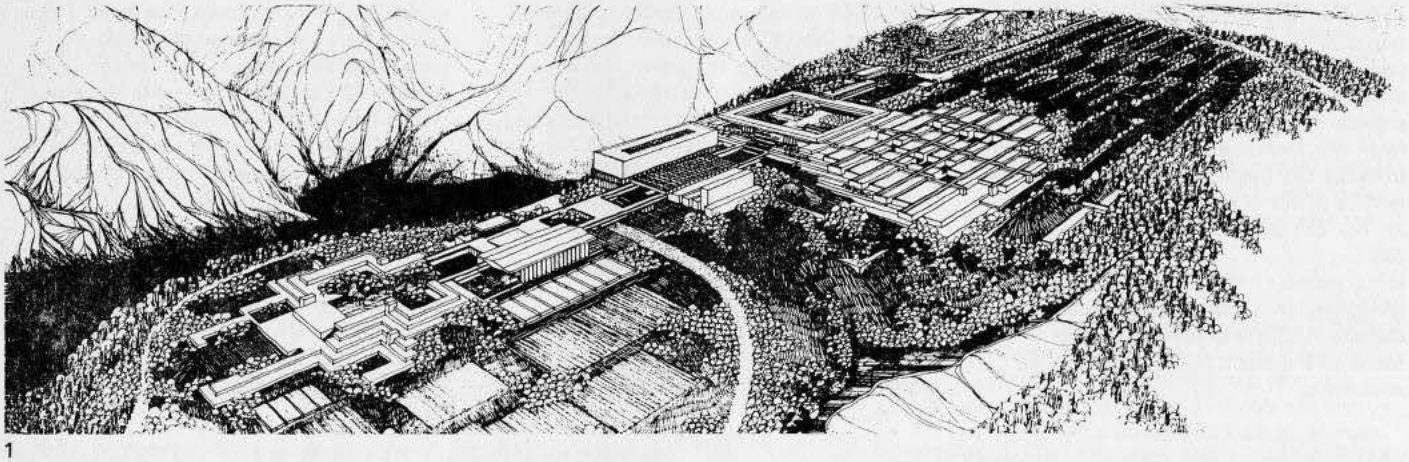
1
Simon Fraser University
2
Section Showing (1) Transportation Centre and Student Offices, (2) Central Mall, (3) Academic Quadrangle
Coupe montrant (1) Centre des moyens de transport et bureaux d'étudiants, (2) Mall central, (3) Cour académique

The design of Simon Fraser University is a consequence of an examination of contemporary educational aims and methods. The ideal has been to attempt to arrive at the archtype for this condition as the Oxford-Cambridge colleges or the historic islamic universities which were the physical manifestation of the scholastic systems of the periods when those institutions took shape.

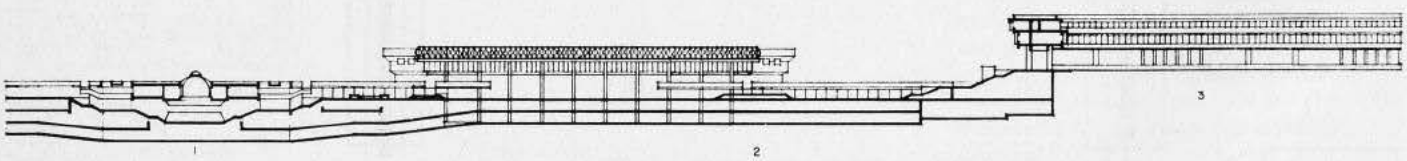
The North American campus exists in an era that requires specialized knowledge. This is reflected in the mechanistic departmentalization of contemporary faculties. This advances fragmentation of knowledge instead of wholesome integration.

Thus Simon Fraser has attempted to encourage inter-relationship. Instead of isolating each department on the campus, a movement path has been used to make strong connections between the parts of the university. These parts – classrooms, laboratories, offices and service spaces are the component building elements. The corridor, meeting place, street, plaza, colonnade and stairs – the elements of connection, are the devices for physical and social linkage. The sequences of movement via these channels then may transcend their primary function of path to one of intellectual stimulation. More is often derived from inter-student contact than by formal instruction.

All of these movement channels emanate from the arrival point, the Transportation Centre. The movement, via the mall, is crowned at the summit by the Academic Quadrangle. This is the main skeleton; attached to it are the building elements, and from it expansion can occur. From this framework the magnificient views are seen, through it run the services, and under the glass covered mall is the main public space in front of the library. The continuous cover, at times opaque, at times transparent, provides protection from rain.
All of this complex lies long and horizontal, along the contour appropriate to a mountain setting and compromising the existing landscape as little as possible.

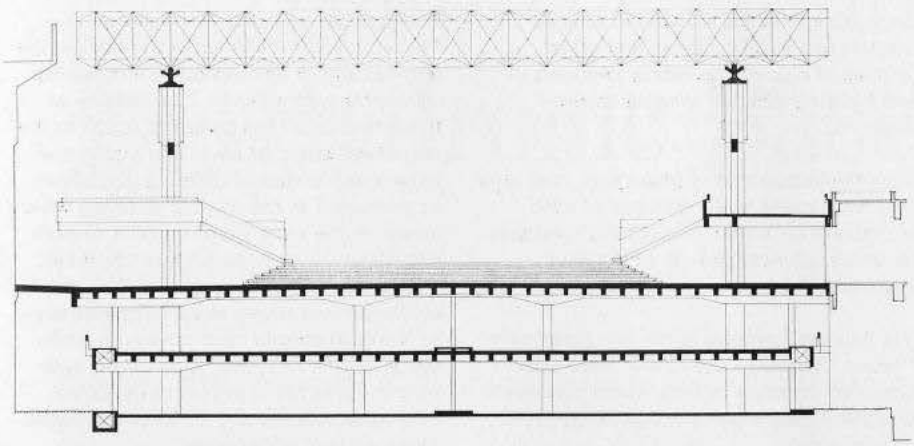


1

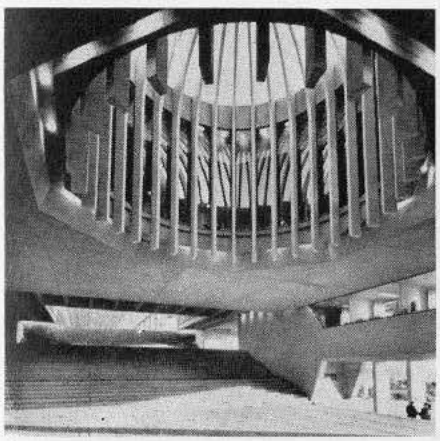


2

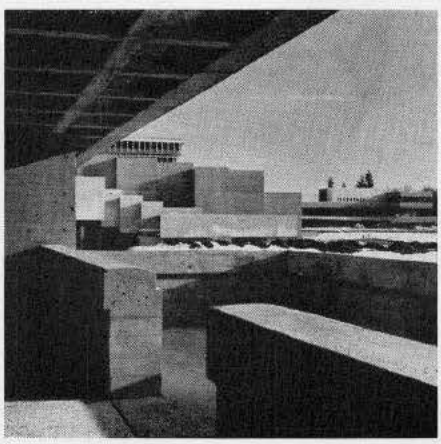
3
Cross Section
Coupe
4
Pedestrian Centre and Lantern, Transportation Centre
Entrée pour piétons et lanterneau, Centre des moyens de transport
5
Mall Entry
Entrée du Mall
6
View of Theatre from Mall
Le théâtre vu du Mall
7
Mall



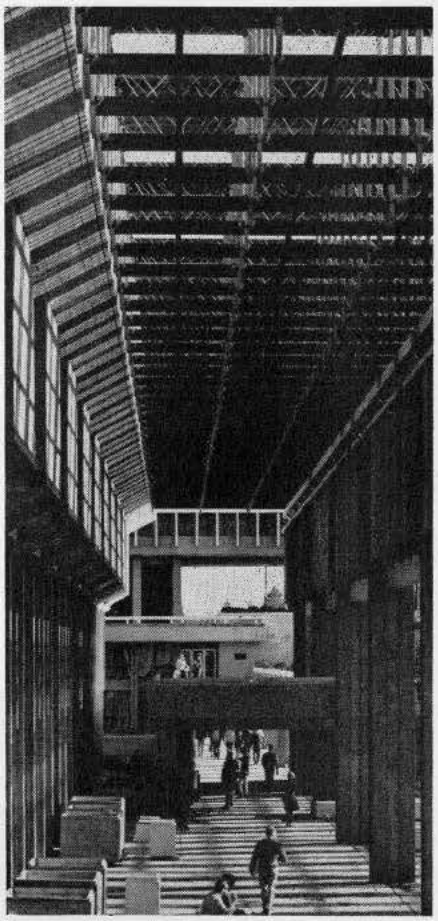
3



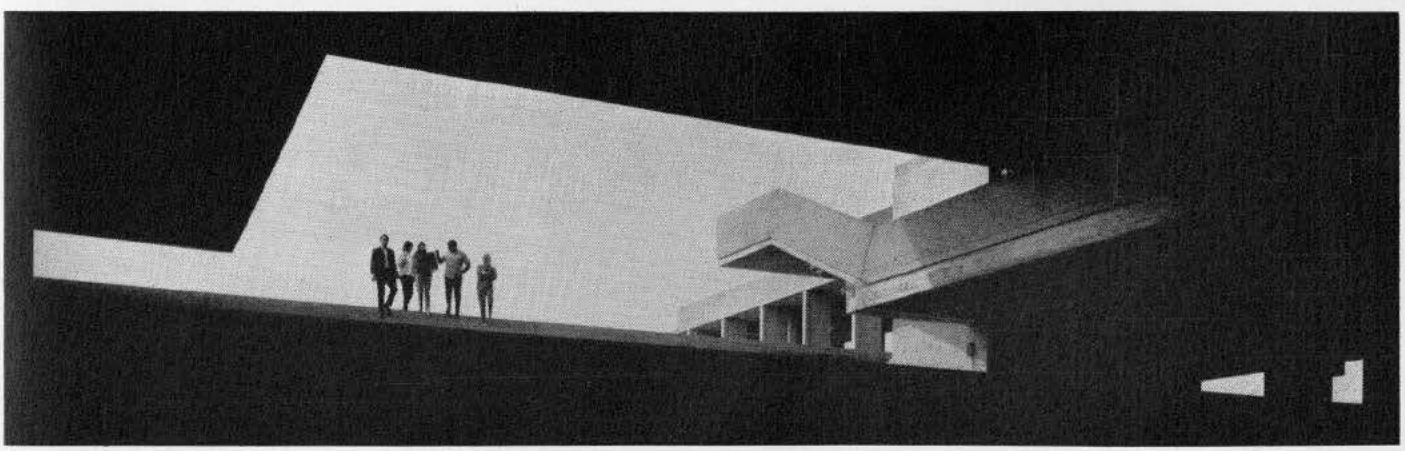
4



6



7



5

Simon Fraser University Science Complex

Rhone and Iredale Architects

1
Plan Phase 1 and 2
Phases 1 et 2 du plan
2
Plan Phase 1, 2 and 3
Phases 1, 2 et 3 du plan
3
Section, Phase 1 and 2
Coupe, phases 1 et 2

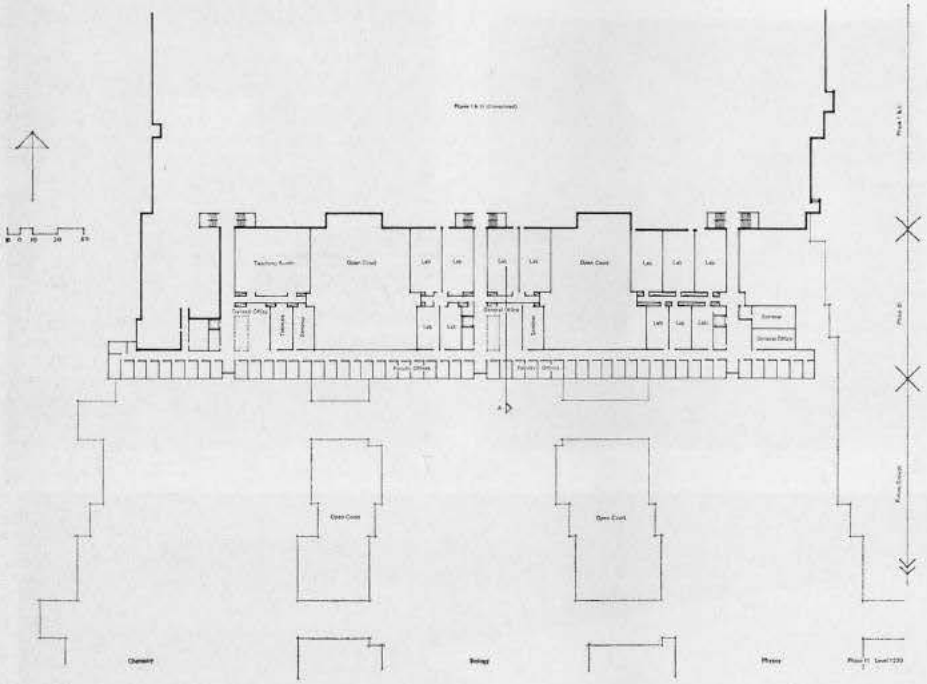
Phase 1 and 2 of the project are now complete. Phase 3 which consists of two new lecture theatres, research laboratories, undergraduate teaching facilities and administration offices for the departments bio-sciences, chemistry and physics is a two-storey structure stepping down the mountain slope. At the top it connects to the academic quadrangle and is modelled in concrete to integrate with the total concept of the University and maintain continuity of design with the two previous sections.

As the complex descends the southern slope from the quadrangle in concrete tiers, a major planning principle will be seen taking shape. This principle allows the science faculties to add laboratories and other facilities as required, avoiding problems of over building inherent in multi-storey buildings.

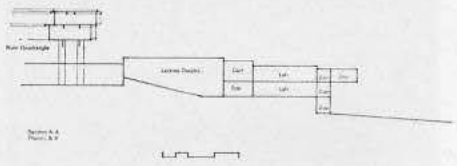
Since the completion of phase one, additions have been made to the facilities of each department on a yearly basis to accomodate the unprecedented growth of the new university.

This Science Complex is the first building in Western Canada to use cast-inplace post-tensioned concrete beams, which previously have been used only in bridge construction.

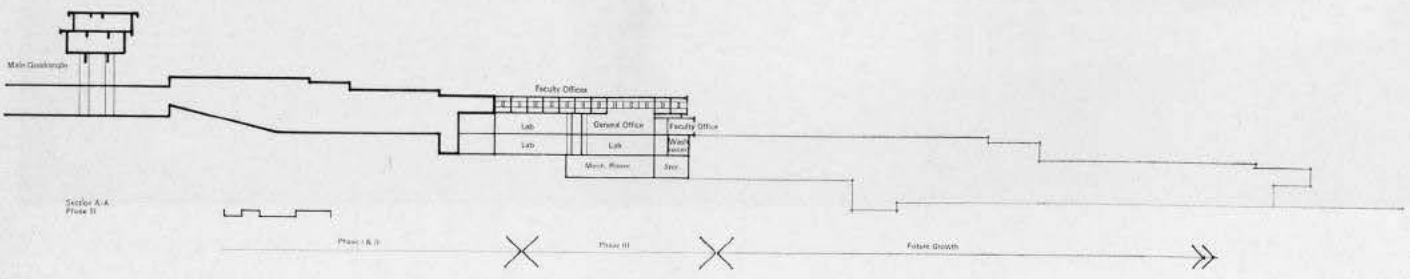
An important concept in the design of Phase Three of the Science Complex is the introduction of administrative and faculty offices for each science. The addition of those faculty offices gives full scope to the cross fertilization of ideas and interaction between scientists of differing disciplines as envisaged in the original planning which connects the main spinal corridor of each department with cross bridges of offices. The two new theatres will seat 395 and 314 students respectively and incorporate some of North America's most advanced audio-visual lecture facilities. Bids for the two new theatres are expected to be called in October and for the remainder of Phase Three project, in December.



1



3



2

There's nothing simpler to install than the Sunnytrim Hydronic Baseboard!

SUNNYTRIM Baseboard offers greater ease of installation. With a conservatively rated output, it is ideally suited for commercial, institutional and apartment dwellings!

SUNNYTRIM is a compact unit designed for installation where high capacity in a small area is required.

Installation of SUNNYTRIM is easy and fast! After positioning on a wall, it is only necessary to connect the element and then secure the front cover. It can be installed as an "under the window" unit or as an unobtrusive, streamlined wall to wall baseboard. Being only 3½" wide and 13" high, the unit can be partially recessed without affecting accessibility or appearance.

SUNNYTRIM is available in ten sizes—all units prefinished in buff-white enamel and individually packaged.

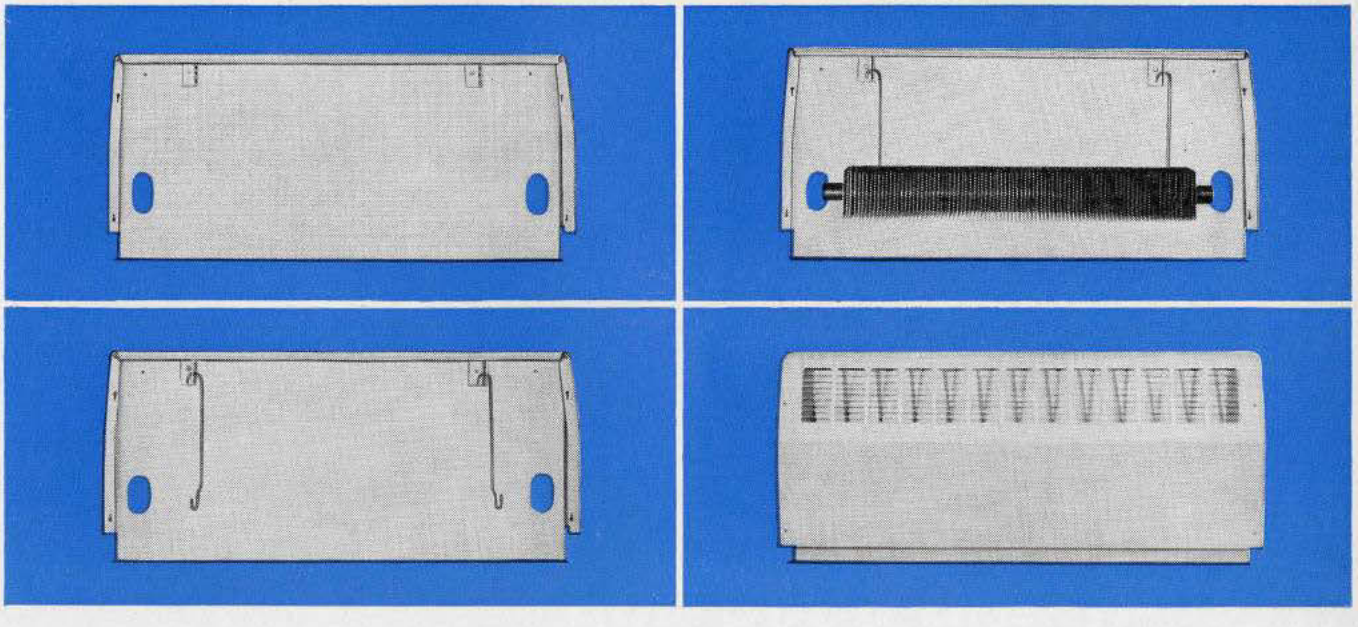
For comprehensive specification sheet, please write to Warden King, P.O. BOX 2700, Montreal 9, P.Q.

MEMBER: CANADIAN HYDRONICS COUNCIL

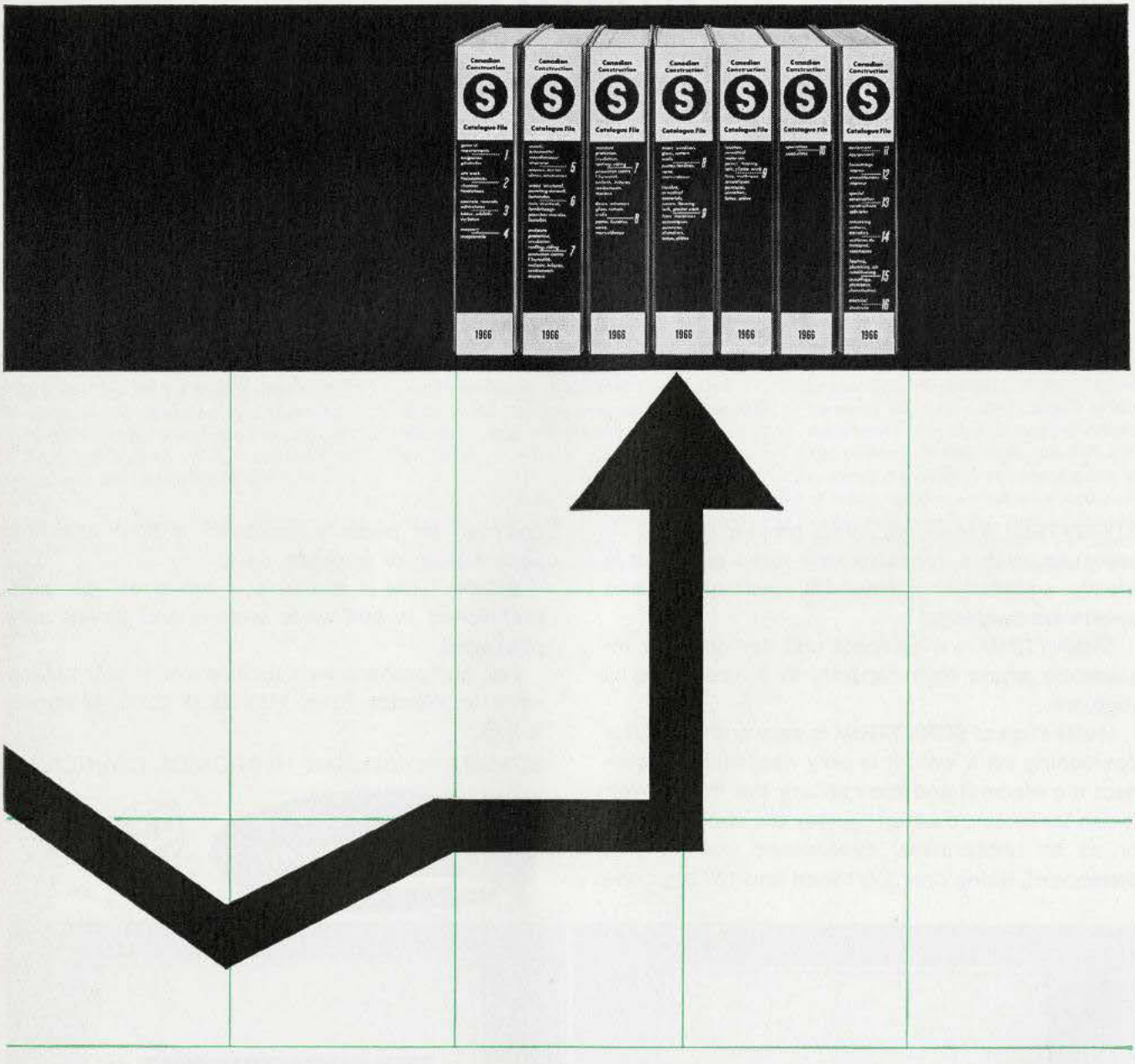
Warden King

I B R
REG. T.M. CANADA

C.G.A. APPROVED



CHANCES ARE YOU CAN IMPROVE EFFICIENCY WHEN YOU WORK WITH SWEET'S



Consider two points. Sweet's is easy to find—the very bulk of each of the seven volumes rules out the possibility of losing, misfiling or discarding, which always threatens loose or loose-leaf material. And you don't have to rifle through several filing cabinets.

Sweet's is easy to use—detailed product information is broken down into 16 divisions and indexed by product, company and trade name in English and French. You can find the product information you need swiftly.

Both points improve your efficiency by saving you time. Time saved is money saved—and that's something everybody likes. Sweet's helps you do it.

Remember, this is just the start—your continued cooperation can make Sweet's even more valuable to you.

Sweet's Catalogue Services
McGraw-Hill Co. of Canada Ltd., 330 Progress Ave., Scarborough, Ont., Area Code 416—Phone 293-1931
Suite B, 3468 Drummond St., Montreal 25, P.Q., Area Code 514—Phone 842-9573


add soda and lime...

Take sand, add soda, lime and Pilkington ingenuity for a unique 'total service'

To make glass you mix sand, soda and lime. That is the oversimplified but basic formula. But for the exceptional you must have ingenuity and inventiveness. Pilkington has been manufacturing and developing quality glass products for well over a century and a half. It's worth noting that most of the pioneering in glass technology takes place at Pilkington.

Pilkington
GLASS LIMITED
55 EGLINTON AVENUE EAST, TORONTO, ONTARIO

The Pilkington Contract Department: a 'total service' for architects

The Pilkington organization has become more than a manufacturer and supplier of quality glass products. Its Contract Department now offers a unique 'Total Service' to architects. This means that you can call on Pilkington specialists at the design stage to assist you in the development of custom or standard applications. Their wide knowledge and experience will ensure that your building concept will be faithfully carried out in construction.

The work of the Pilkington supervisor assigned to your building project is to act as liaison in the manufacture, procurement and installation of all the material required. This can include complete glass and metal curtain wall systems, and other glass and architectural metalwork such as windows, storefronts and entrances. And for the interior, such things as mirrors, decorative glass and glass partitioning.

The Imperial Life Building, Toronto: l. to r.—W. Evans—Yolles & Rotenberg Ltd. (owner-builders). R. S. Lesick & W. S. Swan —Pilkington's. Architects—Webb, Zerafa, Menkes.

Under the 'Total Service' concept, Pilkington resolves the working requirements and assumes responsibility for satisfaction on job completion.

'Total Service' from Pilkington is available for all contract jobs regardless of size. Should you have any questions or requirements please call your nearest Pilkington Contract Department.

AR-1

Campus Planning in the U. K. Today

Special Supplement to Architecture Canada's Section on Universities

A report on the British Council Conference on New University Building, by Evan Walker, M. Arch, MRAIC

Evan Walker is a practising architect in Toronto. He was sent to the British Council Course on New University Building, held in Britain in June this year, by the Canada Council and the Association of Universities and Colleges of Canada.

Introduction

The current expansion in higher education in Britain has produced a rash of new universities and a re-establishment and expansions of older institutions. To show how Britain's planners and architects are tackling the job, the British Council designed a two-week course for thirty-four architects from other countries in June-July of this year. Much of what is happening has relevance elsewhere, and the following transcripts of lectures, notes on visits and comments have been compiled in the hope that many of the ideas and developments will prove useful for those involved in building universities in Canada.

In many ways, the recent development of new universities in Britain is at variance with the developments presently taking place in Canada. The most immediate and obvious differences include financial aid, structures, size of institutions and the view each society takes of the proper role for higher education.

We have nothing in Canada to compare with the University Grants Committee in Britain, that arm of the Treasury wholly committed to the financing of higher education. Where Britain has one Federal body controlling development, tackling problems and setting policy, Canada has ten Provincial and highly independent bodies trying to do the same thing. Where the British consider a university of some 3,000 to be the norm and 10,000 large, we are accustomed to hearing of development plans ranging to 15,000 students, and several larger institutions are well on the way to populations of 25,000 and more.

But, in many ways, the differences are of little consequence. Both countries are thoroughly involved in re-thinking the role of universities in society; are concerned to create the necessary opportunity for an increasing number of young people to get a university education; are committed to the advance of knowledge, research and technology; are involved in trying to develop capable and well rounded individuals to take a leadership role in the community.

For these reasons, it is well that we should take careful note of developments in university planning in Britain. There is a surprising vitality in all fields connected with the planning of the new universities, and the re-planning of the old. Government, academics, planners and architects are combining to produce new ideas, new curricula, new forms of student living, and new forms of plan and building as an appropriate environment.

Where we have learnt well the lessons in technology and communication that the US can teach, we can now look again to Britain for a lead in integrated academic and physical planning, and for new and stimulating forms of student living.

The cooperation of the Canada Council in the production of this supplement is gratefully acknowledged.

Robbins and After: A Critical Survey

Notes on a lecture by Michael Brawne, Architect

We must first place the new universities in Britain in a historical context up to the time of the Robbins Report in 1963.

As with universities in all countries, quantity and quality of building are thoroughly enmeshed. The quantity problem was reported well in the Robbins Report, where comparisons were made between Great Britain and other countries.

In Great Britain, of those students who are able or of the age to enter university, 12.5% actually enter and 9.8% complete – that's about one in ten. In Sweden, those who enter are about 13% so Great Britain compares reasonably with Sweden. In the United States 35% enter and 17% complete, so that the drop-out rate in the United States is greater, but of course the final completion is 17% as opposed to Britain's 9.8%.

The Robbins Report claimed that the need for new universities in Britain was great. In fact, in 1957 and in the two or three years following, some seven new universities were established, the most recent being as late as 1964, and there were two major reasons for this – firstly, the war bulge of children who are now coming into higher education – and this is observable in most countries of the western world; and secondly was the trend toward more students going on to university. Both reasons together, produced the necessity to build.

A number of universities had begun planning before the Robbins Report, but it had the great effect of stating clearly what the need was in Britain. The seven wholly new universities (and in the order of their establishment) are:

1 Sussex, at Brighton
2 York, outside of York
3 East Anglia, at Norwich
4 Essex, at Colchester
5 Kent, at Canterbury
6 Warwick, at Coventry
7 Lancaster, at Lancaster

The Ancient Universities

To put the report in some historic context, one must state that universities in Britain did not change significantly for some six or seven centuries. Oxford was established in 1249 and Cambridge in 1284 and they were the only two universities until the nineteenth century. Soon after those were established, four were founded in Scotland, patterned on European universities. These are St. Andrews, Aberdeen, Edinburgh and Glasgow. The Scottish and the English universities differed on one basic point – the English universities connected the whole experience of living and learning into the college system that is so well known today; the Scottish universities copied the European system where living was entirely separate from learning. The student was only the concern of the university during the teaching day and he could live where he pleased.

Then came the establishment of the civic universities, established in the early and mid-nineteenth century. They are Durham, in 1832, London University with its associated colleges in 1836, Manchester in 1851, and then Birmingham, Liverpool and a number of others. These were the great urban universities built within the cities to fulfill the need of those cities. In more recent years a number of universities have sprung from colleges that were originally attached to London University; these include Southampton, Exeter, Reading and Leicester.

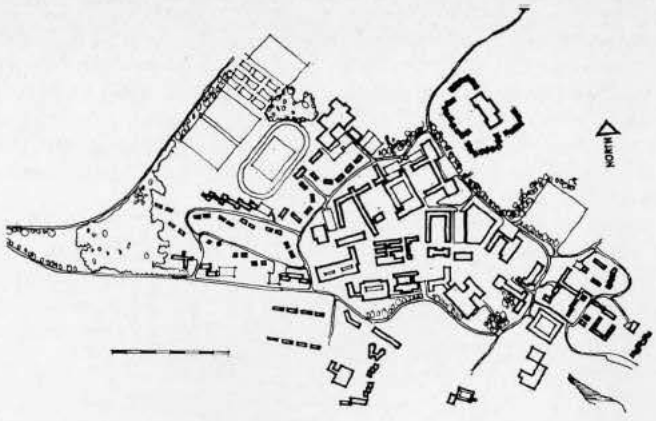
The immediate forerunner of the new universities was Keele (1949) and it was significant by being largely an unplanned university. Keele moved originally into Air Force huts, and broke the established mould by opting for less academic specialization, modelling itself on the universities of the United States, to a great extent, by concentrating on liberal studies. The undergraduate course was extended from three to four years and included a joint introductory course for the first year, as is the case at Harvard and Yale. Keele has had a large effect, academically, on the seven new universities.

The other significant experiment at the time of Keele came with the replanning of Leeds University, which had been established earlier. Leeds was beginning to think in terms of rebuilding an existing university and was really the first university to uncover problems of planning in an urban situation. They experimented in central time-tabling, ten minute planning (that is, a ten-minute maximum walk between lectures), the building of residences and studying their effect on university life; and they instituted a study of spaces, that is the use of spaces to the best effect.

The significant factor about the seven wholly new universities was that they were begun without reference to the academics who would work in them or to the administration who would operate them, or even to the Vice-Chancellor who would take control. By and large they were established in historic towns and they were promoted by local committees who made representation to the University Grants Committee. Local committees influenced the Grants Committee by donating sites, and in some cases financial assistance, to establish the university. It was the University Grants Committee who made judgments as to where these universities should be. This means that the UGC had a vast effect on the type of university that was established and they laid down cetain minimal requirements that they thought were necessary.

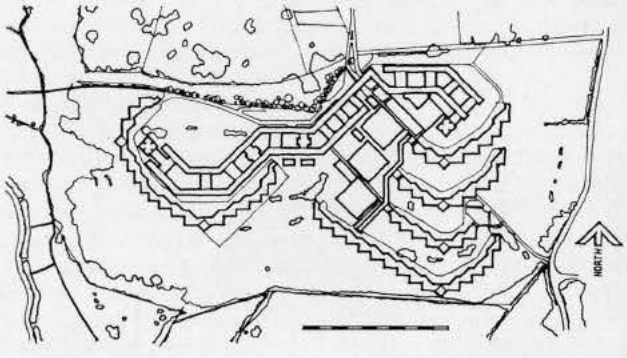
For instance, the UGC stipulated 200 acres as a minimum site, even though architects at the time complained that this put an unreal limitation on the possible locations for universities. Architects had suggested that universities may be included in programs of urban renewal and in programs for establishing new towns. The UGC felt that by and large beautiful sites attract academics and that certain amenities, such as good schools in the district, were necessary. So there is one common factor about the new universities, and that is what one might call a country club flavor – in a rural situation, slightly remote from existing centres.

Three factors were uppermost in the minds of the planners of these new universities. These factors were, one, the need to study academic

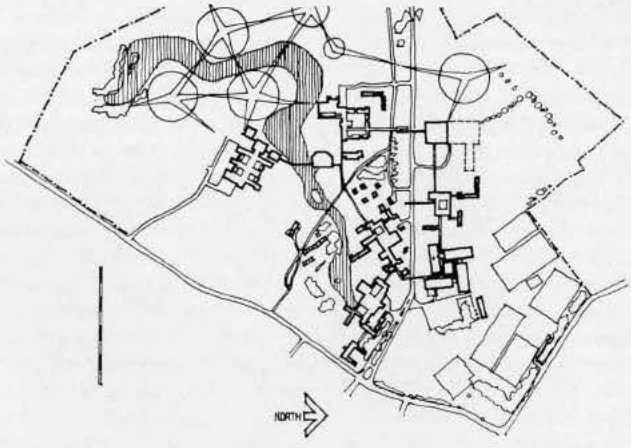


1

2



3



4

Graphic scale = 100 feet

1
University of Keele Keele, established in 1949, is not considered to be one of the "New Universities". It is essentially an unplanned campus – has been allowed to grow at random. The major impact of Keele has been its revitalization of the normal curriculum approach in Britain. Traditional walls between subjects were eliminated, and a four-year course was initiated based on a general foundation year combining Arts and Sciences. Keele has a 95% in-residence student population which gives a very lively atmosphere. Student participation in extra-curricular activity is marked. Keele is the nearest thing in Britain to the small liberal arts college in this continent.

2
University of Sussex Sir Basil Spence, Bonnington and Collins, Architects
Sussex has built an enviable reputation in the academic world as a "place of ideas". The first phase of which, intended ultimately as a 3,000 student university, is complete, and it has become apparent that the plan, physically, has visual priorities at the cost of function. In an effort to give form to the idea of a "continuous environment for learning", Spence has succeeded only in creating a rather formal collection of pavilions in a park. Major architectural complaint is the masking of a simple structural system to give the impression of arched and vaulted construction. The cast concrete vaults are thin shells hung from concrete ribs, and are not structural elements.

3
University of East Anglia Denys Lasdun and Partners, Architects
East Anglia will teach the full range of courses, but rather than locate each department in a separate building, disciplines will be grouped in broad Schools of Studies. Arts and Sciences teaching has been intermingled. Continuous, all-weather pedestrian ways link a belt of teaching and research facilities to one side of the campus. Students housing falls away down the site on the other edge in the form of stepped residential blocks based on a social unit of 12 students. Each unit has a private entrance, kitchen, breakfast-room and bathroom. Women and men may be housed in adjacent units. The plan, designed to accommodate 3,000 students, is essentially a compact, high-density, low-rise spine which makes full use of the site and view of the river.

4
University of York Robert Matthew, Johnson-Marshall and Partners, Architects
York is a cellular, collegiate plan. The whole solution is predicated on the belief that a thorough integration of the whole living-learning experience is the most stimulating environment for the student. The Oxbridge college is updated, stripped of traditional encumbrances (no high table), and clothed in an industrialized structural system. The curriculum is Arts based, and Science subjects and research are relegated to lab clusters interspersed between colleges. The

cells, or colleges, are loosely bound by a meandering covered-way, designed to take full advantage of a peaceful, beautifully landscaped setting. The colleges are communities of 400 students, half in residence, with complete eating-social-teaching facilities. Ultimate size – 3,000 students. Major difficulties – expansion without sprawl, disintegrated faculty, uneasy separation from the City of York.

5

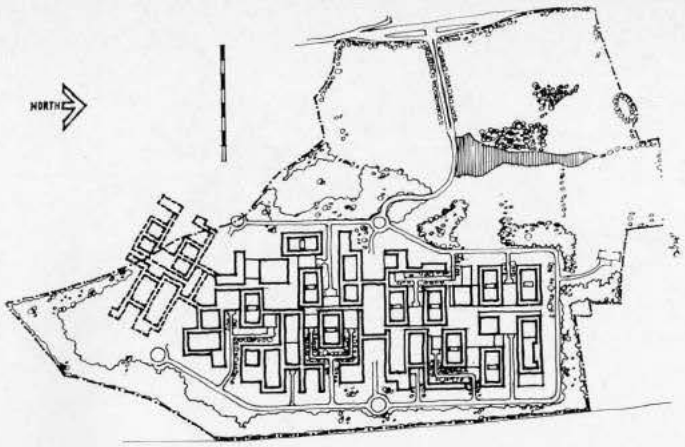
University of Lancaster Bridgewater, Shepheard and Epstein, Architects
Lancaster is essentially a commuter university for 7,000 students, developed about a non-residential college idea. Each college is a basic study-social-teaching unit. Colleges group about a pedestrian street, made lively by the inclusion of shops, social and recreation facilities, snack-bars and dining rooms. Where the pedestrian way opens into plazas and squares, common-use facilities such as libraries, assembly-hall and religious centre are included. The campus is expected to grow in ¼ mile modules for 3,500 students. Delineation of each module is a traffic underpass linking two arms of the ring-road. Each underpass houses a bus-station so that incoming students emerge at focal points along the pedestrian way. The solution is based on a structural grid, and no buildings are higher than four storeys. New construction is kept at campus edge to minimize disturbance.

6

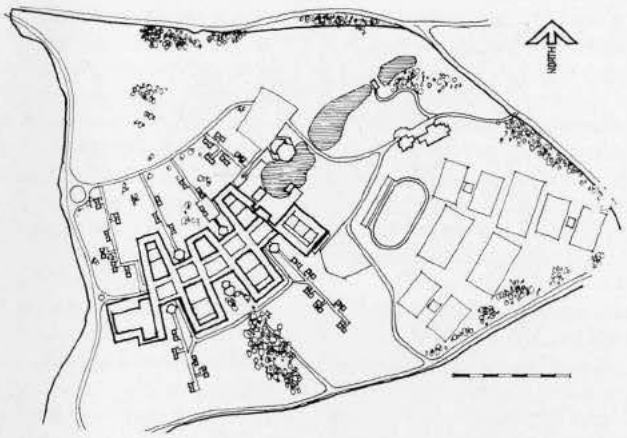
University of Essex Architects Co-Partnership, Architects
One of the most exciting and successful of the new universities in Britain. Vice Chancellor Sloman, working with Kenneth Capon of ACP, produced a thoroughly integrated academic and planning brief ("A University in the Making", Reith Lectures, 1962). As in a number of other new universities, departments and faculties have been welded into integrated schools of studies. Unlike most other plans, the student housing has been thoroughly rethought and woven into the total university idea. High-rise apartment buildings fit closely into the teaching ribs to allow a maximum 5-minute "home" to classroom journey. Dining facilities are between and serve resident and commuter together. Teaching accommodation snakes across the valley which houses an arterial, low level spine of services and traffic. Student communal facilities occur in each court. Here is a rare example of a strong academic idea moulded into a strong architectural solution. Ultimate size, 10,000 students. Major difficulty, later expansion.

7

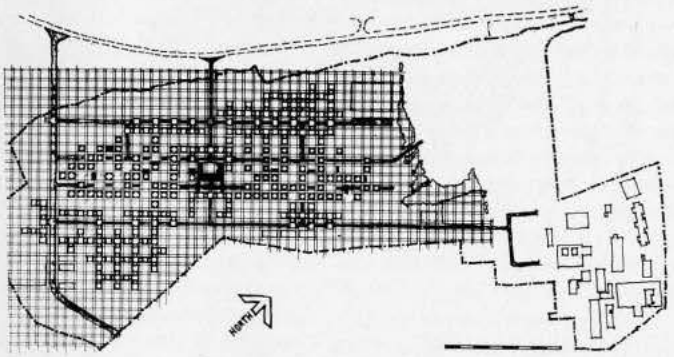
University of Loughborough Loughborough is an upgraded CAT (college of advanced technology), and is basically an engineering school. The rethought curriculum is aimed at relating higher education more thoroughly to industrial life in Britain. The plan is perhaps the first real expression in Britain of the Marburg idea of growth. A structural



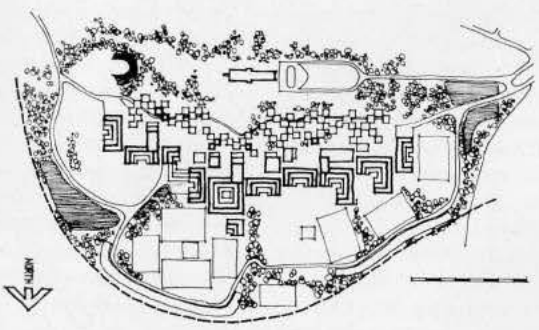
5



6



7



8

Graphic scale = 100 feet

and services module allows cellular growth as and where required. Plan form is not pre-supposed or pre-determined so that real expression may be given the idea of growth and change. Loughborough, perhaps, signals the end of the "arbitrary lines on paper" era of composition planning.
8
The University of Surrey At present still housed in the quarters of Battersea College of Advanced Technology, Surrey, will no doubt reflect a new attitude to the technological universities when it moves to its new site at thefoot of Guildford Cathedral. Traditionally an applied science institution, it will branch out into the humanities – a bridge sociology-cum-science course, a linguistics department which combines the study of languages with politics and an unusual course for Britain – Hotel and Catering Management. The preliminary scheme shows distinct categories of space, loosely linked in collections of common interest.

specialization; two, how and where students would live; and three, how could provision be made for growth within universities.

1 *Academic Specialization*. It was felt that specialization had too early and too great an effect on the student. The boundaries between disciplines, it was considered, should be destroyed to a great extent, and this gave rise to the establishment of schools of study rather than tight faculties. This created the possibility for architects to build an amalgam of faculties or disciplines as distinct from the "pavilion in a field" type faculty.

2 *How and Where Students Live*. The Oxford-Cambridge collegiate system was a background that had worked well for about five centuries. During the nineteenth century, people like Rutherford began to break the mould, since it was not possible for him to carry on his scientific experiments in the confines of a normal college. Hence new and specialized buildings became necessary. But the colleges had the ability to maintain themselves and they acted as a self-selecting body of people perpetuating their own life with the necessary means to support themselves. One might say they were congenial, if congenital. Out of this atmosphere of college rose the halls of residence – one might call them "academic hotels", or a veneer for the college system.

The major complaints about halls of residence were, (a) that they seemed to have no functional relationship to the university; and (b) that it was seen that common ground really was established within the departments of study rather than in the living situation. The "Oxbridge" college of old was really established for a much younger group. The Master of the College may have been married and forty, the Fellows could well have been 18 years old and the undergraduates could be as young as 14. The new situation involved the housing of older students, often many of them married, and new approaches were necessary. A spur in this direction was given by Scandinavia, and Scandinavian examples of a new living arrangement in universities were studied closely by Englishmen. The result was that what might be termed the era of the "sophisticated peasant" approach, or the rough concrete social arrangement, was sought after. In other words a living arrangement was evolved of some sophistication without the rigid control and without the outward look of smooth organization. A new kind of common space was sought, a sort of "farmhouse kitchen" for 8 to 12 people, and it was felt that the better types of intellectual discussion would occur over breakfast or coffee when the students were free to talk as they wanted, and for this, colleges were not a necessity. Of course it's of interest to note that the Scandinavians had been looking at Britain and were giving a lot of thought to changing, as were the Americans. It seemed to be a case of people normally like what they see elsewhere.

3 *Provision for Growth*. The third factor was the need to establish schools of studies; this meant that academics felt it was more important to be working in the grey zones between disciplines to see where they interconnected, since disciplines were having more and more of an effect, one upon the other, than it was to continue in the established pattern of tight-knit faculties. The interesting thing in this regard is that the same, or almost the same academic program has produced entirely different solutions or different plans. This is observable in the case of Canterbury and Lancaster, who by and large, have the same academic program but have an entirely different approach to planning. Leeds University, mentioned earlier, master planned by Chamberlin, Powell and Bon in London, was the first to give thorough statement to the fact that the new wave of universities believed that their institutions were not static, but that they needed a kind of structuring to allow increase and to allow change. In this respect it is interesting to observe in the new universities the different approaches – Sir Basil Spence, designer of Sussex University, talks about the university growing like frog spawn, in other words by adding small units to other units, in perhaps a free but orderly way. York University could be called a university held together by a covered way, and Essex developed on what might be termed the linear plan, which could extend lengthwise and breadthwise, with residences being interspersed amongst academic facilities. East Anglia developed as a sort of a spine with edges defined by academic facilities and Lancaster a very strong spine.

It's of interest to note that several of the newest institutions have published their plans as if they were, for instance, new towns. These include York, Warwick, Bath, Loughborough and Bradford, the latter three being upgraded colleges of advanced technology, so a new era has begun in university building in Britain, and the country is at an interesting stage in its university development.

It is obvious that more new universities will need to be established. Robbins foresaw this need by projecting that by 1980 some 560,000 places would be needed in universities in Britain, and at the time this statement was made, that is 1963, there were about 170,000 places. □

Social Problems of Growth: Essex University

Notes from a lecture by Dr E. Rudd, Director, Unit for Research into Higher Education, Essex University

Dr Rudd began his lecture by describing briefly the University of Essex. It was one of the new universities established in the early 1960s. It is outside Colchester on the road to Clacton, and is on 200 acres of parkland, situated near an inlet of the Thames estuary.

The university, by and large, had three major difficulties – one, siting difficulties, in that it was a fairy difficult site, and the master plan developed in a unique fashion. Secondly, there were difficulties of housing students in that the site was some six miles from Colchester, and there were no houses in the near vicinity, so that the third difficulty was the difficulty of transport.

The university realized very early that they would have to house a great proportion of their students. They have been working on a system of towers to do two jobs, one to house students in a new and experimental fashion, in apartments; and secondly to include off-campus students who would have study rooms in the tower buildings.

The Research Unit

Dr Rudd then described the research unit. He said that it was set up to assist the university planners at Essex. It had two major terms of reference; one was to do research papers that would start ideas for the university in all fields; and the other was to criticize developments at the university as they occurred. He mentioned a few of the kinds of research that they are thinking of – a sociological study of academic freedom as it is seen in modern universities; research into university government; research into student housing; research into methods of teaching, and other subjects as they occur.

The unit, he said, got off to a bad start in that the first of the terms of reference – to do some research to promote ideas for development – was not possible since the master plan had begun and they didn't have time to study the literature necessary on any topic or to do the proper reading. The second portion of the terms of reference, to observe the university during its development and to make critical comments, was not possible either since the university hadn't been in operation long enough to do any observation of worth. They therefore began with the study of lodgings and lodging possibilities in the town of Colchester.

A study procedure was set up in which they interviewed householders in their own homes and then later sent a letter and questionnaires to the householders to try and establish the capacity of Colchester to house students. The town of Colchester, in their representation to the University Grants Committee had said earlier that they would be able to house some 2,000 students in the town. The actual results of the survey showed that housing for about 500 would be a maximum, and as the university planned for 6,000 with possibilities of rising to 10,000, the business of housing students would be difficult. The first decision therefore was that students would also have to be housed in Clacton, to the east.

From that point the unit began work on two initial studies. The first was a special study on graduate education, and this has not progressed far beyond the reading and information gathering stage.

A few comments were made by Dr Rudd in terms of graduate education. The USA, he said, took the Ph.D from Germany in the mid-nineteenth century, and a little later in the century Canada took the Ph.D from the USA, but it was not until late in 1917 that the United Kingdom universities agreed on standards for a Ph.D, and it was set up, he said, rather like a medieval apprenticeship, where the student sits at the feet of a scholar. It was, however, quite an advance since it meant that for the first time all the universities in Britain at the time could agree on one thing – that was, standards for Ph.D. The idea of the Ph.D was, he said, like "holding a dim and flickering light to a non-existent problem".

Graduate Problems

Graduate education throughout Britain poses many problems in that graduates have greater academic needs, greater housing needs and they are by and large older people and often married. The study is nearing completion and results will be available soon.

The second study was on the problems of student housing. As background he gave a short discourse on the two ancient traditions in Britain. First the Oxbridge tradition, which involved housing in a college where the students were treated as being rather irresponsible – they were locked in at night, they paid fines for being out late; they were quite strongly supervised in their social life and in their studies; each student had to produce essays and have them read and criticized by his tutor. The student was subject to petty restrictions – gowns had to be worn after dark so that townspeople could distinguish university students; gowns had to be worn at meals. By and large, it was a tradition of gracious living. This involved only the two ancient universities of Britain. The other was a Scottish tradition which stemmed mainly from the 15th Century, and there were four universities in this category. In the main, scholars lived outside the university in the towns and villages and each term the students would come up to the university with a sack of meal on their backs and a barrel of herrings, which would literally provide their food for the whole term. This system made it possible for the children of working class families to go to university, but it was very much a Spartan way of life.

In the mid-19th Century the red brick universities were established. Manchester, the first, was modelled on the Scottish pattern, where students lived in lodgings or at home and they became "9 to 5" universities. In the 20th Century the red brick universities have moved toward the Oxbridge tradition, mostly by the establishment of halls of residence, which were to an extent copies of colleges. There was a warden instead of a master, and there were rules. There was a close watch on women and there was formal dining with a High Table.

The hall of residence form of living, he says, was in vogue until recently. The Niblett Report of 1957 supported the hall of residence idea in that it was felt that the hall of residence gave a wider cultural role and a liberalizing influence. It promoted a mixture of disciplines, so that there was a breaking down of academic barriers; and it endeavoured to promote staff-student contact. But since 1957 there has been trend away from Niblett-type halls of residence. Leeds began a system which was more Scandinavian, where there were informal meals and far fewer rules.

As far as the study from the unit goes, they have begun by trying to find out what is already known; to establish an interim body of material. Known factors, as he outlines them, revolve pretty much around the student, and an outline of the major points follows:

Student Preferences

Student preferences are known, but they are not very useful in that it is usual for students to prefer what they already have in terms of housing. Students in lodgings usually would prefer flats or bed-sitting rooms, and universities have not allowed this generally, feeling that in lodgings the student is at least watched over from a moral standpoint by the landlady. Those in halls would prefer more independence (this is observable throughout the university community). It is not feasible to put all student preferences into effect. The expense would be prohibitive.

The unit began by a study of a number of students in three universities, starting by studying the societies the students belonged to and the friendship patterns they formed, the idea being that you can assess how much value a student is getting from his university education if you can find what associations he makes and to whom he talks and with whom he shares social activities.

It was found that hall-of-residence students had made the most contacts, and that those in lodgings had made the fewest contacts with other students; but it is possible that those students in halls of residence were more of an extrovert type and that, by and large, hall-of-residence populations were self-preserving, so that the same types went into halls.

A study of the conversation topics of students revealed that when different disciplines met they didn't talk about physics and history, they talked mostly about cars and women. Evidence from US documents indicates the same finding. Therefore, to say simply that students meet each other more often or do more talking is not to say that they are advancing academically. In fact, within halls of residence there tends to be a general atmosphere of academic discouragement and an academic study of halls of residence showed that hall students didn't get high degrees or good degrees, nor did they, in general, fail. They were mainly mediocre students.

Dr Rudd felt that although universities often claim that they do not try to change their students; rather that they endeavour to create an environment in which a student can learn from other students, in fact universities do try to change students, and this is done by changing the environment in which they live. He feels that studies of the changes occurring must be made.

Factors Promoting a Lively Student Environment

The unit then tried to discover the factors that were promoting a lively student environment on campus and three institutions were chosen for this study. These were three institutions of about the same size but of three different types. One was University College in London, the second was the University of Nottingham and the third was the University of Exeter. It was known before the study began that there was a lively student body at the University of Nottingham, whereas at the University of Exeter there was not a tradition of lively student activity and University College in London had a special environment – it was in the middle of a city where liveliness came from the city – theatres, restaurants, etc.

At the University of Nottingham students were encouraged to stay at the university for the evening meal and this created the atmosphere of liveliness that was observable. There was a large union with many facilities of a sporting, recreational and social nature. At the University of Exeter there was no encouragement to stay for the evening meal and the facilities were much smaller and the university seemed dead.

A questionnaire was used which sought the students' views and opinions on a number of topics. A diary was also used. The response rate on the diaries was very great – something like 90%. The diaries were used by the students to fill in their activities day by day for a number of weeks. The results of these two methods of investigation were surprising; showing that there was no significant difference between the three groups of students, even though on superficial evidence one was far more lively within the university itself than the other two. Statistics were cited concerning the average number of evenings spent on campus by students and the percentage of students that were present on campus at any one time. The statistics were broken down for all the resident students and those living in lodgings who didn't take the evening meal at university. The unit then sought to find out whether the students were actually participating in the cultural, sporting and social activities and whether this participation varied. Questions were asked about the number of meetings attended per week by students of different categories, the number of students who were members of societies. Again there was scarcely any significant difference. It was felt, therefore, that although students stay on at Nottingham University, they don't really take part in any more activities.

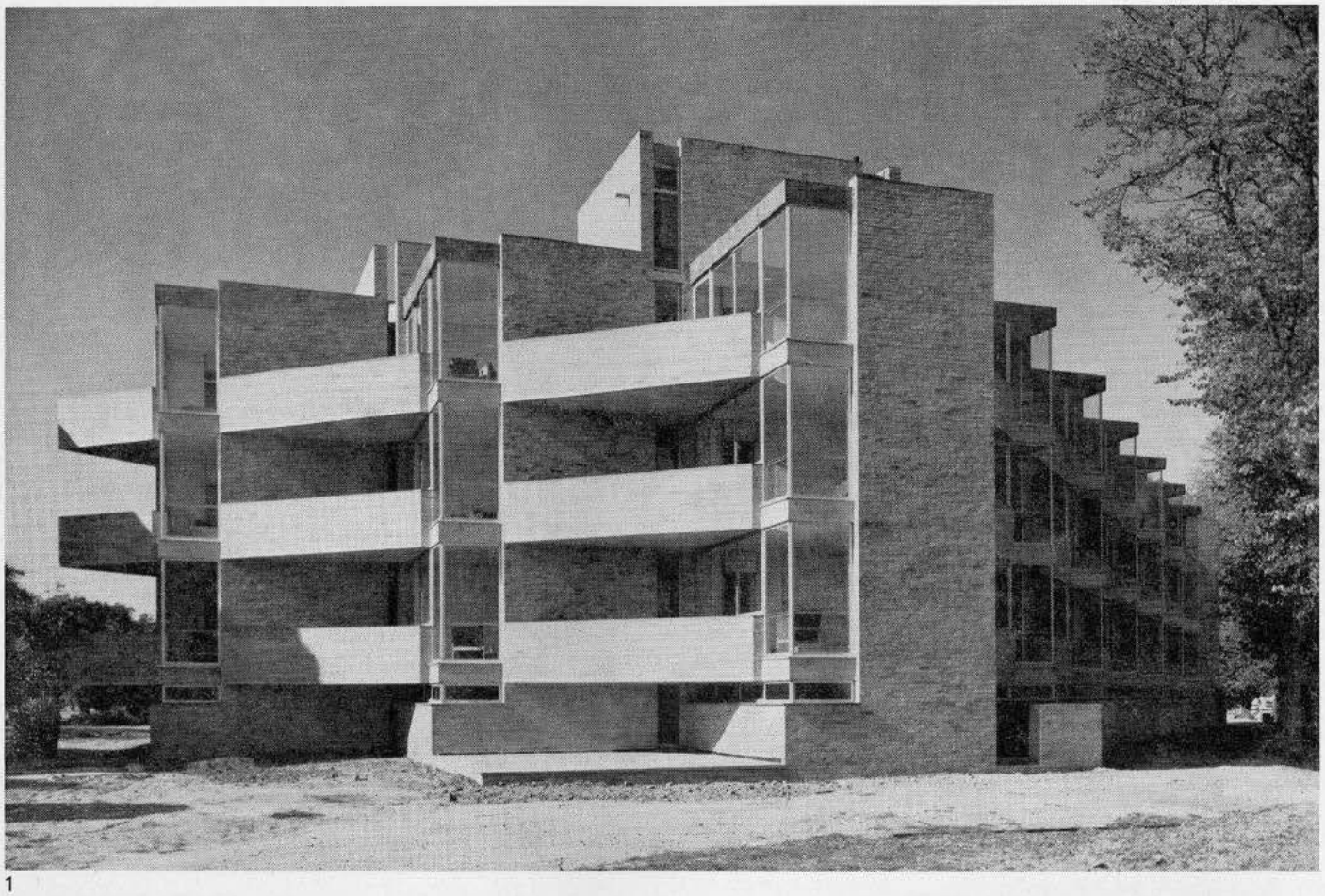
In an effort to find out what changes students, the unit has done a number of psychological tests in a varying number of fields, such as questions on acceptance of authority, student's approach to sex, student's approach to racial prejudice, the student's critical questioning approach and his intellectual interests. These results were put on punch cards and have been assessed by computer. The results will be available shortly.

As well, the unit has done some study with students already at Essex University, mainly in the residence towers, on what Dr Rudd called an anthropological approach. The towers at Essex, mentioned earlier, comprise single study bedrooms and four study space study rooms for off campus students. They are 14 storeys high and the students are grouped by flats in groups of about 13. The study was to see whether this approach worked. Questions were asked: Do the students study in the tower? Do they eat there at the small kitchenettes provided? Do they use the apartment unit as a springboard to making further contacts? As yet there are no results, but the impression is that the first tower did work very well, although it didn't begin full operation until late in the academic year.

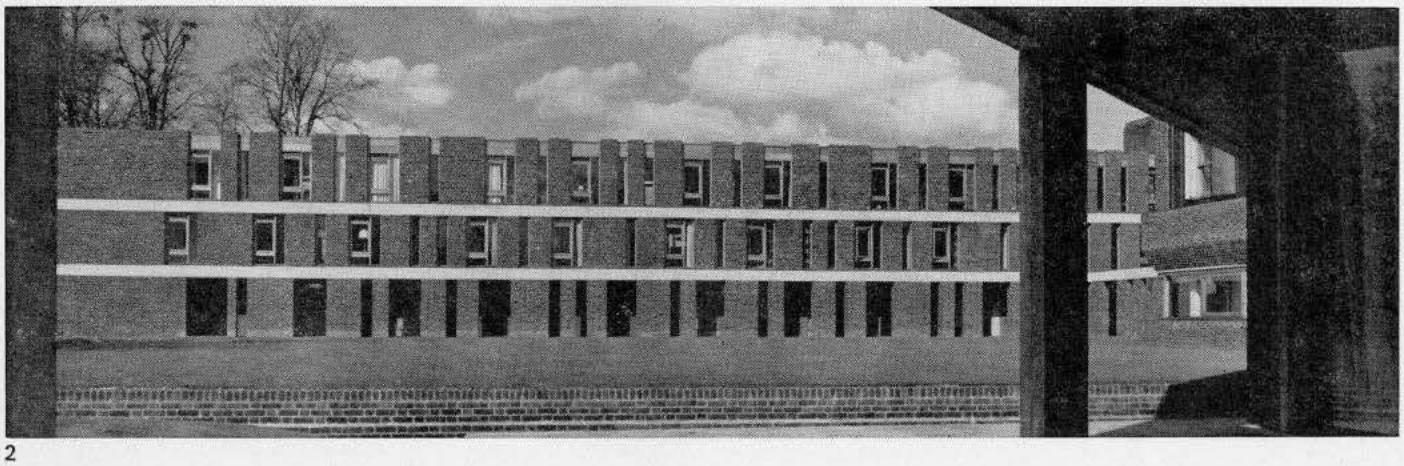
The complaints of students have been tabulated and a new approach to an organization within the towers is hoped for from the results. Dr Rudd finished by saying that his study of students in residence is aimed at finding out at what point alienation of student from student, and student from staff occurs. The major aim is to counter the isolation which besets twentieth century students. □

1
New building, Jesus College, Cambridge, David Roberts, Architect. This simple addition of student rooms at Jesus College is a lesson in restraint. In the main, new residential building at Cambridge is extravagant and pompous. David Roberts here has recast an old formula, four sets of rooms about a staircase and washroom, in a delightfully open solution. Each room, set diagonally has access to a private balcony.

2
Fitzwilliam House, Cambridge, Denys Lasdun and Partners, Architects. The physical contribution so necessary to an honest expression of a social reality is lacking in this new college at Cambridge. Typical of many of the new residential buildings at Cambridge, Fitzwilliam is arbitrary in form and detail.



1



2

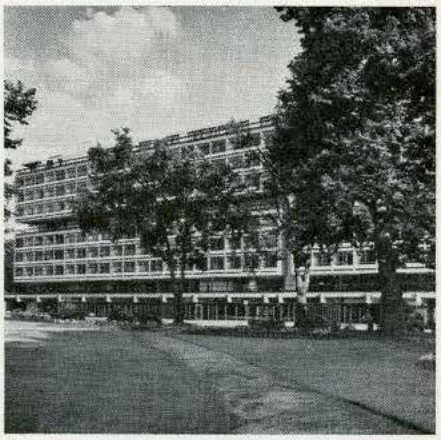
3
Extension to student rooms, Brasenose College, Oxford, Powell and Moya, Architects. One of the most successful marriages of new with old in Britain. On a narrow L-shaped site, the architects have shown that a dialogue of respect is by far preferable to a poor mimicry.

4
Fitzwilliam House, Cambridge, Denys Lasdun and Partners, Architects. Entrance and dining hall. Self-conscious awareness of scale, redeemed only by a careful attention to detail. The vaulted dining hall roof is in fact a simple diagonal beam structure within.

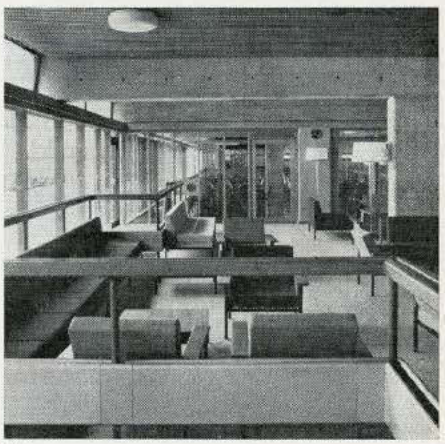
5
Princes Gardens Hostels, Imperial College of Science and Technology, Richard Sheppard, Robson and Partners, Architects. An ingenious and compact solution to the problem of housing students. Staircase entry residences rise from the commons floors at first and fifth levels, and longitudinal punctuations delineate halls of approximately 150 students. Kitchens and dining halls are in the basement. The elevators travel only from first to fifth floor. Here is a high-rise solution which retains all the social cohesion of a walk-up plan.

6
Princes Gardens Hostels. The commons floor at ground level showing a student lounge and meeting room. Staircases rise from this level through floor groups of eight single rooms. Each group of eight shares a washroom and kitchenette. Each staircase group of 24 has a don.

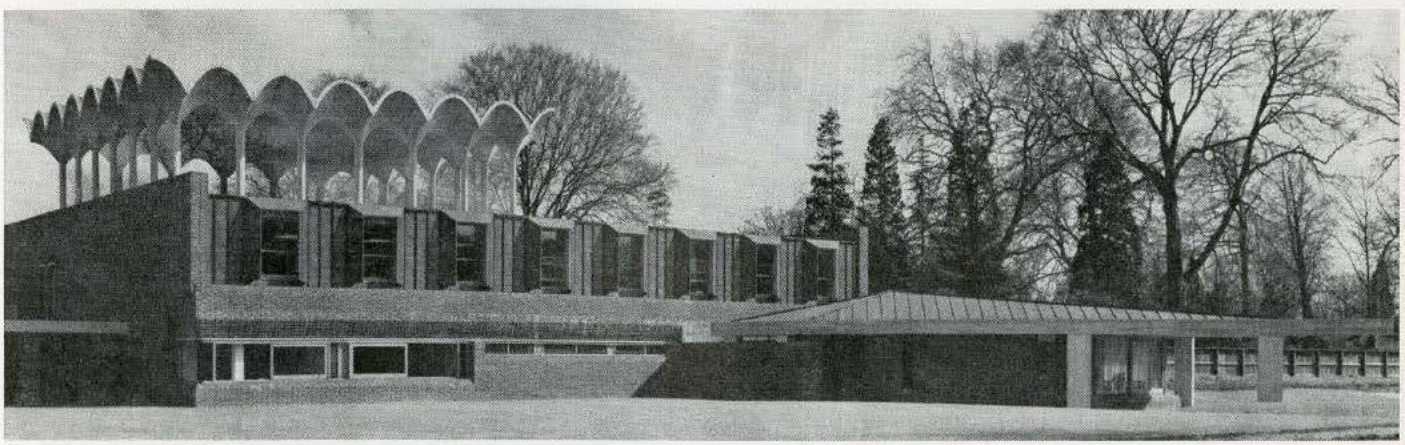
3



5



6



4

7
Mathematics-Geology Building, Leeds University, Chamberlin, Powell and Bon, Architects. Perspective of the concourse stair from the mathematics court showing the high level pedestrian bridge system. The Leeds plan pioneered the integrated re-development of large civic universities.

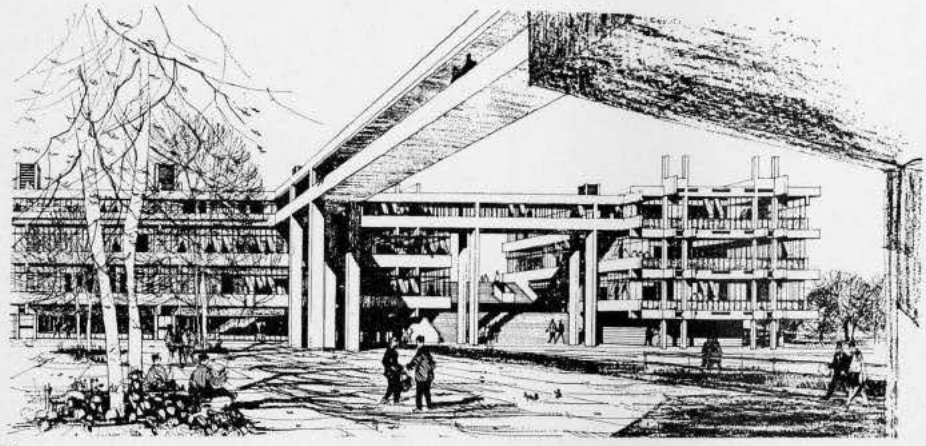
8
Residence Block, University of East Anglia, Denys Lasdun and Partners, Architects. Study model indicates the sectional rational of the plan and careful handling of scale.

9
Residence Blocks, University of East Anglia, Denys Lasdun and Partners, Architects. High level pedestrian access links residential stair towers with the teaching spine. The transfer of scale accomplished by this complex is a delight.

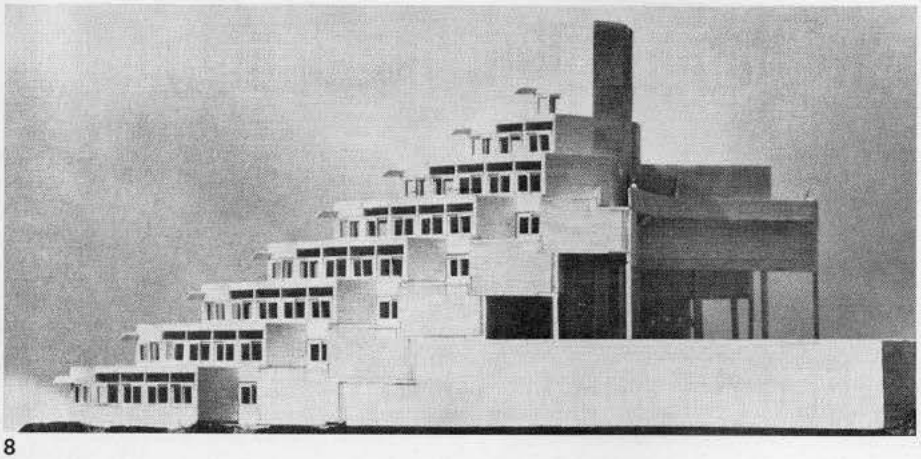
10
Residence Block, University of East Anglia, Denys Lasdun and Partners, Architects. Aerial view of the study model. Student rooms, in groups of 12, step down the hill to provide each room with a balcony.

Common-use areas are tucked underneath.

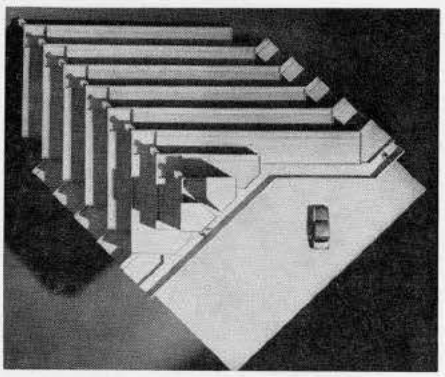
11
The Henry Price Building, Leeds University, Chamberlin, Powell and Bon, Architects. Plan of a typical apartment for ten students. Leeds was the first to institute low cost unsupervised apartments for students. Students cook and clean for themselves. The success of this venture has led to a re-appraisal of traditional housing patterns across the country.



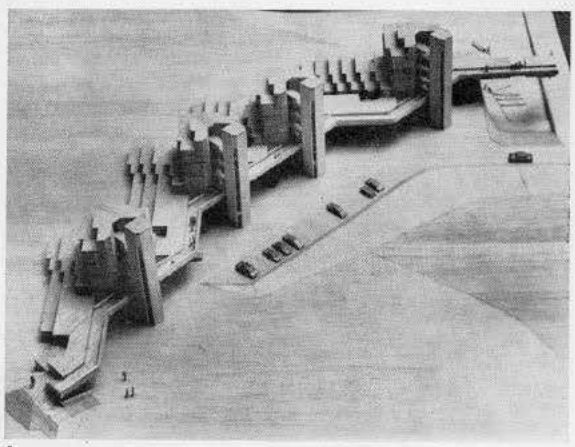
7



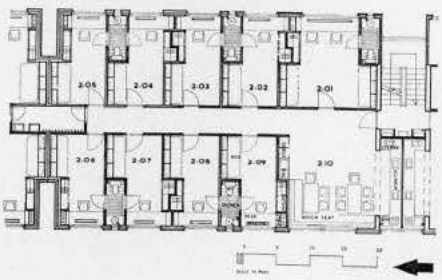
8



10



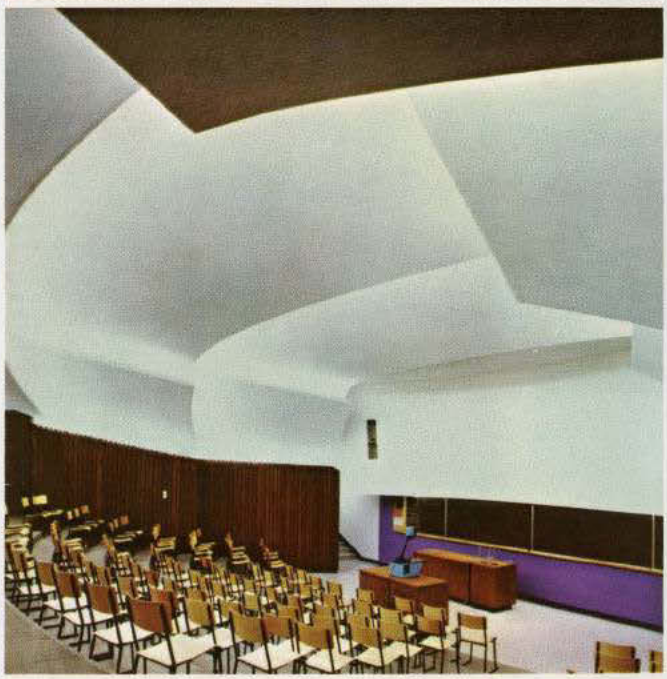
9



11

LIONS GATE HOSPITAL, North Vancouver, B. C. P&L products used: Vapex Wall Primer, Lyt-all Double Duty Primer, Lyt-all Stippling Eggshell, Vitralite Enamel Eggshell, Effecto Enamel, House Paint, Vapex Masonry Paint.

CARLSBAD PRIVATE HOSPITAL, LTD., Vancouver, B. C. Peter Cole, Vancouver, Architect. P&L products used: Primafil, Vapex Wall Primer, Lyt-all Double Duty Primer, Vitralite Enamel, Lyt-all Flowing Flat, Vapex Flat Wall Finish, Effecto Enamel, Tonetic Wood Stain, "38" Pale Trim Varnish, House Paint, Vapex Masonry Paint.



SIMON FRASER UNIVERSITY SCIENCE COMPLEX, Burnaby, B. C. Vancouver, Architect. P&L products used: Primafil, Vapex Wall Primer, Lyt-all Double Duty Primer, Lyt-all Stippling Eggshell, Vitralite Enamel Eggshell, Lyt-all Flowing Flat, Tonetic Wood Stain, "38" Pale Trim Varnish, Alkatite Cement & Stucco Paint.

RICHMOND SQUARE SHOPPING CENTRE, Richmond, B. C. Dundee Developments, Ltd., Developers; John H. Hanson, Vancouver, Architect. P&L products used: Primafil, Vapex Wall Primer, Vapex Flat Wall Finish, Effecto Enamel, Vapex Masonry Paint, Verdura, Exterior Rustic Stain.

Pratt & Lambert Paint and Varnish... The Predominant Choice of Leading Architects

The extraordinary qualities of Pratt & Lambert products make them favorites with architects. Accurate, scientifically controlled and tested formulations yield paint and varnish which apply well, look attractive and last long on job after job.

Exclusive P&L Calibrated Colors® offer the architect ample choice. They are scientifically selected for their decorative correctness, both traditional and contemporary.

Pratt & Lambert Architectural Service Departments are eager and able to assist architects. They will offer recommendations for painting or finishing any interior or exterior surface, or develop a complete color plan for a building. Call or write your P&L representative or the Architectural Service Department nearest you. No obligation, of course.

P&L ARCHITECTURAL SERVICE DEPARTMENTS
LONG ISLAND CITY, N. Y. 11101, 3301 38th Avenue
BUFFALO, N. Y. 14207, 75 Tonawanda Street
CHICAGO, ILL. 60632, 4900 South Kilbourn Avenue
ORANGE, CAL. 92669, 1405 North Batavia Street
FORT ERIE, ONTARIO, CANADA

Craftsmanship in the Package

Pratt & Lambert-Inc.

Made and Sold Throughout All of North America

PRINTED IN U.S.A.

This hour has 40 minutes!

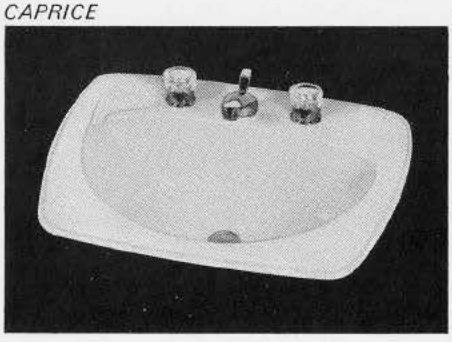
Cush'n Seal . . . Crane's exclusive factory-installed, self-sealing PVC gasket cuts installation time by 1/3. Makes it possible to do 12 hours worth of installations in as little as eight.

Here's all you do. Make a simple cutout, centre lavatory in cutout, hand tighten the hidden under-the-counter clamps—and the job's done! The Cush'n Seal gasket makes a permanent watertight seal with the countertop as you tighten the clamps.

Crane self-rimming Enamelled Steel Lavatories with Cush'n Seal include the popular Coronette and all-new Caprice, with openings on either 4" or 8" centres, and the Rondo with openings on 4" centres only. All are available in the complete range of Crane decorator colours including sparkling white. Make your next lavatory installations Crane Enamelled Steel installations and profit from the time you save. For complete details on these and all Crane lavatories with Cush'n Seal, write for folder to: Crane Canada Limited, P.O. Box 2700, Montreal 9, P.Q.

CRANE

CAPRICE



RONDO

CORONETTE

STENO-LAB* TEACHING SYSTEM

LANGUAGE LAB TEACHING SYSTEMS

MINILAB* TEACHING SYSTEM

CENTRAPHONE* DICTATING SYSTEM

DICTATING EQUIPMENT

COURT/CONFERENCE RECORDING

OVERHEAD PROJECTORS

INDUSTRIAL AUDIO/VISUAL TRAINER

R.F. PAGING

SOUND SYSTEMS

AUDIO INDUCTIVE LOOP SYSTEMS

A new information service for architects and engineers

Detailed architectural and engineering specifications for the installation of these and many other electronic systems now available from Philips. To help you plan the installation of systems like these correctly, from the beginning, with no need for alterations as work progresses, Philips offers this new, *free* specification service. Philips can also supply a wide range of equipment for capital projects of all kinds: sportscentres, nuclear projects, banks, railway projects, hotels, theatres, offices, hospitals, schools, department stores, shipyards, airports, industrial projects, broadcasting. Use coupon below to send for a complete index in booklet form "Philips Equipment for Capital Projects," and specifications or additional information on any item shown.

PHILIPS 1891·1966

trust in **PHILIPS** is world-wide

*Reg'd. T.M.

___Booklet "Philips Equipment for Capital Projects"

Specifications or additional information:

___Steno-Lab* Teaching System
___Language Lab Teaching System
___Minilab* Teaching System
___Centraphone* (Centralized Dictating System)
___Dictating Equipment
___Court/Conference Recorder
___Industrial Audio/Visual Trainer
___Overhead Projectors
___Sound Systems
___R.F. Paging, Simultaneous Translations, Audio-Inductive Loop Systems
___Other (please specify)_____

Dept. E-1
PHILIPS
116 Vanderhoof Avenue
Toronto 17

Please send me, free, the items checked.

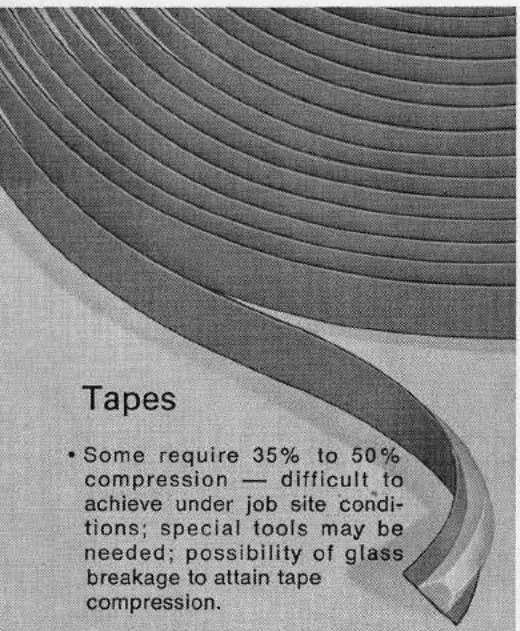
NAME_____

FIRM NAME_____

ADDRESS_____

CITY_____ PROVINCE_____

These glazing products do the job most of the time, but...



Tapes

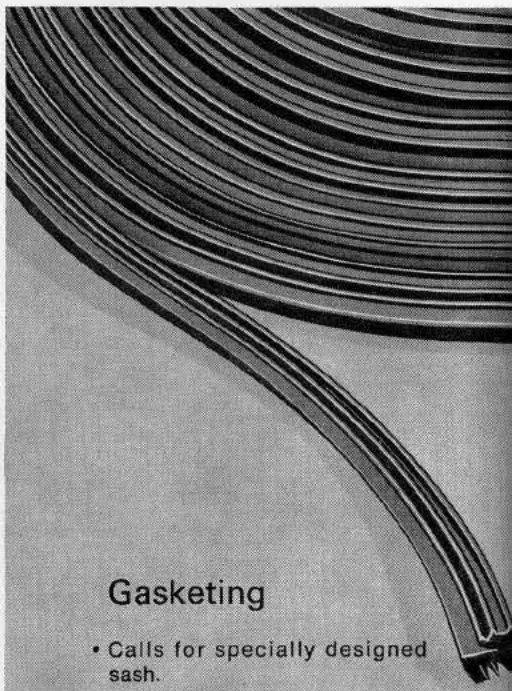
- Some require 35% to 50% compression — difficult to achieve under job site conditions; special tools may be needed; possibility of glass breakage to attain tape compression.
- Most call for shims (interior and exterior) — improperly placed shims or missing shims cause leaks.
- Many demand careful placement — butting of tapes is critical. Corners of sash are vulnerable to leaks.
- Most present problems in controlling squeeze-out — which leads to excessive dirt collection.

However, tapes do eliminate costly scaffolding.

Sealants

- Require skilled labor, trained in proper glazing procedures.
- Involve use of costly scaffolding.
- Necessitate careful placement of spacers and shims, or sealants can be "pumped out".
- Call for cut-off of the bead and clean-up.

However, sealants overcome the weakness of varying tolerances in glass and sash.



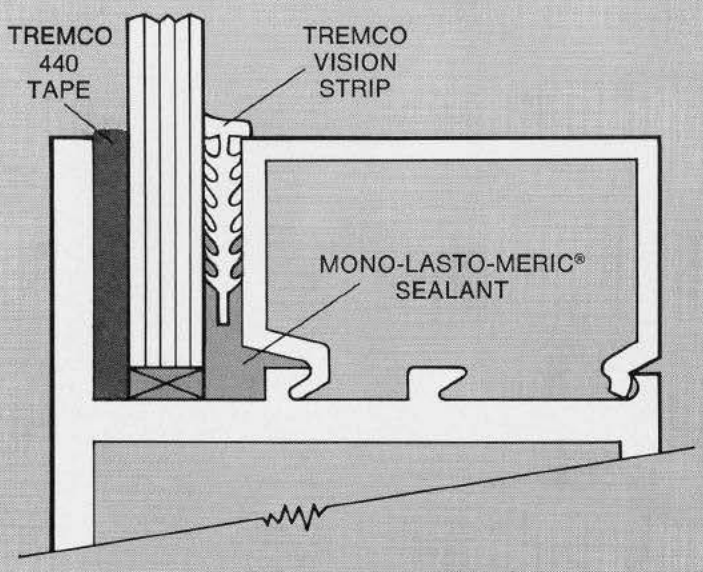
Gasketing

- Calls for specially designed sash.
- Demands close tolerances of glass, sash and the gasketing itself to achieve a weathertight seal.
- Often relies on a supplementary sealant to leak-proof joints.
- Not readily available in a wide variety of sizes, colors and shapes.

However, gasketing provides a clean, attractive appearance.

Each of the above often relies on other glazing products involving several suppliers.

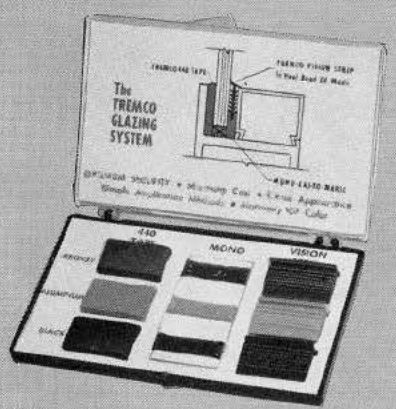
This modern, versatile Tremco Glazing System does the job all the time



Combines the best of "wet" and "dry" glazing methods • Proved performance on many jobs • Versatile — adapts to most windows • No scaffolding • No clean-up • No call-backs • No "leakers." Want to learn more? Write us.

A "systemized" approach to glazing providing:

- 100% Leak-proof Security
- Simplicity
- Economy
- Attractive Appearance



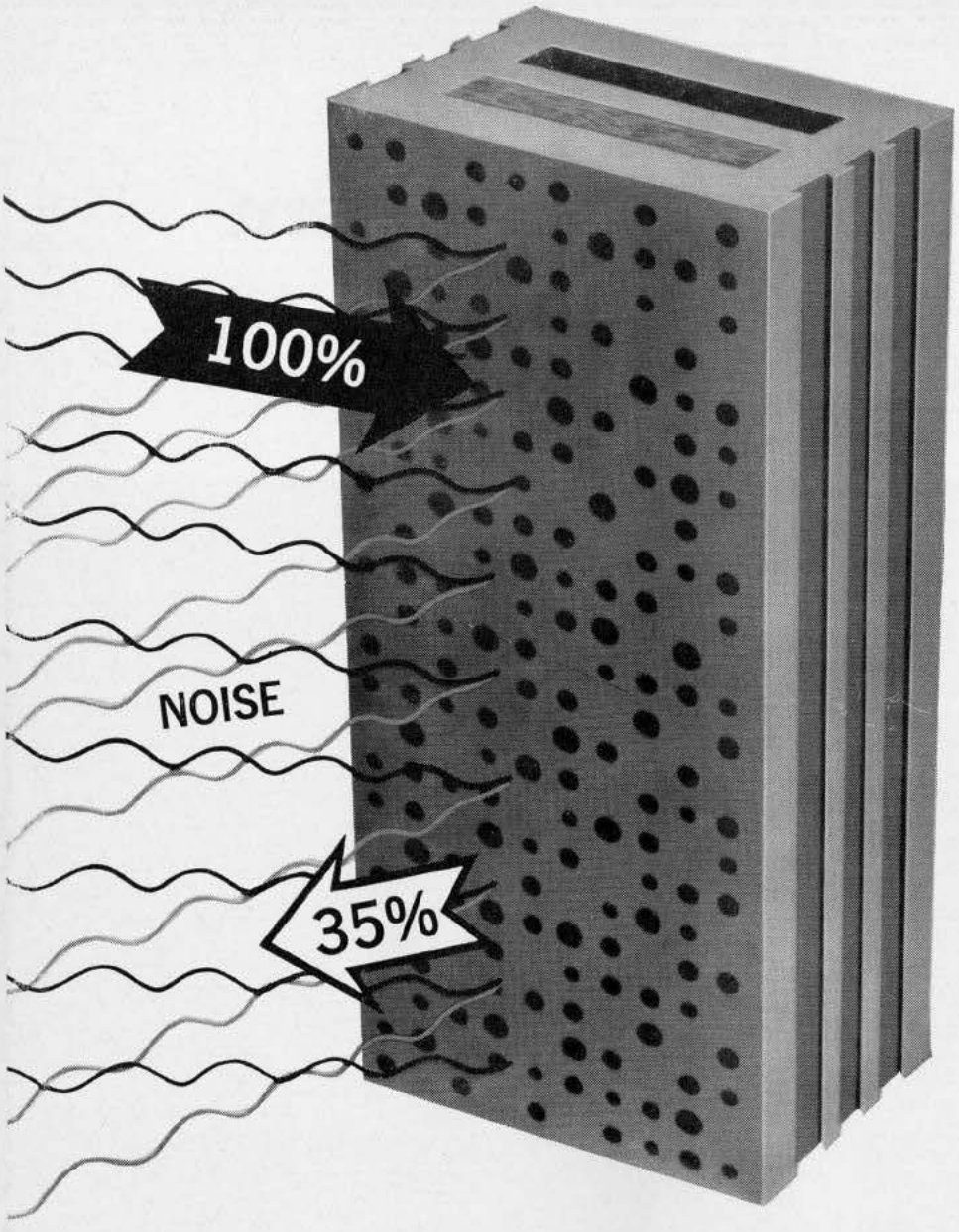
Send for specifications, descriptive data, or FREE sample kit.

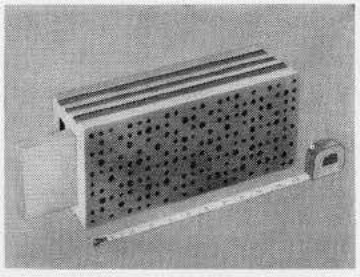
Tremco provides you with a complete system . . . tape, sealant and gasketing — one source of responsibility.

THE TREMCO MANUFACTURING CO. (Canada) LTD.
220 Wicksteed Avenue, Toronto 17, Ontario

TREMCO
PRODUCTS AND TECHNICAL SERVICES FOR BUILDING MAINTENANCE & CONSTRUCTION

SEE OUR CATALOGUE IN (S) SWEET'S. 7cs/Tr





In addition to a pattern of perforations in the face itself, Natcoustile units are furnished with one-inch thick Fiberglas pads inside the core, producing the maximum sound absorption possible in a ceramic glazed clay product.

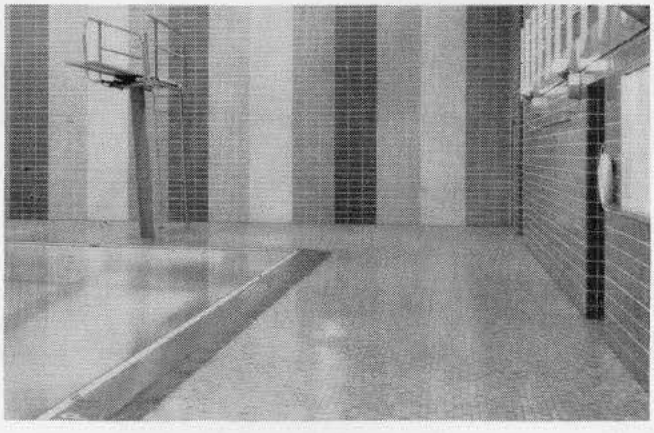
NOW...cut noise up to 65%—with Natco Ceramic Glazed Acoustical Tile

NATCOUSTILE is a perforated ceramic tile unit designed for use where acoustical sound absorption *and* durability are of primary importance.

Natcoustile gives the inherent advantages of genuine ceramic glazed Vitritile. It's a loadbearing, fireproof unit that's easily maintained. Colors never fade. Natcoustile lasts the life of the building.

Natcoustile is available in a variety of colors including clear, mottled and speckled finishes. If you're planning a new building, or an addition to your present structure, we will be glad to send you further information on Natco tile products.

NATCO
CLAY·PRODUCTS·LIMITED
55 Eglinton Ave. East, Toronto 12, Ontario



NATCOUSTILE IS MOISTURE RESISTANT — The indoor swimming pool shown above is an example of Natcoustile's versatility. It eliminates all excess noise without sound distortion, yet the finish is unaffected and attractive regardless of the amount of moisture present.

PLANNED FOR EXCELLENCE

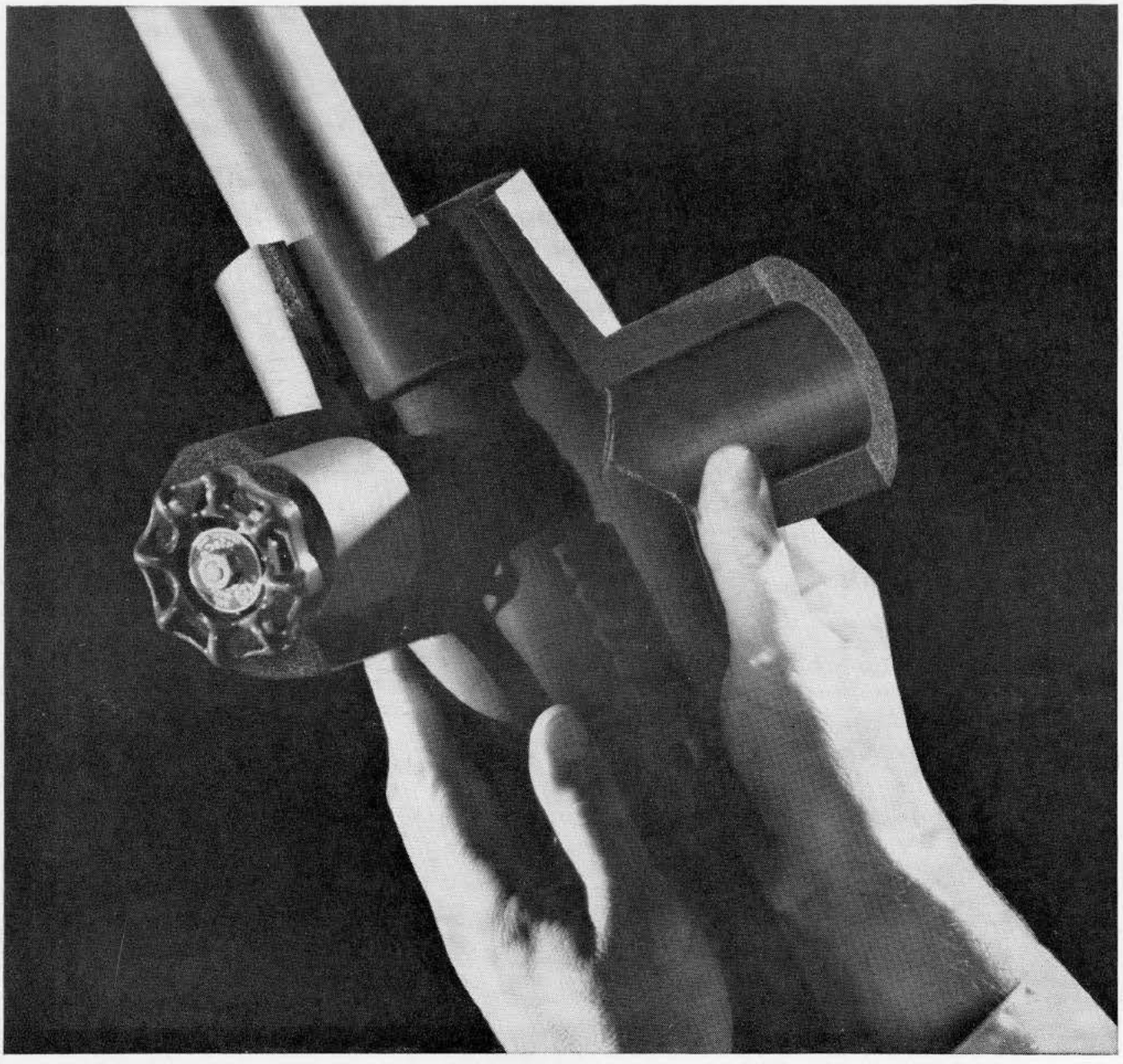
Falcon* Locks have been developed to provide the architect and contractor with a new standard of quality in commercial building hardware. Every Falcon lock is manufactured under strict quality control to insure faultless performance on any door.

FALCON LOCK CO. LTD.

6750 BERESFORD STREET · BURNABY 1, B.C., CANADA

FOR ALL COMMERCIAL AND INSTITUTIONAL BUILDINGS...FALCON IS YOUR BEST LOCK BUY

*TRADE MARK REG'D. IN CANADA



Why Armaflex pipe insulation does it so much better

It takes more than one or two properties to make a one-step insulation material work. For instance, low conductivity and flexibility are not enough. The right degree of dimensional stability, vapour resistance and tolerance control are key properties, too.

Armaflex pipe insulation provides all these advantages. It's easier than ever to handle and install — especially on fittings, elbows and bends. On new lines simply slip it over the pipe. On in-place lines, slit the material lengthwise, snap it on, then seal the edges with Armstrong 520 Adhesive. And you don't have to worry about a separate vapour barrier. With Armaflex it's built in.

Armaflex pipe insulation will insulate efficiently on any piping layout operating from 100°F below zero to 220°F above zero. For more details on the installation, efficiency and economy of Armaflex send for a copy of "Armaflex Insulations". Write Armstrong Cork Canada Limited, Packaging and Industrial Products Division, P.O. Box 919, Montreal.

INSULATIONS BY Armstrong

722X66

NEW CREATIVITY IN
ARCHITECTURAL CONCRETE

Administration and Residence Building, University of Sudbury

Architect: Barbeau-Stefura: Gen. Contr.: The Foundation Company of Canada, Ltd. PreCast Panels by Beer Precast Concrete Ltd.: Architect-Planner, Laurentian University: Dr. Thomas Howarth. 3 story load bearing wall panels 33′ 11¼″ x 3′ 2″ x 2′. A total of 500,000 lbs. of Medusa White Portland Cement was used on this project.

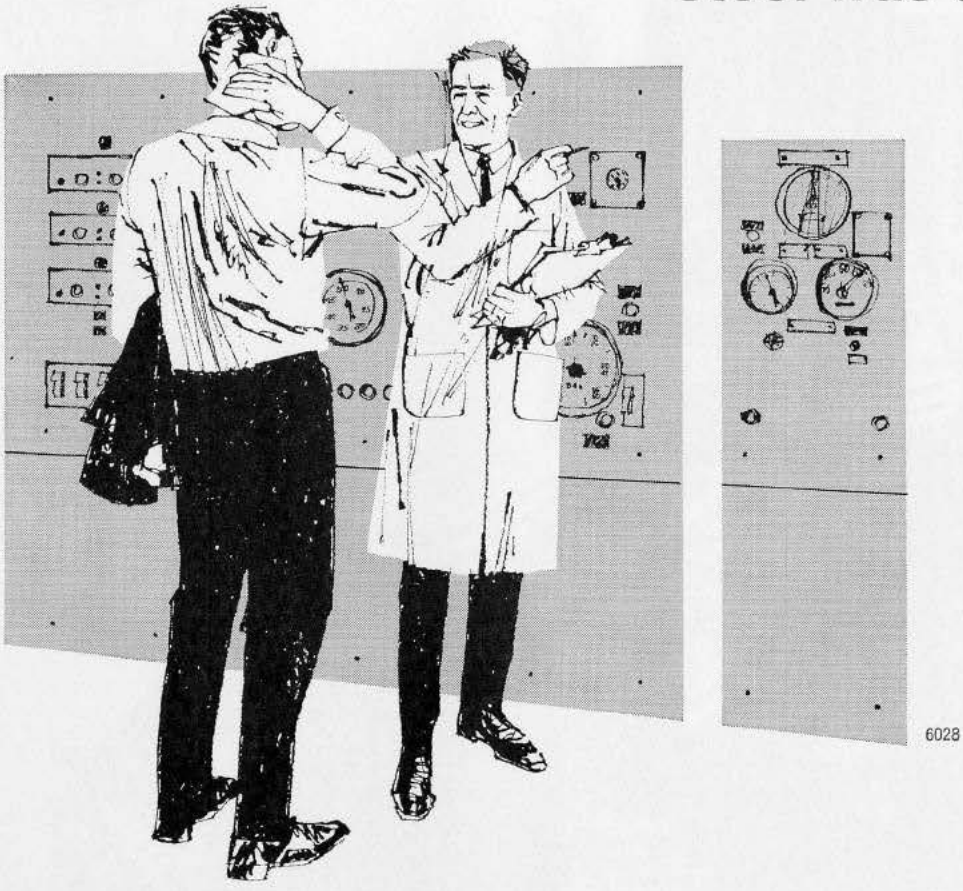
AN "EDUCATED" SPECIFICATION
PRECAST CONCRETE PANELS OF
MEDUSA WHITE

Architectural plans from the start called for all buildings in the University of Sudbury Complex to be faced with white exposed aggregate Architectural PreCast Concrete. The selection of Medusa White Portland Cement was an "educated" specification. Its unmatched white colour lends itself perfectly for this use. Ask your precast producer about Medusa White . . . or write direct.

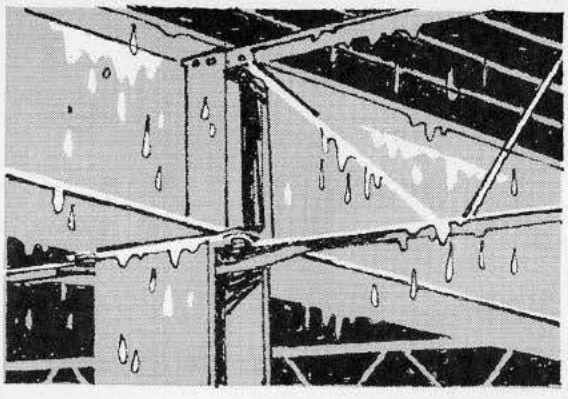
MEDUSA PRODUCTS COMPANY OF CANADA, LTD.
PARIS, ONTARIO, CANADA

"Phew! It's like a Turkish Bath in here!"

"It's hot and steamy all right– that's why zinc galvanized steel was used."



6028



He's right. Hard-wearing. Long-lasting. Indoors and outdoors. Zinc galvanized steel withstands the most adverse conditions and the small extra cost of this protective coating is saved many times over by low maintenance.

Certain industrial processes require unusual atmospheric conditions likely to accelerate the corrosion of painted steel and involve high maintenance costs. A case in point is the new processing plant of the Theodorus Niemeyer Tobacco Company of Brantford, Ontario. To withstand the humid tropical atmosphere necessary within the plant, architects Gordon Korbee Tirion specified zinc galvanized structural steel and saved 30 cents per sq. foot over estimates for a reinforced concrete structure for the same service.

Don't neglect indoor steel. Protect it with the sure economy of zinc galvanizing. For your copy of "Zinc Coatings for Protection of Steel in Building Construction," write to Cominco Ltd./Metal Sales/630 Dorchester Boulevard West/Montreal 2.

expo67
CANADIAN PACIFIC
COMINCO PAVILION
MONTREAL • APR. 28 • OCT. 27, 1967

Zinc Cominco

Mechanical Services

Technical Technique 6

by David B. Leaney, P.Eng.

Mr Leaney a Director and Chief Engineer of D. W. Thomson and Co. Ltd., Vancouver, is Past President of the B.C. Branch of the American Society of Heating, Refrigeration and Air-Conditioning Engineers.

The mechanical services in a building structure include the heating, ventilating, air conditioning and plumbing systems.

Since the earliest recorded history of men in the caves, man has been interested in means of improving his personal comfort. Originally, he wanted protection from the cold air and he built a fire to warm himself. The buildings of the twentieth century are being designed with comfort for the occupants as part of the design criteria. The mechanical systems are designed to achieve weather modification or weather control. They attempt to create inside, environmental conditions that reduce physical fatigue and promote the human activities to their highest degree with due regard to whether the efforts are mental or physical. Medical and economic studies now provide evidence that proper climate control can improve our health and mental and physical efficiencies to produce an economic return from the investment in the equipment.

The mechanical systems which control the climate must be integrated with the acoustic and lighting systems to become a part of an overall physical environment. Too often today, these systems are applied to a structure rather than being considered as an integrated part of the building. Frequently the mechanical engineer does not meet the client to ascertain his requirements. But the mechanical engineer has a responsibility in creating the final environment and he must communicate with the client to assess his desires and explain the limitations or compromises to be considered.

Environmental systems should be as simple as possible, to satisfy the clients' requirements. They must be planned to respond to controls to achieve the desired results. Economical maintenance is essential. Plant rooms must be adequate in size to allow for a practical installation of all the parts. Access must be arranged for the removal of all components that may be damaged or are subject to life limitations. Main piping and ducting systems must be accessible for adjustment, maintenance and alteration for future needs. Installation of terminal units must be practically possible rather than just theoretically possible, and be accessible for control. Major equipment must be located properly in the structural frame and mounted in a suitable manner to minimize vibrations that may be detrimental to the frame or objectionable to the building occupants. All equipment must be considered for acoustic control and should not add noises beyond acceptable levels. Objectionable air motions should be avoided. Temperature controls should limit temperature changes, however, it will never be possible to satisfy all the occupants because of the wide range of metabolic rates of humans. For this reason, a maximum number of zones should be employed to have the greatest facility for adjustment to suit the preferences of the occupants.

Care must always be taken in designs to not foul the nest, so to speak, by improperly locating air intakes in proximity to air exhausts, chimneys and other possible contaminant sources of adjacent properties. The prevailing winds at the site location must be known, and, if possible, the manner in which air motion changes with temperature. Effluents should be discharged to locations least subject to downdrafts and the aerodynamic effects of the building structure, or adjacent buildings.

As much time as possible and practicable should be spent analyzing the many ways of satisfying the owner's requirements. The different systems that can be conceived will all have different space requirements and usually different first costs. Each makes different compromises and therefore has different limitations. All buildings should be economically feasible for the intended use and the operating costs carefully considered. The different systems that satisfy the owner's requirements generally have different operating costs and these must be made known to the owner. Systems must be considered to recover heat energy wherever they can be economically and practically employed.

The acoustic design of spaces, and equipment within spaces, is being given more attention as research provides methods of measuring and rating the acoustic qualities of components. The relationship between light level and temperature is being studied and will be another variable that can be placed under control. In only limited instances is that problem of cross-section of human beings tackled but the rates of absenteeism point to the economic feasibility of improving the sanitary environment by reducing the contaminant count in the air and the droplet nucleii contagion. Research may find that ionization of building air is a therapeutic device and that the feeling of well being can be markedly influenced.

Building plumbing systems frequently receive a minimum of design consideration as they are generally covered by Code requirement. Their acceptability, however, can be greatly improved by properly planning spaces to house the vertical risers, by achieving acoustic separation between areas served by the risers, by using piping configurations that limit the piping noises, and by giving more attention to the maximum flow velocities in water lines particularly in high-rise buildings.

At this date, it appears that most types of building structures will continue to be serviced by central heating and air handling plants. These plants will fire fossil fuels and generate either steam or hot water for use as the piped heat source. Electrically driven compressors or absorption machines will generate chilled water for use as a piped cooling source. As more designers become familiar with heat pumps and bootstrap heating techniques, and when more training programs are available for operating staff, these systems will achieve wider acceptance, especially with the higher levels of lighting that are being demanded which reduce the requirement for heating. Greater use will be made of small electric packaged equipment for both heating and cooling. The rapid changes in technology will permit equipment manufacturers to produce compact packaged equipment with a broad scope for application. The power utilities are giving encouragement by improving their rate structures for electric heating and cooling of buildings.

Mechanical systems must be considered relative to the building uses. Each use can generate an entirely different approach. In all buildings, however, the perimeter considerations are rather comparable. The architect and mechanical engineer must co-operate to plan for the most desirable thermal characteristics of the wall construction. Both must understand the problems of the other with respect to glazing material, control of solar radiation and glare from the sun, and the requirements to achieve different degrees of privacy.

The office building may be a tower with only exterior rooms or it may have much greater floor area and involve large interior spaces. It is always essential to separately control the perimeter areas and the interior areas. Generally, perimeter spaces are allocated to executive uses with local control in each office. The problem, however, is to conceive a system on a modular basis so that rooms may be of varying bay widths and still controlled. The perimeter zone generally has practical limitations to a depth of 12 to 14 feet from the perimeter wall and does not usually satisfy wide variations in space use. The interior space must be designed on a modular basis to allow for a wide variety of partitioning and use and, in special instances, to supplement the perimeter system. With the rapid expansion of the use of computers and other high-energy office machines, it is necessary to make allowances on each floor for certain areas to be serviced to allow for the installation of this sophisticated equipment. A major problem that is yet to receive a practical solution is the economic operation of the plant for the limited number of tenants who require use of the space beyond the normal operating hours of the building. Special care must be taken in the design of terminal units and the ceiling systems to assure privacy between adjacent rooms and between adjacent tenants. Fire protection is mandatory and a major consideration in planning all ducting systems.

The school presents another complex environmental problem, if it is considered broadly as a vehicle to transmit knowledge at today's accelerated rate.

No longer is the school a cage for every age, with windows for all the required ventilation, and some form of local heat. Each area is allocated to a special section of the teaching curriculum and has its own special problems, hours of use, and control requirements. The school is the most densely populated type of building in use today, other than a theatre. This creates a special problem in odor control. The school has a generally good level of lighting which adds to the heat gain from the students. The school in many instances is over endowed with windows and this creates both a sun-control and a solar-radiation control problem. These problems necessitate a mechanical system that can heat the building when it is not occupied, add outdoor air to control the odor level by dilution or, alternatively, remove the odor molecules by absorption, and cool for most of the occupied hours. This last requirement is generally given the least attention, but is perhaps the most necessary if we accept that we are all most efficient when we are exposed to a satisfying air temperature. Generally, depending on exposure, occupied school classrooms do not require any heat until the outdoor temperature is well below freezing. In addition, the more recent concepts in educational techniques demand a very flexible system to allow a varied arrangement of classroom partitioning. The trend appears to be moving toward controlled modules of approximately 250 square feet in area. The special classroom areas for the teaching of sciences and industrial arts require, in addition to basic heating and ventilating, exhaust systems designed to accommodate the procedures that are used. The auditoria-gymnasia and swimming facilities have separate specially designed systems. It is usual that the separate uses are each zoned to allow partial use of the building during other than regular school hours.

The modern hospital, no matter how large, is a veritable self-contained community with all the facilities for maintaining the people housed in addition to all the special facilities for treatment of the ill or injured. The patient areas require both heating and ventilation and, in many climatic areas, air conditioning. To date design has been based on comfort rather than hygiene. It is important to realize that comfort should not masquerade as a sanitary device. The rate of air motion and method of air distribution for sanitary control will be the subject of design study. The importance of humidity control to achieve maximum die-away rate of organisms will influence design criteria. The operating suites, recovery areas, and obstetrics suites each have systems designed for accurate control of temperature and humidity and, in addition, must be designed for the optimum in bacterial control. Separate systems serve the diagnostic area, radiology suite administration area, food services, pharmacy and the laundry.

The many other building types require similar special considerations. The cost of mechanical services varies greatly and may be 35% of the total construction costs for hospital or laboratory structures. As the public becomes more aware of the environmental conditions that can be produced with mechanical equipment, the demand for these conditions will increase and forward-thinking building management will specify these systems to maintain a competitive position in the real estate market. In addition, similar conditions will be expected in many types of our public buildings. □

Estimating

This element may be divided into 1 major equipment required to provide heat, 2 major equipment required to provide cooling, 3 radiation systems, 4 air handling systems.

These sub-divisions have been chosen to make meaningful comparisons between different buildings possible. As widely differing means may be used to provide and control the heat and as it may in some cases be bought from outside sources, thus eliminating all the boilers and ancillary equipment, we feel that these costs should be separately recorded to enable comparisons to be made between similar systems only.

There is a wide variation in the extent of cooling that is normally required for different building types, such as, say, office buildings, hospitals, and factories. Downtown office buildings are usually fully air-conditioned while hospitals may only have such areas as the operating rooms, delivery rooms and nurseries fully air-conditioned and a factory may have no air-conditioning at all. As in the case for heating equipment, the cooling plant may be eliminated by obtaining chilled water from an outside source. For these reasons we consider the costs for the major equipment for cooling must be kept separate.

The means for transmitting and controlling both heating and cooling are varied and while all air systems are not uncommon there is generally a combined radiation and air handling system in which the bulk of the heating and cooling is done by circulating hot or cold water through pipes, coils, convectors, etc. which allows the cost of the radiation system to be easily separated from the air handling systems.

The cost of the air handling system includes for the major supply and exhaust fans, all the ductwork, diffusers, grilles, etc.

During the past 12 to 18 months there has been a rapid rise in construction costs. The cost of mechanical systems has, if anything, risen faster than the cost of all construction. This is particularly noticeable where projects, usually large when compared to the normal for a given town or small city, have been undertaken and particularly when these projects are required urgently and by specific deadlines. There are many examples of this; new universities in small communities, large mining projects such as Texas Gulf Sulphur in northern Ontario, industrial plants particularly occasioned by the automotive pact, centennial projects and in a category alone the Exposition in Montreal. These projects have created extreme demand in certain areas and shortages of men and on occasion shortages of material. These conditions force the contractors to provide men from the larger centres, and pay travelling and boarding expenses, and when necessary guarantee substantial overtime to compete with the local opportunities and causes sharply increased costs in specific areas. Therefore to quote any mechanical costs without stating building categories on the one hand and location on the other, can be misleading.

The following is a random selection:
Prices Exclude Costs for Plumbing and Drainage
Speculative office buildings – fully air-conditioned – Toronto $3.50–$4.00 per SF
Prestige office buildings – fully air-conditioned Toronto $5.00–$6.00 per SF
Hospitals – partly air-conditioned generally in operating rooms, delivery rooms, nurseries etc. – Toronto and immediate vicinity $6.00–$7.00 per SF
Laboratories – fully air-conditioned – Toronto and vicinity $8.00–$11.00 per SF
Schools – Toronto and vicinity $2.50–$4.00 per SF
University residences (with provision for future air-conditioning) – Toronto $3.00–$3.50 per SF
Note: Where universities or other large construction programs create an excessive demand for construction, prices may be 10%–20% higher than the ranges quoted for Toronto.
A. J. Vermeulen

Queenston Limestone

enhances the character of Ontario's new Queen's Park Project . . .

Prime Minister — Hon. John P. Robarts, Q.C.
Chief Architect — D. G. Creba
Associate Architects — Associated Architects for Queen's Park Project
Gordon S. Adamson & Associates
Allward & Gouinlock
Mathers & Haldenby
Shore & Moffat and Partners
General Contractor for Phase 1 — Perini (Western) Limited
Cut Stone Contractor for Phase 1 — The Ritchie Cut Stone Co. Limited

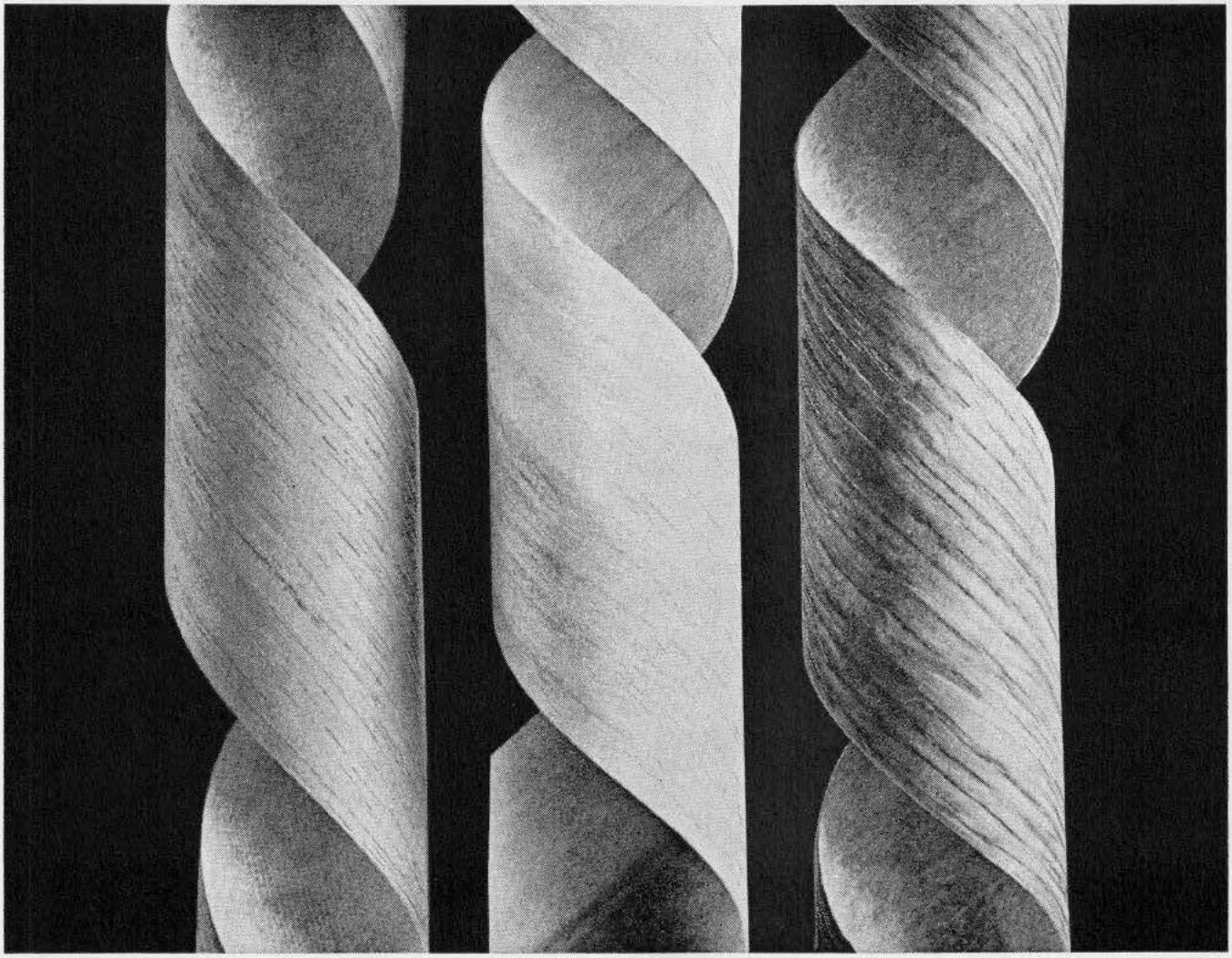
The Queen's Park Project promises to be a most impressive example of the use of Queenston Limestone in modern architecture. This is a two-phase program with the final phase, still to be tendered, consisting of two units architecturally unified with those now under construction.

Queenston Limestone expresses a character that is appropriate to the vital functioning of Ontario's government offices . . . the elements of prestige, dignity and solid permanence expressed in the crisp beauty of design that is modern Canadian architecture at its best!

QUEENSTON QUARRIES LIMITED

Head Office: HAMILTON, ONTARIO — Quarries: Niagara Falls, Ontario

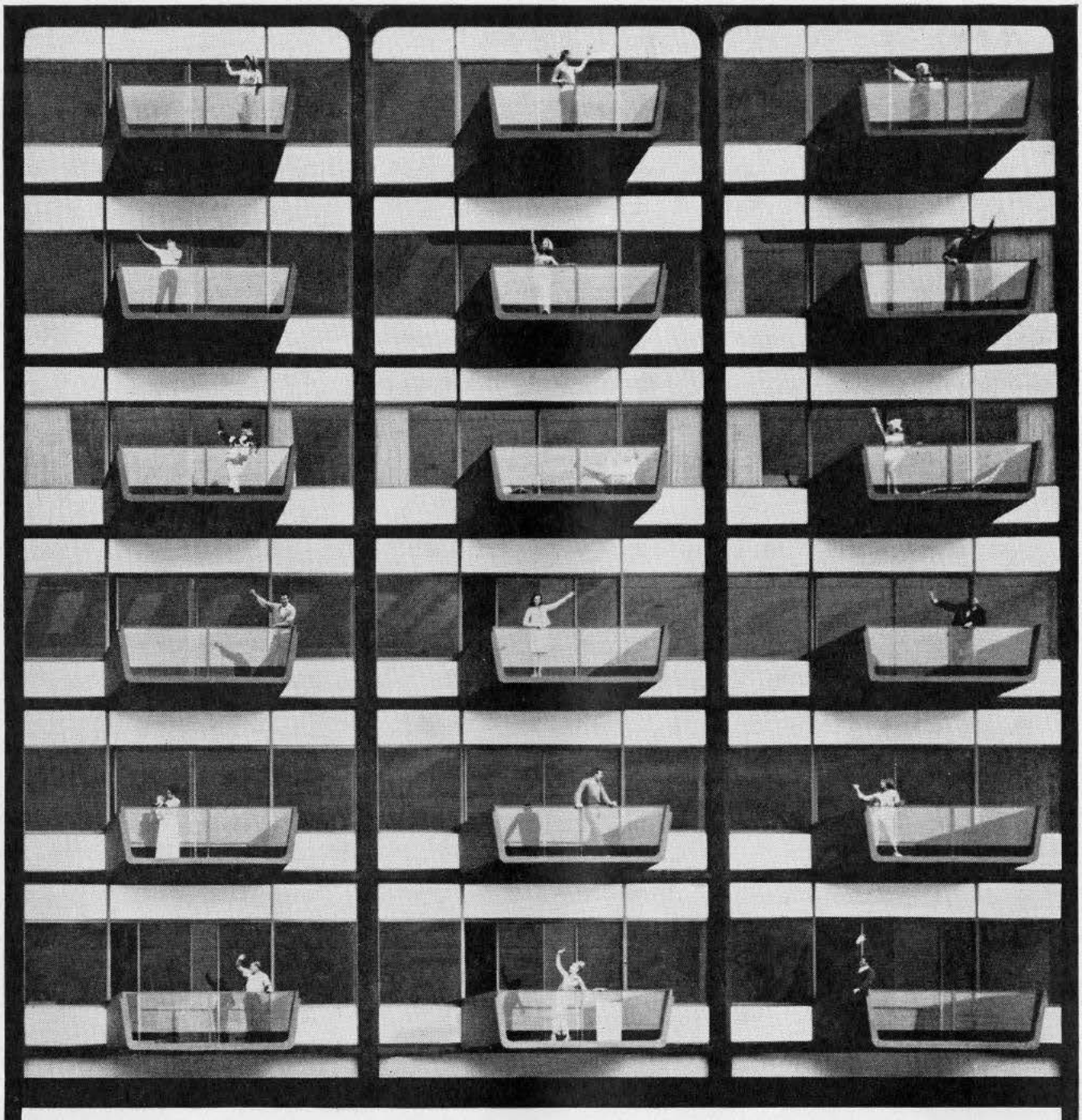
now, natural wood as flexible as your imagination



Weldwood Flexwood lends the warmth and beauty of natural wood to any interior. Precision-cut into veneers 1/85″ thick and permanently laminated to a special fabric backing, it follows the shape of any surface: flat walls, curved walls – even arches and round pillars. Book-matched for uniform color and figure, all the sheets from one flitch will form a continuous architectural sequence, making possible its use over larger wall-surfaces than ever before. Specially engineered for lamination to most substrates, including plaster, wood, metal, plastic and even marble and glass, Flexwood is easy to handle. Its low flame spread rating means Flexwood can be used even where fire and building codes limit the use of wood. Consider its natural beauty for every interior, in association with any building material. Flexwood will bend to your will. Available in a wide selection of domestic and imported woods of choice grain and figure. For samples of this unique product contact your Weldwood Architectural Service Representative.

WELDWOOD
OF CANADA LIMITED

principal offices and showrooms: VANCOUVER • TORONTO • MONTREAL • *branches:* PRINCE GEORGE CALGARY • EDMONTON • REGINA • SASKATOON • WINNIPEG • LAKEHEAD • SUDBURY • LONDON KIRKLAND LAKE • WINDSOR • HAMILTON • ORILLIA • OTTAWA • KINGSTON • PETERBOROUGH SHERBROOKE • QUEBEC • TROIS RIVIERES • SAINT JOHN • DARTMOUTH • ST. JOHN'S



every storey tells a story

And the story is glass, at once one of man's oldest *and* most modern construction materials. The beauty and versatility of glass, especially Duplate tempered glass†, are boundless. Call for it in balcony and patio doors. Balcony enclosures, stairway balustrades. Spandrel panels with permanently-integrated colour for curtain walls. Any way you see it, glass is modern, glass is attractive, glass is easy to maintain. And, if it's tempered glass by Duplate, the priceless ingredient of safety is added. Duplate thermally-tempered safety glass is 500% stronger than ordinary glass, and if it *should* chance to break, it crumbles into small, safe particles. Contact your local Canadian Pittsburgh or Pilkington branch for full details and specifications.

*DUPLATE

DUPLATE CANADA LIMITED

*T. M. REG'D.

Famous for automobile and construction glass products

† DUPLATE SAFETY GLASS PRODUCTS ARE DISTRIBUTED THROUGHOUT CANADA BY CANADIAN PITTSBURGH INDUSTRIES LIMITED AND PILKINGTON GLASS LIMITED

Education for Planning, Urban Design and Architecture

by Dimitrios Styliaras, MRAIC

Dr Styliaras is Associate Professor of Urban Design, Housing and Architecture at the University of Manitoba, a member of the Planning Research Centre and a consultant in private practice.

There are several possible definitions of the above terms that enter under the heading of Environmental Studies. For the purpose of the theme at hand it can be said that planning (regional and city planning), is a long-range policy making, and general programming; urban (or civic) design is a medium-range four-dimensional translation of a more elaborate program; and architecture,[1] the realization of the detailed program in finite form.

The sequence of toil starts with the total and ends with the detail. To a major extent, the first two disciplines are preparatory stages, often dealing with approximate, unknown or unpredictable factors, and consequently demanding from the practitioner the virtues of vision, intuitive judgment and deep insight. Architecture on the other hand is the final stage of the environmental form-giving processes, a short-range determination of forms and structures, a matter of detailing, finanalizing, deciding on materials, texture, colors, etc. As such it demands pronounced design talent, the final product being closest to the individual viewer and user, effecting more immediately his day-to-day life, his senses, and reactions.

In order that this talent does not perform its task remote, isolated or in a mere decorative fashion it requires that:
1 its training be based on the realities of those longer range, more generic and farther reaching disciplines that are inherent also in planning and urban design, so as to make it stand on a wide, solid platform. In this broader context architecture is a "specialization".
2 it should be kept linked, in a continuous give-and-take to other scientific and technological disciplines.

In short the architect should first have a broad background of knowledge, and second he should never design alone. Depending on the nature and variety of his design subject the architect might perform as a partner in a team on a more or less equal footing, or else be the principal co-ordinating partner. In this narrower frame the architect becomes a "generalist".

It follows that architecture – the way the term is being understood today, not what it meant in Ancient Greek or Renaissance times[2] – stands at the end of the line of performance among the environmental disciplines, not at the beginning.

We should not be saying "architecture and planning" and be teaching these disciplines in that order, but rather we should be doing the reverse. "Planning and architecture" therefore, should be the sequence, with the modern term "urban design" placed between the two. Under this light it can be deduced that one should be a planner before becoming an architect. Indeed such is the ideal, which best fulfills the age-old principle that city planning and architecture should be one entity, a condition occasionally reached by exceptional talents through rigorous self-training. In terms of formal studies, however, the ideal might appear heavy, long, impractical and hence rather impossible to attain.

It nevertheless throws light on planning which, as a Master's course, taught almost as an afterthought to graduate architects, landscape architects, engineers, economists, sociologists, geographers, public administrators, etc, now appears illogical. Regarding architects, this policy resembles the cart before the horse. In relation to the other professionals, the very fact alone that a holder of a Bachelor degree in a certain discipline, say Sociology, may obtain a Master's degree in a different discipline, for example, planning, just because sociology happens to be one component of planning, is irrational.

In fact, the difference between undergraduate and graduate training is a difference of degree, scale, complexity and sophistication; it can not possibly be a difference of ninety per cent or so of the contents of the subject matter. A sociologist, for example, who desires to work in planning, will be able to get the necessary additional training to qualify as a member of a planning team; at the successful termination of such training he may obtain a testimony in the form of a Diploma or a Certificate in Planning, or alternatively, depending on the nature of his work, he could secure a Master of Arts degree in Sociology (Planning option). The North American custom of bestowing on sociologists, economists, engineers, etc, Master's degrees in Planning, after exposing such candidates, to only a two year period of rather elementary training in planning, is a questionable procedure. The results are only too obvious on the faces of North American cities, where so often the planning profession does not enjoy the reputation and impact its capital importance deserves.

Most European Schools of Architecture traditionally include city planning courses in the second half of their undergraduate architectural curriculum. Some instructors in charge might occasionally go as far as regional or master planning, but exercises mostly range in the framework of urban design. The intention of these strongly design-oriented courses is to help the student see and deal with architecture as part of the total, the building as belonging to the urban context.[3]

Practitioners in architecture in North America on the other hand accustomed to the spaciousness of the land, the freedom they enjoyed in their new world, and the rugged individualism it bred, were thinking – and many still do – of "The Building" as "The Unique Thing" to be striven for by itself.

---

1 In this context the term is meant to include landscape architecture and, in a somewhat looser sense also interior design. The duration of university study in these last two disciplines might be somewhat shorter than in architecture.

2 For, in the complex world of today and in North America in particular, it seems an impossibility that the word "Architect" be restored to its original meaning of the "Master Builder" and the "Universal Man".

3 In such countries, however, city planners are derived solely from the profession of architecture and except for very few holders of post-graduate degrees, they are self-taught as far as the broader aspects of planning are concerned. Even this kind of procedure has its dark points, as contemporary European urban developments abundantly testify.

Adding a general trend toward specialization, the meaning of the word architecture has been narrowed down to the single building, in its most restrained and selfish aspects.

The increasing complexity of urbanism, resulting in a growing awareness of the necessity for more urban order, has made it necessary over the years that planning instruction be introduced. This has been done by adding an *extra touch* i.e. an elementary instruction in planning to the training of the man, who already had a background in a discipline pertaining to urban matters, and who wanted to participate in solving tricky urban problems. This man with the *extra* has been given the title of *Master*. In most cases he is not an architect and with no basic training in design. Nevertheless he dominates an environmental discipline. This condition, and with the architect being mostly preoccupied with single buildings, has created a gap between planning and architecture. The educational pattern in planning as described above still prevails in the North American scene, although some schools in the United States have brought this instruction in planning down to the undergraduate level. Recently, on the other hand, in most schools the scope of architectural education has been strengthened and widened by additional exercises in urban design in senior year.

Some schools have also introduced graduate programs in urban design with planners, architects, and landscape architects being encouraged to enroll.

As the demands for environmental design grow and the gulf between planning and architecture widens, a professional bearing the title *urban designer* now emerges to bridge the gap. The professional with the *extra* in urban design resembles the one with the *extra* in planning. Instead of providing the link or becoming a cohesive force, the individualistic tendencies of the aforementioned new Messiah, make his role a dominating one, rather than a unifying one.

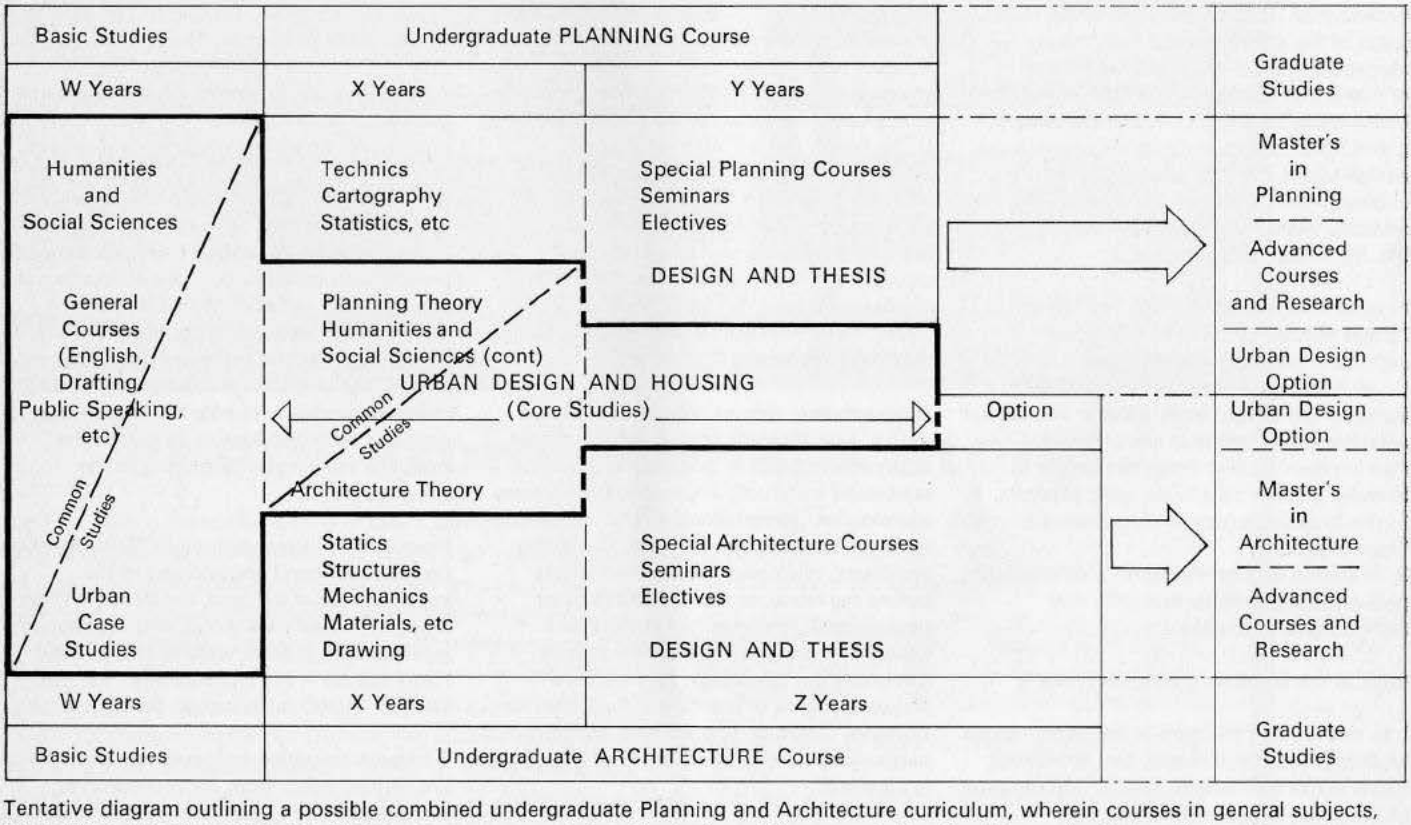
The above description indicates that the attempt to strengthen and regenerate the modern function of architecture has mainly resulted in a trend towards separation, and the introduction of new terms of a detached or semi-detached status.

It is the intention of the writer to point out that, in terms of education, the Troika formation in distinct compartmentalized subject matters, is of no real avail in achieving the common objective. Instead, a feasible and practical educational approach closest to the ideal would be to have the training of planners and architects sprout simultaneously out of the same seed, form the same root and, while holding on the same trunk, branch off parallel to each other. The treatise at hand sets out from the basic premise that, no matter how many different kinds of problems – technical, socio-economic, administrative, etc – the environmental disciplines ought to solve, these problems have to be looked upon first and foremost as human problems in relation to nature. Thus the training of all environmentalists has to commence and proceed from the points common to all which are:

1 the study of man, his physical and emotional constitution well-being and comfort, happiness and aspirations, weaknesses and insufficiencies. Man both as an individual and as a group.
2 the study of nature, within which man lives, creates and regenerates himself.
3 man's achievements in history and their critical appraisal.

Because the primary consideration of all ordering policies and form-giving processes should be man and nature, the human past and present, and the heritage of the land, the first part of the training should ultimately help both prospective planners and architects, to attitudes, ways of thinking and approaches that lead in one and the same direction. The knowledge of man and his past usage of the land should enable the students to judge how to deal with given conditions in the future, and to what

Program of Study in Planning and Architecture



Tentative diagram outlining a possible combined undergraduate Planning and Architecture curriculum, wherein courses in general subjects, Humanities, Housing and Urban Design, are common and form the basic and the core studies. On this premise Urban Design does not assume the role of a separate, distinct discipline, but of the overlapping platform whereon planners and architects meet and use a common language.

measure and degree.

The end product of all planning and design should be physical order and form. A planner, having regard for local customs, ways of life, legal policies, climate, landscape, etc, has to deduce which possible forms his ordering actions are ultimately likely to produce. This is the point where of necessity he enters into urban design. He must have training in urban design, not necessarily to practise it, but to enable him to make planning judgments more accurately.[4] His work might be mostly two-dimensional: parts of it, like major traffic lines, will remain two-dimensional; but much of the rest will have to evolve three-dimensionally. He thus has to have the ability to project his thoughts in the third dimension. On the other hand there should be nothing to prevent planners who possess pronounced design ability from practising urban design as well.

Urban design being the matrix of all architectural design, requires that the architect be trained first as an urban designer, so as to be able to grasp the urban scene. In practice, if he feels more able to deal with environmental bulk without entering into the last phase detail, he might choose to confine himself to that field. However, if he has a strong feeling for structures, a pronounced talent for form, taste and skill in handling finite detail, he can decide, without loosing sight of the total, to practise architecture, which is the science, technique and art of building. Students who have learned about man and nature, the first phase, and who are then aiming at developing attitudes for dealing with both while studying urban design, the second phase, may at that point partially depart toward the direction their individual inclinations and talents lead them; either toward planning, or architecture, in order to learn the technicalities and tools of the discipline of their choice. After this they will further diverge and proceed to the third and final phase of their undergraduate training, to projects in planning and urban design, or urban design and architecture. Planning or architecture should blend themselves with urban design, alternating in various degrees, back and forth, and often in a repetitive cycle.

At this stage of the students' development more particular lecture and seminar courses, some of these electives, would closely define each group's objectives, and lastly the choice of thesis subject will more sharply focus on the range of talent, ability and interest of the individual student, an aim which will eventually be pursued at the graduate level. Undergraduate work should not be too highly individualized and compartmentalized, but rather include all the ingredients necessary for the formation of the well prepared professional.

The program outlined above emphasizes the advantage of teamwork as a method of teaching in the junior years, leaving independent work for the advanced and graduate levels. More Bachelors of Planning or Architecture should be encouraged to return for graduate work, preferably after some years of internship. In both graduate studies and research a candidate may proceed in the direction his talent dictates. Thereafter a professional may specialize as he wishes, and in most cases he will concentrate on either planning, urban design, architecture or subfractions of these fields. Adjustment and re-orientation courses, however, should provide him from time-to-time with stimulation and challenge.

The city being the greatest and most complex creation of man, planning for cities is a very complex task. The same holds true for building in cities and hence for architecture. Although the output of the practising architect's work is the final phase of environmental design, i.e., the thing that is actually being built, we see and touch, be it a fountain in a public square, the pavement pattern of that square or a building anywhere, the education of the architect has to be broad, for his work will affect human life at its deepest, and because the solution of a wide range of problems demands a wide scope of knowledge.

It follows that a certain level of maturity is desirable before a student is admitted to a program of environmental studies. To this end high school instruction should be of the proper calibre. Otherwise college education must be made a prerequisite for admission. In fact such demanding professional courses, similar to those in medicine, are not recommended for individuals who want to spend time on campus and pass as educated men. Instead these are meant for persons of a certain tough mold, high in intellect, having a strong sense of purpose.

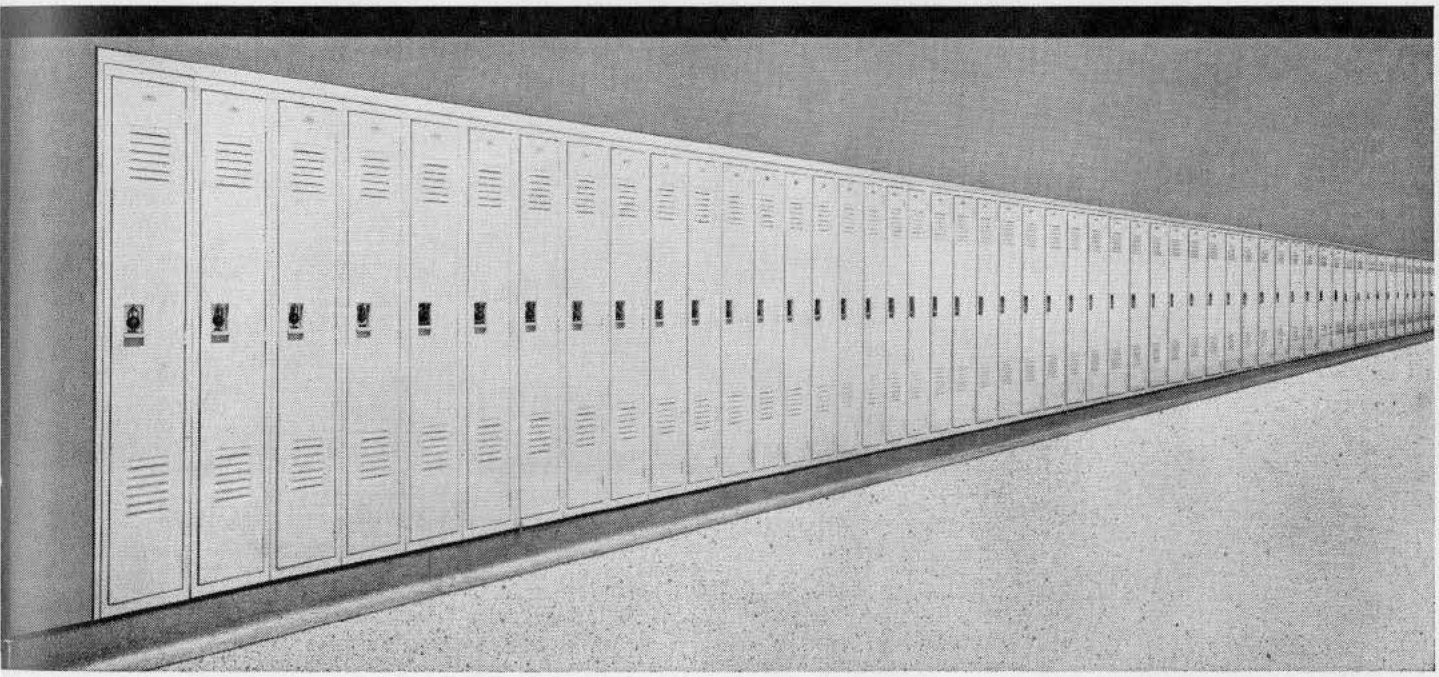
Many of us might ponder upon the future role of architects, and some others even doubt that there will still be architects twenty years from now. Changes will certainly affect the profession, but there will still be people whose basic qualities and needs remain constant. If we consider architectural practice as being the last stage of the environmental form-giving process, the evolutionary change effecting the *How* will, in terms of formal training, fit itself naturally and easily at the one open end, whereas the basic premises determining the *Why* and *What* will hold strong, keeping a state of balance without which our small world will forever crumble. The fundamentals should not change. Tomorrow's architects might not have to detail every single structure, indeed it is probable that this task may one day be given over to the machines; hopefully they should have a part in the mainstream of the forces that build cities and give substance to urban life. As it is, architects are taking great pains in creating single structures, each one a little Parthenon in itself, but they do not know what these urban forces are. Planners, architects, and landscape architects indeed all those who are concerned, by virtue of formal training, with physical order and form, are not the only ones if at all, that are influential in forming the living urban environment. Neither the blunders nor the successes are their's alone. There are the public, corporate or private clients in the persons of the builders, developers, promoters, financiers, realtors, politicians and administrators, executives and individual landlords who are policy makers, and must be contended with before the final product emerges. A building or a city is never the creation of environmentalists alone, but of almost everybody else, consciously or unconsciously, who may be directly or indirectly involved. The planner needs well-informed and far-seeing public officials as well as an alert and interested public who understand the city, if he is to bring a measure of order into the urban surroundings. The architect needs clients whose factual knowledge, good taste and appreciation of form, help him produce a well-designed building. Until such time the layman is prepared to see and think in the same direction with the professionals, the work of the latter will suffer. To this end high schools, colleges and universities should be encouraged to institute courses where some understanding and appreciation of the city and its components may be attained.

In this paper the writer has discussed planning and architecture in the same breath, believing that doing so has now become indispensable. □

[4] Similarly if an architect has no notions of interior design the spaces he will be producing will not be the best – a criticism often heard from interior designers about architects.

...how to dress up a locker room!

It took the critical eye of the architect to perk up the "tired-looking" dressing room of yesterday. In today's smart, modern, country clubs, the locker room is as fashionable as the upstairs lounge . . . even to the locker. This architecturally-designed locker which can be fully recessed combines clean-line appearance to blend with any decor, and makes efficient use of space. But, handsome as they are, Pedlar Lockers are tough enough to handle anything . . . from spiked shoes to flying textbooks; from a little leaguer's enthusiasm to a fullback's pummeling. Dress up a locker room, you bet . . . that's Pedlar Lockers . . . seen in the nicest company. Call your Pedlar representative for pricing and layout help.



THE PEDLAR PEOPLE LIMITED

THE PEDLAR PEOPLE LIMITED • SINCE 1861 • QUALITY METAL PRODUCTS •

L63-2C

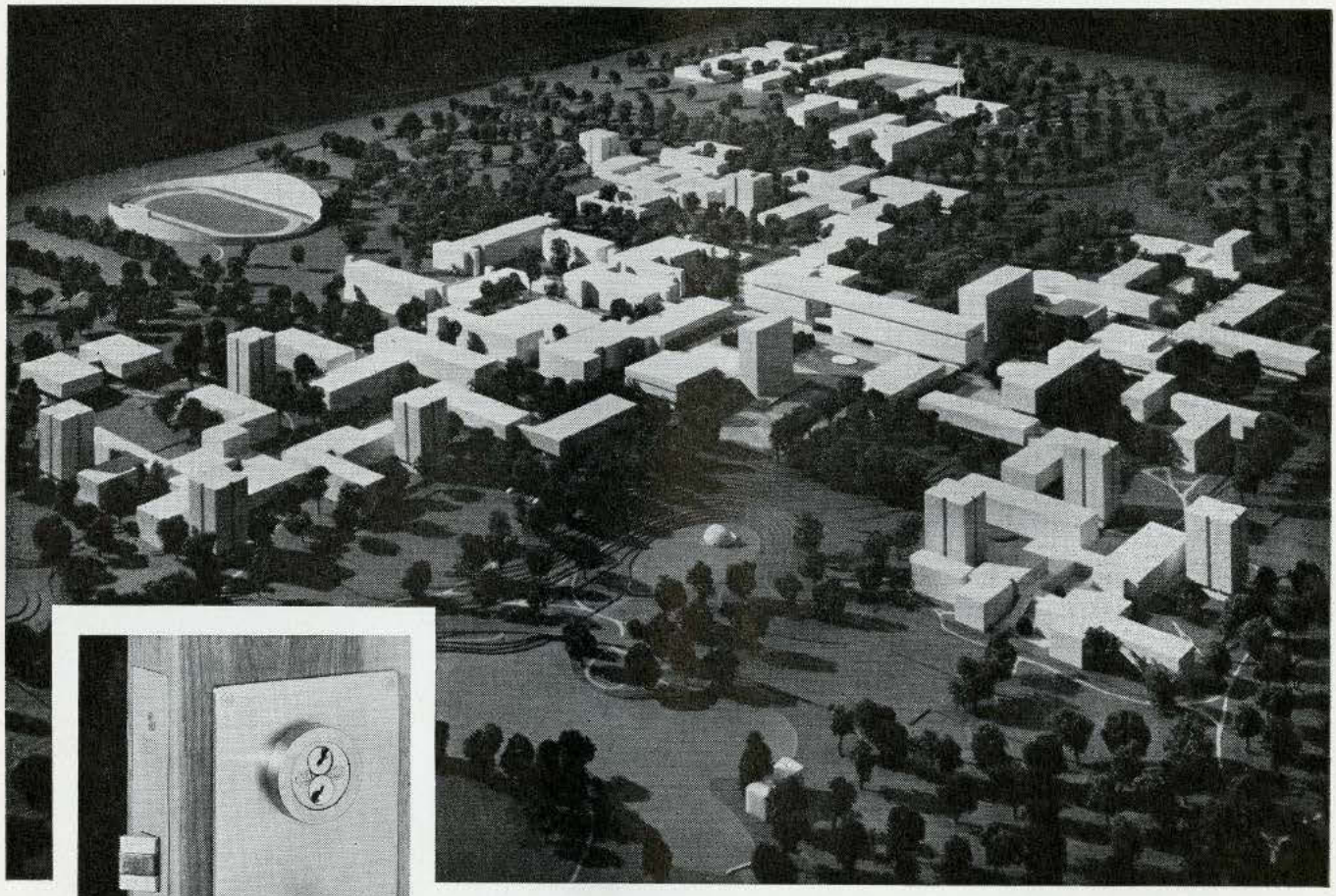
519 Simcoe St. South, Oshawa, Ontario

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

The beginning of an adventure

Now in the fifth year of its 20-year plan, York is Canada's first big, complex university to have been conceived *in toto* and developed according to a master plan. The beautiful "Glendon Hall" campus (84 acres) with six buildings now completed, will have ten buildings eventually (residences, libraries, etc.) and will be a small (1000 students) college devoted to the humanities. The new "York Campus", model shown below, will cover the full spectrum of university life, with over 60 buildings on its 475 acres. Six structures have been completed with seven more a-building and scheduled for completion in 1966. By 1980 York University will have about 15,000 day students, approximately the same number of night students (working toward degrees); a faculty of 1,680; staff of 3,230 or a total of about 34,000 people.

York University, like many of the older Canadian universities, is growing up under the protection of Yale® controlled security, with maximum convenience. York uses the Yale & Towne unlimited bicentric key system (as illustrated) which will permit it to attain its full growth under one plan.



Soft luster, stainless steel locksets, like the one shown here, were designed by the architects (UPACE) in consultation with Yale & Towne, to sustain the keynote of restraint and simple elegance that characterizes the concept of the modern buildings and the idea of the university itself. The latchbolt is noteworthy because of its insert of very hard wood (lignum vitae) which contains its own lubricant. This prevents metal-to-metal contact and wear and makes for very smooth, quiet closing. Typical of YALE'S thoughtful, thorough engineering.

EATON YALE & TOWNE INC.

YALE

CANADIAN DIVISION

BOX 667 ST. CATHARINES, ONTARIO

Letters
Lettres

8

The Editors:

It was very nice to see Gordon Stephenson's letter in the Journal from his deanery, down under. (*July, page 61*)

I would find fault with only one statement in his letter – "They (the jury) did not tell him what to do, nor did they suggest that he should work with any particular firm. This was a matter for the assessor who advised City Council and called the jurors to meetings."

I quarrel only with the suggestion that I advised Viljo Revell to work with "any particular firm". That, very properly, was a decision for the architect himself to make, and, after visiting several offices, he concluded that he would work best with John B. Parkin Associates.

I so reported without comment to the OAA and City Council, and the temporary partnership was formed.

Eric R. Arthur, MRAIC, Toronto

The Editors:

As subscribers, we wish to compliment persons responsible for your magazine's new format and also designers of July Cover.

Further, we would like to have additional information on your Allied Arts catalogue. As manufacturers agents and distributors for Alberta, we are promoting various materials including works of art for architectural field, thus are most interested in either advertising or acquiring this catalogue. We will be looking forward to such information.

J. F. Ford, P.Eng., Edmonton

The Editors:

I am not addicted to writing letters to the Editor, but feel that the recent changes in format and name of the *Journal* require comment.

Frankly, I feel that the new name, though it may disturb some of the purists of our profession, creates a new image – more identifiable and more dynamic – and that the recent changes in format back this up. In particular, the regular feature articles "Review" and the "Allied Arts" make a controversial and provocative addition to the magazine. On the other hand, the regular technical feature often seems superficial. If such an article is to be purely technical, it should be written by a technical expert in that particular field; if an architect is to be the author, a broader (but not superficial) view, with emphasis on a design philosophy, must be taken if the article is to have meaning.

B. D. Wong, MRAIC, Toronto

The Editors:

I would like to take this opportunity to congratulate you and your staff on the "shake-up" of the old Journal of the Royal Architectural Institute of Canada now emerging as *Architecture Canada*.

The editorial content has improved vastly; the indexing and layout of the magazine enables busy individuals to read it more rapidly; advertising display has improved and I personally find that distribution through the magazine has encouraged me to review the ads.

In conclusion, I agree with one of my colleagues when asked what he thought of the 'new Journal' replied, "I haven't given it too much thought, but I must say that I read each issue when I receive it which is something I never seemed to have accomplished in the past."

T. W. Bauld, MRAIC, Halifax

The Editors:

I enclose herewith a clipping of the Wednesday, August 3rd, issue of the Peterborough Examiner.
Both bids, Ald. Turner explained, were subject to negotiation after final working drawings were prepared. He said plans had been prepared without the services of an architect, representing a cost saving.
The italicized sentence would be amusing if it would not occur repeatedly in newspapers. I feel that it is important for architects, as a whole, to combat the public opinion that architects fees are an additional cost and do not represent an overall saving to the project cost.

E. H. Zeidler, Dipl. Ing., MRAIC, Toronto

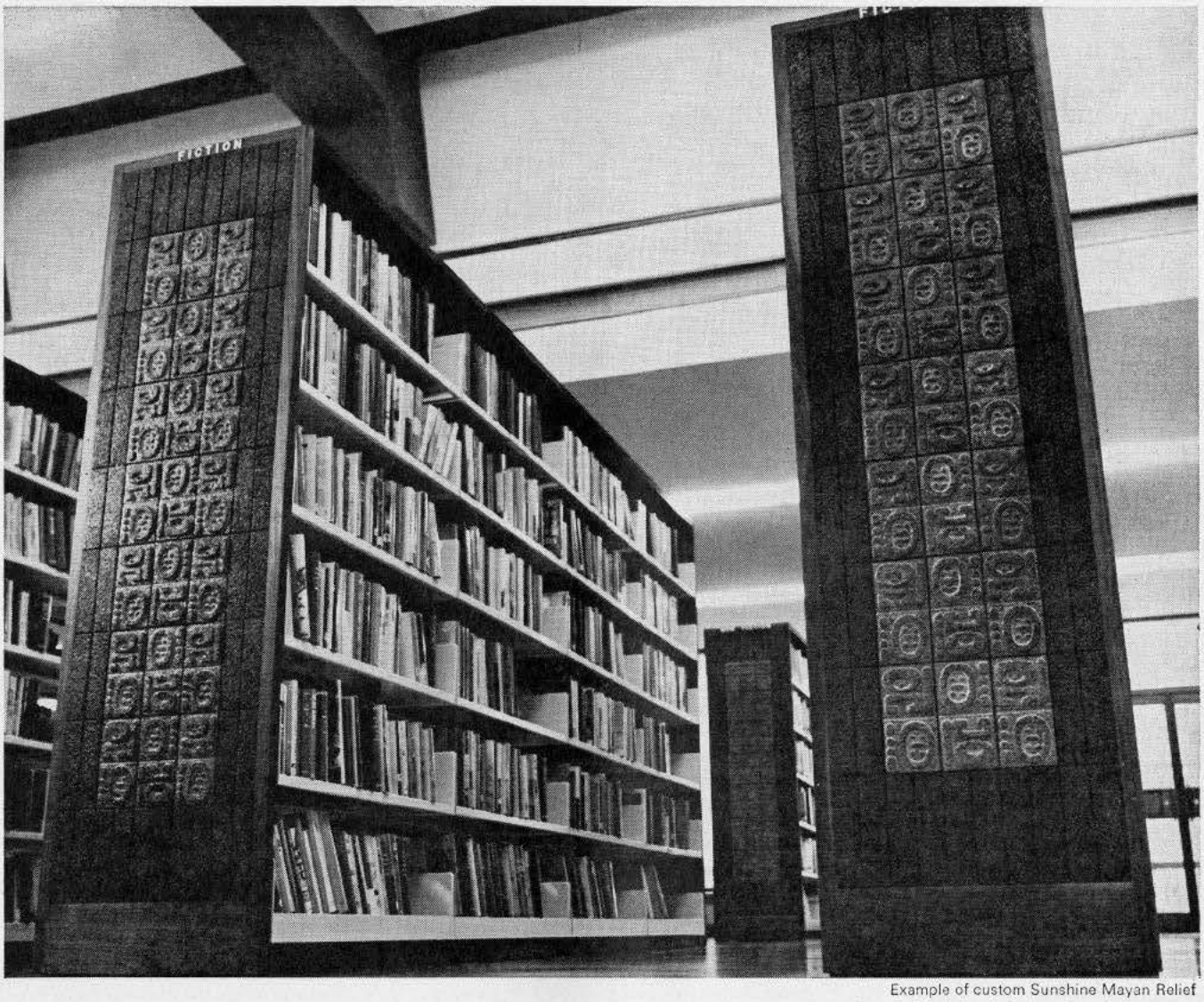
The Editors:

The Product and Supplier Data Section of the Architectural Directory Annual (ADA 1966-67) publication is a most useful reference for any Architectural or Engineering office.

The listing of manufacturers of products by generic name is very advantageous to anyone researching products or materials.

The Architectural Directory Annual, to my knowledge, has the most complete listing of manufacturers and distributors of building products and materials published in Canada to date and we keep it readily available for fairly constant reference.

D. W. Mackey
Chief Specification Writer
Shore & Moffat & Partners, Toronto



Example of custom Sunshine Mayan Relief design for bookstack end panels.

Sunshine

series 2 bookstacks and library equipment offer unusual flexibility for individual design preferences

Perhaps the greatest single advantage of Sunshine Bookstacks and Library Equipment is design flexibility. The many accessories available add wide scope to the use of Sunshine library equipment, while the variety of bookstack end panels offers an almost incomparable opportunity for personal touches as well as interior design harmony. End panels are available in a variety of materials, including steel, plastic laminates, wood, fabric or vinyl on steel, and ceramic. The Mayan Relief Panel illustrated is just one example. Ceramic end panels such as this can incorporate any design including institutional insignia. Sunshine Library Equipment offers surprising economy, functional aesthetics, superior quality construction and materials, with design flexibility. Comprehensive details and illustrated literature are available through any one of our representatives throughout Canada. We welcome your inquiries.

Sunshine Office Equipment Limited

waterloo, ontario

a subsidiary of Massey-Ferguson Industries Limited

REPRESENTATIVES

R. A. Benson Co. Ltd.	1089 West Broadway	736-4844	Vancouver
W. B. Swinton	430 Hendon Dr.	289-0539	Calgary
General Stationery & Furn. (1961) Ltd.	80 Lombard Ave.	WH 2-5491	Winnipeg
Rutledge Stationery Ltd.	512 Victoria Avenue	MA 2-9675	Fort William
G. A. Coulter	1770 Paris St.	674-8046	Sudbury, Ont.
H. R. Vingoe	RR4 Glasgow Rd.	744-4566	Kitchener, Ont.
W. G. Wood	P.O. Box 234	221-4729	Toronto
R. J. Sims	Box 3333, P. Stn. C.	PA 8-9587	Ottawa
Laliberte & Laliberte	5890 Monkland	481-2719	Montreal
Kenmore Commercial Ltd.	P.O. Box 11	861-7688	Pointe-Claire, P.Q.
C. H. Court	22 Hershey Rd.	463-1585	Dartmouth, N.S.
Dominion Machinery & Equip. Ltd.	P.O. Box 506	578-2799	St. John's, Nfld.

OFFICE FURNITURE • LOCKERS • PARTITIONS • SHELVING • GARAGE DOORS • METAL STAMPINGS / SHOWROOMS: MONTREAL • TORONTO • VANCOUVER • WATERLOO

Classified
Annonces
Classées

9

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

Practice Notes

Mr Gordon Ream MRAIC, ARIBA and Prof. Wm. J. McBain, B.Arch., MRAIC both of whom were formerly associated with F. J. K. Nicol, architect, have accepted principal responsibility in the new firm of Nicol, Ream, McBain Architects.
F. J. K. Nicol

Positions Wanted

Chinese architect, 36 years of age, B.Arch, nine years experience in all phases of architecture, at present an associate of one of the leading firms of architects in South Africa, seeks responsible position with an architectural firm in Toronto or Vancouver. Write V. Chang Kue, Box 9888, Johannesburg, Transvaal, Republic of South Africa.

South African architect, graduate of Natal University, B.Arch., 1962, MIA, ARIBA, with office experience in South Africa and England, 30 years of age, wishes a position in Toronto, with view to immigration. Write R. N. Hume, c/o Barlcays Bank D.C.O., 1 Cockspur Street, London, W.1., England.

35-year-old Filipino architect, graduate of the University of Santo Tomas, over ten years experience in architectural designing and supervising of various construction projects, seeks employment in Canada. Reply L. A. S. Mercado, 6 Milagros St, Santiago, Makati, Rizal, Philippines.

Graduate of the Gordon Institute of Technology, Geelong, Victoria, Australia with two years experience in architectural drafting in Australia, wants employment as a draftsman with a Canadian architectural firm. Contact Andrew T. K. Mak, 74 Sing Woo Road, 4th floor, Happy Valley, Hong Kong.

B.Arch. of the Mapua Institute of Technology, Manila, 1962, 25 years old, with four years experience in architects offices wishes a position with a Canadian firm with view to immigration. Antonio L. Sapinoso, Imus, Cavite, Philippines.

28-year-old Indian architect, graduate of Bombay University, presently working in Birmingham, England, wishes to immigrate to Canada and seeks a job with a Toronto firm. Write K. S. Patkar, Osborne Hotel, 184 Hagley Road, Birmingham 16, England.

First Year architectural student of the University of Toronto wishes a job in a Toronto architectural firm until January 1967. Write Ralph Magad, 12 York Downs Drive, Downsview, Ontario.

Filipino architect, 28 years of age, graduated in 1959 from the University of Sto Tomas, seven years experience in architects' and engineers' offices, wishes a position in Canada. Contact Adorable T. Manabat, 89 Sto Domingto Avenue, Sta. Mesa Heights, Quezon City, Philippines.

Egyptian architect, 38 years old, graduate of Ein-Shames University Cairo, with over twelve years experience in designing and supervising constructions, presently working as Assistant Manager of Works in the Ministry of Housing, wishes a position with a Canadian architectural firm. Irbahim Kamel Doss, c/o Dr Zaki Hanna Building, Behnes-Ramla Street, El Faygoum, Cairo, Egypt, U.A.R.

27-year-old Filipino architect, graduate of the University of Sto Tomas in 1960, six years office experience, presently employed by the U S Government in Saigon, wishes a job in Canada with view to immigration. Reply Fred M. Juco, 176 Hai Ba Trung Street, Saigon, Vietnam.

Chinese draftsman, graduate of the Gordon Institute of Technology, Geelong, Victoria, Australia, wishes a position in an architect's office as a draftsman. Mr Mak has worked for two years with a Melbourne architectural firm. Write Andrew T. K. Mak, 74 Sing Woo Road, 4th fl., Happy Valley, Hong Kong. Filipino citizen, B.Sc. in Architecture from the University of the Philippines, 24 years old, with architectural office experience in the United States, wishes employment in Canada, preferably in Ontario. Contact Miss Aurora D. Villegas, 543 Santol Street, Santa Mesa, Manila, Philippines.

30-year-old architect, graduate of the Far Eastern University in 1961 (B.Sc.), five years experience, particularly in specification writing, seeks a position in Canada. For more details write Miss Marietta D. Estacio, 1120 J. Rizal Avenue, Makati, Rizal, Philippines.

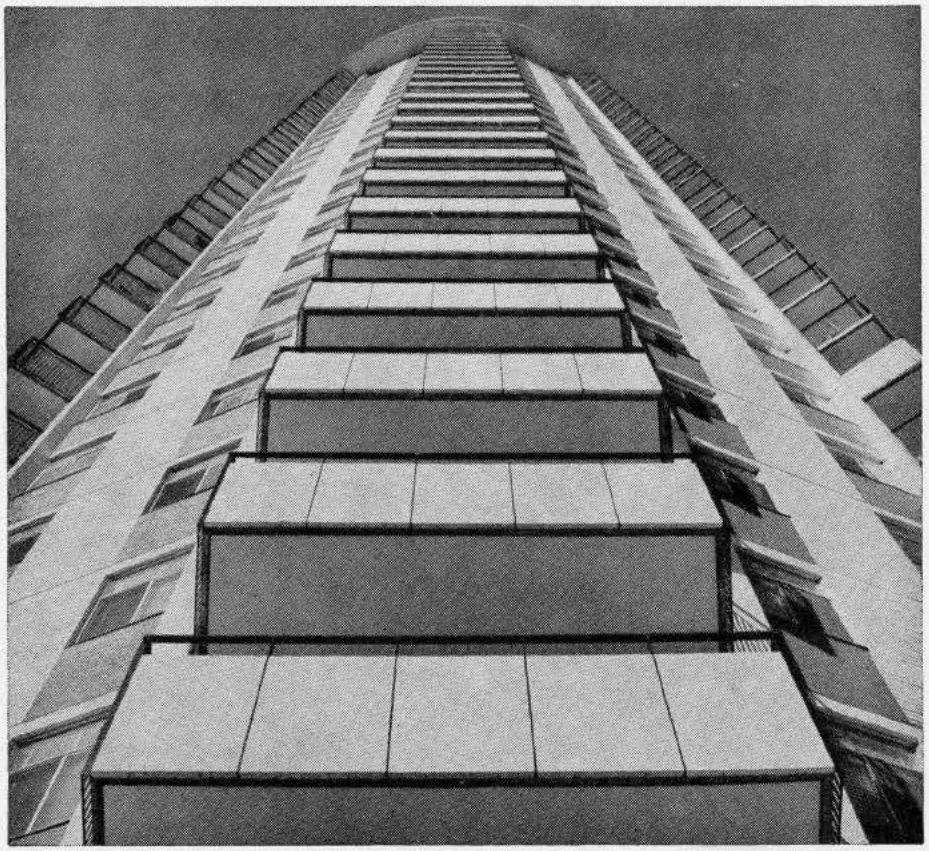
Lebanese citizen, with two years studies at the Bournemouth College School of Architecture (England), graduate of the Hochschule fuer Bildende Kuenste, Hamburg, Germany, 31 years of age, with four years experience in a Hamburg architectural office, wishes to immigrate to Canada and is looking for a position in the Toronto or Montreal area. Mr Hanhan is presently in charge of the technical and architectural office of the "Association pour la protection des Sites et anciennes demeures au Liban". Contact Mr George N. Hanhan, Association pour la Protection des Sites et Anciennes Demeures, rue Sursock, Imm. Aoun, Beirut, Lebanon.

29-year-old British architect, graduate with honors from the University of Manchester, presently working on the design of a civic centre complex for a Winchester architectural firm, wishes to immigrate to Canada in September 1966 and seeks position with a Toronto architectural office. Write Michael Noon, "Grace à Dieu", 46 Nea Road, Highcliffe, Hants, England.

23-year-old Filipino architect, graduate of the University of Santo Tomas with one year post-graduate office experience wishes employment in Canada. Write Graciano Tandingan, San Jacinto, Pangasinan, Philippines.

Index to Advertisers

What's the difference between Pozzolith concrete and plain concrete?



Time will tell.

Countless projects have proven how POZZOLITH makes durable, more economical concrete than plain concrete or concrete with any other admixture.

Add POZZOLITH to a plain mix and *slump increases up to 150%*. Because of this, concrete yields better to vibration. Flows more easily around steel reinforcing. And gives a better finished appearance.

For a given slump, POZZOLITH concrete *needs less water*. This means a better aggregate coating. Greater resistance to freezing and thawing. Reduced cracking, and improved watertightness.

You can also control the rate of hardening for precise scheduling.

Toronto's towering new Village Green Apartments. *Architect:* John H. Daniels. *Engineer:* Farkas Barron Jablonsky. *Contractors:* Cadillac Development Corporation Limited and Greenwin Construction Company. *Ready-Mix Supplier:* Richvale Ready-Mix Limited.

Not only that, but POZZOLITH gives concrete up to 25% greater compressive and flexural strength. With up to 40% greater bond strength to steel. Quite remarkable.

If you want to know more about POZZOLITH, consult a Master Builders field man. There's always one on call.

General office and factory: Toronto 15, Ontario. Branch offices: Vancouver, Calgary, Edmonton, Regina, Winnipeg, Ottawa, Montreal and Moncton.

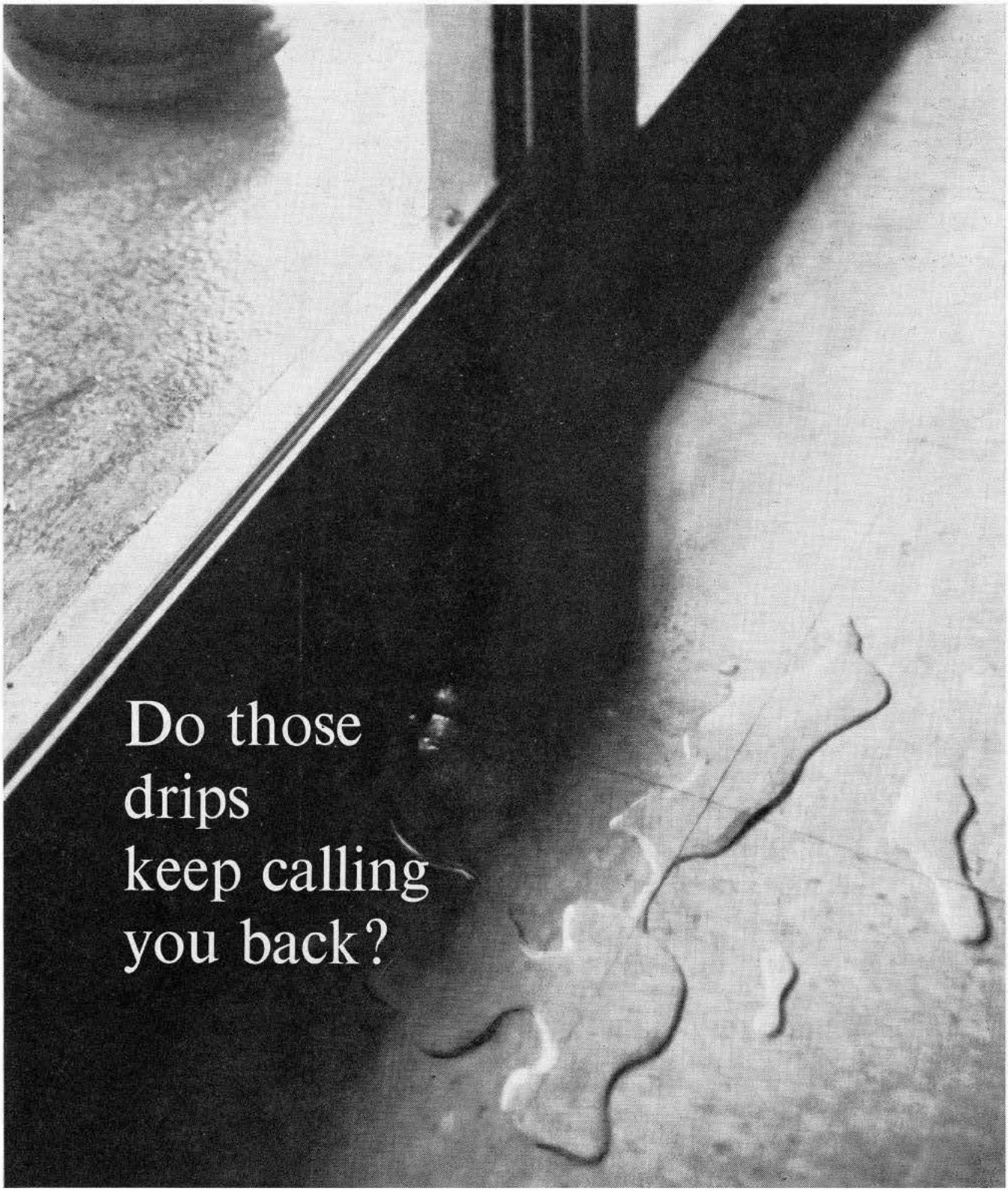
POZZOLITH*

A Product of

MASTER BUILDERS

*POZZOLITH, *a registered trade mark of The Master Builders Company, Ltd.*

MC-6602P



Next time, use Dow Corning® 780 Building Sealant.

Don't waste time and money with costly call-backs . . . glaze with Dow Corning 780 Building Sealant in the first place — and every place after, too. This silicone rubber sealant stays flexible indefinitely . . . doesn't weather check, crack or fall out . . . and no embarrassing leaks! Dow Corning 780 Building Sealant flows as easily as toothpaste at temperatures ranging from 20° below zero to 120°F. Protect your profits . . . End call-backs by using Dow Corning 780 Building Sealant for all your caulking and glazing applications . . . write for data sheet and a free demonstration sample to: Dow Corning Silicones Limited, 1 Tippet Road, Downsview, Ontario.

DOW CORNING

FROM THE CREATORS OF THE SILICONE AGE